TOTIME

Catalog

2026-2027

Make it Simple

DIRECTORY

Cutting Tools

A **Turn LINE**----------A1-A287

B **Mill LINE**----------B1-B188

C **Drill LINE**----------C1-C207

D **Boring Tool**--------D1-D54

E **Tooling System**---E1-E84

A

Directory

01 Insert A1

02 External Toolholder A142

03 Internal Toolholder A168

04 PSC Toolholder A183

05 Threading A217

06 Parting,Grooving and Groove-Turn system A234

07 Miniature Tool A272

TOTIME

Directory

01 **Insert** A1-A141

Turnline ISO Insert
Turnline Ceramic Insert
Turnline CBN Insert
Turnline PCD Insert

02 **External Toolholder** A142-A167

Multi-clamp Toolholder
Screw-on Clamp Toolholder
External Toolholder(Inch)
External Toolholder on Swiss Lathes
Lever-Lock Toolholder

03 **Internal Toolholder** A168-A182

Multi-clamp Toolholder
Screw-on Clamp Toolholder
Steel Boring Bar with Coolant Hole

04 **PSC Toolholder** A183-A216

PSC Toolholder

05 **Threading** A217-A233

Thread Inserts
Thread Toolholder
Thread Inserts for Oil Pipe
Thread Toolholder for Oil Pipe

06 **Parting,Grooving and Groove-Turn system** A234-A271

Turnline MP Series
Turnline TNG Series
Turnline TKD Series
Turnline GB Series
Turnline TGE Series
Turnline TTF Series
Turnline TTS Series

07 **Miniature Tool** A272-A285

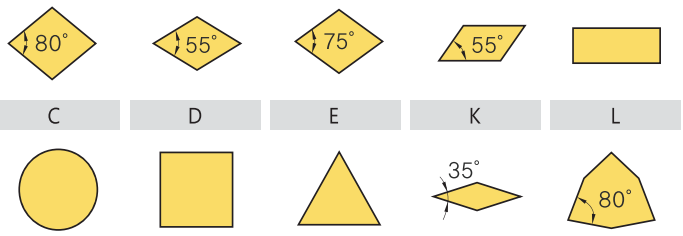
Solid Boring Bar
Modular Small Hole Cutter

C N M G 12

1 Insert Shape | 2 Relief Angle | 3 Tolerance | 4 Cross Section Type | 5 Cutting Edge Length Diameter of Inscribed Circle

1 Insert Shape

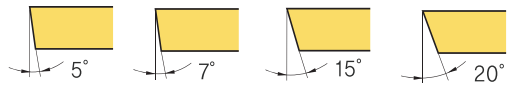
C N M G 12 04 08 – MP



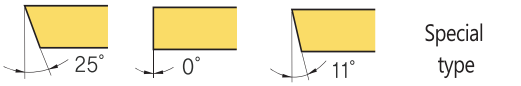
C	D	E	K	L
R	S	T	V	W

2 Relief Angle

C N M G 12 04 08 – MP



B	C	D	E

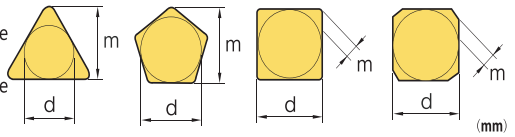


F	N	P	O

3 Tolerance

C N M G 12 04 08 – MP

d : Inscribed circle
t : Thickness
m : Refer to figure



(mm)

Class	d	m	t
A	±0.025	±0.005	±0.025
C	±0.025	±0.013	±0.025
H	±0.013	±0.013	±0.025
E	±0.025	±0.025	±0.025
G	±0.025	±0.025	±0.13
J *	±0.05 ~ ±0.15	±0.005	±0.025
K *	±0.05 ~ ±0.15	±0.013	±0.025
L *	±0.05 ~ ±0.15	±0.025	±0.025
M *	±0.05 ~ ±0.15	±0.08 ~ ±0.20	±0.13
N *	±0.05 ~ ±0.15	±0.08 ~ ±0.18	±0.025
U *	±0.08 ~ ±0.25	±0.13 ~ ±0.38	±0.13

* Sides are based on unground insert

Tolerance on C, E, H, M, O, P, R, S, T, W Insert Shape (Exceptional case)

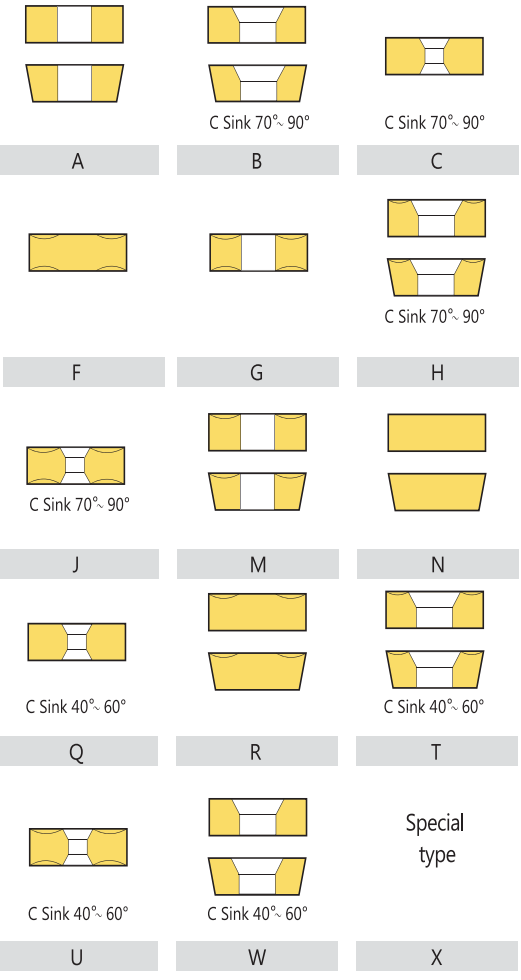
d	Tolerance on d		Tolerance on m	
	J, K, L, M, N	U	M, N	U
6.35	±0.05	±0.08	±0.08	±0.13
9.525	±0.05	±0.08	±0.08	±0.13
12.7	±0.08	±0.13	±0.13	±0.20
15.875	±0.10	±0.18	±0.15	±0.27
19.05	±0.10	±0.18	±0.15	±0.27
25.4	±0.13	±0.25	±0.18	±0.38

Tolerance on D Insert Shape (Exceptional case)

d	Tolerance on d	Tolerance on m
6.35	±0.05	±0.11
9.525	±0.05	±0.11
12.7	±0.08	±0.15
15.875	±0.10	±0.18
19.05	±0.10	±0.18

4 Cross Section Type

C N M G 12 04 08 – MP



A	B	C
F	G	H
J	M	N
Q	R	T
U	W	X

04 08 - MP

6 Thickness of Cutting Edge | 7 Nose Radius (Nose R) | 8 Chipbreaker for Turning

5 Cutting Edge Length, Diameter of Inscribed Circle

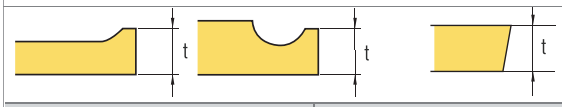
C N M G 12 04 08 – MP

Symbol							Inch	IC
C	d	S	T	R	V	W		
Metric								d(mm)
03	04	03	06	03	–	02	1.2(5)	3.97
04	05	04	08	04	08	S3	1.5(6)	4.76
05	06	05	09	05	09	03	1.8(7)	5.56
–	–	–	–	06	–	–	–	6.00
06	07	06	11	06	11	04	2	6.35
08	09	07	13	07	13	05	2.5	7.94
–	–	–	–	08	–	–	–	8.00
09	11	09	16	09	16	06	3	9.525
–	–	–	–	10	–	–	–	10.00
11	13	11	19	11	19	07	3.5	11.11
–	–	–	–	12	–	–	–	12.00
12	15	12	22	12	22	08	4	12.70
14	17	14	24	14	24	09	4.5	14.29
16	19	15	27	15	27	10	5	15.875
–	–	–	–	16	–	–	–	16.00
17	21	17	30	17	30	11	5.5	17.46
19	23	19	33	19	33	13	6	19.05
–	–	–	–	20	–	–	–	20.00
22	27	22	38	22	38	15	7	22.225
–	–	–	–	25	–	–	–	25.00
25	31	25	44	25	44	17	8	25.40
32	38	31	54	31	54	21	10	31.75
–	–	–	–	32	–	–	–	32.00

( ) Symbol for small size insert

6 Thickness of Cutting Edge

C N M G 12 04 08 – MP

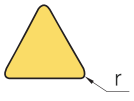


Symbol		Thickness of Cutting Edge (t)	
Metric	Inch	mm	Inch
01	1(2)	1.59	1/16
T0	1.125	1.79	9/128
T1	1.2	1.98	5/64
02	1.5(3)	2.38	3/32
T2	1.75	2.78	7/64
03	2	3.18	1/8
T3	2.5	3.97	5/32
04	3	4.76	3/16
05	3.5	5.56	7/32
06	4	6.35	1/4
07	5	7.94	5/16
09	6	9.52	3/8
11	7	11.11	7/16
12	8	12.70	1/2

( ) Symbol for small size insert

7 Nose Radius (Nose R)

C N M G 12 04 08 – MP



Symbol		Corner Radius	
Metric	Inch	Metric	Inch
01	0	0.1	0.004
02	0.5	0.2	0.008
04	1	0.4	1/64
08	2	0.8	1/32
12	3	1.2	3/64
16	4	1.6	1/16
20	5	2.0	5/64
24	6	2.4	3/32
28	7	2.8	7/64
32	8	3.2	1/8
00	–	Round insert (Inch)	
M0	–	Round insert (Metric)	

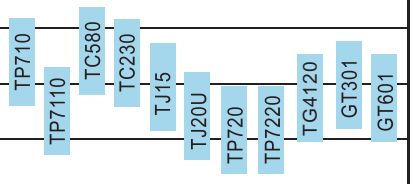
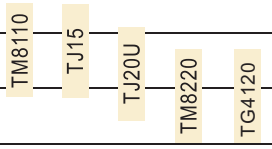
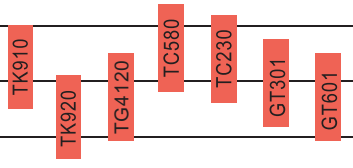
8 Chipbreaker for Turning

C N M G 12 04 08 – MP

TOTIME

Standard Cutting Conditions

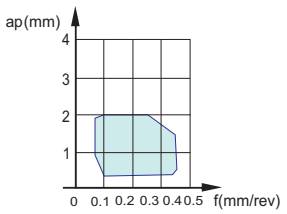
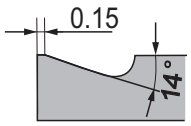
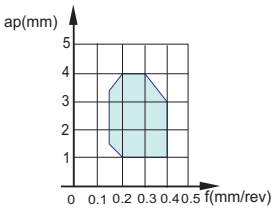
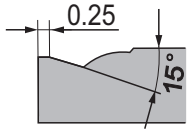
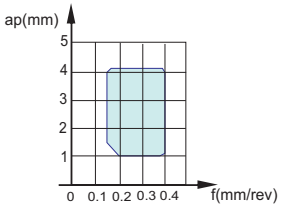
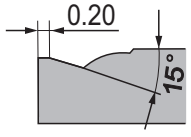
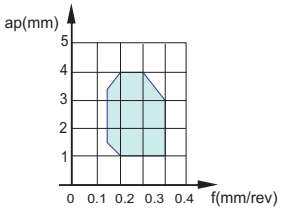
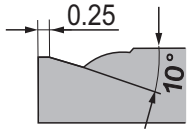
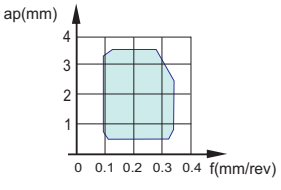
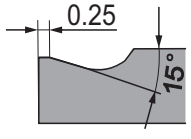
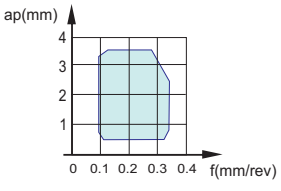
Coated Grade

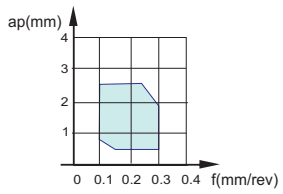
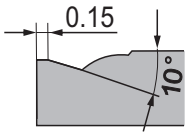
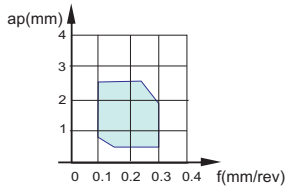
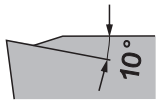
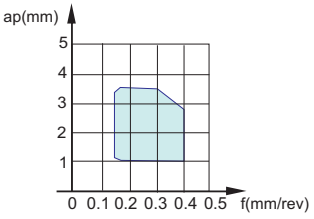
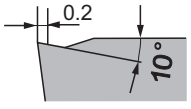
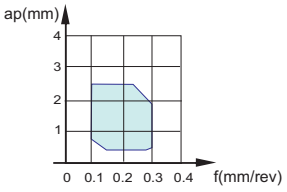
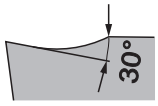
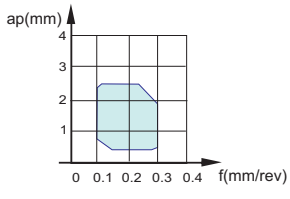
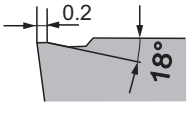
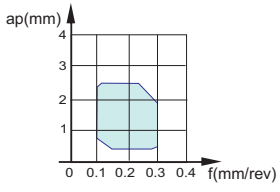
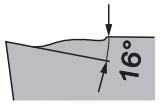
Work Materials		Work Condition	Grade	Cutting Speed (m/min)	ISO	Cutting Performance
P	Steel	Continuous	TP710	150-360	P01	
			TP7110	150-360	P10	
			TC580	100-250	P20	
			TC230	100-250	P30	
			GT301	100-250	P40	
			GT601	100-250	P50	
		Interrupted	TP720	120-280		
			TP7220	120-280		
			TG4120	80-200		
M	Stainless Steel	Continuous	TM8110	100-220	M01	
			TJ15	50-180	M10	
			TJ20U	50-180	M20	
		Interrupted	TM8220	100-220	M30	
			TG4120	100-240	M40	
					M50	
K	Cast Iron	Continuous	TK910	200-400	K01	
					K10	
		Interrupted	TK920	150-300	K20	
			TG4120	120-240	K30	
N	Non-ferrous Metal	Continuous	TN320	100-1000	N10	
					N20	
S	Superalloys Titanium	Continuous	TMS3115	40-70	S01	
					S10	
		Interrupted	TMS3125	45-65	S20	
					S30	

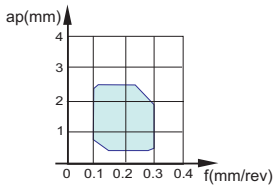
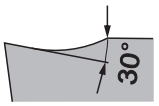
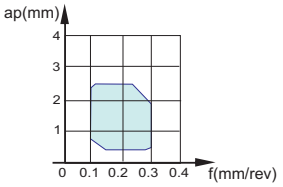
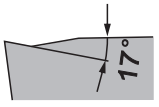
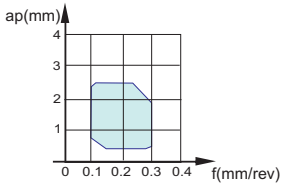
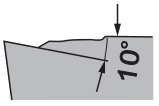
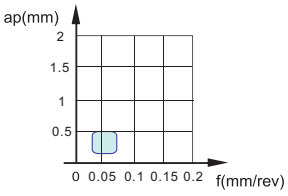
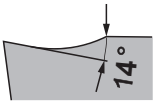
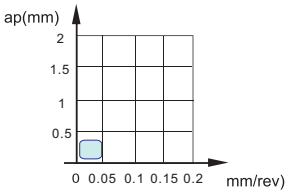
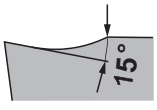
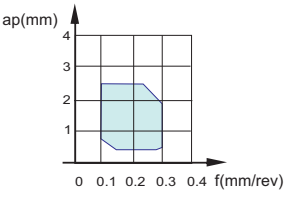
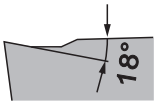
TOTIME Standard Cutting Conditions

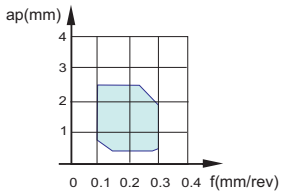
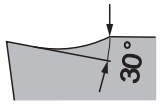
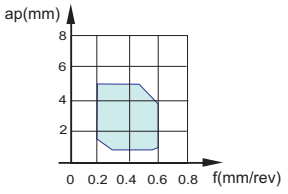
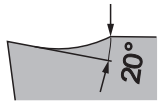
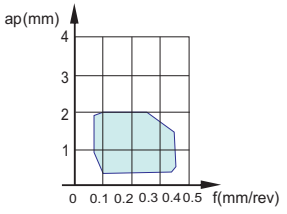
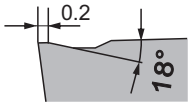
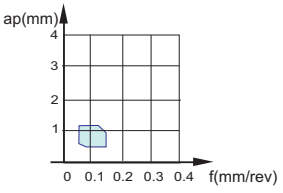
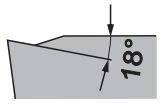
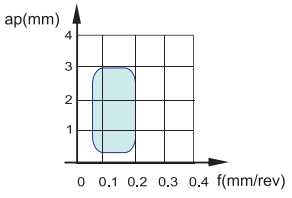
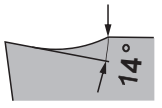
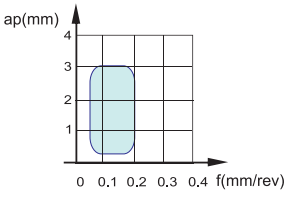
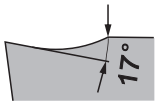
Coated Grade

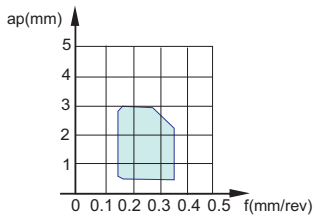
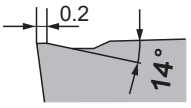
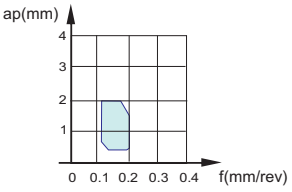
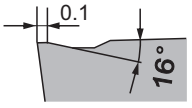
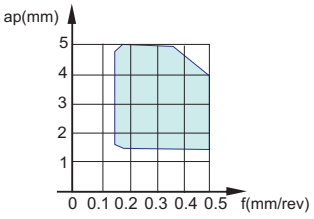
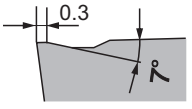
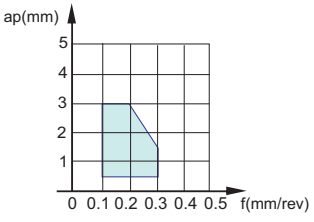
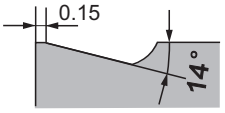
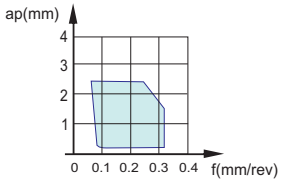
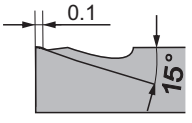
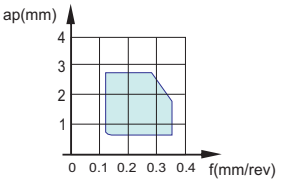
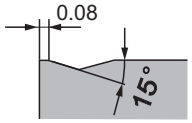
Work Materials		ISO	Coated Carbide			Cermet	Coated Cermet
			CVD	PVD	No Coated		
P	Steel	P01	TP710, TP7110, TP720, TP7220	TJ15, TJ20U, TG4120		TC580, TC230	GT301, GT601
		P10					
		P20					
		P30					
		P40					
		P50					
M	Stainless Steel	M01					
		M10		TM8110, TJ15, TJ20U, TM8220, TG4120			
		M20					
		M30					
		M40					
		M50					
K	Cast Iron	K01	TK910, TK920	TG4120		TC580, TC230	GT301, GT601
		K10					
		K20					
		K30					
N	Non-ferrous Metal	N10			TN320		
		N20					
S	Superalloys Titanium	S01		TMS3115, TMS3125			
		S10					
		S20					
		S30					

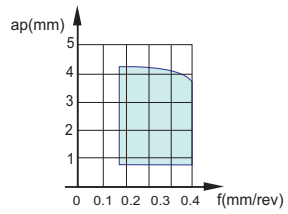
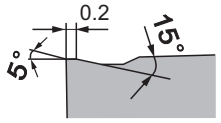
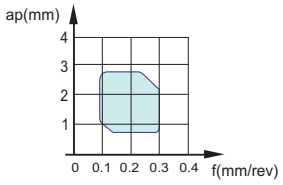
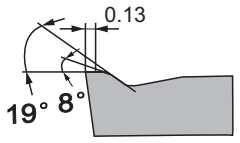
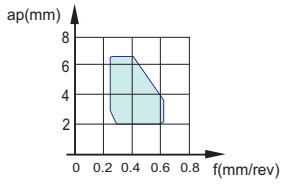
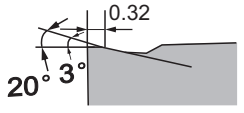
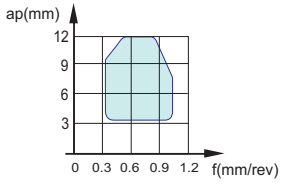
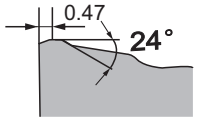
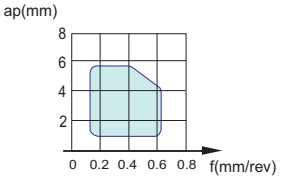
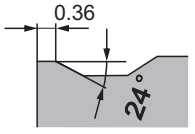
Chipbreaker	Features	Application	Cutting Edge
PF	First choice chipbreaker for finishing steels. The dimple structure decreases the contact area between the insert surface and chips, resulting in significant reduction of heat occurrence.		
PM	General purpose chipbreaker used for medium cutting. Unique chipbreaker geometry with sharp edges and large rake angle assures free cutting action in a wide range of cutting conditions.		
MP	Exellent chip control when finish cutting. Outstanding chip control when high feed turning at small depth of cut.		
GM	Applicable to a wide range of cutting condition with sharp edge. Recommended chipbreaker for stainless steel turning.		
MK	Highly reliable chipbreaker for medium cutting under a wide range of conditions from continuous to interrupted cutting. Recommended chipbreaker for cast iron turning.		
No Chipbreaker	Can cover a wide range of applications from finishing to roughing of cast iron. Excellent in cutting edge strength.		

Chipbreaker	Features	Application	Cutting Edge
PS	3-dimensional chipbreaker designed to have excellent chip control capability and low cutting force in finishing to medium cutting. Low cost,M-class positive insert used for high efficiency in a wide range of applications.		
MM	Developed chipbreaker for medium cutting. Excellent chip control due to wide, positive chip flow zone.		
KS	Highly reliable chipbreaker for medium cutting under a wide range of conditions from continuous to interrupted cutting.		
25UL	High positive cutting edge reduces chip contact. Minimized temperature while machining ensures longer tool life. Stable machining with superior chip evacuation in high depth of cut.		
15D	Excellent chip control at wide range of cutting conditions. Suitable for stainless steel cutting.		
15M	Shallow depth of cut with sharp edge. Longer tool life at high speed cutting due to low cutting force. Good finishing surface.		

Chipbreaker	Features	Application	Cutting Edge
24UL	High positive cutting edge reduces chip contact. Minimized temperature while machining ensures longer tool life. Stable machining with superior chip evacuation in high depths of cut.		
15V	Longer tool life due to minimizing chip contact and reducing cutting heat while machining.		
10U/12U/ 13U/15U	Improved chip control makes tool life longer and better machining.		 12° /13° /15°
14K	Good chip control at finishing to light machining with low cutting force		
7KF	Good chip control at finishing to light machining with low cutting force.		
15K	Excellent chip control in application with micro depth of cut and low feed. Low cutting load and super finishing surface. Excellent for both internal and external machining		

Chipbreaker	Features	Application	Cutting Edge
14VI	Longer tool life due to minimizing chip contact and reducing cutting heat while machining.		
AL	Extremely sharp cutting edge. Polished surface.Excellent chip forming at high cutting feeds.Low power consumption.		
FM	Suitable for finishing to medium cutting. Excellent chip control.		
SF	Large rake angle reduces cutting force. Less burring achieved by diminishing damage from notching.		
PY	Great combination of sharpness and toughness.Excellent chip control.		
PC	Sharpest molded chipbreaker. Excellent chip control. Less tool pressure.		

Chipbreaker	Features	Application	Cutting Edge
PU	General purpose chipbreaker. Excellent chip control at machining of low carbon steel.		
TQ	Sharp cutting performance with 3-D rake angle and double projection design.		
LR	Smooth chipbreaker geometry improves chip flow with less adhesion. Large curled chips.		
C	Enables machining over a wide range of conditions by using the optimum chipbreaker width according to the cutting depth.		
GF	Special designed rake angle and cutting edge inclination; Sharp cutting edge,small cutting force; Good machining surface quality; Suitable for stainless steel finishing.		
TF	3-dimensional chipbreaker designed with double rake angle;Sharp cutting edge and lower cutting resistance; Efficiently solved build up edge,work hardening and other machining problems.Cutting edge inclination designation is good to control chip flow direction and obtains excellent Surface quality.		

Chipbreaker	Features	Application	Cutting Edge
QM	Special chipbreaker design to keep cutting edge sharp and safe; Good anti impact resistance; Excellent tool life time; Suitable for stainless steel semi-finishing.		
CM	The combined structure of flat edge and edge inclination has both wear resistance and chipping resistance, and can well control the cutting flow, suitable for semi-finishing general machining of steel and stainless steel.		
PR	For rough machining of carbon steel, cast steel and alloy steel. The combination of variable rake angle and variable edge width meets the sharpness and strength requirements of different depths of cut.		
PH	For heavy cutting of carbon steel,cast steel and alloy steel. Variable edge and stepped chipbreaker for low cutting resistance. Straight cutting edge and chamfer making the cutting sharpness and cutting edge strength is guaranteed at the same time.		
KR	For heavy cutting of cast iron. The cutting edge has high strength and large chip groove,which is suitable for large allowance cutting.		

● :Continuous Cutting ◐ :Light Interrupted Cutting

CN																							
	Rhombic 80°	P	Steel	●	◐	●	◐			◐							●	●		●	●	●	●
		M	Stainless					●	◐	◐							●	●					
	Negative	K	Cast Iron							◐		●	◐							●	●	●	●
		N	Non-ferrous																●				
	with Hole	S	Superalloys											●	◐								
		H	Hard Materials																				

Application	Chipbreaker	Designation	Corner Radius	Coated														No Coated	Cermet		Coated Cermet	
				TP710	TP720	TP7110	TP7220	TM8110	TM8220	TG4120		TK910	TK920	TMS3115	TMS3125		TJ15	TJ20U	TN320	TC580	TC230	GT601	GT301
Finishing		CNMG090304-PF	0.4	●	●																		
		CNMG090308-PF	0.8	●	●																		
		CNMG120404-PF	0.4	●	●																		
		CNMG120408-PF	0.8	●	●																		
		CNMG120404-GF	0.4							●													
		CNMG120408-GF	0.8							●													
		CNMG120404-TF	0.4							●													
Medium Cutting		CNMG090304-PM	0.4	●	●																		
		CNMG090308-PM	0.8	●	●																		
		CNMG120404-PM	0.4	●	●																		
		CNMG120408-PM	0.8	●	●																		
		CNMG120412-PM	1.2	●	●																		
		CNMG120416-PM	1.6	●	●																		
		CNMG160608-PM	0.8	●	●																		
		CNMG160612-PM	1.2	●	●																		
		CNMG190608-PM	0.8	●	●																		
		CNMG190612-PM	1.2	●	●																		
		CNMG190616-PM	1.6	●	●																		
		CNMG120404-FM	0.4			●	●																
		CNMG120408-FM	0.8			●	●																
		CNMG120404-QM	0.4							●													
		CNMG120408-QM	0.8							●													
		CNMG160608-QM	0.8							●													
		CNMG120404-SF	0.4											●	○								
		CNMG120408-SF	0.8											●	○								
		CNMG120404-GM	0.4					●	●														
		CNMG120408-GM	0.8					●	●					○	●								
		CNMG120412-GM	1.2					●	●					○	●								
		CNMG090304-MP	0.4					○	●														
		CNMG090308-MP	0.8					○	●														
		CNMG120404-MP	0.4					●	●					●	●								
		CNMG120408-MP	0.8					●	●					●	●								
		CNMG120412-MP	1.2					●	●					●	●								
		CNMG120416-MP	1.6					○	●					●	○								

● In Stock ○ Inquiry Each Time

External Toolholders:A142,A156,A161
Internal Toolholders:A168,A176

● :Continuous Cutting ◐ :Light Interrupted Cutting

CN																								
	Rhombic 80°	P	Steel	●	◐	●	◐			◐							●	●		●	●	●	●
		M	Stainless					●	◐	◐							●	●					
	Negative	K	Cast Iron							◐		●	◐							●	●	●	●
		N	Non-ferrous																●				
	with Hole	S	Superalloys											●	◐								
		H	Hard Materials																				

Application	Chipbreaker	Designation	Corner Radius	Coated														No Coated	Cermet		Coated Cermet	
				TP710	TP720	TP7110	TP7220	TM8110	TM8220	TG4120		TK910	TK920	TMS3115	TMS3125		TJ15	TJ20U	TN320	TC580	TC230	GT601	GT301
Medium Cutting		CNMG160608-MP	0.8					○	●														
		CNMG160612-MP	1.2					○	●														
		CNMG160616-MP	1.6					○	●														
		CNMG190608-MP	0.8					○	●														
		CNMG190612-MP	1.2					○	●														
		CNMG190616-MP	1.6					○	●														
		CNMG120404-MK	0.4									●	●										
		CNMG120408-MK	0.8									●	●										
		CNMG120412-MK	1.2									●	●										
		CNMG120416-MK	1.6									●	●										
		CNMG160608-MK	0.8									●	●										
		CNMG160612-MK	1.2									●	●										
		CNMG160616-MK	1.6									●	●										
		CNMG190612-MK	1.2									●	●										
		CNMG190616-MK	1.6									●	●										
		CNMA120404	0.4									●	●										
		CNMA120408	0.8									●	●										
		CNMA120412	1.2									●	●										
		CNMA120416	1.6									●	●										
		CNMA160612	1.2									●	●										
		CNMA160616	1.6									●	●										
		CNMA160620	2.0									●	●										
		CNMA190612	1.2									●	●										
		CNMA190616	1.6									●	●										
		CNMA190624	2.4									●	●										
		CNMG120404-PU	0.4																		●		
		CNMG120408-PU	0.8																		●		
		CNMG120404-TQ	0.4																		●		
		CNMG120408-TQ	0.8																		●		

● In Stock ○ Inquiry Each Time

External Toolholders:A142,A156,A161
Internal Toolholders:A168,A176

● :Continuous Cutting ◐ :Light Interrupted Cutting

CN																								
	Rhombic 80°	P	Steel	●	◐	●	◐			◐							●	●		●	●	●	●
		M	Stainless					●	◐	◐							●	●					
	Negative	K	Cast Iron							◐		●	◐							●	●	●	●
		N	Non-ferrous																●				
	with Hole	S	Superalloys											●	◐								
		H	Hard Materials																				

Application	Chipbreaker	Designation	Corner Radius	Coated														No Coated	Cermet		Coated Cermet	
				TP710	TP720	TP7110	TP7220	TM8110	TM8220	TG4120		TK910	TK920	TMS3115	TMS3125		TJ15	TJ20U	TN320	TC580	TC230	GT601	GT301
Heavy Cutting		CNMG120408-PR	0.8	●	●																		
		CNMG120412-PR	1.2	●	●																		
		CNMG120416-PR	1.6	●	●																		
		CNMG160608-PR	0.8	○	●																		
		CNMG160612-PR	1.2	●	●																		
		CNMG160616-PR	1.6	●	●																		
		CNMG190608-PR	0.8	●	●																		
		CNMG190612-PR	1.2	●	●																		
		CNMG190616-PR	1.6	●	●																		
		CNMG190624-PR	2.4	●	●																		
		CNMG250924-PR	2.4	○	●																		
		CNMM190616-PH	1.6	○	●																		
		CNMM190624-PH	2.4	○	●																		
		CNMM250924-PH	2.4	●	●																		
		CNMG120408-LR	0.8					●	●														
		CNMG120412-LR	1.2					●	●														
		CNMG120416-LR	1.6					●	●														
		CNMG160608-LR	0.8					●	●														
		CNMG160612-LR	1.2					●	●														
		CNMG190612-LR	1.2					●	●														
		CNMG190616-LR	1.6					●	●														
		CNMG120408-KR	0.8									●	●										
		CNMG120412-KR	1.2									●	●										
		CNMG120416-KR	1.6									●	●										
		CNMG160612-KR	1.2									●	●										
		CNMG160616-KR	1.6									●	●										
		CNMG160624-KR	2.4									●	○										
		CNMG190612-KR	1.2									●	●										
		CNMG190616-KR	1.6									●	●										

● In Stock ○ Inquiry Each Time

External Toolholders:A142,A156,A161
Internal Toolholders:A168,A176

● :Continuous Cutting ◐ :Light Interrupted Cutting

DN																										
	Rhombic 55°	P	Steel	●	◐	●	◐			◐							●	●		●	●	●	●
		M	Stainless					●	◐	◐							●	●					
	Negative	K	Cast Iron							◐		●	◐							●	●	●	●
		N	Non-ferrous																●				
	with Hole	S	Superalloys											●	◐								
		H	Hard Materials																				

Application	Chipbreaker	Designation	Corner Radius	Coated															No Coated	Cermet		Coated Cermet	
				TP710	TP720	TP7110	TP7220	TM8110	TM8220	TG4120		TK910	TK920	TMS3115	TMS3125		TJ15	TJ20U	TN320	TC580	TC230	GT601	GT301
Finishing		DNMG110404-PF	0.4	●	●																		
		DNMG110408-PF	0.8	●	●																		
		DNMG150404-PF	0.4	●	●																		
		DNMG150408-PF	0.8	●	●																		
		DNMG150604-PF	0.4	●	●																		
		DNMG150608-PF	0.8	●	●																		
		DNMG150604-GF	0.4							●													
		DNMG150608-GF	0.8							●													
		DNMG150404-TF	0.4							●													
		DNMG150604-TF	0.4							●													
Medium Cutting		DNMG110404-PM	0.4	●	●																		
		DNMG110408-PM	0.8	●	●																		
		DNMG110412-PM	1.2	●	●																		
		DNMG150404-PM	0.4	●	●																		
		DNMG150408-PM	0.8	●	●																		
		DNMG150412-PM	1.2	●	●																		
		DNMG150604-PM	0.4	●	●																		
		DNMG150608-PM	0.8	●	●																		
		DNMG150612-PM	1.2	●	●																		
		DNMG110404-QM	0.4							●													
		DNMG110408-QM	0.8							●													
		DNMG150404-QM	0.4							●													
		DNMG150408-QM	0.8							●													
		DNMG150604-QM	0.4							●													
		DNMG150608-QM	0.8							●													
		DNMG150612-QM	1.2							●													
		DNMG110404-SF	0.4											●	○								
		DNMG110408-SF	0.8											●	○								
		DNMG150404-SF	0.4											●	○								
		DNMG150408-SF	0.8											●	○								
		DNMG150604-SF	0.4											●	○								
		DNMG150608-SF	0.8											●	○								

● In Stock ○ Inquiry Each Time

External Toolholders:A143,A156
Internal Toolholders:A168,A176

● :Continuous Cutting ◐ :Light Interrupted Cutting

DN																								
	Rhombic 55°	P	Steel	●	◐	●	◐			◐							●	●		●	●	●	●
		M	Stainless					●	◐	◐							●	●					
	Negative	K	Cast Iron							◐		●	◐							●	●	●	●
		N	Non-ferrous																●				
	with Hole	S	Superalloys											●	◐								
		H	Hard Materials																				

Application	Chipbreaker	Designation	Corner Radius	Coated															No Coated	Cermet		Coated Cermet	
				TP710	TP720	TP7110	TP7220	TM8110	TM8220	TG4120		TK910	TK920	TMS3115	TMS3125		TJ15	TJ20U	TN320	TC580	TC230	GT601	GT301
Medium Cutting		DNMG110404-GM	0.4					●	●														
		DNMG110408-GM	0.8					●	●														
		DNMG150404-GM	0.4					●	●														
		DNMG150408-GM	0.8					●	●														
		DNMG150412-GM	1.2					●	●														
		DNMG150604-GM	0.4					●	●														
		DNMG150608-GM	0.8					●	●					○	●								
		DNMG150612-GM	1.2					●	●					○	●								
		DNMG110404-MP	0.4					○	●														
		DNMG110408-MP	0.8					●	●														
		DNMG110412-MP	1.2					○	●														
		DNMG150404-MP	0.4					●	●														
		DNMG150408-MP	0.8					●	●														
		DNMG150412-MP	1.2					○	●														
		DNMG150604-MP	0.4					●	●														
		DNMG150608-MP	0.8					●	●														
		DNMG150612-MP	1.2					○	●														
		DNMG150404-MK	0.4									●	●										
		DNMG150408-MK	0.8									●	●										
		DNMG150412-MK	1.2									●	●										
		DNMG150604-MK	0.4									●	●										
		DNMG150608-MK	0.8									●	●										
		DNMG150612-MK	1.2									●	●										
		DNMG150616-MK	1.6									●	●										
		DNMA150404	0.4									●	●										
		DNMA150408	0.8									●	●										
		DNMA150412	1.2									●	●										
		DNMA150416	1.6									●	●										
		DNMA150604	0.4									●	●										
		DNMA150608	0.8									●	●										
		DNMA150612	1.2									●	●										
		DNMG150404-PU	0.4																		●		
		DNMG150408-PU	0.8																		●		
		DNMG150408-TQ	0.8																		●		

● In Stock ○ Inquiry Each Time

External Toolholders:A143,A156
Internal Toolholders:A168,A176

● :Continuous Cutting ⊂ :Light Interrupted Cutting

DN																								
Rhombic 55° Negative with Hole	P	Steel	●	⊂	●	⊂			⊂							●	●		●	●	●	●
	M	Stainless					●	⊂	⊂							●	●					
	K	Cast Iron							⊂		●	⊂							●	●	●	●
	N	Non-ferrous																●				
	S	Superalloys											●	⊂								
	H	Hard Materials																				

Application	Chipbreaker	Designation	Corner Radius	Coated														No Coated	Cermet		Coated Cermet	
				TP710	TP720	TP7110	TP7220	TM8110	TM8220	TG4120		TK910	TK920	TMS3115	TMS3125		TJ15	TJ20U	TN320	TC580	TC230	GT601	GT301
Heavy Cutting		DNMG150408-PR	0.8	○	●																	
		DNMG150412-PR	1.2	○	●																	
		DNMG150608-PR	0.8	●	●																	
		DNMG150612-PR	1.2	●	●																	
		DNMG150616-PR	1.6	●	●																	
		DNMG150408-LR	0.8					●	●													
		DNMG150412-LR	1.2					●	●													
		DNMG150608-LR	0.8					●	●					○	●							
		DNMG150612-LR	1.2					●	●					○	●							
		DNMG150408-KR	0.8									●	●									
		DNMG150412-KR	1.2									●	●									
		DNMG150608-KR	0.8									●	●									
		DNMG150612-KR	1.2									●	●									

● In Stock ○ Inquiry Each Time

External Toolholders:A143,A156
Internal Toolholders:A168,A176

● :Continuous Cutting ◐ :Light Interrupted Cutting

SN																								
	Square 90°	P	Steel	●	◐	●	◐			◐							●	●		●	●	●	●
		M	Stainless					●	◐	◐							●	●					
	Negative	K	Cast Iron							◐		●	◐							●	●	●	●
		N	Non-ferrous																●				
	with Hole	S	Superalloys											●	◐								
		H	Hard Materials																				

Application	Chipbreaker	Designation	Corner Radius	Coated														No Coated	Cermet		Coated Cermet	
				TP710	TP720	TP7110	TP7220	TM8110	TM8220	TG4120		TK910	TK920	TMS3115	TMS3125		TJ15	TJ20U	TN320	TC580	TC230	GT601	GT301
Finishing		SNMG090304-PF	0.4	●	●																		
		SNMG090308-PF	0.8	●	●																		
		SNMG120404-PF	0.4	●	●																		
		SNMG120408-PF	0.8	●	●																		
		SNMG120408-GF	0.8							●													
Medium Cutting		SNMG090304-PM	0.4	●	●																		
		SNMG090308-PM	0.8	●	●																		
		SNMG120404-PM	0.4	●	●																		
		SNMG120408-PM	0.8	●	●																		
		SNMG120412-PM	1.2	●	●																		
		SNMG120416-PM	1.6	●	●																		
		SNMG150608-PM	0.8	●	●																		
		SNMG150612-PM	1.2	●	●																		
		SNMG190612-PM	1.2	●	●																		
		SNMG120404-QM	0.4							●													
		SNMG120408-QM	0.8							●													
		SNMG120412-QM	1.2							●													
		SNMG150608-QM	0.8							●													
		SNMG120404-SF	0.4											●	○								
		SNMG120408-SF	0.8											●	○								
		SNMG120404-GM	0.4					●	●														
		SNMG120408-GM	0.8					●	●					○	●								
		SNMG120412-GM	1.2					●	●					○	●								
		SNMG090304-MP	0.4					○	●														
		SNMG090308-MP	0.8					○	●														
		SNMG120404-MP	0.4					●	●														
		SNMG120408-MP	0.8					●	●					●	○								
		SNMG120412-MP	1.2					●	●														
		SNMG120416-MP	1.6					○	●														
		SNMG150608-MP	0.8					○	●														
		SNMG150612-MP	1.2					○	●					●	○								
		SNMG150616-MP	1.6					○	●														
		SNMG190608-MP	0.8					○	●														
		SNMG190612-MP	1.2					○	●														
		SNMG190616-MP	1.6					○	●					●	○								

● In Stock ○ Inquiry Each Time

External Toolholders:A143,A156,A163
Internal Toolholders:A168

● :Continuous Cutting ◐ :Light Interrupted Cutting

SN																								
	Square 90°	P	Steel	●	◐	●	◐			◐							●	●		●	●	●	●
		M	Stainless					●	◐	◐							●	●					
	Negative	K	Cast Iron							◐		●	◐							●	●	●	●
		N	Non-ferrous																●				
	with Hole	S	Superalloys											●	◐								
		H	Hard Materials																				

Application	Chipbreaker	Designation	Corner Radius	Coated														No Coated	Cermet		Coated Cermet	
				TP710	TP720	TP7110	TP7220	TM8110	TM8220	TG4120		TK910	TK920	TMS3115	TMS3125		TJ15	TJ20U	TN320	TC580	TC230	GT601	GT301
Medium Cutting		SNMG120408-MK	0.8									●	●										
		SNMG120412-MK	1.2									●	●										
		SNMG150412-MK	1.2									●	●										
		SNMG150612-MK	1.2									●	●										
		SNMG150616-MK	1.6									●	●										
		SNMG190612-MK	1.2									●	●										
		SNMG190616-MK	1.6									●	●										
		SNMA090304	0.4									●	●										
		SNMA090308	0.8									●	●										
		SNMA090312	1.2									●	●										
		SNMA120404	0.4									●	●										
		SNMA120408	0.8									●	●										
		SNMA120412	1.2									●	●										
		SNMA120416	1.6									●	●										
		SNMA190612	1.2									●	●										
		SNMA190616	1.6									●	●										
Heavy Cutting		SNMG120408-PR	0.8	○	●																		
		SNMG120412-PR	1.2	○	●																		
		SNMG120416-PR	1.6	○	●																		
		SNMG150608-PR	0.8	○	●																		
		SNMG150612-PR	1.2	○	●																		
		SNMG150616-PR	1.6	●	●																		
		SNMG150624-PR	2.4	○	●																		
		SNMG190608-PR	0.8	○	●																		
		SNMG190612-PR	1.2	○	●																		
		SNMG190616-PR	1.6	○	●																		
		SNMG190624-PR	2.4	○	●																		
		SNMG250724-PR	2.4	●	●																		
		SNMG250924-PR	2.4	●	●																		
		SNMM150616-PH	1.6	●	○																		
		SNMM190612-PH	1.2	●	●																		
		SNMM190616-PH	1.6	●	●																		
		SNMM190624-PH	2.4	○	●																		
		SNMM250724-PH	2.4	●	●																		
		SNMM250732-PH	3.2	○	●																		
		SNMM250924-PH	2.4	●	●																		
		SNMM250932-PH	3.2	○	●																		

● In Stock ○ Inquiry Each Time

External Toolholders:A143,A156,A163
Internal Toolholders:A168

● :Continuous Cutting ◐ :Light Interrupted Cutting

SN																										
	Square 90°	P	Steel	●	◐	●	◐			◐							●	●		●	●	●	●
		M	Stainless					●	◐	◐							●	●					
	Negative	K	Cast Iron							◐		●	◐							●	●	●	●
		N	Non-ferrous																●				
	with Hole	S	Superalloys											●	◐								
		H	Hard Materials																				

Application	Chipbreaker	Designation	Corner Radius	Coated														No Coated	Cermet		Coated Cermet	
				TP710	TP720	TP7110	TP7220	TM8110	TM8220	TG4120		TK910	TK920	TMS3115	TMS3125		TJ15	TJ20U	TN320	TC580	TC230	GT601	GT301
Heavy Cutting		SNMG120408-LR	0.8					●	●					○	●								
		SNMG120412-LR	1.2					●	●					○	●								
		SNMG150608-LR	0.8					●	●														
		SNMG150612-LR	1.2					●	●														
		SNMG190612-LR	1.2					●	●														
		SNMG190616-LR	1.6					●	●														
		SNMG120408-KR	0.8									●	●										
		SNMG120412-KR	1.2									●	●										
		SNMG120416-KR	1.6									●	●										
		SNMG150612-KR	1.2									●	●										
		SNMG150616-KR	1.6									●	●										
		SNMG190612-KR	1.2									●	●										
		SNMG190616-KR	1.6									●	●										

● In Stock ○ Inquiry Each Time

External Toolholders:A143,A156,A163
Internal Toolholders:A168

● :Continuous Cutting ◐ :Light Interrupted Cutting

TN																										
	Triangular 60°	P	Steel	●	◐	●	◐			◐							●	●		●	●	●	●
		M	Stainless					●	◐	◐							●	●					
	Negative	K	Cast Iron							◐		●	◐							●	●	●	●
		N	Non-ferrous																●				
	with Hole	S	Superalloys											●	◐								
		H	Hard Materials																				

Application	Chipbreaker	Designation	Corner Radius	Coated														No Coated	Cermet		Coated Cermet	
				TP710	TP720	TP7110	TP7220	TM8110	TM8220	TG4120		TK910	TK920	TMS3115	TMS3125		TJ15	TJ20U	TN320	TC580	TC230	GT601	GT301
Finishing		TNMG160404-PF	0.4	●	●																		
		TNMG160408-PF	0.8	●	●																		
		TNMG220404-PF	0.4	●	●																		
		TNMG220408-PF	0.8	●	●																		
		TNMG160404-GF	0.4							●													
		TNMG160408-GF	0.8							●													
		TNMG160404-TF	0.4							●													

● In Stock ○ Inquiry Each Time

External Toolholders:A145,A157
Internal Toolholders:A169,A176

● :Continuous Cutting ● :Light Interrupted Cutting

TN																								
Triangular 60°	P	Steel	●	●	●	●			●							●	●		●	●	●	●		
Negative	M	Stainless					●	●	●							●	●							
with Hole	K	Cast Iron							●		●	●							●	●	●	●		
	N	Non-ferrous																●						
	S	Superalloys											●	●										
	H	Hard Materials																						

Application	Chipbreaker	Designation	Corner Radius	Coated															No Coated	Cermet		Coated Cermet	
				TP710	TP720	TP7110	TP7220	TM8110	TM8220	TG4120		TK910	TK920	TMS3115	TMS3125		TJ15	TJ20U	TN320	TC580	TC230	GT601	GT301
Medium Cutting		TNMG110304-PM	0.4	●	●																		
		TNMG110308-PM	0.8	●	●																		
		TNMG160404-PM	0.4	●	●																		
		TNMG160408-PM	0.8	●	●																		
		TNMG160412-PM	1.2	●	●																		
		TNMG220408-PM	0.8	●	●																		
		TNMG220412-PM	1.2	●	●																		
		TNMG220416-PM	1.6	●	●																		
		TNMG160404-FM	0.4			●	●																
		TNMG160408-FM	0.8			●	●																
		TNMG160404-QM	0.4							●													
		TNMG160408-QM	0.8							●													
		TNMG220404-QM	0.4							●													
		TNMG220408-QM	0.8							●													
		TNMG220412-QM	1.2							●													
		TNMG160404-SF	0.4											●	○								
		TNMG160408-SF	0.8											●	○								
		TNMG160404-GM	0.4					●	●														
		TNMG160408-GM	0.8					●	●														
		TNMG160412-GM	1.2					●	●														
		TNMG160404-MP	0.4					●	●					●	○								
		TNMG160408-MP	0.8					●	●					●	○								
		TNMG160412-MP	1.2					●	●														
		TNMG220408-MP	0.8					●	●														
		TNMG220412-MP	1.2					●	●														
		TNMG220416-MP	1.6					○	●														
		TNMG160404-MK	0.4									●	●										
		TNMG160408-MK	0.8									●	●										
		TNMG160412-MK	1.2									●	●										
		TNMG160416-MK	1.6									●	●										
		TNMG220408-MK	0.8									●	●										
		TNMG220412-MK	1.2									●	●										
		TNMG220416-MK	1.6									●	●										

● In Stock ○ Inquiry Each Time

External Toolholders:A145,A157
Internal Toolholders:A169,A176

● :Continuous Cutting ● :Light Interrupted Cutting

TN																								
	Triangular 60°	P	Steel	●	●	●	●			●							●	●		●	●	●	●
		M	Stainless					●	●	●							●	●					
	Negative	K	Cast Iron							●		●	●							●	●	●	●
		N	Non-ferrous																●				
	with Hole	S	Superalloys											●	●								
		H	Hard Materials																				

Application	Chipbreaker	Designation	Corner Radius	Coated														No Coated	Cermet		Coated Cermet	
				TP710	TP720	TP7110	TP7220	TM8110	TM8220	TG4120		TK910	TK920	TMS3115	TMS3125		TJ15	TJ20U	TN320	TC580	TC230	GT601	GT301
Medium Cutting		TNMA110304	0.4									●	●										
		TNMA110308	0.8									●	●										
		TNMA160308	0.8									●	●										
		TNMA160404	0.4									●	●										
		TNMA160408	0.8									●	●										
		TNMA160412	1.2									●	●										
		TNMA160416	1.6									●	●										
		TNMA220404	0.4									●	●										
		TNMA220408	0.8									●	●										
		TNMA220412	1.2									●	●										
		TNMA220416	1.6									●	●										
		TNMG160404R-C	0.4																		●		
		TNMG160404L-C	0.4																		●		
		TNMG160408R-C	0.8																		●		
		TNMG160408L-C	0.8																		●		
		TNMG160404-PU	0.4																		●		
		TNMG160408-PU	0.8																		●		
		TNMG160404-TQ	0.4																		●		
		TNMG160408-TQ	0.8																		●		
		TNGG160402R-15M	0.2															●					
		TNGG160402L-15M	0.2															●					
		TNGG160404R-15M	0.4															●					
		TNGG160404L-15M	0.4															●					
		TNGG160401R-25UL	0.1														●						
		TNGG160401L-25UL	0.1														●						
		TNGG160402R-25UL	0.2															●					
		TNGG160402L-25UL	0.2															●					
		TNGG160404R-25UL	0.4															●					
		TNGG160404L-25UL	0.4															●					
		TNGG160402R-15M	0.2																	●		●	
		TNGG160402L-15M	0.2																	●		●	
		TNGG160404R-15M	0.4																	●		●	
		TNGG160404L-15M	0.4																	●		●	
		TNGG160408R-15M	0.8																	●		●	
		TNGG160408L-15M	0.8																	●		●	

● In Stock ○ Inquiry Each Time

External Toolholders:A145,A157
Internal Toolholders:A169,A176

● :Continuous Cutting ⊂ :Light Interrupted Cutting

TN																									
	Triangular 60°	P	Steel	●	⊂	●	⊂			⊂							●	●		●	●	●	●
		M	Stainless					●	⊂	⊂							●	●					
	Negative	K	Cast Iron							⊂		●	⊂							●	●	●	●
		N	Non-ferrous																●				
	with Hole	S	Superalloys											●	⊂								
		H	Hard Materials																				

Application	Chipbreaker	Designation	Corner Radius	Coated															No Coated	Cermet		Coated Cermet	
				TP710	TP720	TP7110	TP7220	TM8110	TM8220	TG4120		TK910	TK920	TMS3115	TMS3125		TJ15	TJ20U	TN320	TC580	TC230	GT601	GT301
Medium Cutting		TNGG160402R-24UL	0.2																	●		●	
		TNGG160402L-24UL	0.2																	●		●	
		TNGG160404R-24UL	0.4																	●		●	
		TNGG160404L-24UL	0.4																	●		●	
		TNGG160401R-15D	0.1																	●		●	
		TNGG160401L-15D	0.1																	●		●	
		TNGG160402R-15D	0.2																	●		●	
		TNGG160402L-15D	0.2																	●		●	
		TNGG160404R-15D	0.4																	●		●	
		TNGG160404L-15D	0.4																	●		●	
		TNGG160408R-15D	0.8																	●		●	
		TNGG160408L-15D	0.8																	●		●	
Heavy Cutting		TNMG160408-PR	0.8	○	●																		
		TNMG160412-PR	1.2	○	●																		
		TNMG220408-PR	0.8	○	●																		
		TNMG220412-PR	1.2	○	●																		
		TNMG220416-PR	1.6	○	●																		
		TNMG160408-LR	0.8					●	●														
		TNMG160412-LR	1.2					●	●														
		TNMG220408-LR	0.8					○	●														
		TNMG160408-KR	0.8									●	●										
		TNMG160412-KR	1.2									●	●										
		TNMG220408-KR	0.8									●	●										
		TNMG220412-KR	1.2									●	●										
		TNMG220416-KR	1.6									●	●										

● In Stock ○ Inquiry Each Time

External Toolholders:A145,A157
Internal Toolholders:A169,A176

● :Continuous Cutting ᑕ :Light Interrupted Cutting

VN				TP710	TP720	TP7110	TP7220	TM8110	TM8220	TG4120		TK910	TK920	TMS3115	TMS3125		TJ15	TJ20U	TN320	TC580	TC230	GT601	GT301
	Rhombic 35°	P	Steel	●	ᑕ	●	ᑕ			ᑕ							●	●		●	●	●	●
		M	Stainless					●	ᑕ	ᑕ							●	●					
	Negative	K	Cast Iron							ᑕ		●	ᑕ							●	●	●	●
		N	Non-ferrous																●				
	with Hole	S	Superalloys											●	ᑕ								
		H	Hard Materials																				

Application	Chipbreaker	Designation	Corner Radius	TP710	TP720	TP7110	TP7220	TM8110	TM8220	TG4120		TK910	TK920	TMS3115	TMS3125		TJ15	TJ20U	TN320	TC580	TC230	GT601	GT301
				Coated															No Coated	Cermet		Coated Cermet	
Finishing		VNMG160402-PF	0.2	○	●																		
		VNMG160404-PF	0.4	●	●																		
		VNMG160408-PF	0.8	●	●																		
		VNMG220404-PF	0.4	●	●																		
		VNMG220408-PF	0.8	●	●																		
		VNMG160404-TF	0.4							●													
Medium Cutting		VNMG160404-PM	0.4	●	●																		
		VNMG160408-PM	0.8	●	●																		
		VNMG160412-PM	1.2	●	●																		
		VNMG160404-FM	0.4			●	●																
		VNMG160408-FM	0.8			●	●																
		VNMG160404-QM	0.4							●													
		VNMG160408-QM	0.8							●													
		VNMG160404-SF	0.4											●	○								
		VNMG160408-SF	0.8											●	○								
		VNMG160404-GM	0.4					●	●														
		VNMG160408-GM	0.8					●	●														
		VNMG160404-MP	0.4					●	●														
		VNMG160408-MP	0.8					●	●														
		VNMG160404-MK	0.4									●	●										
		VNMG160408-MK	0.8									●	●										
		VNMG160412-MK	1.2									●	●										
		VNMG160404-PU	0.4																		●		
		VNMG160408-PU	0.8																		●		
Heavy Cutting		VNMG160408-KR	0.8									●	●										
		VNMG160412-KR	1.2									●	●										

● In Stock ○ Inquiry Each Time

External Toolholders:A146,A157
Internal Toolholders:A169,A177

● :Continuous Cutting ◐ :Light Interrupted Cutting

WN																										
	Trigon80°	P	Steel	●	◐	●	◐			◐							●	●		●	●	●	●
		M	Stainless					●	◐	◐							●	●					
	Negative	K	Cast Iron							◐		●	◐							●	●	●	●
		N	Non-ferrous																●				
	with Hole	S	Superalloys											●	◐								
		H	Hard Materials																				

Application	Chipbreaker	Designation	Corner Radius	Coated														No Coated	Cermet		Coated Cermet	
				TP710	TP720	TP7110	TP7220	TM8110	TM8220	TG4120		TK910	TK920	TMS3115	TMS3125		TJ15	TJ20U	TN320	TC580	TC230	GT601	GT301
Finishing		WNMG060404-PF	0.4	●	●																		
		WNMG060408-PF	0.8	●	●																		
		WNMG080404-PF	0.4	●	●																		
		WNMG080408-PF	0.8	●	●																		
		WNMG060408-GF	0.8							●													
		WNMG080404-GF	0.4							●													
		WNMG080408-GF	0.8							●													
		WNMG060404-TF	0.4							●													
		WNMG080404-TF	0.4							●													
Medium Cutting		WNMG060404-PM	0.4	●	●																		
		WNMG060408-PM	0.8	●	●																		
		WNMG060412-PM	1.2	●	●																		
		WNMG080404-PM	0.4	●	●																		
		WNMG080408-PM	0.8	●	●																		
		WNMG080412-PM	1.2	●	●																		
		WNMG080416-PM	1.6	●	●																		
		WNMG080404-FM	0.4			●	●																
		WNMG080408-FM	0.8			●	●																
		WNMG080412-FM	1.2			●	●																
		WNMG060408-QM	0.8							●													
		WNMG060412-QM	1.2							●													
		WNMG080404-QM	0.4							●													
		WNMG080408-QM	0.8							●													
		WNMG060404-SF	0.4											●	○								
		WNMG060408-SF	0.8											●	○								
		WNMG080404-SF	0.4											●	○								
		WNMG080408-SF	0.8											●	○								
		WNMG060404-GM	0.4					●	●														
		WNMG060408-GM	0.8					●	●														
		WNMG060412-GM	1.2					●	●														
		WNMG080404-GM	0.4					●	●														
		WNMG080408-GM	0.8					●	●					●	○								
		WNMG080412-GM	1.2					●	●														
		WNMG060404-MP	0.4					○	●														
		WNMG060408-MP	0.8					●	●														
		WNMG060412-MP	1.2					●	●					●	○								
		WNMG080404-MP	0.4					●	●														
		WNMG080408-MP	0.8					●	●					●	○								
		WNMG080412-MP	1.2					●	●														

● In Stock ○ Inquiry Each Time

External Toolholders:A147,A158
Internal Toolholders:A169,A177

● :Continuous Cutting ◐ :Light Interrupted Cutting

WN																									
	Trigon80°	P	Steel	●	◐	●	◐			◐							●	●		●	●	●	●
		M	Stainless					●	◐	◐							●	●					
	Negative	K	Cast Iron							◐		●	◐							●	●	●	●
		N	Non-ferrous																●				
	with Hole	S	Superalloys											●	◐								
		H	Hard Materials																				

Application	Chipbreaker	Designation	Corner Radius	Coated															No Coated	Cermet		Coated Cermet	
				TP710	TP720	TP7110	TP7220	TM8110	TM8220	TG4120		TK910	TK920	TMS3115	TMS3125		TJ15	TJ20U	TN320	TC580	TC230	GT601	GT301
Medium Cutting		WNMG080404-MK	0.4									●	●										
		WNMG080408-MK	0.8									●	●										
		WNMG080412-MK	1.2									●	●										
		WNMA060404	0.4									●	●										
		WNMA060408	0.8									●	●										
		WNMA080404	0.4									●	●										
		WNMA080408	0.8									●	●										
		WNMA080412	1.2									●	●										
		WNMA080416	1.6									●	●										
		WNMG080404-PU	0.4																		●		
		WNMG080408-PU	0.8																		●		
		WNMG080412-PU	1.2																		●		
		WNMG080404-TQ	0.4																		●		
		WNMG080408-TQ	0.8																		●		
		WNMG080412-TQ	1.2																		●		
Heavy Cutting		WNMG080408-PR	0.8	●	●																		
		WNMG080412-PR	1.2	●	●																		
		WNMG080416-PR	1.6	●	●																		
		WNMG080408-LR	0.8					●	●														
		WNMG080412-LR	1.2					●	●														
		WNMG080408-KR	0.8									●	●										
		WNMG080412-KR	1.2									●	●										

● In Stock ○ Inquiry Each Time

External Toolholders:A147,A158
Internal Toolholders:A169,A177

● :Continuous Cutting ⊂ :Light Interrupted Cutting

CC																										
	Rhombic 80°	P	Steel	●	⊂	●	⊂			⊂							●	●		●	●	●	●
		M	Stainless					●	⊂	⊂							●	●					
	Positive7°	K	Cast Iron							⊂		●	⊂							●	●	●	●
		N	Non-ferrous																●				
	with Hole	S	Superalloys											●	⊂								
		H	Hard Materials																				

Application	Chipbreaker	Designation	Corner Radius	Coated														No Coated	Cermet		Coated Cermet	
				TP710	TP720	TP7110	TP7220	TM8110	TM8220	TG4120		TK910	TK920	TMS3115	TMS3125		TJ15	TJ20U	TN320	TC580	TC230	GT601	GT301
Finishing to Medium Cutting		CCMT060202-PS	0.2	●	●							●	●								●		●
		CCMT060204-PS	0.4	●	●							●	●								●		●
		CCMT060208-PS	0.8	●	●							●	●								●		●
		CCMT09T302-PS	0.2	●	●							●	●								●		●
		CCMT09T304-PS	0.4	●	●							●	●								●		●
		CCMT09T308-PS	0.8	●	●							●	●								●		●
		CCMT120404-PS	0.4	●	●							●	●								●		●
		CCMT120408-PS	0.8	●	●							●	●								●		●
		CCMT120412-PS	1.2	●	●							●	●										
		CCMT060202-MM	0.2					●	●					●	○						●		●
		CCMT060204-MM	0.4					●	●					●	○						●		●
		CCMT060208-MM	0.8					●	●					●	○						●		●
		CCMT09T302-MM	0.2					○	●					●	●						●		●
		CCMT09T304-MM	0.4					●	●					●	●						●		●
		CCMT09T308-MM	0.8					●	●					●	○						●		●
		CCMT060204-KS	0.4									●	●										
		CCMT09T304-KS	0.4									●	●										
		CCMT09T308-KS	0.8									●	●										
		CCMT120404-KS	0.4									●	●										
		CCMT120408-KS	0.8									●	●										
		CCMT120412-KS	1.2									●	●										
		CCMT060202-TF	0.2							●													
		CCMT060204-TF	0.4							●													
		CCMT09T302-TF	0.2							●													
		CCMT09T304-TF	0.4							●													
		CCMT09T308-TF	0.8							●													
		CCMT120404-TF	0.4							●													
		CCMT060204-CM	0.4							●													
		CCMT060208-CM	0.8							●													
		CCMT09T304-CM	0.4							●													
		CCMT09T308-CM	0.8							●													
		CCMT120404-CM	0.4							●													
		CCMT120408-CM	0.8							●													

● In Stock ○ Inquiry Each Time

External Toolholders:A148,A154,A159
Internal Toolholders:A170,A178

● :Continuous Cutting ◐ :Light Interrupted Cutting

CC																								
	Rhombic 80°	P	Steel	●	◐	●	◐			◐							●	●		●	●	●	●
		M	Stainless					●	◐	◐							●	●					
	Positive7°	K	Cast Iron							◐		●	◐							●	●	●	●
		N	Non-ferrous																●				
	with Hole	S	Superalloys											●	◐								
		H	Hard Materials																				

Application	Chipbreaker	Designation	Corner Radius	Coated														No Coated	Cermet		Coated Cermet	
				TP710	TP720	TP7110	TP7220	TM8110	TM8220	TG4120		TK910	TK920	TMS3115	TMS3125		TJ15	TJ20U	TN320	TC580	TC230	GT601	GT301
Finishing to Medium Cutting		CCGT09T301-PC	0.1														●						
		CCGT09T302-PC	0.2															●					
		CCGT09T304-PC	0.4															●					
		CCGT09T301-PY	0.1														●						
		CCGT09T302-PY	0.2															●					
		CCGT09T304-PY	0.4															●					
		CCGT060201R-15M	0.1														●						
		CCGT060201L-15M	0.1														●						
		CCGT060202R-15M	0.2															●					
		CCGT060202L-15M	0.2															●					
		CCGT060204R-15M	0.4															●					
		CCGT060204L-15M	0.4															●					
		CCGT09T301R-15M	0.1														●						
		CCGT09T301L-15M	0.1														●						
		CCGT09T302R-15M	0.2															●					
		CCGT09T302L-15M	0.2															●					
		CCGT09T304R-15M	0.4															●					
		CCGT09T304L-15M	0.4															●					
		CCGT0602005R-13U	0.05														●						
		CCGT0602005L-13U	0.05														●						
		CCGT060201R-13U	0.1														●						
		CCGT060201L-13U	0.1														●						
		CCGT060202R-13U	0.2															●					
		CCGT060202L-13U	0.2															●					
		CCGT060204R-13U	0.4															●					
		CCGT060204L-13U	0.4															●					
		CCGT09T301R-15V	0.1														●						
		CCGT09T301L-15V	0.1														●						
		CCGT09T302R-15V	0.2															●					
		CCGT09T302L-15V	0.2															●					
		CCGT09T304R-15V	0.4															●					
		CCGT09T304L-15V	0.4															●					

● In Stock ○ Inquiry Each Time

External Toolholders:A148,A154,A159
Internal Toolholders:A170,A178

● :Continuous Cutting ◐ :Light Interrupted Cutting

CC																								
	Rhombic 80°	P	Steel	●	◐	●	◐			◐							●	●		●	●	●	●
		M	Stainless					●	◐	◐							●	●					
	Positive7°	K	Cast Iron							◐		●	◐							●	●	●	●
		N	Non-ferrous																●				
	with Hole	S	Superalloys											●	◐								
		H	Hard Materials																				

Application	Chipbreaker	Designation	Corner Radius	Coated														No Coated	Cermet		Coated Cermet	
				TP710	TP720	TP7110	TP7220	TM8110	TM8220	TG4120		TK910	TK920	TMS3115	TMS3125		TJ15	TJ20U	TN320	TC580	TC230	GT601	GT301
Finishing to Medium Cutting		CCGT09T3005R-15U	0.05														●						
		CCGT09T3005L-15U	0.05														●						
		CCGT09T301R-15U	0.1														●						
		CCGT09T301L-15U	0.1														●						
		CCGT09T302R-15U	0.2															●					
		CCGT09T302L-15U	0.2															●					
		CCGT09T304R-15U	0.4															●					
		CCGT09T304L-15U	0.4															●					
		CCGT060201R-15M	0.1																	●		●	
		CCGT060201L-15M	0.1																	●		●	
		CCGT060202R-15M	0.2																	●		●	
		CCGT060202L-15M	0.2																	●		●	
		CCGT060204R-15M	0.4																	●		●	
		CCGT060204L-15M	0.4																	●		●	
		CCGT09T301R-15M	0.1																	●		●	
		CCGT09T301L-15M	0.1																	●		●	
		CCGT09T302R-15M	0.2																	●		●	
		CCGT09T302L-15M	0.2																	●		●	
		CCGT09T304R-15M	0.4																	●		●	
		CCGT09T304L-15M	0.4																	●		●	
		CCGT060201R-12U	0.1																	●		●	
		CCGT060201L-12U	0.1																	●		●	
		CCGT060202R-12U	0.2																	●		●	
		CCGT060202L-12U	0.2																	●		●	
		CCGT060204R-12U	0.4																	●		●	
		CCGT060204L-12U	0.4																	●		●	
		CCGT09T301R-15U	0.1																	●		●	
		CCGT09T301L-15U	0.1																	●		●	
		CCGT09T302R-15U	0.2																	●		●	
		CCGT09T302L-15U	0.2																	●		●	
		CCGT09T304R-15U	0.4																	●		●	
		CCGT09T304L-15U	0.4																	●		●	
		CCGT09T302-AL	0.2																●				
		CCGT09T304-AL	0.4																●				
		CCGT09T308-AL	0.8																●				
		CCGT120402-AL	0.2																●				
		CCGT120404-AL	0.4																●				
		CCGT120408-AL	0.8																●				

● In Stock ○ Inquiry Each Time

External Toolholders:A148,A154,A159
Internal Toolholders:A170,A178

● :Continuous Cutting ◐ :Light Interrupted Cutting

DC																								
	Rhombic 55°	P	Steel	●	◐	●	◐			◐							●	●		●	●	●	●
		M	Stainless					●	◐	◐							●	●					
	Positive7°	K	Cast Iron							◐		●	◐							●	●	●	●
		N	Non-ferrous																●				
	with Hole	S	Superalloys											●	◐								
		H	Hard Materials																				

Application	Chipbreaker	Designation	Corner Radius	Coated															No Coated	Cermet		Coated Cermet	
				TP710	TP720	TP7110	TP7220	TM8110	TM8220	TG4120		TK910	TK920	TMS3115	TMS3125		TJ15	TJ20U	TN320	TC580	TC230	GT601	GT301
Finishing to Medium Cutting		DCMT070202-PS	0.2	●	●							●	●								●		●
		DCMT070204-PS	0.4	●	●							●	●								●		●
		DCMT070208-PS	0.8	●	●							●	●								●		●
		DCMT11T302-PS	0.2	●	●							●	●								●		●
		DCMT11T304-PS	0.4	●	●							●	●								●		●
		DCMT11T308-PS	0.8	●	●							●	●								●		●
		DCMT150404-PS	0.4	●	●							●	●										
		DCMT150408-PS	0.8	●	●							●	●	○	●								
		DCMT070202-MM	0.2					○	●					●							●		●
		DCMT070204-MM	0.4					●	●					●							●		●
		DCMT070208-MM	0.8					○	●														
		DCMT11T302-MM	0.2					○	●					●							●		●
		DCMT11T304-MM	0.4					●	●					●							●		●
		DCMT11T308-MM	0.8					●	●					●							●		●
		DCMT11T304-KS	0.4									●	●										
		DCMT11T308-KS	0.8									●	●										
		DCMT070204-CM	0.4							●													
		DCMT070208-CM	0.8							●													
		DCMT11T304-CM	0.4							●													
		DCMT11T308-CM	0.8							●													
		DCGT11T301-PC	0.1														●						
		DCGT11T302-PC	0.2															●					
		DCGT11T304-PC	0.4															●					
		DCGT11T301-PY	0.1														●						
		DCGT11T302-PY	0.2															●					
		DCGT11T304-PY	0.4															●					
		DCGT070201R-15M	0.1														●						
		DCGT070201L-15M	0.1														●						
		DCGT070202R-15M	0.2															●					
		DCGT070202L-15M	0.2															●					
		DCGT070204R-15M	0.4															●					
		DCGT070204L-15M	0.4															●					
		DCGT11T301R-15M	0.1														●						
		DCGT11T301L-15M	0.1														●						
		DCGT11T302R-15M	0.2															●					
		DCGT11T302L-15M	0.2															●					
		DCGT11T304R-15M	0.4															●					
		DCGT11T304L-15M	0.4															●					

● In Stock ○ Inquiry Each Time

External Toolholders:A148,A154,A159
Internal Toolholders:A170,A178

● :Continuous Cutting ◐ :Light Interrupted Cutting

DC																								
Rhombic 55° Positive 7° with Hole	P	Steel	●	◐	●	◐			◐							●	●		●	●	●	●
	M	Stainless					●	◐	◐							●	●					
	K	Cast Iron							◐		●	◐							●	●	●	●
	N	Non-ferrous												●	◐			●				
	S	Superalloys											●	◐								
	H	Hard Materials																				

Application	Chipbreaker	Designation	Corner Radius	Coated														No Coated	Cermet		Coated Cermet	
				TP710	TP720	TP7110	TP7220	TM8110	TM8220	TG4120		TK910	TK920	TMS3115	TMS3125		TJ15	TJ20U	TN320	TC580	TC230	GT601	GT301
Finishing to Medium Cutting		DCGT070201R-15V	0.1														●						
		DCGT070201L-15V	0.1														●						
		DCGT070202R-15V	0.2															●					
		DCGT070202L-15V	0.2															●					
		DCGT070204R-15V	0.4															●					
		DCGT070204L-15V	0.4															●					
		DCGT11T3005R-15V	0.05														●						
		DCGT11T3005L-15V	0.05														●						
		DCGT11T301R-15V	0.1														●						
		DCGT11T301L-15V	0.1														●						
		DCGT11T302R-15V	0.2															●					
		DCGT11T302L-15V	0.2															●					
		DCGT11T304R-15V	0.4															●					
		DCGT11T304L-15V	0.4															●					
		DCGT070201R-12U	0.1														●						
		DCGT070201L-12U	0.1														●						
		DCGT070202R-12U	0.2															●					
		DCGT070202L-12U	0.2															●					
		DCGT070204R-12U	0.4															●					
		DCGT070204L-12U	0.4															●					
		DCGT11T3005R-15U	0.05														●						
		DCGT11T3005L-15U	0.05														●						
		DCGT11T301R-15U	0.1														●						
		DCGT11T301L-15U	0.1														●						
		DCGT11T302R-15U	0.2															●					
		DCGT11T302L-15U	0.2															●					
		DCGT11T304R-15U	0.4															●					
		DCGT11T304L-15U	0.4															●					
		DCGT070201R-15M	0.1																	●		●	
		DCGT070201L-15M	0.1																	●		●	
		DCGT070202R-15M	0.2																	●		●	
		DCGT070202L-15M	0.2																	●		●	
		DCGT070204R-15M	0.4																	●		●	
		DCGT070204L-15M	0.4																	●		●	
		DCGT11T301R-15M	0.1																	●		●	
		DCGT11T301L-15M	0.1																	●		●	
		DCGT11T302R-15M	0.2																	●		●	
		DCGT11T302L-15M	0.2																	●		●	
		DCGT11T304R-15M	0.4																	●		●	
		DCGT11T304L-15M	0.4																	●		●	

● In Stock ○ Inquiry Each Time

External Toolholders:A148,A154,A159
Internal Toolholders:A170,A178

● :Continuous Cutting ● :Light Interrupted Cutting

DC																						
	Rhombic 55°	P	Steel	●	●	●	●			●							●	●		●	●	●	●
		M	Stainless					●	●	●							●	●					
	Positive7°	K	Cast Iron							●		●	●							●	●	●	●
		N	Non-ferrous																●				
	with Hole	S	Superalloys											●	●								
		H	Hard Materials																				

Application	Chipbreaker	Designation	Corner Radius	Coated														No Coated	Cermet		Coated Cermet	
				TP710	TP720	TP7110	TP7220	TM8110	TM8220	TG4120		TK910	TK920	TMS3115	TMS3125		TJ15	TJ20U	TN320	TC580	TC230	GT601	GT301
Finishing to Medium Cutting		DCGT070201R-12U	0.1																●		●	
		DCGT070201L-12U	0.1																●		●	
		DCGT070202R-12U	0.2																●		●	
		DCGT070202L-12U	0.2																●		●	
		DCGT070204R-12U	0.4																●		●	
		DCGT070204L-12U	0.4																●		●	
		DCGT0702005R-15V	0.05																●		●	
		DCGT0702005L-15V	0.05																●		●	
		DCGT070201R-15V	0.1																●		●	
		DCGT070201L-15V	0.1																●		●	
		DCGT070202R-15V	0.2																●		●	
		DCGT070202L-15V	0.2																●		●	
		DCGT070204R-15V	0.4																●		●	
		DCGT070204L-15V	0.4																●		●	
		DCGT11T301R-15V	0.1																●		●	
		DCGT11T301L-15V	0.1																●		●	
		DCGT11T302R-15V	0.2																●		●	
		DCGT11T302L-15V	0.2																●		●	
		DCGT11T304R-15V	0.4																●		●	
		DCGT11T304L-15V	0.4																●		●	
		DCGT11T3005R-15U	0.05																●		●	
		DCGT11T3005L-15U	0.05																●		●	
		DCGT11T301R-15U	0.1																●		●	
		DCGT11T301L-15U	0.1																●		●	
		DCGT11T302R-15U	0.2																●		●	
		DCGT11T302L-15U	0.2																●		●	
		DCGT11T304R-15U	0.4																●		●	
		DCGT11T304L-15U	0.4																	●		●	
		DCGT070204-AL	0.4																●				
		DCGT070208-AL	0.8																●				
		DCGT11T302-AL	0.2																●				
		DCGT11T304-AL	0.4																●				
		DCGT11T308-AL	0.8																●				
		DCGT11T312-AL	1.2																●				

● In Stock ○ Inquiry Each Time

External Toolholders:A148,A154,A159
Internal Toolholders:A170,A178

● :Continuous Cutting ◐ :Light Interrupted Cutting

SC																									
	Square 90°	P	Steel	●	◐	●	◐			◐							●	●		●	●	●	●
		M	Stainless					●	◐	◐							●	●					
	Positive 7°	K	Cast Iron							◐		●	◐							●	●	●	●
		N	Non-ferrous																●				
	with Hole	S	Superalloys											●	◐								
		H	Hard Materials																				

Application	Chipbreaker	Designation	Corner Radius	Coated														No Coated	Cermet		Coated Cermet	
				TP710	TP720	TP7110	TP7220	TM8110	TM8220	TG4120		TK910	TK920	TMS3115	TMS3125		TJ15	TJ20U	TN320	TC580	TC230	GT601	GT301
Finishing to Medium Cutting		SCMT09T304-PS	0.4	●	●							●	●	●	○						●		●
		SCMT09T308-PS	0.8	●	●							●	●								●		●
		SCMT120404-PS	0.4	●	●							●	●								●		●
		SCMT120408-PS	0.8	●	●							●	●								●		●
		SCMT09T308-MM	0.8					●	●														
		SCMT09T308-KS	0.8									●	●										
		SCMT120408-KS	0.8									●	●										
		SCMT120412-KS	1.2									●	●										
		SCMT09T304-CM	0.4							●													
		SCMT09T308-CM	0.8							●													
		SCMT120404-CM	0.4							●													
		SCMT120408-CM	0.8							●													
		SCMT120412-CM	1.2							●													

● In Stock ○ Inquiry Each Time

External Toolholders:A149,A154

● :Continuous Cutting ◐ :Light Interrupted Cutting

TB																								
	Triangular 60°	P	Steel	●	◐	●	◐			◐							●	●		●	●	●	●
		M	Stainless					●	◐	◐							●	●					
	Positive 5°	K	Cast Iron							◐		●	◐							●	●	●	●
		N	Non-ferrous																●				
	with Hole	S	Superalloys											●	◐								
		H	Hard Materials																				

Application	Chipbreaker	Designation	Corner Radius	Coated														No Coated	Cermet		Coated Cermet	
				TP710	TP720	TP7110	TP7220	TM8110	TM8220	TG4120		TK910	TK920	TMS3115	TMS3125		TJ15	TJ20U	TN320	TC580	TC230	GT601	GT301
Finishing to Medium Cutting		TBGT060102R-14K	0.2															●					
		TBGT060102L-14K	0.2															●					
		TBGT060104R-14K	0.4															●					
		TBGT060104L-14K	0.4															●					
		TBGT060102R-14K	0.2																	●		●	
		TBGT060102L-14K	0.2																	●		●	
		TBGT060104R-14K	0.4																	●		●	
		TBGT060104L-14K	0.4																	●		●	

● In Stock ○ Inquiry Each Time

● :Continuous Cutting ◐ :Light Interrupted Cutting

TC																								
	Triangular 60°	P	Steel	●	◐	●	◐			◐							●	●		●	●	●	●
		M	Stainless					●	◐	◐							●	●					
	Positive 7°	K	Cast Iron							◐		●	◐							●	●	●	●
		N	Non-ferrous																●				
	with Hole	S	Superalloys											●	◐								
		H	Hard Materials																				

Application	Chipbreaker	Designation	Corner Radius	Coated														No Coated	Cermet		Coated Cermet	
				TP710	TP720	TP7110	TP7220	TM8110	TM8220	TG4120		TK910	TK920	TMS3115	TMS3125		TJ15	TJ20U	TN320	TC580	TC230	GT601	GT301
Finishing to Medium Cutting		TCMT090204-PS	0.4	●	●							●	●								●		●
		TCMT110202-PS	0.2	●	●							●	●								●		●
		TCMT110204-PS	0.4	●	●							●	●								●		●
		TCMT110208-PS	0.8	●	●							●	●								●		●
		TCMT16T304-PS	0.4	●	●							●	●								●		●
		TCMT16T308-PS	0.8	●	●							●	●								●		●
		TCMT110202-MM	0.2					○	●					●	○						●		●
		TCMT110204-MM	0.4					●	●					●	○						●		●
		TCMT110208-MM	0.8					○	●														
		TCMT16T304-MM	0.4					○	●														
		TCMT16T308-MM	0.8					●	●														
		TCMT110204-KS	0.4									●	●										
		TCMT16T304-KS	0.4									●	●										
		TCMT16T308-KS	0.8									●	●										
		TCMT090204-CM	0.4							●													
		TCMT090208-CM	0.8							●													
		TCMT110204-CM	0.4							●													
		TCMT110208-CM	0.8							●													
		TCMT16T304-CM	0.4							●													
		TCMT16T308-CM	0.8							●													
		TCMT16T312-CM	1.2							●													
		TCGT1102005R-15V	0.05														●						
		TCGT1102005L-15V	0.05														●						
		TCGT110201R-15V	0.1														●						
		TCGT110201L-15V	0.1														●						
		TCGT110202R-15V	0.2															●					
		TCGT110202L-15V	0.2															●					
		TCGT110204R-15V	0.4															●					
		TCGT110204L-15V	0.4															●					

● In Stock ○ Inquiry Each Time

External Toolholders:A151,A155
Internal Toolholders:A172,A180

● :Continuous Cutting ◐ :Light Interrupted Cutting

TC																								
	Triangular 60°	P	Steel	●	◐	●	◐			◐							●	●		●	●	●	●
		M	Stainless					●	◐	◐							●	●					
	Positive 7°	K	Cast Iron							◐		●	◐							●	●	●	●
		N	Non-ferrous																●				
	with Hole	S	Superalloys											●	◐								
		H	Hard Materials																				

Application	Chipbreaker	Designation	Corner Radius	Coated															No Coated	Cermet		Coated Cermet	
				TP710	TP720	TP7110	TP7220	TM8110	TM8220	TG4120		TK910	TK920	TMS3115	TMS3125		TJ15	TJ20U	TN320	TC580	TC230	GT601	GT301
Finishing to Medium Cutting		TCGT110202R-7KF	0.2																	●		●	
		TCGT110202L-7KF	0.2																	●		●	
		TCGT110204R-7KF	0.4																	●		●	
		TCGT110204L-7KF	0.4																	●		●	
		TCGT110301R-10U	0.1																	●		●	
		TCGT110301L-10U	0.1																	●		●	
		TCGT110302R-10U	0.2																	●		●	
		TCGT110302L-10U	0.2																	●		●	
		TCGT090204-AL	0.4																●				
		TCGT110204-AL	0.4																●				
		TCGT16T302-AL	0.2																●				
		TCGT16T304-AL	0.4																●				
		TCGT16T308-AL	0.8																●				

● In Stock ○ Inquiry Each Time

External Toolholders:A151,A155
Internal Toolholders:A172,A180

● :Continuous Cutting ◐ :Light Interrupted Cutting

TP																								
	Triangular 60°	P	Steel	●	◐	●	◐			◐							●	●		●	●	●	●
		M	Stainless					●	◐	◐							●	●					
	Positive 11°	K	Cast Iron							◐		●	◐							●	●	●	●
		N	Non-ferrous																●				
	with Hole	S	Superalloys											●	◐								
		H	Hard Materials																				

Application	Chipbreaker	Designation	Corner Radius	Coated														No Coated	Cermet		Coated Cermet	
				TP710	TP720	TP7110	TP7220	TM8110	TM8220	TG4120		TK910	TK920	TMS3115	TMS3125		TJ15	TJ20U	TN320	TC580	TC230	GT601	GT301
Finishing to Medium Cutting		TPMT110202-MM	0.2					○	●					●	○								
		TPMT110204-MM	0.4					○	●					●	○								
		TPGH080202R-15K	0.2															●					
		TPGH080202L-15K	0.2															●					
		TPGH080204R-15K	0.4															●					
		TPGH080204L-15K	0.4															●					
		TPGH090201R-15K	0.1														●						
		TPGH090201L-15K	0.1														●						
		TPGH090202R-15K	0.2															●					
		TPGH090202L-15K	0.2															●					
		TPGH090204R-15K	0.4															●					
		TPGH090204L-15K	0.4															●					
		TPGH110302R-15K	0.2															●					
		TPGH110302L-15K	0.2															●					
		TPGH110304R-15K	0.4															●					
		TPGH110304L-15K	0.4															●					
		TPGH080201R-15K	0.1																	●		●	
		TPGH080201L-15K	0.1																	●		●	
		TPGH080202R-15K	0.2																	●		●	
		TPGH080202L-15K	0.2																	●		●	
		TPGH080204R-15K	0.4																	●		●	
		TPGH080204L-15K	0.4																	●		●	
		TPGH090201R-15K	0.1																	●		●	
		TPGH090201L-15K	0.1																	●		●	
		TPGH090202R-15K	0.2																	●		●	
		TPGH090202L-15K	0.2																	●		●	
		TPGH090204R-15K	0.4																	●		●	
		TPGH090204L-15K	0.4																	●		●	
		TPGH110202R-15K	0.2																	●		●	
		TPGH110202L-15K	0.2																	●		●	
		TPGH110204R-15K	0.4																	●		●	
		TPGH110204L-15K	0.4																	●		●	
		TPGH110302R-15K	0.2																	●		●	
		TPGH110302L-15K	0.2																	●		●	
		TPGH110304R-15K	0.4																	●		●	
		TPGH110304L-15K	0.4																	●		●	
		TPGH110308R-15K	0.8																	●		●	
		TPGH110308L-15K	0.8																	●		●	

● In Stock ○ Inquiry Each Time

Internal Toolholders:A173,A181

● :Continuous Cutting ◐ :Light Interrupted Cutting

VB																								
	Rhombic35°	P	Steel	●	◐	●	◐			◐							●	●		●	●	●	●
		M	Stainless					●	◐	◐							●	●					
	Positive 5°	K	Cast Iron							◐		●	◐							●	●	●	●
		N	Non-ferrous																●				
	with Hole	S	Superalloys											●	◐								
		H	Hard Materials																				

Application	Chipbreaker	Designation	Corner Radius	Coated														No Coated	Cermet		Coated Cermet	
				TP710	TP720	TP7110	TP7220	TM8110	TM8220	TG4120		TK910	TK920	TMS3115	TMS3125		TJ15	TJ20U	TN320	TC580	TC230	GT601	GT301
Medium Cutting		VBMT160404-PS	0.4	●	●							●	●								●		●
		VBMT160408-PS	0.8	●	●							●	●								●		●
		VBMT160412-PS	1.2	●	●							●	●										
Finishing to Medium Cutting		VBMT110304-MM	0.4					●	●					●	○						●		●
		VBMT110308-MM	0.8					○	●														
		VBMT160402-MM	0.2					●	●														
		VBMT160404-MM	0.4					●	●					●	○						●		●
		VBMT160408-MM	0.8					●	●					●	○						●		●
		VBMT160408-KS	0.8									●	●										
		VBMT110304-CM	0.4							●													
		VBMT160404-CM	0.4							●													
		VBMT160408-CM	0.8							●													
		VBMT160412-CM	1.2							●													
		VBGT110301-PC	0.1														●						
		VBGT110302-PC	0.2															●					
		VBGT110301-PY	0.1														●						
		VBGT110302-PY	0.2															●					
		VBGT110301R-15M	0.1														●						
		VBGT110301L-15M	0.1														●						
		VBGT110302R-15M	0.2															●					
		VBGT110302L-15M	0.2															●					
		VBGT110304R-15M	0.4															●					
		VBGT110304L-15M	0.4															●					
		VBGT160402R-15M	0.2															●					
		VBGT160402L-15M	0.2															●					
		VBGT160404R-15M	0.4															●					
		VBGT160404L-15M	0.4															●					
		VBGT1103005R-15V	0.05														●						
		VBGT1103005L-15V	0.05														●						
		VBGT110301R-15V	0.1														●						
		VBGT110301L-15V	0.1														●						
		VBGT110302R-15V	0.2															●					
		VBGT110302L-15V	0.2															●					
		VBGT110304R-15V	0.4															●					
		VBGT110304L-15V	0.4															●					

● In Stock ○ Inquiry Each Time

External Toolholders:A151,A155,A160
Internal Toolholders:A174,A181

● :Continuous Cutting ⊂ :Light Interrupted Cutting

VB																								
	Rhombic35°	P	Steel	●	⊂	●	⊂			⊂							●	●		●	●	●	●
		M	Stainless					●	⊂	⊂							●	●					
	Positive 5°	K	Cast Iron							⊂		●	⊂							●	●	●	●
		N	Non-ferrous																●				
	with Hole	S	Superalloys											●	⊂								
		H	Hard Materials																				

Application	Chipbreaker	Designation	Corner Radius	Coated														No Coated	Cermet		Coated Cermet	
				TP710	TP720	TP7110	TP7220	TM8110	TM8220	TG4120		TK910	TK920	TMS3115	TMS3125		TJ15	TJ20U	TN320	TC580	TC230	GT601	GT301
Finishing to Medium Cutting		VBGT1103005R-14VI	0.05														●						
		VBGT1103005L-14VI	0.05														●						
		VBGT110301R-14VI	0.1														●						
		VBGT110301L-14VI	0.1														●						
		VBGT110302R-14VI	0.2															●					
		VBGT110302L-14VI	0.2															●					
		VBGT110304R-14VI	0.4															●					
		VBGT110304L-14VI	0.4															●					
		VBGT1103005R-12U	0.05														●						
		VBGT1103005L-12U	0.05														●						
		VBGT110301R-12U	0.1														●						
		VBGT110301L-12U	0.1														●						
		VBGT110302R-12U	0.2															●					
		VBGT110302L-12U	0.2															●					
		VBGT110304R-12U	0.4															●					
		VBGT110304L-12U	0.4															●					
		VBGT110301R-10U	0.1														●						
		VBGT110301L-10U	0.1														●						
		VBGT110302R-10U	0.2															●					
		VBGT110302L-10U	0.2															●					
		VBGT110304R-10U	0.4															●					
		VBGT110304L-10U	0.4															●					
		VBGT1103005R-15M	0.05																	●		●	
		VBGT1103005L-15M	0.05																	●		●	
		VBGT110301R-15M	0.1																	●		●	
		VBGT110301L-15M	0.1																	●		●	
		VBGT110302R-15M	0.2																	●		●	
		VBGT110302L-15M	0.2																	●		●	
		VBGT110304R-15M	0.4																	●		●	
		VBGT110304L-15M	0.4																	●		●	

● In Stock ○ Inquiry Each Time

External Toolholders:A151,A155,A160
Internal Toolholders:A174,A181

● :Continuous Cutting ⊂ :Light Interrupted Cutting

VB																								
	Rhombic35°	P	Steel	●	⊂	●	⊂			⊂							●	●		●	●	●	●
		M	Stainless					●	⊂	⊂							●	●					
	Positive 5°	K	Cast Iron							⊂		●	⊂							●	●	●	●
		N	Non-ferrous																●				
	with Hole	S	Superalloys											●	⊂								
		H	Hard Materials																				

Application	Chipbreaker	Designation	Corner Radius	Coated															No Coated	Cermet		Coated Cermet	
				TP710	TP720	TP7110	TP7220	TM8110	TM8220	TG4120		TK910	TK920	TMS3115	TMS3125		TJ15	TJ20U	TN320	TC580	TC230	GT601	GT301
Finishing to Medium Cutting		VBGT1103005R-14VI	0.05																	●		●	
		VBGT1103005L-14VI	0.05																	●		●	
		VBGT110301R-14VI	0.1																	●		●	
		VBGT110301L-14VI	0.1																	●		●	
		VBGT110302R-14VI	0.2																	●		●	
		VBGT110302L-14VI	0.2																	●		●	
		VBGT110304R-14VI	0.4																	●		●	
		VBGT110304L-14VI	0.4																	●		●	
		VBGT110302-AL	0.2																●				
		VBGT110304-AL	0.4																●				
		VBGT160404-AL	0.4																●				
		VBGT160408-AL	0.8																●				

● In Stock ○ Inquiry Each Time

External Toolholders:A151,A155,A160
Internal Toolholders:A174,A181

● :Continuous Cutting ⊂ :Light Interrupted Cutting

VC																								
	Rhombic 35°	P	Steel	●	⊂	●	⊂			⊂							●	●		●	●	●	●
		M	Stainless					●	⊂	⊂							●	●					
	Positive 7°	K	Cast Iron							⊂		●	⊂							●	●	●	●
		N	Non-ferrous																●				
	with Hole	S	Superalloys											●	⊂								
		H	Hard Materials																				

Application	Chipbreaker	Designation	Corner Radius	Coated														No Coated	Cermet		Coated Cermet	
				TP710	TP720	TP7110	TP7220	TM8110	TM8220	TG4120		TK910	TK920	TMS3115	TMS3125		TJ15	TJ20U	TN320	TC580	TC230	GT601	GT301
Finishing to Medium Cutting		VCMT110304-PS	0.4	●	●							●	●								●		●
		VCMT110308-PS	0.8									●	●								●		●
		VCMT160404-PS	0.4	●	●							●	●								●		●
		VCMT160408-PS	0.8	●	●							●	●								●		●
		VCMT160404-KS	0.4									●	●										
		VCMT160408-KS	0.8									●	●										
		VCMT160404-CM	0.4							●													
		VCMT160408-CM	0.8							●													
		VCGT110301-PC	0.1														●						
		VCGT110302-PC	0.2															●					
		VCGT110304-PC	0.4															●					
		VCGT110301-PY	0.1														●						
		VCGT110302-PY	0.2															●					
		VCGT110304-PY	0.4															●					
		VCGT1103005R-15V	0.05														●						
		VCGT1103005L-15V	0.05														●						
		VCGT110301R-15V	0.1														●						
		VCGT110301L-15V	0.1														●						
		VCGT110302R-15V	0.2															●					
		VCGT110302L-15V	0.2															●					
		VCGT110304R-15V	0.4															●					
		VCGT110304L-15V	0.4															●					
		VCGT1103005R-12U	0.05														●						
		VCGT1103005L-12U	0.05														●						
		VCGT110301R-12U	0.1														●						
		VCGT110301L-12U	0.1														●						
		VCGT110302R-12U	0.2															●					
		VCGT110302L-12U	0.2															●					
		VCGT110304R-12U	0.4															●					
		VCGT110304L-12U	0.4															●					

● In Stock ○ Inquiry Each Time

External Toolholders:A152,A155,A160
Internal Toolholders:A174,A182

● :Continuous Cutting ⊂ :Light Interrupted Cutting

VP																								
	Rhombic 35°	P	Steel	●	⊂	●	⊂			⊂							●	●		●	●	●	●
		M	Stainless					●	⊂	⊂							●	●					
	Positive11°	K	Cast Iron							⊂		●	⊂							●	●	●	●
		N	Non-ferrous																●				
	with Hole	S	Superalloys											●	⊂								
		H	Hard Materials																				

Application	Chipbreaker	Designation	Corner Radius	Coated														No Coated	Cermet		Coated Cermet	
				TP710	TP720	TP7110	TP7220	TM8110	TM8220	TG4120		TK910	TK920	TMS3115	TMS3125		TJ15	TJ20U	TN320	TC580	TC230	GT601	GT301
Finishing to Medium Cutting		VPET1103005R-15M	0.05														●						
		VPET1103005L-15M	0.05														●						
		VPET1103008R-15M	0.08														●						
		VPET1103008L-15M	0.08														●						
		VPET110301R-15M	0.1														●						
		VPET110301L-15M	0.1														●						
		VPET110302R-15M	0.2															●					
		VPET110302L-15M	0.2															●					
		VPET110304R-15M	0.4															●					
		VPET110304L-15M	0.4															●					

● In Stock ○ Inquiry Each Time

● :Continuous Cutting ⊂ :Light Interrupted Cutting

WB																													
	Trigon 80°	P	Steel		●	⊂	●	⊂			⊂						●	●	●		●	●	●	●
		M	Stainless						●	⊂	⊂						●	●	●					
	Positive 5°	K	Cast Iron								⊂		●	⊂			●				●	●	●	●
		N	Non-ferrous																	●				
	with Hole	S	Superalloys												●	⊂								
		H	Hard Materials																					

Application	Chipbreaker	Designation	Corner Radius	Coated															No Coated	Cermet		Coated Cermet	
				TP710	TP720	TP7110	TP7220	TM8110	TM8220	TG4120		TK910	TK920	TMS3115	TMS3125	TI620	TJ15	TJ20U	TN200	TC580	TC230	GT601	GT301
Finishing to Medium Cutting		WBGT060102L-15K	0.2															●					
		WBGT060104L-15K	0.4															●					
		WBGT060102L-15K	0.2																	●		●	
		WBGT060104L-15K	0.4																	●		●	

● In Stock ○ Inquiry Each Time

● :Continuous Cutting ⊂ :Light Interrupted Cutting

WC																										
	Trigon 80°	P	Steel		●	⊂	●	⊂			⊂						●	●	●		●	●	●	●
		M	Stainless						●	⊂	⊂						●	●	●					
	Positive 7°	K	Cast Iron								⊂		●	⊂			●				●	●	●	●
		N	Non-ferrous																	●				
	with Hole	S	Superalloys												●	⊂								
		H	Hard Materials																					

Application	Chipbreaker	Designation	Corner Radius	Coated															No Coated	Cermet		Coated Cermet	
				TP710	TP720	TP7110	TP7220	TM8110	TM8220	TG4120		TK910	TK920	TMS3115	TMS3125	TI620	TJ15	TJ20U	TN200	TC580	TC230	GT601	GT301
Finishing to Medium Cutting		WCMT06T304-PS	0.4	●	●							●	●								●		●
		WCMT06T308-PS	0.8	●	●							●	●								●		●
		WCMX040208	0.8													●							
		WCMX050308	0.8													●							
		WCMX06T308	0.8													●							
		WCMX080412	1.2													●							
		WCGX030208	0.8																●				
		WCGX040208	0.8																●				
		WCGX050308	0.8																●				
		WCGX06T308	0.8																●				
		WCGX080412	1.2																●				

● In Stock ○ Inquiry Each Time

● :Continuous Cutting ◐ :Light Interrupted Cutting

RC																														
	Round	P	Steel		●	◐	●	◐			◐						●	●	●		●	●	●	●
		M	Stainless						●	◐	◐						●	●	●					
	Positive 7°	K	Cast Iron								◐		●	◐			●				●	●	●	●
		N	Non-ferrous																	●				
	with Hole	S	Superalloys												●	◐								
		H	Hard Materials																					

Application	Chipbreaker	Designation	Corner Radius	Coated															No Coated	Cermet		Coated Cermet	
				TP710	TP720	TP7110	TP7220	TM8110	TM8220	TG4120		TK910	TK920	TMS3115	TMS3125	TI620	TJ15	TJ20U	TN200	TC580	TC230	GT601	GT301
Heavy Cutting		RCMX160600-HR	8.0	●	○																		
		RCMX200600-HR	10.0	●	○																		
		RCMX250700-HR	12.5	●	○																		
		RCMX320900-HR	16.0	●	○																		

● In Stock ○ Inquiry Each Time

External Toolholders:A166

● :Continuous Cutting ◐ :Light Interrupted Cutting

LN																														
	Oblong90°	P	Steel		●	◐	●	◐			◐						●	●	●		●	●	●	●
		M	Stainless						●	◐	◐						●	●	●					
	Negative	K	Cast Iron								◐		●	◐			●				●	●	●	●
		N	Non-ferrous																	●				
	with Hole	S	Superalloys												●	◐								
		H	Hard Materials																					

Application	Chipbreaker	Designation	Corner Radius	Coated															No Coated	Cermet		Coated Cermet	
				TP710	TP720	TP7110	TP7220	TM8110	TM8220	TG4120		TK910	TK920	TMS3115	TMS3125	TI620	TJ15	TJ20U	TN200	TC580	TC230	GT601	GT301
Heavy Cutting		LNMX191940-RF	4.0	●	○																		
		LNMX301940-RM	4.0	●	○																		

● In Stock ○ Inquiry Each Time

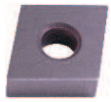
TOTIME ceramic insert is in good wear-resistance and shock-resistance in high speed cutting.
Pure raw materials give stability and fine microstructure to the products.
Shaped bodies are completely condensed so that the finished goods are strong and resistant against fracture and wear .

- Improved work efficiency by increasing cutting speed on extremely higher than carbide inserts.
- Longer tool life through excellent wear resistance.
- Precise cutting and superior surface roughness.

Grade	Workpiece Material	Advantages
K30G	Gray Cast Iron (FC) Malleable (FCMB) Chilled Cast Iron	Al_2O_3+TiCN Excellent wear resistance A basic choice for machining hardened steel and alloy steel
KC30G	Carbon Steel Alloy Steel Bearing Steel	Al_2O_3+TiCN+TiN coated Excellent wear resistance Finishing for hardened steel and cast iron
H70G	Gray Cast Iron (FC) Steel（HRC45≤）	Al_2O_3+ZrO_2 Finishing, semi-finishing of cast iron and steel
C60G	Ductile Cast Iron	TiC+Al_2O_3 High thermal shock resistance Usable with coolant Finishing for ductile cast iron

CN — Rhombic 80° Negative with Hole

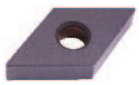
P	Steel
M	Stainless
K	Cast Iron
N	Non-ferrous
S	Superalloys
H	Hard Materials

Application	Chipbreaker	Designation	Corner Radius	CERAMIC K30G	KC30G	H70G	C60G
Medium Cutting		CNGA120404	0.4	●	●	●	●
		CNGA120408	0.8	●	●	●	●
		CNGA120412	1.2	●	●		●

External Toolholders:A142,A156,A161
Internal Toolholders:A168,A176

DN — Rhombic 55° Negative with Hole

P	Steel
M	Stainless
K	Cast Iron
N	Non-ferrous
S	Superalloys
H	Hard Materials

Application	Chipbreaker	Designation	Corner Radius	CERAMIC K30G	KC30G	H70G	C60G
Medium Cutting		DNGA150404	0.4	●	●	●	●
		DNGA150408	0.8	●	●	●	●

External Toolholders:A143,A156
Internal Toolholders:A168,A176

SN — Square 90° Negative with Hole

P	Steel
M	Stainless
K	Cast Iron
N	Non-ferrous
S	Superalloys
H	Hard Materials

Application	Chipbreaker	Designation	Corner Radius	CERAMIC K30G	KC30G	H70G	C60G
Medium Cutting		SNGA120404	0.4	●	●	●	●
		SNGA120408	0.8	●	●	●	●

External Toolholders:A143,A156,A163
Internal Toolholders:A168

TN

Triangular 60° Negative with Hole

P	Steel
M	Stainless
K	Cast Iron
N	Non-ferrous
S	Superalloys
H	Hard Materials

Application	Chipbreaker	Designation	Corner Radius	CERAMIC K30G	KC30G	H70G	C60G
Medium Cutting		TNGA160404	0.4	●	●	●	●
		TNGA160408	0.8	●	●	●	●
		TNGA160412	1.2	●	●		●

External Toolholders:A145,A157
Internal Toolholders:A169,A176

VN

Rhombic 35° Negative with Hole

P	Steel
M	Stainless
K	Cast Iron
N	Non-ferrous
S	Superalloys
H	Hard Materials

Application	Chipbreaker	Designation	Corner Radius	CERAMIC K30G	KC30G	H70G	C60G
Medium Cutting		VNGA160404	0.4	●	●	●	
		VNGA160408	0.8	●	●	●	
		VNGA160412	1.2	●	●		

External Toolholders:A146,A157
Internal Toolholders:A169,A177

WN

Trigon 80° Negative with Hole

P	Steel
M	Stainless
K	Cast Iron
N	Non-ferrous
S	Superalloys
H	Hard Materials

Application	Chipbreaker	Designation	Corner Radius	CERAMIC K30G	KC30G	H70G	C60G
Medium Cutting		WNGA080404	0.4	●	●	●	
		WNGA080408	0.8	●	●	●	
		WNGA080412	1.2	●	●		

External Toolholders:A147,A158
Internal Toolholders:A169,A177

CBN

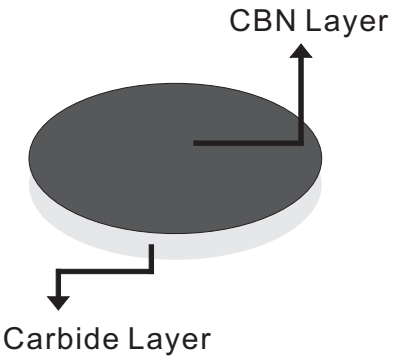
CBN Guidance for Grade and Chipbreaker A30-33
CBN Standard Inserts A34-94
CBN Application A95

PCD

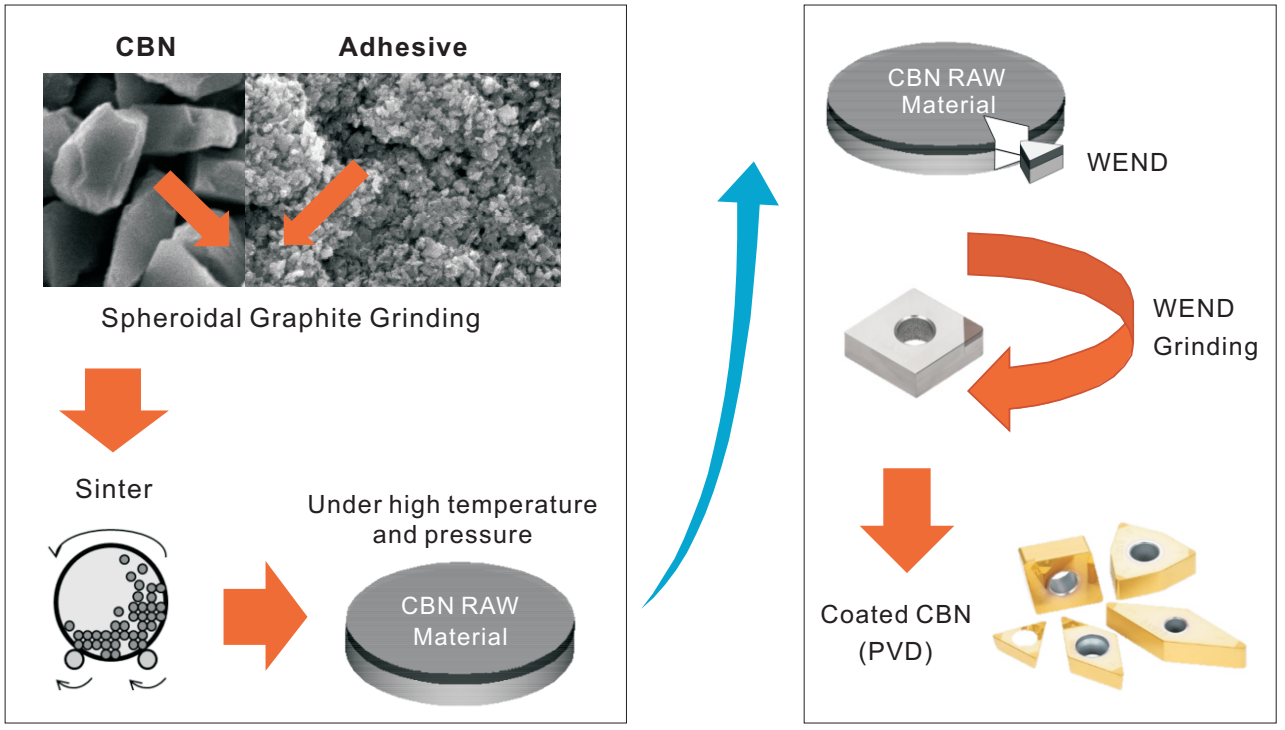
PCD Guidance for Grade and Chipbreaker A96-100
PCD Standard Inserts A101-129
PCD Application A130-133

Characteristics of Cubic Boron Nitride (CBN)

Cubic boron nitride (CBN) is an excellent tool material with high hardness, high heat resistance and high chemical inertness. It can be applied to difficult-to-machine materials such as hardened steel, cast iron, superalloy and powder metal. Due to its high temperature resistance, high hardness, strong cutting force and low friction coefficient, CBN inserts enable to produce workpieces with outstanding surface roughness and maintain long life, high efficiency and stable performance.



CBN Production Process

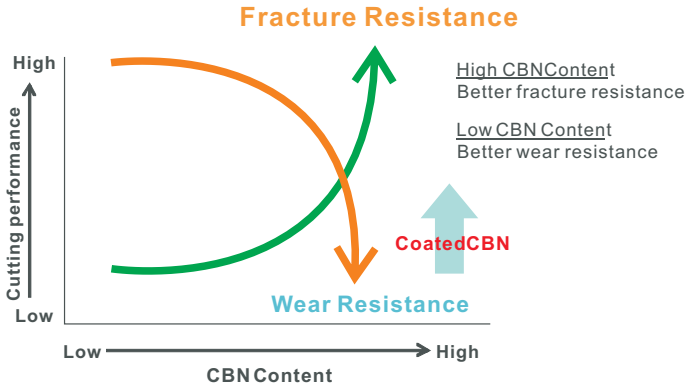


Hardness Cutting Tool	≧	Hardness x 3 Workpiece Material
Hardness of Carbide ⟶ 1500HV		Steel ⟶ 240HVx3=720HV
		Hardened Steel ⟶ 700HVx3=2100HV

Hardness of CBN ⟶ 3000HV

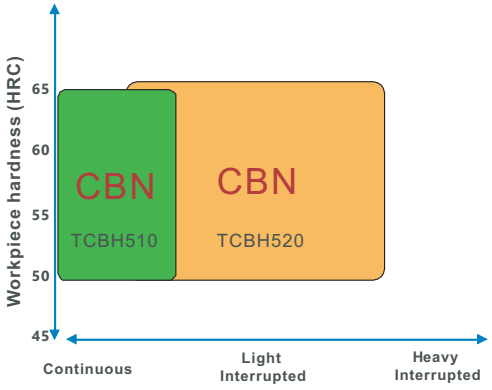
Capable of processing high hardness materials

Relationship curve between cutting performance and CBN content in processing hardened steel



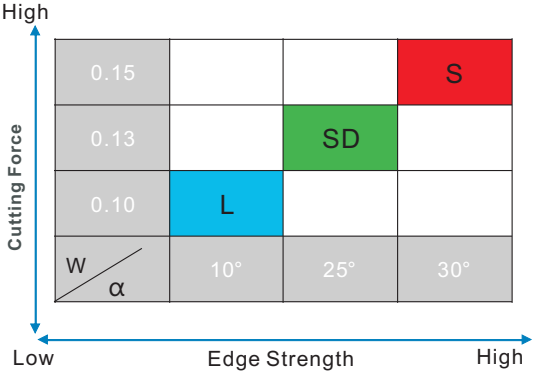
Coating with CBN increases wear resistance!

CBN Application Range



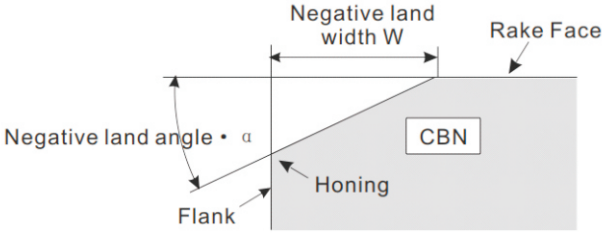
CBN is suitable for processing workpieces with hardness exceeding HRC50

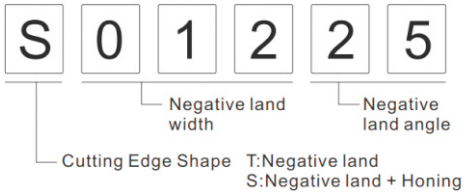
Edge Treatment



SD: Standard Edge
L: Low Cutting Force Edge
S: Strong Edge

CBN Application Range





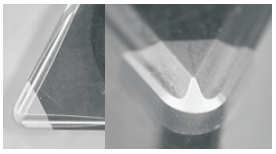
EX:S01225
→25° /0. 12mm Negative Land with Honing

CBN Chipbreaker

Chipbreaker incorporated on the CBN cutting edge to maintain chip control capabilities throughout the machining process.

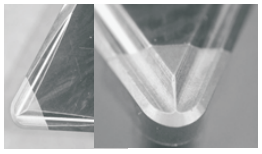
Unique chipbreaker design can be applied to both hardened and non-hardened parts with effective chip control.

- **Medium to Rough Cutting**

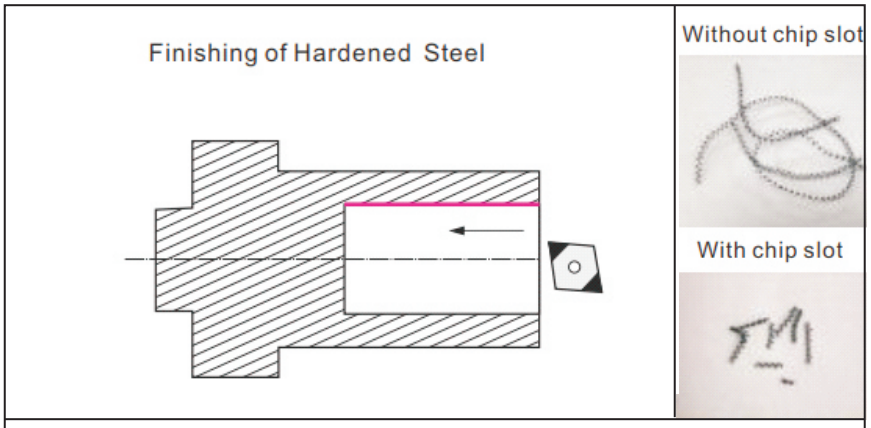


DOC:ap=0.25~0.75mm
feed :f=0.05~0.20mm/rev

- **Rough Cutting**



DOC:ap=0.50~1.0mm
feed :f=0.05~0.20mm/rev



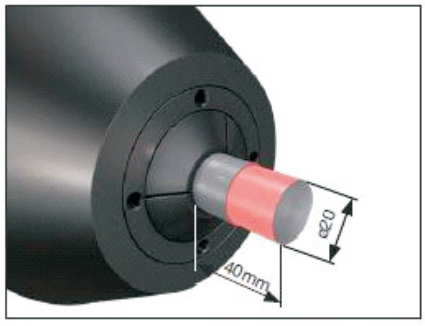
Work Material: Carburised Steel (60HRC Automotive Component)

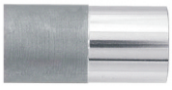
Tool No: 2-CCGT060204-HF

Cutting Conditions: Vc=80m/min,f=0.08mm/rev
ap=0.15mmWet

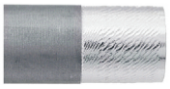
Coated CBN

Excellent surface formed by chipbreaker





Due to low cutting force,chatter stability is greatly improved



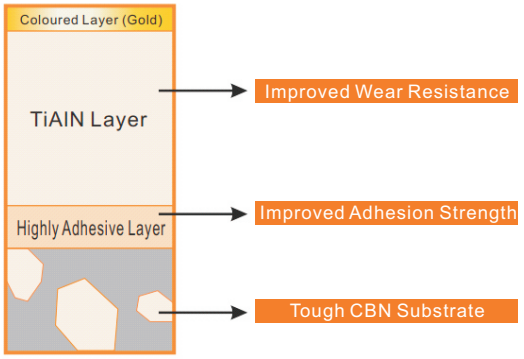
Competitor (without breaker)

TCCH620

General-purpose grade suitable for typical hardened steel machining applications.

Achieves further stability in machining of wide range of hardened steel components.

General-purpose Machining
(Low to Medium speed,Unstable Cutting)



Application of highly wear-resistant TiAIN coating to a tough substrate.Machining stability in low-rigidity environments and high-load cutting is dramatically improved.

Recommended Grades

	Grade	CBN Content (%)	Grain Size (μm)	Work Material		Features	Application
Uncoated	TCBH510	50 to 55	3	H	Hardened Steel	General-purpose grade for hardened steel machining with a high degree of fracture and wear resistance.	Bearing Steel Carburised Steel
	TCBH520	60 to 65	2		Hardened Steel	Achieve ultimate cutting edge strength. Suitable for light interrupted cutting.	Bearing Steel Carburised Steel
	TCBK100	90 to 95	2	K	Gray Cast Iron	Grade exhibiting wear and fracture resistance in cutting of cast iron.	Cylinder Block and Head
	TCBX800	90 to 95	1	S	Sintered Alloy	Grade exhibiting improved wear and fracture resistance in cutting of sintered alloy.	Sintered Parts Valve Seat Ring
	TCBS700	90 to 95	4		Heat-resistant Alloy	Provides long tool life in the finishing of Heat-resistant Alloy	Aerospace Parts
coated	TCCH620	65 to 70	2	H	Hardened Steel	Utilising a tough substrate along with a highly wear-resistant and adhesive coating layer, to achieve long tool life in general-purpose to high-efficiency machining.	Bearing Steel Carburised Steel

Cutting Conditions

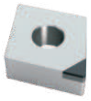
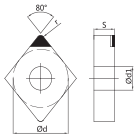
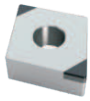
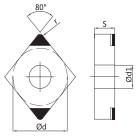
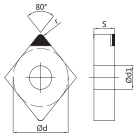
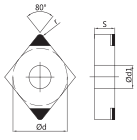
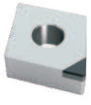
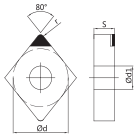
ISO	Work Material	Grade	Cutting Condition		
			Vc (m/min)	f (mm/rev)	ap(mm)
H	Mould Steel Hardened Steel (>HRC 45)	TCBH510/TCBH520 TCBH510/TCBH520	90-110 120-250	0.1-0.2 0.1-0.5	0.1-0.5 0.5-2.5
	Hardened Steel (>HRC 45)	TCCH620	90-110 150-250	0.1-0.2 0.1-0.5	0.1-0.5 0.5-2.5
K	Gray Cast Iron	TCBK100	400-1500	0.1-0.8	3.0
S	<16%Co Sintered Ni-based Heat-resistant Alloy	TCBX800 TCBS700	20-40 40-100	0.1-0.25 0.05-0.2	0.1-1.0 0.1-1.0

Insert Edge Specification Overview

ISO	Work Material	Grade	Standard				Low Cutting Force Type				Strong Edge Type			
			Code	α	W	Honing	Code	α	W	Honing	Code	α	W	Honing
H	Hardened Steel	TCBH510	S01015	15°	0.10	Yes	S01010	10°	0.1	Yes	S01530	30°	0.15	Yes
		TCBH520 TCCH620	S01325	25°	0.13	Yes					S03035	35°	0.30	Yes
K	Gray Cast Iron	TCBK100	S01520	20°	0.15	Yes	T01015	15°	0.1	No	S01530	30°	0.15	Yes
							HL	-	-	Yes	S03035	35°	0.30	Yes
S	Sintered Alloy Heat-resistant Alloy	TCBX800 TCBS700	S01325	25°	0.13	Yes	T01015	15°	0.1	No	S01530	30°	0.15	Yes
							HL	-	-	Yes	S03035	35°	0.30	Yes

★Customer can choose special insert edge according to exact demand

CN Rhombic 80° Negative

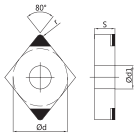
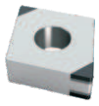
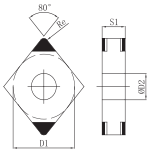
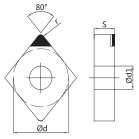
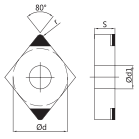
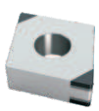
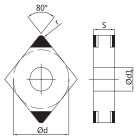
		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		No Coated		Coated	No Coated											
H	Hard Materials	●	● ☾	● ☾												
K	Cast Iron				●											
S	Superalloys							●	●							
Insert shape	Designation															
	CNGA090302	●	●	●	●			●	●		1	Φ9.525	3.18	3.81	0.2	
	CNGA090304	●	●	●	●			●	●		1	Φ9.525	3.18	3.81	0.4	
	CNGA090306	●	●	●	●			●	●		1	Φ9.525	3.18	3.81	0.6	
	CNGA090308	●	●	●	●			●	●		1	Φ9.525	3.18	3.81	0.8	
Multi-tip insert																
	2-CNGA090302	●	●	●	●			●	●		2	Φ9.525	3.18	3.81	0.2	
	2-CNGA090304	●	●	●	●			●	●		2	Φ9.525	3.18	3.81	0.4	
	2-CNGA090306	●	●	●	●			●	●		2	Φ9.525	3.18	3.81	0.6	
	2-CNGA090308	●	●	●	●			●	●		2	Φ9.525	3.18	3.81	0.8	
Single-tip insert																
	CNGA09T302	●	●	●	●			●	●		1	Φ9.525	3.97	3.81	0.2	
	CNGA09T304	●	●	●	●			●	●		1	Φ9.525	3.97	3.81	0.4	
	CNGA09T306	●	●	●	●			●	●		1	Φ9.525	3.97	3.81	0.6	
	CNGA09T308	●	●	●	●			●	●		1	Φ9.525	3.97	3.81	0.8	
Multi-tip insert																
	2-CNGA09T302	●	●	●	●			●	●		2	Φ9.525	3.97	3.81	0.2	
	2-CNGA09T304	●	●	●	●			●	●		2	Φ9.525	3.97	3.81	0.4	
	2-CNGA09T306	●	●	●	●			●	●		2	Φ9.525	3.97	3.81	0.6	
	2-CNGA09T308	●	●	●	●			●	●		2	Φ9.525	3.97	3.81	0.8	
Single-tip insert																
	CNGA090402	●	●	●	●			●	●		1	Φ9.525	4.76	3.81	0.2	
	CNGA090404	●	●	●	●			●	●		1	Φ9.525	4.76	3.81	0.4	
	CNGA090408	●	●	●	●			●	●		1	Φ9.525	4.76	3.81	0.8	
	CNGA090412	●	●	●	●			●	●		1	Φ9.525	4.76	3.81	1.2	

● : Continuous Cutting ☾ : Light Interrupted Cutting

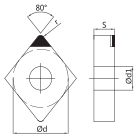
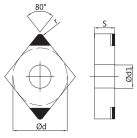
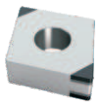
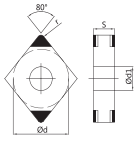
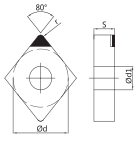
CN Rhombic 80° Negative

		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700	
		No Coated		Coated	No Coated					
H	Hard Materials	●	● ◐	● ◐						
K	Cast Iron				●					
S	Superalloys							●	●	

● : Continuous Cutting ◐ : Light Interrupted Cutting

Insert shape	Designation	Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Multi-tip insert							
	2-CNGA090402	2	Φ9.525	4.76	3.81	0.2	
	2-CNGA090404	2	Φ9.525	4.76	3.81	0.4	
	2-CNGA090408	2	Φ9.525	4.76	3.81	0.8	
	2-CNGA090412	2	Φ9.525	4.76	3.81	1.2	
	4-CNGA090402	4	Φ9.525	4.76	3.81	0.2	
	4-CNGA090404	4	Φ9.525	4.76	3.81	0.4	
	4-CNGA090408	4	Φ9.525	4.76	3.81	0.8	
	4-CNGA090412	4	Φ9.525	4.76	3.81	1.2	
Single-tip insert							
	CNGA120402	1	Φ12.7	4.76	5.16	0.2	
	CNGA120404	1	Φ12.7	4.76	5.16	0.4	
	CNGA120408	1	Φ12.7	4.76	5.16	0.8	
	CNGA120412	1	Φ12.7	4.76	5.16	1.2	
Multi-tip insert							
	2-CNGA120402	2	Φ12.7	4.76	5.16	0.2	
	2-CNGA120404	2	Φ12.7	4.76	5.16	0.4	
	2-CNGA120408	2	Φ12.7	4.76	5.16	0.8	
	2-CNGA120412	2	Φ12.7	4.76	5.16	1.2	
	4-CNGA120402	4	Φ12.7	4.76	5.16	0.2	
	4-CNGA120404	4	Φ12.7	4.76	5.16	0.4	
	4-CNGA120408	4	Φ12.7	4.76	5.16	0.8	
	4-CNGA120412	4	Φ12.7	4.76	5.16	1.2	

CN Rhombic 80° Negative

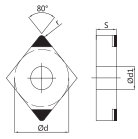
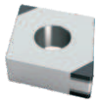
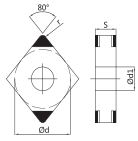
		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		No Coated		Coated	No Coated											
H	Hard Materials	●	● ☾	● ☾												
K	Cast Iron				●											
S	Superalloys							●	●							
Insert shape	Designation															
Single-tip insert																
	CNGA160602	●	●	●	●			●	●		1	Φ15.875	6.35	6.35	0.2	
	CNGA160604	●	●	●	●			●	●		1	Φ15.875	6.35	6.35	0.4	
	CNGA160608	●	●	●	●			●	●		1	Φ15.875	6.35	6.35	0.8	
	CNGA160612	●	●	●	●			●	●		1	Φ15.875	6.35	6.35	1.2	
Multi-tip insert																
	2-CNGA160602	●	●	●	●			●	●		2	Φ15.875	6.35	6.35	0.2	
	2-CNGA160604	●	●	●	●			●	●		2	Φ15.875	6.35	6.35	0.4	
	2-CNGA160608	●	●	●	●			●	●		2	Φ15.875	6.35	6.35	0.8	
	2-CNGA160612	●	●	●	●			●	●		2	Φ15.875	6.35	6.35	1.2	
Multi-tip insert																
	4-CNGA160602	●	●	●	●			●	●		4	Φ15.875	6.35	6.35	0.2	
	4-CNGA160604	●	●	●	●			●	●		4	Φ15.875	6.35	6.35	0.4	
	4-CNGA160608	●	●	●	●			●	●		4	Φ15.875	6.35	6.35	0.8	
	4-CNGA160612	●	●	●	●			●	●		4	Φ15.875	6.35	6.35	1.2	
Single-tip insert																
	CNGA190604	●	●	●	●			●	●		1	Φ19.05	6.35	7.94	0.4	
	CNGA190608	●	●	●	●			●	●		1	Φ19.05	6.35	7.94	0.8	
	CNGA190610	●	●	●	●			●	●		1	Φ19.05	6.35	7.94	1.0	
	CNGA190612	●	●	●	●			●	●		1	Φ19.05	6.35	7.94	1.2	
	CNGA190616	●	●	●	●			●	●		1	Φ19.05	6.35	7.94	1.6	
	CNGA190624	●	●	●	●			●	●		1	Φ19.05	6.35	7.94	2.4	

● : Continuous Cutting ☾ : Light Interrupted Cutting

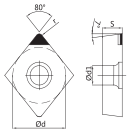
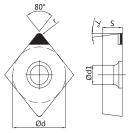
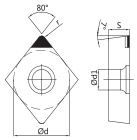
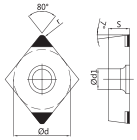
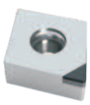
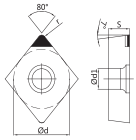
CN Rhombic 80° Negative

		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700	
H	Hard Materials	●	● ◐	● ◐						
K	Cast Iron				●					
S	Superalloys							●	●	
		No Coated		Coated	No Coated					

● : Continuous Cutting ◐ : Light Interrupted Cutting

Insert shape	Designation	Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Multi-tip insert							
	2-CNGA190604	2	Φ19.05	6.35	7.94	0.4	
	2-CNGA190608	2	Φ19.05	6.35	7.94	0.8	
	2-CNGA190610	2	Φ19.05	6.35	7.94	1.0	
	2-CNGA190612	2	Φ19.05	6.35	7.94	1.2	
	2-CNGA190616	2	Φ19.05	6.35	7.94	1.6	
	2-CNGA190624	2	Φ19.05	6.35	7.94	2.4	
	4-CNGA190604	4	Φ19.05	6.35	7.94	0.4	
	4-CNGA190608	4	Φ19.05	6.35	7.94	0.8	
	4-CNGA190610	4	Φ19.05	6.35	7.94	1.0	
	4-CNGA190612	4	Φ19.05	6.35	7.94	1.2	
	4-CNGA190616	4	Φ19.05	6.35	7.94	1.6	
	4-CNGA190624	4	Φ19.05	6.35	7.94	2.4	

CC Rhombic 80° Positive 7°

		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		No Coated		Coated	No Coated											
H	Hard Materials	●	● ☪	● ☪												
K	Cast Iron				●											
S	Superalloys							●	●							
Insert shape	Designation															
Single-tip insert																
	CCMW03S102	●	●	●	●			●	●		1	Φ3.57	1.39	2.0	0.2	
	CCMW03S104	●	●	●	●			●	●		1	Φ3.57	1.39	2.0	0.4	
	CCMW04T002	●	●	●	●			●	●		1	Φ4.37	1.79	2.4	0.2	
	CCMW04T004	●	●	●	●			●	●		1	Φ4.37	1.79	2.4	0.4	
Single-tip insert																
	CCGW050202	●	●	●	●			●	●		1	Φ5.56	2.38	2.4	0.2	
	CCGW050204	●	●	●	●			●	●		1	Φ5.56	2.38	2.4	0.4	
	CCGW050206	●	●	●	●			●	●		1	Φ5.56	2.38	2.4	0.6	
Single-tip insert																
	CCGW060202	●	●	●	●			●	●		1	Φ6.35	2.38	2.8	0.2	
	CCGW060204	●	●	●	●			●	●		1	Φ6.35	2.38	2.8	0.4	
	CCGW060206	●	●	●	●			●	●		1	Φ6.35	2.38	2.8	0.6	
	CCGW060208	●	●	●	●			●	●		1	Φ6.35	2.38	2.8	0.8	
Multi-tip insert																
	2-CCGW060202	●	●	●	●			●	●		2	Φ6.35	2.38	2.8	0.2	
	2-CCGW060204	●	●	●	●			●	●		2	Φ6.35	2.38	2.8	0.4	
	2-CCGW060206	●	●	●	●			●	●		2	Φ6.35	2.38	2.8	0.6	
	2-CCGW060208	●	●	●	●			●	●		2	Φ6.35	2.38	2.8	0.8	
Single-tip insert																
	CCMW080202	●	●	●	●			●	●		1	Φ7.94	2.38	3.4	0.2	
	CCMW080204	●	●	●	●			●	●		1	Φ7.94	2.38	3.4	0.4	
	CCMW080206	●	●	●	●			●	●		1	Φ7.94	2.38	3.4	0.6	
	CCMW080208	●	●	●	●			●	●		1	Φ7.94	2.38	3.4	0.8	

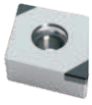
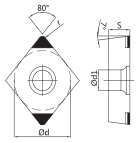
● : Continuous Cutting ☪ : Light Interrupted Cutting

CC Rhombic 80° Positive 7°

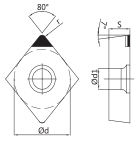
		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
	Insert shape	Designation	No Coated		Coated	No Coated										
H	Hard Materials		●	● ◐	● ◐											
K	Cast Iron					●										
S	Superalloys								●	●						

● : Continuous Cutting ◐ : Light Interrupted Cutting

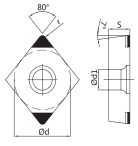
Multi-tip insert

Insert shape	Designation	TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
	2-CCMW080202	●	●	●	●			●	●		2	Φ7.94	2.38	3.4	0.2	
	2-CCMW080204	●	●	●	●			●	●		2	Φ7.94	2.38	3.4	0.4	
	2-CCMW080206	●	●	●	●			●	●		2	Φ7.94	2.38	3.4	0.6	
	2-CCMW080208	●	●	●	●			●	●		2	Φ7.94	2.38	3.4	0.8	

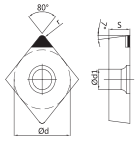
Single-tip insert

	CCGW09T302	●	●	●	●			●	●		1	Φ9.525	3.97	4.4	0.2	
	CCGW09T304	●	●	●	●			●	●		1	Φ9.525	3.97	4.4	0.4	
	CCGW09T306	●	●	●	●			●	●		1	Φ9.525	3.97	4.4	0.6	
	CCGW09T308	●	●	●	●			●	●		1	Φ9.525	3.97	4.4	0.8	

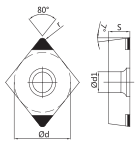
Multi-tip insert

	2-CCGW09T302	●	●	●	●			●	●		2	Φ9.525	3.97	4.4	0.2	
	2-CCGW09T304	●	●	●	●			●	●		2	Φ9.525	3.97	4.4	0.4	
	2-CCGW09T306	●	●	●	●			●	●		2	Φ9.525	3.97	4.4	0.6	
	2-CCGW09T308	●	●	●	●			●	●		2	Φ9.525	3.97	4.4	0.8	

Single-tip insert

	CCGW120402	●	●	●	●			●	●		1	Φ12.7	4.76	5.5	0.2	
	CCGW120404	●	●	●	●			●	●		1	Φ12.7	4.76	5.5	0.4	
	CCGW120406	●	●	●	●			●	●		1	Φ12.7	4.76	5.5	0.6	
	CCGW120408	●	●	●	●			●	●		1	Φ12.7	4.76	5.5	0.8	
	CCGW120412	●	●	●	●			●	●		1	Φ12.7	4.76	5.5	1.2	

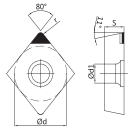
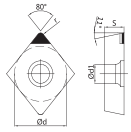
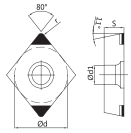
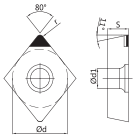
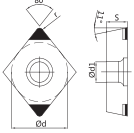
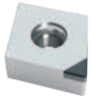
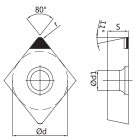
Multi-tip insert

	2-CCGW120402	●	●	●	●			●	●		2	Φ12.7	4.76	5.5	0.2	
	2-CCGW120404	●	●	●	●			●	●		2	Φ12.7	4.76	5.5	0.4	
	2-CCGW120406	●	●	●	●			●	●		2	Φ12.7	4.76	5.5	0.6	
	2-CCGW120408	●	●	●	●			●	●		2	Φ12.7	4.76	5.5	0.8	
	2-CCGW120412	●	●	●	●			●	●		2	Φ12.7	4.76	5.5	1.2	

CP Rhombic 80° Positive 11°

		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700	
H	Hard Materials	●	● ☾	● ☾						
K	Cast Iron				●					
S	Superalloys							●	●	
		No Coated		Coated	No Coated					

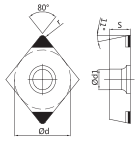
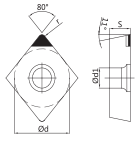
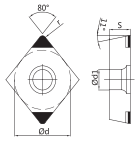
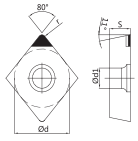
● : Continuous Cutting ☾ : Light Interrupted Cutting

Insert shape	Designation	TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Single-tip insert																
	CPGW050202	●	●	●	●			●	●		1	Φ5.56	2.38	2.4	0.2	
	CPGW050204	●	●	●	●			●	●		1	Φ5.56	2.38	2.4	0.4	
	CPGW050206	●	●	●	●			●	●		1	Φ5.56	2.38	2.4	0.6	
Single-tip insert																
	CPGW060202	●	●	●	●			●	●		1	Φ6.35	2.38	2.8	0.2	
	CPGW060204	●	●	●	●			●	●		1	Φ6.35	2.38	2.8	0.4	
	CPGW060208	●	●	●	●			●	●		1	Φ6.35	2.38	2.8	0.8	
Multi-tip insert																
	2-CPGW060202	●	●	●	●			●	●		2	Φ6.35	2.38	2.8	0.2	
	2-CPGW060204	●	●	●	●			●	●		2	Φ6.35	2.38	2.8	0.4	
	2-CPGW060208	●	●	●	●			●	●		2	Φ6.35	2.38	2.8	0.8	
Single-tip insert																
	CPGW080202	●	●	●	●			●	●		1	Φ7.94	2.38	2.8	0.2	
	CPGW080204	●	●	●	●			●	●		1	Φ7.94	2.38	2.8	0.4	
	CPGW080206	●	●	●	●			●	●		1	Φ7.94	2.38	2.8	0.6	
	CPGW080208	●	●	●	●			●	●		1	Φ7.94	2.38	2.8	0.8	
Multi-tip insert																
	2-CPGW080202	●	●	●	●			●	●		2	Φ7.94	2.38	2.8	0.2	
	2-CPGW080204	●	●	●	●			●	●		2	Φ7.94	2.38	2.8	0.4	
	2-CPGW080206	●	●	●	●			●	●		2	Φ7.94	2.38	2.8	0.6	
	2-CPGW080208	●	●	●	●			●	●		2	Φ7.94	2.38	2.8	0.8	
Single-tip insert																
	CPGW090302	●	●	●	●			●	●		1	Φ9.525	3.18	4.4	0.2	
	CPGW090304	●	●	●	●			●	●		1	Φ9.525	3.18	4.4	0.4	
	CPGW090306	●	●	●	●			●	●		1	Φ9.525	3.18	4.4	0.6	
	CPGW090308	●	●	●	●			●	●		1	Φ9.525	3.18	4.4	0.8	

CP Rhombic 80° Positive 11°

		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700	
H	Hard Materials	●	●ɛ	●ɛ						
K	Cast Iron				●					
S	Superalloys							●	●	
		No Coated		Coated	No Coated					

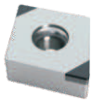
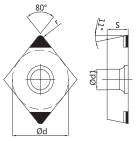
● : Continuous Cutting ɛ : Light Interrupted Cutting

Insert shape	Designation	TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Multi-tip insert																
	2-CPGW090302	●	●	●	●			●	●		2	Φ9.525	3.18	4.4	0.2	
	2-CPGW090304	●	●	●	●			●	●		2	Φ9.525	3.18	4.4	0.4	
	2-CPGW090306	●	●	●	●			●	●		2	Φ9.525	3.18	4.4	0.6	
	2-CPGW090308	●	●	●	●			●	●		2	Φ9.525	3.18	4.4	0.8	
Single-tip insert																
	CPGW09T302	●	●	●	●			●	●		1	Φ9.525	3.97	4.4	0.2	
	CPGW09T304	●	●	●	●			●	●		1	Φ9.525	3.97	4.4	0.4	
	CPGW09T306	●	●	●	●			●	●		1	Φ9.525	3.97	4.4	0.6	
	CPGW09T308	●	●	●	●			●	●		1	Φ9.525	3.97	4.4	0.8	
Multi-tip insert																
	2-CPGW09T302	●	●	●	●			●	●		2	Φ9.525	3.97	4.4	0.2	
	2-CPGW09T304	●	●	●	●			●	●		2	Φ9.525	3.97	4.4	0.4	
	2-CPGW09T306	●	●	●	●			●	●		2	Φ9.525	3.97	4.4	0.6	
	2-CPGW09T308	●	●	●	●			●	●		2	Φ9.525	3.97	4.4	0.8	
Single-tip insert																
	CPGW120402	●	●	●	●			●	●		1	Φ12.7	4.76	5.5	0.2	
	CPGW120404	●	●	●	●			●	●		1	Φ12.7	4.76	5.5	0.4	
	CPGW120406	●	●	●	●			●	●		1	Φ12.7	4.76	5.5	0.6	
	CPGW120408	●	●	●	●			●	●		1	Φ12.7	4.76	5.5	0.8	
	CPGW120410	●	●	●	●			●	●		1	Φ12.7	4.76	5.5	1.0	
	CPGW120412	●	●	●	●			●	●		1	Φ12.7	4.76	5.5	1.2	

CP Rhombic 80° Positive 11°

		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700	
		No Coated		Coated	No Coated					
H	Hard Materials	●	● ☪	● ☪						
K	Cast Iron				●					
S	Superalloys							●	●	

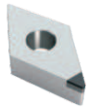
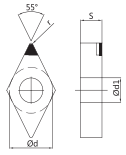
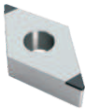
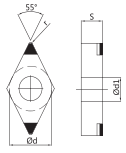
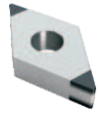
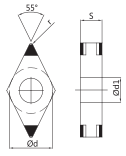
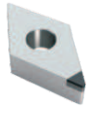
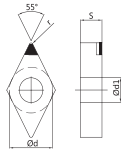
● : Continuous Cutting ☪ : Light Interrupted Cutting

Insert shape	Designation	Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Multi-tip insert							
	2-CPGW120402	2	Φ12.7	4.76	5.5	0.2	
	2-CPGW120404	2	Φ12.7	4.76	5.5	0.4	
	2-CPGW120406	2	Φ12.7	4.76	5.5	0.6	
	2-CPGW120408	2	Φ12.7	4.76	5.5	0.8	
	2-CPGW120410	2	Φ12.7	4.76	5.5	1.0	
	2-CPGW120412	2	Φ12.7	4.76	5.5	1.2	

DN Rhombic 55° Negative

		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700	
H	Hard Materials	●	● ☪	● ☪						
K	Cast Iron				●					
S	Superalloys							●	●	
		No Coated		Coated	No Coated					

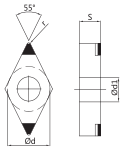
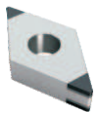
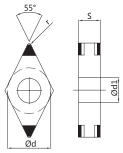
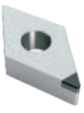
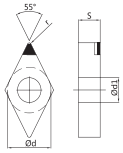
● : Continuous Cutting ☪ : Light Interrupted Cutting

Insert shape	Designation	TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Single-tip insert																
	DNGA110402	●	●	●	●			●	●		1	Φ9.525	4.76	3.8	0.2	
	DNGA110404	●	●	●	●			●	●		1	Φ9.525	4.76	3.8	0.4	
	DNGA110406	●	●	●	●			●	●		1	Φ9.525	4.76	3.8	0.6	
	DNGA110408	●	●	●	●			●	●		1	Φ9.525	4.76	3.8	0.8	
Multi-tip insert																
	2-DNGA110402	●	●	●	●			●	●		2	Φ9.525	4.76	3.8	0.2	
	2-DNGA110404	●	●	●	●			●	●		2	Φ9.525	4.76	3.8	0.4	
	2-DNGA110406	●	●	●	●			●	●		2	Φ9.525	4.76	3.8	0.6	
	2-DNGA110408	●	●	●	●			●	●		2	Φ9.525	4.76	3.8	0.8	
	4-DNGA110402	●	●	●	●			●	●		4	Φ9.525	4.76	3.8	0.2	
	4-DNGA110404	●	●	●	●			●	●		4	Φ9.525	4.76	3.8	0.4	
	4-DNGA110406	●	●	●	●			●	●		4	Φ9.525	4.76	3.8	0.6	
	4-DNGA110408	●	●	●	●			●	●		4	Φ9.525	4.76	3.8	0.8	
Single-tip insert																
	DNGA150402	●	●	●	●			●	●		1	Φ12.7	4.76	5.16	0.2	
	DNGA150404	●	●	●	●			●	●		1	Φ12.7	4.76	5.16	0.4	
	DNGA150406	●	●	●	●			●	●		1	Φ12.7	4.76	5.16	0.6	
	DNGA150408	●	●	●	●			●	●		1	Φ12.7	4.76	5.16	0.8	
	DNGA150410	●	●	●	●			●	●		1	Φ12.7	4.76	5.16	1.0	
	DNGA150412	●	●	●	●			●	●		1	Φ12.7	4.76	5.16	1.2	
	DNGA150416	●	●	●	●			●	●		1	Φ12.7	4.76	5.16	1.6	

DN Rhombic 55° Negative

		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700	
		No Coated		Coated	No Coated					
H	Hard Materials	●	● ☾	● ☾						
K	Cast Iron				●					
S	Superalloys							●	●	

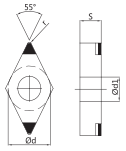
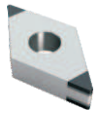
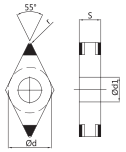
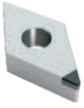
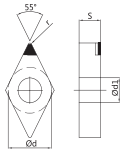
● : Continuous Cutting ☾ : Light Interrupted Cutting

Insert shape	Designation	TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Multi-tip insert																
	2-DNGA150402	●	●	●	●			●	●		2	Φ12.7	4.76	5.16	0.2	
	2-DNGA150404	●	●	●	●			●	●		2	Φ12.7	4.76	5.16	0.4	
	2-DNGA150406	●	●	●	●			●	●		2	Φ12.7	4.76	5.16	0.6	
	2-DNGA150408	●	●	●	●			●	●		2	Φ12.7	4.76	5.16	0.8	
	2-DNGA150410	●	●	●	●			●	●		2	Φ12.7	4.76	5.16	1.0	
	2-DNGA150412	●	●	●	●			●	●		2	Φ12.7	4.76	5.16	1.2	
	2-DNGA150416	●	●	●	●			●	●		2	Φ12.7	4.76	5.16	1.6	
	4-DNGA150402	●	●	●	●			●	●		4	Φ12.7	4.76	5.16	0.2	
	4-DNGA150404	●	●	●	●			●	●		4	Φ12.7	4.76	5.16	0.4	
	4-DNGA150406	●	●	●	●			●	●		4	Φ12.7	4.76	5.16	0.6	
	4-DNGA150408	●	●	●	●			●	●		4	Φ12.7	4.76	5.16	0.8	
	4-DNGA150410	●	●	●	●			●	●		4	Φ12.7	4.76	5.16	1.0	
	4-DNGA150412	●	●	●	●			●	●		4	Φ12.7	4.76	5.16	1.2	
	4-DNGA150416	●	●	●	●			●	●		4	Φ12.7	4.76	5.16	1.6	
Single-tip insert																
	DNGA150604	●	●	●	●			●	●		1	Φ12.7	6.35	5.16	0.4	
	DNGA150606	●	●	●	●			●	●		1	Φ12.7	6.35	5.16	0.6	
	DNGA150608	●	●	●	●			●	●		1	Φ12.7	6.35	5.16	0.8	
	DNGA150610	●	●	●	●			●	●		1	Φ12.7	6.35	5.16	1.0	
	DNGA150612	●	●	●	●			●	●		1	Φ12.7	6.35	5.16	1.2	
	DNGA150616	●	●	●	●			●	●		1	Φ12.7	6.35	5.16	1.6	

DN Rhombic 55° Negative

		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700	
H	Hard Materials	●	● ɕ	● ɕ						
K	Cast Iron				●					
S	Superalloys							●	●	
		No Coated		Coated	No Coated					

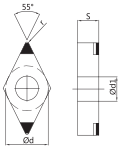
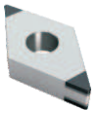
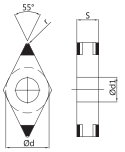
● : Continuous Cutting ɕ : Light Interrupted Cutting

Insert shape	Designation	Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Multi-tip insert							
	2-DNGA150604	2	Φ12.7	6.35	5.16	0.4	
	2-DNGA150606	2	Φ12.7	6.35	5.16	0.6	
	2-DNGA150608	2	Φ12.7	6.35	5.16	0.8	
	2-DNGA150610	2	Φ12.7	6.35	5.16	1.0	
	2-DNGA150612	2	Φ12.7	6.35	5.16	1.2	
	2-DNGA150616	2	Φ12.7	6.35	5.16	1.6	
Multi-tip insert							
	4-DNGA150604	4	Φ12.7	6.35	5.16	0.4	
	4-DNGA150606	4	Φ12.7	6.35	5.16	0.6	
	4-DNGA150608	4	Φ12.7	6.35	5.16	0.8	
	4-DNGA150610	4	Φ12.7	6.35	5.16	1.0	
	4-DNGA150612	4	Φ12.7	6.35	5.16	1.2	
	4-DNGA150616	4	Φ12.7	6.35	5.16	1.6	
Single-tip insert							
	DNGA190606	1	Φ15.875	6.35	6.35	0.6	
	DNGA190608	1	Φ15.875	6.35	6.35	0.8	
	DNGA190610	1	Φ15.875	6.35	6.35	1.0	
	DNGA190612	1	Φ15.875	6.35	6.35	1.2	
	DNGA190616	1	Φ15.875	6.35	6.35	1.6	

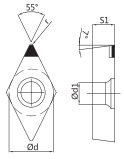
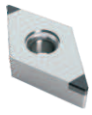
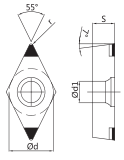
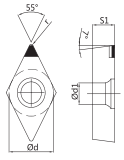
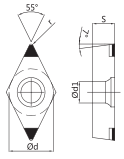
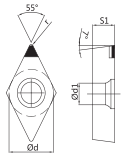
DN Rhombic 55° Negative

		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700	
H	Hard Materials	●	● ☾	● ☾						
K	Cast Iron				●					
S	Superalloys							●	●	

● : Continuous Cutting ☾ : Light Interrupted Cutting

Insert shape	Designation	No Coated TCBH510	No Coated TCBH520	Coated TCCH620	No Coated TCBK100			No Coated TCBX800	No Coated TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Multi-tip insert																
	2-DNGA190606	●	●	●	●			●	●		2	Φ15.875	6.35	6.35	0.6	
	2-DNGA190608	●	●	●	●			●	●		2	Φ15.875	6.35	6.35	0.8	
	2-DNGA190610	●	●	●	●			●	●		2	Φ15.875	6.35	6.35	1.0	
	2-DNGA190612	●	●	●	●			●	●		2	Φ15.875	6.35	6.35	1.2	
	2-DNGA190616	●	●	●	●			●	●		2	Φ15.875	6.35	6.35	1.6	
	4-DNGA190606	●	●	●	●			●	●		4	Φ15.875	6.35	6.35	0.6	
	4-DNGA190608	●	●	●	●			●	●		4	Φ15.875	6.35	6.35	0.8	
	4-DNGA190610	●	●	●	●			●	●		4	Φ15.875	6.35	6.35	1.0	
	4-DNGA190612	●	●	●	●			●	●		4	Φ15.875	6.35	6.35	1.2	
	4-DNGA190616	●	●	●	●			●	●		4	Φ15.875	6.35	6.35	1.6	

DC Rhombic 55° Positive 7°

		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
	Insert shape	Designation	No Coated		Coated	No Coated										
H	Hard Materials		●	● c	● c											
K	Cast Iron					●										
S	Superalloys								●	●						
Single-tip insert																
		DCGW070202	●	●	●	●			●	●	1	Φ6.35	2.38	2.8	0.2	
		DCGW070204	●	●	●	●			●	●	1	Φ6.35	2.38	2.8	0.4	
		DCGW070206	●	●	●	●			●	●	1	Φ6.35	2.38	2.8	0.6	
		DCGW070208	●	●	●	●			●	●	1	Φ6.35	2.3	2.8	0.8	
Multi-tip insert																
		2-DCGW070202	●	●	●	●			●	●	2	Φ6.35	2.38	2.8	0.2	
		2-DCGW070204	●	●	●	●			●	●	2	Φ6.35	2.38	2.8	0.4	
		2-DCGW070206	●	●	●	●			●	●	2	Φ6.35	2.38	2.8	0.6	
		2-DCGW070208	●	●	●	●			●	●	2	Φ6.35	2.38	2.8	0.8	
Single-tip insert																
		DCGW090202	●	●	●	●			●	●	1	Φ7.94	2.38	3.4	0.2	
		DCGW090204	●	●	●	●			●	●	1	Φ7.94	2.38	3.4	0.4	
		DCGW090206	●	●	●	●			●	●	1	Φ7.94	2.38	3.4	0.6	
		DCGW090208	●	●	●	●			●	●	1	Φ7.94	2.38	3.4	0.8	
Multi-tip insert																
		2-DCGW090202	●	●	●	●			●	●	2	Φ7.94	2.38	3.4	0.2	
		2-DCGW090204	●	●	●	●			●	●	2	Φ7.94	2.38	3.4	0.4	
		2-DCGW090206	●	●	●	●			●	●	2	Φ7.94	2.38	3.4	0.6	
		2-DCGW090208	●	●	●	●			●	●	2	Φ7.94	2.38	3.4	0.8	
Single-tip insert																
		DCGW110302	●	●	●	●			●	●	1	Φ9.525	3.18	4.4	0.2	
		DCGW110304	●	●	●	●			●	●	1	Φ9.525	3.18	4.4	0.4	
		DCGW110306	●	●	●	●			●	●	1	Φ9.525	3.18	4.4	0.6	
		DCGW110308	●	●	●	●			●	●	1	Φ9.525	3.18	4.4	0.8	

● : Continuous Cutting c : Light Interrupted Cutting

DC Rhombic 55° Positive 7°

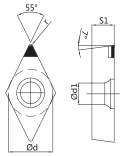
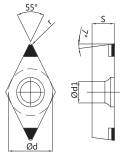
		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
	Insert shape	Designation	No Coated		Coated	No Coated										
H	Hard Materials	●	● c	● c												
K	Cast Iron				●											
S	Superalloys							●	●							
Multi-tip insert																
	2-DCGW110302	●	●	●	●			●	●		2	Φ9.525	3.18	4.4	0.2	
	2-DCGW110304	●	●	●	●			●	●		2	Φ9.525	3.18	4.4	0.4	
	2-DCGW110306	●	●	●	●			●	●		2	Φ9.525	3.18	4.4	0.6	
	2-DCGW110308	●	●	●	●			●	●		2	Φ9.525	3.18	4.4	0.8	
Single-tip insert																
	DCGW11T302	●	●	●	●			●	●		1	Φ9.525	3.97	4.4	0.2	
	DCGW11T304	●	●	●	●			●	●		1	Φ9.525	3.97	4.4	0.4	
	DCGW11T306	●	●	●	●			●	●		1	Φ9.525	3.97	4.4	0.6	
	DCGW11T308	●	●	●	●			●	●		1	Φ9.525	3.97	4.4	0.8	
Multi-tip insert																
	2-DCGW11T302	●	●	●	●			●	●		2	Φ9.525	3.97	4.4	0.2	
	2-DCGW11T304	●	●	●	●			●	●		2	Φ9.525	3.97	4.4	0.4	
	2-DCGW11T306	●	●	●	●			●	●		2	Φ9.525	3.97	4.4	0.6	
	2-DCGW11T308	●	●	●	●			●	●		2	Φ9.525	3.97	4.4	0.8	
Single-tip insert																
	DCGW110402	●	●	●	●			●	●		1	Φ9.525	4.76	4.5	0.2	
	DCGW110404	●	●	●	●			●	●		1	Φ9.525	4.76	4.5	0.4	
	DCGW110406	●	●	●	●			●	●		1	Φ9.525	4.76	4.5	0.6	
	DCGW110408	●	●	●	●			●	●		1	Φ9.525	4.76	4.5	0.8	
Multi-tip insert																
	2-DCGW110402	●	●	●	●			●	●		2	Φ9.525	4.76	4.5	0.2	
	2-DCGW110404	●	●	●	●			●	●		2	Φ9.525	4.76	4.5	0.4	
	2-DCGW110406	●	●	●	●			●	●		2	Φ9.525	4.76	4.5	0.6	
	2-DCGW110408	●	●	●	●			●	●		2	Φ9.525	4.76	4.5	0.8	

● : Continuous Cutting c : Light Interrupted Cutting

DC Rhombic 55° Positive 7°

		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700	
		No Coated		Coated	No Coated					
H	Hard Materials	●	● ☪	● ☪						
K	Cast Iron				●					
S	Superalloys							●	●	

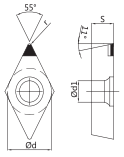
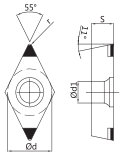
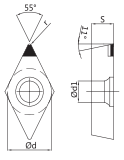
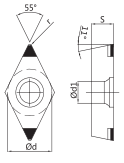
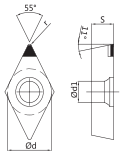
● : Continuous Cutting ☪ : Light Interrupted Cutting

Insert shape	Designation	Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Single-tip insert							
	DCGW150404	1	Φ12.7	4.76	5.5	0.4	
	DCGW150406	1	Φ12.7	4.76	5.5	0.6	
	DCGW150408	1	Φ12.7	4.76	5.5	0.8	
	DCGW150410	1	Φ12.7	4.76	5.5	1.0	
	DCGW150412	1	Φ12.7	4.76	5.5	1.2	
	DCGW150416	1	Φ12.7	4.76	5.5	1.6	
Multi-tip insert							
	2-DCGW150404	2	Φ12.7	4.76	5.5	0.4	
	2-DCGW150406	2	Φ12.7	4.76	5.5	0.6	
	2-DCGW150408	2	Φ12.7	4.76	5.5	0.8	
	2-DCGW150410	2	Φ12.7	4.76	5.5	1.0	
	2-DCGW150412	2	Φ12.7	4.76	5.5	1.2	
	2-DCGW150416	2	Φ12.7	4.76	5.5	1.6	

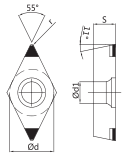
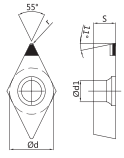
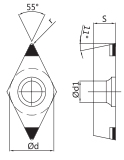
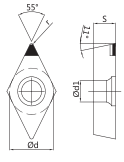
DP Rhombic 55° Positive 11°

		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700	
H	Hard Materials	●	● ⊂	● ⊂						
K	Cast Iron				●					
S	Superalloys							●	●	
		No Coated		Coated	No Coated					

● : Continuous Cutting ⊂ : Light Interrupted Cutting

Insert shape	Designation	TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Single-tip insert																
	DPGW070202	●	●	●	●			●	●		1	Φ6.35	2.38	2.8	0.2	
	DPGW070204	●	●	●	●			●	●		1	Φ6.35	2.38	2.8	0.4	
	DPGW070206	●	●	●	●			●	●		1	Φ6.35	2.38	2.8	0.6	
	DPGW070208	●	●	●	●			●	●		1	Φ6.35	2.38	2.8	0.8	
Multi-tip insert																
	2-DPGW070202	●	●	●	●			●	●		2	Φ6.35	2.38	2.8	0.2	
	2-DPGW070204	●	●	●	●			●	●		2	Φ6.35	2.38	2.8	0.4	
	2-DPGW070206	●	●	●	●			●	●		2	Φ6.35	2.38	2.8	0.6	
	2-DPGW070208	●	●	●	●			●	●		2	Φ6.35	2.38	2.8	0.8	
Single-tip insert																
	DPGW090202	●	●	●	●			●	●		1	Φ7.94	2.38	3.4	0.2	
	DPGW090204	●	●	●	●			●	●		1	Φ7.94	2.38	3.4	0.4	
	DPGW090206	●	●	●	●			●	●		1	Φ7.94	2.38	3.4	0.6	
	DPGW090208	●	●	●	●			●	●		1	Φ7.94	2.38	3.4	0.8	
Multi-tip insert																
	2-DPGW090202	●	●	●	●			●	●		2	Φ7.94	2.38	3.4	0.2	
	2-DPGW090204	●	●	●	●			●	●		2	Φ7.94	2.38	3.4	0.4	
	2-DPGW090206	●	●	●	●			●	●		2	Φ7.94	2.38	3.4	0.6	
	2-DPGW090208	●	●	●	●			●	●		2	Φ7.94	2.38	3.4	0.8	
Single-tip insert																
	DPGW110302	●	●	●	●			●	●		1	Φ9.525	3.18	4.4	0.2	
	DPGW110304	●	●	●	●			●	●		1	Φ9.525	3.18	4.4	0.4	
	DPGW110306	●	●	●	●			●	●		1	Φ9.525	3.18	4.4	0.6	
	DPGW110308	●	●	●	●			●	●		1	Φ9.525	3.18	4.4	0.8	

DP Rhombic 55° Positive 11°

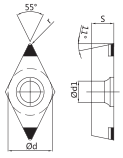
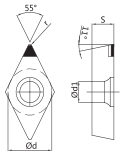
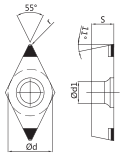
		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
	Insert shape	Designation	No Coated		Coated	No Coated										
H	Hard Materials		●	● c	● c											
K	Cast Iron					●										
S	Superalloys								●	●						
Multi-tip insert																
		2-DPGW110302	●	●	●	●			●	●	2	Φ9.525	3.18	4.4	0.2	
		2-DPGW110304	●	●	●	●			●	●	2	Φ9.525	3.18	4.4	0.4	
		2-DPGW110306	●	●	●	●			●	●	2	Φ9.525	3.18	4.4	0.6	
		2-DPGW110308	●	●	●	●			●	●	2	Φ9.525	3.18	4.4	0.8	
Single-tip insert																
		DPGW11T302	●	●	●	●			●	●	1	Φ9.525	3.97	4.4	0.2	
		DPGW11T304	●	●	●	●			●	●	1	Φ9.525	3.97	4.4	0.4	
		DPGW11T306	●	●	●	●			●	●	1	Φ9.525	3.97	4.4	0.6	
		DPGW11T308	●	●	●	●			●	●	1	Φ9.525	3.97	4.4	0.8	
Multi-tip insert																
		2-DPGW11T302	●	●	●	●			●	●	2	Φ9.525	3.97	4.4	0.2	
		2-DPGW11T304	●	●	●	●			●	●	2	Φ9.525	3.97	4.4	0.4	
		2-DPGW11T306	●	●	●	●			●	●	2	Φ9.525	3.97	4.4	0.6	
		2-DPGW11T308	●	●	●	●			●	●	2	Φ9.525	3.97	4.4	0.8	
Single-tip insert																
		DPGW110402	●	●	●	●			●	●	1	Φ9.525	4.76	4.5	0.2	
		DPGW110404	●	●	●	●			●	●	1	Φ9.525	4.76	4.5	0.4	
		DPGW110406	●	●	●	●			●	●	1	Φ9.525	4.76	4.5	0.6	
		DPGW110408	●	●	●	●			●	●	1	Φ9.525	4.76	4.5	0.8	

● : Continuous Cutting c : Light Interrupted Cutting

DP Rhombic 55° Positive 11°

		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700	
H	Hard Materials	●	● ☾	● ☾						
K	Cast Iron				●					
S	Superalloys							●	●	

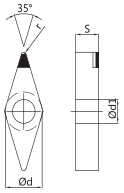
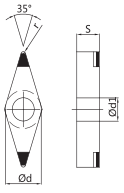
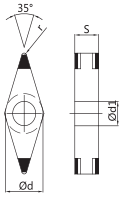
● : Continuous Cutting ☾ : Light Interrupted Cutting

Insert shape	Designation	No Coated	Coated	Coated	No Coated					Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Multi-tip insert															
	2-DPGW110402	●	●	●	●			●	●		2	Φ9.525	4.76	4.5	0.2	
	2-DPGW110404	●	●	●	●			●	●		2	Φ9.525	4.76	4.5	0.4	
	2-DPGW110406	●	●	●	●			●	●		2	Φ9.525	4.76	4.5	0.6	
	2-DPGW110408	●	●	●	●			●	●		2	Φ9.525	4.76	4.5	0.8	
Single-tip insert															
	DPGW150404	●	●	●	●			●	●		1	Φ12.7	4.76	5.5	0.4	
	DPGW150406	●	●	●	●			●	●		1	Φ12.7	4.76	5.5	0.6	
	DPGW150408	●	●	●	●			●	●		1	Φ12.7	4.76	5.5	0.8	
	DPGW150410	●	●	●	●			●	●		1	Φ12.7	4.76	5.5	1.0	
	DPGW150412	●	●	●	●			●	●		1	Φ12.7	4.76	5.5	1.2	
	DPGW150416	●	●	●	●			●	●		1	Φ12.7	4.76	5.5	1.6	
Multi-tip insert															
	2-DPGW150404	●	●	●	●			●	●		2	Φ12.7	4.76	5.5	0.4	
	2-DPGW150406	●	●	●	●			●	●		2	Φ12.7	4.76	5.5	0.6	
	2-DPGW150408	●	●	●	●			●	●		2	Φ12.7	4.76	5.5	0.8	
	2-DPGW150410	●	●	●	●			●	●		2	Φ12.7	4.76	5.5	1.0	
	2-DPGW150412	●	●	●	●			●	●		2	Φ12.7	4.76	5.5	1.2	
	2-DPGW150416	●	●	●	●			●	●		2	Φ12.7	4.76	5.5	1.6	

VN Rhombic 35° Negative

H	Hard Materials	●	● ☪	● ☪						
K	Cast Iron				●					
S	Superalloys							●	●	

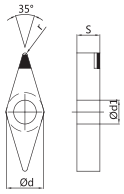
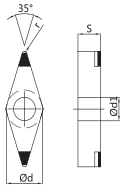
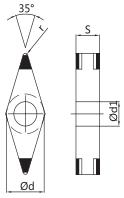
● : Continuous Cutting ☪ : Light Interrupted Cutting

Insert shape	Designation	No Coated TCBH510	Coated TCBH520	Coated TCCH620	No Coated TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Single-tip insert																
	VNGA160402	●	●	●	●			●	●		1	Φ9.525	4.76	3.8	0.2	
	VNGA160404	●	●	●	●			●	●		1	Φ9.525	4.76	3.8	0.4	
	VNGA160406	●	●	●	●			●	●		1	Φ9.525	4.76	3.8	0.6	
	VNGA160408	●	●	●	●			●	●		1	Φ9.525	4.76	3.8	0.8	
	VNGA160410	●	●	●	●			●	●		1	Φ9.525	4.76	3.8	1.0	
	VNGA160412	●	●	●	●			●	●		1	Φ9.525	4.76	3.8	1.2	
Multi-tip insert																
	2-VNGA160402	●	●	●	●			●	●		2	Φ9.525	4.76	3.8	0.2	
	2-VNGA160404	●	●	●	●			●	●		2	Φ9.525	4.76	3.8	0.4	
	2-VNGA160406	●	●	●	●			●	●		2	Φ9.525	4.76	3.8	0.6	
	2-VNGA160408	●	●	●	●			●	●		2	Φ9.525	4.76	3.8	0.8	
	2-VNGA160410	●	●	●	●			●	●		2	Φ9.525	4.76	3.8	1.0	
	2-VNGA160412	●	●	●	●			●	●		2	Φ9.525	4.76	3.8	1.2	
	4-VNGA160402	●	●	●	●			●	●		4	Φ9.525	4.76	3.8	0.2	
	4-VNGA160404	●	●	●	●			●	●		4	Φ9.525	4.76	3.8	0.4	
	4-VNGA160406	●	●	●	●			●	●		4	Φ9.525	4.76	3.8	0.6	
	4-VNGA160408	●	●	●	●			●	●		4	Φ9.525	4.76	3.8	0.8	
	4-VNGA160410	●	●	●	●			●	●		4	Φ9.525	4.76	3.8	1.0	
	4-VNGA160412	●	●	●	●			●	●		4	Φ9.525	4.76	3.8	1.2	

VN Rhombic 35° Negative

		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700	
H	Hard Materials	●	● ⊂	● ⊂						
K	Cast Iron				●					
S	Superalloys							●	●	
		No Coated		Coated	No Coated					

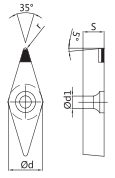
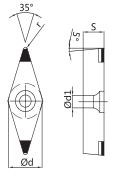
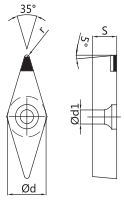
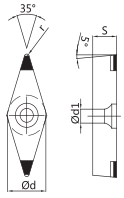
● : Continuous Cutting ⊂ : Light Interrupted Cutting

Insert shape	Designation	TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Single-tip insert																
	VNGA220410	●	●	●	●			●	●		1	Φ12.7	4.76	5.16	1.0	
	VNGA220412	●	●	●	●			●	●		1	Φ12.7	4.76	5.16	1.2	
	VNGA220416	●	●	●	●			●	●		1	Φ12.7	4.76	5.16	1.6	
	VNGA220404	●	●	●	●			●	●		1	Φ12.7	4.76	5.16	0.4	
	VNGA220408	●	●	●	●			●	●		1	Φ12.7	4.76	5.16	0.8	
Multi-tip insert																
	2-VNGA220404	●	●	●	●			●	●		2	Φ12.7	4.76	5.16	0.4	
	2-VNGA220408	●	●	●	●			●	●		2	Φ12.7	4.76	5.16	0.8	
	2-VNGA220410	●	●	●	●			●	●		2	Φ12.7	4.76	5.16	1.0	
	2-VNGA220412	●	●	●	●			●	●		2	Φ12.7	4.76	5.16	1.2	
	2-VNGA220416	●	●	●	●			●	●		2	Φ12.7	4.76	5.16	1.6	
	4-VNGA220404	●	●	●	●			●	●		4	Φ12.7	4.76	5.16	0.4	
	4-VNGA220408	●	●	●	●			●	●		4	Φ12.7	4.76	5.16	0.8	
	4-VNGA220410	●	●	●	●			●	●		4	Φ12.7	4.76	5.16	1.0	
	4-VNGA220412	●	●	●	●			●	●		4	Φ12.7	4.76	5.16	1.2	
	4-VNGA220416	●	●	●	●			●	●		4	Φ12.7	4.76	5.16	1.6	

VB Rhombic 35° Positive 5°

H	Hard Materials	●	● ⊂	● ⊂						
K	Cast Iron				●					
S	Superalloys							●	●	

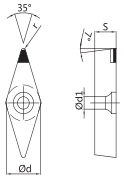
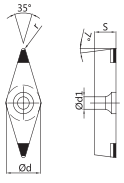
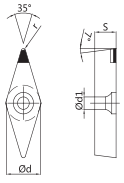
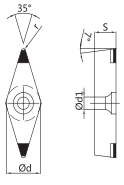
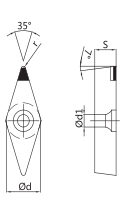
● : Continuous Cutting ⊂ : Light Interrupted Cutting

Insert shape	Designation	No Coated TCBH510	No Coated TCBH520	Coated TCCH620	No Coated TCBK100			No Coated TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Single-tip insert																
	VBGW110302	●	●	●	●			●	●		1	Φ6.35	3.18	2.8	0.2	
	VBGW110304	●	●	●	●			●	●		1	Φ6.35	3.18	2.8	0.4	
	VBGW110306	●	●	●	●			●	●		1	Φ6.35	3.18	2.8	0.6	
	VBGW110308	●	●	●	●			●	●		1	Φ6.35	3.18	2.8	0.8	
Multi-tip insert																
	2-VBGW110302	●	●	●	●			●	●		2	Φ6.35	3.18	2.8	0.2	
	2-VBGW110304	●	●	●	●			●	●		2	Φ6.35	3.18	2.8	0.4	
	2-VBGW110306	●	●	●	●			●	●		2	Φ6.35	3.18	2.8	0.6	
	2-VBGW110308	●	●	●	●			●	●		2	Φ6.35	3.18	2.8	0.8	
Single-tip insert																
	VBGW160404	●	●	●	●			●	●		1	Φ9.525	4.76	4.4	0.4	
	VBGW160406	●	●	●	●			●	●		1	Φ9.525	4.76	4.4	0.6	
	VBGW160408	●	●	●	●			●	●		1	Φ9.525	4.76	4.4	0.8	
	VBGW160410	●	●	●	●			●	●		1	Φ9.525	4.76	4.4	1.0	
	VBGW160412	●	●	●	●			●	●		1	Φ9.525	4.76	4.4	1.2	
Multi-tip insert																
	2-VBGW160404	●	●	●	●			●	●		2	Φ9.525	4.76	4.4	0.4	
	2-VBGW160406	●	●	●	●			●	●		2	Φ9.525	4.76	4.4	0.6	
	2-VBGW160408	●	●	●	●			●	●		2	Φ9.525	4.76	4.4	0.8	
	2-VBGW160410	●	●	●	●			●	●		2	Φ9.525	4.76	4.4	1.0	
	2-VBGW160412	●	●	●	●			●	●		2	Φ9.525	4.76	4.4	1.2	

VC Rhombic 35° Positive 7°

		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700	
H	Hard Materials	●	● ☪	● ☪						
K	Cast Iron				●					
S	Superalloys							●	●	

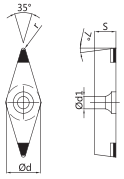
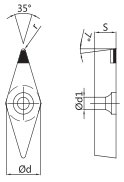
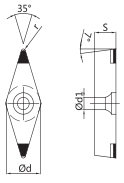
● : Continuous Cutting ☪ : Light Interrupted Cutting

Insert shape	Designation	No Coated TCBH510	No Coated TCBH520	Coated TCCH620	No Coated TCBK100			No Coated TCBX800	No Coated TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Single-tip insert																
	VCGW080202	●	●	●	●			●	●		1	Φ4.76	2.38	2.3	0.2	
	VCGW080204	●	●	●	●			●	●		1	Φ4.76	2.38	2.3	0.4	
	VCGW080206	●	●	●	●			●	●		1	Φ4.76	2.38	2.3	0.6	
	VCGW080208	●	●	●	●			●	●		1	Φ4.76	2.38	2.3	0.8	
Multi-tip insert																
	2-VCGW080202	●	●	●	●			●	●		2	Φ4.76	2.38	2.3	0.2	
	2-VCGW080204	●	●	●	●			●	●		2	Φ4.76	2.38	2.3	0.4	
	2-VCGW080206	●	●	●	●			●	●		2	Φ4.76	2.38	2.3	0.6	
	2-VCGW080208	●	●	●	●			●	●		2	Φ4.76	2.38	2.3	0.8	
Single-tip insert																
	VCGW110302	●	●	●	●			●	●		1	Φ6.35	3.18	2.8	0.2	
	VCGW110304	●	●	●	●			●	●		1	Φ6.35	3.18	2.8	0.4	
	VCGW110306	●	●	●	●			●	●		1	Φ6.35	3.18	2.8	0.6	
	VCGW110308	●	●	●	●			●	●		1	Φ6.35	3.18	2.8	0.8	
Multi-tip insert																
	2-VCGW110302	●	●	●	●			●	●		2	Φ6.35	3.18	2.8	0.2	
	2-VCGW110304	●	●	●	●			●	●		2	Φ6.35	3.18	2.8	0.4	
	2-VCGW110306	●	●	●	●			●	●		2	Φ6.35	3.18	2.8	0.6	
	2-VCGW110308	●	●	●	●			●	●		2	Φ6.35	3.18	2.8	0.8	
Single-tip insert																
	VCGW160404	●	●	●	●			●	●		1	Φ9.525	4.67	4.4	0.4	
	VCGW160406	●	●	●	●			●	●		1	Φ9.525	4.67	4.4	0.6	
	VCGW160408	●	●	●	●			●	●		1	Φ9.525	4.67	4.4	0.8	
	VCGW160410	●	●	●	●			●	●		1	Φ9.525	4.67	4.4	1.0	
	VCGW160412	●	●	●	●			●	●		1	Φ9.525	4.67	4.4	1.2	

VC Rhombic 35° Positive 7°

		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700	
		No Coated		Coated	No Coated					
H	Hard Materials	●	● ☪	● ☪						
K	Cast Iron				●					
S	Superalloys							●	●	

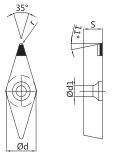
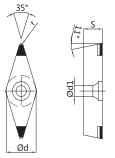
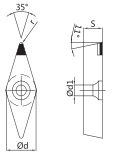
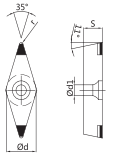
● : Continuous Cutting ☪ : Light Interrupted Cutting

Insert shape	Designation	TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Multi-tip insert																
	2-VCGW160404	●	●	●	●			●	●		2	Φ9.525	4.76	4.4	0.4	
	2-VCGW160406	●	●	●	●			●	●		2	Φ9.525	4.76	4.4	0.6	
	2-VCGW160408	●	●	●	●			●	●		2	Φ9.525	4.76	4.4	0.8	
	2-VCGW160410	●	●	●	●			●	●		2	Φ9.525	4.76	4.4	1.0	
	2-VCGW160412	●	●	●	●			●	●		2	Φ9.525	4.76	4.4	1.2	
Single-tip insert																
	VCMW220512	●	●	●	●			●	●		1	Φ12.7	5.56	5.5	1.2	
	VCMW220516	●	●	●	●			●	●		1	Φ12.7	5.56	5.5	1.6	
	VCMW220520	●	●	●	●			●	●		1	Φ12.7	5.56	5.5	2.0	
Multi-tip insert																
	2-VCMW220512	●	●	●	●			●	●		2	Φ12.7	5.56	5.5	1.2	
	2-VCMW220516	●	●	●	●			●	●		2	Φ12.7	5.56	5.5	1.6	
	2-VCMW220520	●	●	●	●			●	●		2	Φ12.7	5.56	5.5	2.0	

VP Rhombic 35° Positive 11°

		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700	
H	Hard Materials	●	● ☪	● ☪						
K	Cast Iron				●					
S	Superalloys							●	●	

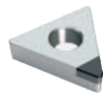
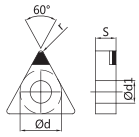
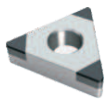
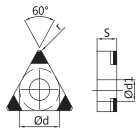
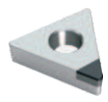
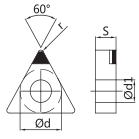
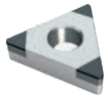
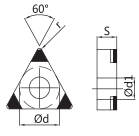
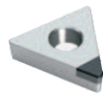
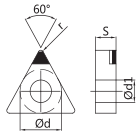
● : Continuous Cutting ☪ : Light Interrupted Cutting

Insert shape	Designation	No Coated TCBH510	TCBH520	Coated TCCH620	No Coated TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Single-tip insert																
	VPGW080202	●	●	●	●			●	●		1	Φ4.76	2.38	2.3	0.2	
	VPGW080204	●	●	●	●			●	●		1	Φ4.76	2.38	2.3	0.4	
	VPGW080208	●	●	●	●			●	●		1	Φ4.76	2.38	2.3	0.8	
Multi-tip insert																
	2-VPGW080204	●	●	●	●			●	●		2	Φ4.76	2.38	2.3	0.4	
	2-VPGW080208	●	●	●	●			●	●		2	Φ4.76	2.38	2.3	0.8	
Single-tip insert																
	VPGW110302	●	●	●	●			●	●		1	Φ6.35	3.18	2.8	0.2	
	VPGW110304	●	●	●	●			●	●		1	Φ6.35	3.18	2.8	0.4	
	VPGW110306	●	●	●	●			●	●		1	Φ6.35	3.18	2.8	0.6	
	VPGW110308	●	●	●	●			●	●		1	Φ6.35	3.18	2.8	0.8	
Multi-tip insert																
	2-VPGW110302	●	●	●	●			●	●		2	Φ6.35	3.18	2.8	0.2	
	2-VPGW110304	●	●	●	●			●	●		2	Φ6.35	3.18	2.8	0.4	
	2-VPGW110306	●	●	●	●			●	●		2	Φ6.35	3.18	2.8	0.6	
	2-VPGW110308	●	●	●	●			●	●		2	Φ6.35	3.18	2.8	0.8	

TN Triangular 60° Negative

H	Hard Materials	●	● ☪	● ☪						
K	Cast Iron				●					
S	Superalloys							●	●	

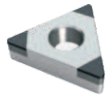
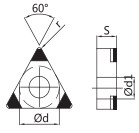
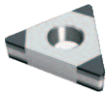
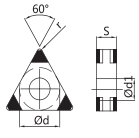
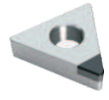
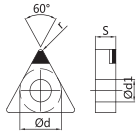
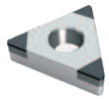
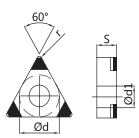
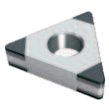
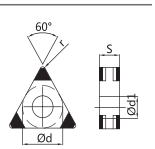
● : Continuous Cutting ☪ : Light Interrupted Cutting

Insert shape	Designation	No Coated TCBH510	TCBH520	Coated TCCH620	No Coated TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Single-tip insert																
	TNGA110302	●	●	●	●			●	●		1	Φ6.35	3.18	2.3	0.2	
	TNGA110304	●	●	●	●			●	●		1	Φ6.35	3.18	2.3	0.4	
	TNGA110306	●	●	●	●			●	●		1	Φ6.35	3.18	2.3	0.6	
	TNGA110308	●	●	●	●			●	●		1	Φ6.35	3.18	2.3	0.8	
Multi-tip insert																
	3-TNGA110302	●	●	●	●			●	●		3	Φ6.35	3.18	2.3	0.2	
	3-TNGA110304	●	●	●	●			●	●		3	Φ6.35	3.18	2.3	0.4	
	3-TNGA110306	●	●	●	●			●	●		3	Φ6.35	3.18	2.3	0.6	
	3-TNGA110308	●	●	●	●			●	●		3	Φ6.35	3.18	2.3	0.8	
Single-tip insert																
	TNGA130304	●	●	●	●			●	●		1	Φ7.95	3.18	3.15	0.4	
	TNGA130306	●	●	●	●			●	●		1	Φ7.95	3.18	3.15	0.6	
	TNGA130308	●	●	●	●			●	●		1	Φ7.95	3.18	3.15	0.8	
	TNGA130312	●	●	●	●			●	●		1	Φ7.95	3.18	3.15	1.2	
Multi-tip insert																
	3-TNGA130304	●	●	●	●			●	●		3	Φ7.95	3.18	3.15	0.4	
	3-TNGA130306	●	●	●	●			●	●		3	Φ7.95	3.18	3.15	0.6	
	3-TNGA130308	●	●	●	●			●	●		3	Φ7.95	3.18	3.15	0.8	
	3-TNGA130312	●	●	●	●			●	●		3	Φ7.95	3.18	3.15	1.2	
Single-tip insert																
	TNGA160404	●	●	●	●			●	●		1	Φ9.525	4.46	3.8	0.4	
	TNGA160406	●	●	●	●			●	●		1	Φ9.525	4.76	3.8	0.6	
	TNGA160408	●	●	●	●			●	●		1	Φ9.525	4.76	3.8	0.8	
	TNGA160410	●	●	●	●			●	●		1	Φ9.525	4.76	3.8	1.0	
	TNGA160412	●	●	●	●			●	●		1	Φ9.525	4.76	3.8	1.2	
	TNGA160416	●	●	●	●			●	●		1	Φ9.525	4.76	3.8	1.6	

TN Triangular 60° Negative

		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700	
H	Hard Materials	●	● ☪	● ☪						
K	Cast Iron				●					
S	Superalloys							●	●	

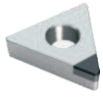
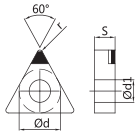
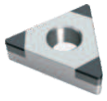
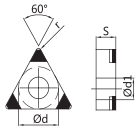
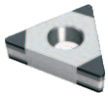
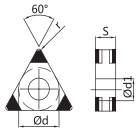
● : Continuous Cutting ☪ : Light Interrupted Cutting

Insert shape	Designation	No Coated TCBH510	No Coated TCBH520	Coated TCCH620	No Coated TCBK100			No Coated TCBX800	No Coated TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Multi-tip insert																
	3-TNGA160404	●	●	●	●			●	●		3	Φ9.525	4.76	3.8	0.4	
	3-TNGA160406	●	●	●	●			●	●		3	Φ9.525	4.76	3.8	0.6	
	3-TNGA160408	●	●	●	●			●	●		3	Φ9.525	4.76	3.8	0.8	
	3-TNGA160410	●	●	●	●			●	●		3	Φ9.525	4.76	3.8	1.0	
	3-TNGA160412	●	●	●	●			●	●		3	Φ9.525	4.76	3.8	1.2	
	3-TNGA160416	●	●	●	●			●	●		3	Φ9.525	4.76	3.8	1.6	
Multi-tip insert																
	6-TNGA160404	●	●	●	●			●	●		6	Φ9.525	4.76	3.8	0.4	
	6-TNGA160406	●	●	●	●			●	●		6	Φ9.525	4.76	3.8	0.6	
	6-TNGA160408	●	●	●	●			●	●		6	Φ9.525	4.76	3.8	0.8	
	6-TNGA160410	●	●	●	●			●	●		6	Φ9.525	4.76	3.8	1.0	
	6-TNGA160412	●	●	●	●			●	●		6	Φ9.525	4.76	3.8	1.2	
	6-TNGA160416	●	●	●	●			●	●		6	Φ9.525	4.76	3.8	1.6	
Single-tip insert																
	TNGA220408	●	●	●	●			●	●		1	Φ12.7	4.76	5.16	0.8	
	TNGA220412	●	●	●	●			●	●		1	Φ12.7	4.76	5.16	1.2	
	TNGA220416	●	●	●	●			●	●		1	Φ12.7	4.76	5.16	1.6	
Multi-tip insert																
	3-TNGA220408	●	●	●	●			●	●		3	Φ12.7	4.76	5.16	0.8	
	3-TNGA220412	●	●	●	●			●	●		3	Φ12.7	4.76	5.16	1.2	
	3-TNGA220416	●	●	●	●			●	●		3	Φ12.7	4.76	5.16	1.6	
Multi-tip insert																
	6-TNGA220408	●	●	●	●			●	●		6	Φ12.7	4.76	5.16	0.8	
	6-TNGA220412	●	●	●	●			●	●		6	Φ12.7	4.76	5.16	1.2	
	6-TNGA220416	●	●	●	●			●	●		6	Φ12.7	4.76	5.16	1.6	

TN Triangular 60° Negative

H	Hard Materials	●	● ☾	● ☾						
K	Cast Iron				●					
S	Superalloys							●	●	

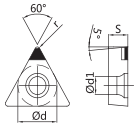
● : Continuous Cutting ☾ : Light Interrupted Cutting

Insert shape	Designation	No Coated TCBH510	TCBH520	Coated TCCH620	No Coated TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Single-tip insert																
	TNGA270608	●	●	●	●			●	●		1	Φ15.875	6.35	6.35	0.8	
	TNGA270610	●	●	●	●			●	●		1	Φ15.875	6.35	6.35	1.0	
	TNGA270612	●	●	●	●			●	●		1	Φ15.875	6.35	6.35	1.2	
	TNGA270616	●	●	●	●			●	●		1	Φ15.875	6.35	6.35	1.6	
	TNGA270620	●	●	●	●			●	●		1	Φ15.875	6.35	6.35	2.0	
Multi-tip insert																
	3-TNGA270608	●	●	●	●			●	●		3	Φ15.875	6.35	6.35	0.8	
	3-TNGA270610	●	●	●	●			●	●		3	Φ15.875	6.35	6.35	1.0	
	3-TNGA270612	●	●	●	●			●	●		3	Φ15.875	6.35	6.35	1.2	
	3-TNGA270616	●	●	●	●			●	●		3	Φ15.875	6.35	6.35	1.6	
	3-TNGA270620	●	●	●	●			●	●		3	Φ15.875	6.35	6.35	2.0	
Multi-tip insert																
	6-TNGA270608	●	●	●	●			●	●		6	Φ15.875	6.35	6.35	0.8	
	6-TNGA270610	●	●	●	●			●	●		6	Φ15.875	6.35	6.35	1.0	
	6-TNGA270612	●	●	●	●			●	●		6	Φ15.875	6.35	6.35	1.2	
	6-TNGA270616	●	●	●	●			●	●		6	Φ15.875	6.35	6.35	1.6	
	6-TNGA270620	●	●	●	●			●	●		6	Φ15.875	6.35	6.35	2.0	

TB Triangular 60° Positive 5°

		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700	
H	Hard Materials	●	● ɕ	● ɕ						
K	Cast Iron				●					
S	Superalloys							●	●	

● : Continuous Cutting ɕ : Light Interrupted Cutting

Insert shape	Designation	No Coated TCBH510	No Coated TCBH520	Coated TCCH620	No Coated TCBK100			No Coated TCBX800	No Coated TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Single-tip insert																
	TBGW060102	●	●	●	●			●	●		1	Φ3.97	1.59	2.2	0.2	
	TBGW060104	●	●	●	●			●	●		1	Φ3.97	1.59	2.2	0.4	

TC Triangular 60° Positive 7°

		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		No Coated		Coated	No Coated											
H	Hard Materials	●	● c	● c												
K	Cast Iron				●											
S	Superalloys							●	●							
Insert shape	Designation															
Single-tip insert																
	TCGW060102	●	●	●	●			●	●		1	Φ3.97	1.59	2.2	0.2	
	TCGW060104	●	●	●	●			●	●		1	Φ3.97	1.59	2.2	0.4	
Single-tip insert																
	TCGW06T102	●	●	●	●			●	●		1	Φ3.97	1.98	2.2	0.2	
	TCGW06T104	●	●	●	●			●	●		1	Φ3.97	1.98	2.2	0.4	
Single-tip insert																
	TCGW060202	●	●	●	●			●	●		1	Φ3.97	2.38	2.2	0.2	
	TCGW060204	●	●	●	●			●	●		1	Φ3.97	2.38	2.2	0.4	
Single-tip insert																
	TCGW080202	●	●	●	●			●	●		1	Φ4.76	2.38	2.3	0.2	
	TCGW080204	●	●	●	●			●	●		1	Φ4.76	2.38	2.3	0.4	
	TCGW080206	●	●	●	●			●	●		1	Φ4.76	2.38	2.3	0.6	
Single-tip insert																
	TCGW090202	●	●	●	●			●	●		1	Φ5.56	2.38	2.5	0.2	
	TCGW090204	●	●	●	●			●	●		1	Φ5.56	2.38	2.5	0.4	
	TCGW090206	●	●	●	●			●	●		1	Φ5.56	2.38	2.5	0.6	
	TCGW090208	●	●	●	●			●	●		1	Φ5.56	2.38	2.5	0.8	

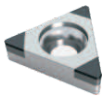
● : Continuous Cutting c : Light Interrupted Cutting

TC Triangular 60° Positive 7°

		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
H	Hard Materials	●	●c	●c												
K	Cast Iron				●											
S	Superalloys							●	●							
Insert shape	Designation	No Coated		Coated	No Coated											

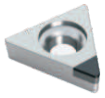
● : Continuous Cutting ●c : Light Interrupted Cutting

Multi-tip insert



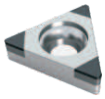
Designation														
3-TCGW090202	●	●	●	●			●	●		3	Φ5.56	2.38	2.5	0.2
3-TCGW090204	●	●	●	●			●	●		3	Φ5.56	2.38	2.5	0.4
3-TCGW090206	●	●	●	●			●	●		3	Φ5.56	2.38	2.5	0.6
3-TCGW090208	●	●	●	●			●	●		3	Φ5.56	2.38	2.5	0.8

Single-tip insert



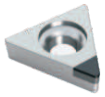
Designation														
TCGW110202	●	●	●	●			●	●		1	Φ6.35	2.38	2.8	0.2
TCGW110204	●	●	●	●			●	●		1	Φ6.35	2.38	2.8	0.4
TCGW110206	●	●	●	●			●	●		1	Φ6.35	2.38	2.8	0.6
TCGW110208	●	●	●	●			●	●		1	Φ6.35	2.38	2.8	0.8

Multi-tip insert



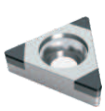
Designation														
3-TCGW110202	●	●	●	●			●	●		3	Φ6.35	2.38	2.8	0.2
3-TCGW110204	●	●	●	●			●	●		3	Φ6.35	2.38	2.8	0.4
3-TCGW110206	●	●	●	●			●	●		3	Φ6.35	2.38	2.8	0.6
3-TCGW110208	●	●	●	●			●	●		3	Φ6.35	2.38	2.8	0.8

Single-tip insert



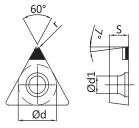
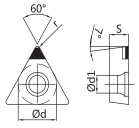
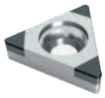
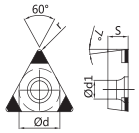
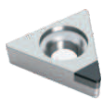
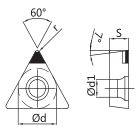
Designation														
TCGW110302	●	●	●	●			●	●		1	Φ6.35	3.18	2.8	0.2
TCGW110304	●	●	●	●			●	●		1	Φ6.35	3.18	2.8	0.4
TCGW110306	●	●	●	●			●	●		1	Φ6.35	3.18	2.8	0.6
TCGW110308	●	●	●	●			●	●		1	Φ6.35	3.18	2.8	0.8

Multi-tip insert



Designation														
3-TCGW110302	●	●	●	●			●	●		3	Φ6.35	3.18	2.8	0.2
3-TCGW110304	●	●	●	●			●	●		3	Φ6.35	3.18	2.8	0.4
3-TCGW110306	●	●	●	●			●	●		3	Φ6.35	3.18	2.8	0.6
3-TCGW110308	●	●	●	●			●	●		3	Φ6.35	3.18	2.8	0.8

TC Triangular 60° Positive 7°

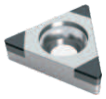
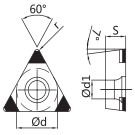
		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		No Coated		Coated	No Coated											
H	Hard Materials	●	● c	● c												
K	Cast Iron				●											
S	Superalloys							●	●							
Insert shape	Designation															
Single-tip insert																
	TCGW11T304	●	●	●	●			●	●		1	Φ6.35	3.97	2.8	0.4	
	TCGW11T306	●	●	●	●			●	●		1	Φ6.35	3.97	2.8	0.6	
	TCGW11T308	●	●	●	●			●	●		1	Φ6.35	3.97	2.8	0.8	
Single-tip insert																
	TCGW16T304	●	●	●	●			●	●		1	Φ9.525	3.97	4.4	0.4	
	TCGW16T306	●	●	●	●			●	●		1	Φ9.525	3.97	4.4	0.6	
	TCGW16T308	●	●	●	●			●	●		1	Φ9.525	3.97	4.4	0.8	
	TCGW16T310	●	●	●	●			●	●		1	Φ9.525	3.97	4.4	1.0	
	TCGW16T312	●	●	●	●			●	●		1	Φ9.525	3.97	4.4	1.2	
Multi-tip insert																
	3-TCGW16T304	●	●	●	●			●	●		3	Φ9.525	3.97	4.4	0.4	
	3-TCGW16T306	●	●	●	●			●	●		3	Φ9.525	3.97	4.4	0.6	
	3-TCGW16T308	●	●	●	●			●	●		3	Φ9.525	3.97	4.4	0.8	
	3-TCGW16T310	●	●	●	●			●	●		3	Φ9.525	3.97	4.4	1.0	
	3-TCGW16T312	●	●	●	●			●	●		3	Φ9.525	3.97	4.4	1.2	
Single-tip insert																
	TCGW160404	●	●	●	●			●	●		1	Φ9.525	4.76	4.4	0.4	
	TCGW160406	●	●	●	●			●	●		1	Φ9.525	4.76	4.4	0.6	
	TCGW160408	●	●	●	●			●	●		1	Φ9.525	4.76	4.4	0.8	
	TCGW160410	●	●	●	●			●	●		1	Φ9.525	4.76	4.4	1.0	
	TCGW160412	●	●	●	●			●	●		1	Φ9.525	4.76	4.4	1.2	

● : Continuous Cutting c : Light Interrupted Cutting

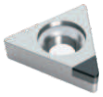
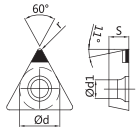
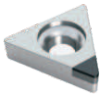
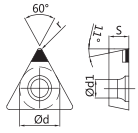
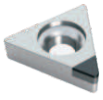
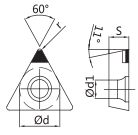
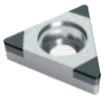
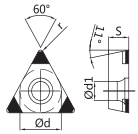
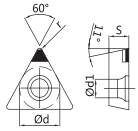
TC Triangular 60° Positive 7°

H	Hard Materials	●	● ☾	● ☾						
K	Cast Iron				●					
S	Superalloys							●	●	

● : Continuous Cutting ☾ : Light Interrupted Cutting

Insert shape	Designation	No Coated TCBH510	No Coated TCBH520	Coated TCCH620	No Coated TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Multi-tip insert																
	3-TCGW160404	●	●	●	●			●	●		3	Φ9.525	4.76	4.4	0.4	
	3-TCGW160406	●	●	●	●			●	●		3	Φ9.525	4.76	4.4	0.6	
	3-TCGW160408	●	●	●	●			●	●		3	Φ9.525	4.76	4.4	0.8	
	3-TCGW160410	●	●	●	●			●	●		3	Φ9.525	4.76	4.4	1.0	
	3-TCGW160412	●	●	●	●			●	●		3	Φ9.525	4.76	4.4	1.2	

TP Triangular 60° Positive 11°

		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		No Coated		Coated	No Coated											
H	Hard Materials	●	● c	● c												
K	Cast Iron				●											
S	Superalloys							●	●							
Insert shape	Designation															
Single-tip insert																
	TPGW080202	●	●	●	●			●	●		1	Φ4.76	2.38	2.5	0.2	
	TPGW080204	●	●	●	●			●	●		1	Φ4.76	2.38	2.5	0.4	
	TPGW080206	●	●	●	●			●	●		1	Φ4.76	2.38	2.5	0.6	
Single-tip insert																
	TPGW090202	●	●	●	●			●	●		1	Φ5.56	2.38	2.8	0.2	
	TPGW090204	●	●	●	●			●	●		1	Φ5.56	2.38	2.8	0.4	
	TPGW090206	●	●	●	●			●	●		1	Φ5.56	2.38	2.8	0.6	
	TPGW090208	●	●	●	●			●	●		1	Φ5.56	2.38	2.8	0.8	
Single-tip insert																
	TPGW110202	●	●	●	●			●	●		1	Φ6.35	2.38	2.8	0.2	
	TPGW110204	●	●	●	●			●	●		1	Φ6.35	2.38	2.8	0.4	
	TPGW110206	●	●	●	●			●	●		1	Φ6.35	2.38	2.8	0.6	
	TPGW110208	●	●	●	●			●	●		1	Φ6.35	2.38	2.8	0.8	
Multi-tip insert																
	3-TPGW110202	●	●	●	●			●	●		3	Φ6.35	2.38	2.8	0.2	
	3-TPGW110204	●	●	●	●			●	●		3	Φ6.35	2.38	2.8	0.4	
	3-TPGW110206	●	●	●	●			●	●		3	Φ6.35	2.38	2.8	0.6	
	3-TPGW110208	●	●	●	●			●	●		3	Φ6.35	2.38	2.8	0.8	
Single-tip insert																
	TPGW110302	●	●	●	●			●	●		1	Φ6.35	3.18	3.4	0.2	
	TPGW110304	●	●	●	●			●	●		1	Φ6.35	3.18	3.4	0.4	
	TPGW110306	●	●	●	●			●	●		1	Φ6.35	3.18	3.4	0.6	
	TPGW110308	●	●	●	●			●	●		1	Φ6.35	3.18	3.4	0.8	

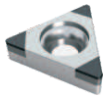
● : Continuous Cutting c : Light Interrupted Cutting

TP Triangular 60° Positive 11°

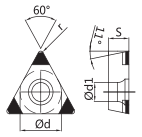
		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
H	Hard Materials	●	●c	●c												
K	Cast Iron				●											
S	Superalloys							●	●							
Insert shape	Designation	No Coated		Coated	No Coated											

● : Continuous Cutting ●c : Light Interrupted Cutting

Multi-tip insert

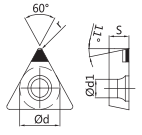


Designation									Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)
3-TPGW110302	●	●	●	●			●	●	3	Φ6.35	3.18	3.4	0.2
3-TPGW110304	●	●	●	●			●	●	3	Φ6.35	3.18	3.4	0.4
3-TPGW110306	●	●	●	●			●	●	3	Φ6.35	3.18	3.4	0.6
3-TPGW110308	●	●	●	●			●	●	3	Φ6.35	3.18	3.4	0.8

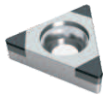


Single-tip insert

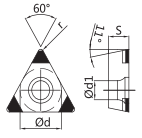
Designation									Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)
TPGW160304	●	●	●	●			●	●	1	Φ9.525	3.18	4.4	0.4
TPGW160306	●	●	●	●			●	●	1	Φ9.525	3.18	4.4	0.6
TPGW160308	●	●	●	●			●	●	1	Φ9.525	3.18	4.4	0.8
TPGW160312	●	●	●	●			●	●	1	Φ9.525	3.18	4.4	1.2



Multi-tip insert

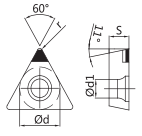


Designation									Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)
3-TPGW160304	●	●	●	●			●	●	3	Φ9.525	3.18	4.4	0.4
3-TPGW160306	●	●	●	●			●	●	3	Φ9.525	3.18	4.4	0.6
3-TPGW160308	●	●	●	●			●	●	3	Φ9.525	3.18	4.4	0.8
3-TPGW160312	●	●	●	●			●	●	3	Φ9.525	3.18	4.4	1.2

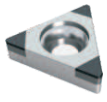


Single-tip insert

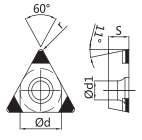
Designation									Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)
TPGW16T304	●	●	●	●			●	●	1	Φ9.525	3.97	4.4	0.4
TPGW16T306	●	●	●	●			●	●	1	Φ9.525	3.97	4.4	0.6
TPGW16T308	●	●	●	●			●	●	1	Φ9.525	3.97	4.4	0.8
TPGW16T312	●	●	●	●			●	●	1	Φ9.525	3.97	4.4	1.2



Multi-tip insert



Designation									Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)
3-TPGW16T304	●	●	●	●			●	●	3	Φ9.525	3.97	4.4	0.4
3-TPGW16T306	●	●	●	●			●	●	3	Φ9.525	3.97	4.4	0.6
3-TPGW16T308	●	●	●	●			●	●	3	Φ9.525	3.97	4.4	0.8
3-TPGW16T312	●	●	●	●			●	●	3	Φ9.525	3.97	4.4	1.2

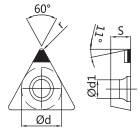


TP Triangular 60° Positive 11°

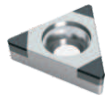
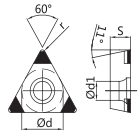
		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
	Insert shape	Designation	No Coated		Coated	No Coated										
H	Hard Materials	●	● ☪	● ☪												
K	Cast Iron				●											
S	Superalloys							●	●							

● : Continuous Cutting ☪ : Light Interrupted Cutting

Single-tip insert

Insert shape	Designation										Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
	TPGW160402	●	●	●	●			●	●		1	Φ9.525	4.76	4.4	0.2	
	TPGW160404	●	●	●	●			●	●		1	Φ9.525	4.76	4.4	0.4	
	TPGW160406	●	●	●	●			●	●		1	Φ9.525	4.76	4.4	0.6	
	TPGW160408	●	●	●	●			●	●		1	Φ9.525	4.76	4.4	0.8	
	TPGW160412	●	●	●	●			●	●		1	Φ9.525	4.76	4.4	1.2	

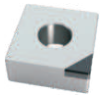
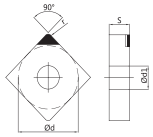
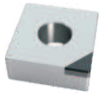
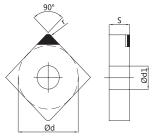
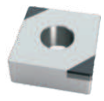
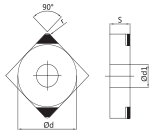
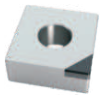
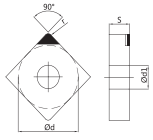
Multi-tip insert

Insert shape	Designation										Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
	3-TPGW160402	●	●	●	●			●	●		3	Φ9.525	4.76	4.4	0.2	
	3-TPGW160404	●	●	●	●			●	●		3	Φ9.525	4.76	4.4	0.4	
	3-TPGW160406	●	●	●	●			●	●		3	Φ9.525	4.76	4.4	0.6	
	3-TPGW160408	●	●	●	●			●	●		3	Φ9.525	4.76	4.4	0.8	
	3-TPGW160412	●	●	●	●			●	●		3	Φ9.525	4.76	4.4	1.2	

SN Square 90° Negative

		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700	
H	Hard Materials	●	● c	● c						
K	Cast Iron				●					
S	Superalloys							●	●	

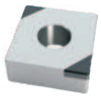
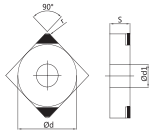
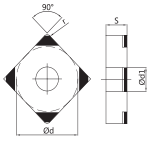
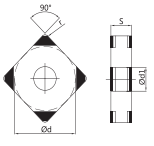
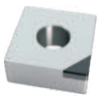
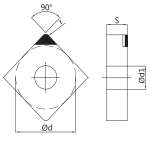
● : Continuous Cutting c : Light Interrupted Cutting

Insert shape	Designation	No Coated TCBH510	No Coated TCBH520	Coated TCCH620	No Coated TCBK100			No Coated TCBX800	No Coated TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Single-tip insert																
	SNGA07T204	●	●	●	●			●	●		1	Φ7.94	2.78	3.15	0.4	
	SNGA07T206	●	●	●	●			●	●		1	Φ7.94	2.78	3.15	0.6	
	SNGA07T208	●	●	●	●			●	●		1	Φ7.94	2.78	3.15	0.8	
Single-tip insert																
	SNGA090304	●	●	●	●			●	●		1	Φ9.525	3.18	3.8	0.4	
	SNGA090306	●	●	●	●			●	●		1	Φ9.525	3.18	3.8	0.6	
	SNGA090308	●	●	●	●			●	●		1	Φ9.525	3.18	3.8	0.8	
	SNGA090310	●	●	●	●			●	●		1	Φ9.525	3.18	3.8	1.0	
	SNGA090312	●	●	●	●			●	●		1	Φ9.525	3.18	3.8	1.2	
Multi-tip insert																
	2-SNGA090304	●	●	●	●			●	●		2	Φ9.525	3.18	3.8	0.4	
	2-SNGA090306	●	●	●	●			●	●		2	Φ9.525	3.18	3.8	0.6	
	2-SNGA090308	●	●	●	●			●	●		2	Φ9.525	3.18	3.8	0.8	
	2-SNGA090310	●	●	●	●			●	●		2	Φ9.525	3.18	3.8	1.0	
	2-SNGA090312	●	●	●	●			●	●		2	Φ9.525	3.18	3.8	1.2	
Single-tip insert																
	SNGA120404	●	●	●	●			●	●		1	Φ12.7	4.76	5.16	0.4	
	SNGA120406	●	●	●	●			●	●		1	Φ12.7	4.76	5.16	0.6	
	SNGA120408	●	●	●	●			●	●		1	Φ12.7	4.76	5.16	0.8	
	SNGA120410	●	●	●	●			●	●		1	Φ12.7	4.76	5.16	1.0	
	SNGA120412	●	●	●	●			●	●		1	Φ12.7	4.76	5.16	1.2	

SN Square 90° Negative

		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700	
H	Hard Materials	●	● ☪	● ☪						
K	Cast Iron				●					
S	Superalloys							●	●	
		No Coated		Coated	No Coated					

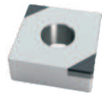
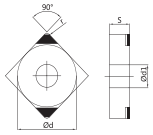
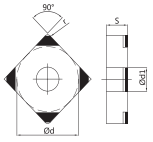
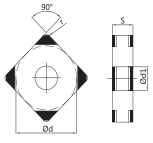
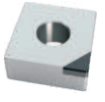
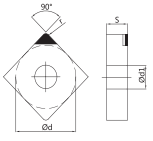
● : Continuous Cutting ☪ : Light Interrupted Cutting

Insert shape	Designation	TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Multi-tip insert																
	2-SNGA120404	●	●	●	●			●	●		2	Φ12.7	4.76	5.16	0.4	
	2-SNGA120406	●	●	●	●			●	●		2	Φ12.7	4.76	5.16	0.6	
	2-SNGA120408	●	●	●	●			●	●		2	Φ12.7	4.76	5.16	0.8	
	2-SNGA120410	●	●	●	●			●	●		2	Φ12.7	4.76	5.16	1.0	
	2-SNGA120412	●	●	●	●			●	●		2	Φ12.7	4.76	5.16	1.2	
Multi-tip insert																
	4-SNGA120404	●	●	●	●			●	●		4	Φ12.7	4.76	5.16	0.4	
	4-SNGA120406	●	●	●	●			●	●		4	Φ12.7	4.76	5.16	0.6	
	4-SNGA120408	●	●	●	●			●	●		4	Φ12.7	4.76	5.16	0.8	
	4-SNGA120410	●	●	●	●			●	●		4	Φ12.7	4.76	5.16	1.0	
	4-SNGA120412	●	●	●	●			●	●		4	Φ12.7	4.76	5.16	1.2	
	4-SNGA120416	●	●	●	●			●	●		4	Φ12.7	4.76	5.16	1.6	
Multi-tip insert																
	8-SNGA120404	●	●	●	●			●	●		8	Φ12.7	4.76	5.16	0.4	
	8-SNGA120406	●	●	●	●			●	●		8	Φ12.7	4.76	5.16	0.6	
	8-SNGA120408	●	●	●	●			●	●		8	Φ12.7	4.76	5.16	0.8	
	8-SNGA120410	●	●	●	●			●	●		8	Φ12.7	4.76	5.16	1.0	
	8-SNGA120412	●	●	●	●			●	●		8	Φ12.7	4.76	5.16	1.2	
	8-SNGA120416	●	●	●	●			●	●		8	Φ12.7	4.76	5.16	1.6	
Single-tip insert																
	SNGA150604	●	●	●	●			●	●		1	Φ15.875	6.35	6.35	0.4	
	SNGA150608	●	●	●	●			●	●		1	Φ15.875	6.35	6.35	0.8	
	SNGA150610	●	●	●	●			●	●		1	Φ15.875	6.35	6.35	1.0	
	SNGA150612	●	●	●	●			●	●		1	Φ15.875	6.35	6.35	1.2	
	SNGA150616	●	●	●	●			●	●		1	Φ15.875	6.35	6.35	1.6	

SN Square 90° Negative

H	Hard Materials	●	● c	● c						
K	Cast Iron				●					
S	Superalloys							●	●	

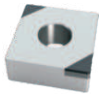
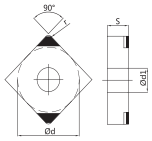
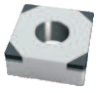
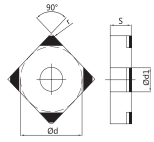
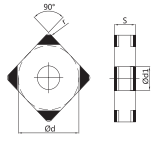
● : Continuous Cutting c : Light Interrupted Cutting

Insert shape	Designation	No Coated TCBH510	TCBH520	Coated TCCH620	No Coated TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Multi-tip insert																
	2-SNGA150604	●	●	●	●			●	●		2	Φ15.875	6.35	6.35	0.4	
	2-SNGA150608	●	●	●	●			●	●		2	Φ15.875	6.35	6.35	0.8	
	2-SNGA150610	●	●	●	●			●	●		2	Φ15.875	6.35	6.35	1.0	
	2-SNGA150612	●	●	●	●			●	●		2	Φ15.875	6.35	6.35	1.2	
	2-SNGA150616	●	●	●	●			●	●		2	Φ15.875	6.35	6.35	1.6	
Multi-tip insert																
	4-SNGA150604	●	●	●	●			●	●		4	Φ15.875	6.35	6.35	0.4	
	4-SNGA150608	●	●	●	●			●	●		4	Φ15.875	6.35	6.35	0.8	
	4-SNGA150610	●	●	●	●			●	●		4	Φ15.875	6.35	6.35	1.0	
	4-SNGA150612	●	●	●	●			●	●		4	Φ15.875	6.35	6.35	1.2	
	4-SNGA150616	●	●	●	●			●	●		4	Φ15.875	6.35	6.35	1.6	
Multi-tip insert																
	8-SNGA150604	●	●	●	●			●	●		8	Φ15.875	6.35	6.35	0.4	
	8-SNGA150608	●	●	●	●			●	●		8	Φ15.875	6.35	6.35	0.8	
	8-SNGA150610	●	●	●	●			●	●		8	Φ15.875	6.35	6.35	1.0	
	8-SNGA150612	●	●	●	●			●	●		8	Φ15.875	6.35	6.35	1.2	
	8-SNGA150616	●	●	●	●			●	●		8	Φ15.875	6.35	6.35	1.6	
Single-tip insert																
	SNGA190608	●	●	●	●			●	●		1	Φ19.05	6.35	7.94	0.8	
	SNGA190612	●	●	●	●			●	●		1	Φ19.05	6.35	7.94	1.2	
	SNGA190616	●	●	●	●			●	●		1	Φ19.05	6.35	7.94	1.6	

SN Square 90° Negative

H	Hard Materials	●	● c	● c						
K	Cast Iron				●					
S	Superalloys							●	●	

● : Continuous Cutting c : Light Interrupted Cutting

Insert shape	Designation	No Coated TCBH510	TCBH520	Coated TCCH620	No Coated TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Multi-tip insert																
	2-SNGA190608	●	●	●	●			●	●		2	Φ19.05	6.35	7.94	0.8	
	2-SNGA190612	●	●	●	●			●	●		2	Φ19.05	6.35	7.94	1.2	
	2-SNGA190616	●	●	●	●			●	●		2	Φ19.05	6.35	7.94	1.6	
Multi-tip insert																
	4-SNGA190608	●	●	●	●			●	●		4	Φ19.05	6.35	7.94	0.8	
	4-SNGA190612	●	●	●	●			●	●		4	Φ19.05	6.35	7.94	1.2	
	4-SNGA190616	●	●	●	●			●	●		4	Φ19.05	6.35	7.94	1.6	
Multi-tip insert																
	8-SNGA190608	●	●	●	●			●	●		8	Φ19.05	6.35	7.94	0.8	
	8-SNGA190612	●	●	●	●			●	●		8	Φ19.05	6.35	7.94	1.2	
	8-SNGA190616	●	●	●	●			●	●		8	Φ19.05	6.35	7.94	1.6	

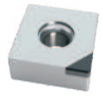
SC Square 90° Positive 7°

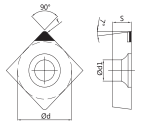
		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
	Insert shape	Designation	No Coated		Coated	No Coated										
H	Hard Materials	●	●c	●c												
K	Cast Iron				●											
S	Superalloys							●	●							

● : Continuous Cutting c : Light Interrupted Cutting

Single-tip insert

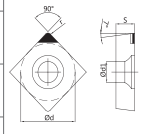
Designation	TCBH510	TCBH520	TCCH620	TCBK100	TCBX800	TCBS700	Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)
SCGW050202	●	●	●	●	●	●	1	Φ5.56	2.38	2.2	0.2
SCGW050204	●	●	●	●	●	●	1	Φ5.56	2.38	2.2	0.4





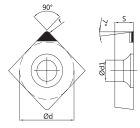
Single-tip insert

Designation	TCBH510	TCBH520	TCCH620	TCBK100	TCBX800	TCBS700	Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)
SCGW060202	●	●	●	●	●	●	1	Φ6.35	2.38	2.2	0.2
SCGW060204	●	●	●	●	●	●	1	Φ6.35	2.38	2.2	0.4
SCGW060208	●	●	●	●	●	●	1	Φ6.35	2.38	2.2	0.8



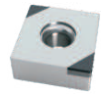
Single-tip insert

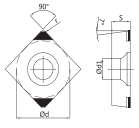
Designation	TCBH510	TCBH520	TCCH620	TCBK100	TCBX800	TCBS700	Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)
SCGW070202	●	●	●	●	●	●	1	Φ7.94	2.38	3.4	0.2
SCGW070204	●	●	●	●	●	●	1	Φ7.94	2.38	3.4	0.4
SCGW070206	●	●	●	●	●	●	1	Φ7.94	2.38	3.4	0.6
SCGW070208	●	●	●	●	●	●	1	Φ7.94	2.38	3.4	0.8



Multi-tip insert

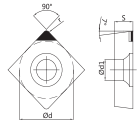
Designation	TCBH510	TCBH520	TCCH620	TCBK100	TCBX800	TCBS700	Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)
2-SCGW070202	●	●	●	●	●	●	2	Φ7.94	2.38	3.4	0.2
2-SCGW070204	●	●	●	●	●	●	2	Φ7.94	2.38	3.4	0.4
2-SCGW070206	●	●	●	●	●	●	2	Φ7.94	2.38	3.4	0.6
2-SCGW070208	●	●	●	●	●	●	2	Φ7.94	2.38	3.4	0.8





Single-tip insert

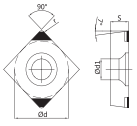
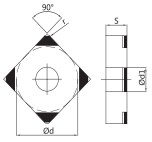
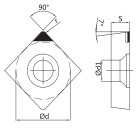
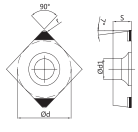
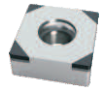
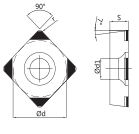
Designation	TCBH510	TCBH520	TCCH620	TCBK100	TCBX800	TCBS700	Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)
SCGW090302	●	●	●	●	●	●	1	Φ9.525	3.18	4.4	0.2
SCGW090304	●	●	●	●	●	●	1	Φ9.525	3.18	4.4	0.4
SCGW090306	●	●	●	●	●	●	1	Φ9.525	3.18	4.4	0.6
SCGW090308	●	●	●	●	●	●	1	Φ9.525	3.18	4.4	0.8



SC Square 90° Positive 7°

H	Hard Materials	●	●	●						
			☪	☪						
K	Cast Iron				●					
S	Superalloys							●	●	

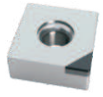
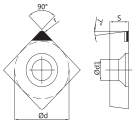
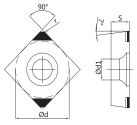
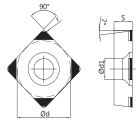
● : Continuous Cutting ☪ : Light Interrupted Cutting

Insert shape	Designation	No Coated TCBH510	Coated TCBH520	Coated TCCH620	No Coated TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Multi-tip insert																
	2-SCGW090302	●	●	●	●			●	●		2	Φ9.525	3.18	4.4	0.2	
	2-SCGW090304	●	●	●	●			●	●		2	Φ9.525	3.18	4.4	0.4	
	2-SCGW090306	●	●	●	●			●	●		2	Φ9.525	3.18	4.4	0.6	
	2-SCGW090308	●	●	●	●			●	●		2	Φ9.525	3.18	4.4	0.8	
Multi-tip insert																
	4-SCGW090302	●	●	●	●			●	●		4	Φ9.525	3.18	4.4	0.2	
	4-SCGW090304	●	●	●	●			●	●		4	Φ9.525	3.18	4.4	0.4	
	4-SCGW090306	●	●	●	●			●	●		4	Φ9.525	3.18	4.4	0.6	
	4-SCGW090308	●	●	●	●			●	●		4	Φ9.525	3.18	4.4	0.8	
Single-tip insert																
	SCGW09T302	●	●	●	●			●	●		1	Φ9.525	3.97	4.4	0.2	
	SCGW09T304	●	●	●	●			●	●		1	Φ9.525	3.97	4.4	0.4	
	SCGW09T306	●	●	●	●			●	●		1	Φ9.525	3.97	4.4	0.6	
	SCGW09T308	●	●	●	●			●	●		1	Φ9.525	3.97	4.4	0.8	
Multi-tip insert																
	2-SCGW09T302	●	●	●	●			●	●		2	Φ9.525	3.97	4.4	0.2	
	2-SCGW09T304	●	●	●	●			●	●		2	Φ9.525	3.97	4.4	0.4	
	2-SCGW09T306	●	●	●	●			●	●		2	Φ9.525	3.97	4.4	0.6	
	2-SCGW09T308	●	●	●	●			●	●		2	Φ9.525	3.97	4.4	0.8	
Multi-tip insert																
	4-SCGW09T302	●	●	●	●			●	●		4	Φ9.525	3.97	4.4	0.2	
	4-SCGW09T304	●	●	●	●			●	●		4	Φ9.525	3.97	4.4	0.4	
	4-SCGW09T306	●	●	●	●			●	●		4	Φ9.525	3.97	4.4	0.6	
	4-SCGW09T308	●	●	●	●			●	●		4	Φ9.525	3.97	4.4	0.8	

SC Square 90° Positive 7°

		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700	
H	Hard Materials	●	● ☾	● ☾						
K	Cast Iron				●					
S	Superalloys							●	●	

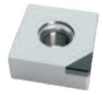
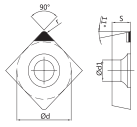
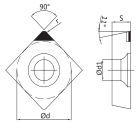
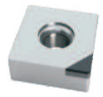
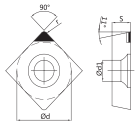
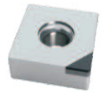
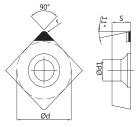
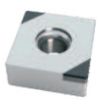
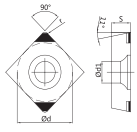
● : Continuous Cutting ☾ : Light Interrupted Cutting

Insert shape	Designation	No Coated TCBH510	No Coated TCBH520	Coated TCCH620	No Coated TCBK100			No Coated TCBX800	No Coated TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Single-tip insert																
	SCGW120404	●	●	●	●			●	●		1	Φ12.7	4.76	5.5	0.4	
	SCGW120406	●	●	●	●			●	●		1	Φ12.7	4.76	5.5	0.6	
	SCGW120408	●	●	●	●			●	●		1	Φ12.7	4.76	5.5	0.8	
	SCGW120410	●	●	●	●			●	●		1	Φ12.7	4.76	5.5	1.0	
	SCGW120412	●	●	●	●			●	●		1	Φ12.7	4.76	5.5	1.2	
Multi-tip insert																
	2-SCGW120404	●	●	●	●			●	●		2	Φ12.7	4.76	5.5	0.4	
	2-SCGW120406	●	●	●	●			●	●		2	Φ12.7	4.76	5.5	0.6	
	2-SCGW120408	●	●	●	●			●	●		2	Φ12.7	4.76	5.5	0.8	
	2-SCGW120410	●	●	●	●			●	●		2	Φ12.7	4.76	5.5	1.0	
	2-SCGW120412	●	●	●	●			●	●		2	Φ12.7	4.76	5.5	1.2	
Multi-tip insert																
	4-SCGW120404	●	●	●	●			●	●		4	Φ12.7	4.76	5.5	0.4	
	4-SCGW120406	●	●	●	●			●	●		4	Φ12.7	4.76	5.5	0.6	
	4-SCGW120408	●	●	●	●			●	●		4	Φ12.7	4.76	5.5	0.8	
	4-SCGW120410	●	●	●	●			●	●		4	Φ12.7	4.76	5.5	1.0	
	4-SCGW120412	●	●	●	●			●	●		4	Φ12.7	4.76	5.5	1.2	

SP Square 90° Positive 11°

		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700	
H	Hard Materials	●	● ɕ	● ɕ						
K	Cast Iron				●					
S	Superalloys							●	●	
		No Coated		Coated	No Coated					

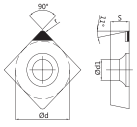
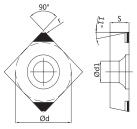
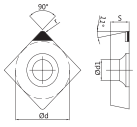
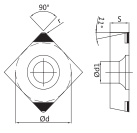
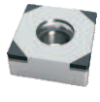
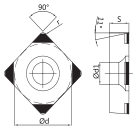
● : Continuous Cutting ɕ : Light Interrupted Cutting

Insert shape	Designation	TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Single-tip insert																
	SPGW060202	●	●	●	●			●	●		1	Φ6.35	2.38	2.8	0.2	
	SPGW060204	●	●	●	●			●	●		1	Φ6.35	2.38	2.8	0.4	
Single-tip insert																
	SPGW070202	●	●	●	●			●	●		1	Φ7.94	2.38	3.4	0.2	
	SPGW070204	●	●	●	●			●	●		1	Φ7.94	2.38	3.4	0.4	
	SPGW070208	●	●	●	●			●	●		1	Φ7.94	2.38	3.4	0.8	
Single-tip insert																
	SPGW070302	●	●	●	●			●	●		1	Φ7.94	3.18	3.4	0.2	
	SPGW070304	●	●	●	●			●	●		1	Φ7.94	3.18	3.4	0.4	
	SPGW070308	●	●	●	●			●	●		1	Φ7.94	3.18	3.4	0.8	
Single-tip insert																
	SPGW090302	●	●	●	●			●	●		1	Φ9.525	3.18	3.4	0.2	
	SPGW090304	●	●	●	●			●	●		1	Φ9.525	3.18	3.4	0.4	
	SPGW090306	●	●	●	●			●	●		1	Φ9.525	3.18	3.4	0.6	
	SPGW090308	●	●	●	●			●	●		1	Φ9.525	3.18	3.4	0.8	
Multi-tip insert																
	2-SPGW090302	●	●	●	●			●	●		2	Φ9.525	3.18	3.4	0.2	
	2-SPGW090304	●	●	●	●			●	●		2	Φ9.525	3.18	3.4	0.4	
	2-SPGW090306	●	●	●	●			●	●		2	Φ9.525	3.18	3.4	0.6	
	2-SPGW090308	●	●	●	●			●	●		2	Φ9.525	3.18	3.4	0.8	

SP Square 90° Positive 11°

		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700	
H	Hard Materials	●	●c	●c						
K	Cast Iron				●					
S	Superalloys							●	●	

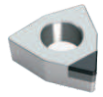
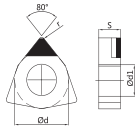
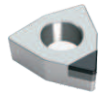
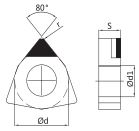
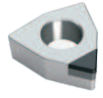
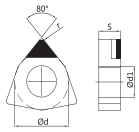
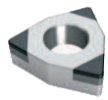
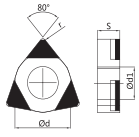
● : Continuous Cutting c : Light Interrupted Cutting

Insert shape	Designation	No Coated TCBH510	No Coated TCBH520	Coated TCCH620	No Coated TCBK100			No Coated TCBX800	No Coated TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Single-tip insert																
	SPGW09T304	●	●	●	●			●	●		1	Φ9.525	3.97	4.4	0.4	
	SPGW09T306	●	●	●	●			●	●		1	Φ9.525	3.97	4.4	0.6	
	SPGW09T308	●	●	●	●			●	●		1	Φ9.525	3.97	4.4	0.8	
Multi-tip insert																
	2-SPGW09T304	●	●	●	●			●	●		2	Φ9.525	3.97	4.4	0.4	
	2-SPGW09T306	●	●	●	●			●	●		2	Φ9.525	3.97	4.4	0.6	
	2-SPGW09T308	●	●	●	●			●	●		2	Φ9.525	3.97	4.4	0.8	
Single-tip insert																
	SPGW120404	●	●	●	●			●	●		1	Φ12.7	4.76	5.5	0.4	
	SPGW120406	●	●	●	●			●	●		1	Φ12.7	4.76	5.5	0.6	
	SPGW120408	●	●	●	●			●	●		1	Φ12.7	4.76	5.5	0.8	
	SPGW120410	●	●	●	●			●	●		1	Φ12.7	4.76	5.5	1.0	
	SPGW120412	●	●	●	●			●	●		1	Φ12.7	4.76	5.5	1.2	
Multi-tip insert																
	2-SPGW120404	●	●	●	●			●	●		2	Φ12.7	4.76	5.5	0.4	
	2-SPGW120406	●	●	●	●			●	●		2	Φ12.7	4.76	5.5	0.6	
	2-SPGW120408	●	●	●	●			●	●		2	Φ12.7	4.76	5.5	0.8	
	2-SPGW120410	●	●	●	●			●	●		2	Φ12.7	4.76	5.5	1.0	
	2-SPGW120412	●	●	●	●			●	●		2	Φ12.7	4.76	5.5	1.2	
Multi-tip insert																
	4-SPGW120404	●	●	●	●			●	●		4	Φ12.7	4.76	5.5	0.4	
	4-SPGW120406	●	●	●	●			●	●		4	Φ12.7	4.76	5.5	0.6	
	4-SPGW120408	●	●	●	●			●	●		4	Φ12.7	4.76	5.5	0.8	
	4-SPGW120410	●	●	●	●			●	●		4	Φ12.7	4.76	5.5	1.0	
	4-SPGW120412	●	●	●	●			●	●		4	Φ12.7	4.76	5.5	1.2	

WN Trigon 80° Negative

		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700	
H	Hard Materials	●	● ☪	● ☪						
K	Cast Iron				●					
S	Superalloys							●	●	
		No Coated		Coated	No Coated					

● : Continuous Cutting ☪ : Light Interrupted Cutting

Insert shape	Designation	TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Single-tip insert																
	WNGA06T302	●	●	●	●			●	●		1	Φ9.525	3.97	3.8	0.2	
	WNGA06T304	●	●	●	●			●	●		1	Φ9.525	3.97	3.8	0.4	
	WNGA06T306	●	●	●	●			●	●		1	Φ9.525	3.97	3.8	0.6	
	WNGA06T308	●	●	●	●			●	●		1	Φ9.525	3.97	3.8	0.8	
Single-tip insert																
	WNGA060404	●	●	●	●			●	●		1	Φ9.525	4.76	3.8	0.4	
	WNGA060406	●	●	●	●			●	●		1	Φ9.525	4.76	3.8	0.6	
	WNGA060408	●	●	●	●			●	●		1	Φ9.525	4.76	3.8	0.8	
Single-tip insert																
	WNGA080404	●	●	●	●			●	●		1	Φ12.7	4.76	5.16	0.4	
	WNGA080406	●	●	●	●			●	●		1	Φ12.7	4.76	5.16	0.6	
	WNGA080408	●	●	●	●			●	●		1	Φ12.7	4.76	5.16	0.8	
	WNGA080410	●	●	●	●			●	●		1	Φ12.7	4.76	5.16	1.0	
	WNGA080412	●	●	●	●			●	●		1	Φ12.7	4.76	5.16	1.2	
Multi-tip insert																
	3-WNGA080404	●	●	●	●			●	●		3	Φ12.7	4.76	5.16	0.4	
	3-WNGA080406	●	●	●	●			●	●		3	Φ12.7	4.76	5.16	0.6	
	3-WNGA080408	●	●	●	●			●	●		3	Φ12.7	4.76	5.16	0.8	
	3-WNGA080410	●	●	●	●			●	●		3	Φ12.7	4.76	5.16	1.0	
	3-WNGA080412	●	●	●	●			●	●		3	Φ12.7	4.76	5.16	1.2	

WN Trigon 80° Negative

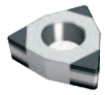
		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		No Coated		Coated	No Coated											
H	Hard Materials	●	● c	● c												
K	Cast Iron				●											
S	Superalloys							●	●							

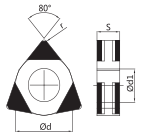
● : Continuous Cutting ● c : Light Interrupted Cutting

Insert shape

Multi-tip insert

Designation	TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)
6-WNGA080404	●	●	●	●			●	●		6	Φ12.7	4.76	5.16	0.4
6-WNGA080406	●	●	●	●			●	●		6	Φ12.7	4.76	5.16	0.6
6-WNGA080408	●	●	●	●			●	●		6	Φ12.7	4.76	5.16	0.8
6-WNGA080410	●	●	●	●			●	●		6	Φ12.7	4.76	5.16	1.0
6-WNGA080412	●	●	●	●			●	●		6	Φ12.7	4.76	5.16	1.2





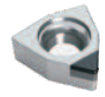
WB Trigon 80° Positive 5°

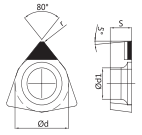
		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		No Coated		Coated	No Coated											
H	Hard Materials	●	● c	● c												
K	Cast Iron				●											
S	Superalloys							●	●							

Insert shape

Single-tip insert

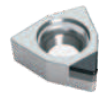
Designation	TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)
WBGW060102	●	●	●	●			●	●		1	Φ3.97	1.59	2.2	0.2
WBGW060104	●	●	●	●			●	●		1	Φ3.97	1.59	2.2	0.4

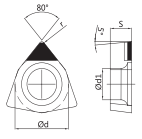




Single-tip insert

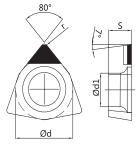
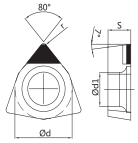
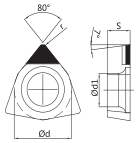
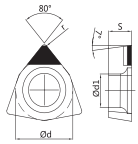
Designation	TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)
WBGW080202	●	●	●	●			●	●		1	Φ4.76	2.38	2.4	0.2
WBGW080204	●	●	●	●			●	●		1	Φ4.76	2.38	2.4	0.4



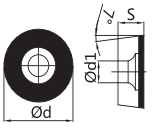


WC Trigon 80° Positive 7°

		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700	
H	Hard Materials	●	● c	● c						
K	Cast Iron				●					
S	Superalloys							●	●	
		No Coated		Coated	No Coated					

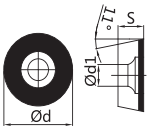
Insert shape	Designation	Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Single-tip insert							
	WCGW020102	1	Φ3.97	1.59	2.3	0.2	
	WCGW020104	1	Φ3.97	1.59	2.3	0.4	
Single-tip insert							
	WCGW040202	1	Φ6.35	2.38	2.8	0.2	
	WCGW040204	1	Φ6.35	2.38	2.8	0.4	
Single-tip insert							
	WCGW050302	1	Φ7.94	3.18	3.5	0.2	
	WCGW050304	1	Φ7.94	3.18	3.5	0.4	
	WCGW050308	1	Φ7.94	3.18	3.5	0.8	
Single-tip insert							
	WCGW06T302	1	Φ9.525	3.97	4.4	0.2	
	WCGW06T304	1	Φ9.525	3.97	4.4	0.4	
	WCGW06T308	1	Φ9.525	3.97	4.4	0.8	

RC Round Positive 7°

		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		No Coated		Coated	No Coated											
H	Hard Materials	●	● c	● c												
K	Cast Iron				●											
S	Superalloys							●	●							
Insert shape	Designation															
	RCGW060200	●	●	●	●			●	●		—	Φ6	2.38	2.8	—	
	RCGW080300	●	●	●	●			●	●		—	Φ8	3.18	3.4	—	
	RCGW100300	●	●	●	●			●	●		—	Φ10	3.18	3.6	—	
	RCGW120400	●	●	●	●			●	●		—	Φ12	4.76	4.2	—	
	RCGW160600	●	●	●	●			●	●		—	Φ16	6.35	5.2	—	

● : Continuous Cutting c : Light Interrupted Cutting

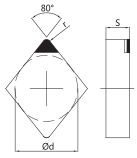
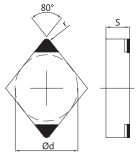
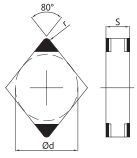
RP Round Positive 11°

		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		No Coated		Coated	No Coated											
H	Hard Materials	●	● c	● c												
K	Cast Iron				●											
S	Superalloys							●	●							
Insert shape	Designation															
	RPGW080300	●	●	●	●			●	●		—	Φ8	3.18	3.4	—	
	RPGW100400	●	●	●	●			●	●		—	Φ10	4.72	3.6	—	
	RPGW120400	●	●	●	●			●	●		—	Φ12	4.72	4.2	—	
	RPGW160400	●	●	●	●			●	●		—	Φ16	4.72	5.2	—	

CN Rhombic 80° Negative

		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700	
		No Coated		Coated	No Coated					
H	Hard Materials	●	● ◐	● ◐						
K	Cast Iron				●					
S	Superalloys							●	●	

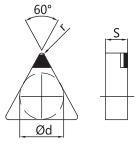
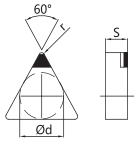
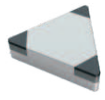
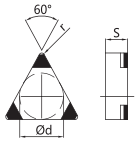
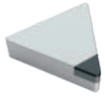
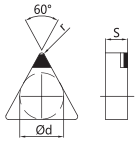
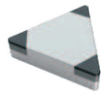
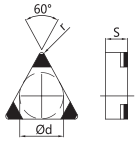
● : Continuous Cutting ◐ : Light Interrupted Cutting

Insert shape	Designation	TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Single-tip insert																
	CNGN120404	●	●	●	●			●	●		1	Φ12.7	4.76	—	0.4	
	CNGN120408	●	●	●	●			●	●		1	Φ12.7	4.76	—	0.8	
	CNGN120412	●	●	●	●			●	●		1	Φ12.7	4.76	—	1.2	
Multi-tip insert																
	2-CNGN120404	●	●	●	●			●	●		2	Φ12.7	4.76	—	0.4	
	2-CNGN120408	●	●	●	●			●	●		2	Φ12.7	4.76	—	0.8	
	2-CNGN120412	●	●	●	●			●	●		2	Φ12.7	4.76	—	1.2	
Multi-tip insert																
	4-CNGN120404	●	●	●	●			●	●		4	Φ12.7	4.76	—	0.4	
	4-CNGN120408	●	●	●	●			●	●		4	Φ12.7	4.76	—	0.8	
	4-CNGN120412	●	●	●	●			●	●		4	Φ12.7	4.76	—	1.2	

TN Triangular 60° Negative

		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700	
		No Coated		Coated	No Coated					
H	Hard Materials	●	● ☾	● ☾						
K	Cast Iron				●					
S	Superalloys							●	●	

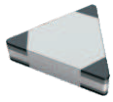
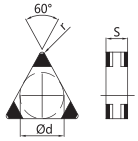
● : Continuous Cutting ☾ : Light Interrupted Cutting

Insert shape	Designation	TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Single-tip insert																
	TNGN110302	●	●	●	●			●	●		1	Φ6.35	3.18	—	0.2	
	TNGN110304	●	●	●	●			●	●		1	Φ6.35	3.18	—	0.4	
	TNGN110306	●	●	●	●			●	●		1	Φ6.35	3.18	—	0.6	
Single-tip insert																
	TNGN160304	●	●	●	●			●	●		1	Φ9.525	3.18	—	0.4	
	TNGN160308	●	●	●	●			●	●		1	Φ9.525	3.18	—	0.8	
	TNGN160312	●	●	●	●			●	●		1	Φ9.525	3.18	—	1.2	
Multi-tip insert																
	3-TNGN160304	●	●	●	●			●	●		3	Φ9.525	3.18	—	0.4	
	3-TNGN160308	●	●	●	●			●	●		3	Φ9.525	3.18	—	0.8	
	3-TNGN160312	●	●	●	●			●	●		3	Φ9.525	3.18	—	1.2	
Single-tip insert																
	TNGN160404	●	●	●	●			●	●		1	Φ9.525	4.76	—	0.4	
	TNGN160408	●	●	●	●			●	●		1	Φ9.525	4.76	—	0.8	
	TNGN160412	●	●	●	●			●	●		1	Φ9.525	4.76	—	1.2	
	TNGN160416	●	●	●	●			●	●		1	Φ9.525	4.76	—	1.6	
Multi-tip insert																
	3-TNGN160404	●	●	●	●			●	●		3	Φ9.525	4.76	—	0.4	
	3-TNGN160408	●	●	●	●			●	●		3	Φ9.525	4.76	—	0.8	
	3-TNGN160412	●	●	●	●			●	●		3	Φ9.525	4.76	—	1.2	
	3-TNGN160416	●	●	●	●			●	●		3	Φ9.525	4.76	—	1.6	

TN Triangular 60° Negative

H	Hard Materials	●	● ☪	● ☪						
K	Cast Iron				●					
S	Superalloys							●	●	

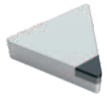
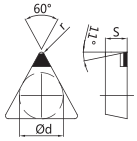
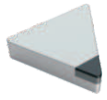
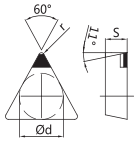
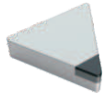
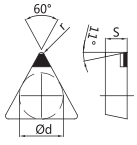
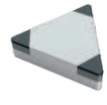
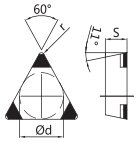
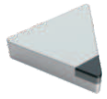
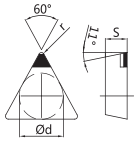
● : Continuous Cutting ☪ : Light Interrupted Cutting

Insert shape	Designation	No Coated TCBH510	TCBH520	Coated TCCH620	No Coated TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Multi-tip insert																
	6-TNGN160404	●	●	●	●			●	●		6	Φ9.525	4.76	—	0.4	
	6-TNGN160408	●	●	●	●			●	●		6	Φ9.525	4.76	—	0.8	
	6-TNGN160412	●	●	●	●			●	●		6	Φ9.525	4.76	—	1.2	
	6-TNGN160416	●	●	●	●			●	●		6	Φ9.525	4.76	—	1.6	

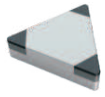
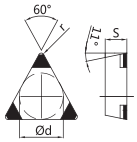
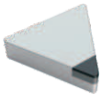
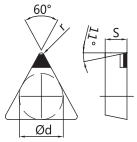
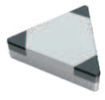
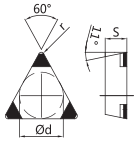
TP Triangular 60° Positive 11°

		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		No Coated		Coated	No Coated											
H	Hard Materials	●	● c	● c												
K	Cast Iron				●											
S	Superalloys							●	●							

● : Continuous Cutting c : Light Interrupted Cutting

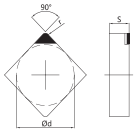
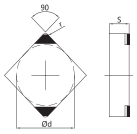
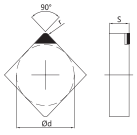
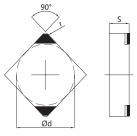
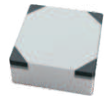
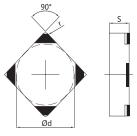
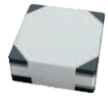
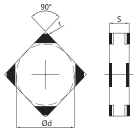
Insert shape	Designation	TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Single-tip insert																
	TPGN090202	●	●	●	●			●	●		1	Φ5.56	2.38	—	0.2	
	TPGN090204	●	●	●	●			●	●		1	Φ5.56	2.38	—	0.4	
	TPGN090208	●	●	●	●			●	●		1	Φ5.56	2.38	—	0.8	
Single-tip insert																
	TPGN110302	●	●	●	●			●	●		1	Φ6.35	3.18	—	0.2	
	TPGN110304	●	●	●	●			●	●		1	Φ6.35	3.18	—	0.4	
	TPGN110308	●	●	●	●			●	●		1	Φ6.35	3.18	—	0.8	
Single-tip insert																
	TPGN160304	●	●	●	●			●	●		1	Φ9.525	3.18	—	0.4	
	TPGN160308	●	●	●	●			●	●		1	Φ9.525	3.18	—	0.8	
	TPGN160312	●	●	●	●			●	●		1	Φ9.525	3.18	—	1.2	
Multi-tip insert																
	3-TPGN160304	●	●	●	●			●	●		3	Φ9.525	3.18	—	0.4	
	3-TPGN160308	●	●	●	●			●	●		3	Φ9.525	3.18	—	0.8	
	3-TPGN160312	●	●	●	●			●	●		3	Φ9.525	3.18	—	1.2	
														—		
Single-tip insert																
	TPGN160404	●	●	●	●			●	●		1	Φ9.525	4.76	—	0.4	
	TPGN160408	●	●	●	●			●	●		1	Φ9.525	4.76	—	0.8	
	TPGN160412	●	●	●	●			●	●		1	Φ9.525	4.76	—	1.2	
	TPGN160416	●	●	●	●			●	●		1	Φ9.525	4.76	—	1.6	

TP Triangular 60° Positive 11°

		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
	Insert shape	Designation	No Coated	No Coated	Coated	No Coated			No Coated								
H	Hard Materials		●	● ☪	● ☪												
K	Cast Iron					●											
S	Superalloys								●	●							
Multi-tip insert																	
		3-TPGN160404	●	●	●	●			●	●		3	Φ9.525	4.76	—	0.4	
		3-TPGN160408	●	●	●	●			●	●		3	Φ9.525	4.76	—	0.8	
		3-TPGN160412	●	●	●	●			●	●		3	Φ9.525	4.76	—	1.2	
		3-TPGN160416	●	●	●	●			●	●		3	Φ9.525	4.76	—	1.6	
Single-tip insert																	
		TPGN220408	●	●	●	●			●	●		1	Φ12.7	4.76	—	0.8	
		TPGN220412	●	●	●	●			●	●		1	Φ12.7	4.76	—	1.2	
		TPGN220416	●	●	●	●			●	●		1	Φ12.7	4.76	—	1.6	
Multi-tip insert																	
		3-TPGN220408	●	●	●	●			●	●		3	Φ12.7	4.76	—	0.8	
		3-TPGN220412	●	●	●	●			●	●		3	Φ12.7	4.76	—	1.2	
		3-TPGN220416	●	●	●	●			●	●		3	Φ12.7	4.76	—	1.6	

● : Continuous Cutting ☪ : Light Interrupted Cutting

SN Square 90° Negative

		TCBH510	TCBH520	TCCH620	TCBK100			TCBX800	TCBS700		Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		No Coated		Coated	No Coated											
H	Hard Materials	●	● ☪	● ☪												
K	Cast Iron				●											
S	Superalloys							●	●							
Insert shape	Designation															
Single-tip insert																
	SNGN090302	●	●	●	●			●	●		1	Φ9.525	3.18	—	0.2	
	SNGN090304	●	●	●	●			●	●		1	Φ9.525	3.18	—	0.4	
	SNGN090308	●	●	●	●			●	●		1	Φ9.525	3.18	—	0.8	
Multi-tip insert																
	2-SNGN090302	●	●	●	●			●	●		2	Φ9.525	3.18	—	0.2	
	2-SNGN090304	●	●	●	●			●	●		2	Φ9.525	3.18	—	0.4	
	2-SNGN090308	●	●	●	●			●	●		2	Φ9.525	3.18	—	0.8	
Single-tip insert																
	SNGN120404	●	●	●	●			●	●		1	Φ12.7	4.76	—	0.4	
	SNGN120408	●	●	●	●			●	●		1	Φ12.7	4.76	—	0.8	
	SNGN120412	●	●	●	●			●	●		1	Φ12.7	4.76	—	1.2	
Multi-tip insert																
	2-SNGN120404	●	●	●	●			●	●		2	Φ12.7	4.76	—	0.4	
	2-SNGN120408	●	●	●	●			●	●		2	Φ12.7	4.76	—	0.8	
	2-SNGN120412	●	●	●	●			●	●		2	Φ12.7	4.76	—	1.2	
Multi-tip insert																
	4-SNGN120404	●	●	●	●			●	●		4	Φ12.7	4.76	—	0.4	
	4-SNGN120408	●	●	●	●			●	●		4	Φ12.7	4.76	—	0.8	
	4-SNGN120412	●	●	●	●			●	●		4	Φ12.7	4.76	—	1.2	
Multi-tip insert																
	8-SNGN120404	●	●	●	●			●	●		8	Φ12.7	4.76	—	0.4	
	8-SNGN120408	●	●	●	●			●	●		8	Φ12.7	4.76	—	0.8	
	8-SNGN120412	●	●	●	●			●	●		8	Φ12.7	4.76	—	1.2	

● : Continuous Cutting ☪ : Light Interrupted Cutting

Solid type

- Monolithic sintered structure, no strength loss or internal stress defects caused by welding.
- Suitable for rough machining occasions with large cutting depth and heavy cutting.

Strong welding type

- Ultra high welding strength is suitable for harsh cutting environment with long life and safety requirements.

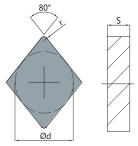
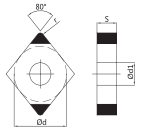
Material Introduction

Grade			Work Material	Features	Application
Uncoated	TBN7000	H	Hardened Steel Hardened Cast Iron	Excellent overall performance with universal application. Excellent wear resistance.	Semi-Finishing Finishing
	TBN9500		Hardened Steel	Exhibiting wear and fracture resistance in cutting of hardened steel.	Finishing
	TBS7000		Hardened Steel Hardened Cast Iron	Excellent overall performance with universal application. Excellent wear resistance.	Finishing
	TBN7200	K	Grey Cast Iron	Exhibiting improved wear and fracture resistance in cutting of Grey Cast Iron.	Heavy cutting
	TBS7200				Finishing
	TBN3500	S	High Nickel Chrome High Hardness Alloy Cast Iron High Manganese Steel	Excellent impact resistance and wear resistance.	Heavy cutting

CN Rhombic 80° Negative

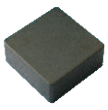
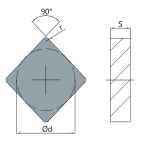
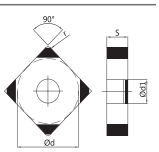
		TBN7000	TBN9500	TBS7000	TBN7200	TBS7200		TBN3500		
H	Hard Materials	●	● ⓒ	●						
K	Cast Iron				●	●				
S	Superalloys							●		

● : Continuous Cutting ⓒ : Light Interrupted Cutting

Insert shape	Designation	TBN7000	TBN9500	TBS7000	TBN7200	TBS7200		TBN3500			Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Multi-tip insert																
	CNMN120404	●	●		●			●			4	Φ12.7	4.76	—	0.4	
	CNMN120408	●	●		●			●			4	Φ12.7	4.76	—	0.8	
	CNMN120412	●	●		●			●			4	Φ12.7	4.76	—	1.2	
	CNGA120404-4T			●		●					4	Φ12.7	4.76	5.16	0.4	
	CNGA120408-4T			●		●					4	Φ12.7	4.76	5.16	0.8	
	CNGA120412-4T			●		●					4	Φ12.7	4.76	5.16	1.2	
	CNGA160404-4T			●		●					4	Φ15.875	6.35	6.35	0.4	
	CNGA160408-4T			●		●					4	Φ15.875	6.35	6.35	0.8	
	CNGA160412-4T			●		●					4	Φ15.875	6.35	6.35	1.2	

SN Square 90° Negative

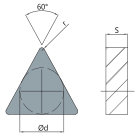
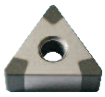
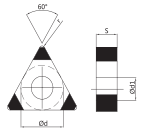
		TBN7000	TBN9500	TBS7000	TBN7200	TBS7200		TBN3500		
H	Hard Materials	●	● ⓒ	●						
K	Cast Iron				●	●				
S	Superalloys							●		

Insert shape	Designation	TBN7000	TBN9500	TBS7000	TBN7200	TBS7200		TBN3500			Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Multi-tip insert																
	SNMN090304	●	●		●			●			8	Φ9.525	3.18	—	0.4	
	SNMN090308	●	●		●			●			8	Φ9.525	3.18	—	0.8	
	SNMN090312	●	●		●			●			8	Φ9.525	3.18	—	1.2	
	SNMN120404	●	●		●			●			8	Φ12.7	4.76	—	0.4	
	SNMN120408	●	●		●			●			8	Φ12.7	4.76	—	0.8	
	SNGA120404-8T			●		●					8	Φ12.7	4.76	5.16	0.4	
	SNGA120408-8T			●		●					8	Φ12.7	4.76	5.16	0.8	
	SNGA120412-8T			●		●					8	Φ12.7	4.76	5.16	1.2	

TN Triangular 60° Negative

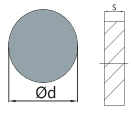
H	Hard Materials	●	● c	●						
K	Cast Iron				●	●				
S	Superalloys						●			

● : Continuous Cutting c : Light Interrupted Cutting

Insert shape	Designation	No Coated TBN7000	TBN9500	TBS7000	TBN7200	TBS7200		TBN3500			Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Multi-tip insert																
	TNGN110304	●	●		●			●			6	Φ6.35	3.18	—	0.4	
	TNGN110308	●	●		●			●			6	Φ6.35	3.18	—	0.8	
	TNGN110312	●	●		●			●			6	Φ6.35	3.18	—	1.2	
	TNGN160404		●		●			●			6	Φ9.525	4.76	—	0.4	
	TNGN160408		●		●			●			6	Φ9.525	4.76	—	0.8	
	TNGN160412		●		●			●			6	Φ9.525	4.76	—	1.2	
	TNGA160404-6T			●		●					6	Φ9.525	4.76	3.8	0.4	
	TNGA160408-6T			●		●					6	Φ9.525	4.76	3.8	0.8	
	TNGA160412-6T			●		●					6	Φ9.525	4.76	3.8	1.2	

RN Round Negative

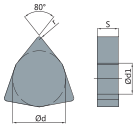
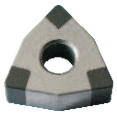
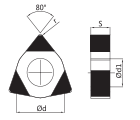
H	Hard Materials	●	● c	●						
K	Cast Iron				●	●				
S	Superalloys						●			

Insert shape	Designation	No Coated TBN7000	TBN9500	TBS7000	TBN7200	TBS7200		TBN3500			Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Multi-tip insert																
	RNMN090300	●	●		●			●			—	Φ9.525	3.18	—	—	
	RNMN120400	●	●		●			●			—	Φ12.7	4.76	—	—	
	RNGN090300	●	●		●			●			—	Φ9.525	3.18	—	—	
	RNGN120400	●	●		●			●			—	Φ12.7	4.76	—	—	

WN Trigon 80° Negative

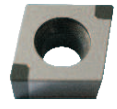
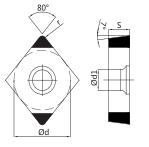
		TBN7000	TBN9500	TBS7000	TBN7200	TBS7200		TBN3500		
H	Hard Materials	●	●c	●						
K	Cast Iron				●	●				
S	Superalloys							●		

● : Continuous Cutting ●c : Light Interrupted Cutting

Insert shape	Designation	TBN7000	TBN9500	TBS7000	TBN7200	TBS7200		TBN3500			Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Multi-tip insert																
	WNMN080404	●	●		●			●			6	Φ12.7	4.76	—	0.4	
	WNMN080408	●	●		●			●			6	Φ12.7	4.76	—	0.8	
	WNMN080412	●	●		●			●			6	Φ12.7	4.76	—	1.2	
	WNGA080404-6T			●		●					6	Φ12.7	4.76	5.16	0.4	
	WNGA080408-6T			●		●					6	Φ12.7	4.76	5.16	0.8	
	WNGA080412-6T			●		●					6	Φ12.7	4.76	5.16	1.2	

CC Rhombic 80° Positive 7°

		TBN7000	TBN9500	TBS7000	TBN7200	TBS7200		TBN3500		
H	Hard Materials	●	●c	●						
K	Cast Iron				●	●				
S	Superalloys							●		

Insert shape	Designation	TBN7000	TBN9500	TBS7000	TBN7200	TBS7200		TBN3500			Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Multi-tip insert																
	CCGW09T304-2T			●		●					2	Φ9.525	3.97	4.4	0.4	
	CCGW09T308-2T			●		●					2	Φ9.525	3.97	4.4	0.8	
	CCGW09T312-2T			●		●					2	Φ9.525	3.97	4.4	1.2	
	CCGW120404-2T			●		●					2	Φ12.7	4.76	5.5	0.4	
	CCGW120408-2T			●		●					2	Φ12.7	4.76	5.5	0.8	
	CCGW120412-2T			●		●					2	Φ12.7	4.76	5.5	1.2	

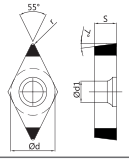
DC Rhombic 55° Positive 7°

		TBN7000	TBN9500	TBS7000	TBN7200	TBS7200		TBN3500		
H	Hard Materials	●	● ⓒ	●						
K	Cast Iron				●	●				
S	Superalloys							●		

● : Continuous Cutting ⓒ : Light Interrupted Cutting

No Coated

Multi-tip insert

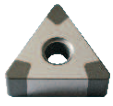
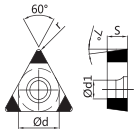
Insert shape	Designation	Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
	DCGW11T304-2T	2	Φ9.525	3.97	4.4	0.4	
	DCGW11T308-2T	2	Φ9.525	3.97	4.4	0.8	
	DCGW11T312-2T	2	Φ9.525	3.97	4.4	1.2	

TC Triangular 60° Positive 7°

		TBN7000	TBN9500	TBS7000	TBN7200	TBS7200		TBN3500		
H	Hard Materials	●	● ⓒ	●						
K	Cast Iron				●	●				
S	Superalloys							●		

No Coated

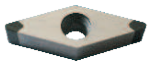
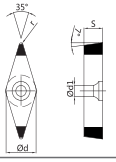
Multi-tip insert

Insert shape	Designation	Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
	TCGW110304-3T	3	Φ6.35	3.18	2.8	0.4	
	TCGW110308-3T	3	Φ6.35	3.18	2.8	0.8	
	TCGW110312-3T	3	Φ6.35	3.18	2.8	1.2	

VB Rhombic 35° Positive 5°

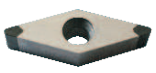
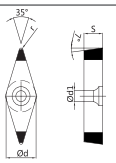
		TBN7000	TBN9500	TBS7000	TBN7200	TBS7200		TBN3500		
H	Hard Materials	●	●c	●						
K	Cast Iron				●	●				
S	Superalloys							●		

● : Continuous Cutting ●c : Light Interrupted Cutting

Insert shape	Designation	No Coated	Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Multi-tip insert								
	VBGW160404-2T	●	2	Φ9.525	4.76	4.4	0.4	
	VBGW160408-2T	●	2	Φ9.525	4.76	4.4	0.8	
	VBGW160412-2T	●	2	Φ9.525	4.76	4.4	1.2	

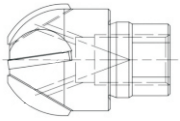
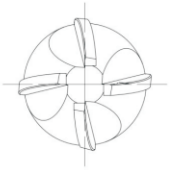
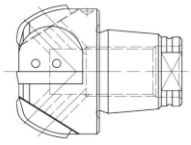
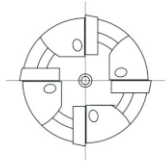
VC Rhombic 35° Positive 7°

		TBN7000	TBN9500	TBS7000	TBN7200	TBS7200		TBN3500		
H	Hard Materials	●	●c	●						
K	Cast Iron				●	●				
S	Superalloys							●		

Insert shape	Designation	No Coated	Number of tips	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
Multi-tip insert								
	VCGW160404-2T	●	2	Φ9.525	4.76	4.4	0.4	
	VCGW160408-2T	●	2	Φ9.525	4.76	4.4	0.8	
	VCGW160412-2T	●	2	Φ9.525	4.76	4.4	1.2	

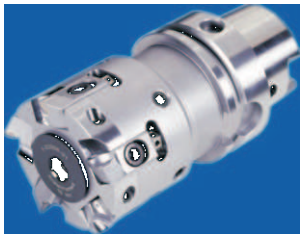
CBN ballnose tool

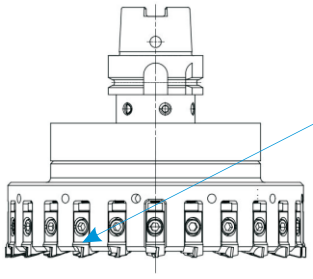
CV joint machining tool introduction

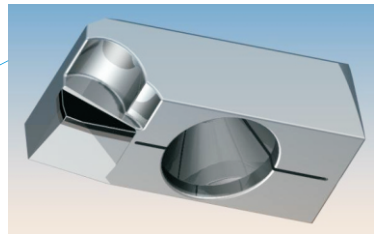
Straight shank	No air coolant hole	Maching position: Ball track
		
RTS shank	**Air coolant hole**	
		

Auto parts face milling

Milling cutter and cartridge







- App : Face milling
- Feature : Cartridge can be adjusted.

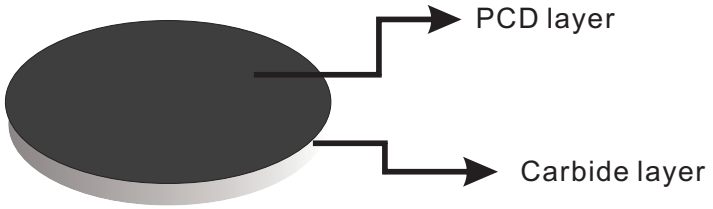
Non standard scheme design

Cylinder block cutting tool

Polycrystalline Diamond (PCD)

TOTIME diamond material is a synthetic diamond sintered under high temperatures and pressures. PCD (Polycrystalline diamond) is ideal for non-ferrous metals and non-metals.

- Applicable for non-ferrous metals, non-metals turning, milling and other various type of cutting.
- Long tool life due to extreme hardness.
- Capable of high cutting speeds which increases cutting productivity.
- Reduced edge build-up allows for high precision cutting.
- Diversified applications for cutting of non-ferrous materials and non-metals.



Recommended Grades

Grade	Grain Size (μm)	Transverse Rupture Strength (Gpa)	Work Material	Features
TDC2000	6	1.7	CFPR Composite Materials	Special blade design, excellent wear resistance.
TDA1000	10	1.4	Medium and Low Si Aluminum Alloy Si<13%	Demonstrates optimum wear and fracture resistance and excellent edge sharpness.
TDA1500	25	1.2	High Si Aluminum Alloy Si>13%	Exhibiting wear and fracture resistance in cutting of aluminum alloy.

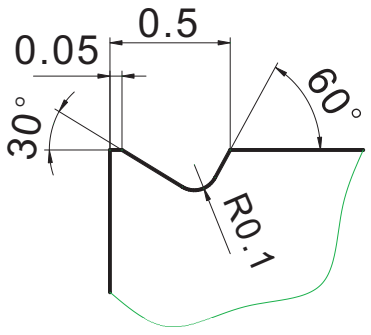
Cutting conditions

Work Material	Grade	Cutting Condition		
		Vc (m/min)	f (mm/rev)	ap(mm)
Medium and Low Si Aluminum Alloy Si<13%	TDA1000	900-3000	0.1-0.4	0.1-0.4
High Si Aluminum Alloy Si>13%	TDA1500	300-700	0.1-0.4	0.1-0.4
Carbon Fiber	TDC2000	200-1500	0.05-0.3	0.1-3.0

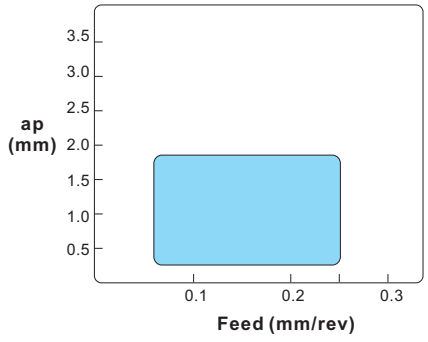
PCD Chipbreaker

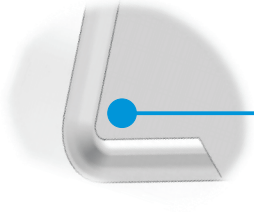
- Provides excellent chip control in medium finishing and finishing of aluminium alloy.
- Solves chip control problems and dramatically improves work efficiency.
- Achieves long, stable tool life by employing high-toughness grade.

FF Chipbreaker FF Rough/semi-finish slot type



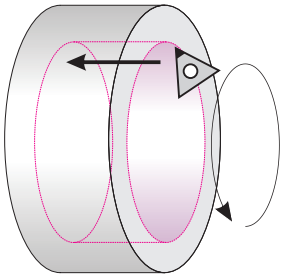
Range of application:



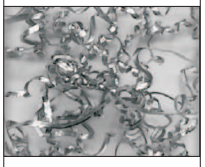


Finely breaks chips in machining cast materials

Machining Details:Internal Boring of Transmission Components



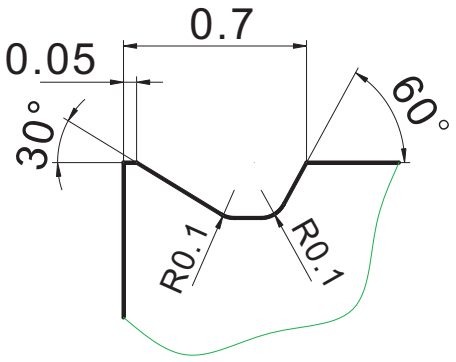
Without chip slot



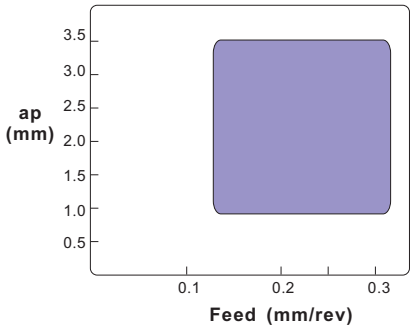
With chip slot

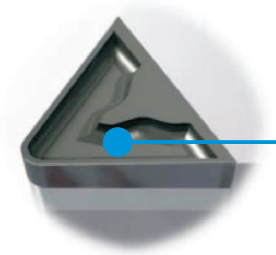
Work Material	:A6061
Tool No.	:2-VCMT110302-FF
Cutting Conditions	:Vc=200m/min,f=0.20mm/rev ap=0.10mm Wet

KF Chipbreaker KF Rough/semi-finish chip slot type



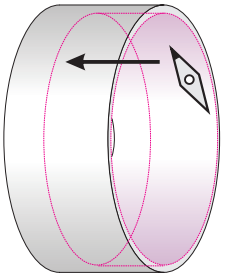
Range of application:



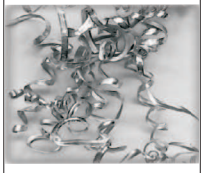


Provides good chip control at shallow depths of cut for wrought materials.

Machining Details:Internal Boring of Machine Components



Without chip slot



With chip slot

Work Material	:ADC12
Tool No.	:4-TPMT110304-KF
Cutting Conditions	:Vc=400m/min,f=0.23mm/rev ap=1.20mm Wet

★ **Customer can choose according to exact demand**

Single Crystal Diamond

Single crystal diamond is considered to be the most ideal tool material for ultra-precision machining, and the tools made have extremely high hardness and wear resistance. Low friction coefficient and high elastic modulus. High thermal conductivity, low thermal expansion coefficient and low affinity with non-ferrous metals. However, the characteristics of materials are also doomed to high experimental cost, high processing difficulty and small processing space.

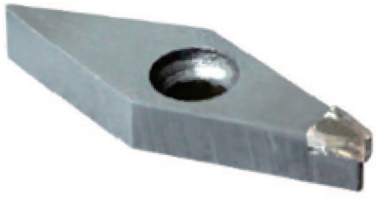
Classification

single crystal diamond

Natural Diamond (ND)

Synthetic Diamond (MCD)

Standard inserts



ND

MCD

The precision of blade contour can reach 5 μm;
More sharp edge and longer service life;
Adopt ISO international standards;
Mainly including C-type, D-type, V-type, and other series of standard inserts.

Single Crystal Diamond

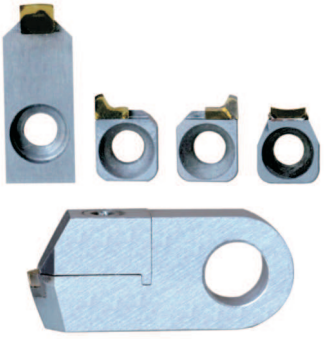
The company has launched diversified diamond single crystal diamond ultra precision machining tool systems, widely used in ultra precision turning, milling, drilling, and nano high polishing table, surface processing.
At the same time, the cutting tools can be developed and customized according to the processing needs of customers.

● Milling cutter

- The sharp edge ensures the good quality of the machined surface;
- More excellent wear resistance and longer service life;
- It is suitable for side milling,slot milling, contour milling and spiral interpolation milling of precision parts;
- Specification diameter:∅3-∅20

● Dresser

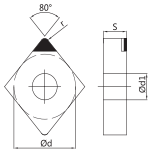
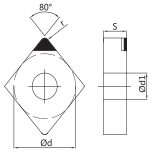
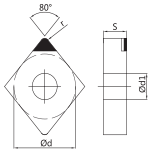
- Single / multiple natural diamond finishing tools are used;
- Suitable for all kinds of cylindrical grinding machines, centerless grinding machines, surface grinding machines and special grinding wheels;
- Stable quality, complete specifications and convenient use;
- Longer life and durability.



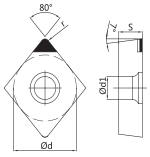
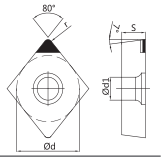
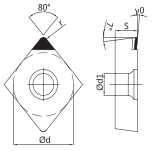
● Non-standard tool

- The precision of fine grinding edge contour can reach 5 μm;
- Finish grinding the edge contour according to the forming size of the workpiece, and complete the high-precision shape machining at one time.

CN Rhombic 80° Negative

Insert shape	Designation	Material code							Rake angle (γ0)	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		TDA1000	TDA1500	TDC2000	MCD	ND								
	CNGA090302	●	●	●	●	●			—	Φ9.525	3.18	3.18	0.2	
	CNGA090304	●	●	●	●	●			—	Φ9.525	3.18	3.18	0.4	
	CNGA090306	●	●	●	●	●			—	Φ9.525	3.18	3.18	0.6	
	CNGA090308	●	●	●	●	●			—	Φ9.525	3.18	3.18	0.8	
	CNGA09T302	●	●	●	●	●			—	Φ9.525	3.97	3.81	0.2	
	CNGA09T304	●	●	●	●	●			—	Φ9.525	3.97	3.81	0.4	
	CNGA09T306	●	●	●	●	●			—	Φ9.525	3.97	3.81	0.6	
	CNGA09T308	●	●	●	●	●			—	Φ9.525	9.97	3.81	0.8	
	CNGA120402	●	●	●	●	●			—	Φ12.7	4.76	5.16	0.2	
	CNGA120404	●	●	●	●	●			—	Φ12.7	4.76	5.16	0.4	
	CNGA120408	●	●	●	●	●			—	Φ12.7	4.76	5.16	0.8	
	CNGA120412	●	●	●	●	●			—	Φ12.7	4.76	5.16	1.2	

CC Rhombic 80° Positive 7°

Insert shape	Designation	Material code							Rake angle (γ0)	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		TDA1000	TDA1500	TDC2000	MCD	ND								
	CCMW03S102	●	●	●	●	●			—	Φ3.57	1.39	2	0.2	
	CCMW03S104	●	●	●	●	●			—	Φ3.57	1.39	2	0.4	
	CCMW04T002	●	●	●	●	●			—	Φ4.37	1.79	2	0.2	
	CCMW04T004	●	●	●	●	●			—	Φ4.37	1.79	2	0.4	
	CCGW050202	●	●	●	●	●			—	Φ5.56	2.38	2.4	0.2	
	CCGW050204	●	●	●	●	●			—	Φ5.56	2.38	2.4	0.4	
	CCGW050206	●	●	●	●	●			—	Φ5.56	2.38	2.4	0.6	
	CCGT050202	●	●	●	●	●			3°~5°	Φ5.56	2.38	2.4	0.2	
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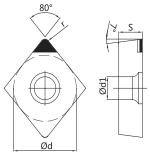
	CCGT050206	●	●	●	●	●			3°~5°	Φ5.56	2.38	2.4	0.6	
	CCGW060202	●	●	●	●	●			—	Φ635	2.38	2.8	0.2	
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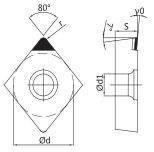
	CCGW060206	●	●	●	●	●			—	Φ6.35	2.38	2.8	0.6	
	CCGW060208	●	●	●	●	●			—	Φ6.35	2.38	2.8	0.8	
	CCGT060202	●	●	●	●	●			3°~5°	Φ6.35	2.38	2.8	0.2	
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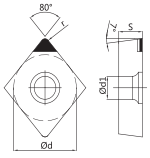
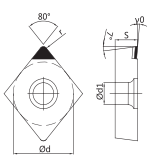
	CCGT060206	●	●	●	●	●			3°~5°	Φ6.35	2.38	2.8	0.6	
	CCGT060208	●	●	●	●	●			3°~5°	Φ6.35	2.38	2.8	0.8	
	CCMW080202	●	●	●	●	●			—	Φ7.94	2.38	3.4	0.2	
	CCMW080204	●	●	●	●	●			—	Φ7.94	2.38	3.4	0.4	
	CCMW080206	●	●	●	●	●			—	Φ7.94	2.38	3.4	0.6	
	CCMW080208	●	●	●	●	●			—	Φ7.94	2.38	3.4	0.8	
	CCMT080202	●	●	●	●	●			3°~5°	Φ7.94	2.38	3.4	0.2	
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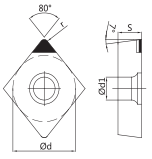
	CCMT080206	●	●	●	●	●			3°~5°	Φ7.94	2.38	3.4	0.6	
	CCMT080208	●	●	●	●	●			3°~5°	Φ7.94	2.38	3.4	0.8	

CC Rhombic 80° Positive 7°

Insert shape	Designation	Material code							Rake angle (γ0)	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		TDA1000	TDA1500	TDC2000	MCD	ND								
	CCGW09T302	●	●	●	●	●			—	Φ9.525	3.97	4.4	0.2	
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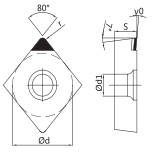
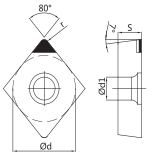
	CCGW09T306	●	●	●	●	●			—	Φ9.525	3.97	4.4	0.6	
	CCGW09T308	●	●	●	●	●			—	Φ9.525	3.97	4.4	0.8	
	CCGT09T302	●	●	●	●	●			5°~10°	Φ9.525	3.97	4.4	0.2	
	CCGT09T304	●	●	●	●	●			5°~10°	Φ9.525	3.97	4.4	0.4	
	CCGT09T306	●	●	●	●	●			5°~10°	Φ9.525	3.97	4.4	0.6	
	CCGT09T308	●	●	●	●	●			5°~10°	Φ9.525	3.97	4.4	0.8	
	CCGW120402	●	●	●	●	●			—	Φ12.7	4.76	5.5	0.2	
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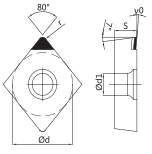
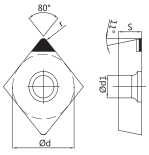
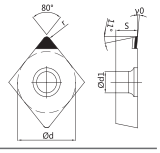
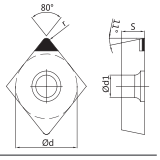
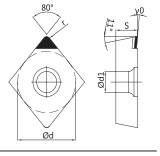
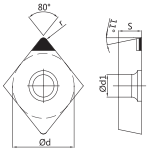
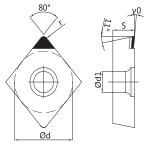
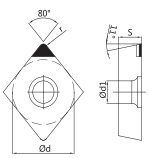
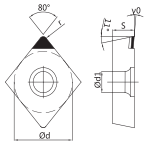
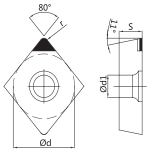
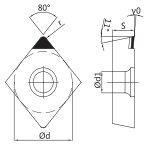
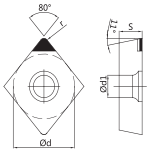
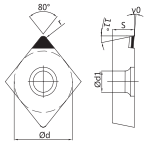
	CCGW120406	●	●	●	●	●			—	Φ12.7	4.76	5.5	0.6	
	CCGW120408	●	●	●	●	●			—	Φ12.7	4.76	5.5	0.8	
	CCGW120412	●	●	●	●	●			—	Φ12.7	4.76	5.5	1.2	
	CCGT120402	●	●	●	●	●			5°~10°	Φ12.7	4.76	5.5	0.2	
	CCGT120404	●	●	●	●	●			5°~10°	Φ12.7	4.76	5.5	0.4	
	CCGT120406	●	●	●	●	●			5°~10°	Φ12.7	4.76	5.5	0.6	
	CCGT120408	●	●	●	●	●			5°~10°	Φ12.7	4.76	5.5	0.8	
	CCGT120412	●	●	●	●	●			5°~10°	Φ12.7	4.76	5.5	1.2	

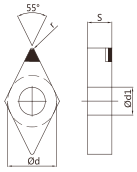
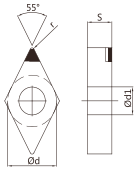
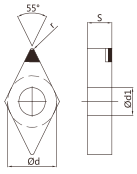
CP Rhombic 80° Positive 11°

Insert shape	Designation	Material code							Rake angle (γ0)	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		TDA1000	TDA1500	TDC2000	MCD	ND								
	CPGW050202	●	●	●	●	●			—	Φ5.56	2.38	2.4	0.2	
	CPGW050204	●	●	●	●	●			—	Φ5.56	2.38	2.4	0.4	
	CPGW050206	●	●	●	●	●			—	Φ5.56	2.38	2.4	0.6	
	CPGT050202	●	●	●	●	●			3°~5°	Φ5.56	2.38	2.4	0.2	
	CPGT050204	●	●	●	●	●			3°~5°	Φ5.56	2.38	2.4	0.4	
	CPGT050206	●	●	●	●	●			3°~5°	Φ5.56	2.38	2.4	0.6	
	CPGW060202	●	●	●	●	●			—	Φ6.35	2.38	2.8	0.2	
	CPGW060204	●	●	●	●	●			—	Φ6.35	2.38	2.8	0.4	
	CPGW060208	●	●	●	●	●			—	Φ6.35	2.38	2.8	0.8	
	CPGT060202	●	●	●	●	●			3°~5°	Φ6.35	2.38	2.8	0.2	
	CPGT060204	●	●	●	●	●			3°~5°	Φ6.35	2.38	2.8	0.4	
	CPGT060208	●	●	●	●	●			3°~5°	Φ6.35	2.38	2.8	0.8	
	CPGW080202	●	●	●	●	●			—	Φ7.94	2.38	2.8	0.2	
	CPGW080204	●	●	●	●	●			—	Φ7.94	2.38	2.8	0.4	
	CPGW080206	●	●	●	●	●			—	Φ7.94	2.38	2.8	0.6	
	CPGW080208	●	●	●	●	●			—	Φ7.94	2.38	2.8	0.8	
	CPGT080202	●	●	●	●	●			3°~5°	Φ7.94	2.38	2.8	0.2	
	CPGT080204	●	●	●	●	●			3°~5°	Φ7.94	2.38	2.8	0.4	
	CPGT080206	●	●	●	●	●			3°~5°	Φ7.94	2.38	2.8	0.6	
	CPGT080208	●	●	●	●	●			3°~5°	Φ7.94	2.38	2.8	0.8	
	CPGW090302	●	●	●	●	●			—	Φ9.525	3.18	4.4	0.2	
	CPGW090304	●	●	●	●	●			—	Φ9.525	3.18	4.4	0.4	
	CPGW090306	●	●	●	●	●			—	Φ9.525	3.18	4.4	0.6	
	CPGW090308	●	●	●	●	●			—	Φ9.525	3.18	4.4	0.8	

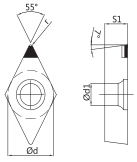
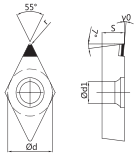
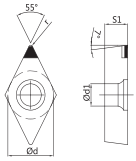
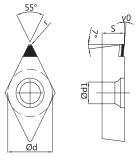
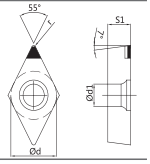
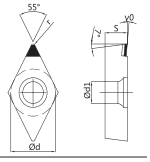
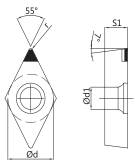
CP Rhombic 80° Positive 11°

Insert shape	Designation	Material code							Rake angle (γ0)	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		TDA1000	TDA1500	TDC2000	MCD	ND								
	CPGT090302	●	●	●	●	●			5°~10°	Φ9.525	3.18	4.4	0.2	
	CPGT090304	●	●	●	●	●			5°~10°	Φ9.525	3.18	4.4	0.4	
	CPGT090306	●	●	●	●	●			5°~10°	Φ9.525	3.18	4.4	0.6	
	CPGT090308	●	●	●	●	●			5°~10°	Φ9.525	3.18	4.4	0.8	
	CPGW09T302	●	●	●	●	●			—	Φ9.525	3.97	4.4	0.2	
	CPGW09T304	●	●	●	●	●			—	Φ9.525	3.97	4.4	0.4	
	CPGW09T306	●	●	●	●	●			—	Φ9.525	3.97	4.4	0.6	
	CPGW09T308	●	●	●	●	●			—	Φ9.525	3.97	4.4	0.8	
	CPGT09T302	●	●	●	●	●			5°~10°	Φ9.525	3.97	4.4	0.2	
	CPGT09T304	●	●	●	●	●			5°~10°	Φ9.525	3.97	4.4	0.4	
	CPGT09T306	●	●	●	●	●			5°~10°	Φ9.525	3.97	4.4	0.6	
	CPGT09T308	●	●	●	●	●			5°~10°	Φ9.525	3.97	4.4	0.8	
	CPGW120402	●	●	●	●	●			—	Φ12.7	4.76	5.5	0.2	
	CPGW120404	●	●	●	●	●			—	Φ12.7	4.76	5.5	0.4	
	CPGW120408	●	●	●	●	●			—	Φ12.7	4.76	5.5	0.8	
	CPGW120410	●	●	●	●	●			—	Φ12.7	4.76	5.5	1.0	
	CPGW120412	●	●	●	●	●			—	Φ12.7	4.76	5.5	1.2	
	CPGT120402	●	●	●	●	●			5°~10°	Φ12.7	4.76	5.5	0.2	
	CPGT120404	●	●	●	●	●			5°~10°	Φ12.7	4.76	5.5	0.4	
	CPGT120408	●	●	●	●	●			5°~10°	Φ12.7	4.76	5.5	0.8	
	CPGT120410	●	●	●	●	●			5°~10°	Φ12.7	4.76	5.5	1.0	
	CPGT120412	●	●	●	●	●			5°~10°	Φ12.7	4.76	5.5	1.2	

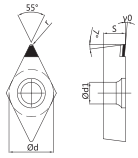
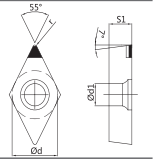
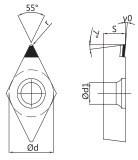
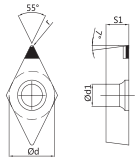
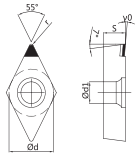
DN Rhombic 55° Negative

Insert shape	Designation	Material code							Rake angle (γ0)	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		TDA1000	TDA1500	TDC2000	MCD	ND								
	DNGA110402	●	●	●	●	●			—	Φ9.525	4.76	3.8	0.2	
	DNGA110404	●	●	●	●	●			—	Φ9.525	4.76	3.8	0.4	
	DNGA110406	●	●	●	●	●			—	Φ9.525	4.76	3.8	0.6	
	DNGA110408	●	●	●	●	●			—	Φ9.525	4.76	3.8	0.8	
	DNGA150402	●	●	●	●	●			—	Φ12.7	4.76	5.16	0.2	
	DNGA150404	●	●	●	●	●			—	Φ12.7	4.76	5.16	0.4	
	DNGA150408	●	●	●	●	●			—	Φ12.7	4.76	5.16	0.8	
	DNGA150410	●	●	●	●	●			—	Φ12.7	4.76	5.16	1.0	
	DNGA150412	●	●	●	●	●			—	Φ12.7	4.76	5.16	1.2	
	DNGA150604	●	●	●	●	●			—	Φ12.7	6.35	5.16	0.4	
	DNGA150608	●	●	●	●	●			—	Φ12.7	6.35	5.16	0.8	
	DNGA150610	●	●	●	●	●			—	Φ12.7	6.35	5.16	1.0	
	DNGA150612	●	●	●	●	●			—	Φ12.7	6.35	5.16	1.2	

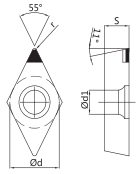
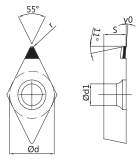
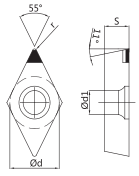
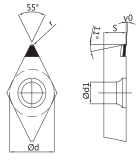
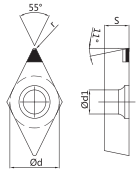
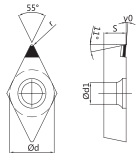
DC Rhombic 55° Positive 7°

Insert shape	Designation	Material code							Rake angle (γ0)	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		TDA1000	TDA1500	TDC2000	MCD	ND								
	DCGW070202	●	●	●	●	●			—	Φ6.35	2.38	2.8	0.2	
	DCGW070204	●	●	●	●	●			—	Φ6.35	2.38	2.8	0.4	
	DCGW070206	●	●	●	●	●			—	Φ6.35	2.38	2.8	0.6	
	DCGW070208	●	●	●	●	●			—	Φ6.35	2.38	2.8	0.8	
	DCGT070202	●	●	●	●	●			3°~5°	Φ6.35	2.38	2.8	0.2	
	DCGT070204	●	●	●	●	●			3°~5°	Φ6.35	2.38	2.8	0.4	
	DCGT070206	●	●	●	●	●			3°~5°	Φ6.35	2.38	2.8	0.6	
	DCGT070208	●	●	●	●	●			3°~5°	Φ6.35	2.38	2.8	0.8	
	DCGW090202	●	●	●	●	●			—	Φ7.94	2.38	3.4	0.2	
	DCGW090204	●	●	●	●	●			—	Φ7.94	2.38	3.4	0.4	
	DCGW090206	●	●	●	●	●			—	Φ7.94	2.38	3.4	0.6	
	DCGW090208	●	●	●	●	●			—	Φ7.94	2.38	3.4	0.8	
	DCGT090202	●	●	●	●	●			3°~5°	Φ7.94	2.38	3.4	0.2	
	DCGT090204	●	●	●	●	●			3°~5°	Φ7.94	2.38	3.4	0.4	
	DCGT090206	●	●	●	●	●			3°~5°	Φ7.94	2.38	3.4	0.6	
	DCGT090208	●	●	●	●	●			3°~5°	Φ7.94	2.38	3.4	0.8	
	DCGW110302	●	●	●	●	●			—	Φ9.525	3.18	4.4	0.2	
	DCGW110304	●	●	●	●	●			—	Φ9.525	3.18	4.4	0.4	
	DCGW110308	●	●	●	●	●			—	Φ9.525	3.18	4.4	0.8	
	DCGT110302	●	●	●	●	●			5°~10°	Φ9.525	3.18	4.4	0.2	
	DCGT110304	●	●	●	●	●			5°~10°	Φ9.525	3.18	4.4	0.4	
	DCGT110308	●	●	●	●	●			5°~10°	Φ9.525	3.18	4.4	0.8	
	DCGW11T302	●	●	●	●	●			—	Φ9.525	3.97	4.4	0.2	
	DCGW11T304	●	●	●	●	●			—	Φ9.525	3.97	4.4	0.4	
	DCGW11T306	●	●	●	●	●			—	Φ9.525	3.97	4.4	0.6	
	DCGW11T308	●	●	●	●	●			—	Φ9.525	3.97	4.4	0.8	

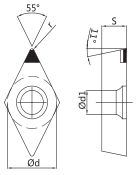
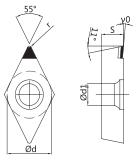
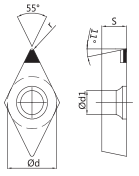
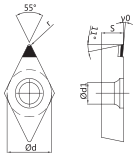
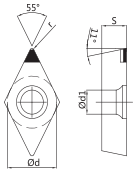
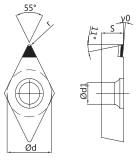
DC Rhombic 55° Positive 7°

Insert shape	Designation	Material code							Rake angle (γ0)	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		TDA1000	TDA1500	TDC2000	MCD	ND								
	DCGT11T302	●	●	●	●	●			5°~10°	Φ9.525	3.97	4.4	0.2	
	DCGT11T304	●	●	●	●	●			5°~10°	Φ9.525	3.97	4.4	0.4	
	DCGT11T306	●	●	●	●	●			5°~10°	Φ9.525	3.97	4.4	0.6	
	DCGT11T308	●	●	●	●	●			5°~10°	Φ9.525	3.97	4.4	0.8	
	DCGW110402	●	●	●	●	●			—	Φ9.525	4.76	4.5	0.2	
	DCGW110404	●	●	●	●	●			—	Φ9.525	4.76	4.5	0.4	
	DCGW110406	●	●	●	●	●			—	Φ9.525	4.76	4.5	0.6	
	DCGT110402	●	●	●	●	●			5°~10°	Φ9.525	4.76	4.5	0.2	
	DCGT110404	●	●	●	●	●			5°~10°	Φ9.525	4.76	4.5	0.4	
	DCGT110406	●	●	●	●	●			5°~10°	Φ9.525	4.76	4.5	0.6	
	DCGT110408	●	●	●	●	●			5°~10°	Φ9.525	4.76	4.5	0.8	
	DCGW150404	●	●	●	●	●			—	Φ12.7	4.76	5.5	0.4	
	DCGW150406	●	●	●	●	●			—	Φ12.7	4.76	5.5	0.6	
	DCGW150408	●	●	●	●	●			—	Φ12.7	4.76	5.5	0.8	
	DCGW150410	●	●	●	●	●			—	Φ12.7	4.76	5.5	1.0	
	DCGW150412	●	●	●	●	●			—	Φ12.7	4.76	5.5	1.2	
	DCGW150416	●	●	●	●	●			—	Φ12.7	4.76	5.5	1.6	
	DCGT150404	●	●	●	●	●			5°~10°	Φ12.7	4.76	5.5	0.4	
	DCGT150406	●	●	●	●	●			5°~10°	Φ12.7	4.76	5.5	0.6	
	DCGT150408	●	●	●	●	●			5°~10°	Φ12.7	4.76	5.5	0.8	
	DCGT150410	●	●	●	●	●			5°~10°	Φ12.7	4.76	5.5	1.0	
	DCGT150412	●	●	●	●	●			5°~10°	Φ12.7	4.76	5.5	1.2	
	DCGT150416	●	●	●	●	●			5°~10°	Φ12.7	4.76	5.5	1.6	

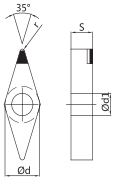
DP Rhombic 55° Positive 11°

Insert shape	Designation	Material code							Rake angle (γ0)	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		TDA1000	TDA1500	TDC2000	MCD	ND								
	DPGW070202	●	●	●	●	●			—	Φ6.35	2.38	2.8	0.2	
	DPGW070204	●	●	●	●	●			—	Φ6.35	2.38	2.8	0.4	
	DPGW070206	●	●	●	●	●			—	Φ6.35	2.38	2.8	0.6	
	DPGW070208	●	●	●	●	●			—	Φ6.35	2.38	2.8	0.8	
	DPGT070202	●	●	●	●	●			3°~5°	Φ6.35	2.38	2.8	0.2	
	DPGT070204	●	●	●	●	●			3°~5°	Φ6.35	2.38	2.8	0.4	
	DPGT070206	●	●	●	●	●			3°~5°	Φ6.35	2.38	2.8	0.6	
	DPGT070208	●	●	●	●	●			3°~5°	Φ6.35	2.38	2.8	0.8	
	DPGW090202	●	●	●	●	●			—	Φ7.94	2.38	3.4	0.2	
	DPGW090204	●	●	●	●	●			—	Φ7.94	2.38	3.4	0.4	
	DPGW090206	●	●	●	●	●			—	Φ7.94	2.38	3.4	0.6	
	DPGW090208	●	●	●	●	●			—	Φ7.94	2.38	3.4	0.8	
	DPGT090202	●	●	●	●	●			3°~5°	Φ7.94	2.38	3.4	0.2	
	DPGT090204	●	●	●	●	●			3°~5°	Φ7.94	2.38	3.4	0.4	
	DPGT090206	●	●	●	●	●			3°~5°	Φ7.94	2.38	3.4	0.6	
	DPGT090208	●	●	●	●	●			3°~5°	Φ7.94	2.38	3.4	0.8	
	DPGW110302	●	●	●	●	●			—	Φ9.525	3.18	3.4	0.2	
	DPGW110304	●	●	●	●	●			—	Φ9.525	3.18	3.4	0.4	
	DPGW110306	●	●	●	●	●			—	Φ9.525	3.18	3.4	0.6	
	DPGW110308	●	●	●	●	●			—	Φ9.525	3.18	3.4	0.8	
	DPGT110302	●	●	●	●	●			5°~10°	Φ9.525	3.18	3.4	0.2	
	DPGT110304	●	●	●	●	●			5°~10°	Φ9.525	3.18	3.4	0.4	
	DPGT110306	●	●	●	●	●			5°~10°	Φ9.525	3.18	3.4	0.6	
	DPGT110308	●	●	●	●	●			5°~10°	Φ9.525	3.18	3.4	0.8	

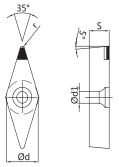
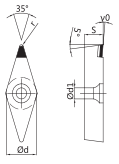
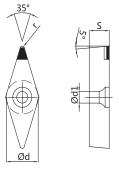
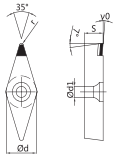
DP Rhombic 55° Positive 11°

Insert shape	Designation	Material code							Rake angle (γ0)	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		TDA1000	TDA1500	TDC2000	MCD	ND								
	DPGW11T302	●	●	●	●	●			—	Φ9.525	3.97	4.4	0.2	
	DPGW11T304	●	●	●	●	●			—	Φ9.525	3.97	4.4	0.4	
	DPGW11T306	●	●	●	●	●			—	Φ9.525	3.97	4.4	0.6	
	DPGW11T308	●	●	●	●	●			—	Φ9.525	3.97	4.4	0.8	
	DPGT11T302	●	●	●	●	●			5°~10°	Φ9.525	3.97	4.4	0.2	
	DPGT11T304	●	●	●	●	●			5°~10°	Φ9.525	3.97	4.4	0.4	
	DPGT11T306	●	●	●	●	●			5°~10°	Φ9.525	3.97	4.4	0.6	
	DPGT11T308	●	●	●	●	●			5°~10°	Φ9.525	3.97	4.4	0.8	
	DPGW110402	●	●	●	●	●			—	Φ9.525	4.76	4.4	0.2	
	DPGW110404	●	●	●	●	●			—	Φ9.525	4.76	4.4	0.4	
	DPGW110406	●	●	●	●	●			—	Φ9.525	4.76	4.4	0.6	
	DPGW110408	●	●	●	●	●			—	Φ9.525	4.76	4.4	0.8	
	DPGT110402	●	●	●	●	●			5°~10°	Φ9.525	4.76	4.5	0.2	
	DPGT110404	●	●	●	●	●			5°~10°	Φ9.525	4.76	4.5	0.4	
	DPGT110406	●	●	●	●	●			5°~10°	Φ9.525	4.76	4.5	0.6	
	DPGT110408	●	●	●	●	●			5°~10°	Φ9.525	4.76	4.5	0.8	
	DPGW150404	●	●	●	●	●			—	Φ12.7	4.76	5.5	0.4	
	DPGW150406	●	●	●	●	●			—	Φ12.7	4.76	5.5	0.6	
	DPGW150408	●	●	●	●	●			—	Φ12.7	4.76	5.5	0.8	
	DPGW150410	●	●	●	●	●			—	Φ12.7	4.76	5.5	1.0	
	DPGW150412	●	●	●	●	●			—	Φ12.7	4.76	5.5	1.2	
	DPGT150404	●	●	●	●	●			5°~10°	Φ12.7	4.76	5.5	0.4	
	DPGT150406	●	●	●	●	●			5°~10°	Φ12.7	4.76	5.5	0.6	
	DPGT150408	●	●	●	●	●			5°~10°	Φ12.7	4.76	5.5	0.8	
	DPGT150410	●	●	●	●	●			5°~10°	Φ12.7	4.76	5.5	1.0	
	DPGT150412	●	●	●	●	●			5°~10°	Φ12.7	4.76	5.5	1.2	

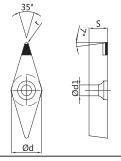
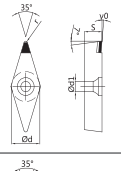
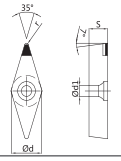
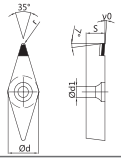
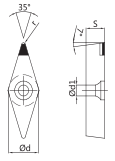
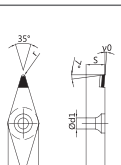
VN Rhombic 35° Negative

Insert shape	Designation	Material code							Rake angle (γ0)	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		TDA1000	TDA1500	TDC2000	MCD	ND								
	VNGA160402	●	●	●	●	●			—	Φ9.525	4.76	3.8	0.2	
	VNGA160404	●	●	●	●	●			—	Φ9.525	4.76	3.8	0.4	
	VNGA160408	●	●	●	●	●			—	Φ9.525	4.76	3.8	0.8	
	VNGA160410	●	●	●	●	●			—	Φ9.525	4.76	3.8	1.0	
	VNGA160412	●	●	●	●	●			—	Φ9.525	4.76	3.8	1.2	

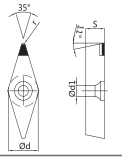
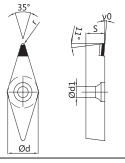
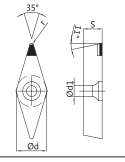
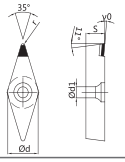
VB Rhombic 35° Positive 5°

Insert shape	Designation	Material code							Rake angle (γ0)	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		TDA1000	TDA1500	TDC2000	MCD	ND								
	VBGW110302	●	●	●	●	●			—	Φ6.35	3.18	2.8	0.2	
	VBGW110304	●	●	●	●	●			—	Φ6.35	3.18	2.8	0.4	
	VBGW110306	●	●	●	●	●			—	Φ6.35	3.18	2.8	0.6	
	VBGW110308	●	●	●	●	●			—	Φ6.35	3.18	2.8	0.8	
	VBGT110302	●	●	●	●	●			3°~5°	Φ6.35	3.18	2.8	0.2	
	VBGT110304	●	●	●	●	●			3°~5°	Φ6.35	3.18	2.8	0.4	
	VBGT110306	●	●	●	●	●			3°~5°	Φ6.35	3.18	2.8	0.6	
	VBGT110308	●	●	●	●	●			3°~5°	Φ6.35	3.18	2.8	0.8	
	VBGW160404	●	●	●	●	●			—	Φ9.525	4.76	4.4	0.4	
	VBGW160406	●	●	●	●	●			—	Φ9.525	4.76	4.4	0.6	
	VBGW160408	●	●	●	●	●			—	Φ9.525	4.76	4.4	0.8	
	VBGW160410	●	●	●	●	●			—	Φ9.525	4.76	4.4	1.0	
	VBGW160412	●	●	●	●	●			—	Φ9.525	4.76	4.4	1.2	
	VBGT160404	●	●	●	●	●			5°~10°	Φ9.525	4.76	4.4	0.4	
	VBGT160406	●	●	●	●	●			5°~10°	Φ9.525	4.76	4.4	0.6	
	VBGT160408	●	●	●	●	●			5°~10°	Φ9.525	4.76	4.4	0.8	
	VBGT160410	●	●	●	●	●			5°~10°	Φ9.525	4.76	4.4	1.0	
	VBGT160412	●	●	●	●	●			5°~10°	Φ9.525	4.76	4.4	1.2	

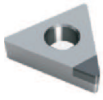
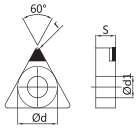
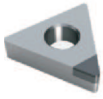
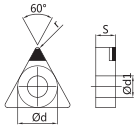
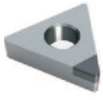
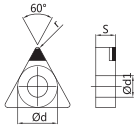
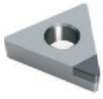
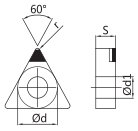
VC Rhombic 35° Positive 7°

Insert shape	Designation	Material code							Rake angle (γ0)	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		TDA1000	TDA1500	TDC2000	MCD	ND								
	VCGW080202	●	●	●	●	●			—	Φ4.76	2.38	2.3	0.2	
	VCGW080204	●	●	●	●	●			—	Φ4.76	2.38	2.3	0.4	
	VCGW080208	●	●	●	●	●			—	Φ4.76	2.38	2.3	0.8	
	VCGT080202	●	●	●	●	●			3°~5°	Φ4.76	2.38	2.3	0.2	
	VCGT080204	●	●	●	●	●			3°~5°	Φ4.76	2.38	2.3	0.4	
	VCGT080208	●	●	●	●	●			3°~5°	Φ4.76	2.38	2.3	0.8	
	VCGW110302	●	●	●	●	●			—	Φ6.35	3.18	2.8	0.2	
	VCGW110304	●	●	●	●	●			—	Φ6.35	3.18	2.8	0.4	
	VCGW110308	●	●	●	●	●			—	Φ6.35	3.18	2.8	0.8	
	VCGT110302	●	●	●	●	●			3°~5°	Φ6.35	3.18	2.8	0.2	
	VCGT110304	●	●	●	●	●			3°~5°	Φ6.35	3.18	2.8	0.4	
	VCGT110308	●	●	●	●	●			3°~5°	Φ6.35	3.18	2.8	0.8	
	VCGW160404	●	●	●	●	●			—	Φ9.525	4.76	4.4	0.4	
	VCGW160408	●	●	●	●	●			—	Φ9.525	4.76	4.4	0.8	
	VCGW160410	●	●	●	●	●			—	Φ9.525	4.76	4.4	1.0	
	VCGW160412	●	●	●	●	●			—	Φ9.525	4.76	4.4	1.2	
	VCGT160404	●	●	●	●	●			5°~10°	Φ9.525	4.76	4.4	0.4	
	VCGT160408	●	●	●	●	●			5°~10°	Φ9.525	4.76	4.4	0.8	
	VCGT160410	●	●	●	●	●			5°~10°	Φ9.525	4.76	4.4	1.0	
	VCGT160412	●	●	●	●	●			5°~10°	Φ9.525	4.76	4.4	1.2	

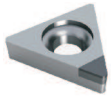
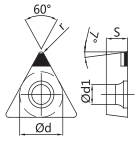
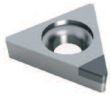
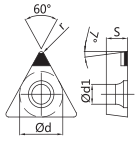
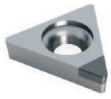
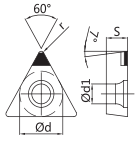
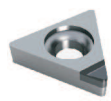
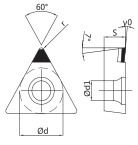
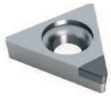
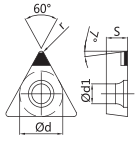
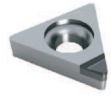
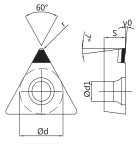
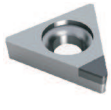
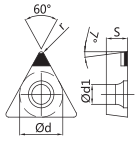
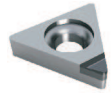
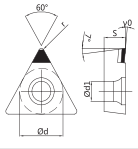
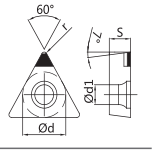
VP Rhombic 35° Positive 11°

Insert shape	Designation	Material code							Rake angle (γ0)	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		TDA1000	TDA1500	TDC2000	MCD	ND								
	VPGW080202	●	●	●	●	●			—	Φ4.76	2.38	2.3	0.2	
	VPGW080204	●	●	●	●	●			—	Φ4.76	2.38	2.3	0.4	
	VPGW080208	●	●	●	●	●			—	Φ4.76	2.38	2.3	0.8	
	VPGT080202	●	●	●	●	●			3°~5°	Φ4.76	2.38	2.3	0.2	
	VPGT080204	●	●	●	●	●			3°~5°	Φ4.76	2.38	2.3	0.4	
	VPGT080208	●	●	●	●	●			3°~5°	Φ4.76	2.38	2.3	0.8	
	VPGW110302	●	●	●	●	●			—	Φ6.35	3.18	2.8	0.2	
	VPGW110304	●	●	●	●	●			—	Φ6.35	3.18	2.8	0.4	
	VPGW110308	●	●	●	●	●			—	Φ6.35	3.18	2.8	0.8	
	VPGT110302	●	●	●	●	●			3°~5°	Φ6.35	3.18	2.8	0.2	
	VPGT110304	●	●	●	●	●			3°~5°	Φ6.35	3.18	2.8	0.4	
	VPGT110308	●	●	●	●	●			3°~5°	Φ6.35	3.18	2.8	0.8	

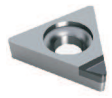
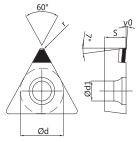
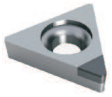
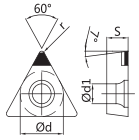
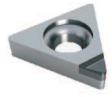
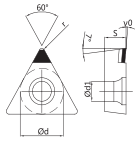
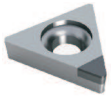
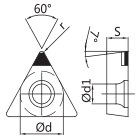
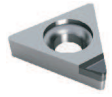
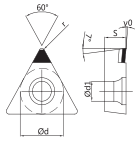
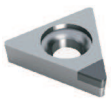
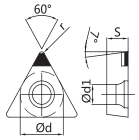
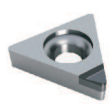
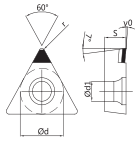
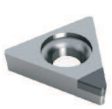
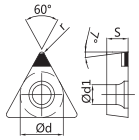
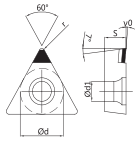
TN Triangular 60° Negative

Insert shape	Designation	Material code							Rake angle (γ0)	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		TDA1000	TDA1500	TDC2000	MCD	ND								
	TNGA110302	●	●	●	●	●			—	Φ6.35	3.18	2.3	0.2	
	TNGA110304	●	●	●	●	●			—	Φ6.35	3.18	2.3	0.4	
	TNGA110308	●	●	●	●	●			—	Φ6.35	3.18	2.3	0.8	
	TNGA160404	●	●	●	●	●			—	Φ9.525	4.76	3.8	0.4	
	TNGA160408	●	●	●	●	●			—	Φ9.525	4.76	3.8	0.8	
	TNGA160412	●	●	●	●	●			—	Φ9.525	4.76	3.8	1.2	
	TNGA160416	●	●	●	●	●			—	Φ9.525	4.76	3.8	1.6	
	TNGA220408	●	●	●	●	●			—	Φ12.7	4.76	5.16	0.8	
	TNGA220412	●	●	●	●	●			—	Φ12.7	4.76	5.16	1.2	
	TNGA220416	●	●	●	●	●			—	Φ12.7	4.76	5.16	1.6	
	TNGA270608	●	●	●	●	●			—	Φ15.875	6.35	6.35	0.8	
	TNGA270612	●	●	●	●	●			—	Φ15.875	6.35	6.35	1.2	
	TNGA270616	●	●	●	●	●			—	Φ15.875	6.35	6.35	1.6	

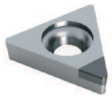
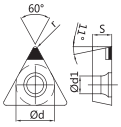
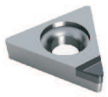
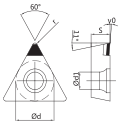
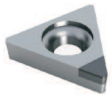
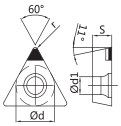
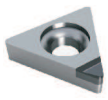
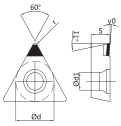
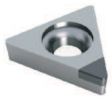
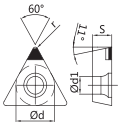
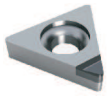
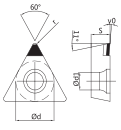
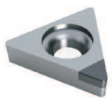
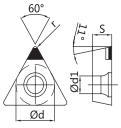
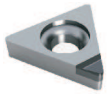
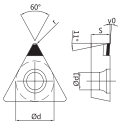
TC Triangular 60° Positive 7°

Insert shape	Designation	Material code							Rake angle (γ0)	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		TDA1000	TDA1500	TDC2000	MCD	ND								
	TCGW060102	●	●	●	●	●			—	Φ3.97	1.59	2.2	0.2	
	TCGW060104	●	●	●	●	●			—	Φ3.97	1.59	2.2	0.4	
	TCGW06T102	●	●	●	●	●			—	Φ3.97	1.98	2.2	0.2	
	TCGW06T104	●	●	●	●	●			—	Φ3.97	1.98	2.2	0.4	
	TCGW060202	●	●	●	●	●			—	Φ3.97	2.38	2.2	0.2	
	TCGW060204	●	●	●	●	●			—	Φ3.97	2.38	2.2	0.4	
	TCGT060202	●	●	●	●	●			3°~5°	Φ3.97	2.38	2.2	0.2	
	TCGT060204	●	●	●	●	●			3°~5°	Φ3.97	2.38	2.2	0.4	
	TCGW080202	●	●	●	●	●			—	Φ4.76	2.38	2.3	0.2	
	TCGW080204	●	●	●	●	●			—	Φ4.76	2.38	2.3	0.4	
	TCGW080206	●	●	●	●	●			—	Φ4.76	2.38	2.3	0.6	
	TCGT080202	●	●	●	●	●			3°~5°	Φ4.76	2.38	2.3	0.2	
	TCGT080204	●	●	●	●	●			3°~5°	Φ4.76	2.38	2.3	0.4	
	TCGT080206	●	●	●	●	●			3°~5°	Φ4.76	2.38	2.3	0.6	
	TCGW090202	●	●	●	●	●			—	Φ5.56	2.38	2.3	0.2	
	TCGW090204	●	●	●	●	●			—	Φ5.56	2.38	2.3	0.4	
	TCGW090208	●	●	●	●	●			—	Φ5.56	2.38	2.3	0.8	
	TCGT090202	●	●	●	●	●			3°~5°	Φ5.56	2.38	2.3	0.2	
	TCGT090204	●	●	●	●	●			3°~5°	Φ5.56	2.38	2.3	0.4	
	TCGT090208	●	●	●	●	●			3°~5°	Φ5.56	2.38	2.3	0.8	
	TCGW110202	●	●	●	●	●			—	Φ6.35	2.38	2.3	0.2	
	TCGW110204	●	●	●	●	●			—	Φ6.35	2.38	2.3	0.4	
	TCGW110208	●	●	●	●	●			—	Φ6.35	2.38	2.3	0.8	

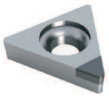
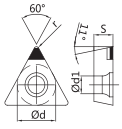
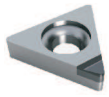
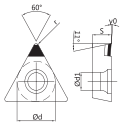
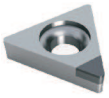
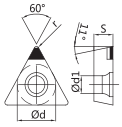
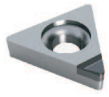
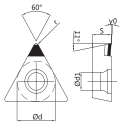
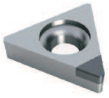
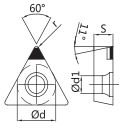
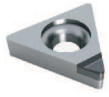
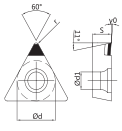
TC Triangular 60° Positive 7°

Insert shape	Designation	Material code							Rake angle (γ0)	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		TDA1000	TDA1500	TDC2000	MCD	ND								
	TCGT110202	●	●	●	●	●			3°~5°	Φ6.35	2.38	2.8	0.2	
	TCGT110204	●	●	●	●	●			3°~5°	Φ6.35	2.38	2.8	0.4	
	TCGT110208	●	●	●	●	●			3°~5°	Φ6.35	2.38	2.8	0.8	
	TCGW110302	●	●	●	●	●			—	Φ6.35	3.18	2.8	0.2	
	TCGW110304	●	●	●	●	●			—	Φ6.35	3.18	2.8	0.4	
	TCGW110308	●	●	●	●	●			—	Φ6.35	3.18	2.8	0.8	
	TCGT110302	●	●	●	●	●			3°~5°	Φ6.35	3.18	2.8	0.2	
	TCGT110304	●	●	●	●	●			3°~5°	Φ6.35	3.18	2.8	0.4	
	TCGT110308	●	●	●	●	●			3°~5°	Φ6.35	3.18	2.8	0.8	
	TCGW11T304	●	●	●	●	●			—	Φ6.35	3.97	2.8	0.4	
	TCGW11T306	●	●	●	●	●			—	Φ6.35	3.97	2.8	0.6	
	TCGW11T308	●	●	●	●	●			—	Φ6.35	3.97	2.8	0.8	
	TCGT11T304	●	●	●	●	●			5°~10°	Φ6.35	3.97	2.8	0.4	
	TCGT11T306	●	●	●	●	●			5°~10°	Φ6.35	3.97	2.8	0.6	
	TCGT11T308	●	●	●	●	●			5°~10°	Φ6.35	3.97	2.8	0.8	
	TCGW16T304	●	●	●	●	●			—	Φ9.525	3.97	4.4	0.4	
	TCGW16T308	●	●	●	●	●			—	Φ9.525	3.97	4.4	0.8	
	TCGW16T312	●	●	●	●	●			—	Φ9.525	3.97	4.4	1.2	
	TCGT16T304	●	●	●	●	●			5°~10°	Φ9.525	3.97	4.4	0.4	
	TCGT16T308	●	●	●	●	●			5°~10°	Φ9.525	3.97	4.4	0.8	
	TCGT16T312	●	●	●	●	●			5°~10°	Φ9.525	3.97	4.4	1.2	
	TCGW160404	●	●	●	●	●			—	Φ9.525	4.76	4.4	0.4	
	TCGW160408	●	●	●	●	●			—	Φ9.525	4.76	4.4	0.8	
	TCGW160412	●	●	●	●	●			—	Φ9.525	4.76	4.4	1.2	
	TCGT160404	●	●	●	●	●			5°~10°	Φ9.525	4.76	4.4	0.4	
	TCGT160408	●	●	●	●	●			5°~10°	Φ9.525	4.76	4.4	0.8	
	TCGT160412	●	●	●	●	●			5°~10°	Φ9.525	4.76	4.4	1.2	

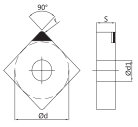
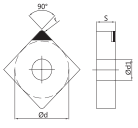
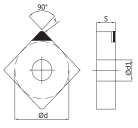
TP Triangular 60° Positive 11°

Insert shape	Designation	Material code							Rake angle (γ0)	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		TDA1000	TDA1500	TDC2000	MCD	ND								
	TPGW080202	●	●	●	●	●			—	Φ4.76	2.38	2.4	0.2	
	TPGW080204	●	●	●	●	●			—	Φ4.76	2.38	2.4	0.4	
	TPGW080206	●	●	●	●	●			—	Φ4.76	2.38	2.4	0.6	
	TPGT080202	●	●	●	●	●			3°~5°	Φ4.76	2.38	2.4	0.2	
	TPGT080204	●	●	●	●	●			3°~5°	Φ4.76	2.38	2.4	0.4	
	TPGT080206	●	●	●	●	●			3°~5°	Φ4.76	2.38	2.4	0.6	
	TPGW090202	●	●	●	●	●			—	Φ5.56	2.38	2.8	0.2	
	TPGW090204	●	●	●	●	●			—	Φ5.56	2.38	2.8	0.4	
	TPGW090208	●	●	●	●	●			—	Φ5.56	2.38	2.8	0.8	
	TPGT090202	●	●	●	●	●			3°~5°	Φ5.56	2.38	2.8	0.2	
	TPGT090204	●	●	●	●	●			3°~5°	Φ5.56	2.38	2.8	0.4	
	TPGT090208	●	●	●	●	●			3°~5°	Φ5.56	2.38	2.8	0.8	
	TPGW110202	●	●	●	●	●			—	Φ6.35	2.38	2.8	0.2	
	TPGW110204	●	●	●	●	●			—	Φ6.35	2.38	2.8	0.4	
	TPGW110208	●	●	●	●	●			—	Φ6.35	2.38	2.8	0.8	
	TPGT110202	●	●	●	●	●			3°~5°	Φ6.35	2.38	2.8	0.2	
	TPGT110204	●	●	●	●	●			3°~5°	Φ6.35	2.38	2.8	0.4	
	TPGT110208	●	●	●	●	●			3°~5°	Φ6.35	2.38	2.8	0.8	
	TPGW110302	●	●	●	●	●			—	Φ6.35	3.18	2.8	0.2	
	TPGW110304	●	●	●	●	●			—	Φ6.35	3.18	2.8	0.4	
	TPGW110308	●	●	●	●	●			—	Φ6.35	3.18	2.8	0.8	
	TPGT110302	●	●	●	●	●			3°~5°	Φ6.35	3.18	3.4	0.2	
	TPGT110304	●	●	●	●	●			3°~5°	Φ6.35	3.18	3.4	0.4	
	TPGT110308	●	●	●	●	●			3°~5°	Φ6.35	3.18	3.4	0.8	

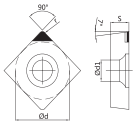
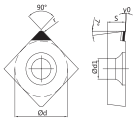
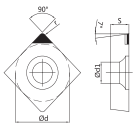
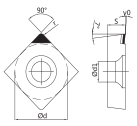
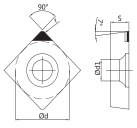
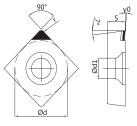
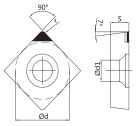
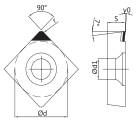
TP Triangular 60° Positive 11°

Insert shape	Designation	Material code							Rake angle (γ0)	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		TDA1000	TDA1500	TDC2000	MCD	ND								
	TPGW160304	●	●	●	●	●			—	Φ9.525	3.18	4.4	0.4	
	TPGW160308	●	●	●	●	●			—	Φ9.525	3.18	4.4	0.8	
	TPGW160312	●	●	●	●	●			—	Φ9.525	3.18	4.4	1.2	
	TPGT160304	●	●	●	●	●			3°~5°	Φ9.525	3.18	4.4	0.4	
	TPGT160308	●	●	●	●	●			3°~5°	Φ9.525	3.18	4.4	0.8	
	TPGT160312	●	●	●	●	●			3°~5°	Φ9.525	3.18	4.4	1.2	
	TPGW16T304	●	●	●	●	●			—	Φ9.525	3.97	4.4	0.4	
	TPGW16T308	●	●	●	●	●			—	Φ9.525	3.97	4.4	0.8	
	TPGW16T312	●	●	●	●	●			—	Φ9.525	3.97	4.4	1.2	
	TPGT16T304	●	●	●	●	●			5°~10°	Φ9.525	3.97	4.4	0.4	
	TPGT16T308	●	●	●	●	●			5°~10°	Φ9.525	3.97	4.4	0.8	
	TPGT16T312	●	●	●	●	●			5°~10°	Φ9.525	3.97	4.4	1.2	
	TPGW160402	●	●	●	●	●			—	Φ9.525	4.76	4.4	0.2	
	TPGW160404	●	●	●	●	●			—	Φ9.525	4.76	4.4	0.4	
	TPGW160408	●	●	●	●	●			—	Φ9.525	4.76	4.4	0.8	
	TPGW160412	●	●	●	●	●			—	Φ9.525	4.76	4.4	1.2	
	TPGT160402	●	●	●	●	●			5°~10°	Φ9.525	4.76	4.4	0.2	
	TPGT160404	●	●	●	●	●			5°~10°	Φ9.525	4.76	4.4	0.4	
	TPGT160408	●	●	●	●	●			5°~10°	Φ9.525	4.76	4.4	0.8	
	TPGT160412	●	●	●	●	●			5°~10°	Φ9.525	4.76	4.4	1.2	

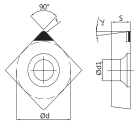
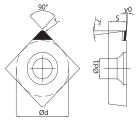
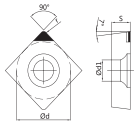
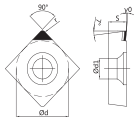
SN Square 90° Negative

Insert shape	Designation	Material code							Rake angle (γ0)	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		TDA1000	TDA1500	TDC2000	MCD	ND								
	SNGA090304	●	●	●	●	●			—	Φ9.525	3.18	3.8	0.4	
	SNGA090308	●	●	●	●	●			—	Φ9.525	3.18	3.8	0.8	
	SNGA090312	●	●	●	●	●			—	Φ9.525	3.18	3.8	1.2	
	SNGA120404	●	●	●	●	●			—	Φ12.7	4.76	5.16	0.4	
	SNGA120408	●	●	●	●	●			—	Φ12.7	4.76	5.16	0.8	
	SNGA120412	●	●	●	●	●			—	Φ12.7	4.76	5.16	1.2	
	SNGA150604	●	●	●	●	●			—	Φ15.875	6.35	6.35	0.4	
	SNGA150608	●	●	●	●	●			—	Φ15.875	6.35	6.35	0.8	
	SNGA150612	●	●	●	●	●			—	Φ15.875	6.35	6.35	1.2	
	SNGA150616	●	●	●	●	●			—	Φ15.875	6.35	6.35	1.6	

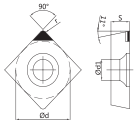
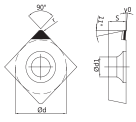
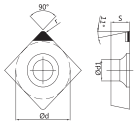
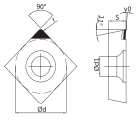
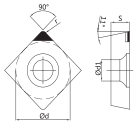
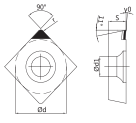
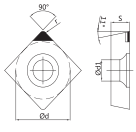
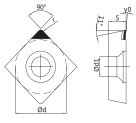
SC Square 90° Positive 7°

Insert shape	Designation	Material code							Rake angle (γ0)	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		TDA1000	TDA1500	TDC2000	MCD	ND								
	SCGW050202	●	●	●	●	●			—	Φ5.56	2.38	2.2	0.2	
	SCGW050204	●	●	●	●	●			—	Φ5.56	2.38	2.2	0.4	
	SCGT050202	●	●	●	●	●			3°~5°	Φ5.56	2.38	2.2	0.2	
	SCGT050204	●	●	●	●	●			3°~5°	Φ5.56	2.38	2.2	0.4	
	SCGW060202	●	●	●	●	●			—	Φ6.35	2.38	2.2	0.2	
	SCGW060204	●	●	●	●	●			—	Φ6.35	2.38	2.2	0.4	
	SCGW060208	●	●	●	●	●			—	Φ6.35	2.38	2.2	0.8	
	SCGT060202	●	●	●	●	●			3°~5°	Φ6.35	2.38	2.2	0.2	
	SCGT060204	●	●	●	●	●			3°~5°	Φ6.35	2.38	2.2	0.4	
	SCGT060208	●	●	●	●	●			3°~5°	Φ6.35	2.38	2.2	0.8	
	SCGW070202	●	●	●	●	●			—	Φ7.94	2.38	3.4	0.2	
	SCGW070204	●	●	●	●	●			—	Φ7.94	2.38	3.4	0.4	
	SCGW070208	●	●	●	●	●			—	Φ7.94	2.38	3.4	0.8	
	SCGT070202	●	●	●	●	●			3°~5°	Φ7.94	2.38	3.4	0.2	
	SCGT070204	●	●	●	●	●			3°~5°	Φ7.94	2.38	3.4	0.4	
	SCGT070208	●	●	●	●	●			3°~5°	Φ7.94	2.38	3.4	0.8	
	SCGW090302	●	●	●	●	●			—	Φ9.525	3.18	4.4	0.2	
	SCGW090304	●	●	●	●	●			—	Φ9.525	3.18	4.4	0.4	
	SCGW090308	●	●	●	●	●			—	Φ9.525	3.18	4.4	0.8	
	SCGT090302	●	●	●	●	●			3°~5°	Φ9.525	3.18	4.4	0.2	
	SCGT090304	●	●	●	●	●			3°~5°	Φ9.525	3.18	4.4	0.4	
	SCGT090308	●	●	●	●	●			3°~5°	Φ9.525	3.18	4.4	0.8	

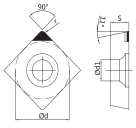
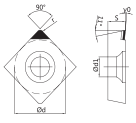
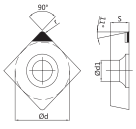
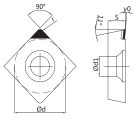
SC Square 90° Positive 7°

Insert shape	Designation	Material code							Rake angle (γ0)	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		TDA1000	TDA1500	TDC2000	MCD	ND								
	SCGW09T302	●	●	●	●	●			—	Φ9.525	3.97	4.4	0.2	
	SCGW09T304	●	●	●	●	●			—	Φ9.525	3.97	4.4	0.4	
	SCGW09T308	●	●	●	●	●			—	Φ9.525	3.97	4.4	0.8	
	SCGT09T302	●	●	●	●	●			3°~5°	Φ9.525	3.97	4.4	0.2	
	SCGT09T304	●	●	●	●	●			3°~5°	Φ9.525	3.97	4.4	0.4	
	SCGT09T308	●	●	●	●	●			3°~5°	Φ9.525	3.97	4.4	0.8	
	SCGW120404	●	●	●	●	●			—	Φ12.7	4.76	5.5	0.4	
	SCGW120408	●	●	●	●	●			—	Φ12.7	4.76	5.5	0.8	
	SCGW120412	●	●	●	●	●			—	Φ12.7	4.76	5.5	1.2	
	SCGT120404	●	●	●	●	●			5°~10°	Φ12.7	4.76	5.5	0.4	
	SCGT120408	●	●	●	●	●			5°~10°	Φ12.7	4.76	5.5	0.8	
	SCGT120412	●	●	●	●	●			5°~10°	Φ12.7	4.76	5.5	1.2	

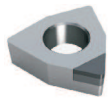
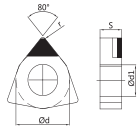
SP Square 90° Positive 11°

Insert shape	Designation	Material code							Rake angle (γ0)	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		TDA1000	TDA1500	TDC2000	MCD	ND								
	SPGW060202	●	●	●	●	●			—	Φ6.35	2.38	2.8	0.2	
	SPGW060204	●	●	●	●	●			—	Φ6.35	2.38	2.8	0.4	
	SPGT060202	●	●	●	●	●			3°~5°	Φ6.35	2.38	2.8	0.2	
	SPGT060204	●	●	●	●	●			3°~5°	Φ6.35	2.38	2.8	0.4	
	SPGW070202	●	●	●	●	●			—	Φ7.97	2.38	3.4	0.2	
	SPGW070204	●	●	●	●	●			—	Φ7.97	2.38	3.4	0.4	
	SPGW070208	●	●	●	●	●			—	Φ7.97	2.38	3.4	0.8	
	SPGT070202	●	●	●	●	●			3°~5°	Φ7.97	2.38	3.4	0.2	
	SPGT070204	●	●	●	●	●			3°~5°	Φ7.97	2.38	3.4	0.4	
	SPGT070208	●	●	●	●	●			3°~5°	Φ7.97	2.38	3.4	0.8	
	SPGW070302	●	●	●	●	●			—	Φ7.97	3.18	3.4	0.2	
	SPGW070304	●	●	●	●	●			—	Φ7.97	3.18	3.4	0.4	
	SPGW070308	●	●	●	●	●			—	Φ7.97	3.18	3.4	0.8	
	SPGT070302	●	●	●	●	●			3°~5°	Φ7.97	3.18	3.4	0.2	
	SPGT070304	●	●	●	●	●			3°~5°	Φ7.97	3.18	3.4	0.4	
	SPGT070308	●	●	●	●	●			3°~5°	Φ7.97	3.18	3.4	0.8	
	SPGW090302	●	●	●	●	●			—	Φ9.525	3.18	3.4	0.2	
	SPGW090304	●	●	●	●	●			—	Φ9.525	3.18	3.4	0.4	
	SPGW090308	●	●	●	●	●			—	Φ9.525	3.18	3.4	0.8	
	SPGT090302	●	●	●	●	●			3°~5°	Φ9.525	3.18	3.4	0.2	
	SPGT090304	●	●	●	●	●			3°~5°	Φ9.525	3.18	3.4	0.4	
	SPGT090308	●	●	●	●	●			3°~5°	Φ9.525	3.18	3.4	0.8	

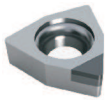
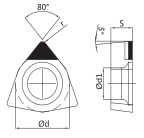
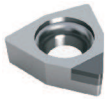
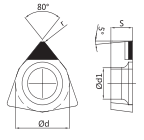
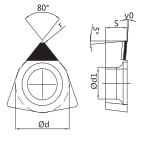
SP Square 90° Positive 11°

Insert shape	Designation	Material code							Rake angle (γ0)	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		TDA1000	TDA1500	TDC2000	MCD	ND								
	SPGW09T304	●	●	●	●	●			—	Φ9.525	3.97	4.4	0.4	
	SPGW09T306	●	●	●	●	●			—	Φ9.525	3.97	4.4	0.6	
	SPGW09T308	●	●	●	●	●			—	Φ9.525	3.97	4.4	0.8	
	SPGT09T304	●	●	●	●	●			5°~10°	Φ9.525	3.97	4.4	0.4	
	SPGT09T306	●	●	●	●	●			5°~10°	Φ9.525	3.97	4.4	0.6	
	SPGT09T308	●	●	●	●	●			5°~10°	Φ9.525	3.97	4.4	0.8	
	SPGW120404	●	●	●	●	●			—	Φ12.7	4.76	5.5	0.4	
	SPGW120408	●	●	●	●	●			—	Φ12.7	4.76	5.5	0.8	
	SPGW120412	●	●	●	●	●			—	Φ12.7	4.76	5.5	1.2	
	SPGT120404	●	●	●	●	●			5°~10°	Φ12.7	4.76	5.5	0.4	
	SPGT120408	●	●	●	●	●			5°~10°	Φ12.7	4.76	5.5	0.8	
	SPGT120412	●	●	●	●	●			5°~10°	Φ12.7	4.76	5.5	1.2	

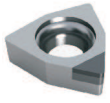
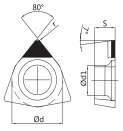
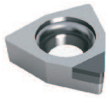
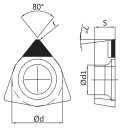
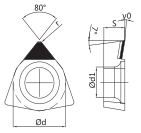
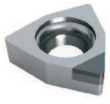
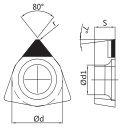
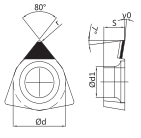
WN Trigon 80° Negative

Insert shape	Designation	Material code							Rake angle (γ0)	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		TDA1000	TDA1500	TDC2000	MCD	ND								
	WNGA080404	●	●	●	●	●			—	Φ12.7	4.76	5.16	0.4	
	WNGA080408	●	●	●	●	●			—	Φ12.7	4.76	5.16	0.8	
	WNGA080412	●	●	●	●	●			—	Φ12.7	4.76	5.16	1.2	

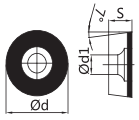
WB Trigon 80° Positive 5°

Insert shape	Designation	Material code							Rake angle (γ0)	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		TDA1000	TDA1500	TDC2000	MCD	ND								
	WBGW060102	●	●	●	●	●			—	Φ3.97	1.59	2.2	0.2	
	WBGW060104	●	●	●	●	●			—	Φ3.97	1.59	2.2	0.4	
	WBGW080202	●	●	●	●	●			—	Φ4.76	2.38	2.4	0.2	
	WBGW080204	●	●	●	●	●			—	Φ4.76	2.38	2.4	0.4	
	WBGT080202	●	●	●	●	●			3°~5°	Φ4.76	2.38	2.4	0.2	
	WBGT080204	●	●	●	●	●			3°~5°	Φ4.76	2.38	2.4	0.4	

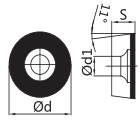
WC Trigon 80° Positive 7°

Insert shape	Designation	Material code							Rake angle (γ0)	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		TDA1000	TDA1500	TDC2000	MCD	ND								
	WCGW020102	●	●	●	●	●			—	Φ3.97	1.59	2.3	0.2	
	WCGW020104	●	●	●	●	●			—	Φ3.97	1.59	2.3	0.4	
	WCGW050302	●	●	●	●	●			—	Φ7.94	3.18	3.5	0.2	
	WCGW050304	●	●	●	●	●			—	Φ7.94	3.18	3.5	0.4	
	WCGW050308	●	●	●	●	●			—	Φ7.94	3.18	3.5	0.8	
	WCGT050302	●	●	●	●	●			5°~10°	Φ7.94	3.18	3.5	0.2	
	WCGT050304	●	●	●	●	●			5°~10°	Φ7.94	3.18	3.5	0.4	
	WCGT050308	●	●	●	●	●			5°~10°	Φ7.94	3.18	3.5	0.8	
	WCGW06T302	●	●	●	●	●			—	Φ9.525	3.97	4.4	0.2	
	WCGW06T304	●	●	●	●	●			—	Φ9.525	3.97	4.4	0.4	
	WCGW06T308	●	●	●	●	●			—	Φ9.525	3.97	4.4	0.8	
	WCGT06T302	●	●	●	●	●			5°~10°	Φ9.525	3.97	4.4	0.2	
	WCGT06T304	●	●	●	●	●			5°~10°	Φ9.525	3.97	4.4	0.4	
	WCGT06T308	●	●	●	●	●			5°~10°	Φ9.525	3.97	4.4	0.8	

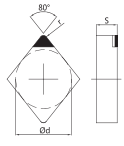
RC Round Positive 7°

Insert shape	Designation	Material code							Rake angle (γ0)	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		TDA1000	TDA1500	TDC2000	MCD	ND								
	RCGW060200	●	●	●	●	●			—	Φ6	2.38	2.8	—	
	RCGW080300	●	●	●	●	●			—	Φ8	3.18	3.4	—	
	RCGW100300	●	●	●	●	●			—	Φ10	3.18	3.6	—	
	RCGW120400	●	●	●	●	●			—	Φ12	4.76	4.2	—	
	RCGW160600	●	●	●	●	●			—	Φ16	6.35	5.2	—	

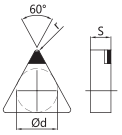
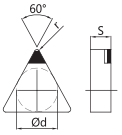
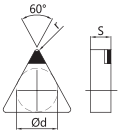
RP Round Positive 11°

Insert shape	Designation	Material code							Rake angle (γ0)	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		TDA1000	TDA1500	TDC2000	MCD	ND								
	RPGW080300	●	●	●	●	●			—	Φ8	3.18	3.4	—	
	RPGW100400	●	●	●	●	●			—	Φ10	4.76	3.8	—	
	RPGW120400	●	●	●	●	●			—	Φ12	4.76	4.2	—	
	RPGW160400	●	●	●	●	●			—	Φ16	4.76	5.2	—	

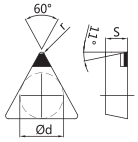
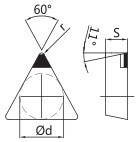
CN Rhombic 80° Negative

Insert shape	Designation	Material code							Rake angle (γ0)	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		TDA1000	TDA1500	TDC2000	MCD	ND								
	CNGN120404	●	●	●	●	●			—	Φ12.7	4.76	—	0.4	
	CNGN120408	●	●	●	●	●			—	Φ12.7	4.76	—	0.8	
	CNGN120412	●	●	●	●	●			—	Φ12.7	4.76	—	1.2	

TN Triangular 60° Negative

Insert shape	Designation	Material code							Rake angle (γ0)	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		TDA1000	TDA1500	TDC2000	MCD	ND								
	TNGN110302	●	●	●	●	●			—	Φ6.35	3.18	—	0.2	
	TNGN110304	●	●	●	●	●			—	Φ6.35	3.18	—	0.4	
	TNGN110308	●	●	●	●	●			—	Φ6.35	3.18	—	0.8	
	TNGN160304	●	●	●	●	●			—	Φ9.525	3.18	—	0.4	
	TNGN160308	●	●	●	●	●			—	Φ9.525	3.18	—	0.8	
	TNGN160312	●	●	●	●	●			—	Φ9.525	3.18	—	1.2	
	TNGN160404	●	●	●	●	●			—	Φ9.525	4.76	—	0.4	
	TNGN160408	●	●	●	●	●			—	Φ9.525	4.76	—	0.8	
	TNGN160412	●	●	●	●	●			—	Φ9.525	4.76	—	1.2	
	TNGN160416	●	●	●	●	●			—	Φ9.525	4.76	—	1.6	

TP Triangular 60° Positive 11°

Insert shape	Designation	Material code							Rake angle (γ0)	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		TDA1000	TDA1500	TDC2000	MCD	ND								
	TPGN090202	●	●	●	●	●			—	Φ5.56	2.38	—	0.2	
	TPGN090204	●	●	●	●	●			—	Φ5.56	2.38	—	0.4	
	TPGN090208	●	●	●	●	●			—	Φ5.56	2.38	—	0.8	
	TPGN110302	●	●	●	●	●			—	Φ6.35	3.18	—	0.2	
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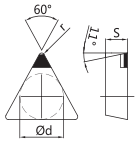
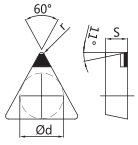
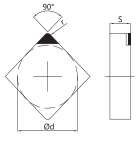
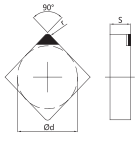
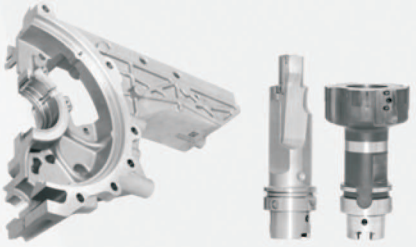
	TPGN110308	●	●	●	●	●			—	Φ6.35	3.18	—	0.8	
	TPGN160304	●	●	●	●	●			—	Φ9.525	3.18	—	0.4	
	TPGN160308	●	●	●	●	●			—	Φ9.525	3.18	—	0.8	
	TPGN160312	●	●	●	●	●			—	Φ9.525	3.18	—	1.2	
	TPGN160404	●	●	●	●	●			—	Φ9.525	4.76	—	0.4	
	TPGN160408	●	●	●	●	●			—	Φ9.525	4.76	—	0.8	
	TPGN160412	●	●	●	●	●			—	Φ9.525	4.76	—	1.2	
	TPGN160416	●	●	●	●	●			—	Φ9.525	4.76	—	1.6	

SN Square 90° Negative

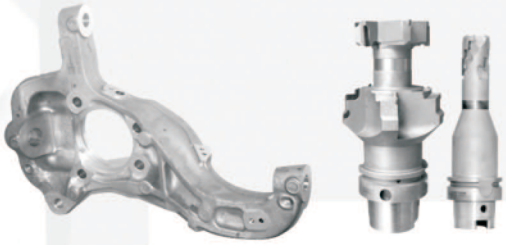
Insert shape	Designation	Material code							Rake angle (γ0)	Inscribed circle (Φd)	Thickness (s)	Inner hole diameter (Φd1)	Radius (r)	Insert profile
		TDA1000	TDA1500	TDC2000	MCD	ND								
	SNGN090302	●	●	●	●	●			—	Φ9.525	3.18	—	0.2	
	SNGN090304	●	●	●	●	●			—	Φ9.525	3.18	—	0.4	
	SNGN090308	●	●	●	●	●			—	Φ9.525	3.18	—	0.8	
	SNGN120404	●	●	●	●	●			—	Φ12.7	4.76	—	0.4	
	SNGN120408	●	●	●	●	●			—	Φ12.7	4.76	—	0.8	
	SNGN120412	●	●	●	●	●			—	Φ12.7	4.76	—	1.2	

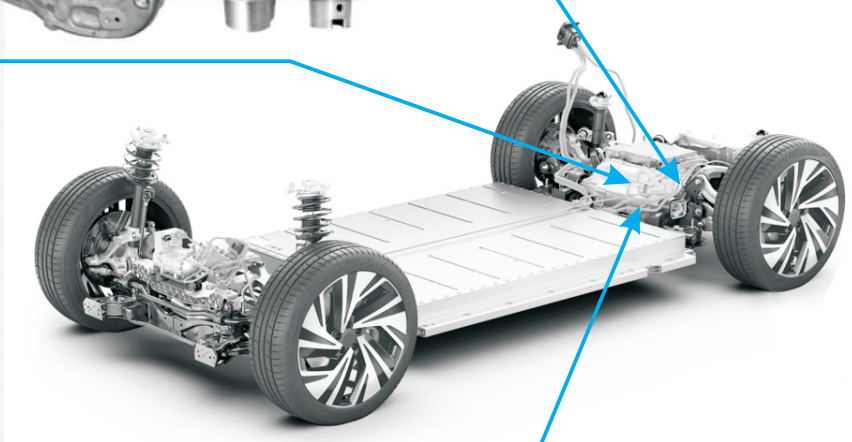
Electric vehicle industry solutions

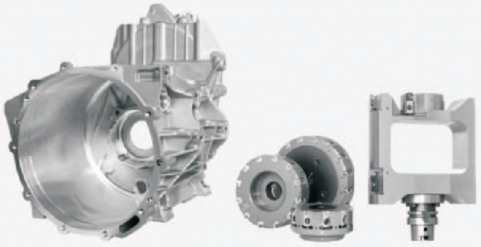
Motor rear-end cover processing solution



Knuckle solution







Motor housing solution

Motor housing solution

PDEC30 Series - Face milling cutter

Applications:
General tool suitable for roughing and finishing milling of aluminium, copper and other non-ferrous metal surface.

- Diameter :D63-D250(Customizable)
- Z:3-20(Customizable)
- Holder type:standard milling holder

Advantages:

- Light weight, high strength aluminium body.
- Suitable for high efficiency face milling of roughing and finishing Internal coolant goes directly to tip, helpful for chipping removal, with better tool life.
- Flexible insert can be reground and re-tipped cutter can be reused to save cost.
- Circular runout within 0.03mm, Axial runout within 0.003mm to ensure the workpiece roughness.
- Adjusting the position with spanner is easy and convenient with max scope 2mm, that increases the regrinding numbers.

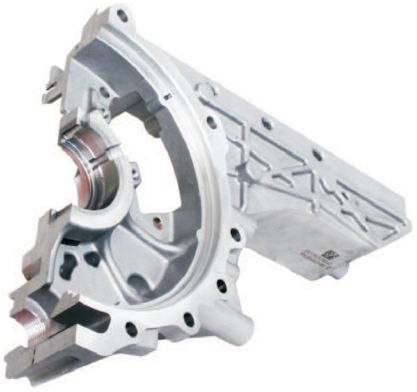
Compound finish boring tool with big diameter

Applications:
Aluminium parts of big diameter inner hole motor housing

Advantages:

- Light weight, high strength aluminium body.
- Suitable precision adjustment of finishing machining.
- Simple, lasting body structure.
- The design of internal coolant going directly to insert edge and lubricating is helpful to increase tool life.
- Flexible insert and cartridge with low cost and high performance.
- Can be customized for special solution.

Motor rear-end cover processing solution



Indexable short hole drilling compound tool

Applications:
General tool suitable for rough and semi-finish machining of workpiece without pre-cast holes.

Advantages:
- The integral design of tool holder and body with excellent rigidity.
- Use special high strength steel with surface strengthening treatment, the tool body has better wear resistance performance.
- Maximum chip flute design can get smoother chip discharge.
- Compound tool design can realize both rough and semi-finish machining requirements of the hole.
- The insert installation angle with cutting balance design, it will reach slight cutting vibration, low machine spindle load, high cutting efficiency, better drilling precision and surface roughness.
- Through change the materical and cutting edge design of indexable By changing the material rough and semi-finish machining of various material workpieces.
- It can be used as the basis for custom special solutions for customers.

Guide finish boring tool

Applications:
General tool for most applications with high precision and production capability.

Advantages:
- With very high precision and machining ability, the flexible insert based on guide pad in the hole guiding and precision cutting to ensure the machining effect with high quality.
- It ensures insert is assembled in the groove by suitable adjustment and clamping system.
- The resistant insert produced with modern manufacturing process can be made with different shape edge and non-standard edge structure.
- The design of internal coolant going directly to insert edge and lubricating is helpful to increase tool life.
- Flexible insert and high wear resistance guide pad with low cost and high performance.
- Can be customized for special solution.

Steering knuckle solution

PCD compound finish boring tool

Applications:
Used for the front and back surface machining of aluminum alloy steering knuckle bearing hole.

Advantages:
- Rough and finish machining integrated design, when improve working efficiency it does not reduce the machining quality;
- When machining back surface of bearing hole, compound milling structure no need change the tool and this will reduce the tool change time.
- Multi-cutting edge design, improve machining efficiency.

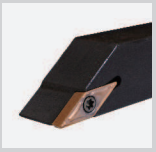
TDE30 series PCD corn milling tool with HSK holder

Applications:
Applied for end milling and side milling caliper hole surface, threaded hole surface of waterproof cover and other small surface.

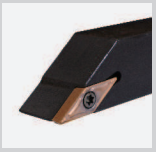
Advantages:
- PCD corn end milling tool possesses higher machining efficiency and metal removal rate when it is used in large allowance cutting.
- Thread chip removing groove possesses better chip removing performance, and integral structure can guarantee stable tool strength. Applied for semi-finish and rough machining.
- Applied for end milling, side milling, groove milling, profile milling and thread interpolation milling and other milling.
- PCD possesses high durability and toughness.

EXTERNAL TOOLHOLDER

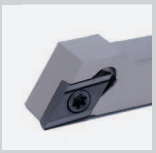
Multi-clamp Toolholder ---------- A142-A147



Screw-on Clamp Toolholder ---------- A148-A153



External Toolholder (Inch) ---------- A154-A158



External Toolholder on Swiss Lathes --- A159-A160

Lever-Lock Toolholder ---------- A161-A167

INTERNAL TOOLHOLDER

Multi-clamp Toolholder ---------- A168-A169

Screw-on Clamp Toolholder ---------- A170-A175

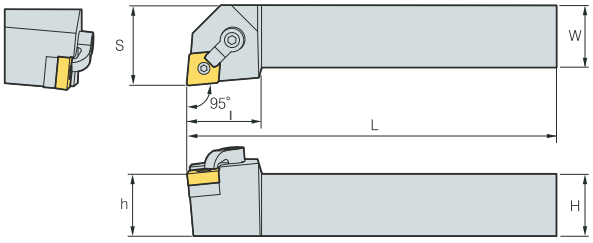
Steel Boring Bar with Coolant Hole --- A176-A182

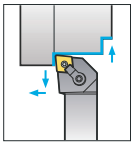
PSC TOOLHOLDER

PSC Toolholder ---------- A183-A216

MCLNR/L

CN □□





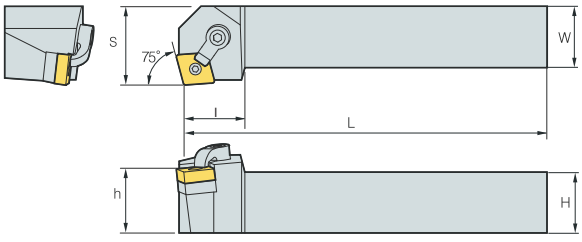
95°
R type insert

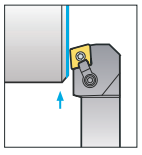
(mm)

Order No.	Dimension (mm)						Insert	Pin	Shim	Wrench	Screw	Clamp
	H	W	L	S	h	l						
MCLNR/L1616H12	16	16	100	20	16	25	CN..1204..	CTM617	MC1204	L2.5&L3	ML0625	HL1814
MCLNR/L2020K12	20	20	125	25	20	32						
MCLNR/L2525M12	25	25	150	32	25	32						
MCLNR/L3232P12	32	32	170	40	32	32						
MCLNR/L2525M16	25	25	150	32	25	34	CN..1606..	CTM822	MC1604	L3.0&L4	ML0830	HL2217
MCLNR/L3232P16	32	32	170	40	32	34						
MCLNR/L3232P19	32	32	170	40	32	38	CN..1906..	CTM1022	MC1904	L4.0	ML0830	HL2217
MCLNR/L4040R19	40	40	200	50	40	38						

MCKNR/L

CN □□





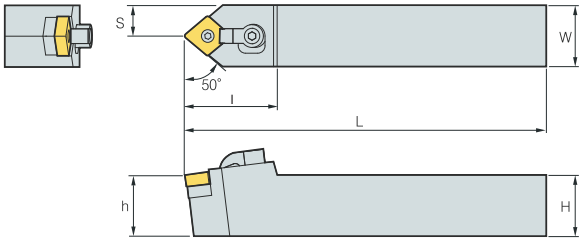
75°
R type insert

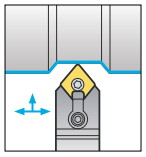
(mm)

Order No.	Dimension (mm)						Insert	Pin	Shim	Wrench	Screw	Clamp
	H	W	L	S	h	l						
MCKNR/L1616H12	16	16	100	20	16	25	CN..1204..	CTM617	MC1204	L2.5&L3	ML0625	HL1814
MCKNR/L2020K12	20	20	125	25	20	32						
MCKNR/L2525M12	25	25	150	32	25	32						
MCKNR/L3232P12	32	32	170	40	32	32						

MCMNN

CN □□





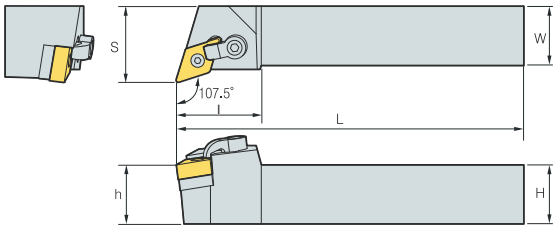
50°
R type insert

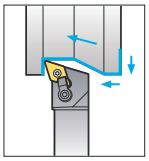
(mm)

Order No.	Dimension (mm)						Insert	Pin	Shim	Wrench	Screw	Clamp
	H	W	L	S	h	l						
MCMNN1616H12	16	16	100	8	16	25	CN..1204..	CTM617	MC1204	L2.5&L3	ML0625	HL1814
MCMNN2020K12	20	20	125	10	20	32						
MCMNN2525M12	25	25	150	12.5	25	32						
MCMNN3232P12	32	32	170	16	32	32						

MDQNR/L

DN □□





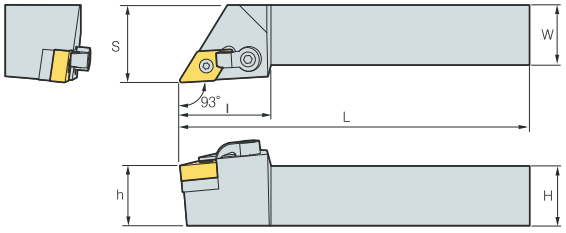
107.5°
R type insert

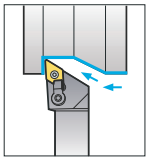
(mm)

Order No.	Dimension (mm)						Insert	Pin	Shim	Wrench	Screw	Clamp
	H	W	L	S	h	l						
MDQNR/L1616H11	16	16	100	20	16	28	DN..1104..	CTM513	MD1103	L2&L3	ML0625	HL1814
MDQNR/L2020K11	20	20	125	25	20	32						
MDQNR/L2525M11	25	25	150	32	25	36						
MDQNR/L1616H15	16	16	100	20	16	28	DN..1504.. DN..1506..	CTM619	MD1506 MD1504	L2.5&L3		HL2114
MDQNR/L2020K15	20	20	125	25	20	32						
MDQNR/L2525M15	25	25	150	32	25	36						
MDQNR/L3232P15	32	32	170	40	32	40						

MDJNR/L

DN □□





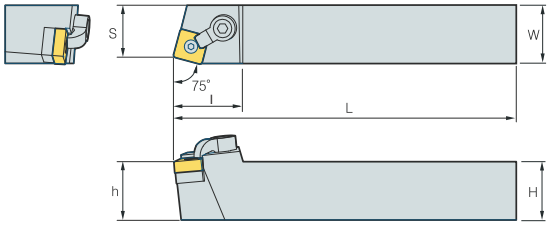
93°
R type insert

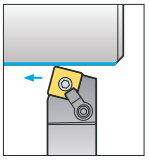
(mm)

Order No.	Dimension (mm)						Insert	Pin	Shim	Wrench	Screw	Clamp
	H	W	L	S	h	l						
MDJNR/L1616H11	16	16	100	20	16	28	DN..1104..	CTM513	MD1103	L2&L3	ML0625	HL1814
MDJNR/L2020K11	20	20	125	25	20	32						
MDJNR/L2525M11	25	25	150	32	25	36						
MDJNR/L1616H15	16	16	100	20	16	28	DN..1504.. DN..1506..	CTM619	MD1506 MD1504	L2.5&L3		HL2114
MDJNR/L2020K15	20	20	125	25	20	32						
MDJNR/L2525M15	25	25	150	32	25	36						
MDJNR/L3232P15	32	32	170	40	32	40						

MSBNR/L

SN □□





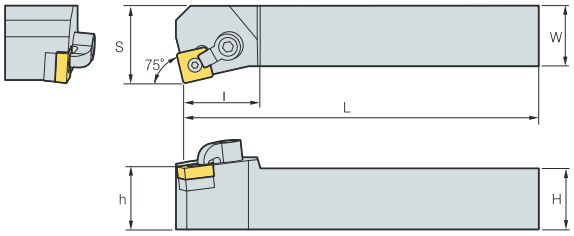
75°
R type insert

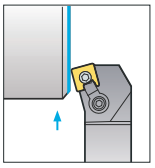
(mm)

Order No.	Dimension (mm)						Insert	Pin	Shim	Wrench	Screw	Clamp
	H	W	L	S	h	l						
MSBNR/L1616H12	16	16	100	14	16	28	SN..1204..	CTM617	MS1204	L2.5&L3	ML0625	HL1814
MSBNR/L2020K12	20	20	125	17	20	32						
MSBNR/L2525M12	25	25	150	22	25	32						
MSBNR/L3232P12	32	32	170	27	32	32						

MSKNR/L

SN □□





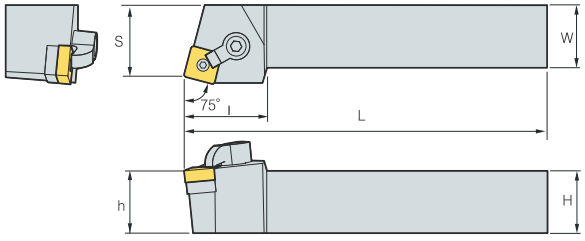
75°
R type insert

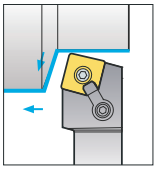
(mm)

Order No.	Dimension (mm)						Insert	Pin	Shim	Wrench	Screw	Clamp
	H	W	L	S	h	l						
MSKNR/L1616H12	16	16	100	20	16	28	SN..1204..	CTM617	MS1204	L2.5&L3	ML0625	HL1814
MSKNR/L2020K12	20	20	125	25	20	32						
MSKNR/L2525M12	25	25	150	32	25	32						
MSKNR/L3232P12	32	32	170	40	32	32						
MSKNR/L2525M15	25	25	150	32	25	33	SN..1506..	CTM822	MS1504	L3.0&L4	ML0830	HL2217
MSKNR/L3232P19	32	32	170	40	32	35	SN..1906..	CTM1022	MS1904	L4.0	ML0830	HL2217

MSRNR/L

SN □□





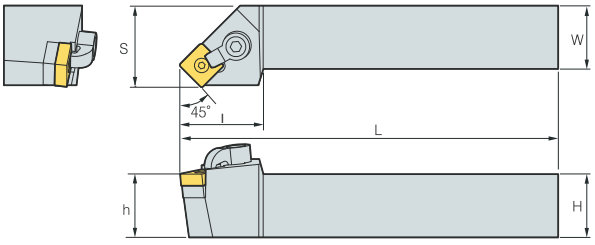
75°
R type insert

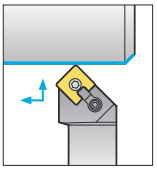
(mm)

Order No.	Dimension (mm)						Insert	Pin	Shim	Wrench	Screw	Clamp
	H	W	L	S	h	l						
MSRNR/L1616H12	16	16	100	17	16	28	SN..1204..	CTM617	MS1204	L2.5&L3	ML0625	HL1814
MSRNR/L2020K12	20	20	125	22	20	32						
MSRNR/L2525M12	25	25	150	27	25	32						
MSRNR/L3232P12	32	32	170	35	32	40						

MSSNR/L

SN □□





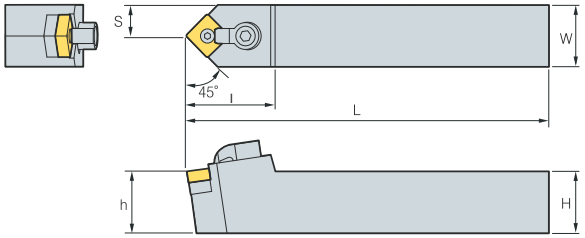
45°
R type insert

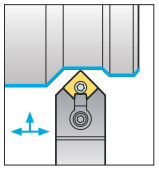
(mm)

Order No.	Dimension (mm)						Insert	Pin	Shim	Wrench	Screw	Clamp
	H	W	L	S	h	l						
MSSNR/L1616H12	16	16	100	20	16	28	SN..1204..	CTM617	MS1204	L2.5&L3	ML0625	HL1814
MSSNR/L2020K12	20	20	125	25	25	28						
MSSNR/L2525M12	25	25	150	32	25	32						
MSSNR/L3232P12	32	32	170	40	32	35						
MSSNR/L2525M15	25	25	150	32	25	41	SN..1506..	CTM0822	MS1504	L3.0&L4	ML0830	HL2217
MSSNR/L3232P15	32	32	170	40	32	42						
MSSNR/L3232P19	32	32	170	40	32	45	SN..1906..	CTM1022	MS1904	L4.0	ML0830	HL2217
MSSNR/L4040R19	40	40	200	50	40	45						

MSDNN

SN □□





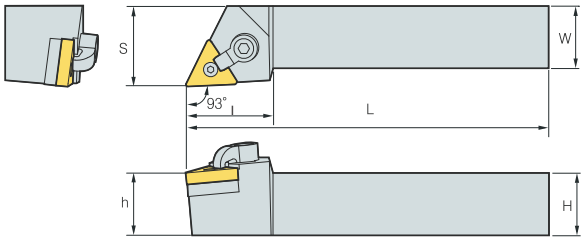
45°
R type insert

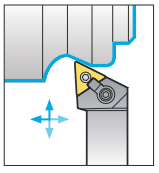
(mm)

Order No.	Dimension (mm)						Insert	Pin	Shim	Wrench	Screw	Clamp
	H	W	L	S	h	l						
MSDNN1616H12	16	16	100	8	16	28	SN..1204..	CTM617	MS1204	L2.5&L3	ML0625	HL1814
MSDNN2020K12	20	20	125	10	20	28						
MSDNN2525M12	25	25	150	12.5	25	32						
MSDNN3232P12	32	32	170	16	32	35						
MSDNN2525M15	25	25	150	12.5	25	43	SN..1506..	CTM0822	MS1504	L3.0&L4	ML0830	HL2217
MSDNN3232P19	32	32	170	16	32	47	SN..1906..	CTM1022	MS1904	L4.0	ML0830	HL2217
MSDNN4040R19	40	40	200	20	40	47						

MTJNR/L

TN □□





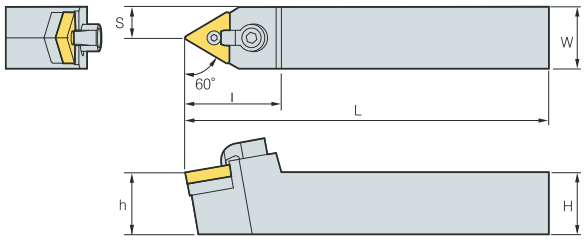
93°
R type insert

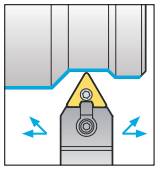
(mm)

Order No.	Dimension (mm)						Insert	Pin	Shim	Wrench	Screw	Clamp
	H	W	L	S	h	l						
MTJNR/L1616H16	16	16	100	20	16	28	TN..1604..	CTM513	MT1603	L2&L3	ML0625	HL1814
MTJNR/L2020K16	20	20	125	25	20	32						
MTJNR/L2525M16	25	25	150	32	25	32						
MTJNR/L3232P16	32	32	170	40	32	35						
MTJNR/L2525M22	25	25	150	32	25	34	TN..2204..	CTM617	MT2204	L2.5&L4	ML0830	HL1917
MTJNR/L3232P22	32	32	170	40	32	35						

MTENN

TN □□





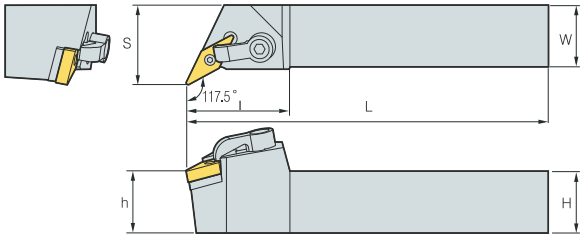
60°
R type insert

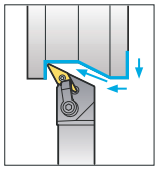
(mm)

Order No.	Dimension (mm)						Insert	Pin	Shim	Wrench	Screw	Clamp
	H	W	L	S	h	l						
MTENN1616H16	16	16	100	8	16	28	TN..1604..	CTM513	MT1603	L2&L3	ML0625	HL1814
MTENN2020K16	20	20	125	10	20	32						
MTENN2525M16	25	25	150	12.5	25	32						
MTENN3232P16	32	32	170	16	32	35						

MVQNR/L

VN □□





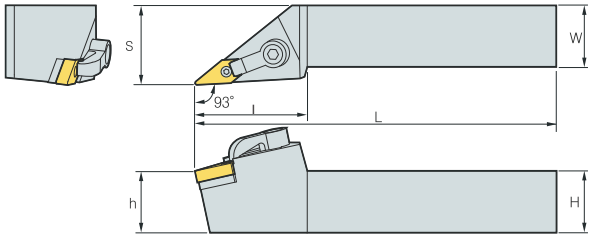
117. 5°
R type insert

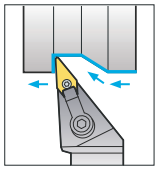
(mm)

Order No.	Dimension (mm)						Insert	Pin	Shim	Wrench	Screw	Clamp
	H	W	L	S	h	l						
MVQNR/L1616H16	16	16	100	20	16	20	VN..1604..	CTM513	MV1603	L2&L3	ML0625	HI2114
MVQNR/L2020K16	20	20	125	25	20	25						
MVQNR/L2525M16	25	25	150	32	25	32						
MVQNR/L3232P16	32	32	170	40	32	40						

MVJNR/L

VN □□





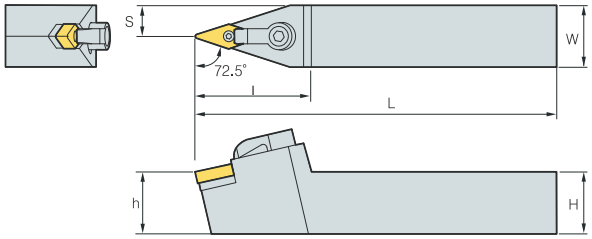
93°
R type insert

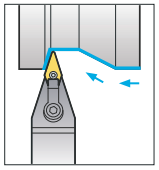
(mm)

Order No.	Dimension (mm)						Insert	Pin	Shim	Wrench	Screw	Clamp
	H	W	L	S	h	l						
MVJNR/L1616H16	16	16	100	20	16	32	VN..1604..	CTM513	MV1603	L2&L3	ML0625	HL2414
MVJNR/L2020K16	20	20	125	25	20	37						
MVJNR/L2525M16	25	25	150	32	25	37						
MVJNR/L3232P16	32	32	170	40	32	37						

MVVNN

VN □□





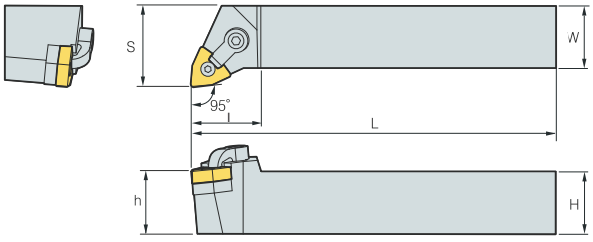
72.5°
R type insert

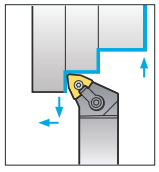
(mm)

Order No.	Dimension (mm)						Insert	Pin	Shim	Wrench	Screw	Clamp
	H	W	L	S	h	l						
MVVNN1616H16	16	16	100	8	16	40	VN..1604..	CTM513	MT1603	L2&L3	ML0625	HL2114
MVVNN2020K16	20	20	125	10	20	42						
MVVNN2525M16	25	25	150	12.5	25	42						
MVVNN3232P16	32	32	170	16	32	42						

MWLNR/L

WN □□





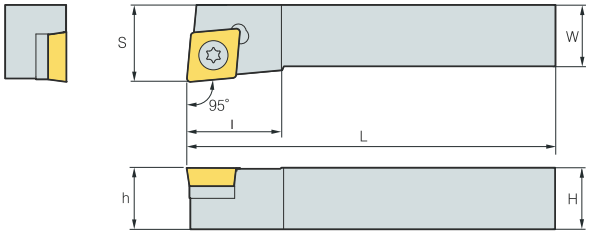
95°
R type insert

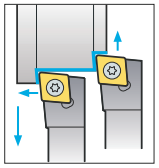
(mm)

Order No.	Dimension (mm)						Insert	Pin	Shim	Wrench	Screw	Clamp
	H	W	L	S	h	l						
MWLNR/L1616H06	16	16	100	20	16	32	WN..0604..	CTM513	MW0603	L2&L3	ML0625	HL1814
MWLNR/L2020K06	20	20	125	25	20	32						
MWLNR/L2525M06	25	25	150	32	25	32						
MWLNR/L1616H08	16	16	100	20	16	32	WN..0804..	CTM617	MW0804	L2.5&L3		
MWLNR/L2020K08	20	20	125	25	20	32						
MWLNR/L2525M08	25	25	150	32	25	32						
MWLNR/L3232P08	32	32	170	40	32	32						

SCLCR/L

CC □□





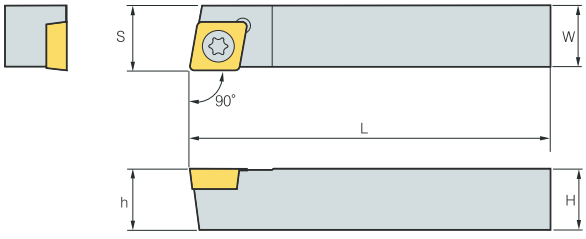
95°
R type insert

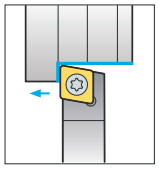
(mm)

Order No.	Dimension (mm)						Insert	Wrench	Screw
	H	W	L	S	h	l			
SCLCR/L0808H06	8	8	100	10	8	10	CC..0602..	T8	ST2506
SCLCR/L1010F06	10	10	80	16	10	10			
SCLCR/L1212H09	12	12	100	20	12	16	CC..09T3..	T15	ST3509
SCLCR/L1616H09	16	16	100	20	16	16			
SCLCR/L2020K09	20	20	125	25	20	16			
SCLCR/L2525M09	25	25	150	32	25	25			
SCLCR/L2020K12	20	20	125	25	20	25	CC..1204..	T20	ST5012
SCLCR/L2525M12	25	25	150	32	25	26			
SCLCR/L3232P12	32	32	170	40	32	30			

SCACR/L

CC □□





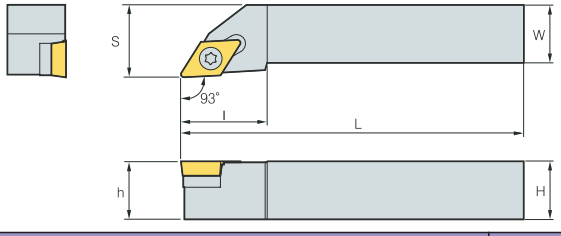
90°
R type insert

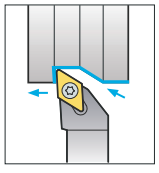
(mm)

Order No.	Dimension (mm)						Insert	Wrench	Screw
	H	W	L	S	h	l			
SCACR/L0808F06	8	8	80	8.5	8	-	CC..0602..	T8	ST2506
SCACR/L1010H06	10	10	100	10.5	10	-			
SCACR/L1212H06	12	12	100	12.5	12	-			
SCACR/L1212H09	12	12	100	12.5	12	-	CC..09T3..	T15	ST3509
SCACR/L1616H09	16	16	100	16.5	16	-			

SDJCR/L

DC □□





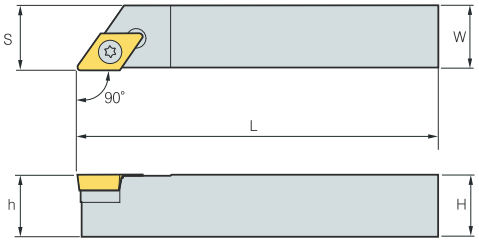
93°
R type insert

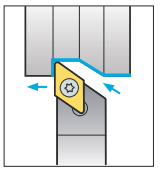
(mm)

Order No.	Dimension (mm)						Insert	Wrench	Screw
	H	W	L	S	h	l			
SDJCR/L0808H07	8	8	100	10	8	15	DC..0702..	T8	ST2508
SDJCR/L1010F07	10	10	80	12	10	15			
SDJCR/L1212F07	12	12	80	16	12	15			
SDJCR/L1616H07	16	16	100	20	16	18			
SDJCR/L1212F11	12	12	80	16	12	15	DC..11T3..	T15	ST3509
SDJCR/L1616H11	16	16	100	20	16	18			
SDJCR/L2020K11	20	20	125	25	20	24			
SDJCR/L2525M11	25	25	150	32	25	29			
SDJCR/L3232P11	32	32	170	40	32	40			

SDACR/L

DC □□





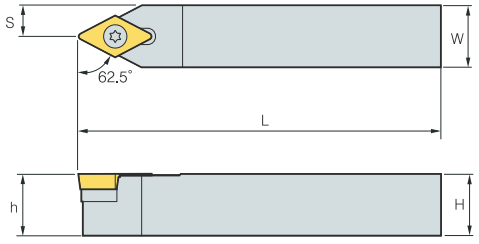
90°
R type insert

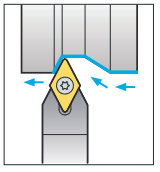
(mm)

Order No.	Dimension (mm)						Insert	Wrench	Screw
	H	W	L	S	h	l			
SDACR/L0808F07	8	8	80	8.5	8	-	DC..0702..	T8	ST2508
SDACR/L1010F07	10	10	80	10.5	10	-			
SDACR/L1212F07	12	12	80	12.5	12	-			
SDACR/L1212H11	12	12	100	12.5	12	-	DC..11T3..	T15	ST3509
SDACR/L1616H11	16	16	100	16.5	16	-			
SDACR/L2020K11	20	20	125	20.5	20	-			
SDACR/L2525M11	25	25	150	25.5	25	-			

SDNCN

DC □□





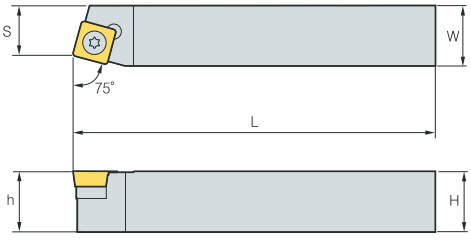
62.5°
R type insert

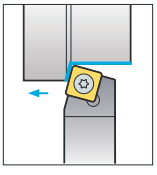
(mm)

Order No.	Dimension (mm)						Insert	Wrench	Screw
	H	W	L	S	h	l			
SDNCN0808F07	8	8	80	4	8	-	DC..0702..	T8	ST2508
SDNCN1010F07	10	10	80	5	10	-			
SDNCN1212F07	12	12	80	6	12	-			
SDNCN1212H11	12	12	100	6	12	-	DC..11T3..	T15	ST3509
SDNCN1616H11	16	16	100	8	16	-			
SDNCN2020K11	20	20	125	10	20	-			

SSBCR/L

SC □□





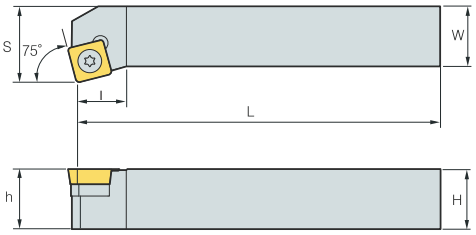
75°
R type insert

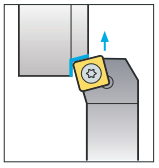
(mm)

Order No.	Dimension (mm)						Insert	Wrench	Screw
	H	W	L	S	h	l			
SSBCR/L1212F09	12	12	80	11	12	–	SC..09T3..	T15	ST3509
SSBCR/L1616H09	16	16	100	13	16	–			
SSBCR/L2020K09	20	20	125	17	20	–			
SSBCR/L2525M09	25	25	150	22	25	–			
SSBCR/L2020K12	20	20	125	17	20	–	SC..1204..	T20	ST5012

SSKCR/L

SC □□





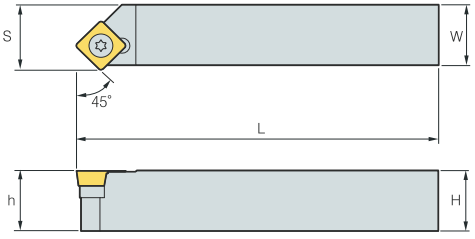
75°
R type insert

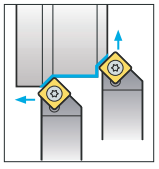
(mm)

Order No.	Dimension (mm)						Insert	Wrench	Screw
	H	W	L	S	h	l			
SSKCR/L1616H09	16	16	100	20	16	13	SC..09T3..	T15	ST3509
SSKCR/L2020K09	20	20	125	25	20	16			

SSSCR/L

SC □□





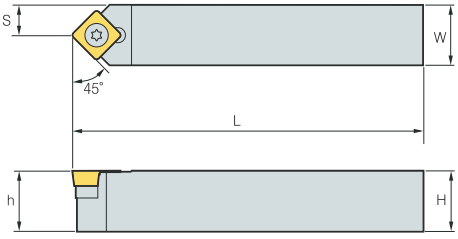
45°
R type insert

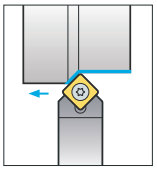
(mm)

Order No.	Dimension (mm)						Insert	Wrench	Screw
	H	W	L	S	h	l			
SSSCR/L1616H09	16	16	100	17	16	-	SC..09T3..	T15	ST3509
SSSCR/L2020K09	20	20	125	21	20	-			
SSSCR/L2525M12	25	25	150	26	20	-	SC..1204..	T20	ST5012

SSDCN

SC □□





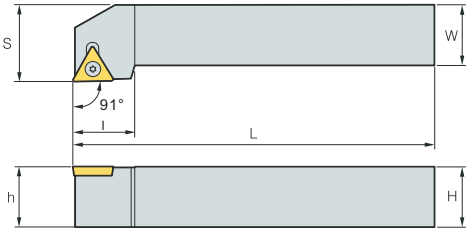
45°
R type insert

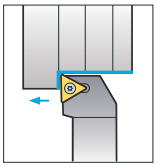
(mm)

Order No.	Dimension (mm)						Insert	Wrench	Screw
	H	W	L	S	h	l			
SSDCN1212F09	12	12	80	6	12	-	SC..09T3..	T15	ST3509
SSDCN1616H09	16	16	100	8	16	-			
SSDCN2020K09	20	20	125	10	20	-			

STGCR/L

TC □□





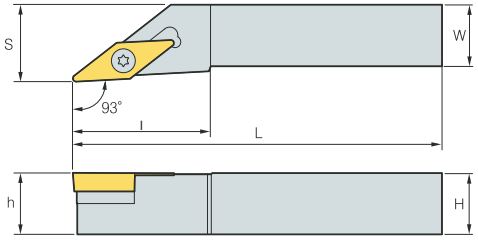
91°
R type insert

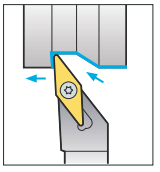
(mm)

Order No.	Dimension (mm)						Insert	Wrench	Screw
	H	W	L	S	h	l			
STGCR/L0808H09	8	8	100	10	8	9	TC..0902..	T8	ST2508
STGCR/L1010H09	10	10	100	12	10	12			
STGCR/L1212H11	12	12	100	16	12	14	TC..1102..		
STGCR/L1616H11	16	16	100	20	16	20			
STGCR/L2020K16	20	20	125	25	20	25	TC..16T3..	T15	ST3509
STGCR/L2525M16	25	25	150	32	25	27			
STGCR/L3232P16	32	32	175	40	32	32			

SVJBR/L

VB □□





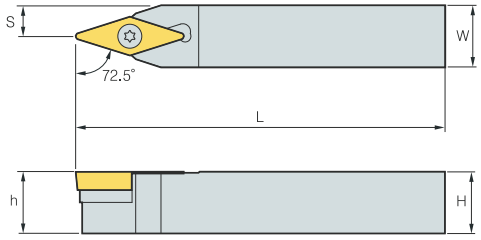
93°
R type insert

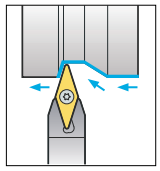
(mm)

Order No.	Dimension (mm)						Insert	Wrench	Screw
	H	W	L	S	h	l			
SVJBR/L1010H11	10	10	100	14	10	20	VB..1103..	T8	ST2508
SVJBR/L1212F11	12	12	80	16	12	25			
SVJBR/L1616H11	16	16	100	20	16	32			
SVJBR/L2020K11	20	20	125	25	20	32			
SVJBR/L2525M11	25	25	150	32	25	40			
SVJBR/L1616H16	16	16	100	20	16	32	VB..1604..	T15	ST3509
SVJBR/L2020K16	20	20	125	25	20	32			
SVJBR/L2525M16	25	25	150	32	25	40			
SVJBR/L3232P16	32	32	170	40	32	40			

SVVBN

VB □□





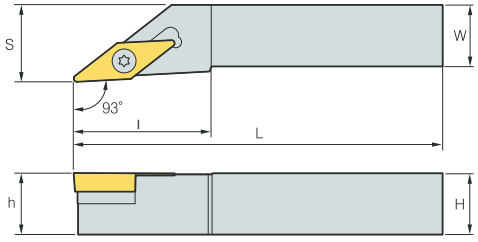
72.5°
R type insert

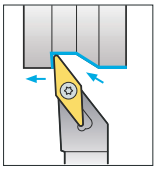
(mm)

Order No.	Dimension (mm)						Insert	Wrench	Screw
	H	W	L	S	h	l			
SVVBN1212F11	12	12	80	6	12	–	VB..1103..	T8	ST2508
SVVBN1616H11	16	16	100	8	16	–			
SVVBN2020K11	20	20	125	10	20	–			
SVVBN2525M11	25	25	150	12.5	25	–			
SVVBN1616H16	16	16	100	8	16	–	VB..1604..	T15	ST3509
SVVBN2020K16	20	20	125	10	20	–			
SVVBN2525M16	25	25	150	12.5	25	–			
SVVBN3232P16	32	32	170	16	32	–			

SVJCR/L

VC □□





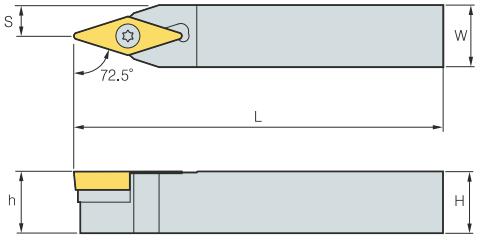
93°
R type insert

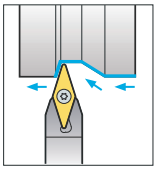
(mm)

Order No.	Dimension (mm)						Insert	Wrench	Screw
	H	W	L	S	h	l			
SVJCR/L1010H11	10	10	100	14	10	20	VC..1103..	T8	ST2508
SVJCR/L1212F11	12	12	80	16	12	25			
SVJCR/L1616H11	16	16	100	20	16	32			
SVJCR/L2020K11	20	20	125	25	20	32			
SVJCR/L2525M11	25	25	150	32	25	40			
SVJCR/L1616H16	16	16	100	20	16	32	VC..1604..	T15	ST3509
SVJCR/L2020K16	20	20	125	25	20	32			
SVJCR/L2525M16	25	25	150	32	25	40			
SVJCR/L3232P16	32	32	170	40	32	40			

SVVCN

VC □□





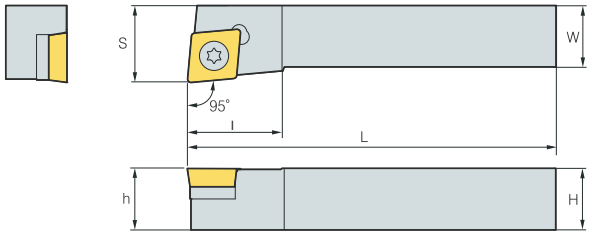
72.5°
R type insert

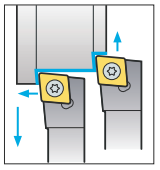
(mm)

Order No.	Dimension (mm)						Insert	Wrench	Screw
	H	W	L	S	h	l			
SVVCN1212F11	12	12	80	6	12	-	VC..1103..	T8	ST2508
SVVCN1616H11	16	16	100	8	16	-			
SVVCN2020K11	20	20	125	10	20	-			
SVVCN2525M11	25	25	150	12.5	25	-			
SVVCN1616H16	16	16	100	8	16	-	VC..1604..	T15	ST3509
SVVCN2020K16	20	20	125	10	20	-			
SVVCN2525M16	25	25	150	12.5	25	-			
SVVCN3232P16	32	32	170	16	32	-			

SCLCR/L

CC □□





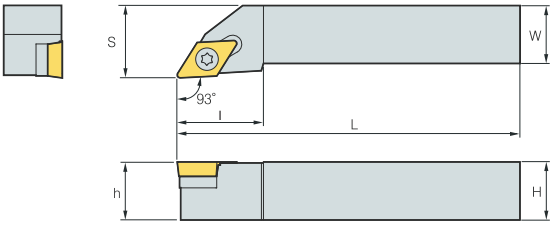
95°
R type insert

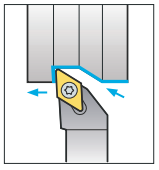
(Inch)

Order No.	Dimension (Inch)						Insert	Wrench	Screw
	H	W	L	S	h	l			
SCLCR/L08-3A	1/2	1/2	4	0.625	0.500	0.630	CC..32.5..	ET15	EST3509
SCLCR/L10-3B	5/8	5/8	4 1/2	0.750	0.625	0.630			
SCLCR/L12-3B	3/4	3/4	4 1/2	1.000	0.750	0.630			
SCLCR/L12-4B	3/4	3/4	4 1/2	1.000	0.750	1.024	CC..43..	ET20	EST5012
SCLCR/L16-4D	1	1	6	1.250	1.000	1.024			

SDJCR/L

DC □□





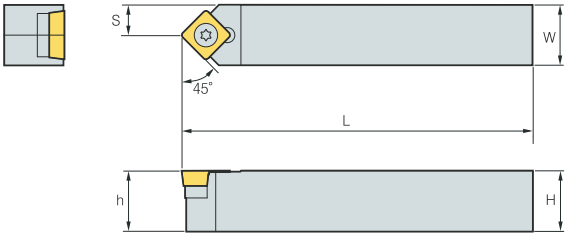
93°
R type insert

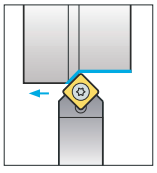
(Inch)

Order No.	Dimension (Inch)						Insert	Wrench	Screw
	H	W	L	S	h	l			
SDJCR/L06-2J	3/8	3/8	2 3/4	0.500	0.375	0.591	DC..21.5..	ET8	EST2508
SDJCR/L08-3A	1/2	1/2	4	0.625	0.500	0.591	DC..32.5..	ET15	EST3509
SDJCR/L10-3B	5/8	5/8	4 1/2	0.750	0.625	0.945			
SDJCR/L12-3B	3/4	3/4	4 1/2	1.000	0.750	0.945			
SDJCR/L16-3D	1	1	6	1.250	1.000	1.142			

SSDCN

SC □□





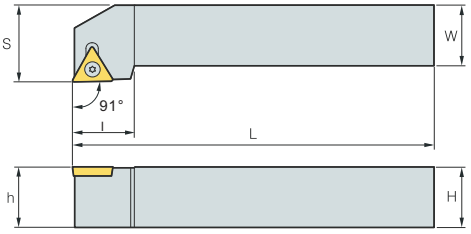
45°
R type insert

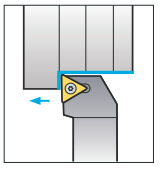
(Inch)

Order No.	Dimension (Inch)						Insert	Wrench	Screw
	H	W	L	S	h	l			
SSDCN08-3A	1/2	1/2	4	0.250	0.500	-	SC..32.5..	ET15	ST3509
SSDCN10-3B	5/8	5/8	4 1/2	0.313	0.625	-			
SSDCN12-3B	3/4	3/4	4 1/2	0.375	0.750	-			

STGCR/L

TC □□





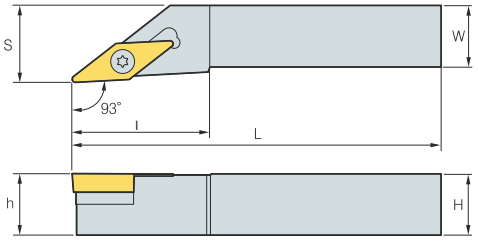
91°
R type insert

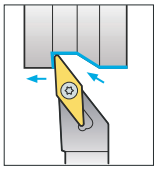
(Inch)

Order No.	Dimension (Inch)						Insert	Wrench	Screw
	H	W	L	S	h	l			
STGCR/L08-2A	1/2	1/2	4	0.625	0.500	0.551	TC..21.5..	ET8	EST2508
STGCR/L10-2A	5/8	5/8	4	0.750	0.625	0.630			
STGCR/L10-3A	5/8	5/8	4	0.750	0.625	0.827	TC..32.5..	ET15	EST3509
STGCR/L12-3B	3/4	3/4	4 1/2	1.000	0.750	0.827			
STGCR/L16-3D	1	1	6	1.250	1.000	0.827			

SVJCR/L

VC □□





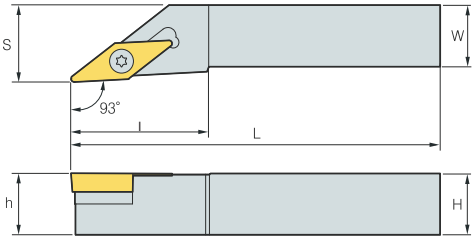
93°
R type insert

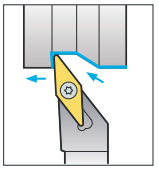
(Inch)

Order No.	Dimension (Inch)						Insert	Wrench	Screw
	H	W	L	S	h	l			
SVJCR/L08-2A	1/2	1/2	4	0.625	0.500	0.984	VC..21.5..	ET8	EST2508
SVJCR/L10-2A	5/8	5/8	4	0.750	0.625	0.984			
SVJCR/L12-3B	3/4	3/4	4 1/2	1.000	0.750	1.575	VC..33..	ET15	EST3509
SVJCR/L16-3D	1	1	6	1.250	1.000	1.575			

SVJBR/L

VB □□





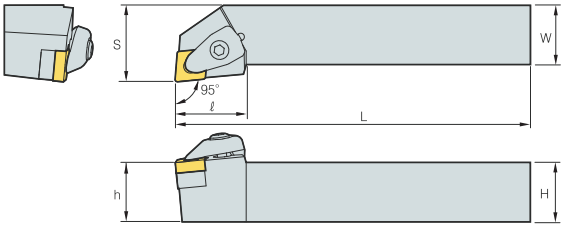
93°
R type insert

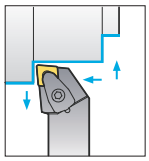
(Inch)

Order No.	Dimension (Inch)						Insert	Wrench	Screw
	H	W	L	S	h	l			
SVJBR/L08-2A	1/2	1/2	4	0.625	0.500	1.063	VB..21.5..	ET8	EST2508
SVJBR/L10-2A	5/8	5/8	4	0.750	0.625	1.063			
SVJBR/L12-3B	3/4	3/4	4 1/2	1.000	0.750	1.614	VB..33..	ET15	EST3509
SVJBR/L16-3D	1	1	6	1.250	1.000	1.614			

ACLNR/L

CN □□





95°

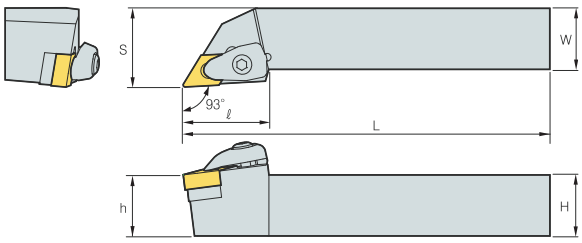
R type insert

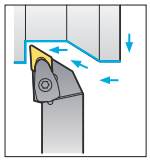
(Inch)

Order No.	Dimension (Inch)						Insert	Clamp	Clamp Screw	Shim	Screw	Spring	Wrench
	H	W	L	S	h	l							
ACLNR/L12-4B	3/4	3/4	4 1/2	1.000	0.750	1.500	CN..43..	EDLM4	EDLS4	ETC12	E0512	EDSP4	ET20 EL30
ACLNR/L16-4D	1	1	6	1.250	1.000	1.500							
ACLNR/L20-4D	1 1/4	1 1/4	6	1.500	1.250	1.500							

ADJNR/L

DN □□





93°

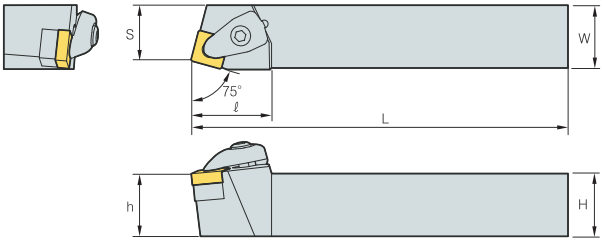
R type insert

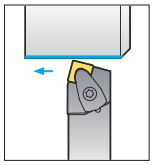
(Inch)

Order No.	Dimension (Inch)						Insert	Clamp	Clamp Screw	Shim	Screw	Spring	Wrench
	H	W	L	S	h	l							
ADJNR/L12-4B	3/4	3/4	4 1/2	1.000	0.750	1.500	DN..43..	EDLM4	EDLS4	ETD15	E0512	EDSP4	ET20 EL30
ADJNR/L16-4D	1	1	6	1.250	1.000	1.500							
ADJNR/L20-4D	1 1/4	1 1/4	6	1.500	1.250	1.500							

ASBNR/L

SN □□





75°

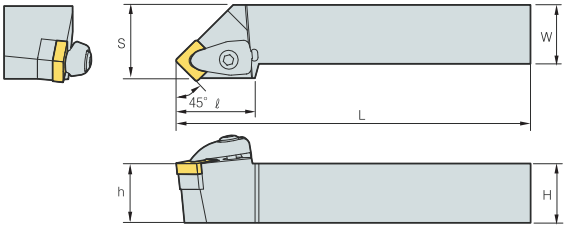
R type insert

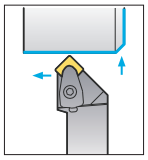
(Inch)

Order No.	Dimension (Inch)						Insert	Clamp	Clamp Screw	Shim	Screw	Spring	Wrench
	H	W	L	S	h	l							
ASBNR/L12-4B	3/4	3/4	4 1/2	0.625	0.750	1.180	SN..43..	EDLM4	EDLS4	EMS12	E0512	EDSP4	ET20 EL30
ASBNR/L16-4D	1	1	6	0.875	1.000	1.180							

ASSNR/L

SN □□





45°

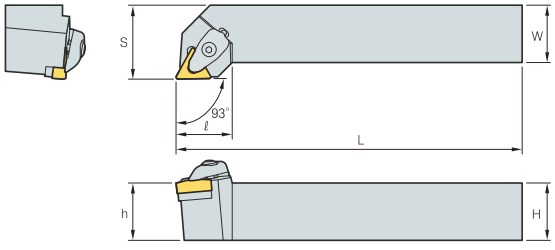
R type insert

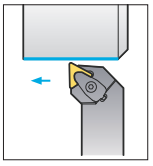
(Inch)

Order No.	Dimension (Inch)						Insert	Clamp	Clamp Screw	Shim	Screw	Spring	Wrench
	H	W	L	S	h	l							
ASSNR/L12-4B	3/4	3/4	4 1/2	1.000	0.750	1.577	SN..43..	EDLM4	EDLS4	EMS12	E0512	EDSP4	ET20 EL30
ASSNR/L16-4D	1	1	6	1.250	1.000	1.577							

ATJNR/L

TN □□





93°

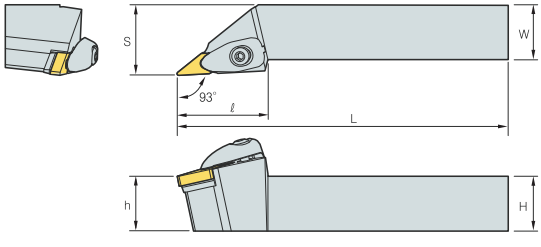
R type insert

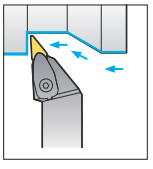
(Inch)

Order No.	Dimension (Inch)						Insert	Clamp	Clamp Screw	Shim	Screw	Spring	Wrench
	H	W	L	S	h	l							
ATJNR/L12-3B	3/4	3/4	4 1/2	1.000	0.750	0. 875	TN..33..	EDLM3	EDLS3	EMT16	EAM4	EDSP3	EL25
ATJNR/L16-3D	1	1	6	1.250	1.000	0. 875							

AVJNR/L

VN □□





93°

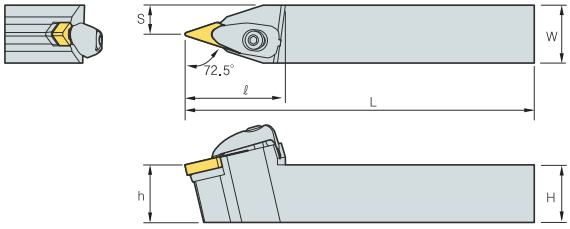
R type insert

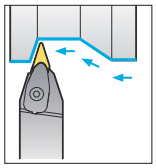
(Inch)

Order No.	Dimension (Inch)						Insert	Clamp	Clamp Screw	Shim	Screw	Spring	Wrench
	H	W	L	S	h	l							
AVJNR/L12-3B	3/4	3/4	4 1/2	1.000	0.750	1.750	VN..33..	EDV16	EDLS5	EMV16	EAM4	EDSP5	EL40 EL25
AVJNR/L16-3D	1	1	6	1.250	1.000	1.870							

AVVNN

VN □□





72.5°

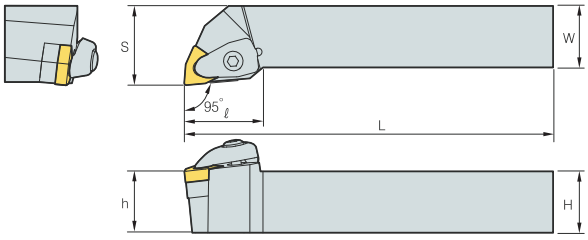
R type insert

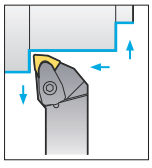
(Inch)

Order No.	Dimension (Inch)						Insert	Clamp	Clamp Screw	Shim	Screw	Spring	Wrench
	H	W	L	S	h	l							
AVVNN12-3B	3/4	3/4	4 1/2	0.375	0.750	1.870	VN..33..	EDV16	EDLS5	EMV16	EAM4	EDSP5	EL40 EL25
AVVNN16-3D	1	1	6	0.500	1.000	1.870							

AWLNR/L

WN □□





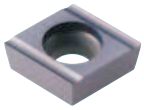
95°

R type insert

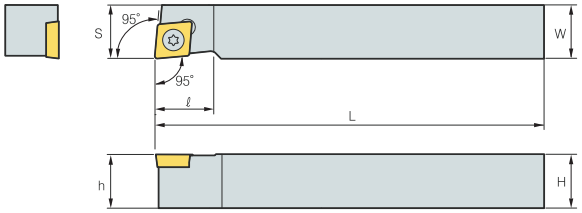
(Inch)

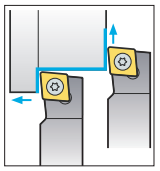
Order No.	Dimension (Inch)						Insert	Clamp	Clamp Screw	Shim	Screw	Spring	Wrench
	H	W	L	S	h	l							
AWLNR/L12-3B	3/4	3/4	4 1/2	1.000	0.750	1.125	WN..33..	EDLM3	EDLS3	EMW06	EAM4	EDSP3	EL25
AWLNR/L16-3D	1	1	6	1.250	1.000	1.125							
AWLNR/L12-4B	3/4	3/4	4 1/2	1.000	0.750	1.250	WN..43..	EDLM4	EDLS4	EMW08	EM0512	EDSP4	EL30 ET20
AWLNR/L16-4D	1	1	6	1.250	1.000	1.250							
AWLNR/L20-4D	1 1/4	1 1/4	6	1.500	1.250	1.250							

J-SCLCR/R



CC □ T





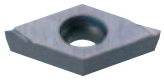
95°

R type insert

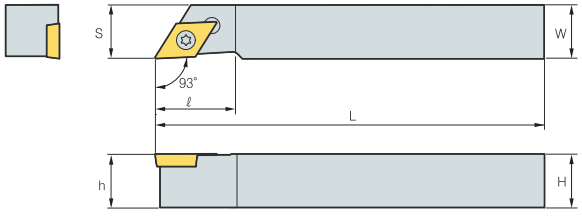
(mm)

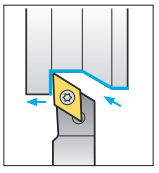
Order No.	Dimension (mm)					Insert	Wrench	Screw
	H	W	L	S	h			
J-SCLCR/L1010K06	10	10	125	10	10	CC..06..	JC06	EC06
J-SCLCR/L1212K06	12	12	125	10	12			
J-SCLCR/L1616K06	16	16	125	10	16			
J-SCLCR/L1010K09	10	10	125	10	10	CC..09..	JC06	EC06
J-SCLCR/L1212K09	12	12	125	12	12			
J-SCLCR/L1616K09	16	16	125	16	16			

J-SDJCR/L



DC □ T





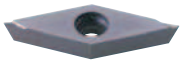
93°

R type insert

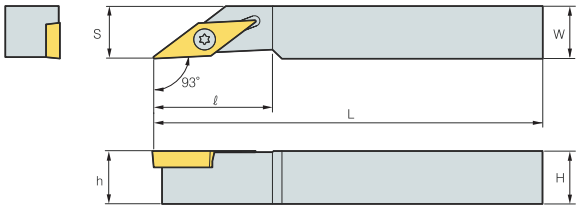
(mm)

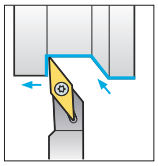
Order No.	Dimension (mm)					Insert	Wrench	Screw
	H	W	L	S	h			
J-SDJCR/L0808K07	8	8	125	8	8	DC..07..	JD07	ED07
J-SDJCR/L1010K07	10	10	125	10	10			
J-SDJCR/L1212K07	12	12	125	12	12			
J-SDJCR/L1616K07	16	16	125	16	16			
J-SDJCR/L1010K11	10	10	125	10	10	DC..11..	JD11	ED11
J-SDJCR/L1212K11	12	12	125	12	12			
J-SDJCR/L1616K11	16	16	125	16	16			

J-SVJBR/L



VB □ T



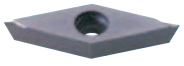


93°
R type insert

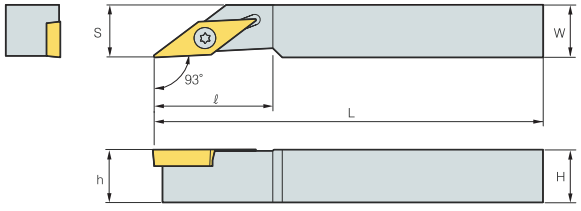
(mm)

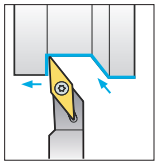
Order No.	Dimension (mm)					Insert	Wrench	Screw
	H	W	L	S	h			
J-SVJBR/L0808K11	8	8	125	8	8	VB..11..	JVB11	EVB11
J-SVJBR/L1010K11	10	10	125	10	10			
J-SVJBR/L1212K11	12	12	125	12	12			
J-SVJBR/L1616K11	16	16	125	16	16			

J-SVJCR/L



VC □ T



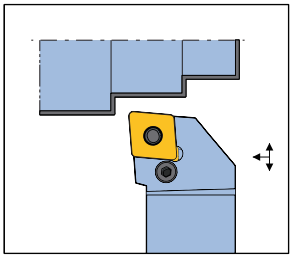


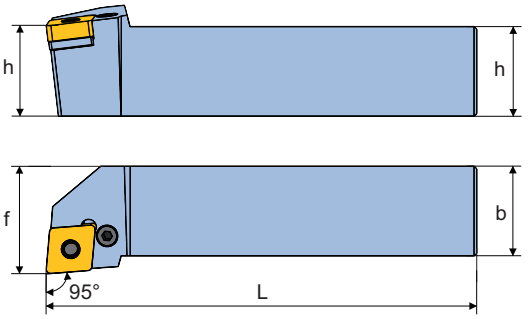
93°
R type insert

(mm)

Order No.	Dimension (mm)					Insert	Wrench	Screw
	H	W	L	S	h			
J-SVJCR/L0808K11	8	8	125	8	8	VC..11..	JVC11	EVC11
J-SVJCR/L1010K11	10	10	125	10	10			
J-SVJCR/L1212K11	12	12	125	12	12			
J-SVJCR/L1616K11	16	16	125	16	16			

◆ Lever-lock toolholder with 95°approach angle

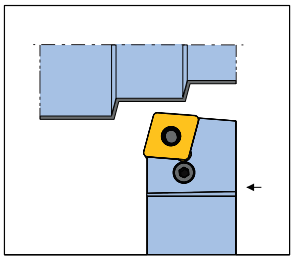


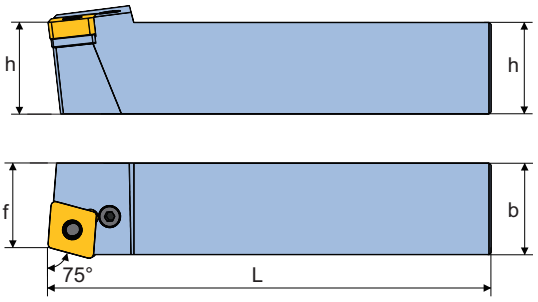


Right hand (R) shown

Order No.	Stock		Dimension				Insert	Spare Parts					Weight
								Lever	Screw	Shim	Spring pin	Wrench	
	R	L	h	b	L	f							KG
PCLNR/L 4040-225-C19	•	•	40	40	225	50	CN...1906...	GCL306	GCS266	GSC190	GSP104	G-W4	2.9
4040-280-C19	•	•	40	40	280	50							3.6
5050-280-C19	•	•	50	50	280	60							5.6
6050-280-C19	•	•	60	50	280	60							6.7
6050-350-C19	•	•	60	50	350	60							8.4
PCLNR/L 4040-225-C25	•	•	40	40	225	50	CN...2509...	GCL307	GCS268	GSC250	GSP105	G-W5	2.9
4040-280-C25	•	•	40	40	280	50							3.6
5050-280-C25	•	•	50	50	280	60							5.6
6050-280-C25	•	•	60	50	280	60							6.7
6050-350-C25	•	•	60	50	350	60							8.4

◆ Lever-lock toolholder with 75°approach angle

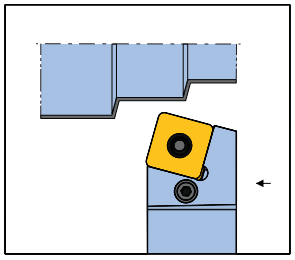


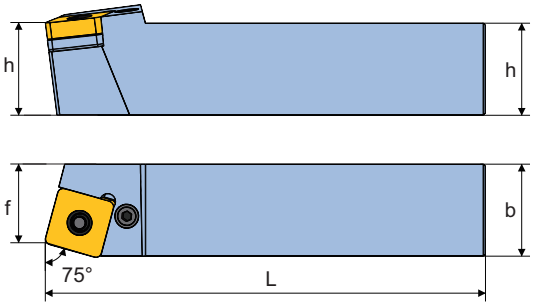


Right hand (R) shown

Order No.	Stock		Dimension				Insert	Spare Parts					Weight
								Lever	Screw	Shim	Spring pin	Wrench	
	R	L	h	b	L	f							KG
PCBNR/L4040-280-C19	•	•	40	40	280	37	CN...1906...	GCL306	GCS266	GSC190	GSP104	G-W4	3.6
5050-280-C19	•	•	50	50	280	47							5.6
PCBNR/L4040-225-C25	•	•	40	40	225	35	CN...2509...	GCL307	GCS268	GSC250	GSP105	G-W5	2.9
4040-280-C25	•	•	40	40	280	35							3.6
5050-280-C25	•	•	50	50	280	45							5.6

◆ Lever-lock toolholder with 75°approach angle

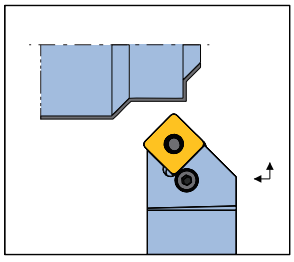


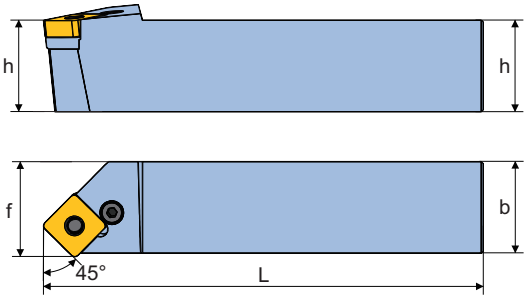


Right hand (R) shown

Order No.	Stock		Dimension				Insert	Spare Parts					Weight
								Lever	Screw	Shim	Spring pin	Wrench	
	R	L	h	b	L	f							KG
PSBNR/L 4040-225-S19	•	•	40	40	225	35	SN...1906...	GCL306	GCS266	GSS190	GSP104	G-W4	2.8
4040-280-S19	•	•	40	40	280	35							3.4
5050-280-S19	•	•	50	50	280	45							5.4
6050-350-S19	•	•	60	50	350	45							8.1
PSBNR/L 4040-225-S25	•	•	40	40	225	35	SN...2509...	GCL307	GCS268	GSS250	GSP105	G-W5	2.8
4040-280-S25	•	•	40	40	280	35							3.5
5050-280-S25	•	•	50	50	280	43							5.4
6050-280-S25	•	•	60	50	280	43							6.5
6050-350-S25	•	•	60	50	350	43							8.1
PSBNR/L 5050-280-S32	•	•	50	50	280	41	SN...3209...	LCL32-NX	LCS8	GSS320	LSP8	G-W5	5.4

◆ Lever-lock toolholder with 45°approach angle

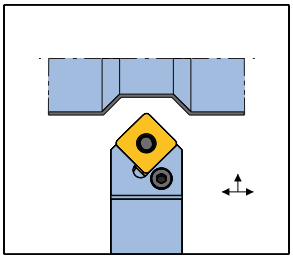


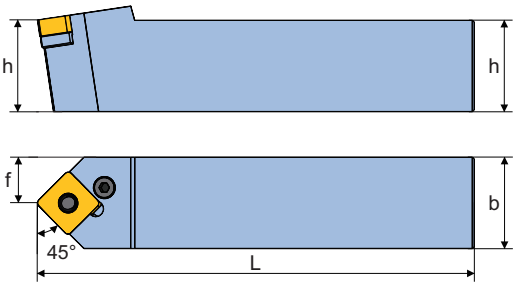


Right hand (R) shown

Order No.	Stock		Dimension				Insert	Spare Parts					Weight
								Lever	Screw	Shim	Spring pin	Wrench	
	R	L	h	b	L	f							KG
PSSNR/L4040-225-S19	•	•	40	40	225	42	SN...1906...	GCL306	GCS266	GSS190	GSP104	G-W4	2.9
4040-280-S19	•	•	40	40	280	42							3.6
PSSNR/L4040-280-S25	•	•	40	40	280	42	SN...2509...	GCL307	GCS268	GSS250	GSP105	G-W5	3.6
5050-280-S25	•	•	50	50	280	52							5.6

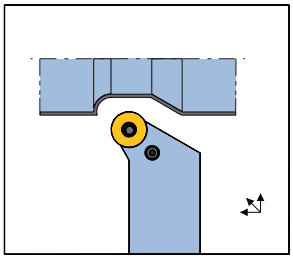
◆ Lever-lock toolholder with 45°approach angle

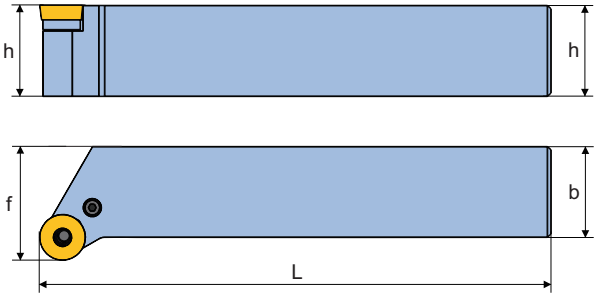




Order No.	Stock	Dimension				Insert	Spare Parts					Weight
							Lever	Screw	Shim	Spring pin	Wrench	
	N	h	b	L	f							KG
PSDNN 4040-225-S19	•	40	40	225	20	SN...1906...	GCL306	GCS266	GSS190	GSP104	G-W4	2.9
4040-280-S19	•	40	40	280	20							3.6
5050-280-S19	•	50	50	280	25							5.6
6050-280-S19	•	60	50	280	25							6.7
6050-350-S19	•	60	50	350	25							8.4
PSDNN 4040-280-S25	•	40	40	280	20	SN...2509...	GCL307	GCS268	GSS250	GSP105	G-W5	3.6
5050-280-S25	•	50	50	280	25							5.6
6050-350-S25	•	60	50	350	25							8.4

◆ Circular insert lever turning tool

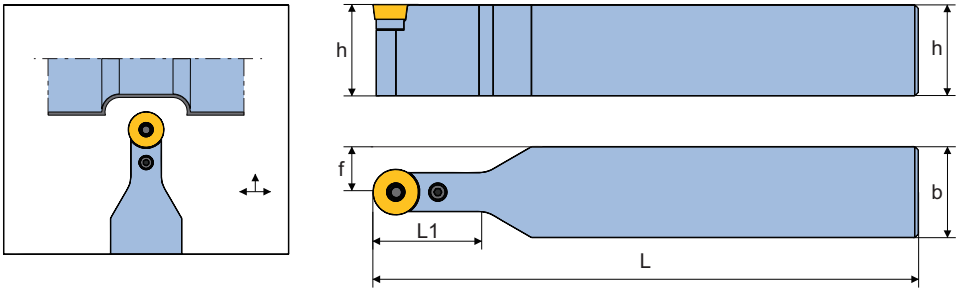




Right hand (R) shown

Order No.	Stock		Dimension				Insert	Spare Parts					Weight
								Lever	Screw	Shim	Spring pin	Wrench	
	R	L	h	b	L	f	●						KG
PRGCR/L4040-225-R16	•	•	40	40	225	50	RC...1606...	LCL16C	LCS16C	LSR1604	LSP16C	G-W2.5	2.9
4040-280-R16	•	•	40	40	280	50							3.6
PRGCR/L4040-225-R20	•	•	40	40	225	50	RC... 2006...	LCL20C	LCS5	LSR2004	LSP5	G-W3	2.9
4040-280-R20	•	•	40	40	280	50							3.6
PRGCR/L4040-225-R25	•	•	40	40	225	50	RC... 2507...	LCL25C	LCS25C	LSR2506	LSP6	G-W4	2.9
4040-280-R25	•	•	40	40	280	50							3.6
5050-280-R25	•	•	50	50	280	60							5.6
PRGCR/L4040-280-R30			40	40	280	50	RC... 3009...	LCL30C	LCS30C	LSR3009	LSP7	G-W4.5	5.6
5050-280-R30			50	50	280	60							5.6
PRGCR/L4040-280-R32			40	40	280	50	RC... 3209...	LCL32C	LCS8	LSR3206	LSP8	G-W5	3.6
5050-280-R32			50	50	280	60							5.6

◆ Circular insert lever turning tool

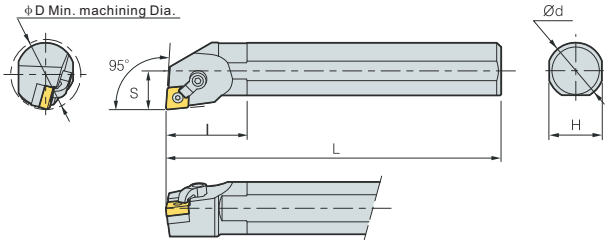


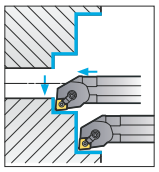
Order No.	Stock	Dimension					Insert	Spare Parts					Weight
								Lever	Screw	Shim	Spring pin	Wrench	
	N	h	b	L	L1	f							KG
PRDCN 4040-225-R16	•	40	40	225	45	20	RC... 1606...	LCL16C	LCS16C	LSR1604	LSP16C	G-W2.5	2.9
4040-280-R16	•	40	40	280	55	20							3.6
PRDCN 4040-225-R20	•	40	40	225	50	20	RC... 2006...	LCL20C	LCS5	LSR2004	LSP5	G-W3	2.9
4040-280-R20	•	40	40	280	60	20							3.6
PRDCN 4040-225-R25	•	40	40	225	50	20	RC... 2507...	LCL25C	LCS25C	LSR2506	LSP6	G-W4	2.9
4040-280-R25	•	40	40	280	60	20							3.6
5050-280-R25	•	50	50	280	70	25							5.6
PRDCN 5050-280-R30		50	50	280	70	25	RC... 3009...	LCL30C	LCS30C	LSR3009	LSP7	G-W4.5	5.6
PRDCN 5050-280-R32		50	50	280	70	25	RC... 3209...	LCL32C	LCS8	LSR3206	LSP8	G-W5	5.6

Legend		RCMT3009MO		
		d	d1	S
		30	10	9.525

MCLNR/L

CN □□





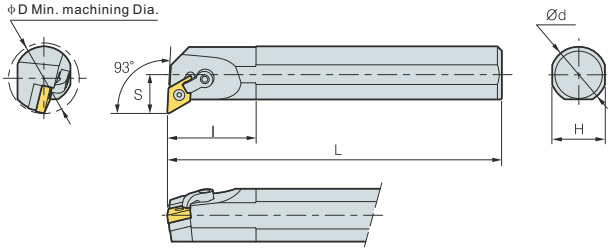
R type insert 95°

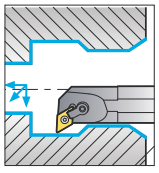
(mm)

Order No.	Dimension (mm)						Insert	Pin	Shim	Wrench	Screw	Clamp
	D	d	H	L	S	l						
S20R-MCLNR/L12	25	20	18	200	13	40	CN..1204..	MLP44-A	-	LH025 LH030	MS620	MC620
S25R-MCLNR/L12	30	25	23	200	15.5	40						
S32S-MCLNR/L12	40	32	30	250	19.5	48		MLP46-A	CMS432		MS625	

MDUNR/L

DN □□





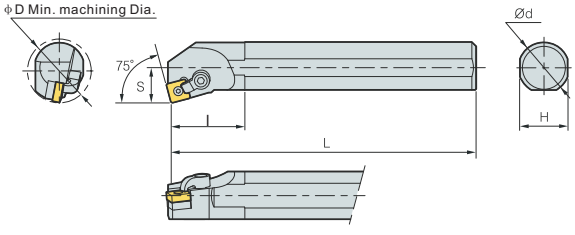
R type insert 93°

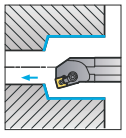
(mm)

Order No.	Dimension (mm)						Insert	Pin	Shim	Wrench	Screw	Clamp
	D	d	H	L	S	l						
S25R-MDUNR/L15	32	25	18	200	13	40	DN..1504..	MLP44-A	DMS432	LH025 LH030	MS620	MC620
S32S-MDUNR/L15	40	32	23	250	15.5	40		MLP46-A			MS625	

MSKNR/L

SN □□





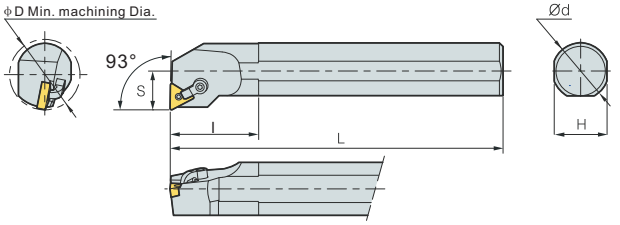
R type insert 75°

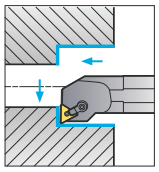
(mm)

Order No.	Dimension (mm)						Insert	Pin	Shim	Wrench	Screw	Clamp
	D	d	H	L	S	l						
S25R-MSKNR/L12	30	25	23	200	15	40	SN..1204..	MLP44-A	-	LH025LH	MS620	MC620
S40T-MSKNR/L12	50	40	37	300	25.5	55		MLP46-A	SMS432	-	MS625	

MTUNR/L

TN □□





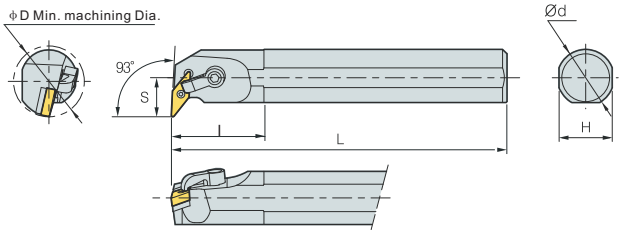
R type insert 93°

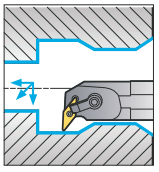
(mm)

Order No.	Dimension (mm)						Insert	Pin	Shim	Wrench	Screw	Clamp
	D	d	H	L	S	l						
S20R-MTUNR/L16	25	20	18	200	13	40	TN..1604..	MLP33L-A	-	LH020 LH025	MS520	MC515
S25R-MTUNR/L16	30	25	23	200	15.5	40						
S32S-MTUNR/L16	40	32	30	250	19.5	48		MLP34L-A	TMS322	LH020/030	MS625	MC620

MVUNR/L

VN □□





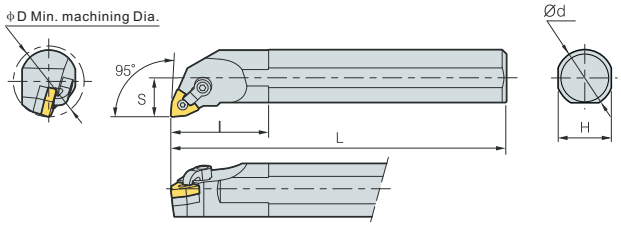
R type insert 93°

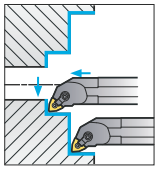
(mm)

Order No.	Dimension (mm)						Insert	Pin	Shim	Wrench	Screw	Clamp
	D	d	H	L	S	l						
S25R-MVUNR/L16	32	25	23	200	18	45	VN..1604..	MLP33L-A	-	LH020/025	MS520	MC515
S32S-MVUNR/L16	40	32	30	250	21	50		MLP34L-A	VMS322	LH020 LH025	MS625	MC620
S40T-MVUNR/L16	50	40	37	300	26	55						

MWLNR/L

WN □□





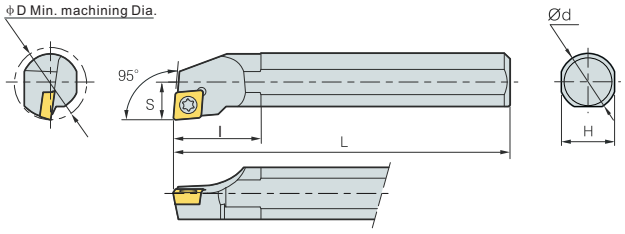
R type insert 95°

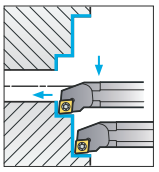
(mm)

Order No.	Dimension (mm)						Insert	Pin	Shim	Wrench	Screw	Clamp
	D	d	H	L	S	l						
S20R-MWLNR/L08	25	20	18	200	13	40	WN..0804..	MLP44-A	-	LH025	MS520	MC515
S25R-MWLNR/L08	30	25	23	200	15	40						
S32S-MWLNR/L08	40	32	30	250	20	48		MLP46-A	WMS432			

SCLCR/L

CC □□





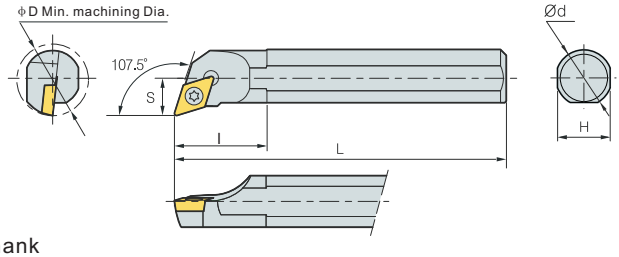
R type insert 95°

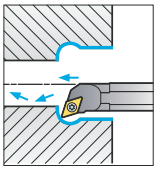
S:Steel Shank C:Carbide Shank (mm)

Order No.	Dimension (mm)						Insert	Wrench	Screw
	D	d	H	L	S	l			
S08K-SCLCR/L06	10	8	7	125	5	20	CC..0602..	TRX08	BFTX2506
S10K-SCLCR/L06	12	10	9	125	6	22			
S12M-SCLCR/L06	16	12	11	150	8	26			
S16Q-SCLCR/L06	20	16	15	180	10	32			
S12M-SCLCR/L09	16	12	11	150	8	26	CC..09T3..	TRX15	BFTX4008
S14Q-SCLCR/L09	16	14	13	180	8	26			
S16Q-SCLCR/L09	20	16	15	180	10	32			
S20R-SCLCR/L09	25	20	18	200	13	40			
S25R-SCLCR/L09	30	25	23	200	15	40			
S32S-SCLCR/L09	38	32	30	250	20	48			
C08K-SCLCR/L06	10	8	7	125	5	20	CC..0602..	TRX08	BFTX2506
C10K-SCLCR/L06	12	10	9	125	6	22			
C12M-SCLCR/L06	16	12	11	150	8	26			
C12M-SCLCR/L09	16	12	11	150	8	26	CC..09T3..	TRX15	BFTX4008
C16Q-SCLCR/L09	20	16	15	180	10	32			

SDQCR/L

DC □□





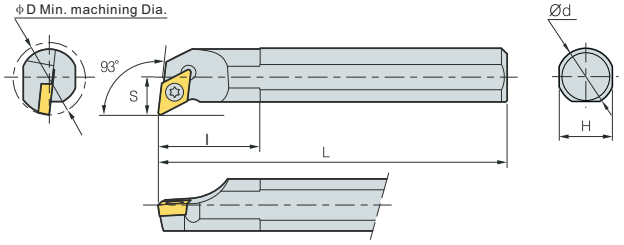
R type insert 107.5°

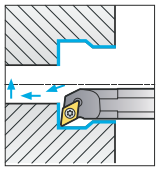
S:Steel Shank C:Carbide Shank (mm)

Order No.	Dimension (mm)						Insert	Wrench	Screw
	D	d	H	L	S	l			
S10K-SDQCR/L07	13	10	9	125	6.5	22	DC..0702..	TRX08	BFTX2506
S12M-SDQCR/L07	16	12	11	150	8	30			
S16Q-SDQCR/L07	20	16	15	180	10.5	35			
S16Q-SDQCR/L11	20	16	15	180	10.5	35	DC..11T3..	TRX15	BFTX4008
S20R-SDQCR/L11	25	20	18	200	12.5	40			
S25R-SDQCR/L11	32	25	23	200	15.5	45			
S32S-SDQCR/L11	40	32	30	250	19.5	48			
C10M-SDQCR/L07	13	10	9	150	6.5	22	DC..0702..	TRX08	BFTX2506
C12Q-SDQCR/L07	16	12	11	180	8	30			
C16Q-SDQCR/L07	20	16	15	180	10.5	35			

SDUCR/L

DC □□





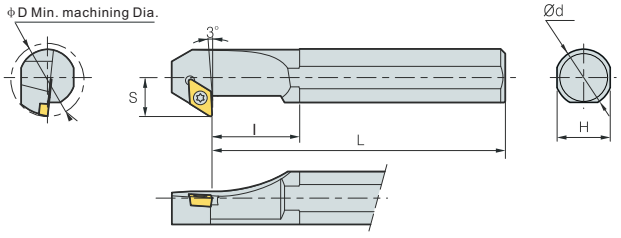
R type insert 93°

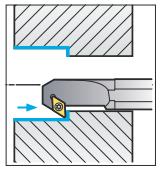
S:Steel Shank C:Carbide Shank (mm)

Order No.	Dimension (mm)						Insert	Wrench	Screw
	D	d	H	L	S	l			
S10K-SDUCR/L07	13	10	9	125	7	25	DC..0702..	TRX08	BFTX2506
S12M-SDUCR/L07	16	12	11	150	8.5	30			
S16Q-SDUCR/L07	20	16	15	180	11	30			
S16Q-SDUCR/L11	20	16	15	180	11	30	DC..11T3..	TRX15	BFTX4008
S20R-SDUCR/L11	25	20	18	200	13	40			
S25R-SDUCR/L11	32	25	23	200	16	45			
S32S-SDUCR/L11	40	32	30	250	20	48			
C10M-SDUCR/L07	13	10	9	150	7	25	DC..0702..	TRX08	BFTX2506
C12Q-SDUCR/L07	16	12	11	180	8.5	30			
C16R-SDUCR/L11	20	16	15	200	11	30	DC..11T3..	TRX15	BFTX4008

SDZCR/L

DC □□



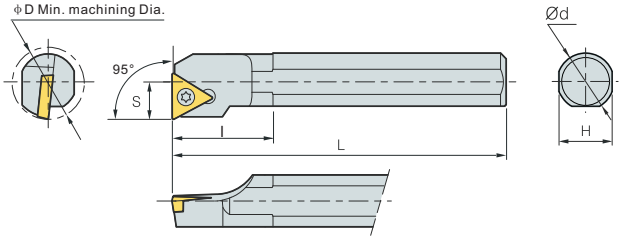


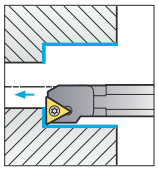
R type insert 93° (mm)

Order No.	Dimension (mm)						Insert	Wrench	Screw
	D	d	H	L	S	l			
S10M-SDZCR/L07	14	10	9	150	8.5	18	DC..0702..	TRX08	BFTX2506
S12M-SDZCR/L07	17	12	11	150	10.5	20			
S16Q-SDZCR/L07	21	16	15	180	12.5	26			
S20R-SDZCR/L11	26	20	18	200	15.5	27	DC..11T3..	TRX15	BFTX4008
S25R-SDZCR/L11	33	25	23	200	18	32			
S32S-SDZCR/L11	40	32	30	250	21.5	42			

STUCR/L

TC □□





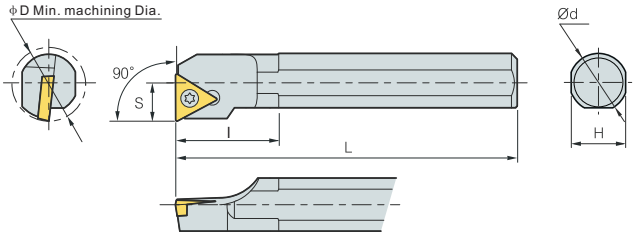
R type insert 95°

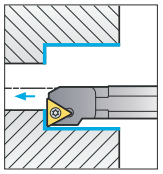
S:Steel Shank C:Carbide Shank (mm)

Order No.	Dimension (mm)						Insert	Wrench	Screw
	D	d	H	L	S	l			
S08K-STUCR/L09	10	8	7	125	5.5	20	TC..0902..	TRX06	BFTX2204
S10K-STUCR/L09	12	10	9	125	6	22			
S12M-STUCR/L09	16	12	11	150	8	26			
S10K-STUCR/L11	12	10	9	125	6	22	TC..1102..	TRX08	BFTX2506
S12M-STUCR/L11	16	12	11	150	8	26			
S16Q-STUCR/L11	20	16	15	180	10	32			
S20R-STUCR/L11	25	20	18	200	13	40			
S25R-STUCR/L11	30	25	23	200	15	40			
S20R-STUCR/L16	25	20	18	200	13	40	TC..16T3..	TRX15	BFTX4010
S25S-STUCR/L16	30	25	23	250	15	40			
S32S-STUCR/L16	38	32	30	250	20	48			
S32T-STUCR/L16	38	32	30	300	20	48			
C08K-STUCR/L09	10	8	7	125	5.5	20	TC..0902..	TRX06	BFTX2204
C10K-STUCR/L09	12	10	9	125	6	22			
C10K-STUCR/L11	12	10	9	125	6	22	TC..1102..	TRX08	BFTX2506
C12M-STUCR/L11	16	12	11	150	8	26			
C16R-STUCR/L11	20	16	15	200	10	32			

STFCR/L

TC □□





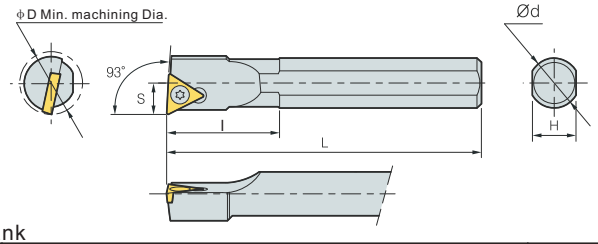
R type insert 90°

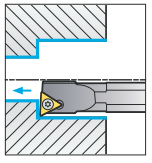
(mm)

Order No.	Dimension (mm)						Insert	Wrench	Screw
	D	d	H	L	S	l			
S08K-STFCR/L09	10	8	7	125	5.5	20	TC..0902..	TRX06	BFTX2206
S10K-STFCR/L09	12	10	9	125	6	22			
S10K-STFCR/L11	12	10	9	125	6	22	TC..1102..	TRX08	BFTX2506
S12M-STFCR/L11	16	12	11	150	8	26			
S16Q-STFCR/L11	20	16	15	180	10	32			
S20R-STFCR/L16	25	20	18	200	13	36	TC..16T3..	TRX15	BFTX4010
S25S-STFCR/L16	30	25	23	250	15	40			
S32S-STFCR/L16	38	32	30	250	20	48			

STUPR/L

TP □□





R type insert 93°

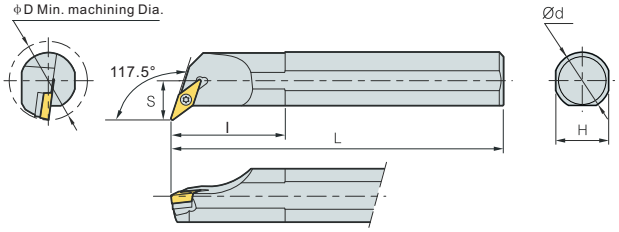
S:Steel Shank C:Carbide Shank

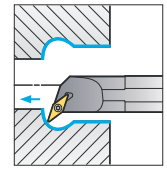
(mm)

Order No.	Dimension (mm)						Insert	Wrench	Screw
	D	d	H	L	S	l			
S08K-STUPR/L08	10	8	7	125	5.5	20	TP..0802..	TRX06	BFTX2204
S10K-STUPR/L08	12	10	9	125	6	22			BFTX2206
S12M-STUPR/L08	16	12	11	150	8	26			
S08K-STUPR/L09	10	8	7	125	5.5	20	TP..0902..	TRX08	BFTX2506
S10K-STUPR/L09	12	10	9	125	6	22			
S10K-STUPR/L11	12	10	9	125	6	22	TP..1103..	TRX10	BFTX3008
S12M-STUPR/L11	16	12	11	150	8	26			
S14Q-STUPR/L11	16	14	13	180	8	26			
S16Q-STUPR/L11	20	16	15	180	10	32			
S20R-STUPR/L11	25	20	18	200	13	40			
S25R-STUPR/L11	30	25	23	200	15	40			
C08K-STUPR/L08	10	8	7	125	5.5	20	TP..0802..	TRX06	BFTX2204
C08K-STUPR/L09	10	8	7	125	5.5	20	TP..0902..	TRX08	BFTX2506
C10K-STUPR/L09	12	10	9	125	6	22			
C10K-STUPR/L11	12	10	9	125	6	22	TP..1103..	TRX10	BFTX3008
C12M-STUPR/L11	16	12	11	150	8	26			
C16R-STUPR/L11	20	16	15	200	10	32			

SVQBR/L

VB □□



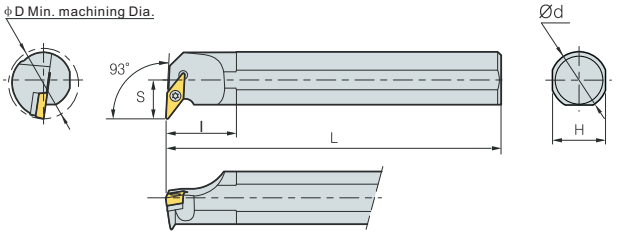


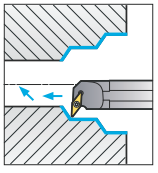
(mm)

Order No.	Dimension (mm)						Insert	Wrench	Screw	Shim	ShimScrew
	D	d	H	L	S	l					
S12M-SVQBR/L11	16	12	11	150	9	28	VB..1103..	TRX08	BFTX2506	-	-
S16Q-SVQBR/L11	20	16	15	180	11	35					
S20R-SVQBR/L11	25	20	18	200	13	40					
S20R-SVQBR/L16	25	20	18	200	13	40	VB..1604..	TRX15	BFTX3508	-	-
S25S-SVQBR/L16	32	25	23	250	16	45					
S32S-SVQBR/L16	40	32	30	250	20	48		TRX15 LH035	BFTX3512	VSS322	BX0535
S40T-SVQBR/L16	50	40	37	300	25.5	60					

SVUBR/L

VB □□



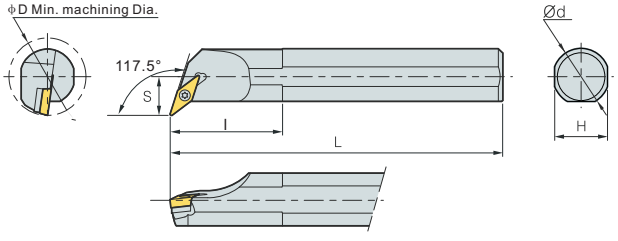


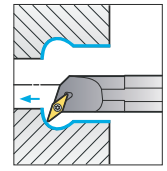
(mm)

Order No.	Dimension (mm)						Insert	Wrench	Screw	Shim	ShimScrew
	D	d	H	L	S	l					
S16Q-SVUBR/L11	22	16	15	180	13	30	VB..1103..	TRX08	BFTX2506	-	-
S20R-SVUBR/L11	27	20	18	200	15	40					
S25S-SVUBR/L16	32	25	23	250	18	45	VB..1604..	TRX15	BFTX3508	-	-
S32S-SVUBR/L16	40	32	30	250	22	50		TRX15 LH035	BFTX3512	VSS322	BX5035
S40T-SVUBR/L16	50	40	37	300	27	55					

SVQCR/L

VC □□



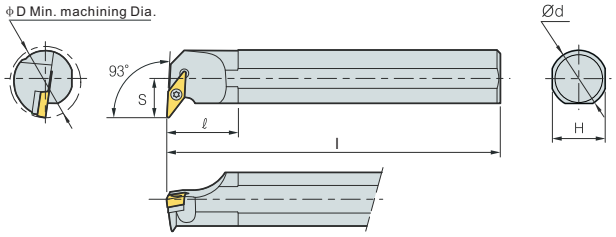


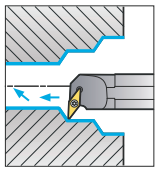
(mm)

Order No.	Dimension (mm)						Insert	Wrench	Screw	Shim	ShimScrew
	D	d	H	L	S	l					
S12M-SVQCR/L11	16	12	11	150	9	28	VC..1103..	TRX08	BFTX2506	-	-
S16Q-SVQCR/L11	20	16	15	180	11	35					
S20R-SVQCR/L11	25	20	18	200	13	40					
S20R-SVQCR/L16	25	20	18	200	13	40	VC..1604..	TRX15	BFTX3508	-	-
S25S-SVQCR/L16	32	25	23	250	16	45					
S32S-SVQCR/L16	40	32	30	250	20	48		TRX15 LH035	BFTX3512	VSS322	BX0535
S40T-SVQCR/L16	50	40	37	300	25.5	60					

SVUCR/L

VC □□



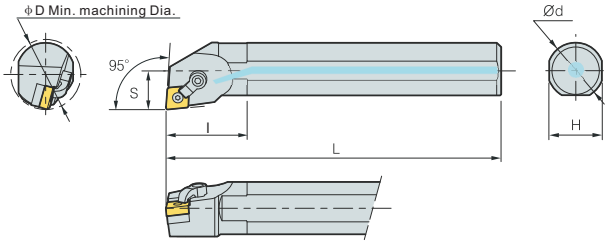


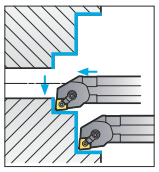
(mm)

Order No.	Dimension (mm)						Insert	Wrench	Screw	Shim	ShimScrew
	D	d	H	L	S	l					
S16Q-SVUCR/L11	22	16	15	180	13	30	VC..1103..	TRX08	BFTX2506	-	-
S20R-SVUCR/L11	27	20	18	200	15	40					
S25S-SVUCR/L16	32	25	23	250	18	45	VC..1604..	TRX15	BFTX3508	-	-
S32S-SVUCR/L16	40	32	30	250	22	50		TRX15 LH035	BFTX3512	VSS322	BX5035
S40T-SVUCR/L16	50	40	37	300	27	55					

MCLNR/L

CN □□





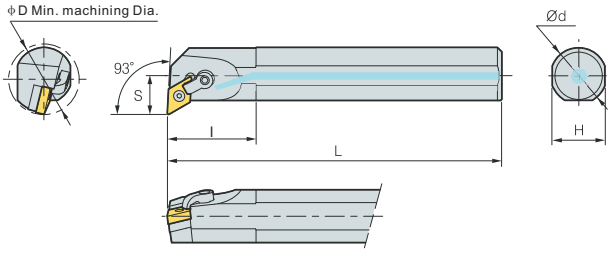
R type insert 95°

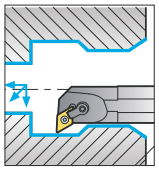
(mm)

Order No.	Dimension (mm)						Insert	Pin	Shim	Wrench	Screw	Clamp
	D	d	H	L	S	l						
A20R-MCLNR/L12	25	20	18	200	13	40	CN..1204..	MLP44-A	-	LH025 LH030	MS620	MC620
A25R-MCLNR/L12	30	25	23	200	15.5	40						
A32S-MCLNR/L12	40	32	30	250	19.5	48		MLP46-A	CMS432		MS625	

MDUNR/L

DN □□





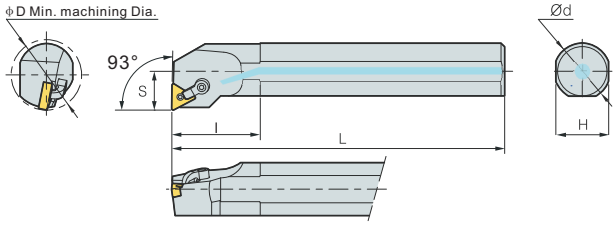
R type insert 93°

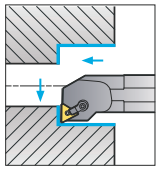
(mm)

Order No.	Dimension (mm)						Insert	Pin	Shim	Wrench	Screw	Clamp
	D	d	H	L	S	l						
A25R-MDUNR/L15	32	25	18	200	13	40	DN..1504..	MLP44-A	DMS432	LH025 LH030	MS620	MC620
A32S-MDUNR/L15	40	32	23	250	15.5	40		MLP46-A			MS625	

MTUNR/L

TN □□





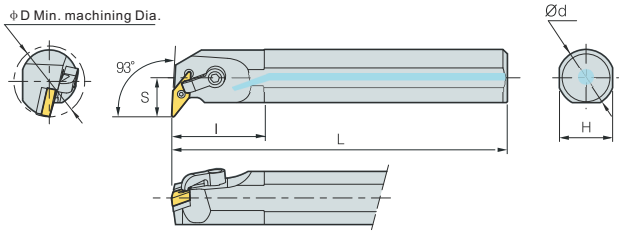
R type insert 93°

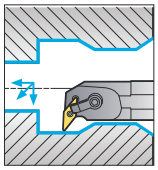
(mm)

Order No.	Dimension (mm)						Insert	Pin	Shim	Wrench	Screw	Clamp
	D	d	H	L	S	l						
A20R-MTUNR/L16	25	20	18	200	13	40	TN..1604..	MLP33L-A	-	LH020 LH025	MS520	MC515
A25R-MTUNR/L16	30	25	23	200	15.5	40						
A32S-MTUNR/L16	40	32	30	250	19.5	48		MLP34L-A	TMS322	LH020/030	MS625	MC620

MVUNR/L

VN□□





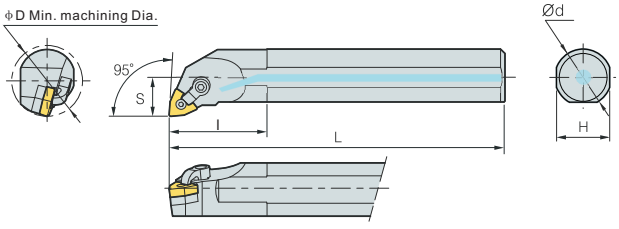
R type insert 93°

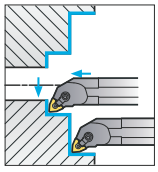
(mm)

Order No.	Dimension (mm)						Insert	Pin	Shim	Wrench	Screw	Clamp
	D	d	H	L	S	l						
A25R-MVUNR/L16	32	25	23	200	18	45	VN..1604..	MLP33L-A	-	LH020/025	MS520	MC515
A32S-MVUNR/L16	40	32	30	250	21	50		MLP34L-A	VMS322	LH020 LH025	MS625	MC620
A40T-MVUNR/L16	50	40	37	300	26	55						

MWLNR/L

WN□□





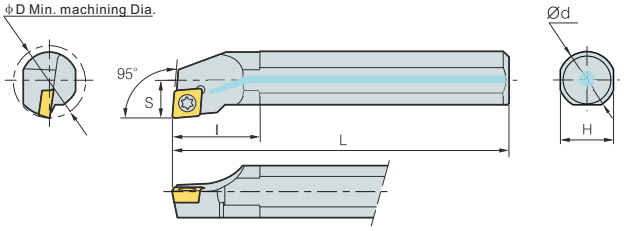
R type insert 95°

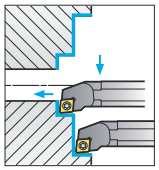
(mm)

Order No.	Dimension (mm)						Insert	Pin	Shim	Wrench	Screw	Clamp
	D	d	H	L	S	l						
A20R-MWLNR/L08	25	20	18	200	13	40	WN..0804..	MLP44-A	-	LH025	MS520	MC515
A25R-MWLNR/L08	30	25	23	200	15	40						
A32S-MWLNR/L08	40	32	30	250	20	48		MLP46-A	WMS432			

SCLCR/L

CC □□





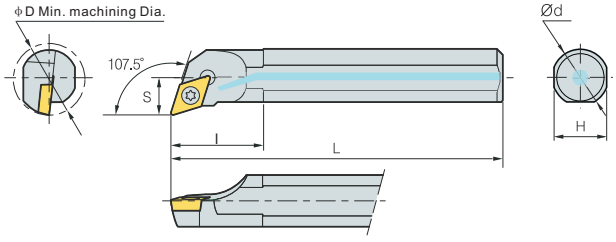
R type insert 95°

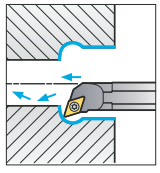
(mm)

Order No.	Dimension (mm)						Insert	Wrench	Screw
	D	d	H	L	S	l			
A08K-SCLCR/L06	10	8	7	125	5	20	CC..0602..	TRX08	BFTX2506
A10K-SCLCR/L06	12	10	9	125	6	22			
A12M-SCLCR/L06	16	12	11	150	8	26			
A16Q-SCLCR/L06	20	16	15	180	10	32			
A12M-SCLCR/L09	16	12	11	150	8	26	CC..09T3..	TRX15	BFTX4008
A16Q-SCLCR/L09	20	16	15	180	10	32			
A20R-SCLCR/L09	25	20	18	200	13	40			
A25R-SCLCR/L09	30	25	23	200	15	40			

SDQCR/L

DC □□





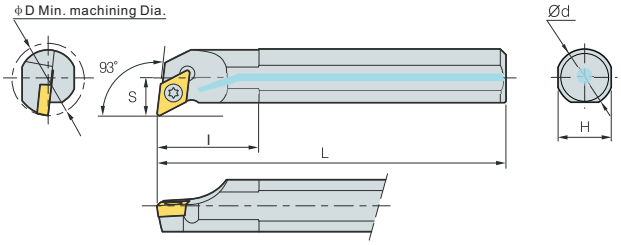
R type insert 107.5°

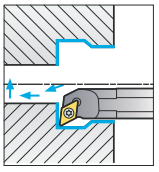
(mm)

Order No.	Dimension (mm)						Insert	Wrench	Screw
	D	d	H	L	S	l			
A10K-SDQCR/L07	13	10	9	125	6.5	22	DC..0702..	TRX08	BFTX2506
A12M-SDQCR/L07	16	12	11	150	8	30			
A16Q-SDQCR/L07	20	16	15	180	10.5	35			
A16Q-SDQCR/L11	20	16	15	180	10.5	35	DC..11T3..	TRX15	BFTX4008
A20R-SDQCR/L11	25	20	18	200	12.5	40			
A25R-SDQCR/L11	32	25	23	200	15.5	45			
A32S-SDQCR/L11	40	32	30	250	19.5	48			

SDUCR/L

DC □□





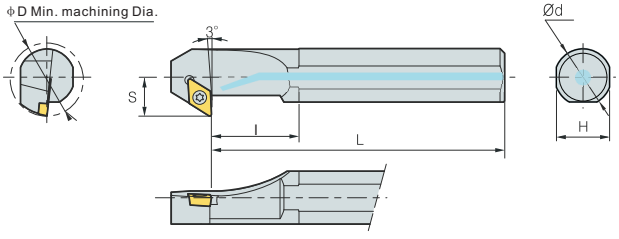
R type insert 93°

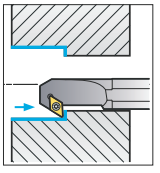
(mm)

Order No.	Dimension (mm)						Insert	Wrench	Screw
	D	d	H	L	S	l			
A10K-SDUCR/L07	13	10	9	125	7	25	DC..0702..	TRX08	BFTX2506
A12M-SDUCR/L07	16	12	11	150	8.5	30			
A16Q-SDUCR/L07	20	16	15	180	11	30			
A16Q-SDUCR/L11	20	16	15	180	11	30	DC..11T3..	TRX15	BFTX4008
A20R-SDUCR/L11	25	20	18	200	13	40			
A25R-SDUCR/L11	32	25	23	200	16	45			
A32S-SDUCR/L11	40	32	30	250	20	48			

SDZCR/L

DC □□





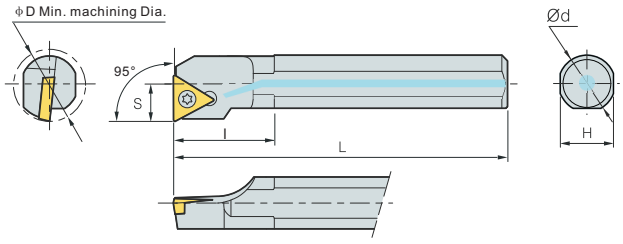
R type insert 93°

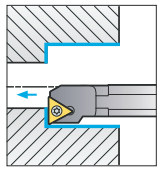
(mm)

Order No.	Dimension (mm)						Insert	Wrench	Screw
	D	d	H	L	S	l			
A10M-SDZCR/L07	14	10	9	150	8.5	18	DC..0702..	TRX08	BFTX2506
A12M-SDZCR/L07	17	12	11	150	10.5	20			
A16Q-SDZCR/L07	21	16	15	180	12.5	26			
A20R-SDZCR/L11	26	20	18	200	15.5	27	DC..11T3..	TRX15	BFTX4008
A25R-SDZCR/L11	33	25	23	200	18	32			
A32S-SDZCR/L11	40	32	30	250	21.5	42			

STUCR/L

TC □□





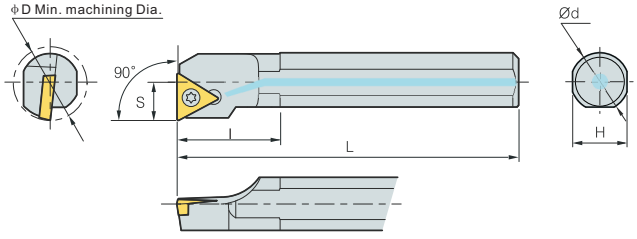
R type insert 95°

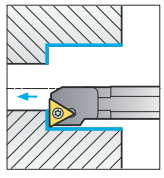
(mm)

Order No.	Dimension (mm)						Insert	Wrench	Screw
	D	d	H	L	S	l			
A08K-STUCR/L09	10	8	7	125	5.5	20	TC..0902..	TRX06	BFTX2204
A10K-STUCR/L09	12	10	9	125	6	22			
A10K-STUCR/L11	12	10	9	125	6	22	TC..1102..	TRX08	BFTX2506
A12M-STUCR/L11	16	12	11	150	8	26			
A16Q-STUCR/L11	20	16	15	180	10	32			
A20R-STUCR/L16	25	20	18	200	13	40	TC..16T3..	TRX15	BFTX4010
A25S-STUCR/L16	30	25	23	250	15	40			
A32S-STUCR/L16	38	32	30	250	20	48			
A32T-STUCR/L16	38	32	30	300	20	48			

STFCR/L

TC □□





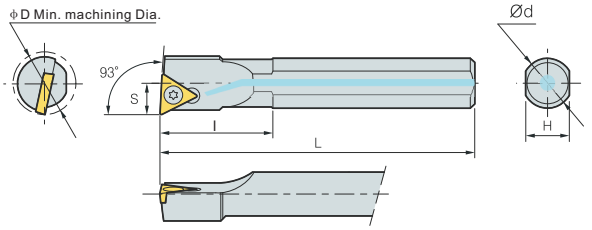
R type insert 90°

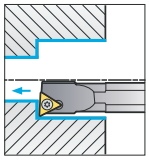
(mm)

Order No.	Dimension (mm)						Insert	Wrench	Screw
	D	d	H	L	S	l			
A08K-STFCR/L09	10	8	7	125	5.5	20	TC..0902..	TRX06	BFTX2206
A10K-STFCR/L09	12	10	9	125	6	22			
A10K-STFCR/L11	12	10	9	125	6	22	TC..1102..	TRX08	BFTX2506
A12M-STFCR/L11	16	12	11	150	8	26			
A16Q-STFCR/L11	20	16	15	180	10	32			
A20R-STFCR/L16	25	20	18	200	13	36	TC..16T3..	TRX15	BFTX4010
A25S-STFCR/L16	30	25	23	250	15	40			
A32S-STFCR/L16	38	32	30	250	20	48			

STUPR/L

TP □□





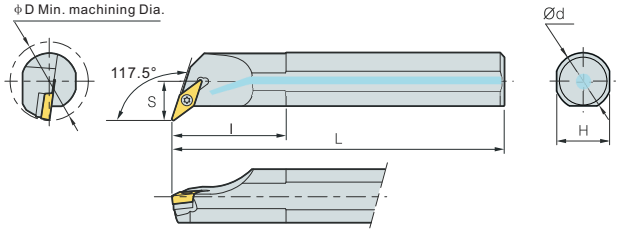
R type insert 93°

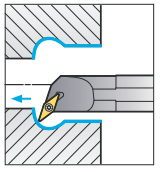
(mm)

Order No.	Dimension (mm)						Insert	Wrench	Screw
	D	d	H	L	S	l			
A08K-STUPR/L08	10	8	7	125	5.5	20	TP..0802..	TRX06	BFTX2204
A10K-STUPR/L08	12	10	9	125	6	22			BFTX2206
A08K-STUPR/L09	10	8	7	125	5.5	20	TP..0902..	TRX08	BFTX2506
A10K-STUPR/L09	12	10	9	125	6	22			
A10K-STUPR/L11	12	10	9	125	6	22	TP..1103..	TRX10	BFTX3008
A12M-STUPR/L11	16	12	11	150	8	26			
A16Q-STUPR/L11	20	16	15	180	10	32			
A20R-STUPR/L11	25	20	18	200	13	40			
A25R-STUPR/L11	30	25	23	200	15	40			

SVQBR/L

VB □□





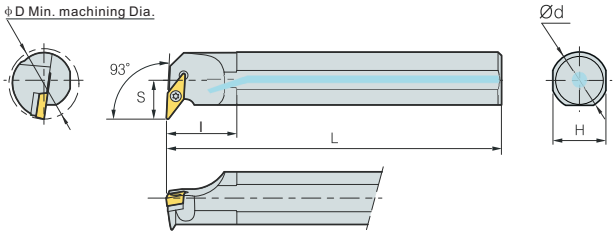
R type insert 117.5°

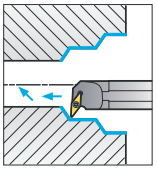
(mm)

Order No.	Dimension (mm)						Insert	Wrench	Screw	Shim	ShimScrew
	D	d	H	L	S	l					
A16Q-SVQBR/L11	20	16	15	180	11	35	VB..1103..	TRX08	BFTX2506	-	-
A20R-SVQBR/L11	25	20	18	200	13	40					
A20R-SVQBR/L16	25	20	18	200	13	40	VB..1604..	TRX15	BFTX3508	-	-
A25S-SVQBR/L16	32	25	23	250	16	45					
A32S-SVQBR/L16	40	32	30	250	20	48		TRX15 LH035	BFTX3512	VSS322	BX0535

SVUBR/L

VB □□





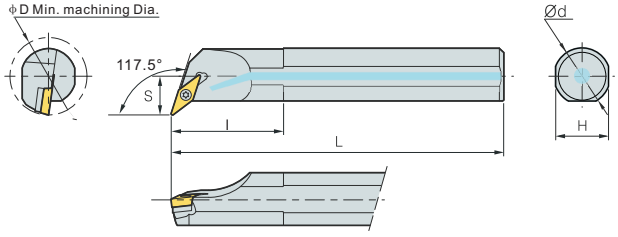
R type insert 93°

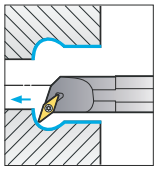
(mm)

Order No.	Dimension (mm)						Insert	Wrench	Screw	Shim	ShimScrew
	D	d	H	L	S	l					
A16Q-SVUBR/L11	22	16	15	180	13	30	VB..1103..	TRX08	BFTX2506	-	-
A20R-SVUBR/L11	27	20	18	200	15	40					
A25S-SVUBR/L16	32	25	23	250	18	45	VB..1604..	TRX15	BFTX3508	-	-

SVQCR/L

VC □□





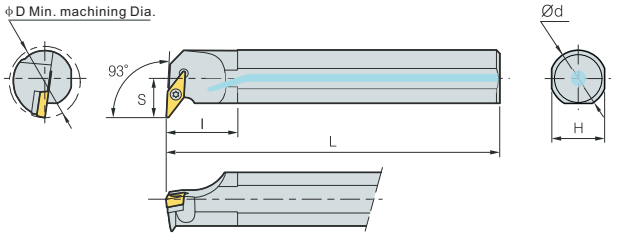
R type insert 117.5°

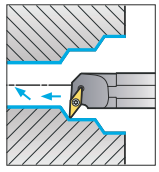
(mm)

Order No.	Dimension (mm)						Insert	Wrench	Screw	Shim	ShimScrew
	D	d	H	L	S	l					
A12M-SVQCR/L11	16	12	11	150	9	28	VC..1103..	TRX08	BFTX2506	-	-
A16Q-SVQCR/L11	20	16	15	180	11	35					
A20R-SVQCR/L11	25	20	18	200	13	40					
A20R-SVQCR/L16	25	20	18	200	13	40	VC..1604..	TRX15	BFTX3508	-	-
A25S-SVQCR/L16	32	25	23	250	16	45					
A32S-SVQCR/L16	40	32	30	250	20	48		TRX15 LH035	BFTX3512	VSS322	BX0535
A40T-SVQCR/L16	50	40	37	300	25.5	60					

SVUCR/L

VC □□





R type insert 93°

(mm)

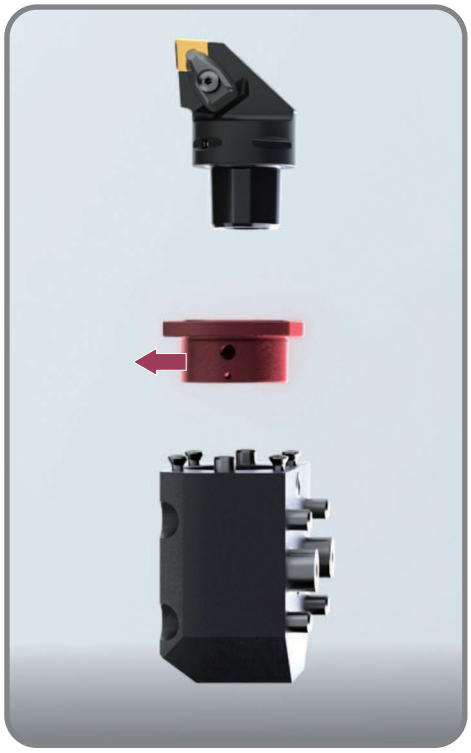
Order No.	Dimension (mm)						Insert	Wrench	Screw	Shim	ShimScrew
	D	d	H	L	S	l					
A16Q-SVUCR/L11	22	16	15	180	13	30	VC..1103..	TRX08	BFTX2506	-	-
A20R-SVUCR/L11	27	20	18	200	15	40					
A25S-SVUCR/L16	32	25	23	250	18	45	VC..1604..	TRX15	BFTX3508	-	-
A32S-SVUCR/L16	40	32	30	250	22	50		TRX15 LH035	BFTX3512	VSS322	BX5035

◎ Design Features

PSC interface is a 1:20 polygon short taper holder with bidirectional positioning,good rigidity and strong torque transmission ability

Benefit

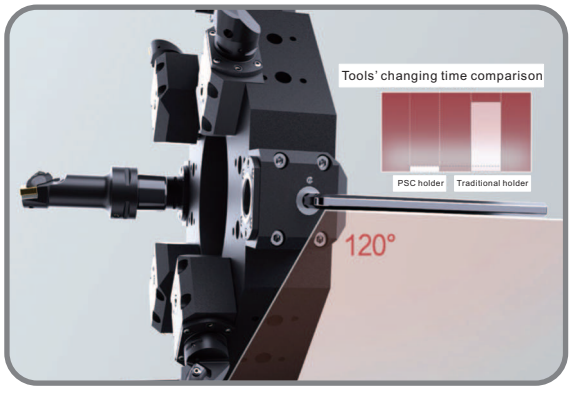
- Bidirectional positioning of shaft and diameter,obvious damping effect,to ensure the workpiece finish;
- Strong torque transmission ability,to realize heavy load cutting and save processing time.



Through the 180° rotation receiver,the left and right hand tools can be exchanged

Benefit

- The left and right hand tools can be used interchangeably to reduce the inventory cost of tools and fixtures;
- It can be used to transform old machine tools,realize automatic production and reduce labor cost;
- It can be used with the adapter handle to realize the clamping of different interfaces and reduce the cost of tool procurement due to incompatibility of interfaces.



The repeated positioning accuracy is up to 0.002mm, and the tool tightening is simple and easy to operate

Benefit

- Compared with the traditional turning tool,no need to adjust the tool in the machine and reduce the downtime;
- Increase the effective processing time by 25% and reduce the production cost of a single workpiece.

◎ Naming And Coding Rules

PSC	32
	40
	50
	63
	80

01. TYPE

D	platen
P	Hook
S	Screw

02. CLAMPING

D		K		S	
H		L		U	
J		N		V	

04. Kr

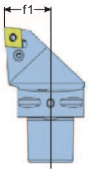
PSC40 01 | D 02 | C 03 | L 04 | N 05

R 06 | 27 07 | 050 08 | 12 09

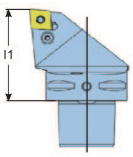
06. DIRECTION OF TOOL

L	Left
R	Right
N	Null

07.F1 | SIZE



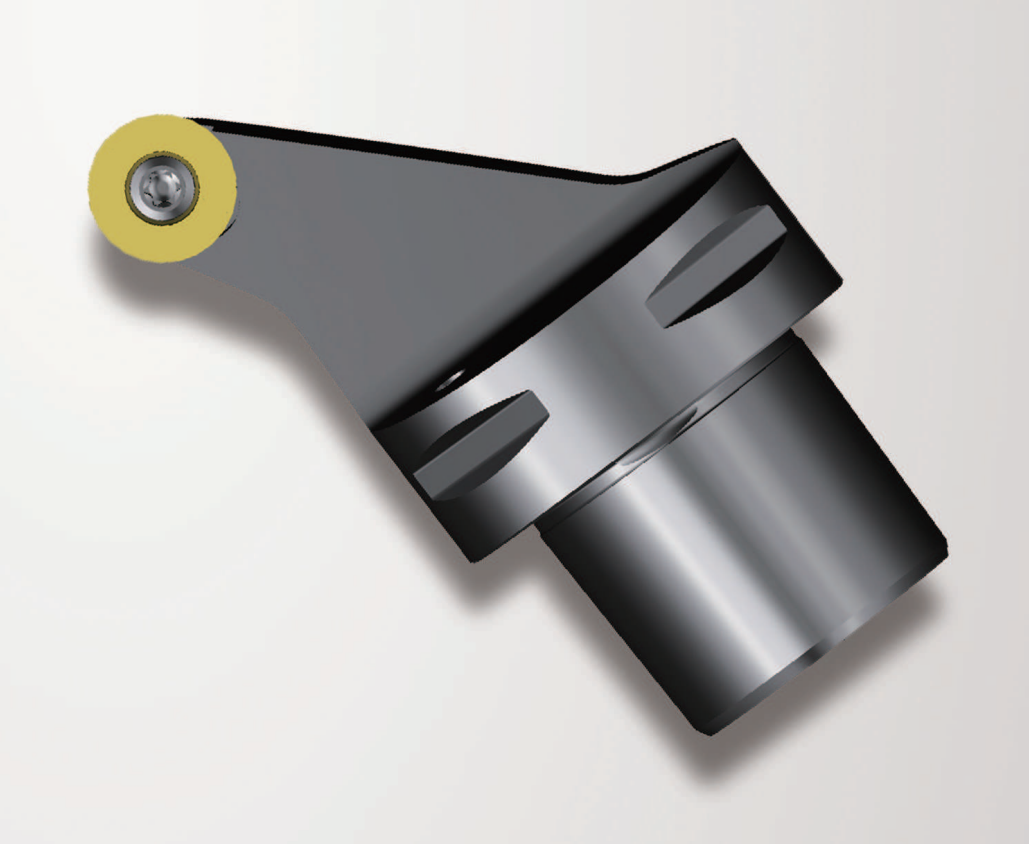
08.L1 | SIZE



INSERT

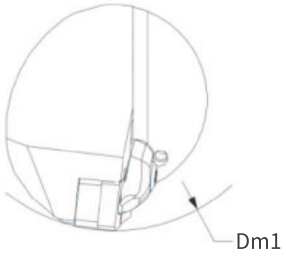
03 Shape	05 Angle		09 Length
CC12	DC07	RC10	VB16
CN12	DC11	RC16	VN16
CN16	DN11	SN12	WN06
CN19	DN15	SN19	WN08
			TN16

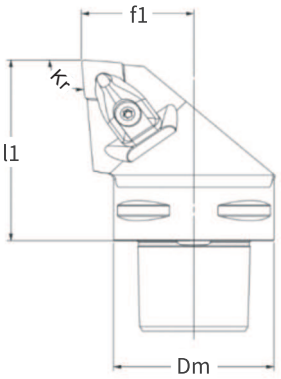
EXTERNAL TURNING TOOL BODY



- For turning the external of the workpiece;
- Three clamping types, available in rough machining, semi-finishing, finishing machining;
- Out-machine tool adjustment, can be used in automatic mechanical equipment;
- Match the ISO standard insert on the market.

DCLNR/L-Kr 95°





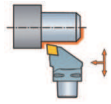
- CNMM CNMG CNMA CNGA
- The insert is for illustration only

Specification

(Kr)-Application		Ordering code	Dm	Dm1	f1	l1	γ	λ	m (kg)	ISO insert
95°	12	C3-PSC32-DCLNR-22045-12	32	60	22	45	-6°	-6°	0.2	
	12	C3-PSC32-DCLNL-22045-12	32	60	22	45	-6°	-6°	0.2	
	12	C4-PSC40-DCLNR-27050-12	40	110	27	50	-6°	-6°	0.37	
	12	C4-PSC40-DCLNL-27050-12	40	110	27	50	-6°	-6°	0.37	
	12	C5-PSC50-DCLNR-35060-12	50	110	35	60	-6°	-6°	0.7	CN..1204..
	12	C5-PSC50-DCLNL-35060-12	50	110	35	60	-6°	-6°	0.7	
	12	C6-PSC63-DCLNR-45065-12	63	110	45	65	-6°	-6°	1.2	
	12	C6-PSC63-DCLNL-45065-12	63	110	45	65	-6°	-6°	1.2	
	12	C8-PSC80-DCLNR-55080-12	80	110	55	80	-6°	-6°	2.62	
	12	C8-PSC80-DCLNL-55080-12	80	110	55	80	-6°	-6°	2.62	
	16	C4-PSC40-DCLNR-27055-16	40	125	27	55	-6°	-6°	0.4	
	16	C4-PSC40-DCLNL-27055-16	40	125	27	55	-6°	-6°	0.4	
	16	C5-PSC50-DCLNR-35060-16	50	125	35	60	-6°	-6°	0.7	
	16	C5-PSC50-DCLNL-35060-16	50	125	35	60	-6°	-6°	0.7	CN..1606..
	16	C6-PSC63-DCLNR-45065-16	63	125	45	65	-6°	-6°	1.2	
	16	C6-PSC63-DCLNL-45065-16	63	125	45	65	-6°	-6°	1.2	
	16	C8-PSC80-DCLNR-55080-16	80	125	55	80	-6°	-6°	2.44	
	16	C8-PSC80-DCLNL-55080-16	80	125	55	80	-6°	-6°	2.44	

DCLNR/L-Kr 95°

Specification

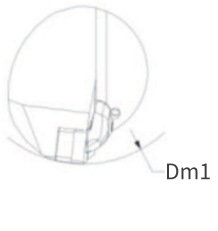
(Kr)-Application		Ordering code	Dm	Dm1	f1	l1	γ	λ	m (kg)	ISO insert
95° 	19	C5-PSC50-DCLNR-35060-19	50	80	35	60	-6°	-6°	0.7	CN..1906..
	19	C5-PSC50-DCLNL-35060-19	50	80	35	60	-6°	-6°	0.7	
	19	C6-PSC63-DCLNR-45065-19	63	81	45	65	-6°	-6°	1.2	
	19	C6-PSC63-DCLNL-45065-19	63	81	45	65	-6°	-6°	1.2	
	19	C8-PSC80-DCLNR-55080-19	80	100	55	80	-6°	-6°	2.44	
	19	C8-PSC80-DCLNL-55080-19	80	100	55	80	-6°	-6°	2.44	

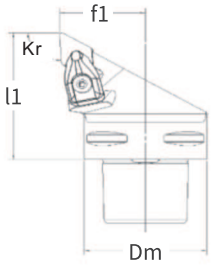
Main spare parts

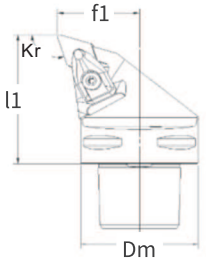
PSC size	Insert	Shim screw	Shim	Key	Complete clamp set
PSC32	12	ILD4085	322.236.03	248.150.10	412.028.021
PSC40-PSC80	12	ILD4085	322.230.01	248.150.10	412.028.021
PSC40-PSC80	16	ILD5011	322.234.03	248.200.10	412.028.031
PSC40-PSC80	19	ILD5011	322.236.01	248.200.10	413.028.041

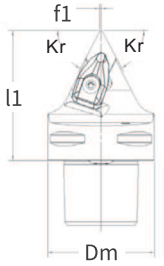
The insert need to be ordered seperately.
Other accessories are included in the order.

DDJNR/L-Kr 93° DDHNR/L-Kr 107.5° DDNNN-Kr 62.5°





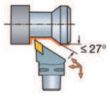




- DNMM DNMX DNMG DNMA DNGA
- The insert is for illustration only

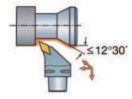
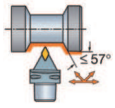
Specification

(Kr)-Application		Ordering code	Dm	Dm1	f1	l1	γ	λ	m (kg)	ISO insert
93°	11	C3-PSC32-DDJNR-22045-11	32	60	22	45	-6°	-7°	0.19	DN..1104..
	11	C3-PSC32-DDJNL-22045-11	32	60	22	45	-6°	-7°	0.19	
	11	C4-PSC40-DDJNR-27050-11	40	60	27	50	-6°	-7°	0.34	
	11	C4-PSC40-DDJNL-27050-11	40	60	27	50	-6°	-7°	0.34	
	11	C5-PSC50-DDJNR-35060-11	50	65	35	60	-6°	-7°	0.65	
	11	C5-PSC50-DDJNL-35060-11	50	65	35	60	-6°	-7°	0.65	
	11	C6-PSC63-DDJNR-45065-11	63	81	45	65	-6°	-7°	1.08	
	11	C6-PSC63-DDJNL-45065-11	63	81	45	65	-6°	-7°	1.08	
	15	C4-PSC40-DDJNR-27055-15	40	110	27	55	-6°	-7°	0.36	DN..1506..
	15	C4-PSC40-DDJNL-27055-15	40	110	27	55	-6°	-7°	0.36	
	15	C5-PSC50-DDJNR-35060-15	50	110	35	60	-6°	-7°	0.36	
	15	C5-PSC50-DDJNL-35060-15	50	110	35	60	-6°	-7°	0.36	
	15	C6-PSC63-DDJNR-45065-15	63	110	45	65	-6°	-7°	1.05	
	15	C6-PSC63-DDJNL-45065-15	63	110	45	65	-6°	-7°	1.05	
	15	C8-PSC80-DDJNR-55080-15	80	110	55	80	-6°	-7°	2.16	
	15	C8-PSC80-DDJNL-55080-15	80	110	55	80	-6°	-7°	2.16	



DDJNR/L-Kr 93° DDHNR/L-Kr 107.5° DDNNN-Kr 62.5°

Specification

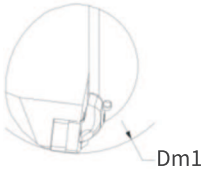
(Kr)-Application		Ordering code	Dm	Dm1	f1	l1	γ	λ	m (kg)	ISO insert
107.5° 	15	C4-PSC40-DDHNR-27055-15	40	110	27	55	-6°	-7°	0.38	DN..1506..
	15	C4-PSC40-DDHNL-27055-15	40	110	27	55	-6°	-7°	0.38	
	15	C5-PSC50-DDHNR-35060-15	50	110	35	60	-6°	-7°	0.66	
	15	C5-PSC50-DDHNL-35060-15	50	110	35	60	-6°	-7°	0.66	
	15	C6-PSC63-DDHNR-45065-15	63	110	45	65	-6°	-7°	1.15	
	15	C6-PSC63-DDHNL-45065-15	63	110	45	65	-6°	-7°	1.15	
	15	C8-PSC80-DDHNR-55080-15	80	110	55	80	-6°	-7°	2.36	
	15	C8-PSC80-DDHNL-55080-15	80	110	55	80	-6°	-7°	2.36	
62.5° 	15	C4-PSC40-DDNNN-00055-15	40	-	0.5	55	-5°	-9°	0.38	DN..1506..
	15	C5-PSC50-DDNNN-00060-15	50	-	0.5	60	-5°	-9°	0.62	
	15	C6-PSC63-DDNNN-00065-15	63	-	0.5	65	-5°	-9°	1.06	
	15	C8-PSC80-DDNNN-00080-15	80	-	0.5	80	-5°	-9°	21	

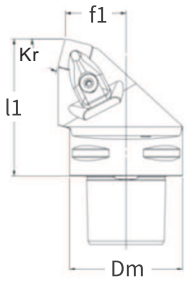
Main spare parts

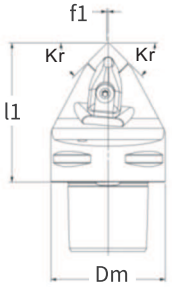
PSC size	Insert	Shim screw	Shim	Key	Complete clamp set
PSC32-PSC63	11	ILD3072	322.267.01	242.090.40	412.028.011
PSC40-PSC80	15	ILD4085	322.266.02	248.150.10	412.028.021

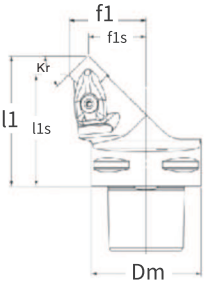
The insert need to be ordered seperately.
Other accessories are included in the order.

DSKNR/L-Kr 75° DSDNN-Kr 45° DSSNR/L-Kr 45°





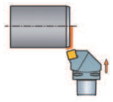




- SNMM SNMG SNMA SNGA
- The insert is for illustration only

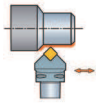
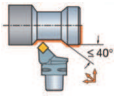
Specification

(Kr)-Application		Ordering code	Dm	Dm1	f1	l1	f1s	l1s	γ	λ	m (kg)	ISO insert
75°	12	C3-PSC32-DSKNR-22040-12	32	60	22	40	-	-	-6°	-6°	0.2	SN..1204..
	12	C3-PSC32-DSKNL-22040-12	32	60	22	40	-	-	-6°	-6°	0.2	
	12	C4-PSC40-DSKNR-27050-12	40	110	27	50	-	-	-6°	-6°	0.35	
	12	C4-PSC40-DSKNL-27050-12	40	110	27	50	-	-	-6°	-6°	0.35	
	12	C5-PSC50-DSKNR-35060-12	50	110	35	60	-	-	-6°	-6°	0.75	
	12	C5-PSC50-DSKNL-35060-12	50	110	35	60	-	-	-6°	-6°	0.75	
	12	C6-PSC63-DSKNR-45065-12	63	110	45	65	-	-	-6°	-6°	1.24	
	12	C6-PSC63-DSKNL-45065-12	63	110	45	65	-	-	-6°	-6°	1.24	
	19	C5-PSC50-DSKNR-35060-19	50	125	35	60	-	-	-6°	-6°	0.76	SN..1906..
	19	C5-PSC50-DSKNL-35060-19	50	125	35	60	-	-	-6°	-6°	0.76	
	19	C6-PSC63-DSKNR-45065-19	63	125	45	65	-	-	-6°	-6°	1.27	
	19	C6-PSC63-DSKNL-45065-19	63	125	45	65	-	-	-6°	-6°	1.27	
	19	C8-PSC80-DSKNR-55080-19	80	125	55	80	-	-	-6°	-6°	2.54	
	19	C8-PSC80-DSKNL-55080-19	80	125	55	80	-	-	-6°	-6°	2.54	



DSKNR/L-Kr 75° DSDNN-Kr 45° DSSNR/L-Kr 45°

Specification

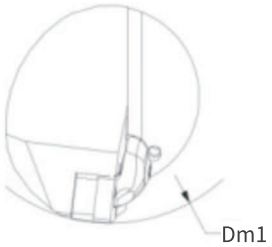
(Kr)-Application		Ordering code	Dm	Dm1	f1	l1	f1s	l1s	γ	λ	m (kg)	ISO insert
45° 	12	C3-PSC32-DSDNN-00048-12	32	-	0.3	48	-	-	-6°	-6°	0.19	SN..1204..
	12	C4-PSC40-DSDNN-00050-12	40	-	0.3	50	-	-	-6°	-6°	0.32	
	12	C5-PSC50-DSDNN-00060-12	50	-	0.3	60	-	-	-6°	-6°	0.61	
	12	C6-PSC63-DSDNN-00065-12	63	-	0.3	65	-	-	-6°	-6°	1.07	
45° 	12	C3-PSC32-DSSNR-22040-12	32	60	22	40	13.7	48.3	-8°	0°	0.19	SN..1204..
	12	C3-PSC32-DSSNL-22040-12	32	60	22	40	13.7	48.3	-8°	0°	0.19	
	12	C4-PSC40-DSSNR-27042-12	40	110	27	42	18.7	50.3	-8°	0°	0.31	
	12	C4-PSC40-DSSNL-27042-12	40	110	27	42	18.7	50.3	-8°	0°	0.31	
	12	C5-PSC50-DSSNR-35052-12	50	110	35	52	26.7	60.3	-8°	0°	0.6	
	12	C5-PSC50-DSSNL-35052-12	50	110	35	52	26.7	60.3	-8°	0°	0.6	
	12	C6-PSC63-DSSNR-45056-12	63	110	45	56	36.7	64.3	-8°	0°	0.99	
	12	C6-PSC63-DSSNL-45056-12	63	110	45	56	36.7	64.3	-8°	0°	0.99	

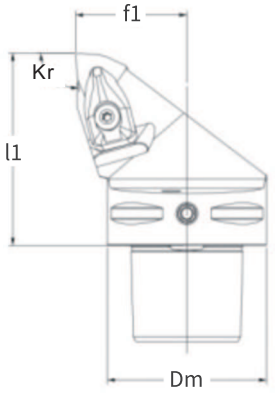
Main spare parts

PSC size	Insert	Shim screw	Shim	Key	Complete clamp set
PSC32	12	ILD4085	322.426.02	248.150.10	412.028.021
PSC40-PSC63	12	ILD4085	322.425.01	248.150.10	412.028.021
PSC50-PSC80	19	ILD5011	322.425.04	248.200.10	412.028.041

The insert need to be ordered seperately.
Other accessories are included in the order.

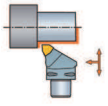
DWLNR/L-Kr 95°





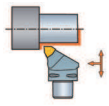
- WNMM WNMG WNGA WNMA
- The insert is for illustration only

Specification

(Kr)-Application		Ordering code	Dm	Dm1	f1	l1	γ	λ	m (kg)	ISO insert
95° 	06	C3-PSC32-DWLNR-22040-06	32	60	22	40	-6°	-6°	0.18	WN..0604..
	06	C3-PSC32-DWLNL-22040-06	32	60	22	40	-6°	-6°	0.18	
	06	C4-PSC40-DWLNR-27050-06	40	60	27	50	-6°	-6°	0.35	
	06	C4-PSC40-DWLNL-27050-06	40	60	27	50	-6°	-6°	0.35	
	06	C5-PSC50-DWLNR-35060-06	50	65	35	60	-6°	-6°	0.67	
	06	C5-PSC50-DWLNL-35060-06	50	65	35	60	-6°	-6°	0.67	
	06	C6-PSC63-DWLNR-45065-06	63	81	45	65	-6°	-6°	1.21	
	06	C6-PSC63-DWLNL-45065-06	63	81	45	65	-6°	-6°	1.21	

DWLNR/L-Kr 95°

Specification

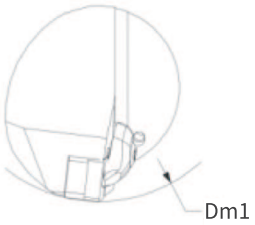
(Kr)-Application		Ordering code	Dm	Dm1	f1	l1	γ	λ	m (kg)	ISO insert
95° 	08	C4-PSC40-DWLNR-27050-08	40	110	27	50	-6°	-6°	0.35	WN..0804
	08	C4-PSC40-DWLNL-27050-08	40	110	27	50	-6°	-6°	0.35	
	08	C5-PSC50-DWLNR-35060-08	50	110	35	60	-6°	-6°	0.67	
	08	C5-PSC50-DWLNL-35060-08	50	110	35	60	-6°	-6°	0.67	
	08	C6-PSC63-DWLNR-45065-08	63	110	45	65	-6°	-6°	1.22	
	08	C6-PSC63-DWLNL-45065-08	63	110	45	65	-6°	-6°	1.22	
	08	C8-PSC80-DWLNR-55080-08	80	110	55	80	-6°	-6°	2.44	
	08	C8-PSC80-DWLNL-55080-08	80	110	55	80	-6°	-6°	2.44	

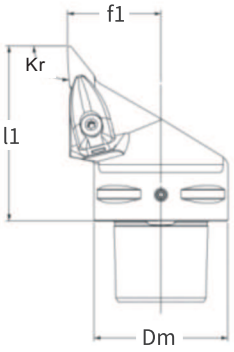
Main spare parts

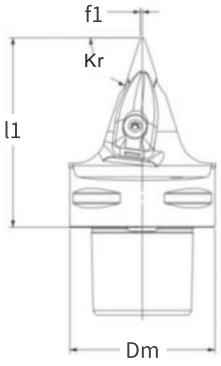
PSC size	Insert	Shim screw	Shim	Key	Complete clamp set
PSC32-PSC63	06	ILD3072	322.328.01	242.090.40	412.028.011
PSC40-PSC80	08	ILD4085	322.331.12	248.150.10	412.028.021

The insert need to be ordered seperately.
Other accessories are included in the order.

DVJNR/L-Kr 93° DVVNN/L-Kr 72.5°

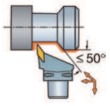
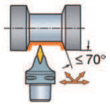






- VNMG VNGP
- The insert is for illustration only

Specification

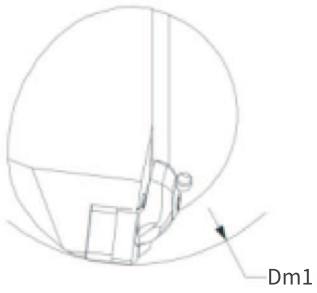
(Kr)-Application		Ordering code	Dm	Dm1	f1	l1	γ	λ	m (kg)	ISO insert
93° 	16	C4-PSC40-DVJNR-27062-16	40	60	27	62	4°	-13°	0.4	VN..1604..
	16	C4-PSC40-DVJNL-27062-16	40	60	27	62	4°	-13°	0.4	
	16	C5-PSC50-DVJNR-35065-16	50	65	35	65	4°	-13°	0.65	
	16	C5-PSC50-DVJNL-35065-16	50	65	35	65	4°	-13°	0.65	
	16	C6-PSC63-DVJNR-45065-16	63	81	45	80	4°	-13°	1.01	
	16	C6-PSC63-DVJNL-45065-16	63	81	45	80	4°	-13°	1.01	
	16	C8-PSC80-DVJNR-55080-16	80	100	55	80	4°	-13°	2.1	
	16	C8-PSC80-DVJNL-55080-16	80	100	55	80	4°	-13°	2.1	
72.5° 	16	C4-PSC40-DVVNN-00062-16	40	-	0.6	62	4°	-13°	0.41	VN..1604..
	16	C5-PSC50-DVVNN-00065-16	50	-	0.6	65	4°	-13°	0.63	
	16	C6-PSC63-DVVNN-00065-16	63	-	0.6	65	4°	-13°	1.03	
	16	C8-PSC80-DVVNN-00080-16	80	-	0.6	80	4°	-13°	2	

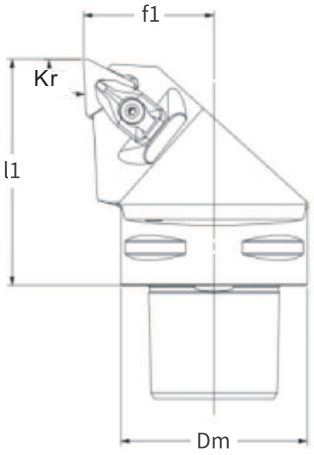
Main spare parts

PSC size	Insert	Shim screw	Shim	Key	Complete clamp set
PSC40-PSC80	16	ILD3581	322. 269. 01	248.150.10	412. 028. 61

The insert need to be ordered seperately.
Other accessories are included in the order.

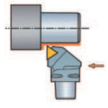
DTJNR/L-Kr 93°





- TNMM TNMX TNMG TNMA TNGA
- The insert is for illustration only

Specification

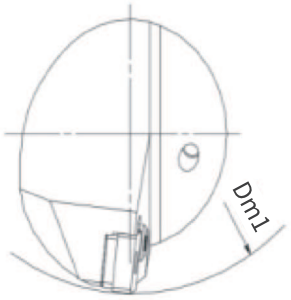
(Kr)-Application	△	Ordering code	Dm	Dm1	f1	l1	γ	λ	m (kg)	ISO insert
93° 	16	C4-PSC40-DTJNR-27050-16	40	110	27	50	-6°	-6°	0.43	TN..1604..
	16	C4-PSC40-DTJNL-27050-16	40	110	27	50	-6°	-6°	0.43	
	16	C5-PSC50-DTJNR-35060-16	50	110	35	60	-6°	-6°	0.78	
	16	C5-PSC50-DTJNL-35060-16	50	110	35	60	-6°	-6°	0.78	
	16	C6-PSC63-DTJNR-45065-16	63	110	45	65	-6°	-6°	1.34	
	16	C6-PSC63-DTJNL-45065-16	63	110	45	65	-6°	-6°	1.34	

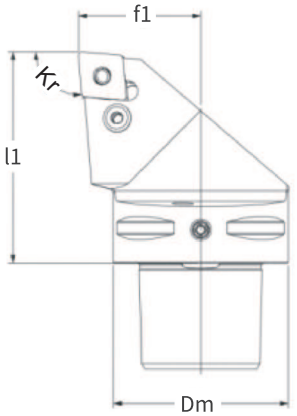
Main spare parts

PSC size	Insert	Shim screw	Shim	Key	Complete clamp set
PSC40-PSC80	16	ILD3072	322. 315. 02	242.090.40	412. 028. 11

The insert need to be ordered seperately.
Other accessories are included in the order.

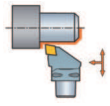
PCLNR/L-Kr 95°





- CNMM CNMG CNMA CNGA
- The insert is for illustration only

Specification

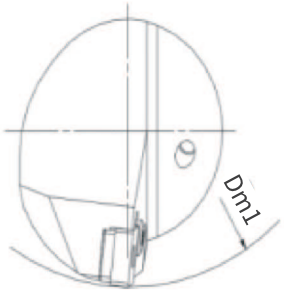
(Kr)-Application		Ordering code	Dm	f1	l1	γ	λ	m (kg)	ISO insert
95° 	12	C4-PSC40-PCLNR-27050-12	40	27	50	-6°	-6°	0.36	CN..1204..
	12	C4-PSC40-PCLNL-27050-12	40	27	50	-6°	-6°	0.36	
	12	C5-PSC50-PCLNR-35060-12	50	35	60	-6°	-6°	0.68	
	12	C5-PSC50-PCLNL-35060-12	50	35	60	-6°	-6°	0.68	
	12	C6-PSC63-PCLNR-45065-12	63	45	65	-6°	-6°	1.19	
	12	C6-PSC63-PCLNL-45065-12	63	45	65	-6°	-6°	1.19	

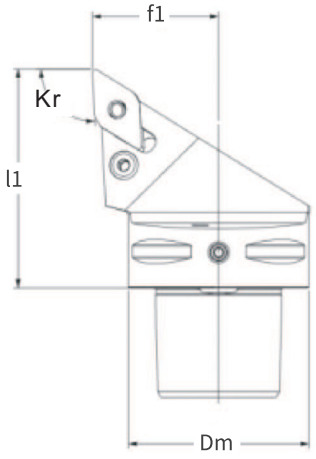
Main spare parts

PSC size	Insert	Shim screw	Shim	Key	Lever
PSC40-PSC63	12	414.438.21	322. 318. 50	241.030.63	413. 438. 41

The insert need to be ordered seperately.
Other accessories are included in the order.

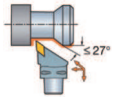
PDJNR/L-Kr 93°





- DNMM DNMX DNMG DNMA DNGA
- The insert is for illustration only

Specification

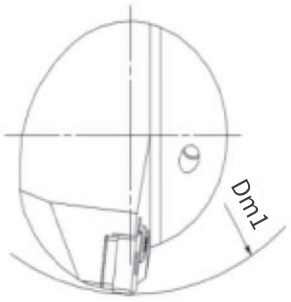
(Kr)-Application		Ordering code	Dm	f1	l1	γ	λ	m (kg)	ISO insert
93° 	15	C4-PSC40-PDJNR-27055-15	40	27	55	-6°	-7°	0.36	DN..1506..
	15	C4-PSC40-PDJNL-27055-15	40	27	55	-6°	-7°	0.36	
	15	C5-PSC50-PDJNR-35060-15	50	35	60	-6°	-7°	0.62	
	15	C5-PSC50-PDJNL-35060-15	50	35	60	-6°	-7°	0.62	
	15	C6-PSC63-PDJNR-45065-15	63	45	65	-6°	-7°	1.05	
	15	C6-PSC63-PDJNL-45065-15	63	45	65	-6°	-7°	1.05	

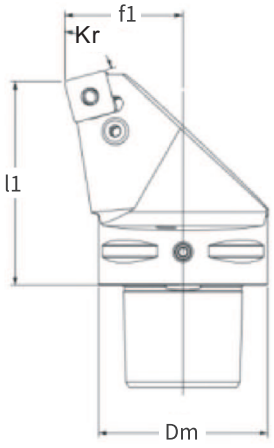
Main spare parts

PSC size	Insert	Shim screw	Shim	Key	Lever
PSC40-PSC63	15	414.438.30	322.358.51	241.030.63	413.438.47

The insert need to be ordered seperately.
Other accessories are included in the order.

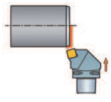
PSKNR/L-Kr 75°





- SNMM SNMG SNMA SNGA
- The insert is for illustration only

Specification

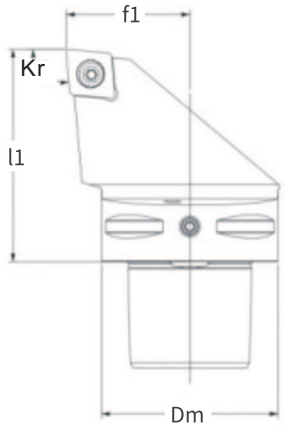
(Kr)-Application		Ordering code	Dm	f1	l1	γ	λ	m (kg)	ISO insert
75° 	12	C4-PSC40-PSKNR-27050-12	40	27	50	-6°	-6°	0.34	SN..1204..
	12	C4-PSC40-PSKNL-27050-12	40	27	50	-6°	-6°	0.34	
	12	C5-PSC50-PSKNR-35060-12	50	35	60	-6°	-6°	0.72	
	12	C5-PSC50-PSKNL-35060-12	50	35	60	-6°	-6°	0.72	
	12	C6-PSC63-PSKNR-45065-12	63	45	65	-6°	-6°	1.15	
	12	C6-PSC63-PSKNL-45065-12	63	45	65	-6°	-6°	1.15	

Main spare parts

PSC size	Insert	Shim screw	Shim	Key	Lever
PSC40-PSC63	12	414.438.21	322.438.51	241.030.63	413.438.41

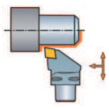
The insert need to be ordered seperately.
Other accessories are included in the order.

SCLCR/L-Kr 95°



- CCMT CCGT CCGX CCET CCMW
- The insert is for illustration only

Specification

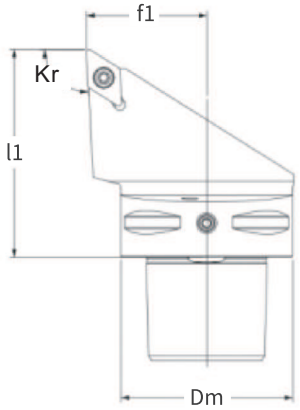
(Kr)-Application		Ordering code	Dm	f1	l1	γ	λ	m (kg)	ISO insert
95° 	12	C3-PSC32-SCLCR-22040-12	32	22	40	0°	0°	0.2	CC..1204..
	12	C3-PSC32-SCLCL-22040-12	32	22	40	0°	0°	0.2	
	12	C4-PSC40-SCLCR-27050-12	40	27	50	0°	0°	0.44	
	12	C4-PSC40-SCLCL-27050-12	40	27	50	0°	0°	0.44	
	12	C5-PSC50-SCLCR-35060-12	50	35	60	0°	0°	0.77	
	12	C5-PSC50-SCLCL-35060-12	50	35	60	0°	0°	0.77	
	12	C6-PSC63-SCLCR-45065-12	63	45	65	0°	0°	1.34	
	12	C6-PSC63-SCLCL-45065-12	63	45	65	0°	0°	1.34	

Main spare parts

PSC size	Insert	Shim screw	Shim	Key	Insert screw
PSC32-PSC63	12	512.090.03	322.232.02	248.150.10&241.040.70	ILD4014

The insert need to be ordered seperately.
Other accessories are included in the order.

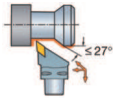
SDJCR/L-Kr 93°



- DCMT DCMX DCGT DCGX DCET DCMW
- The insert is for illustration only

Specification

(Kr)-Application		Ordering code	Dm	f1	l1	γ	λ	m (kg)	ISO insert
93°	11	C3-PSC32-SDJCR-22040-11	32	22	40	0°	0°	0.16	DC..11T3
	11	C3-PSC32-SDJCL-22040-11	32	22	40	0°	0°	0.16	
	11	C4-PSC40-SDJCR-27050-11	40	27	50	0°	0°	0.33	
	11	C4-PSC40-SDJCL-27050-11	40	27	50	0°	0°	0.33	
	11	C5-PSC50-SDJCR-35060-11	50	35	60	0°	0°	0.63	
	11	C5-PSC50-SDJCL-35060-11	50	35	60	0°	0°	0.63	
	11	C6-PSC63-SDJCR-45065-11	63	45	65	0°	0°	1.05	
	11	C6-PSC63-SDJCL-45065-11	63	45	65	0°	0°	1.05	

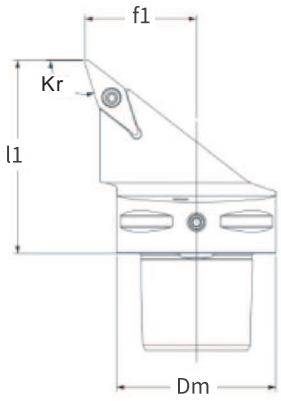


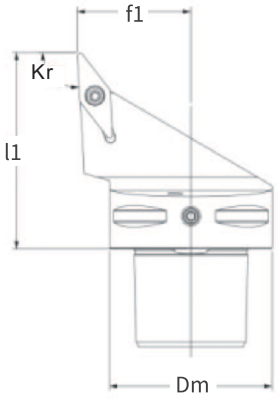
Main spare parts

PSC size	Insert	Shim screw	Shim	Key	Insert screw
PSC32-PSC63	11	512.090.01	322.263.01	248.150.10&241.035.65	ILD3512

The insert need to be ordered seperately.
Other accessories are included in the order.

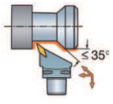
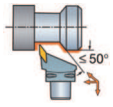
SVHBR/L-Kr 107.5° SVJBR/L-Kr 93°





- VBMT VBGT VCGX VCEX VCGT VCET VBMW VCMW
- The insert is for illustration only

Specification

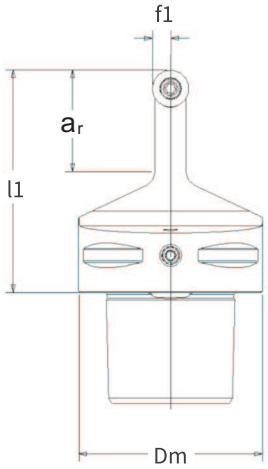
(Kr)-Application		Ordering code	Dm	f1	l1	γ	λ	m (kg)	ISO insert
107.5° 	16	C4-PSC40-SVHBR-27050-16	40	27	50	0°	0°	0.38	VB..1604.. VC..1604..
	16	C4-PSC40-SVHBL-27050-16	40	27	50	0°	0°	0.38	
	16	C5-PSC50-SVHBR-35060-16	50	35	60	0°	0°	0.64	
	16	C5-PSC50-SVHBL-35060-16	50	35	60	0°	0°	0.64	
	16	C6-PSC63-SVHBR-45065-16	63	45	65	0°	0°	1.12	
	16	C6-PSC63-SVHBL-45065-16	63	45	65	0°	0°	1.12	
93° 	16	C4-PSC40-SVJBR-27050-16	40	27	50	0°	0°	0.35	VB..1604.. VC..1604..
	16	C4-PSC40-SVJBL-27050-16	40	27	50	0°	0°	0.35	
	16	C5-PSC50-SVJBR-35060-16	50	35	60	0°	0°	0.7	
	16	C5-PSC50-SVJBL-35060-16	50	35	60	0°	0°	0.7	
	16	C6-PSC63-SVJBR-45065-16	63	45	65	0°	0°	1.11	
	16	C6-PSC63-SVJBL-45065-16	63	45	65	0°	0°	1.11	

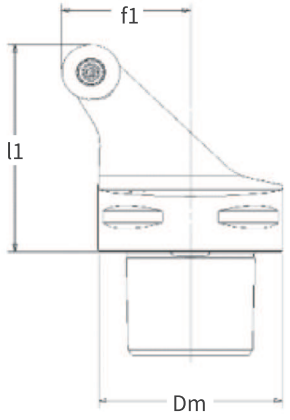
Main spare parts

PSC size	Insert	Shim screw	Shim	Key	Insert screw
PSC32-PSC63	16	512.090.01	322.270.01	248.150.10&241.035.65	ILD3512

The insert need to be ordered seperately.
Other accessories are included in the order.

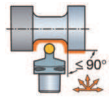
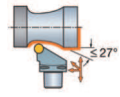
SRDCN SRSCR/L





- RCMT RCGX-AL
- The insert is for illustration only

Specification

(Kr)-Application		Ordering code	Dm	ar	f1	l1	γ	λ	m (kg)	ISO insert
	10	C3-PSC32-SRDCN-00040-10A	32	20	5	40	0°	0°	0.13	RC.10T3M0
	10	C4-PSC40-SRDCN-00050-10A	40	25	5	50	0°	0°	0.27	
	10	C5-PSC50-SRDCN-00060-10A	50	25	5	60	0°	0°	0.51	
	10	C6-PSC63-SRDCN-00065-10A	63	25	5	65	0°	0°	0.91	
	16	C5-PSC50-SRSCR-35060-16	50	-	35	60	0°	0°	0.56	RC.1606M0
	16	C5-PSC50-SRSCL-35060-16	50	-	35	60	0°	0°	0.56	
	16	C6-PSC63-SRSCR-45065-16	63	-	45	65	0°	0°	1.03	
	16	C6-PSC63-SRSCL-45065-16	63	-	45	65	0°	0°	1.03	

Main spare parts

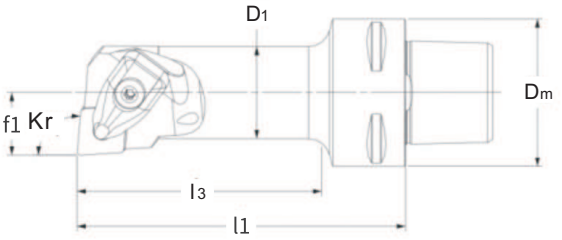
PSC size	Insert	Shim screw	Shim	Key	Insert screw
PSC32-PSC63	10	512.090.01	322.110.01	248.150.10&241.035.65	ILD3510
PSC50-PSC63	16	512.090.06	322.110.03	248.200.10&241.050.80	ILD5017

The insert need to be ordered seperately.
Other accessories are included in the order.

INTERNAL TURNING TOOL BODY

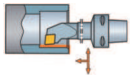
- For turning the internal of the workpiece;
- The maximum length of standard turning tool body can be 140mm;
- Out-machine tool adjustment, can be used in automatic mechanical equipment;
- Match the ISO standard insert in the market.

DCLNR/L-Kr 95°



- CNMM CNMG CNMA CNGA
- The insert is for illustration only

Specification

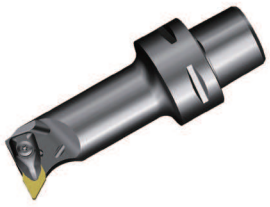
(Kr)-Application		Ordering code	Dm	Dmin	D1	f1	l1	l3	γ	λ	m (kg)	ISO insert
95° 	12	C4-PSC40-DCLNR-17090-12	40	32	25	17	90	69	-6°	-12°	0.47	CN..1204
	12	C4-PSC40-DCLNL-17090-12	40	32	25	17	90	69	-6°	-12°	0.47	
	12	C5-PSC50-DCLNR-17090-12	50	32	25	17	90	67	-6°	-12°	0.65	
	12	C5-PSC50-DCLNL-17090-12	50	32	25	17	90	67	-6°	-12°	0.65	
	12	C6-PSC63-DCLNR-17100-12	63	32	25	17	100	73	-6°	-12°	1.04	
	12	C6-PSC63-DCLNL-17100-12	63	32	25	17	100	73	-6°	-12°	1.04	

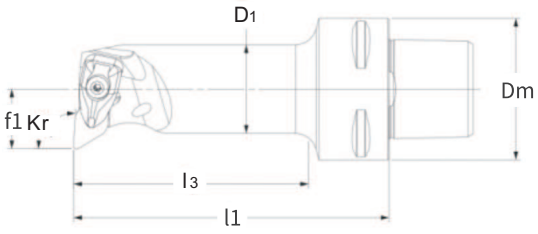
Main spare parts

PSC size	Insert	Shim screw	Shim	Key	Complete clamp set
PSC40-PSC63	12	ILD4085	322.236.03	248.150.10	412.028.021

The insert need to be ordered seperately.
Other accessories are included in the order.

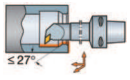
DDUNR/L-Kr 93°





- DNMM DNMX DNMG DNMA DNGA
- The insert is for illustration only

Specification

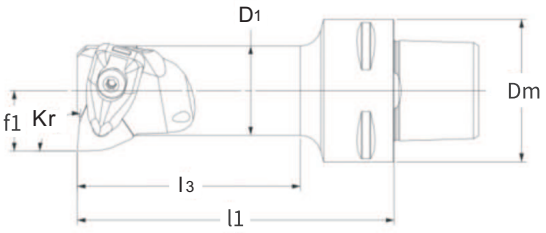
(Kr)-Application		Ordering code	Dm	Dmin	D1	f1	l1	l3	γ	λ	m (kg)	ISO insert
93°	11	C4-PSC40-DDUNR-17090-11	40	32	25	17	90	68	-6°	-12°	0.47	DN..1104..
	11	C4-PSC40-DDUNL-17090-11	40	32	25	17	90	68	-6°	-12°	0.47	
	11	C5-PSC50-DDUNR-17090-11	50	32	25	17	90	66	-6°	-12°	0.65	
	11	C5-PSC50-DDUNL-17090-11	50	32	25	17	90	66	-6°	-12°	0.65	
	15	C4-PSC40-DDUNR-27080-15	40	50	39.7	27	80	59	-6°	-11°	1.04	DN..1506..
	15	C4-PSC40-DDUNL-27080-15	40	50	39.7	27	80	59	-6°	-11°	1.04	
	15	C5-PSC50-DDUNR-27140-15	50	50	40	27	140	118	-6°	-11°	1.04	
	15	C5-PSC50-DDUNL-27140-15	50	50	40	27	140	118	-6°	-11°	1.04	
	15	C6-PSC63-DDUNR-27140-15	63	50	40	27	140	114	-6°	-11°	1.04	
	15	C6-PSC63-DDUNL-27140-15	63	50	40	27	140	114	-6°	-11°	1.04	

Main spare parts

PSC size	Insert	Shim screw	Shim	Key	Complete clamp set
PSC40-PSC50	11	ILD3072	322.267.01	242.090.40	412.028.011
PSC40-PSC63	15	ILD4085	322.266.02	248.150.10	412.028.021

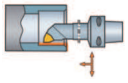
The insert need to be ordered seperately.
Other accessories are included in the order.

DWLNR/L-Kr 95°



- WNMM WNMG WNGA WNMA
- The insert is for illustration only

Specification

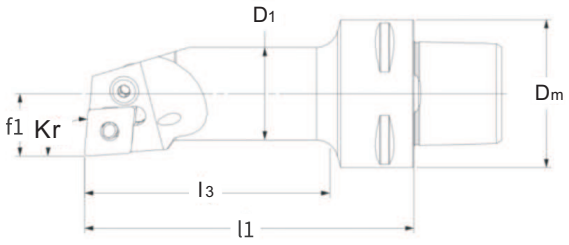
(Kr)-Application		Ordering code	Dm	Dmin	D1	f1	l1	l3	γ	λ	m (kg)	ISO insert
95° 	08	C4-PSC40-DWLNR-17090-08	40	32	25	17	90	69	-0°	-6°	0.48	WN..0804..
	08	C4-PSC40-DWLNL-17090-08	40	32	25	17	90	69	-0°	-6°	0.48	
	08	C5-PSC50-DWLNR-17090-08	50	32	25	17	90	69	-0°	-6°	0.67	
	08	C5-PSC50-DWLNL-17090-08	50	32	25	17	90	69	-0°	-6°	0.67	

Main spare parts

PSC size	Insert	Shim screw	Shim	Key	Complete clamp set
PSC40-PSC50	08	ILD4085	322.328.02	248.150.10	412.028.021

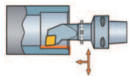
The insert need to be ordered seperately.
Other accessories are included in the order.

PCLNR/L-Kr 95°



- CNMM CNMG CNMA CNGA
- The insert is for illustration only

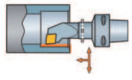
Specification

(Kr)-Application		Ordering code	Dm	Dmin	D1	f1	l1	l3	γ	λ	m (kg)	ISO insert
95°	12	C3-PSC32-PCLNR-17090-12	32	32	25	17	90	75	-6°	-11°	0.3	CN..1204..
	12	C3-PSC32-PCLNL-17090-12	32	32	25	17	90	75	-6°	-11°	0.3	
	12	C3-PSC32-PCLNR-22064-12	32	40	32	22	64	50	-6°	-11°	0.3	
	12	C3-PSC32-PCLNL-22064-12	32	40	32	22	64	50	-6°	-11°	0.3	
	12	C3-PSC32-PCLNR-22096-12	32	40	32	22	96	82	-6°	-11°	0.3	
	12	C3-PSC32-PCLNL-22096-12	32	40	32	22	96	82	-6°	-11°	0.3	
	12	C4-PSC40-PCLNR-17090-12	40	32	25	17	90	69	-6°	-11°	0.5	
	12	C4-PSC40-PCLNL-17090-12	40	32	25	17	90	69	-6°	-11°	0.5	
	12	C4-PSC40-PCLNR-22110-12	40	40	32	22	110	89	-6°	-11°	0.5	
	12	C4-PSC40-PCLNL-22110-12	40	40	32	22	110	89	-6°	-11°	0.5	
	12	C4-PSC40-PCLNR-27080-12	40	50	40	27	80	60	-6°	-10°	0.5	
	12	C4-PSC40-PCLNL-27080-12	40	50	40	27	80	60	-6°	-10°	0.5	
	12	C4-PSC40-PCLNR-27120-12	40	50	40	27	120	100	-6°	-11°	0.5	
	12	C4-PSC40-PCLNL-27120-12	40	50	40	27	120	100	-6°	-11°	0.5	

PCLNR/L-Kr 95°

Specification

(Kr)-Application		Ordering code	Dm	Dmin	D1	f1	l1	l3	γ	λ	m (kg)	ISO insert
95°	12	C5-PSC50-PCLNR-17090-12	50	32	25	17	90	67	-6°	-11°	0.65	CN..1204..
	12	C5-PSC50-PCLNL-17090-12	50	32	25	17	90	67	-6°	-11°	0.65	
	12	C5-PSC50-PCLNR-22110-12	50	40	32	22	110	88	-6°	-11°	0.66	
	12	C5-PSC50-PCLNL-22110-12	50	40	32	22	110	88	-6°	-11°	0.66	
	12	C5-PSC50-PCLNR-27140-12	50	50	40	27	140	119	-6°	-10°	0.67	
	12	C5-PSC50-PCLNL-27140-12	50	50	40	27	140	119	-6°	-10°	0.67	
	12	C5-PSC50-PCLNR-35100-12	50	63	50	35	100	81	-6°	-7°	0.68	
	12	C5-PSC50-PCLNL-35100-12	50	63	50	35	100	81	-6°	-7°	0.68	
	12	C6-PSC63-PCLNR-17100-12	63	32	25	17	100	74	-6°	-11°	1	
	12	C6-PSC63-PCLNL-17100-12	63	32	25	17	100	74	-6°	-11°	1	
	12	C6-PSC63-PCLNR-22110-12	63	40	32	22	110	84	-6°	-11°	1.2	
	12	C6-PSC63-PCLNL-22110-12	63	40	32	22	110	84	-6°	-11°	1.2	

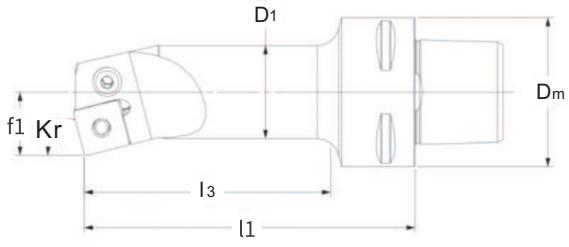


Main spare parts

PSC size	Insert	Screw	Shim	Key	Lever
PSC32-PSC63(D25)	12	414.838.32	-	241.025.56	413.838.41-1
PSC32-PSC63(D32-D50)	12	414.438.21	322.318.50	241.030.63	413.438.41

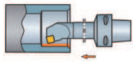
The insert need to be ordered seperately.
Other accessories are included in the order.

PSKNR/L-Kr 75°



- SNMM SNMG SNMA SNGA
- The insert is for illustration only

Specification

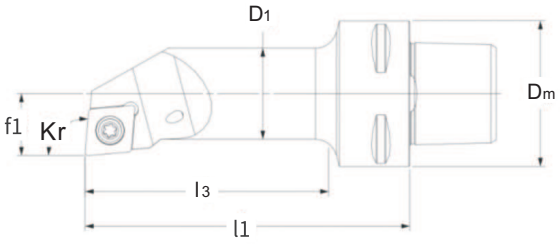
(Kr)-Application		Ordering code	Dm	Dmin	D1	f1	l1	l3	γ	λ	m (kg)	ISO insert
75° 	12	C4-PSC40-PSKNR-17090-12	40	32	25	17	90	69	-6°	-11°	0.45	SN..1204..
	12	C5-PSC50-PSKNR-17090-12	50	32	25	17	90	67	-6°	-11°	0.51	
	12	C5-PSC50-PSKNR-22110-12	50	40	32	22	110	88	-6°	-10°	0.7	
	12	C5-PSC50-PSKNR-27140-12	50	50	40	27	140	119	-6°	-10°	1.4	
	12	C6-PSC63-PSKNR-22110-12	63	40	32	22	110	84	-6°	-10°	1.3	

Main spare parts

PSC size	Insert	Screw	Shim	Key	Lever
PSC40-PSC50(D25)	12	414.838.32	-	241.025.56	413.838.41-1
PSC50-PSC63(D32-D40)	12	414.438.21	322.438.51	241.030.63	413.438.41

The insert need to be ordered seperately.
Other accessories are included in the order.

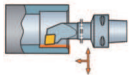
SCLCR/L-Kr 95°



- CCMT CCGT CCGX CCET CCMW
- The insert is for illustration only

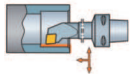
Specification

(Kr)-Application		Ordering code	Dm	Dmin	D1	f1	l1	l3	γ	λ	m (kg)	ISO insert
95°	12	C3-PSC32-SCLCR-17090-12	32	32	25	17	90	75	0°	-6°	0.32	CC..1204..
	12	C3-PSC32-SCLCL-17090-12	32	32	25	17	90	75	0°	-6°	0.32	
	12	C3-PSC32-SCLCR-22064-12	32	40	31.7	22	64	50	0°	-10°	0.31	
	12	C3-PSC32-SCLCL-22064-12	32	40	31.7	22	64	50	0°	-10°	0.31	
	12	C3-PSC32-SCLCR-22090-12	32	40	31.7	22	90	82	0°	-10°	0.5	
	12	C3-PSC32-SCLCL-22090-12	32	40	31.7	22	90	82	0°	-10°	0.5	
	12	C4-PSC40-SCLCR-17090-12	40	32	25	17	90	69	0°	-6°	0.45	
	12	C4-PSC40-SCLCL-17090-12	40	32	25	17	90	69	0°	-6°	0.45	
	12	C4-PSC40-SCLCR-22110-12	40	40	32	22	110	89	0°	-10°	0.68	
	12	C4-PSC40-SCLCL-22110-12	40	40	32	22	110	89	0°	-10°	0.68	
	12	C4-PSC40-SCLCR-27080-12	40	50	39.7	27	80	60	0°	-8°	0.63	
	12	C4-PSC40-SCLCL-27080-12	40	50	39.7	27	80	60	0°	-8°	0.63	



SCLCR/L-Kr 95°

Specification

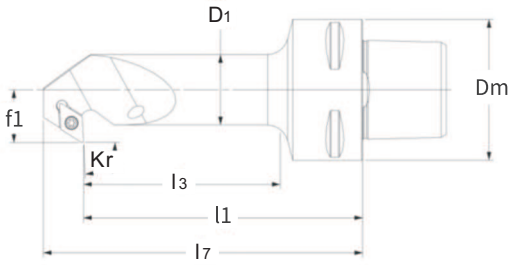
(Kr)-Application		Ordering code	Dm	Dmin	D1	f1	l1	l3	γ	λ	m (kg)	ISO insert
95°	12	C5-PSC50-SCLCR-17090-12	50	32	25	17	90	67	0°	-6°	0.63	CC..1204..
	12	C5-PSC50-SCLCL-17090-12	50	32	25	17	90	67	0°	-6°	0.63	
	12	C5-PSC50-SCLCR-22110-12	50	40	32	22	110	88	0°	-10°	0.87	
	12	C5-PSC50-SCLCL-22110-12	50	40	32	22	110	88	0°	-10°	0.87	
	12	C5-PSC50-SCLCR-27140-12	50	50	40	27	140	119	0°	-8°	1.35	
	12	C5-PSC50-SCLCL-27140-12	50	50	40	27	140	119	0°	-8°	1.35	
	12	C5-PSC50-SCLCR-35100-12	50	63	49.7	35	100	80	0°	-5°	1.27	
	12	C5-PSC50-SCLCL-35100-12	50	63	49.7	35	100	80	0°	-5°	1.27	

Main spare parts

PSC size	Insert	Shim screw	Shim	Key	Insert screw
PSC32-PSC50(D25)	12	-	-	248.150.10	ILD4011-A
PSC32-PSC50(D32-D40)	12	512.090.03	322.232.02	248.150.10&241.040.70	ILD4014

The insert need to be ordered seperately.
Other accessories are included in the order.

SDUCR/L-Kr 93°



- DCMT DCMX DCGT DCGX DCET DCMW
- The insert is for illustration only

Specification

(Kr)-Application		Ordering code	Dm	Dmin	D1	f1	l1	l3	l7	γ	λ	m (kg)	ISO insert
93°	07	C3-PSC32-SDUCR-13070-07X	32	22	16	13	70	54	54	0°	-6°	0.19	DC..0702..
	07	C3-PSC32-SDUCL-13070-07X	32	22	16	13	70	54	54	0°	-6°	0.19	
	07	C3-PSC32-SDUCR-15080-07X	32	27	20	15	80	64	64	0°	-3°	0.26	
	07	C3-PSC32-SDUCL-15080-07X	32	27	20	15	80	64	64	0°	-3°	0.26	
	07	C4-PSC40-SDUCR-13070-07X	40	22	16	13	70	48	48	0°	-6°	0.32	
	07	C4-PSC40-SDUCL-13070-07X	40	22	16	13	70	48	48	0°	-6°	0.32	
	07	C4-PSC40-SDUCR-15080-07X	40	27	20	15	80	58	58	0°	-3°	0.39	
	07	C4-PSC40-SDUCL-15080-07X	40	27	20	15	80	58	58	0°	-3°	0.39	
	07	C4-PSC40-SDUCR-18090-07X	40	32	25	18	90	69	69	0°	-3°	0.49	
	07	C4-PSC40-SDUCL-18090-07X	40	32	25	18	90	69	69	0°	-3°	0.49	
	07	C5-PSC50-SDUCR-15080-07X	50	27	20	15	80	58	58	0°	-3°	0.58	
	07	C5-PSC50-SDUCL-15080-07X	50	27	20	15	80	58	58	0°	-3°	0.58	
	07	C5-PSC50-SDUCR-18090-07X	50	32	25	18	90	68	68	0°	-3°	0.67	
	07	C5-PSC50-SDUCL-18090-07X	50	32	25	18	90	68	68	0°	-3°	0.67	

Main spare parts

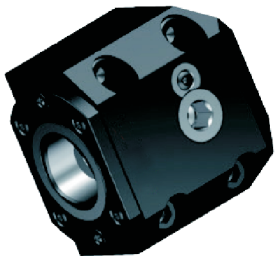
PSC size	Insert	Shim screw	Shim	Key	Insert screw
PSC32-PSC50	7	-	-	242.070.35	ILD2565

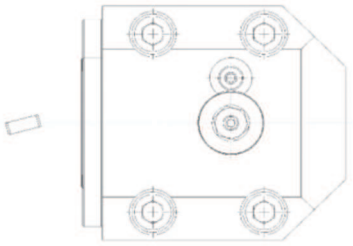
The insert need to be ordered seperately.
Other accessories are included in the order.

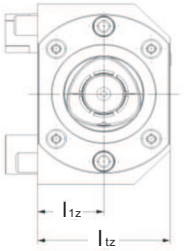
PSC CLAMPING UNIT

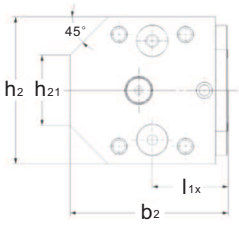
- Used with the turning tools with PSC interface;
- Realize the exchange of left and right hand tools;
- Cam locking device, change the tool swiftly.

CUSA



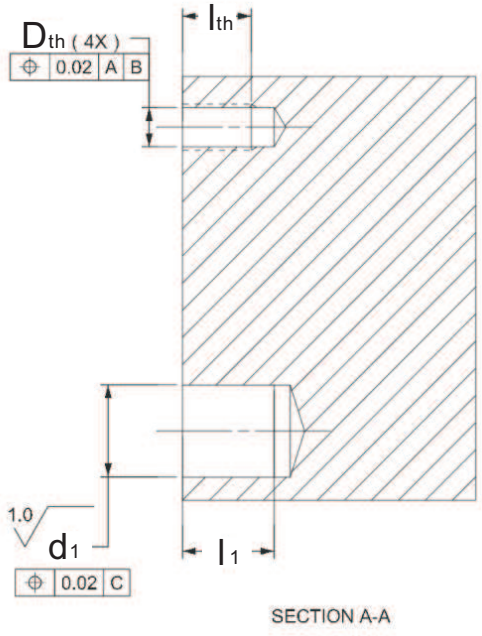


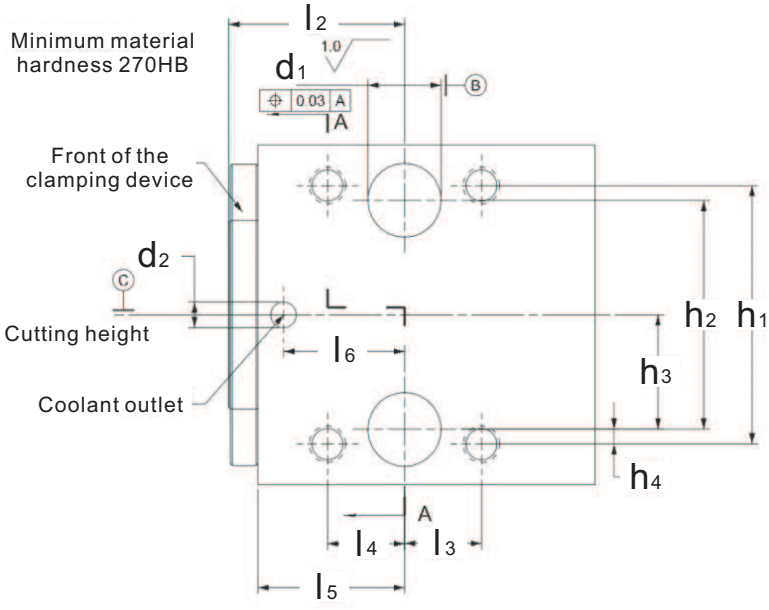




PSC size	Ordering code	b2	h2	h21	l1x	l1z	ltz
PSC32	PSC32RCUSA19039	73	54	30	39	19	38
PSC32	PSC32LCUSA19039	73	54	30	39	19	38
PSC40	PSC40RCUSA24043	86	77	38	43	24	48
PSC40	PSC40LCUSA24043	86	77	38	43	24	48
PSC50	PSC50RCUSA32048	100	92	44	48	32	64
PSC50	PSC50LCUSA32048	100	92	44	48	32	64
PSC63	PSC63RCUSA42060	122	105	37	60	42	84
PSC63	PSC63LCUSA42060	122	105	37	60	42	84
PSC80	PSC80RCUSA50088	146	133	133	88	50	100
PSC80	PSC80LCUSA50088	146	133	133	88	50	100

Clamping device R \ L Rusa application design description

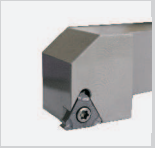




Clamping Device	d1(H7)	d2	h1	h2	h3	h4	l1(min)	l2	l3	l4	l5	l6	lth(min)	Dth
PSC32R\LCUSA19039	12	5	42	39	19.5	1.5	8.5	39	19	19	33.5	28	7.5	M6
PSC40R\LCUSA24043	16	7	60	55	27.5	2.5	11	43	19	19	36.5	30	11	M8
PSC50R\LCUSA32048	20	7	70	62	31	4	12	48	21	21	39.5	33	13	M10
PSC63R\LCUSA42060	25	10	82	71	35.5	5.5	20	60	24.5	24.5	50.5	41	12	M10
PSC80R\LCUSA50088	32	11	110	110	46	9	20	88	43	43	76	63	14.5	M12

THREADING

Thread Inserts (ISO/UN/W/BSPT/NPT/TR/RD) -------- A217-A223

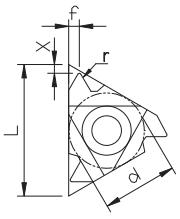


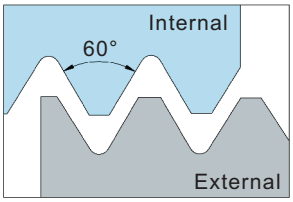
Thread Toolholder ---------- A224

Thread Inserts for Oil Pipe ---------- A225-A227

Thread Toolholder for Oil Pipe ---------- A228-A233

Partial profile
60° thread angle

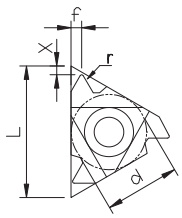


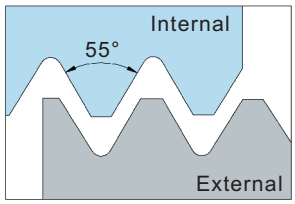


Material	TG3225
Steel	P ●
Stainless	M ●
Cast Iron	K ●

Type	Order No.	Pitch	Dimension (mm)				
			L	X	f	r	d
External	16ERA60-TC	0.5-1.5	16	0.8	0.9	0.08	9.525
	16ERAG60-TC	0.5-3.0	16	1.1	1.5	0.08	9.525
	16ERG60-TC	1.75-3.0	16	1.2	1.7	0.25	9.525
	22ERN60-TC	3.5-5.0	22	1.7	2.5	0.51	12.7
Internal	11IRA60-TC	0.5-1.5	11	0.8	0.9	0.08	6.35
	16IRA60-TC	0.5-1.5	16	0.8	0.9	0.08	9.525
	16IRAG60-TC	0.5-3.0	16	1.1	1.5	0.08	9.525
	16IRG60-TC	1.75-3.0	16	1.2	1.7	0.13	9.525
	22IRN60-TC	3.5-5.0	22	1.7	2.5	0.25	12.7

Partial profile
55° thread angle

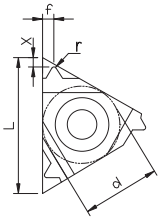


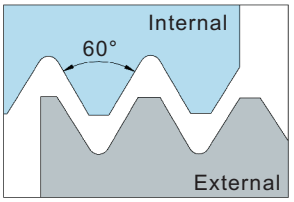


Material	TG3225
Steel	P ●
Stainless	M ●
Cast Iron	K ●

Type	Order No.	Pitch	Dimension (mm)				
			L	X	f	r	d
External	16ERA55-TC	48-16	16	0.8	0.9	0.08	9.525
	16ERAG55-TC	48-8	16	1.1	1.5	0.08	9.525
	16ERG55-TC	14-8	16	1.2	1.7	0.21	9.525
	22ERN55-TC	7-5	22	1.7	2.5	0.44	12.7
Internal	11IRA55-TC	48-16	11	0.8	0.9	0.08	6.35
	16IRA55-TC	48-16	16	0.8	0.9	0.08	9.525
	16IRAG55-TC	48-8	16	1.1	1.5	0.08	9.525
	16IRG55-TC	14-8	16	1.2	1.7	0.21	9.525
	22IRN55-TC	7-5	22	1.7	2.5	0.44	12.7

Full profile
ISO Metric

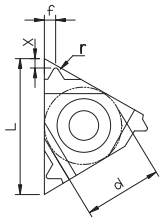


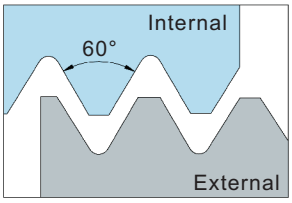


Material	TG3225
Steel	P ●
Stainless	M ●
Cast Iron	K ●

Type	Order No.	Pitch	Dimension (mm)				
			L	X	f	r	d
External	16ER1.00ISO-TC	1	16	0.8	0.7	0.14	9.525
	16ER1.25ISO-TC	1.25	16	0.8	0.9	0.18	9.525
	16ER1.50ISO-TC	1.5	16	0.8	1.0	0.22	9.525
	16ER1.75ISO-TC	1.75	16	1.2	1.2	0.25	9.525
	16ER2.00ISO-TC	2	16	1.2	1.3	0.29	9.525
	16ER2.50ISO-TC	2.5	16	1.2	1.5	0.36	9.525
	16ER3.00ISO-TC	3	16	1.2	1.5	0.43	9.525
	22ER3.50ISO-TC	3.5	22	1.6	2.3	0.45	12.7
	22ER4.00ISO-TC	4	22	1.6	2.3	0.52	12.7
	22ER4.50ISO-TC	4.5	22	1.7	2.4	0.58	12.7
	22ER5.00ISO-TC	5	22	1.7	2.5	0.63	12.7
Internal	11IR1.00ISO-TC	1	11	0.8	0.7	0.07	6.35
	11IR1.25ISO-TC	1.25	11	0.8	0.9	0.09	6.35
	11IR1.50ISO-TC	1.5	11	0.8	1.0	0.11	6.35
	11IR1.75ISO-TC	1.75	11	0.9	1.1	0.13	6.35
	11IR2.00ISO-TC	2	11	0.9	1.1	0.15	6.35
	16IR1.00ISO-TC	1	16	0.8	0.7	0.07	9.525
	16IR1.25ISO-TC	1.25	16	0.8	0.9	0.09	9.525
	16IR1.50ISO-TC	1.5	16	0.8	1.0	0.11	9.525
	16IR1.75ISO-TC	1.75	16	1.2	1.2	0.13	9.525
	16IR2.00ISO-TC	2	16	1.2	1.3	0.15	9.525
	16IR2.50ISO-TC	2.5	16	1.2	1.5	0.18	9.525
	16IR3.00ISO-TC	3	16	1.2	1.5	0.22	9.525
	22IR3.50ISO-TC	3.5	22	1.6	2.3	0.22	12.7
	22IR4.00ISO-TC	4	22	1.6	2.3	0.25	12.7
	22IR4.50ISO-TC	4.5	22	1.6	2.4	0.28	12.7
	22IR5.00ISO-TC	5	22	1.6	2.3	0.32	12.7

Full profile
Unified

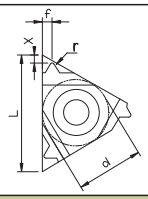


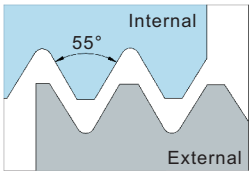


Material	TG3225
Steel	P ●
Stainless	M ●
Cast Iron	K ●

Type	Order No.	Pitch	Dimension (mm)				
			L	X	f	r	d
External	16ER24UN-TC	24	16	0.8	0.8	0.15	9.525
	16ER20UN-TC	20	16	0.8	0.9	0.18	9.525
	16ER18UN-TC	18	16	0.8	1.0	0.2	9.525
	16ER16UN-TC	16	16	0.9	1.1	0.23	9.525
	16ER14UN-TC	14	16	1.2	1.5	0.26	9.525
	16ER12UN-TC	12	16	1.2	1.5	0.31	9.525
	16ER8UN-TC	8	16	1.3	1.7	0.46	9.525
Internal	11IR20UN-TC	20	11	0.8	0.9	0.09	6.35
	11IR18UN-TC	18	11	0.8	1.0	0.1	6.35
	16IR24UN-TC	24	16	0.8	0.8	0.08	9.525
	16IR20UN-TC	20	16	0.8	0.9	0.09	9.525
	16IR18UN-TC	18	16	0.8	1.0	0.1	9.525
	16IR16UN-TC	16	16	0.9	1.1	0.12	9.525
	16IR14UN-TC	14	16	1.2	1.5	0.13	9.525
	16IR12UN-TC	12	16	1.2	1.5	0.16	9.525
	16IR8UN-TC	8	16	1.3	1.7	0.23	9.525

Full profile
Whitworth

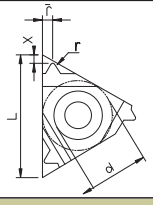


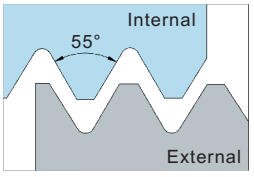


Material	TG3225
Steel	P ●
Stainless	M ●
Cast Iron	K ●

Type	Order No.	Pitch	Dimension (mm)				
			L	X	f	r	d
External	16ER19W-TC	19	16	0.8	1.0	0.17	9.525
	16ER18W-TC	18	16	0.8	1.0	0.18	9.525
	16ER16W-TC	16	16	0.9	1.1	0.20	9.525
	16ER14W-TC	14	16	1.2	1.5	0.24	9.525
	16ER12W-TC	12	16	1.2	1.5	0.28	9.525
	16ER11W-TC	11	16	1.2	1.5	0.30	9.525
	16ER10W-TC	10	16	1.1	1.5	0.34	9.525
Internal	16IR19W-TC	19	16	0.8	1.0	0.17	9.525
	16IR18W-TC	18	16	0.8	1.0	0.18	9.525
	16IR16W-TC	16	16	0.9	1.1	0.20	9.525
	16IR14W-TC	14	16	1.2	1.5	0.24	9.525
	16IR12W-TC	12	16	1.2	1.5	0.28	9.525
	16IR11W-TC	11	16	1.2	1.5	0.30	9.525
	16IR8W-TC	8	16	1.2	1.5	0.41	9.525

Full profile
BSPT 55°

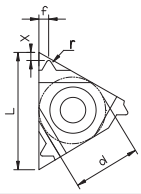


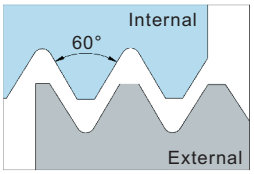


Material	TG3225
Steel	P ●
Stainless	M ●
Cast Iron	K ●

Type	Order No.	Pitch	Dimension (mm)				
			L	X	f	r	d
External	16ER28BSPT-TC	28	16	0.7	0.8	0.11	9.525
	16ER19BSPT-TC	19	16	0.8	1.0	0.17	9.525
	16ER14BSPT-TC	14	16	1.2	1.5	0.24	9.525
	16ER11BSPT-TC	11	16	1.2	1.5	0.30	9.525
Internal	11IR19BSPT-TC	19	11	0.8	1.0	0.18	6.35
	11IR14BSPT-TC	14	11	0.9	1.1	0.24	6.35
	16IR28BSPT-TC	28	16	0.7	0.8	0.11	9.525
	16IR19BSPT-TC	19	16	0.8	1.0	0.17	9.525
	16IR14BSPT-TC	14	16	1.2	1.5	0.24	9.525
	16IR11BSPT-TC	11	16	1.2	1.5	0.30	9.525

Full profile
NPT 60°

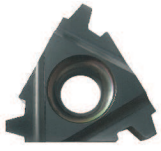


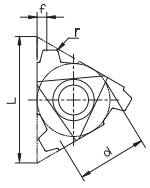


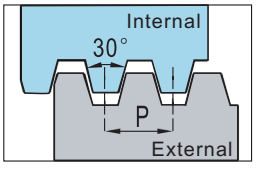
Material	TG3225
Steel	P ●
Stainless	M ●
Cast Iron	K ●

Type	Order No.	Pitch	Dimension (mm)				
			L	X	f	r	d
External	16ER27NPT-TC	27	16	0.7	0.8	0.13	9.525
	16ER18NPT-TC	18	16	0.8	1.0	0.20	9.525
	16ER14NPT-TC	14	16	1.2	1.5	0.22	9.525
	16ER11.5NPT-TC	11.5	16	1.2	1.5	0.25	9.525
	16ER8NPT-TC	8	16	1.3	1.8	0.30	9.525
Internal	11IR18NPT-TC	18	11	0.8	1.0	0.20	6.35
	16IR27NPT-TC	27	16	0.7	0.8	0.13	9.525
	16IR18NPT-TC	18	16	0.8	1.0	0.20	9.525
	16IR14NPT-TC	14	16	1.2	1.5	0.22	9.525
	16IR11.5NPT-TC	11.5	16	1.2	1.5	0.25	9.525
	16IR8NPT-TC	8	16	1.3	1.8	0.30	9.525

30° Trapezoidal / DIN103



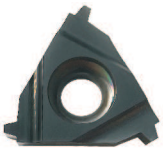


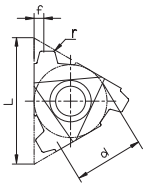


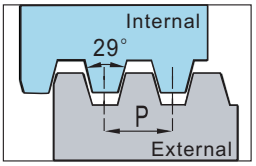
Material	TG4215
Steel	P ●
Stainless	M ●
Cast Iron	K ●

Type	Order No.	Pitch	Dimension (mm)			
			L	f	r	d
External	16ER1.5TR	1.5	16	1.1	0.10	9.525
	16ER2.0TR	2	16	1.3	0.10	9.525
	16ER3.0TR	3	16	1.5	0.10	9.525
	22ER4.0TR	4	22	1.9	0.10	12.700
	22ER5.0TR	5	22	2.2	0.10	12.700
	22ER6.0TR	6	22	2.3	0.25	12.700
Internal	16IR1.5TR	1.5	16	1.1	0.10	9.525
	16IR2.0TR	2	16	1.3	0.10	9.525
	16IR3.0TR	3	16	1.5	0.10	9.525
	22IR4.0TR	4	22	1.9	0.10	12.700
	22IR5.0TR	5	22	2.2	0.10	12.700
	22IR6.0TR	6	22	2.3	0.25	12.700

29° Trapezoidal / ACME



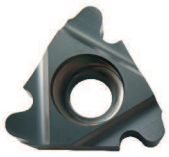


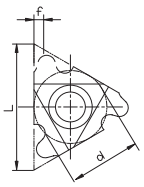


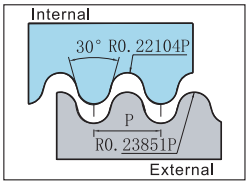
Material	TG4215
Steel	P ●
Stainless	M ●
Cast Iron	K ●

Type	Order No.	Pitch	Dimension (mm)			
			L	f	r	d
External	16ER16ACME	16	16	1.1	0.08	9.525
	16ER14ACME	14	16	1.2	0.08	9.525
	16ER12ACME	12	16	1.2	0.10	9.525
	16ER10ACME	10	16	1.4	0.12	9.525
	16ER8ACME	8	16	1.5	0.12	9.525
	16ER6ACME	6	16	1.5	0.20	9.525
	22ER6ACME	6	22	2.1	0.20	12.700
	22ER5ACME	5	22	2.1	0.25	12.700
	22ER4ACME	4	22	2.3	0.30	12.700
Internal	16IR16ACME	16	16	1.1	0.08	9.525
	16IR14ACME	14	16	1.2	0.08	9.525
	16IR12ACME	12	16	1.2	0.10	9.525
	16IR10ACME	10	16	1.4	0.12	9.525
	16IR8ACME	8	16	1.5	0.12	9.525
	16IR6ACME	6	16	1.5	0.20	9.525
	22IR6ACME	6	22	2.1	0.20	12.700
	22IR5ACME	5	22	2.1	0.25	12.700
	22IR4ACME	4	22	2.3	0.30	12.700

Round / DIN405







Material	TG4215	
Steel	P	●
Stainless	M	●
Cast Iron	K	●

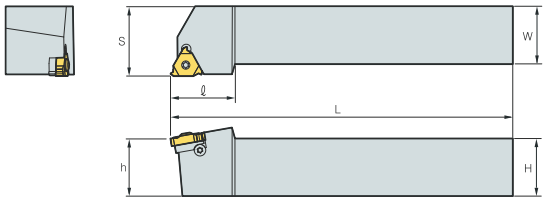
Type	Order No.	Pitch	Dimension (mm)		
			L	f	d
External	16ER10RD	10	16	1.2	9.525
	16ER8RD	8	16	1.3	9.525
	16ER6RD	6	16	1.7	9.525
	22ER6RD	6	22	2.0	12.700
	22ER5RD	5	22	2.0	12.700
	22ER4RD	4	22	2.3	12.700
Internal	16IR10RD	10	16	1.2	9.525
	16IR8RD	8	16	1.3	9.525
	16IR6RD	6	16	1.7	9.525
	22IR6RD	6	22	2.0	12.700
	22IR5RD	5	22	2.0	12.700
	22IR4RD	4	22	2.3	12.700

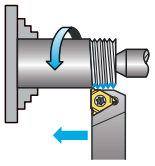
Standard Cutting Conditions

ISO	Workpiece Material		Vc(m/min)
P	Non-Alloy steel	<0.25%C	120-230
		0.25%C- 0.55%C	100-195
		≥0.55%C	90-180
	Low Alloy Steel		60-180
	High Alloy Steel		70-140
M	Martensitic Stainless Steel		70-170
	Austenitic Stainless Steel		90-140
K	Grey Cast Iron		80-160
	Ductile Cast Iron		80-160
N	Cast Aluminum Alloy		100-500
	Aluminum Alloy		300-700
	Copper Alloy		80-300
S	Heat-resistance Alloy		10-50
	Titanium Alloy		50-70
H	Hardened Alloy	45-50 HRC	40-50
		51-55 HRC	30-50

External Threading Toolholders

SER
(Screw on system)





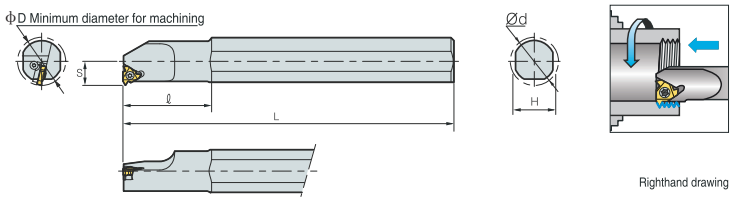
Righthand drawing

(mm)

Order No.	Dimension (mm)					Insert	Pin	Shim	Wrench	Screw
	H	W	S	L	h					
SER-1212H16	12	12	16	100	12	16ER..	ST3509	-	T15	-
SER-1616H16	16	16	20	100	16		ST3512	STM16	T15 L2.5	ST3006N
SER-2020K16	20	20	25	125	20					
SER-2525M16	25	25	32	150	25					
SER-3232P16	32	32	40	170	32					
SER-2525M22	25	25	32	150	25	22ER..	ST4016	STM22	T20 L3	ST4006N
SER-3232P22	32	32	40	170	32					

Internal Threading Bars

SNR
(Screw on system)



Righthand drawing

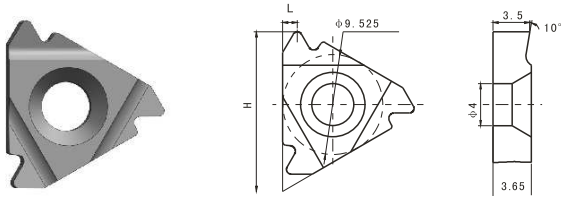
(mm)

Order No.	Dimension (mm)						Insert	Pin	Shim	Wrench	Screw
	D	d	L	S	H	I					
SNR-0008K11	11	8	125	5.5	7	20	11IR..	ST2508	-	T8	-
SNR-0010K11	13	10	125	6.5	9	22					
SNR-0012K11	15	12	125	7.5	11	26					
SNR-0016Q16	19	16	180	10	15	36	16IR..	ST3509	-	T15	-
SNR-0020R16	24	20	200	12	18	40					
SNR-0025R16	29	25	200	14.5	23	45					
SNR-0032T16	36	32	300	18.5	30	45		ST3512	STM16	T15 L2.5	ST3006N
SNR-0040T16	44	40	300	22	37	60					
SNR-0020R22	23	20	200	11.5	18	40	22IR..	ST4016	-	T20 L3	-
SNR-0025S22	31	25	250	16	23	45					
SNR-0032S22	38	32	300	19.5	30	45			STM22		ST4006N
SNR-0040T22	46	40	300	24	37	60					

API tubing and casing round threading > Standard triangle series round threading inserts

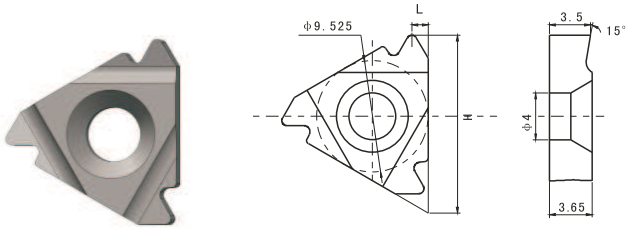
Grade	Introduce of use performance and application
0124	With good red hardness and toughness, suitable for the high-efficiency threading machine tooling for dry steel, intermediate grade and high-grade steel (such as J55,K55, N80, L80 etc.) tubing, casing threading and connecting threading.
0326	With good high-intensity and red-hardness, while also possessing excellent impact resistance. Suitable for the high-effective threading machine tooling the intermediate and high grade steel (such as N80. P110. etc.) tubing, casing and connecting threading.

External threading insert



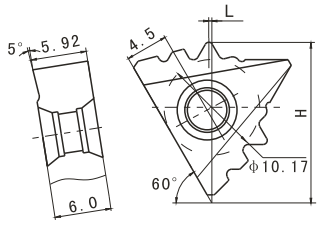
Order No.	Teeth/inch	Taper	Thread form	H	L	Grade
16ER8API	8	1:16	API round tubing casing thread	15.2	1.4	0124/0326
16ER10API	10	1:16	API round tubing casing thread	15.2	1.2	0124/0326

Internal threading insert



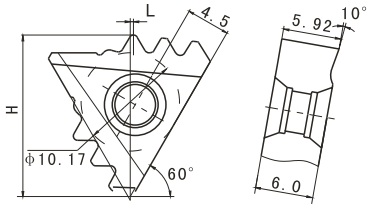
Order No.	Teeth/inch	Taper	Thread form	H	L	Grade
16IR8API	8	1:16	API round tubing casing thread	15.2	1.4	0124/0326
16IR10API	10	1:16	API round tubing casing thread	15.2	1.2	0124/0326

API tubing and casing round threading > Papilionaceous series round threading inserts
External threading insert

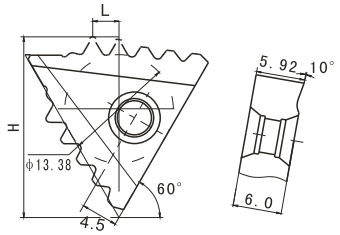


Order No.	Teeth/inch	Taper	Thread form	H	L	Grade
B8W2-3(15°)	8	1:16	API round tubing thread	17.09	0.32	0124/0326
B8W2-3(12°)	8	1:16	API round casing thread	17.09	0.32	0124/0326
B10W2-4	10	1:16	API round tubing thread	17.09	0.32	0124/0326

Internal threading insert



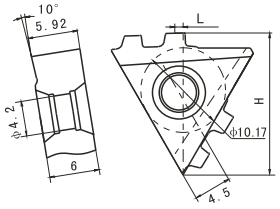
Order No.	Teeth/inch	Taper	Thread form	H	L	Grade
B8N2-3	8	1:16	API round tubing casing thread	17.09	0.32	0124/0326
B10N2-4	10	1:16	API round tubing thread	17.09	0.01	0124/0326



Order No.	Teeth/inch	Taper	Thread form	H	L	Grade
B8N2-5	8	1:16	API round tubing casing thread	21.84	3.24	0124/0326

GOST buttress threading inserts for oil pipe

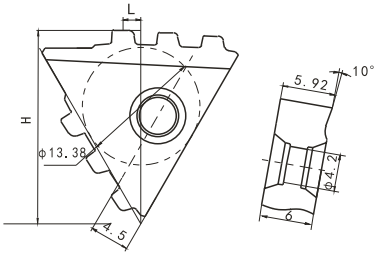
External threading insert



Order No.	Teeth/inch	Taper	Thread form	H	L	Grade
E5BW2-2	5	1:16	OTTM 、OTTG	17.03	0.83	0124/0326

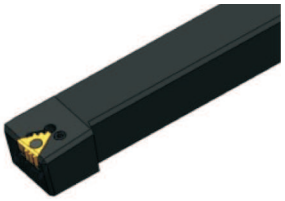
GOST buttress threading inserts for oil pipe

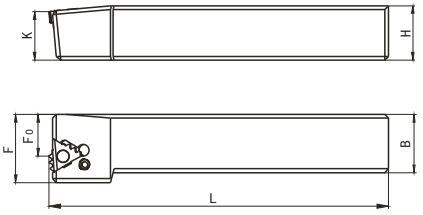
Internal threading insert



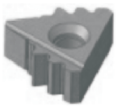
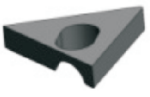
Order No.	Teeth/inch	Taper	Thread form	H	L	Grade
E5BN2-3	5	1:16	OTTM 、OTTG	22.075	2.0	0124/0326

Tool shank for papilionaceous round external threading inserts

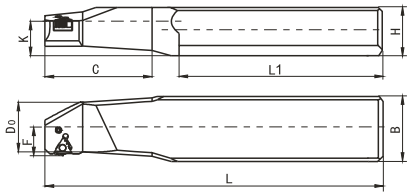




Type	Order No.	Working range	Dimension							Machine tool
			L	H	K	B	F	F_0	λ	
A	P10(8)W2-A28X25	$2\frac{3}{8}"\sim3\frac{1}{2}"$	175	28	25	30	35	22	70'	C620
	P10(8)W2-A35X32		175	35	32	35	40	27	70'	
	P10(8)W2-A40X40		175	40	40	40	45	30	70'	
B	P10(8)W2-A35X32	$4"\sim5\frac{1}{2}"$	175	35	32	35	40	27	50'	QK1312
	P10(8)W2-A40X40		175	40	40	40	45	30	50'	Q1319
C	P10(8)W2-C35X32	$6\frac{5}{8}"\sim8\frac{5}{8}"$	175	35	32	35	40	27	30'	S1-344
	P10(8)W2-C40X40		175	40	40	40	45	30	30'	S1-189
D	P10(8)W2-D35X32	$9\frac{5}{8}"\sim13\frac{3}{8}"$	175	35	32	35	40	27	15'	
	P10(8)W2-D40X40		175	40	40	40	45	30	15'	

Accessory	Insert	Shim	Oblique rod	Lock screw	Wrench
Image					
Order No.	B8W2-3H B10W2-4H	169.798	HER04	HELS06	HEW03

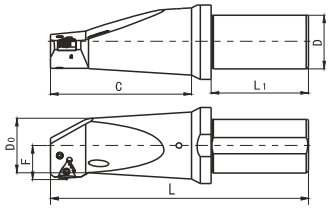
Square tool shank for papilionaceous round internal threading inserts



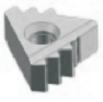
Type	Order No.	Working range	Dimension									Machine tool
			L	L1	H	C	K	F	D0	B	λ	
A	P10(8)N2-AS40X25	$2\frac{3}{8}"\sim3\frac{1}{2}"$	275	150	40	100	25	26	42	65	70′	C620
	P10(8)N2-AS48X32		305	180	48	100	32	26	42	74	70′	QK1312 Q1319
	P10(8)N2-AS48X32(A1)	$2\frac{3}{8}"$	265	140	48	85	32	26.5	45	74	70′	-
	P10(8)N2-AS48X32(A2)	$2\frac{7}{8}"\sim3\frac{1}{2}"$	275	140	48	95	32	30.5	50	74	70′	-
B	P10(8)N2-BS48X32	$4"\sim5\frac{1}{2}"$	335	180	48	130	32	31	50	74	50′	QK1312 Q1319
	P10(8)N2-BS55X36		335	200	55	130	36	31	50	77	50′	S1-262 S1-245 QK1312 Q1319
C	P10(8)N2-CS48X32	$6\frac{5}{8}"\sim8\frac{5}{8}"$	358	180	48	158	32	36	56	74	30′	
	P10(8)N2-CS55X36		378	200	55	158	36	36	56	77	30′	S1-262 S1-245
D	P10(8)N2-DS55X36	$9\frac{5}{8}"\sim13\frac{3}{8}"$	395	200	55	175	36	43	60	81	15′	

Accessory	Insert	Shim	Oblique rod	Lock screw	Wrench
Image					
Order No.	B8N2-3H B10N2-4H	169.523	HER04	HELS06	HEW03

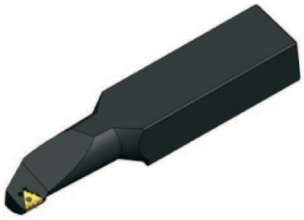
Round tool shank for papilionaceous round internal threading inserts

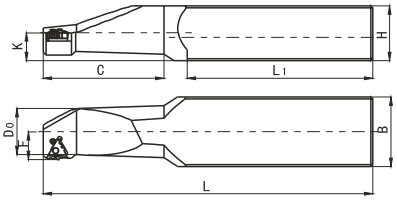


Type	Order No.	Working range	Dimension							Machine tool
			L	L1	D	C	D0	F	λ	
A	P10(8)N2-AR40X80	$2\frac{3}{8}"\sim3\frac{1}{2}"$	205	80	40	100	42	26	70′	CK7815 CK7620
	P10(8)N2-AR50X90		215	90	50	100	42	26	70′	CK7832 CK3263A
	P10(8)N2-AR60X100		225	100	60	100	42	26	70′	CK7840
	P10(8)N2-AR80X140		265	140	80	100	42	26	70′	CK3263B
	P10(8)N2-AR60X140(A1)	$2\frac{3}{8}"$	265	140	60	85	45	26.5	70′	-
	P10(8)N2-AR60X140(A2)	$2\frac{7}{8}"\sim3\frac{1}{2}"$	275	140	60	95	50	30.5	70′	-
B	P10(8)N2-BR40X80	$4"\sim5\frac{1}{2}"$	235	80	40	130	50	31	50′	CK7815 CK7620
	P10(8)N2-BR50X90		245	90	50	130	50	31	50′	CK7832 CK3263A
	P10(8)N2-BR60X100		255	100	60	130	50	31	50′	CK7840
	P10(8)N2-BR80X140		295	140	80	130	50	31	50′	CK3263B
C	P10(8)N2-CR50X90	$6\frac{5}{8}"\sim8\frac{5}{8}"$	268	90	50	158	56	36	30′	CK7840
	P10(8)N2-CR60X100		278	100	60	158	56	36	30′	CK3263B
	P10(8)N2-CR80X140		318	140	80	158	56	36	30′	CK7832 CK3263A
D	P10(8)N2-DR60X100	$9\frac{5}{8}"\sim13\frac{3}{8}"$	295	100	60	175	60	43	15′	CK7840
	P10(8)N2-DR80X140		335	140	80	175	60	43	15′	CK3263B

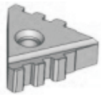
Accessory	Insert	Shim	Oblique rod	Lock screw	Wrench
Image					
Order No.	B8N2-3H B10N2-4H	169.523	HER04	HELS06	HEW03

Square tool shank for papilionaceous buttress internal threading inserts

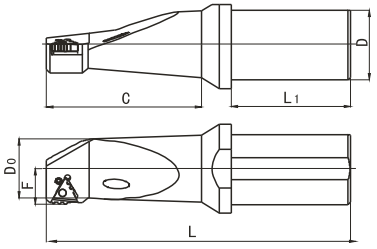




Type	Order No.	Working range	Dimension									Machine tool
			L	L1	H	C	K	F	Do	B	λ	
B	P5BN2-BS48X32	4"～5 1/2"	335	180	48	130	32	31	50	74	60′	S1-127 S1-344
	P5BN2-BS55X36		355	200	55	130	36	31	50	77	60′	S1-262 S1-245
C	P5BN2-CS48X32	6 5/8"～8 5/8"	358	180	48	158	32	36	56	74	40′	S1-127 S1-344
	P5BN2-CS55X36		378	200	55	158	36	36	56	77	40′	S1-245 S1-262
D	P5BN2-DS55X36	9 5/8"～13 3/8"	395	200	55	175	36	43	60	81	20′	

Accessory	Insert	Shim	Oblique rod	Lock screw	Wrench
Image					
Order No.	B5BN2-3	169.973	HER04	HELS06	HEW03

Round tool shank for papilionaceous buttress internal threading inserts

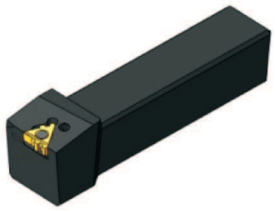


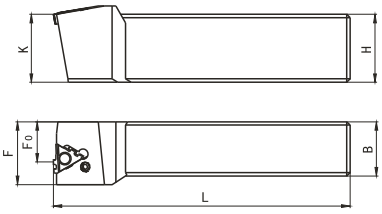
(mm)

Type	Order No.	Working range	Dimension							Machine tool
			L	L1	D	C	D0	F	λ	
B	P5BN2-BR50X90	$4\frac{1}{2}$"~$6\frac{5}{8}$"	245	90	50	130	50	31	60′	CK7820 CK7832
	P5BN2-BR60X100		255	100	60	130	50	31	60′	CK7840 S1-181
	P5BN2-BR80X140		295	140	80	130	50	31	60′	CK3263
C	P5BN2-CR60X100	7"~$11\frac{3}{4}$"	283	100	60	158	56	36	40′	CK7820 CK7832
	P5BN2-CR80X140		323	140	80	158	56	36	40′	CK3263
D	P5BN2-DR60X100	$13\frac{3}{8}$"~20"	300	100	60	175	60	43	20′	CK7840 S1-181
	P5BN2-DR80X140		340	140	80	175	60	43	20′	Ck3263

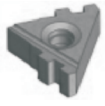
Accessory	Insert	Shim	Oblique rod	Lock screw	Wrench
Image					
Order No.	B5BN2-3	169.973	HER04	HELS06	HEW03

Tool shank for papilionaceous buttress external threading inserts

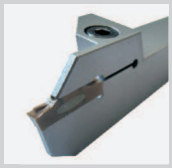




Type	Order No.	Working range	Dimension							Machine tool
			L	H	K	B	F	F0	λ	
B	P5BW2-B35X32	$4"\sim5\frac{1}{2}"$	175	35	32	35	40	25	60′	QK1312 S1-245 S1-127
C	P5BW2-C35X32	$6\frac{5}{8}"\sim8\frac{5}{8}"$	175	35	32	35	40	25	40′	
D	P5BW2-D35X32	$9\frac{5}{8}"\sim13\frac{3}{8}"$	175	35	32	35	40	25	20′	

Accessory	Insert	Shim	Oblique rod	Lock screw	Wrench
Image					
Order No.	B5BW2-2	169.798	HER04	HELS06	HEW03

PARTING, GROOVING



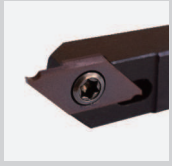
Turnline MP Series ---------- A234-A246

Turnline TNG Series ---------- A247-A255

Turnline TKD Series ---------- A256-A258

Turnline GB Series ---------- A259-A261

Turnline TGE Series ---------- A262-A267



Turnline TTF Series ---------- A268-A270

Turnline TTS Series ---------- A271

MINIATURE TOOL

Solid Boring Bar ---------- A272-A283

Modular Small Hole Cutter ---------- A284-A285

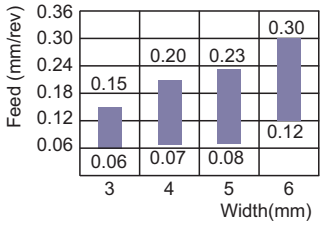
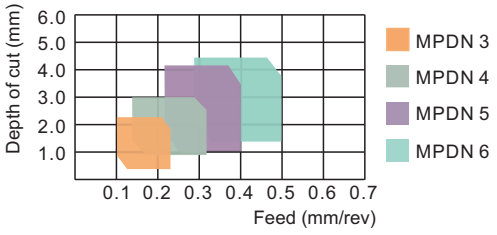
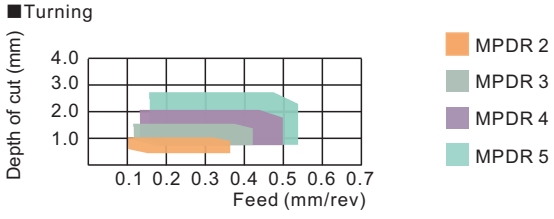
Coated Grade

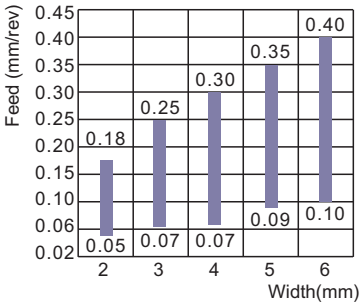
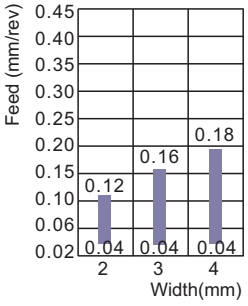
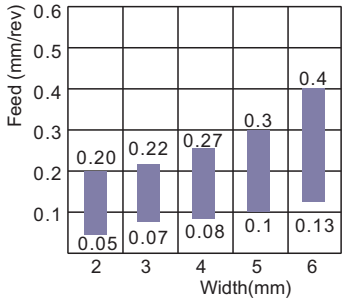
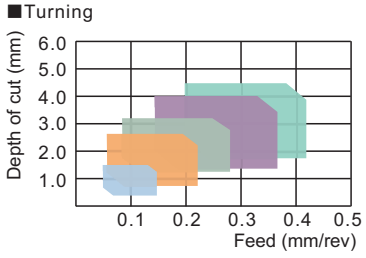
TX5020 P K

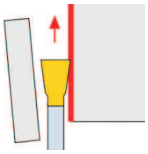
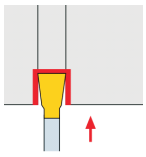
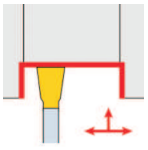
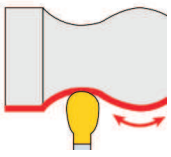
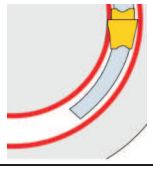
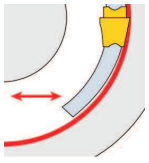
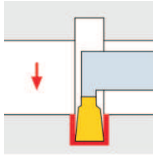
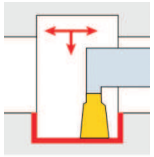
- General machining of steel(HRC20-50) for parting, grooving and turning.
- Continuous cut and medium cutting speed.

TX5030 P M S

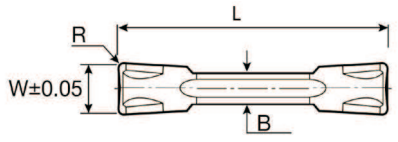
- General machining of steel(HRC10-30), stainless steel and heat-resistant super alloy for parting, grooving and turning.
- Continuous cut and medium cutting speed.

Chip breakers	Applications and features
MPDN 	■Grooving  ●1st choice for side turning of cast iron ●Turning and grooving with various geometry ●Steel and cast iron ●High feed rate ■Turning 
MPDR 	■Turning  ●Profiling in steel and cast iron ●Tough cutting edge ●Good chip control even in low depth ●Good surface finish ●High feed rate and low depth of cut

Chip breakers	Applications and features
MPCN	 ●1st choice for general use in parting and deep grooving ●Stable cutting edge & interrupted cut ●Medium-to-high feed ●For carbon steel, alloy steel and cast iron ●For hard materials
MPJN	 ●1st choice for soft materials in parting and deep grooving ●Sharp cutting edge & low cutting force ●Low-to-medium feed ●Tubes,small diameter and thin-wall parts ●For stainless steel & low carbon steel ●For heat-resistant superalloy
MPXN	■Grooving  ■Turning  ●1st choice for general use in parting grooving-turning ●Multi functional chipbreaker for external, internal and face machining ●Low cutting force and good chip control ●Medium-to-high feed grooving,low-medium feed turning ●Steel,stainless steel heat-resistant superalloy

Series			Tool Selection Guide									
			Holders					Inserts				
			MPEH SW	MPEH	MPT	MPP	MPNH	MPCN	MPJN	MPXN	MPDN	MPDR
External	Parting		●	●				●	●			
	Grooving		●	●				●	●	●	●	
	Turning		●	●						●	●	●
	Profiling		●	●								●
Facing	Grooving				●	●		○	○	●	○	
	Turning				●	●				●	○	
Internal	Grooving						●	○	○	●	○	
	Turning						●			●	○	

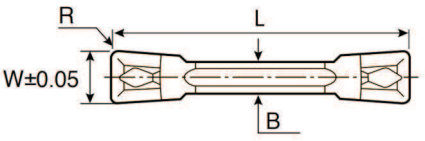
● Recommended ○ Suitable



Material		TX5020	TX5030
Steel(HRC20-50)	P	●	
Steel(HRC10-30)	P		●
Stainless	M		●
Cast iron	K	●	
Superalloys	S		●

Order No.	Dimension (mm)				Coated	
	W	R	L	B	TX5020	TX5030
MPCN200C02	2.0	0.2	20.0	1.7	●	●
MPCN300C02	3.0	0.2	20.0	2.4	●	●
MPCN400C03	4.0	0.3	20.0	3.0	●	●
MPCN500C03	5.0	0.3	25.0	4.0	●	●
MPCN600C03	6.0	0.3	25.0	5.0	●	●

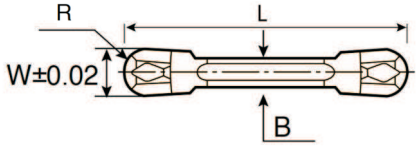
● Stock ○ Non-Stock



Material		TX5020	TX5030
Steel(HRC20-50)	P	●	
Steel(HRC10-30)	P		●
Stainless	M		●
Cast iron	K	●	
Superalloys	S		●

Order No.	Dimension (mm)				Coated	
	W	R	L	B	TX5020	TX5030
MPDN300C04	3.00	0.4	20.0	2.2	●	●
MPDN400C04	4.00	0.4	20.0	3.0	●	●
MPDN500C04	5.00	0.4	25.0	4.0	●	●
MPDN600C08	6.00	0.8	25.0	5.0	●	●

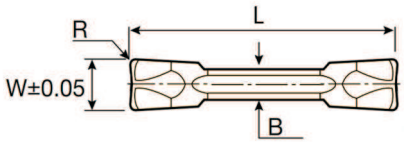
● Stock ○ Non-Stock



Material		TX5020	TX5030
Steel(HRC20-50)	P	●	
Steel(HRC10-30)	P		●
Stainless	M		●
Cast iron	K	●	
Superalloys	S		●

Order No.	Dimension (mm)				Coated	
	W	R	L	B	TX5020	TX5030
MPDR200R10	2.0	1.0	20.0	1.7	●	●
MPDR300R15	3.0	1.5	20.0	2.2	●	●
MPDR400R20	4.0	2.0	20.0	3.0	●	●
MPDR500R25	5.0	2.5	25.0	4.0	●	●

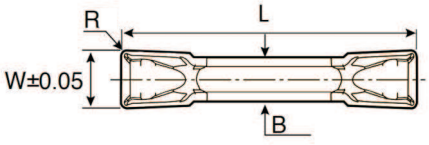
● Stock ○ Non-Stock



Material		TX5020	TX5030
Steel(HRC20-50)	P	●	
Steel(HRC10-30)	P		●
Stainless	M		●
Cast iron	K	●	
Superalloys	S		●

Order No.	Dimension (mm)				Coated	
	W	R	L	B	TX5020	TX5030
MPJN200C02	2.0	0.2	20.0	1.7	●	●
MPJN300C02	3.0	0.2	20.0	2.4	●	●
MPJN400C03	4.0	0.3	20.0	3.0	●	●

● Stock ○ Non-Stock

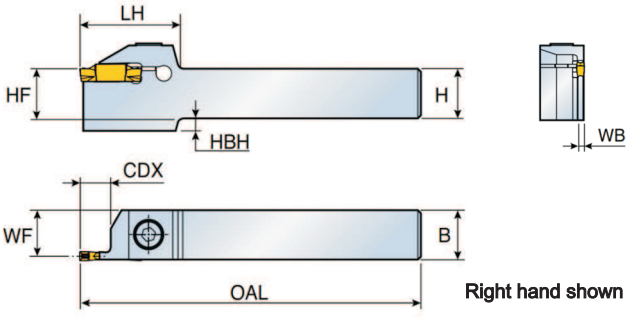


Material		TX5020	TX5030
Steel(HRC20-50)	P	●	
Steel(HRC10-30)	P		●
Stainless	M		●
Cast iron	K	●	
Superalloys	S		●

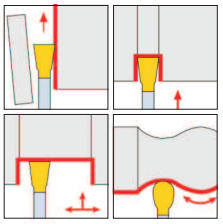
Order No.	Dimension (mm)				Coated	
	W	R	L	B	TX5020	TX5030
MPXN200C03	2.0	0.3	20.0	1.7	●	○
MPXN300C03	3.0	0.3	20.0	2.2	●	●
MPXN400C04	4.0	0.4	20.0	3.0	●	●
MPXN500C04	5.0	0.4	25.0	4.0	●	●
MPXN600C04	6.0	0.4	25.0	5.0	●	●

● Stock ○ Non-Stock

MPEHR/L



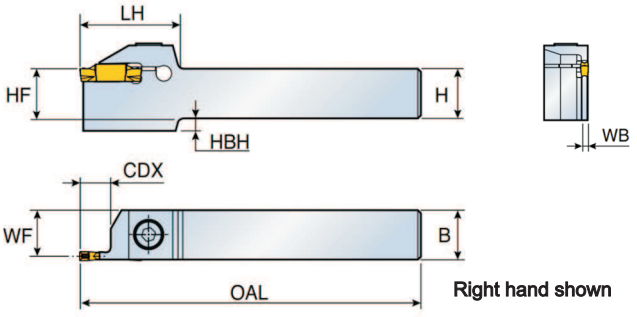
Right hand shown

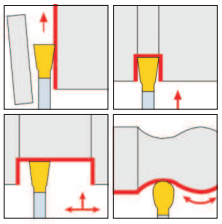


(mm)

Order No.	Dimension (mm)									Insert	Screw	Wrench
	W	H(HF)	B	OAL	LH	WF	WB	HBH	CDX			
MPEHR/L1616-2T08	2	16	16	110	30.0	15.1	1.8	4	8	MPXN200.. MPCN200.. MPJN200.. MPDR200..	MWM0503	ML05
MPEHR/L2020-2T08	2	20	20	125	30.0	19.1	1.8	-	8		MWM0504	
MPEHR/L2525-2T08	2	25	25	150	30.0	24.1	1.8	-	8		MWM0505	
MPEHR/L1616-2T12	2	16	16	110	32.0	15.1	1.8	4	12		MWM0503	
MPEHR/L2020-2T12	2	20	20	125	32.0	19.1	1.8	-	12		MWM0504	
MPEHR/L2525-2T12	2	25	25	150	32.0	24.1	1.8	-	12		MWM0505	
MPEHR/L1616-2T17	2	16	16	110	37.0	15.1	1.8	4	17		MWM0503	
MPEHR/L2020-2T17	2	20	20	125	37.0	19.1	1.8	-	17		MWM0504	
MPEHR/L2525-2T17	2	25	25	150	37.0	24.1	1.8	-	17		MWM0505	
MPEHR/L1616-3T09	3	16	16	110	30.0	14.8	2.4	4	9	MPXN300.. MPCN300.. MPJN300.. MPDN300.. MPDR300..	MWM0503	
MPEHR/L2020-3T09	3	20	20	125	30.0	18.8	2.4	-	9		MWM0504	
MPEHR/L2525-3T09	3	25	25	150	30.0	23.8	2.4	-	9		MWM0505	
MPEHR/L1616-3T12	3	16	16	110	32.0	14.8	2.4	4	12		MWM0503	
MPEHR/L2020-3T12	3	20	20	125	32.0	18.8	2.4	-	12		MWM0504	
MPEHR/L2525-3T12	3	25	25	150	32.0	23.8	2.4	-	12		MWM0505	
MPEHR/L1616-3T20	3	16	16	110	38.5	14.8	2.4	-	20		MWM0503	
MPEHR/L2020-3T20	3	20	20	125	38.5	18.8	2.4	-	20		MWM0504	
MPEHR/L2525-3T20	3	25	25	150	38.5	23.8	2.4	-	20		MWM0505	
MPEHR/L2525-3T25	3	25	25	150	44.5	23.8	2.4	-	25		MWM0505	
MPEHR/L3232-3T20	3	32	32	170	38.5	30.8	2.4	-	20		MWM0505	
MPEHR/L1616-4T10	4	16	16	110	32.0	14.5	3.0	-	10	MPXN400.. MPCN400.. MPJN400.. MPDN400.. MPDR400..	MWM0601	ML06
MPEHR/L2020-4T10	4	20	20	125	32.0	18.5	3.0	4	10		MWM0602	
MPEHR/L2525-4T10	4	25	25	150	32.0	23.5	3.0	-	10		MWM0603	
MPEHR/L1616-4T15	4	16	16	110	33.0	14.5	3.0	-	15		MWM0601	
MPEHR/L2020-4T15	4	20	20	125	33.0	18.5	3.0	4	15		MWM0602	
MPEHR/L2525-4T15	4	25	25	150	33.0	23.5	3.0	-	15		MWM0603	
MPEHR/L1616-4T25	4	16	16	110	45.0	14.5	3.0	-	25		MWM0601	
MPEHR/L2020-4T25	4	20	20	125	45.0	18.5	3.0	-	25		MWM0602	
MPEHR/L2525-4T25	4	25	25	150	45.0	23.5	3.0	-	25		MWM0603	
MPEHR/L2525-4T30	4	25	25	150	51.0	23.5	3.0	-	30		MWM0603	
MPEHR/L3232-4T25	4	32	32	170	45.0	30.5	3.0	-	25		MWM0603	
MPEHR/L2020-5T12	5	20	20	125	35.0	18.1	3.9	-	12	MPXN500.. MPCN500.. MPDN500.. MPDR500..	MWM0602	
MPEHR/L2525-5T12	5	25	25	150	35.0	23.1	3.9	-	12		MWM0603	
MPEHR/L2020-5T20	5	20	20	125	37.0	18.1	3.9	-	20		MWM0602	
MPEHR/L2525-5T20	5	25	25	150	37.0	23.1	3.9	-	20		MWM0603	
MPEHR/L2525-5T32	5	25	25	150	56.0	23.0	3.9	-	32		MWM0603	
MPEHR/L3232-5T20	5	32	32	170	39.0	30.0	3.9	-	20		MWM0603	
MPEHR/L3232-5T32	5	32	32	170	56.0	30.0	3.9	-	32		MWM0603	

MPEHR/L

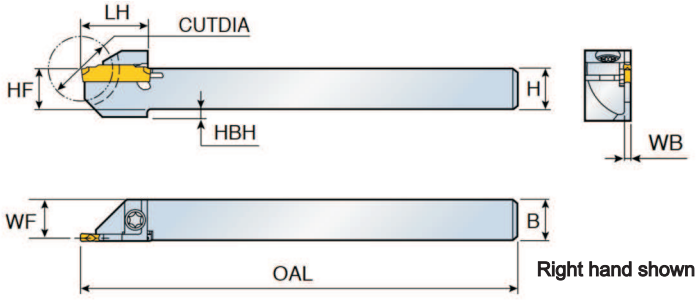


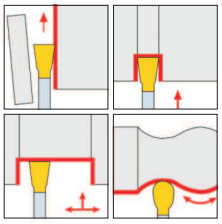


(mm)

Order No.	Dimension (mm)									Insert	Screw	Wrench
	W	H(HF)	B	OAL	LH	WF	WB	HBH	CDX			
MPEHR/L2020-6T12	6	20	20	125	37	17.6	4.9	-	12	MPXN600.. MPCN600.. MPDN600..	MWM0801	ML08
MPEHR/L2525-6T12	6	25	25	150	37	22.6	4.9	7	12		MWM0802	
MPEHR/L2020-6T20	6	20	20	125	41	17.6	4.9	-	20		MWM0801	
MPEHR/L2525-6T20	6	25	25	150	41	22.6	4.9	7	20		MWM0802	
MPEHR/L2525-6T32	6	25	25	150	56	22.5	4.9	7	32		MWM0802	
MPEHR/L3232-6T20	6	32	32	170	41	29.5	4.9	-	20		MWM0802	
MPEHR/L3232-6T25	6	32	32	170	46	29.5	4.9	-	25		MWM0802	
MPEHR/L3232-6T32	6	32	32	170	56	29.5	4.9	-	32		MWM0802	

MPEHR/L-SW
(for Swiss machines)

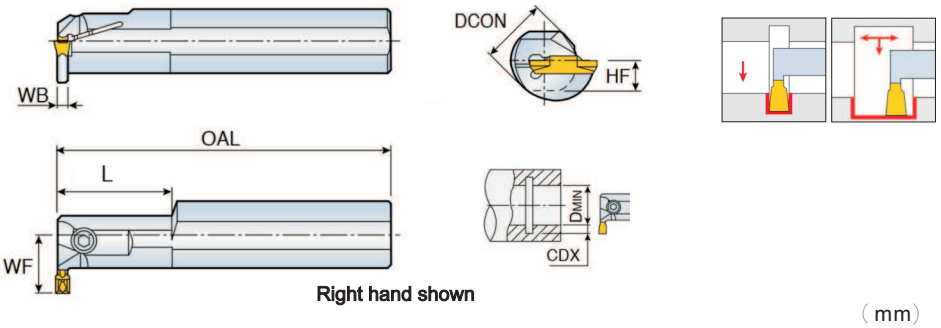




(mm)

Order No.	Dimension (mm)									Insert	Screw	Wrench
	W	H(HF)	B	OAL	LH	WF	WB	HBH	CUTDIA			
MPEHR/L10-20-2SW	2	10	10	125	19	9.1	1.8	2	20	MPXN200.. MPCN200.. MPJN200..	MWS1010	ML100
MPEHR/L12-24-2SW	2	12	12	125	19	11.1	1.8	2	24			
MPEHR/L14-24-2SW	2	14	14	125	19	13.1	1.8	-	24			
MPEHR/L16-32-2SW	2	16	16	125	24	15.1	1.8	-	32			
MPEHR/L12-24-3SW	3	12	12	125	19	10.8	2.4	2	24	MPXN300.. MPCN300.. MPJN300.. MPDR300..		
MPEHR/L16-32-3SW	3	16	16	125	24	14.8	2.4	-	32			
MPEHR/L16-38-3SW	3	16	16	125	27	14.8	2.4	-	38			
MPEHR/L20-45-3SW	3	20	20	125	30.5	18.8	2.4	-	45			

MPNHR/L



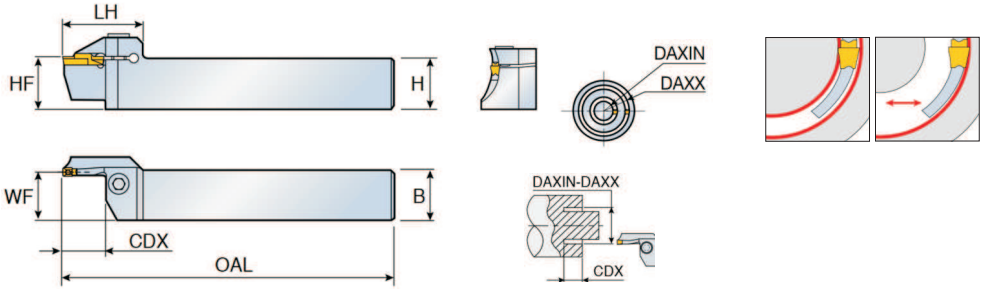
Right hand shown

(mm)

Order No.	Dimension (mm)									Insert	Screw	Wrench
	W	DCON	OAL	L	WF	HF	WB	CDX	DMIN			
MPNHR/L16-2	2	16	125	-	16.5	7.5	1.8	8.5	25	MPXN200.. MPCN200.. MPJN200..	MWM0501	ML05
MPNHR/L20-2	2	20	160	40	15.8	9.0	1.6	6.0	25		MWM0502	
MPNHR/L25-2	2	25	200	40	17.5	11.5	1.6	5.0	25		MWM0503	
MPNHR/L32-2	2	32	250	60	20.8	14.0	1.5	4.7	31		MWM0503	
MPNHR/L20-3	3	20	160	40	15.8	9.0	2.1	6.0	25	MPXN300.. MPCN300.. MPJN300.. MPDN300..	MWM0502	
MPNHR/L25-3	3	25	200	40	17.5	11.5	2.1	5.1	25		MWM0503	
MPNHR/L32-3	3	32	250	60	20.8	14.0	2.1	4.7	31		MWM0503	
MPNHR/L20-4	4	20	160	40	15.8	9.0	2.9	6.0	25	MPXN400.. MPCN400.. MPJN400.. MPDN400..	MWM0502	
MPNHR/L25-4	4	25	200	40	17.5	11.5	2.9	5.2	25		MWM0503	
MPNHR/L32-4	4	32	250	60	20.8	14.0	2.9	4.7	31		MWM0503	

Machining	MPCN/MPJN		MPDN		MPDR		MPXN	
	W	Min.dia	W	Min.dia	W	Min.dia	W	Min.dia
Internal grooving Min. dia. of internal machining	2	40	3	40	2	41	2	24
	3	50	4	40	3	38	3	24
	4	50	5	50	4	38	4	21
	5	60	6	50	5	43	5	30
	6	60	-	-	-	-	6	31

MPTR/L

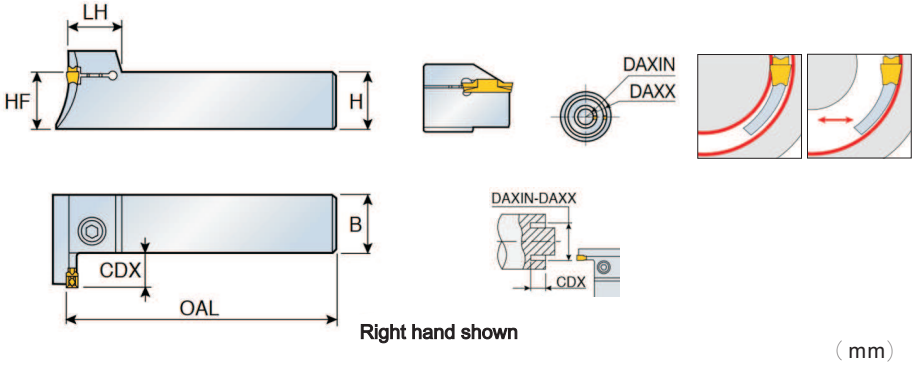


Right hand shown

(mm)

Order No.	Dimension (mm)									Insert	Screw	Wrench
	W	H(HF)	B	OAL	LH	WF	CDX	DAXIN	DAXX			
MPTR/L20-21-30-3T10	3	20	20	140	31	19	10	21	30	MPXN300.. MPCN300.. MPJN300.. MPDN300..	MWM0602	ML06
MPTR/L20-24-35-3T10	3	20	20	140	31	19	10	24	35			
MPTR/L20-29-40-3T10	3	20	20	140	31	19	10	29	40			
MPTR/L20-34-50-3T10	3	20	20	140	31	19	10	34	50			
MPTR/L20-44-70-3T15	3	20	20	140	35	19	15	44	70			
MPTR/L20-64-100-3T15	3	20	20	140	35	19	15	64	100			
MPTR/L25-24-35-3T10	3	25	25	150	35	24	10	24	35		MWM0603	
MPTR/L25-29-40-3T10	3	25	25	150	35	24	10	29	40			
MPTR/L25-34-50-3T10	3	25	25	150	35	24	10	34	50			
MPTR/L25-44-70-3T15	3	25	25	150	35	24	15	44	70			
MPTR/L25-64-100-3T15	3	25	25	150	35	24	15	64	100			
MPTR/L20-19-30-4T10	4	20	20	140	31	18.6	10	19	30	MPXN400.. MPCN400.. MPJN400.. MPDN400..	MWM0602	
MPTR/L20-22-36-4T10	4	20	20	140	31	18.6	10	22	36			
MPTR/L20-28-42-4T16	4	20	20	140	36	18.6	16	28	42			
MPTR/L20-34-50-4T16	4	20	20	140	36	18.6	16	34	50			
MPTR/L20-42-70-4T16	4	20	20	140	36	18.6	16	42	70			
MPTR/L20-62-120-4T16	4	20	20	140	36	18.6	16	62	120			
MPTR/L20-112-200-4T16	4	20	20	140	36	18.6	16	112	200			
MPTR/L25-22-36-4T10	4	25	25	150	35	23.6	10	22	36		MWM0603	
MPTR/L25-28-42-4T20	4	25	25	150	39	23.6	20	28	42			
MPTR/L25-34-50-4T20	4	25	25	150	39	23.6	20	34	50			
MPTR/L25-42-70-4T20	4	25	25	150	39	23.6	20	42	70			
MPTR/L25-62-120-4T20	4	25	25	150	39	23.6	20	62	120			
MPTR/L25-112-200-4T20	4	25	25	150	39	23.6	20	112	200			
MPTR/L25-200-4T20	4	25	25	150	39	23.6	20	200	No limit			
MPTR/L25-50-80-5T15	5	25	25	150	41	23.1	15	50	80	MPXN500.. MPCN500.. MPDN500..	MWM0802	ML08
MPTR/L25-50-80-5T25	5	25	25	150	49	23.1	25	50	80			
MPTR/L25-70-110-5T15	5	25	25	150	41	23.1	15	70	110			
MPTR/L25-70-110-5T25	5	25	25	150	49	23.1	25	70	110			
MPTR/L25-100-150-5T25	5	25	25	150	49	23.1	25	100	150			
MPTR/L25-140-200-5T25	5	25	25	150	49	23.1	25	140	200			
MPTR/L25-200-5T25	5	25	25	150	49	23.1	25	200	No limit			
MPTR/L25-48-70-6T25	6	25	25	150	49	22.6	25	48	70	MPXN600.. MPCN600.. MPDN600..		
MPTR/L25-58-100-6T25	6	25	25	150	49	22.6	25	58	100			
MPTR/L25-88-180-6T25	6	25	25	150	49	22.6	25	88	180			
MPTR/L25-168-400-6T25	6	25	25	150	49	22.6	25	168	400			
MPTR/L25-400-6T25	6	25	25	150	49	22.6	25	400	No limit			

MPPR/L



Right hand shown

(mm)

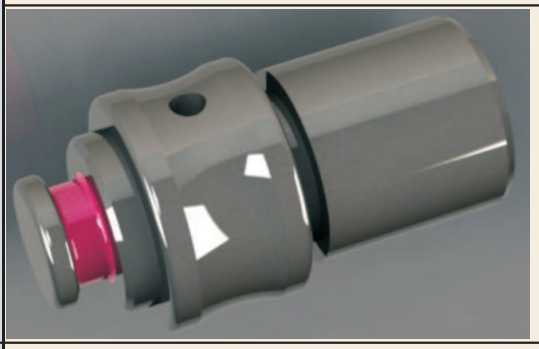
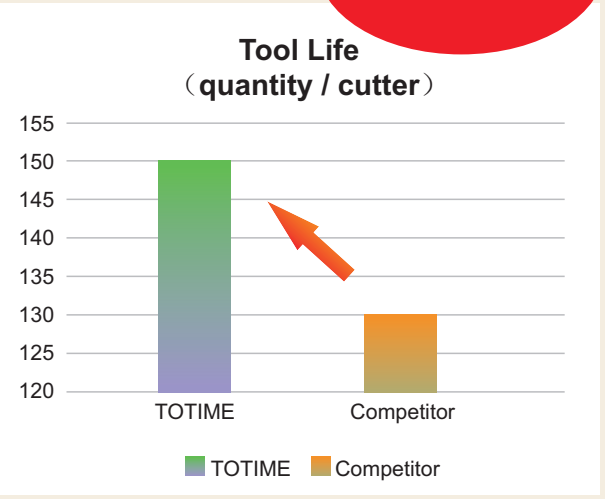
Order No.	Dimension (mm)								Insert	Screw	Wrench
	W	H(HF)	B	OAL	LH	CDX	DAXIN	DAXX			
MPPR/L25-24-35-3T10	3	25	25	150	18	10	24	35	MPXN300.. MPCN300.. MPJN300.. MPDN300..	MWM0505	ML05
MPPR/L25-29-40-3T10	3	25	25	150	18	10	29	40			
MPPR/L25-34-50-3T10	3	25	25	150	18	10	34	50			
MPPR/L25-44-60-3T15	3	25	25	150	18	15	44	60			
MPPR/L25-54-85-3T15	3	25	25	150	18	15	54	85			
MPPR/L25-22-40-4T12	4	25	25	150	18.5	12	22	40	MPXN400.. MPCN400.. MPJN400.. MPDN400..	MWM0603	ML06
MPPR/L25-32-50-4T15	4	25	25	150	18.5	15	32	50			
MPPR/L25-42-60-4T15	4	25	25	150	18.5	15	42	60			
MPPR/L25-52-85-4T15	4	25	25	150	18.5	15	52	85			
MPPR/L25-50-80-5T20	5	25	25	150	22	20	50	80	MPXN500.. MPCN500.. MPDN500..	MWM0802	ML08
MPPR/L25-70-110-5T20	5	25	25	150	22	20	70	110			
MPPR/L25-100-150-5T20	5	25	25	150	22	20	100	150			
MPPR/L25-140-200-5T20	5	25	25	150	22	20	140	200			
MPPR/L25-200-5T20	5	25	25	150	22	20	200	No limit			
MPPR/L25-48-85-6T20	6	25	25	150	22	20	48	85	MPXN600.. MPCN600.. MPDN600..		
MPPR/L25-73-150-6T20	6	25	25	150	22	20	73	150			
MPPR/L25-138-250-6T20	6	25	25	150	22	20	138	250			
MPPR/L25-250-6T20	6	25	25	150	22	20	250	No limit			

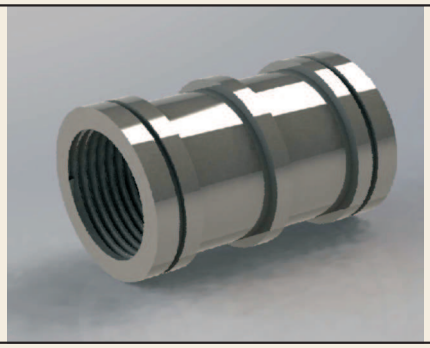
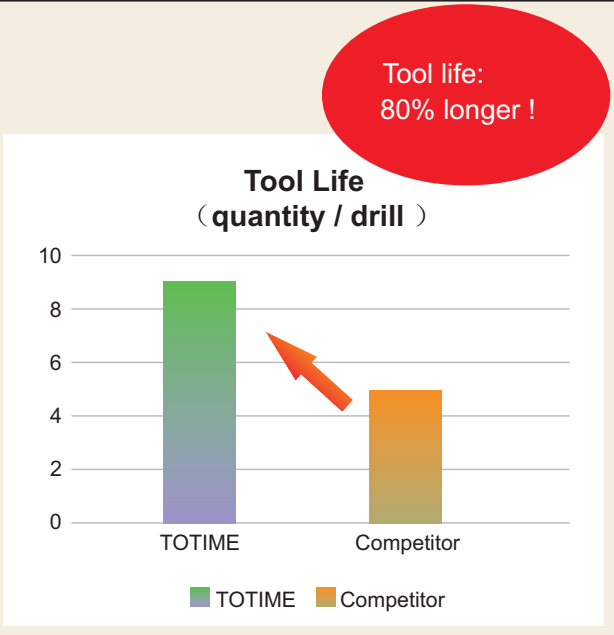
Insert initial min.Dia (Dmin) for face grooving

Machining	Insert	W	Min.dia	Insert	W	Min.dia
Facing Min. dia. of face machining 	MPJN MPCN	3	54	MPXN	3	18
		4	34		4	18
	MPCN	5	49		5	20
		6	46		6	18
	MPDN	3	44			
		4	42			
		5	50			
		6	48			

MP Series Standard Cutting Conditions

ISO	Material		Condition	Tensile strength (N/mm2)	Hardness HB	Cutting speed Vc(m/min)					
						Parting		Grooving and Turning		Face grooving and Internal grooving	
						TX5020	TX5030	TX5020	TX5030	TX5020	TX5030
P	Non-alloy steel, cast steel, free cutting steel	<0.25%C	Annealed	420	125	120-230	140-250	80-180	100-200	80-130	100-150
		>=0.25%C	Annealed	650	190	100-200	130-220	80-160	100-180	60-80	60-100
		<0.55%C	Quenched and tempered	850	250	90-180	90-180	80-140	80-140	60-120	80-140
		>=0.55%C	Annealed	750	220	100-220	100-220	80-140	80-160	60-100	60-110
			Quenched and tempered	1000	300	70-170	-	70-130	-	60-80	-
	Low alloy steel and cast steel (Less than 5% of alloying elements)		Annealed	600	200	90-120	90-120	100-150	100-160		60-110
			Quenched and tempered	930	275	80-170	80-160	80-160	80-150	70-110	70-100
				1000	300	70-130	-	80-150	-	65-100	-
				1200	350	50-120	-	80-130	-	60-90	-
	High alloy steel, cast steel and tool steel		Annealed	680	200	60-120	60-140	80-120	90-130	60-90	60-90
			Quenched and tempered	1100	325	50-70	-	50-80	-	50-80	-
M	Stainless steel and cast steel		Ferritic / martensitic	680	200	-	70-170	-	80-170	-	50-130
			Martensitic	820	240	-	60-150	-	80-150	-	40-100
			Austenitic	600	180	-	90-180	-	80-170	-	40-130
K	Gray cast iron (GG)		Ferritic	-	160	150-260	150-260	70-100	70-100	60-100	60-100
			Pearlitic	-	250	130-190	130-190	50-90	50-90	50-90	50-90
	Cast iron nodular (GGG)		Ferritic	-	180	140-230	140-230	70-100	70-100	60-100	60-100
			Pearlitic	-	260	110-180	110-180	60-90	60-90	50-80	50-80
S	High temp. alloys	Fe based	Annealed	-	200	-	40-70	-	30-50	-	20-40
			Cured	-	280	-	30-50	-	20-40	-	15-30
		Ni or Co based	Annealed	-	250	-	30-40	-	20-30	-	15-20
			Cured	-	350	-	15-25	-	15-20	-	15-20
			Cast	-	320	-	15-30	-	15-20	-	15-20
	Titanium, Ti alloys		Pure	-	190	-	70-150	-	100-130	-	70-90
			Alpha+beta alloys cured	-	310	-	30-60	-	40-70	-	20-50

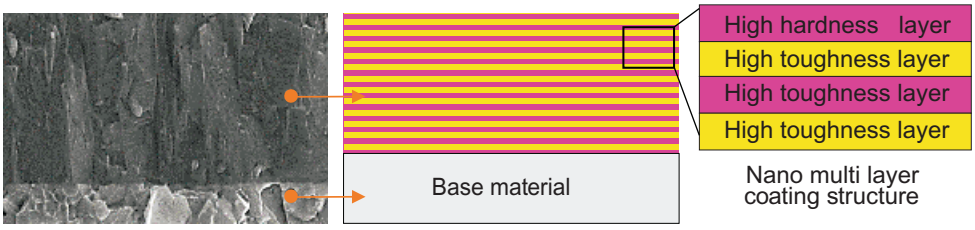
Workpiece Type		Nozzle
Insert		MPDR400R20
Grade		TX5030
Work Material		38MnVS6  P
Cutting Conditions	Cutting Speed：Vc (m/min)	100
	Feed：f (mm/rev)	0.24
	Feed Rate：Vf（mm/min)	108
	Cutting depth：ap（mm)	2
	Tool life（quantity/cutter）	150
	Cooling Form Coolant	Coolant
	Machine	CNC lathe
Result		Tool life: 15% longer ! 

Workpiece Type		Nozzle
Insert		MPXN400C04
Grade		TX5020
Work Material		42CrMo  P
Cutting Conditions	Cutting Speed：Vc (m/min)	120
	Feed：f (mm/rev)	0.15
	Feed Rate：Vf（mm/min)	25.5
	Cutting depth：ap（mm)	2.4
	Tool life（quantity/cutter）	9
	Cooling Form Coolant	Coolant
	Machine	CNC lathe
Result		

Coated Grade

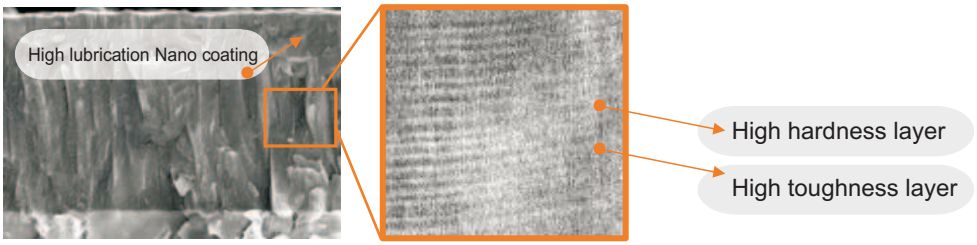
TV3025

- Applied to difficult-to-cut materials for high speed,continuous machining like HRSA(Ti alloy,Inconel) stainless steel. Increases tool life and prevent defects with NANO composite powder.
- Excellent wear resistance and toughness in high temperature with NANO composite powder
- High speed continuous machining available ▶ Increase productivity
- Lower coefficient of friction ▶ Better surface roughness and decrease machining stress
- Nano multi coating layer ▶ High hardness and toughness



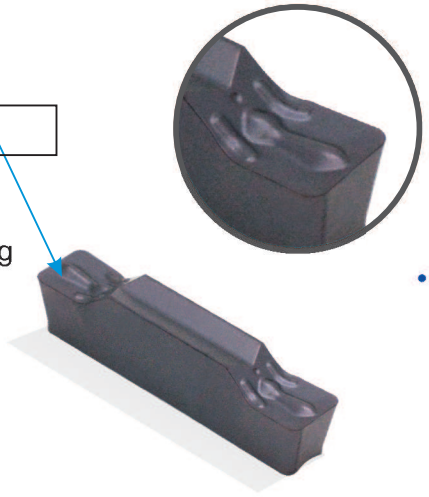
TU4025

- Suitable for high-speed, continuous machining of Stainless steel and Steel(Carbon, Alloy, Mold steel etc.)
- Superior wear resistance with Nano composite powder
- Applying Nano Multi layer coating ▶ Heat resistance,wear resistance and high toughness available
- High lubrication coating layer apply to prevent built-up edge



Chip Breaker Feature

TJ Chip Breaker

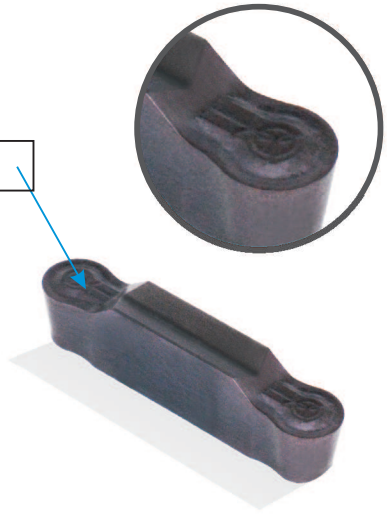


Machining type
Grooving / Turning
Parting off
Workpiece
P,M,S group
M(Mold)

• Features : · Various machining type
· Excellent tool life
· Enhanced chip control

★ G (Grind) insert can be provided according to customer needs

TR Chip Breaker

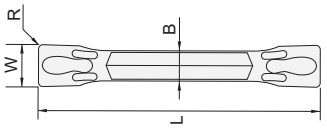


Machining type
Profiling / Undercut
Workpiece
P,M,S group
M(Mold)

• Features : · Various machining type
· Excellent tool life
· Enhanced chip control
· Full Radius for profiling

★ G (Grind) insert can be provided according to customer needs

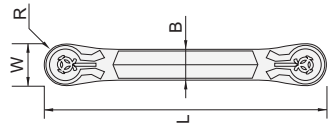
TNG-TJ



Material		TU4025	TV3025
Steel	P	●	
Stainless	M	●	●
Cast Iron	K	●	
Superalloys	S		●

Order No.	Dimension (mm)				Coated	
	W	R	L	B	TU4025	TV3025
TNG20N02M-TJ	2	0.2	20.0	1.7	•	•
TNG30N02M-TJ	3	0.2	20.0	2.2	•	•
TNG30N04M-TJ	3	0.4	20.0	2.2	•	•
TNG40N02M-TJ	4	0.2	20.0	3.2	•	•
TNG40N04M-TJ	4	0.4	20.0	3.2	•	•
TNG40N08M-TJ	4	0.8	20.0	3.2	•	•
TNG50N02M-TJ	5	0.2	25.0	4.0	•	•
TNG50N04M-TJ	5	0.4	25.0	4.0	•	•
TNG50N08M-TJ	5	0.8	25.0	4.0	•	•
TNG60N08M-TJ	6	0.8	25.0	5.0	•	•
TNG80N08M-TJ	8	0.8	30.3	6.0	•	•

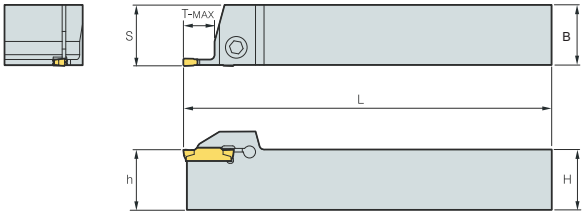
TNG-TR

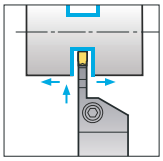


Material		TU4025	TV3025
Steel	P	●	
Stainless	M	●	●
Cast Iron	K	●	
Superalloys	S		●

Order No.	Dimension (mm)				Coated	
	W	R	L	B	TU4025	TV3025
TNG30R15M-TR	3	1.5	20.0	2.2	•	•
TNG40R20M-TR	4	2.0	20.0	3.2	•	•
TNG50R25M-TR	5	2.5	25.0	4.0	•	•
TNG60R30M-TR	6	3.0	25.0	5.0	•	•
TNG80R40M-TR	8	4.0	30.3	6.0	•	•

NG..EHR/L



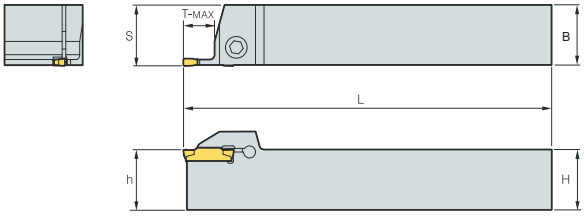


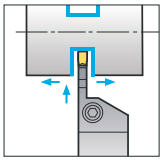
Right-hand show

（mm）

Order No.	Dimension (mm)						Insert	Wrench	Screw
	W	T-MAX	H	B	L	h			
NG2EHR/L2020-T09	2	9	20	20	125	20	TNG20N02M-TJ	NW220	TNS220
NG2EHR/L2020-T13	2	13	20	20	125	20			
NG2EHR/L2020-T15	2	15	20	20	125	20			
NG2EHR/L2525-T09	2	9	25	25	150	25		NW225	TNS225
NG2EHR/L2525-T13	2	13	25	25	150	25			
NG2EHR/L2525-T15	2	15	25	25	150	25			
NG2EHR/L2525-T17	2	17	25	25	150	25			
NG2EHR/L3225-T09	2	9	32	25	150	32		NW2325	TNS2325
NG2EHR/L3225-T13	2	13	32	25	150	32			
NG2EHR/L3225-T15	2	15	32	25	150	32			
NG2EHR/L3225-T17	2	17	32	25	150	32			
NG3EHR/L2020-T09	3	9	20	20	120	20	TNG30N..M-TJ TNG30R15M-TR	NW320	TNS320
NG3EHR/L2020-T11	3	11	20	20	120	20			
NG3EHR/L2020-T13	3	13	20	20	120	20			
NG3EHR/L2020-T15	3	15	20	20	120	20			
NG3EHR/L2020-T17	3	17	20	20	120	20			
NG3EHR/L2020-T20	3	20	20	20	120	20			
NG3EHR/L2525-T09	3	9	25	25	150	25		NW325	TNS325
NG3EHR/L2525-T11	3	11	25	25	150	25			
NG3EHR/L2525-T13	3	13	25	25	150	25			
NG3EHR/L2525-T15	3	15	25	25	150	25			
NG3EHR/L2525-T17	3	17	25	25	150	25			
NG3EHR/L2525-T20	3	20	25	25	150	25			
NG3EHR/L3225-T09	3	9	32	25	150	32		NW3325	TNS3325
NG3EHR/L3225-T11	3	11	32	25	150	32			
NG3EHR/L3225-T13	3	13	32	25	150	32			
NG3EHR/L3225-T15	3	15	32	25	150	32			
NG3EHR/L3225-T17	3	17	32	25	150	32			
NG3EHR/L3225-T20	3	20	32	25	150	32			
NG3EHR/L3232-T09	3	9	32	32	150	32		NW332	TNS332
NG3EHR/L3232-T11	3	11	32	32	150	32			
NG3EHR/L3232-T13	3	13	32	32	150	32			
NG3EHR/L3232-T15	3	15	32	32	150	32			
NG3EHR/L3232-T17	3	17	32	32	150	32			
NG3EHR/L3232-T20	3	20	32	32	150	32			

NG..EHR/L



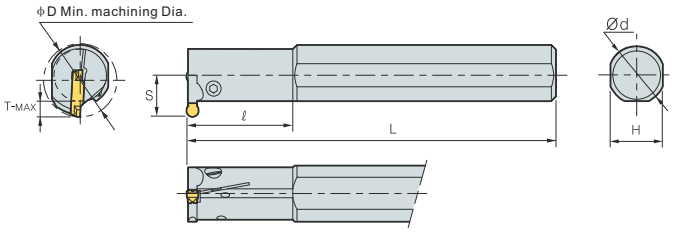


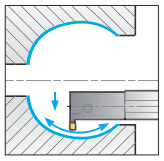
Right-hand show

（mm）

Order No.	Dimension (mm)						Insert	Wrench	Screw
	W	T-MAX	H	B	L	h			
NG4EHR/L2020-T09	4	9	20	20	125	20	TNG40N..M-TJ TNG40R20M-TR	NW420	TNS420
NG4EHR/L2020-T11	4	11	20	20	125	20			
NG4EHR/L2020-T13	4	13	20	20	125	20			
NG4EHR/L2020-T15	4	15	20	20	125	20			
NG4EHR/L2525-T09	4	9	25	25	150	25		NW425	TNS425
NG4EHR/L2525-T11	4	11	25	25	150	25			
NG4EHR/L2525-T13	4	13	25	25	150	25			
NG4EHR/L2525-T15	4	15	25	25	150	25			
NG4EHR/L3225-T09	4	9	32	25	150	32		NW4325	TNS4325
NG4EHR/L3225-T11	4	11	32	25	150	32			
NG4EHR/L3225-T13	4	13	32	25	150	32			
NG4EHR/L3225-T15	4	15	32	25	150	32			
NG4EHR/L3225-T17	4	17	32	25	150	32			
NG4EHR/L3225-T20	4	20	32	25	150	32			
NG5EHR/L2525-T15	5	15	25	25	150	25	TNG50N..M-TJ TNG50R25M-TR	NW525	TNS525
NG5EHR/L2525-T20	5	20	25	25	150	25			
NG5EHR/L3225-T15	5	15	32	25	150	32		NW5325	TNS5325
NG5EHR/L3225-T20	5	20	32	25	150	32			
NG5EHR/L3225-T25	5	25	32	25	150	32			
NG5EHR/L3232-T15	5	15	32	32	170	32		NW532	TNS532
NG5EHR/L3232-T20	5	20	32	32	170	32			
NG5EHR/L3232-T25	5	25	32	32	170	32			
NG6EHR/L2525-T15	6	15	25	25	150	25	TNG60N..M-TJ TNG60R30M-TR	NW625	TNS625
NG6EHR/L2525-T20	6	20	25	25	150	25			
NG6EHR/L2525-T25	6	25	25	25	150	25			
NG6EHR/L3225-T15	6	15	32	25	150	32		NW6325	TNS6325
NG6EHR/L3225-T20	6	20	32	25	150	32			
NG6EHR/L3225-T25	6	25	32	25	150	32			
NG6EHR/L3232-T15	6	15	32	32	170	32		NW632	TNS632
NG6EHR/L3232-T20	6	20	32	32	170	32			
NG6EHR/L3232-T25	6	25	32	32	170	32			
NG8EHR/L3225-T15	8	15	32	25	170	32	TNG80N..M-TJ TNG80R40M-TR	NW8325	TNS8325
NG8EHR/L3225-T20	8	20	32	25	170	32			
NG8EHR/L3225-T25	8	25	32	25	170	32			
NG8EHR/L3225-T30	8	30	32	25	170	32			
NG8EHR/L3232-T15	8	15	32	32	170	32		NW832	TNS832
NG8EHR/L3232-T20	8	20	32	32	170	32			
NG8EHR/L3232-T25	8	25	32	32	170	32			
NG8EHR/L3232-T30	8	30	32	32	170	32			
NG8EHR/L3232-T32	8	32	32	32	170	32			

NG..IVR/L



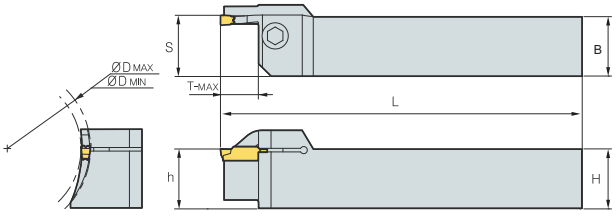


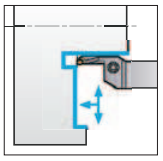
Right-hand show

(mm)

Order No.	Dimension (mm)								Insert	Wrench	Screw
	W	T-MAX	D	d	L	S	H	l			
NG2IVR/L2516-T08	2	8	25	16	125	16.5	14	-	TNG20N02M-TJ	NFW216	TNFS216
NG2IVR/L2520-T06	2	6	25	20	160	15.8	18	40		NFW220	TNFS220
NG3IVR/L2520-T06	3	6	25	20	160	15.8	18	40	TNG30N..M-TJ TNG30R15M-TR	NFW320	TNFS320
NG3IVR/L2525-T051	3	5.1	25	25	200	17.5	23	40		NFW325	TNFS325
NG3IVR/L3225-T08	3	8	32	25	200	21.5	23	40		NFW3255	TNFS3255
NG3IVR/L4032-T10	3	10	40	32	250	27.0	30	60		NFW332	TNFS332
NG4IVR/L2520-T06	4	6	25	20	160	15.8	18	40	TNG40N..M-TJ TNG40R20M-TR	NFW420	TNFS420
NG4IVR/L3225-T08	4	8	32	25	200	21.5	23	40		NFW425	TNFS425
NG4IVR/L3132-T04	4	4	31	32	250	20.8	30	60		NFW4321	TNFS4321
NG4IVR/L4032-T10	4	10	40	32	250	27.0	30	60		NFW4322	TNFS4322
NG5IVR/L3125-T05	5	5	31	25	200	17.3	23	60	TNG50N..M-TJ TNG50R25M-TR	NFW525	TNFS525
NG5IVR/L4032-T10	5	10	40	32	250	27.0	30	60		NFW532	TNFS532
NG6IVR/L3132-T04	6	4	31	32	250	20.8	30	60	TNG60N..M-TJ TNG60R30M-TR	NFW6321	TNFS6321
NG6IVR/L4032-T10	6	10	40	32	250	27.0	30	60		NFW6322	TNFS6322
NG8IVR/L3732-T05	8	5	37	32	250	21.3	30	60	TNG80N..M-TJ TNG80R40M-TR	NFW832	TNFS832
NG8IVR/L4240-T058	8	5.8	42	40	300	25.8	38	65		NFW840	TNFS840

NG..TR/L



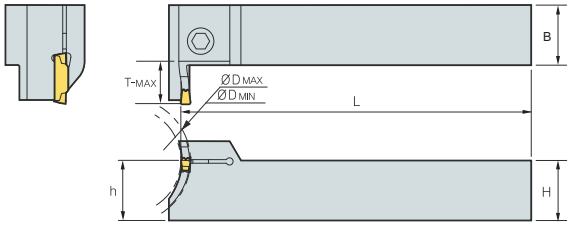


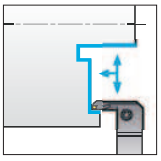
Right-hand show

(mm)

Order No.	Dimension (mm)									Insert	Wrench	Screw
	W	T-MAX	H	B	L	S	h	DMIN	DMAX			
NG3TR/L20-024035-T10	3	10	20	20	150	20.5	20	24	35	TNG30N..M-TJ TNG30R15M-TR	NTW320	TNTS320
NG3TR/L20-029040-T10	3	10	20	20	150	20.5	20	29	40			
NG3TR/L20-034050-T10	3	10	20	20	150	20.5	20	34	50			
NG3TR/L20-044070-T15	3	15	20	20	150	20.5	20	44	70			
NG3TR/L20-064100-T15	3	15	20	20	150	20.5	20	64	100			
NG3TR/L25-024035-T10	3	10	25	25	150	25.5	25	24	35		NTW325	TNTS325
NG3TR/L25-029040-T10	3	10	25	25	150	25.5	25	29	40			
NG3TR/L25-034050-T10	3	10	25	25	150	25.5	25	34	50			
NG3TR/L25-044070-T15	3	15	25	25	150	25.5	25	44	70			
NG3TR/L25-064100-T15	3	15	25	25	150	25.5	25	64	100			
NG4TR/L20-028042-T20	4	20	20	20	150	20.6	20	28	42	TNG40N..M-TJ TNG40R20M-TR	NTW420	TNTS420
NG4TR/L20-034050-T20	4	20	20	20	150	20.6	20	34	50			
NG4TR/L20-042070-T20	4	20	20	20	150	20.6	20	42	70			
NG4TR/L20-062120-T20	4	20	20	20	150	20.6	20	62	120			
NG4TR/L20-112200-T20	4	20	20	20	150	20.6	20	112	200			
NG4TR/L25-022036-T10	4	10	25	25	150	25.6	25	22	36		NTW425	TNTS425
NG4TR/L25-028042-T20	4	20	25	25	150	25.6	25	28	42			
NG4TR/L25-034050-T20	4	20	25	25	150	25.6	25	34	50			
NG4TR/L25-042070-T20	4	20	25	25	150	25.6	25	42	70			
NG4TR/L25-062120-T20	4	20	25	25	150	25.6	25	62	120			
NG4TR/L25-112200-T20	4	20	25	25	150	25.6	25	112	200			
NG5TR/L20-050080-T25	5	25	20	20	150	20.6	20	50	80	TNG50N..M-TJ TNG50R25M-TR	NTW520	TNTS520
NG5TR/L20-070110-T25	5	25	20	20	150	20.6	20	70	110			
NG5TR/L20-100150-T25	5	25	20	20	150	20.6	20	100	150			
NG5TR/L20-140200-T25	5	25	20	20	150	20.6	20	140	200			
NG5TR/L25-050080-T25	5	25	25	25	150	25.6	25	50	80			
NG5TR/L25-070110-T25	5	25	25	25	150	25.6	25	70	110		NTW525	TNTS525
NG5TR/L25-100150-T25	5	25	25	25	150	25.6	25	100	150			
NG5TR/L25-140200-T25	5	25	25	25	150	25.6	25	140	200			
NG6TR/L25-048070-T25	6	25	25	25	150	25.6	25	48	70	TNG60N..M-TJ TNG60R30M-TR	NTW625	TNTS625
NG6TR/L25-058100-T25	6	25	25	25	150	25.6	25	58	100			
NG6TR/L25-088180-T25	6	25	25	25	150	25.6	25	88	180			
NG6TR/L25-168400-T25	6	25	25	25	150	25.6	25	168	400			

NG..VR/L





Right-hand show

（mm）

Order No.	Dimension (mm)								Insert	Wrench	Screw
	W	T-MAX	H	B	L	h	DMIN	DMAX			
NG3VR/L20-024035-T10	3	10	20	20	150	20	24	35	TNG30N..M-TJ TNG30R15M-TR	NVW320	TNVS320
NG3VR/L20-029040-T10	3	10	20	20	150	20	29	40			
NG3VR/L20-034050-T10	3	10	20	20	150	20	34	50			
NG3VR/L20-044060-T15	3	15	20	20	150	20	44	60			
NG3VR/L20-054085-T15	3	15	20	20	150	20	54	85			
NG3VR/L25-024035-T10	3	10	25	25	150	25	24	35		NVW325	TNVS325
NG3VR/L25-029040-T10	3	10	25	25	150	25	29	40			
NG3VR/L25-034050-T10	3	10	25	25	150	25	34	50			
NG3VR/L25-044060-T15	3	15	25	25	150	25	44	60			
NG3VR/L25-054085-T15	3	15	25	25	150	25	54	85			
NG4VR/L20-032050-T15	4	15	20	20	150	20	32	50	TNG40N..M-TJ TNG40R20M-TR	NVW420	TNVS420
NG4VR/L20-042060-T15	4	15	20	20	150	20	42	60			
NG4VR/L20-052085-T15	4	15	20	20	150	20	52	85			
NG4VR/L25-022040-T12	4	12	25	25	150	25	22	40		NVW425	TNVS425
NG4VR/L25-032050-T15	4	15	25	25	150	25	32	50			
NG4VR/L25-042060-T15	4	15	25	25	150	25	42	60			
NG4VR/L25-052085-T15	4	15	25	25	150	25	52	85			
NG5VR/L20-050080-T20	5	20	20	20	150	20	50	80	TNG50N..M-TJ TNG50R25M-TR	NVW520	TNVS520
NG5VR/L20-070110-T20	5	20	20	20	150	20	70	110			
NG5VR/L20-100150-T20	5	20	20	20	150	20	100	150			
NG5VR/L20-140200-T20	5	20	20	20	150	20	140	200			
NG5VR/L25-050080-T20	5	20	25	25	150	25	50	80		NVW525	TNVS525
NG5VR/L25-070110-T20	5	20	25	25	150	25	70	110			
NG5VR/L25-100150-T20	5	20	25	25	150	25	100	150			
NG5VR/L25-140200-T20	5	20	25	25	150	25	140	200			
NG6VR/L25-048085-T20	6	20	25	25	150	25	48	85	TNG60N..M-TJ TNG60R30M-TR	NVW625	TNVS625
NG6VR/L25-073150-T20	6	20	25	25	150	25	73	150			
NG6VR/L25-138250-T20	6	20	25	25	150	25	138	250			

TNG Series Standard Cutting Conditions

ISO	Workpiece Material	Grade	Vc (m/min)	Grooving				Turning			
				Edge Width （mm）				Edge Width （mm）			
				2-4	5	6	8	2-4	5	6	8
				f(mm/r)				f(mm/r)			
P	Carbon Steel	TU4025	150-300	0.05-0.20	0.10-0.25	0.10-0.30	0.10-0.30	0.10-0.25	0.10-0.30	0.15-0.30	0.20-0.35
	Alloy Steel	TU4025	120-280	0.05-0.15	0.10-0.20	0.10-0.25	0.10-0.30	0.10-0.25	0.10-0.30	0.15-0.30	0.20-0.35
M	Stainless Steel	TV3025	120-250	0.05-0.25	0.10-0.30	0.10-0.30	0.10-0.30	0.10-0.25	0.10-0.30	0.15-0.30	0.20-0.35
K	Cast Iron	TU4025	120-210	0.05-0.25	0.10-0.25	0.15-0.30	0.15-0.35	0.10-0.30	0.10-0.35	0.15-0.35	0.20-0.40
S	Hardened Alloy	TV3025	30-90	0.05-0.20	0.10-0.25	0.10-0.25	0.10-0.25	0.05-0.20	0.10-0.20	0.10-0.20	0.10-0.20
	Titanium Alloy	TV3025	30-90	0.05-0.20	0.10-0.25	0.10-0.25	0.10-0.25	0.05-0.20	0.10-0.20	0.10-0.20	0.10-0.20

Applications

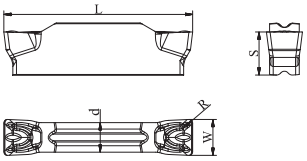
Workpiece name	Aerospace parts (COMP AFT INNER)	Workpiece material	Inconel 718
Machining type	Ring shape/Vertical lathe(O.D deep grooving)/Wet		
Cutting condition	Max.dia=542mm Vc=40m/min fn=0.15mm/rev ap=0.7mm		
Item	TNG50R25M-TR(TV3025)		

Division	TOTIME	Competitor(T)
Tool life/ Wear image (7min)		
Status comparison	Normal wear	Lots of chipping at edge
Result	Wear and damage comparison → Better wear resistance performance than competitor	

Workpiece name	Automobile parts (turbocharger houing)	Workpiece material	1.4837
Machining type	Turbocharger housing/Horizontal lathe(Shouldering,Grooving)/Wet		
Cutting condition	Max.dia=99mm Vc=150m/min fn=0.05-0.2mm/rev ap=3.0mm		
Item	TNG30N04M-TJ (TV3025)		

Division	TOTIME	Competitor(T)
Tool life/ Wear image		
Status comparison	After 10pcs machining:normal wear	After 5pcs machining:partial chipping, large wear
Result	Wear and damage comparison at limit → 2 times better wear, chipping resistance performance than competitor	

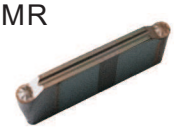
TKD-MT

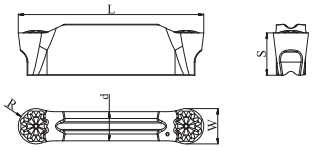


Material	TG4230
Steel	P ●
Stainless	M ●
Cast Iron	K ●

Order No.	Dimension (mm)				
	W	R	L	d	S
TKD 2002 - MT	2	0.2	16	1.2	3.5
TKD 2502 - MT	2.5	0.2	18.5	2	3.85
TKD 3004 - MT	3	0.4	21.2	2.35	4.8
TKD 4004 - MT	4	0.4	21	3.3	4.8
TKD 5004 - MT	5	0.4	26	4.1	5.8
TKD 5008 - MT	5	0.8	26	4.1	5.8
TKD 6004 - MT	6	0.4	26	5	5.8
TKD 6008 - MT	6	0.8	26	5	5.8

TKD-MR

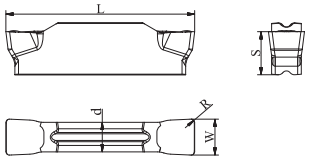




Material	TG4230
Steel	P ●
Stainless	M ●
Cast Iron	K ●

Order No.	Dimension (mm)				
	W	R	L	d	S
TKD 2010 - MR	2	1	16	1.5	3.5
TKD 3015 - MR	3	1.5	21	2.35	4.8
TKD 4020 - MR	4	2	21	3.3	4.8
TKD 5025 - MR	5	2.5	26	4.1	5.8
TKD 6030 - MR	6	3	26	5	5.8

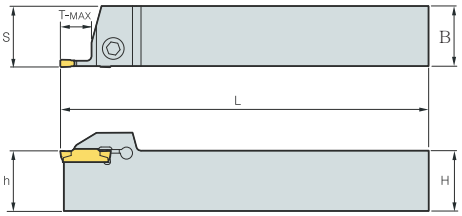
TKD-AL

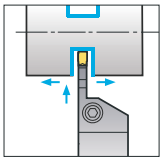


Material	TN410
Non-ferrous Metal	N ●

Order No.	Dimension (mm)				
	W	R	L	d	S
TKD 2002 - AL	2	0.2	16	1.2	3.5
TKD 2502 - AL	2.5	0.2	18.5	2	3.85
TKD 3004 - AL	3	0.4	21.2	2.35	4.8
TKD 4004 - AL	4	0.4	21	3.3	4.8

MGEHR/L

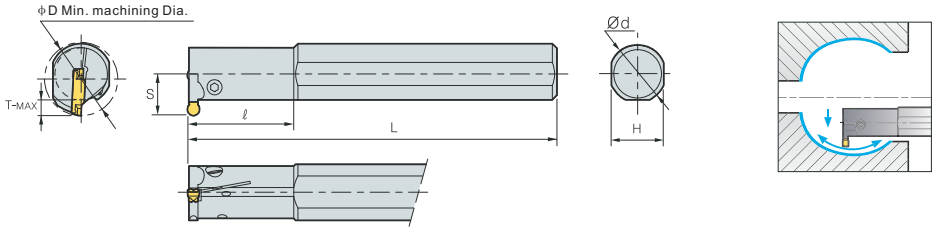




(mm)

Order No.	Dimension (mm)							Insert	Wrench	Screw
	W	T-MAX	H	B	L	S	h			
MGEHR/L1212-2.0	2	12	12	12	100	13	12	TKD20□MT TKD20□MR	LW20	LHA210
MGEHR/L1616-2.0	2	14	16	16	100	17	16		LW30	LHA310
MGEHR/L2020-2.0	2	14	20	20	125	21	20		LW40	LHA410
MGEHR/L2525-2.0	2	14	25	25	150	26	25		LW50	LHA510
MGEHR/L1616-2.5	2.5	16	16	16	100	17	16	TKD25□MT	LW30	LHA310
MGEHR/L2020-2.5	2.5	16	20	20	125	21	20		LW40	LHA410
MGEHR/L2525-2.5	2.5	16	25	25	150	26	25		LW50	LHA510
MGEHR/L1212-3.0	3	16	12	12	100	13	12	TKD30□MT TKD30□MR	LW20	LHA210
MGEHR/L1616-3.0	3	18	16	16	100	17	16		LW30	LHA310
MGEHR/L2020-3.0	3	18	20	20	125	21	20		LW40	LHA410
MGEHR/L2525-3.0	3	18	25	25	150	26	25		LW50	LHA510
MGEHR/L3232-3.0	3	18	32	32	170	33	32		LW60	LHA610
MGEHR/L1616-4.0	4	18	16	16	100	17	16	TKD40□MT TKD40□MR	LW30	LHA310
MGEHR/L2020-4.0	4	18	20	20	125	21	20		LW40	LHA410
MGEHR/L2525-4.0	4	18	25	25	150	26	25		LW50	LHA510
MGEHR/L3232-4.0	4	18	32	32	170	33	32		LW60	LHA610
MGEHR/L2020-5.0	5	23	20	20	125	21	20	TKD50□MT TKD50□MR	LW40	LHA410
MGEHR/L2525-5.0	5	23	25	25	150	26	25		LW50	LHA510
MGEHR/L3232-5.0	5	23	32	32	170	33	32		LW60	LHA610
MGEHR/L2525-6.0	6	25	25	25	150	26	25	TKD60□MT TKD60□MR	LW50	LHA510
MGEHR/L3232-6.0	6	25	32	32	170	33	32		LW60	LHA610

MGIVR/L

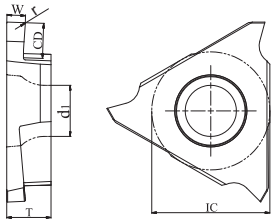


Order No.	Dimension (mm)								Insert	Wrench	Screw
	W	T-MAX	D	d	L	S	H	l			
MGIVR/L2016-2.0	2	4.5	20	16	125	12.4	15	35	TKD20..MT TKD20..MR	HW20L	MHA0210
MGIVR/L2520-2.0	2	4.5	25	20	150	14	18	45		HW30L	MHA0310
MGIVR/L2925-2.0	2	4.5	29	25	200	17.2	23	45		HW40L	MHA0410
MGIVR/L2016-2.5	2.5	4.5	20	16	125	12.5	15	35	TKD25..MT	HW20L	MHA0210
MGIVR/L2520-2.5	2.5	4.5	25	20	150	15.1	18	45		HW30L	MHA0310
MGIVR/L2925-2.5	2.5	4.5	29	25	200	18.2	23	45		HW40L	MHA0410
MGIVR/L2520-3.0	3	5	25	20	150	15.6	18	45	TKD30..MT TKD30..MR	HW30L	MHA0310
MGIVR/L3125-3.0	3	6	31	25	200	18.9	23	45		HW50L	MHA0510
MGIVR/L3732-3.0	3	6	37	32	250	21.5	30	60		HW60L	MHA0610
MGIVR/L2520-4.0	4	6	25	20	150	15.6	18	45	TKD40..MT TKD40..MR	HW30L	MHA0310
MGIVR/L3125-4.0	4	6	31	25	200	18.9	23	45		HW50L	MHA0510
MGIVR/L3732-4.0	4	6	37	32	250	21.5	30	60		HW60L	MHA0610
MGIVR/L3125-5.0	5	8	31	25	200	19.4	23	45	TKD50..MT TKD50..MR	HW50L	MHA0510
MGIVR/L3732-5.0	5	8	37	32	250	21.4	30	60		HW60L	MHA0610
MGIVR/L3125-6.0	6	8	31	25	200	19.4	23	45	TKD60..MT TKD60..MR	HW50L	MHA0510
MGIVR/L3732-6.0	6	8	37	32	250	21.4	30	60		HW60L	MHA0610

TKD Series Standard Cutting Conditions

ISO	Workpiece Material	Vc(m/min)	Grooving				Turning			
			Edge Width (mm)				Edge Width (mm)			
			2-3	4	5	6	2-3	4	5	6
			f(mm/r)				f(mm/r)			
P	Carbon Steel	80-200	0.05-0.15	0.10-0.20	0.15-0.25	0.15-0.30	0.10-0.25	0.10-0.30	0.15-0.30	0.20-0.35
	Alloy Steel	70-180	0.05-0.15	0.10-0.20	0.15-0.25	0.15-0.30	0.10-0.25	0.10-0.30	0.15-0.30	0.20-0.35
M	Stainless Steel	60-150	0.05-0.15	0.10-0.20	0.15-0.25	0.15-0.30	0.10-0.25	0.10-0.30	0.15-0.30	0.20-0.35
K	Cast Iron	100-200	0.05-0.20	0.10-0.25	0.15-0.30	0.15-0.35	0.10-0.30	0.10-0.35	0.15-0.35	0.20-0.40

GB

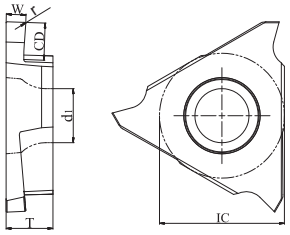


Material	TG4230
Steel	P ●
Stainless	M ●
Cast Iron	K ●

● : Stock ○: Non－Stock

Order No.	Dimension (mm)							
	W	CD	r	IC	T	d1	R	L
GB3075R/L -010	0.75	2.0	0.1	9.525	3.18	4.4	●	○
GB3080R/L -005	0.80		0.05	9.525	3.18	4.4	●	○
GB3095R/L -010	0.95		0.1	9.525	3.18	4.4	●	○
GB3100R/L -005	1.00		0.05	9.525	3.18	4.4	●	○
GB3100R/L -010	1.00		0.1	9.525	3.18	4.4	●	○
GB3120R/L -010	1.20		0.1	9.525	3.18	4.4	●	○
GB3120R/L -020	1.20		0.2	9.525	3.18	4.4	●	○
GB3125R/L -010	1.25		0.1	9.525	3.18	4.4	●	○
GB3140R/L -010	1.40		0.1	9.525	3.18	4.4	●	○
GB3140R/L -020	1.40		0.2	9.525	3.18	4.4	●	●
GB3150R/L -010	1.50		0.1	9.525	3.18	4.4	●	○
GB3150R/L -020	1.50		0.2	9.525	3.18	4.4	●	●
GB3175R/L -010	1.75		0.1	9.525	3.18	4.4	●	○
GB3200R/L -010	2.00	2.5	0.1	9.525	3.18	4.4	●	○
GB3200R/L -020	2.00		0.2	9.525	3.18	4.4	●	●
GB3250R/L -010	2.50		0.1	9.525	3.18	4.4	●	○
GB3250R/L -020	2.50		0.2	9.525	3.18	4.4	●	●
GB3300R/L -020	3.00		0.2	9.525	3.18	4.4	●	●
GB4125R/L -020	1.25	2.0	0.2	12.7	4.76	5.5	●	●
GB4150R/L -010	1.50	3.5	0.1	12.7	4.76	5.5	●	○
GB4150R/L -020	1.50		0.2	12.7	4.76	5.5	●	●
GB4175R/L -020	1.75		0.2	12.7	4.76	5.5	●	○
GB4185R/L -020	1.85		0.2	12.7	4.76	5.5	●	●
GB4200R/L -005	2.00		0.05	12.7	4.76	5.5	●	○
GB4200R/L -010	2.00		0.1	12.7	4.76	5.5	●	○
GB4200R/L -020	2.00		0.2	12.7	4.76	5.5	●	●
GB4200R/L -030	2.00		0.3	12.7	4.76	5.5	●	○
GB4200R/L -050	2.00		0.5	12.7	4.76	5.5	●	○
GB4250R/L -030	2.50	4.0	0.3	12.7	4.76	5.5	●	●
GB4265R/L -030	2.65		0.3	12.7	4.76	5.5	●	○
GB4280R/L -030	2.80		0.3	12.7	4.76	5.5	●	○
GB4300R/L -030	3.00		0.3	12.7	4.76	5.5	●	●
GB4330R/L -030	3.30	5.0	0.3	12.7	4.76	5.5	●	○
GB4350R/L -030	3.50		0.3	12.7	4.76	5.5	●	●
GB4400R/L -040	4.00		0.4	12.7	4.76	5.5	●	●
GB4430R/L -040	4.30		0.4	12.7	4.76	5.5	●	○

GBR



Material	TG4230	
Steel	P	●
Stainless	M	●
Cast Iron	K	●

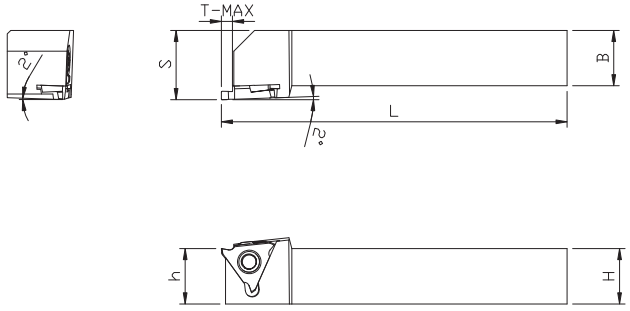
● : Stock ○: Non－Stock

Order No.	Dimension (mm)							
	W	CD	r	IC	T	d1	R	L
GBR4100R/L -050	1.00	2.0	0.50	12.70	4.76	5.50	●	●
GBR4150R/L -075	1.50	3.5	0.75	12.70	4.76	5.50	●	●
GBR4200R/L -100	2.00	3.5	1.00	12.70	4.76	5.50	●	●
GBR4250R/L -125	2.50	4.0	1.25	12.70	4.76	5.50	●	●
GBR4300R/L -150	3.00	4.0	1.50	12.70	4.76	5.50	●	●
GBR4400R/L -200	4.00	5.0	2.00	12.70	4.76	5.50	●	●

GB/GBR Series Standard Cutting Conditions

ISO	Workpiece Material	Vc(m/min)	Grooving					Turning				
			Edge Width （mm）					Edge Width （mm）				
			0.75-1.00	1.20-2.00	2.50-3.00	3.30-4.00	4.30	0.75-1.00	1.20-2.00	2.50-3.00	3.30-4.00	4.30
			f(mm/min)					f(mm/min)				
P	Carbon Steel	80-200	0.03-0.08	0.04-0.09	0.05-0.10	0.05-0.12	0.05-0.12	—	0.04-0.09	0.05-0.10	0.05-0.10	0.05-0.10
P	Alloy Steel	80-180	0.03-0.07	0.04-0.08	0.05-0.09	0.05-0.10	0.05-0.10	—	0.04-0.08	0.05-0.09	0.05-0.10	0.05-0.10
M	Stainless Steel	60-150	0.03-0.07	0.04-0.08	0.05-0.09	0.05-0.10	0.05-0.10	—	0.04-0.08	0.05-0.09	0.05-0.10	0.05-0.10
K	Cast Iron	80-180	0.03-0.08	0.04-0.09	0.05-0.10	0.05-0.12	0.05-0.12	—	0.04-0.09	0.05-0.10	0.05-0.10	0.05-0.10

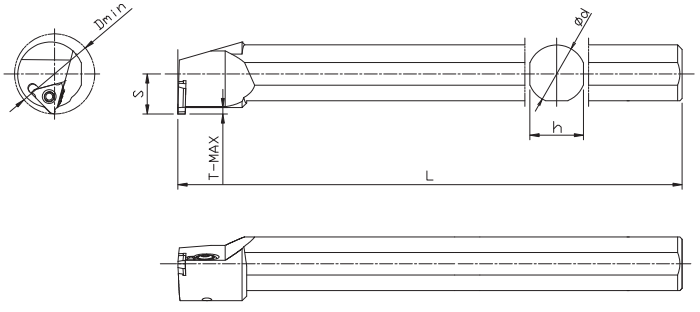
GB Series External Toolholders



Right-hand show

Order No.	Dimension (mm)						Insert	Wrench	Screw
	T-MAX	H	B	L	S	h			
GBER2020K3	2.5	20	20	125	25	20	GB3...	TT15P	SI60M 035120
GBER2525M3	2.5	25	25	150	30	25			
GBER2020K4-15	4.0	20	20	125	25	20	GB4/GBR4... (1.0≤W<2.5)	TT20P	SI60M 050120
GBER2525M4-15	4.0	25	25	150	30	25			
GBER2020K4-25	4.5	20	20	125	25	20	GB4/GBR4... (2.5≤W<3.3)		
GBER2525M4-25	4.5	25	25	150	30	25			
GBER2020K4-35	5.5	20	20	125	25	20	GB4/GBR4... (3.3≤W<4.8)		
GBER2525M4-35	5.5	25	25	150	30	25			

GB Series Internal Toolholders



Right-hand show

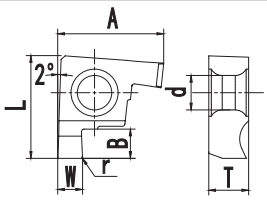
Order No.	Dimension (mm)						Insert	Wrench	Screw
	T-MAX	Dmin	Φd	L	S	h			
GBIR/L2620Q3	3.0	26	20	180	13	18	GB3...	TT15P	SI60M
GBIR/L3525R4	4.5	35	25	200	17.5	23	GB4/GBR4...	TT20P	SI60M

TGE Series Inserts for Grooving

Model	A(mm)	L(mm)	T(mm)	d(mm)
TGER**-A	6. 69	6. 50	2. 58	2. 5
TGER**-B	8. 46	8. 20	3. 18	2. 7
TGER**-C	5. 80	11. 48	4. 05	2. 8
TGER**-D	6. 80	16. 44	5. 05	3. 4
TGER**-E	9. 54	21. 66	5. 55	4. 4

● Good recommendation

Material Recommended	Grade	TG1225
	Steel	P ●
	Stainless	M ●
	Cast Iron	K ●



A、B Series Type

Insert	Order No.		Dimensions(mm)			Toolholders
	Right hand	Left hand	W	B	r	
	TGER050-A	TGEL050-A	0.50	1.2	0.05	SIGER/L0808A-EH SIGER/L0808A-WH
	TGER060-A	TGEL060-A	0.60	1.2	0.05	
	TGER070-A	TGEL070-A	0.70	1.2	0.05	
	TGER080-A	TGEL080-A	0.80	1.2	0.05	
	TGER100-A	TGEL100-A	1.00	1.5	0.05	
	TGER120-A	TGEL120-A	1.20	1.5	0.05	
	TGER125-A	TGEL125-A	1.25	1.5	0.05	
	TGER140-A	TGEL140-A	1.40	1.5	0.10	
	TGER150-A	TGEL150-A	1.50	1.5	0.10	
	TGER180-A	TGEL180-A	1.80	1.5	0.10	
	TGER200-A	TGEL200-A	2.00	1.5	0.10	
	TGER080-B	TGEL080-B	0.80	1.8	0.05	SIGER/L1010B-EH SIGER/L1010B-WH SIGER/L1210B-EH
	TGER100-B	TGEL100-B	1.00	2.2	0.05	
	TGER120-B	TGEL120-B	1.20	2.2	0.05	
	TGER125-B	TGEL125-B	1.25	2.2	0.05	
	TGER130-B	TGEL130-B	1.30	2.2	0.10	
	TGER145-B	TGEL145-B	1.45	2.2	0.10	
	TGER150-B	TGEL150-B	1.50	2.2	0.10	
	TGER180-B	TGEL180-B	1.80	2.2	0.10	
	TGER200-B	TGEL200-B	2.00	2.2	0.10	
	TGER225-B	TGEL225-B	2.25	2.2	0.10	
	TGER250-B	TGEL250-B	2.50	2.2	0.10	
	TGER280-B	TGEL280-B	2.80	2.2	0.20	
	TGER300-B	TGEL300-B	3.00	2.2	0.20	
	TGER100-C	TGEL100-C	1.00	2.5	0.05	SIGER/L1412C-EH SIGER/L1612C-EH SIGER/L1616C-EH
	TGER120-C	TGEL120-C	1.20	2.5	0.05	
	TGER125-C	TGEL125-C	1.25	2.5	0.05	
	TGER140-C	TGEL140-C	1.40	2.5	0.10	
	TGER145-C	TGEL145-C	1.45	2.5	0.10	
	TGER150-C	TGEL150-C	1.50	2.5	0.10	
	TGER160-C	TGEL160-C	1.60	2.5	0.10	
	TGER170-C	TGEL170-C	1.70	2.5	0.10	
	TGER185-C	TGEL185-C	1.85	2.5	0.10	
	TGER195-C	TGEL195-C	1.95	2.5	0.10	
	TGER200-C	TGEL200-C	2.00	2.5	0.10	
	TGER225-C	TGEL225-C	2.25	2.5	0.10	
	TGER250-C	TGEL250-C	2.50	2.5	0.20	
	TGER275-C	TGEL275-C	2.75	2.5	0.20	
	TGER280-C	TGEL280-C	2.80	2.5	0.20	
	TGER300-C	TGEL300-C	3.00	2.5	0.20	
	TGER320-C	TGEL320-C	3.20	2.5	0.20	
	TGER350-C	TGEL350-C	3.50	2.5	0.20	

Right-hand Insert for Right-hand Toolholder
Left-hand Insert for Left-hand Toolholder

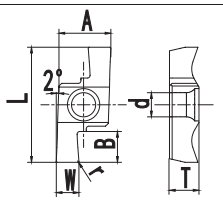
TGE Series Inserts for Grooving

Model	A(mm)	L(mm)	T (mm)	d(mm)
TGER**-A	6. 69	6. 50	2. 58	2. 5
TGER**-B	8. 46	8. 20	3. 18	2. 7
TGER**-C	5. 80	11. 48	4. 05	2. 8
TGER**-D	6. 80	16. 44	5. 05	3. 4
TGER**-E	9. 54	21. 66	5. 55	4. 4

● Good recommendation

Material Recommended

Grade	TG1225
Steel	P ●
Stainless	M ●
Cast Iron	K ●



C、D、E Series Type

Insert	Order No.		Dimensions(mm)			Toolholders
	Right hand	Left hand	W	B	r	
	TGER100-D	TGEL100-D	1.00	2.5	0.05	SIGER/L2020D-EH SIGER/L2525D-EH
	TGER120-D	TGEL120-D	1.20	2.5	0.05	
	TGER125-D	TGEL125-D	1.25	2.5	0.05	
	TGER140-D	TGEL140-D	1.40	2.5	0.05	
	TGER145-D	TGEL145-D	1.45	2.5	0.10	
	TGER150-D	TGEL150-D	1.50	3.0	0.10	
	TGER170-D	TGEL170-D	1.70	3.0	0.10	
	TGER185-D	TGEL185-D	1.85	3.0	0.10	
	TGER195-D	TGEL195-D	1.95	3.0	0.10	
	TGER200-D	TGEL200-D	2.00	3.6	0.10	
	TGER225-D	TGEL225-D	2.25	3.6	0.10	
	TGER230-D	TGEL230-D	2.30	3.6	0.20	
	TGER250-D	TGEL250-D	2.50	3.6	0.20	
	TGER275-D	TGEL275-D	2.75	3.6	0.20	
	TGER280-D	TGEL280-D	2.80	4.5	0.20	
	TGER300-D	TGEL300-D	3.00	4.5	0.20	
	TGER320-D	TGEL320-D	3.20	4.5	0.20	
	TGER350-D	TGEL350-D	3.50	4.5	0.20	
	TGER400-D	TGEL400-D	4.00	4.5	0.20	
	TGER100-E	TGEL100-E	1.00	2.5	0.05	SIGER/L2525E-EH SIGER/L3232E-EH SIGER/L4032E-EH
	TGER150-E	TGEL150-E	1.50	3.0	0.10	
	TGER170-E	TGEL170-E	1.70	3.0	0.10	
	TGER185-E	TGEL185-E	1.85	3.0	0.10	
	TGER195-E	TGEL195-E	1.95	3.0	0.10	
	TGER200-E	TGEL200-E	2.00	3.2	0.10	
	TGER225-E	TGEL225-E	2.25	3.2	0.10	
	TGER230-E	TGEL230-E	2.30	3.2	0.20	
	TGER250-E	TGEL250-E	2.50	4.5	0.20	
	TGER275-E	TGEL275-E	2.75	4.5	0.20	
	TGER280-E	TGEL280-E	2.80	4.5	0.20	
	TGER300-E	TGEL300-E	3.00	4.5	0.20	
	TGER330-E	TGEL330-E	3.30	4.5	0.20	
	TGER350-E	TGEL350-E	3.50	5.5	0.20	
	TGER400-E	TGEL400-E	4.00	5.5	0.20	
	TGER430-E	TGEL430-E	4.30	5.5	0.20	
	TGER450-E	TGEL450-E	4.50	6.5	0.20	
	TGER460-E	TGEL460-E	4.60	6.5	0.20	
	TGER500-E	TGEL500-E	5.00	6.5	0.20	

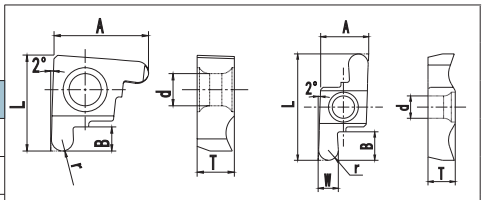
Right-hand Insert for Right-hand Toolholder
Left-hand Insert for Left-hand Toolholder

TGE Series Inserts for Grooving

Model	A(mm)	L(mm)	T(mm)	d(mm)
TGER**-A	6. 69	6. 5	2. 58	2. 5
TGER**-B	8. 46	8. 2	3. 18	2. 7
TGER**-C	5. 8	11. 48	4. 05	2. 8
TGER**-D	6. 8	16. 44	5. 05	3. 4
TGER**-E	9. 54	21. 66	5. 55	4. 4

● Good recommendation

Material Recommended	Grade	TG1225
	Steel	P ●
	Stainless	M ●
	Cast Iron	K ●

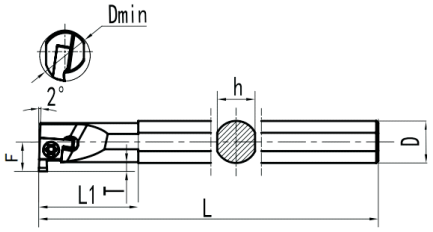


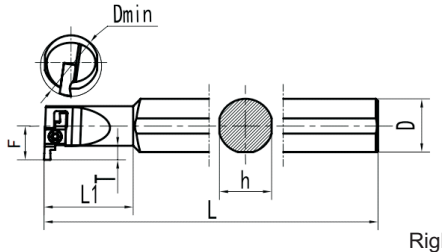
A、B Series Type　　C、D、E Series Type

Insert	Order No.		Dimensions(mm)			Toolholders
	Right hand	Left hand	W	B	r	
	TGER100-050AR	TGEL100-050AR	1.0	1.5	0.50	SIGER/L0808A-EH SIGER/L0808A-WH
	TGER150-075AR	TGEL150-075AR	1.5	1.5	0.75	
	TGER200-100AR	TGEL200-100AR	2.0	1.5	1.00	
	TGER100-050BR	TGEL100-050BR	1.0	2.2	0.50	SIGER/L1010B-EH SIGER/L1010B-WH SIGER/L1210B-EH
	TGER150-075BR	TGEL150-075BR	1.5	2.2	0.75	
	TGER200-100BR	TGEL200-100BR	2.0	2.2	1.00	
	TGER250-125BR	TGEL250-125BR	2.5	2.2	1.25	
	TGER300-150BR	TGEL300-150BR	3.0	2.2	1.50	
	TGER100-050CR	TGEL100-050CR	1.0	2.5	0.50	SIGER/L1412C-EH SIGER/L1612C-EH SIGER/L1616C-EH
	TGER150-075CR	TGEL150-075CR	1.5	2.5	0.75	
	TGER200-100CR	TGEL200-100CR	2.0	2.5	1.00	
	TGER250-125CR	TGEL250-125CR	2.5	2.5	1.25	
	TGER300-150CR	TGEL300-150CR	3.0	2.5	1.50	
	TGER150-075DR	TGEL150-075DR	1.5	3.2	0.75	SIGER/L2020D-EH SIGER/L2525D-EH
	TGER200-100DR	TGEL200-100DR	2.0	3.2	1.00	
	TGER250-125DR	TGEL250-125DR	2.5	4.5	1.25	
	TGER300-150DR	TGEL300-150DR	3.0	4.5	1.50	
	TGER250-125ER	TGEL250-125ER	2.5	5.5	1.25	SIGER/L2525E-EH SIGER/L3232E-EH SIGER/L4032E-EH
	TGER300-150ER	TGEL300-150ER	3.0	5.5	1.50	
	TGER350-175ER	TGEL350-175ER	3.5	5.5	1.75	
	TGER400-200ER	TGEL400-200ER	4.0	6.5	2.00	
	TGER450-225ER	TGEL450-225ER	4.5	6.5	2.25	
	TGER500-250ER	TGEL500-250ER	5.0	6.5	2.50	

Right-hand Insert for Right-hand Toolholder
Left-hand Insert for Left-hand Toolholder

TGE Series Toolholders for Grooving





WH: Carbide Shank

Right-hand show

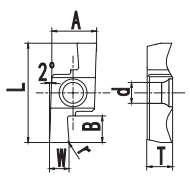
Order No.	Insert	Dimensions (mm)							Insert Screw	Torx Key
		Dmin	T	L1	D	F	h	L		
SIGER0808A-EH	TGER**-A TGER**-AR	8	1.5	20	8	4.8	7.2	100	L60M225	T6
SIGER0808A-WH		8		20	8	4.8	7.2	100		
SIGER1010B-EH	TGER**-B TGER**-BR	10	2.2	25	10	6.2	9.0	125	L60M256	T8
SIGER1010B-WH		10		25	10	6.2	9.0	125		
SIGER1210B-EH		12		30	10	7.0	9.0	125		
SIGER1412C-EH	TGER**-C TGER**-CR	14	2.5	33	12	8.0	11.4	150	L60M256	T8
SIGER1612C-EH		16		20	12	8.5	11.4	150		
SIGER1616C-EH		16		36	16	9.0	15.0	160		
SIGER2020D-EH	TGER**-D TGER**-DR	20	4.5	40	20	12.1	19.0	180	L60M38	T10
SIGER2525D-EH		25	4.2	45	25	12.3	24.0	200		
SIGER2525E-EH	TGER**-E TGER**-ER	25	6.5	45	25	15.6	24.0	200	L60M485	T15
SIGER3232E-EH		32		55	32	19.0	30.4	220		
SIGER4032E-EH		40		45	32	23.0	30.4	250		
SIGEL0808A-EH	TGEL**-A TGEL**AR	8	1.5	20	8	4.8	7.2	100	L60M225	T6
SIGEL0808A-WH		8		20	8	4.8	7.2	100		
SIGEL1010B-EH	TGEL**-B TGEL**-BR	10	2.2	25	10	6.2	9.0	125	L60M256	T8
SIGEL1010B-WH		10		25	10	6.2	9.0	125		
SIGEL1210B-EH		12		30	10	7.0	9.0	125		
SIGEL1412C-EH	TGEL**-C TGEL**-CR	14	2.5	33	12	8.0	11.4	150	L60M256	T8
SIGEL1612C-EH		16		20	12	8.5	11.4	150		
SIGEL1616C-EH		16		36	16	9.0	15.0	160		
SIGEL2020D-EH	TGEL**-D TGEL**-DR	20	4.5	40	20	12.1	19.0	180	L60M38	T10
SIGEL2525D-EH		25	4.2	45	25	12.3	24.0	200		
SIGEL2525E-EH	TGEL**-E TGEL**-ER	25	6.5	45	25	15.6	24.0	200	L60M485	T15
SIGEL3232E-EH		32		55	32	19.0	30.4	220		
SIGEL4032E-EH		40		45	32	23.0	30.4	250		

TGE Series Inserts for Face Grooving

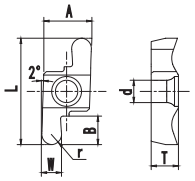
Model	A(mm)	L(mm)	T(mm)	d(mm)
TGER**-D	6. 8	16. 44	5. 05	3. 4

● Good recommendation

Material Recommended	Grade	TG1225
	Steel	P ●
	Stainless	M ●
	Cast Iron	K ●



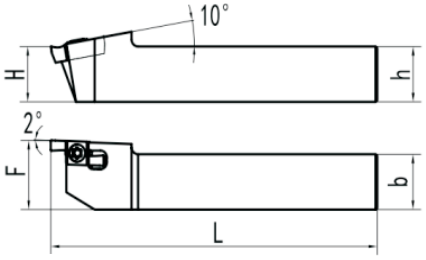
DM Series Type



DM...R Series Type

Insert	Order No.	External Dia. of the Groove	Dimensions (mm) W	B	r	Toolholders
	TGER200DM10-D	>10mm	2.0	3.5	0.20	SEGEL1010K-D SEGEL1212K-D SEGEL1616H-D SEGEL2020K-D SEGEL2525M-D
	TGER250DM15-D	>15mm	2.5	4.5	0.20	
	TGER300DM15-D	>15mm	3.0	4.5	0.20	
	TGER400DM15-D	>15mm	4.0	4.5	0.20	
	TGER200DM10R100-D	>10mm	2.0	3.5	1.00	
	TGER250DM15R125-D	>15mm	2.5	4.5	1.25	
	TGER300DM15R150-D	>15mm	3.0	4.5	1.50	
	TGER400DM15R200-D	>15mm	4.0	4.5	2.00	

TGE Series Toolholders for Face Grooving



Order No.	Insert Type	Dimensions(mm) h	b	L	F	H	Insert Screw	Torx Key
SEGEL1010K-D	TGER**-D	10	10	125	10	10	L60M310	T10
SEGEL1212K-D		12	12	125	12	12		
SEGEL1616H-D		16	16	100	20	16		
SEGEL2020K-D		20	20	125	25	20		
SEGEL2525M-D		25	25	150	32	25		

TGER/L...A(R),TGER/L...B(R) Series

ISO	Workpiece material	Vc(m/min)	Grooving			Turning		
			TGER/L050-200A	TGER/L080-200B	TGER/L225-200B	TGER/L050-200A	TGER/L080-200B	TGER/L225-200B
			TGER/L100-200AR	TGER/L100-200BR	TGER/L250-300BR	TGER/L100-200AR	TGER/L100-200BR	TGER/L250-300BR
			f(mm/r)			f(mm/r)		
P	Carbon Steel	50-80	0.01-0.03	0.02-0.04	0.02-0.04	0.01-0.03	0.02-0.04	0.02-0.04
P	Alloy Steel	50-80	0.01-0.03	0.02-0.04	0.02-0.04	0.01-0.03	0.02-0.04	0.02-0.04
M	Stainless Steel	50-80	0.01-0.03	0.01-0.03	0.01-0.03	0.01-0.03	0.01-0.03	0.01-0.03
K	Cast Iron	50-80	0.01-0.03	0.02-0.04	0.02-0.04	0.01-0.03	0.02-0.04	0.02-0.04

TGER/L...C(R),TGER/L...D(R) ,TGER/L...E(R) Series

ISO	Workpiece material	Vc(m/min)	Grooving						
			TGER/L100-200C	TGER/L225-350C	TGER/L200-280D	TGER/L250-330E(R)	TGER/L300-400D	TGER/L350-430E(R)	TGER/L450-500E(R)
			TGER/L100-200CR	TGER/L250-300CR	TGER/L150-200DR	–	TGER/L300DR	–	–
			TGER/L100-145D	TGER/L150-195D	TGER/L200-230E(R)	–	–	–	–
			TGER/L100E(R)	TGER/L150-195E(R)	–	–	–	–	–
			f(mm/r)						
P	Carbon Steel	60-140	0.03-0.08	0.03-0.08	0.04-0.09	0.04-0.09	0.05-0.12	0.05-0.12	0.05-0.12
P	Alloy Steel	60-120	0.03-0.07	0.03-0.07	0.04-0.08	0.04-0.08	0.05-0.10	0.05-0.10	0.05-0.10
M	Stainless Steel	60-110	0.03-0.07	0.03-0.07	0.04-0.08	0.04-0.08	0.05-0.10	0.05-0.10	0.05-0.10
K	Cast Iron	60-100	0.03-0.08	0.03-0.08	0.04-0.09	0.04-0.09	0.05-0.12	0.05-0.12	0.05-0.12
ISO	Workpiece material	Vc(m/min)	Turning						
			TGER/L100-200C	TGER/L225-350C	TGER/L200-280D	TGER/L250-330E(R)	TGER/L300-400D	TGER/L350-430E(R)	TGER/L450-500E(R)
			TGER/L100-200CR	TGER/L250-300CR	TGER/L150-200DR	–	TGER/L300DR	–	–
			TGER/L100-145D	TGER/L150-195D	TGER/L200-230E(R)	–	–	–	–
			TGER/L100E(R)	TGER/L150-195E(R)	–	–	–	–	–
			f(mm/r)						
P	Carbon Steel	60-140	0.03-0.08	0.03-0.08	0.04-0.09	0.04-0.09	0.05-0.10	0.05-0.10	0.05-0.10
P	Alloy Steel	60-120	0.03-0.10	0.03-0.10	0.04-0.08	0.04-0.08	0.05-0.10	0.05-0.10	0.05-0.10
M	Stainless Steel	60-110	0.03-0.10	0.03-0.10	0.04-0.08	0.04-0.08	0.05-0.10	0.05-0.10	0.05-0.10
K	Cast Iron	60-100	0.03-0.08	0.03-0.08	0.04-0.09	0.04-0.09	0.05-0.10	0.05-0.10	0.05-0.10

TGER...DM Series

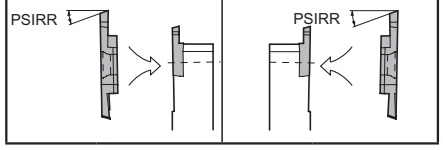
ISO	Workpiece Material	Vc(m/min)	Grooving			Turning		
			TGER200DM	TGER250DM	TGER300-400DM	TGER200DM	TGER250DM	TGER300-400DM
			f(mm/r)			f(mm/r)		
P	Carbon Steel	60-160	0.03-0.10	0.04-0.12	0.05-0.12	0.03-0.10	0.04-0.10	0.05-0.10
P	Alloy Steel	60-140	0.03-0.10	0.04-0.12	0.05-0.12	0.03-0.10	0.04-0.10	0.05-0.10
M	Stainless Steel	60-110	0.03-0.08	0.04-0.08	0.05-0.10	0.03-0.10	0.04-0.10	0.05-0.10
K	Cast Iron	60-100	0.03-0.10	0.04-0.12	0.05-0.12	0.03-0.10	0.04-0.10	0.05-0.10

◆ Inserts Identification System

TTF 12 R 050 – S – 16 R

Insert Type	Insert Size	Insert Hand: R : Right-hand, L : Left-hand	Edge Width	Name of Chipbreaker: S : S Chipbreaker, NB : Without Chipbreaker	Lead Angle (PSIRR)	Hand of Lead Angle: R : Right-hand

Toolholder	Right-hand	Toolholder	Left-hand
Insert	Right-hand	Insert	Left-hand
Lead Angle	Right-hand	Lead Angle	Right-hand



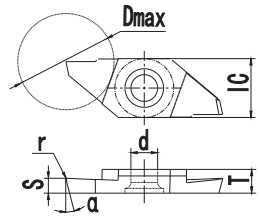
TTF Series Inserts for Parting-off

Model	IC(mm)	T(mm)	d(mm)
TTF12**	8.7	3	5
TTF16**	9.5	4	5

● Good recommendation

Material Recommended

Grade	TG1225
Steel	P ●
Stainless	M ●
Cast Iron	K ●



Insert	Order No.		Dimensions (mm)				Toolholders
	Right hand	Left hand	S	α	Dmax	r	
	TTF12R050-S	TTF12L050-S	0.5	0	5	0.05	
	TTF12R070-S	TTF12L070-S	0.7	0	8	0.05	
	TTF12R100-S	TTF12L100-S	1.0	0	12	0.08	
	TTF12R150-S	TTF12L150-S	1.5	0	12	0.08	
	TTF12R200-S	TTF12L200-S	2.0	0	12	0.08	KTKFR/L1010K-12
	TTF12R050-S-16R	TTF12L050-S-16R	0.5	16	5	0.05	KTKFR/L1212K-12
	TTF12R070-S-16R	TTF12L070-S-16R	0.7	16	8	0.05	KTKFR/L1212M-12
	TTF12R100-S-16R	TTF12L100-S-16R	1.0	16	12	0.08	KTKFR/L1616M-12
	TTF12R150-S-16R	TTF12L150-S-16R	1.5	16	12	0.08	KTKFR/L2020M-12
	TTF12R200-S-16R	TTF12L200-S-16R	2.0	16	12	0.08	KTKFR/L2525M-12
	TTF12R050-NB	TTF12L050-NB	0.5	0	5	0.05	
	TTF12R070-NB	TTF12L070-NB	0.7	0	8	0.05	
	TTF12R100-NB	TTF12L100-NB	1.0	0	12	0.08	
	TTF12R150-NB	TTF12L150-NB	1.5	0	12	0.08	
	TTF12R200-NB	TTF12L200-NB	2.0	0	12	0.08	
	TTF12R050-NB-20R	TTF12L050-NB-20R	0.5	20	5	0.05	
	TTF12R070-NB-20R	TTF12L070-NB-20R	0.7	20	8	0.05	
	TTF12R100-NB-20R	TFK12L100-NB-20R	1.0	20	12	0.08	
	TTF12R150-NB-20R	TTF12L150-NB-20R	1.5	20	12	0.08	
	TTF12R200-NB-20R	TTF12L200-NB-20R	2.0	20	12	0.08	
	TTF16R100-S	TTF16L100-S	1.0	0	16	0.08	
	TTF16R150-S	TTF16L150-S	1.5	0	16	0.10	KTKFR/L1010K-16
	TTF16R200-S	TTF16L200-S	2.0	0	16	0.10	KTKFR/L1212K-16
	TTF16R250-S	TTF16L250-S	2.5	0	16	0.10	KTKFR/L1212M-16
	TTF16R300-S	TTF16L300-S	3.0	0	16	0.15	KTKFR/L1616M-16
	TTF16R100-S-16R	TTF16L100-S-16R	1.0	16	16	0.08	KTKFR/L2020M-16
	TTF16R150-S-16R	TTF16L150-S-16R	1.5	16	16	0.10	KTKFR/L2525M-16
	TTF16R200-S-16R	TTF16L200-S-16R	2.0	16	16	0.10	
	TTF16R250-S-16R	TTF16L250-S-16R	2.5	16	16	0.10	
	TTF16R300-S-16R	TTF16L300-S-16R	3.0	16	16	0.15	

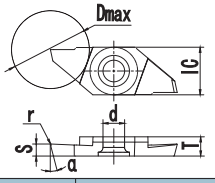
Right-hand Insert for Right-hand Toolholder
Left-hand Insert for Left-hand Toolholder

Model	IC(mm)	T(mm)	d(mm)
TTF12**	8.7	3	5
TTF16**	9.5	4	5

● Good recommendation

Material Recommended

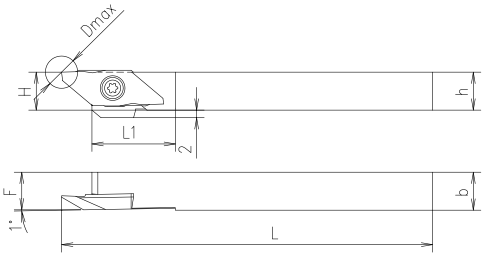
Grade	TG1225
Steel	P ●
Stainless	M ●
Cast Iron	K ●



Insert	Order No.		Dimensions (mm)				Toolholders
	Right hand	Left hand	S	α	Dmax	r	
	TTF16R100-NB	TTF16L100-NB	1.0	0	16	0. 08	KTKFR/L1010K-16 KTKFR/L1212K-16 KTKFR/L1212M-16 KTKFR/L1616M-16 KTKFR/L2020M-16 KTKFR/L2525M-16
	TTF16R150-NB	TTF16L150-NB	1.5	0	16	0. 10	
	TTF16R200-NB	TTF16L200-NB	2.0	0	16	0. 10	
	TTF16R250-NB	TTF16L250-NB	2.5	0	16	0. 10	
	TTF16R300-NB	TTF16L300-NB	3.0	0	16	0. 15	
	TTF16R100-NB-20R	TTF16L100-NB-20R	1.0	20	16	0. 08	
	TTF16R150-NB-20R	TTF16L150-NB-20R	1.5	20	16	0. 10	
	TTF16R200-NB-20R	TTF16L200-NB-20R	2.0	20	16	0. 10	
	TTF16R250-NB-20R	TTF16L250-NB-20R	2.5	20	16	0. 10	
	TTF16R300-NB-20R	TTF16L300-NB-20R	3.0	20	16	0. 15	

Right-hand Insert for Right-hand Toolholder
Left-hand Insert for Left-hand Toolholder

TTF Series Toolholders for Parting-off



Right-hand show

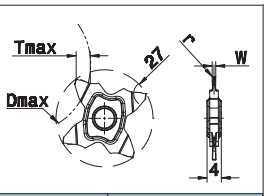
Order No.	Insert	Dimensions (mm)							Insert Screw	Torx Key
		h	b	H	F	L	Dmax	L1		
KTKFR1010K-12	TTF12R**	10	10	10	10	125	12	15	L60M410	T15
KTKFR1212K-12		12	12	12	12			—		
KTKFR1212M-12		12	12	12	12	150				
KTKFR1616M-12		16	16	16	16					
KTKFR2020M-12		20	20	20	20					
KTKFR2525M-12		25	25	25	25					
KTKFR1010K-16	TTF16R**	10	10	10	10	125	16	20	L60M410	T15
KTKFR1212K-16		12	12	12	12			—		
KTKFR1212M-16		12	12	12	12	150				
KTKFR1616M-16		16	16	16	16					
KTKFR2020M-16		20	20	20	20					
KTKFR2525M-16		25	25	25	25					
KTKFL1010K-12	TTF12L**	10	10	10	10	125	12	15	L60M410	T15
KTKFL1212K-12		12	12	12	12			—		
KTKFL1212M-12		12	12	12	12	150				
KTKFL1616M-12		16	16	16	16					
KTKFL2020M-12		20	20	20	20					
KTKFL2525M-12		25	25	25	25					
KTKFL1010K-16	TTF16L**	10	10	10	10	125	16	20	L60M410	T15
KTKFL1212K-16		12	12	12	12			—		
KTKFL1212M-16		12	12	12	12	150				
KTKFL1616M-16		16	16	16	16					
KTKFL2020M-16		20	20	20	20					
KTKFL2525M-16		25	25	25	25					

TTF Series Standard Cutting Conditions

ISO	Workpiece Material	Vc(m/min)	TTF12					TTF16				
			Edge Width （mm）					Edge Width （mm）				
			0.5	0.7	1.0	1.5	2.0	1.0	1.5	2.0	2.5	3.0
			f(mm/r)					f(mm/r)				
P	Carbon Steel	70-150	0.01-0.02	0.01-0.03	0.01-0.04	0.01-0.04	0.01-0.04	0.01-0.06	0.02-0.07	0.02-0.07	0.02-0.07	0.02-0.08
P	Alloy Steel	70-150	0.01-0.02	0.01-0.03	0.01-0.04	0.01-0.04	0.01-0.04	0.01-0.06	0.02-0.07	0.02-0.07	0.02-0.07	0.02-0.08
M	Stainless Steel	60-120	0.01-0.02	0.01-0.02	0.01-0.02	0.01-0.02	0.01-0.02	0.01-0.03	0.01-0.04	0.01-0.04	0.01-0.04	0.01-0.05
K	Cast Iron	50-100	0.01-0.03	0.01-0.04	0.010.05	0.01-0.05	0.01-0.05	0.01-0.07	0.02-0.08	0.02-0.08	0.02-0.08	0.02-0.08

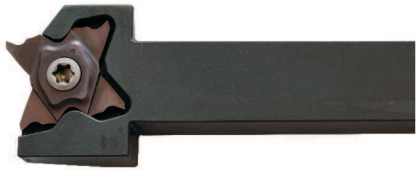
TTS27 Series for Inserts

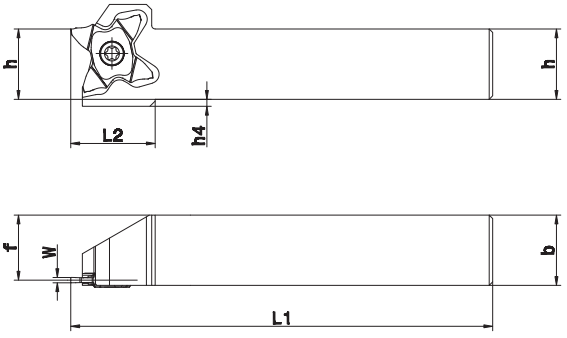
Material Recommended	Grade		TG1230	TG1330
	Steel	P	●	●
	Stainless	M	●	●
	Cast Iron	K	●	●



Insert	Order No.	Dimensions (mm) W	r	Tmax	Dmax T≤3.0	T≤3.5	T≤4.0	T≤4.5	T≤5.0	T≤5.5	T≤5.7	T≤6.0	T≤6.2	T≤6.4	Toolholder
	TTS27-1.00-0.10	1.0	0.1	3.5	∞	600	–	–	–	–	–	–	–	–	TQHR. . -27
	TTS27-1.50-0.20	1.5	0.2	5.7	∞	600	280	180	130	50	35	–	–	–	
	TTS27-2.00-0.20	2.0	0.2	6.4	∞	600	280	180	130	105	85	60	50	30	
	TTS27-2.50-0.20	2.5	0.2	5.7	∞	600	280	180	130	50	35	–	–	–	
	TTS27-3.00-0.20	3.0	0.2	6.4	∞	600	280	180	135	105	95	85	78	55	

TTS27 Series for Toolholders



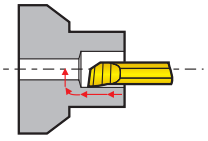


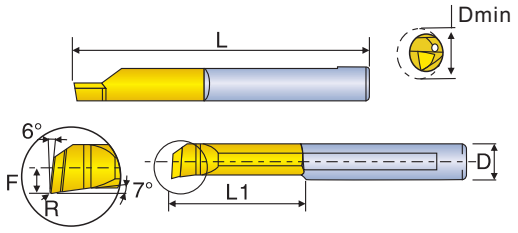
Order No.	Insert	Dimensions (mm) h	b	W	f	l1	l2	h4	Insert Screw	Torx Key
TQHR10-27	TTS27-**	10	10	0.5≤W≤3.0	8.5	120	24	9	BFTX5012	TRX20
TQHR12-27		12	12	0.5≤W≤3.0	10.5	120	24	8		
TQHR16-27		16	16	0.5≤W≤3.0	14.5	120	24	6		
TQHR20-27		20	20	0.5≤W≤3.0	18.5	120	24	2		
TQHR25-27		25	25	0.5≤W≤3.0	23.5	135	-	-		

TTS27 Series Standard Cutting Conditions

ISO	Workpiece Material		Vc(m/min)
P	Non-Alloy steel	<0.25%C	110-200
		0.25%C- 0.55%C	70-180
		≥ 0.55%C	60-180
	Low Alloy Steel		80-180
	High Alloy Steel		60-140
M	Martensitic Stainless Steel		120-180
	Austenitic Stainless Steel		70-140
K	Grey Cast Iron		70-180
	Ductile Cast Iron		60-130
N	Cast Aluminum Alloy		200-400
	Aluminum Alloy		300-700
	Copper Alloy		80-300
S	Heat-resistance Alloy		10-50
	Titanium Alloy		25-60
H	Hardened Alloy	45-50 HRC	40-50
		51-55 HRC	30-50

MT SERIES
Solid Boring Bar for Boring



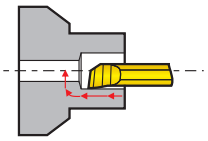


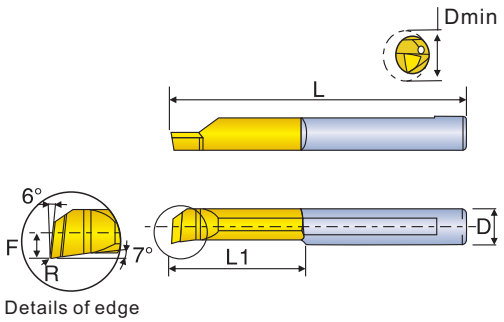
Details of edge

Using internal cooling tools is the first choice
★Example: MTR1R0.05L4-N stands for internal cooling

Order No.	Dimensions (mm)						Sleeve No.
	D	L	L1	R	F	Dmin	
MTR1R0. 05L4	3	40	4	0. 05	0. 45	1. 1	NC1603-100-2N
MTR1. 5R0. 1L6	3	40	6	0. 10	0. 75	1. 6	
MTR2R0. 05L10	3	40	10	0. 05	0. 9	2. 1	
MTR2R0. 15L5	3	40	5	0. 15	0. 9	2. 1	
MTR2R0. 15L10	3	40	10	0. 15	0. 9	2. 1	
MTR2R0. 15L15	3	40	15	0. 15	0. 9	2. 1	
MTR2R0. 15L20	3	40	20	0. 15	0. 9	2. 1	
MTR3R0. 05L10	3	40	10	0. 05	1. 4	3. 1	
MTR3R0. 05L15	3	40	15	0. 05	1. 4	3. 1	
MTR3R0. 1L10	3	40	10	0. 10	1. 4	3. 1	
MTR3R0. 1L15	3	40	15	0. 10	1. 4	3. 1	
MTR3R0. 2L10	3	40	10	0. 20	1. 4	3. 1	
MTR3R0. 2L15	3	40	15	0. 20	1. 4	3. 1	
MTR3R0. 2L20	3	40	20	0. 20	1. 4	3. 1	
MTR4R0. 05L15	4	50	15	0. 05	1. 9	4. 1	NC. . 04-100-2N
MTR4R0. 1L15	4	50	15	0. 10	1. 9	4. 1	
MTR4R0. 1L22	4	50	22	0. 10	1. 9	4. 1	
MTR4R0. 2L10	4	50	10	0. 20	1. 9	4. 1	
MTR4R0. 2L15	4	50	15	0. 20	1. 9	4. 1	
MTR4R0. 2L22	4	50	22	0. 20	1. 9	4. 1	
MTR4R0. 2L30	4	65	30	0. 20	1. 9	4. 1	
MTR5R0. 05L15	5	50	15	0. 05	2. 4	5. 1	NC. . 05-100-2N
MTR5R0. 1L22	5	50	22	0. 10	2. 4	5. 1	
MTR5R0. 2L10	5	50	10	0. 20	2. 4	5. 1	
MTR5R0. 2L15	5	50	15	0. 20	2. 4	5. 1	
MTR5R0. 2L22	5	50	22	0. 20	2. 4	5. 1	
MTR5R0. 2L30	5	65	30	0. 20	2. 4	5. 1	
MTR5R0. 2L35	5	65	35	0. 20	2. 4	5. 1	

MT SERIES
Solid Boring Bar for Boring



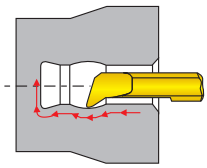


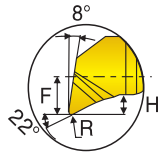
Details of edge

Using internal cooling tools is the first choice
★Example: MTR1R0.05L4-N stands for internal cooling

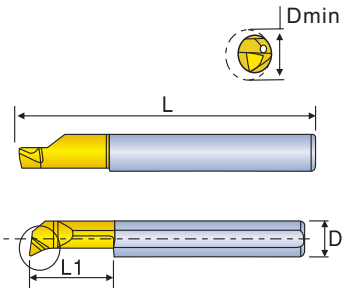
Order No.	Dimensions (mm)						Sleeve No.
	D	L	L1	R	F	Dmin	
MTR6R0. 05L15	6	50	15	0. 05	2. 9	6. 1	NC. . 06-100-2N
MTR6R0. 1L22	6	50	22	0. 10	2. 9	6. 1	
MTR6R0. 2L15	6	50	15	0. 20	2. 9	6. 1	
MTR6R0. 2L22	6	50	22	0. 20	2. 9	6. 1	
MTR6R0. 2L30	6	65	30	0. 20	2. 9	6. 1	
MTR6R0. 2L40	6	65	40	0. 20	2. 9	6. 1	
MTR7R0. 2L30	7	65	30	0. 20	3. 4	7. 1	NC. . 07-100-2N
MTR7R0. 2L35	7	65	35	0. 20	3. 4	7. 1	
MTR7R0. 2L42	7	80	42	0. 20	3. 4	7. 1	
MTR7R0. 2L50	7	80	50	0. 20	3. 4	7. 1	
MTR8R0. 2L40	8	80	40	0. 20	3. 9	8. 1	NC. . 08-100-2N
MTR10R0. 2L35	10	65	35	0. 20	4. 9	10. 1	NC2010-100-2N
MTR10R0. 2L50	10	80	50	0. 20	4. 9	10. 1	
MTL2R0. 15L10	3	40	10	0. 15	0. 9	2. 1	NC1603-100-2N
MTL3R0. 2L15	3	40	15	0. 20	1. 4	3. 1	
MTL4R0. 2L22	4	50	22	0. 20	1. 9	4. 1	NC. . 04-100-2N
MTL5R0. 2L22	5	50	22	0. 20	2. 4	5. 1	NC. . 05-100-2N
MTL6R0. 2L22	6	50	22	0. 20	2. 9	6. 1	NC. . 06-100-2N
MTL7R0. 2L30	7	65	30	0. 20	3. 4	7. 1	NC. . 07-100-2N

MPR SERIES
Solid Boring Bar for Profiling





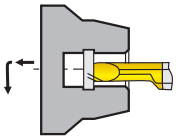
Details of edge

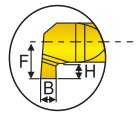


Using internal cooling tools is the first choice
★Example: MTR1R0.05L4-N stands for internal cooling

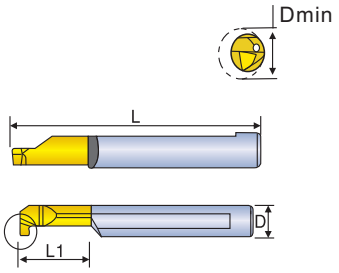
Order No.	Dimensions (mm)							Sleeve No.
	D	L	L1	R	H	F	Dmin	
MPR1R0. 05L4	3	40	4	0. 05	0. 2	0. 45	1. 1	NC1603-100-2N
MPR1. 5R0. 1L6	3	40	6	0. 10	0. 3	0. 75	1. 6	
MPR2R0. 15L10	3	40	10	0. 15	0. 5	0. 95	2. 1	
MPR3R0. 2L10	3	40	10	0. 20	0. 7	1. 4	3. 1	
MPR3R0. 2L15	3	40	15	0. 20	0. 7	1. 4	3. 1	
MPR4R0. 2L15	4	50	15	0. 20	0. 8	1. 9	4. 1	NC. . 04-100-2N
MPR4R0. 2L22	4	50	22	0. 20	0. 8	1. 9	4. 1	
MPR5R0. 2L22	5	50	22	0. 20	1. 2	2. 4	5. 1	NC. . 05-100-2N
MPR5R0. 2L30	5	65	30	0. 20	1. 2	2. 4	5. 1	
MPR6R0. 2L22	6	50	22	0. 20	1. 4	2. 9	6. 1	NC. . 06-100-2N
MPR6R0. 2L30	6	65	30	0. 20	1. 4	2. 9	6. 1	

MG SERIES
Solid Boring Bar for Internal Grooving





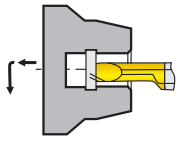
Details of edge

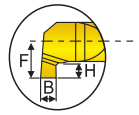


Using internal cooling tools is the first choice
★Example: MTR1R0.05L4-N stands for internal cooling

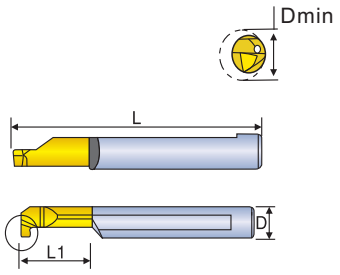
Order No.	Dimensions (mm)							Sleeve No.
	B	H	D	L	L1	F	Dmin	
MGR2B0. 5L6	0. 5	0. 4	3	40	6	0. 95	2. 1	NC1603-100-2N
MGR3B0. 5L10	0. 5	0. 6	3	40	10	1. 4	3. 1	
MGR3B0. 7L10	0. 7	0. 6	3	40	10	1. 4	3. 1	
MGR3B1. 0L10	1. 0	0. 6	3	40	10	1. 4	3. 1	
MGR4B1. 0L10	1. 0	1. 0	4	50	10	1. 9	4. 1	NC. . 04-100-2N
MGR4B1. 5L10	1. 5	1. 0	4	50	10	1. 9	4. 1	
MGR4B1. 0L15	1. 0	1. 0	4	50	15	1. 9	4. 1	
MGR4B1. 5L15	1. 5	1. 0	4	50	15	1. 9	4. 1	
MGR5B1. 0L15	1. 0	1. 2	5	50	15	2. 4	5. 1	NC. . 05-100-2N
MGR5B1. 5L15	1. 5	1. 2	5	50	15	2. 4	5. 1	
MGR5B2. 0L15	2. 0	1. 2	5	50	15	2. 4	5. 1	
MGR5B1. 0L22	1. 0	1. 2	5	50	22	2. 4	5. 1	
MGR5B1. 5L22	1. 5	1. 2	5	50	22	2. 4	5. 1	
MGR5B2. 0L22	2. 0	1. 2	5	50	22	2. 4	5. 1	
MGR6B1. 0L15	1. 0	1. 8	6	50	15	2. 9	6. 1	NC. . 06-100-2N
MGR6B1. 5L15	1. 5	1. 8	6	50	15	2. 9	6. 1	
MGR6B2. 0L15	2. 0	1. 8	6	50	15	2. 9	6. 1	
MGR6B1. 0L22	1. 0	1. 8	6	50	22	2. 8	6. 1	
MGR6B1. 5L22	1. 5	1. 8	6	50	22	2. 9	6. 1	
MGR6B2. 0L22	2. 0	1. 8	6	50	22	2. 9	6. 1	
MGR6B1. 0L30	1. 0	1. 8	6	65	30	2. 9	6. 1	
MGR6B1. 5L30	1. 5	1. 8	6	65	30	2. 9	6. 1	
MGR6B2. 0L30	2. 0	1. 8	6	65	30	2. 9	6. 1	
MGR6B1. 0L17-2. 0	1. 0	2. 0	6	50	17	2. 9	6. 1	
MGR6B1. 5L17-2. 0	1. 5	2. 0	6	50	17	2. 9	6. 1	
MGR6B2. 0L17-2. 0	2. 0	2. 0	6	50	17	2. 9	6. 1	

MG SERIES
Solid Boring Bar for Internal Grooving





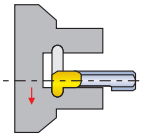
Details of edge

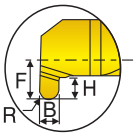


Using internal cooling tools is the first choice
★Example: MTR1R0.05L4-N stands for internal cooling

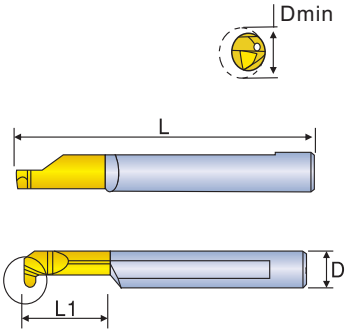
Order No.	Dimensions (mm)							Sleeve No.
	B	H	D	L	L1	F	Dmin	
MGR7B1. 0L22	1. 0	2. 5	7	65	22	3. 4	7. 1	NC. . 07-100-2N
MGR7B1. 5L22	1. 5	2. 5	7	65	22	3. 4	7. 1	
MGR7B2. 0L22	2. 0	2. 5	7	65	22	3. 4	7. 1	
MGR7B1. 0L30	1. 0	2. 5	7	65	30	3. 4	7. 1	
MGR7B1. 5L30	1. 5	2. 5	7	65	30	3. 4	7. 1	
MGR7B2. 0L30	2. 0	2. 5	7	65	30	3. 4	7. 1	
MGR8B1. 0L22	1. 0	2. 6	8	65	22	3. 9	8. 1	NC. . 08-100-2N
MGR8B1. 5L22	1. 5	2. 6	8	65	22	3. 9	8. 1	
MGR8B2. 0L22	2. 0	2. 6	8	65	22	3. 9	8. 1	
MGR8B1. 5L22X	1. 5	3. 1	8	65	22	3. 9	8. 1	
MGR8B2. 0L22X	2. 0	3. 1	8	65	22	3. 9	8. 1	
MGR8B2. 0L30X	2. 0	3. 1	8	65	30	3. 9	8. 1	
MGR8B2. 0L40X	2. 0	3. 1	8	80	40	3. 9	8. 1	
MGL3B0. 7L10	0. 7	0. 6	3	40	10	1. 4	3. 1	NC1603-100-2N
MGL4B1. 5L10	1. 5	1. 0	4	50	10	1. 9	4. 1	NC. . 04-100-2N
MGL5B2. 0L15	2. 0	1. 2	5	50	15	2. 4	5. 1	NC. . 05-100-2N
MGL6B2. 0L15	2. 0	1. 8	6	50	15	2. 9	6. 1	NC. . 06-100-2N
MGL6B2. 0L22	2. 0	1. 8	6	50	22	2. 9	6. 1	
MGL7B2. 0L30	2. 0	2. 5	7	65	30	3. 4	7. 1	NC. . 07-100-2N

MKR SERIES
Solid Boring Bar for Profiling





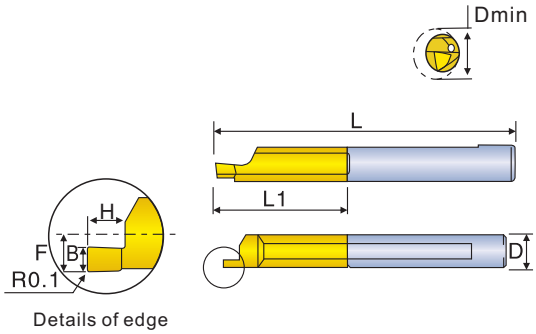
Details of edge



Using internal cooling tools is the first choice
★Example: MTR1R0.05L4-N stands for internal cooling

Order No.	Dimensions (mm)								Sleeve No.
	B	R	H	D	L	L1	F	Dmin	
MKR4R0. 5L10	1. 0	0. 50	1. 0	4	50	10	1. 9	4. 1	NC. . 04-100-2N
MKR4R0. 75L10	1. 5	0. 75	1. 0	4	50	10	1. 9	4. 1	
MKR5R0. 5L15	1. 0	0. 50	1. 2	5	50	15	2. 4	5. 1	NC. . 05-100-2N
MKR5R0. 75L15	1. 5	0. 75	1. 2	5	50	15	2. 4	5. 1	
MKR5R1. 0L15	2. 0	1. 00	1. 2	5	50	15	2. 4	5. 1	
MKR6R0. 5L15	1. 0	0. 50	1. 6	6	50	15	2. 9	6. 1	NC. . 06-100-2N
MKR6R0. 75L15	1. 5	0. 75	1. 6	6	50	15	2. 9	6. 1	
MKR6R1. 0L15	2. 0	1. 00	1. 6	6	50	15	2. 9	6. 1	

MFR SERIES
Solid Boring Bar for Face Grooving

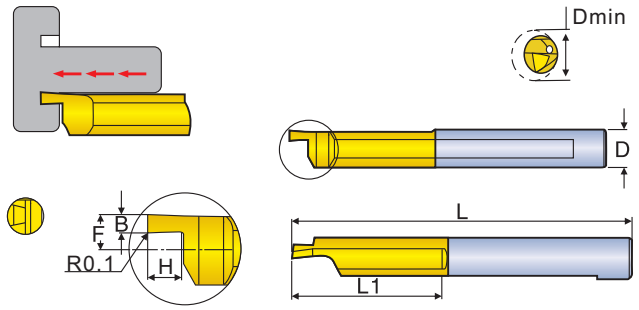


Details of edge

Using internal cooling tools is the first choice
★Example: MTR1R0.05L4-N stands for internal cooling

Order No.	Dimensions (mm)							Sleeve No.
	B	H	D	L	L1	F	Dmin	
MFR4B1. 0L15	1. 0	1. 5	4	50	15	1. 95	5	NC. . 04-100-2N
MFR4B1. 5L15	1. 5	2. 8	4	50	15	1. 95	5	
MFR5B1. 0L22	1. 0	1. 5	5	50	22	2. 45	6	NC. . 05-100-2N
MFR5B1. 5L22	1. 5	2. 5	5	50	22	2. 45	6	
MFR5B2. 0L22	2. 0	3. 8	5	50	22	2. 45	6	
MFR6B1. 0L22	1. 0	1. 5	6	50	22	2. 95	8	NC. . 06-100-2N
MFR6B1. 5L22	1. 5	2. 5	6	50	22	2. 95	8	
MFR6B2. 0L22	2. 0	3. 8	6	50	22	2. 95	8	
MFR6B3. 0L30	3. 0	6. 0	6	65	30	2. 95	8	

MFL SERIES
Solid Boring Bar for Face Grooving

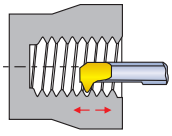


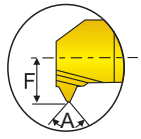
Details of edge

Using internal cooling tools is the first choice
★Example: MTR1R0.05L4-N stands for internal cooling

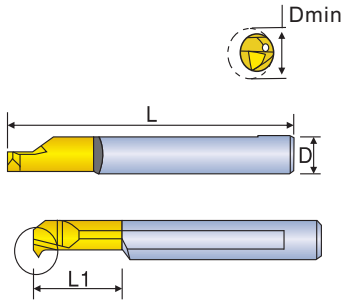
Order No.	Dimensions (mm)							Sleeve No.
	B	H	D	L	L1	F	Dmin	
MFL4B1. 0L15	1. 0	1. 5	4	50	15	1. 75	5	NC. . 04-100-2N
MFL4B1. 5L15	1. 5	2. 8	4	50	15	1. 75	5	
MFL5B1. 0L22	1. 0	1. 5	5	50	22	2. 25	6	NC. . 05-100-2N
MFL5B1. 5L22	1. 5	2. 5	5	50	22	2. 25	6	
MFL5B2. 0L22	2. 0	3. 8	5	50	22	2. 25	6	
MFL6B1. 0L22	1. 0	1. 5	6	50	22	2. 75	8	NC. . 06-100-2N
MFL6B1. 5L22	1. 5	2. 5	6	50	22	2. 75	8	
MFL6B2. 0L22	2. 0	3. 8	6	50	22	2. 75	8	
MFL6B3. 0L30	3. 0	6. 0	6	65	30	2. 75	8	

MI SERIES
Solid Boring Bar for Threading





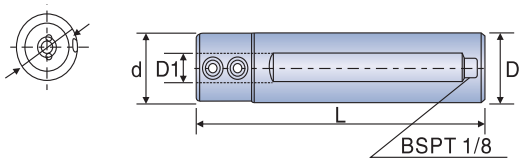
Details of edge



Using internal cooling tools is the first choice
★Example: MTR1R0.05L4-N stands for internal cooling

Order No.	Dimensions (mm)								Sleeve No.
	D	L	L1	Thread angle	Pitch		F	Dmin	
				A	mm	TPI			
MIR2L8A60	3	40	8	60	0. 45–0. 70	56–32	0. 9	2. 1	NC1603–100–2N
MIR3L15A60	3	40	15	60	0. 50–1. 00	48–24	1. 4	3. 1	
MIR4L15A60	4	50	15	60	0. 50–1. 00	48–24	1. 9	4. 1	NC. . 04–100–2N
MIR5L15A60	5	50	15	60	0. 50–1. 25	48–20	2. 4	5. 1	NC. . 05–100–2N
MIR5L22A60	5	50	22	60	0. 50–1. 25	48–20	2. 4	5. 1	
MIR6L15A60	6	50	15	60	0. 50–1. 50	48–16	2. 9	6. 1	NC. . 06–100–2N
MIR6L22A60	6	50	22	60	0. 50–1. 50	48–16	2. 9	6. 1	
MIR8L22A60	8	65	22	60	1. 00–2. 00	24–13	3. 6	8. 1	NC. . 08–100–2N
MIR3L15A55	3	40	15	55	0. 50–1. 00	48–24	1. 4	3. 1	NC1603–100–2N
MIR4L15A55	4	50	15	55	0. 50–1. 00	48–24	1. 9	4. 1	NC. . 04–100–2N
MIR5L15A55	5	50	15	55	0. 50–1. 25	48–20	2. 4	5. 1	NC. . 05–100–2N
MIR6L15A55	6	50	15	55	0. 50–1. 50	48–16	2. 9	6. 1	NC. . 06–100–2N
MIL3L15A60	3	40	15	60	0. 50–1. 00	48–24	1. 4	3. 1	NC1603–100–2N
MIL4L15A60	4	50	15	60	0. 50–1. 00	48–24	1. 9	4. 1	NC. . 04–100–2N
MIL5L15A60	5	50	15	60	0. 50–1. 25	48–20	2. 4	5. 1	NC. . 05–100–2N
MIL6L15A60	6	50	15	60	0. 50–1. 50	48–16	2. 9	6. 1	NC. . 06–100–2N
MIL3L15A55	3	40	15	55	0. 50–1. 00	48–24	1. 4	3. 1	NC1603–100–2N
MIL4L15A55	4	50	15	55	0. 50–1. 00	48–24	1. 9	4. 1	NC. . 04–100–2N
MIL5L15A55	5	50	15	55	0. 50–1. 25	48–20	2. 4	5. 1	NC. . 05–100–2N
MIL6L15A55	6	50	15	55	0. 50–1. 50	48–16	2. 9	6. 1	NC. . 06–100–2N

Sleeve for Coolant Supply



Order No.	Dimensions (mm)				Wrench	Screw
	D1	L	D	d		
NC1603-100-2N	3	100	16	12. 0	WT15	S34
NC1604-100-2N	4	100	16	13. 0	WT20	S44
NC1605-100-2N	5	100	16	14. 7	WT25	S44
NC1606-100-2N	6	100	16	15. 0	WT25	S54
NC1608-100-2N	8	100	16	15. 7	WT30	S66
NC2004-100-2N	4	100	20	13. 0	WT20	S44
NC2005-100-2N	5	100	20	16. 0	WT25	S44
NC2006-100-2N	6	100	20	17. 0	WT30	S55
NC2007-100-2N	7	100	20	17. 5	WT30	S66
NC2008-100-2N	8	100	20	19. 0	WT30	S66
NC2010-100-2N	10	100	20	19. 7	WT30	S66
NC2012-100-2N	12	100	20	19. 7	WT30	S66

Standard Cutting Conditions of Boring

ISO	Workpiece material		Vc(m/min)	f(mm/r)
P	Non-Alloy steel	<0.25%C	50-120	0.05
		0.25%C- 0.55%C	40-100	0.04
		≥0.55%C	30-80	0.03
	Low Alloy Steel		30-70	0.04
	High Alloy Steel		25-50	0.03
M	Martensitic Stainless Steel		40-100	0.04
	Austenitic Stainless Steel		40-90	0.04
K	Grey Cast Iron		40-70	0.02
	Ductile Cast Iron		50-80	0.02
N	Cast Aluminum Alloy		100-300	0.03
	Aluminum Alloy		60-150	0.03
	Copper Alloy		100-150	0.03
S	Heat-resistance Alloy		10-45	0.02
	Titanium Alloy		40-60	0.02
H	Hardened Alloy	45-50 HRC	20-40	0.01
		51-55 HRC	20-35	0.01

Standard Cutting Conditions of Grooving

ISO	Workpiece material		Vc(m/min)	f(mm/r)
P	Non-Alloy steel	<0.25%C	50-120	0.03
		0.25%C- 0.55%C	40-100	0.02
		≥0.55%C	30-80	0.01
	Low Alloy Steel		30-70	0.02
	High Alloy Steel		25-50	0.01
M	Martensitic Stainless Steel		40-100	0.01
	Austenitic Stainless Steel		40-90	0.01
K	Grey Cast Iron		40-70	0.02
	Ductile Cast Iron		50-80	0.01
N	Cast Aluminum Alloy		100-300	0.03
	Aluminum Alloy		60-150	0.03
	Copper Alloy		100-150	0.03
S	Heat-resistance Alloy		10-45	0.01
	Titanium Alloy		40-60	0.01
H	Hardened Alloy	45-50 HRC	20-40	0.01
		51-55 HRC	20-35	0.01

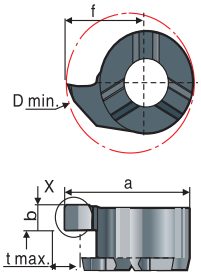
Standard Cutting Conditions of Threading

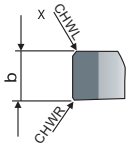
ISO	Workpiece material		Vc(m/min)
P	Non-Alloy steel	<0.25%C	50-120
		0.25%C- 0.55%C	40-100
		≥0.55%C	30-80
	Low Alloy Steel		30-70
	High Alloy Steel		25-50
M	Martensitic Stainless Steel		40-100
	Austenitic Stainless Steel		40-90
K	Grey Cast Iron		40-70
	Ductile Cast Iron		50-80
N	Cast Aluminum Alloy		100-300
	Aluminum Alloy		60-150
	Copper Alloy		100-150
S	Heat-resistance Alloy		10-45
	Titanium Alloy		40-60
H	Hardened Alloy	45-50 HRC	20-40
		51-55 HRC	20-35

Standard Cutting Conditions of Face Grooving

ISO	Workpiece material		Vc(m/min)	f(mm/r)
P	Non-Alloy steel	<0.25%C	40-140	0.01-0.05
		0.25%C- 0.55%C		
		≥0.55%C		
	Low Alloy Steel			
	High Alloy Steel			
M	Martensitic Stainless Steel		40-140	0.01-0.05
	Austenitic Stainless Steel			
K	Grey Cast Iron		30-130	0.01-0.05
	Ductile Cast Iron			
N	Cast Aluminum Alloy		90-120	0.01-0.05
	Aluminum Alloy			
	Copper Alloy			
S	Heat-resistance Alloy		30-100	0.01-0.05
	Titanium Alloy			

Modular Small Hole Cutter for Inserts





Order No.	Dimensions(mm)						
	b	Tmax	a	f	CHWL	CHWR	Dmin
MB-05GR075-1.4D07	0.75	1.4	6.8	4.3	0.04	0.04	7.0
MB-05GR100-1.4D07	1.00	1.4	6.8	4.3	0.04	0.04	7.0
MB-05GR150-1.4D07	1.50	1.4	6.8	4.3	0.04	0.04	7.0
MB-05GR200-1.4D07	2.00	1.4	6.8	4.3	0.04	0.04	7.0
MB-05GR100-2.3D08	1.00	2.3	7.7	5.2	0.04	0.04	8.0
MB-05GR150-2.3D08	1.50	2.3	7.7	5.2	0.04	0.04	8.0
MB-05GR200-2.3D08	2.00	2.3	7.7	5.2	0.04	0.04	8.0
MB-05GR100-2.8D09	1.00	2.8	8.3	5.8	0.04	0.04	8.8
MB-05GR150-2.8D09	1.50	2.8	8.3	5.8	0.04	0.04	8.8
MB-05GR200-2.8D09	2.00	2.8	8.3	5.8	0.04	0.04	8.8
MB-07GR075-2.0D10	0.75	2.0	9.5	6.0	0.04	0.04	10.0
MB-07GR100-2.0D10	1.00	2.0	9.5	6.0	0.04	0.04	10.0
MB-07GR150-2.0D10	1.50	2.0	9.5	6.0	0.04	0.04	10.0
MB-07GR200-2.0D10	2.00	2.0	9.5	6.0	0.04	0.04	10.0
MB-07GR300-2.0D10	3.00	2.0	9.5	6.0	0.04	0.04	10.0
MB-07GR100-3.0D11	1.00	3.0	10.5	7.0	0.04	0.04	11.0
MB-07GR150-3.0D11	1.50	3.0	10.5	7.0	0.04	0.04	11.0
MB-07GR200-3.0D11	2.00	3.0	10.5	7.0	0.04	0.04	11.0
MB-07GR300-3.0D11	3.00	3.0	10.5	7.0	0.04	0.04	11.0
MB-07GR100-3.5D12	1.00	3.5	11.5	7.5	0.04	0.04	12.0
MB-09GR150-4.0D14	1.50	4.0	13.5	9.0	0.04	0.04	14.0
MB-09GR200-4.0D14	2.00	4.0	13.5	9.0	0.04	0.04	14.0
MB-09GR250-4.0D14	2.50	4.0	13.5	9.0	0.04	0.04	14.0
MB-09GR150-5.5D16	1.50	5.5	15.0	10.3	0.04	0.04	16.0
MB-09GR200-5.5D16	2.00	5.5	15.0	10.5	0.04	0.04	16.0
MB-09GR250-5.5D16	2.50	5.5	15.0	10.5	0.04	0.04	16.0
MB-09GR300-5.5D16	3.00	5.5	15.0	10.5	0.04	0.04	16.0
MB-09GR150-6.5D17	1.50	6.5	16.0	11.5	0.04	0.04	17.0
MB-09GR200-6.5D17	2.00	6.5	16.0	11.5	0.04	0.04	17.0
MB-09GR250-6.5D17	2.50	6.5	16.0	11.5	0.04	0.04	17.0
MB-09GR300-6.5D17	3.00	6.5	16.0	11.5	0.04	0.04	17.0

MG SERIES
Modular Small Hole Cutter for Toolholders

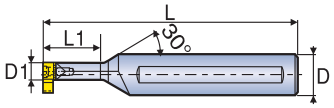
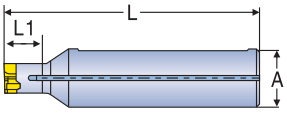


Fig.1



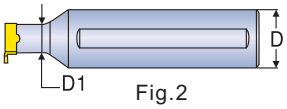


Fig.2

Order No.	D	D1	L1	L	A	Insert	Wrench	Screw	Fig.
MG-H12-18-05ST	12	5	18	80	11.0	MB-05..	WC06	CSTB22	1
MG-H16-20-07R	16	7	20	120	15.0	MB-07..	WC10	CSTB30	2
MG-H16-30-09R	16	9	30	120	15.0	MB-09..	WC15	CSTB40	2

ST is designed for eccentricity and cannot be applied to milling processing.

Standard Cutting Conditions

ISO	Workpiece material		Vc(m/min)	f(mm/r)
P	Non-Alloy steel	＜0.25%C	40-180	0.30-0.50
		0.25%C- 0.55%C	40-170	0.30-0.50
		≥0.55%C	40-160	0.25-0.35
	Low Alloy Steel		40-190	0.25-0.45
	High Alloy Steel		40-115	0.18-0.30
M	Martensitic Stainless Steel		40-100	0.20-0.35
	Austenitic Stainless Steel		40-90	0.15-0.35
K	Grey Cast Iron		40-70	0.20-0.35
	Ductile Cast Iron		50-80	0.15-0.30
N	Cast Aluminum Alloy		100-300	0.50-1.00
	Aluminum Alloy		60-150	0.50-0.90
	Copper Alloy		100-150	0.50-0.90
S	Heat-resistance Alloy		10-45	0.10-0.20
	Titanium Alloy		40-60	0.10-0.20

Basic size step(mm)		Tolerance zone class of hole (μm)																														
>	≦	B10	C9	C10	D8	D9	D10	E7	E8	E9	F6	F7	F8	G6	G7	H6	H7	H8	H9	H10	JS6	JS7	K6	K7	M6	M7	N6	N7	P6	P7	R7	S7	T7	U7	X7
-	3	+180 +140	+85 +60	+100 +60	+34 +20	+45 +20	+60 +20	+24 +14	+28 +14	+39 +14	+12 +6	+16 +6	+20 +6	+8 +2	+12 +2	+6 0	+10 0	+14 0	+25 0	+40 0	±3	±5	0 -6	0 -10	-2 -8	-2 -12	-4 -10	-4 -14	-6 -12	-6 -16	-10 -20	-14 -24	-	-18 -28	-20 -30
3	6	+188 +140	+100 +70	+118 +70	+48 +30	+60 +30	+78 +30	+32 +20	+38 +20	+50 +20	+18 +10	+22 +10	+28 +10	+12 +4	+16 +4	+8 0	+12 0	+18 0	+30 0	+48 0	±4	±6	+2 -6	+3 -9	-1 -9	0 -12	-5 -13	-4 -16	-9 -17	-8 -20	-11 -23	-15 -27	-	-19 -31	-24 -36
6	10	+208 +150	+116 +80	+138 +80	+62 +40	+76 +40	+98 +40	+40 +25	+47 +25	+61 +25	+22 +13	+28 +13	+35 +13	+14 +5	+20 +5	+9 0	+15 0	+22 0	+36 0	+58 0	±4.5	±7	+2 -7	+5 -10	-3 -12	0 -15	-7 -16	-4 -19	-12 -21	-9 -24	-13 -28	-17 -32	-	-22 -37	-28 -43
10	14	+220	+138	+165	+77	+93	+120	+50	+59	+75	+27	+34	+43	+17	+24	+11	+18	+27	+43	+70	±5.5	±9	+2	+6	-4	0	-9	-5	-15	-11	-16	-21	-	-26	-33 -51
14	18	+150	+95	+95	+50	+50	+50	+32	+32	+32	+16	+16	+16	+6	+6	0	0	0	0	0			-9	-12	-15	-18	-20	-23	-26	-29	-34	-39	-	-44	-38 -56
18	24	+244	+162	+194	+98	+117	+149	+61	+73	+92	+33	+41	+53	+20	+28	+13	+21	+33	+52	+84	±6.5	±10	+2	+6	-4	0	-11	-7	-18	-14	-20	-27	-	-33 -54	-46 -67
24	30	+160	+110	+110	+65	+65	+65	+40	+40	+40	+20	+20	+20	+7	+7	0	0	0	0	0			-11	-15	-17	-21	-24	-28	-31	-35	-41	-48	-33 -54	-40 -61	-56 -77
30	40	+270 +170	+182 +120	+220 +120	+119	+142	+180	+75	+89	+112	+41	+50	+64	+25	+34	+16	+25	+39	+62	+100	±8	±12	+3	+7	-4	0	-12	-8	-21	-17	-25	-34	-39 -64	-51 -76	-
40	50	+280 +180	+192 +130	+230 +130	+80	+80	+80	+50	+50	+50	+25	+25	+25	+9	+9	0	0	0	0	0			-13	-18	-20	-25	-28	-33	-37	-42	-50	-59	-45 -70	-61 -86	
50	65	+310 +190	+214 +140	+260 +140	+146	+174	+220	+90	+106	+134	+49	+60	+76	+29	+40	+19	+30	+46	+74	+120	±9.5	±15	+4	+9	-5	0	-14	-9	-26	-21	-30 -60	-42 -72	-55 -85	-76 -106	-
65	80	+320 +200	+224 +150	+270 +150	+100	+100	+100	+60	+60	+60	+30	+30	+30	+10	+10	0	0	0	0	0			-15	-21	-24	-30	-33	-39	-45	-51	-32 -62	-48 -78	-64 -94	-91 -121	
80	100	+360 +220	+257 +170	+310 +170	+174	+207	+260	+107	+126	+159	+58	+71	+90	+34	+47	+22	+35	+54	+87	+140	±11	±17	+4	+10	-6	0	-16	-10	-30	-24	-38 -73	-58 -93	-78 -113	-111 -146	-
100	120	+380 +240	+267 +180	+320 +180	+120	+120	+120	+72	+72	+72	+36	+36	+36	+12	+12	0	0	0	0	0			-18	-25	-28	-35	-38	-45	-52	-59	-41 -76	-66 -101	-91 -126	-131 -166	
120	140	+420 +260	+300 +200	+360 +200																											-48 -88	-77 -117	-107 -147		
140	160	+440 +280	+310 +210	+370 +210	+208 +145	+245 +145	+305 +145	+125 +85	+148 +85	+185 +85	+68 +43	+83 +43	+106 +43	+39 +14	+54 +14	+25 0	+40 0	+63 0	+100 0	+160 0	±12.5	±20	+4 -21	+12 -28	-8 -33	0 -40	-20 -45	-12 -52	-36 -61	-28 -68	-50 -90	-85 -125	-119 -159	-	-
160	180	+470 +310	+330 +230	+390 +230																											-53 -93	-93 -133	-131 -171		
180	200	+525 +340	+355 +240	+425 +240																											-60 -106	-105 -151			
200	225	+565 +380	+375 +260	+445 +260	+242 +170	+285 +170	+355 +170	+146 +100	+172 +100	+215 +100	+79 +50	+96 +50	+122 +50	+44 +15	+61 +15	+29 0	+46 0	+72 0	+115 0	+185 0	±14.5	±23	+5 -24	+13 -33	-8 -37	0 -46	-22 -51	-14 -60	-41 -70	-33 -79	-63 -109	-113 -159	-	-	-
225	250	+605 +420	+395 +280	+465 +280																											-67 -113	-123 -169			
250	280	+690 +480	+430 +300	+510 +300	+271	+320	+400	+162	+191	+240	+88	+108	+137	+49	+69	+32	+52	+81	+130	+210	±16	±26	+5	+16	-9	0	-25	-14	-47	-36	-74 -126	-	-	-	-
280	315	+750 +540	+460 +330	+540 +330	+190	+190	+190	+110	+110	+110	+56	+56	+56	+17	+17	0	0	0	0	0			-27	-36	-41	-52	-57	-66	-79	-88	-78 -130				
315	355	+830 +600	+500 +360	+590 +360	+299	+350	+440	+182	+214	+265	+98	+119	+151	+54	+75	+36	+57	+89	+140	+230	±18	±28	+7	+17	-10	0	-26	-16	-51	-41	-87 -144	-	-	-	-
355	400	+910 +680	+540 +400	+630 +400	+210	+210	+210	+125	+125	+125	+62	+62	+62	+18	+18	0	0	0	0	0			-29	-40	-46	-57	-62	-73	-87	-98	-93 -150				
400	450	+1010 +760	+595 +440	+690 +440	+327	+385	+480	+198	+232	+290	+108	+131	+165	+60	+83	+40	+63	+97	+155	+250	±20	±31	+8	+18	-10	0	-27	-17	-55	-45	-103 -166	-	-	-	-
450	500	+1090 +840	+635 +480	+730 +480	+230	+230	+230	+135	+135	+135	+68	+68	+68	+20	+20	0	0	0	0	0			-32	-45	-50	-63	-67	-80	-95	-108	-109 -172				

In every step given in the table, the value on the upper side shows the upper deviation and the value on the lower side, the lower deviation.

Basic size step (mm)		Tolerance zone class of shaft (μm)																													
>	≦	b9	c9	d8	d9	e7	e8	e9	f6	f7	f8	g5	g6	h5	h6	h7	h8	h9	js5	js6	js7	k5	k6	m5	m6	n6	p6	r6	s6	t6	u6	x6
-	3	-140 -165	-60 -85	-20 -34	-20 -45	-14 -24	-14 -28	-14 -39	-6 -12	-6 -16	-6 -20	-2 -6	-2 -8	0 -4	0 -6	0 -10	0 -14	0 -25	±2	±3	±5	+4 0	+6 0	+6 +2	+8 +2	+10 +4	+12 +6	+16 +10	+20 +14	-	+24 +18	+26 +20
3	6	-140 -170	-70 -100	-30 -48	-30 -60	-20 -32	-20 -38	-20 -50	-10 -18	-10 -22	-10 -28	-4 -9	-4 -12	0 -5	0 -8	0 -12	0 -18	0 -30	±2.5	±4	±6	+6 +1	+9 +1	+9 +4	+12 +4	+16 +8	+20 +12	+23 +15	+27 +19	-	+31 +23	+36 +28
6	10	-150 -186	-80 -116	-40 -62	-40 -76	-25 -40	-25 -47	-25 -61	-13 -22	-13 -28	-13 -35	-5 -11	-5 -14	0 -6	0 -9	0 -15	0 -22	0 -36	±3	±4.5	±7	+7 +1	+10 +1	+12 +6	+15 +6	+19 +10	+24 +15	+28 +19	+32 +23	-	+37 +28	+43 +34
10	14	-150	-95	-50	-50	-32	-32	-32	-16	-16	-16	-6	-6	0	0	0	0	0	±4	±5.5	±9	+9	+12	+15	+18	+23	+29	+34	+39	-	+44	+51 +40
14	18	-193	-138	-77	-93	-50	-59	-75	-27	-34	-43	-14	-17	-8	-11	-18	-27	-43				+1	+1	+7	+7	+12	+18	+23	+28		+33	+56 +45
18	24	-160	-110	-65	-65	-40	-40	-40	-20	-20	-20	-7	-7	0	0	0	0	0	±4.5	±6.5	±10	+11	+15	+17	+21	+28	+35	+41	+48	-	+54 +41	+67 +54
24	30	-212	-162	-98	-117	-61	-73	-92	-33	-41	-53	-16	-20	-9	-13	-21	-33	-52				+2	+2	+8	+8	+15	+22	+23	+35	+54 +41	+61 +48	+77 +64
30	40	-170 -232	-120 -182	-80	-80	-50	-50	-50	-25	-25	-25	-9	-9	0	0	0	0	0	±5.5	±8	±12	+13	+18	+20	+25	+33	+42	+50	+59	+64 +48	+76 +60	-
40	50	-180 -242	-130 -192	-119	-142	-75	-89	-112	-41	-50	-64	-20	-25	-11	-16	-25	-39	-62				+2	+2	+9	+9	+17	+26	+34	+43	+70 +54	+86 +70	
50	65	-190 -264	-140 -214	-100	-100	-60	-60	-60	-30	-30	-30	-10	-10	0	0	0	0	0	±6.5	±9.5	±15	+15	+21	+24	+30	+39	+51	+60 +41	+72 +53	+85 +66	+106 +87	-
65	80	-200 -274	-150 -224	-146	-174	-90	-106	-134	-49	-60	-76	-23	-29	-13	-19	-30	-46	-74				+2	+2	+11	+11	+20	+32	+62 +43	+78 +59	+94 +75	+121 +102	
80	100	-220 -307	-170 -257	-120	-120	-72	-72	-72	-36	-36	-36	-12	-12	0	0	0	0	0	±7.5	±11	±17	+18	+25	+28	+35	+45	+59	+73 +51	+93 +71	+113 +91	+146 +124	-
100	120	-240 -327	-180 -267	-174	-207	-107	-126	-159	-58	-71	-90	-27	-34	-15	-22	-35	-54	-87				+3	+3	+13	+13	+23	+37	+76 +54	+101 +79	+126 +104	+166 +144	
120	140	-260 -360	-200 -300																									+88 +63	+117 +92	+147 +122		
140	160	-280 -380	-210 -310	-145 -208	-145 -245	-85 -125	-85 -148	-85 -185	-43 -68	-43 -83	-43 -106	-14 -32	-14 -39	0 -18	0 -25	0 -40	0 -63	0 -100	±9	±12.5	±20	+21 +3	+28 +3	+33 +15	+40 +15	+52 +27	+68 +43	+90 +65	+125 +100	+159 +134	-	-
160	180	-310 -410	-230 -330																									+93 +68	+133 +108	+171 +146		
180	200	-340 -455	-240 -355																									+106 +77	+151 +122			
200	225	-380 -495	-260 -495	-170 -242	-170 -285	-100 -146	-100 -172	-100 -215	-50 -79	-50 -96	-50 -122	-15 -35	-15 -44	0 -20	0 -29	0 -46	0 -72	0 -115	±10	±14.5	±23	+24 +4	+33 +4	+37 +17	+46 +17	+60 +31	+79 +50	+109 +80	+159 +130	-	-	-
225	250	-420 -535	-280 -395																									+113 +84	+169 +140			
250	280	-480 -610	-300 -430	-190	-190	-110	-110	-110	-56	-56	-56	-17	-17	0	0	0	0	0	±11.5	±16	±26	+27	+36	+43	+52	+66	+88	+126 +94	-	-	-	-
280	315	-540 -670	-330 -460	-271	-320	-162	-191	-240	-88	-108	-137	-40	-49	-23	-32	-52	-81	-130				+4	+4	+20	+20	+34	+56	+130 +98				
315	355	-600 -740	-360 -500	-210	-210	-125	-125	-125	-62	-62	-62	-18	-18	0	0	0	0	0	±12.5	±18	±28	+29	+40	+46	+57	+73	+98	+144 +108	-	-	-	-
355	400	-680 -820	-400 -540	-299	-350	-182	-214	-265	-98	-119	-151	-43	-54	-25	-36	-57	-89	-140				+4	+4	+21	+21	+37	+62	+150 +114				
400	450	-760 -915	-440 -595	-230	-230	-135	-135	-135	-68	-68	-68	-20	-20	0	0	0	0	0	±13.5	±20	±31	+32	+45	+50	+63	+80	+108	+166 +126	-	-	-	-
450	500	-840 -995	-480 -635	-327	-385	-198	-232	-290	-108	-131	-165	-47	-60	-27	-40	-63	-97	-155				+5	+5	+23	+23	+40	+68	+172 +132				

B

Directory

01 **End Mills** B1

02 **Indexable Milling Cutter** B119

03 **Thread Tools** B176

Part 1

END MILLS

DIRECTORY

- TOTIME48 SERIES
  Carbide End Mill for General Steels, Cast Irons — P K — B1
- TOTIME3538 SERIES
  Variable Lead Carbide End Mill for General Steels, Cast Irons — P K — B11
- TOTIME3638 SERIES
  Variable Lead Carbide End Mill for Stainless Steels — M — B12
- TOTIME3538-MS SERIES
  Variable Lead Carbide End Mill for Stainless Steels, Titanium Alloys — M S — B13
- TOTITME38-MS SERIES
  Carbide End Mill for Titanium Alloys,High-temperature Alloys Type — S — B22
- TU45 SERIES
  Variable Lead U-shaped Groove Carbide End Mill for General Steels, Cast Irons — P K — B30
- TD3941 SERIES
  Variable Lead Double-core Carbide End Mill for General Steels, Cast Irons — P K — B31

Part 1

END MILLS

DIRECTORY

- TOTIME48S/L-HA/HB SERIES
  Efficient and Powerful Variable Lead Carbide End Mill for General Steels — P K — B32
- TOTIME48-E SERIES [Inch]
  Efficient and Powerful Variable Lead Carbide End Mill for General Steels — P K — B33
- TCM45 SERIES
  Cermet End Mill for General Steels — P K — B37
- TOTIME65 SERIES
  High Speed Carbide End Mill for Die Steels, Hardened Steels — H — B40
- TOTIME48-AL SERIES
  Carbide End Mill for Non-ferrous Metal — N — B46
- TOTIME3839 SERIES
  Variable Lead Roughing Carbide End Mill for General Steels, Cast Irons — P K — B50
- TDIA SERIES
  Diamond Coating Carbide End Mill for Graphite — N — B51

Part 1

END MILLS

DIRECTORY

- **TR / TCC SERIES**
  Carbide End Mill for CFRP/GFRP — N — B55
- **Micro Diameter SERIES**
  Carbide End Mill for General Purpose — P M K N H — B57
- **TMH SERIES**
  Long Neck Carbide End Mill for Steels, Hardened Steels — P H — B66
- **ZSTNB/ZSTNR SERIES**
  Taper Neck Back Draft Carbide End Mill for General Steels, Die Steels — P H — B75
- **CBN SERIES**
  CBN End Mill for High Hardness Materials (HRC45 to 65) — H — B82

Guide of Icons

1 Tool Materials

MG HM	Tungsten Carbide
CBN	Cubic Boron Nitride

2 Surface Treatment

GS — GS Coating	AlCrSiN — AlCrSiN Coating	X6H — X6H Coating
ALDUA — ALDUA Coating	TiAlN — TiAlN Coating	X3H — X3H Coating
TAC — TAC Coating	Diamond — Diamond Coating	AP — AP Coating

3 Helix Angle

0° — Helix Angle 0°	30° — Helix Angle 30°
35° — Helix Angle 35°	35°/38° — Helix Angle 35°/38°
40° — Helix Angle 40°	30° — Helix Angle 30°

4 Shape

Square	Square
Corner-R	Corner Radius
Ball Nose	Ball Nose

5 Type of Milling

	Side Milling
	Slotting
	Profiling Milling

6 Number of Flutes

2 3 4 6

7 Tolerance of Ball-End Radius

R ±0.005	R ±0.005	R ±0.010	D≤6 R ±0.005	D>6 R ±0.010

TOTIME48 SERIES

P K

General Type[B1~B10]

- High-performance AlCrSiN coating, high temperature resistance and wear resistance.
- Excellent machining performance for general steel (≤HRC48)and cast iron.
- A great variety of goods, high cost performance.

TOTIME3638 SERIES

M

Variable Lead Type[B12]

- High-performance variable lead, variable helix angle design, with excellent shock resistance.
- Suitable for stainless steel cutting.
- The special cutting edge design effectively solves the problem of chip sticking on the cutting edge and improves the tool life.

TOTIME3538 SERIES

P K

Variable Lead Type[B11]

- High-performance variable lead, variable helix angle design, with excellent shock resistance.
- Excellent machining performance for general steel and cast iron.
- Suitable for large depth and width of cutting.

TOTIME3538-MS SERIES

M S

Variable Lead Type[B13~B21]

- The high-performance variable lead and variable helix angle design can suppress vibration more effectively and achieve higher surface processing quality for superalloys.
- The machining performance is superior for titanium alloys, high-temperature alloys, and stainless steel.
- The cutting edge is designed with high strength to achieve stable cutting.

TOTIME38-MS SERIES

M S

For Titanium Alloys , High-temperature Alloys Type[B22~29]

1.Impacts on cutting edges are softened due to reduced vibration,resulting in longer,stable tool life.

2.The combination of GS coated grade with high wear resistance and robust substance.

3.To ensure cutting efficiency and achieve efficient machining for high-temperature alloys, nickel based alloys, and duplex stainless steel materials

TU45 SERIES

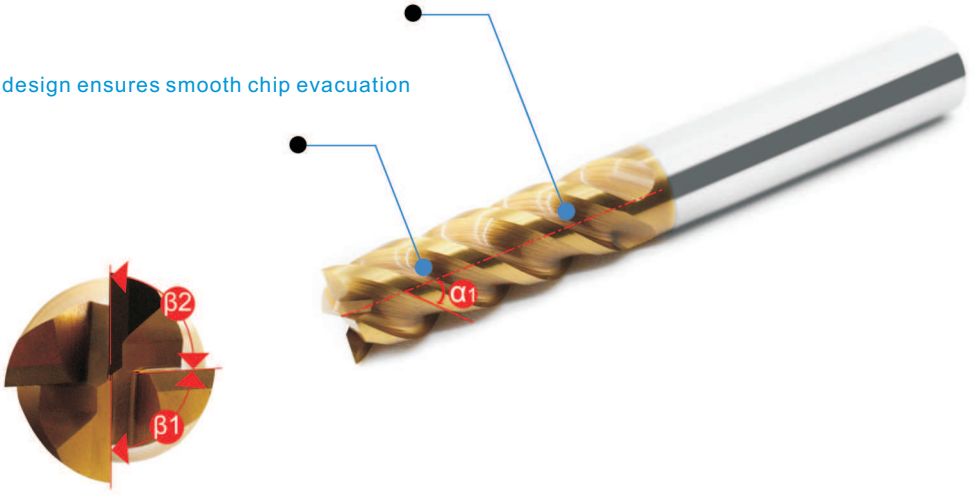
P K

Variable Lead U-shaped Groove Type[B30]

α1=45° β1≠β2

The high-performance variable lead design can effectively suppress vibration and achieve higher surface processing quality for steel and cast iron.

Precise U-shaped groove design ensures smooth chip evacuation in high-speed cutting.

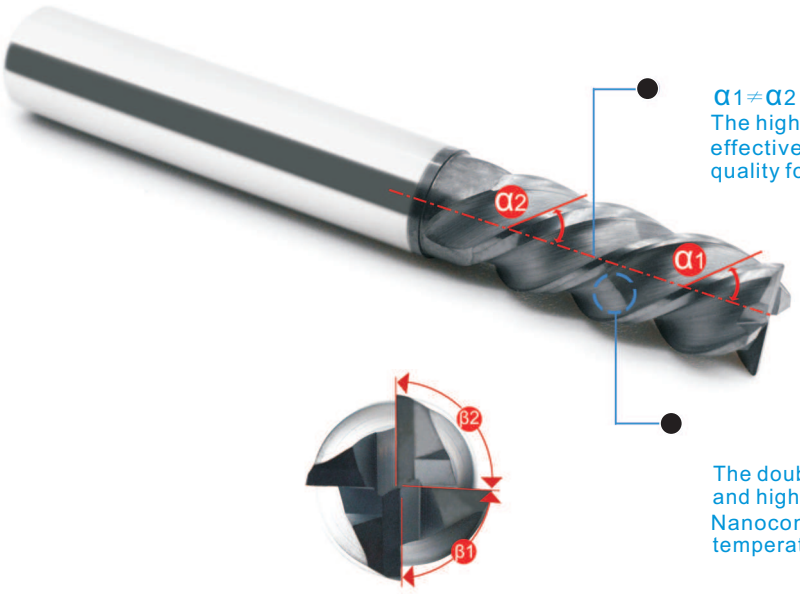


TD3941 SERIES

P K

Variable Lead Double-core Type[B31]

39°/41°



α1≠α2 β1≠β2
The high-performance variable lead and variable helix angle design can effectively suppress vibration and achieve higher surface processing quality for steel and cast iron.

The double-core designed ensures smooth chip removal and high rigidity and high stability of the product during roughing and heavy cutting.
Nanocomposite coating ensures stable machining life even under high temperature machining conditions.

TOTIME48S/L-HA/HB SERIES

P K

Efficient and Powerful Variable Lead Type[B32]

35°/38°

TOTIME48-E SERIES[Inch]

P K

Efficient and Powerful Variable Lead Type[B33~B36]

35°/38°

- Increased process reliability due to stable cutting edges.
- Multifunctional – roughing and finishing with the same tool.
- Well-finished surface on the workpiece.
- Safe chip removal for all cutting edges.
- Low vibration.
- High-Feed.

TCM45 SERIES

P K

Cermet Type[B37~B39]

- Cermet has low density, high wear resistance, excellent chemical stability, good high temperature performance and toughness, suitable for high-speed finishing and semi-finishing cutting.
- In particular, the affinity and friction coefficient between the material and the workpiece material are extremely low, and it is not easy to stick the tools and have built-upedge, making the machined surface more smooth.

TOTIME65 SERIES

H

High Speed and High Hardness Type[B40~B45]

- The special cutter design achieves finishing and semi -finishing cutting of HRC48-65 high hardness materials.
- High-strength, high-toughness ultra-fine-grained base material and ALDUA self-developed coating can eff-ectively improve tool life.

TOTIME48-AL SERIES

N

Non-ferrous Metal Type[B46~B49]

- End mill for aluminum alloy, copper alloy.
- Unique geometry design and unique treatment of rake face enhanced chip evacuation.
- The special edge design prevent the problem of sticking chips on the edge of the tool effectively,to achieve excellent surface processing quality.
- At the same time,TAC coating greatly improves the tool life.

TOTIME3839 SERIES

P K

Variable Lead Roughing Type[B50]

- Suitable for rough machining of ordinary steel and cast iron materials (≤48HRC) with large cutting depth and large cutting width, with high metal removal rate.
- The design of dense teeth and wave teeth with unequal helix angle produces ultra-fine short chips during processing, achieves excellent chip removal performance, low cutting resistance and low machine load.
- Special edge treatment, effectively improve chipping resistance and wear resistance in the roughing process.

TDIA SERIES

N

Diamond Coating for Graphite Type[B51~B54]

- Adopt diamond coating, strengthen bonding between coating and substrate, with high adhesion and high tool toughness.
- High- purity diamond coating film has good wear resistance and ensures long processing life.
- Suitable for semi-finishing and finishing of graphite workpieces such as graphite electrodes and graphite products.

TR/TCC SERIES

N

For CFRP / GFRP[B55-B56]

TCC SERIES N

Suitable for aramid honeycomb,carbon fiber T300 T700 T800,glass fiber,and carbon composite materials.

TR SERIES N

Suitable for composite materials of aramid fiber, carbon fiber T300,PEEK polymer materials.

Micro Diameter SERIES

P M K N H

[B57~B65]

TMU SERIES P M K

TMAL SERIES N

TMH SERIES H

- TMU series - high precision universal micro diameter end mill.
- TMAL series - micro diameter end mill for high-precision insert molds, mold electrodes, and precision parts.
- TMH series - micro diameter end mill for processing high hardness and high precision molds.

TMH SERIES

P H

Long Neck Endmill [B66~B74]

- For machining of high-hardness materials.
- Excellent chip removal performance enables high efficiency.
- Realized stably long tool life against high hardened steels(48~65HRC)
- Improved milling deflection and accuracy by advanced flute design.

ZSTNB/ZSTNR SERIES

P H

Taper Neck Back Draft Type [B75~B81]

- Suitable for deep groove finishing processing of carbon steel, alloy steel and hardened steel material (hardness ⩽HRC65) in precision mold industry.
- High precision in cutting diameter, ball nose profile, R-arc profile and shank.
- Using high-performance TiAlN nano-coating, with high temperature resistance and wear resistance.
- Special angle and long avoidance design.

CBN SERIES

H

Maching high hardness materials HRC45 to HRC65[B82~B83]

- Maching high hardness materials HRC45 to HRC65 into finish process for long times.
- High speed cutting with 20,000rpm and over 20,000rpm of tool and supplying air mist recommended.
- Good cutting ability due to negative rake angle.

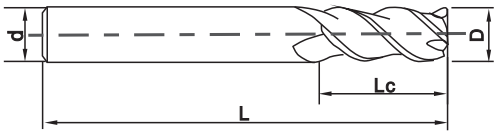
TOTIME Carbide End Mill Cutter
For Steels,Cast Iron

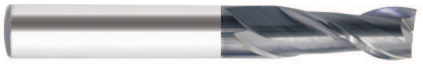
P K

Square End Mill (HRC48)

MG HM | 2 | AlCrSiN | 35° | Square

2 FLUTES SQUARE





2 Flutes	Cobalt 12%	HRC 48	AlCrSiN Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME48-005S-50-2F	0.5	4	1	50	2	▲
TOTIME48-008S-50-2F	0.8	4	2	50	2	▲
TOTIME48-010S-50-2F	1.0	4	3	50	2	▲
TOTIME48-015S-50-2F	1.5	4	5	50	2	▲
TOTIME48-020S-50-1-2F	2.0	4	3	50	2	▲
TOTIME48-020S-50-2-2F	2.0	4	6	50	2	▲
TOTIME48-020S-75-2F	2.0	4	15	75	2	▲
TOTIME48-025S-50-1-2F	2.5	4	6	50	2	▲
TOTIME48-025S-50-2-2F	2.5	4	8	50	2	▲
TOTIME48-030S-04-50-2F	3.0	4	9	50	2	▲
TOTIME48-030S-06-50-2F	3.0	6	9	50	2	▲
TOTIME48-030S-06-75-2F	3.0	6	12	75	2	▲
TOTIME48-040S-04-50-2F	4.0	4	11	50	2	▲
TOTIME48-040S-06-50-2F	4.0	6	11	50	2	▲
TOTIME48-045S-50-1-2F	4.5	6	11	50	2	▲
TOTIME48-045S-50-2-2F	4.5	6	13	50	2	△
TOTIME48-050S-50-2F	5.0	6	13	50	2	▲
TOTIME48-055S-50-2F	5.5	6	16	50	2	▲
TOTIME48-060S-50-2F	6.0	6	16	50	2	▲
TOTIME48-060S-100-2F	6.0	6	20	100	2	▲
TOTIME48-065S-60-2F	6.5	8	16	60	2	▲
TOTIME48-070S-60-2F	7.0	8	20	60	2	▲
TOTIME48-075S-60-2F	7.5	8	20	60	2	△
TOTIME48-080S-60-2F	8.0	8	20	60	2	▲
TOTIME48-080S-100-2F	8.0	8	25	100	2	△
TOTIME48-085S-75-2F	8.5	10	23	75	2	△
TOTIME48-090S-75-2F	9.0	10	23	75	2	▲
TOTIME48-100S-75-2F	10.0	10	25	75	2	▲
TOTIME48-100S-100-2F	10.0	10	30	100	2	▲
TOTIME48-120S-75-2F	12.0	12	30	75	2	▲
TOTIME48-120S-100-2F	12.0	12	35	100	2	▲
TOTIME48-160S-150-2F	16.0	16	36	150	2	▲
TOTIME48-200S-150-2F	20.0	20	45	150	2	△

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B84

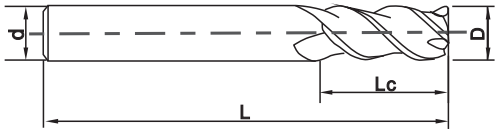
TOTIME Carbide End Mill Cutter
For Steels,Cast Iron

P K

Square End Mill (HRC48)

MG HM | 4 | AlCrSiN | 35° | Square | L

4 FLUTES SQUARE



4Flutes	Cobalt 12%	HRC 48	AlCrSiN Coating	UMG 0.5μm	Materials Carbide	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME48-010S-50-4F	1.0	4	3	50	4	▲
TOTIME48-015S-04-50-4F	1.5	4	5	50	4	▲
TOTIME48-015S-06-50-4F	1.5	6	5	50	4	▲
TOTIME48-020S-04-50-4F	2.0	4	6	50	4	▲
TOTIME48-020S-06-50-4F	2.0	6	6	50	4	▲
TOTIME48-025S-04-50-4F	2.5	4	8	50	4	▲
TOTIME48-025S-06-50-4F	2.5	6	8	50	4	▲
TOTIME48-030S-03-50-4F	3.0	3	9	50	4	▲
TOTIME48-030S-04-50-4F	3.0	4	9	50	4	▲
TOTIME48-030S-06-50-1-4F	3.0	6	6	50	4	▲
TOTIME48-030S-06-50-2-4F	3.0	6	9	50	4	▲
TOTIME48-030S-75-4F	3.0	4	12	75	4	▲
TOTIME48-031S-50-4F	3.1	4	9	50	4	▲
TOTIME48-035S-50-4F	3.5	4	11	50	4	▲
TOTIME48-040S-04-50-4F	4.0	4	11	50	4	▲
TOTIME48-040S-06-50-4F	4.0	6	11	50	4	▲
TOTIME48-040S-75-4F	4.0	4	15	75	4	▲
TOTIME48-045S-50-4F	4.5	6	11	50	4	▲
TOTIME48-050S-05-50-4F	5.0	5	13	50	4	▲
TOTIME48-050S-06-50-1-4F	5.0	6	8	50	4	▲
TOTIME48-050S-06-50-2-4F	5.0	6	13	50	4	▲
TOTIME48-050S-75-4F	5.0	6	20	75	4	▲
TOTIME48-055S-50-4F	5.5	6	16	50	4	▲
TOTIME48-060S-50-1-4F	6.0	6	16	50	4	▲
TOTIME48-060S-50-2-4F	6.0	6	18	50	4	▲
TOTIME48-060S-75-4F	6.0	6	20	75	4	▲
TOTIME48-060S-75-2-4F	6.0	6	30	75	4	▲
TOTIME48-065S-60-4F	6.5	8	16	60	4	△
TOTIME48-070S-60-4F	7.0	8	20	60	4	▲
TOTIME48-075S-60-4F	7.5	8	20	60	4	△
TOTIME48-080S-60-1-4F	8.0	8	20	60	4	▲
TOTIME48-080S-60-2-4F	8.0	8	24	60	4	△
TOTIME48-080S-100-4F	8.0	8	25	100	4	▲

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B85

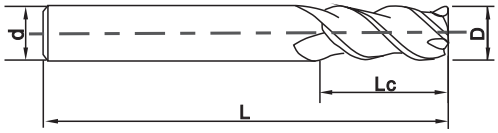
TOTIME Carbide End Mill Cutter
For Steels,Cast Iron

P K

Square End Mill (HRC48)

MG HM | 4 | 6 | AlCrSiN | 35° | Square | L

4/6 FLUTES SQUARE



4Flutes 6Flutes	Cobalt 12%	HRC 48	AlCrSiN Coating	UMG 0.5μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME48-085S-75-4F	8.5	10	23	75	4	▲
TOTIME48-090S-75-4F	9.0	10	23	75	4	▲
TOTIME48-095S-75-4F	9.5	10	25	75	4	▲
TOTIME48-100S-75-4F	10.0	10	25	75	4	▲
TOTIME48-100S-100-4F	10.0	10	30	100	4	▲
TOTIME48-110S-75-4F	11.0	12	28	75	4	▲
TOTIME48-120S-75-4F	12.0	12	30	75	4	▲
TOTIME48-120S-100-4F	12.0	12	35	100	4	▲
TOTIME48-130S-100-4F	13.0	14	32	100	4	△
TOTIME48-140S-75-4F	14.0	14	32	75	4	▲
TOTIME48-140S-100-4F	14.0	14	34	100	4	△
TOTIME48-150S-100-4F	15.0	16	36	100	4	▲
TOTIME48-160S-100-4F	16.0	16	36	100	4	▲
TOTIME48-180S-100-4F	18.0	18	45	100	4	▲
TOTIME48-180S-150-4F	18.0	18	70	150	4	▲
TOTIME48-200S-100-4F	20.0	20	45	100	4	▲
TOTIME48-200S-150-4F	20.0	20	70	150	4	△
TOTIME48-060S-50-6F	6.0	6	15	50	6	▲
TOTIME48-080S-60-6F	8.0	8	20	60	6	▲
TOTIME48-100S-75-6F	10.0	10	25	75	6	▲
TOTIME48-120S-75-6F	12.0	12	30	75	6	▲
TOTIME48-160S-100-6F	16.0	16	36	100	6	▲
TOTIME48-200S-100-6F	20.0	20	45	100	6	▲

Tolerance:D≤12 -0. 02~0 D＞12 -0.03~0

▲Stock △Non-Stock
Recommended Cutting Conditions B85

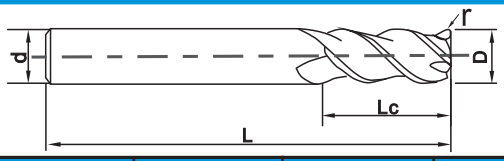
TOTIME Carbide End Mill Cutter
For Steels,Cast Iron

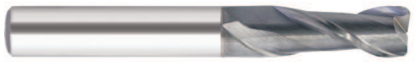
P K

Corner Radius End Mill (HRC48)

MG HM | 2 | AlCrSiN | 35° | Corner-R

2 FLUTES CORNER RADIUS





2Flutes	Cobalt 12%	HRC 48	AlCrSiN Coating	UMG 0.5μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Stock
TOTIME48-010CR002-50-2F	1.0	0.2	4	3	50	▲
TOTIME48-015CR002-50-2F	1.5	0.2	4	5	50	▲
TOTIME48-020CR002-50-2F	2.0	0.2	4	6	50	▲
TOTIME48-030CR002-04-50-2F	3.0	0.2	4	9	50	△
TOTIME48-030CR002-06-50-2F	3.0	0.2	6	9	50	▲
TOTIME48-030CR003-04-50-2F	3.0	0.3	4	9	50	△
TOTIME48-030CR003-06-50-2F	3.0	0.3	6	9	50	▲
TOTIME48-030CR005-04-50-2F	3.0	0.5	4	9	50	△
TOTIME48-030CR005-06-50-2F	3.0	0.5	6	9	50	△
TOTIME48-040CR002-04-50-2F	4.0	0.2	4	11	50	△
TOTIME48-040CR002-06-50-2F	4.0	0.2	6	11	50	▲
TOTIME48-040CR003-04-50-2F	4.0	0.3	4	11	50	△
TOTIME48-040CR003-06-50-2F	4.0	0.3	6	11	50	▲
TOTIME48-040CR005-04-50-2F	4.0	0.5	4	11	50	△
TOTIME48-040CR005-06-50-2F	4.0	0.5	6	11	50	▲
TOTIME48-040CR010-50-2F	4.0	1.0	4	11	50	▲
TOTIME48-050CR002-50-2F	5.0	0.2	6	13	50	▲
TOTIME48-050CR003-50-2F	5.0	0.3	6	13	50	△
TOTIME48-050CR005-50-2F	5.0	0.5	6	13	50	△
TOTIME48-050CR010-50-2F	5.0	1.0	6	13	50	▲
TOTIME48-060CR005-50-2F	6.0	0.5	6	16	50	▲
TOTIME48-060CR010-50-2F	6.0	1.0	6	16	50	△
TOTIME48-060CR015-50-2F	6.0	1.5	6	16	50	△
TOTIME48-060CR020-50-2F	6.0	2.0	6	16	50	△
TOTIME48-060CR010-75-2F	6.0	1.0	6	16	75	▲
TOTIME48-060CR015-75-2F	6.0	1.5	6	16	75	△
TOTIME48-080CR003-60-2F	8.0	0.3	8	20	60	△
TOTIME48-080CR010-60-2F	8.0	1.0	8	20	60	▲
TOTIME48-080CR015-60-2F	8.0	1.5	8	20	60	△
TOTIME48-080CR020-60-2F	8.0	2.0	8	20	60	△
TOTIME48-080CR005-75-2F	8.0	0.5	8	20	75	▲
TOTIME48-080CR010-75-2F	8.0	1.0	8	20	75	▲
TOTIME48-080CR002-100-2F	8.0	0.2	8	20	100	▲
TOTIME48-080CR005-100-2F	8.0	0.5	8	20	100	△
TOTIME48-100CR003-75-2F	10.0	0.3	10	25	75	▲

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B84

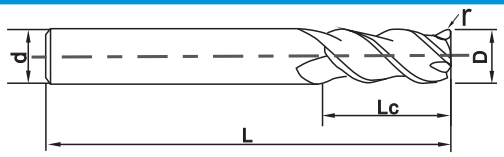
TOTIME Carbide End Mill Cutter
For Steels,Cast Iron

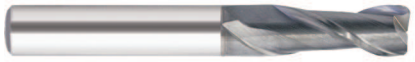
P K

Corner Radius End Mill (HRC48)

MG HM | 2 | AlCrSiN | 35° | Corner-R

2 FLUTES CORNER RADIUS





2Flutes	Cobalt 12%	HRC 48	AlCrSiN Coating	UMG 0.5μm	Materials Carbide	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Stock
TOTIME48-100CR005-75-2F	10	0.5	10	25	75	△
TOTIME48-100CR010-75-2F	10	1.0	10	25	75	▲
TOTIME48-100CR015-75-2F	10	1.5	10	25	75	△
TOTIME48-100CR020-75-2F	10	2.0	10	25	75	△
TOTIME48-100CR030-75-2F	10	3.0	10	25	75	△
TOTIME48-100CR010-100-2F	10	1.0	10	25	100	▲
TOTIME48-120CR005-75-2F	12	0.5	12	30	75	▲
TOTIME48-120CR010-75-2F	12	1.0	12	30	75	△
TOTIME48-120CR015-75-2F	12	1.5	12	30	75	△
TOTIME48-120CR020-75-2F	12	2.0	12	30	75	▲
TOTIME48-120CR030-75-2F	12	3.0	12	30	75	▲
TOTIME48-160CR005-100-2F	16	0.5	16	36	100	△
TOTIME48-160CR010-100-2F	16	1.0	16	36	100	▲
TOTIME48-160CR020-100-2F	16	2.0	16	36	100	△
TOTIME48-160CR030-100-2F	16	3.0	16	36	100	△
TOTIME48-160CR020-150-2F	16	2.0	16	36	150	△

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B84

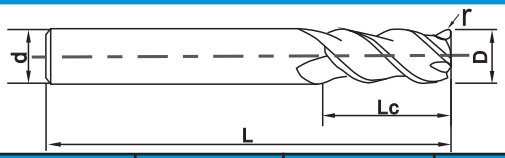
TOTIME Carbide End Mill Cutter
For Steels,Cast Iron

P K

Corner Radius End Mill (HRC48)

MG HM | 4 | AlCrSiN | 35° | Corner-R | L

4 FLUTES CORNER RADIUS



4Flutes	Cobalt 12%	HRC 48	AlCrSiN Coating	UMG 0.5μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Stock
TOTIME48-010CR002-50-4F	1.0	0.2	4	3	50	▲
TOTIME48-015CR002-50-4F	1.5	0.2	4	5	50	▲
TOTIME48-020CR002-50-4F	2.0	0.2	4	6	50	▲
TOTIME48-030CR002-50-1-4F	3.0	0.2	4	6	50	▲
TOTIME48-030CR002-50-2-4F	3.0	0.2	4	9	50	△
TOTIME48-030CR003-50-4F	3.0	0.3	4	9	50	△
TOTIME48-030CR005-50-4F	3.0	0.5	4	9	50	▲
TOTIME48-030CR005-75-4F	3.0	0.5	4	9	75	▲
TOTIME48-040CR002-50-1-4F	4.0	0.2	4	6	50	▲
TOTIME48-040CR002-50-2-4F	4.0	0.2	4	11	50	▲
TOTIME48-040CR003-50-4F	4.0	0.3	4	11	50	▲
TOTIME48-040CR005-50-4F	4.0	0.5	4	11	50	▲
TOTIME48-040CR005-75-4F	4.0	0.5	4	11	75	▲
TOTIME48-040CR010-50-4F	4.0	1.0	4	11	50	△
TOTIME48-045CR010-50-4F	4.5	1.0	6	12	50	▲
TOTIME48-050CR002-06-50-4F	5.0	0.2	6	13	50	▲
TOTIME48-050CR005-05-50-4F	5.0	0.5	5	13	50	▲
TOTIME48-050CR005-06-50-4F	5.0	0.5	6	13	50	△
TOTIME48-050CR010-05-50-4F	5.0	1.0	5	13	50	△
TOTIME48-050CR010-06-50-4F	5.0	1.0	6	13	50	△
TOTIME48-050CR015-50-4F	5.0	1.5	6	13	50	△
TOTIME48-060CR002-50-4F	6.0	0.2	6	16	50	▲
TOTIME48-060CR005-50-1-4F	6.0	0.5	6	9	50	▲
TOTIME48-060CR005-50-2-4F	6.0	0.5	6	16	50	▲
TOTIME48-060CR010-50-4F	6.0	1.0	6	16	50	▲
TOTIME48-060CR015-50-4F	6.0	1.5	6	16	50	△
TOTIME48-060CR005-75-4F	6.0	0.5	6	16	75	▲
TOTIME48-060CR010-75-4F	6.0	1.0	6	16	75	▲
TOTIME48-060CR015-75-4F	6.0	1.5	6	16	75	△
TOTIME48-080CR003-60-4F	8.0	0.3	8	20	60	▲
TOTIME48-080CR005-60-4F	8.0	0.5	8	20	60	△
TOTIME48-080CR010-60-4F	8.0	1.0	8	20	60	▲
TOTIME48-080CR015-60-4F	8.0	1.5	8	20	60	△
TOTIME48-080CR020-60-4F	8.0	2.0	8	20	60	▲
TOTIME48-080CR005-75-4F	8.0	0.5	8	20	75	△

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

▲Stock △Non-Stock
Recommended Cutting Conditions B85

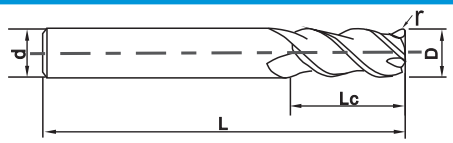
TOTIME Carbide End Mill Cutter
For Steels,Cast Iron

P K

Corner Radius End Mill (HRC48)

MG HM | 4 | AlCrSiN | 35° | Corner-R | L

4 FLUTES CORNER RADIUS



4Flutes	Cobalt 12%	HRC 48	AlCrSiN Coating	UMG 0.5μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Stock
TOTIME48-080CR010-75-4F	8	1.0	8	20	75	▲
TOTIME48-080CR005-100-4F	8	0.5	8	20	100	▲
TOTIME48-080CR010-100-4F	8	1.0	8	20	100	△
TOTIME48-080CR015-100-4F	8	1.5	8	20	100	△
TOTIME48-080CR020-100-4F	8	2.0	8	20	100	△
TOTIME48-100CR002-75-4F	10	0.2	10	25	75	△
TOTIME48-100CR003-75-4F	10	0.3	10	25	75	△
TOTIME48-100CR005-75-4F	10	0.5	10	25	75	▲
TOTIME48-100CR010-75-4F	10	1.0	10	25	75	▲
TOTIME48-100CR015-75-4F	10	1.5	10	25	75	△
TOTIME48-100CR020-75-4F	10	2.0	10	25	75	▲
TOTIME48-100CR025-75-4F	10	2.5	10	25	75	▲
TOTIME48-100CR030-75-4F	10	3.0	10	25	75	△
TOTIME48-100CR005-100-4F	10	0.5	10	25	100	▲
TOTIME48-100CR010-100-4F	10	1.0	10	25	100	▲
TOTIME48-100CR015-100-4F	10	1.5	10	25	100	△
TOTIME48-100CR020-100-4F	10	2.0	10	25	100	△
TOTIME48-120CR005-75-4F	12	0.5	12	30	75	▲
TOTIME48-120CR010-75-4F	12	1.0	12	30	75	▲
TOTIME48-120CR015-75-4F	12	1.5	12	30	75	▲
TOTIME48-120CR020-75-4F	12	2.0	12	30	75	▲
TOTIME48-120CR025-75-4F	12	2.5	12	30	75	▲
TOTIME48-120CR030-75-4F	12	3.0	12	30	75	▲
TOTIME48-120CR005-100-4F	12	0.5	12	30	100	△
TOTIME48-120CR010-100-4F	12	1.0	12	30	100	▲
TOTIME48-120CR015-100-4F	12	1.5	12	30	100	△
TOTIME48-120CR020-100-4F	12	2.0	12	30	100	▲
TOTIME48-120CR030-100-4F	12	3.0	12	30	100	△
TOTIME48-160CR005-100-4F	16	0.5	16	36	100	△
TOTIME48-160CR010-100-4F	16	1.0	16	36	100	▲
TOTIME48-160CR020-100-4F	16	2.0	16	36	100	△
TOTIME48-160CR030-100-4F	16	3.0	16	36	100	△
TOTIME48-160CR005-150-4F	16	0.5	16	36	150	△
TOTIME48-160CR010-150-4F	16	1.0	16	36	150	▲
TOTIME48-160CR015-150-4F	16	1.5	16	36	150	△
TOTIME48-160CR020-150-4F	16	2.0	16	36	150	△
TOTIME48-160CR030-150-4F	16	3.0	16	36	150	△

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B85

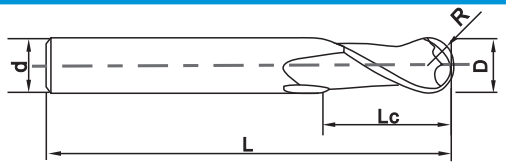
TOTIME Carbide End Mill Cutter
For Steels,Cast Iron

P K

Ball Nose End Mill (HRC48)

MG HM | 2 | AlCrSiN | 30° | Ball Nose

2 FLUTES BALL NOSE



2Flutes	Cobalt 12%	HRC 48	AlCrSiN Coating	UMG 0.5μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(mm)	R(mm)	d(mm)	Lc(mm)	L(mm)	Stock
TOTIME48-008B-50-2F	0.8	0.40	4	1.6	50	▲
TOTIME48-009B-50-2F	0.9	0.45	4	1.8	50	▲
TOTIME48-010B-50-2F	1.0	0.50	4	2.0	50	▲
TOTIME48-015B-50-2F	1.5	0.75	4	3.0	50	▲
TOTIME48-020B-04-50-2F	2.0	1.00	4	4.0	50	▲
TOTIME48-020B-06-50-2F	2.0	1.00	6	4.0	50	△
TOTIME48-020B-04-75-2F	2.0	1.00	4	4.0	75	▲
TOTIME48-020B-06-75-2F	2.0	1.00	6	4.0	75	▲
TOTIME48-025B-50-2F	2.5	1.25	4	5.0	50	△
TOTIME48-030B-04-50-2F	3.0	1.50	4	6.0	50	▲
TOTIME48-030B-06-50-2F	3.0	1.50	6	6.0	50	▲
TOTIME48-030B-04-75-2F	3.0	1.50	4	6.0	75	▲
TOTIME48-030B-06-75-2F	3.0	1.50	6	6.0	75	▲
TOTIME48-040B-04-50-2F	4.0	2.00	4	8.0	50	▲
TOTIME48-040B-06-50-2F	4.0	2.00	6	8.0	50	▲
TOTIME48-040B-04-75-2F	4.0	2.00	4	8.0	75	▲
TOTIME48-040B-06-75-2F	4.0	2.00	6	8.0	75	▲
TOTIME48-050B-50-2F	5.0	2.50	6	10.0	50	▲
TOTIME48-050B-75-2F	5.0	2.50	6	10.0	75	▲
TOTIME48-060B-50-2F	6.0	3.00	6	12.0	50	▲
TOTIME48-060B-75-2F	6.0	3.00	6	12.0	75	▲
TOTIME48-070B-60-2F	7.0	3.50	8	14.0	60	▲
TOTIME48-070B-100-2F	7.0	3.50	8	14.0	100	▲

Tolerance:R≤1. 5 -0. 01~0 1. 5<R<3 -0. 015~0 R≥3 -0. 02~0

▲Stock △Non-Stock

Recommended Cutting Conditions B86

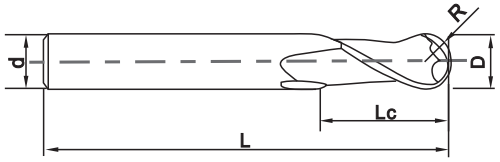
TOTIME Carbide End Mill Cutter
For Steels,Cast Iron

P K

Ball Nose End Mill (HRC48)

MG HM | 2 | AlCrSiN | 30° | Ball Nose

2 FLUTES BALL NOSE



2Flutes	Cobalt 12%	HRC 48	AlCrSiN Coating	UMG 0.5μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(mm)	R(mm)	d(mm)	Lc(mm)	L(mm)	Stock
TOTIME48-080B-60-2F	8	4.0	8	14	60	▲
TOTIME48-080B-75-2F	8	4.0	8	14	75	▲
TOTIME48-080B-100-2F	8	4.0	8	14	100	▲
TOTIME48-090B-75-2F	9	4.5	10	16	75	▲
TOTIME48-090B-100-2F	9	4.5	10	16	100	▲
TOTIME48-100B-75-2F	10	5.0	10	18	75	▲
TOTIME48-100B-100-2F	10	5.0	10	18	100	▲
TOTIME48-110B-75-2F	11	5.5	12	20	75	▲
TOTIME48-110B-100-2F	11	5.5	12	20	100	▲
TOTIME48-120B-75-2F	12	6.0	12	22	75	▲
TOTIME48-120B-100-2F	12	6.0	12	22	100	▲
TOTIME48-130B-100-2F	13	6.5	14	26	100	▲
TOTIME48-140B-100-2F	14	7.0	14	26	100	▲
TOTIME48-150B-100-2F	15	7.5	16	30	100	▲
TOTIME48-160B-100-2F	16	8.0	16	30	100	▲
TOTIME48-200B-100-2F	20	10.0	20	38	100	▲

Tolerance:R≤1. 5 -0. 01~0 1. 5＜R＜3 -0. 015~0 R≥3 -0. 02~0

▲Stock △Non-Stock

Recommended Cutting Conditions B86

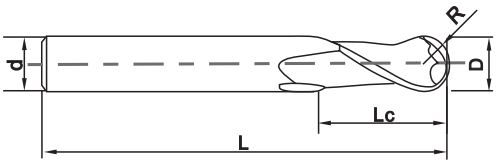
TOTIME Carbide End Mill Cutter
For Steels,Cast Iron

P K

Ball Nose End Mill (HRC48)

MG HM | 4 | AlCrSiN | 30° | Ball Nose

4 FLUTES BALL NOSE



4Flutes	Cobalt 12%	HRC 48	AlCrSiN Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(mm)	R(mm)	d(mm)	Lc(mm)	L(mm)	Stock
TOTIME48-020B-04-50-4F	2.0	1.00	4	4	50	▲
TOTIME48-025B-50-4F	2.5	1.25	4	5	50	▲
TOTIME48-030B-03-50-4F	3.0	1.50	3	6	50	▲
TOTIME48-030B-04-50-4F	3.0	1.50	4	6	50	△
TOTIME48-030B-06-50-4F	3.0	1.50	6	6	50	▲
TOTIME48-040B-04-50-4F	4.0	2.00	4	8	50	▲
TOTIME48-040B-06-50-4F	4.0	2.00	6	8	50	▲
TOTIME48-050B-05-50-4F	5.0	2.50	5	10	50	△
TOTIME48-050B-06-50-4F	5.0	2.50	6	10	50	▲
TOTIME48-060B-50-4F	6.0	3.00	6	12	50	▲
TOTIME48-060B-100-4F	6.0	3.00	6	12	100	▲
TOTIME48-060B-150-4F	6.0	3.00	6	12	150	▲
TOTIME48-070B-60-4F	7.0	3.50	8	14	60	▲
TOTIME48-080B-60-4F	8.0	4.00	8	14	60	▲
TOTIME48-080B-100-4F	8.0	4.00	8	14	100	▲
TOTIME48-090B-75-4F	9.0	4.50	10	16	75	▲
TOTIME48-100B-75-4F	10.0	5.00	10	18	75	▲
TOTIME48-110B-75-4F	11.0	5.50	12	20	75	▲
TOTIME48-120B-75-4F	12.0	6.00	12	22	75	▲
TOTIME48-120B-100-4F	12.0	6.00	12	22	100	▲
TOTIME48-120B-150-4F	12.0	6.00	12	22	150	▲
TOTIME48-140B-75-4F	14.0	7.00	14	24	75	▲
TOTIME48-160B-100-4F	16.0	8.00	16	30	100	▲
TOTIME48-200B-100-4F	20.0	10.00	20	38	100	▲

Tolerance:R≤1. 5 -0. 01~0　1. 5＜R＜3 -0. 015~0　R≥3 -0. 02~0

▲Stock △Non-Stock

Recommended Cutting Conditions B86

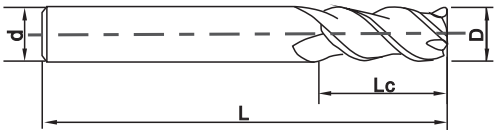
TOTIME Carbide End Mill Cutter
For Steels,Cast Iron

P K

Variable Helix Square End Mill(HRC48)

MG HM | 4 | AlCrSiN | 35°/38° | Square | L

4 FLUTES SQUARE



4Flutes	Cobalt 12%	HRC 48	AlCrSiN Coating	UMG 0.5μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●				○	

Order No.	D（mm）	d（mm）	Lc（mm）	L(mm）	Flutes	Stock
TOTIME3538-020S-50-4F	2.0	4	6	50	4	▲
TOTIME3538-030S-50-4F	3.0	4	9	50	4	▲
TOTIME3538-040S-50-4F	4.0	4	11	50	4	▲
TOTIME3538-040S-06-50-4F	4.0	6	11	50	4	▲
TOTIME3538-040S-75-4F	4.0	6	15	75	4	▲
TOTIME3538-050S-50-4F	5.0	6	13	50	4	▲
TOTIME3538-050S-75-4F	5.0	6	20	75	4	▲
TOTIME3538-055S-50-4F	5.5	6	16	50	4	▲
TOTIME3538-060S-50-4F	6.0	6	16	50	4	▲
TOTIME3538-060S-75-4F	6.0	6	20	75	4	▲
TOTIME3538-070S-60-4F	7.0	8	20	60	4	▲
TOTIME3538-080S-60-4F	8.0	8	16	60	4	▲
TOTIME3538-080S-60-1-4F	8.0	8	20	60	4	▲
TOTIME3538-080S-60-2-4F	8.0	8	25	60	4	▲
TOTIME3538-080S-75-4F	8.0	8	25	75	4	▲
TOTIME3538-080S-100-4F	8.0	8	25	100	4	▲
TOTIME3538-100S-75-4F	10.0	10	25	75	4	▲
TOTIME3538-100S-75-1-4F	10.0	10	20	75	4	▲
TOTIME3538-100S-75-2-4F	10.0	10	30	75	4	▲
TOTIME3538-100S-100-4F	10.0	10	30	100	4	▲
TOTIME3538-120S-75-4F	12.0	12	30	75	4	▲
TOTIME3538-120S-75-1-4F	12.0	12	24	75	4	▲
TOTIME3538-120S-100-4F	12.0	12	35	100	4	▲
TOTIME3538-140S-75-4F	14.0	14	32	75	4	▲
TOTIME3538-140S-100-4F	14.0	14	40	100	4	▲
TOTIME3538-160S-100-4F	16.0	16	36	100	4	▲
TOTIME3538-160S-150-4F	16.0	16	50	150	4	▲
TOTIME3538-180S-100-4F	18.0	18	45	100	4	▲
TOTIME3538-180S-150-4F	18.0	18	50	150	4	▲
TOTIME3538-200S-100-4F	20.0	20	45	100	4	▲
TOTIME3538-200S-150-4F	20.0	20	50	150	4	▲

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B87

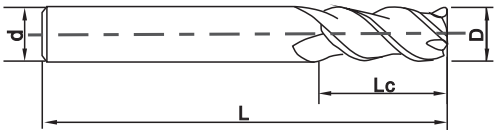
TOTIME Carbide End Mill Cutter
For Stainless Steels

M

Variable Helix Square End Mill(HRC48)

MG HM | 4 | TiSiAlN | 36°/38° | Square | L

4 FLUTES SQUARE



4Flutes	Cobalt 12%	HRC 48	TiSiAlN Coating	UMG 0.5μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
				●		

Order No.	D（mm）	d（mm）	Lc（mm）	L(mm)	Flutes	Stock
TOTIME3638-020S-50-4F	2.0	4	6	50	4	▲
TOTIME3638-030S-50-4F	3.0	4	9	50	4	▲
TOTIME3638-040S-50-4F	4.0	4	12	50	4	▲
TOTIME3638-040S-06-50-4F	4.0	6	12	50	4	▲
TOTIME3638-040S-75-4F	4.0	6	12	75	4	▲
TOTIME3638-050S-50-4F	5.0	6	13	50	4	▲
TOTIME3638-050S-75-4F	5.0	6	20	75	4	▲
TOTIME3638-055S-50-4F	5.5	6	16	50	4	▲
TOTIME3638-060S-50-4F	6.0	6	18	50	4	▲
TOTIME3638-060S-75-4F	6.0	6	18	75	4	▲
TOTIME3638-070S-60-4F	7.0	8	20	60	4	▲
TOTIME3638-080S-60-4F	8.0	8	16	60	4	▲
TOTIME3638-080S-60-1-4F	8.0	8	20	60	4	▲
TOTIME3638-080S-60-2-4F	8.0	8	24	60	4	▲
TOTIME3638-080S-75-4F	8.0	8	24	75	4	▲
TOTIME3638-080S-100-4F	8.0	8	32	100	4	▲
TOTIME3638-100S-75-4F	10.0	10	25	75	4	▲
TOTIME3638-100S-75-1-4F	10.0	10	20	75	4	▲
TOTIME3638-100S-75-2-4F	10.0	10	30	75	4	▲
TOTIME3638-100S-100-4F	10.0	10	40	100	4	▲
TOTIME3638-120S-75-4F	12.0	12	36	75	4	▲
TOTIME3638-120S-75-1-4F	12.0	12	24	75	4	▲
TOTIME3638-120S-100-4F	12.0	12	40	100	4	▲
TOTIME3638-140S-75-4F	14.0	14	32	75	4	▲
TOTIME3638-140S-100-4F	14.0	14	40	100	4	▲
TOTIME3638-160S-100-4F	16.0	16	36	100	4	▲
TOTIME3638-160S-150-4F	16.0	16	50	150	4	▲
TOTIME3638-180S-100-4F	18.0	18	45	100	4	▲
TOTIME3638-180S-150-4F	18.0	18	50	150	4	▲
TOTIME3638-200S-100-4F	20.0	20	45	100	4	▲
TOTIME3638-200S-150-4F	20.0	20	50	150	4	▲

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B99

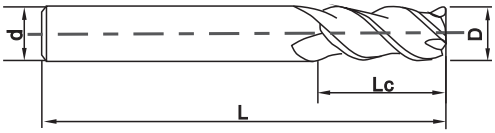
TOTIME Carbide End Mill Cutter
For Stainless Steels,Heat Resistant Material,Titanium Alloys

M S

Variable Lead Square End Mill(HRC48)

MG HM | 2 | GS | 35°/38° | Square

2 FLUTES SQUARE [1.5D]



2 Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5μm	Materials Carbide	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME3538-MS010S-50-2F-1.5D	1.0	4	1.5	50	2	△
TOTIME3538-MS015S-50-2F-1.5D	1.5	4	2.3	50	2	△
TOTIME3538-MS020S-50-2F-1.5D	2.0	4	3.0	50	2	▲
TOTIME3538-MS030S-50-2F-1.5D	3.0	4	4.5	50	2	▲
TOTIME3538-MS040S-50-2F-1.5D	4.0	4	6.0	50	2	△
TOTIME3538-MS040S-75-2F-1.5D	4.0	4	6.0	75	2	▲
TOTIME3538-MS050S-50-2F-1.5D	5.0	6	7.5	50	2	△
TOTIME3538-MS060S-50-2F-1.5D	6.0	6	9.0	50	2	△
TOTIME3538-MS060S-75-2F-1.5D	6.0	6	9.0	75	2	▲
TOTIME3538-MS060S-100-2F-1.5D	6.0	6	9.0	100	2	△
TOTIME3538-MS080S-60-2F-1.5D	8.0	8	12.0	60	2	△
TOTIME3538-MS080S-75-2F-1.5D	8.0	8	12.0	75	2	△
TOTIME3538-MS080S-100-2F-1.5D	8.0	8	12.0	100	2	▲
TOTIME3538-MS100S-75-2F-1.5D	10.0	10	15.0	75	2	△
TOTIME3538-MS100S-100-2F-1.5D	10.0	10	15.0	100	2	▲
TOTIME3538-MS120S-75-2F-1.5D	12.0	12	18.0	75	2	△
TOTIME3538-MS120S-100-2F-1.5D	12.0	12	18.0	100	2	▲
TOTIME3538-MS160S-100-2F-1.5D	16.0	16	24.0	100	2	△
TOTIME3538-MS160S-150-2F-1.5D	16.0	16	24.0	150	2	△
TOTIME3538-MS200S-100-2F-1.5D	20.0	20	30.0	100	2	△
TOTIME3538-MS200S-150-2F-1.5D	20.0	20	30.0	150	2	△

Tolerance:D≤12 -0. 02~0 D＞12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B88~B89

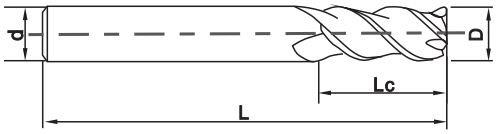
TOTIME Carbide End Mill Cutter
For Stainless Steels,Heat Resistant Material,Titanium Alloys

M S

Variable Lead Square End Mill(HRC48)

MG HM | 2 | GS | 35°/38° | Square

2 FLUTES SQUARE [3D]



2 Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME3538-MS010S-50-2F-3D	1.0	4	3.0	50	2	△
TOTIME3538-MS015S-50-2F-3D	1.5	4	4.5	50	2	△
TOTIME3538-MS020S-50-2F-3D	2.0	4	6.0	50	2	△
TOTIME3538-MS030S-50-2F-3D	3.0	4	9.0	50	2	△
TOTIME3538-MS040S-50-2F-3D	4.0	4	12.0	50	2	△
TOTIME3538-MS040S-75-2F-3D	4.0	4	12.0	75	2	▲
TOTIME3538-MS050S-50-2F-3D	5.0	6	15.0	50	2	△
TOTIME3538-MS060S-50-2F-3D	6.0	6	18.0	50	2	△
TOTIME3538-MS060S-75-2F-3D	6.0	6	18.0	75	2	▲
TOTIME3538-MS060S-100-2F-3D	6.0	6	18.0	100	2	△
TOTIME3538-MS080S-60-2F-3D	8.0	8	24.0	60	2	△
TOTIME3538-MS080S-75-2F-3D	8.0	8	24.0	75	2	△
TOTIME3538-MS080S-100-2F-3D	8.0	8	24.0	100	2	▲
TOTIME3538-MS100S-75-2F-3D	10.0	10	30.0	75	2	△
TOTIME3538-MS100S-100-2F-3D	10.0	10	30.0	100	2	▲
TOTIME3538-MS120S-75-2F-3D	12.0	12	36.0	75	2	△
TOTIME3538-MS120S-100-2F-3D	12.0	12	36.0	100	2	▲
TOTIME3538-MS160S-100-2F-3D	16.0	16	48.0	100	2	▲
TOTIME3538-MS160S-150-2F-3D	16.0	16	48.0	150	2	△
TOTIME3538-MS200S-150-2F-3D	20.0	20	60.0	150	2	△

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B88~B89

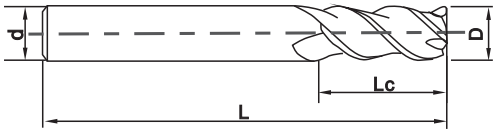
TOTIME Carbide End Mill Cutter
For Stainless Steels,Heat Resistant Material,Titanium Alloys

M S

Variable Lead Square End Mill(HRC48)

MG HM | 4 | GS | 35°/38° | Square | L

4 FLUTES SQUARE [2.5D]



4Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5μm	Materials Carbide	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME3538-MS010S-50-4F-2.5D	1.0	4	2.5	50	4	▲
TOTIME3538-MS015S-50-4F-2.5D	1.5	4	3.8	50	4	▲
TOTIME3538-MS020S-50-4F-2.5D	2.0	4	5.0	50	4	▲
TOTIME3538-MS030S-50-4F-2.5D	3.0	4	8.0	50	4	▲
TOTIME3538-MS040S-50-4F-2.5D	4.0	4	10.0	50	4	▲
TOTIME3538-MS040S-75-4F-2.5D	4.0	4	10.0	75	4	△
TOTIME3538-MS050S-50-4F-2.5D	5.0	6	12.0	50	4	▲
TOTIME3538-MS060S-50-4F-2.5D	6.0	6	15.0	50	4	▲
TOTIME3538-MS060S-75-4F-2.5D	6.0	6	15.0	75	4	▲
TOTIME3538-MS060S-100-4F-2.5D	6.0	6	15.0	100	4	△
TOTIME3538-MS080S-60-4F-2.5D	8.0	8	20.0	60	4	▲
TOTIME3538-MS080S-75-4F-2.5D	8.0	8	20.0	75	4	△
TOTIME3538-MS080S-100-4F-2.5D	8.0	8	20.0	100	4	△
TOTIME3538-MS100S-75-4F-2.5D	10.0	10	25.0	75	4	▲
TOTIME3538-MS100S-100-4F-2.5D	10.0	10	25.0	100	4	△
TOTIME3538-MS120S-75-4F-2.5D	12.0	12	30.0	75	4	▲
TOTIME3538-MS120S-100-4F-2.5D	12.0	12	30.0	100	4	△
TOTIME3538-MS160S-100-4F-2.5D	16.0	16	40.0	100	4	▲
TOTIME3538-MS160S-150-4F-2.5D	16.0	16	40.0	150	4	△
TOTIME3538-MS200S-150-4F-2.5D	20.0	20	50.0	150	4	△

Tolerance:D≤12 -0. 02~0 D＞12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B88

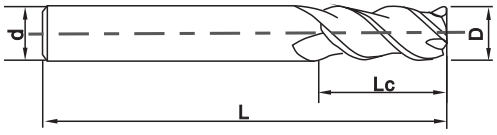
TOTIME Carbide End Mill Cutter
For Stainless Steels,Heat Resistant Material,Titanium Alloys

M S

Variable Lead Square End Mill(HRC48)

MG HM | 4 | GS | 35°/38° | Square | L

4 FLUTES SQUARE [3D]



4Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME3538-MS010S-50-4F-3D	1.0	4	3.0	50	4	▲
TOTIME3538-MS015S-50-4F-3D	1.5	4	4.5	50	4	△
TOTIME3538-MS020S-50-4F-3D	2.0	4	6.0	50	4	△
TOTIME3538-MS030S-50-4F-3D	3.0	4	9.0	50	4	▲
TOTIME3538-MS040S-50-4F-3D	4.0	4	12.0	50	4	△
TOTIME3538-MS040S-75-4F-3D	4.0	4	12.0	75	4	△
TOTIME3538-MS050S-50-4F-3D	5.0	6	15.0	50	4	▲
TOTIME3538-MS060S-50-4F-3D	6.0	6	18.0	50	4	△
TOTIME3538-MS060S-75-4F-3D	6.0	6	18.0	75	4	△
TOTIME3538-MS060S-100-4F-3D	6.0	6	18.0	100	4	△
TOTIME3538-MS080S-60-4F-3D	8.0	8	24.0	60	4	△
TOTIME3538-MS080S-75-4F-3D	8.0	8	24.0	75	4	▲
TOTIME3538-MS080S-100-4F-3D	8.0	8	24.0	100	4	△
TOTIME3538-MS100S-75-4F-3D	10.0	10	30.0	75	4	△
TOTIME3538-MS100S-100-4F-3D	10.0	10	30.0	100	4	▲
TOTIME3538-MS120S-75-4F-3D	12.0	12	36.0	75	4	△
TOTIME3538-MS120S-100-4F-3D	12.0	12	36.0	100	4	▲
TOTIME3538-MS160S-100-4F-3D	16.0	16	48.0	100	4	△
TOTIME3538-MS160S-150-4F-3D	16.0	16	48.0	150	4	△
TOTIME3538-MS200S-150-4F-3D	20.0	20	60.0	150	4	△

Tolerance:D≤12 -0. 02~0 D＞12 -0.03~0

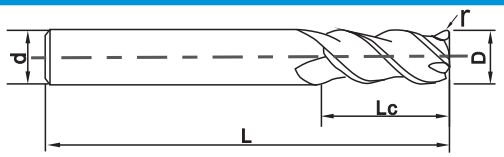
▲Stock △Non-Stock
Recommended Cutting Conditions B88

TOTIME Carbide End Mill Cutter
For Stainless Steels,Heat Resistant Material,Titanium Alloys

Variable Lead Corner Radius End Mill(HRC48)

MG HM | 4 | GS | 35°/38° | Corner-R | L

4 FLUTES CORNER RADIUS [2.5D]



4Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME3538-MS010CR001-50-4F-2.5D	1.0	0.1	4	2.5	50	4	△
TOTIME3538-MS010CR002-50-4F-2.5D	1.0	0.2	4	2.5	50	4	▲
TOTIME3538-MS015CR001-50-4F-2.5D	1.5	0.1	4	3.8	50	4	▲
TOTIME3538-MS015CR002-50-4F-2.5D	1.5	0.2	4	3.8	50	4	▲
TOTIME3538-MS020CR001-50-4F-2.5D	2.0	0.1	4	5.0	50	4	▲
TOTIME3538-MS020CR002-50-4F-2.5D	2.0	0.2	4	5.0	50	4	▲
TOTIME3538-MS020CR005-50-4F-2.5D	2.0	0.5	4	5.0	50	4	△
TOTIME3538-MS030CR001-50-4F-2.5D	3.0	0.1	4	8.0	50	4	▲
TOTIME3538-MS030CR002-50-4F-2.5D	3.0	0.2	4	8.0	50	4	△
TOTIME3538-MS030CR003-50-4F-2.5D	3.0	0.3	4	8.0	50	4	△
TOTIME3538-MS030CR005-50-4F-2.5D	3.0	0.5	4	8.0	50	4	△
TOTIME3538-MS040CR002-50-4F-2.5D	4.0	0.2	4	10.0	50	4	△
TOTIME3538-MS040CR003-50-4F-2.5D	4.0	0.3	4	10.0	50	4	△
TOTIME3538-MS040CR005-50-4F-2.5D	4.0	0.5	4	10.0	50	4	▲
TOTIME3538-MS040CR010-50-4F-2.5D	4.0	1.0	4	10.0	50	4	△
TOTIME3538-MS050CR002-50-4F-2.5D	5.0	0.2	6	12.0	50	4	▲
TOTIME3538-MS050CR003-50-4F-2.5D	5.0	0.3	6	12.0	50	4	△
TOTIME3538-MS050CR005-50-4F-2.5D	5.0	0.5	6	12.0	50	4	△
TOTIME3538-MS050CR010-50-4F-2.5D	5.0	1.0	6	12.0	50	4	△
TOTIME3538-MS060CR002-50-4F-2.5D	6.0	0.2	6	15.0	50	4	▲
TOTIME3538-MS060CR003-50-4F-2.5D	6.0	0.3	6	15.0	50	4	△
TOTIME3538-MS060CR005-50-4F-2.5D	6.0	0.5	6	15.0	50	4	▲
TOTIME3538-MS060CR010-50-4F-2.5D	6.0	1.0	6	15.0	50	4	▲
TOTIME3538-MS060CR015-50-4F-2.5D	6.0	1.5	6	15.0	50	4	△
TOTIME3538-MS060CR002-75-4F-2.5D	6.0	0.2	6	15.0	75	4	△
TOTIME3538-MS060CR003-75-4F-2.5D	6.0	0.3	6	15.0	75	4	△
TOTIME3538-MS060CR005-75-4F-2.5D	6.0	0.5	6	15.0	75	4	▲
TOTIME3538-MS060CR010-75-4F-2.5D	6.0	1.0	6	15.0	75	4	△
TOTIME3538-MS060CR015-75-4F-2.5D	6.0	1.5	6	15.0	75	4	△

Tolerance:D≤12 -0. 02~0 D＞12 -0.03~0

▲Stock △Non-Stock
Recommended Cutting Conditions B88

TOTIME Carbide End Mill Cutter

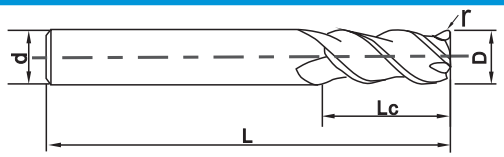
For Stainless Steels,Heat Resistant Material,Titanium Alloys

M S

Variable Lead Corner Radius End Mill(HRC48)

MG HM | 4 | GS | 35°/38° | Corner-R | L

4 FLUTES CORNER RADIUS [2.5D]



4Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5μm	Materials Carbide	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME3538-MS080CR003-60-4F-2.5D	8	0.3	8	20	60	4	△
TOTIME3538-MS080CR005-60-4F-2.5D	8	0.5	8	20	60	4	▲
TOTIME3538-MS080CR010-60-4F-2.5D	8	1.0	8	20	60	4	▲
TOTIME3538-MS080CR015-60-4F-2.5D	8	1.5	8	20	60	4	△
TOTIME3538-MS080CR020-60-4F-2.5D	8	2.0	8	20	60	4	▲
TOTIME3538-MS080CR003-75-4F-2.5D	8	0.3	8	20	75	4	△
TOTIME3538-MS080CR005-75-4F-2.5D	8	0.5	8	20	75	4	△
TOTIME3538-MS080CR010-75-4F-2.5D	8	1.0	8	20	75	4	△
TOTIME3538-MS080CR015-75-4F-2.5D	8	1.5	8	20	75	4	△
TOTIME3538-MS080CR020-75-4F-2.5D	8	2.0	8	20	75	4	△
TOTIME3538-MS100CR002-75-4F-2.5D	10	0.2	10	25	75	4	△
TOTIME3538-MS100CR003-75-4F-2.5D	10	0.3	10	25	75	4	△
TOTIME3538-MS100CR005-75-4F-2.5D	10	0.5	10	25	75	4	▲
TOTIME3538-MS100CR010-75-4F-2.5D	10	1.0	10	25	75	4	▲
TOTIME3538-MS100CR015-75-4F-2.5D	10	1.5	10	25	75	4	▲
TOTIME3538-MS100CR020-75-4F-2.5D	10	2.0	10	25	75	4	▲
TOTIME3538-MS100CR025-75-4F-2.5D	10	2.5	10	25	75	4	△
TOTIME3538-MS100CR030-75-4F-2.5D	10	3.0	10	25	75	4	▲
TOTIME3538-MS100CR002-100-4F-2.5D	10	0.2	10	25	100	4	△
TOTIME3538-MS100CR003-100-4F-2.5D	10	0.3	10	25	100	4	△
TOTIME3538-MS100CR005-100-4F-2.5D	10	0.5	10	25	100	4	△
TOTIME3538-MS100CR010-100-4F-2.5D	10	1.0	10	25	100	4	△
TOTIME3538-MS100CR015-100-4F-2.5D	10	1.5	10	25	100	4	△
TOTIME3538-MS100CR020-100-4F-2.5D	10	2.0	10	25	100	4	△
TOTIME3538-MS100CR025-100-4F-2.5D	10	2.5	10	25	100	4	△
TOTIME3538-MS100CR030-100-4F-2.5D	10	3.0	10	25	100	4	△
TOTIME3538-MS120CR005-75-4F-2.5D	12	0.5	12	30	75	4	▲
TOTIME3538-MS120CR010-75-4F-2.5D	12	1.0	12	30	75	4	▲
TOTIME3538-MS120CR015-75-4F-2.5D	12	1.5	12	30	75	4	▲
TOTIME3538-MS120CR020-75-4F-2.5D	12	2.0	12	30	75	4	▲
TOTIME3538-MS120CR025-75-4F-2.5D	12	2.5	12	30	75	4	△

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B88

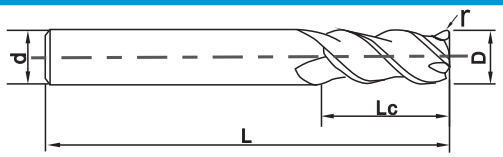
TOTIME Carbide End Mill Cutter
For Stainless Steels,Heat Resistant Material,Titanium Alloys

M S

Variable Lead Corner Radius End Mill(HRC48)

MG HM | 4 | GS | 35°/38° | Corner-R | L

4 FLUTES CORNER RADIUS [2.5D]



4Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5μm	Materials Carbide	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME3538-MS120CR030-75-4F-2.5D	12	3.0	12	30	75	4	▲
TOTIME3538-MS120CR005-100-4F-2.5D	12	0.5	12	30	100	4	△
TOTIME3538-MS120CR010-100-4F-2.5D	12	1.0	12	30	100	4	△
TOTIME3538-MS120CR015-100-4F-2.5D	12	1.5	12	30	100	4	△
TOTIME3538-MS120CR020-100-4F-2.5D	12	2.0	12	30	100	4	△
TOTIME3538-MS120CR025-100-4F-2.5D	12	2.5	12	30	100	4	△
TOTIME3538-MS120CR030-100-4F-2.5D	12	3.0	12	30	100	4	△
TOTIME3538-MS160CR005-100-4F-2.5D	16	0.5	16	40	100	4	△
TOTIME3538-MS160CR010-100-4F-2.5D	16	1.0	16	40	100	4	▲
TOTIME3538-MS160CR015-100-4F-2.5D	16	1.5	16	40	100	4	△
TOTIME3538-MS160CR020-100-4F-2.5D	16	2.0	16	40	100	4	△
TOTIME3538-MS160CR025-100-4F-2.5D	16	2.5	16	40	100	4	△
TOTIME3538-MS160CR030-100-4F-2.5D	16	3.0	16	40	100	4	△
TOTIME3538-MS160CR005-150-4F-2.5D	16	0.5	16	40	150	4	△
TOTIME3538-MS160CR010-150-4F-2.5D	16	1.0	16	40	150	4	△
TOTIME3538-MS160CR015-150-4F-2.5D	16	1.5	16	40	150	4	△
TOTIME3538-MS160CR020-150-4F-2.5D	16	2.0	16	40	150	4	△
TOTIME3538-MS160CR025-150-4F-2.5D	16	2.5	16	40	150	4	△
TOTIME3538-MS160CR030-150-4F-2.5D	16	3.0	16	40	150	4	△

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B88

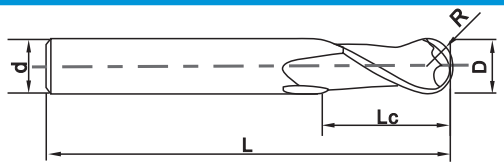
TOTIME Carbide End Mill Cutter
For Stainless Steels,Heat Resistant Material,Titanium Alloys

M S

Variable Lead Ball Nose End Mill(HRC48)

MG HM | 2 | GS | 30° | Ball Nose

2 FLUTES BALL NOSE [2D]



2Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	R(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME3538-MS020B-50-2F-2D	2	1.0	4	4	50	2	▲
TOTIME3538-MS020B-75-2F-2D	2	1.0	4	4	75	2	△
TOTIME3538-MS030B-50-2F-2D	3	1.5	4	6	50	2	▲
TOTIME3538-MS030B-75-2F-2D	3	1.5	4	6	75	2	△
TOTIME3538-MS040B-50-2F-2D	4	2.0	4	8	50	2	▲
TOTIME3538-MS040B-75-2F-2D	4	2.0	4	8	75	2	△
TOTIME3538-MS050B-50-2F-2D	5	2.5	6	10	50	2	▲
TOTIME3538-MS050B-75-2F-2D	5	2.5	6	10	75	2	△
TOTIME3538-MS050B-100-2F-2D	5	2.5	6	10	100	2	△
TOTIME3538-MS060B-50-2F-2D	6	3.0	6	12	50	2	▲
TOTIME3538-MS060B-75-2F-2D	6	3.0	6	12	75	2	▲
TOTIME3538-MS060B-100-2F-2D	6	3.0	6	12	100	2	△
TOTIME3538-MS080B-60-2F-2D	8	4.0	8	16	60	2	▲
TOTIME3538-MS080B-75-2F-2D	8	4.0	8	16	75	2	△
TOTIME3538-MS080B-100-2F-2D	8	4.0	8	16	100	2	▲
TOTIME3538-MS100B-75-2F-2D	10	5.0	10	20	75	2	▲
TOTIME3538-MS100B-100-2F-2D	10	5.0	10	20	100	2	▲
TOTIME3538-MS120B-75-2F-2D	12	6.0	12	24	75	2	▲
TOTIME3538-MS120B-100-2F-2D	12	6.0	12	24	100	2	△
TOTIME3538-MS160B-100-2F-2D	16	8.0	16	32	100	2	△
TOTIME3538-MS160B-150-2F-2D	16	8.0	16	32	150	2	△
TOTIME3538-MS200B-100-2F-2D	20	10.0	20	40	100	2	△
TOTIME3538-MS200B-150-2F-2D	20	10.0	20	40	150	2	△

Tolerance:R≤1. 5 -0. 01~0　1. 5＜R＜3 -0. 015~0　R≥3 -0. 02~0

▲Stock △Non-Stock
Recommended Cutting Conditions B89

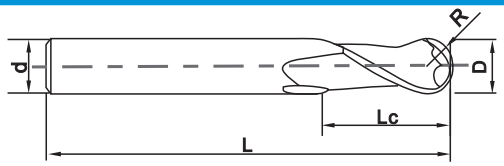
TOTIME Carbide End Mill Cutter
For Stainless Steels,Heat Resistant Material,Titanium Alloys

M S

Variable Lead Ball Nose End Mill(HRC48)

MG HM | 4 | GS | 30° | Ball Nose

4 FLUTES BALL NOSE [1.5D]



4Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	R(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME3538-MS040B-50-4F-1.5D	4	2.0	4	6.0	50	4	▲
TOTIME3538-MS040B-75-4F-1.5D	4	2.0	4	6.0	75	4	△
TOTIME3538-MS050B-50-4F-1.5D	5	2.5	6	7.5	50	4	▲
TOTIME3538-MS050B-75-4F-1.5D	5	2.5	6	7.5	75	4	△
TOTIME3538-MS050B-100-4F-1.5D	5	2.5	6	7.5	100	4	△
TOTIME3538-MS060B-50-4F-1.5D	6	3.0	6	9.0	50	4	▲
TOTIME3538-MS060B-75-4F-1.5D	6	3.0	6	9.0	75	4	△
TOTIME3538-MS060B-100-4F-1.5D	6	3.0	6	9.0	100	4	△
TOTIME3538-MS080B-60-4F-1.5D	8	4.0	8	12.0	60	4	▲
TOTIME3538-MS080B-75-4F-1.5D	8	4.0	8	12.0	75	4	△
TOTIME3538-MS080B-100-4F-1.5D	8	4.0	8	12.0	100	4	△
TOTIME3538-MS100B-75-4F-1.5D	10	5.0	10	15.0	75	4	▲
TOTIME3538-MS100B-100-4F-1.5D	10	5.0	10	15.0	100	4	△
TOTIME3538-MS120B-75-4F-1.5D	12	6.0	12	18.0	75	4	▲
TOTIME3538-MS120B-100-4F-1.5D	12	6.0	12	18.0	100	4	△
TOTIME3538-MS160B-100-4F-1.5D	16	8.0	16	24.0	100	4	△
TOTIME3538-MS160B-150-4F-1.5D	16	8.0	16	24.0	150	4	△
TOTIME3538-MS200B-100-4F-1.5D	20	10.0	20	30.0	100	4	△
TOTIME3538-MS200B-150-4F-1.5D	20	10.0	20	30.0	150	4	△

Tolerance:R≤1. 5 -0. 01~0 1. 5＜R＜3 -0. 015~0 R≥3 -0. 02~0

▲Stock △Non-Stock

Recommended Cutting Conditions B90

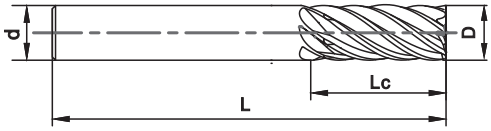
TOTIME Carbide End Mill Cutter
For Stainless Steels,Heat Resistant Material,Titanium Alloys

M S

Square End Mill (HRC48)

MG HM | 6 | GS | 38° | Square | L

6 FLUTES SQUARE [1.5D]



6 Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME38-MS080S-60-6F-1.5D	8	8	12	60	6	▲
TOTIME38-MS080S-75-6F-1.5D	8	8	12	75	6	▲
TOTIME38-MS080S-100-6F-1.5D	8	8	12	100	6	▲
TOTIME38-MS100S-75-6F-1.5D	10	10	15	75	6	▲
TOTIME38-MS100S-100-6F-1.5D	10	10	15	100	6	▲
TOTIME38-MS120S-75-6F-1.5D	12	12	18	75	6	▲
TOTIME38-MS120S-100-6F-1.5D	12	12	18	100	6	▲
TOTIME38-MS160S-100-6F-1.5D	16	16	24	100	6	▲
TOTIME38-MS160S-150-6F-1.5D	16	16	24	150	6	▲
TOTIME38-MS200S-100-6F-1.5D	20	20	30	100	6	▲
TOTIME38-MS200S-150-6F-1.5D	20	20	30	150	6	▲

Tolerance:D≤12 -0. 02~0 D＞12 -0.03~0

▲Stock △Non-Stock
Recommended Cutting Conditions B90

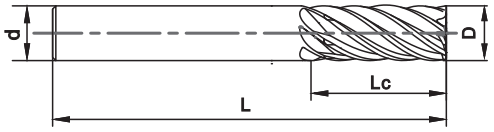
TOTIME Carbide End Mill Cutter
For Stainless Steels,Heat Resistant Material,Titanium Alloys

M S

Square End Mill (HRC48)

MG HM | 7 | GS | 38° | Square | L

7 FLUTES SQUARE [1.5D]



7 Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5μm	Materials Carbide	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME38-MS080S-60-7F-1.5D	8	8	12	60	7	▲
TOTIME38-MS080S-75-7F-1.5D	8	8	12	75	7	▲
TOTIME38-MS080S-100-7F-1.5D	8	8	12	100	7	▲
TOTIME38-MS100S-75-7F-1.5D	10	10	15	75	7	▲
TOTIME38-MS100S-100-7F-1.5D	10	10	15	100	7	▲
TOTIME38-MS120S-75-7F-1.5D	12	12	18	75	7	▲
TOTIME38-MS120S-100-7F-1.5D	12	12	18	100	7	▲
TOTIME38-MS160S-100-7F-1.5D	16	16	24	100	7	▲
TOTIME38-MS160S-150-7F-1.5D	16	16	24	150	7	▲
TOTIME38-MS200S-100-7F-1.5D	20	20	30	100	7	▲
TOTIME38-MS200S-150-7F-1.5D	20	20	30	150	7	▲

Tolerance:D≤12 -0. 02~0 D＞12 -0.03~0

▲Stock △Non-Stock
Recommended Cutting Conditions B90

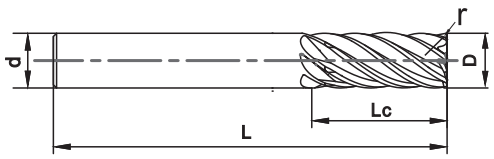
TOTIME Carbide End Mill Cutter
For Stainless Steels,Heat Resistant Material,Titanium Alloys

M S

Square End Mill (HRC48)

MG HM | 6 | GS | 38° | Square | L

6 FLUTES SQUARE [2.5D]



6 Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5μm	Materials Carbide	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME38-MS080S-60-6F-2.5D	8	8	20	60	6	▲
TOTIME38-MS080S-75-6F-2.5D	8	8	20	75	6	▲
TOTIME38-MS080S-100-6F-2.5D	8	8	20	100	6	▲
TOTIME38-MS100S-75-6F-2.5D	10	10	25	75	6	▲
TOTIME38-MS100S-100-6F-2.5D	10	10	25	100	6	▲
TOTIME38-MS120S-75-6F-2.5D	12	12	30	75	6	▲
TOTIME38-MS120S-100-6F-2.5D	12	12	30	100	6	▲
TOTIME38-MS160S-100-6F-2.5D	16	16	40	100	6	▲
TOTIME38-MS160S-150-6F-2.5D	16	16	40	150	6	▲
TOTIME38-MS200S-100-6F-2.5D	20	20	50	100	6	▲
TOTIME38-MS200S-150-6F-2.5D	20	20	50	150	6	▲

Tolerance:D≤12 -0. 02~0 D＞12 -0.03~0

▲Stock △Non-Stock
Recommended Cutting Conditions B90

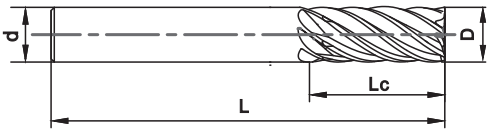
TOTIME Carbide End Mill Cutter
For Stainless Steels,Heat Resistant Material,Titanium Alloys

M S

Square End Mill (HRC48)

MG HM | 7 | GS | 38° | Square | L

7 FLUTES SQUARE [2.5D]



7 Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5μm	Materials Carbide	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME38-MS080S-60-7F-2.5D	8	8	20	60	7	▲
TOTIME38-MS080S-75-7F-2.5D	8	8	20	75	7	▲
TOTIME38-MS080S-100-7F-2.5D	8	8	20	100	7	▲
TOTIME38-MS100S-75-7F-2.5D	10	10	25	75	7	▲
TOTIME38-MS100S-100-7F-2.5D	10	10	25	100	7	▲
TOTIME38-MS120S-75-7F-2.5D	12	12	30	75	7	▲
TOTIME38-MS120S-100-7F-2.5D	12	12	30	100	7	▲
TOTIME38-MS160S-100-7F-2.5D	16	16	40	100	7	▲
TOTIME38-MS160S-150-7F-2.5D	16	16	40	150	7	▲
TOTIME38-MS200S-100-7F-2.5D	20	20	50	100	7	▲
TOTIME38-MS200S-150-7F-2.5D	20	20	50	150	7	▲

Tolerance:D≤12 -0. 02~0 D＞12 -0.03~0

▲Stock △Non-Stock
Recommended Cutting Conditions B90

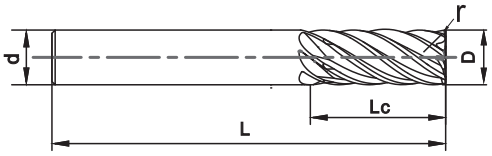
TOTIME Carbide End Mill Cutter
For Stainless Steels,Heat Resistant Material,Titanium Alloys

M S

Corner Radius End Mill (HRC48)

MG HM | 6 | GS | 38° | Corner-R | L

6 FLUTES CORNER RADIUS [1.5D]



6 Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME38-MS080CR002-60-6F-1.5D	8	0.2	8	12	60	6	▲
TOTIME38-MS080CR005-60-6F-1.5D	8	0.5	8	12	60	6	▲
TOTIME38-MS080CR010-60-6F-1.5D	8	1.0	8	12	60	6	▲
TOTIME38-MS080CR015-60-6F-1.5D	8	1.5	8	12	60	6	▲
TOTIME38-MS080CR020-60-6F-1.5D	8	2.0	8	12	60	6	▲
TOTIME38-MS100CR002-75-6F-1.5D	10	0.2	10	15	75	6	▲
TOTIME38-MS100CR005-75-6F-1.5D	10	0.5	10	15	75	6	▲
TOTIME38-MS100CR010-75-6F-1.5D	10	1.0	10	15	75	6	▲
TOTIME38-MS100CR015-75-6F-1.5D	10	1.5	10	15	75	6	▲
TOTIME38-MS100CR020-75-6F-1.5D	10	2.0	10	15	75	6	▲
TOTIME38-MS100CR030-75-6F-1.5D	10	3.0	10	15	75	6	▲
TOTIME38-MS120CR005-75-6F-1.5D	12	0.5	12	18	75	6	▲
TOTIME38-MS120CR010-75-6F-1.5D	12	1.0	12	18	75	6	▲
TOTIME38-MS120CR015-75-6F-1.5D	12	1.5	12	18	75	6	▲
TOTIME38-MS120CR020-75-6F-1.5D	12	2.0	12	18	75	6	▲
TOTIME38-MS120CR030-75-6F-1.5D	12	3.0	12	18	75	6	▲
TOTIME38-MS120CR005-100-6F-1.5D	12	0.5	12	18	100	6	▲
TOTIME38-MS120CR010-100-6F-1.5D	12	1.0	12	18	100	6	▲
TOTIME38-MS120CR015-100-6F-1.5D	12	1.5	12	18	100	6	▲
TOTIME38-MS120CR020-100-6F-1.5D	12	2.0	12	18	100	6	▲
TOTIME38-MS120CR030-100-6F-1.5D	12	3.0	12	18	100	6	▲
TOTIME38-MS160CR005-100-6F-1.5D	16	0.5	16	24	100	6	▲
TOTIME38-MS160CR010-100-6F-1.5D	16	1.0	16	24	100	6	▲
TOTIME38-MS160CR015-100-6F-1.5D	16	1.5	16	24	100	6	▲
TOTIME38-MS160CR020-100-6F-1.5D	16	2.0	16	24	100	6	▲
TOTIME38-MS160CR030-100-6F-1.5D	16	3.0	16	24	100	6	▲
TOTIME38-MS160CR005-150-6F-1.5D	16	0.5	16	24	150	6	▲
TOTIME38-MS160CR010-150-6F-1.5D	16	1.0	16	24	150	6	▲
TOTIME38-MS160CR015-150-6F-1.5D	16	1.5	16	24	150	6	▲
TOTIME38-MS160CR020-150-6F-1.5D	16	2.0	16	24	150	6	▲
TOTIME38-MS160CR030-150-6F-1.5D	16	3.0	16	24	150	6	▲

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B90

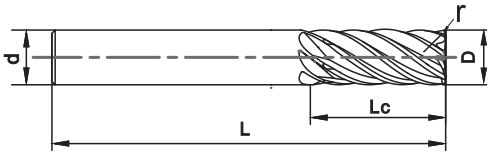
TOTIME Carbide End Mill Cutter
For Stainless Steels,Heat Resistant Material,Titanium Alloys

M S

Corner Radius End Mill (HRC48)

MG HM | 7 | GS | 38° | Corner-R | L

7 FLUTES CORNER RADIUS [1.5D]



7 Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME38-MS080CR002-60-7F-1.5D	8	0.2	8	12	60	7	▲
TOTIME38-MS080CR005-60-7F-1.5D	8	0.5	8	12	60	7	▲
TOTIME38-MS080CR010-60-7F-1.5D	8	1.0	8	12	60	7	▲
TOTIME38-MS080CR015-60-7F-1.5D	8	1.5	8	12	60	7	▲
TOTIME38-MS080CR020-60-7F-1.5D	8	2.0	8	12	60	7	▲
TOTIME38-MS100CR002-75-7F-1.5D	10	0.2	10	15	75	7	▲
TOTIME38-MS100CR005-75-7F-1.5D	10	0.5	10	15	75	7	▲
TOTIME38-MS100CR010-75-7F-1.5D	10	1.0	10	15	75	7	▲
TOTIME38-MS100CR015-75-7F-1.5D	10	1.5	10	15	75	7	▲
TOTIME38-MS100CR020-75-7F-1.5D	10	2.0	10	15	75	7	▲
TOTIME38-MS100CR030-75-7F-1.5D	10	3.0	10	15	75	7	▲
TOTIME38-MS120CR005-75-7F-1.5D	12	0.5	12	18	75	7	▲
TOTIME38-MS120CR010-75-7F-1.5D	12	1.0	12	18	75	7	▲
TOTIME38-MS120CR015-75-7F-1.5D	12	1.5	12	18	75	7	▲
TOTIME38-MS120CR020-75-7F-1.5D	12	2.0	12	18	75	7	▲
TOTIME38-MS120CR030-75-7F-1.5D	12	3.0	12	18	75	7	▲
TOTIME38-MS120CR005-100-7F-1.5D	12	0.5	12	18	100	7	▲
TOTIME38-MS120CR010-100-7F-1.5D	12	1.0	12	18	100	7	▲
TOTIME38-MS120CR015-100-7F-1.5D	12	1.5	12	18	100	7	▲
TOTIME38-MS120CR020-100-7F-1.5D	12	2.0	12	18	100	7	▲
TOTIME38-MS120CR030-100-7F-1.5D	12	3.0	12	18	100	7	▲
TOTIME38-MS160CR005-100-7F-1.5D	16	0.5	16	24	100	7	▲
TOTIME38-MS160CR010-100-7F-1.5D	16	1.0	16	24	100	7	▲
TOTIME38-MS160CR015-100-7F-1.5D	16	1.5	16	24	100	7	▲
TOTIME38-MS160CR020-100-7F-1.5D	16	2.0	16	24	100	7	▲
TOTIME38-MS160CR030-100-7F-1.5D	16	3.0	16	24	100	7	▲
TOTIME38-MS160CR005-150-7F-1.5D	16	0.5	16	24	150	7	▲
TOTIME38-MS160CR010-150-7F-1.5D	16	1.0	16	24	150	7	▲
TOTIME38-MS160CR015-150-7F-1.5D	16	1.5	16	24	150	7	▲
TOTIME38-MS160CR020-150-7F-1.5D	16	2.0	16	24	150	7	▲
TOTIME38-MS160CR030-150-7F-1.5D	16	3.0	16	24	150	7	▲

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B90

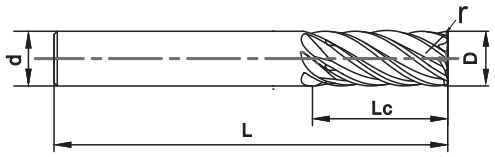
TOTIME Carbide End Mill Cutter
For Stainless Steels,Heat Resistant Material,Titanium Alloys

M S

Corner Radius End Mill (HRC48)

MG HM | 6 | GS | 38° | Corner-R | L

6 FLUTES CORNER RADIUS [2.5D]



6 Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME38-MS080CR002-60-6F-2.5D	8	0.2	8	20	60	6	▲
TOTIME38-MS080CR005-60-6F-2.5D	8	0.5	8	20	60	6	▲
TOTIME38-MS080CR010-60-6F-2.5D	8	1.0	8	20	60	6	▲
TOTIME38-MS080CR015-60-6F-2.5D	8	1.5	8	20	60	6	▲
TOTIME38-MS080CR020-60-6F-2.5D	8	2.0	8	20	60	6	▲
TOTIME38-MS100CR002-75-6F-2.5D	10	0.2	10	25	75	6	▲
TOTIME38-MS100CR005-75-6F-2.5D	10	0.5	10	25	75	6	▲
TOTIME38-MS100CR010-75-6F-2.5D	10	1.0	10	25	75	6	▲
TOTIME38-MS100CR015-75-6F-2.5D	10	1.5	10	25	75	6	▲
TOTIME38-MS100CR020-75-6F-2.5D	10	2.0	10	25	75	6	▲
TOTIME38-MS100CR030-75-6F-2.5D	10	3.0	10	25	75	6	▲
TOTIME38-MS120CR005-75-6F-2.5D	12	0.5	12	30	75	6	▲
TOTIME38-MS120CR010-75-6F-2.5D	12	1.0	12	30	75	6	▲
TOTIME38-MS120CR015-75-6F-2.5D	12	1.5	12	30	75	6	▲
TOTIME38-MS120CR020-75-6F-2.5D	12	2.0	12	30	75	6	▲
TOTIME38-MS120CR030-75-6F-2.5D	12	3.0	12	30	75	6	▲
TOTIME38-MS120CR005-100-6F-2.5D	12	0.5	12	30	100	6	▲
TOTIME38-MS120CR010-100-6F-2.5D	12	1.0	12	30	100	6	▲
TOTIME38-MS120CR015-100-6F-2.5D	12	1.5	12	30	100	6	▲
TOTIME38-MS120CR020-100-6F-2.5D	12	2.0	12	30	100	6	▲
TOTIME38-MS120CR030-100-6F-2.5D	12	3.0	12	30	100	6	▲
TOTIME38-MS160CR005-100-6F-2.5D	16	0.5	16	40	100	6	▲
TOTIME38-MS160CR010-100-6F-2.5D	16	1.0	16	40	100	6	▲
TOTIME38-MS160CR015-100-6F-2.5D	16	1.5	16	40	100	6	▲
TOTIME38-MS160CR020-100-6F-2.5D	16	2.0	16	40	100	6	▲
TOTIME38-MS160CR030-100-6F-2.5D	16	3.0	16	40	100	6	▲
TOTIME38-MS160CR005-150-6F-2.5D	16	0.5	16	40	150	6	▲
TOTIME38-MS160CR010-150-6F-2.5D	16	1.0	16	40	150	6	▲
TOTIME38-MS160CR015-150-6F-2.5D	16	1.5	16	40	150	6	▲
TOTIME38-MS160CR020-150-6F-2.5D	16	2.0	16	40	150	6	▲
TOTIME38-MS160CR030-150-6F-2.5D	16	3.0	16	40	150	6	▲

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

▲Stock △Non-Stock
Recommended Cutting Conditions B90

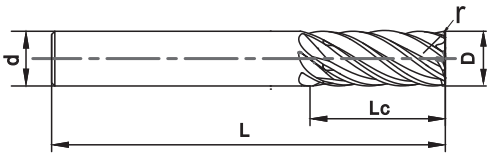
TOTIME Carbide End Mill Cutter
For Stainless Steels,Heat Resistant Material,Titanium Alloys

M S

Corner Radius End Mill (HRC48)

MG HM | 7 | GS | 38° | Corner-R | L

7 FLUTES CORNER RADIUS [2.5D]



7 Flutes	Cobalt 10%	HRC 48	GS Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
				●	●	●

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME38-MS080CR002-60-7F-2.5D	8	0.2	8	20	60	7	▲
TOTIME38-MS080CR005-60-7F-2.5D	8	0.5	8	20	60	7	▲
TOTIME38-MS080CR010-60-7F-2.5D	8	1.0	8	20	60	7	▲
TOTIME38-MS080CR015-60-7F-2.5D	8	1.5	8	20	60	7	▲
TOTIME38-MS080CR020-60-7F-2.5D	8	2.0	8	20	60	7	▲
TOTIME38-MS100CR002-75-7F-2.5D	10	0.2	10	25	75	7	▲
TOTIME38-MS100CR005-75-7F-2.5D	10	0.5	10	25	75	7	▲
TOTIME38-MS100CR010-75-7F-2.5D	10	1.0	10	25	75	7	▲
TOTIME38-MS100CR015-75-7F-2.5D	10	1.5	10	25	75	7	▲
TOTIME38-MS100CR020-75-7F-2.5D	10	2.0	10	25	75	7	▲
TOTIME38-MS100CR030-75-7F-2.5D	10	3.0	10	25	75	7	▲
TOTIME38-MS120CR005-75-7F-2.5D	12	0.5	12	30	75	7	▲
TOTIME38-MS120CR010-75-7F-2.5D	12	1.0	12	30	75	7	▲
TOTIME38-MS120CR015-75-7F-2.5D	12	1.5	12	30	75	7	▲
TOTIME38-MS120CR020-75-7F-2.5D	12	2.0	12	30	75	7	▲
TOTIME38-MS120CR030-75-7F-2.5D	12	3.0	12	30	75	7	▲
TOTIME38-MS120CR005-100-7F-2.5D	12	0.5	12	30	100	7	▲
TOTIME38-MS120CR010-100-7F-2.5D	12	1.0	12	30	100	7	▲
TOTIME38-MS120CR015-100-7F-2.5D	12	1.5	12	30	100	7	▲
TOTIME38-MS120CR020-100-7F-2.5D	12	2.0	12	30	100	7	▲
TOTIME38-MS120CR030-100-7F-2.5D	12	3.0	12	30	100	7	▲
TOTIME38-MS160CR005-100-7F-2.5D	16	0.5	16	40	100	7	▲
TOTIME38-MS160CR010-100-7F-2.5D	16	1.0	16	40	100	7	▲
TOTIME38-MS160CR015-100-7F-2.5D	16	1.5	16	40	100	7	▲
TOTIME38-MS160CR020-100-7F-2.5D	16	2.0	16	40	100	7	▲
TOTIME38-MS160CR030-100-7F-2.5D	16	3.0	16	40	100	7	▲
TOTIME38-MS160CR005-150-7F-2.5D	16	0.5	16	40	150	7	▲
TOTIME38-MS160CR010-150-7F-2.5D	16	1.0	16	40	150	7	▲
TOTIME38-MS160CR015-150-7F-2.5D	16	1.5	16	40	150	7	▲
TOTIME38-MS160CR020-150-7F-2.5D	16	2.0	16	40	150	7	▲
TOTIME38-MS160CR030-150-7F-2.5D	16	3.0	16	40	150	7	▲

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B90

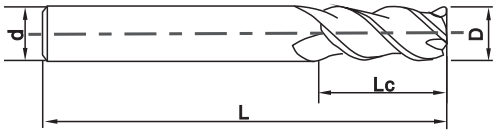
TOTIME Carbide End Mill Cutter
For Carbon Steel,Alloy Steel,Cast Iron

P K

Variable Lead U-shaped Groove Square End Mill(HRC48)

MG HM | 4 | TiSiN | 45° | Square | L

4 FLUTES SQUARE



4Flutes	Cobalt 10%	HRC 48	TiSiN Coating	UMG 0.5μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D（mm）	d（mm）	Lc（mm）	L(mm)	Flutes	Stock
TU45-010S-50-4F	1.0	4	3.0	50	4	▲
TU45-015S-50-4F	1.5	4	4.5	50	4	▲
TU45-020S-50-4F	2.0	4	6.0	50	4	▲
TU45-025S-50-4F	2.5	4	7.5	50	4	▲
TU45-030S-03-50-4F	3.0	3	9.0	50	4	▲
TU45-030S-04-50-4F	3.0	4	9.0	50	4	▲
TU45-030S-06-50-4F	3.0	6	9.0	50	4	▲
TU45-035S-50-4F	3.5	4	10.5	50	4	▲
TU45-040S-04-50-4F	4.0	4	12.0	50	4	▲
TU45-040S-06-50-4F	4.0	6	12.0	50	4	▲
TU45-040S-75-4F	4.0	4	12.0	75	4	▲
TU45-040S-100-4F	4.0	4	12.0	100	4	▲
TU45-050S-50-4F	5.0	6	15.0	50	4	▲
TU45-060S-50-4F	6.0	6	18.0	50	4	▲
TU45-060S-75-4F	6.0	6	18.0	75	4	▲
TU45-060S-100-4F	6.0	6	18.0	100	4	▲
TU45-080S-60-4F	8.0	8	24.0	60	4	▲
TU45-080S-75-4F	8.0	8	24.0	75	4	▲
TU45-080S-100-4F	8.0	8	24.0	100	4	▲
TU45-080S-150-4F	8.0	8	24.0	150	4	▲
TU45-100S-75-4F	10.0	10	30.0	75	4	▲
TU45-100S-100-4F	10.0	10	30.0	100	4	▲
TU45-100S-150-4F	10.0	10	30.0	150	4	▲
TU45-120S-75-4F	12.0	12	30.0	75	4	▲
TU45-120S-100-4F	12.0	12	30.0	100	4	▲
TU45-120S-150-4F	12.0	12	30.0	150	4	▲
TU45-160S-100-4F	16.0	16	48.0	100	4	▲

Tolerance:D≤12 -0.02~0 D>12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B99

TOTIME Carbide End Mill Cutter

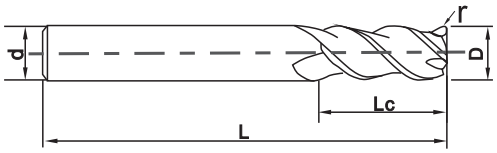
For Carbon Steel,Alloy Steel, Cast Iron

P K

Variable Lead Double-core End Mill(HRC48)

MG HM | 4 | AlTiN | 39°/41° | Corner-R | L

4 FLUTES CORNER RADIUS



4Flutes	Cobalt 10%	HRC 48	AlTiN Coating	UMG 0.5μm	Materials Carbide	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D（mm）	r（mm）	d（mm）	Lc（mm）	L(mm）	Flutes	Stock
TD3941-040CR002-50-4F	4	0. 2	4	10	50	4	▲
TD3941-060CR002-50-4F	6	0. 2	6	15	50	4	▲
TD3941-080CR002-60-4F	8	0. 2	8	20	60	4	▲
TD3941-100CR002-75-4F	10	0. 2	10	25	75	4	▲
TD3941-120CR002-75-4F	12	0. 2	12	30	75	4	▲

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B102

TOTIME

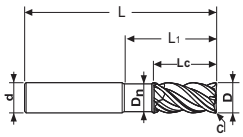
Efficient and Powerful Variable Lead End Mill
For Steel,Alloy Steel,Cast Iron

P K

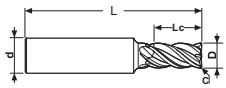
Variable Lead Square End Mill(HRC48)

MG HM | 4 | AlCrN | 35°/38° | Square | Form HB | Form HA

4 FLUTES SQUARE



Type E



Type F

Form HB

Form HA

4Flutes	Cobalt 10%	HRC 48	AlCrN Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	DIN6535 HA/HB	D(mm)	d(mm)	Dn(mm)	Lc(mm)	L1(mm)	L(mm)	CX45° (mm)	Flutes	Type
TOTIME48S-010SC-40-4F-HA	HA	1	4	-	1.5	-	40	0.025	4	F
TOTIME48L-010SC-40-4F-HA	HA	1	4	-	2.5	-	40	0.025	4	F
TOTIME48S-020SC-04-40-4F-HA	HA	2	4	-	3	-	40	0.050	4	F
TOTIME48L-020SC-04-40-4F-HA	HA	2	4	-	4	-	40	0.050	4	F
TOTIME48L-020SC-06-50-4F-HA	HA	2	6	-	4	-	50	0.050	4	F
TOTIME48S-030SC-04-40-4F-HA	HA	3	4	2.8	4	6	40	0.075	4	E
TOTIME48L-030SC-04-40-4F-HA	HA	3	4	2.8	6	9	40	0.075	4	E
TOTIME48L-030SC-06-50-4F-HA	HA	3	6	2.8	6	9	50	0.075	4	E
TOTIME48S-040SC-50-4F-HA/HB	HA/HB	4	6	3.8	5	8	50	0.100	4	E
TOTIME48L-040SC-50-4F-HA/HB	HA/HB	4	6	-	8	-	50	0.100	4	F
TOTIME48L-040SC-54-4F-HA/HB	HA/HB	4	6	3.8	8	12	54	0.100	4	E
TOTIME48S-050SC-50-4F-HA/HB	HA/HB	5	6	4.8	6	10	50	0.150	4	E
TOTIME48L-050SC-54-4F-HA/HB	HA/HB	5	6	4.8	10	15	54	0.150	4	E
TOTIME48S-060SC-54-4F-HA/HB	HA/HB	6	6	5.7	7	16	54	0.200	4	E
TOTIME48L-060SC-54-4F-HA/HB	HA/HB	6	6	5.7	13	19	54	0.200	4	E
TOTIME48S-080SC-58-4F-HA/HB	HA/HB	8	8	7.7	9	20	58	0.200	4	E
TOTIME48L-080SC-63-4F-HA/HB	HA/HB	8	8	7.7	19	27	63	0.200	4	E
TOTIME48S-100SC-65-4F-HA/HB	HA/HB	10	10	9.7	11	24	65	0.200	4	E
TOTIME48L-100SC-72-4F-HA/HB	HA/HB	10	10	9.7	22	32	72	0.200	4	E
TOTIME48S-120SC-73-4F-HA/HB	HA/HB	12	12	11.7	12	26	73	0.200	4	E
TOTIME48L-120SC-82-4F-HA/HB	HA/HB	12	12	11.7	26	38	82	0.200	4	E
TOTIME48S-140SC-75-4F-HA/HB	HA/HB	14	14	13.7	14	28	75	0.300	4	E
TOTIME48L-140SC-82-4F-HA/HB	HA/HB	14	14	13.7	26	38	82	0.300	4	E
TOTIME48S-160SC-82-4F-HA/HB	HA/HB	16	16	15.7	16	32	82	0.300	4	E
TOTIME48L-160SC-92-4F-HA/HB	HA/HB	16	16	15.7	32	44	92	0.300	4	E
TOTIME48S-180SC-82-4F-HA/HB	HA/HB	18	18	17.7	18	32	82	0.300	4	E
TOTIME48L-180SC-92-4F-HA/HB	HA/HB	18	18	17.7	32	44	92	0.300	4	E
TOTIME48S-200SC-92-4F-HA/HB	HA/HB	20	20	19.7	20	40	92	0.300	4	E
TOTIME48L-200SC-104-4F-HA/HB	HA/HB	20	20	19.7	38	50	104	0.300	4	E

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0
Customized Non-standard End Mill Size is Available.

Recommended Cutting Conditions B100

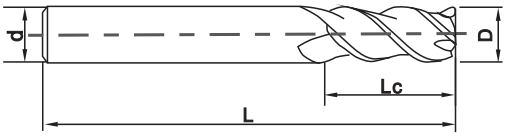
TOTIME Efficient and Powerful Variable Lead End Mill
For Steel,Alloy Steel,Cast Iron

P K

Variable Lead Square End Mill(HRC48)

MG HM | 4 | AlCrN | 35°/38° | Square | L

4 FLUTES SQUARE [Inch]



4Flutes	Cobalt 10%	HRC 48	AlCrN Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(in)		d(in)	Lc(in)	L(in)	Flutes	Stock
TOTIME48-E0125S-015-4F	1/8	0. 125	0. 125	0. 313	1. 500	4	▲
TOTIME48-E0187S-020-4F	3/16	0. 187	0. 187	0. 469	2. 000	4	▲
TOTIME48-E0250S-025-4F	1/4	0. 250	0. 250	0. 531	2. 500	4	▲
TOTIME48-E0375S-030-4F	3/8	0. 375	0. 375	0. 844	3. 000	4	▲
TOTIME48-E0500S-035-4F	1/2	0. 500	0. 500	1. 094	3. 500	4	▲
TOTIME48-E0625S-040-4F	5/8	0. 625	0. 625	1. 313	4. 000	4	▲
TOTIME48-E0750S-040-4F	3/4	0. 750	0. 750	1. 563	4. 000	4	▲
TOTIME48-E1000S-050-4F	1	1. 000	1. 000	2. 094	5. 000	4	▲

Tolerance:D≤12 -0. 02~0 D＞12 -0.03~0
Customized Non-standard End Mill Size is Available.

▲Stock △Non-Stock
Recommended Cutting Conditions B100

TOTIME

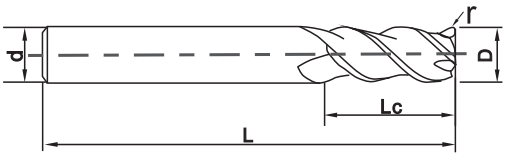
Efficient and Powerful Variable Lead End Mill
For Steel,Alloy Steel,Cast Iron

P K

Variable Lead Corner Radius End Mill(HRC48)

MG HM | 4 | AlCrN | 35°/38° | Corner-R | L

4 FLUTES CORNER RADIUS [Inch]



4Flutes	Cobalt 10%	HRC 48	AlCrN Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(in)		r(in)	d(in)	Lc(in)	L(in)	Flutes	Stock
TOTIME48-E0125CR015-015-4F	1/8	0.125	0.015	0.125	0.313	1.500	4	▲
TOTIME48-E0187CR015-020-4F	3/16	0.187	0.015	0.187	0.438	2.000	4	▲
TOTIME48-E0250CR015-025-4F	1/4	0.250	0.015	0.250	0.625	2.500	4	▲
TOTIME48-E0250CR030-025-4F	1/4	0.250	0.030	0.250	0.625	2.500	4	▲
TOTIME48-E0375CR015-025-4F	3/8	0.375	0.015	0.375	0.875	2.500	4	▲
TOTIME48-E0375CR030-025-4F	3/8	0.375	0.030	0.375	0.875	2.500	4	▲
TOTIME48-E0500CR015-030-4F	1/2	0.500	0.015	0.500	1.125	3.000	4	▲
TOTIME48-E0500CR030-030-4F	1/2	0.500	0.030	0.500	1.125	3.000	4	▲
TOTIME48-E0500CR060-030-4F	1/2	0.500	0.060	0.500	1.125	3.000	4	▲
TOTIME48-E0625CR030-035-4F	5/8	0.625	0.030	0.625	1.313	3.500	4	▲
TOTIME48-E0625CR060-035-4F	5/8	0.625	0.060	0.625	1.313	3.500	4	▲
TOTIME48-E0750CR030-040-4F	3/4	0.750	0.030	0.750	1.625	4.000	4	▲
TOTIME48-E0750CR060-040-4F	3/4	0.750	0.060	0.750	1.625	4.000	4	▲

Tolerance:D≤12 -0.02~0 D>12 -0.03~0
Customized Non-standard End Mill Size is Available.

▲Stock △Non-Stock
Recommended Cutting Conditions B100

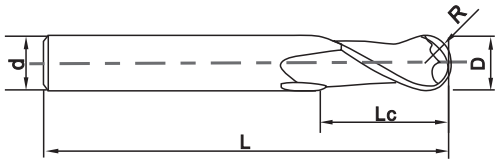
TOTIME Efficient and Powerful End Mill
For Steel,Alloy Steel,Cast Iron

P K

Ball Nose End Mill(HRC48)

MG HM | 2 | AlCrN | 30° | Ball Nose

2 FLUTES BALL NOSE [Inch]



2 Flutes	Cobalt 10%	HRC 48	AlCrN Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(in)		R(in)	d(in)	Lc(in)	L(in)	Flutes	Stock
TOTIME48-E0063B-020-2F	1/16	0.063	0.031	0.250	0.125	2.000	2	▲
TOTIME48-E0094B-020-2F	3/32	0.094	0.047	0.250	0.188	2.000	2	▲
TOTIME48-E0125B-020-2F	1/8	0.125	0.063	0.250	0.250	2.000	2	▲
TOTIME48-E0187B-020-2F	3/16	0.187	0.094	0.250	0.375	2.000	2	▲
TOTIME48-E0250B-020-2F	1/4	0.250	0.125	0.250	0.500	2.000	2	▲
TOTIME48-E0375B-025-2F	3/8	0.375	0.187	0.375	0.750	2.500	2	▲
TOTIME48-E0500B-030-2F	1/2	0.500	0.250	0.500	1.000	3.000	2	▲
TOTIME48-E0625B-035-2F	5/8	0.625	0.313	0.625	1.250	3.500	2	▲
TOTIME48-E0750B-040-2F	3/4	0.750	0.375	0.750	1.500	4.000	2	▲

Tolerance:R≤1.5 -0.01~0 1.5<R<3 -0.015~0 R≥3 -0.02~0
Customized Non-standard End Mill Size is Available.

▲Stock △Non-Stock
Recommended Cutting Conditions B86

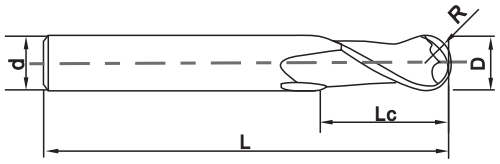
TOTIME Efficient and Powerful End Mill
For Steel,Alloy Steel,Cast Iron

P K

Ball Nose End Mill(HRC48)

MG HM | 4 | AlCrN | 30° | Ball Nose

4 FLUTES BALL NOSE [Inch]



4Flutes	Cobalt 10%	HRC 48	AlCrN Coating	UMG 0.5μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●			○	●	

Order No.	D(in)		R(in)	d(in)	Lc(in)	L(in)	Flutes	Stock
TOTIME48-E0063B-020-4F	1/16	0.063	0.031	0.250	0.125	2.000	4	▲
TOTIME48-E0094B-020-4F	3/32	0.094	0.047	0.250	0.188	2.000	4	▲
TOTIME48-E0125B-020-4F	1/8	0.125	0.063	0.250	0.250	2.000	4	▲
TOTIME48-E0187B-020-4F	3/16	0.187	0.094	0.250	0.375	2.000	4	▲
TOTIME48-E0250B-020-4F	1/4	0.250	0.125	0.250	0.500	2.000	4	▲
TOTIME48-E0375B-025-4F	3/8	0.375	0.187	0.375	0.750	2.500	4	▲
TOTIME48-E0500B-030-4F	1/2	0.500	0.250	0.500	1.000	3.000	4	▲
TOTIME48-E0625B-035-4F	5/8	0.625	0.313	0.625	1.250	3.500	4	▲
TOTIME48-E0750B-040-4F	3/4	0.750	0.375	0.750	1.500	4.000	4	▲

Tolerance:R≤1.5 -0.01~0 1.5<R<3 -0.015~0 R≥3 -0.02~0
Customized Non-standard End Mill Size is Available.

▲Stock △Non-Stock
Recommended Cutting Conditions B86

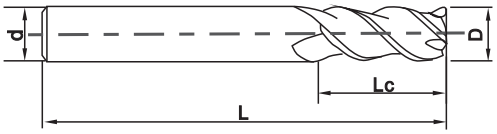
TOTIME Cermet End Mill
For Steel,Alloy Steel,Cast Iron

P K

Cermet Square End Mill(HRC48)

Cermet 4 45° Square

4 FLUTES SQUARE



4Flutes	Cobalt 0%	HRC 48	No Coating	UMG	Materials Cermet	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●				●	

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TCM45-040S-50-4F	4	4	10	50	4	▲
TCM45-040S-75-4F	4	4	12	75	4	▲
TCM45-050S-50-4F	5	5	12.5	50	4	▲
TCM45-060S-50-4F	6	6	15	50	4	▲
TCM45-060S-75-4F	6	6	18	75	4	▲
TCM45-080S-60-4F	8	8	20	60	4	▲
TCM45-080S-75-4F	8	8	24	75	4	▲
TCM45-080S-100-4F	8	8	24	100	4	▲
TCM45-100S-75-4F	10	10	25	75	4	▲
TCM45-100S-100-4F	10	10	30	100	4	▲
TCM45-120S-75-4F	12	12	30	75	4	▲
TCM45-120S-100-4F	12	12	30	100	4	▲
TCM45-160S-100-4F	16	16	50	100	4	▲

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B101

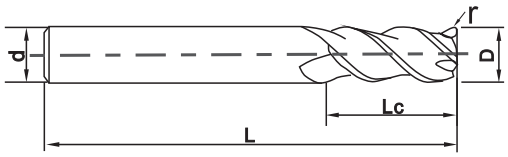
TOTIME Cermet End Mill
For Steel,Alloy Steel,Cast Iron

P K

Cermet Corner Radius End Mill(HRC48)

Cermet 4 45° Corner-R

4 FLUTES CORNER RADIUS



4Flutes	Cobalt 0%	HRC 48	No Coating	UMG —	Materials Cermet

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
●	●				●	

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TCM45-040CR002-50-4F	4	0.2	4	10	50	4	▲
TCM45-040CR005-50-4F	4	0.5	4	10	50	4	▲
TCM45-040CR010-50-4F	4	1.0	4	10	50	4	▲
TCM45-050CR002-50-4F	5	0.2	5	12.5	50	4	▲
TCM45-050CR005-50-4F	5	0.5	5	12.5	50	4	▲
TCM45-060CR002-50-4F	6	0.2	6	15	50	4	▲
TCM45-060CR005-50-4F	6	0.5	6	15	50	4	▲
TCM45-060CR010-50-4F	6	1.0	6	15	50	4	▲
TCM45-060CR002-75-4F	6	0.2	6	18	75	4	▲
TCM45-060CR005-75-4F	6	0.5	6	18	75	4	▲
TCM45-060CR010-75-4F	6	1.0	6	18	75	4	▲
TCM45-080CR002-60-4F	8	0.2	8	20	60	4	▲
TCM45-080CR005-60-4F	8	0.5	8	20	60	4	▲
TCM45-080CR010-60-4F	8	1.0	8	20	60	4	▲
TCM45-080CR002-75-4F	8	0.2	8	24	75	4	▲
TCM45-080CR005-75-4F	8	0.5	8	24	75	4	▲
TCM45-080CR010-75-4F	8	1.0	8	24	75	4	▲
TCM45-080CR002-100-4F	8	0.2	8	24	100	4	▲
TCM45-080CR005-100-4F	8	0.5	8	24	100	4	▲
TCM45-080CR010-100-4F	8	1.0	8	24	100	4	▲
TCM45-100CR002-75-4F	10	0.2	10	25	75	4	▲
TCM45-100CR005-75-4F	10	0.5	10	25	75	4	▲
TCM45-100CR010-75-4F	10	1.0	10	25	75	4	▲
TCM45-100CR005-100-4F	10	0.5	10	30	100	4	▲
TCM45-100CR010-100-4F	10	1.0	10	30	100	4	▲
TCM45-120CR005-75-4F	12	0.5	12	30	75	4	▲
TCM45-120CR010-75-4F	12	1.0	12	30	75	4	▲
TCM45-120CR005-100-4F	12	0.5	12	30	100	4	▲
TCM45-120CR010-100-4F	12	1.0	12	30	100	4	▲

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B101

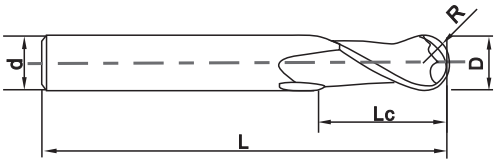
TOTIME Cermet End Mill
For Steel,Alloy Steel,Cast Iron

P K

Cermet Ball Nose End Mill(HRC48)

Cermet | 2 | 30° | Ball Nose

2 FLUTES BALL NOSE



2 Flutes	Cobalt 0%	HRC 48	No Coating	UMG	Materials Cermet	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-60			
●	●				●	

Order No.	D(mm)	R(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TCM45-040B-50-2F	4	2.0	4	8	50	2	▲
TCM45-050B-50-2F	5	2.5	5	10	50	2	▲
TCM45-060B-50-2F	6	3.0	6	12	50	2	▲
TCM45-060B-75-2F	6	3.0	6	12	75	2	▲
TCM45-080B-60-2F	8	4.0	8	16	60	2	▲
TCM45-080B-75-2F	8	4.0	8	16	75	2	▲
TCM45-100B-75-2F	10	5.0	10	20	75	2	▲
TCM45-100B-100-2F	10	5.0	10	20	100	2	▲
TCM45-120B-75-2F	12	6.0	12	24	75	2	▲
TCM45-120B-100-2F	12	6.0	12	24	100	2	▲

Tolerance:R≤1. 5 -0. 01~0 1. 5＜R＜3 -0. 015~0 R≥3 -0. 02~0

▲Stock △Non-Stock

Recommended Cutting Conditions B102

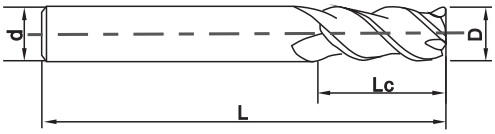
TOTIME Carbide End Mill Cutter
For Die Steel, Hardened Steel

H

High Speed and High Hardness Square End Mill(HRC65)

MG HM | 4 | ALDUA | 35° | Square | L

4 FLUTES SQUARE [2.5D]



4Flutes	Cobalt 10%	HRC 65	ALDUA Coating	UMG 0.5μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Die Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
＜HRC35	HRC32-48	HRC48-55	HRC55-65			
	●	●	●			

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME65-H010S-50-4F-2.5D	1.0	4	2.5	50	4	▲
TOTIME65-H015S-50-4F-2.5D	1.5	4	3.8	50	4	▲
TOTIME65-H020S-50-4F-2.5D	2.0	4	5.0	50	4	▲
TOTIME65-H030S-50-4F-2.5D	3.0	4	8.0	50	4	▲
TOTIME65-H040S-50-4F-2.5D	4.0	4	10.0	50	4	▲
TOTIME65-H040S-75-4F-2.5D	4.0	4	10.0	75	4	▲
TOTIME65-H050S-50-4F-2.5D	5.0	6	12.0	50	4	▲
TOTIME65-H060S-50-4F-2.5D	6.0	6	15.0	50	4	▲
TOTIME65-H060S-75-4F-2.5D	6.0	6	15.0	75	4	▲
TOTIME65-H060S-100-4F-2.5D	6.0	6	15.0	100	4	▲
TOTIME65-H080S-60-4F-2.5D	8.0	8	20.0	60	4	▲
TOTIME65-H080S-75-4F-2.5D	8.0	8	20.0	75	4	▲
TOTIME65-H080S-100-4F-2.5D	8.0	8	20.0	100	4	△
TOTIME65-H100S-75-4F-2.5D	10.0	10	25.0	75	4	▲
TOTIME65-H100S-100-4F-2.5D	10.0	10	25.0	100	4	▲
TOTIME65-H120S-75-4F-2.5D	12.0	12	30.0	75	4	▲
TOTIME65-H120S-100-4F-2.5D	12.0	12	30.0	100	4	▲
TOTIME65-H160S-100-4F-2.5D	16.0	16	40.0	100	4	△
TOTIME65-H160S-150-4F-2.5D	16.0	16	40.0	150	4	△
TOTIME65-H200S-150-4F-2.5D	20.0	20	50.0	150	4	△

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

▲Stock △Non-Stock
Recommended Cutting Conditions B93

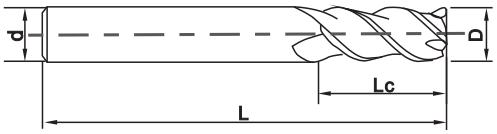
TOTIME Carbide End Mill Cutter
For Die Steel, Hardened Steel

H

High Speed and High Hardness Square End Mill(HRC65)

MG HM | 4 | ALDUA | 45° | Square | L

4 FLUTES SQUARE [3D]



4Flutes	Cobalt 10%	HRC 65	ALDUA Coating	UMG 0.5μm	Materials Carbide	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Die Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
＜HRC35	HRC32-48	HRC48-55	HRC55-65			
	●	●	●			

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME65-H010S-50-4F-3D	1.0	4	3.0	50	4	△
TOTIME65-H015S-50-4F-3D	1.5	4	4.5	50	4	△
TOTIME65-H020S-50-4F-3D	2.0	4	6.0	50	4	△
TOTIME65-H030S-50-4F-3D	3.0	4	9.0	50	4	△
TOTIME65-H040S-50-4F-3D	4.0	4	12.0	50	4	▲
TOTIME65-H040S-75-4F-3D	4.0	4	12.0	75	4	△
TOTIME65-H050S-50-4F-3D	5.0	6	15.0	50	4	▲
TOTIME65-H060S-50-4F-3D	6.0	6	18.0	50	4	▲
TOTIME65-H060S-75-4F-3D	6.0	6	18.0	75	4	△
TOTIME65-H060S-100-4F-3D	6.0	6	18.0	100	4	△
TOTIME65-H080S-60-4F-3D	8.0	8	24.0	60	4	△
TOTIME65-H080S-75-4F-3D	8.0	8	24.0	75	4	▲
TOTIME65-H080S-100-4F-3D	8.0	8	24.0	100	4	△
TOTIME65-H100S-75-4F-3D	10.0	10	30.0	75	4	▲
TOTIME65-H100S-100-4F-3D	10.0	10	30.0	100	4	△
TOTIME65-H120S-75-4F-3D	12.0	12	36.0	75	4	△
TOTIME65-H120S-100-4F-3D	12.0	12	36.0	100	4	△
TOTIME65-H160S-100-4F-3D	16.0	16	48.0	100	4	△
TOTIME65-H160S-150-4F-3D	16.0	16	48.0	150	4	△
TOTIME65-H200S-150-4F-3D	20.0	20	60.0	150	4	△

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

▲Stock △Non-Stock
Recommended Cutting Conditions B93

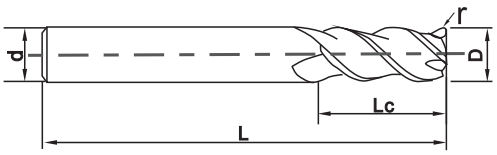
TOTIME Carbide End Mill Cutter
For Die Steel, Hardened Steel

H

High Speed and High Hardness Corner Radius End Mill(HRC65)

MG HM | 4 | ALDUA | 45° | Corner-R | L

4 FLUTES CORNER RADIUS [2D]



4Flutes	Cobalt 10%	HRC 65	ALDUA Coating	UMG 0.5μm	Materials Carbide	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Die Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
＜HRC35	HRC32-48	HRC48-55	HRC55-65			
	●	●	●			

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME65-H010CR001-50-4F-2D	1.0	0.1	4	2	50	4	▲
TOTIME65-H010CR002-50-4F-2D	1.0	0.2	4	2	50	4	▲
TOTIME65-H015CR001-50-4F-2D	1.5	0.1	4	3	50	4	▲
TOTIME65-H015CR002-50-4F-2D	1.5	0.2	4	3	50	4	▲
TOTIME65-H020CR001-50-4F-2D	2.0	0.1	4	4	50	4	▲
TOTIME65-H020CR002-50-4F-2D	2.0	0.2	4	4	50	4	▲
TOTIME65-H020CR005-50-4F-2D	2.0	0.5	4	4	50	4	▲
TOTIME65-H030CR001-50-4F-2D	3.0	0.1	4	6	50	4	△
TOTIME65-H030CR002-50-4F-2D	3.0	0.2	4	6	50	4	▲
TOTIME65-H030CR003-50-4F-2D	3.0	0.3	4	6	50	4	△
TOTIME65-H030CR005-50-4F-2D	3.0	0.5	4	6	50	4	▲
TOTIME65-H040CR002-50-4F-2D	4.0	0.2	4	8	50	4	▲
TOTIME65-H040CR003-50-4F-2D	4.0	0.3	4	8	50	4	▲
TOTIME65-H040CR005-50-4F-2D	4.0	0.5	4	8	50	4	▲
TOTIME65-H040CR010-50-4F-2D	4.0	1.0	4	8	50	4	△
TOTIME65-H050CR002-50-4F-2D	5.0	0.2	6	10	50	4	△
TOTIME65-H050CR003-50-4F-2D	5.0	0.3	6	10	50	4	△
TOTIME65-H050CR005-50-4F-2D	5.0	0.5	6	10	50	4	▲
TOTIME65-H050CR010-50-4F-2D	5.0	1.0	6	10	50	4	△
TOTIME65-H060CR002-50-4F-2D	6.0	0.2	6	12	50	4	▲
TOTIME65-H060CR003-50-4F-2D	6.0	0.3	6	12	50	4	▲
TOTIME65-H060CR005-50-4F-2D	6.0	0.5	6	12	50	4	▲
TOTIME65-H060CR010-50-4F-2D	6.0	1.0	6	12	50	4	▲
TOTIME65-H060CR015-50-4F-2D	6.0	1.5	6	12	50	4	△
TOTIME65-H060CR002-75-4F-2D	6.0	0.2	6	12	75	4	▲
TOTIME65-H060CR003-75-4F-2D	6.0	0.3	6	12	75	4	△
TOTIME65-H060CR005-75-4F-2D	6.0	0.5	6	12	75	4	▲
TOTIME65-H060CR010-75-4F-2D	6.0	1.0	6	12	75	4	▲
TOTIME65-H060CR015-75-4F-2D	6.0	1.5	6	12	75	4	△
TOTIME65-H080CR003-60-4F-2D	8.0	0.3	8	16	60	4	△

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

▲Stock △Non-Stock
Recommended Cutting Conditions B93

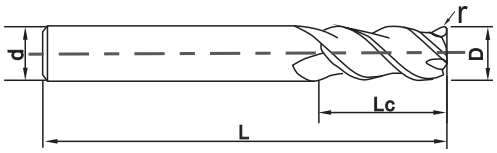
TOTIME Carbide End Mill Cutter
For Die Steel, Hardened Steel

H

High Speed and High Hardness Corner Radius End Mill(HRC65)

MG HM | 4 | ALDUA | 45° | Corner-R | L

4 FLUTES CORNER RADIUS [2D]



4Flutes	Cobalt 10%	HRC 65	ALDUA Coating	UMG 0.5μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Die Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
<HRC35	HRC32-48	HRC48-55	HRC55-65			
	●	●	●			

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME65-H080CR005-60-4F-2D	8	0.5	8	16	60	4	▲
TOTIME65-H080CR010-60-4F-2D	8	1.0	8	16	60	4	▲
TOTIME65-H080CR015-60-4F-2D	8	1.5	8	16	60	4	△
TOTIME65-H080CR020-60-4F-2D	8	2.0	8	16	60	4	△
TOTIME65-H080CR003-75-4F-2D	8	0.3	8	16	75	4	△
TOTIME65-H080CR005-75-4F-2D	8	0.5	8	16	75	4	▲
TOTIME65-H080CR010-75-4F-2D	8	1.0	8	16	75	4	▲
TOTIME65-H080CR015-75-4F-2D	8	1.5	8	16	75	4	△
TOTIME65-H080CR020-75-4F-2D	8	2.0	8	16	75	4	△
TOTIME65-H100CR002-75-4F-2D	10	0.2	10	20	75	4	△
TOTIME65-H100CR003-75-4F-2D	10	0.3	10	20	75	4	△
TOTIME65-H100CR005-75-4F-2D	10	0.5	10	20	75	4	▲
TOTIME65-H100CR010-75-4F-2D	10	1.0	10	20	75	4	▲
TOTIME65-H100CR015-75-4F-2D	10	1.5	10	20	75	4	△
TOTIME65-H100CR020-75-4F-2D	10	2.0	10	20	75	4	△
TOTIME65-H100CR025-75-4F-2D	10	2.5	10	20	75	4	△
TOTIME65-H100CR030-75-4F-2D	10	3.0	10	20	75	4	△
TOTIME65-H100CR002-100-4F-2D	10	0.2	10	20	100	4	△
TOTIME65-H100CR003-100-4F-2D	10	0.3	10	20	100	4	△
TOTIME65-H100CR005-100-4F-2D	10	0.5	10	20	100	4	▲
TOTIME65-H100CR010-100-4F-2D	10	1.0	10	20	100	4	▲
TOTIME65-H100CR015-100-4F-2D	10	1.5	10	20	100	4	△
TOTIME65-H100CR020-100-4F-2D	10	2.0	10	20	100	4	△
TOTIME65-H100CR025-100-4F-2D	10	2.5	10	20	100	4	△
TOTIME65-H100CR030-100-4F-2D	10	3.0	10	20	100	4	△
TOTIME65-H120CR005-75-4F-2D	12	0.5	12	24	75	4	▲
TOTIME65-H120CR010-75-4F-2D	12	1.0	12	24	75	4	▲
TOTIME65-H120CR015-75-4F-2D	12	1.5	12	24	75	4	△
TOTIME65-H120CR020-75-4F-2D	12	2.0	12	24	75	4	△
TOTIME65-H120CR025-75-4F-2D	12	2.5	12	24	75	4	△
TOTIME65-H120CR030-75-4F-2D	12	3.0	12	24	75	4	△

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

▲Stock △Non-Stock

Recommended Cutting Conditions B93

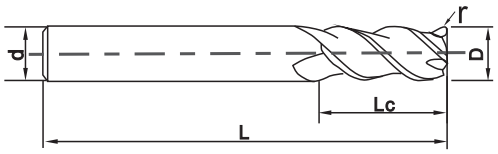
TOTIME Carbide End Mill Cutter
For Die Steel, Hardened Steel

H

High Speed and High Hardness Corner Radius End Mill(HRC65)

MG HM | 4 | ALDUA | 45° | Corner-R | L

4 FLUTES CORNER RADIUS [2D]



4Flutes	Cobalt 10%	HRC 65	ALDUA Coating	UMG 0.5μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Die Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
＜HRC35	HRC32-48	HRC48-55	HRC55-65			
	●	●	●			

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME65-H120CR005-100-4F-2D	12	0.5	12	24	100	4	▲
TOTIME65-H120CR010-100-4F-2D	12	1.0	12	24	100	4	▲
TOTIME65-H120CR015-100-4F-2D	12	1.5	12	24	100	4	△
TOTIME65-H120CR020-100-4F-2D	12	2.0	12	24	100	4	△
TOTIME65-H120CR025-100-4F-2D	12	2.5	12	24	100	4	△
TOTIME65-H120CR030-100-4F-2D	12	3.0	12	24	100	4	△
TOTIME65-H160CR005-100-4F-2D	16	0.5	16	32	100	4	△
TOTIME65-H160CR010-100-4F-2D	16	1.0	16	32	100	4	△
TOTIME65-H160CR015-100-4F-2D	16	1.5	16	32	100	4	△
TOTIME65-H160CR020-100-4F-2D	16	2.0	16	32	100	4	△
TOTIME65-H160CR025-100-4F-2D	16	2.5	16	32	100	4	△
TOTIME65-H160CR030-100-4F-2D	16	3.0	16	32	100	4	△
TOTIME65-H160CR005-150-4F-2D	16	0.5	16	32	150	4	△
TOTIME65-H160CR010-150-4F-2D	16	1.0	16	32	150	4	△
TOTIME65-H160CR015-150-4F-2D	16	1.5	16	32	150	4	△
TOTIME65-H160CR020-150-4F-2D	16	2.0	16	32	150	4	△
TOTIME65-H160CR025-150-4F-2D	16	2.5	16	32	150	4	△
TOTIME65-H160CR030-150-4F-2D	16	3.0	16	32	150	4	△

Tolerance:D≤12 -0. 02~0 D＞12 -0.03~0

▲Stock △Non-Stock
Recommended Cutting Conditions B93

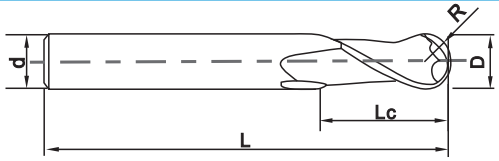
TOTIME Carbide End Mill Cutter
For Die Steel, Hardened Steel

H

High Speed and High Hardness Ball Nose End Mill(HRC65)

MG HM | 2 | ALDUA | 30° | Ball Nose

2 FLUTES BALL NOSE [1.5D]



2Flutes	Cobalt 10%	HRC 65	ALDUA Coating	UMG 0.5μm	Materials Carbide	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Die Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
＜HRC35	HRC32-48	HRC48-55	HRC55-65			
	●	●	●			

Order No.	D(mm)	R(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME65-H020B-50-2F-1.5D	2	1.0	4	3.0	50	2	▲
TOTIME65-H020B-75-2F-1.5D	2	1.0	4	3.0	75	2	△
TOTIME65-H030B-50-2F-1.5D	3	1.5	4	4.5	50	2	▲
TOTIME65-H030B-75-2F-1.5D	3	1.5	4	4.5	75	2	△
TOTIME65-H040B-50-2F-1.5D	4	2.0	4	6.0	50	2	▲
TOTIME65-H040B-75-2F-1.5D	4	2.0	4	6.0	75	2	△
TOTIME65-H050B-50-2F-1.5D	5	2.5	6	7.5	50	2	▲
TOTIME65-H050B-75-2F-1.5D	5	2.5	6	7.5	75	2	△
TOTIME65-H050B-100-2F-1.5D	5	2.5	6	7.5	100	2	△
TOTIME65-H060B-50-2F-1.5D	6	3.0	6	9.0	50	2	▲
TOTIME65-H060B-75-2F-1.5D	6	3.0	6	9.0	75	2	▲
TOTIME65-H060B-100-2F-1.5D	6	3.0	6	9.0	100	2	△
TOTIME65-H080B-60-2F-1.5D	8	4.0	8	12.0	60	2	▲
TOTIME65-H080B-75-2F-1.5D	8	4.0	8	12.0	75	2	▲
TOTIME65-H080B-100-2F-1.5D	8	4.0	8	12.0	100	2	▲
TOTIME65-H100B-75-2F-1.5D	10	5.0	10	15.0	75	2	▲
TOTIME65-H100B-100-2F-1.5D	10	5.0	10	15.0	100	2	▲
TOTIME65-H120B-75-2F-1.5D	12	6.0	12	18.0	75	2	▲
TOTIME65-H120B-100-2F-1.5D	12	6.0	12	18.0	100	2	▲
TOTIME65-H160B-100-2F-1.5D	16	8.0	16	24.0	100	2	△
TOTIME65-H160B-150-2F-1.5D	16	8.0	16	24.0	150	2	△
TOTIME65-H200B-100-2F-1.5D	20	10.0	20	30.0	100	2	△
TOTIME65-H200B-150-2F-1.5D	20	10.0	20	30.0	150	2	△

Tolerance:R≤1. 5 -0. 01~0 1. 5＜R＜3 -0. 015~0 R≥3 -0. 02~0

▲Stock △Non-Stock
Recommended Cutting Conditions B93

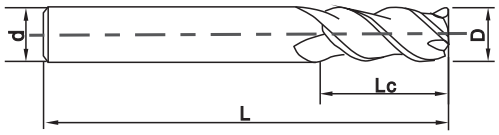
TOTIME Carbide End Mill Cutter
For Aluminium Alloys

N

Square End Mill(HRC48)

MG HM | 3 | 40° | Square

3 FLUTES SQUARE



3Flutes	Cobalt 10%	HRC 48	No Coating	MG 0.8μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Aluminium Alloys	Copper Alloys
＜HRC35	＜HRC48	HRC46-55	HRC55-60			
					●	○

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME48-020AL-50-3F	2	4	6	50	3	▲
TOTIME48-030AL-50-3F	3	4	9	50	3	▲
TOTIME48-040AL-50-3F	4	4	11	50	3	▲
TOTIME48-050AL-50-3F	5	6	13	50	3	▲
TOTIME48-060AL-50-3F	6	6	16	50	3	▲
TOTIME48-080AL-60-3F	8	8	20	60	3	▲
TOTIME48-100AL-75-3F	10	10	25	75	3	▲
TOTIME48-120AL-75-3F	12	12	30	75	3	▲

Tolerance:D≤12 -0. 02~0 D＞12 -0.03~0

▲Stock △Non-Stock
Recommended Cutting Conditions B91

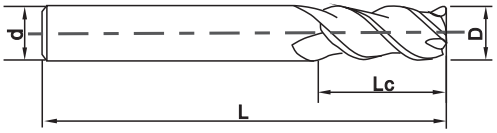
TOTIME Carbide End Mill Cutter
For Aluminium Alloys,Copper Alloys

N

Square End Mill(HRC48)

MG HM | 3 | 40° | Square | TAC

3 FLUTES TAC COATING SQUARE [3D]



3Flutes	Cobalt 10%	HRC 48	TAC Coating	MG 0.8μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Aluminium Alloys	Copper Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
					●	●

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME48-C010AL-50-3F-3D	1.0	4	3.0	50	3	▲
TOTIME48-C015AL-50-3F-3D	1.5	4	4.5	50	3	▲
TOTIME48-C020AL-50-3F-3D	2.0	4	6.0	50	3	▲
TOTIME48-C030AL-50-3F-3D	3.0	4	9.0	50	3	▲
TOTIME48-C040AL-50-3F-3D	4.0	4	12.0	50	3	▲
TOTIME48-C040AL-75-3F-3D	4.0	4	12.0	75	3	▲
TOTIME48-C050AL-50-3F-3D	5.0	6	15.0	50	3	▲
TOTIME48-C060AL-50-3F-3D	6.0	6	18.0	50	3	▲
TOTIME48-C060AL-75-3F-3D	6.0	6	18.0	75	3	△
TOTIME48-C060AL-100-3F-3D	6.0	6	18.0	100	3	▲
TOTIME48-C080AL-60-3F-3D	8.0	8	24.0	60	3	▲
TOTIME48-C080AL-75-3F-3D	8.0	8	24.0	75	3	△
TOTIME48-C080AL-100-3F-3D	8.0	8	24.0	100	3	△
TOTIME48-C100AL-75-3F-3D	10.0	10	30.0	75	3	▲
TOTIME48-C100AL-100-3F-3D	10.0	10	30.0	100	3	△
TOTIME48-C120AL-75-3F-3D	12.0	12	36.0	75	3	▲
TOTIME48-C120AL-100-3F-3D	12.0	12	36.0	100	3	▲
TOTIME48-C160AL-100-3F-3D	16.0	16	48.0	100	3	△
TOTIME48-C160AL-150-3F-3D	16.0	16	48.0	150	3	△
TOTIME48-C200AL-150-3F-3D	20.0	20	60.0	150	3	△

Tolerance:D≤12 -0. 02~0 D>12 -0.03~0

▲Stock △Non-Stock
Recommended Cutting Conditions B92

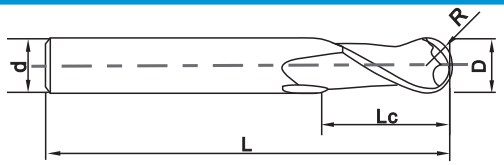
TOTIME Carbide End Mill Cutter
For Aluminium Alloys,Copper Alloys

N

Ball Nose End Mill(HRC48)

MG HM | 2 | 30° | Ball Nose

2 FLUTES BALL NOSE [1.5D]



2Flutes	Cobalt 10%	HRC 48	No Coating	UMG 0.5μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Aluminium Alloys	Copper Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
					●	●

Order No.	D(mm)	R(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME48-010ALB-50-2F-1.5D	1.0	0.50	4	1.5	50	2	△
TOTIME48-015ALB-50-2F-1.5D	1.5	0.75	4	2.3	50	2	△
TOTIME48-020ALB-50-2F-1.5D	2.0	1.00	4	3.0	50	2	▲
TOTIME48-030ALB-50-2F-1.5D	3.0	1.50	4	4.5	50	2	△
TOTIME48-040ALB-50-2F-1.5D	4.0	2.00	4	6.0	50	2	▲
TOTIME48-060ALB-50-2F-1.5D	6.0	3.00	6	9.0	50	2	△
TOTIME48-060ALB-75-2F-1.5D	6.0	3.00	6	9.0	75	2	▲
TOTIME48-080ALB-60-2F-1.5D	8.0	4.00	8	12.0	60	2	△
TOTIME48-080ALB-75-2F-1.5D	8.0	4.00	8	12.0	75	2	▲
TOTIME48-080ALB-100-2F-1.5D	8.0	4.00	8	12.0	100	2	△
TOTIME48-100ALB-75-2F-1.5D	10.0	5.00	10	15.0	75	2	▲
TOTIME48-100ALB-100-2F-1.5D	10.0	5.00	10	15.0	100	2	△
TOTIME48-120ALB-75-2F-1.5D	12.0	6.00	12	18.0	75	2	△
TOTIME48-120ALB-100-2F-1.5D	12.0	6.00	12	18.0	100	2	▲

Tolerance:R≤3 ±0. 015 R>3 ±0. 02

▲Stock △Non-Stock
Recommended Cutting Conditions B91

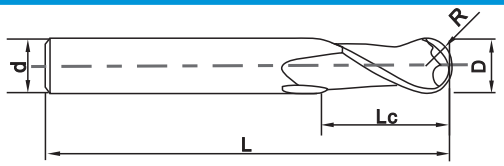
TOTIME Carbide End Mill Cutter
For Aluminium Alloys,Copper Alloys

N

Ball Nose End Mill(HRC48)

MG HM | 2 | 30° | Ball Nose

2 FLUTES BALL NOSE [2D]



2Flutes	Cobalt 10%	HRC 48	No Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Aluminium Alloys	Copper Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
					●	●

Order No.	D(mm)	R(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME48-010ALB-50-2F-2D	1.0	0.50	4	2	50	2	▲
TOTIME48-015ALB-50-2F-2D	1.5	0.75	4	3	50	2	▲
TOTIME48-020ALB-50-2F-2D	2.0	1.00	4	4	50	2	▲
TOTIME48-030ALB-50-2F-2D	3.0	1.50	4	6	50	2	▲
TOTIME48-040ALB-50-2F-2D	4.0	2.00	4	8	50	2	▲
TOTIME48-060ALB-50-2F-2D	6.0	3.00	6	12	50	2	▲
TOTIME48-060ALB-75-2F-2D	6.0	3.00	6	12	75	2	△
TOTIME48-080ALB-60-2F-2D	8.0	4.00	8	16	60	2	▲
TOTIME48-080ALB-75-2F-2D	8.0	4.00	8	16	75	2	△
TOTIME48-080ALB-100-2F-2D	8.0	4.00	8	16	100	2	△
TOTIME48-100ALB-75-2F-2D	10.0	5.00	10	20	75	2	▲
TOTIME48-100ALB-100-2F-2D	10.0	5.00	10	20	100	2	△
TOTIME48-120ALB-75-2F-2D	12.0	6.00	12	24	75	2	▲
TOTIME48-120ALB-100-2F-2D	12.0	6.00	12	24	100	2	△

Tolerance:R≤3 ±0. 015 R>3 ±0. 02

▲Stock △Non-Stock
Recommended Cutting Conditions B91

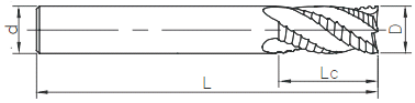
TOTIME Carbide End Mill Cutter
For Alloy Steel,Hardened Steel

P K

Variable Lead Roughing(HRC55)

MG HM | 4 | TiAlN | 38°/39° | Square

4 FLUTES ROUGHING



4Flutes	Cobalt 10%	HRC 55	TiAlN Coating	UMG 0.6μm	Carbide Materials	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Heat Resistant Material	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-65			
●	●	●				

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TOTIME3839-060R-S-4F	6	6	15	50	4	▲
TOTIME3839-080R-S-4F	8	8	20	60	4	▲
TOTIME3839-100R-S-4F	10	10	30	75	4	▲
TOTIME3839-120R-S-4F	12	12	32	75	4	▲
TOTIME3839-160R-S-4F	16	16	45	100	4	▲
TOTIME3839-200R-S-4F	20	20	50	100	4	▲

Tolerance:D≤8 0~0. 01 D>8 0~0. 02

▲Stock △Non-Stock

Recommended Cutting Conditions B94

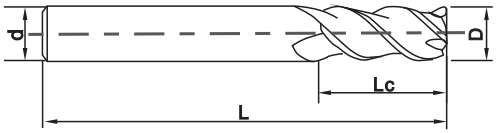
TOTIME Carbide End Mill Cutter
For Graphite

N

Diamond Coating Square End Mill

MG HM | 4 | Diamond | 30° | Square

4 FLUTES SQUARE



4Flutes	Cobalt 10%	HRC 48	Diamond Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Die Steel	Hardened Steel	Hardened Steel	Stainless Steel	Graphite	Aluminum
＜HRC35	HRC32-48	HRC48-55	HRC55-65			
					●	○

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TDIA-010S-50-4F	1	4	3	50	4	▲
TDIA-020S-50-4F	2	4	6	50	4	▲
TDIA-030S-50-4F	3	4	9	50	4	▲
TDIA-040S-50-4F	4	4	12	50	4	▲
TDIA-040S-60-4F	4	4	12	60	4	▲
TDIA-040S-75-4F	4	4	12	75	4	▲
TDIA-040S-100-4F	4	4	20	100	4	▲
TDIA-060S-50-4F	6	6	20	50	4	▲
TDIA-060S-60-4F	6	6	20	60	4	▲
TDIA-060S-75-4F	6	6	25	75	4	▲
TDIA-060S-100-4F	6	6	30	100	4	▲
TDIA-060S-150-4F	6	6	40	150	4	▲
TDIA-080S-50-4F	8	8	20	50	4	▲
TDIA-080S-60-4F	8	8	20	60	4	▲
TDIA-080S-75-4F	8	8	30	75	4	▲
TDIA-080S-100-4F	8	8	30	100	4	▲
TDIA-080S-150-4F	8	8	40	150	4	▲
TDIA-100S-60-4F	10	10	25	60	4	▲
TDIA-100S-75-4F	10	10	30	75	4	▲
TDIA-100S-100-4F	10	10	30	100	4	▲
TDIA-100S-150-4F	10	10	50	150	4	▲
TDIA-120S-100-4F	12	12	40	100	4	▲
TDIA-120S-150-4F	12	12	50	150	4	▲
TDIA-120S-180-4F	12	12	50	180	4	▲

Tolerance:D＜6 $^{-0.02}_{-0.05}$ 6≤D≤12 $^{-0.03}_{-0.06}$

▲Stock △Non-Stock
Recommended Cutting Conditions B118

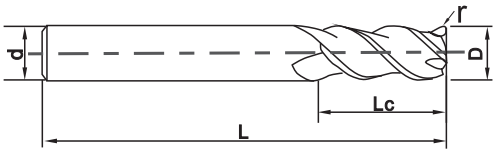
TOTIME Carbide End Mill Cutter
For Graphite

N

Diamond Coating Corner Radius End Mill

MG HM | 4 | Diamond | 30° | Corner-R | L

4 FLUTES CORNER RADIUS



4Flutes	Cobalt 10%	HRC 48	Diamond Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Die Steel	Hardened Steel	Hardened Steel	Stainless Steel	Graphite	Aluminum
＜HRC35	HRC32-48	HRC48-55	HRC55-65			
					●	○

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TDIA-030CR002-60-4F	3	0.2	3	10	60	4	▲
TDIA-030CR002-75-4F	3	0.2	3	10	75	4	▲
TDIA-030CR002-100-4F	3	0.2	3	10	100	4	▲
TDIA-030CR003-60-4F	3	0.3	3	10	60	4	▲
TDIA-030CR005-60-4F	3	0.5	3	10	60	4	▲
TDIA-030CR005-75-4F	3	0.5	3	10	75	4	▲
TDIA-030CR005-100-4F	3	0.5	3	10	100	4	▲
TDIA-040CR001-40-4F	4	0.1	4	6	40	4	▲
TDIA-040CR002-50-4F	4	0.2	4	6	50	4	▲
TDIA-040CR002-60-4F	4	0.2	4	12	60	4	▲
TDIA-040CR002-75-4F	4	0.2	4	12	75	4	▲
TDIA-040CR002-100-4F	4	0.2	4	20	100	4	▲
TDIA-040CR005-50-4F	4	0.5	4	6	50	4	▲
TDIA-040CR005-60-4F	4	0.5	4	12	60	4	▲
TDIA-040CR005-75-4F	4	0.5	4	12	75	4	▲
TDIA-040CR005-100-4F	4	0.5	4	20	100	4	▲
TDIA-060CR003-75-4F	6	0.3	6	20	75	4	▲
TDIA-060CR003-100-4F	6	0.3	6	30	100	4	▲
TDIA-060CR005-60-4F	6	0.5	6	20	60	4	▲
TDIA-060CR005-75-4F	6	0.5	6	20	75	4	▲
TDIA-060CR005-100-4F	6	0.5	6	25	100	4	▲
TDIA-080CR003-75-4F	8	0.3	8	25	75	4	▲
TDIA-080CR003-100-4F	8	0.3	8	30	100	4	▲

Tolerance:D＜6 $^{-0.02}_{-0.05}$ 6≤D≤12 $^{-0.03}_{-0.08}$

▲Stock △Non-Stock

Recommended Cutting Conditions B118

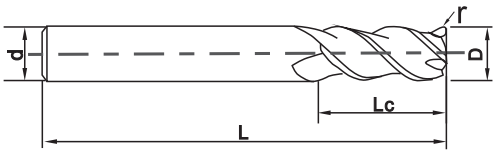
TOTIME Carbide End Mill Cutter
For Graphite

N

Diamond Coating Corner Radius End Mill

MG HM | 4 | Diamond | 30° | Corner-R | L

4 FLUTES CORNER RADIUS



4Flutes	Cobalt 10%	HRC 48	Diamond Coating	UMG 0.5μm	Materials Carbide	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Die Steel	Hardened Steel	Hardened Steel	Stainless Steel	Graphite	Aluminum
＜HRC35	HRC32-48	HRC48-55	HRC55-65			
					●	○

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TDIA-080CR005-75-4F	8	0.5	8	30	75	4	▲
TDIA-080CR005-100-4F	8	0.5	8	30	100	4	▲
TDIA-080CR005-150-4F	8	0.5	8	40	150	4	▲
TDIA-100CR005-75-4F	10	0.5	10	25	75	4	▲
TDIA-100CR005-100-4F	10	0.5	10	30	100	4	▲
TDIA-100CR005-150-4F	10	0.5	10	40	150	4	▲
TDIA-120CR005-100-4F	12	0.5	12	30	100	4	▲
TDIA-120CR005-150-4F	12	0.5	12	40	150	4	▲

Tolerance:D＜6 $^{-0.02}_{-0}$ 6≤D≤12 $^{-0.03}_{-0}$

▲Stock △Non-Stock

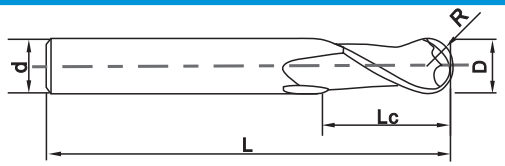
Recommended Cutting Conditions B118

N

Diamond Coating Ball Nose End Mill

MG HM | 2 | Diamond | 30° | Ball Nose

2 FLUTES BALL NOSE



2Flutes	Cobalt 10%	HRC 48	Diamond Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Die Steel	Hardened Steel	Hardened Steel	Stainless Steel	Graphite	Aluminum
＜HRC35	HRC32-48	HRC48-55	HRC55-65			
					●	○

Order No.	D(mm)	R(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TDIA-030B-50-2F	3	1.5	3	6	50	2	▲
TDIA-030B-60-2F	3	1.5	3	6	60	2	▲
TDIA-030B-75-2F	3	1.5	3	6	75	2	▲
TDIA-030B-100-2F	3	1.5	3	6	100	2	▲
TDIA-040B-50-2F	4	2.0	4	8	50	2	▲
TDIA-040B-60-2F	4	2.0	4	8	60	2	▲
TDIA-040B-75-2F	4	2.0	4	8	75	2	▲
TDIA-040B-100-2F	4	2.0	4	10	100	2	▲
TDIA-060B-60-2F	6	3.0	6	12	60	2	▲
TDIA-060B-75-2F	6	3.0	6	12	75	2	▲
TDIA-060B-100-2F	6	3.0	6	16	100	2	▲
TDIA-060B-150-2F	6	3.0	6	20	150	2	▲
TDIA-080B-75-2F	8	4.0	8	16	75	2	▲
TDIA-080B-100-2F	8	4.0	8	16	100	2	▲
TDIA-080B-150-2F	8	4.0	8	30	150	2	▲
TDIA-100B-100-2F	10	5.0	10	20	100	2	▲
TDIA-100B-150-2F	10	5.0	10	30	150	2	▲
TDIA-120B-100-2F	12	6.0	12	30	100	2	▲
TDIA-120B-150-2F	12	6.0	12	30	150	2	▲

Tolerance:R＜3 $^{-0.02}_{-0.05}$ 3≤R≤6 $^{-0.03}_{-0.08}$

▲Stock △Non-Stock

Recommended Cutting Conditions B118

TOTIME Carbide End Mill Cutter
For CFRP

N

Diamond Coating Square End Mill

MG HM | Diamond | Square

Square End Mill

● Features

1. Finishing and rough integrated wear-resistant diamond coating.
2. The left and right front and back teeth, and the bottom edge can be cut in layers.
3. Improve the smoothness of the product while achieving efficient processing.

● Application

Suitable for aramid honeycomb, carbon fiber T300 T700 T800, glass fiber, and carbon composite materials.

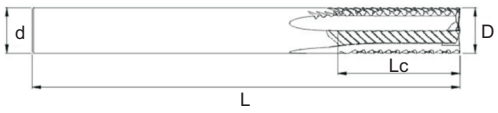
Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TCCF010S-50-3F	1.0	4	3	50	3	▲
TCCF015S-50-3F	1.5	4	4	50	3	▲
TCCF020S-50-3F	2.0	4	6	50	3	▲
TCCF030S-50-4F	3.0	4	9	50	4	▲
TCCF040S-50-4F	4.0	4	12	50	4	▲
TCCF050S-50-4F	5.0	6	15	50	4	▲
TCCF060S-50-4F	6.0	6	18	50	4	▲
TCCF080S-75-6F	8.0	8	32	75	6	▲
TCCF100S-75-6F	10.0	10	30	75	6	▲
TCCF100S-100-6F	10.0	10	30	100	6	▲
TCCF120S-80-5F	12.0	12	36	80	5	▲
TCCF120S-100-5F	12.0	12	48	100	5	▲

▲Stock △Non-Stock

Diamond Coating Square End Mill

MG HM | 4 | Diamond | Square

Square End Mill



● Features

1. Medium and rough integrated wear-resistant diamond coating.
2. U-shaped groove with alternating teeth, finishing and rough integrated groove.
3. Achieve efficient processing while improving product smoothness.

● Application

Suitable for composite materials of aramid fiber, carbon fiber T300, PEEK polymer materials.

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TRFCF030S-50-4F	3.0	4	9	50	4	▲
TRFCF040S-50-4F	4.0	4	10	50	4	▲
TRFCF050S-60-4F	5.0	6	15	60	4	▲
TRFCF060S-60-4F	6.0	6	18	60	4	▲
TRFCF080S-75-4F	8.0	8	30	75	4	▲
TRFCF100S-80-4F	10.0	10	30	80	4	▲
TRFCF120S-80-4F	12.0	12	35	80	4	▲

▲Stock △Non-Stock

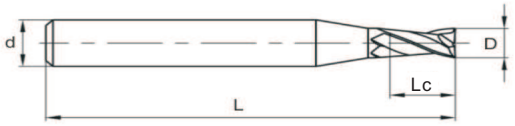
TOTIME Carbide End Mill Cutter
For Aluminium Alloys,Copper Alloys

N

Micro Square End Mill

MG HM | 2 | 30° | Square | TAC

2 FLUTES SQUARE



2Flutes	Cobalt 10%	HRC 48	X3H Coating	UMG 0.5μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Aluminium Alloys	Copper Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
					●	●

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TMALS010-2F	0.10	4	0.2	50	2	▲
TMALS015-2F	0.15	4	0.3	50	2	▲
TMALS020-2F	0.20	4	0.4	50	2	▲
TMALS025-2F	0.25	4	0.5	50	2	▲
TMALS030-2F	0.30	4	0.6	50	2	▲
TMALS035-2F	0.35	4	0.7	50	2	▲
TMALS040-2F	0.40	4	0.8	50	2	▲
TMALS045-2F	0.45	4	0.9	50	2	▲
TMALS050-2F	0.50	4	1.0	50	2	▲
TMALS060-2F	0.60	4	1.2	50	2	▲
TMALS070-2F	0.70	4	1.4	50	2	▲
TMALS080-2F	0.80	4	1.6	50	2	▲
TMALS090-2F	0.90	4	1.8	50	2	▲

▲Stock △Non-Stock

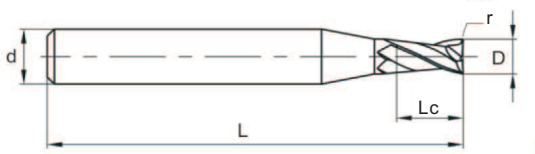
Recommended Cutting Conditions B96

TOTIME Carbide End Mill Cutter
For Aluminium Alloys,Copper Alloys

Micro Corner Radius End Mill

MG HM | 2 | TAC | 30° | Corner-R

2 FLUTES CORNER RADIUS



2Flutes	Cobalt 10%	HRC 48	X3H Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Aluminium Alloys	Copper Alloys
＜HRC35	<HRC48	HRC48-55	HRC55-60			
					●	●

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TMALCR0205-2F	0.2	0.05	4	0.4	50	2	▲
TMALCR0305-2F	0.3	0.05	4	0.6	50	2	▲
TMALCR0405-2F	0.4	0.05	4	0.8	50	2	▲
TMALCR0410-2F	0.4	0.10	4	0.8	50	2	▲
TMALCR0505-2F	0.5	0.05	4	1.0	50	2	▲
TMALCR0510-2F	0.5	0.10	4	1.0	50	2	▲
TMALCR0605-2F	0.6	0.05	4	1.2	50	2	▲
TMALCR0610-2F	0.6	0.10	4	1.2	50	2	▲
TMALCR0705-2F	0.7	0.05	4	1.4	50	2	▲
TMALCR0710-2F	0.7	0.10	4	1.4	50	2	▲
TMALCR0805-2F	0.8	0.05	4	1.6	50	2	▲
TMALCR0810-2F	0.8	0.10	4	1.6	50	2	▲

▲Stock △Non-Stock

Recommended Cutting Conditions B96

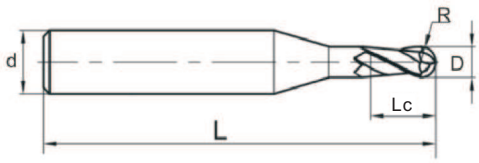
TOTIME Carbide End Mill Cutter
For Aluminium Alloys,Copper Alloys

N

Micro Ball Nose End Mill

MG HM | 2 | TAC | 30° | Ball Nose

2 FLUTES BALL NOSE



2Flutes	Cobalt 10%	HRC 48	X3H Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Aluminium Alloys	Copper Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
					●	●

Order No.	D(mm)	R(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TMALB020-2F	0.2	0.10	4	0.4	50	2	▲
TMALB030-2F	0.3	0.15	4	0.6	50	2	▲
TMALB040-2F	0.4	0.20	4	0.8	50	2	▲
TMALB050-2F	0.5	0.25	4	1.0	50	2	▲
TMALB060-2F	0.6	0.30	4	1.2	50	2	▲
TMALB070-2F	0.7	0.35	4	1.4	50	2	▲
TMALB080-2F	0.8	0.40	4	1.6	50	2	▲

▲Stock △Non-Stock

Recommended Cutting Conditions B96

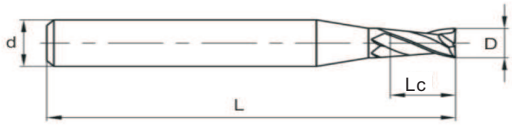
TOTIME Carbide End Mill Cutter
For Carbon Steel,Cast Iron,Alloy Steel,Stainless Steel

P M K

Micro Square End Mill

MG HM | 2 | 30° | Square | AP

2 FLUTES SQUARE



2Flutes	Cobalt 10%	HRC 48	AP Coating	MG 0.8μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Aluminium Alloys	Copper Alloys
＜HRC35	HRC35-45	HRC45-55	HRC55-60			
●	●			●		

Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TMUS010-2F	0.10	4	0.2	50	2	▲
TMUS015-2F	0.15	4	0.3	50	2	▲
TMUS020-2F	0.20	4	0.4	50	2	▲
TMUS025-2F	0.25	4	0.5	50	2	▲
TMUS030-2F	0.30	4	0.6	50	2	▲
TMUS035-2F	0.35	4	0.7	50	2	▲
TMUS040-2F	0.40	4	0.8	50	2	▲
TMUS045-2F	0.45	4	0.9	50	2	▲
TMUS050-2F	0.50	4	1.0	50	2	▲
TMUS060-2F	0.60	4	1.2	50	2	▲
TMUS070-2F	0.70	4	1.4	50	2	▲
TMUS080-2F	0.80	4	1.6	50	2	▲
TMUS090-2F	0.90	4	1.8	50	2	▲

▲Stock △Non-Stock

Recommended Cutting Conditions B97

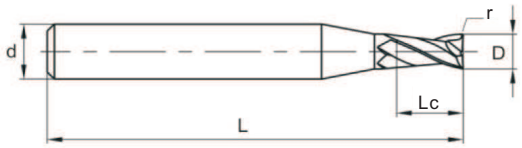
TOTIME Carbide End Mill Cutter
For Carbon Steel,Cast Iron,Alloy Steel,Stainless Steel

P M K

Micro Corner Radius End Mill

MG HM | 2 | AP | 45° | Corner-R

2 FLUTES CORNER RADIUS



2Flutes	Cobalt 10%	HRC 48	AP Coating	MG 0.8μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Aluminium Alloys	Copper Alloys
<HRC35	HRC35-45	HRC45-55	HRC55-60			
●	●			●		

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TMUCR0205-2F	0.2	0.05	4	0.4	50	2	▲
TMUCR0305-2F	0.3	0.05	4	0.6	50	2	▲
TMUCR0405-2F	0.4	0.05	4	0.8	50	2	▲
TMUCR0410-2F	0.4	0.10	4	0.8	50	2	▲
TMUCR0505-2F	0.5	0.05	4	1.0	50	2	▲
TMUCR0510-2F	0.5	0.10	4	1.0	50	2	▲
TMUCR0605-2F	0.6	0.05	4	1.2	50	2	▲
TMUCR0610-2F	0.6	0.10	4	1.2	50	2	▲
TMUCR0705-2F	0.7	0.05	4	1.4	50	2	▲
TMUCR0710-2F	0.7	0.10	4	1.4	50	2	▲
TMUCR0805-2F	0.8	0.05	4	1.6	50	2	▲
TMUCR0810-2F	0.8	0.10	4	1.6	50	2	▲

▲Stock △Non-Stock

Recommended Cutting Conditions B97

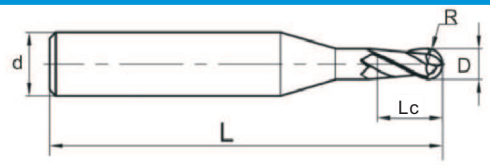
TOTIME Carbide End Mill Cutter
For Carbon Steel,Cast Iron,Alloy Steel,Stainless Steel

P M K

Micro Ball Nose End Mill

MG HM | 2 | AP | 30° | Ball Nose

2 FLUTES BALL NOSE



2Flutes	Cobalt 10%	HRC 48	AP Coating	MG 0.8μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Aluminium Alloys	Copper Alloys
＜HRC35	HRC35-45	HRC45-55	HRC55-60			
●	●			●		

Order No.	D(mm)	R(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TMUB020-2F	0.2	0.10	4	0.4	50	2	▲
TMUB030-2F	0.3	0.15	4	0.6	50	2	▲
TMUB040-2F	0.4	0.20	4	0.8	50	2	▲
TMUB050-2F	0.5	0.25	4	1.0	50	2	▲
TMUB060-2F	0.6	0.30	4	1.2	50	2	▲
TMUB070-2F	0.7	0.35	4	1.4	50	2	▲
TMUB080-2F	0.8	0.40	4	1.6	50	2	▲

▲Stock △Non-Stock

Recommended Cutting Conditions B97

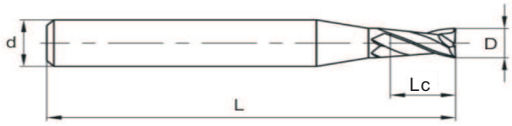
TOTIME Carbide End Mill Cutter
For Hardend Steel

H

Micro Square End Mill

MG HM | 2 | 45° | Square | X6M

2 FLUTES SQUARE



2Flutes	Cobalt 10%	HRC 48	X6H Coating	MG 0.8μm	Materials Carbide	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Aluminium Alloys	Copper Alloys
＜HRC35	HRC35-45	HRC48-55	HRC55-60			
		●	●			

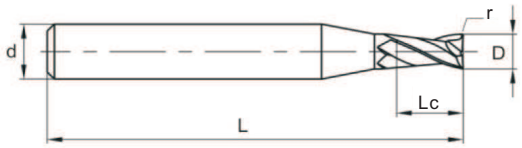
Order No.	D(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TMHS010-2F	0.10	4	0.15	45	2	▲
TMHS015-2F	0.15	4	0.2	45	2	▲
TMHS020-2F	0.20	4	0.4	45	2	▲
TMHS025-2F	0.25	4	0.5	45	2	▲
TMHS030-2F	0.30	4	0.6	45	2	▲
TMHS035-2F	0.35	4	0.7	45	2	▲
TMHS040-2F	0.40	4	0.8	45	2	▲
TMHS045-2F	0.45	4	0.9	45	2	▲
TMHS050-2F	0.50	4	1.0	45	2	▲
TMHS060-2F	0.60	4	1.2	45	2	▲
TMHS070-2F	0.70	4	1.4	45	2	▲
TMHS080-2F	0.80	4	1.6	45	2	▲
TMHS090-2F	0.90	4	1.8	45	2	▲

▲Stock △Non-Stock
Recommended Cutting Conditions B98

Micro Corner Radius End Mill

MG HM | 2 | X6M | 45° | Corner-R

2 FLUTES CORNER RADIUS



2Flutes	Cobalt 10%	HRC 48	X6H Coating	UMG 0.5μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Aluminium Alloys	Copper Alloys
＜HRC35	HRC35-45	HRC48-55	HRC55-60			
		●	●			

Order No.	D(mm)	r(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TMHCR0305-2F	0.3	0.05	4	0.6	45	2	▲
TMHCR0310-2F	0.3	0.10	4	0.6	45	2	▲
TMHCR0405-2F	0.4	0.05	4	0.8	45	2	▲
TMHCR0410-2F	0.4	0.10	4	0.8	45	2	▲
TMHCR0505-2F	0.5	0.05	4	1.0	45	2	▲
TMHCR0510-2F	0.5	0.10	4	1.0	45	2	▲
TMHCR0605-2F	0.6	0.05	4	1.2	45	2	▲
TMHCR0610-2F	0.6	0.10	4	1.2	45	2	▲
TMHCR0705-2F	0.7	0.05	4	1.4	45	2	▲
TMHCR0710-2F	0.7	0.10	4	1.4	45	2	▲
TMHCR0805-2F	0.8	0.05	4	1.6	45	2	▲
TMHCR0810-2F	0.8	0.10	4	1.6	45	2	▲

▲Stock △Non-Stock

Recommended Cutting Conditions B98

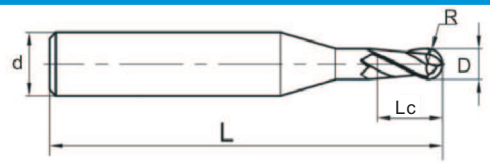
TOTIME Carbide End Mill Cutter
For Hardend Steel

H

Micro Ball Nose End Mill

MG HM | 2 | X6M | 45° | Ball Nose

2 FLUTES BALL NOSE



2Flutes	Cobalt 10%	HRC 48	X6H Coating	UMG 0.5μm	Materials Carbide	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Aluminium Alloys	Copper Alloys
＜HRC35	HRC35-45	HRC48-55	HRC55-60			
		●	●			

Order No.	D(mm)	R(mm)	d(mm)	Lc(mm)	L(mm)	Flutes	Stock
TMHB020-2F	0.2	0.10	4	0.2	45	2	▲
TMHB030-2F	0.3	0.15	4	0.3	45	2	▲
TMHB040-2F	0.4	0.20	4	0.6	45	2	▲
TMHB050-2F	0.5	0.25	4	0.8	45	2	▲
TMHB060-2F	0.6	0.30	4	0.9	45	2	▲
TMHB070-2F	0.7	0.35	4	1.1	45	2	▲
TMHB080-2F	0.8	0.40	4	1.2	45	2	▲

▲Stock △Non-Stock
Recommended Cutting Conditions B98

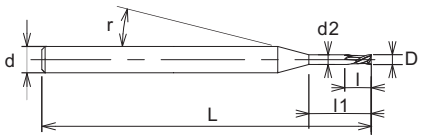
TOTIME Carbide End Mill Cutter
For Steels,Hardened Steel

P H

Long Neck Square End Mill

MG HM | 2 | X6M | 35° | Square

2 FLUTES SQUARE



2 Flutes	Cobalt 12%	HRC 48	X6M Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-65			
		●	●			

Order No.	D (mm)	l1 (mm)	l (mm)	d2 (mm)	r°	d (mm)	L (mm)	Flutes
TMHS01005	0.10	0.5	0.08	0.085	15°	4	45	2
TMHS0101	0.10	1.0	0.08	0.085	15°	4	45	2
TMHS01501	0.15	1.0	0.12	0.130	15°	4	45	2
TMHS015015	0.15	1.5	0.12	0.130	15°	4	45	2
TMHS01502	0.15	2.0	0.12	0.130	15°	4	45	2
TMHS0201	0.20	1.0	0.16	0.180	15°	4	45	2
TMHS02015	0.20	1.5	0.16	0.180	15°	4	45	2
TMHS0202	0.20	2.0	0.16	0.180	15°	4	45	2
TMHS0203	0.20	3.0	0.16	0.180	15°	4	45	2
TMHS0301	0.30	1.0	0.24	0.270	15°	4	45	2
TMHS03015	0.30	1.5	0.24	0.270	15°	4	45	2
TMHS0302	0.30	2.0	0.24	0.270	15°	4	45	2
TMHS0303	0.30	3.0	0.24	0.270	15°	4	45	2
TMHS0304	0.30	4.0	0.24	0.270	15°	4	45	2
TMHS0306	0.30	6.0	0.24	0.270	15°	4	45	2
TMHS0402	0.40	2.0	0.32	0.370	15°	4	45	2
TMHS0403	0.40	3.0	0.32	0.370	15°	4	45	2
TMHS0404	0.40	4.0	0.32	0.370	15°	4	45	2
TMHS0406	0.40	6.0	0.32	0.370	15°	4	45	2
TMHS0502	0.50	2.0	0.40	0.460	15°	4	45	2
TMHS0503	0.50	3.0	0.40	0.460	15°	4	45	2
TMHS0504	0.50	4.0	0.40	0.460	15°	4	45	2
TMHS0506	0.50	6.0	0.40	0.460	15°	4	45	2
TMHS0602	0.60	2.0	0.48	0.560	15°	4	45	2
TMHS0603	0.60	3.0	0.48	0.560	15°	4	45	2
TMHS0604	0.60	4.0	0.48	0.560	15°	4	45	2
TMHS0606	0.60	6.0	0.48	0.560	15°	4	45	2
TMHS0704	0.70	4.0	0.56	0.660	15°	4	45	2
TMHS0706	0.70	6.0	0.56	0.660	15°	4	45	2

▲Stock △Non-Stock

Recommended Cutting Conditions B110

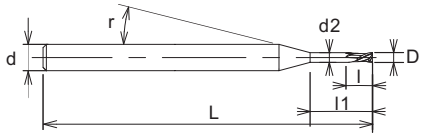
TOTIME Carbide End Mill Cutter
For Steels,Hardened Steel

P H

Long Neck Square End Mill

MG HM | 2 | X6M | 35° | Square

2 FLUTES SQUARE



2 Flutes	Cobalt 12%	HRC 48	X6M Coating	UMG 0.5μm	Materials Carbide	
● 1st Recommendation ○2nd Recommendation						
Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-65			
		●	●			

Order No.	D (mm)	l1 (mm)	l (mm)	d2 (mm)	r°	d (mm)	L (mm)	Flutes
TMHS0802	0.80	2.0	0.64	0.760	15°	4	45	2
TMHS0803	0.80	3.0	0.64	0.760	15°	4	45	2
TMHS0804	0.80	4.0	0.64	0.760	15°	4	45	2
TMHS0806	0.80	6.0	0.64	0.760	15°	4	45	2
TMHS1004A	1.00	4.0	0.80	0.950	15°	4	50	2
TMHS1006A	1.00	6.0	0.80	0.950	15°	4	50	2
TMHS1008A	1.00	8.0	0.80	0.950	15°	4	50	2
TMHS1010A	1.00	10.0	0.80	0.950	15°	4	50	2
TMHS1506A	1.50	6.0	1.20	1.450	15°	4	50	2
TMHS1508A	1.50	8.0	1.20	1.450	15°	4	50	2
TMHS1510A	1.50	10.0	1.20	1.450	15°	4	50	2
TMHS2008A	2.00	8.0	1.60	1.940	15°	4	50	2
TMHS2012A	2.00	12.0	1.60	1.940	15°	4	50	2
TMHS2016A	2.00	16.0	1.60	1.940	15°	4	50	2

▲Stock △Non-Stock
Recommended Cutting Conditions B110

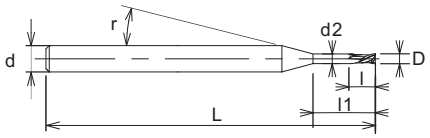
TOTIME Carbide End Mill Cutter
For Steels,Hardened Steel

P H

Long Neck Square End Mill

MG HM | 4 | X6M | 35° | Square

4 FLUTES SQUARE



4 Flutes	Cobalt 12%	HRC 48	X6M Coating	UMG 0.5μm	Materials Carbide	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-65			
		●	●			

Order No.	D (mm)	l1 (mm)	l (mm)	d2 (mm)	r°	d (mm)	L (mm)	Flutes
TMHS1004	1.0	4	0.8	0.95	15°	4	50	4
TMHS1006	1.0	6	0.8	0.95	15°	4	50	4
TMHS1008	1.0	8	0.8	0.95	15°	4	50	4
TMHS1010	1.0	10	0.8	0.95	15°	4	50	4
TMHS1012	1.0	12	0.8	0.95	15°	4	50	4
TMHS1016	1.0	16	0.8	0.95	15°	4	50	4
TMHS1506	1.5	6	1.2	1.45	15°	4	50	4
TMHS1508	1.5	8	1.2	1.45	15°	4	50	4
TMHS1510	1.5	10	1.2	1.45	15°	4	50	4
TMHS1512	1.5	12	1.2	1.45	15°	4	50	4
TMHS1516	1.5	16	1.2	1.45	15°	4	50	4
TMHS2008	2.0	8	1.6	1.94	15°	4	50	4
TMHS2010	2.0	10	1.6	1.94	15°	4	50	4
TMHS2012	2.0	12	1.6	1.94	15°	4	50	4
TMHS2016	2.0	16	1.6	1.94	15°	4	50	4
TMHS2018	2.0	18	1.6	1.94	15°	4	50	4
TMHS3010	3.0	10	4.5	2.85	15°	4	50	4
TMHS3012	3.0	12	4.5	2.85	15°	4	50	4
TMHS3016	3.0	16	4.5	2.85	15°	4	50	4
TMHS3020	3.0	20	4.5	2.85	15°	4	50	4
TMHS3012L	3.0	12	4.5	2.85	15°	6	60	4
TMHS3016L	3.0	16	4.5	2.85	15°	6	60	4
TMHS3020L	3.0	20	4.5	2.85	15°	6	60	4
TMHS3025L	3.0	25	4.5	2.85	15°	6	75	4
TMHS3030L	3.0	30	4.5	2.85	15°	6	75	4
TMHS4012L	4.0	12	6.0	3.80	15°	6	60	4
TMHS4016L	4.0	16	6.0	3.80	15°	6	60	4
TMHS4020L	4.0	20	6.0	3.80	15°	6	60	4
TMHS4025L	4.0	25	6.0	3.80	15°	6	75	4
TMHS4030L	4.0	30	6.0	3.80	15°	6	75	4

▲Stock △Non-Stock

Recommended Cutting Conditions B111

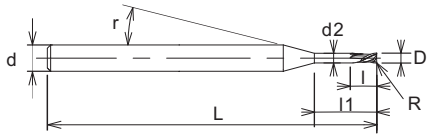
TOTIME Carbide End Mill Cutter
For Steels,Hardened Steel

P H

Long Neck Corner Radius End Mill

MG HM | 2 | X6M | 35° | Corner-R

2 FLUTES CORNER RADIUS



2 Flutes	Cobalt 12%	HRC 48	X6M Coating	UMG 0.5μm	Materials Carbide	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-60			
		●	●			

Order No.	D (mm)	R (mm)	l1 (mm)	l (mm)	d2 (mm)	r°	d (mm)	L (mm)	Flutes
TMHCR0301005	0.3	0.05	1	0.24	0.27	15°	4	45	2
TMHCR0302005	0.3	0.05	2	0.24	0.27	15°	4	45	2
TMHCR0303005	0.3	0.05	3	0.24	0.27	15°	4	45	2
TMHCR0402005	0.4	0.05	2	0.32	0.37	15°	4	45	2
TMHCR0403005	0.4	0.05	3	0.32	0.37	15°	4	45	2
TMHCR040201	0.4	0.10	2	0.32	0.37	15°	4	45	2
TMHCR040301	0.4	0.10	3	0.32	0.37	15°	4	45	2
TMHCR0502005	0.5	0.05	2	0.40	0.46	15°	4	45	2
TMHCR0503005	0.5	0.05	3	0.40	0.46	15°	4	45	2
TMHCR050201	0.5	0.10	2	0.40	0.46	15°	4	45	2
TMHCR050301	0.5	0.10	3	0.40	0.46	15°	4	45	2
TMHCR0602005	0.6	0.05	2	0.48	0.56	15°	4	45	2
TMHCR0603005	0.6	0.05	3	0.48	0.56	15°	4	45	2
TMHCR0604005	0.6	0.05	4	0.48	0.56	15°	4	45	2
TMHCR060201	0.6	0.10	2	0.48	0.56	15°	4	45	2
TMHCR060301	0.6	0.10	3	0.48	0.56	15°	4	45	2
TMHCR060401	0.6	0.10	4	0.48	0.56	15°	4	45	2
TMHCR0802005	0.8	0.05	2	0.56	0.66	15°	4	45	2
TMHCR0803005	0.8	0.05	3	0.56	0.66	15°	4	45	2
TMHCR0804005	0.8	0.05	4	0.56	0.66	15°	4	45	2
TMHCR080201	0.8	0.10	2	0.56	0.66	15°	4	45	2
TMHCR080301	0.8	0.10	3	0.56	0.66	15°	4	45	2
TMHCR080401	0.8	0.10	4	0.56	0.66	15°	4	45	2
TMHCR080601	0.8	0.10	6	0.56	0.66	15°	4	45	2
TMHCR080202	0.8	0.20	2	0.56	0.66	15°	4	45	2
TMHCR080302	0.8	0.20	3	0.56	0.66	15°	4	45	2
TMHCR080402	0.8	0.20	4	0.56	0.66	15°	4	45	2
TMHCR080602	0.8	0.20	6	0.56	0.66	15°	4	45	2

▲Stock △Non-Stock

Recommended Cutting Conditions B112

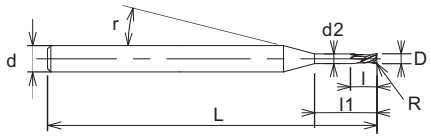
TOTIME Carbide End Mill Cutter
For Steels,Hardened Steel

P H

Long Neck Corner Radius End Mill

MG HM | 4 | X6M | 35° | Corner-R

4 FLUTES CORNER RADIUS



4 Flutes	Cobalt 12%	HRC 48	X6M Coating	UMG 0.5μm	Materials Carbide	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-65			
		●	●			

Order No.	D (mm)	R (mm)	l1 (mm)	l (mm)	d2 (mm)	r°	d (mm)	L (mm)	Flutes
TMHCR1004005	1.0	0.05	4	0.8	0.95	15°	4	50	4
TMHCR1006005	1.0	0.05	6	0.8	0.95	15°	4	50	4
TMHCR100401	1.0	0.10	4	0.8	0.95	15°	4	50	4
TMHCR100601	1.0	0.10	6	0.8	0.95	15°	4	50	4
TMHCR100801	1.0	0.10	8	0.8	0.95	15°	4	50	4
TMHCR101001	1.0	0.10	10	0.8	0.95	15°	4	50	4
TMHCR100402	1.0	0.20	4	0.8	0.95	15°	4	50	4
TMHCR100602	1.0	0.20	6	0.8	0.95	15°	4	50	4
TMHCR100802	1.0	0.20	8	0.8	0.95	15°	4	50	4
TMHCR101002	1.0	0.20	10	0.8	0.95	15°	4	50	4
TMHCR101202	1.0	0.20	12	0.8	0.95	15°	4	50	4
TMHCR1506005	1.5	0.05	6	1.2	1.45	15°	4	50	4
TMHCR150602	1.5	0.20	6	1.2	1.45	15°	4	50	4
TMHCR150802	1.5	0.20	8	1.2	1.45	15°	4	50	4
TMHCR151002	1.5	0.20	10	1.2	1.45	15°	4	50	4
TMHCR151202	1.5	0.20	12	1.2	1.45	15°	4	50	4
TMHCR200801	2.0	0.10	8	1.6	1.94	15°	4	50	4
TMHCR201001	2.0	0.10	10	1.6	1.94	15°	4	50	4
TMHCR201201	2.0	0.10	12	1.6	1.94	15°	4	50	4
TMHCR200802	2.0	0.20	8	1.6	1.94	15°	4	50	4
TMHCR201002	2.0	0.20	10	1.6	1.94	15°	4	50	4
TMHCR201202	2.0	0.20	12	1.6	1.94	15°	4	50	4
TMHCR201602	2.0	0.20	16	1.6	1.94	15°	4	50	4
TMHCR200805	2.0	0.50	8	1.6	1.94	15°	4	50	4
TMHCR201005	2.0	0.50	10	1.6	1.94	15°	4	50	4
TMHCR201205	2.0	0.50	12	1.6	1.94	15°	4	50	4
TMHCR201605	2.0	0.50	16	1.6	1.94	15°	4	50	4

▲Stock △Non-Stock

Recommended Cutting Conditions B113

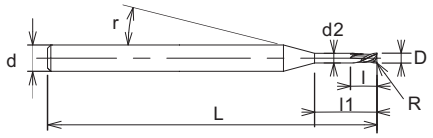
TOTIME Carbide End Mill Cutter
For Steels,Hardened Steel

P H

Long Neck Corner Radius End Mill

MG HM | 4 | X6M | 35° | Corner-R

4 FLUTES CORNER RADIUS



4 Flutes	Cobalt 12%	HRC 48	X6M Coating	UMG 0.5μm	Materials Carbide	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-65			
		●	●			

Order No.	D (mm)	R (mm)	l1 (mm)	l (mm)	d2 (mm)	r°	d (mm)	L (mm)	Flutes
TMHCR300802	3.0	0.20	8	2.4	2.85	15°	4	50	4
TMHCR301002	3.0	0.20	10	2.4	2.85	15°	4	50	4
TMHCR301202	3.0	0.20	12	2.4	2.85	15°	4	50	4
TMHCR301602	3.0	0.20	16	2.4	2.85	15°	4	50	4
TMHCR301202L	3.0	0.20	12	2.4	2.85	15°	6	60	4
TMHCR301602L	3.0	0.20	16	2.4	2.85	15°	6	60	4
TMHCR302002L	3.0	0.20	20	2.4	2.85	15°	6	60	4
TMHCR302502L	3.0	0.20	25	2.4	2.85	15°	6	75	4
TMHCR303002L	3.0	0.20	30	2.4	2.85	15°	6	75	4
TMHCR300805	3.0	0.50	8	2.4	2.85	15°	4	50	4
TMHCR301005	3.0	0.50	10	2.4	2.85	15°	4	50	4
TMHCR301205	3.0	0.50	12	2.4	2.85	15°	4	50	4
TMHCR301605	3.0	0.50	16	2.4	2.85	15°	4	50	4
TMHCR301205L	3.0	0.50	12	2.4	2.85	15°	6	60	4
TMHCR301605L	3.0	0.50	16	2.4	2.85	15°	6	60	4
TMHCR302005L	3.0	0.50	20	2.4	2.85	15°	6	60	4
TMHCR302505L	3.0	0.50	25	2.4	2.85	15°	6	75	4
TMHCR303005L	3.0	0.50	30	2.4	2.85	15°	6	75	4
TMHCR401202L	4.0	0.20	12	3.2	3.80	15°	6	60	4
TMHCR401602L	4.0	0.20	16	3.2	3.80	15°	6	60	4
TMHCR402002L	4.0	0.20	20	3.2	3.80	15°	6	60	4
TMHCR401205L	4.0	0.50	12	3.2	3.80	15°	6	60	4
TMHCR401605L	4.0	0.50	16	3.2	3.80	15°	6	60	4
TMHCR402005L	4.0	0.50	20	3.2	3.80	15°	6	60	4

▲Stock △Non-Stock

Recommended Cutting Conditions B113

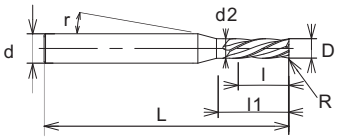
TOTIME Carbide End Mill Cutter
For Steels,Hardened Steel

P H

Long Neck Corner Radius End Mill

MG HM | 4 | X6M | 35° | Corner-R

4 FLUTES CORNER RADIUS



4 Flutes	Cobalt 12%	HRC 48	X6M Coating	UMG 0.5μm	Materials Carbide

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
＜HRC35	＜HRC48	HRC48-55	HRC55-65			
		●	●			

Order No.	D (mm)	R (mm)	l1 (mm)	l (mm)	d2 (mm)	r°	d (mm)	L (mm)	Flutes
TMHCR601802	6	0.2	18	7	5.8	15°	6	50	4
TMHCR601802L	6	0.2	18	7	5.8	15°	6	60	4
TMHICR601802	6	0.2	18	7	5.8	15°	6	75	4
TMHJCR601802	6	0.2	18	7	5.8	15°	6	100	4
TMHCR601803	6	0.3	18	7	5.8	15°	6	50	4
TMHCR601803L	6	0.3	18	7	5.8	15°	6	60	4
TMHICR601803	6	0.3	18	7	5.8	15°	6	75	4
TMHJCR601803	6	0.3	18	7	5.8	15°	6	100	4
TMHCR601805	6	0.5	18	7	5.8	15°	6	50	4
TMHCR601805L	6	0.5	18	7	5.8	15°	6	60	4
TMHICR601805	6	0.5	18	7	5.8	15°	6	75	4
TMHJCR601805	6	0.5	18	7	5.8	15°	6	100	4
TMHCR802405	8	0.5	24	9	7.8	15°	8	60	4
TMHICR802405	8	0.5	24	9	7.8	15°	8	75	4
TMHJCR802405	8	0.5	24	9	7.8	15°	8	100	4
TMHICR802410	8	1.0	24	9	7.8	15°	8	75	4
TMHCR103005	10	0.5	30	11	9.8	15°	10	75	4
TMHJCR103005	10	0.5	30	11	9.8	15°	10	100	4
TMHCR103010	10	1.0	30	11	9.8	15°	10	75	4
TMHJCR103010	10	1.0	30	11	9.8	15°	10	100	4
TMHCR123605	12	0.5	36	13	11.7	15°	12	75	4
TMHJCR123605	12	0.5	36	13	11.7	15°	12	100	4
TMHCR123610	12	1.0	36	13	11.7	15°	12	75	4
TMHCR123610	12	1.0	36	13	11.7	15°	12	75	4

▲Stock △Non-Stock

Recommended Cutting Conditions B114

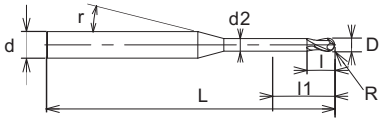
TOTIME Carbide End Mill Cutter
For Steels,Hardened Steel

P H

Long Neck Ball Nose End Mill

MG HM | 2 | X6M | 30° | Ball Nose

2 FLUTES BALL NOSE



2 Flutes	Cobalt 12%	HRC 48	X6M Coating	UMG 0.5μm	Materials Carbide	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-65			
		●	●			

Order No.	D (mm)	R (mm)	l1 (mm)	l (mm)	d2 (mm)	r°	d (mm)	L (mm)	Flutes
TMHB02004	0.2	0.10	0.4	0.16	0.18	15°	4	45	2
TMHB0201	0.2	0.10	1.0	0.16	0.18	15°	4	45	2
TMHB02015	0.2	0.10	1.5	0.16	0.18	15°	4	45	2
TMHB0202	0.2	0.10	2.0	0.16	0.18	15°	4	45	2
TMHB0301	0.3	0.15	1.0	0.24	0.27	15°	4	45	2
TMHB03015	0.3	0.15	1.5	0.24	0.27	15°	4	45	2
TMHB0302	0.3	0.15	2.0	0.24	0.27	15°	4	45	2
TMHB0303	0.3	0.15	3.0	0.24	0.27	15°	4	45	2
TMHB0304	0.3	0.15	4.0	0.24	0.27	15°	4	45	2
TMHB0305	0.3	0.15	5.0	0.24	0.27	15°	4	45	2
TMHB0401	0.4	0.20	1.0	0.32	0.37	15°	4	45	2
TMHB04015	0.4	0.20	1.5	0.32	0.37	15°	4	45	2
TMHB0402	0.4	0.20	2.0	0.32	0.37	15°	4	45	2
TMHB0403	0.4	0.20	3.0	0.32	0.37	15°	4	45	2
TMHB0404	0.4	0.20	4.0	0.32	0.37	15°	4	45	2
TMHB0406	0.4	0.20	6.0	0.32	0.37	15°	4	45	2
TMHB0502	0.5	0.25	2.0	0.40	0.46	15°	4	45	2
TMHB0503	0.5	0.25	3.0	0.40	0.46	15°	4	45	2
TMHB0504	0.5	0.25	4.0	0.40	0.46	15°	4	45	2
TMHB0506	0.5	0.25	6.0	0.40	0.46	15°	4	45	2
TMHB0508	0.5	0.25	8.0	0.40	0.46	15°	4	45	2
TMHB0510	0.5	0.25	10.0	0.40	0.46	15°	4	45	2
TMHB0602	0.6	0.30	2.0	0.48	0.56	15°	4	45	2
TMHB0603	0.6	0.30	3.0	0.48	0.56	15°	4	45	2
TMHB0604	0.6	0.30	4.0	0.48	0.56	15°	4	45	2
TMHB0606	0.6	0.30	6.0	0.48	0.56	15°	4	45	2
TMHB0608	0.6	0.30	8.0	0.48	0.56	15°	4	45	2
TMHB0802	0.8	0.40	2.0	0.64	0.76	15°	4	45	2
TMHB0803	0.8	0.40	3.0	0.64	0.76	15°	4	45	2
TMHB0804	0.8	0.40	4.0	0.64	0.76	15°	4	45	2
TMHB0806	0.8	0.40	6.0	0.64	0.76	15°	4	45	2
TMHB0808	0.8	0.40	8.0	0.64	0.76	15°	4	45	2

▲Stock △Non-Stock

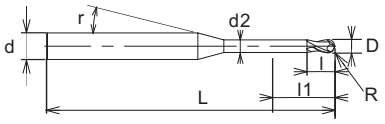
Recommended Cutting Conditions B115

P H

Long Neck Ball Nose End Mill

MG HM | 2 | X6M | 30° | Ball Nose

2 FLUTES BALL NOSE



2 Flutes	Cobalt 12%	HRC 48	X6M Coating	UMG 0.5μm	Materials Carbide	

● 1st Recommendation ○2nd Recommendation

Carbon Steel Cast Iron	Alloy Steel	Hardened Steel	Hardened Steel	Stainless Steel	Cast Iron	Titanium Alloys
<HRC35	<HRC48	HRC48-55	HRC55-65			
		●	●			

Order No.	D (mm)	R (mm)	l1 (mm)	l (mm)	d2 (mm)	r°	d (mm)	L (mm)	Flutes
TMHB1004	1.0	0.50	4.0	0.80	0.95	15°	4	50	2
TMHB1006	1.0	0.50	6.0	0.80	0.95	15°	4	50	2
TMHB1008	1.0	0.50	8.0	0.80	0.95	15°	4	50	2
TMHB1010	1.0	0.50	10.0	0.80	0.95	15°	4	50	2
TMHB1012	1.0	0.50	12.0	0.80	0.95	15°	4	50	2
TMHB1016	1.0	0.50	16.0	0.80	0.95	15°	4	50	2
TMHB1504	1.5	0.75	4.0	1.20	1.45	15°	4	50	2
TMHB1506	1.5	0.75	6.0	1.20	1.45	15°	4	50	2
TMHB1508	1.5	0.75	8.0	1.20	1.45	15°	4	50	2
TMHB1510	1.5	0.75	10.0	1.20	1.45	15°	4	50	2
TMHB1512	1.5	0.75	12.0	1.20	1.45	15°	4	50	2
TMHB1516	1.5	0.75	16.0	1.20	1.45	15°	4	50	2
TMHB2006	2.0	1.00	6.0	1.60	1.94	15°	4	50	2
TMHB2008	2.0	1.00	8.0	1.60	1.94	15°	4	50	2
TMHB2010	2.0	1.00	10.0	1.60	1.94	15°	4	50	2
TMHB2012	2.0	1.00	12.0	1.60	1.94	15°	4	50	2
TMHB2016	2.0	1.00	16.0	1.60	1.94	15°	4	50	2
TMHB3008	3.0	1.50	8.0	2.40	2.85	15°	4	50	2
TMHB3010	3.0	1.50	10.0	2.40	2.85	15°	4	50	2
TMHB3012	3.0	1.50	12.0	2.40	2.85	15°	4	50	2
TMHB3016	3.0	1.50	16.0	2.40	2.85	15°	4	50	2
TMHB3008L	3.0	1.50	8.0	2.40	2.85	15°	6	60	2
TMHB3012L	3.0	1.50	12.0	2.40	2.85	15°	6	60	2
TMHB3016L	3.0	1.50	16.0	2.40	2.85	15°	6	60	2
TMHB3020L	3.0	1.50	20.0	2.40	2.85	15°	6	60	2
TMHB3025L	3.0	1.50	25.0	2.40	2.85	15°	6	75	2
TMHB3030L	3.0	1.50	30.0	2.40	2.85	15°	6	75	2
TMHB4012L	4.0	2.00	12.0	3.20	3.80	15°	6	60	2
TMHB4016L	4.0	2.00	16.0	3.20	3.80	15°	6	60	2
TMHB4020L	4.0	2.00	20.0	3.20	3.80	15°	6	60	2
TMHB4025L	4.0	2.00	25.0	3.20	3.80	15°	6	75	2
TMHB4030L	4.0	2.00	30.0	3.20	3.80	15°	6	75	2

▲Stock △Non-Stock

Recommended Cutting Conditions B115-B116

TOTIME Carbide End Mill Cutter
For High Hardened Steels(≤HRC65)

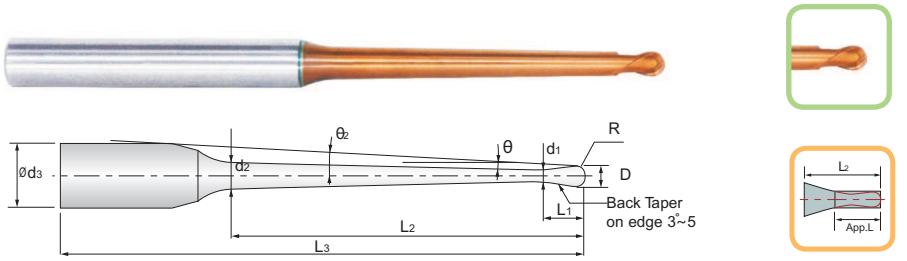
P H

ZSTNB20..-..-. SERIES

MG HM | 2 | TiAlN | 30° | D≤6 R ±0.005 | D>6 R ±0.010

2 FLUTE, TAPER NECK BACK DRAFT TYPE

The effective neck length shown is not an exact value and to avoid contact with the workpiece, we recommend the user control the precise value of this length.



※R2 or higher is not applied to Back draft type.

Order No.	Dimension(mm)											Effective Neck Length					Stock
	R	D	L2	θ	L1	d1	d2	L3	d3	App. L	θ2	0.5°	1°	1.5°	2°	3°	
ZSTNB2002-1-04	0.10	0.20	1.0	0.4	0.15	0.17	0.18	50	4	1.35	10.9	1.5	1.7	1.8	2.0	2.3	▲
ZSTNB2002-1.5-04			1.5	0.4			0.19			1.77	10.4	2.0	2.2	2.4	2.6	2.9	▲
ZSTNB2002-2-09			2.0	0.9			0.23			1.10	10.1	x	2.8	3.1	3.4	3.9	▲
ZSTNB2002-2.5-09			2.5	0.9			0.24			1.10	9.6	x	3.3	3.7	4.0	4.5	▲
ZSTNB2003-2-04	0.15	0.30	2.0	0.4	0.25	0.28	0.29	50	4	2.19	10.0	2.5	2.8	3.0	3.2	3.5	▲
ZSTNB2003-3-09			3.0	0.9			0.36			1.20	9.3	x	3.8	4.2	4.5	5.1	▲
ZSTNB2003-4-09			4.0	0.9			0.39			1.20	8.6	x	4.8	5.3	5.7	6.3	▲
ZSTNB2004-2-04	0.20	0.40	2.0	0.4	0.30	0.37	0.39	50	4	2.20	10.0	2.5	2.8	3.0	3.2	3.5	▲
ZSTNB2004-3-04			3.0	0.4			0.41			2.44	9.1	3.6	3.9	4.1	4.4	4.8	▲
ZSTNB2004-4-04			4.0	0.4			0.42			2.44	8.4	4.7	5.2	5.6	5.9	6.5	▲
ZSTNB2004-4-09			4.0	0.9			0.49			1.25	8.5	x	4.8	5.3	5.7	6.3	▲
ZSTNB2004-5-04			5.0	0.4			0.44			2.44	7.8	5.7	6.3	6.7	7.1	7.7	▲
ZSTNB2004-5-09			5.0	0.9			0.52			1.25	7.9	x	5.9	6.4	6.8	7.5	▲
ZSTNB2005-4-04	0.25	0.50	4.0	0.4	0.35	0.47	0.52	50	4	2.49	8.4	4.6	5.0	5.3	5.5	5.9	▲
ZSTNB2005-8-09			8.0	0.9			0.71			1.30	6.5	x	8.9	9.6	10.1	10.9	▲
ZSTNB2005-12-09			12.0	0.9			0.84			1.30	5.3	x	13.0	13.9	14.5	15.4	▲
ZSTNB20054-2-04	0.27	0.54	2.0	0.4	0.37	0.52	0.54	50	4	1.80	10.0	2.3	2.5	2.7	2.8	3.0	▲
ZSTNB20054-4-04			4.0				0.57			1.80	8.4	4.5	4.9	5.2	5.5	5.9	▲
ZSTNB20054-5-04			5.0				0.59			1.80	7.8	5.5	6.0	6.3	6.6	7.1	▲
ZSTNB20054-6-04			6.0				0.60			1.80	7.2	6.7	7.3	7.8	8.2	8.8	▲
ZSTNB20054-6.5-04			6.5				0.61			1.80	7.0	7.2	7.9	8.3	8.7	9.4	▲
ZSTNB20054-7-04			7.0				0.61			1.80	6.8	7.7	8.4	8.9	9.3	10.0	▲
ZSTNB2006-2-04	0.30	0.60	2.0	0.4	0.40	0.57	0.59	50	4	2.17	10.0	2.4	2.5	2.7	2.8	3.0	▲
ZSTNB2006-4-04			4.0				0.62			2.54	8.4	4.6	5.0	5.2	5.5	5.9	▲
ZSTNB2006-6-04			6.0				0.65			2.54	7.2	6.8	7.4	7.8	8.2	8.8	▲
ZSTNB2006-6-09			6.0	0.9			0.75			1.35	7.3	x	6.9	7.5	7.9	8.6	▲
ZSTNB2006-8-09			8.0				0.81			1.35	6.4	x	8.9	9.6	10.1	10.9	▲
ZSTNB2006-10-04			10.0	0.4			0.70			2.54	5.6	10.8	11.7	12.2	12.7	13.5	▲
ZSTNB2006-10-09			10.0	0.9			0.87			1.35	5.7	x	11.0	11.8	12.3	13.2	▲
ZSTNB2006-12-09			12.0				0.93	55		1.35	5.2	x	13.0	13.9	14.5	15.4	▲
ZSTNB2006-15-04			15.0	0.4			0.77			2.54	4.4	15.9	17.0	17.6	18.2	19.2	▲
ZSTNB2006-15-09			15.0	0.9			1.03			1.35	4.5	x	16.1	17.1	17.7	18.8	▲

X No application
— No interference

※ These tools are manufactured based on order received.

▲Stock △Non-Stock

Recommended Cutting Conditions B104~B107

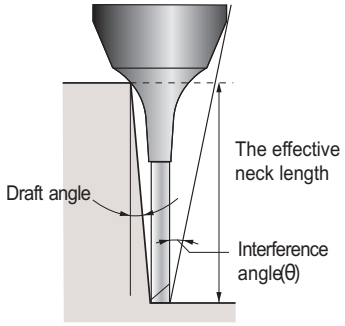
TOTIME Carbide End Mill Cutter
For High Hardened Steels(≤HRC65)

P H

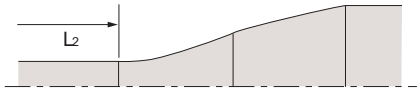
ZSTNB20..-..-. SERIES

MG HM | 2 | TiAlN | 30° | D≤6 R ±0.005 | D>6 R ±0.010

2 FLUTE, TAPER NECK BACK DRAFT TYPE



► If the workpiece has draft angle, the interference length will be longer than the L2.
► Please refer to the effective neck length for the various draft angles
► In addition, the angle at which the tool will interfere with the workpiece is shown as the "interference angle θ2", and should also be referred to



※ The effective neck length shown is not an exact value and to avoid contact with the workpiece, we recommend the user control the precise value of this length.

Order No.	Dimension(mm)											Effective Neck Length					Stock
	R	D	L2	θ	L1	d1	d2	L3	d3	App. L	θ2	0.5°	1°	1.5°	2°	3°	
ZSTNB2008-4-04	0.40	0.8	4	0.4	0.50	0.77	0.82	50	4	2.64	8.3	4.6	4.9	5.2	5.5	5.9	▲
ZSTNB2008-6-04			6				0.85			2.64	7.1	6.6	7.1	7.5	7.7	8.3	▲
ZSTNB2008-8-09			8	0.9			1.01			1.45	6.3	x	8.9	9.6	10.1	10.9	▲
ZSTNB2008-12-09			12				1.13	55		1.45	5.0	x	13.0	13.9	14.5	15.4	▲
ZSTNB2008-16-09			16				1.26			1.45	4.2	x	17.1	18.1	18.8	19.9	▲
ZSTNB2009-4-04	0.45	0.9	4	0.4	0.60	0.86	0.91	50	4	3.46	8.2	4.5	4.7	4.9	5.1	5.4	▲
ZSTNB2009-8-04			8				0.96	55		3.46	6.1	8.7	9.3	9.7	10.0	10.6	▲
ZSTNB2009-12-04			12				1.02			3.46	4.8	12.9	13.8	14.4	14.9	15.7	▲
ZSTNB2009-16-04			16				1.08	60		3.46	4.0	17.0	18.0	18.7	19.3	20.5	▲
ZSTNB2009-18-04			18				1.10	65		3.46	3.7	19.1	20.1	20.9	21.5	23.1	▲
ZSTNB2009-20-04			20				1.13			3.46	3.4	21.1	22.2	23.0	23.6	25.6	▲
ZSTNB2009-22-04			22				1.16			3.46	3.2	23.1	24.3	25.1	25.8	28.2	▲
ZSTNB2009-24-04			24				1.19	70		3.46	3.0	25.2	26.4	27.2	27.9	-	▲
ZSTNB2010-6-04	0.50	1	6	0.4	0.80	0.94	1.01	50	6	5.09	8.3	6.8	7.2	7.5	7.8	8.3	▲
ZSTNB2010-8-04			8				1.04	55		5.09	7.5	8.8	9.3	9.7	10.0	10.6	▲
ZSTNB2010-10-04			10				1.07			5.09	6.8	11.0	11.7	12.3	12.7	13.5	▲
ZSTNB2010-10-09			10	0.9			1.23			2.70	6.9	x	11.2	11.9	12.4	13.2	▲
ZSTNB2010-15-09			15				1.39	60		2.70	5.7	x	16.2	17.1	17.8	18.8	▲
ZSTNB2010-20-04			20	0.4			1.21	65		5.09	4.7	21.2	22.3	23.0	23.6	25.7	▲
ZSTNB2010-20-09			20	0.9			1.54			2.70	4.8	x	21.3	22.4	23.1	24.6	▲
ZSTNB2010-25-09			25				1.70	70		2.70	4.2	x	26.4	27.6	28.4	30.8	▲
ZSTNB2010-30-04			30	0.4			1.35	75		5.09	3.6	31.3	32.7	33.6	34.8	38.5	▲
ZSTNB2010-30-09			30	0.9			1.86			2.70	3.7	x	31.4	32.8	33.7	36.9	▲
ZSTNB2010-35-09			35				2.02	80		2.70	3.3	x	36.5	38.0	39.0	43.1	▲
ZSTNB2010-40-09			40				2.17	85		2.70	3.0	x	41.6	43.2	44.4	-	▲
ZSTNB2010-50-09			50				2.49	95		2.70	2.5	x	51.7	53.5	55.5	-	▲
ZSTNB2010-60-09			60				2.80	105		2.70	2.2	x	61.8	63.8	66.6	-	▲
ZSTNB2010-70-09			70				3.11	115		2.70	1.9	x	71.9	74.0	-	-	▲
ZSTNB2015-8-04	0.75	1.5	8	0.4	1.35	1.42	1.51	55	6	7.07	7.3	8.9	9.4	9.7	10.0	10.6	▲
ZSTNB2015-10-04			10				1.54			7.07	6.6	10.9	11.5	11.9	12.2	12.9	▲

X No application
— No interference

※ These tools are manufactured based on order received.

▲Stock △Non-Stock

Recommended Cutting Conditions B104~B107

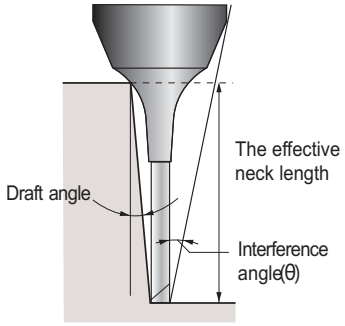
TOTIME Carbide End Mill Cutter
For High Hardened Steels(≤HRC65)

P H

ZSTNB20..-..-. SERIES

MG HM | 2 | TiAlN | 30° | D≤6 R ±0.005 | D>6 R ±0.010

2 FLUTE, TAPER NECK BACK DRAFT TYPE



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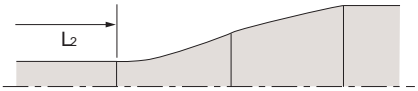
► Please refer to the effective neck length for the various draft angles
► In addition, the angle at which the tool will interfere with the workpiece is shown as the "interference angle θ2", and should also be referred to



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Order No.	Dimension(mm)											Effective Neck Length					Stock
	R	D	L2	θ	L1	d1	d2	L3	d3	App. L	θ2	0.5°	1°	1.5°	2°	3°	
ZSTNB2015-12-04	0.75	1.5	12	0.4	1.35	1.42	1.57	55	6	7.07	6.0	13.0	13.6	14.0	14.4	15.4	▲
ZSTNB2015-15-09			15	0.9			1.85	60		3.89	5.4	x	16.4	17.2	17.8	18.8	▲
ZSTNB2015-20-09			20				2.01	65		3.89	4.5	x	21.4	22.4	23.2	24.7	▲
ZSTNB2015-30-09			30				2.32	75		3.89	3.4	x	31.5	32.9	33.7	37.0	▲
ZSTNB2018-4-04	0.9	1.8	4	0.4	1.6	1.73	1.76	50	6	4.38	9.2	4.6	4.8	4.9	5.1	5.4	▲
ZSTNB2018-8-04			8				1.82			6.61	7.1	8.6	9.0	9.2	9.4	10.2	▲
ZSTNB2018-12-04			12				1.88	55		6.61	5.8	12.9	13.5	14.0	14.4	15.4	▲
ZSTNB2018-16-04			16				1.93	60		6.61	4.9	17.0	17.7	18.3	18.7	20.5	▲
ZSTNB2018-20-04			20				1.99	65		6.61	4.3	21.2	22.3	23.0	23.6	25.6	▲
ZSTNB2018-24-04			24				2.04			6.61	3.8	25.3	26.5	27.3	27.9	30.8	▲
ZSTNB2018-28-04			28				2.10	70		6.61	3.4	29.4	30.6	31.5	32.4	35.9	▲
ZSTNB2018-32-04			32				2.15			6.61	3.0	33.4	34.8	35.7	37.1	-	▲
ZSTNB2018-36-04			36				2.21	75		6.61	2.8	37.5	38.9	39.9	41.7	-	▲
ZSTNB2018-38-04			38				2.24	80		6.61	2.7	39.5	41.0	42.0	44.0	-	▲
ZSTNB2018-40-04			40				2.27			6.61	2.6	41.5	43.1	44.2	46.3	-	▲
ZSTNB2020-8-04	1.0	2.0	8	0.4	1.7	1.92	2.01	50	6	7.42	7.0	8.7	9.0	9.2	9.5	10.2	▲
ZSTNB2020-12-04			12				2.06	55		7.42	5.7	13.0	13.6	14.0	14.4	15.4	▲
ZSTNB2020-16-04			16				2.12	60		7.42	4.8	17.0	17.7	18.3	18.7	20.5	▲
ZSTNB2020-20-04			20				2.18	65		7.42	4.1	21.3	22.3	23.0	23.6	25.6	▲
ZSTNB2020-20-09			20	0.9			2.50			4.24	4.2	x	21.4	22.4	23.2	24.6	▲
ZSTNB2020-25-09			25				2.65			4.24	3.6	x	26.5	27.7	28.5	30.8	▲
ZSTNB2020-30-04			30	0.4			2.32	70		7.42	3.1	31.4	32.7	33.6	34.8	38.5	▲
ZSTNB2020-30-09			30	0.9			2.81			4.24	3.2	x	31.6	32.9	33.7	36.9	▲
ZSTNB2020-35-09			35				2.97	75		4.24	2.8	x	36.6	38.0	39.0	-	▲
ZSTNB2020-40-04			40	0.4			2.46	80		7.42	2.5	41.5	43.1	44.2	46.3	-	▲
ZSTNB2020-40-09			40	0.9			3.12			4.24	2.6	x	41.7	43.2	44.5	-	▲
ZSTNB2020-50-09			50				3.44	90		4.24	2.1	x	51.8	53.5	55.5	-	▲
ZSTNB2020-60-09			60				3.75	100		4.24	1.8	x	61.9	63.8	-	-	▲
ZSTNB2020-70-09			70				4.07	110		4.24	1.6	x	72.0	74.1	-	-	▲
ZSTNB2030-8-04	1.5	3.0	8	0.4	2.5	2.86	2.94	50	6	8.50	6.3	8.8	9.1	9.3	9.5	10.3	▲
ZSTNB2030-16-04			16				3.05	55		12.52	4.1	17.2	17.8	18.3	18.7	20.6	▲

X No application
— No interference

※ These tools are manufactured based on order received.

▲ Stock △ Non-Stock

Recommended Cutting Conditions B104~B107

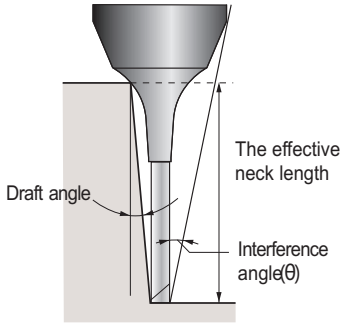
TOTIME Carbide End Mill Cutter
For High Hardened Steels(≤HRC65)

P H

ZSTNB20..-..-. SERIES

MG HM | 2 | TiAlN | 30° | D≤6 R ±0.005 | D>6 R ±0.010

2 FLUTE, TAPER NECK BACK DRAFT TYPE



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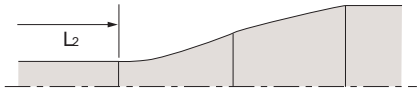
► Please refer to the effective neck length for the various draft angles
► In addition, the angle at which the tool will interfere with the workpiece is shown as the "interference angle θ2", and should also be referred to



※ The effective neck length shown is not an exact value and to avoid contact with the workpiece, we recommend the user control the precise value of this length.

Order No.	Dimension(mm)											Effective Neck Length					Stock
	R	D	L2	θ	L1	d1	d2	L3	d3	App. L	θ2	0.5°	1°	1.5°	2°	3°	
ZSTNB2030-20-04	1.5	3	20	0.4	2.5	2.86	3.10	60	6	12.52	3.4	21.2	22.0	22.6	23.3	25.7	▲
ZSTNB2030-30-04			30				3.24	70		12.52	2.5	31.6	32.8	33.7	34.9	-	▲
ZSTNB2030-30-09			30	0.9			3.72			6.95	2.6	x	31.8	33.0	33.8	-	▲
ZSTNB2030-40-04			40	0.4			3.38	80		12.52	2.0	41.7	43.2	44.3	-	-	▲
ZSTNB2030-40-09			40	0.9			4.04			6.95	2.0	x	41.9	43.3	-	-	▲
ZSTNB2030-50-09			50				4.35	90		6.95	1.7	x	52.0	53.6	-	-	▲
ZSTNB2030-60-09			60				4.67	100		6.95	1.4	x	62.1	-	-	-	▲
ZSTNB2030-70-09			70				4.98	110		6.95	1.2	x	72.1	-	-	-	▲
ZSTNB2040-20-10	2.0	4	20	1.0	8.0	3.86	4.28	70	8	12.01	5.0	20.5	21.6	22.3	22.8	23.5	▲
ZSTNB2040-30-10			30				4.63	80		12.01	3.51	22.0	31.6	32.5	33.2	34.16	▲
ZSTNB2040-40-10			40				4.98	90		12.01	2.7	22.0	42.0	43.4	44.3	-	▲
ZSTNB2040-50-10			50				5.33	100		12.01	2.2	22.0	52.0	53.6	54.7	-	▲
ZSTNB2040-60-10			60				5.68	110		12.01	1.9	22.0	62.0	63.8	-	-	▲
ZSTNB2050-30-10	2.5	5	30	1.0	10.0	4.86	5.56	80	8	14.01	2.8	25.5	31.7	32.6	33.2	-	▲
ZSTNB2050-40-10			40				5.91	90		14.01	2.1	25.5	41.7	42.8	43.5	-	▲
ZSTNB2050-60-10			60				6.61	110		14.01	1.5	25.5	62.1	-	-	-	▲
ZSTNB2060-30-10	3.0	6	30	1.0	12.0	5.86	6.49	80	8	16.01	1.9	29.0	31.8	32.6	-	-	▲
ZSTNB2060-40-10			40				6.84	90		16.01	1.5	29.0	41.8	-	-	-	▲
ZSTNB2060-50-10			50				7.19	100		16.01	1.2	29.0	51.8	-	-	-	▲
ZSTNB2060-60-10			60				7.54	110	10	16.01	1.9	29.0	62.2	63.9	-	-	▲
ZSTNB2060-70-10			70				7.89	120		16.01	1.7	29.0	72.2	74.1	-	-	▲
ZSTNB2060-80-10			80				8.23	130		16.01	1.5	29.0	82.2	-	-	-	▲
ZSTNB2080-50-10	4.0	8	50	1.0	14.0	7.86	9.12	110	10	18.01	1.2	32.0	51.9	-	-	-	▲
ZSTNB2080-60-10			60				9.47	120		18.01	1.0	32.0	-	-	-	-	▲
ZSTNB2080-70-10			70				9.82	130		18.01	0.9	32.0	-	-	-	-	▲
ZSTNB2080-80-10			80				10.16	140	12	18.01	1.5	32.0	82.3	-	-	-	▲
ZSTNB2100-60-10	5.0	10	60	1.0	18.0	9.86	11.33	130	12	22.01	1.1	39.0	62.1	-	-	-	▲
ZSTNB2100-75-10			75				11.85	140		22.01	0.9	39.0	-	-	-	-	▲

X No application
– No interference

※ These tools are manufactured based on order received.

▲ Stock △ Non-Stock

Recommended Cutting Conditions B104~B107

■ Applicable Working Material

Carbon Steels (S45C, S55C...) ~ HB225	Alloy Steels (SCM, SK...) HB225~325	Prehardened Steels(NAK...) HRc30~50	Hardened Steels ~Hrc55 SKD61	Hardened Steels ~Hrc55 SKD11	Copper	Graphite	Cast Iron FCD400. 500~	Aluminum	Stainless Sheets
	○	○	◎	◎	○				

○: General Application ◎: The Most Suitable Application

■ Tolerance

Diameter	Radius	Shank Dia.
up to 6	±0.005	h6
over 6	±0.01	

※Items can be changed for quality improvement without notice.

TOTIME Carbide End Mill Cutter
For High Hardened Steels(≤HRC65)

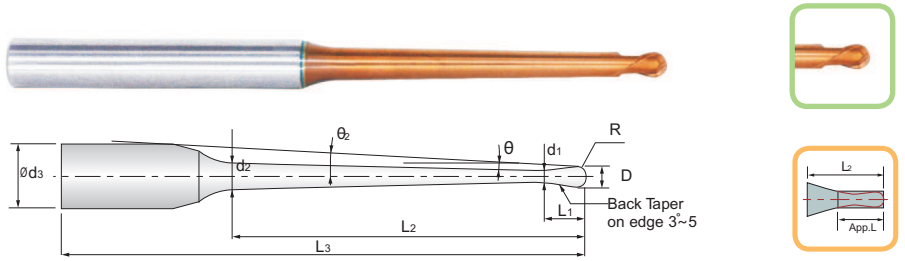
P H

ZSTNB30..-..-. SERIES

MG HM | 3 | TiAlN | 30° | D≤6 R ±0.005 | D>6 R ±0.010

3 FLUTE, TAPER NECK BACK DRAFT TYPE

The effective neck length shown is not an exact value and to avoid contact with the workpiece, we recommend the user control the precise value of this length.



※R2 or higher is not applied to Back draft type.

Order No.	Dimension(mm)											Effective Neck Length					Stock
	R	D	L2	θ	L1	d1	d2	L3	d3	App. L	θ2	0.5°	1°	1.5°	2°	3°	
ZSTNB3020-8-04	1.0	2	8	0.4	1.7	1.92	2.01	50	6	7.42	7.0	8.7	9.0	9.2	9.5	10.2	▲
ZSTNB3020-12-04			12				2.06	55		7.42	5.7	13.0	13.6	14.0	14.4	15.4	▲
ZSTNB3020-16-04			16				2.12	60		7.42	4.8	17.0	17.7	18.3	18.7	20.5	▲
ZSTNB3020-20-04			20				2.18			7.42	4.1	21.3	22.3	23.0	23.6	25.6	▲
ZSTNB3020-20-09			20	0.9			2.50	65		4.24	4.2	x	21.4	22.4	23.2	24.6	▲
ZSTNB3020-25-09			25				2.65			4.24	3.6	x	26.5	27.7	28.5	30.8	▲
ZSTNB3020-30-04			30	0.4			2.32	70		7.42	3.1	31.4	32.7	33.6	34.8	38.5	▲
ZSTNB3020-30-09			30	0.9			2.81			4.24	3.2	x	31.6	32.9	33.7	36.9	▲
ZSTNB3020-35-09			35				2.97	75		4.24	2.8	x	36.6	38.0	39.0	-	▲
ZSTNB3020-40-04			40	0.4			2.46	80		7.42	2.5	41.5	43.1	44.2	46.3	-	▲
ZSTNB3020-40-09			40	0.9			3.12	80		4.24	2.6	x	41.7	43.2	44.5	-	▲
ZSTNB3020-50-09			50				3.44	90		4.24	2.1	x	51.8	53.5	55.5	-	▲
ZSTNB3020-60-09			60				3.75	100		4.24	1.8	x	61.9	63.8	-	-	▲
ZSTNB3020-70-09			70				4.07	110		4.24	1.6	x	72.0	74.1	-	-	▲
ZSTNB3030-8-04	1.5	3	8	0.4	2.5	2.86	2.94	50	6	8.50	6.3	8.8	9.1	9.3	9.5	10.3	▲
ZSTNB3030-16-04			16				3.05	55		12.52	4.1	17.2	17.8	18.3	18.7	20.6	▲
ZSTNB3030-20-04			20				3.10	60		12.52	3.4	21.2	22.0	22.6	23.3	25.7	▲
ZSTNB3030-30-04			30				3.24	70		12.52	2.5	31.6	32.8	33.7	34.9	-	▲
ZSTNB3030-30-09			30	0.9			3.72			6.95	2.6	x	31.8	33.0	33.8	-	▲
ZSTNB3030-40-04			40	0.4			3.38	80		12.52	2.0	41.7	43.2	44.3	-	-	▲
ZSTNB3030-40-09			40	0.9			4.04			6.95	2.0	x	41.9	43.3	-	-	▲
ZSTNB3030-50-09			50				4.35	90		6.95	1.7	x	52.0	53.6	-	-	▲
ZSTNB3030-60-09			60				4.67	100		6.95	1.4	x	62.1	-	-	-	▲
ZSTNB3030-70-09			70				4.98	110		6.95	1.2	x	72.1	-	-	-	▲
ZSTNB3040-20-10	2.0	4	20	1.0	8.0	3.86	4.28	70	8	12.01	5.0	20.5	21.6	22.3	22.8	23.5	▲
ZSTNB3040-30-10			30				4.63	80		12.01	3.6	22.0	31.6	32.5	33.2	34.1	▲
ZSTNB3040-40-10			40				4.98	90		12.01	2.7	22.0	42.0	43.4	44.3	-	▲
ZSTNB3040-50-10			50				5.33	100		12.01	2.2	22.0	52.0	53.6	54.7	-	▲
ZSTNB3040-60-10			60				5.68	110		12.01	1.9	22.0	62.0	63.8	-	-	▲
ZSTNB3050-30-10	2.5	5	30	1.0	10.0	4.86	5.56	80	8	14.01	2.8	25.5	31.7	32.6	33.2	-	▲
ZSTNB3050-40-10			40				5.91	90		14.01	2.1	25.5	41.7	42.8	43.5	-	▲
ZSTNB3050-60-10			60				6.61	110		12.52	1.5	25.5	62.1	-	-	-	▲

X No application
– No interference

※ These tools are manufactured based on order received.

▲Stock △Non-Stock

Recommended Cutting Conditions B104~B107

TOTIME Carbide End Mill Cutter
For High Hardened Steels(≤HRC65)

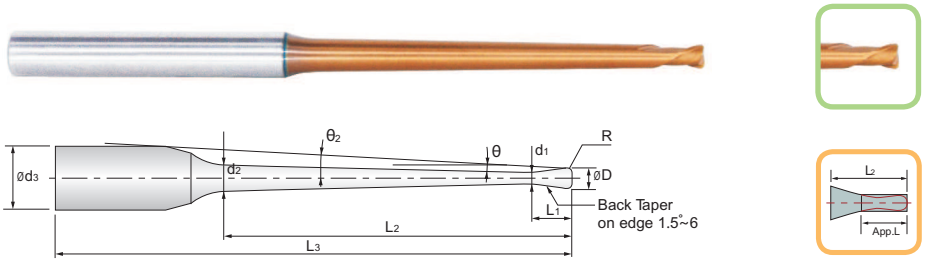
P H

ZSTNR..-..-. SERIES

MG HM | 2 | TiAlN | 30° | D≤6 R ±0.005 | D>6 R ±0.010

2 FLUTE, TAPER NECK BACK DRAFT TYPE

The effective neck length shown is not an exact value and to avoid contact with the workpiece, we recommend the user control the precise value of this length.



※R2 or higher is not applied to Back draft type.

Order No.	Dimension(mm)											Effective Neck Length					Stock
	D	R	L2	θ	L1	d1	d2	L3	d3	App. L	θ2	0.5°	1°	1.5°	2°	3°	
ZSTNR2002-2-09005	0.2	0.05	2	0.9	0.15	0.17	0.23	50	4	1.10	10.0	x	2.8	3.1	3.4	3.9	▲
ZSTNR2004-4-09005	0.4	0.05	4	0.9	0.30	0.37	0.49	50	4	1.25	8.4	x	4.9	5.3	5.7	6.3	▲
ZSTNR2004-5-09005			5	0.9			0.52			1.25	7.8	x	5.9	6.4	6.8	7.5	▲
ZSTNR2004-4-0901		0.10	4	0.9			0.49			1.25	8.5	x	4.9	5.3	5.7	6.3	▲
ZSTNR2004-5-0901			5	0.9			0.52			1.25	7.9	x	5.9	6.4	6.8	7.5	▲
ZSTNR2005-5-0901	0.5	0.10	5	0.9	0.35	0.47	0.62	50	4	1.30	7.8	x	5.9	6.4	6.8	7.5	▲
ZSTNR2005-8-0901			8	0.9			0.71			1.30	6.4	x	9.0	9.7	10.2	11.0	▲
ZSTNR2005-10-0901			10	0.9			0.77	55		1.30	5.8	x	11.0	11.8	12.4	13.2	▲
ZSTNR2006-12-0901	0.6	0.10	12	0.9	0.40	0.57	0.93	55	4	1.35	5.1	x	13.0	13.9	14.5	15.5	▲
ZSTNR2006-15-0901			15	0.9			1.03			1.35	4.5	x	16.1	17.1	17.8	18.8	▲
ZSTNR2008-6-0402	0.8	0.20	6	0.4	0.50	0.77	0.85	50	4	2.64	7.0	6.6	7.1	7.5	7.8	8.3	▲
ZSTNR2008-12-0902			12	0.9			1.13	55		1.45	5.0	x	13.0	13.9	14.5	15.5	▲
ZSTNR2010-8-0402	1.0	0.20	8	0.4	0.80	0.94	1.04	55	6	5.09	7.4	8.8	9.3	9.7	10.1	10.6	▲
ZSTNR2010-10-0902			10	0.9			1.23			5.09	6.8	x	11.2	11.9	12.4	13.3	▲
ZSTNR2010-15-0902			15	0.9			1.39	60		2.70	5.6	x	16.3	17.2	17.8	18.8	▲
ZSTNR2010-20-0902			20	0.9			1.54	65		2.70	4.8	x	21.3	22.4	23.2	24.7	▲
ZSTNR2010-25-0902			25	0.9			1.70	70		2.70	4.1	x	26.4	27.6	28.5	30.9	▲
ZSTNR2010-30-0902			30	0.9			1.86	75		2.70	3.7	x	31.5	32.8	33.7	37.0	▲
ZSTNR2010-35-0902			35	0.9			2.02	80		2.70	3.3	x	36.5	38.0	39.0	43.2	▲
ZSTNR2010-8-0403		0.30	8	0.4			1.04	55		2.70	7.4	8.8	9.3	9.7	10.0	10.6	▲
ZSTNR2010-15-0903			15	0.9			1.39	60		2.70	5.6	x	16.3	17.2	17.8	18.8	▲
ZSTNR2010-25-0903			25	0.9			1.70	70		2.70	4.2	x	26.4	27.6	28.5	30.8	▲
ZSTNR2010-30-0903			30	0.9			1.86	75		2.70	3.7	x	31.5	32.8	33.7	37.0	▲
ZSTNR2015-10-0402	1.5	0.20	10	0.4	1.35	1.42	1.54	55	6	7.07	6.4	11.0	11.5	11.9	12.3	13.0	▲
ZSTNR2015-15-0902			15	0.9			1.85	60		7.07	5.3	x	16.4	17.3	17.9	18.9	▲
ZSTNR2015-20-0902			20	0.9			2.01	65		3.89	4.5	x	21.5	22.5	23.2	24.9	▲
ZSTNR2015-25-0902			25	0.9			2.16	70		3.89	3.9	x	26.6	27.7	28.5	31.0	▲
ZSTNR2015-30-0902			30	0.9			2.32	75		3.89	3.4	x	31.6	32.9	33.8	37.1	▲
ZSTNR2015-10-0403		0.30	10	0.4			1.54	55		3.89	6.4	11.0	11.5	11.9	12.3	13.0	▲

X No application
— No interference

※ These tools are manufactured based on order received.

▲ Stock △ Non-Stock

Recommended Cutting Conditions B108~B109

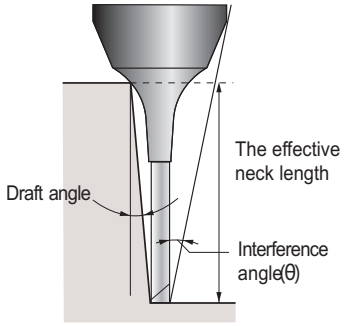
TOTIME Carbide End Mill Cutter
For High Hardened Steels(≤HRC65)

P H

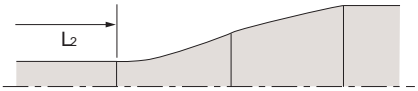
ZSTNR..-..-. SERIES

MG HM | 2 | TiAlN | 30° | D≤6 R ±0.005 | D>6 R ±0.010

2 FLUTE, TAPER NECK BACK DRAFT TYPE



► If the workpiece has draft angle, the interference length will be longer than the L2.
► Please refer to the effective neck length for the various draft angles
► In addition, the angle at which the tool will interfere with the workpiece is shown as the "interference angle θ2", and should also be referred to



※ The effective neck length shown is not an exact value and to avoid contact with the workpiece, we recommend the user control the precise value of this length.

Order No.	Dimension(mm)											Effective Neck Length					Stock
	D	R	L2	θ	L1	d1	d2	L3	d3	App. L	θ2	0.5°	1°	1.5°	2°	3°	
ZSTNR2015-20-0903	1.5	0.3	20	0.9	1.35	1.42	2.01	65	6	3.89	4.5	x	21.5	22.5	23.2	24.8	▲
ZSTNR2015-25-0903			25				2.16	70			3.9	x	26.5	27.7	28.5	31.0	▲
ZSTNR2015-30-0903			30				2.32	75			3.4	x	31.6	32.9	33.8	37.1	▲
ZSTNR2020-30-0902	2.0	0.2	30	0.9	1.70	1.92	2.81	70	6	7.42	3.1	x	31.6	32.9	33.8	37.2	▲
ZSTNR2020-40-0902			40				3.12	80			2.5	x	41.8	43.3	44.6	-	▲
ZSTNR2020-50-0902			50				3.44	90			2.1	x	51.9	53.6	55.7	-	▲
ZSTNR2020-12-0403		0.3	12	0.4			2.06	55			5.5	13.0	13.6	14.1	14.5	15.6	▲
ZSTNR2020-20-0903			20	0.9			2.50	65		4.24	4.1	x	21.5	22.5	23.2	24.9	▲
ZSTNR2020-30-0903			30				2.81	70			3.1	x	31.6	32.9	33.8	37.1	▲
ZSTNR2020-40-0903			40				3.12	80			2.5	x	41.7	43.3	44.6	-	▲
ZSTNR2020-50-0903			50				3.44	90			2.1	x	51.8	53.6	55.7	-	▲
ZSTNR2020-8-0405		0.5	8	0.4			2.01	50			6.8	8.7	9.0	9.3	9.5	10.4	▲
ZSTNR2020-12-0405			12				2.06	55			5.6	13.0	13.6	14.1	14.4	15.5	▲
ZSTNR2020-16-0405			16				2.12	60			4.7	17.0	17.8	18.3	18.7	20.7	▲
ZSTNR2020-20-0905			20	0.9			2.50	65			4.2	x	21.5	22.5	23.2	24.8	▲
ZSTNR2020-25-0905			25				2.65	65			3.6	x	26.6	27.7	28.5	30.9	▲
ZSTNR2020-30-0905			30				2.81	70			3.1	x	31.6	32.9	33.8	37.1	▲
ZSTNR2020-40-0905			40				3.12	80			2.5	x	41.7	43.2	44.6	-	▲
ZSTNR2020-50-0905			50				3.44	90			2.1	x	51.8	53.6	55.6	-	▲
ZSTNR2030-40-0902	3.0	0.2	40	0.9	2.50	2.86	4.04	80	6	6.95	2.0	x	42.0	43.4	-	-	▲
ZSTNR2030-50-0902			50				4.35	90			1.6	x	52.1	53.7	-	-	▲
ZSTNR2030-60-0902			60				4.67	100			1.4	x	62.2	-	-	-	▲
ZSTNR2030-40-0903		0.3	40				4.04	80			2.0	x	42.0	43.4	-	-	▲
ZSTNR2030-50-0903			50				4.35	90			1.7	x	52.1	53.7	-	-	▲
ZSTNR2030-60-0903			60				4.67	100			1.4	x	62.2	-	-	-	▲
ZSTNR2030-40-0905		0.5	40				4.04	80			2.0	x	42.0	43.4	-	-	▲
ZSTNR2030-50-0905			50				4.35	90			1.7	x	52.1	53.7	-	-	▲
ZSTNR2030-60-0905			60				4.67	100			1.4	x	62.1	-	-	-	▲

X No application
— No interference

※ These tools are manufactured based on order received.

▲ Stock △ Non-Stock

Recommended Cutting Conditions B108~B109

■ Applicable Working Material

Carbon Steels (S45C, S55C...) ~ HB225	Alloy Steels (SCM, SK...) HB225~325	Prehardened Steels(NAK...) HRc30~50	Hardened Steels ~Hrc55 SKD61	Hardened Steels ~Hrc55 SKD11	Copper	Graphite	Cast Iron FCD400. 500~	Aluminum	Stainless Sheets
	○	○	◎	◎	○				

○: General Application ◎: The Most Suitable Application

■ Tolerance

Mill Dia. (mm)	Shank Dia.
0 ~ -0.015	h6

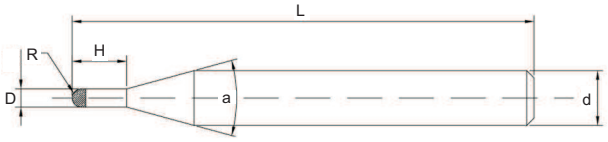
※Items can be changed for quality improvement without notice.

TCBN-B SERIES

CBN 2 10° R ± 0.006

CBN 2 FLUTE BALL NOSE

- ► Machining high hardness materials HRC45 to HRC65 into finish process for long time.
- ► High speed cutting with 20,000rpm and over 20,000rpm of tool and supplying air mist recommended
- ► Good cutting ability due to negative rake angle.



unit:mm

Order No.	D	R (mm)	d (mm)	H (mm)	L (mm)	a°	Flutes
TCBN-004B-50-2F	0.4	0.20	4	1.0	50	30°	2
TCBN-005B-50-2F	0.5	0.25	4	1.0	50	30°	2
TCBN-006B-50-2F	0.6	0.30	4	1.2	50	30°	2
TCBN-008B-50-2F	0.8	0.40	4	1.6	50	30°	2
TCBN-010B-50-2F	1.0	0.50	4	2.0	50	30°	2
TCBN-015B-50-2F	1.5	0.75	4	3.5	50	30°	2
TCBN-020B-50-2F	2.0	1.00	4	4.0	50	30°	2
TCBN-030B-50-2F	3.0	1.50	6	10.0	50	30°	2

▲ Stock △ Non-Stock

Recommended Cutting Conditions B117

● Recommend ○ Suit

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened steels			Cast Iron	Aluminum	Copper Alloy	Stainless Steels	Titanium	Graphite	CFRP
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~65							
				●	●							

TOTIME CBN End Mill (HRC≤65)
For High-Hardened Steels up to HRC65

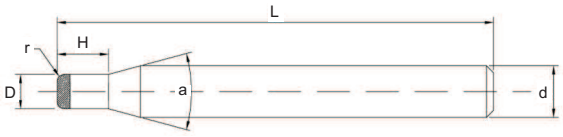
H

TCBN-CR SERIES

CBN 2 3 4 0° R ± 0.006

CBN, 2/3/4 FLUTE CORNER RADIUS

► Machining high hardness materials HRC45 to HRC65 into finish process for long time.
► High speed cutting with 20,000rpm and over 20,000rpm of tool and supplying air mist recommended
► Good cutting ability due to negative rake angle.



unit:mm

Order No.	D	r (mm)	d (mm)	H (mm)	L (mm)	a°	Flutes
TCBN-004CR002-50-2F	0.4	0.02	4	1.0	50	30°	2
TCBN-005CR002-50-2F	0.5	0.02	4	1.5	50	30°	2
TCBN-005CR002-50-3F	0.5	0.02	4	1.5	50	30°	3
TCBN-006CR002-50-2F	0.6	0.02	4	2.0	50	30°	2
TCBN-006CR002-50-3F	0.6	0.02	4	2.0	50	30°	3
TCBN-008CR002-50-2F	0.8	0.02	4	2.5	50	30°	2
TCBN-008CR002-50-3F	0.8	0.02	4	2.5	50	30°	3
TCBN-010CR002-50-2F	1.0	0.02	4	3.5	50	30°	2
TCBN-010CR002-50-4F	1.0	0.02	4	3.5	50	30°	4
TCBN-015CR002-50-2F	1.5	0.02	4	4.5	50	30°	2
TCBN-015CR002-50-4F	1.5	0.02	4	4.5	50	30°	4
TCBN-020CR005-50-2F	2.0	0.05	6	6.0	50	30°	2
TCBN-020CR005-50-4F	2.0	0.05	6	6.0	50	30°	4
TCBN-030CR010-50-2F	3.0	0.10	6	10.0	50	30°	2
TCBN-030CR010-50-4F	3.0	0.10	6	10.0	50	30°	4

▲ Stock △ Non-Stock
Recommended Cutting Conditions B117

● Recommend ○ Suit

Carbon Steels	Alloy Steels	Prehardened Steels	Hardened steels			Cast Iron	Aluminum	Copper Alloy	Stainless Steels	Titanium	Graphite	CFRP
~HB225	HB225~325	HRC30~40	HRC40~45	HRC45~55	HRC55~65							
				●	●							

Carbide End Mill Cutter(HRC 48)

2 Flutes Square End Mill / 2 Flutes Corner Radius End Mill For Steels, Cast Iron——Side Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	3	4	6	8	10	12	16	20
P	Carbon Steels/ Alloy Steels (<35HRC)	ap≤1. 5D	180	Rotation Speed (min-1)	19110	14330	9550	7170	5730	4780	3580	2870
		ae≤0.15D		Feed Speed (mm/min)	1070	1030	920	930	920	860	860	860
	Alloy Steels (35-48HRC)	ap≤1D	130	Rotation Speed (min-1)	13800	10350	6900	5180	4140	3450	2590	2070
		ae≤0.12D		Feed Speed (mm/min)	610	580	550	620	560	500	410	370
M	Stainless Steels	ap≤1.5D	130	Rotation Speed (min-1)	13800	10350	6900	5180	4140	3450	2590	2070
		ae≤0.15D		Feed Speed (mm/min)	690	660	590	650	610	590	490	460
K	Grey Cast Irons/ Ductile Cast Irons (<32HRC)	ap≤1.5D	160	Rotation Speed (min-1)	16990	12740	8490	6370	5100	4250	3190	2550
		ae≤0.15D		Feed Speed (mm/min)	850	820	820	750	700	680	610	560
	High Alloy Cast Irons (35-45HRC)	ap≤1D	140	Rotation Speed (min-1)	14860	11150	7430	5570	4460	3720	2790	2230
		ae≤0.12D		Feed Speed (mm/min)	650	670	670	620	580	560	500	460

Carbide End Mill Cutter(HRC 48)

2 Flutes Square End Mill / 2 Flutes Corner Radius End Mill For Steels, Cast Iron——Slotting

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	3	4	6	8	10	12	16	20
P	Carbon Steels/ Alloy Steels (<35HRC)	ap≤0.8D	80	Rotation Speed (min-1)	8490	6370	4250	3190	2550	2120	1590	1270
				Feed Speed (mm/min)	430	540	440	400	370	350	400	410
	Alloy Steels (35-48HRC)	ap≤0.3D	60	Rotation Speed (min-1)	6370	4780	3190	2390	1910	1590	1190	960
				Feed Speed (mm/min)	260	310	270	230	220	220	230	230
M	Stainless Steels	ap≤0.3D	55	Rotation Speed (min-1)	5840	4380	2920	2190	1750	1460	1100	880
				Feed Speed (mm/min)	140	160	200	200	200	190	170	160
K	Grey Cast Irons/ Ductile Cast Irons (<32HRC)	ap≤0.5D	55	Rotation Speed (min-1)	5840	4380	2920	2190	1750	1460	1100	880
				Feed Speed (mm/min)	210	250	250	220	210	200	190	170
	High Alloy Cast Irons (35-45HRC)	ap≤0.3D	50	Rotation Speed (min-1)	5310	3980	2650	1990	1590	1330	1000	800
				Feed Speed (mm/min)	160	180	210	180	180	170	160	140

Carbide End Mill Cutter(HRC 48)

4 Flutes Square End Mill / 4 Flutes Corner Radius End Mill For Steels, Cast Iron——Side Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	3	4	6	8	10	12	16	20
P	Carbon Steels/ Alloy Steels (<35HRC)	ap≤1.5D	180	Rotation Speed (min-1)	19110	14330	9550	7170	5730	4780	3580	2870
		ae≤0.15D		Feed Speed (mm/min)	2140	2060	1830	1860	1830	1720	1720	1720
	Alloy Steels (35-48HRC)	ap≤1D	130	Rotation Speed (min-1)	13800	10350	6900	5180	4140	3450	2590	2070
		ae≤0.12D		Feed Speed (mm/min)	1210	1160	1100	1240	1130	1010	830	750
M	Stainless Steels	ap≤1.5D	130	Rotation Speed (min-1)	13800	10350	6900	5180	4140	3450	2590	2070
		ae≤0.15D		Feed Speed (mm/min)	1380	1330	1190	1300	1230	1170	980	910
K	Grey Cast Irons/ Ductile Cast Irons (<32HRC)	ap≤1.5D	160	Rotation Speed (min-1)	16990	12740	8490	6370	5100	4250	3190	2550
		ae≤0.15D		Feed Speed (mm/min)	1700	1630	1630	1500	1410	1360	1210	1120
	High Alloy Cast Irons (35-45HRC)	ap≤1D	140	Rotation Speed (min-1)	14860	11150	7430	5570	4460	3720	2790	2230
		ae≤0.12D		Feed Speed (mm/min)	1310	1340	1340	1250	1160	1120	1000	910

Carbide End Mill Cutter(HRC 48)

6 Flutes Square End Mill For Steels, Cast Iron——Side Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	3	4	6	8	10	12	16	20
P	Carbon Steels/ Alloy Steels (<35HRC)	ap≤1.5D	180	Rotation Speed (min-1)	19110	14330	9550	7170	5730	4780	3580	2870
		ae≤0.15D		Feed Speed (mm/min)	3210	3100	2750	2800	2750	2580	2580	2580
	Alloy Steels (35-48HRC)	ap≤1D	130	Rotation Speed (min-1)	13800	10350	6900	5180	4140	3450	2590	2070
		ae≤0.12D		Feed Speed (mm/min)	1820	1740	1600	1860	1690	1510	1240	1120
M	Stainless Steels	ap≤1.5D	130	Rotation Speed (min-1)	13800	10350	6900	5180	4140	3450	2590	2070
		ae≤0.15D		Feed Speed (mm/min)	2070	1990	1780	1960	1840	1760	1480	1370
K	Grey Cast Irons/ Ductile Cast Irons (<32HRC)	ap≤1.5D	160	Rotation Speed (min-1)	16990	12740	8490	6370	5100	4250	3190	2550
		ae≤0.15D		Feed Speed (mm/min)	2550	2450	2450	2260	2110	2040	1820	1680
	High Alloy Cast Irons (35-45HRC)	ap≤1D	140	Rotation Speed (min-1)	14860	11150	7430	5570	4460	3720	2790	2230
		ae≤0.12D		Feed Speed (mm/min)	1960	2010	2010	1870	1740	1670	1510	1360

Carbide End Mill Cutter(HRC 48)

2 Flutes Ball Nose End Mill For Steels, Cast Iron——Profiling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	4	5	6	7	8	9	10	11	12
P	Carbon Steels/ Alloy Steels (<35HRC)	ap≤0.2D	160	Rotation Speed (min-1)	12740	10190	8490	7280	6370	5660	5100	4630	4250
		ae≤0.3D		Feed Speed (mm/min)	1020	1020	1020	1020	1020	1020	1020	1020	1020
	Alloy Steels (35-48HRC)	ap≤0.15D	120	Rotation Speed (min-1)	9550	7640	6370	5460	4780	4250	3820	3470	3190
		ae≤0.15D		Feed Speed (mm/min)	610	640	660	630	620	610	610	610	610
M	Stainless Steels	ap≤0.2D	110	Rotation Speed (min-1)	8760	7010	5840	5010	4380	3890	3500	3190	2920
		ae≤0.2D		Feed Speed (mm/min)	610	630	640	630	63	620	630	640	640
K	Grey Cast Irons/ Ductile Cast Irons (<32HRC)	ap≤0.2D	140	Rotation Speed (min-1)	11150	8920	7430	6370	5570	4950	4460	4050	3720
		ae≤0.2D		Feed Speed (mm/min)	780	800	820	800	800	790	800	810	820
	High Alloy Cast Irons (35-45HRC)	ap≤0.1D	120	Rotation Speed (min-1)	9550	7640	6370	5460	4780	4250	3820	3470	3190
		ae≤0.1D		Feed Speed (mm/min)	610	640	660	660	670	650	650	660	670

Carbide End Mill Cutter(HRC 48)

4 Flutes Ball Nose End Mill For Steels, Cast Iron——Profiling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	4	5	6	7	8	9	10	11	12
P	Carbon Steels/ Alloy Steels (<35HRC)	ap≤0.2D	160	Rotation Speed (min-1)	12740	10190	8490	7280	6370	5660	5100	4630	4250
		ae≤0.3D		Feed Speed (mm/min)	2040	2040	2040	2040	2040	2040	2040	2040	2040
	Alloy Steels (35-48HRC)	ap≤0.15D	120	Rotation Speed (min-1)	9550	7640	6370	5460	4780	4250	3820	3470	3190
		ae≤0.15D		Feed Speed (mm/min)	1220	1280	1330	1270	1240	1220	1220	1210	1210
M	Stainless Steels	ap≤0.2D	110	Rotation Speed (min-1)	8760	7010	5840	5010	4380	3890	3500	3190	2920
		ae≤0.2D		Feed Speed (mm/min)	1220	1260	1290	1260	1260	1250	1260	1270	1290
K	Grey Cast Irons/ Ductile Cast Irons (<32HRC)	ap≤0.2D	140	Rotation Speed (min-1)	11150	8920	7430	6370	5570	4950	4460	4050	3720
		ae≤0.2D		Feed Speed (mm/min)	1560	1610	1640	1610	1610	1590	1610	1620	1640
	High Alloy Cast Irons (35-45HRC)	ap≤0.1D	120	Rotation Speed (min-1)	9550	7640	6370	5460	4780	4250	3820	3470	3190
		ae≤0.1D		Feed Speed (mm/min)	1220	1280	1330	1310	1340	1310	1300	1320	1340

Carbide End Mill Cutter(HRC 48)

4 Flute Variable Helix Square End Mill For Steels, Cast Iron——Slotting

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	3	4	6	8	10	12	16	20
P	Carbon Steels/ Alloy Steels (<35HRC)	ap≤1D	80	Rotation Speed (min-1)	8490	6370	4250	3190	2550	2120	1590	1270
				Feed Speed (mm/min)	1050	1220	970	850	790	760	850	870
	Alloy Steels (35-48HRC)	ap≤0.5D	60	Rotation Speed (min-1)	6370	4780	3190	2390	1910	1590	1190	960
				Feed Speed (mm/min)	660	730	600	500	470	480	490	500
M	Stainless Steels	ap≤0. 3D	55	Rotation Speed (min-1)	5840	4380	2920	2190	1750	1460	1100	880
				Feed Speed (mm/min)	420	420	470	450	430	430	380	350
K	Grey Cast Irons/ Ductile Cast Irons (<32HRC)	ap≤0.8D	55	Rotation Speed (min-1)	5840	4380	2920	2190	1750	1460	1100	880
				Feed Speed (mm/min)	560	600	560	480	460	450	410	370
	High Alloy Cast Irons (35-45HRC)	ap≤0.5D	50	Rotation Speed (min-1)	5310	3980	2650	1990	1590	1330	1000	800
				Feed Speed (mm/min)	450	460	480	400	380	380	350	320

Carbide End Mill Cutter(HRC 48)

4 Flutes Square End Mill / 4 Flutes Corner Radius End Mill For Stainless Steels, Titanium Alloys ——Side Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	4	6	8	10	12	16	20
M	Stainless Steels	ap ≤ 1. 5D	100	Rotation Speed (min -1)	25000	15900	8000	5300	4000	3200	2600	2000	1600
		ae ≤ 0. 1D		Feed Speed (mm-min)	850	850	960	1000	1000	760	720	620	520
S	Titanium Alloys	ap ≤ 1. 5D	80	Rotation Speed (min -1)	20000	12720	6400	4240	3200	2560	2080	1600	1280
		ae ≤ 0. 1D		Feed Speed (mm-min)	680	680	768	800	800	608	576	496	416

Carbide End Mill Cutter(HRC 48)

2 Flutes Square End Mill For Stainless Steels, Titanium Alloys——Side Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	4	6	8	10	12	16	20
M	Stainless Steels	ap ≤ 1. 5D	100	Rotation Speed (min-1)	25000	15900	8000	5300	4000	3200	2600	2000	1600
		ae ≤ 0. 1D		Feed Speed (mm/min)	425	425	480	500	500	380	360	310	260
S	Titanium Alloys	ap ≤ 1. 5D	80	Rotation Speed (min-1)	20000	12720	6400	4240	3200	2560	2080	1600	1280
		ae ≤ 0. 1D		Feed Speed (mm/min)	340	340	384	400	400	304	288	248	208

Carbide End Mill Cutter(HRC 48)

2 Flutes Square End Mill For Stainless Steels, Titanium Alloys——Slotting Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	4	6	8	10	12	16	20
M	Stainless Steels	ap ≤ 0. 1D	70	Rotation Speed (min-1)	10000	8600	5600	3700	2800	2200	1800	1400	1100
		ae ≤ 1. 0D		Feed Speed (mm/min)	300	300	225	240	240	190	165	150	135
S	Titanium Alloys	ap ≤ 0. 1D	55	Rotation Speed (min-1)	8000	6880	4480	2960	2240	1760	1440	1120	880
		ae ≤ 1. 0D		Feed Speed (mm/min)	240	240	180	192	192	152	132	120	108

Carbide End Mill Cutter(HRC 48)

2 Flutes Ball Nose End Mill For Stainless Steels, Titanium Alloys——Profiling Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	4	6	8	10	12	16	20
M	Stainless Steels	ap ≤ 0. 2D	100	Rotation Speed (min-1)	25000	15900	8000	5300	4000	3200	2600	2000	1600
		ae ≤ 0. 2D		Feed Speed (mm/min)	360	360	408	425	425	323	306	260	221
S	Titanium Alloys	ap ≤ 0. 2D	80	Rotation Speed (min-1)	20000	12720	6400	4240	3200	2560	2080	1600	1280
		ae ≤ 0. 2D		Feed Speed (mm/min)	288	288	320	340	340	260	250	208	180

Carbide End Mill Cutter(HRC 48)

4 Flutes Ball Nose End Mill For Stainless Steels, Titanium Alloys——Profiling Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	4	6	8	10	12	16	20
M	Stainless Steels	ap ≤ 0. 2D	100	Rotation Speed (min-1)	25000	15900	8000	5300	4000	3200	2600	2000	1600
		ae ≤ 0. 2D		Feed Speed (mm/min)	720	720	816	850	850	646	612	520	442
S	Titanium Alloys	ap ≤ 0. 2D	80	Rotation Speed (min-1)	20000	12720	6400	4240	3200	2560	2080	1600	1280
		ae ≤ 0. 2D		Feed Speed (mm/min)	576	576	320	680	680	520	490	416	350

Carbide End Mill Cutter(HRC 48)

6/7 Flutes Square End Mill
6/7 Flutes Corner Radius End Mill For Stainless Steels, Titanium Alloys ——Side Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	4	6	8	10	12	16	20
M	Stainless Steels	ap ≤ 1. 5D	100	Rotation Speed （min -1）	25000	15900	8000	5300	4000	3200	2600	2000	1600
		ae ≤ 0. 1D		Feed Speed （mm-min）	850	850	960	1000	1000	760	720	620	520
S	Titanium Alloys	ap ≤ 1D	80	Rotation Speed （min -1）	20000	12720	6400	4240	3200	2560	2080	1600	1280
		ae ≤ 0. 02D		Feed Speed （mm-min）	680	680	768	745	675	608	576	496	416

TOTIME Carbide End Mill Cutter
Recommended Cutting Conditions

Carbide End Mill Cutter(HRC 48)

3 Flutes Square End Mill For Aluminium Alloys——Side Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	2	4	6	8	10	12
N	Aluminium Alloys (Si<12%)	ap≤1. 5D	150 (60-350)	Rotation Speed (min-1)	16000	12000	10600	10000	9500	9300
		ae≤0.2D		Feed Speed (mm/min)	1150	1570	1650	1800	2300	3100
	Copper Alloys (<Hb200)	ap≤1. 5D	150 (60-350)	Rotation Speed (min-1)	16000	12000	10600	10000	9500	9300
		ae≤0.2D		Feed speed (mm/min)	1030	1420	1490	1610	2060	2800

Carbide End Mill Cutter(HRC 48)

3 Flute Square End Mill For Aluminium Alloys——Slotting

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	2	4	6	8	10	12
N	Aluminium Alloys (Si<12%)	ap≤0. 5D	150 (60-350)	Rotation Speed (min-1)	12800	10000	9300	8750	8000	7450
		ae=1D		Feed Speed (mm/min)	760	1080	1300	1470	1530	1700
	Copper Alloys (<Hb200)	ap≤0.5D	150 (60-350)	Rotation Speed (min-1)	12800	10000	9300	8750	8000	7450
		ae=1D		Feed Speed (mm/min)	890	970	1160	1320	1380	1530

Carbide End Mill Cutter(HRC 48)

2 Flutes Ball Nose End Mill For Aluminium Alloys, Copper Alloys——Profiling Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	4	6	8	10	12
N	Aluminium Alloys	ap ≤ 0. 3D	150 （60－350）	Rotation Speed (min－1)	19000	15900	11900	10600	8000	7950	7950
		ae ≤ 0. 3D		Feed Speed	950	1600	1900	2500	2550	3200	3800
	Copper Alloys	ap ≤ 0. 3D	150 （60－350）	Rotation Speed (min－1)	19000	15900	11900	10600	8000	7950	7950
		ae ≤ 0. 3D		Feed Speed (mm/min)	860	1430	1720	2300	2300	2850	3450

Carbide End Mill Cutter(HRC 48)

3 Flutes Square End Mill For Aluminium Alloys, Copper Alloys——Side Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	4	6	8	10	12	16	20
N	Aluminium Alloys	ap ≤ 1. 5D	150 （50－350）	Rotation Speed (min－1)	18000	16000	15000	12000	12000	10000	8000	6000	5000
		ae=0. 1mm		Feed Speed (mm/min)	1000	1000	1000	1000	1000	1000	1000	1000	1000
	Copper Alloys	ap ≤ 1. 5D	150 （50－350）	Rotation Speed (min－1)	14400	12800	12000	9600	9600	8000	6400	4800	4000
		ae=0. 1mm		Feed Speed (mm/min)	900	900	900	900	900	900	900	900	900

Carbide End Mill Cutter(HRC 48)

3 Flutes Square End Mill For Aluminium Alloys, Copper Alloys——Slotting Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	1	2	4	6	8	10	12	16	20
N	Aluminium Alloys	ap ≤ 1. 5D	150 （50－350）	Rotation Speed (min－1)	12600	11200	10500	8400	8400	7000	5600	4200	3500
				Feed Speed (mm/min)	2000	2000	2000	2000	2000	2000	2000	2000	2000
	Copper Alloys	ap ≤ 1. 5D	150 （50－350）	Rotation Speed (min－1)	10080	8960	8400	6720	6720	5600	4480	3360	2800
				Feed Speed (mm/min)	1800	1800	1800	1800	1800	1800	1800	1800	1800

Carbide End Mill Cutter(HRC 65)

4 Flutes Square End Mill / 4 Flutes Corner Radius End Mill For Die Steel, Hardened Steel ——Side Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	2	4	6	8	10	12	16	20
H	Die Steels Hardened Steels (HRC≤ 48)	ap ≤ 1. 0D	150	Rotation Speed (min-1)	23000	11750	7800	5800	4700	3900	2900	2350
		ae ≤ 0. 04D		Feed Speed (mm/min)	1150	1350	1500	1300	1100	900	750	600
	Hardened Steels (48 -55HRC)	ap ≤ 1. 0D	120	Rotation Speed (min-1)	18400	9400	6240	4640	3760	3120	2320	1880
		ae ≤ 0. 04D		Feed Speed (mm/min)	920	1080	1200	1040	880	720	600	480
	Hardened Steels (55 -65HRC)	ap ≤ 1. 0D	100	Rotation Speed (min-1)	14720	7520	4992	3712	3008	2496	1856	1504
		ae ≤ 0. 04D		Feed Speed (mm/min)	736	864	960	832	704	576	480	384

Carbide End Mill Cutter(HRC 65)

2 Flutes Ball Nose End Mill For Die Steel, Hardened Steel——Profiling Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	2	4	6	8	10	12	16	20
H	Die Steels Hardened Steels (HRC≤ 48)	0. 05 ≤ap≤ 0. 1D	150	Rotation Speed (min-1)	23000	11750	7800	5800	4700	3900	2900	2350
		ae ≤ 0. 02D		Feed Speed (mm/min)	920	1080	1200	1040	880	720	600	480
	Hardened Steels (48 -55HRC)	0. 05 ≤ap≤ 0. 1D	120	Rotation Speed (min-1)	18400	9400	6240	4640	3760	3120	2320	1880
		ae ≤ 0. 02D		Feed Speed (mm/min)	736	864	960	832	704	576	480	384
	Hardened Steels (55 -65HRC)	0. 05 ≤ap≤ 0. 1D	100	Rotation Speed (min-1)	14720	7520	4992	3712	3008	2496	1856	1504
		ae ≤ 0. 02D		Feed Speed (mm/min)	590	690	768	670	560	460	384	300

Carbide End Mill Cutter(HRC 35-55)

4 Flutes Square End Mill / 4 Flutes Corner Radius End Mill For Carbon Steels, Alloy Steels, Stainless Steels——Side Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	6	8	10	12	16	20
P	Carbon Steels Alloy Steels (HRC≤ 35)	ap ≤ 1. 5D	90	Rotation Speed (min-1)	4770	3580	2860	2390	1790	1430
		ae ≤ 0. 3D		Feed Speed (mm/min)	400	610	620	560	540	500
	Alloy Steels Hardened Steels (35 -48HRC)	ap ≤ 1. 5D	80	Rotation Speed (min-1)	4240	3180	2550	2120	1590	1270
		ae ≤ 0. 3D		Feed Speed (mm/min)	330	510	510	460	450	420
	Hardened Steels (48 -55HRC)	ap ≤ 1. 5D	65	Rotation Speed (min-1)	3445	2580	2070	1720	1290	1160
		ae ≤ 0. 3D		Feed Speed (mm/min)	264	408	408	368	360	336
M	Stainless Steels	ap ≤ 1. 5D	70	Rotation Speed (min-1)	3710	2790	2230	1860	1390	1110
		ae ≤ 0. 3D		Feed Speed (mm/min)	290	450	450	410	390	360

Carbide End Mill Cutter(HRC 35-55)

4 Flutes Square End Mill / 4 Flutes Corner Radius End Mill For Carbon Steels, Alloy Steels, Stainless Steels——Side Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	6	8	10	12	16	20
P	Carbon Steels Alloy Steels (HRC≤ 35)	ap ≤ 1.0D	90	Rotation Speed (min-1)	4240	3180	2550	2120	1590	1270
		ap max=12mm		Feed Speed (mm/min)	320	350	380	350	340	330
	Alloy Steels Hardened Steels (35 -48HRC)	ap ≤ 1.0D	80	Rotation Speed (min-1)	3710	2790	2230	1860	1390	1110
		ap max=12mm		Feed Speed (mm/min)	260	290	310	290	280	270
	Hardened Steels (48 -55HRC)	ap ≤ 1.0D	65	Rotation Speed (min-1)	3000	2200	1800	1500	1100	900
		ap max=12mm		Feed Speed (mm/min)	208	232	248	232	224	216
M	Stainless Steels	ap ≤ 1.0D	70	Rotation Speed (min-1)	3180	2390	1910	1590	1190	950
		ap max=12mm		Feed Speed (mm/min)	220	250	270	240	240	230

Carbide End Mill Cutter(HRC 48)

2 Flutes Square End Mill / 2 Flutes Corner Radius End Mill For Aluminium Alloys, Copper Alloys ——Side Milling / Slotting Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
N	Aluminium Alloys	ap≤ 0.05D	65 (30-110)	Rotation Speed (min-1)	40000	40000	40000	40000	40000	40000	40000	40000	40000
		ae≤1.0D		Feed Speed (mm/min)	200	300	500	1400	2000	2800	3150	3500	3750
	Copper Alloys	ap≤ 0.05D	65 (30-110)	Rotation Speed (min-1)	40000	40000	40000	40000	40000	40000	40000	40000	40000
		ae≤1.0D		Feed Speed (mm/min)	180	270	450	1260	1800	2520	2835	3150	3375

Carbide End Mill Cutter(HRC 48)

2 Flutes Ball Nose End Mill For Aluminium Alloys, Copper Alloys——Profiling Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	0.2	0.3	0.4	0.5	0.6	0.7	0.8
N	Aluminium Alloys	ap≤0.05D	65 (30-110)	Rotation Speed (min-1)	40000	40000	40000	40000	40000	40000	40000
		ae≤1.0D		Feed Speed (mm-min)	255	425	1190	1700	2380	2700	2975
	Copper Alloys	ap≤0.05D	65 (30-110)	Rotation Speed (min-1)	40000	40000	40000	40000	40000	40000	40000
		ae≤1.0D		Feed Speed (mm-min)	229.5	380	1070	1530	2142	2400	2680

Carbide End Mill Cutter(HRC 48)

2 Flutes Square End Mill / 2 Flutes Corner Radius End Mill For Carbon Steels, Alloy Steels, Stainless Steels——Side Milling / Slotting Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
P	Carbon Steels Alloy Steels	ap≤0.05D	65 (30-110)	Rotation Speed (min-1)	40000	40000	40000	40000	40000	40000	40000	40000	40000
		ae≤1.0D		Feed Speed (mm/min)	180	270	450	1260	1800	2520	2835	3150	3375
M	Stainless Steels	ap≤0.05D	65 (30-110)	Rotation Speed (min-1)	40000	40000	40000	40000	40000	40000	40000	40000	40000
		ae≤1.0D		Feed Speed (mm/min)	162	243	405	1134	1620	2268	2500	2835	3000

Carbide End Mill Cutter(HRC 48)

2 Flutes Ball Nose End Mill For Carbon Steels Alloy Steels, Stainless Steels——Profiling Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	0.2	0.3	0.4	0.5	0.6	0.7	0.8
P	Carbon Steels Alloy Steels	ap≤0.05D	65 (30-110)	Rotation Speed (min-1)	40000	40000	40000	40000	40000	40000	40000
		ae≤1.0D		Feed Speed (mm/min)	230	380	1100	1530	2142	2430	2700
M	Stainless Steels	ap≤0.05D	65 (30-110)	Rotation Speed (min-1)	40000	40000	40000	40000	40000	40000	40000
		ae≤1.0D		Feed Speed (mm/min)	207	342	990	1377	1900	2187	2430

Carbide End Mill Cutter(HRC 48~60)

2 Flutes Square End Mill / 2 Flutes Corner Radius End Mill For Carbon Steels, Alloy Steels, Stainless Steels——Side Milling / Slotting Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
H	Alloy Steels Hardened Steels (< HRC50)	ap≤0.03D	65 (30-110)	Rotation Speed (min-1)	40000	40000	40000	40000	40000	40000	40000	40000	40000
		ae≤1.0D		Feed Speed (mm/min)	180	270	450	1260	1800	2520	2835	3150	3375
	Hardened Steels (50-60HRC)	ap≤0.03D	65 (30-110)	Rotation Speed (min-1)	40000	40000	40000	40000	40000	40000	40000	40000	40000
		ae≤1.0D		Feed Speed (mm/min)	162	243	405	1134	1620	2268	2500	2835	3000

Carbide End Mill Cutter(HRC 48~60)

2 Flutes Ball Nose End Mill For Die Steels, Hardened Steels——Profiling Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	0.2	0.3	0.4	0.5	0.6	0.7	0.8
H	Alloy Steels Hardened Steels (< HRC50)	ap≤0.03D	65 (30-110)	Rotation Speed (min-1)	40000	40000	40000	40000	40000	40000	40000
		ae≤1.0D		Feed Speed (mm/min)	230	380	1100	1530	2142	2430	2700
	Hardened Steels (50-60HRC)	ap≤0.03D	65 (30-110)	Rotation Speed (min-1)	40000	40000	40000	40000	40000	40000	40000
		ae≤1.0D		Feed Speed (mm/min)	207	342	990	1377	1900	2187	2430

TOTIME Carbide End Mill Cutter
Recommended Cutting Conditions

Carbide End Mill Cutter(HRC 48)

4 Flutes Square End Mill For Carbon Steels, Alloy Steels, Cast Iron——Slotting Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	3	4	6	8	10	12	16	20
P	Carbon Steels Alloy Steels (HRC ≤35)	ap ≤1.0D	80	Rotation Speed (min-1)	8490	6370	4250	3190	2550	2120	1590	1270
				Feed Speed (mm/min)	1050	1220	970	850	790	760	850	870
	Alloy Steels Hardened Steels (35-48HRC)	ap ≤0.5D	60	Rotation Speed (min-1)	6370	4780	3190	2390	1910	1590	1190	960
				Feed Speed (mm/min)	660	730	600	500	470	480	490	500
K	Grey Cast Irons Ductile Cast Irons	ap ≤0.8/D	55	Rotation Speed (min-1)	5840	4380	2920	2190	1750	1460	1100	880
				Feed Speed (mm/min)	560	600	560	480	460	450	410	370

Carbide End Mill Cutter(HRC 48)

4 Flutes Square End Mill For Stainless Steels——Side Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	3	4	6	8	10	12	16	20
M	Stainless Steels	ap ≤1.0D	100	Rotation Speed (min-1)	10600	7960	5300	3980	3180	2650	1990	1590
		ae ≤0.1D		Feed Speed (mm/min)	650	700	680	730	660	600	490	460

Carbide End Mill Cutter(HRC 48)

4 Flutes Square End Mill For Stainless Steels——Slotting Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	3	4	6	8	10	12	16	20
M	Stainless Steels	ap ≤0.1D	45	Rotation Speed (min-1)	4770	3580	2390	1790	1430	1195	895	715
		ae ≤1D		Feed Speed (mm/min)	280	240	210	310	310	310	270	240

Carbide End Mill Cutter(HRC 48)

4 Flutes Square End Mill / 4 Flutes Corner Radius End Mill For Steels, Cast Iron——Side Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	3	4	6	8	10	12	16	20
P	Carbon Steels Alloy Steels (HRC≤35)	ap≤1.5D	200	Rotation Speed (min-1)	21230	15920	10620	7960	6370	5310	3980	3190
		ae≤0.4D		Feed Speed (mm/min)	1910	2545	2545	2545	2550	2550	3185	3180
	Alloy Steels Hardened Steels (35-48HRC)	ap≤1.5D	190	Rotation Speed (min-1)	20160	15120	10080	7560	6050	5040	3780	3020
		ae≤0.4D		Feed Speed (mm/min)	1815	2420	2420	2420	2420	2420	3025	3020
K	Grey Cast Irons Ductile Cast Irons	ap≤1.5D	180	Rotation Speed (min-1)	19100	14320	9550	7160	6730	4770	3580	2860
		ae≤0.4D		Feed Speed (mm/min)	1375	1835	1835	1835	1835	1835	2290	2290

Carbide End Mill Cutter(HRC 48)

4 Flutes Square End Mill / 4 Flutes Corner Radius End Mill For Steels, Cast Iron——Slotting Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	3	4	6	8	10	12	16	20
P	Carbon Steels Alloy Steels (HRC≤35)	ap≤1.5D	160	Rotation Speed (min-1)	16980	12730	10620	7960	6370	5310	3980	3190
				Feed Speed (mm/min)	1225	1630	2545	2545	2550	2550	3185	3180
	Alloy Steels Hardened Steels (35-48HRC)	ap≤1.5D	140	Rotation Speed (min-1)	14850	11140	10080	7560	6050	5040	3780	3020
				Feed Speed (mm/min)	1070	1425	2420	2420	2420	2420	3025	3020
K	Grey Cast Irons Ductile Cast Irons	ap≤1.5D	160	Rotation Speed (min-1)	16980	12730	8490	6370	5090	4240	3180	2550
				Feed Speed (mm/min)	1070	1425	1425	1425	1425	1425	1780	1785

TOTIME Carbide End Mill Cutter
Recommended Cutting Conditions

Carbide End Mill Cutter(HRC 48)

4 Flutes Square End Mill / 4 Flutes Corner Radius End Mill For Carbon Steels, Alloy Steels, Cast Iron——Side Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	4	5	6	8	10	12	16	20
P	Carbon Steels Alloy Steels (HRC≤35)	ap≤1.0D	108	Rotation Speed (min-1)	8600	6500	5600	4200	3300	2800	2000	1600
		ae≤0.1D		Feed Speed (mm/min)	516	520	560	588	528	560	528	512
	Alloy Steels Hardened Steels (35-45HRC)	ap≤1.0D	108	Rotation Speed (min-1)	8600	5600	4200	3300	2800	5310	2000	1600
		ae≤0.1D		Feed Speed (mm/min)	516	520	560	588	528	560	528	512
K	Grey Cast Irons Ductile Cast Irons	ap≤1.0D	108	Rotation Speed (min-1)	8600	5600	4200	3300	2800	5310	2000	1600
		ae≤0.1D		Feed Speed (mm/min)	516	520	560	588	528	560	528	512

Carbide End Mill Cutter(HRC 48)

4 Flutes Square End Mill / 4 Flutes Corner Radius End Mill For Carbon Steels, Alloy Steels, Cast Iron——Slotting Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	4	5	6	8	10	12	16	20
P	Carbon Steels Alloy Steels (HRC ≤35)	ap ≤1.0D	80	Rotation Speed (min-1)	6880	5200	4480	3360	2640	2240	1600	1280
		ae ≤0.1D		Feed Speed (mm/min)	310	312	336	353	317	336	317	308
	Alloy Steels Hardened Steels (35-45HRC)	ap ≤1.0D	80	Rotation Speed (min-1)	6880	4480	3360	2640	2240	4248	1600	1280
		ae ≤0.1D		Feed Speed (mm/min)	310	312	336	353	317	336	317	308
K	Grey Cast Irons Ductile Cast Irons	ap ≤1.0D	80	Rotation Speed (min-1)	6880	4480	3360	2640	2240	4248	1600	1280
		ae ≤0.1D		Feed Speed (mm/min)	310	312	336	353	317	336	317	308

Carbide End Mill Cutter(HRC 48)

2 Flutes Ball Nose End Mill For Carbon Steels, Alloy Steels, Cast Iron——Profilling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	4	5	6	8	10	12	16	20
P	Carbon Steels Alloy Steels (HRC ≤35)	ap ≤0.2D	108	Rotation Speed (min-1)	8600	6500	5600	4200	3300	2800	2000	1600
		ae ≤0.2D		Feed Speed (mm/min)	516	520	560	588	528	560	528	512
	Alloy Steels Hardened Steels (35-45HRC)	ap ≤0.2D	108	Rotation Speed (min-1)	8600	5600	4200	3300	2800	5310	2000	1600
		ae ≤0.2D		Feed Speed (mm/min)	516	520	560	588	528	560	528	512
K	Grey Cast Irons Ductile Cast Irons	ap ≤0.2D	108	Rotation Speed (min-1)	8600	5600	4200	3300	2800	5310	2000	1600
		ae ≤0.2D		Feed Speed (mm/min)	516	520	560	588	528	560	528	512

Carbide End Mill Cutter(HRC 48)

4 Flutes Corner Radius For Carbon Steels, Alloy Steels——Side Milling

Workpiece Material		Cutting Depth (mm)	Tool Diameter (mm)	4	6	8	10	12	16	20
P	Carbon Steels Alloy Steels (HRC≤30)	ap≤1.0D	Cutting Speed (m/min)	126	160	163	160	160	160	160
		ae≤0.5D	Feed Speed (mm/min)	1000	890	780	612	516	384	306
	Alloy Steels Hardened Steels (HRC≤30)	ap≤1.0D	Cutting Speed (m/min)	126	160	163	160	160	160	160
		ae≤0.5D	Feed Speed (mm/min)	1000	890	780	612	516	384	306

Carbide End Mill Cutter(HRC 48)

4 Flutes Corner Radius For Carbon Steels, Alloy Steels——Slotting Milling

Workpiece Material		Cutting Depth (mm)	Tool Diameter (mm)	4	6	8	10	12	16	20
P	Carbon Steels Alloy Steels (HRC≤30)	ap≤1.0D	Cutting Speed (m/min)	100	150	151	151	151	151	151
			Feed Speed (mm/min)	600	850	700	580	480	360	288
	Alloy Steels Hardened Steels (HRC≤30)	ap≤1.0D	Cutting Speed (m/min)	100	150	151	151	151	151	151
			Feed Speed (mm/min)	600	850	700	580	480	360	288

Carbide End Mill Cutter(HRC 48)

4 Flutes Ball Nose End Mill For Carbon Steels, Alloy Steels, Stainless Steels——Profiling Milling

Workpiece Material		Cutting Depth (mm)	Vc m/min	Tool Diameter (mm)	0.2	0.3	0.4	0.5	0.6	0.7	0.8
P	Carbon Steels Alloy Steels	ap ⩽ 0.05D	65 (30-110)	Rotation Speed (min-1)	40000	40000	40000	40000	40000	40000	40000
		ae ⩽ 1.0D		Feed Speed (mm/min)	460	760	2200	3060	4284	4860	5400
M	Stainless Steels	ap ⩽ 0.05D	65 (30-110)	Rotation Speed (min-1)	40000	40000	40000	40000	40000	40000	40000
		ae ⩽ 1.0D		Feed Speed (mm/min)	414	684	1980	2754	3800	4374	4860

ZSTNB series

2/3 FLUTES, TAPER NECK BACK DRAFT TYPE

Workpiece Material					Carbon Steels Alloy Steels (180~250HB)"		Pre-harden Steels (35~45HRC)		Hardened Steels (45~55HRC)		Hardened Steels (55~65HRC)	
Ratio to standard depth of cut					Depth of Cut X 100%		Depth of Cut X 80%		Depth of Cut X 65%		Depth of Cut X 60%	
R (mm)	Mill Dia (mm)	Neck Length (mm)	Neck Angle (mm)	Depth of Cut (mm)	n (min^{-1})	Vf (mm/min)	n (min^{-1})	Vf (mm/min)	n (min^{-1})	Vf (mm/min)	n (min^{-1})	Vf (mm/min)
0.10	0.20	1.0	0.4	0.017	40000	800	28000	504	26000	416	26000	364
		1.5	0.4	0.009	40000	800	28000	504	26000	416	26000	364
		2.0	0.9	0.007	32000	461	22400	323	20800	266	20800	233
		2.5	0.9	0.004	26000	333	18200	204	16900	189	16900	162
0.15	0.30	2.0	0.4	0.025	40000	1200	28000	756	26000	624	26000	546
		3.0	0.9	0.013	32000	691	22400	484	20800	399	20800	349
		4.0	0.9	0.010	26000	499	18200	306	16900	284	16900	243
0.20	0.40	2.0	0.4	0.035	40000	1600	28000	1008	26000	832	26000	728
		3.0	0.4	0.020	40000	1600	28000	1008	26000	832	26000	728
		4.0	0.4	0.007	32000	922	22400	645	20800	532	20800	466
		4.0	0.9	0.009	32000	922	22400	645	20800	532	20800	466
		5.0	0.4	0.006	26000	666	18200	408	16900	379	16900	324
		5.0	0.9	0.007	26000	666	18200	408	16900	379	16900	324
0.25	0.50	4.0	0.4	0.040	40000	2000	28000	1260	26000	1040	26000	910
		8.0	0.9	0.010	26000	728	18200	446	16900	414	16900	355
		12.0	0.9	0.005	22400	627	15680	384	14560	357	14560	306
0.27	0.54	2.0	0.4	0.050	40000	2160	28000	1361	26000	1123	26000	983
		4.0	0.4	0.037	40000	2160	28000	1361	26000	1123	26000	983
		5.0	0.4	0.031	40000	1512	28000	1176	26000	1040	26000	832
		6.0	0.4	0.025	26000	1244	18200	871	16900	676	16900	629
		6.5	0.4	0.020	26000	1011	18200	619	16900	575	16900	493
		7.0	0.4	0.015	26000	899	18200	585	16900	543	16900	465
0.30	0.60	2.0	0.4	0.055	40000	2400	28000	1512	26000	1248	26000	1092
		4.0	0.4	0.035	40000	2400	28000	1512	26000	1248	26000	1092
		6.0	0.4	0.018	32000	1382	22400	968	20800	799	20800	699
		6.0	0.9	0.020	32000	1382	22400	968	20800	799	20800	699
		8.0	0.9	0.020	26000	998	18200	612	16900	568	16900	487
		10.0	0.4	0.013	26000	874	18200	535	16900	497	16900	426
		10.0	0.9	0.015	26000	874	18200	535	16900	497	16900	426
		12.0	0.9	0.010	26000	874	18200	535	16900	497	16900	426
		15.0	0.4	0.005	22400	753	15680	461	14560	367	14560	367
		15.0	0.9	0.006	22400	753	15680	461	14560	367	14560	367

TOTIME Carbide End Mill Cutter
Recommended Cutting Conditions

ZSTNB series

2/3 FLUTES, TAPER NECK BACK DRAFT TYPE

Workpiece Material					Carbon Steels Alloy Steels (180~250HB)"		Pre-harden Steels (35~45HRC)		Hardened Steels (45~55HRC)		Hardened Steels (55~65HRC)	
Ratio to standard depth of cut					Depth of Cut X 100%		Depth of Cut X 80%		Depth of Cut X 65%		Depth of Cut X 60%	
R (mm)	Mill Dia (mm)	Neck Length (mm)	Neck Angle (mm)	Depth of Cut (mm)	n (min^{-1})	Vf (mm/min)	n (min^{-1})	Vf (mm/min)	n (min^{-1})	Vf (mm/min)	n (min^{-1})	Vf (mm/min)
0.4	0.8	4	0.4	0.062	32000	2560	22400	1613	20800	1331	20800	1165
		6	0.4	0.045	32000	2560	22400	1613	20800	1331	20800	1165
		8	0.9	0.026	25600	1475	17920	1032	16640	852	16640	745
		12	0.9	0.020	20800	1065	14560	699	13520	606	13520	519
		16	0.9	0.018	20800	932	14560	612	13520	530	13520	454
0.45	0.9	4	0.4	0.063	28300	2547	19810	1605	18395	1324	18395	1159
		8	0.4	0.050	28300	2547	19810	1605	18395	1324	18395	1159
		12	0.4	0.037	18400	1325	12880	811	11960	753	11960	646
		16	0.4	0.024	18400	1325	12880	811	11960	753	11960	646
		18	0.4	0.018	18400	1325	12880	811	11960	753	11960	646
		20	0.4	0.015	15850	1141	11095	699	10303	649	10303	556
		22	0.4	0.012	15850	1141	11095	699	10303	649	10303	556
		24	0.4	0.009	14150	1019	9905	624	9198	579	9198	497
0.50	1.0	6	0.4	0.055	25600	2560	17920	1613	16640	1331	16640	1165
		8	0.4	0.055	25600	2560	17920	1613	16640	1331	16640	1165
		10	0.4	0.032	20800	1872	14560	1310	13520	1082	13520	946
		10	0.9	0.035	20800	1872	14560	1310	13520	1082	13520	946
		15	0.9	0.028	16640	1331	11648	874	10816	757	10816	649
		20	0.4	0.018	16640	1331	11648	874	10816	757	10816	649
		20	0.9	0.020	16640	1331	11648	874	10816	757	10816	649
		25	0.9	0.017	14560	1165	10192	764	9464	662	9464	568
		30	0.4	0.015	12480	874	8736	568	8112	487	8112	406
		30	0.9	0.017	12480	874	8736	568	8112	487	8112	406
		35	0.9	0.010	10400	728	7280	473	6760	406	6760	338
		40	0.9	0.009	10000	700	7000	455	6500	390	6500	325
		50	0.9	0.007	9500	665	6650	432	6175	371	6175	309
		60	0.9	0.005	9000	630	6300	410	5850	351	5850	293
		70	0.9	0.003	8500	595	5950	387	5525	332	5525	276
0.75	1.5	8	0.4	0.070	16960	2544	11872	1603	11024	1323	11024	1158
		10	0.4	0.070	16960	2544	11872	1603	11024	1323	11024	1158
		12	0.4	0.070	16960	2544	11872	1603	11024	1323	11024	1158
		15	0.9	0.045	13568	1832	9498	1282	8819	1058	8819	926
		20	0.9	0.040	11024	1323	7717	810	7166	752	7166	645
		30	0.9	0.028	11024	1323	7717	810	7166	752	7166	645

ZSTNB series

2/3 FLUTES, TAPER NECK BACK DRAFT TYPE

Workpiece Material					Carbon Steels Alloy Steels (180~250HB)"		Pre-harden Steels (35~45HRC)		Hardened Steels (45~55HRC)		Hardened Steels (55~65HRC)	
Ratio to standard depth of cut					Depth of Cut X 100%		Depth of Cut X 80%		Depth of Cut X 65%		Depth of Cut X 60%	
R (mm)	Mill Dia (mm)	Neck Length (mm)	Neck Angle (mm)	Depth of Cut (mm)	n (min^{-1})	Vf (mm/min)	n (min^{-1})	Vf (mm/min)	n (min^{-1})	Vf (mm/min)	n (min^{-1})	Vf (mm/min)
0.9	1.8	4	0.4	0.120	14200	2556	9940	1610	9230	1329	9230	1163
		8	0.4	0.100	14200	2556	9940	1610	9230	1329	9230	1163
		12	0.4	0.080	14200	2556	9940	1610	9230	1329	9230	1163
		16	0.4	0.070	14200	2556	9940	1610	9230	1329	9230	1163
		20	0.4	0.060	9230	1329	6461	814	6000	756	6000	648
		24	0.4	0.050	9230	1329	6461	814	6000	756	6000	648
		28	0.4	0.040	9230	1329	6461	814	6000	756	6000	648
		32	0.4	0.040	9230	1329	6461	814	6000	756	6000	648
		36	0.4	0.030	9230	1329	6461	814	6000	756	6000	648
		38	0.4	0.020	8000	1152	5600	706	5200	655	5200	562
		40	0.4	0.020	8000	1152	5600	706	5200	655	5200	562
1.0	2.0	8	0.4	0.150	15200	3040	10640	1915	9880	1581	9880	1383
		12	0.4	0.090	15200	3040	10640	1915	9880	1581	9880	1383
		16	0.4	0.090	15200	3040	10640	1915	9880	1581	9880	1383
		20	0.4	0.060	12160	2189	8512	1532	7904	1265	7904	1107
		20	0.9	0.070	12160	2189	8512	1532	7904	1265	7904	1107
		25	0.9	0.070	9880	1581	6916	968	6442	899	6422	771
		30	0.4	0.040	9880	1581	6916	968	6442	899	6422	771
		30	0.9	0.050	9880	1581	6916	968	6442	899	6422	771
		35	0.9	0.050	9880	1581	6916	968	6442	899	6422	771
		40	0.4	0.030	9880	1581	6916	968	6442	899	6422	771
		40	0.9	0.040	9880	1581	6916	968	6442	899	6422	771
		50	0.9	0.170	8512	1192	5958	775	5533	664	5533	553
		60	0.9	0.010	7235	1013	5065	658	4703	564	4703	470
		70	0.9	0.010	6150	861	4305	560	3997	480	3997	400
1.5	3.0	8	0.4	0.320	12720	3816	8904	2404	8268	1984	8268	1736
		16	0.4	0.220	12720	3816	8904	2404	8268	1984	8268	1736
		20	0.4	0.150	12720	3434	8904	2137	8268	1736	8268	1488
		30	0.4	0.080	10176	2748	7123	1496	6614	1389	6614	1191
		30	0.9	0.090	10176	2748	7123	1496	6614	1389	6614	1191
		40	0.4	0.060	8268	1984	5788	1215	5374	1129	5374	967
		40	0.9	0.070	8268	1984	5788	1215	5374	1129	5374	967
		50	0.9	0.050	8268	1984	5788	1215	5374	1129	5374	967
		60	0.9	0.030	7123	1710	4986	1047	4630	972	4630	833
		70	0.9	0.020	6233	1496	4363	916	4051	851	4051	729

TOTIME Carbide End Mill Cutter
Recommended Cutting Conditions

ZSTNB series

2/3 FLUTES, TAPER NECK BACK DRAFT TYPE

Workpiece Material					Carbon Steels Alloy Steels (180~250HB)"		Pre-harden Steels (35~45HRC)		Hardened Steels (45~55HRC)		Hardened Steels (55~65HRC)	
Ratio to standard depth of cut					Depth of Cut X 100%		Depth of Cut X 80%		Depth of Cut X 65%		Depth of Cut X 60%	
R (mm)	Mill Dia (mm)	Neck Length (mm)	Neck Angle (mm)	Depth of Cut (mm)	n (min^{-1})	Vf (mm/min)	n (min^{-1})	Vf (mm/min)	n (min^{-1})	Vf (mm/min)	n (min^{-1})	Vf (mm/min)
2.0	4	20	1	0.32	11900	2860	9000	2050	7800	1680	7800	1590
		30	1	0.23	11900	2570	9000	1850	7800	1520	7800	1430
		40	1	0.14	9500	1940	7200	1400	6200	1140	6200	1080
		50	1	0.11	7800	1590	5800	1120	5000	920	5000	870
		60	1	0.07	7800	1590	5800	1120	5000	920	5000	870
2.5	5	30	1	0.34	9500	2140	7200	1540	6200	1260	6200	1190
		40	1	0.25	9500	2140	7200	1540	6200	1260	6200	1190
		60	1	0.15	6200	1320	4700	950	4000	770	4000	720
3.0	6	30	1	0.45	8000	2000	6000	1430	5200	1170	5200	1110
		40	1	0.40	8000	1800	6000	1280	5200	1050	5200	990
		50	1	0.32	8000	1800	6000	1280	5200	1050	5200	990
		60	1	0.22	6400	1360	4800	970	4100	780	4100	740
		70	1	0.18	5200	1110	3900	790	3400	650	3400	610
		80	1	0.14	5200	1110	3900	790	3400	650	3400	610
4.0	8	50	1	0.50	6000	1460	4500	1040	3900	850	3900	810
		60	1	0.43	6000	1460	4500	1040	3900	850	3900	810
		70	1	0.33	6000	1460	4500	1040	3900	850	3900	810
		80	1	0.25	4800	1100	3600	780	3100	640	3100	600
5.0	10	60	1	0.70	4800	1300	3600	920	3100	750	3100	710
		75	1	0.50	4800	1300	3600	920	3100	750	3100	710

- Please adjust the cutting depth index according to the cutting depth factors of above table.
- For rib or slotting machining process which are not easy for chip ejection, please reduce the cutting depth by 20~30% from the above cutting condition.

  e.g.) ZSTNB2040-20-10, HRC 55, Rib processing

  Cutting depth : 0.32(standard cutting depth) X 0.65 X 0.8 = 0.17mm
- In actual machining, the condition should be adjusted according to the machining shape, purpose and the machine type.
- If RPM of the machine is low, the feed rate should be reduced in the same ratio as RPM.

ZSTNR series

2 FLUTES, TAPER NECK BACK DRAFT TYPE

Workpiece Material				Carbon Steels Alloy Steels (180~250HB)		Pre-harden Steels (35~45HRC)		Hardened Steels (45~55HRC)		Hardened Steels (55~65HRC)	
Ratio to standard depth of cut				Depth of Cut X 100%		Depth of Cut X 80%		Depth of Cut X 65%		Depth of Cut X 60%	
Mill Dia (mm)	R (mm)	Neck Length (mm)	Depth of Cut (mm)	n (min^{-1})	Vf (mm/min)	n (min^{-1})	Vf (mm/min)	n (min^{-1})	Vf (mm/min)	n (min^{-1})	Vf (mm/min)
0.2	0.05	2	0.007	39660	887	33660	754	29700	591	27720	483
0.4	0.05	4	0.009	30096	899	25582	764	22572	599	21067	489
		5	0.007	26752	710	22739	528	20064	466	18726	373
	0.10	4	0.009	31680	946	26928	804	23760	631	22176	515
		5	0.007	28160	747	23936	556	21120	490	19712	392
0.5	0.10	5	0.013	30413	1090	25851	753	22810	562	21289	453
		8	0.008	24330	678	20681	468	18248	350	17031	282
		10	0.007	18248	509	15511	351	13686	262	12773	211
0.6	0.10	12	0.010	20377	791	17320	546	15282	408	14264	329
		15	0.006	16727	649	14218	448	12545	335	11709	270
0.8	0.20	6	0.045	31680	1084	26928	921	23760	723	22176	590
		12	0.020	28160	943	23936	695	21120	613	19712	490
1.0	0.20	8	0.040	28512	1463	24235	1244	21384	976	19958	797
		10	0.035	28512	1596	24235	1357	21384	1064	19958	869
		15	0.028	25344	1261	21542	938	19008	828	17741	662
		20	0.020	19008	828	16157	653	14256	532	13306	414
		25	0.017	15840	690	13464	544	11880	443	11088	345
		30	0.017	15840	690	13464	544	11880	443	11088	345
		35	0.010	15840	690	13464	544	11880	443	11088	345
	0.30	8	0.040	28512	1463	24235	1244	21384	976	19958	797
		15	0.028	25344	1261	21542	938	19008	828	17741	662
		25	0.017	15840	690	13464	544	11880	443	11088	345
		30	0.017	15840	690	13464	544	11880	443	11088	345
1.5	0.20	10	0.050	21683	1079	18431	803	16262	708	15178	567
		15	0.045	19712	981	16755	730	14784	644	13798	515
		20	0.042	17347	863	14745	642	13010	567	12143	453
		25	0.032	14784	644	12566	508	11088	414	10349	322
		30	0.028	12320	536	10472	423	9240	345	8624	268
	0.30	10	0.050	21683	1079	18431	803	16262	708	15178	567
		20	0.042	17347	863	14745	642	13010	567	12143	453
		25	0.032	14784	644	12566	508	11088	414	10349	322
		30	0.028	12320	536	10472	423	9240	345	8624	268

ZSTNR series

2 FLUTES, TAPER NECK BACK DRAFT TYPE

Workpiece Material				Carbon Steels Alloy Steels (180~250HB)		Pre-harden Steels (35~45HRC)		Hardened Steels (45~55HRC)		Hardened Steels (55~65HRC)	
Ratio to standard depth of cut				Depth of Cut X 100%		Depth of Cut X 80%		Depth of Cut X 65%		Depth of Cut X 60%	
Mill Dia (mm)	R (mm)	Neck Length (mm)	Depth of Cut (mm)	n (min^{-1})	Vf (mm/min)	n (min^{-1})	Vf (mm/min)	n (min^{-1})	Vf (mm/min)	n (min^{-1})	Vf (mm/min)
2	0.2	30	0.045	13440	1254	11424	933	10080	823	9408	658
		40	0.035	10080	823	8568	650	7560	529	7056	412
		50	0.017	8400	686	7140	541	6300	441	5880	343
	0.3	12	0.088	22680	1814	19278	1427	17010	1191	15876	1048
		20	0.054	18144	1452	15422	1141	13608	953	12701	838
		30	0.045	13440	1393	11424	1036	10080	914	9408	732
		40	0.035	10080	914	8568	722	7560	588	7056	457
		50	0.017	8400	762	7140	601	6300	490	5880	381
	0.5	8	0.170	22680	1814	19278	1427	17010	1191	15876	1048
		12	0.088	22680	1814	19278	1427	17010	1191	15876	1048
		16	0.088	19278	1542	16386	1213	14459	1012	13495	891
		20	0.054	18114	1452	15422	1141	13608	953	12701	838
		25	0.054	15876	1270	13495	999	11907	833	11113	733
		30	0.045	13440	1393	11424	1036	10080	914	9408	732
		40	0.035	10080	914	8568	722	7560	588	7056	457
		50	0.017	8400	762	7140	601	6300	490	5880	381
3	0.2	40	0.070	10240	956	8704	711	7680	627	7168	502
		50	0.050	7680	627	6528	495	5760	403	5376	314
		60	0.030	6400	523	5440	412	4800	336	4480	261
	0.3	40	0.070	10240	1062	8704	790	7680	697	7168	557
		50	0.050	7680	697	6528	550	5760	448	5376	348
		60	0.030	6400	581	5440	458	4800	373	4480	290
	0.5	40	0.070	10240	1062	8704	790	7680	697	7168	557
		50	0.050	7680	697	6528	550	5760	448	5376	348
		60	0.030	6400	581	5440	458	4800	373	4480	290

- Please adjust the cutting depth index according to the cutting depth factors of above table.
- In actual machining, the condition should be adjusted according to the machining shape, purpose and machine type.
- If RPM of the machine is low, the feed rate should be low in the same ratio as RPM.

TMHS SERIES

2 Flutes Long Neck Square End Mill

Workpiece Material		Hardened Steels (62~65HRC)				Hardened Steels (55~62HRC)				Hardened Steels (43~55HRC)				Hardened Steels (~43HRC)			
Dia.	l1	rev/min	mm/min	ap/mn	ae/mn	rev/min	mm/min	ap/mn	ae/mn	rev/min	mm/min	ap/mn	ae/mn	rev/min	mm/min	ap/mn	ae/mn
0.10	0.50	40000	50	0.002	0.03	40000	60	0.002	0.04	40000	80	0.003	0.050	40000	100	0.005	0.06
	1.00	40000	20	0.001	0.03	40000	40	0.001	0.04	40000	50	0.001	0.050	40000	60	0.002	0.06
0.15	1.00	40000	40	0.001	0.04	40000	60	0.001	0.06	40000	80	0.001	0.070	40000	100	0.002	0.09
	1.50	40000	20	0.001	0.04	40000	40	0.001	0.06	40000	60	0.001	0.070	40000	80	0.002	0.09
	2.00	40000	10	0.001	0.04	40000	20	0.001	0.06	40000	40	0.001	0.070	40000	60	0.001	0.09
0.20	1.00	30000	80	0.003	0.06	30000	120	0.003	0.08	30000	150	0.003	0.100	30000	180	0.005	0.12
	1.50	30000	60	0.002	0.06	30000	80	0.002	0.08	30000	100	0.002	0.100	30000	120	0.003	0.12
	2.00	30000	30	0.002	0.06	30000	40	0.002	0.08	30000	50	0.002	0.100	30000	80	0.003	0.12
	2.50	25000	30	0.001	0.06	25000	40	0.001	0.08	30000	50	0.001	0.100	30000	60	0.002	0.12
0.30	1.00	30000	200	0.003	0.09	30000	250	0.003	0.12	30000	300	0.003	0.150	30000	350	0.007	0.18
	1.50	30000	120	0.003	0.09	30000	160	0.003	0.12	30000	200	0.003	0.150	30000	260	0.007	0.18
	2.00	25000	100	0.003	0.09	30000	120	0.003	0.12	30000	150	0.003	0.150	30000	180	0.005	0.18
	3.00	20000	30	0.002	0.09	25000	40	0.002	0.12	25000	50	0.002	0.150	30000	70	0.004	0.18
	4.00	20000	20	0.001	0.09	25000	20	0.001	0.12	25000	30	0.001	0.150	30000	20	0.003	0.18
	6.00	20000	10	0.001	0.09	25000	10	0.001	0.12	25000	10	0.001	0.150	30000	10	0.003	0.18
0.40	2.00	25000	220	0.005	0.12	25000	280	0.005	0.16	30000	320	0.005	0.200	30000	360	0.010	0.24
	3.00	18000	180	0.003	0.12	20000	220	0.003	0.16	25000	260	0.004	0.200	30000	320	0.008	0.24
	4.00	18000	120	0.002	0.12	20000	160	0.002	0.16	25000	200	0.003	0.200	30000	250	0.006	0.24
	6.00	16000	70	0.001	0.12	18000	130	0.002	0.16	22000	150	0.002	0.200	25000	200	0.004	0.24
0.50	2.00	20000	320	0.005	0.15	23000	380	0.007	0.20	25000	420	0.010	0.250	30000	500	0.020	0.30
	3.00	20000	280	0.003	0.15	23000	320	0.005	0.20	25000	350	0.007	0.250	30000	420	0.015	0.30
	4.00	20000	200	0.002	0.15	23000	240	0.003	0.20	25000	280	0.005	0.250	25000	380	0.010	0.30
	6.00	16000	100	0.002	0.15	18000	150	0.002	0.20	20000	200	0.003	0.250	25000	300	0.005	0.30
0.60	2.00	20000	350	0.005	0.18	23000	400	0.007	0.25	25000	500	0.010	0.300	30000	550	0.020	0.35
	3.00	20000	300	0.003	0.18	23000	350	0.005	0.25	25000	450	0.007	0.300	30000	500	0.015	0.35
	4.00	20000	250	0.002	0.18	23000	300	0.003	0.25	25000	400	0.005	0.300	25000	450	0.010	0.35
	6.00	16000	150	0.001	0.18	18000	200	0.002	0.25	20000	300	0.002	0.300	25000	350	0.010	0.35
0.70	4.00	20000	320	0.007	0.21	23000	400	0.015	0.28	25000	560	0.020	0.350	25000	690	0.030	0.40
	6.00	16000	240	0.007	0.21	18000	300	0.012	0.28	20000	410	0.015	0.350	25000	550	0.020	0.40
0.80	2.00	20000	550	0.012	0.24	23000	650	0.030	0.32	25000	780	0.040	0.400	25000	850	0.050	0.45
	3.00	20000	550	0.012	0.24	23000	650	0.020	0.32	25000	780	0.030	0.400	25000	850	0.040	0.45
	4.00	20000	500	0.007	0.24	23000	600	0.015	0.32	25000	700	0.025	0.400	25000	800	0.030	0.45
	6.00	16000	350	0.005	0.24	18000	450	0.010	0.32	20000	550	0.020	0.400	20000	620	0.025	0.45
1.00	4.00	14000	500	0.020	0.30	18000	800	0.030	0.40	23000	700	0.040	0.500	25000	1000	0.050	0.60
	6.00	10000	400	0.007	0.30	14000	600	0.010	0.40	18000	600	0.020	0.500	20000	900	0.030	0.60
	8.00	8000	340	0.005	0.30	12000	500	0.010	0.40	16000	500	0.020	0.500	18000	800	0.030	0.60
	10.00	6000	250	0.005	0.30	10000	400	0.007	0.40	14000	400	0.010	0.500	16000	600	0.020	0.60
1.50	6.00	14000	500	0.020	0.45	18000	700	0.030	0.60	20000	800	0.040	0.750	23000	1000	0.060	0.90
	8.00	10000	380	0.010	0.45	14000	600	0.030	0.60	18000	600	0.030	0.750	20000	900	0.060	0.90
	10.00	10000	350	0.010	0.45	14000	500	0.020	0.60	16000	500	0.030	0.750	20000	800	0.040	0.90
2.00	8.00	9500	500	0.020	0.60	12000	600	0.040	0.80	16000	800	0.050	1.000	18000	900	0.070	1.20
	12.00	8200	400	0.010	0.60	10000	500	0.030	0.80	12000	600	0.040	1.000	14000	700	0.050	1.20
	16.00	7500	340	0.007	0.60	9200	400	0.020	0.80	10000	500	0.030	1.000	12000	600	0.040	1.20

TOTIME Carbide End Mill Cutter
Recommended Cutting Conditions

TMHS SERIES

4 Flutes Long Neck Square End Mill

Workpiece Material		Carbon Steels / Alloy Steels / Stainless Steels				Carbon Steels / Prehardened Steels (~43HRC)			
Dia.	l1	rev/min	mm/min	ap/mn	ae/mn	rev/min	mm/min	ap/mn	ae/mn
1.0	4	25000	1700	0.055	0.6	22000	1100	0.045	0.60
	6	20000	1200	0.045	0.6	18000	750	0.035	0.60
	8	18000	1050	0.035	0.6	15000	600	0.025	0.60
	10	16000	900	0.025	0.6	14000	520	0.018	0.60
	12	14000	750	0.020	0.6	12000	450	0.014	0.60
	16	12000	450	0.010	0.6	10000	300	0.007	0.60
1.5	6	20000	1800	0.080	0.9	16000	1100	0.070	0.90
	8	18000	1500	0.070	0.9	14000	900	0.060	0.90
	10	16000	1300	0.060	0.9	13000	780	0.050	0.90
	12	14000	1050	0.050	0.9	12000	670	0.040	0.90
	16	12000	750	0.035	0.9	10000	480	0.025	0.90
2.0	8	16000	2000	0.110	1.2	13000	1200	0.090	1.20
	10	16000	1800	0.100	1.2	13000	1100	0.080	1.20
	12	14000	1500	0.090	1.2	12000	1000	0.070	1.20
	16	12000	1200	0.070	1.2	10000	750	0.050	1.20
	18	11000	1000	0.060	1.2	9000	650	0.040	1.20
3.0	10	11000	2200	0.180	1.8	9000	1300	0.140	1.80
	12	11000	2000	0.160	1.8	9000	1200	0.120	1.80
	16	10000	1500	0.120	1.8	8000	900	0.090	1.80
	20	9000	1200	0.100	1.8	7000	680	0.070	1.80
	25	8000	1050	0.080	1.8	6000	570	0.060	1.80
	30	7000	900	0.060	1.8	5000	450	0.045	1.80
4.0	12	8000	2200	0.300	2.4	6000	1300	0.250	2.40
	16	8000	2100	0.250	2.4	6000	1200	0.200	2.40
	20	8000	2000	0.200	2.4	6000	1100	0.150	2.40
	25	7000	1700	0.150	2.4	5000	900	0.100	2.40
	30	7000	1500	0.120	2.4	5000	800	0.080	2.40

TMHCR SERIES

2 Flutes Long Neck Corner Radius End Mill

Workpiece Material			Caron Steel / Prehardened Steels (~43 HRC)				Hardened Steels (43~55HRC)				Copper / Aluminum alloy			
Dia.	R	l1	rev/min	mm/min	ap/mn	ae/mn	rev/min	mm/min	ap/mn	ae/mn	rev/min	mm/min	ap/mn	ae/mn
0.3	0.05	1.0	30000	200	0.020	0.10	30000	180	0.003	0.08	30000	300	0.024	0.100
		2.0	30000	150	0.010	0.10	30000	100	0.003	0.08	30000	250	0.012	0.100
		3.0	30000	100	0.005	0.10	25000	50	0.002	0.08	30000	220	0.006	0.100
0.4	0.05	2.0	30000	250	0.020	0.12	25000	180	0.005	0.10	30000	360	0.024	0.120
	0.10	3.0	30000	220	0.015	0.12	25000	150	0.004	0.10	30000	300	0.018	0.120
0.5	0.05	2.0	30000	400	0.025	0.14	25000	300	0.010	0.12	30000	600	0.030	0.140
	0.10	3.0	30000	340	0.020	0.14	25000	250	0.008	0.12	30000	480	0.024	0.140
0.6	0.05	2.0	30000	600	0.035	0.16	25000	400	0.020	0.13	30000	800	0.040	0.160
	0.10	3.0	30000	500	0.030	0.16	25000	350	0.015	0.13	30000	750	0.035	0.160
		4.0	25000	400	0.025	0.16	20000	250	0.015	0.13	30000	650	0.030	0.160
0.7	0.05	2.0	30000	700	0.040	0.20	30000	500	0.030	0.16	30000	1000	0.050	0.200
	0.10	4.0	25000	600	0.030	0.20	20000	400	0.020	0.16	30000	1000	0.040	0.200
		6.0	20000	450	0.020	0.20	16000	250	0.010	0.16	25000	700	0.025	0.200
0.8	0.05	2.0	30000	1400	0.055	0.25	25000	1000	0.035	0.20	30000	1800	0.065	0.250
	0.10	3.0	30000	1200	0.050	0.25	25000	800	0.030	0.20	30000	1600	0.060	0.250
	0.20	4.0	25000	1000	0.045	0.25	20000	600	0.025	0.20	30000	1400	0.055	0.250
		6.0	20000	700	0.030	0.25	16000	400	0.020	0.20	25000	1000	0.040	0.250

TOTIME Carbide End Mill Cutter
Recommended Cutting Conditions

TMHCR SERIES

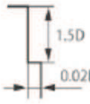
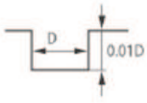
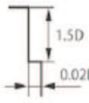
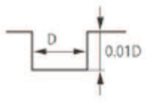
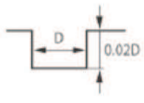
4 Flutes Long Neck Corner Radius End Mill

Workpiece Material			Hardened Steels (55~62HRC)				Hardened Steels (43~55HRC)				Carbon Steels/ Prehardened Steels (~43HRC)				Copper / Aluminum alloy			
Dia.	R	l1	rev/min	mm/min	ap/mn	ae/mn	rev/min	mm/min	ap/mn	ae/mn	rev/min	mm/min	ap/mn	ae/mn	rev/min	mm/min	ap/mn	ae/mn
1.0	0.05 0.10 0.20	4	10800	840	0.030	0.25	12800	1050	0.04	0.30	16000	1500	0.050	0.050	16000	1500	0.150	0.23
		6	8900	680	0.015	0.20	11600	840	0.03	0.25	14500	1200	0.040	0.040	14500	1200	0.120	0.20
		8	8900	500	0.012	0.16	11600	620	0.02	0.20	14500	870	0.030	0.030	14500	870	0.090	0.20
		10	7100	370	0.010	0.10	8900	470	0.02	0.10	11100	660	0.025	0.025	11100	660	0.075	0.15
		12	7100	160	0.005	0.06	8900	210	0.01	0.08	11100	300	0.020	0.020	11100	300	0. 060	0. 15
1.5	0.05 0.20	6	8500	1070	0.030	0.30	11200	1340	0.05	0.40	14000	1910	0.080	0.080	14000	1910	0.240	0.35
		8	7800	950	0.025	0.30	10500	1190	0.05	0.40	13000	1960	0.070	0.070	13000	1700	0.220	0.34
		10	7000	800	0.020	0.30	9800	1000	0.05	0.35	12000	1470	0.070	0.070	12000	1450	0.200	0.33
		12	6400	700	0.010	0.20	9000	870	0.04	0.30	11500	1250	0.060	0.060	11500	1250	0.180	0.30
2.0	0.10 0.20 0.50	8	7000	1200	0.030	0.40	8800	1500	0.05	0.50	11100	2150	0.080	0.080	11100	2150	0.240	0.45
		10	6000	1000	0.027	0.40	8800	1300	0.05	0.50	11100	2000	0.070	0.070	11100	2000	0.200	0.43
		12	5600	1000	0.027	0.40	8800	1260	0.05	0.50	11100	1800	0.065	0.065	11100	1800	0.200	0.43
		16	4800	840	0.010	0.20	7700	1050	0.04	0.35	9600	1500	0.050	0.050	9600	1500	0.150	0.39
3.0	0.20 0.50	8	6000	1500	0.050	0.75	8000	2000	0.08	0.90	9000	3000	0.120	0.120	9000	2600	0.400	0.65
		10	5500	1450	0.050	0.70	7000	1800	0.08	0.85	8500	2800	0.120	0.120	8500	2500	0.380	0.56
		12	5200	1350	0.050	0.65	6400	1680	0.08	0.80	8000	2400	0.120	0.120	8000	2400	0.360	0.55
		16	3700	1100	0.030	0.40	6200	1410	0.07	0.70	7800	2000	0.110	0.110	7800	2010	0.330	0.50
		20	3600	1000	0.030	0.30	6200	1250	0.06	0.60	7700	1850	0.100	0.100	7700	1850	0.300	0.50
		25	3400	900	0.020	0.20	6000	1140	0.06	0.50	7500	1620	0.100	0.100	7500	1620	0.300	0.45
		30	3000	600	0.005	0.10	4800	740	0.03	0.40	6000	1050	0.050	0.050	6000	1050	0.150	0.40
4.0	0.20 0.50	12	5000	1500	0.060	0.85	5000	1800	0.10	1.00	7000	2600	0.160	0.160	7000	3000	0.500	0.78
		16	4000	1400	0.060	0.80	4800	1770	0.10	1.00	6000	2520	0.150	0.150	6000	2520	0.450	0.75
		20	3500	1200	0.050	0.70	4500	1500	0.09	0.90	5600	2300	0.140	0.140	5600	2200	0.400	0.73

TMHCR / TMHICR / TMHJCR SERIES

4 Flutes Long Neck Corner Radius End Mill

Workpiece Material	Hardened Steels (62~65HRC)				Hardened Steels (55~62HRC)				Hardened Steels (~55HRC)			
Dia.	rev/min	mm/min	rev/min	mm/min	rev/min	mm/min	rev/min	mm/min	rev/min	mm/min	rev/min	mm/min
6	4600	800	4200	350	5300	1200	4800	600	6400	1800	5800	950
8	3400	1000	3000	400	4000	1400	3600	700	4800	2000	4300	1000
10	2600	1000	2300	500	3200	1600	2800	800	3800	2000	3400	1000
12	2200	1000	2000	500	2600	1600	2300	800	3200	2000	2800	1000

	Side Milling	Slotting	Side Milling	Slotting	Side Milling	Slotting
Depth of Cut (Dia.)						
Notes	※Use a rigid and precise machine and chuck holder. ※Adjust milling conditions according to the volume of depth of cut and rigidity of the machine. ※Adjust both spindle speed and feed at the same ratio. ※Use oil mist coolant or air blow.					

TOTIME Carbide End Mill Cutter
Recommended Cutting Conditions

TMHB SERIES

2 Flutes Long Neck Ball Nose End Mill

Workpiece Material		Hardened Steels (62~65HRC)				Hardened Steels (52~62HRC)				Hardened Steels (~52HRC)			
R	l1	rev/min	mm/min	ap/mn	ae/mn	rev/min	mm/min	ap/mn	ae/mn	rev/min	mm/min	ap/mn	ae/mn
0.10	0.40	40000	190	0.003	0.003	40000	290	0.005	0.005	40000	330	0.009	0.010
	1.00	40000	120	0.001	0.002	40000	160	0.002	0.003	40000	250	0.003	0.005
	1.50	40000	80	0.001	0.002	40000	120	0.002	0.003	40000	150	0.003	0.005
	2.00	40000	50	0.001	0.001	40000	80	0.001	0.002	40000	100	0.002	0.003
0.15	1.00	40000	200	0.003	0.005	40000	250	0.005	0.007	40000	320	0.007	0.010
	1.50	40000	120	0.002	0.003	40000	180	0.003	0.005	40000	230	0.005	0.007
	2.00	40000	90	0.002	0.002	40000	120	0.002	0.003	40000	150	0.003	0.005
	3.00	40000	60	0.001	0.001	40000	70	0.001	0.002	40000	80	0.001	0.003
	4.00	40000	40	0.001	0.001	40000	50	0.001	0.001	40000	60	0.001	0.002
	5.00	40000	20	0.001	0.001	40000	30	0.001	0.001	40000	40	0.001	0.001
0.20	1.00	40000	580	0.008	0.020	40000	720	0.020	0.030	40000	800	0.020	0.050
	1.50	40000	400	0.005	0.010	40000	500	0.010	0.020	40000	620	0.010	0.030
	2.00	40000	300	0.005	0.007	40000	380	0.010	0.010	40000	500	0.010	0.020
	3.00	40000	200	0.003	0.005	40000	240	0.005	0.007	40000	300	0.007	0.010
	4.00	30000	90	0.002	0.003	30000	120	0.003	0.003	30000	160	0.005	0.005
	6.00	30000	30	0.001	0.001	30000	40	0.001	0.001	30000	50	0.001	0.002
0.25	2.00	40000	400	0.007	0.010	40000	650	0.010	0.020	40000	720	0.020	0.030
	3.00	40000	320	0.005	0.007	40000	420	0.007	0.010	40000	500	0.010	0.020
	4.00	40000	260	0.003	0.005	40000	300	0.005	0.007	40000	350	0.007	0.010
	6.00	30000	70	0.001	0.002	30000	80	0.001	0.002	30000	120	0.002	0.003
	8.00	30000	50	0.001	0.002	30000	60	0.001	0.002	30000	75	0.002	0.002
	10.00	20000	20	0.001	0.001	20000	30	0.001	0.002	20000	40	0.001	0.002
0.30	2.00	30000	720	0.020	0.050	40000	1000	0.030	0.060	40000	1400	0.050	0.100
	3.00	30000	640	0.020	0.030	40000	840	0.020	0.040	40000	1200	0.030	0.050
	4.00	30000	480	0.010	0.020	40000	620	0.010	0.030	40000	1000	0.020	0.030
	6.00	30000	320	0.004	0.006	30000	380	0.005	0.007	30000	500	0.007	0.010
	8.00	20000	220	0.002	0.003	25000	260	0.003	0.003	25000	320	0.003	0.005
0.40	2.00	30000	1200	0.050	0.100	40000	1600	0.070	0.100	40000	2000	0.100	0.150
	3.00	30000	1200	0.050	0.050	40000	1600	0.070	0.100	40000	2000	0.100	0.150
	4.00	30000	860	0.030	0.050	40000	1200	0.050	0.050	40000	1600	0.050	0.100
	6.00	25000	560	0.010	0.020	30000	760	0.020	0.030	30000	1200	0.030	0.050
	8.00	25000	480	0.005	0.010	30000	600	0.007	0.010	30000	820	0.010	0.020
0.50	4.00	25000	1200	0.050	0.100	30000	1800	0.050	0.150	40000	2500	0.100	0.200
	6.00	20000	740	0.020	0.050	25000	1200	0.040	0.050	30000	1800	0.050	0.100
	8.00	20000	560	0.020	0.030	25000	860	0.030	0.040	30000	1000	0.040	0.060
	10.00	18000	450	0.010	0.020	20000	620	0.020	0.030	25000	750	0.030	0.050
	12.00	16000	400	0.005	0.010	18000	520	0.007	0.020	20000	600	0.010	0.030
	16.00	14000	200	0.002	0.003	16000	250	0.003	0.005	18000	300	0.005	0.005
0.75	4.00	25000	2000	0.100	0.200	30000	2500	0.100	0.300	30000	3000	0.150	0.300
	6.00	25000	1600	0.100	0.100	30000	2000	0.100	0.200	30000	3000	0.150	0.200
	8.00	20000	1200	0.050	0.100	25000	1600	0.050	0.200	25000	2500	0.100	0.200
	10.00	20000	860	0.050	0.050	25000	1200	0.050	0.100	25000	2500	0.100	0.100
	12.00	18000	780	0.020	0.050	20000	920	0.030	0.100	20000	1800	0.050	0.100
	16.00	16000	580	0.010	0.020	18000	650	0.020	0.030	18000	720	0.030	0.050

TMHB SERIES

2 Flutes Long Neck Ball Nose End Mill

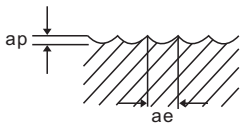
Workpiece Material		Hardened Steels (62~65HRC)				Hardened Steels (52~62HRC)				Hardened Steels (~52HRC)			
R	l1	rev/min	mm/min	ap/mn	ae/mn	rev/min	mm/min	ap/mn	ae/mn	rev/min	mm/min	ap/mn	ae/mn
1.00	6.00	20000	1600	0.150	0.300	25000	2000	0.200	0.300	25000	2500	0.200	0.500
	8.00	16000	1200	0.100	0.200	18000	1600	0.100	0.200	20000	2000	0.200	0.300
	10.00	14000	1200	0.100	0.100	16000	1600	0.100	0.200	18000	2000	0.100	0.300
	12.00	12000	940	0.050	0.100	14000	1200	0.100	0.100	16000	1600	0.100	0.200
	16.00	12000	940	0.030	0.070	14000	1200	0.050	0.080	16000	1600	0.070	0.150
1.50	8.00	14000	2000	0.200	0.500	18000	2500	0.200	0.600	20000	3000	0.200	0.800
	10.00	14000	1500	0.100	0.300	18000	2000	0.200	0.400	20000	2500	0.200	0.600
	12.00	14000	1500	0.100	0.300	18000	2000	0.200	0.400	20000	2500	0.200	0.600
	16.00	12000	1200	0.100	0.200	16000	1600	0.100	0.300	18000	2000	0.100	0.400
	20.00	12000	960	0.100	0.100	16000	1200	0.100	0.200	18000	1600	0.100	0.300
	25.00	10000	800	0.050	0.070	14000	920	0.070	0.150	16000	1200	0.100	0.200
	30.00	8600	600	0.030	0.050	12000	640	0.050	0.070	14000	750	0.070	0.100
2.00	12.00	12000	2000	0.200	0.600	16000	2500	0.200	0.800	20000	3000	0.300	1.500
	16.00	11000	1500	0.150	0.500	15000	1900	0.150	0.700	18000	2600	0.250	1.200
	20.00	10000	1400	0.100	0.400	14000	1800	0.100	0.600	16000	2400	0.200	1.000
	25.00	10000	1000	0.100	0.200	14000	1200	0.100	0.400	16000	1600	0.200	0.800
	30.00	8200	1000	0.050	0.150	10000	1200	0.070	0.200	14000	1600	0.100	0.300

TOTIME CBN End Mill(HRC45~65)
Recommended Cutting Conditions

TCBN-B SERIES

CBN 2 FLUTE BALL NOSE

Workpiece Material			Hardened Steels			
STRENGTH			HRC45-HRC65			
Radius of Ball Nose	DIA.	H	RPM	FEED	ap (mm)	ae (mm)
R0.20	0.4	1.0	50000	1200	0.005	0.005
R0.25	0.5	1.0	50000	1500	0.005	0.005
R0.30	0.6	1.2	50000	1200	0.005	0.005
R0.40	0.8	1.6	50000	2000	0.005	0.005
R0.50	1.0	2.0	50000	3000	0.010	0.010
R0.75	1.5	3.5	50000	3000	0.010	0.010
R1.00	2.0	4.0	40000	3200	0.010	0.010
R1.50	3.0	10.0	21200	1680	0.006	0.010

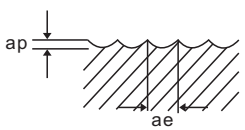


RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/t

TCBN-CR SERIES

CBN 2/3/4 FLUTE CORNER RADIUS

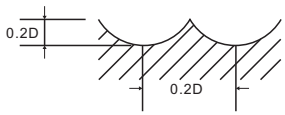
Workpiece Material		Hardened Steels			
STRENGTH		HRC45-HRC65			
DIA.	H	RPM	FEED	ap (mm)	ae (mm)
0.4	1.0	50000	600	0.050	0.005
0.5	1.5	50000	700	0.100	0.010
0.6	2.0	50000	480	0.100	0.010
0.8	2.5	50000	800	0.100	0.010
1.0	3.5	34400	800	0.200	0.006
1.5	4.5	30000	1000	0.400	0.020
2.0	6.0	22000	900	0.600	0.030
3.0	10.0	12000	560	0.800	0.018



RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/t

TDIA2B SERIES
DIAMOND, 2 FLUTE BALL NOSE

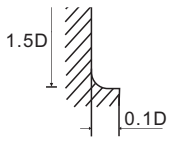
Workpiece Material	Graphite	
DIA.	RPM	FEED
3.0	16000	1450
4.0	16000	2100
6.0	15000	2950
8.0	13000	3000
10.0	11500	3050
12.0	10500	3150



RPM = rev./min.
FEED = mm/min.

TDIA4S SERIES
DIAMOND, 4 FLUTE SQUARE, CORNER RADIUS

Workpiece Material	Graphite	
DIA.	RPM	FEED
1.0	24000	960
2.0	22000	1320
3.0	20000	1600
4.0	18000	1900
6.0	11000	2400
8.0	8000	2800
10.0	6500	2400
12.0	5500	2400



RPM = rev./min.
FEED = mm/min.

Part 2

Indexable Milling Cutter

DIRECTORY

- Face Milling B122
- High-Feed Milling B131
- Shoulder Milling B136
- Profile Milling B155
- Slot Milling B164
- Multi-Functional Milling B168

Face Milling

	MFPN66	THN45	TSON45	TSE45	TSN90
SERIES					
Cutting edge angle	66°	45°	45°	45°	90° /87°
Depth of cut（APMX）	5	5	2.5/4.5	6.5	6.7 /10
Diameter range	D50-D315	D50-D160	D50-D160	D50-D160	D50-D125
Workpiece material	P M K S	P M K	P M K	P M K N	P M K S
Insert No.	PNMU0905	HNMU0906	SNMU1305 ONMU0505	SEKT12T3 SEHT12T3	SNGX1306
No. of corners(insert)	10	12	8/16	4	8
Purpose					
Reference pages	B122	B124	B126	B128	B130

High-Feed Milling

	MFH	MRH	
SERIES			
Cutting edge angle	12°	10°	10°
Depth of cut（APMX）	0.5	1	2
Diameter range	D8-D14	D16-D32	D50-D160
Workpiece material	P M K S H	P M S	P M S
Insert No.	BPMT0202	LOGU0303	SOMT1405
No. of corners(insert)	2	4	4
Purpose			
Reference pages	B131	B133	B135

TOTIME Indexable Milling Cutter
Application Overview

Shoulder Milling

	TTP				
SERIES					
Cutting edge angle	90°	90°	90°	90°	90°
Depth of cut (APMX)	7/11	7/11	40/42	40-78	60/70
Diameter range	D40-D125	D16-D40	D32-D40	D50-D100	D80/D100
Workpiece material	P M K N	P M K N	P M K N	P M K N	P M K N
Insert No.	TPKT1004 TPKT1505	TPKT1004 TPKT1505	TPKT1004 TPKT1505	TPKT1004 TPKT1505	TPKT1505
No. of corners(insert)	3	3	3	3	3
Purpose					
Reference pages	B136	B137	B138	B138	B139

	TAN90		TWN90	TAP90	
SERIES					
Cutting edge angle	90°	90°	90°	90°	90°
Depth of cut (APMX)	8/12	16.3	6.5	9/15	15
Diameter range	D16-D40	D50-D160	D63-D160	D13-D32	D50-D100
Workpiece material	P M K	P M K	P M K	P M K N H	P M K N H
Insert No.	ANKT0904 ANKT1205	ANKT1706	WNMU0806	APKT1003 APKT1604	APKT1604
No. of corners(insert)	4	4	6	2	2
Purpose					
Reference pages	B141	B141	B142	B145	B145

	TLX			EAP	
SERIES					
Cutting edge angle	90°	90°	90°	90°	90°
Depth of cut (APMX)	9.7	9.7	58.5/66.9	9/14	14
Diameter range	D32-D80	D50-D125	D50/D63	D10-D35	D50-D200
Workpiece material	P M K	P M K	P M K	P M K H	P M K H
Insert No.	LXGU1107	LXGU1107	LXGU1107	APMT1135 APMT1604	APMT1604
No. of corners(insert)	4	4	4	2	2
Purpose					
Reference pages	B148	B148	B149	B150	B152

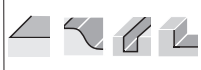
TOTIME Indexable Milling Cutter

Application Overview

Shoulder Milling

	TAL		
SERIES			
Cutting edge angle	90°	90°	90°
Depth of cut（APMX）	17	17	17
Diameter range	D25-D32	D40-D125	D25-D40
Workpiece material	N	N	N
Insert No.	ADGT1904	ADGT1904	ADGT1904
No. of corners(insert)	2	2	2
Purpose			
Reference pages	B153	B153	B154

Profile Milling

	TRD		EMR		C-ABPF
SERIES					
Cutting edge angle	—	—	—	—	—
Depth of cut（APMX）	4/5/6	5/6	4/5/6	5/6	0.03D
Diameter range	D16-D32	D50-D100	D12-D35	D50-D160	D10-D30
Workpiece material	P M K N H	P M K N H	P M K H	P M K H	P
Insert No.	RDKT0802 RDKT10T3 RDKT1204	RDKT10T3 RDKT1204	RPMT08T2 RPMW1003 RPMT10T3 RPMT1204	RPMW1003 RPMT10T3 RPMT1204	SP1W SP1Q
Purpose					
Reference pages	B155	B155	B158	B160	B162

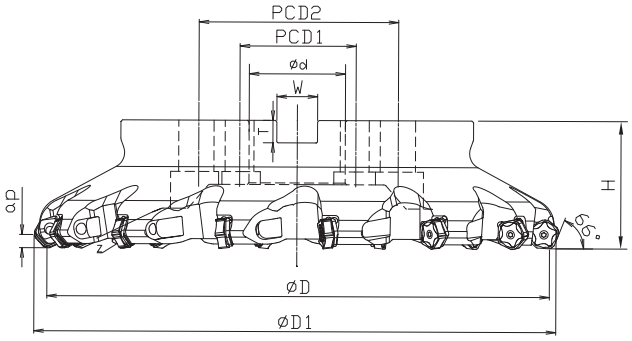
Slot Milling　　Chamfer Milling　　Multi-Functional Milling

	TLX		TTPC	MODULAR	
SERIES					
Cutting edge angle	—	—	30° /45° /60°	—	—
Depth of cut（APMX）	16-25	16-25	3.3-5.9	—	—
Diameter range	D100-D200	D100-D200	D2-D20	D9-D40	D8-D25
Workpiece material	P M K S	P M K S	P M K N	P M K	P M K N
Insert No.	LXGU1008 LXGU1208 LXGU1509	LXGU1008 LXGU1208 LXGU1509	TPKT1004	TP/ABPP BAPM / EMRM / MFH	HHD/HSB/HRTA
Purpose					
Reference pages	B164	B165	B139	B169-B172	B173-B174

MFPN66 SERIES

66° Face Mill with High Economical and 10 Cutting Edge Insert for Higher Productivity

★ Stability and cost efficiency with 10-edge pentagonal inserts.
★ Low cutting forces and reduced chattering with a helical cutting edge design.
★ Tough and reliable dual cutting edge design.



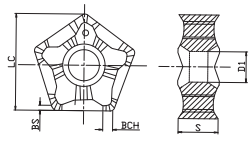
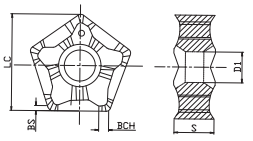
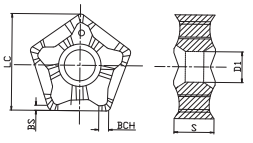
Designation	Size(mm)										Clamping Screw	Wrench	Torque (N・m)
	D	D1	d	H	W	T	Z	PCD 1	PCD 2	Max.ap			
MFPN66050R-4T-M	50	58	22	40	10.4	6.3	4	-	-	5	SB4090	DTPM-15	3.5
MFPN66063R-5T-M	63	71	22	40	10.4	6.3	5	-	-	5			
MFPN66080R-6T-M	80	88	27	50	12.4	7.0	6	-	-	5			
MFPN66100R-7T-M	100	108	32	50	12.4	8.0	7	-	-	5			
MFPN66125R-9T-M	125	133	40	63	16.4	9.0	9	-	-	5			
MFPN66160R-11T-M	160	168	40	63	16.4	9.0	11	-	-	5			
MFPN66200R-13T-M	200	208	60	63	25.7	14.0	13	101.6	-	5			
MFPN66250R-15T-M	250	258	60	63	25.7	14.0	15	101.6	-	5			
MFPN66315R-17T-M	315	323	60	63	25.7	14.0	17	101.6	177.8	5			

MFPN66 SERIES

66° Face Mill with High Economical and 10 Cutting Edge Insert for Higher Productivity

Applicable Inserts

Usage Classification										
★ 1st Choice ☆ 2nd Choice	P	Steel	★		★					
	M	Stainless		★	★					
	K	Cast iron	★		★					
	N	Non-ferrous								
	S	Superalloys		★						
	H	Hard materials								

Insert		Insert No.	Size(mm)					Coated Carbide				Carbide			
			LC	S	D1	BS	BCH	TG4025	TG4035	TY602	TI960	HC200			
		PNMU0905XNER-UG	14.6	5.56	4.7	2	2	●							
		PNMU0905XNER-SG	14.6	5.56	4.7	2	2		●						
		PNMU0905XNER-TG	14.6	5.56	4.7	2	2			●					

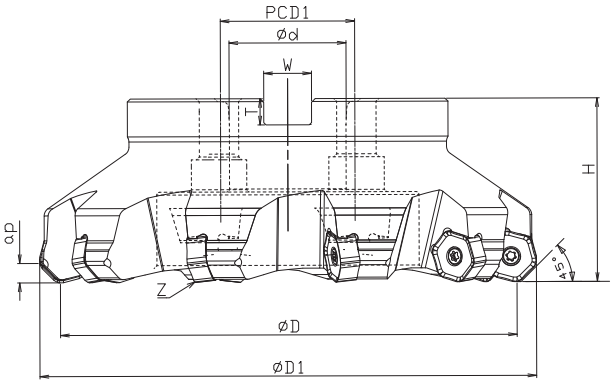
Recommended Cutting Conditions

ISO	Workpiece material	Hardness	Grade	Cutting Speed	Feed
				Vc (m/min)	fz (mm/t)
P	Carbon Steel	≤HB300	TG4025/TY602	120-250	0.10-0.30
	Alloy Steel	HB200-300		100-220	0.10-0.30
	Mold Steel	≤HB300		80-180	0.10-0.25
M	Stainless Steel	≤HB200	TG4035/TY602	100-200	0.06-0.20
K	Gray Cast Iron	HB150-250	TY602	120-260	0.06-0.20
	Ductile Cast Iron	HB150-250	TY602	100-200	0.06-0.15

THN45 SERIES

45° Face Mill with High Economical and 12 Cutting Edge Insert for Higher Productivity

★ Enhanced cutting edge for cutting stability and high feed machining.
★ Acute cutter pocket design and inclined screw clamping enables robust clamping.
★ High helical cutting edges for smooth machining, with double-sided 12-edge inserts.



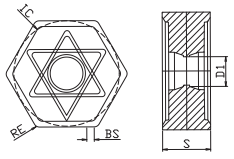
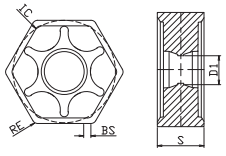
Designation	Size(mm)									Clamping Screw	Wrench	Torque (N・m)
	D	D1	d	H	W	T	Z	PCD1	Max.ap			
THN45-50R04HN09M22	50	61.4	22	40	10.4	6.3	4	-	5	TH3009	THP09	2.4
THN45-63R06HN09M22	63	74.4	22	40	10.4	6.3	6	-	5			
THN45-80R06HN09M27	80	91.4	27	50	12.4	7.0	6	-	5			
THN45-100R06HN09M32	100	111.4	32	50	14.4	8.0	6	-	5			
THN45-125R08HN09M40	125	136.4	40	63	16.4	9.0	8	-	5			
THN45-160R10HN09M40	160	171.4	40	63	16.4	9.0	10	66.7	5	TH3009	TTL15P	2.4

THN45 SERIES

45° Face Mill with High Economical and 12 Cutting Edge Insert for Higher Productivity

Applicable Inserts

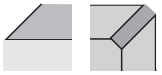
Usage Classification										
★ 1st Choice ☆ 2nd Choice	P	Steel	★							
	M	Stainless	★	★						
	K	Cast iron	★							
	N	Non-ferrous								
	S	Superalloys		☆						
	H	Hard materials								

Insert		Insert No.	Size(mm)					Coated Carbide				Carbide			
			IC	S	D1	BS	RE	TY602	TY615	TY625	TI960	HC200			
		HNMU0906ANSN-GR	16.5	6.36	5	1.5	1.2	●							
		HNMU0906ANSN-TR	16.5	6.36	5	1.5	1.2		●						

Recommended Cutting Conditions

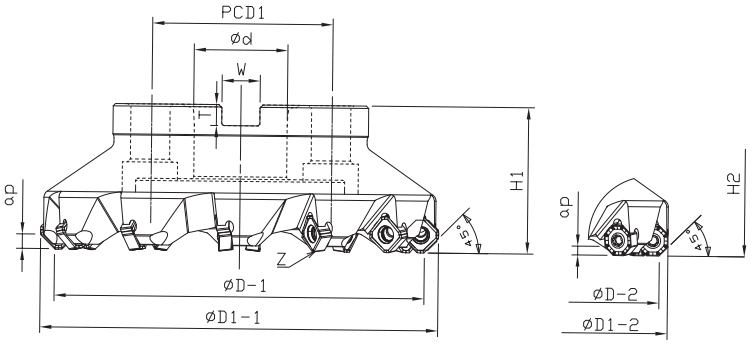
ISO	Workpiece material	Hardness	Grade	Cutting Speed Vc (m/min)	Feed fz (mm/t)
P	Low Carbon Steel	≤HB180	TY602	200-300	0.20-0.40
	High Carbon and Alloy Steel	HB180-280		100-250	0.15-0.25
	Alloy Steel	HB280-350		100-180	0.20-0.40
M	Stainless Steel	≤HB200	TY602/TY615	100-200	0.10-0.30
K	Gray Cast Iron	HB150-250	TY602	130-230	0.20-0.40
	Ductile Cast Iron	HB150-250		120-220	0.10-0.30

TSON45 SERIES



45° Face Mill Offers Advantage of Using Square, Octagonal Inserts in the Same Pocket

★SNMU insert offers double-sided, square inserts with eight cutting edges.
★Most suitable for a large depth of cut and free cutting inserts with excellent chip control.
★ONMU inserts offers double-sided, octagonal insert with 16 cutting edges – high economy inserts.
★Light cutting force due to excellent chip control.
★The optimized cutting edge creates barrel-formed chips for easy removal, allowing an operation at higher feed rate.



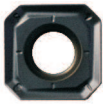
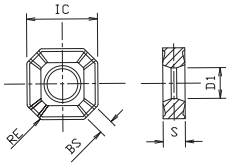
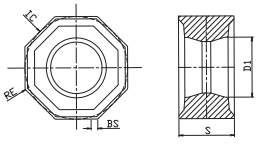
Designation	Size (mm)											Clamping Screw	Wrench	Torque (N・m)
	D-1	D-2	D1-1	D1-2	d	H1	H2	W	T	Z	PCD1			
TSON45-50R04S13O05M22	50	52.3	62.5	62	22	40	38.77	10.4	6.3	4	-	TSO1013	TSOP1305	2.2
TSON45-63R06S13O05M22	63	65.3	75.5	75	22	40	38.77	10.4	6.3	6	-			
TSON45-80R06S13O05M27	80	82.3	92.5	92	27	50	48.77	12.4	7.0	6	-			
TSON45-100R08S13O05M32	100	102.3	112.5	112	32	50	48.77	14.4	8.0	8	-			
TSON45-125R10S13O05M40	125	127.3	137.5	137	40	63	61.77	16.4	9.0	10	-			
TSON45-160R12S13O05M40	160	162.3	172.5	172	40	63	61.77	16.4	9.0	12	66.7	TSO1013	TTL20	2.2

TSON45 SERIES

45° Face Mill Offers Advantage of Using Square, Octagonal Inserts in the Same Pocket

Applicable Inserts

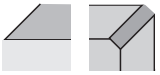
Usage Classification										
★ 1st Choice ☆ 2nd Choice	P	Steel	★							
	M	Stainless	★							
	K	Cast iron	★							
	N	Non-ferrous								
	S	Superalloys								
	H	Hard materials								

Insert		Insert No.	Size(mm)						Coated Carbide				Carbide			
			IC	S	D1	BS	RE	Max.ap	TY602	TY622	TY625	TI960	HC200			
		SNMU1305ANTR-PR	13	5.5	5.6	3	0.8	4.5	●							
		ONMU050505-PR	13	5.5	5.6	5	0.5	2.5	●							

Recommended Cutting Conditions

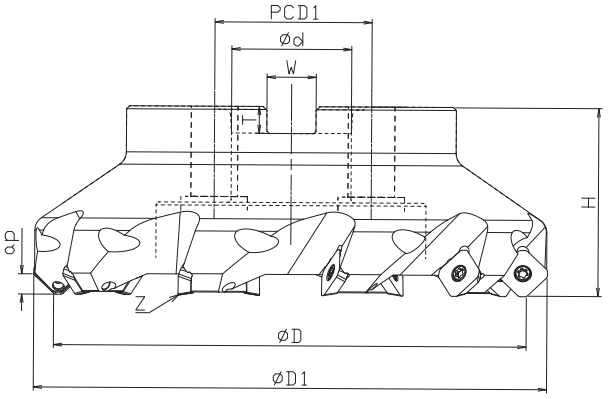
ISO	Workpiece material	Hardness	Grade	Cutting Speed	Feed
				Vc (m/min)	fz (mm/t)
P	Low Carbon Steel	≤HB180	TY602	120-250	0.10-0.50
	High Carbon and Alloy Steel	HB180-280		100-180	0.15-0.40
	Alloy Steel	HB280-350		70-150	0.15-0.40
M	Stainless Steel	≤HB200		100-200	0.10-0.30
K	Gray Cast Iron	HB150-250		100-180	0.10-0.50
	Ductile Cast Iron	HB150-250		100-180	0.10-0.30

TSE45 SERIES



45° Face Mill with High Precision and 4 Cutting Edge Insert for Higher Productivity

★ 4 cutting edges on one insert for highly economical machining.
★ Optimized relief geometry on the positive insert ensures low cutting force and minimal chattering.
★ Helical cutting edges and optimized positioning on cutter provide high wall accuracy and surface quality.
★ Sharp and tough rake geometry reduces fracture of cutting edges.



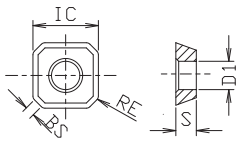
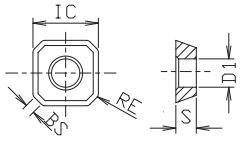
Designation	Size(mm)									Clamping Screw	Wrench	Torque (N・m)
	D	D1	d	H	W	T	Z	PCD1	Max.ap			
TSE45-50R04SE12M22	50	62.9	22	40	10.4	6.3	4	-	6.5	TS2012	TSP12	2.2
TSE45-63R05SE12M22	63	75.9	22	40	10.4	6.3	5	-	6.5			
TSE45-80R06SE12M27	80	92.9	27	50	12.4	7.0	6	-	6.5			
TSE45-100R07SE12M32	100	112.9	32	50	14.4	8.0	7	-	6.5			
TSE45-125R08SE12M40	125	137.9	40	63	16.4	9.0	8	-	6.5			
TSE45-160R10SE12M40	160	172.8	40	63	16.4	9.0	10	66.7	6.5	TS3512	TTL15	2.2

TSE45 SERIES

45° Face Mill with High Precision and 4 Cutting Edge Insert for Higher Productivity

Applicable Inserts

Usage Classification										
★ 1st Choice ☆ 2nd Choice	P	Steel	★							
	M	Stainless	★							
	K	Cast iron	★							
	N	Non-ferrous					★			
	S	Superalloys								
	H	Hard materials								

Insert		Insert No.	Size(mm)					Coated Carbide				Carbide			
			IC	S	D1	BS	RE	TY602	TY622	TY625	TI960	HC200			
		SEKT12T3AGTN	13.4	4	5.5	1.3	1.5	●							
		SEHT12T3-HL	13.4	4	5.5	1.3	1.5					●			

Recommended Cutting Conditions

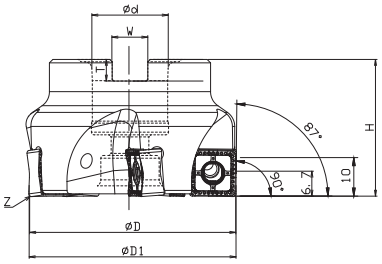
ISO	Workpiece material	Hardness	Grade	Cutting Speed Vc (m/min)	Feed fz (mm/t)
P	Low Carbon Steel	⩽HB180	TY602	120-220	0.15-0.30
	High Carbon and Alloy Steel	HB180-280		70-150	0.15-0.30
	Alloy Steel	HB280-350		70-150	0.15-0.30
M	Stainless Steel	⩽HB200		120-200	0.15-0.30
K	Gray Cast Iron	HB150-250		140-220	0.15-0.30
	Ductile Cast Iron	HB150-250		150-240	0.15-0.30
N	Aluminum	—	HC200	300-800	0.07-0.55

TOTIME Indexable Milling Cutter
Face Milling

TSN SERIES

Shoulder Milling Cutter with 8 Double-Sided Cutting Edge and Low Cutting Forces for Reduced Chattering and Superior Fracture Resistance

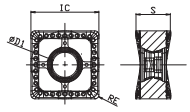
★ The insert is double-sided eight cutting edge type,which is economical.The large front angle of the insert is designed to cut easily.
★ There are M and ML grooves to meet the processing requirements under different working conditions



Designation	Size(mm)								Coolant Hole	Insert	Clamping Screw	Wrench	Torque (N・m)
	D	D1	d	H	W	T	Z	MAX.ap					
TSN90-50R05SN13M22	50	50.84	22	40	10.4	6.3	5	6.7/10	●	SNGX130608	TSN1306	TSNL13	2.2
TSN90-63R06SN13M22	63	63.52	22	40	10.4	6.3	6	6.7/10	●				
TSN90-80R07SN13M27	80	80.6	27	50	12.4	7.0	7	6.7/10	●				
TSN90-100R08SN13M32	100	100.58	32	50	14.4	8.0	8	6.7/10	●				
TSN90-125R10SN13M40	125	125.72	40	63	16.4	9.0	10	6.7/10	●				

Applicable Inserts

Usage Classification									
★ 1st Choice ☆ 2nd Choice	P	Steel	★						
	M	Stainless	★						
	K	Cast iron		★					
	N	Non-ferrous							
	S	Superalloys	☆		★				
	H	Hard materials							

Insert		Insert No.	Size(mm)				Coated Carbide				Carbide			
			IC	S	D1	RE	TE620	TY720	TS320	TI960	HC200			
		SNGX130608-ML	13.5	6.9	5.4	0.8	●	●	●					
		SNGX130608-M	13.5	6.9	5.4	0.8	●	●						

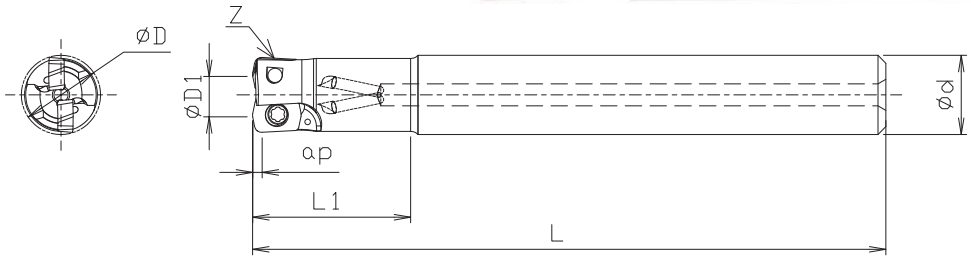
Recommended Cutting Conditions

ISO	Workpiece material	Hardness	Priority		Cutting Speed	Feed
			Chipbreaker	Grade	Vc （m/min）	fz （mm/t）
P	Low Carbon Steel	≤HB180	M	TE620	180-300	0.10-0.20
	High Carbon and Alloy Steel	HB180-280	M		130-210	0.10-0.20
	Alloy Steel	HB280-350	M		100-180	0.10-0.20
M	Stainless Steel	≤HB200	M		120-300	0.10-0.20
K	Gray Cast Iron	HB150-250	M	TY720	100-280	0.13-0.25
	Ductile Cast Iron	HB150-250	M		100-180	0.13-0.25
S	Ni-base Heat Resistant Alloy	—	ML	TS320	30-80	0.10-0.20
	Titanium Alloy	—	ML		35-90	0.10-0.20

MFH SERIES

Micro-Diameter, High-Feed Milling

★Durable Design Aids in Chatter Resistance.
★Stable High Feed Machining on a Wide Range of Applications.
★Controls Chip Biting with Convex Cutting Edge.
★Replaces Solid End Mills to Reduce Machining Costs.



Standard Type

Designation	Size(mm)							Clamping Screw	Wrench	Torque (N・m)
	D	D1	d	L	L1	Z	Max.ap			
MFH08-S10-120-1T	8	4.2	10	120	35	1	0.5	TB1002	TBP02	0.8
MFH10-S10-120-2T	10	6.2	10	120	35	2	0.5			
MFH12-S12-120-3T	12	8.2	12	120	35	3	0.5			

Non-interference Type

Designation	Size(mm)							Clamping Screw	Wrench	Torque (N・m)
	D	D1	d	L	L1	Z	Max.ap			
MFH10-S08-120-2T	10	6.2	8	120	35	2	0.5	TB1002	TBP02	0.8
MFH12-S10-120-3T	12	8.2	10	120	35	3	0.5			
MFH14-S12-120-3T	14	10.2	12	120	35	3	0.5			

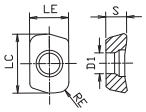
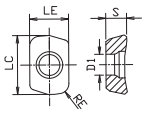
TOTIME Indexable Milling Cutter
High-Feed Milling

MFH SERIES

Micro-Diameter, High-Feed Milling

Applicable Inserts

Usage Classification										
★ 1st Choice ☆ 2nd Choice	P	Steel	★							
	M	Stainless	★							
	K	Cast iron	★							
	N	Non-ferrous								
	S	Superalloys	★							
	H	Hard materials		★						

Insert		Insert No.	Size(mm)					Coated Carbide				Carbide			
			LC	LE	S	D1	RE	TY125	TH105	TY602	TY622	HC200			
		BPMT020210R-UF	6.38	4.19	2.59	2.1	1.0	●							
		BPGT020210R-UH	6.38	4.19	2.59	2.1	1.0		●						

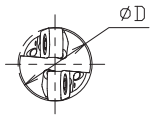
Recommended Cutting Conditions

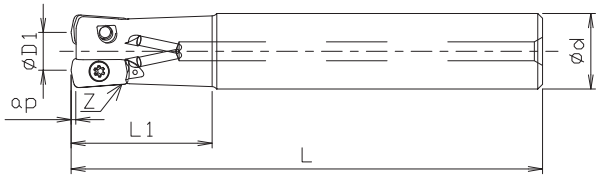
ISO	Workpiece material	Hardness	Grade	Cutting Speed Vc (m/min)	Feed fz (mm/t)
P	Carbon Steel	≤HB300	TY125	100-300	0.2-0.8
	Alloy Steel	HB200-300		100-300	0.2-0.8
	Mold Steel	<HRC40		100-200	0.2-0.5
M	Stainless Steel	≤HB200		100-150	0.2-0.5
K	Gray Cast Iron	HB150-250		100-300	0.2-0.8
	Ductile Cast Iron	HB150-250		80-200	0.2-0.6
S	Ni-base Heat Resistant Alloy	<HRC40		20-50	0.1-0.3
	Titanium Alloy	<HRC40		30-60	0.1-0.3
H	Hard Materials	HRC40-50	TH105	80-150	0.1-0.5
		HRC50-60		50-70	0.1-0.3

MRH SERIES

High-Feed Milling

★ High feed milling for small diameters and small machining centers.
★ Economical inserts with 4 cutting edges.
★ Both of standard type and non-interference type are available.





Standard Type

Designation	Size(mm)							Clamping Screw	Wrench	Torque (N・m)
	D	D1	d	L	L1	Z	Max.ap			
MRH16-S16-03-2T	16	8	16	100	30	2	1	M3065-S	FT08	1.0
MRH20-S20-03-3T	20	12	20	130	50	3	1			
MRH25-S25-03-3T	25	17	25	140	60	3	1			
MRH32-S32-03-4T	32	24	32	150	70	4	1			

Non-interference Type

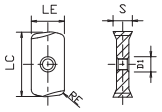
Designation	Size(mm)							Clamping Screw	Wrench	Torque (N・m)
	D	D1	d	L	L1	Z	Max.ap			
MRH17-S16-03-2T	17	9	16	150	25	2	1	M3065-S	FT08	1.0
MRH21-S20-03-3T	21	13	20	150	30	3	1			
MRH26-S25-03-3T	26	18	25	150	35	3	1			

MRH SERIES

High-Feed Milling

Applicable Inserts

Usage Classification										
★ 1st Choice ☆ 2nd Choice	P	Steel	★		★					
	M	Stainless	☆	★	★					
	K	Cast iron								
	N	Non-ferrous								
	S	Superalloys		★						
	H	Hard materials								

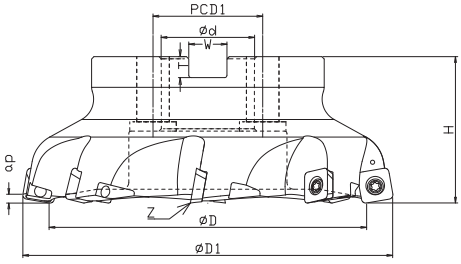
Insert		Insert No.	Size(mm)					Coated Carbide				Carbide			
			LC	LE	S	D1	RE	KX402	KX405	TY602	TY622	HC200			
		LOGU030310ER-GM	11.9	6.2	3.96	3.45	1.0	●	●	●					

Recommended Cutting Conditions

ISO	Workpiece material	Hardness	Grade	Cutting Speed	Feed
				Vc （m/min）	fz （mm/t）
P	Carbon Steel	⩽HB300	KX402/TY602	120-250	0.2-1.2
	Alloy Steel	HB200-300		100-220	0.2-1.2
	Mold Steel	＜HRC40		80-180	0.2-0.9
	Mold Steel	HRC40-50		60-130	0.2-0.5
M	Stainless Steel	⩽HB200	KX405/TY602	100-200	0.2-0.9
S	Ni-base Heat Resistant Alloy	—	KX405	20-50	0.2-0.6
	Titanium Alloy	—		40-80	0.2-0.6

MRH SERIES

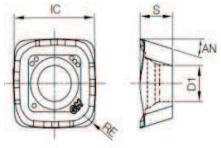
High-Feed Milling



Designation	Size(mm)								Clamping Screw	Wrench	Torque (N・m)
	D	D1	d	H	W	T	Z	Max.ap			
MRH050R-14-3T-22MS	27	50	22	50	10.4	6	3	2	M5011-S	WT20	1.8
MRH063R-14-4T-22M	40	63	22	50	10.4	6	4	2			
MRH080R-14-5T-M	57	80	27	63	12.4	7	5	2			
MRH100R-14-7T-M	77	100	32	63	14.4	8	7	2			
MRH125R-14-7T-M	102	125	40	63	16.4	9	7	2			
MRH160R-14-8T-M	137	160	40	63	16.4	9	8	2			

Applicable Inserts

Usage Classification										
★ 1st Choice ☆ 2nd Choice	P	Steel	★							
	M	Stainless	☆	★						
	K	Cast iron								
	N	Non-ferrous								
	S	Superalloys		★						
	H	Hard materials								

Insert		Insert No.	Size(mm)					Coated Carbide				Carbide			
			IC	S	D1	RE	AN	KX402	KX405	TY602	TY622	HC200			
		SOMT140520ER-GM	14.1	5.56	5.8	2.0	16°	●	●						

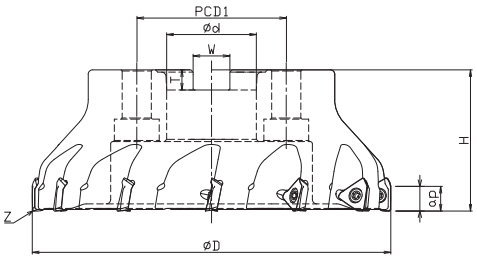
Recommended Cutting Conditions

ISO	Workpiece material	Hardness	Grade	Cutting Speed Vc (m/min)	Feed fz (mm/t)
P	Carbon Steel	≤HB300	KX402	120-250	0.5-2.0
	Alloy Steel	HB200-300		100-220	0.5-2.0
	Mold Steel	<HRC40		80-180	0.2-1.8
	Mold Steel	HRC40-50		60-130	0.2-1.0
M	Stainless Steel	≤HB200	KX405	100-200	0.5-1.2
S	Ni-base Heat Resistant Alloy	—		20-50	0.2-0.8
	Titanium Alloy	—		40-80	0.2-0.8

TTP SERIES

TTP's economical insert with 3 cutting edges and optimized geometry improves efficiency and productivity with the square shoulder milling cutter.

- ★ 3 cutting edges on one insert for highly economical machining.
- ★ Optimized relief geometry on the positive insert ensures low cutting force and minimal chattering.
- ★ Helical cutting edges and optimized positioning on cutter provide high wall accuracy and surface quality.
- ★ Sharp and tough rake geometry reduces fracture of cutting edges.
- ★ Triangular shape of the insert improves clamping rigidity and reliability.
- ★ Insert sizes of 10, 15 mm cover small to large depths of cut.

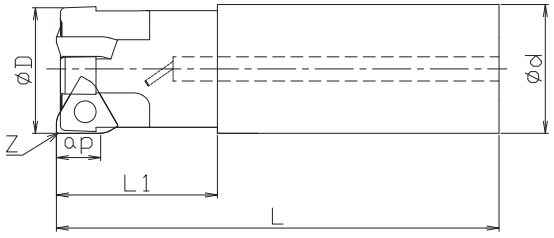


Milling Cutters

Designation	Size(mm)								Coolant Hole	Insert	Clamping Screw	Wrench	Torque (N・m)
	D	d	H	W	T	Z	PCD 1	Max.ap					
TTPF90-40R06TP10M16	40	16	40	8.4	5.6	6	-	7	●	TPKT1004..R-M	TP1004	TPFP10	1.0
TTPF90-50R07TP10M22	50	22	40	10.4	6.3	7	-	7	●		TP1004L	TPFP10L	1.8
TTPF90-63R08TP10M22	63	22	40	10.4	6.3	8	-	7	●				
TTPF90-50R05TP15M22	50	22	40	10.4	6.3	5	-	11	●	TPKT1505..R-M	TP1505	TPFP15	1.8
TTPF90-63R06TP15M22	63	22	40	10.4	6.3	6	-	11	●				
TTPF90-80R07TP15M27	80	27	50	12.4	7.0	7	-	11	●				
TTPF90-100R08TP15M32	100	32	50	14.4	8.0	8	-	11	●				
TTPF90-125R10TP15M40	125	40	63	16.4	9.0	10	-	11	●				

TTP SERIES

TTP's economical insert with 3 cutting edges and optimized geometry improves efficiency and productivity with the square shoulder milling cutter.

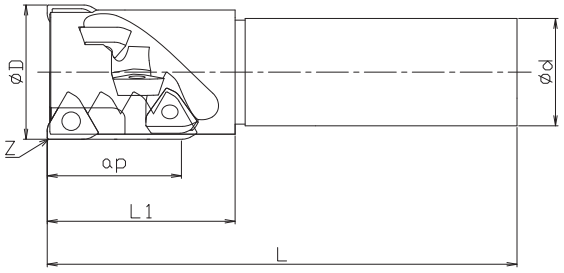


● Endmills

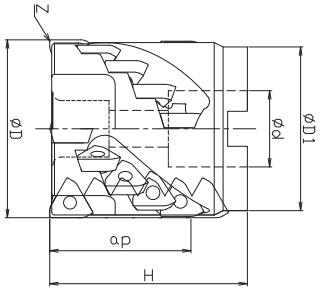
Designation	Size(mm)						Coolant Hole	Insert	Clamping Screw	Wrench	Torque (N・m)
	D	d	L1	L	Z	Max.ap					
TTPE90-16R01D16TP10L90	16	16	20	90	1	7	●	TPKT1004..R-M	TP1004	TPEP10	1.0
TTPE90-20R02D20TP10L90	20	20	25	90	2	7	●				
TTPE90-20R02D20TP10L170	20	20	40	170	2	7	●				
TTPE90-21R02D20TP10L200	21	20	30	200	2	7	●				
TTPE90-25R03D20TP10L100	25	20	30	100	3	7	●				
TTPE90-25R03D25TP10L100	25	25	30	100	3	7	●				
TTPE90-25R03D25TP10L210	25	25	40	210	3	7	●				
TTPE90-26R02D25TP10L250	26	25	30	250	2	7	●				
TTPE90-30R03D25TP10L110	30	25	35	110	3	7	●				
TTPE90-32R03D25TP10L110	32	25	35	110	3	7	●				
TTPE90-32R03D32TP10L250	32	32	60	250	3	7	●				
TTPE90-33R03D32TP10L250	33	32	35	250	3	7	●				
TTPE90-40R06D32TP10L115	40	32	40	115	6	7	●				
TTPE90-40R04D32TP10L200	40	32	40	200	4	7	●				
TTPE90-32R03D25TP15L100	32	25	40	100	3	11	●	TPKT1505..R-M	TP1505	TPEP15	1.8
TTPE90-32R03D25TP15L155	32	25	35	155	3	11	●				
TTPE90-32R03D32TP15L110	32	32	40	110	3	11	●				
TTPE90-32R03D32TP15L150	32	32	40	150	3	11	●				
TTPE90-32R03D32TP15L250	32	32	60	250	3	11	●				
TTPE90-33R02D32TP15L200	33	32	40	200	2	11	●				
TTPE90-33R02D32TP15L250	33	32	40	250	2	11	●				
TTPE90-35R03D32TP15L110	35	32	40	110	3	11	●				
TTPE90-40R03D32TP15L110	40	32	40	110	3	11	●				
TTPE90-40R03D32TP15L200	40	32	40	200	3	11	●				

TTP SERIES

TTP's economical insert with 3 cutting edges and optimized geometry improves efficiency and productivity with the square shoulder milling cutter for roughing.



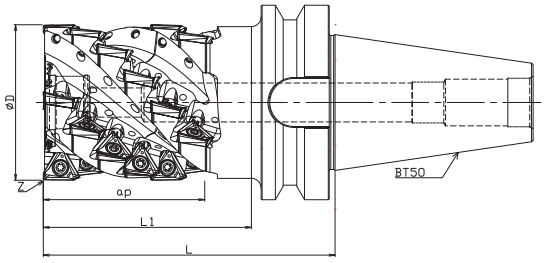
Designation	Size(mm)							Coolant Hole	Insert	Clamping Screw	Wrench	Torque (N・m)
	D	d	L1	L	Z eff	Z	Max.ap					
TTPRE90-32R14D32TP10L120	32	32	56	120	2	14	42	X	TPKT1004..R-M	TPR1004	TPRP10	1.0
TTPRE90-40R21D32TP10L130	40	32	50	130	3	21	42	X				
TTPRE90-40R08D32TP15L140	40	32	56	140	2	8	40	X	TPKT1505..R-M	TPR1505	TPRP15	1.8



Designation	Size(mm)							Coolant Hole	Insert	Clamping Screw	Wrench	Torque (N・m)
	D	D1	d	H	Z eff	Z	Max.ap					
TTPRF90-50R32TP10M22	50	45	22	65	4	32	48	X	TPKT1004..R..	TPR1004	TPRP10	1.0
TTPRF90-63R36TP10M27	63	58	27	75	4	36	54	X				
TTPRF90-50R12TP15M22	50	45	22	65	3	12	40	X	TPKT1505..R..	TPR1505	TPRP15	1.8
TTPRF90-63R20TP15M27	63	58	27	70	4	20	50	X				
TTPRF90-80R24TP15M32	80	77	32	75	4	24	60	X				
TTPRF90-100R32TP15M40	100	96	40	110	4	32	78	X				

TTP SERIES

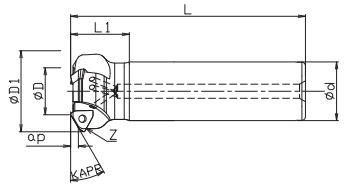
TTP's economical insert with 3 cutting edges and optimized geometry improves efficiency and productivity with the square shoulder milling cutter for roughing.

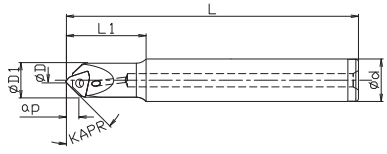


Designation	Size(mm)						Coolant Hole	Insert	Clamping Screw	Wrench	Torque (N・m)
	D	L1	L	Z eff	Z	Max.ap					
TTPRF90-80R24TP15BT50	80	108	150	5	24	60	X	TPKT1505..R..	TPR1505	TPRP15	1.8
TTPRF90-100R35TP15BT50	100	123	165	5	35	70	X				

TTP SERIES

TTP's economical insert with 3 cutting edges and optimized geometry improves efficiency and productivity with the square shoulder milling cutter chamfering .





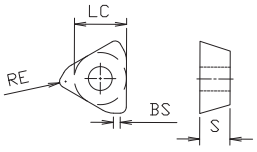
Designation	Size(mm)									Coolant Hole	Insert	Clamping Screw	Wrench	Torque (N・m)
	KAPR	D	D1	d	L1	L	Z	Max.ap	Application Rang					
TTPC30-20R03D25L100	30°	20	34.5	25	25	100	3	3.3	Ø21.3-Ø31.0	●	TPKT1004..R-M	TP1004	TPEP10	1.0
TTPC45-20R03D25L100	45°	20	31.2	25	25	100	3	4.8	Ø21.3-Ø28.9	●				
TTPC60-20R03D25L100	60°	20	27.3	25	25	100	3	5.9	Ø21.3-Ø26.2	●				
TTPC45-02R01D16L110	45°	2	13.3	16	30	110	1	4.7	Ø3.3-Ø10.6	●				

TTP SERIES

TTP's economical insert with 3 cutting edges and optimized geometry improves efficiency and productivity with the square shoulder milling cutter.

Applicable Inserts

Usage Classification										
★ 1st Choice ☆ 2nd Choice	P	Steel	★							
	M	Stainless	★							
	K	Cast iron		★						
	N	Non-ferrous					★			
	S	Superalloys								
	H	Hard materials								

Insert		Insert No.	Size(mm)				Coated Carbide				Carbide			
			LC	S	BS	RE	TE620	TY720	TY625	TI960	HC200			
		TPKT100404R-M	6.9	4	0.5-1.3	0.4	●	●			●			
		TPKT100408R-M	6.9	4		0.8	●	●			●			
		TPKT150508R-M	10.7	5	0.5-2.0	0.8	●	●			●			
		TPKT150516R-M	10.7	5		1.6	●	●						
		TPKT150520R-M	10.7	5		2.0	●	●						

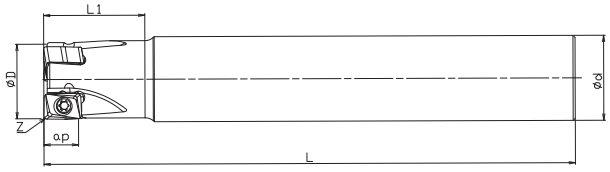
Recommended Cutting Conditions

ISO	Workpiece material	Hardness	Grade	Cutting Speed Vc (m/min)	Feed fz (mm/t)
P	Low Carbon Steel	≤HB180	TE620	180-300	0.05-0.17
	High Carbon and Alloy Steel	HB180-280		130-210	0.05-0.17
	Alloy Steel	HB280-350		100-180	0.05-0.17
M	Stainless Steel	≤HB200		120-300	0.05-0.17
K	Gray Cast Iron	HB150-250	TY720	100-280	0.05-0.17
	Ductile Cast Iron	HB150-250		100-180	0.05-0.17
N	Aluminum Alloy ≤12%Si	—	HC200	650-900	0.10-0.50
	Aluminum Alloy >12%Si	—		250-320	0.10-0.50

TAN90 SERIES

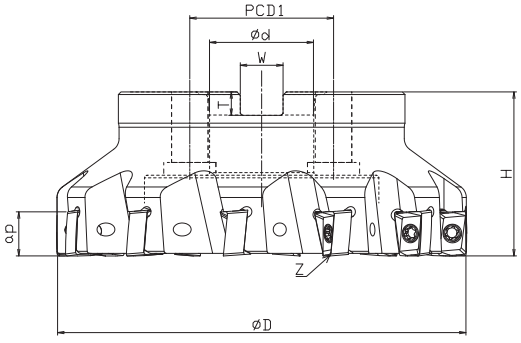
Shoulder Milling Cutter with 4 Cutting-Edge Double-Sided Insert for High-Feed Machining

★ Double sided insert with 4 sharp and tough cutting edges.
★ Available in 3 sizes and wiper edge for excellent surface finish.
★ Low cutting force due to large rake angle.
★ Positive rake face for smooth machining and reduced vibration.
★ Highly rigid cutter body.



Endmills

Designation	Size(mm)						Insert	Clamping Screw	Wrench	Torque (N・m)
	D	d	L1	L	Z	Max.ap				
TANE90-16R02D16AN09L125	16	16	26	125	2	8	ANKT090408	TA4009	TEP09	1.4
TANE90-20R03D20AN09L125	20	20	26	125	3	8	ANKT090408			
TANE90-25R04D25AN09L125	25	25	30	125	4	8	ANKT090408			
TANE90-32R05D32AN09L160	32	32	40	160	5	8	ANKT090408			
TANE90-25R02D25AN12L125	25	25	30	125	2	12	ANKT120508	TA4012	TEP12	2.0
TANE90-32R03D32AN12L160	32	32	40	160	3	12	ANKT120508			
TANE90-40R04D32AN12L200	40	32	45	200	4	12	ANKT120508			



Milling Cutters

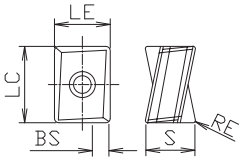
Designation	Size（mm）								Insert	Clamping Screw	Wrench	Torque (N・m)
	D	d	H	W	T	Z	PCD1	Max.ap				
TANF90-50R04AN17M22	50	22	50	10.4	6.3	4	-	16.3	ANKT170608	TA4017	TFP17	1.6
TANF90-63R06AN17M22	63	22	50	10.4	6.3	6	-	16.3	ANKT170608			
TANF90-80R07AN17M27	80	27	50	12.4	7.0	7	-	16.3	ANKT170608			
TANF90-100R08AN17M32	100	32	50	14.4	8.0	8	-	16.3	ANKT170608			
TANF90-125R10AN17M40	125	40	63	16.4	9.0	10	-	16.3	ANKT170608			
TANF90-160R12AN17M40	160	40	63	16.4	9.0	12	66.7	16.3	ANKT170608	TA4017	TTL20	3.0

TAN90 SERIES

Shoulder Milling Cutter with 4 Cutting-Edge Double-Sided Insert for High-Feed Machining

Applicable Inserts

Usage Classification										
★ 1st Choice ☆ 2nd Choice	P	Steel			★					
	M	Stainless			★					
	K	Cast iron			★					
	N	Non-ferrous								
	S	Superalloys								
	H	Hard materials								

Insert		Insert No.	Size(mm)					Coated Carbide				Carbide			
			LC	LE	S	BS	RE	TY602	TY622	TY625	TI960	HC200			
		ANKT090408-MT	8.6	6.6	5.20	2.5	0.8			●					
		ANKT120508-MT	13.7	10.0	9.15	3.8	0.8			●					
		ANKT170608-MT	16.7	11.2	10.40	4.7	0.8			●					

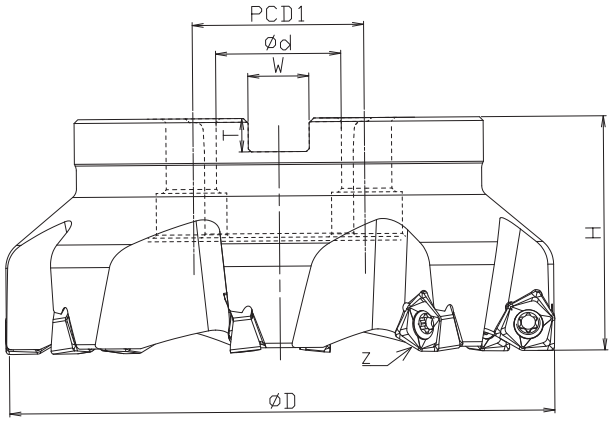
Recommended Cutting Conditions

ISO	Workpiece material	Hardness	Grade	Cutting Speed Vc (m/min)	Feed fz (mm/t)
P	Low Carbon Steel	≤HB180	TY625	120-180	0.05-0.15
	High Carbon and Alloy Steel	HB200-300		100-160	0.05-0.10
	Mold Steel	≤HB300		80-120	0.05-0.10
M	Stainless Steel	≤HB200		80-100	0.10-0.25
K	Gray Cast Iron	HB150-250		150-200	0.10-0.20
	Ductile Cast Iron	HB150-250		120-150	0.05-0.15

TWN90 SERIES

Shoulder Milling Cutter with 6 Double-Sided Cutting Edge and Low Cutting Forces for Reduced Chattering and Superior Fracture Resistance

★Sharp cutting due to lower cutting forces.
★Reduced chattering even with extended milling adapters.
★Superior fracture resistance with thick edge design.



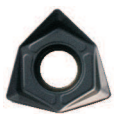
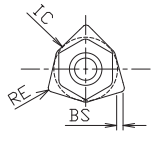
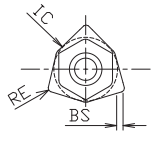
Designation	Size(mm)								Clamping Screw	Wrench	Torque (N・m)
	D	d	H	W	T	Z	PCD1	Max.ap			
TWN90-63R03WN08M22	63	22	40	10.4	6.3	3	-	6.5	TW1008	TWP1008	2.6
TWN90-80R04WN08M27	80	27	50	12.4	7.0	4	-	6.5			
TWN90-100R05WN08M32	100	32	50	14.4	8.0	5	-	6.5			
TWN90-125R06WN08M40	125	40	63	16.4	9.0	6	-	6.5			
TWN90-160R08WN08M40	160	40	63	16.4	9.0	8	66.7	6.5	TW1008	TTL20	2.8

TWN90 SERIES

Shoulder Milling Cutter with 6 Double-Sided Cutting Edge and Low Cutting Forces for Reduced Chattering and Superior Fracture Resistance

Applicable Inserts

Usage Classification										
★ 1st Choice ☆ 2nd Choice	P	Steel	★	★						
	M	Stainless	★	★						
	K	Cast iron	★		★					
	N	Non-ferrous								
	S	Superalloys								
	H	Hard materials								

Insert			Insert No.	Size(mm)					Coated Carbide				Carbide			
				IC	S	D1	BS	RE	TY602	TY610	TY620	TI960	HC200			
			WNMU080608PTN-CR	14	6.65	6.2	1.3	0.8	●							
			WNMU080608PTN-UR	14	6.65	6.2	1.3	0.8		●	●					

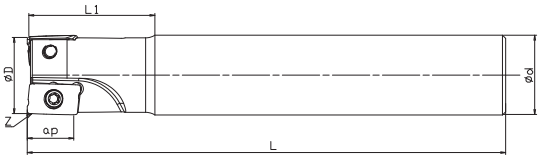
Recommended Cutting Conditions

ISO	Workpiece material	Hardness	Grade	Cutting Speed Vc (m/min)	Feed fz (mm/t)
P	Carbon Steel	≤HB300	TY602/TY610	120-250	0.05-0.15
	Alloy Steel	HB200-300		100-220	0.05-0.10
	Mold Steel	≤HB300		80-180	0.05-0.10
M	Stainless Steel	≤HB200	TY602/TY610	80-150	0.10-0.25
K	Gray Cast Iron	HB150-250	TY620	120-250	0.10-0.20
	Ductile Cast Iron	HB150-250		100-200	0.05-0.15

TAP90 SERIES

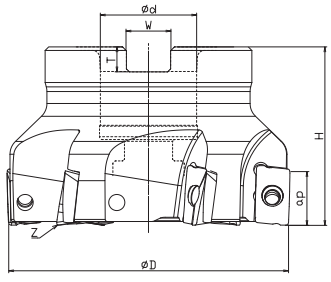
Shoulder Milling Cutter with High Precision Cutting Edge and Low Cutting Forces for Reduced Chattering

★Suitable for 11°positive angle insert, applicable to alloy steel , hardened steel and aluminium alloy.
★Sharp cutting due to lower cutting forces.
★Reduced chattering even with extended milling adapters.



Endmills

Designation	Size(mm)						Insert	Clamping Screw	Wrench	Torque (N・m)
	D	d	L1	L	Z	Max.ap				
TAPE90-13R01D12AP10L130	13	12	30	130	1	9	APKT1003..	TK1000	TKP10	1.6
TAPE90-16R02D16AP10L150	16	16	28	150	2	9	APKT1003..			
TAPE90-16R02D16AP10L200				200	2	9	APKT1003..			
TAPE90-17R02D16AP10L150	17	16	40	150	2	9	APKT1003..			
TAPE90-17R02D16AP10L200				200	2	9	APKT1003..			
TAPE90-20R02D20AP10L150	20	20	30	150	2	9	APKT1003..			
TAPE90-20R02D20AP10L200				200	2	9	APKT1003..			
TAPE90-21R02D20AP10L150	21	20	50	150	2	9	APKT1003..			
TAPE90-21R02D20AP10L200				200	2	9	APKT1003..			
TAPE90-25R02D25AP16L150	25	25	40	150	2	15	APKT1604..	TK1600	TKP16	1.8
TAPE90-25R02D25AP16L200				200	2	15	APKT1604..			
TAPE90-32R03D32AP16L150	32	32	45	150	3	15	APKT1604..			
TAPE90-32R03D32AP16L200				200	3	15	APKT1604..			



Milling Cutters

Designation	Size（mm）							Insert	Clamping Screw	Wrench	Torque (N・m)
	D	d	H	W	T	Z	Max.ap				
TAPF90-50R04AP16M22	50	22	50	10.4	6.3	4	15	APKT1604..	TK1600	TKP16	1.8
TAPF90-63R05AP16M22	63	22	50	10.4	6.3	5	15	APKT1604..			
TAPF90-80R06AP16M27	80	27	50	12.4	7.0	6	15	APKT1604..			
TAPF90-100R08AP16M32	100	32	50	14.4	8.0	8	15	APKT1604..			

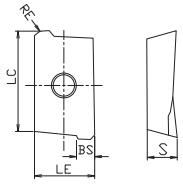
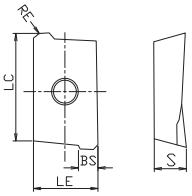
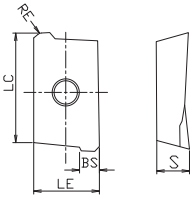
TOTIME Indexable Milling Cutter
Shoulder Milling

TAP90 SERIES

Shoulder Milling Cutter with High Precision Cutting Edge and Low Cutting Forces for Reduced Chattering

Applicable Inserts

Usage Classification										
★1st Choice ☆2nd Choice	P	Steel	★							
	M	Stainless	★							
	K	Cast iron	★							
	N	Non-ferrous					★			
	S	Superalloys								
	H	Hard materials		★						

Insert		Insert No.	Size(mm)					Coated Carbide				Carbide			
			LC	LE	S	BS	RE	TY602	TY622	TY625	TI960	HC200			
		APKT100305PDTR	9.9	6.7	3.6	0.86	0.5	●							
		APKT100308PDTR	9.9	6.7	3.6	0.9	0.8	●							
		APKT160404PDTR	15.2	9.4	5.3	1.11	0.4	●							
		APKT160408PDTR	15.2	9.4	5.3	1.32	0.8	●							
		APKT160412PDTR	15.2	9.4	5.3	1.13	1.2	●							
		APKT160416PDTR	15.2	9.4	5.3	1.13	1.6	●							
		APKT160424PDTR	15.2	9.4	5.3	—	2.4	●							
		APKT160404-TR	15.2	9.4	5.3	1.11	0.4		●						
		APKT160408-TR	15.2	9.4	5.3	1.32	0.8		●						
		APKT160412-TR	15.2	9.4	5.3	1.13	1.2		●						
		APKT160416-TR	15.2	9.4	5.3	1.13	1.6		●						
		APKT160424-TR	15.2	9.4	5.3	—	2.4		●						
		APKT100305	9.9	6.7	3.6	0.86	0.5					●			
		APKT100308	9.9	6.7	3.6	0.9	0.8					●			
		APKT160402PDER-AK	15.2	9.4	5.3	1.11	0.2					●			
		APKT160404PDER-AK	15.2	9.4	5.3	1.11	0.4					●			
		APKT160408PDER-AK	15.2	9.4	5.3	1.32	0.8					●			
		APKT160412PDER-AK	15.2	9.4	5.3	1.13	1.2					●			
		APKT160416PDER-AK	15.2	9.4	5.3	1.13	1.6					●			
		APKT160420PDER-GW	15.2	9.4	5.3	—	2.0					●			

TAP90 SERIES

Shoulder Milling Cutter with High Precision Cutting Edge and Low Cutting Forces for Reduced Chattering

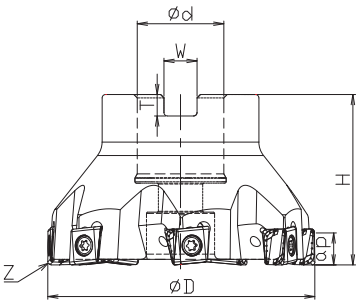
Recommended Cutting Conditions

ISO	Workpiece material	Hardness	Grade	Cutting Speed Vc (m/min)	Feed fz (mm/t)
P	Low Carbon Steel	≤HB180	TY602	120-220	0.15-0.30
	High Carbon and Alloy Steel	HB180-280		70-150	0.15-0.30
	Alloy Steel	HB280-350		70-150	0.15-0.30
M	Stainless Steel	≤HB200		120-200	0.08-0.25
K	Gray Cast Iron	HB150-250		140-220	0.15-0.30
	Ductile Cast Iron	HB150-250		150-240	0.15-0.30
N	Aluminum	—	HC200	300-800	0.07-0.50
H	Hardened Material	≤HRC55	TY622	40-80	0.26-0.40

TLX SERIES

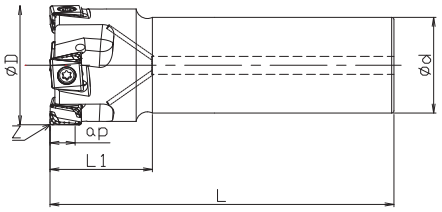
High productivity and stable cutting with large depth of cut in shouldering and finishing.

★ Tangential insert with high stability guarantees exceptional reliability in shouldering and finishing.
★ Economical double sided insert - Large rake and inclination angles reduce cutting forces and provide stable, smooth cutting



● Milling Cutters

Designation	Size(mm)							Coolant Hole	Insert	Clamping Screw	Wrench	Torque (N・m)
	D	d	H	W	T	Z	Max.ap					
TLXF90-50R05LX11M22	50	22	40	10.4	6.3	5	9.7	●	LXGU1107..	TLX1107	TLXMS11	2.6
TLXF90-63R06LX11M22	63	22	40	10.4	6.3	6	9.7	●				
TLXF90-80R07LX11M27	80	27	50	12.4	7.0	7	9.7	●				
TLXF90-100R08LX11M32	100	32	50	14.4	8.0	8	9.7	●				
TLXF90-100R11LX11M32	100	32	50	14.4	8.0	11	9.7	●				
TLXF90-125R09LX11M40	125	40	63	16.4	9.0	9	9.7	●				
TLXF90-125R12LX11M40	125	40	63	16.4	9.0	12	9.7	●				

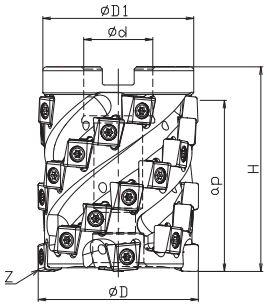


● Endmills

Designation	Size(mm)						Coolant Hole	Insert	Clamping Screw	Wrench	Torque (N・m)
	D	d	L1	L	Z	Max.ap					
TLXE90-32R03D32LX11L115	32	32	35	115	3	9.7	●	LXGU1107..	TLX1107	TLXMS11	2.6
TLXE90-40R04D32LX11L115	40	32	35	115	4	9.7	●				
TLXE90-50R04D32LX11L120	50	32	40	120	4	9.7	●				
TLXE90-63R06D32LX11L120	63	32	40	120	6	9.7	●				
TLXE90-80R07D32LX11L120	80	32	40	120	7	9.7	●				

TLX SERIES

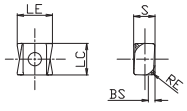
High productivity and stable cutting with large depth of cut in shouldering and roughing.



Designation	Size(mm)							Coolant Hole	Insert	Clamping Screw	Wrench	Torque (N・m)
	D	D1	d	H	Z eff	Z	Max.ap					
TLXR90-50R21TP10M22	50	47	22	70	3	21	58.5	●	LXGU110708	TLX1107	TPRP11	2.6
TLXR90-63R32TP10M27	63	59	27	80	4	32	66.9	●				

Applicable Inserts

Usage Classification										
★ 1st Choice ☆ 2nd Choice	P	Steel	★							
	M	Stainless	☆		★					
	K	Cast iron	☆	★						
	N	Non-ferrous								
	S	Superalloys			★					
	H	Hard materials								

	Insert	Insert No.	Size(mm)					Coated Carbide				Carbide			
			LC	LE	S	BS	RE	TT650	TY720	TS820	TI960	HC200			
		LXGU110708-MM	10.5	11.7	7.1	2	0.8	●	●	●					
		LXGU110716-MM	10.5	11.7	7.1	1.2	1.6	●	●	●					
		LXGU110724-MM	10.5	11.7	7.1	0.4	2.4	●	●	●					
		LXGU110732-MM	10.5	11.7	7.1	-	3.2	●	●	●					

★Ask if this item is ready for order.

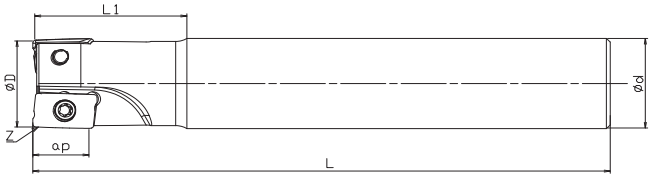
Recommended Cutting Conditions

ISO	Workpiece material	Hardness	Grade	Cutting Speed Vc （m/min）	Feed fz （mm/t）
P	Low Carbon Steel	≤HB180	TT650	100-230	0.10-0.25
	High Carbon and Alloy Steel	HB180 -280		100-200	0.10-0.25
	Alloy Steel	HB280 -350		100-200	0.10-0.25
M	Stainless Steel	≤HB200	TS820	90-180	0.10-0.25
K	Gray Cast Iron	HB150 -250	TY720	100-200	0.10-0.25
	Ductile Cast Iron	HB150 -250		80-180	0.10-0.25
S	Superalloys	-	TS820	20-40	0.06-0.10

EAP SERIES

EAP Right Angle Shoulder Milling Cutter Bar

★ Suitable for heavy cutting, rotary and feed volume is 3 times than normal cutter.
★ Suitable for economical inserts, high cost performance.



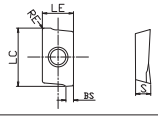
Designation	Size(mm)							Insert	Clamping Screw	Wrench	Torque (N・m)
	D	d	L1	L2	L	Z	Max.a				
EAP300R-C10-10-120L-1T	10	10	30	-	120	1	9	APMT1135	TT1011	TTP11	1.4
EAP300R-C10-11-120L-1T	11	10	30	-	120	1	9	APMT1135			
EAP300R-C12-12-130L-1T	12	12	30	-	130	1	9	APMT1135			
EAP300R-C12-13-130L-1T	13	12	30	-	130	1	9	APMT1135			
EAP300R-C16-16-120L-2T	16	16	40	-	120	2	9	APMT1135			
EAP300R-C16-16-150L-2T	16	16	40	-	150	2	9	APMT1135			
EAP300R-C16-16-200L-2T	16	16	40	100	200	2	9	APMT1135			
EAP300R-C15-16-150L-2T	16	15	40	-	150	2	9	APMT1135			
EAP300R-C16-17-150L-2T	17	16	40	-	150	2	9	APMT1135			
EAP300R-C16-17-200L-2T	17	16	40	-	200	2	9	APMT1135			
EAP300R-C20-20-150L-2T	20	20	50	-	150	2	9	APMT1135			
EAP300R-C19-20-150L-2T	20	19	50	-	150	2	9	APMT1135			
EAP300R-C20-20-200L-2T	20	20	50	100	200	2	9	APMT1135			
EAP300R-C19-20-200L-2T	20	19	50	-	200	2	9	APMT1135			
EAP300R-C20-21-150L-2T	21	20	50	-	150	2	9	APMT1135			
EAP300R-C20-21-200L-2T	21	20	50	-	200	2	9	APMT1135			
EAP300R-C25-25-150L-3T	25	25	50	-	150	3	9	APMT1135			
EAP400R-C24-25-150L-2T	25	24	40	-	150	2	14	APMT1604	TT1016	TTP16	1.4
EAP400R-C25-25-200L-2T	25	25	75	-	200	2	14	APMT1604			
EAP400R-C24-25-200L-2T	25	24	50	-	200	2	14	APMT1604			
EAP400R-C32-32-150L-3T	32	32	50	-	150	3	14	APMT1604			
EAP400R-C32-32-200L-3T	32	32	80	-	200	3	14	APMT1604			
EAP400R-C32-35-150L-3T	35	32	60	-	150	3	14	APMT1604			
EAP400R-C32-35-200L-3T	35	32	60	-	200	3	14	APMT1604			

EAP SERIES

EAP Right Angle Shoulder Milling Cutter Bar

Applicable Inserts

Usage Classification										
★ 1st Choice ☆ 2nd Choice	P	Steel	★							
	M	Stainless	☆							
	K	Cast iron	★							
	N	Non-ferrous								
	S	Superalloys								
	H	Hard materials		★						

	Insert	Insert No.	Size(mm)					Coated Carbide				Carbide			
			LC	LE	S	BS	RE	TI960	TH910	TY602	TY622	HC200			
		APMT1135PDER-M2	11.0	6.35	3.50	1.5	0.8	●	●						
		APMT1604PDER-M2	16.5	9.53	4.76	1.7	0.8	●	●						

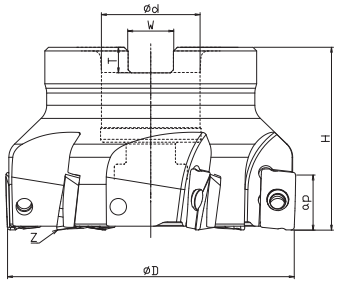
Recommended Cutting Conditions

ISO	Workpiece material	Hardness	Grade	Cutting Speed	Feed
				Vc （m/min）	fz （mm/t）
P	Low Carbon Steel	≤HB180	TI960	120-220	0.15-0.30
	High Carbon and Alloy Steel	HB180-280		70-150	0.15-0.30
	Alloy Steel	HB280-350		70-150	0.15-0.30
M	Stainless Steel	≤HB200		120-200	0.10-0.25
K	Gray Cast Iron	HB150-250		140-220	0.15-0.30
	Ductile Cast Iron	HB150-250		150-240	0.15-0.30
H	Hardened Material	≤HRC50	TH910	40-80	0.10-0.30

EAP SERIES

EAP Right Angle Shoulder Face Mill

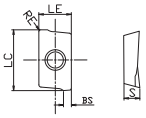
★ Suitable for 11° positive angle insert tip.
★ Suitable for various types of inserts, applicable to aluminum and steel milling.
★ Screw locking,large space for chipping, excellent chip removal performance .
★ Cutting smoothly,low resistance.
★ Customized aluminium milling cutter is available.



Designation	Size(mm)							Insert	Clamping Screw	Wrench	Torque (N・m)
	D	d	H	W	T	Z	Max.ap				
EAP400R-50-22-4T	50	22	50	10.4	6.3	4	14	APMT1604	TT1016	TTP16	1.4
EAP400R-63-22-4T	63	22	50	10.4	6.3	4	14	APMT1604			
EAP400R-80-27-6T	80	27	50	12.4	7	6	14	APMT1604			
EAP400R-100-32-6T	100	32	50	14.4	8	6	14	APMT1604			
EAP400R-125-40-7T	125	40	63	16.4	9	7	14	APMT1604			
EAP400R-160-40-8T	160	40	63	16.4	9	8	14	APMT1604			
EAP400R-200-60-10T	200	60	63	25.7	14	10	14	APMT1604			

Applicable Inserts

Usage Classification									
★ 1st Choice ☆ 2nd Choice	P	Steel	★						
	M	Stainless	☆						
	K	Cast iron	★						
	N	Non-ferrous							
	S	Superalloys							
	H	Hard materials		★					

Insert		Insert No.	Size					Coated Carbide				Carbide			
			LC	LE	S	BS	RE	TI960	TH910	TY602	TY622	HC200			
		APMT1604PDER-M2	16.5	9.53	4.76	1.7	0.8	●	●						

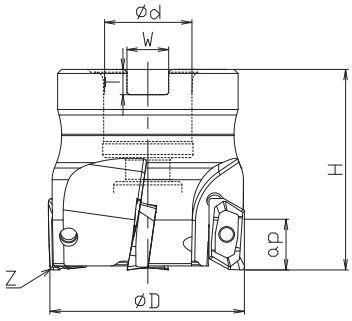
Recommended Cutting Conditions

ISO	Workpiece material	Hardness	Grade	Cutting Speed Vc (m/min)	Feed fz (mm/t)
P	Low Carbon Steel	≤HB180	TI960	120-220	0.15-0.30
	High Carbon and Alloy Steel	HB180-280		70-150	0.15-0.30
	Alloy Steel	HB280-350		70-150	0.15-0.30
M	Stainless Steel	≤HB200		120-200	0.10-0.25
K	Gray Cast Iron	HB150-250		140-220	0.15-0.30
	Ductile Cast Iron	HB150-250		150-240	0.15-0.30
H	Hardened Material	≤HRC50	TH910	40-80	0.10-0.30

TAL SERIES

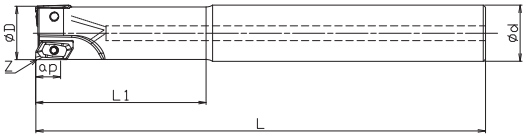
The Premium High-Speed Milling Tool for Aluminum

★ The new premium milling tool line for aluminum machining
★ Increased productivity due to high speed capability
★ Excellent surface finish and perpendicularity with high-precision products
★ Satisfactory clamping force of inserts by the use of the key shape



Milling Cutters

Designation	Size(mm)							Coolant Hole	Insert	Clamping Screw	Wrench	Torque (N・m)
	D	d	H	W	T	Z	Max.ap					
TALF90-40R03AD19M16	40	16	50	8.4	5.6	3	17	●	ADGT1904..-AL	TAD1904	TADF19	2.2
TALF90-50R04AD19M22	50	22	50	10.4	6.3	4	17	●				
TALF90-63R05AD19M22	63	22	50	10.4	6.3	5	17	●				
TALF90-80R05AD19M27	80	27	50	12.4	7.0	5	17	●				
TALF90-100R05AD19M32	100	32	50	14.4	8.0	5	17	●				
TALF90-125R06AD19M40	125	40	63	16.4	9.0	6	17	●				

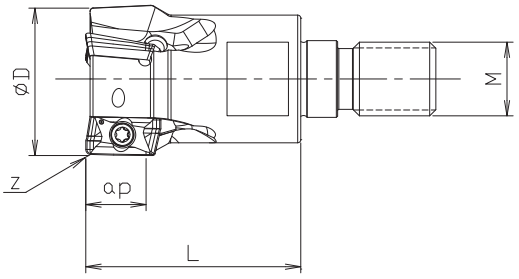


Endmills

Designation	Size(mm)						Coolant Hole	Insert	Clamping Screw	Wrench	Torque (N・m)
	D	d	L1	L	Z	Max.ap					
TALE90-25R02D25AD19L125	25	25	45	125	2	17	●	ADGT1904..-AL	TAD1904	TADE19	2.2
TALE90-32R03D32AD19L125	32	32	45	125	3	17	●				

TAL SERIES

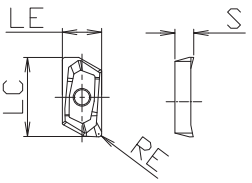
The Premium High-Speed Milling Tool for Aluminum



Designation	Size(mm)					Coolant Hole	Insert	Clamping Screw	Wrench	Torque (N・m)
	D	L	M	Z	Max.ap					
TALC90-25R02AD19M12	25	45	M12	2	17	●	ADGT1904..-AL	TAD1904	TADF19	2.2
TALC90-32R02AD19M16	32	52	M16	2	17	●				
TALC90-40R03AD19M16	40	52	M16	3	17	●				

Applicable Inserts

Usage Classification										
★ 1st Choice ☆ 2nd Choice	P	Steel								
	M	Stainless								
	K	Cast iron								
	N	Non-ferrous					★			
	S	Superalloys								
	H	Hard materials								

Insert		Insert No.	Size(mm)				Coated Carbide				Carbide			
			LC	LE	S	RE	TE620	TY720	TY625	TI960	HC200			
		ADGT190412-AL	22.1	9.52	4.76	1.2					●			
		ADGT190420-AL	22.1	9.52	4.76	2.0					●			
		ADGT190424-AL	22.1	9.52	4.76	2.4					●			
		ADGT190430-AL	22.1	9.52	4.76	3.0					●			
		ADGT190432-AL	22.1	9.52	4.76	3.2					●			

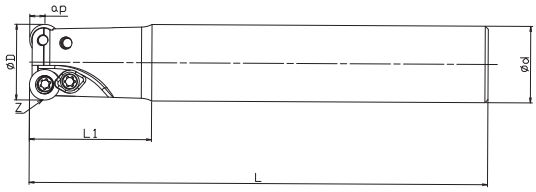
Recommended Cutting Conditions

ISO	Workpiece material	Hardness	Grade	Cutting Speed	Feed
				Vc （m/min）	fz （mm/t）
N	Aluminum （Si≤5%）	—	HC200	300-1500	0.10-0.30

TRD SERIES

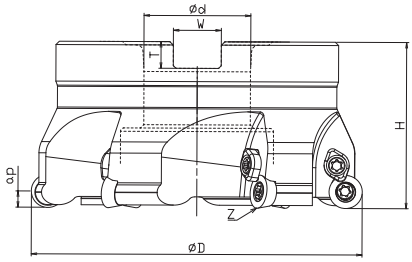
Radius Milling Cutter Lowers Cutting Costs and Increases Efficiency

★ Low cutting forces with helical cutting edge design.
★ Suitable for 11°positive angle insert, applicable to alloy steel, hardened steel and aluminium alloy.
★ Reduced chattering even with extended milling adapters.



Endmills

Designation	Size(mm)						Insert	Clamping Screw	Wrench	Clamping Piece	Torque (N・m)
	D	d	L1	L	Z	Max.ap					
TRDE4R-16R02D16RD08L150	16	16	28	150	2	4	RDKT0802M0	TR1008	TRP08	TRS08	1.4
TRDE4R-16R02D16RD08L200				200	2	4	RDKT0802M0				
TRDE4R-20R02D20RD08L150	20	20	30	150	2	4	RDKT0802M0				
TRDE4R-20R02D20RD08L200				200	2	4	RDKT0802M0				
TRDE5R-20R02D20RD10L150	20	20	30	150	2	5	RDKT10T3M0	TR1010	TRP10	TRS10	1.6
TRDE5R-20R02D20RD10L200				200	2	5	RDKT10T3M0				
TRDE5R-25R02D25RD10L150	25	25	40	150	2	5	RDKT10T3M0				
TRDE5R-25R02D25RD10L200				200	2	5	RDKT10T3M0				
TRDE6R-32R03D32RD12L150	32	32	45	150	3	6	RDKT1204M0	TR1012	TRP12	TRS12	2.0
TRDE6R-32R03D32RD12L200				200	3	6	RDKT1204M0				



Milling Cutters

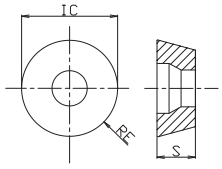
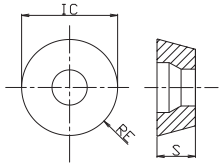
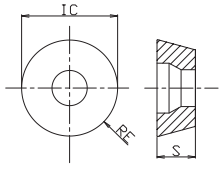
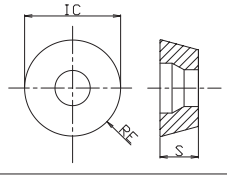
Designation	Size（mm）							Insert	Clamping Screw	Wrench	Clamping Piece	Torque (N・m)
	D	d	H	W	T	Z	Max.ap					
TRDF5R-50R04RD10M22	50	22	50	10.4	6.3	4	5	RDKT10T3M0	TR1010	TRP10	TRS10	1.6
TRDF5R-63R04RD10M22	63	22	50	10.4	6.3	4	5	RDKT10T3M0				
TRDF5R-80R06RD10M27	80	27	50	12.4	7.0	6	5	RDKT10T3M0				
TRDF5R-100R06RD10M32	100	32	50	14.4	8.0	6	5	RDKT10T3M0				
TRDF6R-50R04RD12M22	50	22	50	10.4	6.3	4	6	RDKT1204M0	TR1012	TRP12	TRS12	2.0
TRDF6R-63R04RD12M22	63	22	50	10.4	6.3	4	6	RDKT1204M0				
TRDF6R-80R06RD12M27	80	27	50	12.4	7.0	6	6	RDKT1204M0				
TRDF6R-100R06RD12M32	100	32	50	14.4	8.0	6	6	RDKT1204M0				

TRD SERIES

Radius Milling Cutter Lowers Cutting Costs and Increases Efficiency

Applicable Inserts

Usage Classification											
★1st Choice ☆2nd Choice	P	Steel	★								
	M	Stainless	★								
	K	Cast iron	★								
	N	Non-ferrous					★				
	S	Superalloys									
	H	Hard materials		★							

Insert		Insert No.	Size(mm)			Coated Carbide				Carbide				
			IC	S	RE	TY602	TY622	TY625	TI960	HC200				
General Chipbreaker		RDKT0802M0	8	2.4	4	●								
		RDKT10T3M0	10	4.0	5	●								
		RDKT1204M0	12	4.8	6	●								
		RDMT0802M0	8	2.4	4	●								
		RDMT10T3M0	10	4.0	5	●								
		RDMT1204M0	12	4.8	6	●								
Stainless Steel Chipbreaker		RDKT0802M0-ST	8	2.4	4	●								
		RDKT10T3M0-ST	10	4.0	5	●								
		RDKT1204M0-ST	12	4.8	6	●								
		RDKT0802M0-TR	8	2.4	4		●							
		RDKT10T3M0-TR	10	4.0	5		●							
		RDKT1204M0-TR	12	4.8	6		●							
		RDKT0802M0	8	2.4	4					●				
		RDKT10T3M0	10	4.0	5					●				
		RDKT1204M0	12	4.8	6					●				

TRD SERIES

Radius Milling Cutter Lowers Cutting Costs and Increases Efficiency

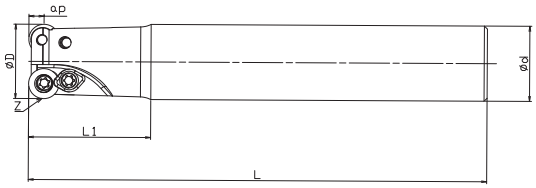
Recommended Cutting Conditions

ISO	Workpiece material	Hardness	Grade	Cutting Speed Vc (m/min)	Feed fz (mm/t)
P	Low Carbon Steel	≤HB180	TY602	120-220	0.15-0.30
	High Carbon and Alloy Steel	HB180-280		70-150	0.15-0.30
	Alloy Steel	HB280-350		70-150	0.15-0.30
M	Stainless Steel	≤HB200		120-200	0.10-0.25
K	Gray Cast Iron	HB150-250		140-220	0.15-0.30
	Ductile Cast Iron	HB150-250		150-240	0.15-0.30
N	Aluminum	—	HC200	300-800	0.07-0.55
H	Hardened Material	≤HRC55	TY622	40-80	0.22-0.40

EMR SERIES

EMR Round Dowel Milling Cutter Bar

★ Suitable for a variety of economical inserts, high cost performance



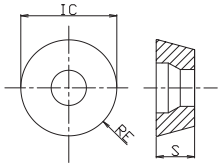
Designation	Size(mm)							Insert	Clamping Screw	Wrench	Clamping Piece	Torque (N・m)
	D	d	L1	L2	L	Z	Max.ap					
EMR-4R-C12-12-130L-1T	12	12	40	-	130	1	4	RPMT08T2	TT1008	TTP08	TTS08	1.4
EMR-4R-C12-13-130L-1T	13	12	40	-	130	1	4	RPMT08T2				
EMR-4R-C16-16-150L-2T	16	16	40	-	150	2	4	RPMT08T2				
EMR-4R-C15-16-150L-2T	16	15	40	-	150	2	4	RPMT08T2				
EMR-4R-C16-16-200L-2T	16	16	40	100	200	2	4	RPMT08T2				
EMR-4R-C15-16-200L-2T	16	15	40	-	200	2	4	RPMT08T2				
EMR-4R-C16-17-150L-2T	17	16	40	-	150	2	4	RPMT08T2				
EMR-4R-C16-17-200L-2T	17	16	50	-	200	2	4	RPMT08T2				
EMR-4R-C20-20-150L-2T	20	20	50	-	150	2	4	RPMT08T2				
EMR-4R-C19-20-150L-2T	20	19	50	-	150	2	4	RPMT08T2				
EMR-4R-C20-20-200L-2T	20	20	50	100	200	2	4	RPMT08T2				
EMR-4R-C19-20-200L-2T	20	19	50	-	200	2	4	RPMT08T2				
EMR-4R-C20-21-150L-2T	21	20	50	-	150	2	4	RPMT08T2				
EMR-4R-C20-21-200L-2T	21	20	50	-	200	2	4	RPMT08T2				
EMR-5R-C20-30-110L-2T	30	20	40	-	110	2	5	RPM□10□3	TT1011	TTP10	TTS10	1.8
EMR-5R-C20-20-150L-2T	20	20	50	-	150	2	5	RPM□10□3				
EMR-5R-C20-20-200L-2T	20	20	50	100	200	2	5	RPM□10□3				
EMR-5R-C20-21-150L-2T	21	20	50	-	150	2	5	RPM□10□3				
EMR-5R-C20-21-200L-2T	21	20	50	-	200	2	5	RPM□10□3				
EMR-5R-C25-25-150L-2T	25	25	50	-	150	2	5	RPM□10□3				
EMR-5R-C20-25-150L-2T	25	20	50	-	150	2	5	RPM□10□3				
EMR-5R-C24-25-150L-2T	25	24	50	-	150	2	5	RPM□10□3				
EMR-5R-C25-25-200L-2T	25	25	75	-	200	2	5	RPM□10□3				
EMR-5R-C25-25-250L-2T	25	25	60	115	250	2	5	RPM□10□3				
EMR-5R-C20-25-200L-2T	25	20	50	-	200	2	5	RPM□10□3				
EMR-5R-C24-25-200L-2T	25	24	50	-	200	2	5	RPM□10□3				
EMR-5R-C24-25-250L-2T	25	24	50	-	250	2	5	RPM□10□3				
EMR-5R-C25-26-150L-2T	26	25	50	-	150	2	5	RPM□10□3				
EMR-5R-C25-26-200L-2T	26	25	50	-	200	2	5	RPM□10□3				
EMR-5R-C25-26-250L-2T	26	25	50	-	250	2	5	RPM□10□3				
ERP-6R-C32-32-150L-2T	32	32	50	-	150	2	6	RPMT1204	TT1012	TRP12	TRS12	2.2
ERP-6R-C32-32-200L-2T	32	32	50	-	200	2	6	RPMT1204				
ERP-6R-C32-35-150L-3T	35	32	50	-	150	3	6	RPMT1204				
ERP-6R-C32-35-200L-3T	35	32	50	-	200	3	6	RPMT1204				

EMR SERIES

EMR Round Dowel Milling Cutter Bar

Applicable Inserts

Usage Classification											
★1st Choice ☆2nd Choice	P	Steel	★								
	M	Stainless	★								
	K	Cast iron	★								
	N	Non-ferrous									
	S	Superalloys									
	H	Hard materials		★							

Insert		Insert No.	Size(mm)			Coated Carbide				Carbide				
			IC	S	RE	TI960	TH910	TY602	TY622	HC200				
		RPMT08T2M0-MT1	8	2.78	4	●								
		RPMW1003MT	10	3.18	5	●	●							
		RPMT10T3MT	10	3.97	5	●	●							
		RPMT1204M0-MT1	12	4.76	6	●	●							

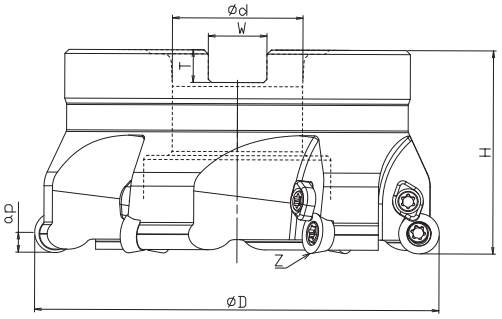
Recommended Cutting Conditions

ISO	Workpiece material	Hardness	Grade	Cutting Speed	Feed
				Vc (m/min)	fz (mm/t)
P	Low Carbon Steel	≤HB180	TI960	120-220	0.15-0.30
	High Carbon and Alloy Steel	HB180-280		70-150	0.15-0.30
	Alloy Steel	HB280-350		70-150	0.15-0.30
M	Stainless Steel	≤HB200		120-200	0.10-0.25
K	Gray Cast Iron	HB150-250		140-220	0.15-0.30
	Ductile Cast Iron	HB150-250		150-240	0.15-0.30
H	Hardened Material	≤HRC50	TH910	40-80	0.22-0.40

EMR SERIES

EMR Round Dowel Mill

★ Suitable for 11° positive angle insert tip
★ Working with very economical insert
★ Large space for chipping, excellent chip removal performance
★ Taper design with high rigidity
★ Customized aluminium milling cutter is available



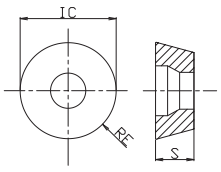
Designation	Size(mm)							Insert	Clamping Screw	Wrench	Clamping Piece	Torque (N・m)
	D	d	H	W	T	Z	Max.ap					
EMR-5R-50-22-4T	50	22	50	10.4	6.3	4	5	RPMW1003 RPMT10T3	TW1010 TT1011	TTP10	TTS10	1.8
EMR-5R-63-22-4T	63	22	50	10.4	6.3	4	5					
EMR-5R-80-27-6T	80	27	50	12.4	7	6	5					
EMR-5R-100-32-6T	100	32	50	14.4	7	6	5					
EMR-5R-125-40-7T	125	40	63	16.4	9	7	5					
EMR-5R-160-40-8T	160	40	63	16.4	9	8	5					
ERP-6R-50-22-4T	50	22	50	10.4	6.3	4	6	RPMT1204	TT1012	TRP12	TRS12	2.0
ERP-6R-63-22-4T	63	22	50	10.4	6.3	4	6					
ERP-6R-80-27-6T	80	27	50	12.4	7	6	6					
ERP-6R-100-32-6T	100	32	50	14.4	8	6	6					

EMR SERIES

EMR Round Dowel Mill

Applicable Inserts

Usage Classification											
★1st Choice ☆2nd Choice	P	Steel	★								
	M	Stainless	★								
	K	Cast iron	★								
	N	Non-ferrous									
	S	Superalloys									
	H	Hard materials		★							

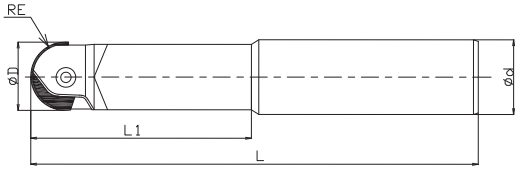
Insert	Insert No.	Size(mm)			Coated Carbide				Carbide				
		IC	S	RE	TI960	TH910	TY602	TY622	HC200				
	RPMW1003MT	10	3.18	5	●	●							
	RPMT10T3MT	10	3.97	5	●	●							
	RPMT1204M0-MT1	12	4.76	6	●	●							

Recommended Cutting Conditions

ISO	Workpiece material	Hardness	Grade	Cutting Speed Vc (m/min)	Feed fz (mm/t)
P	Low Carbon Steel	≤HB180	TI960	120-220	0.10-0.35
	High Carbon and Alloy Steel	HB180-280		70-150	0.10-0.35
	Alloy Steel	HB280-350		70-150	0.10-0.35
M	Stainless Steel	≤HB200		120-200	0.10-0.30
K	Gray Cast Iron	HB150-250		140-220	0.15-0.30
	Ductile Cast Iron	HB150-250		150-240	0.15-0.30
H	Hardened Material	≤HRC50	TH910	40-80	0.10-0.30

C-ABPF SERIES

Indexable End Mills for High Precision Finish



CARBIDE SHANK TYPE

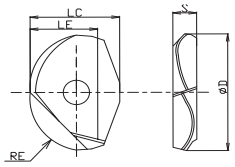
Designation	Size(mm)					Insert	Clamping Screw	Wrench
	D	d	L	L1	RE			
C-ABPF-10S10x30x150L	10	10	150	30	5	SP1W100/SP1Q100	TSB-5842	TX10
C-ABPF-10S10x30x180L	10	10	180	30	5	SP1W100/SP1Q100		
C-ABPF-12S12x35x165L	12	12	165	35	6	SP1W120/SP1Q120	TSB-5843	TX20
C-ABPF-12S12x35x200L	12	12	200	35	6	SP1W120/SP1Q120		
C-ABPF-16S16x50x200L	16	16	200	50	8	SP1W160/SP1Q160	TSB-5844	
C-ABPF-16S16x50x250L	16	16	250	50	8	SP1W160/SP1Q160		
C-ABPF-20S20x70x220L	20	20	220	70	10	SP1W200/SP1Q200	TSB-5845	TX25
C-ABPF-20S20x70x250L	20	20	250	70	10	SP1W200/SP1Q200		
C-ABPF-20S20x70x300L	20	20	300	70	10	SP1W200/SP1Q200		
C-ABPF-25S25x100x200L	25	25	200	100	12.5	SP1W250/SP1Q250	TSB-5846	TX30
C-ABPF-25S25x100x250L	25	25	250	100	12.5	SP1W250/SP1Q250		
C-ABPF-25S25x100x300L	25	25	300	100	12.5	SP1W250/SP1Q250		
C-ABPF-30S32x100x250L	30	32	250	100	15	SP1W300/SP1Q300	TSB-5847	
C-ABPF-30S32x100x300L	30	32	300	100	15	SP1W300/SP1Q300		

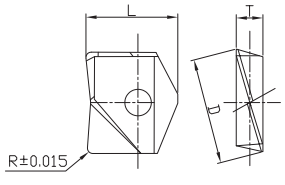
C-ABPF SERIES

Indexable End Mills for High Precision Finish

Applicable Inserts

Usage Classification										
★ 1st Choice ☆ 2nd Choice	P	Steel	★							
	M	Stainless								
	K	Cast iron								
	N	Non-ferrous								
	S	Superalloys								
	H	Hard materials	☆							

Insert		Insert No.	Size(mm)					Coated Carbide				Carbide			
			RE	D	LE	LC	S	TD300	TY622	TY625	TI960	HC200			
		SP1W100	5.0	10	5.6	12.1	2.7	●							
		SP1W120	6.0	12	6.6	14.6	3.2	●							
		SP1W160	8.0	16	9.0	16.6	4.2	●							
		SP1W200	10.0	20	11.5	20.3	5.2	●							
		SP1W250	12.5	25	14.5	24.1	6.2	●							
		SP1W300	15.0	30	18.5	29.2	7.2	●							

Insert		Insert No.	Size(mm)				Coated Carbide					Carbide			
			L	D	T	R	TD300	TY622	TY625	TI960	HC200				
		SP1Q100-R1.0	12.0	10	2.7	1.0	●								
		SP1Q120-R1.0	14.6	12	3.2	1.0	●								
		SP1Q160-R1.0	16.6	16	4.2	1.0	●								
		SP1Q200-R1.0	19.9	20	5.2	1.0	●								
		SP1Q250-R1.0	22.6	25	6.2	1.0	●								
		SP1Q300-R1.0	27.2	30	7.2	1.0	●								

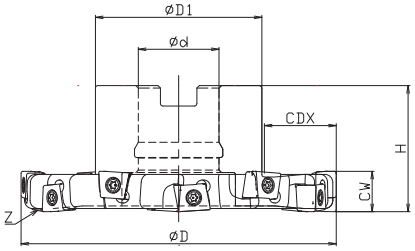
Recommended Cutting Conditions

ISO	Workpiece material	Hardness	Grade	Cutting Speed	Feed
				Vc（m/min）	fz（mm/t）
P	Carbon Steel	≤HB300	TD300	160-200	0.1-0.25
	Alloy Steel	HB200-300		160-200	0.1-0.25
	Mold Steel	HRC≤55		120-160	0.1-0.25

TLXFD SERIES

TLX SlotMill Series is an economical slot milling line for improved surface finish in slotting, face milling, and back-face milling.

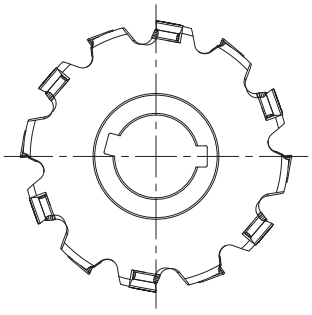
- ★ An economical slot milling solution with stable chip formation allowing deeper slots thus increasing productivity and stability in machining.
- ★ 4 corners available with grade gedge .
- ★ High productivity due to a large number of edge lines small gap between redge and ledge

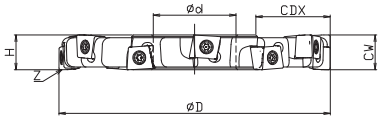


Designation	Size(mm)								Insert	Clamping Screw	Wrench
	D	D1	d	H	Z eff	Z	CDX	CW			
TLXFD9016-100R10LX10M27	100	58	27	50	5	10	20.0	16	LXGU1008. .	TLX1008	TLXS10
TLXFD9016-125R12LX10M32	125	66	32	50	6	12	28.5	16			
TLXFD9016-160R14LX10M40	160	82	40	63	7	14	38.0	16			
TLXFD9019-100R10LX12M27	100	58	27	50	5	10	20.0	19	LXGU1208. .	TLX1208	TLXS12
TLXFD9019-125R12LX12M32	125	66	32	50	6	12	28.5	19			
TLXFD9019-160R14LX12M40	160	82	40	63	7	14	38.0	19			
TLXFD9019-200R16LX12M40	200	95	40	63	8	16	55.0	19			
TLXFD9025-125R10LX15M32	125	66	32	50	5	10	28.5	25	LXGU1509. .	TLX1509	TLXS15
TLXFD9025-160R12LX15M40	160	82	40	63	6	12	38.0	25			
TLXFD9025-200R14LX15M40	200	95	40	63	7	14	55.0	25			

TLXSD SERIES

TLX SlotMill Series is an economical slot milling line for improved surface finish in slotting, face milling, and back-face milling.





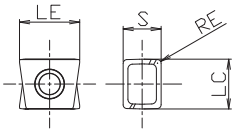
Designation	Size(mm)							Insert	Clamping Screw	Wrench
	D	d	H	Z eff	Z	CDX	CW			
TLXSD9016-100R10LX10M32	100	32	16	5	10	25.5	16	LXGU1008..	TLX1008	TLXS10
TLXSD9016-125R12LX10M40	125	40	16	6	12	34.0	16			
TLXSD9016-160R14LX10M40	160	40	16	7	14	51.5	16			
TLXSD9019-100R10LX12M32	100	32	19	5	10	25.5	19	LXGU1208..	TLX1208	TLXS12
TLXSD9019-125R12LX12M40	125	40	19	6	12	34.0	19			
TLXSD9019-160R14LX12M40	160	40	19	7	14	51.5	19			
TLXSD9019-200R16LX12M50	200	50	19	8	16	64.5	19			
TLXSD9025-125R10LX15M40	125	40	25	5	10	34.0	25	LXGU1509..	TLX1509	TLXS15
TLXSD9025-160R12LX15M40	160	40	25	6	12	51.5	25			
TLXSD9025-200R14LX15M50	200	50	25	7	14	64.5	25			

TLXFD/SD SERIES

TLX SlotMill Series is an economical slot milling line for improved surface finish in slotting, face milling, and back-face milling.

Applicable Inserts

Usage Classification										
★ 1st Choice ☆ 2nd Choice	P	Steel	★							
	M	Stainless	★							
	K	Cast iron		★						
	N	Non-ferrous								
	S	Superalloys			★					
	H	Hard materials								

Insert		Insert No.	Size(mm)				Coated Carbide				Carbide			
			LC	LE	S	RE	TT650	TY720	TS820	TI960	HC200			
		LXGU100808-MM	10.50	12.70	8.0	0.8	●	●	●					
		LXGU100810-MM	10.50	12.70	8.0	1.0	●	●	●					
		LXGU100816-MM	10.50	12.50	8.0	1.6	●	●	●					
		LXGU100820-MM	10.50	12.40	8.0	2.0	●	●	●					
		LXGU100824-MM	10.50	12.40	8.0	2.4	●	●	●					
		LXGU100830-MM	10.50	12.20	8.0	3.0	●	●	●					
		LXGU100832-MM	10.50	12.20	8.0	3.2	●	●	●					
		LXGU120808-MM	12.70	13.60	8.0	0.8	●	●	●					
		LXGU120816-MM	12.70	13.40	8.0	1.6	●	●	●					
		LXGU120820-MM	12.70	13.30	8.0	2.0	●	●	●					
		LXGU120824-MM	12.70	13.20	8.0	2.4	●	●	●					
		LXGU120830-MM	12.70	13.10	8.0	3.0	●	●	●					
		LXGU120832-MM	12.70	13.10	8.0	3.2	●	●	●					
		LXGU150908-MM	15.00	15.60	9.5	0.8	●	●	●					
		LXGU150916-MM	15.00	15.40	9.5	1.6	●	●	●					
		LXGU150920-MM	15.00	15.40	9.5	2.0	●	●	●					
		LXGU150924-MM	15.00	15.30	9.5	2.4	●	●	●					
		LXGU150930-MM	15.00	15.20	9.5	3.0	●	●	●					
		LXGU150932-MM	15.00	15.10	9.5	3.2	●	●	●					
		LXGU150940-MM	15.00	14.90	9.5	4.0	●	●	●					
		LXGU150950-MM	15.00	14.70	9.5	5.0	●	●	●					

LXGU150940-MM and LXGU150950-MM inserts are for special cutter bodies only and do not fit standard versions.
★Ask if this item is ready for order.

TLXFD/SD SERIES

TLX SlotMill Series is an economical slot milling line for improved surface finish in slotting, face milling, and back-face milling.

Recommended Cutting Conditions

ISO	Workpiece material	Hardness	Grade	Cutting Speed Vc (m/min)	Feed fz (mm/t)
P	Low Carbon Steel	≤HB180	TT650	90-180	0.13-0.40
	High Carbon and Alloy Steel	HB180-280		90-180	0.13-0.40
	Alloy Steel	HB280-350		90-180	0.13-0.40
M	Stainless Steel	≤HB200		90-200	0.13-0.40
K	Gray Cast Iron	HB150-250	TY720	100-200	0.10-0.25
	Ductile Cast Iron	HB150-250		80-150	0.10-0.20
S	Superalloys	-	TS820	20-35	0.07-0.16

TOTIME Indexable Milling Cutter
Multi-Functional Milling

Reduces Tool Changeover Times Drastically
Highly Accurate Deep Cavity Die Processing.

Extend the processing depth, improve the surface quality of the processing,realize ultra-long deep cavity processing,and cooperate with the cemented carbide toolholder to ensure excellent rigidity and shock absorption.

Modular Indexable Endmill

TP Series

ABPF Series

BAPM Series

EMRM Series

MFH03 Series

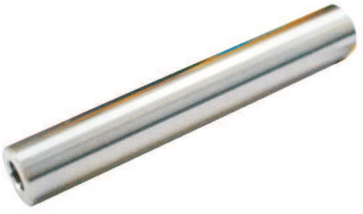
Modular Endmill:

HHD Series
HHD-AL Series

HSB Series
HSB-AL Series

HRTA Series

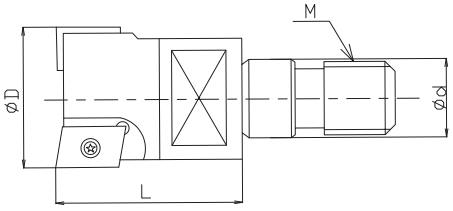
Tungsten Anti-Vibration Milling Holder



MFT Series

MODULAR BAPM SERIES

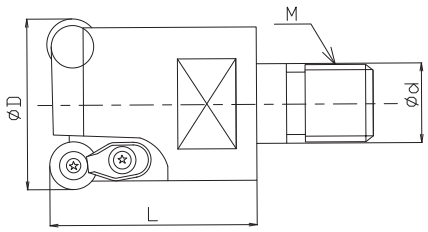
BAPM Square Shoulder Series Screwed End Mill



Designation	Size(mm)					Insert	Clamping Screw	Wrench	Torque (N・m)
	D	L	d	M	Z				
BAPM-16-M8-2T-11	16	25	8.5	M8	2	APMT1135	TT1011	TTP11	1.4
BAPM-17-M8-2T-11	17	25	8.5	M8	2	APMT1135			
BAPM-20-M10-2T-11	20	27	10.5	M10	2	APMT1135			
BAPM-21-M10-2T-11	21	27	10.5	M10	2	APMT1135			
BAPM-22-M10-3T-11	22	29	10.5	M10	3	APMT1135			
BAPM-25-M12-3T-11	25	29	12.5	M12	3	APMT1135			
BAPM-26-M12-3T-11	26	29	12.5	M12	3	APMT1135			
BAPM-28-M12-4T-11	28	31.5	12.5	M12	4	APMT1135			
BAPM-30-M16-4T-11	30	30	16.5	M16	4	APMT1135			
BAPM-32-M16-4T-11	32	33	16.5	M16	4	APMT1135			
BAPM-35-M16-4T-11	35	34	16.5	M16	4	APMT1135			
BAPM-40-M16-4T-11	40	37	16.5	M16	4	APMT1135			
BAPM-25-M12-2T-16	25	35	12.5	M12	2	APMT1604	TT1016	TTP16	1.4
BAPM-26-M12-2T-16	26	35	12.5	M12	2	APMT1604			
BAPM-30-M16-3T-16	30	39	16.5	M16	3	APMT1604			
BAPM-32-M16-3T-16	32	39	16.5	M16	3	APMT1604			
BAPM-35-M16-3T-16	35	42	16.5	M16	3	APMT1604			
BAPM-40-M16-4T-16	40	43	16.5	M16	4	APMT1604			

MODULAR EMRM SERIES

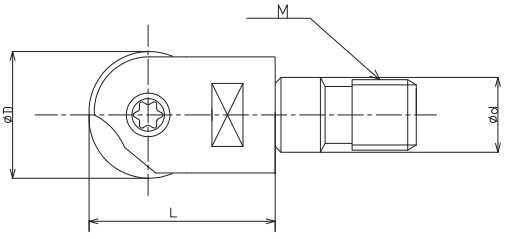
EMRM Round Nose Series Screwed End Mill



Designation	Size(mm)					Insert	Clamping Screw	Wrench	Torque (N・m)
	D	L	d	M	Z				
EMRM-4R16-M8-2T	16	25	8.5	M8	2	RPMT08T2	TT1008	TTP08	1.4
EMRM-4R17-M8-2T	17	25	8.5	M8	2	RPMT08T2			
EMRM-4R20-M10-2T	20	27	10.5	M10	2	RPMT08T2			
EMRM-4R21-M10-2T	21	27	10.5	M10	2	RPMT08T2			
EMRM-4R25-M12-3T	25	29	12.5	M12	3	RPMT08T2			
EMRM-4R26-M12-3T	26	29	12.5	M12	3	RPMT08T2			
EMRM-4R30-M16-4T	30	31	16.5	M16	4	RPMT08T2			
EMRM-4R32-M16-4T	32	32	16.5	M16	4	RPMT08T2			
EMRM-4R35-M16-4T	35	34	16.5	M16	4	RPMT08T2			
EMRM-4R40-M16-5T	40	34	16.5	M16	5	RPMT08T2			
EMRM-5R25-M12-2T	25	32	12.5	M12	2	RPMW1003	TT1011	TTP10	1.8
EMRM-5R26-M12-2T	26	32	12.5	M12	2	RPMW1003			
EMRM-5R30-M16-2T	30	35	16.5	M16	2	RPMW1003			
EMRM-5R32-M16-3T	32	35	16.5	M16	3	RPMW1003			
EMRM-5R35-M16-3T	35	37	16.5	M16	3	RPMW1003			
EMRM-5R40-M16-4T	40	39	16.5	M16	4	RPMW1003			
EMRM-6R25-M12-2T	25	34	12.5	M12	2	RPMT1204	TT1012	TRP12	2.2
EMRM-6R26-M12-2T	26	35	12.5	M12	2	RPMT1204			
EMRM-6R30-M16-2T	30	36	16.5	M16	2	RPMT1204			
EMRM-6R32-M16-2T	32	36	16.5	M16	2	RPMT1204			
EMRM-6R35-M16-3T	35	38	16.5	M16	3	RPMT1204			
EMRM-6R40-M16-3T	40	38	16.5	M16	3	RPMT1204			

MODULAR ABPF SERIES

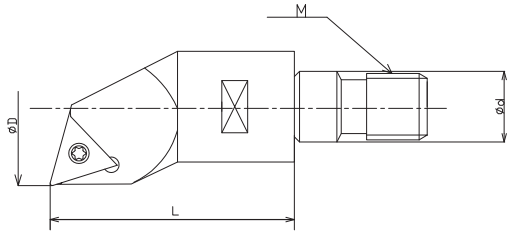
ABPF Ball Precision Series Screwed End Mill



Designation	Size(mm)					Insert	Clamping Screw	Wrench	Torque (N・m)
	D	L	d	M	Z				
ABPF-10-M5	10	20	5.5	M5	1	SP1W100/SP1Q100	ABPF-5R	T10	2.0
ABPF-12-M6	12	20	6.5	M6	1	SP1W120/SP1Q120	ABPF-6R	T20	2.5
ABPF-16-M8	16	25	8.5	M8	1	SP1W160/SP1Q160	ABPF-8R	T20	2.5
ABPF-20-M10	20	30	10.5	M10	1	SP1W200/SP1Q200	ABPF-10R	T20	3.0
ABPF-25-M12	25	35	12.5	M12	1	SP1W250/SP1Q250	ABPF-12.5R	T25	5.0
ABPF-30-M16	30	40	17	M16	1	SP1W300/SP1Q300	ABPF-15R	T30	5.0

MODULAR TP SERIES

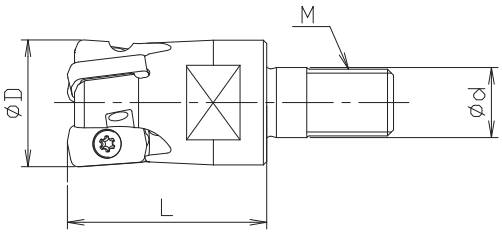
TP Boring Head Series Screwed End Mill



Designation	Size(mm)					Insert	Clamping Screw	Wrench	Torque (N・m)
	D	L	d	M	Z				
TP0802-9-M4	9	15	4.5	M4	1	TP..0802	ST2.2	T6	0.8
TP0802-10.5-M4	10.5	15	4.5	M4	1				
TP0802-12-M5	12	20	5.5	M5	1				
TP0802-14-M6	14	20	6.5	M6	1				
TP0802-16-M8	16	25	8.5	M8	1				
TP0802-18-M8	18	25	8.5	M8	1				
TP0802-20-M8	20	25	8.5	M8	1				
TP0802-22-M8	22	25	8.5	M8	1				

MODULAR MFH03 SERIES

MFH03 High-Feed Series Screwed End Mill



Designation	Size(mm)					Insert	Clamping Screw	Wrench	Torque (N・m)
	D	L	d	M	Z				
MFH03-2T16-M08	16	30	8.5	M8	2	LOGU030310	TT0303	TTP03	1.4
MFH03-2T17-M08	17	30	8.5	M8	2				
MFH03-3T20-M10	20	30	10.5	M10	3				
MFH03-3T21-M10	21	30	10.5	M10	3				
MFH03-4T25-M12	25	35	12.5	M12	4				
MFH03-4T26-M12	26	35	12.5	M12	4				
MFH03-5T32-M16	32	40	16.5	M16	5				
MFH03-5T33-M16	33	40	16.5	M16	5				
MFH03-5T35-M16	35	40	16.5	M16	5				
MFH03-6T40-M16	40	40	16.5	M16	6				

End Mills with Exchangeable Heads

For Alloy Steel,Stainless Steel,Cast Iron,Hardened Steel (≤HRC60)

Square	Designation	Size(mm)				
		Diameter	Flute Length	Neck Diameter	Thread Size	Z
	HHD0804	8	8	7.7	M5	4
	HHD1004	10	10	9.7	M5	4
	HHD1204	12	12	11.7	M6	4
	HHD1604	16	16	15.7	M8	4
	HHD2004	20	20	19.5	M10	4
	HHD2504	25	25	24.5	M12	4

Ball Nose	Designation	Size(mm)				
		Radius	Flute Length	Neck Diameter	Thread Size	Z
	HSB1002	R5.0	10	9.7	M5	2
	HSB1202	R6.0	12	11.7	M6	2
	HSB1602	R8.0	16	15.7	M8	2
	HSB2002	R10.0	20	19.5	M10	2
	HSB2502	R12.5	25	24.5	M12	2
	HSB1004	R5.0	10	9.7	M5	4
	HSB1204	R6.0	12	11.7	M6	4
	HSB1604	R8.0	16	15.7	M8	4
	HSB2004	R10.0	20	19.5	M10	4
	HSB2504	R12.5	25	24.5	M12	4

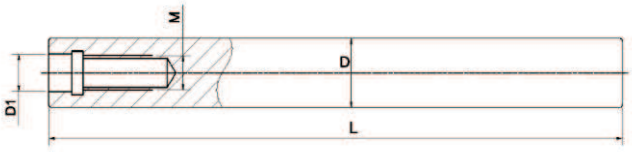
Corner Radius	Designation	Size(mm)				
		Diameter xCorner R	Flute Length	Neck Diameter	Thread Size	Z
	HRTA080054	8x0.5R	8	7.7	M5	4
	HRTA080104	8x1R	8	7.7	M5	4
	HRTA100054	10x0.5R	10	9.7	M5	4
	HRTA100104	10x1R	10	9.7	M5	4
	HRTA100204	10x2R	10	9.7	M5	4
	HRTA120054	12x0.5R	12	11.7	M6	4
	HRTA120104	12x1R	12	11.7	M6	4
	HRTA120204	12x2R	12	11.7	M6	4
	HRTA160104	16x1R	16	15.7	M8	4
	HRTA160204	16x2R	16	15.7	M8	4
	HRTA200104	20x1R	20	19.5	M10	4
	HRTA200204	20x2R	20	19.5	M10	4
	HRTA250104	25x1R	25	24.5	M12	4
	HRTA250204	25x2R	25	24.5	M12	4

End Mills with Exchangeable Heads

Aluminium Alloys

Square	Designation	Size(mm)				
		Diameter	Flute Length	Neck Diameter	Thread Size	Z
	HHD0803-AL	8	8	7.7	M5	3
	HHD1003-AL	10	10	9.7	M5	3
	HHD1203-AL	12	12	11.7	M6	3
	HHD1603-AL	16	16	15.7	M8	3
	HHD2003-AL	20	20	19.5	M10	3
	HHD2503-AL	25	25	24.5	M12	3
Ball Nose	**Designation**	**Size(mm)**				
		Radius	Flute Length	Neck Diameter	Thread Size	Z
	HSB1002-AL	R5.0	10	9.7	M5	2
	HSB1202-AL	R6.0	12	11.7	M6	2
	HSB1602-AL	R8.0	16	15.7	M8	2
	HSB2002-AL	R10.0	20	19.5	M10	2
	HSB2502-AL	R12.5	25	24.5	M12	2

Tungsten Anti-Vibration Milling Arbor



Designation	Size(mm)				
	Model	L	D1	D	M
MFT-08-100-M5	Φ8mm*100L*M5	100	5.5	8	M5
MFT-08-150-M5	Φ8mm*150L*M5	150	5.5	8	M5
MFT-10-100-M5	Φ10mm*100L*M5	100	5.5	10	M5
MFT-10-150-M5	Φ10mm*150L*M5	150	5.5	10	M5
MFT-12-100-M6	Φ12mm*100L*M6	100	6.5	12	M6
MFT-12-150-M6	Φ12mm*150L*M6	150	6.5	12	M6
MFT-12-200-M6	Φ12mm*200L*M6	200	6.5	12	M6
MFT-16-100-M8	Φ16mm*100L*M8	100	8.5	16	M8
MFT-16-150-M8	Φ16mm*150L*M8	150	8.5	16	M8
MFT-16-200-M8	Φ16mm*200L*M8	200	8.5	16	M8
MFT-16-250-M8	Φ16mm*250L*M8	250	8.5	16	M8
MFT-20-100-M10	Φ20mm*100L*M10	100	10.5	20	M10
MFT-20-150-M10	Φ20mm*150L*M10	150	10.5	20	M10
MFT-20-200-M10	Φ20mm*200L*M10	200	10.5	20	M10
MFT-20-250-M10	Φ20mm*250L*M10	250	10.5	20	M10
MFT-20-300-M10	Φ20mm*300L*M10	300	10.5	20	M10
MFT-25-100-M12	Φ25mm*100L*M12	100	12.5	25	M12
MFT-25-150-M12	Φ25mm*150L*M12	150	12.5	25	M12
MFT-25-200-M12	Φ25mm*200L*M12	200	12.5	25	M12
MFT-25-250-M12	Φ25mm*250L*M12	250	12.5	25	M12
MFT-25-300-M12	Φ25mm*300L*M12	300	12.5	25	M12
MFT-32-150-M16	Φ32mm*150L*M16	150	17.0	32	M16
MFT-32-200-M16	Φ32mm*200L*M16	200	17.0	32	M16
MFT-32-250-M16	Φ32mm*250L*M16	250	17.0	32	M16
MFT-32-300-M16	Φ32mm*300L*M16	300	17.0	32	M16
MFT-32-350-M16	Φ32mm*350L*M16	350	17.0	32	M16

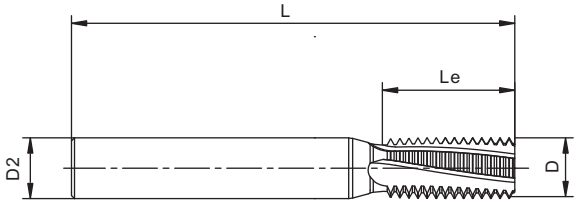
Part 3

Thread Tools

DIRECTORY

- Solid Carbide Thread End Mill B176
- Thread Milling Cutter B184

T Solid Carbide Thread End Mills (ISO Metric Profile)



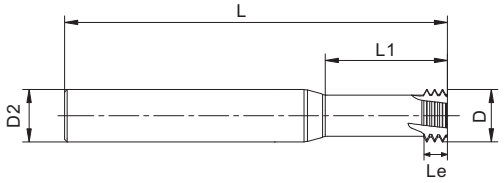
Apmax≤2xDo (Do=Nominal Diameter)

Unit : mm

Order No.	Pitch	Thread Size		Dimension（mm）				Drill Hole Diameter	Flutes
		M	MF	D	Le	L	D2		
D2.3X6XD4X50-FT	0.50	M3X0.5	-	2.3	6	50	4	2.50	4
D4.2X10XD6X50-FT		-	M5X0.5	4.2	10	50	6	4.50	4
D3.1X8XD4X50-FT	0.70	M4X0.7		3.1	8	50	4	3.30	4
D5X12XD6X50-FT	0.75	-	M6X0.75	5.0	12	50	6	5.25	4
D6.5X16XD8X60-FT		-	M8X0.75	6.5	16	60	8	7.25	6
D3.9X10XD6X50-FT	0.80	M5X0.8	-	3.9	10	50	6	4.20	4
D4.6X12XD6X50-FT	1.00	M6X1.0	-	4.6	12	50	6	5.00	4
D6.5X16XD8X60-FT		-	M8X1.0	6.5	16	60	8	7.00	6
D8.5X20XD10X75-FT		-	M10X1.0	8.5	20	75	10	9.00	6
D10X24XD10X75-FT		-	M12X1.0	10.0	24	75	10	11.00	6
D6.5X16XD8X60-FT	1.25	M8X1.25	-	6.5	16	60	8	6.75	6
D8.2X20XD10X75-FT		-	M10X1.25	8.2	20	75	10	10.75	6
D10X24XD10X75-FT		-	M12X1.25	10.0	24	75	10	10.75	6
D8.2X20XD10X75-FT	1.50	M10X1.5		8.2	20	75	10	8.50	6
D10X24XD10X75-FT		-	M12X1.5	10.0	24	75	10	10.50	6
D12X28XD12X75-FT		-	M14X1.5	12.0	28	75	12	12.50	6
D14X32XD14X80-FT		-	M16X1.5	14.0	32	80	14	14.50	6
D9.9X24XD10X75-FT	1.75	M12X1.75	-	9.9	24	75	10	10.20	6
D11.6X28XD12X75-FT	2.00	M14X2.0	-	11.6	28	75	12	12.00	6
D13.6X32XD14X80-FT	2.00	M16X2.0	-	13.6	32	80	14	14.00	6
D16X40XD16X100-FT	2.50	M20X2.5	-	16.0	40	100	16	17.50	6

Ordering Example:D2.3x6xD4x50-FT
M3x0.5-ISO

T 3 Pitch Typed Solid Carbide Thread End Mills (ISO Metric Profile)

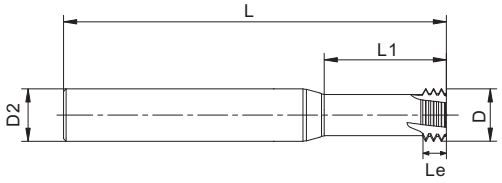


Apmax≤2xDo (Do=Nominal Diameter)

Order No.	Pitch	Thread Size		Dimension（mm）					Drill Hole Diameter	Flutes
		M	MF	D	Le	L1	L	D2		
D0.7X2.2XD4X50-3T	0.25	M1.0X0.25	-	0.70	0.75	2.2	50	4	0.75	3
D0.9X2.6XD4X50-3T		M1.2X0.25	-	0.90	0.75	2.6	50	4	0.95	3
D1.05X3.0XD4X50-3T	0.3	M1.4X0.3	-	1.05	0.90	3.0	50	4	1.10	3
D1.15X3.4XD4X50-3T	0.35	M1.6X0.35	-	1.15	1.05	3.4	50	4	1.25	3
D1.45X4.5XD4X50-3T	0.4	M2X0.4	-	1.45	1.20	4.5	50	4	1.60	4
D1.9X5.5XD4X50-3T	0.45	M2.5X0.45	-	1.90	1.35	5.5	50	4	2.05	4
D2.35X6.5XD4X50-3T	0.5	M3X0.5	-	2.35	1.50	6.5	50	4	2.50	4
D3.15X8.5XD4X50-3T	0.7	M4X0.7	-	3.15	2.10	8.5	50	4	3.30	4
D4.0X10.5XD6X50-3T	0.8	M5X0.8	-	4.00	2.40	10.5	50	6	4.20	4
D4.8X12.5XD6X50-3T	1	M6X1.0	-	4.80	3.00	12.5	50	6	5.00	4
D6.5X16.5XD8X60-3T	1.25	M8X1.25	-	6.50	3.75	16.5	60	8	6.75	6
D8.2X21XD10X75-3T	1.5	M10X1.5	-	8.20	4.50	21.0	75	10	8.50	6
D9.9X25XD10X75-3T	1.75	M12X1.75	-	9.90	5.25	25.0	75	10	10.20	6

Ordering Example:D2.35x6.5xD4x50-3T
M3x0.5-ISO-2D

T 3 Pitch Typed Solid Carbide Thread End Mills (ISO Metric Profile)

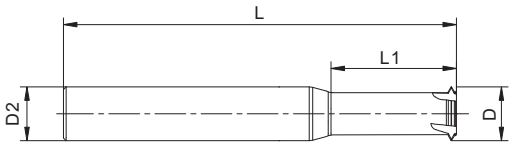


Apmax≤3xDo (Do=Nominal Diameter)

Order No.	Pitch	Thread Size		Dimension（mm）					Drill Hole Diameter	Flutes
		M	MF	D	Le	L1	L	D2		
D0.7X3.0XD4X50-3T	0.25	M1.0X0.25	-	0.70	0.75	3.0	50	4	0.75	3
D0.9X3.6XD4X50-3T		M1.2X0.25	-	0.90	0.75	3.6	50	4	0.95	3
D1.05X4.2XD4X50-3T	0.3	M1.4X0.3	-	1.05	0.90	4.2	50	4	1.10	3
D1.15X4.8XD4X50-3T	0.35	M1.6X0.35	-	1.15	1.05	4.8	50	4	1.25	3
D1.45X6XD4X50-3T	0.4	M2X0.4	-	1.45	1.20	6.0	50	4	1.60	4
D1.9X7.5XD4X50-3T	0.45	M2.5X0.45	-	1.90	1.35	7.5	50	4	2.05	4
D2.35X9XD4X50-3T	0.5	M3X0.5	-	2.35	1.50	9.0	50	4	2.50	4
D3.15X12XD4X50-3T	0.7	M4X0.7	-	3.15	2.10	12.0	50	4	3.30	4
D4.0X15XD6X50-3T	0.8	M5X0.8	-	4.00	2.40	15.0	50	6	4.20	4
D4.8X18XD6X50-3T	1	M6X1.0	-	4.80	3.00	18.0	50	6	5.00	4
D6.5X24XD8X60-3T	1.25	M8X1.25	-	6.50	3.75	24.0	60	8	6.75	6
D8.2X30XD10X75-3T	1.5	M10X1.5	-	8.20	4.50	30.0	75	10	8.50	6
D9.9X36XD10X75-3T	1.75	M12X1.75	-	9.90	5.25	36.0	75	10	10.20	6

Ordering Example:D2.35x9xD4x50-3T
M3x0.5-ISO-3D

T Single Pitch Typed Solid Carbide Thread End Mills (ISO Metric Profile)

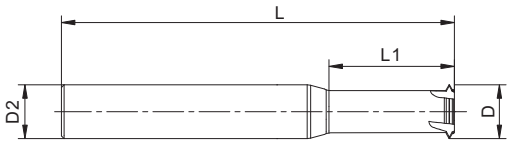


Apmax≤2xDo (Do=Nominal Diameter)

Order No.	Pitch	Thread Size		Dimension（mm）				Drill Hole Diameter	Flutes
		M	MF	D	L1	L	D2		
D0.7X2.2XD4X50-1T	0.25	M1.0X0.25	-	0.70	2.2	50	4	0.75	3
D0.9X2.6XD4X50-1T		M1.2X0.25	-	0.90	2.6	50	4	0.95	3
D1.05X3.0XD4X50-1T	0.3	M1.4X0.3	-	1.05	3.0	50	4	1.10	3
D1.15X3.4XD4X50-1T	0.35	M1.6X0.35	-	1.15	3.4	50	4	1.25	3
D1.45X4.5XD4X50-1T	0.4	M2X0.4	-	1.45	4.5	50	4	1.60	4
D1.9X5.5XD4X50-1T	0.45	M2.5X0.45	-	1.90	5.5	50	4	2.05	4
D2.35X6.5XD4X50-1T	0.5	M3X0.5	-	2.35	6.5	50	4	2.50	4
D3.15X8.5XD4X50-1T	0.7	M4X0.7	-	3.15	8.5	50	4	3.30	4
D4.0X10.5XD6X50-1T	0.8	M5X0.8	-	4.00	10.5	50	6	4.20	4
D4.8X12.5XD6X50-1T	1	M6X1.0	-	4.80	12.5	50	6	5.00	4
D6.5X16.5XD8X60-1T	1.25	M8X 1.25	-	6.50	16.5	60	8	6.75	6
D8.2X21XD10X75-1T	1.5	M10X1.5	-	8.20	21.0	75	10	8.50	6
D9.9X25XD10X75-1T	1.75	M12X1.75	-	9.90	25.0	75	10	10.20	6

Ordering Example:D2.35x6.5xD4x50-1T
M3x0.5-ISO-2D

T Single Pitch Typed Solid Carbide Thread End Mills (ISO Metric Profile)

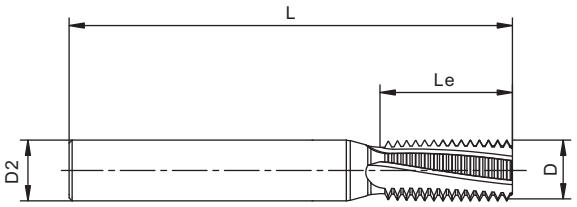


Apmax≤3xDo (Do=Nominal Diameter)

Order No.	Pitch	Thread Size		Dimension（mm）				Drill Hole Diameter	Flutes
		M	MF	D	L1	L	D2		
D0.7X3.0XD4X50-1T	0.25	M1.0X0.25	-	0.70	3.0	50	4	0.75	3
D0.85X3.6XD4X50-1T		M1.2X0.25	-	0.85	3.6	50	4	0.95	3
D1.05X4.2XD4X50-1T	0.3	M1.4X0.3	-	1.05	4.2	50	4	1.10	3
D1.15X4.8XD4X50-1T	0.35	M1.6X0.35	-	1.15	4.8	50	4	1.25	3
D1.45X6XD4X50-1T	0.4	M2X0.4	-	1.45	6.0	50	4	1.60	4
D1.9X7.5XD4X50-1T	0.45	M2.5X0.45	-	1.90	7.5	50	4	2.05	4
D2.35X9XD4X50-1T	0.5	M3X0.5	-	2.35	9.0	50	4	2.50	4
D3.15X12XD4X50-1T	0.7	M4X0.7	-	3.15	12.0	50	4	3.30	4
D4.0X15XD6X50-1T	0.8	M5X0.8	-	4.00	15.0	50	6	4.20	4
D4.8X18XD6X50-1T	1	M6X1.0	-	4.80	18.0	50	6	5.00	4
D6.5X24XD8X60-1T	1.25	M8X1.25	-	6.50	24.0	60	8	6.75	6
D8.2X30XD10X75-1T	1.5	M10X1.5	-	8.20	30.0	75	10	8.50	6
D9.9X36XD10X75-1T	1.75	M12X1.75	-	9.90	36.0	75	10	10.20	6

Ordering Example:D2.35x9xD4x50-1T
M3x0.5-ISO-3D

T Solid Carbide Thread End Mills (UN Profile)

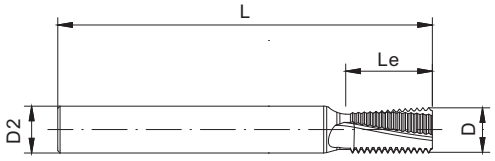


Apmax≤2xDo (Do=Nominal Diameter)

Order No.	Tip	Thread Size		Dimension（mm）				Drill Hole Diameter	Flutes
		UNC	UNF	D	Le	L	D2		
D3.2X8.5XD4X50-FT	36	-	No.8-36	3.2	8.5	50	4	3.5	4
D3.8X11.1XD4X50-FT	32	-	No.10-32	3.8	11.1	50	4	4.0	4
D4.2X11.8XD4X50-FT	28	-	No.12-28	4.2	11.8	50	6	4.6	4
D5.2X12.7XD6X50-FT		-	1/4″ -28	5.2	12.7	50	6	5.5	4
D3.5X10.6XD4X50-FT	24	No.10-24	-	3.5	10.6	50	4	3.8	4
D4.2X11.6XD6X50-FT		No.12-24	-	4.2	11.6	50	6	4.5	4
D6.5X15.9XD8X60-FT		-	5/16″ -24	6.5	15.9	60	8	6.8	6
D8.2X19.1XD10X75-FT		-	3/8″ -24	8.2	19.1	75	10	8.5	6
D4.8X12.7XD6X50-FT	20	1/4″ -20	-	4.8	12.7	50	6	5.2	4
D9.5X22.9XD10X75-FT		-	7/16″ -20	9.5	22.9	75	10	9.8	6
D10X25.4XD10X75-FT		-	1/2″ -20	10.0	25.4	75	10	11.5	6
D6.2X16.9XD8X60-FT	18	5/16″ -18	-	6.2	16.9	60	8	6.5	6
D12X29.6XD12X75-FT		-	9/16″ -18	12.0	29.6	75	12	12.8	6
D14X32.5XD14X80-FT		-	5/8″ -18	14.0	32.5	80	14	14.5	6
D7.7X19.1XD8X60-FT	16	3/8″ -16	-	7.7	19.1	60	8	8.0	6
D9X23.6XD10X75-FT	14	7/16″ -14	-	9.0	23.6	75	10	9.3	6
D10X25.4XD10X75-FT	13	1/2″ -13	-	10.0	25.4	75	10	10.8	6
D12X29.6XD12X75-FT	12	9/16″ -12	-	12.0	29.6	75	12	12.3	6
D12X32.3XD12X75-FT	11	5/8″ -11	-	12.0	32.3	75	12	13.5	6

Ordering Example:D6.5x15.9xD8x60-FT
5/16''-24-UNF

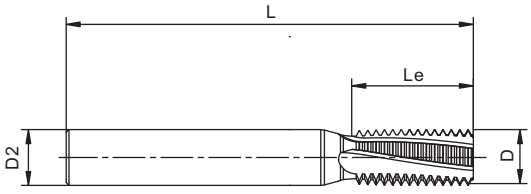
T Solid Carbide Thread End Mills (NPT Profile)



Order No.	Tip	Thread Size	Dimension（mm）				Drill Hole Diameter	Flutes
		NPT	D	Le	L	D2		
D5.3X9.4XD6X50-FT	27	1/16″ -27	5.3	9.4	50	6	6.3	4
D7.3X9.4XD8X60-FT		1/8″ -27	7.3	9.4	60	8	8.5	4
D9X14.1XD10X75-FT	18	1/4″ -18	9.0	14.1	75	10	11.1	6
D11X14.1XD12X75-FT		3/8″ -18	11.0	14.1	75	12	14.5	6
D14.3X25.4XD16X100-FT	14	1/2″ -14	14.3	25.4	100	16	17.7	6
		3/4″ -14	14.3	25.4	100	16	23.0	6
D13.9X33.1XD16X100-FT	11.5	1″ -11.5	13.9	33.1	100	16	29.0	6

Ordering Example:D5.3x9.4xD6x50-FT
1/16"-27-NPT

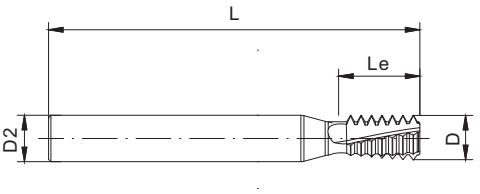
T Solid Carbide Thread End Mills (G Profile)



Order.No	Tip	Thread Size	Dimension（mm）				Drill Hole Diameter	Flutes
		G	D2	Le	L	D		
D6X16XD6X50-FT	28	1/16″ -28	6.0	16	50	6	6.7	3～4
D8X20XD8X60-FT		1/8″ -28	8.0	20	60	8	8.7	3～4
D10X26.7XD10X75-FT	19	1/4″ -19	10.0	26.7	75	10	11.8	4～6
D14X33.4XD14X80-FT		3/8″ -19	14.0	33.4	80	14	15.2	4～6
D16X43.5XD16X100-FT	14	1/2″ -14	16.0	43.5	100	16	19.0	4～6
		3/4″ -14	16.0	43.5	100	16	19.0	4～6

Ordering Example:D6x16xD6x50-FT
G1/16"-28

T Solid Carbide Thread End Mills (Rc Profile)



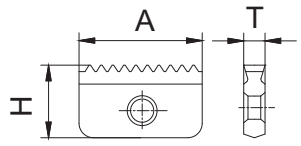
Order No.	Tip	Thread Size	Dimension（mm）				Drill Hole Diameter	Flutes
		Rc	D	Le	L	D2		
D4.9X16.3XD6X50-FT	28	1/16″ -28	4.9	16.3	50	6	6.7	3～4
D6.7X20XD8X60-FT		1/8″ -28	6.7	20	60	8	8.7	3～4
D8.3X26.7XD10X75-FT	19	1/4″ -19	8.3	26.7	75	10	11.8	4～6
D11.9X33.4XD14X80-FT		3/8″ -19	11.9	33.4	80	14	15.2	4～6
D13.2X43.5XD16X100-FT	14	1/2″ -14	13.2	43.5	100	16	19.0	4～6
		3/4″ -14	13.2	43.5	100	16	19.0	4～6

Ordering Example:D4.9x16.3xD6x50-FT
RC1/16-28-BSPT

T Thread Milling Inserts

Model	A (mm)	H (mm)	T (mm)
12N**	12	6	2.38
14**	14	7.5	3.1
21**	21	12	4.7
30**	30	16	5.5
40**	40	20	6.3

Material Recommended	Grade	TG4215
	Steel	P ●
	Stainless	M ●
	Cast Iron	K ●

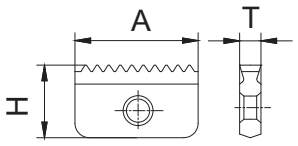


Insert	Internal Insert		External Insert		Pitch	Insert Toolholder
	Designation	Grade TG4215	Designation	Grade TG4215		
	12N0.5ISO	●			0.50	SR0010H12
	12N0.75ISO	●			0.75	
	12N1.0ISO	●			1.00	
	12N1.25ISO	●			1.25	
	12N1.5ISO	●			1.50	
	14N0.5ISO	●	14E0.5ISO	●	0.50	SR0012F14 SR0014H14 SR0017H14 SR0020G14-2 SR0020J14-2
	14N0.75ISO	●	14E0.75ISO	●	0.75	
	14N1.0ISO	●	14E1.0ISO	●	1.00	
	14N1.25ISO	●	14E1.25ISO	●	1.25	
	14N1.5ISO	●	14E1.5ISO	●	1.50	
	14N2.0ISO	●	14E2.0ISO	●	2.00	
	14N2.5ISO	●	14E2.5ISO	●	2.50	
	21N1.0ISO	●	21E1.0ISO	●	1.00	SR0018H21 SR0021H21 SR0025K21 SR0030J21-2 SR0030L21-2 SR0063C21-5
	21N1.5ISO	●	21E1.5ISO	○	1.50	
	21N1.75ISO	●	21E1.75ISO	●	1.75	
	21N2.0ISO	●	21E2.0ISO	●	2.00	
	21N2.5ISO	●	21E2.5ISO	●	2.50	
	21N3.0ISO	●	21E3.0ISO	●	3.00	
	21N3.5ISO	●			3.50	
	30N1.5ISO	●	30E1.5ISO	●	1.50	SR0029J30 SR0031M30 SR0038M30 SR0040L30-2 SR0040P30-2 SR0063C30-4 SR0080D30-4 SR0100D30-4
	30N2.0ISO	●	30E2.0ISO	●	2.00	
	30N2.5ISO	●	30E2.5ISO	●	2.50	
	30N3.0ISO	●	30E3.0ISO	●	3.00	
	30N3.5ISO	●	30E3.5ISO	○	3.50	
	30N4.0ISO	●	30E4.0ISO	○	4.00	
	30N4.5ISO	●			4.50	
	30N5.0ISO	●			5.00	
	40N1.5ISO	●	40E1.5ISO	○	1.50	SR0048M40 SR0038Q40 SR0048R40 SR0050M40-2 SR0080D40-4 SR0100E40-4
	40N2.0ISO	●	40E2.0ISO	○	2.00	
	40N3.0ISO	●			3.00	
	40N3.5ISO	●			3.50	
	40N4.0ISO	●			4.00	
	40N4.5ISO	●			4.50	
	40N5.0ISO	●			5.00	
	40N5.5ISO	●			5.50	
	40N6.0ISO	●			6.00	

T Thread Milling Inserts

Model	A (mm)	H (mm)	T (mm)
12N**	12	6	2.38
14**	14	7.5	3.1
21**	21	12	4.7
30**	30	16	5.5
40**	40	20	6.3

Material Recommended	Grade	TG4215
	Steel	P ●
	Stainless	M ●
	Cast Iron	K ●



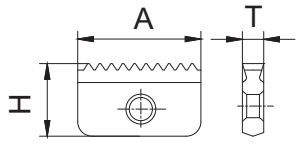
Insert	Internal Insert		External Insert		Tip	Insert Toolholder
	Designation	Grade TG4215	Designation	Grade TG4215		
	14N32UN	○			32.0	SR0012F14 SR0014H14 SR0017H14 SR0020G14-2 SR0020J14-2
	14N28UN	○			28.0	
	14N27UN	○			27.0	
	14N24UN	●	14E24UN	○	24.0	
	14N20UN	●	14E20UN	○	20.0	
	14N18UN	●	14E18UN	○	18.0	
	14N16UN	●	14E16UN	○	16.0	
	14N14UN	●	14E14UN	○	14.0	
	14N12UN	●	14E12UN	○	12.0	
	14N11UN	○			11.0	
	14N10UN	○			10.0	
	21N24UN	●	21E24UN	○	24.0	SR0018H21 SR0021H21 SR0025K21 SR0030J21-2 SR0030L21-2 SR0063C21-5
	21N20UN	●	21E20UN	○	20.0	
	21N18UN	●	21E18UN	○	18.0	
	21N16UN	●	21E16UN	○	16.0	
	21N14UN	●	21E14UN	○	14.0	
	21N12UN	●	21E12UN	○	12.0	
	21N10UN	●	21E10UN	○	10.0	
	21N8UN	●			8.0	
	21N7UN	●			7.0	
	30N20UN	○	30E20UN	○	20.0	SR0029J30 SR0031M30 SR0038M30 SR0040L30-2 SR0040P30-2 SR0063C30-4 SR0080D30-4 SR0100D30-4
	30N18UN	○	30E18UN	○	18.0	
	30N16UN	○	30E16UN	○	16.0	
	30N14UN	○	30E14UN	○	14.0	
	30N12UN	○	30E12UN	○	12.0	
	30N10UN	○	30E10UN	○	10.0	
	30N8UN	●	30E8UN	○	8.0	
	30N6UN	○	30E6UN	○	6.0	
	30N5UN	○	30E5UN	○	5.0	
	40N16UN	○	40E16UN	○	16.0	SR0048M40 SR0038Q40 SR0048R40 SR0050M40-2 SR0080D40-4 SR0100E40-4
	40N14UN	○	40E14UN	○	14.0	
	40N12UN	○	40E12UN	○	12.0	
	40N10UN	○	40E10UN	○	10.0	
	40N8UN	●	40E8UN	○	8.0	
	40N6UN	○	40E6UN	○	6.0	
	40N4.5UN	○			4.5	
	40N4UN	○			4.0	

T Thread Milling Inserts

Model	A (mm)	H (mm)	T (mm)
12N**	12	6	2.38
14**	14	7.5	3.1
21**	21	12	4.7
30**	30	16	5.5
40**	40	20	6.3

Material Recommended

Grade	TG4215	
Steel	P	●
Stainless	M	●
Cast Iron	K	●



Insert	Internal Insert		External Insert		Tip	Insert Toolholder
	Designation	Grade TG4215	Designation	Grade TG4215		
	14-24W	●	14-24W	●	24	SR00**14 SR0020*14-2
	14-20W	●	14-20W	●	20	
	14-19W	●	14-19W	●	19	
	14-16W	●	14-16W	●	16	
	14-14W	●	14-14W	●	14	
	14-11W	●	14-11W	●	11	
	21-20W	○	21-20W	○	20	SR00**21 SR0030*21-2 SR0063C21-5
	21-19W	●	21-19W	●	19	
	21-16W	●	21-16W	●	16	
	21-14W	●	21-14W	●	14	
	21-11W	●	21-11W	●	11	
	30-16W	○	30-16W	○	16	SR00*30 SR0040*30-2 SR0***30-4
	30-14W	○	30-14W	○	14	
	30-11W	●	30-11W	●	11	

T Threading Holders (Single Insert)

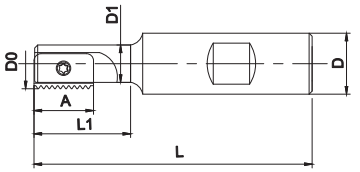


Fig.1

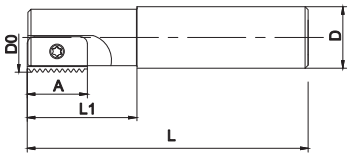
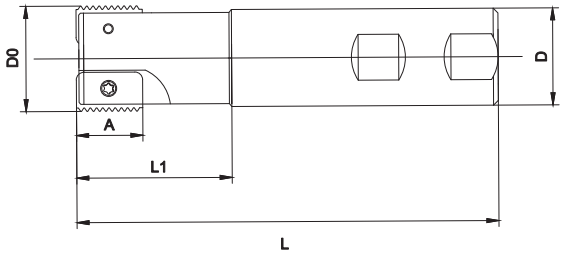


Fig.2

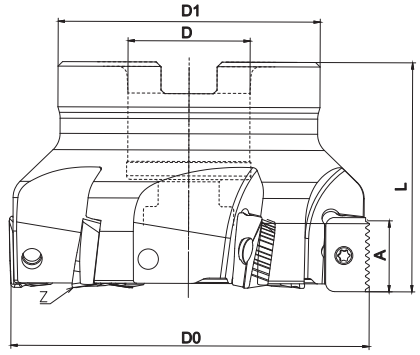
Toolholder Type		Insert Type	Dimensions (mm)						Insert Screw	TorX Key
			D0	L1	D	D1	L	A		
SR0010H12	Fig.1	12N..	9.5	20	16	7.6	85	12	L60M2.5X6	T- 8
SR0012F14	Fig.1	14N/E..	12.0	23	20	8.9	80	14	L60M3X6.5	T- 8
SR0014H14	Fig.1		14.5	26	20	11.2	85	14	L60M3X8	T-10
SR0017H14	Fig.1		17.0	35	20	13.4	85	14	L60M3X8	T-10
SR0018H21	Fig.1	21N/E..	18.0	35	20	13.8	85	21	L60M3.5X8	T-15
SR0021H21	Fig.1		21.0	44	20	15.5	94	21	L60M3.5X10	T-15
SR0025K21	Fig.2		25.0	-	20	-	125	21	L60M3.5X10	T-15
SR0029J30	Fig.1	30N/E..	29.0	52	25	22.0	110	30	L60M4X0.5X11.5D	T-15
SR0031M30	Fig.2		31.0	-	25	-	150	30	L60M4X0.5X11.5D	T-15
SR0038M30	Fig.2		38.0	-	32	-	150	30	L60M4X0.5X11.5D	T-15
SR0048M40	Fig.1	40N/E..	48.0	83	40	35.0	153	40	L60M5X0.8X14D	T-20
SR0038Q40	Fig.2		38.0	-	32	-	180	40	L60M5X0.8X14D	T-20
SR0048R40	Fig.2		48.0	-	40	-	210	40	L60M5X0.8X14D	T-20

Threading Holders (Double Inserts)



Toolholder Type	Insert Type	Dimensions (mm)						Insert Screw	TorX Key
		D0	L1	D	D1	L	A		
SR0020G14-2	14N/E..	20	37	20	16	93	14	L60M3X7	T-10
SR0020J14-2		20	57	20	16	113	14	L60M3X7	T-10
SR0030J21-2	21N/E..	30	52	25	24	113	21	L60M3.5X10	T-15
SR0030L21-2		30	80	25	24	140	21	L60M3.5X10	T-15
SR0040L30-2	30N/E..	40	70	32	30	135	30	L60M4X0.5X11.5D	T-15
SR0040P30-2		40	103	32	30	170	30	L60M4X0.5X11.5D	T-15
SR0050M40-2	40N/E..	50	80	40	38	153	40	L60M5X0.8X14D	T-20

Threading Milling Cutter



Toolholder Type	Insert Type	Dimensions (mm)						Insert Screw	TorX Key
		D0	D	D1	L	A	Z		
SR0063C21-5	21N/E..	63	22	48	50	21	5	L60M3.5X10	T-15
SR0063C30-4	30N/E..	63	22	48	50	30	4	L60M4X0.5X10D	T-15
SR0080D30-4		80	27	60	55	30	4	L60M4X0.5X10D	T-15
SR0100D30-4		100	32	60	60	30	4	L60M4X0.5X10D	T-15
SR0080D40-4	40N/E..	80	27	78	65	40	4	L60M5X0.8X14D	T-20
SR0100E40-4		100	32	78	70	40	4	L60M5X0.8X14D	T-20

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C

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09 Premium Taps C171

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Carbide Drills C1-C105

- TTW/TTS SERIES
  For General Purpose 3D,5D,7D — P M K — C1
- TTS DEEP SERIES
  For General Purpose 12D,16D,20D,25D,30D — P M K — C38
- TKW/TKS SERIES
  For Cast Iron 3D,5D — K — C45
- CTW/CTS SERIES
  For General Steel 3D,5D — P — C74
- DTW/DTS SERIES
  For Stainless Steel 3D,5D — M — C87
- MICRO DRILL SERIES
  For General Purpose — P M K — C92
- MICRO DRILL SERIES
  For Aluminium Purpose — N — C95
- FSD HIGH EFFICIENCY FLAT SERIES
  For General Purpose — P M K — C99
- CCD CARBIDE CENTER DRILL — P M K — C105
- CSD CARBIDE SPOTTING DRILL — P M K — C105

HSSE-PM Drills C106-C119

- TDPM SERIES
  For General Purpose — P M K — C106

DIRECTORY

U Drills C120-C131

- DRILL BODY 2D,3D,4D,5D — C120
- SPMX05-14 For General Purpose — P M K — C128
- SPGX05-14 For Aluminium Purpose — N — C128

THCD Exchangeable Head Drills C132-C146

- DRILL BODY 1D,3D,5D,7D,8D,10D,12D — C132
- THCD DRILL HEAD RANGE 12.5~40mm — P M K — C140

TC Exchangeable Head Drills C147-C156

- DRILL BODY 1.5D, 3D, 5D, 8D, 10D, 12D — C147
- TC DRILL HEAD RANGE 12.0~33.5mm — P M K — C154

Deep Hole Drills C157-C167

- BRAZED TYPE BTA DRILLS 16.XX-19.XX-25.XX — P M K — C157
- INDEXABLE DRILL EQUIVALENT TO 800 SERIES — P M K — C162

CDR 45° Chamfer Cutter C168-C169

- SPMX05-14 For General Purpose — P M K — C168
- SPGX05-14 For Aluminium Purpose — N — C168

Non-Standard Drills C170

Premium Taps C171-C207

- HSS-Co PREMIUM TAPS — P M K — C173
- HSS-PM PREMIUM TAPS — P M K — C183
- CARBIDE PREMIUM TAPS — P K — C192
- USER'S GUIDE — C202

TT SERIES

P M K

[C1~C44]

- Curved cutting edge design disperse the cutting force, it is not easy to cause chipping and wear due to stress concentration, and facilitate chip removal.
- Nano composite Balzers-PT coating ,superior wear resistance,longer tool life.
- Specially suitable for hole machining of carbon steel, alloy steel,stainless steel and other materials.
- Deep hole drill series L/D=12~30.

TK SERIES

K

[C45~C73]

- For cast iron processing for automotive engines and other industries .
- Waveform blade, reduce processing torque , improve hole wall quality and hole precision.
- Wide horizontal blade design and improve the intensity of the drill.

CT SERIES

P K

[C74~C86]

- Suitable for steel(≤HRC48),cast iron efficient drilling.
- Unique cutting edge preparation to add strength to the cutting edge and improve the drilling stability.
- Nano composite AlTiN coating ,superior wear resistance,longer tool life.

DT SERIES

M

[C87~C91]

- Suitable for stainless steel,heat-resistant alloy and titanium alloy efficient drilling.
- Unique drill point design,better chip evacuation performance and larger groove profile.
- New substrate material and coating,stronger toughness and wear resistance ability.
- Optimize the groove profile,with excellent chip removal performance.

TDM Micro-drill SERIES

TDMC SERIES

P M K

[C92~C94]

- Ultra fine particles and super wear resistant cemented carbide are used.
- New composite TiAlN coating is developed to enhance the fatigue resistance and wear resistance of drill.
- Specially suitable for hole machining of carbon steel, alloy steel,stainless steel and other materials.
- Long life, high efficiency.

TDMAL SERIES

N

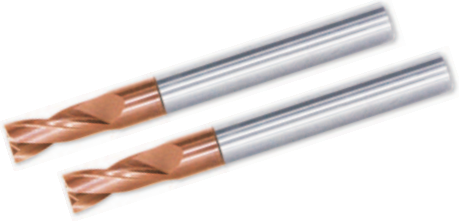
[C95~C98]

- Ultra fine cemented carbide round bar was used.
- Ultra precision tolerance control, excellent cutting force and chip removal.
- Especially suitable for aluminium alloy,Copper alloy and resin precision hole processing.

FSD SERIES

P M K

[C99~C104]



- Point angle 180°
- Better centering ability,chip evacuation smoothly because of point geometry and flute design.
- Suitable for machining inclined hole,drilling on ball surface and thin sheet,restraining the burr also.

CCD SERIES

P M K

[C105]

- Carbide Center Drill with High-performance and Multi-Purpose Series.

CSD SERIES

P M K

[C105]

- Carbide Spotting Drill with High-performance and Multi-Purpose Series.

Tolerance

TTW/TKW/CTW/DTW Drills

(mm)

Flute Dia.	Dia. Tolerance(m7)
=2-3	+0.002/+0.012
>3-6	+0.004/+0.016
>6-10	+0.006/+0.021
>10-18	+0.007/+0.025
>18-20	+0.008/+0.029

Shank Dia.	Shank Tolerance(h6)
=2-3	0.000/-0.006
>3-6	0.000/-0.008
>6-10	0.000/-0.009
>10-18	0.000/-0.011
>18-20	0.000/-0.013

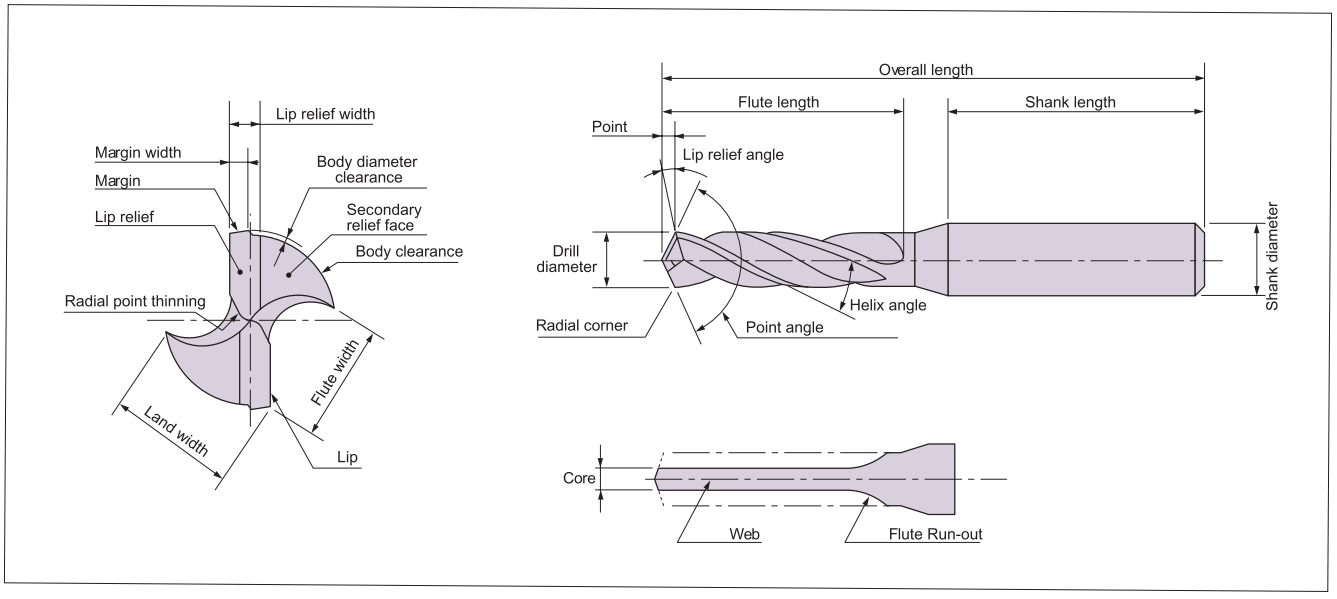
TTS/TKS/CTS/DTS Drills

(mm)

Flute Dia.	Dia. Tolerance(m7)
=2-3	+0.002/+0.012
>3-6	+0.004/+0.016
>6-10	+0.006/+0.021
>10-18	+0.007/+0.025
>18-20	+0.008/+0.029

Shank Dia.	Shank Tolerance(h6)
=2-3	0.000/-0.006
>3-6	0.000/-0.008
>6-10	0.000/-0.009
>10-18	0.000/-0.011
>18-20	0.000/-0.013

Terminology

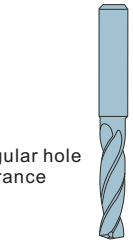


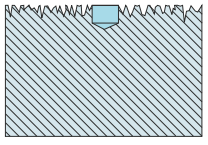
Machining Methods

Irregular/Angled Hole Entrance

If irregular or angle entrance use pre operations accordingly

Regular hole entrance

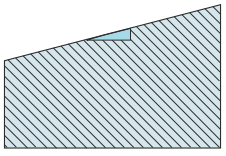




Pre drill with a short standard TT Series

Pre-machining alternatives

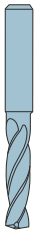
Angled hole entrance

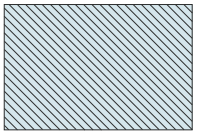


Machine a flat using an end mill from the TOTIME range

Recommended Tool Holders

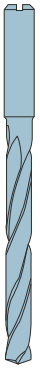
3-12XD

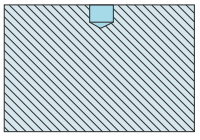




No pre-drilling or entrance feed needed

>12XD

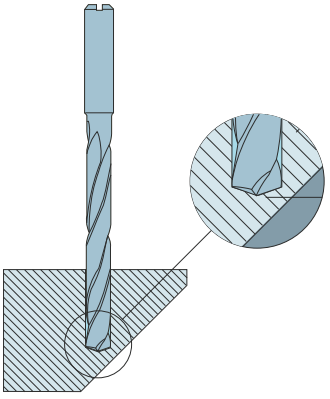




When using a longer drill it´s recommended to drill a pilot hole

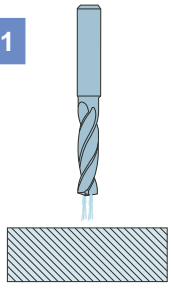
Angled Hole Exits

Before hole exit reduce the feed/rev by 50%



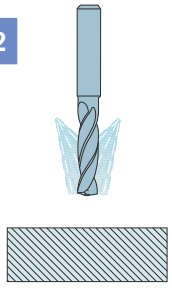
Coolant Recommendations

1



First choice

2



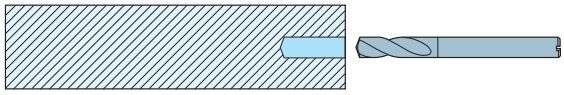
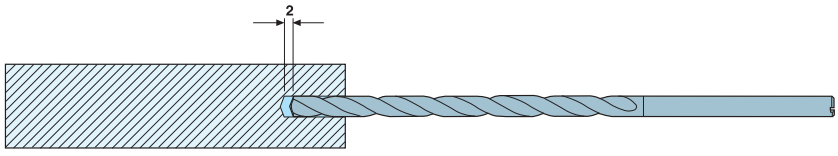
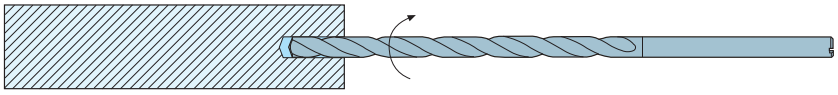
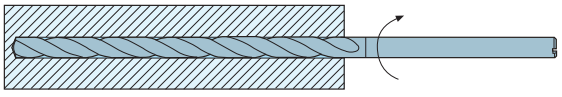
⩽ 5 x D

1. Coolant pressure*
Minimum recommended coolant pressure 10 bar with ⩽ 5 x D
Minimum recommended coolant pressure 30 bar with > 5 x D
Minimum recommended coolant pressure 40 bar with > 16 x D

2. Coolant mix
Recommended emulsion mix 6-8%.
When drilling in stainless steels, superalloys and high strength steels a mix of 10% is recommended.

*If lower coolant pressure is used adjust by reducing cutting data accordingly.

Machining Methods

TTS16 (16 x D) up to TTS30 (30 x D) - STEP BY STEP	
1. 	1. Drill a pilot hole 2-3 x D. Use a standard drill with the same diameter i.e. TTS 3D. (with 140° point angle)
2. 	2. Enter the hole with the machine spindle stopped or use a low rpm (500). Stop 2 mm (0. 080") above the pilot hole depth.
3. 	3. Start the machine spindle and the coolant, drill with the recommended cutting data. (No peck drilling)
4. 	4. When reaching full depth, reduce the rpm to 500 and then retract the drill with 4 times the work feed to avoid retraction marks.

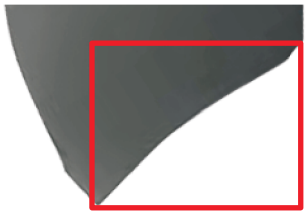
High Performance Carbide Drill for General Purpose

TOTIME

TT Serise								
	TTW TTS	TTW05 TTS05	TTW07 TTS07	TTS12	TTS16	TTS20	TTS25	TTS30
Drill Depth	3XD	5XD	7XD	12XD	16XD	20XD	25XD	30XD
Range	3-20	3-20	4.5-20	3-12	3-12	3-12	3-12	3-12
Drill Tolerance	m7	m7	m7	m7	m7	m7	m7	m7
Shank Tolerance	h6	h6	h6	h6	h6	h6	h6	h6
Hole Tolerance	IT8-9	IT8-9	IT8-9	IT8-9	IT8-9	IT8-9	IT8-9	IT8-9
Page	C3	C17	C30	C38	C39	C40	C41	C42

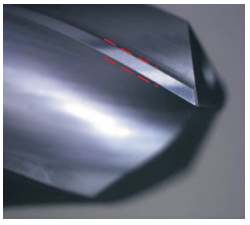
Technological Innovation

1.Curved Cutting Edge



The edge design has two advantages, one is to disperse the cutting force, it is not easy to cause chipping and wear due to stress concentration, and the second is to facilitate chip removal.

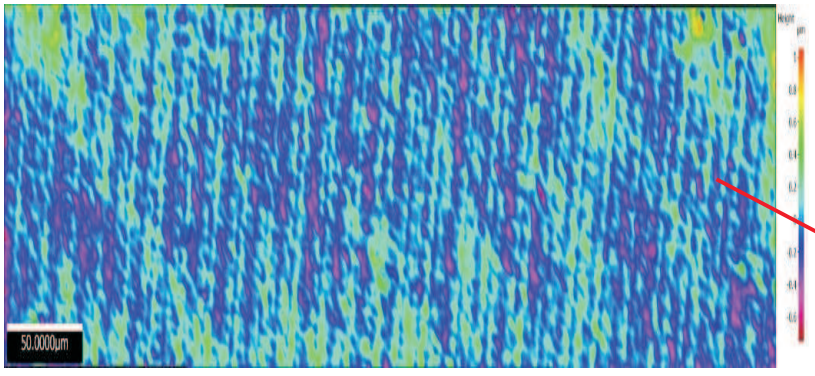
2.Narrow Cutting Edge

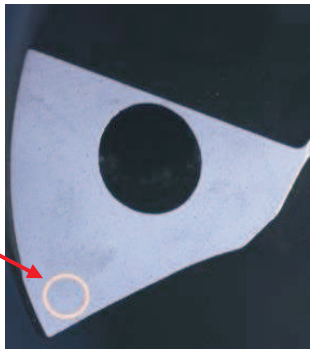


Some carbon steels have good ductility and shrinkage holes may occur. The cutting edge is narrow, which reduces friction and helps improve shrinkage holes.

3.Drill Surface Quality

Roughness：0.14μm

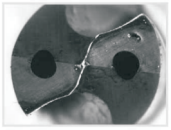




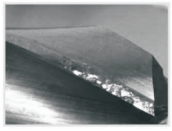
Initial check points

- Fixturing stability
- Machine spindle condition
- Tool holder condition
- Clamping of tool:
  - Run-out within 0,04 TIR
  - If using pre drilling within 0,04 TIR
- Chip evacuation: Cutting data
- Coolant:
  - Pressure
  - Flow
  - Concentration

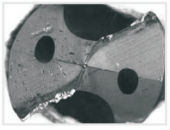
Chipping/Center
- Reduce feed during entrance
- Increase coolant pressure and adjust the feed to optimize the chip formation



Wear/Periphery land
- Reduce the cutting speed
- Increase coolant concentration

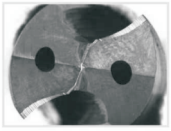


Built-up edge
- If closer to the periphery increase the cutting speed
- If closer to center increase feed/rev
- If the drill is worn, regrind it

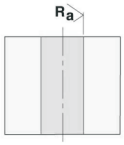


Chipping/Outer corner, cutting edge
- Reduce feed during entrance/exit
- Reduce the cutting speed
- Increase coolant concentration
- Regrind the drill

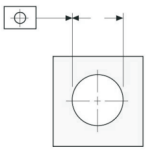
Rapid flank wear
- Reduce the cutting speed
- Increase coolant concentration



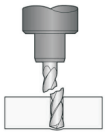
Unsatisfactory surface finish-Feedmax
- Reduce the feed/rev
- Increase the cutting speed



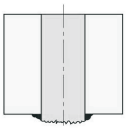
Unsatisfactory positioning of the hole
- Reduce feed/rev.on entrance
- Reduce feed/rev
- If drilling through rough, hard and angled surfaces-reduce the feed by 30%-50% during entrance and exit
- Center drill with a 140° point angle



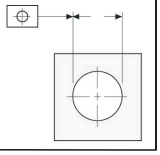
Breakage on contact/at hole bottom
- Reduce the feed/rev. during entrance/exit
- Adjust cutting data for improved chip evacuation



Burrs on exit
- Reduce the feed/rev. on exit
- Reduce the width of edge preparation



Unsatisfactory diameter tolerance
- Increase the feed/rev



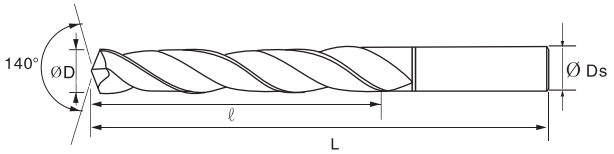
Applications

Industry: Automobile Manufacturing Industry
Workpiece: Crankshaft
Material: 42CrMo
Machine: Machining Center
Hardness: HRC28-32
Cooling Method: Internal Cooling
Tool: TTS25080D8 (8x25D)
Vc (m/min): 62.8
f (mm/rev): 0.2
Depth (mm): 150
Tool live (Pieces): 220

Industry: Automobile Manufacturing Industry
Workpiece: Universal Joint
Material: S50C
Machine: Machining Center
Hardness: HRC20
Cooling Method: Internal Cooling
Tool: TTS05083D10 (8.3x5D)
Vc (m/min): 62.5
f (mm/rev): 0.12
Depth (mm): 38
Tool live (Pieces): 400

TTW Drill Series 3D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



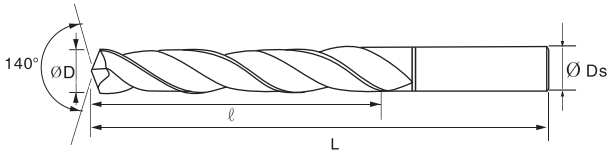
Unit(mm)

Model No.	Cutting Diameter D	Cutting Length ℓ	Shank Diameter Ds	Total Length L	Stock
TTW030D6	3.0	20	6	62	●
TTW031D6	3.1	20	6	62	●
TTW032D6	3.2	20	6	62	●
TTW033D6	3.3	20	6	62	●
TTW034D6	3.4	20	6	62	●
TTW035D6	3.5	20	6	62	●
TTW036D6	3.6	20	6	62	●
TTW037D6	3.7	20	6	62	●
TTW038D6	3.8	24	6	66	●
TTW039D6	3.9	24	6	66	●
TTW040D6	4.0	24	6	66	●
TTW041D6	4.1	24	6	66	●
TTW042D6	4.2	24	6	66	●
TTW043D6	4.3	24	6	66	●
TTW044D6	4.4	24	6	66	●
TTW045D6	4.5	24	6	66	●
TTW046D6	4.6	26	6	66	●
TTW047D6	4.7	26	6	66	●
TTW048D6	4.8	28	6	66	●
TTW049D6	4.9	28	6	66	●
TTW050D6	5.0	28	6	66	●
TTW051D6	5.1	28	6	66	●
TTW052D6	5.2	28	6	66	●
TTW053D6	5.3	28	6	66	●
TTW054D6	5.4	28	6	66	●
TTW055D6	5.5	28	6	66	●
TTW056D6	5.6	28	6	66	●
TTW057D6	5.7	28	6	66	●
TTW058D6	5.8	28	6	66	●
TTW059D6	5.9	28	6	66	●
TTW060D6	6.0	28	6	66	●
TTW061D8	6.1	34	8	79	●
TTW062D8	6.2	34	8	79	●
TTW063D8	6.3	34	8	79	●

● Stock ○ Non-stock

TTW Drill Series 3D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



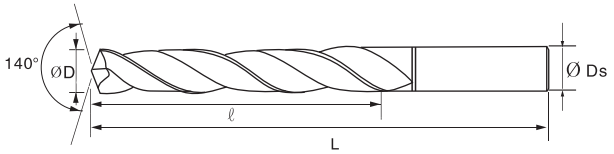
Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TTW064D8	6.4	34	8	79	●
TTW065D8	6.5	34	8	79	●
TTW066D8	6.6	34	8	79	●
TTW067D8	6.7	34	8	79	●
TTW068D8	6.8	34	8	79	●
TTW069D8	6.9	34	8	79	●
TTW070D8	7.0	34	8	79	●
TTW071D8	7.1	41	8	79	●
TTW072D8	7.2	41	8	79	●
TTW073D8	7.3	41	8	79	●
TTW074D8	7.4	41	8	79	●
TTW075D8	7.5	41	8	79	●
TTW076D8	7.6	41	8	79	●
TTW077D8	7.7	41	8	79	●
TTW078D8	7.8	41	8	79	●
TTW079D8	7.9	41	8	79	●
TTW080D8	8.0	41	8	79	●
TTW081D10	8.1	47	10	89	●
TTW082D10	8.2	47	10	89	●
TTW083D10	8.3	47	10	89	●
TTW084D10	8.4	47	10	89	●
TTW085D10	8.5	47	10	89	●
TTW086D10	8.6	47	10	89	●
TTW087D10	8.7	47	10	89	●
TTW088D10	8.8	47	10	89	●
TTW089D10	8.9	47	10	89	●
TTW090D10	9.0	47	10	89	●
TTW091D10	9.1	47	10	89	●
TTW092D10	9.2	47	10	89	●
TTW093D10	9.3	47	10	89	●
TTW094D10	9.4	47	10	89	●
TTW095D10	9.5	47	10	89	●
TTW096D10	9.6	47	10	89	●
TTW097D10	9.7	47	10	89	●

●Stock ○Non-stock

TTW Drill Series 3D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



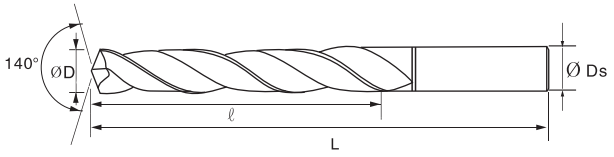
Unit(mm)

Model No.	Cutting Diameter D	Cutting Length ℓ	Shank Diameter Ds	Total Length L	Stock
TTW098D10	9.8	47	10	89	●
TTW099D10	9.9	47	10	89	●
TTW100D10	10.0	47	10	89	●
TTW101D12	10.1	55	12	102	●
TTW102D12	10.2	55	12	102	●
TTW103D12	10.3	55	12	102	●
TTW104D12	10.4	55	12	102	●
TTW105D12	10.5	55	12	102	●
TTW106D12	10.6	55	12	102	●
TTW107D12	10.7	55	12	102	●
TTW108D12	10.8	55	12	102	●
TTW109D12	10.9	55	12	102	●
TTW110D12	11.0	55	12	102	●
TTW111D12	11.1	55	12	102	●
TTW112D12	11.2	55	12	102	●
TTW113D12	11.3	55	12	102	●
TTW114D12	11.4	55	12	102	●
TTW115D12	11.5	55	12	102	●
TTW116D12	11.6	55	12	102	●
TTW117D12	11.7	55	12	102	●
TTW118D12	11.8	55	12	102	●
TTW119D12	11.9	55	12	102	●
TTW120D12	12.0	55	12	102	●
TTW121D14	12.1	60	14	107	●
TTW122D14	12.2	60	14	107	●
TTW123D14	12.3	60	14	107	●
TTW124D14	12.4	60	14	107	●
TTW125D14	12.5	60	14	107	●
TTW126D14	12.6	60	14	107	●
TTW127D14	12.7	60	14	107	●
TTW128D14	12.8	60	14	107	●
TTW129D14	12.9	60	14	107	●
TTW130D14	13.0	60	14	107	●
TTW131D14	13.1	60	14	107	●

● Stock ○ Non-stock

TTW Drill Series 3D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



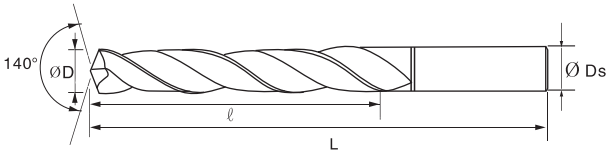
Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TTW132D14	13.2	60	14	107	●
TTW133D14	13.3	60	14	107	●
TTW134D14	13.4	60	14	107	●
TTW135D14	13.5	60	14	107	●
TTW136D14	13.6	60	14	107	●
TTW137D14	13.7	60	14	107	●
TTW138D14	13.8	60	14	107	●
TTW139D14	13.9	60	14	107	●
TTW140D14	14.0	60	14	107	●
TTW141D16	14.1	65	16	115	●
TTW142D16	14.2	65	16	115	●
TTW143D16	14.3	65	16	115	●
TTW144D16	14.4	65	16	115	●
TTW145D16	14.5	65	16	115	●
TTW146D16	14.6	65	16	115	●
TTW147D16	14.7	65	16	115	●
TTW148D16	14.8	65	16	115	●
TTW149D16	14.9	65	16	115	●
TTW150D16	15.0	65	16	115	●
TTW151D16	15.1	65	16	115	●
TTW152D16	15.2	65	16	115	●
TTW153D16	15.3	65	16	115	●
TTW154D16	15.4	65	16	115	●
TTW155D16	15.5	65	16	115	●
TTW156D16	15.6	65	16	115	●
TTW157D16	15.7	65	16	115	●
TTW158D16	15.8	65	16	115	●
TTW159D16	15.9	65	16	115	●
TTW160D16	16.0	65	16	115	●
TTW165D18	16.5	73	18	123	○
TTW170D18	17.0	73	18	123	○
TTW175D18	17.5	73	18	123	○
TTW180D18	18.0	73	18	123	○
TTW185D20	18.5	79	20	131	○

● Stock ○ Non-stock

TTW Drill Series 3D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

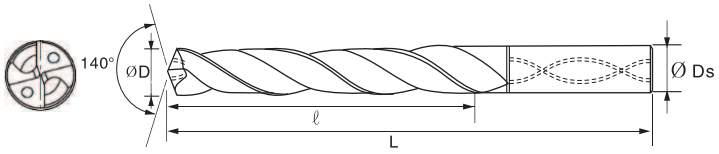
Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TTW190D20	19.0	79	20	131	○
TTW195D20	19.5	79	20	131	○
TTW200D20	20.0	79	20	131	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

TTS Drill Series 3D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TTS030D6	3.0	20	6	62	●
TTS031D6	3.1	20	6	62	●
TTS032D6	3.2	20	6	62	●
TTS033D6	3.3	20	6	62	●
TTS034D6	3.4	20	6	62	●
TTS035D6	3.5	20	6	62	●
TTS036D6	3.6	20	6	62	●
TTS037D6	3.7	20	6	62	●
TTS038D6	3.8	24	6	66	●
TTS039D6	3.9	24	6	66	●
TTS040D6	4.0	24	6	66	●
TTS041D6	4.1	24	6	66	●
TTS042D6	4.2	24	6	66	●
TTS043D6	4.3	24	6	66	●
TTS044D6	4.4	24	6	66	●
TTS045D6	4.5	24	6	66	●
TTS046D6	4.6	24	6	66	●
TTS047D6	4.7	24	6	66	●
TTS048D6	4.8	28	6	66	●
TTS049D6	4.9	28	6	66	●
TTS050D6	5.0	28	6	66	●
TTS051D6	5.1	28	6	66	●
TTS052D6	5.2	28	6	66	●
TTS053D6	5.3	28	6	66	●
TTS054D6	5.4	28	6	66	●
TTS055D6	5.5	28	6	66	●
TTS056D6	5.6	28	6	66	●
TTS057D6	5.7	28	6	66	●
TTS058D6	5.8	28	6	66	●
TTS059D6	5.9	28	6	66	●
TTS060D6	6.0	28	6	66	●
TTS061D8	6.1	34	8	79	●
TTS062D8	6.2	34	8	79	●

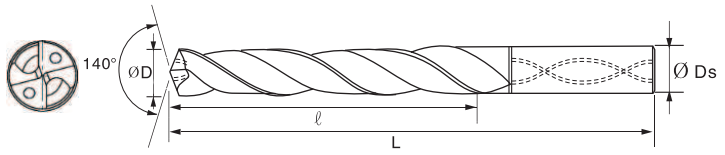
● Stock ○ Non-stock

High Performance Carbide Drill for General Purpose

TOTIME

TTS Drill Series 3D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



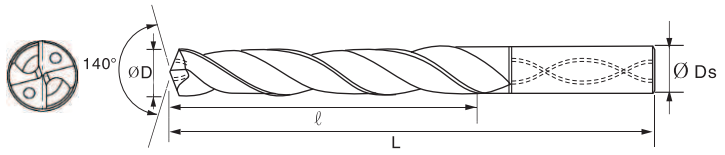
Unit(mm)

Model No.	Cutting Diameter D	Cutting Length ℓ	Shank Diameter Ds	Total Length L	Stock
TTS063D8	6.3	34	8	79	●
TTS064D8	6.4	34	8	79	●
TTS065D8	6.5	34	8	79	●
TTS066D8	6.6	34	8	79	●
TTS067D8	6.7	34	8	79	●
TTS068D8	6.8	34	8	79	●
TTS069D8	6.9	34	8	79	●
TTS070D8	7.0	34	8	79	●
TTS071D8	7.1	41	8	79	●
TTS072D8	7.2	41	8	79	●
TTS073D8	7.3	41	8	79	●
TTS074D8	7.4	41	8	79	●
TTS075D8	7.5	41	8	79	●
TTS076D8	7.6	41	8	79	●
TTS077D8	7.7	41	8	79	●
TTS078D8	7.8	41	8	79	●
TTS079D8	7.9	41	8	79	●
TTS080D8	8.0	41	8	79	●
TTS081D10	8.1	47	10	89	●
TTS082D10	8.2	47	10	89	●
TTS083D10	8.3	47	10	89	●
TTS084D10	8.4	47	10	89	●
TTS085D10	8.5	47	10	89	●
TTS086D10	8.6	47	10	89	●
TTS087D10	8.7	47	10	89	●
TTS088D10	8.8	47	10	89	●
TTS089D10	8.9	47	10	89	●
TTS090D10	9.0	47	10	89	●
TTS091D10	9.1	47	10	89	●
TTS092D10	9.2	47	10	89	●
TTS093D10	9.3	47	10	89	●
TTS094D10	9.4	47	10	89	●
TTS095D10	9.5	47	10	89	●

● Stock ○ Non-stock

TTS Drill Series 3D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

Model No.	Cutting Diameter D	Cutting Length ℓ	Shank Diameter Ds	Total Length L	Stock
TTS096D10	9.6	47	10	89	●
TTS097D10	9.7	47	10	89	●
TTS098D10	9.8	47	10	89	●
TTS099D10	9.9	47	10	89	●
TTS100D10	10.0	47	10	89	●
TTS101D12	10.1	55	12	102	●
TTS102D12	10.2	55	12	102	●
TTS103D12	10.3	55	12	102	●
TTS104D12	10.4	55	12	102	●
TTS105D12	10.5	55	12	102	●
TTS106D12	10.6	55	12	102	●
TTS107D12	10.7	55	12	102	●
TTS108D12	10.8	55	12	102	●
TTS109D12	10.9	55	12	102	●
TTS110D12	11.0	55	12	102	●
TTS111D12	11.1	55	12	102	●
TTS112D12	11.2	55	12	102	●
TTS113D12	11.3	55	12	102	●
TTS114D12	11.4	55	12	102	●
TTS115D12	11.5	55	12	102	●
TTS116D12	11.6	55	12	102	●
TTS117D12	11.7	55	12	102	●
TTS118D12	11.8	55	12	102	●
TTS119D12	11.9	55	12	102	●
TTS120D12	12.0	55	12	102	●
TTS121D14	12.1	60	14	107	●
TTS122D14	12.2	60	14	107	●
TTS123D14	12.3	60	14	107	●
TTS124D14	12.4	60	14	107	●
TTS125D14	12.5	60	14	107	●
TTS126D14	12.6	60	14	107	●
TTS127D14	12.7	60	14	107	●
TTS128D14	12.8	60	14	107	●

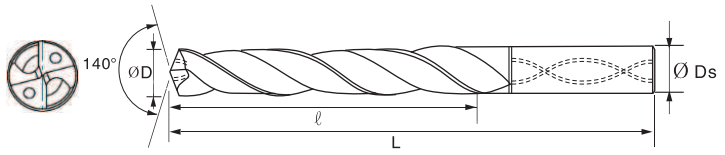
● Stock ○ Non-stock

High Performance Carbide Drill for General Purpose

TOTIME

TTS Drill Series 3D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



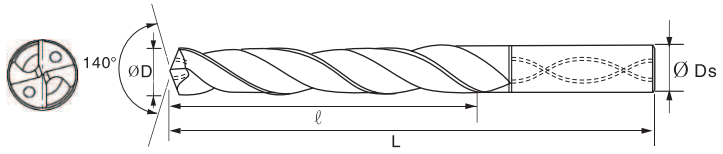
Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TTS129D14	12.9	60	14	107	●
TTS130D14	13.0	60	14	107	●
TTS131D14	13.1	60	14	107	●
TTS132D14	13.2	60	14	107	●
TTS133D14	13.3	60	14	107	●
TTS134D14	13.4	60	14	107	●
TTS135D14	13.5	60	14	107	●
TTS136D14	13.6	60	14	107	●
TTS137D14	13.7	60	14	107	●
TTS138D14	13.8	60	14	107	●
TTS139D14	13.9	60	14	107	●
TTS140D14	14.0	60	14	107	●
TTS141D16	14.1	65	16	115	●
TTS142D16	14.2	65	16	115	●
TTS143D16	14.3	65	16	115	●
TTS144D16	14.4	65	16	115	●
TTS145D16	14.5	65	16	115	●
TTS146D16	14.6	65	16	115	●
TTS147D16	14.7	65	16	115	●
TTS148D16	14.8	65	16	115	●
TTS149D16	14.9	65	16	115	●
TTS150D16	15.0	65	16	115	●
TTS151D16	15.1	65	16	115	●
TTS152D16	15.2	65	16	115	●
TTS153D16	15.3	65	16	115	●
TTS154D16	15.4	65	16	115	●
TTS155D16	15.5	65	16	115	●
TTS156D16	15.6	65	16	115	●
TTS157D16	15.7	65	16	115	●
TTS158D16	15.8	65	16	115	●
TTS159D16	15.9	65	16	115	●
TTS160D16	16.0	65	16	115	●
TTS165D18	16.5	73	18	123	○

● Stock ○ Non-stock

TTS Drill Series 3D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TTS170D18	17.0	73	18	123	○
TTS175D18	17.5	73	18	123	○
TTS180D18	18.0	73	18	123	○
TTS185D20	18.5	79	20	131	○
TTS190D20	19.0	79	20	131	○
TTS195D20	19.5	79	20	131	○
TTS200D20	20.0	79	20	131	○

● Stock ○ Non-stock

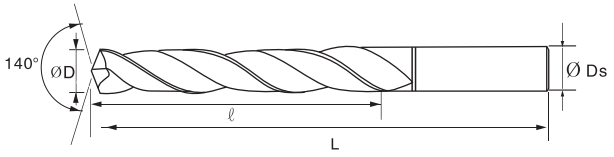
Notice: The MOQ for Non-stock item is 5pcs.

High Performance Carbide Drill for General Purpose

TOTIME

TTW Drill Series 3D External Coolant(Inch)

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



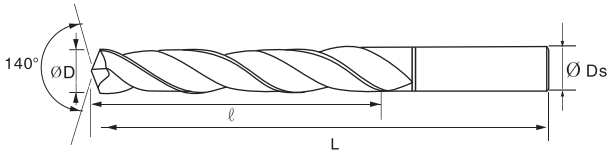
Unit(mm)

Model No.	Cutting Diameter D		Cutting Length ℓ	Shank Diameter Ds	Total Length L	Stock
	mm	inch				
TTW0318D6	3.18	1/8	20	6	62	○
TTW0357D6	3.57	9/64	20	6	62	○
TTW0397D6	3.97	5/32	24	6	66	○
TTW0437D6	4.37	11/64	24	6	66	○
TTW0476D6	4.76	3/16	26	6	66	○
TTW0516D6	5.16	13/64	28	6	66	○
TTW0556D6	5.56	7/32	28	6	66	○
TTW0595D6	5.95	15/64	28	6	66	○
TTW0635D8	6.35	1/4	34	8	79	○
TTW0675D8	6.75	17/64	34	8	79	○
TTW0714D8	7.14	9/32	41	8	79	○
TTW0754D8	7.54	19/64	41	8	79	○
TTW0794D8	7.94	5/16	41	8	79	○
TTW0833D10	8.33	21/64	47	10	89	○
TTW0873D10	8.73	11/32	47	10	89	○
TTW0913D10	9.13	23/64	47	10	89	○
TTW0952D10	9.52	3/8	47	10	89	○
TTW0992D10	9.92	25/64	47	10	89	○
TTW1032D12	10.32	13/32	55	12	102	○
TTW1072D12	10.72	27/64	55	12	102	○
TTW1111D12	11.11	7/16	55	12	102	○
TTW1151D12	11.51	29/64	55	12	102	○
TTW1191D12	11.91	15/32	55	12	102	○
TTW1349D14	13.49	17/32	60	14	107	○
TTW1389D14	13.89	35/64	60	14	107	○
TTW1429D16	14.29	9/16	65	16	115	○
TTW1468D16	14.68	37/64	65	16	115	○
TTW1508D16	15.08	19/32	65	16	115	○
TTW1548D16	15.48	39/64	65	16	115	○
TTW1588D16	15.88	5/8	65	16	115	○
TTW1627D18	16.27	41/64	73	18	123	○
TTW1667D18	16.67	21/32	73	18	123	○
TTW1707D18	17.07	43/64	73	18	123	○
TTW1746D18	17.46	11/16	73	18	123	○

● Stock ○ Non-stock

TTW Drill Series 3D External Coolant(Inch)

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

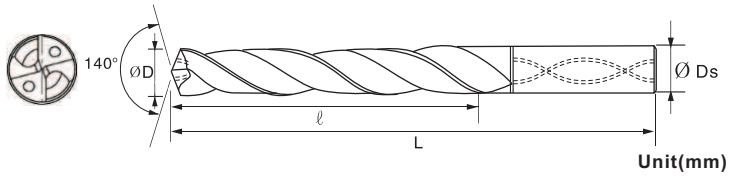
Model No.	Cutting Diameter D		Cutting Length ℓ	Shank Diameter Ds	Total Length L	Stock
	mm	inch				
TTW1786D18	17.86	45/64	73	18	123	○
TTW1826D20	18.26	23/32	79	20	131	○
TTW1865D20	18.65	47/64	79	20	131	○
TTW1905D20	19.05	3/4	79	20	131	○
TTW1945D20	19.45	49/64	79	20	131	○
TTW1984D20	19.84	25/32	79	20	131	○

● Stock ○ Non-stock

Notice: The MOQ for Non-stock item is 5pcs.

TTS Drill Series 3D with Internal Coolant (Inch)

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



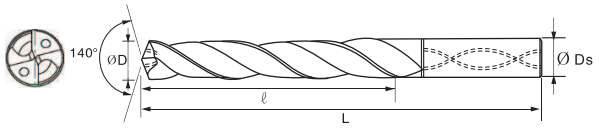
Unit(mm)

Model No.	Cutting Diameter D		Cutting Length ℓ	Shank Diameter Ds	Total Length L	Stock
	mm	inch				
TTS0318D6	3.18	1/8	20	6	62	○
TTS0357D6	3.57	9/64	20	6	62	○
TTS0397D6	3.97	5/32	24	6	66	○
TTS0437D6	4.37	11/64	24	6	66	○
TTS0476D6	4.76	3/16	26	6	66	○
TTS0516D6	5.16	13/64	28	6	66	○
TTS0556D6	5.56	7/32	28	6	66	○
TTS0595D6	5.95	15/64	28	6	66	○
TTS0635D8	6.35	1/4	34	8	79	○
TTS0675D8	6.75	17/64	34	8	79	○
TTS0714D8	7.14	9/32	41	8	79	○
TTS0754D8	7.54	19/64	41	8	79	○
TTS0794D8	7.94	5/16	41	8	79	○
TTS0833D10	8.33	21/64	47	10	89	○
TTS0873D10	8.73	11/32	47	10	89	○
TTS0913D10	9.13	23/64	47	10	89	○
TTS0952D10	9.52	3/8	47	10	89	○
TTS0992D10	9.92	25/64	47	10	89	○
TTS1032D12	10.32	13/32	55	12	102	○
TTS1072D12	10.72	27/64	55	12	102	○
TTS1111D12	11.11	7/16	55	12	102	○
TTS1151D12	11.51	29/64	55	12	102	○
TTS1191D12	11.91	15/32	55	12	102	○
TTS1349D14	13.49	17/32	60	14	107	○
TTS1389D14	13.89	35/64	65	14	115	○
TTS1429D16	14.29	9/16	65	16	115	○
TTS1468D16	14.68	37/64	65	16	115	○
TTS1508D16	15.08	19/32	65	16	115	○
TTS1548D16	15.48	39/64	65	16	115	○
TTS1588D16	15.88	5/8	65	16	115	○
TTS1627D18	16.27	41/64	73	18	123	○
TTS1667D18	16.67	21/32	73	18	123	○
TTS1707D18	17.07	43/64	73	18	123	○
TTS1746D18	17.46	11/16	73	18	123	○

● Stock ○ Non-stock

TTS Drill Series 3D with Internal Coolant (Inch)

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

Model No.	Cutting Diameter D		Cutting Length ℓ	Shank Diameter Ds	Total Length L	Stock
	mm	inch				
TTS1786D18	17.86	45/64	73	18	123	○
TTS1826D20	18.26	23/32	79	20	131	○
TTS1865D20	18.65	47/64	79	20	131	○
TTS1905D20	19.05	3/4	79	20	131	○
TTS1945D20	19.45	49/64	79	20	131	○
TTS1984D20	19.84	25/32	79	20	131	○

● Stock ○ Non-stock

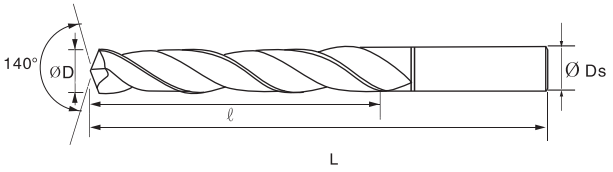
Notice: The MOQ for Non-stock item is 5pcs.

High Performance Carbide Drill for General Purpose

TOTIME

TTW Drill Series 5D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



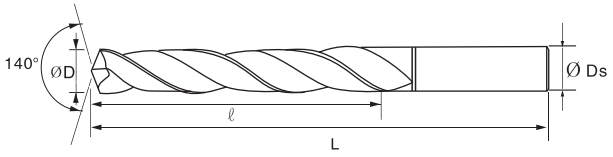
Unit(mm)

Model No.	Cutting Diameter D	Cutting Length ℓ	Shank Diameter Ds	Total Length L	Stock
TTW05030D6	3.0	26	6	66	●
TTW05031D6	3.1	26	6	66	●
TTW05032D6	3.2	26	6	66	●
TTW05033D6	3.3	26	6	66	●
TTW05034D6	3.4	26	6	66	●
TTW05035D6	3.5	26	6	66	●
TTW05036D6	3.6	26	6	66	●
TTW05037D6	3.7	26	6	66	●
TTW05038D6	3.8	34	6	74	●
TTW05039D6	3.9	34	6	74	●
TTW05040D6	4.0	34	6	74	●
TTW05041D6	4.1	34	6	74	●
TTW05042D6	4.2	34	6	74	●
TTW05043D6	4.3	34	6	74	●
TTW05044D6	4.4	34	6	74	●
TTW05045D6	4.5	34	6	74	●
TTW05046D6	4.6	34	6	74	●
TTW05047D6	4.7	34	6	74	●
TTW05048D6	4.8	44	6	82	●
TTW05049D6	4.9	44	6	82	●
TTW05050D6	5.0	44	6	82	●
TTW05051D6	5.1	44	6	82	●
TTW05052D6	5.2	44	6	82	●
TTW05053D6	5.3	44	6	82	●
TTW05054D6	5.4	44	6	82	●
TTW05055D6	5.5	44	6	82	●
TTW05056D6	5.6	44	6	82	●
TTW05057D6	5.7	44	6	82	●
TTW05058D6	5.8	44	6	82	●
TTW05059D6	5.9	44	6	82	●
TTW05060D6	6.0	44	6	82	●
TTW05061D8	6.1	53	8	91	●

● Stock ○ Non-stock

TTW Drill Series 5D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



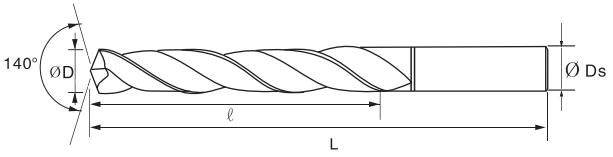
Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TTW05062D8	6.2	53	8	91	●
TTW05063D8	6.3	53	8	91	●
TTW05064D8	6.4	53	8	91	●
TTW05065D8	6.5	53	8	91	●
TTW05066D8	6.6	53	8	91	●
TTW05067D8	6.7	53	8	91	●
TTW05068D8	6.8	53	8	91	●
TTW05069D8	6.9	53	8	91	●
TTW05070D8	7.0	53	8	91	●
TTW05071D8	7.1	53	8	91	●
TTW05072D8	7.2	53	8	91	●
TTW05073D8	7.3	53	8	91	●
TTW05074D8	7.4	53	8	91	●
TTW05075D8	7.5	53	8	91	●
TTW05076D8	7.6	53	8	91	●
TTW05077D8	7.7	53	8	91	●
TTW05078D8	7.8	53	8	91	●
TTW05079D8	7.9	53	8	91	●
TTW05080D8	8.0	53	8	91	●
TTW05081D10	8.1	61	10	103	●
TTW05082D10	8.2	61	10	103	●
TTW05083D10	8.3	61	10	103	●
TTW05084D10	8.4	61	10	103	●
TTW05085D10	8.5	61	10	103	●
TTW05086D10	8.6	61	10	103	●
TTW05087D10	8.7	61	10	103	●
TTW05088D10	8.8	61	10	103	●
TTW05089D10	8.9	61	10	103	●
TTW05090D10	9.0	61	10	103	●
TTW05091D10	9.1	61	10	103	●
TTW05092D10	9.2	61	10	103	●
TTW05093D10	9.3	61	10	103	●
TTW05094D10	9.4	61	10	103	●

● Stock ○ Non-stock

TTW Drill Series 5D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



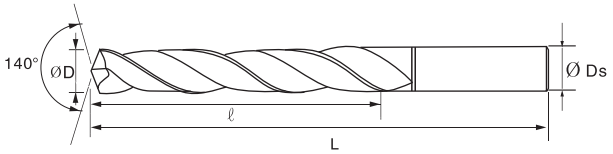
Unit(mm)

Model No.	Cutting Diameter D	Cutting Length ℓ	Shank Diameter Ds	Total Length L	Stock
TTW05095D10	9.5	61	10	103	●
TTW05096D10	9.6	61	10	103	●
TTW05097D10	9.7	61	10	103	●
TTW05098D10	9.8	61	10	103	●
TTW05099D10	9.9	61	10	103	●
TTW05100D10	10.0	61	10	103	●
TTW05101D12	10.1	71	12	118	●
TTW05102D12	10.2	71	12	118	●
TTW05103D12	10.3	71	12	118	●
TTW05104D12	10.4	71	12	118	●
TTW05105D12	10.5	71	12	118	●
TTW05106D12	10.6	71	12	118	●
TTW05107D12	10.7	71	12	118	●
TTW05108D12	10.8	71	12	118	●
TTW05109D12	10.9	71	12	118	●
TTW05110D12	11.0	71	12	118	●
TTW05111D12	11.1	71	12	118	●
TTW05112D12	11.2	71	12	118	●
TTW05113D12	11.3	71	12	118	●
TTW05114D12	11.4	71	12	118	●
TTW05115D12	11.5	71	12	118	●
TTW05116D12	11.6	71	12	118	●
TTW05117D12	11.7	71	12	118	●
TTW05118D12	11.8	71	12	118	●
TTW05119D12	11.9	71	12	118	●
TTW05120D12	12.0	71	12	118	●
TTW05121D14	12.1	77	14	124	●
TTW05122D14	12.2	77	14	124	●
TTW05123D14	12.3	77	14	124	●
TTW05124D14	12.4	77	14	124	●
TTW05125D14	12.5	77	14	124	●
TTW05126D14	12.6	77	14	124	●
TTW05127D14	12.7	77	14	124	●

● Stock ○ Non-stock

TTW Drill Series 5D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TTW05128D14	12.8	77	14	124	●
TTW05129D14	12.9	77	14	124	●
TTW05130D14	13.0	77	14	124	●
TTW05131D14	13.1	77	14	124	●
TTW05132D14	13.2	77	14	124	●
TTW05133D14	13.3	77	14	124	●
TTW05134D14	13.4	77	14	124	●
TTW05135D14	13.5	77	14	124	●
TTW05136D14	13.6	77	14	124	●
TTW05137D14	13.7	77	14	124	●
TTW05138D14	13.8	77	14	124	●
TTW05139D14	13.9	77	14	124	●
TTW05140D14	14.0	77	14	124	●
TTW05141D16	14.1	83	16	133	●
TTW05142D16	14.2	83	16	133	●
TTW05143D16	14.3	83	16	133	●
TTW05144D16	14.4	83	16	133	●
TTW05145D16	14.5	83	16	133	●
TTW05146D16	14.6	83	16	133	●
TTW05147D16	14.7	83	16	133	●
TTW05148D16	14.8	83	16	133	●
TTW05149D16	14.9	83	16	133	●
TTW05150D16	15.0	83	16	133	●
TTW05151D16	15.1	83	16	133	●
TTW05152D16	15.2	83	16	133	●
TTW05153D16	15.3	83	16	133	●
TTW05154D16	15.4	83	16	133	●
TTW05155D16	15.5	83	16	133	●
TTW05156D16	15.6	83	16	133	●
TTW05157D16	15.7	83	16	133	●
TTW05158D16	15.8	83	16	133	●
TTW05159D16	15.9	83	16	133	●
TTW05160D16	16.0	83	16	133	●

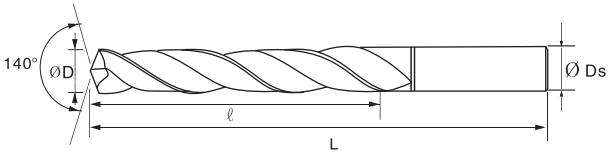
● Stock ○ Non-stock

High Performance Carbide Drill for General Purpose

TOTIME

TTW Drill Series 5D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

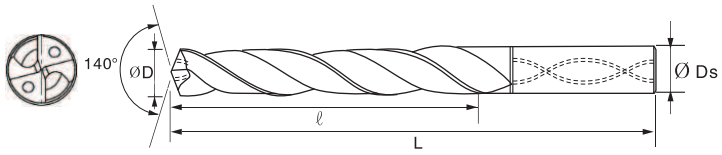
Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TTW05165D18	16.5	93	18	143	○
TTW05170D18	17.0	93	18	143	○
TTW05175D18	17.5	93	18	143	○
TTW05180D18	18.0	93	18	143	○
TTW05185D20	18.5	101	20	153	○
TTW05190D20	19.0	101	20	153	○
TTW05195D20	19.5	101	20	153	○
TTW05200D20	20.0	101	20	153	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

TTS Drill Series 5D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TTS05030D6	3.0	26	6	66	●
TTS05031D6	3.1	26	6	66	●
TTS05032D6	3.2	26	6	66	●
TTS05033D6	3.3	26	6	66	●
TTS05034D6	3.4	26	6	66	●
TTS05035D6	3.5	26	6	66	●
TTS05036D6	3.6	26	6	66	●
TTS05037D6	3.7	26	6	66	●
TTS05038D6	3.8	34	6	74	●
TTS05039D6	3.9	34	6	74	●
TTS05040D6	4.0	34	6	74	●
TTS05041D6	4.1	34	6	74	●
TTS05042D6	4.2	34	6	74	●
TTS05043D6	4.3	34	6	74	●
TTS05044D6	4.4	34	6	74	●
TTS05045D6	4.5	34	6	74	●
TTS05046D6	4.6	34	6	74	●
TTS05047D6	4.7	34	6	74	●
TTS05048D6	4.8	44	6	82	●
TTS05049D6	4.9	44	6	82	●
TTS05050D6	5.0	44	6	82	●
TTS05051D6	5.1	44	6	82	●
TTS05052D6	5.2	44	6	82	●
TTS05053D6	5.3	44	6	82	●
TTS05054D6	5.4	44	6	82	●
TTS05055D6	5.5	44	6	82	●
TTS05056D6	5.6	44	6	82	●
TTS05057D6	5.7	44	6	82	●
TTS05058D6	5.8	44	6	82	●
TTS05059D6	5.9	44	6	82	●
TTS05060D6	6.0	44	6	82	●
TTS05061D8	6.1	53	8	91	●
TTS05062D8	6.2	53	8	91	●
TTS05063D8	6.3	53	8	91	●
TTS05064D8	6.4	53	8	91	●
TTS05065D8	6.5	53	8	91	●

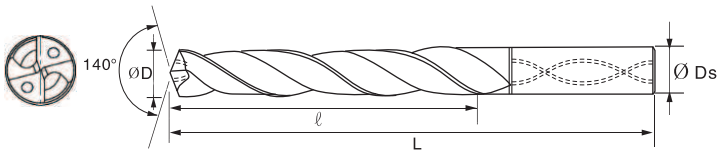
● Stock ○ Non-stock

High Performance Carbide Drill for General Purpose

TOTIME

TTS Drill Series 5D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



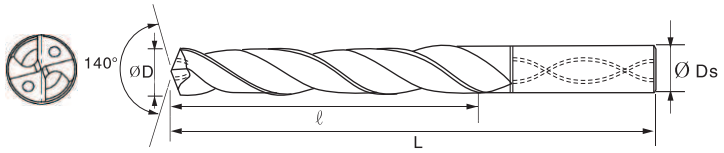
Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TTS05066D8	6.6	53	8	91	●
TTS05067D8	6.7	53	8	91	●
TTS05068D8	6.8	53	8	91	●
TTS05069D8	6.9	53	8	91	●
TTS05070D8	7.0	53	8	91	●
TTS05071D8	7.1	53	8	91	●
TTS05072D8	7.2	53	8	91	●
TTS05073D8	7.3	53	8	91	●
TTS05074D8	7.4	53	8	91	●
TTS05075D8	7.5	53	8	91	●
TTS05076D8	7.6	53	8	91	●
TTS05077D8	7.7	53	8	91	●
TTS05078D8	7.8	53	8	91	●
TTS05079D8	7.9	53	8	91	●
TTS05080D8	8.0	53	8	91	●
TTS05081D10	8.1	61	10	103	●
TTS05082D10	8.2	61	10	103	●
TTS05083D10	8.3	61	10	103	●
TTS05084D10	8.4	61	10	103	●
TTS05085D10	8.5	61	10	103	●
TTS05086D10	8.6	61	10	103	●
TTS05087D10	8.7	61	10	103	●
TTS05088D10	8.8	61	10	103	●
TTS05089D10	8.9	61	10	103	●
TTS05090D10	9.0	61	10	103	●
TTS05091D10	9.1	61	10	103	●
TTS05092D10	9.2	61	10	103	●
TTS05093D10	9.3	61	10	103	●
TTS05094D10	9.4	61	10	103	●
TTS05095D10	9.5	61	10	103	●
TTS05096D10	9.6	61	10	103	●
TTS05097D10	9.7	61	10	103	●
TTS05098D10	9.8	61	10	103	●
TTS05099D10	9.9	61	10	103	●
TTS05100D10	10.0	61	10	103	●
TTS05101D12	10.1	71	12	118	●
TTS05102D12	10.2	71	12	118	●

● Stock ○ Non-stock

TTS Drill Series 5D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TTS05103D12	10.3	71	12	118	●
TTS05104D12	10.4	71	12	118	●
TTS05105D12	10.5	71	12	118	●
TTS05106D12	10.6	71	12	118	●
TTS05107D12	10.7	71	12	118	●
TTS05108D12	10.8	71	12	118	●
TTS05109D12	10.9	71	12	118	●
TTS05110D12	11.0	71	12	118	●
TTS05111D12	11.1	71	12	118	●
TTS05112D12	11.2	71	12	118	●
TTS05113D12	11.3	71	12	118	●
TTS05114D12	11.4	71	12	118	●
TTS05115D12	11.5	71	12	118	●
TTS05116D12	11.6	71	12	118	●
TTS05117D12	11.7	71	12	118	●
TTS05118D12	11.8	71	12	118	●
TTS05119D12	11.9	71	12	118	●
TTS05120D12	12.0	71	12	118	●
TTS05121D14	12.1	77	14	124	●
TTS05122D14	12.2	77	14	124	●
TTS05123D14	12.3	77	14	124	●
TTS05124D14	12.4	77	14	124	●
TTS05125D14	12.5	77	14	124	●
TTS05126D14	12.6	77	14	124	●
TTS05127D14	12.7	77	14	124	●
TTS05128D14	12.8	77	14	124	●
TTS05129D14	12.9	77	14	124	●
TTS05130D14	13.0	77	14	124	●
TTS05131D14	13.1	77	14	124	●
TTS05132D14	13.2	77	14	124	●
TTS05133D14	13.3	77	14	124	●
TTS05134D14	13.4	77	14	124	●
TTS05135D14	13.5	77	14	124	●
TTS05136D14	13.6	77	14	124	●
TTS05137D14	13.7	77	14	124	●
TTS05138D14	13.8	77	14	124	●
TTS05139D14	13.9	77	14	124	●

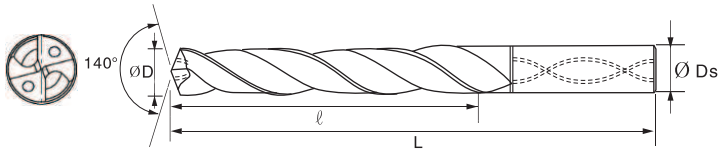
● Stock ○ Non-stock

High Performance Carbide Drill for General Purpose

TOTIME

TTS Drill Series 5D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

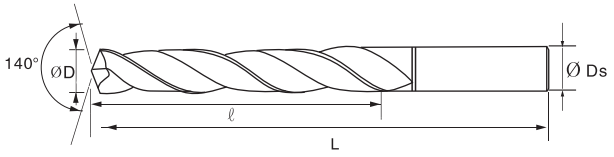
Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TTS05140D14	14.0	77	14	124	●
TTS05141D16	14.1	83	16	133	●
TTS05142D16	14.2	83	16	133	●
TTS05143D16	14.3	83	16	133	●
TTS05144D16	14.4	83	16	133	●
TTS05145D16	14.5	83	16	133	●
TTS05146D16	14.6	83	16	133	●
TTS05147D16	14.7	83	16	133	●
TTS05148D16	14.8	83	16	133	●
TTS05149D16	14.9	83	16	133	●
TTS05150D16	15.0	83	16	133	●
TTS05151D16	15.1	83	16	133	●
TTS05152D16	15.2	83	16	133	●
TTS05153D16	15.3	83	16	133	●
TTS05154D16	15.4	83	16	133	●
TTS05155D16	15.5	83	16	133	●
TTS05156D16	15.6	83	16	133	●
TTS05157D16	15.7	83	16	133	●
TTS05158D16	15.8	83	16	133	●
TTS05159D16	15.9	83	16	133	●
TTS05160D16	16.0	83	16	133	●
TTS05165D18	16.5	93	18	143	○
TTS05170D18	17.0	93	18	143	○
TTS05175D18	17.5	93	18	143	○
TTS05180D18	18.0	93	18	143	○
TTS05185D20	18.5	101	20	153	○
TTS05190D20	19.0	101	20	153	○
TTS05195D20	19.5	101	20	153	○
TTS05200D20	20.0	101	20	153	○

● Stock ○ Non-stock

Notice: The MOQ for Non-stock item is 5pcs.

TTW Drill Series 5D External Coolant (Inch)

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



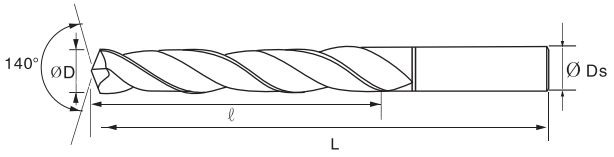
Unit(mm)

Model No.	Cutting Diameter D		Cutting Length ℓ	Shank Diameter Ds	Total Length L	Stock
	mm	inch				
TTW050318D6	3.18	1/8	26	6	66	○
TTW050357D6	3.57	9/64	26	6	66	○
TTW050397D6	3.97	5/32	34	6	74	○
TTW050437D6	4.37	11/64	34	6	74	○
TTW050476D6	4.76	3/16	44	6	82	○
TTW050516D6	5.16	13/64	44	6	82	○
TTW050556D6	5.56	7/32	44	6	82	○
TTW050595D6	5.95	15/64	44	6	82	○
TTW050635D8	6.35	1/4	53	8	91	○
TTW050675D8	6.75	17/64	53	8	91	○
TTW050714D8	7.14	9/32	53	8	91	○
TTW050754D8	7.54	19/64	53	8	91	○
TTW050794D8	7.94	5/16	53	8	91	○
TTW050833D10	8.33	21/64	61	10	103	○
TTW050873D10	8.73	11/32	61	10	103	○
TTW050913D10	9.13	23/64	61	10	103	○
TTW050952D10	9.52	3/8	61	10	103	○
TTW050992D10	9.92	25/64	61	10	103	○
TTW051032D12	10.32	13/32	71	12	118	○
TTW051072D12	10.72	27/64	71	12	118	○
TTW051111D12	11.11	7/16	71	12	118	○
TTW051151D12	11.51	29/64	71	12	118	○
TTW051191D12	11.91	15/32	71	12	118	○
TTW051349D14	13.49	17/32	77	14	124	○
TTW051389D14	13.89	35/64	77	14	124	○
TTW051429D16	14.29	9/16	83	16	133	○
TTW051468D16	14.68	37/64	83	16	133	○
TTW051508D16	15.08	19/32	83	16	133	○
TTW051548D16	15.48	39/64	83	16	133	○
TTW051588D16	15.88	5/8	83	16	133	○
TTW051627D18	16.27	41/64	93	18	143	○
TTW051667D18	16.67	21/32	93	18	143	○
TTW051707D18	17.07	43/64	93	18	143	○
TTW051746D18	17.46	11/16	93	18	143	○

● Stock ○ Non-stock

TTW Drill Series 5D External Coolant (Inch)

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

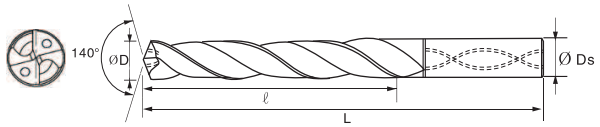
Model No.	Cutting Diameter D		Cutting Length ℓ	Shank Diameter Ds	Total Length L	Stock
	mm	inch				
TTW051786D18	17.86	45/64	93	18	143	○
TTW051826D20	18.26	23/32	101	20	153	○
TTW051865D20	18.65	47/64	101	20	153	○
TTW051905D20	19.05	3/4	101	20	153	○
TTW051945D20	19.45	49/64	101	20	153	○
TTW051984D20	19.84	25/32	101	20	153	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

TTS Drill Series 5D with Internal Coolant (Inch)

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

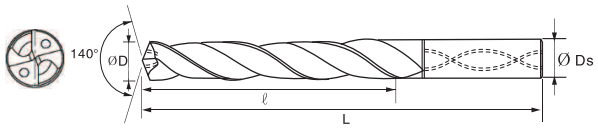
Model No.	Cutting Diameter D		Cutting Length ℓ	Shank Diameter Ds	Total Length L	Stock
	mm	inch				
TTS050318D6	3.18	1/8	26	6	66	○
TTS050357D6	3.57	9/64	26	6	66	○
TTS050397D6	3.97	5/32	34	6	74	○
TTS050437D6	4.37	11/64	34	6	74	○
TTS050476D6	4.76	3/16	44	6	82	○
TTS050516D6	5.16	13/64	44	6	82	○
TTS050556D6	5.56	7/32	44	6	82	○
TTS050595D6	5.95	15/64	44	6	82	○
TTS050635D8	6.35	1/4	53	8	91	○
TTS050675D8	6.75	17/64	53	8	91	○
TTS050714D8	7.14	9/32	53	8	91	○
TTS050754D8	7.54	19/64	53	8	91	○
TTS050794D8	7.94	5/16	53	8	91	○
TTS050833D10	8.33	21/64	61	10	103	○
TTS050873D10	8.73	11/32	61	10	103	○
TTS050913D10	9.13	23/64	61	10	103	○
TTS050952D10	9.52	3/8	61	10	103	○
TTS050992D10	9.92	25/64	61	10	103	○
TTS051032D12	10.32	13/32	71	12	118	○
TTS051072D12	10.72	27/64	71	12	118	○
TTS051111D12	11.11	7/16	71	12	118	○
TTS051151D12	11.51	29/64	71	12	118	○
TTS051191D12	11.91	15/32	71	12	118	○
TTS051349D14	13.49	17/32	77	14	124	○
TTS051389D14	13.89	35/64	77	14	124	○
TTS051429D16	14.29	9/16	83	16	133	○
TTS051468D16	14.68	37/64	83	16	133	○
TTS051508D16	15.08	19/32	83	16	133	○
TTS051548D16	15.48	39/64	83	16	133	○
TTS051588D16	15.88	5/8	83	16	133	○
TTS051627D18	16.27	41/64	93	18	143	○
TTS051667D18	16.67	21/32	93	18	143	○
TTS051707D18	17.07	43/64	93	18	143	○
TTS051746D18	17.46	11/16	93	18	143	○

● Stock ○ Non-stock

High Performance Carbide Drill for General Purpose

TTS Drill Series 5D with Internal Coolant (Inch)

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

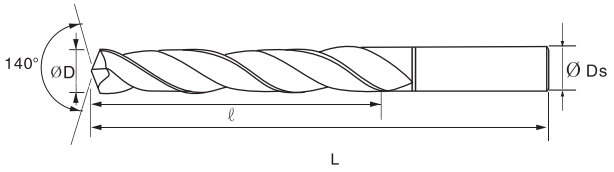
Model No.	Cutting Diameter D		Cutting Length ℓ	Shank Diameter Ds	Total Length L	Stock
	mm	inch				
TTS051786D18	17.86	45/64	93	18	143	○
TTS051826D20	18.26	23/32	101	20	153	○
TTS051865D20	18.65	47/64	101	20	153	○
TTS051905D20	19.05	3/4	101	20	153	○
TTS051945D20	19.45	49/64	101	20	153	○
TTS051984D20	19.84	25/32	101	20	153	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

TTW Drill Series 7D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TTW07045D6	4.5	45	6	94	○
TTW07046D6	4.6	45	6	94	○
TTW07047D6	4.7	45	6	94	○
TTW07048D6	4.8	45	6	94	○
TTW07049D6	4.9	45	6	94	○
TTW07050D6	5.0	45	6	94	○
TTW07051D6	5.1	45	6	94	○
TTW07052D6	5.2	45	6	94	○
TTW07053D6	5.3	45	6	94	○
TTW07054D6	5.4	45	6	94	○
TTW07055D6	5.5	45	6	94	○
TTW07056D6	5.6	45	6	94	○
TTW07057D6	5.7	45	6	94	○
TTW07058D6	5.8	45	6	94	○
TTW07059D6	5.9	45	6	94	○
TTW07060D6	6.0	45	6	94	○
TTW07061D8	6.1	57	8	110	○
TTW07062D8	6.2	57	8	110	○
TTW07063D8	6.3	57	8	110	○
TTW07064D8	6.4	57	8	110	○
TTW07065D8	6.5	57	8	110	○
TTW07066D8	6.6	57	8	110	○
TTW07067D8	6.7	57	8	110	○
TTW07068D8	6.8	57	8	110	○
TTW07069D8	6.9	57	8	110	○
TTW07070D8	7.0	57	8	110	○
TTW07071D8	7.1	57	8	110	○
TTW07072D8	7.2	57	8	110	○
TTW07073D8	7.3	57	8	110	○
TTW07074D8	7.4	57	8	110	○
TTW07075D8	7.5	57	8	110	○
TTW07076D8	7.6	57	8	110	○

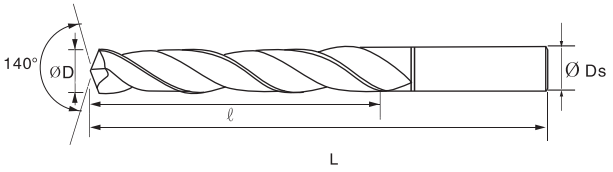
● Stock ○ Non-stock

High Performance Carbide Drill for General Purpose

TOTIME

TTW Drill Series 7D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



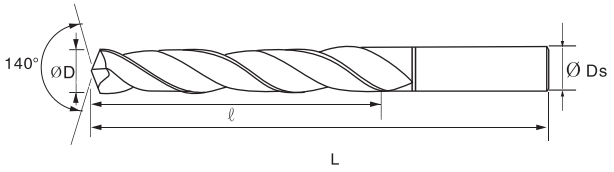
Unit(mm)

Model No.	Cutting Diameter D	Cutting Length ℓ	Shank Diameter Ds	Total Length L	Stock
TTW07077D8	7.7	57	8	110	○
TTW07078D8	7.8	57	8	110	○
TTW07079D8	7.9	57	8	110	○
TTW07080D8	8.0	57	8	110	○
TTW07081D10	8.1	62	10	122	○
TTW07082D10	8.2	62	10	122	○
TTW07083D10	8.3	62	10	122	○
TTW07084D10	8.4	62	10	122	○
TTW07085D10	8.5	62	10	122	○
TTW07086D10	8.6	62	10	122	○
TTW07087D10	8.7	62	10	122	○
TTW07088D10	8.8	62	10	122	○
TTW07089D10	8.9	62	10	122	○
TTW07090D10	9.0	62	10	122	○
TTW07091D10	9.1	62	10	122	○
TTW07092D10	9.2	62	10	122	○
TTW07093D10	9.3	62	10	122	○
TTW07094D10	9.4	62	10	122	○
TTW07095D10	9.5	62	10	122	○
TTW07096D10	9.6	62	10	122	○
TTW07097D10	9.7	62	10	122	○
TTW07098D10	9.8	62	10	122	○
TTW07099D10	9.9	62	10	122	○
TTW07100D10	10.0	62	10	122	○
TTW07101D12	10.1	72	12	141	○
TTW07102D12	10.2	72	12	141	○
TTW07103D12	10.3	72	12	141	○
TTW07104D12	10.4	72	12	141	○
TTW07105D12	10.5	72	12	141	○
TTW07106D12	10.6	72	12	141	○
TTW07107D12	10.7	72	12	141	○
TTW07108D12	10.8	72	12	141	○

● Stock ○ Non-stock

TTW Drill Series 7D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

Model No.	Cutting Diameter D	Cutting Length ℓ	Shank Diameter Ds	Total Length L	Stock
TTW07109D12	10.9	72	12	141	○
TTW07110D12	11.0	72	12	141	○
TTW07111D12	11.1	72	12	141	○
TTW07112D12	11.2	72	12	141	○
TTW07113D12	11.3	72	12	141	○
TTW07114D12	11.4	72	12	141	○
TTW07115D12	11.5	72	12	141	○
TTW07116D12	11.6	72	12	141	○
TTW07117D12	11.7	72	12	141	○
TTW07118D12	11.8	72	12	141	○
TTW07119D12	11.9	72	12	141	○
TTW07120D12	12.0	72	12	141	○
TTW07121D14	12.1	83	14	155	○
TTW07122D14	12.2	83	14	155	○
TTW07123D14	12.3	83	14	155	○
TTW07124D14	12.4	83	14	155	○
TTW07125D14	12.5	83	14	155	○
TTW07126D14	12.6	83	14	155	○
TTW07127D14	12.7	83	14	155	○
TTW07128D14	12.8	83	14	155	○
TTW07129D14	12.9	83	14	155	○
TTW07130D14	13.0	83	14	155	○
TTW07131D14	13.1	83	14	155	○
TTW07132D14	13.2	83	14	155	○
TTW07133D14	13.3	83	14	155	○
TTW07134D14	13.4	83	14	155	○
TTW07135D14	13.5	83	14	155	○
TTW07136D14	13.6	83	14	155	○
TTW07137D14	13.7	83	14	155	○
TTW07138D14	13.8	83	14	155	○
TTW07139D14	13.9	83	14	155	○
TTW07140D14	14.0	83	14	155	○

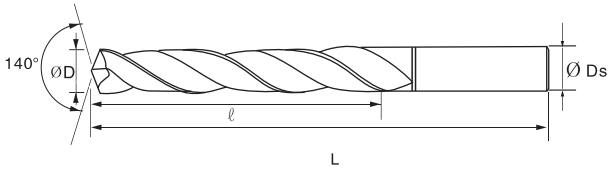
● Stock ○ Non-stock

High Performance Carbide Drill for General Purpose

TOTIME

TTW Drill Series 7D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

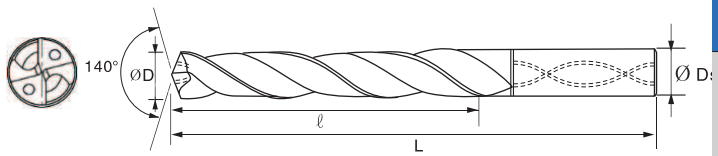
Model No.	Cutting Diameter D	Cutting Length ℓ	Shank Diameter Ds	Total Length L	Stock
TTW07141D16	14.1	92	16	171	○
TTW07142D16	14.2	92	16	171	○
TTW07143D16	14.3	92	16	171	○
TTW07144D16	14.4	92	16	171	○
TTW07145D16	14.5	92	16	171	○
TTW07146D16	14.6	92	16	171	○
TTW07147D16	14.7	92	16	171	○
TTW07148D16	14.8	92	16	171	○
TTW07149D16	14.9	92	16	171	○
TTW07150D16	15.0	92	16	171	○
TTW07151D16	15.1	92	16	171	○
TTW07152D16	15.2	92	16	171	○
TTW07153D16	15.3	92	16	171	○
TTW07154D16	15.4	92	16	171	○
TTW07155D16	15.5	92	16	171	○
TTW07156D16	15.6	92	16	171	○
TTW07157D16	15.7	92	16	171	○
TTW07158D16	15.8	92	16	171	○
TTW07159D16	15.9	92	16	171	○
TTW07160D16	16.0	92	16	171	○
TTW07165D18	16.5	103	18	185	○
TTW07170D18	17.0	103	18	185	○
TTW07175D18	17.5	103	18	185	○
TTW07180D18	18.0	103	18	185	○
TTW07185D20	18.5	112	20	200	○
TTW07190D20	19.0	112	20	200	○
TTW07195D20	19.5	112	20	200	○
TTW07200D20	20.0	112	20	200	○

● Stock ○ Non-stock

Notice: The MOQ for Non-stock item is 5pcs.

TTS Drill Series 7D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

Model No.	Cutting Diameter D	Cutting Length ℓ	Shank Diameter Ds	Total Length L	Stock
TTS07045D6	4.5	45	6	94	○
TTS07046D6	4.6	45	6	94	○
TTS07047D6	4.7	45	6	94	○
TTS07048D6	4.8	45	6	94	○
TTS07049D6	4.9	45	6	94	○
TTS07050D6	5.0	45	6	94	○
TTS07051D6	5.1	45	6	94	○
TTS07052D6	5.2	45	6	94	○
TTS07053D6	5.3	45	6	94	○
TTS07054D6	5.4	45	6	94	○
TTS07055D6	5.5	45	6	94	○
TTS07056D6	5.6	45	6	94	○
TTS07057D6	5.7	45	6	94	○
TTS07058D6	5.8	45	6	94	○
TTS07059D6	5.9	45	6	94	○
TTS07060D6	6.0	45	6	94	○
TTS07061D8	6.1	57	8	110	○
TTS07062D8	6.2	57	8	110	○
TTS07063D8	6.3	57	8	110	○
TTS07064D8	6.4	57	8	110	○
TTS07065D8	6.5	57	8	110	○
TTS07066D8	6.6	57	8	110	○
TTS07067D8	6.7	57	8	110	○
TTS07068D8	6.8	57	8	110	○
TTS07069D8	6.9	57	8	110	○
TTS07070D8	7.0	57	8	110	○
TTS07071D8	7.1	57	8	110	○
TTS07072D8	7.2	57	8	110	○
TTS07073D8	7.3	57	8	110	○
TTS07074D8	7.4	57	8	110	○
TTS07075D8	7.5	57	8	110	○
TTS07076D8	7.6	57	8	110	○

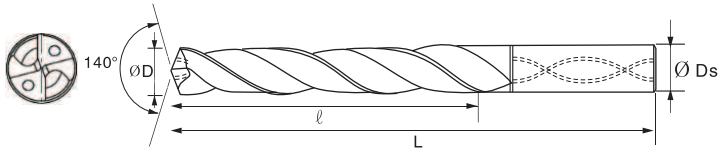
● Stock ○ Non-stock

High Performance Carbide Drill for General Purpose

TOTIME

TTS Drill Series 7D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



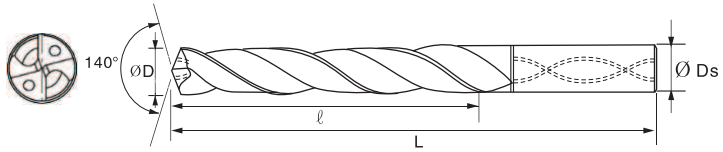
Unit(mm)

Model No.	Cutting Diameter D	Cutting Length ℓ	Shank Diameter Ds	Total Length L	Stock
TTS07077D8	7.7	57	8	110	○
TTS07078D8	7.8	57	8	110	○
TTS07079D8	7.9	57	8	110	○
TTS07080D8	8.0	57	8	110	○
TTS07081D10	8.1	62	10	122	○
TTS07082D10	8.2	62	10	122	○
TTS07083D10	8.3	62	10	122	○
TTS07084D10	8.4	62	10	122	○
TTS07085D10	8.5	62	10	122	○
TTS07086D10	8.6	62	10	122	○
TTS07087D10	8.7	62	10	122	○
TTS07088D10	8.8	62	10	122	○
TTS07089D10	8.9	62	10	122	○
TTS07090D10	9.0	62	10	122	○
TTS07091D10	9.1	62	10	122	○
TTS07092D10	9.2	62	10	122	○
TTS07093D10	9.3	62	10	122	○
TTS07094D10	9.4	62	10	122	○
TTS07095D10	9.5	62	10	122	○
TTS07096D10	9.6	62	10	122	○
TTS07097D10	9.7	62	10	122	○
TTS07098D10	9.8	62	10	122	○
TTS07099D10	9.9	62	10	122	○
TTS07100D10	10.0	62	10	122	○
TTS07101D12	10.1	72	12	141	○
TTS07102D12	10.2	72	12	141	○
TTS07103D12	10.3	72	12	141	○
TTS07104D12	10.4	72	12	141	○
TTS07105D12	10.5	72	12	141	○
TTS07106D12	10.6	72	12	141	○
TTS07107D12	10.7	72	12	141	○
TTS07108D12	10.8	72	12	141	○

● Stock ○ Non-stock

TTS Drill Series 7D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

Model No.	Cutting Diameter D	Cutting Length ℓ	Shank Diameter Ds	Total Length L	Stock
TTS07109D12	10.9	72	12	141	○
TTS07110D12	11.0	72	12	141	○
TTS07111D12	11.1	72	12	141	○
TTS07112D12	11.2	72	12	141	○
TTS07113D12	11.3	72	12	141	○
TTS07114D12	11.4	72	12	141	○
TTS07115D12	11.5	72	12	141	○
TTS07116D12	11.6	72	12	141	○
TTS07117D12	11.7	72	12	141	○
TTS07118D12	11.8	72	12	141	○
TTS07119D12	11.9	72	12	141	○
TTS07120D12	12.0	72	12	141	○
TTS07121D14	12.1	83	14	155	○
TTS07122D14	12.2	83	14	155	○
TTS07123D14	12.3	83	14	155	○
TTS07124D14	12.4	83	14	155	○
TTS07125D14	12.5	83	14	155	○
TTS07126D14	12.6	83	14	155	○
TTS07127D14	12.7	83	14	155	○
TTS07128D14	12.8	83	14	155	○
TTS07129D14	12.9	83	14	155	○
TTS07130D14	13.0	83	14	155	○
TTS07131D14	13.1	83	14	155	○
TTS07132D14	13.2	83	14	155	○
TTS07133D14	13.3	83	14	155	○
TTS07134D14	13.4	83	14	155	○
TTS07135D14	13.5	83	14	155	○
TTS07136D14	13.6	83	14	155	○
TTS07137D14	13.7	83	14	155	○
TTS07138D14	13.8	83	14	155	○
TTS07139D14	13.9	83	14	155	○
TTS07140D14	14.0	83	14	155	○

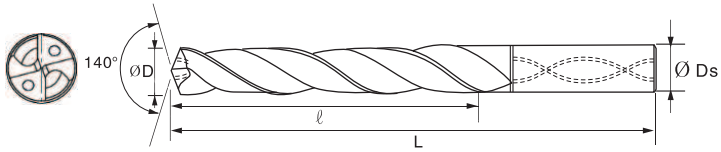
● Stock ○ Non-stock

High Performance Carbide Drill for General Purpose

TOTIME

TTS Drill Series 7D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

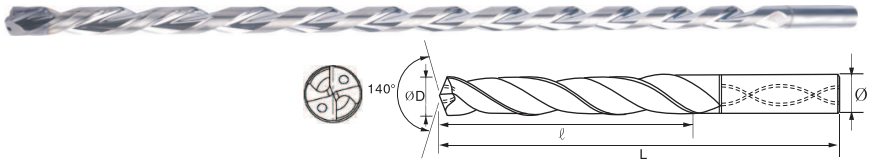
Model No.	Cutting Diameter D	Cutting Length ℓ	Shank Diameter Ds	Total Length L	Stock
TTS07141D16	14.1	92	16	171	○
TTS07142D16	14.2	92	16	171	○
TTS07143D16	14.3	92	16	171	○
TTS07144D16	14.4	92	16	171	○
TTS07145D16	14.5	92	16	171	○
TTS07146D16	14.6	92	16	171	○
TTS07147D16	14.7	92	16	171	○
TTS07148D16	14.8	92	16	171	○
TTS07149D16	14.9	92	16	171	○
TTS07150D16	15.0	92	16	171	○
TTS07151D16	15.1	92	16	171	○
TTS07152D16	15.2	92	16	171	○
TTS07153D16	15.3	92	16	171	○
TTS07154D16	15.4	92	16	171	○
TTS07155D16	15.5	92	16	171	○
TTS07156D16	15.6	92	16	171	○
TTS07157D16	15.7	92	16	171	○
TTS07158D16	15.8	92	16	171	○
TTS07159D16	15.9	92	16	171	○
TTS07160D16	16.0	92	16	171	○
TTS07165D18	16.5	103	18	185	○
TTS07170D18	17.0	103	18	185	○
TTS07175D18	17.5	103	18	185	○
TTS07180D18	18.0	103	18	185	○
TTS07185D20	18.5	112	20	200	○
TTS07190D20	19.0	112	20	200	○
TTS07195D20	19.5	112	20	200	○
TTS07200D20	20.0	112	20	200	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

TTS Drill Series 12D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TTS12030D4	3.0	45	4	80	○
TTS12035D4	3.5	45	4	80	○
TTS12040D4	4.0	50	4	88	○
TTS12045D6	4.5	55	6	106	○
TTS12050D6	5.0	66	6	116	○
TTS12055D6	5.5	66	6	116	○
TTS12060D6	6.0	66	6	116	○
TTS12065D8	6.5	84	8	138	○
TTS12070D8	7.0	84	8	138	○
TTS12075D8	7.5	84	8	138	○
TTS12080D8	8.0	84	8	138	○
TTS12085D10	8.5	108	10	169	○
TTS12090D10	9.0	108	10	169	○
TTS12095D10	9.5	108	10	169	○
TTS12100D10	10.0	108	10	169	○
TTS12105D12	10.5	132	12	201	○
TTS12110D12	11.0	132	12	201	○
TTS12115D12	11.5	132	12	201	○
TTS12120D12	12.0	132	12	201	○

Notice: The MOQ for Non-stock item is 5pcs.

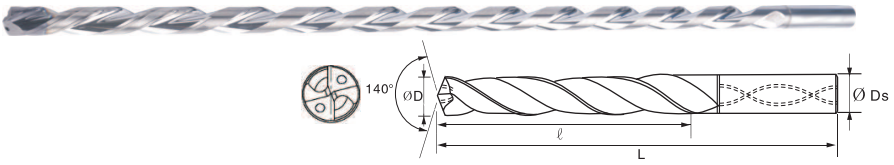
● Stock ○ Non-stock

Deep Hole Performance Carbide Drill for General Purpose

TOTIME

TTS Drill Series 16D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

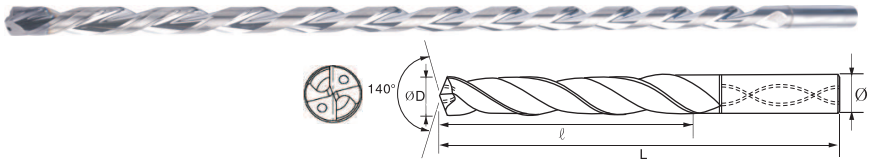
Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TTS16030D4	3.0	50	4	88	○
TTS16035D4	3.5	60	4	99	○
TTS16040D4	4.0	60	4	99	○
TTS16045D6	4.5	70	6	117	○
TTS16050D6	5.0	90	6	142	○
TTS16055D6	5.5	90	6	142	○
TTS16060D6	6.0	90	6	142	○
TTS16065D8	6.5	120	8	177	○
TTS16070D8	7.0	120	8	177	○
TTS16075D8	7.5	120	8	177	○
TTS16080D8	8.0	120	8	177	○
TTS16085D10	8.5	150	10	216	○
TTS16090D10	9.0	150	10	216	○
TTS16095D10	9.5	150	10	216	○
TTS16100D10	10.0	150	10	216	○
TTS16105D12	10.5	180	12	256	○
TTS16110D12	11.0	180	12	256	○
TTS16115D12	11.5	180	12	256	○
TTS16120D12	12.0	180	12	256	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

TTS Drill Series 20D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TTS20030D4	3.0	63	4	101	○
TTS20035D4	3.5	70	4	114	○
TTS20040D4	4.0	70	4	114	○
TTS20045D6	4.5	90	6	138	○
TTS20050D6	5.0	110	6	160	○
TTS20055D6	5.5	110	6	160	○
TTS20060D6	6.0	110	6	160	○
TTS20065D8	6.5	145	8	199	○
TTS20070D8	7.0	145	8	199	○
TTS20075D8	7.5	145	8	199	○
TTS20080D8	8.0	145	8	199	○
TTS20085D10	8.5	185	10	246	○
TTS20090D10	9.0	185	10	246	○
TTS20095D10	9.5	185	10	246	○
TTS20100D10	10.0	185	10	246	○
TTS20105D12	10.5	225	12	294	○
TTS20110D12	11.0	225	12	294	○
TTS20115D12	11.5	225	12	294	○
TTS20120D12	12.0	225	12	294	○

Notice: The MOQ for Non-stock item is 5pcs.

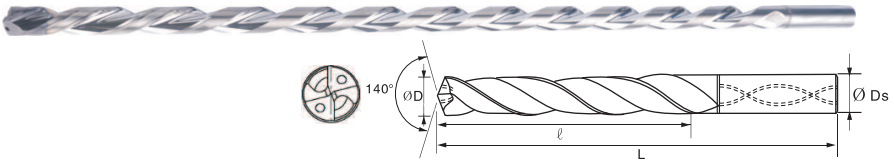
● Stock ○ Non-stock

Deep Hole Performance Carbide Drill for General Purpose

TOTIME

TTS Drill Series 25D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

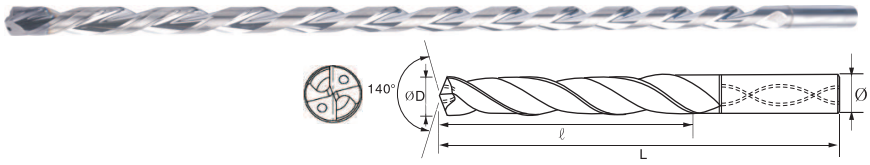
Model No.	Cutting Diameter D	Cutting Length ℓ	Shank Diameter Ds	Total Length L	Stock
TTS25030D4	3.0	79	4	117	○
TTS25035D4	3.5	94	4	133	○
TTS25040D4	4.0	94	4	133	○
TTS25045D6	4.5	112	6	160	○
TTS25050D6	5.0	140	6	190	○
TTS25055D6	5.5	140	6	190	○
TTS25060D6	6.0	140	6	190	○
TTS25065D8	6.5	188	8	241	○
TTS25070D8	7.0	188	8	241	○
TTS25075D8	7.5	188	8	241	○
TTS25080D8	8.0	188	8	241	○
TTS25085D10	8.5	234	10	295	○
TTS25090D10	9.0	234	10	295	○
TTS25095D10	9.5	234	10	295	○
TTS25100D10	10.0	234	10	295	○
TTS25105D12	10.5	281	12	350	○
TTS25110D12	11.0	281	12	350	○
TTS25115D12	11.5	281	12	350	○
TTS25120D12	12.0	281	12	350	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

TTS Drill Series 30D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	Balzers-PT	Suitable for processing	Steel/Stainless steel/Cast iron		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TTS30030D4	3.0	105	4	133	○
TTS30035D4	3.5	112	4	151	○
TTS30040D4	4.0	112	4	151	○
TTS30045D6	4.5	135	6	185	○
TTS30050D6	5.0	170	6	220	○
TTS30055D6	5.5	170	6	220	○
TTS30060D6	6.0	170	6	220	○
TTS30065D8	6.5	225	8	279	○
TTS30070D8	7.0	225	8	279	○
TTS30075D8	7.5	225	8	279	○
TTS30080D8	8.0	225	8	279	○
TTS30085D10	8.5	285	10	346	○
TTS30090D10	9.0	285	10	346	○
TTS30095D10	9.5	285	10	346	○
TTS30100D10	10.0	285	10	346	○
TTS30105D12	10.5	300	12	369	○
TTS30110D12	11.0	300	12	369	○
TTS30115D12	11.5	300	12	369	○
TTS30120D12	12.0	300	12	369	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

TTW Series 3D/5D (External Coolant)

Unit (mm)

ISO	Workpiece Material	Brinell hardness (HB)	Feed: f (mm/rev)										Vc (m/min)
			ø3	ø4	ø6	ø8	ø10	ø12	ø14	ø16	ø18	ø20	ø3 ~ ø20
P	Low carbon steels (C < 0.3) C15E4, E275A, E355D, etc.	~ 180	0.12	0.14	0.14	0.22	0.26	0.28	0.30	0.32	0.34	0.36	70.00
	Carbon steels (C > 0.3) C45, C55, etc.	180 ~ 300	0.12	0.14	0.14	0.22	0.26	0.28	0.30	0.32	0.34	0.36	60.00
	High alloy steels 42CrMo4, etc.	250 ~ 350	0.11	0.13	0.13	0.20	0.24	0.26	0.28	0.30	0.32	0.34	50.00
M	Stainless steels X5CrNi18-9, etc.	~ 200	0.11	0.13	0.13	0.20	0.24	0.26	0.28	0.30	0.32	0.34	30.00
K	Grey cast irons 250, etc.	~ 200	0.12	0.13	0.13	0.22	0.26	0.28	0.30	0.32	0.34	0.36	40.00
	Ductile cast irons 450-10S, etc.	~ 300	0.11	0.12	0.12	0.20	0.24	0.26	0.28	0.30	0.32	0.34	35.00
N	Aluminium alloys AlSi11Cu3, etc.	-	-	-	-	-	-	-	-	-	-	-	-

TTS Series 3D/5D (Internal Coolant)

Unit (mm)

ISO	Workpiece Material	Brinell hardness (HB)	Feed: f (mm/rev)										Vc (m/min)
			ø3	ø4	ø6	ø8	ø10	ø12	ø14	ø16	ø18	ø20	ø3 ~ ø20
P	Low carbon steels (C < 0.3) C15E4, E275A, E355D, etc.	~ 180	0.12	0.14	0.18	0.22	0.26	0.28	0.30	0.32	0.34	0.36	90.00
	Carbon steels (C > 0.3) C45, C55, etc.	180 ~ 300	0.12	0.14	0.18	0.22	0.26	0.28	0.30	0.32	0.34	0.36	80.00
	High alloy steels 42CrMo4, etc.	250 ~ 350	0.11	0.13	0.16	0.20	0.24	0.26	0.28	0.30	0.32	0.34	75.00
M	Stainless steels X5CrNi18-9, etc.	~ 200	0.11	0.13	0.16	0.20	0.24	0.26	0.28	0.30	0.32	0.34	50.00
K	Grey cast irons 250, etc.	~ 200	0.12	0.13	0.18	0.22	0.26	0.28	0.30	0.32	0.34	0.36	50.00
	Ductile cast irons 450-10S, etc.	~ 300	0.11	0.12	0.16	0.20	0.24	0.26	0.28	0.30	0.32	0.34	45.00
N	Aluminium alloys AlSi11Cu3, etc.	-	0.10	0.20	0.22	0.26	0.30	0.34	0.36	0.38	0.40	0.42	180.00

TTW Series 7D (External Coolant)

Unit (mm)

ISO	Workpiece Material	Brinell hardness (HB)	Feed: f (mm/rev)									Vc (m/min)
			ø4.5	ø6	ø8	ø10	ø12	ø14	ø16	ø18	ø20	ø3 ~ ø20
P	Low carbon steels (C < 0.3) C15E4, E275A, E355D, etc.	~ 180	0.14	0.14	0.22	0.26	0.28	0.30	0.32	0.34	0.36	63.00
	Carbon steels (C > 0.3) C45, C55, etc.	180 ~ 300	0.14	0.14	0.22	0.26	0.28	0.30	0.32	0.34	0.36	54.00
	High alloy steels 42CrMo4, etc.	250 ~ 350	0.13	0.13	0.20	0.24	0.26	0.28	0.30	0.32	0.34	45.00
M	Stainless steels X5CrNi18-9, etc.	~ 200	0.13	0.13	0.20	0.24	0.26	0.28	0.30	0.32	0.34	27.00
K	Grey cast irons 250, etc.	~ 200	0.13	0.13	0.22	0.26	0.28	0.30	0.32	0.34	0.36	36.00
	Ductile cast irons 450-10S, etc.	~ 300	0.12	0.12	0.20	0.24	0.26	0.28	0.30	0.32	0.34	30.00
N	Aluminium alloys AlSi11Cu3, etc.	-	-	-	-	-	-	-	-	-	-	-

TTS Series 7D (Internal Coolant)

Unit (mm)

ISO	Workpiece Material	Brinell hardness (HB)	Feed: f (mm/rev)									Vc (m/min)
			ø4.5	ø6	ø8	ø10	ø12	ø14	ø16	ø18	ø20	ø3 ~ ø20
P	Low carbon steels (C < 0.3) C15E4, E275A, E355D, etc.	~ 180	0. 14	0. 18	0. 22	0. 26	0. 28	0. 30	0. 32	0. 34	0. 36	75. 00
	Carbon steels (C > 0.3) C45, C55, etc.	180 ~ 300	0. 14	0. 18	0. 22	0. 26	0. 28	0. 30	0. 32	0. 34	0. 36	66. 00
	High alloy steels 42CrMo4, etc.	250 ~ 350	0. 13	0. 16	0. 20	0. 24	0. 26	0. 28	0. 30	0. 32	0. 34	60. 00
M	Stainless steels X5CrNi18-9, etc	~ 200	0. 13	0. 16	0. 20	0. 24	0. 26	0. 28	0. 30	0. 32	0. 34	40. 00
K	Grey cast irons 250, etc.	~ 200	0. 13	0. 18	0. 22	0. 26	0. 28	0. 30	0. 32	0. 34	0. 36	40. 00
	Ductile cast irons 450-10S, etc	~ 300	0. 12	0. 16	0. 20	0. 24	0. 26	0. 28	0. 30	0. 32	0. 34	38. 00
N	Aluminium alloys AlSi11Cu3, etc.	-	0. 20	0. 22	0. 26	0. 30	0. 34	0. 36	0. 38	0. 40	0. 42	150. 00

TTS Series 12D/16D/20D/25D/30D (Internal Coolant)

Unit (mm)

ISO	Workpiece Material	Brinell hardness (HB)	Feed: f (mm/rev)						Vc (m/min)
			ø3	ø4	ø6	ø8	ø10	ø12	ø3 ~ ø12
P	Low carbon steels (C < 0.3) C15E4, E275A, E355D, etc.	~ 180	0.12	0.14	0.18	0.22	0.26	0.28	81.00
	Carbon steels (C > 0.3) C45, C55, etc.	180 ~ 300	0.12	0.14	0.18	0.22	0.26	0.28	68.00
	High alloy steels 42CrMo4, etc.	250 ~ 350	0.11	0.13	0.16	0.20	0.24	0.26	58.00
M	Stainless steels X5CrNi18-9, etc	~ 200	0.11	0.13	0.16	0.20	0.24	0.26	36.00
K	Grey cast irons 250, etc.	~ 200	0.12	0.13	0.18	0.22	0.26	0.28	45.00
	Ductile cast irons 450-10S, etc.	~ 300	0.11	0.12	0.16	0.20	0.24	0.26	40.00
N	Aluminium alloys AlSi11Cu3, etc.	-	0.12	0.14	0.20	0.24	0.28	0.32	135.00

TK Series

General Features

TK Series is a special drill for cast iron that
combines reduced cutting resistance and improved drill strength.

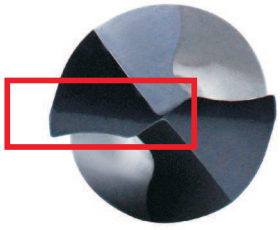
Product Range

Model No.	Diameter Range (mm)	Hole Depth (L/D)	Coolant Supply
TKW Type	D3.0-D20.0	up to 3 up to 5	External
TKS Type	D3.0-D20.0	up to 3 up to 5	Internal

※When the tensile strength is greater than 500, can be made on request.

Technological Innovation

1.Cutting Edge Design



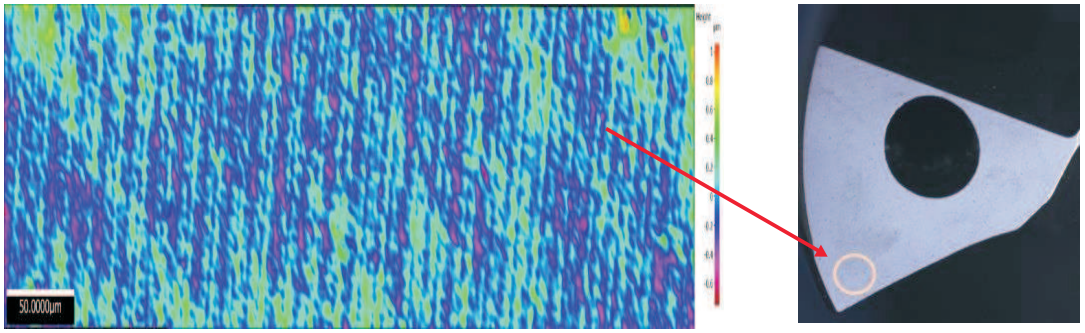
Special cutting edge is designed for processing cast iron to enhance the cutting strength of drill and is conducive to chip removal.

2.Point Angle Design and Coated

135° point angle design and wide transverse edge is designed to realize high-efficiency cutting of cast iron. The new TiAlN coating realizes the high wear resistance of the drill.

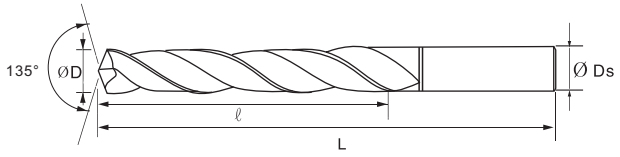
3.Drill Suface Quality

Roughness:0.14 μm



TKW Drill Series 3D External Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TKW030D6	3.0	20	6	62	●
TKW031D6	3.1	20	6	62	●
TKW032D6	3.2	20	6	62	●
TKW033D6	3.3	20	6	62	●
TKW034D6	3.4	20	6	62	●
TKW035D6	3.5	20	6	62	●
TKW036D6	3.6	20	6	62	●
TKW037D6	3.7	20	6	62	●
TKW038D6	3.8	24	6	66	●
TKW039D6	3.9	24	6	66	●
TKW040D6	4.0	24	6	66	●
TKW041D6	4.1	24	6	66	●
TKW042D6	4.2	24	6	66	●
TKW043D6	4.3	24	6	66	●
TKW044D6	4.4	24	6	66	●
TKW045D6	4.5	24	6	66	●
TKW046D6	4.6	26	6	66	●
TKW047D6	4.7	26	6	66	●
TKW048D6	4.8	28	6	66	●
TKW049D6	4.9	28	6	66	●
TKW050D6	5.0	28	6	66	●
TKW051D6	5.1	28	6	66	●
TKW052D6	5.2	28	6	66	●
TKW053D6	5.3	28	6	66	●
TKW054D6	5.4	28	6	66	●
TKW055D6	5.5	28	6	66	●
TKW056D6	5.6	28	6	66	●
TKW057D6	5.7	28	6	66	●
TKW058D6	5.8	28	6	66	●
TKW059D6	5.9	28	6	66	●
TKW060D6	6.0	28	6	66	●
TKW061D8	6.1	34	8	79	●
TKW062D8	6.2	34	8	79	●
TKW063D8	6.3	34	8	79	●

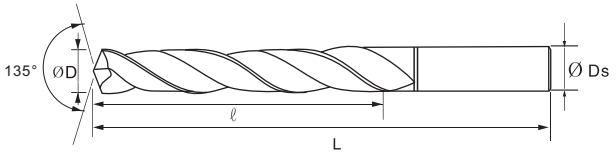
● Stock ○ Non-stock

High Performance Carbide Drill for Cast Iron

TOTIME

TKW Drill Series 3D External Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



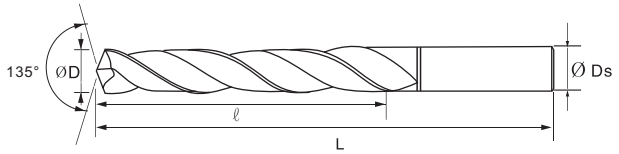
Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TKW064D8	6.4	34	8	79	●
TKW065D8	6.5	34	8	79	●
TKW066D8	6.6	34	8	79	●
TKW067D8	6.7	34	8	79	●
TKW068D8	6.8	34	8	79	●
TKW069D8	6.9	34	8	79	●
TKW070D8	7.0	34	8	79	●
TKW071D8	7.1	41	8	79	●
TKW072D8	7.2	41	8	79	●
TKW073D8	7.3	41	8	79	●
TKW074D8	7.4	41	8	79	●
TKW075D8	7.5	41	8	79	●
TKW076D8	7.6	41	8	79	●
TKW077D8	7.7	41	8	79	●
TKW078D8	7.8	41	8	79	●
TKW079D8	7.9	41	8	79	●
TKW080D8	8.0	41	8	79	●
TKW081D10	8.1	47	10	89	●
TKW082D10	8.2	47	10	89	●
TKW083D10	8.3	47	10	89	●
TKW084D10	8.4	47	10	89	●
TKW085D10	8.5	47	10	89	●
TKW086D10	8.6	47	10	89	●
TKW087D10	8.7	47	10	89	●
TKW088D10	8.8	47	10	89	●
TKW089D10	8.9	47	10	89	●
TKW090D10	9.0	47	10	89	●
TKW091D10	9.1	47	10	89	●
TKW092D10	9.2	47	10	89	●
TKW093D10	9.3	47	10	89	●
TKW094D10	9.4	47	10	89	●
TKW095D10	9.5	47	10	89	●
TKW096D10	9.6	47	10	89	●
TKW097D10	9.7	47	10	89	●

●Stock ○Non-stock

TKW Drill Series 3D External Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TKW098D10	9.8	47	10	89	●
TKW099D10	9.9	47	10	89	●
TKW100D10	10.0	47	10	89	●
TKW101D12	10.1	55	12	102	●
TKW102D12	10.2	55	12	102	●
TKW103D12	10.3	55	12	102	●
TKW104D12	10.4	55	12	102	●
TKW105D12	10.5	55	12	102	●
TKW106D12	10.6	55	12	102	●
TKW107D12	10.7	55	12	102	●
TKW108D12	10.8	55	12	102	●
TKW109D12	10.9	55	12	102	●
TKW110D12	11.0	55	12	102	●
TKW111D12	11.1	55	12	102	●
TKW112D12	11.2	55	12	102	●
TKW113D12	11.3	55	12	102	●
TKW114D12	11.4	55	12	102	●
TKW115D12	11.5	55	12	102	●
TKW116D12	11.6	55	12	102	●
TKW117D12	11.7	55	12	102	●
TKW118D12	11.8	55	12	102	●
TKW119D12	11.9	55	12	102	●
TKW120D12	12.0	55	12	102	●
TKW121D14	12.1	60	14	107	●
TKW122D14	12.2	60	14	107	●
TKW123D14	12.3	60	14	107	●
TKW124D14	12.4	60	14	107	●
TKW125D14	12.5	60	14	107	●
TKW126D14	12.6	60	14	107	●
TKW127D14	12.7	60	14	107	●
TKW128D14	12.8	60	14	107	●
TKW129D14	12.9	60	14	107	●
TKW130D14	13.0	60	14	107	●
TKW131D14	13.1	60	14	107	●

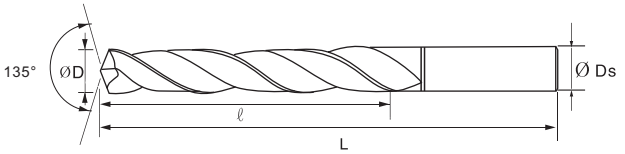
● Stock ○ Non-stock

High Performance Carbide Drill for Cast Iron

TOTIME

TKW Drill Series 3D External Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



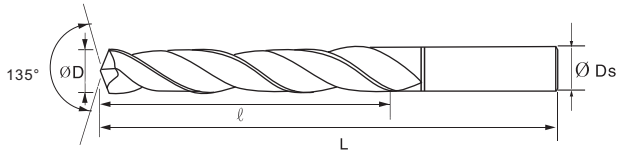
Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TKW132D14	13.2	60	14	107	●
TKW133D14	13.3	60	14	107	●
TKW134D14	13.4	60	14	107	●
TKW135D14	13.5	60	14	107	●
TKW136D14	13.6	60	14	107	●
TKW137D14	13.7	60	14	107	●
TKW138D14	13.8	60	14	107	●
TKW139D14	13.9	60	14	107	●
TKW140D14	14.0	60	14	107	●
TKW141D16	14.1	65	16	115	●
TKW142D16	14.2	65	16	115	●
TKW143D16	14.3	65	16	115	●
TKW144D16	14.4	65	16	115	●
TKW145D16	14.5	65	16	115	●
TKW146D16	14.6	65	16	115	●
TKW147D16	14.7	65	16	115	●
TKW148D16	14.8	65	16	115	●
TKW149D16	14.9	65	16	115	●
TKW150D16	15.0	65	16	115	●
TKW151D16	15.1	65	16	115	●
TKW152D16	15.2	65	16	115	●
TKW153D16	15.3	65	16	115	●
TKW154D16	15.4	65	16	115	●
TKW155D16	15.5	65	16	115	●
TKW156D16	15.6	65	16	115	●
TKW157D16	15.7	65	16	115	●
TKW158D16	15.8	65	16	115	●
TKW159D16	15.9	65	16	115	●
TKW160D16	16.0	65	16	115	●
TKW165D18	16.5	73	18	123	○
TKW170D18	17.0	73	18	123	○
TKW175D18	17.5	73	18	123	○
TKW180D18	18.0	73	18	123	○
TKW185D20	18.5	79	20	131	○

● Stock ○ Non-stock

TKW Drill Series 3D External Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TKW190D20	19.0	79	20	131	○
TKW195D20	19.5	79	20	131	○
TKW200D20	20.0	79	20	131	○

Notice: The MOQ for Non-stock item is 5pcs.

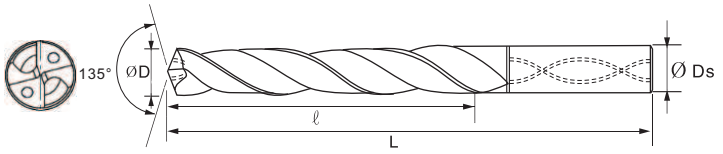
● Stock ○ Non-stock

High Performance Carbide Drill for Cast Iron

TOTIME

TKS Drill Series 3D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



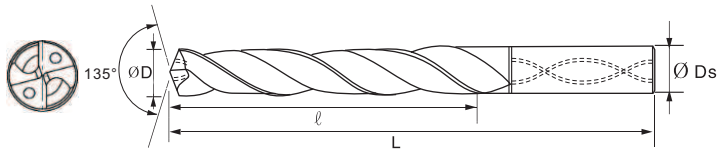
Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TKS030D6	3.0	20	6	62	●
TKS031D6	3.1	20	6	62	●
TKS032D6	3.2	20	6	62	●
TKS033D6	3.3	20	6	62	●
TKS034D6	3.4	20	6	62	●
TKS035D6	3.5	20	6	62	●
TKS036D6	3.6	20	6	62	●
TKS037D6	3.7	20	6	62	●
TKS038D6	3.8	24	6	66	●
TKS039D6	3.9	24	6	66	●
TKS040D6	4.0	24	6	66	●
TKS041D6	4.1	24	6	66	●
TKS042D6	4.2	24	6	66	●
TKS043D6	4.3	24	6	66	●
TKS044D6	4.4	24	6	66	●
TKS045D6	4.5	24	6	66	●
TKS046D6	4.6	24	6	66	●
TKS047D6	4.7	24	6	66	●
TKS048D6	4.8	28	6	66	●
TKS049D6	4.9	28	6	66	●
TKS050D6	5.0	28	6	66	●
TKS051D6	5.1	28	6	66	●
TKS052D6	5.2	28	6	66	●
TKS053D6	5.3	28	6	66	●
TKS054D6	5.4	28	6	66	●
TKS055D6	5.5	28	6	66	●
TKS056D6	5.6	28	6	66	●
TKS057D6	5.7	28	6	66	●
TKS058D6	5.8	28	6	66	●
TKS059D6	5.9	28	6	66	●
TKS060D6	6.0	28	6	66	●
TKS061D8	6.1	34	8	79	●
TKS062D8	6.2	34	8	79	●

● Stock ○ Non-stock

TKS Drill Series 3D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



Unit(mm)

Model No.	Cutting Diameter D	Cutting Length ℓ	Shank Diameter Ds	Total Length L	Stock
TKS063D8	6.3	34	8	79	●
TKS064D8	6.4	34	8	79	●
TKS065D8	6.5	34	8	79	●
TKS066D8	6.6	34	8	79	●
TKS067D8	6.7	34	8	79	●
TKS068D8	6.8	34	8	79	●
TKS069D8	6.9	34	8	79	●
TKS070D8	7.0	34	8	79	●
TKS071D8	7.1	41	8	79	●
TKS072D8	7.2	41	8	79	●
TKS073D8	7.3	41	8	79	●
TKS074D8	7.4	41	8	79	●
TKS075D8	7.5	41	8	79	●
TKS076D8	7.6	41	8	79	●
TKS077D8	7.7	41	8	79	●
TKS078D8	7.8	41	8	79	●
TKS079D8	7.9	41	8	79	●
TKS080D8	8.0	41	8	79	●
TKS081D10	8.1	47	10	89	●
TKS082D10	8.2	47	10	89	●
TKS083D10	8.3	47	10	89	●
TKS084D10	8.4	47	10	89	●
TKS085D10	8.5	47	10	89	●
TKS086D10	8.6	47	10	89	●
TKS087D10	8.7	47	10	89	●
TKS088D10	8.8	47	10	89	●
TKS089D10	8.9	47	10	89	●
TKS090D10	9.0	47	10	89	●
TKS091D10	9.1	47	10	89	●
TKS092D10	9.2	47	10	89	●
TKS093D10	9.3	47	10	89	●
TKS094D10	9.4	47	10	89	●
TKS095D10	9.5	47	10	89	●

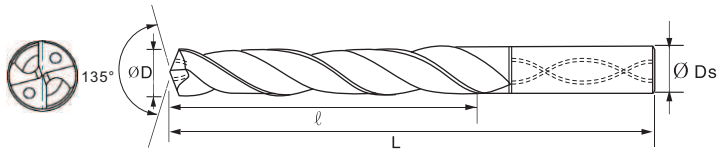
● Stock ○ Non-stock

High Performance Carbide Drill for Cast Iron

TOTIME

TKS Drill Series 3D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



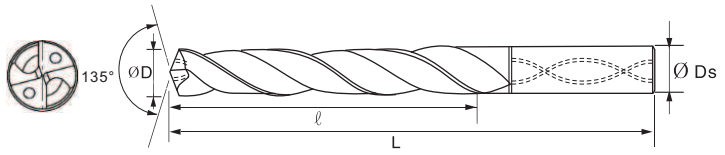
Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TKS096D10	9.6	47	10	89	●
TKS097D10	9.7	47	10	89	●
TKS098D10	9.8	47	10	89	●
TKS099D10	9.9	47	10	89	●
TKS100D10	10.0	47	10	89	●
TKS101D12	10.1	55	12	102	●
TKS102D12	10.2	55	12	102	●
TKS103D12	10.3	55	12	102	●
TKS104D12	10.4	55	12	102	●
TKS105D12	10.5	55	12	102	●
TKS106D12	10.6	55	12	102	●
TKS107D12	10.7	55	12	102	●
TKS108D12	10.8	55	12	102	●
TKS109D12	10.9	55	12	102	●
TKS110D12	11.0	55	12	102	●
TKS111D12	11.1	55	12	102	●
TKS112D12	11.2	55	12	102	●
TKS113D12	11.3	55	12	102	●
TKS114D12	11.4	55	12	102	●
TKS115D12	11.5	55	12	102	●
TKS116D12	11.6	55	12	102	●
TKS117D12	11.7	55	12	102	●
TKS118D12	11.8	55	12	102	●
TKS119D12	11.9	55	12	102	●
TKS120D12	12.0	55	12	102	●
TKS121D14	12.1	60	14	107	●
TKS122D14	12.2	60	14	107	●
TKS123D14	12.3	60	14	107	●
TKS124D14	12.4	60	14	107	●
TKS125D14	12.5	60	14	107	●
TKS126D14	12.6	60	14	107	●
TKS127D14	12.7	60	14	107	●
TKS128D14	12.8	60	14	107	●

● Stock ○ Non-stock

TKS Drill Series 3D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TKS129D14	12.9	60	14	107	●
TKS130D14	13.0	60	14	107	●
TKS131D14	13.1	60	14	107	●
TKS132D14	13.2	60	14	107	●
TKS133D14	13.3	60	14	107	●
TKS134D14	13.4	60	14	107	●
TKS135D14	13.5	60	14	107	●
TKS136D14	13.6	60	14	107	●
TKS137D14	13.7	60	14	107	●
TKS138D14	13.8	60	14	107	●
TKS139D14	13.9	60	14	107	●
TKS140D14	14.0	60	14	107	●
TKS141D16	14.1	65	16	115	●
TKS142D16	14.2	65	16	115	●
TKS143D16	14.3	65	16	115	●
TKS144D16	14.4	65	16	115	●
TKS145D16	14.5	65	16	115	●
TKS146D16	14.6	65	16	115	●
TKS147D16	14.7	65	16	115	●
TKS148D16	14.8	65	16	115	●
TKS149D16	14.9	65	16	115	●
TKS150D16	15.0	65	16	115	●
TKS151D16	15.1	65	16	115	●
TKS152D16	15.2	65	16	115	●
TKS153D16	15.3	65	16	115	●
TKS154D16	15.4	65	16	115	●
TKS155D16	15.5	65	16	115	●
TKS156D16	15.6	65	16	115	●
TKS157D16	15.7	65	16	115	●
TKS158D16	15.8	65	16	115	●
TKS159D16	15.9	65	16	115	●
TKS160D16	16.0	65	16	115	●
TKS165D18	16.5	73	18	123	○

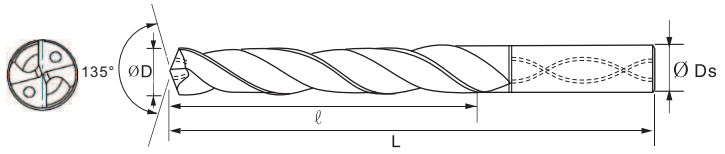
● Stock ○ Non-stock

High Performance Carbide Drill for Cast Iron

TOTIME

TKS Drill Series 3D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



Unit(mm)

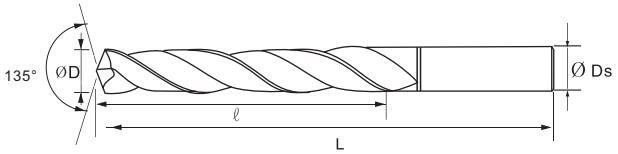
Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TKS170D18	17.0	73	18	123	○
TKS175D18	17.5	73	18	123	○
TKS180D18	18.0	73	18	123	○
TKS185D20	18.5	79	20	131	○
TKS190D20	19.0	79	20	131	○
TKS195D20	19.5	79	20	131	○
TKS200D20	20.0	79	20	131	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

TKW Drill Series 3D External Coolant(Inch)

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



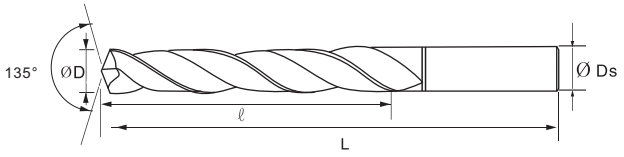
Unit(mm)

Model No.	Cutting Diameter D		Cutting Length ℓ	Shank Diameter Ds	Total Length L	Stock
	mm	inch				
TKW0318D6	3.18	1/8	20	6	62	○
TKW0357D6	3.57	9/64	20	6	62	○
TKW0397D6	3.97	5/32	24	6	66	○
TKW0437D6	4.37	11/64	24	6	66	○
TKW0476D6	4.76	3/16	26	6	66	○
TKW0516D6	5.16	13/64	28	6	66	○
TKW0556D6	5.56	7/32	28	6	66	○
TKW0595D6	5.95	15/64	28	6	66	○
TKW0635D8	6.35	1/4	34	8	79	○
TKW0675D8	6.75	17/64	34	8	79	○
TKW0714D8	7.14	9/32	41	8	79	○
TKW0754D8	7.54	19/64	41	8	79	○
TKW0794D8	7.94	5/16	41	8	79	○
TKW0833D10	8.33	21/64	47	10	89	○
TKW0873D10	8.73	11/32	47	10	89	○
TKW0913D10	9.13	23/64	47	10	89	○
TKW0952D10	9.52	3/8	47	10	89	○
TKW0992D10	9.92	25/64	47	10	89	○
TKW1032D12	10.32	13/32	55	12	102	○
TKW1072D12	10.72	27/64	55	12	102	○
TKW1111D12	11.11	7/16	55	12	102	○
TKW1151D12	11.51	29/64	55	12	102	○
TKW1191D12	11.91	15/32	55	12	102	○
TKW1349D14	13.49	17/32	60	14	107	○
TKW1389D14	13.89	35/64	60	14	107	○
TKW1429D16	14.29	9/16	65	16	115	○
TKW1468D16	14.68	37/64	65	16	115	○
TKW1508D16	15.08	19/32	65	16	115	○
TKW1548D16	15.48	39/64	65	16	115	○
TKW1588D16	15.88	5/8	65	16	115	○
TKW1627D18	16.27	41/64	73	18	123	○
TKW1667D18	16.67	21/32	73	18	123	○
TKW1707D18	17.07	43/64	73	18	123	○
TKW1746D18	17.46	11/16	73	18	123	○

● Stock ○ Non-stock

TKW Drill Series 3D External Coolant(Inch)

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



Unit(mm)

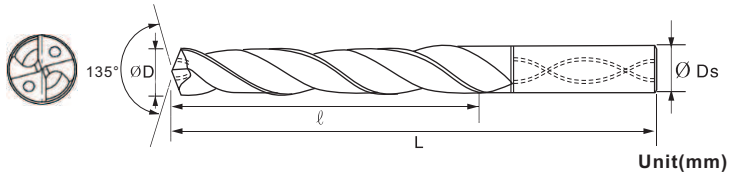
Model No.	Cutting Diameter D		Cutting Length ℓ	Shank Diameter Ds	Total Length L	Stock
	mm	inch				
TKW1786D18	17.86	45/64	73	18	123	○
TKW1826D20	18.26	23/32	79	20	131	○
TKW1865D20	18.65	47/64	79	20	131	○
TKW1905D20	19.05	3/4	79	20	131	○
TKW1945D20	19.45	49/64	79	20	131	○
TKW1984D20	19.84	25/32	79	20	131	○

● Stock ○ Non-stock

Notice: The MOQ for Non-stock item is 5pcs.

TKS Drill Series 3D with Internal Coolant (Inch)

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



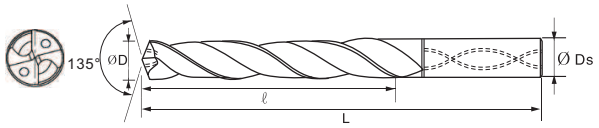
Unit(mm)

Model No.	Cutting Diameter D		Cutting Length ℓ	Shank Diameter Ds	Total Length L	Stock
	mm	inch				
TKS0318D6	3.18	1/8	20	6	62	○
TKS0357D6	3.57	9/64	20	6	62	○
TKS0397D6	3.97	5/32	24	6	66	○
TKS0437D6	4.37	11/64	24	6	66	○
TKS0476D6	4.76	3/16	26	6	66	○
TKS0516D6	5.16	13/64	28	6	66	○
TKS0556D6	5.56	7/32	28	6	66	○
TKS0595D6	5.95	15/64	28	6	66	○
TKS0635D8	6.35	1/4	34	8	79	○
TKS0675D8	6.75	17/64	34	8	79	○
TKS0714D8	7.14	9/32	41	8	79	○
TKS0754D8	7.54	19/64	41	8	79	○
TKS0794D8	7.94	5/16	41	8	79	○
TKS0833D10	8.33	21/64	47	10	89	○
TKS0873D10	8.73	11/32	47	10	89	○
TKS0913D10	9.13	23/64	47	10	89	○
TKS0952D10	9.52	3/8	47	10	89	○
TKS0992D10	9.92	25/64	47	10	89	○
TKS1032D12	10.32	13/32	55	12	102	○
TKS1072D12	10.72	27/64	55	12	102	○
TKS1111D12	11.11	7/16	55	12	102	○
TKS1151D12	11.51	29/64	55	12	102	○
TKS1191D12	11.91	15/32	55	12	102	○
TKS1349D14	13.49	17/32	60	14	107	○
TKS1389D14	13.89	35/64	60	14	107	○
TKS1429D16	14.29	9/16	65	16	115	○
TKS1468D16	14.68	37/64	65	16	115	○
TKS1508D16	15.08	19/32	65	16	115	○
TKS1548D16	15.48	39/64	65	16	115	○
TKS1588D16	15.88	5/8	65	16	115	○
TKS1627D18	16.27	41/64	73	18	123	○
TKS1667D18	16.67	21/32	73	18	123	○
TKS1707D18	17.07	43/64	73	18	123	○
TKS1746D18	17.46	11/16	73	18	123	○

● Stock ○ Non-stock

TKS Drill Series 3D with Internal Coolant (Inch)

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



Unit(mm)

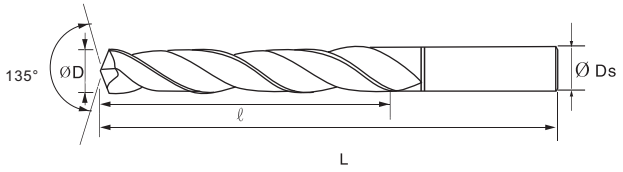
Model No.	Cutting Diameter D		Cutting Length ℓ	Shank Diameter Ds	Total Length L	Stock
	mm	inch				
TKS1786D18	17.86	45/64	73	18	123	○
TKS1826D20	18.26	23/32	79	20	131	○
TKS1865D20	18.65	47/64	79	20	131	○
TKS1905D20	19.05	3/4	79	20	131	○
TKS1945D20	19.45	49/64	79	20	131	○
TKS1984D20	19.84	25/32	79	20	131	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

TKW Drill Series 5D External Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



Unit(mm)

Model No.	Cutting Diameter D	Cutting Length ℓ	Shank Diameter Ds	Total Length L	Stock
TKW05030D6	3.0	26	6	66	●
TKW05031D6	3.1	26	6	66	●
TKW05032D6	3.2	26	6	66	●
TKW05033D6	3.3	26	6	66	●
TKW05034D6	3.4	26	6	66	●
TKW05035D6	3.5	26	6	66	●
TKW05036D6	3.6	26	6	66	●
TKW05037D6	3.7	26	6	66	●
TKW05038D6	3.8	34	6	74	●
TKW05039D6	3.9	34	6	74	●
TKW05040D6	4.0	34	6	74	●
TKW05041D6	4.1	34	6	74	●
TKW05042D6	4.2	34	6	74	●
TKW05043D6	4.3	34	6	74	●
TKW05044D6	4.4	34	6	74	●
TKW05045D6	4.5	34	6	74	●
TKW05046D6	4.6	34	6	74	●
TKW05047D6	4.7	34	6	74	●
TKW05048D6	4.8	44	6	82	●
TKW05049D6	4.9	44	6	82	●
TKW05050D6	5.0	44	6	82	●
TKW05051D6	5.1	44	6	82	●
TKW05052D6	5.2	44	6	82	●
TKW05053D6	5.3	44	6	82	●
TKW05054D6	5.4	44	6	82	●
TKW05055D6	5.5	44	6	82	●
TKW05056D6	5.6	44	6	82	●
TKW05057D6	5.7	44	6	82	●
TKW05058D6	5.8	44	6	82	●
TKW05059D6	5.9	44	6	82	●
TKW05060D6	6.0	44	6	82	●
TKW05061D8	6.1	53	8	91	●

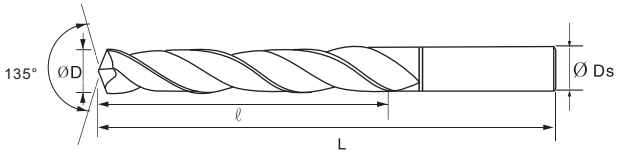
● Stock ○ Non-stock

High Performance Carbide Drill for Cast Iron

TOTIME

TKW Drill Series 5D External Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



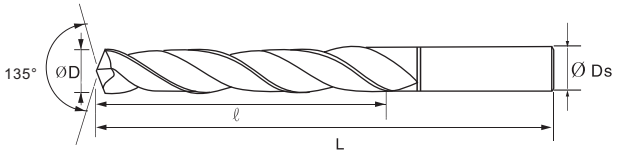
Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TKW05062D8	6.2	53	8	91	●
TKW05063D8	6.3	53	8	91	●
TKW05064D8	6.4	53	8	91	●
TKW05065D8	6.5	53	8	91	●
TKW05066D8	6.6	53	8	91	●
TKW05067D8	6.7	53	8	91	●
TKW05068D8	6.8	53	8	91	●
TKW05069D8	6.9	53	8	91	●
TKW05070D8	7.0	53	8	91	●
TKW05071D8	7.1	53	8	91	●
TKW05072D8	7.2	53	8	91	●
TKW05073D8	7.3	53	8	91	●
TKW05074D8	7.4	53	8	91	●
TKW05075D8	7.5	53	8	91	●
TKW05076D8	7.6	53	8	91	●
TKW05077D8	7.7	53	8	91	●
TKW05078D8	7.8	53	8	91	●
TKW05079D8	7.9	53	8	91	●
TKW05080D8	8.0	53	8	91	●
TKW05081D10	8.1	61	10	103	●
TKW05082D10	8.2	61	10	103	●
TKW05083D10	8.3	61	10	103	●
TKW05084D10	8.4	61	10	103	●
TKW05085D10	8.5	61	10	103	●
TKW05086D10	8.6	61	10	103	●
TKW05087D10	8.7	61	10	103	●
TKW05088D10	8.8	61	10	103	●
TKW05089D10	8.9	61	10	103	●
TKW05090D10	9.0	61	10	103	●
TKW05091D10	9.1	61	10	103	●
TKW05092D10	9.2	61	10	103	●
TKW05093D10	9.3	61	10	103	●
TKW05094D10	9.4	61	10	103	●

● Stock ○ Non-stock

TKW Drill Series 5D External Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



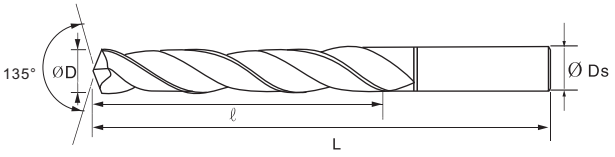
Unit(mm)

Model No.	Cutting Diameter D	Cutting Length ℓ	Shank Diameter Ds	Total Length L	Stock
TKW05095D10	9.5	61	10	103	●
TKW05096D10	9.6	61	10	103	●
TKW05097D10	9.7	61	10	103	●
TKW05098D10	9.8	61	10	103	●
TKW05099D10	9.9	61	10	103	●
TKW05100D10	10.0	61	10	103	●
TKW05101D12	10.1	71	12	118	●
TKW05102D12	10.2	71	12	118	●
TKW05103D12	10.3	71	12	118	●
TKW05104D12	10.4	71	12	118	●
TKW05105D12	10.5	71	12	118	●
TKW05106D12	10.6	71	12	118	●
TKW05107D12	10.7	71	12	118	●
TKW05108D12	10.8	71	12	118	●
TKW05109D12	10.9	71	12	118	●
TKW05110D12	11.0	71	12	118	●
TKW05111D12	11.1	71	12	118	●
TKW05112D12	11.2	71	12	118	●
TKW05113D12	11.3	71	12	118	●
TKW05114D12	11.4	71	12	118	●
TKW05115D12	11.5	71	12	118	●
TKW05116D12	11.6	71	12	118	●
TKW05117D12	11.7	71	12	118	●
TKW05118D12	11.8	71	12	118	●
TKW05119D12	11.9	71	12	118	●
TKW05120D12	12.0	71	12	118	●
TKW05121D14	12.1	77	14	124	●
TKW05122D14	12.2	77	14	124	●
TKW05123D14	12.3	77	14	124	●
TKW05124D14	12.4	77	14	124	●
TKW05125D14	12.5	77	14	124	●
TKW05126D14	12.6	77	14	124	●
TKW05127D14	12.7	77	14	124	●

● Stock ○ Non-stock

TKW Drill Series 5D External Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



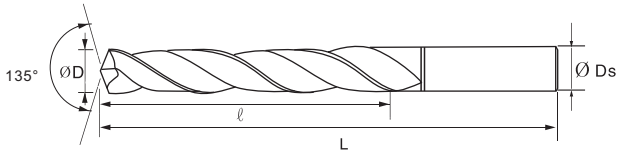
Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TKW05128D14	12.8	77	14	124	●
TKW05129D14	12.9	77	14	124	●
TKW05130D14	13.0	77	14	124	●
TKW05131D14	13.1	77	14	124	●
TKW05132D14	13.2	77	14	124	●
TKW05133D14	13.3	77	14	124	●
TKW05134D14	13.4	77	14	124	●
TKW05135D14	13.5	77	14	124	●
TKW05136D14	13.6	77	14	124	●
TKW05137D14	13.7	77	14	124	●
TKW05138D14	13.8	77	14	124	●
TKW05139D14	13.9	77	14	124	●
TKW05140D14	14.0	77	14	124	●
TKW05141D16	14.1	83	16	133	●
TKW05142D16	14.2	83	16	133	●
TKW05143D16	14.3	83	16	133	●
TKW05144D16	14.4	83	16	133	●
TKW05145D16	14.5	83	16	133	●
TKW05146D16	14.6	83	16	133	●
TKW05147D16	14.7	83	16	133	●
TKW05148D16	14.8	83	16	133	●
TKW05149D16	14.9	83	16	133	●
TKW05150D16	15.0	83	16	133	●
TKW05151D16	15.1	83	16	133	●
TKW05152D16	15.2	83	16	133	●
TKW05153D16	15.3	83	16	133	●
TKW05154D16	15.4	83	16	133	●
TKW05155D16	15.5	83	16	133	●
TKW05156D16	15.6	83	16	133	●
TKW05157D16	15.7	83	16	133	●
TKW05158D16	15.8	83	16	133	●
TKW05159D16	15.9	83	16	133	●
TKW05160D16	16.0	83	16	133	●

● Stock ○ Non-stock

TKW Drill Series 5D External Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TKW05165D18	16.5	93	18	143	○
TKW05170D18	17.0	93	18	143	○
TKW05175D18	17.5	93	18	143	○
TKW05180D18	18.0	93	18	143	○
TKW05185D20	18.5	101	20	153	○
TKW05190D20	19.0	101	20	153	○
TKW05195D20	19.5	101	20	153	○
TKW05200D20	20.0	101	20	153	○

Notice: The MOQ for Non-stock item is 5pcs.

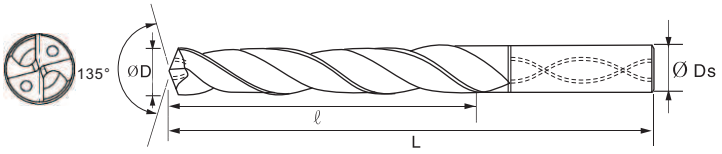
● Stock ○ Non-stock

High Performance Carbide Drill for Cast Iron

TOTIME

TKS Drill Series 5D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



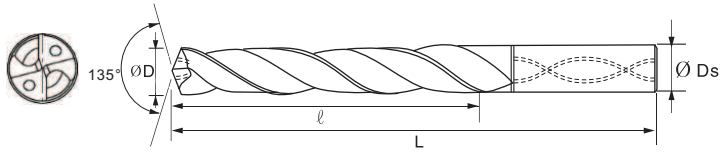
Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TKS05030D6	3.0	26	6	66	●
TKS05031D6	3.1	26	6	66	●
TKS05032D6	3.2	26	6	66	●
TKS05033D6	3.3	26	6	66	●
TKS05034D6	3.4	26	6	66	●
TKS05035D6	3.5	26	6	66	●
TKS05036D6	3.6	26	6	66	●
TKS05037D6	3.7	26	6	66	●
TKS05038D6	3.8	34	6	74	●
TKS05039D6	3.9	34	6	74	●
TKS05040D6	4.0	34	6	74	●
TKS05041D6	4.1	34	6	74	●
TKS05042D6	4.2	34	6	74	●
TKS05043D6	4.3	34	6	74	●
TKS05044D6	4.4	34	6	74	●
TKS05045D6	4.5	34	6	74	●
TKS05046D6	4.6	34	6	74	●
TKS05047D6	4.7	34	6	74	●
TKS05048D6	4.8	44	6	82	●
TKS05049D6	4.9	44	6	82	●
TKS05050D6	5.0	44	6	82	●
TKS05051D6	5.1	44	6	82	●
TKS05052D6	5.2	44	6	82	●
TKS05053D6	5.3	44	6	82	●
TKS05054D6	5.4	44	6	82	●
TKS05055D6	5.5	44	6	82	●
TKS05056D6	5.6	44	6	82	●
TKS05057D6	5.7	44	6	82	●
TKS05058D6	5.8	44	6	82	●
TKS05059D6	5.9	44	6	82	●
TKS05060D6	6.0	44	6	82	●
TKS05061D8	6.1	53	8	91	●
TKS05062D8	6.2	53	8	91	●
TKS05063D8	6.3	53	8	91	●
TKS05064D8	6.4	53	8	91	●
TKS05065D8	6.5	53	8	91	●

● Stock ○ Non-stock

TKS Drill Series 5D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TKS05066D8	6.6	53	8	91	●
TKS05067D8	6.7	53	8	91	●
TKS05068D8	6.8	53	8	91	●
TKS05069D8	6.9	53	8	91	●
TKS05070D8	7.0	53	8	91	●
TKS05071D8	7.1	53	8	91	●
TKS05072D8	7.2	53	8	91	●
TKS05073D8	7.3	53	8	91	●
TKS05074D8	7.4	53	8	91	●
TKS05075D8	7.5	53	8	91	●
TKS05076D8	7.6	53	8	91	●
TKS05077D8	7.7	53	8	91	●
TKS05078D8	7.8	53	8	91	●
TKS05079D8	7.9	53	8	91	●
TKS05080D8	8.0	53	8	91	●
TKS05081D10	8.1	61	10	103	●
TKS05082D10	8.2	61	10	103	●
TKS05083D10	8.3	61	10	103	●
TKS05084D10	8.4	61	10	103	●
TKS05085D10	8.5	61	10	103	●
TKS05086D10	8.6	61	10	103	●
TKS05087D10	8.7	61	10	103	●
TKS05088D10	8.8	61	10	103	●
TKS05089D10	8.9	61	10	103	●
TKS05090D10	9.0	61	10	103	●
TKS05091D10	9.1	61	10	103	●
TKS05092D10	9.2	61	10	103	●
TKS05093D10	9.3	61	10	103	●
TKS05094D10	9.4	61	10	103	●
TKS05095D10	9.5	61	10	103	●
TKS05096D10	9.6	61	10	103	●
TKS05097D10	9.7	61	10	103	●
TKS05098D10	9.8	61	10	103	●
TKS05099D10	9.9	61	10	103	●
TKS05100D10	10.0	61	10	103	●
TKS05101D12	10.1	71	12	118	●
TKS05102D12	10.2	71	12	118	●

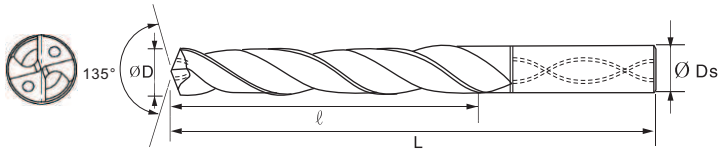
● Stock ○ Non-stock

High Performance Carbide Drill for Cast Iron

TOTIME

TKS Drill Series 5D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



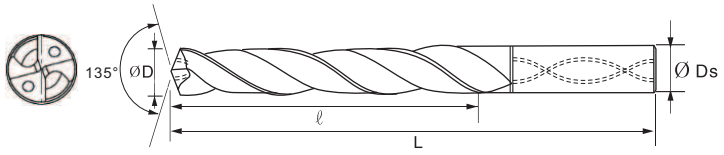
Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TKS05103D12	10.3	71	12	118	●
TKS05104D12	10.4	71	12	118	●
TKS05105D12	10.5	71	12	118	●
TKS05106D12	10.6	71	12	118	●
TKS05107D12	10.7	71	12	118	●
TKS05108D12	10.8	71	12	118	●
TKS05109D12	10.9	71	12	118	●
TKS05110D12	11.0	71	12	118	●
TKS05111D12	11.1	71	12	118	●
TKS05112D12	11.2	71	12	118	●
TKS05113D12	11.3	71	12	118	●
TKS05114D12	11.4	71	12	118	●
TKS05115D12	11.5	71	12	118	●
TKS05116D12	11.6	71	12	118	●
TKS05117D12	11.7	71	12	118	●
TKS05118D12	11.8	71	12	118	●
TKS05119D12	11.9	71	12	118	●
TKS05120D12	12.0	71	12	118	●
TKS05121D14	12.1	77	14	124	●
TKS05122D14	12.2	77	14	124	●
TKS05123D14	12.3	77	14	124	●
TKS05124D14	12.4	77	14	124	●
TKS05125D14	12.5	77	14	124	●
TKS05126D14	12.6	77	14	124	●
TKS05127D14	12.7	77	14	124	●
TKS05128D14	12.8	77	14	124	●
TKS05129D14	12.9	77	14	124	●
TKS05130D14	13.0	77	14	124	●
TKS05131D14	13.1	77	14	124	●
TKS05132D14	13.2	77	14	124	●
TKS05133D14	13.3	77	14	124	●
TKS05134D14	13.4	77	14	124	●
TKS05135D14	13.5	77	14	124	●
TKS05136D14	13.6	77	14	124	●
TKS05137D14	13.7	77	14	124	●
TKS05138D14	13.8	77	14	124	●
TKS05139D14	13.9	77	14	124	●

● Stock ○ Non-stock

TKS Drill Series 5D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TKS05140D14	14.0	77	14	124	●
TKS05141D16	14.1	83	16	133	●
TKS05142D16	14.2	83	16	133	●
TKS05143D16	14.3	83	16	133	●
TKS05144D16	14.4	83	16	133	●
TKS05145D16	14.5	83	16	133	●
TKS05146D16	14.6	83	16	133	●
TKS05147D16	14.7	83	16	133	●
TKS05148D16	14.8	83	16	133	●
TKS05149D16	14.9	83	16	133	●
TKS05150D16	15.0	83	16	133	●
TKS05151D16	15.1	83	16	133	●
TKS05152D16	15.2	83	16	133	●
TKS05153D16	15.3	83	16	133	●
TKS05154D16	15.4	83	16	133	●
TKS05155D16	15.5	83	16	133	●
TKS05156D16	15.6	83	16	133	●
TKS05157D16	15.7	83	16	133	●
TKS05158D16	15.8	83	16	133	●
TKS05159D16	15.9	83	16	133	●
TKS05160D16	16.0	83	16	133	●
TKS05165D18	16.5	93	18	143	○
TKS05170D18	17.0	93	18	143	○
TKS05175D18	17.5	93	18	143	○
TKS05180D18	18.0	93	18	143	○
TKS05185D20	18.5	101	20	153	○
TKS05190D20	19.0	101	20	153	○
TKS05195D20	19.5	101	20	153	○
TKS05200D20	20.0	101	20	153	○

Notice: The MOQ for Non-stock item is 5pcs.

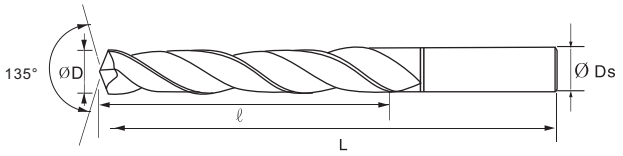
● Stock ○ Non-stock

High Performance Carbide Drill for Cast Iron

TOTIME

TKW Drill Series 5D External Coolant (Inch)

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



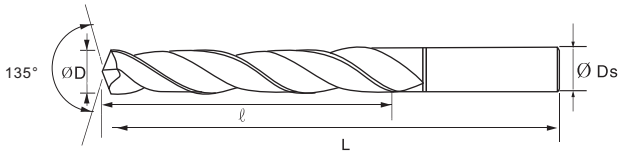
Unit(mm)

Model No.	Cutting Diameter D		Cutting Length ℓ	Shank Diameter Ds	Total Length L	Stock
	mm	inch				
TKW050318D6	3.18	1/8	26	6	66	○
TKW050357D6	3.57	9/64	26	6	66	○
TKW050397D6	3.97	5/32	34	6	74	○
TKW050437D6	4.37	11/64	34	6	74	○
TKW050476D6	4.76	3/16	44	6	82	○
TKW050516D6	5.16	13/64	44	6	82	○
TKW050556D6	5.56	7/32	44	6	82	○
TKW050595D6	5.95	15/64	44	6	82	○
TKW050635D8	6.35	1/4	53	8	91	○
TKW050675D8	6.75	17/64	53	8	91	○
TKW050714D8	7.14	9/32	53	8	91	○
TKW050754D8	7.54	19/64	53	8	91	○
TKW050794D8	7.94	5/16	53	8	91	○
TKW050833D10	8.33	21/64	61	10	103	○
TKW050873D10	8.73	11/32	61	10	103	○
TKW050913D10	9.13	23/64	61	10	103	○
TKW050952D10	9.52	3/8	61	10	103	○
TKW050992D10	9.92	25/64	61	10	103	○
TKW051032D12	10.32	13/32	71	12	118	○
TKW051072D12	10.72	27/64	71	12	118	○
TKW051111D12	11.11	7/16	71	12	118	○
TKW051151D12	11.51	29/64	71	12	118	○
TKW051191D12	11.91	15/32	71	12	118	○
TKW051349D14	13.49	17/32	77	14	124	○
TKW051389D14	13.89	35/64	77	14	124	○
TKW051429D16	14.29	9/16	83	16	133	○
TKW051468D16	14.68	37/64	83	16	133	○
TKW051508D16	15.08	19/32	83	16	133	○
TKW051548D16	15.48	39/64	83	16	133	○
TKW051588D16	15.88	5/8	83	16	133	○
TKW051627D18	16.27	41/64	93	18	143	○
TKW051667D18	16.67	21/32	93	18	143	○
TKW051707D18	17.07	43/64	93	18	143	○
TKW051746D18	17.46	11/16	93	18	143	○

● Stock ○ Non-stock

TKW Drill Series 5D External Coolant (Inch)

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



Unit(mm)

Model No.	Cutting Diameter D		Cutting Length ℓ	Shank Diameter Ds	Total Length L	Stock
	mm	inch				
TKW051786D18	17.86	45/64	93	18	143	○
TKW051826D20	18.26	23/32	101	20	153	○
TKW051865D20	18.65	47/64	101	20	153	○
TKW051905D20	19.05	3/4	101	20	153	○
TKW051945D20	19.45	49/64	101	20	153	○
TKW051984D20	19.84	25/32	101	20	153	○

● Stock ○ Non-stock

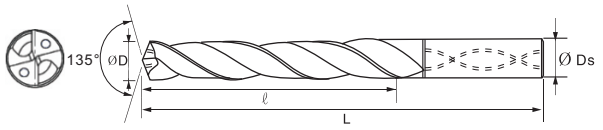
Notice: The MOQ for Non-stock item is 5pcs.

High Performance Carbide Drill for Cast Iron

TOTIME

TKS Drill Series 5D with Internal Coolant (Inch)

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



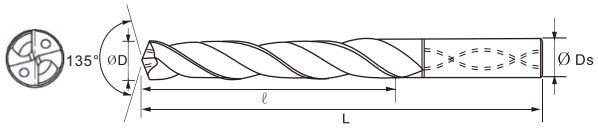
Unit(mm)

Model No.	Cutting Diameter D		Cutting Length ℓ	Shank Diameter Ds	Total Length L	Stock
	mm	inch				
TKS050318D6	3.18	1/8	26	6	66	○
TKS050357D6	3.57	9/64	26	6	66	○
TKS050397D6	3.97	5/32	34	6	74	○
TKS050437D6	4.37	11/64	34	6	74	○
TKS050476D6	4.76	3/16	44	6	82	○
TKS050516D6	5.16	13/64	44	6	82	○
TKS050556D6	5.56	7/32	44	6	82	○
TKS050595D6	5.95	15/64	44	6	82	○
TKS050635D8	6.35	1/4	53	8	91	○
TKS050675D8	6.75	17/64	53	8	91	○
TKS050714D8	7.14	9/32	53	8	91	○
TKS050754D8	7.54	19/64	53	8	91	○
TKS050794D8	7.94	5/16	53	8	91	○
TKS050833D10	8.33	21/64	61	10	103	○
TKS050873D10	8.73	11/32	61	10	103	○
TKS050913D10	9.13	23/64	61	10	103	○
TKS050952D10	9.52	3/8	61	10	103	○
TKS050992D10	9.92	25/64	61	10	103	○
TKS051032D12	10.32	13/32	71	12	118	○
TKS051072D12	10.72	27/64	71	12	118	○
TKS051111D12	11.11	7/16	71	12	118	○
TKS051151D12	11.51	29/64	71	12	118	○
TKS051191D12	11.91	15/32	71	12	118	○
TKS051349D14	13.49	17/32	77	14	124	○
TKS051389D14	13.89	35/64	77	14	124	○
TKS051429D16	14.29	9/16	83	16	133	○
TKS051468D16	14.68	37/64	83	16	133	○
TKS051508D16	15.08	19/32	83	16	133	○
TKS051548D16	15.48	39/64	83	16	133	○
TKS051588D16	15.88	5/8	83	16	133	○
TKS051627D18	16.27	41/64	93	18	143	○
TKS051667D18	16.67	21/32	93	18	143	○
TKS051707D18	17.07	43/64	93	18	143	○
TKS051746D18	17.46	11/16	93	18	143	○

● Stock ○ Non-stock

TKS Drill Series 5D with Internal Coolant (Inch)

Material	Carbide	Helix angle	30°	Point angle	135°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	TiAlN	Suitable for processing	Gray cast iron/Ductile cast iron(Tensile Strength≤500)		



Unit(mm)

Model No.	Cutting Diameter D		Cutting Length ℓ	Shank Diameter Ds	Total Length L	Stock
	mm	inch				
TKS051786D18	17.86	45/64	93	18	143	○
TKS051826D20	18.26	23/32	101	20	153	○
TKS051865D20	18.65	47/64	101	20	153	○
TKS051905D20	19.05	3/4	101	20	153	○
TKS051945D20	19.45	49/64	101	20	153	○
TKS051984D20	19.84	25/32	101	20	153	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

TKW Series 3D/5D (External Coolant)

Unit (mm)

ISO	Workpiece Material	Brinell hardness (HB)	Feed: f (mm/rev)										Vc (m/min)
			ø3	ø4	ø6	ø8	ø10	ø12	ø14	ø16	ø18	ø20	ø3 ~ ø20
K	Grey cast irons FC250,etc.	~ 200	0.17	0.20	0.25	0.27	0.30	0.28	0.33	0.40	0.42	0.45	60~140
	Ductile cast irons FCD500,etc.(Tensile Stength≤500Mpa)	~ 300	0.09	0.10	0.13	0.16	0.20	0.26	0.22	0.26	0.28	0.28	50~100

TKS Series 3D/5D (Internal Coolant)

Unit (mm)

ISO	Workpiece Material	Brinell hardness (HB)	Feed: f (mm/rev)										Vc (m/min)
			ø3	ø4	ø6	ø8	ø10	ø12	ø14	ø16	ø18	ø20	ø3 ~ ø20
K	Grey cast irons FC250,etc.	~ 200	0.17	0.20	0.25	0.27	0.30	0.28	0.33	0.40	0.42	0.45	60~160
	Ductile cast irons FCD500,etc.(Tensile Stength≤500Mpa)	~ 300	0.09	0.10	0.13	0.16	0.20	0.26	0.22	0.26	0.28	0.28	50~100

High Performance Carbide Drill for Steel Purpose (CTW CTS 3D&5D)

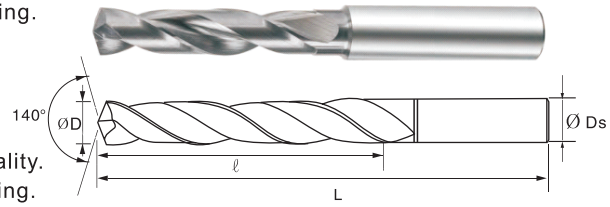
TOTIME

1.CTW 3D/5D series (External coolant)

① Carbide Material.
② Original corner-radius design, achieve the excellent chip removal and work precision.
③ Nanocomposite AlTiN coating makes the high speed and high efficiency drill machining.
④ Diameter from 3 mm to 20 mm, suitable for different type of machining.

2.CTS 3D/5D series (Internal coolant)

① Carbide Material.
② New groove design achieve the excellent chip removal.
③ Nanocomposite AlTiN coating coating makes the hard-wearing quality.
④ Diameter from 3 mm to 20 mm, suitable for different type of machining.



CTW Drill Series 3D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6535HA
Coating	AlTiN	Suitable for processing	Steel/Cast iron Work hardness≤HRC48		

Unit (mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
CTW030D6	3.0	20	6	62	●
CTW031D6	3.1	20	6	62	●
CTW032D6	3.2	20	6	62	●
CTW033D6	3.3	20	6	62	●
CTW034D6	3.4	20	6	62	●
CTW035D6	3.5	20	6	62	●
CTW036D6	3.6	20	6	62	●
CTW037D6	3.7	20	6	62	●
CTW038D6	3.8	24	6	66	●
CTW039D6	3.9	24	6	66	●
CTW040D6	4.0	24	6	66	●
CTW041D6	4.1	24	6	66	●
CTW042D6	4.2	24	6	66	●
CTW043D6	4.3	24	6	66	●
CTW044D6	4.4	24	6	66	●
CTW045D6	4.5	24	6	66	●
CTW046D6	4.6	24	6	66	●
CTW047D6	4.7	24	6	66	●
CTW048D6	4.8	28	6	66	●
CTW049D6	4.9	28	6	66	●
CTW050D6	5.0	28	6	66	●
CTW051D6	5.1	28	6	66	●
CTW052D6	5.2	28	6	66	●
CTW053D6	5.3	28	6	66	●
CTW054D6	5.4	28	6	66	●
CTW055D6	5.5	28	6	66	●
CTW056D6	5.6	28	6	66	●
CTW057D6	5.7	28	6	66	●
CTW058D6	5.8	28	6	66	●
CTW059D6	5.9	28	6	66	●
CTW060D6	6.0	28	6	66	●
CTW061D8	6.1	34	8	79	●
CTW062D8	6.2	34	8	79	●
CTW063D8	6.3	34	8	79	●
CTW064D8	6.4	34	8	79	●
CTW065D8	6.5	34	8	79	●

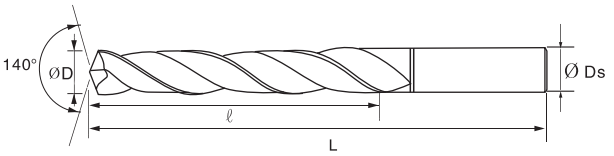
● Stock ○ Non-stock

High Performance Carbide Drill for Steel Purpose (CTW CTS 3D&5D)

TOTIME

CTW Drill Series 3D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6535HA
Coating	AlTiN	Suitable for processing	Steel/Cast iron Work hardness≤HRC48		



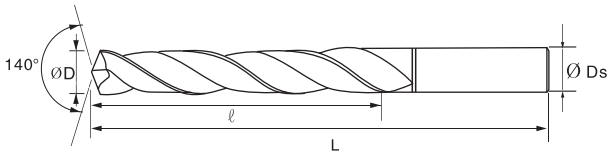
Unit (mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
CTW066D8	6.6	34	8	79	●
CTW067D8	6.7	34	8	79	●
CTW068D8	6.8	34	8	79	●
CTW069D8	6.9	34	8	79	●
CTW070D8	7.0	34	8	79	●
CTW071D8	7.1	41	8	79	●
CTW072D8	7.2	41	8	79	●
CTW073D8	7.3	41	8	79	●
CTW074D8	7.4	41	8	79	●
CTW075D8	7.5	41	8	79	●
CTW076D8	7.6	41	8	79	●
CTW077D8	7.7	41	8	79	●
CTW078D8	7.8	41	8	79	●
CTW079D8	7.9	41	8	79	●
CTW080D8	8.0	41	8	79	●
CTW081D10	8.1	47	10	89	●
CTW082D10	8.2	47	10	89	●
CTW083D10	8.3	47	10	89	●
CTW084D10	8.4	47	10	89	●
CTW085D10	8.5	47	10	89	●
CTW086D10	8.6	47	10	89	●
CTW087D10	8.7	47	10	89	●
CTW088D10	8.8	47	10	89	●
CTW089D10	8.9	47	10	89	●
CTW090D10	9.0	47	10	89	●
CTW091D10	9.1	47	10	89	●
CTW092D10	9.2	47	10	89	●
CTW093D10	9.3	47	10	89	●
CTW094D10	9.4	47	10	89	●
CTW095D10	9.5	47	10	89	●
CTW096D10	9.6	47	10	89	●
CTW097D10	9.7	47	10	89	●
CTW098D10	9.8	47	10	89	●
CTW099D10	9.9	47	10	89	●
CTW100D10	10.0	47	10	89	●
CTW101D12	10.1	55	12	102	●
CTW102D12	10.2	55	12	102	●
CTW103D12	10.3	55	12	102	●
CTW104D12	10.4	55	12	102	●
CTW105D12	10.5	55	12	102	●
CTW106D12	10.6	55	12	102	●

● Stock ○ Non-stock

CTW Drill Series 3D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6535HA
Coating	AlTiN	Suitable for processing	Steel/Cast iron Work hardness≤HRC48		



Unit (mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
CTW107D12	10.7	55	12	102	●
CTW108D12	10.8	55	12	102	●
CTW109D12	10.9	55	12	102	●
CTW110D12	11.0	55	12	102	●
CTW111D12	11.1	55	12	102	●
CTW112D12	11.2	55	12	102	●
CTW113D12	11.3	55	12	102	●
CTW114D12	11.4	55	12	102	●
CTW115D12	11.5	55	12	102	●
CTW116D12	11.6	55	12	102	●
CTW117D12	11.7	55	12	102	●
CTW118D12	11.8	55	12	102	●
CTW119D12	11.9	55	12	102	●
CTW120D12	12.0	55	12	102	●
CTW125D14	12.5	60	14	107	○
CTW128D14	12.8	60	14	107	○
CTW130D14	13.0	60	14	107	○
CTW135D14	13.5	60	14	107	○
CTW138D14	13.8	60	14	107	○
CTW140D14	14.0	60	14	107	○
CTW145D16	14.5	65	16	115	○
CTW148D16	14.8	65	16	115	○
CTW150D16	15.0	65	16	115	○
CTW155D16	15.5	65	16	115	○
CTW158D16	15.8	65	16	115	○
CTW160D16	16.0	65	16	115	○
CTW165D18	16.5	73	18	123	○
CTW168D18	16.8	73	18	123	○
CTW170D18	17.0	73	18	123	○
CTW175D18	17.5	73	18	123	○
CTW178D18	17.8	73	18	123	○
CTW180D18	18.0	73	18	123	○
CTW185D20	18.5	79	20	131	○
CTW188D20	18.8	79	20	131	○
CTW190D20	19.0	79	20	131	○
CTW195D20	19.5	79	20	131	○
CTW198D20	19.8	79	20	131	○
CTW200D20	20.0	79	20	131	○

Notice: The MOQ for Non-stock item is 5pcs.

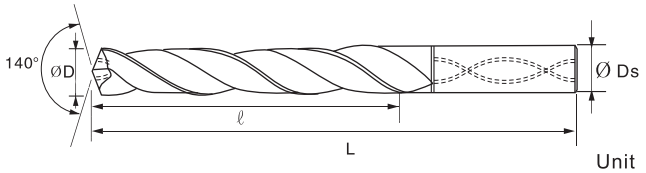
● Stock ○ Non-stock

High Performance Carbide Drill for Steel Purpose (CTW CTS 3D&5D)

TOTIME

CTS Drill Series 3D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6537K
Coating	AlTiN	Suitable for processing	Steel/Cast iron Work hardness≤HRC48		



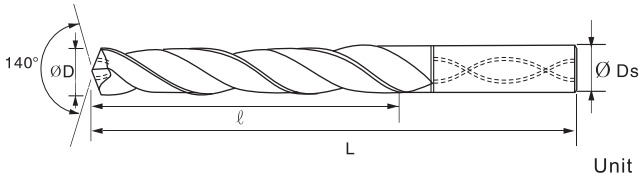
Unit (mm)

Model No.	Cutting Diameter D	Cutting Length ℓ	Shank Diameter Ds	Total Length L	Stock
CTS030D6	3.0	20	6	62	●
CTS031D6	3.1	20	6	62	●
CTS032D6	3.2	20	6	62	●
CTS033D6	3.3	20	6	62	●
CTS034D6	3.4	20	6	62	●
CTS035D6	3.5	20	6	62	●
CTS036D6	3.6	20	6	62	●
CTS037D6	3.7	20	6	62	●
CTS038D6	3.8	24	6	66	●
CTS039D6	3.9	24	6	66	●
CTS040D6	4.0	24	6	66	●
CTS041D6	4.1	24	6	66	●
CTS042D6	4.2	24	6	66	●
CTS043D6	4.3	24	6	66	●
CTS044D6	4.4	24	6	66	●
CTS045D6	4.5	24	6	66	●
CTS046D6	4.6	24	6	66	●
CTS047D6	4.7	24	6	66	●
CTS048D6	4.8	28	6	66	●
CTS049D6	4.9	28	6	66	●
CTS050D6	5.0	28	6	66	●
CTS051D6	5.1	28	6	66	●
CTS052D6	5.2	28	6	66	●
CTS053D6	5.3	28	6	66	●
CTS054D6	5.4	28	6	66	●
CTS055D6	5.5	28	6	66	●
CTS056D6	5.6	28	6	66	●
CTS057D6	5.7	28	6	66	●
CTS058D6	5.8	28	6	66	●
CTS059D6	5.9	28	6	66	●
CTS060D6	6.0	28	6	66	●
CTS061D8	6.1	34	8	79	●
CTS062D8	6.2	34	8	79	●
CTS063D8	6.3	34	8	79	●
CTS064D8	6.4	34	8	79	●
CTS065D8	6.5	34	8	79	●
CTS066D8	6.6	34	8	79	●
CTS067D8	6.7	34	8	79	●

● Stock ○ Non-stock

CTS Drill Series 3D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6537K
Coating	AlTiN	Suitable for processing	Steel/Cast iron Work hardness≤HRC48		



Unit (mm)

Model No.	Cutting Diameter D	Cutting Length ℓ	Shank Diameter Ds	Total Length L	Stock
CTS068D8	6.8	34	8	79	●
CTS069D8	6.9	34	8	79	●
CTS070D8	7.0	34	8	79	●
CTS071D8	7.1	41	8	79	●
CTS072D8	7.2	41	8	79	●
CTS073D8	7.3	41	8	79	●
CTS074D8	7.4	41	8	79	●
CTS075D8	7.5	41	8	79	●
CTS076D8	7.6	41	8	79	●
CTS077D8	7.7	41	8	79	●
CTS078D8	7.8	41	8	79	●
CTS079D8	7.9	41	8	79	●
CTS080D8	8.0	41	8	79	●
CTS081D10	8.1	47	10	89	●
CTS082D10	8.2	47	10	89	●
CTS083D10	8.3	47	10	89	●
CTS084D10	8.4	47	10	89	●
CTS085D10	8.5	47	10	89	●
CTS086D10	8.6	47	10	89	●
CTS087D10	8.7	47	10	89	●
CTS088D10	8.8	47	10	89	●
CTS089D10	8.9	47	10	89	●
CTS090D10	9.0	47	10	89	●
CTS091D10	9.1	47	10	89	●
CTS092D10	9.2	47	10	89	●
CTS093D10	9.3	47	10	89	●
CTS094D10	9.4	47	10	89	●
CTS095D10	9.5	47	10	89	●
CTS096D10	9.6	47	10	89	●
CTS097D10	9.7	47	10	89	●
CTS098D10	9.8	47	10	89	●
CTS099D10	9.9	47	10	89	●
CTS100D10	10.0	47	10	89	●
CTS101D12	10.1	55	12	102	●
CTS102D12	10.2	55	12	102	●
CTS103D12	10.3	55	12	102	●
CTS104D12	10.4	55	12	102	●
CTS105D12	10.5	55	12	102	●

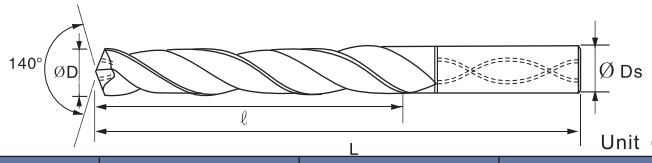
● Stock ○ Non-stock

High Performance Carbide Drill for Steel Purpose (CTW CTS 3D&5D)

TOTIME

CTS Drill Series 3D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6537K
Coating	AlTiN	Suitable for processing	Steel/Cast iron Work hardness≤HRC48		



Unit (mm)

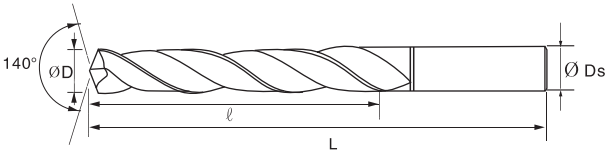
Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
CTS106D12	10.6	55	12	102	●
CTS107D12	10.7	55	12	102	●
CTS108D12	10.8	55	12	102	●
CTS109D12	10.9	55	12	102	●
CTS110D12	11.0	55	12	102	●
CTS111D12	11.1	55	12	102	●
CTS112D12	11.2	55	12	102	●
CTS113D12	11.3	55	12	102	●
CTS114D12	11.4	55	12	102	●
CTS115D12	11.5	55	12	102	●
CTS116D12	11.6	55	12	102	●
CTS117D12	11.7	55	12	102	●
CTS118D12	11.8	55	12	102	●
CTS119D12	11.9	55	12	102	●
CTS120D12	12.0	55	12	102	●
CTS125D14	12.5	60	14	107	○
CTS128D14	12.8	60	14	107	○
CTS130D14	13.0	60	14	107	○
CTS135D14	13.5	60	14	107	○
CTS138D14	13.8	60	14	107	○
CTS140D14	14.0	60	14	107	○
CTS145D16	14.5	65	16	115	○
CTS148D16	14.8	65	16	115	○
CTS150D16	15.0	65	16	115	○
CTS155D16	15.5	65	16	115	○
CTS158D16	15.8	65	16	115	○
CTS160D16	16.0	65	16	115	○
CTS165D18	16.5	73	18	123	○
CTS168D18	16.8	73	18	123	○
CTS170D18	17.0	73	18	123	○
CTS175D18	17.5	73	18	123	○
CTS178D18	17.8	73	18	123	○
CTS180D18	18.0	73	18	123	○
CTS185D20	18.5	79	20	131	○
CTS188D20	18.8	79	20	131	○
CTS190D20	19.0	79	20	131	○
CTS195D20	19.5	79	20	131	○
CTS198D20	19.8	79	20	131	○
CTS200D20	20.0	79	20	131	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

CTW Drill Series 5D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6535HA
Coating	AlTiN	Suitable for processing	Steel/Cast iron Work hardness≤HRC48		



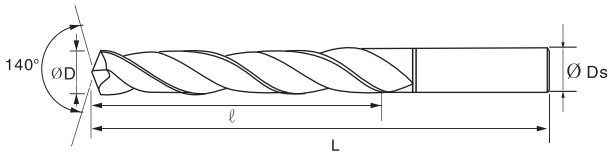
Unit (mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
CTW05030D6	3.0	28	6	66	●
CTW05031D6	3.1	28	6	66	●
CTW05032D6	3.2	28	6	66	●
CTW05033D6	3.3	28	6	66	●
CTW05034D6	3.4	28	6	66	●
CTW05035D6	3.5	28	6	66	●
CTW05036D6	3.6	28	6	66	●
CTW05037D6	3.7	28	6	66	●
CTW05038D6	3.8	36	6	74	●
CTW05039D6	3.9	36	6	74	●
CTW05040D6	4.0	36	6	74	●
CTW05041D6	4.1	36	6	74	●
CTW05042D6	4.2	36	6	74	●
CTW05043D6	4.3	36	6	74	●
CTW05044D6	4.4	36	6	74	●
CTW05045D6	4.5	36	6	74	●
CTW05046D6	4.6	36	6	74	●
CTW050465D6	4.65	36	6	74	●
CTW05047D6	4.7	36	6	74	●
CTW05048D6	4.8	44	6	82	●
CTW05049D6	4.9	44	6	82	●
CTW05050D6	5.0	44	6	82	●
CTW05051D6	5.1	44	6	82	●
CTW05052D6	5.2	44	6	82	●
CTW05053D6	5.3	44	6	82	●
CTW05054D6	5.4	44	6	82	●
CTW05055D6	5.5	44	6	82	●
CTW05056D6	5.6	44	6	82	●
CTW05057D6	5.7	44	6	82	●
CTW05058D6	5.8	44	6	82	●
CTW05059D6	5.9	44	6	82	●
CTW05060D6	6.0	44	6	82	●
CTW05061D8	6.1	53	8	91	●
CTW05062D8	6.2	53	8	91	●
CTW05063D8	6.3	53	8	91	●
CTW05064D8	6.4	53	8	91	●
CTW05065D8	6.5	53	8	91	●
CTW05066D8	6.6	53	8	91	●
CTW05067D8	6.7	53	8	91	●
CTW05068D8	6.8	53	8	91	●

● Stock ○ Non-stock

CTW Drill Series 5D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6535HA
Coating	AlTiN	Suitable for processing	Steel/Cast iron Work hardness≤HRC48		



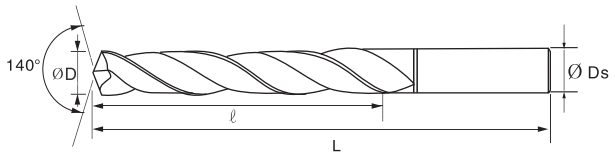
Unit (mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
CTW05069D8	6.9	53	8	91	●
CTW05070D8	7.0	53	8	91	●
CTW05071D8	7.1	53	8	91	●
CTW05072D8	7.2	53	8	91	●
CTW05073D8	7.3	53	8	91	●
CTW05074D8	7.4	53	8	91	●
CTW05075D8	7.5	53	8	91	●
CTW05076D8	7.6	53	8	91	●
CTW05077D8	7.7	53	8	91	●
CTW05078D8	7.8	53	8	91	●
CTW05079D8	7.9	53	8	91	●
CTW05080D8	8.0	53	8	91	●
CTW05081D10	8.1	61	10	103	●
CTW05082D10	8.2	61	10	103	●
CTW05083D10	8.3	61	10	103	●
CTW05084D10	8.4	61	10	103	●
CTW05085D10	8.5	61	10	103	●
CTW05086D10	8.6	61	10	103	●
CTW05087D10	8.7	61	10	103	●
CTW05088D10	8.8	61	10	103	●
CTW05089D10	8.9	61	10	103	●
CTW05090D10	9.0	61	10	103	●
CTW05091D10	9.1	61	10	103	●
CTW05092D10	9.2	61	10	103	●
CTW05093D10	9.3	61	10	103	●
CTW05094D10	9.4	61	10	103	●
CTW05095D10	9.5	61	10	103	●
CTW05096D10	9.6	61	10	103	●
CTW05097D10	9.7	61	10	103	●
CTW05098D10	9.8	61	10	103	●
CTW05099D10	9.9	61	10	103	●
CTW05100D10	10.0	61	10	103	●
CTW05101D12	10.1	71	12	118	●
CTW05102D12	10.2	71	12	118	●
CTW05103D12	10.3	71	12	118	●
CTW05104D12	10.4	71	12	118	●
CTW05105D12	10.5	71	12	118	●
CTW05106D12	10.6	71	12	118	●
CTW05107D12	10.7	71	12	118	●
CTW05108D12	10.8	71	12	118	●

● Stock ○ Non-stock

CTW Drill Series 5D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6535HA
Coating	AlTiN	Suitable for processing	Steel/Cast iron Work hardness≤HRC48		



Unit (mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
CTW05109D12	10.9	71	12	118	●
CTW05110D12	11.0	71	12	118	●
CTW05111D12	11.1	71	12	118	●
CTW05112D12	11.2	71	12	118	●
CTW05113D12	11.3	71	12	118	●
CTW05114D12	11.4	71	12	118	●
CTW05115D12	11.5	71	12	118	●
CTW05116D12	11.6	71	12	118	●
CTW05117D12	11.7	71	12	118	●
CTW05118D12	11.8	71	12	118	●
CTW05119D12	11.9	71	12	118	●
CTW05120D12	12.0	71	12	118	●
CTW05122D14	12.2	77	14	124	○
CTW05123D14	12.3	77	14	124	○
CTW05124D14	12.4	77	14	124	○
CTW05125D14	12.5	77	14	124	○
CTW05128D14	12.8	77	14	124	○
CTW05130D14	13.0	77	14	124	○
CTW05135D14	13.5	77	14	124	○
CTW05138D14	13.8	77	14	124	○
CTW05140D14	14.0	77	14	124	○
CTW05143D16	14.3	83	16	133	○
CTW05145D16	14.5	83	16	133	○
CTW05146D16	14.6	83	16	133	○
CTW05148D16	14.8	83	16	133	○
CTW05150D16	15.0	83	16	133	○
CTW05155D16	15.5	83	16	133	○
CTW05158D16	15.8	83	16	133	○
CTW05160D16	16.0	83	16	133	○
CTW05165D18	16.5	93	18	143	○
CTW05166D18	16.6	93	18	143	○
CTW05168D18	16.8	93	18	143	○
CTW05170D18	17.0	93	18	143	○
CTW05175D18	17.5	93	18	143	○
CTW05178D18	17.8	93	18	143	○
CTW05180D18	18.0	93	18	143	○
CTW05185D20	18.5	101	20	153	○
CTW05190D20	19.0	101	20	153	○
CTW05195D20	19.5	101	20	153	○
CTW05200D20	20.0	101	20	153	○

Notice: The MOQ for Non-stock item is 5pcs.

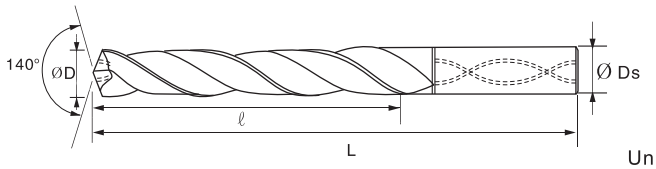
● Stock ○ Non-stock

High Performance Carbide Drill for Steel Purpose (CTW CTS 3D&5D)

TOTIME

CTS Drill Series 5D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6537K
Coating	AlTiN	Suitable for processing	Steel/Cast iron Work hardness≤HRC48		



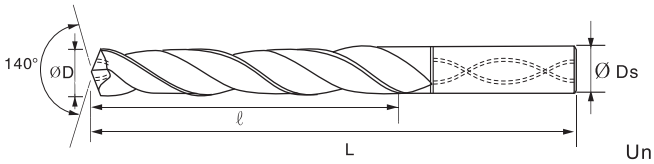
Unit (mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
CTS05030D6	3.0	28	6	66	●
CTS05031D6	3.1	28	6	66	●
CTS05032D6	3.2	28	6	66	●
CTS05033D6	3.3	28	6	66	●
CTS05034D6	3.4	28	6	66	●
CTS05035D6	3.5	28	6	66	●
CTS05036D6	3.6	28	6	66	●
CTS05037D6	3.7	28	6	66	●
CTS05038D6	3.8	36	6	74	●
CTS05039D6	3.9	36	6	74	●
CTS05040D6	4.0	36	6	74	●
CTS05041D6	4.1	36	6	74	●
CTS05042D6	4.2	36	6	74	●
CTS05043D6	4.3	36	6	74	●
CTS05044D6	4.4	36	6	74	●
CTS05045D6	4.5	36	6	74	●
CTS05046D6	4.6	36	6	74	●
CTS05047D6	4.7	36	6	74	●
CTS05048D6	4.8	44	6	82	●
CTS05049D6	4.9	44	6	82	●
CTS05050D6	5.0	44	6	82	●
CTS05051D6	5.1	44	6	82	●
CTS05052D6	5.2	44	6	82	●
CTS05053D6	5.3	44	6	82	●
CTS05054D6	5.4	44	6	82	●
CTS05055D6	5.5	44	6	82	●
CTS05056D6	5.6	44	6	82	●
CTS05057D6	5.7	44	6	82	●
CTS05058D6	5.8	44	6	82	●
CTS05059D6	5.9	44	6	82	●
CTS05060D6	6.0	44	6	82	●
CTS05061D8	6.1	53	8	91	●
CTS05062D8	6.2	53	8	91	●
CTS05063D8	6.3	53	8	91	●
CTS05064D8	6.4	53	8	91	●
CTS05065D8	6.5	53	8	91	●
CTS05066D8	6.6	53	8	91	●
CTS05067D8	6.7	53	8	91	●
CTS05068D8	6.8	53	8	91	●
CTS05069D8	6.9	53	8	91	●

● Stock ○ Non-stock

CTS Drill Series 5D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6537K
Coating	AlTiN	Suitable for processing	Steel/Cast iron Work hardness≤HRC48		



Unit (mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
CTS05070D8	7.0	53	8	91	●
CTS05071D8	7.1	53	8	91	●
CTS05072D8	7.2	53	8	91	●
CTS05073D8	7.3	53	8	91	●
CTS05074D8	7.4	53	8	91	●
CTS05075D8	7.5	53	8	91	●
CTS05076D8	7.6	53	8	91	●
CTS05077D8	7.7	53	8	91	●
CTS05078D8	7.8	53	8	91	●
CTS05079D8	7.9	53	8	91	●
CTS05080D8	8.0	53	8	91	●
CTS05081D10	8.1	61	10	103	●
CTS05082D10	8.2	61	10	103	●
CTS05083D10	8.3	61	10	103	●
CTS05084D10	8.4	61	10	103	●
CTS05085D10	8.5	61	10	103	●
CTS05086D10	8.6	61	10	103	●
CTS05087D10	8.7	61	10	103	●
CTS05088D10	8.8	61	10	103	●
CTS05089D10	8.9	61	10	103	●
CTS05090D10	9.0	61	10	103	●
CTS05091D10	9.1	61	10	103	●
CTS05092D10	9.2	61	10	103	●
CTS05093D10	9.3	61	10	103	●
CTS05094D10	9.4	61	10	103	●
CTS05095D10	9.5	61	10	103	●
CTS05096D10	9.6	61	10	103	●
CTS05097D10	9.7	61	10	103	●
CTS05098D10	9.8	61	10	103	●
CTS05099D10	9.9	61	10	103	●
CTS05100D10	10.0	61	10	103	●
CTS05101D12	10.1	71	12	118	●
CTS05102D12	10.2	71	12	118	●
CTS05103D12	10.3	71	12	118	●
CTS05104D12	10.4	71	12	118	●
CTS05105D12	10.5	71	12	118	●
CTS05106D12	10.6	71	12	118	●
CTS05107D12	10.7	71	12	118	●
CTS05108D12	10.8	71	12	118	●
CTS05109D12	10.9	71	12	118	●

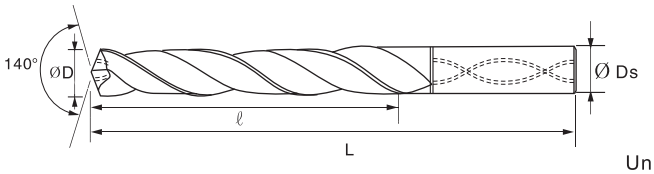
● Stock ○ Non-stock

High Performance Carbide Drill for Steel Purpose (CTW CTS 3D&5D)

TOTIME

CTS Drill Series 5D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6537K
Coating	AlTiN	Suitable for processing	Steel/Cast iron	Work hardness≤HRC48	



Unit（mm）

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
CTS05110D12	11.0	71	12	118	●
CTS05111D12	11.1	71	12	118	●
CTS05112D12	11.2	71	12	118	●
CTS05113D12	11.3	71	12	118	●
CTS05114D12	11.4	71	12	118	●
CTS05115D12	11.5	71	12	118	●
CTS05116D12	11.6	71	12	118	●
CTS05117D12	11.7	71	12	118	●
CTS05118D12	11.8	71	12	118	●
CTS05119D12	11.9	71	12	118	●
CTS05120D12	12.0	71	12	118	●
CTS05122D14	12.2	77	14	124	○
CTS05123D14	12.3	77	14	124	○
CTS05124D14	12.4	77	14	124	○
CTS05125D14	12.5	77	14	124	○
CTS05128D14	12.8	77	14	124	○
CTS05130D14	13.0	77	14	124	○
CTS05135D14	13.5	77	14	124	○
CTS05138D14	13.8	77	14	124	○
CTS05140D14	14.0	77	14	124	○
CTS05143D16	14.3	83	16	133	○
CTS05145D16	14.5	83	16	133	○
CTS05146D16	14.6	83	16	133	○
CTS05148D16	14.8	83	16	133	○
CTS05150D16	15.0	83	16	133	○
CTS05155D16	15.5	83	16	133	○
CTS05158D16	15.8	83	16	133	○
CTS05160D16	16.0	83	16	133	○
CTS05165D18	16.5	93	18	143	○
CTS05166D18	16.6	93	18	143	○
CTS05168D18	16.8	93	18	143	○
CTS05170D18	17.0	93	18	143	○
CTS05175D18	17.5	93	18	143	○
CTS05178D18	17.8	93	18	143	○
CTS05180D18	18.0	93	18	143	○
CTS05185D20	18.5	101	20	153	○
CTS05190D20	19.0	101	20	153	○
CTS05195D20	19.5	101	20	153	○
CTS05200D20	20.0	101	20	153	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

STANDARD CUTTING CONDITIONS

CTW Series 3D/5D (External Coolant)

Unit (mm)

ISO	Work Material	Brinell hardness (HB)	Cutting speed: Vc (m/min)	Feed: f (mm/rev)						
				ø3 ~ ø4	ø4~ ø6	ø6 ~ ø8	ø8 ~ ø10	ø10 ~ ø12	ø12 ~ ø16	ø16~ ø20
P	Low carbon steel (C < 0.3) C15E4, E275A, E355D, etc.	~125	120~80~50	0.10~0.20	0.14~0.25	0.16~0.32	0.16~0.35	0.18~0.40	0.22~0.45	0.25~0.50
	Carbon steel (C > 0.3) C45, C55, etc.	125 ~ 300	120~70~45	0.10~0.20	0.14~0.25	0.16~0.32	0.16~0.35	0.18~0.40	0.22~0.45	0.25~0.50
	High alloy steel 42CrMo4, etc.	250 ~ 350	100~60~35	0.09~0.16	0.12~0.23	0.14~0.28	0.14~0.30	0.18~0.38	0.22~0.45	0.25~0.50
K	Grey cast iron 250, etc.	~ 200	140~100~60	0.13~0.20	0.17~0.30	0.20~0.35	0.23~0.40	0.25~0.45	0.28~0.48	0.32~0.52
	Ductile cast iron 450-10S, etc	~ 300	120~80~60	0.11~0.18	0.13~0.20	0.15~0.25	0.17~0.32	0.20~0.36	0.24~0.45	0.28~0.48

CTS Series 3D/5D (Internal Coolant)

Unit (mm)

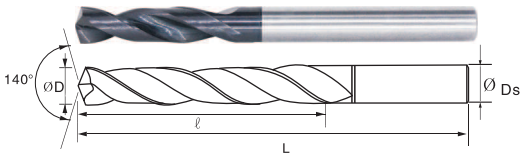
ISO	Work Material	Brinell hardness (HB)	Cutting speed: Vc (m/min)	Feed: f (mm/rev)						
				ø3 ~ ø4	ø4~ ø6	ø6 ~ ø8	ø8 ~ ø10	ø10 ~ ø12	ø12 ~ ø16	ø16~ ø20
P	Low carbon steel (C < 0.3) C15E4, E275A, E355D, etc.	~125	140~100~60	0.10~0.20	0.14~0.25	0.16~0.32	0.16~0.35	0.18~0.40	0.22~0.45	0.25~0.50
	Carbon steel (C > 0.3) C45, C55, etc.	125 ~ 300	120~80~60	0.10~0.20	0.14~0.25	0.16~0.32	0.16~0.35	0.18~0.40	0.22~0.45	0.25~0.50
	High alloy steel 42CrMo4, etc.	250 ~ 350	110~80~60	0.09~0.16	0.12~0.23	0.14~0.28	0.14~0.30	0.18~0.38	0.22~0.45	0.25~0.50
K	Grey cast iron 250, etc.	~ 200	160~120~60	0.13~0.20	0.17~0.30	0.20~0.35	0.23~0.40	0.25~0.45	0.28~0.48	0.32~0.52
	Ductile cast iron 450-10S, etc	~ 300	140~100~60	0.11~0.18	0.13~0.20	0.15~0.25	0.17~0.32	0.20~0.36	0.24~0.45	0.28~0.48

High Performance Carbide Drill for Stainless Steel Purpose(DTW DTS 3D&5D)

TOTIME

1.DTW 3D/5D series (External coolant)

① Carbide Material.
② Unique bottom cutting edge design,with stronger chip breaking ability and greater chip capacity space.
③ Nanocomposite AlTiN coating makes the high speed and high efficiency drill machining.
④ Diameter from 1mm to 20mm,suitable for stainless steel processing.



2.DTS 3D/5D series (Internal coolant)

① Carbide Material.
② Unique bottom cutting edge design,with stronger chip breaking ability and greater chip capacity space.
③ New substrate coating with super toughness and wear resistance.
④ Diameter from 3mm to 20mm,suitable for stainless steel processing.

DTW Drill Series 3D External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6535HA
Coating	AlTiN	Suitable for processing	Stainless steel		

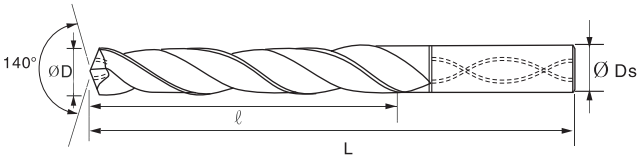
Unit (mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
DTW010D4	1.0	7	4	45	●
DTW020D4	2.0	13	4	55	●
DTW030D6	3.0	20	6	62	●
DTW033D6	3.3	20	6	62	●
DTW040D6	4.0	24	6	66	●
DTW042D6	4.2	24	6	66	●
DTW050D6	5.0	28	6	66	●
DTW060D6	6.0	28	6	66	●
DTW068D8	6.8	34	8	79	●
DTW070D8	7.0	34	8	79	●
DTW080D8	8.0	41	8	79	●
DTW085D10	8.5	47	10	89	●
DTW090D10	9.0	47	10	89	●
DTW100D10	10.0	47	10	89	●
DTW103D12	10.3	55	12	102	●
DTW105D12	10.5	55	12	102	●
DTW110D12	11.0	55	12	102	●
DTW120D12	12.0	55	12	102	●
DTW125D14	12.5	60	14	107	●
DTW130D14	13.0	60	14	107	●
DTW140D14	14.0	60	14	107	●
DTW145D16	14.5	65	16	115	●
DTW150D16	15.0	65	16	115	●
DTW160D16	16.0	65	16	115	●
DTW170D18	17.0	73	18	123	●
DTW180D18	18.0	73	18	123	●
DTW190D20	19.0	79	20	131	●
DTW200D20	20.0	79	20	131	●

● Stock ○ Non-stock

DTS Drill Series 3D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6537K
Coating	AlTiN	Suitable for processing	Stainless steel		



Unit (mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
DTS030D6	3.0	20	6	62	○
DTS033D6	3.3	20	6	62	○
DTS040D6	4.0	24	6	66	○
DTS042D6	4.2	24	6	66	○
DTS050D6	5.0	28	6	66	○
DTS060D6	6.0	28	6	66	○
DTS068D8	6.8	34	8	79	○
DTS070D8	7.0	34	8	79	○
DTS080D8	8.0	41	8	79	○
DTS085D10	8.5	47	10	89	○
DTS090D10	9.0	47	10	89	○
DTS100D10	10.0	47	10	89	○
DTS103D12	10.3	55	12	102	○
DTS105D12	10.5	55	12	102	○
DTS110D12	11.0	55	12	102	○
DTS120D12	12.0	55	12	102	○
DTS125D14	12.5	60	14	107	○
DTS130D14	13.0	60	14	107	○
DTS140D14	14.0	60	14	107	○
DTS145D16	14.5	65	16	115	○
DTS150D16	15.0	65	16	115	○
DTS160D16	16.0	65	16	115	○
DTS170D18	17.0	73	18	123	○
DTS180D18	18.0	73	18	123	○
DTS190D20	19.0	79	20	131	○
DTS200D20	20.0	79	20	131	○

Notice: The MOQ for Non-stock item is 5pcs.

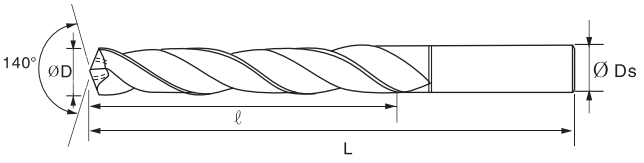
● Stock ○ Non-stock

High Performance Carbide Drill for Stainless Steel Purpose(DTW DTS 3D&5D)

TOTIME

DTW Drill Series 5D with External Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6535HA
Coating	AlTiN	Suitable for processing	Stainless steel		



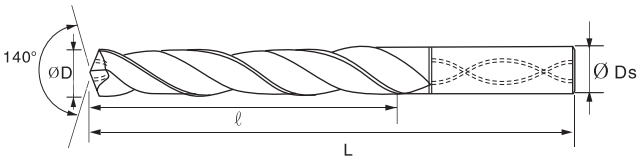
Unit (mm)

Model No.	Cutting Diameter D	Cutting Length ℓ	Shank Diameter Ds	Total Length L	Stock
DTW05030D6	3.0	28	6	66	●
DTW05033D6	3.3	28	6	66	●
DTW05040D6	4.0	36	6	74	●
DTW05042D6	4.2	36	6	74	●
DTW05050D6	5.0	44	6	82	●
DTW05060D6	6.0	44	6	82	●
DTW05068D8	6.8	53	8	91	●
DTW05070D8	7.0	53	8	91	●
DTW05080D8	8.0	53	8	91	●
DTW05085D10	8.5	61	10	103	●
DTW05090D10	9.0	61	10	103	●
DTW05100D10	10.0	61	10	103	●
DTW05103D12	10.3	71	12	118	●
DTW05105D12	10.5	71	12	118	●
DTW05110D12	11.0	71	12	118	●
DTW05120D12	12.0	71	12	118	●
DTW05125D14	12.5	77	14	124	●
DTW05130D14	13.0	77	14	124	●
DTW05140D14	14.0	77	14	124	●
DTW05145D16	14.5	83	16	133	●
DTW05150D16	15.0	83	16	133	●
DTW05160D16	16.0	83	16	133	●
DTW05170D18	17.0	93	18	143	●
DTW05180D18	18.0	93	18	143	●
DTW05190D20	19.0	101	20	153	●
DTW05200D20	20.0	101	20	153	●

● Stock ○ Non-stock

DTS Drill Series 5D with Internal Coolant

Material	Carbide	Helix angle	30°	Point angle	140°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6537K
Coating	AlTiN	Suitable for processing	Stainless steel		



Unit (mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
DTS05030D6	3.0	28	6	66	○
DTS05033D6	3.3	28	6	66	○
DTS05040D6	4.0	36	6	74	○
DTS05042D6	4.2	36	6	74	○
DTS05050D6	5.0	44	6	82	○
DTS05060D6	6.0	44	6	82	○
DTS05068D8	6.8	53	8	91	○
DTS05070D8	7.0	53	8	91	○
DTS05080D8	8.0	53	8	91	○
DTS05085D10	8.5	61	10	103	○
DTS05090D10	9.0	61	10	103	○
DTS05100D10	10.0	61	10	103	○
DTS05103D12	10.3	71	12	118	○
DTS05105D12	10.5	71	12	118	○
DTS05110D12	11.0	71	12	118	○
DTS05120D12	12.0	71	12	118	○
DTS05125D14	12.5	77	14	124	○
DTS05130D14	13.0	77	14	124	○
DTS05140D14	14.0	77	14	124	○
DTS05145D16	14.5	83	16	133	○
DTS05150D16	15.0	83	16	133	○
DTS05160D16	16.0	83	16	133	○
DTS05170D18	17.0	93	18	143	○
DTS05180D18	18.0	93	18	143	○
DTS05190D20	19.0	101	20	153	○
DTS05200D20	20.0	101	20	153	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

STANDARD CUTTING CONDITIONS

DTW Series 3D/5D (External Coolant)

Unit（mm）

ISO	Work Material	Brinell hardness (HB)	Cutting speed: Vc (m/min)	Feed: f (mm/rev)				
				ø3	ø4	ø6	ø8	ø10
M	Austenitic stainless steel	130-200HB	40-30-20	0.05-0.10	0.06-0.12	0.07-0.14	0.08-0.18	0.09-0.20
	High strength austenite and cast stainless steel	<25HRC	40-30-20	0.03-0.08	0.04-0.10	0.05-0.10	0.06-0.12	0.07-0.14
	Duplex stainless steel	<30HRC	35-25-20	0.03-0.08	0.04-0.10	0.05-0.10	0.06-0.12	0.07-0.14

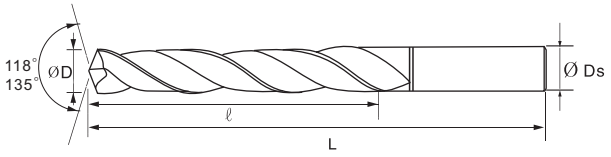
DTS Series 3D/5D (Internal Coolant)

Unit（mm）

ISO	Work Material	Brinell hardness (HB)	Cutting speed: Vc (m/min)	Feed: f (mm/rev)				
				ø3	ø4	ø6	ø8	ø10
M	Austenitic stainless steel	130-200HB	80-60-40	0.05-0.10	0.06-0.12	0.07-0.14	0.08-0.18	0.09-0.20
	High strength austenite and cast stainless steel	<25HRC	80-60-40	0.03-0.08	0.04-0.10	0.05-0.10	0.06-0.12	0.07-0.14
	Duplex stainless steel	<30HRC	60-45-30	0.03-0.08	0.04-0.10	0.05-0.10	0.06-0.12	0.07-0.14

TDMC Micro Drill Series External Coolant

Material	Carbide	Helix angle	25°	Point angle	D1≦1.0mm	118°
Cutting edge tolerance	m7	Shank tolerance	h6		D1>1.0mm	135°
Coating	TiAlN	Standard	6537A	Suitable for processing	Steel/Stainless steel/Cast iron	



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TDMC-0200	0.20	2.0	3	38	●
TDMC-0250	0.25	2.5	3	38	●
TDMC-0300	0.30	3.0	3	38	●
TDMC-0350	0.35	3.0	3	38	●
TDMC-0400	0.40	4.0	3	38	●
TDMC-0450	0.45	4.0	3	38	●
TDMC-0500	0.50	5.0	3	38	●
TDMC-0550	0.55	5.0	3	38	●
TDMC-0600	0.60	6.0	3	38	●
TDMC-0650	0.65	6.0	3	38	●
TDMC-0700	0.70	6.0	3	38	●
TDMC-0750	0.75	6.0	3	38	●
TDMC-0800	0.80	6.0	3	38	●
TDMC-0850	0.85	6.0	3	38	●
TDMC-0900	0.90	6.0	3	38	●
TDMC-0950	0.95	6.0	3	38	●
TDMC-0960	0.96	6.0	3	38	●
TDMC-0970	0.97	6.0	3	38	●
TDMC-0980	0.98	6.0	3	38	●
TDMC-0990	0.99	6.0	3	38	●
TDMC-1000	1.00	7.0	3	38	●
TDMC-1010	1.01	7.0	3	38	●
TDMC-1020	1.02	7.0	3	38	●
TDMC-1030	1.03	7.0	3	38	●
TDMC-1040	1.04	7.0	3	38	●
TDMC-1050	1.05	7.0	3	38	●
TDMC-1100	1.10	7.0	3	38	●
TDMC-1150	1.15	7.0	3	38	●
TDMC-1200	1.20	8.0	3	38	●
TDMC-1250	1.25	8.0	3	38	●
TDMC-1300	1.30	8.0	3	38	●
TDMC-1350	1.35	8.0	3	38	●
TDMC-1400	1.40	8.0	3	38	●
TDMC-1450	1.45	8.0	3	38	●
TDMC-1460	1.46	8.0	3	38	●
TDMC-1470	1.47	8.0	3	38	●

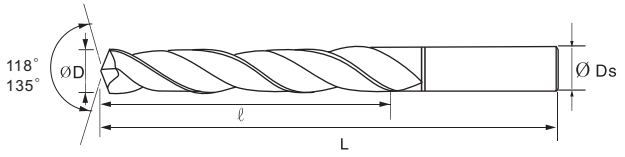
● Stock ○ Non-stock

High Performance Carbide Micro Drill for General Purpose

TOTIME

TDMC Micro Drill Series External Coolant

Material	Carbide	Helix angle	25°	Point angle	D1≦1.0mm	118°
Cutting edge tolerance	m7	Shank tolerance	h6		D1>1.0mm	135°
Coating	TiAlN	Standard	6537A	Suitable for processing	Steel/Stainless steel/Cast iron	



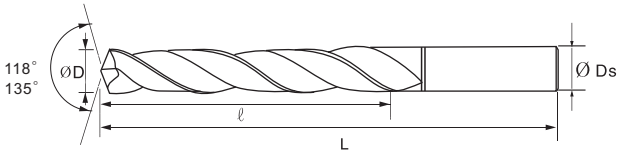
Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TDMC-1480	1.48	8.0	3	38	●
TDMC-1490	1.49	8.0	3	38	●
TDMC-1500	1.50	8.0	3	38	●
TDMC-1510	1.51	10.0	3	38	●
TDMC-1520	1.52	10.0	3	38	●
TDMC-1530	1.53	10.0	3	38	●
TDMC-1540	1.54	10.0	3	38	●
TDMC-1550	1.55	10.0	3	38	●
TDMC-1560	1.56	10.0	3	38	●
TDMC-1570	1.57	10.0	3	38	●
TDMC-1580	1.58	10.0	3	38	●
TDMC-1590	1.59	10.0	3	38	●
TDMC-1600	1.60	10.0	3	38	●
TDMC-1610	1.61	10.0	3	38	●
TDMC-1620	1.62	10.0	3	38	●
TDMC-1630	1.63	10.0	3	38	●
TDMC-1640	1.64	10.0	3	38	●
TDMC-1650	1.65	10.0	3	38	●
TDMC-1660	1.66	10.0	3	38	●
TDMC-1670	1.67	10.0	3	38	●
TDMC-1680	1.68	10.0	3	38	●
TDMC-1690	1.69	10.0	3	38	●
TDMC-1700	1.70	10.0	3	38	●
TDMC-1710	1.71	10.0	3	38	●
TDMC-1720	1.72	10.0	3	38	●
TDMC-1730	1.73	10.0	3	38	●
TDMC-1740	1.74	10.0	3	38	●
TDMC-1750	1.75	10.0	3	38	●
TDMC-1760	1.76	10.0	3	38	●
TDMC-1770	1.77	10.0	3	38	●
TDMC-1780	1.78	10.0	3	38	●
TDMC-1790	1.79	10.0	3	38	●
TDMC-1800	1.80	10.0	3	38	●
TDMC-1810	1.81	10.0	3	38	●
TDMC-1820	1.82	10.0	3	38	●
TDMC-1830	1.83	10.0	3	38	●
TDMC-1840	1.84	10.0	3	38	●

● Stock ○ Non-stock

TDMC Micro Drill Series External Coolant

Material	Carbide	Helix angle	25°	Point angle	D1≦1.0mm	118°
Cutting edge tolerance	m7	Shank tolerance	h6		D1>1.0mm	135°
Coating	TiAlN	Standard	6537A	Suitable for processing	Steel/Stainless steel/Cast iron	



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TDMC-1850	1.85	10.0	3	38	●
TDMC-1860	1.86	10.0	3	38	●
TDMC-1870	1.87	10.0	3	38	●
TDMC-1880	1.88	10.0	3	38	●
TDMC-1890	1.89	10.0	3	38	●
TDMC-1900	1.90	10.0	3	38	●
TDMC-1910	1.91	10.0	3	38	●
TDMC-1920	1.92	10.0	3	38	●
TDMC-1930	1.93	10.0	3	38	●
TDMC-1940	1.94	10.0	3	38	●
TDMC-1950	1.95	10.0	3	38	●
TDMC-1960	1.96	10.0	3	38	●
TDMC-1970	1.97	10.0	3	38	●
TDMC-1980	1.98	10.0	3	38	●
TDMC-1990	1.99	10.0	3	38	●
TDMC-2000	2.00	10.0	3	38	●
TDMC-2050	2.05	12.0	3	38	●
TDMC-2100	2.10	12.0	3	38	●
TDMC-2150	2.15	12.0	3	38	●
TDMC-2200	2.20	12.0	3	38	●
TDMC-2250	2.25	12.0	3	38	●
TDMC-2300	2.30	12.0	3	38	●
TDMC-2350	2.35	12.0	3	38	●
TDMC-2400	2.40	12.0	3	38	●
TDMC-2450	2.45	12.0	3	38	●
TDMC-2500	2.50	12.0	3	38	●
TDMC-2550	2.55	12.0	3	38	●
TDMC-2600	2.60	12.0	3	38	●
TDMC-2650	2.65	12.0	3	38	●
TDMC-2700	2.70	12.0	3	38	●
TDMC-2750	2.75	12.0	3	38	●
TDMC-2800	2.80	12.0	3	38	●
TDMC-2850	2.85	12.0	3	38	●
TDMC-2900	2.90	12.0	3	38	●
TDMC-2950	2.95	12.0	3	38	●
TDMC-3000	3.00	12.0	3	38	●

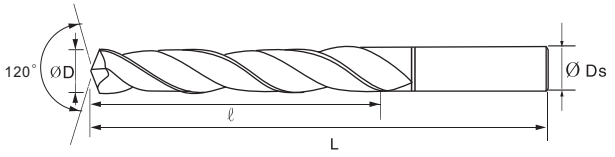
● Stock ○ Non-stock

High Performance Carbide Micro Drill for Aluminium Alloy

TOTIME

TDMAL Micro Drill Series External Coolant

Material	Carbide	Helix angle	35°	Point angle	120°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	No Coating	Suitable for processing	Aluminum alloy/Copper alloy/Resin		



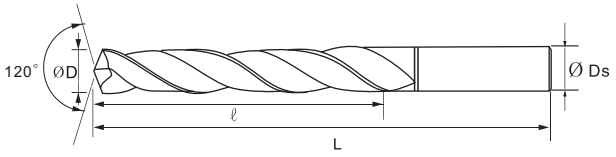
Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TDMAL-0200	0.20	3.5	3	38	●
TDMAL-0250	0.25	3.5	3	38	●
TDMAL-0300	0.30	5.0	3	38	●
TDMAL-0350	0.35	5.0	3	38	●
TDMAL-0400	0.40	6.0	3	38	●
TDMAL-0450	0.45	6.0	3	38	●
TDMAL-0500	0.50	6.0	3	38	●
TDMAL-0550	0.55	6.0	3	38	●
TDMAL-0600	0.60	7.0	3	38	●
TDMAL-0650	0.65	7.0	3	38	●
TDMAL-0700	0.70	8.0	3	38	●
TDMAL-0750	0.75	8.0	3	38	●
TDMAL-0800	0.80	8.0	3	38	●
TDMAL-0850	0.85	8.0	3	38	●
TDMAL-0900	0.90	8.0	3	38	●
TDMAL-0950	0.95	8.0	3	38	●
TDMAL-0960	0.96	8.0	3	38	●
TDMAL-0970	0.97	8.0	3	38	●
TDMAL-0980	0.98	8.0	3	38	●
TDMAL-0990	0.99	8.0	3	38	●
TDMAL-1000	1.00	10.0	3	38	●
TDMAL-1010	1.01	10.0	3	38	●
TDMAL-1020	1.02	10.0	3	38	●
TDMAL-1030	1.03	10.0	3	38	●
TDMAL-1040	1.04	10.0	3	38	●
TDMAL-1050	1.05	10.0	3	38	●
TDMAL-1100	1.10	10.0	3	38	●
TDMAL-1150	1.15	10.0	3	38	●
TDMAL-1200	1.20	10.0	3	38	●
TDMAL-1250	1.25	10.0	3	38	●
TDMAL-1300	1.30	10.0	3	38	●
TDMAL-1350	1.35	10.0	3	38	●
TDMAL-1400	1.40	10.0	3	38	●
TDMAL-1450	1.45	10.0	3	38	●
TDMAL-1460	1.46	10.0	3	38	●
TDMAL-1470	1.47	10.0	3	38	●

● Stock ○ Non-stock

TDMAL Micro Drill Series External Coolant

Material	Carbide	Helix angle	35°	Point angle	120°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	No Coating	Suitable for processing	Aluminum alloy/Copper alloy/Resin		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TDMAL-1480	1.48	10.0	3	38	●
TDMAL-1490	1.49	10.0	3	38	●
TDMAL-1500	1.50	10.0	3	38	●
TDMAL-1510	1.51	10.0	3	38	●
TDMAL-1520	1.52	10.0	3	38	●
TDMAL-1530	1.53	10.0	3	38	●
TDMAL-1540	1.54	10.0	3	38	●
TDMAL-1550	1.55	10.0	3	38	●
TDMAL-1560	1.56	10.0	3	38	●
TDMAL-1570	1.57	10.0	3	38	●
TDMAL-1580	1.58	10.0	3	38	●
TDMAL-1590	1.59	10.0	3	38	●
TDMAL-1600	1.60	12.0	3	38	●
TDMAL-1610	1.61	12.0	3	38	●
TDMAL-1620	1.62	12.0	3	38	●
TDMAL-1630	1.63	12.0	3	38	●
TDMAL-1640	1.64	12.0	3	38	●
TDMAL-1650	1.65	12.0	3	38	●
TDMAL-1660	1.66	12.0	3	38	●
TDMAL-1670	1.67	12.0	3	38	●
TDMAL-1680	1.68	12.0	3	38	●
TDMAL-1690	1.69	12.0	3	38	●
TDMAL-1700	1.70	12.0	3	38	●
TDMAL-1710	1.71	12.0	3	38	●
TDMAL-1720	1.72	12.0	3	38	●
TDMAL-1730	1.73	12.0	3	38	●
TDMAL-1740	1.74	12.0	3	38	●
TDMAL-1750	1.75	12.0	3	38	●
TDMAL-1760	1.76	12.0	3	38	●
TDMAL-1770	1.77	12.0	3	38	●
TDMAL-1780	1.78	12.0	3	38	●
TDMAL-1790	1.79	12.0	3	38	●
TDMAL-1800	1.80	12.0	3	38	●
TDMAL-1810	1.81	12.0	3	38	●
TDMAL-1820	1.82	12.0	3	38	●
TDMAL-1830	1.83	12.0	3	38	●
TDMAL-1840	1.84	12.0	3	38	●

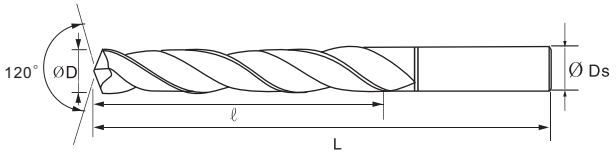
● Stock ○ Non-stock

High Performance Carbide Micro Drill for Aluminium Alloy

TOTIME

TDMAL Micro Drill Series External Coolant

Material	Carbide	Helix angle	35°	Point angle	120°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	6537A
Coating	No Coating	Suitable for processing	Aluminum alloy/Copper alloy/Resin		



Unit(mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TDMAL-1850	1.85	12.0	3	38	●
TDMAL-1860	1.86	12.0	3	38	●
TDMAL-1870	1.87	12.0	3	38	●
TDMAL-1880	1.88	12.0	3	38	●
TDMAL-1890	1.89	12.0	3	38	●
TDMAL-1900	1.90	12.0	3	38	●
TDMAL-1910	1.91	12.0	3	38	●
TDMAL-1920	1.92	12.0	3	38	●
TDMAL-1930	1.93	12.0	3	38	●
TDMAL-1940	1.94	12.0	3	38	●
TDMAL-1950	1.95	12.0	3	38	●
TDMAL-1960	1.96	12.0	3	38	●
TDMAL-1970	1.97	12.0	3	38	●
TDMAL-1980	1.98	12.0	3	38	●
TDMAL-1990	1.99	12.0	3	38	●
TDMAL-2000	2.00	12.0	3	38	●
TDMAL-2050	2.05	12.0	3	38	●
TDMAL-2100	2.10	12.0	3	38	●
TDMAL-2150	2.15	12.0	3	38	●
TDMAL-2200	2.20	12.0	3	38	●
TDMAL-2250	2.25	12.0	3	38	●
TDMAL-2300	2.30	12.0	3	38	●
TDMAL-2350	2.35	12.0	3	38	●
TDMAL-2400	2.40	12.0	3	38	●
TDMAL-2450	2.45	12.0	3	38	●
TDMAL-2500	2.50	12.0	3	38	●
TDMAL-2550	2.55	12.0	3	38	●
TDMAL-2600	2.60	12.0	3	38	●
TDMAL-2650	2.65	12.0	3	38	●
TDMAL-2700	2.70	12.0	3	38	●
TDMAL-2750	2.75	12.0	3	38	●
TDMAL-2800	2.80	12.0	3	38	●
TDMAL-2850	2.85	12.0	3	38	●
TDMAL-2900	2.90	12.0	3	38	●
TDMAL-2950	2.95	12.0	3	38	●
TDMAL-3000	3.00	12.0	3	38	●

● Stock ○ Non-stock

STANDARD CUTTING CONDITIONS

TDMC Series

Unit（mm）

ISO	Work Material	Brinell hardness(HB)	Rotation speed(rev/min)				
			∅0.20-∅0.29	∅0.30-∅0.49	∅0.50-∅0.99	∅1.00-∅1.99	∅2.00-∅3.00
P	Carbon steel	180-300	20000-25000	18000-20000	15000-18000	9500-15000	6300-9500
	Alloy steel	180-300	15000-20000	15000-17000	9500-15000	6000-9500	4800-6000
	Modulated steel	180-300	13000-17000	10000-13000	7000-10000	4000-7000	3000-4000
M	Stainless steel	-200	7500-15000	8000-10000	6000-8000	4000-6000	3700-4000

ISO	Work Material	Brinell hardness(HB)	Feed: f(mm/rev)				
			∅0.20-∅0.29	∅0.30-∅0.49	∅0.50-∅0.99	∅1.00-∅1.99	∅2.00-∅3.00
P	Carbon steel	180-300	0.002-0.01	0.01-0.04	0.02-0.04	0.03-0.06	0.07-0.10
	Alloy steel	180-300	0.0015-0.007	0.007-0.01	0.01-0.02	0.02-0.05	0.05-0.08
	Modulated steel	180-300	0.001-0.004	0.003-0.005	0.005-0.01	0.01-0.03	0.02-0.04
M	Stainless steel	-200	0.0005-0.001	0.002-0.01	0.015-0.02	0.02-0.04	0.03-0.05

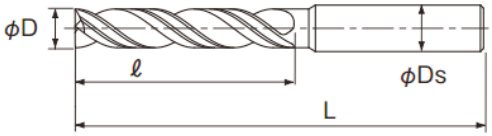
TDMAL Series

Unit（mm）

ISO	Work Material	Brinell hardness(HB)	Rotation speed(rev/min)				
			∅0.20-∅0.29	∅0.30-∅0.49	∅0.50-∅0.99	∅1.00-∅1.99	∅2.00-∅3.00
N	Aluminium alloy	-	16500-22200	13000-16500	12700-13000	6400-12700	5300-6400
	Copper alloy		11000-16000	11000-11500	9600-11500	4800-9600	4200-4800
	Resin		15000-20000	15000-17000	10000-15000	6000-10000	5000-6000

ISO	Work Material	Brinell hardness(HB)	Feed: f(mm/rev)				
			∅0.20-∅0.29	∅0.30-∅0.49	∅0.50-∅0.99	∅1.00-∅1.99	∅2.00-∅3.00
N	Aluminium alloy	-	0.005-0.02	0.02-0.04	0.04-0.06	0.06-0.12	0.12-0.20
	Copper alloy		0.002-0.008	0.008-0.015	0.015-0.04	0.04-0.08	0.08-0.15
	Resin		0.005-0.01	0.01-0.02	0.02-0.04	0.05-0.07	0.07-0.10

FSD High Efficiency Flat Drill



Features

Point angle 180°.

Better centering ability,chip evacuation smoothly because of point geogetry and flute design.

Suitable for machining inclined hole,drilling on ball surface and thin sheet,restraining the burr also.

Solid Carbide Drill with Flat Bottom FSD Series

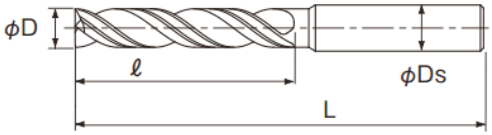
Material	Carbide	Helix angle	25°	Point angle	180°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6535HA
Coating	TiAlN	Suitable for processing	Carbon Steel Alloy Steel Hardened Steel HRC<55 Stainless Steel Cast Iron		

Unit (mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
FSD0300SE	3.0	16	4	49	●
FSD0310SE	3.1	16	4	49	●
FSD0320SE	3.2	16	4	49	●
FSD0330SE	3.3	16	4	49	●
FSD0340SE	3.4	16	4	49	●
FSD0350SE	3.5	16	4	49	●
FSD0360SE	3.6	16	4	49	●
FSD0370SE	3.7	16	4	49	●
FSD0380SE	3.8	16	4	49	●
FSD0390SE	3.9	16	4	49	●
FSD0400SE	4.0	16	4	49	●
FSD0410SE	4.1	20	6	61	●
FSD0420SE	4.2	20	6	61	●
FSD0430SE	4.3	20	6	61	●
FSD0440SE	4.4	20	6	61	●
FSD0450SE	4.5	20	6	61	●
FSD0460SE	4.6	20	6	61	●
FSD0470SE	4.7	20	6	61	●
FSD0480SE	4.8	20	6	61	●
FSD0490SE	4.9	20	6	61	●
FSD0500SE	5.0	20	6	61	●
FSD0510SE	5.1	24	6	65	●
FSD0520SE	5.2	24	6	65	●
FSD0530SE	5.3	24	6	65	●
FSD0540SE	5.4	24	6	65	●
FSD0550SE	5.5	24	6	65	●
FSD0560SE	5.6	24	6	65	●
FSD0570SE	5.7	24	6	65	●
FSD0580SE	5.8	24	6	65	●
FSD0590SE	5.9	24	6	65	●
FSD0600SE	6.0	24	6	65	●
FSD0610SE	6.1	28	8	69	●
FSD0620SE	6.2	28	8	69	●
FSD0630SE	6.3	28	8	69	●
FSD0640SE	6.4	28	8	69	●
FSD0650SE	6.5	28	8	69	●

● Stock ○ Non-stock

FSD High Efficiency Flat Drill



Features

Point angle 180°.

Better centering ability,chip evacuation smoothly because of point geogetry and flute design.

Suitable for machining inclined hole,drilling on ball surface and thin sheet,restraining the burr also.

Solid Carbide Drill with Flat Bottom FSD Series

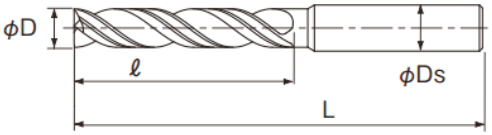
Material	Carbide	Helix angle	25°	Point angle	180°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6535HA
Coating	TiAlN	Suitable for processing	Carbon Steel Alloy Steel Hardened Steel HRC<55 Stainless Steel Cast Iron		

Unit（mm）

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
FSD0660SE	6.6	28	8	69	●
FSD0670SE	6.7	28	8	69	●
FSD0680SE	6.8	28	8	69	●
FSD0690SE	6.9	28	8	69	●
FSD0700SE	7.0	28	8	69	●
FSD0710SE	7.1	32	8	73	●
FSD0720SE	7.2	32	8	73	●
FSD0730SE	7.3	32	8	73	●
FSD0740SE	7.4	32	8	73	●
FSD0750SE	7.5	32	8	73	●
FSD0760SE	7.6	32	8	73	●
FSD0770SE	7.7	32	8	73	●
FSD0780SE	7.8	32	8	73	●
FSD0790SE	7.9	32	8	73	●
FSD0800SE	8.0	32	8	73	●
FSD0810SE	8.1	36	10	81	●
FSD0820SE	8.2	36	10	81	●
FSD0830SE	8.3	36	10	81	●
FSD0840SE	8.4	36	10	81	●
FSD0850SE	8.5	36	10	81	●
FSD0860SE	8.6	36	10	81	●
FSD0870SE	8.7	36	10	81	●
FSD0880SE	8.8	36	10	81	●
FSD0890SE	8.9	36	10	81	●
FSD0900SE	9.0	36	10	81	●
FSD0910SE	9.1	40	10	85	●
FSD0920SE	9.2	40	10	85	●
FSD0930SE	9.3	40	10	85	●
FSD0940SE	9.4	40	10	85	●
FSD0950SE	9.5	40	10	85	●
FSD0960SE	9.6	40	10	85	●
FSD0970SE	9.7	40	10	85	●
FSD0980SE	9.8	40	10	85	●
FSD0990SE	9.9	40	10	85	●
FSD1000SE	10.0	40	10	85	●
FSD1010SE	10.1	44	12	94	●

● Stock ○ Non-stock

FSD High Efficiency Flat Drill



Features

Point angle 180°.

Better centering ability,chip evacuation smoothly because of point geogetry and flute design.

Suitable for machining inclined hole,drilling on ball surface and thin sheet,restraining the burr also.

Solid Carbide Drill with Flat Bottom FSD Series

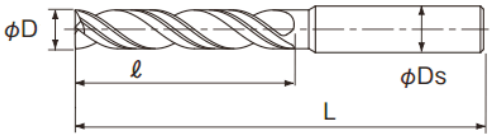
Material	Carbide	Helix angle	25°	Point angle	180°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6535HA
Coating	TiAlN	Suitable for processing	Carbon Steel Alloy Steel Hardened Steel HRC<55 Stainess Steel Cast Iron		

Unit（mm）

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
FSD1020SE	10.2	44	12	94	●
FSD1030SE	10.3	44	12	94	●
FSD1040SE	10.4	44	12	94	●
FSD1050SE	10.5	44	12	94	●
FSD1060SE	10.6	44	12	94	●
FSD1070SE	10.7	44	12	94	●
FSD1080SE	10.8	44	12	94	●
FSD1090SE	10.9	44	12	94	●
FSD1100SE	11.0	48	12	94	●
FSD1110SE	11.1	48	12	98	●
FSD1120SE	11.2	48	12	98	●
FSD1130SE	11.3	48	12	98	●
FSD1140SE	11.4	48	12	98	●
FSD1150SE	11.5	48	12	98	●
FSD1160SE	11.6	48	12	98	●
FSD1170SE	11.7	48	12	98	●
FSD1180SE	11.8	48	12	98	●
FSD1190SE	11.9	48	12	98	●
FSD1200SE	12.0	48	12	98	●
FSD1210SE	12.1	52	14	102	○
FSD1220SE	12.2	52	14	102	○
FSD1230SE	12.3	52	14	102	○
FSD1240SE	12.4	52	14	102	○
FSD1250SE	12.5	52	14	102	○
FSD1260SE	12.6	52	14	102	○
FSD1270SE	12.7	52	14	102	○
FSD1280SE	12.8	52	14	102	○
FSD1290SE	12.9	52	14	102	○
FSD1300SE	13.0	52	14	102	○
FSD1310SE	13.1	56	14	106	○
FSD1320SE	13.2	56	14	106	○
FSD1330SE	13.3	56	14	106	○
FSD1340SE	13.4	56	14	106	○
FSD1350SE	13.5	56	14	106	○
FSD1360SE	13.6	56	14	106	○
FSD1370SE	13.7	56	14	106	○

● Stock ○ Non-stock

FSD High Efficiency Flat Drill



Features

Point angle 180°.

Better centering ability,chip evacuation smoothly because of point geogetry and flute design.

Suitable for machining inclined hole,drilling on ball surface and thin sheet,restraining the burr also.

Solid Carbide Drill with Flat Bottom FSD Series

Material	Carbide	Helix angle	25°	Point angle	180°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6535HA
Coating	TiAlN	Suitable for processing	Carbon Steel Alloy Steel Hardened Steel HRC<55 Stainess Steel Cast Iron		

Unit (mm)

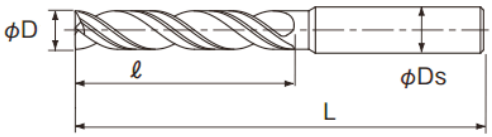
Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
FSD1380SE	13.8	56	14	106	○
FSD1390SE	13.9	56	14	106	○
FSD1400SE	14.0	56	14	106	○
FSD1410SE	14.1	60	16	113	○
FSD1420SE	14.2	60	16	113	○
FSD1430SE	14.3	60	16	113	○
FSD1440SE	14.4	60	16	113	○
FSD1450SE	14.5	60	16	113	○
FSD1460SE	14.6	60	16	113	○
FSD1470SE	14.7	60	16	113	○
FSD1480SE	14.8	60	16	113	○
FSD1490SE	14.9	60	16	113	○
FSD1500SE	15.0	60	16	113	○
FSD1510SE	15.1	64	16	117	○
FSD1520SE	15.2	64	16	117	○
FSD1530SE	15.3	64	16	117	○
FSD1540SE	15.4	64	16	117	○
FSD1550SE	15.5	64	16	117	○
FSD1560SE	15.6	64	16	117	○
FSD1570SE	15.7	64	16	117	○
FSD1580SE	15.8	64	16	117	○
FSD1590SE	15.9	64	16	117	○
FSD1600SE	16.0	64	16	117	○
FSD1610SE	16.1	68	18	121	○
FSD1620SE	16.2	68	18	121	○
FSD1630SE	16.3	68	18	121	○
FSD1640SE	16.4	68	18	121	○
FSD1650SE	16.5	68	18	121	○
FSD1660SE	16.6	68	18	121	○
FSD1670SE	16.7	68	18	121	○
FSD1680SE	16.8	68	18	121	○
FSD1690SE	16.9	68	18	121	○
FSD1700SE	17.0	68	18	121	○
FSD1710SE	17.1	72	18	125	○
FSD1720SE	17.2	72	18	125	○
FSD1730SE	17.3	72	18	125	○

● Stock ○ Non-stock

High Performance Carbide Flat Drills for General Purpose(FSD Drill)

TOTIME

FSD High Efficiency Flat Drill



Features

Point angle 180°.

Better centering ability,chip evacuation smoothly because of point geogetry and flute design.

Suitable for machining inclined hole,drilling on ball surface and thin sheet,restraining the burr also.

Solid Carbide Drill with Flat Bottom FSD Series

Material	Carbide	Helix angle	25°	Point angle	180°
Cutting edge tolerance	m7	Shank tolerance	h6	Standard	DIN6535HA
Coating	TiAlN	Suitable for processing	Carbon Steel Alloy Steel Hardened Steel HRC<55 Stainess Steel Cast Iron		

Unit (mm)

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
FSD1740SE	17.4	72	18	125	○
FSD1750SE	17.5	72	18	125	○
FSD1760SE	17.6	72	18	125	○
FSD1770SE	17.7	72	18	125	○
FSD1780SE	17.8	72	18	125	○
FSD1790SE	17.9	72	18	125	○
FSD1800SE	18.0	72	18	125	○
FSD1810SE	18.1	76	20	131	○
FSD1820SE	18.2	76	20	131	○
FSD1830SE	18.3	76	20	131	○
FSD1840SE	18.4	76	20	131	○
FSD1850SE	18.5	76	20	131	○
FSD1860SE	18.6	76	20	131	○
FSD1870SE	18.7	76	20	131	○
FSD1880SE	18.8	76	20	131	○
FSD1890SE	18.9	76	20	131	○
FSD1900SE	19.0	76	20	131	○
FSD1910SE	19.1	80	20	135	○
FSD1920SE	19.2	80	20	135	○
FSD1930SE	19.3	80	20	135	○
FSD1940SE	19.4	80	20	135	○
FSD1950SE	19.5	80	20	135	○
FSD1960SE	19.6	80	20	135	○
FSD1970SE	19.7	80	20	135	○
FSD1980SE	19.8	80	20	135	○
FSD1990SE	19.9	80	20	135	○
FSD2000SE	20.0	80	20	135	○

Notice: The MOQ for Non-stock item is 5pcs.

● Stock ○ Non-stock

STANDARD CUTTING CONDITIONS

FSD Series

Unit（mm）

ISO	Work Material	Brinell hardness (HB)	Cutting speed: Vc(m/min)	Feed: f (mm/rev)						
				3~4	4~6	6~8	8~10	10~12	12~16	16~20
P	Low carbon steel (C < 0.3) C15E4, E275A, E355D, etc.	~125	60~90	0.06~0.10	0.06~0.15	0.1~0.2	0.1~0.2	0.12~0.22	0.16~0.25	0.25~0.35
	Carbon steel (C > 0.3) C45, C55, etc.	125~300	50~80	0.06~0.10	0.06~0.15	0.1~0.2	0.1~0.2	0.12~0.22	0.16~0.25	0.25~0.35
	High alloy steel 42CrMo4, etc.	250~350	40~70	0.06~0.10	0.06~0.15	0.1~0.2	0.1~0.2	0.12~0.22	0.16~0.25	0.25~0.35
M	Stainless steel X5CrNi18-9, etc.		20~50	0.01~0.03	0.03~0.05	0.03~0.05	0.04~0.08	0.08~0.12	0.1~0.2	0.15~0.25
K	Grey cast iron 250, etc.	~200	30~50	0.06~0.10	0.06~0.15	0.01~0.2	0.12~0.22	0.15~0.25	0.17~0.27	0.25~0.35
	Ductile cast iron 450-10S, etc.	~300	20~40	0.04~0.8	0.06~0.12	0.1~0.15	0.12~0.18	0.15~0.2	0.15~0.25	0.2~0.3
N	Aluminium alloy AlSi11Cu3, etc.			0.06~0.10	0.06~0.15	0.1~0.2	0.1~0.2	0.12~0.22	0.16~0.25	0.25~0.35

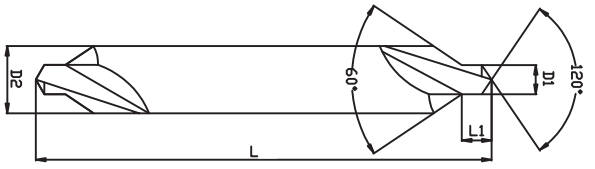
Carbide Center Drill with High-performance and Multi-Purpose Series

TOTIME

CCD Series

Carbide Center Drill

Material	Carbide	Angle	60°	Coating	No
Suitable for processing	Steel,Stainless steel,Cast iron				



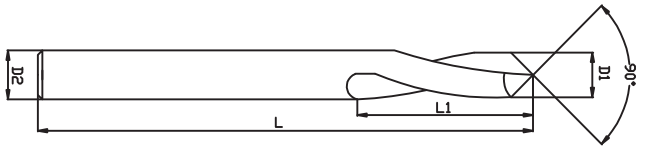
Unit（mm）

Model No.	Cutting Diameter	Cutting Length	Total Length	Shank Diameter
	D1	L1	L	D2
CCD010	1.0	1.0	40	3
CCD015	1.5	1.5	45	4
CCD020	2.0	2.0	45	5
CCD025	2.5	2.5	50	6
CCD030	3.0	3.0	55	8
CCD040	4.0	4.5	60	10
CCD050	5.0	5.5	65	12

CSD Series

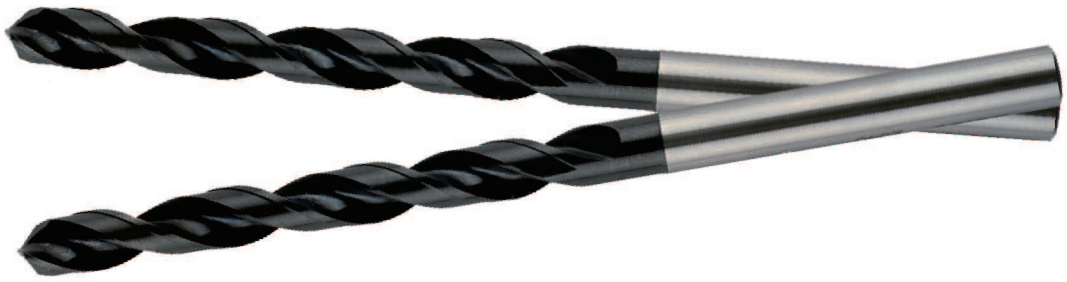
Carbide Spotting Drill

Material	Carbide	Point angle	90°	Coating	TiAlN
Suitable for processing	Steel,Stainless steel,Cast iron				



Unit（mm）

Model No.	Cutting Diameter	Cutting Length	Total Length	Shank Diameter
	D1	L1	L	D2
CSD030	3	9	50	3
CSD040	4	10	50	4
CSD050	5	12	50	5
CSD060	6	13	50	6
CSD080	8	23	60	8
CSD100	10	24	75	10
CSD120	12	28	75	12
CSD160	16	32	100	16
CSD200	20	35	100	20



Higher precison

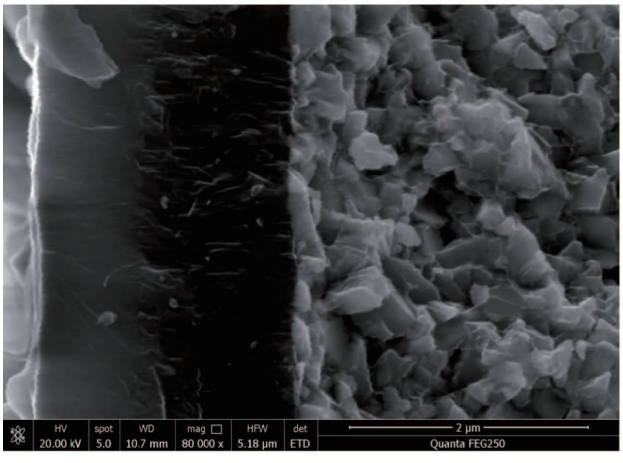
More precise dimensions for machining holes

Higher efficiency

Increasing speed and feed can still maintain high performance and significantly shorten working time

More widely

More widely applicable to more processed materials



TiCN Coating

Powder metallurgy matrix

Coating

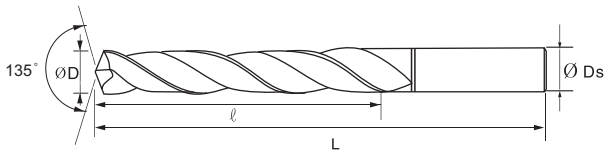
Newly developed TiCN coating suitable for powder high-speed steel hole processing.

Hardness above HV2000,with high wear resistance and long service life.

The working temperature can reach 550 ° C , suitable for hole processing conditions.

The coating surface is delicate and smooth, with low friction coefficient,effectively reducing cutting resistance.

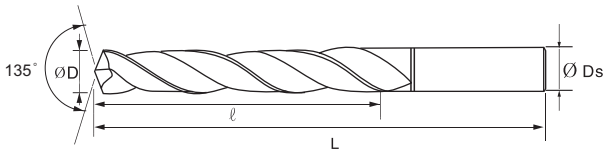
Material	HSSE-PM	Helix angle	31° -32°	Point angle	135°
Cutting edge tolerance	h7	Shank tolerance	h7		
Coating	TiCN	Suitable for processing	Alloy Steel/Die Steel (Work Hardness≤HRC40)		
			Stainless Steel/Cast Iron		



Unit (mm)
● Stock ○ Non-stock

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TDPM0050A	0.50	3.0	3	38	●
TDPM0051A	0.51	3.0	3	38	●
TDPM0052A	0.52	3.0	3	38	●
TDPM0053A	0.53	3.0	3	38	●
TDPM0054A	0.54	3.0	3	38	●
TDPM0055A	0.55	3.0	3	38	●
TDPM0056A	0.56	3.0	3	38	●
TDPM0057A	0.57	3.0	3	38	●
TDPM0058A	0.58	3.0	3	38	●
TDPM0059A	0.59	3.0	3	38	●
TDPM0060A	0.60	3.5	3	38	●
TDPM0061A	0.61	3.5	3	38	●
TDPM0062A	0.62	3.5	3	38	●
TDPM0063A	0.63	3.5	3	38	●
TDPM0064A	0.64	3.5	3	38	●
TDPM0065A	0.65	3.5	3	38	●
TDPM0066A	0.66	3.5	3	38	●
TDPM0068A	0.66	3.5	3	38	●
TDPM0067A	0.67	3.5	3	38	●
TDPM0069A	0.69	3.5	3	38	●
TDPM0070A	0.70	4.5	3	38	●
TDPM0071A	0.71	4.5	3	38	●
TDPM0072A	0.72	4.5	3	38	●
TDPM0073A	0.73	4.5	3	38	●
TDPM0074A	0.74	4.5	3	38	●
TDPM0075A	0.75	4.5	3	38	●
TDPM0076A	0.76	4.5	3	38	●
TDPM0077A	0.77	4.5	3	38	●
TDPM0078A	0.78	4.5	3	38	●
TDPM0079A	0.79	4.5	3	38	●
TDPM0080A	0.80	5.0	3	38	●
TDPM0081A	0.81	5.0	3	38	●
TDPM0082A	0.82	5.0	3	38	●
TDPM0083A	0.83	5.0	3	38	●
TDPM0084A	0.84	5.0	3	38	●
TDPM0085A	0.85	5.0	3	38	●

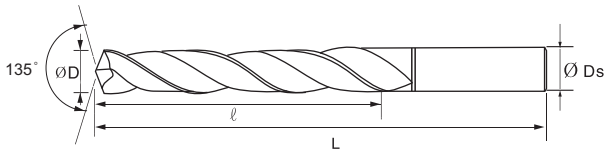
Material	HSSE-PM	Helix angle	31° -32°	Point angle	135°
Cutting edge tolerance	h7	Shank tolerance	h7		
Coating	TiCN	Suitable for processing	Alloy Steel/Die Steel (Work Hardness≤HRC40)		
			Stainless Steel/Cast Iron		



Unit (mm)
● Stock ○ Non-stock

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TDPM0086A	0.86	5.0	3	38	●
TDPM0087A	0.87	5.0	3	38	●
TDPM0088A	0.88	5.0	3	38	●
TDPM0089A	0.89	5.0	3	38	●
TDPM0090A	0.90	5.5	3	38	●
TDPM0091A	0.91	5.5	3	38	●
TDPM0092A	0.92	5.5	3	38	●
TDPM0093A	0.93	5.5	3	38	●
TDPM0094A	0.94	5.5	3	38	●
TDPM0095A	0.95	5.5	3	38	●
TDPM0096A	0.96	5.5	3	38	●
TDPM0097A	0.97	5.5	3	38	●
TDPM0098A	0.98	5.5	3	38	●
TDPM0099A	0.99	5.5	3	38	●
TDPM0100A	1.00	6.0	3	38	●
TDPM0101A	1.01	6.0	3	38	●
TDPM0102A	1.02	6.0	3	38	●
TDPM0103A	1.03	6.0	3	38	●
TDPM0104A	1.04	6.0	3	38	●
TDPM0105A	1.05	6.0	3	38	●
TDPM0106A	1.06	6.0	3	38	●
TDPM0107A	1.07	7.0	3	39	●
TDPM0108A	1.08	7.0	3	39	●
TDPM0109A	1.09	7.0	3	39	●
TDPM0110A	1.10	7.0	3	39	●
TDPM0111A	1.11	7.0	3	39	●
TDPM0112A	1.12	7.0	3	39	●
TDPM0113A	1.13	7.0	3	39	●
TDPM0114A	1.14	7.0	3	39	●
TDPM0115A	1.15	7.0	3	39	●
TDPM0116A	1.16	7.0	3	39	●
TDPM0117A	1.17	7.0	3	39	●
TDPM0118A	1.18	7.0	3	39	●
TDPM0119A	1.19	8.0	3	40	●
TDPM0120A	1.20	8.0	3	40	●
TDPM0121A	1.21	8.0	3	40	●

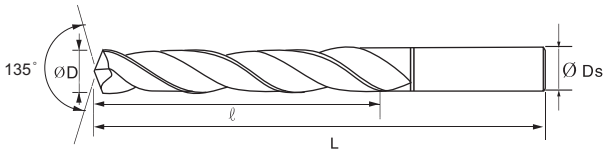
Material	HSSE-PM	Helix angle	31° -32°	Point angle	135°
Cutting edge tolerance	h7	Shank tolerance	h7		
Coating	TiCN	Suitable for processing	Alloy Steel/Die Steel (Work Hardness≤HRC40)		
			Stainless Steel/Cast Iron		



Unit (mm)
●Stock ○Non-stock

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TDPM0122A	1.22	8.0	3	40	●
TDPM0123A	1.23	8.0	3	40	●
TDPM0124A	1.24	8.0	3	40	●
TDPM0125A	1.25	8.0	3	40	●
TDPM0126A	1.26	8.0	3	40	●
TDPM0127A	1.27	8.0	3	40	●
TDPM0128A	1.28	8.0	3	40	●
TDPM0129A	1.29	8.0	3	40	●
TDPM0130A	1.30	8.0	3	40	●
TDPM0131A	1.31	8.0	3	40	●
TDPM0132A	1.32	8.0	3	40	●
TDPM0133A	1.33	9.0	3	41	●
TDPM0134A	1.34	9.0	3	41	●
TDPM0135A	1.35	9.0	3	41	●
TDPM0136A	1.36	9.0	3	41	●
TDPM0137A	1.37	9.0	3	41	●
TDPM0138A	1.38	9.0	3	41	●
TDPM0139A	1.39	9.0	3	41	●
TDPM0140A	1.40	9.0	3	41	●
TDPM0141A	1.41	9.0	3	41	●
TDPM0142A	1.42	9.0	3	41	●
TDPM0143A	1.43	9.0	3	41	●
TDPM0144A	1.44	9.0	3	41	●
TDPM0145A	1.45	9.0	3	41	●
TDPM0146A	1.46	9.0	3	41	●
TDPM0147A	1.47	9.0	3	41	●
TDPM0148A	1.48	9.0	3	41	●
TDPM0149A	1.49	9.0	3	41	●
TDPM0150A	1.50	9.0	3	41	●
TDPM0151A	1.51	10.0	3	42	●
TDPM0152A	1.52	10.0	3	42	●
TDPM0153A	1.53	10.0	3	42	●
TDPM0154A	1.54	10.0	3	42	●
TDPM0155A	1.55	10.0	3	42	●
TDPM0156A	1.56	10.0	3	42	●
TDPM0157A	1.57	10.0	3	42	●

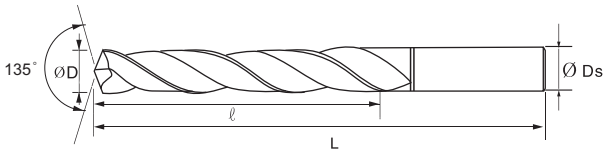
Material	HSSE-PM	Helix angle	31° -32°	Point angle	135°
Cutting edge tolerance	h7	Shank tolerance	h7		
Coating	TiCN	Suitable for processing	Alloy Steel/Die Steel (Work Hardness≤HRC40)		
			Stainless Steel/Cast Iron		



Unit (mm)
●Stock ○Non-stock

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TDPM0158A	1.58	10.0	3	42	●
TDPM0159A	1.59	10.0	3	42	●
TDPM0160A	1.60	10.0	3	42	●
TDPM0161A	1.61	10.0	3	42	●
TDPM0162A	1.62	10.0	3	42	●
TDPM0163A	1.63	10.0	3	42	●
TDPM0164A	1.64	10.0	3	42	●
TDPM0165A	1.65	10.0	3	42	●
TDPM0166A	1.66	10.0	3	42	●
TDPM0167A	1.67	10.0	3	42	●
TDPM0168A	1.68	10.0	3	42	●
TDPM0169A	1.69	10.0	3	42	●
TDPM0170A	1.70	10.0	3	42	●
TDPM0171A	1.71	11.0	3	43	●
TDPM0172A	1.72	11.0	3	43	●
TDPM0173A	1.73	11.0	3	43	●
TDPM0174A	1.74	11.0	3	43	●
TDPM0175A	1.75	11.0	3	43	●
TDPM0176A	1.76	11.0	3	43	●
TDPM0177A	1.77	11.0	3	43	●
TDPM0178A	1.78	11.0	3	43	●
TDPM0179A	1.79	11.0	3	43	●
TDPM0180A	1.80	11.0	3	43	●
TDPM0181A	1.81	11.0	3	43	●
TDPM0182A	1.82	11.0	3	43	●
TDPM0183A	1.83	11.0	3	43	●
TDPM0184A	1.84	11.0	3	43	●
TDPM0185A	1.85	11.0	3	43	●
TDPM0186A	1.86	11.0	3	43	●
TDPM0187A	1.87	11.0	3	43	●
TDPM0188A	1.88	11.0	3	43	●
TDPM0189A	1.89	11.0	3	43	●
TDPM0190A	1.90	11.0	3	43	●
TDPM0191A	1.91	12.0	3	44	●
TDPM0192A	1.92	12.0	3	44	●
TDPM0193A	1.93	12.0	3	44	●

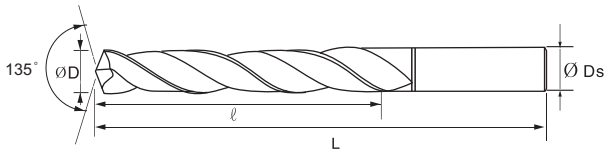
Material	HSSE-PM	Helix angle	31° -32°	Point angle	135°
Cutting edge tolerance	h7	Shank tolerance	h7		
Coating	TiCN	Suitable for processing	Alloy Steel/Die Steel (Work Hardness≤HRC40)		
			Stainless Steel/Cast Iron		



Unit (mm)
●Stock ○Non-stock

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TDPM0194A	1.94	12.0	3	44	●
TDPM0195A	1.95	12.0	3	44	●
TDPM0196A	1.96	12.0	3	44	●
TDPM0197A	1.97	12.0	3	44	●
TDPM0198A	1.98	12.0	3	44	●
TDPM0199A	1.99	12.0	3	44	●
TDPM0200A	2.00	12.0	3	44	●
TDPM0201A	2.01	12.0	3	44	●
TDPM0202A	2.02	12.0	3	44	●
TDPM0203A	2.03	12.0	3	44	●
TDPM0204A	2.04	12.0	3	44	●
TDPM0205A	2.05	12.0	3	44	●
TDPM0206A	2.06	12.0	3	44	●
TDPM0207A	2.07	12.0	3	44	●
TDPM0208A	2.08	12.0	3	44	●
TDPM0209A	2.09	12.0	3	44	●
TDPM0210A	2.10	12.0	3	44	●
TDPM0211A	2.11	12.0	3	44	●
TDPM0212A	2.12	12.0	3	44	●
TDPM0213A	2.13	13.0	3	45	●
TDPM0214A	2.14	13.0	3	45	●
TDPM0215A	2.15	13.0	3	45	●
TDPM0216A	2.16	13.0	3	45	●
TDPM0217A	2.17	13.0	3	45	●
TDPM0218A	2.18	13.0	3	45	●
TDPM0219A	2.19	13.0	3	45	●
TDPM0220A	2.20	13.0	3	45	●
TDPM0221A	2.21	13.0	3	45	●
TDPM0222A	2.22	13.0	3	45	●
TDPM0223A	2.23	13.0	3	45	●
TDPM0224A	2.24	13.0	3	45	●
TDPM0225A	2.25	13.0	3	45	●
TDPM0226A	2.26	13.0	3	45	●
TDPM0227A	2.27	13.0	3	45	●
TDPM0228A	2.28	13.0	3	45	●
TDPM0229A	2.29	13.0	3	45	●

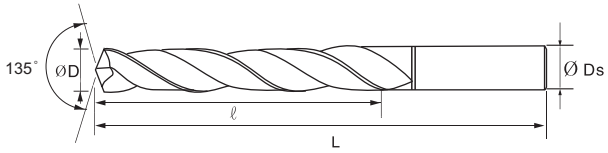
Material	HSSE-PM	Helix angle	31° -32°	Point angle	135°
Cutting edge tolerance	h7	Shank tolerance	h7		
Coating	TiCN	Suitable for processing	Alloy Steel/Die Steel (Work Hardness≤HRC40)		
			Stainless Steel/Cast Iron		



Unit (mm)
● Stock ○ Non-stock

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TDPM0230A	2.30	13.0	3	45	●
TDPM0231A	2.31	13.0	3	45	●
TDPM0232A	2.32	13.0	3	45	●
TDPM0233A	2.33	13.0	3	45	●
TDPM0234A	2.34	13.0	3	45	●
TDPM0235A	2.35	13.0	3	45	●
TDPM0236A	2.36	13.0	3	45	●
TDPM0237A	2.37	14.0	3	46	●
TDPM0238A	2.38	14.0	3	46	●
TDPM0239A	2.39	14.0	3	46	●
TDPM0240A	2.40	14.0	3	46	●
TDPM0241A	2.41	14.0	3	46	●
TDPM0242A	2.42	14.0	3	46	●
TDPM0243A	2.43	14.0	3	46	●
TDPM0244A	2.44	14.0	3	46	●
TDPM0245A	2.45	14.0	3	46	●
TDPM0246A	2.46	14.0	3	46	●
TDPM0247A	2.47	14.0	3	46	●
TDPM0248A	2.48	14.0	3	46	●
TDPM0249A	2.49	14.0	3	46	●
TDPM0250A	2.50	14.0	3	46	●
TDPM0251A	2.51	14.0	3	46	●
TDPM0252A	2.52	14.0	3	46	●
TDPM0253A	2.53	14.0	3	46	●
TDPM0254A	2.54	14.0	3	46	●
TDPM0255A	2.55	14.0	3	46	●
TDPM0256A	2.56	14.0	3	46	●
TDPM0257A	2.57	14.0	3	46	●
TDPM0258A	2.58	14.0	3	46	●
TDPM0259A	2.59	14.0	3	46	●
TDPM0260A	2.60	14.0	3	46	●
TDPM0261A	2.61	14.0	3	46	●
TDPM0262A	2.62	14.0	3	46	●
TDPM0263A	2.63	14.0	3	46	●
TDPM0264A	2.64	14.0	3	46	●
TDPM0265A	2.65	14.0	3	46	●

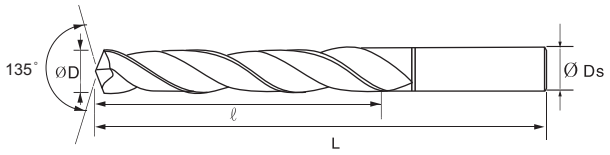
Material	HSSE-PM	Helix angle	31° -32°	Point angle	135°
Cutting edge tolerance	h7	Shank tolerance	h7		
Coating	TiCN	Suitable for processing	Alloy Steel/Die Steel (Work Hardness≤HRC40)		
			Stainless Steel/Cast Iron		



Unit (mm)
● Stock ○ Non-stock

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TDPM0266A	2.66	16.0	3	48	●
TDPM0267A	2.67	16.0	3	48	●
TDPM0268A	2.68	16.0	3	48	●
TDPM0269A	2.69	16.0	3	48	●
TDPM0270A	2.70	16.0	3	48	●
TDPM0271A	2.71	16.0	3	48	●
TDPM0272A	2.72	16.0	3	48	●
TDPM0273A	2.73	16.0	3	48	●
TDPM0274A	2.74	16.0	3	48	●
TDPM0275A	2.75	16.0	3	48	●
TDPM0276A	2.76	16.0	3	48	●
TDPM0277A	2.77	16.0	3	48	●
TDPM0278A	2.78	16.0	3	48	●
TDPM0279A	2.79	16.0	3	48	●
TDPM0280A	2.80	16.0	3	48	●
TDPM0281A	2.81	16.0	3	48	●
TDPM0282A	2.82	16.0	3	48	●
TDPM0283A	2.83	16.0	3	48	●
TDPM0284A	2.84	16.0	3	48	●
TDPM0285A	2.85	16.0	3	48	●
TDPM0286A	2.86	16.0	3	48	●
TDPM0287A	2.87	16.0	3	48	●
TDPM0288A	2.88	16.0	3	48	●
TDPM0289A	2.89	16.0	3	48	●
TDPM0290A	2.90	16.0	3	48	●
TDPM0291A	2.91	16.0	3	48	●
TDPM0292A	2.92	16.0	3	48	●
TDPM0293A	2.93	16.0	3	48	●
TDPM0294A	2.94	16.0	3	48	●
TDPM0295A	2.95	16.0	3	48	●
TDPM0296A	2.96	16.0	3	48	●
TDPM0297A	2.97	16.0	3	48	●
TDPM0298A	2.98	16.0	3	48	●
TDPM0299A	2.99	16.0	3	48	●
TDPM0300A	3.00	16.0	3	48	●
TDPM0310A	3.10	18.0	4	50	●

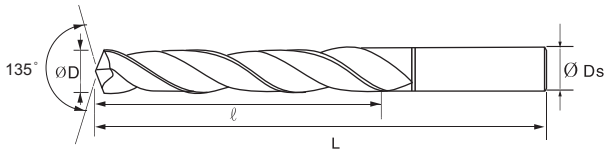
Material	HSSE-PM	Helix angle	31° -32°	Point angle	135°
Cutting edge tolerance	h7	Shank tolerance	h7		
Coating	TiCN	Suitable for processing	Alloy Steel/Die Steel (Work Hardness≤HRC40)		
			Stainless Steel/Cast Iron		



Unit (mm)
● Stock ○ Non-stock

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TDPM0318A	3.18	18.0	4	50	●
TDPM0320A	3.20	18.0	4	50	●
TDPM0330A	3.30	18.0	4	50	●
TDPM0340A	3.40	20.0	4	52	●
TDPM0350A	3.50	20.0	4	52	●
TDPM0355A	3.55	20.0	4	52	●
TDPM0357A	3.57	20.0	4	52	●
TDPM0360A	3.60	20.0	4	52	●
TDPM0365A	3.65	20.0	4	52	●
TDPM0370A	3.70	20.0	4	52	●
TDPM0375A	3.75	20.0	4	52	●
TDPM0380A	3.80	22.0	4	54	●
TDPM0385A	3.85	22.0	4	54	●
TDPM0390A	3.90	22.0	4	54	●
TDPM0395A	3.95	22.0	4	54	●
TDPM0397A	3.97	22.0	4	54	●
TDPM0400A	4.00	22.0	4	54	●
TDPM0410A	4.10	22.0	6	66	●
TDPM0420A	4.20	22.0	6	66	●
TDPM0425A	4.25	22.0	6	66	●
TDPM0430A	4.30	24.0	6	68	●
TDPM0437A	4.37	24.0	6	68	●
TDPM0440A	4.40	24.0	6	68	●
TDPM0450A	4.50	24.0	6	68	●
TDPM0460A	4.60	24.0	6	68	●
TDPM0470A	4.70	24.0	6	68	●
TDPM0475A	4.75	24.0	6	68	●
TDPM0476A	4.76	26.0	6	70	●
TDPM0480A	4.80	26.0	6	70	●
TDPM0490A	4.90	26.0	6	70	●
TDPM0500A	5.00	26.0	6	70	●
TDPM0510A	5.10	26.0	6	70	●
TDPM0516A	5.16	26.0	6	70	●
TDPM0520A	5.20	26.0	6	70	●
TDPM0525A	5.25	26.0	6	70	●
TDPM0530A	5.30	26.0	6	70	●

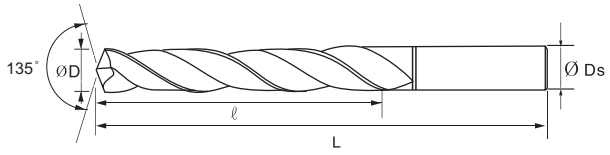
Material	HSSE-PM	Helix angle	31° -32°	Point angle	135°
Cutting edge tolerance	h7	Shank tolerance	h7		
Coating	TiCN	Suitable for processing	Alloy Steel/Die Steel (Work Hardness≤HRC40)		
			Stainless Steel/Cast Iron		



Unit (mm)
● Stock ○ Non-stock

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TDPM0535A	5.35	28.0	6	72	●
TDPM0540A	5.40	28.0	6	72	●
TDPM0545A	5.45	28.0	6	72	●
TDPM0550A	5.50	28.0	6	72	●
TDPM0556A	5.56	28.0	6	72	●
TDPM0560A	5.60	28.0	6	72	●
TDPM0570A	5.70	28.0	6	72	●
TDPM0575A	5.75	28.0	6	72	●
TDPM0580A	5.80	28.0	6	72	●
TDPM0585A	5.85	28.0	6	72	●
TDPM0590A	5.90	28.0	6	72	●
TDPM0595A	5.95	28.0	6	72	●
TDPM0600A	6.00	28.0	6	72	●
TDPM0610A	6.10	31.0	8	75	●
TDPM0620A	6.20	31.0	8	75	●
TDPM0630A	6.30	31.0	8	75	●
TDPM0640A	6.40	31.0	8	75	●
TDPM0650A	6.50	31.0	8	75	●
TDPM0660A	6.60	31.0	8	75	●
TDPM0670A	6.70	31.0	8	75	●
TDPM0675A	6.75	34.0	8	78	●
TDPM0680A	6.80	34.0	8	78	●
TDPM0690A	6.90	34.0	8	78	●
TDPM0700A	7.00	34.0	8	78	●
TDPM0710A	7.10	34.0	8	78	●
TDPM0720A	7.20	34.0	8	78	●
TDPM0730A	7.30	34.0	8	78	●
TDPM0740A	7.40	34.0	8	78	●
TDPM0750A	7.50	34.0	8	78	●
TDPM0760A	7.60	37.0	8	81	●
TDPM0770A	7.70	37.0	8	81	●
TDPM0780A	7.80	37.0	8	81	●
TDPM0790A	7.90	37.0	8	81	●
TDPM0800A	8.00	37.0	8	81	●
TDPM0810A	8.10	37.0	10	87	●
TDPM0820A	8.20	37.0	10	87	●

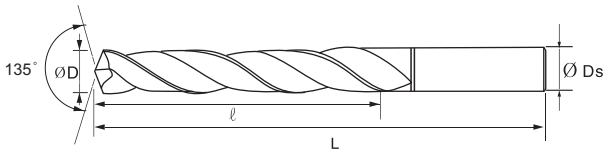
Material	HSSE-PM	Helix angle	31° -32°	Point angle	135°
Cutting edge tolerance	h7	Shank tolerance	h7		
Coating	TiCN	Suitable for processing	Alloy Steel/Die Steel (Work Hardness≤HRC40)		
			Stainless Steel/Cast Iron		



Unit (mm)
● Stock ○ Non-stock

Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TDPM0830A	8.30	37.0	10	87	●
TDPM0840A	8.40	37.0	10	87	●
TDPM0850A	8.50	37.0	10	87	●
TDPM0860A	8.60	40.0	10	90	●
TDPM0870A	8.70	40.0	10	90	●
TDPM0880A	8.80	40.0	10	90	●
TDPM0890A	8.90	40.0	10	90	●
TDPM0900A	9.00	40.0	10	90	●
TDPM0910A	9.10	40.0	10	90	●
TDPM0920A	9.20	40.0	10	90	●
TDPM0930A	9.30	40.0	10	90	●
TDPM0940A	9.40	40.0	10	90	●
TDPM0950A	9.50	40.0	10	90	●
TDPM0960A	9.60	43.0	10	93	●
TDPM0970A	9.70	43.0	10	93	●
TDPM0980A	9.80	43.0	10	93	●
TDPM0990A	9.90	43.0	10	93	●
TDPM1000A	10.00	43.0	10	93	●
TDPM1010A	10.10	43.0	12	100	●
TDPM1020A	10.20	43.0	12	100	●
TDPM1030A	10.30	43.0	12	100	●
TDPM1040A	10.40	43.0	12	100	●
TDPM1050A	10.50	43.0	12	100	●
TDPM1060A	10.60	43.0	12	100	●
TDPM1070A	10.70	47.0	12	104	●
TDPM1080A	10.80	47.0	12	104	●
TDPM1090A	10.90	47.0	12	104	●
TDPM1100A	11.00	47.0	12	104	●
TDPM1110A	11.10	47.0	12	104	●
TDPM1120A	11.20	47.0	12	104	●
TDPM1130A	11.30	47.0	12	104	●
TDPM1140A	11.40	47.0	12	104	●
TDPM1150A	11.50	47.0	12	104	●
TDPM1160A	11.60	47.0	12	104	●
TDPM1170A	11.70	47.0	12	104	●
TDPM1180A	11.80	47.0	12	104	●

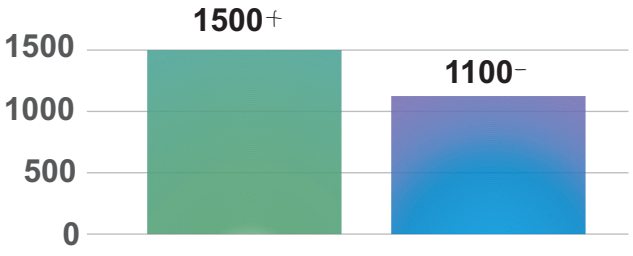
Material	HSSE-PM	Helix angle	31° -32°	Point angle	135°
Cutting edge tolerance	h7	Shank tolerance	h7		
Coating	TiCN	Suitable for processing	Alloy Steel/Die Steel (Work Hardness≤HRC40)		
			Stainless Steel/Cast Iron		



Unit (mm)
● Stock ○ Non-stock

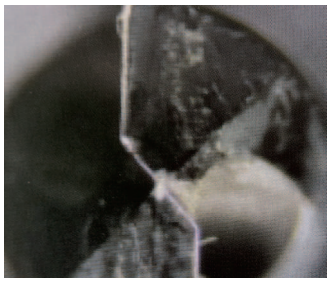
Model No.	Cutting Diameter	Cutting Length	Shank Diameter	Total Length	Stock
	D	ℓ	Ds	L	
TDPM1190A	11.90	51.0	12	108	●
TDPM1200A	12.00	51.0	12	108	●
TDPM1210A	12.10	51.0	12	108	●
TDPM1220A	12.20	51.0	12	108	●
TDPM1230A	12.30	51.0	12	108	●
TDPM1240A	12.40	51.0	12	108	●
TDPM1250A	12.50	51.0	12	108	●
TDPM1260A	12.60	51.0	12	108	●
TDPM1270A	12.70	51.0	12	108	●
TDPM1280A	12.80	51.0	12	108	●
TDPM1290A	12.90	51.0	12	108	●
TDPM1300A	13.00	51.0	12	108	●

Test Block:42Cr13 — Average of processing holes count



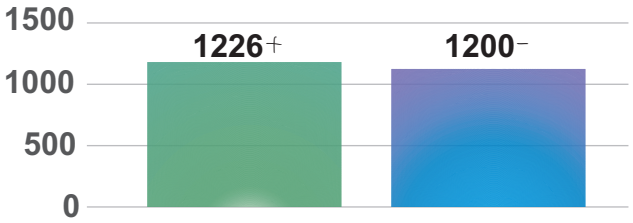
Diameter	6mm
Cutting Speed	1274r/min
Feed Rate	0.15mm/r
Hole type	Blind hole
Depth of Cutting	18mm
Cutting Fluid	Water-soluble cutting fluid

TOTIME
Brand A



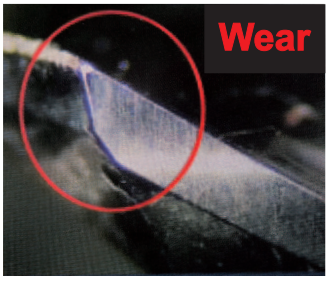
6.0mm After 1500 Holes

Test Block:42CrMo — Average of processing holes count



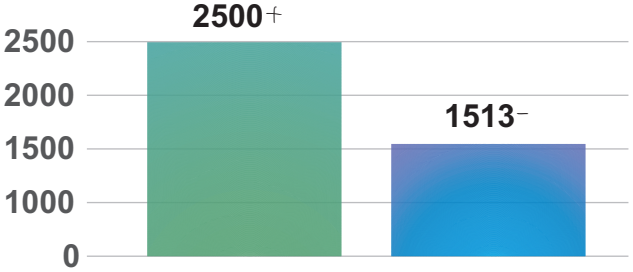
Diameter	6mm
Cutting Speed	1274r/min
Feed Rate	0.15mm/r
Hole type	Blind hole
Depth of Cutting	18mm
Cutting Fluid	Water-soluble cutting fluid

TOTIME
Brand A



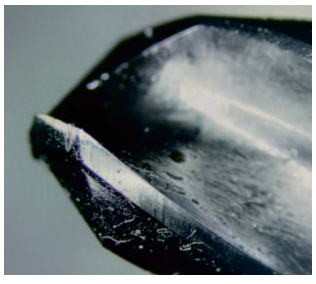
6.0mm After 1226 Holes

Test Block:304 — Average of processing holes count



Diameter	2.5mm
Cutting Speed	1528r/min
Feed Rate	0.01mm/r
Hole type	Blind hole
Depth of Cutting	8mm
Cutting Fluid	Water-soluble cutting fluid

TOTIME
Brand A



2.5mm After 2550 Holes

Processing material	P						M		K	
	Structural Steel Carbon Steel		Alloy steel Quenched and tempered Steel		Die steel Pre-hardening steel		Stainless Steel		Cast iron	
	-200HB		20-30HRC		30-40HRC		SUS304/316		FC250/FCD400	
DIM.mm	Speed r/min	Feed r/min	Speed r/min	Feed r/min	Speed r/min	Feed r/min	Speed r/min	Feed r/min	Speed r/min	Feed r/min
0.5	16000	240	13000	150	9500	80	5100	50	20000	300
1	9500	280	8000	190	6400	140	3500	65	12000	400
2	5700	360	4600	240	3200	160	1900	80	6300	490
3	4200	430	3400	290	2100	165	1300	85	4700	600
5	2500	430	2000	290	1250	165	760	80	2800	600
8	1600	370	1300	250	800	150	480	75	1800	530
10	1300	340	1000	230	650	140	380	73	1400	460
12	1100	310	850	210	530	130	320	70	1200	430

TOTIME U drill, featuring uniquely designed insert, offers highly economical drilling with enhanced stability and long tool life.

Inserts:

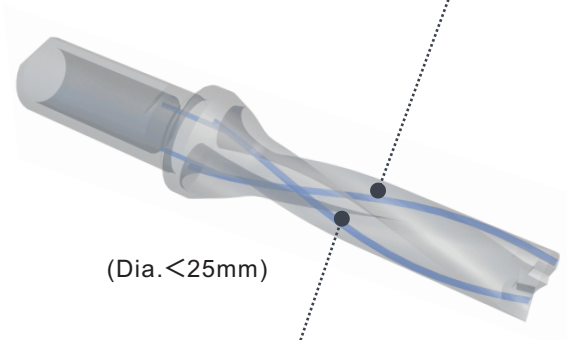
Available in the sizes SPMX/GX05,06,07,09,11 and 14
Each has 4 cutting edges

Drill bodies:

ZD: Available in L/D=2, 3,4 and 5 in metric shank sizes
from ø DC 13 to 60mm Tolerance:-0.2~+0.2mm

Grade	Application	ISO
TI620	First choice for Carbon Steel and Alloy Steel(HRC 20-30),Cast Iron	P K
TZ650	New PVD coating suitable for medium and high speed machining of Carbon Steel and Alloy Steel (HRC 30~40)	P
TM450	First choice for Carbon Steel and Alloy Steel (HRC≤20),Stainless Steel	P M
TN200	Suitable for Non-ferrous metal processing	N

Feature

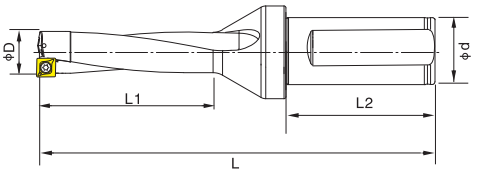


Twisted Cooling Holes

Twisted coolant hole in the drill body increases coolant flow which improves chip evacuation, resulting in excellent surface finish.

Drill Body

The use of high rigidity materials in the drill body greatly improves the wear resistance and stability of the drill body.

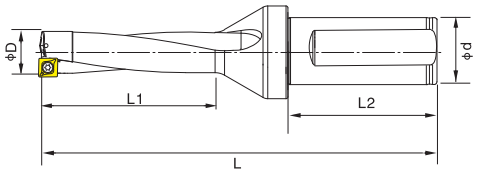


2D-SP U DRILL

Unit (mm)

Model No.	Size					Insert	Screw	Wrench	Stock
	D	L1	L	L2	d				
ZD02-13.0-XP25-SP05-02	13	26	104	56	25	SP□X050204	ST0205	T6	●
ZD02-13.5-XP25-SP05-02	13.5	27	105						●
ZD02-14.0-XP25-SP05-02	14	28	106						●
ZD02-14.5-XP25-SP05-02	14.5	29	107						●
ZD02-15.0-XP25-SP05-02	15	30	108						●
ZD02-15.5-XP25-SP06-02	15.5	31	109			SP□X060204	ST2205		●
ZD02-16.0-XP25-SP06-02	16	32	110						●
ZD02-16.5-XP25-SP06-02	16.5	33	111						●
ZD02-17.0-XP25-SP06-02	17	34	112						●
ZD02-17.5-XP25-SP06-02	17.5	35	113						●
ZD02-18.0-XP25-SP06-02	18	36	114						●
ZD02-18.5-XP25-SP06-02	18.5	37	115						●
ZD02-19.0-XP25-SP06-02	19	38	116						●
ZD02-19.5-XP25-SP06-02	19.5	39	117						●
ZD02-20.0-XP25-SP06-02	20	40	119						●
ZD02-20.5-XP25-SP06-02	20.5	41	120						●
ZD02-21.0-XP25-SP06-02	21	42	121						●
ZD02-21.5-XP25-SP06-02	21.5	43	122						●
ZD02-22.0-XP25-SP07-02	22	44	123			SP□X07T308	ST2506	T8	●
ZD02-22.5-XP25-SP07-02	22.5	45	124						●
ZD02-23.0-XP25-SP07-02	23	46	125						●
ZD02-23.5-XP25-SP07-02	23.5	47	126						●
ZD02-24.0-XP25-SP07-02	24	48	127						●
ZD02-24.5-XP25-SP07-02	24.5	49	128						●
ZD02-25.0-XP32-SP07-02	25	50	141	60	32				●
ZD02-25.5-XP32-SP07-02	25.5	51	142						●
ZD02-26.0-XP32-SP07-02	26	52	143						●
ZD02-26.5-XP32-SP07-02	26.5	53	144						●
ZD02-27.0-XP32-SP07-02	27	54	145						●
ZD02-27.5-XP32-SP09-02	27.5	55	146			SP□X090408	ST3508	T15	●
ZD02-28.0-XP32-SP09-02	28	56	147						●
ZD02-28.5-XP32-SP09-02	28.5	57	148						●
ZD02-29.0-XP32-SP09-02	29	58	149						●
ZD02-29.5-XP32-SP09-02	29.5	59	150						●
ZD02-30.0-XP32-SP09-02	30	60	151						●
ZD02-30.5-XP32-SP09-02	30.5	61	152						●
ZD02-31.0-XP32-SP09-02	31	62	153						●
ZD02-31.5-XP32-SP09-02	31.5	63	154						●
ZD02-32.0-XP32-SP09-02	32	64	155						●
ZD02-32.5-XP32-SP09-02	32.5	65	156						●
ZD02-33.0-XP32-SP09-02	33	66	157						●
ZD02-33.5-XP32-SP11-02	33.5	67	158			SP□X110408	ST4010		●
ZD02-34.0-XP32-SP11-02	34	68	159						●
ZD02-34.5-XP32-SP11-02	34.5	69	160						●
ZD02-35.0-XP32-SP11-02	35	70	161						●
ZD02-35.5-XP32-SP11-02	35.5	71	162						●

● Stock ○ Non-stock

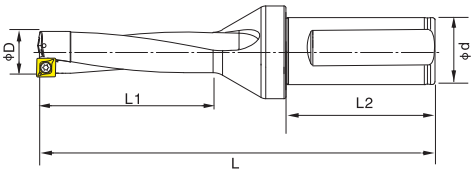


2D-SP U DRILL

Unit（mm）

Model No.	Size					Insert	Screw	Wrench	Stock
	D	L1	L	L2	d				
ZD02-36.0-XP32-SP11-02	36	72	163	60	32	SP□X110408	ST4010	T15	●
ZD02-36.5-XP32-SP11-02	36.5	73	164						●
ZD02-37.0-XP32-SP11-02	37	74	165						●
ZD02-37.5-XP32-SP11-02	37.5	75	166						●
ZD02-38.0-XP32-SP11-02	38	76	167						●
ZD02-38.5-XP32-SP11-02	38.5	77	168						●
ZD02-39.0-XP32-SP11-02	39	78	169						●
ZD02-39.5-XP32-SP11-02	39.5	79	170						●
ZD02-40.0-XP32-SP11-02	40	80	171						●
ZD02-41.0-XP32-SP14-02	41	82	173			SP□X140512	ST5010	T20	●
ZD02-42.0-XP32-SP14-02	42	84	175						●
ZD02-43.0-XP40-SP14-02	43	86	186	65	40				●
ZD02-44.0-XP40-SP14-02	44	88	188						●
ZD02-45.0-XP40-SP14-02	45	90	190						●
ZD02-46.0-XP40-SP14-02	46	92	192						●
ZD02-47.0-XP40-SP14-02	47	94	194						●
ZD02-48.0-XP40-SP14-02	48	96	196						●
ZD02-49.0-XP40-SP14-02	49	98	198						●
ZD02-50.0-XP40-SP14-02	50	100	200						●
ZD02-51.0-XP40-SP14-02	51	102	202						●
ZD02-52.0-XP40-SP09-04	52	104	204			SP□X090408	ST3508	T15	●
ZD02-53.0-XP40-SP09-04	53	106	206						●
ZD02-54.0-XP40-SP09-04	54	108	208						●
ZD02-55.0-XP40-SP09-04	55	110	210						●
ZD02-56.0-XP40-SP09-04	56	112	212						●
ZD02-57.0-XP40-SP09-04	57	114	214						●
ZD02-58.0-XP40-SP09-04	58	116	216						●
ZD02-59.0-XP40-SP09-04	59	118	218						●
ZD02-60.0-XP40-SP09-04	60	120	220						●

● Stock ○ Non-stock

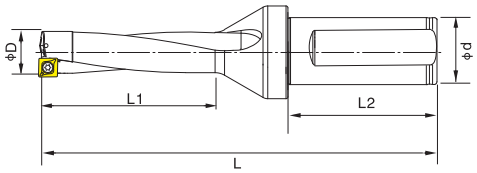


3D-SP U DRILL

Unit (mm)

Model No.	Size					Insert	Screw	Wrench	Stock
	D	L1	L	L2	d				
ZD03-13.0-XP25-SP05-02	13	39	117	56	25	SP□X050204	ST0205	T6	●
ZD03-13.5-XP25-SP05-02	13.5	40.5	118						●
ZD03-14.0-XP25-SP05-02	14	42	120						●
ZD03-14.5-XP25-SP05-02	14.5	43.5	122						●
ZD03-15.0-XP25-SP05-02	15	45	123						●
ZD03-15.5-XP25-SP06-02	15.5	46.5	124			SP□X060204	ST2205		●
ZD03-16.0-XP25-SP06-02	16	48	126						●
ZD03-16.5-XP25-SP06-02	16.5	49.5	127						●
ZD03-17.0-XP25-SP06-02	17	51	129						●
ZD03-17.5-XP25-SP06-02	17.5	52.5	130						●
ZD03-18.0-XP25-SP06-02	18	54	132						●
ZD03-18.5-XP25-SP06-02	18.5	55.5	133						●
ZD03-19.0-XP25-SP06-02	19	57	135						●
ZD03-19.5-XP25-SP06-02	19.5	58.5	135						●
ZD03-20.0-XP25-SP06-02	20	60	139						●
ZD03-20.5-XP25-SP06-02	20.5	61.5	140						●
ZD03-21.0-XP25-SP06-02	21	63	142						●
ZD03-21.5-XP25-SP06-02	21.5	64.5	143						●
ZD03-22.0-XP25-SP07-02	22	66	145			SP□X07T308	ST2506	T8	●
ZD03-22.5-XP25-SP07-02	22.5	67.5	148						●
ZD03-23.0-XP25-SP07-02	23	69	148						●
ZD03-23.5-XP25-SP07-02	23.5	70.5	149						●
ZD03-24.0-XP25-SP07-02	24	72	151						●
ZD03-24.5-XP25-SP07-02	24.5	73.5	152						●
ZD03-25.0-XP32-SP07-02	25	75	166	60	32				●
ZD03-25.5-XP32-SP07-02	25.5	76.5	167						●
ZD03-26.0-XP32-SP07-02	26	78	169						●
ZD03-26.5-XP32-SP07-02	26.5	79.5	170						●
ZD03-27.0-XP32-SP07-02	27	81	172						●
ZD03-27.5-XP32-SP09-02	27.5	82.5	173			SP□X090408	ST3508	T15	●
ZD03-28.0-XP32-SP09-02	28	84	175						●
ZD03-28.5-XP32-SP09-02	28.5	85.5	176						●
ZD03-29.0-XP32-SP09-02	29	87	178						●
ZD03-29.5-XP32-SP09-02	29.5	88.5	179						●
ZD03-30.0-XP32-SP09-02	30	90	181						●
ZD03-30.5-XP32-SP09-02	30.5	91.5	182						●
ZD03-31.0-XP32-SP09-02	31	93	184						●
ZD03-31.5-XP32-SP09-02	31.5	94.5	185						●
ZD03-32.0-XP32-SP09-02	32	96	187						●
ZD03-32.5-XP32-SP09-02	32.5	97.5	188						●
ZD03-33.0-XP32-SP09-02	33	99	190						●
ZD03-33.5-XP32-SP11-02	33.5	100.5	191			SP□X110408	ST4010		●
ZD03-34.0-XP32-SP11-02	34	102	193						●
ZD03-34.5-XP32-SP11-02	34.5	103.5	194						●
ZD03-35.0-XP32-SP11-02	35	105	196						●
ZD03-35.5-XP32-SP11-02	35.5	106.5	197						●

● Stock ○ Non-stock

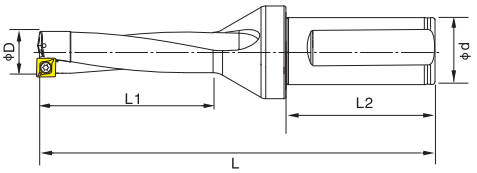


3D-SP U DRILL

Unit（mm）

Model No.	Size					Insert	Screw	Wrench	Stock
	D	L1	L	L2	d				
ZD03-36.0-XP32-SP11-02	36	108	199	60	32	SP□X110408	ST4010	T15	●
ZD03-36.5-XP32-SP11-02	36.5	109.5	200						●
ZD03-37.0-XP32-SP11-02	37	111	202						●
ZD03-37.5-XP32-SP11-02	37.5	112.5	203						●
ZD03-38.0-XP32-SP11-02	38	114	205						●
ZD03-38.5-XP32-SP11-02	38.5	115.5	206						●
ZD03-39.0-XP32-SP11-02	39	117	206						●
ZD03-39.5-XP32-SP11-02	39.5	118.5	209						●
ZD03-40.0-XP32-SP11-02	40	120	211						●
ZD03-41.0-XP32-SP14-02	41	123	214			SP□X140512	ST5010	T20	●
ZD03-42.0-XP32-SP14-02	42	126	217						●
ZD03-43.0-XP40-SP14-02	43	129	229	65	40				●
ZD03-44.0-XP40-SP14-02	44	132	232						●
ZD03-45.0-XP40-SP14-02	45	135	235						●
ZD03-46.0-XP40-SP14-02	46	138	238						●
ZD03-47.0-XP40-SP14-02	47	141	241						●
ZD03-48.0-XP40-SP14-02	48	144	244						●
ZD03-49.0-XP40-SP14-02	49	147	247						●
ZD03-50.0-XP40-SP14-02	50	150	250						●
ZD03-51.0-XP40-SP14-02	51	153	253						●
ZD03-52.0-XP40-SP09-04	52	156	256			SP□X090408	ST3508	T15	●
ZD03-53.0-XP40-SP09-04	53	159	259						●
ZD03-54.0-XP40-SP09-04	54	162	262						●
ZD03-55.0-XP40-SP09-04	55	165	265						●
ZD03-56.0-XP40-SP09-04	56	168	268						●
ZD03-57.0-XP40-SP09-04	57	171	271						●
ZD03-58.0-XP40-SP09-04	58	174	274						●
ZD03-59.0-XP40-SP09-04	59	177	277						●
ZD03-60.0-XP40-SP09-04	60	180	280						●

● Stock ○ Non-stock

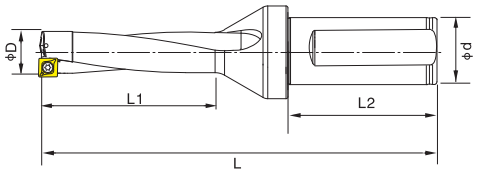


4D-SP U DRILL

Unit (mm)

Model No.	Size					Insert	Screw	Wrench	Stock
	D	L1	L	L2	d				
ZD04-13.0-XP25-SP05-02	13	52	130	56	25	SP□X050204	ST0205	T6	●
ZD04-13.5-XP25-SP05-02	13.5	54	132						●
ZD04-14.0-XP25-SP05-02	14	56	134						●
ZD04-14.5-XP25-SP05-02	14.5	58	136						●
ZD04-15.0-XP25-SP05-02	15	60	138						●
ZD04-15.5-XP25-SP06-02	15.5	62	140			SP□X060204	ST2205		●
ZD04-16.0-XP25-SP06-02	16	64	142						●
ZD04-16.5-XP25-SP06-02	16.5	66	144						●
ZD04-17.0-XP25-SP06-02	17	68	146						●
ZD04-17.5-XP25-SP06-02	17.5	70	148						●
ZD04-18.0-XP25-SP06-02	18	72	150						●
ZD04-18.5-XP25-SP06-02	18.5	74	152						●
ZD04-19.0-XP25-SP06-02	19	76	154						●
ZD04-19.5-XP25-SP06-02	19.5	78	155						●
ZD04-20.0-XP25-SP06-02	20	80	159						●
ZD04-20.5-XP25-SP06-02	20.5	82	161						●
ZD04-21.0-XP25-SP06-02	21	84	163						●
ZD04-21.5-XP25-SP06-02	21.5	86	165						●
ZD04-22.0-XP25-SP07-02	22	88	167			SP□X07T308	ST2506	T8	●
ZD04-22.5-XP25-SP07-02	22.5	90	169						●
ZD04-23.0-XP25-SP07-02	23	92	171						●
ZD04-23.5-XP25-SP07-02	23.5	94	173						●
ZD04-24.0-XP25-SP07-02	24	96	175						●
ZD04-24.5-XP25-SP07-02	24.5	98	177						●
ZD04-25.0-XP32-SP07-02	25	100	191	60	32				●
ZD04-25.5-XP32-SP07-02	25.5	102	193						●
ZD04-26.0-XP32-SP07-02	26	104	195						●
ZD04-26.5-XP32-SP07-02	26.5	106	197						●
ZD04-27.0-XP32-SP07-02	27	108	199						●
ZD04-27.5-XP32-SP09-02	27.5	110	201			SP□X090408	ST3508	T15	●
ZD04-28.0-XP32-SP09-02	28	112	203						●
ZD04-28.5-XP32-SP09-02	28.5	114	205						●
ZD04-29.0-XP32-SP09-02	29	116	207						●
ZD04-29.5-XP32-SP09-02	29.5	118	209						●
ZD04-30.0-XP32-SP09-02	30	120	211						●
ZD04-30.5-XP32-SP09-02	30.5	122	213						●
ZD04-31.0-XP32-SP09-02	31	124	215						●
ZD04-31.5-XP32-SP09-02	31.5	126	217						●
ZD04-32.0-XP32-SP09-02	32	128	219						●
ZD04-32.5-XP32-SP09-02	32.5	130	221						●
ZD04-33.0-XP32-SP09-02	33	132	223						●
ZD04-33.5-XP32-SP11-02	33.5	134	225			SP□X110408	ST4010		●
ZD04-34.0-XP32-SP11-02	34	136	227						●
ZD04-34.5-XP32-SP11-02	34.5	138	229						●
ZD04-35.0-XP32-SP11-02	35	140	231						●
ZD04-35.5-XP32-SP11-02	35.5	142	233						●

● Stock ○ Non-stock

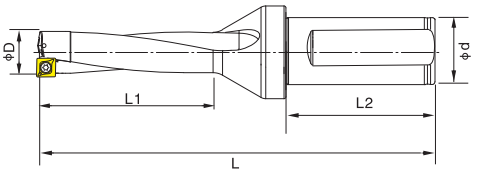


4D-SP U DRILL

Unit（mm）

Model No.	Size					Insert	Screw	Wrench	Stock
	D	L1	L	L2	d				
ZD04-36.0-XP32-SP11-02	36	144	235	60	32	SP□X110408	ST4010	T15	●
ZD04-36.5-XP32-SP11-02	36.5	146	237						●
ZD04-37.0-XP32-SP11-02	37	148	239						●
ZD04-37.5-XP32-SP11-02	37.5	150	241						●
ZD04-38.0-XP32-SP11-02	38	152	243						●
ZD04-38.5-XP32-SP11-02	38.5	154	245						●
ZD04-39.0-XP32-SP11-02	39	156	247						●
ZD04-39.5-XP32-SP11-02	39.5	158	249						●
ZD04-40.0-XP32-SP11-02	40	160	251						●
ZD04-41.0-XP32-SP14-02	41	164	255			SP□X140512	ST5010	T20	●
ZD04-42.0-XP32-SP14-02	42	168	259						●
ZD04-43.0-XP40-SP14-02	43	172	272	65	40				●
ZD04-44.0-XP40-SP14-02	44	176	276						●
ZD04-45.0-XP40-SP14-02	45	180	280						●
ZD04-46.0-XP40-SP14-02	46	184	284						●
ZD04-47.0-XP40-SP14-02	47	188	288						●
ZD04-48.0-XP40-SP14-02	48	192	292						●
ZD04-49.0-XP40-SP14-02	49	196	296						●
ZD04-50.0-XP40-SP14-02	50	200	300						●
ZD04-51.0-XP40-SP14-02	51	204	304						●
ZD04-52.0-XP40-SP09-02	52	208	308			SP□X090408	ST3508	T15	●
ZD04-53.0-XP40-SP09-02	53	212	312						●
ZD04-54.0-XP40-SP09-02	54	216	316						●
ZD04-55.0-XP40-SP09-02	55	220	320						●
ZD04-56.0-XP40-SP09-02	56	224	324						●
ZD04-57.0-XP40-SP09-02	57	228	328						●
ZD04-58.0-XP40-SP09-02	58	232	332						●
ZD04-59.0-XP40-SP09-02	59	236	336						●
ZD04-60.0-XP40-SP09-02	60	240	340						●

● Stock ○ Non-stock

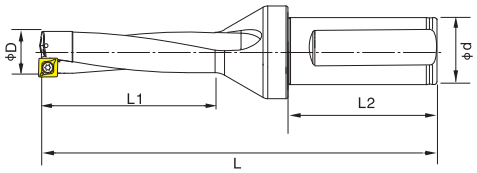


5D-SP U DRILL

Unit (mm)

Model No.	Size					Insert	Screw	Wrench	Stock
	D	L1	L	L2	d				
ZD05-20.0-XP25-SP06-02	20	100	179	56	25	SP□X060204	ST2205	T6	●
ZD05-20.5-XP25-SP06-02	20.5	102.5	181						●
ZD05-21.5-XP25-SP06-02	21	105	184						●
ZD05-21.5-XP25-SP06-02	21.5	107.5	186						●
ZD05-22.0-XP25-SP07-02	22	110	189			SP□X07T308	ST2506	T8	●
ZD05-22.5-XP25-SP07-02	22.5	112.5	193						●
ZD05-23.5-XP25-SP07-02	23	115	194						●
ZD05-23.5-XP25-SP07-02	23.5	117.5	196						●
ZD05-24.0-XP25-SP07-02	24	120	199						●
ZD05-24.0-XP25-SP07-02	24.5	122.5	201						●
ZD05-25.0-XP32-SP07-02	25	125	216	60	32				●
ZD05-25.5-XP32-SP07-02	25.5	127.5	218						●
ZD05-26.0-XP32-SP07-02	26	130	221						●
ZD05-26.5-XP32-SP07-02	26.5	132.5	223						●
ZD05-27.0-XP32-SP07-02	27	135	226						●
ZD05-27.5-XP32-SP09-02	27.5	137.5	228			SP□X090408	ST3508	T15	●
ZD05-28.0-XP32-SP09-02	28	140	231						●
ZD05-28.5-XP32-SP09-02	28.5	142.5	233						●
ZD05-29.0-XP32-SP09-02	29	145	236						●
ZD05-29.5-XP32-SP09-02	29.5	147.5	238						●
ZD05-30.0-XP32-SP09-02	30	150	241						●
ZD05-30.5-XP32-SP09-02	30.5	152.5	243						●
ZD05-31.0-XP32-SP09-02	31	155	246						●
ZD05-31.5-XP32-SP09-02	31.5	157.5	248						●
ZD05-32.0-XP32-SP09-02	32	160	251						●
ZD05-32.5-XP32-SP09-02	32.5	162.5	253						●
ZD05-33.0-XP32-SP09-02	33	165	256						●
ZD05-33.5-XP32-SP11-02	33.5	167.5	258			SP□X110408	ST4010		●
ZD05-34.0-XP32-SP11-02	34	170	261						●
ZD05-34.5-XP32-SP11-02	34.5	172.5	263						●
ZD05-35.0-XP32-SP11-02	35	175	266						●
ZD05-35.5-XP32-SP11-02	35.5	177.5	268						●
ZD05-36.0-XP32-SP11-02	36	180	271						●
ZD05-36.5-XP32-SP11-02	36.5	182.5	273						●
ZD05-37.0-XP32-SP11-02	37	185	276						●
ZD05-37.5-XP32-SP11-02	37.5	187.5	278						●
ZD05-38.0-XP32-SP11-02	38	190	281						●
ZD05-38.5-XP32-SP11-02	38.5	192.5	283						●
ZD05-39.0-XP32-SP11-02	39	195	284						●
ZD05-39.5-XP32-SP11-02	39.5	197.5	288						●
ZD05-40.0-XP32-SP11-02	40	200	291						●
ZD05-41.0-XP32-SP14-02	41	205	296			SP□X140512	ST5010	T20	●
ZD05-42.0-XP32-SP14-02	42	210	301						●

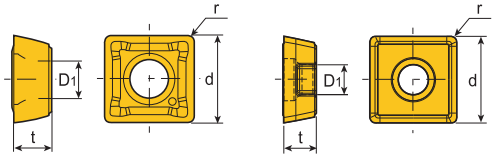
● Stock ○ Non-stock



5D-SP U DRILL

Unit (mm)

Model No.	Size					Insert	Screw	Wrench	Stock
	D	L1	L	L2	d				
ZD05-43.0-XP40-SP14-02	43	215	315	65	40	SP□X140512	ST5010	T20	●
ZD05-44.0-XP40-SP14-02	44	220	320						●
ZD05-45.0-XP40-SP14-02	45	225	325						●
ZD05-46.0-XP40-SP14-02	46	230	330						●
ZD05-47.0-XP40-SP14-02	47	235	335						●
ZD05-48.0-XP40-SP14-02	48	240	340						●
ZD05-49.0-XP40-SP14-02	49	245	345						●
ZD05-50.0-XP40-SP14-02	50	250	350						●
ZD05-51.0-XP40-SP14-02	51	255	355						●
ZD05-52.0-XP40-SP09-04	52	260	360			SP□X090408	ST3508	T15	●
ZD05-53.0-XP40-SP09-04	53	265	365						●
ZD05-54.0-XP40-SP09-04	54	270	370						●
ZD05-55.0-XP40-SP09-04	55	275	375						●
ZD05-56.0-XP40-SP09-04	56	280	380						●
ZD05-57.0-XP40-SP09-04	57	285	385						●
ZD05-58.0-XP40-SP09-04	58	290	390						●
ZD05-59.0-XP40-SP09-04	59	295	395						●
ZD05-60.0-XP40-SP09-04	60	300	400						●



Unit (mm)

Size	Dimension (mm)			
	d	t	r	D1
05	5.00	2.38	0.4	2.25
06	6.00	2.38	0.4	2.61
07	7.94	3.97	0.8	2.85
09	9.80	4.30	0.8	4.05
11	11.50	4.80	0.8	4.45
14	14.30	5.20	1.2	5.75

Insert	Designation	Material						Stock
		TI620		TZ650	TM450		TN200	
		P (HRC20-30)	K	P (HRC30-40)	P (HRC≤20)	M	N	
	SPMX050204	●		●	●			●
	SPMX060204	●		●	●			●
	SPMX07T308	●		●	●			●
	SPMX090408	●		●	●			●
	SPMX110408	●		●	●			●
	SPMX140512	●		●	●			●
	SPGX050204						●	●
	SPGX060204						●	●
	SPGX07T308						●	●
	SPGX090408						●	●
	SPGX110408						●	●
	SPGX140512						●	●

● Stock ○ Non-stock

Cutting Conditions

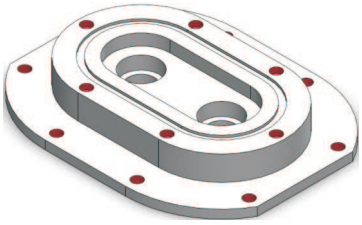
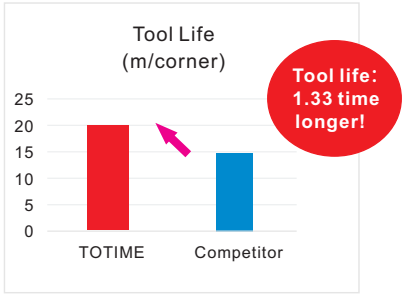
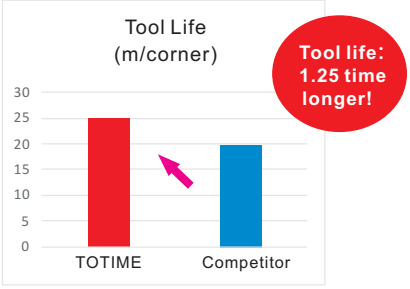
Unit（mm）

ISO	Material		Condition	First Choice	Hardness	Cutting speed	Feed (mm/rev) vs. drill diameter Drill length 2,3,4xD					
					HB	Vc(m/min)	SP..05	SP..06	SP..07	SP..09	SP..11	SP..14
P	Non-alloy steel, cast steel, free cutting steel	<0.25%C	Annealed	TM450	125	200-280	0.04-0.06	0.04-0.06	0.04-0.08	0.04-0.08	0.06-0.10	0.06-0.12
		>=0.25%C	Annealed	TI620	190	120-190	0.05-0.08	0.06-0.10	0.06-0.12	0.07-0.13	0.08-0.15	0.08-0.16
		<0.55%C	Quenched and tempered	TZ650	250	110-180	0.06-0.12	0.08-0.15	0.10-0.18	0.12-0.22	0.12-0.24	0.13-0.25
		>=0.55%C	Annealed		220	110-180	0.06-0.12	0.08-0.15	0.10-0.18	0.12-0.22	0.12-0.24	0.13-0.25
		0.55-0.80%	Quenched and tempered		300	110-180	0.06-0.12	0.08-0.15	0.10-0.18	0.12-0.22	0.12-0.24	0.13-0.25
	Low alloy steel and cast steel (Less than 5% of alloying elements)		Annealed	TI620	200	120-190	0.06-0.12	0.08-0.14	0.10-0.18	0.12-0.20	0.12-0.20	0.13-0.20
			Quenched and tempered	TZ650	275	120-160	0.06-0.15	0.06-0.15	0.08-0.18	0.08-0.18	0.08-0.18	0.08-0.18
					300	120-160	0.06-0.15	0.06-0.15	0.08-0.18	0.08-0.18	0.08-0.18	0.08-0.18
					350	120-160	0.06-0.15	0.06-0.15	0.08-0.18	0.08-0.18	0.08-0.18	0.08-0.18
	″ High alloy steel, cast steel and tool steel"		Annealed		200	120-180	0.06-0.10	0.06-0.10	0.08-0.12	0.08-0.14	0.08-0.14	0.08-0.14
			Quenched and tempered		325	120-180	0.06-0.10	0.08-0.12	0.10-0.15	0.12-0.15	0.12-0.18	0.13-0.18
M	″Stainless steel and cast steel"		Ferritic / martensitic	TM450	200	110-230	0.05-0.10	0.06-0.12	0.08-0.15	0.09-0.16	0.10-0.17	0.11-0.18
			Martensitic		240	110-230	0.05-0.10	0.06-0.12	0.08-0.15	0.09-0.16	0.10-0.17	0.11-0.18
			Austenitic		180	110-230	0.05-0.10	0.06-0.12	0.08-0.15	0.09-0.16	0.10-0.17	0.11-0.18
K	Grey cast iron		-	TI620	250	120-200	0.09-0.3	0.09-0.33	0.1-0.36	0.1-0.37	0.01-0.38	0.12-0.48
N	Aluminium Alloy		-	TN200	-	200-320	0.06-0.17	0.06-0.17	0.06-0.18	0.07-0.20	0.07-0.20	0.08-0.22
	Copper Alloy		-		-	200-320	0.06-0.17	0.06-0.17	0.06-0.18	0.07-0.20	0.07-0.20	0.08-0.22

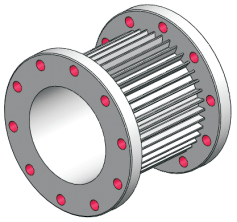
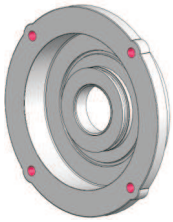
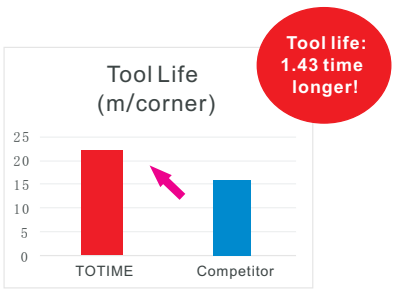
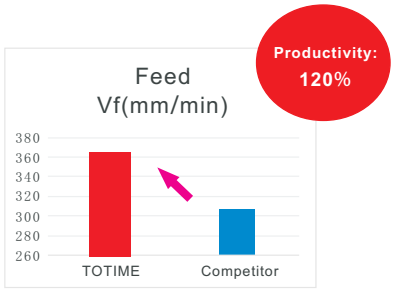
″ High alloy steel, cast steel and tool steel"

ISO	Material		Condition	First Choice	Hardness	Cutting speed	Feed (mm/rev) vs. drill diameter Drill length 5xD					
					HB	Vc(m/min)	SP..05	SP..06	SP..07	SP..09	SP..11	SP..14
P	Non-alloy steel, cast steel, free cutting steel	<0.25%C	Annealed	TM450	125	200-280	0.04-0.05	0.04-0.05	0.04-0.06	0.04-0.07	0.06-0.08	0.06-0.10
		>=0.25%C	Annealed	TI620	190	120-190	0.06-0.08	0.06-0.08	0.06-0.10	0.07-0.12	0.08-0.13	0.08-0.14
		<0.55%C	Quenched and tempered	TZ650	250	110-180	0.06-0.10	0.08-0.13	0.10-0.16	0.12-0.20	0.12-0.22	0.13-0.23
		>=0.55%C	Annealed		220	110-180	0.06-0.10	0.08-0.13	0.10-0.16	0.12-0.20	0.12-0.22	0.13-0.23
		0.55-0.80%	Quenched and tempered		300	110-180	0.06-0.10	0.08-0.13	0.10-0.16	0.12-0.20	0.12-0.22	0.13-0.23
	Low alloy steel and cast steel (Less than 5% of alloying elements)		Annealed	TI620	200	120-190	0.06-0.10	0.08-0.12	0.10-0.16	0.12-0.18	0.12-0.18	0.13-0.18
			Quenched and tempered	TZ650	275	120-160	0.06-0.12	0.06-0.13	0.08-0.16	0.08-0.16	0.08-0.17	0.08-0.17
					300	120-160	0.06-0.12	0.06-0.13	0.08-0.16	0.08-0.16	0.08-0.17	0.08-0.17
					350	120-160	0.06-0.12	0.06-0.13	0.08-0.16	0.08-0.16	0.08-0.17	0.08-0.17
	″ High alloy steel, cast steel and tool steel"		Annealed		200	120-180	0.06-0.08	0.06-0.08	0.08-0.10	0.08-0.12	0.08-0.12	0.08-0.12
			Quenched and tempered		325	120-180	0.08-0.09	0.08-0.10	0.10-0.13	0.12-0.13	0.12-0.15	0.12-0.16
M	″Stainless steel and cast steel"		Ferritic / martensitic	TM450	200	110-230	0.05-0.09	0.06-0.10	0.08-0.13	0.09-0.15	0.10-0.15	0.10-0.17
			Martensitic		240	110-230	0.05-0.09	0.06-0.10	0.08-0.13	0.09-0.15	0.10-0.15	0.10-0.17
			Austenitic		180	110-230	0.05-0.09	0.06-0.10	0.08-0.13	0.09-0.15	0.10-0.15	0.10-0.17
K	Grey cast iron		-	TI620	250	120-200	0.09-0.3	0.09-0.33	0.1-0.36	0.1-0.37	0.01-0.38	0.12-0.48
N	Aluminium Alloy		-	TN200	-	200-320	0.05-0.15	0.05-0.15	0.06-0.16	0.06-0.16	0.06-0.20	0.08-0.18
	Copper Alloy		-		-	180-280	0.05-0.15	0.05-0.15	0.06-0.16	0.06-0.16	0.07-0.20	0.08-0.18

Cutting Conditions

Workingpiece Type		Pump Body	Sealing Case
Drill		ZD02-20.0-XP25-SP06-02	ZD03-18.0-XP25-SP06-02
Insert		SPMX060204	SPMX060204
Grade		TM450	TI 620
Work Material		SUS304	S45C
		M	 P
Cutting Conditions	Cutting Speed: Vc(m/min)	100	120
	Feed: f(mm/rev)	0.075	0.1
	Feed Rate: Vf(mm/min)	120	212
	Drilling depth: H(mm)	30	40/20
	Cooling Form:	Wet	Wet
	Machine:	Vertical M/C	Vertical M/C
Result			

Cutting Conditions

Workingpiece Type		Pipe Joint	Case
Drill		ZD02-15.0-XP25-SP05-02	ZD02-13.0-XP25-SP05-02
Insert		SPMX050204	SPMX050204
Grade		TM450	TZ650
Work Material		SUS316	42CrMo4(HRC30)
		 M	 P
Cutting Conditions	Cutting Speed: Vc(m/min)	120	150
	Feed: f(mm/rev)	0.1	0.1
	Feed Rate: Vf(mm/min)	255	368
	Drilling depth: H(mm)	20	15
	Cooling Form	Wet	Wet
	Machine	NC lathe	M/C
Result			

THCD SERIES

- ◇ Precise, reliable and durable locking structure
- ◇ Different tips for processing various materials
- ◇ Excellent self-centering and chip breaking ability
- ◇ Customized drill is available

Drill Head

D12.5~D40mm

Tolerance -0.02/-0.03

Drill L/D

1D、3D、5D、7D、8D、10D、12D

Tool diameter	Hole diameter tolerance*
∅12.5-∅30	+0.06 / 0
∅30-∅40	+0.07 / 0

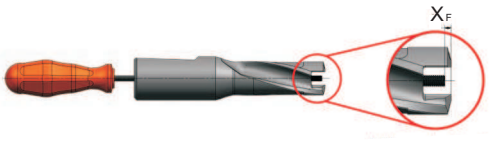
*Just for reference

★ When the drilling depth L/D ⩾ 7, it is recommended to use 3D THCD drill to process the 1.5D depth pilot hole.

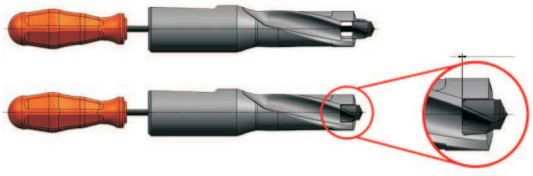
Mounting Instruction

D(mm)	X_F(mm)
12,50-32,00	0
32,01-40,00	2

Start to pull THCD drill head into the pocket seat by turning the wrench clockwise until there is full contact with the bottom of the pocket seat.



Set the screw to distance X_F

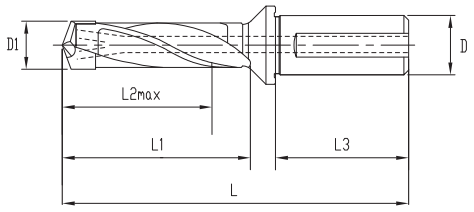


NO VISUAL GAP

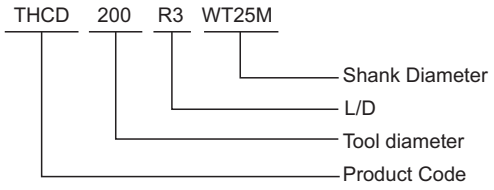
Application Data • Coolant

Required minimum coolant quantity in l/min.
relative to coolant pressure(P)and L x D ratio.

Drill Dia.(D) in mm	8 bar for 1-3xD	12 bar for 5xD	20 bar for 7-8xD	30 bar for 10xD	50 bar for >10xD
16.00	8	10	13	16	21
20.00	12	14	18	23	29
25.00	15	18	23	29	37
30.00	20	25	32	39	51
35.00	27	33	43	52	67
40.00	27	33	43	52	67

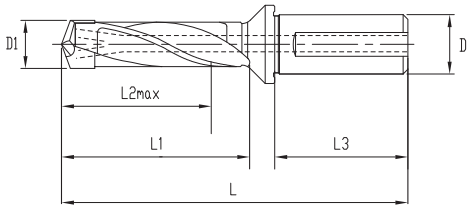


Holder model No. description :



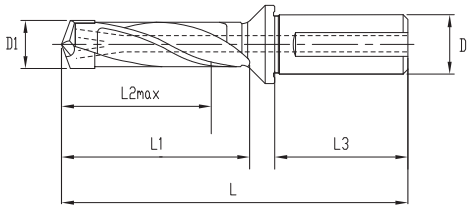
Unit (mm)

Model No.	L	L1	L2max	L3	D	D1	D1max
THCD160R1WT20M	100	36	16	50	20	16.00	16.99
THCD170R1WT20M	102	39	17	50	20	17.00	18.00
THCD180R1WT20M	104	41	18	50	20	18.00	18.00
THCD181R1WT25M	115	41	18	56	25	18.01	18.99
THCD190R1WT25M	116	43	19	56	25	19.00	19.99
THCD200R1WT25M	118	46	20	56	25	20.00	20.99
THCD210R1WT25M	119	48	21	56	25	21.00	22.00
THCD220R1WT25M	121	50	22	56	25	22.00	22.00
THCD221R1WT25M	121	50	22	56	25	22.01	22.99
THCD230R1WT25M	123	52	23	56	25	23.00	24.00
THCD240R1WT25M	124	55	24	56	25	24.00	24.00
THCD241R1WT32M	134	55	24	60	32	24.01	24.99
THCD250R1WT32M	136	57	25	60	32	25.00	26.00
THCD260R1WT32M	137	59	26	60	32	26.00	26.00
THCD261R1WT32M	137	60	26	60	32	26.01	26.99
THCD270R1WT32M	139	62	27	60	32	27.00	28.00
THCD280R1WT32M	140	64	28	60	32	28.00	28.00
THCD281R1WT32M	141	64	28	60	32	28.01	28.99
THCD290R1WT32M	142	66	29	60	32	29.00	30.00
THCD300R1WT32M	144	69	30	60	32	30.00	30.00
THCD301R1WT32M	144	69	30	60	32	30.01	30.99
THCD310R1WT32M	145	71	31	60	32	31.00	32.00
THCD320R1WT32M	147	73	32	60	32	32.00	32.00
THCD321R1WT40M	165	73	32	70	40	32.01	32.99
THCD330R1WT40M	166	75	33	70	40	33.00	33.99
THCD340R1WT40M	168	78	34	70	40	34.00	34.99
THCD350R1WT40M	169	80	35	70	40	35.00	36.00
THCD360R1WT40M	171	82	36	70	40	36.00	36.00
THCD361R1WT40M	171	83	36	70	40	36.01	36.99
THCD370R1WT40M	172	85	37	70	40	37.00	37.99
THCD380R1WT40M	174	87	38	70	40	38.00	38.99
THCD390R1WT40M	176	89	39	70	40	39.00	39.99
THCD400R1WT40M	178	91	40	70	40	40.00	40.00



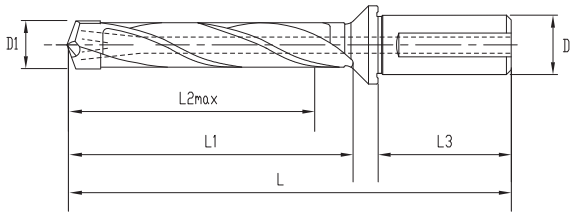
Unit (mm)

Model No.	L	L1	L2max	L3	D	D1	D1max
THCD125R3WT16M	110	53	38	45	16	12.50	12.99
THCD130R3WT16M	113	56	39	45	16	13.00	13.50
THCD135R3WT16M	115	58	40	45	16	13.50	13.50
THCD136R3WT16M	115	58	41	45	16	13.51	13.99
THCD140R3WT16M	117	60	42	45	16	14.00	14.50
THCD145R3WT16M	119	62	43	45	16	14.50	14.50
THCD146R3WT20M	125	62	44	50	20	14.51	14.99
THCD150R3WT20M	127	64	45	50	20	15.00	15.50
THCD155R3WT20M	129	66	46	50	20	15.50	15.87
THCD160R3WT20M	132	68	48	50	20	15.88	16.99
THCD170R3WT20M	136	73	51	50	20	17.00	18.00
THCD180R3WT20M	140	77	54	50	20	18.00	18.00
THCD181R3WT25M	151	77	54	56	25	18.01	18.99
THCD190R3WT25M	154	81	57	56	25	19.00	19.99
THCD200R3WT25M	158	86	60	56	25	20.00	20.99
THCD210R3WT25M	161	90	63	56	25	21.00	22.00
THCD220R3WT25M	165	94	66	56	25	22.00	22.00
THCD221R3WT25M	165	95	66	56	25	22.01	22.99
THCD230R3WT25M	169	98	69	56	25	23.00	24.00
THCD240R3WT25M	172	103	72	56	25	24.00	24.00
THCD241R3WT32M	182	103	72	60	32	24.01	24.99
THCD250R3WT32M	186	107	75	60	32	25.00	26.00
THCD260R3WT32M	189	111	78	60	32	26.00	26.00
THCD261R3WT32M	190	112	78	60	32	26.01	26.99
THCD270R3WT32M	193	116	81	60	32	27.00	28.00
THCD280R3WT32M	196	120	84	60	32	28.00	28.00
THCD281R3WT32M	197	120	84	60	32	28.01	28.99
THCD290R3WT32M	200	124	87	60	32	29.00	30.00
THCD300R3WT32M	204	129	90	60	32	30.00	30.00
THCD301R3WT32M	204	129	90	60	32	30.01	30.99
THCD310R3WT32M	207	133	93	60	32	31.00	32.00
THCD320R3WT32M	211	137	96	60	32	32.00	32.00
THCD321R3WT40M	229	138	96	70	40	32.01	32.99
THCD330R3WT40M	232	141	99	70	40	33.00	33.99
THCD340R3WT40M	236	146	102	70	40	34.00	34.99
THCD350R3WT40M	239	150	105	70	40	35.00	36.00
THCD360R3WT40M	243	154	108	70	40	36.00	36.00
THCD361R3WT40M	243	155	108	70	40	36.01	36.99
THCD370R3WT40M	246	159	111	70	40	37.00	37.99
THCD380R3WT40M	250	163	114	70	40	38.00	38.99
THCD390R3WT40M	254	167	117	70	40	39.00	39.99
THCD400R3WT40M	258	171	120	70	40	40.00	40.00



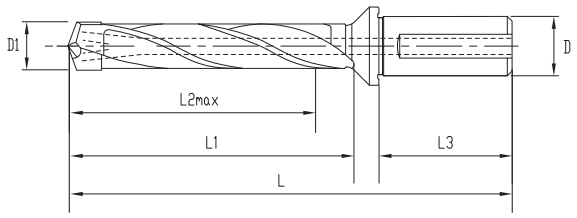
Unit (mm)

Model No.	L	L1	L2max	L3	D	D1	D1max
THCD125R5WT16M	135	78	62	45	16	12.50	12.99
THCD130R5WT16M	139	82	65	45	16	13.00	13.50
THCD135R5WT16M	142	85	67	45	16	13.50	13.50
THCD136R5WT16M	143	86	68	45	16	13.51	13.99
THCD140R5WT16M	145	88	70	45	16	14.00	14.50
THCD145R5WT16M	148	91	72	45	16	14.50	14.50
THCD146R5WT20M	155	92	73	50	20	14.51	14.99
THCD150R5WT20M	157	94	75	50	20	15.00	15.50
THCD155R5WT20M	160	97	77	50	20	15.50	15.87
THCD160R5WT20M	164	100	80	50	20	15.88	16.99
THCD170R5WT20M	170	107	85	50	20	17.00	18.00
THCD180R5WT20M	176	113	90	50	20	18.00	18.00
THCD181R5WT25M	187	114	90	56	25	18.01	18.99
THCD190R5WT25M	192	119	95	56	25	19.00	19.99
THCD200R5WT25M	198	126	100	56	25	20.00	20.99
THCD210R5WT25M	203	132	105	56	25	21.00	22.00
THCD220R5WT25M	209	138	110	56	25	22.00	22.00
THCD221R5WT25M	209	139	110	56	25	22.01	22.99
THCD230R5WT25M	215	144	115	56	25	23.00	24.00
THCD240R5WT25M	220	151	120	56	25	24.00	24.00
THCD241R5WT32M	231	151	120	60	32	24.01	24.99
THCD250R5WT32M	236	157	125	60	32	25.00	26.00
THCD260R5WT32M	241	163	130	60	32	26.00	26.00
THCD261R5WT32M	242	164	130	60	32	26.01	26.99
THCD270R5WT32M	247	170	135	60	32	27.00	28.00
THCD280R5WT32M	252	176	140	60	32	28.00	28.00
THCD281R5WT32M	253	177	140	60	32	28.01	28.99
THCD290R5WT32M	258	182	145	60	32	29.00	30.00
THCD300R5WT32M	264	189	150	60	32	30.00	30.00
THCD301R5WT32M	264	189	150	60	32	30.01	30.99
THCD310R5WT32M	269	195	155	60	32	31.00	32.00
THCD320R5WT32M	275	201	160	60	32	32.00	32.00
THCD321R5WT40M	293	202	160	70	40	32.01	32.99
THCD330R5WT40M	298	207	165	70	40	33.00	33.99
THCD340R5WT40M	304	214	170	70	40	34.00	34.99
THCD350R5WT40M	309	220	175	70	40	35.00	36.00
THCD360R5WT40M	315	226	180	70	40	36.00	36.00
THCD361R5WT40M	315	227	180	70	40	36.01	36.99
THCD370R5WT40M	320	233	185	70	40	37.00	37.99
THCD380R5WT40M	326	239	190	70	40	38.00	38.99
THCD390R5WT40M	332	245	195	70	40	39.00	39.99
THCD400R5WT40M	338	251	200	70	40	40.00	40.00



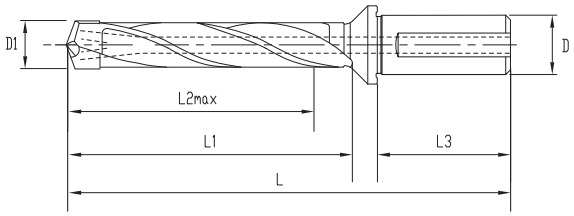
Unit (mm)

Model No.	L	L1	L2max	L3	D	D1	D1max
THCD125R7WT16M	160	103	87	45	16	12.50	12.99
THCD130R7WT16M	165	108	91	45	16	13.00	13.50
THCD135R7WT16M	169	112	94	45	16	13.50	13.50
THCD136R7WT16M	170	113	95	45	16	13.51	13.99
THCD140R7WT16M	173	116	98	45	16	14.00	14.50
THCD145R7WT16M	177	120	101	45	16	14.50	14.50
THCD146R7WT20M	184	121	102	50	20	14.51	14.99
THCD150R7WT20M	187	124	105	50	20	15.00	15.50
THCD155R7WT20M	191	128	108	50	20	15.50	15.87
THCD160R7WT20M	196	132	112	50	20	15.88	16.99
THCD170R7WT20M	204	141	119	50	20	17.00	18.00
THCD180R7WT20M	212	149	126	50	20	18.00	18.00
THCD181R7WT25M	223	150	126	56	25	18.01	18.99
THCD190R7WT25M	230	157	133	56	25	19.00	19.99
THCD200R7WT25M	238	166	140	56	25	20.00	20.99
THCD210R7WT25M	245	174	147	56	25	21.00	22.00
THCD220R7WT25M	253	182	154	56	25	22.00	22.00
THCD221R7WT25M	254	183	154	56	25	22.01	22.99
THCD230R7WT25M	261	190	161	56	25	23.00	24.00
THCD240R7WT25M	268	199	168	56	25	24.00	24.00
THCD241R7WT32M	279	200	168	60	32	24.01	24.99
THCD250R7WT32M	286	207	175	60	32	25.00	26.00
THCD260R7WT32M	293	215	182	60	32	26.00	26.00
THCD261R7WT32M	294	216	182	60	32	26.01	26.99
THCD270R7WT32M	301	224	189	60	32	27.00	28.00
THCD280R7WT32M	308	232	196	60	32	28.00	28.00
THCD281R7WT32M	301	224	196	60	32	28.01	28.99
THCD290R7WT32M	307	232	203	60	32	29.00	30.00
THCD300R7WT32M	315	240	210	60	32	30.00	30.00
THCD301R7WT32M	315	240	210	60	32	30.01	30.99
THCD310R7WT32M	322	248	217	60	32	31.00	32.00
THCD320R7WT32M	329	256	224	60	32	32.00	32.00
THCD321R7WT40M	348	256	224	70	40	32.01	32.99
THCD330R7WT40M	354	264	231	70	40	33.00	33.99
THCD340R7WT40M	362	272	238	70	40	34.00	34.99
THCD350R7WT40M	369	280	245	70	40	35.00	36.00
THCD360R7WT40M	376	288	252	70	40	36.00	36.00
THCD361R7WT40M	377	288	252	70	40	36.01	36.99
THCD370R7WT40M	383	296	259	70	40	37.00	37.99
THCD380R7WT40M	391	304	266	70	40	38.00	38.99
THCD390R7WT40M	398	312	273	70	40	39.00	39.99
THCD400R7WT40M	406	320	280	70	40	40.00	40.00



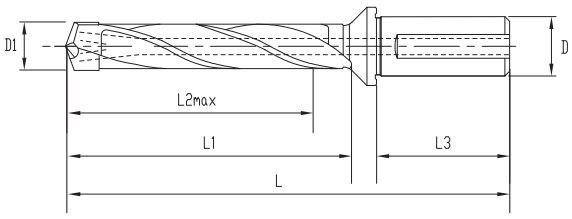
Unit (mm)

Model No.	L	L1	L2max	L3	D	D1	D1max
THCD125R8WT16M	173	116	100	45	16	12.50	12.99
THCD130R8WT16M	178	121	104	45	16	13.00	13.50
THCD135R8WT16M	182	125	108	45	16	13.50	13.50
THCD136R8WT16M	183	126	108	45	16	13.51	13.99
THCD140R8WT16M	187	130	112	45	16	14.00	14.50
THCD145R8WT16M	192	135	116	45	16	14.50	14.50
THCD146R8WT20M	198	135	116	50	20	14.51	14.99
THCD150R8WT20M	202	139	120	50	20	15.00	15.50
THCD155R8WT20M	207	144	124	50	20	15.50	15.87
THCD160R8WT20M	212	148	128	50	20	15.88	16.99
THCD170R8WT20M	221	158	136	50	20	17.00	18.00
THCD180R8WT20M	230	167	144	50	20	18.00	18.00
THCD181R8WT25M	241	168	144	56	25	18.01	18.99
THCD190R8WT25M	249	176	152	56	25	19.00	19.99
THCD200R8WT25M	258	186	160	56	25	20.00	20.99
THCD210R8WT25M	266	195	168	56	25	21.00	22.00
THCD220R8WT25M	275	204	176	56	25	22.00	22.00
THCD221R8WT25M	276	205	176	56	25	22.01	22.99
THCD230R8WT25M	284	213	184	56	25	23.00	24.00
THCD240R8WT25M	292	223	192	56	25	24.00	24.00
THCD241R8WT32M	303	224	192	60	32	24.01	24.99
THCD250R8WT32M	311	232	200	60	32	25.00	26.00
THCD260R8WT32M	319	241	208	60	32	26.00	26.00
THCD261R8WT32M	320	242	208	60	32	26.01	26.99
THCD270R8WT32M	328	251	216	60	32	27.00	28.00
THCD280R8WT32M	336	260	224	60	32	28.00	28.00
THCD281R8WT32M	329	252	224	60	32	28.01	28.99
THCD290R8WT32M	336	261	232	60	32	29.00	30.00
THCD300R8WT32M	345	270	240	60	32	30.00	30.00
THCD301R8WT32M	345	270	240	60	32	30.01	30.99
THCD310R8WT32M	353	279	248	60	32	31.00	32.00
THCD320R8WT32M	361	288	256	60	32	32.00	32.00
THCD321R8WT40M	380	288	256	70	40	32.01	32.99
THCD330R8WT40M	387	297	264	70	40	33.00	33.99
THCD340R8WT40M	396	306	272	70	40	34.00	34.99
THCD350R8WT40M	404	315	280	70	40	35.00	36.00
THCD360R8WT40M	412	324	288	70	40	36.00	36.00
THCD361R8WT40M	413	324	288	70	40	36.01	36.99
THCD370R8WT40M	420	333	296	70	40	37.00	37.99
THCD380R8WT40M	429	342	304	70	40	38.00	38.99
THCD390R8WT40M	437	351	312	70	40	39.00	39.99
THCD400R8WT40M	445	360	320	70	40	40.00	40.00



Unit (mm)

Model No.	L	L1	L2max	L3	D	D1	D1max
THCD125R10WT16M	197	140	125	45	16	12.50	12.99
THCD130R10WT16M	203	146	130	45	16	13.00	13.50
THCD135R10WT16M	209	152	135	45	16	13.50	13.50
THCD136R10WT16M	210	153	136	45	16	13.51	13.99
THCD140R10WT16M	215	158	140	45	16	14.00	14.50
THCD145R10WT16M	220	163	145	45	16	14.50	14.50
THCD146R10WT20M	227	164	146	50	20	14.51	14.99
THCD150R10WT20M	232	169	150	50	20	15.00	15.50
THCD155R10WT20M	238	175	155	50	20	15.50	15.87
THCD160R10WT20M	244	180	160	50	20	15.88	16.99
THCD170R10WT20M	255	192	170	50	20	17.00	18.00
THCD180R10WT20M	266	203	180	50	20	18.00	18.00
THCD181R10WT25M	278	204	180	56	25	18.01	18.99
THCD190R10WT25M	287	214	190	56	25	19.00	19.99
THCD200R10WT25M	298	226	200	56	25	20.00	20.99
THCD210R10WT25M	308	237	210	56	25	21.00	22.00
THCD220R10WT25M	319	248	220	56	25	22.00	22.00
THCD221R10WT25M	320	249	220	56	25	22.01	22.99
THCD230R10WT25M	330	259	230	56	25	23.00	24.00
THCD240R10WT25M	340	271	240	56	25	24.00	24.00
THCD241R10WT32M	351	272	240	60	32	24.01	24.99
THCD250R10WT32M	361	282	250	60	32	25.00	26.00
THCD260R10WT32M	371	293	260	60	32	26.00	26.00
THCD261R10WT32M	372	294	260	60	32	26.01	26.99
THCD270R10WT32M	382	305	270	60	32	27.00	28.00
THCD280R10WT32M	392	316	280	60	32	28.00	28.00
THCD281R10WT32M	385	309	280	60	32	28.01	28.99
THCD290R10WT32M	394	319	290	60	32	29.00	30.00
THCD300R10WT32M	405	330	300	60	32	30.00	30.00
THCD301R10WT32M	406	331	300	60	32	30.01	30.99
THCD310R10WT32M	415	341	310	60	32	31.00	32.00
THCD320R10WT40M	435	352	320	60	40	32.00	32.00
THCD321R10WT40M	444	353	320	70	40	32.01	32.99
THCD330R10WT40M	453	363	330	70	40	33.00	33.99
THCD340R10WT40M	464	374	340	70	40	34.00	34.99
THCD350R10WT40M	474	385	350	70	40	35.00	36.00
THCD360R10WT40M	484	396	360	70	40	36.00	36.00
THCD361R10WT40M	485	397	360	70	40	36.01	36.99
THCD370R10WT40M	494	407	370	70	40	37.00	37.99
THCD380R10WT40M	505	418	380	70	40	38.00	38.99
THCD390R10WT40M	515	429	390	70	40	39.00	39.99
THCD400R10WT40M	525	440	400	70	40	40.00	40.00

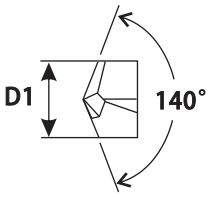


Unit (mm)

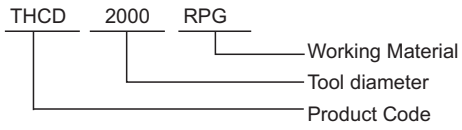
Model No.	L	L1	L2max	L3	D	D1	D1max
THCD125R12WT16M	223	166	150	45	16	12.50	12.99
THCD130R12WT16M	229	172	156	45	16	13.00	13.50
THCD135R12WT16M	236	179	162	45	16	13.50	13.50
THCD136R12WT16M	237	180	163	45	16	13.51	13.99
THCD140R12WT16M	243	186	168	45	16	14.00	14.50
THCD145R12WT16M	249	192	174	45	16	14.50	14.50
THCD146R12WT20M	257	194	175	50	20	14.51	14.99
THCD150R12WT20M	262	199	180	50	20	15.00	15.50
THCD155R12WT20M	269	206	186	50	20	15.50	15.87
THCD160R12WT20M	276	212	192	50	20	15.88	16.99
THCD170R12WT20M	289	226	204	50	20	17.00	18.00
THCD180R12WT20M	302	239	216	50	20	18.00	18.00
THCD181R12WT25M	314	240	216	56	25	18.01	18.99
THCD190R12WT25M	325	252	228	56	25	19.00	19.99
THCD200R12WT25M	338	266	240	56	25	20.00	20.99
THCD210R12WT25M	350	279	252	56	25	21.00	22.00
THCD220R12WT25M	356	286	264	56	25	22.00	22.00
THCD221R12WT25M	364	293	264	56	25	22.01	22.99
THCD230R12WT25M	376	305	276	56	25	23.00	24.00
THCD240R12WT25M	382	319	288	56	25	24.00	24.00
THCD241R12WT32M	399	320	288	60	32	24.01	24.99
THCD250R12WT32M	411	332	300	60	32	25.00	26.00
THCD260R12WT32M	423	345	312	60	32	26.00	26.00
THCD261R12WT32M	424	347	312	60	32	26.01	26.99
THCD270R12WT32M	436	359	324	60	32	27.00	28.00
THCD280R12WT32M	448	372	336	60	32	28.00	28.00
THCD281R12WT32M	441	365	336	60	32	28.01	28.99
THCD290R12WT32M	453	377	348	60	32	29.00	30.00
THCD300R12WT32M	465	390	360	60	32	30.00	30.00

RPG

RSG



Drill Head model No. description:



RPG：Steel / Cast Iron

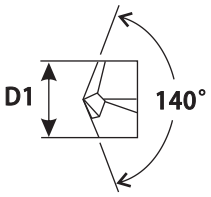
RSG：Stainless Steel

Unit (mm)

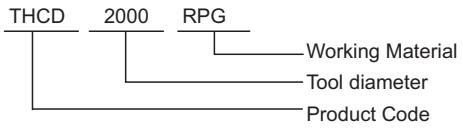
D1	Model No.		D1	Model No.	
12.50	THCD1250RPG	THCD1250RSG	12.60	THCD1260RPG	THCD1260RSG
12.70	THCD1270RPG	THCD1270RSG	12.80	THCD1280RPG	THCD1280RSG
12.90	THCD1290RPG	THCD1290RSG	13.00	THCD1300RPG	THCD1300RSG
13.10	THCD1310RPG	THCD1310RSG	13.20	THCD1320RPG	THCD1320RSG
13.30	THCD1330RPG	THCD1330RSG	13.40	THCD1340RPG	THCD1340RSG
13.50	THCD1350RPG	THCD1350RSG	13.60	THCD1360RPG	THCD1360RSG
13.70	THCD1370RPG	THCD1370RSG	13.80	THCD1380RPG	THCD1380RSG
13.90	THCD1390RPG	THCD1390RSG	14.00	THCD1400RPG	THCD1400RSG
14.10	THCD1410RPG	THCD1410RSG	14.20	THCD1420RPG	THCD1420RSG
14.30	THCD1430RPG	THCD1430RSG	14.40	THCD1440RPG	THCD1440RSG
14.50	THCD1450RPG	THCD1450RSG	14.60	THCD1460RPG	THCD1460RSG
14.70	THCD1470RPG	THCD1470RSG	14.80	THCD1480RPG	THCD1480RSG
14.90	THCD1490RPG	THCD1490RSG	15.00	THCD1500RPG	THCD1500RSG
15.10	THCD1510RPG	THCD1510RSG	15.20	THCD1520RPG	THCD1520RSG
15.30	THCD1530RPG	THCD1530RSG	15.40	THCD1540RPG	THCD1540RSG
15.50	THCD1550RPG	THCD1550RSG	15.60	THCD1560RPG	THCD1560RSG
15.70	THCD1570RPG	THCD1570RSG	15.80	THCD1580RPG	THCD1580RSG
15.90	THCD1590RPG	THCD1590RSG	16.00	THCD1600RPG	THCD1600RSG
16.20	THCD1620RPG	THCD1620RSG	16.25	THCD1625RPG	THCD1625RSG
16.27	THCD1627RPG	THCD1627RSG	16.30	THCD1630RPG	THCD1630RSG
16.33	THCD1633RPG	THCD1633RSG	16.35	THCD1635RPG	THCD1635RSG
16.40	THCD1640RPG	THCD1640RSG	16.50	THCD1650RPG	THCD1650RSG
16.60	THCD1660RPG	THCD1660RSG	16.80	THCD1680RPG	THCD1680RSG
16.90	THCD1690RPG	THCD1690RSG	17.00	THCD1700RPG	THCD1700RSG
17.20	THCD1720RPG	THCD1720RSG	17.30	THCD1730RPG	THCD1730RSG
17.50	THCD1750RPG	THCD1750RSG	17.60	THCD1760RPG	THCD1760RSG
17.70	THCD1770RPG	THCD1770RSG	17.80	THCD1780RPG	THCD1780RSG
17.90	THCD1790RPG	THCD1790RSG	18.00	THCD1800RPG	THCD1800RSG
18.20	THCD1820RPG	THCD1820RSG	18.30	THCD1830RPG	THCD1830RSG
18.50	THCD1850RPG	THCD1850RSG	18.70	THCD1870RPG	THCD1870RSG
18.90	THCD1890RPG	THCD1890RSG	19.00	THCD1900RPG	THCD1900RSG
19.20	THCD1920RPG	THCD1920RSG	19.25	THCD1925RPG	THCD1925RSG
19.27	THCD1927RPG	THCD1927RSG	19.30	THCD1930RPG	THCD1930RSG

RPG

RSG



Drill Head model No. description:



RPG：Steel / Cast Iron

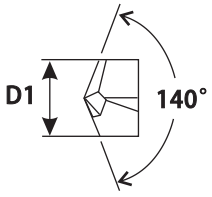
RSG：Stainless Steel

Unit (mm)

D1	Model No.		D1	Model No.	
19.33	THCD1933RPG	THCD1933RSG	19.35	THCD1935RPG	THCD1935RSG
19.40	THCD1940RPG	THCD1940RSG	19.50	THCD1950RPG	THCD1950RSG
19.60	THCD1960RPG	THCD1960RSG	19.80	THCD1980RPG	THCD1980RSG
19.90	THCD1990RPG	THCD1990RSG	20.00	THCD2000RPG	THCD2000RSG
20.20	THCD2020RPG	THCD2020RSG	20.30	THCD2030RPG	THCD2030RSG
20.50	THCD2050RPG	THCD2050RSG	20.70	THCD2070RPG	THCD2070RSG
20.90	THCD2090RPG	THCD2090RSG	21.00	THCD2100RPG	THCD2100RSG
21.20	THCD2120RPG	THCD2120RSG	21.30	THCD2130RPG	THCD2130RSG
21.50	THCD2150RPG	THCD2150RSG	21.70	THCD2170RPG	THCD2170RSG
21.90	THCD2190RPG	THCD2190RSG	22.00	THCD2200RPG	THCD2200RSG
22.20	THCD2220RPG	THCD2220RSG	22.30	THCD2230RPG	THCD2230RSG
22.50	THCD2250RPG	THCD2250RSG	22.70	THCD2270RPG	THCD2270RSG
22.90	THCD2290RPG	THCD2290RSG	23.00	THCD2300RPG	THCD2300RSG
23.20	THCD2320RPG	THCD2320RSG	23.30	THCD2330RPG	THCD2330RSG
23.50	THCD2350RPG	THCD2350RSG	23.70	THCD2370RPG	THCD2370RSG
23.90	THCD2390RPG	THCD2390RSG	24.00	THCD2400RPG	THCD2400RSG
24.20	THCD2420RPG	THCD2420RSG	24.30	THCD2430RPG	THCD2430RSG
24.50	THCD2450RPG	THCD2450RSG	24.70	THCD2470RPG	THCD2470RSG
24.90	THCD2490RPG	THCD2490RSG	25.00	THCD2500RPG	THCD2500RSG
25.20	THCD2520RPG	THCD2520RSG	25.25	THCD2525RPG	THCD2525RSG
25.27	THCD2527RPG	THCD2527RSG	25.30	THCD2530RPG	THCD2530RSG
25.33	THCD2533RPG	THCD2533RSG	25.35	THCD2535RPG	THCD2535RSG
25.40	THCD2540RPG	THCD2540RSG	25.50	THCD2550RPG	THCD2550RSG
25.60	THCD2560RPG	THCD2560RSG	25.80	THCD2580RPG	THCD2580RSG
25.90	THCD2590RPG	THCD2590RSG	26.00	THCD2600RPG	THCD2600RSG
26.20	THCD2620RPG	THCD2620RSG	26.30	THCD2630RPG	THCD2630RSG
26.50	THCD2650RPG	THCD2650RSG	26.70	THCD2670RPG	THCD2670RSG
26.90	THCD2690RPG	THCD2690RSG	27.00	THCD2700RPG	THCD2700RSG
27.20	THCD2720RPG	THCD2720RSG	27.30	THCD2730RPG	THCD2730RSG
27.50	THCD2750RPG	THCD2750RSG	27.70	THCD2770RPG	THCD2770RSG
27.90	THCD2790RPG	THCD2790RSG	28.00	THCD2800RPG	THCD2800RSG
28.20	THCD2820RPG	THCD2820RSG	28.30	THCD2830RPG	THCD2830RSG
28.50	THCD2850RPG	THCD2850RSG	28.70	THCD2870RPG	THCD2870RSG

RPG

RSG

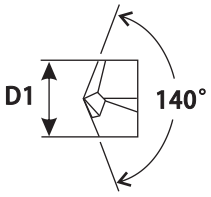


Unit (mm)

D1	Model No.		D1	Model No.	
28.90	THCD2890RPG	THCD2890RSG	29.00	THCD2900RPG	THCD2900RSG
29.20	THCD2920RPG	THCD2920RSG	29.30	THCD2930RPG	THCD2930RSG
29.50	THCD2950RPG	THCD2950RSG	29.70	THCD2970RPG	THCD2970RSG
29.90	THCD2990RPG	THCD2990RSG	30.00	THCD3000RPG	THCD3000RSG
30.20	THCD3020RPG	THCD3020RSG	30.30	THCD3030RPG	THCD3030RSG
30.50	THCD3050RPG	THCD3050RSG	30.70	THCD3070RPG	THCD3070RSG
30.90	THCD3090RPG	THCD3090RSG	31.00	THCD3100RPG	THCD3100RSG
31.20	THCD3120RPG	THCD3120RSG	31.30	THCD3130RPG	THCD3130RSG
31.50	THCD3150RPG	THCD3150RSG	31.70	THCD3170RPG	THCD3170RSG
31.90	THCD3190RPG	THCD3190RSG	32.00	THCD3200RPG	THCD3200RSG
32.20	THCD3220RPG	THCD3220RSG	32.30	THCD3230RPG	THCD3230RSG
32.50	THCD3250RPG	THCD3250RSG	32.70	THCD3270RPG	THCD3270RSG
32.90	THCD3290RPG	THCD3290RSG	33.00	THCD3300RPG	THCD3300RSG
33.20	THCD3320RPG	THCD3320RSG	33.30	THCD3330RPG	THCD3330RSG
33.50	THCD3350RPG	THCD3350RSG	33.70	THCD3370RPG	THCD3370RSG
33.90	THCD3390RPG	THCD3390RSG	34.00	THCD3400RPG	THCD3400RSG
34.20	THCD3420RPG	THCD3420RSG	34.30	THCD3430RPG	THCD3430RSG
34.50	THCD3450RPG	THCD3450RSG	34.70	THCD3470RPG	THCD3470RSG
34.90	THCD3490RPG	THCD3490RSG	35.00	THCD3500RPG	THCD3500RSG
35.20	THCD3520RPG	THCD3520RSG	35.30	THCD3530RPG	THCD3530RSG
35.50	THCD3550RPG	THCD3550RSG	35.70	THCD3570RPG	THCD3570RSG
35.90	THCD3590RPG	THCD3590RSG	36.00	THCD3600RPG	THCD3600RSG
36.20	THCD3620RPG	THCD3620RSG	36.30	THCD3630RPG	THCD3630RSG
36.50	THCD3650RPG	THCD3650RSG	36.70	THCD3670RPG	THCD3670RSG
36.90	THCD3690RPG	THCD3690RSG	37.00	THCD3700RPG	THCD3700RSG
37.20	THCD3720RPG	THCD3720RSG	37.30	THCD3730RPG	THCD3730RSG
37.50	THCD3750RPG	THCD3750RSG	37.70	THCD3770RPG	THCD3770RSG
37.90	THCD3790RPG	THCD3790RSG	38.00	THCD3800RPG	THCD3800RSG
38.20	THCD3820RPG	THCD3820RSG	38.30	THCD3830RPG	THCD3830RSG
38.50	THCD3850RPG	THCD3850RSG	38.70	THCD3870RPG	THCD3870RSG
38.90	THCD3890RPG	THCD3890RSG	39.00	THCD3900RPG	THCD3900RSG
39.20	THCD3920RPG	THCD3920RSG	39.30	THCD3930RPG	THCD3930RSG
39.50	THCD3950RPG	THCD3950RSG	39.70	THCD3970RPG	THCD3970RSG
39.90	THCD3990RPG	THCD3990RSG	40.00	THCD4000RPG	THCD4000RSG

RPG

RSG



Unit (mm)

Wrench								Screw
Diameter Range	L/D=1	L/D=3	L/D=5	L/D=7	L/D=8	L/D=10	L/D=12	Locking screw
12.50-15.87	—	THW1716	THW1716	THW1717	THW1717	THW1718	THW1718	364.016
15.88-18.00	THW1701	THW1701	THW1701	THW1702	THW1702	THW1709	THW1709	364.010
18.01-19.99	THW1701	THW1701	THW1701	THW1702	THW1702	THW1709	THW1709	
20.00-22.00	THW1703	THW1703	THW1703	THW1704	THW1704	THW1710	THW1710	364.011
22.01-24.00	THW1703	THW1703	THW1703	THW1704	THW1704	THW1710	THW1710	
24.01-26.00	THW1705	THW1705	THW1705	THW1706	THW1706	THW1711	THW1714	364.012
26.01-28.00	THW1705	THW1705	THW1705	THW1706	THW1706	THW1711	THW1714	
28.01-30.00	THW1707	THW1707	THW1707	THW1708	THW1708	THW1712	THW1715	364.013
30.01-32.00	THW1707	THW1707	THW1707	THW1708	THW1708	THW1712	THW1715	
32.01-36.00	THW1707	THW1707	THW1708	THW1712	THW1712	THW1715	—	364.015
36.01-40.00	THW1707	THW1707	THW1708	THW1712	THW1712	THW1715	—	

RPG (Steel and cast iron series)

Line speed (m/min)		Feed (mm/r)					
Minimum value	Maximum value	mm	16.00	20.00	25.00	32.00	40.00
75	130		0.17-0.36	0.20-0.38	0.23-0.43	0.25-0.45	0.27-0.50
Low carbon steel long chips				Hardness(HB):<125			

Line speed (m/min)		Feed (mm/r)					
Minimum value	Maximum value	mm	16.00	20.00	25.00	32.00	40.00
80	140		0.17-0.36	0.20-0.38	0.23-0.43	0.25-0.45	0.27-0.50
Low carbon steel short chips				Hardness(HB):<220			

Line speed (m/min)		Feed (mm/r)					
Minimum value	Maximum value	mm	16.00	20.00	25.00	32.00	40.00
60	90		0.17-0.30	0.20-0.32	0.23-0.37	0.25-0.40	0.27-0.42
Medium and high carbon alloy steel				Hardness(HB):<330			

Line speed (m/min)		Feed (mm/r)					
Minimum value	Maximum value	mm	16.00	20.00	25.00	32.00	40.00
50	85		0.14-0.30	0.17-0.32	0.20-0.37	0.22-0.40	0.23-0.42
Alloy steel and Tool steel				Hardness(HB):350-450			

Line speed (m/min)		Feed (mm/r)					
Minimum value	Maximum value	mm	16.00	20.00	25.00	32.00	40.00
90	175		0.21-0.42	0.25-0.48	0.31-0.59	0.37-0.70	0.43-0.81
Gray cast iron and low strength spheroidal graphite cast irons				Hardness(HB):120-290			

Line speed (m/min)		Feed (mm/r)					
Minimum value	Maximum value	mm	16.00	20.00	25.00	32.00	40.00
90	125		0.21-0.41	0.25-0.48	0.31-0.59	0.37-0.70	0.43-0.81
Low strength spheroidal graphite cast irons				Hardness(HB):130-260			

Line speed (m/min)		Feed (mm/r)					
Minimum value	Maximum value	mm	16.00	20.00	25.00	32.00	40.00
40	125		0.20-0.41	0.21-0.44	0.23-0.48	0.25-0.53	0.27-0.57
High strength spheroidal graphite cast irons				Hardness(HB):180-350			

RSG (Stainless Steel)

Line speed (m/min)		Feed (mm/r)					
Minimum value	Maximum value	mm	16.00	20.00	25.00	32.00	40.00
45	70		0.10-0.20	0.12-0.23	0.12-0.25	0.14-0.27	0.15-0.30
Austenitic stainless steel				Hardness(HB):130-200			

Line speed (m/min)		Feed (mm/r)					
Minimum value	Maximum value	mm	16.00	20.00	25.00	32.00	40.00
40	60		0.08-0.15	0.10-0.20	0.12-0.22	0.14-0.25	0.15-0.26
High strength austenitic stainless steel				Hardness(HB):150-230			

Line speed (m/min)		Feed (mm/r)					
Minimum value	Maximum value	mm	16.00	20.00	25.00	32.00	40.00
45	60		0.10-0.17	0.10-0.20	0.12-0.22	0.14-0.24	0.15-0.27
Dual phase steel				Hardness(HB):135-275			

Workpiece material:Q345R

Part name：Heat exchange plate

	THCD	Competitor
Modular exchangeable-tip drill insert	THCD2530RPG	D25.30 Similar structure
Diameter	25.30mm	25.30mm
Modular exchangeable-tip drill	THCD250R8WT32M	D25x8D
VC(Line speed)	119m/min	91m/min
rpm(Rotating speed)	1500r/min	1150r/min
F(Feed per revolution)	0.27mm/r	0.24mm/r
Vf(Feed)	405mm/min	276mm/min
Hole depth	190mm	190mm
Number of drill holes	255	187

Workpiece material: stainless steel 316L

Part name：Heat exchange plate

	THCD	Competitor
Modular exchangeable-tip drill insert	THCD1930RSG	D19.30 Similar structure
Diameter	19.30mm	19.30mm
Modular exchangeable-tip drill	THCD190R7WT25M	D19x7D
VC(Line speed)	60m/min	50m/min
rpm(Rotating speed)	1000r/min	850r/min
F(Feed per revolution)	0.14mm/r	0.11mm/r
Vf(Feed)	140mm/min	95mm/min
Hole depth	130mm	130mm
Number of drill holes	460	230

TC SERIES

1. Reserve 1.5mm-3mm regrinding allowance for the drill head, which can further reduce tool costs.
2. Interchangeable drill head and high rigidity alloy tool holders greatly improve machining accuracy and efficiency.
3. The drill head and holder adopt a radial tooth design, which effectively meets the requirements of high precision and high strength.
4. The internal coolant design can fully cool the drill tip, extend tool life, and make chip removal smoother.
5. Optimized spiral design makes chip removal smoother.
6. The strengthened edge treatment significantly improves the processing life.
7. Replacing drill head is fast and convenient, without the need to remove the tool holder from the machine tool.

Drill Head

D12~D33.5mm

Tolerance h7

Drill L/D

1.5D、3D、5D、8D、10D、12D

Tool diameter	Hole diameter tolerance*
L/D≤5D	+0.05 / -0.01
L/D＞5D	+0.08 / -0.015

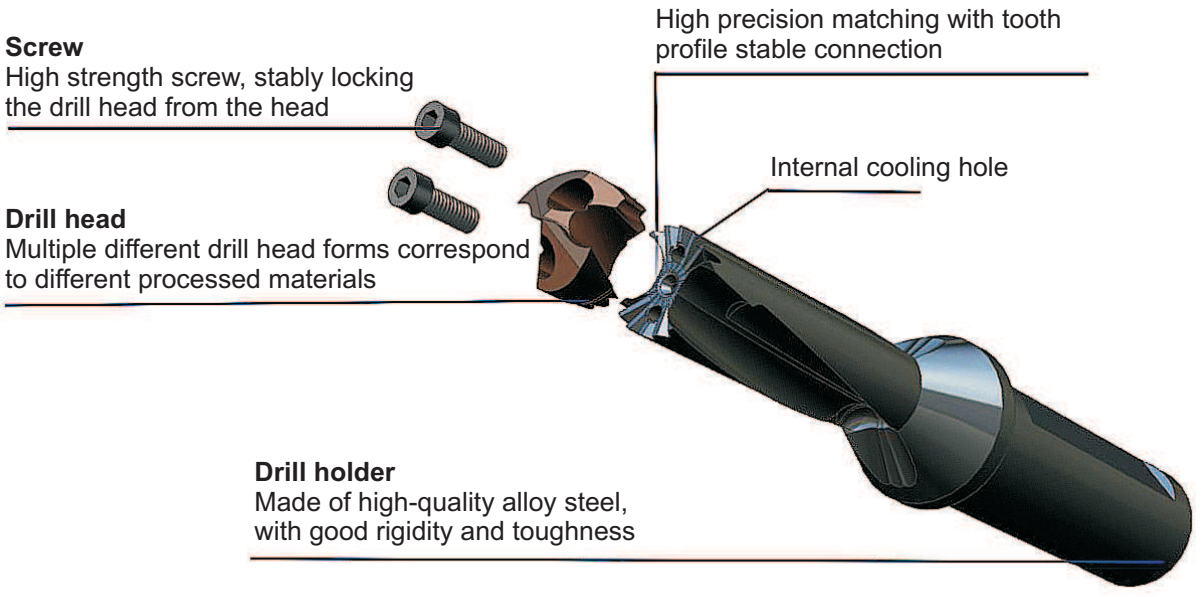
*Just for reference

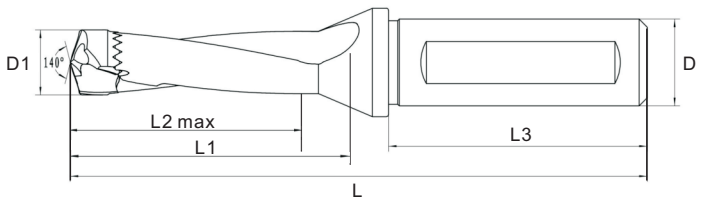
Unit (mm)

When the drilling depth L/D≥8, it is recommended to use a 3D TC drill to process the 1.5D depth pilot hole.

TCPA TCEA TCMA

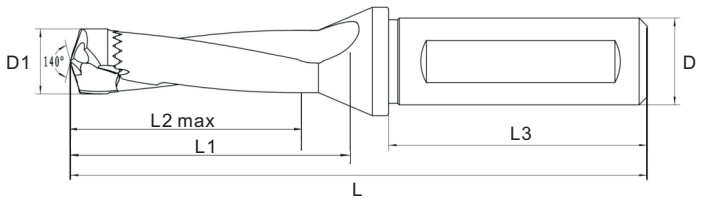
TCPA has high strength and is used for processing ordinary steel parts.
TCEA is relatively sharp and is used for processing soft steel and cast iron.
TCMA uses a tough matrix to resist collapse and is specifically designed for processing stainless steel.





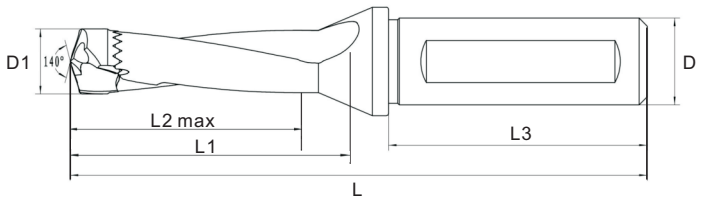
Unit (mm)

Designation	D1	D1max	L	L1	L2max	L3	D	Screw	Wrench
TC1.5-120-XP16	12.00	12.49	91	28	18.75	48	16	TCS2208	TCW06
TC1.5-130-XP16	12.50	13.49	92	30	20.25	48	16		
TC1.5-140-XP16	13.50	14.50	96	34	21.75	48	16		
TC1.5-150-XP20	14.51	15.50	100	35	23.25	50	20		
TC1.5-160-XP20	15.51	16.50	103	38	24.75	50	20	TCS2509	TCW08
TC1.5-170-XP20	16.51	17.50	105	39	26.25	50	20		
TC1.5-180-XP20	17.51	18.50	107	43	27.75	50	20		
TC1.5-190-XP25	18.51	19.50	115	44	29.25	56	25	TCS3011	TCW08
TC1.5-200-XP25	19.51	20.50	118	47	30.75	56	25		
TC1.5-210-XP25	20.51	21.50	119	48	32.25	56	25		
TC1.5-220-XP25	21.51	22.80	121	51	34.50	56	25	TCS3512	TCW15
TC1.5-230-XP25	22.81	23.80	122	51	36.00	56	25		
TC1.5-240-XP32	23.81	24.80	129	54	37.50	60	32		
TC1.5-250-XP32	24.81	25.80	129	54	54.00	60	32	TCS4014	TCW15
TC1.5-260-XP32	25.81	26.80	132	57	40.50	60	32		
TC1.5-270-XP32	26.81	27.80	133	58	42.00	60	32		
TC1.5-280-XP32	27.81	28.80	135	60	43.50	60	32	TCS4515	TCW15
TC1.5-290-XP32	28.81	29.80	136	61	45.00	60	32		
TC1.5-300-XP32	29.81	30.80	139	64	46.50	60	32		
TC1.5-320-XP32	30.81	32.00	143	67	48.00	60	32		
TC1.5-330-XP32	32.01	33.50	146	69	50.25	60	32		



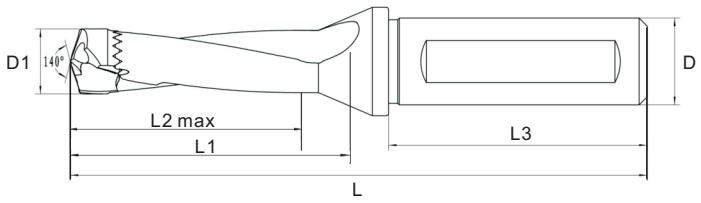
Unit (mm)

Designation	D1	D1max	L	L1	L2max	L3	D	Screw	Wrench
TC03-120-XP16	12.00	12.49	107	46	37.5	48	16	TCS2208	TCW06
TC03-130-XP16	12.50	13.49	112	49	40.5	48	16		
TC03-140-XP16	13.50	14.50	119	55	43.5	48	16		
TC03-150-XP20	14.51	15.50	129	58	46.5	50	20		
TC03-160-XP20	15.51	16.50	134	62	49.5	50	20	TCS2509	TCW08
TC03-170-XP20	16.51	17.50	140	66	52.5	50	20		
TC03-180-XP20	17.51	18.50	145	70	55.5	50	20		
TC03-190-XP25	18.51	19.50	160	73	58.5	56	25	TCS3011	TCW08
TC03-200-XP25	19.51	20.50	160	77	61.5	56	25		
TC03-210-XP25	20.51	21.50	160	80	64.5	56	25		
TC03-220-XP25	21.51	22.80	165	84	69.0	56	25	TCS3512	TCW15
TC03-230-XP25	22.81	23.80	165	81	72.0	56	25		
TC03-240-XP32	23.81	24.80	175	91	75.0	60	32		
TC03-250-XP32	24.81	25.80	175	93	78.0	60	32	TCS4014	TCW15
TC03-260-XP32	25.81	26.80	180	97	81.0	60	32		
TC03-270-XP32	26.81	27.80	180	99	84.0	60	32		
TC03-280-XP32	27.81	28.80	185	102	87.0	60	32	TCS4515	TCW15
TC03-290-XP32	28.81	29.80	190	105	60.0	60	32		
TC03-300-XP32	29.81	30.80	191	110	91.0	60	32		
TC03-320-XP32	30.81	32.00	201	116	96.0	60	32		
TC03-330-XP32	32.01	33.50	206	121	100.5	60	32		



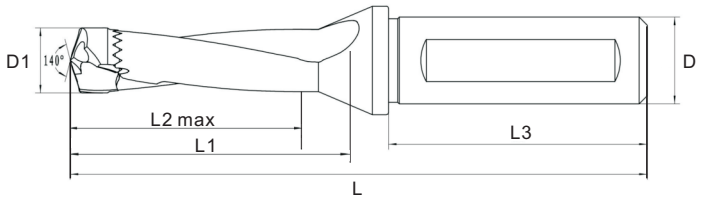
Unit (mm)

Designation	D1	D1max	L	L1	L2max	L3	D	Screw	Wrench
TC05-120-XP16	12.00	12.49	132	71	62.5	48	16	TCS2208	TCW06
TC05-130-XP16	12.50	13.49	142	76	67.5	48	16		
TC05-140-XP16	13.50	14.50	149	84	72.5	48	16		
TC05-150-XP20	14.51	15.50	159	89	77.5	50	20		
TC05-160-XP20	15.51	16.50	169	95	82.5	50	20	TCS2509	TCW08
TC05-170-XP20	16.51	17.50	175	101	87.5	50	20		
TC05-180-XP20	17.51	18.50	180	107	92.5	50	20		
TC05-190-XP25	18.51	19.50	195	112	97.5	56	25	TCS3011	TCW08
TC05-200-XP25	19.51	20.50	200	118	102.5	56	25		
TC05-210-XP25	20.51	21.50	200	123	107.5	56	25		
TC05-220-XP25	21.51	22.80	205	129	115.0	56	25	TCS3512	TCW15
TC05-230-XP25	22.81	23.80	215	134	120.0	56	25		
TC05-240-XP32	23.81	24.80	225	140	125.0	60	32		
TC05-250-XP32	24.81	25.80	230	145	130.0	60	32	TCS4014	TCW15
TC05-260-XP32	25.81	26.80	235	151	135.0	60	32		
TC05-270-XP32	26.81	27.80	245	156	140.0	60	32		
TC05-280-XP32	27.81	28.80	245	162	145.0	60	32	TCS4515	TCW15
TC05-290-XP32	28.81	29.80	250	167	150.0	60	32		
TC05-300-XP32	29.81	30.80	261	173	155.0	60	32		
TC05-320-XP32	30.81	32.00	266	181	160.0	60	32		
TC05-330-XP32	32.01	33.50	276	191	167.5	60	32		



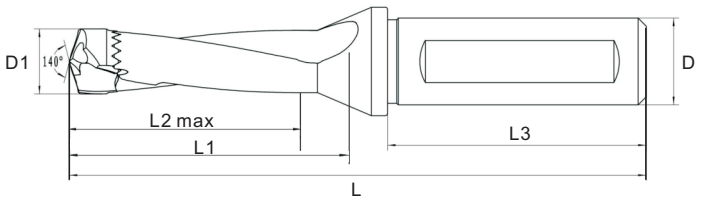
Unit (mm)

Designation	D1	D1max	L	L1	L2max	L3	D	Screw	Wrench
TC08-120-XP16	12.00	12.49	168	107	100	48	16	TCS2208	TCW06
TC08-130-XP16	12.50	13.49	182	115	108	48	16		
TC08-140-XP16	13.50	14.50	194	127	116	48	16		
TC08-150-XP20	14.51	15.50	204	136	124	50	20		
TC08-160-XP20	15.51	16.50	214	144	132	50	20	TCS2509	TCW08
TC08-170-XP20	16.51	17.50	225	154	140	50	20		
TC08-180-XP20	17.51	18.50	230	162	148	50	20		
TC08-190-XP25	18.51	19.50	255	171	156	56	25	TCS3011	TCW08
TC08-200-XP25	19.51	20.50	270	179	164	56	25		
TC08-210-XP25	20.51	21.50	266	188	172	56	25		
TC08-220-XP25	21.51	22.80	275	196	184	56	25	TCS3512	TCW15
TC08-230-XP25	22.81	23.80	285	205	192	56	25		
TC08-240-XP32	23.81	24.80	300	213	200	60	32		
TC08-250-XP32	24.81	25.80	305	222	208	60	32	TCS4014	TCW15
TC08-260-XP32	25.81	26.80	315	230	216	60	32		
TC08-270-XP32	26.81	27.80	325	239	224	60	32		
TC08-280-XP32	27.81	28.80	330	247	232	60	32	TCS4515	TCW15
TC08-290-XP32	28.81	29.80	340	256	240	60	32		
TC08-300-XP32	29.81	30.80	351	265	248	60	32		
TC08-320-XP32	30.81	32.00	361	276	256	60	32		
TC08-330-XP32	32.01	33.50	376	291	268	60	32		



Unit (mm)

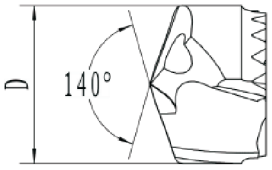
Designation	D1	D1max	L	L1	L2max	L3	D	Screw	Wrench
TC10-140-XP16	13.50	14.50	220.5	156.5	145	48	16	TCS2208	TCW06
TC10-150-XP20	14.51	15.50	232.7	166.7	155	50	20		
TC10-160-XP20	15.51	16.50	243.5	178.5	165	50	20	TCS2509	TCW08
TC10-170-XP20	16.51	17.50	253.7	188.7	175	50	20		
TC10-180-XP20	17.51	18.50	264.8	198.8	185	50	20		
TC10-190-XP25	18.51	19.50	280.9	209.9	195	56	25	TCS3011	TCW08
TC10-200-XP25	19.51	20.50	291.5	220.5	205	56	25		
TC10-210-XP25	20.51	21.50	361.6	230.6	215	56	25		
TC10-220-XP25	21.51	22.80	315.1	244.1	230	56	25	TCS3512	TCW15
TC10-230-XP25	22.81	23.80	324.7	253.7	240	56	25		
TC10-240-XP32	23.81	24.80	339.9	264.9	250	60	32		
TC10-250-XP32	24.81	25.80	350.0	270.0	260	60	32	TCS4014	TCW15
TC10-260-XP32	25.81	26.80	360.3	285.3	270	60	32		
TC10-270-XP32	26.81	27.80	370.3	295.3	280	60	32		
TC10-280-XP32	27.81	28.80	381.2	306.2	290	60	32	TCS4515	TCW15
TC10-290-XP32	28.81	29.80	391.4	316.4	300	60	32		
TC10-300-XP32	29.81	30.80	402.9	327.9	310	60	32		
TC10-320-XP32	30.81	32.00	424.9	345.9	320	60	32		
TC10-330-XP32	32.01	33.50	443.0	364.0	335	60	32		



Unit (mm)

Designation	D1	D1max	L	L1	L2max	L3	D	Screw	Wrench
TC12-140-XP16	13.50	14.50	249.5	186.5	174	48	16	TCS2208	TCW06
TC12-150-XP20	14.51	15.50	263.7	198.7	186	50	20		
TC12-160-XP20	15.51	16.50	276.5	211.5	198	50	20	TCS2509	TCW08
TC12-170-XP20	16.51	17.50	288.7	223.7	210	50	20		
TC12-180-XP20	17.51	18.50	301.8	236.8	222	50	20		
TC12-190-XP25	18.51	19.50	314.8	248.9	234	56	25	TCS3011	TCW08
TC12-200-XP25	19.51	20.50	332.5	261.5	246	56	25		
TC12-210-XP25	20.51	21.50	344.6	273.6	258	56	25		
TC12-220-XP25	21.51	22.80	360.7	289.7	276	56	25	TCS3512	TCW15
TC12-230-XP25	22.81	23.80	372.3	301.3	288	56	25		
TC12-240-XP32	23.81	24.80	389.5	264.9	300	60	32		
TC12-250-XP32	24.81	25.80	401.6	326.6	312	60	32	TCS4014	TCW15
TC12-260-XP32	25.81	26.80	413.9	338.9	324	60	32		
TC12-270-XP32	26.81	27.80	425.9	350.9	336	60	32		
TC12-280-XP32	27.81	28.80	438.8	363.8	348	60	32	TCS4515	TCW15
TC12-290-XP32	28.81	29.80	451	376	360	60	32		
TC12-300-XP32	29.81	30.80	464.5	389.5	372	60	32		

TCPA TCEA TCMA

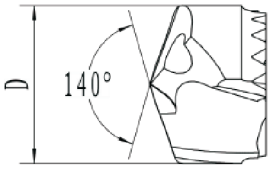


Suitable materials:
TCEA: Steel(HRC≤25）、Cast Iron
TCPA: Steel(25≤HRC≤45)
TCMA: Stainless Steel

Unit (mm)

Drill dia.(D)	Designation		
12.0	TCEA-1200	TCPA-1200	TCMA-1200
12.5	TCEA-1250	TCPA-1250	TCMA-1250
13.0	TCEA-1300	TCPA-1300	TCMA-1300
13.5	TCEA-1350	TCPA-1350	TCMA-1350
14.0	TCEA-1400	TCPA-1400	TCMA-1400
14.5	TCEA-1450	TCPA-1450	TCMA-1450
15.0	TCEA-1500	TCPA-1500	TCMA-1500
15.5	TCEA-1550	TCPA-1550	TCMA-1550
16.0	TCEA-1600	TCPA-1600	TCMA-1600
16.5	TCEA-1650	TCPA-1650	TCMA-1650
17.0	TCEA-1700	TCPA-1700	TCMA-1700
17.5	TCEA-1750	TCPA-1750	TCMA-1750
18.0	TCEA-1800	TCPA-1800	TCMA-1800
18.5	TCEA-1850	TCPA-1850	TCMA-1850
19.0	TCEA-1900	TCPA-1900	TCMA-1900
19.5	TCEA-1950	TCPA-1950	TCMA-1950
20.0	TCEA-2000	TCPA-2000	TCMA-2000
20.5	TCEA-2050	TCPA-2050	TCMA-2050
21.0	TCEA-2100	TCPA-2100	TCMA-2100
21.5	TCEA-2150	TCPA-2150	TCMA-2150
22.0	TCEA-2200	TCPA-2200	TCMA-2200
22.5	TCEA-2250	TCPA-2250	TCMA-2250
23.0	TCEA-2300	TCPA-2300	TCMA-2300
23.5	TCEA-2350	TCPA-2350	TCMA-2350
24.0	TCEA-2400	TCPA-2400	TCMA-2400
24.5	TCEA-2450	TCPA-2450	TCMA-2450
25.0	TCEA-2500	TCPA-2500	TCMA-2500
25.5	TCEA-2550	TCPA-2550	TCMA-2550
26.0	TCEA-2600	TCPA-2600	TCMA-2600
26.5	TCEA-2650	TCPA-2650	TCMA-2650
27.0	TCEA-2700	TCPA-2700	TCMA-2700
27.5	TCEA-2750	TCPA-2750	TCMA-2750
28.0	TCEA-2800	TCPA-2800	TCMA-2800

TCPA TCEA TCMA

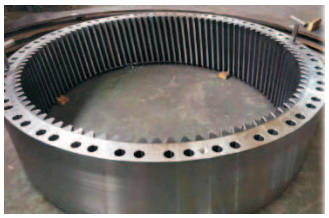
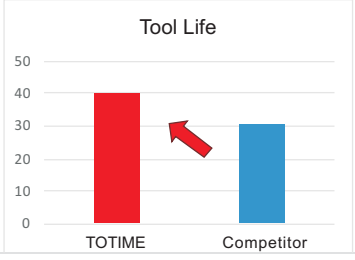
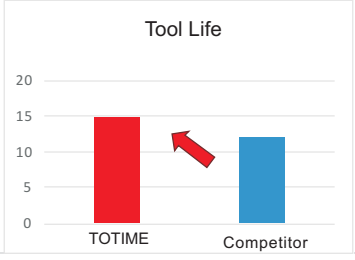


Suitable materials:
TCEA: Steel(HRC≤25）、Cast Iron
TCPA: Steel(25≤HRC≤45)
TCMA: Stainless Steel

Unit (mm)

Drill dia.(D)	Designation		
28.5	TCEA-2850	TCPA-2850	TCMA-2850
29.0	TCEA-2900	TCPA-2900	TCMA-2900
29.5	TCEA-2950	TCPA-2950	TCMA-2950
30.0	TCEA-3000	TCPA-3000	TCMA-3000
30.5	TCEA-3050	TCPA-3050	TCMA-3050
31.0	TCEA-3100	TCPA-3100	TCMA-3100
31.5	TCEA-3150	TCPA-3150	TCMA-3150
32.0	TCEA-3200	TCPA-3200	TCMA-3200
32.5	TCEA-3250	TCPA-3250	TCMA-3250
33.0	TCEA-3300	TCPA-3300	TCMA-3300
33.5	TCEA-3350	TCPA-3350	TCMA-3350

ISO	Workpiece material	Hardness	First choice	Cutting Speed Vc (m/min)	Diameter (mm)	12-16	16-20	20-33.5
P	Low Carbon Steel	≤HB250	TCEA	80-120	Feed (mm/rev)	0.15-0.30	0.15-0.30	0.15-0.35
	Alloy Steel	HB250-320	TCPA	70-120		0.15-0.30	0.15-0.30	0.15-0.35
	Hardened Steel	≤HRC45	TCPA	40-90		0.10-0.20	0.10-0.20	0.15-0.25
M	Stainless Steel	≤HB200	TCMA	50-90		0.10-0.20	0.10-0.20	0.15-0.25
K	Gray Cast Iron	–	TCEA	50-100		0.15-0.30	0.15-0.35	0.15-0.40
	Ductile Cast Iron	–	TCEA	50-90		0.15-0.30	0.15-0.35	0.15-0.35

Workingpiece Type		Gear ring	Flange
Drill Holder		TC05-320-XP32	TC03-260-XP32/TC10-260-XP32
Drill Head		TCPA3200	TCMA2650
Work Material		42CrMo (HRC38)	2Cr13 (HB210)
		 P	M
Cutting Conditions	Cutting Speed: Vc(m/min)	100	46
	Feed: f (mm/rev)	0.2	0.12
	Feed Rate: Vf (mm/min)	160	66
	Drilling Depth: H (mm)	165	240
	Tool Life	40m	15m
	Cooling Form	Coolant	Coolant
	Machine	CNC machine	CNC machine
Result		Tool Life: 1.34 time longer ! 	Tool Life: 1.25 time longer ! 

Deep Hole Drilling

A deep hole is defined by its depth-to-diameter ratio (D:d), and typically holes greater than 10:1 are considered deep holes. Deep hole drilling into metal has a range of applications across several industries, with its origins tracing back to the need for straighter, more accurate gun barrels, and expanding as other industries integrated deep hole drilling processes to improve their own applications.

Deep hole drilling consists of BTA drilling and gun drilling, with additional processes designed for specific tolerance objectives and generally performed on BTA-style deep hole drilling machines. Deep hole drilling is used in a variety of materials from aluminum to super-alloys, and is capable of achieving tight diameter control, straightness, and superior surface finish into workpieces.

Deep hole drilling processes work by using special tools and setups to deliver high pressure coolant, evacuate chips cleanly, and achieve depth-to-diameter holes into metal beyond what a common CNC machine can reach. This allows manufacturers to achieve their manufacturing tolerances and production requirements reliably, accurately, and efficiently.

BTA Drilling

BTA deep hole drilling is used for larger hole drilling, typically 20 – 200 mm [0.80 – 8.00 in] in diameter High-pressure coolant is introduced around the outside of the tool through the pressure head assembly chips are discharged through the tool center, through the drill tube and machine spindle.

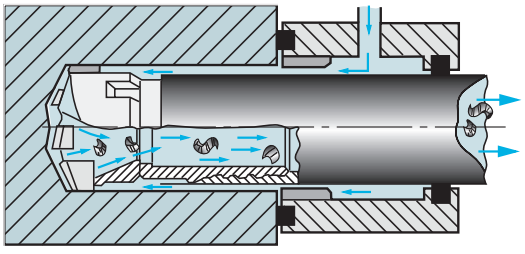
BTA drilling typically performs 5-7 times faster than gundrilling, and requires higher power.

Additional extended diameters can be drilled on BTA machines with secondary deep hole operations, such as counter-boring.

There are 2 types of drilling which are DTS systems and STS systems.We will only focus on STS systems as all our drill heads are for STS system.

The BTA—STS Drill is a single Tube Drilling system used in Deep Hole Drilling applications where fast metal removal is needed. Drill sizes in BTA Drills are from 0.312”-2.559” diameter. New drills are manufactured in a number of grades to fit individual customer requirements. BTA (STS) Drills of brazed construction can be re-tipped in our plant to an “as new” condition at a significant cost reduction and savings to the customer. These drills require high pressure coolant to flush the chips through the tube to the chip box. The STS may also be referred to as the BTA system in the deep hole drilling process.

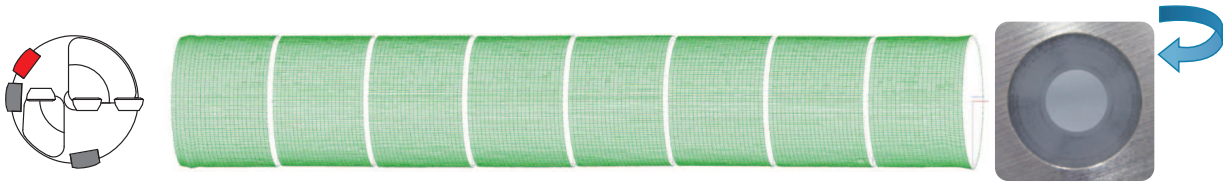
STS DRILLING SYSTEM



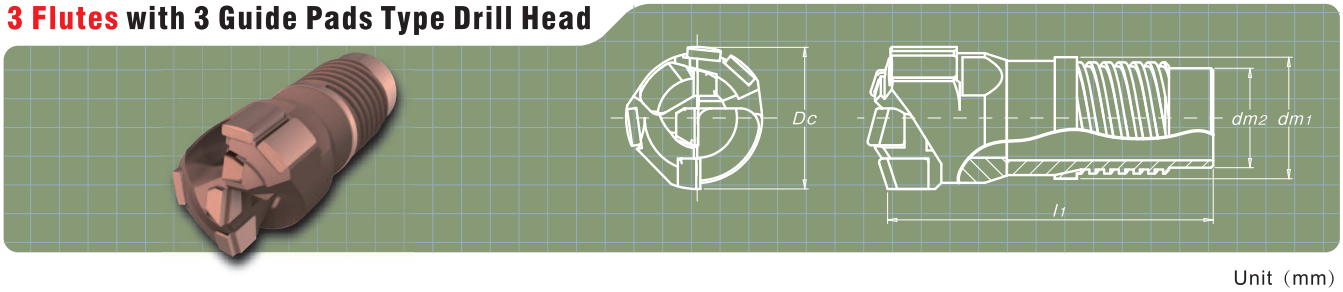
CT Coated Drills:Suitable for Medium and High-speed drilling with high accuracy and longer tool life.(CT coating is a very special Japanese technology coating)

Drill Heads Design with 3 Guide Pads(CT Coating)

A. Unique Design of 3 Flutes with 3 Guide Pads Drill Head(CT Coating)
Feature: Reduced vibration during drilling and highly improved the roundness of the drilling holes
Holes with perfect roundness after drilling



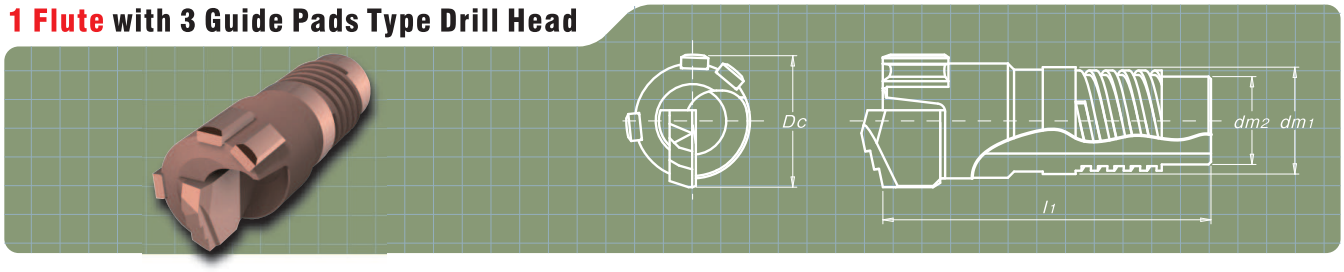
3 Flutes with 3 Guide Pads Type Drill Head



Unit (mm)

Drill Head Model	Drilling Range	Suitable Tube		Dimention			
		Tube Model	Tube Dia(mm)	dm1(mm)	dm2(mm)	L1	Stock
BTA-DXXXX-CT-3	15.60-16.70	BA4S-0097	14	12.6	10.8	40	●
BTA-DXXXX-CT-3	17.71-18.90	BA4S-0099	16	14.5	12.5	40	●
BTA-DXXXX-CT-3	18.91-20.00	BA4S-0000	17	15.5	13.5	44	●
BTA-DXXXX-CT-3	20.01-21.80	BA4S-00	18	16	14	49	●
BTA-DXXXX-CT-3	21.81-24.10	BA4S-01	20	18	16	52	●
BTA-DXXXX-CT-3	24.11-26.00	BA4S-02	22	19.5	17.5	54	●

1 Flute with 3 Guide Pads Type Drill Head



Unit (mm)

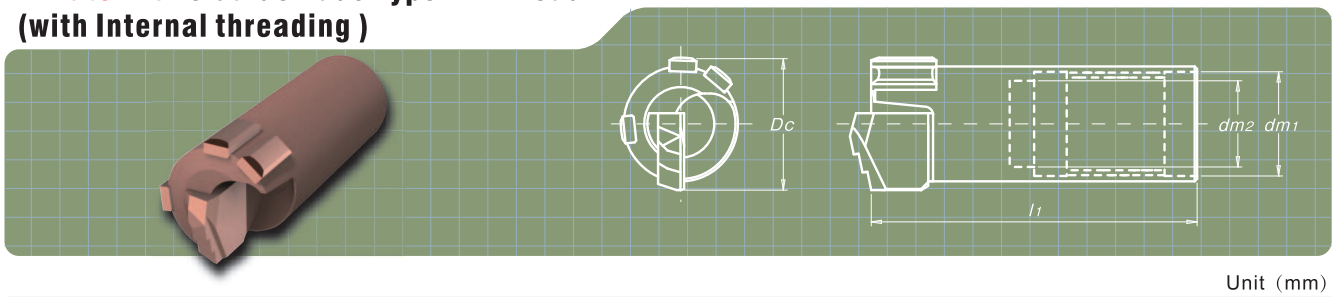
Drill Head Model	Drilling Range	Suitable Tube		Dimention			
		Tube Model	Tube Dia(mm)	dm1(mm)	dm2(mm)	L1	Stock
BTA-DXXXX-CT-T-3	15.60-16.70	BA4S-0097	14	12.6	10.8	40	●

● Stock ○ Non-stock

CT Coated Drills:Suitable for Medium and High-speed drilling with high accuracy and longer tool life.(CT coating is a very special Japanese technology coating)

Drill Heads Design with 3 Guide Pads(CT Coating)

1 Flute with 3 Guide Pads Type Drill Head (with Internal threading)



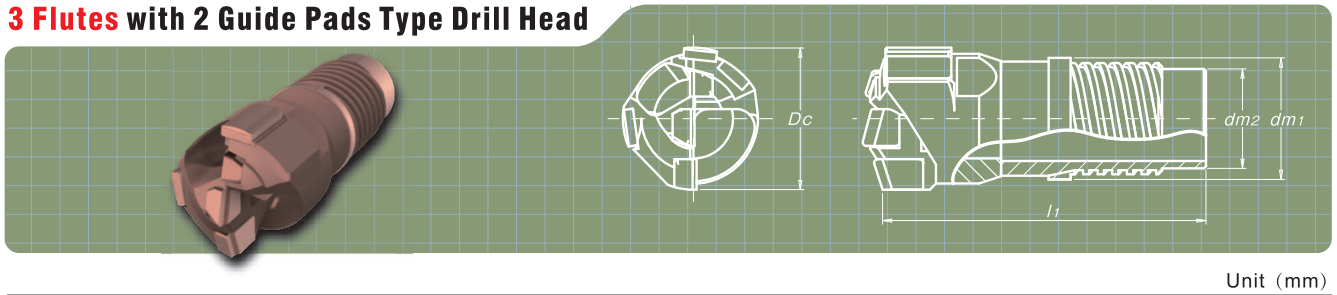
Unit（mm）

Drill Head Model	Drilling Range	Suitable Tube		Dimention			
		Tube Model	Tube Dia(mm)	dm1(mm)	dm2(mm)	L1	Stock
BTA-DXXXX-CT-E-3	15.51-16.00	BA1S-1301	13	12.4	10.8	40	●
BTA-DXXXX-CT-E-3	16.01-16.50	BA1S-1302	13	12.7	11.1	40	●
BTA-DXXXX-CT-E-3	16.51-17.25	BA1S-1401	14	13.4	11.8	40	●
BTA-DXXXX-CT-E-3	17.26-18.00	BA1S-1402	14	13.7	12.1	40	●
BTA-DXXXX-CT-E-3	18.01-19.00	BA1S-1500	15	14.4	12.8	40	●
BTA-DXXXX-CT-E-3	19.01-19.50	BA1S-1650	16.5	15.4	13.8	40	●

Drill Heads Design with 2 Guide Pads(CT Coating)

B. Drill Heads Design with 2 Guide Pads(CT Coating)
Feature: With 2 guide pads, drill is able to reduce machining resistance, achieving fast and high-precision machining.

3 Flutes with 2 Guide Pads Type Drill Head



Unit（mm）

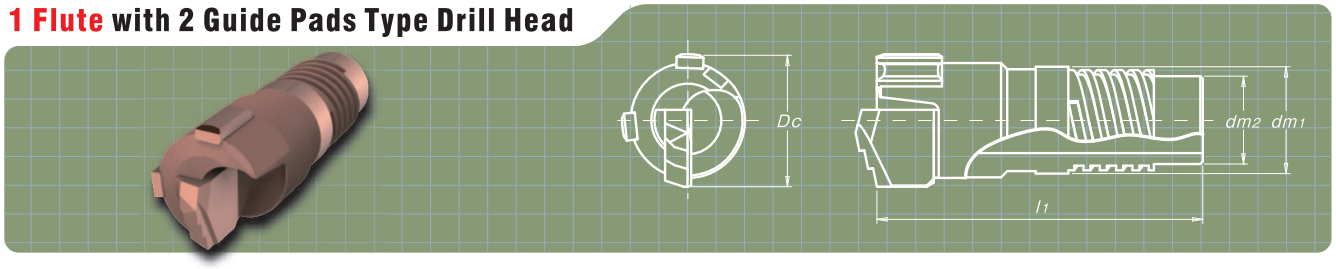
Drill Head Model	Drilling Range	Suitable Tube		Dimention			
		Tube Model	Tube Dia(mm)	dm1(mm)	dm2(mm)	L1	Stock
BTA-DXXXX-CT	15.60-16.70	BA4S-0097	14	12.6	10.8	40	●
BTA-DXXXX-CT	17.71-18.90	BA4S-0099	16	14.5	12.5	40	●
BTA-DXXXX-CT	18.91-20.00	BA4S-0000	17	15.5	13.5	44	●
BTA-DXXXX-CT	20.01-21.80	BA4S-00	18	16	14	49	●
BTA-DXXXX-CT	21.81-24.10	BA4S-01	20	18	16	52	●
BTA-DXXXX-CT	24.11-26.00	BA4S-02	22	19.5	17.5	54	●

● Stock ○ Non-stock

CT Coated Drills:Suitable for Medium and High-speed drilling with high accuracy and longer tool life.(CT coating is a very special Japanese technology coating)

Drill Heads Design with 2 Guide Pads(CT Coating)

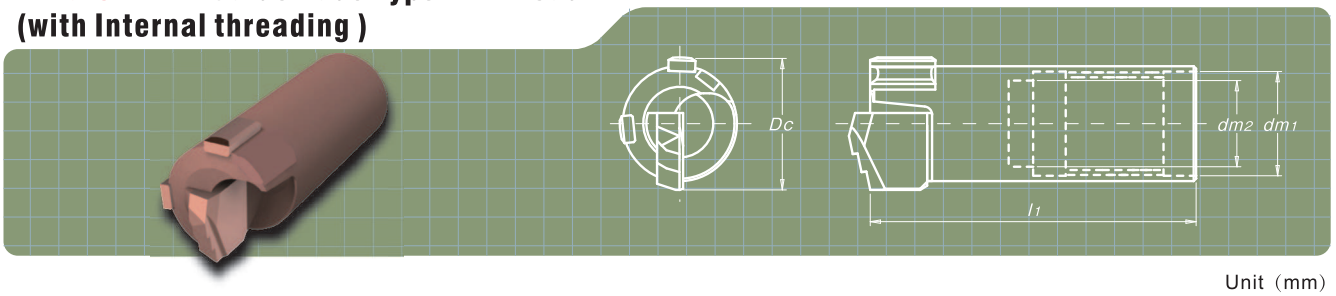
1 Flute with 2 Guide Pads Type Drill Head



Unit（mm）

Drill Head Model	Drilling Range	Suitable Tube		Dimention			
		Tube Model	Tube Dia(mm)	dm1(mm)	dm2(mm)	L1	Stock
BTA-DXXXX-CT-T	15.60-16.70	BA4S-0097	14	12.6	10.8	40	●

1 Flute with 2 Guide Pads Type Drill Head (with Internal threading)



Unit（mm）

Drill Head Model	Drilling Range	Suitable Tube		Dimention			
		Tube Model	Tube Dia(mm)	dm1(mm)	dm2(mm)	L1	Stock
BTA-DXXXX-CT-E	15.51-16.00	BA1S-1301	13	12.4	10.8	40	●
BTA-DXXXX-CT-E	16.01-16.50	BA1S-1302	13	12.7	11.1	40	●
BTA-DXXXX-CT-E	16.51-17.25	BA1S-1401	14	13.4	11.8	40	●
BTA-DXXXX-CT-E	17.26-18.00	BA1S-1402	14	13.7	12.1	40	●
BTA-DXXXX-CT-E	18.01-19.00	BA1S-1500	15	14.4	12.8	40	●
BTA-DXXXX-CT-E	19.01-19.50	BA1S-1650	16.5	15.4	13.8	40	●

● Stock ○ Non-stock

Recommended Cutting Conditions

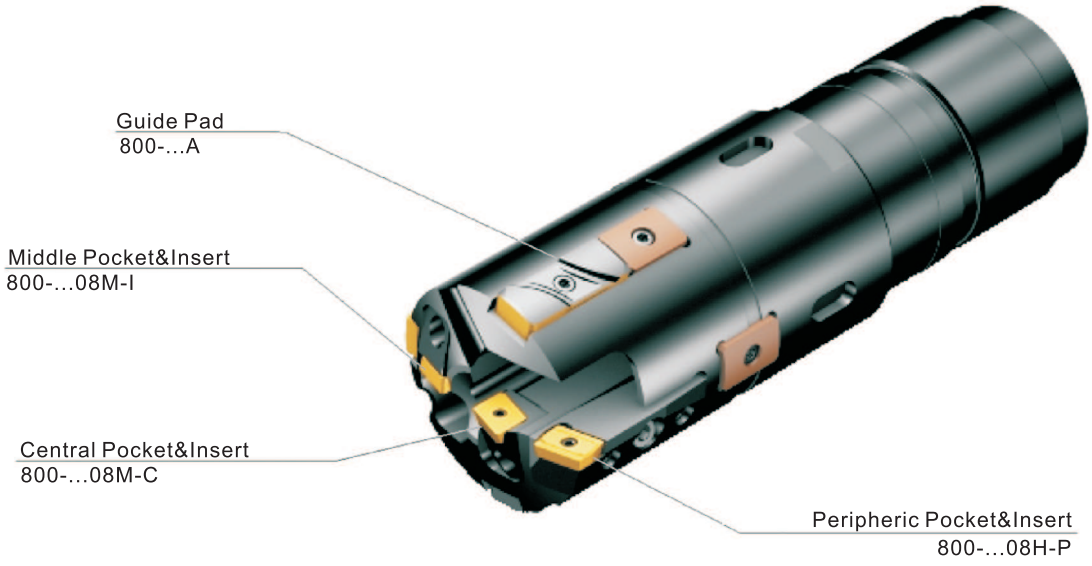
Machining data for BTA

Unit (mm)

ISO	Material		Condition	Tensile strength (N/mm²)	Hardness HB	Material No.	Cutting speed Vc (m/min)	Ø15.60 - Ø20.00
P	Non-alloy steel, cast steel, free cutting steel	<0.25%C	Annealed	420	125	1	70-120	0.08-0.15
		>=0.25%C	Annealed	650	190	2	70-120	0.08-0.15
		<0.55%C	Quenched and tempered	850	250	3	40-70	0.08-0.15
		>=0.55%C	Annealed	750	220	4	70-120	0.08-0.15
			Quenched and tempered	1000	300	5	55-100	0.08-0.12
	Low alloy steel and cast steel (Less than 5% of alloying elements)		Annealed	600	200	6	70-100	0.08-0.15
			Quenched and tempered	930	275	7	55-100	0.08-0.12
				1000	300	8	55-100	0.08-0.12
				1200	350	9	55-100	0.08-0.12
	High alloy steel, cast steel and tool steel		Annealed	680	200	10	50-85	0.08-0.15
			Quenched and tempered	1100	325	11	55-100	0.08-0.12
M	Stainless steel and cast steel		Ferritic / martensitic	680	200	12	60-100	0.08-0.15
			Martensitic	820	240	13	60-100	0.08-0.15
			Austenitic	600	180	14	60-100	0.05-0.12
K	Grey cast iron (GG)		Ferritic		160	15	60-100	0.06-0.13
			Pearlitic		250	16	60-100	0.06-0.13
	Cast iron nodular (GGG)		Ferritic		180	17	80-100	0.08-0.15
			Pearlitic		260	18	80-100	0.08-0.15
	Malleable cast iron		Ferritic		130	19	50-100	0.06-0.13
			Pearlitic		230	20	50-100	0.06-0.13
N	Aluminum-W rough alloy		Not cureable		60	21	65-130	0.08-0.15
			Cured		100	22	65-100	0.08-0.15
	Aluminum-cast, alloyed	<=12% Si	Not cureable		75	23	65-130	0.08-0.15
			Cured		90	24	65-130	0.08-0.15
		>12% Si	High temp.		130	25	65-130	0.08-0.15
	Copper alloys	>1% Pb	Free cutting		11 0	26	65-130	0.08-0.15
			Brass		90	27	65-130	0.08-0.15
			Electrolitic copper		100	28	65-130	0.08-0.15
	Non-metallic		Duroplastics, fiber plastics			29		
			Hard rubber			30		
S	High temp. alloys	Fe based	Annealed		200	31	10-50	0.06-0.12
			Cured		280	32	10-50	0.06-0.12
		Ni or Co based	Annealed		250	33	10-50	0.06-0.12
			Cured		350	34	10-50	0.06-0.12
			Cast		320	35	10-50	0.06-0.12
	Titanium,Ti alloys			Rm 400		36	30-50	0.05-0.10
			Alpha+beta alloys cured	Rm 1050		37	30-50	0.05-0.10
H	Hardened steel		Hardened		55HRC	38		
			Hardened		60HRC	39		
	Chilled cast iron		Cast		400	40		
	Cast iron nodular		Hardened		55HRC	41		

Steel Stainless steel Cast iron Nonferrous High temp. alloys Hardened steel

800 SERIES



424.10 SERIES

P25C: It shows good performance when drilling steel, cast iron.

M25C: Not only has good on drilling the common steels,but also has a long tool life on drilling some special stainless steel,special high speed steel,special titanium alloy,special nickel base alloy and other difficult materials, such as superalloys for aerospace and military use.

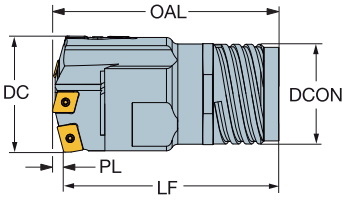
B25C: It shows very high wear resistance and good edge toughness.It is to be used when good surface quality is demanded at medium to high cutting speeds.

800 Series

STS single tube system

Metric Version

Diameter range: 25. 00–65. 00mm
Hole depth: 150xDC
Hole tolerance: IT10
Surface finish: Ra 2μm
Cutting fluid: Neat oil or soluble with EP-additives



Standard programme:

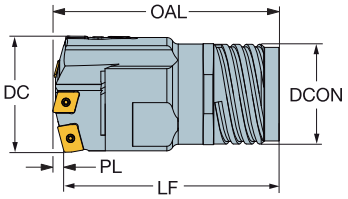
	CZC$_{MS}$	DC	DC″	Ordering code	DCON	DCON″	OAL	OAL″	LF	LF″	PL	PL″
05	03	25. 00	. 984	800. 20-03D25. 00	19	. 748	75	2. 952	71. 65	2. 820	3. 34	
	03	26. 00	1. 024	800. 20-03D26. 00	19	. 748	75	2. 952	71. 51	2. 815	3. 48	. 137
	03	26. 30	1. 035	800. 20-03D26. 30	19	. 748	75	2. 952	71. 47	2. 814	3. 52	
	03	26. 40	1. 039	800. 20-03D26. 40	19	. 748	75	2. 952	71. 46	2. 813	3. 53	. 139
	04	26. 41	1. 040	800. 20-04D26. 41	21	. 827	78	3. 070	74. 46	2. 931	3. 53	
	04	27. 90	1. 098	800. 20-04D27. 90	21	. 827	78	3. 070	74. 26	2. 923	3. 73	. 147
	05	28. 80	1. 134	800. 20-M05 D28. 80	23	. 906	80	3. 149	76. 14	2. 997	3. 85	
	05	29. 00	1. 142	800. 20-M05 D29. 00	23. 5	. 925	80	3. 149	76. 12	2. 997	3. 89	. 153
	05	29. 50	1. 161	800. 20-M05 D29. 50	23	. 906	80	3. 149	76. 04	2. 994	3. 95	
	05	29. 80	1. 173	800. 20-M05 D29. 80	23	. 906	80	3. 149	76. 00	2. 992	3. 99	. 157
	05	30. 10	1. 185	800. 20-M05 D30. 10	23	. 906	80	3. 149	75. 83	2. 985	4. 16	
	07	33. 45	1. 317	800. 20-07D33. 45	28	1. 102	85	3. 346	80. 51	3. 170	4. 48	. 176
06	03	25. 40	1. 000	800. 20-03D25. 40	19	. 748	75	2. 952	71. 59	2. 818	3. 40	
	03	25. 50	1. 004	800. 20-03D25. 50	19	. 748	75	2. 952	71. 58	2. 818	3. 41	. 134
	04	26. 50	1. 043	800. 20-04D26. 50	21	. 827	78	3. 070	74. 44	2. 931	3. 55	
	04	27. 00	1. 063	800. 20-04D27. 00	21	. 827	78	3. 070	74. 38	2. 928	3. 61	. 142
	05	30. 00	1. 181	800. 20-M05 D30. 00	23	. 906	80	3. 149	75. 98	2. 991	4. 01	
	06	31. 45	1. 238	800. 20-06D31. 45	25	. 984	85	3. 346	80. 78	3. 180	4. 21	. 165
	06	31. 70	1. 248	800. 20-06D31. 70	25	. 984	85	3. 346	80. 75	3. 179	4. 24	
	06	32. 00	1. 260	800. 20-06D32. 00	25	. 984	85	3. 346	80. 71	3. 177	4. 28	. 168
	06	33. 00	1. 299	800. 20-06D33. 00	25. 5	1. 004	85	3. 346	80. 57	3. 172	4. 42	
	06	32. 43	1. 277	800. 20-06D32. 43	25	. 984	85	3. 346	80. 65	3. 175	4. 34	. 171
	07	33. 60	1. 323	800. 20-07D33. 60	28	1. 102	85	3. 346	39. 98	1. 574	45. 01	
	07	33. 78	1. 330	800. 20-07D33. 78	28	1. 102	85	3. 346	80. 47	3. 168	4. 52	. 178
08	06	31. 05	1. 222	800. 20-06D31. 05	25	. 984	85	3. 346	80. 84	3. 182	4. 15	
	06	31. 75	1. 250	800. 20-06D31. 75	25	. 984	85	3. 346	80. 74	3. 178	4. 25	. 167
	06	31. 80	1. 252	800. 20-06D31. 80	25	. 984	85	3. 346	80. 73	3. 178	4. 26	
	06	32. 27	1. 270	800. 20-06D32. 27	25	. 984	85	3. 346	80. 67	3. 176	4. 32	. 170
	06	32. 50	1. 280	800. 20-06D32. 50	25	. 984	85	3. 346	80. 64	3. 175	4. 35	
	07	35. 00	1. 378	800. 20-07D35. 00	28	1. 102	85	3. 346	80. 31	3. 161	4. 68	. 184
	07	36. 20	1. 425	800. 20-07D36. 20	28	1. 102	85	3. 346	80. 15	3. 155	4. 84	
	08	37. 00	1. 457	800. 20-08D37. 00	30	1. 181	95	3. 740	90. 04	3. 545	4. 95	. 195
	08	37. 50	1. 476	800. 20-08D37. 50	30	1. 181	95	3. 740	89. 97	3. 542	5. 02	
	08	38. 00	1. 496	800. 20-08D38. 00	30	1. 181	95	3. 740	89. 90	3. 539	5. 09	. 200
	08	38. 10	1. 500	800. 20-08D38. 10	30	1. 181	95	3. 740	89. 89	3. 539	5. 10	
	08	38. 50	1. 516	800. 20-08D38. 50	30	1. 181	95	3. 740	89. 84	3. 537	5. 15	. 203
	08	38. 52	1. 517	800. 20-08D38. 52	30	1. 181	95	3. 740	90. 24	3. 552	4. 75	
	08	38. 75	1. 526	800. 20-08D38. 75	30	1. 181	95	3. 740	89. 80	3. 535	5. 19	. 204
	08	39. 00	1. 535	800. 20-08D39. 00	30	1. 181	95	3. 740	89. 77	3. 534	5. 22	
	09	40. 75	1. 604	800. 20-09D40. 75	33	1. 299	100	3. 937	94. 54	3. 722	5. 45	. 214
	09	43. 00	1. 693	800. 20-09D43. 00	33	1. 299	100	3. 937	94. 23	3. 710	5. 76	
	10	44. 45	1. 750	800. 20-10D44. 45	36	1. 417	100	3. 937	94. 04	3. 702	5. 95	. 234
	11	48. 00	1. 890	800. 20-11D48. 00	39	1. 535	110	4. 330	103. 56	4. 077	6. 43	
	11	48. 80	1. 921	800. 20-11D48. 80	39	1. 535	110	4. 330	103. 46	4. 073	6. 53	. 257
	11	49. 00	1. 929	800. 20-11D49. 00	39	1. 535	110	4. 330	103. 43	4. 072	6. 56	

800 Series

STS single tube system

Metric Version

Diameter range: 25. 00–65. 00mm
Hole depth: 150xDC
Hole tolerance: IT10
Surface finish: Ra 2μm
Cutting fluid: Neat oil or soluble with EP-additives



Standard programme:

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09	08	39. 15	1. 541	800. 20–08D39. 15	30	1. 181	95	3. 740	89. 75	3. 533	5. 24	.
	09	40. 00	1. 575	800. 20–09D40. 00	33	1. 299	100	3. 937	94. 64	3. 726	5. 35	. 210
	09	41. 00	1. 614	800. 20–09D41. 00	33	1. 299	100	3. 937	94. 50	3. 720	5. 49	.
	10	46. 00	1. 811	800. 20–10D46. 00	36	1. 417	100	3. 937	93. 83	3. 694	6. 16	. 242
10	10	45. 00	1. 772	800. 20–10D45. 00	36	1. 417	100	3. 937	93. 97	3. 699	6. 02	.
	11	50. 00	1. 969	800. 20–11D50. 00	39	1. 535	110	4. 330	103. 30	4. 066	6. 69	. 263
	11	50. 80	2. 000	800. 20–11D50. 80	39	1. 535	110	4. 330	103. 19	4. 062	6. 80	.
	11	51. 30	2. 020	800. 20–11D51. 30	39	1. 535	110	4. 330	103. 12	4. 060	6. 87	. 270
	12	53. 00	2. 087	800. 20–12D53. 00	43	1. 693	120	4. 724	112. 89	4. 444	7. 10	.
	12	52. 30	2. 059	800. 20–12D52. 30	43	1. 693	120	4. 724	112. 99	4. 448	7. 00	. 275
	12	54. 80	2. 157	800. 20–12D54. 80	43	1. 693	120	4. 724	112. 65	4. 435	7. 34	.
11	12	52. 00	2. 047	800. 20–12D52. 00	43	1. 693	120	4. 724	113. 03	4. 450	6. 96	. 274
	12	54. 20	2. 134	800. 20–12D54. 20	43	1. 693	120	4. 724	112. 73	4. 438	7. 26	.
	12	55. 00	2. 165	800. 20–12D55. 00	43	1. 693	120	4. 724	112. 63	4. 434	7. 36	. 290
	13	57. 15	2. 250	800. 20–13D57. 15	47	1. 850	125	4. 921	117. 34	4. 619	7. 65	.
	13	60. 00	2. 362	800. 20–13D60. 00	47	1. 850	120	4. 724	111. 96	4. 407	8. 03	. 316
	13	63. 00	2. 480	800. 20–13D63. 00	47	1. 850	120	4. 724	111. 56	4. 392	8. 44	.
12	11	47. 35	1. 864	800. 20–11D47. 35	39	1. 535	110	4. 330	103. 65	4. 080	6. 34	. 249
	11	48. 92	1. 926	800. 20–11D48. 92	39	1. 535	110	4. 330	103. 44	4. 072	6. 55	.
	13	56. 90	2. 240	800. 20–13D56. 90	47	1. 850	125	4. 921	117. 37	4. 621	7. 62	. 300
	13	59. 00	2. 323	800. 20–13D59. 00	47	1. 850	125	4. 921	117. 09	4. 610	7. 90	.
	13	59. 80	2. 354	800. 20–13D59. 80	47	1. 850	125	4. 921	116. 98	4. 605	8. 01	. 315
	13	60. 60	2. 386	800. 20–13D60. 60	47	1. 850	125	4. 921	116. 88	4. 602	8. 11	.
	13	63. 50	2. 500	800. 20–13D63. 50	47	1. 850	120	4. 724	111. 49	4. 389	8. 50	. 334
	13	64. 80	2. 551	800. 20–13D64. 80	47	1. 850	125	4. 921	116. 31	4. 579	8. 68	.
	13	65. 00	2. 559	800. 20–13D65. 00	47	1. 850	125	4. 921	116. 29	4. 578	8. 70	. 342

Diameter Range , mm		Central
25.00-28.70	05	800-05 03 08M-C-G
28.71-33.99	06	800-06 T3 08M-C-G
34.00-43.00	08	800-08 T3 08M-C-G
43.01-47.00	10	800-10 T3 08M-C-G
47.01-49.99	12	800-12 T3 08M-C-G
50.00-57.99	10	800-10 T3 08M-C-G
58.00-65.00	12	800-12 T3 08M-C-G

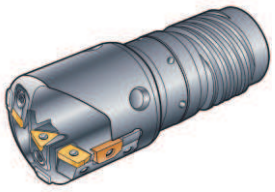
Diameter Range , mm		Intermediate
25.00-31.00	05	800-05 03 08M-I-G
31.01-34.99	06	800-06 T3 08M-I-G
35.00-54.99	08	800-08 T3 08M-I-G
55.00-65.00	12	800-12 T3 08M-I-G

Diameter Range , mm		Peripheral
25.00-31.00	06	800-06 03 08H-P-G
31.01-38.99	08	800-08 T3 08H-P-G
39.00-49.99	09	800-09 T3 08H-P-G
50.00-65.00	11	800-11 T3 08H-P-G

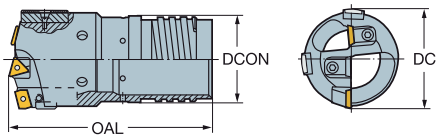
Diameter Range , mm	Pad
25.00-31.00	800-06A
31.01-39.60	800-07A
39.61-47.00	800-08A
47.01-54.99	800-10A
55.00-65.00	800-12A

424.10 Series

Indexable insert design



Diameter range: 63. 50–183.90mm
Hole depth: 100xDC
Hole tolerance: IT10
Surface finish: Ra 3μm
Cutting fluid: Neat oil or soluble with EP-additives



			Ordering code	Dimensions,mm,inch						Cartridges							
CZC_{MS}	DC	DC″		DCON	DCON″	OAL	OAL″	$ADJLX_{RDL}$	$ADJLX_{RDL}$″	Central	No.	Intermediate	No.	Peripheral	No.	Support pad	No.
13	63. 50	2. 5	A424. 10-2500	51. 0	2. 008	115	4. 528	1. 00	. 0394	L430. 31-1216-16	1	L430. 30-1216-16	1	R430. 28-1516-16	1	430. 32-12 D65. 0	2
13E	65. 00	2. 559	424. 10-0650E	51. 0	2. 008	115	4. 528	1. 50	. 0591	L430. 31-1216-16	1	L430. 30-1216-16	1	R430. 28-1516-16	1	430. 32-12 D65. 0	2
14	65. 00	2. 5	424. 10-0650	52. 0	2. 047	150	5. 906	1. 50	. 0394	L430. 31-1216-16	1	L430. 30-1216-16	1	R430. 28-1516-16	1	430. 32-12 D65. 0	2
15	69. 85	2. 750	A424. 10-2750	58. 0	2. 283	150	5. 906	1. 00	. 0394	L430. 31-1216-16	1	L430. 30-1216-16	1	R430. 28-1516-16	1	430. 32-12 D65. 0	2
15	70. 00	2. 7	424. 10-0700	58. 0	2. 283	150	5. 906	1. 00	. 0394	L430. 31-1216-16	1	L430. 30-1216-16	1	R430. 28-1516-16	1	430. 32-12 D70. 0	2
15	71. 45	2. 813	A424. 10-2813	58. 0	2. 283	150	5. 906	0. 75	. 0300	L430. 31-1216-16	1	L430. 30-1216-16	1	R430. 28-1516-16	1	430. 32-12 D70. 0	2
16	75. 00	2. 9	424. 10-0750	63. 0	2. 480	160	6. 299	2. 00	. 0787	L430. 31-1216-16	1	L430. 30-1216-16	1	R430. 28-1822-22	1	430. 32-12 D75. 0	2
16	76. 20	3. 000	A424. 10-3000	63. 0	2. 480	160	6. 299	2. 00	. 0787	L430. 31-1216-16	1	L430. 30-1216-16	1	R430. 28-1822-22	1	430. 32-12 D75. 0	2
17	80. 00	3. 1	424. 10-0800	70. 0	2. 756	190	7. 480	1. 25	. 0492	L430. 31-1216-16	1	L430. 30-1216-16	1	R430. 28-1822-22	1	430. 32-12 D80. 0	2
17	82. 55	3. 250	A424. 10-3250	70. 0	2. 756	190	7. 480	0. 75	. 0300	L430. 31-1216-16	1	L430. 30-1216-16	1	R430. 28-1822-22	1	430. 32-12 D80. 0	2
17	85. 00	3. 3	424. 10-0850	70. 0	2. 756	190	7. 480	1. 75	. 0689	L420. 31-1522-22	1	L430. 30-1216-16	1	R430. 28-1822-22	1	430. 32-12 D85. 0	2
18	88. 90	3. 500	A424. 10-3500	77. 0	3. 031	190	7. 480	1. 75	. 0689	L420. 31-1522-22	1	L430. 30-1216-16	1	R430. 28-1822-22	1	430. 32-12 D85. 0	2
18	90. 00	3. 5	424. 10-0900	77. 0	3. 031	190	7. 480	1. 75	. 0689	L420. 31-1522-22	1	L430. 30-1216-16	1	R430. 28-1822-22	1	430. 32-12 D90. 0	2
18	95. 00	3. 740	424. 10-0950	77. 0	3. 031	190	7. 480	2. 00	. 0787	L420. 31-1522-22	1	L430. 30-15 22-22	1	R430. 28-1822-22	1	430. 32-12 D95. 0	2
18	95. 25	3. 7	A424. 10-3750	77. 0	3. 031	190	7. 480	2. 00	. 0787	L420. 31-1522-22	1	L430. 30-15 22-22	1	R430. 28-1822-22	1	430. 32-12 D95. 0	2
19	100. 00	3. 937	424. 10-1000	89. 0	3. 504	195	7. 677	1. 00	. 0394	L420. 31-1522-22	1	L430. 30-15 22-22	1	R430. 28-1822-22	1	430. 32-16 D100. 0	2
19	101. 60	4. 0	A424. 10-4000	89. 0	3. 504	195	7. 677	1. 25	. 0490	L420. 31-1522-22	1	L430. 30-15 22-22	1	R430. 28-1822-22	1	430. 32-16 D100. 0	2
19	105. 00	4. 134	424. 10-1050	89. 0	3. 504	195	7. 677	0. 50	. 0197	L420. 31-1522-22	1	L430. 30-15 22-22	1	R430. 28-1822-22	1	430. 32-16 D105. 0	2
19	107. 95	4. 2	A424. 10-4250	89. 0	3. 504	195	7. 677	2. 00	. 0787	L430. 31-1216-16	1	L430. 30-1216-16	1	R430. 28-1516-16	1	430. 32-16 D105. 0	2
19	110. 00	4. 331	424. 10-1100	89. 0	3. 504	195	7. 677	1. 50	. 0591	L430. 31-1216-16	1	L430. 30-1216-16	1	R430. 28-1516-16	1	430. 32-16 D110. 0	2
19	114. 30	4. 5	A424. 10-4500	101. 0	3. 976	220	8. 661	2. 00	. 0787	L430. 31-1216-16	3	L430. 30-1216-16	1	R430. 28-1516-16	1	430. 32-16 D110. 0	2
20	115. 00	4. 528	424. 10-1150	101. 0	3. 976	220	8. 661	1. 50	. 0591	L430. 31-1216-16	3	L430. 30-1216-16	1	R430. 28-1516-16	1	430. 32-16 D115. 0	2
20	120. 00	4. 7	424. 10-1200	101. 0	3. 976	220	8. 661	1. 50	. 0591	L430. 31-1216-16	3	L430. 30-1216-16	1	R430. 28-1516-16	1	430. 32-16 D120. 0	2
20	120. 65	4. 750	A424. 10-4750	101. 0	3. 976	220	8. 661	1. 50	. 0591	L430. 31-1216-16	3	L430. 30-1216-16	1	R430. 28-1822-22	1	430. 32-16 D120. 0	2
21	125. 00	4. 9	424. 10-1250	113. 0	4. 449	220	8. 661	1. 75	. 0689	L430. 31-1216-16	3	L430. 30-1216-16	1	R430. 28-1822-22	1	430. 32-16 D125. 0	2
21	127. 00	5. 000	A424. 10-5000	113. 0	4. 449	220	8. 661	1. 25	. 0490	L430. 31-1216-16	3	L430. 30-1216-16	1	R430. 28-1822-22	1	430. 32-16 D125. 0	2
21	130. 00	5. 1	424. 10-1300	113. 0	4. 449	220	8. 661	0. 50	. 0197	L430. 31-1216-16	3	L430. 30-1216-16	1	R430. 28-1822-22	1	430. 32-16 D130. 0	2
22	136. 00-147. 90	5. 354-5. 823	customized														
23	148. 00-159. 90	5. 827-	customized														
24	160. 00-171. 90	6. 299-6. 768	customized														
25	172. 00-183. 90	6. 772-	customized														

Central cartridge		Insert	Intermediate cartridge		Insert	Peripheral cartridge		Insert
L430.31-1216-16	16	TPMT16T312R-22	R430.30-1216-16	16	TPMT16T312R-22	R430.28-1516-16	13	R424. 9-13T308-22
	16	TPMT16T312TR-23		16	TPMT16T312TR-23		13	R424. 9-13T308-23
	16	TPMT16T312R-24		16	TPMT16T312R-24		13	R424. 9-13T308-24
L430.31-1522-22	22	TPMT220612R-22	R430.30-1522-22	22	TPMT220612R-22	R430.28-1822-22	18	R424. 9-180608-22
	22	TPMT220612TR-23		22	TPMT220612TR-23		18	R424. 9-180608-23
	22	TPMT220612R-24		22	TPMT220612R-24		18	R424. 9-180608-24

TOTIME 800&424.10 SERIES INSERTS

● :Continuous Cutting

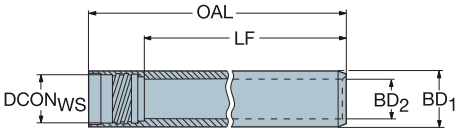
800 & 424.10 INSERTS							
	P	Steel	●	●	●	●	
	M	Stainless	○	●	●	●	
	K	Cast Iron	●	●	●	●	
	S	Superalloys	○	●	●	●	
	H	Hard Materials	○	●	●	●	

Chipbreaker	Designation	P25C (Coating)	M25C (Coating)	B25C (Coating)	PM10	PM01
	800-050308M-C-G	●	●	●		
	800-06T308M-C-G	●	●	●		
	800-08T308M-C-G	●	●	●		
	800-10T308M-C-G	●	●	●		
	800-12T308M-C-G	●	●	●		
	800-050308M-C-L	●	●	●		
	800-06T308M-C-L	●	●	●		
	800-08T308M-C-L	●	●	●		
	800-10T308M-C-L	●	●	●		
	800-12T308M-C-L	●	●	●		
	800-050308M-I-G	●	●	●		
	800-06T308M-I-G	●	●	●		
	800-08T308M-I-G	●	●	●		
	800-12T308M-I-G	●	●	●		
	800-050308M-I-L	●	●	●		
	800-06T308M-I-L	●	●	●		
	800-08T308M-I-L	●	●	●		
	800-12T308M-I-L	●	●	●		
	800-060308H-P-G	●	●	●		
	800-08T308H-P-G	●	●	●		
	800-09T308H-P-G	●	●	●		
	800-11T308H-P-G	●	●	●		
	800-060308H-P-L	●	●	●		
	800-08T308H-P-L	●	●	●		
	800-09T308H-P-L	●	●	●		
	800-11T308H-P-L	●	●	●		
	R424.9-13T308-22	●	●	●		
	R424.9-13T308-23	●	●	●		
	R424.9-180608-22	●	●	●		
	R424.9-180608-23	●	●	●		
	TPMT16T312R-22	●	●	●		
	TPMT16T312TR-23	●	●	●		
	TPMT220612R-22	●	●	●		
	TPMT220612TR-23	●	●	●		
	800-06A				●	
	800-07A				●	
	800-08A				●	
	800-10A				●	
	800-12A				●	
	800-14D065				●	
	800-16D075				●	
	800-18D085				●	
	800-20D100				●	
	800-22D110				●	
	800-24D120				●	
	800-26D130				●	

- Insert coating may vary from the insert image at this catalog. Please refer to our actual insert coating upon inquiry.

STS drilling tubes

Stocked items



DCONws is the same as DCON for the drill

CZCMS	Ordering code,drill tube	BD1	BD1″	BD2	BD2″	DCONWS	DCONWS″	OAL	OAL″	LF	LF″
97	TUB-797-2	14.0	.551	9	3.543	12.6	.496	1600	62.992	1579.0	62.165
98	TUB-798-2	15.0	.591	10	3.937	13.6	.535	1600	62.992	1579.0	62.165
99	TUB-799-2	16.0	.630	10.5	4.134	14.5	.571	1600	62.992	1578.0	62.126
00	TUB-800-2	17.0	.669	11.5	4.528	15.5	.610	1600	62.992	1578.0	62.126
01	TUB-801-4	18.0	.709	12	4.724	16.0	.630	2600	102.362	2575.0	101.378
02	TUB-802-4	20.0	.787	13	5.118	18.0	.709	2600	102.362	2574.0	101.339
03	TUB-803-4	22.0	.866	14	5.512	19.5	.768	2600	102.362	2574.0	101.339
04	TUB-804-4	24.0	.945	15.5	6.102	21.0	.827	2600	102.362	2574.0	101.339
05	TUB-805-4	26.0	1.024	17	6.693	23.5	.925	2600	102.362	2571.0	101.220
06	TUB-806-4	28.0	1.102	18.5	7.283	25.5	1.004	2600	102.362	2571.0	101.220
07	TUB-807-4	30.0	1.181	20	7.874	28.0	1.102	2600	102.362	2571.0	101.220
08	TUB-808-4	33.0	1.299	23	9.055	30.0	1.181	2600	102.362	2564.0	100.945
09	TUB-809-4	36.0	1.417	25.5	10.039	33.0	1.299	2600	102.362	2564.0	100.945
10	TUB-810-4	39.0	1.535	28	11.024	36.0	1.417	2600	102.362	2564.0	100.945
11	TUB-811-4	43.0	1.693	31	12.205	39.0	1.535	2600	102.362	2564.0	100.945
12	TUB-812-4	47.0	1.850	35	13.780	43.0	1.693	2600	102.362	2560.0	100.787
13	TUB-813-4	51.0	2.008	39	15.354	47.0	1.850	2600	102.362	2560.0	100.787
13E	TUB-813E-4	57.0	2.244	39	15.354	51.0	2.008	2600	102.362	2560.0	100.787

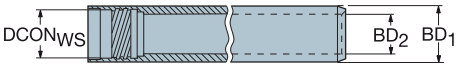
Ordering example for drill tube length 1600 mm(62.992 inch) fitting drill head Dc=16.00mm (.630inch):

1 piece TUB-797-2

STS drilling tubes

Items on request

Drill tube 420.5-(Tube range 14-26)

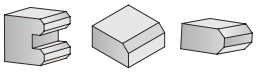


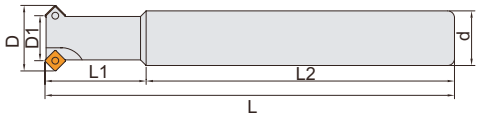
DCONws is the same as DCON for the drill

CZCMS	Ordering code,drill tube	Dimensions,mm,inch BD1	BD1″	BD2	BD2″	DCONWS	DCONWS″
14	TUB-814-Lxxxx	56.0	2.205	43	1.693	52.0	
15	TUB-815-Lxxxx	62.0	2.441	48	1.890	58.0	2.283
16	TUB-816-Lxxxx	68.0	2.677	53	2.087	63.0	
17	TUB-817-Lxxxx	75.0	2.953	53	2.087	77.0	3.031
18	TUB-818-Lxxxx	82.0	3.228	59	2.323	77.0	
19	TUB-819-Lxxxx	94.0	3.701	66	2.598	89.0	3.504
20	TUB-820-Lxxxx	106.0	4.173	78	3.071	101.0	

Ordering example for drill tube,design to customer request,length 400 mm (15.748 inch) fitting drill head Dc=65.00mm (2.559 inch):

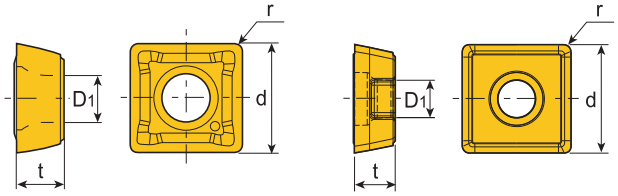
1 piece TUB-814-L0400





Model No.	Size						Blade type	Screw	Wrench
	D	D1	d	L1	L2	L			
CDR1106C10-1T	11	6	10	17	83	100	SP□X050204	TS2003	TK06
CDR1510C12-2T	15	10	12	20	100	120	SP□X050204	TS2003	TK06
CDR1711C16-3T	17	11	16	25	125	150	SP□X050204	TS2003	TK06
CDR1913C16-3T	19	13	16	30	120	150	SP□X050204	TS2003	TK06
CDR2418C20-4T	24	18	20	35	115	150	SP□X050204	TS2003	TK06
CDR2216C16-3T	22	16	16	30	80	120	SP□X060204	TS20205	TK08
CDR2717C20-3T	27	17	20	30	80	120	SP□X07T308	TS2511	TK08
CDR3019C20-2T	30	19	20	40	110	150	SP□X090408	TS3504	TK15
CDR4029C25-3T	40	29	25	40	110	150	SP□X090408	TS3504	TK15
CDR5039C25-4T	50	39	25	40	110	150	SP□X090408	TS3504	TK15
CDR2712C20-1T	27	12	20	40	110	150	SP□X140512	TS5002	TK20
CDR4025C25-2T	40	25	25	40	140	180	SP□X140512	TS5002	TK20
CDR4732C32-3T	47	32	32	40	160	200	SP□X140512	TS5002	TK20

※ CDR2712C20-1T/CDR4025C25-2T/CDR4732C32-3T MOQ 5P.



Unit (mm)

Size	Dimension (mm)			
	d	t	r	D1
05	5.00	2.38	0.4	2.25
06	6.00	2.38	0.4	2.61
07	7.94	3.97	0.8	2.85
09	9.80	4.30	0.8	4.05
14	14.30	5.20	1.2	5.75

Insert	Designation	Material						Stock
		TI620		TZ650	TM450		TN200	
		P (HRC20-30)	K	P (HRC30-40)	P (HRC≤20)	M	N	
	SPMX050204	●		●	●			●
	SPMX060204	●		●	●			●
	SPMX07T308	●		●	●			●
	SPMX090408	●		●	●			●
	SPMX140512	●		●	●			●
	SPGX050204						●	●
	SPGX060204						●	●
	SPGX07T308						●	●
	SPGX090408						●	●
	SPGX140512						●	●

● Stock ○ Non-stock

Recommended Cutting Conditions

Material		Hardness	Insert Grade	Cutting speed (m/min)	Feed/T(mm/t) Face Milling
P	Low alloy steel Cast steel	≤HB180	TI620	150(100-200)	0. 05-0. 25
	High carbon steel Alloy steel	HB180-280	TI620	130(100-180)	0. 05-0. 25
	Alloy tool steel	HB280-350	TZ650	100(80-150)	0. 05-0. 25
M	Stainless steel	≤HB270	TM450	100(80-150)	0. 05-0. 20
K	Grey cast iron	HB180-250	TI620	130(100-180)	0. 13-0. 30
N	Aluminium alloy	-	TN200	200-320	0. 06-0. 20
	Copper alloy	-	TN200	200-320	0. 06-0. 20

Non-standard Drill made

☐ Inquiry ☐ Order

Company: Customer Number:

Contact Person: Tel:

M.B: Fax:

Add: E-mail:

Order Quantity _____

Delivery_____

Order No._____

Processing conditions and tools information

Hole:

☐ Through hole ☐ Blind hole

Aperture _____mm， Depth _____mm

Material to be processed

☐ Carbon ☐ Copper Alloy

☐ Alloy Steel ☐ Hardened Steel

☐ Stainless steel ☐ Nickel Alloy

☐ Cast Iron ☐ Aluminum

☐ Titanium ☐ Other

Processing methods

☐ Wet ☐ Dry

Hardness（HRC，HB）_____

Equipment_____

Flute modality: ☐ Straight ☐ Helical

Cooling

☐ External Cooling ☐ Internal Cooling

Tensile strength（N/mm²）_____

Customized Non-Standard Drill is Available.

Non-standard Drill Drawing and Requirement of Design

Premium Taps

-Premium Taps for CNC Machines
-High and Reliable Performance in Various Ductile Materials
-DIN/JIS Standard

Directory

01 HSS-Co Premium Taps--------C173

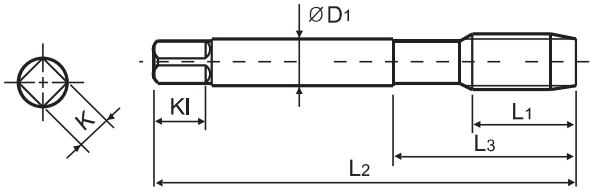
02 HSS-PM Premium Taps------- C183

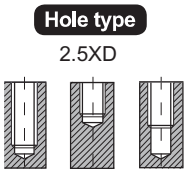
03 Carbide Premium Taps-------- C192

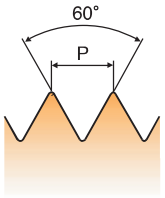
04 User's Guide---------- C202

T Spiral Flute Taps for Alloy Steel、Cast Iron HSS-Co Taps DIN

TSDP-TAPS







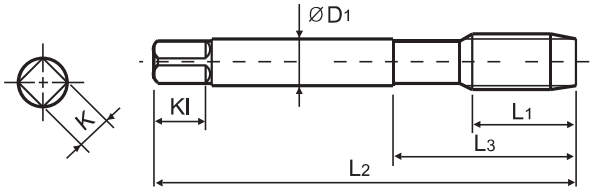
HSS-Co | DIN 371/376 | 6H | 60° | Lc | AlCrN | 38°

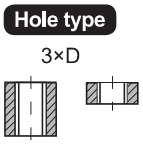
Unit : mm

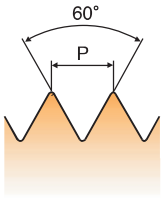
Order No.	Thread Size	Tap Limit	Lc	L2	L1	L3	D1	Kl	K
TSDP020040-SFT	M2X0.4	6H	2.5P	45	8.0	12.0	2.8	5.0	2.1
TSDP025045-SFT	M2.5X0.45	6H	2.5P	50	9.0	14.0	2.8	5.0	2.1
TSDP030050-SFT	M3X0.5	6H	2.5P	56	6.0	16.0	3.5	6.0	2.7
TSDP040070-SFT	M4X0.7	6H	2.5P	63	7.5	20.5	4.5	6.0	3.4
TSDP050080-SFT	M5X0.8	6H	2.5P	70	9.0	26.0	6.0	8.0	4.9
TSDP060100-SFT	M6X1.0	6H	2.5P	80	11.0	29.0	6.0	8.0	4.9
TSDP080125-SFT	M8X1.25	6H	2.5P	90	13.0	34.0	8.0	9.0	6.2
TSDP100150-SFT	M10X1.5	6H	2.5P	100	16.0	38.0	10.0	11.0	8.0
TSDP120175-SFT	M12X1.75	6H	2.5P	110	18.0	40.0	9.0	10.0	7.0
TSDP140200-SFT	M14X2.0	6H	2.5P	110	20.0	44.0	11.0	12.0	9.0
TSDP160200-SFT	M16X2.0	6H	2.5P	110	20.0	50.0	12.0	12.0	9.0
TSDP180250-SFT	M18X2.5	6H	2.5P	125	22.0	50.0	14.0	14.0	11.0
TSDP200250-SFT	M20X2.5	6H	2.5P	140	25.0	50.0	16.0	15.0	12.0
TSDP220250-SFT	M22X2.5	6H	2.5P	140	25.0	60.0	18.0	17.0	14.5
TSDP240300-SFT	M24X3.0	6H	2.5P	160	28.0	60.0	18.0	17.0	14.5

T Spiral Pointed Taps for Alloy Steel、Cast Iron HSS-Co Taps DIN

TSDP-TAPS







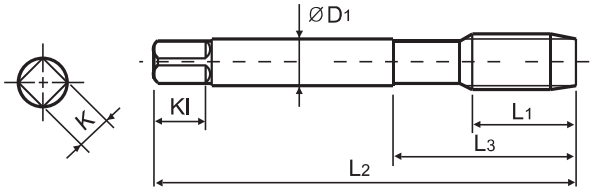
HSS-Co | DIN 371/376 | 6H | 60° | Lc | AlCrN | 0°

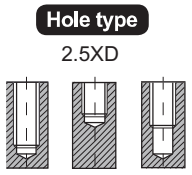
Unit : mm

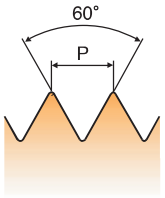
Order No.	Thread Size	Tap Limit	Lc	L2	L1	L3	D1	Kl	K
TSDP020040-POT	M2X0.4	6H	4P	45	8	13	2.8	5.0	2.1
TSDP025045-POT	M2.5X0.45	6H	4P	50	9	15	2.8	5.0	2.1
TSDP030050-POT	M3X0.5	6H	4P	56	11	18	3.5	6.0	2.7
TSDP040070-POT	M4X0.7	6H	4P	63	13	21	4.5	6.0	3.4
TSDP050080-POT	M5X0.8	6H	4P	70	16	25	6.0	8.0	4.9
TSDP060100-POT	M6X1.0	6H	4P	80	19	30	6.0	8.0	4.9
TSDP080125-POT	M8X1.25	6H	4P	90	22	35	8.0	9.0	6.2
TSDP100150-POT	M10X1.5	6H	4P	100	24	39	10.0	11.0	8.0
TSDP120175-POT	M12X1.75	6H	4P	110	29	39	9.0	10.0	7.0
TSDP140200-POT	M14X2.0	6H	4P	110	30	44	11.0	12.0	9.0
TSDP160200-POT	M16X2.0	6H	4P	110	32	50	12.0	12.0	9.0
TSDP180250-POT	M18X2.5	6H	4P	125	34	50	14.0	14.0	11.0
TSDP200250-POT	M20X2.5	6H	4P	140	34	54	16.0	15.0	12.0
TSDP220250-POT	M22X2.5	6H	4P	140	34	60	18.0	17.0	14.5
TSDP240300-POT	M24X3.0	6H	4P	160	38	64	18.0	17.0	14.5

T Spiral Flute Taps for Stainless Steel HSS-Co Taps DIN

TSDM-TAPS







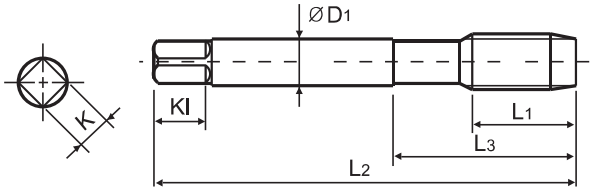
HSS-Co | DIN 371/376 | 6H | 60° | Lc | TiAlN | 38°

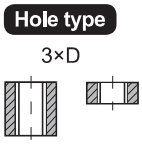
Unit : mm

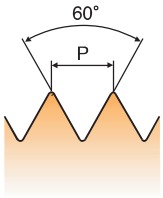
Order No.	Thread Size	Tap Limit	Lc	L2	L1	L3	D1	Kl	K
TSDM020040-SFT	M2X0.4	6H	2.5P	45	8.0	12.0	2.8	5.0	2.1
TSDM025045-SFT	M2.5X0.45	6H	2.5P	50	9.0	14.0	2.8	5.0	2.1
TSDM030050-SFT	M3X0.5	6H	2.5P	56	6.0	16.0	3.5	6.0	2.7
TSDM040070-SFT	M4X0.7	6H	2.5P	63	7.5	20.5	4.5	6.0	3.4
TSDM050080-SFT	M5X0.8	6H	2.5P	70	9.0	26.0	6.0	8.0	4.9
TSDM060100-SFT	M6X1.0	6H	2.5P	80	11.0	29.0	6.0	8.0	4.9
TSDM080125-SFT	M8X1.25	6H	2.5P	90	13.0	34.0	8.0	9.0	6.2
TSDM100150-SFT	M10X1.5	6H	2.5P	100	16.0	38.0	10.0	11.0	8.0
TSDM120175-SFT	M12X1.75	6H	2.5P	110	18.0	40.0	9.0	10.0	7.0
TSDM140200-SFT	M14X2.0	6H	2.5P	110	20.0	44.0	11.0	12.0	9.0
TSDM160200-SFT	M16X2.0	6H	2.5P	110	20.0	50.0	12.0	12.0	9.0
TSDM180250-SFT	M18X2.5	6H	2.5P	125	22.0	50.0	14.0	14.0	11.0
TSDM200250-SFT	M20X2.5	6H	2.5P	140	25.0	50.0	16.0	15.0	12.0
TSDM220250-SFT	M22X2.5	6H	2.5P	140	25.0	60.0	18.0	17.0	14.5
TSDM240300-SFT	M24X3.0	6H	2.5P	160	28.0	60.0	18.0	17.0	14.5

T Spiral Pointed Taps for Stainless Steel HSS-Co Taps DIN

TSDM-TAPS







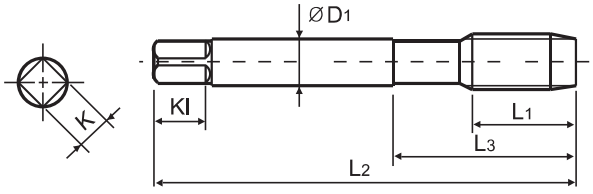
HSS-Co | DIN 371/376 | 6H | 60° | Lc | TiAlN | 0°

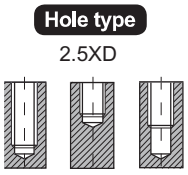
Unit : mm

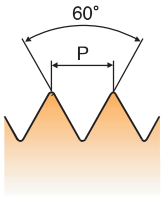
Order No.	Thread Size	Tap Limit	Lc	L2	L1	L3	D1	Kl	K
TSDM020040-POT	M2X0.4	6H	4P	45	8	13	2.8	5.0	2.1
TSDM025045-POT	M2.5X0.45	6H	4P	50	9	15	2.8	5.0	2.1
TSDM030050-POT	M3X0.5	6H	4P	56	11	18	3.5	6.0	2.7
TSDM040070-POT	M4X0.7	6H	4P	63	13	21	4.5	6.0	3.4
TSDM050080-POT	M5X0.8	6H	4P	70	16	25	6.0	8.0	4.9
TSDM060100-POT	M6X1.0	6H	4P	80	19	30	6.0	8.0	4.9
TSDM080125-POT	M8X1.25	6H	4P	90	22	35	8.0	9.0	6.2
TSDM100150-POT	M10X1.5	6H	4P	100	24	39	10.0	11.0	8.0
TSDM120175-POT	M12X1.75	6H	4P	110	29	39	9.0	10.0	7.0
TSDM140200-POT	M14X2.0	6H	4P	110	30	44	11.0	12.0	9.0
TSDM160200-POT	M16X2.0	6H	4P	110	32	50	12.0	12.0	9.0
TSDM180250-POT	M18X2.5	6H	4P	125	34	50	14.0	14.0	11.0
TSDM200250-POT	M20X2.5	6H	4P	140	34	54	16.0	15.0	12.0
TSDM220250-POT	M22X2.5	6H	4P	140	34	60	18.0	17.0	14.5
TSDM240300-POT	M24X3.0	6H	4P	160	38	64	18.0	17.0	14.5

T Spiral Flute Taps for Alloy Steel、Cast Iron HSS-Co Taps JIS

TSJP-TAPS







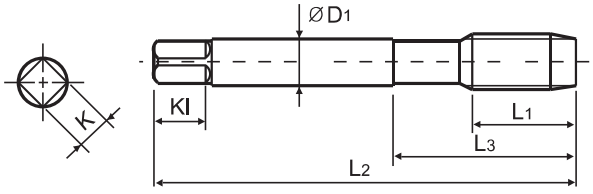
HSS-Co | JIS | 6H | 60° | Lc | AlCrN | 38°

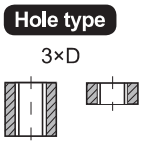
Unit : mm

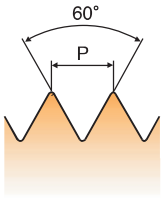
Order No.	Thread Size	Tap Limit	Lc	L2	L1	L3	D1	Kl	K
TSJP020040-SFT	M2X0.4	6H	2.5P	40	8.0	13.0	3.0	5.0	2.5
TSJP025045-SFT	M2.5X0.45	6H	2.5P	44	9.0	14.0	3.0	5.0	2.5
TSJP030050-SFT	M3X0.5	6H	2.5P	46	6.0	14.0	4.0	6.0	3.2
TSJP040070-SFT	M4X0.7	6H	2.5P	52	7.5	20.5	5.0	7.0	4.0
TSJP050080-SFT	M5X0.8	6H	2.5P	60	9.0	25.0	5.5	7.0	4.5
TSJP060100-SFT	M6X1.0	6H	2.5P	62	11.0	29.0	6.0	7.0	4.5
TSJP080125-SFT	M8X1.25	6H	2.5P	70	13.0	34.0	6.2	8.0	5.0
TSJP100150-SFT	M10X1.5	6H	2.5P	75	16.0	38.0	7.0	8.0	5.5
TSJP120175-SFT	M12X1.75	6H	2.5P	82	18.0	46.0	8.5	9.0	6.5
TSJP140200-SFT	M14X2.0	6H	2.5P	88	20.0	46.0	10.5	11.0	8.0
TSJP160200-SFT	M16X2.0	6H	2.5P	95	20.0	50.0	12.5	13.0	10.0
TSJP180250-SFT	M18X2.5	6H	2.5P	100	22.0	55.0	14.0	14.0	11.0
TSJP200250-SFT	M20X2.5	6H	2.5P	105	25.0	58.0	15.0	15.0	12.0
TSJP220250-SFT	M22X2.5	6H	2.5P	115	25.0	63.0	17.0	16.0	13.0
TSJP240300-SFT	M24X3.0	6H	2.5P	120	29.0	66.0	19.0	18.0	15.0

T Spiral Pointed Taps for Alloy Steel、Cast Iron HSS-Co Taps JIS

TSJP-TAPS







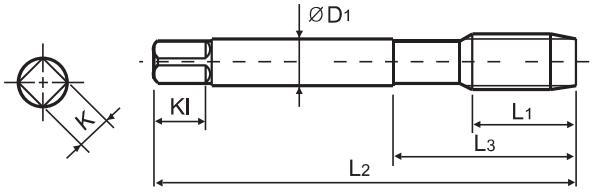
HSS-Co | JIS | 6H | 60° | Lc | AlCrN | 0°

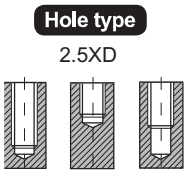
Unit : mm

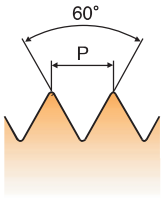
Order No.	Thread Size	Tap Limit	Lc	L2	L1	L3	D1	Kl	K
TSJP020040-POT	M2X0.4	6H	4P	40	8	13	3.0	5.0	2.5
TSJP025045-POT	M2.5X0.45	6H	4P	44	9	14	3.0	5.0	2.5
TSJP030050-POT	M3X0.5	6H	4P	46	11	15	4.0	6.0	3.2
TSJP040070-POT	M4X0.7	6H	4P	52	13	21	5.0	7.0	4.0
TSJP050080-POT	M5X0.8	6H	4P	60	16	25	5.5	7.0	4.5
TSJP060100-POT	M6X1.0	6H	4P	62	19	30	6.0	7.0	4.5
TSJP080125-POT	M8X1.25	6H	4P	70	22	32	6.2	8.0	5.0
TSJP100150-POT	M10X1.5	6H	4P	75	24	39	7.0	8.0	5.5
TSJP120175-POT	M12X1.75	6H	4P	82	29	42	8.5	9.0	6.5
TSJP140200-POT	M14X2.0	6H	4P	88	30	46	10.5	11.0	8.0
TSJP160200-POT	M16X2.0	6H	4P	95	32	50	12.5	13.0	10.0
TSJP180250-POT	M18X2.5	6H	4P	100	34	55	14.0	14.0	11.0
TSJP200250-POT	M20X2.5	6H	4P	105	34	58	15.0	15.0	12.0
TSJP220250-POT	M22X2.5	6H	4P	115	34	63	17.0	16.0	13.0
TSJP240300-POT	M24X3.0	6H	4P	120	38	66	19.0	18.0	15.0

T Spiral Flute Taps for Stainless Steel HSS-Co Taps JIS

TSJM-TAPS







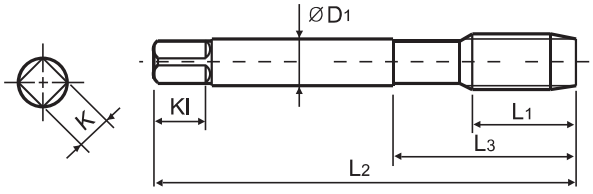
HSS-Co | JIS | 6H | 60° | Lc | TiAlN | 38°

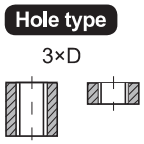
Unit : mm

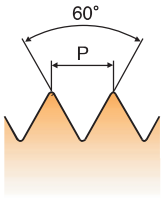
Order No.	Thread Size	Tap Limit	Lc	L2	L1	L3	D1	Kl	K
TSJM020040-SFT	M2X0.4	6H	2.5P	40	8.0	13.0	3.0	5.0	2.5
TSJM025045-SFT	M2.5X0.45	6H	2.5P	44	9.0	14.0	3.0	5.0	2.5
TSJM030050-SFT	M3X0.5	6H	2.5P	46	6.0	14.0	4.0	6.0	3.2
TSJM040070-SFT	M4X0.7	6H	2.5P	52	7.5	20.5	5.0	7.0	4.0
TSJM050080-SFT	M5X0.8	6H	2.5P	60	9.0	25.0	5.5	7.0	4.5
TSJM060100-SFT	M6X1.0	6H	2.5P	62	11.0	29.0	6.0	7.0	4.5
TSJM080125-SFT	M8X1.25	6H	2.5P	70	13.0	34.0	6.2	8.0	5.0
TSJM100150-SFT	M10X1.5	6H	2.5P	75	16.0	38.0	7.0	8.0	5.5
TSJM120175-SFT	M12X1.75	6H	2.5P	82	18.0	46.0	8.5	9.0	6.5
TSJM140200-SFT	M14X2.0	6H	2.5P	88	20.0	46.0	10.5	11.0	8.0
TSJM160200-SFT	M16X2.0	6H	2.5P	95	20.0	50.0	12.5	13.0	10.0
TSJM180250-SFT	M18X2.5	6H	2.5P	100	22.0	55.0	14.0	14.0	11.0
TSJM200250-SFT	M20X2.5	6H	2.5P	105	25.0	58.0	15.0	15.0	12.0
TSJM220250-SFT	M22X2.5	6H	2.5P	115	25.0	63.0	17.0	16.0	13.0
TSJM240300-SFT	M24X3.0	6H	2.5P	120	29.0	66.0	19.0	18.0	15.0

T Spiral Pointed Taps for Stainless Steel HSS-Co Taps JIS

TSJM-TAPS







HSS-Co | JIS | 6H | 60° | Lc | TiAlN | 0°

Unit : mm

Order No.	Thread Size	Tap Limit	Lc	L2	L1	L3	D1	Kl	K
TSJM020040-POT	M2X0.4	6H	4P	40	8	13	3.0	5.0	2.5
TSJM025045-POT	M2.5X0.45	6H	4P	44	9	14	3.0	5.0	2.5
TSJM030050-POT	M3X0.5	6H	4P	46	11	15	4.0	6.0	3.2
TSJM040070-POT	M4X0.7	6H	4P	52	13	21	5.0	7.0	4.0
TSJM050080-POT	M5X0.8	6H	4P	60	16	25	5.5	7.0	4.5
TSJM060100-POT	M6X1.0	6H	4P	62	19	30	6.0	7.0	4.5
TSJM080125-POT	M8X1.25	6H	4P	70	22	32	6.2	8.0	5.0
TSJM100150-POT	M10X1.5	6H	4P	75	24	39	7.0	8.0	5.5
TSJM120175-POT	M12X1.75	6H	4P	82	29	42	8.5	9.0	6.5
TSJM140200-POT	M14X2.0	6H	4P	88	30	46	10.5	11.0	8.0
TSJM160200-POT	M16X2.0	6H	4P	95	32	50	12.5	13.0	10.0
TSJM180250-POT	M18X2.5	6H	4P	100	34	55	14.0	14.0	11.0
TSJM200250-POT	M20X2.5	6H	4P	105	34	58	15.0	15.0	12.0
TSJM220250-POT	M22X2.5	6H	4P	115	34	63	17.0	16.0	13.0
TSJM240300-POT	M24X3.0	6H	4P	120	38	66	19.0	18.0	15.0

Standard Cutting Conditions (TSDP/TSJP)

HOLE TYPE		Max. 2.5xD Blind Hole	Max. 3.0xD Through Hole
TOOL MATERIAL		HSS-Co	
FLUTE TYPE		Spiral Flute	Spiral Pointed
SPIRAL FLUTE ANGLE		38°	0°
SERIES	JIS Type	●	●
	DIN 371/376	●	●
SURFACE TREATMENT		AlCrN	
MODEL			

◎ : Excellent ○ : Good

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRC	Standard Cutting Conditions (TSDP/TSJP) Vc (m/min.)			
P	1	Non-alloy steel	About 0.15% C	Annealed	125		○	8-18	○	15-25
	2		About 0.45% C	Annealed	190	13	◎	7-15	◎	10-20
	3		About 0.45% C	Quenched & Tempered	250	25	◎	7-15	◎	10-20
	4		About 0.75% C	Annealed	270	28	◎	7-12	◎	10-15
	5		About 0.75% C	Quenched & Tempered	300	32	◎	7-12	◎	10-15
	6	Low alloy steel		Annealed	180	10	◎	5-15	◎	8-18
	7			Quenched & Tempered	275	29	◎	5-15	◎	8-18
	8			Quenched & Tempered	300	32	◎	5-15	◎	8-18
	9			Quenched & Tempered	350	38	○	5-15	○	8-18
	10	High alloyed steel, and tool steel		Annealed	200	15	○	5-15	○	8-18
	11			Quenched & Tempered	325	35	○	5-15	○	8-18
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	◎	–	◎	–
	13		Martensitic	Quenched & Tempered	240	23	◎	–	◎	–
	14		Austenitic		180	10	◎	–	◎	–
K	15	Grey cast iron	Pearlitic / ferritic		180	10	○	5-20	○	5-20
	16		Pearlitic (Martensitic)		260	26	○	5-20	○	5-20
	17	Nodular cast iron	Ferritic		160	3	◎	5-20	◎	5-20
	18		Pearlitic		250	25	◎	5-20	◎	5-20
	19	Malleable cast iron	Ferritic		130					
	20		Pearlitic		230	21				

Standard Cutting Conditions (TSDM/TSJM)

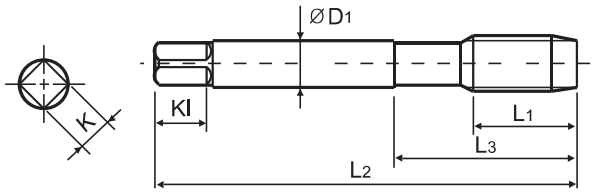
HOLE TYPE		Max. 2.5xD Blind Hole	Max. 3.0xD Through Hole
TOOL MATERIAL		HSS-Co	
FLUTE TYPE		Spiral Flute	Spiral Pointed
SPIRAL FLUTE ANGLE		38°	0°
SERIES	JIS Type	●	●
	DIN 371/376	●	●
SURFACE TREATMENT		TiAlN	
MODEL			

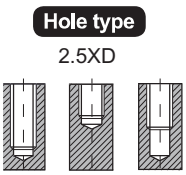
◎ : Excellent ○ : Good

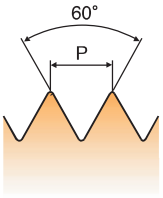
ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRC	Standard Cutting Conditions (TSDM/TSJM) Vc (m/min.)			
P	1	Non-alloy steel	About 0.15% C	Annealed	125		○	–	○	–
	2		About 0.45% C	Annealed	190	13	◎	–	◎	–
	3		About 0.45% C	Quenched & Tempered	250	25	◎	–	◎	–
	4		About 0.75% C	Annealed	270	28	◎	–	◎	–
	5		About 0.75% C	Quenched & Tempered	300	32	◎	–	◎	–
	6	Low alloy steel		Annealed	180	10	◎	–	◎	–
	7			Quenched & Tempered	275	29	◎	–	◎	–
	8			Quenched & Tempered	300	32	◎	–	◎	–
	9			Quenched & Tempered	350	38	○	–	○	–
	10	High alloyed steel, and tool steel		Annealed	200	15	○	–	○	–
	11			Quenched & Tempered	325	35	○	–	○	–
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	◎	5-13	◎	8-15
	13		Martensitic	Quenched & Tempered	240	23	◎	5-13	◎	8-15
	14		Austenitic		180	10	◎	5-13	◎	8-15
K	15	Grey cast iron	Pearlitic / ferritic		180	10	○	–	○	–
	16		Pearlitic (Martensitic)		260	26	○	–	○	–
	17	Nodular cast iron	Ferritic		160	3	◎	–	◎	–
	18		Pearlitic		250	25	◎	–	◎	–
	19	Malleable cast iron	Ferritic		130					
	20		Pearlitic		230	21				

T Spiral Flute Taps for Multi-Purpose HSS-PM T-Coating Taps DIN

TAD-TAPS







M | HSS-PM | DIN 371/376 | 6HX | 60° | Lc | T-Coating | 45°

Unit : mm

Order No.	Thread Size	Tap Limit	Lc	L2	L1	L3	D1	Kl	K
TAD030050-SFT	M3X0. 5	6HX	2. 5P	56	4. 0	18	3. 5	6	2. 7
TAD040070-SFT	M4X0. 7	6HX	2. 5P	63	5. 6	21	4. 5	6	3. 4
TAD050080-SFT	M5X0. 8	6HX	2. 5P	70	6. 4	25	6. 0	8	4. 9
TAD060100-SFT	M6X1. 0	6HX	2. 5P	80	8. 0	30	6. 0	8	4. 9
TAD080125-SFT	M8X1. 25	6HX	2. 5P	90	13. 0	35	8. 0	9	6. 2
TAD100150-SFT	M10X1. 5	6HX	2. 5P	100	15. 0	39	10. 0	11	8. 0
TAD120175-SFT	M12X1. 75	6HX	2. 5P	110	18. 0	44	9. 0	10	7. 0
TAD140200-SFT	M14X2. 0	6HX	2. 5P	110	20. 0	44	11. 0	12	9. 0
TAD160200-SFT	M16X2. 0	6HX	2. 5P	110	20. 0	44	12. 0	12	9. 0
TAD180250-SFT	M18X2. 5	6HX	2. 5P	125	25. 0	50	14. 0	14	11. 0
TAD200250-SFT	M20X2. 5	6HX	2. 5P	140	25. 0	54	16. 0	15	12. 0
TAD220250-SFT	M22X2. 5	6HX	2. 5P	140	25. 0	54	18. 0	17	14. 5
TAD240300-SFT	M24X3. 0	6HX	2. 5P	160	30. 0	60	18. 0	17	14. 5
TAD270300-SFT	M27X3. 0	6HX	2. 5P	160	30. 0	60	20. 0	19	16. 0
TAD300350-SFT	M30X3. 5	6HX	2. 5P	180	38. 0	100	22. 0	21	18. 0

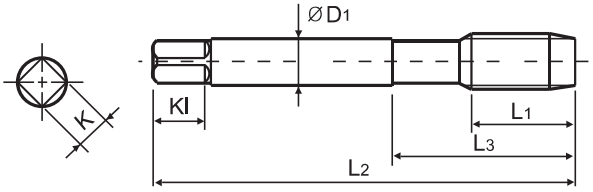
◎ : Excellent ○ : Good

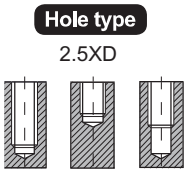
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	○	○	○	◎	◎	◎	◎	◎	◎	◎		

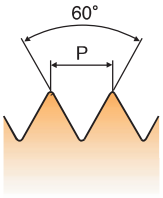
ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	◎	◎	○	◎	◎	◎													

T Spiral Flute Taps for Multi-Purpose HSS-PM T-Coating Taps DIN

TAD-TAPS







MF | HSS-PM | DIN 374 | 6HX | 60° | Lc | T-Coating | 45°

Unit : mm

Order No.	Thread Size	Tap Limit	Lc	L2	L1	L3	D1	Kl	K
TAD080100-SFT	M8X1.0	6HX	2.5P	90	10.0	36	6.0	8	4.9
TAD100125-SFT	M10X1.25	6HX	2.5P	100	13.0	40	7.0	8	5.5
TAD100100-SFT	M10X1.0	6HX	2.5P	90	10.0	36	7.0	8	5.5
TAD120150-SFT	M12X1.5	6HX	2.5P	100	15.0	40	9.0	10	7.0
TAD120125-SFT	M12X1.25	6HX	2.5P	100	15.0	40	9.0	10	7.0
TAD140150-SFT	M14X1.5	6HX	2.5P	100	15.0	40	11.0	12	9.0
TAD160150-SFT	M16X1.5	6HX	2.5P	100	15.0	40	12.0	12	9.0
TAD160100-SFT	M16X1.0	6HX	2.5P	100	15.0	40	12.0	12	9.0
TAD180150-SFT	M18X1.5	6HX	2.5P	110	15.0	44	14.0	14	11.0
TAD200150-SFT	M20X1.5	6HX	2.5P	125	15.0	50	16.0	15	12.0
TAD220150-SFT	M22X1.5	6HX	2.5P	125	15.0	50	18.0	17	14.5
TAD240150-SFT	M24X1.5	6HX	2.5P	140	15.0	54	18.0	17	14.5

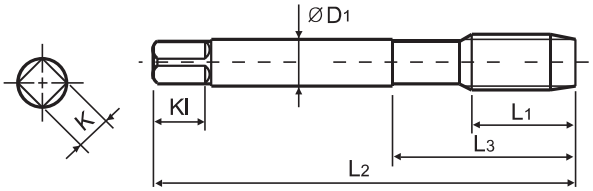
◎ : Excellent ○ : Good

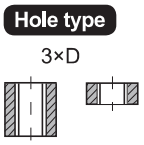
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	○	○	○	◎	◎	◎	◎	◎	◎	◎		

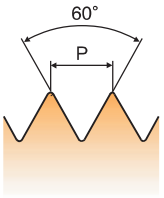
ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	◎	◎	○	◎	◎	◎													

T Spiral Pointed Taps for Multi-Purpose HSS-PM T-Coating Taps DIN

TAD-TAPS







M | HSS-PM | DIN 371/376 | 6HX | 60° | Lc | T-Coating | 0°

Unit : mm

Order No.	Thread Size	Tap Limit	Lc	L2	L1	L3	D1	Kl	K
TAD030050-POT	M3X0. 5	6HX	4. 5P	56	11	18	3. 5	6	2. 7
TAD040070-POT	M4X0. 7	6HX	4. 5P	63	13	21	4. 5	6	3. 4
TAD050080-POT	M5X0. 8	6HX	4. 5P	70	15	25	6. 0	8	4. 9
TAD060100-POT	M6X1. 0	6HX	4. 5P	80	17	30	6. 0	8	4. 9
TAD080125-POT	M8X1. 25	6HX	4. 5P	90	20	35	8. 0	9	6. 2
TAD100150-POT	M10X1. 5	6HX	4. 5P	100	22	39	10. 0	11	8. 0
TAD120175-POT	M12X1. 75	6HX	4. 5P	110	24	44	9. 0	10	7. 0
TAD140200-POT	M14X2. 0	6HX	4. 5P	110	26	44	11. 0	12	9. 0
TAD160200-POT	M16X2. 0	6HX	4. 5P	110	27	44	12. 0	12	9. 0
TAD180250-POT	M18X2. 5	6HX	4. 5P	125	30	50	14. 0	14	11. 0
TAD200250-POT	M20X2. 5	6HX	4. 5P	140	32	54	16. 0	15	12. 0
TAD220250-POT	M22X2. 5	6HX	4. 5P	140	32	54	18. 0	17	14. 5
TAD240300-POT	M24X3. 0	6HX	4. 5P	160	34	60	18. 0	17	14. 5
TAD270300-POT	M27X3. 0	6HX	4. 5P	160	38	60	20. 0	19	16. 0
TAD300350-POT	M30X3. 5	6HX	4. 5P	180	42	71	22. 0	21	18. 0

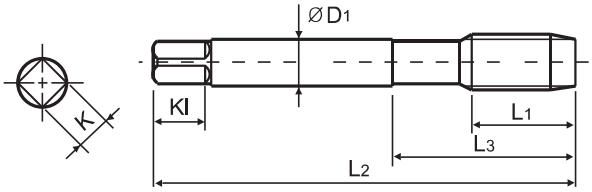
◎ : Excellent ○ : Good

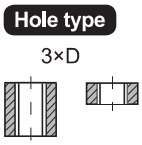
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○	○	◎	◎	◎	◎	◎	◎	◎		

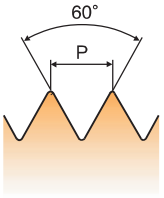
ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	◎	◎	○	◎	◎	◎													

T Spiral Pointed Taps for Multi-Purpose HSS-PM T-Coating Taps DIN

TAD-TAPS







MF | HSS-PM | DIN 374 | 6HX | 60° | Lc | T-Coating | 0°

Unit : mm

Order No.	Thread Size	Tap Limit	Lc	L2	L1	L3	D1	Kl	K
TAD080100-POT	M8X1.0	6HX	4.5P	90	17	36	6.0	8	4.9
TAD100125-POT	M10X1.25	6HX	4.5P	100	22	40	7.0	8	5.5
TAD100100-POT	M10X1.0	6HX	4.5P	90	18	36	7.0	8	5.5
TAD120150-POT	M12X1.5	6HX	4.5P	100	22	40	9.0	10	7.0
TAD120125-POT	M12X1.25	6HX	4.5P	100	22	40	9.0	10	7.0
TAD140150-POT	M14X1.5	6HX	4.5P	100	22	40	11.0	12	9.0
TAD160150-POT	M16X1.5	6HX	4.5P	100	22	40	12.0	12	9.0
TAD160100-POT	M16X1.0	6HX	4.5P	100	18	40	12.0	12	9.0
TAD180150-POT	M18X1.5	6HX	4.5P	110	25	44	14.0	14	11.0
TAD200150-POT	M20X1.5	6HX	4.5P	125	25	50	16.0	15	12.0
TAD220150-POT	M22X1.5	6HX	4.5P	125	25	50	18.0	17	14.5
TAD240150-POT	M24X1.5	6HX	4.5P	140	27	54	18.0	17	14.5

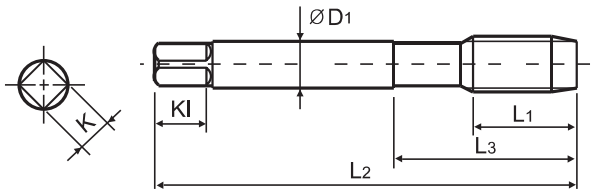
◎ : Excellent ○ : Good

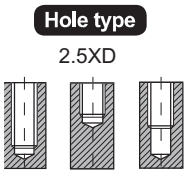
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	◎	○	○	◎	◎	◎	◎	◎	◎	◎		

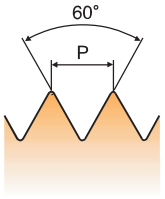
ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	◎	◎	○	◎	◎	◎													

T Spiral Flute Taps for Multi-Purpose HSS-PM T-Coating Taps JIS

TAJ-TAPS







M | HSS-PM | JIS | T2-T4 | 60° | Lc | T-Coating | 45°

Unit : mm

Order No.	Thread Size	Tap Limit	Lc	L2	L1	L3	D1	KI	K
TAJ030050-SFT	M3X0. 5	T2	2. 5P	46	4. 0	18	4. 0	6	3. 2
TAJ040070-SFT	M4X0. 7	T3	2. 5P	52	5. 6	20	5. 0	7	4.0
TAJ050080-SFT	M5X0. 8	T3	2. 5P	60	6. 4	25	5. 5	7	4. 5
TAJ060100-SFT	M6X1. 0	T3	2. 5P	62	8. 0	28	6. 0	7	4. 5
TAJ080125-SFT	M8X1. 25	T3	2. 5P	70	15. 0	35	6. 2	8	5.0
TAJ100150-SFT	M10X1. 5	T3	2. 5P	75	18. 0	39	7. 0	8	5. 5
TAJ120175-SFT	M12X1. 75	T4	2. 5P	82	21. 0	42	8. 5	9	6. 5
TAJ140200-SFT	M14X2. 0	T4	2. 5P	88	24. 0	46	10. 5	11	8. 0
TAJ160200-SFT	M16X2. 0	T4	2. 5P	95	24. 0	50	12. 5	13	10. 0

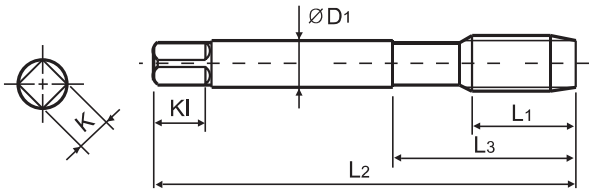
◎ : Excellent ○ : Good

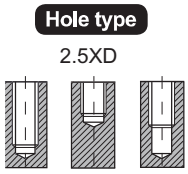
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	○	○	○	◎	◎	◎	◎	◎	◎	◎		

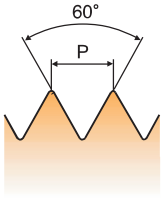
ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	◎	◎	○	◎	◎	◎													

T Spiral Flute Taps for Multi-Purpose HSS-PM T-Coating Taps JIS

TAJ-TAPS







MF | HSS-PM | JIS | T2-T4 | 60° | Lc | T-Coating | 45°

Unit : mm

Order No.	Thread Size	Tap Limit	Lc	L2	L1	L3	D1	Kl	K
TAJ080100-SFT	M8x1.0	T3	2.5P	70	12	35	6.2	8	5.0
TAJ100125-SFT	M10x1.25	T3	2.5P	75	15	39	7.0	8	5.5
TAJ100100-SFT	M10x1.0	T3	2.5P	75	15	39	7.0	8	5.5
TAJ120150-SFT	M12x1.5	T3	2.5P	82	18	42	8.5	9	6.5
TAJ120125-SFT	M12x1.25	T3	2.5P	82	18	42	8.5	9	6.5
TAJ120100-SFT	M12x1.0	T3	2.5P	82	18	42	8.5	9	6.5
TAJ140150-SFT	M14x1.5	T3	2.5P	88	18	46	10.5	11	8.0
TAJ160150-SFT	M16x1.5	T3	2.5P	95	18	50	12.5	13	10.0

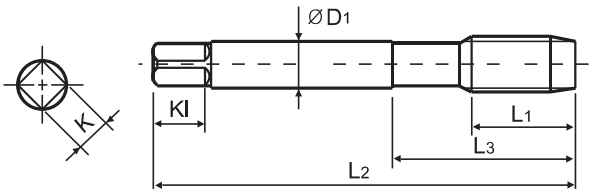
◎ : Excellent ○ : Good

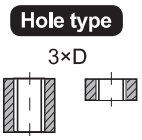
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	○	◎	◎	◎	◎	◎	◎	◎	○	○	○	◎	◎	◎	◎	◎	◎	◎		

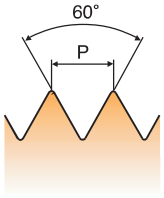
ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400Rm	1050Rm	550	630	400	550
Recommended	○	○	◎	◎	○	◎	◎	◎													

T Spiral Pointed Taps for Multi-Purpose HSS-PM T-Coating Taps JIS

TAJ-TAPS







M | HSS-PM | JIS | T3-T4 | 60° | Lc | T-Coating | 0°

Unit : mm

Order No.	Thread Size	Tap Limit	Lc	L2	L1	L3	D1	Kl	K
TAJ030050-POT	M3X0. 5	T3	4. 5P	46	11	18	4. 0	6	3. 2
TAJ040070-POT	M4X0. 7	T3	4. 5P	52	13	20	5. 0	7	4. 0
TAJ050080-POT	M5X0. 8	T3	4. 5P	60	16	25	5. 5	7	4. 5
TAJ060100-POT	M6X1.0	T3	4. 5P	62	19	28	6. 0	7	4. 5
TAJ080125-POT	M8X1. 25	T3	4. 5P	70	22	35	6. 2	8	5. 0
TAJ100150-POT	M10X1. 5	T4	4. 5P	75	24	39	7. 0	8	5. 5
TAJ120175-POT	M12X1. 75	T4	4. 5P	82	29	42	8. 5	9	6. 5
TAJ140200-POT	M14X2. 0	T4	4. 5P	88	30	46	10. 5	11	8. 0
TAJ160200-POT	M16X2. 0	T4	4. 5P	95	32	50	12. 5	13	10. 0

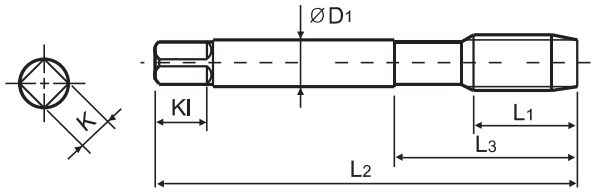
◎ : Excellent ○ : Good

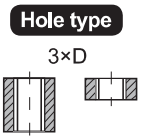
ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	◎	◎	◎	◎	◎	◎	◎		

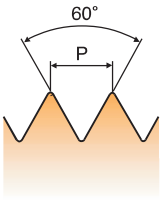
ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	◎	◎	○	◎	◎	◎													

T Spiral Pointed Taps for Multi-Purpose HSS-PM T-Coating Taps JIS

TAJ-TAPS







MF | HSS-PM | JIS | T3-T4 | 60° | Lc | T-Coating | 0°

Unit : mm

Order No.	Thread Size	Tap Limit	Lc	L2	L1	L3	D1	Kl	K
TAJ080100-POT	M8x1.0	T3	4.5P	70	22	35	6.2	8	5.0
TAJ100125-POT	M10x1.25	T3	4.5P	75	24	39	7.0	8	5.5
TAJ100100-POT	M10x1.0	T3	4.5P	75	24	39	7.0	8	5.5
TAJ120150-POT	M12x1.5	T4	4.5P	82	29	42	8.5	9	6.5
TAJ120125-POT	M12x1.25	T4	4.5P	82	29	42	8.5	9	6.5
TAJ120100-POT	M12x1.0	T3	4.5P	82	29	42	8.5	9	6.5
TAJ140150-POT	M14x1.5	T4	4.5P	88	30	46	10.5	11	8.0
TAJ160150-POT	M16x1.5	T4	4.5P	95	32	50	12.5	13	10.0

◎ : Excellent ○ : Good

ISO	P											M			K					
Material Description	Non-alloy steel					Low alloy steel				High alloyed steel, and tool steel		Stainless steel			Grey cast iron		Nodular cast iron		Malleable cast iron	
VDI 3323	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HRC		13	25	28	32	10	29	32	38	15	35	15	23	10	10	26	3	25		21
HB	125	190	250	270	300	180	275	300	350	200	325	200	240	180	180	260	160	250	130	230
Recommended	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	◎	◎	◎	◎	◎	◎	◎		

ISO	N										S							H			
Material Description	Aluminum-wrought alloy		Aluminum-cast, alloyed			Copper and Copper Alloys (Bronze / Brass)			Non Metallic Materials		Heat Resistant Super Alloys					Titanium Alloys		Hardened steel		Chilled Cast Iron	Hardened Cast Iron
VDI 3323	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
HRC											15	30	25	38	34			55	60	42	55
HB	60	100	75	90	130	110	90	100			200	280	250	350	320	400 Rm	1050 Rm	550	630	400	550
Recommended	○	○	◎	◎	○	◎	◎	◎													

Standard Cutting Conditions

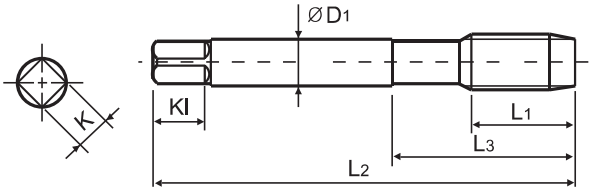
HOLE TYPE		Max. 2.5xD Blind Hole	Max. 3.0xD Through Hole
TOOL MATERIAL		HSS-PM	
FLUTE TYPE		Spiral Flute	Spiral Pointed
SPIRAL FLUTE ANGLE		45°	0°
SERIES	JIS Type	●	●
	DIN 371/376	●	●
SURFACE TREATMENT		T-coating	
MODEL			

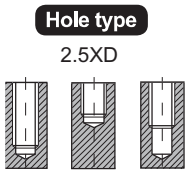
◎ : Excellent ○ : Good

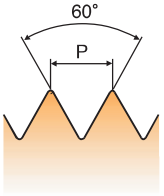
ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment		HB	HRc	Recommended cutting conditions Vc (m/min.)	
P	1	Non-alloy steel	About 0.15% C	Annealed	125		○ 5-20	○ 15-45
	2		About 0.45% C	Annealed	190	13	◎ 10-50	◎ 10-55
	3		About 0.45% C	Quenched & Tempered	250	25	◎ 10-50	◎ 10-55
	4		About 0.75% C	Annealed	270	28	◎ 15-40	◎ 15-50
	5		About 0.75% C	Quenched & Tempered	300	32	◎ 15-40	◎ 15-50
	6	Low alloy steel		Annealed	180	10	◎ 8-30	◎ 8-30
	7			Quenched & Tempered	275	29	◎ 8-30	◎ 8-30
	8			Quenched & Tempered	300	32	◎ 8-30	◎ 8-30
	9			Quenched & Tempered	350	38	○ 8-30	○ 8-30
	10	High alloyed steel, and tool steel		Annealed	200	15	○ 8-30	○ 8-30
	11			Quenched & Tempered	325	35	○ 8-30	○ 8-30
M	12	Stainless steel	Ferritic / Martensitic	Annealed	200	15	◎ 5-15	◎ 8-20
	13		Martensitic	Quenched & Tempered	240	23	◎ 5-15	◎ 8-20
	14		Austenitic		180	10	◎ 5-15	◎ 8-20
K	15	Grey cast iron	Pearlitic / ferritic		180	10	○ 15-35	○ 15-35
	16		Pearlitic (Martensitic)		260	26	○ 15-35	○ 15-35
	17	Nodular cast iron	Ferritic		160	3	◎ 15-35	◎ 15-35
	18		Pearlitic		250	25	◎ 15-35	◎ 15-35
	19	Malleable cast iron	Ferritic		130			
	20		Pearlitic		230	21		
N	21	Aluminum-wrought alloy	Not Curable		60		○ 15-35	○ 15-35
	22		Curable	Hardened	100		○ 15-35	○ 15-35
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable		75		◎ 15-35	◎ 15-35
	24		≤ 12% Si, Curable	Hardened	90		◎ 15-35	◎ 15-35
	25		> 12% Si, Not Curable		130		○ 15-35	○ 15-35
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%		110		◎ 15-35	◎ 15-35
	27		CuZn, CuSnZn (Brass)		90		◎ 15-35	◎ 15-35
	28		CuSn, lead-free copper and electrolytic copper		100		◎ 15-35	◎ 15-35
	29	Non Metallic Materials	Duroplastic, Fiber Reinforced Plastic					
	30		Rubber, Wood, etc.					

T Spiral Flute Taps for Multi-Purpose Carbide AD-Coating Taps DIN

TCAD-TAPS







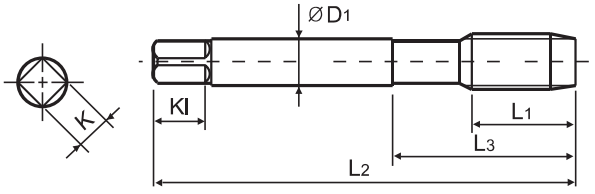
Carbide | DIN 371/376 | 6H | 60° | Lc | AD-Coating | M3-M10 30° M5-M16 15°

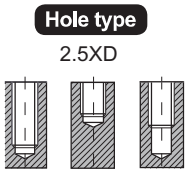
Unit : mm

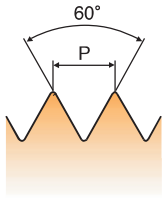
Order No.	Thread Size	Tap Limit	Lc	L2	L1	L3	D1	Kl	K
TCAD030050-SFT	M3X0. 5	6H	2. 0P	56	9	17	3. 5	6	2. 7
TCAD040070-SFT	M4X0. 7	6H	2. 0P	63	9	19	4. 5	6	3. 4
TCAD050080-SFT	M5X0. 8	6H	2. 0P	70	12	24	6. 0	8	4. 9
TCAD060100-SFT	M6X1. 0	6H	2. 5P	80	13	25	6. 0	8	4. 9
TCAD080125-SFT	M8X1. 25	6H	2. 5P	90	16	40	8. 0	9	6. 2
TCAD100150-SFT	M10X1. 5	6H	2. 5P	100	18	45	10. 0	11	8. 0
TCAD120175-SFT	M12X1. 75	6H	2. 5P	110	19	–	9. 0	10	7. 0
TCAD140200-SFT	M14X2. 0	6H	2. 5P	110	19	–	11. 0	12	9. 0
TCAD160200-SFT	M16X2. 0	6H	2. 5P	110	19	–	12. 0	12	9. 0

T Straight Flute Taps for Multi-Purpose Carbide AD-Coating Taps DIN

TCAD-TAPS







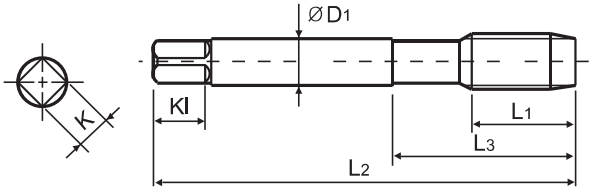
Carbide | DIN 371/376 | 6H | 60° | Lc | AD-Coating | 0°

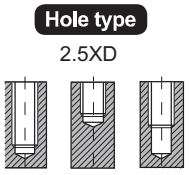
Unit : mm

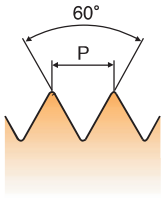
Order No.	Thread Size	Tap Limit	Lc	L2	L1	L3	D1	Kl	K
TCAD030050-HT	M3X0. 5	6H	2. 5P	56	9	17	3. 5	6	2. 7
TCAD040070-HT	M4X0. 7	6H	2. 5P	63	9	19	4. 5	6	3. 4
TCAD050080-HT	M5X0. 8	6H	2. 5P	70	12	24	6. 0	8	4. 9
TCAD060100-HT	M6X1. 0	6H	2. 5P	80	13	25	6. 0	8	4. 9
TCAD080125-HT	M8X1. 25	6H	2. 5P	90	16	40	8. 0	9	6. 2
TCAD100150-HT	M10X1. 5	6H	2. 5P	100	18	45	10. 0	11	8. 0
TCAD120175-HT	M12X1. 75	6H	2. 5P	110	19	–	9. 0	10	7. 0
TCAD140200-HT	M14X2. 0	6H	2. 5P	110	19	–	11. 0	12	9. 0
TCAD160200-HT	M16X2. 0	6H	2. 5P	110	19	–	12. 0	12	9. 0

T Fluteless Taps for Multi-Purpose Carbide No-Coating Taps DIN

TCAD-TAPS







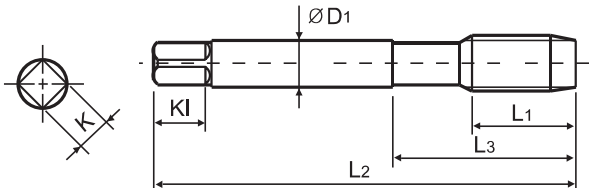
Carbide | DIN 371/376 | 6H | 60° | Lc | No-Coating | 0°

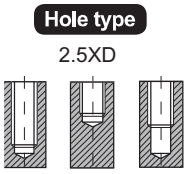
Unit : mm

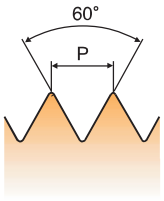
Order No.	Thread Size	Tap Limit	Lc	L2	L1	L3	D1	Kl	K
TCAD030050-FT	M3X0. 5	6H	1. 5P	56	9	17	3. 5	6	2. 7
TCAD040070-FT	M4X0. 7	6H	1. 5P	63	9	19	4. 5	6	3. 4
TCAD050080-FT	M5X0. 8	6H	1. 5P	70	12	24	6. 0	8	4. 9
TCAD060100-FT	M6X1. 0	6H	1. 5P	80	13	25	6. 0	8	4. 9
TCAD080125-FT	M8X1. 25	6H	1. 5P	90	16	40	8. 0	9	6. 2
TCAD100150-FT	M10X1. 5	6H	2. 0P	100	18	45	10. 0	11	8. 0
TCAD120175-FT	M12X1. 75	6H	2. 0P	110	19	–	9. 0	10	7. 0
TCAD140200-FT	M14X2. 0	6H	2. 0P	110	19	–	11. 0	12	9. 0
TCAD160200-FT	M16X2. 0	6H	2. 0P	110	19	–	12. 0	12	9. 0

T Spiral Flute Taps for Multi-Purpose Carbide AD-Coating Taps JIS

TCAJ-TAPS







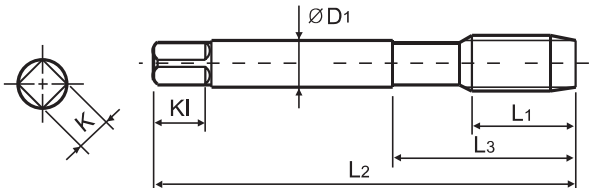
Carbide | JIS | T2-T4 | 60° | Lc | AD-Coating | M3-M10 30° M12-M16 15°

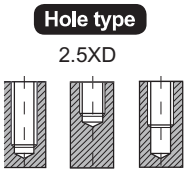
Unit : mm

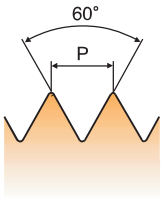
Order No.	Thread Size	Tap Limit	Lc	L2	L1	L3	D1	Kl	K
TCAJ030050-SFT	M3X0. 5	T2	2. 0P	46	11	17	4. 0	6	3. 2
TCAJ040070-SFT	M4X0. 7	T3	2. 0P	52	13	20	5. 0	7	4.0
TCAJ050080-SFT	M5X0. 8	T3	2. 0P	60	15	25	5. 5	7	4. 5
TCAJ060100-SFT	M6X1. 0	T3	2. 5P	62	16	26	6. 0	7	4. 5
TCAJ080125-SFT	M8X1. 25	T3	2. 5P	70	18	–	6. 2	8	5.0
TCAJ100150-SFT	M10X1. 5	T3	2. 5P	75	21	–	7. 0	8	5. 5
TCAJ120175-SFT	M12X1. 75	T4	2. 5P	82	25	–	8. 5	9	6. 5
TCAJ140200-SFT	M14X2. 0	T4	2. 5P	88	26	–	10. 5	11	8. 0
TCAJ160200-SFT	M16X2. 0	T4	2. 5P	95	29	–	12. 5	13	10. 0

T Straight Flute Taps for Multi-Purpose Carbide AD-Coating Taps JIS

TCAJ-TAPS







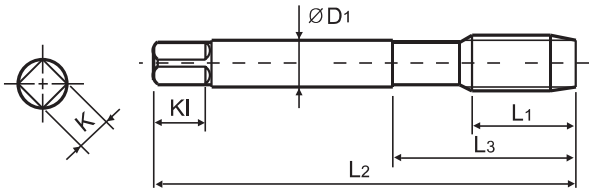
Carbide | JIS | T2-T4 | 60° | Lc | AD-Coating | 0°

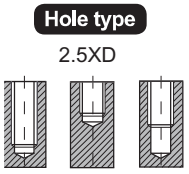
Unit : mm

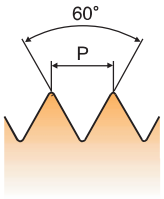
Order No.	Thread Size	Tap Limit	Lc	L2	L1	L3	D1	Kl	K
TCAJ030050-HT	M3X0. 5	T2	2. 0P	46	11	17	4. 0	6	3. 2
TCAJ040070-HT	M4X0. 7	T3	2. 0P	52	13	20	5. 0	7	4.0
TCAJ050080-HT	M5X0. 8	T3	2. 0P	60	15	25	5. 5	7	4. 5
TCAJ060100-HT	M6X1. 0	T3	2. 5P	62	16	26	6. 0	7	4. 5
TCAJ080125-HT	M8X1. 25	T3	2. 5P	70	18	–	6. 2	8	5.0
TCAJ100150-HT	M10X1. 5	T3	2. 5P	75	21	–	7. 0	8	5. 5
TCAJ120175-HT	M12X1. 75	T4	2. 5P	82	25	–	8. 5	9	6. 5
TCAJ140200-HT	M14X2. 0	T4	2. 5P	88	26	–	10. 5	11	8. 0
TCAJ160200-HT	M16X2. 0	T4	2. 5P	95	29	–	12. 5	13	10. 0

T Fluteless Taps for Multi-Purpose Carbide No-Coating Taps JIS

TCAJ-TAPS







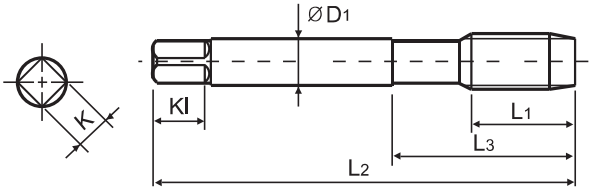
Carbide | JIS | T3-T4 | 60° | Lc | No-Coating | 0°

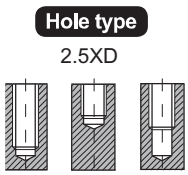
Unit : mm

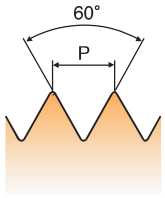
Order No.	Thread Size	Tap Limit	Lc	L2	L1	L3	D1	Kl	K
TCAJ030050-FT	M3X0. 5	T2	1. 5P	46	11	17	4. 0	6	3. 2
TCAJ040070-FT	M4X0. 7	T3	1. 5P	52	13	20	5. 0	7	4.0
TCAJ050080-FT	M5X0. 8	T3	1. 5P	60	15	25	5. 5	7	4. 5
TCAJ060100-FT	M6X1. 0	T3	1. 5P	62	16	26	6. 0	7	4. 5
TCAJ080125-FT	M8X1. 25	T3	1. 5P	70	18	–	6. 2	8	5.0
TCAJ100150-FT	M10X1. 5	T3	2. 0P	75	21	–	7. 0	8	5. 5
TCAJ120175-FT	M12X1. 75	T4	2. 0P	82	25	–	8. 5	9	6. 5
TCAJ140200-FT	M14X2. 0	T4	2. 0P	88	26	–	10. 5	11	8. 0
TCAJ160200-FT	M16X2. 0	T4	2. 0P	95	29	–	12. 5	13	10. 0

T Spiral Flute Taps for Multi-Purpose Carbide AD-Coating Taps TOTIME

TCAG-TAPS







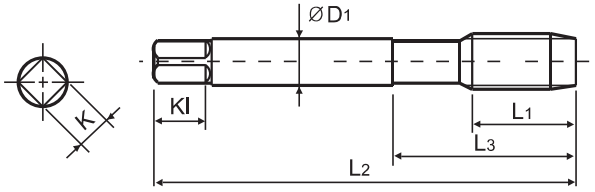
Carbide | TOTIME | 6H | 60° | Lc | AD-Coating | M3-M10 30° M5-M16 15°

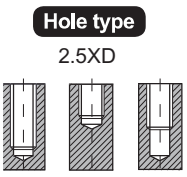
Unit : mm

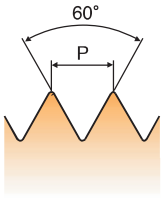
Order No.	Thread Size	Tap Limit	Lc	L2	L1	L3	D1	Kl	K
TCAG030050-SFT	M3X0.5	6H	2.0P	52	11	17	4.0	6	3.2
TCAG040070-SFT	M4X0.7	6H	2.0P	55	13	20	5.0	7	4.0
TCAG040070LG-SFT	M4X0.7	6H	1.5P	80	9	19	5.0	6	4.0
TCAG050080-SFT	M5X0.8	6H	2.0P	60	15	25	5.0	7	4.0
TCAG050080LG-SFT	M5X0.8	6H	1.5P	80	12	24	6.0	8	4.5
TCAG050080SG-SFT	M5X0.8	6H	1.5P	100	12	24	6.0	8	4.5
TCAG060100-SFT	M6X1.0	6H	2.5P	65	16	26	6.0	7	4.5
TCAG060100SG-SFT	M6X1.0	6H	1.5P	100	13	25	6.0	8	4.9
TCAG080125-SFT	M8X1.25	6H	2.5P	73	18	-	6.2	8	5.0
TCAG100150-SFT	M10X1.5	6H	2.5P	75	21	-	8.0	9	6.0
TCAG120175-SFT	M12X1.75	6H	2.5P	83	25	-	9.0	9	7.0
TCAG140200-SFT	M14X2.0	6H	2.5P	90	26	-	10.5	11	8.0
TCAG160200-SFT	M16X2.0	6H	2.5P	98	29	-	12.5	13	10.0

T Straight Flute Taps for Multi-Purpose Carbide AD-Coating Taps TOTIME

TCAG-TAPS







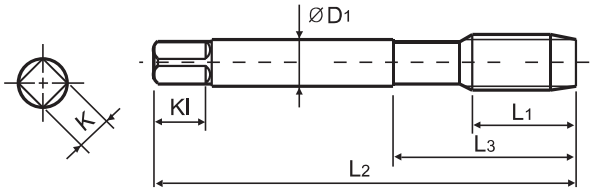
Carbide | TOTIME | 6H | 60° | Lc | AD-Coating | 0°

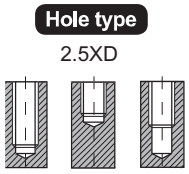
Unit : mm

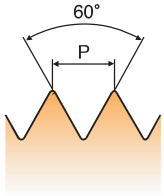
Order No.	Thread Size	Tap Limit	Lc	L2	L1	L3	D1	Kl	K
TCAG030050-HT	M3X0.5	6H	2.5P	52	11	17	4.0	6	3.2
TCAG040070-HT	M4X0.7	6H	2.5P	55	13	20	5.0	7	4.0
TCAG040070LG-HT	M4X0.7	6H	2.0P	80	9	19	5.0	6	4.0
TCAG050080-HT	M5X0.8	6H	2.5P	60	15	25	5.0	7	4.0
TCAG050080LG-HT	M5X0.8	6H	2.0P	80	12	24	6.0	8	4.5
TCAG050080SG-HT	M5X0.8	6H	2.0P	100	12	24	6.0	8	4.5
TCAG060100-HT	M6X1.0	6H	2.5P	65	16	26	6.0	7	4.5
TCAG060100SG-HT	M6X1.0	6H	2.0P	100	13	25	6.0	8	4.9
TCAG080125-HT	M8X1.25	6H	2.5P	73	18	-	6.2	8	5.0
TCAG100150-HT	M10X1.5	6H	2.5P	75	21	-	8.0	9	6.0
TCAG120175-HT	M12X1.75	6H	2.5P	83	25	-	9.0	9	7.0
TCAG140200-HT	M14X2.0	6H	2.5P	90	26	-	10.5	11	8.0
TCAG160200-HT	M16X2.0	6H	2.5P	98	29	-	12.5	13	10.0

T Fluteless Taps for Multi-Purpose Carbide No-Coating Taps TOTIME

TCAG-TAPS







Carbide | TOTIME | 6H | 60° | Lc | No-Coating | 0°

Unit : mm

Order No.	Thread Size	Tap Limit	Lc	L2	L1	L3	D1	Kl	K
TCAG030050-FT	M3X0.5	6H	1.5P	52	11	17	4.0	6	3.2
TCAG040070-FT	M4X0.7	6H	1.5P	55	13	19	5.0	7	4.0
TCAG040070LG-FT	M4X0.7	6H	1.5P	80	9	19	5.0	6	4.0
TCAG050080-FT	M5X0.8	6H	1.5P	60	15	25	5.0	7	4.0
TCAG050080LG-FT	M5X0.8	6H	1.5P	80	12	23	6.0	8	4.5
TCAG050080SG-FT	M5X0.8	6H	1.5P	100	12	23	6.0	8	4.5
TCAG060100-FT	M6X1.0	6H	1.5P	65	16	26	6.0	7	4.5
TCAG060100SG-FT	M6X1.0	6H	1.5P	100	13	24	6.0	8	4.9
TCAG080125-FT	M8X1.25	6H	1.5P	73	18	-	6.2	8	5.0
TCAG100150-FT	M10X1.5	6H	2.0P	75	21	-	8.0	9	6.0
TCAG120175-FT	M12X1.75	6H	2.0P	83	25	-	9.0	9	7.0
TCAG140200-FT	M14X2.0	6H	2.0P	90	26	-	10.5	11	8.0
TCAG160200-FT	M16X2.0	6H	2.0P	98	29	-	12.5	13	10.0

Standard Cutting Conditions

HOLE TYPE		Max. 2.5xD Blind Hole	Max. 2.5xD Through Hole	
TOOL MATERIAL		Carbide		
FLUTE TYPE		Spiral Flute	Straight Flute	Fluteless
SPIRAL FLUTE ANGLE		15-30°	0°	0°
SERIES	JIS Type	●	●	●
	DIN 371/376	●	●	●
SURFACE TREATMENT		AD-coating		No-coating
MODEL				

ISO	VDI 3323	Material Description	Composition / Structure / Heat Treatment	HB	HRc	Recommended cutting conditions Vc (m/min.)		
K	15	Grey cast iron	Pearlitic / ferritic	180	10	10-20	10-20	—
	16		Pearlitic (Martensitic)	260	26	10-20	10-20	—
	17	Nodular cast iron	Ferritic	160	3	10-20	10-20	—
	18		Pearlitic	250	25	10-20	10-20	—
	19	Malleable cast iron	Ferritic	130				
	20		Pearlitic	230	21			
N	21	Aluminum-wrought alloy	Not Curable	60		—	—	10-20
	22		Curable Hardened	100		—	—	10-20
	23	Aluminum-cast, alloyed	≤ 12% Si, Not Curable	75		—	—	10-20
	24		≤ 12% Si, Curable Hardened	90		—	—	10-20
	25		> 12% Si, Not Curable	130		—	—	10-20
	26	Copper and Copper Alloys (Bronze / Brass)	Cutting Alloys, PB>1%	110		—	—	10-20
	27		CuZn, CuSnZn (Brass)	90		—	—	10-20
	28		CuSn, lead-free copper and electrolytic copper	100		—	—	10-20

RECOMMENDED TAP DRILL SIZE (M)

Spiral Flute and Straight Flute Taps

Unit : mm

Metric-ISO threads coarse pitch				Metric-ISO threads coarse pitch			
M	Pitch	Maximum Core Dia.	Drill Size	M	Pitch	Maximum Core Dia.	Drill Size
1.0	0.25	0.785	0.75	11	1.50	9.676	9.50
1.1	0.25	0.885	0.85	12	1.75	10.441	10.20
1.2	0.25	0.985	0.95	14	2.00	12.210	12.00
1.4	0.30	1.160	1.10	16	2.00	14.210	14.00
1.6	0.35	1.321	1.25	18	2.50	15.744	15.50
1.7	0.35	1.346	1.30	20	2.50	17.744	17.50
1.8	0.35	1.521	1.45	22	2.50	19.744	19.50
2.0	0.40	1.679	1.60	24	3.00	21.252	21.00
2.2	0.45	1.838	1.75	27	3.00	24.252	24.00
2.3	0.40	1.920	1.90	30	3.50	26.771	26.50
2.5	0.45	2.138	2.05	33	3.50	29.771	29.50
2.6	0.45	2.176	2.10	36	4.00	32.270	32.00
3.0	0.50	2.599	2.50	39	4.00	35.270	35.00
3.5	0.60	3.010	2.90	42	4.50	37.799	37.50
4.0	0.70	3.422	3.30	45	4.50	40.799	40.50
4.5	0.75	3.878	3.70	48	5.00	43.297	43.00
5.0	0.80	4.334	4.20	52	5.00	47.297	47.00
6.0	1.00	5.153	5.00	56	5.50	50.796	50.50
7.0	1.00	6.153	6.00	60	5.50	54.796	54.50
8.0	1.25	6.912	6.80	64	6.00	58.305	58.00
9.0	1.25	7.912	7.80	68	6.00	62.305	62.00
10.0	1.50	8.676	8.50				

Fluteless Taps

Metric-ISO threads coarse pitch				Metric-ISO threads coarse pitch			
M	Pitch	Maximum Core Dia.	Drill Size	M	Pitch	Maximum Core Dia.	Drill Size
3.0	0.50	2.82	2.80	10	1.50	9.35	9.30
3.5	0.60	3.28	3.25	11	1.50	10.35	10.30
4.0	0.70	3.73	3.70	12	1.75	11.25	11.20
4.5	0.75	4.21	4.15	14	2.00	13.15	13.00
5.0	0.80	4.68	4.65	16	2.00	15.15	15.00
6.0	1.00	5.59	5.55	18	2.50	16.90	16.80
7.0	1.00	6.59	6.55	20	2.50	18.90	18.80
8.0	1.25	7.48	7.40	22	2.50	20.90	20.80
9.0	1.25	8.48	8.40	24	3.00	22.70	22.50

CUTTING SPEED TABLE - METRIC

Cutting Speeds m/min. into revolutions per minute

TOOL RPM (rev./min.)

Tool Dia.	Cutting Speed (m/min.)															
	1	2	3	4	5	6	8	10	12	15	20	25	30	40	50	60
1	318	637	955	1274	1592	1910	2548	3185	3822	4777	6366	7962	9554	12739	15924	19108
2	159	318	478	637	796	955	1274	1592	1911	2388	3185	3981	4777	6369	7962	9554
3	106	212	318	425	531	637	849	1062	1274	1592	2123	2654	3185	4246	5308	6369
4	80	159	239	318	398	478	637	796	955	1194	1592	1990	2389	3185	3981	4777
5	64	127	191	255	318	382	510	637	764	955	1274	1592	1911	2548	3185	3822
6	53	106	159	212	265	318	425	531	637	796	1062	1327	1592	2123	2653	3185
8	40	80	119	159	199	239	318	398	478	597	796	955	1194	1592	1990	2388
10	31	64	96	127	159	191	255	318	382	478	637	796	955	1274	1592	1911
12	26	53	80	106	133	159	212	265	318	398	531	663	796	1062	1327	1592
14	23	45	68	91	114	136	182	227	273	341	455	569	682	910	1137	1365
16	20	40	60	80	100	119	159	199	239	299	398	498	597	796	995	1194
18	18	35	53	71	88	106	142	177	212	265	354	442	531	708	885	1062
20	16	32	48	64	80	96	127	159	191	239	318	398	478	637	796	955
25	13	25	38	51	64	76	102	127	153	191	255	318	382	510	637	764
30	11	21	32	42	53	64	85	106	127	159	212	265	318	425	531	637
35	9	18	27	36	45	55	73	91	109	136	182	227	273	364	455	546
40	8	16	24	32	40	48	64	80	96	119	159	199	239	318	398	478

RPM = rev./min.
V = m/min.
D = Dia.(mm)

$$V = \frac{RPM \cdot \pi \cdot D}{1000}$$

$$RPM = \frac{1000 \cdot V}{\pi \cdot D}$$

CUTTING SPEED TABLE - INCH

Cutting Speeds m/min. into revolutions per minute

TOOL RPM (rev./min.)

Tool Dia.	Cutting Speed (m/min.)															
	1	2	3	4	5	6	8	10	12	15	20	25	30	40	50	60
#0	209	418	627	835	1044	1253	1671	2089	2506	3133	4177	5222	6266	8355	10443	12532
#1	172	343	515	687	858	1030	1373	1717	2060	2575	3433	4292	5150	6867	8583	10300
#2	146	291	437	583	729	874	1166	1457	1749	2186	2914	3643	4372	5829	7286	8743
#3	127	253	380	506	633	760	1013	1266	1519	1899	2532	3165	3798	5063	6329	7595
#4	112	224	336	448	559	671	895	1119	1343	1678	2238	2797	3357	4476	5595	6714
#5	100	201	301	401	501	602	802	1003	1203	1504	2005	2506	3008	4010	5013	6015
#6	91	182	272	363	454	545	726	908	1090	1362	1816	2270	2724	3632	4541	5449
#8	76	153	229	306	382	458	611	764	917	1146	1528	1910	2292	3057	3821	4585
#10	66	132	198	264	330	396	528	660	791	989	1319	1649	1979	2638	3298	3957
#12	58	116	174	232	290	348	464	580	696	870	1160	1450	1741	2321	2901	3481
1/4	50	100	150	201	251	301	401	501	602	752	1003	1253	1504	2005	2506	3008
5/16	40	80	120	160	201	241	321	401	481	602	802	1003	1203	1604	2005	2406
3/8	33	67	100	134	167	201	267	334	401	501	668	835	1003	1337	1671	2005
7/16	29	57	86	115	143	172	229	286	344	430	573	716	859	1146	1432	1719
1/2	25	50	75	100	125	150	201	251	301	376	501	627	752	1003	1253	1504
9/16	22	45	67	89	111	134	178	223	267	334	446	557	668	891	1114	1337
5/8	20	40	60	80	100	120	160	201	241	301	401	501	602	802	1003	1203
3/4	17	33	50	67	84	100	134	167	201	251	334	418	501	668	835	1003
7/8	14	29	43	57	72	86	115	143	172	215	286	358	430	573	716	859
1"	13	25	38	50	63	75	100	125	150	188	251	313	376	501	627	752

RPM = rev./min.
V = m/min.
D = Dia.(mm)

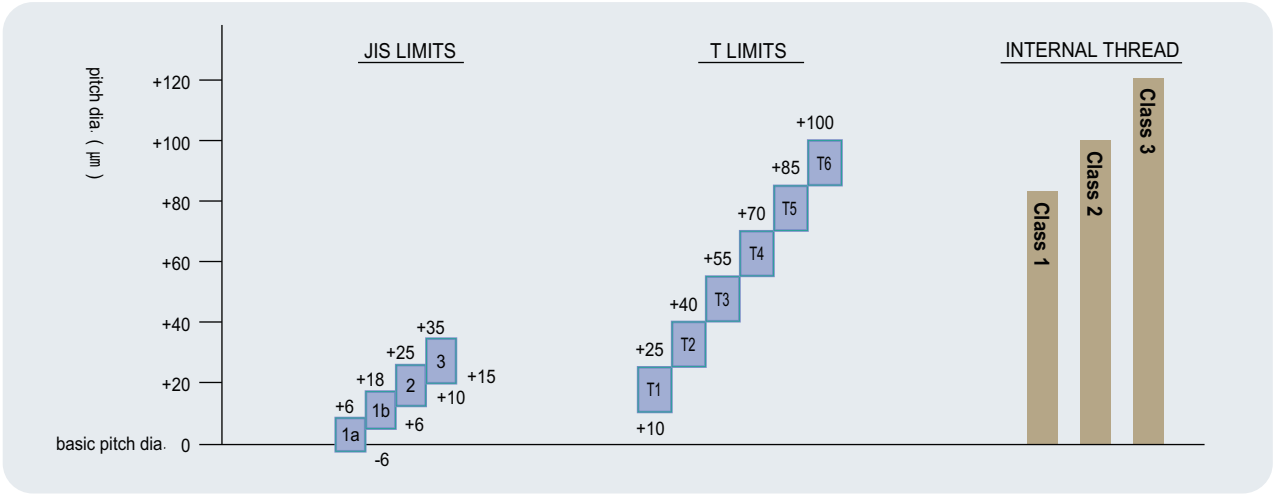
$$V = \frac{RPM \cdot \pi \cdot D}{1000}$$

$$RPM = \frac{1000 \cdot V}{\pi \cdot D}$$

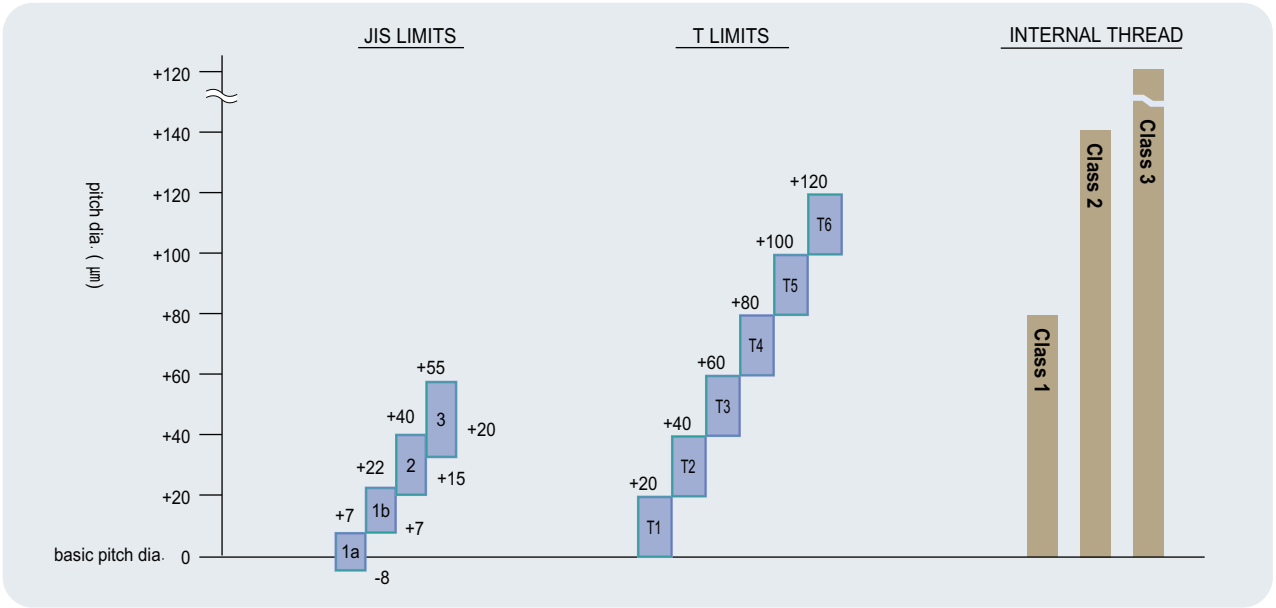
TAP TOLERANCES

- Tolerance classes of taps and tolerance positions for screw threads as per Metric ISO Standard.

Example M3×0.5

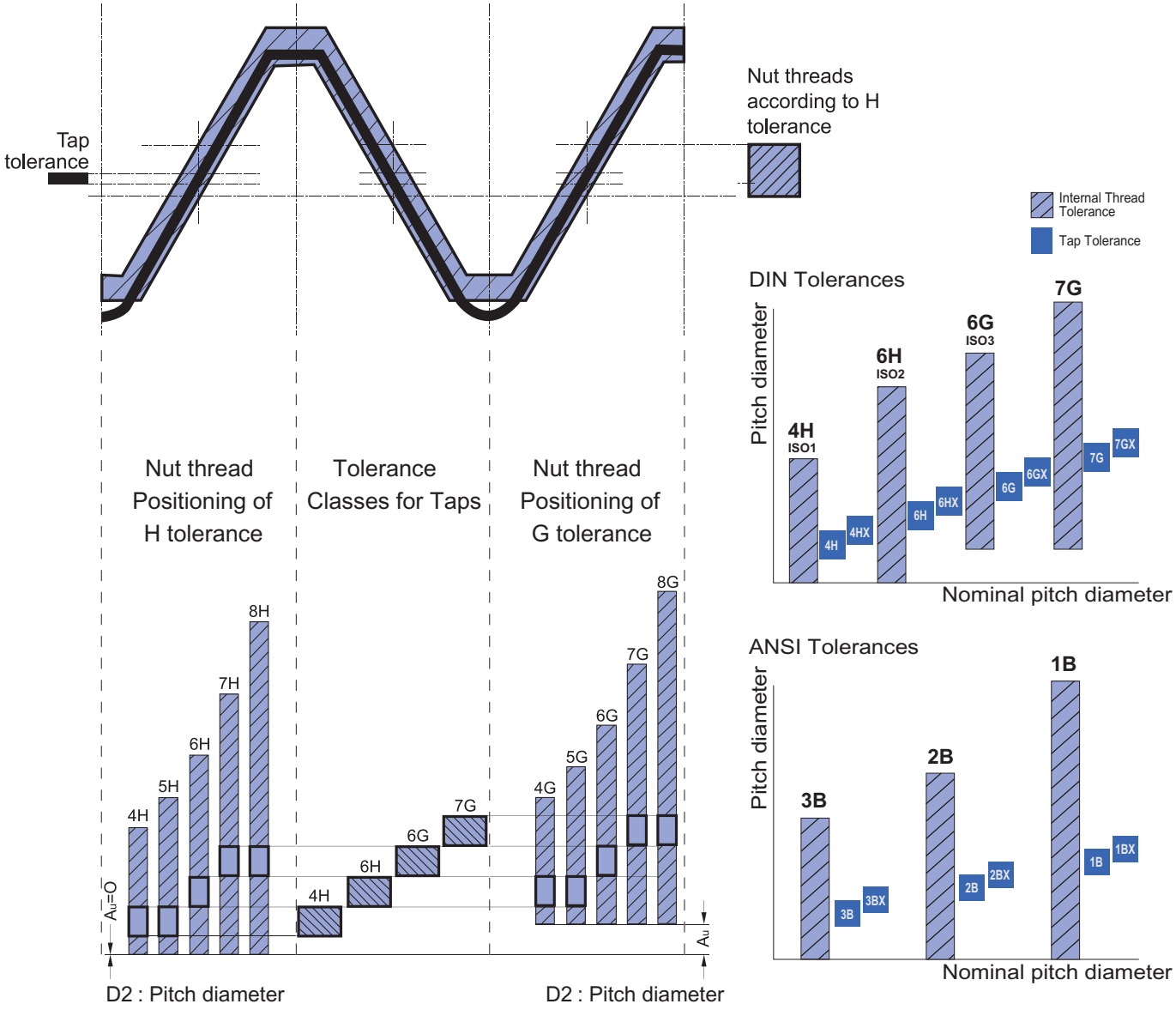


Example M10×1.5



TAP TOLERANCES

- Tolerance classes of taps and tolerance positions for screw threads as per Metric ISO Standard.



- Taps tolerances and recomanded classes

Tap tolerance ISO	Tap tolerance DIN	Correct class to obtain Nut thread with tolerance				
ISO 1	4H	4H	5H			
ISO 2	6H	4G	5G	6H		
ISO 3	6G			6G	7H	8H
	7G				7G	8G

TROUBLE SHOOTING GUIDE

Specific Problem	Cause	Solution
Dimensional Accuracy		
Oversize Pitch Diameter	Incorrect Tap	1. Use proper limits of taps 2. Use longer chamfered taps
	Chip Packing	1. Use spiral point or spiral fluted taps 2. Reduce number of flutes to provide extra chip room 3. Use larger hole size 4. If tapping a hole, allow deeper hole where applicable or shorten the thread length of the parts 5. Use proper lubricant
	Galling	1. Apply proper surface treatment such as Hardslick or chrome 2. Use proper cutting lubricant 3. Reduce tapping speed 4. Use proper cutting angle in accordance with material being tapped 5. Use large hole size
	Operating Conditions	1. Apply proper tapping speed 2. Correct alignment of tap and drill hole 3. Free cutting either tap or workpiece 4. Use proper tapping speed to avoid torn or rough threads 5. Use lead screw tapper 6. Use proper tapping machine with suitable power 7. Avoid misalignment of the tap and drill hole from loose spindle or worn holder
	Tool Condition	1. Obtain proper indexing angle for the flutes at the cutting edge 2. Grind proper cutting angle and chamfer angle 3. Avoid too narrow a land width 4. Remove burrs from regrinding
Oversize Internal Diameter	Hole Size	1. Use minimum hole size 2. Avoid tapered hole 3. Use proper chamfered taps
	Galling	1. Galling solutions 1 through 4 above can be applied to this specific problem
Undersize Pitch Diameter	Incorrect Tap	1. Use oversize taps 2. Apply proper chamfer angle 3. Increase cutting angle
	Damaged Thread	1. Use proper reversing speed to avoid damaging tapped thread on the way out of the hole
	Left-over Chips	1. Increase cutting performance to avoid any left over chips in the hole 2. Remove left over chips from the hole for gage checking
Undersize Internal Diameter	Hole Size	1. Use maximum drill size
Breakage	Incorrect Tap Selection	1. Avoid chip packing in the flutes or on the bottom of the hole 2. Use spiral pointed or spiral fluted taps or fluteless taps 3. Apply correct surface treatment such as Hardslick or bright
	Excessive Tapping Torque	1. Use larger drill size 2. Try to shorten thread length 3. Increase cutting angle 4. Apply a tap with more thread relief and reduced land width 5. Apply correct surface treatment such as Hardslick

TROUBLE SHOOTING GUIDE

Specific Problem	Cause	Solution
Dimensional Accuracy		
Breakage	Operating Conditions	1. Reduce tapping speed 2. Avoid misalignment between tap and the hole and tapered hole 3. Use floating type of tapping holder 4. Use tapping holder with torque adjustment 5. Avoid hitting bottom of the hole with tap
	Tool Condition	1. Do not grind the bottom of the flute 2. Avoid too narrow a land width 3. Remove all worn sections when regrinding the flutes 4. Regrind tool more frequently
Chipping	Incorrect Tap Selection	1. Reduce cutting angle 2. Use a different kind of high-speed steel tap 3. Reduce hardness of the tap 4. Increase chamfer length 5. Avoid chip packing in the flutes or in the bottom of the hole by using spiral fluted or spiral pointed taps
	Operating Conditions	1. Reduce tapping speed 2. Avoid misalignment between tap and hole 3. Avoid sudden return of reverse in blind hole tapping 4. Avoid galling 5. Use larger hole size
Wear	Incorrect Tap Selection	1. Apply specially designed tap for tapping heat treated material 2. Change to a type of high-speed steel tap that contains vanadium 3. Apply special surface treatment such as TiCN, TiAlN or Hardslick 4. Increase chamfer length
	Operating Conditions	1. Reduce tapping speed 2. Apply proper cutting lubricants 3. Avoid work hardened hole 4. Use larger hole size
	Tool Condition	1. Grind proper cutting angle 2. Avoid hardness reduction from grinding process
Torn or Rough Thread	Chamfer Too Short	1. Increase chamfer length
	Wrong Cutting Angle	1. Apply proper cutting angle
	Galling	1. Use thread relieved taps 2. Reduce land width 3. Apply surface treatment such as Hardslick or chrome 4. Use proper cutting lubricant 5. Reduce tapping speed 6. Use larger hole size 7. Obtain proper alignment between tap and work
	Chip Packing	1. Use spiral pointed or spiral fluted taps 2. Use larger drill size
Chattering on Tapped Thread	Tool Free Cutting	1. Reduce cutting angle 2. Reduce amount of thread relief
	Tool Condition	1. Avoid too narrow land width 2. Do not grind the bottom of the flute

Directory

D

01 Rough Boring D1

02 Fine Boring D10

03 External Boring D22

04 Boring Holder D25

05 Extension Rod/Reducing Rod/Chamfer Ring D31

06 Micro-adjustable Tool/Reverse tool D34

07 Damped Boring D43

Boring Tool

Blind hole type rough boring

D01

Through hole type rough boring

D02

Reverse boring

D04

Large aperture

D06-D09

Fine Boring

Fine boring

D10-D13

Large aperture

D14-D16

Fine boring head with small bore

D17-D19

Carbide anti-vibration tool holder

D20

Carbide anti-vibration tool holder

D21

External Boring

External tool set

D22

External tool set

D23-D24

Boring Holder

SK boring holder

D25

BT boring holder

D26

HSK boring holder

D28

SK bridge boring holder

D29

BT bridge boring holder

D29-30

HSK bridge boring holder

D29

Extension Rod/Reducing Rod/Chamfer Ring/Micro-adjustable Tool/Reverse tool

Extension rod/Reducing rod/Chamfer ring

D31-D33

Micro-adjustable insert seat
Reverse cutting tool

D34-D40

Damped Boring

Damped fine boring head

D43

Damped rough boring head

D44

Damped turning tools holder

D45

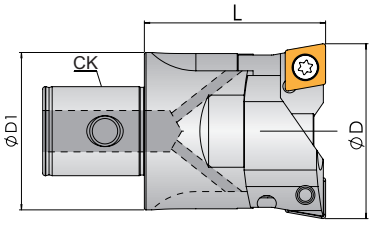
Cartridge damped turning
tools holder

D46-D51

Blind hole type rough boring head

Processing range ∅20-∅203

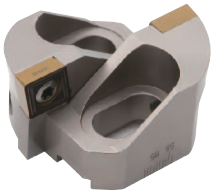
◆Suitable for single and double edge boring,min processing diameter is 20
◆According to various processing requirements,the boring tool can be easily adjusted to make small amount but various processing,the processing depth can be extended to the required length with the extension rod
◆Clear side scales allow the user to adjust to the required range easily,eliminating the need for use on a tool presetter

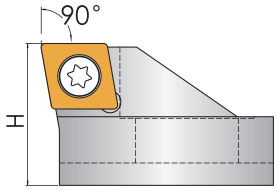


Processing range ØD	Order Model No.	CK NO.	Cutter body model	Insert seat model	ØD1	L	Lock Screw	Weight
20-26	CMR20-26CK1(RSC2026)	1	CMR20-26CK1	RSC-2026	18.7	32.5	RMM4X16	0.06
25-33	CMR25-33CK2(RSC2533)	2	CMR25-33CK2	RSC-2533	23.5	35.5	RMM5X20	0.11
32-42	CMR32-42CK3(RSC3242)	3	CMR32-42CK3	RSC-3242	30.5	40.0	RMM6X20	0.19
41-51	CMR32-42CK3(RSC4151)			RSC-4151				0.21
41-54	CMR41-54CK4(RSC4154)	4	CMR41-54CK4	RSC-4154	38.5	47.0	RMM8X25	0.38
53-66	CMR41-54CK4(RSC5366)			RSC-5366				0.42
53-70	CMR53-70CK5(RSC5370)	5	CMR53-70CK5	RSC-5370	49.5	57.0	RMM10X30	0.75
69-86	CMR53-70CK5(RSC6986)			RSC-6986				0.87
68-90	CMR68-110CK6(RSC6890)	6	CMR68-110CK6	RSC-6890	64.0	71.0	RMM10X35	1.6
88-110	CMR68-110CK6(RSC88110)			RSC-88110				1.73
98-126	CMR98-153CK6(RSC98126)	6	CMR98-153CK6	RSC-98126	93.0	71.0	RMM12X40	2.32
125-153	CMR98-153CK6(RSC125153)			RSC-125153				2.58
98-126	CMR98-153CK7(RSC98126)	7	CMR98-153CK7	RSC-98126	93.0	87.0		3.85
125-153	CMR98-153CK7(RSC125153)			RSC-125153				4.11
148-176	CMR148-203CK6(RSC98126)	6	CMR148-203CK6	RSC-98126	138.0	71.0		2.9
175-203	CMR148-203CK6(RSC125153)			RSC-125153				3.15

◆Attached with a set of locking screw,shim and an L-shaped wrench
◆No inserts attached,please purchase according to your needs
◆All the CMR boring tools with internal coolant
◆Blind hole type tool holder is included as standard

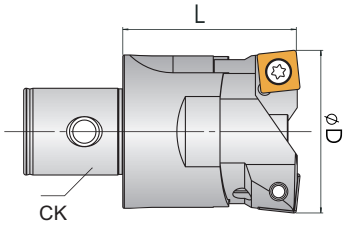
Blind hole type rough boring insert seat





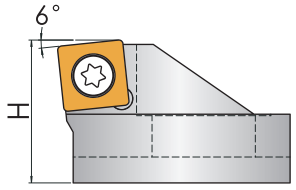
Designation	Adapts to cutter body model	H	Insert	Screw
RSC-2026	CMR20-26CK1	13.0	CC 06	DM2.5X6 -T8
RSC-2533	CMR25-33CK2	14.0		
RSC-3242	CMR32-42CK3	19.5	CC 09	DM4X10 -T15
RSC-4151				
RSC-4154	CMR41-54CK4	21.5		
RSC-5366				
RSC-5370	CMR53-70CK5	27.5	CC 12	DM5X12-T20
RSC-6986				
RSC-6890	CMR68-110CK6	30.0		
RSC-88110				
RSC-98126	CMR98-153CK6 CMR98-153CK7 CMR148-203CK6	30.0		
RSC-125153				

Through hole type rough boring cutter



Processing diameter	Order Model No.	CK NO.	Cutter body model	Blade seat model	ØD1	L	Lock Screw	Weight
20-26	CMR20 -26CK1(RSS2026 -B)	1	CMR20-26CK1	RSS-2026 -B	18.7	32.5	RMM4X16	0.06
25-33	CMR25-33CK2(RSS2533-B)	2	CMR25-33CK2	RSS-2533-B	23.5	35.5	RMM5X20	0.11
32-42	CMR32-42CK3(RSS3242-B)	3	CMR32-42CK3	RSS-3242-B	30.5	40.0	RMM6X20	0.19
41-54	CMR41-54CK4(RSS4154-B)	4	CMR41-54CK4	RSS-4154-B	38.5	47.0	RMM8X25	0.38
53-70	CMR53-70CK5(RSS5370 -B)	5	CMR53-70CK5	RSS-5370-B	49.5	57.0	RMM10X30	0.75
68-90	CMR68-110CK6(RSS6890 -B)	6	CMR68-110CK6	RSS-6890-B	64.0	71.0	RMM10X35	1.60
88-110	CMR68-110CK6(RSS88110 -B)			RSS-88110-B				1.73
98-126	CMR98-153CK6(RSS98126 -B)	6	CMR98-153CK6	RSS-98126-B	93.0	71.0	RMM12X40	2.32
125-153	CMR98-153CK6(RSS125153 -B)			RSS-125153-B				2.58
98-126	CMR98-153CK7(RSS98126 -B)	7	CMR98-153CK7	RSS-98126-B	93.0	87.0		3.85
125-153	CMR98-153CK7(RSS125153 -B)			RSS-125153-B				4.11
148-176	CMR148-203CK6(RSS98126 -B)	6	CMR148-203CK6	RSS-98126-B	138.0	71.0		2.90
175-203	CMR148- 203CK6(RSS125153 -B)			RSS-125153-B				3.15

Through hole type rough boring insert seat



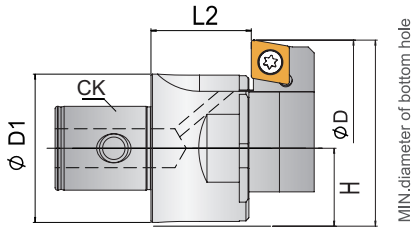
Designation	Cutter body model	H	Insert	Screw
RSS-2026-B	CMR20-26CK1	13.6	SC 06	DM2.5X6 -T8
RSS-2533-B	CMR25-33CK2	14.6		
RSS-3242-B	CMR32-42CK3	20.5	SC 09	DM4X10 -T15
RSS-4154-B	CMR41-54CK4	22.5		
RSS-5370-B	CMR53-70CK5	27.7	SC 12	DM5X12-T20
RSS- 6890-B	CMR68-110CK6	30.3		
RSS-88110-B				
RSS-98126-B	CMR98-153CK6 CMR98-153CK7 CMR148-203CK6	30.3		
RSS-125153-B				

◆No inserts attached,please purchase according to your needs
◆Attached with screw and wrench

TOTIME Rough Boring
Reverse Boring

Rough boring head(reverse boring)

Processing range ∅25-∅153

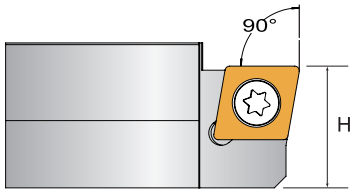


MIN.diameter of bottom hole=H+(Count Bore Diameter/2)

Processing range ØD	Cutter body model	CK.NO.	Insert seat model	ØD1	L2	Locking Screw	H	Weight
25-31	CMR20-26CK1	CK1	RSC-F2531	18.7	21.5	RMN4X16	10.0	0.06
30-35			RSC-F3035					0.06
32-40	CMR25-33CK2	CK2	RSC-F3240	23.5	23.5	RMN5X20	12.5	0.11
39-47			RSC-F3947					0.11
41-51	CMR32-42CK3	CK3	RSC-F4151	30.5	23.5	RMN6X20	16.0	0.18
50-60			RSC-F5060					0.19
50-63	CMR41-54CK4	CK4	RSC-F5063	38.5	28.5	RMN8X25	20.0	0.36
61-74			RSC-F6174					0.38
65 - 82	CMR53-70CK5	CK5	RSC-F6582	49.5	33.5	RMN10X30	25.5	0.7
78 - 95			RSC-F7895					0.75
80-102	CMR68-110CK6	CK6	RSC-F80102	63.0	45.5	RMN10X35	32.5	1.5
100-122			RSC-F100122					1.6
98-126	CMR98-153CK6	CK6	RSC-F98126	93.0	45.5	RMN12X40	46.5	2.25
125-153			RSC-F125153					2.45

◆No inserts attached,please purchase according to your needs
◆Attached with screw and wrench

Rough boring insert seat (reverse boring)



Desingnation	Cutter body model	H	Insert	Screw
RSC-F2531	CMR20-26CK1	9.5	CC 0602	DM2.5X6-T8
RSC-F3035				
RSC-F3240	CMR25-33CK2	11.0		
RSC-F3947				
RSC-F4151	CMR32-42CK3	13.5	CC 09T3	DM4X10-T15
RSC-F5060				
RSC-F5063	CMR41-54CK4	17.5		
RSC-F6174				
RSC-F6582	CMR53-70CK5	20.5	CC 1204	DM5X12-T20
RSC-F7895				
RSC-F80102	CMR68-110CK6	22.5		
RSC-F100122				
RSC-F98126	CMR98-153CK6	25.0		
RSC-F125153				

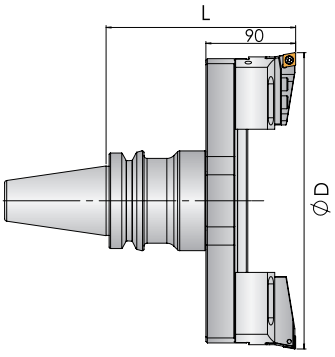
◆No inserts attached,please purchase according to your needs
◆Attached with screw and wrench

TOTIME Rough Boring
Large Aperture

Rough boring head (large aperture)

Processing range ∅150-∅850

◆Modular design simplifies tool management,for it only needs to combine the components to meet various ranges of processing
◆Aluminum alloy bridge rough boring tool are available to reduce the tool's weight

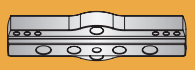
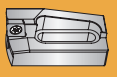


Standard type steel bridge rough boring tool

Processing range ØD	Designation	Weight	Link plate		Rough boring slide		Rough boring slide		Insert seat(2 Pcs)		Insert
			Designation	Weight	Designation	Weight	Designation	Weight	Designation	Weight	
150-210	CLR 150-210	5.50	/	/	CL 150-210	2.50	LR 150	1.9	RS 150	0. 6	CC 1204
210-290	CLR 210-290	6.70			CL 210-290	3.70					
290-370	CLR 290-370	8.05			CL 290-370	5.05					
370-450	CLR 370-450	9.80			CL 370-450	6.80					
450-530	CLR 450-530	11.40			CL 450-530	8.40					
530-610	CLR 530-610	17.20	CL40 -200	4.7	CL 530-610	9.50					
610-690	CLR 610-690	18.70			CL 610-690	11.00					
690-770	CLR 690-770	20.40			CL 690-770	12.70					
770-850	CLR 770-850	22.70			CL 770-850	15.00					

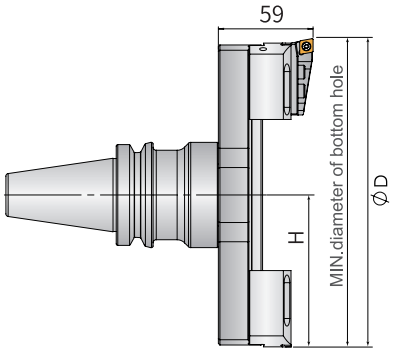
◆No inserts attached,please purchase according to your needs
◆No rivets attached.Please note that different machines use different type rivets
◆If needed, extended bridge type shank(Non-standard) is available.
◆The tip and direction of rotation of the standard product are in the same phase

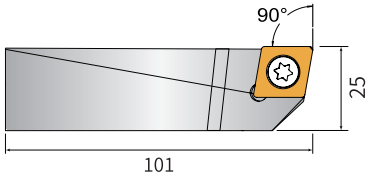
Lightweight aluminum bridge rough boring tool

Processing range ØD	Designation	Weight	 Aluminum bridge		Rough boring slide		 Insert seat(2 Pcs)		Insert
			Designation	Weight	Designation	Weight	Designation	Weight	
150-210	CLR 150-210 AL	3.9	CL 150-210 AL	0.9	LR 150	1 . 9	RS 150	0 . 6	CC 12
210-290	CLR 210-290 AL	4.3	CL 210-290 AL	1.3					
290-370	CLR 290-370 AL	5.0	CL 290-370 AL	2.0					
370-450	CLR 370-450 AL	5.5	CL 370-450 AL	2.5					
450-530	CLR450-530 AL	6.0	CL 450-530 AL	3.0					

◆Componets can be sold separately
◆OEM service available

Rough boring head (large aperture) reverse boring

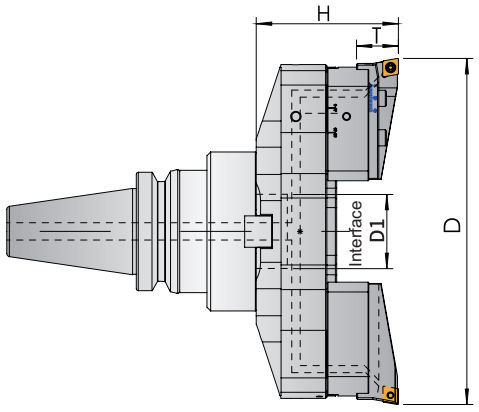




MIN.diameter of bottom hole=H+(Count Bore Diameter/2)

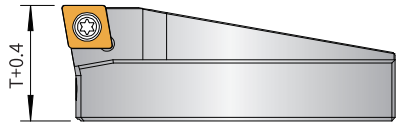
Processing range ØD	Steel Bridge		H	Rough boring slide		Insert seat(1 Pcs)		Insert
	Designation	Weight		Designation	Weight	Designation	Weight	
165-205	CL 150-210	2.50	75	LR 150	1.9	RSC-F150-A	0.6	CC 12
225-265	CL 210-290	3.70	105					
305-345	CL 290-370	5.05	145					
385-425	CL 370-450	6.80	185					
465-505	CL 450-530	8.40	225					

Large aperture rough boring tool with internal coolant (full range of aluminum-based bridges)



Processing range ØD	Designation	Weight	Interface	Height	Aluminum bridge		Rough boring slide		Insert seat(2PCS)		Insert
					Designation	Weight	Designation	Weight	Designation	Weight	
200-280	CNR 200-280AL	6.9	CL40	115	NL 200-280AL	2.8	NR 200	3.2	RNC 200	0.9	CC 1204
280-360	CNR 280-360AL	8.1	FMB60	115	NL 280-360AL	4.0					
360-440	CNR 360-440AL	10.3		125	NL 360-440AL	6.2					
440-520	CNR 440-520AL	11.8		125	NL 440-520AL	7.7					
520-600	CNR 520-600AL	13.8		135	NL 520-600AL	9.7					
600-680	CNR 600-680AL	15.3		135	NL 600-680AL	11.2					
680-760	CNR 680-760AL	18.2		145	NL 680-760AL	14.1					
760-840	CNR 760-840AL	19.5		145	NL 760-840AL	15.4					

Segment difference rough boring insert seat



Rough boring insert seat	Insert
RNC 200H	CC 1204

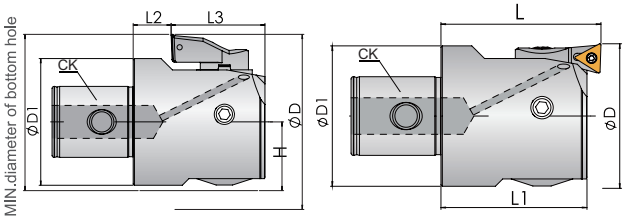
◆When used in large margin cutting,with the standard RNC 200 toolholder,it is possible to achieve a height difference of 0.4mm

TOTIME Fine Boring
Fine Boring Head

Fine boring head

Processing range ∅20-∅203

◆Standard corresponds to the reverse processing,
which has a wide range of use and increases the added value.
◆CMP series is suitable for precision boring,min processing diameter is∅20,
◆The precision screw is located inside,so it won't be affected by iron filings,
abrasion,rust,etc.Internal lubrication makes it precise and durable.

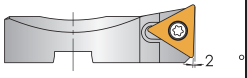
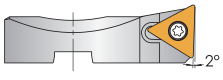
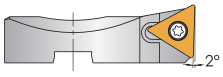
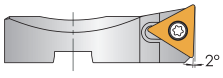


MIN.diameter of bottom hole=H+(Count Bore Diameter/2)

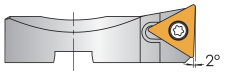
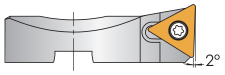
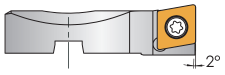
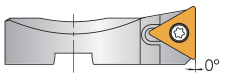
Designation	CK NO.	Insert seat	Boring				Reverse boring				Weight	Insert	
			Processing range ØD	L	L1	D1	Processing range ØD	L2	L3	H			
CMP20-36CK1	1	FS*-1A	20-26	32.5	30.5	19	/	10.5	20.0	10.0	0.07	TP 0802	/
		FS*-1B	25-31				30-31						
		FS*-1C	30-36				30-36						
CMP25-47CK2	2	FS*-2A	25-33	35.5	33.0	24	/	11.5	21.5	12.5	0.12		
		FS*-2B	32-40				36-40						
		FS*-2C	39-47				39-47						
CMP32-60CK3	3	FS*-3A	32-42	40.0	37.0	31	/	10.0	27.0	16.0	0.22		
		FS*-3B	41-51				46-51						
		FS*-3C	50-60				50-60						
CMP41-74CK4	4	FS*-4A	41-54	47.0	43.0	40	/	12.0	31.0	20.0	0.42	TC1102	CC 0602
		FS*-4B	50-63				53-63						
		FS*-4C	61-74				61-74						
CMP53-95CK5	5	FS*-5A	53-70	57.0	52.0	50	62-70	15.0	37.0	25.5	0.85		
		FS*-5B	65-82				65-82						
		FS*-5C	78-95				78-95						
CMP68-150CK6	6	FS*-6A	68-100	71.0	67.0	64	80-100	23.0	44.0	32.5	1.85		CC 09T3
		FS*-6B	94-126				94-126						
		FS*-6C	118-150				118-150						
CMP100-203CK6	6	FS*-6A	100-153	71.0	67.0	64	112-153	23.0	44.0	46.5	2.70		
		FS*-6B	126-179				126-179						
		FS*-6C	150-203				150-203						
CMP100-203CK7	7	FS*-6A	100-153	87.0	83.0	90	112-153	39.0	44.0	46.5	4.05		
		FS*-6B	126-179				126-179						
		FS*-6C	150-203				150-203						

◆Processing range refers to the value of insert tip redius R0.2 and R0.4
◆No inserts attached,please purchase according to your needs
◆All the CMP boring tools with internal coolant

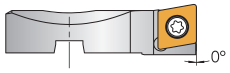
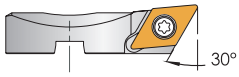
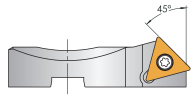
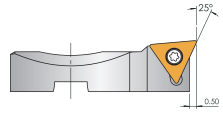
Fine boring insert seat

Drawings	Designation	Adapted boring head	Processing range ØD	Insert	Screw
	FST-1A	CMP20 -36CK1	/	TP 0802	DM2X4-T6
	FST-1B				
	FST-1C				
	FST-2A	CMP25 -47CK2			
	FST-2B				
	FST-2C				
	FST-3A	CMP32 - 60CK3			
	FST-3B				
	FST-3C				
	FST-4A	CMP41 - 74CK4	/	TC 1102	DM2.5X6 -T8
	FST-4B				
	FST-4C				
	FST-5A	CMP53 - 95CK5			
	FST-5B				
	FST-5C				
	FST-6A	CMP68 - 150CK6 CMP100 -203CK6			
	FST-6B				
	FST-6C				
	FST-1A(TC06)	CMP20 -36CK1	20-26	TC 06T1	DM2X4-T6
	FST-1B(TC06)		25-31		
	FST-1C(TC06)		30-36		
	FST-2A(TC06)	CMP25-47CK2	25-33		
	FST-2B(TC06)		32-40		
	FST-2C(TC06)		39-47		
	FST-3A(TC06)	CMP32- 60CK3	32-42		
	FST-3B(TC06)		41-51		
	FST-3C(TC06)		50-60		
	FST-3A(TP09)	CMP32- 60CK3	32-42	TP 0902	DM2 . 5X6 -T8
	FST-3B(TP09)		41-51		
	FST-3C(TP09)		50-60		
	FST-4A(TP09)	CMP41 - 74CK4	41-54		
	FST-4B(TP09)		50-63		
	FST-4C(TP09)		61-74		
	FST-5A(TP09)	CMP53-90CK5	53-70		
	FST-5B(TP09)		65-82		
	FST-5C(TP09)		78-95		
	FST- 6A(TP09)	CMP68-150CK6	68-100/100-153		
	FST- 6B(TP09)		94-126/126-179		
	FST- 6C(TP09)	CMP100-203CK6	118-150/150-203		
	FST-4A(TC1103)	CMP41-74CK4	41-54	TC 1103	DM2 . 5X6 -T8
	FST-4B(TC1103)		50-63		
	FST-4C(TC1103)		61-74		

Fine boring insert seat

Drawings	Designation	Adapted boring head	Processing range ØD	Insert	Screw
	FST-5A(TC1103)	CMP53-90CK5	53-70	TC 1103	DM2 .5X6 -T8
	FST-5B(TC1103)		65-82		
	FST-5C(TC1103)		78-95		
	FST- 6A(TC1103)	CMP68-150CK6 CMP100-203CK6	68-100/100-153		
	FST- 6B(TC1103)		94-126/126-179		
	FST- 6C(TC1103)		118-150/150-203		
	FST-4A(TP1103)	CMP41-74CK4	41-54	TP 1103	DM3 .0X7-T10
	FST-4B(TP1103)		50-63		
	FST-4C(TP1103)		61-74		
	FST-5A(TP1103)	CMP53-90CK5	53-70		
	FST-5B(TP1103)		65-82		
	FST-5C(TP1103)		78-95		
	FST-6A(TP1103)	CMP68-150CK6 CMP100-203CK6	68-100/100-153		
	FST-6B(TP1103)		94-126/126-179		
	FST-6C(TP1103)		118-150/150-203		
	FSC-2A+2(CC06)	CMP25-47CK2	27-33	CC 0602	DM2 .5X6 -T8
	FSC-2B(CC06)		32-40		
	FSC- 2C(CC06)		39-47		
	FSC-3A(CC06)	CMP32-60CK3	32-42		
	FSC-3B(CC06)		41-51		
	FSC-3C(CC06)		50 60		
	FSC-4A(CC06)	CMP41-74CK4	41-54		
	FSC-4B(CC06)		50-63		
	FSC-4C(CC06)		61-74		
	FSC-5A(CC06)	CMP53-95CK5	53-70		
	FSC-5B(CC06)		65-82		
	FSC-5C(CC06)		78-95		
	FSC-6A(CC09)	CMP68-150CK6 CMP100-203CK6	68-100/100-153	CC 09T3	DM4.0X10 -T15
	FSC-6B(CC09)		94-126/126-179		
	FSC-6C(CC09)		118-150/150-203		
	FST-1A0	CMP20-36CK1	20-26	TP 0802	DM2X4-T6
	FST-2A0	CMP25-47CK2	25-33		
	FST-3A0	CMP32-60CK3	32-42		
	FST-3B0		41-51		
	FST-3C0		50-60		
	FST-4A0	CMP41-74CK4	41-54	TC 1102	DM2 .5X6 -T8
	FST-4B0		50-63		
	FST-4C0		61-74		
	FST-5A0	CMP53-95CK5	53-70		
	FST-5B0		65-82		
	FST-5C0		78-95		
	FST-6A0	CMP68-150CK6 CMP100-203CK6	68-100/100-153		
	FST-6B0		94-126/126-179		
	FST-6C0		118-150/150-203		

Fine boring insert seat

Drawings	Designation	Adapted boring head	Processing range ØD	Insert	Screw
	FSC-4A0	CMP41-74CK4	41-54	CC 0602	DM2.5X6 -T8
	FSC-4B0		50-63		
	FSC-4C0		61-74		
	FSC-5A0	CMP53-95CK5	53-70		
	FSC-5B0		65-82		
	FSC-5C0		78-95		
	FSC-6A0	CMP68-150CK6 CMP100-203CK6	68-100/100-153	CC 09T3	DM4.0X10 -T15
	FSC-6B0		94-126/126-179		
	FSD-3A30+2 .5	CMP32-60CK3	37-42	DC 0702	DM2.5X6 -T8
	FSD-3B30		41-51		
	FSD-3C30		50-60		
	FSD-4A30+1 . 5	CMP41-74CK4	44-54		
	FSD-4B30		50-63		
	FSD-4C30		61-74		
	FSD-5A30	CMP53-95CK5	53-70		
	FSD-5B30		65 -82		
	FSD-5C30		78-95		
	FSD-6A30	CMP68-150CK6 CMP100-203CK6	68-100/100-153		
	FSD-6B30		94-126/126-179		
	FSD-6C30		118-150/150-203		
	FST-4A45	CMP41-74CK4	41-54	TC 1102	DM2.5X6 -T8
	FST-5A45	CMP53-95CK5	53-70		
	FST-6A45	CMP68-150CK6	68-100		
		CMP100-203CK6	100-153		
	FST-3A25	CMP32-60CK3	32-42	TP 0802	DM2X4-T6
	FST-4A25	CMP41-74CK4	41-54		
	FST-5A25	CMP53-95CK5	53-70		
	FST-6A25	CMP68-150CK6	68-100	TC 1102	DM2.5X6 -T8
		CMP100-203CK6	100-153		

◆No inserts attached,please purchase according to your needs
◆Attached with screw and wrench

TOTIME Fine Boring
Large Aperture

Fine boring head (large aperture)

Processing range ∅150-∅530

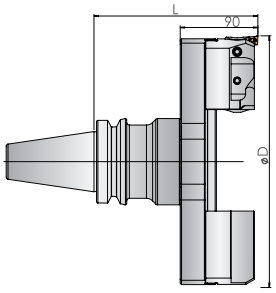
◆The CLP series of large aperture modular fine boring heads offer good balance and high accuracy.
◆Rough and fine boring tools use the same basic components and can be used with additional optional accessories.
◆Aluminum alloy bridges and counterweights are also available for purchase, which can be used to reduce the weight of the tool.

The standard type of steel bridge of fine boring

Processing range ØD	Designation	Weight	Link plate		Steel bridge		Fine boring slide		Balance block		Adapted insert seat			
			Model	Weight	Model	Weight	Model	Weight	Model	Weight	Insert seat	Insert	Insert seat	Insert
150-210	CLP 150-210	6.2	-	-	CL 150-210	2.50	LP 150	1.6	LM 150	1.05	FST- 6A FST- 6B FST- 6C	TC 1102	FSC- 6A FSC- 6B FSC- 6C	CC 09T3
210-290	CLP 210-290	7.5			CL 210-290	3.70			LM 200	1.60				
290-370	CLP 290-370	8.5			CL 290-370	5.05								
370-450	CLP 370-450	10.2			CL 370-450	6.80								
450-530	CLP 450-530	11.6			CL 450-530	8.40								
530-610	CLP 530-610	17.5	CL40 -200	4.7	CL 530-610	9.50								
610-690	CLP 610-690	19.0			CL 610-690	11.00								
690-770	CLP 690-770	20.8			CL 690-770	12.70								
770-850	CLP 770-850	23.0			CL 770-850	15.00								

◆No inserts attached,please purchase according to your needs
◆No rivets attached,rivet type is different for different machines
◆OEM service available

Lightweight aluminum bridge fine boring



Processing range ØD	Designation	Kg Weight	Aluminum bridge		Fine boring slide		Balance block		Adapted insert seat			
			Designation	Weight	Designation	Weight	Designation	Weight	Insert seat	Insert	Insert seat	Insert
150-210	CLP 150-210 AL	4.6	CL 150-210 AL	0.9	LP 150	1.6	LM 150	1.05	FST-6A FST-6B FST-6C	TC 1102	FSC-6A FSC-6B FSC-6C	CC 09T3
210-290	CLP 210-290 AL	5.1	CL 210-290 AL	1.3			LM 200	1.60				
290-370	CLP 290-370 AL	5.5	CL 290-370 AL	2								
370-450	CLP 370-450 AL	5.9	CL 370-450 AL	2.5								
450-530	CLP 450-530 AL	6.2	CL 450-530 AL	3								

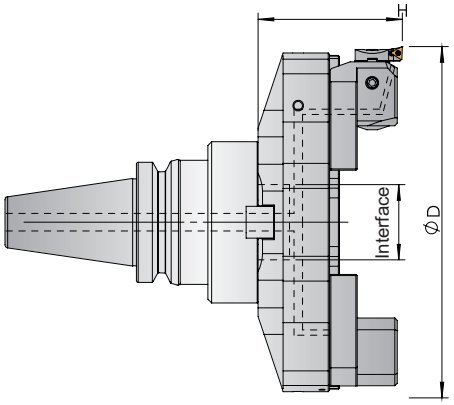
OEM service available
The expanding function of LP 150fine boring head
The processing range will increase by exchanging insert seat.A reverse installation achieves reverse boring, to improve efficiency and accuracy

The machining range of the exchange insert holder

Processing range ØD	Bridge	Insert seat	Processing range	Bridge	Insert seat	Processing range	Bridge	Insert seat
150-210	CL 150 -210	FS* - 6A	370-450	CL 370-450	FS* - 6A	610-690	CL 610-690	FS* - 6A
176-236		FS* - 6B	396-476		FS * - 6B	636-716		FS* - 6B
200-260		FS* - 6C	420-500		FS* - 6C	660-740		FS* - 6C
210-290	CL 210 -290	FS* - 6A	450-530	CL 450-530	FS* - 6A	610-770	CL 690-770	FS* - 6A
236-315		FS* - 6B	476-556		FS* - 6B	716-746		FS* - 6B
260-340		FS* - 6C	500-580		FS* - 6C	740-820		FS* - 6C
290-370	CL 290 -370	FS* - 6A	530-610	CL 530-610	FS* - 6A	770-850	CL 770-850	FS* - 6A
316-396		FS* - 6B	556-636		FS * - 6B	796-876		FS* - 6B
340-420		FS* - 6C	580-660		FS* - 6C	820-900		FS* - 6C

OEM service available

Internal cooled large bore fine boring tool (full range of aluminum-based bridges)

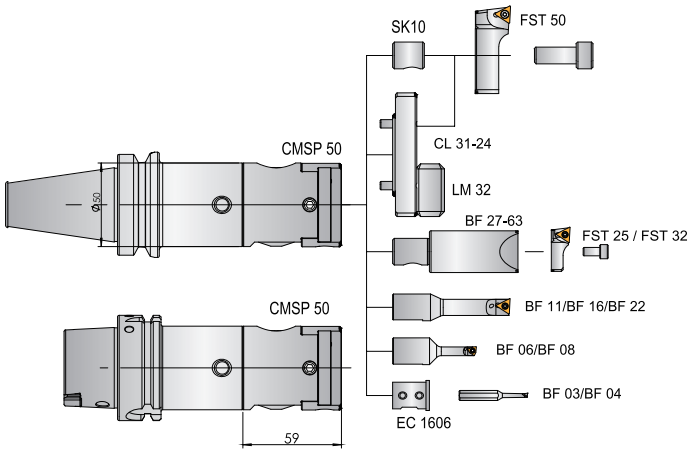


Processing range ØD	Designation	kg Weight	D1	H	Aluminum bridge		Fine boring fine adjustment slider		Fine boring balance block		Processing diameter		
					Designation	Weight	Designation	Weight	Designation	Weight	Insert seat	Insert	Other inserts
200-280	CNP 200-280AL	6.3	CL40	115	NL 200-280AL	2.8	LNP 200	1.75	LNM 200	1.75	FST- 6A	TC 1102	CC 09T3 TC 1103 TP 1103 TP 0902 DC 0702
280-360	CNP 280-360AL	7.5	FMB60	115	NL 280-360AL	4.1							
360-440	CNP 360-440AL	9.7		125	NL 360-440AL	6.2							
440-520	CNP 440-520AL	11.2		125	NL 440-520AL	7.7							
520-600	CNP 520-600AL	13.2		135	NL 520-600AL	9.7							
600-680	CNP 600-680AL	14.7		135	NL 600-680AL	11.2							
680-760	CNP 680-760AL	17.5		145	NL 680-760AL	14.1							
760-840	CNP 760-840AL	18.8		145	NL 760-840AL	15.4							

Fine boring head with small bore

Processing range ∅6-∅108

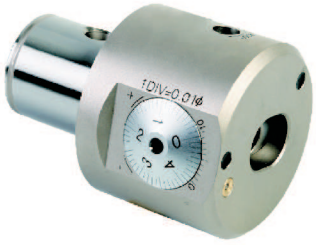
- ◆CMSP Micro adjustment boring head is suitable for fine boring.
- ◆The adjustment size of each division of the adjustment scale is 0.01mm in diameter.
- ◆The insert seat is fixed by a tooth structure, which ensures stable cutting and a wide processing range.

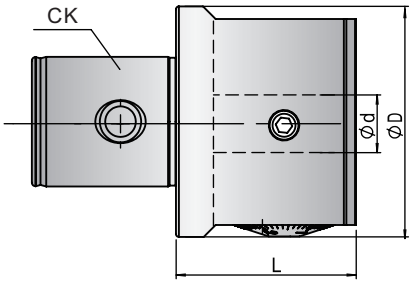


Name	Designation	Processing range ØD	Depth	Insert	Screw	Wrench	Weight
Fine boring head	CMSP 50	6-108	59	-	-	-	0.95
Conversion sleeve	EC1 606	For use with BF03 or BF04	-	-	-	-	0.03
Alloy boring bar	BF 03	3-4	15	-	-	-	0.03
Alloy boring bar	BF 04	4-6	20	-	-	-	0.03
Boring bar	BF 06	6-9	21	WBGT 0601..L	DM2x4	T6	0.04
Boring bar	BF 08	8-12	28				0.04
Boring bar	BF 11	11-17	40	TPGT 0902..L	DM2.5x6	T8	0.06
Boring bar	BF 16	16-23	50				0.08
Boring bar	BF 22	22-28	68				0.11
Removable boring bar	BF 27-63	For use with FST 25 or FST 32	52				0.22
Fine boring tool seat	FST 25	28-42	52+11				0.01
Fine boring tool seat	FST 32	36-54	52+11				0.02
Fine boring tool seat	FST 50	54-84	59+20	TPGT 1103..L	DM3x7	T10	0.08
Connecting bridge block	CL 31-24	For use with FST 25 80-108	59+13+20	-	-	-	0.15
Small counterweight	LM 32		-	-	-	-	0.04
Locking block	SK 10		-	-	-	-	0.03

Fine boring head with small bore

Processing range ∅6-∅50



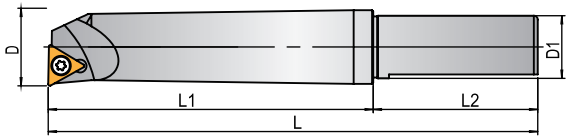


Designation	Processing range ØD	CK NO.	D	d	L	Tap	kg weight
MBJ10	6-20	4	40	10	28.5	1.5	0.35
MBJ16	6-50	6	64	16	50	6	1.25

Steel boring bar

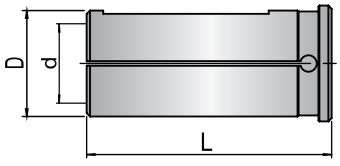
Designation	Processing range ØD	D	D1	L1	L2	L	Insert	Insert screw	Insert wrench	kg weight
BJ1006-23	6- 8	6	10	23	30	53	WBGT 0601	DM2x4	T6	0.05
BJ1008-25	8-10	8		25	30	55	TBGT 0601			0.06
BJ1010-30	10-12	10		30	30	60				0.07
BJ1012-36	12-14	12		36	30	66	TPGH 0902	DM2.5x6	T8	0.09
BJ1014-42	14-16	14		42	30	72				0.12
BJ1016-48	16-18	16		48	30	78	TPGH 1103	DM3x7	T10	0.14
BJ1018-54	18-20	18		54	30	84				0.2

Steel boring bar



Designation	Processing range ØD	D	D1	L1	L2	L	Insert	Insert screw	Insert wrench	kg weight
BJ1606-24	6-8	6	16	24	49	73	WBGT 0601	DM2X4	T6	0.07
BJ1608-32	8-11	8		32	48	80	TBGT 0601			0.08
BJ1610-40	10-13	10		40	47	87				0.08
BJ1612-53	12-17	12		53	45	98	TPGH 0902	DM2.5X6	T8	0.11
BJ1616-68	16-21	16		68	42	110				0.14
BJ1620-83	20-26	20		83	42	125	TPGH 1103	DM3X7	T10	0.21
BJ1625-90	25-32	25		90	38	128				0.3
BJ1630-90	30-42	30		90	38	128				0.32
BJ1640-90	40-50	40		90	38	128				0.41

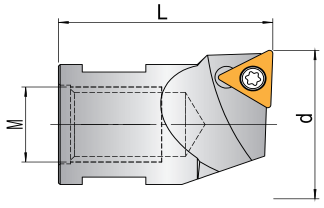
Conversion sleeve



Designation	D	d	L	Combined tungsten steel tool holder
EC1608	16	8	37	WC08 * M5
EC1610	16	10	37	WC10 * M6
EC1612	16	12	37	WC12 * M6
EC1614	16	14	37	WC14* M6

Carbide anti-vibration tool holder

Designation	D	L	M	Conversion sleeve	Weight	Combined boring head
WC08H100M5	8	100	M5	EC1608	0.08	BN09 , BN10.5
WC10H100M6	10	100	M6	EC1610	0.15	BN12
WC10H150M6	10	150			0.23	
WC12H100M6	12	100		EC1612	0.24	BN14
WC12H150M6	12	150			0.33	
WC14H150M6	14	150		EC1614	0.43	BN16
WC14H200M6	14	200			0.58	
WC16H100M10	16	100	M10	-	0.42	BN18 , BN20, BN22, BN24, BN26, BN28, BN30, BN32, BN34, BN36, BN38, BN40, BN42 , BN46,
WC16H150M10	16	150	M10		0.61	
WC16H200M10	16	200	M10		0.82	

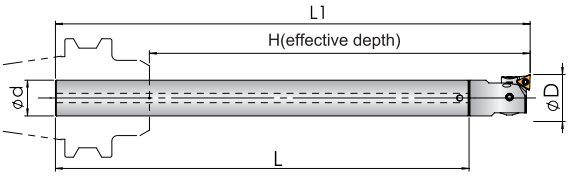


Designation	Processing range ØD	d	L	M	Insert	Insert screw	Insert wrench	Weight
BN09	9-10.5	9	18	M5	TPGT 0802	DM2X4	T6	0.03
BN10.5	10.5-12	10.5	18	M5				0.03
BN12	12-14	12	23	M6				0.03
BN14	14-16	14						0.03
BN16	16-18	16						0.04
BN18	18-20	18	27	M10				0.04
BN20	20-22	20						0.05
BN22	22-24	22						0.05
BN24	24-26	24						0.05
BN26	26-28	26						0.05
BN28	28-30	28						0.06
BN30	30-32	30						0.06
BN32	32-34	32						0.07
BN34	34-36	34						0.09
BN36	36-38	36						0.11
BN38	38-40	38						0.15
BN40	40-42	40						0.16
BN42	42-46	42						0.19
BN46	46-50	46						0.26

Carbide anti-vibration tool holder

Processing range ∅20-∅60

◆Super-hard tungsten carbide boring bar,hard and durable,high hardness,high rigidity,high shock resistance, can be used for deep hole boring.
◆All specifications have internal cooling holes, which have low leakage and good internal cooling effects during deep hole processing.
◆Straight shank,the machining depth can be adjusted according to your needs.

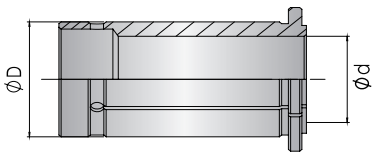


Designation	Ød	Processing range ØD	L1	L	H	Fine boring head
WC19H150CK1	19	20-36	182.5	150	130	CMP 20-36CK1
WC19H200CK1			232.5	200	170	
WC19H250CK1			282.5	250	210	
WC24H200CK2	24	25-47	235.5	200	170	CMP 25-47CK2
WC24H250CK2			285.5	250	210	
WC24H300CK2			335.5	300	260	
WC32H250CK3	32	32.5-60	290	250	180	CMP 32-60CK3
WC32H300CK3			340	300	230	
WC32H350CK3			390	350	300	

◆No CMP fine boring head,please purchase
◆Note:The machining depth may not reach the effective machining depth depending on the material of the workpiece.

Powerful collets for carbide straight shanks

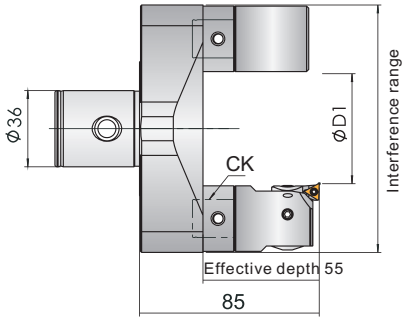
Designation	Ød	ØD
C32-19	19	32
C32-24	24	
C42-19	19	42
C42-24	24	
C42-32	32	



◆Collet should be used on the powerful milling shank

External sleeve boring tool

Processing range ∅25-∅102

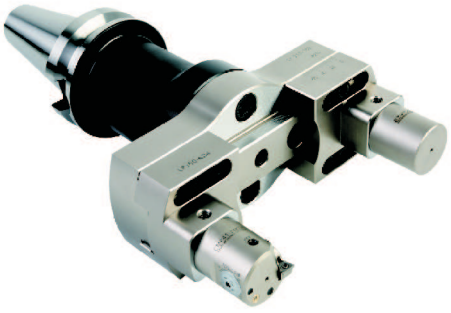


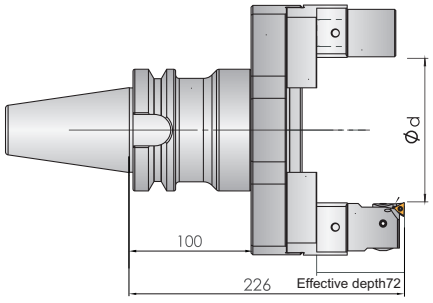
Processing range ØD1	Connection bracket			Fine boring head		Balance block		Insert seat	Insert
	Designation	kg weight	Interference range	Designation	kg weight	Designation	kg weight		
25-34	CMPT 25-52CK6	1.5kg	∅118	CMP 32- 60CK3	0.22kg	BZ-CK3	0.22kg	FS* -3C	TP 0802
34-43								FS* -3B	
43-52								FS* -3A	
50-59	CMPT 50-77CK6	1.8kg	∅143					FS* -3C	
59-68								FS* -3B	
68-77								FS* -3A	
75-84	CMPT 75-102CK6	1.9kg	∅168					FS* -3C	
84-93								FS* -3B	
93-102								FS* -3A	

◆Inserts are not included,please order them separately.
◆Please reverse the spindle when machining the outer circle
◆When boring head is installed in the opposite direction
it can be used for boring.At this time,the spindle should be rotated forward

External sleeve boring tool

Processing range ∅41-∅724

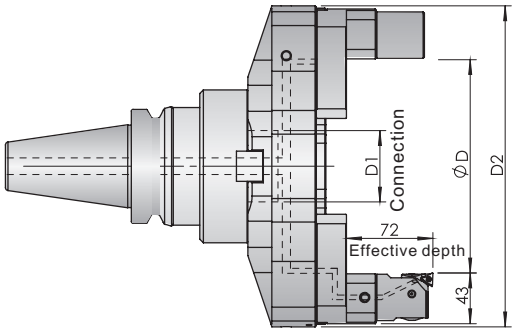




Processing range Ød	Bridge		Set block		Fine boring head		Balance block	
	Designation	kg weight	Designation	kg weight	Designation	kg weight	Designation	kg weight
41-96	CL 150-210	2.50	LP 150 -CK4	0.75	CMP 41 -74CK4 Insert seat FST-4A Insert TC 1102	0.42	BZ-CK4	0.43
84-164	CL 210-290	3.70						
164-244	CL 290-370	5.05						
244-324	CL 370-450	6.80						
324-404	CL 450-530	8.40						

◆Inserts are not included,please order them separately.
◆Please reverse the spindle when machining the outer circle
◆When boring head is installed in the opposite direction,
it can be used for boring.At this time,the spindle should be rotated forward.
◆When machining the minimum stroke of the outer circle,it is necessary to
adjust the stroke with CMP41-72CK4 fine boring cutter.

External tool set with internal coolant

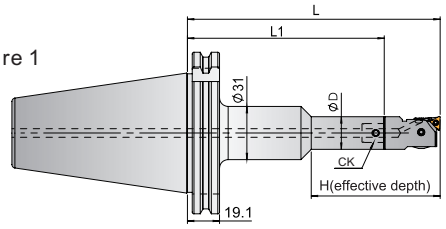


Processing range Ød	Aluminum bridge				Set block		Balance block		Fine boring head		Insert seat and insert		
	Designation	kg weight	Interface D1	D2	Designation	kg weight	Designation	kg weight	Designation	kg weight	Matching insert seat	Matching insert	Other insert
100-180	NL 200-280AL	2.8	CL40	195	NP 200-CK4	1.3 (1 Piece)	BZ- CK4	0.43	CMP 41 - 74CK4	0.42	FST-4A (Standard)	TC 1102	CC 0602 TC 1103 TP 1103 TP 0902 DC 0702
180-260	NL 280-360AL	4.1	FMB60	275									
260-340	NL 360-440AL	6.2		355									
340-420	NL 440-520AL	7.7		435									
420-500	NL 520-600AL	9.7		515									
500-580	NL 600-680AL	11.2		595									
580-660	NL 680-760AL	14.1		675									
660-740	NL 760-840AL	15.4		755									

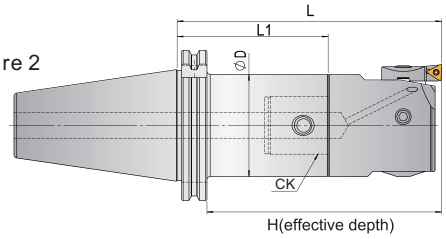
◆Inserts are not included,please order them separately
◆Please reverse the spindle when machining external round
◆When the boring head is installed reversely,it can be used for boring holes.
At this time,the spindle should be rotated forward

SK boring holder
DIN69871 boring cutter holder

Picture 1



Picture 2



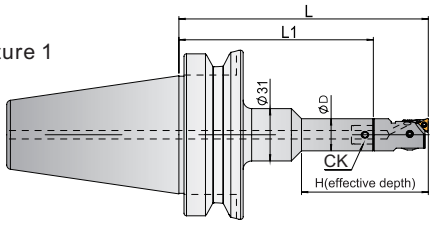
Designation	Picture	CK NO.	ØD	L	L1	H H(effective depth)	kg weight (kg)
SK40H075CK1	Picture 2	1	19	107.5	75	88.0	0.80
SK40H085CK2		2	24	120.5	85	101.0	1.05
SK40H095CK3		3	31	135	95	115.5	1.00
SK40H125CK3				165	125	145.5	1.30
SK40H085CK4		4	39	132	85	112.5	1.20
SK40H130CK4				177	130	157.5	1.80
SK40H075CK5		5	50	132	75	112.5	1.20
SK40H125CK5				182	125	162.5	2.30
SK40H065CK6		6	64	136	65	116.5	1.25
SK40H115CK6				186	115	166.5	2.65
SK40H165CK6				236	165	216.5	3.85
SK50H115CK1	Picture1	1	19	147.5	115	75.0	3.20
SK50H085CK2	Picture 2	2	24	120.5	85	101.0	3.10
SK50H110CK2				145 . 5	110	126.0	3.20
SK50H090CK3		3	31	130	90	110.5	3.20
SK50H125CK3				165	125	145.5	3.40
SK50H115CK4		4	39	162	115	142.5	3.80
SK50H145CK4				192	145	172.5	4.00
SK50H105CK5		5	50	162	105	142.5	3.90
SK50H150CK5				207	150	187.5	4.50
SK50H180CK5				237	180	217.5	5.00
SK50H240CK5				297	240	277.5	5.80
SK50H095CK6		6	64	166	95	146.5	4.00
SK50H170CK6				241	170	221.5	5.80
SK50H230CK6				301	230	281.5	7.20

Remark: The thickened holder of item SK50H350CK6-80 is also standing stock, if the machining holder diameter over 80mm, depth over 340mm, it can be considered.

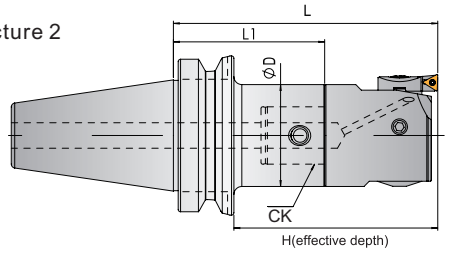
TOTIME Boring Holder
BT Boring Holder

BT boring holder

Picture 1



Picture 2

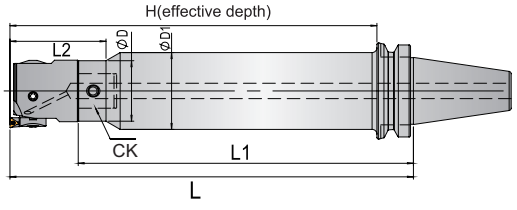


Designation	Picture	CK.NO.	ØD	L	L1	H H(effective depth)	kg weight
BT30H070CK1	Picture 2	1	19	102.5	70	80.5	0.5
BT30H080CK2		2	24	115.5	80	93.5	0.6
BT30H080CK3		3	31	120.0	80	98.0	0.7
BT30H070CK4		4	39	117.0	70	95.0	0.8
BT30H070CK5		5	50	127.0	70	105.0	0.8
BT30H070CK6		6	64	141.0	70	119.0	1.2
BT40H075CK1	Picture 2	1	19	107.5	75	80.5	1.0
BT40H105CK1				137.5	105	110.5	1.2
BT40H085CK2		2	24	120.5	85	93.5	1.1
BT40H115CK2				150.5	115	123.5	1.4
BT40H095CK3		3	31	135.0	95	108.0	1.2
BT40H125CK3				165.0	125	138.0	1.5
BT40H085CK4		4	39	132.0	85	105.0	1.3
BT40H130CK4				177.0	130	150.0	1.9
BT40H175CK4				222.0	175	195.0	2.2
BT40H050CK5		5	50	107.0	50	80.0	1.2
BT40H075CK5				132.0	75	105.0	1.3
BT40H125CK5				182.0	125	155.0	2.4
BT40H175CK5				232.0	175	205.0	3.0
BT40H065CK6		6	64	136.0	65	109.0	1.3
BT40H115CK6				186.0	115	159.0	2.7
BT40H165CK6				236.0	165	209.0	3.9

TOTIME Boring Holder
BT Boring Holder

Designation	Picture	CK NO.	ØD	L	L1	H (effective depth)	kg weight
BT50H115CK1	Picture 1	1	19	147.5	115	75	4
BT50H085CK2	Picture 2	2	24	120.5	85	82.5	3.8
BT50H110CK2				145.5	110	107.5	3.9
BT50H090CK3	Picture 2	3	31	130	90	92	3.9
BT50H125CK3				165	125	127	4.1
BT50H115CK4	Picture 2	4	39	162	115	124	4.3
BT50H145CK4				192	145	154	4.5
BT50H175CK4				222	175	184	4.8
BT50H065CK5	Picture 2	5	50	122	65	84	3.85
BT50H105CK5				162	105	124	4.5
BT50H150CK5				207	150	169	5.1
BT50H180CK5				237	180	199	5.5
BT50H240CK5				297	240	259	6.2
BT50H095CK6	Picture 2	6	64	166	95	128	4.5
BT50H170CK6				241	170	203	6.3
BT50H230CK6				301	230	263	7.7
BT50H290CK6				361	290	323	9
BT50H170CK7	Picture 2	7	90	257	170	219	9.1
BT50H230CK7				317	230	279	11.8
BT50H290CK7				377	290	339	14.6
BT50H350CK7				437	350	399	17.45

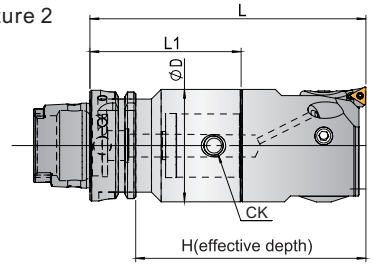
Thickening boring holder



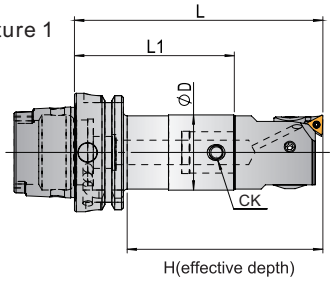
Designation	CK NO.	ØD	ØD1	L	L1	L2	H (effective depth)	kg weight
BT50H190CK4-46	4	39	46	237	190	65	199	5.6
BT50H235CK4-46				282	235		244	6.2
BT50H240CK5-61	5	50	61	297	240	80	259	8.2
BT50H300CK5-61				357	300		319	9.6
BT50H260CK6-71	6	64	71	331	260	100	293	10.3
BT50H315CK6-71				386	315		348	12.2
BT50H290CK6-80			80	361	290		323	13.2
BT50H350CK6-80				421	350		383	15.3

HSK boring holder

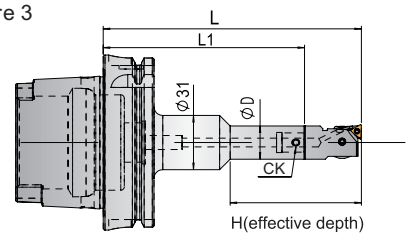
Picture 2



Picture 1

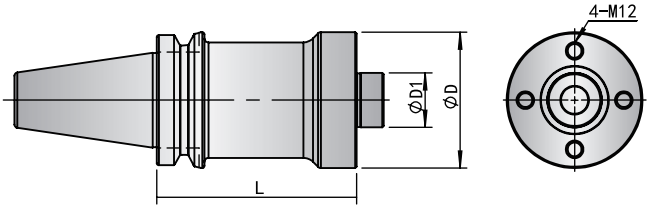


Picture 3



Designation	Picture	CK NO.	ØD	L	L1	H （effective depth）	kg weight
HSK63AH075CK1	Picture 1	CK1	19	107.5	75	81.5	0.9
HSK63AH100CK1				132.5	100	106.5	1.3
HSK63AH085CK2		CK2	24	120.5	85	94.5	1.7
HSK63AH115CK2				150.5	115	124.5	2.2
HSK63AH095CK3		CK3	31	135	95	109	2.3
HSK63AH125CK3				165	125	139	2.6
HSK63AH085CK4		CK4	39	132	85	106	2.1
HSK63AH130CK4				177	130	151	2.7
HSK63AH075CK5		CK5	50	132	75	106	2.3
HSK63AH100CK5				157	100	131	2.7
HSK63AH135CK5				192	135	166	2.8
HSK63AH075CK6	Picture 2	CK6	64	146	75	120	2.3
HSK63AH115CK6				186	115	160	2.8
HSK63AH165CK6				236	165	210	3.1
HSK100AH105CK1	Picture 3	CK1	19	137.5	105	75	2.6
HSK100AH115CK2	Picture 1	CK2	24	150.5	115	121.5	2.7
HSK100AH125CK3		CK3	31	165	125	136	2.9
HSK100AH120CK4		CK4	39	167	120	138	3.1
HSK100AH180CK4				227	180	198	3.7
HSK100AH110CK5		CK5	50	167	110	138	3.5
HSK100AH185CK5				242	185	213	4.6
HSK100AH095CK6		CK6	64	166	95	137	3.6
HSK100AH170CK6				241	170	212	5.5
HSK100AH230CK6				301	230	272	7.1

BT bridge boring holder



Designation	ØD	ØD1	L	Fixing screw set	kg weight
BT40H070CL40	100	40	70	CLM12X35	2.8
BT50H100CL40			100		6.1
BT50H150CL40			150		7.9
BT50H200CL40			200		9.7
BT50H250CL40			250		10.9
BT50H300CL40			300		12.5
BT50H350CL40			350		13.9

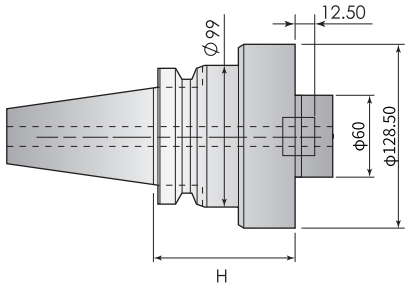
SK bridge boring holder

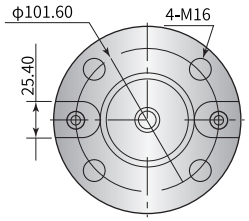
Designation	ØD	ØD1	L	Fixing screw set	kg weight
SK40H070CL40	100	40	70	CLM12X35	2.8
SK50H080CL40			80		5.1
SK50H150CL40			150		7.3
SK50H200CL40			200		9.4
SK50H250CL40			250		10.5

HSK bridge boring holder

Designation	ØD	ØD1	L	Fixing screw set	kg weight
HSK63AH070CL40	100	40	70	CLM12X35	2.8
HSK100AH080CL40			80		5.1
HSK100AH150CL40			150		7.3
HSK100AH200CL40			200		9.3
HSK100AH250CL40			250		10.5

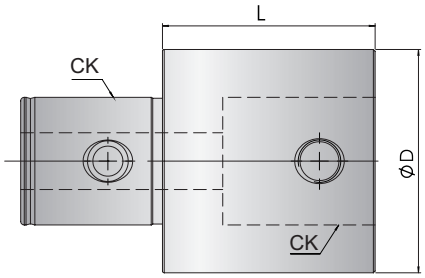
BT bridge boring holder with internal coolant





Designation	L	Fixing screw	kg weight
BT50H100FMB60	100	M16	9.2
BT50H150FMB60	150	M16	12.1
BT50H200FMB60	200	M16	14.9
BT50H250FMB60	250	M16	17.9
BT50H300FMB60	300	M16	20.8
BT50H350FMB60	350	M16	23.7

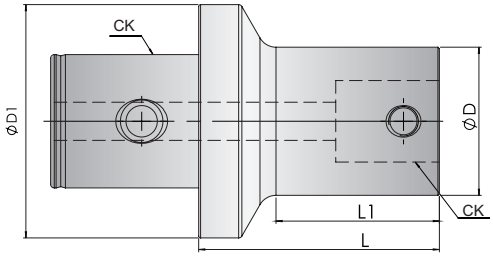
Extension rod



Designation	CK NO.	L	ØD	kg weight
CK11-30	1	30	19	0.07
CK22-30	2	30	24	0.10
CK33-30	3	30	31	0.15
CK44-45	4	45	39	0.40
CK44-60		60		0.53
CK55-60	5	60	50	0.80
CK55-90		90		1.25
CK66-60	6	60	64	1.40
CK66-100		100		2.33

◆Please note that after using the extension rod,length to diameter ratio will become larger,which may affect processing conditions.
◆With internal coolant

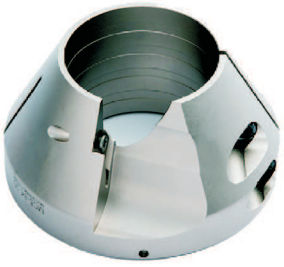
Reducing rod

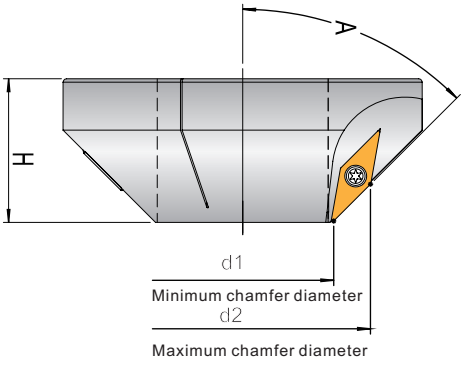


Designation	CK NO.(Spindle side)	CK NO.(Hole side)	ØD	ØD1	L	L1	kg weight
CK21-36	2	1	19	24	36	30	0.10
CK31-41	3			31	41		0.15
CK32-37		2	24		37	25	
CK41-58	4	1	19	39	58	40	0.30
CK42-50		2	24		50	36	
CK43-50		3	31			37	0.35
CK51-60	5	1	19	50	60	40	0.45
CK52-54		2	24		54	35	
CK52-75					75	55	0.47
CK53-47		3	31		47	29	0.50
CK53-75					75	55	0.57
CK54-42		4	39		42	25	0.50
CK54-75					75	55	0.66
CK61-70	6	1	19	64	70	40	0.90
CK62-63		2	24		63	45	0.70
CK62-90					90	72	0.72
CK63-56		3	31		56	39	0.75
CK63-90					90	73	0.88
CK64-51		4	39		51	35	0.85
CK64-90					90	75	1.08
CK65-41		5	50		41	25	0.85
CK65-90					90	74	1.45
CK76-60-A90	7	6	64	90	60	25	2.30

◆Please note that after using the extension rod,length to diameter ratio will become larger,which may affect processing conditions.
◆With internal coolant
◆A90 indicates that the locking screw hole of the head and the locking taper hole of the holder are 90° staggered design,which is convenient for special situations.

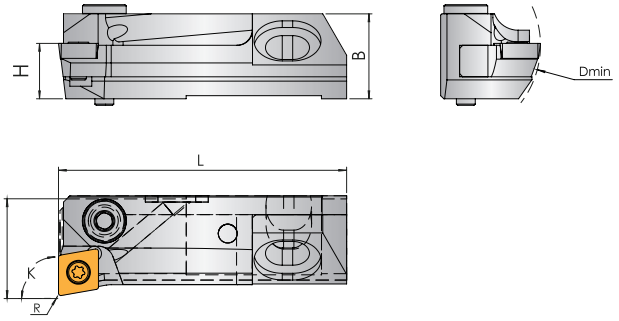
Chamfer ring





Designation	Teeth	A Angle A	d1	d2	H	Holder	Insert	Insert screw set	Locking screw	kg weight
MC1-34-45	1	45	21	34	22	CK1	VCGT 110302	DM3X7-T10	M5x16	0.06
MC2-39-45			26	39	25	CK2				0.12
MC3-54-45			34	54	35	CK3	VCGT 160404	DM4X10-T15	M6x20	0.52
MC4-62-45			42	62	38	CK4				0.7
MC5-93-45	2		53	93	43	CK5			M6x25	1.31
MC6-107-45			67	107	46	CK6			M8x25	1.82
MC6-138-45			98	138						3.85
MC6-160-45			120	160						5.58
MC1-41-30		30	23	41	30	CK1	VCGT 110302	DM3X7-T10	M5x16	0.11
MC2-46-30			28	46	35	CK2				0.22
MC3-53-30			35	53		CK3			M6x20	0.35
MC4-61-30			43	61		CK4				0.42
MC5-84-30			56	84	48	CK5	VCGT 160404	DM4X10-T15	M8x25	1.3
MC6-98-30			70	98		CK6				1.2
MC6-120-30			92	120						3.05
MC6-142-30			114	142						4.1

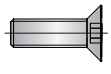
Micro-adjustable insert seat



The picture is the right hand insert seat

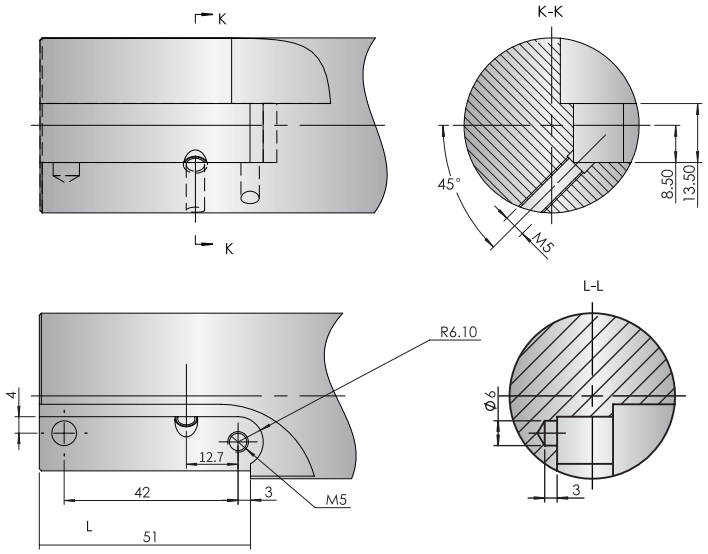
Designation	Dmin	L	F	B	H	K	R	Insert	Insert screw set
FSC-8516A0-06-R/L	28	45.8	16	13.5	8.8	90°	0.4	CC 0602	DM2.5X6 -T8
FSC-8516A5-06-R/L						95°			
FST-8516A0-09-R/L						90°		TP 0902	DM2.5X6 -T8
FST-8516A5-09-R/L						95°			
FSD-8516A30-07-R/L		47.5				120°		DC 0702	DM2.5X6 -T8
FST-8520A0-11C-R/L	36	45.8	20			90°		TC 1102	
FST-8520A5-11C-R/L						95°			
FST-8520A0-11P-R/L						90°		TP 1103	DM3X6 -T10
FST-8520A5-11P-R/L						95°			

◆Please order the insert separately
◆Micro adjustment accuracy is diameter is ∅0.01mm
◆Radial range:0-∅6mm , Axial range:0-10mm

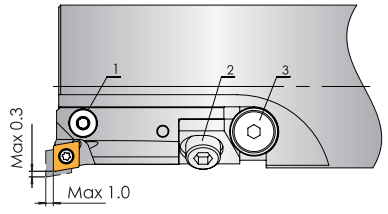
Spare parts	Name	Designation
	Axial adjustment block	SV- 12
	Axial adjustmentscrew	SVM5 -20
	Insert seat fixing screw	RMM5 -20
	Insert seat fixing wrench	PS-4B
	Radial adjustment wrench	PS-2 .5B
	Radial adjustment wrench	PS-3B

Micro-adjustable insert seat instructions

Insert seat installing dimension instruction



Insert seat adjustment instruction



1. Screw for radial adjustment
2. Screw for tool holder fixing
3. Screw for adjust the axis direction

Adjust axis direction operation

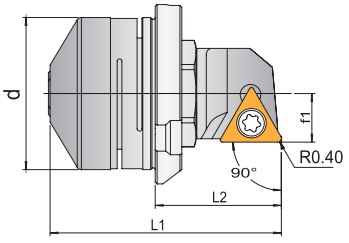
◆Slightly loosen the screw 2
◆Turn clockwise the screw 3,Move the insert seat forward to the required size.
◆Tighten the screw 2.

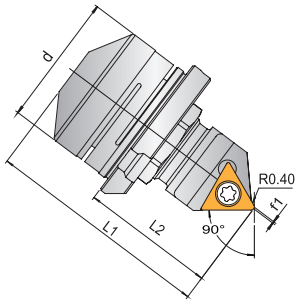
Adjust axis direction operation

◆Turn the screw 1 clockwise.tool diameter becomes larger(∅0.01mm/grid)
◆Turn the screw 1 counterclockwise ,tool diameter becomes smaller(∅0.01mm/grid)

Notice: If the insert seat needs to be adjusted the axis driection backwards,you should loosen the screw 2 and move the insert seat to the needed position,gradually move forward to the desired position

Trimming unit



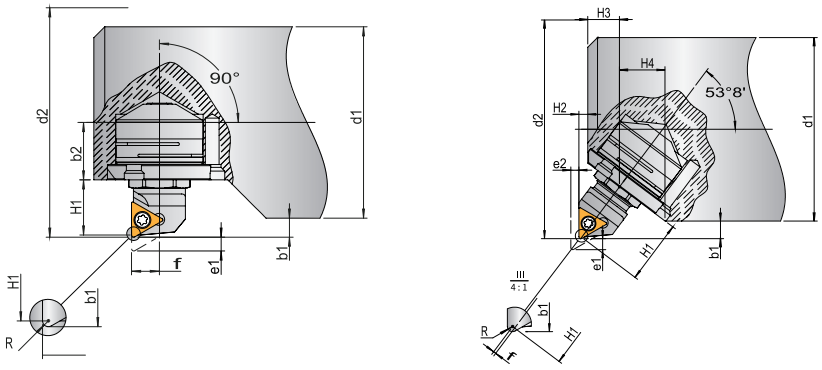


Installation Method	Designation	Approach angle	Cutting edge	Dmin Minimum machining diameter	d	L1	L2	f1	Insert	Screw
Side angle installation	R/L148C-31-CC06	90°	0°	25.5	16	25.15	14.3	0.45	CC 0602	DM2.5X6 -T8
	R/L148C-31-TC06			24.8		25.3	14.3	0.49	TC 06T1	DM2X4-T6
	R/L148C-31-TB06								TB 0601	
	R/L148C-32-TC09			32.5	20	33.7	19.1	0.9	TC 0902	DM2.2X6 -T6
	R/L148C-32-TP09								TP 0902 TC 1102	DM2.5X6 -T8
	R/L148C-33-TC1102			42	22	45.3	23	1.1		
	R/L148C-33-TP1103								TP 1103	DM3X7 -T10
	R/L148C-34-TC16			59.5	32	62.3	33.3	1.2	TC 16T3	DM4X10 -T15

Right angle installation	R/L148C-11-CC06	90°	0°	27	16	24.2	13.3	5.1	CC 0602	DM2.5X6 -T8
	R/L148C-11-TC06								TC 06T1	DM2X4-T6
	R/L148C-11-TB06								TB 0601	
	R/L148C-12-TC09			36.5	20	32.9	18.3	6.3	TC 0902	DM2.2X6 -T6
	R/L148C-12-TP09								TP 0902	DM2.5X6 -T8
	R/L148C-13-TC1102			48.5	22	44.3	22.1	7.2	TC 1102	
	R/L148C-13-TP1103								TP 1103	DM3X7 -T10
	R/L148C-14-TC16			68.4	32	62.7	32	10.3	TC 16T3	DM4X10 -T15

◆Inserts are not included,please order it separately.
◆Please refer to P37 for installation dimensions.
◆For the choice of tool tip and minimum machining diameter,please refer to P38.

Trim unit mounting dimensions



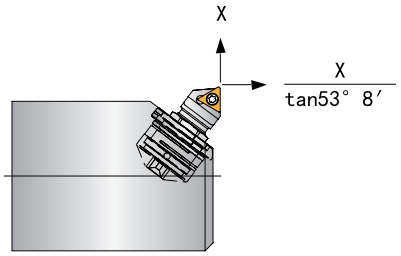
Installation	Insert			d1	d2	b1	e1	e2	b2	H1	H2	H3	H4	f
		iC	R	min	min	min	max	max	min	min				
Right angel installation	06	6.35	0.2	26	27.9	0.6	2.5	-	3.6	9.8	-	-	-	5.1
			0.4		27.6	0.55				9.6				
			0.8		27	0.5				9.1				
	06	3.96	0.2	24	25.9	0.6		-		8.8	-	-	-	5.1
			0.4		25.6	0.55				8.6				
			0.8		25	0.5				8.1				
	09	5.56	0.2	34.5	37.4	1.45	3.5	-	4.55	13.95	-	-	-	6.3
			0.4		37.1	1.3				13.6				
			0.8		36.5	1				12.9				
	11	6.35	0.2	46.5	49.7	1.45	6	-	7.75	16.75	-	-	-	7.2
			0.4		49.1	1.3				16.4				
			0.8		48.5	1				15.7				
	16	9.53	0.4	67	69.6	1.3	10	-	9.4	25	-	-	-	10.3
			0.8		69	1				24.3				
			1.2		68.4	0.7				23.6				

Side angel installation	06	6.35	0.2	22	26.2	1.7	2	1.5	-	11.0	0.5	6.6	9.55	0.4
			0.4		25.9	1.65				10.7				0.4
			0.8		25.3	1.6				10.1				0.45
	06	3.96	0.2		25.7	1.5			-	10.9	0.5	6.6	9.55	0.4
			0.4		25.4	1.45				10.6				0.4
			0.8		24.8	1.4				10.0				0.45
	09	5.56	0.2	28.5	33.4	2.45	2.8	2.1	-	14.9	0.5	9.4	12.15	0.95
			0.4		33.1	2.3				14.5				1
			0.8		32.5	2				13.7				1.1
	11	6.35	0.2	38	42.9	2.45	4.8	3.6	-	17.6	0.5	11.2	14.85	1.15
			0.4		42.6	2.3				17.2				1.2
			0.8		42.0	2				16.4				1.3
	16	9.53	0.4	55	60.6	2.8	8	6	-	26.2	0.5	16.65	12.7	1.3
			0.8		60.0	2.5				25.4				1.4
			1.2		59.4	2.2				24.6				1.5

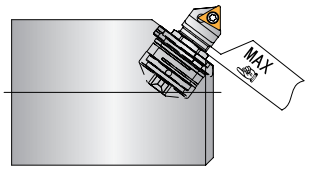
◆Please refer to P36 for installation dimensions

Fine tuning unit application

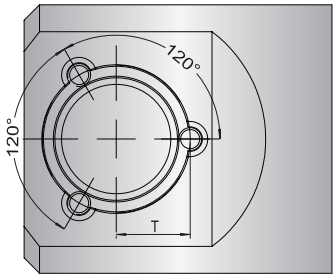
Fine tuning device applied to boring of nonstandard cutting tools

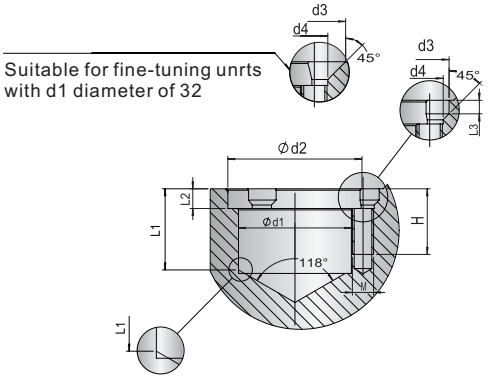


Blind hole installation,not affected by the diameter of the machining
Size can be adjusted at the front end,easy to operate
The fine tuning device can be self-locking,no need to unlock when adjusting the size, and no need to lock after adjustment
The fine-tuning nut has a scale plate,and the radial adjustment of each scale is ∅0.02mm



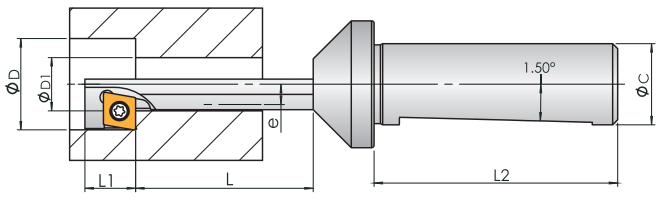
Notice:
Axial movement amount of side angle installation's fine tuning unit=Radial movement amount/tan 53° 8'
Never loosen the cutter head beyond the adjustment range indicated by the wrench corresponding the fine adjustment unit.If this happens,it will cause the fine tuning unit can't be repaired





ØD diameter	d1 H7	d2	d3	d4	L1	L2	L3	H	T	M
16	16	19	4.6	3.2	11.5	2.8	1.6	9	9 .65±0 .02	M3
20	20	25	4.6	3.2	15.5	4	1.6	9	12 .5±0 .05	M3
22	22	30	6.5	4.3	24	5	1.8	13	15 .4±0 .05	M4
32	32	46	11.9	5.4	33	6.3	-	16	23±0 .05	M5

Machine clamp reverse broach



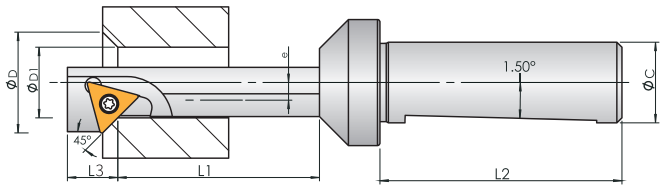
Designation	D	D1	C	L2	L	L1	e	Insert
MRF-18-W16	18	10.5	16	48	35	10	4	CC 0602
MRF-20-W16	20	13	16	48	40		4	
MRF-23-W20	23	15	20	50	50		4.5	
MRF-26-W20	26	17	20	50	50	13	5	CC 09T3
MRF-33-W25	33	21	25	56	70		6.5	
MRF-40-W25	40	25	25	56	80		8	

◆Avoid secondary clamping to ensure accurate position of the hole
◆One direction tuming to reduce the chance of damage
◆Non-standard design body with best rigidity
◆Non-standard customization is acceptable

Reverse pulling process step

1.Spindle orientation
2.Eccentric shift (e value)
3.Z axis down
4.Displacement to the center of the hole (e value)
5.Spindle makes upward ratation and reverse pulling process
6.Spindle orientation
7.Eccentric shift (e value)
8.Move up to a safe position and finish processing

Machine clamp type reverse chamfer cutter



Designation	D	D1	C	L2	L1	L3	e	Insert
MCF-14-W16	20	14	16	48	40	10	3.5	TC 1102
MCF-17-W20	23	17	20	50	50			
MCF-21-W25	27	21	25	56	70			
MCF-24-W25	31	24	25	56	80		4	

◆Avoid secondary clamping to ensure accurate position of the hole.
◆One direction tuming to reduce the chance of damage
◆Non-standard design body with best rigidity
◆Non-standard customization is acceptable

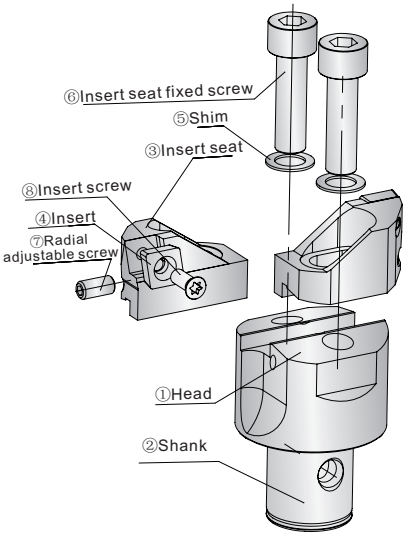
Reverse pulling process step

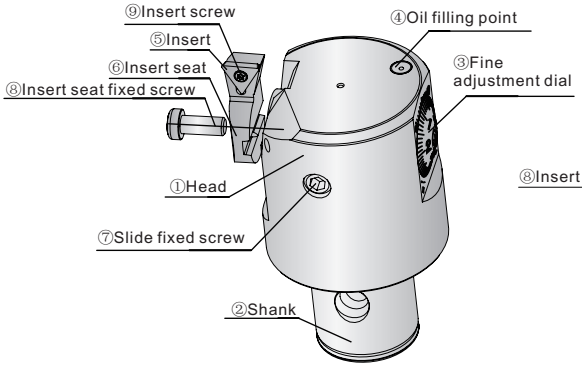
1. Spindle orientation
2. Eccentric shift (e value)
3. Z axis down
4. Displacement to the center of the hole (e value)
5. Spindle makes upward rotation and reverse pulling process.
6. Spindle orientation
7. Eccentric shift (e value)
8. Move up to a safe position and finish processing

Spare parts model number

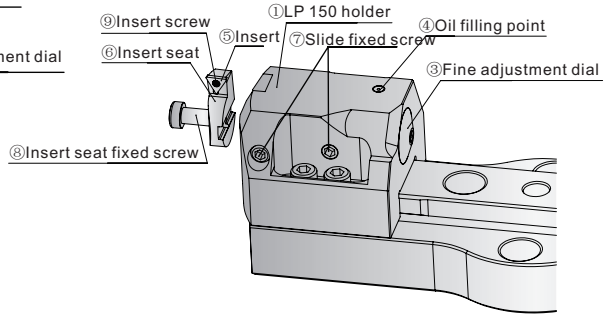
CMR rough boring head

Designation	⑧ Insert screw	⑦ Radial Adjustable screw	Radial Adjustable wrench
RSC-2026	DM2.5X6 (CC06)	PMM3X6	PS-1.5B
RSC-2533			
RSC-3242	DM4X10 (CC09)	PMM4X8	PS-2B
RSC-4154		PMM5X10	PS-2.5B
RSC-5370	DM5X12 (CC12)	PMM6X12	PS-3B
RSC-6890		PMM6X14	
RSC-88110		PMM6X20	
RSC-98126		PMM8X20	PS-4B
RSC-125153		PMM8X25	





CMP Fine Bore head

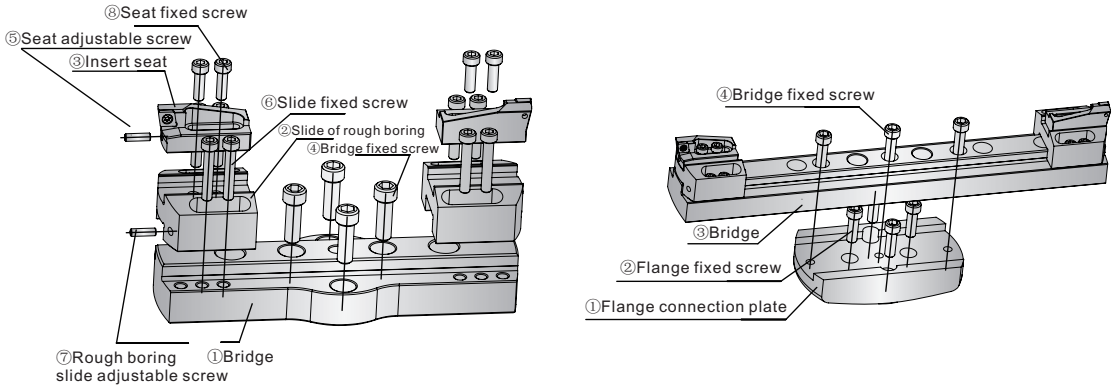


CLP Fine Bore head

CMR/CLP fine boring head

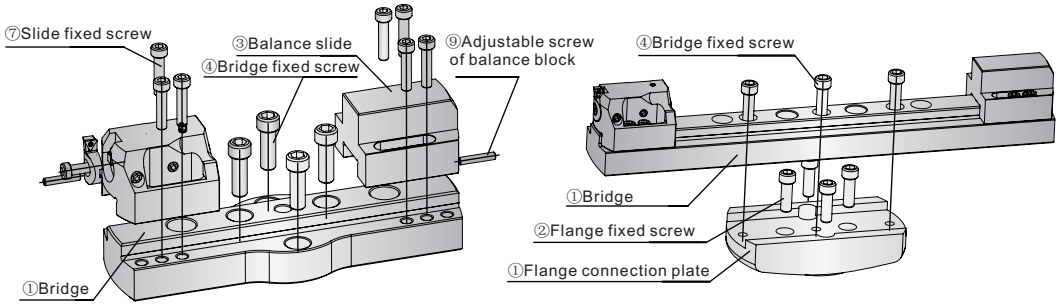
Designation	⑦ Slide Fixed screw	Slide Fixed wrench	⑧ seat Fixed wrench	Seat Fixed wrench	⑨
CMP20-36CK1	PMM4X4	TS2	SFM3X4.5	TS2	DM2X4 (TP08)
CMP25-47CK2	PFM4X6(CK2)		SFM3X6		
CMP32-60CK3	PFM5X8（CK3）	TS2.5	SFM4X8	TS2.5	
CMP41-74CK4	PFM6X10(CK4)	TS3	SFM5X10	TS3	DM2.5X6 (TC1102)
CMP53-95CK5	PFM8X12(CK5)	TS4	SFM5X12	TS4	
CMP68-150CK6	PFM10X16(CK6)	TS5	SFM8X12	TS5	
CMP100-203CK6			SFM8X20		
LP 150	PFM10X16(CK6)	PS-5B	SFM8X20	PS-5B	
	PMM10X8				

CLR rough boring head



Designation	② Flange Fixed screw	④ Bridge Fixed screw	⑥ Slide Fixed screw	⑧ Seat Fixed screw	⑦ Slide Adjustable screw	⑤ Seat Adjustable screw
CLR150-530	/	CLM12X35	LM8X45	LRM8X30	PMM6X20	PMM6X20
CLR530-850	CLM12X35	CLM12X70				

CLP fine boring head

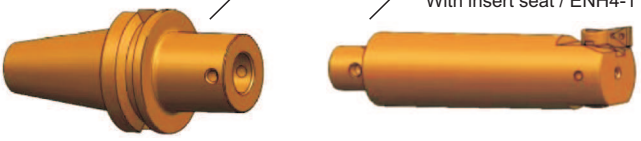


Designation	② Flange Fixed screw	④ Bridge Fixed screw	⑦ Slide Fixed screw	⑧ Adjustable screw of fine-tuningBlock	⑨ Adjustable screwof Balance Block
CLP150-210	/	CLM12X35	LM8X45	PMM6X30	PMM6x16
CLP210-530	/				PMM6X20
CLP530-850	CLM12X35	CLM12X70			PMM6X20

Damped fine boring head

1.Internal anti-vibration mechanical device
2.Processing range ∅20-∅203

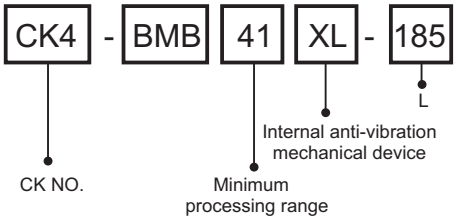
Please select the same model of CK interface

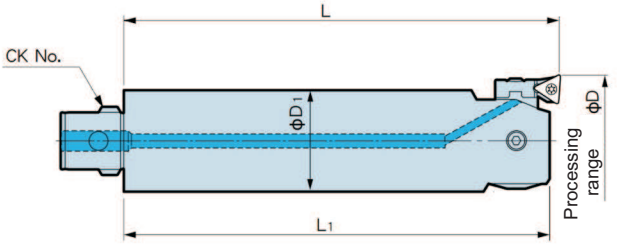


CK connection
(BBT BT IV DV ST SK HSK)
BBT40-CK4-90

Anti-vibration boring head
CK4-BMB41XL-185

Model Description





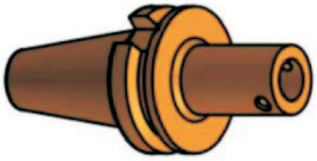
Designation	CK connection	Insert seat CK No.	Processing range ØD	ØD1	L	Weight(Kg)	Insert
CK1-BMB20XL-100	CK1	ENH1-1	20-26	19	100	0.3	TP08
		ENH1-2	25-31				
		ENH1-3	30-36				
CK2-BMB25XL-125	CK2	ENH2-1	25-33	24	125	0.6	
		ENH2-2	32-40				
		ENH2-3	39-47				
CK3-BMB32XL-160	CK3	ENH3-1	32-42	29	160	1.2	
		ENH3-2	41-57				
		ENH3-3	50-60				
CK4-BMB41XL-185	CK4	ENH4-1	41-54	39	185	2.3	TC11
		ENH4-2	50-63				
		ENH4-3	61-74				
CK5-BMB53XL-210	CK5	ENH5-1	53-70	50	210	4.4	
		ENH5-2	65-82				
		ENH5-3	78-95				
CK6-BMB68XL-240	CK6	ENH6-1	68-100	64	240	8.3	
		ENH6-2	94-126				
		ENH6-3	118-150				
CK6-BMB100XL-240	CK6	ENH6-1	100-153	64	240	8.8	
		ENH6-2	126-179				
		ENH6-3	150-203				
CK7-BMB100XL-240	CK7	ENH6-1	100-153	90	240	16.4	
		ENH6-2	126-179				
		ENH6-3	150-203				

◆The maximum and minimum machining diameters are when insert tip radius R is 0.4
◆ENHO-1 insert seat is included,please order ENHO-2 and 3 separately
◆Insert is not included

Damped rough boring head

1.Internal anti-vibration mechanical device
2.Processing range ∅20-∅164
3.Anti-vibration RB rough head

Center Cooling

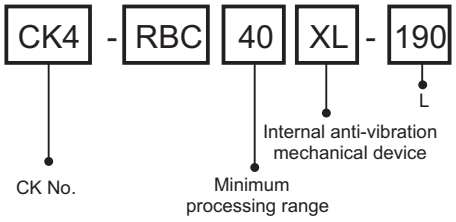


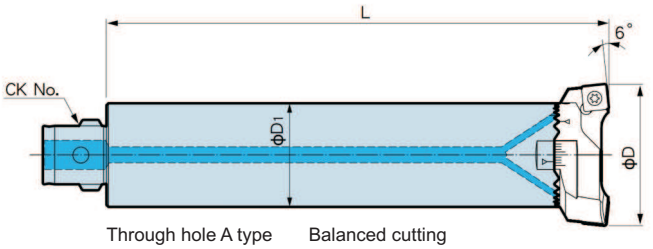
BT40-CK4-90

CK4-RBC40XL-190

RBC4055

Model Description

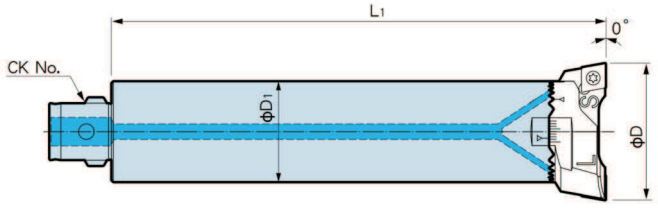




Through hole A type Balanced cutting

Through hole A type

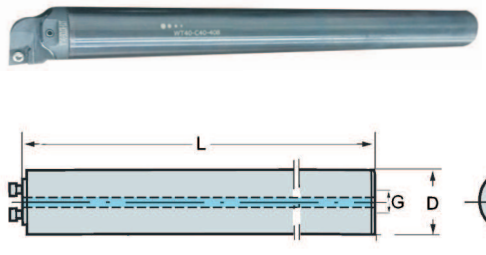
Processing range Ød	Boring head No.	CK No.	Insert seat model	Insert	ØD1	L	KG
20~25	CK1-RBS20XL-105	CK1	RBS2025A	SC06	19	105	0.3
25~35	CK2-RBS25XL-130	CK2	RBS2535A		24	130	0.6
32~45	CK3-RBS32XL-165	CK3	RBS3245A		31	165	1.2
40~50	CK4-RBS40XL-190	CK4	RBS4055A	SC09	39	190	2.3
52~75	CK5-RBS52XL-220	CK5	RBS5275A		50	220	4.4
68~92	CK6-RBS68XL-245	CK6	RBS6895A	SC12	64	245	8.3
90~122	CK6-RBS90XL-245	CK6	RBS90122A		64	245	8.8
120~164	CK7-RBS120XL-245	CK7	RBS122164A		88	245	16.4

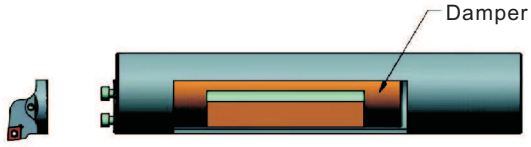


Blind hole E type

Processing range Ød	Boring head No.	CK No.	Insert seat model	Insert	ØD1	L	KG
20~25	CK1-RBC20XL-105	CK1	RBC2025E	CC06	19	105	0.3
25~35	CK2-RBC25XL-130	CK2	RBC2535E		24	130	0.6
32~45	CK3-RBC32XL-165	CK3	RBC3245E		31	165	1.2
40~50	CK4-RBC40XL-190	CK4	RBC4055E	CC09	39	190	2.3
52~75	CK5-RBC52XL-220	CK5	RBC5275E		50	220	4.4
68~92	CK6-RBC68XL-245	CK6	RBC6895E	CC12	64	245	8.3
90~122	CK6-RBC90XL-245	CK6	RBC90122E		64	245	8.8
120~164	CK7-RBC120XL-245	CK7	RBC122164E		88	245	16.4

Damped turning tool holder



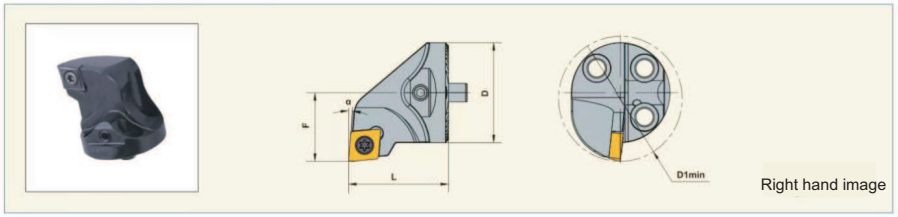


The clamping part is 4 times longer than holder's diameter

Designation	D	D1	L	G	Head
WT16 C16-156	16	16	156	G1/8	WT16
WT16 C16-204			204		
WT20 C20-200	20	20	200	G1/4	WT20
WT20 C20-260			260		
WT20 C20-320S			320		
WT25 C25-255	25	25	255		WT25
WT25 C25-330			330		
WT25 C25-380S			380		
WT25 C25-430S			430		
WT32 C32-320	32	32	320	G3/8	WT32
WT32 C32-416			416		
WT32 C32-480S			480		
WT32 C32-544S			544		
WT40 C40-408	40	40	408	G1/2	WT40
WT40 C40-528			528		
WT40 C40-608S			608		
WT40 C40-688S			688		
WT40 C50-518	50		518		
WT40 C50-668			668		
WT40 C50-768S			768		
WT40 C50-868			868		
WT40 C60-628	60		628	G3/4	
WT40 C60-808			808		
WT40 C60-920			920		
WT40 C60-1040			1040		
WT40 C80-880	80		880		
WT40 C80-1200			1200		
WT40 C80-1400			1400		
WT40 C100-1100	100		1100		
WT40 C100-1500			1500		
WT40 C120-1900	120		1900		
WT40 C130-2000	130		2000		
WT40 C140-2200	140		2200		
WT40 C150-2400	150		2400		
WT40 C160-2600	160		2600		

Cartridge for Damping Turning Tool Holder

Positive Type 95° Boring

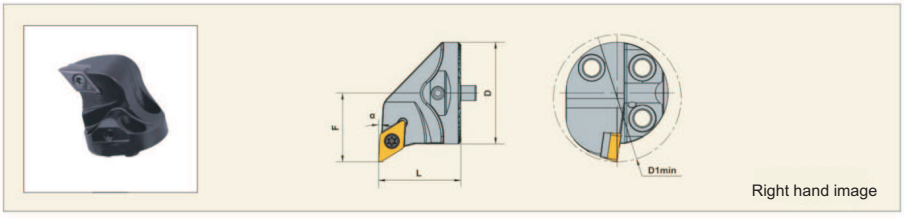


Designation	D	D1min	F	L	α°	Kg	Insert	Stock
WT16 SCLCR-06	16	20	11	20	5°	0.02	CC..0602..	O
WT20 SCLCR-09	20	25	13	20	5°	0.03	CC..09T3..	O
WT25 SCLCR-09	25	32	17	20	5°	0.04	CC..09T3..	O
WT32 SCLCR-09	32	40	22	32	5°	0.1	CC..09T3..	O
WT40 SCLCR-12T	40	50	27	38	5°	0.2	CC..1204..	O
WT16 SCLCL-06	16	20	11	20	5°	0.02	CC..0602..	O
WT20 SCLCL-09	20	25	13	20	5°	0.03	CC..09T3..	O
WT25 SCLCL-09	25	32	17	20	5°	0.04	CC..09T3..	O
WT32 SCLCL-09	32	40	22	32	5°	0.1	CC..09T3..	O
WT40 SCLCL-12T	40	50	27	38	5°	0.2	CC..1204..	O

Designation	Screw for insert	Wrench	Shim	Sleeve for shim	Wrench for shim	Locating pin
WT16..-06	SR21 M2.5x5.3	KEY02 T7	-	-	-	FT39 D4-3x7
WT20..-09	SR21 M4x9.5	KET02 T15	-	-	-	FT39 D6-5x8
WT25..-09	SR21 M4x9.5	KEY02 T15	-	-	-	FT39 D6-5x9
WT32..-09	SR21 M4x9.5	KEY02 T15	-	-	-	FT39 D6-5x11
WT40..-12T	SR21 M5x12.8	KEY02 T20	ST01 CC12x2.8	SRT M7-M5x13	KEY01 M3	FT39 D6-5x11

Cartridge for Damping Turning Tool Holder

Positive Type 93° Boring

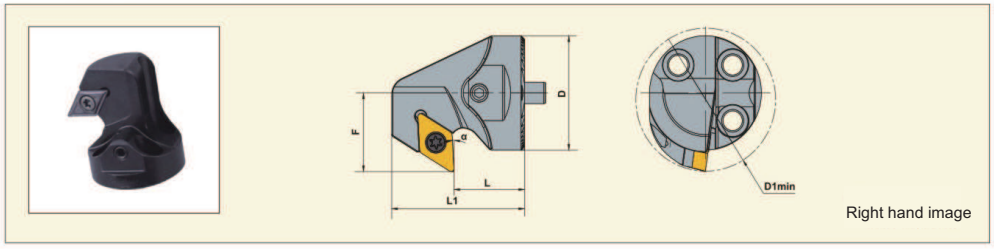


Designation	D	D1min	F	L	α°	Kg	Insert	Stock
WT16 SDUCR-07	16	20	11	20	3°	0.02	DC..0702..	O
WT20 SDUCR-11	20	25	13	20	3°	0.03	DC..11T3..	O
WT25 SDUCR-11	25	32	17	20	3°	0.04	DC..11T3..	O
WT32 SDUCR-11T	32	40	22	32	3°	0.1	DC..11T3..	O
WT40 SDUCR-11T	40	50	27	32	3°	0.2	DC..11T3..	O
WT16 SDUCL-07	16	20	11	20	3°	0.02	DC..0702..	O
WT20 SDUCL-11	20	25	13	20	3°	0.03	DC..11T3..	O
WT25 SDUCL-11	25	32	17	20	3°	0.04	DC..11T3..	O
WT32 SDUCL-11T	32	40	22	32	3°	0.1	DC..11T3..	O
WT40 SDUCL-11T	40	50	27	32	3°	0.2	DC..11T3..	O

Designation	Screw for insert	Wrench	Shim	Sleeve for shim	Wrench for shim	Locating pin
WT16..-07	SR21 M2.5x5.3	KEY02 T7	-	-	-	FT39 D4-3x7
WT20..-11	SR21 M4x11	KEY02 T15	-	-	-	FT39 D6-5x8
WT25..-11	SR21 M4x11	KEY02 T15	-	-	-	FT39 D6-5x9
WT32..-11T	SR21 M4x11	KEY02 T15	ST01 DC11x2.82	SRT M6-M4x6.9	KEY01 M4	FT39 D6-5x11
WT40..-11T	SR21 M4x11	KEY02 T15	ST01 DC11x2.82	SRT M6-M4x6.9	KEY01 M4	FT39 D6-5x11

Cartridge for Damping Turning Tool Holder

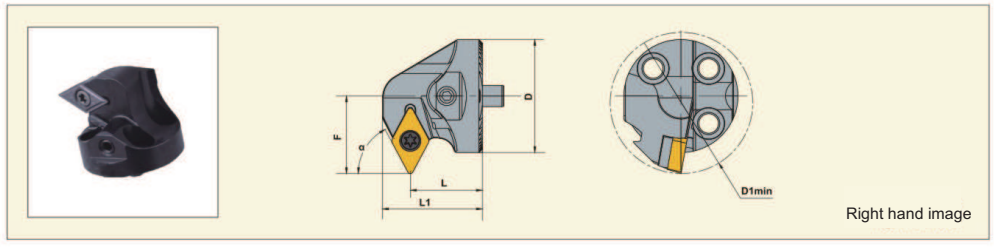
Positive Type 93° Back Boring



Designation	D	D1min	F	L	L1	α°	Kg	Insert	Stock
WT16 SDZCR-07	16	22	13	15	27	3°	0.03	DC..0702..	O
WT20 SDZCR-07	20	27	15	15	27	3°	0.05	DC..0702..	O
WT25 SDZCR-07	25	33	18	15	27	3°	0.12	DC..0702..	O
WT32 SDZCR-11T	32	40	22	20	38	3°	0.14	DC..11T3..	O
WT40 SDZCR-11T	40	50	27	20	38	3°	0.19	DC..11T3..	O
WT16 SDZCL-07	16	22	13	15	27	3°	0.03	DC..0702..	O
WT20 SDZCL-07	20	27	15	15	27	3°	0.05	DC..0702..	O
WT25 SDZCL-07	25	33	18	15	27	3°	0.12	DC..0702..	O
WT32 SDZCL-11T	32	40	22	20	38	3°	0.14	DC..11T3..	O
WT40 SDZCL-11T	40	50	27	20	38	3°	0.19	DC..11T3..	O

Designation	Screw for insert	Wrench	Shim	Sleeve for shim	Wrench for shim	Locating pin
WT16..-07	SR21 M2.5x5.3	KEY02 T7	-	-	-	FT39 D4-3x7
WT20..-07	SR21 M2.5x5.3	KEY02 T7	-	-	-	FT39 D6-5x8
WT25..-07	SR21 M2.5x5.3	KEY02 T7	-	-	-	FT39 D6-5x9
WT32..-11T	SR21 M4x11	KEY02 T15	ST01 DC11x2.82	SRT M6-M4x6.9	KEY01 M4	FT39 D6-5x11
WT40..-11T	SR21 M4x11	KEY02 T15	ST01 DC11x2.82	SRT M6-M4x6.9	KEY01 M4	FT39 D6-5x11

Positive Type 62.5° Profile-turning

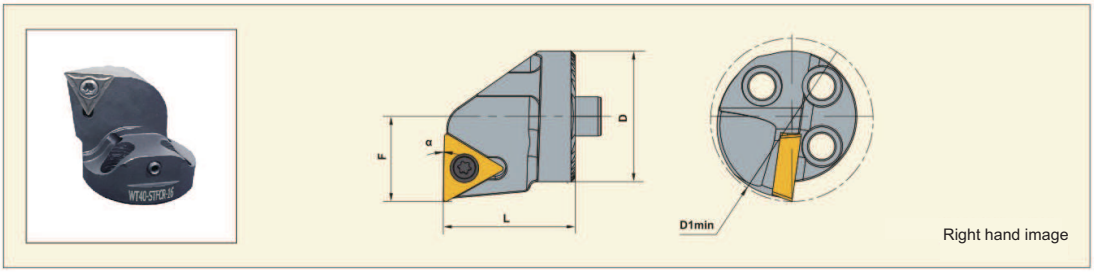


Designation	D	D1min	F	L	L1	α°	Kg	Insert	Stock
WT16 SDPCR-07	16	22	13	15	19	62.5°	0.01	DC..0702..	O
WT20 SDPCR-07	20	27	15	15	19	62.5°	0.02	DC..0702..	O
WT25 SDPCR-07	25	33	18	15	19	62.5°	0.03	DC..0702..	O
WT32 SDPCR-11T	32	40	22	20	28	62.5°	0.09	DC..11T3..	O
WT40 SDPCR-11T	40	50	27	20	28	62.5°	0.14	DC..11T3..	O
WT16 SDPCL-07	16	22	13	15	19	62.5°	0.01	DC..0702..	O
WT20 SDPCL-07	20	27	15	15	19	62.5°	0.02	DC..0702..	O
WT25 SDPCL-07	25	33	18	15	19	62.5°	0.03	DC..0702..	O
WT32 SDPCL-11T	32	40	22	20	28	62.5°	0.09	DC..11T3..	O
WT40 SDPCL-11T	40	50	27	20	28	62.5°	0.14	DC..11T3..	O

Designation	Screw for insert	Wrench	Shim	Sleeve for shim	Wrench for shim	Locating pin
WT16..-07	SR21 M2.5x5.3	KEY02 T7	-	-	-	FT39 D4-3x7
WT20..-07	SR21 M2.5x5.3	KEY02 T7	-	-	-	FT39 D6-5x8
WT25..-07	SR21 M2.5x5.3	KEY02 T7	-	-	-	FT39 D6-5x9
WT32..-11T	SR21 M4x11	KEY02 T15	ST01 DC11x2.82	SRT M6-M4x6.9	KEY01 M4	FT39 D6-5x11
WT40..-11T	SR21 M4x11	KEY02 T15	ST01 DC11x2.82	SRT M6-M4x6.9	KEY01 M4	FT39 D6-5x11

Cartridge for Damping Turning Tool Holder

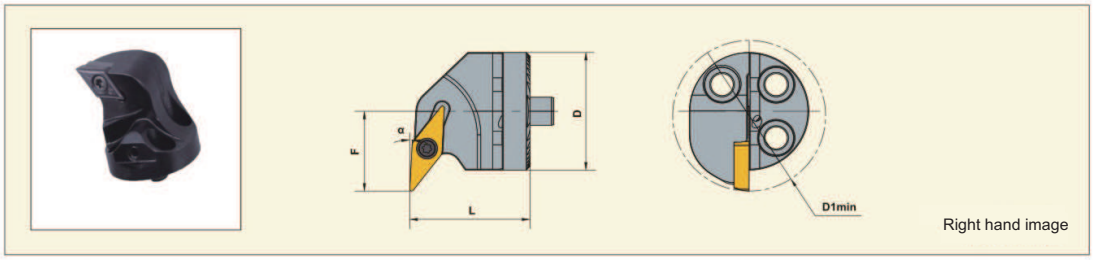
Positive Type 91° Profile-turning



Designation	D	D1min	F	L	α°	Kg	Insert	Stock
WT16 STFCR-09	16	20	11	20	1°	0.02	TC..0902..	O
WT16 STFCR-11	16	20	11	20	1°	0.02	TC..1102..	O
WT20 STFCR-11	20	25	13	20	1°	0.03	TC..1102..	O
WT25 STFCR-11	25	32	17	20	1°	0.04	TC..1102..	O
WT32 STFCR-16	32	40	22	32	1°	0.10	TC..16T3..	O
WT40 STFCR-16	40	50	27	32	1°	0.20	TC..16T3..	O
WT16 STFCL-09	16	20	11	20	1°	0.02	TC..0902..	O
WT16 STFCL-11	16	20	11	20	1°	0.02	TC..1102..	O
WT20 STFCL-11	20	25	13	20	1°	0.03	TC..1102..	O
WT25 STFCL-11	25	32	17	20	1°	0.04	TC..1102..	O
WT32 STFCL-16	32	40	22	32	1°	0.10	TC..16T3..	O
WT40 STFCL-16	40	50	27	32	1°	0.20	TC..16T3..	O

Designation	Screw for insert	Wrench	Locating pin
WT16..-09	SR20 M2.2x5.6	KEY02 T7	FT39 D4-3x7
WT16..-11	SR20 M2.5x6	KEY02 T8	FT39 D4-3x7
WT20..-11	SR20 M2.5x6	KEY02 T8	FT39 D6-5x8
WT25..-11	SR20 M2.5x6	KEY02 T8	FT39 D6-5x9
WT32..-16	SR21 M4x9.5	KEY02 T15	FT39 D6-5x11
WT40..-16	SR21 M4x9.5	KEY02 T15	FT39 D6-5x11

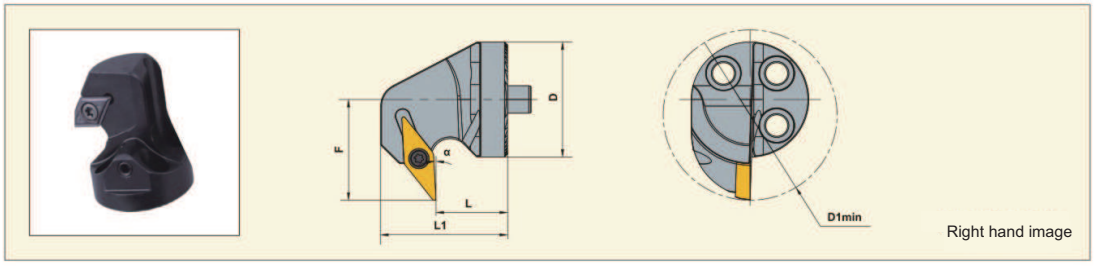
Positive Type 93° Boring and Profile-turning



Designation	D	D1min	F	L	α°	Kg	Insert	Stock
WT20 SVUCR-11	20	27	16	20	3°	0.02	VC..1103..	O
WT25 SVUCR-11	25	31	17	25	3°	0.04	VC..1103..	O
WT20 SVUCL-11	20	27	16	20	3°	0.02	VC..1103..	O
WT25 SVUCL-11	25	31	17	25	3°	0.04	VC..1103..	O

Designation	Screw for shim	Wrench for shim	Locating pin
WT20..-11	SR20 M2.5x6	KEY02 T8	FT39 D6-5x8
WT25..-11	SR20 M2.5x6	KEY02 T8	FT39 D6-5x9

Positive Type 93° Back Boring and Profile-turning



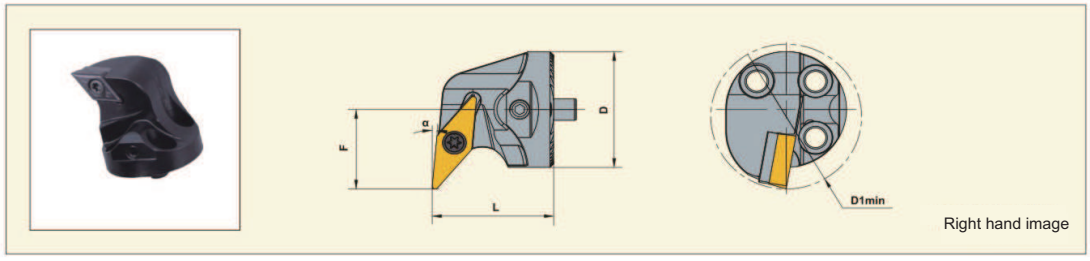
Designation	D	D1min	F	L	α°	Kg	Insert	Stock
WT20 SVZCR-11	20	32	20	15	3°	0.03	VC..1103..	O
WT25 SVZCR-11	25	37	22	15	3°	0.05	VC..1103..	O
WT20 SVZCL-11	20	32	20	15	3°	0.03	VC..1103..	O
WT25 SVZCL-11	25	37	22	15	3°	0.05	VC..1103..	O

Spare Parts

Designation	Screw for insert	Wrench	Locating pin
WT20..-11	SR20 M2.5x6	KEY02 T8	FT38 D6-5x8
WT25..-11	SR20 M2.5x6	KEY02 T8	FT39 D6-5x9

Cartridge for Damping Turning Tool Holder

Positive Type 95° Boring and Profile-turning

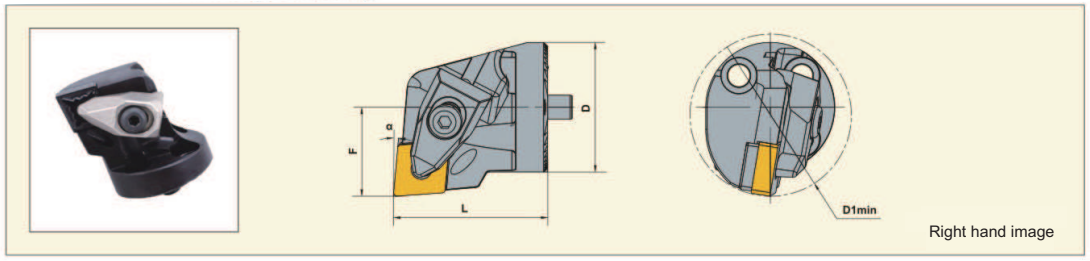


Designation	D	D1min	F	L	α°	Kg	Insert	Stock
WT32 SVLCR-16T	32	40	22	32	5°	0.1	VC..1604..	O
WT40 SVLCR-16T	40	50	27	32	5°	0.15	VC..1604..	O
WT32 SVLCL-16T	32	40	22	32	5°	0.1	VC..1604..	O
WT40 SVLCL-16T	40	50	27	32	5°	0.15	VC..1604..	O

Spare Parts

Designation	Screw for insert	Wrench	Shim	Sleeve for shim	Wrench for shim	Locating pin
WT32..-16T	SR21 M4x11	KEY02 T15	ST01 VC16x2.82	SRT M6-M4x6.9	KEY01 M4	FT39 D6-5x11
WT40..-16T	SR21 M4x11	KEY02 T15	ST01 VC16x2.82	SRT M6-M4x6.9	KEY01 M4	FT39 D6-5x11

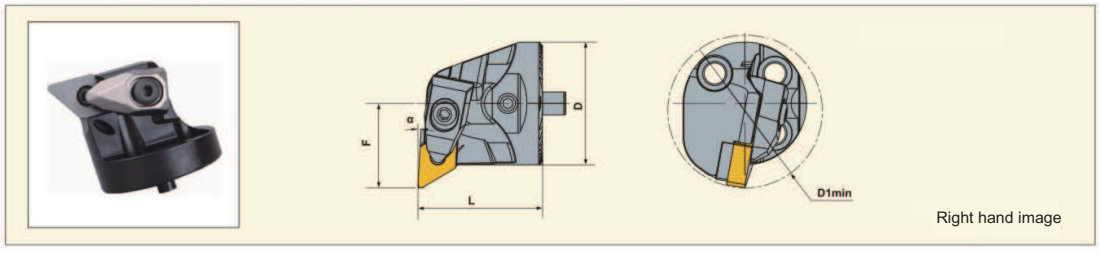
Negative Type 95° Boring



Designation	D	D1min	F	L	α°	Kg	Insert	Stock
WT32 DCLNR-12T	32	40	22	38	5°	0.12	CN..1204..	O
WT40 DCLNR-12T	40	50	27	38	5°	0.21	CN..1204..	O
WT32 DCLNL-12T	32	40	22	38	5°	0.12	CN..1204..	O
WT40 DCLNL-12T	40	50	27	38	5°	0.21	CN..1204..	O

Designation	Clamp	Spring for clamp	Screw for clamp	Shim	Wrench for clamp	Screw for shim	Wrench for shim	Locating pin
WT32..-12T	PB10 DCN12	YH 8x0.6x13	SR59 M5x20	ST01 CN12x3.2	KEY01 M3	SR20 M5x10	KEY02 T20	FT39 D6-5x11
WT40..-12T	PB10 DCN12	YH 8x0.6x13	SR59 M5x20	ST01 CN12x3.2	KEY01 M3	SR20 M5x10	KEY02 T20	FT39 D6-5x11

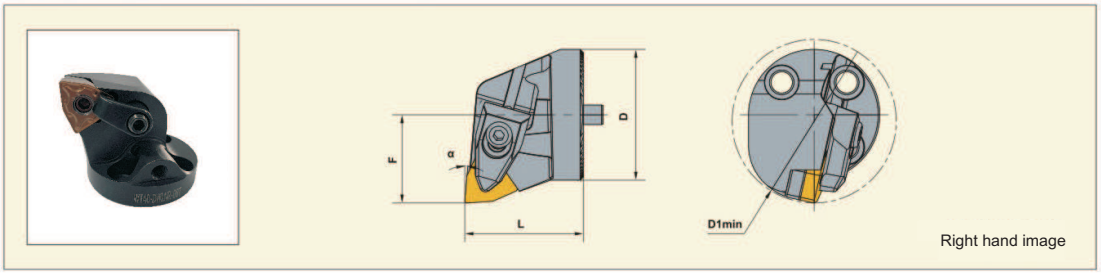
Negative Type 93° Boring and Profile-turning



Designation	D	D1min	F	L	α°	Kg	Insert	Stock
WT32 DDUNL-11T	32	40	22	32	3°	0.11	DN..1104..	O
WT40 DDUNL-15T	40	50	27	38	3°	0.18	DN..1506..	O
WT32 DDUNR-11T	32	40	22	32	3°	0.11	DN..1104..	O
WT40 DDUNR-15T	40	50	27	38	3°	0.18	DN..1506..	O
WT40 DVUNR-16T	40	56	34	38	3°	0.2	VN..1604..	O
WT40 DVUNL-16T	40	56	34	38	3°	0.2	VN..1604..	O

Designation	Clamp	Spring for clamp	Screw for clamp	Shim	Wrench for clamp	Screw for shim	Wrench for shim	Locating pin
WT32..-11T	PB10 DDN11	YH 7x0.6x13	SR59 M4x16	ST01 DN11x3.18	KEY01 M2.5	SR21 M4x9.5	KEY02 T15	FT39 D6-5x11
WT40..-15T	PB10 DCN12	YH 8x0.6x13	SR59 M5x20	ST01 DN15x4.76	KEY01 M3	SR20 M4x11.5	KEY02 T15	FT39 D6-5x11
WT40..-16T	PB10 DVN16	YH 9x0.8x14	SR59 M6x26.5	ST01 VN16x3.2	KEY01 M4	SR20 M3.5x8.5	KEY02 T10	FT39 D6-5x11

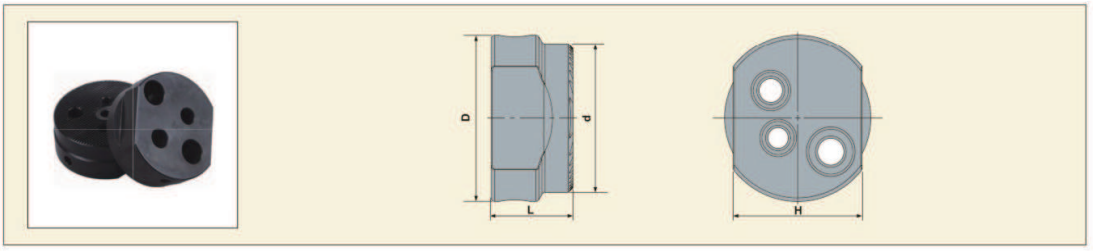
Positive Type 95° Profile-turning



Designation	D	D1min	F	L	α°	Kg	Insert	Stock
WT32 DWLNR-06T	32	40	22	32	5°	0.11	WN..0604..	O
WT32 DWLNR-08T	32	46	24	36	5°	0.12	WN..0804..	O
WT40 DWLNR-08T	40	50	27	36	5°	0.23	WN..0804..	O
WT32 DWLNL-06T	32	40	22	32	5°	0.11	WN..0604..	O
WT32 DWLNL-08T	32	46	24	36	5°	0.12	WN..0804..	O
WT40 DWLNL-08T	40	50	27	36	5°	0.23	WN..0804..	O

Designation	Clamp	Spring for clamp	Screw for clamp	Shim	Wrench for clamp	Screw for shim	Wrench for shim	Locating pin
WT32..-06T	PB10 DDN11	YH 7x0.6x13	SR59 M4x16	ST01 WN06x3.18	KEY01 M2.5	SR20 M4x9.5	KEY02 T15	FT39 D6-5x11
WT32..-08T	PB10 DCN12	YH 8x0.6x13	SR59 M5x20	ST01 WN08x3.18	KEY01 M3	SR20 M5x10	KEY02 T20	FT39 D6-5x11
WT40..-08T	PB10 DCN12	YH 8x0.6x13	SR59 M5x20	ST01 WN08x6.35	KEY01 M3	SR20 M4x9.5	KEY02 T15	ST39 D6-5x11

Centre Calibration Block

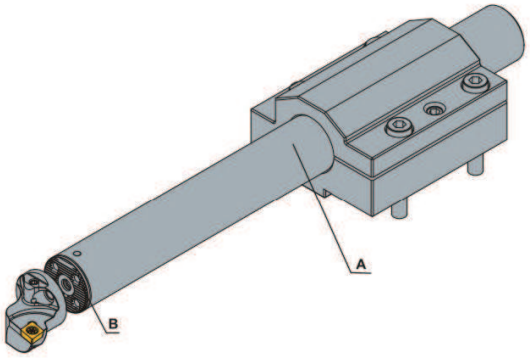


Designation	D	d	H	L	Boring holder	Kg	Stock
WTXZ 16-25	28	25	22	14	WT16/WT20/WT25	0.05	O
WTXZ 32-60	62	60	52	25	WT32/WT40/WT50/WT60	0.45	O

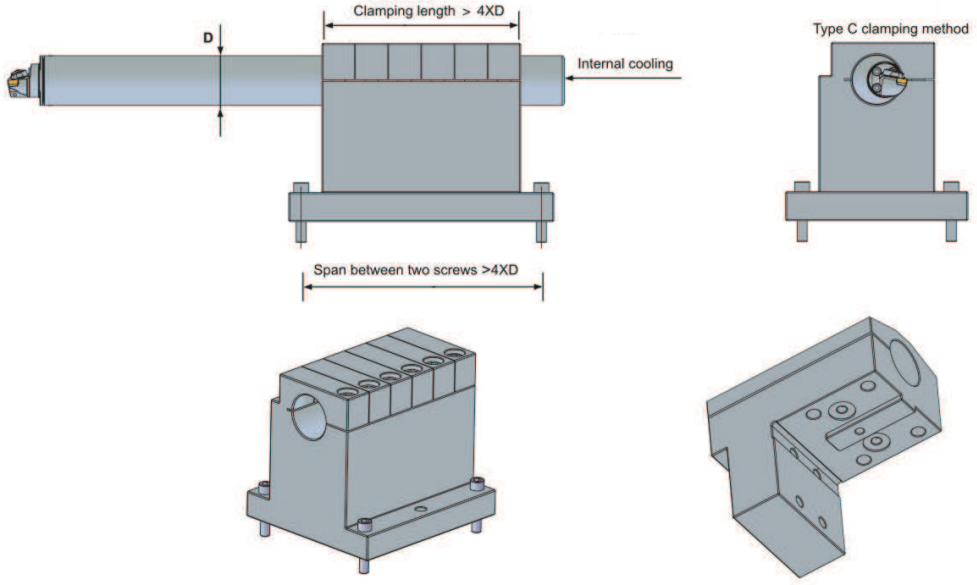
User Guide for Damping Turning Tool

Assembly and Adjusting

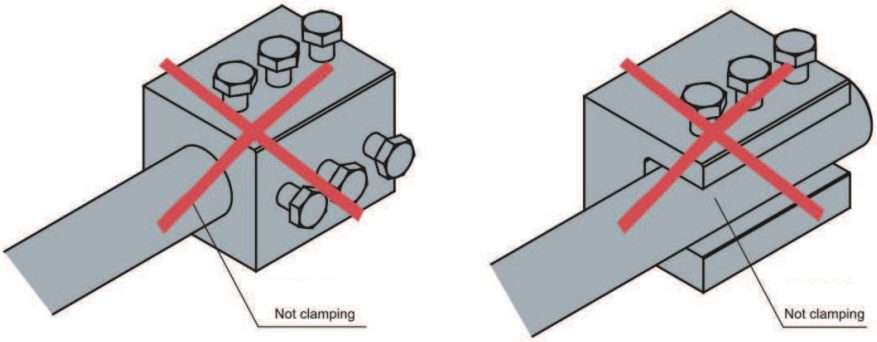
Preparation
Wipe clean the positions which need to be assembled,like V-shaped locating slot on the cartridge and shank,the end of the shank which will be connected with adaptor,and internal hole on the clamping holder.See A and B positions in the following visual.



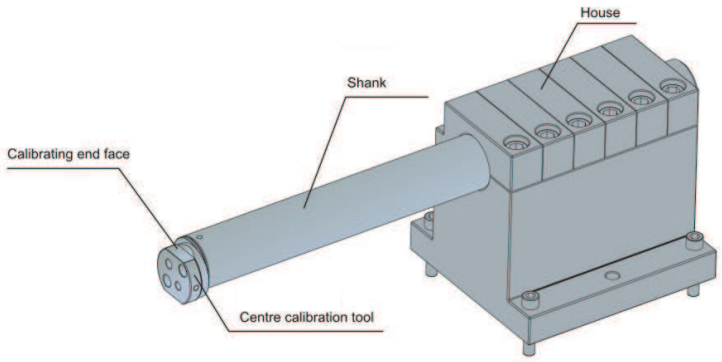
Assembly for the Shank
The clamping langth should not be less than 4 L/D ratio.Suggest using the clamping cover with opening method and other holding clamping methods.Do not use screw clamping method.Use inner cooling please when working a long time.



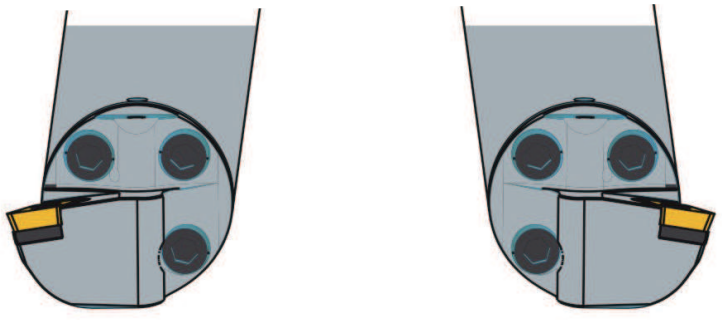
User Guide for Damping Turning Tool



Adjusting the Height of Centre
Exclusive calibration tool for the height of centre should be used when assembling the shank for the first time. Assemble the shank into the V geometric slot firstly,then calibrate it within 0.01 tolerance on the X-axis direction.



Assemble the right cartidge,as below picture



User Guide for Damping Turning Tool

Adjusting the Length of the Shank

1.Recommended minimum clamping length 4XD
2.The boring bar can be modified,and length after cutting is as shown in the following table

Type	Min.length after cutting off (L)	
D（mm）	4-7xD（mm）	7-10xD（mm）
16	100	-
20	125	-
25	155	255
32	190	320
40	240	410
50	305	520
60	380	630

Environment for Damping Turning Tool

Designation	Overhang length	MAX（Bar） MAX：Internal cooling pressure	MAX（℃） Operating temperature
WT16 C16X156	7	30	100
WT16 C16X204	10	30	100
WT20 C20X200	7	30	100
WT20 C20X260	10	30	100
WT25 C25X255	7	40	100
WT25 C25X330	10	40	100
WT32 C32X320	7	50	100
WT32 C32X416	10	50	100
WT40 C40X408	7	70	100
WT40 C40X528	10	70	100
WT40 C50X518	7	70	100
WT40 C50X668	10	70	100
WT40 C60X628	7	70	100
WT40 C60X808	10	70	100
WT40 C80X880	7	70	100
WT40 C80X1200	10	70	100

Directory

E

01 **JIS B6339 BT** E1-E21

02 **DIN69871 SK** E22-P35

03 **DIN69893 HSK-A** E36-E54

04 **ACCESSORY** E55-E84

Hydraulic Chuck

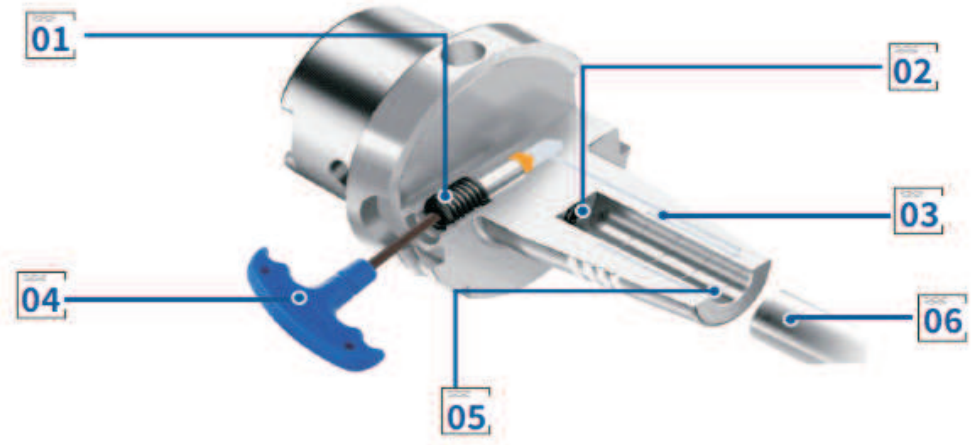
BT P1-P4

SK P22-P24

HSK P36-P39

For drilling reaming,boring,milling
and other cutting machining
Coupling type: BT/HSK/SK
Runout≤0. 003mm at 2.5D
Balancing Grade: G2.5 at 25,000 rpm or
Umax＜1g • mm

Hydraulic Chuck Construction



01 Lock Screw

Tighten the locking screw to a firm stop.

02 Adjust Screw

To preset cutting tools.

03 Expansion Sleeve and Chamber System

The chamber system is filled with hydraulic fluid, exerting a damping effect on the clamped tool.

04 Hex Key

To tighten the locking screw for fast cutting tool change.

05 The Grooves

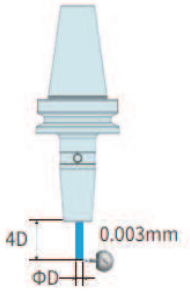
The large clamping pressure creates a displacement of oil, grease, or lubricant residues into the groove, so bore surfaces remains dry.

06 Cutting Tool

The cutting tool is clamped with high run-out.

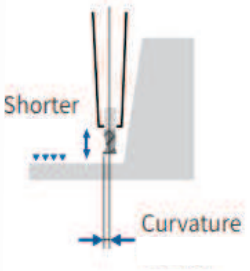
Shrink Fit Chuck

- **BT** P5-P7
- **SK** P25-P26
- **HSK** P40-P42



High Precision

High Clamping Force



Deep Cavity Machining

GSK High Speed Collet Chuck

- **BT** P8-P9
- **HSK** P43

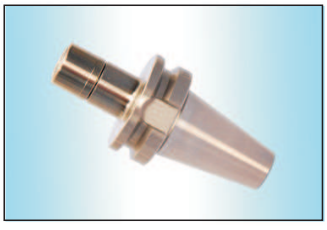
Precision taper: ⩽AT3 Material: 20CrMnTi

Hardness: 56-60HRC Carbon Depth: >0.8mm

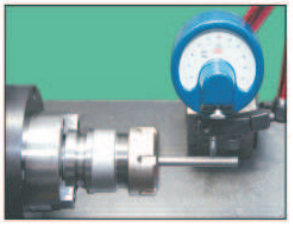
Balancing Grade: G2.5 30000rpm

Coaxiality 5μ: Shank runout⩽0.002;
Equip collet⩽0.005,The
highest comprehensive run out point is no more than0.005mm

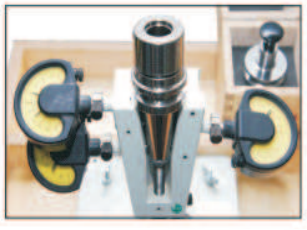
Overall nickel coating, including inside and outside cone, even if you do not take any anti-rust actions, it will not rust either, don't influence processing precision and spindle



Products Polish with chemical nickel coating



Inspection of coaxial degree (overall accuracy)



Picture of 7:24 taper inspection tool (German Diebold collet chuck inspection tool)

JIS B6339 BT

Hydraulic Chuck, Standard---------- **E1-3**

Hydraulic Chuck, Power Design---------- **E4**

Shrink Fit Chuck, 4.5° , Standard--------- **E5-7**

BT-GSK High Speed Collet Chuck-------- **E8-9**

BT-ER Collet Chuck---------- **E10-12**

Power Milling Chuck---------- **E13**

Face Mill Holder---------- **E14-16**

Side Lock Holder---------- **E17-18**

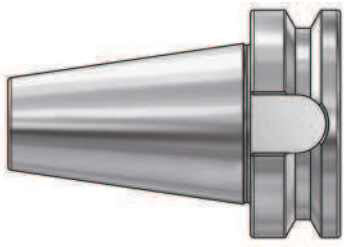
Morse Taper Adapter with Tang---------- **E19**

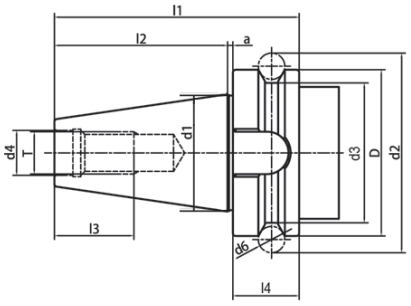
APU Drill Chuck Holder---------- **E20**

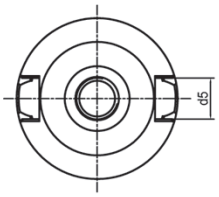
Precision Drill Chuck Holder---------- **E20**

Runout Adjustable Flange Adapter-------- **E21**

BT Taper Standard







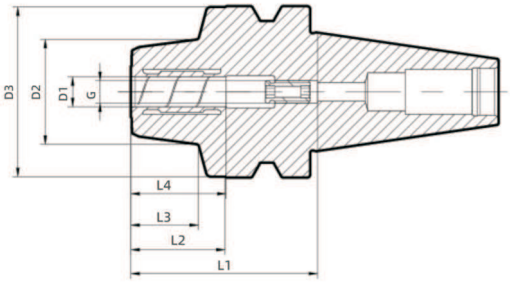
Unit:mm

Size	D	d1	d2	d3	d4	d5	d6	l1	l2	l3	l4	a	T
BT30	46	31.75	56.144	38	12.5	16.1	8	70.4	48.4	24	20	2	M12*1.75
BT40	63	44.45	75.679	53	17	16.1	10	92.4	65.4	30	25	2	M16*2.0
BT50	100	69.85	119.019	85	25	25.7	15	139.8	101.8	45	35	3	M24*3.0

Taper standard: JIS B 6339
Material: Alloyed case hardened steel
Surface Treatment: Blackening and Bright
Taper tolerance:
Hardness: HRC 56-60
Carbon depth: 0.8±0.2mm
Surface Roughness: <0.2μm
Balancing: G6.3/15000: G2.5/25000
Cooling: AD; AD/B can be made by request.

Hydraulic Chuck,Standard

A ↗	RPM	
⩽0.003	G2.5/25000	AD



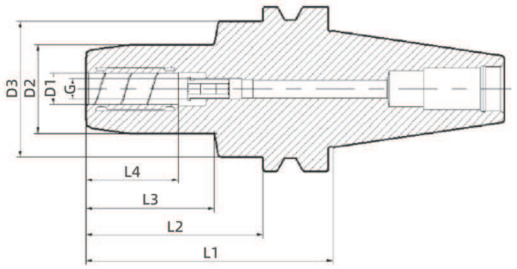
Unit:mm

Size	D1	D2	D3	L1	L2	L3	L4	Wrench
BT30THY06050M	6	26	45.5	50	25.2	17.4	26	SW5
BT30THY06100M	6	26	45.5	100	75.2	58.8	26	SW5
BT30THY08050M	8	28	45.5	50	25.2	19	26	SW5
BT30THY08100M	8	28	45.5	100	75.2	59.1	26	SW5
BT30THY10050M	10	30	45.5	50	25.2	17.4	30	SW5
BT30THY10100M	10	30	45.5	100	75.2	59.3	30	SW5
BT30THY12050M	12	32	45.5	50	25.2	17.4	36	SW5
BT30THY12100M	12	32	45.5	100	75.2	59.6	36	SW5
BT30THY16090M	16	38	45.5	90	65.2	50.4	40	SW5
BT30THY20090M	20	42	45.5	90	65.2	50.9	41	SW5
BT30THY20100M	20	42	45.5	100	75.2	60.9	41	SW5

★Collet and Drive Key need to be ordered separately.
★Collet E55-E61,Drive Key E81

Hydraulic Chuck,Standard

A ↗	RPM	
≤0.003	G2.5/25000	AD



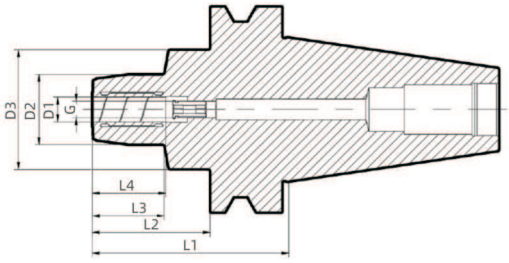
Unit:mm

Size	D1	D2	D3	L1	L2	L3	L4	Wrench
BT40THY06090M	6	26	52	90	63	43.6	26	SW5
BT40THY06140M	6	26	52	140	113	93.6	26	SW5
BT40THY08090M	8	28	52	90	63	43.8	26	SW5
BT40THY08140M	8	28	52	140	113	93.8	26	SW5
BT40THY10090M	10	30	52	90	63	44	30	SW5
BT40THY10140M	10	30	52	140	113	94	30	SW5
BT40THY12090M	12	32	52	90	63	44.1	36	SW5
BT40THY12140M	12	32	52	140	113	94.1	36	SW5
BT40THY16090M	16	38	52	90	63	44.7	40	SW5
BT40THY16140M	16	38	52	140	113	94.7	40	SW5
BT40THY20090M	20	42	52	90	63	45	41	SW5
BT40THY20140M	20	42	52	140	113	95	41	SW5

★Collet and Drive Key need to be ordered separately.
★Collet E55-E61,Drive Key E81

Hydraulic Chuck,Standard

A ↗	RPM	
≤0.003	G2.5/25000	AD



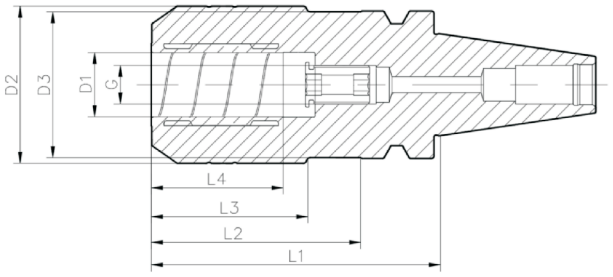
Unit:mm

Size	D1	D2	D3	L1	L2	L3	L4	Wrench
BT50THY06090M	6	26	58	90	52	29.1	26	SW5
BT50THY06140M	6	26	58	140	102	79.1	26	SW5
BT50THY08090M	8	28	58	90	52	29.3	26	SW5
BT50THY08140M	8	28	58	140	102	79.3	26	SW5
BT50THY10090M	10	30	58	90	52	29.4	30	SW5
BT50THY10140M	10	30	58	140	102	79.4	30	SW5
BT50THY12090M	12	32	58	90	52	31	36	SW5
BT50THY12140M	12	32	58	140	102	79.6	36	SW5
BT50THY16090M	16	38	58	90	52	30.1	40	SW5
BT50THY16140M	16	38	58	140	102	80.1	40	SW5
BT50THY20090M	20	42	58	90	52	31	41	SW5
BT50THY20140M	20	42	58	140	102	80.5	41	SW5
BT50THY32120M	32	63	75	120	82	60.8	51	SW6

★Collet and Drive Key need to be ordered separately.
★Collet E55-E61,Drive Key E81

Hydraulic Chuck,Power Design

A ↗	RPM	
≤0.003	G2.5/25000	AD



Unit:mm

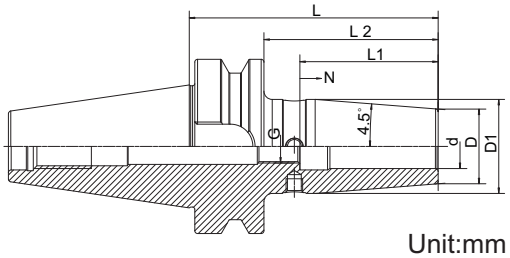
Size	D1	D2	D3	L1	L2	L3	L4	Wrench
HTBT30THY12069M	12	42	45.5	69	44.2	30	36	SW5
HTBT30THY20090M	20	49	45.5	90	65.2	47	41	SW5
HTBT40THY12058M	12	42	42	58	31	31	36	SW5
HTBT40THY16072M	16	49	49	72	45	45	40	SW5
HTBT40THY20072M	20	49	49	72	45	45	41	SW5
HTBT50THY12069M	12	42	42	69	31	31	36	SW5
HTBT50THY20083M	20	49	58	83	45	28	41	SW5
HTBT50THY32090M	32	72	72	90	52	52	51	SW6

★Collet and Drive Key need to be ordered separately.

★Collet E55-E61,Drive Key E81

Shrink Fit Chuck, 4.5° , Standard

A↗	RPM	
≤0.003	G2.5/25000	AD

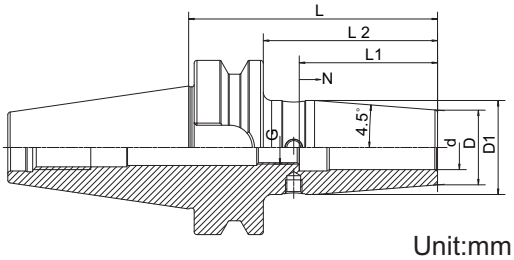


Unit:mm

Size	d	D	D1	L	L2	L1	N	G
BT30-SF04-80	4	15	20	80	58	-	-	-
BT30-SF06-80	6	21	27	80	58	36	10	M5
BT30-SF08-80	8	21	27	80	58	36	10	M6
BT30-SF10-80	10	24	30.5	80	58	42	10	M8x1
BT30-SF12-80	12	24	30.5	80	58	47	10	M10x1
BT30-SF14-80	14	27	33.5	80	58	47	10	M10x1
BT30-SF16-80	16	27	33.5	80	58	50	10	M12x1
BT30-SF18-80	18	33	39.5	80	58	50	10	M12x1
BT30-SF20-80	20	33	39.5	80	58	52	10	M16x1
BT40-SF04-80	4	15	20	80	53	-	-	-
BT40-SF06-90	6	21	27	90	63	36	10	M5
BT40-SF08-90	8	21	27	90	63	36	10	M6
BT40-SF10-90	10	24	31	90	63	42	10	M8x1
BT40-SF12-90	12	24	31	90	63	47	10	M10x1
BT40-SF14-90	14	27	34	90	63	47	10	M10x1
BT40-SF16-90	16	27	34	90	63	50	10	M12x1
BT40-SF18-90	18	33	40	90	63	50	10	M12x1
BT40-SF20-90	20	33	40	90	63	52	10	M16x1
BT40-SF25-100	25	44	53	100	73	58	10	M16x1
BT40-SF32-100	32	44	53	100	73	62	10	M16x1
BT40-SF04-120	4	15	20	120	93	-	-	-
BT40-SF06-120	6	21	27	120	93	36	10	M5

Shrink Fit Chuck, 4.5° , Standard

A↗	RPM	
≤0.003	G2.5/25000	AD

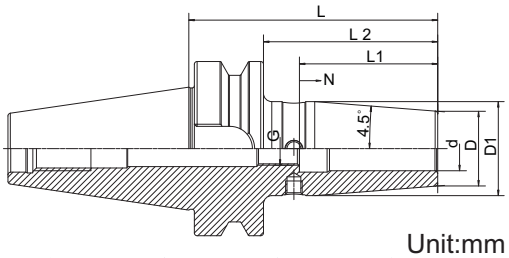


Unit:mm

Size	d	D	D1	L	L2	L1	N	G
BT40-SF08-120	8	21	27	120	93	36	10	M6
BT40-SF10-120	10	24	32	120	93	42	10	M8x1
BT40-SF12-120	12	24	32	120	93	47	10	M10x1
BT40-SF14-120	14	27	34	120	93	47	10	M10x1
BT40-SF16-120	16	27	34	120	93	50	10	M12x1
BT40-SF18-120	18	33	42	120	93	50	10	M12x1
BT40-SF20-120	20	33	42	120	93	52	10	M16x1
BT40-SF25-120	25	44	53	120	93	58	10	M16x1
BT40-SF32-120	32	44	53	120	93	62	10	M16x1
BT40-SF04-160	4	15	25	160	133	-	-	-
BT40-SF06-160	6	21	32	160	133	36	10	M5
BT40-SF08-160	8	21	32	160	133	36	10	M6
BT40-SF10-160	10	24	34	160	133	42	10	M8x1
BT40-SF12-160	12	24	34	160	133	47	10	M10x1
BT40-SF14-160	14	27	42	160	133	47	10	M10x1
BT40-SF16-160	16	27	42	160	133	50	10	M12x1
BT40-SF18-160	18	33	51	160	133	50	10	M12x1
BT40-SF20-160	20	33	51	160	133	52	10	M16x1
BT40-SF25-160	25	44	53	160	133	58	10	M16x1
BT40-SF32-160	32	44	60	160	133	62	10	M16x1

Shrink Fit Chuck, 4.5° , Standard

A↗	RPM	
≤0.003	G2.5/25000	AD



Unit:mm

Size	d	D	D1	L	L2	L1	N	G
BT50-SF06-100	6	21	27	100	62	36	10	M5
BT50-SF08-100	8	21	27	100	62	36	10	M6
BT50-SF10-100	10	24	30.5	100	62	42	10	M8x1
BT50-SF12-100	12	24	30.5	100	62	47	10	M10x1
BT50-SF14-100	14	27	34	100	62	47	10	M10x1
BT50-SF16-100	16	27	34	100	62	50	10	M12x1
BT50-SF18-100	18	33	40	100	62	50	10	M12x1
BT50-SF20-100	20	33	40	100	62	52	10	M16x1
BT50-SF06-120	6	21	27	120	82	36	10	M5
BT50-SF08-120	8	21	27	120	82	36	10	M6
BT50-SF10-120	10	24	32	120	82	42	10	M8x1
BT50-SF12-120	12	24	32	120	82	47	10	M10x1
BT50-SF14-120	14	27	34	120	82	47	10	M10x1
BT50-SF16-120	16	27	34	120	82	50	10	M12x1
BT50-SF18-120	18	33	42	120	82	50	10	M12x1
BT50-SF20-120	20	33	42	120	82	52	10	M16x1
BT50-SF25-120	25	44	53	120	82	58	10	M16x1
BT50-SF32-120	32	44	53	120	82	62	10	M16x1
BT50-SF06-160	6	21	32	160	122	36	10	M5
BT50-SF08-160	8	21	32	160	122	36	10	M6
BT50-SF10-160	10	24	34	160	122	42	10	M8x1
BT50-SF12-160	12	24	34	160	122	47	10	M10x1
BT50-SF14-160	14	27	42	160	122	47	10	M10x1
BT50-SF16-160	16	27	42	160	122	50	10	M12x1
BT50-SF18-160	18	33	49	160	122	50	10	M12x1
BT50-SF20-160	20	33	49	160	122	52	10	M16x1
BT50-SF25-160	25	44	60	160	122	58	10	M16x1
BT50-SF32-160	32	44	60	160	122	62	10	M16x1

BT-GSK High Speed Collet Chuck

A↗	RPM	
≤0.003	G2.5/30000	AD

FIG A

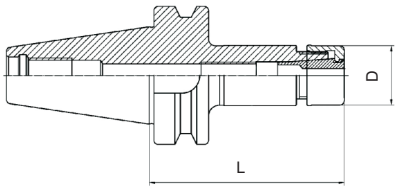
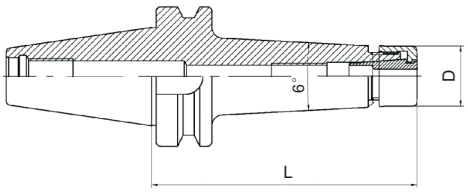


FIG B



Unit:mm

Size	Range	L	D	Collet	Nut	Wrench	FIG
BT30-GSK6T-60	1-6	60	19.5	CSK06	GSK06	GH19	A
BT30-GSK6T-90	1-6	90	19.5	CSK06	GSK06	GH19	A
BT30-GSK6T-120	1-6	120	19.5	CSK06	GSK06	GH19	B
BT30-GSK6T-165	1-6	165	19.5	CSK06	GSK06	GH19	B
BT30-GSK10T-60	1-10	60	27.1	CSK10	GSK10	GH27	A
BT30-GSK10T-75	1-10	75	27.1	CSK10	GSK10	GH27	A
BT30-GSK10T-90	1-10	90	27.1	CSK10	GSK10	GH27	A
BT30-GSK10T-120	1-10	120	27.1	CSK10	GSK10	GH27	A
BT30-GSK13T-60	2-13	60	33.0	CSK13	GSK13	GH33	A
BT30-GSK13T-90	2-13	90	33.0	CSK13	GSK13	GH33	A
BT30-GSK13T-120	2-13	120	33.0	CSK13	GSK13	GH33	B
BT30-GSK16T-60	2-16	60	40.0	CSK16	GSK16	GH40	A
BT30-GSK16T-75	2-16	75	40.0	CSK16	GSK16	GH40	A
BT30-GSK16T-90	2-16	90	40.0	CSK16	GSK16	GH40	A
BT30-GSK16T-120	2-16	120	40.0	CSK16	GSK16	GH40	A
BT30-GSK20T-60	3-20	60	48.0	CSK20	GSK20	GH48	A
BT30-GSK20T-70	3-20	70	48.0	CSK20	GSK20	GH48	A
BT30-GSK20T-90	3-20	90	48.0	CSK20	GSK20	GH48	A
BT40-GSK6T-100	1-6	100	19.5	CSK06	GSK06	GH19	A
BT40-GSK6T-120	1-6	120	19.5	CSK06	GSK06	GH19	B
BT40-GSK6T-150	1-6	150	19.5	CSK06	GSK06	GH19	B
BT40-GSK10T-60	1-10	60	27.1	CSK10	GSK10	GH27	A
BT40-GSK10T-90	1-10	90	27.1	CSK10	GSK10	GH27	A
BT40-GSK10T-100	1-10	100	27.1	CSK10	GSK10	GH27	A
BT40-GSK10T-120	1-10	120	27.1	CSK10	GSK10	GH27	B
BT40-GSK10T-150	1-10	150	27.1	CSK10	GSK10	GH27	B
BT40-GSK13T-60	2-13	60	33.0	CSK13	GSK13	GH33	A
BT40-GSK13T-90	2-13	90	33.0	CSK13	GSK13	GH33	A
BT40-GSK13T-120	2-13	120	33.0	CSK13	GSK13	GH33	B

★Collet and Wrench need to be ordered separately.

★Collet E74-E79,Wrench E80

BT-GSK High Speed Collet Chuck

A↗	RPM	
≤0.003	G2.5/30000	AD

FIG A

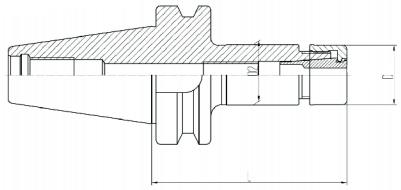
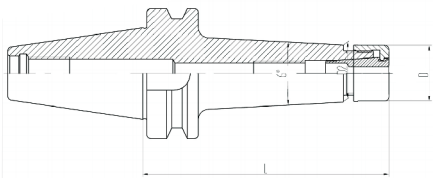


FIG B



Unit:mm

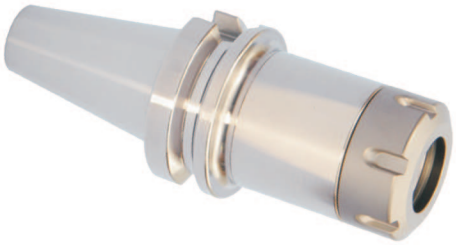
Size	Range	L	D	Collet	Nut	Wrench	FIG
BT40-GSK16T-60	2-16	60	40.0	CSK16	GSK16	GH40	A
BT40-GSK16T-90	2-16	90	40.0	CSK16	GSK16	GH40	A
BT40-GSK16T-100	2-16	100	40.0	CSK16	GSK16	GH40	A
BT40-GSK16T-120	2-16	120	40.0	CSK16	GSK16	GH40	A
BT40-GSK16T-150	2-16	150	40.0	CSK16	GSK16	GH40	A
BT40-GSK20T-60	3-20	60	48.0	CSK20	GSK20	GH48	A
BT40-GSK20T-90	3-20	90	48.0	CSK20	GSK20	GH48	A
BT40-GSK20T-120	3-20	120	48.0	CSK20	GSK20	GH48	A
BT40-GSK25T-75	4-25	75	55.0	CSK25	GSK25	GH55	A
BT40-GSK25T-90	4-25	90	55.0	CSK25	GSK25	GH55	A
BT40-GSK25T-120	4-25	120	55.0	CSK25	GSK25	GH55	A
BT50-GSK6T-105	1-6	105	19.5	CSK06	GSK06	GH19	A
BT50-GSK6T-135	1-6	135	19.5	CSK06	GSK06	GH19	B
BT50-GSK10T-105	1-10	105	27.1	CSK10	GSK10	GH27	A
BT50-GSK10T-135	1-10	135	27.1	CSK10	GSK10	GH27	A
BT50-GSK10T-165	1-10	165	27.1	CSK10	GSK10	GH27	B
BT50-GSK16T-105	2-16	105	40.0	CSK16	GSK16	GH40	A
BT50-GSK16T-135	2-16	135	40.0	CSK16	GSK16	GH40	A
BT50-GSK16T-165	2-16	165	40.0	CSK16	GSK16	GH40	B
BT50-GSK16T-200	2-16	200	40.0	CSK16	GSK16	GH40	B
BT50-GSK20T-135	3-20	135	48.0	CSK20	GSK20	GH48	A
BT50-GSK20T-165	3-20	165	48.0	CSK20	GSK20	GH48	A
BT50-GSK25T-135	4-25	135	55.0	CSK25	GSK25	GH55	A
BT50-GSK25T-165	4-25	165	55.0	CSK25	GSK25	GH55	A

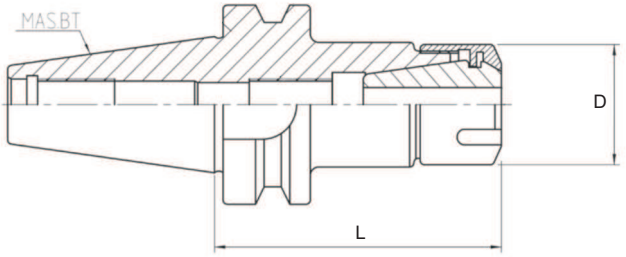
★Collet and Wrench need to be ordered separately.

★Collet E74-E79,Wrench E80

BT-ER Collet Chuck

A↗	RPM	
≤0.003	BT30/40 G2.5/25000 BT50 G2.5/20000	AD





Unit:mm

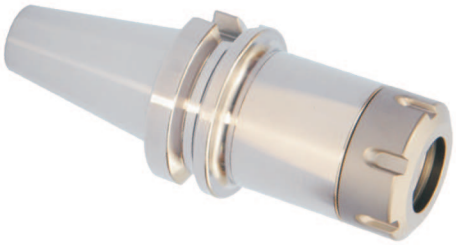
Size	Range	L	D	Collet	Nut	Wrench
BT30-ER11-70	1-7	70	19	ER11	ER11A	WER11A
BT30-ER11-100	1-7	100	19	ER11	ER11A	WER11A
BT30-ER16-70	1-10	70	28	ER16	ER16A	WER16A
BT30-ER16-100	1-10	100	28	ER16	ER16A	WER16A
BT30-ER16-120	1-10	120	28	ER16	ER16A	WER16A
BT30-ER16-150	1-10	150	28	ER16	ER16A	WER16A
BT30-ER20-70	1-13	70	34	ER20	ER20A	WER20A
BT30-ER20-100	1-13	100	34	ER20	ER20A	WER20A
BT30-ER25-70	1-16	70	42	ER25	ER25UM	WER25UM
BT30-ER25-100	1-16	100	42	ER25	ER25UM	WER25UM
BT30-ER32-70	1-20	70	50	ER32	ER32UM	WER32UM
BT30-ER32-100	1-20	100	50	ER32	ER32UM	WER32UM
BT30-ER40-80	3-26	80	63	ER40	ER40UM	WER40UM
BT30-ER40-100	3-26	100	63	ER40	ER40UM	WER40UM
BT40-ER11-70	1-7	70	19	ER11	ER11A	WER11A
BT40-ER11-100	1-7	100	19	ER11	ER11A	WER11A
BT40-ER11-150	1-7	150	19	ER11	ER11A	WER11A
BT40-ER16-70	1-10	70	28	ER16	ER16A	WER16A
BT40-ER16-100	1-10	100	28	ER16	ER16A	WER16A
BT40-ER16-125	1-10	125	28	ER16	ER16A	WER16A
BT40-ER16-150	1-10	150	28	ER16	ER16A	WER16A
BT40-ER16-200	1-10	200	28	ER16	ER16A	WER16A
BT40-ER20-70	1-13	70	34	ER20	ER20A	WER20A
BT40-ER20-100	1-13	100	34	ER20	ER20A	WER20A
BT40-ER20-125	1-13	125	34	ER20	ER20A	WER20A
BT40-ER20-150	1-13	150	34	ER20	ER20A	WER20A
BT40-ER20-200	1-13	200	34	ER20	ER20A	WER20A
BT40-ER25-70	1-16	70	42	ER25	ER25UM	WER25UM
BT40-ER25-100	1-16	100	42	ER25	ER25UM	WER25UM

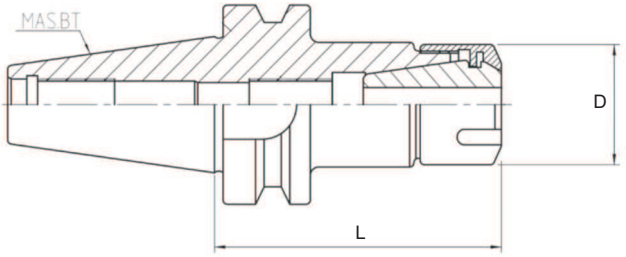
★Collet and Wrench need to be ordered separately.

★Collet E63-E71,Wrench E73

BT-ER Collet Chuck

A↗	RPM	
≤0.003	BT30/40 G2.5/25000 BT50 G2.5/20000	AD





Unit:mm

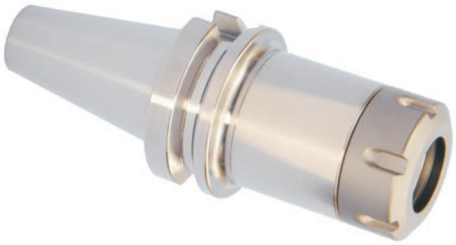
Size	Range	L	D	Collet	Nut	Wrench
BT40-ER25-125	1-16	125	42	ER25	ER25UM	WER25UM
BT40-ER25-150	1-16	150	42	ER25	ER25UM	WER25UM
BT40-ER25-200	1-16	200	42	ER25	ER25UM	WER25UM
BT40-ER32-70	1-20	70	50	ER32	ER32UM	WER32UM
BT40-ER32-100	1-20	100	50	ER32	ER32UM	WER32UM
BT40-ER32-125	1-20	125	50	ER32	ER32UM	WER32UM
BT40-ER32-150	1-20	150	50	ER32	ER32UM	WER32UM
BT40-ER32-200	1-20	200	50	ER32	ER32UM	WER32UM
BT40-ER40-70	3-26	70	63	ER40	ER40UM	WER40UM
BT40-ER40-80	3-26	80	63	ER40	ER40UM	WER40UM
BT40-ER40-100	3-26	100	63	ER40	ER40UM	WER40UM
BT40-ER40-150	3-26	150	63	ER40	ER40UM	WER40UM
BT50-ER16-70	1-10	70	28	ER16	ER16A	WER16A
BT50-ER16-100	1-10	100	28	ER16	ER16A	WER16A
BT50-ER16-135	1-10	135	28	ER16	ER16A	WER16A
BT50-ER16-150	1-10	150	28	ER16	ER16A	WER16A
BT50-ER16-200	1-10	200	28	ER16	ER16A	WER16A
BT50-ER16-250	1-10	250	28	ER16	ER16A	WER16A
BT50-ER20-70	1-13	70	34	ER20	ER20A	WER20A
BT50-ER20-100	1-13	100	34	ER20	ER20A	WER20A
BT50-ER20-135	1-13	135	34	ER20	ER20A	WER20A
BT50-ER20-150	1-13	150	34	ER20	ER20A	WER20A
BT50-ER20-165	1-13	165	34	ER20	ER20A	WER20A
BT50-ER20-200	1-13	200	34	ER20	ER20A	WER20A
BT50-ER25-70	1-16	70	42	ER25	ER25UM	WER25UM
BT50-ER25-100	1-16	105	42	ER25	ER25UM	WER25UM
BT50-ER25-135	1-16	135	42	ER25	ER25UM	WER25UM
BT50-ER25-150	1-16	150	42	ER25	ER25UM	WER25UM
BT50-ER25-165	1-16	165	42	ER25	ER25UM	WER25UM

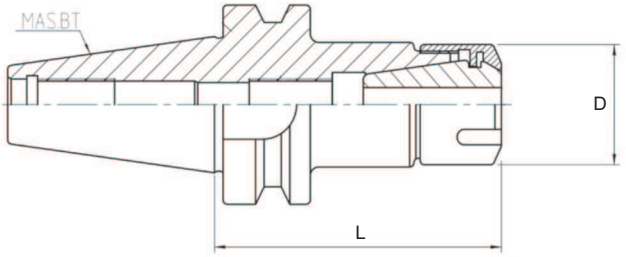
★Collet and Wrench need to be ordered separately.

★Collet E63-E71,Wrench E73

BT-ER Collet Chuck

A↗	RPM	
≤0.003	G2.5/20000	AD





Unit:mm

Size	Range	L	D	Collet	Nut	Wrench
BT50-ER25-200	1-16	200	42	ER25	ER25UM	WER25UM
BT50-ER25-250	1-16	250	42	ER25	ER25UM	WER25UM
BT50-ER25-300	1-16	300	42	ER25	ER25UM	WER25UM
BT50-ER32-70	1-20	70	50	ER32	ER32UM	WER32UM
BT50-ER32-100	1-20	100	50	ER32	ER32UM	WER32UM
BT50-ER32-135	1-20	135	50	ER32	ER32UM	WER32UM
BT50-ER32-150	1-20	150	50	ER32	ER32UM	WER32UM
BT50-ER32-165	1-20	165	50	ER32	ER32UM	WER32UM
BT50-ER32-200	1-20	200	50	ER32	ER32UM	WER32UM
BT50-ER32-250	1-20	250	50	ER32	ER32UM	WER32UM
BT50-ER32-300	1-20	300	50	ER32	ER32UM	WER32UM
BT50-ER32-350	1-20	350	50	ER32	ER32UM	WER32UM
BT50-ER32-400	1-20	400	50	ER32	ER32UM	WER32UM
BT50-ER40-100	3-26	100	63	ER40	ER40UM	WER40UM
BT50-ER40-120	3-26	120	63	ER40	ER40UM	WER40UM
BT50-ER40-150	3-26	150	63	ER40	ER40UM	WER40UM
BT50-ER40-200	3-26	200	63	ER40	ER40UM	WER40UM
BT50-ER40-250	3-26	250	63	ER40	ER40UM	WER40UM
BT50-ER40-300	3-26	300	63	ER40	ER40UM	WER40UM
BT50-ER40-350	3-26	350	63	ER40	ER40UM	WER40UM
BT50-ER50-120	6-34	120	78	ER50	ER50UM	WER50UM

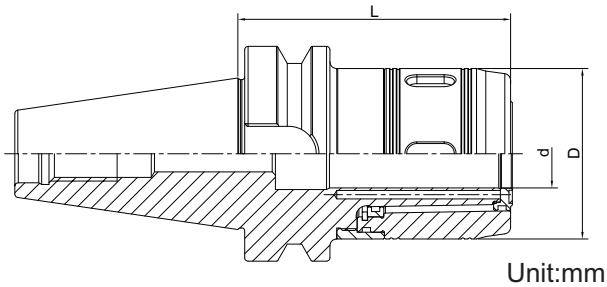
★Collet and Wrench need to be ordered separately.

★Collet E63-E71,Wrench E73

Power Milling Chuck

A ⩽0.008

AD



Unit:mm

Size	d	D	L	Capacity
BT30-HC20-80	20	50	80	3-16; 20
BT30-HC25-90	25	59	90	3-20; 25
BT30-HC32-110	32	72	110	3-25; 32
BT40-HC20-90	20	50	90	3-16; 20
BT40-HC25-100	25	59	100	3-20; 25
BT40-HC32-105	32	72	105	3-25; 32
BT50-HC20-105	20	50	105	3-16; 20
BT50-HC25-105	25	59	105	3-20; 25
BT50-HC32-110	32	72	110	3-25; 32
BT50-HC42-110	42	99	110	3-32; 42
BT50-HC32-165	32	72	165	3-25; 32
BT50-HC32-200	32	72	200	3-25; 32

★Collet and Wrench need to be ordered separately.

★Collet E62,Wrench E62

Face Mill Holder

DIN6357	A ↗ ≤0.005	RPM G6.3/15000	AD

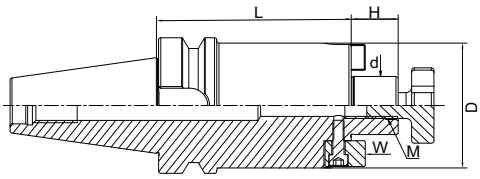


image 1

image 2

Unit:mm

Size	d	L	D	H	M
BT30-FMB16-40	16	40	38	17	M8
BT30-FMB22-40	22	40	48	19	M10
BT30-FMB27-40	27	40	58	21	M12
BT30-FMB32-50	32	50	78	24	M16
BT40-FMB16-40	16	40	38	17	M8
BT40-FMB22-40	22	40	48	19	M10
BT40-FMB27-40	27	40	58	21	M12
BT40-FMB32-50	32	50	78	24	M16
BT40-FMB22-60	22	60	48	19	M10
BT40-FMB27-60	27	60	58	21	M12
BT40-FMB32-60	32	60	78	24	M16
BT40-FMB16-100	16	100	38	17	M8
BT40-FMB22-100	22	100	48	19	M10
BT40-FMB27-100	27	100	58	21	M12
BT40-FMB32-100	32	100	78	24	M16
BT40-FMB16-160	16	160	38	17	M8
BT40-FMB22-160	22	160	48	19	M10
BT40-FMB27-160	27	160	58	21	M12
BT40-FMB32-160	32	160	78	24	M16

Universal screw (image 1) for Chinese market.
Retaining screw (image 2) for the market out of China.
AD/B Customized

Face Mill Holder

DIN6357	A ↗ ≤0.005	RPM G6.3/15000	AD

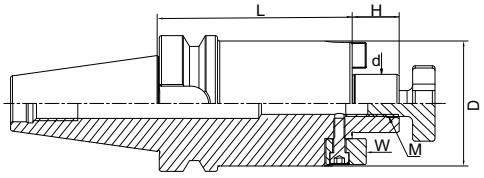


image 1

image 2

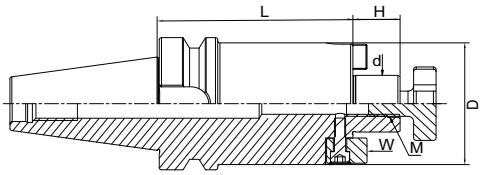
Unit:mm

Size	d	L	D	H	M
BT50-FMB16-40	16	40	38	17	M8
BT50-FMB22-40	22	40	48	19	M10
BT50-FMB27-40	27	40	58	21	M12
BT50-FMB32-50	32	50	78	24	M16
BT50-FMB22-60	22	60	48	19	M10
BT50-FMB27-60	27	60	58	21	M12
BT50-FMB32-60	32	60	78	24	M16
BT50-FMB16-100	16	100	38	17	M8
BT50-FMB22-100	22	100	48	19	M10
BT50-FMB27-100	27	100	58	21	M12
BT50-FMB32-100	32	100	78	24	M16
BT50-FMB22-160	22	160	48	19	M10
BT50-FMB27-160	27	160	58	21	M12
BT50-FMB32-160	32	160	78	24	M16

Universal screw (image 1) for Chinese market.
Retaining screw (image 2) for the market out of China.
AD/B Customized

Face Mill Holder

DIN6357	A ↗	RPM	
	≤0.005	G6.3/15000	AD



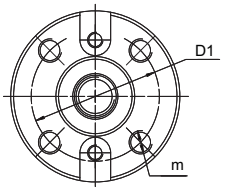


image 1

image 2

Unit:mm

Size	d	L	D	D1	H	M	m
BT40-FMB40-50	40	50	88	66.7	27	M20	M12
BT40-FMB40-60	40	60	88	66.7	27	M20	M12
BT40-FMB40-100	40	100	88	66.7	27	M20	M12
BT50-FMB40-50	40	50	88	66.7	27	M20	M12
BT50-FMB40-60	40	60	88	66.7	27	M20	M12
BT50-FMB40-100	40	100	88	66.7	27	M20	M12
BT50-FMB40-160	40	160	88	66.7	27	M20	M12

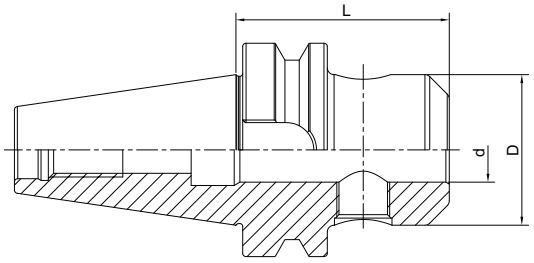
One universal screw (image 1) and 4 cap screws for Chinese market.

One retaining screw (image 2) and 4 cap screws for the market out of China.

AD/B Customized

Side Lock Holder

DIN6359/1835B	A ↗	RPM	AD
	⩽0.005	G6.3/15000	



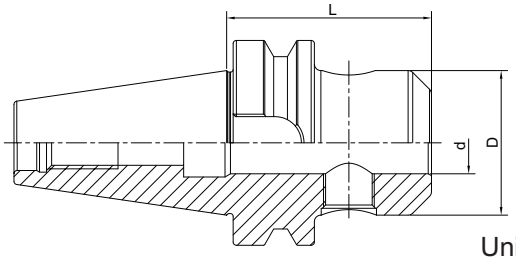
Unit:mm

Size	d	D	L	M	Screw Quantity
BT30-SLA06-50	6	25	50	M6	1
BT30-SLA08-50	8	28	50	M8	1
BT30-SLA10-50	10	35	50	M10	1
BT30-SLA12-50	12	42	50	M12	1
BT30-SLA14-50	14	44	50	M12	1
BT30-SLA16-63	16	48	63	M14	1
BT30-SLA18-63	18	50	63	M14	1
BT30-SLA20-63	20	52	63	M16	1
BT30-SLA25-90	25	65	90	M18*2	2
BT40-SLA06-50	6	25	50	M6	1
BT40-SLA08-50	8	28	50	M8	1
BT40-SLA10-63	10	35	63	M10	1
BT40-SLA12-63	12	42	63	M12	1
BT40-SLA14-63	14	44	63	M12	1
BT40-SLA16-63	16	48	63	M14	1
BT40-SLA18-63	18	50	63	M14	1
BT40-SLA20-63	20	52	63	M16	1
BT40-SLA25-90	25	65	90	M18*2	2
BT40-SLA06-100	6	25	100	M6	1
BT40-SLA08-100	8	28	100	M8	1
BT40-SLA10-100	10	35	100	M10	1
BT40-SLA12-100	12	42	100	M12	1
BT40-SLA14-100	14	44	100	M12	1
BT40-SLA16-100	16	48	100	M14	1
BT40-SLA18-100	18	50	100	M14	1
BT40-SLA20-100	20	52	100	M16	1
BT40-SLA32-100	32	72	100	M20*2	2
BT40-SLA40-120	40	80	120	M20*2	2

AD/B Customized

Side Lock Holder

DIN6359/1835B	A ↗ ≤0.005	RPM G6.3/15000	AD

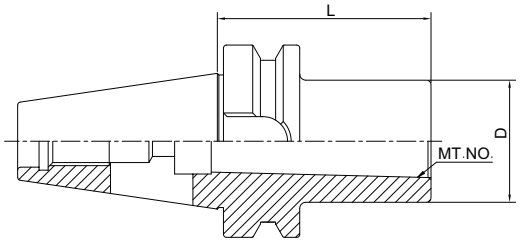


Unit:mm

Size	d	D	L	M	Screw Quantity
BT40-SLA06-160	6	25	160	M6	1
BT40-SLA08-160	8	28	160	M8	1
BT40-SLA10-160	10	35	160	M10	1
BT40-SLA12-160	12	42	160	M12	1
BT40-SLA14-160	14	44	160	M12	1
BT40-SLA16-160	16	48	160	M14	1
BT40-SLA18-160	18	50	160	M14	1
BT40-SLA20-160	20	52	160	M16	1
BT40-SLA25-160	25	65	160	M18*2	2
BT40-SLA32-160	32	72	160	M20*2	2
BT40-SLA40-160	40	80	160	M20*2	2
BT50-SLA06-63	6	25	63	M6	1
BT50-SLA08-63	8	28	63	M8	1
BT50-SLA10-63	10	35	63	M10	1
BT50-SLA12-80	12	42	80	M12	1
BT50-SLA14-80	14	44	80	M12	1
BT50-SLA16-80	16	48	80	M14	1
BT50-SLA18-80	18	50	80	M14	1
BT50-SLA20-80	20	52	80	M16	1
BT50-SLA25-100	25	65	100	M18*2	2
BT50-SLA32-105	32	72	105	M20*2	2
BT50-SLA40-110	40	80	110	M20*2	2
BT50-SLA50-125	50	98	125	M24*2	2
BT50-SLA06-160	6	25	160	M6	1
BT50-SLA08-160	8	28	160	M8	1
BT50-SLA10-160	10	35	160	M10	1
BT50-SLA12-160	12	42	160	M12	1
BT50-SLA14-160	14	44	160	M12	1
BT50-SLA16-160	16	48	160	M14	1
BT50-SLA18-160	18	50	160	M14	1
BT50-SLA20-160	20	52	160	M16	1
BT50-SLA25-160	25	65	160	M18*2	2
BT50-SLA32-160	32	72	160	M20*2	2
BT50-SLA40-160	40	80	160	M20*2	2

Morse Taper Adapter with Tang

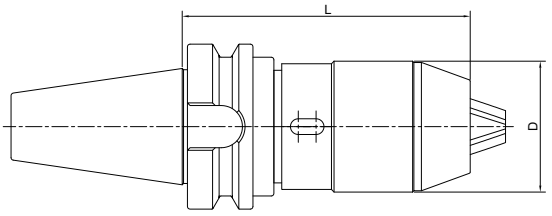
DIN6383	A ↗	RPM
	≤0.005	G6.3/15000



Unit:mm

Size	MT.NO.	D	L
BT30-MTA1-45	1	25	45
BT30-MTA2-60	2	32	60
BT30-MTA3-75	3	40	75
BT40-MTA1-50	1	25	50
BT40-MTA2-50	2	32	50
BT40-MTA3-70	3	40	70
BT40-MTA4-95	4	48	95
BT50-MTA1-45	1	25	45
BT50-MTA2-60	2	32	60
BT50-MTA3-65	3	40	65
BT50-MTA3-180	3	40	180
BT50-MTA4-95	4	48	95
BT50-MTA4-180	4	48	180
BT50-MTA5-105	5	63	105

APU Drill Chuck Holder

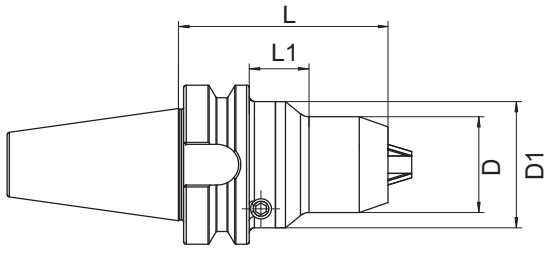


Unit:mm

Size	D	L	Capacity
BT30-APU08-80	36	80	1-8
BT30-APU13-110	48	110	1-13
BT40-APU08-85	36	85	1-8
BT40-APU13-105	48	105	1-13
BT40-APU16-110	53	110	3-16
BT50-APU08-90	36	90	1-8
BT50-APU13-105	48	105	1-13
BT50-APU16-115	53	115	3-16

Precision Drill Chuck Holder

A ↗
≤0.03

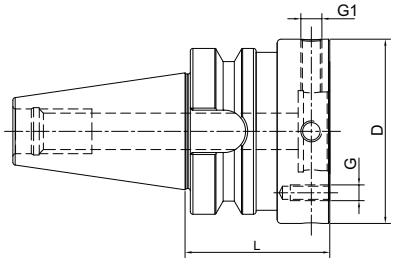


Unit:mm

Size	D	D1	L	L1	Capacity
BT40-CPU13-90	50	-	90	-	1-13
BT40-CPU16-90	50	-	90	-	1-16
BT50-CPU13-100	50	-	100	-	1-13
BT50-CPU16-100	50	-	100	-	1-16

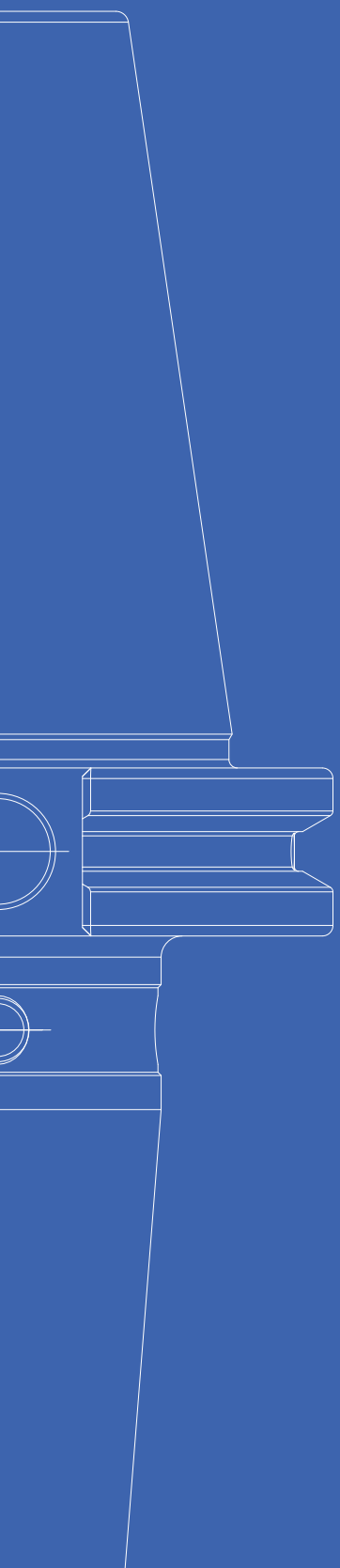
Runout Adjustable Flange Adapter

A ↗	RPM	
≤0.002	G2.5/25000	AD



Unit:mm

Size	D	L	G	G1
BT30-MOD060-050	60	50	M5	M8x1
BT30-MOD070-050	70	50	M6	M8x1
BT40-MOD060-050	60	50	M5	M8x1
BT40-MOD070-050	70	50	M6	M8x1
BT40-MOD080-050	80	50	M6	M8x1
BT40-MOD100-070	100	70	M8	M10x1
BT50-MOD060-070	60	70	M5	M8x1
BT50-MOD070-070	70	70	M6	M8x1
BT50-MOD080-070	80	70	M6	M8x1
BT50-MOD100-070	100	70	M8	M10x1
BT50-MOD117-080	117	80	M8	M10x1
BT50-MOD140-080	140	80	M10	M10x1



DIN69871 SK

Hydraulic Chuck, Standard---------- **E22–24**

Shrink Fit Chuck, 4.5° , Standard--------- **E25–26**

SK-ER Collet Chuck---------- **E27**

Power Milling Chuck---------- **E28**

Face Mill Holder---------- **E29–31**

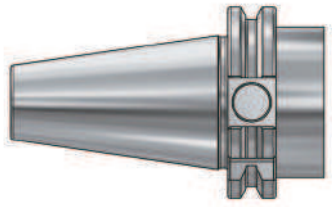
Side Lock Holder---------- **E32-33**

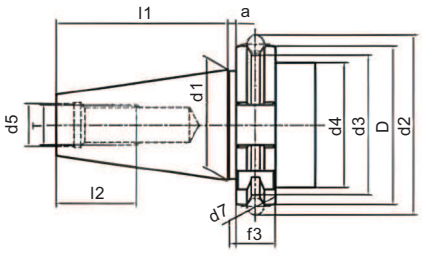
Morse Taper Adapter with Tang---------- **E34**

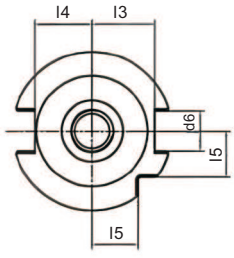
APU Drill Chuck Holder---------- **E35**

Precision Drill Chuck Holder---------- **E35**

SK Taper Standard







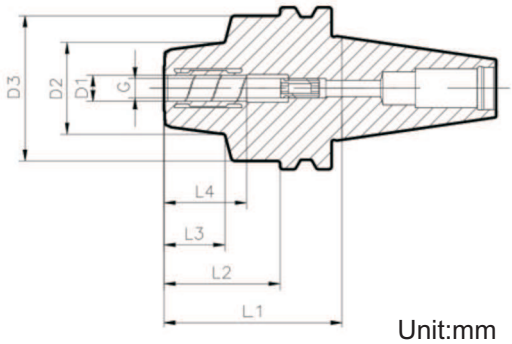
Unit:mm

Size	D	d1	d2	d3	d4	d5	d6	d7	l1	l2	l3	l4	l5	f3
SK30	50	31.75	59.3	44.3	45	13	16.1	7	47.8	24	18.8	16.3	15	19.1
SK40	63.55	44.45	72.3	56.25	50	17	16.1	7	68.4	32	25	22.7	18.5	19.1
SK50	97.5	69.85	107.36	91.25	80	25	25.7	7	101.8	47	37.7	35.5	30	19.1

Taper standard: DIN 69871
Material: Alloyed case hardened steel
Surface Treatment: Blackening and Bright
Taper tolerance: <AT3
Hardness: HRC 56-60
Carbon depth: 0.8±0.2mm
Surface Roughness: Ra<0.2μm
Balancing: G6.3/15000; G2.5/25000
Cooling: AD; AD/B can be made by request.

Hydraulic Chuck,Standard

A	RPM	
≤0.003	G2.5/25000	AD/B



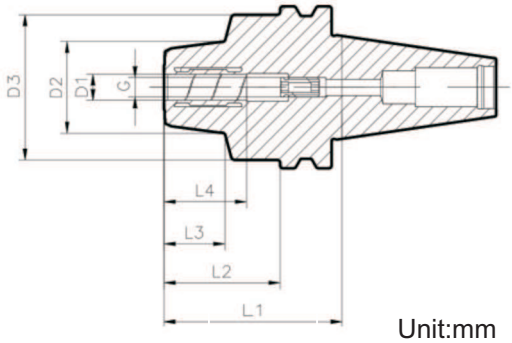
Unit:mm

Size	D1	D2	D3	L1	L2	L3	L4	Wrench
SK30THY06055M	6	26	44.8	55	35.9	18.5	26	SW5
SK30THY08055M	8	28	44.8	55	35.9	18.7	26	SW5
SK30THY10055M	10	30	44.8	55	35.9	19	30	SW5
SK30THY12055M	12	32	44.8	55	35.9	19.3	36	SW5
SK30THY16090M	16	38	44.8	90	70.9	48	40	SW5
SK30THY20090M	20	42	44.8	90	70.9	48.7	41	SW5

★Collet and Drive Key need to be ordered separately.
★Collet E55-E61,Drive Key E81

Hydraulic Chuck,Standard

A	RPM	
≤0.003	G2.5/25000	AD/B



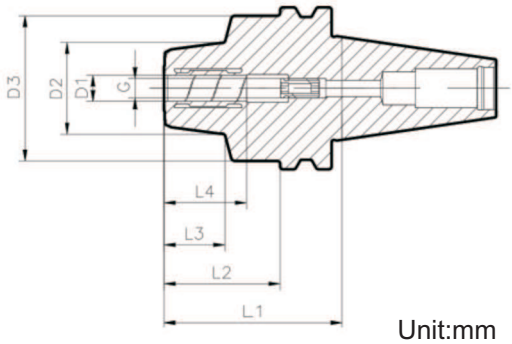
Unit:mm

Size	D1	D2	D3	L1	L2	L3	L4	Wrench
SK40THY06080M	6	26	49.8	80	60.9	41.7	26	SW5
SK40THY06110M	6	26	49.8	110	90.9	71.7	26	SW5
SK40THY06120M	6	26	49.8	120	100.9	81.7	26	SW5
SK40THY08080M	8	28	49.8	80	60.9	41.9	26	SW5
SK40THY08110M	8	28	49.8	110	90.9	71.9	26	SW5
SK40THY08120M	8	28	49.8	120	100.9	81.9	26	SW5
SK40THY10080M	10	30	49.8	80	60.9	42.1	30	SW5
SK40THY10110M	10	30	49.8	110	90.9	72.1	30	SW5
SK40THY10120M	10	30	49.8	120	100.9	82.1	30	SW5
SK40THY12080M	12	32	49.8	80	60.9	42.2	36	SW5
SK40THY12110M	12	32	49.8	110	90.9	72.2	36	SW5
SK40THY12120M	12	32	49.8	120	100.9	82.2	36	SW5
SK40THY14080M	14	34	49.8	80	60.9	42.4	36	SW5
SK40THY14120M	14	34	49.8	120	100.9	82.4	36	SW5
SK40THY16080M	16	38	49.8	80	60.9	42.8	40	SW5
SK40THY16110M	16	38	49.8	110	90.9	72.8	40	SW5
SK40THY16120M	16	38	49.8	120	100.9	82.8	40	SW5
SK40THY18080M	18	40	49.8	80	60.9	42.9	41	SW5
SK40THY18120M	18	40	49.8	120	100.9	82.9	41	SW5
SK40THY20080M	20	42	49.8	80	60.9	43.1	41	SW5
SK40THY20110M	20	42	49.8	110	90.9	73.1	41	SW5
SK40THY20120M	20	42	49.8	120	100.9	83.1	41	SW5
SK40THY25080M	25	57	64.8	80	60.9	27.2	47	SW5
SK40THY25100M	25	57	64.8	100	80.9	47.2	47	SW5
SK40THY25120M	25	57	64.8	120	100.9	67.2	47	SW5
SK40THY32080M	32	63	74.8	80	60.9	31	51	SW6
SK40THY32100M	32	63	74.8	100	80.9	43.8	51	SW6
SK40THY32120M	32	63	74.8	120	100.9	63.8	51	SW6

★Collet and Drive Key need to be ordered separately.
★Collet E55-E61,Drive Key E81

Hydraulic Chuck,Standard

A	RPM	
≤0.003	G2.5/25000	AD/B



Unit:mm

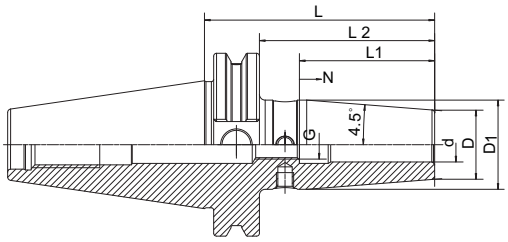
Size	D1	D2	D3	L1	L2	L3	L4	Wrench
SK50THY06110M	6	26	57.8	110	90.9	68	26	SW5
SK50THY06150M	6	26	57.8	150	130.9	108	26	SW5
SK50THY08110M	8	28	57.8	110	90.9	68.2	27	SW5
SK50THY08150M	8	28	57.8	150	130.9	108.2	26	SW5
SK50THY10110M	10	30	57.8	110	90.9	68.3	30	SW5
SK50THY10150M	10	30	57.8	150	130.9	108.3	30	SW5
SK50THY12110M	12	32	57.8	110	90.9	68.5	36	SW5
SK50THY12150M	12	32	57.8	150	130.9	108.5	36	SW5
SK50THY14110M	14	34	57.8	110	90.9	68.7	36	SW5
SK50THY14150M	14	34	57.8	150	130.9	108.7	36	SW5
SK50THY16110M	16	38	57.8	110	90.9	69.1	40	SW5
SK50THY16150M	16	38	57.8	150	130.9	109.1	40	SW5
SK50THY18110M	18	40	57.8	110	90.9	69.2	41	SW5
SK50THY18150M	18	40	57.8	150	130.9	109.2	41	SW5
SK50THY20080M	20	42	57.8	80	60.9	39.4	41	SW5
SK50THY20110M	20	42	57.8	110	90.9	69.4	41	SW5
SK50THY20150M	20	42	57.8	150	130.9	109.4	41	SW5
SK50THY32110M	32	63	70.8	110	90.9	70.1	51	SW6

★Collet and Drive Key need to be ordered separately.

★Collet E55-E61,Drive Key E81

Shrink Fit Chuck, 4.5° , Standard

A↗	RPM	
≤0.003	G2.5/25000	AD/B

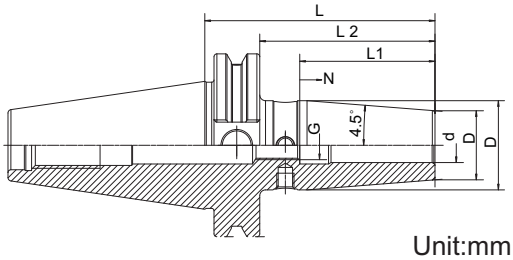


Unit:mm

Size	d	D	D1	L	L2	L1	N	G
SK40-SF04-80	4	15	20	80	60.9	-	-	-
SK40-SF05-80	5	15	20	80	60.9	-	-	-
SK40-SF06-80	6	21	27	80	60.9	36	10	M5
SK40-SF08-80	8	21	27	80	60.9	36	10	M6
SK40-SF10-80	10	24	31	80	60.9	42	10	M8x1
SK40-SF12-80	12	24	31	80	60.9	47	10	M10x1
SK40-SF14-80	14	27	34	80	60.9	47	10	M10x1
SK40-SF16-80	16	27	34	80	60.9	50	10	M12x1
SK40-SF18-80	18	33	40	80	60.9	50	10	M12x1
SK40-SF20-80	20	33	40	80	60.9	52	10	M16x1
SK40-SF25-100	25	44	50	100	80.9	58	10	M16x1
SK40-SF32-100	32	44	50	100	80.9	62	10	M16x1
SK40-SF04-120	4	15	20	120	100.9	-	-	-
SK40-SF06-120	6	21	27	120	100.9	36	10	M5
SK40-SF08-120	8	21	27	120	100.9	36	10	M6
SK40-SF10-120	10	24	32	120	100.9	42	10	M8x1
SK40-SF12-120	12	24	32	120	100.9	47	10	M10x1
SK40-SF14-120	14	27	34	120	100.9	47	10	M10x1
SK40-SF16-120	16	27	34	120	100.9	50	10	M12x1
SK40-SF18-120	18	31	42	120	100.9	50	10	M12x1
SK40-SF20-120	20	31	42	120	100.9	52	10	M16x1
SK40-SF25-120	25	44	50	120	100.9	58	10	M16x1
SK40-SF04-160	4	15	20	160	140.9	-	-	-
SK40-SF06-160	6	21	32	160	140.9	36	10	M5
SK40-SF08-160	8	21	32	160	140.9	36	10	M6
SK40-SF10-160	10	24	34	160	140.9	42	10	M8x1
SK40-SF12-160	12	24	34	160	140.9	47	10	M10x1
SK40-SF14-160	14	27	42	160	140.9	47	10	M10x1
SK40-SF16-160	16	27	42	160	140.9	50	10	M12x1
SK40-SF18-160	18	33	50	160	140.9	50	10	M12x1
SK40-SF20-160	20	33	50	160	140.9	52	10	M16x1
SK40-SF25-160	25	44	50	160	140.9	58	10	M16x1
SK40-SF32-160	32	44	50	160	140.9	62	10	M16x1

Shrink Fit Chuck, 4.5° , Standard

A↗	RPM	
≤0.003	G2.5/25000	AD/B

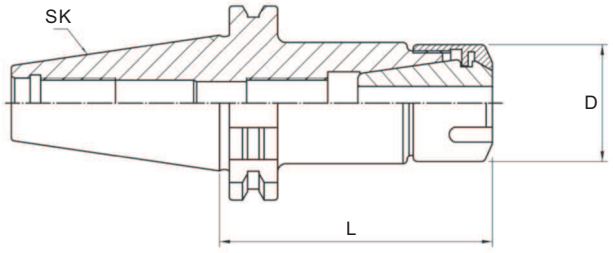


Unit:mm

Size	d	D	D1	L	L2	L1	N	G
SK50-SF06-80	6	21	27	80	60.9	36	10	M5
SK50-SF08-80	8	21	27	80	60.9	36	10	M6
SK50-SF10-80	10	24	31	80	60.9	42	10	M8x1
SK50-SF12-80	12	24	31	80	60.9	47	10	M10x1
SK50-SF14-80	14	27	34	80	60.9	47	10	M10x1
SK50-SF16-80	16	27	34	80	60.9	50	10	M12x1
SK50-SF18-80	18	33	40	80	60.9	50	10	M12x1
SK50-SF20-80	20	33	39.5	80	60.9	52	10	M16x1
SK50-SF25-90	25	44	52.5	90	70.9	58	10	M16x1
SK50-SF32-90	32	44	52.5	90	70.9	62	10	M16x1
SK50-SF06-120	6	21	27	120	100.9	36	10	M5
SK50-SF08-120	8	21	27	120	100.9	36	10	M6
SK50-SF10-120	10	24	32	120	100.9	42	10	M8x1
SK50-SF12-120	12	24	32	120	100.9	47	10	M10x1
SK50-SF14-120	14	27	34	120	100.9	47	10	M10x1
SK50-SF16-120	16	27	34	120	100.9	50	10	M12x1
SK50-SF18-120	18	33	42	120	100.9	50	10	M12x1
SK50-SF20-120	20	33	42	120	100.9	52	10	M16x1
SK50-SF25-120	25	44	53	120	100.9	58	10	M16x1
SK50-SF32-120	32	44	53	120	100.9	62	10	M16x1
SK50-SF06-160	6	21	32	160	140.9	36	10	M5
SK50-SF08-160	8	21	32	160	140.9	36	10	M6
SK50-SF10-160	10	24	34	160	140.9	42	10	M8x1
SK50-SF12-160	12	24	34	160	140.9	47	10	M10x1
SK50-SF14-160	14	27	42	160	140.9	47	10	M10x1
SK50-SF16-160	16	27	42	160	140.9	50	10	M12x1
SK50-SF18-160	18	33	51	160	140.9	50	10	M12x1
SK50-SF20-160	20	33	51	160	140.9	52	10	M16x1
SK50-SF25-160	25	44	60	160	140.9	58	10	M16x1
SK50-SF32-160	32	44	60	160	140.9	62	10	M16x1

SK-ER Collet Chuck

A↗	RPM	
≤0.003	SK30/40 G2.5/25000 SK50 G2.5/20000	AD



Unit:mm

Size	Range	L	D	Collet	Nut	Wrench
SK30-ER16-100	1-10	100	28	ER16	ER16A	WER16A
SK30-ER20-100	1-13	100	34	ER20	ER20A	WER20A
SK30-ER25-100	1-16	100	42	ER25	ER25UM	WER25UM
SK40-ER11-100	1-7	100	19	ER11	ER11A	WER11A
SK40-ER16-70	1-10	70	28	ER16	ER16A	WER16A
SK40-ER20-70	1-13	70	34	ER20	ER20A	WER20A
SK40-ER25-70	1-16	70	42	ER25	ER25UM	WER25UM
SK40-ER32-70	1-20	70	50	ER32	ER32UM	WER32UM
SK40-ER32-100	1-20	100	50	ER32	ER32UM	WER32UM
SK40-ER40-70	3-26	70	63	ER40	ER40UM	WER40UM
SK40-ER50-100	6-34	100	78	ER50	ER50UM	WER50UM
SK50-ER16-100	1-10	100	28	ER16	ER16A	WER16A
SK50-ER20-100	1-13	100	34	ER20	ER20A	WER20A
SK50-ER25-100	1-16	100	42	ER25	ER25UM	WER25UM
SK50-ER32-100	1-20	100	50	ER32	ER32UM	WER32UM
SK50-ER40-80	3-26	80	63	ER40	ER40UM	WER40UM

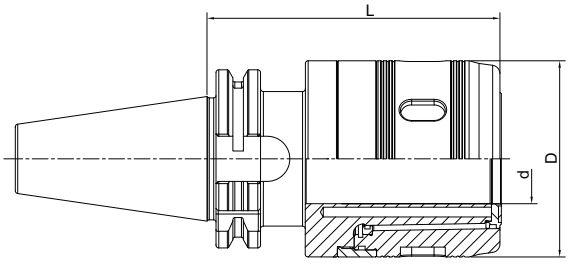
★Collet and Wrench need to be ordered separately.

★Collet E63-E71,Wrench E73

Power Milling Chuck

A ⩽0.008

AD



Unit:mm

Size	d	D	L	Capacity
SK40-HC20-85	20	50	85	3-16; 20
SK40-HC25-100	25	59	100	3-20; 25
SK40-HC32-105	32	72	105	3-25; 32
SK50-HC20-105	20	50	105	3-16; 20
SK50-HC25-100	25	59	100	3-20; 25
SK50-HC32-110	32	72	110	3-25; 32

★Collet and Wrench need to be ordered separately.
★Collet E62,Wrench E62

Face Mill Holder

DIN6357	A ↗	RPM	AD
	≤0.005	G6.3/15000	

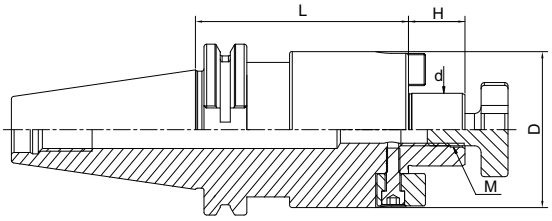


image 1

image 2

Unit:mm

Size	d	D	L	H	M
SK40-FMB16-35	16	38	35	17	M8
SK40-FMB22-35	22	48	35	19	M10
SK40-FMB27-40	27	58	40	21	M12
SK40-FMB32-50	32	78	50	24	M16
SK40-FMB16-100	16	38	100	17	M8
SK40-FMB22-100	22	48	100	19	M10
SK40-FMB27-100	27	58	100	21	M12
SK40-FMB32-100	32	78	100	24	M16
SK40-FMB16-160	16	38	160	17	M8
SK40-FMB22-160	22	48	160	19	M10
SK40-FMB27-160	27	58	160	21	M12
SK40-FMB32-160	32	78	160	24	M16

Universal screw (image 1) for Chinese market.
Retaining screw (image 2) for the market out of China.
AD/B Customized

Face Mill Holder

DIN6357	A ↗	RPM	AD
	≤0.005	G6.3/15000	

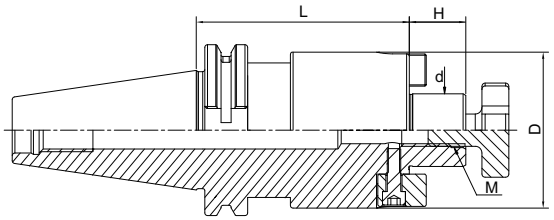


image 1

image 2

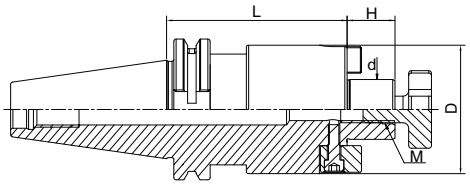
Unit:mm

Size	d	D	L	H	M
SK50-FMB16-35	16	38	35	17	M8
SK50-FMB22-35	22	48	35	19	M10
SK50-FMB27-40	27	58	40	21	M12
SK50-FMB32-50	32	78	50	24	M16
SK50-FMB16-100	16	38	100	17	M8
SK50-FMB22-100	22	48	100	19	M10
SK50-FMB27-100	27	58	100	21	M12
SK50-FMB32-100	32	78	100	24	M16
SK50-FMB16-160	16	38	160	17	M8
SK50-FMB22-160	22	48	160	19	M10
SK50-FMB27-160	27	58	160	21	M12
SK50-FMB32-160	32	78	160	24	M16

Universal screw (image 1) for Chinese market.
Retaining screw (image 2) for the market out of China.
AD/B Customized

Face Mill Holder

DIN6357	A ↗	RPM	AD
	≤0.005	G6.3/15000	



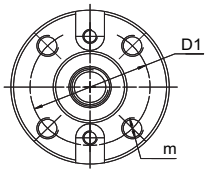


image 1

image 2

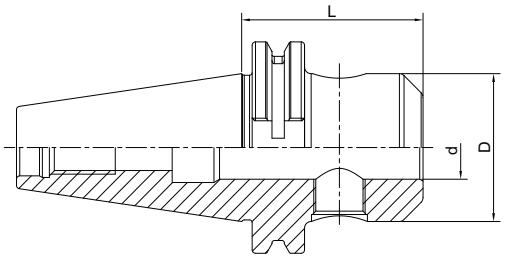
Unit:mm

Size	d	D	D1	L	H	M	m
SK40-FMB40-50	40	88	66.7	50	27	M20	M12
SK40-FMB40-100	40	88	66.7	100	27	M20	M12
SK40-FMB40-160	40	88	66.7	160	27	M20	M12
SK50-FMB40-50	40	88	66.7	50	27	M20	M12
SK50-FMB40-100	40	88	66.7	100	27	M20	M12
SK50-FMB40-160	40	88	66.7	160	27	M20	M12

One universal screw (image 1) and 4 cap screws for Chinese market.
One retaining screw (image 2) and 4 cap screws for the market out of China.

Side Lock Holder

DIN6359/1835B	A ↗ ≤0.005	RPM G6.3/15000	AD



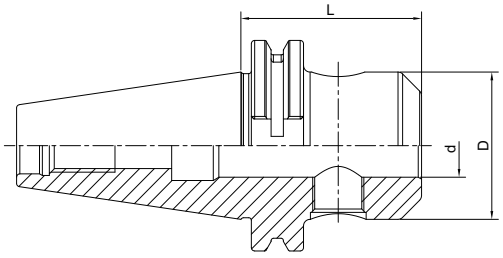
Unit:mm

Size	d	D	L	M	Screw Quantity
SK40-SLA06-50	6	25	50	M6	1
SK40-SLA08-50	8	28	50	M8	1
SK40-SLA10-50	10	35	50	M10	1
SK40-SLA12-50	12	42	50	M12	1
SK40-SLA14-50	14	44	50	M12	1
SK40-SLA16-63	16	48	63	M14	1
SK40-SLA18-63	18	50	63	M14	1
SK40-SLA20-63	20	52	63	M16	1
SK40-SLA06-100	6	25	100	M6	1
SK40-SLA08-100	8	28	100	M8	1
SK40-SLA10-100	10	35	100	M10	1
SK40-SLA12-100	12	42	100	M12	1
SK40-SLA14-100	14	44	100	M12	1
SK40-SLA16-100	16	48	100	M14	1
SK40-SLA18-100	18	50	100	M14	1
SK40-SLA20-100	20	52	100	M16	1
SK40-SLA25-100	25	65	100	M18*2	2
SK40-SLA32-100	32	72	100	M20*2	2
SK40-SLA40-120	40	80	120	M20*2	2
SK40-SLA06-160	6	25	160	M6	1
SK40-SLA08-160	8	28	160	M8	1
SK40-SLA10-160	10	35	160	M10	1
SK40-SLA12-160	12	42	160	M12	1
SK40-SLA14-160	14	44	160	M12	1
SK40-SLA16-160	16	48	160	M14	1
SK40-SLA18-160	18	50	160	M14	1
SK40-SLA20-160	20	52	160	M16	1
SK40-SLA25-160	25	65	160	M18*2	2
SK40-SLA32-160	32	72	160	M20*2	2
SK40-SLA40-160	40	80	160	M20*2	2

AD/B Customized

Side Lock Holder

DIN6359/1835B	A ↗	RPM	
	≤0.005	G6.3/15000	AD

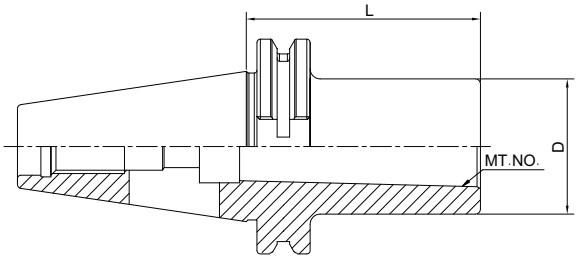


Unit:mm

Size	d	D	L	M	Screw Quantity
SK50-SLA06-63	6	25	63	M6	1
SK50-SLA08-63	8	28	63	M8	1
SK50-SLA10-63	10	35	63	M10	1
SK50-SLA12-63	12	42	63	M12	1
SK50-SLA14-63	14	44	63	M12	1
SK50-SLA16-63	16	48	63	M14	1
SK50-SLA18-63	18	50	63	M14	1
SK50-SLA20-63	20	52	63	M16	1
SK50-SLA25-80	25	65	80	M18*2	2
SK50-SLA06-100	6	25	100	M6	1
SK50-SLA08-100	8	28	100	M8	1
SK50-SLA10-100	10	35	100	M10	1
SK50-SLA12-100	12	42	100	M12	1
SK50-SLA14-100	14	44	100	M12	1
SK50-SLA16-100	16	48	100	M14	1
SK50-SLA18-100	18	50	100	M14	1
SK50-SLA20-100	20	52	100	M16	1
SK50-SLA32-100	32	72	100	M20*2	2
SK50-SLA40-100	40	80	100	M20*2	2
SK50-SLA25-120	25	65	120	M18*2	2
SK50-SLA50-120	50	100	120	M24*2	2
SK50-SLA06-160	6	25	160	M6	1
SK50-SLA08-160	8	28	160	M8	1
SK50-SLA10-160	10	35	160	M10	1
SK50-SLA12-160	12	42	160	M12	1
SK50-SLA14-160	14	44	160	M12	1
SK50-SLA16-160	16	48	160	M14	1
SK50-SLA18-160	18	50	160	M14	1
SK50-SLA20-160	20	52	160	M16	1
SK50-SLA25-160	25	65	160	M18*2	2
SK50-SLA32-160	32	72	160	M20*2	2
SK50-SLA40-160	40	80	160	M20*2	2

Morse Taper Adapter with Tang

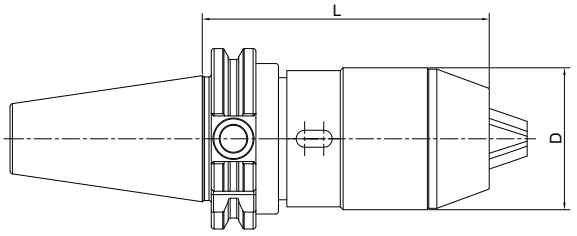
DIN6383	A ↗	RPM
	≤0.005	G6.3/15000



Unit:mm

Size	MT. NO.	D	L
SK40-MTA1-50	1	25	50
SK40-MTA2-50	2	32	50
SK40-MTA3-70	3	40	70
SK40-MTA4-95	4	48	95
SK50-MTA1-45	1	25	45
SK50-MTA2-60	2	32	60
SK50-MTA3-65	3	40	65
SK50-MTA4-95	4	48	95
SK50-MTA4-105	5	63	105

APU Drill Chuck Holder

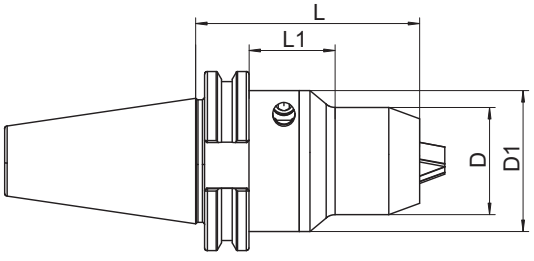


Unit:mm

Size	D	L	Capacity
SK40-APU08-85	38	85	1-8
SK40-APU13-100	48	100	1-13
SK40-APU16-110	53	110	3-16
SK50-AP08-75	38	75	1-8
SK50-APU13-100	48	100	1-13
SK50-APU16-100	53	100	3-16

Precision Drill Chuck Holder

A ↗ ≤0.03



Unit:mm

Size	D	D1	L	L1	Capacity
SK40-CPU13-90	50	-	90	-	1-13
SK40-CPU16-90	50	-	90	-	1-16
SK50-CPU13-100	50	-	100	-	1-13
SK50-CPU16-100	50	-	100	-	1-16

DIN69893 HSK-A

Hydraulic Chuck,Standard---------- **E36–38**

Hydraulic Chuck,Power Design---------- **E39**

Shrink Fit Chuck, 4.5° , Standard--------- **E40–42**

HSK-GSK High Speed Collet Chuck----- **E43**

HSK-ER Collet Chuck---------- **E44–45**

Power Milling Chuck---------- **E46**

Face Mill Holder---------- **E47–49**

Side Lock Holder---------- **E50–51**

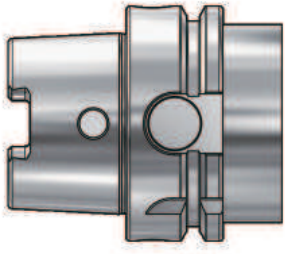
Morse Taper Adapter with Tang---------- **E52**

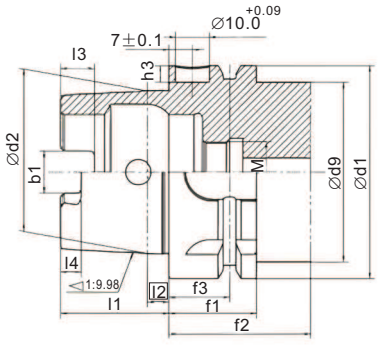
APU Drill Chuck Holder---------- **E53**

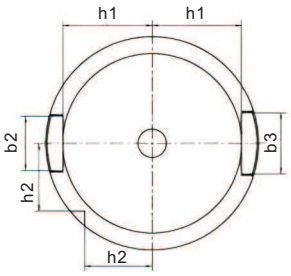
Precision Drill Chuck Holder---------- **E53**

Runout Adjustable Flange Adapter-------- **E54**

HSK-A Taper Standard







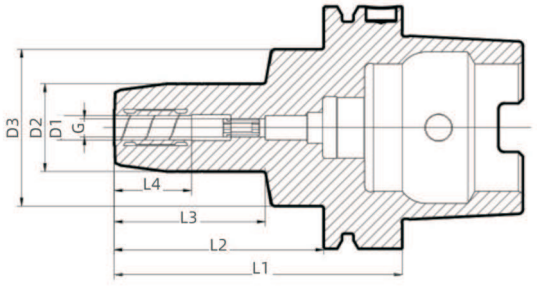
Unit:mm

Size	d1	d2	d9	l1	l2	l3	l4	f1	f2	f3	h1	h2	h3	b1	b2	b3
HSK25A	25	19.006	20	13	2.5	4	2	10	20	4.5	10	7.5	-	6.05	6	7
HSK32A	32	24.007	26	16	3.2	5	3	20	35	16	13	9.5	5.4	7.05	7	9
HSK40A	40	30.007	34	20	4	6	3.5	20	35	16	17	12	5.2	8.05	9	11
HSK50A	50	38.009	42	25	5	7.5	4.5	26	42	18	21	15.5	5.1	10.54	12	14
HSK63A	63	48.010	53	32	6.3	10	6	26	42	18	26.5	20	5.0	12.54	16	18
HSK80A	80	60.012	68	40	8	12	8	26	42	18	34	25	4.9	16.04	18	20
HSK100A	100	75.013	88	50	10	15	10	29	45	20	44	31.5	4.9	20.02	20	22

Taper standard: DIN 69893; ISO 12164
Material: Alloyed case hardened steel
Surface Treatment: Blackening and Bright
Taper tolerance: < AT3
Hardness: HRC 56-60
Carbon depth: 0.8±0.2mm
Surface Roughness:Ra<0.2μm
Balancing: G6.3/15000; G2.5/25000

Hydraulic Chuck,Standard

A ↗	RPM	
≤0.003	G2.5/25000	AD



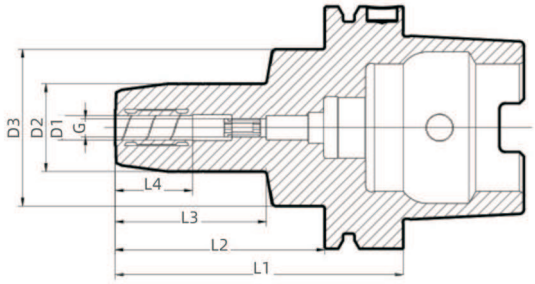
Unit:mm

Size	D1	D2	D3	L1	L2	L3	L4	Wrench
HSK63THY06070M	6	26	51.8	70	44	24.7	26	SW5
HSK63THY06080M	6	26	51.8	80	54	34.7	26	SW5
HSK63THY06120M	6	26	51.8	120	94	74.7	26	SW5
HSK63THY06125M	6	26	51.8	125	99	79.7	26	SW5
HSK63THY06200M	6	26	51.8	200	174	154.7	26	SW5
HSK63THY08070M	8	28	51.8	70	44	24.9	27	SW5
HSK63THY08080M	8	28	51.8	80	54	34.9	27	SW5
HSK63THY08120M	8	28	51.8	120	94	74.9	27	SW5
HSK63THY08125M	8	28	51.8	125	99	79.9	27	SW5
HSK63THY08200M	8	28	51.8	200	174	154.9	27	SW5
HSK63THY10080M	10	30	51.8	80	54	35	30	SW5
HSK63THY10085M	10	30	51.8	85	59	40	30	SW5
HSK63THY10120M	10	30	51.8	120	94	75	30	SW5
HSK63THY10125M	10	30	51.8	125	99	80	30	SW5
HSK63THY10200M	10	30	51.8	200	174	155	30	SW5
HSK63THY12085M	12	32	51.8	85	59	40.2	36	SW5
HSK63THY12090M	12	32	51.8	90	64	45.2	36	SW5
HSK63THY12120M	12	32	51.8	120	94	75.2	36	SW5
HSK63THY12200M	12	32	51.8	200	174	155.2	36	SW5
HSK63THY14085M	14	34	51.8	85	59	40.4	39	SW5
HSK63THY14090M	14	34	51.8	90	64	45.4	39	SW5
HSK63THY14120M	14	34	51.8	120	94	75.4	39	SW5
HSK63THY14200M	14	34	51.8	200	174	155.4	39	SW5
HSK63THY16090M	16	38	51.8	90	64	45.7	40	SW5
HSK63THY16120M	16	38	51.8	120	94	75.7	40	SW5
HSK63THY16200M	16	38	51.8	200	174	155.7	40	SW5

★Collet and Drive Key need to be ordered separately.
★Collet E55-E61,Drive Key E81

Hydraulic Chuck,Standard

A ↗	RPM	
⩽0.003	G2.5/25000	AD



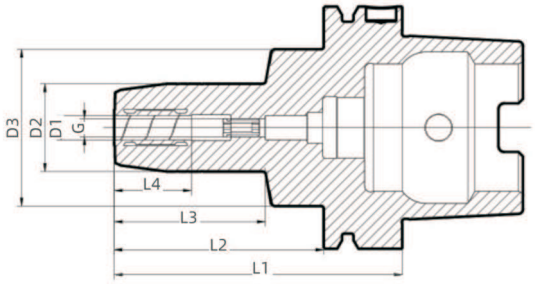
Unit:mm

Size	D1	D2	D3	L1	L2	L3	L4	Wrench
HSK63THY18090M	18	40	51.8	90	64	45.9	41	SW5
HSK63THY18120M	18	40	51.8	120	94	75.9	41	SW5
HSK63THY18200M	18	40	51.8	200	174	155.9	41	SW5
HSK63THY20090M	20	42	51.8	90	64	46.1	41	SW5
HSK63THY20100M	20	42	51.8	100	74	56.1	41	SW5
HSK63THY20120M	20	42	51.8	120	94	76.1	41	SW5
HSK63THY20125M	20	42	51.8	125	99	81.1	41	SW5
HSK63THY20200M	20	42	51.8	200	174	156.1	41	SW5
HSK63THY25115M	25	57	64.8	115	89	55.9	47	SW5
HSK63THY25120M	25	57	64.8	120	94	60.9	47	SW5
HSK63THY32120M	32	63	74.8	120	94	59.8	51	SW6
HSK63THY32125M	32	63	74.8	125	99	64.8	51	SW6

★Collet and Drive Key need to be ordered separately.
★Collet E55-E61,Drive Key E81

Hydraulic Chuck,Standard

A ↗	RPM	
≤0.003	G2.5/25000	AD



Unit:mm

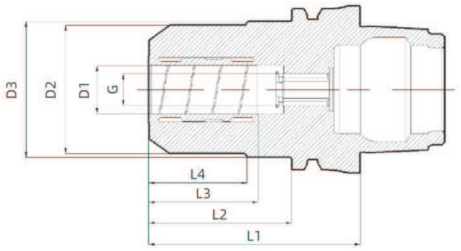
Size	D1	D2	D3	L1	L2	L3	L4	Wrench
HSK100THY06075M	6	26	57.8	75	46	23.1	26	SW5
HSK100THY06110M	6	26	57.8	110	81	58.1	26	SW5
HSK100THY06150M	6	26	57.8	150	121	98.1	26	SW5
HSK100THY08075M	8	28	57.8	75	46	23.3	26	SW5
HSK100THY08110M	8	28	57.8	110	81	58.3	26	SW5
HSK100THY08150M	8	28	57.8	150	121	98.3	26	SW5
HSK100THY10090M	10	30	57.8	90	61	38.5	30	SW5
HSK100THY10110M	10	30	57.8	110	81	58.5	30	SW5
HSK100THY10150M	10	30	57.8	150	121	98.5	30	SW5
HSK100THY12095M	12	32	57.8	95	66	43.7	36	SW5
HSK100THY12110M	12	32	57.8	110	81	58.7	36	SW5
HSK100THY12150M	12	32	57.8	150	121	98.7	36	SW5
HSK100THY14095M	14	34	57.8	95	66	43.9	36	SW5
HSK100THY14150M	14	34	57.8	150	121	98.9	36	SW5
HSK100THY16100M	16	38	57.8	100	71	49.2	40	SW5
HSK100THY16150M	16	38	57.8	150	121	99.2	40	SW5
HSK100THY18100M	18	40	57.8	100	71	49.4	41	SW5
HSK100THY18150M	18	40	57.8	150	121	99.4	41	SW5
HSK100THY20105M	20	42	57.8	105	76	54.6	41	SW5
HSK100THY20150M	20	42	57.8	150	121	99.6	41	SW5
HSK100THY25110M	25	57	64.8	110	81	60.3	47	SW5
HSK100THY32110M	32	63	74.8	110	81	59.9	51	SW6

★Collet and Drive Key need to be ordered separately.

★Collet E55-E61,Drive Key E81

Hydraulic Chuck,Power Design

A ↗	RPM	
⩽0.003	G2.5/25000	AD



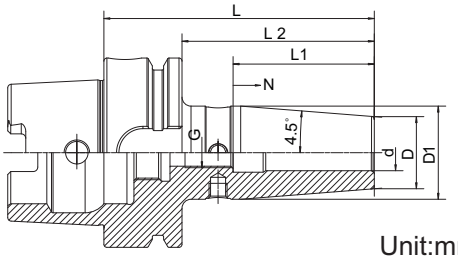
Unit:mm

Size	D1	D2	D3	L1	L2	L3	L4	Wrench
HTHSK63THY12080M	12	42	51.8	80	54	36.1	36	SW5
HTHSK63THY16080M	16	49	51.8	80	54	36.8	40	SW5
HTHSK63THY20080M	20	49	51.8	80	54	36.8	41	SW5

★Collet and Drive Key need to be ordered separately.
★Collet E55-E61,Drive Key E81

Shrink Fit Chuck, 4.5° , Standard

A↗	RPM	
≤0.003	G2.5/25000	AD

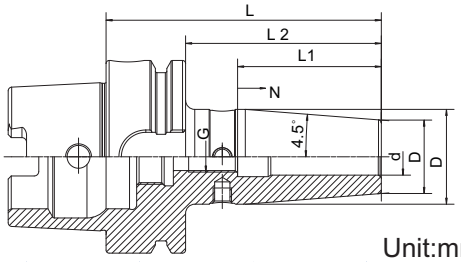


Unit:mm

Size	d	D	D1	L	L2	L1	N	G
HSK63A-SF06-80	6	21	26.5	80	54	36	10	M5
HSK63A-SF08-80	8	21	26.5	80	54	36	10	M6
HSK63A-SF10-85	10	24	30.5	85	59	42	10	M8x1
HSK63A-SF12-90	12	24	31	90	64	47	10	M10x1
HSK63A-SF14-90	14	27	34	90	64	47	10	M10x1
HSK63A-SF16-95	16	27	34	95	69	50	10	M12x1
HSK63A-SF18-95	18	33	41	95	69	50	10	M12x1
HSK63A-SF20-100	20	33	42	100	74	52	10	M16x1
HSK63A-SF25-115	25	44	52.5	115	89	58	10	M16x1
HSK63A-SF04-120	4	15	20	120	94	-	-	-
HSK63A-SF05-120	5	15	20	120	94	-	-	-
HSK63A-SF06-120	6	21	27	120	94	36	10	M5
HSK63A-SF08-120	8	21	27	120	94	36	10	M6
HSK63A-SF10-120	10	24	32	120	94	42	10	M8x1
HSK63A-SF12-120	12	24	32	120	94	47	10	M10x1
HSK63A-SF14-120	14	27	34	120	94	47	10	M10x1
HSK63A-SF16-120	16	27	34	120	94	50	10	M12x1
HSK63A-SF18-120	18	33	42	120	94	50	10	M12x1
HSK63A-SF20-120	20	33	42	120	94	52	10	M16x1
HSK63A-SF25-120	25	44	52.5	120	94	58	10	M16x1
HSK63A-SF32-120	32	44	52.5	120	94	62	10	M16x1

Shrink Fit Chuck, 4.5° , Standard

A ↗	RPM	
≤0.003	G2.5/25000	AD

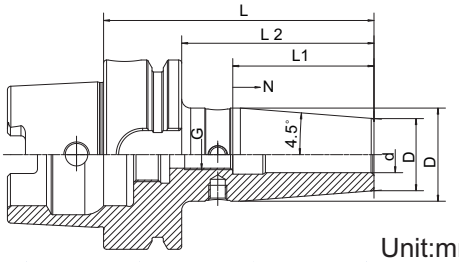


Unit:mm

Size	d	D	D1	L	L2	L1	N	G
HSK63A-SF04-160	4	15	25	160	134	-	-	-
HSK63A-SF05-160	5	15	25	160	134	-	-	-
HSK63A-SF06-160	6	21	32	160	134	36	10	M5
HSK63A-SF08-160	8	21	32	160	134	36	10	M6
HSK63A-SF10-160	10	24	34	160	134	42	10	M8x1
HSK63A-SF12-160	12	24	34	160	134	47	10	M10x1
HSK63A-SF14-160	14	27	42	160	134	47	10	M10x1
HSK63A-SF16-160	16	27	42	160	134	50	10	M12x1
HSK63A-SF18-160	18	33	51	160	134	50	10	M12x1
HSK63A-SF20-160	20	33	51	160	134	52	10	M16x1
HSK63A-SF25-160	25	44	52.5	160	134	58	10	M16x1
HSK63A-SF32-160	32	44	52.5	160	134	62	10	M16x1

Shrink Fit Chuck, 4.5° , Standard

A↗	RPM	
≤0.003	G2.5/25000	AD

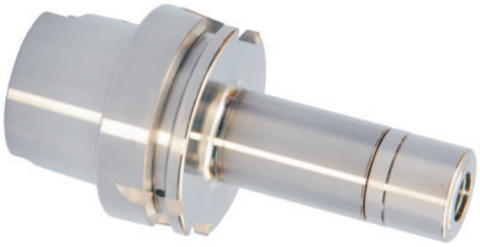


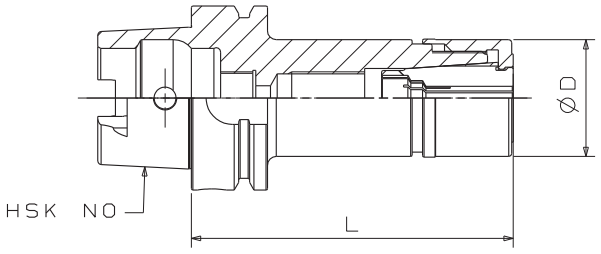
Unit:mm

Size	d	D	D1	L	L2	L1	N	G
HSK100A-SF06-85	6	21	26.5	85	56	36	10	M5
HSK100A-SF08-85	8	21	26.5	85	56	36	10	M6
HSK100A-SF10-90	10	24	30.5	90	61	42	10	M8x1
HSK100A-SF12-95	12	24	31	95	66	47	10	M10x1
HSK100A-SF14-95	14	27	34	95	66	47	10	M10x1
HSK100A-SF16-100	16	27	34	100	71	50	10	M12x1
HSK100A-SF18-100	18	33	41	100	71	50	10	M12x1
HSK100A-SF20-105	20	33	42	105	76	52	10	M16x1
HSK100A-SF25-115	25	44	53	115	86	58	10	M16x1
HSK100A-SF06-120	6	21	27	120	91	36	10	M5
HSK100A-SF08-120	8	21	27	120	91	36	10	M6
HSK100A-SF10-120	10	24	32	120	91	42	10	M8x1
HSK100A-SF12-120	12	24	32	120	91	47	10	M10x1
HSK100A-SF14-120	14	27	34	120	91	47	10	M10x1
HSK100A-SF16-120	16	27	34	120	91	50	10	M12x1
HSK100A-SF18-120	18	33	42	120	91	50	10	M12x1
HSK100A-SF20-120	20	33	42	120	91	52	10	M16x1
HSK100A-SF25-120	25	44	53	120	91	58	10	M16x1
HSK100A-SF32-120	32	44	53	120	91	62	10	M16x1
HSK100A-SF06-160	6	21	32	160	131	36	10	M5
HSK100A-SF08-160	8	21	32	160	131	36	10	M6
HSK100A-SF10-160	10	24	34	160	131	42	10	M8x1
HSK100A-SF12-160	12	24	34	160	131	47	10	M10x1
HSK100A-SF14-160	14	27	42	160	131	47	10	M10x1
HSK100A-SF16-160	16	27	42	160	131	50	10	M12x1
HSK100A-SF18-160	18	33	50.5	160	131	50	10	M12x1
HSK100A-SF20-160	20	33	50.5	160	131	52	10	M16x1
HSK100A-SF25-160	25	44	60	160	131	58	10	M16x1
HSK100A-SF32-160	32	44	60	160	131	62	10	M16x1

HSK-GSK High Speed Collet Chuck

A↗	RPM	
≤0.003	G2.5/30000	AD





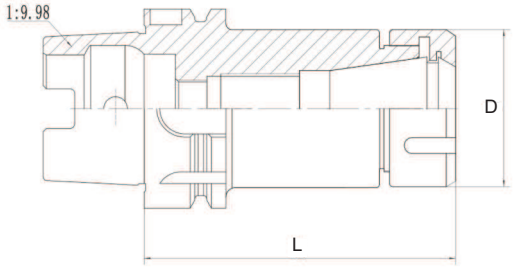
Unit:mm

Size	Range	L	D	Collet	Nut	Wrench
HSK63A-GSK06T-100	1-6	100	19.5	CSK06	GSK06	GH19
HSK63A-GSK06T-120	1-6	120	19.5	CSK06	GSK06	GH19
HSK63A-GSK10T-60	1-10	60	27.1	CSK10	GSK10	GH27
HSK63A-GSK10T-80	1-10	80	27.1	CSK10	GSK10	GH27
HSK63A-GSK10T-100	1-10	100	27.1	CSK10	GSK10	GH27
HSK63A-GSK10T-120	1-10	120	27.1	CSK10	GSK10	GH27
HSK63A-GSK13T-90	2-13	90	33.0	CSK13	GSK13	GH33
HSK63A-GSK13T-120	2-13	120	33.0	CSK13	GSK13	GH33
HSK63A-GSK16T-80	2-16	80	40.0	CSK16	GSK16	GH40
HSK63A-GSK16T-100	2-16	100	40.0	CSK16	GSK16	GH40
HSK63A-GSK16T-120	2-16	120	40.0	CSK16	GSK16	GH40
HSK63A-GSK20T-100	3-20	100	48.0	CSK20	GSK20	GH48
HSK63A-GSK20T-120	3-20	120	48.0	CSK20	GSK20	GH48
HSK63A-GSK25T-100	4-25	100	55.0	CSK25	GSK25	GH55
HSK63A-GSK25T-120	4-25	120	55.0	CSK25	GSK25	GH55
HSK100A-GSK06T-120	1-6	120	19.5	CSK06	GSK06	GH19
HSK100A-GSK10T-120	1-10	120	27.1	CSK10	GSK10	GH27
HSK100A-GSK10T-135	1-10	135	27.1	CSK10	GSK10	GH27
HSK100A-GSK10T-165	1-10	165	27.1	CSK10	GSK10	GH27
HSK100A-GSK10T-250	1-10	250	27.1	CSK10	GSK10	GH27
HSK100A-GSK13T-135	2-13	135	33.0	CSK13	GSK13	GH33
HSK100A-GSK13T-250	2-13	250	33.0	CSK13	GSK13	GH33
HSK100A-GSK16T-120	2-16	120	40.0	CSK16	GSK16	GH40
HSK100A-GSK16T-160	2-16	160	40.0	CSK16	GSK16	GH40
HSK100A-GSK16T-250	2-16	250	40.0	CSK16	GSK16	GH40

★Collet and Wrench need to be ordered separately.
★Collet E74-E79,Wrench E80

HSK-ER Collet Chuck

A↗	RPM	
≤0.003	G2.5/30000	AD



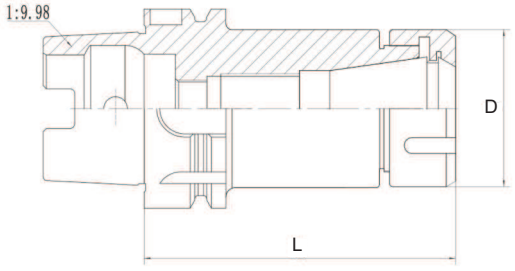
Unit:mm

Size	Range	L	D	Collet	Nut	Wrench
HSK63A-ER11-100	1-7	100	19	ER11	ER11A	WER11A
HSK63A-ER16-70	1-10	70	28	ER16	ER16A	WER16A
HSK63A-ER16-80	1-10	80	28	ER16	ER16A	WER16A
HSK63A-ER16-100	1-10	100	28	ER16	ER16A	WER16A
HSK63A-ER16-125	1-10	125	28	ER16	ER16A	WER16A
HSK63A-ER16-160	1-10	160	28	ER16	ER16A	WER16A
HSK63A-ER20-80	1-13	80	34	ER20	ER20A	WER20A
HSK63A-ER20-100	1-13	100	34	ER20	ER20A	WER20A
HSK63A-ER20-125	1-13	125	34	ER20	ER20A	WER20A
HSK63A-ER20-160	1-13	160	34	ER20	ER20A	WER20A
HSK63A-ER25-70	1-16	70	42	ER25	ER25UM	WER25UM
HSK63A-ER25-80	1-16	80	42	ER25	ER25UM	WER25UM
HSK63A-ER25-100	1-16	100	42	ER25	ER25UM	WER25UM
HSK63A-ER25-125	1-16	125	42	ER25	ER25UM	WER25UM
HSK63A-ER25-160	1-16	160	42	ER25	ER25UM	WER25UM
HSK63A-ER25-300	1-16	300	42	ER25	ER25UM	WER25UM
HSK63A-ER32-80	1-20	80	50	ER32	ER32UM	WER32UM
HSK63A-ER32-100	1-20	100	50	ER32	ER32UM	WER32UM
HSK63A-ER32-125	1-20	125	50	ER32	ER32UM	WER32UM
HSK63A-ER32-160	1-20	160	50	ER32	ER32UM	WER32UM
HSK63A-ER32-250	1-20	250	50	ER32	ER32UM	WER32UM
HSK63A-ER40-100	3-26	100	63	ER40	ER40UM	WER40UM
HSK63A-ER40-120	3-26	120	63	ER40	ER40UM	WER40UM
HSK63A-ER40-160	3-26	160	63	ER40	ER40UM	WER40UM

★Collet and Wrench need to be ordered separately.
★Collet E63-E71,Wrench E73

HSK-ER Collet Chuck

A↗	RPM	
≤0.003	G2.5/30000	AD



Unit:mm

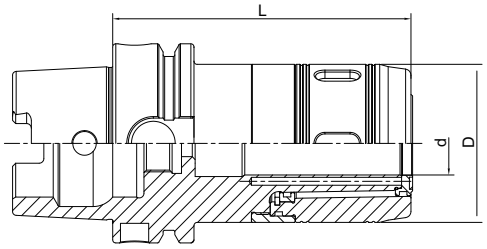
Size	Range	L	D	Collet	Nut	Wrench
HSK100A-ER16-100	1-10	100	28	ER16	ER16A	WER16A
HSK100A-ER16-125	1-10	125	28	ER16	ER16A	WER16A
HSK100A-ER16-160	1-10	160	28	ER16	ER16A	WER16A
HSK100A-ER16-200	1-10	200	28	ER16	ER16A	WER16A
HSK100A-ER16-250	1-10	250	28	ER16	ER16A	WER16A
HSK100A-ER20-100	1-13	100	34	ER20	ER20A	WER20A
HSK100A-ER20-125	1-13	125	34	ER20	ER20A	WER20A
HSK100A-ER20-160	1-13	160	34	ER20	ER20A	WER20A
HSK100A-ER20-200	1-13	200	34	ER20	ER20A	WER20A
HSK100A-ER20-250	1-13	250	34	ER20	ER20A	WER20A
HSK100A-ER25-100	1-16	100	42	ER25	ER25UM	WER25UM
HSK100A-ER25-125	1-16	125	42	ER25	ER25UM	WER25UM
HSK100A-ER25-160	1-16	160	42	ER25	ER25UM	WER25UM
HSK100A-ER25-200	1-16	200	42	ER25	ER25UM	WER25UM
HSK100A-ER25-250	1-16	250	42	ER25	ER25UM	WER25UM
HSK100A-ER32-100	1-20	100	50	ER32	ER32UM	WER32UM
HSK100A-ER32-125	1-20	125	50	ER32	ER32UM	WER32UM
HSK100A-ER32-160	1-20	160	50	ER32	ER32UM	WER32UM
HSK100A-ER32-250	1-20	250	50	ER32	ER32UM	WER32UM
HSK100A-ER40-100	3-26	100	63	ER40	ER40UM	WER40UM
HSK100A-ER40-125	3-26	125	63	ER40	ER40UM	WER40UM
HSK100A-ER40-200	3-26	200	63	ER40	ER40UM	WER40UM
HSK100A-ER40-250	3-26	250	63	ER40	ER40UM	WER40UM
HSK100A-ER40-300	3-26	300	63	ER40	ER40UM	WER40UM

★Collet and Wrench need to be ordered separately.
★Collet E63-E71,Wrench E73

Power Milling Chuck

A↗ ≤0.008

AD



Unit:mm

Size	d	D	L	Capacity
HSK63A-HC20-100	20	50	100	3-16; 20
HSK63A-HC25-100	25	59	100	3-20; 25
HSK63A-HC32-120	32	72	120	3-25; 32
HSK100A-HC20-105	20	50	105	3-16; 20
HSK100A-HC25-105	25	59	105	3-20; 25
HSK100A-HC32-120	32	72	120	3-25; 32

★Collet and Wrench need to be ordered separately.
★Collet E62,Wrench E62

Face Mill Holder

DIN6357	A ↗	RPM	AD
	≤0.005	G2.5/25000	

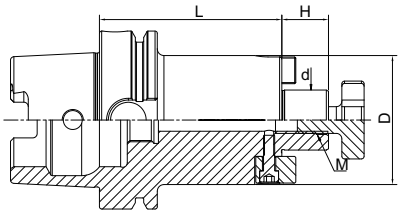


image 1

image 2

Unit:mm

Size	d	D	H	L	M
HSK63A-FMB16-50	16	38	17	50	M8
HSK63A-FMB22-50	22	48	19	50	M10
HSK63A-FMB27-60	27	58	21	60	M12
HSK63A-FMB32-60	32	78	24	60	M16
HSK63A-FMB16-100	16	38	17	100	M8
HSK63A-FMB22-100	22	48	19	100	M10
HSK63A-FMB27-100	27	58	21	100	M12
HSK63A-FMB32-100	32	78	24	100	M16
HSK63A-FMB16-160	16	38	17	160	M8
HSK63A-FMB22-160	22	48	19	160	M10
HSK63A-FMB27-160	27	58	21	160	M12
HSK63A-FMB32-160	32	78	24	160	M16

Face mill holder is with retaining screw (image 2) except China, it is with universal screw (image 1) in China.
AD/B Customized

Face Mill Holder

DIN6357	A ↗	RPM	
	≤0.003	G2.5/25000	AD

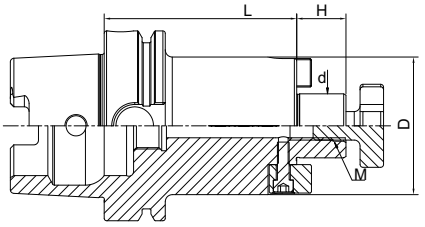


image 1

image 2

Unit:mm

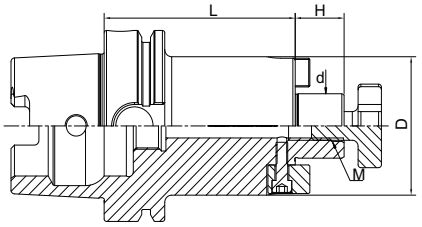
Size	d	D	H	L	M
HSK100A-FMB22-50	22	48	19	50	M10
HSK100A-FMB27-50	27	58	21	50	M12
HSK100A-FMB32-60	32	78	24	60	M16
HSK100A-FMB22-100	22	48	19	100	M10
HSK100A-FMB27-100	27	58	21	100	M12
HSK100A-FMB32-100	32	78	24	100	M16
HSK100A-FMB22-160	22	48	19	160	M10
HSK100A-FMB27-160	27	58	21	160	M12
HSK100A-FMB32-160	32	78	24	160	M16

Universal screw (image 1) for Chinese market.

Retaining screw (image 2) for the market out of China.

Face Mill Holder

DIN6357	A ↗	RPM	AD
	≤0.005	G2.5/25000	



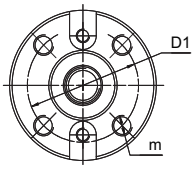


image 1

image 2

Unit:mm

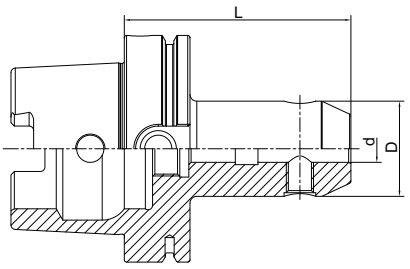
Size	d	D	D1	H	L	M	m
HSK63A-FMB40-60	40	88	66.7	27	60	M20	M12
HSK63A-FMB40-100	40	88	66.7	27	100	M20	M12
HSK63A-FMB40-160	40	88	66.7	27	160	M20	M12
HSK100A-FMB40-60	40	88	66.7	27	60	M20	M12
HSK100A-FMB40-100	40	88	66.7	27	100	M20	M12
HSK100A-FMB40-160	40	88	66.7	27	160	M20	M12

One universal screw (image 1) and 4 cap screws for Chinese market.

One retaining screw (image 2) and 4 cap screws for the market out of China.

Side Lock Holder

DIN6359/1835B	A ↗	RPM	
	≤0.005	G2.5/25000	AD

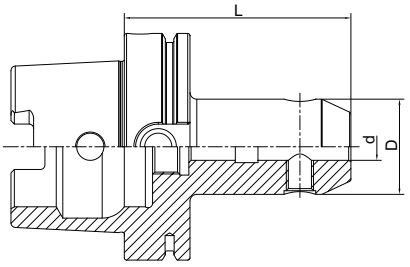


Unit:mm

Size	d	D	L	M	Screw Quantity
HSK63A-SLA06-65	6	25	65	M6	1
HSK63A-SLA08-65	8	28	65	M8	1
HSK63A-SLA10-65	10	35	65	M10	1
HSK63A-SLA12-80	12	42	80	M12	1
HSK63A-SLA14-80	14	44	80	M12	1
HSK63A-SLA16-80	16	48	80	M14	1
HSK63A-SLA20-80	20	52	80	M16	1
HSK63A-SLA25-110	25	65	110	M18*2	2
HSK63A-SLA32-110	32	72	110	M20*2	2
HSK63A-SLA40-125	40	80	125	M20*2	2
HSK63A-SLA06-100	6	25	100	M6	1
HSK63A-SLA08-100	8	28	100	M8	1
HSK63A-SLA10-100	10	35	100	M10	1
HSK63A-SLA14-100	14	44	100	M12	1
HSK63A-SLA16-100	16	48	100	M12	1
HSK63A-SLA18-100	18	50	100	M14	1
HSK63A-SLA20-100	20	52	100	M16	1
HSK63A-SLA06-160	6	25	160	M6	1
HSK63A-SLA08-160	8	28	160	M8	1
HSK63A-SLA10-160	10	35	160	M10	1
HSK63A-SLA12-160	12	42	160	M12	1
HSK63A-SLA14-160	14	44	160	M12	1
HSK63A-SLA16-160	16	48	160	M14	1
HSK63A-SLA18-160	18	50	160	M14	1
HSK63A-SLA20-160	20	52	160	M16	1
HSK63A-SLA25-160	25	65	160	M18*2	2
HSK63A-SLA32-160	32	72	160	M20*2	2

Side Lock Holder

DIN6359/1835B	A ↗	RPM	AD
	≤0.005	G2.5/25000	

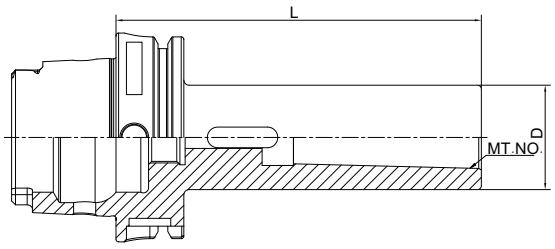


Unit:mm

Size	d	D	L	M	Screw Quantity
HSK100A-SLA08-80	8	28	80	M8	1
HSK100A-SLA10-80	10	35	80	M10	1
HSK100A-SLA12-80	12	42	80	M12	1
HSK100A-SLA14-80	14	44	80	M12	1
HSK100A-SLA16-100	16	48	100	M14	1
HSK100A-SLA18-100	18	50	100	M14	1
HSK100A-SLA20-100	20	52	100	M16	1
HSK100A-SLA25-100	25	65	100	M18*2	2
HSK100A-SLA32-100	32	72	100	M20*2	2
HSK100A-SLA40-105	40	80	105	M20*2	2
HSK100A-SLA50-130	50	100	130	M24*2	2
HSK100A-SLA08-160	8	28	160	M8	1
HSK100A-SLA10-160	10	35	160	M10	1
HSK100A-SLA12-160	12	42	160	M12	1
HSK100A-SLA14-160	14	44	160	M12	1
HSK100A-SLA16-160	16	48	160	M14	1
HSK100A-SLA18-160	18	50	160	M14	1
HSK100A-SLA20-160	20	52	160	M16	1
HSK100A-SLA25-160	25	65	160	M18*2	2
HSK100A-SLA32-160	32	72	160	M20*2	2
HSK100A-SLA40-160	40	80	160	M20*2	2

Morse Taper Adapter with Tang

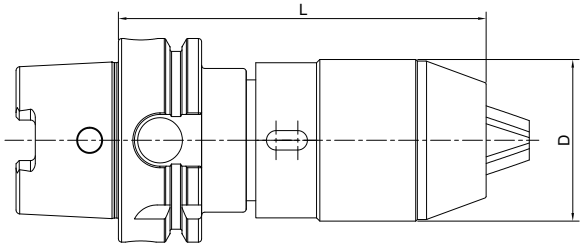
DIN6383	A ↗	RPM
	≤0.005	G2.5/25000



Unit:mm

Size	MT. NO.	D	L
HSK63A-MTA1-100	1	25	100
HSK63A-MTA2-120	2	32	120
HSK63A-MTA3-140	3	40	140
HSK63A-MTA4-160	4	48	160
HSK100A-MTA1-110	1	25	110
HSK100A-MTA2-120	2	32	120
HSK100A-MTA3-150	3	40	150
HSK100A-MTA4-170	4	48	170
HSK100A-MTA5-200	5	63	200

APU Drill Chuck Holder

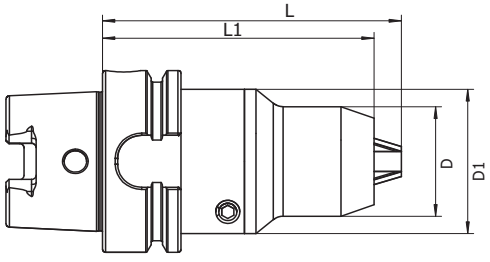


Unit:mm

Size	D	L	Clamping Range
HSK63A-APU13-130	48	130	1-13
HSK63A-APU16-140	53	140	3-16
HSK100A-APU13-140	48	140	1-13
HSK100A-APU16-150	53	150	3-16

Precision Drill Chuck Holder

A ↗
≤0.03

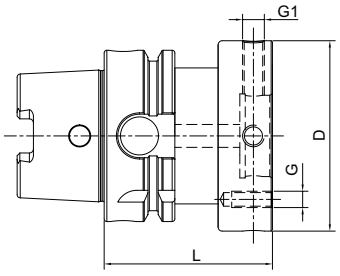


Unit:mm

Size	D	D1	L	L1	Clamping Range
HSK63A-CPU13-100	50	-	100	-	1-13
HSK63A-CPU16-100	50	-	100	-	1-16
HSK100A-CPU13-105	50	-	105	-	1-13
HSK100A-CPU16-105	50	-	105	-	1-16

Runout Adjustable Flange Adapter

A ↗	RPM	
≤0.002	G2.5/25000	AD



Unit:mm

Size	HSK-A	D	L	G	G1
HSK63A-MOD060-060	63	60	60	M5	M8x1
HSK63A-MOD070-060	63	70	60	M6	M8x1
HSK63A-MOD080-060	63	80	60	M6	M8x1
HSK63A-MOD100-065	63	100	65	M8	M10x1
HSK63A-MOD117-065	63	117	65	M8	M10x1
HSK100A-MOD070-055	100	70	55	M6	M8x1
HSK100A-MOD080-055	100	80	55	M6	M8x1
HSK100A-MOD100-065	100	100	65	M8	M10x1
HSK100A-MOD117-065	100	117	65	M8	M10x1

ACCESSORY

Hydraulic Sealed Collet (Internal cooling)----- **E55–58**

Hydraulic Sealed Collet (End-face cooling)--- **E59–61**

Straight Shank Collet---------- **E62**

Hook Wrench---------- **E62**

ER Collet DIN6499B---------- **E63-66**

ER/C Collet (Oil Hole Type)---------- **E67-71**

ER Collet Nut---------- **E72**

ER Wrench---------- **E73**

CSK High Speed Collet---------- **E74-76**

CSK/C High Speed Collet (Oil Hole Type)--- **E77-79**

GSK High Speed Nut---------- **E80**

GSK Ball Wrench---------- **E80**

Nozzle---------- **E81**

Nozzle Key---------- **E81**

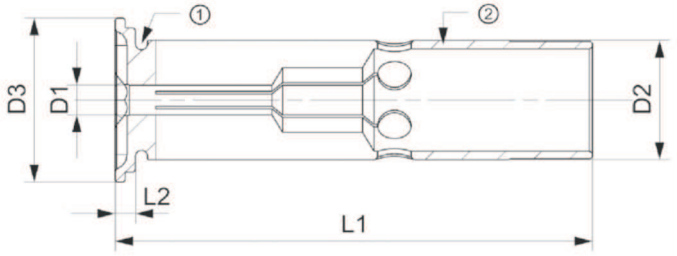
Drive Key---------- **E81**

Pull Stud---------- **E82-84**

Hydraulic Sealed Collet (Internal cooling)

A ↗
≤0.003

① O-ring sealing ② Adjustable stopper/ length



Unit:mm

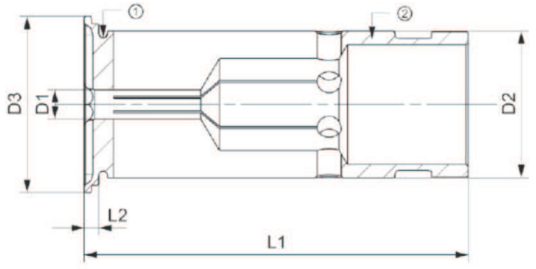
Size	D1	D2	D3	L1	L2	Accuracy grade
HY01200030IC-AA	3	12	16.5	47	2	AA
HY01200040IC-AA	4	12	16.5	47	2	AA
HY01200050IC-AA	5	12	16.5	47	2	AA
HY01200060IC-AA	6	12	16.5	47	2	AA
HY01200080IC-AA	8	12	16.5	47	2	AA
HY01200100IC-AA	10	12	16.5	47	2	AA

- Accuracy grade: 1μm < AA ≤ 3μm

Hydraulic Sealed Collet (Internal cooling)

A ↗
≤0.003

① O-ring sealing ② Adjustable stopper/ length



Unit:mm

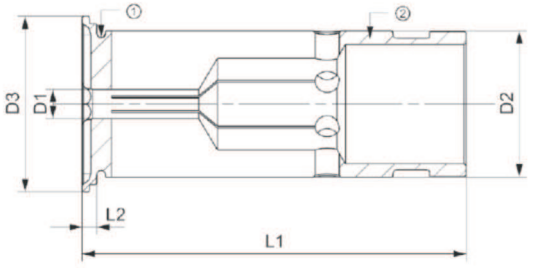
Size	D1	D2	D3	L1	L2	Accuracy grade
HY02000030IC-AA	3	20	24	52.5	2	AA
HY02000040IC-AA	4	20	24	52.5	2	AA
HY02000050IC-AA	5	20	24	52.5	2	AA
HY02000060IC-AA	6	20	24	52.5	2	AA
HY02000070IC-AA	7	20	24	52.5	2	AA
HY02000080IC-AA	8	20	24	52.5	2	AA
HY02000090IC-AA	9	20	24	52.5	2	AA
HY02000100IC-AA	10	20	24	52.5	2	AA
HY02000110IC-AA	11	20	24	52.5	2	AA
HY02000120IC-AA	12	20	24	52.5	2	AA
HY02000130IC-AA	13	20	24	52.5	2	AA
HY02000140IC-AA	14	20	24	52.5	2	AA
HY02000150IC-AA	15	20	24	52.5	2	AA
HY02000160IC-AA	16	20	24	52.5	2	AA

- Accuracy grade: 1μm < AA ≤ 3μm

Hydraulic Sealed Collet (Internal cooling)

A ↗
≤0.003

① O-ring sealing ② Adjustable stopper/ length



Unit:mm

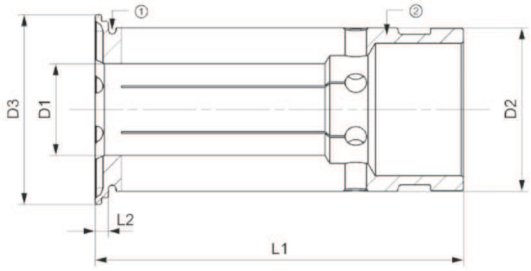
Size	D1	D2	D3	L1	L2	Accuracy grade
HY02500060IC-AA	6	25	29	56.5	2	AA
HY02500080IC-AA	8	25	29	56.5	2	AA
HY02500100IC-AA	10	25	29	56.5	2	AA
HY02500120IC-AA	12	25	29	56.5	2	AA
HY02500140IC-AA	14	25	29	56.5	2	AA
HY02500160IC-AA	16	25	29	56.5	2	AA
HY02500180IC-AA	18	25	29	56.5	2	AA
HY02500200IC-AA	20	25	29	56.5	2	AA

- Accuracy grade: 1μm < AA ≤ 3μm

Hydraulic Sealed Collet (Internal cooling)

A ↗
≤0.003

① O-ring sealing ② Adjustable stopper/ length



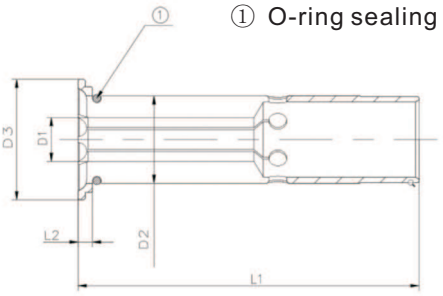
Unit:mm

Size	D1	D2	D3	L1	L2	Accuracy grade
HY03200060IC-AA	6	32	35.5	62.5	2	AA
HY03200080IC-AA	8	32	35.5	62.5	2	AA
HY03200100IC-AA	10	32	35.5	62.5	2	AA
HY03200120IC-AA	12	32	35.5	62.5	2	AA
HY03200140IC-AA	14	32	35.5	62.5	2	AA
HY03200160IC-AA	16	32	35.5	62.5	2	AA
HY03200180IC-AA	18	32	35.5	62.5	2	AA
HY03200200IC-AA	20	32	35.5	62.5	2	AA

- Accuracy grade: 1μm < AA ≤ 3μm

Hydraulic Sealed Collet (End-face cooling)

A ↗
⩽0.003



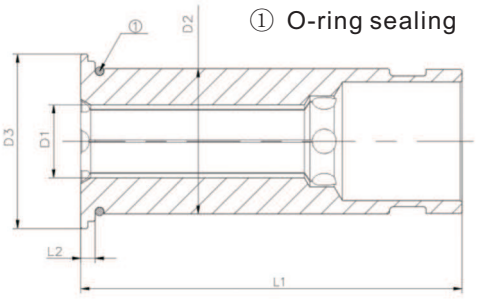
Unit:mm

Size	D1	D2	D3	L1	L2	Accuracy grade
HY01200030PC-AA	3	12	16.5	47	2	AA
HY01200040PC-AA	4	12	16.5	47	2	AA
HY01200050PC-AA	5	12	16.5	47	2	AA
HY01200060PC-AA	6	12	16.5	47	2	AA
HY01200080PC-AA	8	12	16.5	47	2	AA

- Accuracy grade: 1μm < AA ≤ 3μm

Hydraulic Sealed Collet (End-face cooling)

A ↗
≤0.003



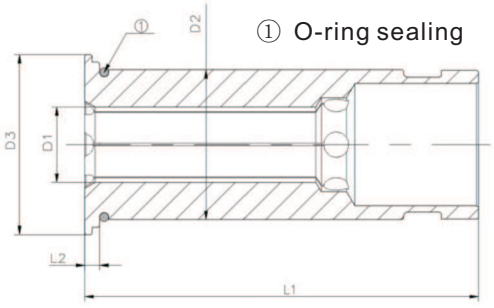
Unit:mm

Size	D1	D2	D3	L1	L2	Accuracy grade
HY02000030PC-AA	3	20	24	52.5	2	AA
HY02000040PC-AA	4	20	24	52.5	2	AA
HY02000050PC-AA	5	20	24	52.5	2	AA
HY02000060PC-AA	6	20	24	52.5	2	AA
HY02000070PC-AA	7	20	24	52.5	2	AA
HY02000080PC-AA	8	20	24	52.5	2	AA
HY02000090PC-AA	9	20	24	52.5	2	AA
HY02000100PC-AA	10	20	24	52.5	2	AA
HY02000110PC-AA	11	20	24	52.5	2	AA
HY02000120PC-AA	12	20	24	52.5	2	AA
HY02000130PC-AA	13	20	24	52.5	2	AA
HY02000140PC-AA	14	20	24	52.5	2	AA
HY02000150PC-AA	15	20	24	52.5	2	AA
HY02000160PC-AA	16	20	24	52.5	2	AA

- Accuracy grade: 1μm < AA ≤ 3μm

Hydraulic Sealed Collet (End-face cooling)

A ↗
⩽0.003

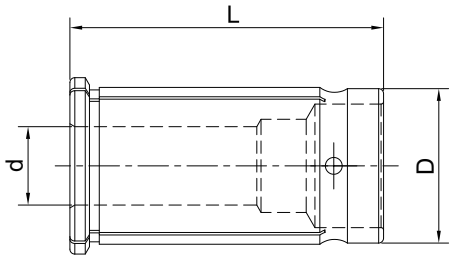


Unit:mm

Size	D1	D2	D3	L1	L2	Accuracy grade
HY03200060PC-AA	6	32	35.5	62.5	2	AA
HY03200080PC-AA	8	32	35.5	62.5	2	AA
HY03200100PC-AA	10	32	35.5	62.5	2	AA
HY03200120PC-AA	12	32	35.5	62.5	2	AA
HY03200140PC-AA	14	32	35.5	62.5	2	AA
HY03200160PC-AA	16	32	35.5	62.5	2	AA
HY03200180PC-AA	18	32	35.5	62.5	2	AA
HY03200200PC-AA	20	32	35.5	62.5	2	AA
HY03200250PC-AA	25	32	35.5	62.5	2	AA

- Accuracy grade: 1μm < AA ≤ 3μm

Straight Shank Collet



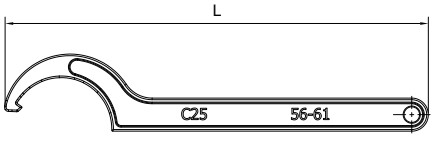
Metric

Unit:mm

Size	d	D	L
SC20-03	3	20	50
SC20-04	4	20	50
SC20-05	5	20	50
SC20-06	6	20	50
SC20-08	8	20	50
SC20-10	10	20	50
SC20-12	12	20	50
SC20-14	14	20	50
SC20-16	16	20	50
SC25-03	3	25	60
SC25-04	4	25	60
SC25-05	5	25	60
SC25-06	6	25	60
SC25-08	8	25	60
SC25-10	10	25	60
SC25-12	12	25	60

Size	d	D	L
SC25-14	14	25	60
SC25-16	16	25	60
SC25-18	18	25	60
SC25-20	20	25	60
SC32-03	3	32	64
SC32-04	4	32	64
SC32-05	5	32	64
SC32-06	6	32	64
SC32-08	8	32	64
SC32-10	10	32	64
SC32-12	12	32	64
SC32-14	14	32	64
SC32-16	16	32	64
SC32-18	18	32	64
SC32-20	20	32	64
SC32-25	25	32	64

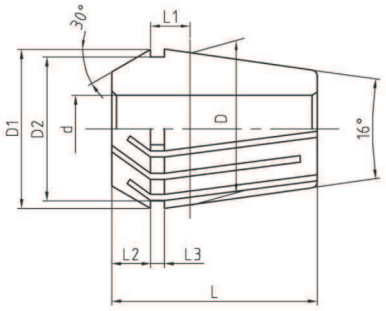
Hook Wrench



Unit:mm

Size	L	Range
C20	214	50-55
C25	214	56-61
C32	235	68-73
C42	261	88-96

ER Collet DIN6499B



Unit:mm

Size	dh7	D	D1	D2	L	L1	L2	L3	Capacity
ER11	1.0-7.0	11	11.5	9.5	18.0	3.80	2.5	2.0	0.5
ER16	1.0-2.5	16	17.0	13.8	27.5	6.26	4.0	2.7	0.5
	>2.5-10.0	16	17.0	13.8	27.5	6.26	4.0	2.7	1.0
ER20	1.0-2.5	20	21.0	17.4	31.5	6.36	4.8	2.8	0.5
	>2.5-13.0	20	21.0	17.4	31.5	6.36	4.8	2.8	1.0
ER25	1.0-2.5	25	26.0	22.0	34.0	6.66	5.0	3.1	0.5
	>2.5-16.0	25	26.0	22.0	34.0	6.66	5.0	3.1	1.0
ER32	2.0-2.5	32	33.0	29.2	40.0	7.16	5.5	3.6	0.5
	>2.5-20.0	32	33.0	29.2	40.0	7.16	5.5	3.6	1.0
ER40	3.0-26.0	40	41.0	36.2	46.0	7.66	7.0	4.1	1.0
ER50	6.0-10.0	50	52.0	46.0	60.0	12.60	8.5	5.5	1.0
	>10.0-34.0	50	52.0	46.0	60.0	12.60	8.5	5.5	2.0

Accuracy grade:A≤0.008mm
AA≤0.005mm

Ordering Example:ER16-5-AA

ER Collet DIN6499B

Unit:mm

ER11		ER16		ER20		ER25	
Size	Range	Size	Range	Size	Range	Size	Range
ER11-1	1.0-0.5	ER16-1	1.0-0.5	ER20-1	1.0-0.5	ER25-1	1.0-0.5
ER11-1.5	1.5-1.0	ER16-1.5	1.5-1.0	ER20-1.5	1.5-1.0	ER25-1.5	1.5-1.0
ER11-2	2.0-1.5	ER16-2	2.0-1.5	ER20-2	2.0-1.5	ER25-2	2.0-1.5
ER11-2.5	2.5-2.0	ER16-2.5	2.5-2.0	ER20-2.5	2.5-2.0	ER25-2.5	2.5-2.0
ER11-3	3.0-2.5	ER16-3	3.0-2.5	ER20-3	3.0-2.5	ER25-3	3.0-2.5
ER11-3.5	3.5-3.0	ER16-4	4.0-3.0	ER20-4	4.0-3.0	ER25-4	4.0-3.0
ER11-4	4.0-3.5	ER16-5	5.0-4.0	ER20-5	5.0-4.0	ER25-5	5.0-4.0
ER11-4.5	4.5-4.0	ER16-6	6.0-5.0	ER20-6	6.0-5.0	ER25-6	6.0-5.0
ER11-5	5.0-4.5	ER16-7	7.0-6.0	ER20-7	7.0-6.0	ER25-7	7.0-6.0
ER11-5.5	5.5-5.0	ER16-8	8.0-7.0	ER20-8	8.0-7.0	ER25-8	8.0-7.0
ER11-6	6.0-5.5	ER16-9	9.0-8.0	ER20-9	9.0-8.0	ER25-9	9.0-8.0
ER11-6.5	6.5-6.0	ER16-10	10.0-9.0	ER20-10	10.0-9.0	ER25-10	10.0-9.0
ER11-7	7.0-6.5			ER20-11	11.0-10.0	ER25-11	11.0-10.0
				ER20-12	12.0-11.0	ER25-12	12.0-11.0
				ER20-13	13.0-12.0	ER25-13	13.0-12.0
						ER25-14	14.0-13.0
						ER25-15	15.0-14.0
						ER25-16	16.0-15.0

ER Collet DIN6499B

Unit:mm

ER32		ER40		ER50	
Size	Range	Size	Range	Size	Range
ER32-1	1.0-0.5	ER40-3	3.0-2.5	ER50-6	6.0-5.0
ER32-1.5	1.5-1.0	ER40-4	4.0-3.0	ER50-7	7.0-6.0
ER32-2	2.0-1.5	ER40-5	5.0-4.0	ER50-8	8.0-7.0
ER32-2.5	2.5-2.0	ER40-6	6.0-5.0	ER50-9	9.0-8.0
ER32-3	3.0-2.5	ER40-7	7.0-6.0	ER50-10	10.0-9.0
ER32-4	4.0-3.0	ER40-8	8.0-7.0	ER50-11	11.0-9.0
ER32-5	5.0-4.0	ER40-9	9.0-8.0	ER50-12	12.0-10.0
ER32-6	6.0-5.0	ER40-10	10.0-9.0	ER50-13	13.0-11.0
ER32-7	7.0-6.0	ER40-11	11.0-10.0	ER50-14	14.0-12.0
ER32-8	8.0-7.0	ER40-12	12.0-11.0	ER50-15	15.0-13.0
ER32-9	9.0-8.0	ER40-13	13.0-12.0	ER50-16	16.0-14.0
ER32-10	10.0-9.0	ER40-14	14.0-13.0	ER50-17	17.0-15.0
ER32-11	11.0-10.0	ER40-15	15.0-14.0	ER50-18	18.0-16.0
ER32-12	12.0-11.0	ER40-16	16.0-15.0	ER50-19	19.0-17.0
ER32-13	13.0-12.0	ER40-17	17.0-16.0	ER50-20	20.0-18.0
ER32-14	14.0-13.0	ER40-18	18.0-17.0	ER50-21	21.0-19.0
ER32-15	15.0-14.0	ER40-19	19.0-18.0	ER50-22	22.0-20.0
ER32-16	16.0-15.0	ER40-20	20.0-19.0	ER50-23	23.0-21.0
ER32-17	17.0-16.0	ER40-21	21.0-20.0	ER50-24	24.0-22.0
ER32-18	18.0-17.0	ER40-22	22.0-21.0	ER50-25	25.0-23.0
ER32-19	19.0-18.0	ER40-23	23.0-22.0	ER50-26	26.0-24.0
ER32-20	20.0-19.0	ER40-24	24.0-23.0	ER50-27	27.0-25.0
		ER40-25	25.0-24.0	ER50-28	28.0-26.0
		ER40-26	26.0-25.0	ER50-29	29.0-27.0
				ER50-30	30.0-28.0
				ER50-31	31.0-29.0
				ER50-32	32.0-30.0
				ER50-33	33.0-31.0
				ER50-34	34.0-32.0

ER Collet Set

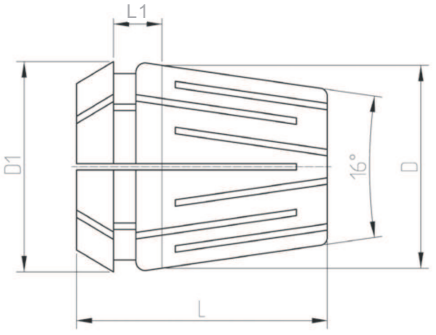
Unit:mm

Size	Type	PCS/SET
ER11-7PCS	1,2,3,4,5,6,7	7
ER11-9PCS	3,3.5,4,4.5,5.5,5,6,6.5,7	9
ER11-13PCS	1,1.5,2,2.5,3,3.5,4,4.5,5,5.5,6,6.5,7	13
ER16-8PCS	3,4,5,6,7,8,9,10	8
ER16-10PCS	1,2,3,4,5,6,7,8,9,10	10
ER16-12PCS	1,1.5,2,2.5,3,4,5,6,7,8,9,10	12
ER20-11PCS	3,4,5,6,7,8,9,10,11,12,13	11
ER20-12PCS	2,3,4,5,6,7,8,9,10,11,12,13	12
ER20-13PCS	1,2,3,4,5,6,7,8,9,10,11,12,13	13
ER20-14PCS	1,1.5,2,3,4,5,6,7,8,9,10,11,12,13	14
ER25-14PCS	3,4,5,6,7,8,9,10,11,12,13,14,15,16	14
ER25-15PCS	2,3,4,5,6,7,8,9,10,11,12,13,14,15,16	15
ER25-18PCS	1,1.5,2,2.5,3,4,5,6,7,8,9,10,11,12,13,14,15,16	18
ER32-18PCS	3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20	18
ER32-19PCS	2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20	19
ER32-21PCS	1.1.5,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18, 19,20	21
ER40-8PCS	4,6,8,10,12,16,20,25	8
ER40-15PCS	4,5,6,8,10,12,14,15,16,18,20,22,24,25,26	15
ER40-18PCS	4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,25	18
ER40-23PCS	4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26	23
ER40-24PCS	3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26	24
ER50-15PCS	6,8,10,12,14,16,18,20,22,24,26,28,30,32,34	15
ER50-29PCS	6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26, 27,28,29,30,31,32,33,34	29

Accuracy grade:A≤0.008mm
AA≤0.005mm

Ordering Example:ER16-10PCS-AA

ER/C Collet (Oil Hole Type)



Unit:mm

Size	d	Range	D	D1	L	L1
ER11C	3-7	0.1	11	11.5	18.0	3.80
ER16C	3-10	0.1	16	17.0	27.5	6.26
ER20C	3-13	0.1	20	21.0	31.5	6.36
ER25C	3-16	0.1	25	26.0	34.0	6.66
ER32C	3-20	0.1	32	33.0	40.0	7.16
ER40C	4-26	0.1	40	41.0	46.0	7.66
ER50C	12-34	0.1	50	52.0	60.0	12.6

Accuracy grade:A≤0.008mm
AA≤0.005mm

Ordering Example:ER16C-5-AA

ER/C Collet (Oil Hole Type)

Unit:mm

ER11		ER16		ER20		ER25	
Size	Range	Size	Range	Size	Range	Size	Range
ER11C-3	3.0-2.9	ER16C-3	3.0-2.9	ER20C-3	3.0-2.9	ER25C-3	3.0-2.9
ER11C-4	4.0-3.9	ER16C-4	4.0-3.9	ER20C-3.5	3.5-3.4	ER25C-3.5	3.5-3.4
ER11C-4.5	4.5-4.4	ER16C-4.5	4.5-4.4	ER20C-4	4.0-3.9	ER25C-4	4.0-3.9
ER11C-5	5.0-4.9	ER16C-5	5.0-4.9	ER20C-4.5	4.5-4.4	ER25C-4.5	4.5-4.4
ER11C-5.5	5.5-5.4	ER16C-5.5	5.5-5.4	ER20C-5	5.0-4.9	ER25C-5	5.0-4.9
ER11C-6	6.0-5.9	ER16C-6	6.0-5.9	ER20C-5.5	5.5-5.4	ER25C-5.5	5.5-5.4
ER11C-6.5	6.5-6.4	ER16C-6.5	6.5-6.4	ER20C-6	6.0-5.9	ER25C-6	6.0-5.9
ER11C-7	7.0-6.9	ER16C-7	7.0-6.9	ER20C-6.5	6.5-6.4	ER25C-6.5	6.5-6.4
		ER16C-7.5	7.5-7.4	ER20C-7	7.0-6.9	ER25C-7	7.0-6.9
		ER16C-8	8.0-7.9	ER20C-7.5	7.5-7.4	ER25C-7.5	7.5-7.4
		ER16C-8.5	8.5-8.4	ER20C-8	8.0-7.9	ER25C-8	8.0-7.9
		ER16C-9	9.0-8.9	ER20C-8.5	8.5-8.4	ER25C-8.5	8.5-8.4
		ER16C-9.5	9.5-9.4	ER20C-9	9.0-8.9	ER25C-9	9.0-8.9
		ER16C-10	10.0-9.9	ER20C-9.5	9.5-9.4	ER25C-9.5	9.5-9.4
				ER20C-10	10.0-9.9	ER25C-10	10.0-9.9
				ER20C-10.5	10.5-10.4	ER25C-10.5	10.5-10.4
				ER20C-11	11.0-10.9	ER25C-11	11.0-10.9
				ER20C-11.5	11.5-11.4	ER25C-11.5	11.5-11.4
				ER20C-12	12.0-11.9	ER25C-12	12.0-11.9
				ER20C-12.5	12.5-12.4	ER25C-12.5	12.5-12.4
				ER20C-13	13.0-12.9	ER25C-13	13.0-12.9
						ER25C-13.5	13.5-13.4
						ER25C-14	14.0-13.9
						ER25C-14.5	14.5-14.4
						ER25C-15	15.0-14.9
						ER25C-15.5	15.5-15.4
						ER25C-16	16.0-15.9

ER/C Collet (Oil Hole Type)

Unit:mm

ER32		ER40		ER50	
Size	Range	Size	Range	Size	Range
ER32C-3	3.0-2.9	ER40C-4	4.0-3.9	ER50C-12	12.0-11.9
ER32C-3.5	3.5-3.4	ER40C-4.5	4.5-4.4	ER50C-14	14.0-13.9
ER32C-4	4.0-3.9	ER40C-5	5.0-4.9	ER50C-16	16.0-15.9
ER32C-4.5	4.5-4.4	ER40C-5.5	5.5-5.4	ER50C-16.5	16.5-16.4
ER32C-5	5.0-4.9	ER40C-6	6.0-5.9	ER50C-17	17.0-16.9
ER32C-5.5	5.5-5.4	ER40C-6.5	6.5-6.4	ER50C-17.5	17.5-17.4
ER32C-6	6.0-5.9	ER40C-7	7.0-6.9	ER50C-18	18.0-17.9
ER32C-6.5	6.5-6.4	ER40C-7.5	7.5-7.4	ER50C-18.5	18.5-18.4
ER32C-7	7.0-6.9	ER40C-8	8.0-7.9	ER50C-19	19.0-18.9
ER32C-7.5	7.5-7.4	ER40C-8.5	8.5-8.4	ER50C-19.5	19.5-19.4
ER32C-8	8.0-7.9	ER40C-9	9.0-8.9	ER50C-20	20.0-19.9
ER32C-8.5	8.5-8.4	ER40C-9.5	9.5-9.4	ER50C-20.5	20.5-20.4
ER32C-9	9.0-8.9	ER40C-10	10.0-9.9	ER50C-21	21.0-20.9
ER32C-9.5	9.5-9.4	ER40C-10.5	10.5-10.4	ER50C-21.5	21.5-21.4
ER32C-10	10.0-9.9	ER40C-11	11.0-10.9	ER50C-22	22.0-21.9
ER32C-10.5	10.5-10.4	ER40C-11.5	11.5-11.4	ER50C-22.5	22.5-22.4
ER32C-11	11.0-10.9	ER40C-12	12.0-11.9	ER50C-23	23.0-22.9
ER32C-11.5	11.5-11.4	ER40C-12.5	12.5-12.4	ER50C-23.5	23.5-23.4
ER32C-12	12.0-11.9	ER40C-13	13.0-12.9	ER50C-24	24.0-23.9
ER32C-12.5	12.5-12.4	ER40C-13.5	13.5-13.4	ER50C-24.5	24.5-24.4
ER32C-13	13.0-12.9	ER40C-14	14.0-13.9	ER50C-25	25.0-24.9
ER32C-13.5	13.5-13.4	ER40C-14.5	14.5-14.4	ER50C-25.5	25.5-25.4
ER32C-14	14.0-13.9	ER40C-15	15.0-14.9	ER50C-26	26.0-25.9
ER32C-14.5	14.5-14.4	ER40C-15.5	15.5-15.4	ER50C-26.5	26.5-26.4
ER32C-15	15.0-14.9	ER40C-16	16.0-15.9	ER50C-27	27.0-26.9
ER32C-15.5	15.5-15.4	ER40C-16.5	16.5-16.4	ER50C-27.5	27.5-27.4
ER32C-16	16.0-15.9	ER40C-17	17.0-16.9	ER50C-28	28.0-27.9
ER32C-16.5	16.5-16.4	ER40C-17.5	17.5-17.4	ER50C-28.5	28.5-28.4

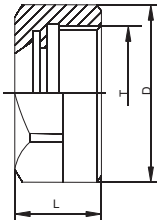
ER/C Collet (Oil Hole Type)

Unit:mm

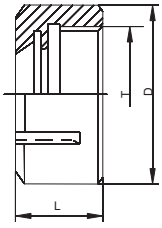
ER32		ER40		ER50	
Size	Range	Size	Range	Size	Range
ER32C-17	17.0-16.9	ER40C-18	18.0-17.9	ER50C-29	29.0-28.9
ER32C-17.5	17.5-17.4	ER40C-18.5	18.5-18.4	ER50C-29.5	29.5-29.4
ER32C-18	18.0-17.9	ER40C-19	19.0-18.9	ER50C-30	30.0-29.9
ER32C-18.5	18.5-18.4	ER40C-19.5	19.5-19.4	ER50C-30.5	30.5-30.4
ER32C-19	19.0-18.9	ER40C-20	20.0-19.9	ER50C-31	31.0-30.9
ER32C-19.5	19.5-19.4	ER40C-20.5	20.5-20.4	ER50C-31.5	31.5-31.4
ER32C-20	20.0-19.9	ER40C-21	21.0-20.9	ER50C-32	32.0-31.9
		ER40C-21.5	21.5-21.4	ER50C-32.5	32.5-32.4
		ER40C-22	22.0-21.9	ER50C-33	33.0-32.9
		ER40C-22.5	22.5-22.4	ER50C-33.5	33.5-33.4
		ER40C-23	23.0-22.9	ER50C-34	34.0-33.9
		ER40C-23.5	23.5-23.4		
		ER40C-24	24.0-23.9		
		ER40C-24.5	24.5-24.4		
		ER40C-25	25.0-24.9		
		ER40C-25.5	25.5-25.4		
		ER40C-26	26.0-25.9		

ER Collet Nut

A Type



UM Type



Unit:mm

Type	Size	D	L	T
A	ER11A	19	11.3	M14x0.75
	ER16A	28	17.5	M22x1.5
	ER20A	34	19.0	M25x1.5
UM	ER16UM	32	17.0	M22x1.5
	ER20UM	35	19.0	M25x1.5
	ER25UM	42	20.0	M32x1.5
	ER32UM	50	22.5	M40x1.5
	ER40UM	63	25.5	M50x1.5
	ER50UM	78	35.5	M64x2.0

ER/C Collet (Oil Hole Type) Set

Unit:mm

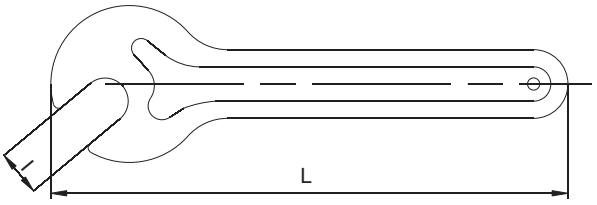
Size	Type	PCS/SET
ER11C-8PCS	3,4,4.5,5,5.5,6,6.5,7	8
ER16C-8PCS	3,4,5,6,7,8,9,10	8
ER20C-11PCS	3,4,5,6,7,8,9,10,11,12,13	11
ER25C-14PCS	3,4,5,6,7,8,9,10,11,12,13,14,15,16	14
ER32C-18PCS	3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20	18
ER40C-23PCS	4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26	23
ER50C-12PCS	12,14,16,18,20,22,24,26,28,30,32,34	12

Accuracy grade:A≤0.008mm
AA≤0.005mm

Ordering Example:ER16C-8PCS-AA

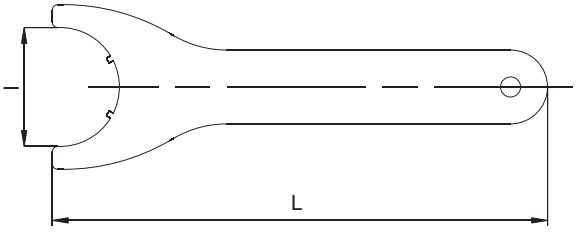
ER Wrench

A Type



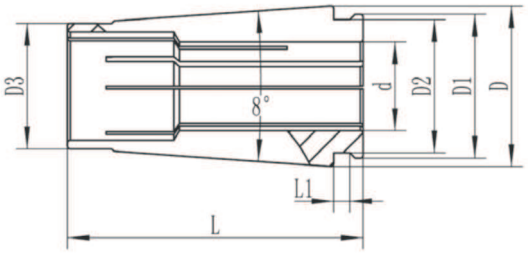
Type	Size	I	L	Nut
A	WER11A	17	110	ER11A
	WER16A	25	120	ER16A
	WER20A	30	130	ER20A

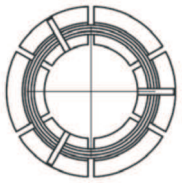
UM Type



Type	Size	I	L	Nut
UM	WER16UM	26	180	ER16UM
	WER20UM	30	190	ER20UM
	WER25UM	37	210	ER25UM
	WER32UM	46.5	250	ER32UM
	WER40UM	58	290	ER40UM
	WER50UM	74	350	ER50UM

CSK High Speed Collet





Unit:mm

Size	d	D	D1	D2	D3	L	L1
CSK06	<3	10.25	8.60	7.6	7.5	25.0	2.2
	3-6	10.40	8.90	7.6	7.5	25 .0	2.2
CSK10	<3	15.30	13.00	11.9	12.0	30.5	2.4
	3-10	15.46	13.40	11.9	12.0	30.5	2.4
CSK13	3-13	19.97	17.05	15.1	15.5	39.0	2.4
CSK16	2-16	24.54	20.75	19.0	18.8	45.0	2.5
CSK20	3-20	29.10	24.95	23.0	22.6	54.0	2.9
CSK25	4-25	35.70	30.20	28.5	28.9	57.0	3.0

Accuracy grade:A≤0.008mm
AA≤0.005mm

Ordering Example:CSK10-6-AA

CSK High Speed Collet

Unit:mm

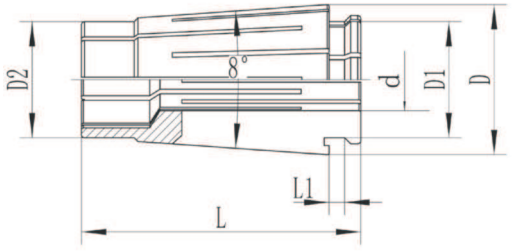
CSK06		CSK10		CSK13	
Size	Range	Size	Range	Size	Range
CSK06-1	1.00-0.75	CSK10-1	1.00-0.75	CSK13-2	2.00-1.75
CSK06-1.5	1.50-1.25	CSK10-1.5	1.50-1.25	CSK13-2.5	2.50-2.25
CSK06-2	2.00-1.75	CSK10-2	2.00-1.75	CSK13-3	3.00-2.75
CSK06-2.5	2.50-2.25	CSK10-2.5	2.50-2.25	CSK13-3.5	3.50-3.00
CSK06-3	3.00-2.75	CSK10-3	3.00-2.75	CSK13-4	4.00-3.50
CSK06-3.5	3.50-3.00	CSK10-3.5	3.50-3.00	CSK13-4.5	4.50-4.00
CSK06-4	4.00-3.50	CSK10-4	4.00-3.50	CSK13-5	5.00-4.50
CSK06-4.5	4.50-4.00	CSK10-4.5	4.50-4.00	CSK13-5.5	5.50-5.00
CSK06-5	5.00-4.50	CSK10-5	5.00-4.50	CSK13-6	6.00-5.50
CSK06-5.5	5.50-5.00	CSK10-5.5	5.50-5.00	CSK13-6.5	6.50-6.00
CSK06-6	6.00-5.50	CSK10-6	6.00-5.50	CSK13-7	7.00-6.50
		CSK10-6.5	6.50-6.00	CSK13-7.5	7.50-7.00
		CSK10-7	7.00-6.50	CSK13-8	8.00-7.50
		CSK10-7.5	7.50-7.00	CSK13-8.5	8.50-8.00
		CSK10-8	8.00-7.50	CSK13-9	9.00-8.50
		CSK10-8.5	8.50-8.00	CSK13-9.5	9.50-9.00
		CSK10-9	9.00-8.50	CSK13-10	10.00-9.50
		CSK10-9.5	9.50-9.00	CSK13-10.5	10.50-10.00
		CSK10-10	10.00-9.50	CSK13-11	11.00-10.50
				CSK13-11.5	11.50-11.00
				CSK13-12	12.00-11.50
				CSK13-12.5	12.50-12.00
				CSK13-13	13.00-12.50

CSK High Speed Collet

Unit:mm

CSK16		CSK20		CSK25	
Size	Range	Size	Range	Size	Range
CSK16-2	2.00-1.75	CSK20-3	3.00-2.50	CSK25-4	4.00-3.50
CSK16-2.5	2.50-2.25	CSK20-3.5	3.50-3.00	CSK25-6	6.00-6.50
CSK16-3	3.00-2.75	CSK20-4	4.00-3.50	CSK25-8	8.00-7.50
CSK16-3.5	3.50-3.00	CSK20-4.5	4.50-4.00	CSK25-10	10.00-9.50
CSK16-4	4.00-3.50	CSK20-5	5.00-4.50	CSK25-12	12.00-11.50
CSK16-4.5	4.50-4.00	CSK20-5.5	5.50-5.00	CSK25-14	14.00-13.50
CSK16-5	5.00-4.50	CSK20-6	6.00-5.50	CSK25-16	16.00-15.50
CSK16-5.5	5.50-5.00	CSK20-6.5	6.50-6.00	CSK25-16.5	16.50-16.00
CSK16-6	6.00-5.50	CSK20-7	7.00-6.50	CSK25-17	17.00-16.50
CSK16-6.5	6.50-6.00	CSK20-7.5	7.50-7.00	CSK25-17.5	17.50-17.00
CSK16-7	7.00-6.50	CSK20-8	8.00-7.50	CSK25-18	18.00-17.50
CSK16-7.5	7.50-7.00	CSK20-8.5	8.50-8.00	CSK25-18.5	18.50-18.00
CSK16-8	8.00-7.50	CSK20-9	9.00-8.50	CSK25-19	19.00-18.50
CSK16-8.5	8.50-8.00	CSK20-9.5	9.50-9.00	CSK25-19.5	19.50-19.00
CSK16-9	9.00-8.50	CSK20-10	10.00-9.50	CSK25-20	20.00-19.50
CSK16-9.5	9.50-9.00	CSK20-10.5	10.50-10.00	CSK25-20.5	20.50-20.00
CSK16-10	10.00-9.50	CSK20-11	11.00-10.50	CSK25-21	21.00-20.50
CSK16-10.5	10.50-10.00	CSK20-11.5	11.50-11.00	CSK25-21.5	21.50-21.00
CSK16-11	11.00-10.50	CSK20-12	12.00-11.50	CSK25-22	22.00-21.50
CSK16-11.5	11.50-11.00	CSK20-12.5	12.50-12.00	CSK25-22.5	22.50-22.00
CSK16-12	12.00-11.50	CSK20-13	13.00-12.50	CSK25-23	23.00-22.50
CSK16-12.5	12.50-12.00	CSK20-13.5	13.50-13.00	CSK25-23.5	23.50-23.00
CSK16-13	13.00-12.50	CSK20-14	14.00-13.50	CSK25-24	24.00-23.50
CSK16-13.5	13.50-13.00	CSK20-14.5	14.50-14.00	CSK25-24.5	24.50-24.00
CSK16-14	14.00-13.50	CSK20-15	15.00-14.50	CSK25-25	25.00-24.50
CSK16-14.5	14.50-14.00	CSK20-15.5	15.50-15.00		
CSK16-15	15.00-14.50	CSK20-16	16.00-15.50		
CSK16-15.5	15.50-15.00	CSK20-16.5	16.50-16.00		
CSK16-16	16.00-15.50	CSK20-17	17.00-16.50		
		CSK20-17.5	17.50-17.00		
		CSK20-18	18.00-17.50		
		CSK20-18.5	18.50-18.00		
		CSK20-19	19.00-18.50		
		CSK20-19.5	19.50-19.00		
		CSK20-20	20.00-19.50		

CSK/C High Speed Collet (Oil Hole Type)



Unit:mm

Size	d	D	D1	D2	L	L1
CSK10C	3-10	15.27	11.8	11.7	30.5	2.4
CSK13C	4-13	19.70	15.1	15.3	39.0	2.4
CSK16C	4-16	24.17	18.7	18.7	45.0	2.5
CSK20C	6-20	28.75	23.0	22.6	54.0	2.9
CSK25C	10-25	35.30	28.4	28.5	57.0	3.0

Accuracy grade:A≤0.008mm
AA≤0.005mm

Ordering Example:CSK13C-5-AA

CSK/C High Speed Collet (Oil Hole Type)

Unit:mm

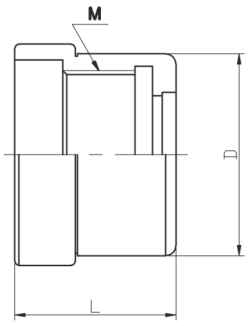
CSK10C		CSK13C		CSK16C	
Size	Range	Size	Range	Size	Range
CSK10C-3	3.0	CSK13C-4	4.0	CSK16C-4	4.0
CSK10C-3.5	3.5	CSK13C-4.5	4.5	CSK16C-4.5	4.5
CSK10C-4	4.0	CSK13C-5	5.0	CSK16C-5	5.0
CSK10C-4.5	4.5	CSK13C-5.5	5.5	CSK16C-5.5	5.5
CSK10C-5	5.0	CSK13C-6	6.0	CSK16C-6	6.0
CSK10C-5.5	5.5	CSK13C-6.5	6.5	CSK16C-6.5	6.5
CSK10C-6	6.0	CSK13C-7	7.0	CSK16C-7	7.0
CSK10C-6.5	6.5	CSK13C-7.5	7.5	CSK16C-7.5	7.5
CSK10C-7	7.0	CSK13C-8	8.0	CSK16C-8	8.0
CSK10C-7.5	7.5	CSK13C-8.5	8.5	CSK16C-8.5	8.5
CSK10C-8	8.0	CSK13C-9	9.0	CSK16C-9	9.0
CSK10C-8.5	8.5	CSK13C-9.5	9.5	CSK16C-9.5	9.5
CSK10C-9	9.0	CSK13C-10	10.0	CSK16C-10	10.0
CSK10C-9.5	9.5	CSK13C-10.5	10.5	CSK16C-10.5	10.5
CSK10C-10	10.0	CSK13C-11	11.0	CSK16C-11	11.0
		CSK13C-11.5	11.5	CSK16C-11.5	11.5
		CSK13C-12	12.0	CSK16C-12	12.0
		CSK13C-12.5	12.5	CSK16C-12.5	12.5
		CSK13C-13	13.0	CSK16C-13	13.0
				CSK16C-13.5	13.5
				CSK16C-14	14.0
				CSK16C-14.5	14.5
				CSK16C-15	15.0
				CSK16C-15.5	15.5
				CSK16C-16	16.0

CSK/C High Speed Collet (Oil Hole Type)

Unit:mm

CSK20C		CSK25C	
Size	Range	Size	Range
CSK20C-6	6.0	CSK25C-10	10.0
CSK20C-6.5	6.5	CSK25C-10.5	10.5
CSK20C-7	7.0	CSK25C-11	11.0
CSK20C-7.5	7.5	CSK25C-11.5	11.5
CSK20C-8	8.0	CSK25C-12	12.0
CSK20C-8.5	8.5	CSK25C-12.5	12.5
CSK20C-9	9.0	CSK25C-13	13.0
CSK20C-9.5	9.5	CSK25C-13.5	13.5
CSK20C-10	10.0	CSK25C-14	14.0
CSK20C-10.5	10.5	CSK25C-14.5	14.5
CSK20C-11	11.0	CSK25C-15	15.0
CSK20C-11.5	11.5	CSK25C-15.5	15.5
CSK20C-12	12.0	CSK25C-16	16.0
CSK20C-12.5	12.5	CSK25C-16.5	16.5
CSK20C-13	13.0	CSK25C-17	17.0
CSK20C-13.5	13.5	CSK25C-17.5	17.5
CSK20C-14	14.0	CSK25C-18	18.0
CSK20C-14.5	14.5	CSK25C-18.5	18.5
CSK20C-15	15.0	CSK25C-19	19.0
CSK20C-15.5	15.5	CSK25C-19.5	19.5
CSK20C-16	16.0	CSK25C-20	20.0
CSK20C-16.5	16.5	CSK25C-20.5	20.5
CSK20C-17	17.0	CSK25C-21	21.0
CSK20C-17.5	17.5	CSK25C-21.5	21.5
CSK20C-18	18.0	CSK25C-22	22.0
CSK20C-18.5	18.5	CSK25C-22.5	22.5
CSK20C-19	19.0	CSK25C-23	23.0
CSK20C-19.5	19.5	CSK25C-23.5	23.5
CSK20C-20	20.0	CSK25C-24	24.0
		CSK25C-24.5	24.5
		CSK25C-25	25.0

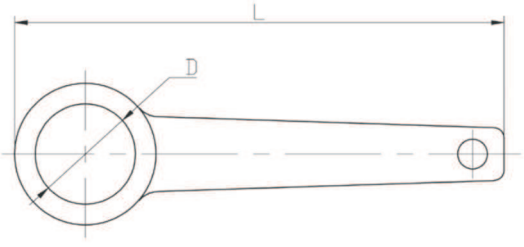
GSK High Speed Nut



Unit:mm

Size	L	D	M
GSK6	21	19.5	M15.5X1
GSK10	24	27.1	M21.5X1
GSK13	28	33	M28X1
GSK16	31	40	M32X1
GSK20	35	48	M40X1
GSK25	37	55	M45X1

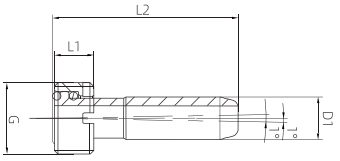
GSK Ball Wrench



Unit:mm

Model No.	L	D	NUT
GH19	120	19.5	GSK06
GH27	130	27.1	GSK10
GH33	140	33.0	GSK13
GH40	193	40.0	GSK16
GH48	200	48.0	GSK20
GH55	210	55.0	GSK25

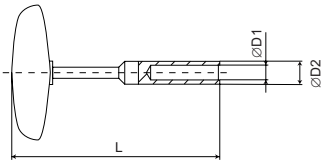
Nozzle



Unit:mm

Size	Apply	D1	L1	L2	G
CG63	HSK63	12	11.5	36.5	M18*1
CG100	HSK100	16	15	43.5	M24*1.5

Nozzle Key



Unit:mm

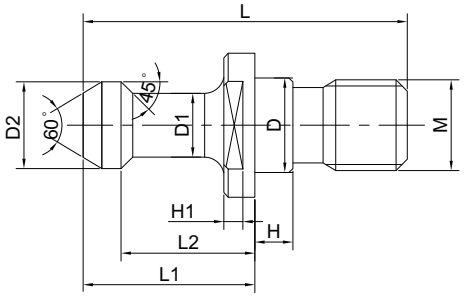
Size	Apply	D1	D2	L
CPT63	HSK63	12	17	122
CPT100	HSK100	16	22	141

Drive Key

Unit:mm

Size	Dimension
SW5	5.0*100mm
SW6	6.0*100mm

BT Pull Stud

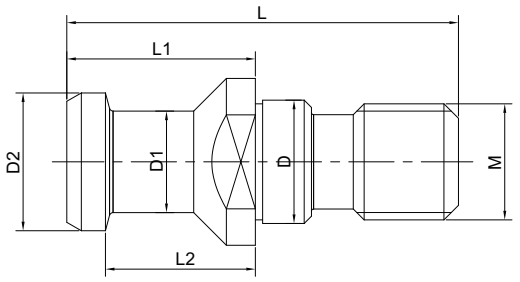


Unit:mm

Size	D	D1	D2	M	L	L1	L2	H	H1	Ø
BT30-45	12.5	7	11	M12	43	23	18	4	3.5	45
BT30-60	12.5	7	11	M12	43	23	18	4	3.5	60
BT30-90	12.5	7	11	M12	43	23	18	4	3.5	90
BT40-45	17	10	15	M16	60	35	28	5	4	45
BT40-60	17	10	15	M16	60	35	28	5	4	60
BT40-90	17	10	15	M16	60	35	28	5	4	90
BT50-45	25	17	23	M24	85	45	35	8	8	45
BT50-60	25	17	23	M24	85	45	35	8	8	60
BT50-90	25	17	23	M24	85	45	35	8	8	90
BT30C-45	12.5	7	11	M12	43	23	18	4	3.5	45
BT30C-60	12.5	7	11	M12	43	23	18	4	3.5	60
BT30C-90	12.5	7	11	M12	43	23	18	4	3.5	90
BT40C-45	17	10	15	M16	60	35	28	5	4	45
BT40C-60	17	10	15	M16	60	35	28	5	4	60
BT40C-90	17	10	15	M16	60	35	28	5	4	90
BT50C-45	25	17	23	M24	85	45	35	8	8	45
BT50C-60	25	17	23	M24	85	45	35	8	8	60
BT50C-90	25	17	23	M24	85	45	35	8	8	90

C: Through Hole
Other sizes can be made by request.

SK Pull Stud

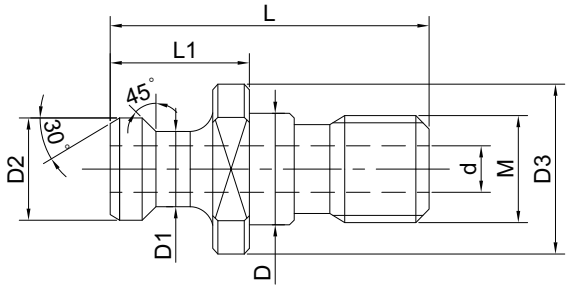


Unit:mm

Size	D	D1	D2	M	L	L1	L2
SK-40A	17	14	19	M16	54	26	20
SK-50A	25	21	28	M24	74	34	25
SK-40AO	17	14	19	M16	54	26	20
SK-50AO	25	21	28	M24	74	34	25

A: Through Hole
O: with O-Ring
Other sizes can be made by request.

Mazak Pull Stud



Unit:mm

Size	L	L1	D2	D1	D3	D	d	M
Mazak-BT40C	44.1	19.1	18.8	12.45	22	17	7	M16
Mazak-BT50C	65.2	25.2	29	20.83	37	25	10	M24
Mazak-BT40CO	44.1	19.1	18.8	12.45	22	17	7	M16
Mazak-BT50CO	65.2	25.2	29	20.83	37	25	10	M24

C: Through Hole
O: with O-Ring
Other sizes can be made by request.

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