Member IMC Group Tungaloy

NEW PRODUCTS

INCH VERSION

TUNGALOY ACCELERATED MACHINING

Member IMC Group Tungaloy

ACCELERATED MACHINING

In an accelerated world, a quick response to market needs is necessary. As a pioneer in innovation, **Tungaloy** leads the market in developing unique and powerful grades and geometries for this new era. TunGForce, our newest line of products is designed for accelerated machining, bringing you the newest and greatest solutions for your machining needs.

tungaloy
New mobile application package
Dr.Carbide
The cure for your machining needs
Right in your Hands!!
Full Product Line
Click here to learn about our products
Corporate Video
Innovative Solutions for the Metal Removal Industry
What's New
Press Releases
Dr. Carbide

Check our site and our App to get more info!

TUNGRADES 8

9 New Grades

TUNGMILL 10

12 **DO**FORCE-TRI
18 **TUNG**-TRI
30 **TUNG**TRI-SHRED
36 **TUNG**FORCE-REC
42 **TUNG**SLOT
52 **DO**TRIPLE-MILL
58 **DO**FEED
68 **MILL**QUADFEED
72 **DO**TWISTBALL
80 **DO**MINI-MILL
84 **BALL**FINISHNOSE

TUNGTURN 92

94 **MINI**FORCE-TURN
112 ISO-**ECO**TURN
128 **TUNG**TURN-JET
138 **TINY**MINI-TURN

TUNGFORCE GROOVE 156

158 **TETRA**FORCE-CUT
168 **TETRA**MINI-CUT
176 **DUO**JUST-CUT
182 **EASY**MULTI-CUT
196 **TUNG**HEAVYGROOVE

TUNGFORCE DRILL 202

204 **DRILL**FORCE-MEISTER
210 **DRILL**MEISTER
228 **TUNG**SIX-DRILL
238 **DEEP**TRI-DRILL

FORCE
PREMIUMGTEC

Tungaloy offers superior grades for machining all types of material with its innovative CBN, PCD, Ceramic, Cermet grades and superior CVD and PVD coated carbide grades.

The new generation and improved **PremiumGTec CVD grades** with post surface treatment enable higher cutting speeds for machining steel, and the newest **PremiumGTec grades** with post treatment for machining cast iron. **PremiumGTec grades** are PVD coated intended for machining stainless steel at accelerated machining rates.

Grade	Coating			Application	Features	Milling	Turning	Grooving	Drilling
	Main composition	Thickness / um							
AH3135 P30-40 M30-40	TiAlN	4	PVD	P M	- High fracture resistance - Ideal for machining steel and stainless steel under general conditions	■			
AH110 P05-15 H10-20	TiAlN	3	PVD	P H	- High wear resistance - Suitable for finishing steel and high-hardened material	■			
AH120 K15-30 P20-30	TiAlN	3	PVD	P K	- Good balance between wear and fracture resistance - Suitable for machining cast iron under general conditions	■			
AH130 M25-35 P30-40	TiAlN	3	PVD	M P	- High chipping and fracture resistance - Designed for machining austenitic stainless steel under general conditions	■			
AH3035 P25-35 H20-30	TiAlN	5	PVD	P H	- Good balance between chipping and wear resistance - Suitable for machining high-hardened material at high feed	■			
AH710 P05-15 K05-20 H10-20	TiAlN	3	PVD	P K H	- High wear resistance - Ideal for finishing cast iron and high-hardened material	■			
AH725 P20-30 M20-30 K30-35	TiAlN	2	PVD	P M K	- Good balance between wear and chipping resistance - Suitable for machining steel and stainless steel under general conditions	■	■	■	■
AH9030 P20-35 K10-25	TiAlN	5	PVD	P K	- High wear resistance - Designed for drilling steel and cast iron at high speed				■
AH6030 M15-30 S15-30	TiAlN	5	PVD	M S	- High fracture resistance - Ideal for drilling stainless steel and super alloys under general conditions				■
AH8005 S01-10	(Al,Ti)N	3.5	PVD	S	- High wear and welding resistance - Excellent for machining heat-resistant alloys at high speed		■	■	
AH8015 S10-20	(Al,Ti)N	3.5	PVD	S	- Good balance between wear and fracture resistance - Suitable for machining heat-resistant alloys under general conditions		■	■	
T515 K10-20	TiCN-Al2O3	16	CVD	K	- High wear resistance that allows high cutting speed - Superior performance on rough machining of cast iron		■	■	
NS9530	-	-	Cer-met	P	- High fracture resistance that provides stable tool life and good surface finish - Suitable for steel from finishing to medium cutting		■	■	
GT9530	TiAlN	3	PVD	P	- High wear resistance - Ideal for finishing with good surface quality		■	■	
M714B S01-10	-	-	-	S	- High wear resistance and thermostability - Suitable for high-speed machining of Inconel		■	■	

The whole universe is constantly undergoing a sweeping change and so is the world of machining. The need for new products is the driving force behind technological developments, which generates the demand for complex materials and machining solutions. **Tungaloy** is introducing its **TunGForce MillLine** of new milling products that enables you to Feed the Speed and achieve **Accelerated Machining** for high economic efficiency and productivity. Clearly, the **TunGForce** behind this success is the combination of the outstanding **Grade** and insert **Geometry**.

MillLine

12 **DO**FORCE-TRI
18 **TUNG**-TRI
30 **TUNG**TRI-SHRED
36 **TUNG**FORCE-REC
42 **TUNG**SLOT
52 **DO**TRIPLE-MILL
58 **DO**FEED
68 **MILL**QUADFEED
72 **DO**TWISTBALL
80 **DO**MINI-MILL
84 **BALL**FINISHNOSE

DOFORCE TRI
TUNGALOY

Cost-effective shoulder milling cutter for high productivity

DoForce-Tri is a new series of tools with a double-sided triangular insert performing general milling applications with superior advantages.

- The insert features **6 cutting edges** with cutting edge full usable length for larger depth of cut up to 11 mm (0.433")

- **Compact chip formation** due to concave cutting edge.

- NMJ type's chip splitter produces small chips and helps reduce chatter in demanding applications.

- **Long wiper edge** achieves good surface finish.

- The insert's triangular shape provides **high rigidity**.

TUNGFORCE MILL
ACCELERATED MACHINING

Line up:

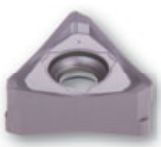
Inserts:
Radius type **TNMU...R16**: Suitable for roughing with depth of cut up to 11 mm (0.433")
Wiper type **TNGU...**: Suitable for general machining with depth of cut up to 11 mm (0.433")

Cutter bodies:
Shank type **EPTN**: Available in metric and inch shanks
Bore type **TPTN**: Available in metric, JIS, and inch bore types in coarse- and close-pitch designs

Chipbreaker edge geometries:
MJ: General chipbreaker for all materials
NMJ: Cutting edge with chip splitter suitable for long overhang application

Grades:
The newest **AH3135** and the popular **AH120** suitable for machining all materials.

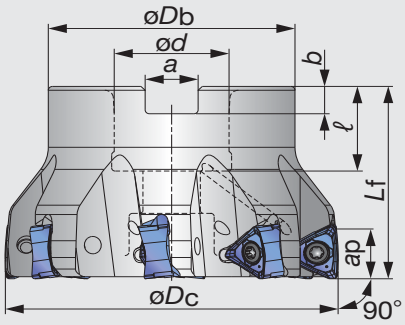
TNMU-MJ

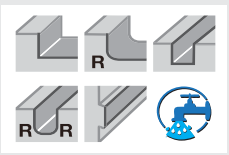

TNGU-MJ

TNGU-NMJ

CUTTER - BORE TYPE

DoForce-Tri TPTN12





Designation	Max. *ap*	*øDc*	z	*øDb*	*Lf*	*ød*	*ℓ*	*a*	*b*	lb	C.bolt	Insert
TPTN12U2.00B0.75R05	0.433	2.000	5	1.850	1.575	0.750	0.750	0.315	0.197	0.89	(C0.375X1.125H)	TN*U12**
TPTN12U2.50B0.75R06	0.433	2.500	6	1.850	1.575	0.750	0.750	0.315	0.197	1.33	(C0.375X1.125H)	TN*U12**
TPTN12U3.00B1.00R08	0.433	3.000	8	2.835	1.969	1.000	1.024	0.374	0.236	2.44	(C0.500X1.375H)	TN*U12**
TPTN12U4.00B1.50R10	0.433	4.000	10	3.150	1.969	1.500	1.181	0.626	0.394	3.11	(TMBA-0.750H)	TN*U12**
TPTN12U5.00B1.50R12	0.433	5.000	12	3.150	2.480	1.500	1.181	0.626	0.394	5.33	(TMBA-0.750H)	TN*U12**

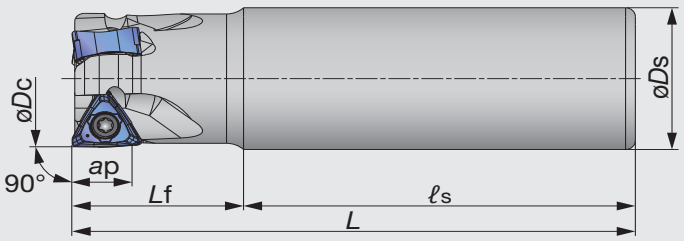
SPARE PARTS

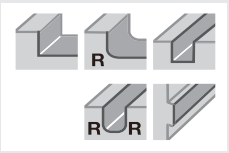
Clamping screw	Wrench	
	Torx Bit	Grip
CSPB-3.5	BLDIP15/S7	H-TB2W

Square shoulder milling cutters with double-sided triangular insert

CUTTER - SHANK TYPE

DoForce-Tri EPTN12





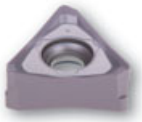
Designation	Max. *ap*	*øDc*	z	*øDs*	*ℓs*	*Lf*	*L*	lb	Insert
EPTN12U1.25C1.25R03N	0.433	1.250	3	1.250	3.000	1.500	4.500	1.56	TN*U12**
EPTN12U1.50C1.25R04N	0.433	1.500	4	1.250	3.000	1.500	4.500	1.78	TN*U12**

SPARE PARTS

Clamping screw	Wrench	
	Torx Bit	Grip
CSPB-3.5	BLDIP15/S7	H-TB2W

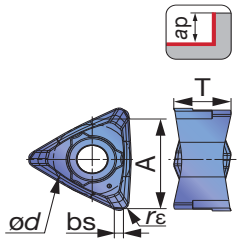
INSERTS

TNGU-MJ



TNGU-NMJ

TNMU-MJ



Designation	Max. *ap*	A	*ød*	T	*rε*	bs	AH3135				AH120			
TNGU120708PER-MJ	0.433	0.472	0.375	0.277	0.031	0.046	●	●			○		●	●
TNGU120708PER-NMJ	0.433	0.472	0.375	0.277	0.031	0.046	●	●			○		●	●
TNMU1207R16PER-MJ	0.433	0.472	0.375	0.277	0.063	-	●	●			○		●	●
							P	M	K	S	P	M	K	S

● First choice

Note: See page 9 for more information about grades.

STANDARD CUTTING CONDITIONS

ISO	Workpiece materials	Hardness	Priority	Grades	Chip-breaker	Cutting speed *Vc* (sfm)	Feed per tooth *fz* (ipt)
P	Low carbon steels (1015, 1020, etc.)	- 300 HB	First choice	AH3135	MJ	330 - 830	0.003 - 0.012
		- 300 HB	For low cutting force	AH3135	NMJ	330 - 830	0.003 - 0.006
	Carbon steels, Alloy steels (1055, 4140, etc.)	- 300 HB	First choice	AH3135	MJ	330 - 760	0.003 - 0.012
		- 300 HB	For low cutting force	AH3135	NMJ	330 - 760	0.003 - 0.006
	Prehardened steel (NAK80, PX5, etc.)	30 - 40 HRC	First choice	AH3135	MJ	330 - 590	0.003 - 0.010
		30 - 40 HRC	For low cutting force	AH3135	NMJ	330 - 590	0.003 - 0.006
M	Stainless steels (304, 316, etc)	-	First choice	AH3135	MJ	300 - 660	0.003 - 0.010
		-	For low cutting force	AH3135	NMJ	300 - 660	0.003 - 0.006
K	Grey cast irons (No.25, No.30, etc.)	150 - 250 HB	First choice	AH120	MJ	460 - 830	0.003 - 0.012
		150 - 250 HB	For low cutting force	AH120	NMJ	460 - 830	0.003 - 0.006
	Ductile cast irons (60-40-18, 80-55-06, etc.)	150 - 250 HB	First choice	AH120	MJ	360 - 660	0.003 - 0.010
		150 - 250 HB	For low cutting force	AH120	NMJ	360 - 660	0.003 - 0.006
S	Titanium alloys (Ti-6Al-4V, etc.)	-	First choice	AH120	MJ	70 - 200	0.003 - 0.008
		-	For low cutting force	AH120	NMJ	70 - 200	0.003 - 0.006
	Heat-resistant alloys (Inconel718, etc.)	-	First choice	AH120	MJ	70 - 130	0.003 - 0.007
		-	For low cutting force	AH120	NMJ	70 - 130	0.003 - 0.006

Note: See page 9 for more information about grades.
When you use the NMJ chipbreaker, please set up the feed less than 0.006 ipt.

MEMO

TUNG-TRI
TUNGALOY

Why settle for 2 cutting edges when you can have 3 on one insert?

Tung-Tri'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.**

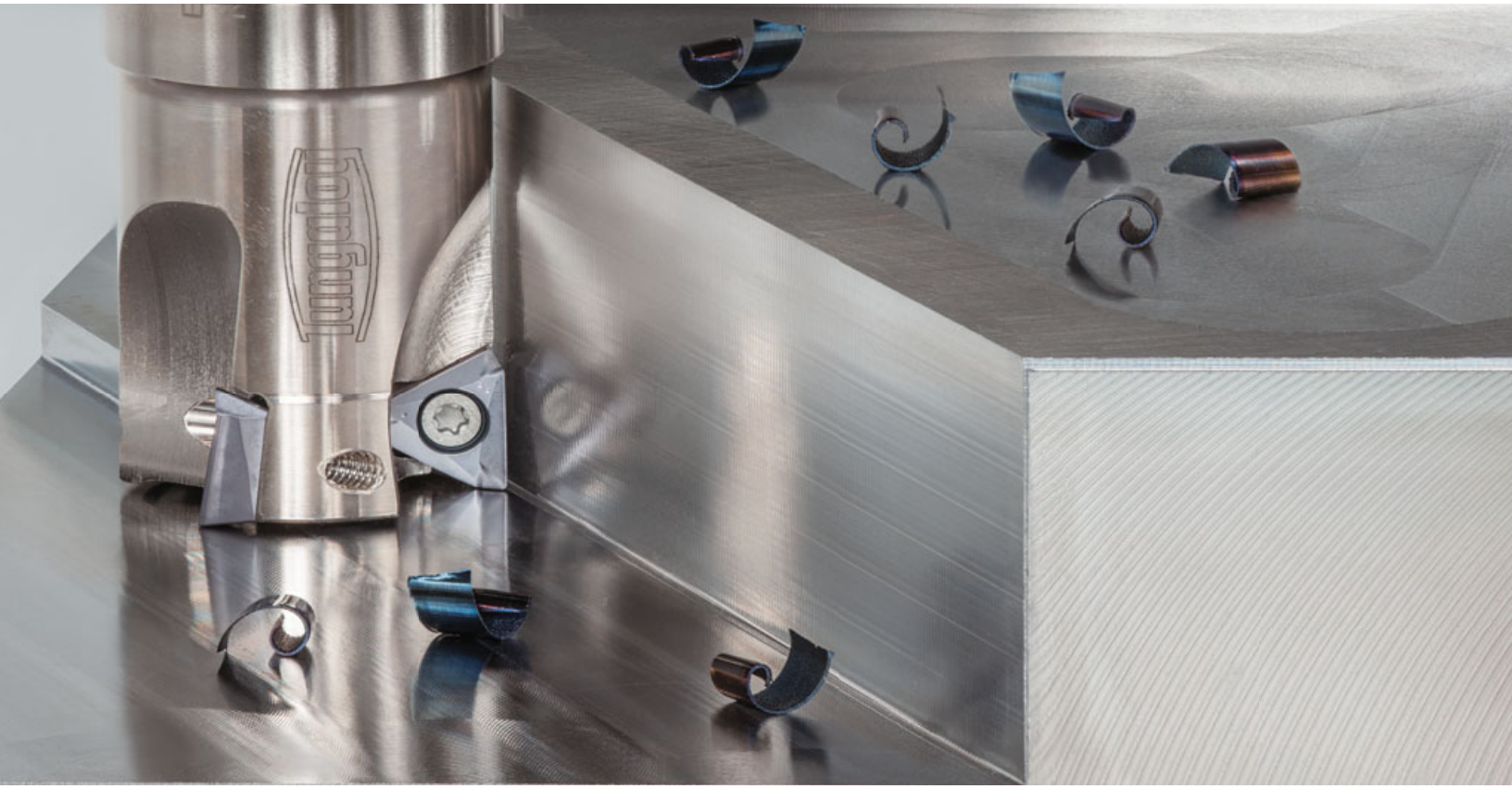
- Helical cutting edges and optimized positioning on cutter provide **high wall accuracy and surface quality.**

- Sharp yet tough rake geometry **reduces fracture** of cutting edges.

- Triangular shape of the insert improves **clamping rigidity and reliability.**

- Insert sizes in 6, 10 and 15 mm cover small to large depths of cut.

- **Irregular pitch** on the body minimizes chattering.



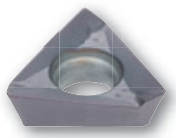
TUNGFORCE MILL
ACCELERATED MACHINING

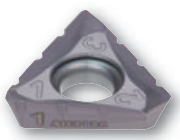
Line up:

Inserts:
3 sizes available with versatile MJ chipbreaker
Corner radii: 0.2 to 2.0 mm (0.008" - 0.079")
NMJ chipbreaker splits chips thus reducing chip volume & cutting vibration.

Cutter bodies:
Bore type TPA: Available in JIS, metric and inch bore sizes
Shank type EPA: Available in metric and inch sizes with standard and long overhang
Modular type HPA: Available in metric thread connection.
Roughing type TLA: Available in bore type & integral adaptor.

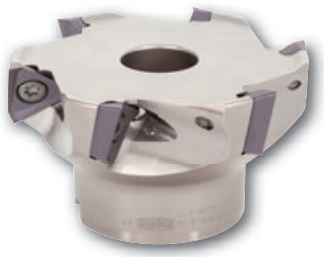
Grades:
AH3135: Perfect for steel and stainless steel
AH120: Applicable for various materials, including cast iron and superalloys.

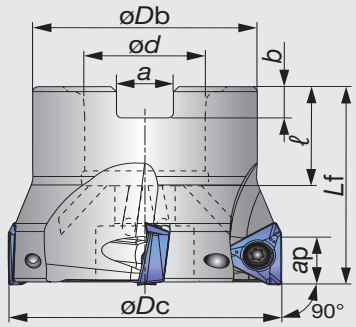

TOMT-MJ

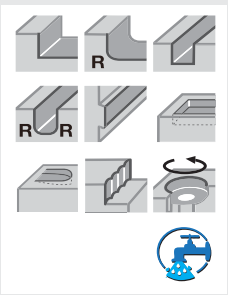

TOMT-NMJ

CUTTER - BORE TYPE

Tung-Tri TPA

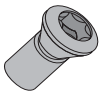






Designation	Max.ap	øDc	z	øDb	ød	ℓ	Lf	b	a	C.bolt	Insert
TPA06R200U0075A08	0.236	2.000	8	1.693	0.750	0.750	1.575	0.197	0.315	(C0.375x1.125H)	TOMT06...
TPA10R200U0075A04	0.394	2.000	4	1.693	0.750	0.750	1.575	0.197	0.315	(C0.375X1.125H)	TOMT10...
TPA10R250U0075A06	0.394	2.500	6	1.693	0.750	0.750	1.575	0.197	0.315	(C0.375X1.125H)	TOMT10...
TPA10R300U0100A07	0.394	3.000	7	2.283	1.000	1.024	1.969	0.236	0.374	(C0.500X1.375H)	TOMT10...
TPA10R400U0150A08	0.394	4.000	8	3.150	1.500	1.413	2.480	0.394	0.626	-	TOMT10...
TPA15R200U0075A04	0.590	2.000	4	1.625	0.750	0.750	1.570	0.197	0.315	(TCS9.525-35-I)	TOMT15...
TPA15R250U0075A05	0.590	2.500	5	2.125	0.750	0.750	1.570	0.197	0.315	(C0.375X1.125H)	TOMT15...
TPA15R300U0100A06	0.590	3.000	6	2.250	1.000	1.024	1.750	0.236	0.374	(C0.500X1.375H)	TOMT15...
TPA15R400U0150A07N	0.590	4.000	7	3.000	1.500	1.181	2.000	0.394	0.626	-	TOMT15...
TPA15R500U0150A08N	0.590	5.000	8	4.000	1.500	1.175	2.000	0.394	0.626	-	TOMT15...
TPA15R600U0200A10N	0.590	6.000	10	4.750	2.000	1.220	2.000	0.433	0.748	-	TOMT15...

SPARE PARTS

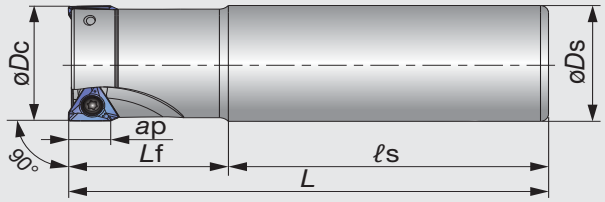


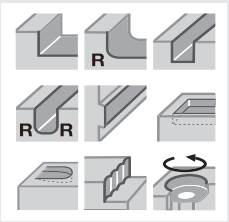
Designation	Clamping screw	Wrench			Mono block type wrench
		Torx Bit	Grip	Grip	
TPA06	CSTB-2.5	-	-	-	T8D
TPA10	SR14-562/S	BLDT10/S7	SW6-SD	-	-
TPA15	TS45120I	BT20S	-	H-TB2W	-

High precision shoulder square endmills with triangular inserts

CUTTER - SHANK TYPE

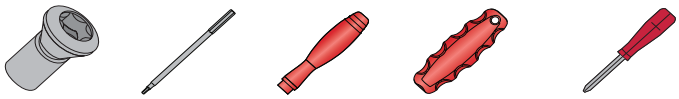
Tung-Tri EPA





Designation	Max.ap	øDc	z	øDs	ℓs	Lf	L	Insert
EPA06R050U0050-01N	0.236	0.500	1	0.500	2.250	0.750	3.000	TOMT06...
EPA06R063U0063-02N	0.236	0.625	2	0.625	2.563	0.937	3.500	TOMT06...
EPA06R075U0075-03N	0.236	0.750	3	0.750	2.858	1.142	4.000	TOMT06...
EPA06R100U0100W04N	0.236	1.000	4	1.000	2.280	1.500	3.780	TOMT06...
EPA10R100U0075W02N	0.394	1.000	2	0.750	2.362	1.378	3.740	TOMT10...
EPA10R100U0100W02N	0.394	1.000	2	1.000	2.362	1.378	3.740	TOMT10...
EPA10R125U0125W03N	0.394	1.250	3	1.250	2.362	1.378	3.740	TOMT10...
EPA10R150U0125W04N	0.394	1.500	4	1.250	3.157	1.969	5.126	TOMT10...
EPA15R150U0125W03N	0.590	1.500	3	1.250	2.250	2.250	4.500	TOMT15...
EPA15R200U0125W04N	0.590	2.000	4	1.250	2.250	2.250	4.500	TOMT15...

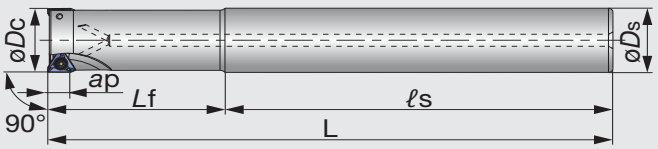
SPARE PARTS

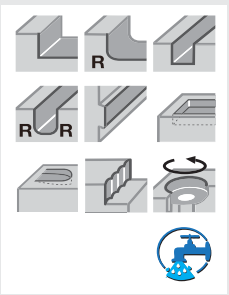


Designation		Clamping screw	Wrench			Mono block type wrench
			Torx Bit	Grip	Grip	
EPA06	øDc ≤ 0.625"	CSTB-2.5S	-	-	-	T8D
	øDc ≥ 0.750"	CSTB-2.5	-	-	-	T8D
EPA10		SR14-562/S	BLDT10/S7	SW6-SD	-	-
EPA15		TS45120I	BT20S	-	H-TB2W	-

CUTTER - LONG SHANK TYPE

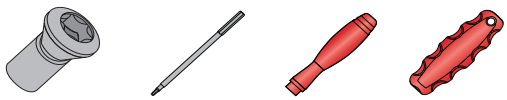
Tung-Tri EPA





Designation	Max.*ap*	ø*Dc*	z	ø*Ds*	ℓs	*Lf*	*L*	Insert
EPA10R100U0100W02L	0.394	1.000	2	1.000	5.748	2.752	8.500	TOMT10...
EPA10R125U0125W02L	0.394	1.250	2	1.250	7.000	3.000	10.000	TOMT10...
EPA10R150U0125W02L	0.394	1.500	2	1.250	8.000	2.000	10.000	TOMT10...
EPA15R150U0125W02L	0.590	1.500	2	1.250	2.250	4.250	6.500	TOMT15...

SPARE PARTS

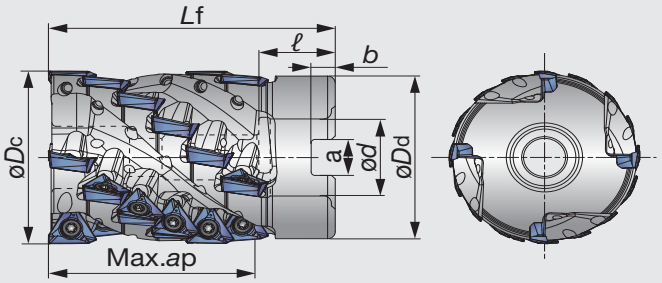


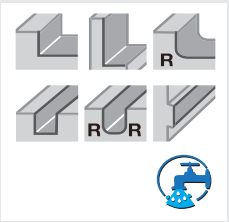
Designation	Clamping screw	Wrench		
		Torx Bit	Grip	Grip
EPA10	SR14-562/S	BLDT10/S7	SW6-SD	-
EPA15	TS45120I	BT20S	-	H-TB2W

Extended flute square shoulder mills for roughing with TOMT10 triangular inserts

CUTTER - ROUGHING TYPE

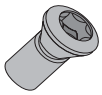
Tung-Tri TLA10





Designation	Max.ap	øDc	Z eff	øDd	ød	ℓ	Lf	b	a	lb	z	C.bolt	Insert
TLA10R200L213U0075A04	2.126	2.000	4	1.875	0.750	0.750	3.250	0.197	0.315	1.76	24	SD06-102	TOMT10…
TLA10R250L213U0100A04	2.126	2.500	4	2.375	1.000	1.024	3.250	0.236	0.374	2.96	24	SD-08-C8	TOMT10…

SPARE PARTS



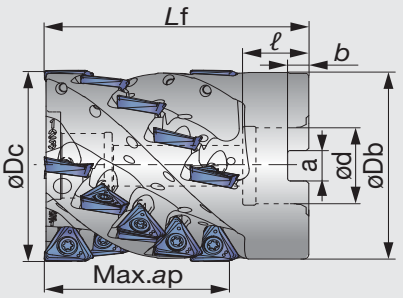
Clamping screw	Wrench
SR 14-562	T10D

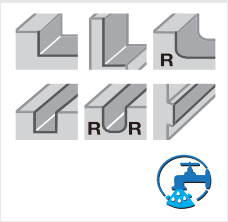
Center Bolt
2'' - SD06-102
2.5'' - SD-08-C8

Extended flute square shoulder mills for roughing with TOMT15 triangular inserts

CUTTER - ROUGHING TYPE MAIN UNIT - BORE

Tung-Tri TLA15





Designation	Max.ap	øDc	Z eff	øDb	ød	ℓ	Lf	b	a	lb	z	C.bolt	Insert
TLA15R300L275U0125A04M	2.756	3.000	4	2.937	1.250	1.260	3.940	0.315	0.500	4.56	20	SD10-54	TOMT15...
TLA15R400L326U0150A05M	3.268	4.000	5	3.875	1.500	1.260	4.375	0.394	0.626	10.0	20	SD12-B9	TOMT15...

SPARE PARTS

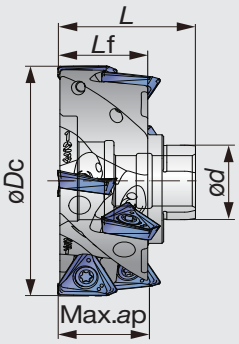
Clamping screw	Wrench	
	Torx Bit	Grip
TS45120I	BT20S	H-TB2W

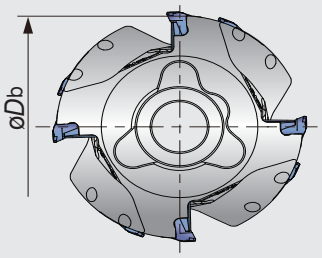
Center Bolt
3'' - SD10-54
4'' - SD12-B9

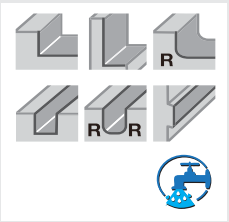
Sub unit to mount on TLA15 - M type for longer Max.ap reach.

CUTTER - ROUGHING TYPE SUB UNIT

Tung-Tri TLA15-S

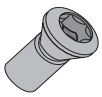






Designation	Max. *ap*	ø*D*c	Z eff	ø*D*b	ø*d*	*L*	*L*f	lb	z	Insert
TLA15R300L110A04S	1.102	3.000	4	2.898	1.024	1.703	1.102	1.24	8	TOMT15…
TLA15R400L110A05S	1.102	4.000	5	3.882	1.299	1.814	1.102	2.44	10	TOMT15…

SPARE PARTS



Clamping screw	Wrench	
	Torx Bit	Grip
TS45120I	BT20S	H-TB2W

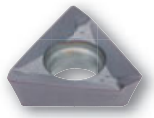
CENTER BOLT

*Optional parts

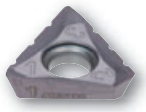
No.of sub-units	1	2
TLA15R300..	SD10-04	SD10-B3
TLA15R400..	SD12-C1	SD12-B8

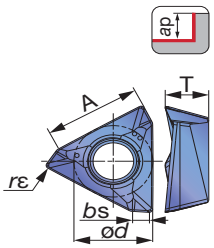
INSERT

TOMT-MJ



TOMT-NMJ





Designation	A	ød	T	rε	bs	AH3135				AH120			
TOMT060302PDER-MJ	0.244	0.220	0.126	0.008	0.055	●	●			o		●	●
TOMT060304PDER-MJ	0.244	0.220	0.126	0.016	0.047	●	●			o		●	●
TOMT060308PDER-MJ	0.244	0.220	0.126	0.031	0.031	●	●			o		●	●
TOMT100404PDER-MJ	0.413	0.339	0.185	0.016	0.059	●	●			o		●	●
TOMT100408PDER-MJ	0.413	0.339	0.185	0.031	0.043	●	●			o		●	●
TOMT100416PDER-MJ	0.413	0.339	0.185	0.063	0.008	●	●			o		●	●
TOMT150604PDER-MJ	0.618	0.500	0.236	0.016	0.087	●	●			o		●	●
TOMT150608PDER-MJ	0.618	0.500	0.236	0.031	0.075	●	●			o		●	●
TOMT150608PDER-NMJ	0.618	0.500	0.236	0.031	0.075	●	●			o		●	●
TOMT150616PDER-MJ	0.618	0.500	0.236	0.063	0.043	●	●			o		●	●
TOMT150620PDER-MJ	0.618	0.500	0.236	0.079	0.028	●	●			o		●	●
						P	M	K	S	P	M	K	S

● First choice

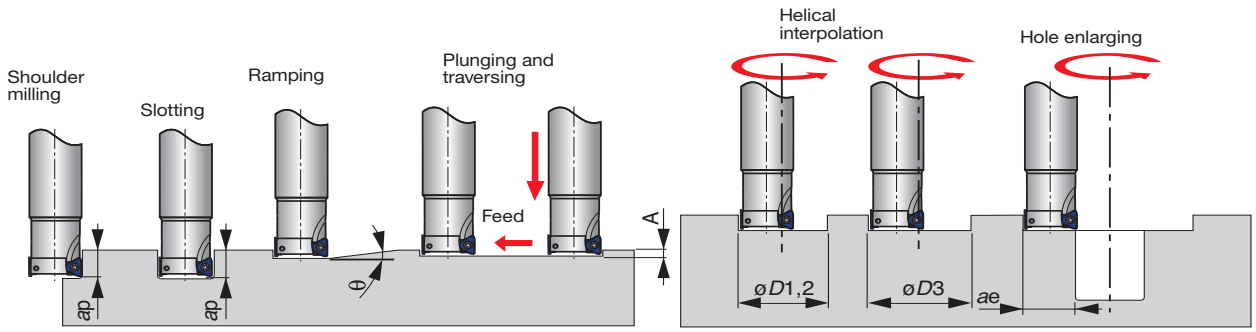
STANDARD CUTTING CONDITIONS

TPA/EPA

ISO	Workpiece materials	Hardness	Grades	Cutting speed: Vc (sfm)			Feed per tooth: fz (ipt)		
				T/EPA06	T/EPA10	T/EPA15	T/EPA06	T/EPA10	T/EPA15
P	Low carbon steels (1015, etc).	- 200	AH3135	330 - 720	330 - 820	330 - 820	0.002 - 0.006	0.003 - 0.008	0.003 - 0.01
	High carbon steels (1045, etc.)	200 - 300	AH3135	330 - 560	330 - 660	330 - 750	0.002 - 0.005	0.003 - 0.006	0.003 - 0.008
	Alloyed steels (4140, etc.)	200 - 300	AH3135	330 - 560	330 - 660	330 - 750	0.002 - 0.005	0.003 - 0.006	0.003 - 0.008
	Tool steels (H13, etc.)	30 - 40 HRC	AH3135	330 - 390	330 - 500	330 - 600	0.002 - 0.005	0.003 - 0.006	0.003 - 0.008
M	Stainless steels (304, etc.)	-	AH3135	260 - 490	260 - 660	330 - 660	0.002 - 0.006	0.003 - 0.006	0.003 - 0.008
K	Gray cast irons (No.250B, etc.)	150 - 250	AH120	330 - 660	330 - 820	330 - 820	0.002 - 0.006	0.005 - 0.01	0.003 - 0.01
	Ductile cast irons (65-45-12, etc.)	150 - 250	AH120	260 - 490	260 - 660	260 - 660	0.002 - 0.006	0.005 - 0.01	0.003 - 0.01
S	Titanium alloy (Ti-6Al-4V, etc.)	-	AH120	65 - 165	60 - 200	60 - 200	0.002 - 0.004	0.003 - 0.006	0.003 - 0.007
	Heat-resistant alloy (Inconel 718, etc.)	-	AH120	65 - 115	60 - 130	60 - 130	0.001 - 0.003	0.003 - 0.005	0.003 - 0.006

· To remove excessive chip accumulation use an air blast.
· When cutting an interrupted surface or a casted skin, the feed per tooth (fz) should be reduced to the lower recommended value shown in the above table.
· Cutting conditions are limited by machine power, workpiece rigidity, and spindle output.
· When the cutting width, depth, or overhang length is large, set *Vc* and *fz* to the lower recommended values and check the machine power and vibration.
· When you use the NMJ chipbreaker, please set up the feed less than 0.006 ipt.

MACHINING APPLICATIONS



Designation	øDc	Max. depth of cut (in) ap	Max. ramping angle θ	Max. plunging (in) A	Min. machining (in) øD1	Max. machining (in) øD2	Max. machining (in) øD3	Max. cutting width in enlarging (in) ae
EPA06R050U…	0.500	0.236	5°	0.024	0.748	0.984	0.882	0.480
EPA06R063U…	0.625	0.236	4°	0.024	0.984	1.234	1.132	0.605
EPA06R075U…	0.750	0.236	3°	0.024	1.240	1.484	1.382	0.730
EPA06R100U…	1.000	0.236	2°	0.024	1.752	1.984	1.882	0.980
TPA06R200U…	2.000	0.236	0.7°	0.024	3.740	3.984	3.882	1.980
EPA10R100U…	1.000	0.394	2°	0.024	1.689	1.984	1.882	0.980
EPA10R125U…	1.250	0.394	2°	0.024	2.189	2.484	2.382	1.230
EPA10R150U…	1.500	0.394	1.4°	0.024	2.689	2.984	2.882	1.480
TPA10R200U…	2.000	0.394	0.8°	0.024	3.689	3.984	3.882	1.980
TPA10R250U…	2.500	0.394	0.7°	0.024	4.689	4.984	4.882	2.480
TPA10R300U…	3.000	0.394	0.6°	0.024	5.689	5.984	5.882	2.980
TPA10R400U…	4.000	0.394	0.5°	0.024	7.689	7.984	7.882	3.980
EPA15R150U…	1.500	0.590	2.3°	0.031	2.547	2.969	2.823	1.461
E/TPA15R200U…	2.000	0.590	1.7°	0.031	3.547	3.969	3.823	1.961
TPA15R250U…	2.500	0.590	1.4°	0.031	4.547	4.969	4.823	2.461
TPA15R300U…	3.000	0.590	1°	0.031	5.547	5.969	5.823	2.961
TPA15R400U…	4.000	0.590	0.8°	0.031	7.547	7.969	7.823	3.961
TPA15R500U…	5.000	0.590	0.6°	0.031	9.547	9.969	9.823	4.961
TPA15R600U…	6.000	0.590	0.5°	0.031	11.547	11.969	11.823	5.961

*Flat bottom hole

Notes: Corner r_ε for dimensions of øD3: r_ε = 0.016" for T/EPA06 / 10 and r_ε = 0.031" for T/EPA15.

MEMO

TUNGTRI SHRED
TUNGALOY

Long-edge rough milling with small chips effectively prevents chatter

TungTri-Shred combines the popular Tung-Tri insert with the chip splitting technology for rough machining with long overhang.

- **Optimized cutter design and cutting edge geometry**:

- All 3 cutting edges are identical, simplifying mounting procedure in each pocket

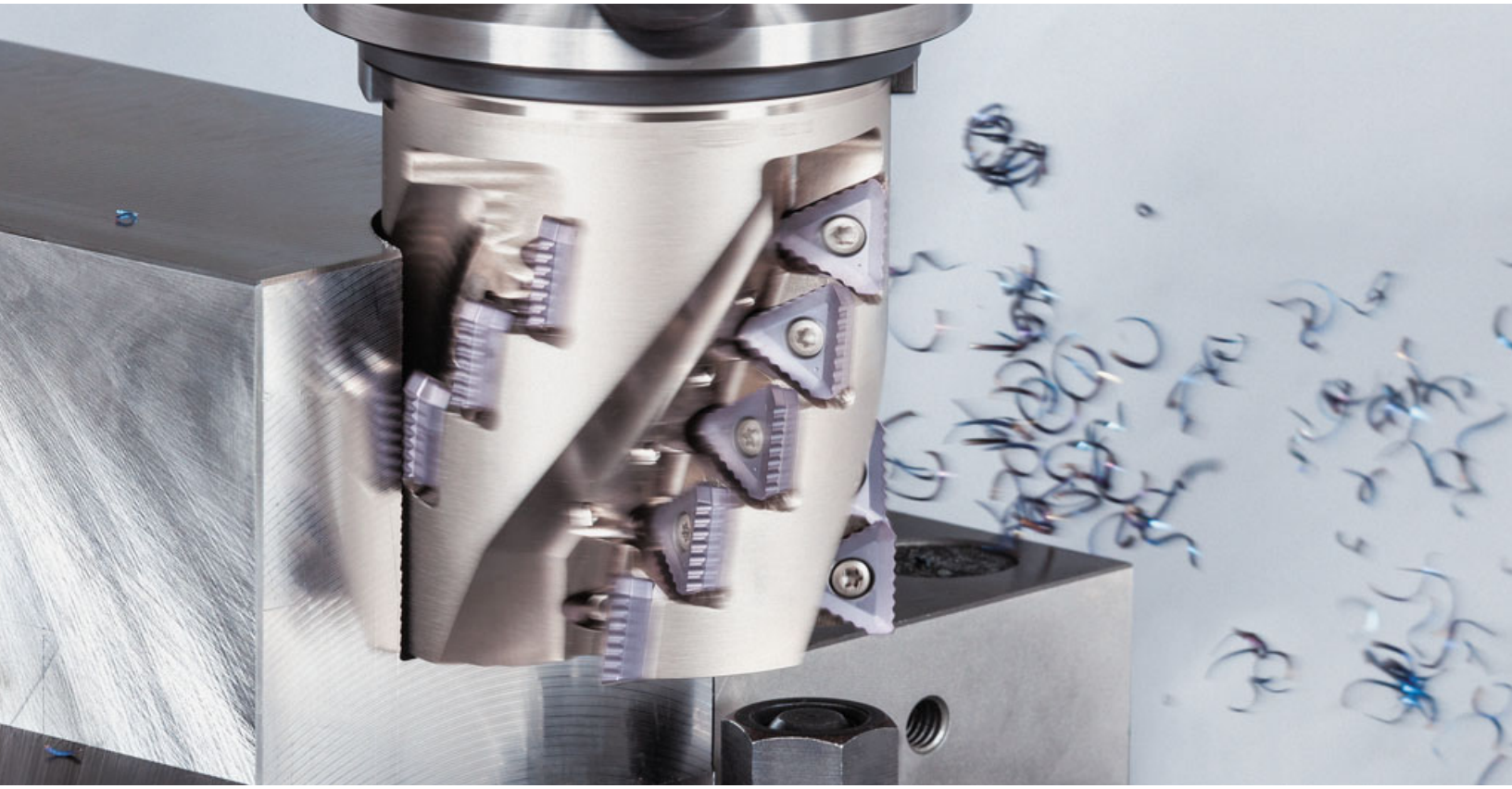
- The insert's triangular shape ensures **stable and rigid clamping**.

- Insert positions in irregular pitch help achieve **good surface finish**.

- 2 types of the inserts can be used in the same pocket:

- **3 cutting edges** with wavy chip splitter on the insert break chips and reduce machining load.

- **Straight cutting edge** provides high wall accuracy and surface quality.



TUNGFORCE MILL
ACCELERATED MACHINING

Line up:

Inserts available in 2 geometries: **NMJ** with chip splitter and **MJ** with straight cutting edge with depth capability of 16 mm (0.63”):
TCMT….NMJ: Work well in long-overhang applications and machining with extended flute cutter
TCGT…MJ: Excellent surface finish and accuracy due to its high-precision straight cutting edge

Cutter bodies:
Long edge type **LPTC**: Available in metric and inch bore sizes
Shank type **EPTC**: Available in metric and inch sizes
Bore type **TPTC**: Available in metric, JIS, and inch bore sizes

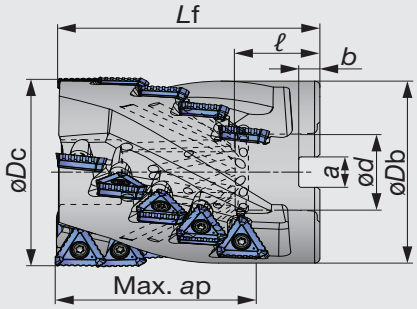
Grades:
The newest **AH3135** and the popular **AH120** suitable for machining all materials

TCGT-MJ

TCMT-NMJ

CUTTER - ROUGHING TYPE - BORE

TungTri-Shred LPTC16



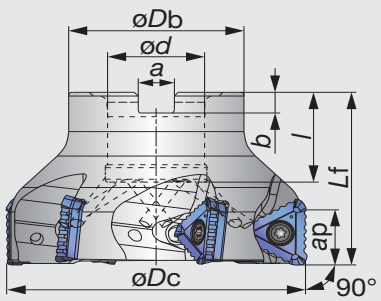
Designation	Max. ap	øDc	Z eff	z	øDb	Lf	ød	ℓ	a	b	lb	C.bolt	Insert
LPTC16U2.50B1.00L2.4R03	2.402	2.500	3	12	2.350	3.350	1.000	1.024	0.374	0.236	2.82	C0.500x2.125	TC*T16
LPTC16U3.00B1.25L3.0R04	2.992	3.000	4	12	2.839	4.000	1.250	1.260	0.500	0.315	4.67	SD10-54	TC*T16

SPARE PARTS

Clamping screw	Wrench	
	Torx Bit	Grip
TS 40B100I	BT15S	H-TB2W

CUTTER - BORE TYPE

TungTri-Shred TPTC16



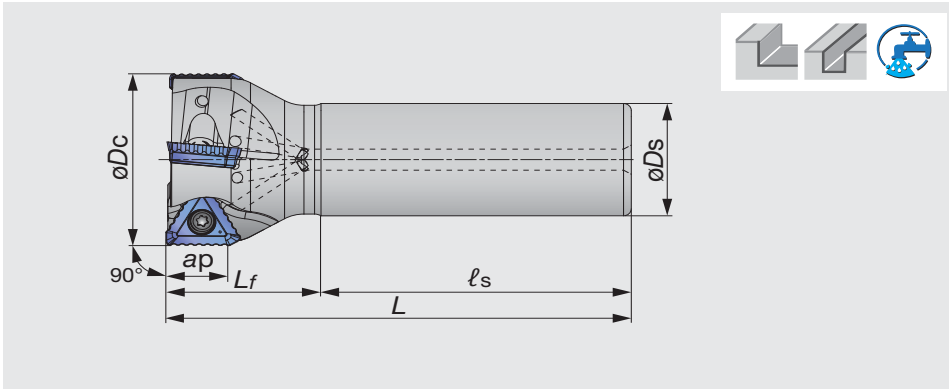
Designation	Max. ap	øDc	z	øDb	Lf	ød	ℓ	a	b	lb	C.bolt	Insert
TPTC16U2.00B0.75R04	0.63	2.000	4	1.625	1.570	0.750	0.750	0.315	0.197	0.71	(TCS9.525-35-I)	TC*T16**
TPTC16U2.50B0.75R05	0.63	2.500	5	2.125	1.570	0.750	0.750	0.315	0.197	1.26	(C0.375X1.125H)	TC*T16**
TPTC16U3.00B1.00R06	0.63	3.000	6	2.250	1.752	1.000	1.024	0.374	0.236	1.81	(C0.500X1.375H)	TC*T16**
TPTC16U4.00B1.50R07	0.63	4.000	7	3.000	2.000	1.500	1.193	0.626	0.394	3.17	-	TC*T16**

SPARE PARTS

Clamping screw	Wrench	
	Torx Bit	Grip
TS 40B100I	BT15S	H-TB2W

CUTTER - SHANK TYPE

TungTri-Shred EPTC16



Designation	Max. *ap*	*øDc*	z	*øDs*	*ℓs*	*Lf*	*L*	lb	Insert
EPTC16U2.00W1.25R04	0.63	2.000	4	1.250	2.250	2.250	4.500	1.70	TC*T16**

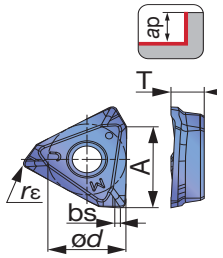
SPARE PARTS

Clamping screw	Wrench	
	Torx Bit	Grip
TS 40B100I	BT15S	H-TB2W

INSERTS

TCGT-MJ

TCMT-NMJ



Designation	Max. ap	A	ød	T	rε	bs	AH3135				AH120			
TCGT160608PDER-MJ	0.630	0.630	0.539	0.228	0.031	0.039	●	●			○		●	●
TCMT160620PDER-NMJ	0.630	0.630	0.539	0.228	0.079	0.079	●	●			○		●	●
							P	M	K	S	P	M	K	S

● First choice
Note: See page 9 for more information about grades.

STANDARD CUTTING CONDITIONS

ISO	Workpiece materials	Hardness	Priority	Grades	Chip-breaker	Cutting speed Vc (sfm)	Feed per tooth fz (ipt)
P	Low carbon steels (1015, 1020, etc.)	- 300 HB	First choice	AH3135	NMJ*	330 - 830	0.003 - 0.006
		- 300 HB	For finishing	AH3135	MJ	330 - 830	0.003 - 0.008
	Carbon steels, Alloy steels (1055, 4140, etc.)	- 300 HB	First choice	AH3135	NMJ*	330 - 760	0.003 - 0.006
		- 300 HB	For finishing	AH3135	MJ	330 - 760	0.003 - 0.008
	Prehardened steel (NAK80, PX5, etc.)	30 - 40 HRC	First choice	AH3135	NMJ*	330 - 590	0.003 - 0.006
		30 - 40 HRC	For finishing	AH3135	MJ	330 - 590	0.003 - 0.008
M	Stainless steels (304, 316, etc)	-	First choice	AH3135	NMJ*	300 - 660	0.003 - 0.006
		-	For finishing	AH3135	MJ	90 - 200	0.003 - 0.008
K	Grey cast irons (No.25, No.30, etc.)	150 - 250 HB	First choice	AH120	NMJ*	460 - 830	0.003 - 0.006
		150 - 250 HB	For finishing	AH120	MJ	460 - 830	0.003 - 0.010
	Ductile cast irons (60-40-18, 80-55-06, etc.)	150 - 250 HB	First choice	AH120	NMJ*	460 - 830	0.003 - 0.006
		150 - 250 HB	For finishing	AH120	MJ	460 - 830	0.003 - 0.010
S	Titanium alloys (Ti-6Al-4V, etc.)	-	First choice	AH120	NMJ*	70 - 200	0.003 - 0.006
		-	For finishing	AH120	MJ	70 - 200	0.003 - 0.007
	Heat-resistant alloys (Inconel718, etc.)	-	First choice	AH120	NMJ*	70 - 130	0.003 - 0.005
		-	For finishing	AH120	MJ	70 - 130	0.003 - 0.006

* When you use the NMJ chipbreaker, please set up the feed less than 0.006 ipt.

TUNGFORCE REC
TUNGALOY

Miniature shoulder milling cutter with incomparable stability

TungForce-Rec, a new miniature shoulder milling series, features a unique clamping system offering exceptional stability in machining small pockets and slots.

- **Reliability for stable machining.**

- Optimized insert positioning provides **core strength** to the cutter body in small diameters.

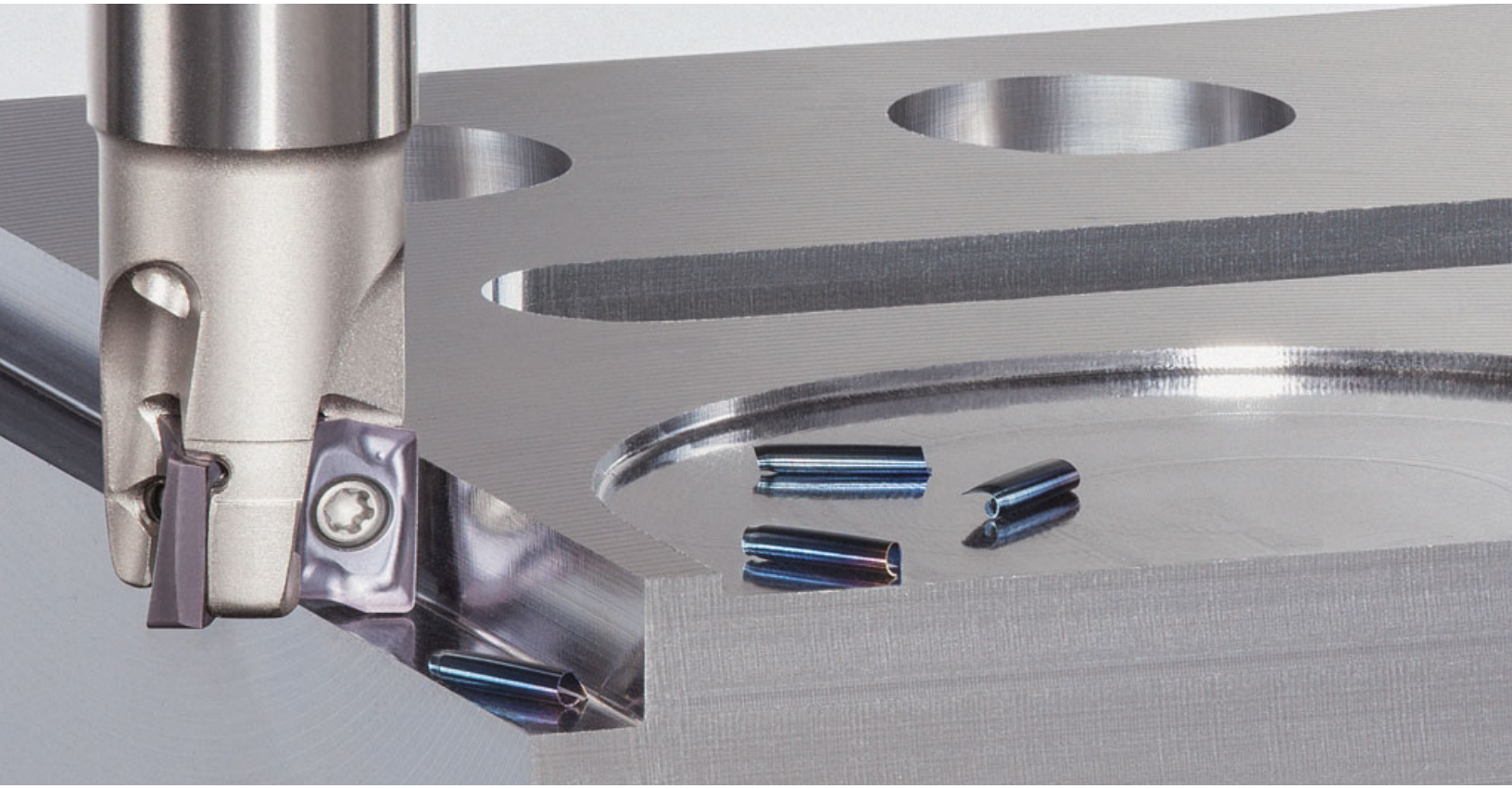
- Obtuse-angled flank surface of the insert **toughens cutting edge**, avoiding chipping.

- **Insert strength** is increased at the cross section across the screw hole.

- Large screw and its increased contact area with the body **improve stability**.

- V-shaped insert bottom broadens clamping area for the given size of the insert.

- Sharp cutting edge with positive rake face ensures **smooth cutting**.



TUNGFORCE MILL
ACCELERATED MACHINING

Line up:

AVGT... insert with 2 cutting edges for depth of cut up to 6 mm (0.23"):
MJ chipbreaker: Suitable for materials, such as steel, stainless steel, cast iron, and superalloys
AJ chipbreaker: Suitable for non-ferrous metal due to its polished rake face
Corner radii: 0.2, 0.4, and 0.8 mm (0.008", 0.016", and 0.031")

Cutter bodies:
Shank type **EPAV**: Available in metric and inch sizes
Modular type **HPAV**: Available in metric threads and TungMeister threads, offering flexibility to the users of either metric shank or TungMeister shank

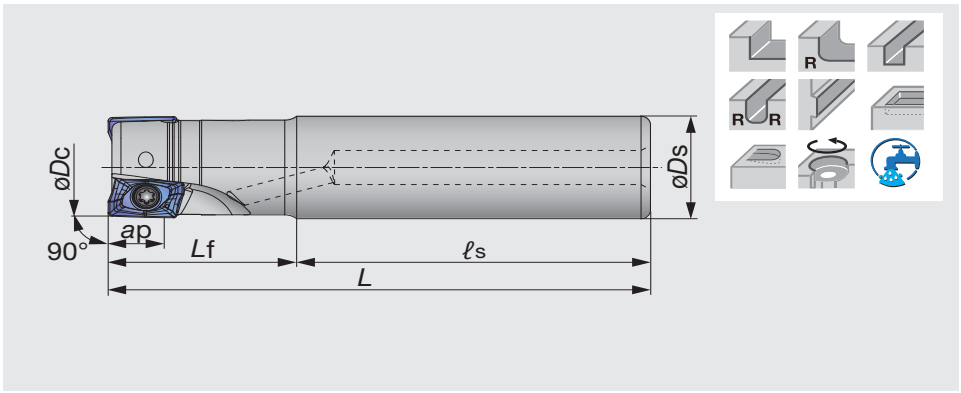
Grades:
AH3135: The most suitable for steel, stainless steel, and high-temperature alloys
AH120: The first choice for cast iron and even titanium
Uncoated **KS05F**: Suitable for non-ferrous metal due to polished rake face

AVGT-MJ

AVGT-AJ

CUTTER - SHANK TYPE

TungForce-Rec EPAV



Designation	Max. *ap*	ø*Dc*	z	ø*Ds*	ℓs	*Lf*	*L*	lb	Insert
EPAV06U0.31C0.37R01	0.236	0.313	1	0.375	2.463	0.787	3.250	0.09	AVGT06**
EPAV06U0.37C0.37R01	0.236	0.375	1	0.375	2.463	0.787	3.250	0.09	AVGT06**
EPAV06U0.37C0.37R01L	0.236	0.375	1	0.375	2.622	1.378	4.000	0.11	AVGT06**
EPAV06U0.50C0.50R02	0.236	0.500	2	0.500	2.463	0.787	3.250	0.15	AVGT06**
EPAV06U0.50C0.50R03	0.236	0.500	3	0.500	2.463	0.787	3.250	0.15	AVGT06**
EPAV06U0.50C0.50R02L	0.236	0.500	2	0.500	3.372	1.378	4.750	0.22	AVGT06**
EPAV06U0.62C0.62R03	0.236	0.625	3	0.625	2.713	0.787	3.500	0.26	AVGT06**
EPAV06U0.62C0.62R04	0.236	0.625	4	0.625	2.713	0.787	3.500	0.26	AVGT06**
EPAV06U0.62C0.62R03L	0.236	0.625	3	0.625	4.122	1.378	5.500	0.42	AVGT06**

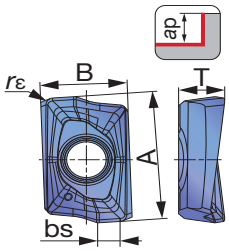
SPARE PARTS

Clamping screw	Mono block type wrench
CSPB-2H	IP-6DB

INSERTS

AVGT-MJ

AVGT-AJ



Designation	Max. *ap*	A	B	T	*r*ε	bs	AH3135				AH120				KS05F
							P	M	S	H	P	K	S	H	N
AVGT060302PBER-MJ	0.236	0.315	0.197	0.106	0.008	0.059	●	●			○	●	●	●	
AVGT060304PBER-MJ	0.236	0.315	0.197	0.106	0.016	0.051	●	●			○	●	●	●	
AVGT060308PBER-MJ	0.236	0.315	0.197	0.102	0.031	0.035	●	●			○	●	●	●	
AVGT060302PBFR-AJ	0.236	0.315	0.197	0.106	0.008	0.059									●
AVGT060304PBFR-AJ	0.236	0.315	0.197	0.106	0.016	0.051									●
AVGT060308PBFR-AJ	0.236	0.315	0.197	0.102	0.031	0.035									●

● First choice

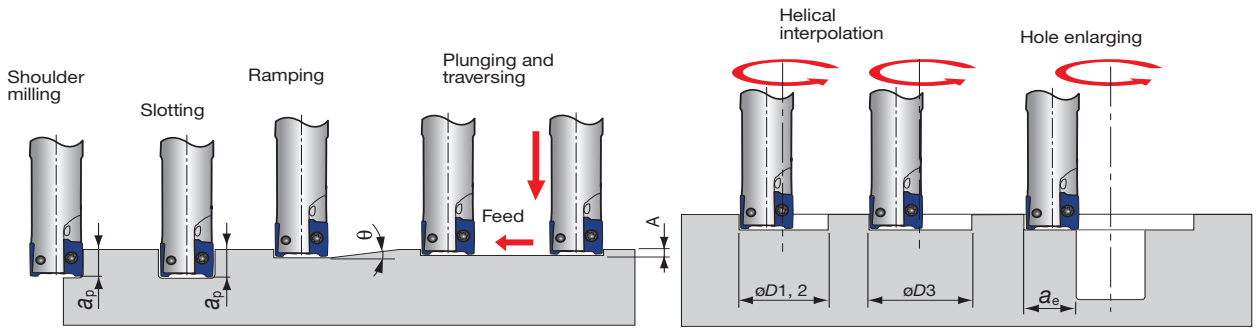
Note: See page 9 for more information about grades.

STANDARD CUTTING CONDITIONS

ISO	Workpiece materials		Hardness	Priority	Grades	Chip-breaker	Cutting speed *Vc* (sfm)	Feed per tooth *fz* (ipt)
P	Low carbon steels (1015, etc.)		- 300 HB	First choice	AH3135	MJ	755 - 1400	0.003 - 0.005
P	Carbon steel and alloy steel (1055, 4140, etc.)		- 300 HB	First choice	AH3135	MJ	490 - 1150	0.003 - 0.005
P	Prehardened steel (NAK80, PX5, etc.)		30 - 40 HRC	First choice	AH120	MJ	650 - 1020	0.003 - 0.005
M	Stainless steel (S30400, XS31600, etc.)		-	First choice	AH3135	MJ	650 - 1020	0.002 - 0.004
K	Gray cast iron (No.250B, No.300B, etc.)		150 - 250 HB	First choice	AH120	MJ	650 - 1080	0.003 - 0.005
K	Ductile cast iron (65-45-12, 80-55-06, etc.)		150 - 250 HB	First choice	AH120	MJ	490 - 790	0.003 - 0.005
N	Aluminum alloys (Si < 13%)		-	First choice	KS05F	AJ	2130 - 3280	0.003 - 0.005
S	Titanium alloys (Ti-6Al-4V, etc.)		-	First choice	AH120	MJ	150 - 230	0.002 - 0.0035
S	Superalloys (Inconel718, etc.)		-	First choice	AH120	MJ	100 - 160	0.002 - 0.003
H	Hardened steel	(H13, etc.)	40 - 50 HRC	First choice	AH120	MJ	150 - 230	0.002 - 0.003
H	Hardened steel	(D2, etc.)	50 - 60 HRC	First choice	AH120	MJ	150 - 210	0.0015 - 0.0025

Note: See page 9 for more information about grades.

MACHINING APPLICATIONS



Designation	øDc	Max. depth of cut (in) ap	Max. ramping angle θ	Max. plunging (in) A	Min. machining (in) øD1	Max. machining (in) øD2	Max. machining (in) øD3*	Max. cutting width in enlarging (in) ae
EPAV06U0.31…	0.313	0.236	-	-	-	-	-	-
EPAV06U0.37…	0.375	0.236	3°	0.012	0.591	0.748	0.709	0.374
EPAV06U0.50…	0.500	0.236	3°	0.020	0.709	0.906	0.866	0.453
EPAV06U0.62…	0.625	0.236	2.5°	0.024	0.984	1.220	1.181	0.610

*Flat bottom hole

MEMO

TUNGSLOT
TUNGALOY

Stable slot milling operation with excellent chip control!

TungSlot is an economical and well-designed slot milling line for improved surface finish in slotting, face milling, and back-face milling.

- **Economical 6-cornered insert reduces tooling cost.**

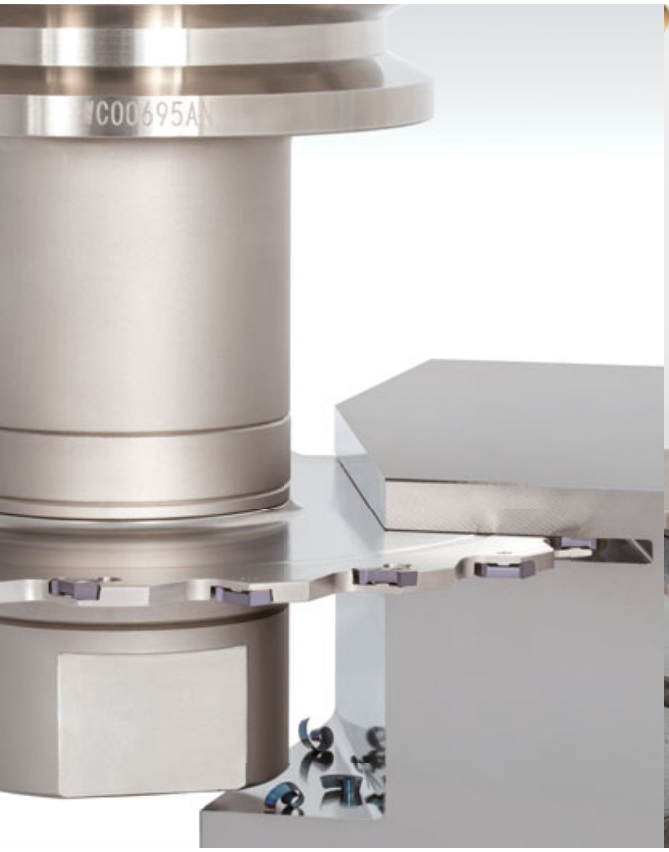
- **Groove width ranges from 6.35 to 25 mm (0.250” - 0.984”).**

- **Optimized insert geometry:**

- **TungThinSlit**
The cutting edge geometry forms compact chip shape in the width smaller than the groove width, helping chips evacuate.
Excellent chip evacuation improves surface finish of the machined groove and also reduces time to clean clogged chips.

- **TungUniversalSlot**
The triangular shape creates large area to consistently curl chips.
Chips curl smoothly, which reduces cutting force in deep slotting.
Insert has a large wiper edge, which improves the surface roughness of slots.

- **TecTangentialSlot**
Tangentially mounted 4 cornered insert withstands high cutting force in machining wide slots.
Large wiper land not only improves surface finish but also allows plunging operation in the axial direction.



TUNGFORCE MILL
ACCELERATED MACHINING

Line up:

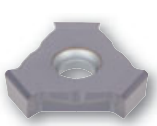
Inserts:

TVKX
Groove width: 0.250" - 0.313"
Std. corner radius: 0.016", 0.031"
Corner radius in special sizes will be available upon request.

WNGU
Groove width: 0.375", 0.500", 0.625"
Std. corner radius: 0.031", 0.063"
Corner radius in special sizes will be available upon request.

LMEU
Groove width: 0.630", 0.748", 0.984"
Std. corner radius: 0.031", 0.063", 0.094", 0.125"
Corner radius in special sizes will be available upon request.

Cutter bodies:
ASV (axial drive) type: Groove width 6.35 to 9 mm (0.250" to 0.354")
ASW (axial drive)/**TSW** (radial drive) type: Groove width 9 to 16 mm (0.354" to 0.63")
ASN (axial drive)/**TSN** (radial drive) type: Groove width 16 to 25 mm (0.63" to 0.98")
Special tools designed for specific applications will be available upon request.


TVKX-MJ

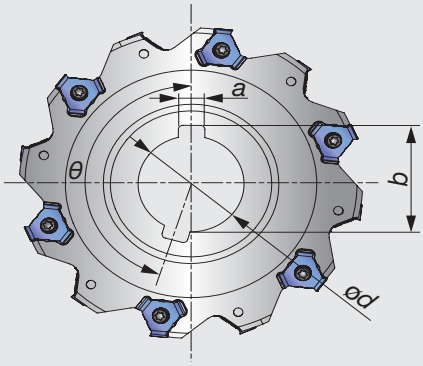
WNGU-MJ

LMEU-MJ

Axial drive type slot milling cutter with face mounted inserts

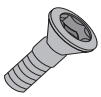
CUTTER - AXIAL DRIVE

TungThinSlit ASV + TVKX



Designation	*W*	*øDc*	Effective Inserts	*øDb*	*ød*	*Lf*	*b*	*a*	Max. *ae*	θ	# of Inserts	Insert
ASV04N300-U025	0.250	3.000	4	1.614	1.000	0.394	1.102	0.250	0.595	157.5°	8	TVKX04H3**
ASV04N400-U025	0.250	4.000	5	1.890	1.250	0.394	1.386	0.312	0.957	162°	10	TVKX04H3**
ASV04N500-U025	0.250	5.000	6	2.283	1.500	0.394	1.665	0.375	1.260	165°	12	TVKX04H3**
ASV04N600-U025	0.250	6.000	8	2.283	1.500	0.394	1.665	0.375	1.760	168.75°	16	TVKX04H3**
ASV04N800-U025	0.250	8.000	10	2.717	2.000	0.394	2.197	0.500	2.543	171°	20	TVKX04H3**
ASV05N300-U031	0.313	3.000	4	1.614	1.000	0.472	1.102	0.250	0.595	157.5°	8	TVKX0504**
ASV05N400-U031	0.313	4.000	5	1.890	1.250	0.472	1.386	0.312	0.957	162°	10	TVKX0504**
ASV05N500-U031	0.313	5.000	6	2.283	1.500	0.472	1.665	0.375	1.260	165°	12	TVKX0504**
ASV05N600-U031	0.313	6.000	8	2.283	1.500	0.472	1.665	0.375	1.760	168.75°	16	TVKX0504**
ASV05N800-U031	0.313	8.000	10	2.717	2.000	0.472	2.197	0.500	2.543	171°	20	TVKX0504**

SPARE PARTS

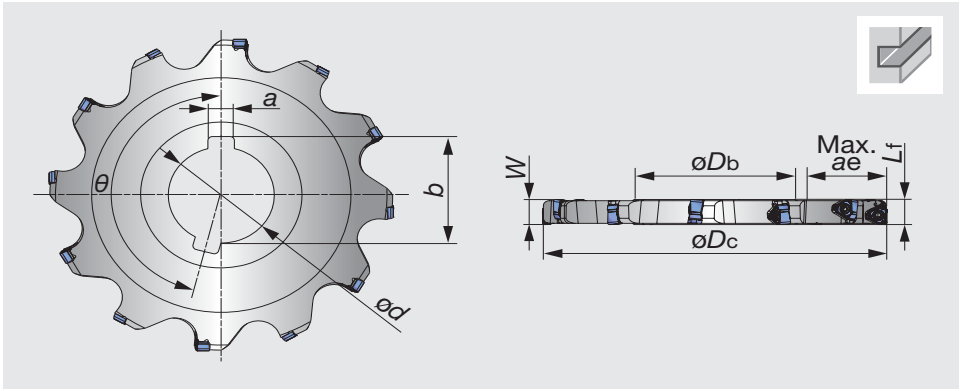


Designation	Clamping screw	Wrench		
		Mono block type	Bit	Grip
ASV04N…	SR14-500/L5.1	-	BT15S	H-TBS
ASV05N…	SR14-500-L7.0	-	BT15S	H-TBS

Axial drive type slot milling cutter

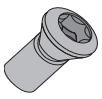
CUTTER - AXIAL DRIVE

TungUniversalSlot ASW + WNGU



Designation	*W*	*øDc*	Effective Inserts	*øDb*	*ød*	*Lf*	*b*	*a*	Max. *ae*	θ	# of Inserts	Insert
ASW06N300-U037	0.375	3.000	4	1.614	1.000	0.375	1.102	0.250	0.654	157.5°	8	WNGU0603**
ASW06N400-U037	0.375	4.000	5	1.890	1.250	0.375	1.386	0.312	1.016	162°	10	WNGU0603**
ASW06N500-U037	0.375	5.000	6	2.283	1.500	0.375	1.665	0.375	1.319	165°	12	WNGU0603**
ASW06N600-U037	0.375	6.000	7	2.283	1.500	0.375	1.665	0.375	1.819	167.14°	14	WNGU0603**
ASW07N400-U050	0.500	4.000	5	1.890	1.250	0.500	1.386	0.312	1.016	162°	10	WNGU07T3**
ASW07N500-U050	0.500	5.000	6	2.283	1.500	0.500	1.665	0.375	1.319	165°	12	WNGU07T3**
ASW07N600-U050	0.500	6.000	7	2.283	1.500	0.500	1.665	0.375	1.819	167.14°	14	WNGU07T3**
ASW09N600-U062	0.625	6.000	7	2.283	1.500	0.625	1.665	0.375	1.819	167.14°	14	WNGU0904**

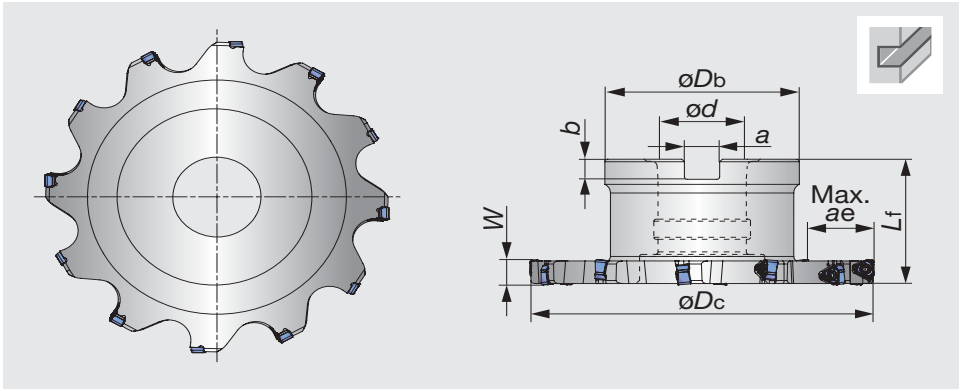
SPARE PARTS



Designation	Clamping screw		Wrench			
			Mono block type	Bit	Grip	
ASW06N...	CSPB-2.5	-	IP-8D	-	-	-
ASW07N400...	CSPD-3	-	-	BLD IP10/S7	SW6-SD	-
ASW07N500...	CSPD-3	-	-	BLD IP10/S7	SW6-SD	-
ASW07N600...	CSPD-3	-	IP-10D	-	-	-
ASW09N400...	-	CSPB-3.5	-	BLD IP15/S7	-	H-TBS
ASW09N600...	-	CSPB-3.5	IP-15D	-	-	-

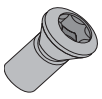
CUTTER - RADIAL DRIVE

TungUniversalSlot TSW + WNGU



Designation	*W*	*øDc*	Effective Inserts	*øDb*	*ød*	*Lf*	*a*	*b*	Max. *ae*	# of Inserts	Insert
TSW06R400-U037	0.375	4.000	5	1.969	1.000	1.969	0.236	0.374	0.976	10	WNGU0603**
TSW06R500-U037	0.375	5.000	6	2.756	1.250	1.969	0.315	0.500	1.083	12	WNGU0603**
TSW06R600-U037	0.375	6.000	7	3.937	1.500	2.480	0.394	0.626	0.992	14	WNGU0603**
TSW07R400-U050	0.500	4.000	5	1.969	1.000	1.969	0.236	0.374	0.976	10	WNGU07T3**
TSW07R500-U050	0.500	5.000	6	2.756	1.250	1.969	0.315	0.500	1.083	12	WNGU07T3**
TSW07R600-U050	0.500	6.000	7	3.937	1.500	2.480	0.394	0.626	0.992	14	WNGU07T3**
TSW09R600-U062	0.625	6.000	7	3.937	1.500	2.480	0.394	0.626	0.992	14	WNGU0904**

SPARE PARTS

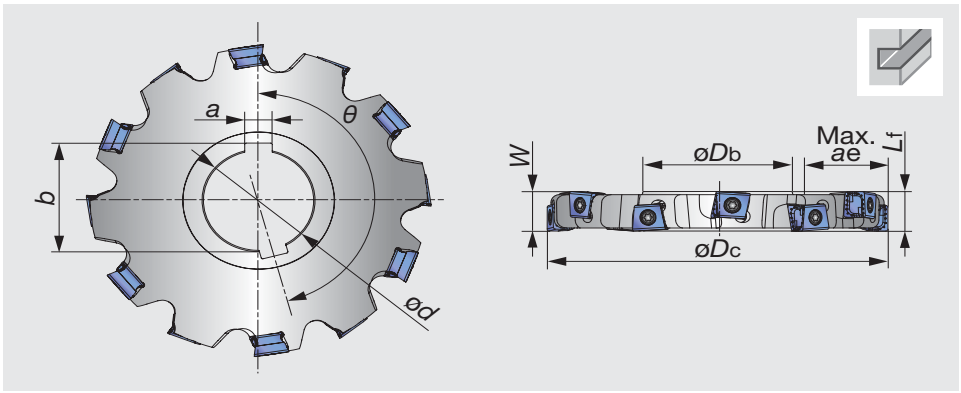


Designation	Clamping screw		Wrench		
			Mono block type	Bit	Grip
TSW06R...	CSPB-2.5	-	IP-8D	-	-
TSW07R400...	CSPD-3	-	-	BLD IP10/S7	SW6-SD
TSW07R500...	CSPD-3	-	-	BLD IP10/S7	SW6-SD
TSW07R600...	CSPD-3	-	IP-10D	-	-
TSW09R...	-	CSPB-3.5	IP-15D	-	-

Axial drive type slot milling cutter with tangentially mounted inserts

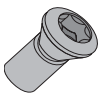
CUTTER - AXIAL DRIVE

TecTangentialSlot ASN + LMEU



Designation	*W*	*øDc*	Effective Inserts	*øDb*	*ød*	*Lf*	*b*	*a*	Max. *ae*	θ	# of Inserts	Insert
ASN10R100M31.7-16-05	0.630	3.937	5	1.890	1.250	0.630	1.386	0.312	0.984	162°	10	LMEU1008**
ASN10R125M38.1-16-06	0.630	4.921	6	2.283	1.500	0.630	1.665	0.375	1.280	165°	12	LMEU1008**
ASN10R160M38.1-16-07	0.630	6.299	7	2.283	1.500	0.630	1.665	0.375	1.969	167.14°	14	LMEU1008**
ASN12R100M31.7-19-05	0.748	3.937	5	1.890	1.250	0.748	1.386	0.312	0.984	162°	10	LMEU1208**
ASN12R125M38.1-19-06	0.748	4.921	6	2.283	1.500	0.748	1.665	0.375	1.280	165°	12	LMEU1208**
ASN12R160M38.1-19-07	0.748	6.299	7	2.283	1.500	0.748	1.665	0.375	1.969	167.14°	14	LMEU1208**
ASN15R125M38.1-25-05	0.984	4.921	5	2.283	1.500	0.984	1.665	0.375	1.280	162°	10	LMEU1509**
ASN15R160M38.1-25-06	0.984	6.299	6	2.283	1.500	0.984	1.665	0.375	1.969	165°	12	LMEU1509**

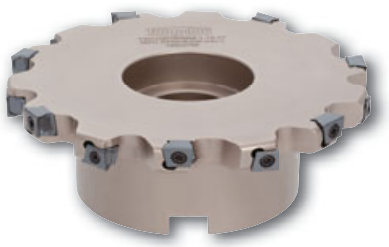
SPARE PARTS

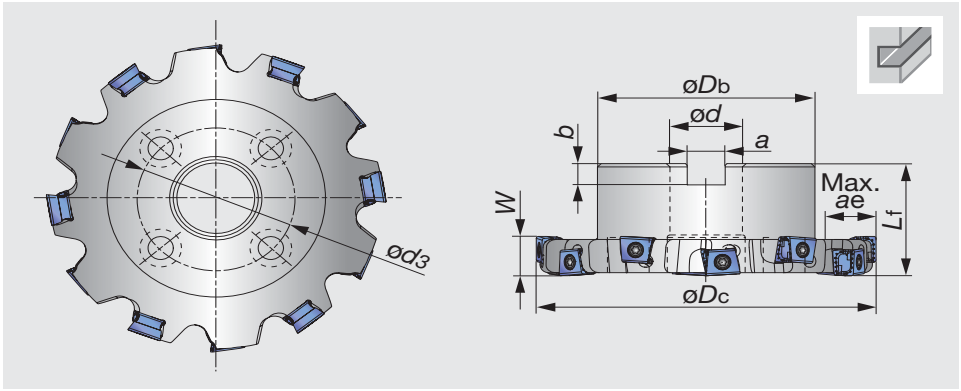


Designation	Clamping screw	Wrench	
		Bit	
ASN10R...	SM40-143-H0	BT15S	H-TB
ASN12R...	SM40-143-H0	BT15S	H-TB
ASN15R...	CSTB-5L159	BT20S	H-TB

CUTTER - RADIAL DRIVE

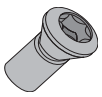
TecTangentialSlot TSN + LMEU





Designation	*W*	*øDc*	Effective Inserts	*øDb*	*ød*	*Lf*	*b*	*a*	Max. *ae*	*ød3*	# of Inserts	Insert
TSN10R100M25.4-16-05	0.630	3.937	5	1.969	1.000	1.969	0.236	0.374	0.945	-	10	LMEU1008**
TSN10R125M31.7-16-06	0.630	4.921	6	2.756	1.250	1.969	0.315	0.500	1.043	-	12	LMEU1008**
TSN10R160M38.1-16-07	0.630	6.299	7	3.937	1.500	2.480	0.394	0.626	1.142	-	14	LMEU1008**
TSN10R200M47.6-16-08	0.630	7.874	8	5.315	1.875	2.480	0.551	1.000	1.240	4.000	16	LMEU1008**
TSN12R100M25.4-19-05	0.748	3.937	5	1.969	1.000	1.969	0.236	0.374	0.945	-	10	LMEU1208**
TSN12R125M31.7-19-06	0.748	4.921	6	2.756	1.250	1.969	0.315	0.500	1.043	-	12	LMEU1208**
TSN12R160M38.1-19-07	0.748	6.299	7	3.937	1.500	2.480	0.394	0.626	1.142	-	14	LMEU1208**
TSN12R200M47.6-19-08	0.748	7.874	8	5.315	1.875	2.480	0.551	1.000	1.240	4.000	16	LMEU1208**
TSN12R250M47.6-19-09	0.748	9.843	9	5.512	1.875	2.480	0.551	1.000	2.126	4.000	18	LMEU1208**
TSN15R125M31.7-25-05	0.984	4.921	5	2.756	1.250	1.969	0.315	0.500	1.043	-	10	LMEU1509**
TSN15R160M38.1-25-06	0.984	6.299	6	3.937	1.500	2.480	0.394	0.626	1.142	-	12	LMEU1509**
TSN15R200M50.8-25-07	0.984	7.874	7	5.315	2.000	2.480	0.551	1.000	1.240	4.000	14	LMEU1509**
TSN15R250M63.5-25-08	0.984	9.843	8	5.512	2.500	2.480	0.551	1.000	2.126	4.000	16	LMEU1509**

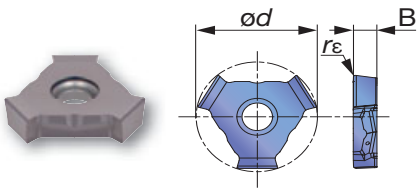
SPARE PARTS



Designation	Clamping screw	Wrench	
		Bit	Grip
TSN10R...	SM40-143-H0	BT15S	H-TB
TSN12R...	SM40-143-H0	BT15S	H-TB
TSN15R...	CSTB-5L159	BT20S	H-TB

INSERTS

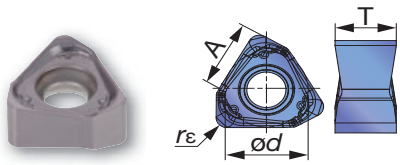
TVKX-MJ



Designation	B	ød	rε	AH725				AH130				AH120			
				P	M	K	S	P	M	K	S	P	M	K	S
TVKX04H304TN-MJ	0.138	0.598	0.016	●			●	o	●		o			●	
TVKX04H308TN-MJ	0.138	0.598	0.031	●			●	o	●		o			●	
TVKX050404TN-MJ	0.177	0.598	0.016	●			●	o	●		o			●	
TVKX050408TN-MJ	0.177	0.598	0.031	●			●	o	●		o			●	

● First choice
Note: See page 9 for more information about grades.

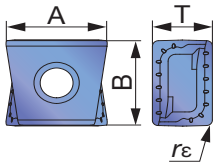
WNGU-MJ



Designation	A	ød	T	rε	AH725				AH130				AH120			
					P	M	K	S	P	M	K	S	P	M	K	S
WNGU060308TN-MJ	0.22	0.24	0.173	0.031	●			●	o	●		o			●	
WNGU060316TN-MJ	0.22	0.24	0.173	0.063	●			●	o	●		o			●	
WNGU07T308TN-MJ	0.268	0.291	0.217	0.031	●			●	o	●		o			●	
WNGU07T316TN-MJ	0.268	0.291	0.217	0.063	●			●	o	●		o			●	
WNGU090408TN-MJ	0.335	0.339	0.256	0.031	●			●	o	●		o			●	
WNGU090416TN-MJ	0.335	0.339	0.256	0.063	●			●	o	●		o			●	

● First choice
Note: See page 9 for more information about grades.

LMEU-MJ



Designation	A	B	T	rε	AH725				AH140				AH120			
					P	M	K	S	P	M	K	S	P	M	K	S
LMEU100808ZNEN-MJ	0.500	0.413	0.315	0.031	●			●	o	●					●	
LMEU100816ZNEN-MJ	0.492	0.413	0.315	0.063	●			●	o	●					●	
LMEU100824ZNEN-MJ	0.488	0.413	0.315	0.094	●			●	o	●					●	
LMEU100832ZNEN-MJ	0.480	0.413	0.315	0.125	●			●	o	●					●	
LMEU120808ZNEN-MJ	0.535	0.500	0.315	0.031	●			●	o	●					●	
LMEU120816ZNEN-MJ	0.528	0.500	0.315	0.063	●			●	o	●					●	
LMEU120824ZNEN-MJ	0.520	0.500	0.315	0.094	●			●	o	●					●	
LMEU120832ZNEN-MJ	0.516	0.500	0.315	0.125	●			●	o	●					●	
LMEU150908ZNEN-MJ	0.614	0.591	0.374	0.031	●			●	o	●					●	
LMEU150916ZNEN-MJ	0.606	0.591	0.374	0.063	●			●	o	●					●	
LMEU150924ZNEN-MJ	0.602	0.591	0.374	0.094	●			●	o	●					●	
LMEU150932ZNEN-MJ	0.594	0.591	0.374	0.125	●			●	o	●					●	

● First choice
Note: See page 9 for more information about grades.

STANDARD CUTTING CONDITIONS

ISO	Workpiece materials	Hardness	Priority	Grades	Cutting speed	Feed per edge line: *f*z (ipt) ASV *ae* / ø*D*c (in)	
		(HB)			*V*c (sfm)	10%	20%
P	Low carbon steels (1015, etc.)	- 200	First choice	AH725	300 - 600	0.003 - 0.010	0.002 - 0.007
		- 200	For impact resistance	AH130, AH140	300 - 600	0.003 - 0.010	0.002 - 0.007
	High carbon steels (1045, etc.)	200 - 300	First choice	AH725	300 - 600	0.003 - 0.009	0.002 - 0.006
		200 - 300	For impact resistance	AH130, AH140	300 - 600	0.003 - 0.009	0.002 - 0.006
	Alloy steels (4140, etc.)	150 - 300	First choice	AH725	300 - 600	0.003 - 0.009	0.002 - 0.006
		150 - 300	For impact resistance	AH130, AH140	300 - 600	0.003 - 0.009	0.002 - 0.006
	Tool steels (D2, etc.)	- 300	First choice	AH725	300 - 600	0.003 - 0.009	0.002 - 0.006
		- 300	For impact resistance	AH130, AH140	300 - 600	0.003 - 0.009	0.002 - 0.006
M	Stainless steel (304, etc.)	-	-	AH130, AH140	300 - 660	0.003 - 0.009	0.002 - 0.006
K	Gray cast irons (No250B, etc.)	150 - 250	-	AH120	400 - 760	0.003 - 0.010	0.002 - 0.007
	Ductile cast irons (65-45-12, etc.)	150 - 250	-	AH120	300 - 500	0.003 - 0.010	0.002 - 0.007
S	Titanium alloys (Ti-6Al-4V, etc.)	-	First choice	AH725	100 - 130	0.003 - 0.005	0.002 - 0.003
		-	For impact resistance	AH130	70 - 120	0.003 - 0.005	0.002 - 0.003
	Nickel-based alloys (Inconel718 etc.)	-	First choice	AH725	100 - 130	0.003 - 0.005	0.002 - 0.003
		-	For impact resistance	AH130	70 - 120	0.003 - 0.005	0.002 - 0.003

Feed per edge line: *fz* (ipt)									
ASV		**TSW / ASW**				**TSN / ASN**			
***ae* / ø*Dc* (in)**		***ae* / ø*Dc* (in)**				***ae* / ø*Dc* (in)**			
30%	**≤ 50%**	**10%**	**20%**	**30%**	**≤ 50%**	**10%**	**20%**	**30%**	**≤ 50%**
0.002 - 0.006	0.05 - 0.15	0.12 - 0.33	0.09 - 0.25	0.07 - 0.21	0.07 - 0.2	0.22 - 0.42	0.16 - 0.31	0.14 - 0.27	0.13 - 0.25
0.002 - 0.006	0.05 - 0.15	0.12 - 0.33	0.09 - 0.25	0.07 - 0.21	0.07 - 0.2	0.22 - 0.42	0.16 - 0.31	0.14 - 0.27	0.13 - 0.25
0.005 - 0.013	0.04 - 0.13	0.12 - 0.33	0.09 - 0.25	0.07 - 0.21	0.07 - 0.2	0.22 - 0.42	0.16 - 0.31	0.14 - 0.27	0.13 - 0.25
0.003 - 0.010	0.04 - 0.13	0.12 - 0.33	0.09 - 0.25	0.07 - 0.21	0.07 - 0.2	0.22 - 0.42	0.16 - 0.31	0.14 - 0.27	0.13 - 0.25
0.003 - 0.008	0.04 - 0.13	0.12 - 0.33	0.09 - 0.25	0.07 - 0.21	0.07 - 0.2	0.22 - 0.42	0.16 - 0.31	0.14 - 0.27	0.13 - 0.25
0.003 - 0.008	0.04 - 0.13	0.12 - 0.33	0.09 - 0.25	0.07 - 0.21	0.07 - 0.2	0.22 - 0.42	0.16 - 0.31	0.14 - 0.27	0.13 - 0.25
0.009 - 0.016	0.04 - 0.13	0.12 - 0.33	0.09 - 0.25	0.07 - 0.21	0.07 - 0.2	0.22 - 0.42	0.16 - 0.31	0.14 - 0.27	0.13 - 0.25
0.006 - 0.012	0.04 - 0.13	0.12 - 0.33	0.09 - 0.25	0.07 - 0.21	0.07 - 0.2	0.22 - 0.42	0.16 - 0.31	0.14 - 0.27	0.13 - 0.25
0.005 - 0.010	0.04 - 0.13	0.12 - 0.33	0.09 - 0.25	0.07 - 0.21	0.07 - 0.2	0.22 - 0.42	0.16 - 0.31	0.14 - 0.27	0.13 - 0.25
0.005 - 0.010	0.05 - 0.15	0.12 - 0.42	0.09 - 0.31	0.07 - 0.27	0.07 - 0.25	0.22 - 0.5	0.16 - 0.38	0.14 - 0.32	0.13 - 0.3
0.002 - 0.006	0.05 - 0.15	0.12 - 0.42	0.09 - 0.31	0.07 - 0.27	0.07 - 0.25	0.22 - 0.33	0.16 - 0.25	0.14 - 0.21	0.13 - 0.2
0.002 - 0.006	0.04 - 0.07	0.1 - 0.17	0.08 - 0.13	0.06 - 0.11	0.06 - 0.1	0.12 - 0.22	0.09 - 0.16	0.07 - 0.14	0.07 - 0.13
0.005 - 0.013	0.04 - 0.07	0.1 - 0.17	0.08 - 0.13	0.06 - 0.11	0.06 - 0.1	0.12 - 0.22	0.09 - 0.16	0.07 - 0.14	0.07 - 0.13
0.003 - 0.010	0.04 - 0.07	0.1 - 0.17	0.08 - 0.13	0.06 - 0.11	0.06 - 0.1	0.12 - 0.22	0.09 - 0.16	0.07 - 0.14	0.07 - 0.13
0.003 - 0.008	0.04 - 0.07	0.1 - 0.17	0.08 - 0.13	0.06 - 0.11	0.06 - 0.1	0.12 - 0.22	0.09 - 0.16	0.07 - 0.14	0.07 - 0.13

DOTRIPLE MILL
TUNGALOY

Dovetail insert clamping guarantees high productivity

DoTriple-Mill features an improved dovetail clamping structure and offers triple advantage of using square, octagonal and round inserts in the same pocket.

- 8-cornered and 16-cornered inserts with **dovetail structure for improved clamping rigidity:**

- Insert liftup and shear force on screws are reduced even in heavy machining.

- **Optimized geometry** for machining stainless steel with high nickel/ chrome content

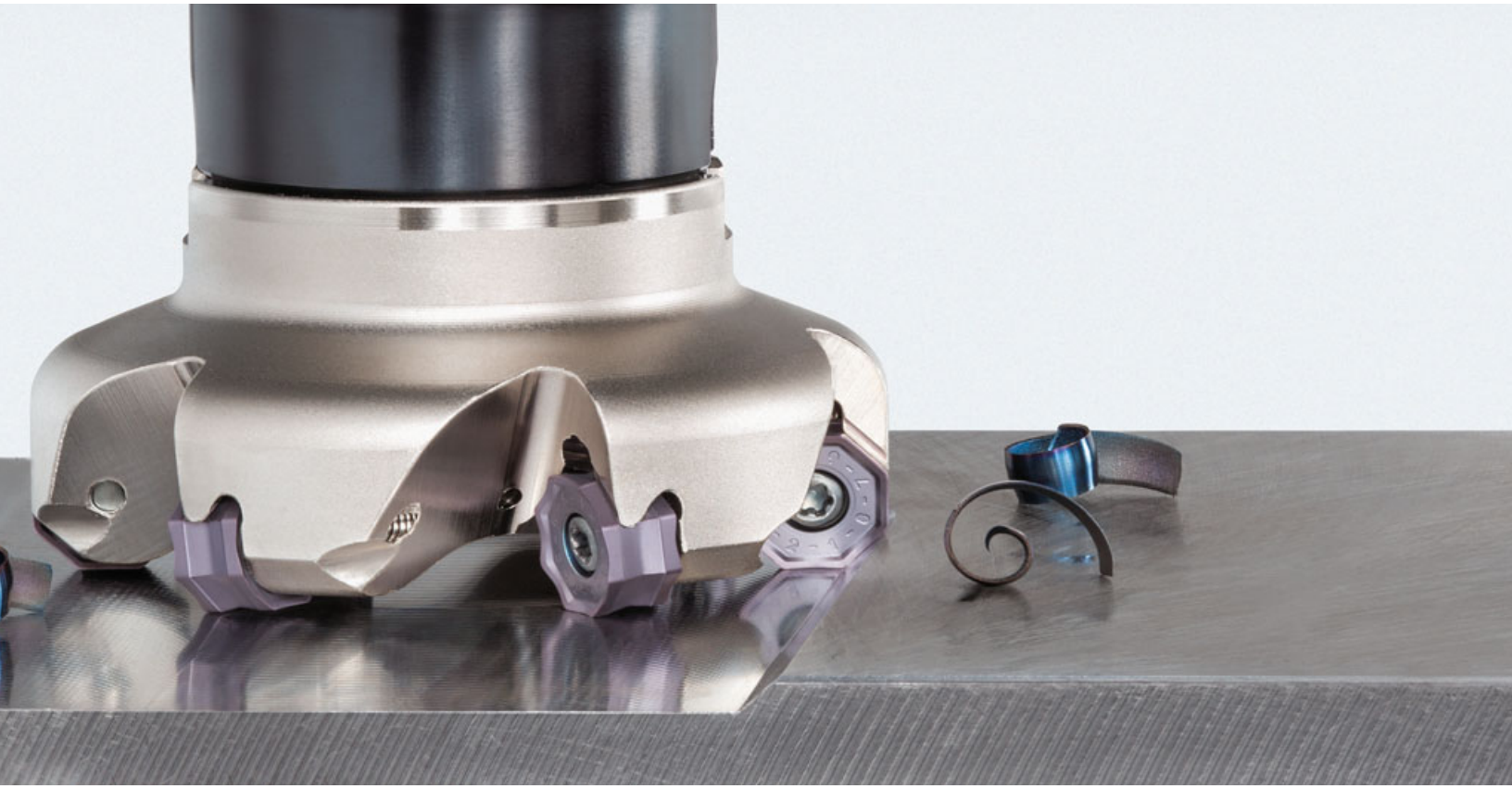
- **Wiper edge** for square and octagonal inserts expands the application area for finishing.

- **Neutral insert is applicable on both right- and left-hand cutter bodies.**

- **Round insert for high-feed machining** and pocketing

- **Reduced chip packing:**

- Barrel shape chip when machining large depth of cut due to the concave shaped cutting edge.



TUNGFORCE MILL
ACCELERATED MACHINING

Line up:

Inserts available in square, octagonal, and round shapes which fit on the same cutter body:

SNGU13…MJ: 8-cornered insert with a wide self-wiper edge capable of machining depth of cut up to 6.5 mm (0.26”). Also available in a wiper insert with 2+2 cutting edges for right- and left-hand cutters.

ONGU05…MJ: 16-cornered economical insert with capability of machining depth of cut up to 3 mm (0.12”). Also available in 8-cornered wiper insert.

RNGU13…MJ: 8-cornered radius insert extending the application area to rough machining of crust surface at high feed and also to general machining up to 6 mm (0.24”) depth of cut.

Cutter bodies:
Bore type **TASN**: Available in metric, JIS, and inch bores in coarse- and close-pitch designs.

Grades:
The newest **AH3135** and the popular **AH120** suitable for machining all materials

SNGU13..

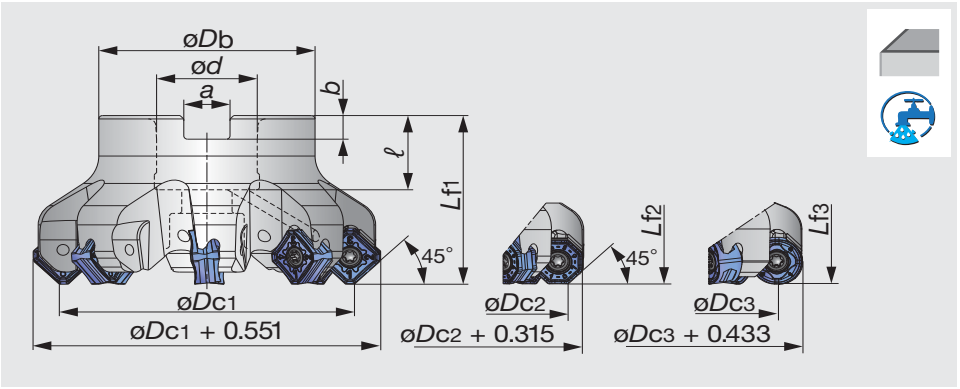
ONGU05..

RNGU13..

Face milling cutter to seat double sided square, octagonal, round insert

CUTTER - BORE TYPE

DoTriple-Mill TASN13



Right hand (R) shown.

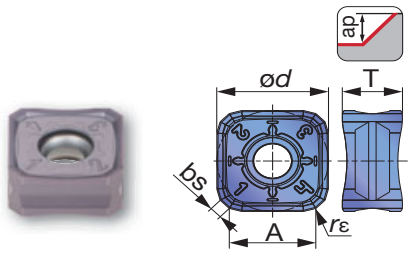
Designation	øDc1	øDc2	øDc3	z	øDb	Lf1	Lf2	Lf3	ød	ℓ	a	b	lb	C.bolt
TASN13U2.00B0.75R05	2.000	2.118	1.982	5	1.850	1.575	1.516	1.517	0.750	0.750	0.315	0.197	.90	C0.375X1.125H
TASN13U2.50B0.75R06	2.500	2.618	2.482	6	1.850	1.575	1.516	1.517	0.750	0.750	0.315	0.197	1.32	C0.375X1.125H
TASN13U2.50B0.75R08	2.500	2.618	2.482	8	1.850	1.575	1.516	1.517	0.750	0.750	0.315	0.197	1.54	C0.375X1.125H
TASN13U3.00B1.00R08	3.000	3.118	2.982	8	1.969	1.969	1.909	1.911	1.000	1.024	0.374	0.236	1.98	C0.500X1.375H
TASN13U3.00B1.00R10	3.000	3.118	2.982	10	1.969	1.969	1.909	1.911	1.000	1.024	0.374	0.236	2.20	C0.500X1.375H
TASN13U4.00B1.50R08	4.000	4.118	3.982	8	3.150	1.969	1.909	1.911	1.500	1.378	0.626	0.394	3.75	TMBA-0.750H
TASN13U4.00B1.50R12	4.000	4.118	3.982	12	3.150	1.969	1.909	1.911	1.500	1.378	0.626	0.394	3.75	TMBA-0.750H
TASN13U5.00B1.50R10	5.000	5.118	4.982	10	3.150	2.480	2.421	2.422	1.500	1.378	0.626	0.394	5.95	TMBA-0.750H
TASN13U5.00B1.50R14	5.000	5.118	4.982	14	3.150	2.480	2.421	2.422	1.500	1.378	0.626	0.394	6.72	TMBA-0.750H
TASN13U6.00B2.00R12	6.000	6.118	5.982	12	3.937	2.480	2.421	2.422	2.000	1.496	0.748	0.433	8.60	-

SPARE PARTS

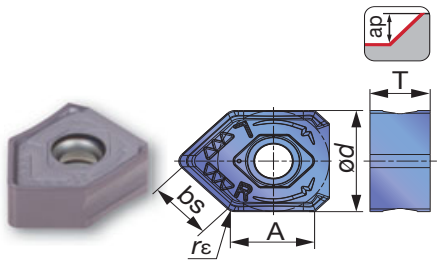
Designation	Clamping screw	Wrench	
		Torx Bit	Grip
TASN13... (øDc1 ≤ 5.0")	CSPB-4	BLDIP15/S7	H-TB2W
TASN13... (øDc1 = 6.0")	CSPB-4	BLDIP15/S7	H-TB2W

INSERTS

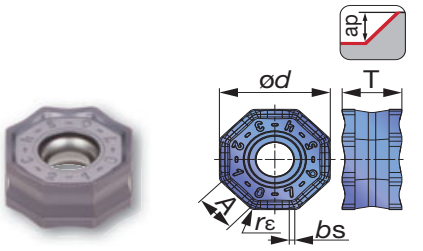
SNGU-MJ



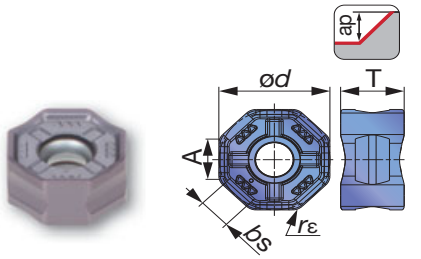
SNGU-W



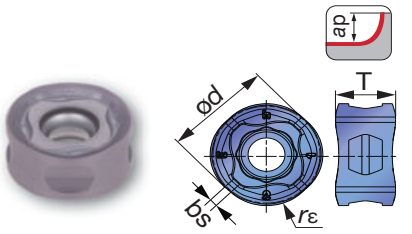
ONGU-MJ



ONGU-W



RNGU-MJ



Designation	Max. ap	A	ød	T	rε	bs	AH3135					AH120				
SNGU1307ANEN-MJ	0.236	0.370	0.512	0.276	0.020	0.079	●	●		●	●	○		●	●	●
SNGU1307ANEN-W	0.236	0.378	0.512	0.276	0.047	0.295	●	●		●	●	○		●	●	●
ONGU0507ANEN-MJ	0.130	0.193	0.512	0.276	0.031	0.024	●	●		●	●	○		●	●	●
ONGU0507ANEN-W	0.130	0.197	0.512	0.291	0.063	0.154	●	●		●	●	○		●	●	●
RNGU1307ZNER-MJ	0.236	--	0.512	0.291	0.236	0.039	●	●		●	●	○		●	●	●
							P	M	K	S	H	P	M	K	S	H

● First choice
Note: See page 9 for more information about grades.

STANDARD CUTTING CONDITIONS

ISO	Workpiece materials		Hardness	Priority	Grades	Chip-breaker	Cutting speed *Vc* (sfm)	Feed per tooth *fz* (ipt)
P	Low carbon steel (1015, etc.)		- 300 HB	First choice	AH3135	MJ	328 - 820	0.004 - 0.02
	High carbon and alloy steel (1055, 4140, etc.)		- 300 HB	First choice	AH3135	MJ	328 - 820	0.004 - 0.016
	Prehardened steel (NAK80, PX5, etc.)		30 - 40 HRC	First choice	AH3135	MJ	328 - 656	0.004 - 0.016
M	Stainless steel (S30400, S31600, etc.)		-	First choice	AH3135	MJ	328 - 656	0.004 - 0.014
K	Gray cast iron (No.250B, etc.)		150 - 250 HB	First choice	AH120	MJ	328 - 820	0.004 - 0.02
	Ductile cast iron (60-40-18, 80-55-06, etc.)		150 - 250 HB	First choice	AH120	MJ	262 - 656	0.004 - 0.02
S	Titanium alloys (Ti-6Al-4V, etc.)		-	First choice	AH3135	MJ	98 - 197	0.004 - 0.012
	Heat-resistant alloys (Inconel718, etc.)		-	First choice	AH120	MJ	33 - 131	0.002 - 0.006
H	Hardened steel	(H13, etc.)	40 - 50 HRC	First choice	AH3135	MJ	262 - 427	0.004 - 0.008
		(D2, etc.)	50 - 60 HRC	First choice	AH120	MJ	164 - 230	0.001 - 0.004

Note: See page 9 for more information about grades.

MEMO

DOFEED
TUNGALOY

The ultimate high-feed cutter with maximum versatility

Multi-functionality of DoFeed, the new high-feed cutter series not only cuts a wide variety of materials but also reduces machining time.

- **Perfectly designed insert:**

- Economical insert with **4 cutting edges**.

- Carefully designed positive geometry enables **smooth chip evacuation** and **minimal chattering with low cutting force**.

- **2 sizes of inserts** for different depths of cut and body diameters expand the application range.

- **4 different grades** for machining various materials and to suit a wide range of applications requiring toughness, high wear resistance, and so on.

- **The wiper insert** for the 06 pocket achieves **excellent surface finish** without compromising feed rates.

- Unused cutting edges are protected to avoid the damage during machining, which ensures the same tool life for each cutting edge.

- Close-pitch body design for high performance; coarse-pitch for anti-chatter.

TUNGFORCE MILL
ACCELERATED MACHINING

Line up:

Inserts :
LNMU03 (Max.*ap* = 1.0 mm / 0.039"), and **LNMU06** (Max.*ap* = 1.5 mm / 0.059") for high-feed machining

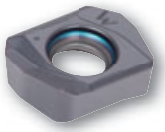
Cutter bodies:
Bore type **TXN03R** & **TXN06**: Available in metric, JIS, and inch bore sizes
Shank type **EXN03** & **EXN06**: Available in metric and inch shanks
Modular type **HXN03**: Available in metric thread connection to use with the standard TungFlex shanks
Available in coarse- and close-pitch designs

Chipbreakers:
MJ: Ideal for tough applications
ML: Applicable for gummy materials
W: Wiper insert for better bottom surface finish

Grades :
AH725: Suitable for a wide range of materials, including superalloys and hard materials
AH3035: Suitable for interrupted cutting of steel and hard materials, featuring excellent wear and fracture resistance
AH130: Suitable for titanium, stainless steel, and steel
AH120: Suitable for cast iron

LNMU03... MJ&ML chipbreaker

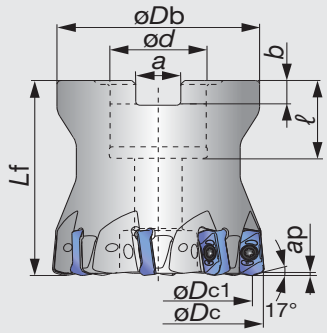
LNMU06..MJ & ML chipbreaker

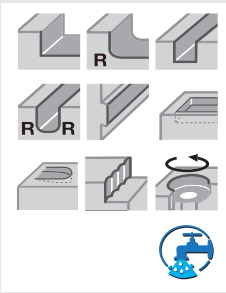


LNGU06X5ZER-W
Wiper with 2 cutting edges

CUTTER - BORE TYPE

DoFeedMini TXN03





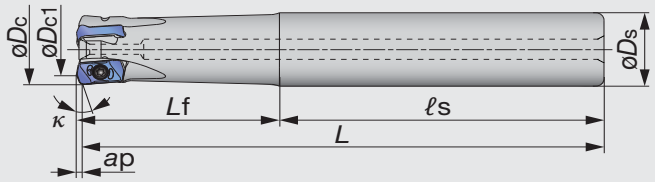
Designation	Max. ap	øDc	z	øDc1	øDb	ød	ℓ	Lf	b	a	lb	C.bolt	Insert
TXN03R150U0075A05	0.039	1.500	5	1.248	1.461	0.750	0.750	1.574	0.197	0.315	0.44	(C0.375X1.125H)	LNMU03...
TXN03R150U0075A06	0.039	1.500	6	1.248	1.461	0.750	0.750	1.969	0.197	0.315	0.44	(C0.375X1.125H)	LNMU03...
TXN03R200U0075A05	0.039	2.000	5	1.718	1.693	0.750	0.750	1.969	0.197	0.315	1.00	(C0.375X1.125H)	LNMU03...
TXN03R200U0075A08	0.039	2.000	8	1.748	1.693	0.750	0.750	1.969	0.197	0.315	1.00	(C0.375X1.125H)	LNMU03...
TXN03R200U0075A10	0.039	2.000	10	1.748	1.693	0.750	0.750	1.969	0.197	0.315	1.10	(C0.375X1.125H)	LNMU03...

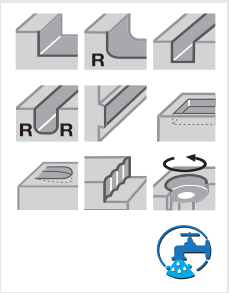
SPARE PARTS

Clamping screw	Wrench
CSPB-2.5	IP-8D

CUTTER - SHANK TYPE

DoFeedMini EXN03





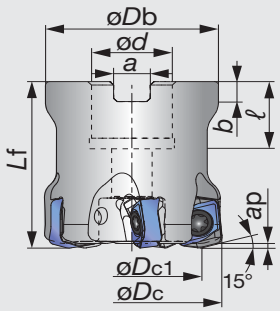
Designation	Max. ap	øDc	z	øDc1	øDs	L	Lf	ℓs	κ	lb	Insert
EXN03R062U0062-02	0.039	0.625	2	0.374	0.625	4.000	1.250	2.750	15°	0.44	LNMU03...
EXN03R062U0062-02L	0.039	0.625	2	0.374	0.625	6.000	2.000	4.000	15°	0.44	LNMU03...
EXN03R068U0062-02	0.039	0.688	2	0.433	0.625	4.000	1.250	2.750	17°	0.44	LNMU03...
EXN03R068U0062-02L	0.039	0.688	2	0.433	0.625	6.000	1.000	5.000	17°	0.44	LNMU03...
EXN03R075U0075-02	0.039	0.750	2	0.496	0.750	5.000	2.000	3.000	17°	0.66	LNMU03...
EXN03R075U0075-03	0.039	0.750	3	0.496	0.750	5.000	2.000	3.000	17°	0.66	LNMU03...
EXN03R075U0075-03L	0.039	0.750	3	0.496	0.750	6.500	3.500	3.000	17°	0.66	LNMU03...
EXN03R087U0075-02	0.039	0.875	2	0.634	0.750	5.000	2.000	3.000	17°	0.66	LNMU03...
EXN03R087U0075-03	0.039	0.875	3	0.634	0.750	5.000	2.000	3.000	17°	0.66	LNMU03...
EXN03R087U0075-03L	0.039	0.875	3	0.634	0.750	6.500	1.250	5.250	17°	0.88	LNMU03...
EXN03R100U0100-04	0.039	1.000	4	0.756	1.000	5.500	2.500	3.000	17°	1.10	LNMU03...
EXN03R100U0100-04L	0.039	1.000	4	0.756	1.000	7.000	4.000	3.000	17°	1.32	LNMU03...
EXN03R100U0100-05	0.039	1.000	5	0.756	1.000	5.500	2.500	3.000	17°	1.10	LNMU03...
EXN03R112U0100-04	0.039	1.125	4	0.882	1.000	5.500	2.500	3.000	17°	1.10	LNMU03...
EXN03R112U0100-04L	0.039	1.125	4	0.882	1.000	7.000	1.500	5.500	17°	1.54	LNMU03...
EXN03R112U0100-05	0.039	1.125	5	0.882	1.000	5.500	2.500	3.000	17°	1.10	LNMU03...
EXN03R125U0125-05	0.039	1.250	5	1.008	1.250	6.000	3.000	3.000	17°	1.76	LNMU03...
EXN03R125U0125-05L	0.039	1.250	5	1.008	1.250	8.000	5.000	3.000	17°	2.43	LNMU03...
EXN03R125U0125-06	0.039	1.250	6	1.008	1.250	6.000	3.000	3.000	17°	1.76	LNMU03...

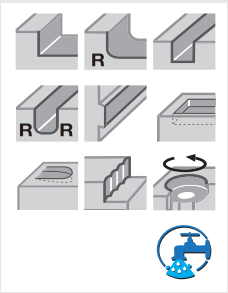
SPARE PARTS

Clamping screw	Wrench
CSPB-2.5	IP-8D

CUTTER - BORE TYPE

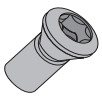
DoFeed TXN06





Designation	Max. ap	øDc	z	øDc1	øDb	ød	ℓ	Lf	b	a	lb	C.bolt	Insert
TXN06R200U0075A04	0.059	2.000	4	1.513	1.850	0.750	0.750	1.969	0.197	0.315	0.97	(C0.375X1.125H)	LNMU06...
TXN06R200U0075A05	0.059	2.000	5	1.513	1.850	0.750	0.750	1.969	0.197	0.315	0.99	(C0.375X1.125H)	LNMU06...
TXN06R250U0075A04	0.059	2.500	4	2.012	2.323	0.750	0.750	1.969	0.197	0.315	1.74	(C0.500X1.375H)	LNMU06...
TXN06R250U0075A06	0.059	2.500	6	2.012	2.323	0.750	0.750	1.969	0.197	0.315	1.76	(C0.375X1.125H)	LNMU06...
TXN06R300U0100A05	0.059	3.000	5	2.512	2.835	1.000	1.049	2.480	0.236	0.374	3.13	(C0.500X1.375H)	LNMU06...
TXN06R300U0100A07	0.059	3.000	7	2.512	2.835	1.000	1.049	2.480	0.236	0.374	3.28	(C0.500X1.375H)	LNMU06...
TXN06R400U0150A06	0.059	4.000	6	3.512	3.819	1.500	1.610	2.480	0.394	0.626	4.85	(TMBA-0.750H)	LNMU06...
TXN06R400U0150A10	0.059	4.000	10	3.512	3.819	1.500	1.610	2.480	0.394	0.626	4.85	(TMBA-0.750H)	LNMU06...
TXN06R500U0150A08	0.059	5.000	8	4.512	3.819	1.500	1.610	2.480	0.394	0.626	7.05	(TMBA-0.750H)	LNMU06...
TXN06R500U0150A12	0.059	5.000	12	4.512	3.819	1.500	1.610	2.480	0.394	0.626	7.28	(TMBA-0.750H)	LNMU06...
TXN06R600U0200A10	0.059	6.000	10	5.512	4.331	2.000	1.496	2.480	0.433	0.748	9.48	-	LNMU06...
TXN06R600U0200A14	0.059	6.000	14	5.512	4.331	2.000	1.496	2.480	0.433	0.748	9.26	-	LNMU06...

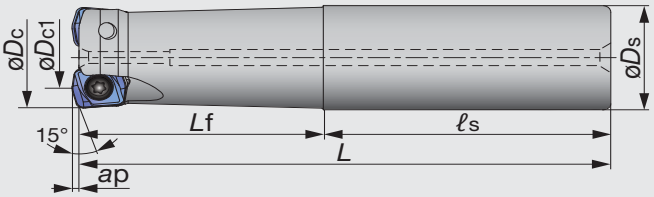
SPARE PARTS

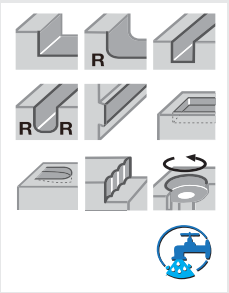


Designation	Clamping Screw	Wrench	
		Bit	Handle
øDc ≤ ø5.000"	CSPB-5	BLD IP20/S7	H-TBS
øDc = ø6.000"	CSPB-5	BLD IP20/M7	H-TBS

CUTTER - SHANK TYPE

DoFeed EXN06





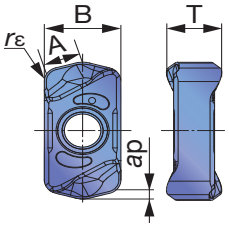
Designation	Max. ap	øDc	z	øDc1	øDs	L	Lf	ℓs	lb	Insert
EXN06R125U0125W02	0.059	1.250	2	0.766	1.250	5.000	3.000	2.000	1.76	LNMU06...
EXN06R125U0125-02L	0.059	1.250	2	0.766	1.250	8.000	5.000	3.000	2.43	LNMU06...
EXN06R150U0125W03	0.059	1.500	3	1.014	1.250	6.000	3.500	2.500	1.98	LNMU06...
EXN06R150U0125-03L	0.059	1.500	3	1.014	1.250	10.000	2.000	8.000	2.87	LNMU06...

SPARE PARTS

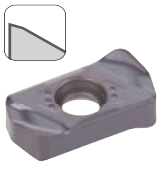
Clamping screw	Wrench
CSPB-5	IP-20D

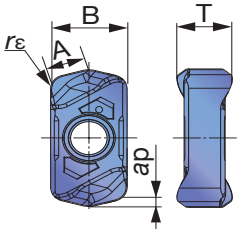
INSERT

MJ (for general purpose)



ML (for low cutting force)

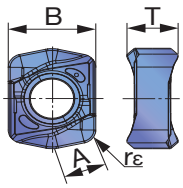




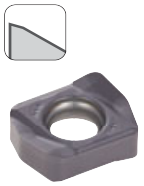
Designation	A	B	T	rε	AH725	AH130	AH3035
LNMU0303ZER-MJ	0.128	0.236	0.169	0.047	●	○	●
LNMU0303ZER-ML	0.128	0.236	0.169	0.047	○	●	● ○
					P M K S H	P M K S H	P M K S H

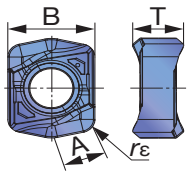
● First choice

MJ (for general purpose)

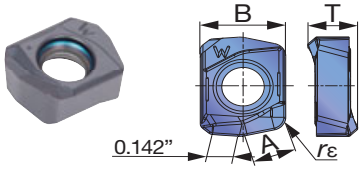


ML (for low cutting force)





W (Wiper insert)



Designation	A	B	T	rε	AH725	AH120	AH130	AH3035
LNMU06X5ZER-MJ	0.236	0.472	0.276	0.079	●	○	○	●
LNMU06X5ZER-ML	0.236	0.472	0.276	0.079	○	●	●	● ○
LNGU06X5ZER-W	0.236	0.472	0.276	0.079	● ●			
					P M K S H	P M K S H	P M K S H	P M K S H

● First choice

TXN03 / EXN03 / HXN03 type

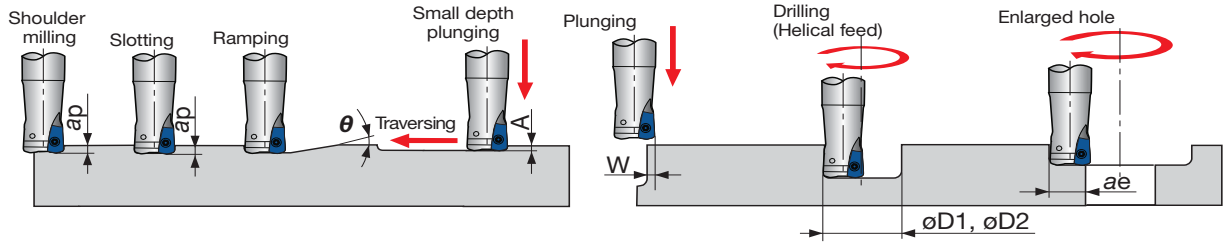
STANDARD CUTTING CONDITIONS

ISO	Workpiece material		Hardness	Priority	Grades	Chip-breaker	Cutting speed *Vc* (sfm)	Feed per tooth: *fz* (ipt) Tool dia: ø*D*c (in) ø0.625 - ø0.875	ø1.0 - ø1.25	Plunging
P	Carbon steel (1045, 1055, etc.)		- 300HB	First choice	AH725	MJ	330 - 980	0.020 - 0.050	0.020 - 0.060	0.004
				For low cutting force	AH725	ML	330 - 980	0.020 - 0.030	0.020 - 0.040	0.004
				For impact resistance	AH3035	MJ	330 - 980	0.020 - 0.050	0.020 - 0.060	0.004
	Alloy steel (4140, SCr415, etc.)		- 300HB	First choice	AH725	MJ	330 - 660	0.020 - 0.050	0.020 - 0.060	0.004
				For low cutting force	AH725	ML	330 - 660	0.020 - 0.030	0.020 - 0.040	0.004
				For impact resistance	AH3035	MJ	330 - 660	0.020 - 0.050	0.020 - 0.060	0.004
	Prehardened steel (NAK80, PX5, etc.)		30 - 40HRC	-	AH3035	ML	330 - 660	0.020 - 0.030	0.020 - 0.040	0.004
M	Stainless steel (SUS304, SUS316, etc. 304, 316, etc.)		- 200HB	First choice	AH130	ML	330 - 490	0.012 - 0.020	0.012 - 0.030	0.003
				For impact resistance	AH130	MJ	330 - 490	0.012 - 0.031	0.012 - 0.031	0.003
K	Gray cast iron (GG25, GG30, etc.)		150 - 250HB	First choice	AH725	MJ	330 - 980	0.020 - 0.050	0.020 - 0.060	0.004
				For low cutting force	AH725	ML	330 - 980	0.020 - 0.030	0.020 - 0.040	0.004
	Ductile cast iron (GGG40, etc.)		150 - 250HB	First choice	AH725	MJ	330 - 660	0.020 - 0.050	0.020 - 0.060	0.004
				For low cutting force	AH725	ML	330 - 660	0.020 - 0.030	0.020 - 0.040	0.004
S	Titanium alloys (Ti-6Al-4V, etc.)		- 40HRC	-	AH725	ML	100 - 200	0.012 - 0.020	0.012 - 0.030	0.003
	Heat-resistant alloys (Inconel, Hastelloy, etc.)		- 40HRC	-	AH725	MJ	60 - 160	0.004 - 0.008	0.004 - 0.012	0.002
H	Hardened steel	X40CrMoV5-1, etc.	40 - 50HRC	First choice	AH3035	MJ	260 - 430	0.004 - 0.008	0.004 - 0.012	0.002
				For wear resistance	AH725	MJ	260 - 430	0.004 - 0.008	0.004 - 0.012	0.002
		X153CrMoV12, etc.	50 - 60HRC	First choice	AH725	MJ	160 - 230	0.001 - 0.002	0.001 - 0.003	0.001
				For impact resistance	AH3035	MJ	160 - 230	0.001 - 0.002	0.001 - 0.003	0.001

· When chips stay in the cutting zone during slotting or pocketing, use air blast to remove chips from the work area.

· Tool overhang length must be as short as possible to avoid chatter. When the tool overhang length is long, decrease the number of revolutions and feed.

MACHINING APPLICATIONS



Designation	Max. depth of cut (in) *ap*	ø*D*c	Max. ramping angle θ	Max. plunging (in) A	Max. cutting width in plunging (in) *W*	Min. machining (in) ø*D*1	Max. machining (in) ø*D*2	Max. cutting width in enlarging (in) *ae*
EXN03R062U0062-...	0.039	0.625	2.1°	0.012	0.138	0.866	1.181	0.492
EXN03R068U0062-...	0.039	0.688	1.7°	0.012	0.138	1.024	1.339	0.571
EXN03R075U0075-...	0.039	0.750	1.4°	0.012	0.138	1.181	1.496	0.650
EXN03R087U0075-...	0.039	0.875	1.2°	0.012	0.138	1.339	1.654	0.728
EXN03R100U0100-...	0.039	1.000	1.0°	0.012	0.138	1.575	1.890	0.846
EXN03R112U0100-...	0.039	1.125	0.8°	0.012	0.138	1.811	2.126	0.965
EXN03R125U0125-...	0.039	1.250	0.7°	0.012	0.138	2.126	2.441	1.122

- For ø*D*c above ø1.3", slot milling, ramping or contouring is not recommended as chips may be re-cut.

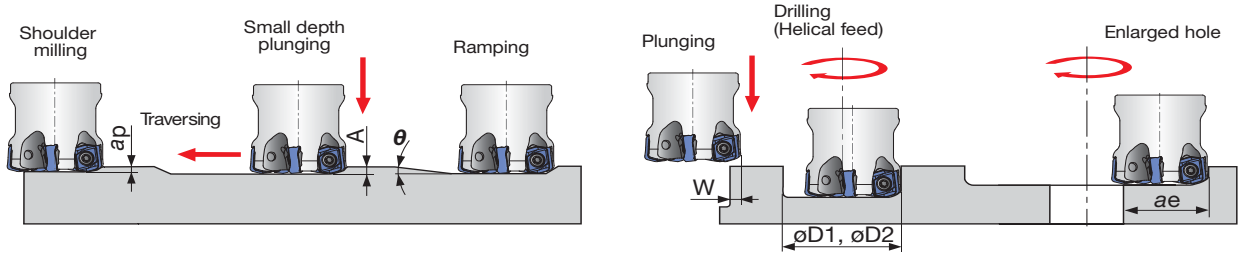
TXN06 / EXN06 type

ISO	Workpiece material		Hardness	Priority	Grades	Chip-breaker	Cutting speed *Vc* (sfm)	Feed per tooth: *fz* (ipt) Tool dia: ø*Dc* (in) ø1.25" - ø6.00"	Feed per tooth: *fz* (ipt) Plunging
P	Carbon steel (1045, 1055, etc.)		- 300HB	First choice	AH725	MJ	330 - 980	0.020 - 0.059	0.006
				For wear resistance	AH120	MJ	330 - 980	0.020 - 0.059	0.006
				For impact resistance	AH3035	MJ	330 - 980	0.020 - 0.059	0.006
	Alloy steel (4140, SCr415, etc.)		- 300HB	First choice	AH725	MJ	330 - 660	0.020 - 0.059	0.006
				For wear resistance	AH120	MJ	330 - 660	0.020 - 0.059	0.006
				For impact resistance	AH3035	MJ	330 - 660	0.020 - 0.059	0.006
	Prehardened steel (NAK80, PX5, etc.)		30 - 40HRC	-	AH3035	ML	330 - 660	0.020 - 0.039	0.006
M	Stainless steel (SUS304, SUS316, etc. 304, 316, etc.)		- 200HB	First choice	AH130	ML	330 - 490	0.012 - 0.028	0.004
				For impact resistance	AH130	MJ		0.012 - 0.031	0.004
K	Gray cast iron (GG25, GG30, etc.)		150 - 250HB	First choice	AH120	MJ	330 - 980	0.020 - 0.059	0.006
				For low cutting force	AH120	ML		0.020 - 0.039	0.006
	Ductile cast iron (GGG40, etc.)		150 - 250HB	First choice	AH120	MJ	260 - 660	0.020 - 0.059	0.006
				For low cutting force	AH120	ML		0.020 - 0.039	0.006
S	Titanium alloys (Ti-6Al-4V, etc.)		- 40HRC	-	AH725	ML	100 - 200	0.012 - 0.028	0.003
	Heat-resistant alloys (Inconel, Hastelloy, etc.)		- 40HRC	-	AH725	MJ	60 - 160	0.004 - 0.012	0.002
H	Hardened steel	X40CrMoV5-1, etc.	40 - 50HRC	First choice	AH3035	MJ	260 - 430	0.004 - 0.012	0.002
				For wear resistance	AH725	MJ	260 - 430	0.004 - 0.012	0.002
		X153CrMoV12, etc.	50 - 60HRC	First choice	AH725	MJ	160 - 230	0.001 - 0.003	0.001
				For impact resistance	AH3035	MJ	160 - 230	0.001 - 0.003	0.001

· When chips stay in the cutting zone during slotting or pocketing, use an air blast to remove chips from the work area.

· Tool overhang length must be as short as possible to avoid chatter. When the tool overhang length is long, decrease the number of revolutions and feed.

MACHINING APPLICATIONS



Designation	Max. depth of cut (in) *ap*	ø*Dc*	Max. ramping angle θ	Max. plunging (in) A	Max. cutting width in plunging (in) *W*	Min. machining (in) ø*D1*	Max. machining (in) ø*D2*	Max. cutting width in enlarging (in) *ae*
EXN06R125U...	0.059	ø1.250	2.0°	0.020	0.236	1.830	2.300	0.970
EXN06R150U...	0.059	ø1.500	1.5°	0.020	0.236	2.330	2.800	1.220
TXN06R200U...	0.059	ø2.000	0.9°	0.020	0.236	3.330	3.800	1.720
TXN06R250U...	0.059	ø2.500	0.6°	0.020	0.236	4.330	4.800	2.220
TXN06R300U...	0.059	ø3.000	0.5°	0.020	0.236	5.330	5.800	2.720

- For ø*Dc* above ø4.000", slot milling, ramping or contouring is not recommended as chips may be re-cut.

MEMO

MILLQUADFEED TUNGALOY

Powerful high-feed milling cutter with improved metal removal rate

MillQuadFeed, simple but powerful high-feed milling cutter for large depths of cut, boosts performance and productivity.

- Square-shaped insert with **4 cutting edges and positive flank** clearance:

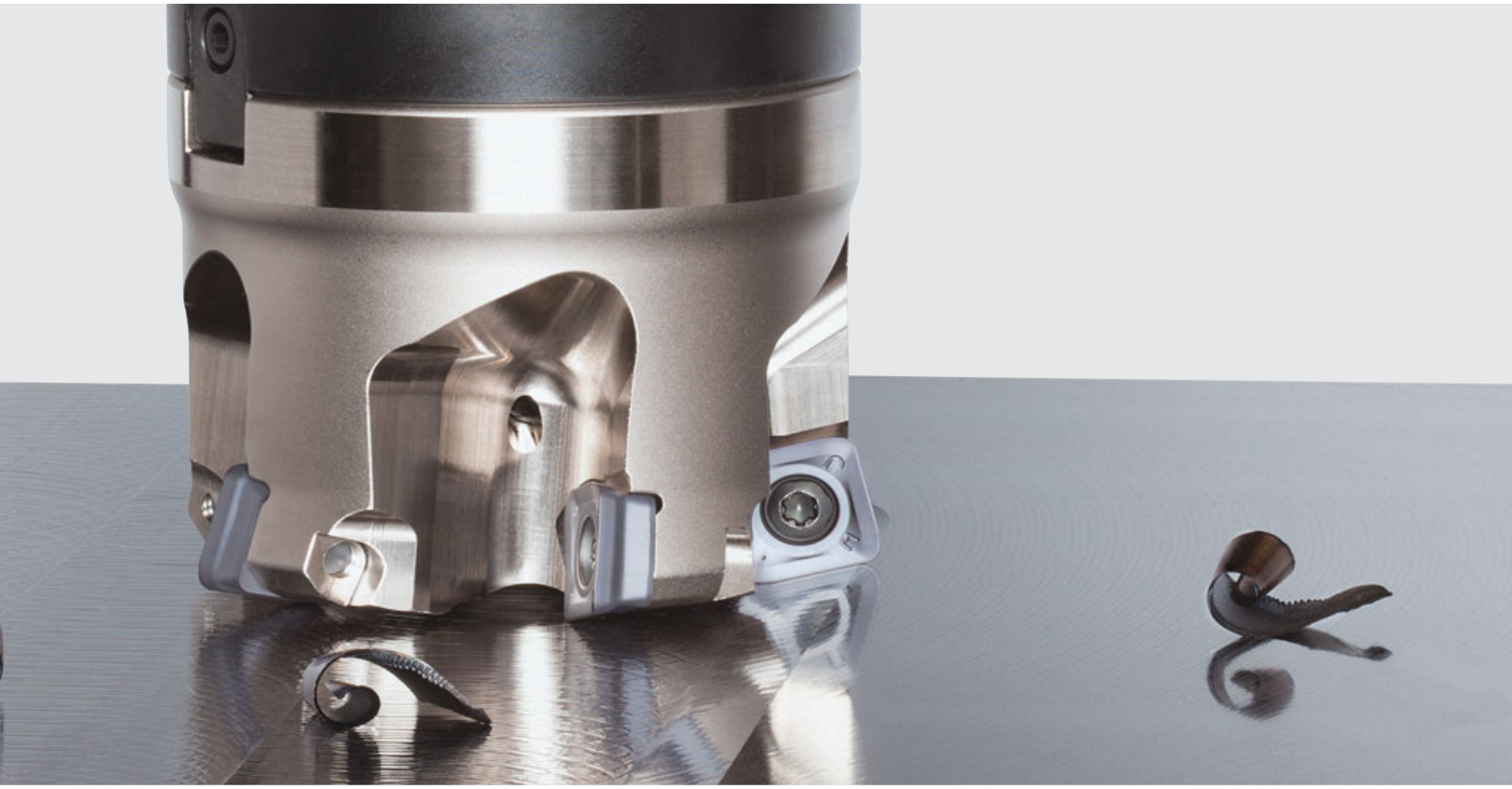
- Reinforced flank surface for **high fracture resistance**.

- Special clearance on flank **improves ramping capability.**

- Outstanding productivity due to **large depth of cut** at 2.5 mm (0.98") and high feed/tooth up to 2 mm/tooth (0.078 ipt).

- Large corner radius of the insert contacting the bottom of the workpiece helps withstand impact in machining.

- Large corner radius contacting the side wall of the workpiece increases fracture strength in machining with multiple depths of cut.



TUNGFORCE MILL
ACCELERATED MACHINING

Line up:

MJ chipbreaker for **SWMT15 insert**:
Comprises a wide T-land to withstand impact loads
The wide T-land followed by a positive rake geometry allows maximum chip thickness up to 0.48 mm (0.019") and prevents chips from contacting the machined surface

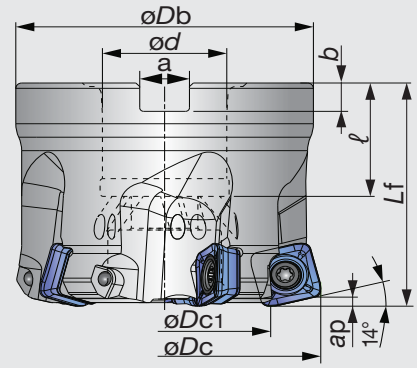
Cutter bodies:
Bore type **TXSW15**: Available in metric, JIS, and inch bores

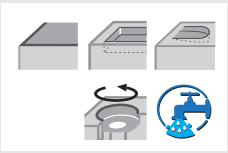
Grades:
The newest **AH3135** and the popular **AH120** suitable for machining cast iron, hardened steel, and superalloys

SWMT-MJ

CUTTER - BORE TYPE

MillQuadFeed TXSW





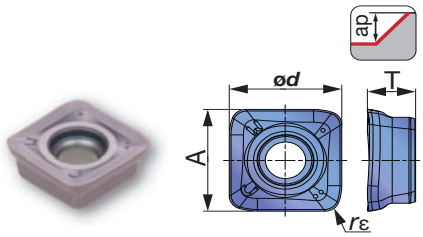
Designation	Max. *ap*	*øDc*	z	*øDc1*	*øDb*	*Lf*	*ød*	*ℓ*	*a*	*b*	lb	C.bolt	Insert
TXSW15U2.50B0.75R04	0.098	2.500	4	1.480	2.323	1.969	0.750	0.750	0.315	0.197	1.52	(SD06-A 6)	SWMT15**
TXSW15U3.00B1.00R05	0.098	3.000	5	1.980	2.835	2.480	1.000	1.024	0.374	0.236	2.71	(C0.500x1.375H)	SWMT15**
TXSW15U4.00B1.50R06	0.098	4.000	6	2.980	3.819	2.480	1.500	1.063	0.626	0.394	4.87	(SD-12-99)	SWMT15**
TXSW15U5.00B1.50R07	0.098	5.000	7	3.980	3.819	2.480	1.500	1.614	0.626	0.394	6.37	(TMBA-0.750H)	SWMT15**
TXSW15U6.00B2.00R08	0.098	6.000	8	4.980	4.331	2.480	2.000	1.496	0.748	0.433	8.29	-	SWMT15**

SPARE PARTS

øDc	Clamping Screw	Wrench	
		Torx Bit	Handle
≤ ø4.0"	TS50115I	BT20S	H-TB2W
ø5.0", 6.0"	TS50115I	BT20M	H-TB2W

INSERT

SWMT-MJ



Designation	Max. ap	A	ød	T	rε
SWMT1506ZER-MJ	0.098	0.625	0.625	0.268	0.079

AH3135					AH120				
●	●		●		○		●		●
P	M	K	S	H	P	M	K	S	H

● First choice
Note: See page 9 for more information about grades.

STANDARD CUTTING CONDITIONS

ISO	Workpiece materials		Hardness	Priority	Grades	Chip-breaker	Cutting speed Vc (sfm)	Feed per tooth fz (ipt)
P	Low carbon steel (1015, etc.)		- 300 HB	First choice	AH3135	MJ	328 - 984	0.02 - 0.08
			- 300 HB	Second choice	AH120	MJ	328 - 984	0.02 - 0.08
	Carbon steel and alloy steel (1015, 4140, etc.)		- 300 HB	First choice	AH3135	MJ	328 - 656	0.02 - 0.08
			- 300 HB	Second choice	AH120	MJ	328 - 656	0.02 - 0.08
	Prehardened steel (NAK80, PX5, etc.)		30 - 40 HRC	First choice	AH3135	MJ	328 - 656	0.02 - 0.06
			30 - 40 HRC	Second choice	AH120	MJ	328 - 656	0.02 - 0.06
M	Stainless steel (S30400, S31600, etc.)		- 200 HB	First choice	AH3135	MJ	328 - 492	0.012 - 0.04
K	Grey cast iron (No.250B, No.300B, etc.)		150 -250 HB	First choice	AH120	MJ	328 - 984	0.02 - 0.08
	Ductile cast iron (60-40-18, 80-55-06, etc.)		150 -250 HB	First choice	AH120	MJ	262 - 656	0.02 - 0.08
S	Titanium alloys (Ti-6Al-4V, etc.)		- 40 HRC	First choice	AH3135	MJ	98 - 197	0.012 - 0.028
	Superalloys (Inconel718, etc.)		- 40 HRC	First choice	AH120	MJ	66 - 164	0.004 - 0.012
H	Hardened steel	(H13, etc.)	40 - 50 HRC	First choice	AH3135	MJ	262 - 427	0.004 - 0.012
		(D2, etc.)	50 - 60 HRC	First choice	AH120	MJ	164 - 230	0.001 - 0.003

Note: See page 9 for more information about grades.

DO TWIST BALL
TUNGALOY

New tools with unique insert design which ensures high stability for incredible productivity

DoTwistBall features a unique twisted-shape insert in radius as well as high-feed geometry which is clamped on a cross surface, assuring accurate fixation with high stability.

- Rectangular shape and twisted clamping insert seat **guarantee the insert's anti-rotation**, which is difficult to achieve for radius cutters.

- **Optimized insert geometry:**

- The inclination on helical cutting edge forms small chips, delivering **incredible cutting performance**.

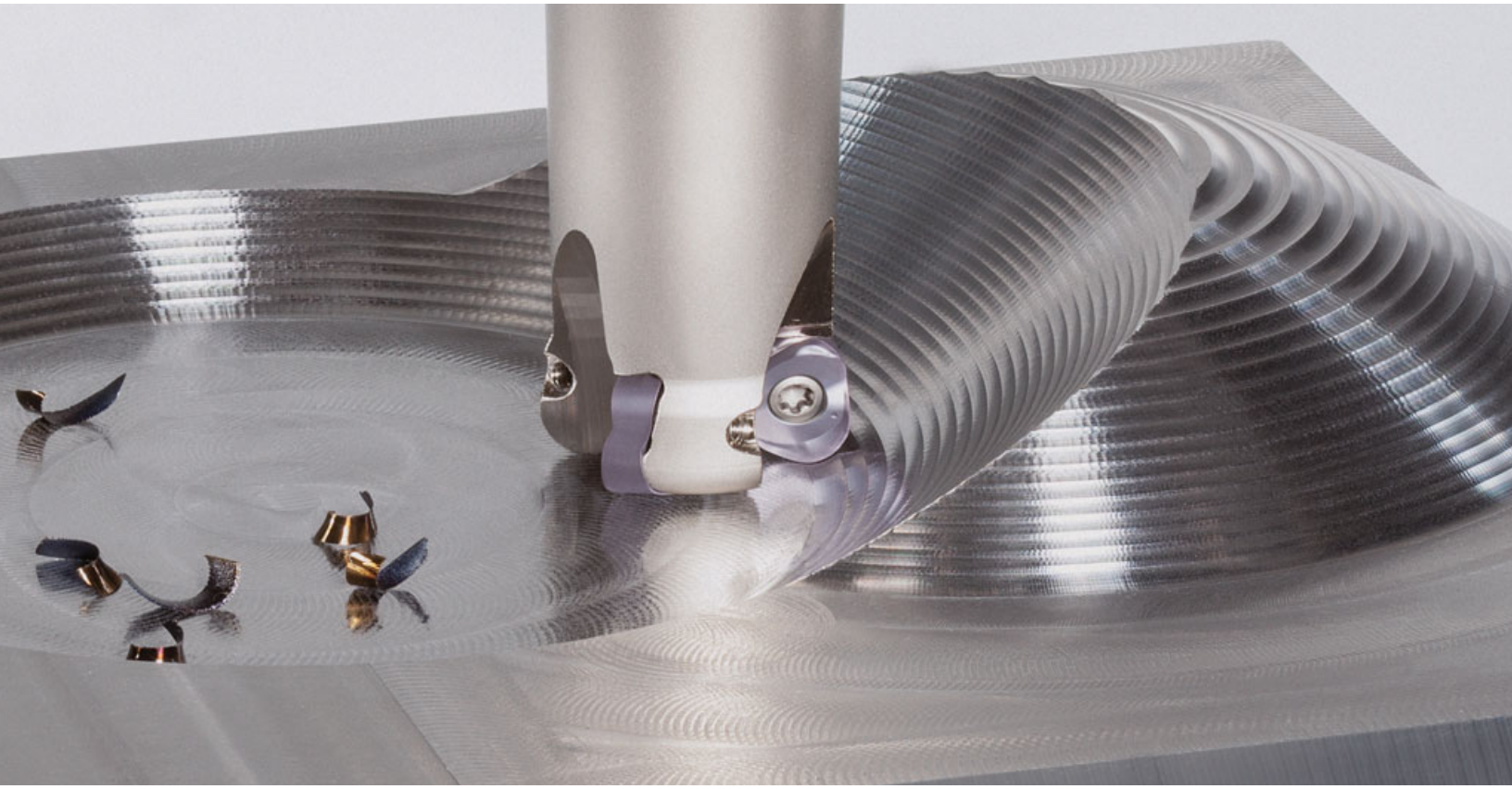
- **Raised cutting edge** from the seating surface avoids chip contact with the screw head, extending screw life.

- The large clamping screw **increases reliability at high feed**.

- Geometry of cross section around the cutting edge is improved compared to round inserts.

- **Insert ensures 4-corner** usage without damaging the unused cutting edges.

- Both radius type and high feed type inserts fit in the same cutter (cutter size: 04 and 06)



TUNGFORCE MILL
ACCELERATED MACHINING

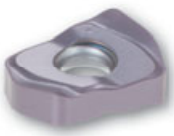
Line up:

- Inserts:
High-feed type (**LNMX04…**and **LNMX06...HJ**): Applicable for depth of cut 1.3 and 2 mm (0.051" and 0.0787") respectively for high feed milling
Radius type (**LNMX04..R4** and **LNMX06…R6…MJ/ML**): Available in R4 (R0.157") and R6 (R0.236") corner radii for profile milling of various materials

Cutter bodies:
Shank type **EXLN**: Available in metric and inch sizes
Bore type **TXLN**: Available in metric, JIS and inch sizes
Modular type **HXLN**: Available in metric screw connection
All the designs available in coarse- and close-pitch designs

Grades:
The newest **AH3135** and the popular **AH120** suitable for machining all materials

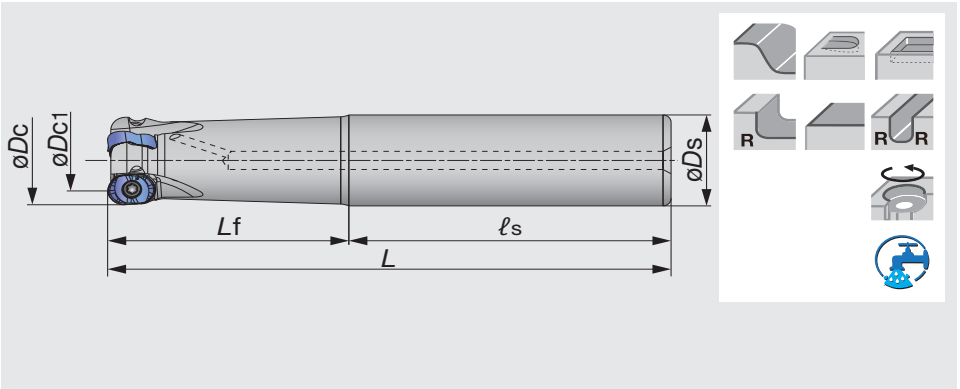
LNMX**04**..**R4** MJ & ML
LNMX**06**..**R6** MJ & ML



LNMX**04**..HJ
LNMX**06**..HJ

CUTTER - SHANK TYPE

DoTwistBall EXLN



Designation	Max. *ap*	ø*D*c	z	ø*D*c1	ø*D*s	ℓs	*L*f	*L*	lb	Insert
EXLN04U1.00C1.00R03	0.157	1.000	3	0.685	1.000	3.000	2.500	5.500	1.00	LNMX04**
EXLN04U1.25C1.25R04	0.157	1.250	4	0.935	1.250	3.000	3.000	6.000	1.80	LNMX04**
EXLN04U1.25C1.25R05	0.157	1.250	5	0.935	1.250	3.000	3.000	6.000	1.80	LNMX04**
EXLN06U1.25C1.25R03	0.236	1.250	3	0.935	1.250	2.000	2.000	6.000	1.80	LNMX06**
EXLN06U1.50C1.25R04	0.236	1.500	4	1.027	1.250	4.000	2.000	6.000	1.98	LNMX06**

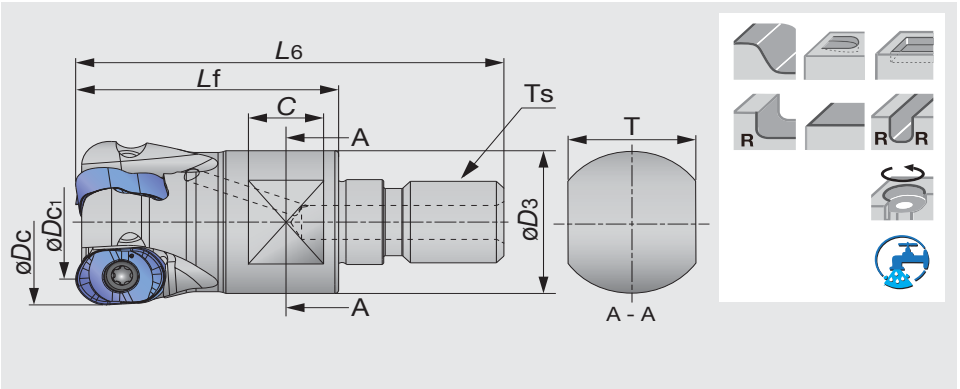
SPARE PARTS

Designation	Clamping screw	Wrench		Mono block type wrench
		Torx Bit	Grip	
EXLN04M***	CSPD-3	-	-	IP-10D
EXLN06M***	CSPB-5	BLDIP20/S7	H-TB2W	-

Radius cutter with double-sided insert

CUTTER - MODULAR TYPE

DoTwistBall HXLN

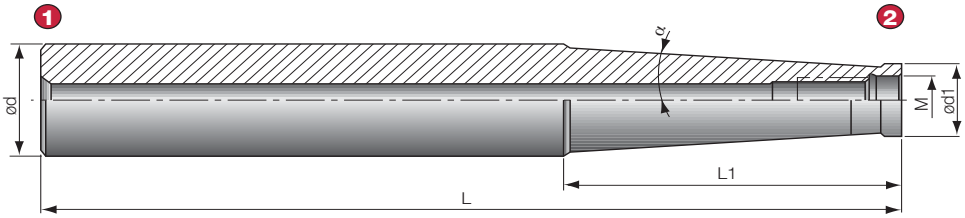


Designation	Max. *ap*	ø*Dc*	z	ø*Dc1*	*L6*	*Lf*	*C*	T	ø*D3*	Ts	Kg	Insert
HXLN04M020M10R02	4	20.00	2	12.0	49.0	30.0	10.0	15.0	18.0	M10	0.07	LNMX04**
HXLN04M025M12R03	4	25.00	3	17.0	57.0	35.0	10.0	17.0	21.0	M12	0.16	LNMX04**
HXLN04M032M16R04	4	32.00	4	24.0	63.0	40.0	12.0	22.0	29.0	M16	0.20	LNMX04**

(Unit: mm)

TUNGFLEX Steel shank series

SM type



1 **Straight shank**
2 **TungFlex**

Cat. No.	Stock	Dimensions (mm)						Shank type
		L	L[1]	ød	ød1	M	α	
SM10-L80-C20	○	80	30.0	20.0	18.0	M10	0°	Straight
SM10-L130-C20	○	130	80.0	20.0	18.0	M10	0.6°	Straight
SM10-L200-C25	○	200	57.2	25.0	19.0	M10	3.3°	Straight
SM12-L86-C25	○	86	30.0	25.0	21.0	M12	5.1°	Straight
SM12-L200-C32	○	200	78.0	32.0	21.0	M12	4.4°	Straight
SM16-L95-C32	○	95	35.0	32.0	29.0	M16	1.7°	Straight
SM16-L230-C32	○	230	50.0	32.0	29.0	M16	1.8°	Straight

O: Stocked in Japan

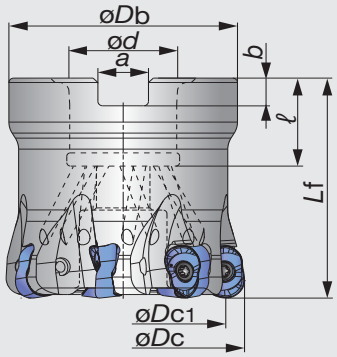
SPARE PARTS

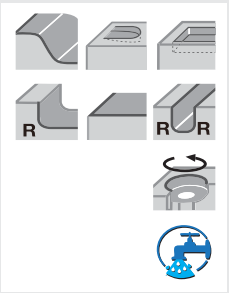
Designation	Clamping screw	Mono block type wrench
HXLN04M***	CSPD-3	IP-10D

Note: All of the shanks have coolant holes.

CUTTER - BORE TYPE

DoTwistBall TXLN





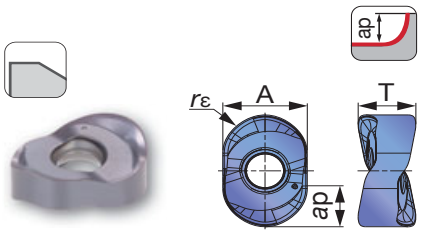
Designation	Max. ap	øDc	z	øDc1	øDb	Lf	ød	ℓ	a	b	lb	C.bolt	Insert
TXLN04U1.50B0.50R06	0.157	1.500	6	1.200	1.461	1.574	0.500	0.750	0.315	0.197	0.77	(SR UNF 1/4X3/4 B18.3)	LNMX04**
TXLN04U2.00B0.75R07	0.157	2.000	7	1.700	1.693	1.969	0.750	0.750	0.315	0.197	0.99	(C0.375X1.125H)	LNMX04**
TXLN06U2.00B0.75R05	0.236	2.000	5	1.528	1.85	1.969	0.750	0.75	0.315	0.197	0.97	(C0.375x1.125H)	LNMX06**
TXLN06U2.50B1.00R06	0.236	2.500	6	2.028	2.323	1.969	1.000	1.024	0.374	0.236	1.74	(C0.375x1.125H)	LNMX06**

SPARE PARTS

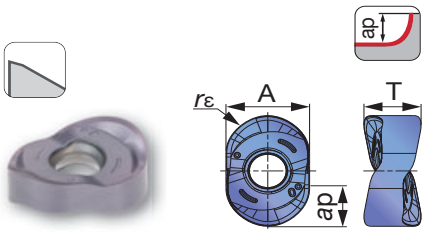
Designation	Clamping screw	Torx Bit	Wrench	Grip
TXLN04M***	CSPD-3	BLD IP10/S7	SW6-SD	-
TXLN06M***	CSPB-5	BLDIP20/S7	-	H-TB2W

INSERTS

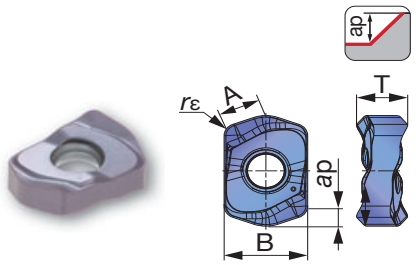
LNMX-MJ



LNMX-ML



LNMX-HJ



Designation	Max. *ap*	A	B	T	r_ε	AH3135				AH120			
LNMX0405R4-MJ	0.157	0.323	-	0.22	0.157	●	●		●	○		●	●
LNMX0405R4-ML	0.157	0.323	-	0.22	0.157	●	●		●	○		●	●
LNMX0405ZER-HJ	0.051	0.169	0.323	0.22	0.051	●	●		●	○		●	●
LNMX0607R6-MJ	0.236	0.496	-	0.299	0.236	●	●		●	○		●	●
LNMX0607R6-ML	0.236	0.496	-	0.299	0.236	●	●		●	○		●	●
LNMX0607ZER-HJ	0.079	0.252	0.496	0.299	0.059	●	●		●	○		●	●
						P	M	K	H	P	M	K	H

● First choice

Note: See page 9 for more information about grades.

STANDARD CUTTING CONDITIONS

For MJ, ML type

ISO	Workpiece materials	Hardness	Priority	Grades	Chip-breaker	Cutting speed *Vc* (sfm)	Feed per tooth *fz* (ipt)
P	Low carbon steels 1015, etc.	- 300 HB	First choice	AH3135	MJ	490 - 820	0.0079 - 0.0236
		- 300 HB	Second choice	AH3135	ML	490 - 820	0.0079 - 0.0236
	Carbon steels, Alloy steels 1055, etc.	- 300 HB	First choice	AH3135	MJ	490 - 820	0.0079 - 0.0236
		- 300 HB	Second choice	AH3135	ML	490 - 820	0.0079 - 0.0236
	Prehardened steels NAK80, PX5, etc.	30 - 40 HRC	First choice	AH3135	MJ	330 - 660	0.0059 - 0.0157
		30 - 40 HRC	Second choice	AH3135	ML	330 - 660	0.0059 - 0.0157
M	Stainless steels S30400, etc	- 200 HB	First choice	AH3135	MJ	330 - 660	0.0079 - 0.0236
		- 200 HB	Second choice	AH3135	ML	330 - 660	0.0079 - 0.0236
	Stainless steels S4200, etc	- 200 HB	First choice	AH3135	MJ	330 - 980	0.0079 - 0.0236
		- 200 HB	Second choice	AH3135	ML	330 - 980	0.0079 - 0.0236
K	Grey cast irons No.250B, No.300B, etc.	150 - 250 HB	First choice	AH120	MJ	490 - 820	0.0079 - 0.0236
		150 - 250 HB	Second choice	AH120	ML	490 - 820	0.0079 - 0.0236
	Ductile cast irons 60-40-18, 80-50-06, etc.	150 - 250 HB	First choice	AH120	MJ	490 - 820	0.0079 - 0.0236
		150 - 250 HB	Second choice	AH120	ML	490 - 820	0.0079 - 0.0236
H	Hardened steel H13, etc	40 - 50 HRC	First choice	AH3135	MJ	160 - 490	0.0039 - 0.0118
		40 - 50 HRC	Second choice	AH3135	ML	160 - 490	0.0039 - 0.0118
	Hardened steel D2, etc	50 - 60 HRC	First choice	AH120	MJ	160 - 230	0.0020 - 0.0059
		50 - 60 HRC	Second choice	AH120	ML	160 - 230	0.0020 - 0.0059

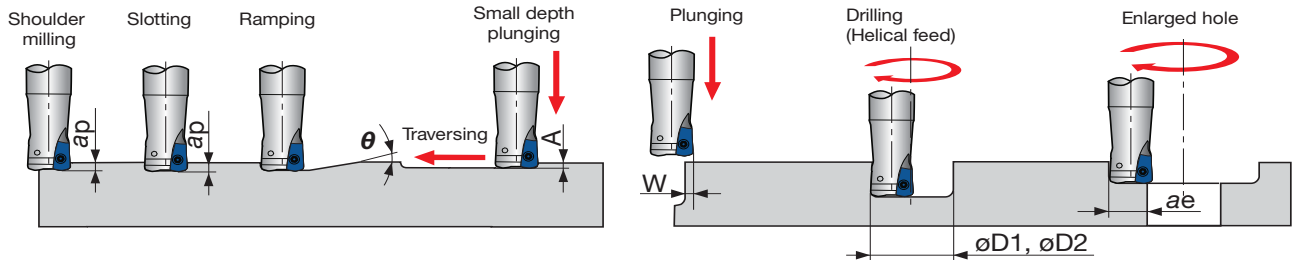
Note: See page 9 for more information about grades.

For HJ type

ISO	Workpiece materials	Hardness	Priority	Grades	Chipbreaker	Cutting speed *Vc* (sfm)	Feed per tooth *fz* (ipt)
P	Low carbon steels C15, C20, etc.	- 300 HB	First choice	AH3135	HJ	490 - 820	0.0197 - 0.059
			Second choice	AH120	HJ	490 - 820	0.0197 - 0.059
	Carbon steels, Alloy steels 1055, etc.	- 300 HB	First choice	AH3135	HJ	490 - 820	0.0197 - 0.059
			Second choice	AH120	HJ	490 - 820	0.0197 - 0.059
	Carbon steels, Alloy steels 1055, etc.	30 - 40 HRC	First choice	AH3135	HJ	330 - 660	0.0118 - 0.0276
			Second choice	AH120	HJ	330 - 660	0.0118 - 0.0276
M	Stainless steels S30400, etc	- 200 HB	First choice	AH3135	HJ	330 - 660	0.0118 - 0.0276
		- 200 HB	First choice	AH3135	HJ	330 - 980	0.0118 - 0.0276
K	Grey cast irons No.250B, No.300B, etc.	150 - 250 HB	First choice	AH120	HJ	490 - 820	0.0197 - 0.059
	Ductile cast irons 60-40-18, 80-50-06, etc.	150 - 250 HB	First choice	AH120	HJ	490 - 820	0.0197 - 0.059
H	Hardened steel H13, etc	40 - 50 HRC	First choice	AH3135	HJ	160 - 490	0.0039 - 0.0197
			Second choice	AH120	HJ	160 - 490	0.0039 - 0.0197
	Hardened steel D2, etc	50 - 60 HRC	First choice	AH120	HJ	160 - 230	0.0020 - 0.0079

Note: See page 9 for more information about grades.
Recommended cutting conditions are just for reference in general machining.

MACHINING APPLICATIONS



For MJ, ML type

Designation	øDc	Max. depth of cut (in) ap	Max. ramping angle θ	Max. plunging (in) A	Max. cutting width in plunging (in) W	Min. machining (in) øD1	Max. machining (in) øD2	Max. cutting width in enlarging (in) ae
EXLN04U1.00C1.00R03	1.000	0.157	3°	0.031	0.157	1.535	1.929	0.803
EXLN04U1.25C1.25R04	1.250	0.157	1.9°	0.031	0.157	2.047	2.402	1.053
EXLN04U1.25C1.25R05	1.250	0.157	1.9°	0.031	0.157	2.047	2.402	1.053
HXLN04M020M10R02	0.787	0.157	4.7°	0.031	0.157	1.102	1.496	0.591
HXLN04M025M12R03	0.984	0.157	3°	0.031	0.157	1.496	1.890	0.787
HXLN04M032M16R04	1.260	0.157	2°	0.031	0.157	2.047	2.441	1.063

For HJ type

Designation	øDc	Max. depth of cut (in) ap	Max. ramping angle θ	Max. plunging (in) A	Max. cutting width in plunging (in) W	Min. machining (in) øD1	Max. machining (in) øD2	Max. cutting width in enlarging (in) ae
EXLN04U1.00C1.00R03	1.000	0.051	3°	0.030	0.161	1.496	1.496	0.803
EXLN04U1.25C1.25R04	1.250	0.051	2°	0.030	0.161	2.008	2.008	1.053
EXLN04U1.25C1.25R05	1.250	0.051	2°	0.030	0.161	2.008	2.008	1.053
HXLN04M020M10R02	0.787	0.051	4.9°	0.030	0.161	1.063	1.063	0.610
HXLN04M025M12R03	0.984	0.051	3°	0.030	0.161	1.457	1.457	0.807
HXLN04M032M16R04	1.260	0.051	2°	0.030	0.161	2.008	2.008	1.083

DOMINI MILL
TUNGALOY

Double-sided positive insert for semi-finishing to finishing

DoMini-Mill features the advantage of an economical 6-cornered double-sided insert with positive cutting edges for milling die & mold.

- **Highly economical insert with 6 cutting edges:**

- Twisted flank surface provides **positive flank clearance**, improving cutting performance due to large rake angle.

- Corner and rake face geometries are **optimized for machining hardened materials.**

- **Suitable for various cutting conditions** with TungFlex system:

- **Modular design** with metric threads and TungMeister threads provides flexibility in the applications of short to long overhangs.

TUNGFORCE MILL
ACCELERATED MACHINING

Line up:

WXHU04 insert available in 2 corner radii:
R0.5 mm (0.0196"): Suitable for general hard materials with low depth and width of cut
R1.0 mm (0.039"): Suitable for hardened steel due to improved corner strength

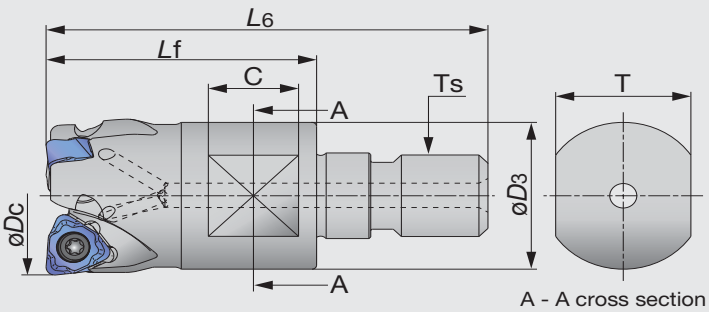
Cutter bodies:
Modular type **HFWX04**: Available in metric thread connection & TungMeister thread connection.
These modular heads can be used with TungFlex shanks or standard metric shanks or tungmeister shanks.

Grade:
AH110: Long tool life due to PremiumTec coating and wear resistant substrate

WXHU-MJ

MODULAR HEAD - METRIC THREAD

DoMini-Mill HFWX04*M**



Designation	øDc	z	L6	Lf	C	T	øD3	Ts	Kg	Insert
HFWX04M016M08R02	16.00	2	42.0	30.0	8.0	10.0	12.8	M8	0.03	WXHU04**
HFWX04M020M10R03	20.00	3	49.0	30.0	10.0	15.0	17.8	M10	0.05	WXHU04**
HFWX04M025M12R04	25.00	4	52.0	35.0	12.0	17.0	20.8	M12	0.09	WXHU04**

(Unit: mm)

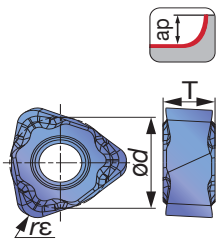
SPARE PARTS

Clamping screw	Wrench
SR34-514	T-7F

Note: See page 75 for TungFlex Shanks

INSERTS

WXHU-MJ



Designation	Max.* ap	ød	T	rε	AH110	
WXHU040305R-MJ	0.020	0.250	0.125	0.020	●	●
WXHU040310R-MJ	0.039	0.250	0.125	0.039	●	●
					P	H

* For plunging, depth up to 0.079" is possible.

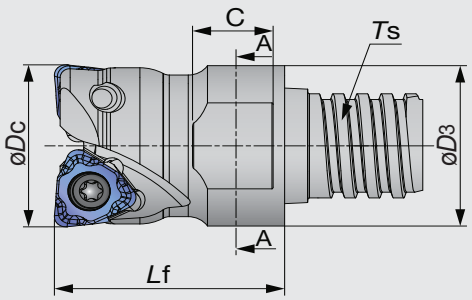
● First choice

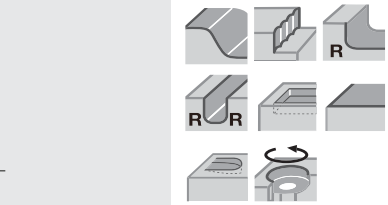
Note: See page 9 for more information about grades.

Small-radius cutter for finishing operation

MODULAR HEAD - TUNGMEISTER THREAD

DoMini-Mill HFWX04*S**





Designation	øDc	z	Lf	C	T	D3	Ts	Kg	Insert
HFWX04M016S10R02	16	2	20	7	13	15.4	S10	0.03	WXHU04**
HFWX04M020S12R03	20	3	25	7	16	18.5	S12	0.06	WXHU04**
HFWX04M025S15R04	25	4	30	7	20	24.1	S15	0.11	WXHU04**

(Unit: mm)

SPARE PARTS

Clamping screw	Wrench
SR34-514	T-7F

***Please reference TungMeister Brochure for shank sizes**

STANDARD CUTTING CONDITIONS

ISO	Workpiece materials		Hardness (HB)	Grades	Cutting speed Vc (sfm)	Feed per tooth fz (ipt)
P	High carbon steel (1045, 1055, etc.)		200 - 300	AH110	328 - 984	0.004 - 0.012
P	Alloy steel (4140, etc.)		150 - 300	AH110	328 - 984	0.004 - 0.012
P	Prehardened steel (NAK80, PX5, etc.)		-	AH110	328 - 984	0.002 - 0.012
H	Hardened steel	(H13, etc.)	-	AH110	262 - 427	0.004 - 0.012
H	Hardened steel	(D2, etc.)	-	AH110	164 - 328	0.002 - 0.006

BALLFINISH NOSE
TUNGALOY

Indexable insert with unique clamping system for high-precision finishing

BallFinishNose delivers excellent surface finish and stable machining due to secure clamping and minimum run-out.

- Insert in asymmetrical shape:

- Improves repeatability in indexing inserts, achieving minimum run-out and **high accuracy**

- Ball nose type and radius type inserts cover machining needs in the aerospace and die & mold industries.

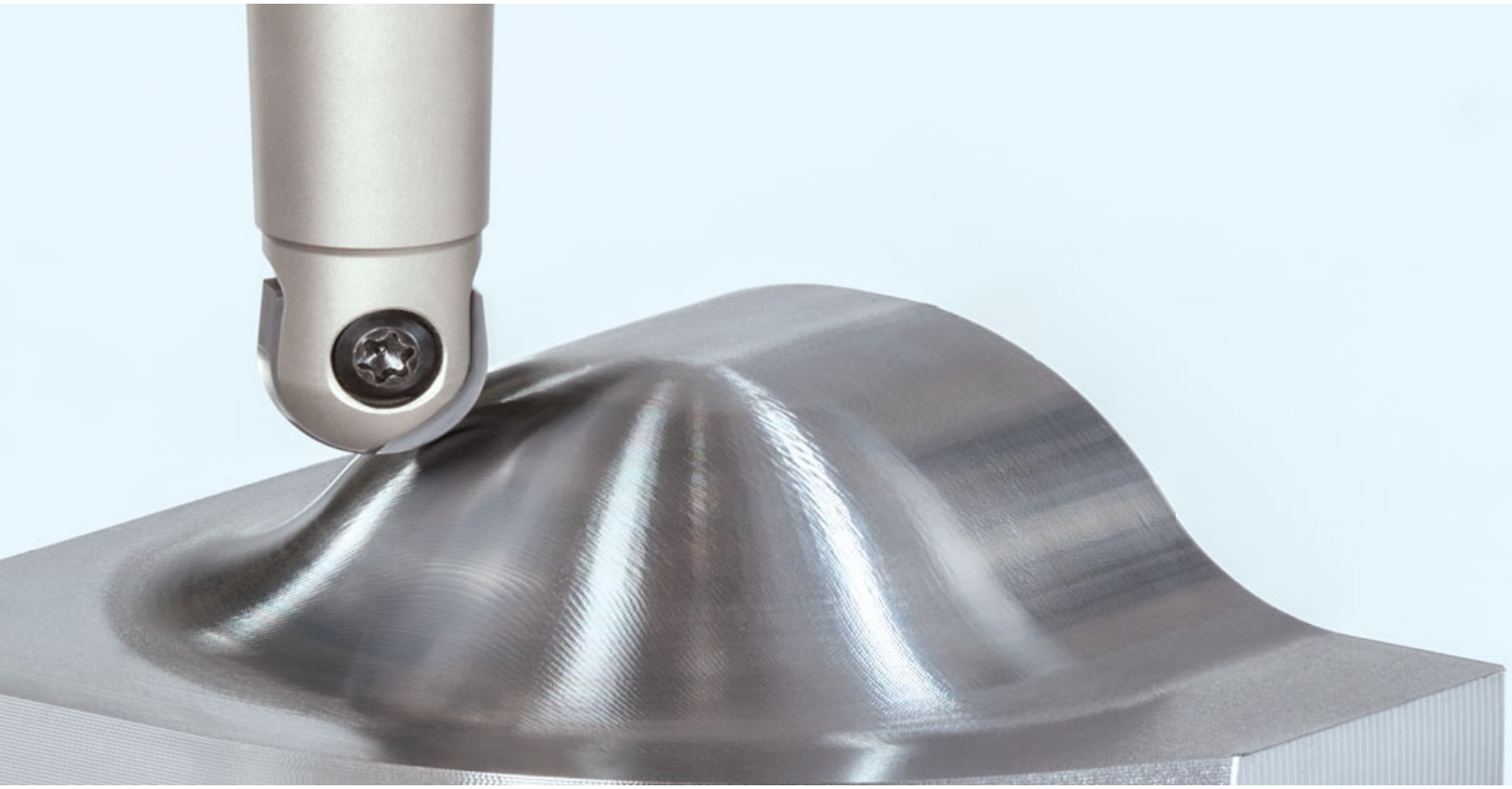
- **High radius accuracy** on ball nose insert is perfect for high-precision 3D milling.

- Fixed screw contact surface directs clamping force to the desired direction, **securing insert clamping**.

- **Coolant delivered to the cutting edge:**

- The channel on the insert supplies ample coolant to the cutting edge in three directions.

- **Excellent chip evacuation** and cooling effect provide good surface finish and long tool life in milling hardened steel.



TUNGFORCE MILL
ACCELERATED MACHINING

Line up:

Inserts available in ød 12 to 20 mm (0.375" to 1.25"):

Ball nose type **ZFB**: Suitable for finishing and 3D milling of die & mold. Applicable for a wide range of operations.

Radius type **ZFR**: Suitable for finishing of die & mold components. The cutting edge has corner radius.

MJ chipbreaker: Optimized geometry for all applications
ML chipbreaker: Optimized geometry for sticky material

Cutter bodies:

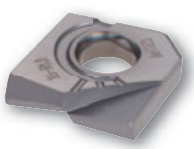
Steel shank **EBFM..S..S…**: Suitable for applications with short overhang

Carbide shank **EBFM..S..C…**: Suitable for applications with long overhang

Grades:

AH725: Suitable for steel and stainless steel

ZFB-MJ



ZFR-MJ

BALLFINISH NOSE

Indexable endmill for high precision finish.

ENDMILLS - STEEL SHANK

BallFinishNose EBF

Fig.1

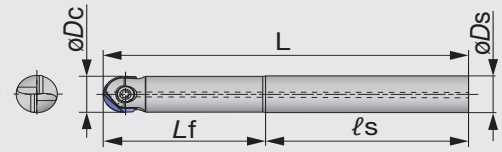
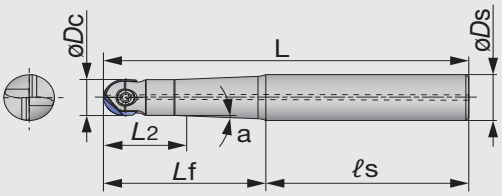
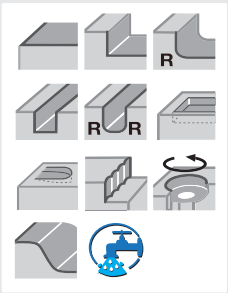


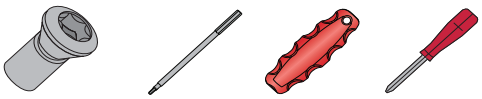
Fig.2





Designation	øDc	øDs	ℓs	Lf	L	L2	a	Fig.	Insert
EBFU037T050S0400	0.375	0.500	3.000	1.000	4.000	0.625	9.0°	2	ZF*U037
EBFU037T062S0600	0.375	0.625	3.500	2.500	6.000	0.625	3.5°	2	ZF*U037
EBFU050S050S0437	0.500	0.500	3.187	1.188	4.375	-	-	1	ZF*U050
EBFU050T062S0637	0.500	0.625	4.000	2.375	6.375	1.000	2.5°	2	ZF*U050
EBFU062T075S0500	0.625	0.750	3.000	2.000	5.000	0.563	2.0°	2	ZF*U062
EBFU062T075S0637	0.625	0.750	3.625	2.750	6.375	0.563	1.5°	2	ZF*U062
EBFU075T100S0700	0.750	1.000	4.000	3.000	7.000	1.563	4.5°	2	ZF*U075
EBFU075T100S0875	0.750	1.000	4.000	4.750	8.750	1.000	1.5°	2	ZF*U075
EBFU100T125S0800	1.000	1.250	4.000	4.000	8.000	1.250	2.5°	2	ZF*U100
EBFU100T125S1000	1.000	1.250	4.000	6.000	10.000	1.188	1.4°	2	ZF*U100
EBFU125S125S1000	1.250	1.250	6.000	4.000	10.000	-	-	1	ZF*U125

SPARE PARTS

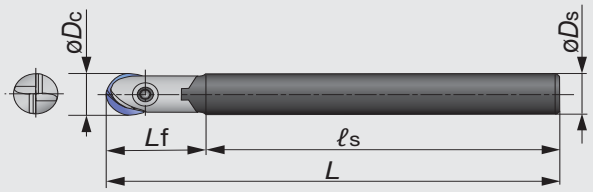


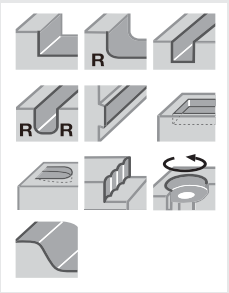
Designation	Clamping Screw	Wrench		Mono block type wrench
		Torx Bit	Grip	
EBFU037...	TS30F100A	-	-	T10D
EBFU050...	TS40F120A	-	-	T15D
EBFU062...	TS50F160A	-	-	T-T20
EBFU075...	TS60F200A	BLDT25/M7	SW6-T	-
EBFU100...	TS70F250A	BLDT25/M7	SW6-T	-
EBFU125...	TS70F300A	-	-	T-T30

Indexable endmill for high precision finish.

ENDMILLS - CARBIDE SHANK

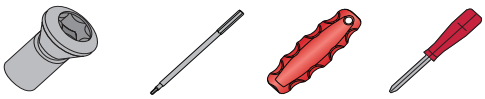
BallFinishNose EBF





Designation	øDc	øDs	ℓs	Lf	L	Insert
EBFU037S037C0550	0.375	0.375	2.500	3.000	5.500	ZF*U037
EBFU037S037C0875	0.375	0.375	3.250	5.500	8.750	ZF*U037
EBFU050S050C0637	0.500	0.500	2.750	3.625	6.375	ZF*U050
EBFU050S050C0875	0.500	0.500	2.750	6.000	8.750	ZF*U050
EBFU062S062C0637	0.625	0.625	3.375	3.000	6.375	ZF*U062
EBFU062S062C0875	0.625	0.625	2.750	6.000	8.750	ZF*U062
EBFU075S075C0875	0.750	0.750	4.000	4.750	8.750	ZF*U075
EBFU075S075C1200	0.750	0.750	3.250	8.750	12.000	ZF*U075
EBFU100S100C0875	1.000	1.000	4.000	4.750	8.750	ZF*U100
EBFU100S100C1200	1.000	1.000	3.250	8.750	12.000	ZF*U100
EBFU125S125C1200	1.250	1.250	3.250	8.750	12.000	ZF*U125

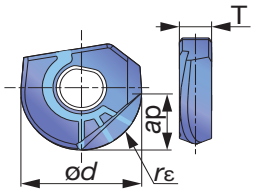
SPARE PARTS



Designation	Clamping Screw	Wrench		Mono block type wrench
		Torx Bit	Grip	
EBFU037...	TS30F100A	-	-	T10D
EBFU050...	TS40F120A	-	-	T15D
EBFU062...	TS50F160A	-	-	T-T20
EBFU075...	TS60F200A	BLDT25/M7	SW6-T	-
EBFU100...	TS70F250A	BLDT25/M7	SW6-T	-
EBFU125...	TS70F300A	-	-	T-T30

INSERT

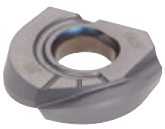
ZFBU-MJ

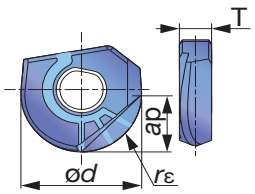


Designation	Max. ap	ød	T	rε	AH725				
ZFBU037R00-MJ	0.188	0.375	0.114	0.188	●	○	●	○	○
ZFBU050R00-MJ	0.250	0.500	0.134	0.250	●	○	●	○	○
ZFBU062R00-MJ	0.313	0.625	0.173	0.313	●	○	●	○	○
ZFBU075R00-MJ	0.375	0.750	0.213	0.375	●	○	●	○	○
ZFBU062R00-MJ	0.313	0.625	0.173	0.313	●	○	●	○	○
ZFBU100R00-MJ	0.500	1.000	0.252	0.500	●	○	●	○	○
ZFBU075R00-MJ	0.375	0.750	0.213	0.375	●	○	●	○	○
ZFBU125R00-MJ	0.625	1.250	0.291	0.625	●	○	●	○	○
					P	M	K	N	H

● First choice

ZFBU-ML

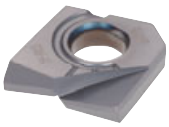


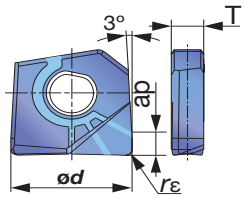


Designation	Max. ap	ød	T	rε	AH725				
ZFBU037R00-ML	0.188	0.375	0.114	0.188	●	●	○	●	●
ZFBU050R00-ML	0.250	0.500	0.134	0.250	●	●	○	●	●
ZFBU062R00-ML	0.313	0.625	0.173	0.313	●	●	○	●	●
ZFBU075R00-ML	0.375	0.750	0.213	0.375	●	●	○	●	●
ZFBU100R00-ML	0.500	1.000	0.252	0.500	●	●	○	●	●
ZFBU125R00-ML	0.625	1.250	0.291	0.625	●	●	○	●	●
					P	M	K	N	H

● First choice

ZFRU - MJ





Designation	Max. ap	ød	T	rε	AH725				
ZFRU037R003-MJ	0.070	0.375	0.114	0.031	●	●	○	●	○
ZFRU050R003-MJ	0.078	0.500	0.134	0.031	●	●	○	●	○
ZFRU050R006-MJ	0.109	0.500	0.134	0.062	●	●	○	●	○
ZFRU050R012-MJ	0.172	0.500	0.134	0.125	●	●	○	●	○
ZFRU062R003-MJ	0.094	0.625	0.173	0.031	●	●	○	●	○
ZFRU062R006-MJ	0.125	0.625	0.173	0.062	●	●	○	●	○
ZFRU062R012-MJ	0.188	0.625	0.173	0.125	●	●	○	●	○
ZFRU075R003-MJ	0.110	0.750	0.213	0.031	●	●	○	●	○
ZFRU075R006-MJ	0.141	0.750	0.213	0.062	●	●	○	●	○
ZFRU075R012-MJ	0.204	0.750	0.213	0.125	●	●	○	●	○
ZFRU100R003-MJ	0.129	1.000	0.252	0.031	●	●	○	●	○
ZFRU100R006-MJ	0.160	1.000	0.252	0.062	●	●	○	●	○
ZFRU100R012-MJ	0.223	1.000	0.252	0.125	●	●	○	●	○
ZFRU125R003-MJ	0.157	1.250	0.291	0.031	●	●	○	●	○
ZFRU125R006-MJ	0.188	1.250	0.291	0.062	●	●	○	●	○
ZFRU125R012-MJ	0.251	1.250	0.291	0.125	●	●	○	●	○
					P	M	K	N	H

● First choice

STANDARD CUTTING CONDITIONS

ISO	Workpiece materials	Hardness	Grades	Recommended		Max. axial depth of cut *ap* (in)	Cutting speed *Vc* (sfm)	Feed per tooth: *fz* (ipt) øD*c* (in)					
				Selection criteria	Chip-breaker			ø0.375	ø0.500	ø0.625	ø0.750	ø1.000	ø1.250
P	Low carbon steel, alloy steel	85 - 180 HB	AH725	First choice	MJ	≤0.04D	590 - 850	0.008	0.008	0.010	0.010	0.012	0.014
		85 - 180 HB	AH725	For wear resistance	ML	≤0.04D	590 - 850	0.008	0.008	0.010	0.010	0.012	0.014
	High carbon steel, alloy steel	180 - 280 HB	AH725	First choice	MJ	≤0.03D	490 - 750	0.008	0.008	0.010	0.010	0.012	0.014
		180 - 280 HB	AH725	For wear resistance	ML	≤0.03D	490 - 750	0.008	0.008	0.010	0.010	0.012	0.014
	Prehardened steel Die & mold tool steel	HRC 40 - 48	AH725	First choice	ML	≤0.03D	590 - 980	0.008	0.008	0.010	0.010	0.012	0.014
		HRC 40 - 48	AH725	For impact resistance	MJ	≤0.03D	590 - 980	0.008	0.008	0.010	0.010	0.012	0.014
M	Stainless steel	135 - 200 HB	AH725	First choice	ML	≤0.03D	330 - 820	0.006	0.008	0.008	0.010	0.010	0.012
		135 - 200 HB	AH725	For impact resistance	MJ	≤0.03D	330 - 820	0.006	0.008	0.008	0.010	0.010	0.012
K	Cast iron	150 - 240 HB	AH725	First choice	MJ	0.04D	300 - 1150	0.008	0.010	0.012	0.012	0.014	0.016
		150 - 240 HB	AH725	For wear resistance	ML	≤0.04D	300 - 1150	0.008	0.010	0.012	0.012	0.014	0.016
N	Aluminum	-	AH725	First choice	ML	≤0.03D	660 - 1310	0.010	0.014	0.014	0.014	0.016	0.018
		-	AH725	For impact resistance	MJ	≤0.03D	660 - 1310	0.010	0.014	0.014	0.014	0.016	0.018
H	High hardened steel	HRC 48 - 60	AH725	First choice	ML	≤0.02D	330 - 720	0.003	0.004	0.005	0.006	0.008	0.010
		HRC 48 - 60	AH725	For impact resistance	MJ	≤0.02D	330 - 720	0.003	0.004	0.005	0.006	0.008	0.010

- Standard cutting conditions should be used only as references for each workpiece material.
- These conditions are based on the use of steel shank.
  For carbide shank, depth of cut and feed per tooth can be increased by 20 - 30%.

How to clamp the insert

1. Clear chips and dust from the pocket.
2. Place the insert in the pocket. The insert can be placed only in one direction.
3. Tighten the screw while pressing the insert into the pocket.

How to check the run-out

1. Clamp the insert on the shank.
2. Clamp the shank on a high-precision arbor.
3. Measure the run-out on tool presetter or by dial gauge.

Notes:

1. Due to the helical cutting edge, it is important that the run-out is inspected with the insert clamped on the shank.
2. Do not use micrometer or caliper to inspect the insert diameter as inaccurate dimensions may be provided.

MEMO

Turning application for difficult-to-cut materials poses a challenge in chip control and tool life. Achieving the best performance with high productivity while maintaining long tool life is accomplished by coordinated research in the **Grade** technology and the insert **Geometry**. Tungaloy introduces the **TunGForce TurnLine** with the advanced design of the **Grades** and the **Geometries** to accomplish **Accelerated Machining**.

TurnLine

94 **MINI**FORCE-TURN
112 ISO-**ECO**TURN
128 **TUNG**TURN-JET
138 **TINY**MINI-TURN

MINIFORCE TURN
TUNGALOY

Economical double-sided insert with sharp cutting edges

MiniForce-Turn's innovative insert with multiple cutting edges clamped into a uniquely designed pocket with dovetail structure provides the highest insert stability during the machining operation.

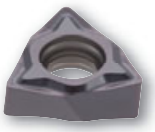
- **Double-sided insert** with positive cutting edges:
- Cutting performance equal to that of conventional positive inserts
- Available with **4 or 6 cutting edges** for reduction in tool cost
- Same insert applicable for both **Bore Line** and **External Line**:
- Bore Line: Minimum diameter of ø12 mm (0.5")
- External Line: Great for small-part machining on automatic lathes
- **Ground insert for highly accurate machining**

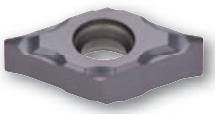
TUNGFORCE TURN
ACCELERATED MACHINING

Line up:

Inserts available in 3 types:
WXGU: 80° corner angle with 6 cutting edges
DXGU: 55° corner angle with 4 cutting edges
VXGU: 35° corner angle with 4 cutting edges

Tools in a wide variety suit small machines for many applications.


WXGU


DXGU

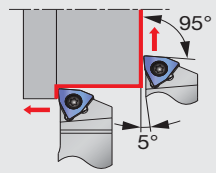
VXGU

Screw-on toolholder without offset with 95° approach angle, for WXGU inserts

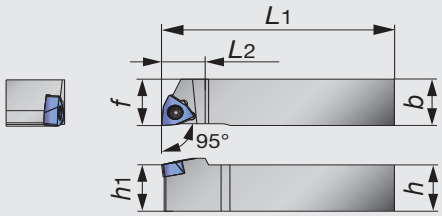
TOOLHOLDERS - FOR EXTERNAL TURNING AND FACING

MiniForce-Turn JSWL2XR/L

Without offset



Cutting edge style **L2**



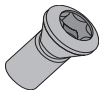
Right hand (R) shown.

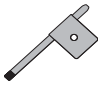
Designation	*h*	*b*	*L1*	*L2*	*h1*	*f*	*rε*	Insert	Torque*
JSWL2XR/L062	0.375	0.375	4.750	0.500	0.375	0.375	0.008	WXGU04*L/R	0.66
JSWL2XR/L082	0.500	0.500	4.750	0.500	0.500	0.500	0.008	WXGU04*L/R	0.66
JSWL2XR/L102	0.625	0.625	4.750	0.500	0.625	0.625	0.008	WXGU04*L/R	0.66

Note: Right-hand toolholders (R) are used with left-hand inserts (L)
Left-hand toolholders (L) are used with right-hand inserts (R)

*Torque: Recommended torque (lb·ft) for clamping

SPARE PARTS





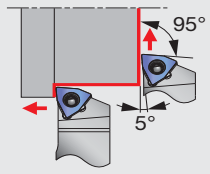
Designation	Clamping screw	Wrench
JSWL2XR/L...	SR34-514	T-7F

Side clamp toolholder without offset with 95° approach angle, for WXGU inserts

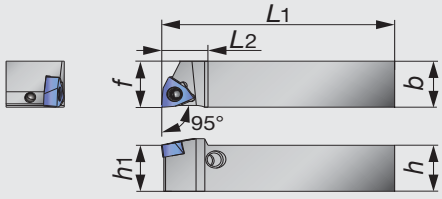
TOOLHOLDERS - FOR EXTERNAL TURNING AND FACING

MiniForce-Turn JPWL2XR/L

Without offset



Cutting edge style **L2**



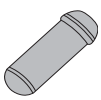
Right hand (R) shown.

Designation	*h*	*b*	*L1*	*L2*	*h1*	*f*	*rε*	Insert	Torque*
JPWL2XR/L062	0.375	0.375	4.750	0.500	0.375	0.375	0.008	WXGU04*L/R	0.66
JPWL2XR/L082	0.500	0.500	4.750	0.500	0.500	0.500	0.008	WXGU04*L/R	0.66
JPWL2XR/L102	0.625	0.625	4.750	0.500	0.625	0.625	0.008	WXGU04*L/R	0.66

Note: Right-hand toolholders (R) are used with left-hand inserts (L)
Left-hand toolholders (L) are used with right-hand inserts (R)

*Torque: Recommended torque (lb·ft) for clamping

SPARE PARTS

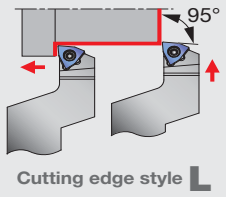


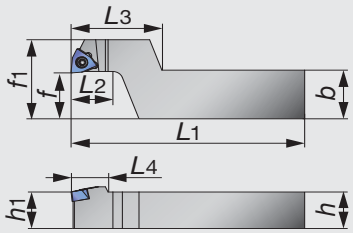
Designation	Lever	Pin	Clamping screw	Wrench
JPWL2XR/L...	SLLV-2	SL-PI-2	SR10400611	HW 2.0/5 RED

Screw-on stepped-head toolholder with 95° approach angle, for WXGU inserts

TOOLHOLDERS - FOR EXTERNAL TURNING AND FACING

MiniForce-Turn JSWLXR-F



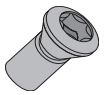


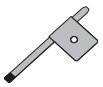
Right hand (R) shown.

Designation	h	b	L1	L2	L3	L4	h1	f	f1	rε	Insert	Torque*
JSWLXR082-F10	0.500	0.625	4.75	0.5	1.125	0.75	0.500	0.625	1	0.008	WXGU04...L	0.66
JSWLXR102-F10	0.625	0.75	4.75	0.5	1.125	0.75	0.625	0.625	1	0.008	WXGU04...L	0.66

Note: Right-hand toolholders (R) are used with left-hand inserts (L)

*Torque: Recommended torque (lb·ft) for clamping





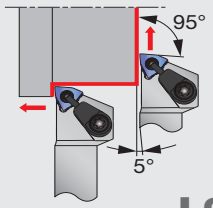
SPARE PARTS

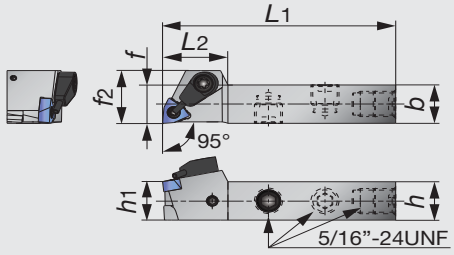
Designation	Clamping screw	Wrench
JSWLXR...-F15	SR34-514	T-7F

Screw-on toolholder without offset with 95° approach angle, for WXGU inserts, with channels for high pressure coolant.

TOOLHOLDERS - FOR EXTERNAL TURNING AND FACING

MiniForce-Turn JSWL2XR/L-CHP





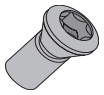
Without offset

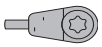
Right hand (R) shown.

Designation	h	b	L1	L2	h1	f	f2	rε	Insert	Torque*
JSWL2XR/L082-CHP	0.500	0.500	3.344	0.750	0.500	0.500	0.650	0.008	WXGU**04*L/R	0.66

Note: Right-hand toolholders (R) are used with left-hand inserts (L)
Left-hand toolholders (L) are used with right-hand inserts (R)

*Torque: Recommended torque (lb·ft) for clamping





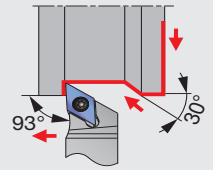
SPARE PARTS

Designation	Clamping screw	Wrench	Coolant unit
JSWL2XR/L082-CHP	SR34-514	T-7F	S-CU-CHP

Screw-on toolholder without offset with 93° approach angle, for DXGU inserts

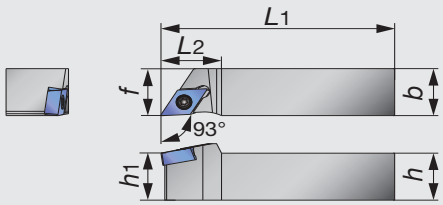
TOOLHOLDERS - FOR EXTERNAL TURNING AND PROFILING

MiniForce-Turn JSDJ2XR/L



Cutting edge style **J2**

Without offset



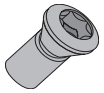
Right hand (R) shown.

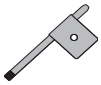
Designation	*h*	*b*	*L*1	*L*2	*h*1	*f*	r_ε	Insert	Torque*
JSDJ2XR/L062	0.375	0.375	4.750	0.625	0.375	0.375	0.008	DXGU07*L/R	0.66
JSDJ2XR/L082	0.500	0.500	4.750	0.625	0.500	0.500	0.008	DXGU07*L/R	0.66
JSDJ2XR/L102	0.625	0.625	4.750	0.625	0.625	0.625	0.008	DXGU07*L/R	0.66

Note: Right-hand toolholders (R) are used with left-hand inserts (L)
Left-hand toolholders (L) are used with right-hand inserts (R)

*Torque: Recommended torque (lb·ft) for clamping

SPARE PARTS



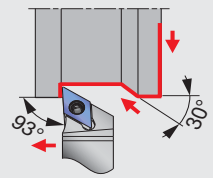


Designation	Clamping screw	Wrench
JSDJ2XR/L...	SR34-514	T-7F

Side clamp toolholder without offset with 93° approach angle, for DXGU inserts

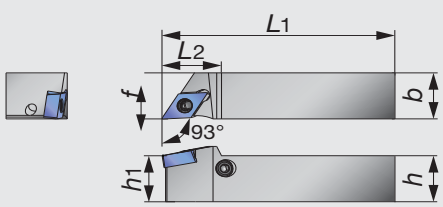
TOOLHOLDERS - FOR EXTERNAL TURNING AND PROFILING

MiniForce-Turn JPDJ2XR/L



Cutting edge style **J2**

Without offset



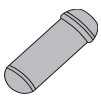
Right hand (R) shown.

Designation	*h*	*b*	*L*1	*L*2	*h*1	*f*	r_ε	Insert	Torque*
JPDJ2XR/L062	0.375	0.375	4.750	0.625	0.375	0.375	0.008	DXGU07*L/R	0.66
JPDJ2XR/L082	0.500	0.500	4.750	0.625	0.500	0.500	0.008	DXGU07*L/R	0.66
JPDJ2XR/L102	0.625	0.625	4.750	0.625	0.625	0.625	0.008	DXGU07*L/R	0.66

Note: Right-hand toolholders (R) are used with left-hand inserts (L)
Left-hand toolholders (L) are used with right-hand inserts (R)

*Torque: Recommended torque (lb·ft) for clamping

SPARE PARTS

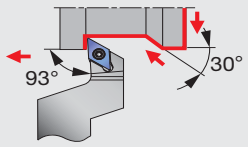


Designation	Lever	Pin	Clamping screw	Wrench
JPDJ2XR/L...	SLLV-2	SL-PI-2	SR10400611	HW 2.0/5 RED

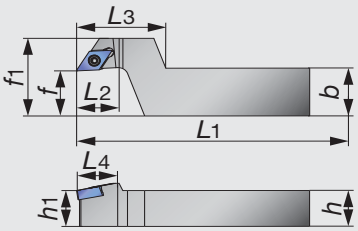
Screw-on stepped-head toolholder with 93° approach angle, for DXGU inserts

TOOLHOLDERS - FOR EXTERNAL TURNING AND PROFILING

MiniForce-Turn JSDJXR-F



Cutting edge style **J**



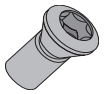
Right hand (R) shown.

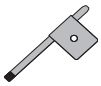
Designation	*h*	*b*	*L*1	*L*2	*L*3	*L*4	*h*1	*f*	*f*1	*r*ε	Insert	Torque*
JSDJXR082-F10	0.500	0.625	4.75	0.5	1.125	0.625	0.5	0.625	1.000	0.008	DXGU07...L	0.66
JSDJXR102-F10	0.625	0.75	4.75	0.5	1.125	0.625	0.625	0.625	1.000	0.008	DXGU07...L	0.66

Note: Right-hand toolholders (R) are used with left-hand inserts (L)

*Torque: Recommended torque (lb·ft) for clamping

SPARE PARTS



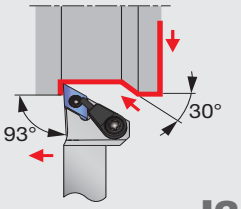


Designation	Clamping screw	Wrench
JSDJXR...-F10	SR34-514	T-7F

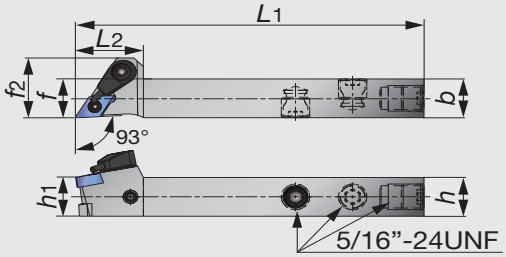
Screw-on toolholder without offset with 93° approach angle, for DXGU inserts, with channels for high pressure coolant.

TOOLHOLDERS - FOR EXTERNAL TURNING AND PROFILING

MiniForce-Turn JSDJ2XR/L-CHP



Cutting edge style: **J2**



Without offset

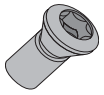
Right hand (R) shown.

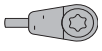
Designation	*h*	*b*	*L*1	*L*2	*h*1	*f*	*f*2	*r*ε	Insert	Torque*
JSDJ2XR/L082-CHP	0.500	0.500	3.344	0.750	0.500	0.500	0.730	0.008	DXGU**07*L/R	0.66

Note: Right-hand toolholders (R) are used with left-hand inserts (L)
Left-hand toolholders (L) are used with right-hand inserts (R)

*Torque: Recommended torque (lb·ft) for clamping

SPARE PARTS



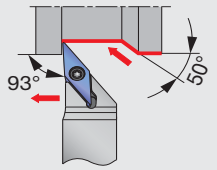


Designation	Clamping screw	Wrench	Coolant unit
JSDJ2XR/L082-CHP	SR34-514	T-7F	S-CU-CHP

Screw-on toolholder without offset with 93° approach angle, for VXGU inserts

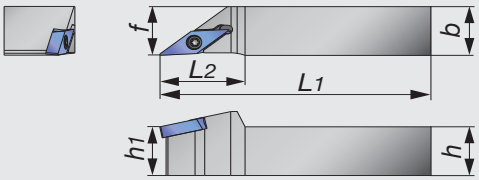
TOOLHOLDERS - FOR EXTERNAL TURNING AND PROFILING

MiniForce-Turn JSVJ2XR/L



Cutting edge style **J2**

Without offset



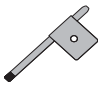
Right hand (R) shown.

Designation	*h*	*b*	*L*1	*L*2	*h*1	*f*	r_ε	Insert	Torque*
JSVJ2XR/L067	0.375	0.375	4.75	0.669	0.375	0.375	0.008	VXGU09...L/R	0.66
JSVJ2XR/L087	0.5	0.5	4.75	0.748	0.5	0.5	0.008	VXGU09...L/R	0.66
JSVJ2XR/L107	0.625	0.625	4.75	0.748	0.625	0.625	0.008	VXGU09...L/R	0.66

Note: Right-hand toolholders (R) are used with left-hand inserts (L)
Left-hand toolholders (L) are used with right-hand inserts (R)

*Torque: Recommended torque (lb·ft) for clamping

SPARE PARTS

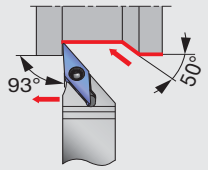


Designation	Clamping screw	Wrench
JSVJ2XR/L...	SR34-508	T-7F

Side clamp toolholder without offset with 93° approach angle, for VXGU inserts

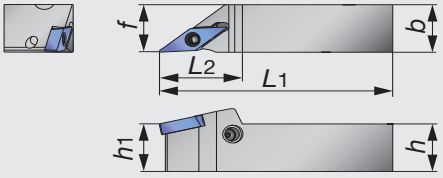
TOOLHOLDERS - FOR EXTERNAL TURNING AND PROFILING

MiniForce-Turn JPVJ2XR/L



Cutting edge style **J2**

Without offset



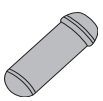
Right hand (R) shown.

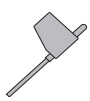
Designation	*h*	*b*	*L*1	*L*2	*h*1	*f*	r_ε	Insert	Torque*
JPVJ2XR/L067	0.375	0.375	4.75	0.669	0.375	0.375	0.008	VXGU09...L/R	0.66
JPVJ2XR/L087	0.5	0.5	4.75	0.748	0.5	0.5	0.008	VXGU09...L/R	0.66
JPVJ2XR/L107	0.625	0.625	4.75	0.748	0.625	0.625	0.008	VXGU09...L/R	0.66

Note: Right-hand toolholders (R) are used with left-hand inserts (L)
Left-hand toolholders (L) are used with right-hand inserts (R)

*Torque: Recommended torque (lb·ft) for clamping

SPARE PARTS



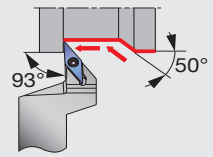


Designation	Lever	Pin	Clamping screw	Wrench
JPVJ2XR/L...	SLLV-1	SL-PI-2	SR 10400611	HW 2.0/5 RED

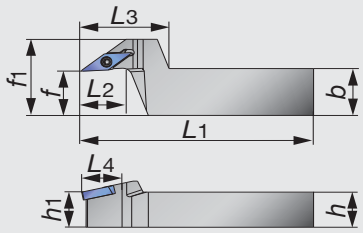
Screw-on stepped-head toolholder with 93° approach angle, for VXGU inserts

TOOLHOLDERS - FOR EXTERNAL TURNING AND PROFILING

MiniForce-Turn JSVJXR-F



Cutting edge style **J**



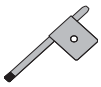
Right hand (R) shown.

Designation	*h*	*b*	*L*1	*L*2	*L*3	*L*4	*h*1	*f*	*f*1	r_ε	Insert	Torque*
JSVJXR087-F10	0.5	0.625	4.75	0.5	1.125	0.75	0.5	0.625	1.000	0.008	VXGU09...L	0.66
JSVJXR107-F10	0.625	0.75	4.75	0.5	1.125	0.75	0.5	0.625	1.000	0.008	VXGU09..L	0.66

Note: Right-hand toolholders (R) are used with left-hand inserts (L)

*Torque: Recommended torque (lb·ft) for clamping

SPARE PARTS

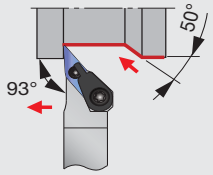


Designation	Clamping screw	Wrench
JSVJXR...-F15	SR34-508	T-7F

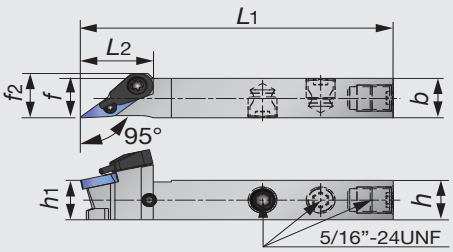
Screw-on toolholder without offset with 93° approach angle, for VXGU inserts, with coolant nozle for high pressure

TOOLHOLDERS - FOR EXTERNAL TURNING AND PROFILING

MiniForce-Turn JSVJ2XR/L-CHP



Cutting edge style **J2**



Without offset

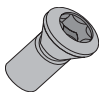
Right hand (R) shown.

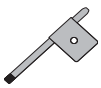
Designation	*h*	*b*	*L*1	*L*2	*h*1	*f*	*f*2	r_ε	Insert	Torque*
JSVJ2XR/L087-CHP	0.5	0.5	4.75	0.748	0.5	0.5	0.020	0.008	VXGU09...L/R	0.66

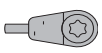
Note: Right-hand toolholders (R) are used with left-hand inserts (L)
Left-hand toolholders (L) are used with right-hand inserts (R)

*Torque: Recommended torque (lb·ft) for clamping

SPARE PARTS





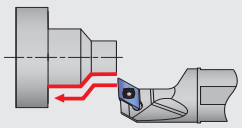


Designation	Clamping screw	Wrench	Coolant unit
JSVJ2XR/L087-CHP	SR34-508	T-7F	S-CU-CHP

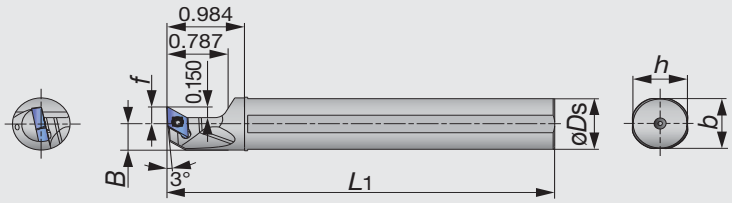
Screw-on toolholder with 93° approach angle, for DXGU inserts with 4 edges

TOOLHOLDERS - FOR EXTERNAL TURNING AND PROFILING

MiniForce-Turn JS-SDUXL



Cutting edge style U



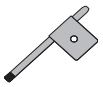
Left-hand (L) shown.

Designation	øDs	f	L1	h/b	B	rε	Insert	Torque*
JS159F-SDUXL07	0.625	0.236	3.346	0.591	0.303	0.008	DXGU07...L	0.66
JS19G-SDUXL07	0.75	0.236	3.543	0.709	0.366	0.008	DXGU07...L	0.66
JS19X-SDUXL07	0.75	0.236	4.724	0.709	0.366	0.008	DXGU07...L	0.66
JS254X-SDUXL07	1	0.394	4.724	0.945	0.492	0.008	DXGU07...L	0.66

Note: Left-hand toolholders (L) are used with left-hand inserts (L)

*Torque: Recommended torque (lb·ft) for clamping

SPARE PARTS

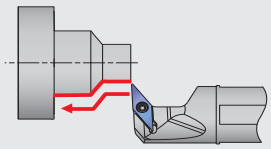


Designation	Clamping screw	Wrench
JS...-SDUXL07	SR34-514	T-7F

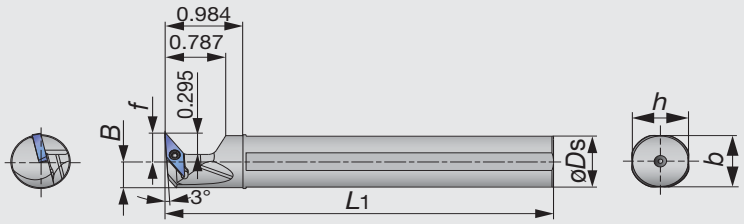
Screw-on toolholder with 93° approach angle, for VXGU inserts with 4 edges

TOOLHOLDERS - FOR EXTERNAL TURNING AND PROFILING

MiniForce-Turn JS-SVUXL



Cutting edge style U



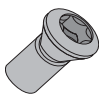
Left-hand (L) shown.

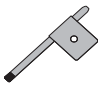
Designation	øDs	f	L1	h/b	B	rε	Insert	Torque*
JS159F-SVUXL09	0.625	0.394	3.346	0.591	0.303	0.008	VXGU09...L	0.66
JS19G-SVUXL09	0.75	0.394	3.543	0.709	0.362	0.008	VXGU09...L	0.66
JS19X-SVUXL09	0.75	0.394	4.724	0.709	0.362	0.008	VXGU09...L	0.66
JS254X-SVUXL09	1	0.394	4.724	0.945	0.488	0.008	VXGU09...L	0.66

Note: Left-hand toolholders (L) are used with left-hand inserts (L)

*Torque: Recommended torque (lb·ft) for clamping

SPARE PARTS

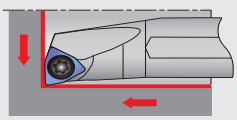




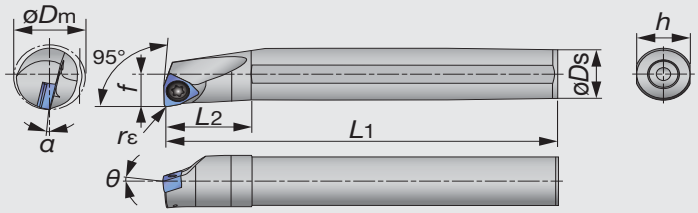
Designation	Clamping screw	Wrench
JS...-SVUXL09	SR34-508	T-7F

TOOLHOLDERS - FOR BORING & INTERNAL FACING

MiniForce-Turn A/E-SWLXR/L



Cutting edge style L



Right hand (R) shown.

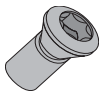
Steel shank

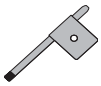
Designation	øDm	øDs	f	L1	L2	h	f2	θ	α	rε	Insert	Torque*
A06-SWLXR/L2-D08	0.500	0.375	0.281	5.000	0.750	0.350	-	-10°	-14°	0.016	WXGU04...L/R	0.66
A08-SWLXR/L2-D11	0.688	0.500	0.406	5.000	1.000	0.475	-	-10°	-10°	0.016	WXGU04...L/R	0.66
A10-SWLXR/L2-D14	0.875	0.625	0.531	7.000	1.250	0.600	-	-10°	-8°	0.016	WXGU04...L/R	0.66
A12-SWLXR/L2-D16	1.000	0.750	0.593	7.000	1.438	0.725	-	-10°	-7°	0.016	WXGU04...L/R	0.66

Note: Right hand toolholders (R) are used with left hand inserts (L)
Left hand toolholders (L) are used with right hand inserts (R)

*Torque: Recommended torque (lb·ft) for clamping

SPARE PARTS





Designation	Clamping screw	Wrench
A***-SWLXR/L...	SR34-514	T-7F

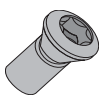
Carbide shank

Designation	øDm	øDs	f	L1	L2	h	f2	θ	α	rε	Insert	Torque*
E06-SWLXR/L2-D08	0.500	0.375	0.281	5.000	1.000	0.350	-	-10°	-14°	0.016	WXGU04...L/R	0.66
E08-SWLXR/L2-D11	0.688	0.500	0.406	5.000	1.063	0.475	-	-10°	-10°	0.016	WXGU04...L/R	0.66
E10-SWLXR/L2-D14	0.875	0.625	0.531	7.000	1.250	0.600	-	-10°	-8°	0.016	WXGU04...L/R	0.66
E12-SWLXR/L2-D16	1.000	0.750	0.593	7.000	1.438	0.725	-	-10°	-7°	0.016	WXGU04...L/R	0.66

Note: Right hand toolholders (R) are used with left hand inserts (L)
Left hand toolholders (L) are used with right hand inserts (R)

*Torque: Recommended torque (lb·ft) for clamping

SPARE PARTS

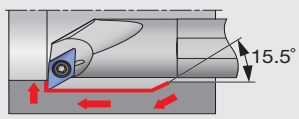


Designation	Clamping screw	Wrench
E***-SWLXR/L...	SR34-514	T-7F

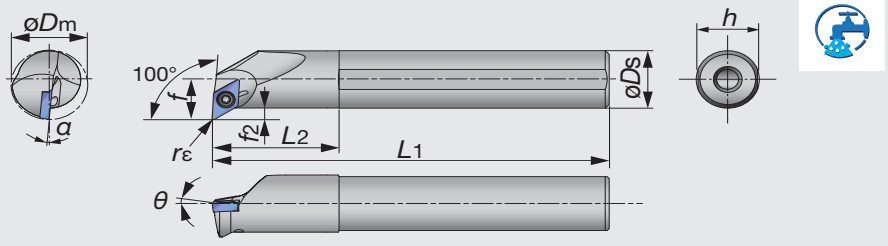
For 55° rhombic insert with 4 edges

TOOLHOLDERS - FOR BORING & INTERNAL PROFILING

MiniForce-Turn A/E-SDXXR/L



Cutting edge style X



Right hand (R) shown.

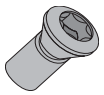
Steel shank

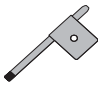
Designation	øDm	øDs	f	L1	L2	h	f2	θ	α	rε	Insert	Torque*
A06-SDXXR/L2-D10	0.625	0.375	0.406	5.000	0.750	0.350	-	-14	-12	0.016	DXGU07...L/R	0.66
A08-SDXXR/L2-D11	0.688	0.500	0.406	5.000	1.000	0.475	-	-13.5	-11	0.016	DXGU07...L/R	0.66
A10-SDXXR/L2-D14	0.875	0.625	0.531	7.000	1.250	0.600	-	-13	-9	0.016	DXGU07...L/R	0.66
A12-SDXXR/L2-D16	1.000	0.750	0.593	7.000	1.438	0.725	-	-13	-8	0.016	DXGU07...L/R	0.66

Note: Right hand toolholders (R) are used with left hand inserts (L)
Left hand toolholders (L) are used with right hand inserts (R)

*Torque: Recommended torque (lb·ft) for clamping

SPARE PARTS





Designation	Clamping screw	Wrench
A***-SDXXR/L...	SR34-514	T-7F

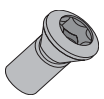
Carbide shank

Designation	øDm	øDs	f	L1	L2	h	f2	θ	α	rε	Insert	Torque*
E06-SDXXR/L2-D10	0.625	0.375	0.406	5.000	1.000	0.350	-	-14	-12	0.016	DXGU07...L/R	0.66
E08-SDXXR/L2-D11	0.688	0.500	0.406	5.000	1.063	0.475	-	-13.5	-11	0.016	DXGU07...L/R	0.66
E10-SDXXR/L2-D14	0.875	0.625	0.531	7.000	1.250	0.600	-	-13	-9	0.016	DXGU07...L/R	0.66
E12-SDXXR/L2-D16	1.000	0.750	0.593	7.000	1.438	0.725	-	-13	-8	0.016	DXGU07...L/R	0.66

Note: Right hand toolholders (R) are used with left hand inserts (L)
Left hand toolholders (L) are used with right hand inserts (R)

*Torque: Recommended torque (lb·ft) for clamping

SPARE PARTS

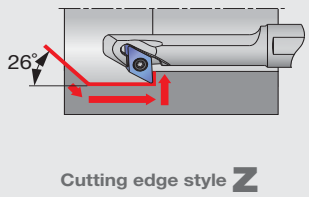


Designation	Clamping screw	Wrench
E***-SDXXR/L...	SR34-514	T-7F

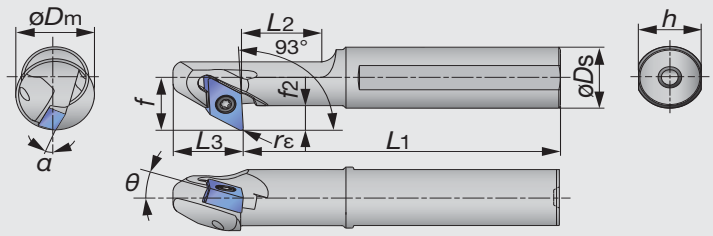
For 55° rhombic insert with 4 edges

TOOLHOLDERS - FOR BACK BORING

MiniForce-Turn A/E-SDZXR/L



Cutting edge style Z



Right hand (R) shown.

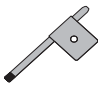
Steel shank

Designation	øDm	øDs	f	L1	L2	L3	h	f2	θ	α	rε	Insert	Torque*
A08-SDZXR/L2-D10	.625	.500	.438	5.000	1.125	.500	.475	.188	-10°	-14°	.016	DXGU07...R/L	0.66
A10-SDZXR/L2-D11	.688	.625	.500	7.000	1.250	.500	.600	.188	-10°	-12.5°	.016	DXGU07...R/L	0.66
A12-SDZXR/L2-D14	.875	.750	.563	7.000	1.375	.500	.725	.188	-10°	-10.5°	.016	DXGU07...R/L	0.66

Note: Right hand toolholders (R) are used with right hand inserts (R)
Left hand toolholders (L) are used with left hand inserts (L)

*Torque: Recommended torque (lb·ft) for clamping

SPARE PARTS



Designation	Clamping screw	Wrench
A***-SDZXR/L...	SR34-514	T-7F

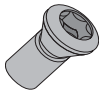
Carbide shank

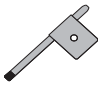
Designation	øDm	øDs	f	L1	L2	L3	h	f2	θ	α	rε	Insert	Torque*
E12Q-SDZXR/L07-D180	18	12	11	180	-	13	11	4.5	-11°	-11°	0.4	DXGU07...R/L	0.66
E16R-SDZXR/L07-D220	22	16	13	200	-	13	15	4.5	-11°	-9°	0.4	DXGU07...R/L	0.66

Note: Right hand toolholders (R) are used with right hand inserts (R)
Left hand toolholders (L) are used with left hand inserts (L)

*Torque: Recommended torque (lb·ft) for clamping

SPARE PARTS

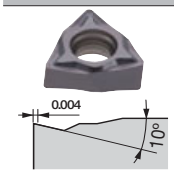
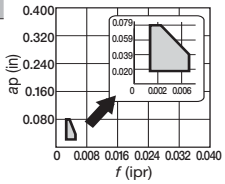
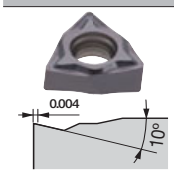
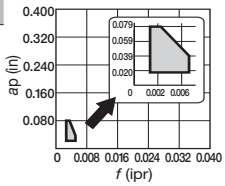
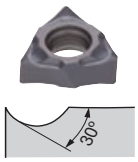
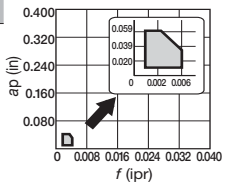
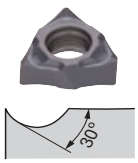
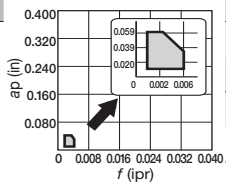
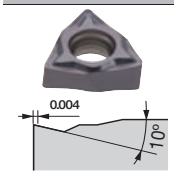
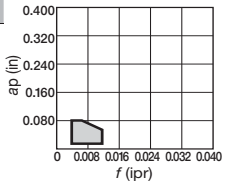
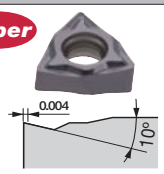
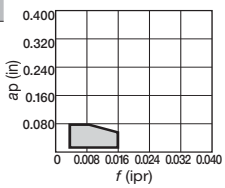




Designation	Clamping screw	Wrench
E***-SDZXR/L...	SR34-514	T-7F

INSERTS

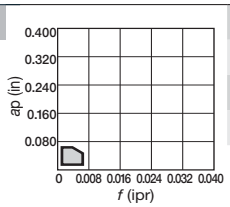
Trigon, 80°

Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Grades: Coating AH725	Coating SH725	Coated cermet GT9530	Cermet NS9530	Carbide KS05F	I.C. ød	Thick-ness s	Hole dia ød1	Corner radius rε
Finishing to medium cutting (Sharp edge)	JTS 		WXGU040301MFR-JTS		√				0.250	0.125	0.106	< 0.004*
			WXGU040301MFL-JTS		√				0.250	0.125	0.106	< 0.004*
			WXGU040302MFR-JTS		√				0.250	0.125	0.106	< 0.008*
			WXGU040302MFL-JTS		√				0.250	0.125	0.106	< 0.008*
Finishing to medium cutting	JTS 		WXGU040301MR-JTS	√					0.250	0.125	0.106	< 0.004*
			WXGU040301ML-JTS	√					0.250	0.125	0.106	< 0.004*
			WXGU040302MR-JTS	√					0.250	0.125	0.106	< 0.008*
			WXGU040302ML-JTS	√					0.250	0.125	0.106	< 0.008*
Finishing (Low cutting force) (Sharp edge)	JSS 		WXGU040301MFR-JSS		√				0.250	0.125	0.106	< 0.004*
			WXGU040301MFL-JSS		√				0.250	0.125	0.106	< 0.004*
			WXGU040302MFR-JSS		√				0.250	0.125	0.106	< 0.008*
			WXGU040302MFL-JSS		√				0.250	0.125	0.106	< 0.008*
Finishing (Low cutting force)	JSS 		WXGU040301MR-JSS	√					0.250	0.125	0.106	< 0.004*
			WXGU040301ML-JSS	√					0.250	0.125	0.106	< 0.004*
			WXGU040302MR-JSS	√					0.250	0.125	0.106	< 0.008*
			WXGU040302ML-JSS	√					0.250	0.125	0.106	< 0.008*
Finishing to medium cutting	TS 		WXGU040302R-TS	√		√	√	√	0.250	0.125	0.106	0.008
			WXGU040302L-TS	√		√	√	√	0.250	0.125	0.106	0.008
			WXGU040304R-TS	√		√	√	√	0.250	0.125	0.106	0.016
			WXGU040304L-TS	√		√	√	√	0.250	0.125	0.106	0.016
			WXGU040308R-TS	√		√	√	√	0.250	0.125	0.106	0.031
			WXGU040308L-TS	√		√	√	√	0.250	0.125	0.106	0.031
Finishing	TSW Wiper 		WXGU040304R-TSW	√		√	√	√	0.250	0.125	0.106	0.016
			WXGU040304L-TSW	√		√	√		0.250	0.125	0.106	0.016
			WXGU040308R-TSW	√		√	√		0.250	0.125	0.106	0.031
			WXGU040308L-TSW	√		√	√		0.250	0.125	0.106	0.031

* Corner radius has minus tolerance.

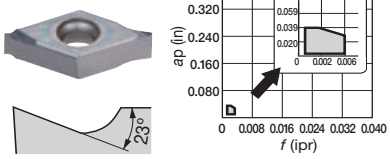
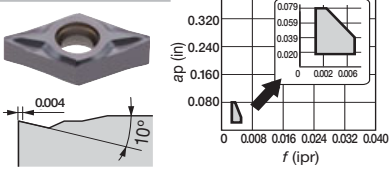
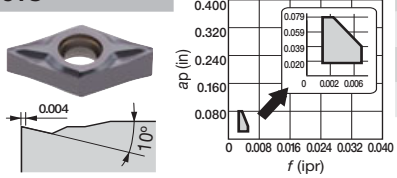
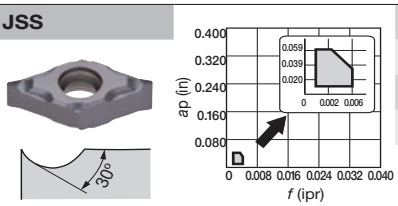
√ : Stocked items

Trigon, 80°

Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Grades: Coating AH725	Coating SH725	Coated cermet GT9530	Cermet NS9530	Carbide KS05F	I.C. ød	Thickness s	Hole dia ød1	Corner radius rε
Finishing (Low cutting force)	SS		WXGU040302R-SS	√		√	√	√	0.250	0.125	0.106	<0.008*
			WXGU040302L-SS	√		√	√	√	0.250	0.125	0.106	<0.008*
			WXGU040304R-SS	√		√	√	√	0.250	0.125	0.106	<0.016*
			WXGU040304L-SS	√		√	√	√	0.250	0.125	0.106	<0.016*

* Corner radius has minus tolerance.

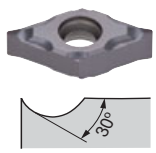
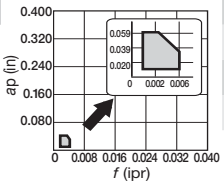
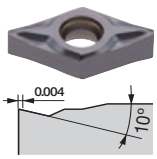
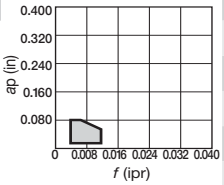
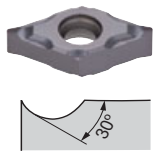
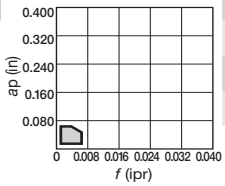
Rhombic, 55°

Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Grades: Coating AH725	Coating SH725	Coated cermet GT9530	Cermet NS9530	Carbide KS05F	I.C. ød	Thickness s	Hole dia ød1	Corner radius rε
Finishing (sharp edge)	JRP		DXGU070301MFRE-JRP		√				0.250	0.125	0.106	< 0.004*
			DXGU070301MFLE-JRP		√				0.250	0.125	0.106	< 0.004*
			DXGU070302MFRE-JRP		√				0.250	0.125	0.106	< 0.008*
			DXGU070302MFLE-JRP		√				0.250	0.125	0.106	< 0.008*
Finishing to medium cutting (sharp edge)	JTS		DXGU070301MFR-JTS		√				0.250	0.125	0.106	< 0.004*
			DXGU070301MFL-JTS		√				0.250	0.125	0.106	< 0.004*
			DXGU070302MFR-JTS		√				0.250	0.125	0.106	< 0.008*
			DXGU070302MFL-JTS		√				0.250	0.125	0.106	< 0.008*
Finishing to medium cutting	JTS		DXGU070301MR-JTS	√					0.250	0.125	0.106	< 0.004*
			DXGU070301ML-JTS	√					0.250	0.125	0.106	< 0.004*
			DXG070302MR-JTS	√					0.250	0.125	0.106	< 0.008*
			DXGU070302ML-JTS	√					0.250	0.125	0.106	< 0.008*
Finishing (Low cutting force) (sharp edge)	JSS		DXGU070301MFR-JSS		√				0.250	0.125	0.106	< 0.004*
			DXGU070301MFL-JSS		√				0.250	0.125	0.106	< 0.004*
			DXGU070302MFR-JSS		√				0.250	0.125	0.106	< 0.008*
			DXGU070302MFL-JSS		√				0.250	0.125	0.106	<0.008*

* Corner radius has minus tolerance.

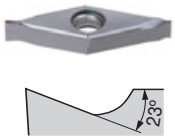
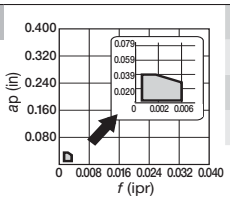
√ : Stocked items

Rhombic, 55°

Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Grades: Coating AH725	Coating SH725	Coated cermet GT9530	Cermet NS9530	Carbide KS05F	I.C. ød	Thickness s	Hole dia ød1	Corner radius rε
Finishing (Low cutting force)	**JSS** 		**DXGU070301MR-JSS**	√					0.250	0.125	0.106	< 0.004*
			DXGU070301ML-JSS	√					0.250	0.125	0.106	< 0.004*
			DXGU070302MR-JSS	√					0.250	0.125	0.106	< 0.008*
			DXGU070302ML-JSS	√					0.250	0.125	0.106	< 0.008*
Finishing to medium cutting	**TS** 		**DXGU070302R-TS**	√		√	√	√	0.250	0.125	0.106	0.008
			DXGU070302L-TS	√		√	√	√	0.250	0.125	0.106	0.008
			DXGU070304R-TS	√		√	√	√	0.250	0.125	0.106	0.016
			DXGU070304L-TS	√		√	√	√	0.250	0.125	0.106	0.016
			DXGU070308R-TS	√		√	√	√	0.250	0.125	0.106	0.031
			DXGU070308L-TS	√		√	√	√	0.250	0.125	0.106	0.031
Finishing (Low cutting force)	**SS** 		**DXGU070302R-SS**	√		√	√	√	0.250	0.125	0.106	0.008
			DXGU070302L-SS	√		√	√	√	0.250	0.125	0.106	0.008
			DXGU070304R-SS	√		√	√	√	0.250	0.125	0.106	0.016
			DXGU070304L-SS	√		√	√	√	0.250	0.125	0.106	0.016

* Corner radius has minus tolerance.

Rhombic, 35°

Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Grades: Coating AH725	Coating SH725	Coated cermet GT9530	Cermet NS9530	Carbide KS05F	I.C. ød	Thickness s	Hole dia ød1	Corner radius rε
Finishing (sharp edge)	**JRP** 		**VXGU09T201MFRE-JRP**		√				0.219	0.109	0.098	< 0.004*
			VXGU09T201MFLE-JRP		√				0.219	0.109	0.098	< 0.004*
			VXGU09T202MFRE-JRP		√				0.219	0.109	0.098	< 0.008*
			VXGU09T202MFLE-JRP		√				0.219	0.109	0.098	< 0.008*

* Corner radius has minus tolerance.

√ : Stocked items

STANDARD CUTTING CONDITIONS

FOR EXTERNAL TURNING

Applications	ISO	Workpiece materials	Priority	Chip-breaker	Grades	Cutting speed *Vc* (sfm)	Depth of cut *ap* (in)	Feed *f* (ipr)
For swiss type automatic lathes	P	Low carbon steels Carbon steels (1045, etc.) Low alloy steels Alloy steels (4140, etc.)	With high sharpness	JSS	SH725	164 - 591	0.004 - 0.080	0.001 - 0.004
			First choice	JTS	AH725	164 - 591	0.004 - 0.060	0.001 - 0.004
	M	Stainless steels (Austenitic) (304, etc.) Stainless steels (Martensitic and ferritic) (430, etc.) Stainless steels (Precipitation hardened) (174, etc.)	First choice	JSS	SH725	164 - 591	0.004 - 0.060	0.001 - 0.004
			For impact resistance	JTS	AH725	164 - 591	0.004 - 0.080	0.001 - 0.004
For small size CNC lathes	P	Low carbon steels Carbon steels (1045, etc.) Low alloy steels Alloy steels (4140, etc.)	First choice	SS	AH725	164 - 591	0.006 - 0.060	0.002 - 0.008
				TS	AH725	164 - 591	0.012 - 0.080	0.003 - 0.012
			For improved surface finish	SS	NS9530	262 - 656	0.006 - 0.060	0.002 - 0.008
				TS	NS9530	262 - 656	0.012 - 0.080	0.003 - 0.012
			For wear resistance	SS	GT9530	262 - 820	0.006 - 0.060	0.002 - 0.008
				TS	GT9530	262 - 820	0.012 - 0.080	0.003 - 0.012
	M	Stainless steels (Austenitic) (304, etc.) Stainless steels (Martensitic and ferritic) (430, etc.) Stainless steels (Precipitation hardened) (174, etc.)	First choice	SS	AH725	164 - 492	0.006 - 0.012	0.002 - 0.008
			For impact resistance	TS	AH725	164 - 492	0.012 - 0.080	0.003 - 0.012

FOR INTERNAL TURNING

ISO	Workpiece materials	Grades			Cutting speed *Vc* (sfm)	Depth of cut *ap* (in)	Feed *f* (ipr)
		First Choice	For surface finish	For wear resistance (High speed)			
P	Low carbon steel (1025, etc.)	AH725	-	-	164 - 591	0.012 - 0.080	0.003 - 0.012
		-	NS9530	-	262 - 820	0.012 - 0.080	0.003 - 0.012
		-	-	GT9530	262 - 984	0.012 - 0.080	0.003 - 0.012
	Carbon steel (1045, 1055, etc.)	AH725	-	-	164 - 591	0.012 - 0.080	0.003 - 0.012
		-	NS9530	-	262 - 820	0.012 - 0.080	0.003 - 0.012
		-	-	GT9530	262 - 984	0.012 - 0.080	0.003 - 0.012
	Low alloy steel (4140, etc.)	AH725	-	-	164 - 591	0.012 - 0.080	0.003 - 0.012
		-	NS9530	-	262 - 820	0.012 - 0.080	0.003 - 0.012
		-	-	GT9530	262 - 984	0.012 - 0.080	0.003 - 0.012
	Alloy steel (5120, etc.)	AH725	-	-	164 - 591	0.012 - 0.080	0.003 - 0.012
		-	NS9530	-	262 - 820	0.012 - 0.080	0.003 - 0.012
		-	-	GT9530	262 - 984	0.012 - 0.080	0.003 - 0.012
M	Stainless steel (Austenitic) (304, etc.)	AH725	-	-	164 - 492	0.012 - 0.080	0.003 - 0.012
	Stainless steel (Martensitic and ferritic) (430, etc.)	AH725	-	-	164 - 492	0.012 - 0.080	0.003 - 0.012
	Stainless steel (Precipitation hardening) (174, etc.)	AH725	-	-	164 - 492	0.012 - 0.080	0.003 - 0.012
K	Grey cast iron (No.250B, etc.)	AH725	-	-	164 - 591	0.012 - 0.080	0.003 - 0.012
		-	NS9530	-	262 - 820	0.012 - 0.080	0.003 - 0.012
		-	-	GT9530	262 - 984	0.012 - 0.080	0.003 - 0.012
	Ductile cast iron (80-55-60, etc.)	AH725	-	-	164 - 394	0.012 - 0.080	0.003 - 0.012
		-	NS9530	-	262 - 492	0.012 - 0.080	0.003 - 0.012
		-	-	GT9530	262 - 591	0.012 - 0.080	0.003 - 0.012
N	Non ferrous Metal (Aluminum alloy, etc.)	KS05F	-	-	328 - 984	0.012 - 0.080	0.003 - 0.012
	Non ferrous Metal (Cu Alloy, etc.)	KS05F	-	-	328 - 984	0.012 - 0.080	0.003 - 0.012

Note: See page 9 for more information about grades.

ISO ECO TURN
TUNGALOY

Maximizes profit and minimizes environmental impact

ISO-EcoTurn features highly economical small-sized insert for turning, effectively reducing machining cost.

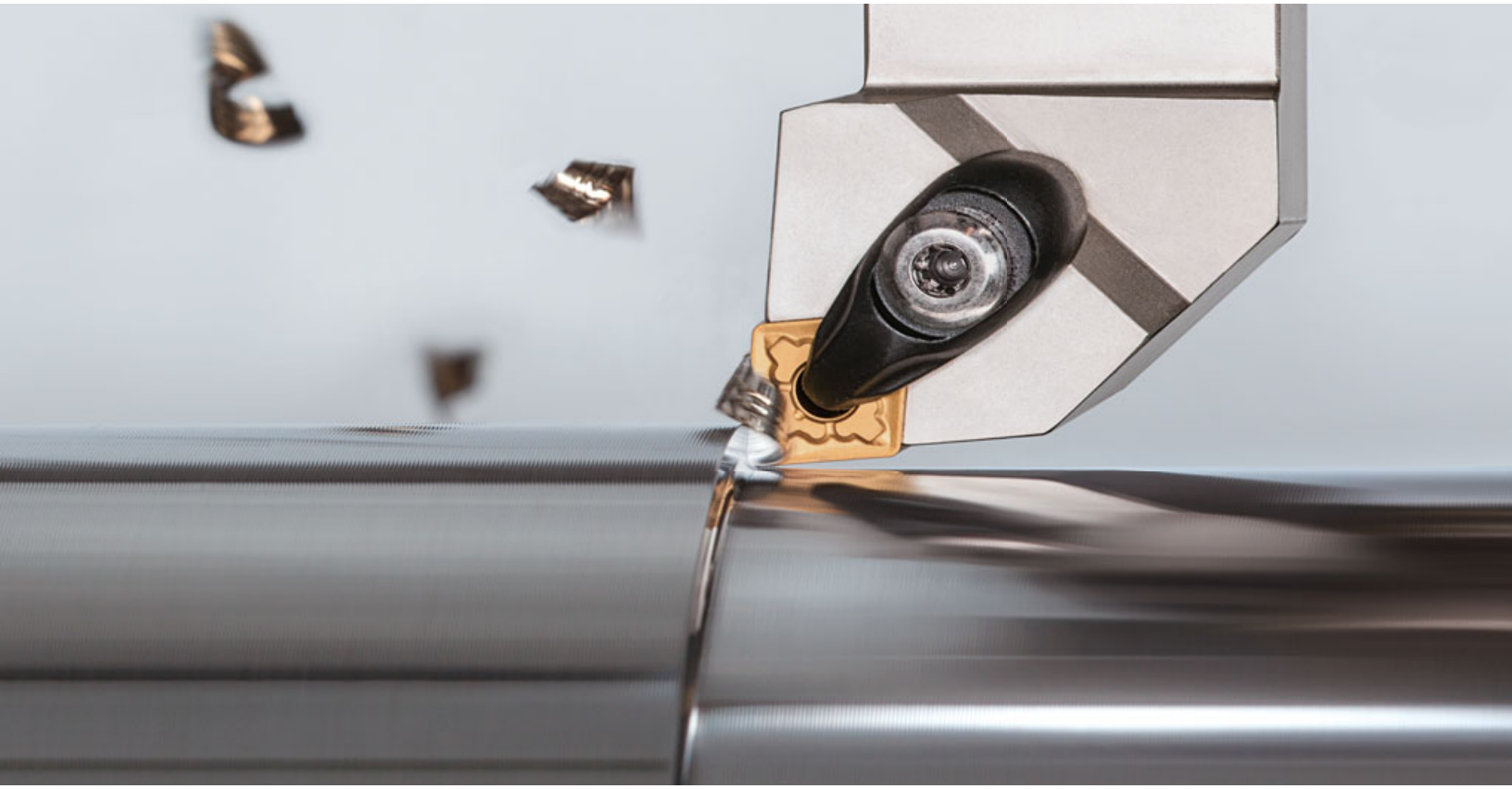
- **Highly economical insert:**

- **Small-sized inserts** save natural resources as well as manufacturing cost.

- **Same performance as regular-sized inserts:**

- The performance level in machining with the depth of cut up to 3 mm (0.118") is identical.

- The thickness of the insert is equal to that of the regular-sized insert, resulting in the same level of fracture resistance.

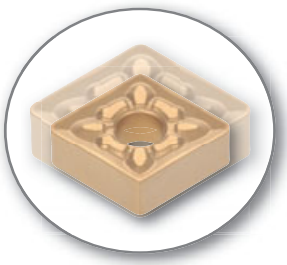


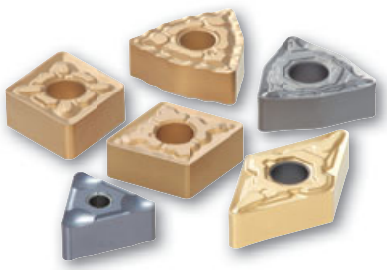
TUNGFORCE TURN
ACCELERATED MACHINING

Line up:

ISO-EcoTurn inserts are available in popular standard shapes and chipbreakers which are identical to those of the regular-sized inserts.

Toolholders:
Lever-clamping type and double-clamping type for profiling and facing

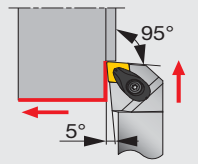




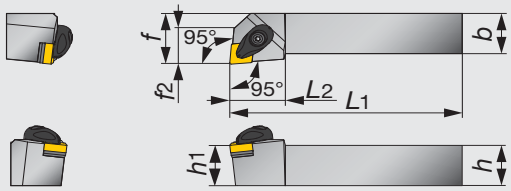
Double-clamp toolholder with 95° approach angle, for negative 80° rhombic inserts

TOOLHOLDERS - FOR EXTERNAL TURNING AND FACING

ISO-EcoTurn ACLNR/L



Cutting edge style L



Right hand (R) shown.

Designation	h	b	L1	L2	h1	f	f2	rε	Insert	Torque*
ACLNR/L1233-A	0.750	0.750	4.500	0.900	0.750	1.000	0.625	0.031	CN**33*	2.2
ACLNR/L1633-A	1.000	1.000	6.000	1.000	1.000	1.250	0.750	0.031	CN**33*	2.2

*Torque: Recommended torque (lb·ft) for clamping

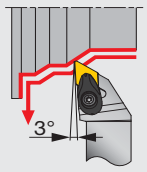
SPARE PARTS

Designation	Clamp	Clamp screw	Spring pin	Spring	Shim	Shim screw	Wrench
ACLNR/L...-A	ACP3S-E	ACS-5W	BP-7	SP-2.5	ASC322	CSTB-3.5	T-15F

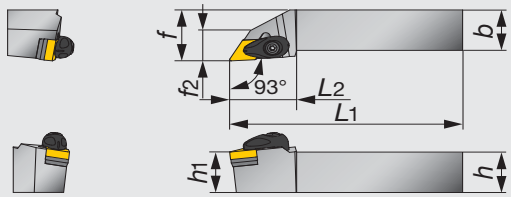
Double-clamp toolholder with 93° approach angle, for negative 55° rhombic inserts

TOOLHOLDERS - FOR EXTERNAL TURNING AND PROFILING

ISO-EcoTurn ADJNR/L



Cutting edge style J

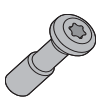


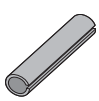
Right hand (R) shown.

Designation	h	b	L1	L2	h1	f	f2	rε	Insert	Torque*
ADJNR/L1233-A	0.750	0.750	4.500	1.250	0.750	1.000	0.625	0.031	DN**33*	2.2
ADJNR/L1633-A	1.000	1.000	6.000	1.250	1.000	1.250	0.900	0.031	DN**33*	2.2

*Torque: Recommended torque (lb·ft) for clamping

SPARE PARTS



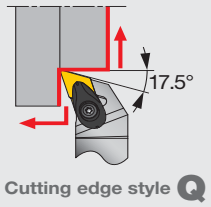


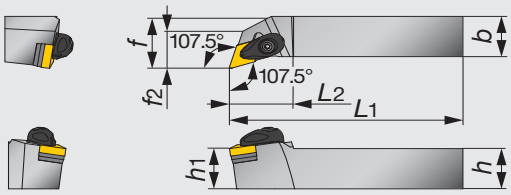
Designation	Clamp	Clamp screw	Spring pin	Spring	Shim	Shim screw	Wrench
ADJNR/L...-A	ACP3S-E	ACS-5W	BP-7	SP-2.5	ASD322	CSTB-3.5	T-15F

Double-clamp toolholder with 107.5° approach angle, for negative 55° rhombic inserts

TOOLHOLDERS - FOR EXTERNAL TURNING AND PROFILING

ISO-EcoTurn ADQNR/L



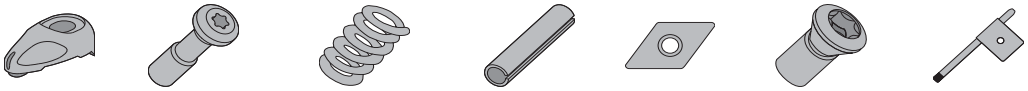


Right hand (R) shown.

Designation	h	b	L1	L2	h1	f	f2	rε	Insert	Torque*
ADQNR/L1233-A	0.750	0.750	4.500	1.150	0.750	1.000	0.750	0.031	DN**33*	2.2
ADQNR/L1633-A	1.000	1.000	6.000	1.150	1.000	1.250	0.800	0.031	DN**33*	2.2

*Torque: Recommended torque (lb·ft) for clamping

SPARE PARTS

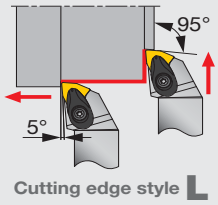


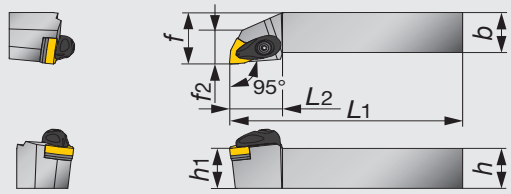
Designation	Clamp	Clamp screw	Spring pin	Spring	Shim	Shim screw	Wrench
ADQNR/L...-A	ACP3S-E	ACS-5W	BP-7	SP-2.5	ASD322	CSTB-3.5	T-15F

Double-clamp toolholder with 95° approach angle, for negative trigon inserts

TOOLHOLDERS - FOR EXTERNAL TURNING AND FACING

ISO-EcoTurn AWLNR/L



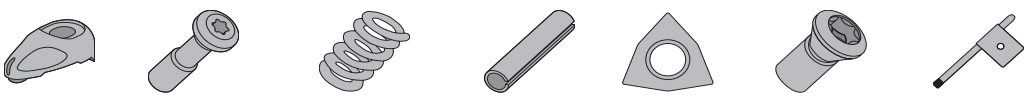


Right hand (R) shown.

Designation	h	b	L1	L2	h1	f	f2	rε	Insert	Torque*
AWLNR/L1233-A	0.750	0.750	4.500	1.125	0.750	1.000	0.625	0.031	WN**33*	2.2
AWLNR/L1633-A	1.000	1.000	6.000	1.125	1.000	1.250	0.875	0.031	WN**33*	2.2

*Torque: Recommended torque (lb·ft) for clamping

SPARE PARTS

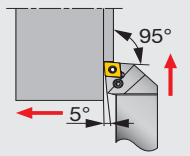


Designation	Clamp	Clamp screw	Spring pin	Spring	Shim	Shim screw	Wrench
AWLNR/L...-A	ACP3S-E	ACS-5W	BP-7	SP-2.5	ASW322	CSTB-3.5	T-15F

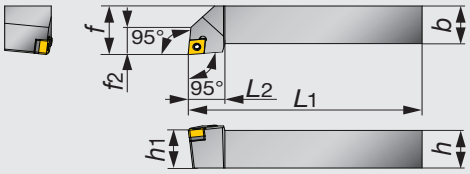
Lever lock type toolholder with 95° approach angle, for negative 80° rhombic inserts

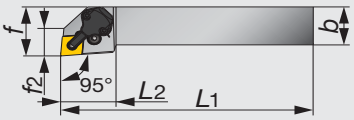
TOOLHOLDERS FOR - EXTERNAL TURNING AND FACING

ISO-EcoTurn PCLNR/L



Cutting edge style L





With high pressure coolant

Right hand (R) shown.

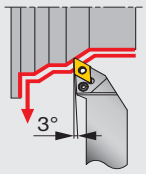
Designation	h	b	L1	L2	h1	f	f2	rε	Insert	Torque*
PCLNR/L1233	0.750	0.750	4.500	0.813	0.750	1.000	0.625	0.031	CN**33*	1.5
PCLNR/L1633	1.000	1.000	6.000	0.813	1.000	1.250	0.750	0.031	CN**33*	1.5
PCLNR/L1633-CHP	1.000	1.000	6.000	0.813	1.000	1.250	0.750	0.031	CN**33*	1.5

*Torque: Recommended torque (lb·ft) for clamping

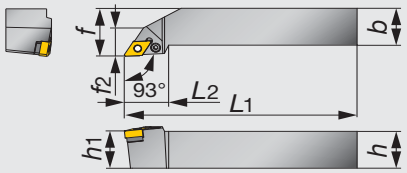
Lever lock type toolholder with 93° approach angle, for negative 55° rhombic inserts

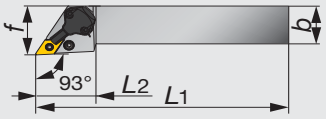
TOOLHOLDERS FOR - EXTERNAL TURNING AND PROFILING

ISO-EcoTurn PDJNR/L



Cutting edge style J





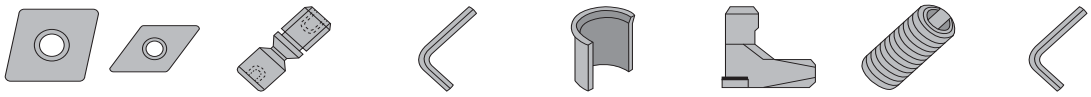
With high pressure coolant

Right hand (R) shown.

Designation	h	b	L1	L2	h1	f	f2	rε	Insert	Torque*
PDJNR/L1033	0.625	0.625	4.000	1.125	0.625	0.875	0.625	0.031	DN**33*	1.5
PDJNR/L1233	0.750	0.750	4.500	1.125	0.750	1.000	0.625	0.031	DN**33*	1.5
PDJNR/L1633	1.000	1.000	6.000	1.125	1.000	1.250	0.750	0.031	DN**33*	1.5
PDJNR/L1633-CHP	1.000	1.000	6.000	1.125	1.000	1.250	0.750	0.031	DN**33*	1.5

*Torque: Recommended torque (lb·ft) for clamping

SPARE PARTS FOR P-TYPE



Designation		Shim	Clamping Screw	Wrench for clamping screw	Spring pin	Lever	Coolant screw	Wrench for coolant screw
PCLNR/L1*33	LSC317	-	LCS3	P-2.5	LSP3	LCL33	-	-
PCLNR/L1633-CHP	LSC317	-	LCS3	P-2.5	LSP3	LCL33	SRM4X4TL360	P-2
PDJNR/L1*33	-	ELSD32	LCS3	P-2.5	LSP3	LCL33L	-	-
PDJNR/L1633-CHP	-	ELSD32	LCS3	P-2.5	LSP3	LCL33L	SRM4X4TL360	P-2

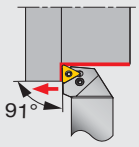
COOLANT SET FOR CHP TYPE

Designation	Coolant unit	Mounting screw	Wrench for mounting screw	O-ring
PCLNR/L1633-CHP	CU-CW-CHP	SRM3	T-8F	OR6.4X0.9N
PDJNR/L1633-CHP	CU-D-CHP	SRM3	T-8F	OR6.4X0.9N

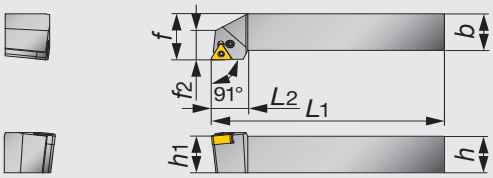
Lever lock type toolholder with 91° approach angle, for negative triangle inserts

TOOLHOLDERS - FOR EXTERNAL TURNING

ISO-EcoTurn PTGNR/L



Cutting edge style **G**

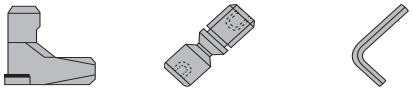


Right hand (R) shown.

Designation	*h*	*b*	*L*1	*L*2	*h*1	*f*	*f*2	r_ε	Insert	Torque*
PTGNR/L1223	0.750	0.750	4.500	0.750	0.750	1.000	0.625	0.031	TN**23*	1.5
PTGNR/L1623	1.000	1.000	6.000	0.750	1.000	1.250	0.875	0.031	TN**23*	1.5

*Torque: Recommended torque (lb·ft) for clamping

SPARE PARTS

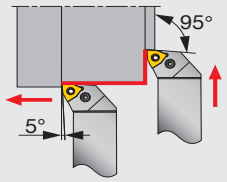


Designation	Lever	Shim screw	Wrench
PTGNR/L1*23	LCL23	LCS23A	P-2.5

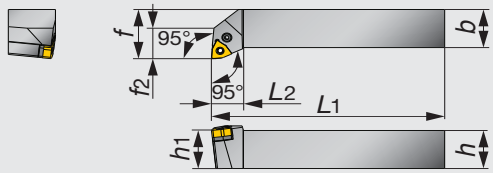
Lever lock type toolholder with 95° approach angle, for negative 80° trigon

TOOLHOLDERS - FOR FACING

ISO-EcoTurn PWLNR/L



Cutting edge style **L**

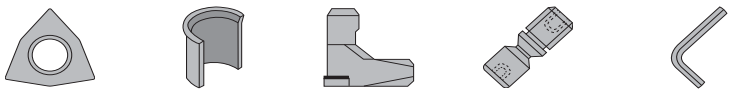


Right hand (R) shown.

Designation	*h*	*b*	*L*1	*L*2	h1	*f*	*f*2	r_ε	Insert	Torque*
PWLNR/L1233	0.750	0.750	4.500	0.625	0.750	1.000	0.688	0.031	WN**33*	1.5
PWLNR/L1633	1.000	1.000	6.000	0.719	1.000	1.250	0.750	0.031	WN**33*	1.5

*Torque: Recommended torque (lb·ft) for clamping

SPARE PARTS

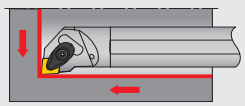


Designation	Shim	Spring pin	Lever	Shim screw	Wrench
PWLNR/L....	LSW312	LSP3	LCL3	LCS3	P-2.5

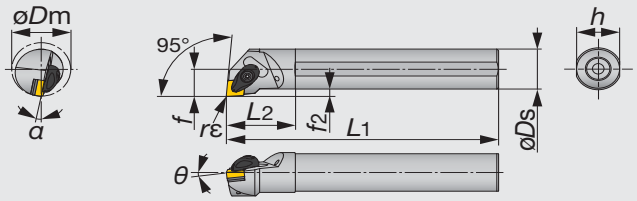
Double-clamp boring bar, for negative 80° rhombic insert

TOOLHOLDERS - FOR BORING AND FACING

ISO-EcoTurn A-ACLNR/L



Cutting edge style L

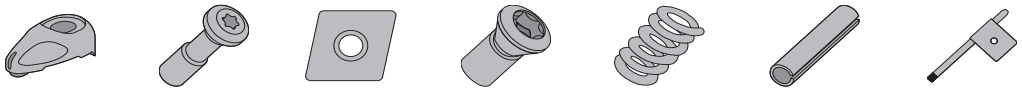


Right hand (R) shown.

Designation	øDm	øDs	f	L1	L2	h	f2	θ	α	rε	Insert	Torque*
A16-ACLNR/L33-D20	1.25	1.00	0.672	12	1.750	0.906	0.172	-6°	-13°	0.031	CN**33*	2.2
A20-ACLNR/L33-D25	1.56	1.25	0.859	14	1.938	1.188	0.234	-6°	-10°	0.031	CN**33*	2.2

*Torque: Recommended torque (lb·ft) for clamping

SPARE PARTS

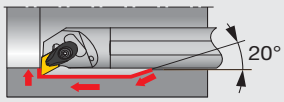


Designation	Clamp	Clamping screw	Shim	Shim screw	Spring	Spring pin	Wrench
A**-ACLNR/L33...	ACP3S-E	ACS-5W	ASC322	CSTB-3.5	BP-7	SP-2.5	T-15F

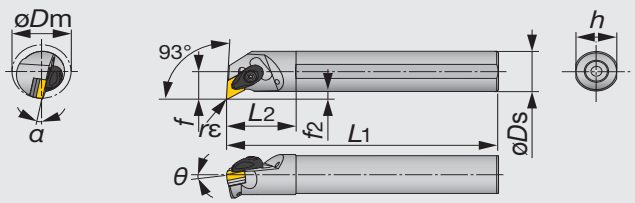
Double-clamp boring bar, for negative 55° rhombic inserts.

TOOLHOLDERS - FOR BORING AND PROFILING

ISO-EcoTurn A-ADUNR/L



Cutting edge style U

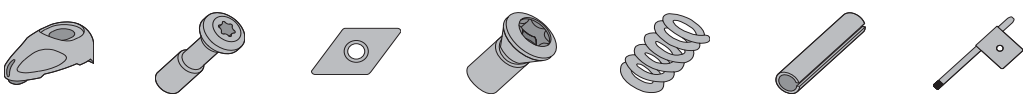


Right hand (R) shown.

Designation	øDm	øDs	f	L1	L2	h	f2	θ	α	rε	Insert	Torque*
A16-ADUNR/L33-D20	1.25	1.00	0.672	12	1.750	0.906	0.172	-6°	-13°	0.031	DN**33*	2.2
A20-ADUNR/L33-D25	1.56	1.25	0.859	14	1.938	1.188	0.234	-6°	-11°	0.031	DN**33*	2.2

*Torque: Recommended torque (lb·ft) for clamping

SPARE PARTS

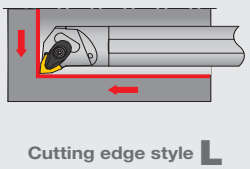


Designation	Clamp	Clamping screw	Shim	Shim screw	Spring	Spring pin	Wrench
A***-ADUNR/L1104...	ACP3S-E	ACS-5W	ASD322	CSTB-3.5	BP-7	SP-2.5	T-15F

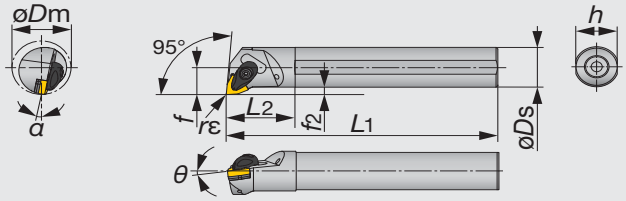
Double-clamp boring bar, for negative trigon insert

TOOLHOLDERS - FOR BORING AND FACING

ISO-EcoTurn A-AWLNR/L



Cutting edge style L



Right hand (R) shown.

Designation	øDm	øDs	f	L1	L2	h	f2	θ	α	rε	Insert	Torque*
A16-AWLNR/L33-D20	1.25	1.00	0.672	12	1.750	0.906	0.172	-6°	-13°	0.031	WN**33*	2.2
A20-AWLNR/L33-D25	1.56	1.25	0.859	14	1.938	1.188	0.234	-6°	-10°	0.031	WN**33*	2.2

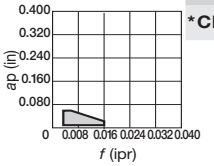
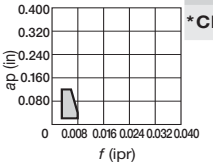
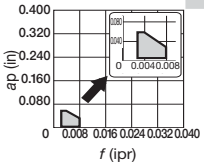
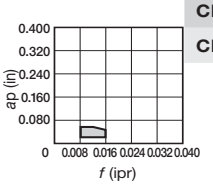
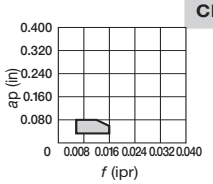
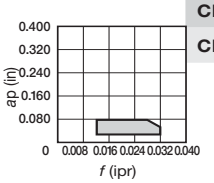
*Torque: Recommended torque (lb·ft) for clamping

SPARE PARTS

Designation	Clamp	Clamping screw	Shim	Shim screw	Spring	Spring pin	Wrench
A**-AWLNR/L33...	ACP3S-E	ACS-5W	ASW322	CSTB-3.5	BP-7	SP-2.5	T-15F

INSERT NEGATIVE TYPE

Rhombic, 80°

Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades: Coating T9105	T9115	T9125	T5115	Cermet AH630	AH645	Coated cermet NS9530	GT9530	I.C. ød	Thickness s	Hole dia ød1	Corner radius rε
Finishing	TSF		CNMG331E-TSF		√	√				√	√	0.375	0.187	0.150	0.016
			*CNMG332E-TSF		√	√				√	√	0.375	0.187	0.150	0.031
	SS		CNMG331E-SS					√	√			0.375	0.187	0.150	0.016
			*CNMG332E-SS					√	√			0.375	0.187	0.150	0.031
	ZF		CNMG331E-ZF		√	√						0.375	0.187	0.150	0.016
	FW (Wiper)		CNMG331E-FW	√	√	√				√	√	0.375	0.187	0.150	0.016
			CNMG332E-FW	√	√	√				√	√	0.375	0.187	0.150	0.031
Finishing to medium cutting	ZM		CNMG332E-ZM		√	√						0.375	0.187	0.150	0.031
	SW (Wiper)		CNMG332E-SW	√	√	√	√					0.375	0.187	0.150	0.031
			CNMG333E-SW	√	√	√	√					0.375	0.187	0.150	0.047

*Note: Chipbreaker cross sections are of the inserts marked *

√ : Stocked items

Rhombic, 80°

Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades: Coating T9115	Coating T9125	Coating T6120	Coating T6130	Coating AH630	Cermet AH645	Cermet NS9530	Coated cermet GT9530	I.C. ød	Thickness s	Hole dia ød1	Corner radius rε
Medium cutting	TM		CNMG331E-TM	√	√							0.375	0.187	0.150	0.016
			*CNMG332E-TM	√	√							0.375	0.187	0.150	0.031
			CNMG333E-TM	√	√							0.375	0.187	0.150	0.047
	SM		CNMG331E-SM			√	√	√				0.375	0.187	0.150	0.016
			*CNMG332E-SM			√	√	√				0.375	0.187	0.150	0.031
			CNMG333E-SM			√	√	√				0.375	0.187	0.150	0.047

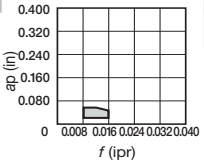
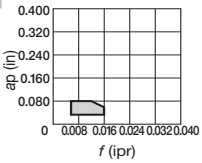
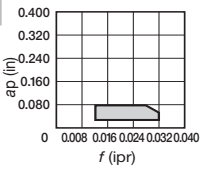
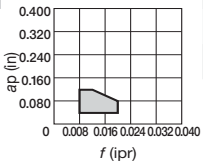
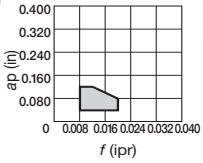
*Note: Chipbreaker cross sections are of the inserts marked *

Rhombic, 55°

Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades: Coating T9115	Coating T9125	Coating T6120	Coating T6130	Coating AH630	Cermet AH645	Cermet NS9530	Coated cermet GT9530	I.C. ød	Thickness s	Hole dia ød1	Corner radius rε
Finishing	TSF		DNMG331E-TSF	√	√					√	√	0.375	0.187	0.150	0.016
			*DNMG332E-TSF	√	√					√	√	0.375	0.187	0.150	0.031
			DNMG333E-TSF	√	√					√	√	0.375	0.187	0.150	0.047
	SS		DNMG331E-SS					√	√			0.375	0.187	0.150	0.016
			*DNMG332E-SS					√	√			0.375	0.187	0.150	0.031
	ZF		DNMG331E-ZF	√	√							0.375	0.187	0.150	0.016

√ : Stocked items

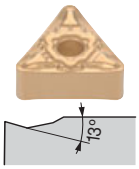
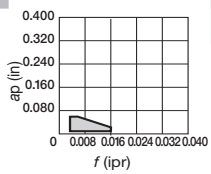
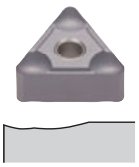
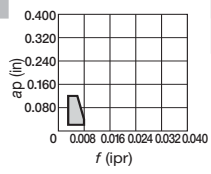
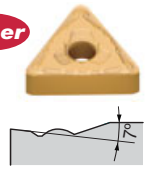
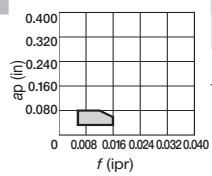
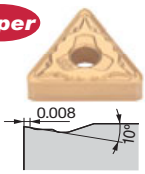
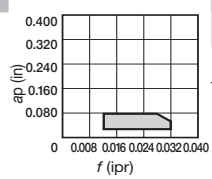
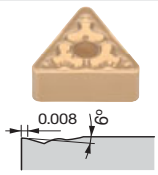
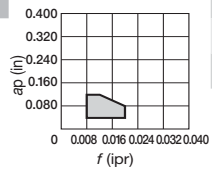
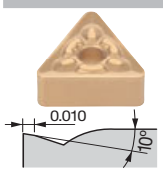
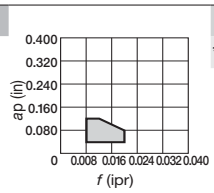
Rhombic, 55°

Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades: Coating T9115	T9125	T6120	T6130	AH630	Cermet AH645	NS9530	Coated cermet GT9530	I.C. ød	Thick-ness s	Hole dia ød1	Corner radius rε
Finishing	FW		DNMG331E-FW	√								0.375	0.187	0.150	0.016
			DNMG332E-FW	√								0.375	0.187	0.150	0.031
Finishing to medium cutting	ZM		DNMG332E-ZM	√	√							0.375	0.187	0.150	0.031
	SW		DNMG332E-SW	√								0.375	0.187	0.150	0.031
			DNMG333E-SW	√								0.375	0.187	0.150	0.047
Medium cutting	TM		DNMG331E-TM	√	√							0.375	0.187	0.150	0.016
			*DNMG332E-TM	√	√							0.375	0.187	0.150	0.031
			DNMG333E-TM	√	√							0.375	0.187	0.150	0.047
	SM		DNMG331E-SM			√	√	√				0.375	0.187	0.150	0.016
			*DNMG332E-SM			√	√	√				0.375	0.187	0.150	0.031

*Note: Chipbreaker cross sections are of the inserts marked *

√ : Stocked items

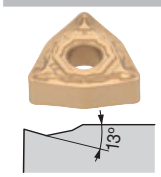
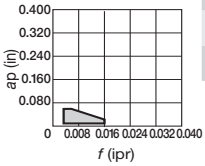
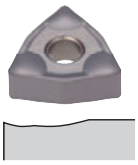
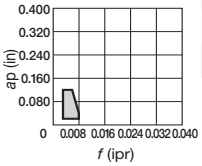
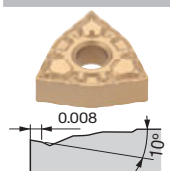
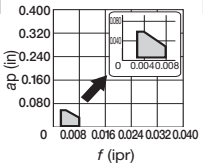
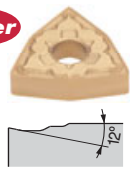
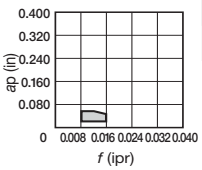
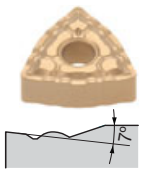
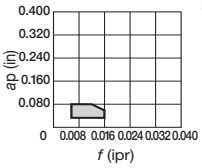
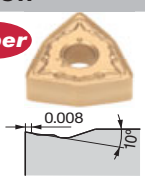
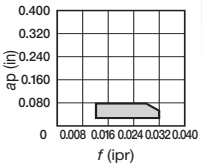
Triangular, 60°

Application	Chipbreaker Appearance (Cross section)	*f* - *ap*	Cat. No	Stocked grades: Coating T9115	Coating T9125	Coating T6120	Coating T6130	Coating AH630	Cermet AH645	Cermet NS9530	Coated cermet GT9530	I.C. ød	Thickness s	Hole dia ød1	Corner radius rε
Finishing	**TSF** 		**TNMG231E-TSF**	√	√					√	√	0.250	0.187	0.089	0.016
			***TNMG232E-TSF**	√	√					√	√	0.250	0.187	0.089	0.031
	SS 		**TNMG231E-SS**					√	√			0.250	0.187	0.089	0.016
			***TNMG232E-SS**					√	√			0.250	0.187	0.089	0.031
	FW Wiper 		**TNMG231E-FW**	√								0.250	0.187	0.089	0.016
			TNMG232E-FW	√								0.250	0.187	0.089	0.031
Finishing to medium cutting	**SW** Wiper 		**TNMG232E-SW**	√								0.250	0.187	0.089	0.031
			TNMG233E-SW	√								0.250	0.187	0.089	0.047
Medium cutting	**TM** 		**TNMG231E-TM**	√	√							0.250	0.187	0.089	0.016
			***TNMG232E-TM**	√	√							0.250	0.187	0.089	0.031
			TNMG233E-TM	√	√							0.250	0.187	0.089	0.047
	SM 		**TNMG231E-SM**			√	√	√				0.250	0.187	0.089	0.016
			***TNMG232E-SM**			√	√	√				0.250	0.187	0.089	0.031

*Note: Chipbreaker cross sections are of the inserts marked *

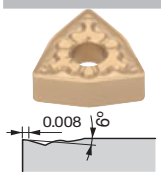
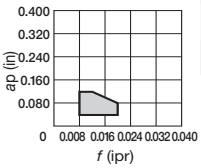
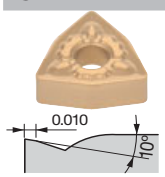
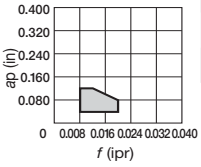
√ : Stocked items

Trigon, 80°

Application	Chipbreaker Appearance (Cross section)	f - ap	Cat. No	Stocked grades: Coating T9105	T9115	T9125	T5115	AH630	AH645	Cermet NS9530	Coated cermet GT9530	I.C. ød	Thick-ness s	Hole dia ød1	Corner radius rε
Finishing	TSF 		WNMG331E-TSF		√	√				√	√	0.375	0.187	0.150	0.016
			* WNMG332E-TSF		√	√				√	√	0.375	0.187	0.150	0.031
			WNMG333E-TSF			√				√	√	0.375	0.187	0.150	0.047
	SS 		WNMG331E-SS					√	√			0.375	0.187	0.150	0.016
			* WNMG332E-SS					√	√			0.375	0.187	0.150	0.031
			WNMG333E-SS					√	√			0.375	0.187	0.150	0.047
	ZF 		WNMG331E-ZF		√	√						0.375	0.187	0.150	0.016
	FW Wiper 		WNMG331E-FW	√	√	√				√	√	0.375	0.187	0.150	0.016
			WNMG332E-FW	√	√	√				√	√	0.375	0.187	0.150	0.031
Finishing to medium cutting	ZM 		WNMG332E-ZM		√	√						0.375	0.187	0.150	0.031
	SW Wiper 		WNMG332E-SW	√	√	√	√					0.375	0.187	0.150	0.031
			WNMG333E-SW	√	√	√	√					0.375	0.187	0.150	0.047

√ : Stocked items

Trigon, 80°

Application	Chipbreaker Appearance (Cross section)	*f* - *ap*	Cat. No	Stocked grades: Coating T9115	Coating T9125	Coating T6120	Coating T6130	Coating AH630	Cermet AH645	Cermet NS9530	Coated cermet GT9530	I.C. ød	Thickness s	Hole dia ød1	Corner radius rε
Medium cutting	**TM** 		**WNMG331E-TM**	√	√							0.375	0.187	0.150	0.016
			* **WNMG332E-TM**	√	√							0.375	0.187	0.150	0.031
			WNMG333E-TM	√	√							0.375	0.187	0.150	0.047
	SM 		**WNMG331E-SM**			√	√	√				0.375	0.187	0.150	0.016
			* **WNMG332E-SM**			√	√	√				0.375	0.187	0.150	0.031
			WNMG333E-SM			√	√	√				0.375	0.187	0.150	0.047

*Note: Chipbreaker cross sections are of the inserts marked *

√ : Stocked items

STANDARD CUTTING CONDITIONS

ISO	Workpiece materials	Grade	Cutting speed *Vc* (sfm)
P	Low carbon steels Alloy steels (1015, etc.)	NS9530	492 - 820
		GT9530	492 - 984
		T9115	492 - 984
		T9125	394 - 820
	Medium carbon steels Alloy steels (1045, 4140, etc.)	NS9530	262 - 722
		GT9530	262 - 820
		T9115	492 - 984
		T9125	262 - 656
	High carbon steels Alloy steels (D2, etc.)	NS9530	262 - 591
		GT9530	262 - 656
		T9115	394 - 820
		T9125	262 - 492
M	Austenitic (S30400, S31600, etc.)	T6120	459 - 787
		T6130	328 - 656
		AH630	295 - 623
		AH645	230 - 492
	Ferritic / Martensitic (S4300, S4200, etc.)	T6120	525 - 919
		T6130	394 - 787
		AH630	361 - 689
		AH645	295 - 558
	Precipitation hardened (S17400, etc.)	T6120	262 - 492
		T6130	230 - 361
		AH630	197 - 295

Note: See page 9 for more information about grades.

MEMO

TUNGTURN JET
TUNGALOY

Tools with high-pressure coolant system

TungTurn-Jet's high-pressure coolant forms short chips, and removed heat on the cutting edge extends tool life.

- **Improved productivity** with high-pressure coolant supply:

- Coolant is delivered from nozzle tube on the top of the toolholder to the cutting edge and from the bottom hole to the flank.

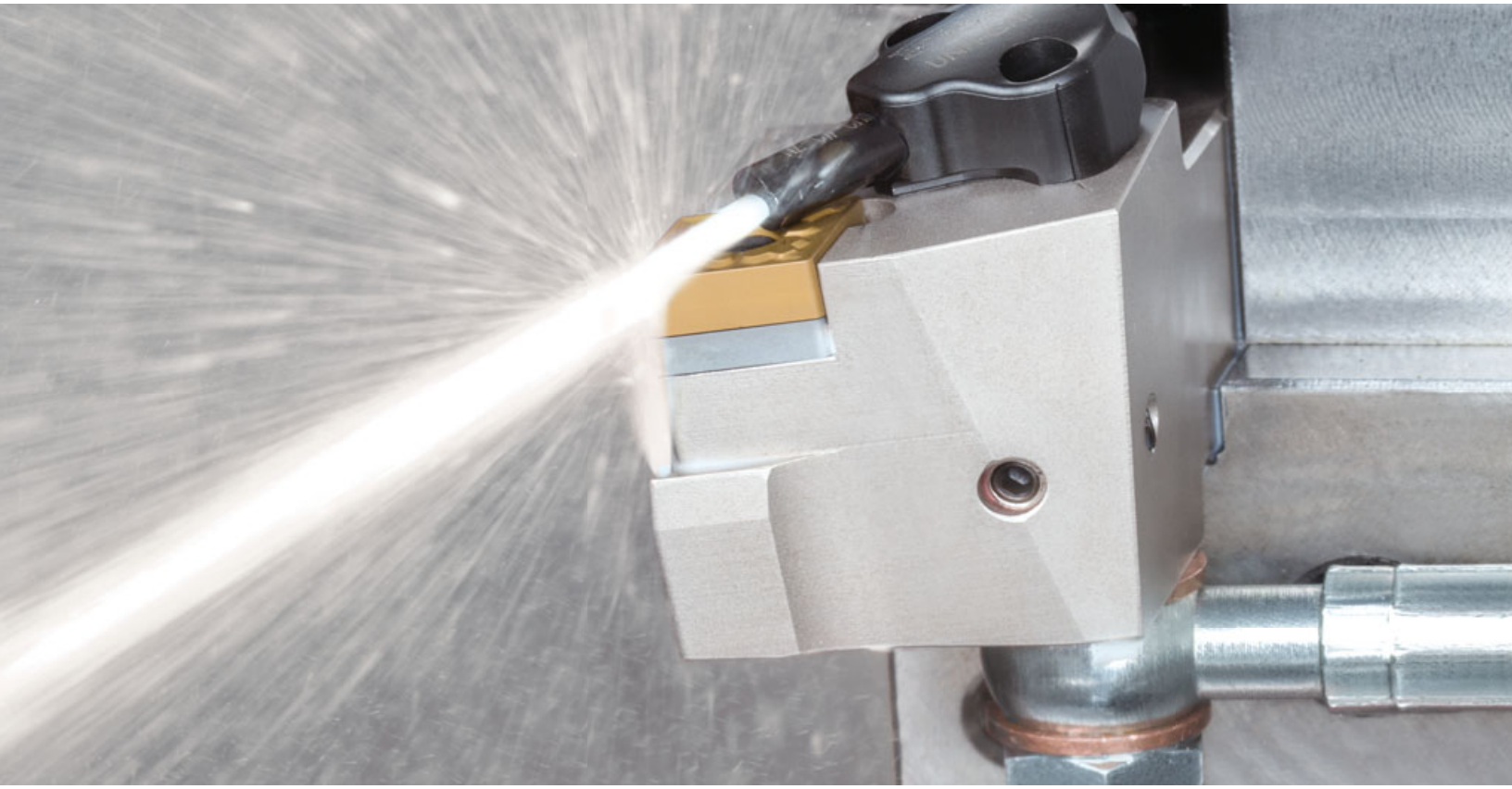
- Coolant supplied from two directions reduces flank wear and crater wear, **allowing high-speed machining**.

- **High-pressure coolant on the cutting edge** breaks chips, especially for difficult-to-cut materials, which is hard to achieve with general external coolant supply.

- Reduced crater wear and **increased cutting speed provides highly efficient machining**.

- Up to **200% increase in cutting speed** when machining titanium and heat-resistant alloys

- Up to **100% increase in tool life** when machining alloy steel and stainless steel



TUNGFORCE TURN
ACCELERATED MACHINING

Line up:

TungTurn-Jet with high-pressure coolant system is applied to Tungaloy non-rotating tools:

PCLNR/L and PDJNR/L for general external turning: 25 mm (1.00") square shank for regular ISO inserts and ISO-EcoTurn inserts

ISO-EcoTurn (See page 116)

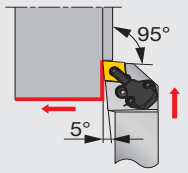
MiniForce-Turn and J-series for external turning on small lathes: 12 mm (0.5") square shank for WXGU,DXGU, and JXGU inserts

EasyMulti-Cut (See page 185, 191, 192, 193)

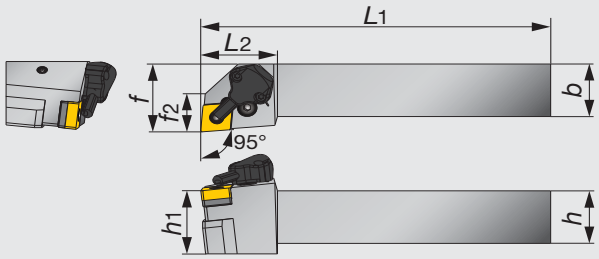
Lever lock type toolholder, for negative 80° and 55° rhombic inserts,
with channels for high pressure coolant.

EXTERNAL HOLDERS - FOR GENERAL LATHES

TungTurn-Jet PCLNR/L-CHP



Cutting edge style: **L**

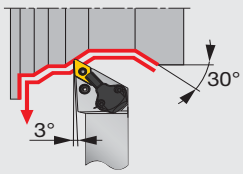


Right hand (R) shown.

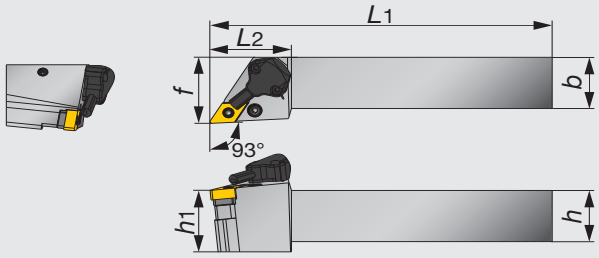
Designation	h	b	L1	L2	h1	f	f2	Std. corner radius rε	Insert	Torque (lb·ft)
PCLNR/L1633-CHP(1)	1.000	1.000	6.000	1.300	1.000	1.250	0.750	0.031	CN**33*	1.5
PCLNR/L164-CHP	1.000	1.000	6.000	1.300	1.000	1.250	0.750	0.031	CN**43*	2.2

(1) ISO-EcoTurn series shown in page 124, 125.

TungTurn-Jet PDJNR/L-CHP



Cutting edge style: **J**



Right hand (R) shown.

Designation	h	b	L1	L2	h1	f	Std. corner radius rε	Insert	Torque (lb·ft)
PDJNR/L1633-CHP (1)	1.000	1.000	6.000	1.420	1.000	1.250	0.031	DN**33*	1.5
PDJNR/L164-CHP	1.000	1.000	6.000	1.420	1.000	1.250	0.031	DN**43*	2.2

(1) ISO-EcoTurn series shown in page 124, 125.

SPARE PARTS FOR P-TYPE

Designation	Shim	Clamping Screw	Wrench for clamping screw	Spring pin	Lever	Coolant screw	Wrench for coolant screw
PCLNR/L1633-CHP	LSC317	LCS3	P-2,5	LSP3	LCL33	SRM4X4TL360	P-2
PCLNR/L164-CHP	LSC42	LCS4	P-3	LSP4	LCL4	SRM4X4TL360	P-2
PDJNR/L1633-CHP	ELSD32	LCS3	P-2.5	LSP3	LCL33L	SRM4X4TL360	P-2
PDJNR/L164-CHP	LSD43A	LCS4	P-3	LSP4	LCL4	SRM4X4TL360	P-2

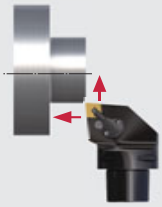
COOLANT SET

Designation	Coolant unit	Mounting screw	Wrench for mounting screw	O-ring
PCLNR/L1633-CHP	CU-CW-CHP	SRM3	T-8F	OR6.4X0.9N
PCLNR/L164-CHP	CU-CW-CHP	SRM3	T-8F	OR6.4X0.9N
PDJNR/L1633-CHP	CU-D-CHP	SRM3	T-8F	OR6.4X0.9N
PDJNR/L164-CHP	CU-D-CHP	SRM3	T-8F	OR6.4X0.9N

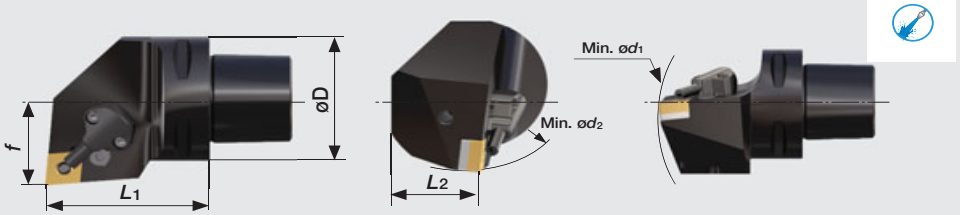
Lever lock type toolholder with TungCap connection, for negative inserts,
C 80° rhombic, W 80° trigon, D 55° rhombic with channels for high pressure coolant.

EXTERNAL HOLDERS

TungCap C-PCLN-CHP, C-PWLN-CHP, C-PDJN-CHP



C type shown



Right hand (R) shown.

Regular ISO

Designation	øD	L1	L2	f	ød1	ød2	Std. corner radius r_ε	Insert
C4PCLNR/L27050-12CHP	1.575	1.969	0.984	1.063	5.512	4.331	0.031	CN**43*
C5PCLNR/L35060-12CHP	1.969	2.362	1.260	1.378	6.496	4.331	0.031	CN**43*
C6PCLNR/L45065-12CHP	2.480	2.559	1.614	1.772	7.480	4.921	0.031	CN**43*
C4PWLNR/L27050-08CHP	1.575	1.969	0.984	1.063	5.512	4.331	0.031	WN**43*
C6PWLNR/L45065-08CHP	2.480	2.559	1.614	1.772	7.480	4.921	0.031	WN**43*
C4PDJNR/L27050-15CHP	1.575	1.969	0.984	1.063	5.512	4.331	0.031	DN**43*
C5PDJNR/L35060-15CHP	1.969	2.362	1.260	1.378	6.496	4.331	0.031	DN**43*
C6PDJNR/L45065-15CHP	2.480	2.559	1.614	1.772	7.480	4.331	0.031	DN**43*

ISO-EcoTurn

Designation	øD	L1	L2	f	ød1	ød2	Std. corner radius r_ε	Insert
C4PCLNR/L27050-0904CHP	1.575	1.969	0.984	1.063	5.512	4.331	0.031	CN**33*
C6PCLNR/L45065-0904CHP	2.480	2.559	1.614	1.772	7.480	4.921	0.031	CN**33*
C4PWLNR/L27050-0604CHP	1.575	1.969	0.984	1.063	5.512	4.331	0.031	WN**33*
C6PWLNR/L45065-0604CHP	2.480	2.559	1.614	1.772	7.480	4.921	0.031	WN**33*
C4PDJNR/L27050-1104CHP	1.575	1.969	0.984	1.063	5.512	4.331	0.031	DN**33*
C6PDJNR/L45065-1104CHP	2.480	2.559	1.614	1.772	7.480	4.331	0.031	DN**33*

SPARE PARTS FOR P-TYPE

Designation	Shim	Clamping Screw	Wrench for clamping screw	Spring pin	Lever
C*PCLNR/L...-12CHP	LSC42	LCS4	P-3	LSP4	LCL4
C*PWLNR/L...-08CHP	LSW42BL	LCS4	P-3	LSP4	LCL4
C*PDJNR/L...-15CHP	LSD43A	LCS4	P-3	LSP4	LCL4
C*PCLNR/L...0904CHP	LSC317	LCS3	P-2.5	LSP3	LCL33
C*PWLNR/L...0604CHP	LSW312	LCS3	P-2.5	LSP3	LCL3
C*PDJNR/L...1104CHP	ELSD32	LCS3	P-2.5	LSP3	LCL33L

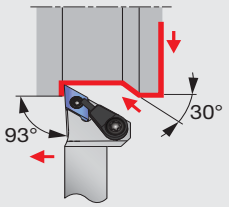
COOLANT SET

Designation	Coolant unit	Mounting screw	Wrench for mounting screw	O-ring
C*PCLNR/L...CHP	CU-CW-CHP	SRM3	T-8F	OR6.4X0.9N
C*PWLNR/L...CHP	CU-CW-CHP	SRM3	T-8F	OR6.4X0.9N
C*PDJLNR/L...CHP	CU-D-CHP	SRM3	T-8F	OR6.4X0.9N

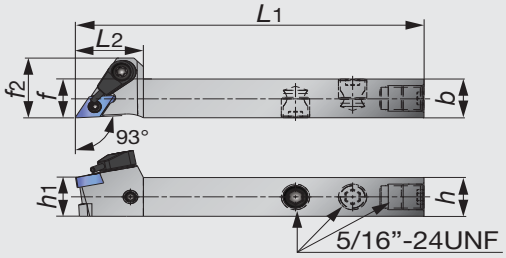
Screw-on toolholder without offset with 93° approach angle, for DXGU inserts, with channels for high pressure coolant.

EXTERNAL HOLDERS - FOR SMALL LATHES

TungTurn-Jet JSDJ2XR/L-CHP



Cutting edge style: **J2**



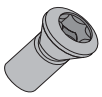
Without offset

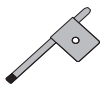
Right hand (R) shown.

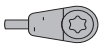
Designation	*h*	*b*	*L*1	*L*2	*h*1	*f*	*f*2	*r*ε	Insert	Torque*
JSDJ2XR/L082-CHP	0.500	0.500	3.344	0.750	0.500	0.500	0.730	0.008	DX**07*L/R	0.7

Note: Right hand toolholders (R) are used with left hand inserts (L)
Left hand toolholders (L) are used with right hand inserts (R)

*Torque: Recommended torque (lb·ft) for clamping







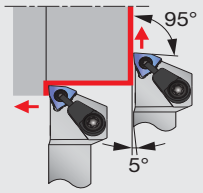
SPARE PARTS FOR J-TYPE

Designation	Screw	Wrench	Coolant unit
JSDJ2XR/L082-CHP	SR34-514	T-7F	S-CU-CHP

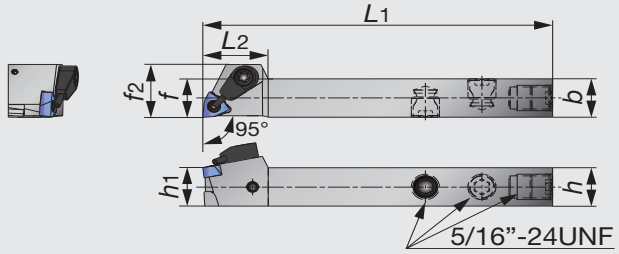
Screw-on toolholder without offset with 95° approach angle, for WXGU inserts, with channels for high pressure coolant.

EXTERNAL HOLDERS - FOR SMALL LATHES

TungTurn-Jet JSWL2XR/L-CHP



Cutting edge style: **L2**

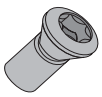


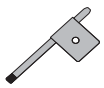
Without offset

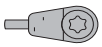
Right hand (R) shown.

Designation	*h*	*b*	*L*1	*L*2	*h*1	*f*	*f*2	*r*ε	Insert	Torque*
JSWL2XR/L082-CHP	0.500	0.500	3.344	0.750	0.500	0.500	0.650	0.008	WX**04*L/R	0.7

Note: Right hand toolholders (R) are used with left hand inserts (L)
Left hand toolholders (L) are used with right hand inserts (R)
*Torque: Recommended torque (lb·ft) for clamping







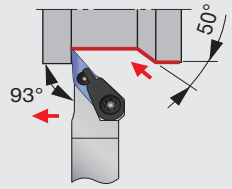
SPARE PARTS FOR J-TYPE

Designation	Screw	Wrench	Coolant unit
JSWL2XR/L082-CHP	SR34-514	T-7F	S-CU-CHP

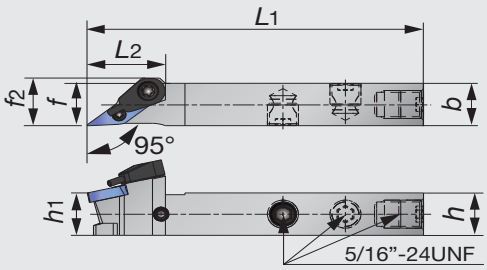
Screw-on toolholder without offset with 93° approach angle, for VXGU inserts, with channels for high pressure coolant.

EXTERNAL HOLDERS - FOR SMALL LATHES

TungTurn-Jet JSVJ2XR/L-CHP



Cutting edge style: **J2**



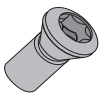
Without offset

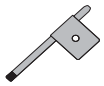
Right hand (R) shown.

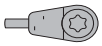
Designation	*h*	*b*	*L*1	*L*2	*h*1	*f*	*f*2	*r*ε	Insert	Torque*
JSVJ2XR/L087-CHP	0.500	0.500	3.344	0.689	0.500	0.500	0.531	0.008	VX**09*L/R	0.7

Note: Right hand toolholders (R) are used with left hand inserts (L)
Left hand toolholders (L) are used with right hand inserts (R)

*Torque: Recommended torque (lb·ft) for clamping







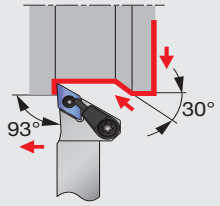
SPARE PARTS FOR J-TYPE

Designation	Screw	Wrench	Coolant unit
JSVJ2XR/L087-CHP	SR34-508	T-7F	S-CU-CHP

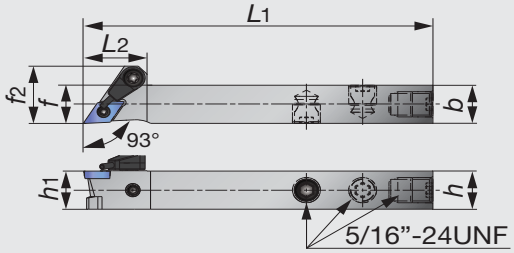
"J-Series" screw-on toolholder without offset with 93° approach angle, for positive 55° rhombic inserts, with channels for high pressure coolant.

EXTERNAL HOLDERS - FOR SMALL LATHES

TungTurn-Jet JSDJ2CR/L-CHP



Cutting edge style: **J2**

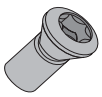


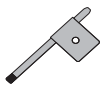
Without offset

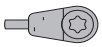
Right hand (R) shown.

Designation	*h*	*b*	*L*1	*L*2	*h*1	*f*	*f*2	*r*ε	Insert	Torque*
JSDJ2CR/L082-CHP	0.500	0.500	3.344	0.710	0.500	0.500	0.710	0.008	DC**07*	0.7

*Torque: Recommended torque (lb·ft) for clamping







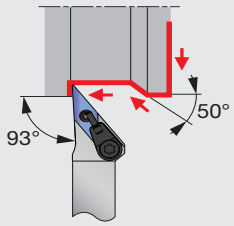
SPARE PARTS FOR J-TYPE

Designation	Screw	Wrench	Coolant unit
JSDJ2CR/L082-CHP	CSTB-2.5	T-8F	S-CU-CHP

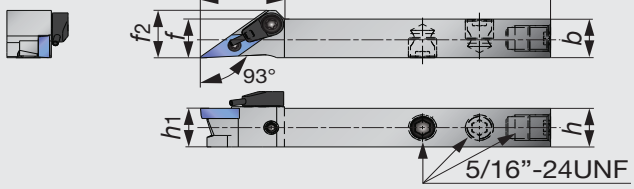
"J-Series" screw-on toolholder without offset with 93° apprch angle, for positive 35° rhombic inserts, with channels for high pressure coolant.

EXTERNAL HOLDERS - FOR SMALL LATHES

TungTurn-Jet JSVJ2BR/L-CHP



Cutting edge style: **J2**

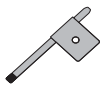


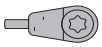
Without offset

Right hand (R) shown.

Designation	h	b	L1	L2	h1	f	f2	rε	Insert	Torque*
JSVJ2BR/L082-CHP	0.500	0.500	3.344	0.930	0.500	0.500	0.610	0.008	VB**1102*	0.9

*Torque: Recommended torque (lb·ft) for clamping





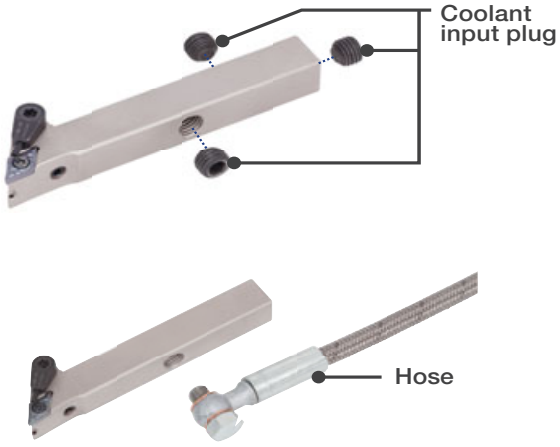
SPARE PARTS FOR J-TYPE

Designation	Screw	Wrench	Coolant unit
JSVJ2BR/L082-CHP	CSTB-2.5	T-8F	S-CU-CHP

PARTS FOR COOLANT HOSE

For general lathes

For small lathes



PARTS FOR COOLANT HOSE

Connecting hose

Fig. 1

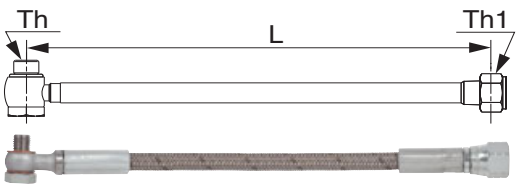
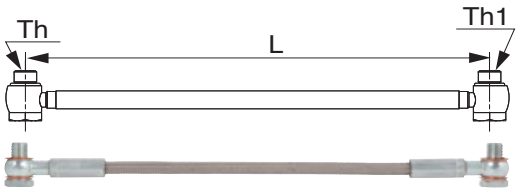
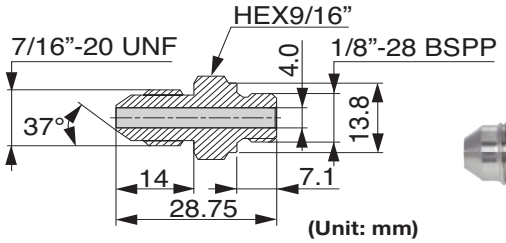


Fig. 2



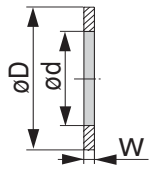
Designation	Length	Threading size		Max. pressure	Fig.
	L	Th	Th1	(Mpa)	
CHP-HOSE-G1/8-7/16-200BS	200	G1/8"-28 BSPP	7/16"-20 UNF	26	1
CHP-HOSE-G1/8-7/16-250BS	250	G1/8"-28 BSPP	7/16"-20 UNF	26	1
CHP-HOSE-5/16-7/16-200BS	200	5/16"-24UNF	7/16"-20 UNF	20	1
CHP-HOSE-5/16-G1/8-200BS	200	5/16"-24UNF	G1/8"-28 BSPP	20	1
CHP-HOSE-G1/8-G1/8-200BB	200	G1/8"-28 BSPP	G1/8"-28 BSPP	26	2
CHP-HOSE-G1/8-G1/8-250BB	250	G1/8"-28 BSPP	G1/8"-28 BSPP	26	2

Connector



Designation
CHP-NIPPLE-G1/8-7/16UNF

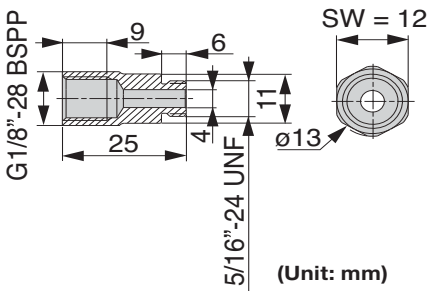
Seal washer



Designation	øD	ød	W
CHP-COPPER-SEAL1/8	15	8	1
CHP-COPPER-SEAL5/16	11	8	1
CHP-COPPER-SEAL5/16-2.5	11	8	2.5

(Unit: mm)

Connector for small lathe with seal washer



Designation
CHP-CONECTOR/5/16-G1/8

TINYMINITURN
TUNGALOY

Solid carbide small tools for turning small diameters with high accuracy

TinyMini-Turn's extra-fine cutting edge offers high-precision machining in various internal operations starting from ø0.6 mm (0.024") bore diameter.

- **Extra-fine cutting edge**:

- Smooth cutting edge for **high-precision machining** provides fine surface finish and prevents edge chipping

- Solid carbide tools with internal **coolant supplied directly to cutting edge**

- Ground chipbreaker **optimizes chip formation**.

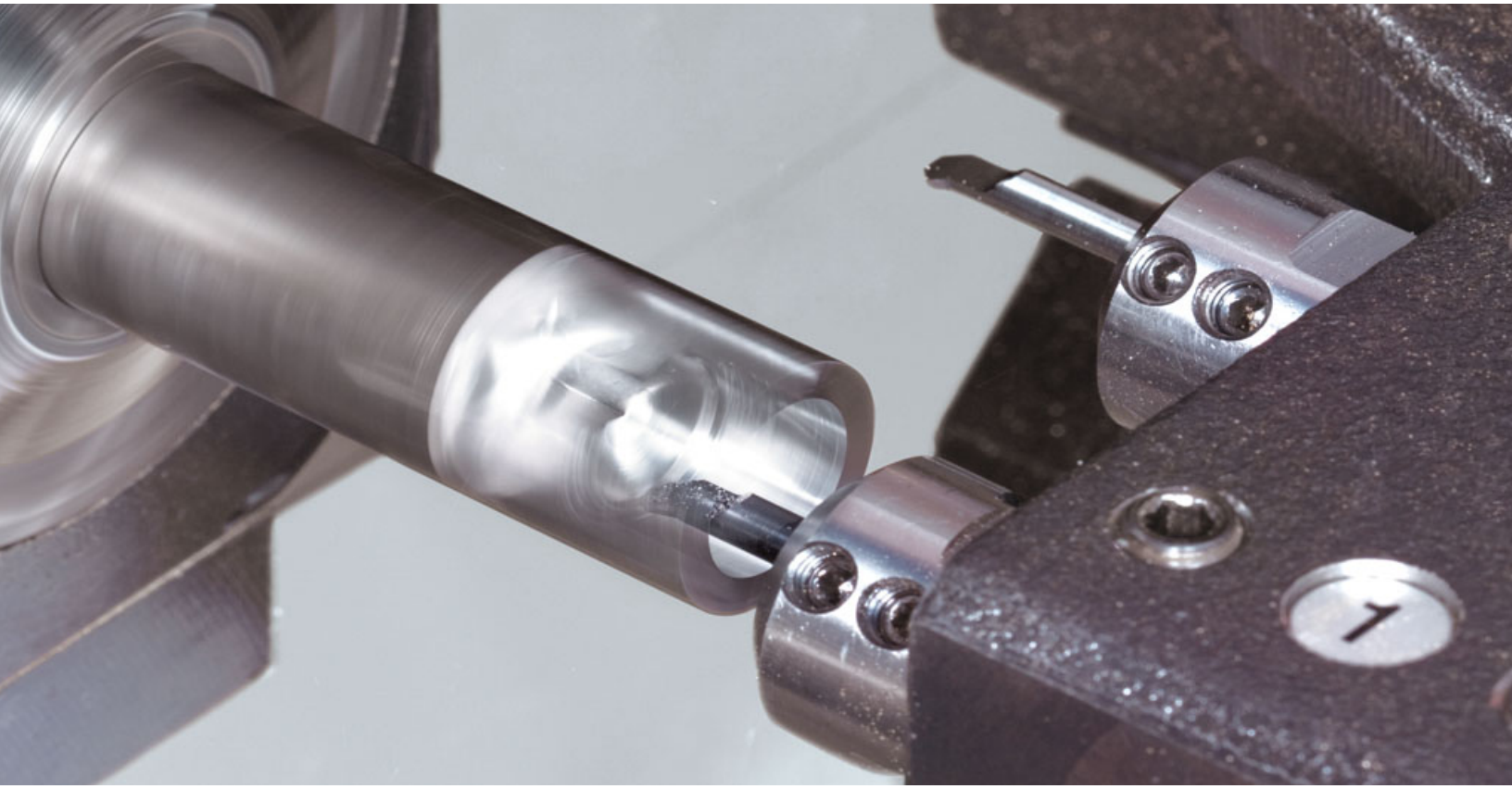
- Ideal sleeve with easy operation

- Sleeve with internal coolant supply

- **Excellent repeatability** of solid bars

- **Stability and reliability** in tool change

- Reduction in inventory cost: both ø4 and ø7 mm (0.157" and 0.275") shanks are applicable for one sleeve



TUNGFORCE TURN
ACCELERATED MACHINING

Line up:

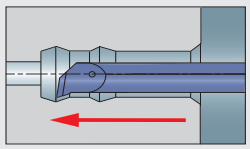
A wide variety of carbide tools for small-part machining, boring, profiling, chamfering, threading, and grooving

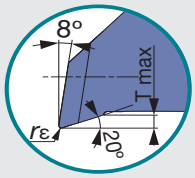
2 types of sleeves are available with internal coolant for general applications.

SH730 insert grade:
Stable cutting performance with the combination of exclusive (Ti,Al)N coating and the extremely tough substrate

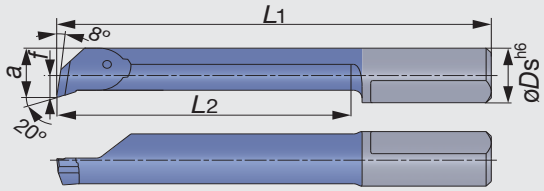
BORING, PROFILING, CHAMFERING

TinyMini-Turn JBTR/L





Details of edge



Right hand (R) shown.

Designation	Grade SH730 R	Grade SH730 L	øDm	øDs	f	a	L1	L2	T max	rε +0.05 0
JBTR/L04020004-D006	√		0.6	4	-	0.5	18.5	2	0.08	0.04
JBTR/L04030004-D006	√		0.6	4	-	0.5	19.5	3	0.08	0.04
JBTR/L04045005-D010	√		1	4	-	0.9	21	4.5	0.1	0.05
JBTR/L04065005-D010	√		1	4	-	0.9	23	6.5	0.1	0.05
JBTR/L04040005-D020	√		2	4	-	1.7	20.5	4	0.1	0.05
JBTR/L04090005-D020	√		2	4	-	1.7	25.5	9	0.1	0.05
JBTR/L04140005-D020	√		2	4	-	1.7	30.5	14	0.1	0.05
JBTR/L04090010-D028	√	√	2.8	4	0.6	2.6	25.5	9	0.2	0.10
JBTR/L04150010-D028	√	√	2.8	4	0.6	2.6	31.5	15	0.2	0.10
JBTR/L04190010-D028	√	√	2.8	4	0.6	2.6	35.5	19	0.2	0.10
JBTR/L04090010-D040	√	√	4	4	1.5	3.5	25.5	9	0.3	0.10
JBTR/L04150010-D040	√	√	4	4	1.5	3.5	31.5	15	0.3	0.10
JBTR/L04190010-D040	√	√	4	4	1.5	3.5	35.5	19	0.3	0.10
JBTR/L04230010-D040	√		4	4	1.5	3.5	39.5	23	0.3	0.10
JBTR/L04270010-D040	√		4	4	1.5	3.5	43.5	27	0.3	0.10
JBTR/L07090015-D050	√	√	5	7	0.9	4.4	25	9	0.5	0.15
JBTR/L07140015-D050	√	√	5	7	0.9	4.4	30	14	0.5	0.15
JBTR/L07190015-D050	√	√	5	7	0.9	4.4	35	19	0.5	0.15
JBTR/L07240015-D050	√	√	5	7	0.9	4.4	40	24	0.5	0.15
JBTR/L07290015-D050	√	√	5	7	0.9	4.4	45	29	0.5	0.15
JBTR/L07340015-D050	√		5	7	0.9	4.4	50	34	0.5	0.15
JBTR/L07140015-D060	√	√	6	7	1.8	5.3	30	14	0.5	0.15
JBTR/L07210015-D060	√	√	6	7	1.8	5.3	37	21	0.5	0.15
JBTR/L07240015-D060	√	√	6	7	1.8	5.3	40	24	0.5	0.15
JBTR/L07290015-D060	√	√	6	7	1.8	5.3	45	29	0.5	0.15
JBTR/L07340015-D060	√		6	7	1.8	5.3	50	34	0.5	0.15
JBTR/L07410015-D060	√		6	7	1.8	5.3	57	41	0.5	0.15
JBTR/L07190015-D068	√	√	6.8	7	2.8	6.3	35	19	0.6	0.15
JBTR/L07240015-D068	√		6.8	7	2.8	6.3	40	24	0.6	0.15

(Unit: mm)
√ : Stocked items

BORING, PROFILING, CHAMFERING

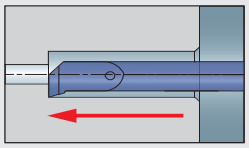
Designation	Grade SH730		øDm	øDs	f	a	L1	L2	T max	r_ε $^{+0.05}_{0}$
JBTR/L07290015-D068	√	√	6.8	7	2.8	6.3	45	29	0.6	0.15
JBTR/L07340015-D070	√	√	7	7	2.8	6.3	50	34	0.6	0.15
JBTR/L07390015-D070	√		7	7	2.8	6.3	55	39	0.6	0.15
JBTR/L07440015-D070	√		7	7	2.8	6.3	60	44	0.6	0.15
JBTR/L07490015-D070	√		7	7	2.8	6.3	65	49	0.6	0.15

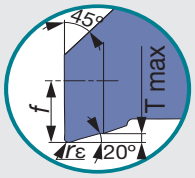
(Unit: mm)

√ : Stocked items

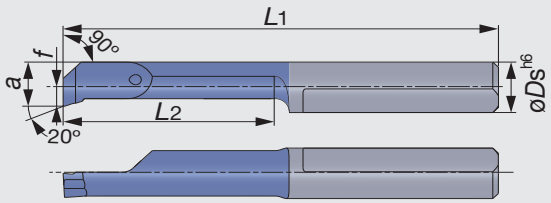
BORING, CHAMFERING

TinyMini-Turn JBPR





Detail of edge



Right hand (R) shown.

Designation	Grade SH730	øDm	øDs	f	a	L1	L2	T max	r_ε $^{+0.05}_{0}$
JBPR04090010-D028	√	2.8	4	0.6	2.6	25.5	9	0.2	0.10
JBPR04150010-D028	√	2.8	4	0.6	2.6	31.5	15	0.2	0.10
JBPR04090010-D040	√	4	4	1.5	3.5	25.5	9	0.3	0.10
JBPR04150010-D040	√	4	4	1.5	3.5	31.5	15	0.3	0.10
JBPR07140015-D050	√	5	7	0.9	4.4	30	14	0.5	0.15
JBPR07190015-D050	√	5	7	0.9	4.4	35	19	0.5	0.15

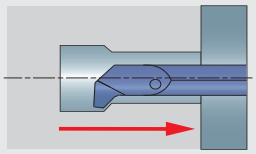
(Unit: mm)

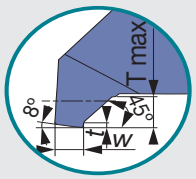
√ : Stocked items

Solid boring bars for back boring & chamfering

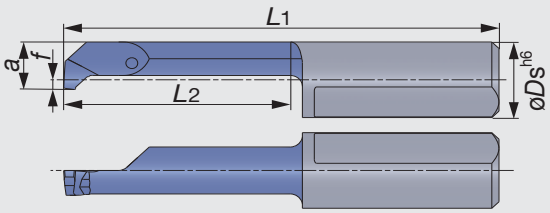
BACK BORING, CHAMFERING

TinyMini-Turn JBUR





Detail of edge



Right hand (R) shown.

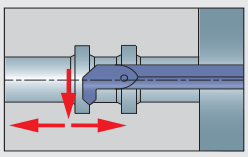
Designation	Grade SH730	øDm	øDs	f	a	L1	L2	t	T max	W +0.05 0
JBUR07140010-D050	√	5	7	0.9	4.4	30	14	0.2	1	1
JBUR07190010-D050	√	5	7	0.9	4.4	35	19	0.2	1	1

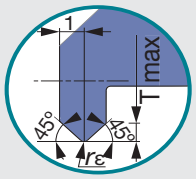
(Unit: mm)

√ : Stocked items

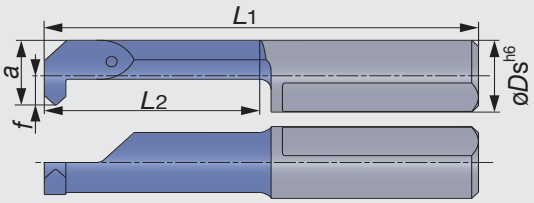
45° CHAMFERING

TinyMini-Turn JBCR





Detail of edge



Right hand (R) shown.

Designation	Grade SH730	øDm	øDs	f	a	L1	L2	T max	r_ε $^{+0.05}_{0}$
JBCR07140020-D050	√	5	7	0.9	4.4	30	14	0.7	0.2
JBCR07190020-D050	√	5	7	0.9	4.4	35	19	0.7	0.2
JBCR07190020-D068	√	6.8	7	2.8	6.3	35	19	0.7	0.2

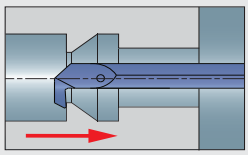
(Unit: mm)

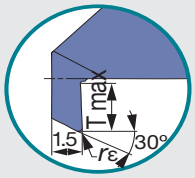
√ : Stocked items

Solid boring bars for back boring

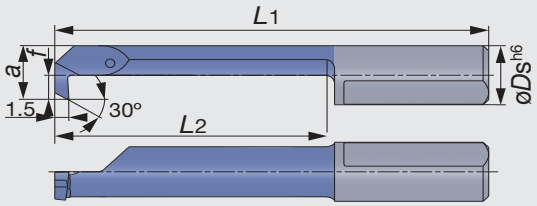
BACK BORING

TinyMini-Turn JBBR





Detail of edge



Right hand (R) shown.

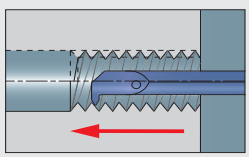
Designation	Grade SH730	øDm	øDs	f	a	L1	L2	T max	r_ε $^{+0.05}_{0}$
JBBR04140020-D030	√	3	4	0.6	2.6	30	14	0.5	0.2
JBBR04190020-D030	√	3	4	0.6	2.6	35	19	0.5	0.2
JBBR04140015-D040	√	4	4	1.5	3.5	30	14	0.8	0.15
JBBR04240015-D040	√	4	4	1.5	3.5	40	24	0.8	0.15
JBBR07190020-D050	√	5	7	0.9	4.4	35	19	1	0.2
JBBR07290020-D050	√	5	7	0.9	4.4	45	29	1	0.2
JBBR07190020-D060	√	6	7	1.8	5.3	35	19	1.8	0.2
JBBR07290020-D060	√	6	7	1.8	5.3	45	29	1.8	0.2
JBBR07190020-D070	√	7	7	2.8	6.3	35	19	2.5	0.2
JBBR07290020-D070	√	7	7	2.8	6.3	45	29	2.5	0.2

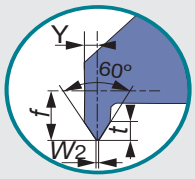
(Unit: mm)

√ : Stocked items

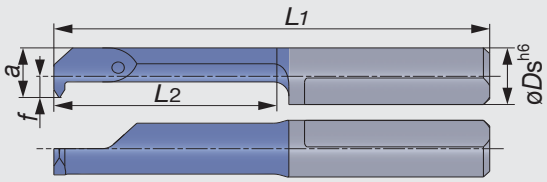
THREADING (METRIC THREAD)

TinyMini-Turn JBIR





Detail of edge



Right hand (R) shown.

Designation	Grade SH730	Pitch	øDm	W2 $^{0}_{-0.02}$	øDs	f	a	L1	L2	t	Y
JBIR04140050-D040	√	0.5 - 0.8	4	0.06	4	1.5	3.5	30	14	0.3	0.35
JBIR07140050-D050	√	0.5 - 1.0	5	0.06	7	0.9	4.4	30	14	0.3	0.35
JBIR07140075-D050	√	0.75 - 1.0	5	0.09	7	0.9	4.4	30	14	0.4	0.45
JBIR07140100-D048	√	1.0	4.8	0.12	7	0.9	4.4	30	14	0.6	0.55
JBIR07140100-D060	√	1.0 - 1.5	6	0.12	7	1.8	5.3	30	14	0.6	0.55
JBIR07140125-D060	√	1.25 - 1.5	6	0.15	7	1.8	5.3	30	14	0.7	0.65
JBIR07140150-D060	√	1.5	6	0.18	7	1.8	5.3	30	14	0.8	0.75
JBIR07140150-D070	√	1.0 - 1.5	7	0.18	7	2.8	6.3	30	14	0.8	0.75

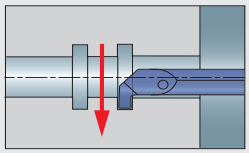
(Unit: mm)

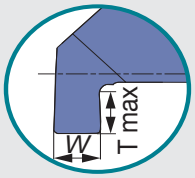
√ : Stocked items

Solid boring bars for internal grooving

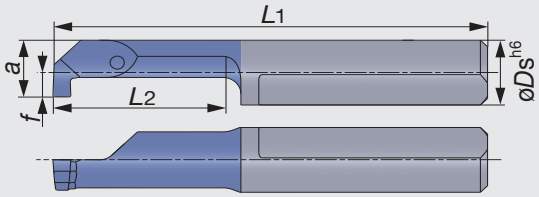
GROOVING

TinyMini-Turn JBGR/L





Detail of edge



Right hand (R) shown.

Designation	Grade SH730 R	Grade SH730 L	$W^{+0.05}_{0}$	øDm	øDs	f	a	L1	L2	T max
JBGR/L04050050-D020	√		0.5	2	4	0.2	1.8	21	5	0.4
JBGR/L04100050-D020	√		0.5	2	4	0.2	1.8	26	10	0.4
JBGR/L04050070-D030	√		0.7	3	4	0.7	2.7	21	5	0.6
JBGR/L04100070-D030	√		0.7	3	4	0.7	2.7	26	10	0.6
JBGR/L04090100-D040	√		1	4	4	1.5	3.5	25.5	9	0.8
JBGR/L04150100-D040	√		1	4	4	1.5	3.5	31.5	15	0.8
JBGR/L07090100-D050	√		1	5	7	0.9	4.4	25	9	1
JBGR/L07140100-D050	√		1	5	7	0.9	4.4	30	14	1
JBGR/L07090150-D050	√		1.5	5	7	0.9	4.4	25	9	1
JBGR/L07140150-D050	√		1.5	5	7	0.9	4.4	30	14	1
JBGR/L07090200-D050	√		2	5	7	0.9	4.4	25	9	1
JBGR/L07190200-D050	√		2	5	7	0.9	4.4	35	19	1
JBGR/L07090100-D060	√	√	1	6	7	1.8	5.3	25	9	1.8
JBGR/L07140100-D060	√		1	6	7	1.8	5.3	30	14	1.8
JBGR/L07210100-D060	√		1	6	7	1.8	5.3	37	21	1.8
JBGR/L07290100-D060	√		1	6	7	1.8	5.3	45	29	1.8
JBGR/L07090150-D060	√	√	1.5	6	7	1.8	5.3	25	9	1.8
JBGR/L07140150-D060	√		1.5	6	7	1.8	5.3	30	14	1.8
JBGR/L07210150-D060	√		1.5	6	7	1.8	5.3	37	21	1.8
JBGR/L07240150-D060	√		1.5	6	7	1.8	5.3	40	24	1.8
JBGR/L07290150-D060	√		1.5	6	7	1.8	5.3	45	29	1.8
JBGR/L07090200-D060	√		2	6	7	1.8	5.3	25	9	1.8
JBGR/L07140200-D060	√		2	6	7	1.8	5.3	30	14	1.8
JBGR/L07210200-D060	√		2	6	7	1.8	5.3	37	21	1.8
JBGR/L07240200-D060	√		2	6	7	1.8	5.3	40	24	1.8
JBGR/L07290200-D060	√		2	6	7	1.8	5.3	45	29	1.8
JBGR/L07090100-D068	√		1	6.8	7	2.7	6.2	25	9	2.5
JBGR/L07140100-D068	√		1	6.8	7	2.7	6.2	30	14	2.5

(Unit: mm)

√ : Stocked items

Designation	Grade SH730 R	Grade SH730 L	$W^{+0.05}_{0}$	øDm	øDs	f	a	L1	L2	T max
JBGR/L07210100-D068	√		1	6.8	7	2.7	6.2	37	21	2.5
JBGR/L07090150-D068	√		1.5	6.8	7	2.7	6.2	25	9	2.5
JBGR/L07140150-D068	√		1.5	6.8	7	2.7	6.2	30	14	2.5
JBGR/L07210150-D068	√		1.5	6.8	7	2.7	6.2	37	21	2.5
JBGR/L07290150-D068	√		1.5	6.8	7	2.7	6.2	45	29	2.5
JBGR/L07090200-D068	√		2	6.8	7	2.7	6.2	25	9	2.5
JBGR/L07140200-D068	√	√	2	6.8	7	2.7	6.2	30	14	2.5
JBGR/L07210200-D068	√		2	6.8	7	2.7	6.2	37	21	2.5
JBGR/L07250200-D068	√		2	6.8	7	2.7	6.2	40	25	2.5
JBGR/L07290200-D068	√		2	6.8	7	2.7	6.2	45	29	2.5

- Corner radius : less than 0.01 mm.

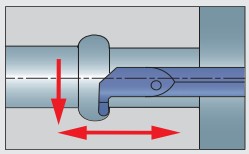
(Unit: mm)

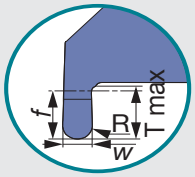
√ : Stocked items

Solid boring bars for grooving & profiling full radius type

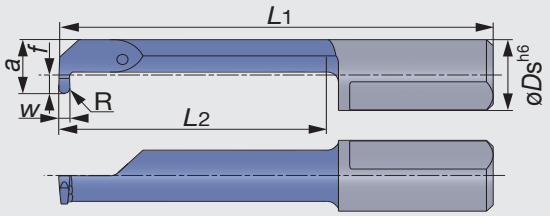
GROOVING, PROFILING (FULL RADIUS TYPE)

TinyMini-Turn JBRR





Detail of edge



Right hand (R) shown.

Designation	Grade SH730	W $^{+0.05}_{0}$	øDm	øDs	f	a	L1	L2	T max	R
JBRR07190050-D050	√	1	5	7	0.9	4.4	35	19	1	0.5
JBRR07240050-D060	√	1	6	7	1.8	5.3	40	24	1.8	0.5
JBRR07290050-D068	√	1	6.8	7	2.8	6.3	45	29	2.5	0.5

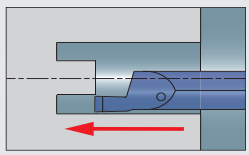
(Unit: mm)

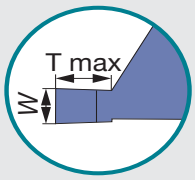
√ : Stocked items

Solid boring bars for face grooving along bore

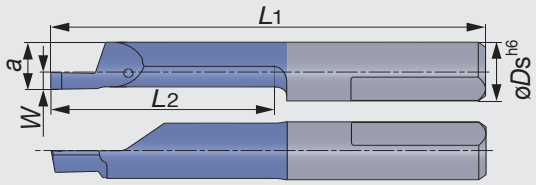
FACE GROOVING

TinyMini-Turn JBFR/L





Detail of edge



Right hand (R) shown.

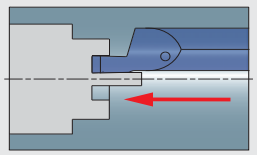
Designation	Grade SH730 R	Grade SH730 L	$W^{+0.05}_{0}$	øDm	øDs	a	L1	L2	T max
JBFR/L07110100-D060	√		1	6	7	5.2	26	10	1.5
JBFR/L07110150-D060	√		1.5	6	7	5.2	26	10	2
JBFR/L07110200-D060	√		2	6	7	5.2	26	10	3
JBFR/L07110100-D080	√		1	8	7	5.9	27	11	1.5
JBFR/L07110150-D080	√		1.5	8	7	5.9	27	11	2.5
JBFR/L07110200-D080	√		2	8	7	5.9	27	11	3
JBFR/L07110250-D080	√		2.5	8	7	5.9	27	11	3.5
JBFR/L07110300-D080	√		3	8	7	5.9	27	11	3.5
JBFR/L07200200-D080	√		2	8	7	5.9	36	20	3
JBFR/L07210150-D080	√	√	1.5	8	7	5.9	36	21	2.5
JBFR/L07210200-D080	√		2	8	7	5.9	36	21	3
JBFR/L07210250-D080	√		2.5	8	7	5.9	36	21	3.5
JBFR/L07210300-D080	√		3	8	7	5.9	36	21	3.5
JBFR/L07300200-D080	√	√	2	8	7	5.9	46	30	3
JBFR/L07300300-D080	√		3	8	7	5.9	46	30	3.5
JBFR/L07200250-D150	√		2.5	15	7	5.9	36	20	20
JBFR/L07200300-D150	√		3	15	7	5.9	36	20	20
JBFR/L07300300-D150	√		3	15	7	5.9	46	30	30

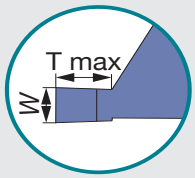
(Unit: mm)
√ : Stocked items

Solid boring bars for face grooving along shaft

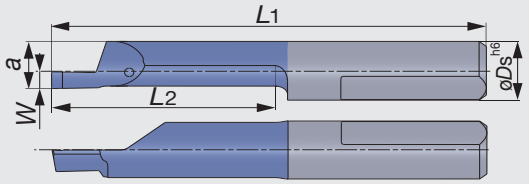
FACE GROOVING (FOR MACHINING SHAFT)

TinyMini-Turn JBSR





Detail of edge



Right hand (R) shown.

Designation	Grade SH730	$W^{+0.05}_{0}$	øDm	øDs	a	L1	L2	T max
JBSR07200200-D060	√	2	6	7	5.2	36	20	4

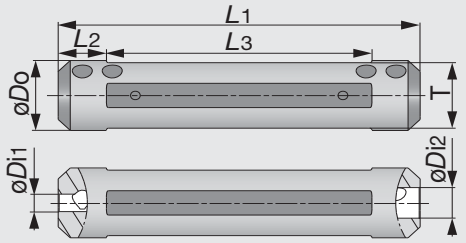
(Unit: mm)

√ : Stocked items

Sleeve with double clamping for two size carbide shanks

SLEEVE FOR CLAMPING TWO DIFFERENT SHANK SIZE

TinyMini-Turn JBBS



Designation	øDo	øDi1	øDi2	L1	L2	L3	T
JBBS12-4-4	12	4	4	75	10	55	10.3
JBBS127-4-4	12.7	4	4	76.2	10	56.2	11.6
JBBS14-4-4	14	4	4	75	10	55	12
JBBS159-4-7	15.875	4	7	76.2	10	56.2	14
JBBS16-4-7	16	4	7	75	10	55	15
JBBS19-4-7	19.05	4	7	89	10	69	17.2
JBBS20-4-7	20	4	7	90	10	70	18
JBBS22-4-7	22	4	7	90	10	70	20
JBBS25-4-7	25	4	7	100	10	80	23
JBBS254-4-7	25.4	4	7	90	10	70	23.4

(Unit: mm)

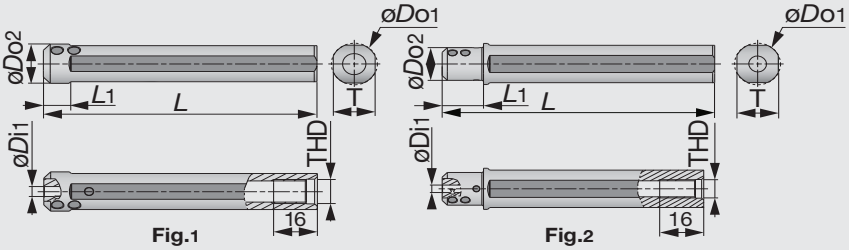
SPARE PARTS

Designation	Clamping screw	Wrench
JBBS12-4-4	SSHM5-4PF-S	P-2.5
JBBS14-4-4	SSHM5-4PF-S	P-2.5
JBBS127-4-4	SSHM5-6PF-S	P-2.5
JBBS...-4-7	SSHM5-6PF-S	P-2.5

Single end sleeve with thread for direct connection or coolant

SLEEVE WITH EXTERNAL COOLANT INLET

TinyMini-Turn JBBS-C



Designation	øDo1	øDo2	øDi1	L	L1	T	THD	Fig
JBBS159-4-L100C	15.875	15.875	4	100	10	14.58	R1/8	1
JBBS159-7-L100C	15.875	15.875	7	100	10	14.58	R1/8	1
JBBS16-4-L100C	16	16	4	100	10	15	R1/8	1
JBBS16-7-L100C	16	16	7	100	10	15	R1/8	1
JBBS19-4-L100C	19.05	17.5	4	100	20	17.2	R1/8	2
JBBS19-7-L100C	19.05	17.5	7	100	20	17.2	R1/8	2
JBBS20-4-L100C	20	17.5	4	100	20	18	R1/8	2
JBBS20-7-L100C	20	17.5	7	100	20	18	R1/8	2
JBBS22-4-L100C	22	17.5	4	100	20	20	R1/8	2
JBBS22-7-L100C	22	17.5	7	100	20	20	R1/8	2
JBBS25-4-L100C	25	18	4	100	23	23	R1/8	2
JBBS25-7-L100C	25	18	7	100	23	23	R1/8	2
JBBS254-4-L100C	25.4	18	4	100	23	23.4	R1/8	2
JBBS254-7-L100C	25.4	18	7	100	23	23.4	R1/8	2

(Unit: mm)

SPARE PARTS

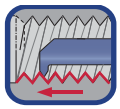
Designation	Clamping screw	Wrench
JBBS...-4-L100C	SSHM5-6PF-S	P-2.5
JBBS...-7-L100C	SSHM5-4PF-S	P-2.5

STANDARD CUTTING CONDITIONS

Boring, profiling, chamfering, back boring

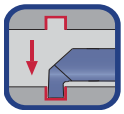
ISO	Workpiece materials	Grade	Cutting speed *Vc* (m/min)	Feed *f* (mm/rev)
P	Low carbon steels (C15, C20 etc.)	SH730	40 - 140	0.01 - 0.08 *
P	Carbon steels, Alloy steels (C55, 42CrMoS4 etc.)	SH730	40 - 140	0.01 - 0.08 *
P	Prehardened steels (NAK80, PX5 etc.)	SH730	40 - 140	0.01 - 0.08 *
M	Stainless steels (X5CrNi18-9, X5CrNiMo17-12-2 etc)	SH730	40 - 140	0.01 - 0.08 *
K	Grey cast irons (250, 300 etc.)	SH730	30 - 100	0.01 - 0.08 *
K	Ductile cast irons (400-15, 600-3 etc.)	SH730	30 - 100	0.01 - 0.08 *
N	Aluminum alloys, copper alloys Si < 12%	SH730	90 - 200	0.01 - 0.08 *
S	Titanium alloys (Ti-6Al-4V, etc.)	SH730	30 - 100	0.01 - 0.08 *
S	Superalloys (Inconel718, etc.)	SH730	30 - 100	0.01 - 0.08 *

* JBTR/L04020004-D006,
JBTR/L04030004-D006
Max. f = 0.01 mm/rev



Threading (metric thread)

ISO	Workpiece materials	Grade	Cutting speed *Vc* (m/min)	Number of passes Pitch (mm) 0.5	0.75	1	1.25	1.5
P	Low carbon steels (C15, C20 etc.)	SH730	40 - 140	6 - 8	8 - 10	10 - 12	12 - 15	15 - 18
P	Carbon steels, Alloy steels (C55, 42CrMoS4 etc.)	SH730	40 - 140	6 - 8	8 - 10	10 - 12	12 - 15	15 - 18
P	Prehardened steels (NAK80, PX5 etc.)	SH730	40 - 140	6 - 8	8 - 10	10 - 12	12 - 15	15 - 18
M	Stainless steels (X5CrNi18-9, X5CrNiMo17-12-2 etc)	SH730	40 - 140	8	10	12	15	18
K	Grey cast irons (250, 300 etc.)	SH730	30 - 100	7	9	12	14	17
K	Ductile cast irons (400-15, 600-3 etc.)	SH730	30 - 100	7	9	12	14	17
N	Aluminum alloys, copper alloys Si < 12%	SH730	90 - 200	6	8	10	12	15



Internal grooving

ISO	Workpiece materials	Grade	Cutting speed *Vc* (m/min)	Feed *f* (mm/rev)
P	Low carbon steels (C15, C20 etc.)	SH730	40 - 140	0.01 - 0.03
P	Carbon steels, Alloy steels (C55, 42CrMoS4 etc.)	SH730	40 - 140	0.01 - 0.03
P	Prehardened steels (NAK80, PX5 etc.)	SH730	40 - 140	0.01 - 0.03
M	Stainless steels (X5CrNi18-9, X5CrNiMo17-12-2 etc)	SH730	40 - 140	0.01 - 0.03
K	Grey cast irons (250, 300 etc.)	SH730	30 - 100	0.01 - 0.03
K	Ductile cast irons (400-15, 600-3 etc.)	SH730	30 - 100	0.01 - 0.03
N	Aluminum alloys, copper alloys Si < 12%	SH730	90 - 200	0.01 - 0.03
S	Titanium alloys Ti-6Al-4V etc.	SH730	30 - 100	0.01 - 0.03
S	Superalloys (Inconel718, etc.)	SH730	30 - 100	0.01 - 0.03

Face grooving

ISO	Workpiece materials	Grade	Cutting speed *Vc* (m/min)	Feed *f* (mm/rev)
P	Low carbon steels (C15, C20 etc.)	SH730	40 - 140	0.01 - 0.05
P	Carbon steels, Alloy steels (C55, 42CrMoS4 etc.)	SH730	40 - 140	0.01 - 0.05
P	Prehardened steels (NAK80, PX5 etc.)	SH730	40 - 140	0.01 - 0.05
M	Stainless steels (X5CrNi18-9, X5CrNiMo17-12-2 etc)	SH730	40 - 140	0.01 - 0.05
K	Grey cast irons (250, 300 etc.)	SH730	30 - 100	0.01 - 0.05
K	Ductile cast irons (400-15, 600-3 etc.)	SH730	30 - 100	0.01 - 0.05
N	Aluminum alloys, copper alloys Si < 12%	SH730	90 - 200	0.01 - 0.05
S	Titanium alloys Ti-6Al-4V etc.	SH730	30 - 100	0.01 - 0.05
S	Superalloys (Inconel718, etc.)	SH730	30 - 100	0.01 - 0.05

Machining grooves with accurate width and surface finish is possible only if the chips are controlled in its confined groove width; and managing the chips in such narrow space is a big challenge. The **TunGForce GrooveLine** provides solutions to this challenge with its advanced and unique insert **Geometries** assimilated to the newest products. **TunGForce** Groove assures not only great cutting performance but also **Accelerated Machining** to achieve economic efficiency and reliability.

GrooveLine

158 **TETRA**FORCE-CUT
168 **TETRA**MINI-CUT
176 **DUO**JUST-CUT
182 **EASY**MULTI-CUT
196 **TUNG**HEAVYGROOVE

TETRAFORCE CUT
TUNGALOY

Durable and economical tool for grooving and parting-off

TetraForce-Cut is an innovative solution for grooving. Ground insert clamps into uniquely designed pocket, providing high insert stability as well as repeatability.

- Ground insert with **4 cutting edges** for economical machining:

- One type of insert can be used with both right- and left-hand toolholders.

- **Uniquely designed insert pocket** protects unused corners from unexpected damage:

- **Unique clamping system** provides **high insert stability** in cutting and assures **accurate repeatability**.

- Insert screw can be operated from both front and rear sides.

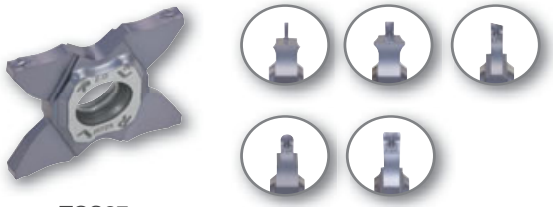
TUNGFORCE GROOVE
ACCELERATED MACHINING

Line up:

TetraForceCut insert features a well-designed chipbreaker, easily performing smooth cutting with excellent chip control: Regular inserts in square and full-radius shapes for grooving and parting-off: Applicable for widths from 0.5 to 3.18 mm (0.020" to 0.125")

Grooving depths range from 1.0 to 6.4 mm (0.039" to 0.252"); parting-off diameter 2.0 to 12.8 mm (0.079" to 0.503")

Toolholders suitable for general machining and small-part machining:
Shank: 10 to 25 mm (0.375"to 1.00"), which covers various machining needs



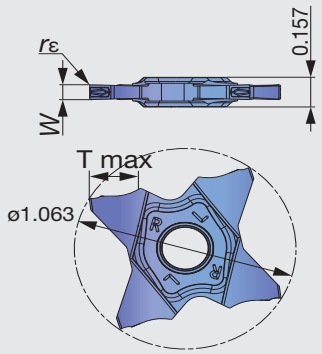
TCS27

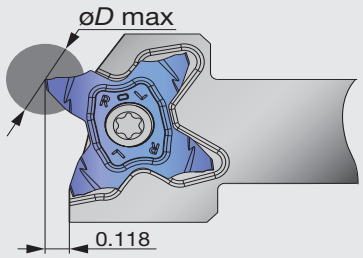
TCM27

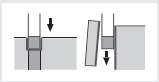
Precision grooving and parting off insert with 4 cutting edges

INSERTS - FOR GROOVING AND PARTING OFF

TetraForce-Cut TCS27







Designation	Grade AH725	W ± .0001	rε	T max	øD max	Relation of groove depth: T and Max. diameter: øD max											
						T≤.039	T≤.079	T≤.118	T≤.138	T≤.157	T≤.177	T≤.197	T≤2.17	T≤.224	T≤.236	T≤.244	T≤.252
TCS27-050-000	√	0.020	0.000	0.039	0.079	∞	-	-	-	-	-	-	-	-	-	-	-
TCS27-050-004	√	0.020	0.0016	0.098	0.197	∞	∞	-	-	-	-	-	-	-	-	-	-
TCS27-075-010	√	0.030	0.004	0.098	0.197	∞	∞	-	-	-	-	-	-	-	-	-	-
TCS27-080-000	√	0.031	0.000	0.063	0.126	∞	-	-	-	-	-	-	-	-	-	-	-
TCS27-100-006	√	0.039	0.0024	0.138	0.276	∞	∞	∞	23.622	-	-	-	-	-	-	-	-
TCS27-100-010	√	0.039	0.004	0.138	0.276	∞	∞	∞	23.622	-	-	-	-	-	-	-	-
TCS27-104-000	√	0.041	0.000	0.079	0.158	∞	∞	-	-	-	-	-	-	-	-	-	-
TCS27-120-000	√	0.047	0.000	0.079	0.158	∞	∞	-	-	-	-	-	-	-	-	-	-
TCS27-125-010	√	0.049	0.004	0.138	0.276	∞	∞	∞	23.622	-	-	-	-	-	-	-	-
TCS27-125-020	√	0.049	0.008	0.138	0.276	∞	∞	∞	23.622	-	-	-	-	-	-	-	-
TCS27-140-000	√	0.055	0.000	0.079	0.158	∞	∞	-	-	-	-	-	-	-	-	-	-
TCS27-147-000	√	0.058	0.000	0.098	0.197	∞	∞	-	-	-	-	-	-	-	-	-	-
TCS27-150-010	√	0.059	0.004	0.224	0.449	∞	∞	∞	23.622	11.024	7.087	5.118	1.969	1.378	-	-	-
TCS27-150-020	√	0.059	0.008	0.224	0.449	∞	∞	∞	23.622	11.024	7.087	5.118	1.969	1.378	-	-	-
TCS27-157-015	√	0.062	0.006	0.118	0.236	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCS27-170-010	√	0.067	0.004	0.118	0.236	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCS27-175-010	√	0.069	0.004	0.118	0.236	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCS27-175-020	√	0.069	0.008	0.118	0.236	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCS27-178-018	√	0.070	0.007	0.118	0.236	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCS27-185-020	√	0.073	0.008	0.118	0.236	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCS27-196-015	√	0.077	0.006	0.118	0.236	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCS27-200-010	√	0.079	0.004	0.252	0.504	∞	∞	∞	23.622	11.024	7.087	5.118	4.134	3.346	2.362	1.969	1.181
TCS27-200-020	√	0.079	0.008	0.252	0.504	∞	∞	∞	23.622	11.024	7.087	5.118	4.134	3.346	2.362	1.969	1.181
TCS27-222-015	√	0.087	0.006	0.138	0.276	∞	∞	∞	23.622	-	-	-	-	-	-	-	-
TCS27-230-020	√	0.091	0.008	0.138	0.276	∞	∞	∞	23.622	-	-	-	-	-	-	-	-
TCS27-239-015	√	0.094	0.006	0.224	0.449	∞	∞	∞	23.622	11.024	7.087	5.118	1.969	1.378	-	-	-
TCS27-247-020	√	0.097	0.008	0.224	0.449	∞	∞	∞	23.622	11.024	7.087	5.118	1.969	1.378	-	-	-
TCS27-250-010	√	0.098	0.004	0.224	0.449	∞	∞	∞	23.622	11.024	7.087	5.118	1.969	1.378	-	-	-
TCS27-250-030	√	0.098	0.012	0.224	0.449	∞	∞	∞	23.622	11.024	7.087	5.118	1.969	1.378	-	-	-
TCS27-270-010	√	0.106	0.004	0.244	0.488	∞	∞	∞	23.622	11.024	7.087	5.315	4.134	3.740	3.346	3.071	-
TCS27-287-020	√	0.113	0.008	0.244	0.488	∞	∞	∞	23.622	11.024	7.087	5.315	4.134	3.740	3.346	3.071	-
TCS27-300-000	√	0.118	0.000	0.252	0.504	∞	∞	∞	23.622	11.024	7.087	5.315	4.134	3.740	3.346	3.071	2.165
TCS27-300-020	√	0.118	0.008	0.252	0.504	∞	∞	∞	23.622	11.024	7.087	5.315	4.134	3.740	3.346	3.071	2.165
TCS27-300-030	√	0.118	0.012	0.252	0.504	∞	∞	∞	23.622	11.024	7.087	5.315	4.134	3.740	3.346	3.071	2.165
TCS27-300-040	√	0.118	0.016	0.252	0.504	∞	∞	∞	23.622	11.024	7.087	5.315	4.134	3.740	3.346	3.071	2.165
TCS27-315-015	√	0.124	0.006	0.252	0.504	∞	∞	∞	23.622	11.024	7.087	5.315	4.134	3.740	3.346	3.071	2.677
TCS27-318-020	√	0.125	0.008	0.252	0.504	∞	∞	∞	23.622	11.024	7.087	5.315	4.134	3.740	3.346	3.071	2.677

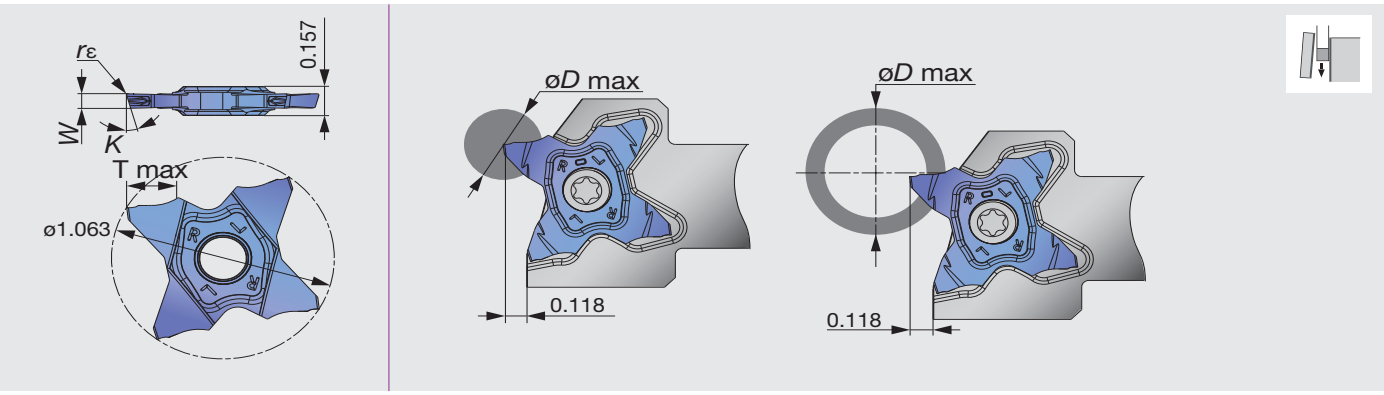
Packing Quantity = 5 pcs.

√ : Stocked items

Precision parting off insert with 4 cutting edges (With frontal lead angle)

INSERTS - FOR PARTING OFF

TetraForce-Cut TCS27-R/L



Right hand (R) shown.

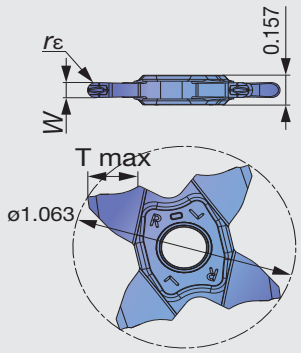
Designation	Grade AH725		W ± 0.001	rε	T max	K	Max. parting off dia. øD max	
	R	L					Solid bar	Tube
TCS27-100-15R/L	√	√	0.039	0.0024	0.138	15°	0.276	23.622
TCS27-150-6R/L	√	√	0.059	0.0024	0.224	6°	0.449	1.378
TCS27-150-15R/L	√	√	0.059	0.0024	0.224	15°	0.449	1.378
TCS27-200-6R/L	√	√	0.079	0.004	0.252	6°	0.504	1.181
TCS27-200-15R/L	√	√	0.079	0.004	0.252	15°	0.504	1.181

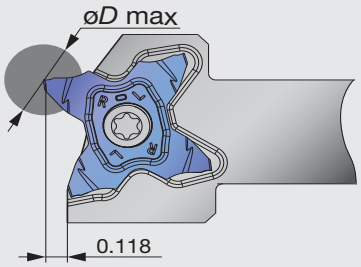
Packing Quantity = 5 pcs.
√ : Stocked items
Note: See page 9 for more information about grades.

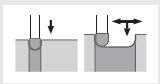
Precision grooving insert with 4 cutting edges (With full radius)

INSERTS - FOR GROOVING AND PROFILING

TetraForce-Cut TCS27-Full R







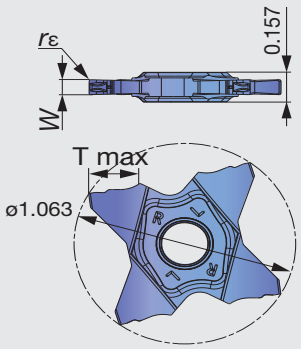
Designation	Grade AH725	*W* ± 0.001	r_ε	T max	Relation of groove depth (T) and Max. diameter (ø*D* max)												
					T ≤ 0.039	T ≤ 0.079	T ≤ 0.118	T ≤ 0.138	T ≤ 0.158	T ≤ 0.177	T ≤ 0.197	T ≤ 0.217	T ≤ 0.224	T ≤ 0.236	T ≤ 0.244	T ≤ 0.252
TCS27-157-079	√	0.062	0.031	0.118	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCS27-200-100	√	0.079	0.039	0.118	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCS27-239-120	√	0.094	0.047	0.224	∞	∞	∞	23.622	11.024	7.087	5.118	1.969	1.378	-	-	-
TCS27-300-150	√	0.118	0.059	0.252	∞	∞	∞	23.622	11.024	7.087	5.315	4.134	3.740	3.346	3.071	2.165

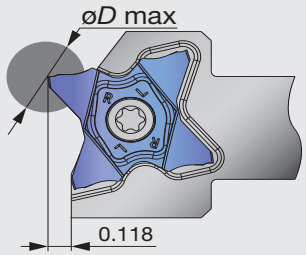
Packing Quantity = 5 pcs.
√ : Stocked items
Note: See page 9 for more information about grades.

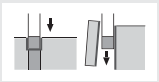
Grooving and parting off insert with 4 cutting edges

INSERTS - FOR GROOVING AND PARTING OFF

TetraForce-Cut TCM27





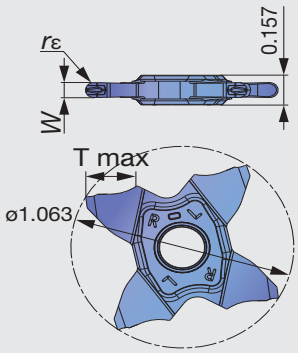


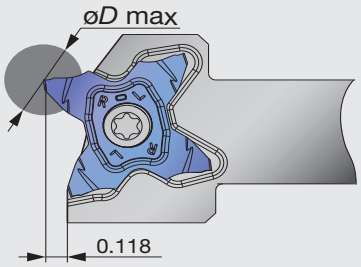
Designation	Grade AH725	W ± 0.001	rε	T max	øD max	Relation of groove depth (T) and Max. diameter (øD max)										
						T≤0.039	T≤0.078	T≤0.118	T≤0.138	T≤0.157	T≤0.177	T≤0.197	T≤0.217	T≤0.224	T≤0.236	T≤0.244	T≤0.252
TCM27-150-010	√	0.059	0.004	0.224	0.449	∞	∞	∞	23.622	11.024	7.087	5.118	1.969	1.378	-	-	-
TCM27-150-020	√	0.059	0.008	0.224	0.449	∞	∞	∞	23.622	11.024	7.087	5.118	1.969	1.378	-	-	-
TCM27-157-015	√	0.062	0.006	0.118	0.236	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCM27-170-010	√	0.067	0.004	0.118	0.236	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCM27-175-010	√	0.069	0.004	0.118	0.236	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCM27-175-020	√	0.069	0.008	0.118	0.236	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCM27-178-018	√	0.07	0.007	0.118	0.236	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCM27-185-020	√	0.073	0.008	0.118	0.236	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCM27-196-015	√	0.077	0.006	0.118	0.236	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCM27-200-010	√	0.079	0.004	0.252	0.504	∞	∞	∞	23.622	11.024	7.087	5.118	4.134	3.346	2.362	1.969	1.181
TCM27-200-020	√	0.079	0.008	0.252	0.504	∞	∞	∞	23.622	11.024	7.087	5.118	4.134	3.346	2.362	1.969	1.181
TCM27-222-015	√	0.087	0.006	0.138	0.276	∞	∞	∞	23.622	-	-	-	-	-	-	-	-
TCM27-230-020	√	0.091	0.008	0.138	0.276	∞	∞	∞	23.622	-	-	-	-	-	-	-	-
TCM27-239-015	√	0.094	0.006	0.224	0.449	∞	∞	∞	23.622	11.024	7.087	5.118	1.969	1.378	-	-	-
TCM27-247-020	√	0.097	0.008	0.224	0.449	∞	∞	∞	23.622	11.024	7.087	5.118	1.969	1.378	-	-	-
TCM27-250-010	√	0.098	0.004	0.224	0.449	∞	∞	∞	23.622	11.024	7.087	5.118	1.969	1.378	-	-	-
TCM27-250-030	√	0.098	0.012	0.224	0.449	∞	∞	∞	23.622	11.024	7.087	5.118	1.969	1.378	-	-	-
TCM27-270-010	√	0.106	0.004	0.244	0.488	∞	∞	∞	23.622	11.024	7.087	5.315	4.134	3.74	3.346	3.071	-
TCM27-287-020	√	0.113	0.008	0.244	0.488	∞	∞	∞	23.622	11.024	7.087	5.315	4.134	3.74	3.346	3.071	-
TCM27-300-000	√	0.118	0	0.252	0.504	∞	∞	∞	23.622	11.024	7.087	5.315	4.134	3.74	3.346	3.071	2.165
TCM27-300-020	√	0.118	0.008	0.252	0.504	∞	∞	∞	23.622	11.024	7.087	5.315	4.134	3.74	3.346	3.071	2.165
TCM27-300-030	√	0.118	0.012	0.252	0.504	∞	∞	∞	23.622	11.024	7.087	5.315	4.134	3.74	3.346	3.071	2.165
TCM27-300-040	√	0.118	0.016	0.252	0.504	∞	∞	∞	23.622	11.024	7.087	5.315	4.134	3.74	3.346	3.071	2.165
TCM27-315-015	√	0.124	0.006	0.252	0.504	∞	∞	∞	23.622	11.024	7.087	5.315	4.134	3.74	3.346	3.071	2.677
TCM27-318-020	√	0.125	0.008	0.252	0.504	∞	∞	∞	23.622	11.024	7.087	5.315	4.134	3.74	3.346	3.071	2.677

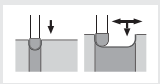
Packing Quantity = 5 pcs.
√ : Stocked items
Note: See page 9 for more information about grades.

INSERTS - FOR GROOVING AND PROFILING

TetraForce-Cut TCM27-Full R







Designation	Grade AH725	W ± 0.001	rε	T max	Relation of groove depth (T) and Max. diameter (øD max)											
					T≤0.039	T≤0.078	T≤0.118	T≤0.138	T≤0.157	T≤0.177	T≤0.197	T≤0.217	T≤0.224	T≤0.236	T≤0.244	T≤0.252
TCM27-157-079	√	0.062	0.031	0.118	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCM27-200-100	√	0.079	0.039	0.118	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCM27-239-120	√	0.094	0.047	0.224	∞	∞	∞	23.622	11.024	7.087	5.118	1.969	1.378	-	-	-
TCM27-300-150	√	0.118	0.059	0.252	∞	∞	∞	23.622	11.024	7.087	5.315	4.134	3.74	3.346	3.071	2.165

Packing Quantity = 5 pcs.

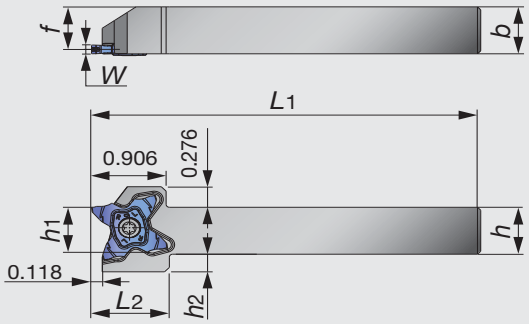
√ : Stocked items

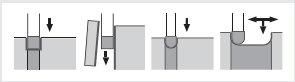
Note: See page 9 for more information about grades.

Precision grooving tools with uniquely shaped insert with 4 cutting edges.

TOOLHOLDERS - FOR EXTERNAL GROOVING

TetraForce-Cut STCR/L





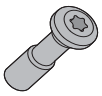
Inserts: TC*27...

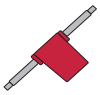
W = 0.02" ~ 0.125"

Right hand (R) shown.

Designation	*W*	*h*1	*b*	*h*	*L*1	*f*	*h*2	*L*2
STCR/L06-27	0.020 - 0.125	0.375	0.375	0.375	5.000	0.315	0.374	0.945
STCR/L08-27	0.020 - 0.125	0.500	0.500	0.500	5.000	0.440	0.287	0.945
STCR/L10-27	0.020 - 0.125	0.625	0.625	0.625	5.000	0.570	0.236	0.945
STCR/L12-27	0.020 - 0.125	0.750	0.750	0.750	5.000	0.690	0.118	0.945
STCR/L16-27	0.020 - 0.125	1.000	1.000	1.000	5.500	0.940	-	-
STCR/L20-27	0.020 - 0.125	1.250	1.250	1.250	5.500	1.125	-	-

SPARE PARTS



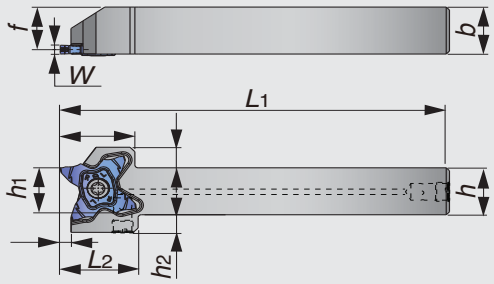


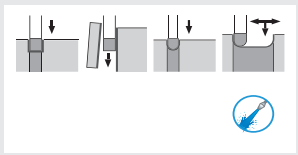
Designation	Screw	Wrench
STCR...	SR16-212-01397L	T-2010/5
STCL...	SR16-212-01397	T-2010/5

Precision grooving tools with uniquely shaped insert with 4 cutting edges with channel for high pressure coolant supply.

TOOLHOLDERS - FOR EXTERNAL GROOVING

TetraForce-Cut STCR/L-CHP





Inserts: TC*27...

W = 0.02" ~ 0.125"

Right hand (R) shown.

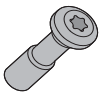
INCH

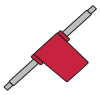
Designation	*W*	*h*1	*b*	*h*	*L*1	*f*	*h*2	*L*2
STCR/L16-27-CHP	0.020 - 0.125	1.00	1.00	1.00	5.500	0.940	--	--

METRIC

Designation	*W*	*h*1	*b*	*h*	*L*1	*f*	*h*2	*L*2
STCR/L2525-27-CHP	0.020 - 0.125	0.984	0.984	0.984	4.921	0.925	0.374	0.945

SPARE PARTS





Designation	Screw	Wrench	
STCR...-27-CHP	SR16-212-01397L	T-2010/5	Right Hand Tool
STCL...-27-CHP	SR16-212-01397	T-2010/5	Left Hand Tool

STANDARD CUTTING CONDITIONS

ISO	Workpiece materials	Grades	Cutting speed *Vc* (sfm)	Feed: *f* (ipt)					Depth of cut for profiling (with full radius insert)
				Grooving, parting off		Parting off (with hand)	Profiling (with full radius insert)		
				TCS	TCM	TCS	TCS	TCM	
P	Steel (1045 etc.)	AH725	330 - 660	0.002 - 0.006	0.002 - 0.01	0.002 - 0.005	0.002 - 0.004	0.002 - 0.006	0.02
P	Alloy steel (4137etc.)	AH725	165 - 590	0.002 - 0.006	0.002 - 0.01	0.002 - 0.005	0.002 - 0.004	0.002 - 0.006	0.02
M	Stainless steel (304 etc.)	AH725	165 - 490	0.002 - 0.006	0.002 - 0.008	0.002 - 0.005	0.002 - 0.004	0.002 - 0.006	0.02
K	Gray cast iron (No.250 etc.)	AH725	165 - 590	0.002 - 0.006	0.002 - 0.01	0.002 - 0.005	0.002 - 0.004	0.002 - 0.006	0.02
K	Ductile cast iron (60-40-18 etc.)	AH725	165 - 390	0.002 - 0.006	0.002 - 0.008	0.002 - 0.005	0.002 - 0.004	0.002 - 0.006	0.02
S	Titanium alloys (Ti-6Al-4V etc.)	AH725	100 - 200	0.002 - 0.006	0.002 - 0.006	0.002 - 0.005	0.002 - 0.004	0.002 - 0.006	0.02

Note: See page 9 for more information about grades.

TETRAMINI-CUT
TUNGALOY

Accuracy and excellence in surface quality of small parts

Uniquely designed insert pocket of TetraMini-Cut provides highly stable machining and excellent insert durability.

- Ground insert with **4 cutting edges** for highly accurate grooving operations:

- Available for machining shallow groove on small parts

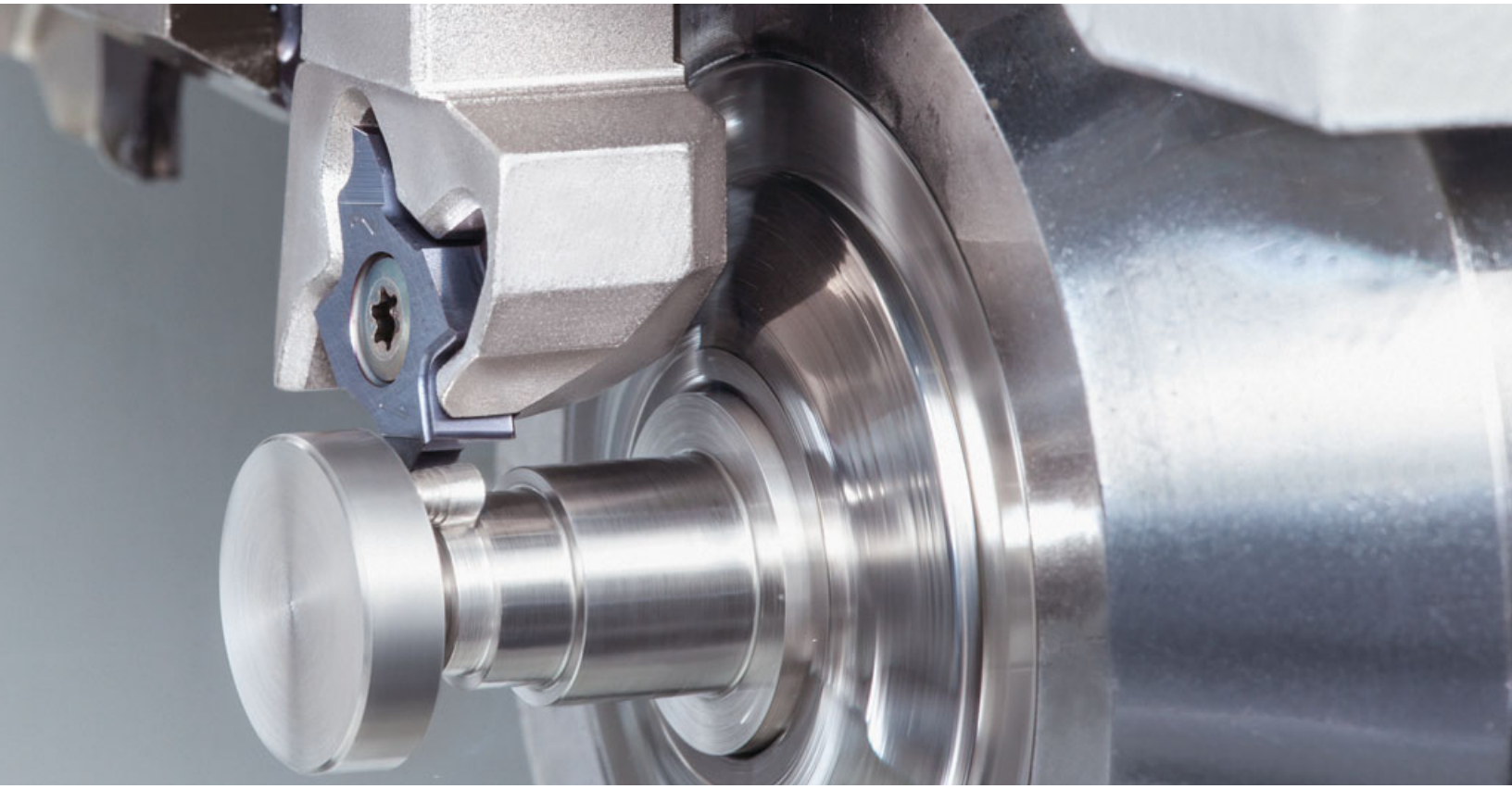
- **Sharp cutting edge** for high accuracy and surface quality

- Designed for machining next to shoulder with no interference

- **Uniquely designed insert pocket** protects unused corners from unexpected damage by chips:

- **Unique clamping system** provides high insert stability in cutting and assures accurate repeatability.

- Insert screw can be operated from both front and rear sides, which simplifies the insert indexing on small lathes.



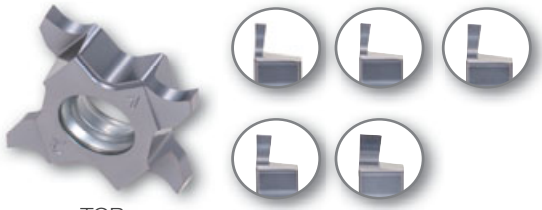
TUNGFORCE GROOVE
ACCELERATED MACHINING

Line up:

- A wide variety of inserts for machining small parts:
Covers widths from 0.33 to 3.0 mm (0.013" to 0.118") for grooving and parting-off
Grooving depth: 0.8 to 2.5 mm (0.031" to 0.098")

- Threading: Thread angle = 60°, pitch = 0.8 to 3.0 mm (0.031" to 0.118"), TPI = 32 to 8

- Suitable for external grooving on small parts:
Square shank toolholders: 10 to 25 mm (0.375" to 1.00")
Round shank toolholders: 14 to 25.4 mm (0.551" to 1.00")



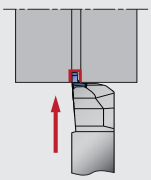
TCP

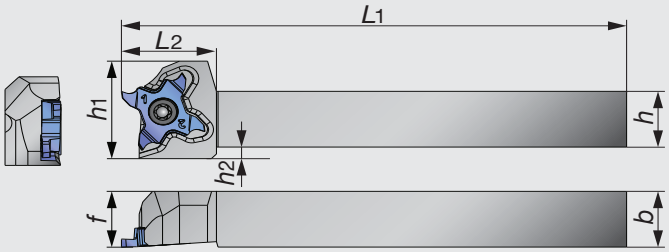
TCT

Precision grooving tools with uniquely shaped insert for swiss type machine, automatic and general lathes

TOOLHOLDER - FOR EXTERNAL GROOVING

TetraMini-Cut / TetraMini-Thread STCR/L-18





Right hand (R) shown.

Designation	*h*	*b*	*L*1	*L*2	*h*1	*f*	*h*2	Insert
STCR/L06-18	0.375	0.375	4.750	0.740	0.375	0.375	0.177	TC*18*
STCR/L08-18	0.500	0.500	4.750	0.740	0.500	0.500	0.098	TC*18*
STCR/L10-18	0.625	0.625	4.750	0.740	0.625	0.625	-	TC*18*

Note: The right hand insert (TC*18R***) is used for the right hand toolholders (STCR***), and the left hand insert (TC*18L***) is used for the left hand toolholders (STCL***).

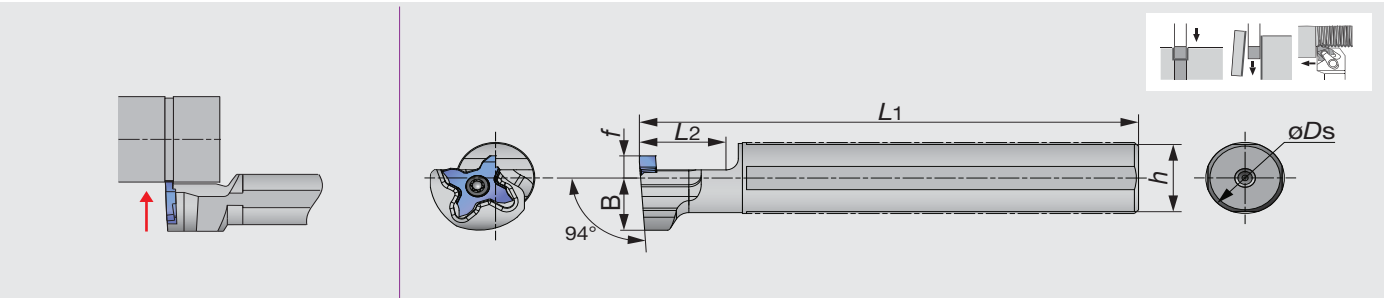
SPARE PARTS

Designation	Clamping screw	Wrench
STCR***18	CSTC-4L100DL	T-1008/5
STCL***18	CSTC-4L100DR	T-1008/5

Precision grooving tools with uniquely shaped insert for swiss type machine, automatic and general lathes

TOOLHOLDER - ROUND SHANK

TetraMini-Cut / TetraMini-Thread JS-STCL18



Left hand (L) shown.

Designation	øDs	L1	L2	H	B	f	Insert
JS14H-STCL18	14	100	20	13	14	6	TC*18*
JS159F-STCL18	15.875 (0.675")	85	20	15	14	6	TC*18*
JS16F-STCL18	16	85	20	15	14	6	TC*18*
JS19G-STCL18	19.05 (0.750")	90	20	18	14	6	TC*18*
JS19X-STCL18	19.05 (0.750")	120	20	18	14	6	TC*18*
JS20G-STCL18	20	90	20	19	14	6	TC*18*
JS20X-STCL18	20	120	20	19	14	6	TC*18*
JS22X-STCL18	22	120	20	21	12.25	10	TC*18*
JS25H-STCL18	25	100	20	24	12.25	10	TC*18*
JS254X-STCL18	25.4 (1.0")	120	20	24	12.25	10	TC*18*

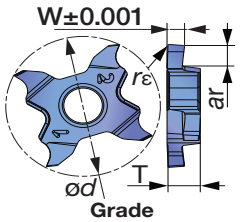
(Unit: mm)

SPARE PARTS

Designation	Clamping screw	Wrench
JS***STCL18	CSTC-4L100DR	T-1008/5

INSERTS

TCP18R/L-F (sharp edge)

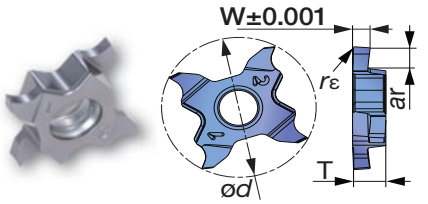


Designation	Grade SH725		Dimensions (in)				
	R	L	*W*	*rε*	*ar*	T	*d*
TCP18R/L033F-005	√	√	0.013	0.002	0.031	0.157	0.709
TCP18R/L043F-005	√	√	0.017	0.002	0.047	0.157	0.709
TCP18R/L050F-005	√	√	0.020	0.002	0.047	0.157	0.709
TCP18R/L075F-005	√	√	0.030	0.002	0.079	0.157	0.709
TCP18R/L095F-005	√	√	0.037	0.002	0.079	0.157	0.709
TCP18R/L100F-010	√	√	0.039	0.004	0.079	0.157	0.709
TCP18R/L120F-010	√	√	0.047	0.004	0.079	0.157	0.709
TCP18R/L125F-010	√	√	0.049	0.004	0.079	0.157	0.709
TCP18R/L145F-010	√	√	0.057	0.004	0.079	0.157	0.709
TCP18R/L150F-010	√	√	0.059	0.004	0.079	0.157	0.709
TCP18R/L175F-010	√	√	0.069	0.004	0.079	0.157	0.709
TCP18R/L200F-010	√	√	0.079	0.004	0.098	0.157	0.709
TCP18R/L250F-010	√	√	0.098	0.004	0.098	0.157	0.709
TCP18R/L300F-010	√	√	0.118	0.004	0.098	0.157	0.709

√ : Stocked items

Note: See page 9 for more information about grades.

TCP18R/L



Designation	Grade AH725		Dimensions (in)				
	R	L	*W*	*rε*	*ar*	T	*d*
TCP18R/L033-005	√	√	0.013	0.002	0.031	0.157	0.709
TCP18R/L043-005	√	√	0.017	0.002	0.047	0.157	0.709
TCP18R/L050-005	√	√	0.020	0.002	0.047	0.157	0.709
TCP18R/L075-005	√	√	0.030	0.002	0.079	0.157	0.709
TCP18R/L095-005	√	√	0.037	0.002	0.079	0.157	0.709
TCP18R/L100-010	√	√	0.039	0.004	0.079	0.157	0.709
TCP18R/L120-010	√	√	0.047	0.004	0.079	0.157	0.709
TCP18R/L125-010	√	√	0.049	0.004	0.079	0.157	0.709
TCP18R/L145-010	√	√	0.057	0.004	0.079	0.157	0.709
TCP18R/L150-010	√	√	0.059	0.004	0.079	0.157	0.709
TCP18R/L175-010	√	√	0.069	0.004	0.079	0.157	0.709
TCP18R/L200-010	√	√	0.079	0.004	0.098	0.157	0.709
TCP18R/L250-010	√	√	0.098	0.004	0.098	0.157	0.709
TCP18R/L300-010	√	√	0.118	0.004	0.098	0.157	0.709

√ : Stocked items

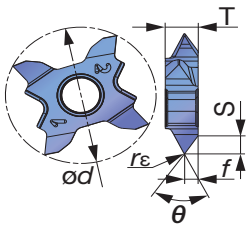
Note: See page 9 for more information about grades.

STANDARD CUTTING CONDITIONS

ISO	Workpiece materials	Priority	Grades	Cutting speed *Vc* (sfm)	Feed *f* (ipt)
P	Low carbon steels (1015, etc.)	First choice	SH725	262 - 591	0.001 - 0.004
		Sharpness	AH725	262 - 591	0.001 - 0.004
	Carbon steels, Alloy steels (1055, etc.)	First choice	SH725	262 - 591	0.001 - 0.004
		Sharpness	AH725	262 - 591	0.001 - 0.004
	Prehardened steels (NAK80, PX5 etc.)	First choice	SH725	262 - 591	0.001 - 0.004
		Sharpness	AH725	262 - 591	0.001 - 0.004
M	Stainless steels (S30400, etc)	First choice	SH725	164 - 394	0.001 - 0.004
		Sharpness	AH725	164 - 394	0.001 - 0.004
K	Grey cast irons (No.250B, No.300B etc.)	First choice	AH725	164 - 591	0.001 - 0.004
		Sharpness	SH725	164 - 591	0.001 - 0.004
	Ductile cast irons (60-40-18, 80-55-06, etc.)	First choice	AH725	164 - 591	0.001 - 0.004
		Sharpness	SH725	164 - 591	0.001 - 0.004
S	Titanium alloys (Ti-6Al-4V, etc.)	First choice	SH725	66 - 262	0.001 - 0.004
		Sharpness	AH725	66 - 262	0.001 - 0.004
	Superalloys (Inconel718, etc.)	First choice	SH725	66 - 262	0.001 - 0.004
		Sharpness	AH725	66 - 262	0.001 - 0.004

INSERTS

TCT18R/L (For Threading)



Designation	Grade AH725		Dimensions (in)							
	R	L	pitch min	pitch max	*f*	S	*r*ε	*θ*(°)	T	*d*
TCT18R/L-60N-010	√	√	0.031(0.8 mm)	0.118 (3.0 mm)	0.063	0.105	0.004	60	0.157	0.709
TCT18R/L-60N-020	√	√	0.059(1.5 mm)	0.118 (3.0 mm)	0.063	0.101	0.008	60	0.157	0.709

√ : Stocked items

Note: See page 9 for more information about grades.

STANDARD CUTTING CONDITIONS

ISO	Workpiece materials	Grades	Cutting speed *Vc* (sfm)	Pitch (mm)	TPI
P	Low carbon steels (C15, C20 etc.)	AH725	197 - 492	0.8 - 3.0	32 -8
	Carbon steels, Alloy steels (C55, 42CrMoS4 etc.)	AH725	197 - 492	0.8 - 3.0	32 -8
	Prehardened steels (NAK80, PX5 etc.)	AH725	197 - 492	0.8 - 3.0	32 -8
M	Stainless steels (X5CrNi18-9, X5CrNiMo17-12-2 etc)	AH725	164 - 262	0.8 - 3.0	32 -8
K	Grey cast irons (250, 300 etc.)	AH725	164 - 328	0.8 - 3.0	32 -8
	Ductile cast irons (400-15, 600-3 etc.)	AH725	164 - 328	0.8 - 3.0	32 -8
S	Titanium alloys (Ti-6Al-4V, etc.)	AH725	98 - 328	0.8 - 3.0	32 -8
	Superalloys (Inconel718, etc.)	AH725	98 - 328	0.8 - 3.0	32 -8

MEMO

DUOJUST CUT
TUNGALOY

Stable parting-off operations due to unique clamping system

DuoJust-Cut , a new line of small tools with durable insert containing 2 cutting edges, is excellent for parting miniature parts up to 16-mm diameter.

- **Great cutting performance** in various parting-off operations:

- **Stable machining** by choosing the length of inserts according to the necessary parting-off diameter

- **Unique clamping system** holds the insert at three points around the insert hole, delivering high rigidity as well as stability in machining.

- **Unique insert geometry**:

- The pocket design allows each cutting edge to clamp separately without dependence on the other.

- **3 different lengths of inserts** can be used on one toolholder.

- The insert's sharp cutting edge reduces cutting force and provides **high-quality machined surface**.

TUNGFORCE GROOVE
ACCELERATED MACHINING

Line up:

Available in 2 types of toolholders:
Sub-spindle type: Square shanks in 10 and 12 mm (0.375” and 0.50”)
Regular type: Square shanks in 10, 12, 16 and 20 mm (0.375”, 0.50”, 0.625” and 0.778”)

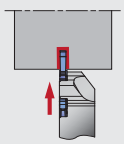
JXPG06

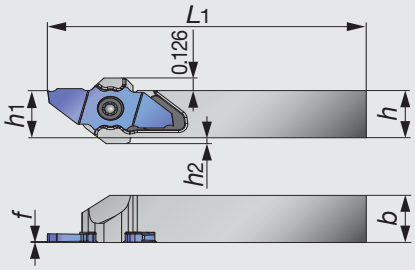
JXPG12

JXPG16

TOOL HOLDERS - FOR PARTING OFF

DuoJust-Cut JSXXR/L





Right hand (R) shown.

Designation	*h*	*b*	*f*	*L*1*	*h*1	*h*2	Insert
JSXXR/L063	0.375	0.375	0.008	≤ 4.75	0.375	0.12	JXPG06,12,16R/L
JSXXR/L083	0.500	0.500	0.008	≤ 4.75	0.500	0.06	JXPG06,12,16R/L
JSXXR/L103	0.625	0.625	0.008	≤ 4.75	0.625	0.06	JXPG06,12,16R/L

* "*L*1" is calculated with JXPG16*** insert. When JXPG12*** insert is used, "*L*1" is shorter 0.079".
When JXPG06*** insert is used, "*L*1" is shorter 0.158".

Note: The right hand insert (JXPG**R***) is used for the right hand toolholders (JSXXR***), and the left hand insert (JXPG**L***) is used for the left hand toolholders (JSXXL***).

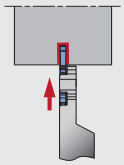
SPARE PARTS

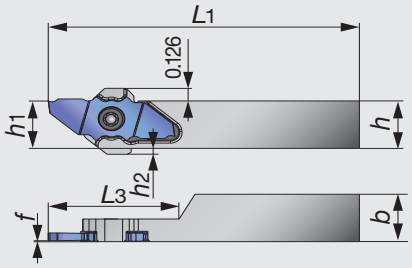
Designation	Clamping screw	Wrench
JSXXR*****	CSTC-4L100DL	T-1008/5
JSXXL*****	CSTC-4L100DR	T-1008/5

"J-series" Parting off tool for sub spindle in automatic lathes

TOOL HOLDERS - FOR PARTING OFF IN SUB-SPINDLE

DuoJust-Cut JSXXR/L-S





Right hand (R) shown.

Designation	*h*	*b*	*f*	*L*1*	*L*3*	*h*1	*h*2	Insert
JSXXR/L063-S	0.375	0.375	0.008 / 0.217	≤ 4.75	≤ 1.03	0.383	0.12	JXPG06,12,16R/L
JSXXR/L083-S	0.500	0.500	0.008 / 0.217	≤ 4.75	≤ 1.03	0.500	0.06	JXPG06,12,16R/L

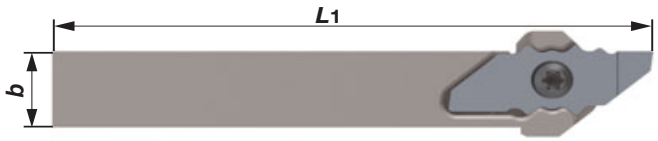
* "*L*1" and "*L*3" are calculated with JXPG16*** insert. When JXPG12*** insert is used, "*L*1" and "*L*3" are shorter 0.079". When JXPG06*** insert is used, "*L*1" and "*L*3" are shorter 0.158".

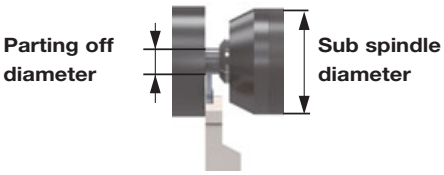
Note: The right hand insert (JXPG**R***) is used for the right hand toolholders (JSXXR***), and the left hand insert (JXPG**L***) is used for the left hand toolholders (JSXXL***).

SPARE PARTS

Designation	Clamping screw	Wrench
JSXXR*****-S	CSTC-4L055DL	T-1008/5
JSXXL*****-S	CSTC-4L055DR	T-1008/5

SELECTING SYSTEMS FOR SUB SPINDLE

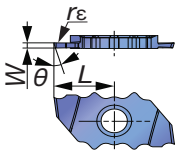




Sub spindle dia.	Max parting off dia.	Shank size b	Tool length *L*1	Insert	Toolholder
ø1.574	~ ø0.236	0.375	4.567	JXPG06*	JSXXR/L063-S
ø1.574	~ ø0.236	0.500	3.189	JXPG06*	JSXXR/L083-S
ø1.574	~ ø0.472	0.375	4.646	JXPG12*	JSXXR/L063-S
ø1.574	~ ø0.472	0.500	3.268	JXPG12*	JSXXR/L083-S
ø1.574	~ ø0.630	0.375	4.724	JXPG16*	JSXXR/L063-S
ø1.574	~ ø0.630	0.500	3.346	JXPG16*	JSXXR/L083-S
ø1.969	~ ø0.236	0.500	4.567	JXPG06*	JSXXR/L083-S
ø1.969	~ ø0.472	0.500	4.646	JXPG12*	JSXXR/L083-S
ø1.969	~ ø0.630	0.500	3.346	JXPG16*	JSXXR/L083-S
ø1.969	~ ø0.630	0.500	4.724	JXPG16*	JSXXR/L083-S

INSERTS

JXPG06R/L-F (Sharp edge)



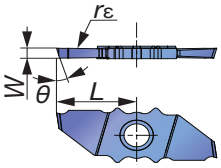
Right hand (R) shown.

Designation	Grade SH725		Dimensions (in)				
	R	L	Dmax	W	rε	L	θ (deg)
JXPG06R/L10F	√	√	0.236	0.039	0.002	0.413	-
JXPG06R/L15F	√	√	0.236	0.059	0.002	0.413	-
JXPG06R/L10F-15	√	√	0.236	0.039	0.002	0.413	15
JXPG06R/L15F-15	√	√	0.236	0.059	0.002	0.413	15

√ : Stocked items

Note: See page 9 for more information about grades.
*D*max: Max. parting off dia

JXPG12R/L-F (Sharp edge)



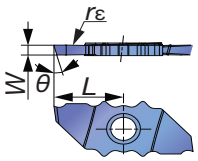
Right hand (R) shown.

Designation	Grade SH725		Dimensions (in)				
	R	L	Dmax	W	rε	L	θ (deg)
JXPG12R/L15F	√	√	0.472	0.059	0.002	0.492	-
JXPG12R/L20F	√	√	0.472	0.079	0.002	0.492	-
JXPG12R/L15F-15	√	√	0.472	0.059	0.002	0.492	15
JXPG12R/L20F-15	√	√	0.472	0.079	0.002	0.492	15

√ : Stocked items

Note: See page 9 for more information about grades.
*D*max: Max. parting off dia

JXPG16R/L-F (Sharp edge)



Right hand (R) shown.

Designation	Grade SH725		Dimensions (in)				
	R	L	Dmax	W	rε	L	θ (deg)
JXPG16R/L15F	√	√	0.630	0.059	0.002	0.571	-
JXPG16R/L20F	√	√	0.630	0.079	0.002	0.571	-
JXPG16R/L15F-15	√	√	0.630	0.059	0.002	0.571	15
JXPG16R/L20F-15	√	√	0.630	0.079	0.002	0.571	15

√ : Stocked items

Note: See page 9 for more information about grades.

*D*max: Max. parting off dia

STANDARD CUTTING CONDITIONS

ISO	Workpiece materials	Grades	Cutting speed Vc (sfm)	Feed f (ipt)
P	Low carbon steels (1015, etc.)	SH725	164 - 656	0.00039 - 0.0020
P	Carbon steels, Alloy steels (1055, etc.)	SH725	164 - 656	0.00039 - 0.0020
P	Prehardened steels (NAK80, PX5 etc.)	SH725	164 - 656	0.00039 - 0.0020
M	Stainless steels (S30400, etc)	SH725	164 - 656	0.00039 - 0.0020
K	Grey cast irons (No.250B, etc.)	SH725	164 - 656	0.00039 - 0.0020
K	Ductile cast irons (60-40-18, etc.)	SH725	164 - 656	0.00039 - 0.0020
S	Titanium alloys (Ti-6Al-4V, etc.)	SH725	98 - 262	0.00039 - 0.0020
S	Superalloys (Inconel718, etc.)	SH725	98 - 262	0.00039 - 0.0020

EASY MULTI CUT
TUNGALOY

The most efficient multi-functional tool for parting, grooving, and turning operations

Unique self-clamping system increases tool rigidity, resulting in excellent performance with high machining conditions.

- **Unique self-clamping system:**

- The tool's top shape does not block the chip evacuation out from the groove.

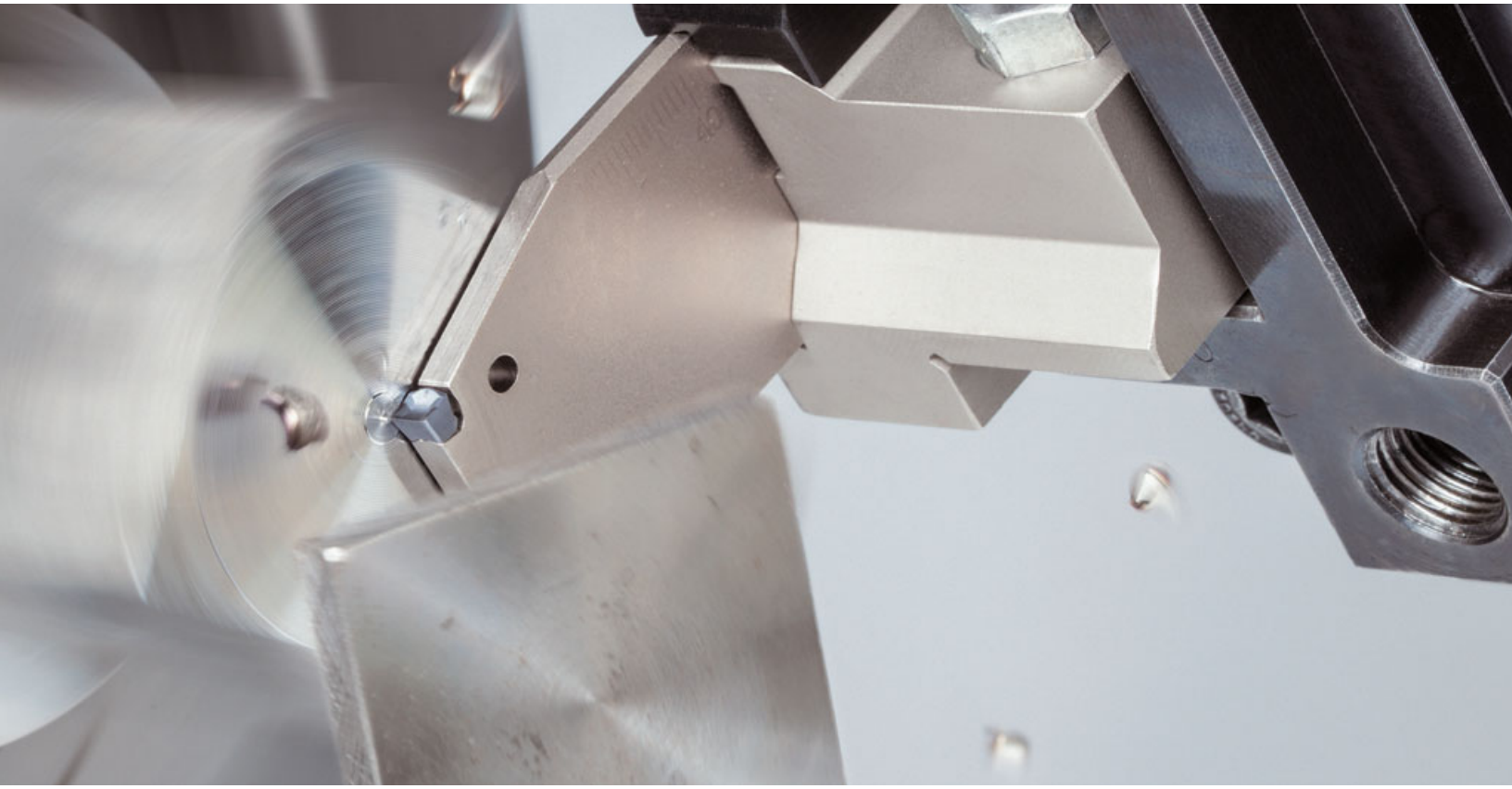
- The insert's secure clamping guarantees reliable machining in grooving and side turning.

- One type of the insert can be used for parting-off, external, internal and face, grooving and side turning.

- **The most efficient tool for deep face grooving.**

- **CHP type tools with internal coolant supply:**

- Provides **high wear resistance**, **excellent surface finish**, and smooth chip evacuation



TUNGFORCE GROOVE
ACCELERATED MACHINING

Line up:

Inserts:
ETX chipbreaker is designed for multi-directional cutting with optimum performance in parting, grooving and turning applications.
EGM chipbreaker is designed for parting and grooving under tough conditions for various materials.
Inserts width: 4, 5 and 6 mm (0.157”, 0.197” and 0.236”)
(page 194)

Tools:
Available for all types of applications in a wide range:
Monoblock type, square shank for external operation
Boring bar with internal coolant supply
Adjustable blades for parting-off

- Tungaloy’s new concept for grooving:
Adjustable face blades: Developed for face grooving, ranging from øD 30 to 500 mm (1.181” to 19.685”) for the inserts with the grooving widths in 4, 5, and 6 mm (0.157”, 0.197” and 0.236”)

Applicable overhang length: 18 to 65 mm (0.709” to 2.559”) set by only changing the blade positions

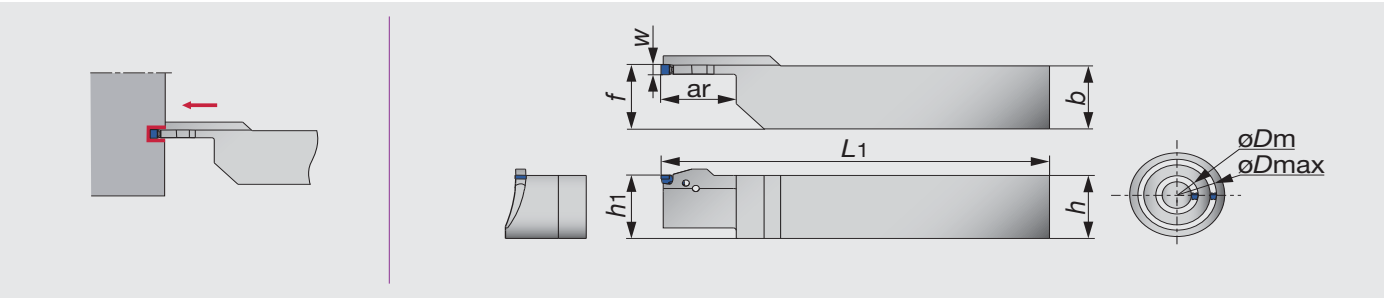
An internal coolant channel supplies coolant to the groove while machining, which results in excellent chip evacuation and surface finish

EGM

ETX

TOOLHOLDERS - FOR FACE GROOVING

EasyMulti-Cut ETFR/L



Right hand (R) shown.

Designation	*W*	*øD*m	*øD*max	*ar*	*h*1	*b*	*h*	*L*1	*f*	Insert
ETFR/L12-4T15-030035	0.157	1.181	1.378	0.591	0.750	0.750	0.750	5.000	0.770	E**4...
ETFR/L16-4T15-030035	0.157	1.181	1.378	0.591	1.000	1.000	1.000	6.000	1.020	E**4...
ETFR/L12-4T22-035045	0.157	1.378	1.772	0.866	0.750	0.750	0.750	5.000	0.770	E**4...
ETFR/L16-4T22-035045	0.157	1.378	1.772	0.866	1.000	1.000	1.000	6.000	1.020	E**4...
ETFR/L12-4T25-045055	0.157	1.772	2.165	0.984	0.750	0.750	0.750	5.000	0.770	E**4...
ETFR/L16-4T25-045055	0.157	1.772	2.165	0.984	1.000	1.000	1.000	6.000	1.020	E**4...
ETFR/L12-4T25-055075	0.157	2.165	2.953	0.984	0.750	0.750	0.750	5.000	0.770	E**4...
ETFR/L16-4T25-055075	0.157	2.165	2.953	0.984	1.000	1.000	1.000	6.000	1.020	E**4...
ETFR/L12-4T25-075120	0.157	2.953	4.724	0.984	0.750	0.750	0.750	5.000	0.770	E**4...
ETFR/L16-4T25-075120	0.157	2.953	4.724	0.984	1.000	1.000	1.000	6.000	1.020	E**4...
ETFR/L16-4T25-120200	0.157	4.724	7.874	0.984	1.000	1.000	1.000	6.000	1.020	E**4...
ETFR/L16-4T25-200500	0.157	7.874	19.685	0.984	1.000	1.000	1.000	6.000	1.020	E**4...
ETFR/L16-5T25-035045	0.196	1.378	1.772	0.984	1.000	1.000	1.000	6.000	1.020	ETX5...
ETFR/L16-5T25-045055	0.196	1.772	2.165	0.984	1.000	1.000	1.000	6.000	1.020	ETX5...
ETFR/L16-5T25-055075	0.196	2.165	2.953	0.984	1.000	1.000	1.000	6.000	1.020	ETX5...
ETFR/L16-5T32-075120	0.196	2.953	4.724	1.260	1.000	1.000	1.000	6.000	1.020	ETX5...
ETFR/L16-5T32-120200	0.196	4.724	7.874	1.260	1.000	1.000	1.000	6.000	1.020	ETX5...
ETFR/L16-5T32-200500	0.196	7.874	19.685	1.260	1.000	1.000	1.000	6.000	1.020	ETX5...
ETFR/L16-6T25-040055	0.236	1.575	2.165	0.984	1.000	1.000	1.000	6.000	1.020	ETX6...
ETFR/L16-6T25-055075	0.236	2.165	2.953	0.984	1.000	1.000	1.000	6.000	1.020	ETX6...
ETFR/L16-6T32-075120	0.236	2.953	4.724	1.260	1.000	1.000	1.000	6.000	1.020	ETX6...
ETFR/L16-6T32-120200	0.236	4.724	7.874	1.260	1.000	1.000	1.000	6.000	1.020	ETX6...
ETFR/L16-6T32-200500	0.236	7.874	19.685	1.260	1.000	1.000	1.000	6.000	1.020	ETX6...

SPARE PARTS

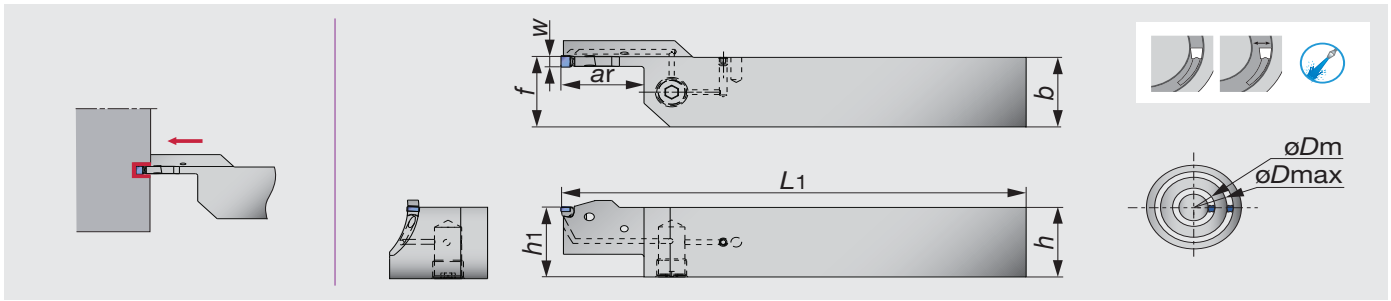
Designation	Wrench*
ETFR/L...	ECW-456EF

*Optional parts - wrench sold separately

Toolholders for face grooving & turning, with channels for high pressure coolant.

TOOLHOLDERS - FOR FACE GROOVING

EasyMulti-Cut ETFR-CHP



Right hand (R) shown.

Designation	*W*	*ø*D*m*	*ø*D*max*	*ar*	*h*	*b*	*L*1	*h*1	*f*	Insert
ETFR16-4T15-030035-CHP	0.157	1.181	1.378	0.591	1.000	1.000	6.000	1.000	1.020	E**4
ETFR16-4T22-035045-CHP	0.157	1.378	1.772	0.866	1.000	1.000	6.000	1.000	1.020	E**4
ETFR16-4T25-045055-CHP	0.157	1.772	2.165	0.984	1.000	1.000	6.000	1.000	1.020	E**4
ETFR16-4T25-055075-CHP	0.157	2.165	2.953	0.984	1.000	1.000	6.000	1.000	1.020	E**4
ETFR16-4T25-075120-CHP	0.157	2.953	4.724	0.984	1.000	1.000	6.000	1.000	1.020	E**4
ETFR16-4T25-120200-CHP	0.157	4.724	7.874	0.984	1.000	1.000	6.000	1.000	1.020	E**4
ETFR16-4T25-200500-CHP	0.157	7.874	19.685	0.984	1.000	1.000	6.000	1.000	1.020	E**4

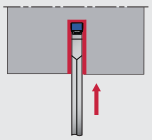
SPARE PARTS

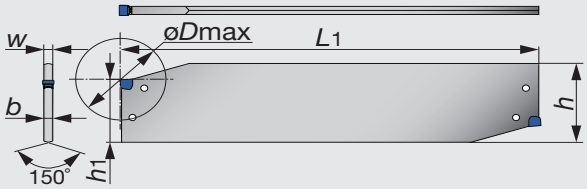
Designation	Wrench*
ETFR...-CHP	ECW-456EF

*Optional parts - Wrench sold separately

BLADES - FOR PARTING OFF

EasyMulti-Cut EGP





Designation	W	øDmax	h1	b	h	L1	Insert	Tool block
EGP26-4D	0.157	3.150	0.843	0.126	1.024	5.906	E**4...	CTBU**-26
EGP32-4D	0.157	3.937	0.980	0.126	1.260	5.906	E**4...	CTBU**-32
EGP32-5D	0.197	4.724	0.980	0.157	1.260	5.906	ETX5...	CTBU**-32
EGP32-6D	0.236	4.724	0.980	0.205	1.260	5.906	ETX6...	CTBU**-32

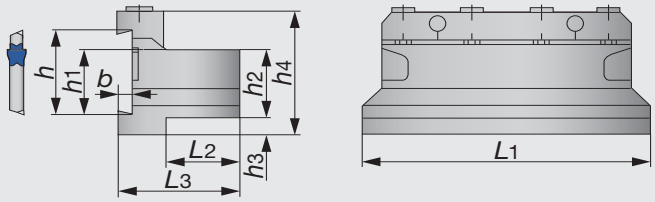
SPARE PARTS

Designation	Wrench*
EGP26-4D	ECW-456EF
EGP32 ...	ECW-456EF

*Optional parts - Wrench sold separately

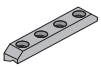
TOOL BLOCK - FOR EGP TYPE

EasyMulti-Cut CTBU



Designation	*h*1	*b*	*h*	*L*1	*h*2	*h*3	*h*4	*L*2	*L*3	Blade
CTBU12-26-U	0.843	0.157	1.024	3.386	0.750	0.354	1.693	0.827	1.496	EGP26
CTBU16-26-U	0.843	0.157	1.024	4.331	1.000	0.197	1.772	0.906	1.654	EGP26
CTBU12-32-U	0.976	0.209	1.260	3.937	0.750	0.512	1.969	0.748	1.496	EGP32
CTBU16-32-U	0.976	0.209	1.260	4.331	1.000	0.315	1.969	0.906	1.654	EGP32
CTBU20-32-U	0.976	0.209	1.260	4.331	1.250	0.197	2.126	1.142	1.890	EGP32

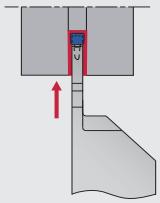
SPARE PARTS

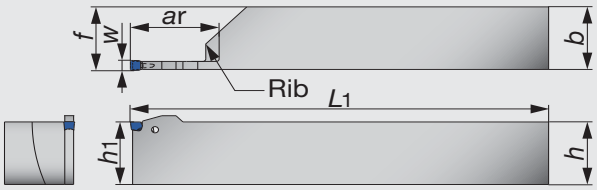


Designation	Clamping screw	Clamp	Wrench
CTBU12-26-U	CM6x30-S	CT-86	P-5
CTBU16-26-U	CM6x30-S	CT-100	P-5
CTBU12-32-U	CM6x30-S	CT-105	P-5
CTBU16-32-U	CM6x30-S	CT-110	P-5
CTBU20-32-U	CM6x30-S	CT-110	P-5

TOOLHOLDERS - FOR EXTERNAL GROOVING

EasyMulti-Cut ETER/L





Right hand (R) shown.

Designation	W	ar	h1	b	h	L1	f	Insert	Rib
ETER/L12-4T25	0.157	0.984	0.750	0.750	0.750	5.000	0.766	E**...	Without
ETER/L16-4T25	0.157	0.984	1.000	1.000	1.000	6.000	1.016	E**...	Without
ETER/L20-4T30	0.157	1.181	1.250	1.250	1.250	7.000	1.266	E**...	Without
ETER/L12-5T25	0.197	0.984	0.750	0.750	0.750	5.000	0.766	ETX5...	Without
ETER/L16-5T32	0.197	1.260	1.000	1.000	1.000	6.000	1.016	ETX5...	Without
ETER/L20-5T32	0.197	1.260	1.250	1.250	1.250	7.000	1.266	ETX5...	Without
ETER/L16-6T35	0.236	1.378*	1.000	1.000	1.000	6.000	1.016	ETX6...	With
ETER/L20-6T35	0.236	1.378**	1.250	1.250	1.250	7.000	1.266	ETX6...	With

* Max. ø6.69"
** Max. ø13.38"

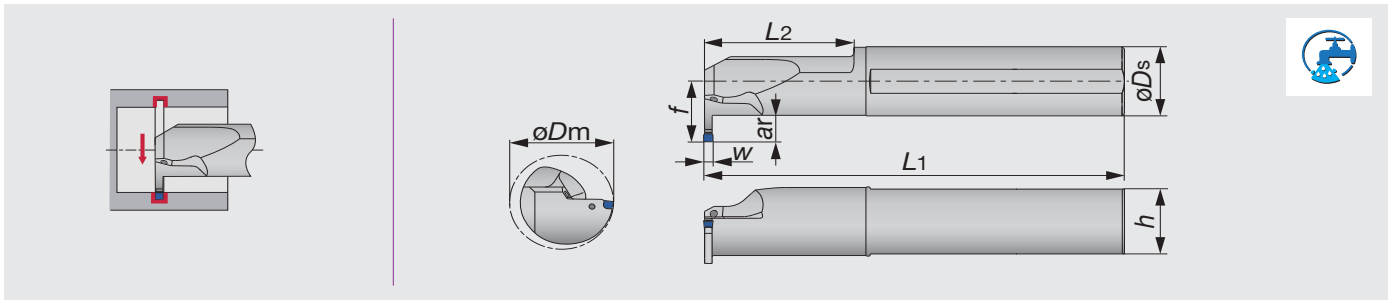
SPARE PARTS

Designation	Wrench*
ETER/L12-4T25	ECW-456EF
ETER/L16-4T25	ECW-456EF
ETER/L20-4T30	ECW-456EF
ETER/L12-5T25	ECW-456EF
ETER/L16-5T32	ECW-456EF
ETER/L20-5T32	ECW-456EF
ETER/L16-6T35	ECW-456EF
ETER/L20-6T35	ECW-456EF

*Optional parts - Wrench sold separately

TOOLHOLDERS - FOR INTERNAL GROOVING

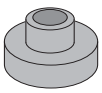
EasyMulti-Cut ETIR/L



Right hand (R) shown.

Designation	*W*	*ø*D*m*	*ar*	*ø*D*s*	*h*	*L*1	*f*	*L*2	Insert
ETIR/L10-4T06-D12	0.157	0.750	0.236	0.625	0.590	6.500	0.590	1.575	E**4...
ETIR/L12-4T06-D16	0.157	1.000	0.236	0.750	0.709	6.500	0.651	1.575	E**4...
ETIR/L16-4T09-D20	0.157	1.250	0.354	1.000	0.906	7.500	0.884	1.575	E**4...
ETIR/L20-4T11-D24	0.157	1.500	0.433	1.250	1.181	10.000	1.088	2.362	E**4...
ETIR/L20-5T11-D24	0.197	1.500	0.433	1.250	1.181	10.000	1.088	2.362	ETX5...
ETIR/L20-6T11-D24	0.236	1.500	0.433	1.250	1.181	10.000	1.098	2.362	ETX6...

SPARE PARTS

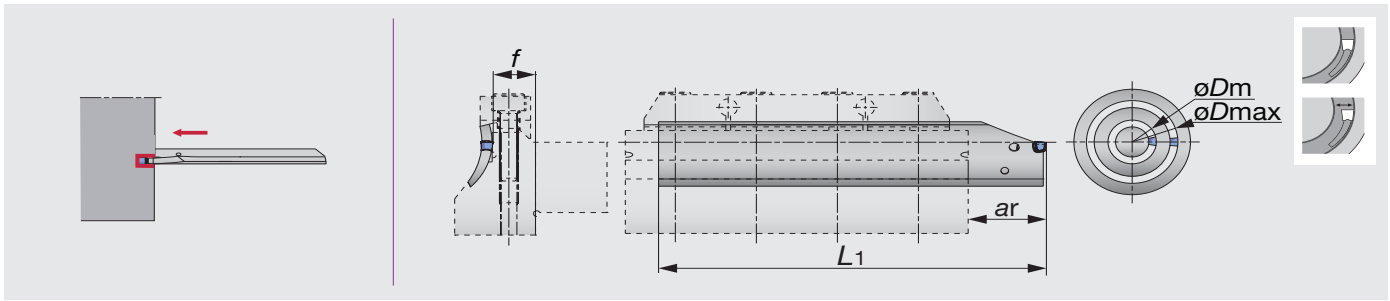


Designation	Seal cap (internal screw)	Wrench*
ETIR/L10-4T06-D12	CA-16(M6)	ECW-456I
ETIR/L12-4T06-D16	CA-20(M6)	ECW-456I
ETIR/L16-4T09-D20	CA-25(R1/8")	ECW-456EF
ETIR/L20-4T11-D24	CA-32(R1/8")	ECW-456EF
ETIR/L20-5T11-D24	CA-32(R1/8")	ECW-456EF
ETIR/L20-6T11-D24	CA-32(R1/8")	ECW-456EF

*Optional parts - Wrench and Seal Cap sold separately

BLADES - FOR FACE GROOVING

Face Blade EFPR/L



Right hand (R) shown.

Designation	W	øDm	øDmax	f	L1	min ar	max ar	Insert
EFPR/L-4-030035	0.157	1.181	1.378	.535	4.921	0.709	1.968	E**4
EFPR-4-035045	0.157	1.378	1.772	.535	4.921	0.709	1.968	E**4
EFPR-4-045055	0.157	1.772	2.165	.535	4.921	0.709	1.968	E**4
EFPR-4-055075	0.157	2.165	2.953	.535	4.921	0.709	1.968	E**4
EFPR-4-075120	0.157	2.953	4.724	.535	5.512	0.709	2.559	E**4
EFPR-4-120200	0.157	4.724	7.874	.535	5.512	0.709	2.559	E**4
EFPR-4-200500	0.157	7.874	19.685	.535	5.512	0.709	2.559	E**4
EFPR-5-035045	0.197	1.378	1.772	.535	4.921	0.748	1.968	ETX5
EFPR-5-045055	0.197	1.772	2.165	.535	4.921	0.748	1.968	ETX5
EFPR-5-055075	0.197	2.165	2.953	.535	4.921	0.748	1.968	ETX5
EFPR-5-075120	0.197	2.953	4.724	.535	5.512	0.748	2.559	ETX5
EFPR-5-120200	0.197	4.724	7.874	.535	5.512	0.748	2.559	ETX5
EFPR-5-200500	0.197	7.874	19.685	.535	5.512	0.748	2.559	ETX5
EFPR-6-045055	0.236	1.772	2.165	.535	4.921	0.787	1.968	ETX6
EFPR-6-055075	0.236	2.165	2.953	.535	4.921	0.787	1.968	ETX6
EFPR-6-075120	0.236	2.953	4.724	.535	5.512	0.787	2.559	ETX6
EFPR-6-120200	0.236	4.724	7.874	.535	5.512	0.787	2.559	ETX6
EFPR/L-6-200500	0.236	7.874	19.685	.535	5.512	0.787	2.559	ETX6

SPARE PARTS

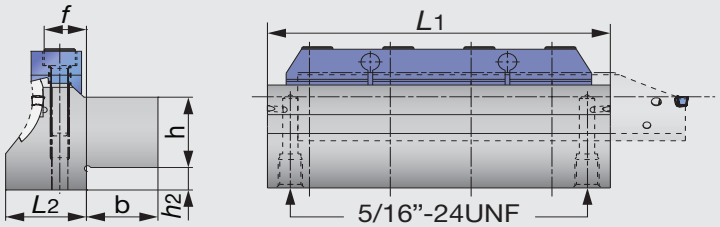
Designation	Wrench*
EFPR/L...	ECW-456I

*Optional parts - Wrench sold separately

Tool block for EasyMulti-Cut face blade series, with channels for high pressure coolant

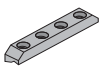
TOOL BLOCK - FOR EFP BLADES

CTBU-CHP for EFPR/L



Designation	W	øDm	h	b	h2	L2	L1	Blade
CTBU16-030-4U-CHP	0.157	1.181	1.000	.905	.299	1.024	4.331	EFPR/L-4-030035
CTBU16-035-4/5U-CHP	0.157,0.197	1.378	1.000	.905	.299	1.024	4.331	EFPR/L-4/5-035045
CTBU16-045-4/5U-CHP	0.157,0.197	1.772	1.000	.905	.299	1.024	4.331	EFPR/L-4/5-045055
CTBU16-055-4/5U-CHP	0.157,0.197	2.165	1.000	.905	.299	.945	4.331	EFPR/L-4/5-055075
CTBU16-075-4/5U-CHP	0.157,0.197	2.953	1.000	.905	.299	.866	4.331	EFPR/L-4/5-075120
CTBU16-120-4/5U-CHP	0.157,0.197	4.724	1.000	.905	.299	.827	4.331	EFPR/L-4/5-120200
CTBU16-200-4/5U-CHP	0.157,0.197	7.874	1.000	.905	.299	.728	4.331	EFPR/L-4/5-200500
CTBU16-045-6U-CHP	0.236	1.772	1.000	.905	.299	1.102	4.331	EFPR/L-6-045055
CTBU16-055-6U-CHP	0.236	2.165	1.000	.905	.299	1.024	4.331	EFPR/L-6-055075
CTBU16-075-6U-CHP	0.236	2.953	1.000	.905	.299	.945	4.331	EFPR/L-6-075120
CTBU16-120-6U-CHP	0.236	4.724	1.000	.905	.299	.906	4.331	EFPR/L-6-120200
CTBU16-200-6U-CHP	0.236	7.874	1.000	.905	.299	.807	4.331	EFPR/L-6-200500

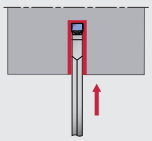
SPARE PARTS

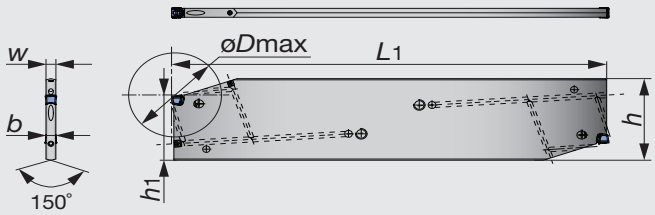


Designation	Clamping screw	Clamp	Wrench
CTBU...-CHP	CM6X30-S	CT-110	P-5

BLADES- FOR PARTING OFF

Face Blade EGP-CHP





Designation	W	øDmax	ar	h	b	L1	h1	Insert
EGP32-4D-CHP	4	100	50	32	3.2	150	24.9	E**4
EGP32-5D-CHP	5	120	60	32	4	150	24.9	ETX5
EGP32-6D-CHP	6	120	60	32	5.2	150	24.9	ETX6

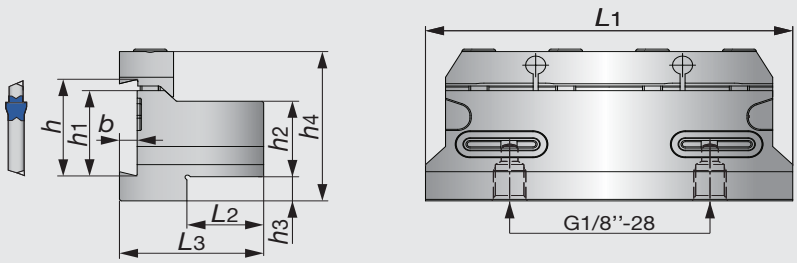
SPARE PARTS

Designation	Sealing screw	Wrench*
EGP...-CHP	SGC340	ECW-456EF

*Optional parts - Sealing Screw and Wrench sold separately

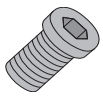
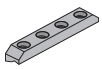
TOOL BLOCK - FOR EGP-CHP BLADES

EasyMulti-Cut CTBU-CHP



Designation	*h*	*h*1	*L*2	*L*1	*b*	*h*2	*h*3	*h*4	*L*3	Blade
CTBU16-32-U-CHP	1.26	0.976	0.906	4.331	0.209	1.00	0.315	1.969	1.654	EGP32-*D-CHP

SPARE PARTS

Designation	Clamping screw	Clamp	Wrench
CTBU...-CHP	SRM6X16DIN912-12.9	CT-110	P-5

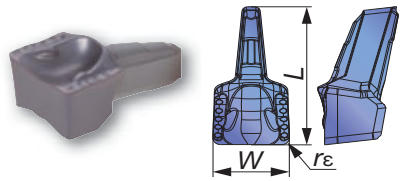
STANDARD CUTTING CONDITIONS

ISO	Workpiece materials	Hardness	Grades	Chip-breaker	Cutting speed *Vc* (sfm)
P	Low carbon steels (1015, etc.)	- 300 HB	AH725	ETX	160 - 600
		- 300 HB	AH725	EGM	160 - 600
	Carbon steels, Alloy steels (1055, etc.)	- 300 HB	AH725	ETX	160 - 600
		- 300 HB	AH725	EGM	160 - 600
	Prehardened steels (NAK80, PX5 etc.)	- 300 HB	AH725	ETX	160 - 600
		- 300 HB	AH725	EGM	160 - 600
M	Stainless steels (S30400, etc)	-	AH725	ETX	160 - 400
		-	AH725	ETX	160 - 400

Note: See page 9 for more information about grades.

INSERTS

ETX

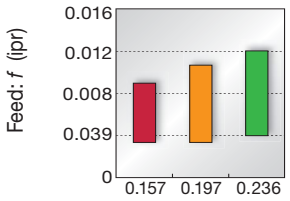


Designation	Grade AH725	*W*±0.002	*L*	*r*ε
ETX4-040	√	0.157	0.315	0.016
ETX5-040	√	0.197	0.394	0.016
ETX6-040	√	0.236	0.472	0.016

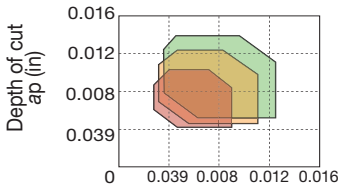
√ : Stocked items

Note: See page 9 for more information about grades.

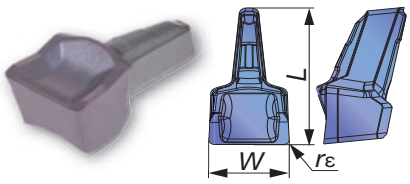
■Standard feed for grooving



■Standard feed and DoC for turning



EGM

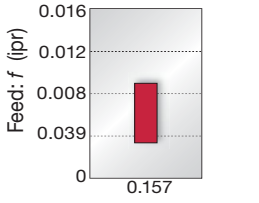


Designation	Grade AH725	*W*±0.002	*L*	*r*ε
EGM4-030	√	0.157	0.315	0.012

√ : Stocked items

Note: See page 9 for more information about grades.

■Standard feed for grooving



PARTS FOR COOLANT HOSE

Connecting hose

Fig. 1

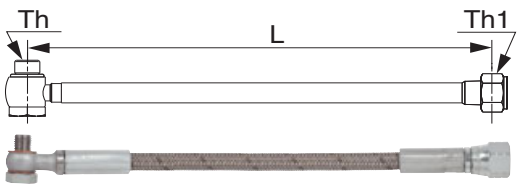
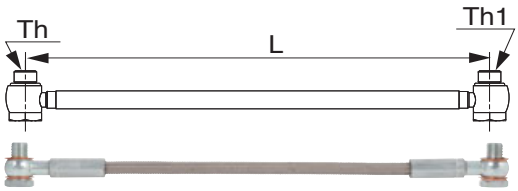
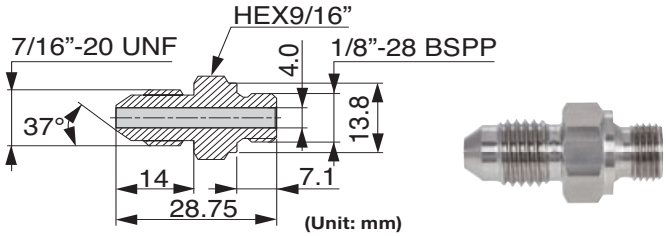


Fig. 2



Designation	Length	Threading size		Max. pressure	Fig.
	L	Th	Th1	(MPa)	
CHP-HOSE-G1/8-7/16-200BS	200	G1/8"-28 BSPP	7/16"-20 UNF	26	1
CHP-HOSE-G1/8-7/16-250BS	250	G1/8"-28 BSPP	7/16"-20 UNF	26	1
CHP-HOSE-5/16-7/16-200BS	200	5/16"-24UNF	7/16"-20 UNF	20	1
CHP-HOSE-5/16-G1/8-200BS	200	5/16"-24UNF	G1/8"-28 BSPP	20	1
CHP-HOSE-G1/8-G1/8-200BB	200	G1/8"-28 BSPP	G1/8"-28 BSPP	26	2
CHP-HOSE-G1/8-G1/8-250BB	250	G1/8"-28 BSPP	G1/8"-28 BSPP	26	2

Connector



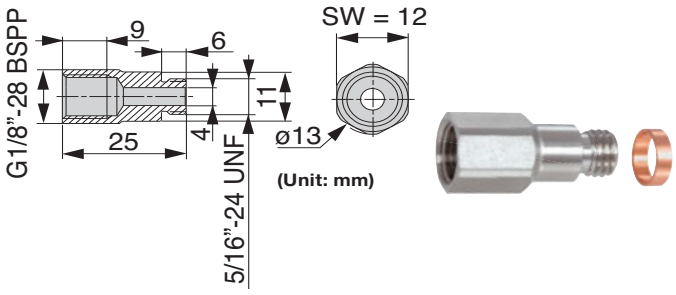
Designation
CHP-NIPPLE-G1/8-7/16UNF

Seal washer

Designation	øD	ød	W
CHP-COPPER-SEAL1/8	15	8	1
CHP-COPPER-SEAL5/16	11	8	1
CHP-COPPER-SEAL5/16-2.5	11	8	2.5

(Unit: mm)

Connector for small lathe with seal washer



Designation
CHP-CONECTOR/5/16-G1/8

TUNGHEAVY GROOVE
TUNGALOY

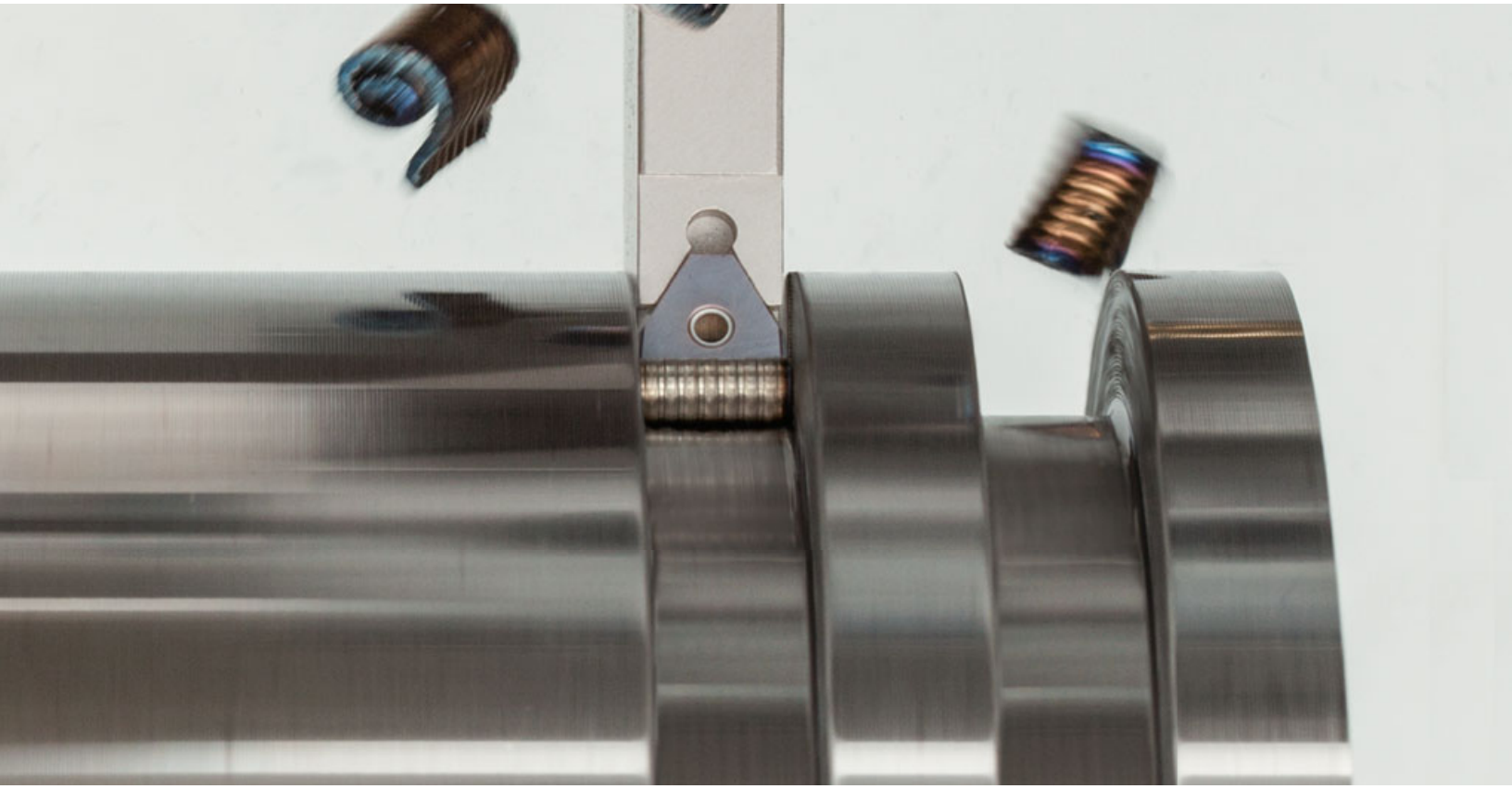
Highly rigid clamping for wide grooving and profiling

TungHeavyGroove delivers long tool life due to stable lever-clamping system in dovetail structure.

- Easy insert clamping
Indexing can be operated from the front face of the toolholder, reducing time to change inserts and machine downtime.

- Excellent chip evacuation
Excellent chip control and low cutting force in wide grooving due to the uniquely designed chipbreaker and large rake angle.
Lack of obstacle on the rake face leads to smooth chip evacuation.

- High productivity with the insert for profiling
The insert for wide profiling covers a broad application range and reduces time for machining complex shape by completing the operation in one pass.



TUNGFORCE GROOVE
ACCELERATED MACHINING

Line up:

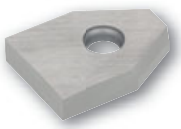
Inserts
PSGM type inserts with chipbreaker
Grooving width: 10 (0.394”), 15 (0.590”), 20 (0.787”), 25 mm (0.984”)
AH725 grade suitable for a wide range of materials, such as steel and alloy steel

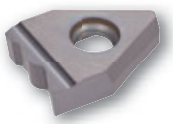
PSGB type blanks
Grooving width: 10.2 (0.402”), 15.2 (0.598”), 20.2 (0.795”), 25.2 mm (0.992”)
UX30 and TH10 grades used for various workpiece materials, such as steel, stainless steel, and non-ferrous metal
Also offered in specially-ground shape upon request, used for finish profiling

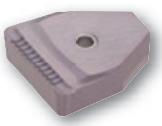
Two types of toolholders: lever-lock type and screw-on type

Shank size: 12 mm (0.500”) to 40 mm (1.500”), suitable for various machines, including small lathes

Maximum groove depth: 20 mm (0.787”) to 36 mm (1.417”)


PSGB

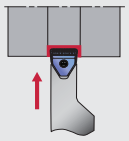

PSGB - Special

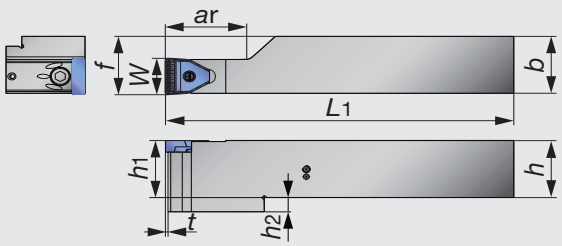

PSGM

Lever lock type for external grooving

TOOLHOLDERS - FOR EXTERNAL WIDE GROOVING

TungHeavyGroove FPGR





Designation	W	ar		h1	b	h	L1		f	h2	t		Insert (*1)
		PSGB	PSGM				PSGB	PSGM			PSGB	PSGM	
FPGR16-10T20	0.394	0.984	0.787	1.000	1.000	1.000	7.196	7.000	1.020	-	0.216	0.019	PSG**10
FPGR20-10T36	0.394	1.614	1.417	1.250	1.250	1.250	8.196	8.000	1.270	-	0.216	0.019	PSG**10
FPGR16-15T20	0.590	0.984	0.787	1.000	1.000	1.000	7.196	7.000	1.020	-	0.216	0.019	PSG**15
FPGR20-15T40	0.590	1.771	1.574	1.250	1.250	1.250	8.196	8.000	1.270	-	0.216	0.015	PSG**15
FPGR20-20T40	0.787	1.771	1.574	1.250	1.250	1.250	8.196	8.000	1.270	0.314	0.216	0.015	PSG**20
FPGR24-20T50	0.787	2.165	1.968	1.500	1.500	1.500	10.917	10.000	1.520	0.314	0.216	0.015	PSG**20
FPGR20-25T40	0.984	1.771	1.574	1.250	1.250	1.250	8.196	8.000	1.270	0.314	0.216	0.015	PSG**25
FPGR24-25T50	0.984	2.615	1.968	1.500	1.500	1.500	10.917	10.000	1.520	0.314	0.216	0.015	PSG**25

(*1) Can be used with both wide grooving and profile grooving inserts

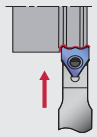
SPARE PARTS

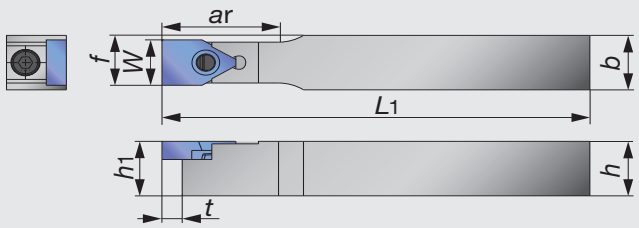
Designation	Clamping screw	Lever	Spring	Wrench
FPGR...-10T**	FCS3	FCL4	BP-5	P-2.5
FPGR...-15T**	FCS3	FCL4	BP-5	P-2.5
FPGR...-20T**	FCS6	FCL8	BP-9	P-5
FPGR...-25T**	FCS6	FCL8	BP-9	P-5

Lever lock type for external wide profile grooving

TOOLHOLDERS - FOR EXTERNAL PROFILE GROOVING

TungHeavyGroove FPGN





Designation	W	ar		h1	b	h	L1		f	t		Insert (*1)
		PSGB	PSGM				PSGB	PSGM		PSGB	PSGM	
FPGN08-10T20	0.402	0.984	0.787	0.500	0.500	0.500	4.946	4.750	0.450	0.216	0.019	PSG**10
FPGN10-10T20	0.402	0.984	0.787	0.625	0.625	0.625	4.946	4.750	0.510	0.216	0.019	PSG**10
FPGN12-10T20	0.402	0.984	0.787	0.750	0.750	0.750	5.196	5.000	0.570	0.216	0.019	PSG**10
FPGN10-15T25	0.598	1.181	0.984	0.625	0.625	0.625	4.946	4.750	0.610	0.216	0.015	PSG**15
FPGN12-15T25	0.598	1.181	0.984	0.750	0.750	0.750	5.196	5.000	0.670	0.216	0.015	PSG**15
FPGN12-20T32	0.795	1.456	1.259	0.750	0.750	0.750	5.196	5.000	0.770	0.216	0.015	PSG**20
FPGN16-20T32	0.795	1.456	1.259	1.000	1.000	1.000	6.196	6.000	0.890	0.216	0.015	PSG**20
FPGN16-25T36	0.992	1.614	1.417	1.000	1.000	1.000	6.196	6.000	0.990	0.216	0.015	PSG**25

(*1) Can be used with both wide grooving and profile grooving inserts

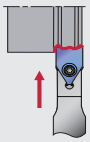
SPARE PARTS

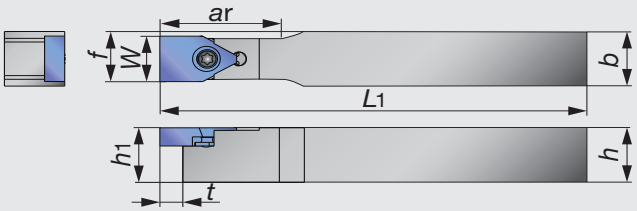
Designation	Clamping screw	Lever	Spring	Wrench
FPGN...-10T**	FCS3	FCL4	BP-5	P-2.5
FPGN...-15T**	FCS3	FCL4	BP-5	P-2.5
FPGN...-20T**	FCS6	FCL8	BP-9	P-5
FPGN...-25T**	FCS6	FCL8	BP-9	P-5

Screw-on type, for external wide profile grooving

TOOLHOLDERS - FOR EXTERNAL PROFILE GROOVING

TungHeavyGroove SPGN

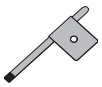




Designation	W	ar	h1	b	h	L1	f	t	Insert (*2)
SPGN08-10T20	0.402	0.984	0.500	0.500	0.500	4.946	0.450	0.216	PSGB10
SPGN10-10T20	0.402	0.984	0.625	0.625	0.625	4.946	0.510	0.216	PSGB10
SPGN12-10T20	0.402	0.984	0.750	0.750	0.750	5.196	0.570	0.216	PSGB10
SPGN10-15T25	0.598	1.181	0.625	0.625	0.625	4.946	0.610	0.216	PSGB15
SPGN12-15T25	0.598	1.181	0.750	0.750	0.750	5.196	0.670	0.216	PSGB15
SPGN12-20T32	0.795	1.456	0.750	0.750	0.750	5.196	0.770	0.216	PSGB20
SPGN16-20T32	0.795	1.456	1.000	1.000	1.000	6.196	0.890	0.216	PSGB20
SPGN16-25T36	0.992	1.614	1.000	1.000	1.000	6.196	0.990	0.216	PSGB25

(*2) Can be used with profile grooving inserts, only

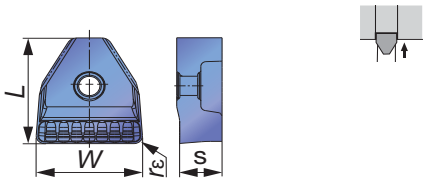
SPARE PARTS



Designation	Clamping screw	Wrench
SPGN...-10T**	CSTB-3L081	T-9F
SPGN...-15T**	CSTB-4	T-15F
SPGN...-20T**	CSTB-5	T-20F
SPGN...-25T**	CSTB-5	T-20F

INSERTS

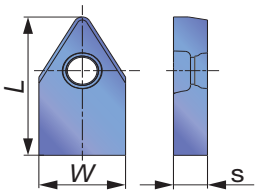
For wide grooving



Designation	W ± 0.002	Grade AH725	L	s	rε
PSGM10-08	0.394	√	0.433	0.157	0.032
PSGM15-15	0.590	√	0.591	0.197	0.059
PSGM20-20	0.787	√	0.866	0.256	0.079
PSGM25-20	0.984	√	0.866	0.256	0.079

√ : Stocked items

Blanks for wide profile grooving*

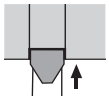


Designation	W ± 0.001	Grade UX30	Grade TH10	L	s
PSGB10	0.402	√	√	0.709	0.157
PSGB15	0.598	√	√	0.787	0.197
PSGB20	0.795	√	√	1.062	0.256
PSGB25	0.992	√	√	1.062	0.256

√ : Stocked items

*Stocked products are blanks (semi-finished) for formed inserts

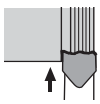
STANDARD CUTTING CONDITIONS



Wide grooving

ISO	Workpiece materials	Hardness (HB)	Grade	Cutting speed Vc (sfm)
P	Alloy steel (4140, 4340 etc.)	< 300	AH725	165 - 590
	Alloy steel (4140, 4340 etc.)	< 300	UX30	165 - 390

PSGM type insert	Groove width: W (in) 0.394	0.590	0.787	0.984
Feed: f (ipr)	0.008 - 0.016	0.008 - 0.016	0.012 - 0.020	0.012 - 0.020



Forming

ISO	Workpiece materials	Hardness (HB)	Grade	Cutting speed Vc (sfm)
P	Steel (1045, 1055, etc.)	< 200	UX30	165 - 490
	Alloy steel (4140, 4340, etc.)	< 300	UX30	165 - 390
M	Stainless steel (303, 304, etc.)	< 200	UX30	165 - 390
K	Gray cast iron (25, etc.)	-	TH10	165 - 490
	Ductile cast iron (64-45-12, 80-55-06, etc.)	-	TH10	165 - 390
N	Aluminum alloy (Si < 12%, etc.)	-	TH10	330 - 1640

Holes on the components play a key role in the development of sophisticated items in today's manufacturing industries, and they are becoming deeper, larger, and more precise. The **TunGForce DrillLine** is a revolutionary line-up of drilling solutions that helps improve parameters and also provides accurate holes, good surface quality, and reduced machine downtime. The **TunGForce** behind the revolution is the optimized **Grade** and the **Geometry** of the drill heads and the inserts, which contribute to **Accelerated Machining**.

DrillLine

204 **DRILL**FORCE-MEISTER
210 **DRILL**MEISTER
228 **TUNG**SIX-DRILL
238 **DEEP**TRI-DRILL

DRILL FORCE MEISTER
TUNGALOY

2 effective cutting edges boost productivity in drilling large diameters

Going a step further in providing higher productivity and reduced setup time, Tungaloy has developed drills in larger diameters with a unique quick-indexing mechanism.

- **Unique unidirectional clamping of the insert.**

- **Improves repeatability in indexing drill head**, minimizing run-out in the center of the drills.

- Can be removed from the toolholder without removing the screw completely.

- Quick indexing on the machine and **high repeatability** reduce machine downtime.

- Fixed screw contact surface directs clamping force to the desired direction, **securing insert clamping**.

- **Excellent chip formation** due to optimized insert geometry leads to smooth chip evacuation.

- **Corner geometry of the drill head reduces burr at exit.**

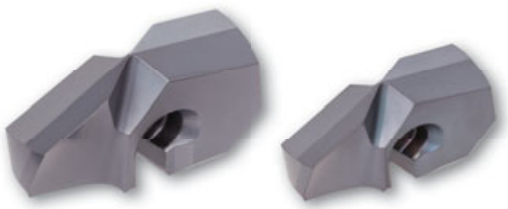
TUNGFORCE DRILL
ACCELERATED MACHINING

Line up:

Drill head SMP...:
Diameters from 26.0 to 41.0 mm (1.024”-1.614”) are available in popular size increments for major applications.

Grade:
AH725 grade with high fracture and wear resistance extends tool life.
PremiumGTec coating on AH725 reduces built-up edge and improves chip evacuation.

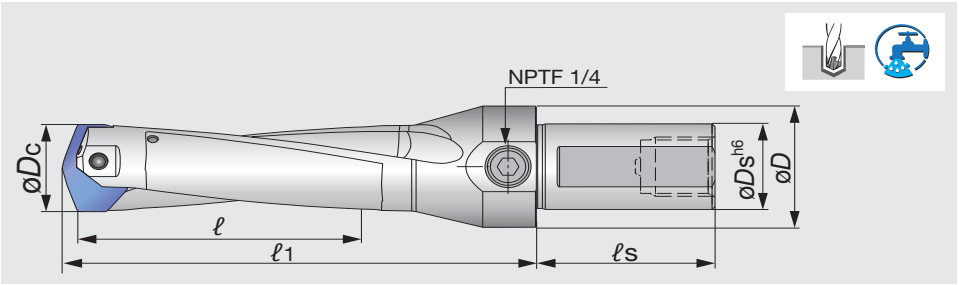
Drill bodies:
TIS flange type: Available in L/D=3 and 5
Each drill body is applicable for cutting heads in the diameter range of 1 mm (0.039")



SMP...

DRILL - L/D = 3

DrillForce-Meister TIS L/D = 3



Designation	øDc min	øDc max	øDs	øD	ℓ	ℓ1	ℓs	Pocket Size	Coolant	Insert
TISU1024F1250-3	1.024	1.059	1.250	1.575	3.071	4.61	2.362	26	Y	SMP26*
TISU1063F1250-3	1.063	1.098	1.250	1.575	3.189	4.72	2.362	27	Y	SMP27*
TISU1102F1250-3	1.102	1.138	1.250	1.575	3.307	5.06	2.362	28	Y	SMP28*
TISU1142F1250-3	1.142	1.177	1.250	1.575	3.425	5.17	2.362	29	Y	SMP29*
TISU1181F1250-3	1.181	1.217	1.250	1.654	3.543	5.30	2.362	30	Y	SMP30*
TISU1220F1250-3	1.220	1.256	1.250	1.654	3.661	5.42	2.362	31	Y	SMP31*
TISU1260F1500-3	1.260	1.295	1.500	1.890	3.780	5.63	2.677	32	Y	SMP32*
TISU1299F1500-3	1.299	1.335	1.500	1.890	3.898	5.75	2.677	33	Y	SMP33*
TISU1339F1500-3	1.339	1.374	1.500	1.890	4.016	5.87	2.677	34	Y	SMP34*
TISU1378F1500-3	1.378	1.413	1.500	1.890	4.134	6.00	2.677	35	Y	SMP35*
TISU1417F1500-3	1.417	1.453	1.500	1.890	4.252	6.12	2.677	36	Y	SMP36*
TISU1457F1500-3	1.457	1.492	1.500	1.890	4.370	6.24	2.677	37	Y	SMP37*
TISU1496F1500-3	1.496	1.531	1.500	1.969	4.488	6.57	2.677	38	Y	SMP38*
TISU1535F1500-3	1.535	1.571	1.500	1.969	4.606	6.69	2.677	39	Y	SMP39*
TISU1575F1500-3	1.575	1.614	1.500	1.969	4.724	6.81	2.677	40	Y	SMP40*

SPARE PARTS

Designation	Clamping screw	Wrench		Screw for side port	Plug*
		Torx Bit	Grip		
TISU1024F1250-3	TS50230D3	BLDT20/S7	H-TB2W	NPTF1/4	SL32IN
TISU1063F1250-3	TS50230D3	BLDT20/S7	H-TB2W	NPTF1/4	SL32IN
TISU1102F1250-3	TS50250D35	BLDT25/S7	H-TB2W	NPTF1/4	SL32IN
TISU1142F1250-3	TS50250D35	BLDT25/S7	H-TB2W	NPTF1/4	SL32IN
TISU1181F1250-3	TS60265D4	BLDT25/S7	H-TB2W	NPTF1/4	SL32IN
TISU1220F1250-3	TS60265D4	BLDT25/S7	H-TB2W	NPTF1/4	SL32IN
TISU1260F1500-3	TS60285D42	BLDT25/S7	H-TB2W	NPTF1/4	SL38IN
TISU1299F1500-3	TS60285D42	BLDT25/S7	H-TB2W	NPTF1/4	SL38IN
TISU1339F1500-3	TS60285D42	BLDT25/S7	H-TB2W	NPTF1/4	SL38IN
TISU1378F1500-3	TS60320D5	BLDT25/S7	H-TB2W	NPTF1/4	SL38IN
TISU1417F1500-3	TS60320D5	BLDT25/S7	H-TB2W	NPTF1/4	SL38IN
TISU1457F1500-3	TS60320D5	BLDT25/S7	H-TB2W	NPTF1/4	SL38IN
TISU1496F1500-3	TS80340D6	BLDT25/S7	H-TB2W	NPTF1/4	SL38IN
TISU1535F1500-3	TS80340D6	BLDT25/S7	H-TB2W	NPTF1/4	SL38IN
TISU1575F1500-3	TS80340D6	BLDT25/S7	H-TB2W	NPTF1/4	SL38IN

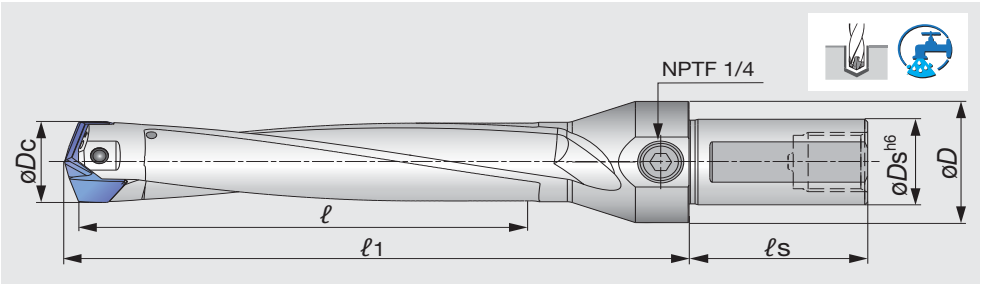
øDc	Hole diameter tolerance
ø1.024 - ø1.142	+0.0020 / 0
ø1.181 - ø1.575	+0.0024 / 0

*Optional part
Inner thread size: NPTF1/4

Head indexable large drill

DRILL - L/D = 5

DrillForce-Meister TIS L/D = 5



Designation	øDc min	øDc max	øDs	øD	ℓ	ℓ1	ℓs	Pocket Size	Coolant	Insert
TISU1024F1250-5	1.024	1.059	1.250	1.575	5.118	6.65	2.362	26	Y	SMP26*
TISU1063F1250-5	1.063	1.098	1.250	1.575	5.315	6.85	2.362	27	Y	SMP27*
TISU1102F1250-5	1.102	1.138	1.250	1.575	5.512	7.26	2.362	28	Y	SMP28*
TISU1142F1250-5	1.142	1.177	1.250	1.575	5.709	7.46	2.362	29	Y	SMP29*
TISU1181F1250-5	1.181	1.217	1.250	1.654	5.906	7.67	2.362	30	Y	SMP30*
TISU1220F1250-5	1.220	1.256	1.250	1.654	6.102	7.86	2.362	31	Y	SMP31*
TISU1260F1500-5	1.260	1.295	1.500	1.890	6.299	8.15	2.677	32	Y	SMP32*
TISU1299F1500-5	1.299	1.335	1.500	1.890	6.496	8.35	2.677	33	Y	SMP33*
TISU1339F1500-5	1.339	1.374	1.500	1.890	6.693	8.54	2.677	34	Y	SMP34*
TISU1378F1500-5	1.378	1.413	1.500	1.890	6.890	8.76	2.677	35	Y	SMP35*
TISU1417F1500-5	1.417	1.453	1.500	1.890	7.087	8.95	2.677	36	Y	SMP36*
TISU1457F1500-5	1.457	1.492	1.500	1.890	7.283	9.15	2.677	37	Y	SMP37*
TISU1496F1500-5	1.496	1.531	1.500	1.969	7.480	9.56	2.677	38	Y	SMP38*
TISU1535F1500-5	1.535	1.571	1.500	1.969	7.677	9.76	2.677	39	Y	SMP39*
TISU1575F1500-5	1.575	1.614	1.500	1.969	7.874	9.96	2.677	40	Y	SMP40*

SPARE PARTS

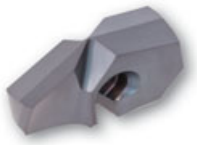
Designation	Clamping screw	Wrench		Screw for side port	Plug*
		Torx Bit	Grip		
TISU1024F1250-5	TS50230D3	BLDT20/S7	H-TB2W	NPTF1/4	SL32IN
TISU1063F1250-5	TS50230D3	BLDT20/S7	H-TB2W	NPTF1/4	SL32IN
TISU1102F1250-5	TS50230D35	BLDT25/S7	H-TB2W	NPTF1/4	SL32IN
TISU1142F1250-5	TS50230D35	BLDT25/S7	H-TB2W	NPTF1/4	SL32IN
TISU1181F1250-5	TS60265D4	BLDT25/S7	H-TB2W	NPTF1/4	SL32IN
TISU1220F1250-5	TS60265D4	BLDT25/S7	H-TB2W	NPTF1/4	SL32IN
TISU1260F1500-5	TS60285D42	BLDT25/S7	H-TB2W	NPTF1/4	SL38IN
TISU1299F1500-5	TS60285D42	BLDT25/S7	H-TB2W	NPTF1/4	SL38IN
TISU1339F1500-5	TS60285D42	BLDT25/S7	H-TB2W	NPTF1/4	SL38IN
TISU1378F1500-5	TS60320D5	BLDT25/S7	H-TB2W	NPTF1/4	SL38IN
TISU1417F1500-5	TS60320D5	BLDT25/S7	H-TB2W	NPTF1/4	SL38IN
TISU1457F1500-5	TS60320D5	BLDT25/S7	H-TB2W	NPTF1/4	SL38IN
TISU1496F1500-5	TS80340D6	BLDT25/S7	H-TB2W	NPTF1/4	SL38IN
TISU1535F1500-5	TS80340D6	BLDT25/S7	H-TB2W	NPTF1/4	SL38IN
TISU1575F1500-5	TS80340D6	BLDT25/S7	H-TB2W	NPTF1/4	SL38IN

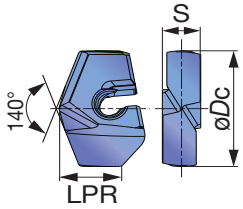
øDc	Hole diameter tolerance
ø1.024 - ø1.142	+0.0020 / 0
ø1.181 - ø1.575	+0.0024 / 0

*Optional part
Inner thread size: NPTF1/4

INSERTS

SMP





Tool diameter	ø1.024 - ø1.142	ø1.181 - ø1.575
Head diameter tolerance	-0.0002" / -0.0010"	-0.0002" / -0.0012"

Designation	øDc	Grade AH725	S	LPR	Pocket size	Applicable body
SMP260	1.024	√	0.295	0.457	26	TISU1024F1250-*
SMP261	1.028	√	0.295	0.457	26	TISU1024F1250-*
SMP265	1.043	√	0.295	0.457	26	TISU1024F1250-*
SMP267	1.051	√	0.295	0.457	26	TISU1024F1250-*
SMP270	1.063	√	0.295	0.437	27	TISU1063F1250-*
SMP271	1.067	√	0.295	0.437	27	TISU1063F1250-*
SMP272	1.071	√	0.295	0.437	27	TISU1063F1250-*
SMP275	1.083	√	0.295	0.437	27	TISU1063F1250-*
SMP280	1.102	√	0.315	0.461	28	TISU1102F1250-*
SMP281	1.106	√	0.315	0.461	28	TISU1102F1250-*
SMP285	1.122	√	0.315	0.461	28	TISU1102F1250-*
SMP286	1.126	√	0.315	0.461	28	TISU1102F1250-*
SMP290	1.142	√	0.315	0.445	29	TISU1142F1250-*
SMP291	1.146	√	0.315	0.445	29	TISU1142F1250-*
SMP295	1.161	√	0.315	0.445	29	TISU1142F1250-*
SMP296	1.165	√	0.315	0.445	29	TISU1142F1250-*
SMP300	1.181	√	0.335	0.555	30	TISU1181F1250-*
SMP301	1.185	√	0.335	0.555	30	TISU1181F1250-*
SMP302	1.189	√	0.335	0.555	30	TISU1181F1250-*
SMP303	1.193	√	0.335	0.555	30	TISU1181F1250-*
SMP305	1.201	√	0.335	0.555	30	TISU1181F1250-*
SMP308	1.213	√	0.335	0.555	30	TISU1181F1250-*
SMP310	1.220	√	0.335	0.539	31	TISU1220F1250-*
SMP311	1.224	√	0.335	0.539	31	TISU1220F1250-*
SMP315	1.240	√	0.335	0.539	31	TISU1220F1250-*
SMP318	1.252	√	0.335	0.539	31	TISU1220F1250-*
SMP320	1.260	√	0.354	0.571	32	TISU1260F1250-*
SMP321	1.264	√	0.354	0.571	32	TISU1260F1250-*
SMP325	1.280	√	0.354	0.571	32	TISU1260F1250-*
SMP328	1.291	√	0.354	0.571	32	TISU1260F1250-*
SMP330	1.299	√	0.354	0.555	33	TISU1299F1250-*
SMP331	1.303	√	0.354	0.555	33	TISU1299F1250-*
SMP333	1.311	√	0.354	0.555	33	TISU1299F1250-*
SMP335	1.319	√	0.354	0.555	33	TISU1299F1250-*
SMP340	1.339	√	0.354	0.539	34	TISU1339F1250-*
SMP341	1.343	√	0.354	0.539	34	TISU1339F1250-*
SMP345	1.358	√	0.354	0.539	34	TISU1339F1250-*
SMP349	1.374	√	0.354	0.539	34	TISU1339F1250-*
SMP350	1.378	√	0.394	0.654	35	TISU1378F1250-*
SMP351	1.382	√	0.394	0.654	35	TISU1378F1250-*
SMP355	1.398	√	0.394	0.654	35	TISU1378F1250-*

Designation	øDc	Grade AH725	S	LPR	Pocket size	Applicable body
SMP360	1.417	√	0.394	0.394	36	TISU1417F1250-*
SMP361	1.421	√	0.394	0.394	36	TISU1417F1250-*
SMP365	1.437	√	0.394	0.394	36	TISU1417F1250-*
SMP366	1.441	√	0.394	0.394	36	TISU1417F1250-*
SMP370	1.457	√	0.394	0.394	37	TISU1457F1250-*
SMP371	1.461	√	0.394	0.394	37	TISU1457F1250-*
SMP375	1.476	√	0.394	0.394	37	TISU1457F1250-*
SMP380	1.496	√	0.413	0.413	38	TISU1496F1250-*
SMP381	1.500	√	0.413	0.413	38	TISU1496F1250-*
SMP385	1.516	√	0.413	0.413	38	TISU1496F1250-*
SMP388	1.528	√	0.413	0.413	38	TISU1496F1250-*
SMP390	1.535	√	0.413	0.413	39	TISU1535F1250-*
SMP391	1.539	√	0.413	0.413	39	TISU1535F1250-*
SMP395	1.555	√	0.413	0.413	39	TISU1535F1250-*
SMP397	1.563	√	0.413	0.413	39	TISU1535F1250-*
SMP398	1.567	√	0.413	0.413	39	TISU1535F1250-*
SMP400	1.575	√	0.413	0.413	40	TISU1575F1250-*
SMP401	1.579	√	0.413	0.413	40	TISU1575F1250-*
SMP405	1.594	√	0.413	0.413	40	TISU1575F1250-*
SMP410	1.614	√	0.413	0.413	40	TISU1575F1250-*

√ : Stocked items

Note: See page 9 for more information about grades.

STANDARD CUTTING CONDITIONS

ISO	Workpiece materials	Cutting speed *Vc* (sfm)	Feed: *f* (ipr) øDc (in)		
			1.024" - 1.177"	1.181" - 1.403"	1.417" - 1.614"
P	Low carbon steels 1015, etc.	262 - 459	0.008 - 0.02	0.008 - 0.02	0.01 - 0.022
P	Carbon steels, Alloy steels 1055, 44140, etc.	262 - 427	0.008 - 0.02	0.008 - 0.02	0. 01 - 0.022
P	Prehardened steels NAK80, PX5, etc.	164 - 328	0.008 - 0.02	0.008 - 0.02	0.01 - 0.022
M	Stainless steels S30400, etc	131 - 262	0.006 - 0.012	0.006 - 0.012	0.008 - 0.014
K	Gray cast irons No.250B, No.300B, etc.	262 - 591	0.01 - 0.022	0.01 - 0.022	0.012 - 0.024
K	Ductile cast irons 60-40-18, 80-55-06, etc.	262 - 459	0.01 - 0.022	0.01 - 0.022	0.012 - 0.024
N	Non ferrous materials	328 - 722	0.016 - 0.024	0.016 - 0.024	0.02 - 0.028
S	Heat-resistant alloy Inconel718, etc.	66 - 164	0.004 - 0.008	0.004 - 0.008	0.004 - 0.01
S	Titanium alloys Ti-6Al-4V, etc.	98 - 197	0.004 - 0.008	0.004 - 0.008	0.004 - 0.01
H	Hardened materials	66 - 197	0.004 - 0.008	0.004 - 0.008	0.004 - 0.01

DRILLMEISTER
TUNGALOY

Full effective head-exchangeable drill for efficient holemaking

Quick head indexing on the machine reduces setup time and machine downtime.

- **Optimized geometry** of insert and drill head:

- **Excellent chip formation** due to the optimized insert geometry leads to smooth chip evacuation.

- Corner geometry of drill head **reduces burr at exit**.

- **Minimal chattering** due to the optimized honing and gash angles.

- Dovetail clamping structure improves clamping **rigidity as well as reliability** and also simplifies the setup of the inserts.

- **High-precision holes** as those of solid drills:

- The drill head is equipped with land margin for self-guidance and self-centering.

- Rigid drill holder prevents deformation even after repeatedly mounting/dismounting drill heads.

- TIDCF chamfer holder **combines drilling and chamfering**, reducing machining time.

- No regrinding cost + Less tool inventory = Decreased machining cost

TUNGFORCE DRILL
ACCELERATED MACHINING

Line up:

Drill head DMP…:
Available from øDc 0.394" - 1.019" in the increment of 0.1 mm (0.004")

Grade:
AH725 grade with high fracture and wear resistance extends tool life. PremiumTec coating on AH725 reduces built-up edge and improves chip evacuation.

Drill bodies:
TID flange type: Available in L/D=1.5, 3, 5 and 8 in metric and inch shank sizes. Improves clamping rigidity and covers high-feed applications.

TIDC straight type drills: Suitable for using with chamfer holders
TIDCF chamfer holder: Used with TIDC drills, combining drilling and chamfering with 3 types of inserts in chamfering angle 30°, 45° and 60°

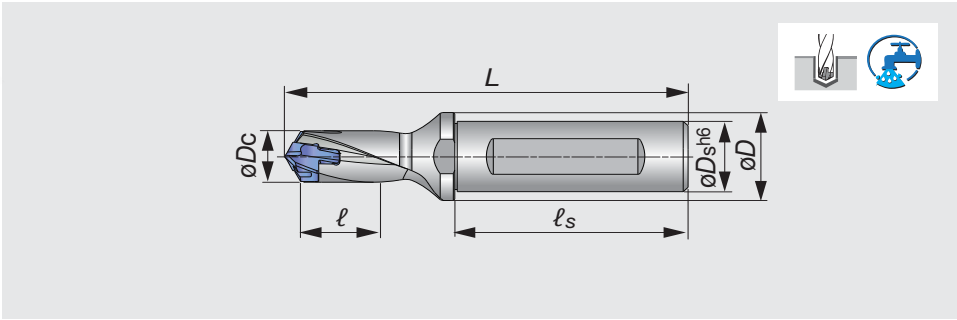
The drilling range has been expanded for L/D=12 to be used in collets or hydrogrips for improved concentricity and hole accuracy in long and deep drilling.

Chamfering adaptor

DMP Type

DRILL TID L/D = 1.5

DrillMeister TID L/D = 1.5



Designation	øDc	øDs	øD	ℓ	ℓs	L	Pocket size	Applicable head
TIDU0394F0625-1.5	0.394 - 0.429	0.625	0.787	0.591	1.890	3.118	10	DMP100 - DMP109
TIDU0433F0625-1.5	0.433 - 0.468	0.625	0.787	0.669	1.890	3.193	11	DMP110 - DMP119
TIDU0472F0625-1.5	0.472 - 0.508	0.625	0.787	0.709	1.890	3.268	12	DMP120 - DMP129
TIDU0512F0625-1.5	0.512 - 0.547	0.625	0.787	0.787	1.890	3.350	13	DMP130 - DMP139
TIDU0551F0625-1.5	0.551 - 0.587	0.625	0.787	0.827	1.890	3.508	14	DMP140 - DMP149
TIDU0591F0750-1.5	0.591 - 0.625	0.750	0.984	0.906	1.969	3.787	15	DMP150 - DMP159
TIDU0630F0750-1.5	0.630 - 0.665	0.750	0.984	0.945	1.969	3.909	16	DMP160 - DMP169
TIDU0669F0750-1.5	0.669 - 0.705	0.750	0.984	1.024	1.969	4.031	17	DMP170 - DMP179
TIDU0709F1000-1.5	0.709 - 0.744	1.000	1.260	1.063	2.205	4.390	18	DMP180 - DMP189
TIDU0748F1000-1.5	0.748 - 0.783	1.000	1.260	1.142	2.205	4.508	19	DMP190 - DMP199
TIDU0787F1000-1.5	0.787- 0.823	1.000	0.787	1.181	2.205	4.630	20	DMP200 - DMP209
TIDU0827F1000-1.5	0.827- 0.862	1.000	0.827	1.240	2.205	4.752	21	DMP210 - DMP219
TIDU0866F1000-1.5	0.866 - 0.902	1.000	0.866	1.299	2.205	4.874	22	DMP220 - DMP229
TIDU0906F1250-1.5	0.906 - 0.941	1.250	0.906	1.358	2.362	5.150	23	DMP230 - DMP239
TIDU0945F1250-1.5	0.945 - 0.980	1.250	0.945	1.417	2.362	5.272	24	DMP240 - DMP249
TIDU0984F1250-1.5	0.984 - 1.020	1.250	0.984	1.476	2.362	5.394	25	DMP250 - DMP259

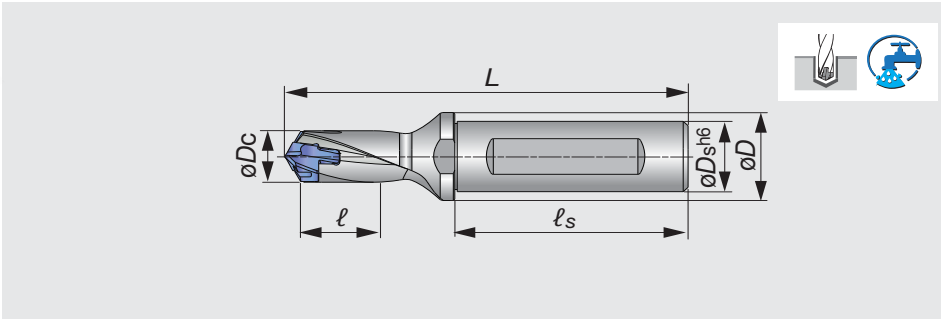
øDc	Hole diameter tolerance
0.394" ~ 0.783"	+0.002/0

SPARE PARTS

Drill diameter	Clamping key (included)
ø0.394" - ø0.783"	K-TID10-19.99

DRILL TID L/D = 1.5

DrillMeister TID L/D = 1.5



Metric

Designation	øDc	øDs	øD	ℓ	ℓs	L	Pocket size	Applicable head
TID100F16-1.5	10.0 - 10.9	16	20	15	48	79.2	10	DMP100 - DMP109
TID110F16-1.5	11.0 - 11.9	16	20	17	48	81.1	11	DMP110 - DMP119
TID120F16-1.5	12.0 - 12.9	16	20	18	48	83.0	12	DMP120 - DMP129
TID130F16-1.5	13.0 - 13.9	16	20	20	48	85.1	13	DMP130 - DMP139
TID140F16-1.5	14.0 - 14.9	16	20	21	48	89.1	14	DMP140 - DMP149
TID150F20-1.5	15.0 - 15.9	20	25	23	50	96.2	15	DMP150 - DMP159
TID160F20-1.5	16.0 - 16.9	20	25	24	50	99.3	16	DMP160 - DMP169
TID170F20-1.5	17.0 - 17.9	20	25	26	50	102.4	17	DMP170 - DMP179
TID180F25-1.5	18.0 - 18.9	25	32	27	56	111.5	18	DMP180 - DMP189
TID190F25-1.5	19.0 - 19.9	25	32	29	56	114.5	19	DMP190 - DMP199
TID200F25-1.5	20.0 - 20.9	25	32	30	56	117.6	20	DMP200 - DMP209
TID210F25-1.5	21.0 - 21.9	25	32	32	56	120.7	21	DMP210 - DMP219
TID220F25-1.5	22.0 - 22.9	25	32	33	56	123.8	22	DMP220 - DMP229
TID230F32-1.5	23.0 - 23.9	32	42	35	60	130.8	23	DMP230 - DMP239
TID240F32-1.5	24.0 - 24.9	32	42	36	60	133.9	24	DMP240 - DMP249
TID250F32-1.5	25.0 - 25.9	32	42	38	60	137	25	DMP250 - DMP259

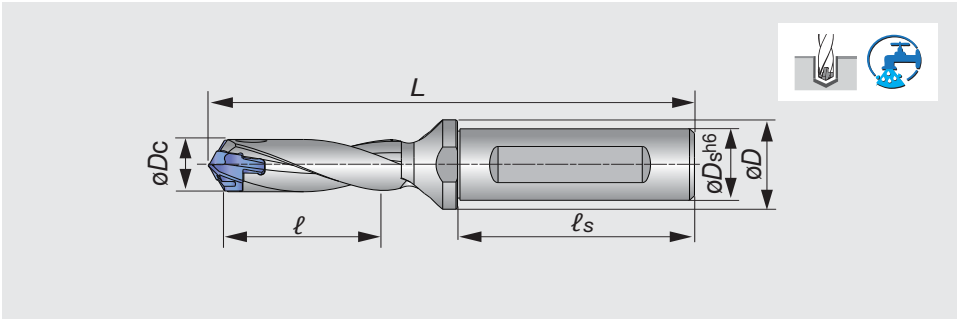
øDc	Hole diameter tolerance
ø10.0 - ø17.9	+0.05 / 0
ø18.0 - ø25.9	+0.05 / 0

SPARE PARTS

Drill diameter	Clamping key (included)
ø10.0 - ø19.9	K-TID10-19.99
ø20.0 - ø25.9	K-TID20-26.99

DRILL TID L/D = 3

DrillMeister TID L/D = 3



Designation	øDc	øDs	øD	ℓ	ℓs	L	Pocket size	Applicable head
TIDU0394F0625-3	0.394 - 0.409	0.625	0.787	1.181	1.890	3.709	10	DMP100 - DMP104
TIDU0413F0625-3	0.413 - 0.429	0.625	0.787	1.260	1.890	3.768	10	DMP105 - DMP109
TIDU0433F0625-3	0.433 - 0.449	0.625	0.787	1.299	1.890	3.843	11	DMP110 - DMP114
TIDU0453F0625-3	0.453 - 0.469	0.625	0.787	1.378	1.890	3.902	11	DMP115 - DMP119
TIDU0472F0625-3	0.472 - 0.488	0.625	0.787	1.417	1.890	3.976	12	DMP120 - DMP124
TIDU0492F0625-3	0.492 - 0.508	0.625	0.787	1.457	1.890	4.035	12	DMP125 - DMP129
TIDU0512F0625-3	0.512 - 0.528	0.625	0.787	1.535	1.890	4.118	13	DMP130 - DMP134
TIDU0532F0625-3	0.532 - 0.547	0.625	0.787	1.614	1.890	4.177	13	DMP135 - DMP139
TIDU0551F0625-3	0.551 - 0.567	0.625	0.787	1.654	1.890	4.335	14	DMP140 - DMP144
TIDU0571F0625-3	0.571 - 0.587	0.625	0.787	1.732	1.890	4.394	14	DMP145 - DMP149
TIDU0591F0750-3	0.591 - 0.626	0.750	0.984	1.772	1.969	4.673	15	DMP150 - DMP159
TIDU0630F0750-3	0.630 - 0.665	0.750	0.984	1.890	1.969	4.854	16	DMP160 - DMP169
TIDU0669F0750-3	0.669 - 0.705	0.750	0.984	2.008	1.969	5.035	17	DMP170 - DMP179
TIDU0709F1000-3	0.709 - 0.744	1.000	1.260	2.126	2.205	5.453	18	DMP180 - DMP189
TIDU0748F1000-3	0.748 - 0.783	1.000	1.260	2.244	2.205	5.630	19	DMP190 - DMP199
TIDU0787F1000-3	0.787 - 0.823	1.000	0.787	0.787	2.205	5.811	20	DMP200 - DMP209
TIDU0827F1000-3	0.827 - 0.862	1.000	0.827	0.827	2.205	5.992	21	DMP210 - DMP219
TIDU0866F1000-3	0.866 - 0.902	1.000	0.866	0.866	2.205	6.173	22	DMP220 - DMP229
TIDU0906F1250-3	0.906 - 0.941	1.250	0.906	0.906	2.362	6.508	23	DMP230 - DMP239
TIDU0945F1250-3	0.945 - 0.980	1.250	0.945	0.945	2.362	6.689	24	DMP240 - DMP249
TIDU0984F1250-3	0.984 - 1.020	1.250	0.984	0.984	2.362	6.870	25	DMP250 - DMP259

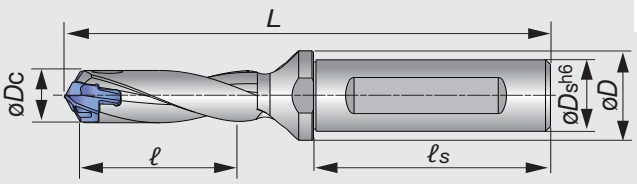
øDc	Hole diameter tolerance
0.394" ~ 0.783"	+0.002/0

SPARE PARTS

Drill diameter	Clamping key (included)
ø0.394" - ø0.783"	K-TID10-19.99

DRILL TID L/D = 3

DrillMeister TID L/D = 3



Metric

Designation	øDc	øDs	øD	ℓ	ℓs	L	Pocket size	Applicable head
TID100F16-3	10.0 - 10.4	16	20	30	48	94.2	10	DMP100 - DMP104
TID105F16-3	10.5 - 10.9	16	20	32	48	95.7	10	DMP105 - DMP109
TID110F16-3	11.0 - 11.4	16	20	33	48	97.6	11	DMP110 - DMP114
TID115F16-3	11.5 - 11.9	16	20	35	48	99.1	11	DMP115 - DMP119
TID120F16-3	12.0 - 12.4	16	20	36	48	101.0	12	DMP120 - DMP124
TID125F16-3	12.5 - 12.9	16	20	37	48	102.5	12	DMP125 - DMP129
TID130F16-3	13.0 - 13.4	16	20	39	48	104.6	13	DMP130 - DMP134
TID135F16-3	13.5 - 13.9	16	20	41	48	106.1	13	DMP135 - DMP139
TID140F16-3	14.0 - 14.4	16	20	42	48	110.1	14	DMP140 - DMP144
TID145F16-3	14.5 - 14.9	16	20	44	48	111.6	14	DMP145 - DMP149
TID150F20-3	15.0 - 15.9	20	25	45	50	118.7	15	DMP150 - DMP159
TID160F20-3	16.0 - 16.9	20	25	48	50	123.3	16	DMP160 - DMP169
TID170F20-3	17.0 - 17.9	20	25	51	50	127.9	17	DMP170 - DMP179
TID180F25-3	18.0 - 18.9	25	32	54	56	138.5	18	DMP180 - DMP189
TID190F25-3	19.0 - 19.9	25	32	57	56	143.0	19	DMP190 - DMP199
TID200F25-3	20.0 - 20.9	25	32	60	56	147.6	20	DMP200 - DMP209
TID210F25-3	21.0 - 21.9	25	32	63	56	152.2	21	DMP210 - DMP219
TID220F25-3	22.0 - 22.9	25	32	66	56	156.8	22	DMP220 - DMP229
TID230F32-3	23.0 - 23.9	32	42	69	60	165.3	23	DMP230 - DMP239
TID240F32-3	24.0 - 24.9	32	42	72	60	169.9	24	DMP240 - DMP249
TID250F32-3	25.0 - 25.9	32	42	75	60	174.5	25	DMP250 - DMP259

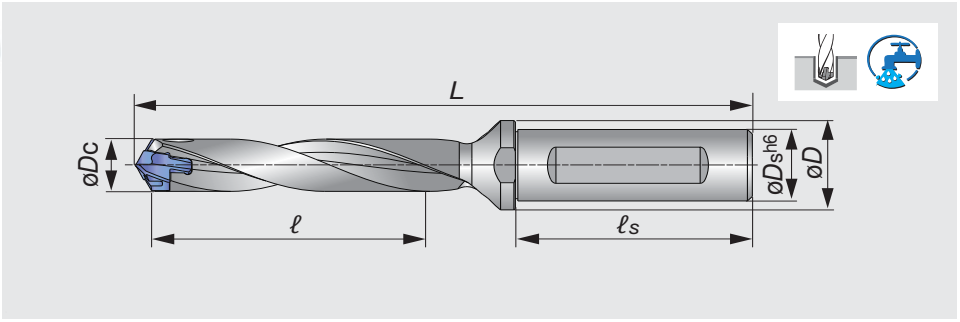
øDc	Hole diameter tolerance
ø10.0 - ø17.9	+0.05 / 0
ø18.0 - ø25.9	+0.05 / 0

SPARE PARTS

Drill diameter	Clamping key (included)
ø10.0 - ø19.9	K-TID10-19.99
ø20.0 - ø25.9	K-TID20-26.99

DRILL TID L/D = 5

DrillMeister TID L/D = 5



Designation	øDc	øDs	øD	ℓ	ℓs	L	Pocket size	Applicable head
TIDU0394F0625-5	0.394 - 0.409	0.625	0.787	1.969	1.890	4.575	10	DMP100 - DMP104
TIDU0413F0625-5	0.413 - 0.429	0.625	0.787	2.087	1.890	4.791	10	DMP105 - DMP109
TIDU0433F0625-5	0.433 - 0.449	0.625	0.787	2.165	1.890	4.984	11	DMP110 - DMP114
TIDU0453F0625-5	0.453 - 0.469	0.625	0.787	2.283	1.890	5.201	11	DMP115 - DMP119
TIDU0472F0625-5	0.472 - 0.488	0.625	0.787	2.362	1.890	5.394	12	DMP120 - DMP124
TIDU0492F0625-5	0.492 - 0.508	0.625	0.787	2.441	1.890	5.571	12	DMP125 - DMP129
TIDU0512F0625-5	0.512 - 0.528	0.625	0.787	2.559	1.890	5.811	13	DMP130 - DMP134
TIDU0532F0625-5	0.532 - 0.547	0.625	0.787	2.677	1.890	6.028	13	DMP135 - DMP139
TIDU0551F0625-5	0.551 - 0.567	0.625	0.787	2.756	1.890	6.307	14	DMP140 - DMP144
TIDU0571F0625-5	0.571 - 0.587	0.625	0.787	2.874	1.890	6.524	14	DMP145 - DMP149
TIDU0591F0750-5	0.591 - 0.626	0.750	0.984	2.953	1.969	6.839	15	DMP150 - DMP159
TIDU0630F0750-5	0.630 - 0.665	0.750	0.984	3.150	1.969	7.295	16	DMP160 - DMP169
TIDU0669F0750-5	0.669 - 0.705	0.750	0.984	3.346	1.969	7.752	17	DMP170 - DMP179
TIDU0709F1000-5	0.709 - 0.744	1.000	1.260	3.543	2.205	8.209	18	DMP180 - DMP189
TIDU0748F1000-5	0.748 - 0.783	1.000	1.260	3.740	2.205	8.661	19	DMP190 - DMP199
TIDU0787F1000-5	0.787 - 0.823	1.000	0.787	3.937	2.205	2.723	20	DMP200 - DMP209
TIDU0827F1000-5	0.827 - 0.862	1.000	0.827	4.134	2.205	7.646	21	DMP210 - DMP219
TIDU0866F1000-5	0.866 - 0.902	1.000	0.866	4.331	2.205	7.906	22	DMP220 - DMP229
TIDU0906F1250-5	0.906 - 0.941	1.250	0.906	4.528	2.362	8.319	23	DMP230 - DMP239
TIDU0945F1250-5	0.945 - 0.980	1.250	0.945	4.724	2.362	8.579	24	DMP240 - DMP249
TIDU0984F1250-5	0.984 - 1.020	1.250	0.984	4.921	2.362	8.839	25	DMP250 - DMP259

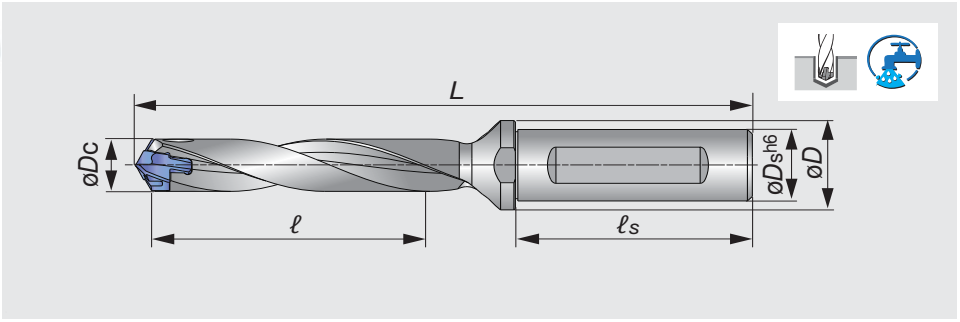
øDc	Hole diameter tolerance
0.394" ~ 0.783"	+0.002/0

SPARE PARTS

Drill diameter	Clamping key (included)
ø0.394" - ø0.783"	K-TID10-19.99

DRILL TID L/D = 5

DrillMeister TID L/D = 5



Metric

Designation	øDc	øDs	øD	ℓ	ℓs	L	Pocket size	Applicable head
TID100F16-5	10.0 - 10.4	16	20	50	48	114.2	10	DMP100 - DMP104
TID105F16-5	10.5 - 10.9	16	20	53	48	116.7	10	DMP105 - DMP109
TID110F16-5	11.0 - 11.4	16	20	55	48	119.6	11	DMP110 - DMP114
TID115F16-5	11.5 - 11.9	16	20	58	48	122.1	11	DMP115 - DMP119
TID120F16-5	12.0 - 12.4	16	20	60	48	125.0	12	DMP120 - DMP124
TID125F16-5	12.5 - 12.9	16	20	62	48	127.5	12	DMP125 - DMP129
TID130F16-5	13.0 - 13.4	16	20	65	48	130.6	13	DMP130 - DMP134
TID135F16-5	13.5 - 13.9	16	20	68	48	133.1	13	DMP135 - DMP139
TID140F16-5	14.0 - 14.4	16	20	70	48	138.2	14	DMP140 - DMP144
TID145F16-5	14.5 - 14.9	16	20	73	48	140.7	14	DMP145 - DMP149
TID150F20-5	15.0 - 15.9	20	25	75	50	148.7	15	DMP150 - DMP159
TID160F20-5	16.0 - 16.9	20	25	80	50	155.3	16	DMP160 - DMP169
TID170F20-5	17.0 - 17.9	20	25	85	50	161.9	17	DMP170 - DMP179
TID180F25-5	18.0 - 18.9	25	32	90	56	174.5	18	DMP180 - DMP189
TID190F25-5	19.0 - 19.9	25	32	95	56	181.0	19	DMP190 - DMP199
TID200F25-5	20.0 - 20.9	25	32	100	56	187.6	20	DMP200 - DMP209
TID210F25-5	21.0 - 21.9	25	32	105	56	194.2	21	DMP210 - DMP219
TID220F25-5	22.0 - 22.9	25	32	110	56	200.8	22	DMP220 - DMP229
TID230F32-5	23.0 - 23.9	32	42	115	60	211.3	23	DMP230 - DMP239
TID240F32-5	24.0 - 24.9	32	42	120	60	217.9	24	DMP240 - DMP249
TID250F32-5	25.0 - 25.9	32	42	125	60	224.5	25	DMP250 - DMP259

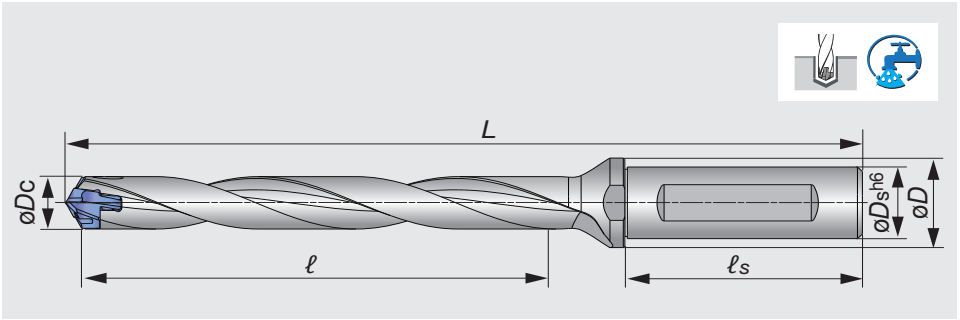
øDc	Hole diameter tolerance
ø10.0 - ø17.9	+0.06 / 0
ø18.0 - ø25.9	+0.065 / 0

SPARE PARTS

Drill diameter	Clamping key (included)
ø10.0 - ø19.9	K-TID10-19.99
ø20.0 - ø25.9	K-TID20-26.99

DRILL TID L/D = 8

DrillMeister TID L/D = 8



Designation	øDc	øDs	øD	ℓ	ℓs	L	Pocket size	Applicable head
TIDU0394F0625-8	0.394 - 0.409	0.625	0.787	3.150	1.890	5.677	10	DMP100 - DMP104
TIDU0413F0625-8	0.413 - 0.429	0.625	0.787	3.307	1.890	5.835	10	DMP105 - DMP109
TIDU0433F0625-8	0.433 - 0.449	0.625	0.787	3.465	1.890	6.008	11	DMP110 - DMP114
TIDU0453F0625-8	0.453 - 0.469	0.625	0.787	3.622	1.890	6.165	11	DMP115 - DMP119
TIDU0472F0625-8	0.472 - 0.488	0.625	0.787	3.780	1.890	6.339	12	DMP120 - DMP124
TIDU0492F0625-8	0.492 - 0.508	0.625	0.787	3.937	1.890	6.496	12	DMP125 - DMP129
TIDU0512F0625-8	0.512 - 0.528	0.625	0.787	4.094	1.890	6.677	13	DMP130 - DMP134
TIDU0532F0625-8	0.532 - 0.547	0.625	0.787	4.252	1.890	6.835	13	DMP135 - DMP139
TIDU0551F0625-8	0.551 - 0.567	0.625	0.787	4.409	1.890	7.091	14	DMP140 - DMP144
TIDU0571F0625-8	0.571 - 0.587	0.625	0.787	4.567	1.890	7.252	14	DMP145 - DMP149
TIDU0591F0750-8	0.591 - 0.626	0.750	0.984	4.724	1.969	7.626	15	DMP150 - DMP159
TIDU0630F0750-8	0.630 - 0.665	0.750	0.984	5.039	1.969	8.004	16	DMP160 - DMP169
TIDU0669F0750-8	0.669 - 0.705	0.750	0.984	5.354	1.969	8.382	17	DMP170 - DMP179
TIDU0709F1000-8	0.709 - 0.744	1.000	1.260	5.669	2.205	8.996	18	DMP180 - DMP189
TIDU0748F1000-8	0.748 - 0.783	1.000	1.260	5.984	2.205	9.370	19	DMP190 - DMP199
TIDU0787F1000-8	0.787 - 0.823	1.000	0.787	6.299	2.205	9.748	20	DMP200 - DMP209
TIDU0827F1000-8	0.827 - 0.862	1.000	0.827	6.614	2.205	10.126	21	DMP210 - DMP219
TIDU0866F1000-8	0.866 - 0.902	1.000	0.866	6.929	2.205	10.504	22	DMP220 - DMP229
TIDU0906F1250-8	0.906 - 0.941	1.250	0.906	7.244	2.362	11.035	23	DMP230 - DMP239
TIDU0945F1250-8	0.945 - 0.980	1.250	0.945	7.559	2.362	11.413	24	DMP240 - DMP249
TIDU0984F1250-8	0.984 - 1.020	1.250	0.984	7.874	2.362	11.791	25	DMP250 - DMP259

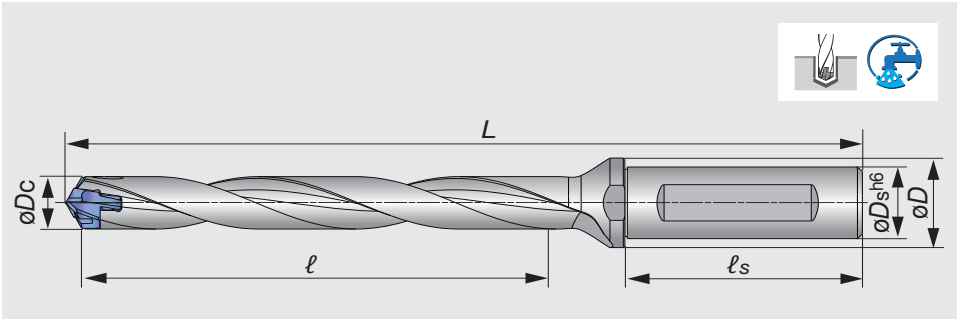
øDc	Hole diameter tolerance
0.394" ~ 0.783"	+0.003/0

SPARE PARTS

Drill diameter	Clamping key (included)
ø0.394" - ø0.783"	K-TID10-19.99

DRILL TID L/D = 8

DrillMeister TID L/D = 8



Metric

Designation	øDc	øDs	øD	ℓ	ℓs	L	Pocket size	Applicable head
TID100F16-8	10.0 - 10.4	16	20	80	48	144.2	10	DMP100 - DMP104
TID105F16-8	10.5 - 10.9	16	20	84	48	148.2	10	DMP105 - DMP109
TID110F16-8	11.0 - 11.4	16	20	88	48	152.6	11	DMP110 - DMP114
TID115F16-8	11.5 - 11.9	16	20	92	48	156.6	11	DMP115 - DMP119
TID120F16-8	12.0 - 12.4	16	20	96	48	161.0	12	DMP120 - DMP124
TID125F16-8	12.5 - 12.9	16	20	100	48	165.0	12	DMP125 - DMP129
TID130F16-8	13.0 - 13.4	16	20	104	48	169.6	13	DMP130 - DMP134
TID135F16-8	13.5 - 13.9	16	20	108	48	173.6	13	DMP135 - DMP139
TID140F16-8	14.0 - 14.4	16	20	112	48	180.1	14	DMP140 - DMP144
TID145F16-8	14.5 - 14.9	16	20	116	48	184.2	14	DMP145 - DMP149
TID150F20-8	15.0 - 15.9	20	25	120	50	193.7	15	DMP150 - DMP159
TID160F20-8	16.0 - 16.9	20	25	128	50	203.3	16	DMP160 - DMP169
TID170F20-8	17.0 - 17.9	20	25	136	50	212.9	17	DMP170 - DMP179
TID180F25-8	18.0 - 18.9	25	32	144	56	228.5	18	DMP180 - DMP189
TID190F25-8	19.0 - 19.9	25	32	152	56	238.0	19	DMP190 - DMP199
TID200F25-8	20.0 - 20.9	25	32	160	56	247.6	20	DMP200 - DMP209
TID210F25-8	21.0 - 21.9	25	32	168	56	257.2	21	DMP210 - DMP219
TID220F25-8	22.0 - 22.9	25	32	176	56	266.8	22	DMP220 - DMP229
TID230F32-8	23.0 - 23.9	32	42	184	60	280.3	23	DMP230 - DMP239
TID240F32-8	24.0 - 24.9	32	42	192	60	289.9	24	DMP240 - DMP249
TID250F32-8	25.0 - 25.9	32	42	200	60	299.5	25	DMP250 - DMP259

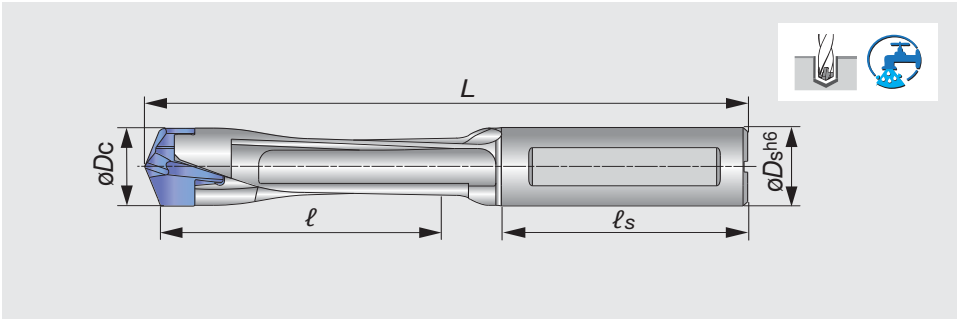
øDc	Hole diameter tolerance
ø10.0 - ø17.9	+0.07 / 0
ø18.0 - ø25.9	+0.085 / 0

SPARE PARTS

Drill diameter	Clamping key (included)
ø10.0 - ø19.9	K-TID10-19.99
ø20.0 - ø25.9	K-TID20-26.99

DRILL TIDC L/D = 3

DrillMeister TIDC L/D = 3



Metric

Designation	øDc	øDs	ℓ	ℓs	L	Pocket size	Clamping key	Applicable head
TIDC100C10-3	10.0 - 10.4	10	30.0	43	85.0	10	K-TID10-19.99	DMP100 - DMP104
TIDC105C11-3	10.5 - 10.9	11	31.5	43	87.1	10	K-TID10-19.99	DMP105 - DMP109
TIDC110C11-3	11.0 - 11.4	11	33.0	43	89.2	11	K-TID10-19.99	DMP110 - DMP114
TIDC115C12-3	11.5 - 11.9	12	34.5	43	91.3	11	K-TID10-19.99	DMP115 - DMP119
TIDC120C12-3	12.0 - 12.4	12	36.0	43	95.0	12	K-TID10-19.99	DMP120 - DMP124
TIDC125C13-3	12.5 - 12.9	13	37.5	43	95.5	12	K-TID10-19.99	DMP125 - DMP129
TIDC130C13-3	13.0 - 13.4	13	39.0	45	99.6	13	K-TID10-19.99	DMP130 - DMP134
TIDC135C14-3	13.5 - 13.9	14	40.5	45	101.7	13	K-TID10-19.99	DMP135 - DMP139
TIDC140C14-3	14.0 - 14.4	14	42.0	45	103.8	14	K-TID10-19.99	DMP140 - DMP144
TIDC145C15-3	14.5 - 14.9	15	43.5	45	105.9	14	K-TID10-19.99	DMP145 - DMP149
TIDC150C15-3	15.0 - 15.9	15	45.0	45	108.0	15	K-TID10-19.99	DMP150 - DMP159
TIDC160C16-3	16.0 - 16.9	16	48.0	48	117.7	16	K-TID10-19.99	DMP160 - DMP169
TIDC170C17-3	17.0 - 17.9	17	51.0	48	119.4	17	K-TID10-19.99	DMP170 - DMP179
TIDC180C18-3	18.0 - 18.9	18	54.0	48	123.8	18	K-TID10-19.99	DMP180 - DMP189
TIDC190C19-3	19.0 - 19.9	19	57.0	54	132.2	19	K-TID10-19.99	DMP190 - DMP199

(Unit: mm)

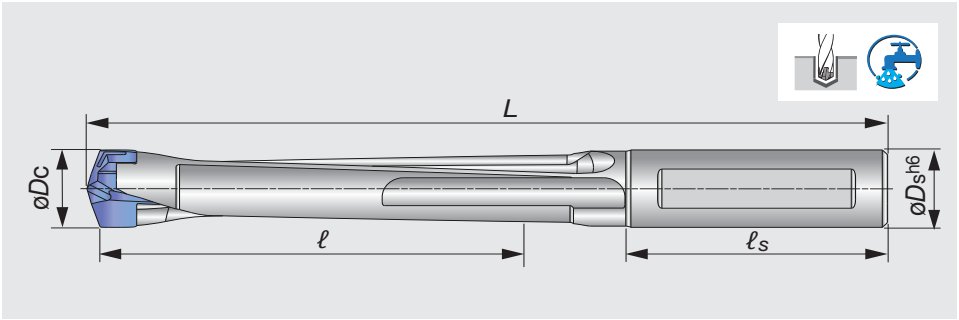
øDc	Hole diameter tolerance
ø10.0 - ø19.9	+0.002/0

SPARE PARTS

Drill diameter	Clamping key (included)
ø10.0 - ø19.9	K-TID10-19.99

DRILL TIDC L/D = 5

DrillMeister TIDC L/D = 5



Metric

Designation	øDc	øDs	ℓ	ℓs	L	Pocket size	Clamping key	Applicable head
TIDC100C10-5	10.0 - 10.4	10	50.0	43	105.0	10	K-TID10-19.99	DMP100 - DMP104
TIDC105C11-5	10.5 - 10.9	11	52.5	43	108.1	10	K-TID10-19.99	DMP105 - DMP109
TIDC110C11-5	11.0 - 11.4	11	55.0	43	111.2	11	K-TID10-19.99	DMP110 - DMP114
TIDC115C12-5	11.5 - 11.9	12	57.5	43	114.3	11	K-TID10-19.99	DMP115 - DMP119
TIDC120C12-5	12.0 - 12.4	12	60.0	43	119.0	12	K-TID10-19.99	DMP120 - DMP124
TIDC125C13-5	12.5 - 12.9	13	62.5	43	120.5	12	K-TID10-19.99	DMP125 - DMP129
TIDC130C13-5	13.0 - 13.4	13	65.0	45	125.6	13	K-TID10-19.99	DMP130 - DMP134
TIDC135C14-5	13.5 - 13.9	14	67.5	45	128.7	13	K-TID10-19.99	DMP135 - DMP139
TIDC140C14-5	14.0 - 14.4	14	70.0	45	131.8	14	K-TID10-19.99	DMP140 - DMP144
TIDC145C15-5	14.5 - 14.9	15	72.5	45	134.9	14	K-TID10-19.99	DMP145 - DMP149
TIDC150C15-5	15.0 - 15.9	15	75.0	45	138.0	15	K-TID10-19.99	DMP150 - DMP159
TIDC160C16-5	16.0 - 16.9	16	80.0	48	149.7	16	K-TID10-19.99	DMP160 - DMP169
TIDC170C17-5	17.0 - 17.9	17	85.0	48	153.4	17	K-TID10-19.99	DMP170 - DMP179
TIDC180C18-5	18.0 - 18.9	18	90.0	48	159.6	18	K-TID10-19.99	DMP180 - DMP189
TIDC190C19-5	19.0 - 19.9	19	95.0	54	170.2	19	K-TID10-19.99	DMP190 - DMP199

- Applicable drill head with diameter øDc shown in above table.

(Unit: mm)

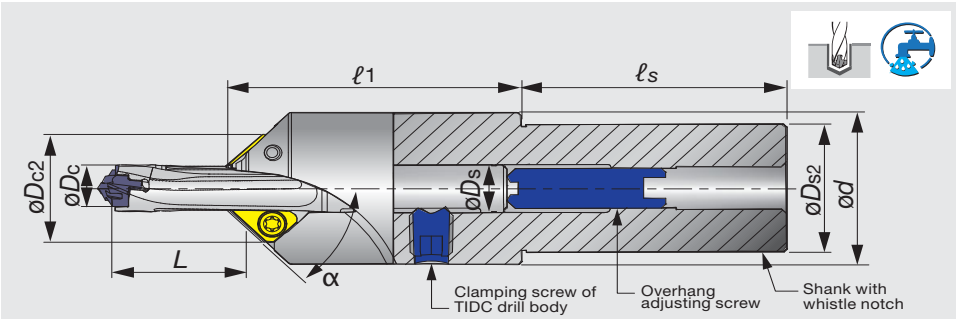
øDc	Hole diameter tolerance
ø10.0 - ø19.9	+0.002/0

SPARE PARTS

Drill diameter	Clamping key (included)
ø10.0 - ø19.9	K-TID10-19.99

CHAMFERING ADAPTOR

TIDC TYPE



Metric

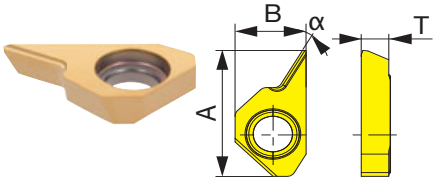
Designation	øDc	øDs2	ød	øDc2	ℓ1	ℓs	L* L/D = 3	L* L/D = 5	Applicable drill body	øDs
TIDCF100-W32	10.0 - 10.4	32	38	24.9	67.3	60	14.5 - 31.8	31.7 - 51.8	TIDC100C10-...	10
TIDCF110-W32	10.5 - 10.9	32	38	25.9	67.3	60	15.7 - 33.3	31.2 - 54.2	TIDC105C11-...	11
TIDCF110-W32	11.0 - 11.4	32	38	25.9	67.3	60	16.2 - 35.3	34.1 - 57.3	TIDC110C11-...	11
TIDCF120-W32	11.5 - 11.9	32	38	26.9	67.3	60	15.1 - 36.7	33.8 - 59.4	TIDC115C12-...	12
TIDCF120-W32	12.0 - 12.4	32	38	26.9	67.3	60	16.5 - 37.7	36.6 - 61.6	TIDC120C12-...	12
TIDCF130-W32	12.5 - 12.9	32	38	27.9	67.3	60	16.1 - 39.6	39.7 - 64.8	TIDC125C13-...	13
TIDCF130-W32	13.0 - 13.4	32	38	27.9	67.3	60	17.5 - 41.5	42.7 - 68.0	TIDC130C13-...	13
TIDCF140-W32	13.5 - 13.9	32	38	28.4	67.3	60	17.7 - 42.9	41.4 - 70.3	TIDC135C14-...	14
TIDCF140-W32	14.0 - 14.4	32	38	28.4	67.3	60	18.1 - 45.0	44.8 - 73.1	TIDC140C14-...	14
TIDCF150-W32	14.5 - 14.9	32	38	29.4	67.3	60	19.2 - 44.6	44.0 - 73.9	TIDC145C15-...	15
TIDCF150-W32	15.0 - 15.9	32	38	29.4	67.3	60	19.7 - 47.4	47.6 - 80.7	TIDC150C15-...	15
TIDCF160-W32	16.0 - 16.9	32	38	30.4	67.3	60	19.5 - 55.3	57.0 - 87.5	TIDC160C16-...	16
TIDCF170-W32	17.0 - 17.9	32	38	31.4	67.3	60	21.4 - 54.9	55.9 - 88.5	TIDC170C17-...	17
TIDCF180-W32	18.0 - 18.9	32	38	32.4	67.3	60	24.2 - 65.2	60.0 - 93.0	TIDC180C18-...	18
TIDCF190-W32	19.0 - 19.9	32	38	33.4	75.0	60	28.5 - 62.3	67.0 - 100.0	TIDC190C19-...	19

L * is the dimension when using 45° chamfering insert

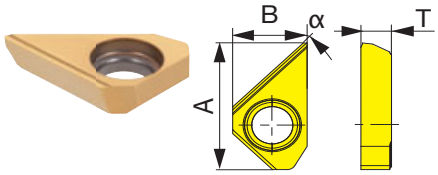
(Unit: mm)

CHAMFERING INSERT

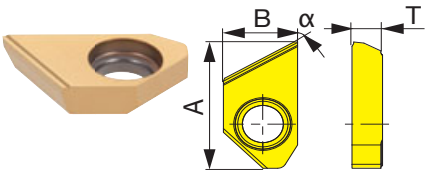
XHGT-30A



XHGR-45A



XHGR-60A



Designation	Stock GH730	A	B	T	Chamfering angle α	Maximum width of chamfer **
XHGT090300-30A	√	16	8.8	3.3	30°	1.5
XHGR090300-45A	√	16	8.8	3.3	45°	6.0
XHGR090300-60A	√	16	8.8	3.3	60°	3.5

**Please reduce the feed rate to half when chamfering over 60% of maximum width of chamfer

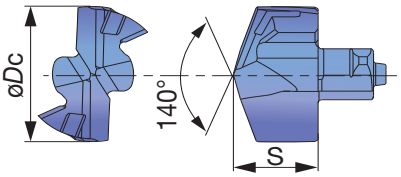
(Unit: mm)

√ : Stocked items

Package quantity = 2 pcs.

DRILL HEAD

DMP type



Tool diameter	ø0.394"-ø0.783"
Head diameter tolerance	+0.0007"/0

Designation	øDc (inch)	øDc (mm)	Stock AH725	S (mm)	Pocket size	Applicable body
DMP100	0.394	10.0	√	6.05	10	TID*100*
DMP101	0.398	10.1	√	6.05	10	TID*100*
DMP102	0.402	10.2	√	6.05	10	TID*100*
DMP103	0.406	10.3	√	6.05	10	TID*100*
DMP104	0.409	10.4	√	6.05	10	TID*100*
DMP105	0.413	10.5	√	6.05	10	TID*105*
DMP106	0.417	10.6	√	6.05	10	TID*105*
DMP107	0.421	10.7	√	6.05	10	TID*105*
DMP108	0.425	10.8	√	6.05	10	TID*105*
DMP109	0.429	10.9	√	6.05	10	TID*105*
DMP110	0.433	11.0	√	6.45	11	TID*110*
DMP111	0.437	11.1	√	6.45	11	TID*110*
DMP112	0.441	11.2	√	6.45	11	TID*110*
DMP113	0.445	11.3	√	6.45	11	TID*110*
DMP114	0.449	11.4	√	6.45	11	TID*110*
DMP115	0.453	11.5	√	6.45	11	TID*115*
DMP116	0.457	11.6	√	6.45	11	TID*115*
DMP117	0.461	11.7	√	6.45	11	TID*115*
DMP118	0.465	11.8	√	6.45	11	TID*115*
DMP119	0.469	11.9	√	6.45	11	TID*115*
DMP120	0.472	12.0	√	6.80	12	TID*120*
DMP121	0.476	12.1	√	6.80	12	TID*120*
DMP122	0.480	12.2	√	6.80	12	TID*120*
DMP123	0.484	12.3	√	6.80	12	TID*120*
DMP124	0.488	12.4	√	6.80	12	TID*120*
DMP125	0.492	12.5	√	6.80	12	TID*125*
DMP126	0.496	12.6	√	6.80	12	TID*125*
DMP127	0.500	12.7	√	6.80	12	TID*125*
DMP128	0.504	12.8	√	6.80	12	TID*125*
DMP129	0.508	12.9	√	6.80	12	TID*125*
DMP130	0.512	13.0	√	7.40	13	TID*130*
DMP131	0.516	13.1	√	7.40	13	TID*130*
DMP132	0.520	13.2	√	7.40	13	TID*130*
DMP133	0.524	13.3	√	7.40	13	TID*130*
DMP134	0.528	13.4	√	7.40	13	TID*130*
DMP135	0.532	13.5	√	7.40	13	TID*135*
DMP136	0.535	13.6	√	7.40	13	TID*135*
DMP137	0.539	13.7	√	7.40	13	TID*135*
DMP138	0.543	13.8	√	7.40	13	TID*135*
DMP139	0.547	13.9	√	7.40	13	TID*135*
DMP140	0.551	14.0	√	7.95	14	TID*140*
DMP141	0.555	14.1	√	7.95	14	TID*140*
DMP142	0.559	14.2	√	7.95	14	TID*140*
DMP143	0.563	14.3	√	7.95	14	TID*140*

Designation	øDc (inch)	øDc (mm)	Stock AH725	S (mm)	Pocket size	Applicable body
DMP144	0.567	14.4	√	7.95	14	TID*140*
DMP145	0.571	14.5	√	7.95	14	TID*145*
DMP146	0.575	14.6	√	7.95	14	TID*145*
DMP147	0.579	14.7	√	7.95	14	TID*145*
DMP148	0.583	14.8	√	7.95	14	TID*145*
DMP149	0.587	14.9	√	7.95	14	TID*145*
DMP150	0.591	15.0	√	8.53	15	TID*150*
DMP151	0.594	15.1	√	8.53	15	TID*150*
DMP152	0.598	15.2	√	8.53	15	TID*150*
DMP153	0.602	15.3	√	8.53	15	TID*150*
DMP154	0.606	15.4	√	8.53	15	TID*150*
DMP155	0.610	15.5	√	8.53	15	TID*150*
DMP156	0.614	15.6	√	8.53	15	TID*150*
DMP157	0.618	15.7	√	8.53	15	TID*150*
DMP158	0.622	15.8	√	8.53	15	TID*150*
DMP159	0.626	15.9	√	8.53	15	TID*150*
DMP160	0.630	16.0	√	9.10	16	TID*160*
DMP161	0.634	16.1	√	9.10	16	TID*160*
DMP162	0.638	16.2	√	9.10	16	TID*160*
DMP163	0.642	16.3	√	9.10	16	TID*160*
DMP164	0.646	16.4	√	9.10	16	TID*160*
DMP165	0.650	16.5	√	9.10	16	TID*160*
DMP166	0.654	16.6	√	9.10	16	TID*160*
DMP0656	0.656	16.66	√	9.10	16	TID*160*
DMP167	0.657	16.7	√	9.10	16	TID*160*
DMP168	0.661	16.8	√	9.10	16	TID*160*
DMP169	0.665	16.9	√	9.10	16	TID*160*
DMP170	0.669	17.0	√	9.70	17	TID*170*
DMP171	0.673	17.1	√	9.70	17	TID*170*
DMP172	0.677	17.2	√	9.70	17	TID*170*
DMP173	0.681	17.3	√	9.70	17	TID*170*
DMP174	0.685	17.4	√	9.70	17	TID*170*
DMP175	0.689	17.5	√	9.70	17	TID*170*
DMP176	0.693	17.6	√	9.70	17	TID*170*
DMP177	0.697	17.7	√	9.70	17	TID*170*
DMP178	0.701	17.8	√	9.70	17	TID*170*
DMP179	0.705	17.9	√	9.70	17	TID*170*
DMP180	0.709	18.0	√	10.30	18	TID*180*
DMP181	0.713	18.1	√	10.30	18	TID*180*
DMP182	0.717	18.2	√	10.30	18	TID*180*
DMP183	0.720	18.3	√	10.30	18	TID*180*
DMP184	0.724	18.4	√	10.30	18	TID*180*
DMP185	0.728	18.5	√	10.30	18	TID*180*
DMP186	0.732	18.6	√	10.30	18	TID*180*

Designation	øDc (inch)	øDc (mm)	Stock AH725	S (mm)	Pocket size	Applicable body
DMP187	0.736	18.7	√	10.30	18	TID*180*
DMP188	0.740	18.8	√	10.30	18	TID*180*
DMP189	0.744	18.9	√	10.30	18	TID*180*
DMP190	0.748	19.0	√	10.80	19	TID*190*
DMP0750	0.750	19.05	√	10.80	19	TID*190*
DMP191	0.752	19.1	√	10.80	19	TID*190*
DMP192	0.756	19.2	√	10.80	19	TID*190*
DMP193	0.760	19.3	√	10.80	19	TID*190*
DMP194	0.764	19.4	√	10.80	19	TID*190*
DMP0766	0.766	19.5	√	10.80	19	TID*190*
DMP195	0.768	19.5	√	10.80	19	TID*190*
DMP196	0.772	19.6	√	10.80	19	TID*190*
DMP197	0.776	19.7	√	10.80	19	TID*190*
DMP198	0.780	19.8	√	10.80	19	TID*190*
DMP0781	0.781	19.84	√	10.80	19	TID*190*
DMP199	0.783	19.9	√	10.80	19	TID*190*
DMP200	0.787	20.0	√	11.40	20	TID*200*
DMP201	0.791	20.1	√	11.40	20	TID*200*
DMP202	0.795	20.2	√	11.40	20	TID*200*
DMP203	0.799	20.3	√	11.40	20	TID*200*
DMP204	0.803	20.4	√	11.40	20	TID*200*
DMP205	0.807	20.5	√	11.40	20	TID*200*
DMP206	0.811	20.6	√	11.40	20	TID*200*
DMP207	0.815	20.7	√	11.40	20	TID*200*
DMP208	0.819	20.8	√	11.40	20	TID*200*
DMP209	0.823	20.9	√	11.40	20	TID*200*
DMP210	0.827	21.0	√	11.98	21	TID*210*
DMP211	0.831	21.1	√	11.98	21	TID*210*
DMP212	0.835	21.2	√	11.98	21	TID*210*
DMP213	0.839	21.3	√	11.98	21	TID*210*
DMP214	0.843	21.4	√	11.98	21	TID*210*
DMP215	0.846	21.5	√	11.98	21	TID*210*
DMP216	0.850	21.6	√	11.98	21	TID*210*
DMP217	0.854	21.7	√	11.98	21	TID*210*
DMP218	0.858	21.8	√	11.98	21	TID*210*
DMP219	0.862	21.9	√	11.98	21	TID*210*
DMP220	0.866	22.0	√	12.56	22	TID*220*
DMP221	0.870	22.1	√	12.56	22	TID*220*
DMP222	0.874	22.2	√	12.56	22	TID*220*
DMP223	0.878	22.3	√	12.56	22	TID*220*
DMP224	0.882	22.4	√	12.56	22	TID*220*
DMP225	0.886	22.5	√	12.56	22	TID*220*
DMP226	0.890	22.6	√	12.56	22	TID*220*
DMP227	0.894	22.7	√	12.56	22	TID*220*
DMP228	0.898	22.8	√	12.56	22	TID*220*
DMP229	0.902	22.9	√	12.56	22	TID*220*
DMP230	0.906	23.0	√	13.13	23	TID*230*
DMP231	0.909	23.1	√	13.13	23	TID*230*
DMP232	0.913	23.2	√	13.13	23	TID*230*
DMP233	0.917	23.3	√	13.13	23	TID*230*
DMP234	0.921	23.4	√	13.13	23	TID*230*
DMP235	0.925	23.5	√	13.13	23	TID*230*
DMP236	0.929	23.6	√	13.13	23	TID*230*
DMP237	0.933	23.7	√	13.13	23	TID*230*
DMP238	0.937	23.8	√	13.13	23	TID*230*
DMP239	0.941	23.9	√	13.13	23	TID*230*
DMP240	0.945	24.0	√	13.70	24	TID*240*
DMP241	0.949	24.1	√	13.70	24	TID*240*
DMP242	0.953	24.2	√	13.70	24	TID*240*
DMP243	0.957	24.3	√	13.70	24	TID*240*
DMP244	0.961	24.4	√	13.70	24	TID*240*
DMP245	0.965	24.5	√	13.70	24	TID*240*
DMP246	0.969	24.6	√	13.70	24	TID*240*
DMP247	0.972	24.7	√	13.70	24	TID*240*
DMP248	0.976	24.8	√	13.70	24	TID*240*
DMP249	0.980	24.9	√	13.70	24	TID*240*
DMP250	0.984	25.0	√	14.30	25	TID*250*
DMP251	0.988	25.1	√	14.30	25	TID*250*
DMP252	0.992	25.2	√	14.30	25	TID*250*
DMP253	0.996	25.3	√	14.30	25	TID*250*
DMP254	1.000	25.4	√	14.30	25	TID*250*
DMP255	1.004	25.5	√	14.30	25	TID*250*
DMP256	1.008	25.6	√	14.30	25	TID*250*
DMP257	1.012	25.7	√	14.30	25	TID*250*
DMP258	1.016	25.8	√	14.30	25	TID*250*
DMP259	1.020	25.9	√	14.30	25	TID*250*

- Additional sizes to 25.9 mm DMP 200 ~ 259 is corresponding drill bodies on page 213, 215, 217, 219.

√ : Stocked items

Note: See page 9 for more information about grades.

STANDARD CUTTING CONDITIONS

ISO	Workpiece material	Cutting speed	Feed: *f* (ipr)			
			øDc (in)			
		Vc (sfm)	ø0.393 - ø0.468	ø0.472 - ø0.547	ø0.551 - ø0.625	ø0.629 - ø0.783
P	Low carbon steel (C < 0.3) (1010, 1020, 1025, etc.)	260 -450	0.006 - 0.011	0.007 - 0.012	0.008 - 0.014	0.01 - 0.017
P	High carbon steel (C > 0.3) (1045, 1055, etc.)	230 - 400	0.006 - 0.011	0.007 - 0.012	0.008 - 0.014	0.01 - 0.017
P	Low alloy steel (5120, etc.)	230 - 400	0.005 - 0.011	0.006 - 0.012	0.007 - 0.014	0.009 - 0.015
P	Alloy steel (4140, 5120, etc.)	130 - 300	0.005 - 0.011	0.006 - 0.012	0.007 - 0.013	0.009 - 0.015
M	Stainless steel (304, 316, etc.)	100 - 230	0.004 - 0.007	0.005 - 0.008	0.006 - 0.009	0.006 - 0.010
K	Gray cast iron (No.250B, etc.)	260 - 600	0.008 - 0.014	0.010 - 0.015	0.011 - 0.017	0.014 - 0.021
K	Ductile cast iron (80-55-06, etc.)	260 - 450	0.008 - 0.014	0.010 - 0.015	0.011 - 0.017	0.014 - 0.021
N	Aluminum alloys (7075, etc.)	260 - 720	0.010 - 0.015	0.011 - 0.017	0.014 - 0.020	0.015 - 0.024
S	Titanium alloys (Ti-6Al-4V, etc.)	65 - 160	0.003 - 0.006	0.004 - 0.011	0.005 - 0.008	0.006 - 0.009
S	Nickel-based alloys	65 - 160	0.003 - 0.006	0.004 - 0.006	0.005 - 0.007	0.006 - 0.009

- Cutting conditions in the above table show standard cutting conditions.
- Cutting conditions may change due to the rigidity and power of the machine and the workpiece material.
- Machined hole diameter may change depending upon the rigidity of the machine tool or cutting conditions.
- In case of L/D = 8 drill, the recommended range of cutting speeds and feeds is between the minimum and median values listed above.

MEMO

TUNGSIX-DRILL
TUNGALOY

Inserts with 6 cutting edges, the most economical drill in the market

The world's first indexable drill, featuring a uniquely designed double-sided insert, offers highly economical drilling with enhanced stability and long tool life.

- **Double-sided insert with 6 cutting edges:**

- **One type of the insert** is applicable for both **central** and **peripheral** pockets to simplify the inventory, instead of managing two different types of the inserts.

- **Optimized geometries of central and peripheral cutting edges**

- **Positive land geometry** reduces cutting force to the level comparable with the competitor's single-sided inserts.

- The **obtuse relief angle** on the corner of the central cutting edge increases the insert's strength and **fracture resistance.**

- New **AH9030** and **AH6030 grades improve tool life** compared to the competitors even when drilling at high speed and feed rate.

- Pocket design ensures correct insert positioning in peripheral and central pockets.

- **Twisted coolant holes** allow the cross section of flutes to be large and increase coolant volume.

- Drill range is from øDc 20 to 50 mm. (0.812" - 2.00")

TUNGFORCE DRILL
ACCELERATED MACHINING

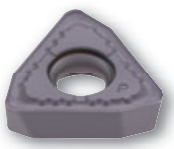
Line up:

Inserts:
Available in the sizes of WWMU05, 06, 07, 08, 09, 11 and 13. Each has 6 cutting edges

Drill bodies:
TDS : Available in L/D = 2, 3, and 4 in metric and inch shank sizes from øDc 20 to 55 mm (0.812" to 2.00")
TDB.. : Suitable for large diameters offered in the cartridge design from øDc 54 to 80 mm (2.25” to 3.157”) in L/D = 2.5

Grades:
AH9030: Ideal for steel and cast iron
AH6030: Ideal for stainless steel and superalloys, such as titanium and Inconel
PremiumTec coating reduces chip welding and promotes smooth chip flow

Chipbreakers:
DJ: Well-designed and suited for general steel, cast iron and hard materials
DS: The first choice for mild steel, such as stainless steel and low-carbon steel

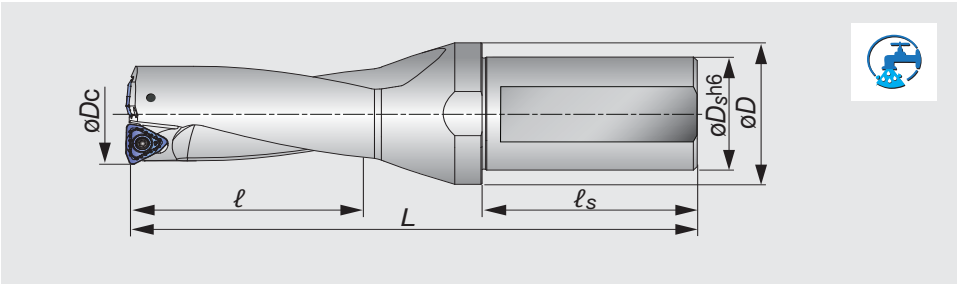

WWMU-DJ

WWMU-DS

TungSix-Drill L/D=2, weldon flat, tool dia. 0.812”-1.062”

DRILL L/D = 2

TungSix-Drill TDS-F, shank with flat, L/D = 2



Machined hole diameter may change depending upon the rigidity of the machine tool or cutting conditions.

Designation	øDc	øDs	øD	ℓ	ℓs	L	Offset	lb	Insert
TDSU0812F-2	0.812	1.000	1.457	1.625	2.205	4.665	0.031	0.7	WWMU05X205R-D*
TDSU0875F-2	0.875	1.000	1.457	1.75	2.205	4.831	0.020	0.7	WWMU05X205R-D*
TDSU0937F-2	0.937	1.000	1.457	1.875	2.205	4.994	0.047	0.9	WWMU060306R-D*
TDSU1000F-2	1.000	1.000	1.457	2.000	2.205	5.161	0.026	0.9	WWMU060306R-D*
TDSU1062F-2	1.062	1.250	1.575	2.125	2.342	5.465	0.012	1.3	WWMU060306R-D*

øDc	Tool diameter tolerance	Hole diameter tolerance
ø0.812 - ø1.063	+ 0.008 / 0	+ 0.010 / 0

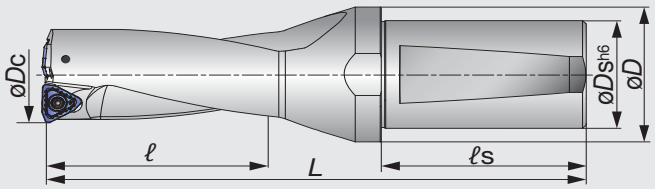
SPARE PARTS

Designation	Clamping screw	Mono block type wrench
TDSU0812** - TDSU0875**	CSPB-2.2	IP-7D
TDSU0937** - TDSU1062**	CSPB-2.5	IP-8D

TungSix-Drill L/D=2, whistle notch, tool dia. 1.125”-2.000”

DRILL L/D = 2

TungSix-Drill Whistle notch, L/D = 2



Machined hole diameter may change depending upon the rigidity of the machine tool or cutting conditions.

Designation	øDc	øDs	øD	ℓ	ℓs	L	Offset	lb	Insert
TDSU1125-02	1.125	1.250	1.575	2.250	2.280	5.892	0.043	1.5	WWMU08X408R-**
TDSU1187-02	1.187	1.250	1.575	2.374	2.280	6.079	0.019	1.6	WWMU08X408R-**
TDSU1250-02	1.250	1.250	1.575	2.500	2.280	6.267	0.008	1.7	WWMU08X408R-**
TDSU1312-02	1.312	1.500	1.969	2.624	2.688	6.862	0.055	2.5	WWMU09X510R-**
TDSU1375-02	1.375	1.500	1.969	2.750	2.688	7.049	0.047	2.6	WWMU09X510R-**
TDSU1437-02	1.437	1.500	1.969	2.874	2.688	7.237	0.027	2.8	WWMU09X510R-**
TDSU1500-02	1.500	1.500	1.969	3.000	2.688	7.424	0.015	2.9	WWMU09X510R-**
TDSU1562-02	1.562	1.500	1.969	3.124	2.688	7.612	0.074	3.0	WWMU11X512R-**
TDSU1625-02	1.625	1.500	2.165	3.250	2.688	7.799	0.059	3.3	WWMU11X512R-**
TDSU1687-02	1.687	1.500	2.165	3.374	2.688	7.987	0.051	3.5	WWMU11X512R-**
TDSU1750-02	1.750	1.500	2.165	3.500	2.688	8.174	0.027	3.7	WWMU11X512R-**
TDSU1812-02	1.812	1.500	2.165	3.624	2.688	8.362	0.015	3.9	WWMU11X512R-**
TDSU1875-02	1.875	1.500	2.165	3.750	2.688	8.549	0.094	4.2	WWMU13X512R-**
TDSU1937-02	1.937	1.500	2.165	3.874	2.688	8.737	0.078	4.3	WWMU13X512R-**
TDSU2000-02	2.000	1.500	2.165	4.000	2.688	8.924	0.067	4.6	WWMU13X512R-**

øDc	Tool diameter tolerance	Hole diameter tolerance
ø1.125 - ø2.000	± 0.004	+ 0.008 / - 0.004

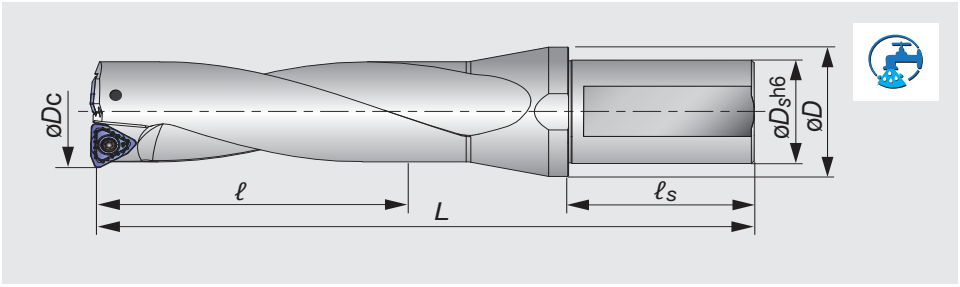
SPARE PARTS

Designation	Clamping screw	Mono block type wrench
TDSU1125**-TDSU1250**	CSTB-3	T-9D
TDSU1312**-TDSU1500**	CSTB-4	T-15D
TDSU1562**-TDSU2000**	CSTB-5	T-20D

TungSix-Drill L/D=3, weldon flat, tool dia. 0.812”-1.062”

DRILL L/D = 3

TungSix-Drill TDS-F, shank with flat, L/D = 3



Machined hole diameter may change depending upon the rigidity of the machine tool or cutting conditions.

Designation	øDc	øDs	øD	ℓ	ℓs	L	Offset	lb	Insert
TDSU0812F-3	0.812	1.000	1.457	2.438	2.205	5.516	0.031	0.7	WWMU05X205R-D*
TDSU0875F-3	0.875	1.000	1.457	2.625	2.205	5.665	0.020	0.9	WWMU05X205R-D*
TDSU0937F-3	0.937	1.000	1.457	2.813	2.205	5.894	0.047	0.9	WWMU060306R-D*
TDSU1000F-3	1.000	1.000	1.457	3.000	2.205	6.122	0.028	1.1	WWMU060306R-D*
TDSU1062F-3	1.062	1.250	1.575	3.186	2.342	6.488	0.012	1.3	WWMU060306R-D*

øDc	Tool diameter tolerance	Hole diameter tolerance
ø0.812 - ø1.063	+ 0.008 / 0	+ 0.010 / 0

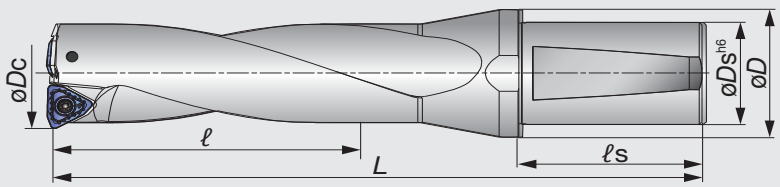
SPARE PARTS

Designation	Clamping screw	Mono block type wrench
TDSU0812** - TDSU0875**	CSPB-2.2	IP-7D
TDSU0937** - TDSU1062**	CSPB-2.5	IP-8D

TungSix-Drill L/D=3, whistle notch, tool dia. 1.125”-2.000”

DRILL L/D = 3

TungSix-Drill Whistle notch, L/D = 3



Machined hole diameter may change depending upon the rigidity of the machine tool or cutting conditions.

Designation	øDc	øDs	øD	ℓ	ℓs	L	Offset	lb	Insert
TDSU1125-03	1.125	1.250	1.575	3.375	2.280	7.017	0.043	1.7	WWMU08X408R-**
TDSU1187-03	1.187	1.250	1.575	3.561	2.280	7.267	0.019	1.8	WWMU08X408R-**
TDSU1250-03	1.250	1.250	1.575	3.750	2.280	7.517	0.008	1.9	WWMU08X408R-**
TDSU1312-03	1.312	1.500	1.969	3.936	2.688	8.174	0.055	2.8	WWMU09X510R-**
TDSU1375-03	1.375	1.500	1.969	4.125	2.688	8.424	0.047	2.9	WWMU09X510R-**
TDSU1437-03	1.437	1.500	1.969	4.311	2.688	8.674	0.027	3.1	WWMU09X510R-**
TDSU1500-03	1.500	1.500	1.969	4.500	2.688	8.924	0.015	3.3	WWMU09X510R-**
TDSU1562-03	1.562	1.500	1.969	4.686	2.688	9.174	0.074	3.4	WWMU11X512R-**
TDSU1625-03	1.625	1.500	2.165	4.875	2.688	9.424	0.059	3.8	WWMU11X512R-**
TDSU1687-03	1.687	1.500	2.165	5.061	2.688	9.674	0.051	4.1	WWMU11X512R-**
TDSU1750-03	1.750	1.500	2.165	5.250	2.688	9.924	0.027	4.3	WWMU11X512R-**
TDSU1812-03	1.812	1.500	2.165	5.436	2.688	10.174	0.015	4.6	WWMU11X512R-**
TDSU1875-03	1.875	1.500	2.165	5.625	2.688	10.424	0.094	4.9	WWMU13X512R-**
TDSU1937-03	1.937	1.500	2.165	5.811	2.688	10.674	0.078	5.1	WWMU13X512R-**
TDSU2000-03	2.000	1.500	2.165	6.000	2.688	10.924	0.067	5.5	WWMU13X512R-**

øDc	Tool diameter tolerance	Hole diameter tolerance
1.125 - ø2.000	± 0.004	+ 0.008 / - 0.004

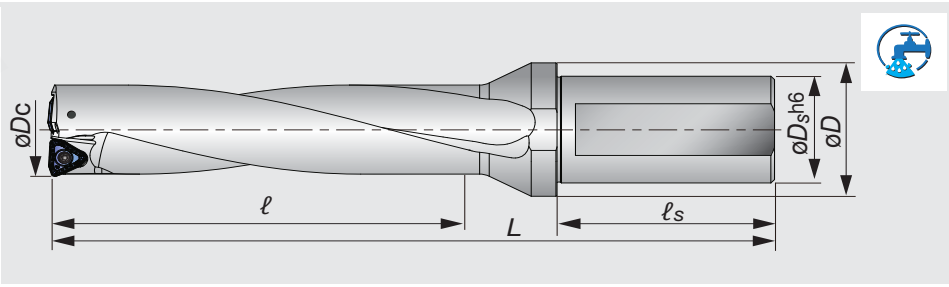
SPARE PARTS

Designation	Clamping screw	Mono block type wrench
TDSU1125** - TDSU1250**	CSTB-3	T-9D
TDSU1312** - TDSU1500**	CSTB-4	T-15D
TDSU1562** - TDSU2000**	CSTB-5	T-20D

TungSix-Drill L/D=4, weldon flat, tool dia. 1.125”-2.000”

DRILL L/D = 4

TungSix-Drill TDS-F, L/D = 4



Machined hole diameter may change depending upon the rigidity of the machine tool or cutting conditions.

Designation	øDc	øDs	øD	ℓ	ℓs	L	Offset	lb	Insert
TDSU1125F-4	1.125	1.250	1.575	4.500	2.343	7.897	0.043	1.7	WWMU08X408R-D*
TDSU1187F-4	1.187	1.250	1.575	4.748	2.343	8.179	0.019	1.9	WWMU08X408R-D*
TDSU1250F-4	1.250	1.250	1.575	5.000	2.343	8.470	0.008	2.0	WWMU08X408R-D*
TDSU1312F-4	1.312	1.500	1.969	5.248	2.736	9.161	0.055	2.9	WWMU09X510R-D*
TDSU1375F-4	1.375	1.500	1.969	5.500	2.736	9.452	0.047	3.1	WWMU09X510R-D*
TDSU1437F-4	1.437	1.500	1.969	5.748	2.736	9.744	0.027	3.2	WWMU09X510R-D*
TDSU1500F-4	1.500	1.500	1.969	6.000	2.736	10.034	0.015	3.5	WWMU09X510R-D*
TDSU1625F-4	1.625	1.500	2.165	6.500	2.736	10.643	0.059	4.0	WWMU11X512R-D*
TDSU1687F-4	1.687	1.500	2.165	6.748	2.736	10.934	0.051	4.5	WWMU11X512R-D*
TDSU1750F-4	1.750	1.500	2.165	7.000	2.736	11.226	0.027	5.1	WWMU11X512R-D*
TDSU1812F-4	1.812	1.500	2.165	7.248	2.736	11.517	0.015	5.3	WWMU11X512R-D*
TDSU1875F-4	1.875	1.500	2.165	7.500	2.736	11.815	0.094	5.4	WWMU13X512R-D*
TDSU1937F-4	1.937	1.500	2.165	7.748	2.736	12.036	0.078	5.5	WWMU13X512R-D*
TDSU2000F-4	2.000	1.500	2.165	8.000	2.736	12.327	0.067	5.6	WWMU13X512R-D*

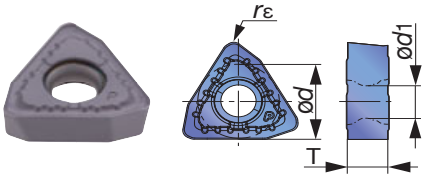
øDc	Tool diameter tolerance	Hole diameter tolerance
ø1.125 - ø2.000	+ 0.008 / 0	+ 0.014 / 0

SPARE PARTS

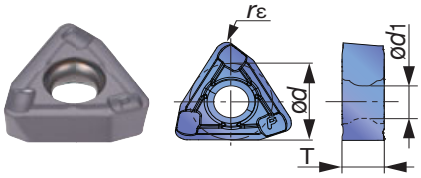
Designation	Clamping screw	Mono block type wrench
TDSU1125** - TDSU1250**	CSTB-3	T-9D
TDSU1312** - TDSU1500**	CSTB-4	T-15D
TDSU1562** - TDSU2000**	CSTB-5	T-20D

INSERTS

WWMU-DJ



WWMU-DS



Designation	ød	T	ød1	rε	AH9030						AH6030					
					P	M	K	N	S	H	P	M	K	N	S	H
WWMU05X205R-DJ	0.228	0.094	0.098	0.020	●	○	●	○	○	●						
WWMU060306R-DJ	0.264	0.114	0.118	0.024	●	○	●	○	○	●						
WWMU08X408R-DJ	0.315	0.154	0.134	0.031	●	○	●	○	○	●						
WWMU09X510R-DJ	0.382	0.193	0.173	0.039	●	○	●	○	○	●						
WWMU11X512R-DJ	0.445	0.224	0.217	0.047	●	○	●	○	○	●						
WWMU13X512R-DJ	0.512	0.224	0.217	0.047	●	○	●	○	○	●						
WWMU05X205R-DS	0.228	0.094	0.098	0.020							○	●	○	○	●	○
WWMU060306R-DS	0.264	0.114	0.118	0.024							○	●	○	○	●	○
WWMU08X408R-DS	0.315	0.154	0.134	0.031							○	●	○	○	●	○
WWMU09X510R-DS	0.382	0.193	0.173	0.039							○	●	○	○	●	○
WWMU11X512R-DS	0.445	0.224	0.217	0.047							○	●	○	○	●	○
WWMU13X512R-DS	0.512	0.224	0.217	0.047							○	●	○	○	●	○

● First choice

Note: See page 9 for more information about grades.

STANDARD CUTTING CONDITIONS

ISO	Workpiece materials	Selection criteria	Chip-breaker	Grade	Cutting speed *Vc* (sfm)
P	Low carbon steel (C < 0.3) (70, 1025, etc.)	First choice	DS	AH6030	525 - 820
		Priority on wear resistance	DJ	AH9030	525 - 1050
	Carbon steel (C > 0.3) (1045C, 1055, etc.)	First choice	DJ	AH9030	260 - 820
		Priority on impact resistance	DS	AH6030	260 - 820
	Low alloy steel (SCM415, etc.)	First choice	DS	AH6030	525 - 820
		Priority on wear resistance	DJ	AH9030	525 - 820
	Alloy steel (4140, etc.)	First choice	DJ	AH9030	260 - 660
		Priority on impact resistance	DS	AH6030	260 - 660
M	Stainless steel (Austenitic) (304, 316, etc.)	First choice	DS	AH6030	330 - 660
		-	DJ	AH9030	330 - 660
	Stainless steel (Martensitic and ferritic) (430, 416, etc.)	First choice	DS	AH6030	330 - 660
		-	DJ	AH9030	330 - 660
	Stainless steel (Precipitation hardening) (S17400, etc.)	First choice	DS	AH6030	260 - 400
		-	DJ	AH9030	260 - 400
K	Gray cast iron (No.250B, etc.)	First choice	DJ	AH9030	260 - 820
		Priority on impact resistance	DS	AH6030	260 - 660
	Ductile cast iron (700, etc.)	First choice	DJ	AH9030	260 - 660
		Priority on impact resistance	DS	AH6030	260 - 500
N	Aluminum alloy	First choice	DS	AH6030	660 - 1310
		-	DJ	AH9030	660 - 1310
S	High temperature alloy (Inconel718, etc.)	First choice	DS	AH6030	60 - 200
		-	DJ	AH9030	60 - 200
	Titanium Alloy (Ti-6Al-4V, etc.)	First choice	DS	AH6030	130 - 400
		-	DJ	AH9030	130 - 400
H	Hardened steel (Over 40HRC)	First choice	DJ	AH9030	170 - 330
		Priority on impact resistance	DS	AH6030	130 - 260

● Drill body of L/D = 4 is not recommended for stainless steel or superalloys drilling

Feed: *f* (ipr)					
L/D = 2, 3			L/D = 4		
ø*D*c (in)			ø*D*c (in)		
ø0.812 - ø1.062	ø1.125 - ø1.500	ø1.562 - ø2.000	ø0.812 - ø1.062	ø1.100 - ø1.500	ø1.562 - ø2.000
0.0015 - 0.004	0.0015 - 0.004	0.0015 - 0.004	0.002 - 0.004	0.002 - 0.004	0.002 - 0.004
0.0015 - 0.004	0.0015 - 0.004	0.0015 - 0.004	0.002 - 0.004	0.002 - 0.004	0.002 - 0.004
0.002 - 0.006	0.002 - 0.006	0.003 - 0.007	0.002 - 0.006	0.002 - 0.006	0.003 - 0.007
0.0015 - 0.005	0.0015 - 0.005	0.0015 - 0.006	0.002 - 0.006	0.002 - 0.005	0.002 - 0.006
0.0015 - 0.005	0.0015 - 0.005	0.0015 - 0.005	0.002 - 0.006	0.002 - 0.005	0.002 - 0.005
0.0015 - 0.005	0.002 - 0.006	0.0015 - 0.006	0.002 - 0.006	0.002 - 0.006	0.002 - 0.006
0.002 - 0.006	0.003 - 0.006	0.003 - 0.007	0.002 - 0.006	0.002 - 0.006	0.003 - 0.007
0.002 - 0.005	0.002 - 0.005	0.002 - 0.006	0.002 - 0.005	0.002 - 0.005	0.002 - 0.006
0.0015 - 0.004	0.0015 - 0.005	0.0015 - 0.005	-	-	-
0.0015 - 0.004	0.0015 - 0.005	0.0015 - 0.005	-	-	-
0.0015 - 0.004	0.0015 - 0.005	0.0015 - 0.005	-	-	-
0.0015 - 0.004	0.0015 - 0.005	0.0015 - 0.005	-	-	-
0.0015 - 0.003	0.0015 - 0.004	0.0015 - 0.004	-	-	-
0.0015 - 0.003	0.0015 - 0.004	0.0015 - 0.004	-	-	-
0.002 - 0.006	0.002 - 0.007	0.003 - 0.008	0.002 - 0.006	0.002 - 0.006	0.003 - 0.007
0.002 - 0.005	0.003 - 0.006	0.003 - 0.007	0.002 - 0.005	0.002 - 0.006	0.003 - 0.007
0.002 - 0.006	0.002 - 0.007	0.003 - 0.008	0.002 - 0.006	0.002 - 0.006	0.003 - 0.007
0.002 - 0.005	0.002 - 0.006	0.003 - 0.007	0.002 - 0.005	0.002 - 0.006	0.003 - 0.007
0.004 - 0.007	0.004 - 0.008	0.004 - 0.01	0.004 - 0.007	0.004 - 0.008	0.004 - 0.008
0.002 - 0.007	0.004 - 0.008	0.004 - 0.01	0.002 - 0.005	0.004 - 0.008	0.004 - 0.008
0.0015 - 0.007	0.0015 - 0.003	0.0015 - 0.003	-	-	-
0.0015 - 0.007	0.0015 - 0.004	0.0015 - 0.004	-	-	-
0.002 - 0.004	0.002 - 0.005	0.002 - 0.005	-	-	-
0.002 - 0.004	0.002 - 0.005	0.002 - 0.005	-	-	-
0.0015 - 0.007	0.0015 - 0.003	0.0015 - 0.004	0.002 - 0.003	0.002 - 0.003	0.002 - 0.003
0.0015 - 0.007	0.0015 - 0.003	0.0015 - 0.004	0.002 - 0.003	0.002 - 0.003	0.002 - 0.003

DEEP TRI DRILL
TUNGALOY

Deep hole drill that improves productivity in gundrilling applications

DeepTri-Drill, the easy-to-handle indexable gundrill series, delivers outstanding performance and stability in machining.

- **Optimized guide pads and insert positioning:**

- **Good circularity, straightness, and surface quality.**

- **Smooth chip evacuation:**

- Chip splitters produce small chips and deliver smooth evacuation, reducing cutting force and allowing **increased feed rate** compared to brazed gundrills.

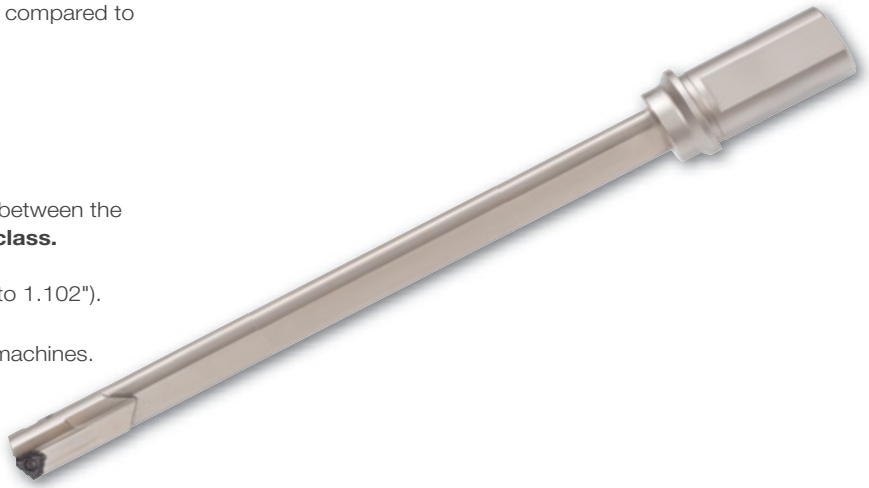
- **Economical indexable insert with 3 cutting edges:**

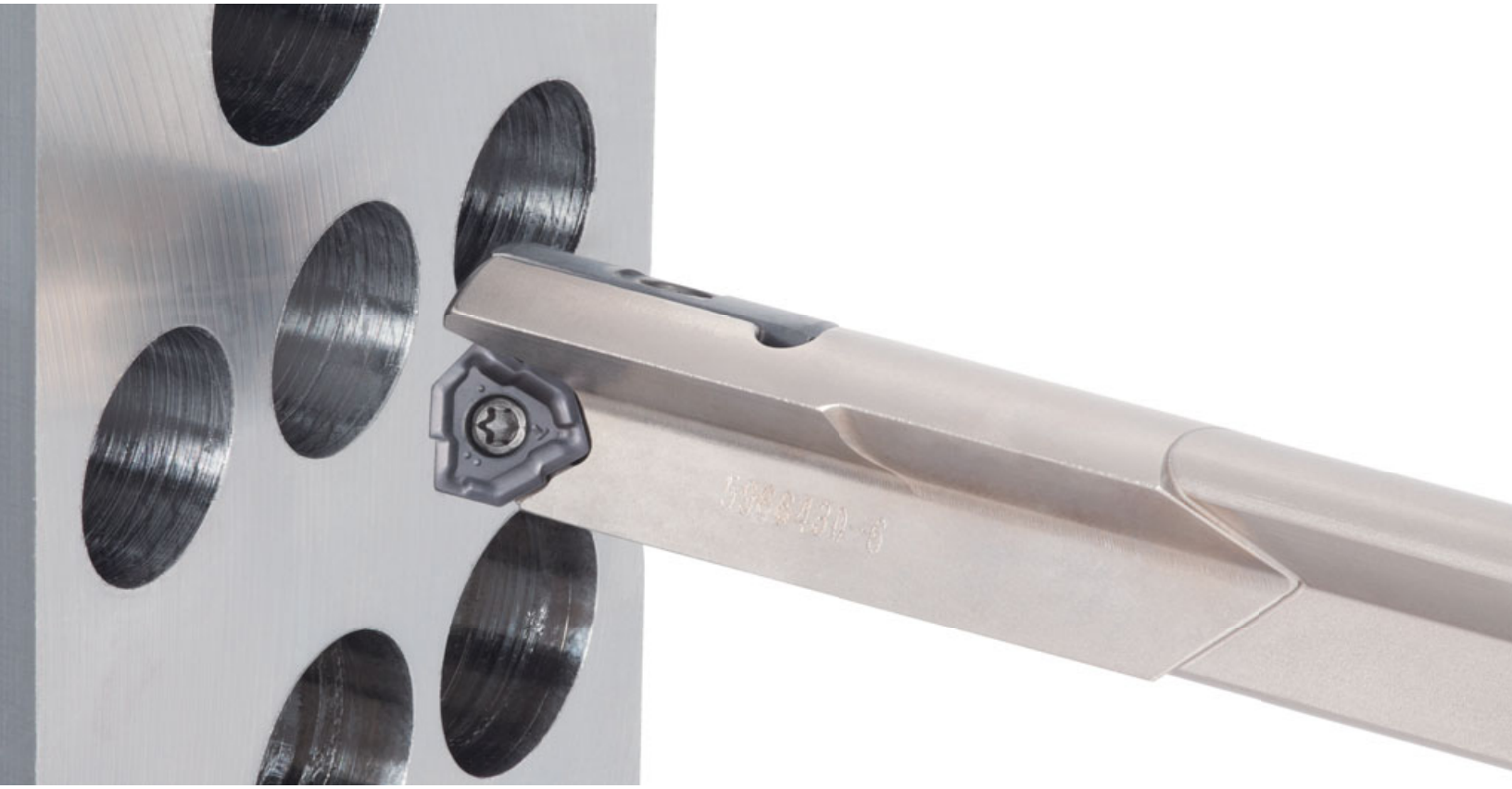
- No regrinding required

- H-class insert controls drilling diameter and the relation between the guide pad and insert, **ensuring hole accuracy of IT10 class.**

- Drilling diameters ranges from øDc 16 to 28 mm (0.63" to 1.102").

- Can be used in lathes, machining centers, and gundrill machines.





TUNGFORCE DRILL
ACCELERATED MACHINING

Line up:

Inserts:
TOHT… in 5 sizes cover øDc 16 to 28 mm (0.63" to 1.102")
AH725 grade for long tool life and PremiumGTec coating provide strong resistance to chip welding for stable and reliable deep hole drilling

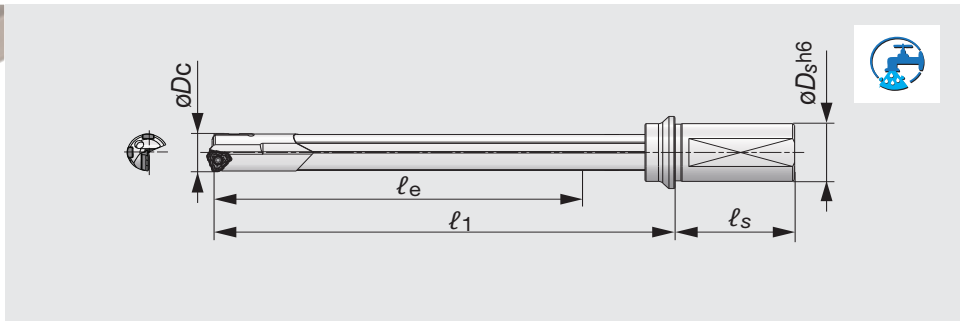
Guide pad:
GP06-..: Equipped with 2 usable edges and available in 2 grades to suit different materials

Drill bodies for lathes, machining centers, and gundrill machines:
MCTR… for machining centers: Stocked in L/D=10, 15 and 25 for drilling depths 170 to 700 mm (6.69" to 27.56") depending on the diameter
TRLG… for gundrill machines: Offered up to the length of 1500 mm (59"), which is as long as 90 times the diameter of drilling depth
Also available in a variety of drill holding drivers for different types of gundrill machines

TOHT-NDJ (080...) - (120...)

DRILL L/D = 10

DeepTri-Drill MCTR L/D = 10



Designation	øDc	øDs	ℓe	ℓs	ℓ1	Insert	Guide pad
MCTR16.00XM25-10	16.0	25	170	56	209	TOHT08...	GP06-075
MCTR16.50XM25-10	16.5	25	170	56	209	TOHT08...	GP06-075
MCTR17.00XM25-10	17.0	25	180	56	220	TOHT08...	GP06-075
MCTR18.00XM25-10	18.0	25	190	56	232	TOHT08...	GP06-075
MCTR19.00XM25-10	19.0	25	200	56	243	TOHT09...	GP06-085
MCTR20.00XM32-10	20.0	32	210	60	255	TOHT09...	GP06-085
MCTR21.00XM32-10	21.0	32	220	60	266	TOHT10...	GP06-085
MCTR22.00XM32-10	22.0	32	230	60	278	TOHT11...	GP06-100
MCTR23.00XM32-10	23.0	32	240	60	289	TOHT11...	GP06-100
MCTR24.00XM32-10	24.0	32	250	60	301	TOHT11...	GP06-100
MCTR25.00XM32-10	25.0	32	260	60	312	TOHT11...	GP06-100
MCTR26.00XM40-10	26.0	40	270	70	324	TOHT12...	GP06
MCTR27.00XM40-10	27.0	40	280	70	335	TOHT12...	GP06
MCTR28.00XM40-10	28.0	40	280	70	337	TOHT12...	GP06

(Unit: mm)

øDc	Tool diameter tolerance	Hole diameter tolerance
ø16 - ø28	0 / - 0.07	+ 0.05 / - 0.10

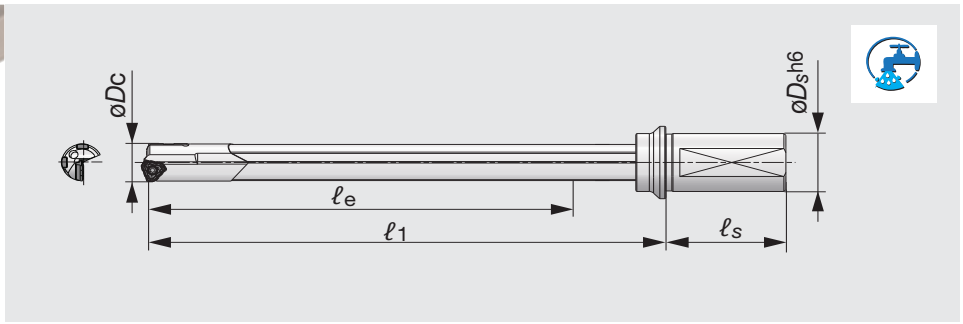
SPARE PARTS

Designation	Insert		Guide pad	
	Screw	Wrench	Screw	Wrench
MCTR16** - MCTR20**	CSTB2.5S	T-8F	CSTB2.2S	T-7F
MCTR21**	CSTB3S	T-9F	CSTB2.2S	T-7F
MCTR22** - MCTR25**	CSTB3.5H	T-15F	CSTB2.2S	T-7F
MCTR26** - MCTR28**	CSTB4S	T-15F	CSTB2.2S	T-7F

Drill body for lathes and machining centers.

DRILL L/D = 15

DeepTri-Drill MCTR L/D = 15



Designation	øDc	øDs	ℓe	ℓs	ℓ1	Insert	Guide pad
MCTR16.00XM25-15	16.0	25	255	56	294	TOHT08...	GP06-075
MCTR16.50XM25-15	16.5	25	255	56	294	TOHT08...	GP06-075
MCTR17.00XM25-15	17.0	25	270	56	310	TOHT08...	GP06-075
MCTR17.50XM25-15	17.5	25	270	56	310	TOHT08...	GP06-075
MCTR18.00XM25-15	18.0	25	285	56	327	TOHT08...	GP06-075
MCTR18.50XM25-15	18.5	25	285	56	327	TOHT09...	GP06-085
MCTR19.00XM25-15	19.0	25	300	56	343	TOHT09...	GP06-085
MCTR19.50XM25-15	19.5	25	300	56	343	TOHT09...	GP06-085
MCTR20.00XM32-15	20.0	32	315	60	360	TOHT09...	GP06-085
MCTR21.00XM32-15	21.0	32	330	60	376	TOHT10...	GP06-085
MCTR22.00XM32-15	22.0	32	345	60	393	TOHT11...	GP06-100
MCTR23.00XM32-15	23.0	32	360	60	409	TOHT11...	GP06-100
MCTR24.00XM32-15	24.0	32	375	60	426	TOHT11...	GP06-100
MCTR25.00XM32-15	25.0	32	390	60	442	TOHT11...	GP06-100
MCTR26.00XM40-15	26.0	40	405	70	459	TOHT12...	GP06
MCTR27.00XM40-15	27.0	40	420	70	475	TOHT12...	GP06
MCTR28.00XM40-15	28.0	40	420	70	477	TOHT12...	GP06

(Unit: mm)

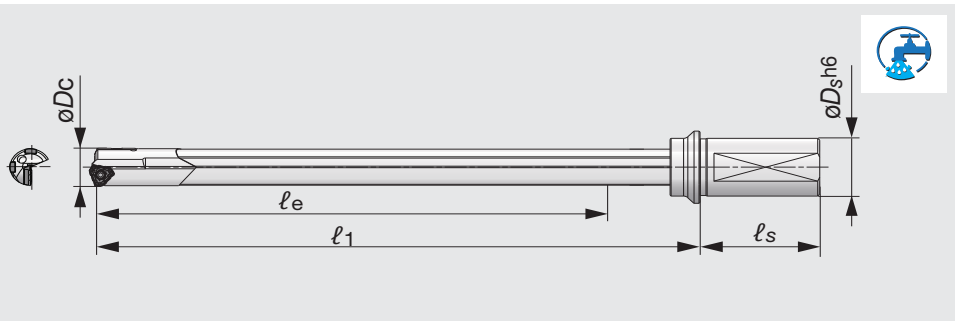
øDc	Tool diameter tolerance	Hole diameter tolerance
ø16 - ø28	0 / - 0.07	+ 0.05 / - 0.10

SPARE PARTS

Designation	Insert		Guide pad	
	Screw	Wrench	Screw	Wrench
MCTR16** - MCTR20**	CSTB2.5S	T-8F	CSTB2.2S	T-7F
MCTR21**	CSTB3S	T-9F	CSTB2.2S	T-7F
MCTR22** - MCTR25**	CSTB3.5H	T-15F	CSTB2.2S	T-7F
MCTR26** - MCTR28**	CSTB4S	T-15F	CSTB2.2S	T-7F

DRILL L/D = 25

DeepTri-Drill MCTR L/D = 25



Designation	øDc	øDs	ℓe	ℓs	ℓ1	Insert	Guide pad
MCTR16.00XM25-25	16.0	25	425	56	464	TOHT08...	GP06-075
MCTR16.50XM25-25	16.5	25	425	56	464	TOHT08...	GP06-075
MCTR17.00XM25-25	17.0	25	450	56	490	TOHT08...	GP06-075
MCTR17.50XM25-25	17.5	25	450	56	490	TOHT08...	GP06-075
MCTR18.00XM25-25	18.0	25	475	56	517	TOHT08...	GP06-075
MCTR18.50XM25-25	18.5	25	475	56	517	TOHT09...	GP06-085
MCTR19.00XM25-25	19.0	25	500	56	543	TOHT09...	GP06-085
MCTR19.50XM25-25	19.5	25	500	56	543	TOHT09...	GP06-085
MCTR20.00XM32-25	20.0	32	525	60	570	TOHT09...	GP06-085
MCTR21.00XM32-25	21.0	32	550	60	596	TOHT10...	GP06-085
MCTR22.00XM32-25	22.0	32	575	60	623	TOHT11...	GP06-100
MCTR23.00XM32-25	23.0	32	600	60	649	TOHT11...	GP06-100
MCTR24.00XM32-25	24.0	32	625	60	676	TOHT11...	GP06-100
MCTR25.00XM32-25	25.0	32	650	60	702	TOHT11...	GP06-100
MCTR26.00XM40-25	26.0	40	675	70	729	TOHT12...	GP06
MCTR27.00XM40-25	27.0	40	700	70	755	TOHT12...	GP06
MCTR28.00XM40-25	28.0	40	700	70	757	TOHT12...	GP06

(Unit: mm)

øDc	Tool diameter tolerance	Hole diameter tolerance
ø16 - ø28	0 / - 0.07	+ 0.05 / - 0.10

SPARE PARTS

Designation	Insert		Guide pad	
	Screw	Wrench	Screw	Wrench
MCTR16** - MCTR20**	CSTB2.5S	T-8F	CSTB2.2S	T-7F
MCTR21**	CSTB3S	T-9F	CSTB2.2S	T-7F
MCTR22** - MCTR25**	CSTB3.5H	T-15F	CSTB2.2S	T-7F
MCTR26** - MCTR28**	CSTB4S	T-15F	CSTB2.2S	T-7F

DESIGNATION FOR TAILOR MADE TOOLS

When a specially designed tool is needed, use the below guide line to make the designation (Cat. No).

MCTR	16.50	XM	25	-	22
①	②		③		④

① Series	
MCTR	DeepTri-Drill (For machining centers and lathes)

② Drill dia. *øDc* (mm)	
16.50	ø16.50

③ Driver dia. *øDs* (mm)	
25	ø25

④ L/D ratio

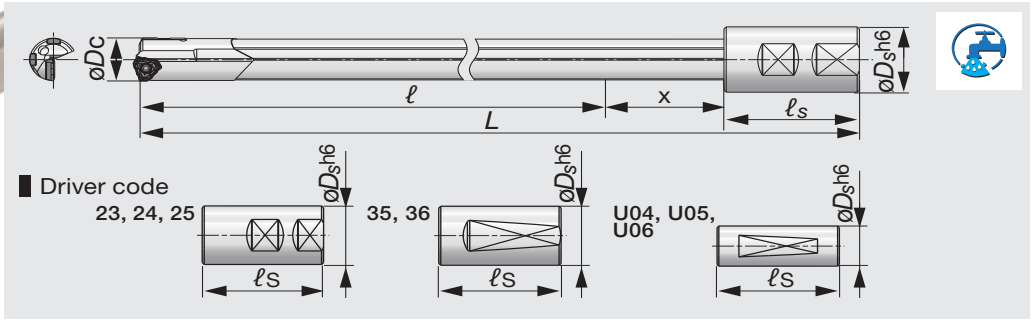
AVAILABLE RANGE OF TAILOR MADE DRILL BODIES

øDc	*øDs*	ℓ_e	ℓ_s	ℓ_1
16.00 - 16.79	25	136 - 425	56	175 - 464
16.80 - 17.69	25	144 - 450	56	184 - 490
17.70 - 18.69	25	152 - 475	56	194 - 517
18.70 - 19.69	25	160 - 500	56	203 - 543
19.70 - 20.69	32	168 - 525	60	213 - 570
20.70 - 21.69	32	176 - 550	60	222 - 596
21.70 - 22.69	32	184 - 575	60	232 - 623
22.70 - 23.69	32	192 - 600	60	241 - 649
23.70 - 24.69	32	200 - 625	60	251 - 676
24.70 - 25.69	32	208 - 650	60	260 - 702
25.70 - 26.69	40	216 - 675	70	270 - 719
26.70 - 27.69	40	224 - 700	70	279 - 745
27.70 - 28.00	40	224 - 700	70	281 - 747

(Unit: mm)

DRILL TRLG

DeepTri-Drill TRLG



Designation	øDc	L	ℓ	øDs	ℓs	x	Driver code	Insert	Guide pad
TRLG16.00X800-23	16.00	800	720	25	56	24	23	TOHT08...	GP06-075
TRLG16.00X800-U04	16.00	800	706	25.4	70	24	U04	TOHT08...	GP06-075
TRLG16.00X800-35	16.00	800	720	25	56	24	35	TOHT08...	GP06-075
TRLG16.00X1000-23	16.00	1000	920	25	56	24	23	TOHT08...	GP06-075
TRLG16.00X1000-U04	16.00	1000	906	25.4	70	24	U04	TOHT08...	GP06-075
TRLG16.00X1000-35	16.00	1000	920	25	56	24	35	TOHT08...	GP06-075
TRLG16.00X1500-U04	16.00	1500	1406	25.4	70	24	U04	TOHT08...	GP06-075
TRLG16.00X1500-23	16.00	1500	1420	25	56	24	23	TOHT08...	GP06-075
TRLG16.00X1500-35	16.00	1500	1420	25	56	24	35	TOHT08...	GP06-075
TRLG17.00X800-23	17.00	800	719	25	56	25	23	TOHT08...	GP06-075
TRLG17.00X800-U04	17.00	800	705	25.4	70	25	U04	TOHT08...	GP06-075
TRLG17.00X1000-23	17.00	1000	919	25	56	25	23	TOHT08...	GP06-075
TRLG17.00X1000-U04	17.00	1000	905	25.4	70	25	U04	TOHT08...	GP06-075
TRLG17.00X1000-35	17.00	1000	919	25	56	25	35	TOHT08...	GP06-075
TRLG17.00X1500-23	17.00	1500	1419	25	56	25	23	TOHT08...	GP06-075
TRLG17.00X1500-U04	17.00	1500	1405	25.4	70	25	U04	TOHT08...	GP06-075
TRLG17.00X1500-35	17.00	1500	1419	25	56	25	35	TOHT08...	GP06-075
TRLG18.00X800-23	18.00	800	717	25	56	27	23	TOHT08...	GP06-075
TRLG18.00X800-U04	18.00	800	703	25.4	70	27	U04	TOHT08...	GP06-075
TRLG18.00X800-35	18.00	800	717	25	56	27	35	TOHT08...	GP06-075
TRLG18.00X1000-23	18.00	1000	917	25	56	27	23	TOHT08...	GP06-075
TRLG18.00X1000-U04	18.00	1000	903	25.4	70	27	U04	TOHT08...	GP06-075
TRLG18.00X1000-35	18.00	1000	917	25	56	27	35	TOHT08...	GP06-075
TRLG18.00X1500-U04	18.00	1500	1403	25.4	70	27	U04	TOHT08...	GP06-075
TRLG18.00X1500-23	18.00	1500	1417	25	56	27	23	TOHT08...	GP06-075
TRLG18.00X1500-35	18.00	1500	1417	25	56	27	35	TOHT08...	GP06-075
TRLG19.00X800-23	19.00	800	716	25	56	28	23	TOHT09...	GP06-085
TRLG19.00X800-U04	19.00	800	702	25.4	70	28	U04	TOHT09...	GP06-085
TRLG19.00X800-35	19.00	800	716	25	56	28	35	TOHT09...	GP06-085
TRLG19.00X1000-23	19.00	1000	916	25	56	28	23	TOHT09...	GP06-085
TRLG19.00X1000-U04	19.00	1000	902	25.4	70	28	U04	TOHT09...	GP06-085
TRLG19.00X1000-35	19.00	1000	916	25	56	28	35	TOHT09...	GP06-085
TRLG19.00X1500-U04	19.00	1500	1402	25.4	70	28	U04	TOHT09...	GP06-085
TRLG19.00X1500-23	19.00	1500	1416	25	56	28	23	TOHT09...	GP06-085
TRLG19.00X1500-35	19.00	1500	1416	25	56	28	35	TOHT09...	GP06-085

(Unit: mm)

Designation	øDc	L	ℓ	øDs	ℓs	x	Driver code	Insert	Guide pad
TRLG20.00X800-24	20.00	800	710	32	60	30	24	TOHT09...	GP06-085
TRLG20.00X800-U05	20.00	800	700	31.75	70	30	U05	TOHT09...	GP06-085
TRLG20.00X800-36	20.00	800	710	32	60	30	36	TOHT09...	GP06-085
TRLG20.00X1000-24	20.00	1000	910	32	60	30	24	TOHT09...	GP06-085
TRLG20.00X1000-U05	20.00	1000	900	31.75	70	30	U05	TOHT09...	GP06-085
TRLG20.00X1000-36	20.00	1000	910	32	60	30	36	TOHT09...	GP06-085
TRLG20.00X1500-24	20.00	1500	1410	32	60	30	24	TOHT09...	GP06-085
TRLG20.00X1500-U05	20.00	1500	1400	31.75	70	30	U05	TOHT09...	GP06-085
TRLG20.00X1500-36	20.00	1500	1410	32	60	30	36	TOHT09...	GP06-085
TRLG21.00X1000-24	21.00	1000	909	32	60	31	24	TOHT10...	GP06-085
TRLG21.00X1000-U05	21.00	1000	899	31.75	70	31	U05	TOHT10...	GP06-085
TRLG21.00X1000-36	21.00	1000	909	32	60	31	36	TOHT10...	GP06-085
TRLG21.00X1500-24	21.00	1500	1409	32	60	31	24	TOHT10...	GP06-085
TRLG21.00X1500-U05	21.00	1500	1399	31.75	70	31	U05	TOHT10...	GP06-085
TRLG21.00X1500-36	21.00	1500	1409	32	60	31	36	TOHT10...	GP06-085
TRLG22.00X1000-24	22.00	1000	907	32	60	33	24	TOHT11...	GP06-100
TRLG22.00X1000-U05	22.00	1000	897	31.75	70	33	U05	TOHT11...	GP06-100
TRLG22.00X1000-36	22.00	1000	907	32	60	33	36	TOHT11...	GP06-100
TRLG22.00X1500-24	22.00	1500	1407	32	60	33	24	TOHT11...	GP06-100
TRLG22.00X1500-U05	22.00	1500	1397	31.75	70	33	U05	TOHT11...	GP06-100
TRLG22.00X1500-36	22.00	1500	1407	32	60	33	36	TOHT11...	GP06-100
TRLG23.00X1000-24	23.00	1000	906	32	60	34	24	TOHT11...	GP06-100
TRLG23.00X1000-U05	23.00	1000	896	31.75	70	34	U05	TOHT11...	GP06-100
TRLG23.00X1000-36	23.00	1000	906	32	60	34	36	TOHT11...	GP06-100
TRLG23.00X1500-24	23.00	1500	1406	32	60	34	24	TOHT11...	GP06-100
TRLG23.00X1500-U05	23.00	1500	1396	31.75	70	34	U05	TOHT11...	GP06-100
TRLG23.00X1500-36	23.00	1500	1406	32	60	34	36	TOHT11...	GP06-100
TRLG24.00X1000-24	24.00	1000	904	32	60	36	24	TOHT11...	GP06-100
TRLG24.00X1000-U05	24.00	1000	894	31.75	70	36	U05	TOHT11...	GP06-100
TRLG24.00X1000-36	24.00	1000	904	32	60	36	36	TOHT11...	GP06-100
TRLG24.00X1500-24	24.00	1500	1404	32	60	36	24	TOHT11...	GP06-100
TRLG24.00X1500-U05	24.00	1500	1394	31.75	70	36	U05	TOHT11...	GP06-100
TRLG24.00X1500-36	24.00	1500	1404	32	60	36	36	TOHT11...	GP06-100
TRLG25.00X1000-24	25.00	1000	903	32	60	37	24	TOHT11...	GP06-100
TRLG25.00X1000-U05	25.00	1000	893	31.75	70	37	U05	TOHT11...	GP06-100
TRLG25.00X1000-36	25.00	1000	903	32	60	37	36	TOHT11...	GP06-100
TRLG25.00X1500-24	25.00	1500	1403	32	60	37	24	TOHT11...	GP06-100
TRLG25.00X1500-U05	25.00	1500	1393	31.75	70	37	U05	TOHT11...	GP06-100
TRLG25.00X1500-36	25.00	1500	1403	32	60	37	36	TOHT11...	GP06-100
TRLG26.00X1000-25	26.00	1000	891	40	70	39	25	TOHT12...	GP06
TRLG26.00X1000-U06	26.00	1000	891	38.1	70	39	U06	TOHT12...	GP06
TRLG26.00X1500-25	26.00	1500	1391	40	70	39	25	TOHT12...	GP06
TRLG26.00X1500-U06	26.00	1500	1391	38.1	70	39	U06	TOHT12...	GP06
TRLG27.00X1000-25	27.00	1000	890	40	70	40	25	TOHT12...	GP06
TRLG27.00X1000-U06	27.00	1000	890	38.1	70	40	U06	TOHT12...	GP06
TRLG27.00X1500-25	27.00	1500	1390	40	70	40	25	TOHT12...	GP06
TRLG27.00X1500-U06	27.00	1500	1390	38.1	70	40	U06	TOHT12...	GP06
TRLG28.00X1000-25	28.00	1000	888	40	70	42	25	TOHT12...	GP06
TRLG28.00X1000-U06	28.00	1000	888	38.1	70	42	U06	TOHT12...	GP06
TRLG28.00X1500-25	28.00	1500	1388	40	70	42	25	TOHT12...	GP06
TRLG28.00X1500-U06	28.00	1500	1388	38.1	70	42	U06	TOHT12...	GP06

(Unit: mm)

øDc	Tool diameter tolerance	Hole diameter tolerance
ø16 - ø28	0 / - 0.07	+ 0.05 / - 0.10

SPARE PARTS

Designation	Insert		Guide pad	
	Screw	Wrench	Screw	Wrench
TRLG16** - TRLG20**	CSTB2.5S	T-8F	CSTB2.2S	T-7F
TRLG21**	CSTB3S	T-9F	CSTB2.2S	T-7F
TRLG22** - TRLG25**	CSTB3.5H	T-15F	CSTB2.2S	T-7F
TRLG26** - TRLG28**	CSTB4S	T-15F	CSTB2.2S	T-7F

DESIGNATION FOR TAILOR MADE TOOLS

When a specially designed tool is needed, use the below guide line to make the designation (Cat. No).

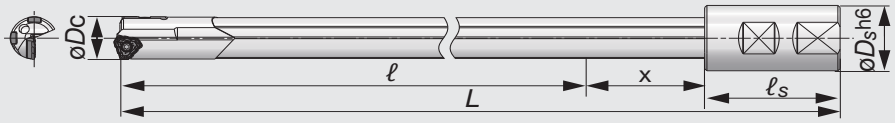
TRLG ① **16.50** ② **X** **900** ③ **-** **23** ④

① Series	
TRLG	DeepTri-Drill (For gun drill machine)

② Drill dia. *øDc* (mm)	
16.50	ø16.50

③ Overall length: *L* (mm)	
900	900

④ Driver code	
23	23



AVAILABLE RANGE OF TAILOR MADE DRILL BODIES

øDc	*L*	x
16.00 - 16.79	400 - 2400	24
16.80 - 17.69	400 - 2400	25
17.70 - 18.69	400 - 2400	27
18.70 - 19.69	400 - 2400	28
19.70 - 20.69	400 - 2400	30
20.70 - 21.69	400 - 2400	31
21.70 - 22.69	400 - 2400	33

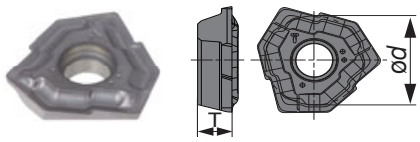
øDc	*L*	x
22.70 - 23.69	400 - 2400	34
23.70 - 24.69	400 - 2400	36
24.70 - 25.69	400 - 2400	37
25.70 - 26.69	400 - 2400	39
26.70 - 27.69	400 - 2400	40
27.70 - 28.00	400 - 2400	42

Please provide the driver shape depending on your request

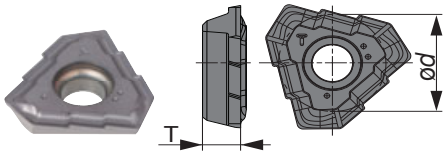
(Unit: mm)

INSERTS

TOHT-NDJ (080...)



TOHT-NDJ (090... - 120...)



NDJ chipbreaker

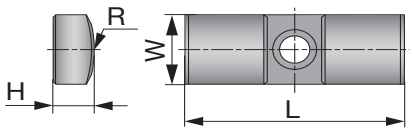
- Low cutting force
- For general purpose

Designation	øDc	Grade AH725	ød	T
TOHT080305R-NDJ	16.00 - 18.00	√	8.55	2.8
TOHT090305R-NDJ	18.01 - 20.00	√	8.32	3.0
TOHT100305R-NDJ	20.01 - 21.99	√	9.23	3.3
TOHT110405R-NDJ	22.00 - 25.00	√	10.40	3.8
TOHT120405R-NDJ	25.01 - 28.00	√	11.59	4.3

(Unit: mm)
√ : Stocked items
Package quantity = 10 pcs.
Note: See page 9 for more information about grades.

GUIDE PAD

GP06



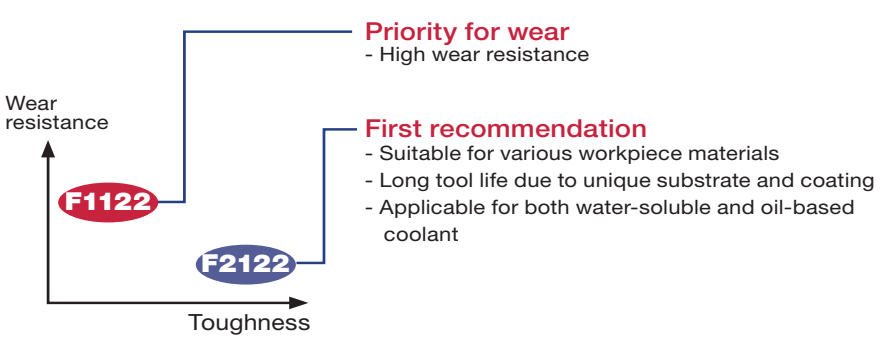
Designation	øDc	Grade F1122	Grade F2122	W	L	H	R
GP06-075	16.00 - 18.00	√	√	6.0	20.0	3.0	7.5
GP06-085	18.01 - 21.00	√	√	6.0	20.0	3.0	8.5
GP06-100	21.01 - 25.00	√	√	6.0	20.0	3.0	10.0
GP06	25.01 - 28.00	√	√	6.0	20.0	3.0	12.0

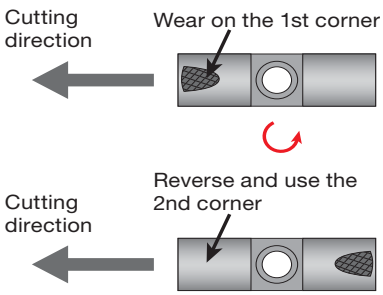
(Unit: mm)
√ : Stocked items
Package quantity = 5 pcs.

Replacing guide pads

Guide pads are subject to wear, like inserts

- Each guide pad has 2 corners.
- When the width of wear on the 1st corner reaches 70% of the width of guide pad, reverse the guide pad and use the 2nd corner.
- Replace the guide pad with a new one when the 2nd corner shows the same wear as on the 1st corner.





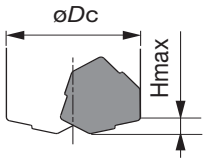
STANDARD CUTTING CONDITIONS

ISO	Workpiece materials	Cutting speed *Vc* (m/min)	Feed *f* (mm/rev)
P	Low carbon steel (C < 0.3) SS400 / St42-1, SM490 / St52-3, S25C / C25, etc.	80 - 140	0.05 - 0.10
	Carbon steel (C > 0.3) S45C / C45, S55C / C55, etc.	80 - 140	0.05 - 0.20
	Low alloy steel (C < 0.3) SCM415, etc.	80 - 140	0.05 - 0.20
	Alloy steel (C > 0.3) SCM440 / 42CrMo4, SCr420 / 20Cr4, etc.	80 - 120	0.05 - 0.20
M	Stainless steel (Austenitic) SUS304 / X5CrNi18-9, SUS316 / X5CrNiMo17-12-3, etc.	60 - 100	0.05 - 0.10
	Stainless steel (Martensitic, Ferritic) SUS430 / X6Cr17, SUS416 / X12CrS13, etc.	60 - 100	0.05 - 0.10
	Stainless steel (Precipitation hardening) SUS630 / X5CrNiCuNb16-4, etc.	60 - 100	0.05 - 0.10
K	Grey cast iron FC250 / 250, etc.	80 - 140	0.05 - 0.30
	Ductile cast iron FCD700, etc.	80 - 140	0.05 - 0.30
N	Aluminum alloys	100 - 200	0.05 - 0.20
S	Heat-resistant alloys Inconel 718, etc.	20 - 50	0.04 - 0.10
	Titanium alloys Ti-6Al-4V, etc.	30 - 60	0.05 - 0.15
H	Hardened steel ≥ 40HRC	50 - 100	0.04 - 0.10

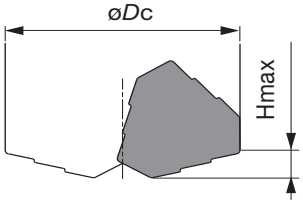
SHAPES OF THE HOLE BOTTOM

øDc	Insert	Maximum difference Hmax
16.00 - 18.00	TOHT08	2.166
18.01 - 20.00	TOHT09	2.965
20.01 - 21.99	TOHT10	3.158
22.00 - 25.00	TOHT11	3.383
25.01 - 28.00	TOHT12	3.63

TOHT08...

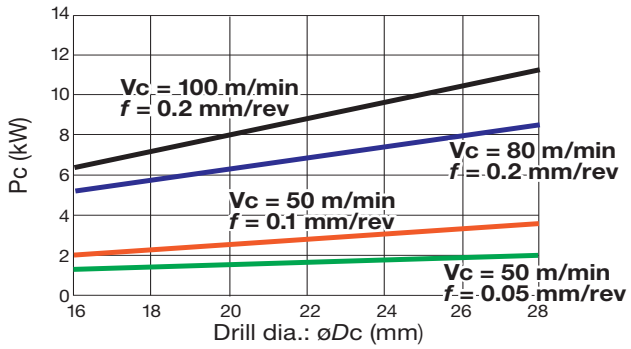


TOHT09... - TOHT12...

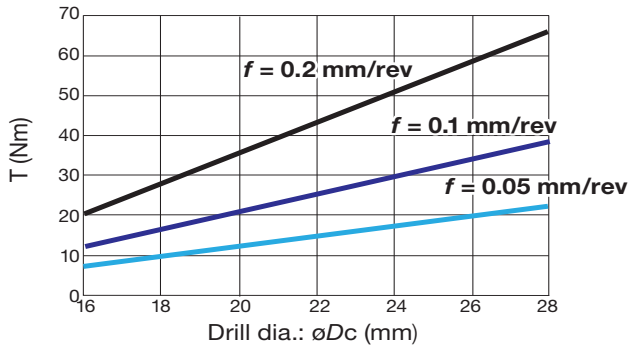


REQUIRED SPINDLE POWER AND COOLANT PRESSURE

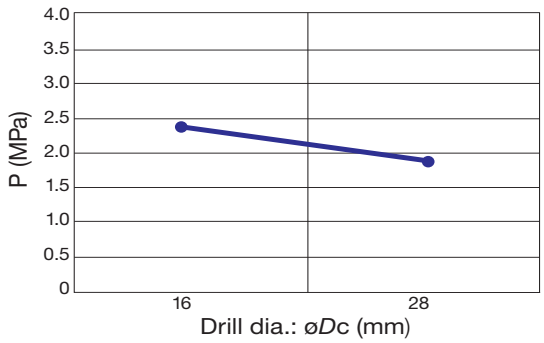
Net power



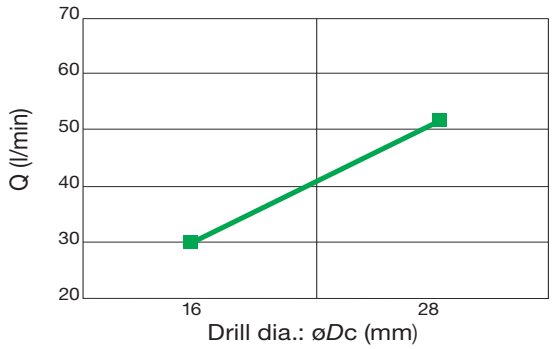
Torque



Coolant pressure (Recommended value)

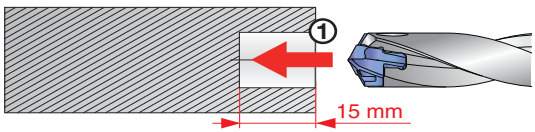


Coolant flow rate (Recommended value)



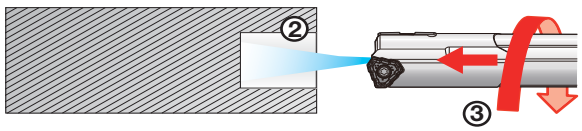
DRILLING PROCEDURE ON MACHINING CENTERS AND LATHES

Proceed as instructed below in order to maximize the tool performance safely.

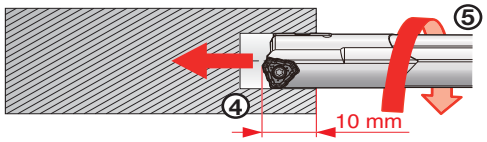


① Drill the guide hole
Hole diameter tolerance: +0.01 - +0.1 mm
Hole depth: H = 15 mm

Please use DrillMeister, DrillForce-Meister or TDX + EZ sleeve to make a guide hole

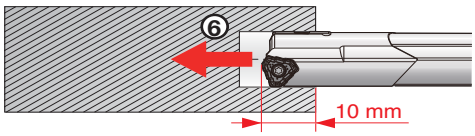


② Start coolant
③ Slowly insert DeepTri-Drill into the guide hole
No. of revolution: n = 50 - 100 min^{-1}
Feed speed: Vf = 100 - 300 mm/min
Caution: Do not rotate the drill at machining speed outside the hole

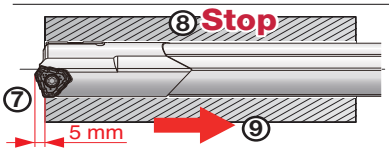


④ Stop the drill at 10 mm depth

⑤ Start rotating at machining speed



⑥ Start feed
At the entrance (H = 10 - 15 mm)
→ Feed: f = 80% of programmed feed
Hole depth: H ≥ 15 mm → Feed: f = 100%



⑦ For through hole
Continue drilling until the drill head passes through the workpiece by 5 mm
⑧ Stop the rotation and coolant
⑨ Return the drill (Head back to the starting position)

Worldwide Network

Tungaloy Corporation
Head Office
11-1 Yoshima Kogyodanchi
Iwaki 970-1144 Japan
Phone: +81-246-36-8501
Fax: +81-246-36-8542
www.tungaloy.co.jp

Iwaki Plant
Products: Cutting Tools

Nagoya Plant
Products: Cutting Tools

Kyushu Plant
Products: PCBN
PCD Tools
Deep Hole Drills

Nirasaki Plant
Products: Cutting Tools
Friction Materials (TungFric)
Wear Resistant Tools
Civil Engineering Tools

Yamato Plant
Products: Cutting Tools

Tungaloy America, Inc.
3726 N Ventura Drive
Arlington Heights
IL 60004, U.S.A.
Phone: +1-888-554-8394
Fax: +1-888-554-8392
www.tungaloyamerica.com

Tungaloy Canada
432 Elgin St. Unit 3, Brantford
Ontario N3S 7P7, Canada
Phone: +1-519-758-5779
Fax: +1-519-758-5791
www.tungaloy.co.jp/ca

Tungaloy de Mexico S.A.
C Los Arellano 113
Parque Industrial Siglo XXI
Aguascalientes, AGS
Mexico 20290
Phone: +52-449-929-5410
Fax: +52-449-929-5411
www.tungaloy.co.jp/mx

Tungaloy do Brasil Ltda.
Rua dos Sabias N.104
13280-000 Vinhedo
São Paulo, Brazil
Phone: +55-19-38262757
Fax: +55-19-38262757
www.tungaloy.com/br

Tungaloy Germany GmbH
An der Alten Ziegelei 1
D-40789 Monheim, Germany
Phone: +49-2173-90420-0
Fax: +49-2173-90420-19
www.tungaloy.de

Tungaloy France S.A.S.
ZA Courtaboeuf - Le Rio
1 rue de la Terre de feu
F-91952 Courtaboeuf Cedex, France
Phone: +33-1-6486-4300
Fax: +33-1-6907-7817
www.tungaloy.fr

Tungaloy Italia S.r.l.
Via E. Andolfato 10
I-20126 Milano, Italy
Phone: +39-02-252012-1
Fax: +39-02-252012-65
www.tungaloy.it

Tungaloy Czech s.r.o
Turanka 115
CZ-627 00 Brno, Czech Republic
Phone: +420-532 123 391
Fax: +420-532 123 392
www.tungaloy.cz

Tungaloy Ibérica S.L.
C/Miquel Servet, 43B, Nau 7
Pol. Ind. Bufalvent
ES-08243 Manresa (BCN), Spain
Phone: +34 93 113 1360
Fax: +34 93 876 2798
www.tungaloy.es

Tungaloy Scandinavia AB
S:t Lars Väg 42A
SE-22270 Lund, Sweden
Phone: +46-462119200
Fax: +46-462119207
www.tungaloy.se

Tungaloy Rus, LLC
36-D Harkovsky Lane
308009 Belgorod, Russia
Phone: +7 4722 24 00 07
Fax: +7 4722 24 00 08
www.tungaloy.co.jp/ru

Tungaloy East LLC
Stachek str., h.4, office 2, Ekaterinburg,
620017, RUSSIA
Phone: +7-343-389-13-22
Fax: +7-343-278-94-35
www.tungaloy.co.jp/rue

Tungaloy Polska Sp. z o.o.
ul. Genewska 24
03-963 Warszawa, Poland
Phone: +48-22-617-0890
Fax: +48-22-617-0890
www.tungaloy.co.jp/pl

Member IMC Group
Tungaloy

Tungaloy U.K. Ltd
The Technology Centre
Wolverhampton Science Park
Glaisher Drive, Wolverhampton
West Midlands WV10 9RU, UK
Phone: +44 121 4000 231
Fax: +44 121 270 9694
www.tungaloy.co.jp/uk

Tungaloy Hungary Kft
Erzsébet királyné útja 125
H-1142 Budapest, Hungary
Phone: +36 1 781-6846
Fax: +36 1 781-6866
www.tungaloy.co.jp/hu

Tungaloy Turkey
Dudullu OSB 4. Cad No:4
34776 Ümraniye Istanbul, TURKEY
Phone: +90 216 540 04 67
Fax: +90 216 540 04 87
www.tungaloy.com.tr

Tungaloy Benelux b.v.
Tjalk 70
NL-2411 NZ Bodegraven Netherlands
Phone: +31 172 630 420
Fax: +31 172 630 429
www.tungaloy-benelux.com

Tungaloy Croatia
Josipa Kozarca 4
10432 Bregana, Croatia
Phone: +385 1 3326 604
Fax: +385 1 3327 683
www.tungaloy.hr

Tungaloy Cutting Tool (Shanghai) Co.,Ltd.
Rm No 401 No.88 Zhabei
Jiangchang No.3 Rd
Shanghai 200436, China
Phone: +86-21-3632-1880
Fax: +86-21-3621-1918
www.tungaloy.co.jp/tcts

Tungaloy Cutting Tool (Thailand) Co.,Ltd.
TCIF Tower 4th Fl.
1858/5-7 Bangna-Trad Road
km.5 Bangna, Bangna, Bangkok
10260
Thailand
Phone: +66-2-751-5711
Fax: +66-2-751-5715
www.tungaloy.co.th

Tungaloy Singapore (Pte.), Ltd.
62 Ubi Road 1
#06-11 Oxley BizHub 2
Singapore 408734
Phone: +65-6391-1833
Fax: +65-6299-4557
www.tungaloy.co.jp/tspl

Tungaloy Vietnam
Unit 18
4th Fl. Saigon Centre Building
65 Le Loi Blvd.
Dist 1, Ho Chi Minh City, Vietnam
Phone: +84-8-3827-0201
Fax: +84-8-3827-0203
www.tungaloy.co.jp/tspl

Tungaloy India Pvt. Ltd.
Indiabulls Finance Centre,
Unit # 902-A, 9th Floor,
Tower 1, Senapati Bapat Marg,
Elphinstone Road (West),
Mumbai -400013, India
Phone: +91-22-6124-8804
Fax: +91-22-6124-8899
www.tungaloy.co.jp/in

Tungaloy Korea Co., Ltd
#1312, Byucksan Digital Valley 5-cha
Beotkkot-ro 244, Geumcheon-gu
153-788 Seoul, Korea
Phone: +82-2-2621-6161
Fax: +82-2-6393-8952
www.tungaloy.co.jp/kr

Tungaloy Malaysia Sdn Bhd
50 K-2, Kelana Mall, Jalan
SS6/14, Kelana Jaya, 47301
Petaling Jaya, Selangor Darul Ehsan
Malaysia
Phone: +603-7805-3222
Fax: +603-7804-8563
www.tungaloy.co.jp/my

Tungaloy Australia Pty Ltd
PO Box 2232, Rowville
Victoria 3178, Australia
Phone: +61-3-9755-8147
Fax: +61-3-9755-6070
www.tungaloy.com.au

PT. Tungaloy Indonesia
Kompleks Grand Wisata Block AA-10
No.3-5 Cibitung
Bekasi 17510, Indonesia
Phone: +62-21-8261-5808
Fax: +62-21-8261-5809
www.tungaloy.co.jp/id

Sunrox International, INC
No. 89, Chang An W. Road
Taipei TW, Taiwan
Phone: +886-2-2555-1111
Fax: +886-2-2556-3333
www.sunroxm.com.tw

Star Tooling CC
P.O. Box 11316
Selcourt 1567
Springs, South Africa
Phone: +27 011 818-2259
Fax: +27 011 818-2250
www.startooling.co.za

Alfita Co.,ltd
1-1318, Melezha str.
Minsk 220013, Belarus
Phone: +375296400911
Fax: +375172685054
www.mtool.by

S.C.Plastteh SRL
Str. Ioan Budai Deleanu Nr. 64
Cluj-Napoca 400474, Romania
Phone: +40 364-148940
Fax: +40 364-149956
www.tungaloy.ro

ACCELERATED MACHINING

www.tungaloy.com
www.tungforce.com

DISTRIBUTED BY:

ACCELERATED MACHINING