



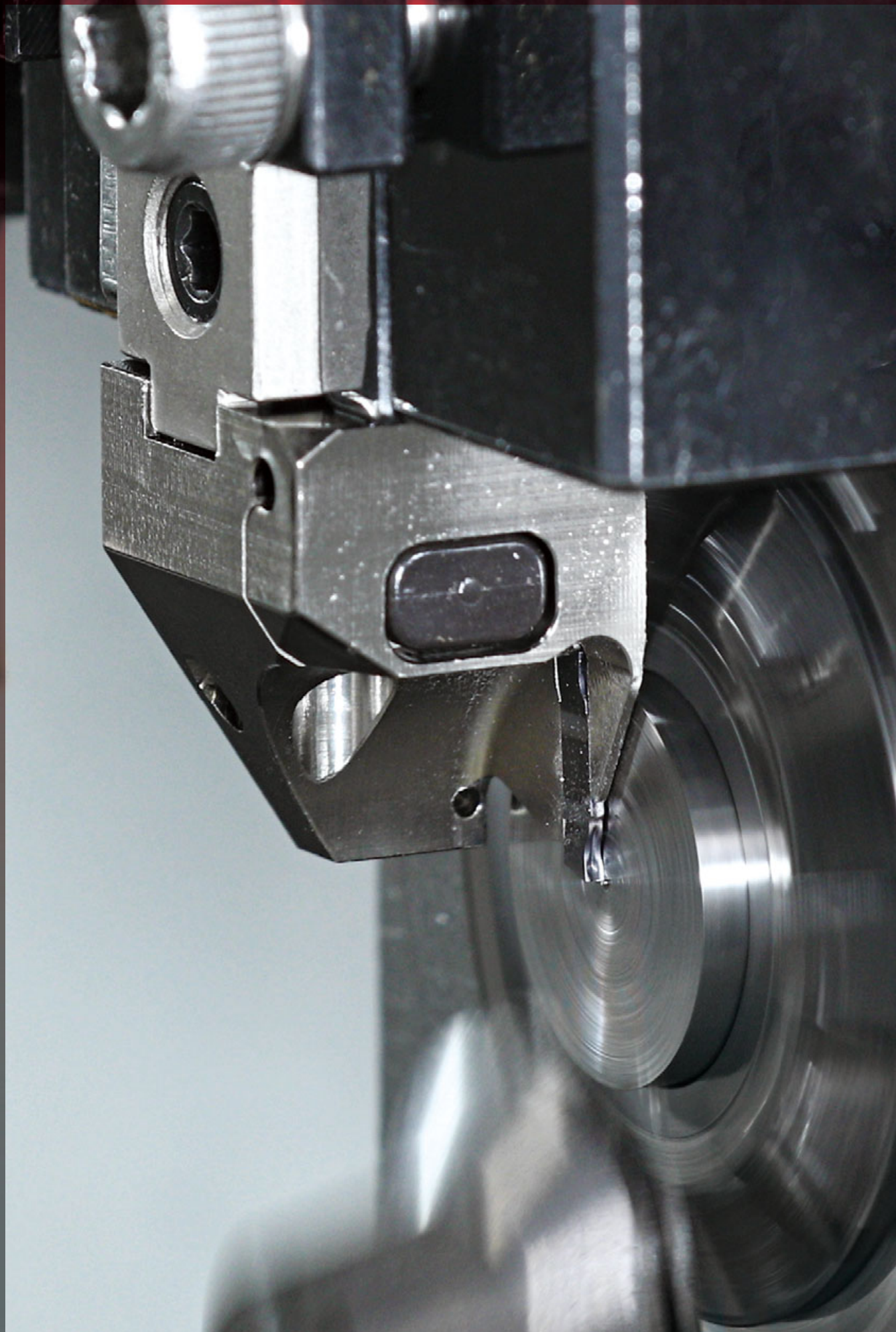
Grooving and parting-off tool

TUNG^{HORT}**SCUT** / **TUNG****CUT**

Tungaloy Report No. 391-G

Introducing STX style PCD insert with 3D chipbreaker





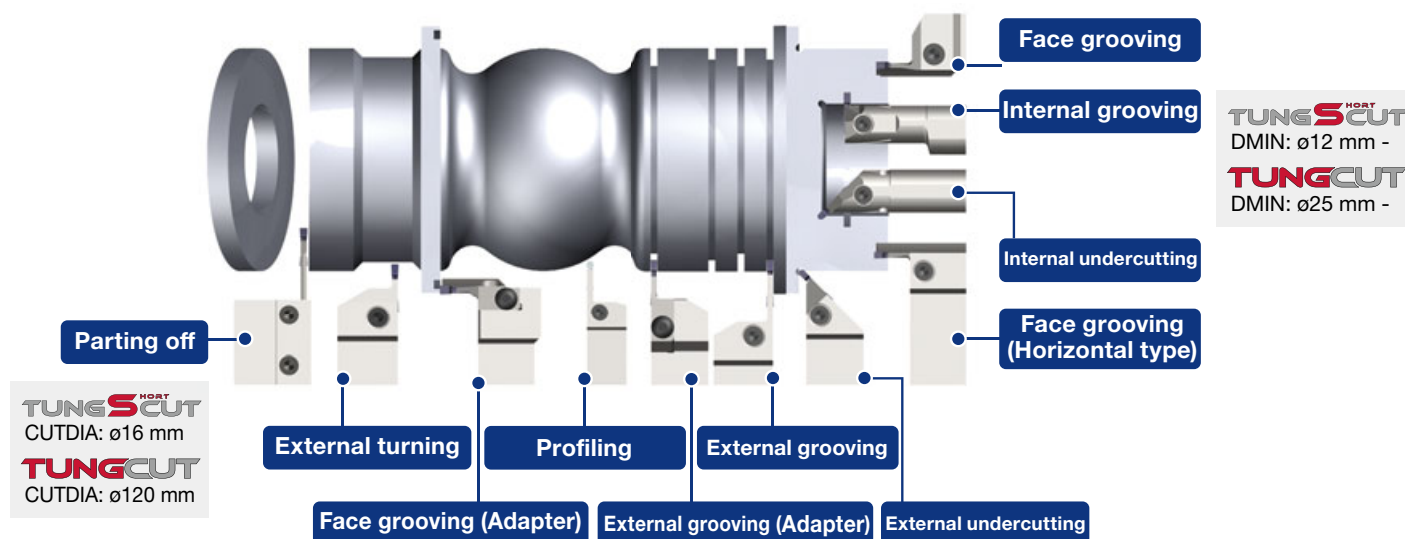


TUNG^{HORT} SCUT / TUNG^{CUT} CUT



Multi-functional tool series offering a wide range of grades, geometries and holder variations for **maximum performance** with **minimum tool investments**

Multi-functional grooving tool series with excellent versatility

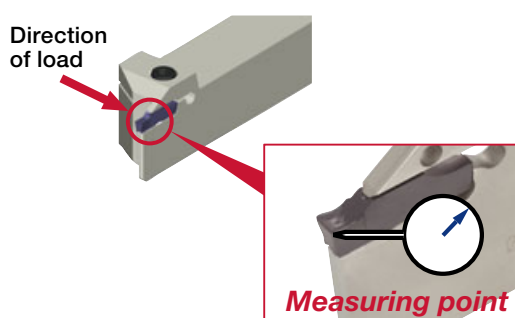
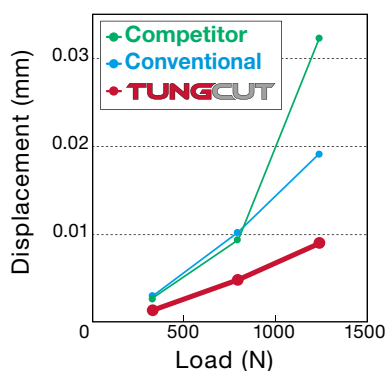


■ For stable tool life and accuracy

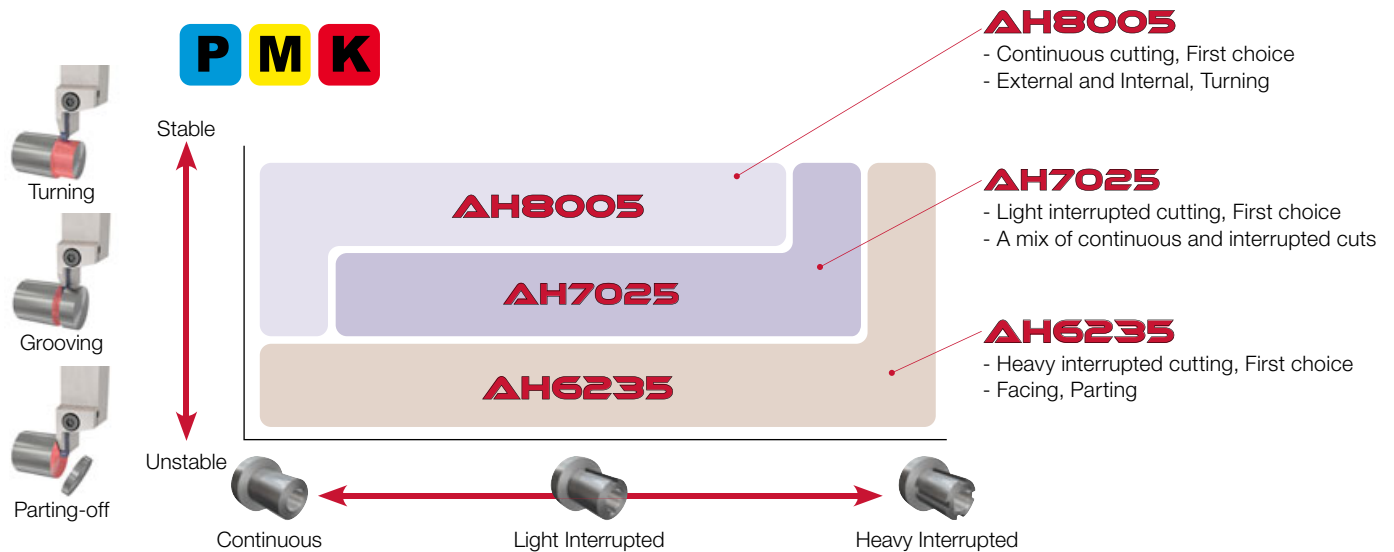
Clamping system



Minimizes cutting edge displacement



Grade selection system



GRADES

AH8005 P M K S

- First choice for external, internal, and side-turning, continuous cuts

AH7025 P M K S

- First choice for light interrupted cuts or a mix of continuous and interrupted cuts
- New PVD coating with high Al content provides excellent adhesion strength
- Improved wear and chipping resistance

AH6235 P M K

- First choice for heavy interrupted cuts, as well as parting and facing applications

SH7025 P M

- The latest grade for high surface finishing quality and process security

AH725 P M S

- General purpose PVD grade for high fracture resistance

T515 K

- First recommended grade for cast iron
- Excellent wear resistance in high speed machining

T9225 P

- Suitable for steel machining at high speeds
- New CVD coating and substrate deliver an outstanding balance of wear and chipping resistance

NS9530 P

- Advanced cermet for finish cutting of steel
- Innovative grade with incredible fracture and high wear resistance

GH130 P M K

- Recommended for interrupted machining
- TiCNO PVD coating layer with high wear resistance
- High hardness wear resistance

AH905 S

- Remarkable for machining of heat resistant alloys
- Exclusive coating layer improves adhesion strength and wear resistance

KS05F N S

- Recommended for non-ferrous materials and titanium

TH10 N

- Recommended for non-ferrous materials

New DX160 N

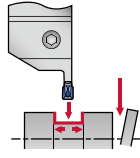
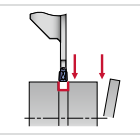
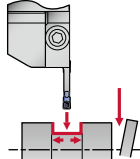
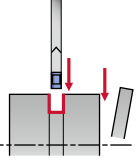
- PCD grade for non-ferrous metals

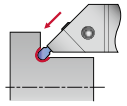
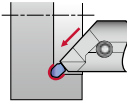
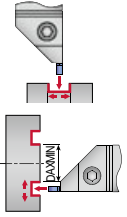
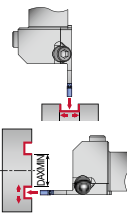
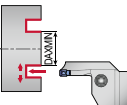
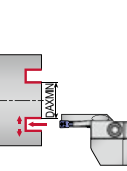
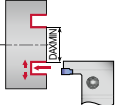
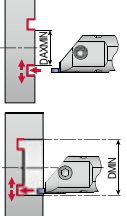
BXA10 H

- Coated CBN grade designed for turning hardened steel parts

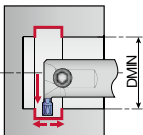
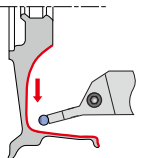
BX360 H

- CBN grade for grooving of hardened steel

Application	Designation	Tool type	CW (mm)	CDX (mm)	Max. parting dia.: CUTDIA (mm)	Shank sizes	Product details
External grooving turning, and parting    	CTER/L-CHP	Screw clamp, for high pressure coolant	2 - 6	17 - 25	-	20 x 20 mm, 25 x 25 mm	
	CTER/L	Screw clamp	2 - 8	8 - 36	-	16 x 16 mm - 32 x 32 mm	
	JCTER/L-CHP	Screw clamp, for high pressure coolant, small swiss-type CNC machines	2	-	ø25, ø32	12 x 12 mm - 20 x 20 mm	
	JCTER/L	Screw clamp, small swiss-type CNC machines	1.4 - 3	-	ø20 - ø42	10 x 10 mm - 20 x 20 mm	
	JTTER/L	Side clamping, small swiss-type CNC machines	1.2	-	ø12 - ø20	10 x 10 mm - 16 x 16 mm	
	JTTER/L-S	Side clamping, for sub spindle, small swiss-type CNC machines	1.2	-	ø12 - ø20	10 x 10 mm - 16 x 16 mm	
	QC-JTTER/LS-CHP	Modular head, Side clamping, for high pressure coolant, small swiss-type CNC machines	0.8 - 1	-	ø16	10 x 12 mm - 12 x 12 mm	
	QC-JT/CTER/L-CHP	Modular head, Side clamping / Screw clamp, for high pressure coolant, small swiss-type CNC machines	1.2 - 3	-	ø12 - ø32	10 x 12 mm - 16 x 16 mm	 
	CGER/L	Self clamp, small swiss-type CNC machines	1.4 - 4	9.7 - 20.3	ø29 - ø55	12 x 12 mm - 20 x 20 mm	
	CAER/L-CHP	Adapter type, screw clamp, for high pressure coolant	2 - 8	16 - 25	-	20 x 20 mm, 25 x 25 mm	
	CAER/L-MD	Adapter type, screw clamp	2 - 8	16 - 25	-	20 x 20 mm, 25 x 25 mm	
	CAER/L	Adapter type, screw clamp	3 - 6	16, 20	-	20 x 20 mm - 32 x 32 mm	
	CGP-CHP	Self clamp	2 - 6	-	ø50 - ø110	25 x 25 mm	
	CGP	Self clamp	1.4 - 8	-	ø26 - ø120	20 x 20 mm - 32 x 32 mm	
	CHGP	Self clamp	2 - 4	-	ø52, ø82	20 x 20 mm, 25 x 25 mm	

Application		Designation	Tool type	CW (mm)	CDX (mm)	Min. face grooving dia.: DAXMIN (mm)	Min. bore dia.: DMIN (mm)	Shank sizes	Product details
External and internal undercutting		CGEUR/L	Screw clamp	3 - 6	2.8, 3.4	-	-	16 x 16 mm - 25 x 25 mm	
		CGIUR/L	Screw clamp	3 - 6	2.8	-	-	ø20 mm - ø25 mm	
External and face grooving, and turning		CTEFR/L	Screw clamp	2 - 6	4.8	ø20 -	-	20 x 20 mm, 25 x 25 mm	
		CAEFR/L-CHP	Adapter type, screw clamp, for high pressure coolant	2 - 6	4.8	ø20 -	-	20 x 20 mm - 25 x 25 mm	
Face grooving and turning		CTFR/L	Screw clamp	3 - 6	10 - 25	ø22 -	-	25 x 25 mm	
		CAFR/L-CHP	Adapter type, screw clamp, for high pressure coolant	3 - 6	12 - 25	ø40 -	-	20 x 20 mm, 25 x 25 mm	
		CAFR/L	Adapter type, screw clamp	3 - 6	12 - 25	ø40 -	-	20 x 20 mm - 32 x 32 mm	
		CTFVR/L	Screw clamp	3 - 6	10 - 20	ø22 -	-	25 x 25 mm	
Face grooving, internal face grooving and turning		CTIFR/L	Screw clamp	2 - 6	5.5	ø20 -	ø26.3 -	ø25 mm - ø32 mm	

Scan the QR code for product details and dimensions.

Application		Designation	Tool type	CW (mm)	CDX (mm)	Min. face grooving dia.: DAXMIN (mm)	Min. bore dia.: DMIN (mm)	Shank sizes	Product details
Internal grooving and turning		CTIR/L	Screw clamp	2 - 8	4 - 10	-	ø25 -	ø16 mm - ø40 mm	
		CTIR**S	Screw clamp	2, 3	3 - 6	-	ø12 -	ø10 mm - ø16 mm	
		S-CTIRS-H	Modular head, screw clamp, for high pressure coolant	2, 3	6, 7	-	ø32, ø40	ø25 mm, ø32 mm	
		S-CTIR/L-H	Modular head, screw clamp, for high pressure coolant	2 - 4	13, 17	-	ø52, ø62	ø32 mm - ø60 mm	
Profiling		CTER/L-15A	Screw clamp	6, 8	25, 30	-	-	25 x 25 mm	
		CGIUR/L-15A	Screw clamp	6, 8	50 - 85	-	ø160, ø200	ø40 mm, ø50 mm	

Scan the QR code for product details and dimensions.

INSERT APPLICATION

Insert	Application						
	Grooving			Parting	Turning		
	External	Internal	Face		External	Internal	Face
							
DGM / SGM	●	●	●	●			
DGS / SGS	●	●	●	●			
DGG	●	●	●	●			
DGL	●	●	●	●			
DGE	●						
DTM	●	●	●	●	●	●	●
DTE	●	●	●		●	●	●
DTX	●	●	●	●	●	●	●
New DTR / STR					●	●	●
DTIU	● Undercutting	● Undercutting	● Undercutting				
DTI		●				●	
DGIM / DGIS		●					
DTF			●				●
DTA					● Al wheel machining	● Al wheel machining	
SGN	●	●	●	●			
New STX	●	●	●	● hardened steel	●	●	●
DTV					●	●	
DGS*S		●		●			
DTR*S		●				●	
STV*S						●	

Insert	Application		
	High feed turning		
	External	Internal	Face
			
STH	●	●	●



Double-ended short inserts

■ Modular head designed specifically for parting applications in Swiss machines

1 Modular head system with high pressure through-coolant

- Minimum tool overhang thanks to the new parting insert that is only 9 mm in length.
- Reduced downtime with quick tool changeovers thanks to the ModuMini-Turn modular system.



MODUM^{INI}TURN

CW = 0.8, 1 mm
CUTDIA = 16 mm

2 Thin inserts for 0.8 and 1 mm groove widths

- Reduces material wastes during parting operations.
- Provides consistent chip control and high-quality surface finish during low feed operations.
- Allows users to choose the optimal grade at all times based on their machining parameters.



DGSS-003**

AH725

- Lightly-honed cutting edge
- Extremely resistant to edge chipping
- Allows increased feeds and speeds



DGSSF-003**

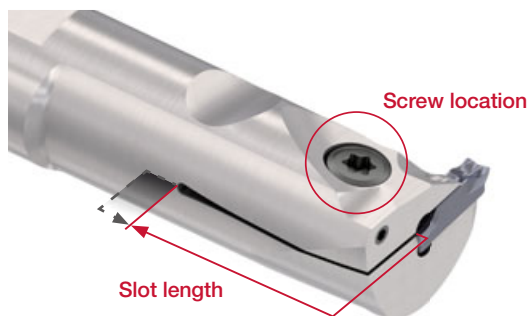
SH7025

- Sharp cutting edge
- Light cutting with little resistance
- High surface finishing quality

■ High rigidity toolholder for internal groove turning operations

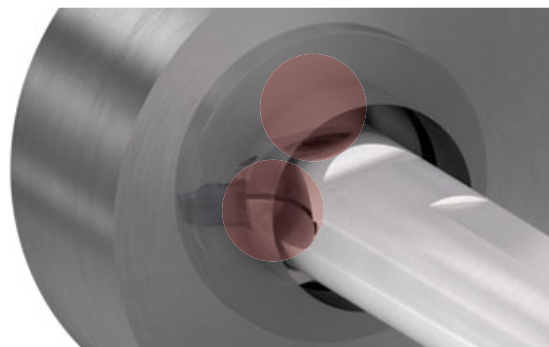
1 Improved chatter resistance

Optimized screw location and slot length enhances insert clamping capability.



2 Effective chip evacuation

Chip pocket and flute are designed to promote smooth chip evacuation.



3 Internal coolant system

Precision coolant delivered from the top to the cutting point for best performance and smooth chip evacuation.



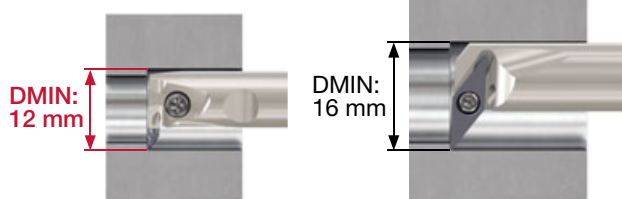
4 Produces various profiles

- Offered in the shape of a grooving insert with 35° inserts for profiling are now available, the new insert allows complex profiling without tool interference, which is not possible with conventional ISO turning inserts.
- Suitable for internal profiling of DMIN:12 mm

Push turning (towards the spindle)

TUNGSCUT
STV

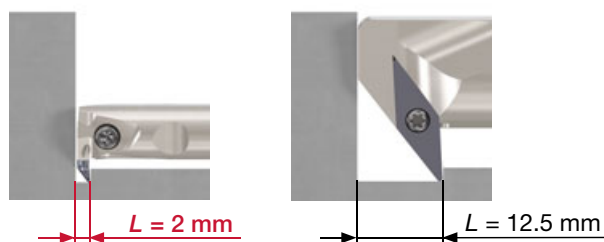
ISO insert
V type



Pull turning (away from the spindle)

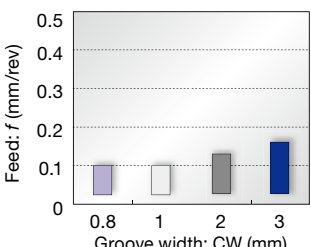
TUNGSCUT
STV

ISO insert
V type

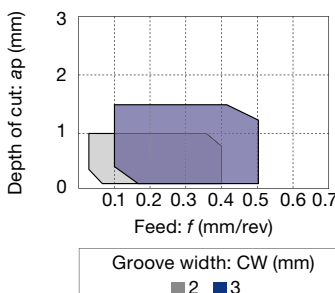
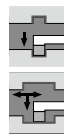


CHIPBREAKER GUIDE

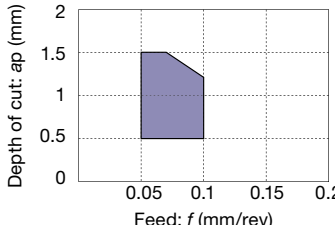
Internal grooving and parting

DGS*S type (2 corners)  	Lower cutting force and superior sharpness Uniquely designed edge and chipbreaker CW = 0.8 - 3 mm	■ Standard feed  
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Profiling and undercutting

DTR*S type (2 corners)  	Full radius type - Provides effective chip control during profile turning application - Molded inserts available CW = 2 - 3 mm	■ Standard feed and DoC  
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Profiling

STV*S type (1 corner)  	Full radius type Incorporating excellent cutting edge integrity and chip control, JS chipbreaker provides process security during profile turning, in which chip control is typically challenging. ■ Note: Depending on the depth of cut and cutting direction, the insert support may require modification to avoid tool collision. 	■ Standard feed and DoC  
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Scan the QR code for product details and dimensions.

STANDARD CUTTING CONDITIONS

DGS*S, DTR*S

ISO	Workpiece material	Hardness	Grade	Cutting speed Vc (m/min)
P	Steel S45C, SCM435, etc. C45, 34CrMo4, etc.	< 300 HB	AH7025, AH725, SH7025	50 - 180
M	Stainless steel SUS303, SUS304, etc. X10CrNiS18-9, X5CrNi18-9, etc.	< 200 HB	AH7025, AH725, SH7025	50 - 120
K	Grey cast iron FC250, etc. 250, etc.	-	AH7025	50 - 180
	Ductile cast iron FCD450, etc. 450-10S, etc.	-	AH7025	50 - 120
S	Superalloys Inconel718, etc.	< HRC 40	AH7025	20 - 60
	Titanium alloys Ti-6Al-4V, etc.	< HRC 40	AH7025	20 - 80

Please see page 12 for feed: f (mm/rev).

STV*S

ISO	Workpiece material	Grade	Cutting speed Vc (m/min)	Feed f (mm/rev)
P	Low carbon steel S15C, SS400, etc. C15E4, E275A, etc.	AH725	50 - 180	0.05 - 0.1
	Carbon steel, Alloy steel S55C, SCM440, etc. C55, 42CrMo4, etc.	AH725	50 - 180	0.05 - 0.1
	Free cutting steel SUH22, SUH23, etc.	AH725	50 - 180	0.05 - 0.1
M	Stainless steel SUS304, etc. X5CrNi18-9, etc.	AH725	50 - 120	0.05 - 0.1
K	Grey cast iron FC250, etc. 250, etc.	AH725	50 - 180	0.05 - 0.1
	Ductile cast iron FCD450, etc. 450-10S, etc.	AH725	50 - 120	0.05 - 0.1
S	Superalloys Inconel718, etc.	AH725	20 - 80	0.05 - 0.1
	Titanium alloys Ti-6Al-4V, etc.	AH725	20 - 80	0.05 - 0.1



Versatile groove turning tools — the first choice for all your grooving needs

1 Application ranges

External grooving		Parting		Face grooving			Internal grooving			Profiling (Full-R)		Turning	
CW (mm)	CDX (mm)	CW (mm)	CUTDIA (mm)	CW (mm)	CDX (mm)	DAXN (mm)	CW (mm)	CDX (mm)	DMIN (mm)	CW (mm)	CDX (mm)	CW (mm)	CDX (mm)
1.2 - 8	35	1.2 - 8	120	2 - 6	25	25	2 - 8	10	25	2 - 8	35	2 - 8	35

2 Toolholder variation



Monoblock toolholder
Shank sizes:
10 x 10 - 32 x 32 mm,
ø16 - ø40 mm



MODUM^{INT}TURN
Exchangeable head system
for reduced changeover
time. Designed for the use
in Swiss machines.



BOREMEISTER
Exchangeable head system
allowing long overhang
for up to 14xD for internal
machining.



TUNGF^{HP}BLADE
Blade + tool block system
for high feed applications
requiring tool rigidity.



TUNG^{MODULAR}SYSTEM
Adapter + TungCap toolholder

3 Extensive insert lineup

- Available for CW= 1.2 - 8 mm
- Various grades are offered, including CBN, for all material groups, such as non-ferrous metals and hardened steel parts.

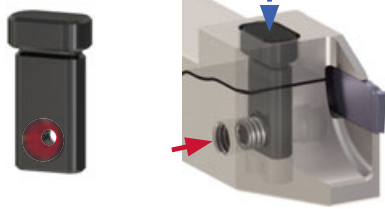


■ Reduced downtime with new side clamp toolholder

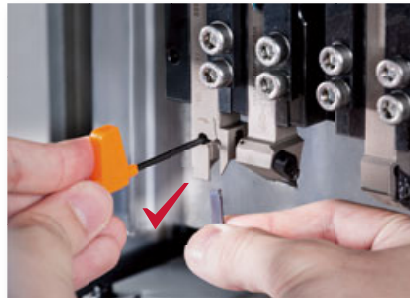
- Easy insert changes by locking/unlocking from the side.
- Swift insert changes are possible while the toolholder remains on the machine, allowing significantly reduced setup time.

TUNG CUT Side Clamp toolholder

Clamping pin



As the grub screw is tightened, the clamping pin moves downward to clamp the insert securely.



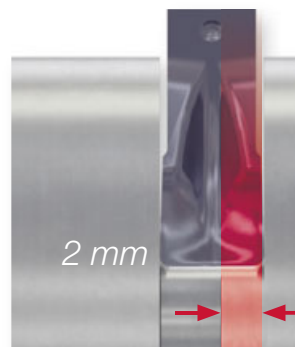
Conventional



Not enough room for a key to operate the screw. The entire tool has to be removed from the machine for insert change.

■ 1.2 mm wide insert - the perfect solution for material cost reduction

Saves material by up to 40% by volume when compared with existing 2 mm wide insert.



40% cost cut!

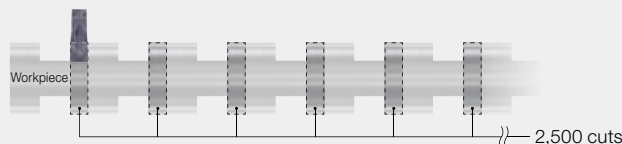
When swapped with 1.2 mm wide insert

0.8 mm

Ex.) Lengths of materials wasted after 2,500 cuts by using 1.2 mm insert vs 2 mm insert:

New With 1.2 mm insert → 2,500 cuts x 1.2 mm/cut = **3,000 mm**
 With 2 mm insert → 2,500 cuts x 2 mm/cut = **5,000 mm**

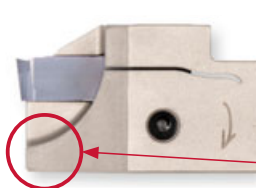
1.2 mm wide insert can save a 2,000 mm long bar stock worth of materials!!



■ Robust tool design

Easy workpiece positioning after every cut-off

The robust toolholder design withstands repeating bar feeder pressures, allowing the toolholder to be used for workpiece positioning.



TUNG CUT 1.2 mm



Conventional



Strong holder design ensures excellent stability and productivity during demanding applications

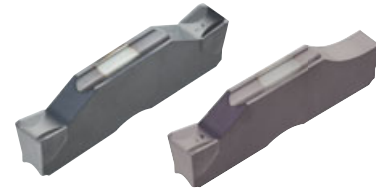
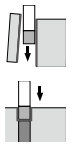
- The support blade is designed to eliminate chatter during machining, providing better surface finish and straightness of the groove.
- Each blade has three insert seats for tool economy.



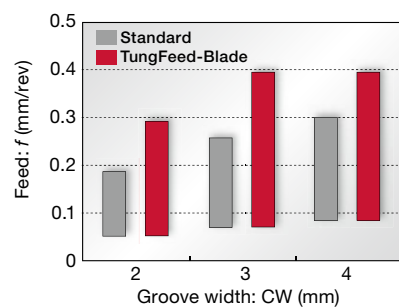
- The holder has two contact faces for enhanced rigidity.



DGM type (2 corners)
SGM type (1 corner)



Enhanced feed vs. conventional blade



Enables high feed machining when used with high rigidity holders

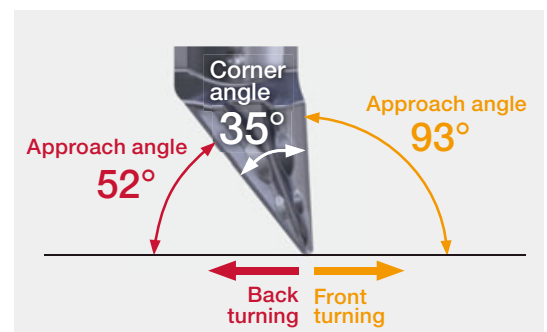
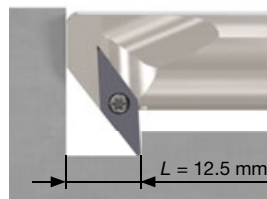
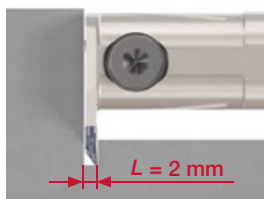
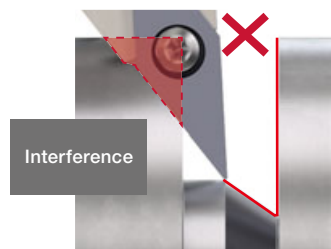
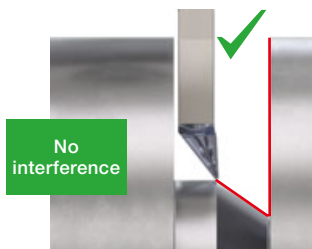
DTV insert featuring 35° nose angle for profile turning applications

Produces various profiles

Offered in the shape of a grooving insert, the new insert allows complex profiling without tool interference, which is not possible with conventional ISO turning inserts.

TUNG-CUT
DTV

ISO insert
V type





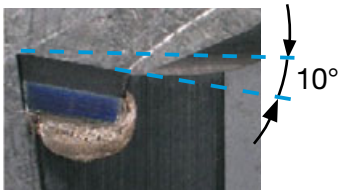
New PCD insert with 3D chipbreaker for grooving and groove-turning of non-ferrous metal parts



- Promotes efficient machining while eliminating bird-nesting of chips

Edge preparation:

Sharp cutting edge eliminates burr generation, creating superior surface quality.



Rake angle for light cutting action



Carbide body: Chip guiding feature

The unique groove feature guides chips away from the cutting zone.



Left-hand



Right-hand

PCD tip: with 3D chipbreaker

Promotes good chip control when creating a wide groove or groove-turning.

- Optimized chip evacuation for the right- and left-hand inserts

Optimal insert handedness can always be used regardless of the toolholder or chuck mounting

Hand	Insert (facing up)	Insert (facing down)
Left-hand	Reverse (CCW) rotation	Reverse (CCW) rotation
Right-hand	Forward (CW) rotation	Forward (CW) rotation

■ Chip control

■ Grooving

**STX insert
(with chipbreaker)**



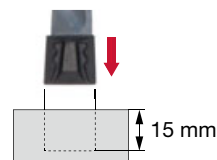
**Competitor
(with no chipbreaker)**



STX insert, thanks to its optimized chip guide groove, allows smooth chip evacuation, while eliminating bird nest.

N

Insert : STX200L-020 DX160
Toolholder : CTEL2525-2T17
Workpiece material : A5056
Cutting speed : $V_c = 500$ m/min
Feed : $f = 0.15$ mm/rev
Depth of cut : $a_p = 15$ mm
Coolant : Wet



■ Creating wide grooves

**STX insert
(with chipbreaker)**



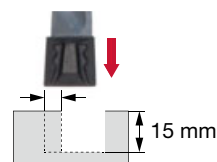
**Competitor
(with no chipbreaker)**



STX insert provides excellent chip control during cutting of a wide groove thanks to integrated 3D chipbreaker.

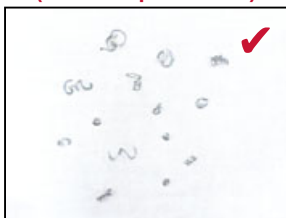
N

Insert : STX200L-020 DX160
Toolholder : CTEL2525-2T17
Workpiece material : A5056
Cutting speed : $V_c = 500$ m/min
Feed : $f = 0.15$ mm/rev
Depth of cut : $a_p = 0.7$ mm
Coolant : Wet



■ Turning

**STX insert
(with chipbreaker)**



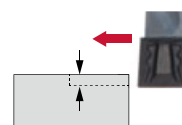
**Competitor
(with no chipbreaker)**



STX insert provides excellent chip control during groove-turning thanks to integrated 3D chipbreaker.

N

Insert : STX200L-020 DX160
Toolholder : CTEL2525-2T17
Workpiece material : A5056
Cutting speed : $V_c = 500$ m/min
Feed : $f = 0.15$ mm/rev
Depth of cut : $a_p = 0.5$ mm
Coolant : Wet



New

CBN tipped profiling insert with 3D chipbreaker for hardened steel parts

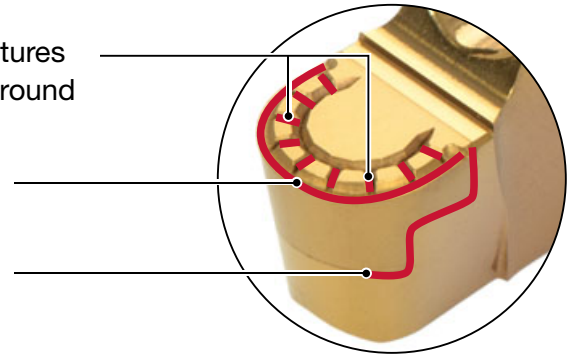


STR type

- Eliminate chip bird nesting during hard part turning

STR inserts WAVYJOINT

- **TungCut** full radius inserts with HP chipbreaker features chip former that is integrated into the rake face all around the cutting edge, eliminating chip nesting
- The geometry is designed to reduce cutting loads, eliminating chatter generation during machining
- Secure bondage between the CBN tip and insert enabled with **WavyJoint** technology



■ Chip control

STR insert
(with chipbreaker)



Competitor
(with no chipbreaker)



H

Insert	: STR300-HP BXA10
Toolholder	: CTEL2525-3T09
Workpiece material	: SUJ2 / B1 (60 - 62HRC)
Cutting speed	: $V_c = 120$ m/min
Feed	: $f = 0.2$ mm/rev
Depth of cut	: $a_p = 0.15$ mm
Application	: External profiling, continuous
Coolant	: Dry

STR insert provided better chip control.

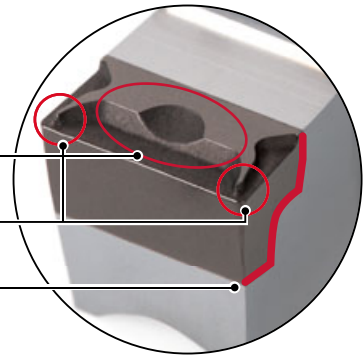
CBN tipped grooving insert with 3D chipbreaker for hardened steel parts



- No more concerns with chip bird-nesting during grooving of hardened steel parts

STX inserts WAVYJOINT

- Functions during grooving processes
- Functions during groove wall cutting and side turning
- Secure bondage between the CBN tip and insert enabled with **WavyJoint** technology



■ Chip control

STX insert
(with chipbreaker)



Competitor
(with no chipbreaker)

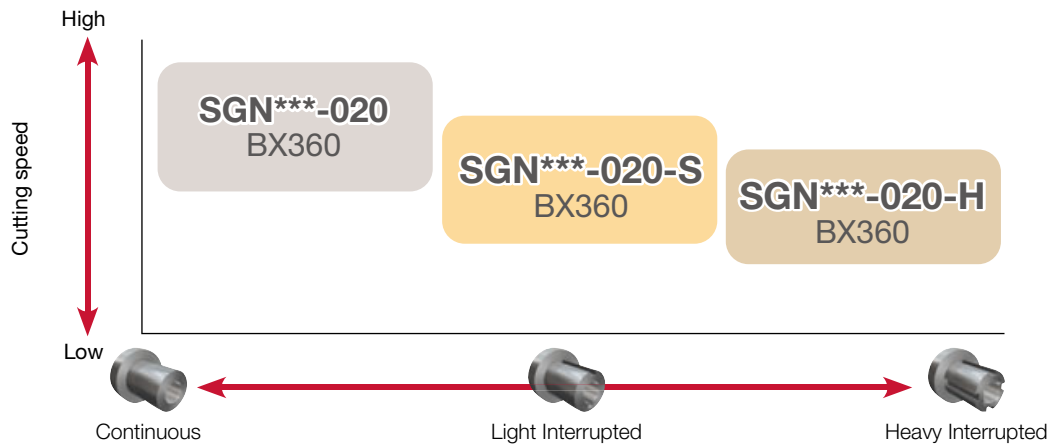
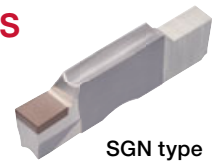


H	Insert	: STX300-020 BX360
	Toolholder	: CTCL2525-3T09
	Workpiece material	: SCM415 (60-62HRC)
	Cutting speed	: $V_c = 120$ m/min
	Feed	: $f = 0.05$ mm/rev
	Depth of cut	: $a_p = 0.3$ mm
	Application	: O.D. grooving and wall cutting, continuous
	Coolant	: Wet

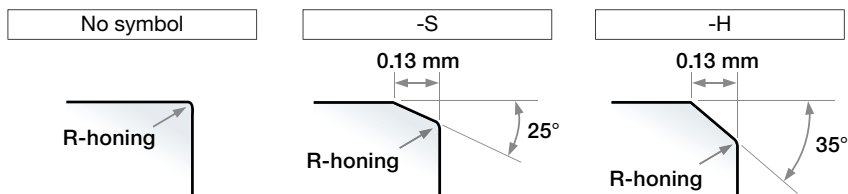
STX insert provided better chip control.

CBN inserts for grooving applications of hardened steel parts

- Three standard types of edge preparations are available according to the cutting conditions

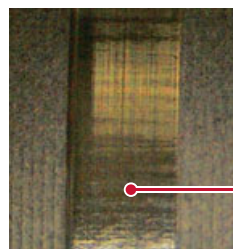
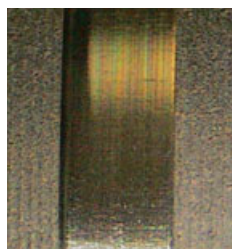


Edge preparations



CUTTING PERFORMANCE

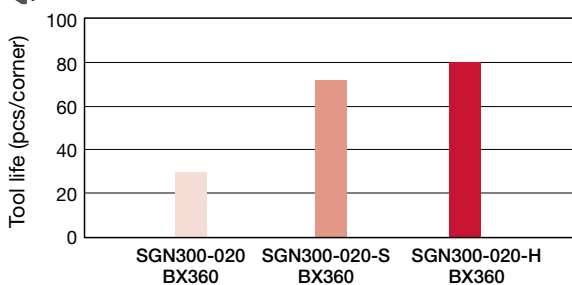
Continuous grooving



Toolholder : CTCL2525-3T
Workpiece material : SCM420 (58HRC)
Cutting speed : $V_c = 150$ m/min
Feed : $f = 0.05$ mm/rev
Coolant : Wet

Inserts without edge preparation symbol recommended for continuous grooving.

Heavy interrupted grooving



Toolholder : CTCL2525-3T
Workpiece material : SCM435 (58HRC)
Cutting speed : $V_c = 100$ m/min
Feed : $f = 0.05$ mm/rev
Coolant : Dry

-H type edge preparation recommended for heavy interrupted grooving.

CBN insert for high feed turning of hardened steel parts



Innovative insert design for turning

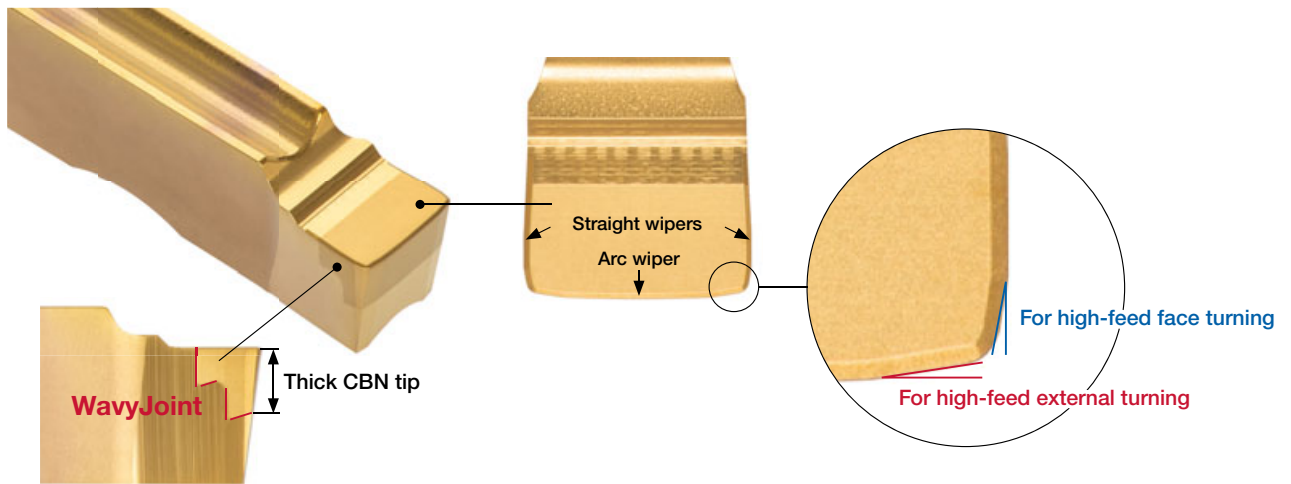
Optimized cutting edge geometry for high feed turning

- Turning insert in the shape of a grooving insert —This innovative design allows the cutting edge to have longer wipers than traditional ISO wiper inserts, providing superior surface finishing in high feed machining.
- Front and side cutting edges form small entry angles that generate a chip thinning effect during machining at a high feed rate.

Note: When used for grooving, the insert will not produce square corners at the groove bottom due to its cutting edge profile with an arc wiper.

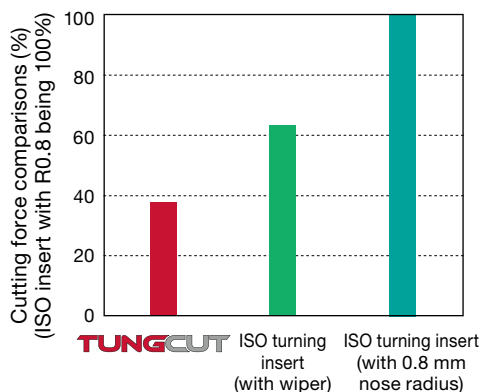
WavyJoint technology for enhanced brazing

- WavyJoint technology provides enhanced CBN tip and carbide insert bonding. A thick CBN tip dissipates the heat accumulated on the cutting edge during high feed machining, preventing the CBN tip from de-brazing.



Low cutting force

Optimized for high feed machining, the cutting edge creates thin chips, generating lower cutting forces than ISO inserts.



Insert	: STH500-SR BXA10 : 2QP-CNGA120408WL BXA10 : 2QP-CNGA120408 BXA10
Holder	: CTEL2525-5T12 : ACLNL2525M12-A
Workpiece material	: SCM415 (60HRC)
Cutting speed	: $V_c = 150$ m/min
Feed	: $f = 0.9$ mm/rev
Depth of cut	: $a_p = 0.1$ mm
Application	: External turning, continuous cut
Coolant	: Wet

High productive machining (for external turning)

An arc wiper on the front cutting edge provides superior surface finish when external turning at high feed rates.

	Feed: f (mm/rev)					
	0.1	0.3	0.6	0.9	1.2	1.5
TUNG CUT	✓	✓	✓	✓	✓	✓
ISO turning insert (with wiper)	✓	✓	✗	✗	✗	✗
ISO turning insert (with 0.8 mm nose radius)	✓	✗	✗	✗	✗	✗

✓ R_z = less than 3.2 μm

✗ R_z = 3.2 μm or greater

H	Insert	: STH500-SR BXA10 : 2QP-CNGA120408WL BXA10 : 2QP-CNGA120408 BXA10
	Holder	: CTEL2525-5T12 : ACLNL2525M12-A
	Workpiece material	: SCM415 (60HRC)
	Cutting speed	: V_c = 150 m/min
	Feed	: f = 0.1 - 1.5 mm/rev
	Depth of cut	: a_p = 0.1 mm
	Application	: External turning, continuous cut
	Coolant	: Wet

High productive machining (for face turning)

Straight wipers on the side cutting edges provides superior surface finish when face turning at high feed rates.

	Feed: f (mm/rev)					
	0.1	0.3	0.6	0.9	1.2	1.5
TUNG CUT	✓	✓	✓	✗	✗	✗
ISO turning insert (with wiper)	✓	✓	✗	✗	✗	✗
ISO turning insert (with 0.8 mm nose radius)	✓	✗	✗	✗	✗	✗

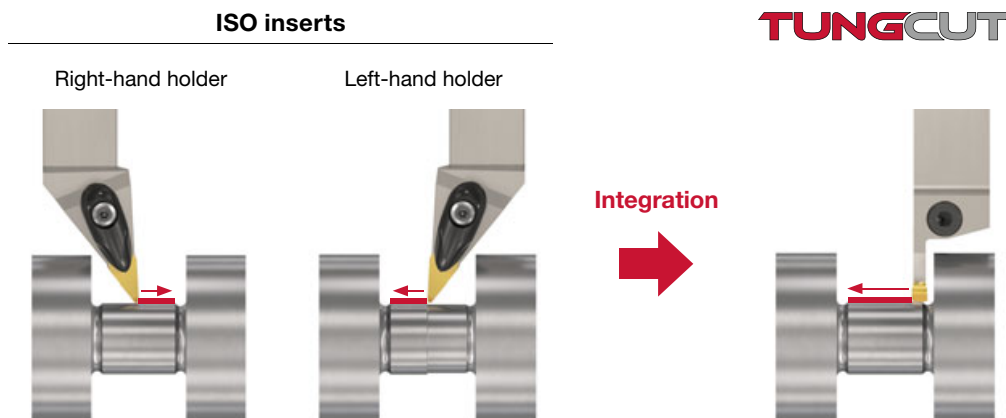
✓ R_z = less than 3.2 μm

✗ R_z = 3.2 μm or greater

H	Insert	: STH500-SR BXA10 : 2QP-CNGA120408WL BXA10 : 2QP-CNGA120408 BXA10
	Holder	: CTEL2525-5T12 : ACLNL2525M12-A
	Workpiece material	: SCM415 (60HRC)
	Cutting speed	: V_c = 120 m/min
	Feed	: f = 0.1 - 1.5 mm/rev
	Depth of cut	: a_p = 0.1 mm
	Application	: Face turning, continuous cut
	Coolant	: Wet

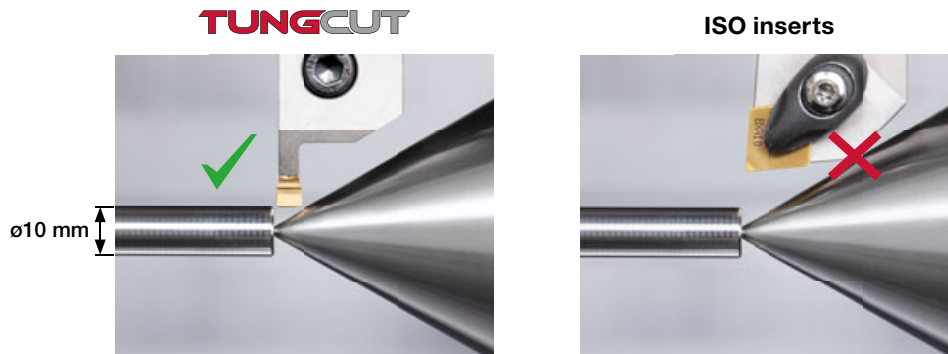
Integration of machining processes

To avoid tool interference, conventional turning method with ISO inserts requires two passes with two different turning holders. Using TungCut CBN insert with a grooving toolholder enables the machining processes to be integrated in a single machining pass.



Minimum tool interference

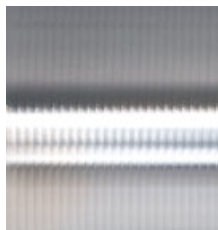
TungCut insert is positioned perpendicular to the workpiece center axis. This minimizes tool interference when entering the cut from the tail stock side, making it easy to machine small diameter shafts.



CAUTIONS WHEN TURNING WITH TUNG-CUT

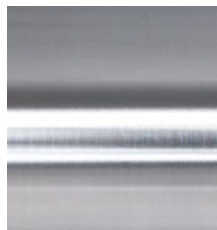
Since the wiper geometry consists of a long arc, TungCut CBN insert provides wavy surface finishing, despite the results with excellent Ra values.

TUNG-CUT
Feed: $f = 1$ mm/rev



Surface quality
 $Ra = 0.3 \mu\text{m}$

ISO turning insert
(with 0.8 mm nose radius)
Feed: $f = 0.1$ mm/rev



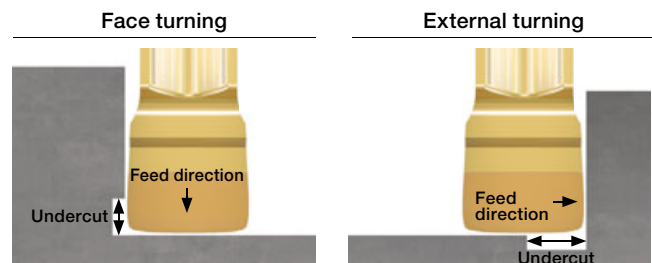
Surface quality
 $Ra = 0.4 \mu\text{m}$

H

Insert : STH500-SR BXA10
Holder : 2QP-CNGA120408 BXA10
Workpiece material : SCM415 (60HRC)
Cutting speed : $V_c = 150$ m/min
Feed : $f = 0.1, 1$ mm/rev
Depth of cut : $a_p = 0.1$ mm
Application : External turning, continuous cut
Coolant : Wet

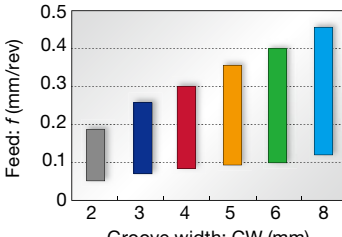
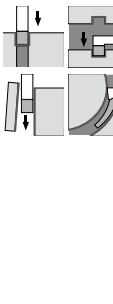
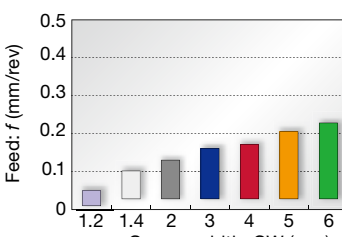
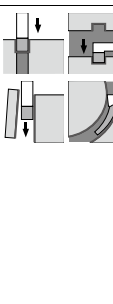
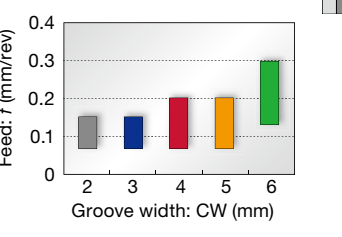
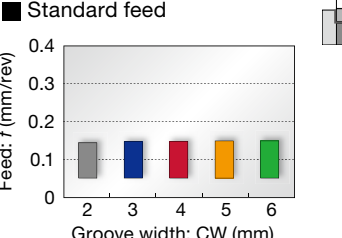
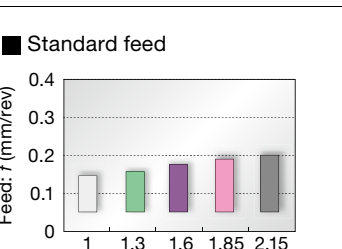
Due to the wiper geometry, ensure machine is programmed so that the wiper section of the cutting edge completely passes over the workpiece edge when external turning or face turning, otherwise, material will be left uncut on the workpiece. When cutting towards the wall or bottom, provide proper undercutting, as listed below, at the wall or bottom to eliminate uncut material.

Designation	CW ± 0.025	Application	Minimum undercutting required (mm)
STH300-SR	3	External	1.5
		Face	0.4
STH500-SR	5	External	2.5
		Face	0.7



CHIPBREAKER GUIDE

External/internal grooving and parting

DGM type (2 corners) SGM type (1 corner) 	1st choice for grooving and parting - Smooth chip evacuation - Well-designed edge with high strength - Handed insert available CW = 2 - 8 mm	■ Standard feed <table><thead><tr><th>Groove width: CW (mm)</th><th>Feed: f (mm/rev)</th></tr></thead><tbody><tr><td>2</td><td>0.18</td></tr><tr><td>3</td><td>0.25</td></tr><tr><td>4</td><td>0.30</td></tr><tr><td>5</td><td>0.35</td></tr><tr><td>6</td><td>0.40</td></tr><tr><td>8</td><td>0.45</td></tr></tbody></table> 	Groove width: CW (mm)	Feed: f (mm/rev)	2	0.18	3	0.25	4	0.30	5	0.35	6	0.40	8	0.45				
Groove width: CW (mm)	Feed: f (mm/rev)																			
2	0.18																			
3	0.25																			
4	0.30																			
5	0.35																			
6	0.40																			
8	0.45																			
DGS type (2 corners) SGS type (1 corner) 	Lower cutting force and superior sharpness - Unique-designed edge and chipbreaker - Handed insert available CW = 1.2 - 8 mm	■ Standard feed <table><thead><tr><th>Groove width: CW (mm)</th><th>Feed: f (mm/rev)</th></tr></thead><tbody><tr><td>1.2</td><td>0.05</td></tr><tr><td>1.4</td><td>0.08</td></tr><tr><td>2</td><td>0.12</td></tr><tr><td>3</td><td>0.15</td></tr><tr><td>4</td><td>0.18</td></tr><tr><td>5</td><td>0.22</td></tr><tr><td>6</td><td>0.25</td></tr><tr><td>8</td><td>0.30</td></tr></tbody></table> 	Groove width: CW (mm)	Feed: f (mm/rev)	1.2	0.05	1.4	0.08	2	0.12	3	0.15	4	0.18	5	0.22	6	0.25	8	0.30
Groove width: CW (mm)	Feed: f (mm/rev)																			
1.2	0.05																			
1.4	0.08																			
2	0.12																			
3	0.15																			
4	0.18																			
5	0.22																			
6	0.25																			
8	0.30																			
DGL type (2 corners) 	1st choice for mild steel - Chipbreaker with excellent chip control at low feed - Suitable for mild steel, which often presents challenges in chip control CW = 2 - 6 mm	■ Standard feed <table><thead><tr><th>Groove width: CW (mm)</th><th>Feed: f (mm/rev)</th></tr></thead><tbody><tr><td>2</td><td>0.15</td></tr><tr><td>3</td><td>0.18</td></tr><tr><td>4</td><td>0.22</td></tr><tr><td>5</td><td>0.25</td></tr><tr><td>6</td><td>0.30</td></tr></tbody></table> 	Groove width: CW (mm)	Feed: f (mm/rev)	2	0.15	3	0.18	4	0.22	5	0.25	6	0.30						
Groove width: CW (mm)	Feed: f (mm/rev)																			
2	0.15																			
3	0.18																			
4	0.22																			
5	0.25																			
6	0.30																			
DGG type (2 corners) 	For non-ferrous materials and titanium - Chipbreaker with low cutting force - Sharp cutting edge that prevents vibration and delivers fine surface finish CW = 2 - 6 mm	■ Standard feed <table><thead><tr><th>Groove width: CW (mm)</th><th>Feed: f (mm/rev)</th></tr></thead><tbody><tr><td>2</td><td>0.15</td></tr><tr><td>3</td><td>0.15</td></tr><tr><td>4</td><td>0.15</td></tr><tr><td>5</td><td>0.15</td></tr><tr><td>6</td><td>0.15</td></tr></tbody></table> 	Groove width: CW (mm)	Feed: f (mm/rev)	2	0.15	3	0.15	4	0.15	5	0.15	6	0.15						
Groove width: CW (mm)	Feed: f (mm/rev)																			
2	0.15																			
3	0.15																			
4	0.15																			
5	0.15																			
6	0.15																			
DGE type (2 corners) 	For high accurate and shallow groove Excellent chip control CW = 1 - 2.15 mm	■ Standard feed <table><thead><tr><th>Groove width: CW (mm)</th><th>Feed: f (mm/rev)</th></tr></thead><tbody><tr><td>1</td><td>0.15</td></tr><tr><td>1.3</td><td>0.15</td></tr><tr><td>1.6</td><td>0.18</td></tr><tr><td>1.85</td><td>0.20</td></tr><tr><td>2.15</td><td>0.22</td></tr></tbody></table> 	Groove width: CW (mm)	Feed: f (mm/rev)	1	0.15	1.3	0.15	1.6	0.18	1.85	0.20	2.15	0.22						
Groove width: CW (mm)	Feed: f (mm/rev)																			
1	0.15																			
1.3	0.15																			
1.6	0.18																			
1.85	0.20																			
2.15	0.22																			

Scan the QR code for product details and dimensions.

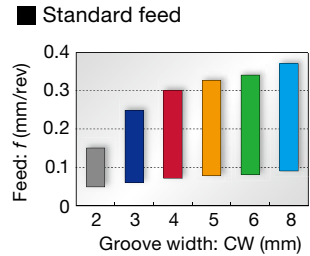
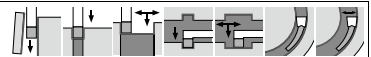
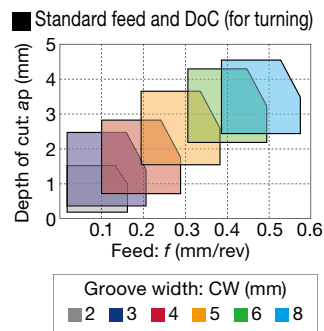
External/internal/face grooving and turning

DTM type (2 corners)



General purpose

- 1st choice for grooving and turning
 - Suitable for light to medium cutting
 - Excellent chip control in machining steel, alloy steel, stainless steel, and heat-resistant alloy
- CW = 2 - 8 mm

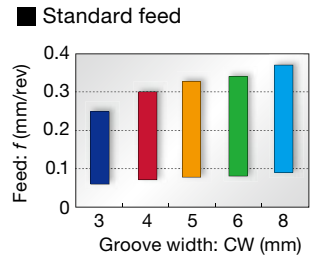
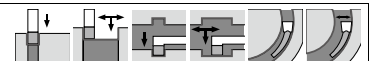
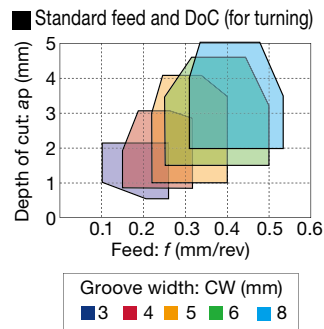


DTE type (2 corners)



General purpose

- Unique chipbreaker makes chips shorter
 - Molded and ground inserts available
- CW = 2.65 - 8 mm

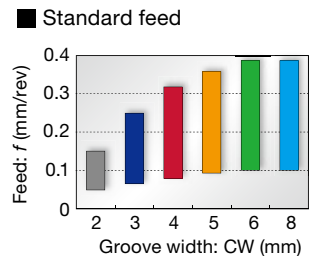
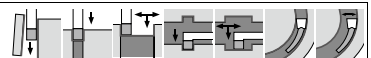
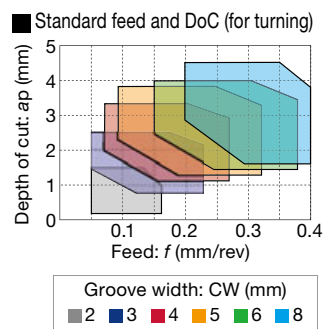


DTX type (2 corners)



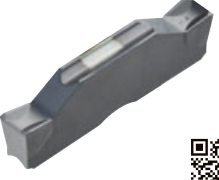
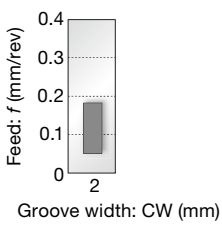
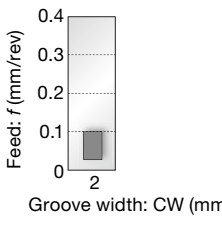
Multi-functional type

- Well balanced sharpness and strength
 - Multi-functional insert
- CW = 2 - 8 mm

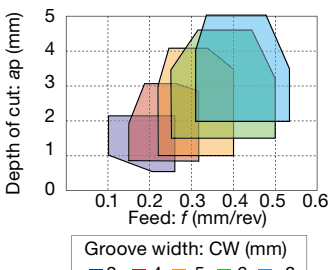
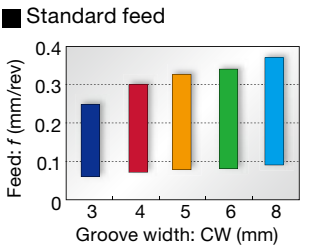
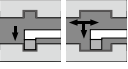


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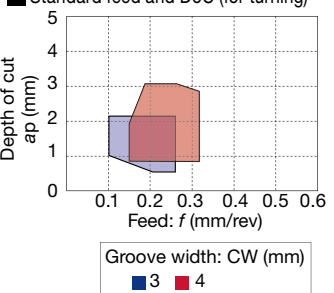
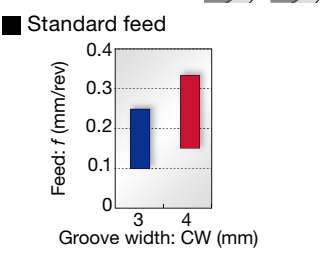
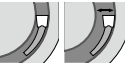
Internal grooving

DGIM type (2 corners)  	2 mm insert width only (For general purpose) - Unique chipbreaker for excellent chip control - Excellent fracture resistance due to optimum land on the cutting edge - For general applications on steels & stainless steels CW = 2 mm Standard feed  
DGIS type (2 corners)  	2 mm insert width only (Lower cutting force) - Lower cutting force - Excellent fracture resistance due to optimum land on the cutting edge - Applicable for low carbon steels & stainless steels CW = 2 mm Standard feed  

Internal grooving and turning

DTI type (2 corners)  	For general purpose I.D. grooving - Unique chipbreaker makes chips shorter - Molded and ground inserts available CW = 3 - 8 mm Standard feed and DoC (for turning)  Standard feed  
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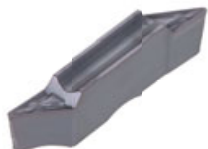
Face grooving and turning

DTF type (2 corners)  	For face grooving - 1st choice for face grooving - Unique chipbreaker makes chips shorter CW = 3, 4 mm Standard feed and DoC (for turning)  Standard feed  
--	---

Scan the QR code for product details and dimensions.

Profiling

DTV type (2 corners)



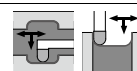
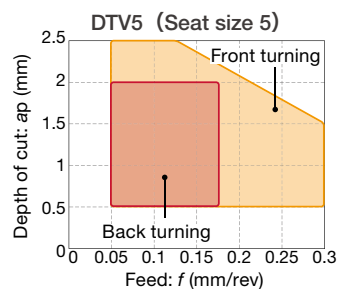
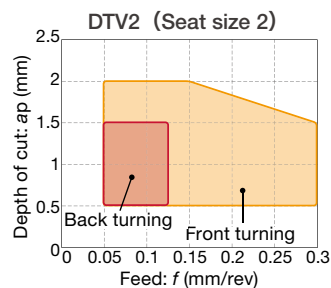
35° nose angle for profiling

- Produces various profiles
- Excellent chip control
- CW = 1.85, 4.5 mm



■ Note:
Depending on the depth of cut and cutting direction, the insert support may require modification to avoid tool collision.

■ Standard feed and DoC



Profiling and undercutting

DTR type (2 corners) STR type (1 corner)

Molded
DTR, STR



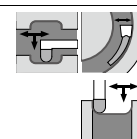
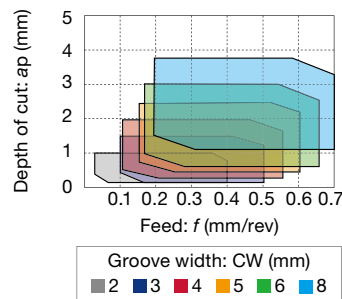
Ground
DTR



Full radius type

- Excellent chip control
- Molded and ground inserts available
- CW = 2 - 8 mm

■ Standard feed and DoC (for turning)



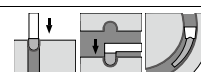
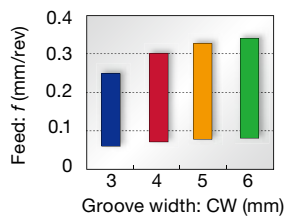
DTIU type (2 corners)



Full radius type

Excellent chip control for undercutting
CW = 3 - 6 mm

■ Standard feed and DoC



Scan the QR code for product details and dimensions.

Aluminium wheel machining

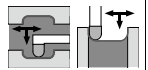
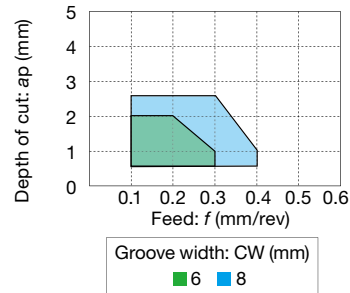
DTA type (2 corners)



Full radius type

- Excellent chip control
- For aluminium wheel profiling
- Ground insert
- CW = 6, 8 mm

Standard feed and DoC (for turning)



External/internal/face grooving and turning of hardened steel

STX type (1 corner)

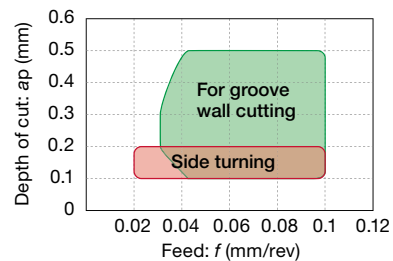


For hardened steel cutting

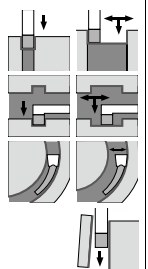
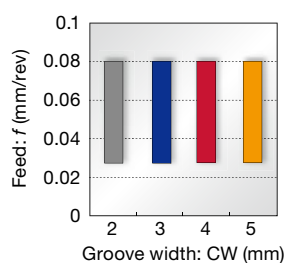
- Grooving insert with 3D chipbreaker for hardened steel parts. Provides excellent chip control
- High tolerance width for finishing
- CW = 2 - 5 mm
- (Tol. : ± 0.025 mm)

Standard feed and DoC

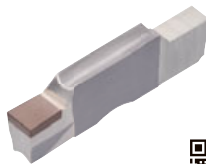
For groove wall cutting and side turning



For grooving



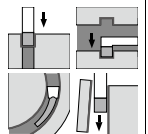
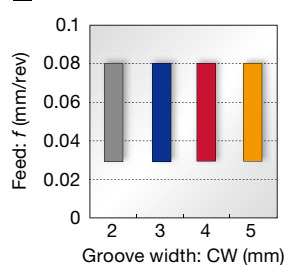
SGN type (1 corner)



For hardened steel cutting

- Optimum cutting edge shape for grooving of hardened steels
- High tolerance width for finishing
- CW = 2 - 5 mm
- (Tol. : ± 0.025 mm)

Standard feed

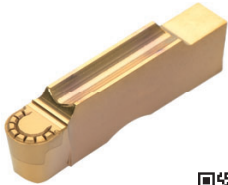


Scan the QR code for product details and dimensions.

New

External profiling of hardened steel

STR type (1 corner)



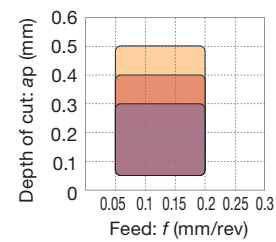
Full radius type

Profile insert with 3D chipbreaker that delivers excellent chip control during hard part turning.

CW = 3 - 5 mm

Note: This insert is not recommended for use in grooving applications.

Standard feed and DoC



Groove width: CW (mm)
■ 3 ■ 4 ■ 5



High feed external/internal/face turning of hardened steel

STH type (1 corner)

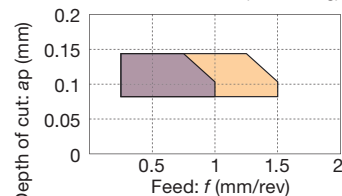


For high feed turning of hardened steel parts

High efficiency machining using light D.O.C. and increased feeds
CW = 3, 5 mm

Note: This insert is not recommended for use in grooving applications.

Standard feed and DoC (for turning)



Groove width: CW (mm)
■ 3 ■ 5



New

External/internal/face grooving and turning of non-ferrous metal parts

STX type (1 corner)

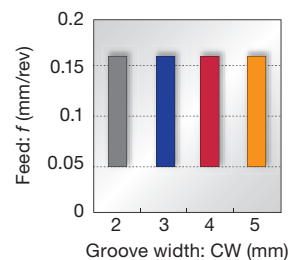


For external/internal/face grooving and turning

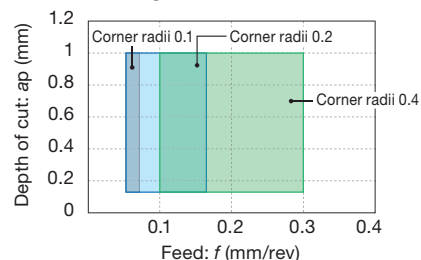
- PCD insert with excellent chip control for grooving and turning of non-ferrous metal parts.
 - Integrated 3D chipbreaker and unique chip guiding feature ensure reliable chip control in various applications.
 - Available in the right- or left-handed geometry depending on the toolholder or chuck mounting.
- CW = 2 - 5 mm

Standard feed and DoC

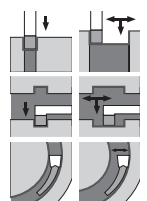
For grooving



For turning



Corner radii (mm)
■ 0.1 ■ 0.2 ■ 0.4



Scan the QR code for product details and dimensions.

STANDARD CUTTING CONDITIONS

ISO	Workpiece material	Hardness	Priority	Grade	Cutting speed Vc (m/min)
P	Steel S45C, SCM435, etc. C45, 34CrMo4, etc.	< 300 HB	First choice	AH7025, AH725	50 - 180
		< 300 HB	Wear resistance	T9225, AH8005	80 - 300
		< 300 HB	Impact resistance	AH6235, GH130	50 - 120
		< 300 HB	Surface quality	NS9530	80 - 220
M	Stainless steel SUS303, SUS304, etc. X10CrNiS18-9, X5CrNi18-9, etc.	< 200 HB	First choice	AH7025, AH725	50 - 120
		< 200 HB	Wear resistance	AH8005	50 - 120
		< 200 HB	Impact resistance	AH6235, GH130	50 - 120
K	Grey cast iron FC250, etc. 250, etc.	-	First choice	T515	150 - 700
		-	Impact resistance	AH8005, AH7025, AH6235, GH130	50 - 180
	Ductile cast iron FCD450, etc. 450-10S, etc.	-	First choice	T515	150 - 300
		-	Impact resistance	AH8005, AH7025, AH6235, GH130	50 - 120
N	Aluminium alloys Si < 12%	-	First choice	TH10	100 - 500
		-	First choice	KS05F	100 - 600
S	Superalloys Inconel718, etc.	< HRC 40	First choice	AH8005	20 - 60
		< HRC 40	Impact resistance	AH7025, AH725, AH6235	20 - 40
	Titanium alloys Ti-6Al-4V, etc.	< HRC 40	First choice	KS05F	20 - 100
		< HRC 40	Impact resistance	AH7025, AH725	20 - 80

Please see page 23 - 28 for feed: f (mm/rev).

DTV

ISO	Workpiece material	Grade	Cutting speed Vc (m/min)	Feed f (mm/rev)
P	Low carbon steel S15C, SS400, etc. C15E4, E275A, etc.	AH7025	50 - 180	0.05 - 0.3
	Carbon steel, Alloy steel S55C, SCM440, etc. C55, 42CrMo4, etc.	AH7025	50 - 180	0.05 - 0.3
	Free cutting steel SUH22, SUH23, etc.	AH7025	50 - 180	0.05 - 0.3
M	Stainless steel SUS304, X5CrNi18-9, etc.	AH7025	50 - 120	0.05 - 0.3
K	Grey cast iron FC250, etc. 250, etc.	AH7025	50 - 180	0.05 - 0.3
	Ductile cast iron FCD450, etc. 450-10S, etc.	AH7025	50 - 120	0.05 - 0.3
S	Titanium alloys Ti-6Al-4V, etc.	AH7025	20 - 80	0.05 - 0.3
	Superalloys Inconel718, etc.	AH7025	20 - 80	0.05 - 0.3

STX

ISO	Workpiece material	Hardness	Priority	Grade	Cutting speed Vc (m/min)
H	External grooving	> 50 HRC	First choice	BX360	80 - 150
	Groove wall cutting				
	Side turning				
	Internal grooving	> 50 HRC	First choice	BX360	80 - 120
	Face grooving				

New

ISO	Workpiece material	Grade	Operation	Cutting speed Vc (m/min)	Feed f (mm/rev)	Depth of cut ap (mm)
N	Aluminium alloys Si ≤ 12%	DX160	Grooving	200 - 2000	0.05 - 0.15	-
		DX160	Turning	200 - 2000	0.07 - 0.3	< 1
	Aluminium alloys Si ≥ 12%	DX160	Grooving	200 - 1500	0.05 - 0.15	-
		DX160	Turning	200 - 1500	0.07 - 0.3	< 1
	Copper and copper alloys	DX160	Grooving	200 - 1500	0.05 - 0.15	-
		DX160	Turning	200 - 1500	0.07 - 0.3	< 1
	Carbon / Graphites	DX160	Grooving	200 - 500	0.05 - 0.15	-
		DX160	Turning	200 - 500	0.07 - 0.3	< 1
	Ceramic	DX160	Grooving	100 - 200	0.02 - 0.1	-
		DX160	Turning	100 - 200	0.02 - 0.1	< 1
	Tungsten carbide (HRA80 - 95)	DX160	Grooving	5 - 30	0.02 - 0.1	-
		DX160	Turning	5 - 30	0.02 - 0.1	0.02 - 0.2

SGN

ISO	Grade	Edge preparation	Workpiece condition	Cutting speed Vc (m/min)	Feed f (mm/rev)
H	BX360	No symbol	Continuous	80 - 150	0.03 - 0.08
		-S	Light interrupted	50 - 120	0.03 - 0.08
		-H	Heavy interrupted	40 - 100	0.03 - 0.06

New

STR

ISO	Workpiece material	Hardness	Priority	Grade	Cutting speed Vc (m/min)
H	External profiling	> 50 HRC	First choice	BXA10	80 - 180

STH

ISO	Grade	CW	Application	Cutting speed Vc (m/min)	Depth of cut ap (mm)	Feed f (mm/rev)
H	BXA10	3	External turning	100 - 230	0.08 - 0.12	0.4 - 1
			Face turning	100 - 230	0.08 - 0.12	0.4 - 0.8
		5	External turning	100 - 230	0.08 - 0.12	0.5 - 1.5
			Face turning	100 - 230	0.08 - 0.12	0.5 - 0.8

GUIDELINE FOR ORDERING SPECIAL INSERTS

Specially designed inserts are available upon request.

Acceptable specification

Special inserts are manufactured from the base insert styles shown below.

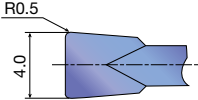
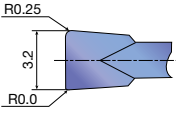
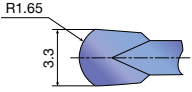
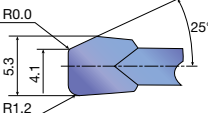
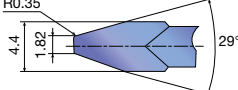
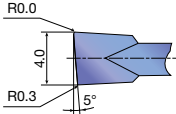
Please contact Tungaloy for more details.

External grooving & turning			Internal grooving & turning	Profiling & undercutting	
DTE (Ground)	DGE (Ground)	SGG (Ground)	DTI (Ground)	DTR (Ground)	DTIU (Ground)
					

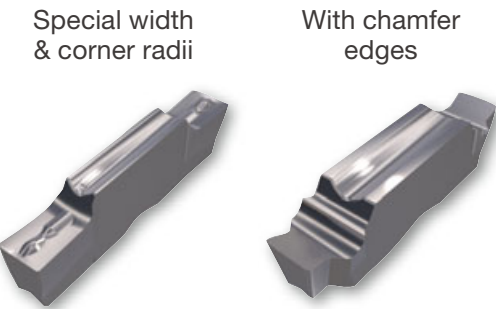
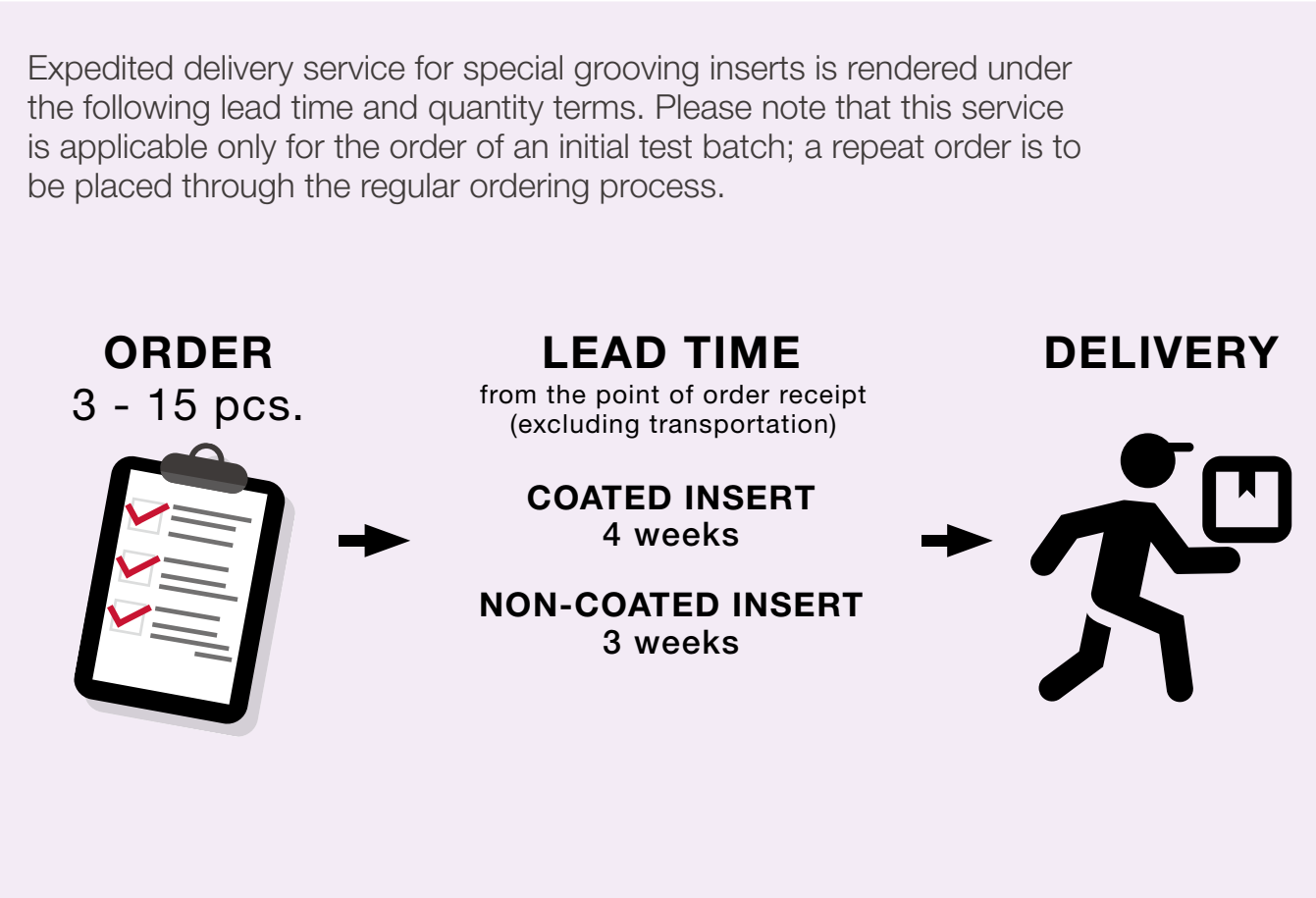
Designation system for special inserts (sample)

DTE	320	- 000R-025L	AH725
① Main style of insert	② Max. width of insert	③ Additional codes	④ Grade

Shape samples

Shape	Samples of designation	Note
	DTE400-050 AH7025	Base style: DTE type Special corner radius
	DTE320-000R 025L AH725	Base style: DTE type Special corner radius, asymmetric type
	DTR330-165 T515	Base style: DTR type Full radius type with special insert width
	DTE530-120R-25LA T9225	Base style: DTE type Special figure of groove, asymmetric type
	DGG440-035-29A KS05F	Base style: DTE type Special figure of groove
	DTE400-030R-005RA NS9530	Base style: DTE type Right handed insert with special angle and corner radius.

Expedited delivery service for special grooving insert



DGN Chipbreaker

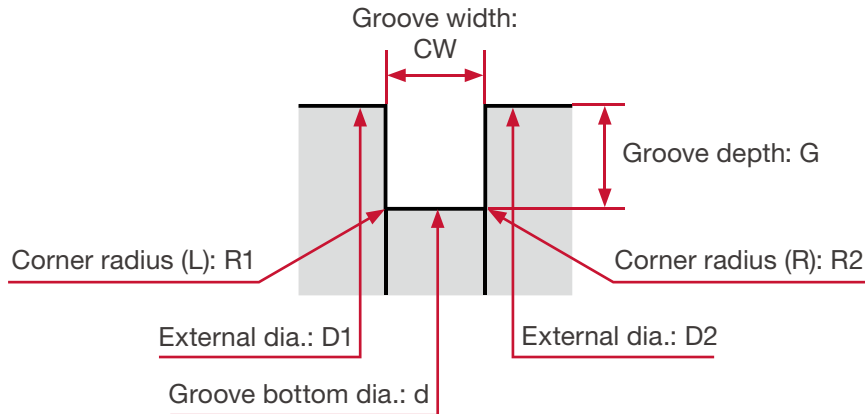


DTE Chipbreaker



	Grade		
	Coated carbide		Cermet
	AH7025	AH725	NS9530
DGN200	•	•	•
DGN300	•	•	•
DGN400	•	•	•
DGN500	•	•	•
DGN600	•	•	•
DTE300	•	•	•
DTE400	•	•	•
DTE500	•	•	•
DTE600	•	•	•
DTE800	•	•	

Special width & corner radii



TUNG CUT

Edge type	Insert blank	Seat size	Groove width (CW)	Max. groove depth (G)	Corner radii (R1 / R2)	Toolholder
A	DGN* DTE*	2 - 6	0.5 - 0.74 mm	- 1.5 mm	0 or 0.05 - W/2 (Full radius is available)	CTEFR/L
			0.75 - 0.99 mm	- 1.8 mm		
			1 - 1.49 mm	- 2.5 mm		
			1.5 - 6 mm	- 4.8 mm		
B	DGN300/DTE300	3	2.65 - 3 mm	Up to holder (Max.18 mm)	0.05 - W/2 (Full radius is available)	CTER/L
	DGN400/DTE400	4	3.3 - 4 mm	Up to holder (Max.18 mm)		CTEFR/L
	DGN500/DTE500	5	4.2 - 5 mm	Up to holder (Max.28 mm)		CTEFR/L
	DGN600/DTE600	6	5.2 - 6 mm	Up to holder (Max.28 mm)		CTEFR/L
	DTE800	8	6.4 - 8 mm			CTER/L

*Tolerances of the insert are based on the standard item.

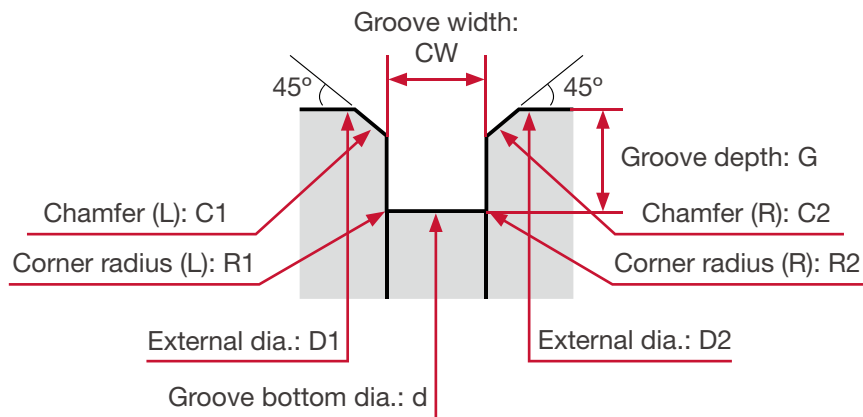


Edge type A



Edge type B

Grooving & chamfering



TUNG CUT

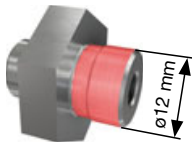
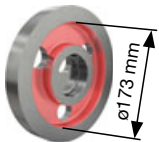
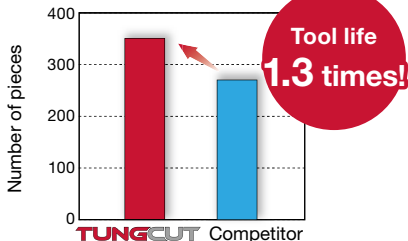
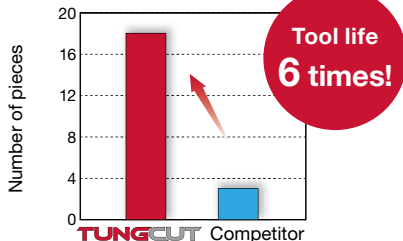
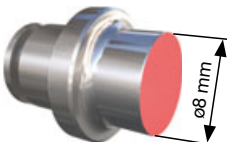
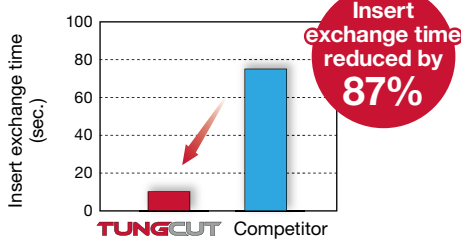
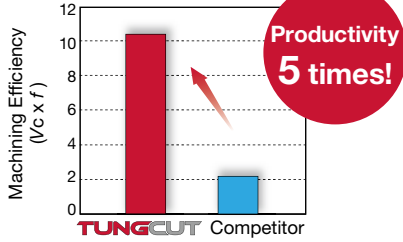
Insert blank	Seat size	Groove width (CW)	Max. groove depth (G)	Corner radii (R1 / R2)	Toolholder
DGN200 DGN300 DGN400 DGN500 DGN600	2 - 6	1 - 4.8 mm	1 - 4 mm	0 or 0.05 - W/2 (Full radius is available)	CTEFR/L CTEFR/L (Modified)

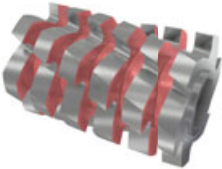
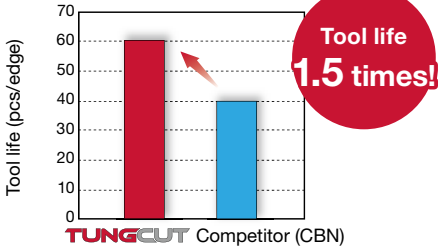
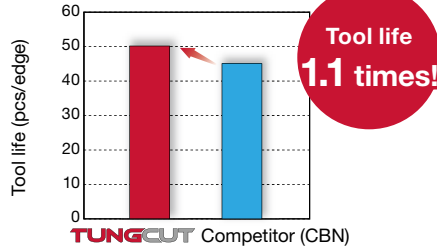
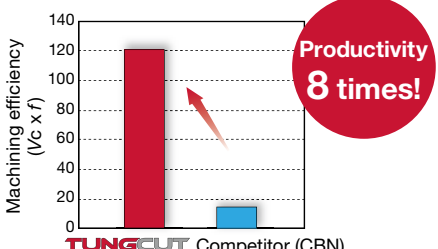
*Tolerances of the insert are based on the standard item.

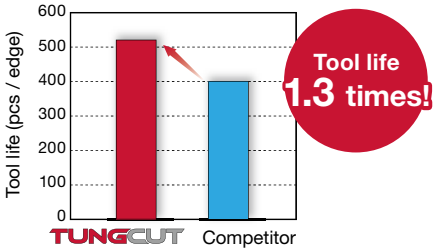
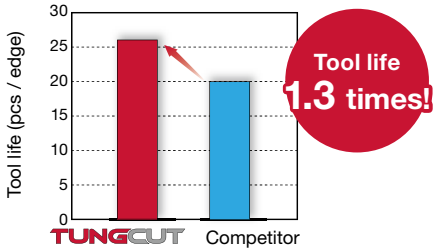
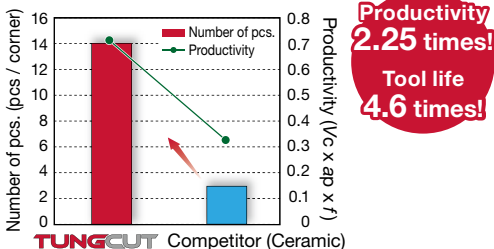
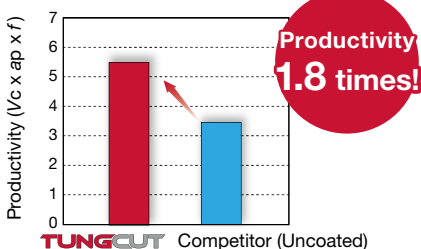
Max. width of chamfer is 0.5 mm.

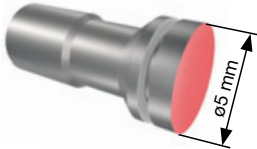
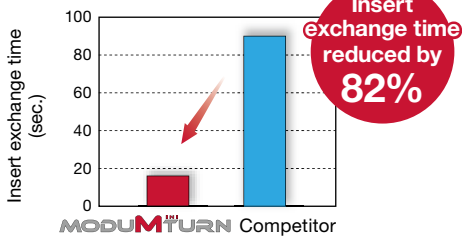
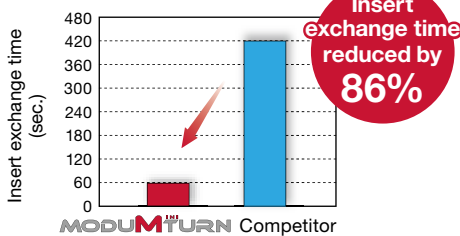
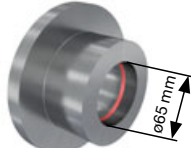
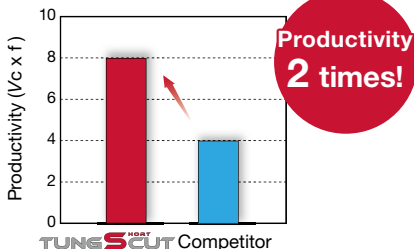
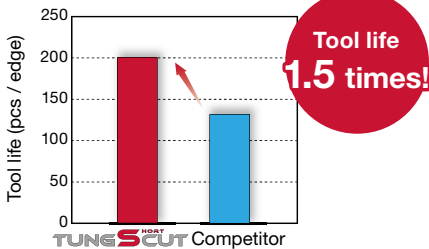
Some combinations of a groove width, depth, a corner radius(R), and chamfer may not be manufacturable.

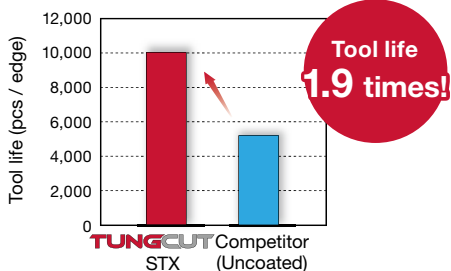
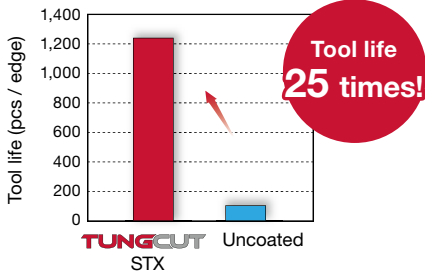
PRACTICAL EXAMPLES

Workpiece type		Hexagonal bushing	Distributor block
Toolholder		CTER2020-3T12	CAFR6T25-150250-CHP
Insert		DGM3-020	DTR6-300
Grade		AH6235	AH8005
Workpiece material		SS400 / E275A	Stainless steel
		 P	 M
Cutting conditions	Grooving width : CW (mm)	3	6
	Cutting speed : Vc (m/min)	65	170
	Feed : f (mm/rev)	0.06	0.1
	Cutting edge depth : CDX (mm)	5	20
	Machining	External grooving	Face grooving
Coolant		Wet	Wet
Results		 Tool life 1.3 times! TungCut, with its extremely tough AH6235 grade insert, provided 1.3 times tool life increase, while eliminating edge chipping during the machining of interrupted O.D. grooving operation.	 Tool life 6 times! TungCut and TungModularSystem provided rigid insert clamping and coolant-through capability, allowing significant tool life increase.
Workpiece type		Pneumatic part	Bolt parts
Toolholder		JTTER1010H1.2D12	CHGP82-4T / CHTBR2525-82
Insert		DGS1.2-003	SGS4-030
Grade		AH725	AH7025
Workpiece material		SUS304 / X5CrNi18-9	S45C / C45
		 M	 P
Cutting conditions	Grooving width : CW (mm)	1.2	4
	Cutting speed : Vc (m/min)	50	70
	Feed : f (mm/rev)	0.02	0.15
	Cutting edge depth : CDX (mm)	4	25
	Machining	Parting-off	Parting-off
Coolant		Wet	Wet
Results		 Insert exchange time reduced by 87% The innovative Side Clamp insert clamping method eliminated the need for removing the entire tool from the tool post, reducing tool change time by 87%.	 Productivity 5 times! TungFeed-Blade doubled tool life, while also increasing feed rate 5 times when used with the high rigidity CHTBR holder.

Workpiece type		Cutting Tool	Shaft
Toolholder		CTER2525-4T10	CTER2525-3T09
Insert		SGN400-020-H	SGN300-020-H
Grade		BX360	BX360
Workpiece material		Hardened steel (46 - 51HRC)	20MnCr5 (55 - 58HRC)
		 H	 H
Cutting conditions	Grooving width : CW (mm)	4	3
	Cutting speed : Vc (m/min)	79 - 135	50
	Feed : f (mm/rev)	0.11	0.05
	Machining	External grooving, interrupted cuts	External grooving, interrupted cuts
	Coolant	Dry	Dry
Results		 TungCut CBN provided excellent fracture resistance during heavy interrupted cutting, achieving 1.5 times tool life increase over the competitor.	 TungCut CBN provided excellent fracture resistance during the machining of spline shafts, extending tool life over the competitor.
Workpiece type		Shaft	Shaft
Toolholder		CTER2525-3T25	CTER2525-3T09
Insert		STH300-SR	STH300-SR
Grade		BXA10	BXA10
Workpiece material		SUJ2 / B1 (60HRC)	SKD11 / X153CrMoV12 (60 - 64HRC)
		 H	 H
Cutting conditions	Cutting speed : Vc (m/min)	150	120
	Feed : f (mm/rev)	0.8	1
	Depth of cut : ap (mm)	0.1 x 3 passes	0.055 x 91 passes
	Machining	External turning	External turning
	Coolant	Wet	Wet
Results		 TungCut CBN enabled 8x higher feed rate than ISO insert.	5 mm stock had to be removed by external turning. TungCut CBN provided a high feed rate of 1 mm/rev., providing significantly reduced machining time.

Workpiece type		Piston head	Shaft
Toolholder		CTEL2525-5T12	CTER2525-4T10
Insert		STX500-020	STX400-020
Grade		BX360	BX360
Workpiece material		SCM415 (50-60HRC)	SKD61 / X40CrMoV5-1 (58-62HRC)
		 H	 H
Cutting conditions	Groove width : CW (mm)	5	4
	Cutting speed : Vc (m/min)	97 - 106 (for groove walls), 79 (for side-turning)	120
	Feed : f (mm/rev)	0.03 (for groove walls), 0.08 (for side-turning)	0.06 (for groove walls), 0.1 (for side-turning)
	Machining	External grooving, wall cutting, and side turning	External grooving, wall cutting, and side turning
	Coolant	Dry	Wet
Results		 TungCut CBN tipped STX insert provided excellent chip control, while eliminating nesting of chips. As a result, tool life increased by 1.3 times.	 TungCut CBN tipped STX insert provided excellent chip control, while eliminating bird nesting of chips. As a result, tool life increased by 1.3 times.
Workpiece type		Roll	Crush cut knife
Toolholder		CTER2525-3T12	CTEL2020-3T09
Insert		STR300-HP	STR300-HP
Grade		BXA10	BXA10
Workpiece material		SKD11 / X153CrMoV12 (62 - 64HRC)	SUJ2 / 100Cr6 (61 HRC)
		 H	 H
Cutting conditions	Groove width : CW (mm)	3	3
	Cutting speed : Vc (m/min)	180	180
	Feed : f (mm/rev)	0.08	0.07
	Machining	External profile turning	External profile turning
	Coolant	Wet	Dry
Results		 TungCut provided 2.25x productivity and 4.6x tool life over the competitor's ceramic insert.	 TungCut achieved 1.8x productivity over the competitor's uncoated carbide insert.

Workpiece type		Part for camera	Torsion bar
Shank		QC-1212X-CHP	QC-1012H-CHP
Head		QC12-JTTEL1.2D20-CHP	QC10-JTTER1.4D16-CHP
Insert		DGS1.2-003	DGS1.4-016
Grade		AH725	AH7025
Workpiece material		SUS303 / X10CrNiS18-9	Alloy steel
		 M	 P
Cutting conditions	Cutting speed : V_c (m/min)	45	85
	Feed : f (mm/rev)	0.03	0.08
	Machining	Parting-off (CW = 1.2 mm)	Parting
	Coolant	Wet	Wet
Results		 Insert exchange time reduced by 82% Thanks to ModuMini-Turn quick change system, insert change time was reduced by 82%.	 Insert exchange time reduced by 86% Using ModuMini-Turn modular tooling system eliminated time-consuming external coolant subassembly and provided 86% shorter insert change time.
Workpiece type		Oil hydraulic equipment parts	Flywheel
Toolholder		CTIR10-S2T03-D120	CTIR16S2T06-D200
Insert		STV2S-020-35L-JS	DGS2S-010
Grade		AH725	AH7025
Workpiece material		SUS316 / X5CrNiMo17-12-3	SCr420 / 20Cr4
		 P	 P
Cutting conditions	Groove width : CW (mm)	-	2
	Cutting speed : V_c (m/min)	80	100
	Feed : f (mm/rev)	0.1	0.2
	Depth of cut : a_p (mm)	1	-
	Machining	Internal turning	Internal grooving
	Coolant	Wet	Wet
Results		 Productivity 2 times! TungShortCut STV insert eliminated chip clogging thanks to its excellent chip control, enabling a higher feed rate than the competitors solid carbide boring bar.	 Tool life 1.5 times! TungShortCut provided superior chip evacuation, eliminating chip jamming. As a result, 1.5x tool life.

Workpiece type		Casing	Aerospace pump parts
Toolholder		CTER2525-2T12	CTER2525-2T08
Insert		STX200R-020	STX200L-020
Grade		DX160	DX160
Workpiece material		ADC12	A6061
		 N	 N
Cutting conditions	Groove width : CW (mm)	2	2
	Cutting speed : Vc (m/min)	Grooving: 200, Creating wide grooves: 300	350
	Feed : f (mm/rev)	Grooving: 0.1, Creating wide grooves: 0.08	0.05
	Machining	External grooving	External grooving
	Coolant	Wet	Wet
Results		 TungCut STX insert with PCD tip provides superior chip control during grooving and turning operations and longer tool life over competitor inserts.	 TungCut STX insert with PCD tip provides superior chip control during grooving operations and longer tool life over competitor carbide inserts.

TECHNICAL REFERENCE

Compensation of tool length



Cutting performance



TUNG^{MODULAR}SYSTEM

How to install and remove the adapter and insert



TUNG^{TJET}

Tube connection Direct connection



Parts for coolant hose



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