

TETRAMCUT/TETRAFORCE

www.tungaloy.com

Tungaloy Report No. 416-G

More flexible than ever, TCL27 for better chip control or TCT18FR/R-ISO for burr-less threading



INDUSTRY 4.0
FEED the SPEED!



ACCELERATED MACHINING

GrooveLine

TETRAMCUT / TETRAFORCE

TUNGALOY

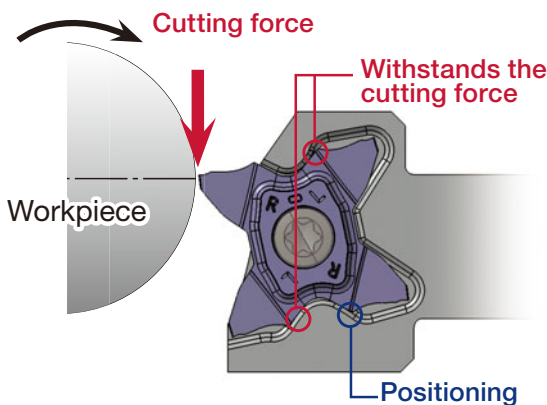


Influential grooving lines, **TetraMini-Cut** and **TetraForce-Cut** offer ground inserts with a robust clamping structure for exceptional stability and repeatability

Multi-purpose grooving insert with economical 4-cutting edges

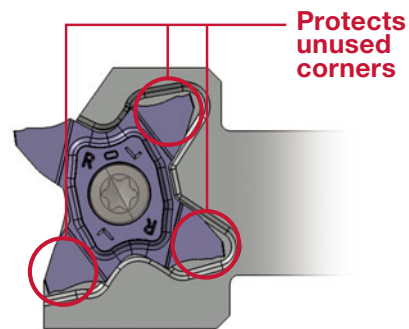
Unique 3-point clamping system

The unique pocket design provides accurate indexing repeatability of the cutting edge height.



The insert pocket protects all unused cutting edges

Strong and stable clamping design protects unused insert corners from damage during operation.



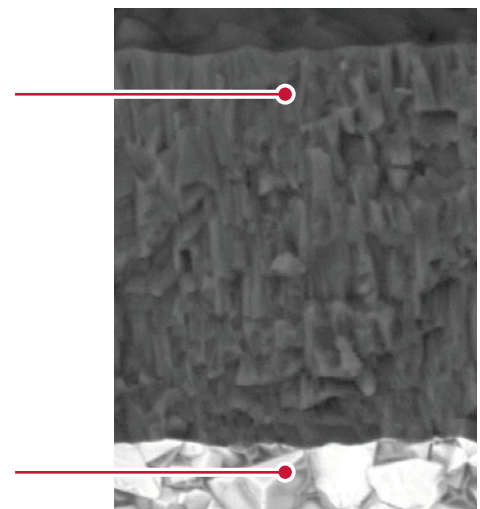
AH7025 ideal grade for grooving application



AH7025 uses the world's first coating technology of a nano-scale multi-layered AlTiN PVD coating with high Al content, featuring

- Coating hardness increased by 20%
- A multi-layered coating structure impedes micro-crack propagation, reducing insert failures
- Enhanced adhesion strength between the coating and carbide substrate layer

High wear and fracture resistant carbide substrate for optimal grooving performance

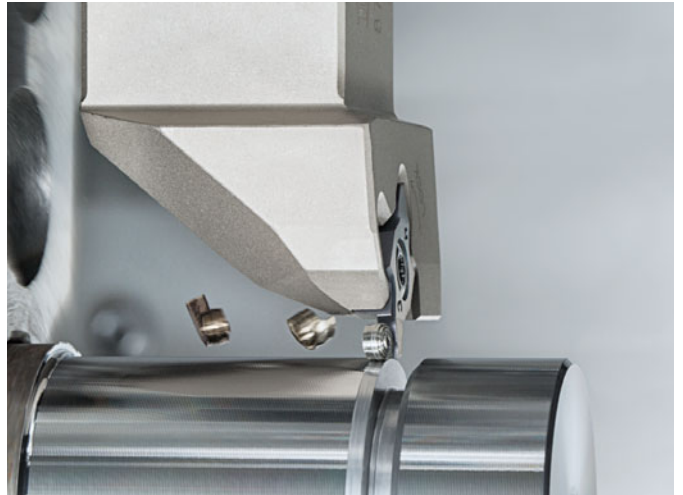


The result : a dramatic increase in tool life and machining stability

TETRAMCUT Groove widths: 0.33 - 3 mm

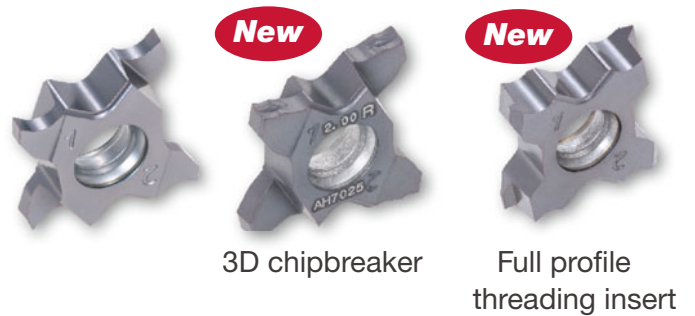
See PG. 6

- Full profile threading inserts are added.
Thread pitch : 0.5 mm to 1.5 mm
- Introducing the -TCS18 style 3D chipbreaker for better chip control
- 3 different types of chipbreakers each with dedicated edge preparation
- Through-coolant supply system (tool code suffix "-CHP") to ensure high efficient machining



DIRECTTJET

- Toolholders featuring a hose-free, direct through-coolant supply system



TETRAFORCE Groove widths: 0.5 - 3.18 mm

See PG. 24

- TCL-style chipbreaker for improved chip control at low feed rates
- General-purpose, AH725 grade for various types of application
- Through-coolant supply system (tool designation suffix "-CHP") to ensure high efficient machining

New

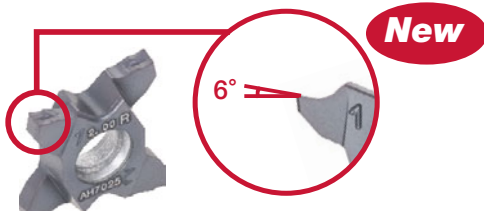


Major expansion to the TCG-style chipbreaker line Enhanced lineup for greater flexibility

- An expanded range of tools allows for an easy selection of the ideal insert
- The same toolholder for both grooving and threading

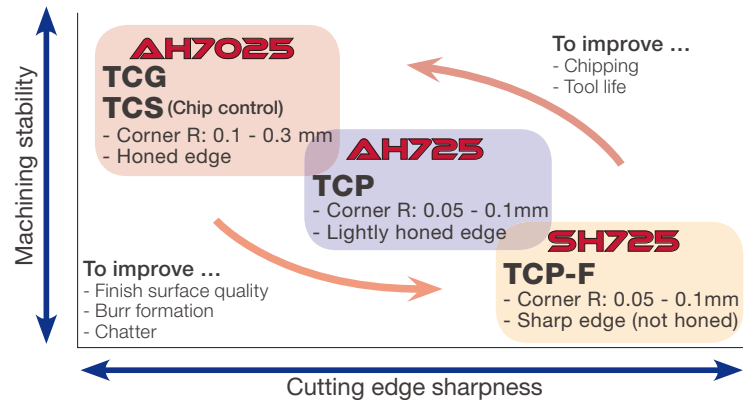
Grooving

TCS type (3D chipbreaker)



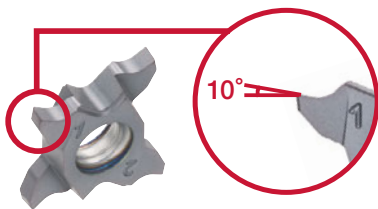
- The chipbreaker incorporates a dimple-like recess on the rake face to facilitate smooth chip flow with light cutting action
- Available in AH7025 for superior wear and fracture resistance

New selection system



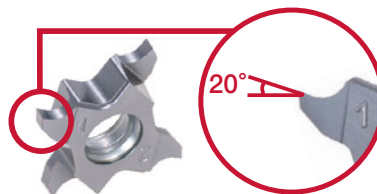
- Choose the best of all three insert types according to the machining requirements
- A variety of widths and corner radii are available in all three insert types

TCG type (Honed edge)



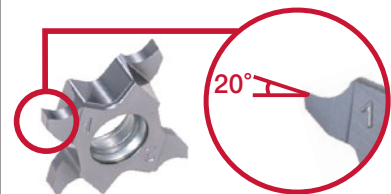
- Optimized rake angle and edge preparation enhances fracture resistance, allowing for smooth cutting
- AH7025 grade features a superior combination of wear and fracture resistances

TCP type (Lightly honed edge)



- A large rake angle ensures smooth cutting for excellent surface finish
- The insert in grade AH725 features a tough edge preparation for high resistance to fracture

TCP-F type (Sharp edge)



- High quality surface finish and precision thanks to the sharp cutting edge
- A quality level equivalent to that with cermet is achievable
- An extremely hard coating layer on grade SH725 provides sharp cutting edges, making it perfect for small part grooving

Threading

TCT type

New

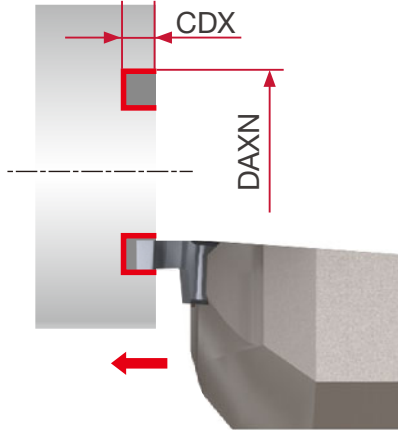


Full-profile insert

- Full profile inserts for burr-less threading are newly added. Pitch : 0.5 - 1.5 mm.
- Sharp cutting edge for reduced cutting load, improving thread surface quality
- Suitable for thread pitches ranging from 0.4 mm to 3.0 mm

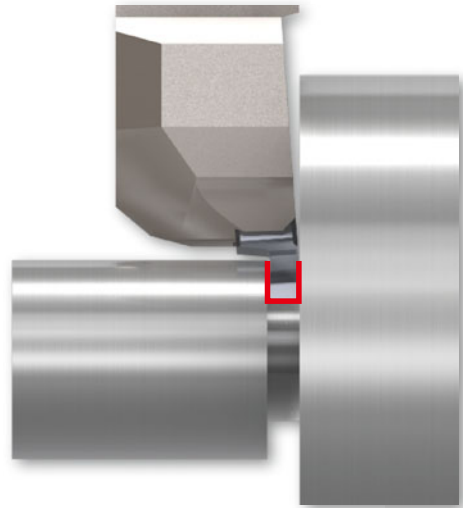
PRECISION GROOVING & THREADING

Minimum diameter for face grooving

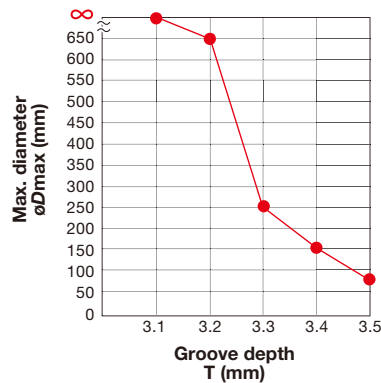
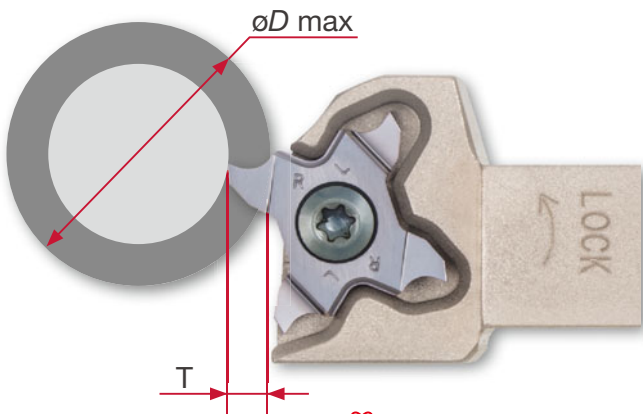


Minimum face diameter DAXN (mm)	Maximum groove depth CDX (mm)
65	3

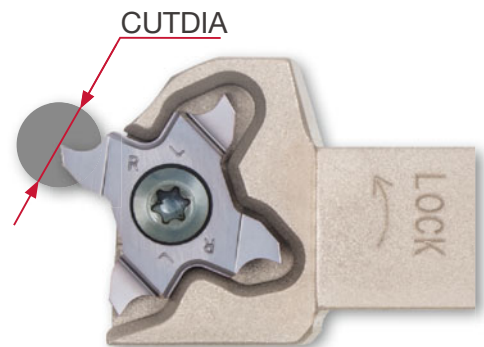
Machining next to shoulder



Groove depth capacity and Dmax. capacity



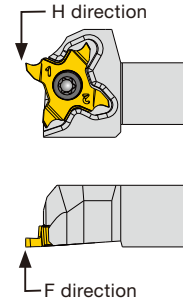
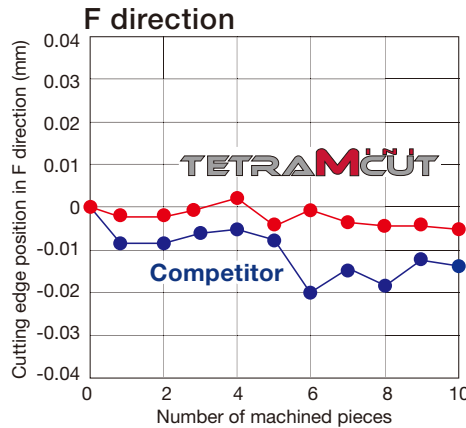
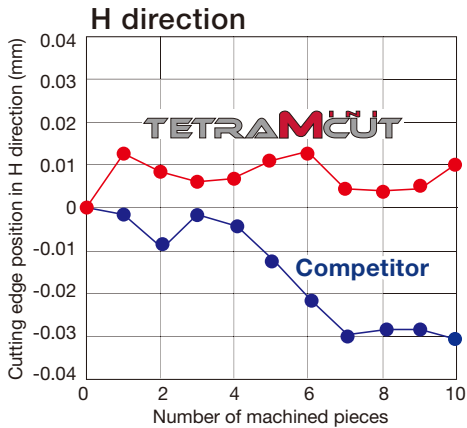
Dmax. parting-off



Max. diameter øDmax (mm)
7

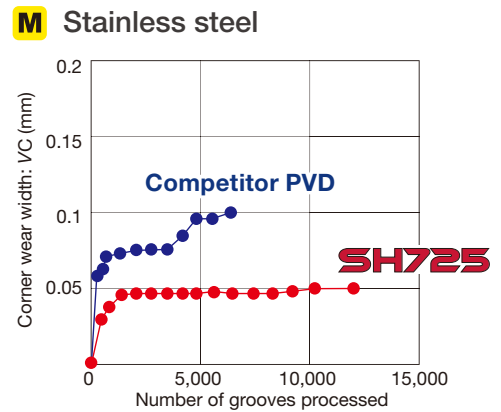
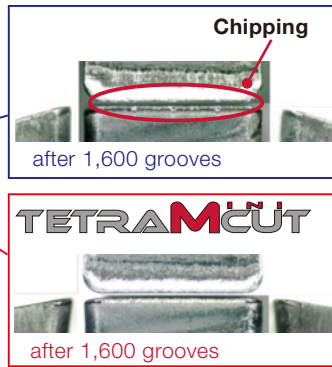
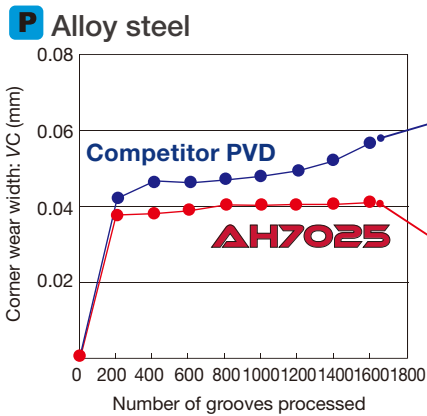
CUTTING PERFORMANCE

Tool rigidity



Process: Measure #1 → machining → Measure #2
 Displacement of cutting edge position: Difference between Measure #1 & #2

Tool life



Toolholder : STCR2525Z18
 Insert : TCG18R200-020 AH7025
 Workpiece material : SCM440 / 42CrMo4
 Cutting speed : $V_c = 180$ m/min
 Feed : $f = 0.07$ mm/rev
 Groove width : 2 mm
 Groove depth : 2.5 mm

Toolholder : STCR1010X18
 Insert : TCP18R200F-010 SH725
 Workpiece material : SUS304 / X5CrNi18-9
 Cutting speed : $V_c = 120$ m/min
 Feed : $f = 0.05$ mm/rev
 Groove width : 2 mm
 Groove depth : 2.5 mm
 Coolant type : Wet

Chip control

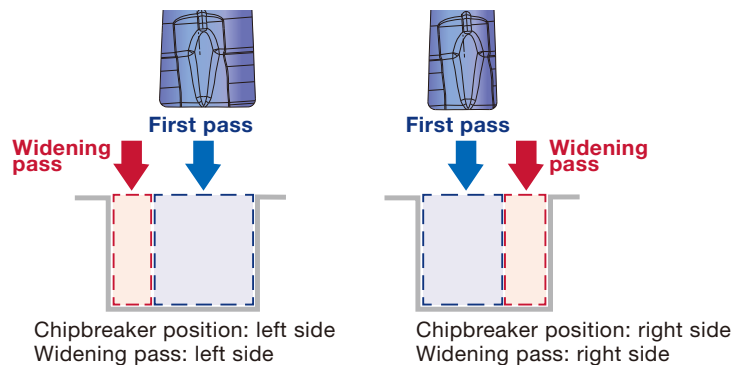
With TCS18 style 3D chipbreaker

P Steel

Cutting speed: V_c (m/min)	50				
	100				
		0.05	0.10	0.15	0.20
		Feed: f (mm/rev)			

Toolholder : STCR2525Z18
 Insert : TCS18R200-020 AH7025
 Workpiece material : S45C / C45

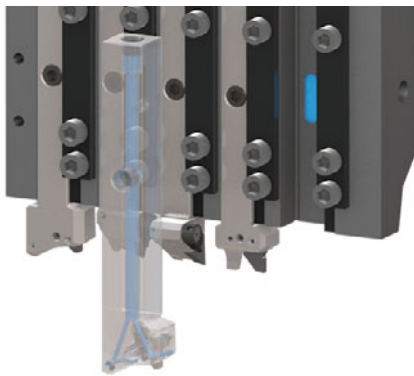
Chipbreaker position may be different depending on the groove width. In widening, it is recommended that the chipbreaker position is close to the widening pass.



DIRECT^{TUNG}JET system

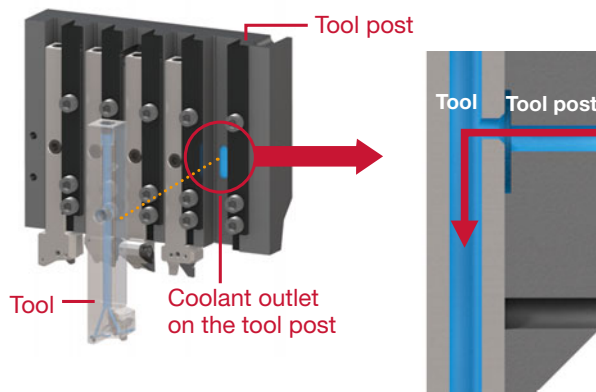
Tube-less design streamlines tool setup
Through-coolant supply enables high productivity

DirectTungJet system



No need for coolant tube setup.
Eliminates chip entanglement on tubes
and streamlines tool replacements.

Coolant is supplied from the tool post
directly to the tools



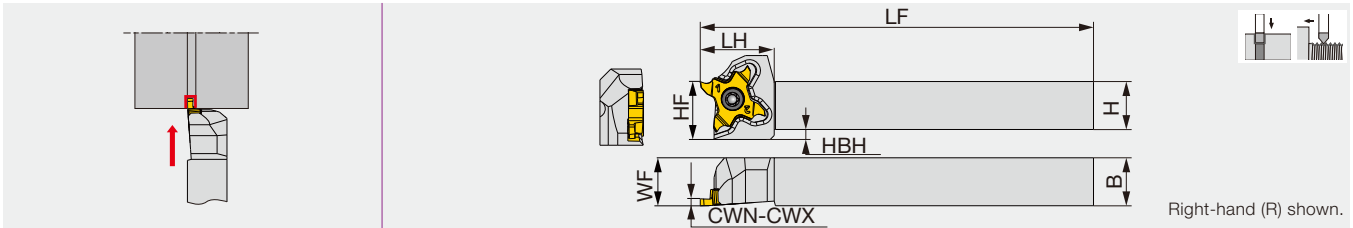
S Titanium alloy: External turning
(Ti-6Al-4V)

Material : Ti-6Al-4V
Holder : STCR1212X18-CHP
Insert : TCP18R200F-010 SH725
Cutting speed : $V_c = 100$ m/min
Feed rate : $f = 0.05$ mm/rev
Groove width : 2 mm
Groove depth : 2.5 mm
Coolant type : Oil

TETRAMCUT	DIRECT ^{TUNG} JET 7 MPa	DIRECT ^{TUNG} JET 1.5 MPa	External coolant at normal pressure (at 1.5 MPa)

STCR/L-18

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



Designation	CWN	CWX	H	B	LF	LH	HF	WF	HBH	Insert	Torque*
STCR/L1010X18	0.33	3	10	10	120	18.5	10	10	4.5	TC*18...	1.2
STCR/L1212F18	0.33	3	12	12	85	18.5	12	12	2.5	TC*18...	1.2
STCR/L1212X18	0.33	3	12	12	120	18.5	12	12	2.5	TC*18...	1.2
STCR/L1616X18	0.33	3	16	16	120	18.5	16	16	-	TC*18...	1.2
STCR/L2020H18	0.33	3	20	20	100	18.5	20	20	-	TC*18...	1.2
STCR/L2020X18	0.33	3	20	20	120	23.0	20	25	-	TC*18...	1.2
STCR/L2525Z18	0.33	3	25	25	135	23.0	25	30	-	TC*18...	1.2

- The right hand insert (TC*18R...) is used for the right hand toolholders (STCR...), and the left hand insert
*Torque: Recommended torque (N·m) for clamping

Left-Hand Insert



TCP18**L**...

Right-Hand Insert



TCP18**R**...

SPARE PARTS

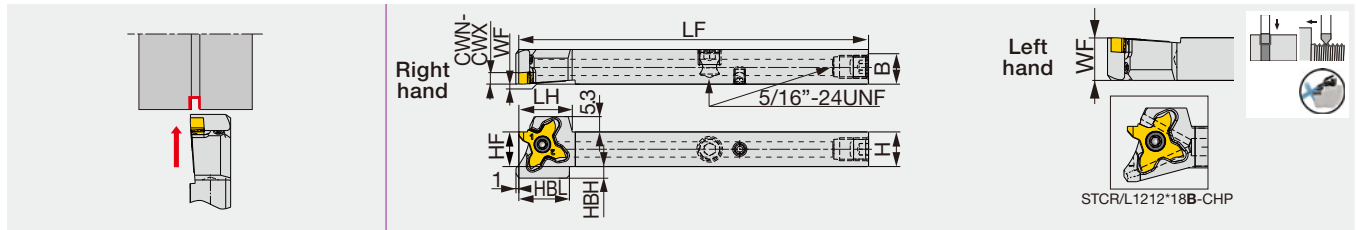


Designation	Clamping screw	Wrench
STCR**18	CSTC-4L100DL	T-1008/5
STCL**18	CSTC-4L100DR	T-1008/5

STCR/L-18-CHP

DIRECTTUNGJET

Threading tool - compatible to DirectTung-Jet high pressure coolant system



Designation	CWN	CWX	H	B	LF	LH	HBL	HF	WF	HBH	Insert	Torque*
STCR/L1212X18-CHP*** ⁽¹⁾	0.33	3	12	12	120	18.5	17.5	12	0/12	4	TC*18...	1.2
STCR/L1212X18B-CHP ⁽¹⁾	0.33	3	12	12	120	18.5	17.5	12	0/12	4	TC*18...	1.2
STCR/L1616X18-CHP ⁽¹⁾	0.33	3	16	16	120	18.5	-	16	0/16	-	TC*18...	1.2

(1) Compatible to DirectTungJet system

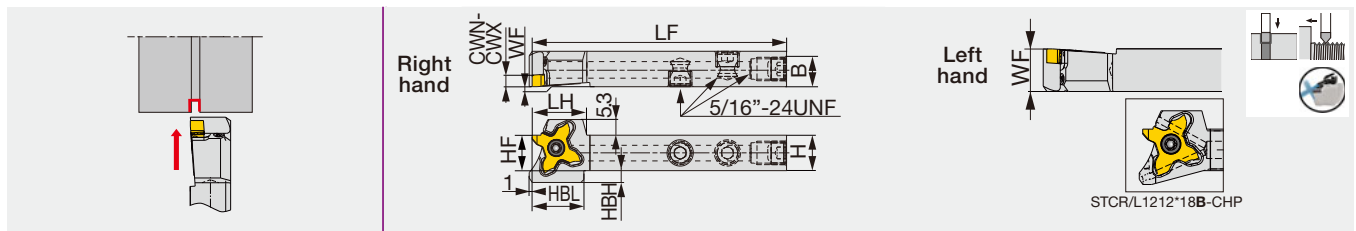
- Use the right hand insert (TC*18R...) with the right hand toolholders (STCR...). Use the left hand insert (TC*18...) with the left hand holder (STCL...).

***: To be replaced with the new design

STCR/L-18-CHP

TUNGTURNJET

Threading tool - for external threading with high pressure coolant capability (no tool offset needed)



Designation	CWN	CWX	H	B	LF	LH	HBL	HF	WF	HBH	Insert	Torque*
STCR/L1212F18-CHP***	0.33	3	12	12	85	18.5	17.5	12	0/12	4	TC*18...	1.2
STCR/L1212F18B-CHP	0.33	3	12	12	85	18.5	17.5	12	0/12	4	TC*18...	1.2

- Use the right hand insert (TC*18R...) with the right hand toolholders (STCR***). Use the left hand insert (TC*18...) with the left hand holder (STCL...).

*Torque: Recommended torque (N-m) for clamping

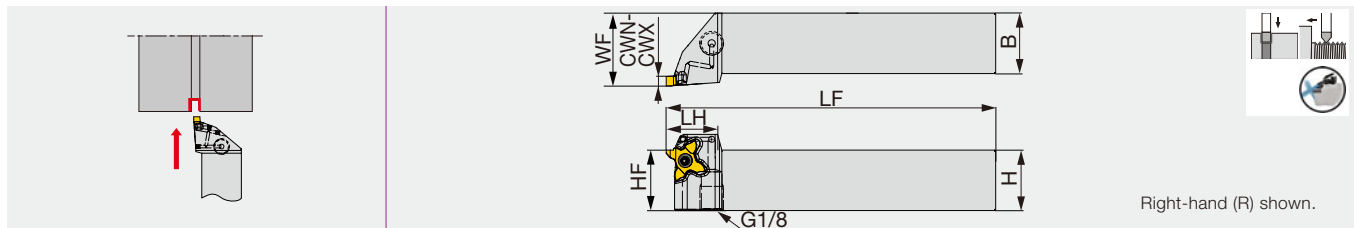
***: To be replaced with the new design

New

STCR/L-18-CHP

TUNGTURNJET

Threading tool - for external threading with high pressure coolant capability



Designation	CWN	CWX	H	B	LF	LH	HBL	HF	WF	HBH	Insert	Torque*
STCR/L2020X18-CHP	0.33	3	20	20	120	23	-	20	25	-	TC*18...	1.2
STCR/L2525Z18-CHP	0.33	3	25	25	135	23	-	25	30	-	TC*18...	1.2

- Use the right hand insert (TC*18R...) with the right hand toolholders (STCR...). Use the left hand insert (TC*18...) with the left hand holder (STCL...).

*Torque: Recommended torque (N-m) for clamping

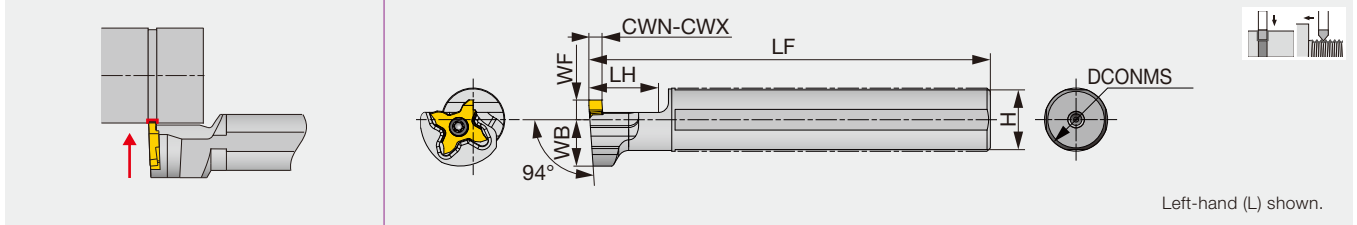
SPARE PARTS

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

See page 38 for connections and coolant hoses.

JS-STCL18

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



Designation	CWN	CWX	DCONMS	LF	LH	H	WB	WF	Insert	Torque*
JS14H-STCL18	0.33	3	14	100	20	13	14	6	TC*18R...	1.2
JS159F-STCL18	0.33	3	15.875	85	20	15	14	6	TC*18R...	1.2
JS16F-STCL18	0.33	3	16	85	20	15	14	6	TC*18R...	1.2
JS19G-STCL18	0.33	3	19.05	90	20	18	14	6	TC*18R...	1.2
JS19X-STCL18	0.33	3	19.05	120	20	18	14	6	TC*18R...	1.2
JS20G-STCL18	0.33	3	20	90	20	19	14	6	TC*18R...	1.2
JS20X-STCL18	0.33	3	20	120	20	19	14	6	TC*18R...	1.2
JS22X-STCL18	0.33	3	22	120	20	21	12.25	10	TC*18R...	1.2
JS25H-STCL18	0.33	3	25	100	20	24	12.25	10	TC*18R...	1.2
JS254X-STCL18	0.33	3	25.4	120	20	24	12.25	10	TC*18R...	1.2

- The left hand toolholder (STCL...) is used with the right hand inserts (TC*18R...)

*Torque: Recommended torque (N·m) for clamping

SPARE PARTS



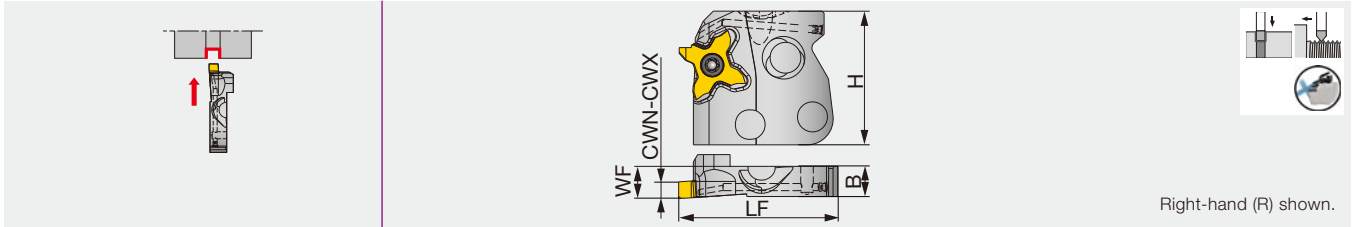
Designation	Clamping screw	Wrench
JS**STCL18	CSTC-4L100DL	T-1008/5

New

STCAR/L18-CHP

TUNG M^{ODULAR} SYSTEM

Modular blade with high pressure coolant channels



Right-hand (R) shown.

Designation	CWN	CWX	WF	H	LF	B	Insert	Torque*
STCAR/L18-CHP	0.33	3	7.5	33	38	7.2	TC*18...	1.2

- Use the right hand insert (TC*18R...) with the right hand blade (STCAR...). Use the left hand insert (TC*18L...) with the left hand blade (STCAL...).
 *Torque: Recommended torque (N·m) for clamping

SPARE PARTS

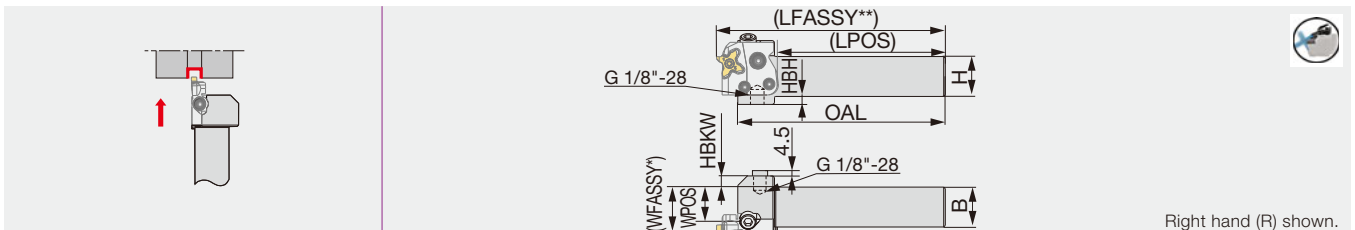


Designation	Clamping screw	Wrench
STCAL18-CHP	CSTC-4L100DR	T-1008/5
STCAR18-CHP	CSTC-4L100DL	T-1008/5

CHSR/L-CHP

TUNG M^{ODULAR} SYSTEM

Shank for blade, with channels for high pressure coolant



Right hand (R) shown.

Designation	H	B	OAL	LPOS	WPOS	HBKW	HBH
CHSR/L2020-CHP	20	20	130	105.5	15.1	12	10
CHSR/L2525-CHP	25	25	130	105.5	20.1	7	5

*WFASSY : shank (WPOS) + blade (WF)

**LFASSY : shank (LPOS) + blade (LF)

- Use the right-hand blade for the right-hand shank.

SPARE PARTS



Designation	Screw	Wrench	Clamping screw	Clamping screw	Wrench	O-ring	Plug
CHSR/L*-CHP	SRM5-04451	T-20/5	SRM6X12DIN6912	SRM6X20-XT	HW5.0	OR5X1N	PLUGG1/8ISO1179

See page 37 for blade assembly/disassembly instructions
 See page 38 for connections and coolant hoses.

Recommended torque

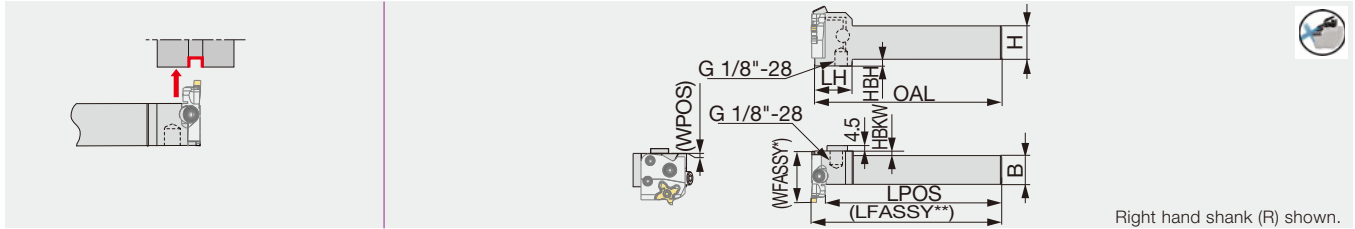
Clamping screw	Torque (N · m)
SRM5-04451	5
SRM6X12DIN6912	8.5
SRM6X20-XT	8.5

New

CHFVR/L-CHP

TUNGALOY **MODULAR** SYSTEM

Shank for blade, with channels for high pressure coolant



Right hand shank (R) shown.

Designation	H	B	OAL	LH	LPOS	WPOS	HBKW	HBH
CHFVR/L2020-CHP	20	20	140	28	135.1	0.5	5	10
CHFVR/L2020-CHP	25	25	140	28	135.1	0.5	0	5

*WFASSY : shank (WPOS) + blade (LF)

**LFASSY : shank (LPOS) + blade (WF)

- Use the left-handed blade for the right-handed shank.

SPARE PARTS

Designation	Clamping screw	Wrench	Clamping screw	Clamping screw	Wrench	O-ring	Plug
CHFVR/L*-CHP	SRM5-04451	T-20/5	SRM6X12DIN6912	SRM6X20-XT	HW5.0	OR5X1N	PLUGG1/8ISO1179

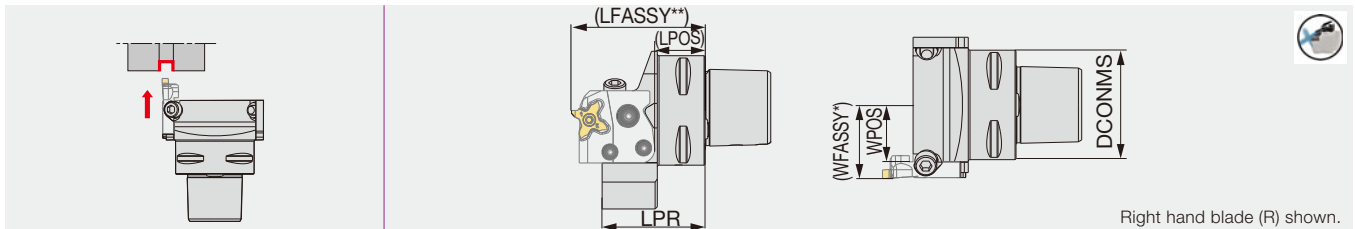
See page 37 for blade assembly/disassembly instructions

See page 38 for connections and coolant hoses.

C*CHSN-CHP

TUNGALOY **MODULAR** SYSTEM

TungCap shank for blade, with channels for high pressure coolant



Right hand blade (R) shown.

Designation	DCONMS	LPR	LPOS	WPOS
New C3CHSN19045-CHP**	32	45	17.5	18.5
C4CHSN21047-CHP	40	46.5	21.5	21
C5CHSN26047-CHP	50	47	22.5	26
C6CHSN33050-CHP	63	50	24.5	32.5

*WFASSY : shank (WPOS) + blade (WF)

**LFASSY : shank (LPOS) + blade (LF)

SPARE PARTS

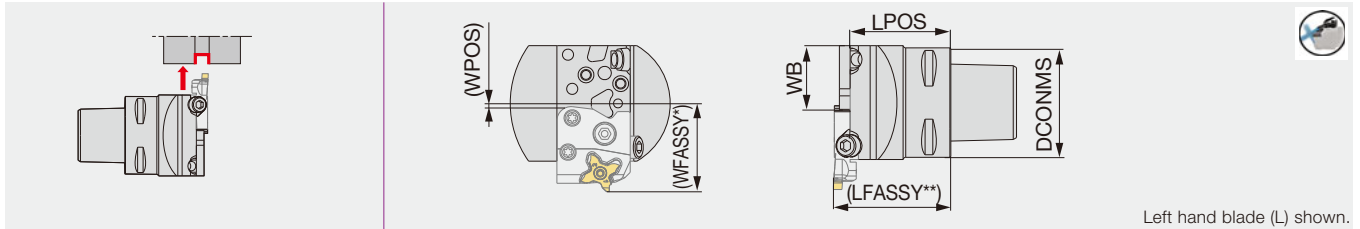
Designation	Clamping screw	Wrench	Clamping screw	Clamping screw	Wrench	O-ring
C*CHSN*-CHP	SRM5-04451	T-20/5	SRM6X12DIN6912	SRM6X20-XT	HW5.0	OR5X1N

See page 37 for blade assembly/disassembly instructions

C*CHFVN-CHP

TUNGALOY SYSTEM

TungCap shank for blade, with channels for high pressure coolant



Left hand blade (L) shown.

Designation	DCONMS	LPOS	WB	WPOS
New C3CHFVN26040-CHP	32	40	26	1.5
C4CHFVN26046-CHP	40	46	26	1.5
C5CHFVN26046-CHP	50	46	26	1.5
C6CHFVN33046-CHP	63	46	33	8.5

*WFASSY : shank (WPOS) + blade (LF)

**LFASSY : shank (LPOS) + blade (WF)

SPARE PARTS

Designation	Clamping screw	Wrench	Clamping screw	Clamping screw	Wrench	O-ring
C*CHFVN**-CHP	SRM5-04451	T-20/5	SRM6X12DIN6912	SRM6X20-XT	HW5.0	OR5X1N

See page 37 for blade assembly/disassembly instructions

Standard lineup of TetraMini-Cut grooving inserts

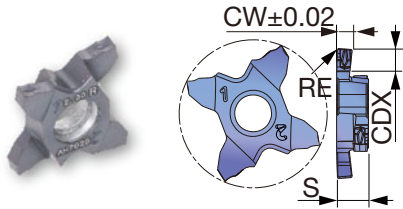
Groove width W (mm)	Corner rad. r _c (mm)	New			
		TCS18R (P.17)	TCG18R/L (P.18)	TCP18R/L (P.19)	TCP18R/L-F (P.20)
		AH7025 Honed edge	AH7025 Honed edge	AH725 Lightly honed edge	SH725 Sharp edge
0.33	0.05			●	●
0.43	0.05			●	●
0.50	0.05			●	●
0.75	0.05			●	●
0.95	0.05			●	●
1.00	0.05				●
	0.1	●	●	●	●
1.20	0.05				●
	0.1	●	●	●	●
1.25	0.05				●
	0.1	●	●	●	●
	0.2	●	●		
1.30	0.2	●	●		
	0.1	●	●	●	●
1.40	0.2	●	●		
	0.05				●
1.45	0.1	●	●	●	●
	0.2		●		
	0.05				●
1.50	0.1	●	●	●	●
	0.2	●	●		
	0.2	●	●		
1.60	0.2	●	●		
1.70	0.2	●	●		
1.75	0.05				●
	0.1	●	●	●	●
	0.2	●	●		
1.85	0.2	●	●		
1.95	0.2	●	●		
2.00	0.05				●
	0.1	●	●	●	●
2.25	0.2	●	●		
	0.2	●	●		
2.30	0.1	●	●	●	●
	0.2	●	●		
	0.3	●	●		
2.65	0.3	●	●		
2.80	0.3	●	●		
	0.1	●	●	●	●
	0.2	●	●		
3.00	0.3	●	●		

For standard threading inserts of TetraMini-Cut, please see p.22

● : New product
● : Line up

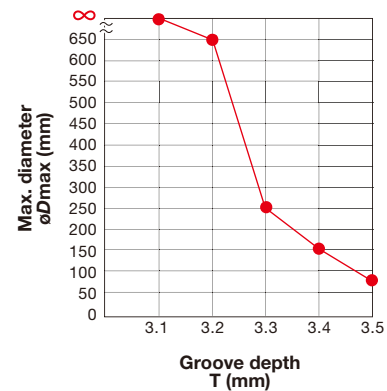
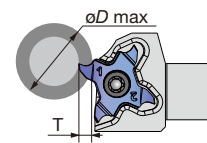
INSERTS

New TCS18R (with edge preparation)

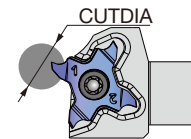


Designation	Grade AH7025		CW	Dimensions (mm)		
	R	L		RE	CDX	S
TCS18R100-010	●		1	0.1	2	4
TCS18R120-010	●		1.2	0.1	2	4
TCS18R125-010	●		1.25	0.1	2	4
TCS18R125-020	●		1.25	0.2	2	4
TCS18R130-020	●		1.3	0.2	3.5*	4
TCS18R140-010	●		1.4	0.1	3.5*	4
TCS18R140-020	●		1.4	0.2	3.5*	4
TCS18R145-010	●		1.45	0.1	3.5*	4
TCS18R150-010	●		1.5	0.1	3.5*	4
TCS18R150-020	●		1.5	0.2	3.5*	4
TCS18R160-020	●		1.6	0.2	3.5*	4
TCS18R170-020	●		1.7	0.2	3.5*	4
TCS18R175-010	●		1.75	0.1	3.5*	4
TCS18R175-020	●		1.75	0.2	3.5*	4
TCS18R185-020	●		1.85	0.2	3.5*	4
TCS18R195-020	●		1.95	0.2	3.5*	4
TCS18R200-010	●		2	0.1	3.5*	4
TCS18R200-020	●		2	0.2	3.5*	4
TCS18R225-020	●		2.25	0.2	3.5*	4
TCS18R230-020	●		2.3	0.2	3.5*	4
TCS18R250-010	●		2.5	0.1	3.5*	4
TCS18R250-020	●		2.5	0.2	3.5*	4
TCS18R250-030	●		2.5	0.3	3.5*	4
TCS18R265-030	●		2.65	0.3	3.5*	4
TCS18R280-030	●		2.8	0.3	3.5*	4
TCS18R300-010	●		3	0.1	3.5*	4
TCS18R300-020	●		3	0.2	3.5*	4
TCS18R300-030	●		3	0.3	3.5*	4

Package quantity = 5pcs.
● : Line up



***Groove depth and max workpiece diameter (øDmax)**
Maximum workpiece diameter is limited relative to depth of cut in order to avoid collision between insert and workpiece.



Max. diameter CUTDIA (mm)
7

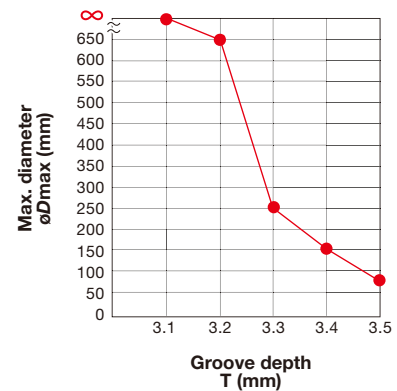
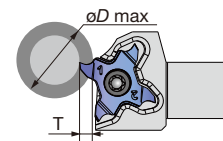
INSERTS

TCG18R/L (with edge preparation)

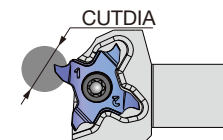


Designation	Grade AH7025		CW	Dimensions (mm)		
	R	L		RE	CDX	S
TCG18R/L100-010	●	●	1	0.1	2	4
TCG18R/L120-010	●	●	1.2	0.1	2	4
TCG18R/L125-010	●	●	1.25	0.1	2	4
TCG18R/L125-020	●	●	1.25	0.2	2	4
TCG18R/L130-020	●	●	1.3	0.2	2	4
TCG18R/L140-010	●	●	1.4	0.1	3.5*	4
TCG18R/L140-020	●	●	1.4	0.2	3.5*	4
TCG18R/L145-010	●	●	1.45	0.1	3.5*	4
TCG18R/L145-020	●	●	1.45	0.2	3.5*	4
TCG18R/L150-010	●	●	1.5	0.1	3.5*	4
TCG18R/L150-020	●	●	1.5	0.2	3.5*	4
TCG18R/L160-020	●	●	1.6	0.2	3.5*	4
TCG18R/L170-020	●	●	1.7	0.2	3.5*	4
TCG18R/L175-010	●	●	1.75	0.1	3.5*	4
TCG18R/L175-020	●	●	1.75	0.2	3.5*	4
TCG18R/L185-020	●	●	1.85	0.2	3.5*	4
TCG18R/L195-020	●	●	1.95	0.2	3.5*	4
TCG18R/L200-010	●	●	2	0.1	3.5*	4
TCG18R/L200-020	●	●	2	0.2	3.5*	4
TCG18R/L225-020	●	●	2.25	0.2	3.5*	4
TCG18R/L230-020	●	●	2.3	0.2	3.5*	4
TCG18R/L250-010	●	●	2.5	0.1	3.5*	4
TCG18R/L250-020	●	●	2.5	0.2	3.5*	4
TCG18R/L250-030	●	●	2.5	0.3	3.5*	4
TCG18R/L265-030	●	●	2.65	0.3	3.5*	4
TCG18R/L280-030	●	●	2.8	0.3	3.5*	4
TCG18R/L300-010	●	●	3	0.1	3.5*	4
TCG18R/L300-020	●	●	3	0.2	3.5*	4
TCG18R/L300-030	●	●	3	0.3	3.5*	4

Package quantity = 5pcs.
● : Line up



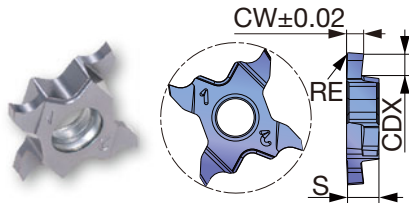
*Groove depth and max workpiece diameter (øDmax)
Maximum workpiece diameter is limited relative to depth of cut in order to avoid collision between insert and workpiece.



Max. diameter CUTDIA (mm)
7

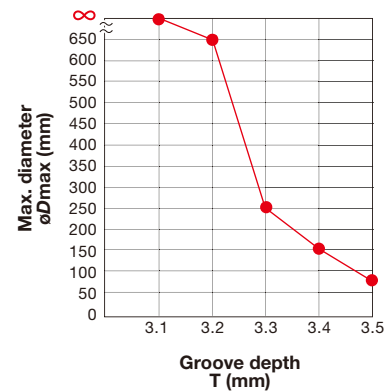
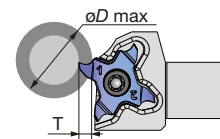
INSERTS

TCP18R/L (lightly honed edge)

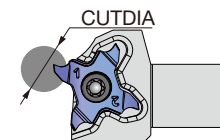


Designation	Grade AH725		CW	Dimensions (mm)		
	R	L		RE	CDX	S
TCP18R/L033-005	●	●	0.33	0.05	0.8	4
TCP18R/L043-005	●	●	0.43	0.05	1.2	4
TCP18R/L050-005	●	●	0.5	0.05	1.2	4
TCP18R/L075-005	●	●	0.75	0.05	2	4
TCP18R/L095-005	●	●	0.95	0.05	2	4
TCP18R/L100-010	●	●	1	0.1	2	4
TCP18R/L120-010	●	●	1.2	0.1	2	4
TCP18R/L125-010	●	●	1.25	0.1	2	4
TCP18R/L140-010-35	●	●	1.4	0.1	3.5*	4
TCP18R/L145-010	●	●	1.45	0.1	2.5	4
TCP18R/L145-010-35	●	●	1.45	0.1	3.5*	4
TCP18R/L150-010	●	●	1.5	0.1	2.5	4
TCP18R/L150-010-35	●	●	1.5	0.1	3.5*	4
TCP18R/L175-010	●	●	1.75	0.1	2.5	4
TCP18R/L175-010-35	●	●	1.75	0.1	3.5*	4
TCP18R/L200-010	●	●	2	0.1	2.5	4
TCP18R/L200-010-35	●	●	2	0.1	3.5*	4
TCP18R/L250-010	●	●	2.5	0.1	2.5	4
TCP18R/L250-010-35	●	●	2.5	0.1	3.5*	4
TCP18R/L300-010	●	●	3	0.1	2.5	4
TCP18R/L300-010-35	●	●	3	0.1	3.5*	4

Package quantity = 5pcs.
● : Line up



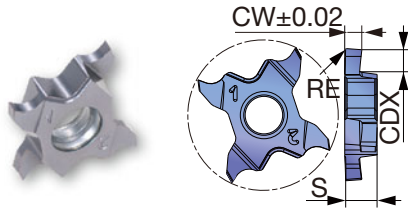
***Groove depth and max workpiece diameter (øDmax)**
Maximum workpiece diameter is limited relative to depth of cut in order to avoid collision between insert and workpiece.



Max. diameter CUTDIA (mm)
7

INSERTS

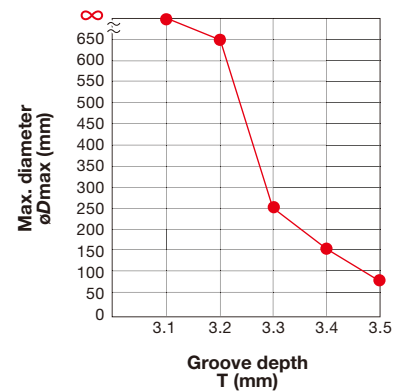
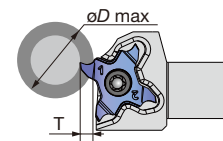
TCP18R/L-F (sharp edge)



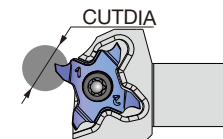
Designation	Grade SH725		CW	Dimensions (mm)		
	R	L		RE	CDX	S
TCP18R/L033F-005	●	●	0.33	0.05	0.8	4
TCP18R/L043F-005	●	●	0.43	0.05	1.2	4
TCP18R/L050F-005	●	●	0.5	0.05	1.2	4
TCP18R/L075F-005	●	●	0.75	0.05	2	4
TCP18R/L095F-005	●	●	0.95	0.05	2	4
TCP18R/L100F-005	●		1	0.05	2	4
TCP18R/L100F-010	●	●	1	0.1	2	4
TCP18R/L120F-005	●		1.2	0.05	2	4
TCP18R/L120F-010	●	●	1.2	0.1	2	4
TCP18R/L125F-005	●		1.25	0.05	2	4
TCP18R/L125F-010	●	●	1.25	0.1	2	4
TCP18R/L140F-010-35	●		1.4	0.1	3.5*	4
TCP18R/L145F-005-35	●		1.45	0.05	3.5*	4
TCP18R/L145F-010	●	●	1.45	0.1	2.5	4
TCP18R/L145F-010-35	●	●	1.45	0.1	3.5*	4
TCP18R/L150F-005-35	●		1.5	0.05	3.5*	4
TCP18R/L150F-010	●	●	1.5	0.1	2.5	4
TCP18R/L150F-010-35	●	●	1.5	0.1	3.5*	4
TCP18R/L175F-005-35	●		1.75	0.05	3.5*	4
TCP18R/L175F-010	●	●	1.75	0.1	2.5	4
TCP18R/L175F-010-35	●	●	1.75	0.1	3.5*	4
TCP18R/L200F-005-35	●		2	0.05	3.5*	4
TCP18R/L200F-010	●	●	2	0.1	2.5	4
TCP18R/L200F-010-35	●	●	2	0.1	3.5*	4
TCP18R/L250F-010	●	●	2.5	0.1	2.5	4
TCP18R/L250F-010-35	●	●	2.5	0.1	3.5*	4
TCP18R/L300F-010	●	●	3	0.1	2.5	4
TCP18R/L300F-010-35	●	●	3	0.1	3.5*	4

Package quantity = 5pcs.

● : Line up



*Groove depth and max workpiece diameter (øDmax)
Maximum workpiece diameter is limited relative to depth of cut in order to avoid collision between insert and workpiece.



Max. diameter CUTDIA (mm)
7

STANDARD CUTTING CONDITIONS

New TCS18R (3D chipbreaker) , TCG18R/L (honed edge)

ISO	Workpiece materials	Grades	Cutting speed Vc (m/min)	Feed: f (mm/rev)	
				TCG	TCS
P	Low carbon steel (S15C / C15, S20C / C20, etc.)	AH7025	80 - 180	0.03 - 0.12	0.03 - 0.15
	Carbon steels, Alloy steel (S55C / C55, SCM440 / 42CrMoS4, etc.)	AH7025	80 - 180	0.03 - 0.12	0.03 - 0.15
	Prehardened steel (NAK80, PX5, etc.)	AH7025	80 - 180	0.03 - 0.12	0.03 - 0.15
M	Stainless steel (SUS304 / X5CrNi18-9, X5CrNiMo17-12-2, etc.)	AH7025	50 - 120	0.03 - 0.12	0.03 - 0.15
K	Grey cast iron (FC250 / GG25 / 250, FC300 / GG30 / 300, etc.)	AH7025	50 - 180	0.03 - 0.12	0.03 - 0.15
	Ductile cast iron (FCD400 / 400-15, FCD600 / 600-3, etc.)	AH7025	50 - 180	0.03 - 0.12	0.03 - 0.15
S	Titanium alloys (Ti-6Al-4V, etc.)	AH7025	30 - 80	0.03 - 0.12	0.03 - 0.15
	Superalloys (Inconel718, etc.)	AH7025	20 - 60	0.03 - 0.12	0.03 - 0.15

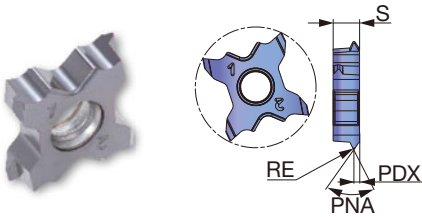
TCP18R/L (lightly honed edge) / TCP18R/L-F (sharp edge)

ISO	Workpiece materials	Priority	Grades	Cutting speed Vc (m/min)	Feed f (mm/rev)
P	Low carbon steel (S15C / C15, S20C / C20, etc.)	First choice	SH725	80 - 180	0.03 - 0.1
		Toughness	AH725	80 - 180	0.03 - 0.1
	Carbon steels, Alloy steel (S55C / C55, SCM440 / 42CrMoS4, etc.)	First choice	SH725	80 - 180	0.03 - 0.1
		Toughness	AH725	80 - 180	0.03 - 0.1
M	Prehardened steel (NAK80, PX5, etc.)	First choice	SH725	80 - 180	0.03 - 0.1
		Toughness	AH725	80 - 180	0.03 - 0.1
	Stainless steel (SUS304 / X5CrNi18-9, X5CrNiMo17-12-2, etc.)	First choice	SH725	50 - 120	0.03 - 0.1
		Toughness	AH725	50 - 120	0.03 - 0.1
K	Grey cast iron (FC250 / GG25 / 250, FC300 / GG30 / 300, etc.)	First choice	AH725	50 - 180	0.03 - 0.1
		Sharpness	SH725	50 - 180	0.03 - 0.1
	Ductile cast iron (FCD400 / 400-15, FCD600 / 600-3, etc.)	First choice	AH725	50 - 180	0.03 - 0.1
		Sharpness	SH725	50 - 180	0.03 - 0.1
S	Titanium alloys (Ti-6Al-4V, etc.)	First choice	SH725	30 - 80	0.03 - 0.1
		Toughness	AH725	30 - 80	0.03 - 0.1
	Superalloys (Inconel718, etc.)	First choice	SH725	20 - 60	0.03 - 0.1
		Toughness	AH725	20 - 60	0.03 - 0.1

INSERTS

New

TCT18FR/R-ISO (Full profile inserts)

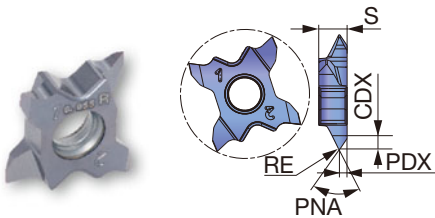


Designation	Edge preparation	Grade				Dimensions (mm)				
		SH725		AH725		pitch	PDX	RE	PNA	S
TCT18FR-05ISO	Sharp	★				0.5	0.35	0.06	60°	4
TCT18FR-07ISO	Sharp	★				0.7	0.45	0.09	60°	4
TCT18FR-075ISO	Sharp	★				0.75	0.50	0.09	60°	4
TCT18FR-08ISO	Sharp	★				0.8	0.50	0.10	60°	4
TCT18R-10ISO	Lightly honed				★	1.0	0.60	0.13	60°	4
TCT18R-125ISO	Lightly honed				★	1.25	0.70	0.17	60°	4
TCT18R-15ISO	Lightly honed				★	1.5	0.80	0.20	60°	4

Package quantity = 5pcs.

★ : To be released in summer 2019

TCT18FR/R/L (Threading)



Designation	Edge preparation	Grade			Dimensions (mm)						
		SH725	AH725		pitch min	pitch max	PDX	CDX	RE	PNA	S
TCT18FR-60A-005	Sharp	●			0.4	1	0.6	0.99	0.05	60°	4
TCT18FR-60A-010	Sharp	●			1	2	1	1.63	0.1	60°	4
TCT18R/L-60N-010	Lightly honed		●	●	0.8	3	1.6	2.67	0.1	60°	4
TCT18R/L-60N-020	Lightly honed		●	●	1.5	3	1.6	2.57	0.2	60°	4

Package quantity = 5pcs.

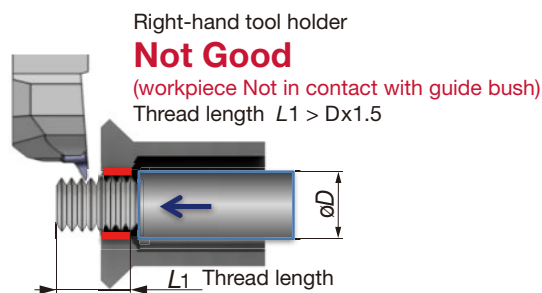
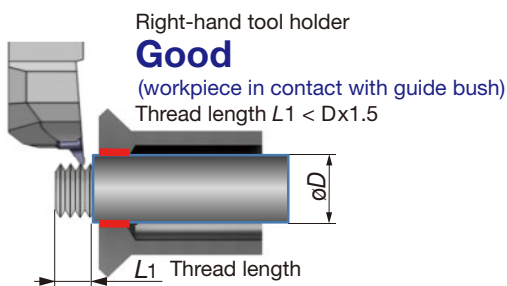
● : Line up

STANDARD CUTTING CONDITIONS

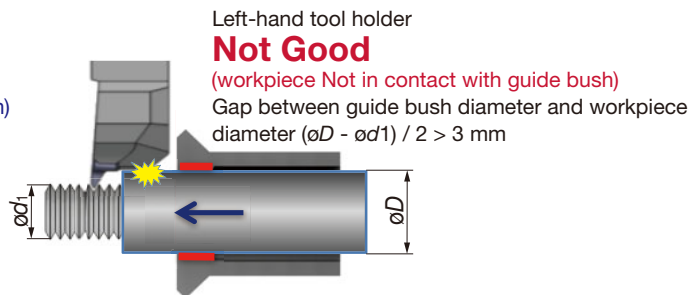
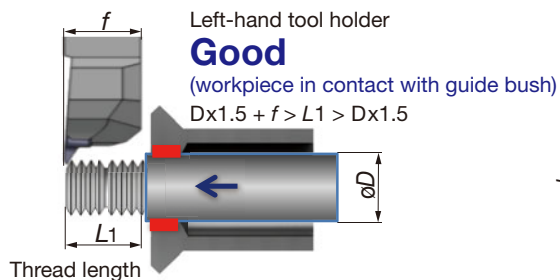
TCT18R/L (for threading / lightly honed edge) / TCT18FR (for threading / sharp edge)

ISO	Workpiece materials	Priority	Grades	Cutting speed Vc (m/min)	Pitch (mm)	TPI
P	Low carbon steel (S15C / C15, S20C / C20, etc.)	First choice	SH725	60 - 150	0.4 - 2.0	64 - 18
		Toughness	AH725	60 - 150	0.8 - 3.0	32 - 8
	Carbon steels, Alloy steel (S55C / C55, SCM440 / 42CrMoS4, etc.)	First choice	SH725	60 - 150	0.4 - 2.0	64 - 18
		Toughness	AH725	60 - 150	0.8 - 3.0	32 - 8
M	Prehardened steel (NAK80, PX5, etc.)	First choice	SH725	60 - 150	0.4 - 2.0	64 - 18
		Toughness	AH725	60 - 150	0.8 - 3.0	32 - 8
K	Grey cast iron (FC250 / GG25 / 250, FC300 / GG30 / 300, etc.)	First choice	AH725	50 - 100	0.8 - 3.0	32 - 8
		Sharpness	SH725	50 - 100	0.4 - 2.0	64 - 18
	Ductile cast iron (FCD400 / 400-15, FCD600 / 600-3, etc.)	First choice	AH725	50 - 100	0.8 - 3.0	32 - 8
		Sharpness	SH725	50 - 100	0.4 - 2.0	64 - 18
S	Titanium alloys (Ti-6Al-4V, etc.)	First choice	SH725	30 - 100	0.4 - 2.0	64 - 18
		Toughness	AH725	30 - 100	0.8 - 3.0	32 - 8
	Superalloys (Inconel718, etc.)	First choice	SH725	30 - 100	0.4 - 2.0	64 - 18
		Toughness	AH725	30 - 100	0.8 - 3.0	32 - 8

Cautions when machining in guide bushing

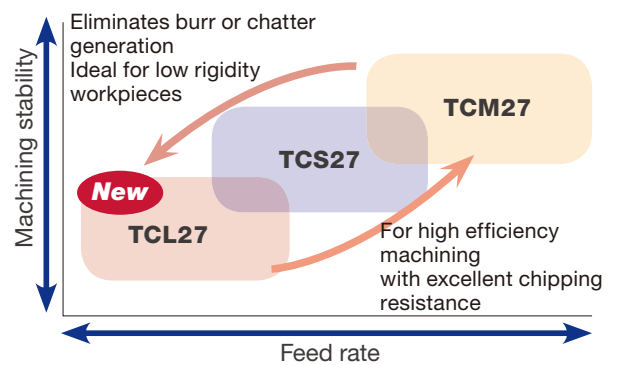
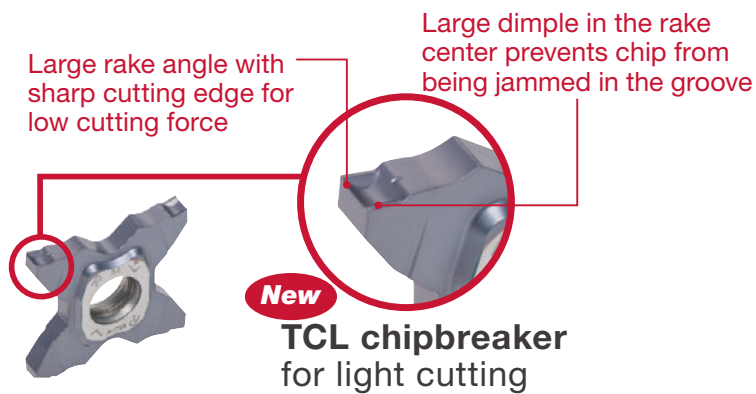
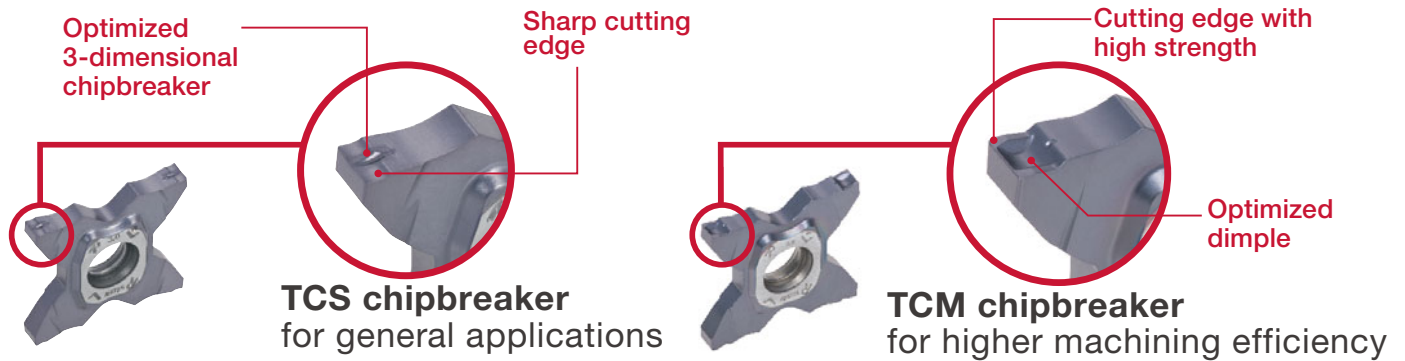


Threading operation following back-turning

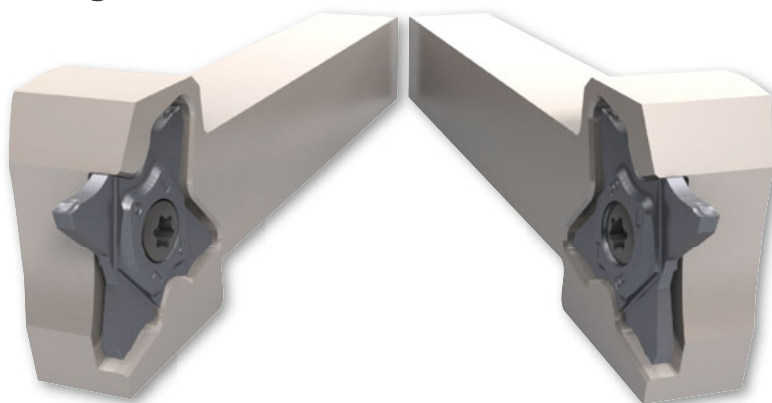


INNOVATIVE INSERTS

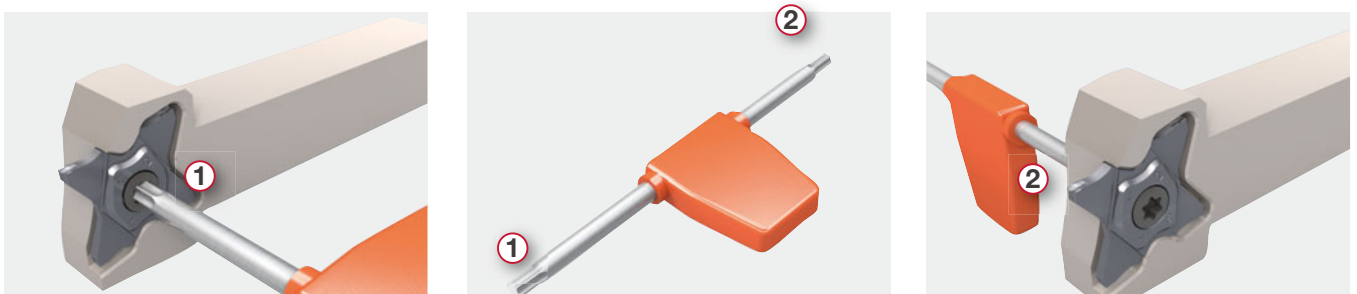
- Suitable for precision grooving or parting-off in general machining including small parts
- Two types of chipbreakers available for TC*27 inserts



One insert fits right-hand or left-hand holders



Insert can be clamped either from front or back side of the holder



CUTTING PERFORMANCE

P Alloy steel TCL chipbreaker

for improved chip control at low feed rate

New



Material : SCM415
 Holder : STCL2525-27
 Insert : TCL27-200-020 SH725
 Cutting speed : $V_c = 150$ m/min
 Groove width : 2 mm
 Groove depth : 3 mm

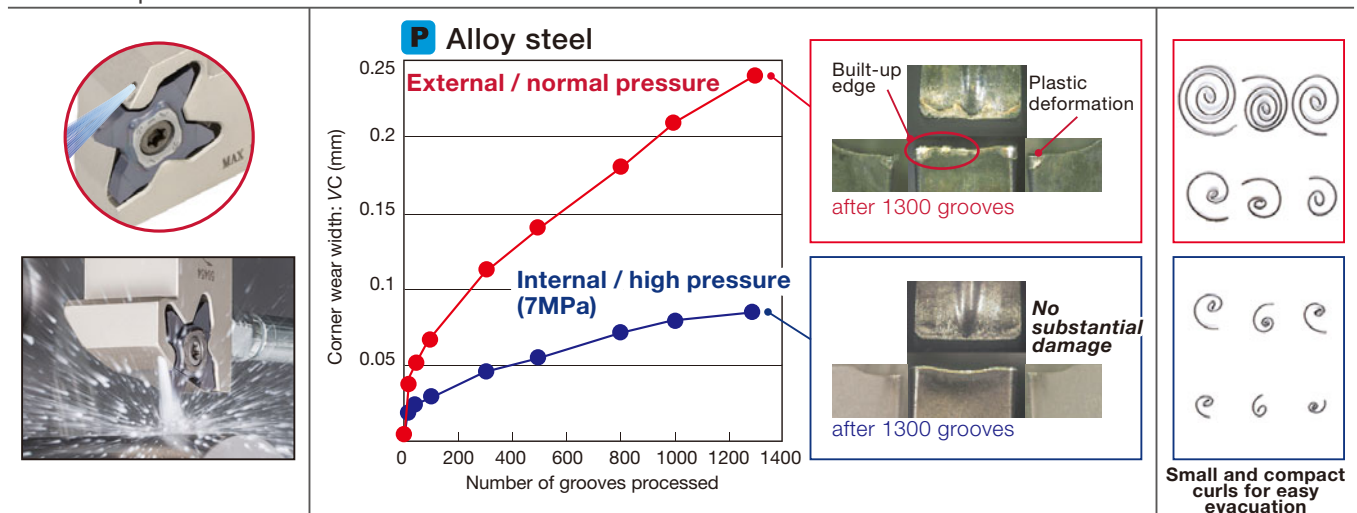
	$f = 0.05$ mm/rev	$f = 0.07$ mm/rev	$f = 0.1$ mm/rev	$f = 0.12$ mm/rev
$V_c = 150$ m/min				

Benefits of using high pressure coolant

Coolant pressure comparison

Tool life

Chip form



Toolholder : STCR2525-27-CHP
 Insert : TCS27-200-020 AH725
 Workpiece material : SCM440 / 42CrMo4
 Cutting speed : $V_c = 180$ m/min
 Feed : $f = 0.12$ mm/rev
 Groove width : 2 mm
 Groove depth : 5 mm

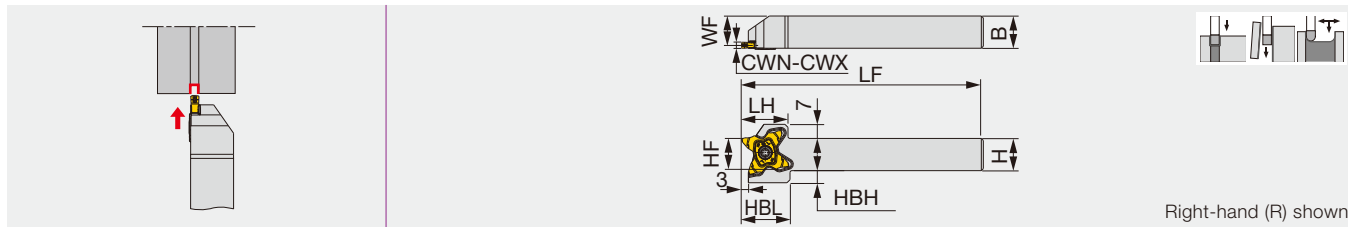
CHP type toolholders for high-pressure coolant

The coolant is supplied to the cutting edge providing good chip control and long tool life.



STCR/L-27

External toolholders for grooving, parting



Designation	CWN	CWX	H	B	LF	LH	HBL	HF	WF	HBH	Insert	Torque*
STCR/L1010-27	0.5	3.18	10	10	120	23	24	10	8.5	9.5	TC*27...	2.5
STCR/L1212-27	0.5	3.18	12	12	120	23	24	12	10.5	8	TC*27...	2.5
STCR/L1616-27	0.5	3.18	16	16	120	23	24	16	14.5	6	TC*27...	2.5
STCR/L2020-27	0.5	3.18	20	20	120	23	24	20	18.5	2	TC*27...	2.5
STCR/L2525-27	0.5	3.18	25	25	135	23	-	25	23.5	-	TC*27...	2.5

*Torque: Recommended torque (N·m) for clamping

SPARE PARTS



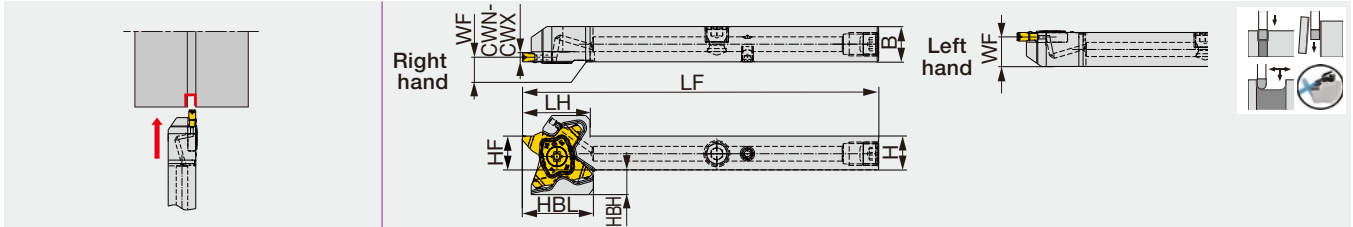
Designation	Screw	Wrench
STCR*-27	SR16-212-01397L	T-2010/5
STCL*-27	SR16-212-01397	T-2010/5

New

STCR/L-27-CHP

DIRECTTJET

Grooving and parting-off tool with DirectTung-Jet high pressure coolant capability



Designation	CWN	CWX	H	B	LF	LH	HF	WF ⁽¹⁾	HBH	HBL	insert	Torque*
STCR/L1212-27-CHP	0.5	3.18	12	12	120	23	12	1.5/10.5	8	24	TC*27...	2.5

- Make sure to avoid tool interferences when used on Swiss machines

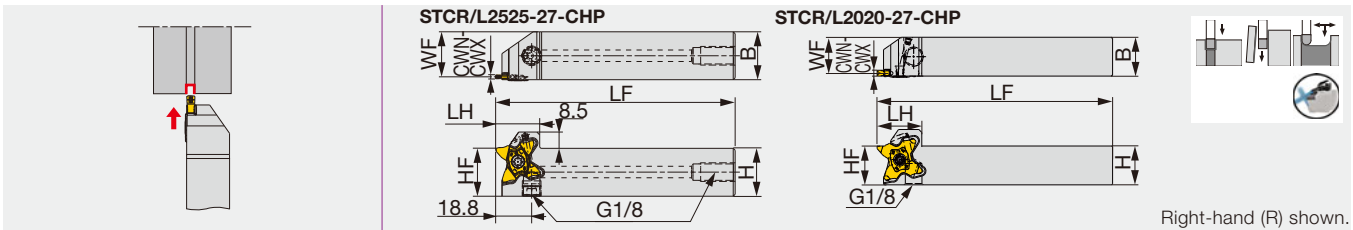
*Torque: Recommended torque (N·m) for clamping

(1) The above WF value is valid when an insert width of CW=3 is mounted.

STCR/L-27-CHP

TUNG TJET

External grooving and parting-off toolholder, high pressure coolant compatible



Designation	CWN	CWX	H	B	LF	LH	HF	WF	insert	Torque*
STCR/L2020-27-CHP	0.5	3.18	20	20	120	23	20	18.5	TC*27...	2.5
STCR/L2525-27-CHP	0.5	3.18	25	25	125	23	25	23.5	TC*27...	2.5

*Torque: Recommended torque (N·m) for clamping

SPARE PARTS

Designation	Screw	Wrench
STCR**27-CHP	SR16-212-01397L	T-2010/5
STCL**27-CHP	SR16-212-01397	T-2010/5

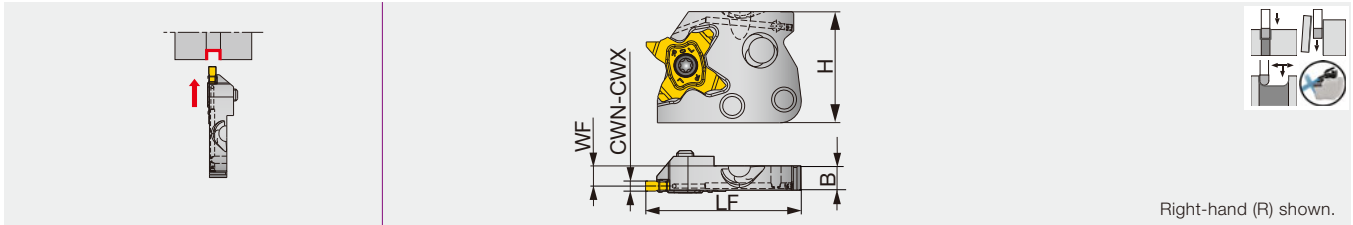
See page 38 for connections and coolant hoses.

New

STCAR/L27-CHP

TUNG M^{ODULAR} SYSTEM

Modular blade with high pressure coolant channels



Right-hand (R) shown.

Designation	CWN	CWX	WF	H	LF	B	Insert	Torque*
STCAR/L27-CHP	0.5	3.18	6	33	46	7.2	TC*27...	2.5

*Torque: Recommended torque (N·m) for clamping

SPARE PARTS

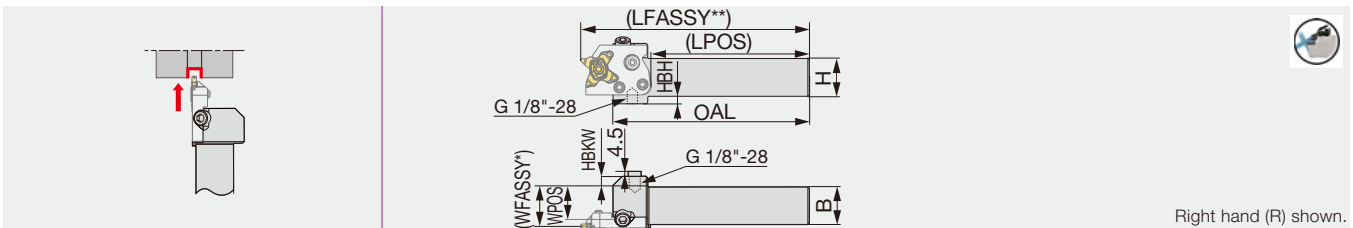


Designation	Screw	Wrench
STCAR27-CHP	SR16-212-01397L	T-2010/5
STCAL27-CHP	SR16-212-01397	T-2010/5

CHSR/L-CHP

TUNG M^{ODULAR} SYSTEM

Shank for CAER/L-CHP, with channels for high pressure coolant



Right hand (R) shown.

Designation	H	B	OAL	LPOS	WPOS	HBKW	HBH
CHSR/L2020-CHP	20	20	130	105.5	15.1	12	10
CHSR/L2525-CHP	25	25	130	105.5	20.1	7	5

*WFASSY : shank (WPOS) + blade (WF)

**LFASSY : shank (LPOS) + blade (LF)

- Use the right-hand blade for the right-hand shank.

SPARE PARTS



Designation	Screw	Wrench	Clamping screw	Clamping screw	Wrench	O-ring	Plug
CHSR/L*-CHP	SRM5-04451	T-20/5	SRM6X12DIN6912	SRM6X20-XT	HW5.0	OR5X1N	PLUGG1/8ISO1179

See page 37 for blade assembly/disassembly instructions

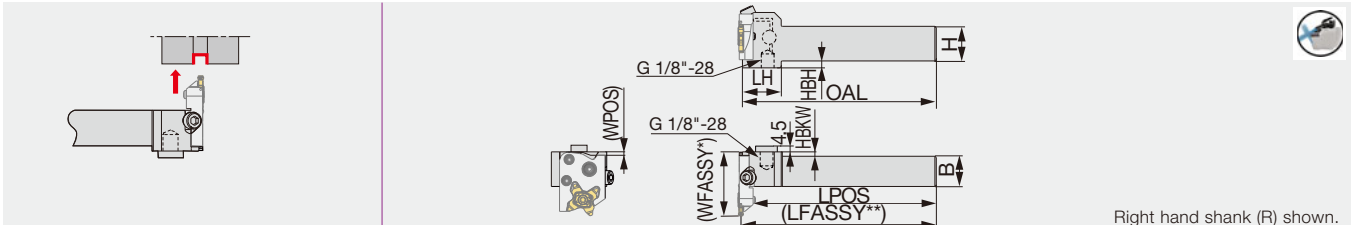
See page 38 for connections and coolant hoses.

New

CHFVR/L-CHP

TUNGALLOY SYSTEM

Shank for blade, with channels for high pressure coolant



Right hand shank (R) shown.

Designation	H	B	OAL	LPOS	WPOS	LH	HBKW	HBH
CHFVR/L2020-CHP	20	20	140	135.1	0.5	28	5	10
CHFVR/L2525-CHP	25	25	140	135.1	0.5	28	0	5

*WFASSY : shank (WPOS) + blade (LF)

**LFASSY : shank (LPOS) + blade (WF)

- Use the left-handed blade for the right-handed shank.

SPARE PARTS

Designation	Clamping screw	Wrench	Clamping screw	Clamping screw	Wrench	O-ring	Plug
CHFVR/L*-CHP	SRM5-04451	T-20/5	SRM6X12DIN6912	SRM6X20-XT	HW5.0	OR5X1N	PLUGG1/8ISO1179

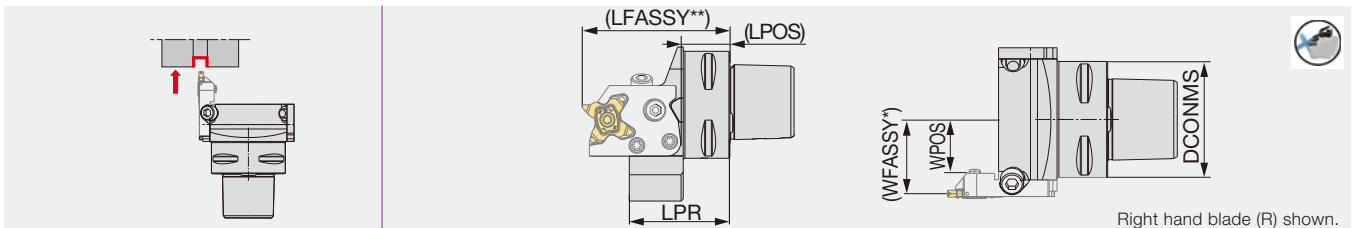
See page 37 for blade assembly/disassembly instructions

See page 38 for connections and coolant hoses.

C*CHSN-CHP

TUNGALLOY SYSTEM

TungCap shank for CAER/L-CHP, with channels for high pressure coolant



Right hand blade (R) shown.

Designation	DCONMS	LPR	LPOS	WPOS
New C3CHSN19045-CHP	32	45	17.5	18.5
C4CHSN21047-CHP	40	46.5	21.5	21
C5CHSN26047-CHP	50	47	22.5	26
C6CHSN33050-CHP	63	50	24.5	32.5

*WFASSY : shank (WPOS) + blade (WF)

**LFASSY : shank (LPOS) + blade (LF)

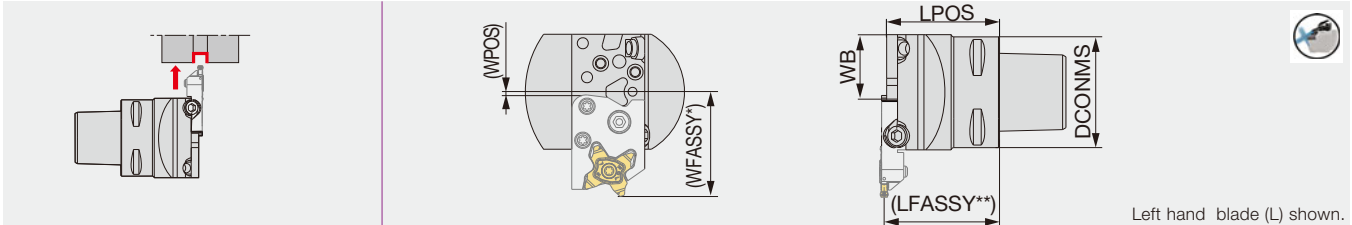
SPARE PARTS

Designation	Clamping screw	Wrench	Clamping screw	Clamping screw	Wrench	O-ring
C*CHSN*-CHP	SRM5-04451	T-20/5	SRM6X12DIN6912	SRM6X20-XT	HW5.0	OR5X1N

• See page 37 for blade assembly/disassembly instructions

C*CHFVN-CHP

TungCap shank for CAER/L-CHP, with channels for high pressure coolant



Left hand blade (L) shown.

Designation	DCONMS	LPOS	WB	WPOS
New C3CHFVN26040-CHP	32	40	26	1.5
C4CHFVN26046-CHP	40	46	26	1.5
C5CHFVN26046-CHP	50	46	26	1.5
C6CHFVN33046-CHP	63	46	33	8.5

*WFASSY : shank (WPOS) + blade (LF)

**LFASSY : shank (LPOS) + blade (WF)

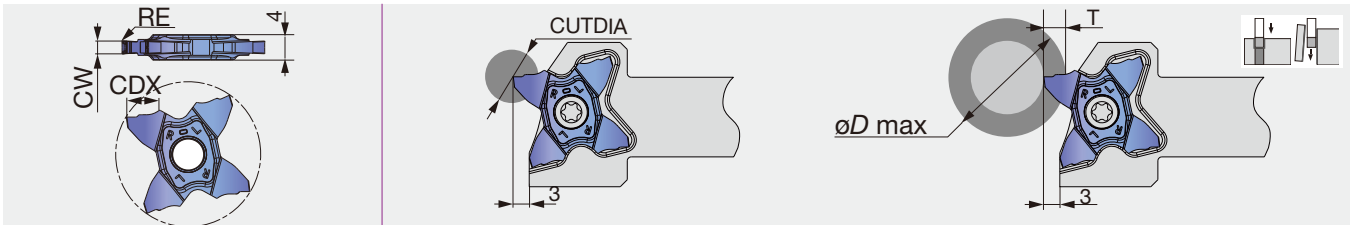
SPARE PARTS

Designation	Clamping screw	Wrench	Clamping screw	Clamping screw	Wrench	O-ring
C*CHFVN**-CHP	SRM5-04451	T-20/5	SRM6X12DIN6912	SRM6X20-XT	HW5.0	OR5X1N

• See page 37 for blade assembly/disassembly instructions

New INSERTS

TCL27

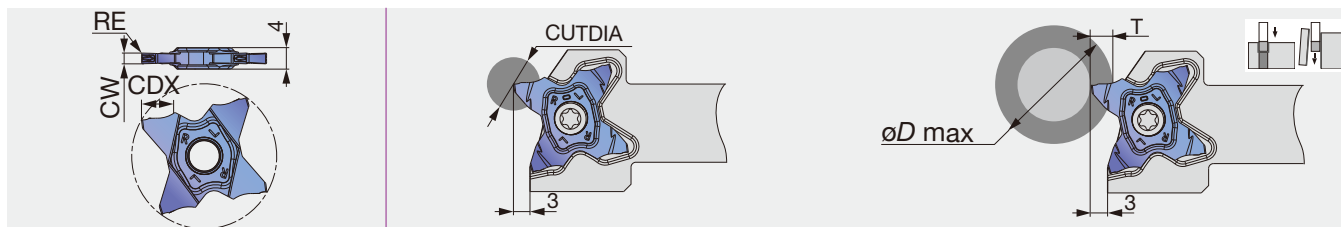


Designation	Grade AH725	CW ± 0.02	RE	CDX	CUTDIA	Relation of groove depth (T) and Max. diameter (øD max)											
						T≤1.0	T≤2.0	T≤3.0	T≤3.5	T≤4.0	T≤4.5	T≤5.0	T≤5.5	T≤5.7	T≤6.0	T≤6.2	T≤6.4
TCL27-150-015	●	1.5	0.15	5.7	11.4	∞	∞	∞	600	280	180	130	50	35	-	-	-
TCL27-200-020	●	2.0	0.2	6.4	12.8	∞	∞	∞	600	280	180	130	105	85	60	50	30
TCL27-250-020	●	2.5	0.2	6.4	12.8	∞	∞	∞	600	280	180	130	105	85	60	50	30
TCL27-300-020	●	3.0	0.2	6.4	12.8	∞	∞	∞	600	280	180	135	105	95	85	78	55

Package Quantity = 5 pcs.
● : New product

INSERTS

TCS27

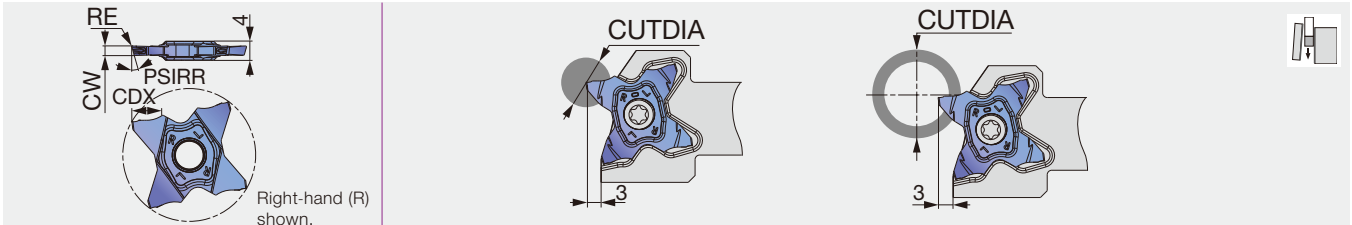


Designation	Grade AH725	CW ± 0.02	RE	CDX	CUTDIA	Relation of groove depth (T) and Max. diameter (øD max)											
						T≤1.0	T≤2.0	T≤3.0	T≤3.5	T≤4.0	T≤4.5	T≤5.0	T≤5.5	T≤5.7	T≤6.0	T≤6.2	T≤6.4
TCS27-050-000	●	0.5	0	1	2	∞	-	-	-	-	-	-	-	-	-	-	-
TCS27-050-004	●	0.5	0.04	2.5	5	∞	∞	-	-	-	-	-	-	-	-	-	-
TCS27-075-010	●	0.75	0.1	2.5	5	∞	∞	-	-	-	-	-	-	-	-	-	-
TCS27-080-000	●	0.8	0	1.6	3.2	∞	-	-	-	-	-	-	-	-	-	-	-
TCS27-100-006	●	1	0.06	3.5	7	∞	∞	∞	600	-	-	-	-	-	-	-	-
TCS27-100-010	●	1	0.1	3.5	7	∞	∞	∞	600	-	-	-	-	-	-	-	-
TCS27-104-000	●	1.04	0	2	4	∞	∞	-	-	-	-	-	-	-	-	-	-
TCS27-120-000	●	1.2	0	2	4	∞	∞	-	-	-	-	-	-	-	-	-	-
TCS27-125-010	●	1.25	0.1	3.5	7	∞	∞	∞	600	-	-	-	-	-	-	-	-
TCS27-125-020	●	1.25	0.2	3.5	7	∞	∞	∞	600	-	-	-	-	-	-	-	-
TCS27-140-000	●	1.4	0	2	4	∞	∞	-	-	-	-	-	-	-	-	-	-
TCS27-147-000	●	1.47	0	2.5	5	∞	∞	-	-	-	-	-	-	-	-	-	-
TCS27-150-010	●	1.5	0.1	5.7	11.4	∞	∞	∞	600	280	180	130	50	35	-	-	-
TCS27-150-020	●	1.5	0.2	5.7	11.4	∞	∞	∞	600	280	180	130	50	35	-	-	-
TCS27-157-015	●	1.57	0.15	3	6	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCS27-170-010	●	1.7	0.1	3	6	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCS27-175-010	●	1.75	0.1	3	6	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCS27-175-020	●	1.75	0.2	3	6	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCS27-178-018	●	1.78	0.18	3	6	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCS27-185-020	●	1.85	0.2	3	6	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCS27-196-015	●	1.96	0.15	3	6	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCS27-200-010	●	2	0.1	6.4	12.8	∞	∞	∞	600	280	180	130	105	85	60	50	30
TCS27-200-020	●	2	0.2	6.4	12.8	∞	∞	∞	600	280	180	130	105	85	60	50	30
TCS27-222-015	●	2.22	0.15	3.5	7	∞	∞	∞	600	-	-	-	-	-	-	-	-
TCS27-230-020	●	2.3	0.2	3.5	7	∞	∞	∞	600	-	-	-	-	-	-	-	-
TCS27-239-015	●	2.39	0.15	5.7	11.4	∞	∞	∞	600	280	180	130	50	35	-	-	-
TCS27-247-020	●	2.47	0.2	5.7	11.4	∞	∞	∞	600	280	180	130	50	35	-	-	-
TCS27-250-010	●	2.5	0.1	5.7	11.4	∞	∞	∞	600	280	180	130	50	35	-	-	-
TCS27-250-030	●	2.5	0.3	5.7	11.4	∞	∞	∞	600	280	180	130	50	35	-	-	-
TCS27-270-010	●	2.7	0.1	6.2	12.4	∞	∞	∞	600	280	180	135	105	95	85	78	-
TCS27-287-020	●	2.87	0.2	6.2	12.4	∞	∞	∞	600	280	180	135	105	95	85	78	-
TCS27-300-000	●	3	0	6.4	12.8	∞	∞	∞	600	280	180	135	105	95	85	78	55
TCS27-300-020	●	3	0.2	6.4	12.8	∞	∞	∞	600	280	180	135	105	95	85	78	55
TCS27-300-030	●	3	0.3	6.4	12.8	∞	∞	∞	600	280	180	135	105	95	85	78	55
TCS27-300-040	●	3	0.4	6.4	12.8	∞	∞	∞	600	280	180	135	105	95	85	78	55
TCS27-315-015	●	3.15	0.15	6.4	12.8	∞	∞	∞	600	280	180	135	105	95	85	78	68
TCS27-318-020	●	3.18	0.2	6.4	12.8	∞	∞	∞	600	280	180	135	105	95	85	78	68

Package Quantity = 5 pcs.
● : Line up

INSERTS

TCS27-R/L

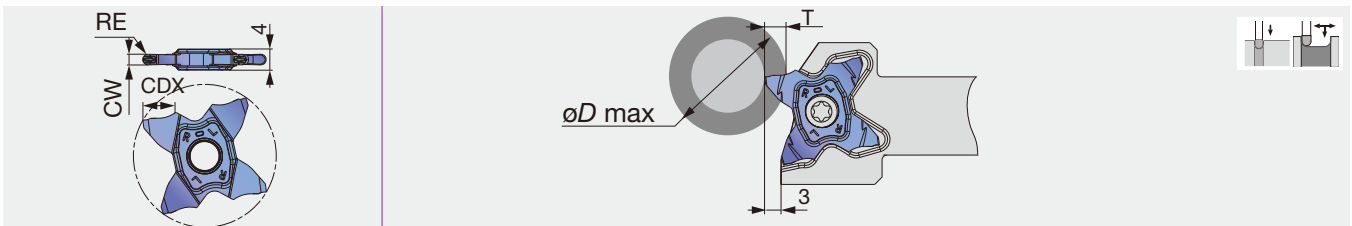


Designation	Grade		CW ± 0.02	RE	CDX	PSIRR/L	Max. parting-off dia. ϕD max	
	AH725						Solid bar	Tube
	R	L						
TCS27-100-15R/L	●	●	1	0.06	3.5	15°	7	600
TCS27-150-6R/L	●	●	1.5	0.06	5.7	6°	11.4	35
TCS27-150-15R/L	●	●	1.5	0.06	5.7	15°	11.4	35
TCS27-200-6R/L	●	●	2	0.10	6.4	6°	12.8	30
TCS27-200-15R/L	●	●	2	0.10	6.4	15°	12.8	30

Package Quantity = 5 pcs.
● : Line up

INSERTS

TCS27-Full R

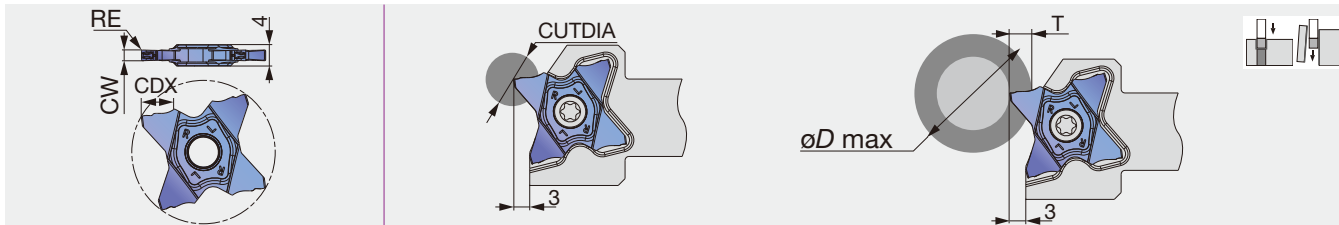


Designation	Grade	CW ± 0.02	RE	CDX	Relation of groove depth (T) and Max. diameter (ϕD max)												
					AH725		T≤1.0	T≤2.0	T≤3.0	T≤3.5	T≤4.0	T≤4.5	T≤5.0	T≤5.5	T≤5.7	T≤6.0	T≤6.2
TCS27-157-079	●	1.57	0.79	3	∞	∞	∞	-	-	-	-	-	-	-	-	-	
TCS27-200-100	●	2	1	3	∞	∞	∞	-	-	-	-	-	-	-	-	-	
TCS27-239-120	●	2.39	1.2	5.7	∞	∞	∞	600	280	180	130	50	35	-	-	-	
TCS27-300-150	●	3	1.5	6.4	∞	∞	∞	600	280	180	135	105	95	85	78	55	

Package Quantity = 5 pcs.
● : Line up

INSERTS

TCM27

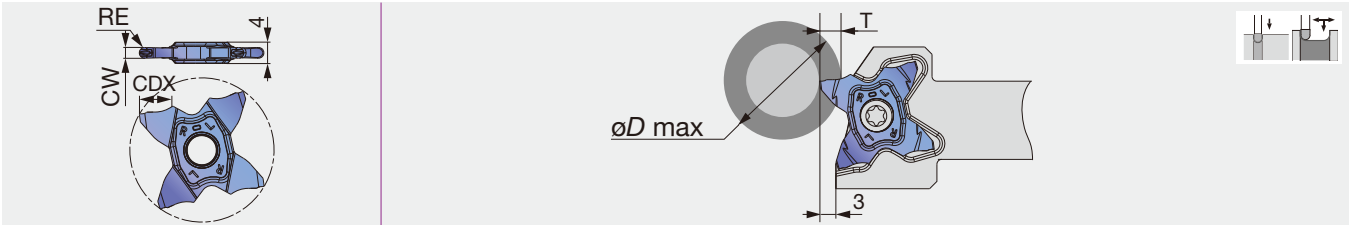


Designation	Grade AH725	CW ± 0.02	RE	CDX	CUTDIA	Relation of groove depth (T) and Max. diameter (øD max)											
						T≤1.0	T≤2.0	T≤3.0	T≤3.5	T≤4.0	T≤4.5	T≤5.0	T≤5.5	T≤5.7	T≤6.0	T≤6.2	T≤6.4
TCM27-150-010	●	1.5	0.1	5.7	11.4	∞	∞	∞	600	280	180	130	50	35	-	-	-
TCM27-150-020	●	1.5	0.2	5.7	11.4	∞	∞	∞	600	280	180	130	50	35	-	-	-
TCM27-157-015	●	1.57	0.15	3.0	6.0	∞	∞	∞	-	-	-	-	-	-	-	-	
TCM27-170-010	●	1.7	0.1	3.0	6.0	∞	∞	∞	-	-	-	-	-	-	-	-	
TCM27-175-010	●	1.75	0.1	3.0	6.0	∞	∞	∞	-	-	-	-	-	-	-	-	
TCM27-175-020	●	1.75	0.2	3.0	6.0	∞	∞	∞	-	-	-	-	-	-	-	-	
TCM27-178-018	●	1.78	0.18	3.0	6.0	∞	∞	∞	-	-	-	-	-	-	-	-	
TCM27-185-020	●	1.85	0.2	3.0	6.0	∞	∞	∞	-	-	-	-	-	-	-	-	
TCM27-196-015	●	1.96	0.15	3.0	6.0	∞	∞	∞	-	-	-	-	-	-	-	-	
TCM27-200-010	●	2	0.1	6.4	12.8	∞	∞	∞	600	280	180	130	105	85	60	50	30
TCM27-200-020	●	2	0.2	6.4	12.8	∞	∞	∞	600	280	180	130	105	85	60	50	30
TCM27-222-015	●	2.22	0.15	3.5	7.0	∞	∞	∞	600	-	-	-	-	-	-	-	-
TCM27-230-020	●	2.3	0.2	3.5	7.0	∞	∞	∞	600	-	-	-	-	-	-	-	-
TCM27-239-015	●	2.39	0.15	5.7	11.4	∞	∞	∞	600	280	180	130	50	35	-	-	-
TCM27-247-020	●	2.47	0.2	5.7	11.4	∞	∞	∞	600	280	180	130	50	35	-	-	-
TCM27-250-010	●	2.5	0.1	5.7	11.4	∞	∞	∞	600	280	180	130	50	35	-	-	-
TCM27-250-030	●	2.5	0.3	5.7	11.4	∞	∞	∞	600	280	180	130	50	35	-	-	-
TCM27-270-010	●	2.7	0.1	6.2	12.4	∞	∞	∞	600	280	180	135	105	95	85	78	-
TCM27-287-020	●	2.87	0.2	6.2	12.4	∞	∞	∞	600	280	180	135	105	95	85	78	-
TCM27-300-000	●	3	0	6.4	12.8	∞	∞	∞	600	280	180	135	105	95	85	78	55
TCM27-300-020	●	3	0.2	6.4	12.8	∞	∞	∞	600	280	180	135	105	95	85	78	55
TCM27-300-030	●	3	0.3	6.4	12.8	∞	∞	∞	600	280	180	135	105	95	85	78	55
TCM27-300-040	●	3	0.4	6.4	12.8	∞	∞	∞	600	280	180	135	105	95	85	78	55
TCM27-315-015	●	3.15	0.15	6.4	12.8	∞	∞	∞	600	280	180	135	105	95	85	78	68
TCM27-318-020	●	3.18	0.2	6.4	12.8	∞	∞	∞	600	280	180	135	105	95	85	78	68

Package Quantity = 5 pcs.
● : Line up

INSERTS

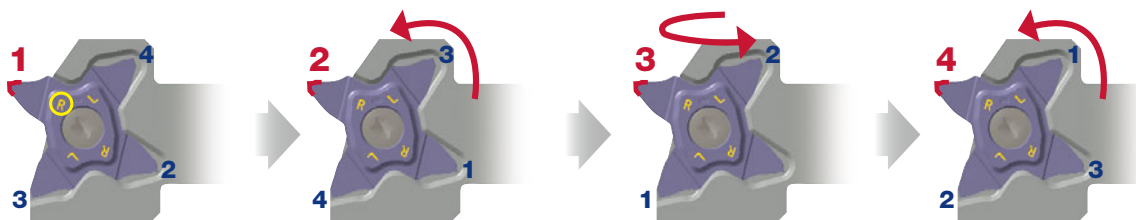
TCM27-Full R



Designation	Grade AH725	CW ± 0.02	RE	CDX	Relation of groove depth (T) and Max. diameter (øD max)											
					T≤1.0	T≤2.0	T≤3.0	T≤3.5	T≤4.0	T≤4.5	T≤5.0	T≤5.5	T≤5.7	T≤6.0	T≤6.2	T≤6.4
TCM27-157-079	●	1.57	0.79	3	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCM27-200-100	●	2	1	3	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCM27-239-120	●	2.39	1.2	5.7	∞	∞	∞	600	280	180	130	50	35	-	-	-
TCM27-300-150	●	3	1.5	6.4	∞	∞	∞	600	280	180	135	105	95	85	78	55

Package Quantity = 5 pcs.
● : Line up

HOW TO INDEX INSERTS



1. Right-hand edge (R) is used for the right-hand toolholders.

2. Rotate the insert

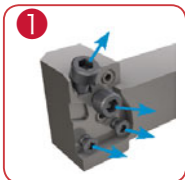
3. Flip over the insert

4. Rotate the insert

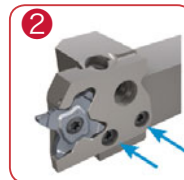
STANDARD CUTTING CONDITIONS

ISO	Workpiece materials	Grades	Cutting speed Vc (m/min)	Feed: <i>f</i> (mm/rev)						Depth of cut for profiling (with full radius insert)
				New	Grooving, parting-off			Profiling (with full radius insert)		
					TCL	TCS	TCM	TCS	TCM	
P	Carbon steel (S45C / C45, etc.)	AH725	100 - 200	0.03 - 0.12	0.05 - 0.15	0.05 - 0.25	0.04 - 0.12	0.05 - 0.10	0.05 - 0.15	0.5
	Alloy steel (SCM435 / 34CrMo4, etc.)	AH725	50 - 180	0.03 - 0.12	0.05 - 0.15	0.05 - 0.25	0.04 - 0.12	0.05 - 0.10	0.05 - 0.15	0.5
M	Stainless steel (SUS304 / X5CrNi18-9, etc.)	AH725	100 - 150	0.03 - 0.12	0.05 - 0.15	0.05 - 0.20	0.04 - 0.12	0.05 - 0.10	0.05 - 0.15	0.5
K	Grey cast iron (FC250 / 250 / GG25, etc.)	AH725	50 - 180	0.03 - 0.12	0.05 - 0.15	0.05 - 0.25	0.04 - 0.12	0.05 - 0.10	0.05 - 0.15	0.5
	Ductile cast iron (FCD400 / 400-15 / GGG400, etc.)	AH725	50 - 120	0.03 - 0.12	0.05 - 0.15	0.05 - 0.20	0.04 - 0.12	0.05 - 0.10	0.05 - 0.15	0.5
S	Titanium alloys (Ti-6Al-4V, etc.)	AH725	30 - 60	0.03 - 0.12	0.05 - 0.15	0.05 - 0.15	0.04 - 0.12	0.05 - 0.10	0.05 - 0.10	0.5
	Superalloys (Inconel718, etc.)	AH725	20 - 50	0.03 - 0.12	0.05 - 0.15	0.05 - 0.15	0.04 - 0.12	0.05 - 0.10	0.05 - 0.10	0.5

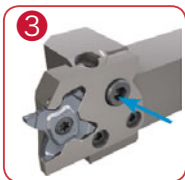
Blade assembly



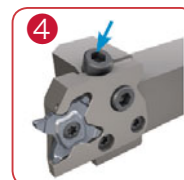
1 Remove all 4 screws and ensure the O rings are all in place.



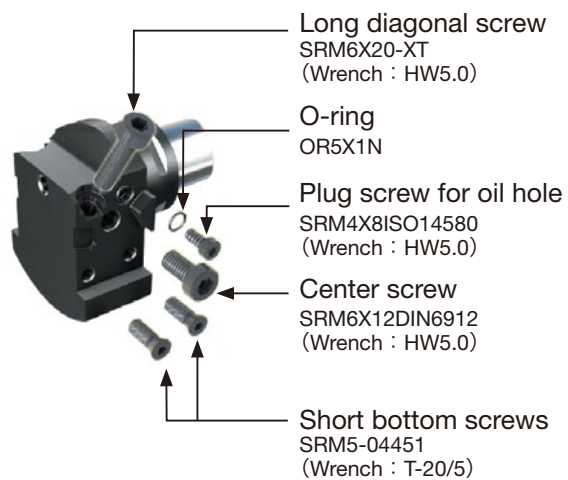
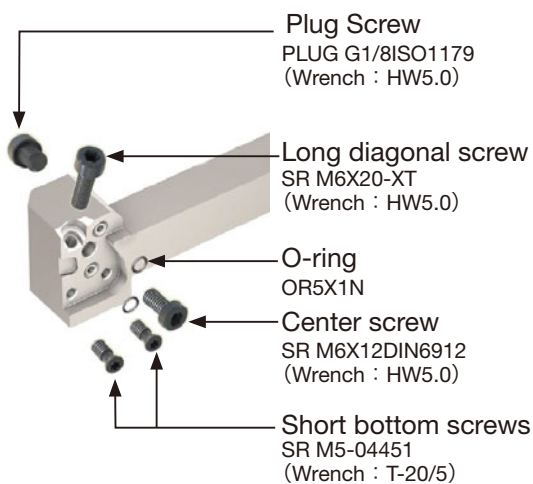
2 Place the blade and tighten 2 bottom clamping screws.



3 Tighten the fixing screw in the center.



4 Place the long screw in the angular direction and tighten to clamp the insert.



► All parts listed here are included in the tool holder.

PARTS FOR COOLANT HOSE

Connecting hose

Fig. 1

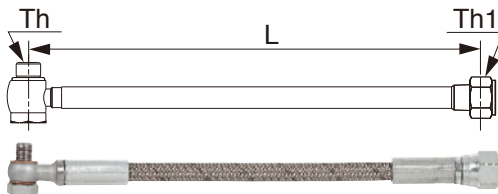
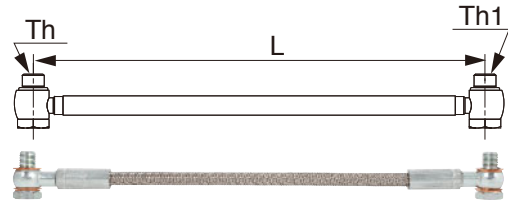
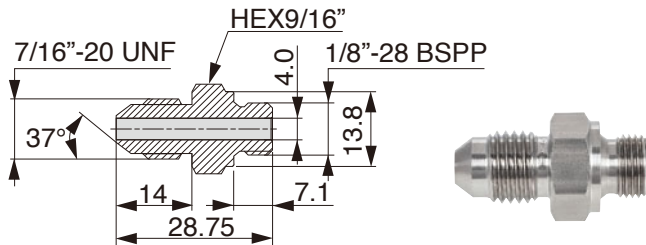


Fig. 2



Designation	Length	Threading size		Max. pressure (Mpa)	Fig.
	L	Th	Th1		
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

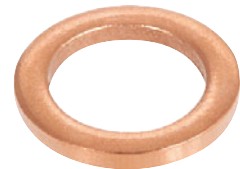
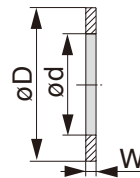
Connector



Designation

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

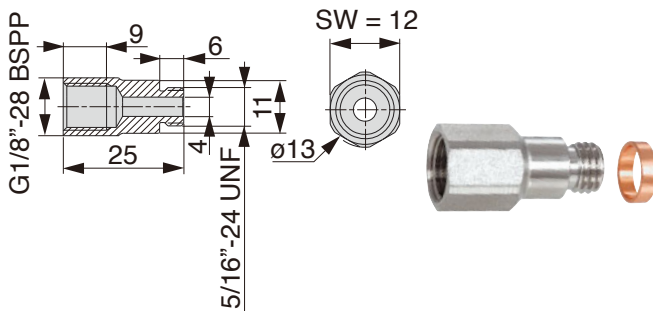
Seal washer



Designation

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



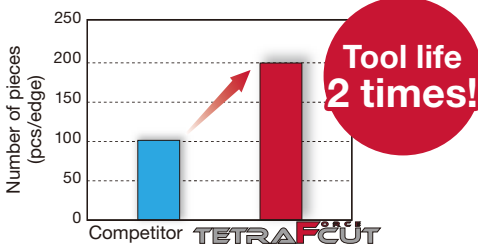
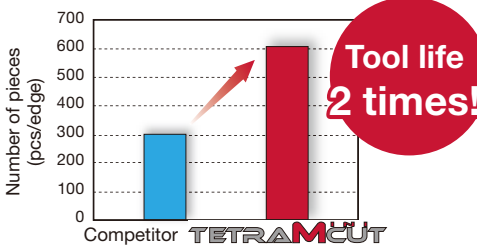
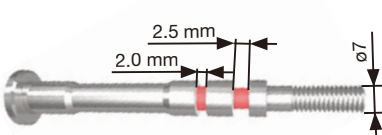
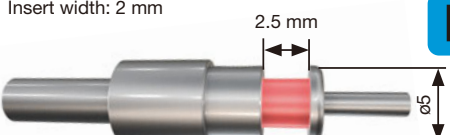
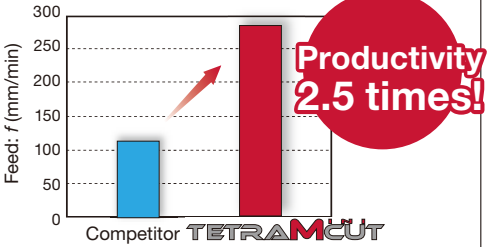

Connector for small lathe with seal washer



Designation

CHP-CONNECTOR/5/16-G1/8

PRACTICAL EXAMPLES

Workpiece type	Shaft stator	Input shaft
Toolholder	STCR2525-27	STCR2525Z18
Insert	TCS27-200-020	TCG18R150-020
Grade	AH725	AH7025
Workpiece material	S45C / C45	SCr420 / 20Cr4
Workpiece material	 P	 P
Cutting conditions		
Cutting speed : V_c (m/min)	210	100
Feed : f (mm/rev)	0.15	0.08
Groove depth : CDX (mm)	2	2.1
Groove width : CW (mm)	2	2
Machining	External grooving	External grooving
Coolant	Wet	Wet
Machine	NC lathe	NC lathe
Results	 <p>Due to the incredible wear resistance, TetraForce-Cut doubles tool life compared to the competitor. TCS chipbreaker improves chip control in which the competitor's chipbreaker has problems.</p>	 <p>Thanks to its high wear resistance, AH7025 has successfully machined 600 parts and was still able to continue.</p>
Workpiece type	Spool shaft	Shaft
Toolholder	STCR1010X18	STCR1212X18-CHP
Insert	TCP18R200F-010	TCP18R200F-010
Grade	SH725	SH725
Workpiece material	S45C / C45	S15C / C15E4
Workpiece material	 P	 P
Cutting conditions		
Cutting speed : V_c (m/min)	43	95
Feed : f (mm/rev)	0.10	0.03
Groove depth : CDX (mm)	1.5 / 1.1	1
Groove width : CW (mm)	2 / 2.5	2.5
Machining	External grooving	External grooving
Coolant	Wet	Wet
Machine	Swiss lathe	Swiss lathe
Results	 <p>Due to the rigid clamping, TetraMini-Cut provides higher feed than the competitor, achieving 2.5 times better productivity.</p>	 <p>External supply (at normal pressure)</p> <p>TUNG TJET 1.5 MPa</p> <p>No chip packing in the workpiece</p> <p>Thanks to its high pressure coolant jet system, TugnTurn-Jet has improved the chip evacuation, eliminating the post-work chip cleaning process.</p>

Expedited delivery service for special grooving insert

Expedited delivery service for special grooving inserts is rendered under the following lead time and quantity terms. Please note that this service is applicable only for the order for an initial test batch; a repeat order is to be placed through the regular ordering process.

ORDER
3 - 15 pcs.



LEAD TIME

from the point of order receipt
(excluding transportation)

COATED INSERT
4 weeks

NON-COATED INSERT
3 weeks



DELIVERY



TETRAMINI-CUT
TUNGALOY

Special width
& corner radii



With chamfer
edges



Grade

Coated carbide

AH725

SH725

TCP18
R/L



TETRAFORCE-CUT
TUNGALOY

Special width
& corner radii



With chamfer
edges



Grade

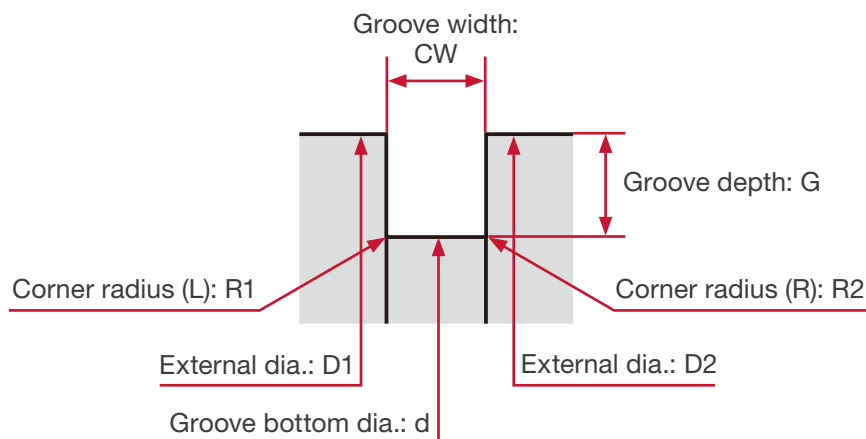
Coated carbide

AH725

TCG27



Special width & corner radii



TETRAMCUT
TUNGALOY

Groove width (CW)	Max. groove depth (G)	Corner radii (R1 / R2)	Toolholder
0.33 ~ 0.49 mm	~ 1.0 mm	0	STCR/L****-18
0.50 ~ 0.74 mm	~ 2.0 mm	0.05 ~ CW/2	
0.75 ~ 3.18 mm	~ 2.5 mm	(Full radius is available)	

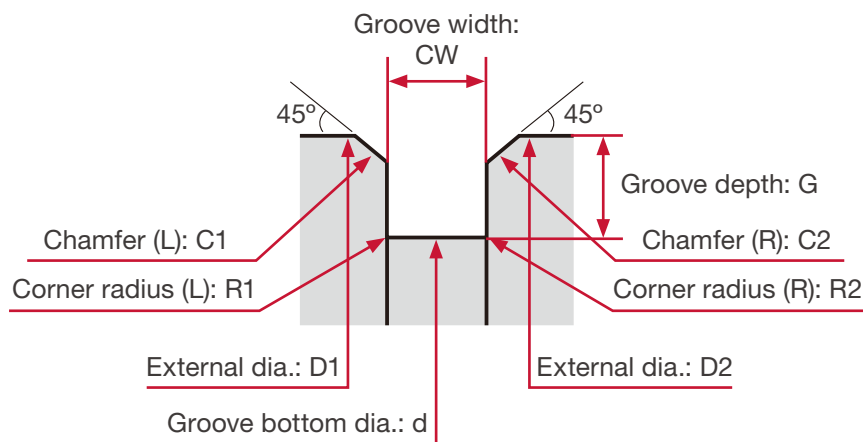
*Tolerances of the insert are based on the standard item.

TETRAFORCE
TUNGALOY

Groove width (CW)	Max. groove depth (G)	Corner radii (R1 / R2)	Toolholder
0.33 ~ 0.49 mm	~ 1.0 mm	0	STCR/L****-27
0.50 ~ 0.99 mm	~ 2.5 mm	0	
1.0 ~ 1.49 mm	~ 3.5 mm	0.05 ~ CW/2	
1.50 ~ 1.99 mm	~ 5.7 mm	(Full radius is available)	
2.00 ~ 3.18 mm	~ 6.4 mm		

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

Grooving & chamfering



TETRAMCUT
TUNGALOY

Groove width + chamfer width (CW+2C)	Max. groove depth (G)	Corner radii (R1 / R2)	Toolholder
0.5 ~ 3.5 mm	0.50 ~ 2.00 mm	0 or 0.05 ~ CW/2 (Full radius is available)	STCR/L****-18

*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 be unable to be manufactured.

TETRAFORCE
TUNGALOY

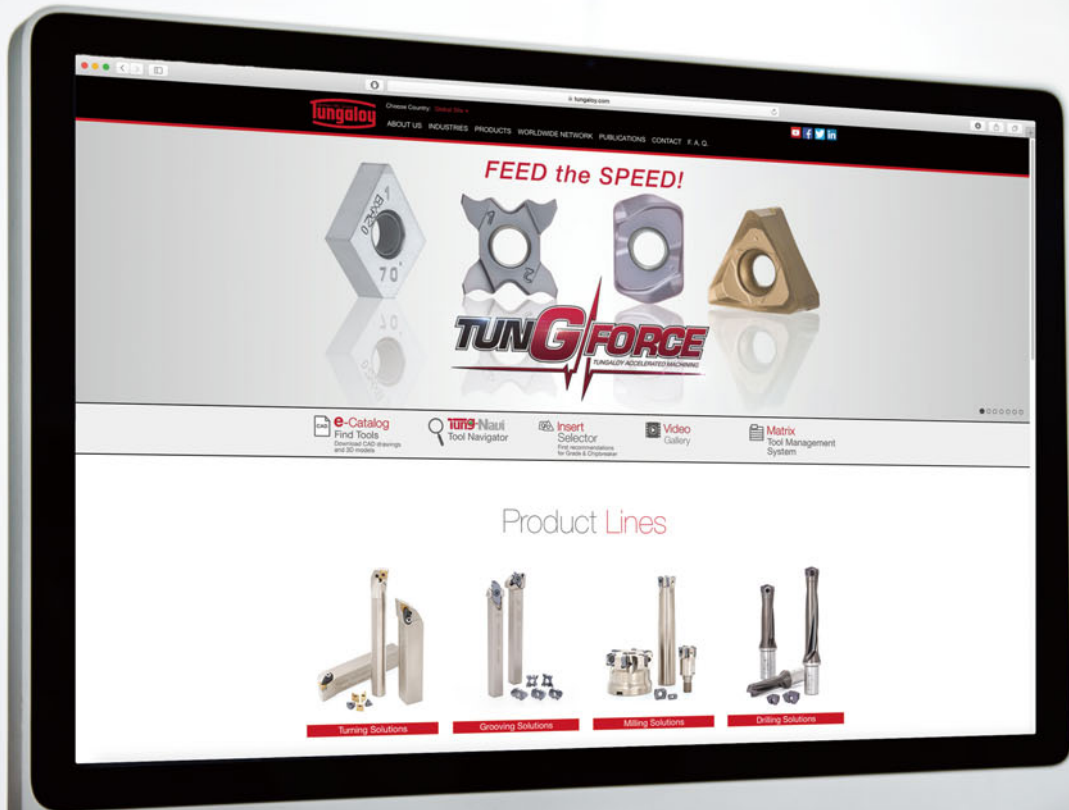
Groove width + chamfer width (CW+2C)	Max. groove depth (G)	Corner radii (R1 / R2)	Toolholder
0.5 ~ 3 mm	0.50 ~ 3.00 mm	0 or 0.05 ~ CW/2 (Full radius is available)	STCR/L****-27

*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 be unable to be manufactured.

Check our site and our App to get more info!



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