

TETRAM^{IN}CUT / TETRA^{ORCE}FCUT

www.tungaloy.com/us

Tungaloy Report No. 416-US

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



INDUSTRY 4.0
FEED the SPEED!



ACCELERATED MACHINING

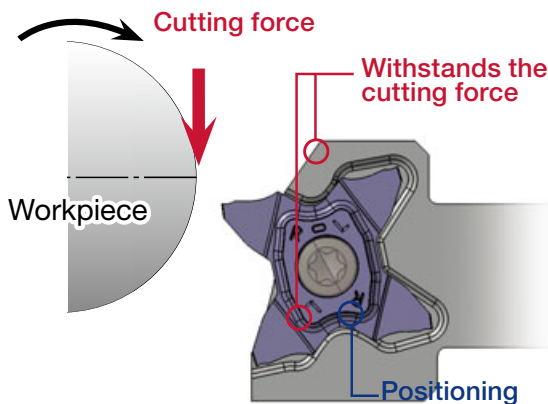


Impressive grooving lines, **TetraMini-Cut** and **TetraForce-Cut** offer ground inserts with a robust clamping structure for exceptional stability and repeatability

Multi-purpose grooving insert with 4 economical cutting edges

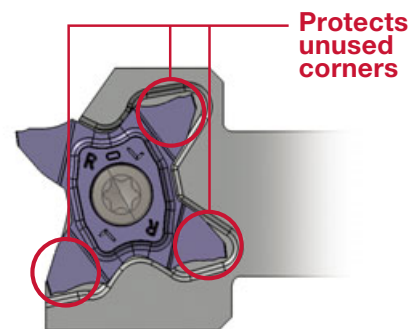
Unique 3-point clamping system

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.



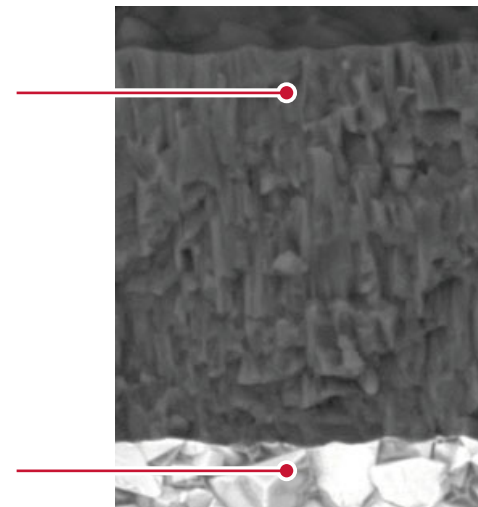
AH7025 ideal grade for grooving application



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

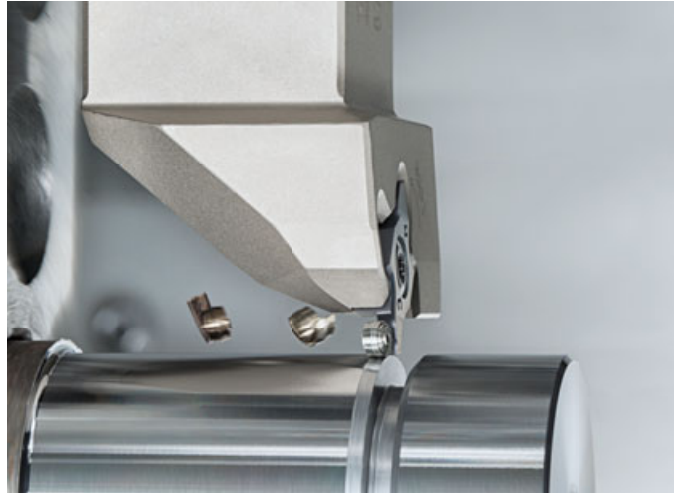


The result: a dramatic increase in tool life and machining stability

TETRAMCUT Groove widths: 0.013" - 0.118"

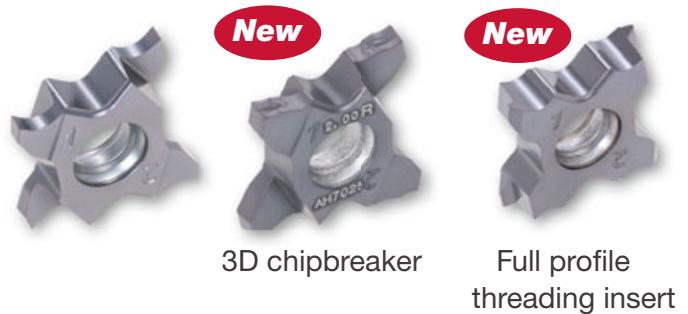
See PG. 6

- Full profile threading inserts are added for
Thread pitch: 0.5 mm to 1.5 mm (0.02" - 0.059")
- 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: 0.020" - 0.125"

See PG. 24

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

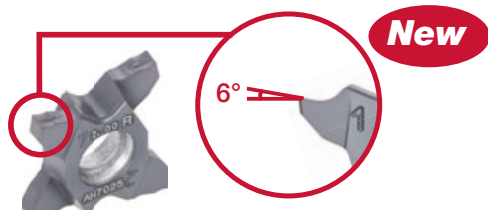


Major expansion to the TCG-style chipbreaker line Enhanced lineup for greater flexibility

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

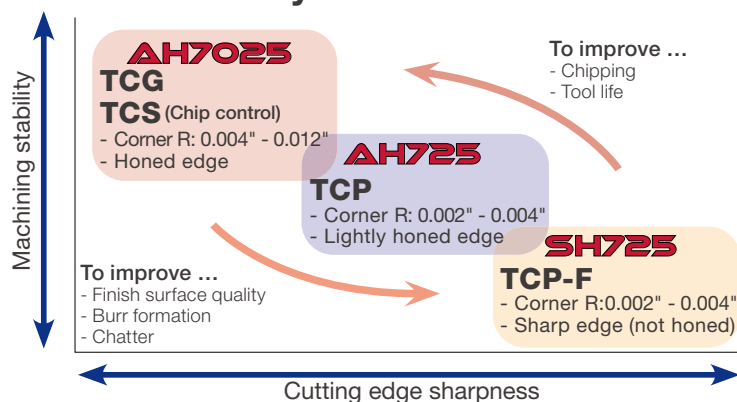
Grooving

TCS type (3D chipbreaker)



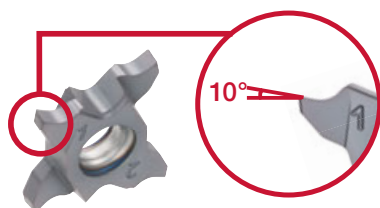
- The chipbreaker incorporates a dimple-like recess on the rake face to facilitate smooth chip flow with light cutting action
- Available in AH7025 for superior wear and fracture resistance

New selection system



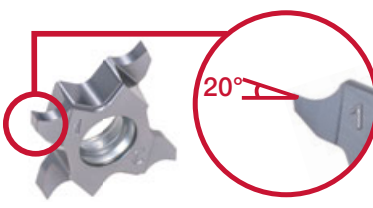
- Select the best of three insert types according to the machining requirements
- A variety of widths and corner radii are available in all three insert types

TCG type (Honed edge)



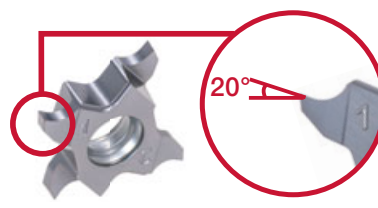
- Optimized rake angle and edge preparation enhances fracture resistance, allowing for smooth cutting
- AH7025 grade features a superior combination of wear and fracture resistance

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 fracture resistance

TCP-F type (Sharp edge)



- High quality surface finish and precision by virtue of the sharp cutting edge
- A quality level equivalent to 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

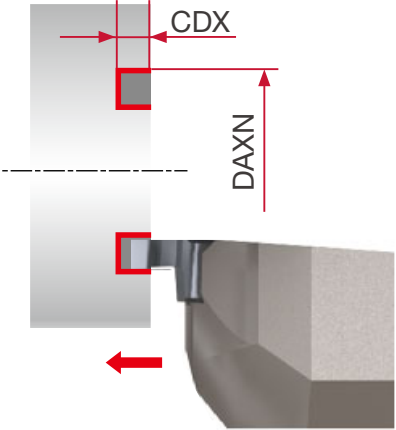


Full-profile inserts

- Full-profile inserts for burr free threading have been added. Pitch: 05 - 1.5mm (0.02" - 0.059")
- Sharp cutting edge for reduced cutting load, improving thread surface quality
- Suitable for thread pitches ranging from 0.016" to 0.118"

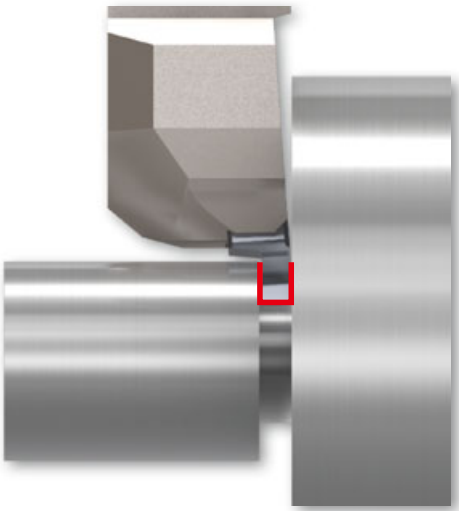
PRECISION GROOVING & THREADING

Minimum diameter for
face grooving

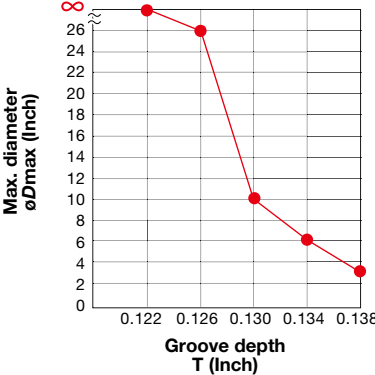
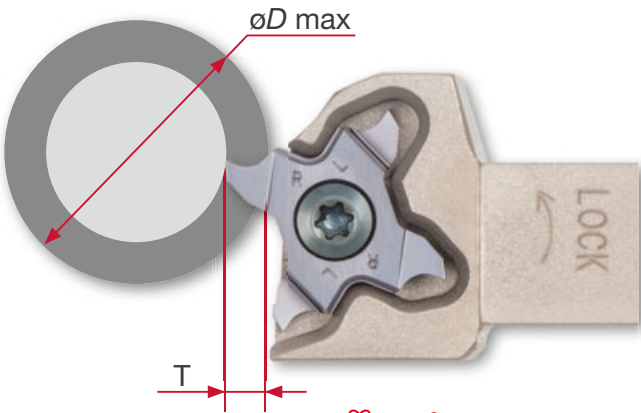


Minimum face diameter DAXN (Inch)	Maximum groove depth CDX (Inch)
2.559	0.118

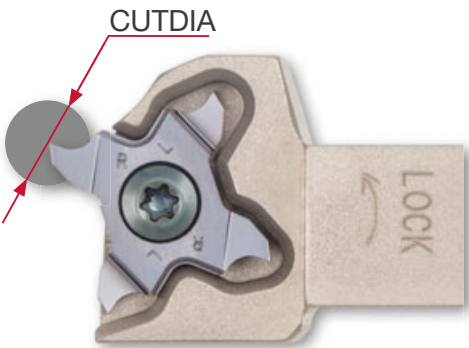
Machining next to shoulder



Groove depth capacity
and Dmax. capacity



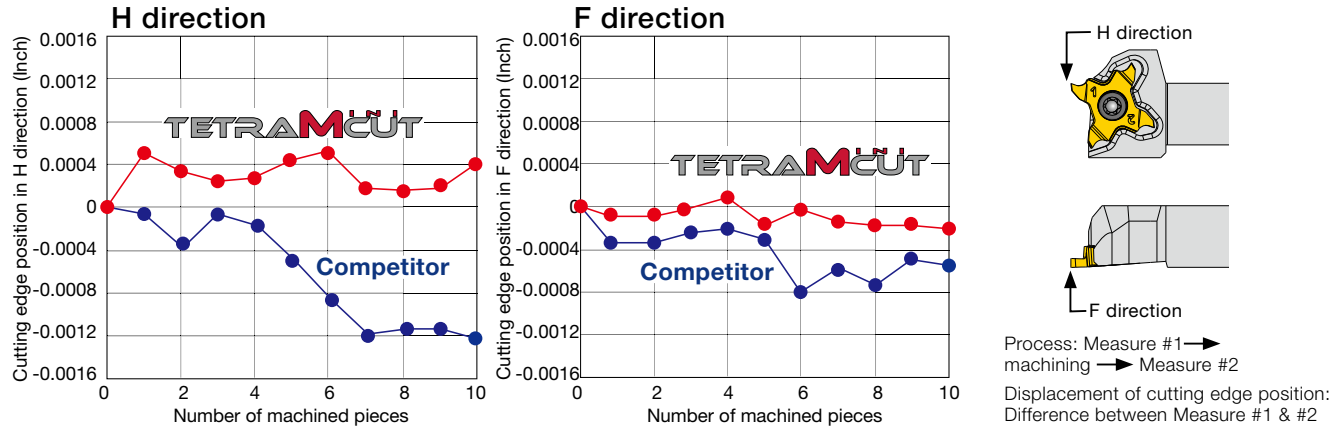
Dmax. parting-off



Max. diameter øDmax (Inch)
0.276

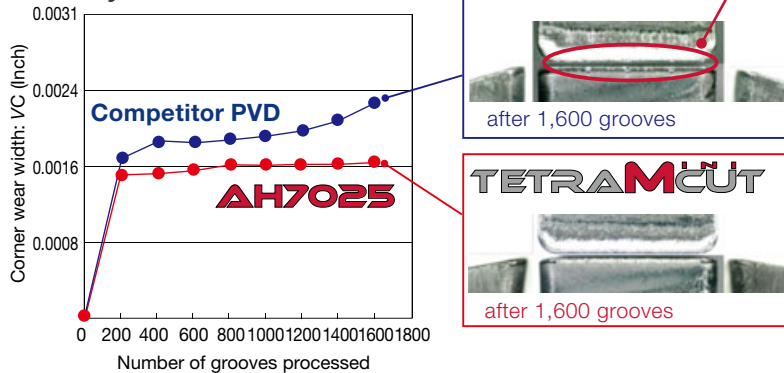
CUTTING PERFORMANCE

Tool rigidity



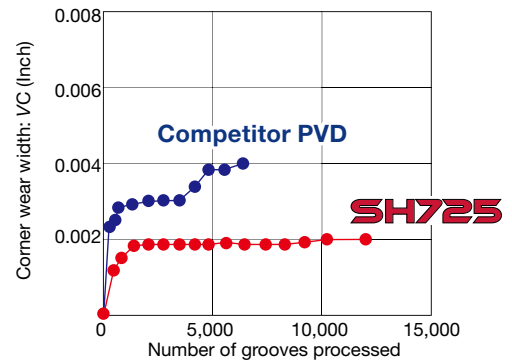
Tool life

P Alloy steel



Toolholder : STCR/L16-18
Insert : TCG18R200-020 AH7025
Workpiece material : 4140(H)
Cutting speed : $V_c = 591$ sfm
Feed : $f = 0.003$ ipr
Groove width : 0.079"
Groove depth : 0.098"

M Stainless steel



Toolholder : STCR/L06-18
Insert : TCP18R200F-010 SH725
Workpiece material : S30400
Cutting speed : $V_c = 394$ sfm
Feed : $f = 0.002$ ipr
Groove width : 0.079"
Groove depth : 0.098"
Coolant type : Wet

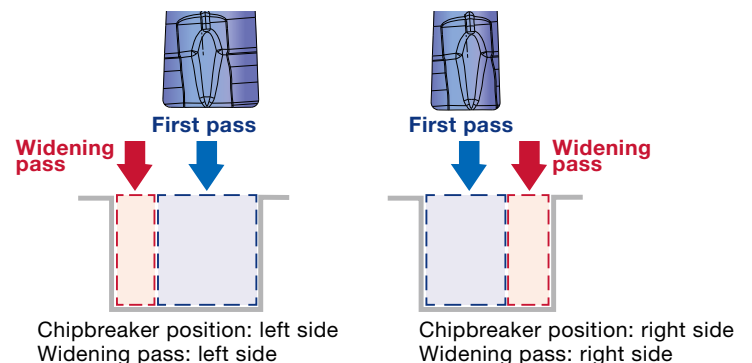
Chip control

With TCS18 style 3D chipbreaker

Cutting speed: V_c (sfm)	164				
	328				
		0.002	0.004	0.006	0.008
Feed: f (ipr)					

Toolholder : STCR16-18
Insert : TCS18R200-020 AH7025
Workpiece material : 1045

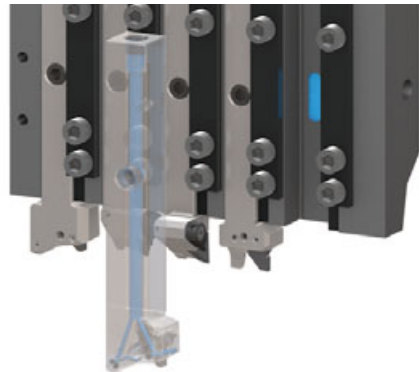
Chipbreaker position may be different depending on the groove width. In widening, it is recommended that the chipbreaker position is close to the widening pass.



DIRECTT^{UNG}JET system

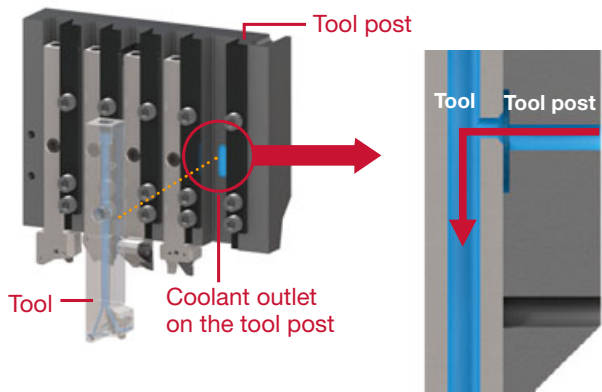
Tubeless design streamlines tool setup
Through-coolant supply enables high productivity

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



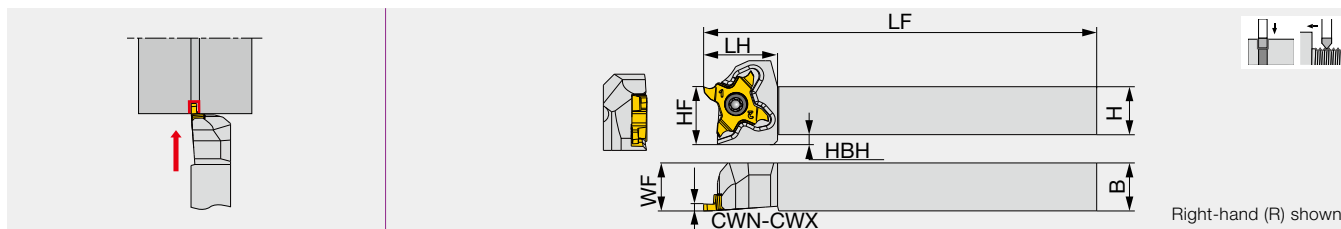
S Titanium alloy: External turning
(Ti-6Al-4V)

Material : Ti-6Al-4V
Holder : STCR1212X18-CHP
Insert : TCP18R200F-010 SH725
Cutting speed : $V_c = 328$ sfm
Feed rate : $f = 0.002$ ipr
Groove width : 0.079"
Groove depth : 0.098"
Coolant type : Oil

TETRAMCUT	DIRECTT ^{UNG} JET 7 MPa	DIRECTT ^{UNG} 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 machines and general lathes



Inch	CWN	CWX	H	B	LF	LH	HF	WF	HBH	Insert	Torque*
STCR/L06-18	0.013	0.118	0.375	0.375	4.750	0.740	0.375	0.375	0.177	TC*18...	0.890
STCR/L08-18	0.013	0.118	0.500	0.500	4.750	0.740	0.500	0.500	0.098	TC*18...	0.890
STCR/L10-18	0.013	0.118	0.625	0.625	4.750	0.740	0.625	0.625	-	TC*18...	0.890
STCR/L12-18	0.013	0.118	0.750	0.750	4.750	0.900	0.750	1.000	-	TC*18...	0.890
STCR/L16-18	0.013	0.118	1.000	1.000	5.500	0.900	1.000	1.250	-	TC*18...	0.890

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

*Torque: Recommended torque (lbf-ft) for clamping

Left-Hand Insert



TCP18L...

Right-Hand Insert



TCP18R...

SPARE PARTS

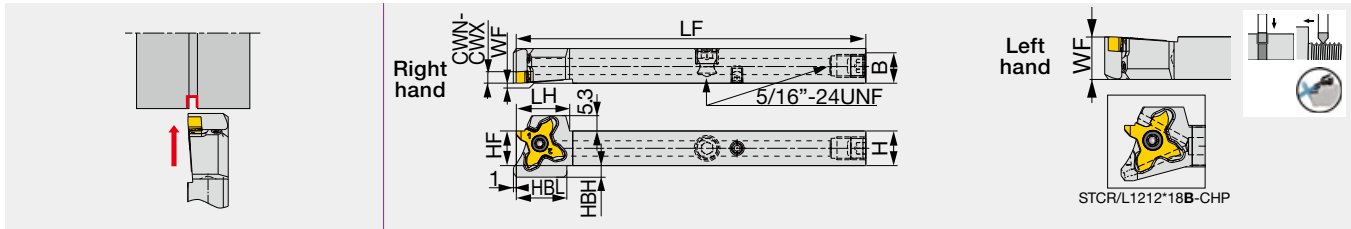


Designation	Clamping screw	Wrench
STCR**18	T-1008/5	CSTC-4L100DL
STCL**18	T-1008/5	CSTC-4L100DR

STCR/L-18-CHP

DIRECTTUNG

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



Inch	CWN	CWX	H	B	LF	LH	HBL	HF	WF	HBH	Insert	Torque*
STCR/L08X18-CHP ⁽¹⁾	0.013	0.118	0.500	0.500	4.750	0.728	0.689	0.500	0/0.500	0.130	TC*18...	0.890
STCR/L10X18-CHP ⁽¹⁾	0.013	0.118	0.625	0.625	4.750	0.728	-	0.625	0/0.625	-	TC*18...	0.890

(1) Compatible to DirectTung-Jet system

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

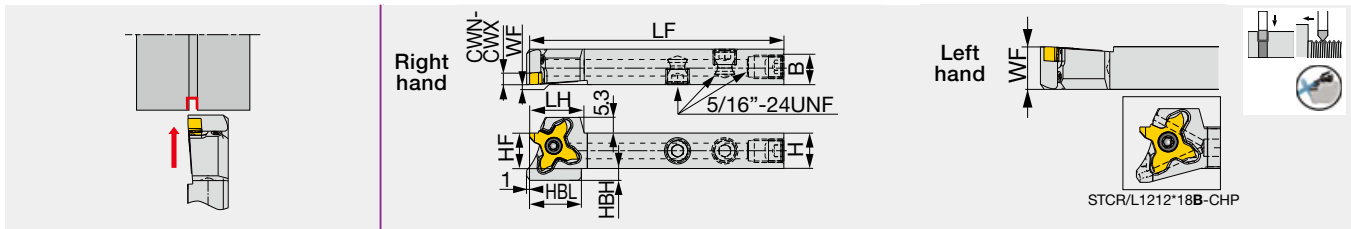
*Torque: Recommended torque (lbf-ft) for clamping

***: To be replaced with the new design

STCR/L-18-CHP

TUNGTURN

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



Inch	CWN	CWX	H	B	LF	LH	HBL	HF	WF	HBH	Insert	Torque*
STCR/L08F18-CHP	0.013	0.118	0.500	0.500	3.344	0.728	0.689	0.500	0/0.500	0.130	TC*18...	0.890

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

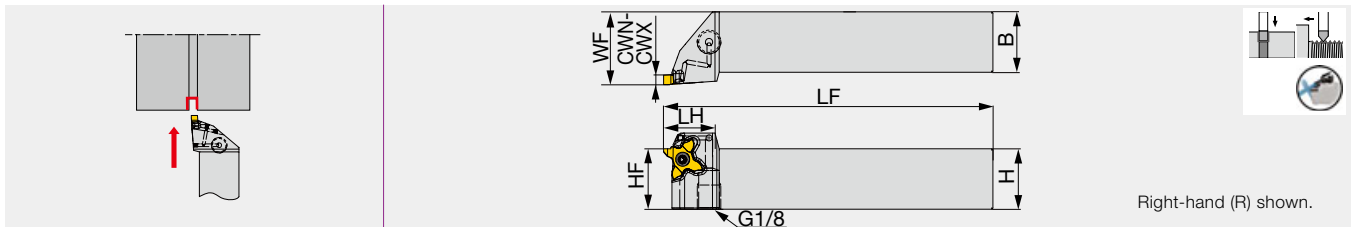
*Torque: Recommended torque (lbf-ft) for clamping

New

STCR/L-18-CHP

TUNGTURN

Threading tool - for external threading with high pressure coolant capability



Inch	CWN	CWX	H	B	LF	LH	HBL	HF	WF	HBH	Insert	Torque*
STCR/L12-18-CHP	0.013	0.118	0.750	0.750	4.750	0.900	-	0.750	1.000	-	TC*18...	0.890
STCR/L16-18-CHP	0.013	0.118	1.000	1.000	5.500	.900	-	1.000	1.250	-	TC*18...	0.890

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

*Torque: Recommended torque (lbf-ft) for clamping

SPARE PARTS

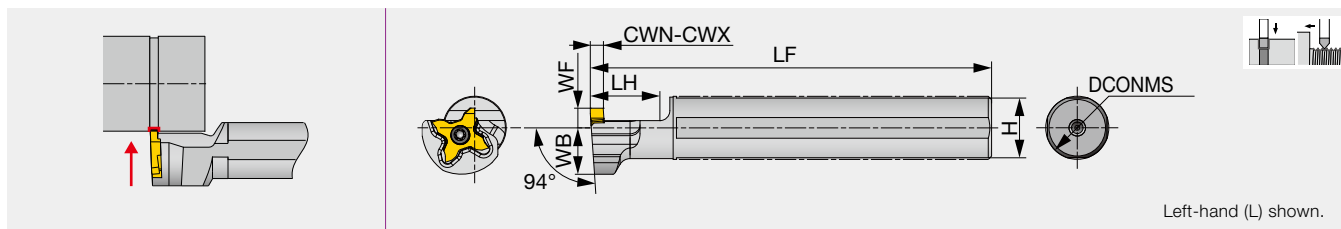


Designation	Clamping screw	Wrench
STCL**18-CHP	CSTC-4L100DR	T-1008/5
STCR**18-CHP	CSTC-4L100DL	T-1008/5

See page 38 for connections and coolant hoses.

JS-STCL18

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



Metric	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

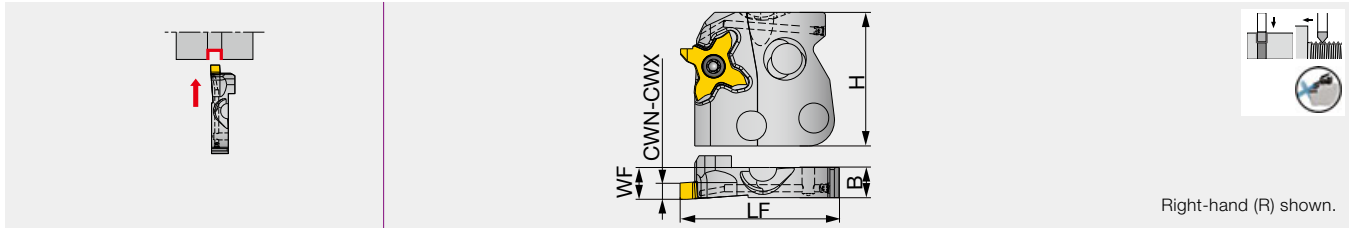
SPARE PARTS



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

New**STCAR/L18-CHP****TUNGMOULAR SYSTEM**

Modular blade with high pressure coolant channels



Inch	CWN	CWX	WF	H	LF	B	Insert	Torque*
STCAR/L18-CHP	0.013	0.118	0.295	1.299	1.496	0.283	TC*18...	0.89

- 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...).

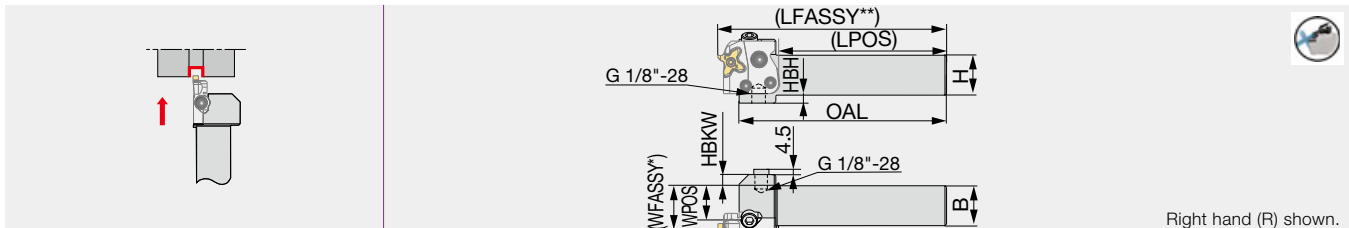
*Torque: Recommended torque (lbf-ft) for clamping

SPARE PARTS

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

CHSR/L-CHP**TUNGMOULAR SYSTEM**

Shank for blade, with channels for high pressure coolant



Inch	H	B	OAL	LPOS	WPOS	HBKW	HBH
CHSR/L12-CHP	0.750	0.750	5.000	4.035	0.560	0.510	0.190
CHSR/L16-CHP	1.000	1.000	5.000	4.035	0.810	0.260	0.200

*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	SR M5-04451	T-20/5	SR M6X12DIN6912	SR M6X20-XT	HW5.0	OR 5X1N	PLUGG1/8ISO1179

See page 37 for blade assembly/disassembly instructions

See page 38 for connections and coolant hoses

Recommended torque

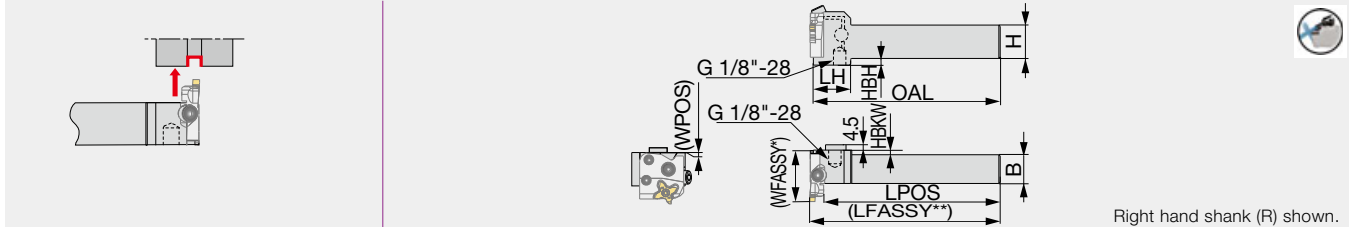
Clamping screw	Torque (N.m)
SR M5-04451	2.5
SR M6X12DIN6912	6.5
SR M6X20-XT	6.5

New

CHFVR/L-CHP

TUNG^{MODULAR}SYSTEM

Shank for blade, with channels for high pressure coolant



Inch	H	B	OAL	LH	LPOS	WPOS	HBKW	HBH
CHFVR/L12-CHP	0.750	0.750	5.500	1.100	5.307	0.020	0.234	0.431
CHFVR/L16-CHP	1.000	1.000	5.500	1.100	5.307	0.020	-	0.200

*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	SR M5-04451	T-20/5	SR M6X12DIN6912	SR M6X20-XT	HW5.0	OR 5X1N	PLUGG1/8ISO1179

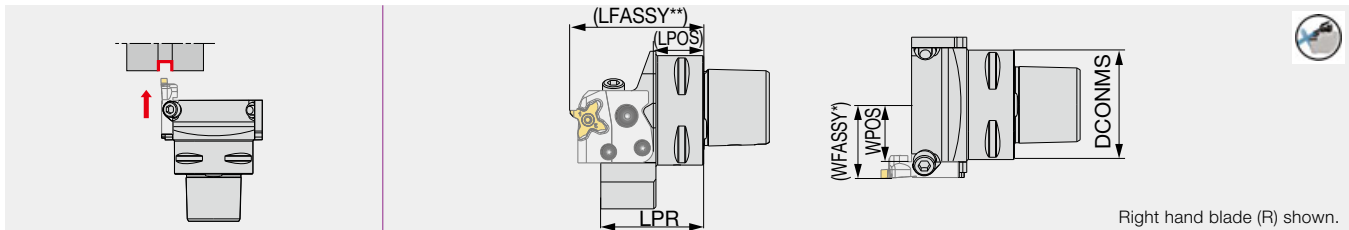
See page 37 for blade assembly/disassembly instructions

See page 38 for connections and coolant hoses

C*CHSN-CHP

TUNG^{MODULAR}SYSTEM

TungCap shank for blade, with channels for high pressure coolant



Inch	DCONMS	LPR	LPOS	WPOS
New C3CHSN19045-CHP**	1.260	1.772	0.689	0.728
C4CHSN21047-CHP	1.575	1.831	0.846	0.827
C5CHSN26047-CHP	1.969	1.850	0.886	1.024
C6CHSN33050-CHP	2.480	1.968	0.965	1.280

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

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

SPARE PARTS

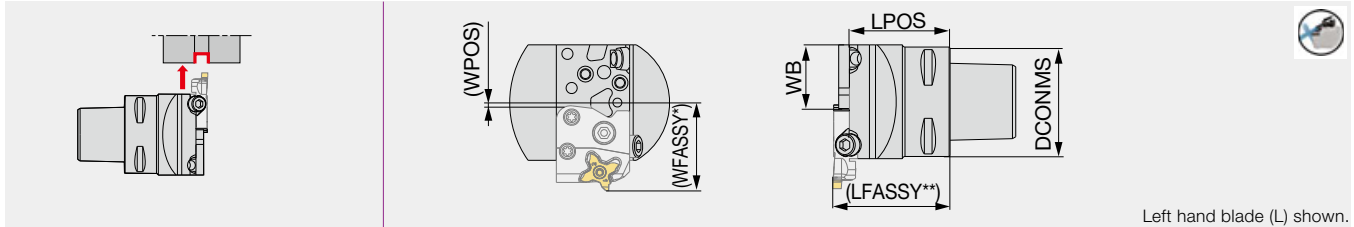
Designation	Clamping screw	Wrench	Clamping screw	Clamping screw	Wrench	O-ring
C*CHSN**-CHP	SR M5-04451	T-20/5	SR M6X12DIN6912	SR M6X20-XT	HW5.0	OR 5X1N

See page 37 for blade assembly/disassembly instructions

C*CHFVN-CHP

TUNG^{REGULAR}MSYSTEM

TungCap shank for blade, with channels for high pressure coolant



Inch	DCONMS	LPOS	WB	WPOS
New C3CHFVN26040-CHP	1.260	1.575	1.024	0.059
C4CHFVN26046-CHP	1.575	1.811	1.024	0.059
C5CHFVN26046-CHP	1.969	1.811	1.024	0.059
C6CHFVN33046-CHP	2.480	1.811	1.299	0.335

*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	SR M5-04451	T-20/5	SR M6X12DIN6912	SR M6X20-XT	HW5.0	OR 5X1N

See page 37 for blade assembly/disassembly instructions

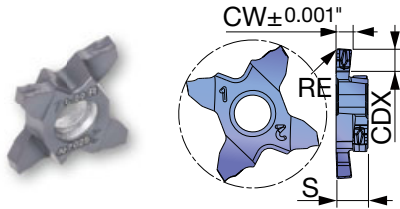
Standard lineup of TetraMini-Cut grooving inserts

Groove width CW (mm) CW (Inch)	Groove width CW (mm) CW (Inch)	Corner rad. RE (Inch)	New			
			TCS18R (P.17)	TCG18R/L (P.18)	TCP18R/L (P.19)	TCP18R/L-F (P.20)
			AH7025 Honed edge	AH7025 Honed edge	AH7025 Lightly honed edge	SH725 Sharp edge
0.33	0.013	0.002			●	●
0.43	0.017	0.002			●	●
0.50	0.020	0.002			●	●
0.75	0.030	0.002			●	●
0.95	0.037	0.002			●	●
1.00	0.039	0.002				●
		0.004	●	●	●	●
1.20	0.047	0.002				●
		0.004	●	●	●	●
1.25	0.049	0.002				●
		0.004	●	●	●	●
		0.008	●	●		
1.30	0.051	0.008	●	●		
1.40	0.055	0.004	●	●	●	●
		0.008	●	●		
1.45	0.057	0.002				●
		0.004	●	●	●	●
		0.008		●		
1.50	0.059	0.002				●
		0.004	●	●	●	●
		0.008	●	●		
1.60	0.063	0.008	●	●		
1.70	0.067	0.008	●	●		
1.75	0.069	0.002				●
		0.004	●	●	●	●
		0.008	●	●		
1.85	0.073	0.008	●	●		
1.95	0.077	0.008	●	●		
2.00	0.079	0.002				●
		0.004	●	●	●	●
		0.008	●	●		
2.25	0.089	0.008	●	●		
2.30	0.091	0.008	●	●		
2.50	0.098	0.004	●	●	●	●
		0.008	●	●		
		0.012	●	●		
2.65	0.104	0.012	●	●		
2.80	0.110	0.012	●	●		
3.00	0.118	0.004	●	●	●	●
		0.008	●	●		
		0.012	●	●		

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

● : New product
● : Line up

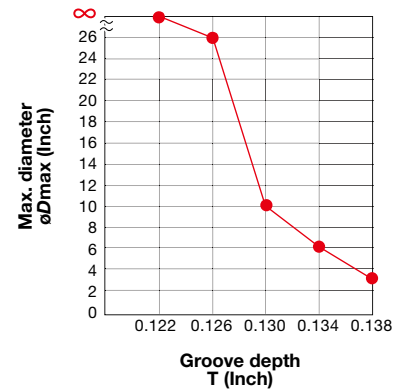
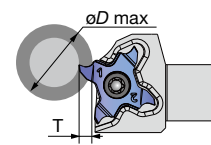
INSERTS

New TCS18R (honed edge)

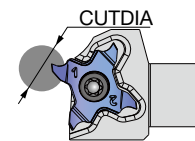
Designation	Grade AH7025		CW	Dimensions (Inch)		
	R	L		RE	CDX	S
TCS18R100-010	●		0.039	0.004	0.079	0.157
TCS18R120-010	●		0.047	0.004	0.079	0.157
TCS18R125-010	●		0.049	0.004	0.079	0.157
TCS18R125-020	●		0.049	0.008	0.079	0.157
TCS18R130-020	●		0.051	0.008	0.138*	0.157
TCS18R140-010	●		0.055	0.004	0.138*	0.157
TCS18R140-020	●		0.055	0.008	0.138*	0.157
TCS18R145-010	●		0.057	0.004	0.138*	0.157
TCS18R150-010	●		0.059	0.004	0.138*	0.157
TCS18R150-020	●		0.059	0.008	0.138*	0.157
TCS18R160-020	●		0.063	0.008	0.138*	0.157
TCS18R170-020	●		0.067	0.008	0.138*	0.157
TCS18R175-010	●		0.069	0.004	0.138*	0.157
TCS18R175-020	●		0.069	0.008	0.138*	0.157
TCS18R185-020	●		0.073	0.008	0.138*	0.157
TCS18R195-020	●		0.077	0.008	0.138*	0.157
TCS18R200-010	●		0.079	0.004	0.138*	0.157
TCS18R200-020	●		0.079	0.008	0.138*	0.157
TCS18R225-020	●		0.089	0.008	0.138*	0.157
TCS18R230-020	●		0.091	0.008	0.138*	0.157
TCS18R250-010	●		0.098	0.008	0.138*	0.157
TCS18R250-020	●		0.098	0.008	0.138*	0.157
TCS18R250-030	●		0.098	0.012	0.138*	0.157
TCS18R265-030	●		0.104	0.012	0.138*	0.157
TCS18R280-030	●		0.110	0.012	0.138*	0.157
TCS18R300-010	●		0.118	0.004	0.138*	0.157
TCS18R300-020	●		0.118	0.008	0.138*	0.157
TCS18R300-030	●		0.118	0.012	0.138*	0.157

Package quantity = 5pcs.

●: Line up



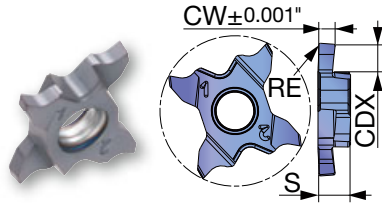
***Groove depth and max workpiece diameter (øDmax)**
Maximum workpiece diameter is limited relative to depth of cut in order to avoid collision between insert and workpiece.



Max. diameter
CUTDIA (Inch)
0.276

INSERTS

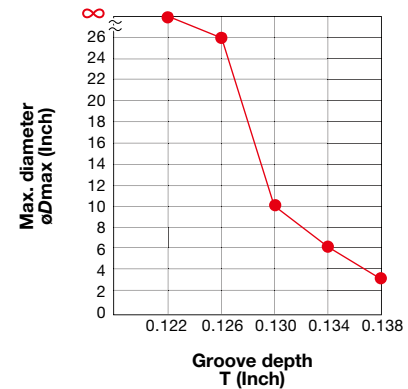
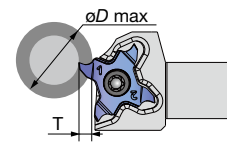
TCG18R/L (honed edge)



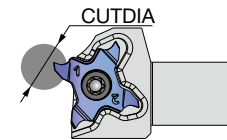
Designation	Grade AH7025		CW	Dimensions (Inch)		
	R	L		RE	CDX	S
TCG18R/L100-010	●	●	0.039	0.004	0.079	0.157
TCG18R/L120-010	●	●	0.047	0.004	0.079	0.157
TCG18R/L125-010	●	●	0.049	0.004	0.079	0.157
TCG18R/L125-020	●	●	0.049	0.0079	0.079	0.157
TCG18R/L130-020	●	●	0.051	0.0079	0.079	0.157
TCG18R/L140-010	●	●	0.055	0.004	0.138*	0.157
TCG18R/L140-020	●	●	0.055	0.0079	0.138*	0.157
TCG18R/L145-010	●	●	0.057	0.004	0.138*	0.157
TCG18R/L145-020	●	●	0.057	0.007	0.138*	0.157
TCG18R/L150-010	●	●	0.059	0.004	0.138*	0.157
TCG18R/L150-020	●	●	0.059	0.0079	0.138*	0.157
TCG18R/L160-020	●	●	0.063	0.0079	0.138*	0.157
TCG18R/L170-020	●	●	0.067	0.0079	0.138*	0.157
TCG18R/L175-010	●	●	0.069	0.004	0.138*	0.157
TCG18R/L175-020	●	●	0.069	0.0079	0.138*	0.157
TCG18R/L185-020	●	●	0.073	0.0079	0.138*	0.157
TCG18R/L195-020	●	●	0.077	0.0079	0.138*	0.157
TCG18R/L200-010	●	●	0.079	0.004	0.138*	0.157
TCG18R/L200-020	●	●	0.079	0.0079	0.138*	0.157
TCG18R/L225-020	●	●	0.089	0.0079	0.138*	0.157
TCG18R/L230-020	●	●	0.091	0.0079	0.138*	0.157
TCG18R/L250-010	●	●	0.098	0.004	0.138*	0.157
TCG18R/L250-020	●	●	0.098	0.0079	0.138*	0.157
TCG18R/L250-030	●	●	0.098	0.008	0.138*	0.157
TCG18R/L265-030	●	●	0.104	0.008	0.138*	0.157
TCG18R/L280-030	●	●	0.110	0.008	0.138*	0.157
TCG18R/L300-010	●	●	0.118	0.004	0.138*	0.157
TCG18R/L300-020	●	●	0.118	0.0079	0.138*	0.157
TCG18R/L300-030	●	●	0.118	0.008	0.138*	0.157

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.

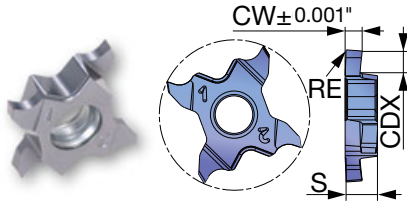


Max. diameter
CUTDIA (Inch)

0.276

INSERTS

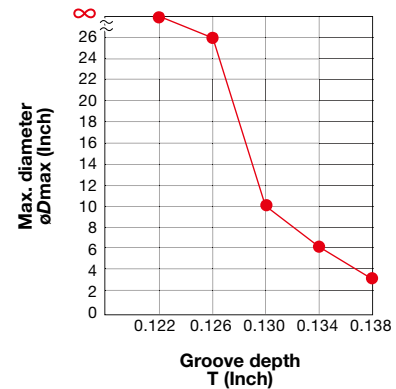
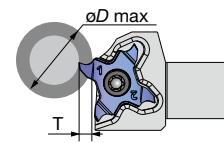
TCP18R/L (lightly honed edge)



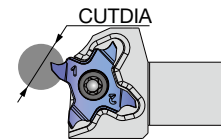
Designation	Grade AH725		CW	Dimensions (Inch)		
	R	L		RE	CDX	S
TCP18R/L033-005	●	●	0.013	0.002	0.031	0.157
TCP18R/L043-005	●	●	0.017	0.002	0.047	0.157
TCP18R/L050-005	●	●	0.020	0.002	0.047	0.157
TCP18R/L075-005	●	●	0.030	0.002	0.079	0.157
TCP18R/L095-005	●	●	0.037	0.002	0.079	0.157
TCP18R/L100-010	●	●	0.039	0.0039	0.079	0.157
TCP18R/L120-010	●	●	0.047	0.0039	0.079	0.157
TCP18R/L125-010	●	●	0.049	0.0039	0.079	0.157
TCP18R/L140-010-35	●	●	0.055	0.0039	0.138*	0.157
TCP18R/L145-010	●	●	0.057	0.0039	0.079	0.157
TCP18R/L145-010-35	●	●	0.057	0.0039	0.138*	0.157
TCP18R/L150-010	●	●	0.059	0.0039	0.079	0.157
TCP18R/L150-010-35	●	●	0.059	0.0039	0.138*	0.157
TCP18R/L175-010	●	●	0.069	0.0039	0.079	0.157
TCP18R/L175-010-35	●	●	0.069	0.0039	0.138*	0.157
TCP18R/L200-010	●	●	0.079	0.0039	0.079	0.157
TCP18R/L200-010-35	●	●	0.079	0.0039	0.138*	0.157
TCP18R/L250-010	●	●	0.098	0.0039	0.079	0.157
TCP18R/L250-010-35	●	●	0.098	0.0039	0.138*	0.157
TCP18R/L300-010	●	●	0.118	0.0039	0.079	0.157
TCP18R/L300-010-35	●	●	0.118	0.0039	0.138*	0.157

Package quantity = 5pcs.

● : Line up



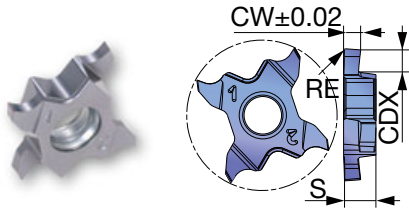
***Groove depth and max workpiece diameter (øDmax)**
Maximum workpiece diameter is limited relative to depth of cut in order to avoid collision between insert and workpiece.



Max. diameter
CUTDIA (Inch)
0.276

INSERTS

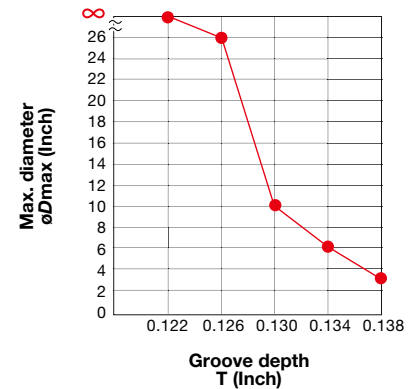
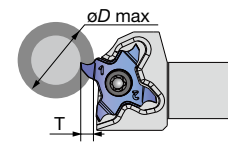
TCP18R/L-F (sharp edge)



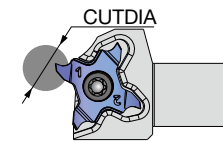
Designation	Grade SH725		CW	Dimensions (mm)		
	R	L		RE	CDX	S
TCP18R/L033F-005	●	●	0.33	0.05	0.8	4
TCP18R/L043F-005	●	●	0.43	0.05	1.2	4
TCP18R/L050F-005	●	●	0.5	0.05	1.2	4
TCP18R/L075F-005	●	●	0.75	0.05	2	4
TCP18R/L095F-005	●	●	0.95	0.05	2	4
TCP18R/L100F-005	●		1	0.05	2	4
TCP18R/L100F-010	●	●	1	0.1	2	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 (Inch)
0.276

STANDARD CUTTING CONDITIONS

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

ISO	Workpiece materials	Grades	Cutting speed Vc (sfm)	Feed: f (ipt)	
				TCG	TCS
P	Low carbon steels (1015, etc.)	AH7025	260 - 590	0.001 - 0.005	0.001 - 0.006
	Carbon steels, Alloy steels (1055, etc.)	AH7025	260 - 590	0.001 - 0.005	0.001 - 0.006
	Prehardened steels (NAK80, PX5 etc.)	AH7025	260 - 590	0.001 - 0.005	0.001 - 0.006
M	Stainless steels (S30400, etc.)	AH7025	160 - 390	0.001 - 0.005	0.001 - 0.006
K	Grey cast irons (No.250B, No.300B etc.)	AH7025	160 - 590	0.001 - 0.005	0.001 - 0.006
	Ductile cast irons (60-40-18, 80-55-06, etc.)	AH7025	160 - 590	0.001 - 0.005	0.001 - 0.006
S	Titanium alloys (Ti-6Al-4V, etc.)	AH7025	60 - 260	0.001 - 0.005	0.001 - 0.006
	Superalloys (Inconel718, etc.)	AH7025	60 - 260	0.001 - 0.005	0.001 - 0.006

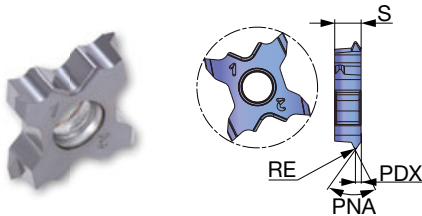
TCP18R/L (lightly honed edge) / TCP18R/L-F (sharp edge)

ISO	Workpiece materials	Priority	Grades	Cutting speed Vc (sfm)	Feed f (ipt)
P	Low carbon steels (1015, etc.)	First choice	SH725	260 - 590	0.001 - 0.004
		Toughness	AH725	260 - 590	0.001 - 0.004
	Carbon steels, Alloy steels (1055, etc.)	First choice	SH725	260 - 590	0.001 - 0.004
		Toughness	AH725	260 - 590	0.001 - 0.004
	Prehardened steels (NAK80, PX5 etc.)	First choice	SH725	260 - 590	0.001 - 0.004
		Toughness	AH725	260 - 590	0.001 - 0.004
M	Stainless steels (S30400, etc.)	First choice	SH725	160 - 394	0.001 - 0.004
		Toughness	AH725	160 - 394	0.001 - 0.004
K	Grey cast irons (No.250B, No.300B etc.)	First choice	AH725	160 - 590	0.001 - 0.004
		Sharpness	SH725	160 - 590	0.001 - 0.004
	Ductile cast irons (60-40-18, 80-55-06, etc.)	First choice	AH725	160 - 590	0.001 - 0.004
		Sharpness	SH725	160 - 590	0.001 - 0.004
S	Titanium alloys (Ti-6Al-4V, etc.)	First choice	SH725	60 - 260	0.001 - 0.004
		Toughness	AH725	60 - 260	0.001 - 0.004
	Superalloys (Inconel718, etc.)	First choice	SH725	60 - 260	0.001 - 0.004
		Toughness	AH725	60 - 260	0.001 - 0.004

INSERTS

New

TCT18FR/R-ISO (Full profile inserts)

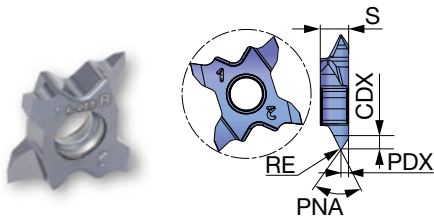


Designation	Edge preparation	Grade				Dimensions (Inch)				
		SH725		AH725		Pitch (mm)	PDX	RE	PNA	S
TCT18FR-05ISO	Sharp	★				0.5	0.014	0.0024	60°	0.157
TCT18FR-07ISO	Sharp	★				0.7	0.018	0.0035	60°	0.157
TCT18FR-075ISO	Sharp	★				0.75	0.020	0.0035	60°	0.157
TCT18FR-08ISO	Sharp	★				0.8	0.020	0.0039	60°	0.157
TCT18R-10ISO	Lightly honed			★		1	0.024	0.0051	60°	0.157
TCT18R-125ISO	Lightly honed			★		1.25	0.028	0.0067	60°	0.157
TCT18R-15ISO	Lightly honed			★		1.5	0.031	0.0079	60°	0.157

Package quantity = 5pcs.

★ : To be released in summer 2019

TCT18FR/R/L (Threading)



Designation	Edge preparation	Grade AH725				Dimensions (Inch)				
		R	L	pitch min	pitch max	PDX	CDX	RE	PNA	S
TCT18FR-60A-005	Sharp	●		63	26	0.024	0.039	0.002	60°	0.157
TCT18FR-60A-010	Sharp	●		26	13	0.039	0.064	0.0039	60°	0.157
TCT18R/L-60N-010	Lightly honed	●	●	31	9	0.063	0.105	0.0039	60°	0.157
TCT18R/L-60N-020	Lightly honed	●	●	9	16	0.063	0.101	0.0079	60°	0.157

Package quantity = 5pcs.

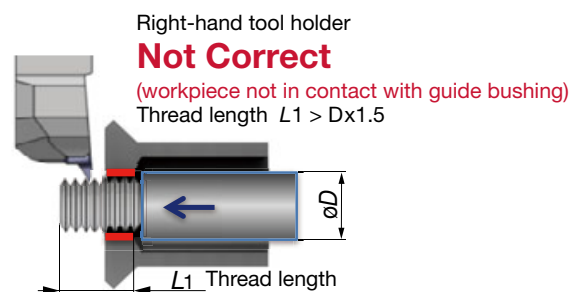
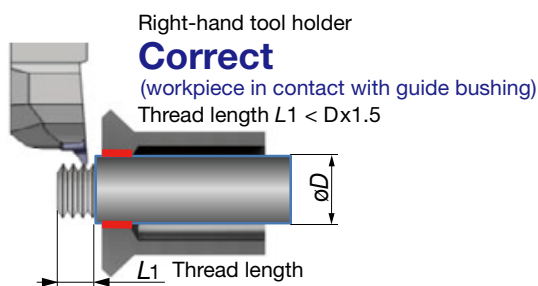
● : Line up

STANDARD CUTTING CONDITIONS

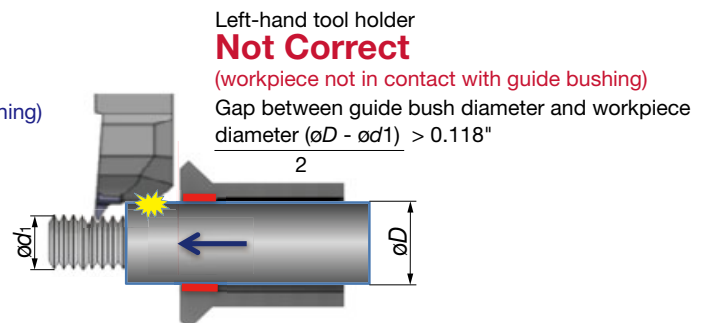
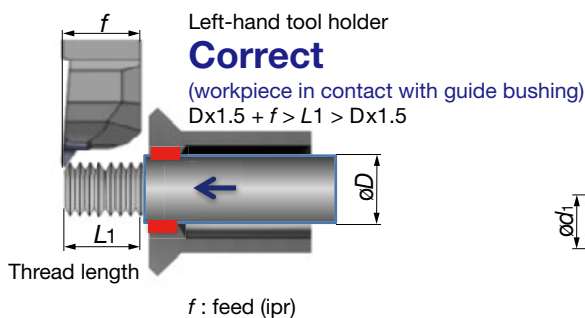
TCT18R/L (for threading / lightly honed edge) / TCT18FR (for threading / sharp edge)

ISO	Workpiece material	Grade	Cutting speed Vc (sfm)	Pitch (in)	TPI
P	Low carbon steels (1015, etc.)	AH725	190 - 490	0.031 - 0.118	32 - 8
	Carbon steels, Alloy steels (1055, etc.)	AH725	190 - 490	0.031 - 0.118	32 - 8
	Prehardened steels (NAK80, PX5 etc.)	AH725	190 - 490	0.031 - 0.118	32 - 8
M	Stainless steels (S30400, etc)	AH725	160 - 260	0.031 - 0.118	32 - 8
K	Grey cast irons (No.250B, No.300B etc.)	AH725	160 - 320	0.031 - 0.118	32 - 8
	Ductile cast irons (60-40-18, 80-55-06, etc.)	AH725	160 - 320	0.031 - 0.118	32 - 8
S	Titanium alloys (Ti-6Al-4V, etc.)	AH725	90 - 320	0.031 - 0.118	32 - 8
	Superalloys (Inconel718, etc.)	AH725	90 - 320	0.031 - 0.118	32 - 8

Cautions when machining in guide bushing

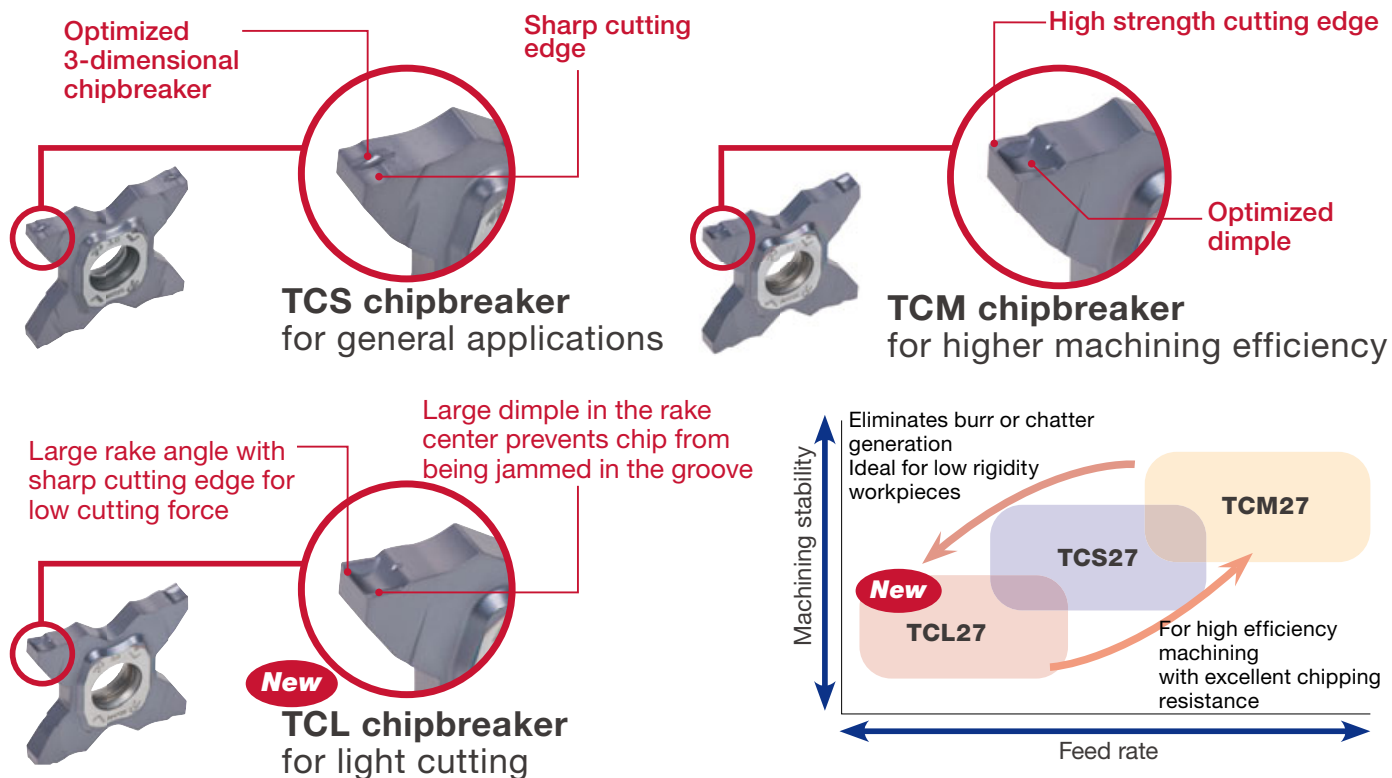


Threading operation following back-turning

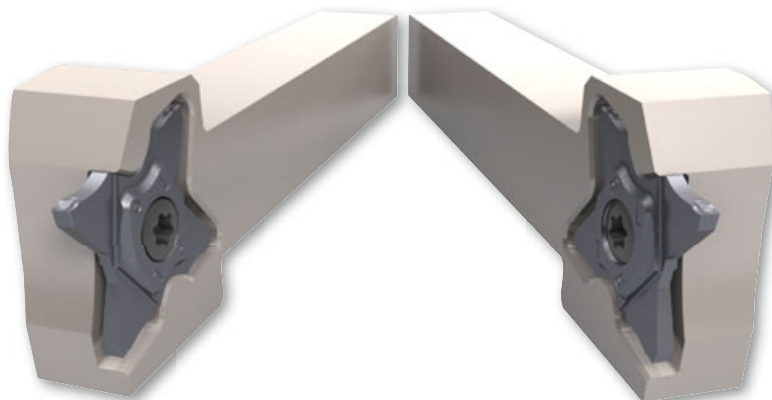


INNOVATIVE INSERTS

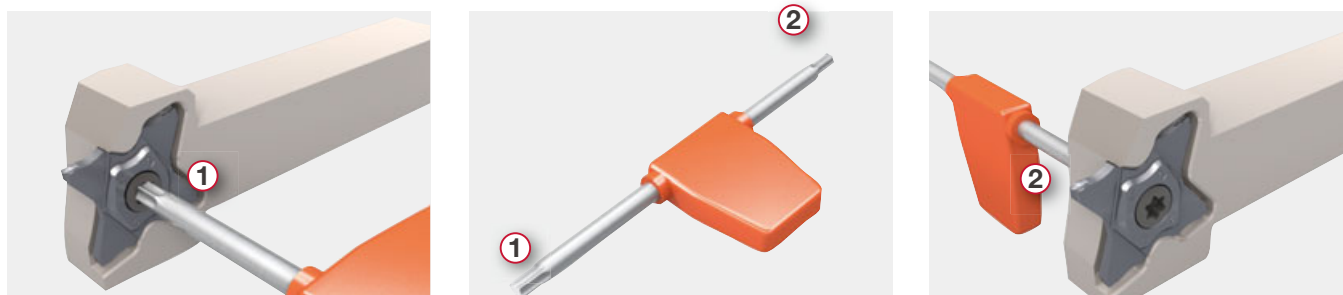
- Suitable for precision grooving or parting-off in general machining including small parts
- Two types of chipbreakers available for TC*27 inserts



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 : Low carbon alloy
 Holder : STCL16-27
 Insert : TCL27-200-020 SH725
 Cutting speed : $V_c = 492$ sfm
 Groove width : 0.079"
 Groove depth : 0.118"

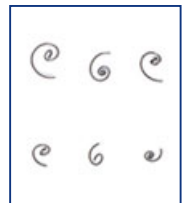
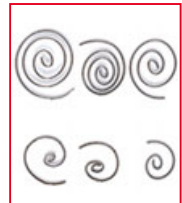
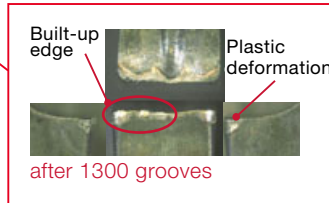
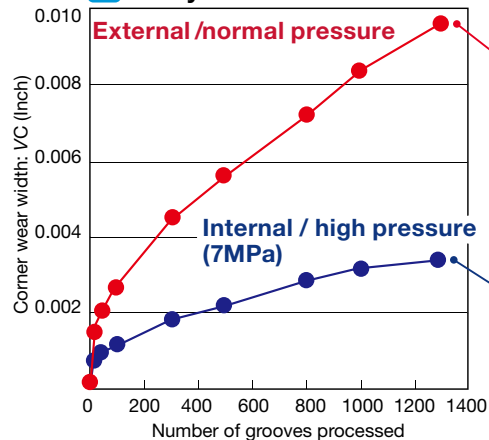
	$f = 0.002$ ipr	$f = 0.003$ ipr	$f = 0.004$ ipr	$f = 0.005$ ipr
$V_c = 492$ sfm				

Benefits of using high pressure coolant

Coolant pressure comparison

Tool life

Chip form

**P Alloy steel**

Small and compact curls for easy evacuation

Toolholder : STCR2525-27-CHP
 Insert : TCS27-200-020 AH725
 Workpiece material : 42CrMo4
 Cutting speed : $V_c = 591$ sfm
 Feed : $f = 0.005$ ipr
 Groove width : 0.079"
 Groove depth : 0.197"

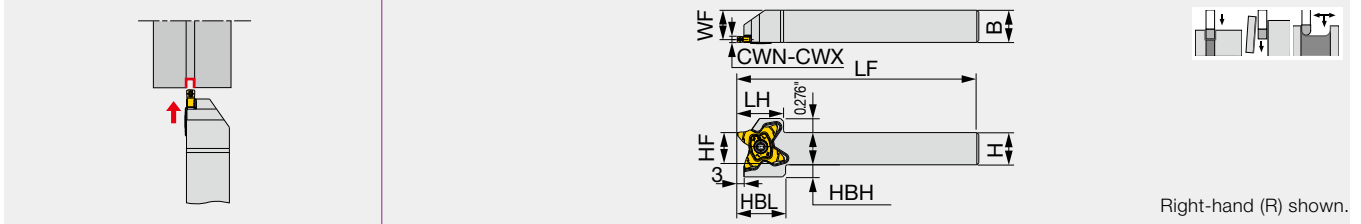
CHP type toolholders for high-pressure coolant

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



STCR/L-27

External toolholders for grooving, parting



Inch	CWN	CWX	H	B	LF	LH	HBL	HF	WF	HBH	Insert	Torque*
STCR/L06-27	0.02	0.125	0.375	0.375	5.000	0.906	0.945	0.375	0.315	0.374	TC*27...	1.84
STCR/L08-27	0.02	0.125	0.500	0.500	5.000	0.906	0.945	0.500	0.440	0.287	TC*27...	1.84
STCR/L10-27	0.02	0.125	0.625	0.625	5.000	0.906	0.945	0.625	0.570	0.236	TC*27...	1.84
STCR/L12-27	0.02	0.125	0.750	0.750	5.000	0.906	0.945	0.750	0.690	0.118	TC*27...	1.84
STCR/L16-27	0.02	0.125	1.000	1.000	5.000	0.906	-	1.000	0.940	-	TC*27...	1.84

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

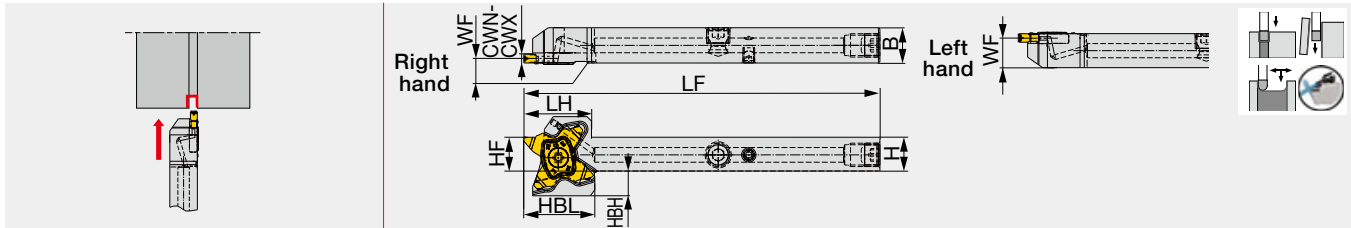
SPARE PARTS



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

New**STCR/L-27-CHP****DIRECTT^{UNG}JET**

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



Inch	CWN	CWX	H	B	LF	LH	HF	WF ⁽¹⁾	HBH	HBL	Insert	Torque*
STCR/L08-27-CHP	0.200	0.125	0.500	0.500	4.750	0.906	0.500	0.590/0.441	0.287	0.945	TC*27...	1.84

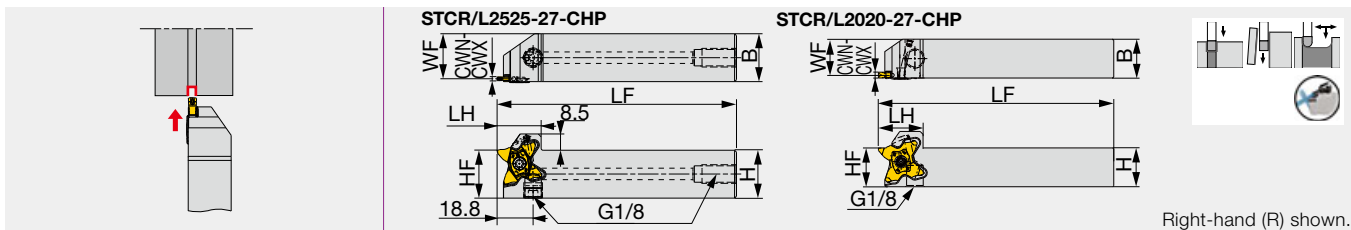
- Make sure to avoid tool interferences when used on Swiss machines

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

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

STCR/L-27-CHP**TUNG^{URN}JET**

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



Right-hand (R) shown.

Inch	CWN	CWX	H	B	LF	LH	HF	WF	Insert	Torque*
STCR/L2020-27-CHP	0.020	0.125	0.787	0.787	4.724	0.906	0.787	0.728	TC*27...	1.84
STCR/L2525-27-CHP	0.020	0.125	0.984	0.984	4.921	0.906	0.984	0.925	TC*27...	1.84

*Torque: Recommended torque (lb-ft) 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

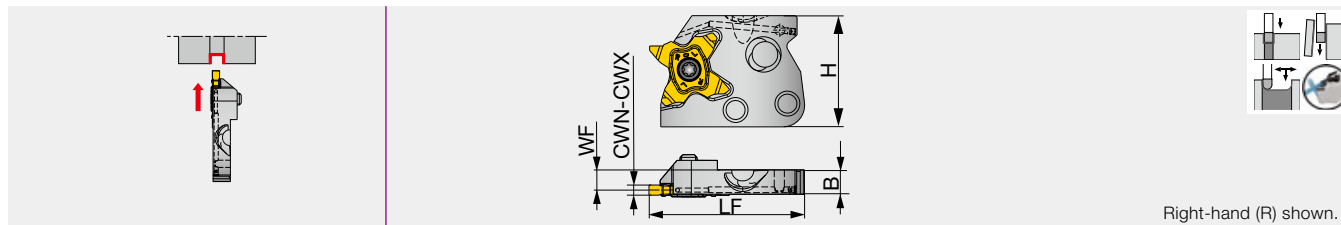
See page 38 for connections and coolant hoses.

New

STCAR/L27-CHP

TUNG^{MODULAR}SYSTEM

Modular blade with high pressure coolant channels



Inch	CWN	CWX	WF	H	LF	B	Insert	Torque*
STCAR/L27-CHP	0.020	0.125	0.236	1.299	1.811	0.283	TC*27...	1.84

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

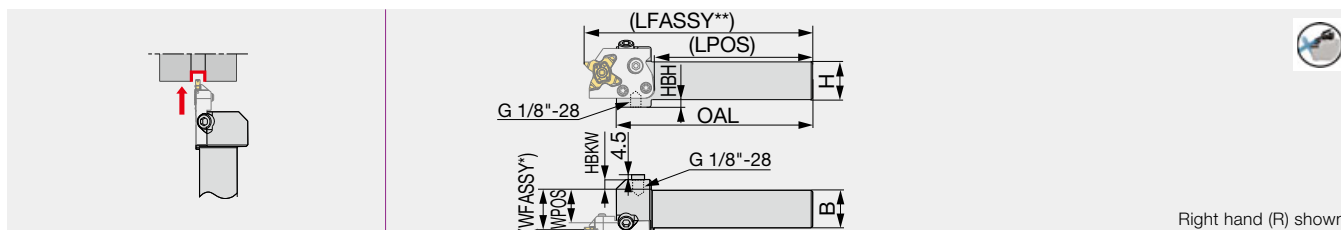
SPARE PARTS

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

CHSR/L-CHP

TUNG^{MODULAR}SYSTEM

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



Inch	H	B	OAL	LPOS	WPOS	HBKW	HBH
CHSR/L12-CHP	0.750	0.750	5.000	4.035	0.560	0.510	0.190
CHSR/L2525-CHP	1.000	1.000	5.000	4.035	0.810	0.260	0.200

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

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

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

SPARE PARTS

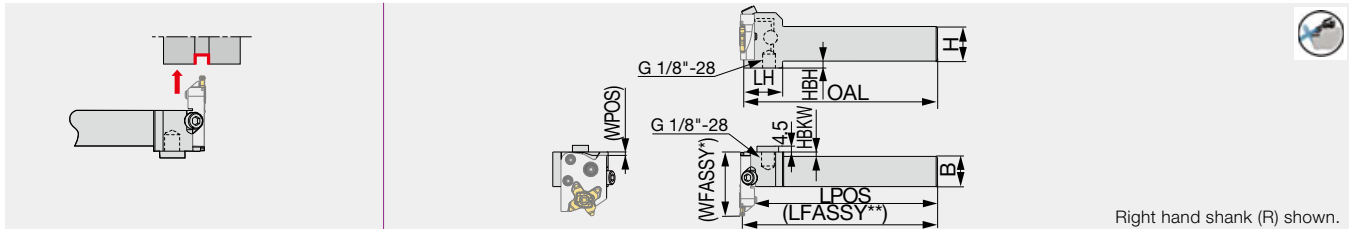
Designation	Screw	Wrench	Clamping screw	Clamping screw	Wrench	O-ring	Plug
CHSR/L*-CHP	SR M5-04451	T-20/5	SR M6X12DIN6912	SR M6X20-XT	HW5.0	OR 5X1N	PLUGG1/8ISO1179

See page 37 for blade assembly/disassembly instructions

See page 38 for connections and coolant hoses.

New**CHFVR/L-CHP****TUNG**^{MODULAR}**SYSTEM**

Shank for blade, with channels for high pressure coolant



Inch	H	B	OAL	LPOS	WPOS	LH	HBKW	HBH
CHFVR/L12-CHP	0.750	0.750	5.500	5.307	0.020	1.100	0.234	10
CHFVR/L16-CHP	1.000	1.000	5.500	5.307	0.020	1.100	-	5

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

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

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

SPARE PARTS

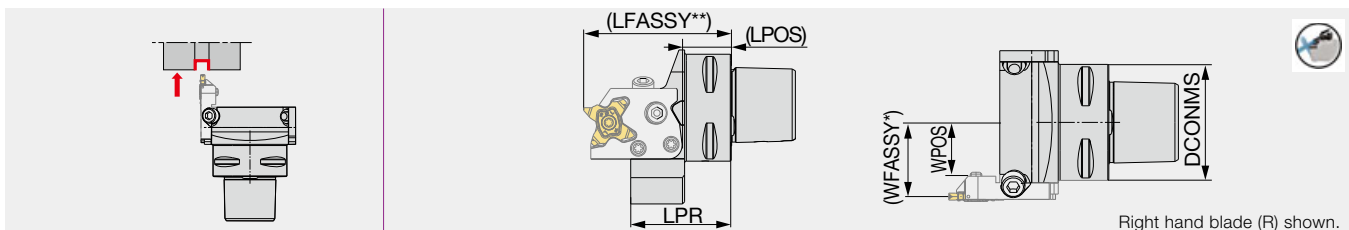
Designation	Clamping screw	Wrench	Clamping screw	Clamping screw	Wrench	O-ring	Plug
CHFVR/L*-CHP	SR M5-04451	T-20/5	SR M6X12DIN6912	SR M6X20-XT	HW5.0	OR 5X1N	PLUGG1/8ISO1179

See page 37 for blade assembly/disassembly instructions

See page 38 for connections and coolant hoses.

C*CHSN-CHP**TUNG**^{MODULAR}**SYSTEM**

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



Inch	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

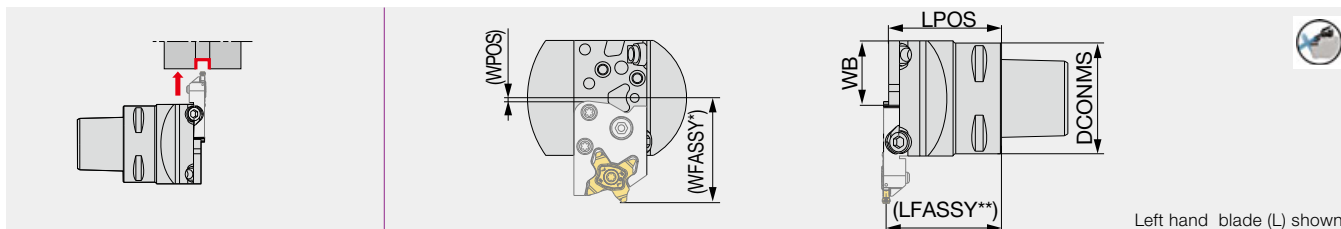
Designation	Clamping screw	Wrench	Clamping screw	Clamping screw	Wrench	O-ring
C*CHSN*-CHP	SR M5-04451	T-20/5	SR M6X12DIN6912	SR M6X20-XT	HW5.0	OR 5X1N

• See page 37 for blade assembly/disassembly instructions

C*CHFVN-CHP

TUNG^{MODULAR}SYSTEM

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



	Inch	DCONMS	LPOS	WB	WPOS
New	C3CHFVN26040-CHP	1.260	1.575	1.024	0.059
	C4CHFVN26046-CHP	1.575	1.811	1.024	0.059
	C5CHFVN26046-CHP	1.969	1.811	1.024	0.059
	C6CHFVN33046-CHP	2.480	1.811	1.299	0.335

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

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

SPARE PARTS

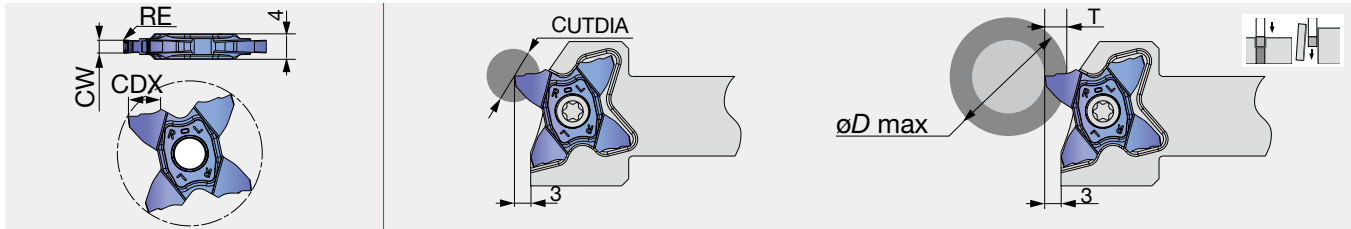
Designation	Clamping screw	Wrench	Clamping screw	Clamping screw	Wrench	O-ring
C*CHFVN**-CHP	SR M5-04451	T-20/5	SR M6X12DIN6912	SR M6X20-XT	HW5.0	OR 5X1N

• See page 37 for blade assembly/disassembly instructions

New

INSERTS

TCL27

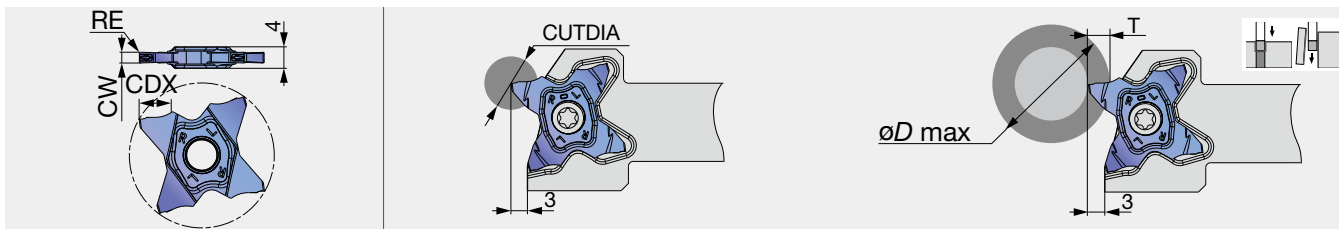


Designation	Grade AH725	CW ± 0.001"	RE (Inch)	CDX (Inch)	CUTDIA (Inch)	Relation of groove depth (T) and Max. diameter (øD max)													
						T≤0.039	T≤0.078	T≤0.118	T≤0.138	T≤0.157	T≤0.177	T≤0.197	T≤0.217	T≤0.224	T≤0.236	T≤0.244	T≤0.252		
TCL27-150-015	●	0.059	0.006	0.224	0.449	∞	∞	∞	23.622	11.024	7.087	5.118	1.969	1.378	-	-	-		
TCL27-200-020	●	0.079	0.008	0.252	0.504	∞	∞	∞	23.622	11.024	7.087	5.118	4.134	3.346	2.362	1.969	1.181		
TCL27-250-020	●	0.098	0.008	0.252	0.504	∞	∞	∞	23.622	11.024	7.087	5.118	4.134	3.346	2.362	1.969	1.181		
TCL27-300-020	●	0.118	0.008	0.252	0.504	∞	∞	∞	23.622	11.024	7.087	5.315	4.134	3.740	2.346	3.071	2.165		

Package Quantity = 5 pcs.
 ● : New product

INSERTS

TCS27



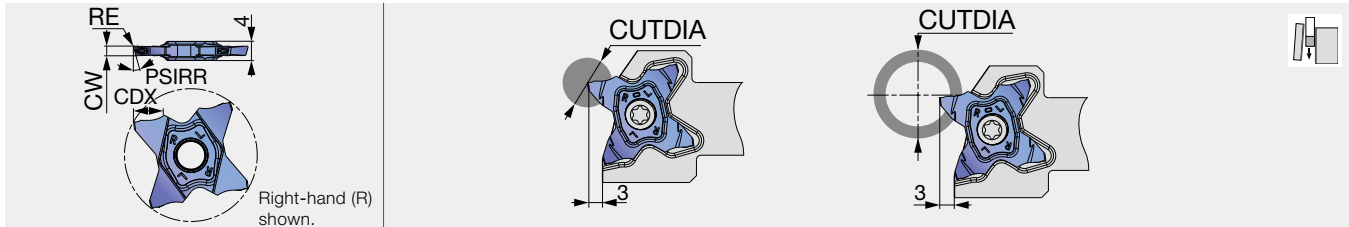
Designation	Grade AH725	CW ± 0.001"	RE (Inch)	CDX (Inch)	CUTDIA (Inch)	Relation of groove depth (T) and Max. diameter (øD max)												
						T≤0.039	T≤0.078	T≤0.118	T≤0.138	T≤0.157	T≤0.177	T≤0.197	T≤0.217	T≤0.224	T≤0.236	T≤0.244	T≤0.252	
TCS27-050-000	●	0.5	0.000	0.039	0.079	∞	-	-	-	-	-	-	-	-	-	-	-	
TCS27-050-004	●	0.5	0.0016	0.098	0.197	∞	∞	-	-	-	-	-	-	-	-	-	-	
TCS27-075-010	●	0.75	0.004	0.098	0.197	∞	∞	-	-	-	-	-	-	-	-	-	-	
TCS27-080-000	●	0.8	0.000	0.063	0.126	∞	-	-	-	-	-	-	-	-	-	-	-	
TCS27-100-006	●	1	0.0024	0.138	0.276	∞	∞	∞	23.622	-	-	-	-	-	-	-	-	
TCS27-100-010	●	1	0.004	0.138	0.276	∞	∞	∞	23.622	-	-	-	-	-	-	-	-	
TCS27-104-000	●	1.04	0.000	0.079	0.158	∞	∞	-	-	-	-	-	-	-	-	-	-	
TCS27-120-000	●	1.2	0.000	0.079	0.158	∞	∞	-	-	-	-	-	-	-	-	-	-	
TCS27-125-010	●	1.25	0.004	0.138	0.276	∞	∞	∞	23.622	-	-	-	-	-	-	-	-	
TCS27-125-020	●	1.25	0.008	0.138	0.276	∞	∞	∞	23.622	-	-	-	-	-	-	-	-	
TCS27-140-000	●	1.4	0.000	0.079	0.158	∞	∞	-	-	-	-	-	-	-	-	-	-	
TCS27-147-000	●	1.47	0.000	0.098	0.197	∞	∞	-	-	-	-	-	-	-	-	-	-	
TCS27-150-010	●	1.5	0.004	0.224	0.449	∞	∞	∞	23.622	11.024	7.087	5.118	1.969	1.378	-	-	-	
TCS27-150-020	●	1.5	0.008	0.224	0.449	∞	∞	∞	23.622	11.024	7.087	5.118	1.969	1.378	-	-	-	
TCS27-157-015	●	1.57	0.006	0.118	0.236	∞	∞	∞	-	-	-	-	-	-	-	-	-	
TCS27-170-010	●	1.7	0.004	0.118	0.236	∞	∞	∞	-	-	-	-	-	-	-	-	-	
TCS27-175-010	●	1.75	0.004	0.118	0.236	∞	∞	∞	-	-	-	-	-	-	-	-	-	
TCS27-175-020	●	1.75	0.008	0.118	0.236	∞	∞	∞	-	-	-	-	-	-	-	-	-	
TCS27-178-018	●	1.78	0.007	0.118	0.236	∞	∞	∞	-	-	-	-	-	-	-	-	-	
TCS27-185-020	●	1.85	0.008	0.118	0.236	∞	∞	∞	-	-	-	-	-	-	-	-	-	
TCS27-196-015	●	1.96	0.006	0.118	0.236	∞	∞	∞	-	-	-	-	-	-	-	-	-	
TCS27-200-010	●	2	0.004	0.252	0.504	∞	∞	∞	23.622	11.024	7.087	5.118	4.134	3.346	2.362	1.969	1.181	
TCS27-200-020	●	2	0.008	0.252	0.504	∞	∞	∞	23.622	11.024	7.087	5.118	4.134	3.346	2.362	1.969	1.181	
TCS27-222-015	●	2.22	0.006	0.138	0.276	∞	∞	∞	23.622	-	-	-	-	-	-	-	-	
TCS27-230-020	●	2.3	0.008	0.138	0.276	∞	∞	∞	23.622	-	-	-	-	-	-	-	-	
TCS27-239-015	●	2.39	0.006	0.224	0.449	∞	∞	∞	23.622	11.024	7.087	5.118	1.969	1.378	-	-	-	
TCS27-247-020	●	2.47	0.008	0.224	0.449	∞	∞	∞	23.622	11.024	7.087	5.118	1.969	1.378	-	-	-	
TCS27-250-010	●	2.5	0.004	0.224	0.449	∞	∞	∞	23.622	11.024	7.087	5.118	1.969	1.378	-	-	-	
TCS27-250-030	●	2.5	0.012	0.224	0.449	∞	∞	∞	23.622	11.024	7.087	5.118	1.969	1.378	-	-	-	
TCS27-270-010	●	2.7	0.004	0.244	0.488	∞	∞	∞	23.622	11.024	7.087	5.315	4.134	3.740	3.346	3.071	-	
TCS27-287-020	●	2.87	0.008	0.244	0.488	∞	∞	∞	23.622	11.024	7.087	5.315	4.134	3.740	3.346	3.071	-	
TCS27-300-000	●	3	0.000	0.252	0.504	∞	∞	∞	23.622	11.024	7.087	5.315	4.134	3.740	3.346	3.071	2.165	
TCS27-300-020	●	3	0.008	0.252	0.504	∞	∞	∞	23.622	11.024	7.087	5.315	4.134	3.740	3.346	3.071	2.165	
TCS27-300-030	●	3	0.012	0.252	0.504	∞	∞	∞	23.622	11.024	7.087	5.315	4.134	3.740	3.346	3.071	2.165	
TCS27-300-040	●	3	0.016	0.252	0.504	∞	∞	∞	23.622	11.024	7.087	5.315	4.134	3.740	3.346	3.071	2.165	
TCS27-315-015	●	3.15	0.006	0.252	0.504	∞	∞	∞	23.622	11.024	7.087	5.315	4.134	3.740	3.346	3.071	2.677	
TCS27-318-020	●	3.18	0.008	0.252	0.504	∞	∞	∞	23.622	11.024	7.087	5.315	4.134	3.740	3.346	3.071	2.677	

Package Quantity = 5 pcs.

● : Line up

INSERTS

TCS27-R/L



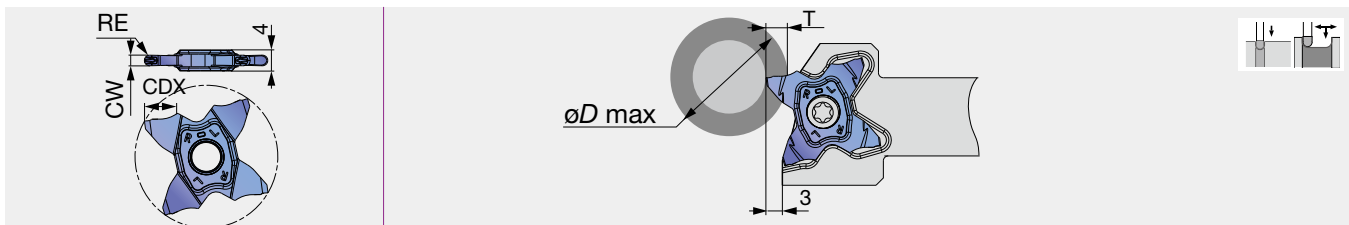
Designation	Grade AH725		CW $\pm 0.001''$	RE (Inch)	CDX (Inch)	PSIRR/L	Max. parting-off dia. ϕD max	
	R	L					Solid bar	Tube
TCS27-100-15R/L	●	●	0.039	0.0024	0.138	15°	0.276	23.622
TCS27-150-6R/L	●	●	0.059	0.0024	0.224	6°	0.449	1.378
TCS27-150-15R/L	●	●	0.059	0.0024	0.224	15°	0.449	1.378
TCS27-200-6R/L	●	●	0.079	0.0040	0.252	6°	0.504	1.181
TCS27-200-15R/L	●	●	0.079	0.0040	0.252	15°	0.504	1.181

Package Quantity = 5 pcs.

● : Line up

INSERTS

TCS27-Full R



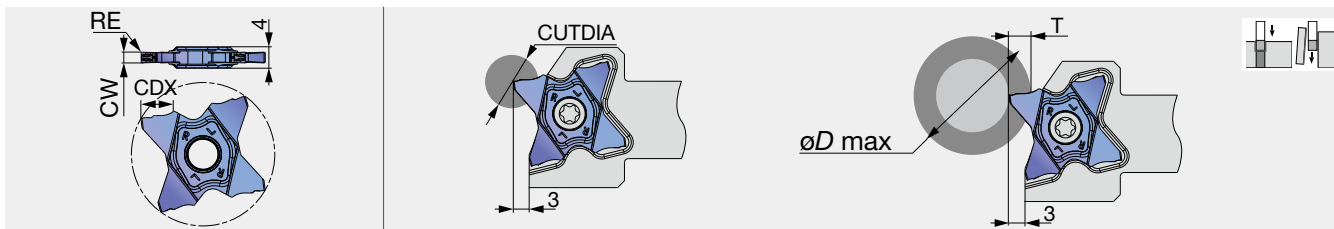
Designation	Grade AH725	CW $\pm 0.001''$	RE (Inch)	CDX (Inch)	Relation of groove depth (T) and Max. diameter (ϕD max)											
					T ≤ 0.039	T ≤ 0.078	T ≤ 0.118	T ≤ 0.138	T ≤ 0.157	T ≤ 0.177	T ≤ 0.197	T ≤ 0.217	T ≤ 0.224	T ≤ 0.236	T ≤ 0.244	T ≤ 0.252
TCS27-157-079	●	0.062	0.031	0.118	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCS27-200-100	●	0.079	0.039	0.118	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCS27-239-120	●	0.094	0.047	0.224	∞	∞	∞	23.622	11.024	7.087	5.118	1.969	1.378	-	-	-
TCS27-300-150	●	0.118	0.059	0.252	∞	∞	∞	23.622	11.024	7.087	5.315	4.134	3.740	3.346	3.071	2.165

Package Quantity = 5 pcs.

● : Line up

INSERTS

TCM27



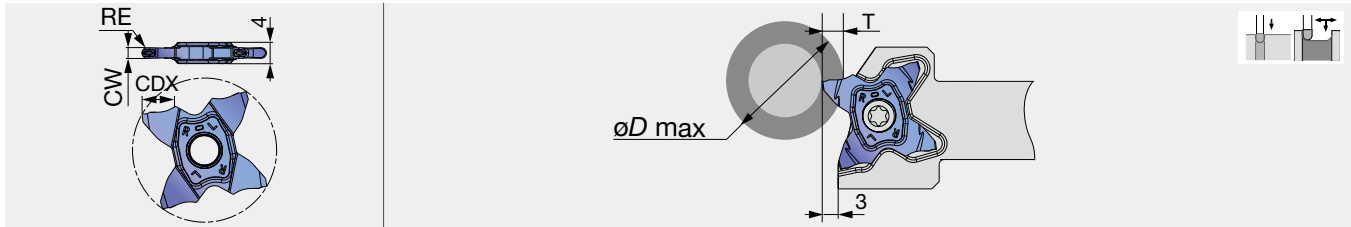
Designation	Grade AH725	CW ± 0.001"	RE (Inch)	CDX (Inch)	CUTDIA	Relation of groove depth (T) and Max. diameter (øD max)												
						T≤0.039	T≤0.078	T≤0.118	T≤0.138	T≤0.157	T≤0.177	T≤0.197	T≤0.217	T≤0.224	T≤0.236	T≤0.244	T≤0.252	
TCM27-150-010	●	0.059	0.004	0.224	0.449	∞	∞	∞	23.622	11.024	7.087	5.118	1.969	1.378	-	-	-	
TCM27-150-020	●	0.059	0.008	0.224	0.449	∞	∞	∞	23.622	11.024	7.087	5.118	1.969	1.378	-	-	-	
TCM27-157-015	●	0.062	0.006	0.118	0.236	∞	∞	∞	-	-	-	-	-	-	-	-	-	
TCM27-170-010	●	0.067	0.004	0.118	0.236	∞	∞	∞	-	-	-	-	-	-	-	-	-	
TCM27-175-010	●	0.069	0.004	0.118	0.236	∞	∞	∞	-	-	-	-	-	-	-	-	-	
TCM27-175-020	●	0.069	0.008	0.118	0.236	∞	∞	∞	-	-	-	-	-	-	-	-	-	
TCM27-178-018	●	0.070	0.007	0.118	0.236	∞	∞	∞	-	-	-	-	-	-	-	-	-	
TCM27-185-020	●	0.073	0.008	0.118	0.236	∞	∞	∞	-	-	-	-	-	-	-	-	-	
TCM27-196-015	●	0.077	0.006	0.118	0.236	∞	∞	∞	-	-	-	-	-	-	-	-	-	
TCM27-200-010	●	0.079	0.004	0.252	0.504	∞	∞	∞	23.622	11.024	7.087	5.118	4.134	3.346	2.362	1.969	1.181	
TCM27-200-020	●	0.079	0.008	0.252	0.504	∞	∞	∞	23.622	11.024	7.087	5.118	4.134	3.346	2.362	1.969	1.181	
TCM27-222-015	●	0.087	0.006	0.138	0.276	∞	∞	∞	23.622	-	-	-	-	-	-	-	-	
TCM27-230-020	●	0.091	0.008	0.138	0.276	∞	∞	∞	23.622	-	-	-	-	-	-	-	-	
TCM27-239-015	●	0.094	0.006	0.224	0.449	∞	∞	∞	23.622	11.024	7.087	5.118	1.969	1.378	-	-	-	
TCM27-247-020	●	0.097	0.008	0.224	0.449	∞	∞	∞	23.622	11.024	7.087	5.118	1.969	1.378	-	-	-	
TCM27-250-010	●	0.098	0.004	0.224	0.449	∞	∞	∞	23.622	11.024	7.087	5.118	1.969	1.378	-	-	-	
TCM27-250-030	●	0.098	0.012	0.224	0.449	∞	∞	∞	23.622	11.024	7.087	5.118	1.969	1.378	-	-	-	
TCM27-270-010	●	0.106	0.004	0.244	0.488	∞	∞	∞	23.622	11.024	7.087	5.315	4.134	3.74	3.346	3.071	-	
TCM27-287-020	●	0.113	0.008	0.244	0.488	∞	∞	∞	23.622	11.024	7.087	5.315	4.134	3.74	3.346	3.071	-	
TCM27-300-000	●	0.118	0	0.252	0.504	∞	∞	∞	23.622	11.024	7.087	5.315	4.134	3.74	3.346	3.071	2.165	
TCM27-300-020	●	0.118	0.008	0.252	0.504	∞	∞	∞	23.622	11.024	7.087	5.315	4.134	3.74	3.346	3.071	2.165	
TCM27-300-030	●	0.118	0.012	0.252	0.504	∞	∞	∞	23.622	11.024	7.087	5.315	4.134	3.74	3.346	3.071	2.165	
TCM27-300-040	●	0.118	0.016	0.252	0.504	∞	∞	∞	23.622	11.024	7.087	5.315	4.134	3.74	3.346	3.071	2.165	
TCM27-315-015	●	0.124	0.006	0.252	0.504	∞	∞	∞	23.622	11.024	7.087	5.315	4.134	3.74	3.346	3.071	2.677	
TCM27-318-020	●	0.125	0.008	0.252	0.504	∞	∞	∞	23.622	11.024	7.087	5.315	4.134	3.74	3.346	3.071	2.677	

Package Quantity = 5 pcs.

● : Line up

INSERTS

TCM27-Full R

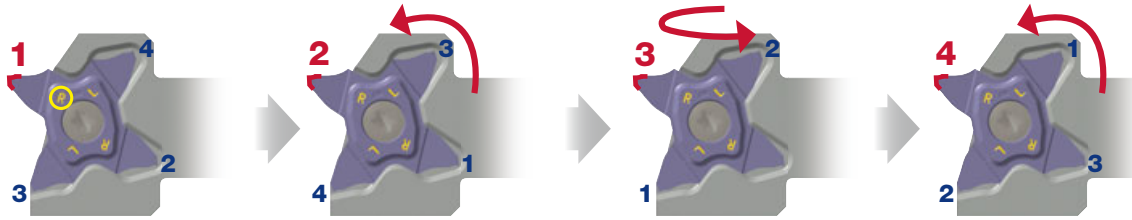


Designation	Grade AH725	CW ± 0.001"	RE (Inch)	CDX (Inch)	Relation of groove depth (T) and Max. diameter (øD max)											
					T≤0.039	T≤0.078	T≤0.118	T≤0.138	T≤0.157	T≤0.177	T≤0.197	T≤0.217	T≤0.224	T≤0.236	T≤0.244	T≤0.252
TCM27-157-079	●	0.062	0.031	0.118	∞	∞	∞	-	-	-	-	-	-	-	-	-
TCM27-200-100	●	0.079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

Package Quantity = 5 pcs.

●: Line up

HOW TO INDEX INSERTS



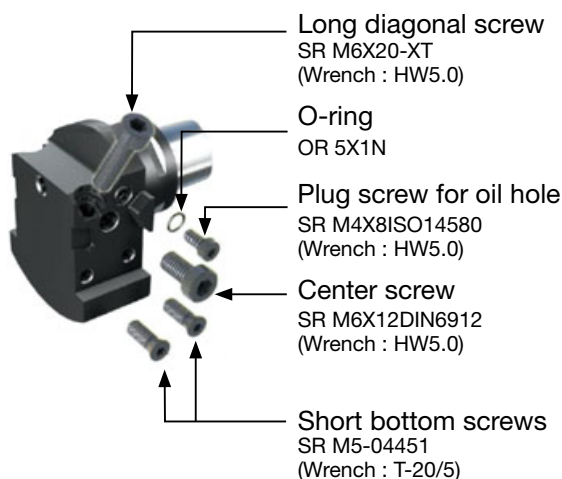
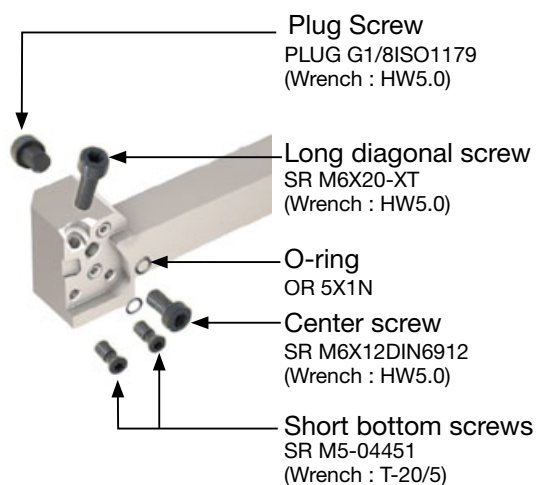
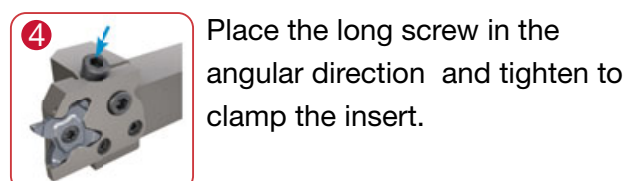
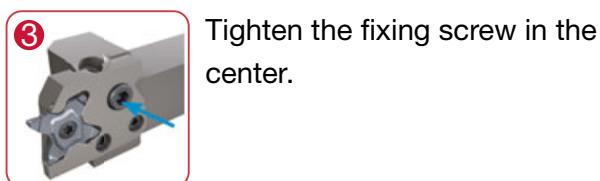
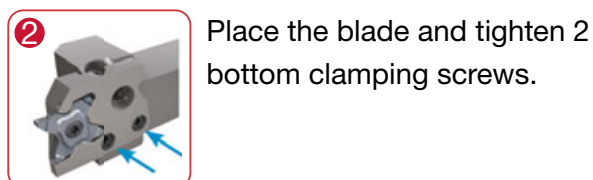
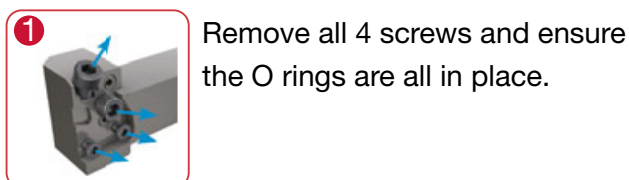
1. Right-hand edge (R) is used for the right-hand toolholders.
2. Rotate the insert
3. Flip over the insert
4. Rotate the insert

STANDARD CUTTING CONDITIONS

ISO	Workpiece materials	Grades	Cutting speed Vc (sfm)	Feed: <i>f</i> (ipr)						Depth of cut for profiling (with full radius insert)
				New	Grooving, parting-off	Parting-off (with hand)		Profiling (with full radius insert)		
						TCL	TCS	TCM	TCS	
P	Steel (1045, etc.)	AH725	330 - 660	0.001 - 0.005	0.002 - 0.006	0.002 - 0.010	0.002 - 0.005	0.002 - 0.004	0.002 - 0.006	0.02
	Alloy steel (4137, etc.)	AH725	165 - 590	0.001 - 0.005	0.002 - 0.006	0.002 - 0.010	0.002 - 0.005	0.002 - 0.004	0.002 - 0.006	0.02
M	Stainless steel (304, etc.)	AH725	165 - 490	0.001 - 0.005	0.002 - 0.006	0.002 - 0.008	0.002 - 0.005	0.002 - 0.004	0.002 - 0.006	0.02
K	Gray cast iron (No.250, etc.)	AH725	165 - 590	0.001 - 0.005	0.002 - 0.006	0.002 - 0.010	0.002 - 0.005	0.002 - 0.004	0.002 - 0.006	0.02
	Ductile cast iron (60-40-18, etc.)	AH725	165 - 390	0.001 - 0.005	0.002 - 0.006	0.002 - 0.008	0.002 - 0.005	0.002 - 0.004	0.002 - 0.006	0.02
S	Titanium alloys (Ti-6Al-4V, etc.)	AH725	100 - 200	0.001 - 0.005	0.002 - 0.006	0.002 - 0.006	0.002 - 0.005	0.002 - 0.004	0.002 - 0.006	0.02
	Superalloys (Inconel718, etc.)	AH725	65 - 165	0.001 - 0.005	0.002 - 0.006	0.002 - 0.006	0.002 - 0.005	0.002 - 0.004	0.002 - 0.006	0.02

Instructions for CHP blade assembly/disassembly

Blade assembly



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

PARTS FOR COOLANT HOSE

Connecting hose

Fig. 1

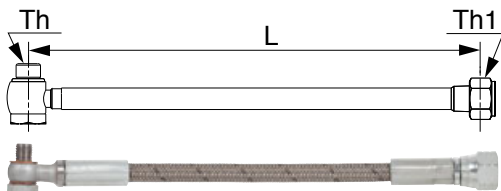
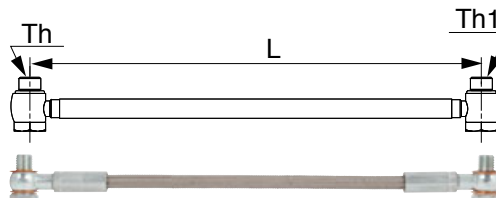
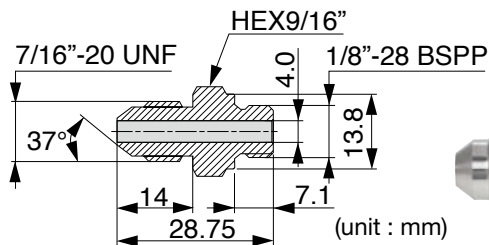


Fig. 2



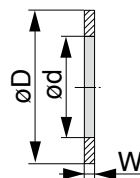
Designation	Length L (mm)	Threading size		Max. pressure (Mpa)	Fig.
		Th	Th1		
CHP-HOSE-G1/8-7/16-200BS	200	G1/8"-28 BSPP	7/16"-20 UNF	26	1
CHP-HOSE-G1/8-7/16-250BS	250	G1/8"-28 BSPP	7/16"-20 UNF	26	1
CHP-HOSE-5/16-7/16-200BS	200	5/16"-24UNF	7/16"-20 UNF	20	1
CHP-HOSE-5/16-G1/8-200BS	200	5/16"-24UNF	G1/8"-28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

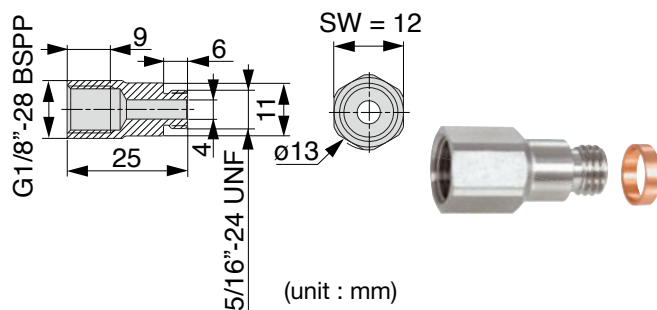
Seal washer



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

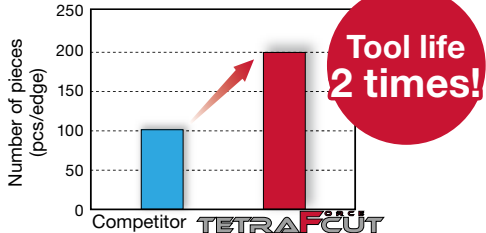
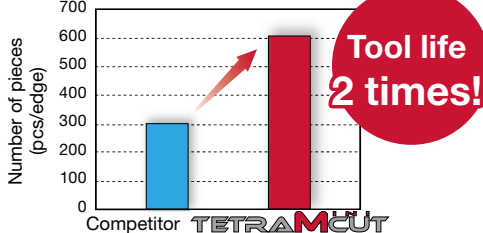
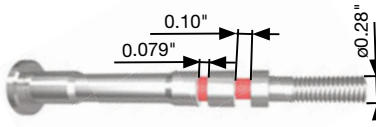
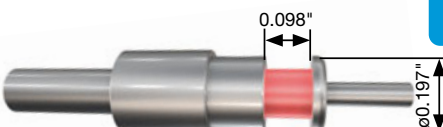
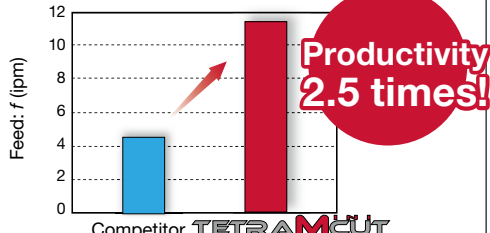
(unit : mm)

Connector for small lathe with seal washer



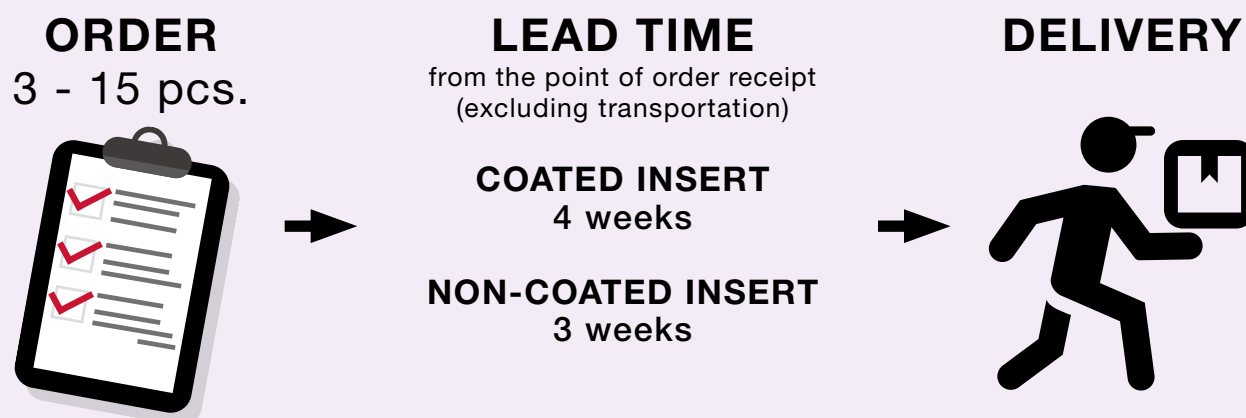
Designation
CHP-CONECTOR/5/16-G1/8

PRACTICAL EXAMPLES

Workpiece type		Shaft stator	Input shaft
Toolholder		STCR2525-27	STCR2525Z18
Insert		TCS27-200-020	TCG18R150-020
Grade		AH725	AH7025
		1045	5120 (H)
Workpiece material		 P	 P
Cutting conditions	Cutting speed: V_c (sfm)	689	328
	Feed: f (ipr)	0.006	0.003
	Groove depth: a_r (inch)	0.079	0.083
	Groove width: w (inch)	0.079	0.079
	Machining	External grooving	External grooving
	Coolant	Wet	Wet
		NC lathe	NC lathe
Results		 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.	 Thanks to its high wear resistance, AH7025 has successfully machined 600 parts and was still able to continue.
Workpiece type		Spool shaft	Shaft
Toolholder		STCR06-18	STCR1212X18-CHP
Insert		TCP18R200F-010	TCP18R200F-010
Grade		SH725	SH725
		1045	1015
Workpiece material		 P	Insert width: 0.079"  P
Cutting conditions	Cutting speed: V_c (sfm)	140	312
	Feed: f (ipr)	0.004	0.001
	Groove depth: a_r (inch)	0.06 / 0.04	0.039
	Groove width: w (inch)	0.079 / 0.10	0.098
	Machining	External grooving	External grooving
	Coolant	Wet	Wet
		Swiss lathe	Swiss lathe
Results		 Due to the rigid clamping, TetraMini-Cut provides higher feeds than the competitor, achieving 2.5 times better productivity.	 External supply (at normal pressure)  TUNGTURNJET 1.5 MPa No chip packing in the workpiece Thanks to its high pressure coolant jet system, TungTurn-Jet has improved the chip evacuation, eliminating the post-work chip cleaning process.

Expedited delivery service for special grooving insert

Expedited delivery service for special grooving inserts is being offered for the following lead times and quantities. Please note that this service is applicable only for the order of an initial test batch; a repeat order is placed through the regular ordering process.



TETRAM^{NI}CUT
TUNGALOY

Special width
& corner radii

With chamfer
edges



Grade	
Coated carbide	
TCP18 R/L	AH725 SH725

TETRA^{FORCE}CUT
TUNGALOY

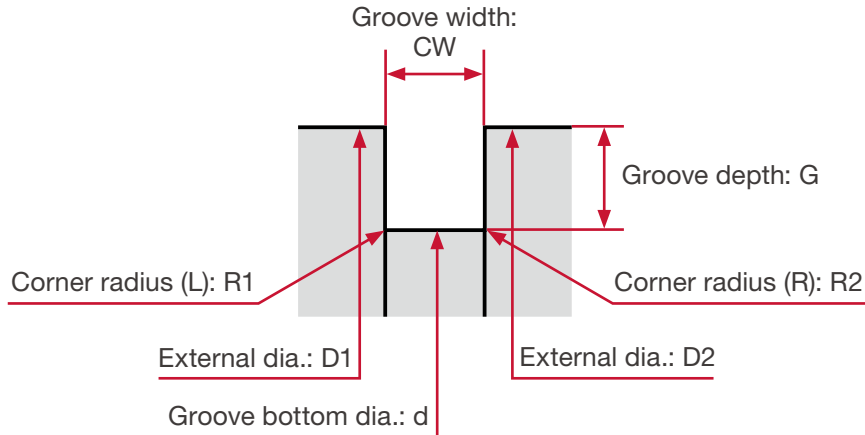
Special width
& corner radii

With chamfer edges



Grade	
Coated carbide	
TCG27	AH725

Special width & corner radii



TETRAMCUT
TUNGALOY

Groove width (W)	Max. groove depth (G)	Corner radii (R1 / R2)	Toolholder
0.013" - 0.019"	- 0.039"	0	STCR/L*****-18
0.020" - 0.029"	- 0.079"	0.002" ~ W/2	
0.030" - 0.125"	- 0.098"	(Full radius is available)	

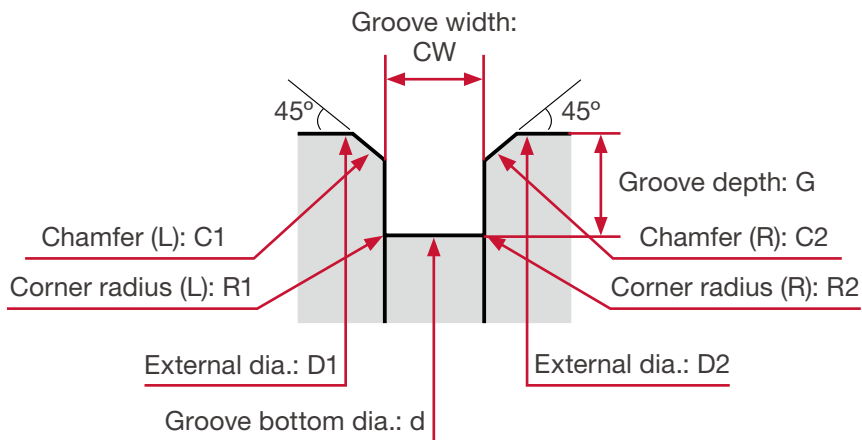
*Tolerances of the insert are based on the standard item.

TETRAFCUT
TUNGALOY

Groove width (W)	Max. groove depth (G)	Corner radii (R1 / R2)	Toolholder
0.013" - 0.019"	- 0.039"	0	STCR/L*****-27
0.020" - 0.039"	- 0.098"	0	
0.039" - 0.059"	- 0.138"	0.02" ~ W/2	
0.059" - 0.078"	- 0.224"	(Full radius is available)	
0.079" ~ 0.125"	- 0.252"		

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

Grooving & chamfering



TETRAMCUT
TUNGALOY

Groove width + chamfer width (W+2C)	Max. groove depth (G)	Corner radii (R1 / R2)	Toolholder
0.020" - 0.138"	0.020" - 0.079"	0 or 0.002" ~ W/2 (Full radius is available)	STCR/L*****-18

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

Max. width of chamfer is 0.02".

Some combinations of a groove width, depth, a corner radius(R), and chamfer may be unable to be manufactured.

TETRAFCUT
TUNGALOY

Groove width + chamfer width (W+2C)	Max. groove depth (G)	Corner radii (R1 / R2)	Toolholder
0.020" - 0.118"	0.020" - 0.118"	0 or 0.002" ~ W/2 (Full radius is available)	STCR/L*****-27

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

Max. width of chamfer is 0.02".

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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Feb. 2024 (TJ)