

GrooveLine

SM<sup>★</sup>TOOLS<sup>®</sup>

TETRAM<sup>IC</sup>CUT/TETRA<sup>FC</sup>CUT

www.tungaloy.com

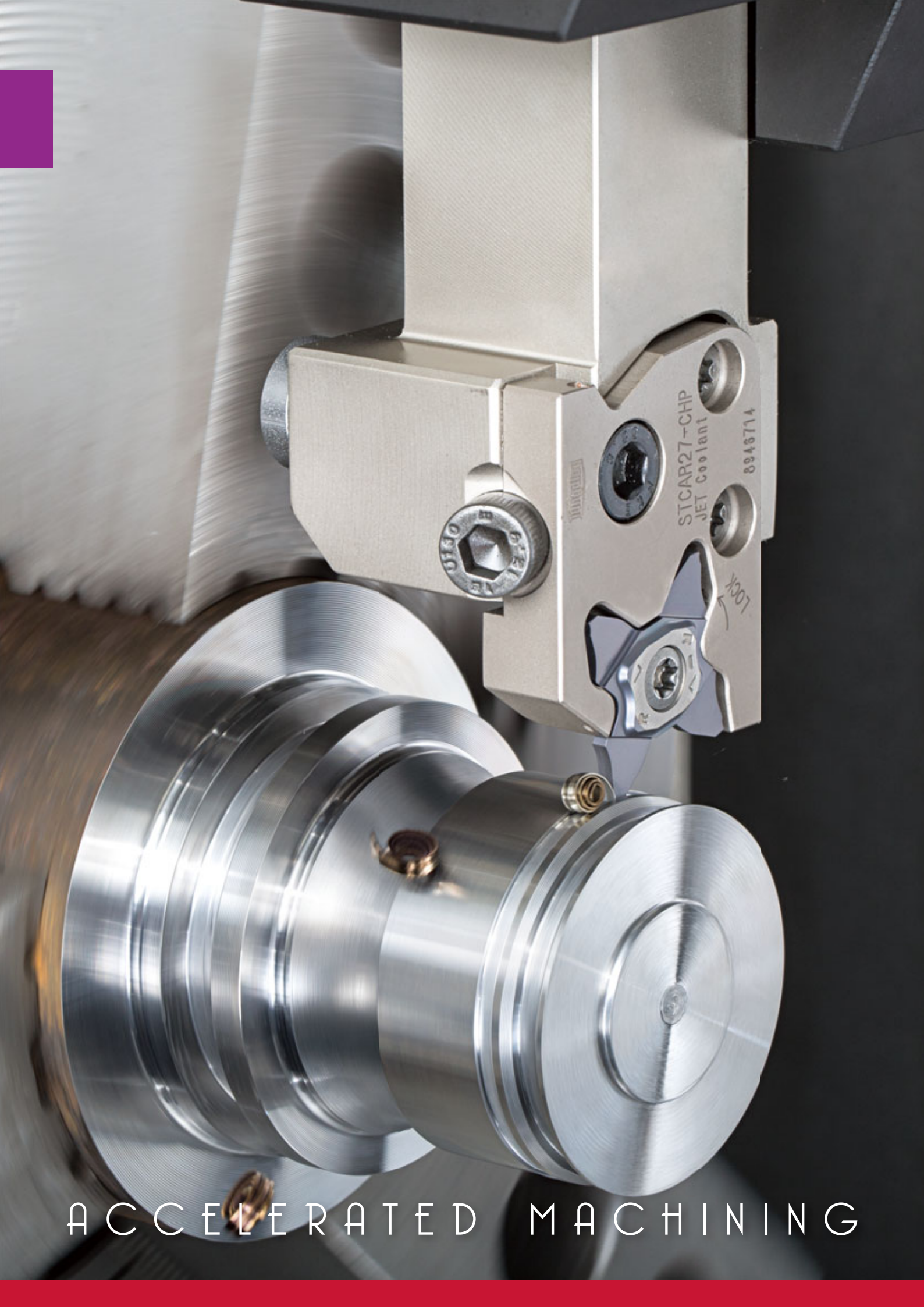
Tungaloy Report No. 416-G

Now offers **TCL18** and **TCL27**  
geometry for low cutting force

Member IMC Group  
**Tungaloy**



**INDUSTRY 4.0**  
*FEED the SPEED!*



ACCELERATED MACHINING



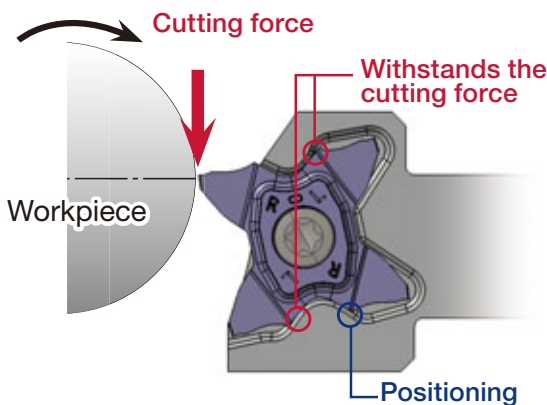
Influential grooving lines, **TetraMini-Cut** and **TetraForce-Cut** offer ground inserts with a robust clamping structure for exceptional stability and repeatability



# Multi-purpose grooving insert with economical 4-cutting edges

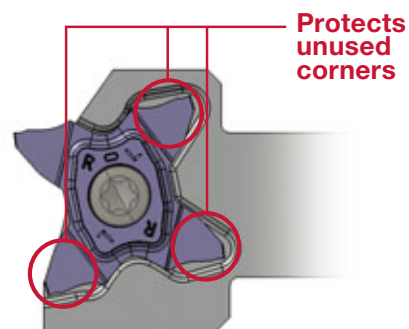
## Unique 3-point clamping system

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.



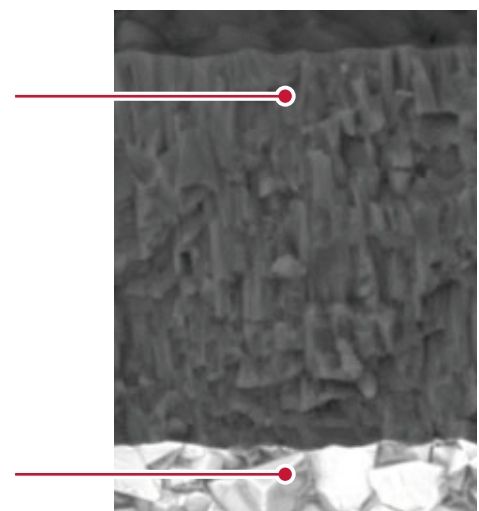
## AH7025 ideal grade for grooving application



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

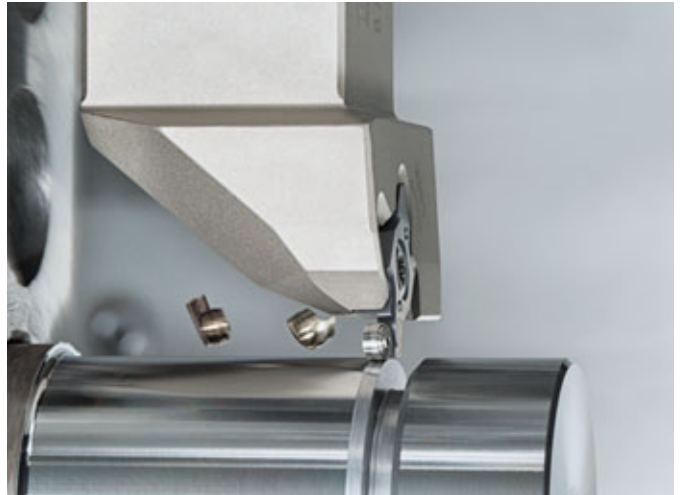


**The result : a dramatic increase in tool life and machining stability**

## TETRAMCUT 18 type Groove widths: 0.33 - 3 mm

See P. 6

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



### DIRECTJET

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



TCG18/TCP18/  
TCP18-F  
Ground-in chipbreaker

TCS18  
3D chipbreaker for  
general purpose

TCL18  
3D chipbreaker for  
low cutting force

TCT18  
Full profile  
threading insert

## TETRAFORCE 27 type Groove widths: 0.5 - 3.18 mm

See P. 27

- 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



TCL27

TCS27

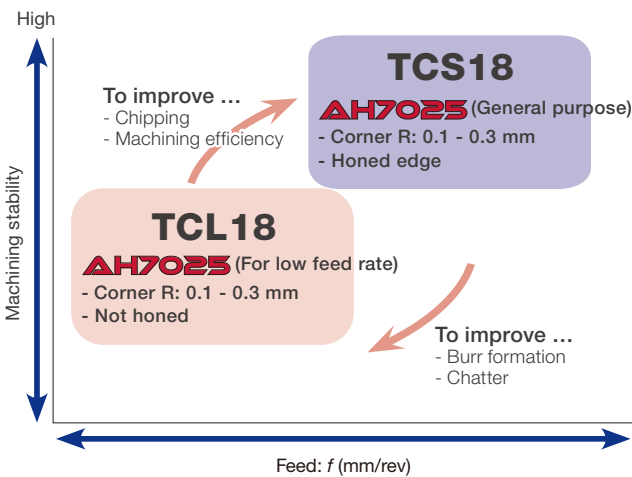
TCM27

## 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

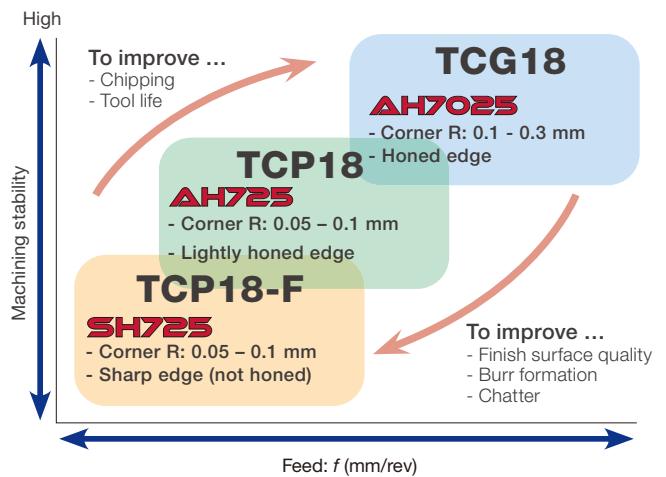
### New selection system

#### ■ 3D chipbreakers



- 2 styles of 3D chipbreakers are available as standard for reliable chip control.
- TCS: general-purpose chipbreaker, TCL: for applications where low cutting force is essential

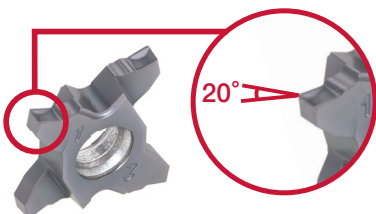
#### ■ Ground-to-form chipbreakers



- 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

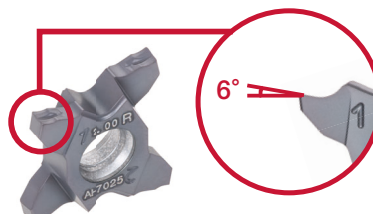
## Grooving

**New** **TCL18 type**  
(With 3D chipbreaker for low feed rates)



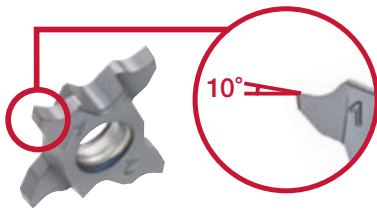
- The chipbreaker incorporates a dimple-like recess on the rake face to facilitate smooth chip flow with light cutting action
- The chipbreaker ensures low cutting force, providing reliable chip flow at low feed rates

**TCS18 type**  
(With 3D chipbreaker for general purpose)



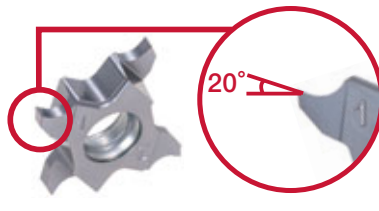
- The chipbreaker incorporates a dimple-like recess on the rake face to facilitate smooth chip flow with light cutting action

## TCG18 type (Honed edge)



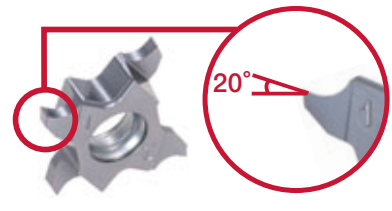
- Optimized rake angle and edge preparation enhances fracture resistance, allowing for smooth cutting
- AH7025 grade features a superior combination of wear and fracture resistances

## TCP18 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

## TCP18-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

### TCT18 type

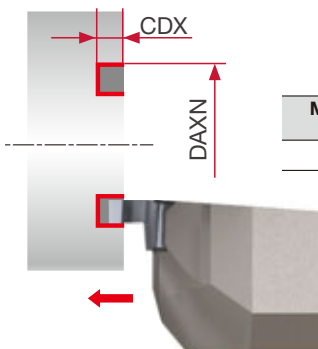


Full-profile insert

- 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 mm

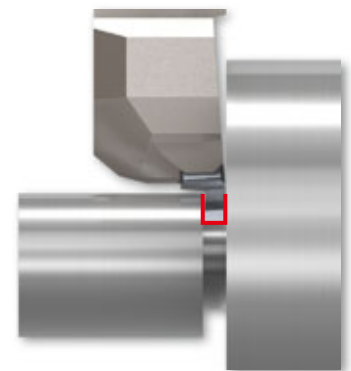
## PRECISION GROOVING & THREADING

### Minimum diameter for face grooving



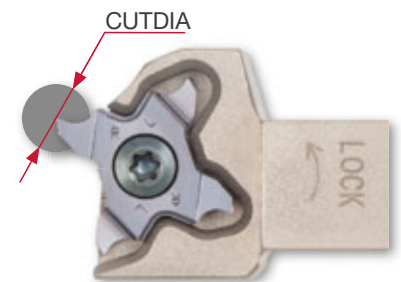
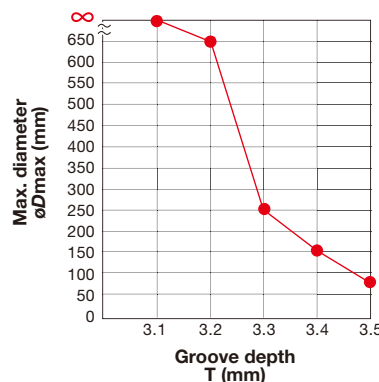
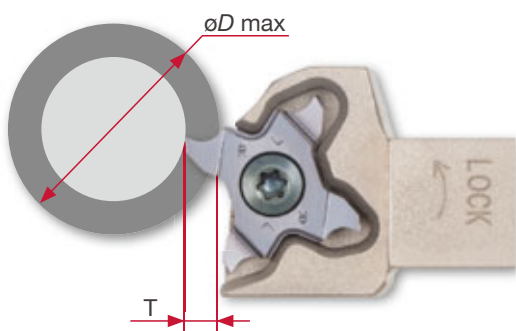
Minimum face diameter DAXN (mm)	Maximum groove depth CDX (mm)
65	3

### Machining next to shoulder



Dmax. parting-off

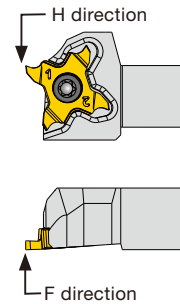
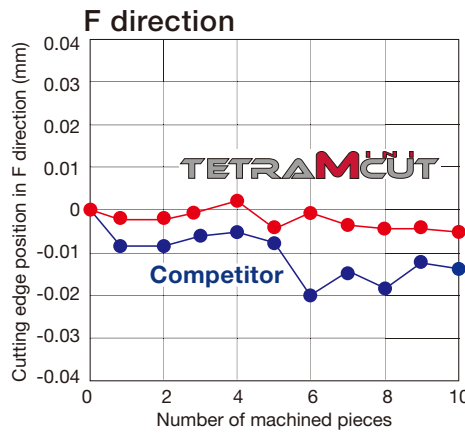
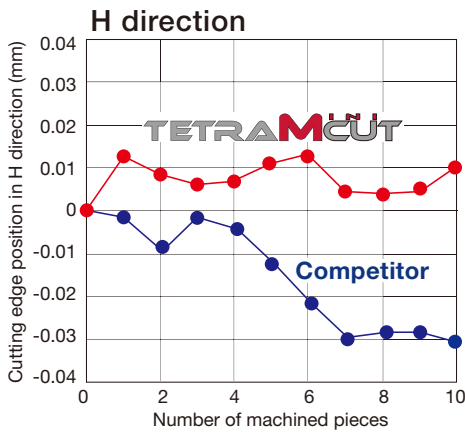
### Groove depth capacity and Dmax. capacity



Max. diameter øDmax (mm)
7

## CUTTING PERFORMANCE

### Tool rigidity

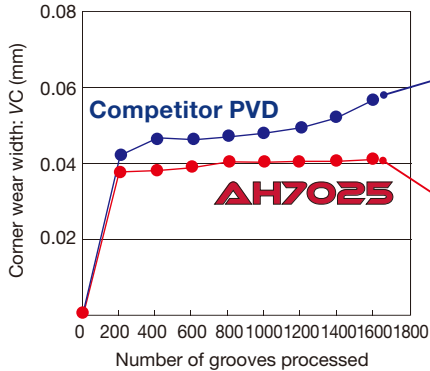


Process: Measure #1 → machining → Measure #2

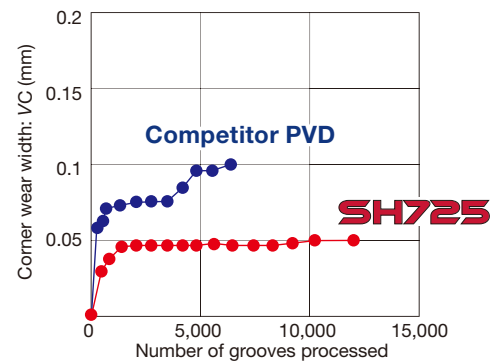
Displacement of cutting edge position: Difference between Measure #1 & #2

### Tool life

#### P Alloy steel



#### M Stainless steel



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

**New**

### With TCL18 style 3D chipbreaker

Cutting speed: $V_c$ (m/min)	80				
	150				
		0.03	0.05	0.07	0.1
Feed: $f$ (mm/rev)					

**P**

Steel



Toolholder : STCR2525Z18  
 Insert : TCL18R200-020 AH7025  
 Workpiece material : SCM415

### With TCS18 style 3D chipbreaker

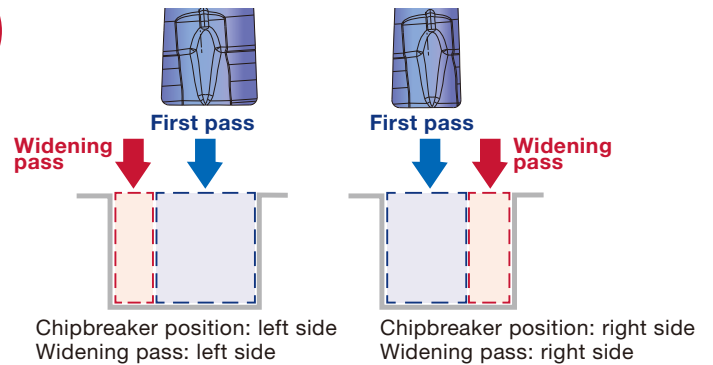
Cutting speed: $V_c$ (m/min)	50				
	100				
		0.05	0.10	0.15	0.20
Feed: $f$ (mm/rev)					

**P**

Steel



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.

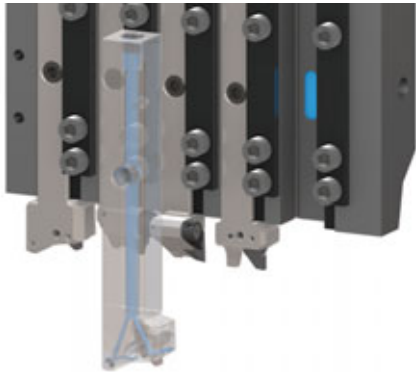


Toolholder : STCR2525Z18  
 Insert : TCS18R200-020 AH7025  
 Workpiece material : S45C / C45

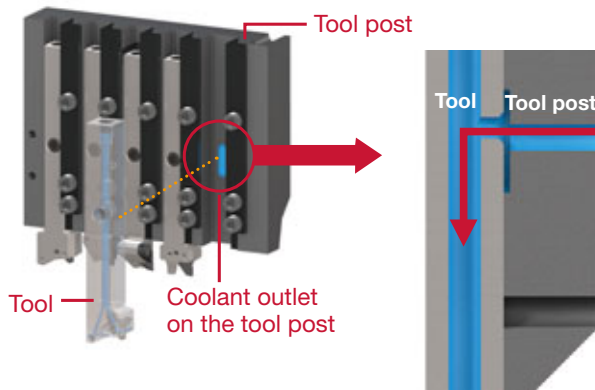
## DIRECTTUNGJET system

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

### DirectTungJet system



Coolant is supplied from the tool post directly to the tools



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

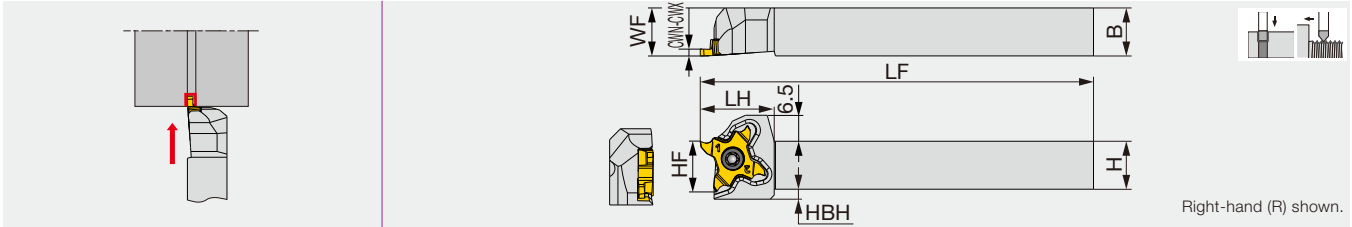
**S** Titanium alloy: External turning (Ti-6Al-4V)

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



## 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 is used for the left hand toolholders

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

Left-Hand Insert



TC\*18L...

Right-Hand Insert



TC\*18R...

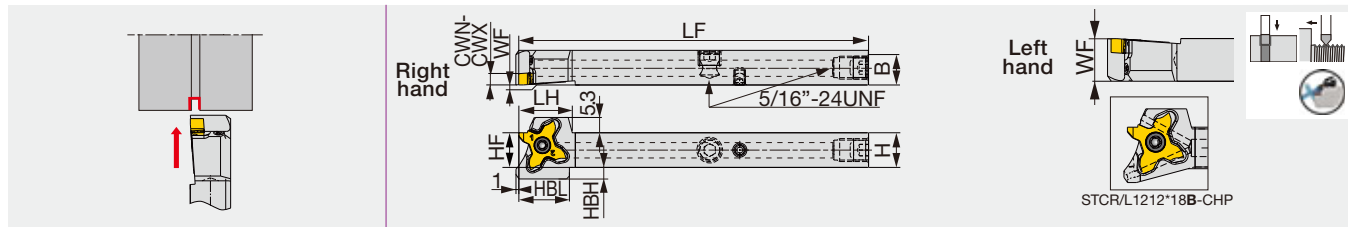
### SPARE PARTS

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

## STCR/L-18-CHP



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



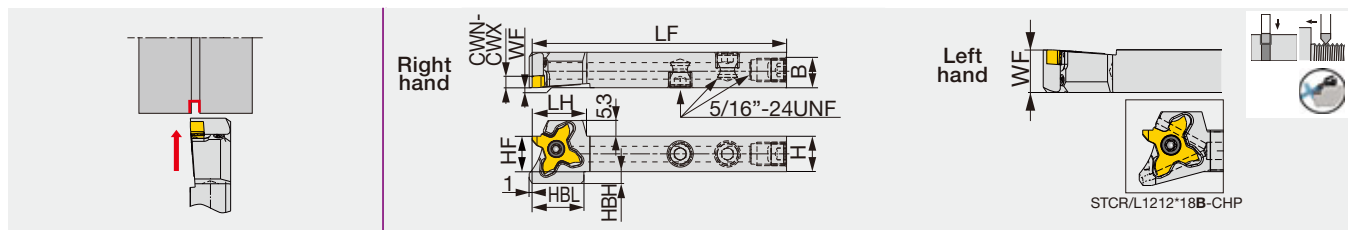
Designation	CWN	CWX	H	B	LF	LH	HBL	HF	WF	HBH	Insert	Torque*
STCR/L1212X18-CHP*** <sup>(1)</sup>	0.33	3	12	12	120	18.5	17.5	12	0/12	4	TC*18...	1.2
STCR/L1212X18B-CHP <sup>(1)</sup>	0.33	3	12	12	120	18.5	17.5	12	0/12	4	TC*18...	1.2
STCR/L1616X18-CHP <sup>(1)</sup>	0.33	3	16	16	120	18.5	-	16	0/16	-	TC*18...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



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



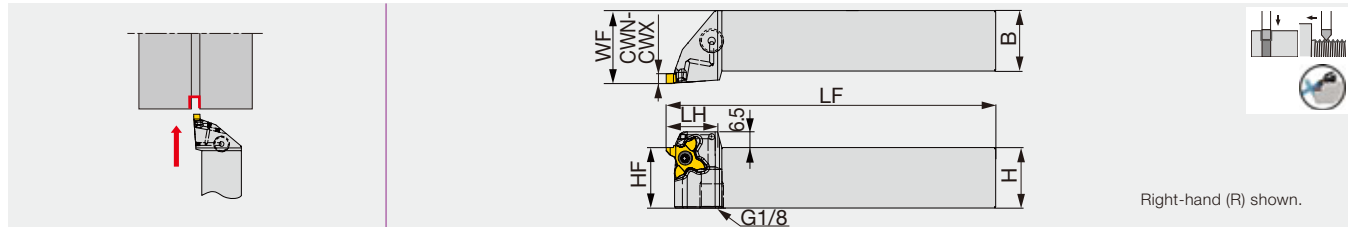
Designation	CWN	CWX	H	B	LF	LH	HBL	HF	WF	HBH	Insert	Torque*
STCR/L1212F18-CHP***	0.33	3	12	12	85	18.5	17.5	12	0/12	4	TC*18...	1.2
STCR/L1212F18B-CHP	0.33	3	12	12	85	18.5	17.5	12	0/12	4	TC*18...	1.2

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

## STCR/L-18-CHP



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

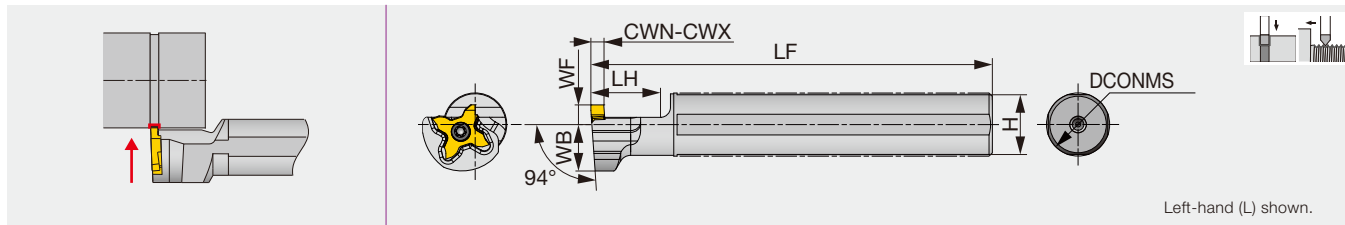
Designation	Clamping screw	Wrench
STCL**18-CHP	CSTC-4L100DR	T-1008/5
STCR**18-CHP	CSTC-4L100DL	T-1008/5

See page 40 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



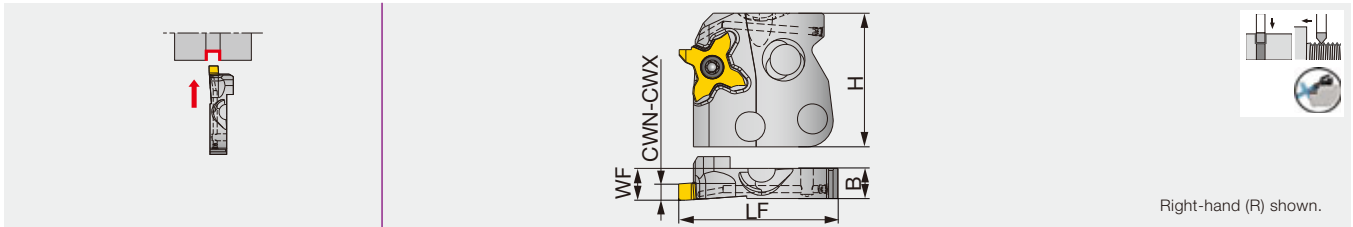
Designation	Clamping screw	Wrench
JS**STCL18	CSTC-4L100DL	T-1008/5

**New**

## STCAR/L18-CHP

TUNGALOY **MODULAR SYSTEM**

Modular blade with high pressure coolant channels



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

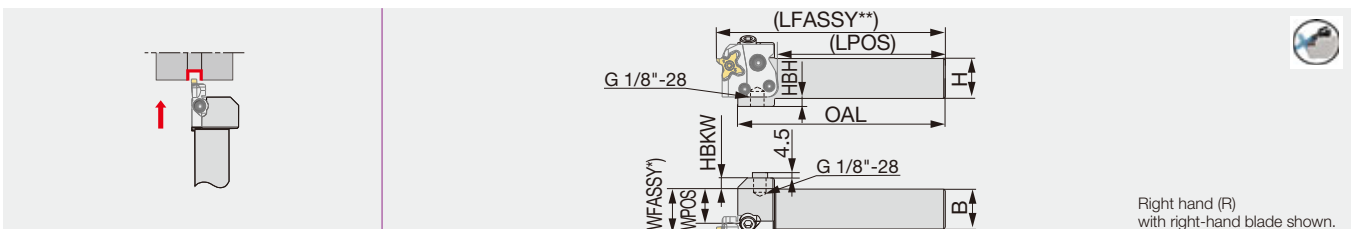
Designation	Clamping screw	Wrench
STCAL18-CHP	CSTC-4L100DR	T-1008/5
STCAR18-CHP	CSTC-4L100DL	T-1008/5

**New**

## CHSR/L-CHP

TUNGALOY **MODULAR SYSTEM**

Shank for blade, with channels for high pressure coolant



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 39 for blade assembly/disassembly instruction

See page 40 for connections and coolant hoses

### Recommended torque

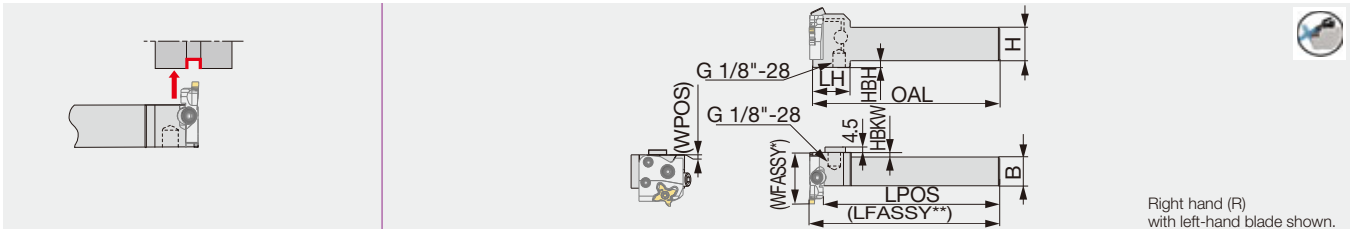
Clamping screw	Torque (N · m)
SRM5-04451	5
SRM6X12DIN6912	8.5
SRM6X20-XT	8.5

**New**

**CHFVR/L-CHP**

**TUNG<sup>MODULAR</sup>SYSTEM**

Shank for blade, with channels for high pressure coolant



Right hand (R)  
with left-hand blade shown.

Designation	H	B	OAL	LH	LPOS	WPOS	HBKW	HBH
CHFVR/L2020-CHP	20	20	140	28	135.1	0.5	5	10
CHFVR/L2525-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 39 for blade assembly/disassembly instructions

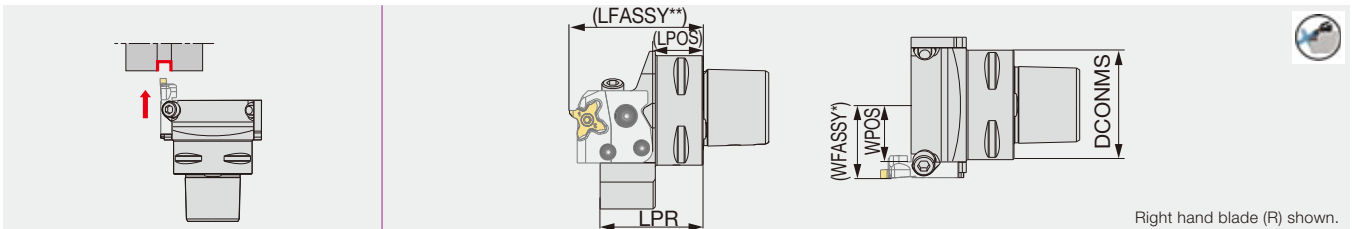
See page 40 for connections and coolant hoses.

**New**

**C\*CHSN-CHP**

**TUNGCAP TUNG<sup>MODULAR</sup>SYSTEM**

TungCap shank for blade, with channels for high pressure coolant



Right hand blade (R) shown.

Designation	DCONMS	LPR	LPOS	WPOS
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

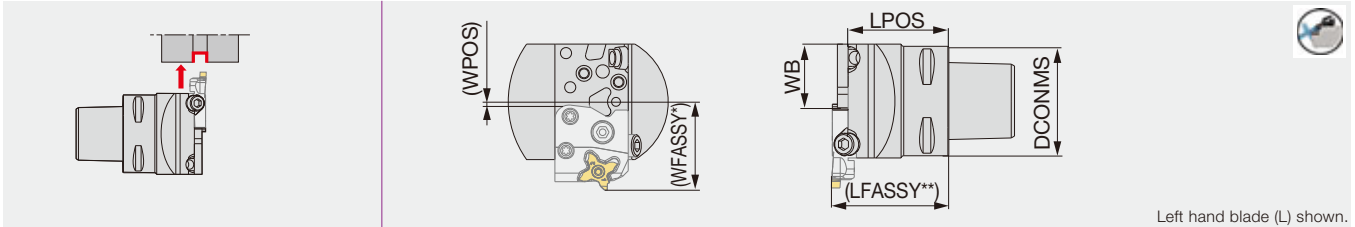
See page 39 for blade assembly/disassembly instructions

**New**

## C\*CHFVN-CHP

TUNG**CAP** TUNG**M**<sup>OBULAR</sup>SYSTEM

TungCap shank for blade, with channels for high pressure coolant



Left hand blade (L) shown.

Designation	DCONMS	LPOS	WB	WPOS
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 39 for blade assembly/disassembly instructions



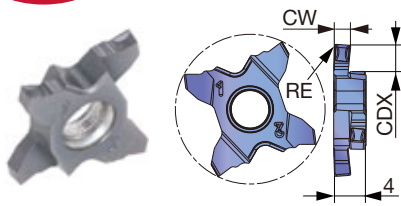
## Standard lineup of TetraMini-Cut grooving inserts

Groove width CW (mm)	Corner rad. RE (mm)	<b>New</b>				
		TCL18R (P.18)	TCS18R (P.19)	TCG18R/L (P.20)	TCP18R/L (P.22)	TCP18R/L-F (P.23)
		AH7025 Honed edge	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		●	●		
1.40	0.1		●	●	●	●
	0.2		●	●		
1.45	0.05					●
	0.1		●	●	●	●
	0.2			●		
1.50	0.05					●
	0.1	●	●	●	●	●
	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	●	●	●	●	●
	0.2	●	●	●		
2.25	0.2		●	●		
2.30	0.2		●	●		
2.50	0.1		●	●	●	●
	0.2		●	●		
	0.3		●	●		
2.65	0.3		●	●		
2.80	0.3		●	●		
3.00	0.1	●	●	●	●	●
	0.2	●	●	●		
	0.3	●	●	●		

For standard threading inserts of TetraMini-Cut, please see P.25

●: New  
●: Line up

**New** TCL18R (3D chipbreaker, honed edge)



<b>P</b>	Steel	★							
<b>M</b>	Stainless	★							
<b>K</b>	Cast iron	★							
<b>N</b>	Non-ferrous								
<b>S</b>	Superalloys	★							
<b>H</b>	Hard materials								

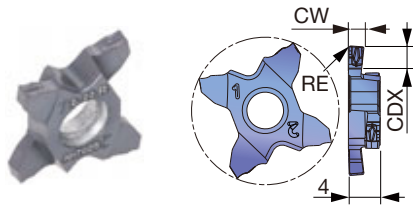
★ : First choice  
☆ : Second choice

Designation	HAND	CW±0.02	RE	Coated							CDX
				AH7025							
TCL18R150-010	R	1.5	0.1	●							3.5
TCL18R150-020	R	1.5	0.2	●							3.5
TCL18R200-010	R	2	0.1	●							3.5
TCL18R200-020	R	2	0.2	●							3.5
TCL18R300-010	R	3	0.1	●							3.5
TCL18R300-020	R	3	0.2	●							3.5
TCL18R300-030	R	3	0.3	●							3.5

5 pieces per package

● : New

## TCS18R (3D chipbreaker, honed edge)



<b>P</b>	Steel	★
<b>M</b>	Stainless	★
<b>K</b>	Cast iron	★
<b>N</b>	Non-ferrous	
<b>S</b>	Superalloys	★
<b>H</b>	Hard materials	

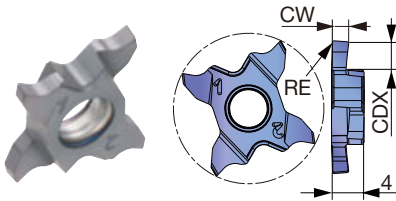
★ : First choice  
☆ : Second choice

Designation	HAND	CW±0.02	RE	Coated						CDX
				AH7025						
TCS18R100-010	R	1	0.1	●						2
TCS18R120-010	R	1.2	0.1	●						2
TCS18R125-010	R	1.25	0.1	●						2
TCS18R125-020	R	1.25	0.2	●						2
TCS18R130-020	R	1.3	0.2	●						3.5
TCS18R140-010	R	1.4	0.1	●						3.5
TCS18R140-020	R	1.4	0.2	●						3.5
TCS18R145-010	R	1.45	0.1	●						3.5
TCS18R150-010	R	1.5	0.1	●						3.5
TCS18R150-020	R	1.5	0.2	●						3.5
TCS18R160-020	R	1.6	0.2	●						3.5
TCS18R170-020	R	1.7	0.2	●						3.5
TCS18R175-010	R	1.75	0.1	●						3.5
TCS18R175-020	R	1.75	0.2	●						3.5
TCS18R185-020	R	1.85	0.2	●						3.5
TCS18R195-020	R	1.95	0.2	●						3.5
TCS18R200-010	R	2	0.1	●						3.5
TCS18R200-020	R	2	0.2	●						3.5
TCS18R225-020	R	2.25	0.2	●						3.5
TCS18R230-020	R	2.3	0.2	●						3.5
TCS18R250-010	R	2.5	0.2	●						3.5
TCS18R250-020	R	2.5	0.2	●						3.5
TCS18R250-030	R	2.5	0.3	●						3.5
TCS18R265-030	R	2.65	0.3	●						3.5
TCS18R280-030	R	2.8	0.3	●						3.5
TCS18R300-010	R	3	0.1	●						3.5
TCS18R300-020	R	3	0.2	●						3.5
TCS18R300-030	R	3	0.3	●						3.5

5 pieces per package

● : Line up

## TCG18R/L (with edge preparation)



<b>P</b>	Steel	★								
<b>M</b>	Stainless	★								
<b>K</b>	Cast iron	★								
<b>N</b>	Non-ferrous									
<b>S</b>	Superalloys	★								
<b>H</b>	Hard materials									

★ : First choice  
☆ : Second choice

Designation	HAND	CW±0.02	RE	Coated							CDX
				AH7025							
TCG18R100-010	R	1	0.1	●							2
TCG18L100-010	L	1	0.1	●							2
TCG18R120-010	R	1.2	0.1	●							2
TCG18L120-010	L	1.2	0.1	●							2
TCG18R125-010	R	1.25	0.1	●							2
TCG18L125-010	L	1.25	0.1	●							2
TCG18R125-020	R	1.25	0.2	●							2
TCG18L125-020	L	1.25	0.2	●							2
TCG18R130-020	R	1.3	0.2	●							2
TCG18L130-020	L	1.3	0.2	●							2
TCG18R140-010	R	1.4	0.1	●							3.5
TCG18L140-010	L	1.4	0.1	●							3.5
TCG18R140-020	R	1.4	0.2	●							3.5
TCG18L140-020	L	1.4	0.2	●							3.5
TCG18R145-010	R	1.45	0.1	●							3.5
TCG18L145-010	L	1.45	0.1	●							3.5
TCG18R145-020	R	1.45	0.2	●							3.5
TCG18L145-020	L	1.45	0.2	●							3.5
TCG18R150-010	R	1.5	0.1	●							3.5
TCG18L150-010	L	1.5	0.1	●							3.5
TCG18R150-020	R	1.5	0.2	●							3.5
TCG18L150-020	L	1.5	0.2	●							3.5
TCG18R160-020	R	1.6	0.2	●							3.5
TCG18L160-020	L	1.6	0.2	●							3.5
TCG18R170-020	R	1.7	0.2	●							3.5
TCG18L170-020	L	1.7	0.2	●							3.5
TCG18R175-010	R	1.75	0.1	●							3.5
TCG18L175-010	L	1.75	0.1	●							3.5
TCG18R175-020	R	1.75	0.2	●							3.5
TCG18L175-020	L	1.75	0.2	●							3.5
TCG18R185-020	R	1.85	0.2	●							3.5
TCG18L185-020	L	1.85	0.2	●							3.5
TCG18R195-020	R	1.95	0.2	●							3.5
TCG18L195-020	L	1.95	0.2	●							3.5

5 pieces per package

● : Line up



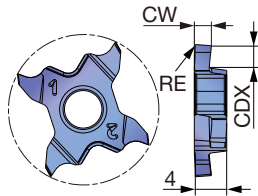
<b>P</b>	Steel	★							
<b>M</b>	Stainless	★							
<b>K</b>	Cast iron	★							
<b>N</b>	Non-ferrous								
<b>S</b>	Superalloys	★							
<b>H</b>	Hard materials								

★ : First choice  
☆ : Second choice

Designation	HAND	CW±0.02	RE	Coated					CDX	
				AH7025						
TCG18R200-010	R	2	0.1	●						3.5
TCG18L200-010	L	2	0.1	●						3.5
TCG18R200-020	R	2	0.2	●						3.5
TCG18L200-020	L	2	0.2	●						3.5
TCG18R225-020	R	2.25	0.2	●						3.5
TCG18L225-020	L	2.25	0.2	●						3.5
TCG18R230-020	R	2.3	0.2	●						3.5
TCG18L230-020	L	2.3	0.2	●						3.5
TCG18R250-010	R	2.5	0.1	●						3.5
TCG18L250-010	L	2.5	0.1	●						3.5
TCG18R250-020	R	2.5	0.2	●						3.5
TCG18L250-020	L	2.5	0.2	●						3.5
TCG18R250-030	R	2.5	0.3	●						3.5
TCG18L250-030	L	2.5	0.3	●						3.5
TCG18R265-030	R	2.65	0.3	●						3.5
TCG18L265-030	L	2.65	0.3	●						3.5
TCG18R280-030	R	2.8	0.3	●						3.5
TCG18L280-030	L	2.8	0.3	●						3.5
TCG18R300-010	R	3	0.1	●						3.5
TCG18L300-010	L	3	0.1	●						3.5
TCG18R300-020	R	3	0.2	●						3.5
TCG18L300-020	L	3	0.2	●						3.5
TCG18R300-030	R	3	0.3	●						3.5
TCG18L300-030	L	3	0.3	●						3.5

5 pieces per package  
● : Line up

## TCP18R/L (lightly honed edge)



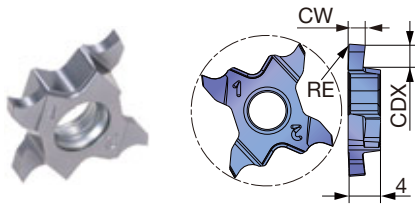
<b>P</b>	Steel	★
<b>M</b>	Stainless	★
<b>K</b>	Cast iron	★
<b>N</b>	Non-ferrous	
<b>S</b>	Superalloys	★
<b>H</b>	Hard materials	

★ : First choice  
☆ : Second choice

Designation	HAND	CW±0.02	RE	Coated							CDX
				AH725							
TCP18R033-005	R	0.33	0.05	●							0.8
TCP18L033-005	L	0.33	0.05	●							0.8
TCP18R043-005	R	0.43	0.05	●							1.2
TCP18L043-005	L	0.43	0.05	●							1.2
TCP18R050-005	R	0.50	0.05	●							1.2
TCP18L050-005	L	0.50	0.05	●							1.2
TCP18R075-005	R	0.75	0.05	●							2
TCP18L075-005	L	0.75	0.05	●							2
TCP18R095-005	R	0.95	0.05	●							2
TCP18L095-005	L	0.95	0.05	●							2
TCP18R100-010	R	1	0.1	●							2
TCP18L100-010	L	1	0.1	●							2
TCP18R120-010	R	1.2	0.1	●							2
TCP18L120-010	L	1.2	0.1	●							2
TCP18R125-010	R	1.25	0.1	●							2
TCP18L125-010	L	1.25	0.1	●							2
TCP18R140-010-35	R	1.4	0.1	●							3.5
TCP18L140-010-35	L	1.4	0.1	●							3.5
TCP18R145-010	R	1.45	0.1	●							2
TCP18L145-010	L	1.45	0.1	●							2
TCP18R145-010-35	R	1.45	0.1	●							3.5
TCP18L145-010-35	L	1.45	0.1	●							3.5
TCP18R150-010	R	1.5	0.1	●							2
TCP18L150-010	L	1.5	0.1	●							2
TCP18R150-010-35	R	1.5	0.1	●							3.5
TCP18L150-010-35	L	1.5	0.1	●							3.5
TCP18R175-010	R	1.75	0.1	●							2
TCP18L175-010	L	1.75	0.1	●							2
TCP18R175-010-35	R	1.75	0.1	●							3.5
TCP18L175-010-35	L	1.75	0.1	●							3.5
TCP18R200-010	R	2	0.1	●							2.5
TCP18L200-010	L	2	0.1	●							2.5
TCP18R200-010-35	R	2	0.1	●							3.5
TCP18L200-010-35	L	2	0.1	●							3.5
TCP18R250-010	R	2.5	0.1	●							2.5
TCP18L250-010	L	2.5	0.1	●							2.5
TCP18R250-010-35	R	2.5	0.1	●							3.5
TCP18L250-010-35	L	2.5	0.1	●							3.5
TCP18R300-010	R	3	0.1	●							2.5
TCP18L300-010	L	3	0.1	●							2.5
TCP18R300-010-35	R	3	0.1	●							3.5
TCP18L300-010-35	L	3	0.1	●							3.5

5 pieces per package  
● : Line up

## TCP18R/L-F (sharp edge)



P	Steel	★
M	Stainless	★
K	Cast iron	★
N	Non-ferrous	
S	Superalloys	★
H	Hard materials	

★ : First choice  
☆ : Second choice

Designation	HAND	CW±0.02	RE	Coated						CDX
				SH725						
TCP18R033F-005	R	0.33	0.05	●						0.8
TCP18L033F-005	L	0.33	0.05	●						0.8
TCP18R043F-005	R	0.43	0.05	●						1.2
TCP18L043F-005	L	0.43	0.05	●						1.2
TCP18R050F-005	R	0.5	0.05	●						1.2
TCP18L050F-005	L	0.5	0.05	●						1.2
TCP18R075F-005	R	0.75	0.05	●						2
TCP18L075F-005	L	0.75	0.05	●						2
TCP18R095F-005	R	0.95	0.05	●						2
TCP18L095F-005	L	0.95	0.05	●						2
TCP18R100F-005	R	1	0.05	●						2
TCP18R100F-010	R	1	0.1	●						2
TCP18L100F-010	L	1	0.1	●						2
TCP18R120F-005	R	1.2	0.05	●						2
TCP18R120F-010	R	1.2	0.1	●						2
TCP18L120F-010	L	1.2	0.1	●						2
TCP18R125F-005	R	1.25	0.05	●						2
TCP18R125F-010	R	1.25	0.1	●						2
TCP18L125F-010	L	1.25	0.1	●						2
TCP18R140F-010-35	R	1.4	0.1	●						3.5
TCP18R145F-005-35	R	1.45	0.05	●						3.5
TCP18R145F-010	R	1.45	0.1	●						2
TCP18L145F-010	L	1.45	0.1	●						2
TCP18R145F-010-35	R	1.45	0.1	●						3.5
TCP18L145F-010-35	L	1.45	0.1	●						3.5
TCP18R150F-005-35	R	1.5	0.05	●						3.5
TCP18R150F-010	R	1.5	0.1	●						2
TCP18L150F-010	L	1.5	0.1	●						2
TCP18R150F-010-35	R	1.5	0.1	●						3.5
TCP18L150F-010-35	L	1.5	0.1	●						3.5
TCP18R175F-005-35	R	1.75	0.05	●						3.5
TCP18R175F-010	R	1.75	0.1	●						2
TCP18L175F-010	L	1.75	0.1	●						2
TCP18R175F-010-35	R	1.75	0.1	●						3.5
TCP18L175F-010-35	L	1.75	0.1	●						3.5
TCP18R200F-005-35	R	2	0.05	●						3.5
TCP18R200F-010	R	2	0.1	●						2.5
TCP18L200F-010	L	2	0.1	●						2.5
TCP18R200F-010-35	R	2	0.1	●						3.5
TCP18L200F-010-35	L	2	0.1	●						3.5
TCP18R250F-010	R	2.5	0.1	●						2.5
TCP18L250F-010	L	2.5	0.1	●						2.5
TCP18R250F-010-35	R	2.5	0.1	●						3.5
TCP18L250F-010-35	L	2.5	0.1	●						3.5
TCP18R300F-010	R	3	0.1	●						2.5
TCP18L300F-010	L	3	0.1	●						2.5
TCP18R300F-010-35	R	3	0.1	●						3.5
TCP18L300F-010-35	L	3	0.1	●						3.5

5 pieces per package  
● : Line up

## STANDARD CUTTING CONDITIONS

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

ISO	Workpiece materials	Grades	Cutting speed Vc (m/min)	Feed: f (mm/rev)		
				TCL18	TCS18	TCG18
<b>P</b>	Low carbon steel (S15C / C15, S20C / C20, etc.)	AH7025	80 - 180	<b>0.03 - 0.12</b>	0.04 - 0.16	0.04 - 0.14
	Carbon steels, Alloy steel (S55C / C55, SCM440 / 42CrMoS4, etc.)	AH7025	80 - 180	<b>0.03 - 0.12</b>	0.04 - 0.16	0.04 - 0.14
	Prehardened steel (NAK80, PX5, etc.)	AH7025	80 - 180	<b>0.03 - 0.12</b>	0.04 - 0.16	0.04 - 0.14
<b>M</b>	Stainless steel (SUS304 / X5CrNi18-9, X5CrNiMo17-12-2, etc.)	AH7025	50 - 120	<b>0.03 - 0.12</b>	0.04 - 0.16	0.04 - 0.14
<b>K</b>	Grey cast iron (FC250 / GG25 / 250, FC300 / GG30 / 300, etc.)	AH7025	50 - 180	<b>0.03 - 0.12</b>	0.04 - 0.16	0.04 - 0.14
	Ductile cast iron (FCD400 / 400-15, FCD600 / 600-3, etc.)	AH7025	50 - 180	<b>0.03 - 0.12</b>	0.04 - 0.16	0.04 - 0.14
<b>S</b>	Titanium alloys (Ti-6Al-4V, etc.)	AH7025	30 - 80	<b>0.03 - 0.12</b>	0.04 - 0.16	0.04 - 0.14
	Superalloys (Inconel718, etc.)	AH7025	20 - 60	<b>0.03 - 0.12</b>	0.04 - 0.16	0.04 - 0.14

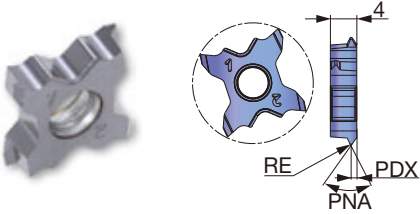
### TCP18R/L (lightly honed edge) / TCP18R/L-F (sharp edge)

ISO	Workpiece materials	Priority	Grades	Cutting speed Vc (m/min)	Feed f (mm/rev)
<b>P</b>	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
<b>M</b>	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
<b>K</b>	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
<b>S</b>	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



**New**

## TCT18FR/R-ISO (Full profile threading insert)



Right-hand (R) shown.

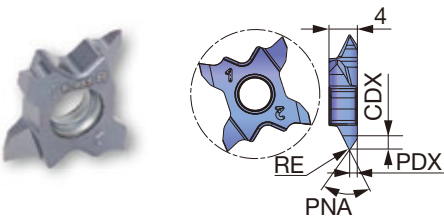
<b>P</b>	Steel	★	★						
<b>M</b>	Stainless	★	★						
<b>K</b>	Cast iron	★	★						
<b>N</b>	Non-ferrous								
<b>S</b>	Superalloys	★	★						
<b>H</b>	Hard materials								

★ : First choice  
☆ : Second choice

Designation	HAND	RE	Coated		Pitch min	Pitch max	PDX	PNA
			SH725	AH725				
TCT18FR-05ISO	R	0.06	●		0.5	0.35	60°	
TCT18FR-07ISO	R	0.09	●		0.7	0.45	60°	
TCT18FR-075ISO	R	0.09	●		0.75	0.5	60°	
TCT18FR-08ISO	R	0.1	●		0.8	0.5	60°	
TCT18R-10ISO	R	0.13		●	1	0.6	60°	
TCT18R-125ISO	R	0.17		●	1.25	0.7	60°	
TCT18R-15ISO	R	0.2		●	1.5	0.8	60°	

● : Line up

## TCT18FR/R/L (Threading insert)



Right-hand (R) shown.

<b>P</b>	Steel	★	★						
<b>M</b>	Stainless	★	★						
<b>K</b>	Cast iron	★	★						
<b>N</b>	Non-ferrous								
<b>S</b>	Superalloys	★	★						
<b>H</b>	Hard materials								

★ : First choice  
☆ : Second choice

Designation	HAND	RE	Coated		Pitch min	Pitch max	PDX	CDX	PNA
			SH725	AH725					
TCT18FR-60A-005	R	0.05	●		0.4	1	0.6	0.99	60°
TCT18FR-60A-010	R	0.1	●		1	2	1	1.63	60°
TCT18R-60N-010	R	0.1		●	0.8	3	1.6	2.67	60°
TCT18L-60N-010	L	0.1		●	0.8	3	1.6	2.67	60°
TCT18R-60N-020	R	0.2		●	1.5	3	1.6	2.57	60°
TCT18L-60N-020	L	0.2		●	1.5	3	1.6	2.57	60°

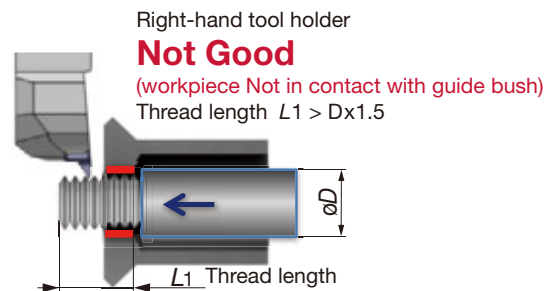
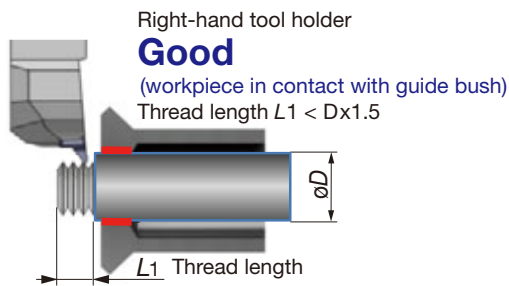
● : Line up

## STANDARD CUTTING CONDITIONS

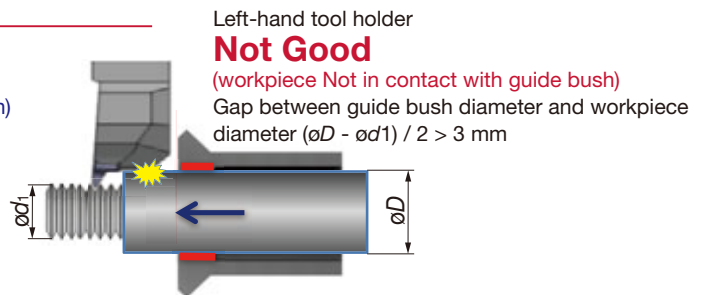
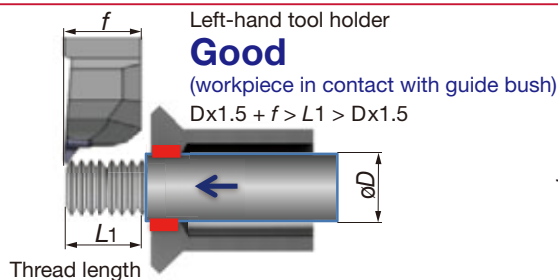
### TCT18FR/R-ISO (Full profile threading insert) / TCT18FR (Threading insert)

ISO	Workpiece materials	Priority	Grades	Cutting speed Vc (m/min)	Pitch (mm)	TPI
<b>P</b>	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
<b>M</b>	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
<b>K</b>	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
<b>S</b>	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

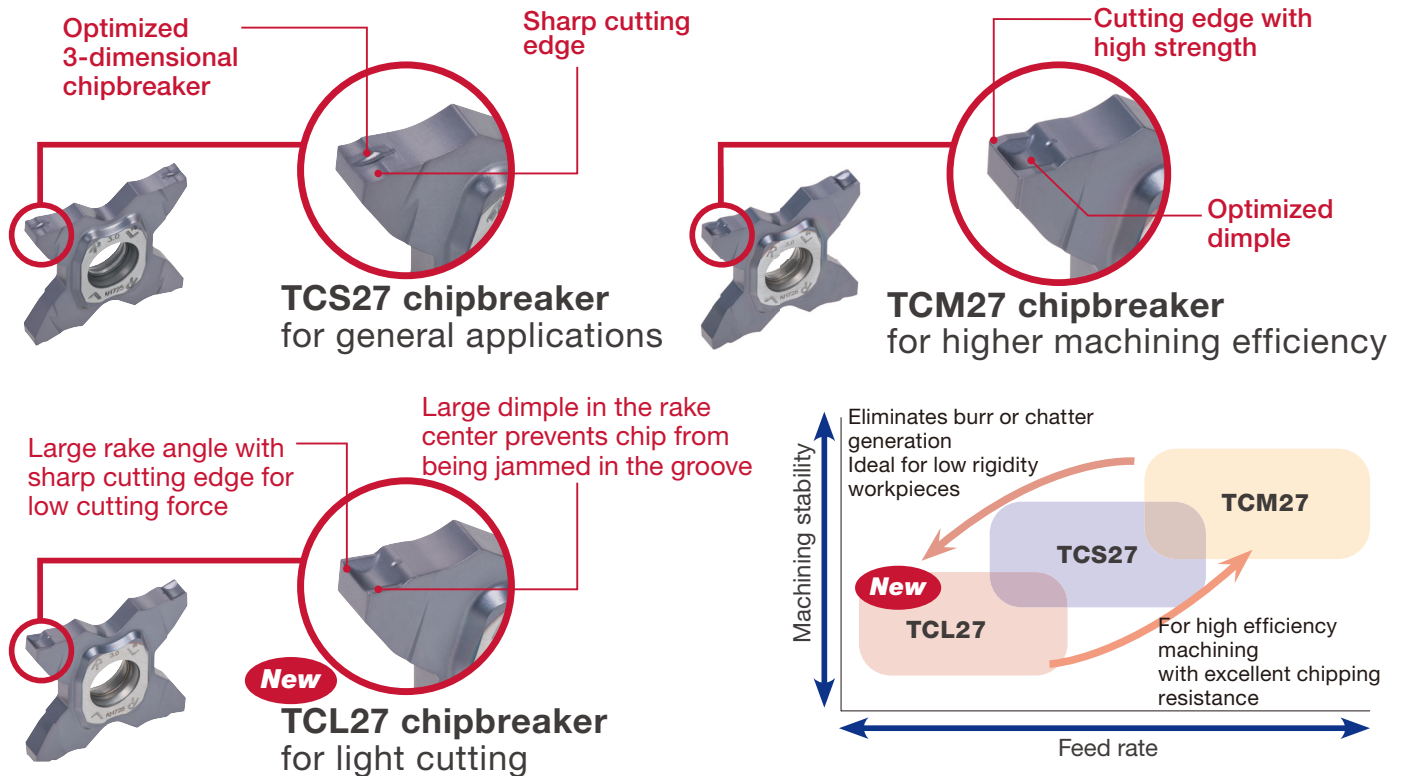


### Threading operation following back-turning

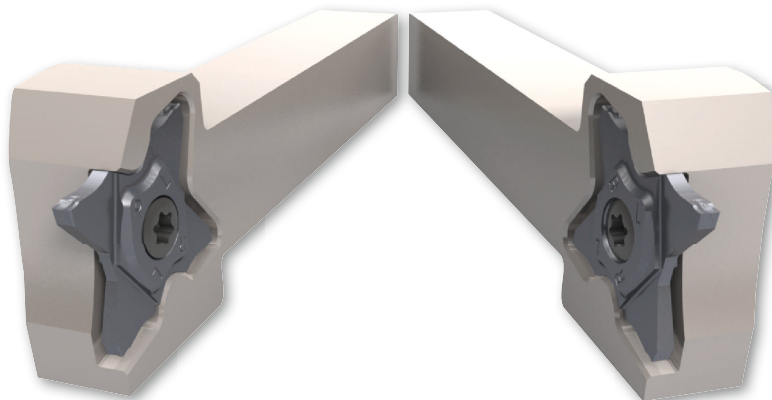


## INNOVATIVE INSERTS

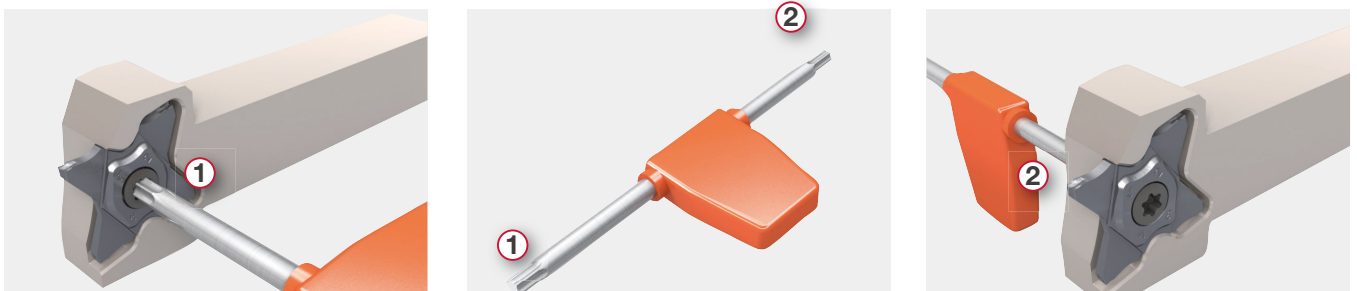
- Suitable for precision grooving or parting-off in general machining including small parts
- Three types of chipbreakers available for TC\*27 inserts



## 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 TCL27 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

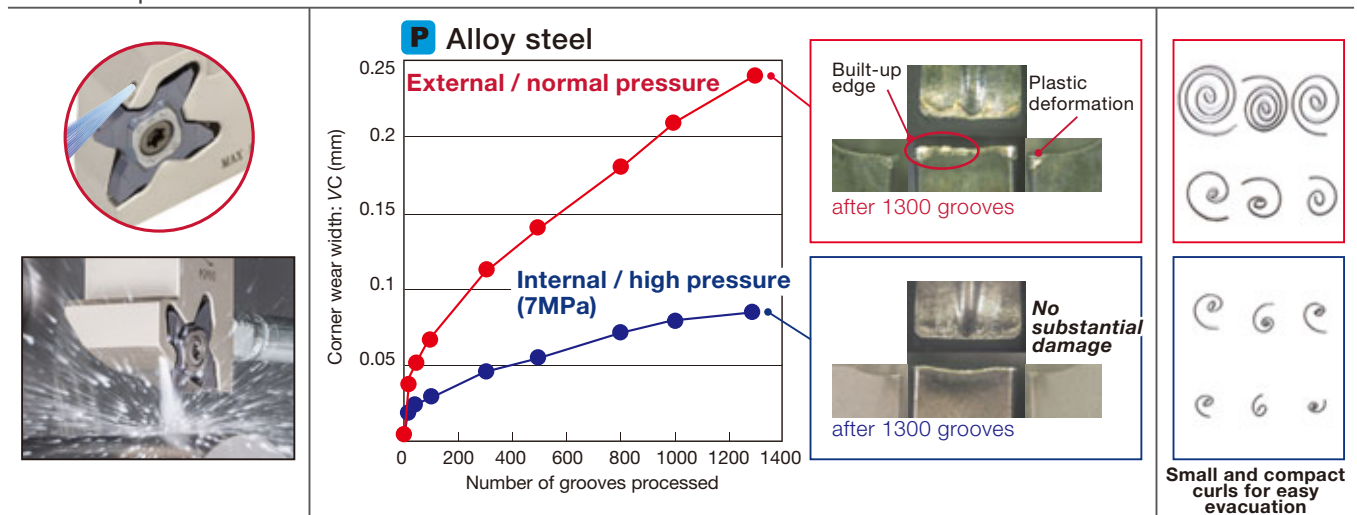
	$f = 0.05$ mm/rev	$f = 0.07$ mm/rev	$f = 0.1$ mm/rev	$f = 0.12$ mm/rev
$V_c = 150$ m/min				

## 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

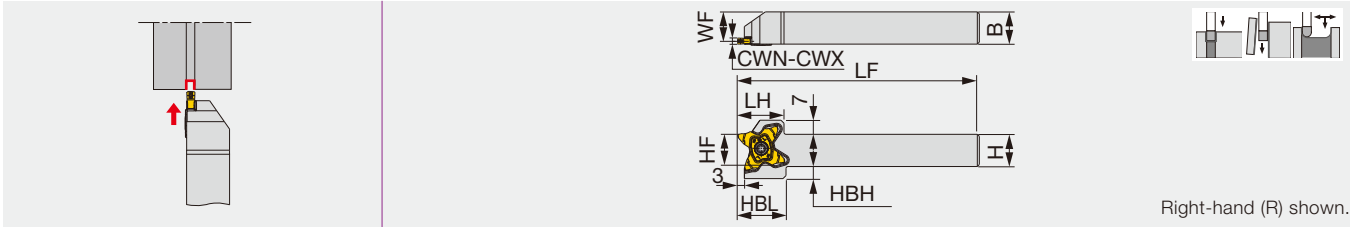
## CHP type toolholders for high-pressure coolant

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

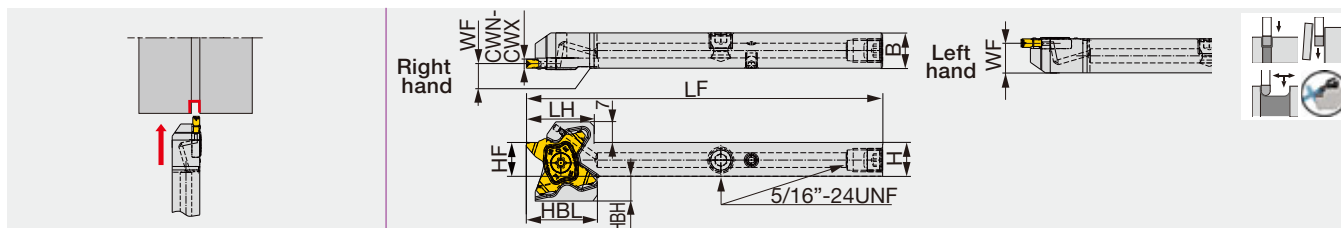


Designation	Screw	Wrench
STCR*-27	SR16-212-01397L	T-2010/5
STCL*-27	SR16-212-01397	T-2010/5

## STCR/L-27-CHP

**DIRECTTUNGJET**

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



Designation	CWN	CWX	H	B	LF	LH	HF	WF <sup>(1)</sup>	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

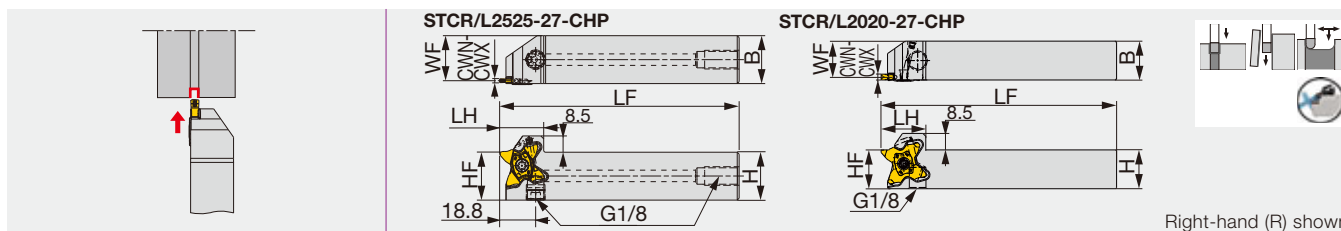
\*Torque: Recommended torque (N·m) for clamping

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

## STCR/L-27-CHP

**TUNGJET**

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 40 for connections and coolant hoses.

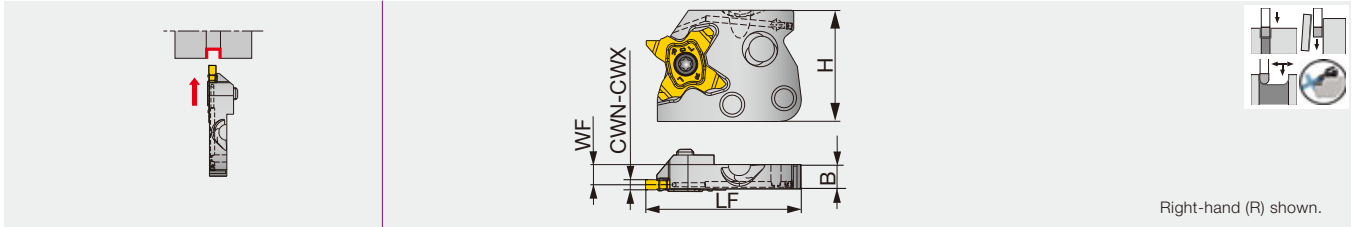


**New**

## STCAR/L27-CHP

TUNGALOY 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



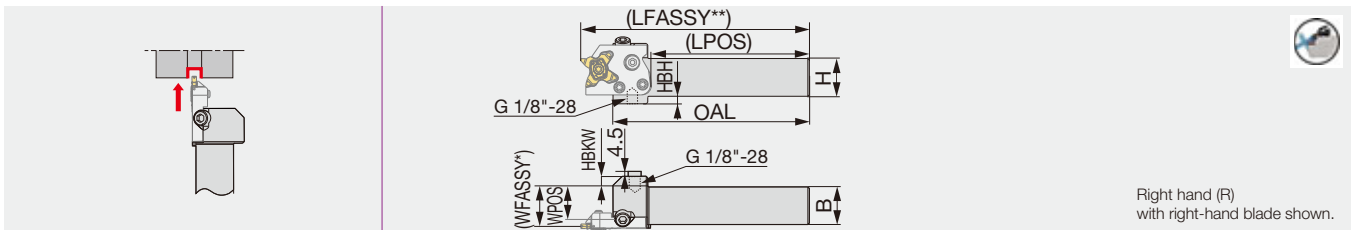
Designation	Screw	Wrench
STCAR27-CHP	SR16-212-01397L	T-2010/5
STCAL27-CHP	SR16-212-01397	T-2010/5

**New**

## CHSR/L-CHP

TUNGALOY SYSTEM

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



Right hand (R) with right-hand blade 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 39 for blade assembly/disassembly instructions

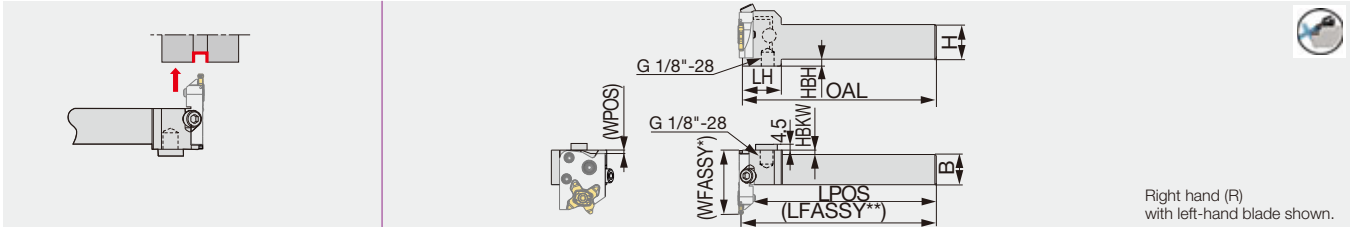
See page 40 for connections and coolant hoses

**New**

## CHFVR/L-CHP

TUNGALOY **M<sup>ODULAR</sup> SYSTEM**

Shank for blade, with channels for high pressure coolant



Right hand (R)  
with left-hand blade 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 39 for blade assembly/disassembly instructions

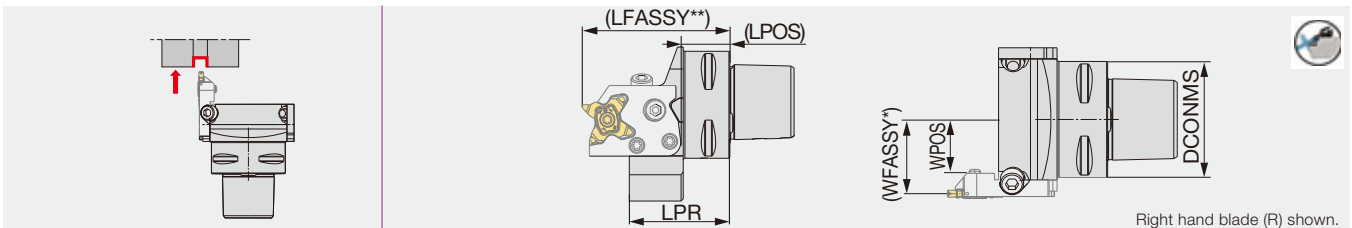
See page 40 for connections and coolant hoses

**New**

## C\*CHSN-CHP

TUNGALOY **TCAP** TUNGALOY **M<sup>ODULAR</sup> SYSTEM**

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



Right hand blade (R) shown.

Designation	DCONMS	LPR	LPOS	WPOS
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

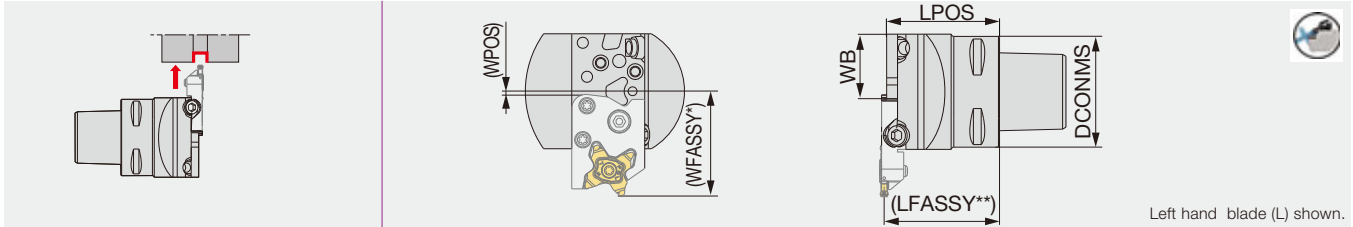
See page 39 for blade assembly/disassembly instructions

**New**

## C\*CHFVN-CHP

**TUNGCAP TUNGMSYSTEM**

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



Left hand blade (L) shown.

### Designation

	DCONMS	LPOS	WB	WPOS
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)

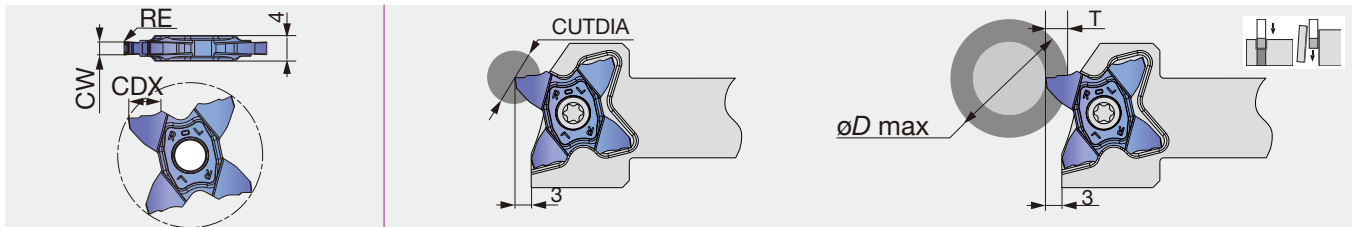
### SPARE PARTS

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 39 for blade assembly/disassembly instructions

**New**

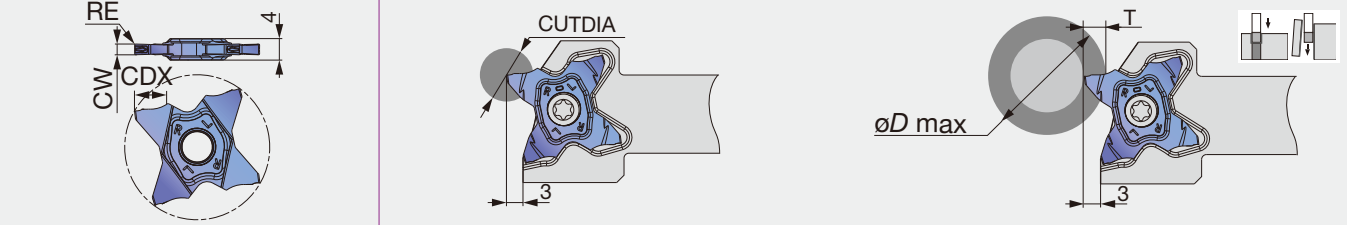
## TCL27



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

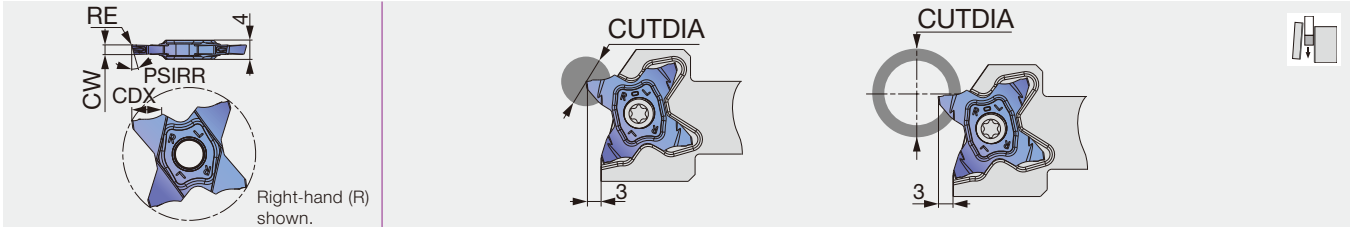
## TCS27



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	30
TCS27-200-020	●	2	0.2	6.4	12.8	∞	∞	∞	600	280	180	130	105	85	60	50	30	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	55
TCS27-300-020	●	3	0.2	6.4	12.8	∞	∞	∞	600	280	180	135	105	95	85	78	55	55
TCS27-300-030	●	3	0.3	6.4	12.8	∞	∞	∞	600	280	180	135	105	95	85	78	55	55
TCS27-300-040	●	3	0.4	6.4	12.8	∞	∞	∞	600	280	180	135	105	95	85	78	55	55
TCS27-315-015	●	3.15	0.15	6.4	12.8	∞	∞	∞	600	280	180	135	105	95	85	78	68	68
TCS27-318-020	●	3.18	0.2	6.4	12.8	∞	∞	∞	600	280	180	135	105	95	85	78	68	68

Package Quantity = 5 pcs.  
● : Line up

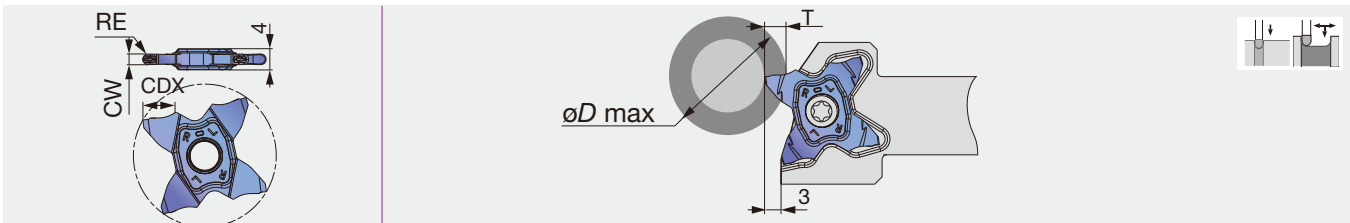
## TCS27-R/L



Designation	Grade		CW ± 0.02	RE	CDX	PSIRR/L	Max. parting-off dia.	
	AH725						øD max	
	R	L					Solid bar	Tube
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

## TCS27-Full R

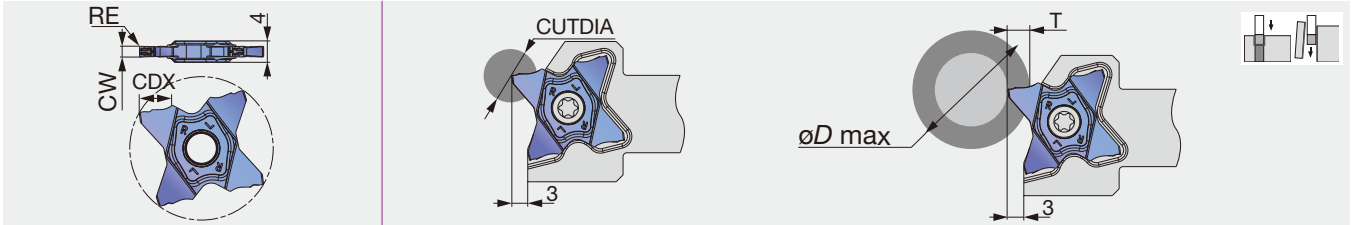


Designation	Grade	CW ± 0.02	RE	CDX	Relation of groove depth (T) and Max. diameter (øD max)												
					AH725												
					T≤1.0	T≤2.0	T≤3.0	T≤3.5	T≤4.0	T≤4.5	T≤5.0	T≤5.5	T≤5.7	T≤6.0	T≤6.2	T≤6.4	
TCS27-157-079	●	1.57	0.79	3	∞	∞	∞	-	-	-	-	-	-	-	-	-	
TCS27-200-100	●	2	1	3	∞	∞	∞	-	-	-	-	-	-	-	-	-	
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



## TCM27

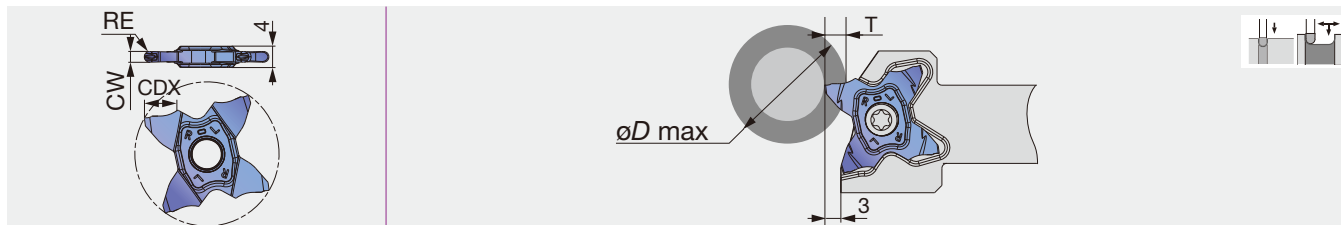


Designation	Grade AH725	CW ± 0.02	RE	CDX	CUTDIA	Relation of groove depth (T) and Max. diameter (øD max)											
						T≤1.0	T≤2.0	T≤3.0	T≤3.5	T≤4.0	T≤4.5	T≤5.0	T≤5.5	T≤5.7	T≤6.0	T≤6.2	T≤6.4
TCM27-150-010	●	1.5	0.1	5.7	11.4	∞	∞	∞	600	280	180	130	50	35	-	-	-
TCM27-150-020	●	1.5	0.2	5.7	11.4	∞	∞	∞	600	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

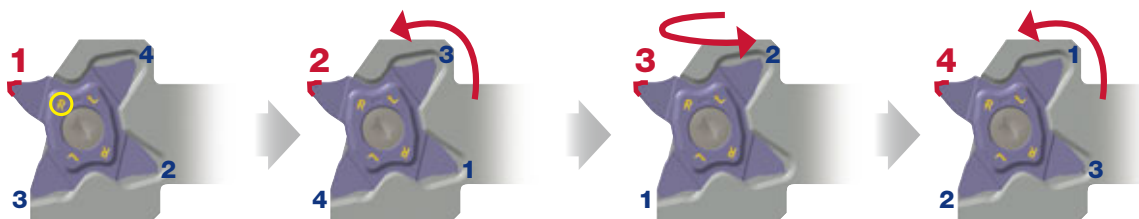
## TCM27-Full R



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

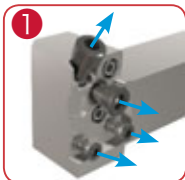
## STANDARD CUTTING CONDITIONS

ISO	Workpiece materials	Grades	Cutting speed Vc (m/min)	Feed: f (mm/rev)						Depth of cut for profiling (with full radius insert)
				Grooving, parting-off		Parting-off (with hand)		Profiling (with full radius insert)		
				TCL27	TCS27	TCM27	TCS27	TCS27	TCM27	
<b>P</b>	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
<b>M</b>	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
<b>K</b>	Grey cast iron (FC250 / 250 / GGG25, 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
<b>S</b>	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

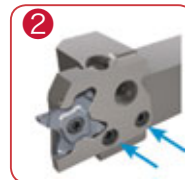
## Instructions for CHP blade assembly/disassembly



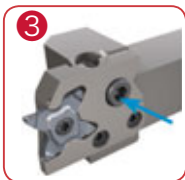
### Blade assembly



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



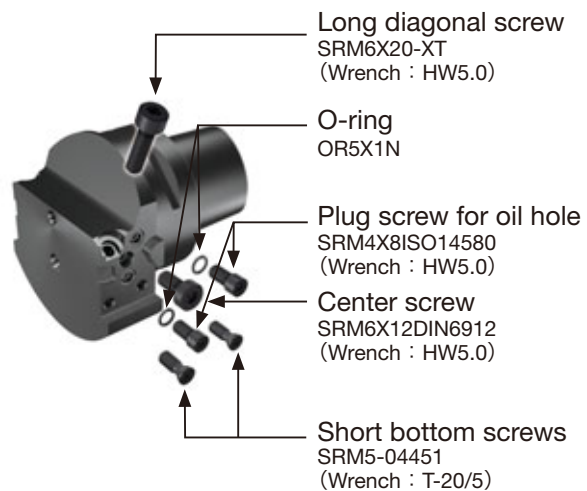
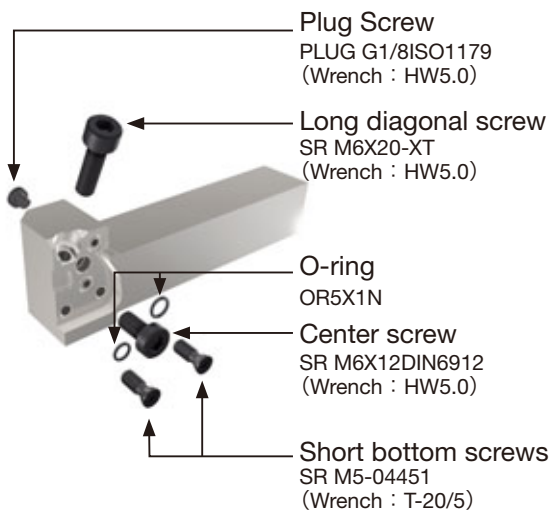
2 Place the blade and tighten 2 bottom clamping screws.



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

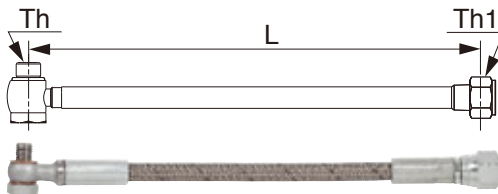
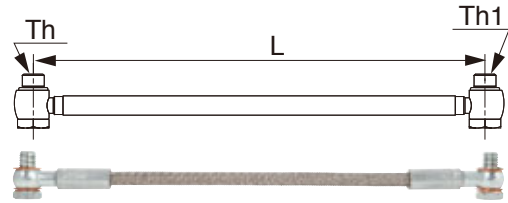
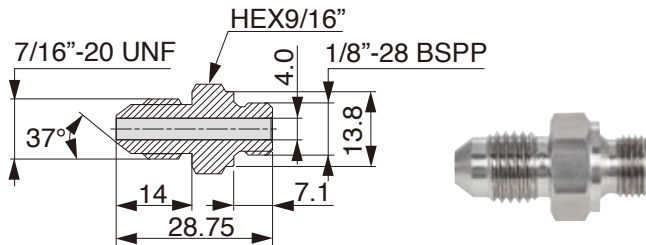


Fig. 2



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

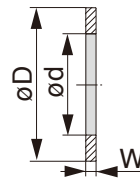
### Connector



#### Designation

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

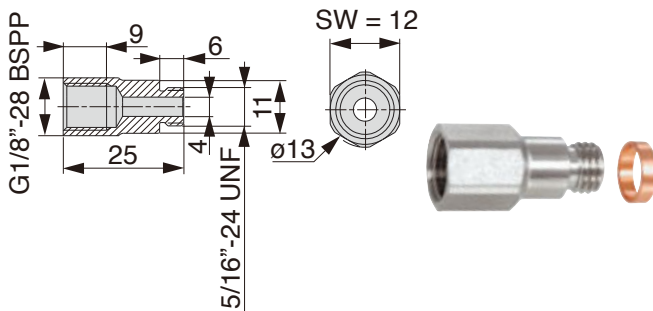
### Seal washer



#### 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



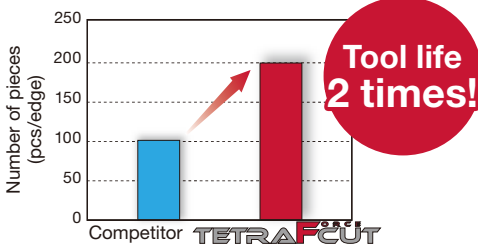
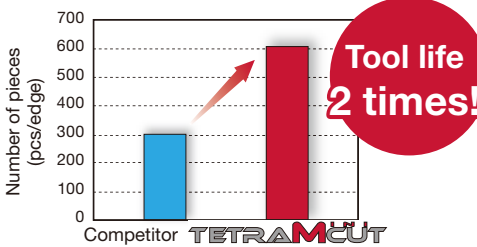
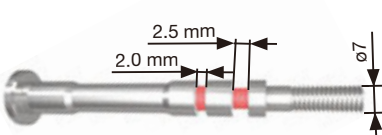
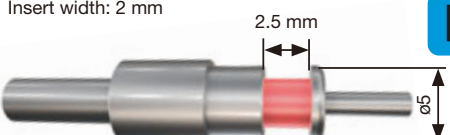
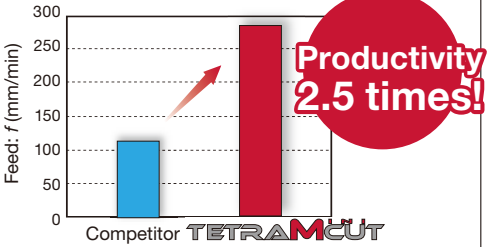

### Connector for small lathe with seal washer



#### 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	 <b>P</b>	 <b>P</b>	
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>	
	<p>Workpiece type</p> <p>Toolholder</p> <p>Insert</p> <p>Grade</p> <p>Workpiece material</p>	<p>Spool shaft</p> <p>STCR1010X18</p> <p>TCP18R200F-010</p> <p>SH725</p> <p>S45C / C45</p>  <b>P</b>	<p>Shaft</p> <p>STCR1212X18-CHP</p> <p>TCP18R200F-010</p> <p>SH725</p> <p>S15C / C15E4</p> <p>Insert width: 2 mm</p>  <b>P</b>
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><b>TUNG TJET</b> 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

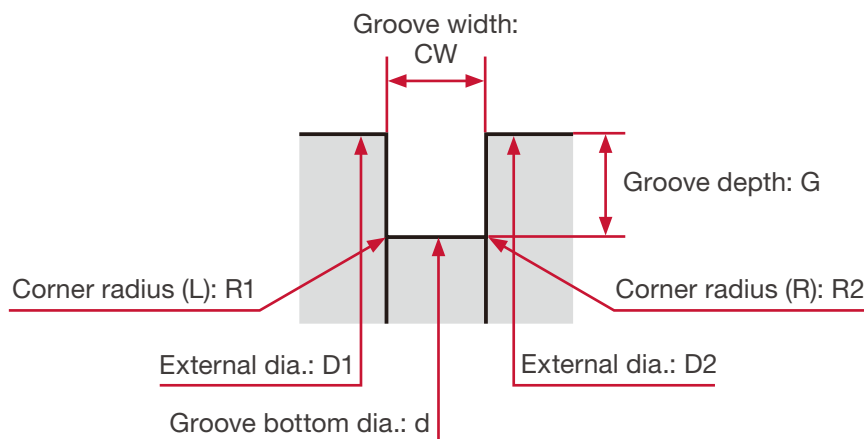
Coated carbide

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	
0.75 ~ 3.18 mm	~ 2.5 mm	0.05 ~ CW/2 (Full radius is available)	

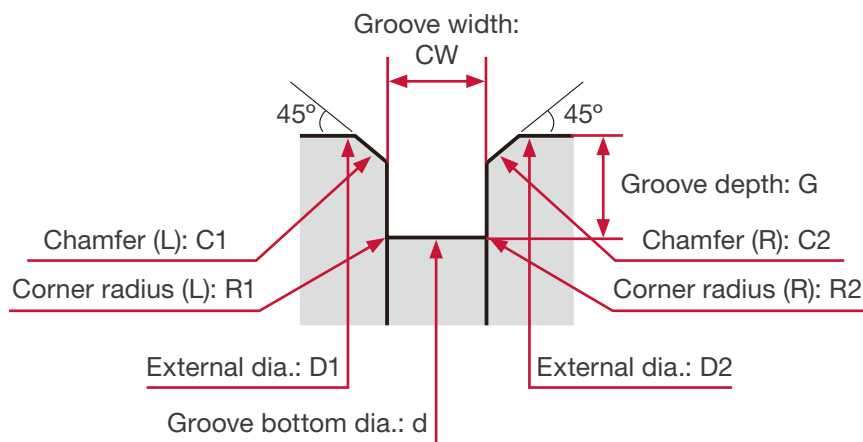
\*Tolerances of the insert are based on the standard item.

**TETRAFORCE**  
TUNGALOY

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



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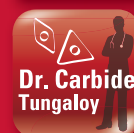
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