



Grooving and parting-off tool

TUNG^{HORT}**SCUT**

Tungaloy Report No. 391S8-G

New **STV** profile turning inserts
with **35° nose angle**





New double-ended internal grooving inserts with exceptional features

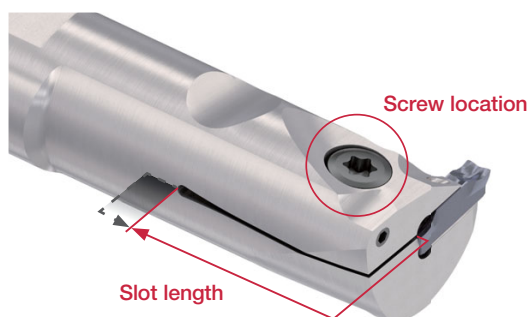
■ Robust toolholder design



CTIRS**

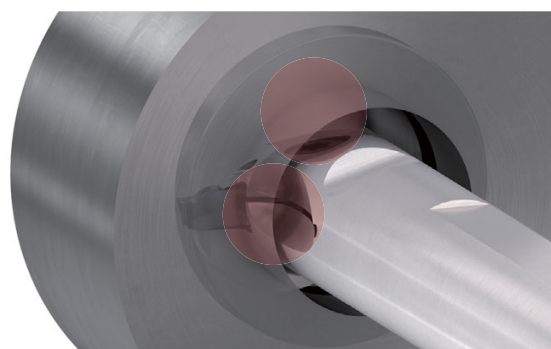
1 Improved chatter resistance

- Optimized screw location and slot length enhances insert clamping capability



2 Effective chip evacuation

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



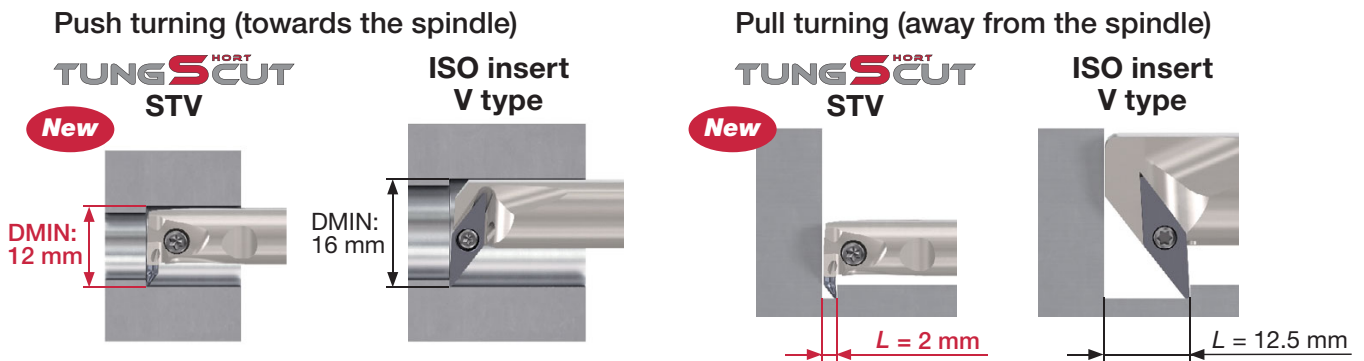
3 Internal coolant system

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



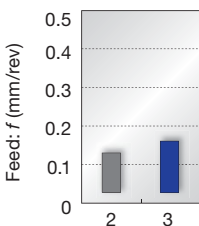
4 Produces various profiles

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

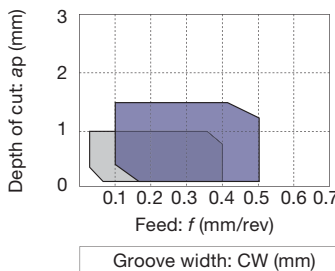


CHIPBREAKER GUIDE

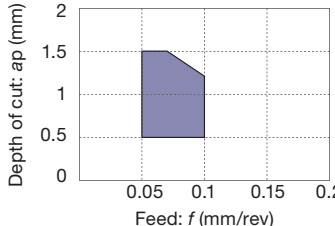
Internal grooving and parting

DGS*S type (2 corners) 	Lower cutting force and superior sharpness Uniquely designed edge and chipbreaker CW = 2 - 3 mm	■ Standard feed  Feed: f (mm/rev) Groove width: CW (mm)
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Profiling and undercutting

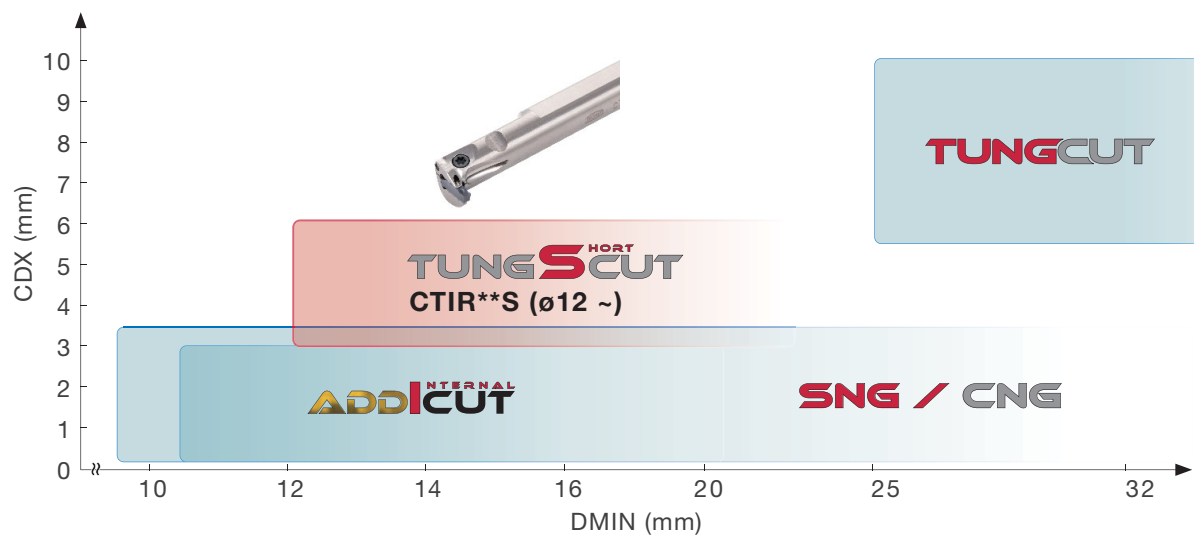
DTR*S type (2 corners) 	Full radius type Provides effective chip control during profile turning application Molded inserts available CW = 2 - 3 mm	■ Standard feed and DoC  Depth of cut: a_p (mm) Feed: f (mm/rev) Groove width: CW (mm) ■ 2 ■ 3
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Profiling

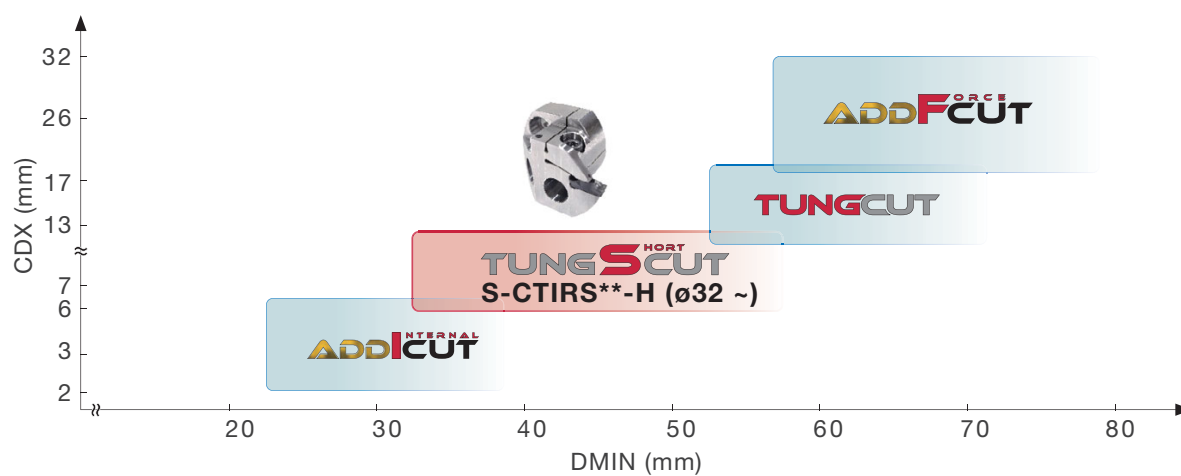
New STV*S type (1 corner) 	Full radius type Incorporating excellent cutting edge integrity and chip control, JS chipbreaker provides process security during profile turning, in which chip control is typically challenging. ■ Note: Depending on the depth of cut and cutting direction, the insert support may require modification to avoid tool collision. 	■ Standard feed and DoC  Depth of cut: a_p (mm) Feed: f (mm/rev)
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General internal grooving

Internal grooving holder



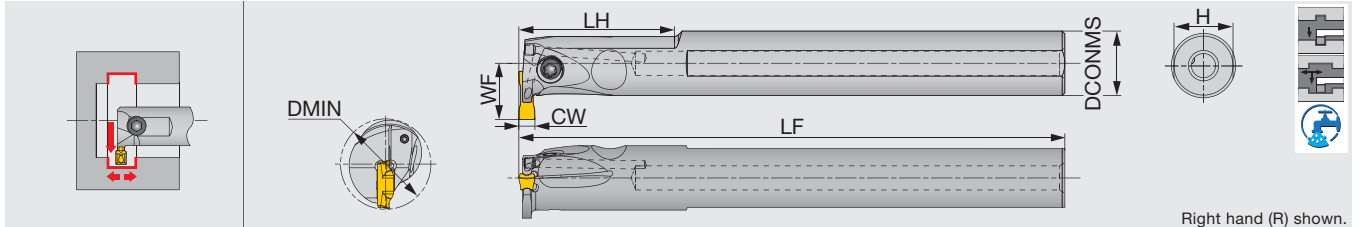
BoreMeister head



TOOLHOLDER

CTIR**S

Internal grooving and turning toolholder



Designation	CW	DMIN	Seat size	CDX	DCONMS	H	LF ⁽¹⁾	LH	WF	Insert	Torque*
CTIR10S2T03-D120	2	12	S2	3	10	9	100	22	8.4	D/S**2S...	1.3
CTIR12S2T04-D160	2	16	S2	4	12	11	100	28	10.5	D/S**2S...	2.3
CTIR16S2T06-D200	2	20	S2	6	16	15	110	36	14.5	D/S**2S...	3.5
CTIR12S3T04-D160	3	16	S3	4	12	11	100	28	10.5	D**3S...	2.3
CTIR16S3T06-D200	3	20	S3	6	16	15	110	36	14.5	D**3S...	3.5

(1) LF is calculated with the groove width CW in the above table.

*Torque: Recommended clamping torque (N·m)

SPARE PARTS

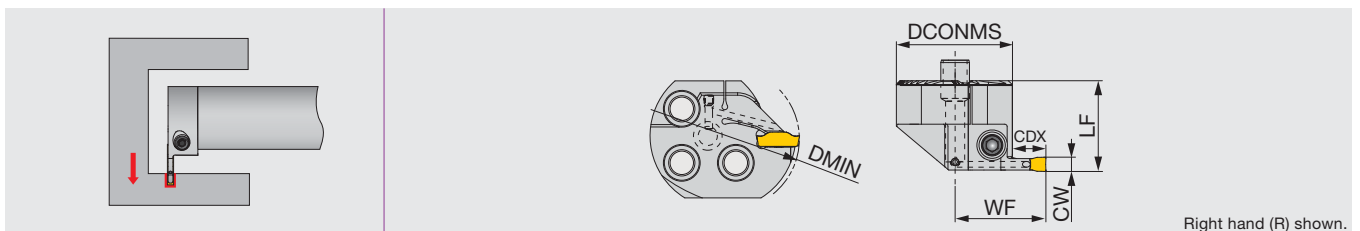
Designation	Clamping screw	Wrench
CTIR10S2T03-D120	CSTB-2.5L080	T-8F
CTIR12S2T04-D160	CSTB-3.5D	T-9F
CTIR16S2T06-D200	CSTB-4	T-15F

MODULAR HEAD

S-CTIRS-H

BOREMEISTER

Exchangeable boring head, for internal grooving



Designation	CW	CDX	DMIN	DCONMS	Seat size	LF ⁽¹⁾	WF	Shank	Insert
S25-CTIRS2T06D320-H	2	6	32	25	S2	19	19	D25	D/S**2S...
S32-CTIRS2T07D400-H	2	7	40	32	S2	23	23.5	D32	D/S**2S...
S25-CTIRS3T06D320-H	3	6	32	25	S3	19	19	D25	D**3S...
S32-CTIRS3T07D400-H	3	7	40	32	S3	23	23.5	D32	D**3S...

(1) The LF value is true when the insert with the same CW as indicated in the matching line is mounted in the pocket.

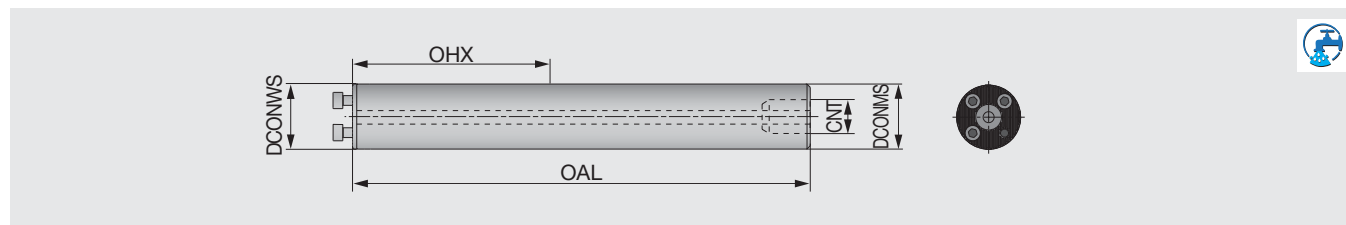
SPARE PARTS

Designation	Clamping screw	Wrench
S25-CTIRS*T06D320-H	CM3X0.5X6	P-2.5
S32-CTIRS*T07D400-H	CM5X0.8X8	P-4

Straight Shank

BOREMEISTER

Anti-vibration bar for exchangeable turning heads, with through coolant



Designation	Material	DCONWS	DCONMS	OAL	OHN ⁽¹⁾	OHX ⁽²⁾	CNT	CPI ⁽³⁾
D25-L255-7D-C	Steel	25	25	257.5	88	155	G1/4	4
D25-L330-10D-C	Steel	25	25	332.5	155	230	G1/4	4
G25-L380-12D-E	Carbide	25	25	380	230	280	G1/8	4
G25-L430-14D-E	Carbide	25	25	430	280	330	G1/8	4
D32-L320-7D-C	Steel	32	32	323	120	192	G3/8	5
D32-L416-10D-C	Steel	32	32	419	192	288	G3/8	5
G32-L480-12D-E	Carbide	32	32	480	288	352	G1/4	5
G32-L544-14D-E	Carbide	32	32	544	352	416	G1/4	5

(1) OHN: Minimum overhang

(2) OHX: Maximum overhang

(3) Maximum coolant pressure (MPa)

Note: When assembling a BoreMeister in a split sleeve, be aware that, depending on the clamp unit, the protruding bar end of the BoreMeister may interfere with the machine.

SPARE PARTS

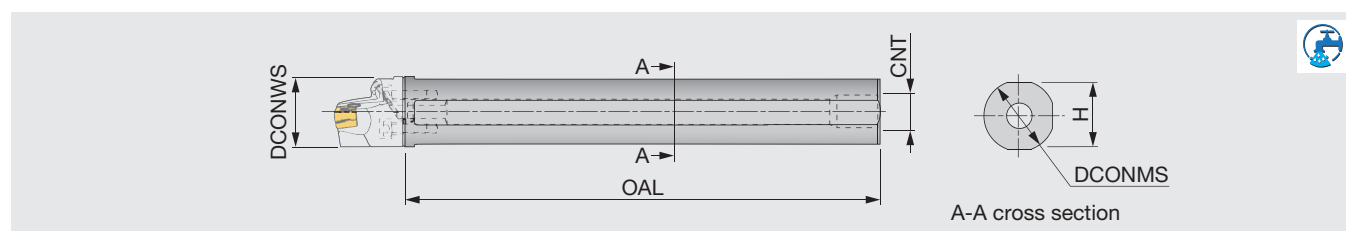


Designation	Clamping screw	Wrench
D25-L..., G25-L...	SR M4X12DIN912	HW 3.0
D32-L..., G32-L...	SR M5X12 DIN912	HW4.0

D#4D-SH

BOREMEISTER

Steel shank for internal turning, with through coolant



Designation	Material	DCONWS	DCONMS	OAL	CNT	H
D25-L200-4D-SH	Steel	25	25	200	UNF-2B 1/2"-20	23
D32-L218-4D-SH	Steel	32	32	218	UNF-2B 1/2"-20	29

SPARE PARTS

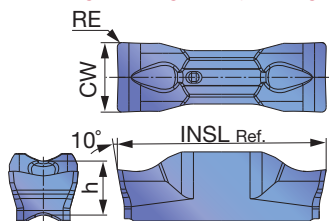


Designation	Clamping screw	Wrench
D25*4D-SH	SRM4X12DIN912	HW3.0
D32*4D-SH	SRM5X12DIN912	HW4.0

 INSERT

DGS*S

Internal grooving and parting



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

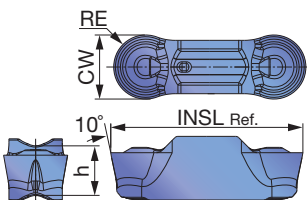
★ : First choice

[illegible]

●: Line up

DTR*S

Profiling and undercutting



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

★ : First choice

[illegible]

●: Line up

STANDARD CUTTING CONDITIONS

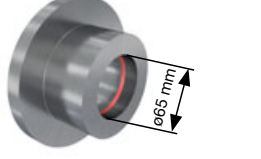
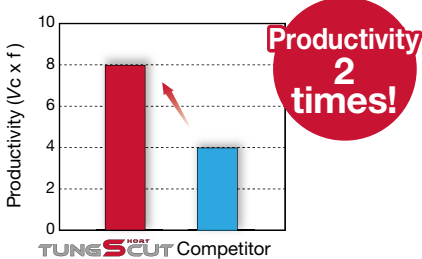
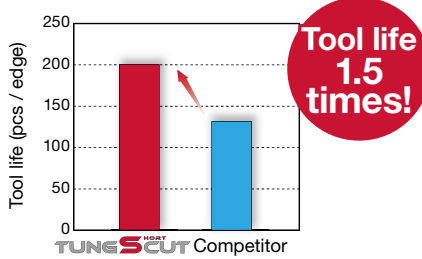
DGS*S, DTR*S

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

STV*S

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

PRACTICAL EXAMPLES

Workpiece type		Oil hydraulic equipment parts	Flywheel
Toolholder		CTIR10-S2T03-D120	CTIR16S2T06-D200
Insert		STV2S-020-35L-JS	DGS2S-010
Grade		AH725	AH7025
Workpiece material		SUS316 / X5CrNiMo17-12-3	SCr420 / 20Cr4
			
Cutting conditions	Cutting speed : V_c (m/min)	80	100
	Feed : f (mm/rev)	0.1	0.2
	Depth of cut : a_p (mm)	1	-
	Groove width : CW (mm)	-	2
	Machining	Internal turning	Internal grooving
	Coolant	Wet	Wet
Results		 TungShortCut STV insert eliminated chip clogging thanks to its excellent chip control, enabling a higher feed rate than the competitors solid carbide boring bar.	 TungShortCut provided superior chip evacuation, eliminating chip jamming. As a result, 1.5x tool life.



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