NGK SPARK PLUGS | NTK TECHNICAL CERAMICS

NGK SPARK PLUGS (USA), INC.

Tooling for Swiss-type Lathes

NTK CUTTING TOOLS

SWISS TOOLING 6000

App for iPad
Available on the App Store

App for ANDROID
ANDROID APP ON Google play

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NTKCUTTINGTOOLS.com
youtube.com/NTKCUTTINGTOOLS

J

For Swiss-type Lathes

NEW SPLASH Series

Coolant through toolholders

WATCH ON YouTube

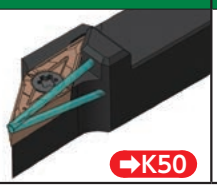
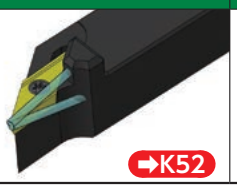
Features

- Evacuates chips away from the cutting edge
- Reduces cutting tool temperature and helps keep the edge sharp
- Y-axis toolholders are available
- Improves part tolerance by steady coolant supply to the edge

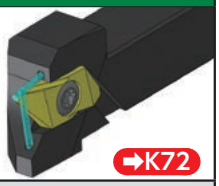
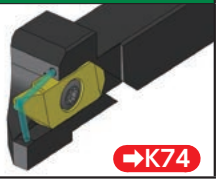
➡J12

Square Shank Toolholders

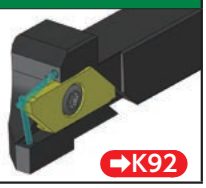
Front Turning

Insert	CC.. insert	DC.. insert	
Holder	SCLC-OH	SDJC-OH	Y-SDJC-OH
	 ➡K36	 ➡K42	 ➡K44
Insert	VB.. insert	VC.. insert	
Holder	SVJB-OH	SVJC-OH	Y-SVJC-OH
	 ➡K50	 ➡K52	 ➡K54

Back Turning

Insert	TBP insert
Holder	TBP-OH
	 ➡K72
Insert	TBP insert
Holder	Y-TBP-OH
	 ➡K72
Insert	TBPA insert
Holder	CTPA-OH
	 ➡K74

Cut Off

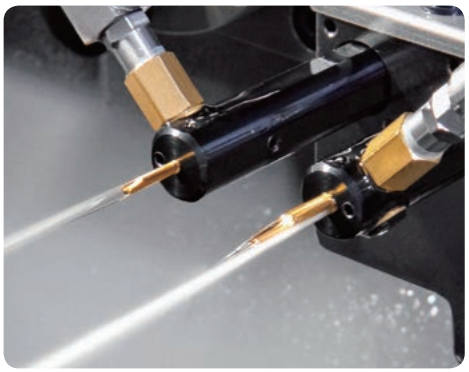
Insert	CTP insert	CTPA insert
Holder	CTP-OH	CTPA-OH
	 ➡K92	 ➡K92

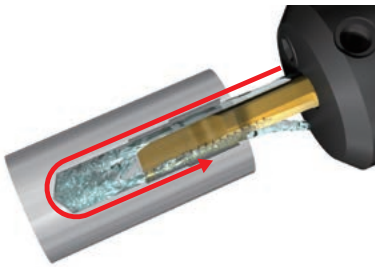
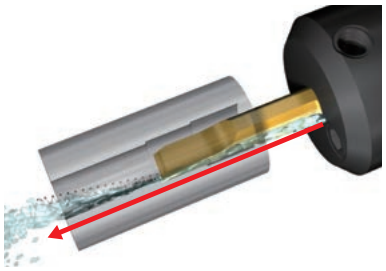
Grooving / Side Turning

Insert	GTM.. insert	GTPA.. insert	
Holder	GTT-OH	Y-GTT-OH	Y-GTPA-OH
	 ➡K112	 ➡K112	 ➡K126

ID Tooling Toolholders

STICK DUO Series with Adjustable Overhang Mechanism



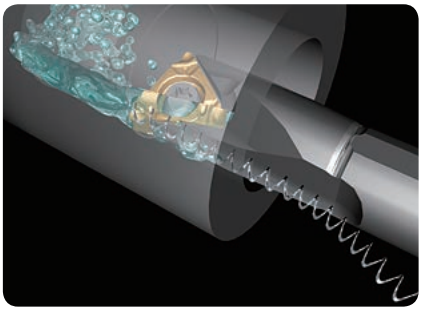
Ⅰ) For Blind hole	Ⅱ) For Through hole
	

Features

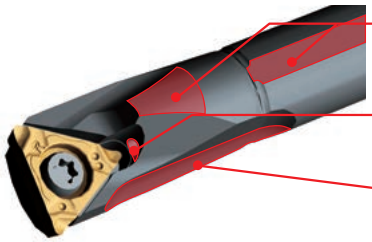
- Good chip control evacuation in ID machining
- Three way coolant connection
- Can choose 2-way coolant direct
- Adjustable overhang length

➡K156

Mogul Bar Series



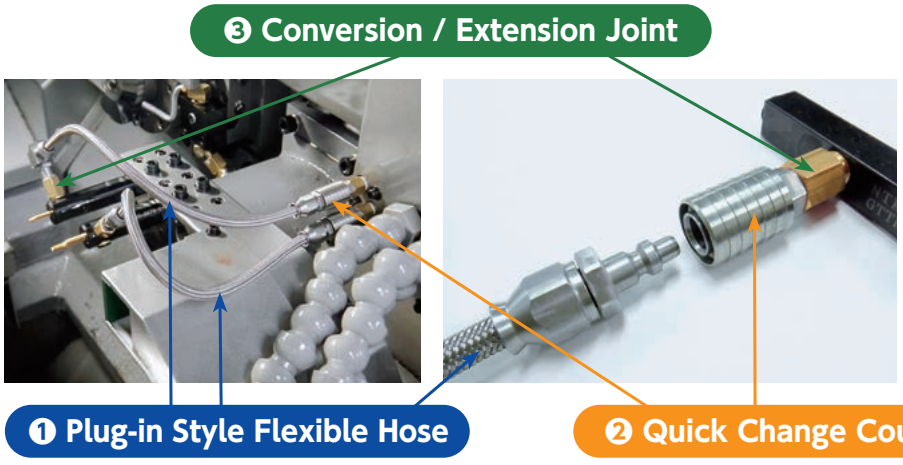
Features



- Highly rigid design reduces vibration and chatter
- Internal coolant helps chip evacuation
- Large clearance for improved chip evacuation

Holders ➡K171 Information ➡J25

Quick-Change Coolant Components



- Up to 2900psi
- High quality flexible stainless steel braided hose
- Reduce machine down time

➡J19

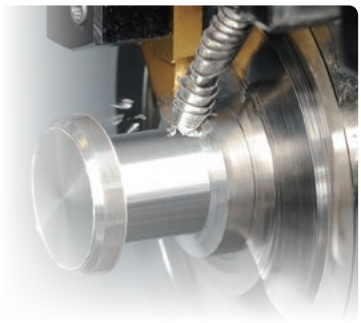
3D Molded Chipbreakers

NEW TBP / TBPA-BM for Back turnings

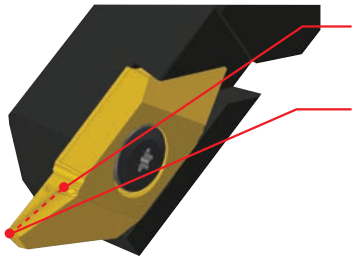
WATCH ON YouTube

Features

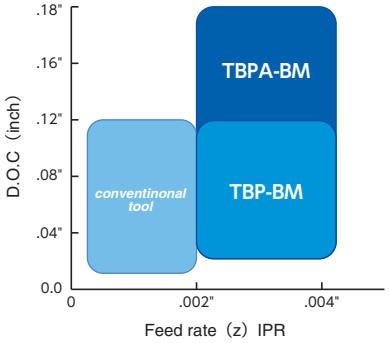
- "Single Pass Back Turning" offers excellent surface finishes
- Up-right type insert and screw clamping provides high rigidity
- Wiper flat on cutting edge offers stable surface finishes even under high feed cutting conditions



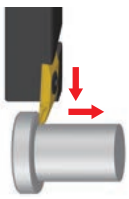
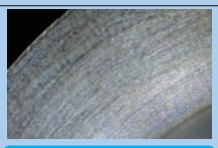
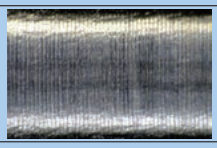
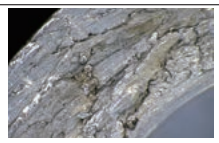
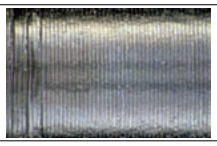
New BM chipbreaker



- Prevents the rough end face from hitting the chip
- Wiper flat on cutting edge offers excellent surface finishes

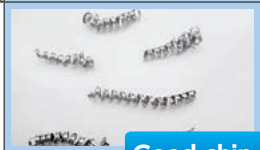
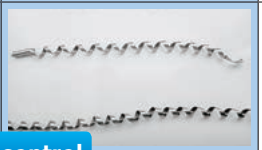
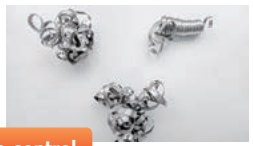


Superior Surface Finish

1Pass	BM chipbreaker		Competitor's tool	
	End face	OD	End face	OD
				
	Excellent surface	Ra : 0.72 μm Rz : 4.46 μm	Rough surface	Ra : 1.65 μm Rz : 6.01 μm

Material : 304 SS (ϕ.630") , 260 SFM , Feed X : .0008 IPR , Feed Z : .0031 IPR , .118"DOC , WET

Excellent Chip Control

	BM chipbreaker		Competitor	
Feed rate (IPR) / D.O.C (inch)	.002"	.003"	.002"	.003"
.020"				
.120"				

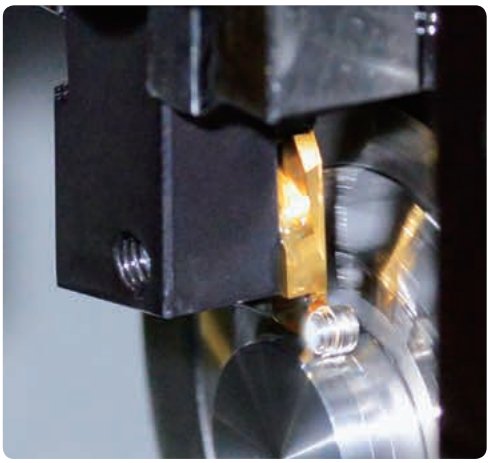
Good chip control

Unstable chip control

Material : 304 SS (ϕ.630") , 260 SFM , WET

TBP-BM ➡K72 TBPA-BM ➡K75

NEW GTMH-GX Chipbreaker for Grooving / Side Turning



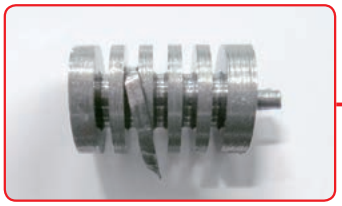
Features

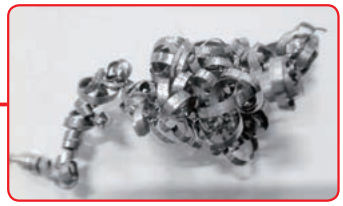
WATCH ON YouTube

- Can solve either problems of chips remaining in the grooves or bird's nest of chips
- Good surface finishes on groove side faces
- UP to .078" DOC side turning capability

Typical Grooving Probrems

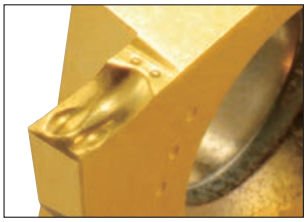
- Chips remain at the bottom of groove
- Bird's nest of chips





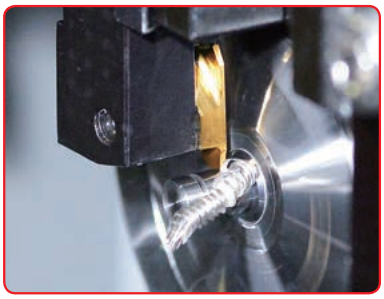
Excellent Chip Control

- Chipbreakers



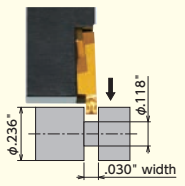
Groove width .059"～

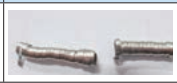
Groove width ～.039"



GX chipbreaker can solve these problems

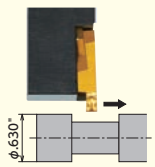
- Grooving



DOC \ Feed rate (IPR)	.0004"	.0011"	.0020"
GX chipbreaker			
Competiton's chipbreaker			

Material : 304 SS(ϕ.630"), 260 SFM, .059", DOC

- Side Turning



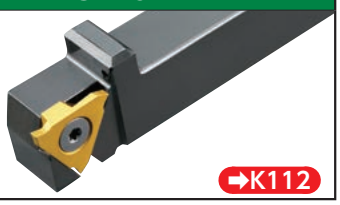
DOC \ Feed rate (IPR)	.0004"	.0011"	.0020"	.0031"
.010"				
.020"				
.030"				

Material : 304 SS(ϕ.630"), 260 SFM, .030" width insert

Best Solution for Chip Control

Now available in Coolant through toolholders

GTT-OH



➡K112

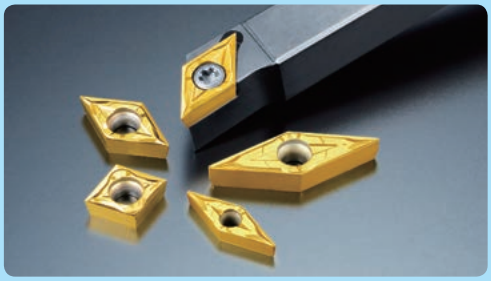
Y-GTT-OH

➡K112

Inserts ➡K114

Front Turning Chipbreaker Quartet

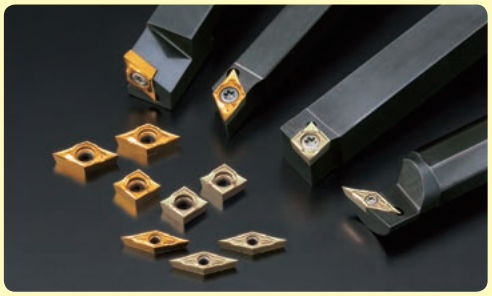
NEW YL Chipbreaker



- Great combination of sharpness and toughness
- Covers extremely wide range
- Excellent chip control

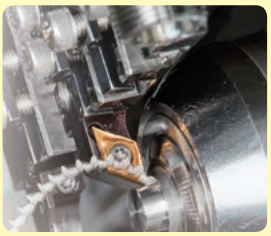
WATCH ON YouTube

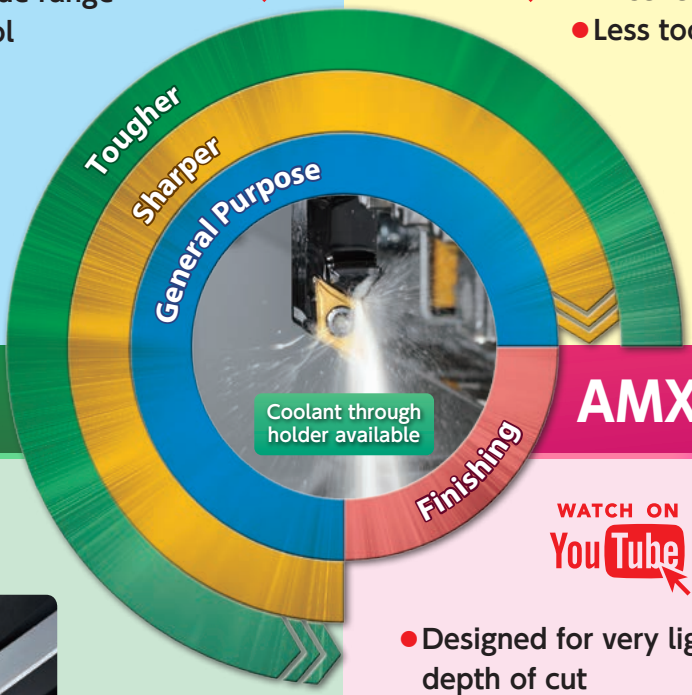
CL Chipbreaker



WATCH ON YouTube

- Sharpest molded Chipbreaker
- Excellent chip control
- Less tool pressure





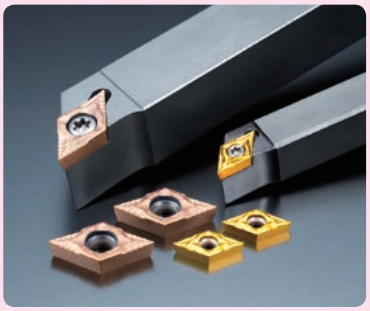
AM3 Chipbreaker

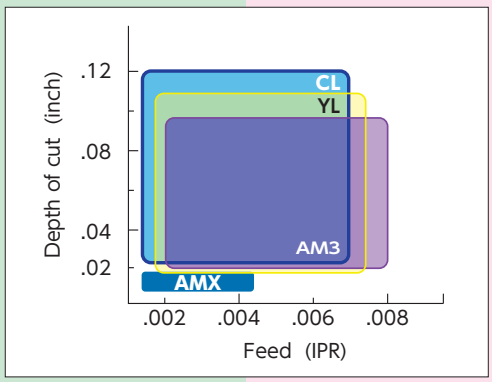
- All purpose chipbreaker
- Sharp edge with toughness

AMX Chipbreaker

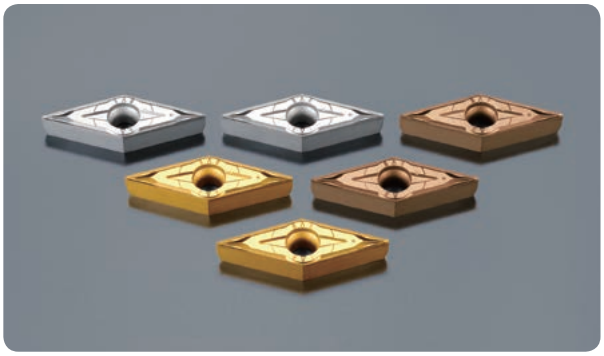
WATCH ON YouTube

- Designed for very light depth of cut
- Exceptional sharpness





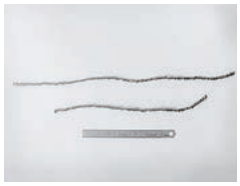
NEW VBGT Tooling



Features

- NTK developed the "VB" style chipbreaker with a unique combination of both sharpness and toughness
- Excellent chip control and covers a wide range of cutting conditions
- "G" tolerance inserts provide great surface finishes and stable part tolerances

Wide Chip Control Range

304SS(ϕ.630") 260SFM		Feed (IPR)		
		.002"	.003"	.005"
Depth of cut (inch)	.118"			
	.079"			
	.039"			
	.020"			

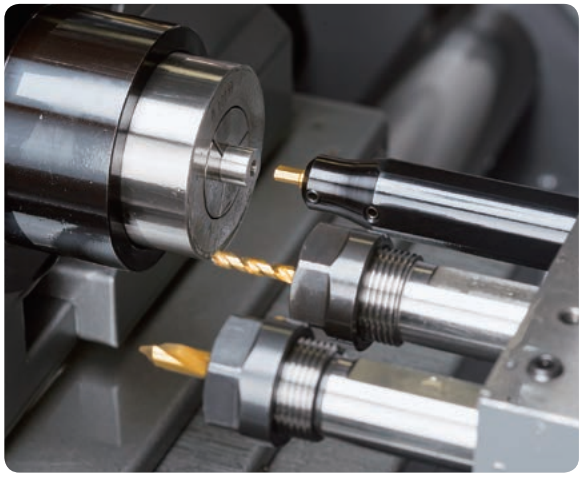
Coolant Through Toolholders Available

- Evacuates chips away from the cutting edge
- Reduces cutting tool temperature and keeps edge sharp even large depth of cut conditions
- Improves part tolerance by steady coolant supply to the edge

* Left-hand holders (SVJBL) are designed for Right-hand machines

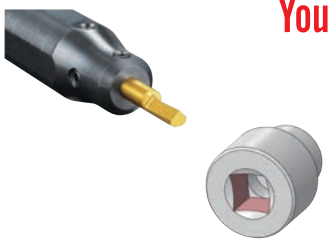
➡K50

NEW SHAPER DUO



■Hexagon Socket

■Square Socket



WATCH ON YouTube

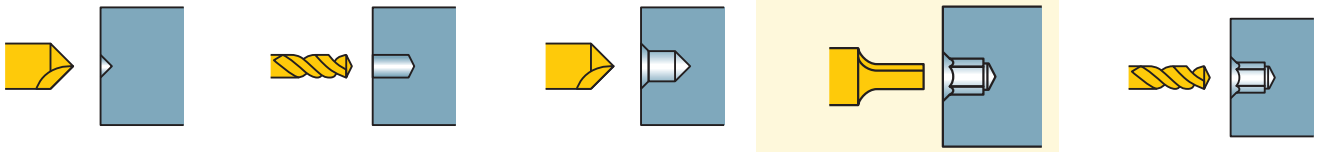
- Perfect fit for back spinde of Swiss machine
- Achieves good corner edge sharpness
- Less tool pressure than Rotary-Broaching
- Easy to adjust for correct dimension
- Economical two-sided insert bar

Comparison Chart of HEX Socket Machining

	Tool Pressure	Cycle Time	Pliability	Tool Cost	
Shaper Duo 	◎	△ ＊Can be off-set by over-wrapping operation	○	◎	●Less tool pressure-especially on small diameter parts ●One size can cover several socket sizes
Broach Tool	△	○	×	△	●Need to have tools for each socket size

Process Chart

① Center drilling ② Drilling (Pilot hole) ③ Chamfering ④ Shaper tool ⑤ Deburring



SHAPER DUO Process Chart

				Number of passes			Estimated cycle time *		
HEX Standard	Tool	Pilot bore Dia. (㎜)	Total DOC /side (㎜)	Total pass /side	Roughing pass 0.025㎜	Finishing pass 0.010㎜	ISO 2936 standard depth of Hex hole (㎜)	Whole process ①-⑤	Process④ Shaper
HEX 1.5	**SSP020N1130H**	1.5	0.116	6	5	1	2	39 sec	14 sec
HEX 2.0	**SSP020N1430H**	2.0	0.155	7	6	1	2.5	44 sec	16 sec
HEX 2.5	**SSP030N1940H**	2.5	0.193	9	8	1	3	50 sec	20 sec
HEX 3.0	**SSP030N1940H**	3.0	0.232	10	9	1	3.5	55 sec	23 sec
HEX 4.0	**SSP040N2450H**	4.0	0.309	13	12	1	5	73 sec	33 sec
HEX 5.0	**SSP050N3260H**	5.0	0.387	17	16	1	6	90 sec	46 sec
HEX 6.0	**SSP060N42120H**	6.0	0.464	20	19	1	8	117 sec	63 sec
HEX 8.0	**SSP080N62160H**	8.0	0.619	26	25	1	10	155 sec	92 sec

＊Pilot bore diameter is same as AF
＊Using Carbide drill

＊Shaper cutting conditions　Feed : 3000 ㎜/min
DOC : 0.025 ㎜ (Roughing), 0.010 ㎜ (Finishing)

Information ➡K182

NEW Groove Duo

Features

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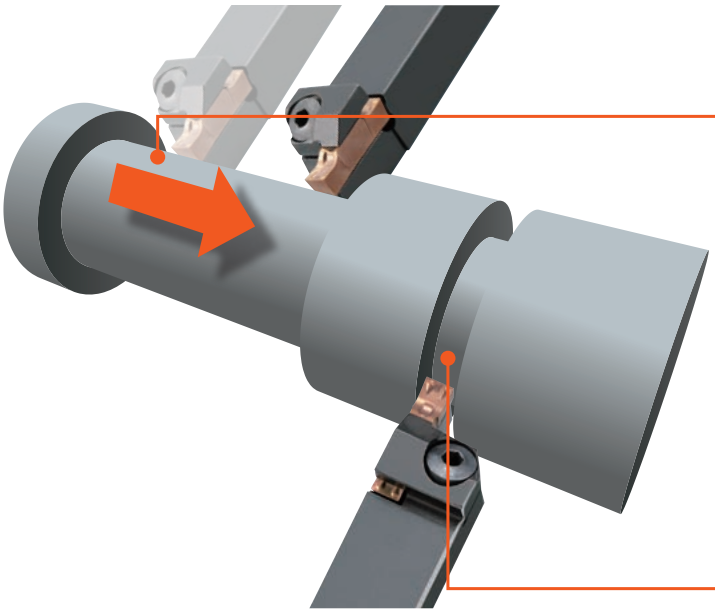
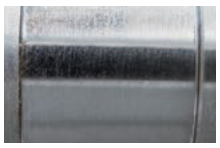
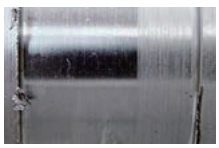
- Grooving and side turning tools with highly rigid design
- 3D design chipbreakers result in less tool pressure and excellent chip control

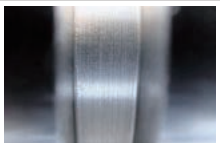
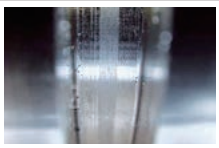


Side-turning

	NTK:GW chipbreaker	Competitor
Chip		
Surface finish		

Material : 4135, 500SFM, .004IPR, .040DOC

Grooving

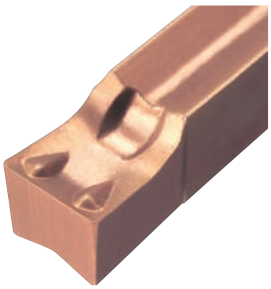
	NTK:GW chipbreaker	Competitor
Chip		
Surface finish		

Material : 4135, 500SFM, .004IPR, .275DOC

Chipbreaker

For Grooving / Side-turning

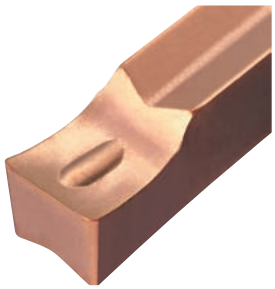
GW



- *Excellent chip control*
- *Good sharpness*
- *Side turning capability*

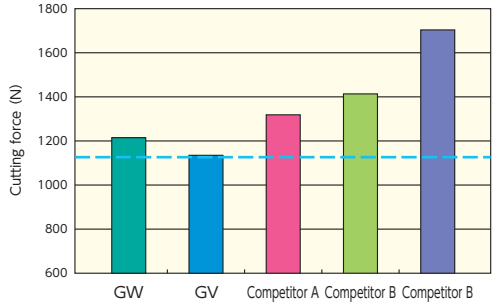
Less tool pressure

GV



- *Superior sharp edge*

Tool pressure comparison when grooving

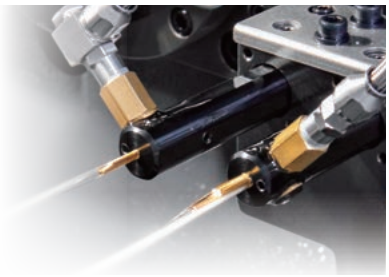


NTK Unique Tooling

Multi-lead thread machining capability

Thread Whirling

➡J11 WATCH ON YouTube



Coolant through toolholders

Splash Series / Quick-Charge Coolant Components

➡J12 WATCH ON YouTube NEW

Chip controlled by gravity

Y-axis Toolholders

➡J20 WATCH ON YouTube

High rigidity boring bars

Mogul Bar

➡J25 WATCH ON YouTube

Interchangeable tools

CSV / CTPS Series

➡J36 • J40

Tools for sub-spindle machining

DS-ACH / DS Toolholders / DS Sleeves

➡J26 WATCH ON YouTube

Wiper inserts with ISO style

WP Series

➡J42 WATCH ON YouTube

6 corner insert for Swiss machines

UL Chipbreaker

➡J43 WATCH ON YouTube

Toolholders for extended guide-bushing

Shifted Toolholders

➡J44 WATCH ON YouTube

Face turning / grooving tools

Saturn DUO

➡J44 WATCH ON YouTube

Thread Whirling

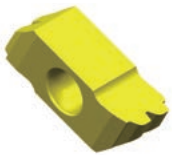
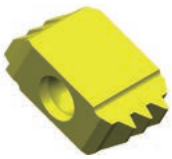
Features

WATCH ON YouTube

- NTK's unique patented design technology makes precise and correct inserts possible the first time, *without any redesign or remanufacture even if it is a multiple-lead thread*
- The sharper cutting edges produce a better surface finish and longer tool life than competitor's inserts

Form Double-lead or Multiple-lead with Single Pass

Patented

	Double-lead threads	Triple-lead threads
Work	Bone screw	Worm gear
Work material	Ti-6Al-4V ELI	brass
Work appearance		
Insert appearance		
Major Dia.	ϕ.157"(4.0mm)	ϕ.278"(7.0mm)
Minor Dia.	ϕ.094"(2.4mm)	ϕ.185"(4.7mm)
Lead [Pitch×No. of Lead]	.135"(3.42mm) [.067"×2(1.71mm×2)]	.193"(4.9mm) [.064"×3(1.63mm×3)]

- Can reduce cycle time by more than half
- NTK can achieve what other competitors cannot

Double-lead Bone Screw Process Example

1. 1st thread whirl at taper part
2. Rotate the bar 180° and whirl the 2nd thread on same part as 1
3. Thread whirl whole straight part
4. Thread whirl at very last part to get two-exits, after back of bar has been backed up a half lead (one pitch) and rotated 180°

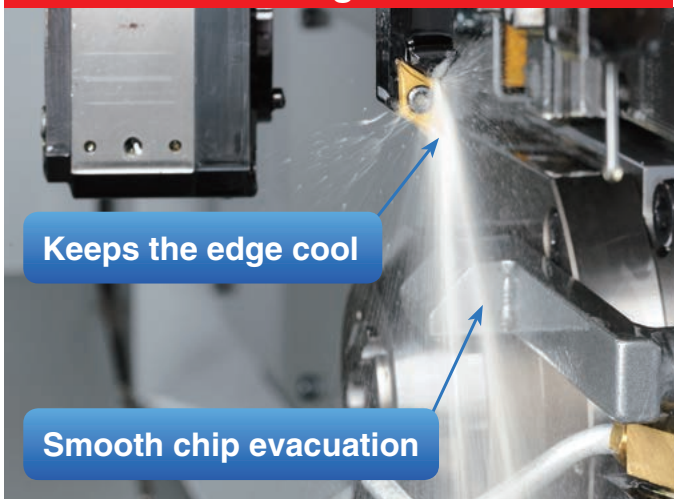
Information ➡K142

SPLASH Series

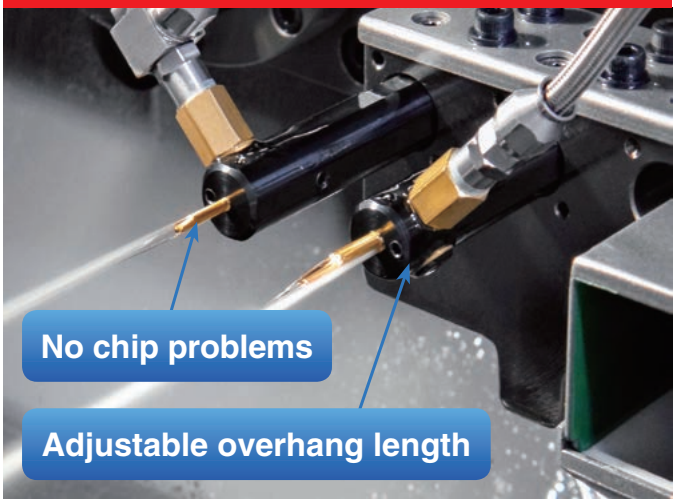
Coolant through toolholders

WATCH ON YouTube

Coolant through toolholders



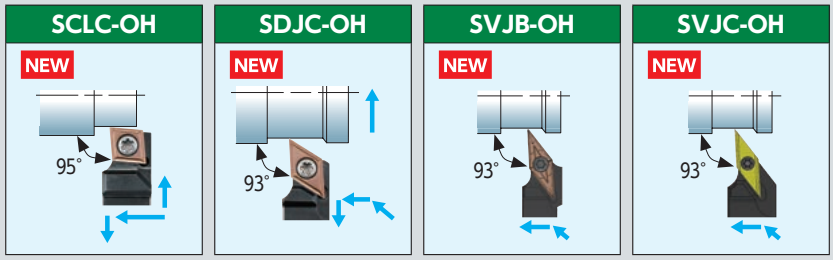
STICK DUO SPLASH

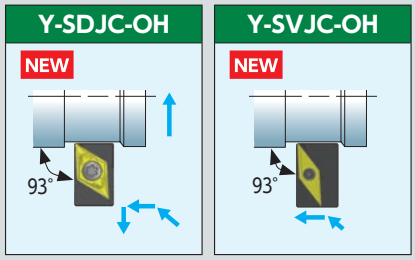


➡K156

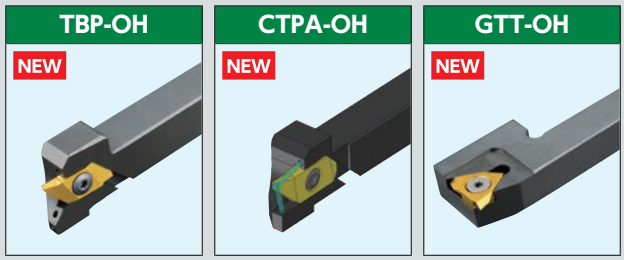
Full line-up

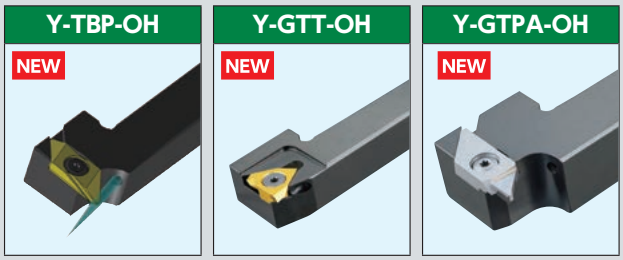
Front turning





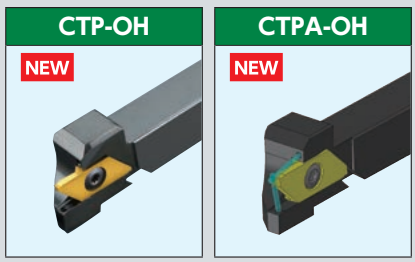
Back turning / Grooving / Side turning





Perfect solution for chip control
- Y-axis holder with coolant through -

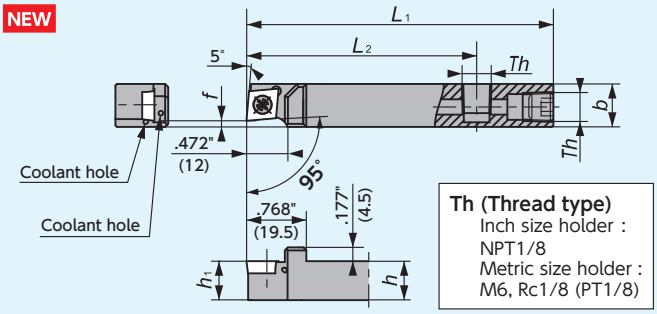
Cut-off



Front Turning Toolholders I

SCLC-N-OH (Coolant through)

NEW



Th (Thread type)
Inch size holder : NPT1/8
Metric size holder : M6, Rc1/8 (PT1/8)

Figure-1

Right-Hand style shown

DS-SCL (Coolant through)

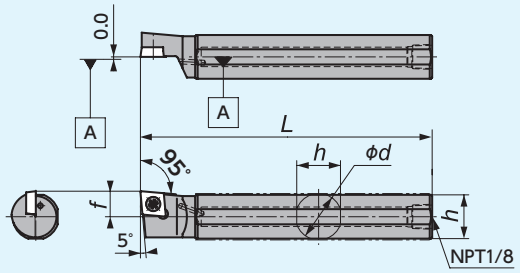


Figure-2

Left-Hand style shown
Takes Right-hand or Neutral insert

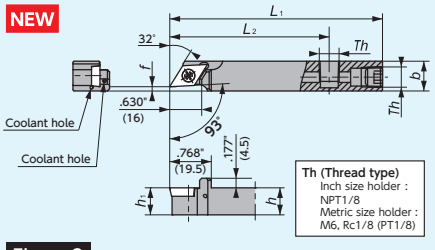
Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h_1 (Inch)	h_1 (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	L_2 (Inch)	L_2 (mm)	g (Inch)	g (mm)	Th	Clamp Screw	Wrench
CC..21.5..	SCLC□082H-F079-OH	1	●		1/2		.551	14	1/2		3.937	100	.079	2	2.953	75	–	–	NPT1/8	LRIS-2.5×7	CLR-15S
CC..32.5..	SCLC□083H-F079-OH	1	●		1/2		.551	14	1/2		3.937	100	.079	2	2.953	75	–	–	NPT1/8	LRIS-4×10	LLR-25S
	SCLC□103H-F079-OH	1	●		5/8		5/8		5/8		3.937	100	.079	2	2.953	75	–	–	NPT1/8	LRIS-4×10	LLR-25S
	SCLC□1014F09N-F02OH	1	○		.394	10	.551	14	.394	10	3.150	80	.079	2.0	2.165	55	–	–	M6×1	LRIS-4×10	LLR-25S
	SCLC□1214H09N-F02OH	1	○		.472	12	.551	14	.472	12	3.937	100	.079	2.0	2.953	75	–	–	Rc1/8(PT1/8)	LRIS-4×10	LLR-25S
	SCLC□1616H09N-F02OH	1	○		.630	16	.630	16	.630	16	3.937	100	.079	2.0	2.953	75	–	–	Rc1/8(PT1/8)	LRIS-4×10	LLR-25S

Gage Insert	Item Number	Figure	Stock R	Stock L	D_s (Inch)	D_s (mm)	h (Inch)	h (mm)	b (Inch)	b (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	Clamp Screw	Wrench
CC..32.5..	DS-SCLL19-09-004	2		●	3/4	19.050	.709	18	.709	18	4.724	120	.413	10.5	LRIS-4×8	LLR-25S-20×65
	DS-SCLL22-09-005	2		●	.866	22.000	.827	21	.827	21	4.724	120	.472	12.0	LRIS-4×8	LLR-25S-20×65

Inserts ➡K38

SDJC-N-OH (Coolant through)

NEW



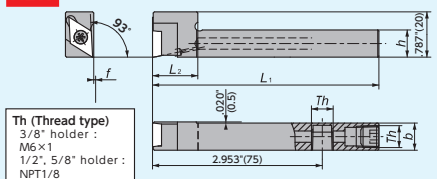
Th (Thread type)
Inch size holder : NPT1/8
Metric size holder : M6, Rc1/8 (PT1/8)

Figure-3

Right-Hand style shown

Y-SDJC-OH (Coolant through)

NEW



Th (Thread type)
3/8" holder : M6×1
1/2", 5/8" holder : NPT1/8
Metric size holder : M6, Rc1/8 (PT1/8)

Figure-4

Right-Hand style shown
Takes Right-hand or Neutral insert

DS-SDX (Coolant through)

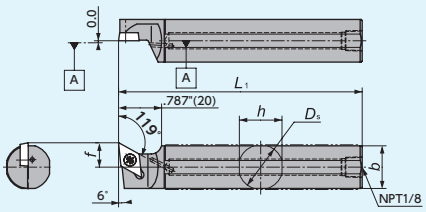


Figure-5

Left-Hand style shown
Takes Right-hand or Neutral insert

Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h_1 (Inch)	h_1 (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	L_2 (Inch)	L_2 (mm)	g (Inch)	g (mm)	Th	Clamp Screw	Wrench
			N																		
DC..21.5../DC..21.5..WP	SDJC□082H-F079-OH	3	●		1/2		.551	14	1/2		3.937	100	.079	2	2.953	75	–	–	NPT1/8	LRIS-2.5×7	CLR-15S
DC..32.5.. DC..32.5..WP	SDJC□083H-F079-OH	3	●		1/2		.551	14	1/2		3.937	100	.079	2	2.953	75	–	–	NPT1/8	LRIS-4×10	LLR-25S
	SDJC□103H-F079-OH	3	●		5/8		5/8		5/8		3.937	100	.079	2	2.953	75	–	–	NPT1/8	LRIS-4×10	LLR-25S
	SDJC□1014F11N-F02OH	3	○		.392	10	.551	14	.394	10	3.150	80	.079	2	2.165	55	–	–	M6×1	LRIS-4×10	LLR-25S
	SDJC□1214H11N-F02OH	3	●		.472	12	.551	14	.472	12	3.937	100	.079	2	2.953	75	–	–	Rc1/8(PT1/8)	LRIS-4×10	LLR-25S
	SDJC□1616H11N-F02OH	3	○		.630	16	.630	16	.630	16	3.937	100	.079	2	2.953	75	–	–	Rc1/8(PT1/8)	LRIS-4×10	LLR-25S
DC..21.5.. DC..21.5..WP	Y-SDJCR062H-IN-OH	4	●		3/8		3/8				3.937	100	0	0	.984	25			M6×1	LRIS-2.5×7	CLR-15S
	Y-SDJCR082H-IN-OH	4	●		1/2		1/2				3.937	100	0	0	.984	25			NPT1/8	LRIS-2.5×7	CLR-15S
DC..32.5.. DC..32.5..WP	Y-SDJCR083H-IN-OH	4	●		1/2		1/2				3.937	100	0	0	.984	25			NPT1/8	LRIS-4×10	LLR-25S-20×65
	Y-SDJCR103H-IN-OH	4	●		5/8		5/8				3.937	100	0	0	.984	25			NPT1/8	LRIS-4×10	LLR-25S-20×65
	Y-SDJCR1212H11S-OH	4	●		.472	12.0	.472	12.0			3.937	100	0	0	.787	20			Rc1/8(PT1/8)	LRIS-4×10	LLR-25S-20×65
	Y-SDJCR1616H11-OH	4	○		.630	16.0	.630	16.0			3.937	100	0	0	.984	25			Rc1/8(PT1/8)	LRIS-4×10	LLR-25S-20×65

Gage Insert	Item Number	Figure	Stock R	Stock L	D_s (Inch)	D_s (mm)	h (Inch)	h (mm)	b (Inch)	b (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	Clamp Screw	Wrench
DC..32.5.. DC..32.5..WP	DS-SDX□22-11-006	5		●	.866	22.000	.827	21.0	.827	21.0	4.724	120	.472	12.0	LRIS-4×10	LLR-25S-20×65

● : Stock ○ : 1-2 week delivery : Coolant through

Inserts ➡K46 Cutting condition ➡K30

Front Turning Toolholders Ⅱ

SVJB-OH (Coolant through)

NEW

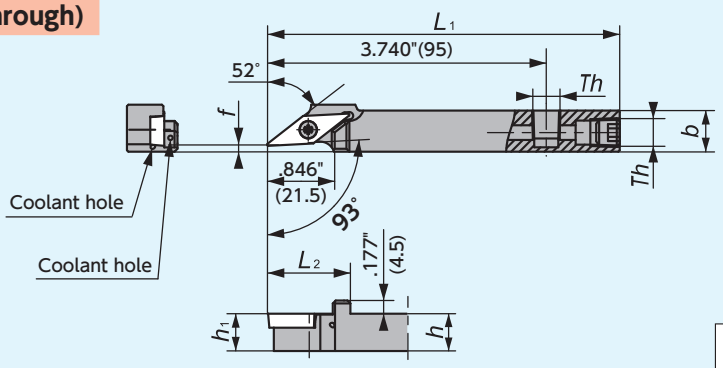


Figure-1

●Left-Hand coolant through holders are designed for Right-Hand machines.

Th (Thread type)
Inch size holder : NPT1/8
Metric size holder: Rc1/8 (PT1/8)

■VBGT33

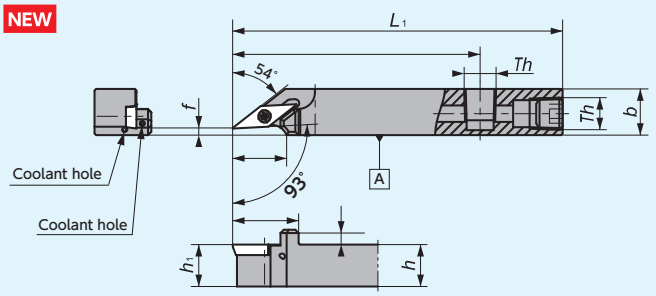
Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h_1 (Inch)	h_1 (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	g (Inch)	g (mm)	Th	Clamp Screw	Wrench
 VBGT33..	SVJBR⅛083C-F079-OH	1	●	●	1/2		.551	14	1/2		4.724	120	.079	2	.079	2	NPT1/8	LRIS-4 × 10	LLR-25S
	SVJBR⅛103C-F079-OH	1	●	●	5/8		5/8		5/8		4.724	120	.079	2	0	0	NPT1/8	LRIS-4 × 10	LLR-25S
	SVJBR⅛1214-X16N-F02OH	1	●	●	.472	12	.551	14	.472	12	4.724	120	.079	2	.079	2	Rc1/8(PT1/8)	LRIS-4 × 10	LLR-25S
	SVJBR⅛1616-X16N-F02OH	1	●	●	.630	16	.630	16	.630	16	4.724	120	.079	2	0	0	Rc1/8(PT1/8)	LRIS-4 × 10	LLR-25S

●Left-Hand coolant through holders are designed for Right-Hand machines.

Inserts ➡K50

SVJC-OH (Coolant through)

NEW



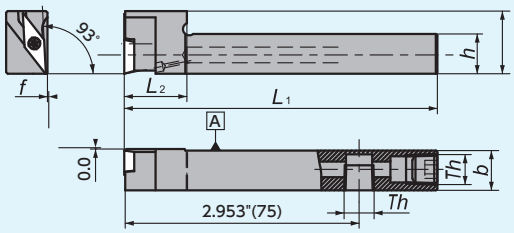
Th (Thread type)
Inch size holder: NPT1/8

Figure-2

Right-Hand style shown

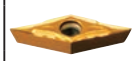
Y-SVJCR-OH (Coolant through)

NEW



Th (Thread type)
Inch size holder: NPT1/8

Figure-3

Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h_1 (Inch)	h_1 (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	Th	Clamp Screw	Wrench
			N														
 VC..22..	SVJCR⅛-082H-F079-OH	2	●		1/2		.551	14	1/2		3.937	100	.079	2.0	NPT1/8	LRIS-2.5 × 7	CLR-15S
	SVJCR⅛-102H-F079-OH	2	●		5/8		5/8		5/8		3.937	100	.079	2.0	NPT1/8	LRIS-2.5 × 7	CLR-15S
	Y-SVJCR082SHS-IN-OH	3	●		1/2		1/2		3.937	100	0.0	0.0	.787	20	NPT1/8	LRIS-2.5 × 7	CLR-15S
	Y-SVJCR102H-IN-OH	3	●		5/8		5/8		3.937	100	0.0	0.0	.984	25	NPT1/8	LRIS-2.5 × 7	CLR-15S

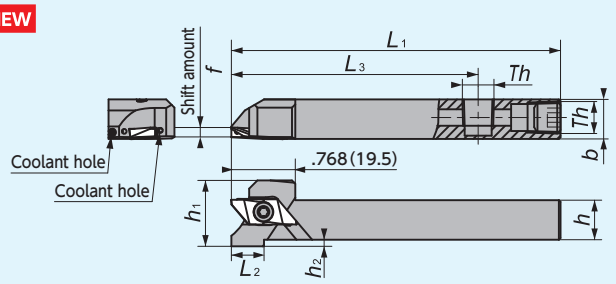
Inserts ➡K55 Cutting condition ➡K30

Back Turning Toolholders

TBP-OH (Coolant through)

Screw accessible from both sides

NEW



Th (Thread type)
3/8" holder : M6×1
1/2", 5/8" holder : NPT1/8
Metric size holder : Rc1/8 (PT1/8)

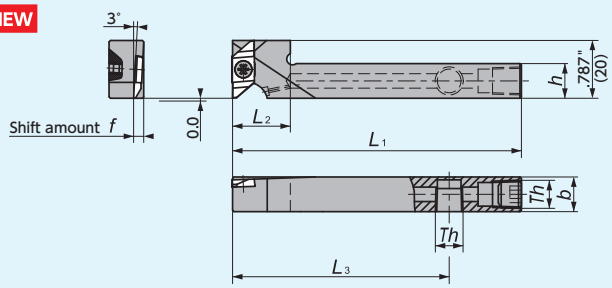
Figure-1

Right-Hand style shown

Y-TBP-OH (Coolant through)

Screw accessible from both sides

NEW



Th (Thread type)
Inch size holder : NPT1/8
Metric size holder: M6, Rc1/8 (PT1/8)

Figure-2

Right-Hand style shown
Takes Right-hand Insert

■TBP

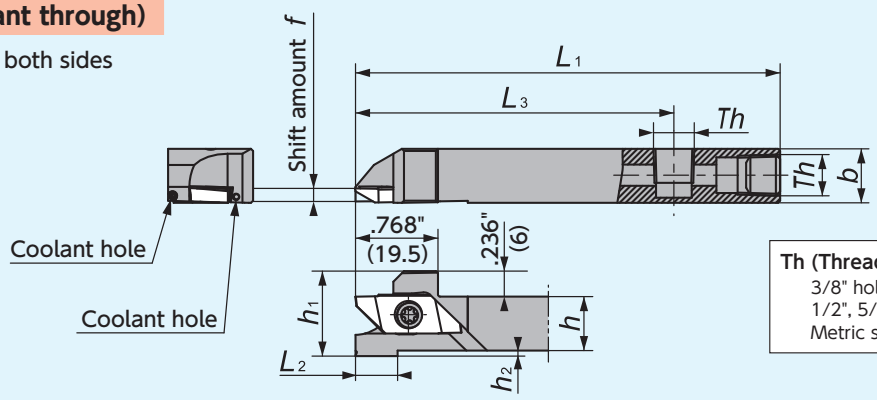
Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h_1 (Inch)	h_1 (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	L_2 (Inch)	L_2 (mm)	h_2 (Inch)	h_2 (mm)	L_3 (Inch)	L_3 (mm)	Th	Clamp Screw	Wrench
 TBP..	**TBP□06-IN-OH**	1	●		3/8		.472	12	3/8		3.937	100	.138	3.5	.748	19	.176	4.475	2.953	75	M6 × 1	LRIS-4×10PW	CLR-15S
	TBP□08-IN-OH	1	●		1/2		1/2		1/2		3.937	100	.138	3.5	.394	10	.051	1.3	2.953	75	NPT1/8	LRIS-4×12PW	CLR-15S
	TBP□10-IN-OH	1	●		5/8		5/8		5/8		3.937	100	.138	3.5	0	0	0	0	2.953	75	NPT1/8	LRIS-4×12PW	CLR-15S
	TBP□1012H-OH	1	○		.394	10	.472	12	.394	10	3.937	100	.138	3.5	.748	19	.176	4.475	2.953	75	M6 × 1	LRIS-4×10PW	CLR-15S
	TBP□12H-OH	1	●		.472	12	.472	12	.472	12	3.937	100	.138	3.5	.394	10	.051	1.3	2.953	75	Rc1/8 (PT1/8)	LRIS-4×12PW	CLR-15S
	TBP□16H-OH	1	○		.630	16	.630	16	.630	16	3.937	100	.138	3.5	0	0	0	0	2.953	75	Rc1/8 (PT1/8)	LRIS-4×12PW	CLR-15S
	Y-TBP□08H-IN-OH	2	●		1/2		1/2		—	—	3.937	100	.138	3.5	.984	25	—	—	2.953	75	NPT1/8	LRIS-4×12PW	CLR-15S
	Y-TBP□12HS-OH	2	●		.472	12	.472	12	—	—	3.937	100	.138	3.5	.787	20	—	—	2.953	75	Rc1/8 (PT1/8)	LRIS-4×12PW	CLR-15S
	Y-TBP□16H-OH	2	○		.630	16	.630	16	—	—	3.937	100	.138	3.5	.984	25	—	—	2.953	75	Rc1/8 (PT1/8)	LRIS-4×12PW	CLR-15S

Inserts ➡K73

CTPA-OH (Coolant through)

Screw accessible from both sides

NEW



Th (Thread type)
3/8" holder : M6×1
1/2", 5/8" holder : NPT1/8
Metric size holder: Rc1/8 (PT1/8)

Figure-3

Right-Hand style shown

■CTPA

Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h_1 (Inch)	h_1 (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	L_2 (Inch)	L_2 (mm)	h_2 (Inch)	h_2 (mm)	L_3 (Inch)	L_3 (mm)	Th	Clamp Screw	Wrench
 TBPA..	**CTPA□06H-IN-OH**	3	●	●	3/8		3/8		3/8		3.937	100	.134	3.4	.787	20	.176	4.475	2.165	55	M6 × 1	LR-S-4×10PW	CLR-15S
	CTPA□08H-IN-OH	3	●	●	1/2		1/2		1/2		3.937	100	.134	3.4	.394	10	.051	1.3	2.953	75	NPT1/8	LR-S-4×12PW	CLR-15S
	CTPA□10H-IN-OH	3	●	●	5/8		5/8		5/8		3.937	100	.134	3.4	0	0	0	0	2.953	75	NPT1/8	LR-S-4×12PW	CLR-15S

● : Stock ○ : 1-2 week delivery 💧 : Coolant through

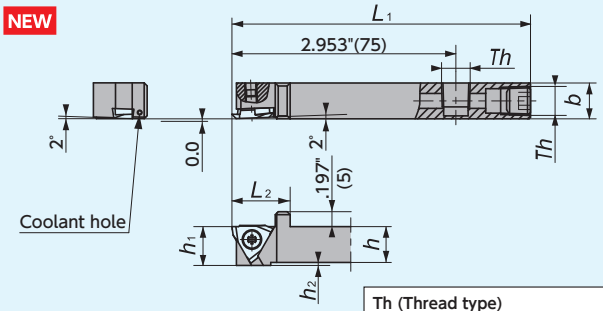
Inserts ➡K75 Cutting condition ➡K67

Back Turning / Grooving / Side Turning Toolholders

GTT-OH (Coolant through)

Screw accessible from both sides

NEW



Th (Thread type)
Inch size holder : NPT1/8
Metric size holder: M6, Rc1/8 (PT1/8)

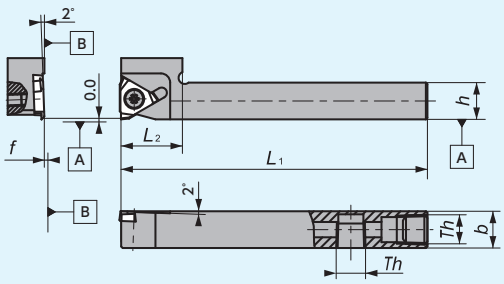
Figure-1

Right-Hand style shown

Y-GTT-OH (Coolant through)

Screw accessible from both sides

NEW



Th (Thread type)
Inch size holder : NPT1/8
Metric size holder: Rc1/8 (PT1/8)

Figure-2

Right-Hand style shown
Takes Right-hand Insert

■GTT

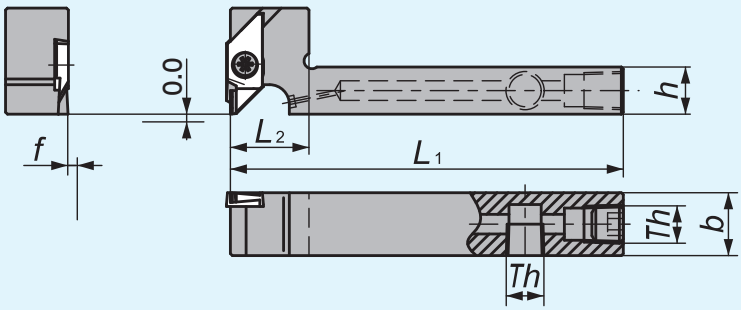
Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h_1 (Inch)	h_1 (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	L_2 (Inch)	L_2 (mm)	a_r (Inch)	a_r (mm)	h_2 (Inch)	h_2 (mm)	Th	Clamp Screw	Wrench
TBMH32.. GTM.32.. TMG32	GTT□08HA-IN-OH	1	●		1/2		1/2		1/2		3.937	100	.000	0	.768	19.5	.071	1.8	.039	1	NPT1/8	LR-S-4×10PW	CLR-15S
	GTT□08HB-IN-OH	1	●		1/2		1/2		1/2		3.937	100	.000	0	.768	19.5	.106	2.7	.039	1	NPT1/8	LR-S-4×10PW	CLR-15S
	GTT□10HA-IN-OH	1	●		5/8		5/8		5/8		3.937	100	.000	0	.768	19.5	.071	1.8	.000	0	NPT1/8	LR-S-4×10PW	CLR-15S
	GTT□10HB-IN-OH	1	●		5/8		5/8		5/8		3.937	100	.000	0	.768	19.5	.106	2.7	.000	0	NPT1/8	LR-S-4×10PW	CLR-15S
	GTT□1012H00-OH	1	○		.394	10	.472	12	.394	10	3.937	100	.000	0	.768	19.5	.071	1.8	.039	1	M6 × 1	LR-S-4×10PW	CLR-15S
	GTT□12H00-OH	1	●		.472	12	.472	12	.472	12	3.937	100	.000	0	.768	19.5	.071	1.8	.039	1	Rc1/8(PT1/8)	LR-S-4×10PW	CLR-15S
	GTT□16H00-OH	1	○		.630	16	.630	16	.630	16	3.937	100	.000	0	.768	19.5	.071	1.8	0	0	Rc1/8(PT1/8)	LR-S-4×10PW	CLR-15S
	Y-GTT□08H-IN-OH	2	●		1/2		1/2		–	–	3.937	100	.000	0	.984	25.0	.063	1.6	–	–	NPT1/8	LR-S-4×10PW	CLR-15S
	Y-GTT□12H00S-OH	2	●		.472	12	.472	12	–	–	3.937	100	.000	0	.787	20.0	.063	1.6	–	–	Rc1/8(PT1/8)	LR-S-4×10PW	CLR-15S
	Y-GTT□16H00-OH	2	○		.630	16	.472	16	–	–	3.937	100	.000	0	.984	25.0	.063	1.6	–	–	Rc1/8(PT1/8)	LR-S-4×10PW	CLR-15S

Inserts TBMH ➔K83
Inserts GTM. ➔K114

Y-GTPA-OH (Coolant through)

Screw Accessible from both sides

NEW



Th (Thread type)
Metric size holder: Rc1/8 (PT1/8)

Figure-3

Right-Hand style shown

■GTPA

Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h_1 (Inch)	h_1 (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	L_2 (Inch)	L_2 (mm)	Th	Clamp Screw	Wrench
 GTPA	Y-GTPA□1216HS-OH	3	○		.472	12	.630	16	–	–	2.756	70	.004	0.1	.787	20	Rc1/8(PT1/8)	LRIS-4 × 12PW	CLR-15S
	Y-GTPA□1216H-OH	3	○		.630	16	.630	16	–	–	2.756	70	.004	0.1	.984	25	Rc1/8(PT1/8)	LRIS-4 × 12PW	CLR-15S

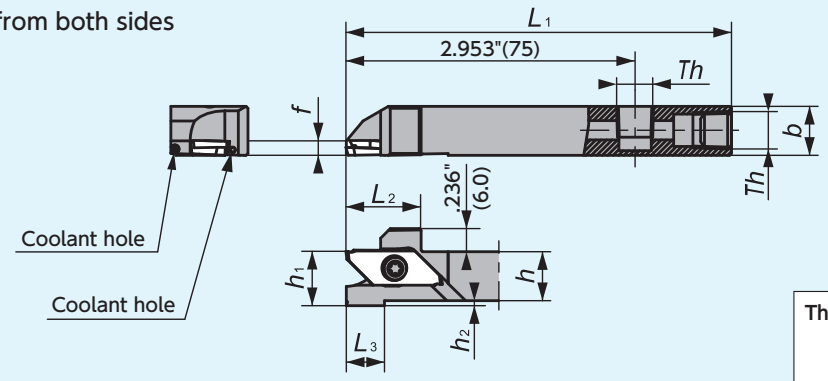
Inserts ➔K126

Cut-off Toolholders

CTP-OH (Coolant through)

Screw Accessible from both sides

NEW



Th (Thread type)
3/8" holder : M6×1
1/2", 5/8" holder : NPT1/8
Metric size holder: Rc1/8 (PT1/8)

Figure-1

●Left-Hand holders are designed for Right-Hand machines

Right-Hand style shown

■CTP

Gage Insert	Item Number	Figure	Stock R	Stock L	Max. Cut-off Dia. φD* (Inch)	(mm)	h (Inch)	(mm)	h1 (Inch)	(mm)	b (Inch)	(mm)	L1 (Inch)	(mm)	h2 (Inch)	(mm)	L2 (Inch)	(mm)	L3 (Inch)	(mm)	Th	f (Inch)	(mm)	Clamp Screw	Wrench
 CTP FR../FL..	CTP[R/L]06H-IN-OH	1	●	●	.472	12	3/8		.472	12	3/8		3.937	100	.176	4.475	.768	19.5	.748	19	M6 × 1	0.0	0.0	LRIS-4×10PW	CLR-15S
	CTP[R/L]08H-IN-OH	1	●	●	.472	12	1/2		1/2		1/2		3.937	100	.051	1.3	.768	19.5	.394	10	NPT1/8	0.0	0.0	LRIS-4×12PW	CLR-15S
	CTP[R/L]1012H-OH	1	○	○	.472	12	.394	10	.472	12	.394	10	3.937	100	.176	4.475	.768	19.5	.748	19	M6 × 1	0.0	0.0	LRIS-4×12PW	CLR-15S
	CTP[R/L]12H-OH	1	●	●	.472	12	.472	12	.472	12	.472	12	3.937	100	.051	1.3	.768	19.5	.394	10	Rc1/8(PT1/8)	0.0	0.0	LRIS-4×12PW	CLR-15S
	CTP[R/L]16H-OH	1	○	○	.472	12	.630	16	.630	16	.630	16	3.937	100	0	0	.768	19.5	–	–	Rc1/8(PT1/8)	0.0	0.0	LRIS-4×12PW	CLR-15S

●Left-Hand coolant through holders are designed for Right-Hand machines.

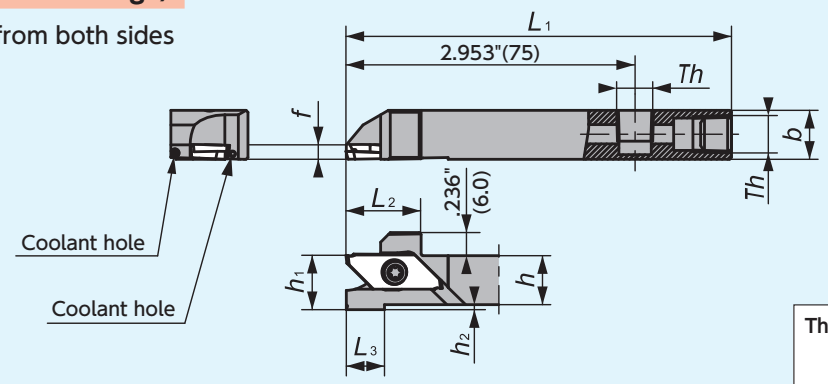
＊Would be changed by insert

Inserts ➡K94・K96

CTPA-OH (Coolant through)

Screw Accessible from both sides

NEW



Th (Thread type)
3/8" holder : M6×1
1/2", 5/8" holder : NPT1/8
Metric size holder: Rc1/8 (PT1/8)

Figure-2

●Left-Hand holders are designed for Right-Hand machines

Right-Hand style shown

■CTPA

Gage Insert	Item Number	Figure	Stock R	Stock L	Max. Cut-off Dia. φD* (Inch)	(mm)	h (Inch)	(mm)	h1 (Inch)	(mm)	b (Inch)	(mm)	L1 (Inch)	(mm)	h2 (Inch)	(mm)	L2 (Inch)	(mm)	L3 (Inch)	(mm)	Th	f (Inch)	(mm)	Clamp Screw	Wrench
 CTPA FR../FL..	CTPA[R/L]06H-IN-OH	2	●	●	.630	16	3/8		.472	12	3/8		3.937	100	.176	4.475	.768	19.5	.787	20	M6 × 1	0.0	0.0	LRIS-4×10PW	CLR-15S
	CTPA[R/L]08H-IN-OH	2	●	●	.630	16	1/2		1/2		1/2		3.937	100	.051	1.3	.768	19.5	.394	10	NPT1/8	0.0	0.0	LRIS-4×12PW	CLR-15S
	CTPA[R/L]10H-IN-OH	2	●	●	.630	16	5/8		5/8		5/8		3.937	100	0	0	.768	19.5	–	–	NPT1/8	0.0	0.0	LRIS-4×12PW	CLR-15S

●Left-Hand coolant through holders are designed for Right-Hand machines.

＊Would be changed by insert

● : Stock ○ : 1-2 week delivery 💧 : Coolant through

Inserts ➡K94・K96 Cutting condition ➡K89

ID Tooling - STICK DUO SPLASH -

HY-NBH-OH (Coolant through)

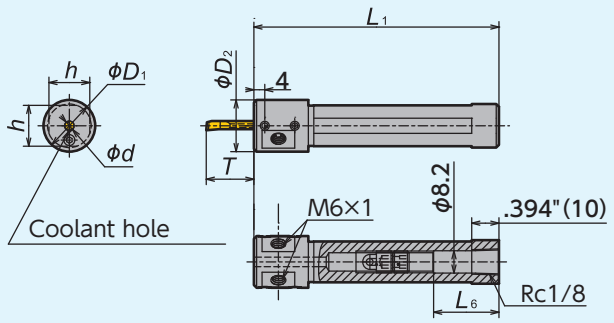


Figure-1

HY-NBH-OH (Coolant through)

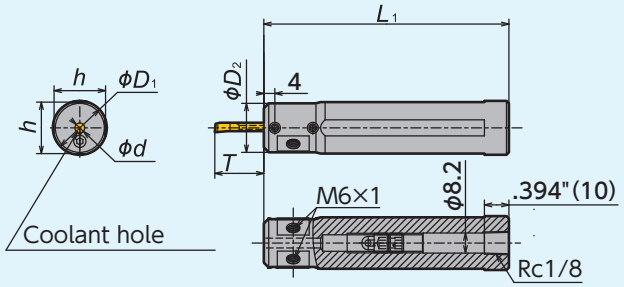
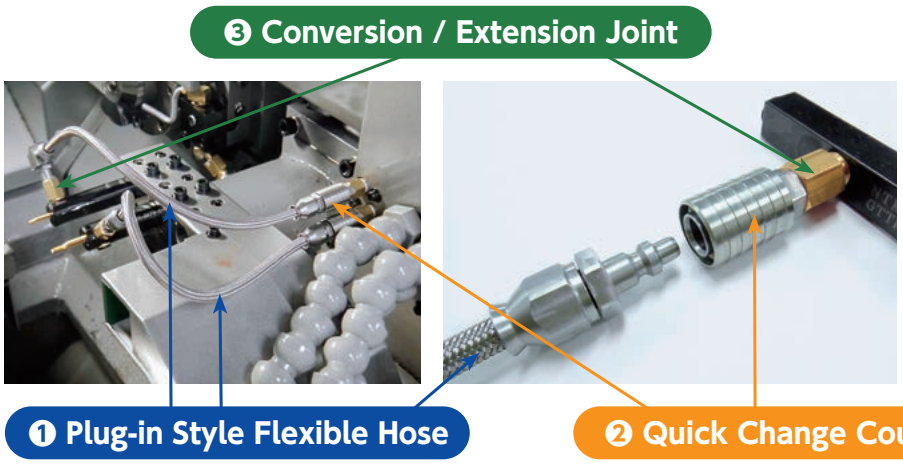


Figure-2

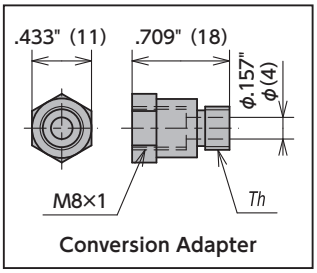
Item Number	Stock	Figure	ϕ d		ϕ D1		ϕ D2	h	L1	Overhang Length of Bar T			
										Min.		Max.	
			(Inch)	(mm)	(Inch)	(mm)	(mm)	(mm)	(mm)	(Inch)	(mm)	(Inch)	(mm)
HY-NBH02016G-OH	●	1	.079	2	.630	16	19	15	90	.197	5.0	.709	18.0
HY-NBH02516G-OH	●	1	.098	2.5	.630	16	19	15	90	.248	6.3	.768	19.5
HY-NBH03016G-OH	●	1	.118	3	.630	16	19	15	90	.295	7.5	.827	21.0
HY-NBH03516G-OH	●	1	.138	3.5	.630	16	19	15	90	.346	8.8	.965	24.5
HY-NBH04016G-OH	●	1	.157	4	.630	16	19	15	90	.394	10.0	1.102	28.0
HY-NBH05016G-OH	●	1	.197	5	.630	16	19	15	90	.492	12.5	1.378	35.0
HY-NBH02019J-OH	●	2	.079	2	3/4	19.05	19.05	18	110	.197	5.0	.709	18.0
HY-NBH02519J-OH	●	2	.098	2.5	3/4	19.05	19.05	18	110	.248	6.3	.768	19.5
HY-NBH03019J-OH	●	2	.118	3	3/4	19.05	19.05	18	110	.295	7.5	.827	21.0
HY-NBH03519J-OH	●	2	.138	3.5	3/4	19.05	19.05	18	110	.346	8.8	.965	24.5
HY-NBH04019J-OH	●	2	.157	4	3/4	19.05	19.05	18	110	.394	10.0	1.102	28.0
HY-NBH05019J-OH	●	2	.197	5	3/4	19.05	19.05	18	110	.492	12.5	1.378	35.0
HY-NBH02020J-OH	●	2	.079	2	.787	20	20	19	110	.197	5.0	.709	18.0
HY-NBH02520J-OH	●	2	.098	2.5	.787	20	20	19	110	.248	6.3	.768	19.5
HY-NBH03020J-OH	●	2	.118	3	.787	20	20	19	110	.295	7.5	.827	21.0
HY-NBH03520J-OH	●	2	.138	3.5	.787	20	20	19	110	.346	8.8	.965	24.5
HY-NBH04020J-OH	●	2	.157	4	.787	20	20	19	110	.394	10.0	1.102	28.0
HY-NBH05020J-OH	●	2	.197	5	.787	20	20	19	110	.492	12.5	1.378	35.0
HY-NBH02022X-OH	●	2	.079	2	.866	22	20	21	120	.197	5.0	.709	18.0
HY-NBH02522X-OH	●	2	.098	2.5	.866	22	20	21	120	.248	6.3	.768	19.5
HY-NBH03022X-OH	●	2	.118	3	.866	22	20	21	120	.295	7.5	.827	21.0
HY-NBH03522X-OH	●	2	.138	3.5	.866	22	20	21	120	.346	8.8	.965	24.5
HY-NBH04022X-OH	●	2	.157	4	.866	22	20	21	120	.394	10.0	1.102	28.0
HY-NBH05022X-OH	●	2	.197	5	.866	22	20	21	120	.492	12.5	1.378	35.0
HY-NBH02025.0K-OH	●	2	.079	2	.984	25.0	20	24	125	.197	5.0	.709	18.0
HY-NBH02525.0K-OH	●	2	.098	2.5	.984	25.0	20	24	125	.248	6.3	.768	19.5
HY-NBH03025.0K-OH	●	2	.118	3	.984	25.0	20	24	125	.295	7.5	.827	21.0
HY-NBH03525.0K-OH	●	2	.138	3.5	.984	25.0	20	24	125	.346	8.8	.965	24.5
HY-NBH04025.0K-OH	●	2	.157	4	.984	25.0	20	24	125	.394	10.0	1.102	28.0
HY-NBH05025.0K-OH	●	2	.197	5	.984	25.0	20	24	125	.492	12.5	1.378	35.0
HY-NBH02025.4K-OH	●	2	.079	2	1	25.4	20	24	125	.197	5.0	.709	18.0
HY-NBH02525.4K-OH	●	2	.098	2.5	1	25.4	20	24	125	.248	6.3	.768	19.5
HY-NBH03025.4K-OH	●	2	.118	3	1	25.4	20	24	125	.295	7.5	.827	21.0
HY-NBH03525.4K-OH	●	2	.138	3.5	1	25.4	20	24	125	.346	8.8	.965	24.5
HY-NBH04025.4K-OH	●	2	.157	4	1	25.4	20	24	125	.394	10.0	1.102	28.0
HY-NBH05025.4K-OH	●	2	.197	5	1	25.4	20	24	125	.492	12.5	1.378	35.0

Insert bars ➡K160 Cutting condition ➡K152

Quick-change Coolant Components



- Up to 2900psi
- High quality flexible stainless steel braided hose
- Reduce machine downtime



Conversion Adapter

① Plug-in Style Flexible Hose

Straight style

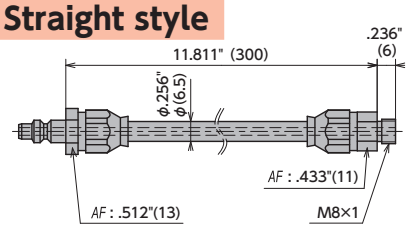
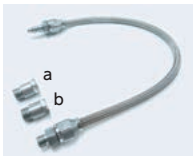


Figure-1



a : Convert M8×1 to M10×1
b : Convert M8×1 to G1/8 (PF1/8)

L-style

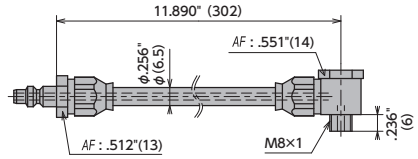
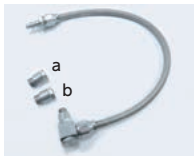


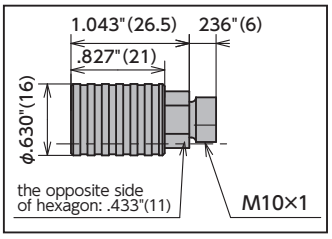
Figure-2



a : Convert M8×1 to M10×1
b : Convert M8×1 to G1/8 (PF1/8)

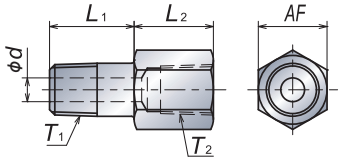
Item Number	Figure	Stock	Comes with
HOSE-ST-M8*1	1	●	Conversion Adapter a and b
HOSE-AN-M8*1	2	●	Conversion Adapter a and b

② Quick Change Coupling

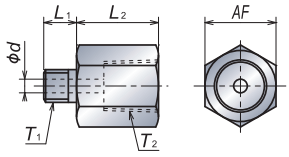


Item Number	Stock	Comes with
COUP-M10*1	●	Seal Plug

③ Conversion / Extension Joint



For square shank holders
Figure-3



For sleeves
Figure-4

Item Number	Figure	Stock	T_1 (mm)	T_2 (mm)	L_1 (mm)	L_2 (mm)	AF (mm)	d (mm)
SCJ-NPT1/8-M10-L	3	●	NPT1/8	M10×1	16	12	13	4.5
SCJ-R1/8-M10-L	3	○	R1/8 (PT1/8)	M10×1	16	12	13	4.5
SCJ-R1/8-RC1/8-L	3	○	R1/8 (PT1/8)	Rc1/8 (PT1/8)	16	15	13	4.5
SCJ-R1/8-NPT1/8-L	3	●	R1/8 (PT1/8)	NPT1/8	16	15	13	4.5
SCJ-M6-M10	4	○	M6 × 1	M10 × 1	6	15	12	2.5
SCJ-M6-RC1/8	4	○	M6 × 1	Rc1/8 (PT1/8)	6	15	13	2.5
SCJ-M6-NPT1/8	4	●	M6 × 1	NPT1/8	6	15	13	2.5
SCJ-R1/8-M10	4	○	R1/8 (PT1/8)	M10 × 1	10	15	12	4.5
SCJ-R1/8-NPT1/8	4	●	R1/8 (PT1/8)	NPT1/8	10	15	13	4.5

● : Stock ○ : 1-2 week delivery 💧 : Coolant through

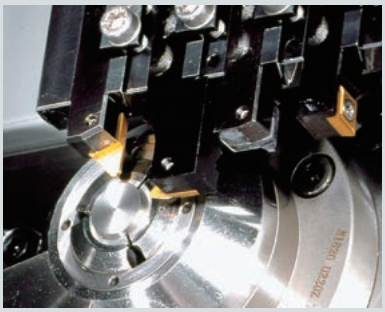
Y-axis Toolholders

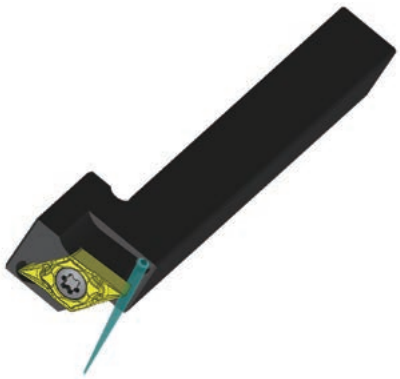
Chip control by gravity

Features

WATCH ON YouTube

- Chip drops down to the bed of the machine due to gravity, and chip control problem is solved
- Now available coolant through holders
- Front turning, grooving, and back turning operations can be performed by utilizing Y-axis control





- Perfect solution for chip problems
- Less wear, more stable dimensions

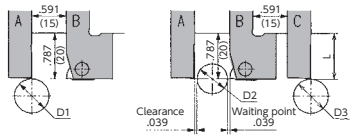
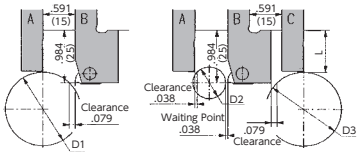
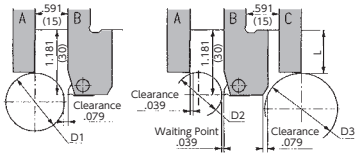
Programming guidance

Regular Toolholder					Y-axis Toolholder				
①T300				Select tool	①T300				
②G0	X .450	Z .000	T3	Position tool	②G0		Y .450	Z .000	T3
③					③	X .000			
④G1	X .300		F .003	Move to OD to cut	④G1		Y .300		F .003
⑤		Z .200	F .002	Cut .200" length	⑤			Z .200	F .002
⑥	X .400			Cut face	⑥		Y .450		
⑦G0	X .450				⑦G0	X .450			
	Cut by X-axis					Cut by Y-axis			

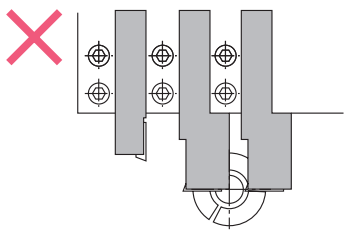
Note: Need Y-offset for holder shank size.

Machinable OD Dimensions

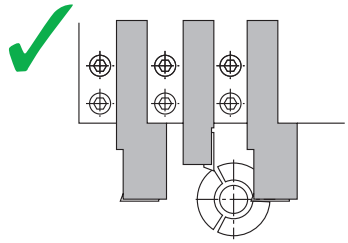
*Machinable ODs with Y-GTTR type grooving toolholders are shown as an example (The dimensions apply to other Y-axis toolholders as well)

Y-axis Holder Overhang	Tool Layout	Situation	Overhang Amount (L)		
			.787 (20mm)	.866 (22mm)	.984 (25mm)
.787 (20mm)		D1 Max machinable OD with Holder A	No limitation	No limitation	No limitation
		D2 Max machinable OD with Holder B	.512 (13mm)	.512 (13mm)	.512 (13mm)
		D3 Max machinable OD with Holder C	No limitation	No limitation	No limitation
.984 (25mm)		D1 Max machinable OD with Holder A	1.496 (38mm)	2.283 (58mm)	No limitation
		D2 Max machinable OD with Holder B	.587 (14.9mm)	.535 (13.6mm)	.512 (13mm)
		D3 Max machinable OD with Holder C	1.496 (38mm)	2.283 (58mm)	No limitation
1.181 (30mm)		D1 Max machinable OD with Holder A	1.055 (26.8mm)	1.142 (29mm)	1.516 (38.5mm)
		D2 Max machinable OD with Holder B	.811 (20.6mm)	.705 (17.9mm)	.587 (14.9mm)
		D3 Max machinable OD with Holder C	1.299 (33mm) 1.055 (26.8mm) for TBP style	1.457 (37mm) 1.142 (29mm) for TBP style	2.028 (51.5mm) 1.516 (38.5mm) for TBP style

Important Notes for Using Y-axis Toolholders



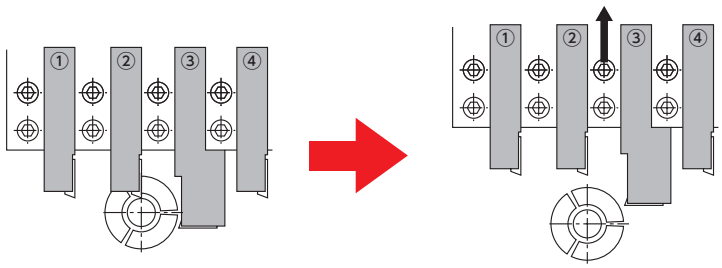
To avoid interference, two Y-axis toolholders should not be installed next to each other



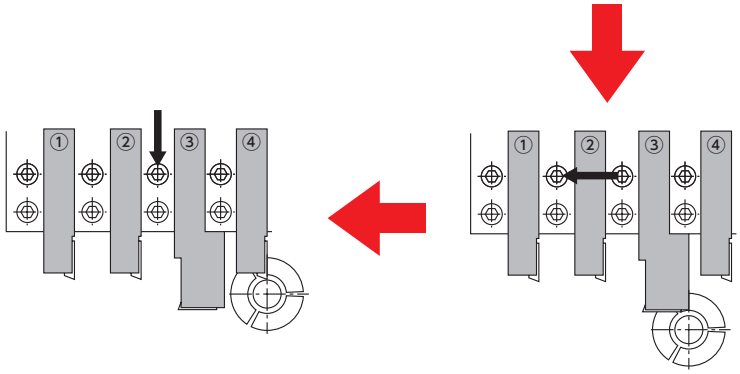
Install a standard toolholder between the two Y-axis toolholders

For tool change, determine a retraction point based on the overhang of the Y-axis toolholder

● Example: Tool change from No.2 to No.4



Retract the tool station based on the cutting edge location on the Y-axis toolholder

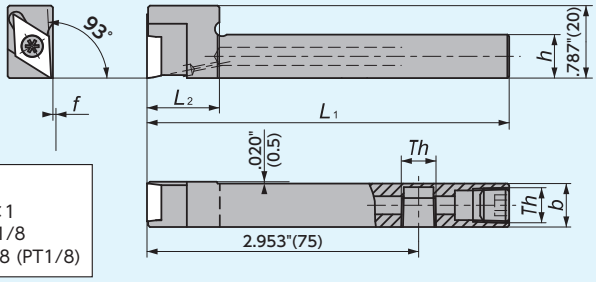


Front Turning

DC.. Series - Toolholders

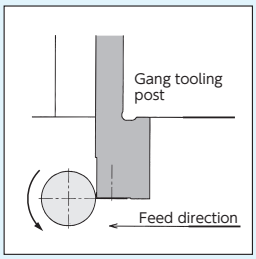
Y-SDJC-OH (Coolant through)

NEW



Th (Thread type)
3/8" holder : M6×1
1/2", 5/8" holder : NPT1/8
Metric size holder: Rc1/8 (PT1/8)

Figure-1



Right-Hand style shown
Takes Right-hand or Neutral insert

Y-SDJC

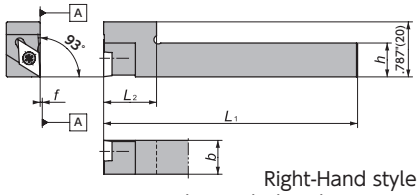


Figure-2

Right-Hand style shown
Takes Right-hand or Neutral insert

Y-SDNC

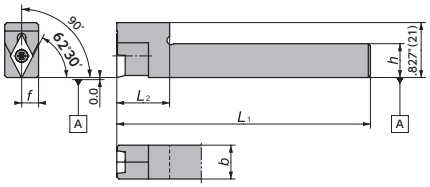


Figure-3

Takes Right-hand or Neutral insert

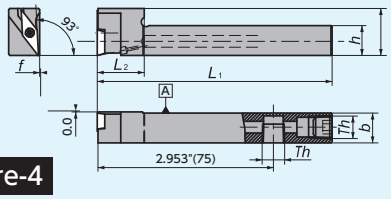
Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	L_2 (Inch)	L_2 (mm)	Th	Clamp Screw	Wrench
			N														
DC..21.5.. DC..21.5..WP	Y-SDJCR062H-IN-OH	1	●		3/8		3/8		3.937	100	0	0	.984	25	M6 × 1	LRIS-2.5 × 7	CLR-15S
	Y-SDJCR082H-IN-OH	1	●		1/2		1/2		3.937	100	0	0	.984	25	NPT1/8	LRIS-2.5 × 7	CLR-15S
DC..32.5.. DC..32.5..WP	Y-SDJCR083H-IN-OH	1	●		1/2		1/2		3.937	100	0	0	.984	25	NPT1/8	LRIS-4 × 10	LLR-25S-20 × 65
	Y-SDJCR103H-IN-OH	1	●		5/8		5/8		3.937	100	0	0	.984	25	NPT1/8	LRIS-4 × 10	LLR-25S-20 × 65
	Y-SDJCR1212H11S-OH	1	●		.472	12.0	.472	12.0	3.937	100	0	0	.787	20	Rc1/8(PT1/8)	LRIS-4 × 10	LLR-25S-20 × 65
	Y-SDJCR1616H11-OH	1	○		.630	16.0	.630	16.0	3.937	100	0	0	.984	25	Rc1/8(PT1/8)	LRIS-4 × 10	LLR-25S-20 × 65
DC..21.5.. DC..21.5..WP	Y-SDJCR062-IN	2	●		3/8		3/8		4.724	120	0	0	.984	25	–	LRIS-2.5 × 7	CLR-15S
	Y-SDJCR082-IN	2	●		1/2		1/2		4.724	120	0	0	.984	25	–	LRIS-2.5 × 7	CLR-15S
	Y-SDJCR10-07S	2	○		.394	10.0	.394	10	4.724	120	0	0	.787	20	–	LRIS-2.5 × 7	CLR-15S
	Y-SDJCR12-07S	2	○		.472	12.0	.472	12	4.724	120	0	0	.787	20	–	LRIS-2.5 × 7	CLR-15S
DC..32.5.. DC..32.5..WP	Y-SDJCR083-IN	2	●		1/2		1/2		4.724	120	0	0	.984	25	–	LRIS-4 × 10	LLR-25S-20 × 65
	Y-SDJCR103-IN	2	●		5/8		5/8		4.724	120	0	0	.984	25	–	LRIS-4 × 10	LLR-25S-20 × 65
	Y-SDJCR12-11S	2	○		.472	12.0	.630	16	4.724	120	0	0	.787	20	–	LRIS-4 × 10	LLR-25S-20 × 65
	Y-SDJCR16-11S	2	○		.630	16.0	.630	16	4.724	120	0	0	.787	20	–	LRIS-4 × 10	LLR-25S-20 × 65
DC..32.5..	Y-SDNCN083-IN	3	●		1/2		1/2		4.724	120	1/4	6.35	.984	25	–	LRIS-4 × 10	LLR-25S-20 × 65
	Y-SDNCN12-11S	3	○		.472	12.0	.472	12	4.724	120	.236	6.0	.787	20	–	LRIS-4 × 10	LLR-25S-20 × 65
	Y-SDNCN16-11S	3	○		.630	16.0	.630	16	4.724	120	.315	8.0	.787	20	–	LRIS-4 × 10	LLR-25S-20 × 65

Inserts ➔K46

VC.. Series - Toolholders

Y-SVJCR-OH (Coolant through)

NEW



Th (Thread type)
Inch size holder:
NPT1/8

Figure-4

Y-SVJCR

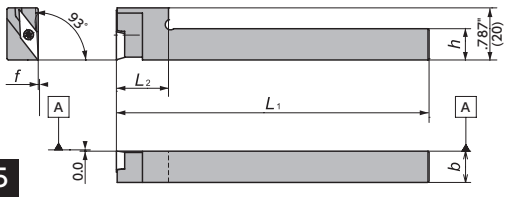


Figure-5

Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	L_2 (Inch)	L_2 (mm)	Th	Clamp Screw	Wrench
VC..22..	Y-SVJCR082SHS-IN-OH	4	●		1/2		1/2		3.937	100	0.0	0.0	.787	20	NPT1/8	LRIS-2.5 × 7	CLR-15S
	Y-SVJCR102H-IN-OH	4	●		5/8		5/8		3.937	100	0.0	0.0	.984	25	NPT1/8	LRIS-2.5 × 7	CLR-15S
VC..22..	Y-SVJCR062-IN	5	●		3/8		3/8		4.724	120	0.0	0.0	.787	20	–	LRIS-2.5 × 7	CLR-15S
	Y-SVJCR082-IN	5	●		1/2		1/2		4.724	120	0.0	0.0	.787	20	–	LRIS-2.5 × 7	CLR-15S
	Y-SVJCR102-IN	5	●		5/8		5/8		4.724	120	0.0	0.0	.984	25	–	LRIS-2.5 × 7	CLR-15S

Inserts ➔K55

Back Turning

TBP Series - Toolholders

Y-TBP-OH (Coolant through)

Screw accessible from both sides

NEW

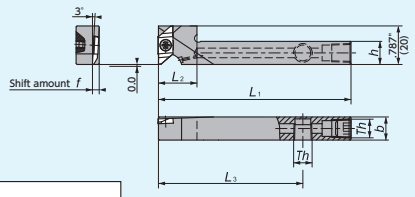


Figure-1

Th (Thread type)
Inch size holder : NPT1/8
Metric size holder: M6, Rc1/8 (PT1/8)

Right-Hand style shown
Takes Right-hand Insert

Y-TBP

Screw accessible from both sides

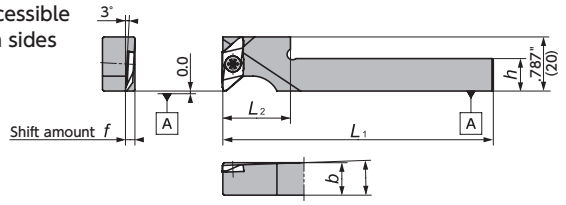


Figure-2

Right-Hand style shown
Takes Right-hand Insert

TBP

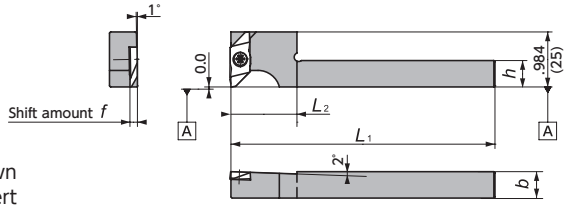
Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch) (mm)	b (Inch) (mm)	h1 (Inch) (mm)	L1 (Inch) (mm)	f (Inch) (mm)	L2 (Inch) (mm)	h2 (Inch) (mm)	L3 (Inch) (mm)	Th	Clamp Screw	Wrench
 TBP..	Y-TBP□08H-IN-OH	1	●		1/2	1/2	— —	3.937 100	.138 3.5	.984 25	— —	2.953 75	NPT1/8	LRIS-4 × 12PW	CLR-15S
	Y-TBP□12HS-OH	1	●		.472 12	.472 12	— —	3.937 100	.138 3.5	.787 20	— —	2.953 75	Rc1/8 (PT1/8)	LRIS-4 × 12PW	CLR-15S
	Y-TBP□16H-OH	1	○		.630 16	.630 16	— —	3.937 100	.138 3.5	.984 25	— —	2.953 75	Rc1/8 (PT1/8)	LRIS-4 × 12PW	CLR-15S
	Y-TBP□06-IN	2	●		3/8	3/8	— —	2.756 70	.138 3.5	.984 25	— —	— —	—	LRIS-4 × 10PW	CLR-15S
	Y-TBP□08-IN	2	●		1/2	1/2	— —	2.756 70	.138 3.5	.984 25	— —	— —	—	LRIS-4 × 12PW	CLR-15S
	Y-TBP□10-IN	2	●		5/8	5/8	— —	2.756 70	.138 3.5	.984 25	— —	— —	—	LRIS-4 × 12PW	CLR-15S
	Y-TBP□10S	2	○		.394 10	.394 10	— —	4.724 120	.138 3.5	.787 20	— —	— —	—	LRIS-4 × 10PW	CLR-15S
	Y-TBP□12S	2	○		.472 12	.472 12	— —	4.724 120	.138 3.5	.787 20	— —	— —	—	LRIS-4 × 12PW	CLR-15S

Inserts ➡K73

TBPA (CTPA) Series - Toolholders

Y-CTPA

Screw accessible from both sides



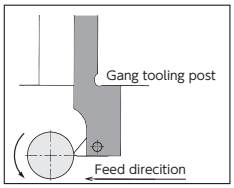


Figure-3

Right-Hand style shown
Takes Right-hand Insert

CTPA

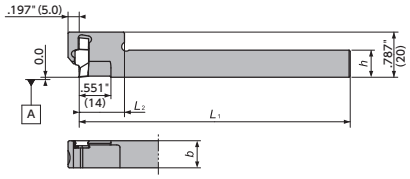
Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch) (mm)	b (Inch) (mm)	h1 (Inch) (mm)	L1 (Inch) (mm)	f (Inch) (mm)	L2 (Inch) (mm)	h2 (Inch) (mm)	L3 (Inch) (mm)	Th	Clamp Screw	Wrench
 TBPA..	Y-CTPA□08L-IN	3	●		1/2	1/2	— —	4.724 120	1.34 34	— —	— —	— —	—	LR-S-4 × 12PW	CLR-15S

Inserts ➡K75

TBDP Series - Toolholders

Y-TBDP

NEW



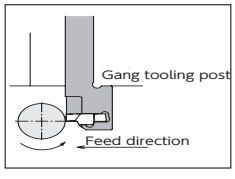


Figure-4

Right-Hand style shown

TBDP

Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch) (mm)	b (Inch) (mm)	h1 (Inch) (mm)	L1 (Inch) (mm)	f (Inch) (mm)	L2 (Inch) (mm)	L3 (Inch) (mm)	h2 (Inch) (mm)	Clamp Screw	Wrench
 TBDP..	Y-TBDPR12S	4	○		.472 12	.472 12	— —	4.724 120	.081 2.05	.787 20	.197 5	— —	LRIS-4 × 12	LLR-25S

● : Stock ○ : 1-2 week delivery 💧 : Coolant through

Inserts ➡K76 Cutting condition ➡K67

Grooving / Side turning / Back turning

GTT Series

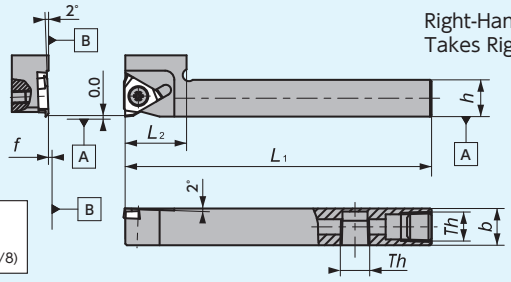
Y-GTT-OH (Coolant through)

Screw accessible from both sides

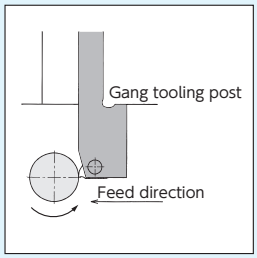
NEW

Th (Thread type)
Inch size holder : NPT1/8
Metric size holder: M6, Rc1/8 (PT1/8)

Figure-1



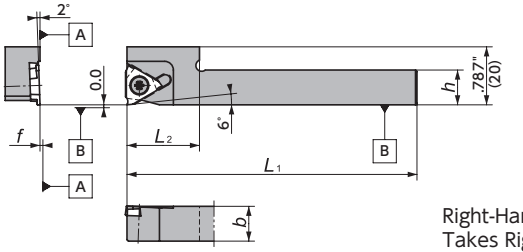
Right-Hand style shown
Takes Right-hand Insert



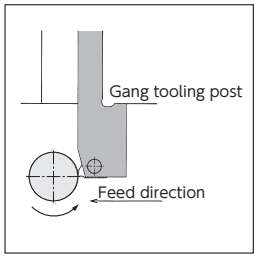
Y-GTT

Screw accessible from both sides

Figure-2



Right-Hand style shown
Takes Right-hand Insert



GTT

Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h1 (Inch)	h1 (mm)	L1 (Inch)	L1 (mm)	f (Inch)	f (mm)	L2 (Inch)	L2 (mm)	ar (Inch)	ar (mm)	h2 (Inch)	h2 (mm)	Th	Clamp Screw	Wrench
TBMH32.. GTM.32.. TMG32	Y-GTT⅛08H-IN-OH	1	●		1/2		1/2		–	–	3.937	100	.000	0	.984	25.0	.063	1.6	–	–	NTP1/8	LR-S-4×10PW	CLR-15S
	Y-GTT⅛12H00S-OH	1	●		.472	12	.472	12	–	–	3.937	100	.000	0	.787	20.0	.063	1.6	–	–	Rc1/8(PT1/8)	LR-S-4×10PW	CLR-15S
	Y-GTT⅛16H00-OH	1	○		.630	16	.472	16	–	–	3.937	100	.000	0	.984	25.0	.063	1.6	–	–	Rc1/8(PT1/8)	LR-S-4×10PW	CLR-15S
	Y-GTTR⅛06-IN	2	●		3/8		3/8		–	–	4.724	120	.000	0	.984	25.0	.063	1.6	–	–	–	LR-S-4×10PW	CLR-15S
	Y-GTTR⅛08-IN	2	●		1/2		1/2		–	–	4.724	120	.000	0	.984	25.0	.063	1.6	–	–	–	LR-S-4×10PW	CLR-15S
	Y-GTTR⅛10-IN	2	●		5/8		5/8		–	–	4.724	120	.000	0	.984	25.0	.063	1.6	–	–	–	LR-S-4×10PW	CLR-15S
	Y-GTT⅛10S	2	○		.394	10	.394	10	–	–	4.724	120	.000	0	.787	20.0	.063	1.6	–	–	–	LR-S-4×10PW	CLR-15S
	Y-GTT⅛12S	2	○		.472	12	.472	12	–	–	4.724	120	.000	0	.787	20.0	.063	1.6	–	–	–	LR-S-4×10PW	CLR-15S

Inserts GTM..32 ➡K114
Inserts TBMH32.. ➡K83

Multi-functional Grooving for non-ferrous material

GTPA Series - Inserts

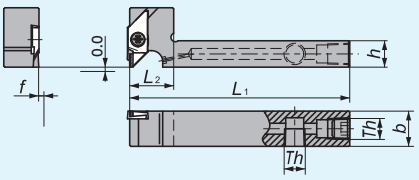
Y-GTPA-OH (Coolant through)

Screw Accessible from both sides

NEW

Th (Thread type)
Metric size holder:
Rc1/8 (PT1/8)

Figure-1

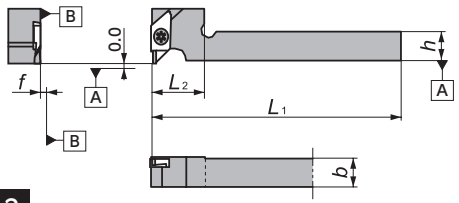


Right-Hand style shown

Y-GTPA

Screw Accessible from both sides

Figure-2



Right-Hand style shown

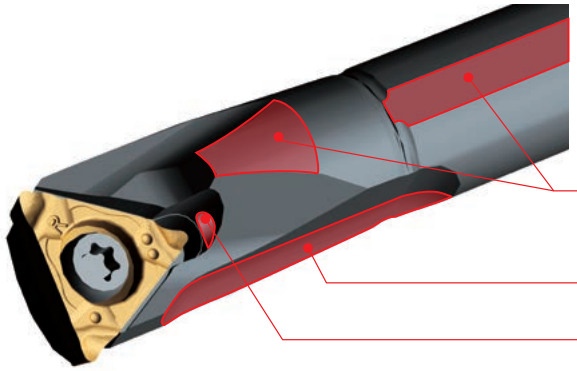
GTPA

Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h1 (Inch)	h1 (mm)	L1 (Inch)	L1 (mm)	f (Inch)	f (mm)	L2 (Inch)	L2 (mm)	Th	Clamp Screw	Wrench
 GTPA	Y-GTPA⅛1216HS-OH	1	○		.472	12	.630	16	–	–	2.756	70	.004	0.1	.787	20	Rc1/8(PT1/8)	LRIS-4 × 12PW	CLR-15S
	Y-GTPA⅛1216H-OH	1	○		.630	16	.630	16	–	–	2.756	70	.004	0.1	.984	25	Rc1/8(PT1/8)	LRIS-4 × 12PW	CLR-15S
	Y-GTPA⅛1216	2	○		.472	12	.630	16	–	–	4.724	120	.004	0.1	.787	20	–	LRIS-4 × 12PW	CLR-15S

Inserts ➡K126

Mogul Bar

High rigidity boring bars



WATCH ON YouTube

Features

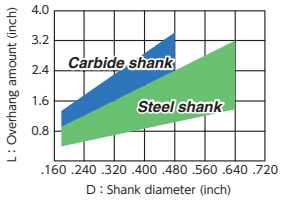
- ***High rigidity + Minimal flat widths Reduce vibration***
- ***Large clearance for improved chip evacuation***
- ***All MogulBar boring bars are coolant through***

Recommended amount of overhang

Steel Shank **L/D≦5**

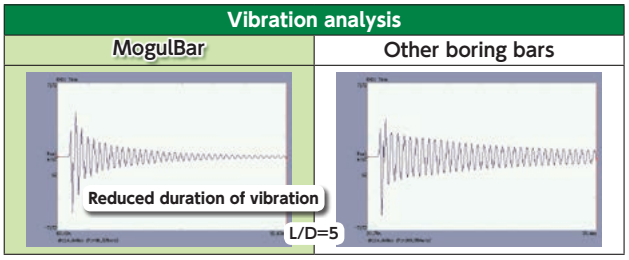
Carbide Shank **L/D≦7**

L : Overhang
D : Shank diameter



[Cutting condition example]
Work materials: Alloy steel, stainless
260 SFM, .002 - .004 IPR, .004" - .020" DOC WET

Vibration analysis

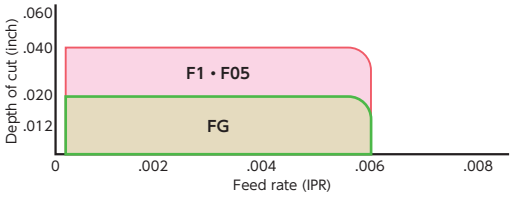


Note: Assuming a 100N load is applied. An equal amount of force was applied to both bars for vibration analysis.
Boring bar used in above analysis: S08H-STUPR09D10-OH

F Chipbreakers - Evacuate chips BACKWARD

- F chipbreakers allow chips to evacuate backward
- Combination of the F-chipbreakers and MogulBar delivers the best performance

Recommended Cutting Condition Range



F Chipbreakers - Features

	DOC (inch)	Feed (IPR) .002	Feed (IPR) .004
FG Chipbreaker ● Best for finishing ● Works for small DOC (.020" or less) ● High rake angle 	.004		
	.012		
F1/F05 Chipbreakers ● Cover wide condition range ● Ground chipbreaker 	.020		

Note: Right-hand inserts with FG and F1 chipbreakers should be used with right-hand holders

[Cutting condition example]
4140 Carbon Steel Diameter : ϕ.472"
260 SFM Depth of Bore : .787" Wet
Holder : S10K-STUPR11D12-OH Insert : TPGH221

Holders ➡K171

DS-ACH Toolholders

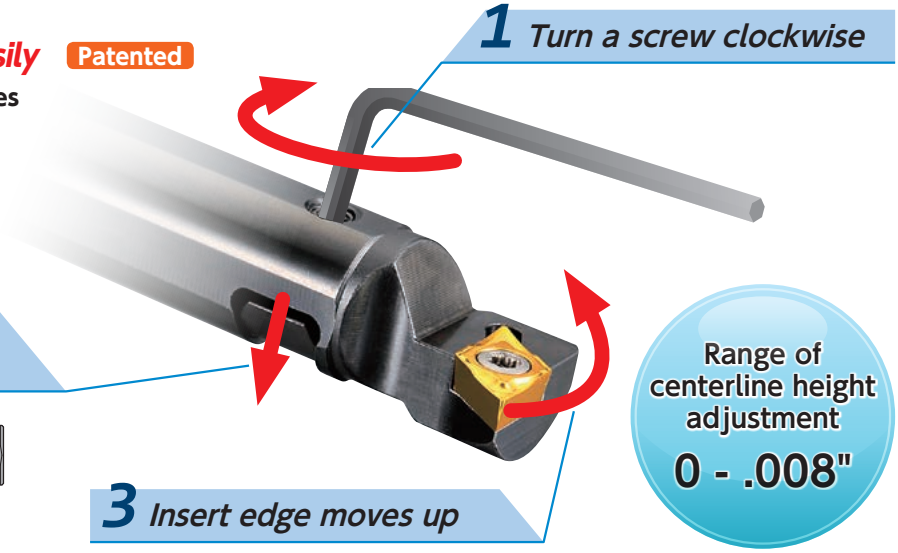
Features

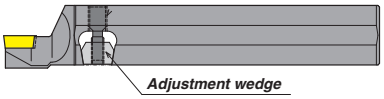
WATCH ON YouTube

- Adjust centerline height simply with a wrench

1 Adjust centerline height easily Patented

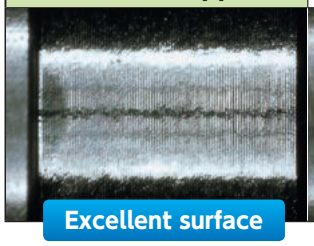
- Eliminate center boss on end faces
- Provide constant OD dimension
- Adjust easily in machine





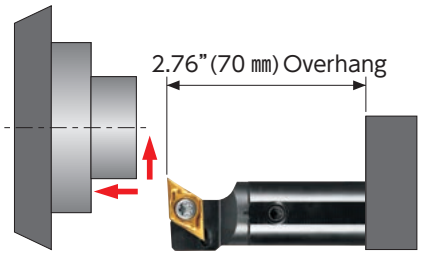
2 Optimized design reduces vibration

Improved chatter resistance.

DS-ACH type	Conventional type
	
Excellent surface	Chattered

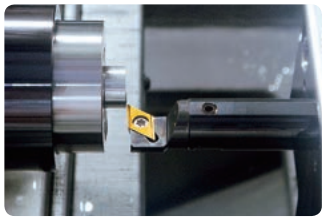
Tested cutting conditions (304 SS)

Work material : 304 SS
Holder : DS-SDUL19-11-ACH
Insert : DCGT32.508MCL TM4
Cutting condition : 250 SFM .002 IPR .079" DOC WET

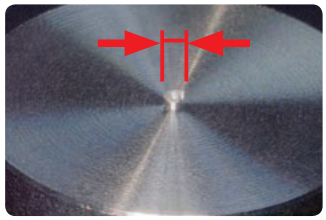


How to use

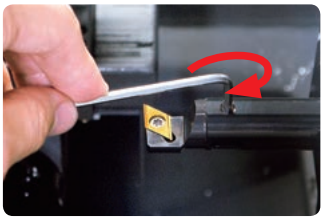
Insert moves in an upward direction only. See the instruction shown on the back page. (Loosen wedge screw before making any adjustment)



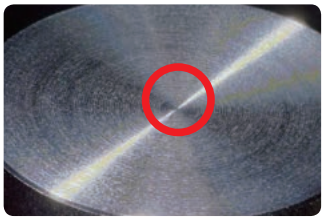
①Install the holder slightly below centerline. Then take a facing test cut.



②Measure the diameter of the centerboss.



③Raise the center height by one half of the diameter of the boss. Adjustment references are available in the tool case.



④Re-machine the end face.

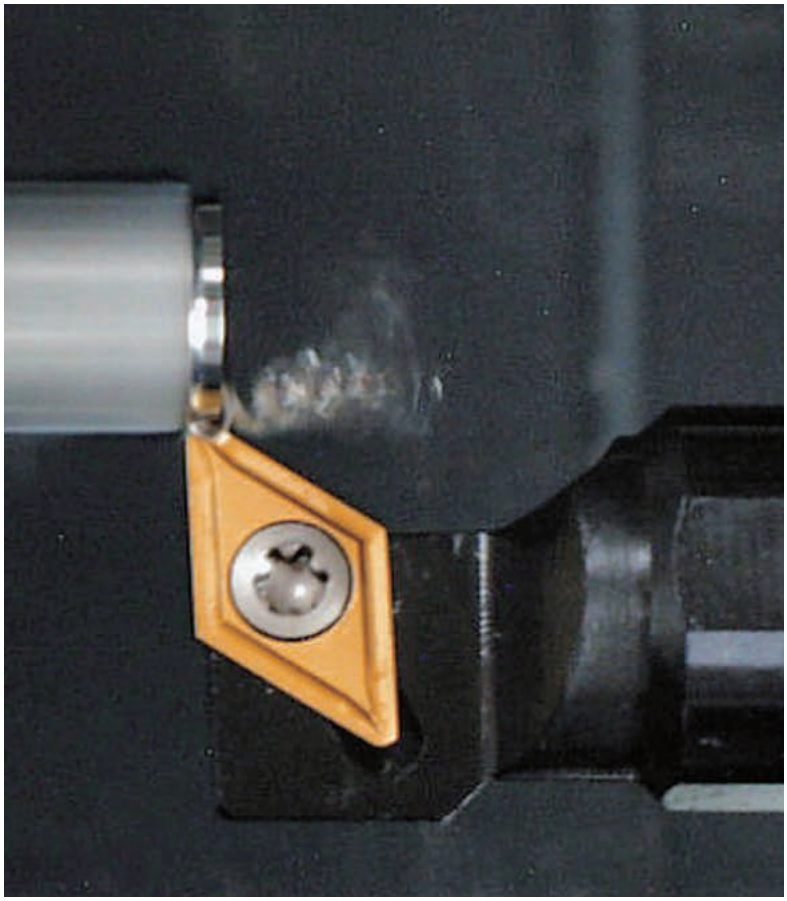
*Adjustment instructions are supplied in the tool case

DS Toolholders

For making the most of vacant drill sleeves

DS / DS-ACH Toolholders

Industry Proven Concept



Are you satisfied with the number of tool positions in your machine?

NTK DS type toolholder is useful when additional tool positions are required

Five types of tools are available: Front turning, Back turning, Grooving, Threading, and Small boring which fit into the machines' vacant drill sleeves

DS Series toolholders can be used with both Swiss or non-Swiss type CNC lathes

Features

- More turning tools without any hassle
- Available for Front turning, Back turning, Grooving, Threading, Micro-boring, and interchangeable tooling
- Available shank size range: from .511"(14㎜) to 1"(25.4㎜)

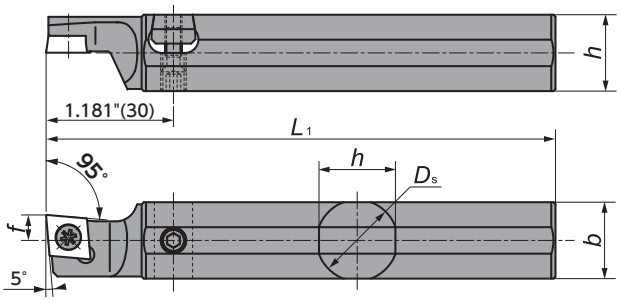
Front Turning

CC.. Series - Toolholders

DS-SCLL-ACH (Adjustable centerline height)

〈Parts〉

Shank	Wedge	Screw for Wedge
ϕ.630" (16)	ACH-W18 (5805601)	WS060415-003 (5795539)
ϕ3/4" (19.05)		
ϕ.787" (20)		WS060419-004 (5799226)
ϕ.866" (22)		
ϕ1" (25.4)	ACH-W24 (5805619)	



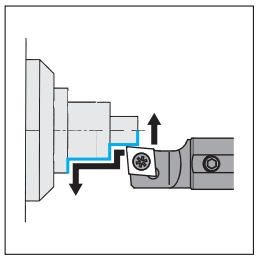


Figure-1

Left-Hand style shown
Takes Right-hand or Neutral insert

DS-SCL

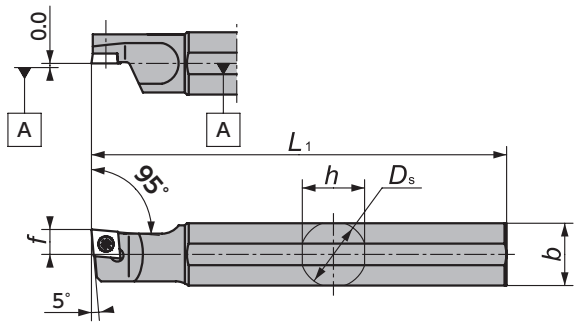


Figure-2

DS-SCL (Coolant through)

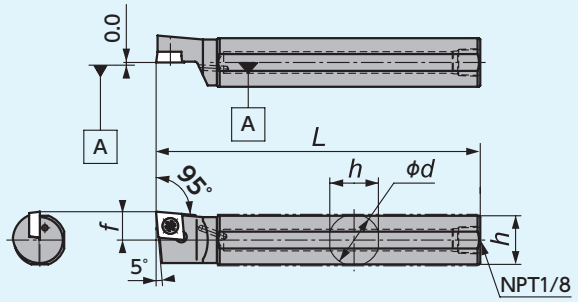


Figure-3

Left-Hand style shown
Takes Right-hand or Neutral insert

DS-SCL (Takes right-hand or neutral insert)

Gage Insert	Item Number	Figure	Stock R	Stock L	D_s (Inch)	D_s (mm)	h (Inch)	h (mm)	b (Inch)	b (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	Clamp Screw	Wrench
CC..21.5..	DS-SCL□14F-06	2		○	.551	14.000	.512	13	.512	13	3.150	80	.236	6.0	LRIS-2.5 × 7	CLR-15S
	DS-SCL□15H-06	2		○	5/8	15.875	.591	15	.591	15	3.937	100	.236	6.0	LRIS-2.5 × 7	CLR-15S
	DS-SCL□16F-06	2		○	.630	16.000	.591	15	.591	15	3.150	80	.236	6.0	LRIS-2.5 × 7	CLR-15S
	DS-SCL□19-06	2		●	3/4	19.050	.709	18	.709	18	4.724	120	.236	6.0	LRIS-2.5 × 7	CLR-15S
	DS-SCL□20X-06	2		○	.787	20.000	.748	19	.748	19	3.740	95	.236	6.0	LRIS-2.5 × 7	CLR-15S
	DS-SCL□20-06	2		●	.787	20.000	.748	19	.748	19	4.724	120	.236	6.0	LRIS-2.5 × 7	CLR-15S
	DS-SCL□22-06	2		○	.866	22.000	.827	21	.827	21	4.724	120	.236	6.0	LRIS-2.5 × 7	CLR-15S
	DS-SCL□25-06MET	2		●	.984	25.000	.945	24	.945	24	4.724	120	.236	6.0	LRIS-2.5 × 7	CLR-15S
	DS-SCL□25-06	2		●	1	25.400	.945	24	.945	24	5.906	150	.236	6.0	LRIS-2.5 × 7	CLR-15S
CC..32.5..	DS-SCL□14F-09	2		○	.551	14.000	.512	13	.512	13	3.150	80	.236	6.0	LRIS-4 × 8	LLR-25S-20 × 65
	DS-SCL□15H-09	2		○	5/8	15.875	.591	15	.591	15	3.937	100	.236	6.0	LRIS-4 × 8	LLR-25S-20 × 65
	DS-SCL□16F-09	2		○	.630	16.000	.591	15	.591	15	3.150	80	.236	6.0	LRIS-4 × 8	LLR-25S-20 × 65
	DS-SCL□19GX-09	2		○	3/4	19.050	.709	18	.709	18	3.346	85	.236	6.0	LRIS-4 × 8	LLR-25S-20 × 65
	DS-SCL□19-09	2		●	3/4	19.050	.709	18	.709	18	4.724	120	.236	6.0	LRIS-4 × 8	LLR-25S-20 × 65
	DS-SCLL19-09-004	3		●	3/4	19.050	.709	18	.709	18	4.724	120	.413	10.5	LRIS-4 × 8	LLR-25S-20 × 65
	DS-SCL□20X-09	2		○	.787	20.000	.748	19	.748	19	3.740	95	.236	6.0	LRIS-4 × 8	LLR-25S-20 × 65
	DS-SCL□20-09	2		●	.787	20.000	.748	19	.748	19	4.724	120	.236	6.0	LRIS-4 × 8	LLR-25S-20 × 65
	DS-SCL□22-09	2		●	.866	22.000	.827	21	.827	21	4.724	120	.236	6.0	LRIS-4 × 8	LLR-25S-20 × 65
	DS-SCLL22-09-005	3		●	.866	22.000	.827	21	.827	21	4.724	120	.472	12.0	LRIS-4 × 8	LLR-25S-20 × 65
	DS-SCL□25-09MET	2		○	.984	25.000	.945	24	.945	24	4.724	120	.236	6.0	LRIS-4 × 8	LLR-25S-20 × 65
	DS-SCL□25-09	2		●	1	25.400	.945	24	.945	24	5.906	150	.236	6.0	LRIS-4 × 8	LLR-25S-20 × 65
	DS-SCL□16F-09-ACH	1		●	.630	16.000	.610	15.5	.610	15.5	3.150	80	.236	6.0	LRIS-4 × 8	LLR-25S-20 × 65
	DS-SCL□19-09-ACH	1		●	3/4	19.050	.709	18.0	.709	18.0	4.724	120	.236	6.0	LRIS-4 × 8	LLR-25S-20 × 65
	DS-SCL□20-09-ACH	1		●	.787	20.000	.748	19.0	.748	19.0	4.724	120	.236	6.0	LRIS-4 × 8	LLR-25S-20 × 65
	DS-SCL□22-09-ACH	1		●	.866	22.000	.827	21.0	.827	21.0	4.724	120	.236	6.0	LRIS-4 × 8	LLR-25S-20 × 65
	DS-SCL□25-09-ACH	1		●	1	25.400	.945	24.0	.945	24.0	5.906	150	.236	6.0	LRIS-4 × 8	LLR-25S-20 × 65

Inserts ➡K38

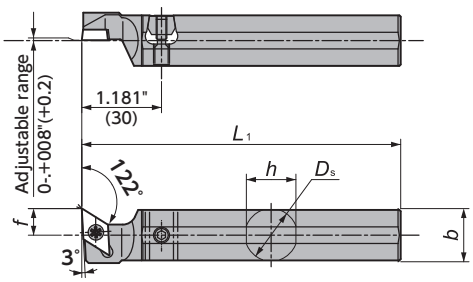
DC.. Series - Toolholders

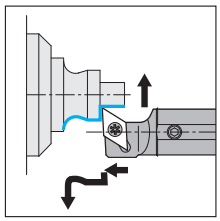
DS-SDU-ACH (Adjustable centerline height)

〈Parts〉

Shank	Wedge	Screw for Wedge
ϕ.630" (16)	ACH-W18 (5805601)	WS060415-003 (5795539)
ϕ3/4" (19.05)		
ϕ.787" (20)		WS060419-004 (5799226)
ϕ.866" (22)		
ϕ1" (25.4)	ACH-W24 (5805619)	

Figure-1

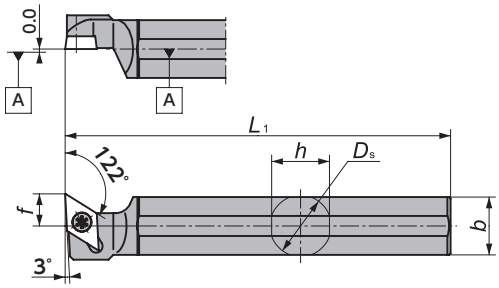


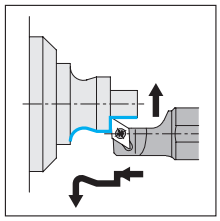


Left-Hand style shown
Takes Right-hand or Neutral insert

DS-SDU

Figure-2





Left-Hand style shown
Takes Right-hand or Neutral insert

DS-SDX / DS-SDX (Coolant through)

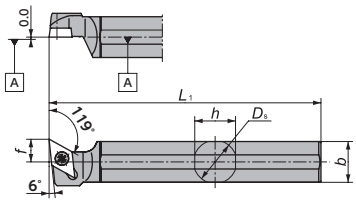


Figure-3

DS-SDXL22-11-006 (Coolant through)

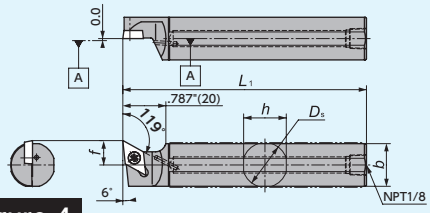
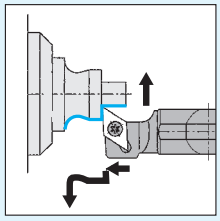


Figure-4



Left-Hand style shown
Takes Right-hand or Neutral insert

Gage Insert	Item Number	Figure	Stock R	Stock L	D_s (Inch)	D_s (mm)	h (Inch)	h (mm)	b (Inch)	b (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	Clamp Screw	Wrench
DC..21.5.. DC..21.5..WP	DS-SDU□14F-07	2		○	.551	14.000	.512	13.0	.512	13.0	3.150	80	.236	6.0	LRIS-2.5 × 7	CLR-15S
	DS-SDU□15H-07	2		○	5/8	15.875	.591	15.0	.591	15.0	3.937	100	.236	6.0	LRIS-2.5 × 7	CLR-15S
	DS-SDU□16F-07	2		○	.630	16.000	.591	15.0	.591	15.0	3.150	80	.236	6.0	LRIS-2.5 × 7	CLR-15S
	DS-SDU□16X-07	2		○	.630	16.000	.591	15.0	.591	15.0	3.740	95	.236	6.0	LRIS-2.5 × 7	CLR-15S
	DS-SDU□19-07	2		○	3/4	19.050	.709	18.0	.709	18.0	4.724	120	.236	6.0	LRIS-2.5 × 7	CLR-15S
	DS-SDU□20X-07	2		○	.787	20.000	.748	19.0	.748	19.0	3.740	95	.236	6.0	LRIS-2.5 × 7	CLR-15S
	DS-SDU□20-07	2		●	.787	20.000	.748	19.0	.748	19.0	4.724	120	.236	6.0	LRIS-2.5 × 7	CLR-15S
	DS-SDU□22-07	2		●	.866	22.000	.827	21.0	.827	21.0	4.724	120	.236	6.0	LRIS-2.5 × 7	CLR-15S
DC..32.5.. DC..32.5..WP	DS-SDU□14F-11	2		○	.551	14.000	.512	13.0	.512	13.0	3.150	80	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDU□16F-11	2		○	.630	16.000	.591	15.0	.591	15.0	3.150	80	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDU□19-11	2		●	3/4	19.050	.709	18.0	.709	18.0	4.724	120	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDU□19-11SPL	2		○	3/4	19.050	.709	18.0	.709	18.0	6.300	160	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDU□20X-11	2		○	.787	20.000	.748	19.0	.748	19.0	3.740	95	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDU□20-11	2		●	.787	20.000	.748	19.0	.748	19.0	4.724	120	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDU□22-11	2		●	.866	22.000	.827	21.0	.827	21.0	4.724	120	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDU□23-11-007	2		○	.906	23.000	.866	22.0	.866	22.0	2.756	70	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDU□25-11MET	2		●	.984	25.000	.945	24.0	.945	24.0	4.724	120	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDU□25-11	2		●	1	25.400	.945	24.0	.945	24.0	5.906	150	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDU□25-11SPL	2		○	1	25.400	.945	24.0	.945	24.0	5.906	150	.492	12.5	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDU□16F-11-ACH	1		●	.630	16.000	.610	15.5	.610	15.5	3.150	80	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDU□19-11-ACH	1		●	3/4	19.050	.709	18.0	.709	18.0	4.724	120	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDU□20-11-ACH	1		●	.787	20.000	.748	19.0	.748	19.0	4.724	120	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDU□22-11-ACH	1		●	.866	22.000	.827	21.0	.827	21.0	4.724	120	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDU□25-11-ACH	1		●	1	25.400	.945	24.0	.945	24.0	5.906	150	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDX□22-11-006 💧	4		●	.866	22.000	.827	21.0	.827	21.0	4.724	120	.472	12.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDX□19-11	3		○	3/4	19.050	.709	18.0	.709	18.0	4.724	120	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDX□20X-11	3		○	.787	20.000	.748	19.0	.748	19.0	3.740	95	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDX□20-11	3		○	.787	20.000	.748	19.0	.748	19.0	4.724	120	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDX□25-11MET	3		○	.984	25.000	.945	24.0	.945	24.0	4.724	120	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65

Inserts ➔K46

● : Stock ○ : 1-2 week delivery 💧 : Coolant through

Cutting condition ➔K30

VC.. Series - Toolholders

DS-SVX

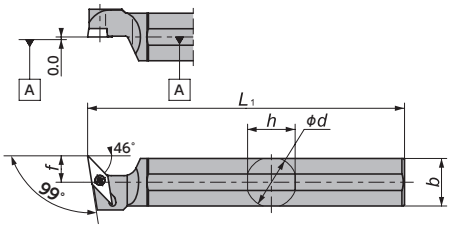


Figure-1

Gage Insert	Item Number	Figure	Stock R	Stock L	φ d (Inch)	φ d (mm)	h (Inch)	h (mm)	b (Inch)	b (mm)	L1 (Inch)	L1 (mm)	f (Inch)	f (mm)	Clamp Screw	Wrench
VC..22..	DS-SVXR/L14F-11	1		○	.551	14.000	.512	13	.512	13	3.150	80	.394	10.0	LRIS-2.5 × 7	CLR-15S
	DS-SVXR/L15H-11	1		○	5/8	15.875	.591	15	.591	15	3.937	100	.394	10.0	LRIS-2.5 × 7	CLR-15S
	DS-SVXR/L16F-11	1		●	.630	16.000	.591	15	.591	15	3.150	80	.394	10.0	LRIS-2.5 × 7	CLR-15S
	DS-SVXR/L19-11	1		●	3/4	19.050	.709	18	.709	18	4.724	120	.394	10.0	LRIS-2.5 × 7	CLR-15S
	DS-SVXR/L19-11SPL	1		○	3/4	19.050	.709	18	.709	18	6.299	160	.433	11.0	LRIS-2.5 × 7	CLR-15S
	DS-SVXR/L20X-11	1		○	.787	20.000	.748	19	.748	19	3.740	95	.394	10.0	LRIS-2.5 × 7	CLR-15S
	DS-SVXR/L20-11	1		●	.787	20.000	.748	19	.748	19	4.724	120	.394	10.0	LRIS-2.5 × 7	CLR-15S
	DS-SVXR/L22-11	1		●	.866	22.000	.827	21	.827	21	4.724	120	.394	10.0	LRIS-2.5 × 7	CLR-15S
	DS-SVXR/L25-11	1		●	1	25.400	.945	24	.945	24	5.906	150	.394	10.0	LRIS-2.5 × 7	CLR-15S

Inserts ➔K55

VP..08 Series - Toolholders

DS-SVXP

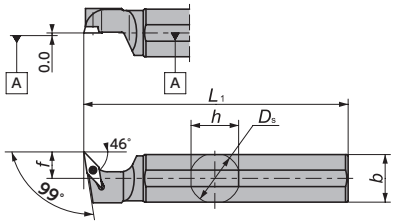
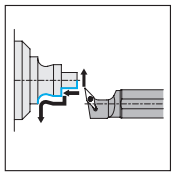
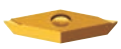


Figure-2



Left-Hand style shown
Takes Right-hand or Neutral insert

Gage Insert	Item Number	Figure	Stock R	Stock L	Ds (Inch)	Ds (mm)	h (Inch)	h (mm)	b (Inch)	b (mm)	L1 (Inch)	L1 (mm)	f (Inch)	f (mm)	Clamp Screw	Wrench
 VP..0802	DS-SVXPR/L19-08	2		○	3/4	19.050	.709	18	.709	18	4.724	120	.394	10	LRIS-2 × 6	CLR-13S
	DS-SVXPR/L20-08	2		○	.787	20.000	.748	19	.748	19	4.724	120	.394	10	LRIS-2 × 6	CLR-13S
	DS-SVXPR/L22-08	2		○	.866	22.000	.827	21	.827	21	4.724	120	.394	10	LRIS-2 × 6	CLR-13S
	DS-SVXPR/L25-08	2		○	1	25.400	.945	24	.945	24	5.906	150	.394	10	LRIS-2 × 6	CLR-13S

Inserts ➔K56

VP..22 Series - Toolholders

DS-SVVP-ACH (Adjustable centerline height)

〈Parts〉

Shank	Wedge	Screw for Wedge
φ.630" (16)	ACH-W18 (5805601)	WS060415-003 (5795539)
φ3/4" (19.05)		
φ.787" (20)		WS060419-004 (5799226)
φ.866" (22)		
φ1" (25.4)	ACH-W24 (5805619)	

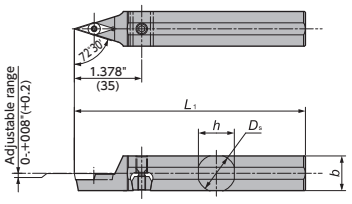


Figure-3

DS-SVVP

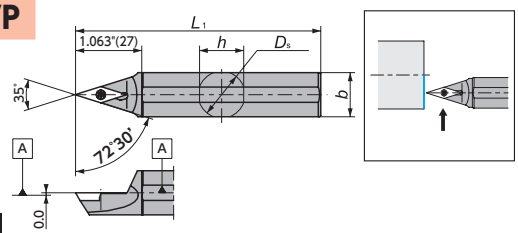


Figure-4

Gage Insert	Item Number	Figure	Stock R	Stock L	Ds (Inch)	Ds (mm)	h (Inch)	h (mm)	b (Inch)	b (mm)	L1 (Inch)	L1 (mm)	Clamp Screw	Wrench
	DS-SVVPN19-11	4		○	3/4	19.050	.709	18.0	.709	18	4.724	120	LRIS-2.5 × 7	CLR-15S
	DS-SVVPN22-11	4		○	.866	22.00	.827	21.0	.827	21	4.724	120	LRIS-2.5 × 7	CLR-15S
	DS-SVVPN16-11-ACH	3		●	.630	16.000	.610	15.5	.610	15	4.724	120	LRIS-2.5 × 7	CLR-15S
	DS-SVVPN19-11-ACH	3		●	3/4	19.050	.709	18.0	.709	18	4.724	120	LRIS-2.5 × 7	CLR-15S
	DS-SVVPN20-11-ACH	3		●	.787	20.000	.748	19.0	.748	19	4.724	120	LRIS-2.5 × 7	CLR-15S
	DS-SVVPN22-11-ACH	3		●	.866	22.000	.827	21.0	.827	21	4.724	120	LRIS-2.5 × 7	CLR-15S
	DS-SVVPN25-11-ACH	3		●	1	25.400	.945	24.0	.945	24	5.906	150	LRIS-2.5 × 7	CLR-15S

Inserts ➔K57

TN.. Series - Toolholders

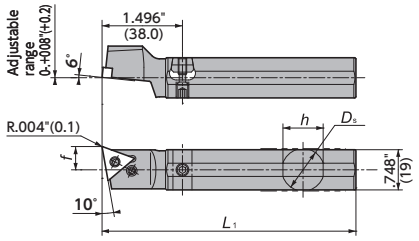
DS-PTX-ACH (Adjustable centerline height)

〈Parts〉

Shank	Wedge	Screw for Wedge
ϕ.630" (16)	ACH-W18 (5805601)	WS060415-003 (5795539)
ϕ3/4" (19.05)		
ϕ.787" (20)		WS060419-004 (5799226)
ϕ.866" (22)		
ϕ1" (25.4)	ACH-W24 (5805619)	

Figure-1

Shim	Clamp Pin	Spring
–	LCL33N	–



Left-Hand style shown
Takes Right-hand or Neutral insert.

DS-PTX

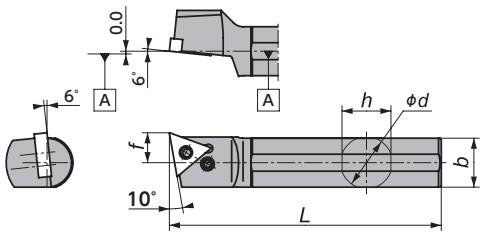
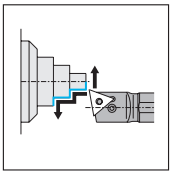


Figure-2

Shim	Clamp Pin	Spring
–	LCL33N	–



Left-Hand style shown
Takes Right-hand or Neutral insert.

■DS-PTX / DS-PTX-ACH

Gage Insert	Item Number	Figure	Stock R	Stock L	D_s (Inch)	D_s (mm)	h (Inch)	h (mm)	b (Inch)	b (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	Clamp Screw	Wrench
TN..33..	DS-PTX☒19-33	2		○	3/4	19.050	.709	18.0	.709	18	4.724	120	.433	11.0	LCS33	LW-2
	DS-PTX☒20-33	2		○	.787	20.000	.748	19.0	.748	19	4.724	120	.433	11.0	LCS33	LW-2
	DS-PTX☒22-33	2		○	.866	22.000	.827	21.0	.827	21	4.724	120	.472	12.0	LCS33	LW-2
	DS-PTX☒25M-33	2		○	1	25.400	.945	24.0	.945	24	5.906	150	.512	13.0	LCS33	LW-2
TN..33..	DS-PTX☒16-33-ACH	1		●	.630	16.000	.610	15.5	.591	15	4.724	120	.433	11.0	LCS33	LW-2
	DS-PTX☒19-33-ACH	1		●	3/4	19.050	.709	18.0	.709	18	4.724	120	.433	11.0	LCS33	LW-2
	DS-PTX☒20-33-ACH	1		●	.787	20.000	.748	19.0	.748	19	4.724	120	.433	11.0	LCS33	LW-2
	DS-PTX☒22-33-ACH	1		●	.866	22.000	.827	21.0	.827	21	4.724	120	.472	12.0	LCS33	LW-2
	DS-PTX☒25-33-ACH	1		●	1	25.400	.945	24.0	.945	24	5.906	150	.512	13.0	LCS33	LW-2

Inserts ➔K62
Cutting condition ➔K30

■ Back Turning

TBP.. Series - Toolholders

DS-TBP

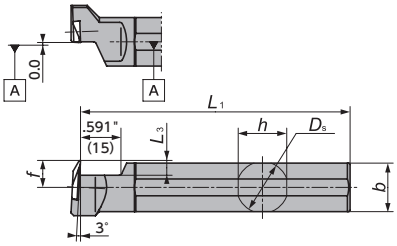
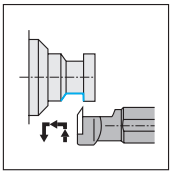


Figure-1



Left-Hand style shown
Takes Right-hand Insert

■DS-TBP (Takes right-hand inserts)

Gage Insert	Item Number	Figure	Stock R	Stock L	D_s (Inch)	D_s (mm)	h (Inch)	h (mm)	b (Inch)	b (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	L_3 (Inch)	L_3 (mm)	Clamp Screw	Wrench
 TBP..FR..	DS-TBP☒19	1		○	3/4	19.050	.709	18	.709	18	4.724	120	.433	11.0	.217	5.5	LRIS-4 × 10	LLR-25S-20×65
	DS-TBP☒20	1		○	.787	20.000	.748	19	.748	19	4.724	120	.433	11.0	.217	5.5	LRIS-4 × 10	LLR-25S-20×65
	DS-TBP☒25	1		○	1.00	25.400	.945	24	.945	24	5.906	150	.512	13.0	.217	5.5	LRIS-4 × 10	LLR-25S-20×65

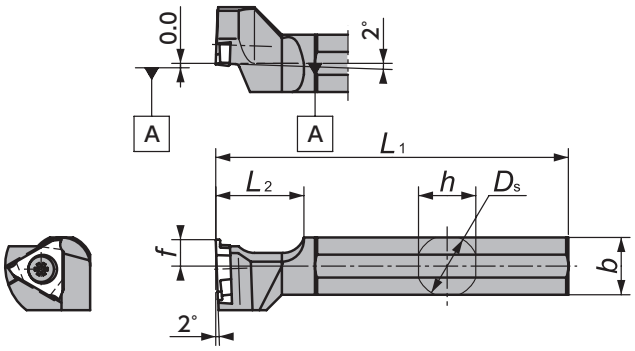
Inserts ➔K73
Cutting condition ➔K67

● : Stock ○ : 1-2 week delivery

Grooving / Side Turning / Back Turning

GTT.. Series - Toolholders

DS-GTT



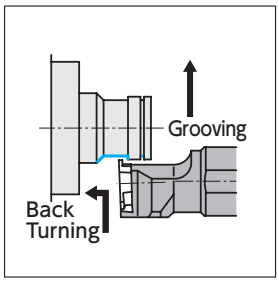


Figure-1

Left-Hand style shown
Takes Right-hand Insert

DS-GTT

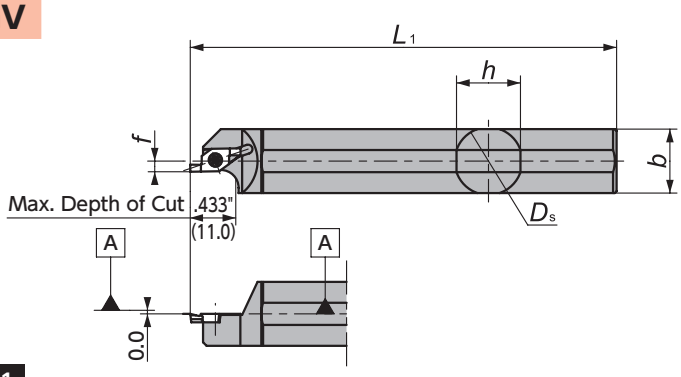
Gage Insert	Item Number	Figure	Stock R	Stock L	D_s (Inch)	D_s (mm)	h (Inch)	h (mm)	b (Inch)	b (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	L_2 (Inch)	L_2 (mm)	Clamp Screw	Wrench
 TBMH32.. GTM.32 TMG32	DS-GTT⅛14F	1		○	.551	14.000	.512	13	.512	13	3.150	80	.236	6	.787	20	LR-S-4 × 9	RLR-20S
	DS-GTT⅛15H	1		○	.518	15.875	.591	15	.591	15	3.937	100	.236	6	.787	20	LR-S-4 × 9	RLR-20S
	DS-GTT⅛16X	1		●	.630	16.000	.591	15	.591	15	3.740	95	.236	6	.787	20	LR-S-4 × 9	RLR-20S
	DS-GTT⅛19	1		●	3/4	19.050	.709	18	.709	18	4.724	120	.236	6	.787	20	LR-S-4 × 9	RLR-20S
	DS-GTT⅛20	1		●	.787	20.000	.748	19	.748	19	4.724	120	.236	6	.787	20	LR-S-4 × 9	RLR-20S
	DS-GTT⅛22	1		●	.866	22.000	.827	21	.827	21	4.724	120	.236	6	.787	20	LR-S-4 × 9	RLR-20S
	DS-GTT⅛25	1		●	1	25.400	.945	24	.945	24	4.724	120	.394	10	.787	20	LR-S-4 × 9	RLR-20S

Inserts GTM..32 ➡K114
Inserts TBMH32.. ➡K83

Face Grooving

FGV.. Series - Toolholders

DS-FGV



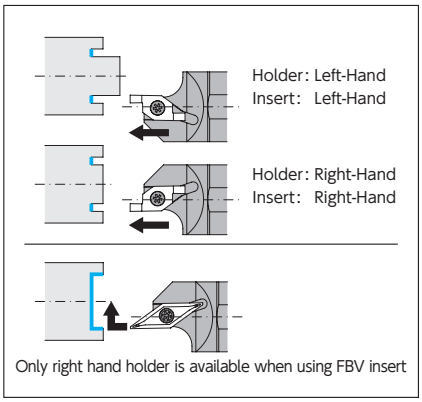


Figure-1

Right-Hand with FGV style shown

DS-FGV

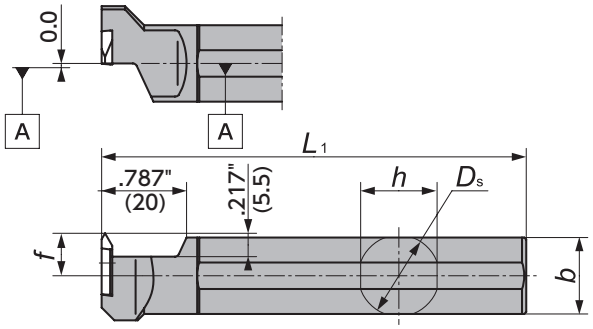
Gage Insert	Item Number	Figure	Stock R	Stock L	D_s (Inch)	D_s (mm)	h (Inch)	h (mm)	b (Inch)	b (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	Clamp Screw	Wrench
 FGV FBV	DS-FGV⅛16-012	1	○	○	.630	16	.591	15	.591	15	3.150	80	.118	3.0	LRIS-2.5 × 7	CLR-15S
	DS-FGV⅛19	1	○	○	3/4	19.05	.709	18	.709	18	4.724	120	.118	3.0	LRIS-2.5 × 7	CLR-15S
	DS-FGV⅛20	1	○	○	.787	20	.748	19	.748	19	4.724	120	.118	3.0	LRIS-2.5 × 7	CLR-15S
	DS-FGV⅛22	1	○	○	.866	22	.827	21	.827	21	4.724	120	.118	3.0	LRIS-2.5 × 7	CLR-15S
	DS-FGV⅛25	1	○	○	1	25.4	.965	24.5	.965	24.5	4.724	120	.118	3.0	LRIS-2.5 × 7	CLR-15S

Inserts ➡K125
Cutting condition ➡K106・K123

Threading

TTP.. Series - Toolholders

DS-TTP



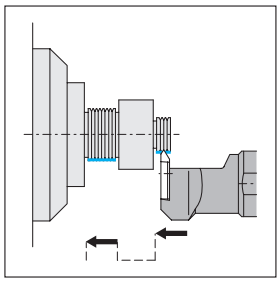


Figure-1

Left-Hand style shown
Takes Right-Hand insert.

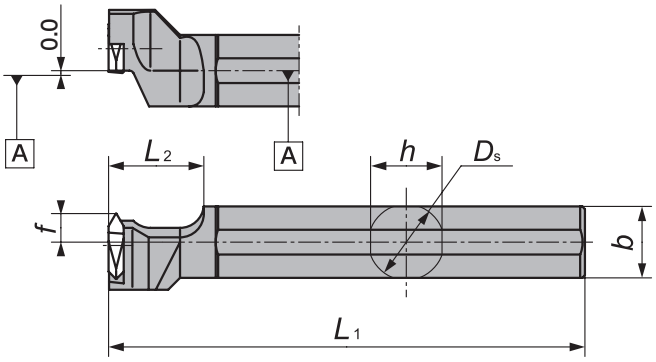
DS-TTP

Gage Insert	Item Number	Figure	Stock R	Stock L	D_s (Inch)	D_s (mm)	h (Inch)	h (mm)	b (Inch)	b (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	Clamp Screw	Wrench
 TTP..	DS-TTP℞16F	1		○	.630	16.00	.591	15	.591	15	3.150	80	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-TTP℞19	1		●	3/4	19.05	.709	18	.709	18	4.724	120	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-TTP℞20	1		●	.787	20.00	.748	19	.748	19	4.724	120	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-TTP℞22	1		●	.866	22.00	.827	21	.827	21	4.724	120	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-TTP℞25	1		●	1	25.40	.945	24	.945	24	5.906	150	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65

Inserts ➡K137

STTN.. Series - Toolholders

DS-STT



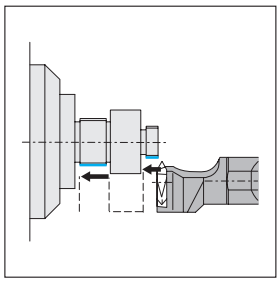


Figure-2

Left-Hand style shown
Takes Right-Hand insert.

DS-STT℞

Gage Insert	Item Number	Figure	Stock R	Stock L	D_s (Inch)	D_s (mm)	h (Inch)	h (mm)	b (Inch)	b (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	Clamp Screw	Wrench
 TTMH3260	DS-STT℞14F	2		○	.551	14.000	.512	13	.512	13	3.150	80	.236	6.0	LR-S-4 × 9	RLR-20S
	DS-STT℞15H	2		○	5/8	15.875	591	15	591	15	3.937	100	.236	6.0	LR-S-4 × 9	RLR-20S
	DS-STT℞16X*	2		○	.630	16.000	591	15	591	15	3.346	85	.236	6.0	LR-S-4 × 9	RLR-20S

Inserts ➡K140

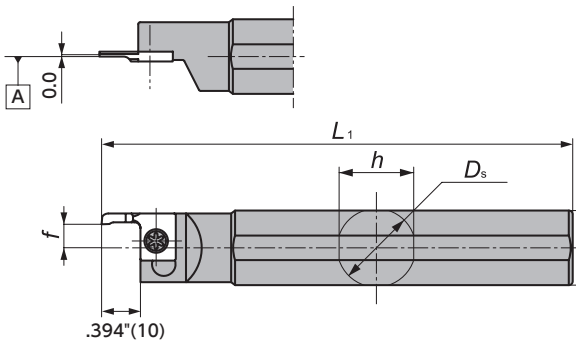
● : Stock ○ : 1-2 week delivery

Cutting condition ➡K130

ID Boring

LBM.. Series - Toolholders

DS-LBMB



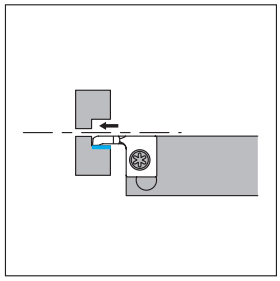


Figure-1

Left-Hand style shown

LBMAR / CH-TTPL

Gage Insert	Item Number	Figure	Stock	Ds (Inch)	Ds (mm)	h (Inch)	h (mm)	b (Inch)	b (mm)	h1 (Inch)	h1 (mm)	L1 (Inch)	L1 (mm)	f (Inch)	f (mm)	Clamp Screw	Wrench
 Long type	DS-LBMBL14F	1	○	.551	14.000	.512	13	.512	13	–	–	3.150	80 ＊1	＊3	＊3	LRIS-4 × 10PW	CLR-15S
	DS-LBMBL15H	1	○	5/8	15.875	.591	15	.591	15	–	–	3.937	100 ＊1	＊3	＊3	LRIS-4 × 10PW	CLR-15S
	DS-LBMBL16X	1	●	.630	16.000	.591	15	.591	15	–	–	3.740	95 ＊1	＊2	＊2	LRIS-4 × 10PW	CLR-15S
	DS-LBMBL19	1	●	3/4	19.050	.709	18	.709	18	–	–	4.724	120 ＊1	＊2	＊2	LRIS-4 × 10PW	CLR-15S
	DS-LBMBL20	1	●	.787	20.000	.748	19	.748	19	–	–	4.724	120 ＊1	＊2	＊2	LRIS-4 × 10PW	CLR-15S
	DS-LBMBL22	1	●	.866	22.000	.827	21	.827	21	–	–	4.724	120 ＊1	＊2	＊2	LRIS-4 × 10PW	CLR-15S
	DS-LBMBL25-MET	1	○	.984	25.000	.945	24	.945	24	–	–	4.724	120 ＊1	＊2	＊2	LRIS-4 × 10PW	CLR-15S
	DS-LBMBL25	1	○	1	25.400	.945	24	.945	24	–	–	5.906	150 ＊1	＊2	＊2	LRIS-4 × 10PW	CLR-15S

Inserts ➡K155
Cutting condition ➡K152

Interchangeable Tooling

CSV.. Series - Toolholders

DS-CSVL

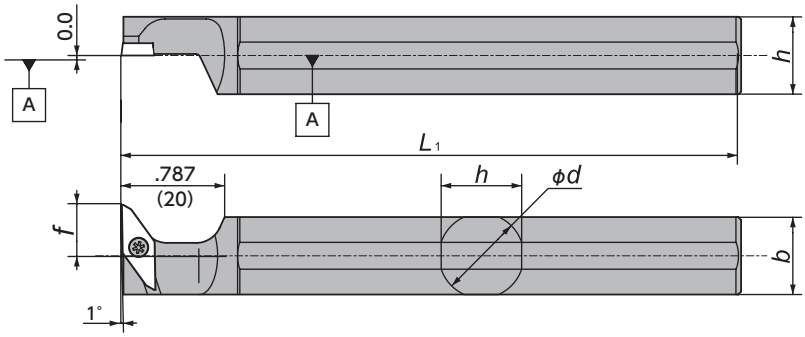


Figure-1

Left-Hand style shown
Takes right-hand inserts

DS-CSVL (Takes right-hand insert)

Gage Insert	Item Number	Figure	Stock R	Stock L	Ds (Inch)	Ds (mm)	h (Inch)	h (mm)	b (Inch)	b (mm)	L1 (Inch)	L1 (mm)	f (Inch)	f (mm)	Clamp Screw	Wrench
 CSV..11FR..	DS-CSVL15	1		●	5/8	15.875	.591	15	.591	15	4.724	120	.394	10	LRIS-2.5 × 7	CLR-15S

Inserts ➡J38

DS Sleeve

Features

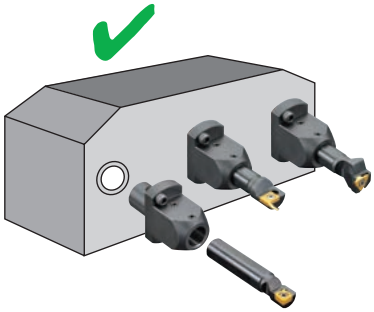
WATCH ON YouTube

- Prevents coolant and chips from damaging live tool stations
- Accepts DS Series holders to perform various back working
- Designed exclusively for 22mm(.886") round shank stations
- Compatible with 16mm(.630") round shank DS Series holders

First Recommendation for Turning

When DS holders are used directly in live tool stations, coolant and chips sneak in from the flat of holders to damage the live stations

How it works

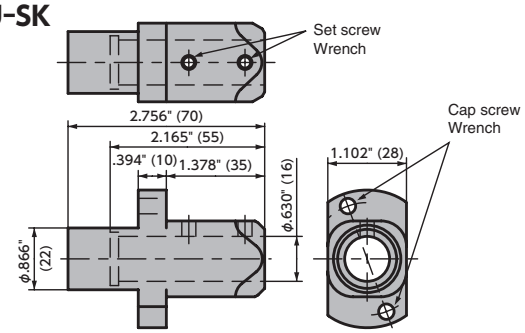


Stop coolant and chips from damaging live tool stations.

By using the DS Sleeve, you can use the DS Series holders without any worry about damaging live stations

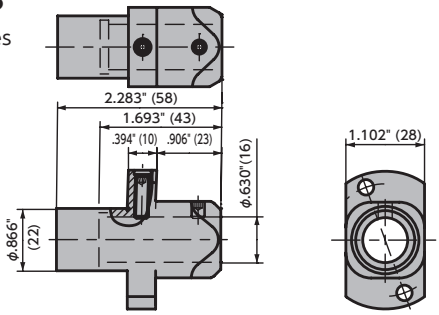
For Back 4-spindle unit

■SS-DSU-SK



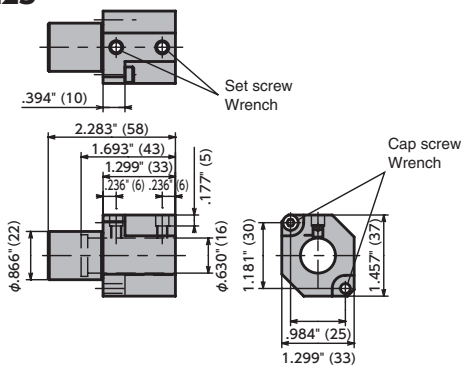
■SS-DSU-L23

For DS-ACH series



For Back 8-spindle unit

■SS-DSU-B8L23



Item number	Stock	Spare parts				Coment
		Cap screw	Wrench	Set screw	Wrench	
SS-DSU-SK	●	CS0515	LW-4	SS0506	LW-2.5	
SS-DSU-L23	●	CS0515	LW-4	SS0506 SS0515	LW-2.5	For DS-ACH Series
SS-DSU-B8L23	●	CS0415	LW-3	SS0506	LW-2.5	

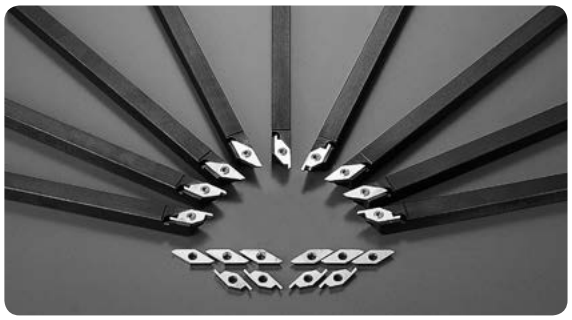
➡L27

● : Stock ○ : 1-2 week delivery

CSV Series

Tooling for small diameter parts

Best tool for up to .200" diameter material



Features

- Very up- sharp edge with mirror finish provides superior precise machining
- Interchangeable tool :
  All the inserts can use the same toolholder
- Specially designed edge shape for small diameter machining

CSV toolholder

CSVF

Front turning

CSVT

Threading

CSVB

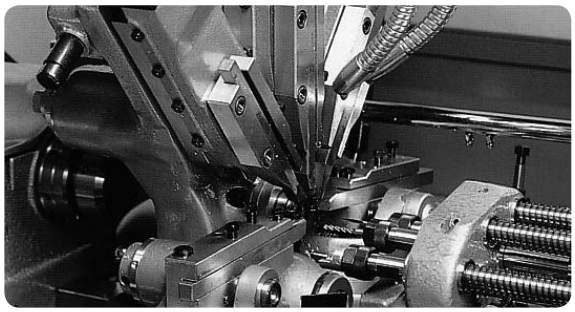
Back turning

CSVC

Cut-off

CSVG

Grooving



- Holders for Cam-style machine also available

CSV Series - Toolholders

Best for up to .200" diameter material

CSV-NC

For Gang-style machine

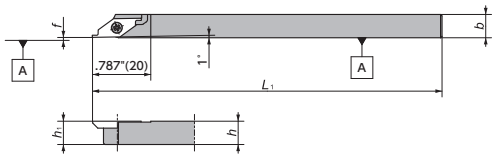


Figure-1

Right-Hand style shown

CSV

For Cam-style machine

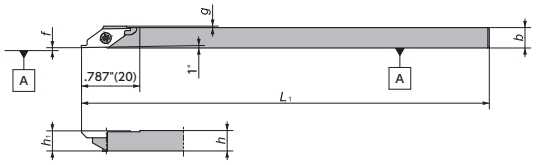


Figure-2

Right-Hand style shown

DS-CSVL

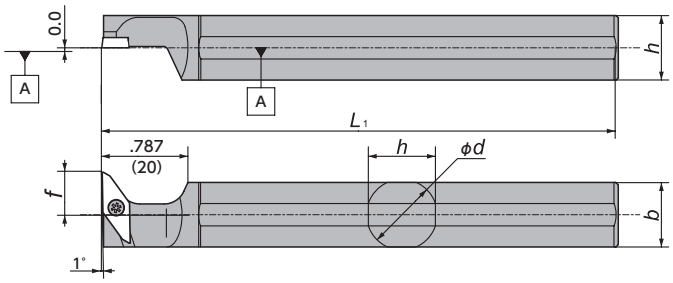


Figure-3

Left-Hand style shown
Takes right-hand inserts

CSV Series - Toolholders

■CSVR/L / CSVR/L-NC

Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h1 (Inch)	h1 (mm)	L1 (Inch)	L1 (mm)	f (Inch)	f (mm)	g (Inch)	g (mm)	Clamp Screw	Wrench
 CSV..11..	CSVR/L06-IN-NC	1	●	●	3/8		3/8		3/8		4.724	120	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L08-IN-NC	1	●	●	1/2		1/2		1/2		4.724	120	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L08NC	1	○	○	.315	8	.315	8	.315	8	4.724	120	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L08NC-F	1	○		.315	8	.315	8	.315	8	4.724	120	0–.004	0.0–0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L10GXNC	1	○		.394	10	.394	10	.394	10	3.346	85	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L10NC	1	○	○	.394	10	.394	10	.394	10	4.724	120	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L12NC	1	●	●	.472	12	.472	12	.472	12	4.724	120	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L07GX	2	○		.275	7	.275	7	.275	7	3.346	85	.004	0.1	.020	0.5	LRIS-2.5 × 7	CLR-15S
	CSVR/L07	2	○	●	.275	7	.275	7	.275	7	5.512	140	.004	0.1	.020	0.5	LRIS-2.5 × 7	CLR-15S
	CSVR/L08GX	2	○		.315	8	.315	8	.315	8	3.346	85	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L08	2	●	●	.315	8	.315	8	.315	8	5.512	140	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L095	2	○		.374	9.5	.374	9.5	.374	9.5	5.512	140	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L10	2	●	○	.394	10	.394	10	.394	10	5.512	140	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L12GX	2	○		.472	12	.472	12	.472	12	3.346	85	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L12	2	●		.472	12	.472	12	.472	12	5.512	140	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S

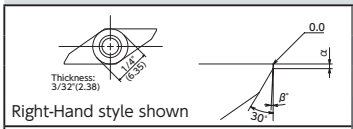
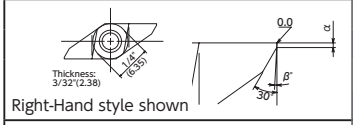
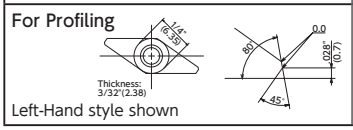
■DS-CSVL (Takes right-hand insert)

Gage Insert	Item Number	Figure	Stock R	Stock L	Ds (Inch)	Ds (mm)	h (Inch)	h (mm)	b (Inch)	b (mm)	L1 (Inch)	L1 (mm)	f (Inch)	f (mm)	Clamp Screw	Wrench
 CSV..11FR..	DS-CSVL15	3		●	5/8	15.875	.591	15	.591	15	4.724	120	.394	10	LRIS-2.5 × 7	CLR-15S

CSV Series - Inserts

Front turning

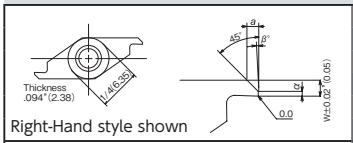
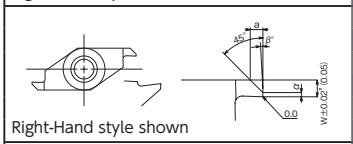
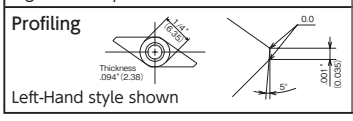
■CSVF Mirror finish

Shape	Item Number	Chip-breaker	Max Depth of Cut (Inch)	Max Depth of Cut (mm)	Edge Geometry (α × β°) (Inch)	Edge Geometry (α × β°) (mm)	Coated Carbide DT4 R	DT4 L	VM1 R	VM1 L	ZM3 R	ZM3 L
 Right-Hand style shown	CSVF11F☐V (M)	No	–	–	.012 × 5°	0.3 × 5°			○	○		
	CSVF11F☐V-A (M)		–	–	.012 × 2°	0.3 × 2°			○			
	CSVF11F☐V-M (M)		–	–	.006 × 2°	0.15 × 2°	●		●	●	○	
	CSVF11F☐V-C (M)		–	–	.006 × 5°	0.15 × 5°			○			
 Right-Hand style shown	CSVF11F☐VB (M)	Yes	.118	3	.012 × 5°	0.3 × 5°			●	○		
	CSVF11F☐VB-A (M)		.118	3	.012 × 2°	0.3 × 2°			○			
	CSVF11F☐VB-M (M)		.118	3	.006 × 2°	0.15 × 2°	●		●	●	○	
	CSVF11F☐VB-C (M)		.118	3	.006 × 5°	0.15 × 5°			○			
For Profiling  Left-Hand style shown	CSVF11F☐VX (M)	No	–	–						○		

Note: All angles shown are obtained when insert is set in the holder

Back turning

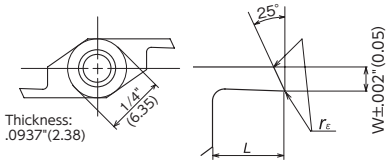
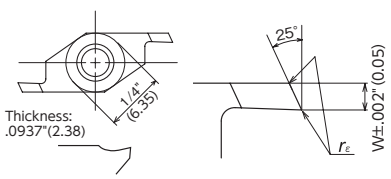
■CSVB Mirror finish

Shape	Item Number	Chip-breaker	Length of Blade (Inch)	Length of Blade (mm)	Max Depth of Cut (Inch)	Max Depth of Cut (mm)	W (Inch)	W (mm)	Edge Geometry (α × β°) (Inch)	Edge Geometry (α × β°) (mm)	Coated Carbide DT4 R	DT4 L	VM1 R	VM1 L	ZM3 R	ZM3 L
 Right-Hand style shown	CSVB11F☐V (M)	No	.028	0.7	.079	2.0	.039	1.00	.012 × 5°	0.3 × 5°			○	○		
	CSVB11F☐V-A (M)	No	.028	0.7	.079	2.0	.039	1.00	.012 × 2°	0.3 × 2°			○			
	CSVB11F☐V-M (M)	No	.028	0.7	.079	2.0	.039	1.00	.006 × 2°	0.15 × 2°	●		●	○	○	
	CSVB11F☐V-C (M)	No	.028	0.7	.079	2.0	.039	1.00	.006 × 5°	0.15 × 5°			○			
	CSVB11F☐V12 (M)	No	.031	0.8	.079	2.0	.047	1.20	.012 × 5°	0.3 × 5°			○			
	CSVB11F☐V14 (M)	No	.039	1.0	.079	2.0	.055	1.40	.012 × 5°	0.3 × 5°			○			
 Right-Hand style shown	CSVB11F☐VB (M)	Yes	.028	0.7	.079	2.0	.039	1.00	.012 × 5°	0.3 × 5°			○			
	CSVB11F☐VB-A (M)	Yes	.028	0.7	.079	2.0	.039	1.00	.012 × 2°	0.3 × 2°			○			
	CSVB11F☐VB-M (M)	Yes	.028	0.7	.079	2.0	.039	1.00	.006 × 2°	0.15 × 2°	●		●	○	○	
	CSVB11F☐VB-C (M)	Yes	.028	0.7	.079	2.0	.039	1.00	.006 × 5°	0.15 × 5°			○			
	CSVB11F☐VB12 (M)	Yes	.031	0.8	.079	2.0	.047	1.20	.012 × 2°	0.3 × 5°			○			
	CSVB11F☐VB14 (M)	Yes	.039	1.0	.079	2.0	.055	1.40	.012 × 2°	0.3 × 5°			○			
Profiling  Left-Hand style shown	CSVB11F☐VX (M)	No	–	–	–	–	–	–						○		

Note: All angles shown are obtained when insert is set in the holder

Cut-off

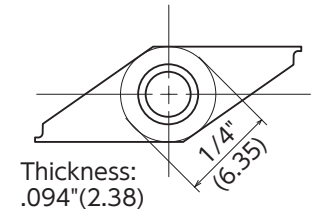
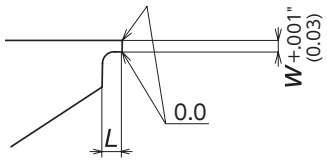
■CSVC Mirror finish

Shape	Item Number	Chip-breaker	Max. Cut-off Dia. φD (Inch)	Max. Cut-off Dia. φD (mm)	W (Inch)	W (mm)	L (Inch)	L (mm)	r_ε (Inch)	r_ε (mm)	VM1 R	VM1 L
 Right-Hand style shown	CSVC11F☐V06 (M)	No	.118	3.0	.024	0.6	.079	2.0	0	0.0	○	
	CSVC11F☐V07 (M)	No	.157	4.0	.028	0.7	.098	2.5	0	0.0	●	●
	CSVC11F☐V08 (M)	No	.157	4.0	.031	0.8	.098	2.5	0	0.0	○	○
	CSVC11F☐V09 (M)	No	.157	4.0	.035	0.9	.098	2.5	0	0.0	○	
	CSVC11F☐V10 (M)	No	.197	5.0	.039	1.0	.118	3.0	0	0.0	●	●
	CSVC11F☐V13 (M)	No	.197	5.0	.051	1.3	.118	3.0	0	0.0	●	○
	CSVC11F☐V15 (M)	No	.197	5.0	.059	1.5	.118	3.0	0	0.0	○	○
 Right-Hand style shown	CSVC11F☐VB06 (M)	Yes	.118	3.0	.024	0.6	.079	2.0	0	0.0	○	
	CSVC11F☐VB07 (M)	Yes	.157	4.0	.028	0.7	.098	2.5	0	0.0	●	
	CSVC11F☐VB08 (M)	Yes	.157	4.0	.031	0.8	.098	2.5	0	0.0	○	
	CSVC11F☐VB09 (M)	Yes	.157	4.0	.035	0.9	.098	2.5	0	0.0	○	
	CSVC11F☐VB10 (M)	Yes	.197	5.0	.039	1.0	.118	3.0	0	0.0	●	
	CSVC11F☐VB13 (M)	Yes	.197	5.0	.051	1.3	.118	3.0	0	0.0	○	
	CSVC11F☐VB15 (M)	Yes	.197	5.0	.059	1.5	.118	3.0	0	0.0	○	

Note: All angles shown are obtained when insert is set in the holder

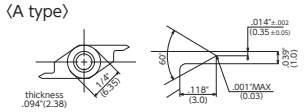
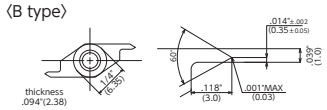
Grooving

■CSVG Mirror finish

Shape	Item Number	Chip-breaker	Groove Width W (Inch)	Groove Width W (mm)	Max Depth of Cut (Inch)	Max Depth of Cut (mm)	L (Inch)	L (mm)	r_ε (Inch)	r_ε (mm)	Coated Carbide VM1 R	Coated Carbide VM1 L
 Thickness: .094"(2.38)	CSVG11F☒V025 Ⓜ	No	.010	0.25	.006	0.15	.020	0.50	0.0	0.0	●	
	CSVG11F☒V030 Ⓜ	No	.012	0.30	.006	0.15	.020	0.50	0.0	0.0	●	
	CSVG11F☒V035 Ⓜ	No	.014	0.35	.006	0.15	.020	0.50	0.0	0.0	●	
	CSVG11F☒V040 Ⓜ	No	.016	0.40	.006	0.15	.020	0.50	0.0	0.0	●	
	CSVG11F☒V045 Ⓜ	No	.018	0.45	.018	0.45	.039	1.00	0.0	0.0	●	
	CSVG11F☒V050 Ⓜ	No	.020	0.50	.018	0.45	.039	1.00	0.0	0.0	●	
	CSVG11F☒V055 Ⓜ	No	.022	0.55	.018	0.45	.039	1.00	0.0	0.0	●	
	CSVG11F☒V060 Ⓜ	No	.024	0.60	.018	0.45	.039	1.00	0.0	0.0	●	
	CSVG11F☒V065 Ⓜ	No	.026	0.65	.018	0.45	.039	1.00	0.0	0.0	●	
	CSVG11F☒V070 Ⓜ	No	.028	0.70	.018	0.45	.039	1.00	0.0	0.0	●	
	CSVG11F☒V075 Ⓜ	No	.030	0.75	.050	1.40	.079	2.00	0.0	0.0	●	○
	CSVG11F☒V080 Ⓜ	No	.031	0.80	.050	1.40	.079	2.00	0.0	0.0	●	
	CSVG11F☒V085 Ⓜ	No	.033	0.85	.050	1.40	.079	2.00	0.0	0.0	●	
	CSVG11F☒V090 Ⓜ	No	.035	0.90	.050	1.40	.079	2.00	0.0	0.0	●	
	CSVG11F☒V095 Ⓜ	No	.037	0.95	.050	1.40	.079	2.00	0.0	0.0	●	○
	CSVG11F☒V100 Ⓜ	No	.039	1.00	.050	1.40	.079	2.00	0.0	0.0	●	
	CSVG11F☒V110 Ⓜ	No	.043	1.10	.102	2.60	.102	2.60	0.0	0.0	●	
	CSVG11F☒V120 Ⓜ	No	.047	1.20	.102	2.60	.102	2.60	0.0	0.0	●	○
	CSVG11F☒V130 Ⓜ	No	.051	1.30	.102	2.60	.102	2.60	0.0	0.0	●	
	CSVG11F☒V140 Ⓜ	No	.055	1.40	.102	2.60	.102	2.60	0.0	0.0	●	
Right-Hand style shown	CSVG11F☒V150 Ⓜ	No	.059	1.50	.102	2.60	.102	2.60	0.0	0.0	●	

Threading

■CSVT Mirror finish

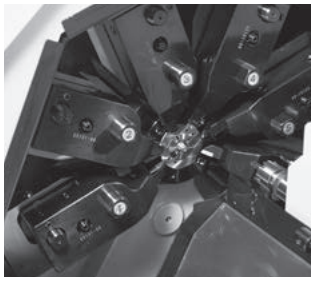
Shape	Item Number	Chip-breaker	r_ε (TPI)	r_ε (mm)	Pitch (TPI)	Pitch (mm)	Coated Carbide VM1 R	Coated Carbide VM1 L
〈A type〉  Right-Hand style shown	CSVT11F☒P60-035A Ⓜ	No	-R.001	R0.03 MAX	127 - 51	0.2 - 0.5	●	●
〈B type〉  Right-Hand style shown	CSVT11F☒P60-035B Ⓜ	No	-R.001	R0.03 MAX	127 - 51	0.2 - 0.5	●	●

Note: All angles shown are obtained when insert is set in the holder

● : Stock ○ : 1-2 week delivery Ⓜ : Mirror finish

CTPS Series

Tooling for Radial-style tool station



Features

- Best fit for Radial-style tool station.
- Interchangeable tools

SVACR1010X11N
(Designed for Radial-style tool station)

Front turning

CTPS Series

Back turning | Cut-off | Grooving | Threading

CTPS Series - Toolholders

CTPS

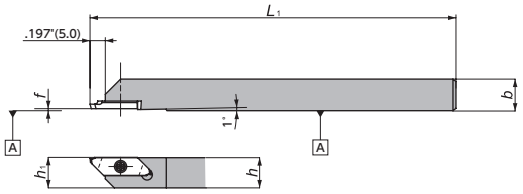


Figure-1

Right-Hand style shown

CTPSR-SUB

Max. Cut-off Dia. .157" (4.0㎜)

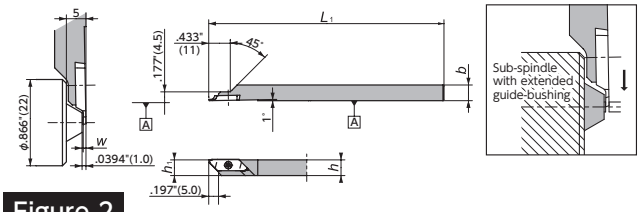


Figure-2

Right-Hand style shown

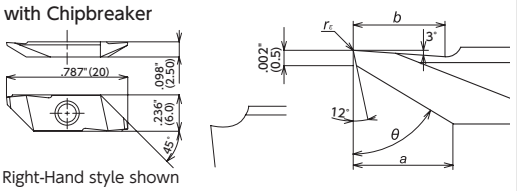
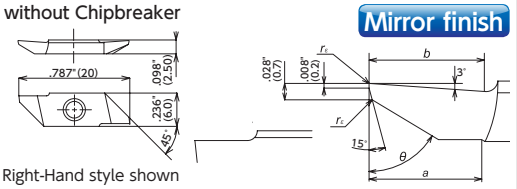
■CTPS / CTPSR

Gage Insert	Item Number	Figure	Stock R	Stock L	Max. Cut-off Dia. ϕD (Inch)	Max. Cut-off Dia. ϕD (㎜)	h (Inch)	h (㎜)	b (Inch)	b (㎜)	h_1 (Inch)	h_1 (㎜)	L_1 (Inch)	L_1 (㎜)	f (Inch)	f (㎜)	Clamp Screw	Wrench
 CTPS..	**CTPSR06-IN**	1	●		**.394**	**10.0**	3/8		3/8		3/8		4.724	120	0	0.0	LR1S-2.5 × 7	CLR-15S
	CTPSR08-IN	1	●		**.394**	**10.0**	1/2		1/2		1/2		4.724	120	0	0.0	LR1S-2.5 × 7	CLR-15S
	CTPSR10	1	○		**.394**	**10.0**	.394	10	.394	10	.394	10	4.724	120	0	0.0	LR1S-2.5 × 7	CLR-15S
	CTPSR12	1	○		**.394**	**10.0**	.472	12	.472	12	.472	12	4.724	120	0	0.0	LR1S-2.5 × 7	CLR-15S
CTPS-001	**CTPSR08-SUB04**	2	○		**.157**	**4.0**	.315	8	.315	8	.315	8	4.724	120		—	LR1S-2.5 × 5	CLR-15S

CTPS Series - Inserts

Back turning

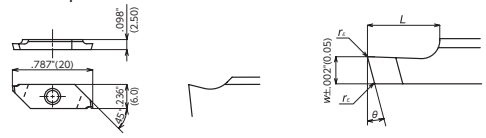
■TBPS

Shape	Item Number	Chip-breaker	Length of Blade a (Inch)	Length of Blade a (㎜)	Max Depth of Cut b (Inch)	Max Depth of Cut b (㎜)	θ	$r_ε$ (Inch)	$r_ε$ (㎜)	Coated Carbide VM1	Coated Carbide ZM3
with Chipbreaker  Right-Hand style shown	**TBPS60FR00**	Yes	.122	3.1	.138	3.5	60°	0.0	0.0	○	○
	TBPS60FR10	Yes	.122	3.1	.138	3.5	60°	.004	0.1	○	○
without Chipbreaker Mirror finish  Right-Hand style shown	**TBPS60FRV** Ⓜ	No	.189	4.8	.189	4.8	60°	0.0	0.0	○	○

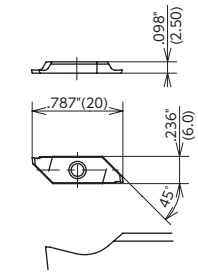
Note: All angles shown are obtained when insert is set in the holder

Cut-off

■CTPS

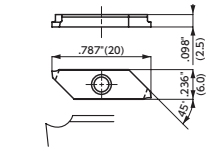
Shape	Item Number	Chip-breaker	Max. Cut-off Dia. ϕD (Inch)	(mm)	w (Inch)	(mm)	L (Inch)	(mm)	θ	r_ε (Inch)	(mm)	Coated Carbide VM1 R	VM1 L	ZM3 R	ZM3 L
with chipbraker  Right-Hand style shown	**CTPS12FR**	Yes	**.157**	**4.0**	**.047**	**1.2**	.138	3.5	16°	.002	0.05	○		●	
	CTPS15FR	Yes	**.197**	**5.0**	**.059**	**1.5**	.157	4.0	16°	.002	0.05	○		●	
	CTPS18FR	Yes	**.335**	**8.5**	**.071**	**1.8**	.217	5.5	16°	.002	0.05	○		●	
	CTPS20FR	Yes	**.394**	**10.0**	**.079**	**2.0**	.236	6.0	16°	.002	0.05	○		○	
without chipbraker **Mirror finish**  Right-Hand style shown	**CTPS12FRV** Ⓜ	No	**.157**	**4.0**	**.047**	**1.2**	.138	3.5	20°	0	0.0	●		○	
	CTPS15FRV Ⓜ	No	**.197**	**5.0**	**.059**	**1.5**	.157	4.0	20°	0	0.0	○		○	
	CTPS18FRV Ⓜ	No	**.335**	**8.5**	**.071**	**1.8**	.217	5.5	20°	0	0.0	○		○	
	CTPS20FRV Ⓜ	No	**.394**	**10.0**	**.079**	**2.0**	.236	6.0	20°	0	0.0	○		○	

■CTPS-001

Shape	Item Number	Chip-breaker	Max. Cut-off Dia. ϕD (Inch)	(mm)	w (Inch)	(mm)	θ	r_ε (Inch)	(mm)	Coated Carbide ZM3 R	ZM3 L
 Right-Hand style shown	**CTPS07FRN-001**	Yes	**.157**	**4.0**	**.028**	**0.7**	0°	.002	0.05	○	
	CTPS07FR-001	Yes	**.157**	**4.0**	**.028**	**0.7**	16°	.002	0.05	○	
	CTPS07FRV-001 Ⓜ	No	**.157**	**4.0**	**.028**	**0.7**	20°	0	0.0	○	

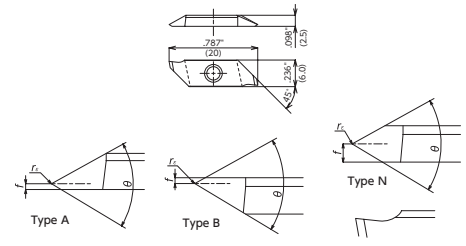
Grooving

■GTPS

Shape	Item Number	Groove Width w (Inch)	(mm)	Max Depth of Cut (Inch)	(mm)	r_ε (Inch)	(mm)	L (Inch)	(mm)	Coated Carbide VM1	ZM3
 Right-Hand style shown ☆θ shows the angle when the holder is set.	**GTPS075FR**	**.030**	**0.75**	.039	1.0	0.0	0.0	.059	1.5	○	○
	GTPS095FR	**.037**	**0.95**	.059	1.5	0.0	0.0	.079	2.0	○	○
	GTPS100FR	**.039**	**1.00**	.059	1.5	0.0	0.0	.079	2.0	○	○
	GTPS120FR	**.047**	**1.20**	.098	2.5	0.0	0.0	.118	3.0	○	○
	GTPS150FR	**.059**	**1.50**	.098	2.5	0.0	0.0	.118	3.0	○	○
	GTPS200FR	**.079**	**2.00**	.098	2.5	0.0	0.0	.118	3.0	○	○

Threading

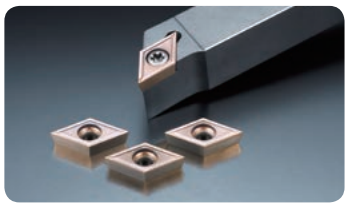
■TTPS - Threading

Shape	Item Number	Type	θ	f (Inch)	(mm)	r_ε (Inch)	(mm)	Pitch (TPI)	(mm)	Coated Carbide VM1	ZM3
 Right-Hand style shown	**TTPS60FR4A**	A	60°	.016	0.4	.002 MAX Flat	(0.05) MAX Flat	**127 - 34**	**0.2 - 0.75**	○	○
	TTPS60FR4B	B	60°	.016	0.4	.002 MAX Flat	(0.05) MAX Flat	**127 - 34**	**0.2 - 0.75**	○	○
	TTPS60FR8A	A	60°	.031	0.8	R.002	(0.05)	**63 - 21**	**0.4 - 1.25**	○	○
	TTPS60FR8B	B	60°	.031	0.8	R.002	(0.05)	**63 - 21**	**0.4 - 1.25**	○	○
	TTPS60FR-N	N	60°	.049	1.25	R.004	(0.1)	**25 - 17**	**1.0 - 1.5**	○	○

Note: All angles shown are obtained when insert is set in the holder

WP Series

Wiper insert with ISO style



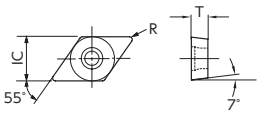
Features

- Wiper shape provides superior surface finish
- Higher feed rate brings shorter cycle time and good chip control
- AM3 chipbreaker is now available with DCGT style

WATCH ON YouTube

(inch)	IC	T
DC..21.5	1/4	3/32
DC..32.5	3/8	5/32

■DCGT-WP(55°)〈TFD style〉 ＊Can be used in SDJC and SDUC toolholders



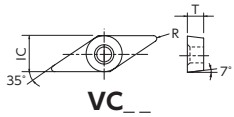
Steel	P	● ● ● ● ● ● ● ● ● ● ● ● ●
Stainless Steel	M	● ● ● ● ● ● ● ● ● ● ● ● ●
Cast Iron	K	● ● ● ● ●
Non-Ferrous Material	N	● ● ● ● ● ● ● ● ●
Heat Resistant Alloy	S	● ● ● ● ● ● ●
Hardened Material	H	● ● ●

● : 1st Choice
● : Alternate choice

Shape	Item Number	ISO Item Number	IC	R	Cermet XT3	Cermet C7X	Cermet XN4	PVD Coated Q15	PVD Coated C7Z	Carbide PVD Coated QM3	Carbide PVD Coated DT4	Carbide PVD Coated DM4	Carbide PVD Coated TM4	Carbide PVD Coated VM1	Carbide PVD Coated ZM3	KM1
NEW wiper insert	DCGT 32.502 AM3-WP	TFD 11FR05AM3	3/8	.002							●					
	DCGT 32.506 AM3-WP	TFD 11FR15AM3	3/8	.006							●					
wiper insert	DCGT 21.502 R/L S-WP	TFD 07FR/L05	1/4	.002						R				Ⓡ	ⓇⓁ	
	DCGT 21.506 R/L S-WP	TFD 07FR/L15	1/4	.006						R					ⓇⓁ	
	DCGT 32.502 R/L S-WP	TFD 11FR/L05	3/8	.002						R				Ⓡ	Ⓡ	
	DCGT 32.506 R/L S-WP	TFD 11FR/L15	3/8	.006						R					Ⓡ	
wiper insert	DCGT 21.502 R/L U-WP	TFD 07FR/L05U	1/4	.002						Ⓡ				Ⓡ	Ⓡ	
	DCGT 21.506 R/L U-WP	TFD 07FR/L15U	1/4	.006						Ⓡ					Ⓡ	
	DCGT 32.502 R/L U1-WP	TFD 11FR/L05U1	3/8	.002						Ⓡ				Ⓡ	Ⓡ	
wiper insert	DCGT 32.506 R/L U1-WP	TFD 11FR/L15U1	3/8	.006						Ⓡ					Ⓡ	
wiper insert	DCGW 21.502RH-WP Ⓜ	TFD 07FR05H	1/4	.002												○
	DCGW 32.502RH-WP Ⓜ	TFD 11FR05H	3/8	.006												○

■VCGT-WP(35°)〈TFV style〉 ＊Can be used in SVAC toolholders

(inch)	IC	T
VC..22	1/4	1/8

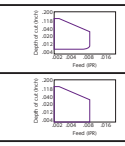


VC_ _

Steel	P	● ● ● ● ● ● ● ● ● ● ● ● ●
Stainless Steel	M	● ● ● ● ● ● ● ● ● ● ● ● ●
Cast Iron	K	● ● ● ● ●
Non-Ferrous Material	N	● ● ● ● ● ● ● ● ●
Heat Resistant Alloy	S	● ● ● ● ● ● ●
Hardened Material	H	● ● ●

● : 1st Choice
● : Alternate choice

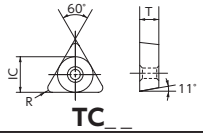
Shape	Item Number	ISO Item Number	IC	R	Cermet XT3	Cermet C7X	Cermet XN4	PVD Coated Q15	PVD Coated C7Z	Carbide PVD Coated QM3	Carbide PVD Coated DT4	Carbide PVD Coated DM4	Carbide PVD Coated TM4	Carbide PVD Coated VM1	Carbide PVD Coated ZM3	KM1
wiper insert	VCGT 2202 R/L S-WP	TFV 11FR/L05SX	1/4	.002										R	Ⓡ	
	VCGT 2204 R/L S-WP	TFV 11FR/L10SX	1/4	.004										R	Ⓡ	
wiper insert	VCGT 2202 R/L U-WP	TFV 11FR/L05U	1/4	.002										Ⓡ	Ⓡ	
	VCGT 2204 R/L U-WP	TFV 11FR/L10U	1/4	.004										Ⓡ	Ⓡ	



■TCGT-WP(60°)〈TFT style〉 ＊Can be used in STAC toolholders

(inch)	IC	T
TC..21	1/4	3/32

(inch)	IC	T
TC..73	7/32	3/32

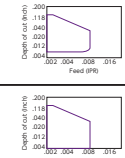


TC_ _

Steel	P	● ● ● ● ● ● ● ● ● ● ● ● ●
Stainless Steel	M	● ● ● ● ● ● ● ● ● ● ● ● ●
Cast Iron	K	● ● ● ● ●
Non-Ferrous Material	N	● ● ● ● ● ● ● ● ●
Heat Resistant Alloy	S	● ● ● ● ● ● ●
Hardened Material	H	● ● ●

● : 1st Choice
● : Alternate choice

Shape	Item Number	ISO Item Number	IC	R	Cermet XT3	Cermet C7X	Cermet XN4	PVD Coated Q15	PVD Coated C7Z	Carbide PVD Coated QM3	Carbide PVD Coated DT4	Carbide PVD Coated DM4	Carbide PVD Coated TM4	Carbide PVD Coated VM1	Carbide PVD Coated ZM3	KM1
wiper insert	TCGT 7302 R/L S-WP	TFT 09FR/L05	.002	0.05											Ⓡ	
	TCGT 7306 R/L S-WP	TFT 09FR/L15	.006	0.15											Ⓡ	
	TCGT 21.502 R/L S-WP	TFT 11FR/L05	.002	0.05											Ⓡ	
	TCGT 21.506 R/L S-WP	TFT 11FR/L15	.006	0.15											Ⓡ	
wiper insert	TCGT 7302 R/L U-WP	TFT 09FR/L05U	.002	0.05											Ⓡ	
	TCGT 7306 R/L U-WP	TFT 09FR/L15U	.006	0.15											Ⓡ	
	TCGT 21.502 R/L U1-WP	TFT 11FR/L05U1	.002	0.05											Ⓡ	
wiper insert	TCGT 21.506 R/L U1-WP	TFT 11FR/L15U1	.006	0.15											Ⓡ	



UL Chipbreaker

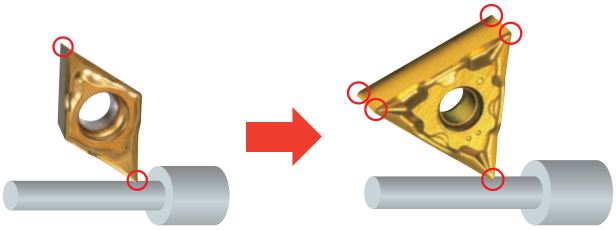
6 corner insert for Swiss machines

Features

WATCH ON YouTube

- First negative style insert designed for Swiss machines
- Less tool pressure and good chip control

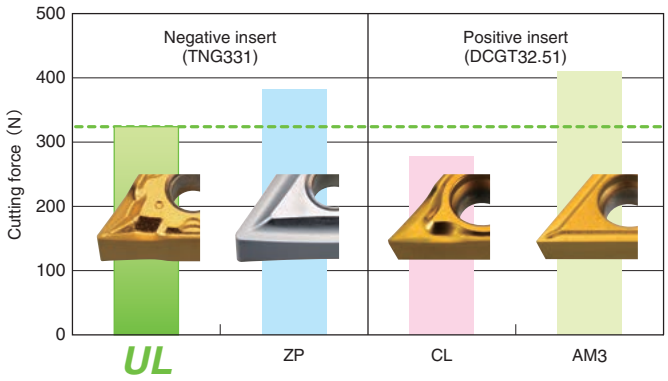
Reduce Cost in Swiss Machining



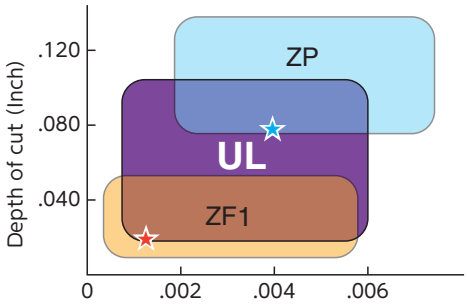
Positive insert with sharp cutting edge is required for Swiss machining.

With UL chipbreaker, negative insert provides sharp cutting edge AND more corners.

Cuts Like Positive Inserts



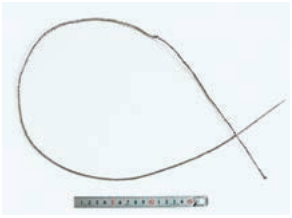
Covers a Wide Range of Cutting Conditions with Good Chip Control



《304 SS》 260 SFM WET

★ .001 IPR .020" DOC

★ .004 IPR .079" DOC



Toolholders for Swiss Machines

Available in ACH (Adjustable centerline height) toolholder

Holders ➡K60
Inserts ➡K62

Shifted Toolholders

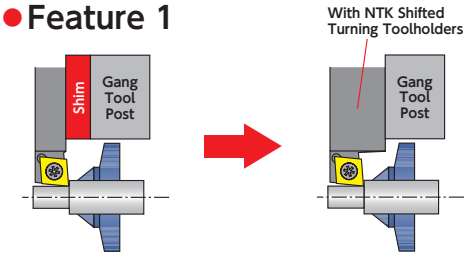
Toolholders for extended guide-bushing

Two Major Features

WATCH ON YouTube

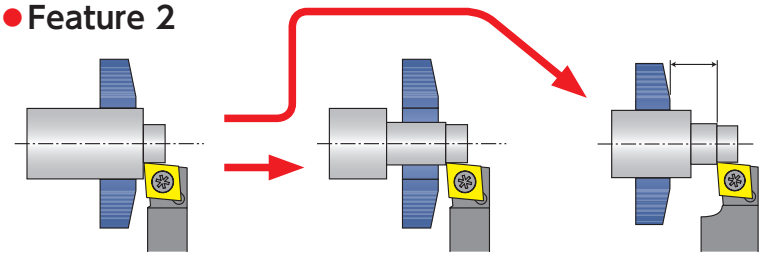
1. Eliminate shims for turning holders when extended guide bushing is used (especially in thread whirling)
2. Performs finish cut without retracting roughed section (bar) from guide bushing

●Feature 1



No shims required during thread whirling operation with an extended guide bushing

●Feature 2



Typical turning

With Conventional Holders: Roughed bar comes out when retracted for finish turn

With Shifted Holders: Finish turn can be done without retracting the roughed bar

SATURN DUO

Face turning / grooving tools

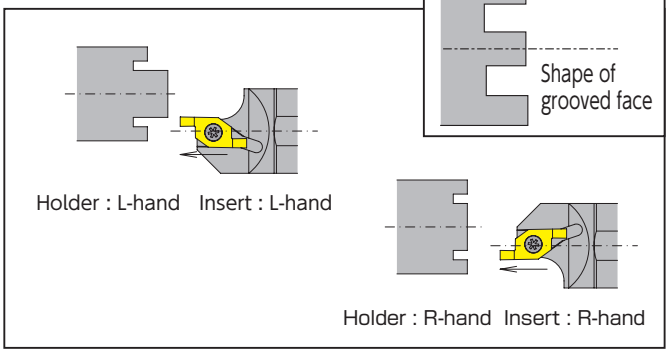
Features

WATCH ON YouTube

- FGV type for face grooving and FBV type for face machining
- Economical double-corner specification
- Improved tool rigidity by optimizing the overhang and holder shape
- Selection includes : gang-type, front-gang-type and sleeve holder type

FGV type for face grooving

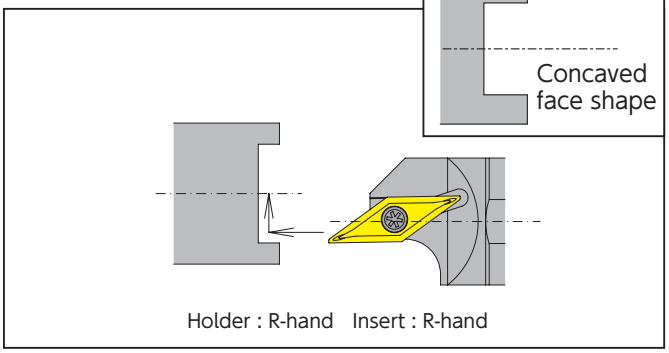
Target work shape



- Grooving possible under a wide range of cutting conditions due to strengthened rigidity of both insert and holder
- Minimum machining diameter of ϕ .236", and groove width of .039"
- Left-hand types available for machining work with a boss

FBV type for face machining

Target work shape



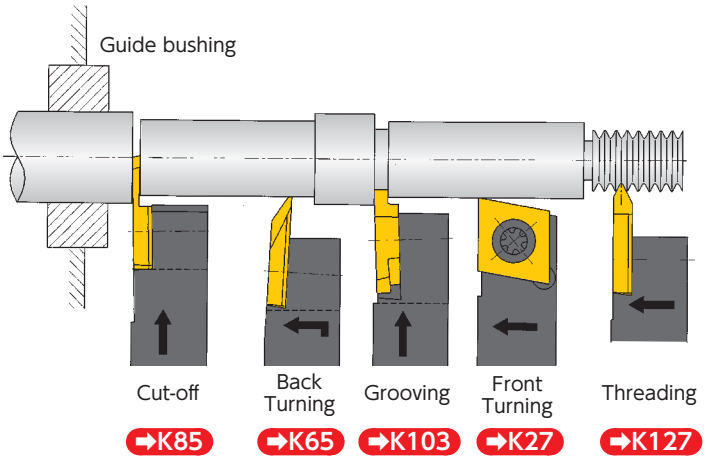
- Further improved face machining efficiency
- Minimum machining diameter of ϕ .315"

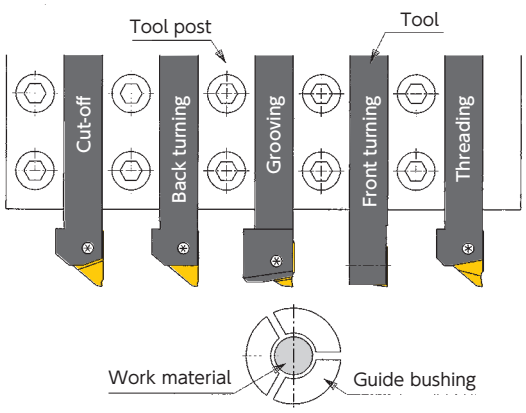
➡K122

K

Tooling for Swiss-type Lathes

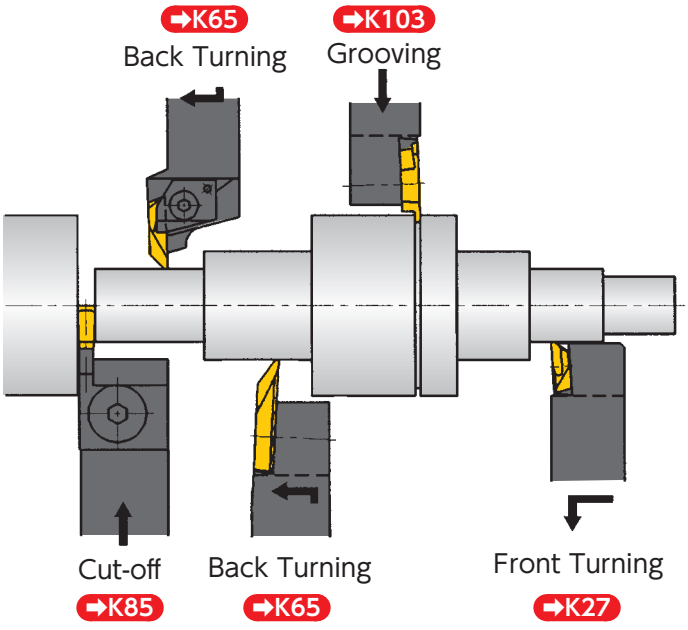
Tooling example for a small CNC automatic lathe (gang type)

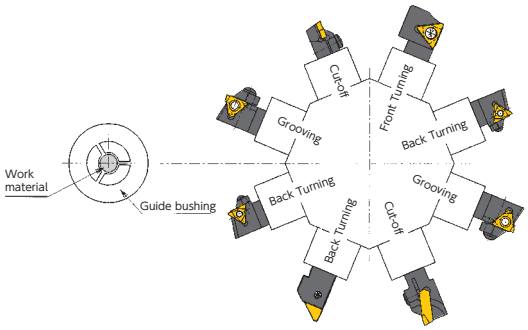




Tooling for gang type tool post

Tooling example for a small CNC automatic lathe (turret type)

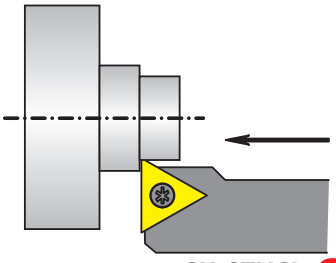




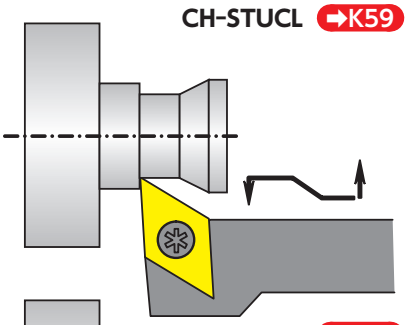
Tooling for turret type tool post

Tooling example for a small CNC automatic lathe (horizontal gang style)

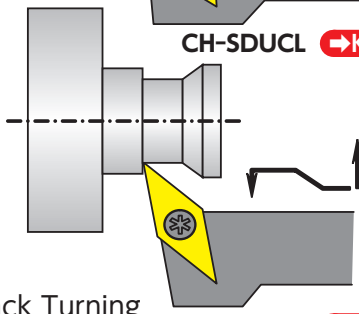
■Front Turning



CH-STUCL ➡K59

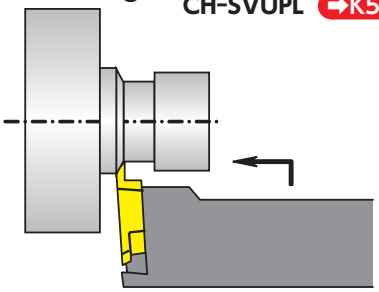


CH-SDUCL ➡K43



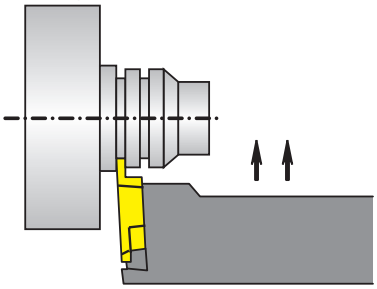
CH-SVUPL ➡K56

■back Turning



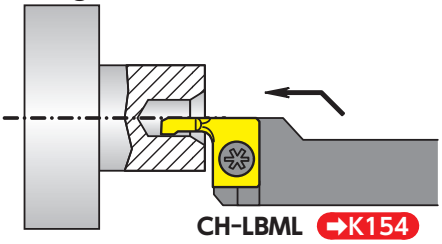
CH-GTTL ➡K82

■Grooving

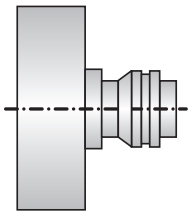


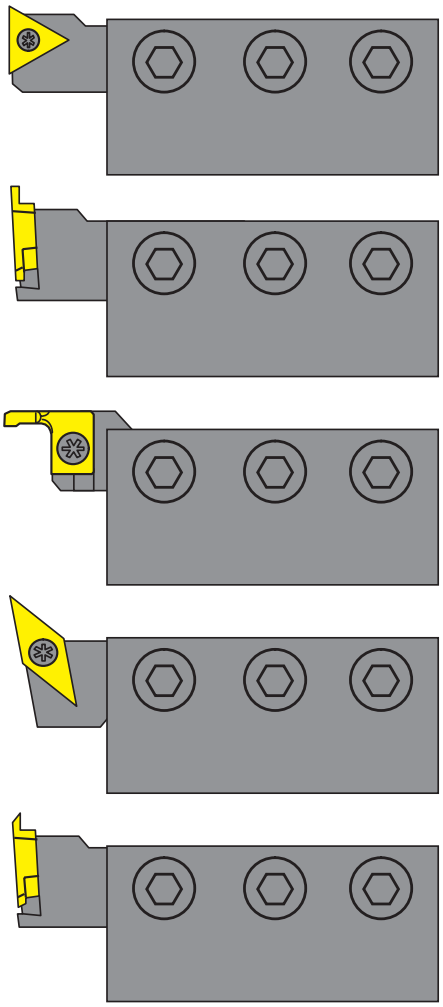
CH-GTTL ➡K112

■ID Boring



CH-LBML ➡K154



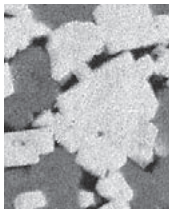


Micro-grain Carbide and PVD/CVD-coated Carbide

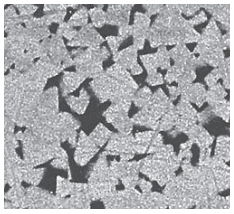
Excellence in precision machining and machining of hard-to-cut materials

These material grades use WC micro-grain carbide, the hard layer of which is granulated to a micro size 1 μm as the substrate. Furthermore, the substrate is coated by the PVD method with TiN, TiCN, and/or TiAlN. The end results are materials that are suitable for precision machining and machining of difficult-to-cut materials. Inserts in these grades are tougher and harder than carbide and come with precision sharp cutting edges. They even have superior toughness and sharper cutting edges than ultra micro-grain carbide grades, with excellent wear resistance and thermal crack resistance.

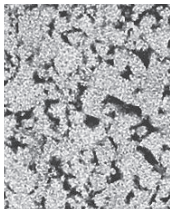
Carbide grade



General carbide structure



Micro-grain carbide structure

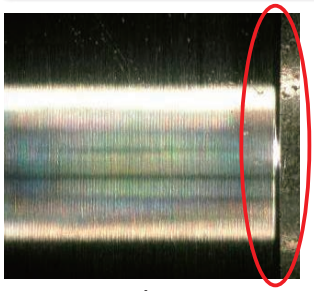


Super micro-grain carbide structure

The result of intensive reseach and development for improving carbide grades

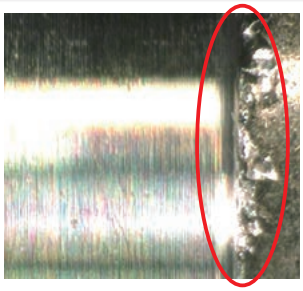
The NTK carbide grade series shows very stable performance under a wide range of conditions. NTK uses micro-grain carbide well balanced between wear resistance and toughness, as substrate.

Features Superior cutting performance



No burrs

Machined with our insert with a sharp cutting edge



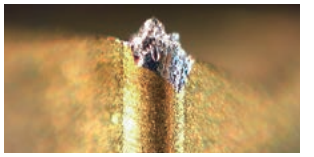
Burrs

Machined with a competitor's product with a honed cutting edge

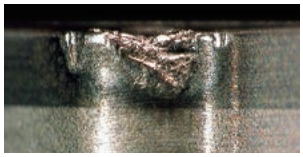
Relentless pursuit of better cutting performance

NTK takes pride in its carbide grade series for their outstanding cutting performance as a result of grinding ultra sharp cutting edges. This outstanding cutting performance benefits in better burr control, lower tool pressure, stabilized dimensions and improved work hardening control.

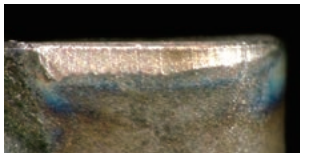
Features Precise analysis on insert wear patterns



Build-up edge



Chipping / fracture

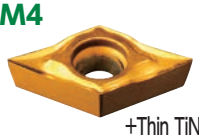
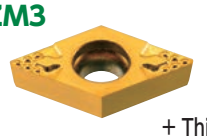
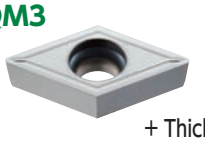
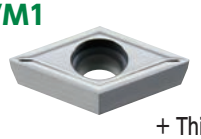


Flank wear

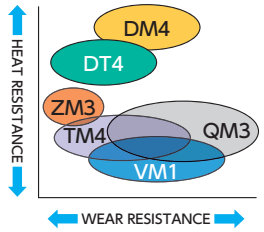
Wear on rake

Continuous research on insert tool life

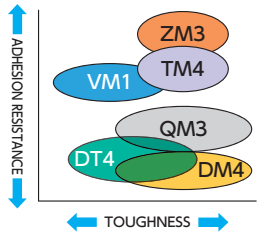
Damage to insert cutting edges varies depending on the machining process and the work material. There are various types of coatings that reduce such damages to prolong the tool life. NTK carbide series offers a variety of coated insert grades which have been developed to improve their resistance characteristics, including wear, fracture, adhesion, oxidation and the likes, by utilizing our state-of-the-art technologies.

	Grade / Coating	Applications / Features	Physical properties*						Applications map
			Density g/cm³	Hardness HRA	Bending strength MPa	Young's modulus GPa	Thermal expansion coefficient X10⁻⁶/K	Thermal conductivity W/m・K	
PVD coated	**DM4**  Micro-grain carbide + Thick TiN-TiCN-TiAlN coat	P M S H ●Best oxidation resistance enable high temperature machining	14.4	91.0	3000	580	5.8	63	
	DT4  Micro-grain carbide + Thin TiN-TiCN-TiAlN coat	P M S H ●Excellent oxidation resistance for Swiss-type lathes	14.4	91.0	3000	580	5.8	63	
	TM4  Micro-grain carbide +Thin TiN-TiCN-TiN coat	P M N S ●Best combination of wear resistance and toughness and adhesion resistance for Swiss-type lathes	14.4	91.0	3000	580	5.8	63	
	ZM3  Micro-grain carbide + Thick TiN coat	P M N ●Best Adhesion resistance enables high accuracy machining	14.4	91.0	3000	580	5.8	63	
	QM3  Micro-grain carbide + Thick TiCN coat	P M S H ●Best wear resistance enable stable machining	14.4	91.0	3000	580	5.8	63	
	VM1  Micro-grain carbide + Thin TiCN coat	P M N ●Best edge sharpness and good wear resistance	14.8	92.0	2500	640	5.7	84	
Uncoated	**KM1**  Micro-grain carbide	P M N ●Best for non-ferrous material with mirror finish	14.8	92.0	2500	640	5.7	84	

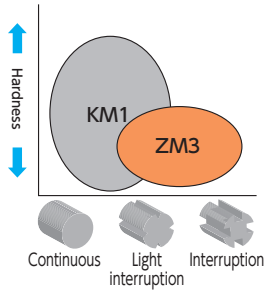
Correlation chart 1



Correlation chart 2



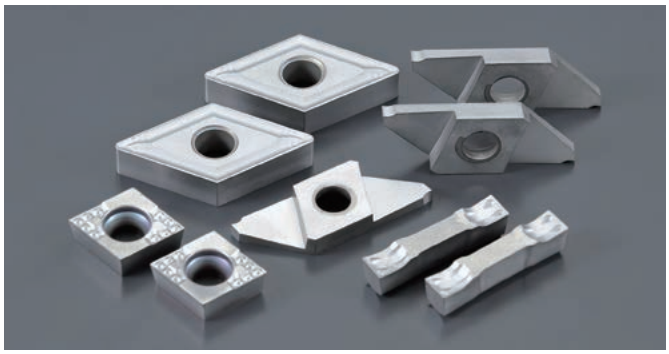
Aluminum / Brass



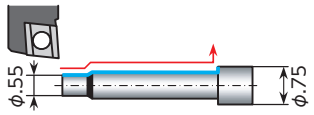
※For products with coating, the values of the base material are indicated.

QM3

Superb wear resistance and fracture resistance in interrupted cutting !



Spindle	
4135	
330 SFM	
.0012 IPR	
.008" DOC	
WET	
NTK : **QM3**	600 pcs
Competitor's PVD-coated carbide	300 pcs



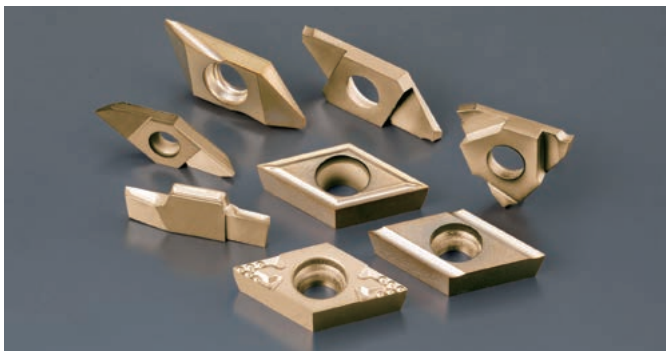
Best for	Optimized for	Excellent in
● Carbon steels ● Stainless steels ● Alloy steels ● Heat resistant alloys	Swiss-type lathes Conventional lathes	Wear resistance

Features

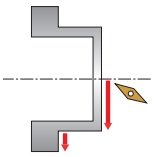
- ***Excellent toughness and wear resistance for wide speed range***
- ***Stable interrupted machining of steel***

NEW DT4

Excellent heat resistance for Swiss-type lathes !



Pin	
440 CSS	
260 SFM	
.002 IPR	
.039" DOC	
WET	
NTK : **DT4**	1100 pcs
Competitor's PVD-coated carbide	800 pcs



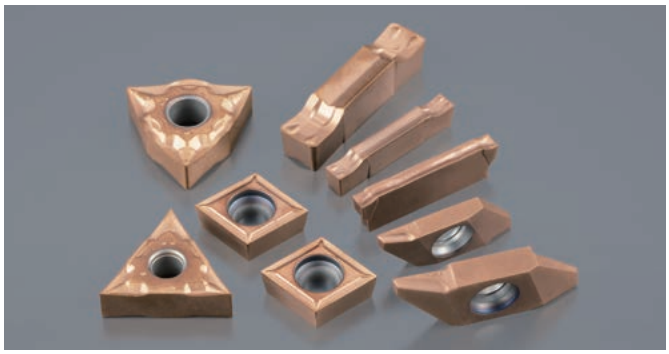
Best for	Optimized for	Excellent in
● Titanium alloys ● Stainless steels ● Alloy steels ● Carbon steels ● Heat resistant alloys	Swiss-type lathes	Oxidation Heat resistance

Features

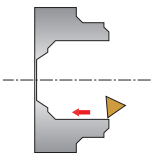
- ***Excellent oxidation resistance for Swiss-type lathes***

NEW DM4

Excellent oxidation resistance !



Case	
Inco 718	
130 SFM	
.001 IPR	
.008" DOC	
WET	
NTK : **DM4**	110 pcs
Competitor's PVD-coated carbide	90 pcs



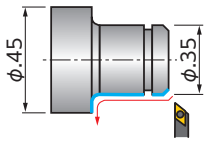
Best for	Optimized for	Excellent in
● Titanium alloys ● Stainless steels ● Alloy steels ● Carbon steels ● Heat resistant alloys	Conventional lathes Swiss-type lathes	Oxidation Heat resistance

Features

- ***Best oxidation resistance for high temperature machining***
- ***Optimized for Conventional / Swiss-type lathes***

TM4

Next generation standard insert grade for Swiss-type lathes !

Automobile parts	
304 SS	
260 SFM	
.0008 IPR	
.047" DOC	
WET	
NTK : **TM4**	950 pcs
Competitor's PVD-coated carbide	500 pcs

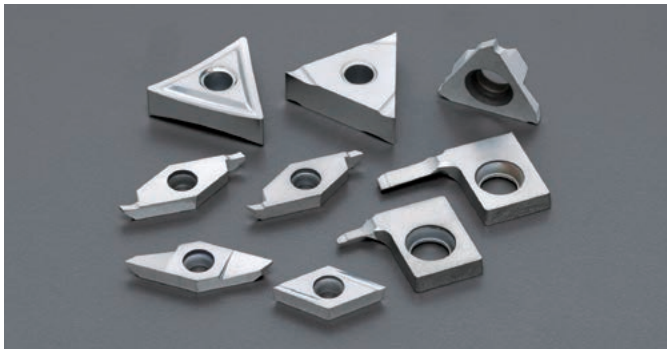
Best for	Optimized for	Excellent in
● Carbon steels ● Stainless steels ● Alloy steels	Swiss-type lathes	Balance

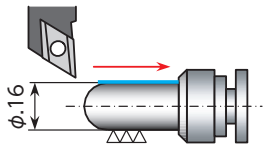
Features

- ***Excellent dimensional stability and tool life thanks to triple titanium layers with excellent adherence to insert substrate***

VM1

High precision machining of small diameter parts !



Plug	
12L14	
460 SFM	
.0006 IPR	
.004" DOC	
WET	
NTK : **VM1**	800–1000 pcs
Competitor's PVD-coated carbide	150 pcs

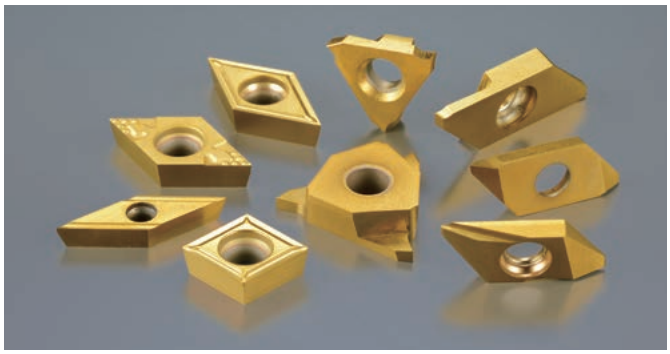
Best for	Optimized for	Excellent in
● Carbon steels ● Stainless steels ● Alloy steels	Swiss-type lathes	Edge sharpness

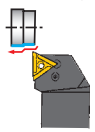
Features

- ***Especially for machining free cutting steels (SUM materials)***
- ***For high-precision machining with longer tool life even in the high-speed machining range***

ZM3

The best selling grade for automatic lathes !



Case	
1010	
330 SFM	
.0047 IPR	
.012"–.015" DOC	
WET	
NTK : **ZM3**	6000 pcs
Competitor's PVD-coated carbide	150 pcs

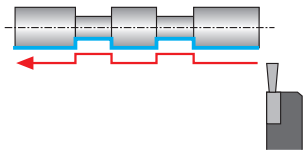
Best for	Optimized for	Excellent in
● Carbon steels ● Stainless steels ● Alloy steels ● Non-ferrous materials	Swiss-type lathes Conventional lathes	Adhesion resistance

Features

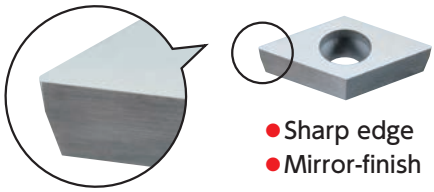
- ***Stabilizes machining dimensions thanks to the coating being firmly adhered to the substrate***
- ***A wide range of cutting tools in various sizes available for automatic lathes***

KM1

Longer tool life even for machining hard-to-cut materials !

Spool machining	
5056 (Aluminium)	
300 ~ 560 SFM	
.0016 IPR	
.02"-.20" DOC	
WET	
NTK : **KM1**	300 pcs
Competitor's PVD-coated carbide	200 pcs

Best for	Optimized for	Excellent in
● Aluminium ● Plastic ● Non-ferrous materials	Swiss-type lathes	Edge sharpness



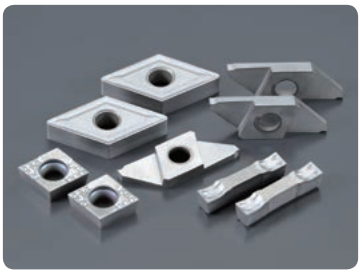
● Sharp edge
● Mirror-finish

Features

- ***Very sharp cutting edges with uncoated Micro-grain carbide***
- ***Excellent adhesion resistance because of mirror-finish***
- ***A wide range of cutting tools in various types available for Swiss-type lathes***

PVD Coatings

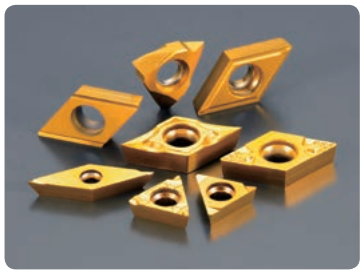
QM3/Q15 Q-Coat



Best wear resistance

- *stainless steel*
- *Carbon steel*
- *Alloy steel*

TM4 TM-Coat



Best balance of wear resistance and adhesion resistance

- *For small part machining in general*

DM4 DM-Coat

Best heat resistance

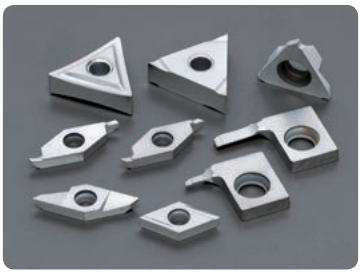
- *Heat resistant alloy*
- *Stainless steel*
- *Hardened material*

DT4 DT-Coat

Best balance of heat resistance and sharp edges

- *Titanium alloy*
- *Heat resistant alloy*
- *Stainless steel*
- *Hardened material*

VM1 V-Coat



Best edge sharpness

- *Titanium alloy*
- *Non-ferrous material*
- *Stainless steel*
- *Plastic*

ZM3/C7Z Z-Coat

Best adhesion resistance

- *General purpose machining*

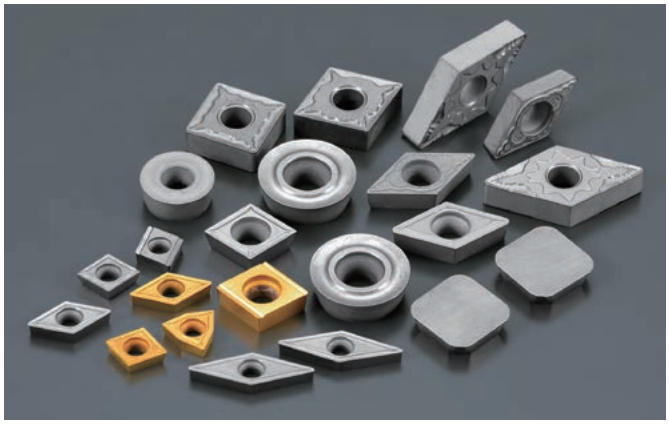
Coating Specitications

	Q-Coat	TM-Coat	DM-Coat	DT-Coat	V-Coat	Z-Coat
Thickness	Thick	Thin	Thick	Thin	Thin	Thick
Wear Resistance	◎	○	○	○	○	
Heat Resistance			◎	◎		○
Adhesion Resistance		○				◎
Edge Sharpness		○		○	◎	
Composition	TiCN	Multilayer	Multilayer	Multilayer	TiCN	TiN

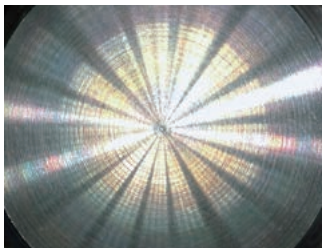
◎1st choice ○2nd choice

Cermet / PVD-coated Cermet

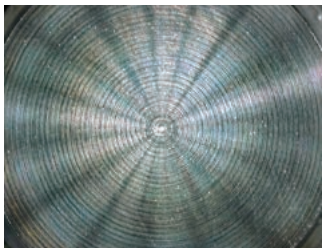
Cermet series



Cermet is a cutting tool material composed mainly of TiC (Titanium Carbide) and TiN (Titanium Nitride). The name, cermet, is derived from the words CERAMIC and METAL (representing carbide). As the name suggests, cutting performance is also in the mid-range of ceramic's and carbide's. The advantages of this material grade are high-quality and excellent surface finishes can be achieved with elevated cutting speeds. Cermets provide extended tool life.



Surface finished with cermet

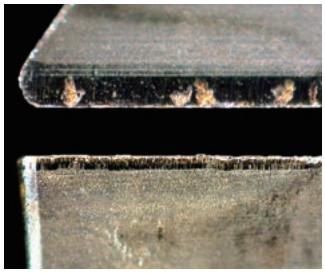


Surface finished with carbide

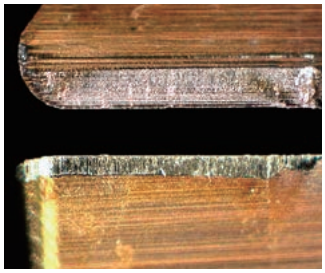
Features

High quality surface finish

The main components, TiC and TiN, have good BUE resistance as they have low affinity with work materials. Thus, machining with cermets brings high quality surface finish over extended periods of time.



Cermet



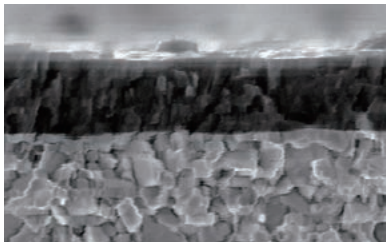
Carbide

High speed cutting

The main components, TiC and TiN, are more resistant to wear and oxidation at high temperature than WC (tungsten carbide), which is the main component of carbide tools. Because of excellent wear and oxidation resistance, cermet grades are less reactive with work materials and make stable high speed machining possible.

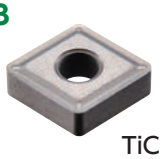
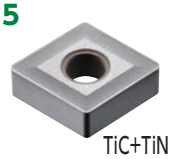
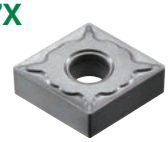
PVD-coated cermet series

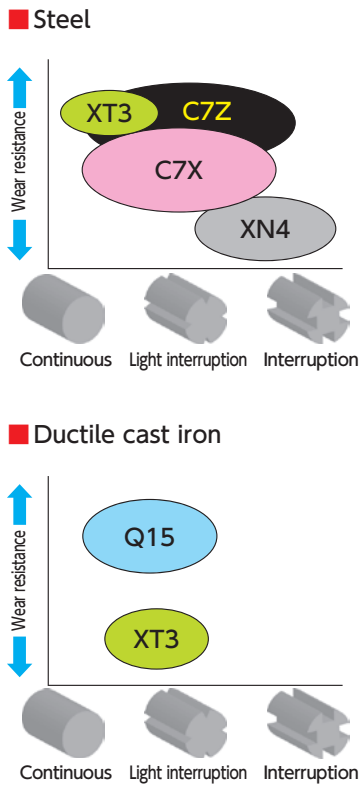
PVD TiN or TiCN coated cermet grades bring improved wear resistance. Since the coating layer does not contain any binder components, the coating maximizes the wear resistance of the titanium which delivers excellent performance and the tool life.



Features

PVD coating with superb hardness and surface smoothness provide excellent wear resistance and adhesion resistance.

Grade / Coating	Applications / Features	Physical properties* Density g/cm³	Hardness HRA	Bending strength MPa	Young's modulus GPa	Thermal expansion coefficient X10⁻⁶/K	Thermal conductivity W/m・K	Applications and ceramic property map
XT3  TiC+TiN base	P M K N ●Well balanced between wear resistance and toughness	6.3	92.5	1,700	450	8.4	21	
Q15  TiC+TiN base+TiCN coat	P M K ●Superior wear resistance and toughness	6.3	92.5	1,700	450	8.4	21	
C7X  TiCN base	P M K N ●Good combination of heat resistance and toughness	7.0	91.5	1,800	440	8.2	31	
C7Z  TiCN base + TiN coat	P M K N ●Perfect combination of heat resistance and toughness	7.0	91.5	1,800	440	8.2	31	
XN4  TiN base	P M ●Excellent toughness	5.9	91.5	1,900	450	8.9	42	

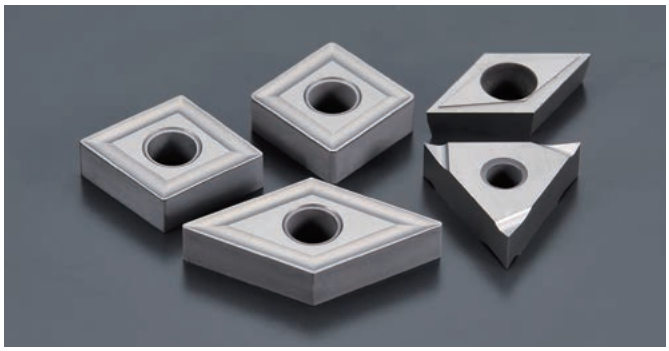


*For coated grades, the values of the base material are indicated.

Applications

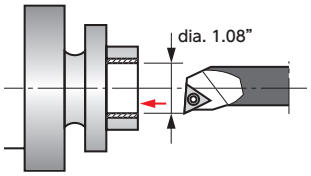
Material	General steel Carbon steel , Alloy steel					Stainless steel Stainless steel , Cast steel					Cast iron Gray cast iron , Ductile cast iron			
Cutting	Finish ←				→ Rough	Finish ←				→ Rough	Finish ←			→ Rough
Range	P01	P10	P20	P30	P40	M01	M10	M20	M30	M40	K01	K10	K20	K30
Cermets	XT3		C7X	XN4			XT3	C7X				XT3		
PVD Coated cermets	Q15		C7Z				Q15	C7Z				Q15		

XT3 Well balanced combination of wear resistance and toughness !



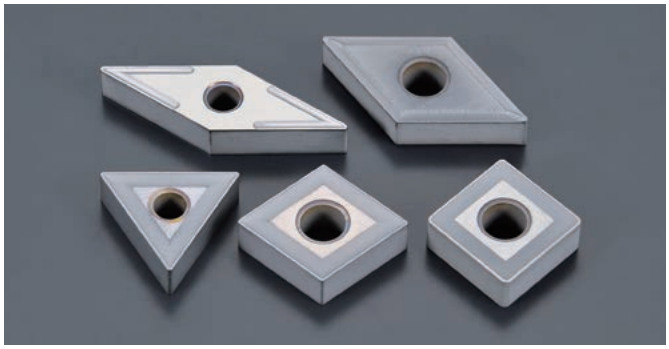
Features

- *Well-balanced combination of wear resistance and toughness*
- *Covers a wide range of steel cutting, from medium cutting to finishing of steel*

Crank shaft	
1049	
250 SFM	
.002 IPR	
.001" DOC	
WET	
NTK : **XT3**	100 pcs
Competitor's cermet	60 pcs

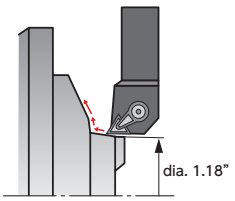
Best for	Optimized for	Excellent in
● Carbon steels ● Stainless steels ● Alloy steels ● Cast iron	Conventional lathes	Wear resistance

Q15 Coated cermet for high-speed finishing of ductile cast iron !



Features

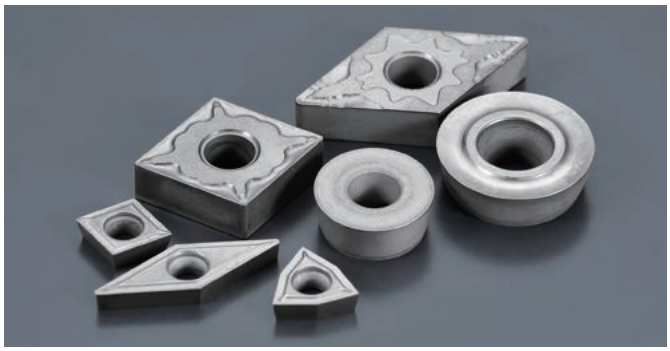
- *Further improved wear resistance and toughness from the TiCN-based coating*
- *The recommended grade for high-speed finishing of ductile cast iron*

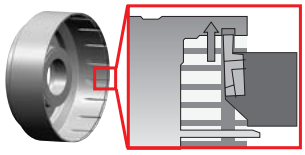
Differential case	
Ductile cast iron	
525 SFM	
.004 IPR	
.008" DOC	
WET	
NTK : **Q15**	35 pcs
Competitor's cermet	20 pcs

Best for	Optimized for	Excellent in
● Carbon steels ● Stainless steels ● Alloy steels ● Cast iron ● Ductile cast iron	Conventional lathes	Wear resistance

C7X

High-strength cermet grade that offers remarkable machining stability !



AT clutch	
SS	
800 SFM	
.0008-.0016 IPR	
.060" DOC	
WET	
NTK : **C7X**	200 pcs
Competitor's cermet	100 pcs

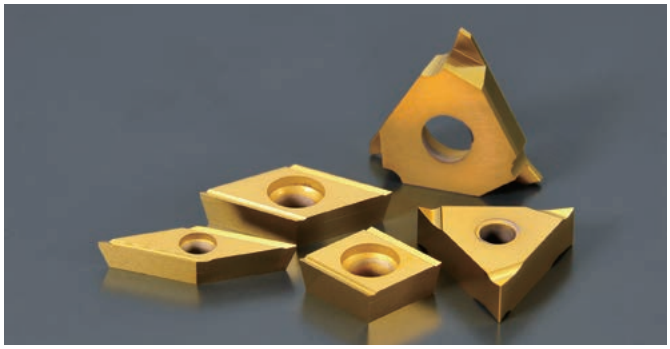
Features

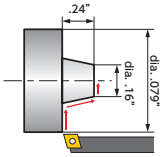
- *Overcomes the traditional weakness of conventional cermet grades with improved thermal shock resistance*
- *Excellent grade for grooving and bearing machining*

Best for	Optimized for	Excellent in
● Carbon steels ● Stainless steels ● Alloy steels ● Cast iron	Swiss-type lathes Conventional lathes	Balance

C7Z

Combining the advantages of thermal shock resistance and fracture resistance !



Spring	
SS	
430 SFM	
.002 IPR	
.012" DOC	
WET	
NTK : **C7Z**	1600 pcs
Competitor's cermet	1200 pcs

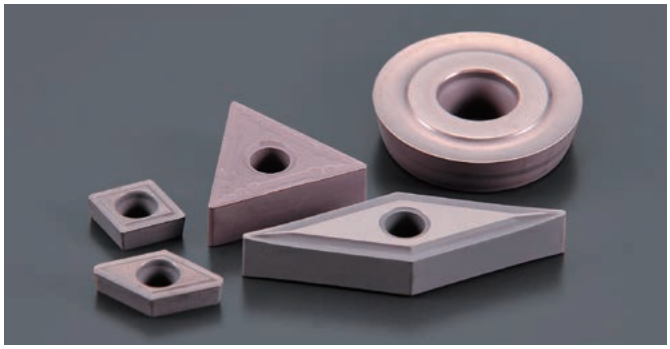
Features

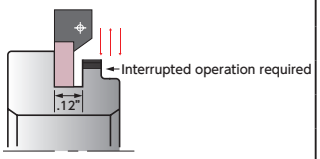
- *Further improvement in wear resistance and thermal shock resistance with a TiN-based coating*
- *Excellent performance in grooving and bearing machining*
- *The most recommended grade for high-speed machining of steel*

Best for	Optimized for	Excellent in
● Carbon steels ● Stainless steels ● Alloy steels ● Cast iron	Swiss-type lathes Conventional lathes	Balance

XN4

Toughest cermet grade with excellent fracture resistance !



Gear	
5120H	
360 SFM	
.004 IPR	
WET	
NTK : **XN4**	300 pcs
Competitor's cermet	200 pcs

Features

- *Allows for stable machining with longer tool life thanks to its excellent fracture resistance*

Best for	Optimized for	Excellent in
● Carbon steels ● Stainless steels ● Alloy steels	Conventional lathes	Toughness

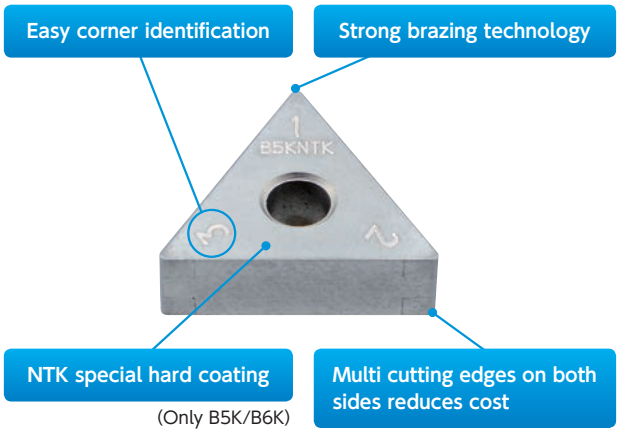
EZCUBE

Excellent performance with superb versatility at a low price !

CBN (Cubic Boron Nitride)

Features

- ***Seven grades available to cover a variety of work materials***
- ***A wide selection in geometries***
- ***Multiple corners on both insert sides contributes to cost reduction***



● **NTK*EZCUBE* / EZ CUBE**

Material grade	Main binder	CBN content	Major application
B23	Ti-base	90%	High-speed semi roughing of cast iron/sintered alloys
B30	Ti-base	95%	High-speed finishing of cast iron
B6K/B36	TiCN-base	65%	semi-interrupted to interrupted machining of hardened materials
B40	TiN-base	65%	Interrupted machining of highly hardened materials
B5K/B52	TiC-base	50%	Finishing of ductile cast iron and continuous machining of highly hardened materials

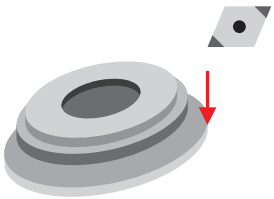
B23

Features

- ***Excellent wear resistance thanks to high CBN content***
- ***Ideal for roughing cast iron and machining sintered materials***

【Recommended cutting conditions】

Work material	Application	Purpose	Cutting speed (SFM)	Feed (IPR)	Depth of cut (inch)	DRY	WET
Cast iron	Turning	Rough Semi finish	1300–3300	.004–.020	.008–.080	○	●
Sintered alloy	Turning	Rough–Finish	150–1000	.001–.008	.002–.020	●	●

Brake rotor	
Gray cast iron	
820 SFM	
.0079 IPR	
.079" DOC	
WET	
NTK : **B23**	210 pcs
Competitor's CBN	70 pcs

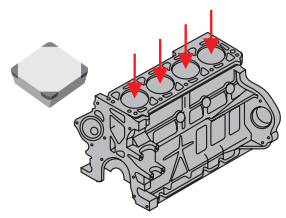
B30

Features

- ***Excellent wear resistance thanks to high CBN content***
- ***Designed for finishing cast iron***

【Recommended cutting conditions】

Work material	Application	Purpose	Cutting speed (SFM)	Feed (IPR)	Depth of cut (inch)	DRY	WET
Cast iron	Turning	Semi finish Finish	1300–3300	.004–.020	.008–.080	○	●

Cylinder block	
Cast iron	
2600 SFM	
.012 IPR	
.004" DOC	
WET	
NTK : **B30**	800 pcs
Competitor's CBN	500 pcs

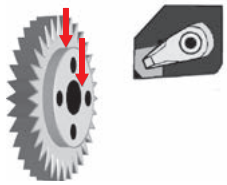
NEW B6K/B36

Features

- ***Excellent combination of wear resistance and toughness due to special TiCN binders***
- ***Best for semi-interrupted cutting of hardened materials***

【Recommended cutting conditions】

Work material	Application	Purpose	Cutting speed (SFM)	Feed (IPR)	Depth of cut (inch)	DRY	WET
Hardened material	Turning (Light interrupted)	Rough–Finish	130–800	.002–.008	.004–.040	●	●

Gear (HRC61-65)	
5120H	
430 SFM	
.006 IPR	
.004" DOC	
DRY	
NTK : **B36**	50 pcs
Competitor's CBN	20 pcs

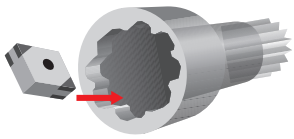
B40

Features

- ***Exceptional toughness thanks to special TiN binders***
- ***Designed for severely interrupted cutting of hardened materials***

【Recommended cutting conditions】

Work material	Application	Purpose	Cutting speed (SFM)	Feed (IPR)	Depth of cut (inch)	DRY	WET
Hardened material	Turning (Heavy interrupted)	Rough–Finish	100–500	.002–.008	.004–.040	●	○

Universal joint (HRC62)	
1055	
360 SFM	
.0055 IPR	
.0059" DOC	
DRY	
NTK : **B40**	2300 pcs
Competitor's CBN	1500 pcs

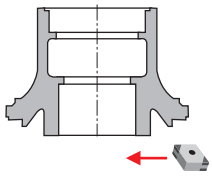
NEW B5K/B52

Features

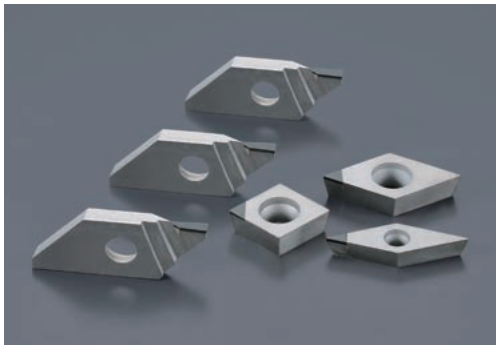
- ***Excellent wear resistance due to optimum CBN content with special TiC binders***
- ***Ideal for finishing ductile cast iron and continuous cuts for finishing hardened materials***

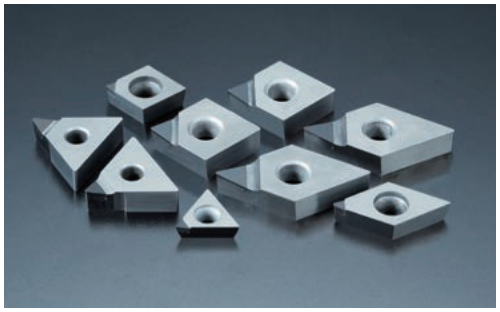
【Recommended cutting conditions】

Work material	Application	Purpose	Cutting speed (SFM)	Feed (IPR)	Depth of cut (inch)	DRY	WET
Ductile cast iron	Turning	Finish	300–1600	.004–.016	.012–.080	○	●
Hardened material	Turning (Continuous)	Rough–Finish	300–1000	.004–.020	.004–.040	○	●

Hub	
Ductile cast iron	
1150-1130 SFM	
.003 IPR	
.0079" DOC	
WET	
NTK : **B52**	60 pcs
Competitor's CBN	30 pcs

PCD (Polycrystalline Diamond)





Features

- *Faster cutting speeds than carbide*
- *Recommended for cutting aluminum and copper alloys thanks to its excellent adhesion resistance*
- *Incorporates a very sharp cutting edge*
- *Available for general turning and cut-off in addition to the inserts for milling cutters*

【Recommended cutting conditions】

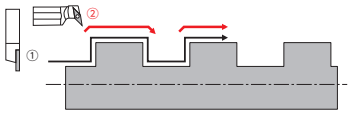
Work material	Application	Purpose	Cutting speed (SFM)	Feed (IPR/IPT)	Depth of cut (inch)	DRY	WET
Aluminum alloy Non-ferrous material	Turning	Rough–Finish	–6500	–.006	–.200		●
	Milling	Rough–Finish	–25000	–.008	–.200		●

PD1

Features

- *Sharp cutting edges*
- *Enables high precision and stable machining by controlling the potential for built-up edge*

Spool	
①Rough	②Finish
A6061	A6061
660 SFM	660 SFM
.004 IPR	.002 IPR
.200 DOC	.008 DOC

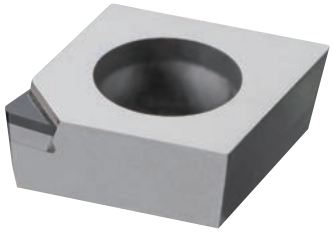


①NTK : **PD1**	30,000 pcs
②NTK : **PD1**	30,000 pcs

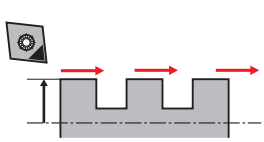
NEW PD2

Features

- *Super micro grain PCD maintains sharp cutting edges with increased chipping resistance*
- *Good chip control due to the high rake angle on the insert*



Spool	
A6061	
560 SFM	
.002 IPR	
.006 DOC	



NTK : **PD2**	15,000 pcs
Competitor's PCD	10,000 pcs

Recommended Insert Grade and Cutting Conditions

Front Turning

CSVF / CC.. / DC.. / VC.. / VB.. / TN.. / TF

Work Material		High Temperature Alloys	Titanium Alloys	Cobalt Chrome Alloys	Stainless Steels		Alloy Steels	Carbon Steels
					Hard to cut	Free cutting		
Common Name		Inconel Hastelloy MP35N	Ti-6Al-4V	ASTM F-75	304 316 17-4PH	303 430F	5120 4137	1045 1046
Grade	1st choice	DT4			DT4	TM4	QM3	
	2nd choice	TM4 / QM3			QM3 / VM1	QM3	TM4 / DT4 / C7Z(X)	
Cutting Speed (SFM)		75 **125** 225	100 **200** 275		130 **230** 330	150 **300** 600	Carbide 150 **300** 500 C7Z(X) 400 **500** 800	
Recommended Chipbreaker Feed Rate (IPR)	≤.004 DOC	AMX KHG .0004 **.0008** .0012				AMX KHG .0004 **.0012** .0016		
	.004 to .060 DOC	CL S AM3 .0008 **.0016** .0024				CL AM3 AZ7 ZR S U/U1 UL .0008 **.0020** .0032		
	≥ .060 DOC	CL S AM3 .0008 **.0015** .0025				CL AM3 ZP .0012 **.0024** .0040		

Back Turning

CSVB

Work Material		High Temperature Alloys	Titanium Alloys	Cobalt Chrome Alloys	Stainless Steels		Alloy Steels	Carbon Steels
					Hard to cut	Free cutting		
Common Name		Inconel Hastelloy MP35N	Ti-6Al-4V	ASTM F-75	304 316 17-4PH	303 430F	5120 4137	1045 1046
Grade	1st choice	DT4					VM1	
	2nd choice	VM1					DT4	
Cutting Speed (SFM)		75 **125** 225	100 **200** 275			100 **200** 300		
Feed Rate (IPR)	X Direction	.0004 **.0008** .0012						
	Z Direction	.0004 **.0012** .0016						

TBDP / TBMH / TBP / TBPA / TBVC

Work Material		High Temperature Alloys	Titanium Alloys	Cobalt Chrome Alloys	Stainless Steels		Alloy Steels	Carbon Steels
					Hard to cut	Free cutting		
Common Name		Inconel Hastelloy MP35N	Ti-6Al-4V	ASTM F-75	304 316 17-4PH	303 430F	5120 4137	1045 1046
Grade	1st choice	DT4			DT4 / QM3	TM4	QM3	
	2nd choice	TM4 / QM3			VM1	QM3	TM4 / DT4 / C7Z(X)	
Cutting Speed (SFM)		75 **125** 225	100 **200** 275			150 **300** 500		
Feed Rate (IPR)	X Direction	.0004 **.0008** .0012				.0004 **.0008** .0016		
	Z Direction	.0008 **.0016** .0024				.0008 **.0016** .0031		

TB32 / TB43

Work Material		High Temperature Alloys	Titanium Alloys	Cobalt Chrome Alloys	Stainless Steels		Alloy Steels	Carbon Steels
					Hard to cut	Free cutting		
Common Name		Inconel Hastelloy MP35N	Ti-6Al-4V	ASTM F-75	304 316 17-4PH	303 430F	5120 4137	1045 1046
Grade	1st choice	ZM3					ZM3	
	2nd choice						Z15	
Cutting Speed (SFM)		50 **100** 150				ZM3 150 **300** 425 Z15 400 **600** 800		
Feed Rate (IPR)	X Direction	.0004 **.0012** .0020				.0004 **.0012** .0020		
	Z Direction	.0016 **.0020** .0031				.0016 **.0031** .0059		

Recommended Insert Grade and Cutting Conditions

Cut Off

CSVT

Work Material		High Temperature Alloys	Titanium Alloys	Cobalt Chrome Alloys	Stainless Steels		Alloy Steels	Carbon Steels
					Hard to cut	Free cutting		
Common Name		Inconel Hastelloy MP35N	Ti-6Al-4V	ASTM F-75	304 316 17-4PH	303 430F	5120 4137	1045 1046
Grade	1st choice	DT4					VM1	
	2nd choice	VM1					DT4	
Cutting Speed (SFM)		100 160 230				100 200 300		
Feed Rate (IPR)		.0004 .0008 .0012				.0004 .0012 .0020		

CTP / CTPA / CTPS / CTPW

Work Material		High Temperature Alloys	Titanium Alloys	Cobalt Chrome Alloys	Stainless Steels		Alloy Steels	Carbon Steels
					Hard to cut	Free cutting		
Common Name		Inconel Hastelloy MP35N	Ti-6Al-4V	ASTM F-75	304 316 17-4PH	303 430F	5120 4137	1045 1046
Grade	1st choice	DT4				TM4	QM3	
	2nd choice	TM4			QM3 / VM1	QM3	TM4 / DT4 / C7Z(X)	
Cutting Speed (SFM)		100 160 230				100 200 300		
Feed Rate (IPR)		.0008 .0012 .0020				.0008 .0016 .0024		

CTDP / CTV

Work Material		High Temperature Alloys	Titanium Alloys	Cobalt Chrome Alloys	Stainless Steels		Alloy Steels	Carbon Steels
					Hard to cut	Free cutting		
Common Name		Inconel Hastelloy MP35N	Ti-6Al-4V	ASTM F-75	304 316 17-4PH	303 430F	5120 4137	1045 1046
Grade	1st choice	DM4				TM4	QM3	
	2nd choice	TM4 / QM3				QM3	TM4 / DM4	
Cutting Speed (SFM)		100 160 230				100 200 300		
Feed Rate (IPR)		.0012 .0020 .0031				.0016 .0031 .0047		

Grooving

CSV / GTG / GTMH / GTMT / GTMX / SBG

Work Material		High Temperature Alloys	Titanium Alloys	Cobalt Chrome Alloys	Stainless Steels		Alloy Steels	Carbon Steels
					Hard to cut	Free cutting		
Common Name		Inconel Hastelloy MP35N	Ti-6Al-4V	ASTM F-75	304 316 17-4PH	303 430F	5120 4137	1045 1046
Grade	1st choice	DT4			DM4 / DT4	TM4	QM3	
	2nd choice	TM4 / QM3			QM3 / VM1	QM3	TM4 / DT4 / C7Z(X)	
Cutting Speed (SFM)		75 125 225	100 200 275		130 230 330	150 300 600	Carbide 150 300 500 C7Z(X) 400 500 800	
Feed Rate (IPR) A. Grooving B. Side turning*	Width .010-.020	A. .0002 - .0012 B. .0001 - .0002						
	.020-.040	A. .0008 - .0024 B. .0002 - .0004						A. .0008 - .0028 B. .0002 - .0004
	.040-.080	A. .0012 - .0028 B. .0008 - .0020						A. .0012 - .0031 B. .0012 - .0024
	> .080	A. .0012 - .0079 B. .0012 - .0024						

*When side turining, Max. DOC is under .0079". Under .016" width side turning impossible

GVW / Groove Duo

Work Material		High Temperature Alloys	Titanium Alloys	Cobalt Chrome Alloys	Stainless Steels		Alloy Steels	Carbon Steels
					Hard to cut	Free cutting		
Common Name		Inconel Hastelloy MP35N	Ti-6Al-4V	ASTM F-75	304 316 17-4PH	303 430F	5120 4137	1045 1046
Grade	1st choice	QM3						
	2nd choice							
Cutting Speed (SFM)		75 125 225	100 200 275		130 230 330	150 300 600	150 300 500	
Feed Rate (IPR) A. Grooving B. Side turning*	Width .118-.157	A. .0020 - .0059						
	.157-.197	A. .0039 - .0079					A. .0039 - .0098 B. .0059 - .0118	
	> .197	A. .0059 - .0138						

*Max DOC is 80% of width

GTPA

Work Material		Aluminum Alloy
Common Name		ASTM 5056 ASTM 6061
Grade	1st choice	PD1
	2nd choice	KM1
Cutting Speed (SFM)		PD1 330 650 1000 KM1 160 330 650
Feed Rate (IPR) A. Grooving B. Side turning		A. .0020 - .0079 B. .0039 - .0079

Recommended Insert Grade and Cutting Conditions

Threading

Work Material		High Temperature Alloys	Titanium Alloys	Cobalt Chrome Alloys	Stainless Steels		Alloy Steels	Carbon Steels
					Hard to cut	Free cutting		
Common Name		Inconel Hastelloy MP35N	Ti-6Al-4V	ASTM F-75	304 316 17-4PH	303 430F	5120 4137	1045 1046
Grade	1st choice	VM1			VM1 / ZM3		QM3	
	2nd choice	ZM3			QM3		VM1 / ZM3	
Cutting Speed (SFM)		75 125 225	100 200 275		130 230 330	150 300 600	150 300 500	

*Unless your machine is equipped with high speed threading program, please set the feed rate to 80 IPM or lower to prevent making incomplete threads

ID Boring

diameter ≤ .240" (LBM / STICK DUO)

Work Material		High Temperature Alloys	Titanium Alloys	Cobalt Chrome Alloys	Stainless Steels		Alloy Steels	Carbon Steels
					Hard to cut	Free cutting		
Common Name		Inconel Hastelloy MP35N	Ti-6Al-4V	ASTM F-75	304 316 17-4PH	303 430F	5120 4137	1045 1046
Grade	1st choice	TM4					VM1 / TM4	
	2nd choice	VM1 / ZM3					ZM3	
Cutting Speed (SFM)		60 160 230				100 200 300		
Feed Rate (IPR)		.0004 .0012 .0020						
Depth Of Cut (DOC)		.0020 .0031 .0039						

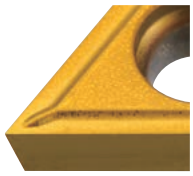
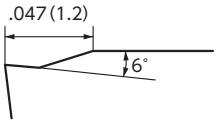
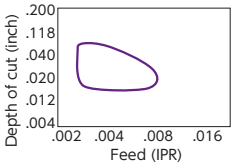
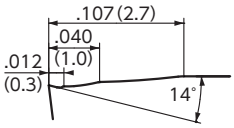
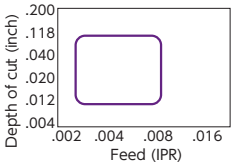
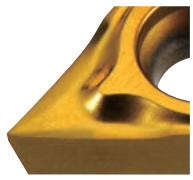
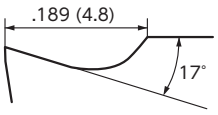
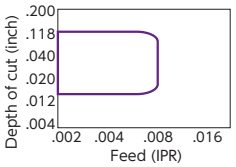
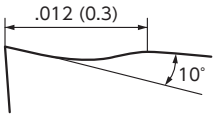
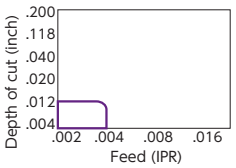
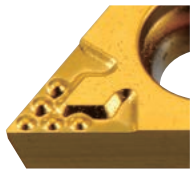
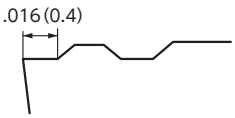
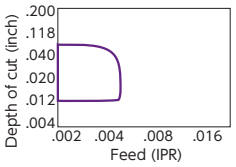
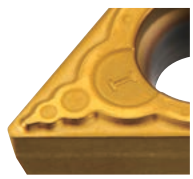
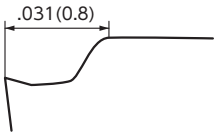
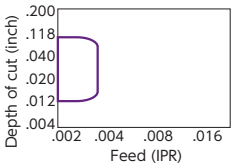
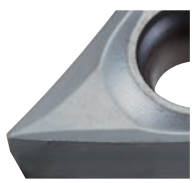
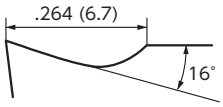
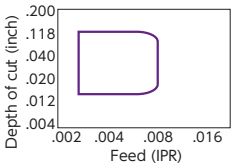
diameter > .240"

Work Material		High Temperature Alloys	Titanium Alloys	Cobalt Chrome Alloys	Stainless Steels		Alloy Steels	Carbon Steels
					Hard to cut	Free cutting		
Common Name		Inconel Hastelloy MP35N	Ti-6Al-4V	ASTM F-75	304 316 17-4PH	303 430F	5120 4137	1045 1046
Grade	1st choice	DT4			DT4	TM4	QM3	
	2nd choice	TM4			QM3 / TM4	QM3	TM4 / DT4 / C7Z(X)	
Cutting Speed (SFM)		150 230 330			130 230 330	150 300 600	Carbide 150 300 500 C7Z(X) 400 500 800	
Feed Rate (IPR)		.0008 .0024 .0047						
Depth Of Cut (DOC)		.0039 .0197 .0787						

[Recommended cutting conditions]

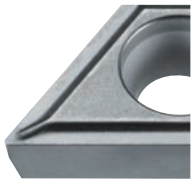
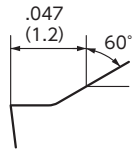
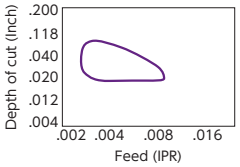
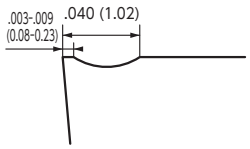
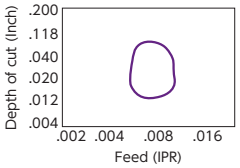
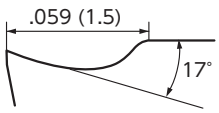
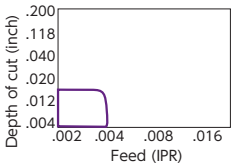
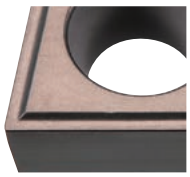
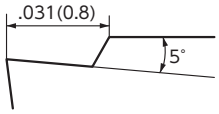
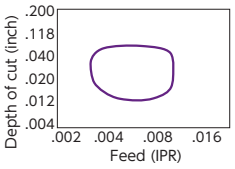
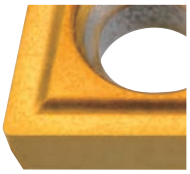
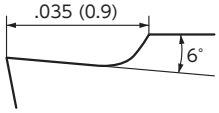
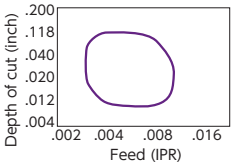
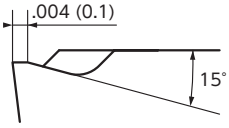
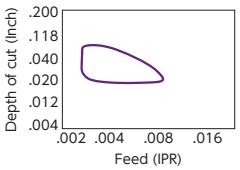
For Swiss-type Lathes

Molded Chipbreakers for Positive Inserts

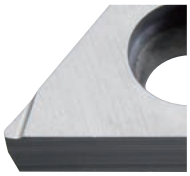
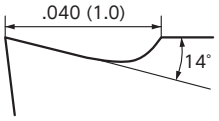
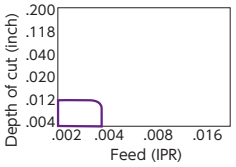
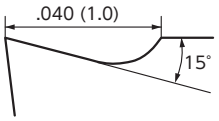
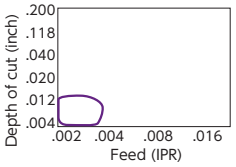
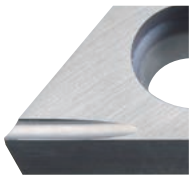
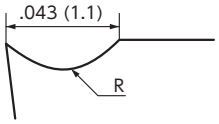
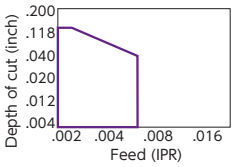
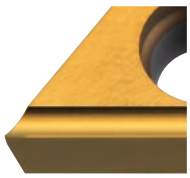
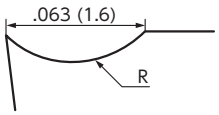
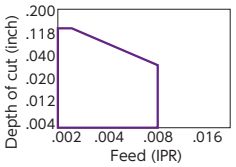
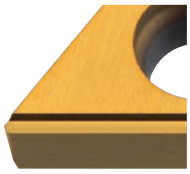
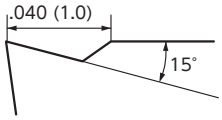
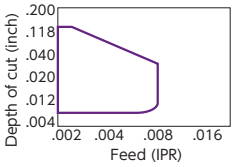
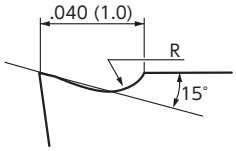
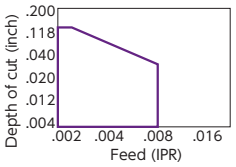
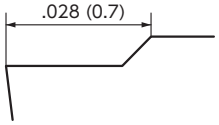
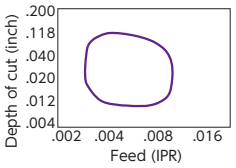
Name	Chipbreaker Geometry		Features	Chip Control Range
AM3	 ➡J6	 DCGT32.508 shown	●All purpose chipbreaker ●Sharp edge with toughness	
YL	NEW  WATCH ON YouTube ➡J6	 DCGT11T302MYL	●Great combination of sharpness and toughness ●Covers extremely wide range ●Excellent chip control	
CL	 WATCH ON YouTube ➡J6	 DCGT32.508M shown	●Sharpest molded Chipbreaker ●Excellent chip control ●Less tool pressure	
AMX	 WATCH ON YouTube ➡J6	 DCGT32.508M shown	●Designed for very light depth of cut ●Good sharpness	
AZ7	 WATCH ON YouTube	 DCGT32.508M shown	●Excellent chip control at light feed and light depth of cut	
ZR		 DCMT32.508 shown	●Covers a wide depth of cut range under high-speed and low-feed conditions	
1L		 DCGT32.508 shown	●Double-positive design with low tool pressure ●Tough cutting edge and excellent performance in combination with QM3	

Chipbreakers for Positive inserts

Molded Chipbreakers for Positive Inserts (continued)

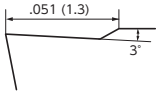
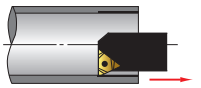
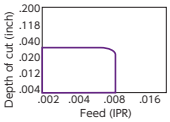
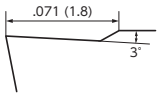
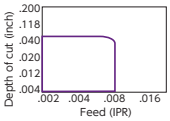
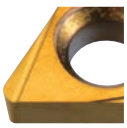
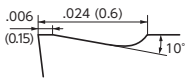
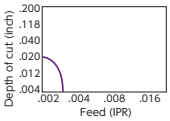
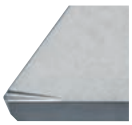
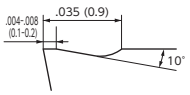
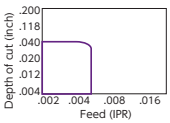
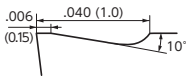
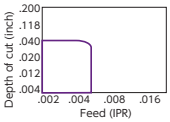
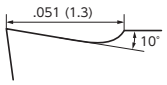
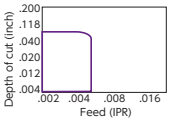
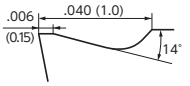
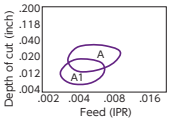
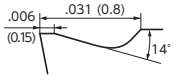
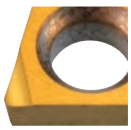
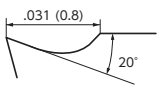
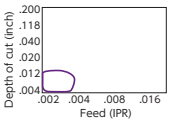
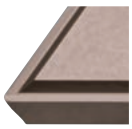
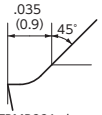
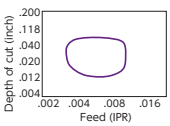
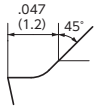
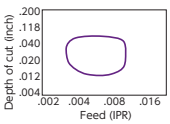
Name	Chipbreaker Geometry		Features	Chip Control Range
AF3		 DCGT32.508 shown	●Good chip control	
GA		 VBGT332 shown	●Sharp and tough cutting edge	
FG ➡J25		 TPGH221 shown	●Exclusively designed for ID boring ●Evacuates chips BACKWARD at light depth of cut ●Sharp cutting edge with high rake angle	
AF1		 CCGT32.508 shown	●Produces remarkable surfaces in semi-finishing of steels	
AM5		 CPGH21.508 shown	●Chipbreaker for boring ●Provides both good cutting performance and chip control	
QB		 WCGT5208 shown	●Sharp and tough cutting edge	

Ground Chipbreakers for Positive Inserts

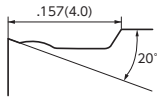
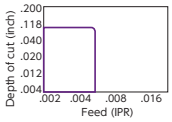
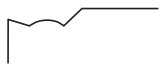
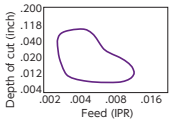
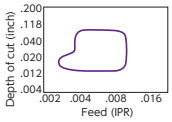
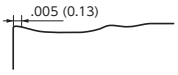
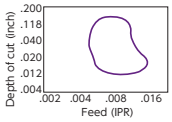
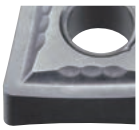
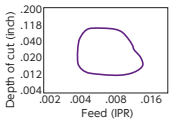
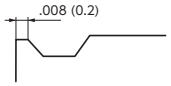
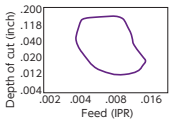
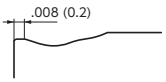
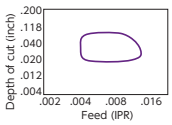
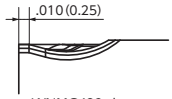
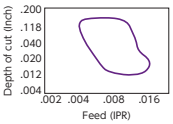
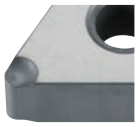
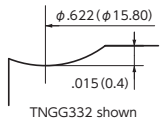
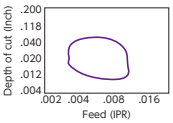
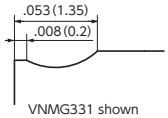
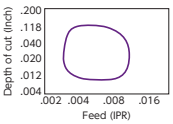
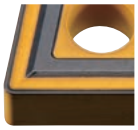
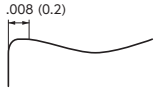
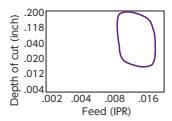
Name	Chipbreaker Geometry		Features	Chip Control Range
KHG		 DCET32.508 shown	●Excellent chip control on finishing cuts ●For super high-precision machining * Precision tolerance in corner radius: ±.0004"	
K		 TPGHP7308 shown	●Superb chip control on finishing applications ●Sharp cutting edge with the high rake angle	
UHG		 DCET32.504M shown	●Sharp cutting edge ●Covers wide cutting condition range * Precision tolerance in corner radius: ±.0004"	
U/U1		 DCGT32.508 shown	●Sharp cutting edge prevents materials from work hardening	
S		 DCGT320.508 shown	●Standard ground chipbreaker with wide cutting condition coverage ●Sharp cutting edge with excellent chip control	
AT		 DCGT32.508 shown	●Excellent adhesion resistance with dimensional stability ●Best for small diameter parts and for machining low carbon steels	
FM		 DCGT32.508 shown	●Full-peripheral ground chipbreaker	

Chipbreakers for Positive inserts

Ground Chipbreakers for Positive Inserts (continued)

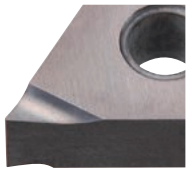
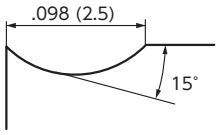
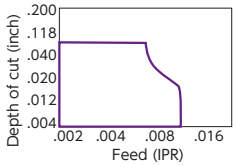
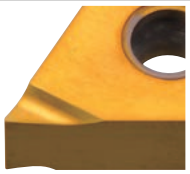
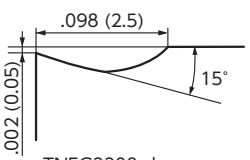
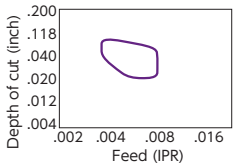
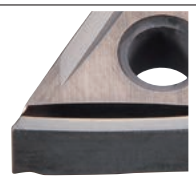
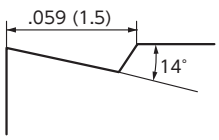
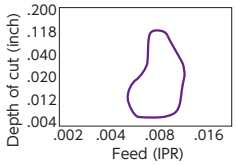
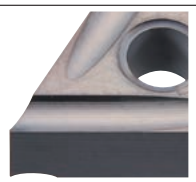
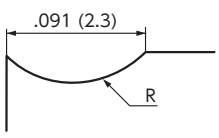
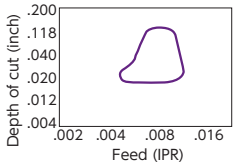
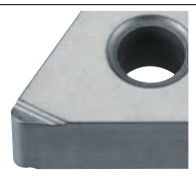
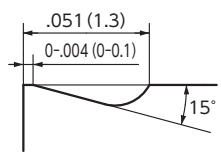
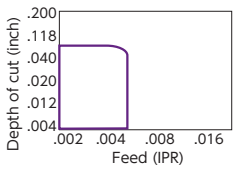
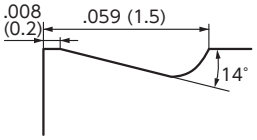
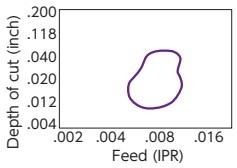
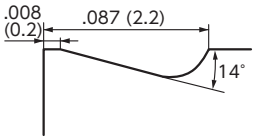
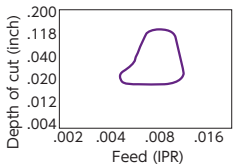
Name	Chipbreaker Geometry		Features	Chip Control Range
F05	 ➡J25	 TPGP5208 shown	●Exclusively designed for ID boring ●Evacuates chips BACKWARD ●Excellent choice for blind hole machining 	
F1	 ➡J25	 TPGP2208 shown		
B1		 TCGP5208 shown	●Stable cutting when boring thanks to sharp and tough cutting edge	
P1		 TPGR321R shown		
B2		 TPGP7308 shown		
B3		 TPGP6308 shown		
A		 CPGP0308 shown	●Tough cutting edge and good chip control ●General-purpose ID chipbreaker	
A1		 CPGP8308 shown		
A2		 ERGP52Y shown	●Control chips at light feed and light depth of cut ●Sharp cutting edge due to large rake angle	
A283		 TPMR221 shown	●Breaks chip into small pieces	
A305		 TPMR332 shown		

Molded Chipbreakers for Negative Inserts

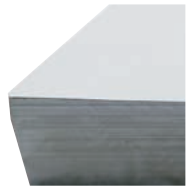
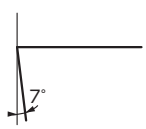
Name	Chipbreaker Geometry		Features	Chip Control Range
UL	 WATCH ON YouTube ➡J43	 TNGG3304M shown	●Negative insert with a positive insert's chipbreaker ●Reduced burr ●Improved microfinish ●Superb advantage in cost per corner over positive inserts	
ZF1		 CNMG432 shown	●Produce small curled chips on finishing cuts	
WM		 CNMG431 shown	●Remarkable chip control in the low feed range	
ZW1		 CNMG432 shown	●Versatile chipbreaker with remarkable chip control performance in a wide range of conditions	
ZP		 CNMG432 shown	●Double-positive rake and sharp cutting edge ●Low tool pressure even at heavy depth of cut	
Z5		 CNMG432 shown	●Very tough insert ●Designed for machining with heavy interruption	
WV		 CNMG432 shown	●Offers the advantages of both a tough cutting edge and chip control	
WR		 WNMG432 shown	●Designed for cermet ●Covers wide range of conditions	
R1		 TNGG332 shown	●Sharp cutting edge ●Good chip control	
GE		 VNMG331 shown	●Sharp and tough cutting edge	
G		 CNMG432 shown	●Tough chipbreaker for roughing with exceptional stability	

Chipbreakers for Negative inserts

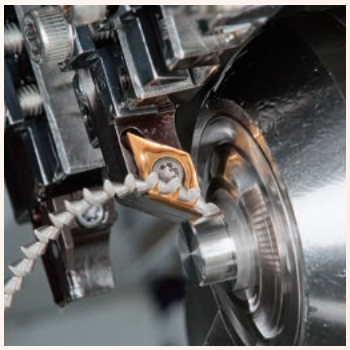
Ground Chipbreakers for Negative Inserts

Name	Chipbreaker Geometry	Features	Chip Control Range
DA	  TNGG3304 shown	●Excellent chip control and sharp cutting edge	
D1	  TNEG3308 shown		
N1	  TNGG3308 shown	●Double-positive design with the large rake angle ●Excellent chip control	
U2	  TNGG3308 shown	●Reduced burr and work hardening due to high rake design	
L2	  TNGG332R shown	●General-purpose chipbreaker with excellent toughness and chip control	
B	  TNGG331 shown		
C	  TNGG3308 shown		

Flat Top with Mirror Finish

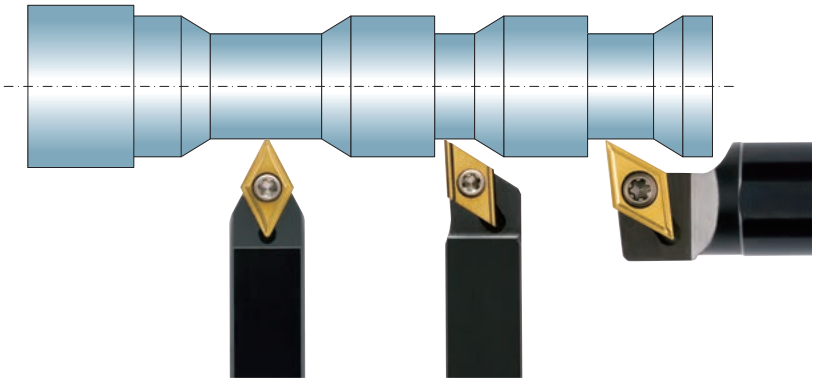
Name	Chipbreaker Geometry	Features	Chip Control Range
V **P** **H**	 	●Very up-sharp edge with mirror finish V: Mirror finish on Top and Flank side with R0 nose radius P: Mirror finish on Top and Flank side H: Mirror finish on Top side	—

K



General Turning / Front Turning

NTK General / Front Turning Tools - Product Lines



Insert	CSVF ➡K35	
Holder	CSV	DS-CSV
	91° ➡K34	91° ➡K34

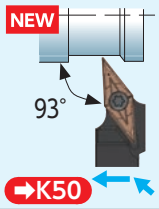
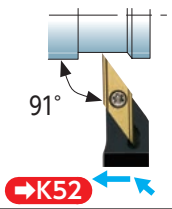
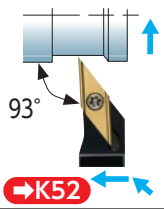
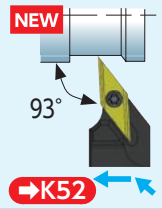
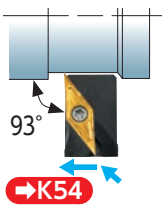
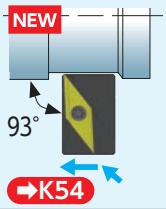
Insert	CC..21/32.5.. ➡K38					
Holder	SCAC	SCLC	SCLC-OH	SCLC-F	DS-SCLL	DS-SCLL-ACH
	91° ➡K36	95° ➡K36	NEW 95° ➡K36	95° ➡K36	95° ➡K36	95° ➡K36
			Coolant through	Shifted		DS-ACH

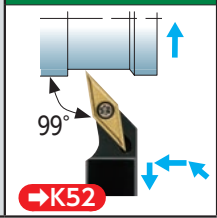
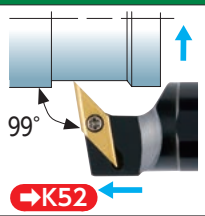
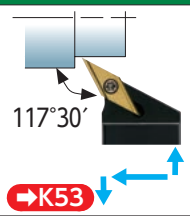
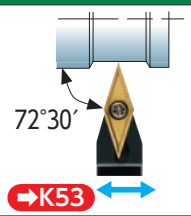
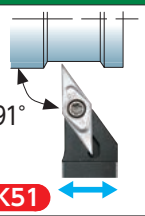
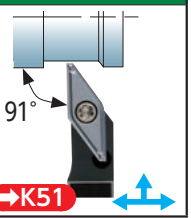
Insert	DC..21/32.5.. DC..21/32.5..WP.. ➡K46					
Holder	SDJC	SDJC-OH	SDJC-F	Y-SDJC	Y-SDJC-OH	CH-SDUC
	93° ➡K42	NEW 93° ➡K42	93° ➡K42	93° ➡K44	NEW 93° ➡K44	93° ➡K43
		Coolant through	Shifted	Y-axis	Y-axis w/ Coolant through	

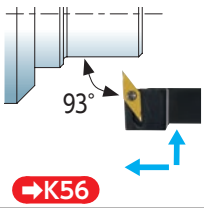
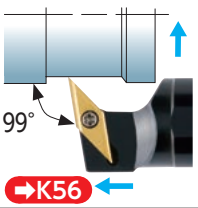
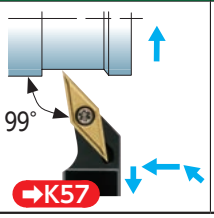
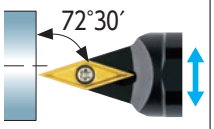
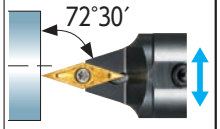
Insert	DC..21/32.5..WP.. ➡K46		DC..21/32.5.. ➡K46				
Holder	DS-SDUL	DS-SDUL-ACH	SDXC	DS-SDX	SDQC	SDNC	Y-SDNC
	93° ➡K45	93° ➡K45	96° ➡K42	96° ➡K45	107°30′ ➡K42	62°30′ ➡K42	62°30′ ➡K44
		DS-ACH					Y-axis

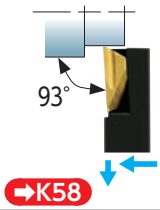
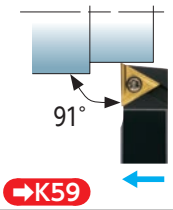
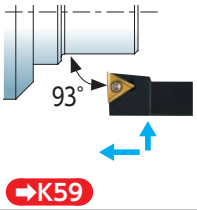
[Front Turning]

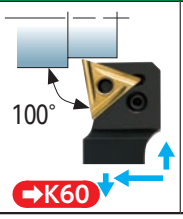
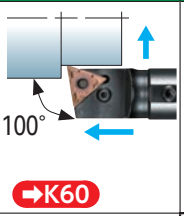
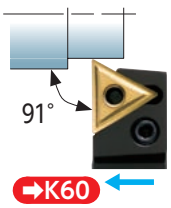
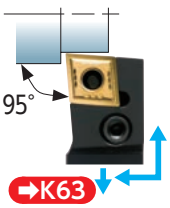
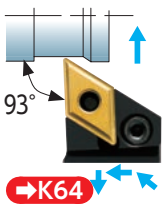
For Swiss-type Lathes

Insert	VB..33 ➡K50	VC..22..-WP	VC..22.. ➡K55				
Holder	SVJB-OH	SVAC	SVJC	SVJC-OH	SVJC-F	Y-SVJC	Y-SVJC-OH
	NEW  ➡K50	 ➡K52	 ➡K52	NEW  ➡K52	 ➡K52	 ➡K54	NEW  ➡K54
	Coolant through			Coolant through	Shifted	Y-axis	Y-axis w/ Coolant through

Insert	VC..22.. ➡K55				VCGT21.5.. ➡K51	VCGT13030.. ➡K51
Holder	SVXC	DS-SVXC	SVQC	SVVCN	SVAC-1L	SVAC-W
	 ➡K52	 ➡K52	 ➡K53	 ➡K53	 ➡K51	 ➡K51

Insert	VP..08020.. ➡K56			VP..22.. ➡K57		
Holder	SVQP	CH-SVUP	DS-SVXP	SVXP	DS-SVVPN	DS-SVVPN-ACH
	 ➡K56	 ➡K56	 ➡K56	 ➡K57	 ➡K57	 ➡K57
						DS-ACH

Insert	TF33.. ➡K58	TC..73../..21..-WP	TC..73../..21.. ➡K59
Holder	TFT	STAC	CH-STUC
	 ➡K58	 ➡K59	 ➡K59

Insert	TN..33.. ➡K62					CN..43.. ➡K63	DN..43.. ➡K64
Holder	PTXN	DS-PTX	DS-PTX-ACH	PTAN	PTLN	PCLN	PDJN
	 ➡K60	 ➡K60	 ➡K60	 ➡K60	 ➡K60	 ➡K63	 ➡K64
			DS-ACH				

Recommended Insert Grade and Cutting Conditions

Front Turning

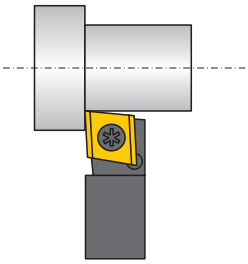
CSVF / CC.. / DC.. / VC.. / VB.. / TN.. / TF

Work Material		High Temperature Alloys	Titanium Alloys	Cobalt Chrome Alloys	Stainless Steels		Alloy Steels	Carbon Steels
					Hard to cut	Free cutting		
Common Name		Inconel Hastelloy MP35N	Ti-6Al-4V	ASTM F-75	304 316 17-4PH	303 430F	5120 4137	1045 1046
Grade	1st choice	DT4			DT4	TM4	QM3	
	2nd choice	TM4 / QM3			QM3 / VM1	QM3	TM4 / DT4 / C7Z(X)	
Cutting Speed (SFM)		75 **125** 225	100 **200** 275		130 **230** 330	150 **300** 600	Carbide 150 **300** 500 C7Z(X) 400 **500** 800	
Recommended Chipbreaker Feed Rate (IPR)	≤.004 DOC	AMX KHG					AMX KHG	
		.0004 **.0008** .0012					.0004 **.0012** .0016	
	.004 to .060 DOC	CL YL AM3 S					CL YL AM3 AZ7 S U/U1 UL	
		.0008 **.0016** .0024					.0008 **.0020** .0032	
	≥ .060 DOC	CL YL AM3 S					CL YL AM3 ZP	
		.0008 **.0015** .0025					.0012 **.0024** .0040	

General Turning Inserts Explained

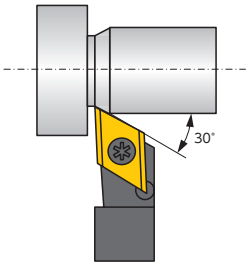
Advantage for each geometry

CC.. Style (80°)



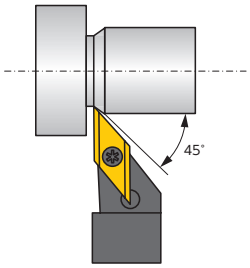
- Increased toughness. Cutting edge is close to insert pocket.
- Not applicable to undercut

DC.. Style (55°)



- Versatile geometry. Toughness of CC.. with flexibility of VC..
- Up to 30 deg. undercuts

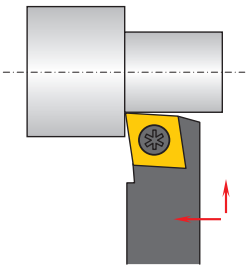
VB / VC / VP Style (35°)



- Wide coverage in work geometry.
- Up to 45 deg. undercuts

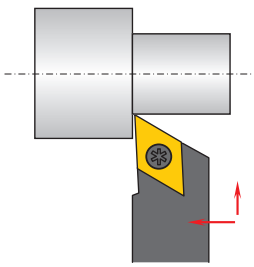
Chip Control and Finish

SCLCR ➡K36



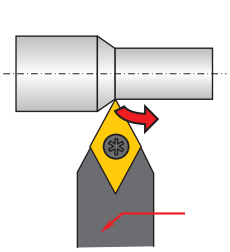
Rigid clamping
High dimensional repeatability

SDJCR ➡K42



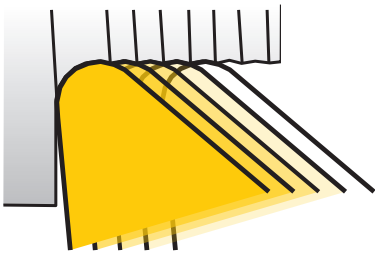
Increased room for chip evacuation
Prevent chips from scratching works

SDNCN ➡K42

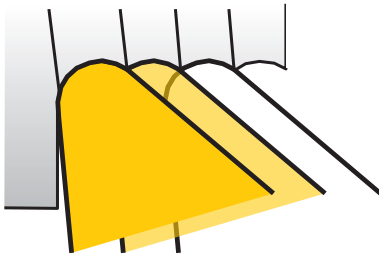


Chips flow away from the work

Surface Finish in General Turning by Inserts with Wiper Flat

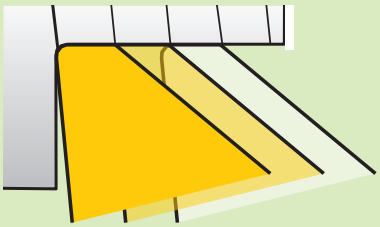


Slower feed rates create better finishes but sacrifices cycle time, chip control, and tool life.



Fast feed rates improve chip control but produce a bad surface finish.

Inserts with wiper



Inserts with a wiper flat creates good chip control and surface finish.

Wiper Flat Insert - WP series

DCGT.. -WP (TFD) ➡K46

for SDJC toolholders

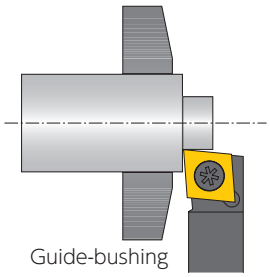
TCGT.. -WP (TFT) ➡K59

for STAC toolholders

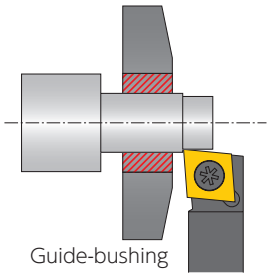
VCGT.. -WP (TFV) ➡K55

for SVAC toolholders

Roughing and Finishing Long Work on Swiss Lathes

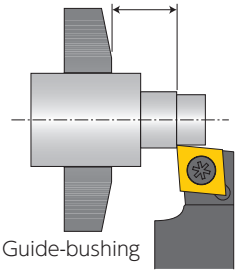


Single pass machining is common in Swiss front turning operations.



Conventional toolholders are not suitable for roughing or finishing of long parts. The guide-bushing cannot hold machined bar stock.

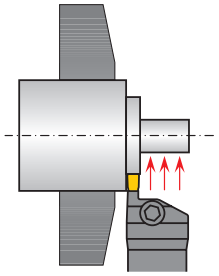
●Shifted Holders



Shifted Holders make a finishing process possible without worrying about the bar stock coming out of the guide-bushing.
Coolant flows effectively which improves chip control thanks to the increased room between the tools and guide-bushing.

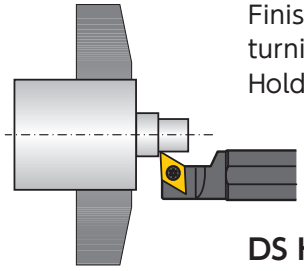
SCLC-N-F ➡K36
SDJC-N-F ➡K42
SVJC-N-F ➡K52

●Combination of Grooving Tool and DS Holders



Rough with grooving tool for good chip control

GTWP Holders ➡K111

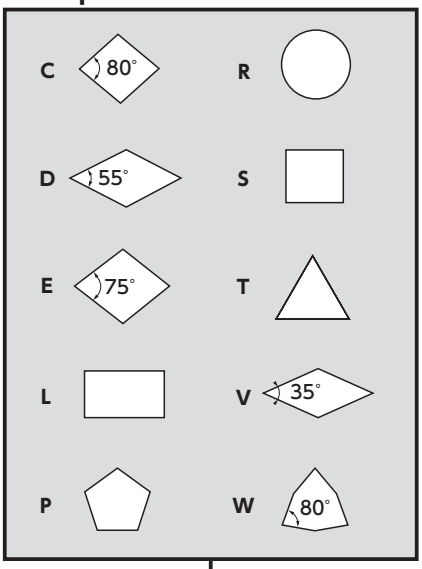


Finish by using general turning inserts with DS Holders

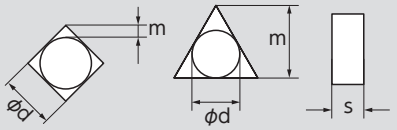
DS Holders

ANSI / ISO Insert Nomenclature

1 Shape



3 Tolerance Class



Symbol	d (inch)	m (inch)	s (inch)
A	±.0010	±.0002	±.0010
F	±.0050	±.0002	±.0010
C	±.0010	±.0005	±.0010
H	±.0050	±.0005	±.0010
E	±.0010	±.0010	±.0010
G	±.0010	±.0010	±.0050
J	±.0020	±.0020	±.0050
K	±.002 ~ ±.005	±.0005	±.0010
L	±.002 ~ ±.005	±.0010	±.0010
M	±.002 ~ ±.005	±.003 ~ ±.007	±.0050
N	±.002 ~ ±.005	±.003 ~ ±.007	±.0010
U	±.003 ~ ±.010	±.005 ~ ±.015	±.0050

C S T

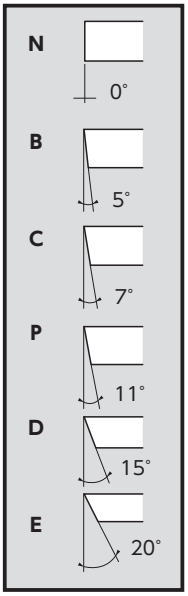
Inscribed Circle	M tolerance d (inch)	M tolerance m (inch)
1/4	±.002	±.003
3/8	±.002	±.003
1/2	±.003	±.005
5/8	±.004	±.006
3/4	±.004	±.006
1	±.005	±.007

D K

Inscribed Circle	M tolerance d (inch)	M tolerance m (inch)
1/4	±.002	±.004
3/8	±.002	±.004
1/2	±.003	±.006
5/8	±.004	±.006
3/4	±.004	±.007

	1	2	3	4
Inch	C	C	G	T
Metric	C	C	G	T

2 Clearances



4 Type

Type	Symbol	Type	Symbol
	N (E)	70°–90°	H
	F		
	R	70°–90°	B
	A		
	G	40°–60°	T
	M	40°–60°	W
Special design	X		

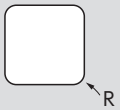
6 Thickness

Thickness S(inch)	Inch	Metric
3/32	1.5	02
1/8	2	03
5/32	2.5	T3
3/16	3	04
1/4	4	06
5/16	5	07
3/8	6	09
1/2	8	12

5 Cutting Edge Length

Inch		Metric						
Inscribed Circle		C	D	R	S	T	V	W
1/4	2	06	07	06	11	11	04	
3/8	3	09	11	09	16	16	06	
1/2	4	12	15	12	22	22	08	
5/8	5	16	19	15	27	27	10	
3/4	6	19	23	19	33	33	13	
1	8	25	31	25	44	44	17	

7 Nose Radius

Corner Radius	Inch	Metric
	.001	01	00
	.003	04M	01M
	.004	04	01
	.007	08M	02M
	.008	08	02
	.015	1M	04M
	.016 (1/64)	1	04
	.031 (1/32)	2	08

5	6	7	8	9	10
3	2.5	08M	F	N	AM3
09	T3	02M	F	N	AM3

8 Edge Sharpness

F	Up-sharp edge (without any edge preparation)
(Blank)	Non up-sharp edge

9 Hand of Chipbreaker

N	Neutral*
R	Right-hand
L	Left-hand

* Omitted when edge is not "up-sharp"

10 Type of Chipbreaker

See page C8 to C13 for chipbreaker information

11 Wiper insert

"-WP" after chipbreaker

CSV Series

Best for up to .200" diameter material

CSV-NC

For Gang-style machine

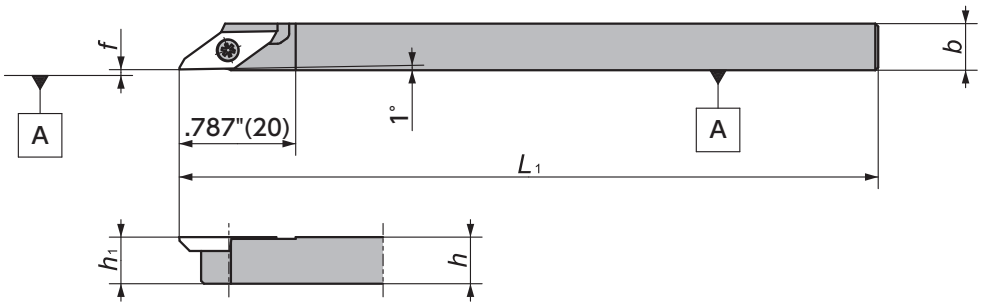


Figure-1

Right-Hand style shown

CSV

For Cam-style machine

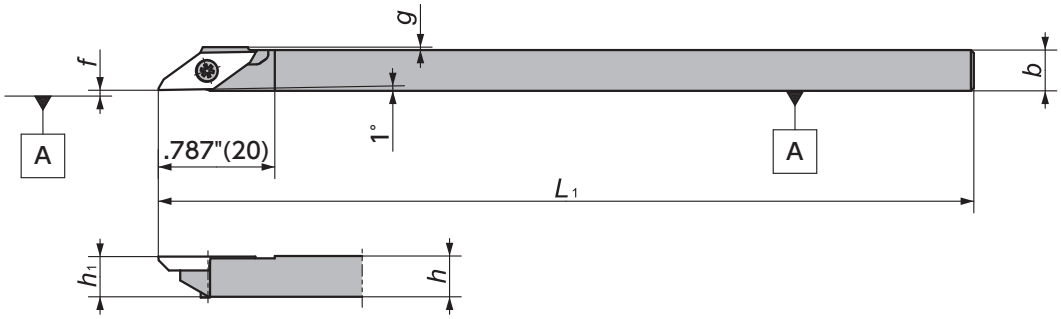


Figure-2

Right-Hand style shown

DS-CSVL

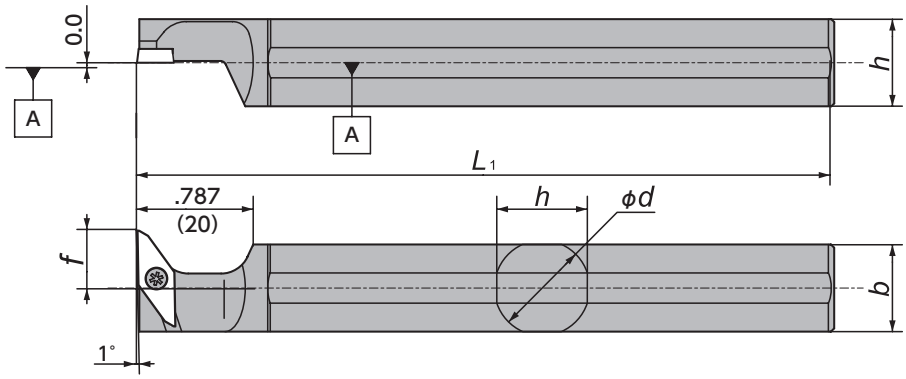


Figure-3

Left-Hand style shown
Takes Right-hand insert

CSV Series - Toolholders

■CSVR/L / CSVR/L-NC

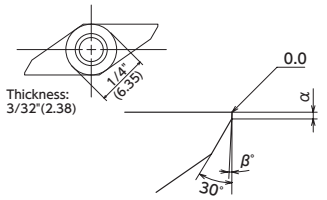
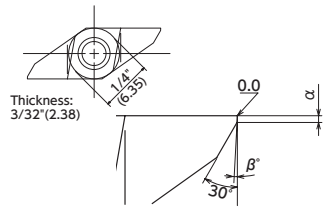
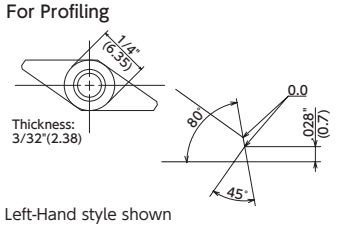
Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h_1 (Inch)	h_1 (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	g (Inch)	g (mm)	Clamp Screw	Wrench
 CSV..11..	CSVR/L06-IN-NC	1	●	●	3/8		3/8		3/8		4.724	120	.004	0.1	–	–	LR1S-2.5 × 7	CLR-15S
	CSVR/L08-IN-NC	1	●	●	1/2		1/2		1/2		4.724	120	.004	0.1	–	–	LR1S-2.5 × 7	CLR-15S
	CSVR/L08NC	1	○	○	.315	8	.315	8	.315	8	4.724	120	.004	0.1	–	–	LR1S-2.5 × 7	CLR-15S
	CSVR/L08NC-F	1	○		.315	8	.315	8	.315	8	4.724	120	0–.004	0.0–0.1	–	–	LR1S-2.5 × 7	CLR-15S
	CSVR/L10GXNC	1	○		.394	10	.394	10	.394	10	3.346	85	.004	0.1	–	–	LR1S-2.5 × 7	CLR-15S
	CSVR/L10NC	1	○	○	.394	10	.394	10	.394	10	4.724	120	.004	0.1	–	–	LR1S-2.5 × 7	CLR-15S
	CSVR/L12NC	1	●	●	.472	12	.472	12	.472	12	4.724	120	.004	0.1	–	–	LR1S-2.5 × 7	CLR-15S
	CSVR/L07GX	2	○		.275	7	.275	7	.275	7	3.346	85	.004	0.1	.020	0.5	LR1S-2.5 × 7	CLR-15S
	CSVR/L07	2	○	●	.275	7	.275	7	.275	7	5.512	140	.004	0.1	.020	0.5	LR1S-2.5 × 7	CLR-15S
	CSVR/L08GX	2	○		.315	8	.315	8	.315	8	3.346	85	.004	0.1	0.0	0.0	LR1S-2.5 × 7	CLR-15S
	CSVR/L08	2	●	●	.315	8	.315	8	.315	8	5.512	140	.004	0.1	0.0	0.0	LR1S-2.5 × 7	CLR-15S
	CSVR/L095	2	○		.374	9.5	.374	9.5	.374	9.5	5.512	140	.004	0.1	0.0	0.0	LR1S-2.5 × 7	CLR-15S
	CSVR/L10	2	●	○	.394	10	.394	10	.394	10	5.512	140	.004	0.1	0.0	0.0	LR1S-2.5 × 7	CLR-15S
	CSVR/L12GX	2	○		.472	12	.472	12	.472	12	3.346	85	.004	0.1	0.0	0.0	LR1S-2.5 × 7	CLR-15S
	CSVR/L12	2	●		.472	12	.472	12	.472	12	5.512	140	.004	0.1	0.0	0.0	LR1S-2.5 × 7	CLR-15S

■DS-CSVL (Takes right-hand insert)

Gage Insert	Item Number	Figure	Stock R	Stock L	D_s (Inch)	D_s (mm)	h (Inch)	h (mm)	b (Inch)	b (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	Clamp Screw	Wrench
 CSV..11FR..	DS-CSVL15	3		●	5/8	15.875	.591	15	.591	15	4.724	120	.394	10	LR1S-2.5 × 7	CLR-15S

CSV Series - Inserts

■CSVF - Front Turning Mirror finish

Shape	Item Number	Chip-breaker	Max Depth of Cut (Inch)	Max Depth of Cut (mm)	Edge Geometry (α × β°) (Inch)	Edge Geometry (α × β°) (mm)	Coated Carbide DT4 R	DT4 L	VM1 R	VM1 L	ZM3 R	ZM3 L
 Right-Hand style shown	CSVF11FR/LV Ⓜ	No	–	–	.012 × 5°	0.3 × 5°			○	○		
	CSVF11FR/LV-A Ⓜ		–	–	.012 × 2°	0.3 × 2°			○			
	CSVF11FR/LV-M Ⓜ		–	–	.006 × 2°	0.15 × 2°	●		●	●	○	
	CSVF11FR/LV-C Ⓜ		–	–	.006 × 5°	0.15 × 5°			○			
 Right-Hand style shown	CSVF11FR/LVB Ⓜ	Yes	.118	3	.012 × 5°	0.3 × 5°			●	○		
	CSVF11FR/LVB-A Ⓜ		.118	3	.012 × 2°	0.3 × 2°			○			
	CSVF11FR/LVB-M Ⓜ		.118	3	.006 × 2°	0.15 × 2°	●		●	●	○	
	CSVF11FR/LVB-C Ⓜ		.118	3	.006 × 5°	0.15 × 5°			○			
For Profiling  Left-Hand style shown	CSVF11FR/LVX Ⓜ	No	–	–						○		

Note: All angles shown are obtained when insert is set in the holder

● : Stock ○ : 1-2 week delivery Ⓜ : Mirror finish

CSV series ➡J36 Cutting condition ➡K30

Toolholders for CC.. Inserts

SCAC-N

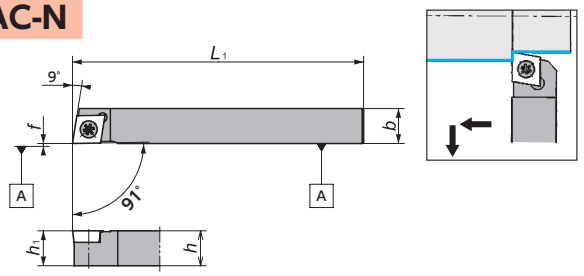


Figure-1

Right-Hand style shown

SCLC-N

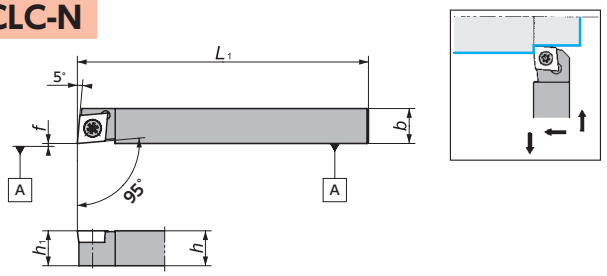
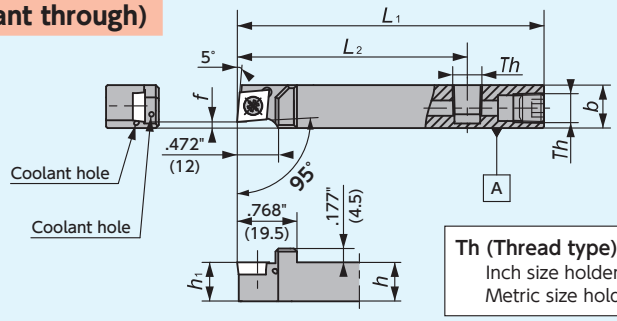


Figure-2

Right-Hand style shown

SCLC-N-OH (Coolant through)

NEW



Th (Thread type)
Inch size holder : NPT1/8
Metric size holder: M6, Rc1/8 (PT1/8)

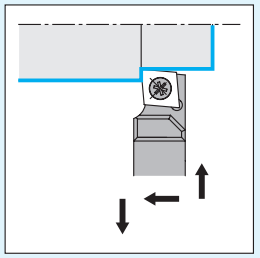
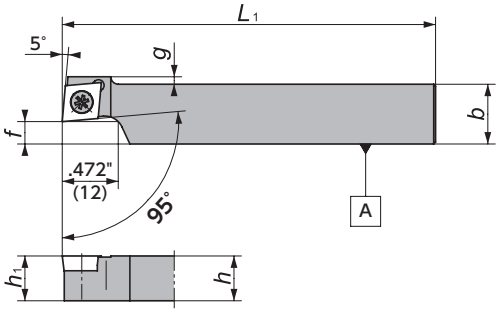


Figure-3

Right-Hand style shown

SCLC-N-F (Shifted)



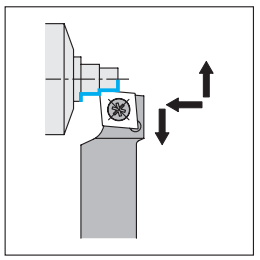


Figure-4

Right-Hand style shown

DS-SCL

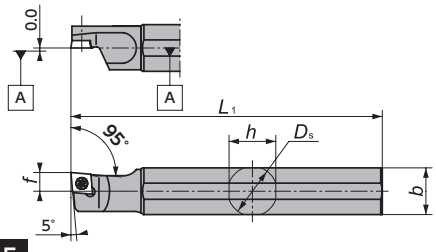


Figure-5

DS-SCL (Coolant through)

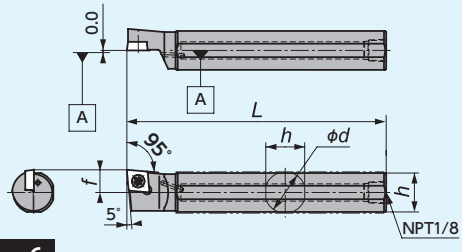
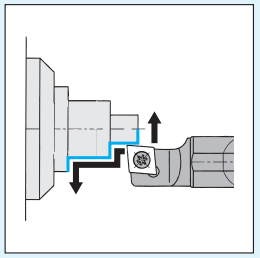


Figure-6



Left-Hand style shown
Takes Right-hand or Neutral insert

DS-SCLL-ACH (Adjustable centerline height)

〈Parts〉

Shank	Wedge	Screw for Wedge
ϕ.630" (16)	ACH-W18 (5805601)	WS060415-003 (5795539)
ϕ3/4" (19.05)		
ϕ.787" (20)		WS060419-004 (5799226)
ϕ.866" (22)		
ϕ1" (25.4)	ACH-W24 (5805619)	

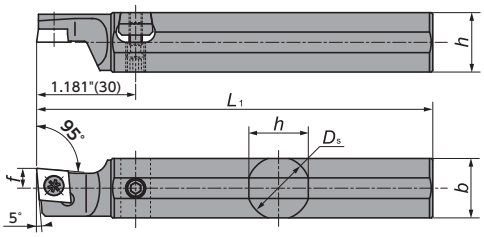
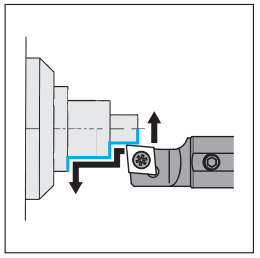


Figure-7



Left-Hand style shown
Takes Right-hand or Neutral insert

[Front Turning]

For Swiss-type Lathes

CC.. Series - Toolholders

■SCAC

Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h_1 (Inch)	h_1 (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	g (Inch)	g (mm)	Clamp Screw	Wrench
CC..21.5..	SCAC□062C	1	■	■	3/8		3/8		3/8		4.724	120	0.0	0.0	–	–	LRIS-2.5 × 7	CLR-15S
	SCAC□082C	1	■	■	1/2		1/2		1/2		4.724	120	0.0	0.0	–	–	LRIS-2.5 × 7	CLR-15S
	SCAC□0808X06N	1	○	○	.315	8	.315	8	.315	8	4.724	120	0.0	0.0	–	–	LRIS-2.5 × 7	CLR-15S
	SCAC□1010X06N	1	○	○	.394	10	.394	10	.394	10	4.724	120	0.0	0.0	–	–	LRIS-2.5 × 7	CLR-15S
CC..32.5..	SCAC□083C	1	■	■	1/2		1/2		1/2		4.724	120	0.0	0.0	–	–	LRIS-4 × 10	LLR-25S
	SCAC□103C	1	■	■	5/8		5/8		5/8		4.724	120	0.0	0.0	–	–	LRIS-4 × 10	LLR-25S
	SCAC□1212GX09N	1	○		.472	12	.472	12	.472	12	3.346	85	0.0	0.0	–	–	LRIS-4 × 10	LLR-25S
	SCAC□1212X09N	1	○	○	.472	12	.472	12	.472	12	4.724	120	0.0	0.0	–	–	LRIS-4 × 10	LLR-25S

■SCLC

Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h_1 (Inch)	h_1 (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	L_2 (Inch)	L_2 (mm)	g (Inch)	g (mm)	Th	Clamp Screw	Wrench
CC..21.5..	SCLC□-062C	2	●	●	3/8		3/8		3/8		4.724	120	0.0	0.0	–	–	–	–	–	LRIS-2.5 × 7	CLR-15S
	SCLC□-082C	2	●	●	1/2		1/2		1/2		4.724	120	0.0	0.0	–	–	–	–	–	LRIS-2.5 × 7	CLR-15S
	SCLC□0808X06N	2	○	●	.315	8	.315	8	.315	8	4.724	120	0.0	0.0	–	–	–	–	–	LRIS-2.5 × 7	CLR-15S
	SCLC□1010X06N	2	○	○	.394	10	.394	10	.394	10	4.724	120	0.0	0.0	–	–	–	–	–	LRIS-2.5 × 7	CLR-15S
CC..32.5..	SCLC□-083C	2	●	●	1/2		1/2		1/2		4.724	120	0.0	0.0	–	–	–	–	–	LRIS-4 × 10	LLR-25S
	SCLC□-103C	2	●	●	5/8		5/8		5/8		4.724	120	0.0	0.0	–	–	–	–	–	LRIS-4 × 10	LLR-25S
	SCLC□1010H09N	2	○		.394	10	.394	10	.394	10	3.937	100	0.0	0.0	–	–	–	–	–	LRIS-4 × 10	LLR-25S
	SCLC□1010X09N	2	○	○	.394	10	.394	10	.394	10	4.724	120	0.0	0.0	–	–	–	–	–	LRIS-4 × 10	LLR-25S
	SCLC□1212GX09N	2	○	○	.472	12	.472	12	.472	12	3.346	85	0.0	0.0	–	–	–	–	–	LRIS-4 × 10	LLR-25S
	SCLC□1212X09N	2	●	●	.472	12	.472	12	.472	12	4.724	120	0.0	0.0	–	–	–	–	–	LRIS-4 × 10	LLR-25S
	SCLC□1616X09N	2	○	○	.630	16	.630	16	.630	16	4.724	120	0.0	0.0	–	–	–	–	–	LRIS-4 × 10	LLR-25S
CC..21.5..	SCLC□082H-F079-OH 💧	3	●		1/2		.551	14	1/2		3.937	100	.079	2	2.953	75	–	–	NPT1/8	LRIS-2.5×7	CLR-15S
CC..32.5..	SCLC□083H-F079-OH 💧	3	●		1/2		.551	14	1/2		3.937	100	.079	2	2.953	75	–	–	NPT1/8	LRIS-4 × 10	LLR-25S
	SCLC□103H-F079-OH 💧	3	●		5/8		5/8		5/8		3.937	100	.079	2	2.953	75	–	–	NPT1/8	LRIS-4 × 10	LLR-25S
	SCLC□1014F09N-F02OH 💧	3	○		.394	10	.551	14	.394	10	3.150	80	.079	2.0	2.165	55	–	–	M6 × 1	LRIS-4 × 10	LLR-25S
	SCLC□1214H09N-F02OH 💧	3	○		.472	12	.551	14	.472	12	3.937	100	.079	2.0	2.953	75	–	–	Rc1/8(PT1/8)	LRIS-4 × 10	LLR-25S
	SCLC□1616H09N-F02OH 💧	3	○		.630	16	.630	16	.630	16	3.937	100	.079	2.0	2.953	75	–	–	Rc1/8(PT1/8)	LRIS-4 × 10	LLR-25S
	SCLC□083C-F250	4	●		1/2		.984	25	1/2		4.724	120	1/4		–	–	0	0	–	LRIS-4 × 10	LLR-25S
	SCLC□083C-F500	4	●		1/2		.984	25	1/2		4.724	120	1/2		–	–	0	0	–	LRIS-4 × 10	LLR-25S
	SCLC□1015X09N-F05	4	○		.394	10	.591	15	.394	10	4.724	120	.197	5	–	–	.079	2	–	LRIS-4 × 10	LLR-25S
	SCLC□1020X09N-F10	4	○		.394	10	.787	20	.394	10	4.724	120	.394	10	–	–	.079	2	–	LRIS-4 × 10	LLR-25S
	SCLC□1218X09N-F06	4	●		.472	12	.709	18	.472	12	4.724	120	.236	6	–	–	0	0	–	LRIS-4 × 10	LLR-25S
	SCLC□1224X09N-F12	4	●		.472	12	.945	24	.472	12	4.724	120	.472	12	–	–	0	0	–	LRIS-4 × 10	LLR-25S

■DS-SCL (Takes right-hand or neutral insert)

Gage Insert	Item Number	Figure	Stock R	Stock L	D_s (Inch)	D_s (mm)	h (Inch)	h (mm)	b (Inch)	b (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	Clamp Screw	Wrench
CC..21.5..	DS-SCL□14F-06	5		○	.551	14.000	.512	13	.512	13	3.150	80	.236	6.0	LRIS-2.5 × 7	CLR-15S
	DS-SCL□15H-06	5		○	5/8	15.875	.591	15	.591	15	3.937	100	.236	6.0	LRIS-2.5 × 7	CLR-15S
	DS-SCL□16F-06	5		○	.630	16.000	.591	15	.591	15	3.150	80	.236	6.0	LRIS-2.5 × 7	CLR-15S
	DS-SCL□19-06	5		●	3/4	19.050	.709	18	.709	18	4.724	120	.236	6.0	LRIS-2.5 × 7	CLR-15S
	DS-SCL□20X-06	5		○	.787	20.000	.748	19	.748	19	3.740	95	.236	6.0	LRIS-2.5 × 7	CLR-15S
	DS-SCL□20-06	5		●	.787	20.000	.748	19	.748	19	4.724	120	.236	6.0	LRIS-2.5 × 7	CLR-15S
	DS-SCL□22-06	5		○	.866	22.000	.827	21	.827	21	4.724	120	.236	6.0	LRIS-2.5 × 7	CLR-15S
	DS-SCL□25-06MET	5		●	.984	25.000	.945	24	.945	24	4.724	120	.236	6.0	LRIS-2.5 × 7	CLR-15S
	DS-SCL□25-06	5		●	1	25.400	.945	24	.945	24	5.906	150	.236	6.0	LRIS-2.5 × 7	CLR-15S
CC..32.5..	DS-SCL□14F-09	5		○	.551	14.000	.512	13	.512	13	3.150	80	.236	6.0	LRIS-4 × 8	LLR-25S-20 × 65
	DS-SCL□15H-09	5		○	5/8	15.875	.591	15	.591	15	3.937	100	.236	6.0	LRIS-4 × 8	LLR-25S-20 × 65
	DS-SCL□16F-09	5		○	.630	16.000	.591	15	.591	15	3.150	80	.236	6.0	LRIS-4 × 8	LLR-25S-20 × 65
	DS-SCL□19GX-09	5		○	3/4	19.050	.709	18	.709	18	3.346	85	.236	6.0	LRIS-4 × 8	LLR-25S-20 × 65
	DS-SCL□19-09	5		●	3/4	19.050	.709	18	.709	18	4.724	120	.236	6.0	LRIS-4 × 8	LLR-25S-20 × 65
	DS-SCLL19-09-004 💧	6		●	3/4	19.050	.709	18	.709	18	4.724	120	.413	10.5	LRIS-4 × 8	LLR-25S-20 × 65
	DS-SCL□20X-09	5		○	.787	20.000	.748	19	.748	19	3.740	95	.236	6.0	LRIS-4 × 8	LLR-25S-20 × 65
	DS-SCL□20-09	5		●	.787	20.000	.748	19	.748	19	4.724	120	.236	6.0	LRIS-4 × 8	LLR-25S-20 × 65
	DS-SCL□22-09	5		●	.866	22.000	.827	21	.827	21	4.724	120	.236	6.0	LRIS-4 × 8	LLR-25S-20 × 65
	DS-SCLL22-09-005 💧	6		●	.866	22.000	.827	21	.827	21	4.724	120	.472	12.0	LRIS-4 × 8	LLR-25S-20 × 65
	DS-SCL□25-09MET	5		○	.984	25.000	.945	24	.945	24	4.724	120	.236	6.0	LRIS-4 × 8	LLR-25S-20 × 65
	DS-SCL□25-09	5		●	1	25.400	.945	24	.945	24	5.906	150	.236	6.0	LRIS-4 × 8	LLR-25S-20 × 65
	DS-SCL□16F-09-ACH	7		●	.630	16.000	.610	15.5	.610	15.5	3.150	80	.236	6.0	LRIS-4 × 8	LLR-25S-20 × 65
	DS-SCL□19-09-ACH	7		●	3/4	19.050	.709	18.0	.709	18.0	4.724	120	.236	6.0	LRIS-4 × 8	LLR-25S-20 × 65
	DS-SCL□20-09-ACH	7		●	.787	20.000	.748	19.0	.748	19.0	4.724	120	.236	6.0	LRIS-4 × 8	LLR-25S-20 × 65
	DS-SCL□22-09-ACH	7		●	.866	22.000	.827	21.0	.827	21.0	4.724	120	.236	6.0	LRIS-4 × 8	LLR-25S-20 × 65
	DS-SCL□25-09-ACH	7		●	1	25.400	.945	24.0	.945	24.0	5.906	150	.236	6.0	LRIS-4 × 8	LLR-25S-20 × 65

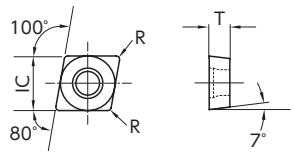
● : Stock ○ : 1-2 week delivery ■ : While stock lasts 💧 : Coolant through

Inserts ➡K38 Cutting condition ➡K30

CC.. inserts - Carbide / Cermet

[Molded Chipbreakers]

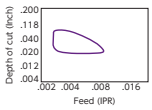
(inch)	IC	T
CC..21.5	1/4	3/32
CC..32.5	3/8	5/32

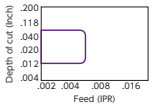


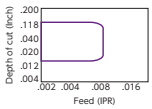
Steel	P	● ● ● ● ● ● ● ● ● ● ● ● ●
Stainless Steel	M	● ● ● ● ● ● ● ● ● ● ● ● ●
Cast Iron	K	● ● ● ● ●
Non-Ferrous Material	N	● ● ● ● ● ● ●
Heat Resistant Alloy	S	● ● ● ●
Hardened Material	H	● ● ●

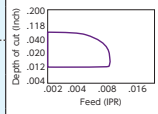
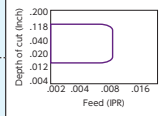
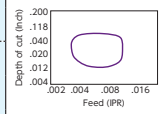
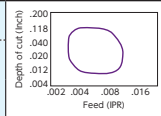
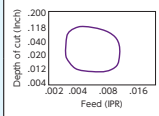
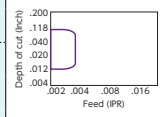
● : 1st Choice
● : Alternate choice

Shape	Item Number	ISO Item Number	IC	R	Carbide PVD Coated QM3	DT4	DM4	TM4	VM1	ZM3	KM1	Cermet XT3	C7X	XN4	Cermet PVD Coated Q15	C7Z
	CCGT 21.501 FNAM3	CCGT 060200 FNAM3	1/4	.001	●	●			○							
	CCGT 21.504M FNAM3	CCGT 060201M FNAM3	1/4	.003	●											
	CCGT 21.504 FNAM3	CCGT 060201 FNXAM3	1/4	.004									●			
	CCGT 21.508M FNAM3	CCGT 060202M FNAM3	1/4	.007	●	●										
	CCGT 21.508 FNAM3	CCGT 060202 FNAM3	1/4	.008					○	○						
	CCGT 21.508 FNAM3	CCGT 060202 FNXAM3	1/4	.008									●			
	CCGT 21.51M FNAM3	CCGT 060204M FNAM3	1/4	.015	●	●										
	CCGT 21.51 FNAM3	CCGT 060204 FNAM3	1/4	.016						○			●			
	CCGT 32.501 FNAM3	CCGT 09T300 FNAM3	3/8	.001	●	●		○	○							
	CCGT 32.504M FNAM3	CCGT 09T301M FNAM3	3/8	.003	●	●		○	○	○						
	CCGT 32.504 FNAM3	CCGT 09T301 FNXAM3	3/8	.004									●			
	CCGT 32.508M FNAM3	CCGT 09T302M FNAM3	3/8	.007	●	●		○	○	○						
	CCGT 32.508 FNAM3	CCGT 09T302 FNAM3	3/8	.008	●				○							
	CCGT 32.508 FNAM3	CCGT 09T302 FNXAM3	3/8	.008									●			
	CCGT 32.51M FNAM3	CCGT 09T304M FNAM3	3/8	.015	●	●		○	○	○						
	CCGT 32.51 FNAM3	CCGT 09T304 FNAM3	3/8	.016	●				○							
	CCGT 32.51 FNAM3	CCGT 09T304 FNXAM3	3/8	.016									●			
	CCGT 32.52 FNAM3	CCGT 09T308 FNAM3	3/8	.031	●											
	CCGT 32.52 FNXAM3	CCGT 09T308 FNXAM3	3/8	.031									●			
	CCMT 21.508 FNAM3	CCMT 060202 FNAM3	1/4	.008			○									
	CCMT 21.508 AM3	CCMT 060202 ENBAM3	1/4	.008									○			○
	CCMT 21.51 FNAM3	CCMT 060204 FNAM3	1/4	.016			○									
	CCMT 21.51 AM3	CCMT 060204 ENBAM3	1/4	.016									●			○
	CCMT 32.508 AM3	CCMT 09T302 ENBAM3	3/8	.008									○			○
	CCMT 32.51 FNAM3	CCMT 09T304 FNAM3	3/8	.016			○									
	CCMT 32.51 AM3	CCMT 09T304 ENBAM3	3/8	.016									●			○
	CCMT 32.52 FNAM3	CCMT 09T308 FNAM3	3/8	.031			○									
	CCMT 32.52 AM3	CCMT 09T308 ENBAM3	3/8	.031									●			○
	CCMT 32.53 AM3	CCMT 09T312 ENBAM3	3/8	.047									○			○
NEW	CCGT 32.504M YL	CCGT 09T301M YL	3/8	.003			●	○								
	CCGT 32.508M YL	CCGT 09T302M YL	3/8	.007			●	○								
	CCGT 32.51M YL	CCGT 09T304M YL	3/8	.015			●	○								
	CCGT 21.504M CL	CCGT 060201M CL	1/4	.003		●		●								
	CCGT 21.508M CL	CCGT 060202M CL	1/4	.007		●		●								
	CCGT 32.504M CL	CCGT 09T301M CL	3/8	.003		●		●								
	CCGT 32.508M CL	CCGT 09T302M CL	3/8	.007		●		●								
	CCGT 32.51M CL	CCGT 09T304M CL	3/8	.015		●		●								





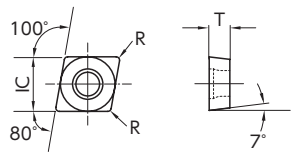


Shape	Item Number	ISO Item Number	IC	R	Carbide PVD Coated QM3	DT4	DM4	TM4	VM1	ZM3	KM1	Cermet XT3	C7X	XN4	PVD Coated Q15	C7Z	
	CCGT 21.501 FNAZ7	CCGT 060200 FNAZ7	1/4	.001	○												
	CCGT 21.504M FNAZ7	CCGT 060201M FNAZ7	1/4	.003	○												
	CCGT 21.508M FNAZ7	CCGT 060202M FNAZ7	1/4	.007	○												
	CCGT 32.501 FNAZ7	CCGT 09T300 FNAZ7	3/8	.001	●	○		○		○							
	CCGT 32.504M FNAZ7	CCGT 09T301M FNAZ7	3/8	.003	●	○		○		○							
	CCGT 32.508M FNAZ7	CCGT 09T302M FNAZ7	3/8	.007	●	○		○		○							
	CCGT 32.51M FNAZ7	CCGT 09T304M FNAZ7	3/8	.015	●	○		○		○							
	CCGT 21.508 FN1L	CCGT 060202 FN1L	1/4	.008	○												
	CCGT 32.51 FN1L	CCGT 09T304 FN1L	3/8	.016	○												
	CCGT 21.504 AF1	CCGT 060201 ENBAF1	1/4	.004								●					
	CCGT 21.508 AF1	CCGT 060202 ENBAF1	1/4	.008								●					
	CCGT 21.51 AF1	CCGT 060204 ENBAF1	1/4	.016								●					
	CCGT 21.51 FNAF1	CCGT 060204 FNAF1	1/4	.016								●					
	CCGT 21.52 AF1	CCGT 060208 ENBAF1	1/4	.031								●					
	CCGT 32.508 AF1	CCGT 09T302 ENBAF1	3/8	.008								○					
	CCGT 32.508 FNAF1	CCGT 09T302 FNAF1	3/8	.008								●					
	CCGT 32.51 FNAF1	CCGT 09T304 FNAF1	3/8	.016								●					
	CCGT 32.51 AF1	CCGT 09T304 ENBAF1	3/8	.016								○					
	CCGT 32.52 FNAF1	CCGT 09T308 FNAF1	3/8	.031								●					
	CCGT 32.52 AF1	CCGT 09T308 ENBAF1	3/8	.031								○					
	CCMT 21.51 AM5	CCMT 060204 ENBAM5	1/4	.016										○			
	CCMT 32.51 AM5	CCMT 09T304 ENBAM5	3/8	.016										○			
	CCMT 32.52 AM5	CCMT 09T308 ENBAM5	3/8	.031										○			
	CCGT 21.508 ENBFM	CCGT 060202 ENBFM	1/4	.008								○					
	CCGT 21.51 ENBFM	CCGT 060204 ENBFM	1/4	.016								○					
	CCMT 21.508 ENBZR	CCMT 060202 ENBZR	1/4	.008									○			○	
	CCMT 21.51 ENBZR	CCMT 060204 ENBZR	1/4	.016									○			○	
	CCMT 32.508 ENBZR	CCMT 09T302 ENBZR	3/8	.008									○			○	
	CCMT 32.51 ENBZR	CCMT 09T304 ENBZR	3/8	.016									○			○	
	CCMT 32.52 ENBZR	CCMT 09T308 ENBZR	3/8	.031									○			○	

● : Stock ○ : 1-2 week delivery

Holders ➡K36
Cutting condition ➡K30
Chipbreaker ➡K21

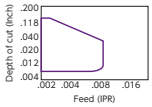
[Ground Chipbreakers]

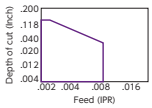


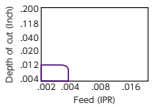
Steel	P	●
Stainless Steel	M	●
Cast Iron	K	●
Non-Ferrous Material	N	●
Heat Resistant Alloy	S	●
Hardened Material	H	●

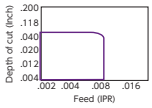
● : 1st Choice
● : Alternate choice

Shape	Item Number	ISO Item Number	IC	R	Carbide PVD Coated QM3	DT4	DM4	TM4	VM1	ZM3	KM1	Cermet XT3	C7X	XN4	Cermet PVD Coated Q15	C7Z
	CCGT 21.501 R/L S	CCGT 060200 R/L S	1/4	.001	R	®			®Ⓛ	®Ⓛ						
	CCGT 21.504M R/L S	CCGT 060201M R/L S	1/4	.003	R	®										
	CCGT 21.504 R/L S	CCGT 060201 R/L S	1/4	.004					®Ⓛ	®Ⓛ			®Ⓛ			
	CCGT 21.508M R/L S	CCGT 060202M R/L S	1/4	.007	R											
	CCGT 21.508 R/L S	CCGT 060202 R/L S	1/4	.008					®Ⓛ	®Ⓛ			®Ⓛ			
	CCGT 21.51 R/L S	CCGT 060204 R/L S	1/4	.016	R											
	CCGT 32.501 R/L S	CCGT 09T300 R/L S	3/8	.001	R	R		R	®Ⓛ	®						
	CCGT 32.504M R/L S	CCGT 09T301M R/L S	3/8	.003	®	R		R								
	CCGT 32.504 R/L S	CCGT 09T301 R/L S	3/8	.004	R				®Ⓛ	®Ⓛ						
	CCGT 32.508M R/L S	CCGT 09T302M R/L S	3/8	.007	®	R		R								
	CCGT 32.508 R/L S	CCGT 09T302 R/L S	3/8	.008	R				®Ⓛ	®						
	CCGT 32.51M R/L S	CCGT 09T304M R/L S	3/8	.015	®			R								
	CCGT 32.51 R/L S	CCGT 09T304 R/L S	3/8	.016	R											
	CCMT 21.504 TR/L AS	CCMT 060201 TR/L AS	1/4	.004									®Ⓛ			®Ⓛ
	CCMT 21.508 TR/L AS	CCMT 060202 TR/L AS	1/4	.008									®Ⓛ			®Ⓛ
	CCMT 21.51 TR/L AS	CCMT 060204 TR/L AS	1/4	.016									®Ⓛ			®Ⓛ
	CCMT 32.504 TR/L AS	CCMT 09T301 TR/L AS	3/8	.004									®Ⓛ			®Ⓛ
	CCMT 32.508 TR/L AS	CCMT 09T302 TR/L AS	3/8	.008									®Ⓛ			®Ⓛ
	CCMT 32.51 TR/L AS	CCMT 09T304 TR/L AS	3/8	.016									®Ⓛ			®Ⓛ
	CCGT 21.501 R/L U	CCGT 060200 R/L U	1/4	.001		®				®						
	CCGT 21.504 R/L U	CCGT 060201 R/L U	1/4	.004		®				®Ⓛ						
	CCGT 21.508 R/L U	CCGT 060202 R/L U	1/4	.008		®				®Ⓛ						
	CCGT 32.501 R/L U1	CCGT 09T300 R/L U1	3/8	.001				®		®Ⓛ						
	CCGT 32.504 R/L U1	CCGT 09T301 R/L U1	3/8	.004		®		®		®Ⓛ						
	CCGT 32.508 R/L U1	CCGT 09T302 R/L U1	3/8	.008		®		®		®Ⓛ						
	CCGT 32.51 R/L U1	CCGT 09T304 R/L U1	3/8	.016				®		®Ⓛ						
	CCET 21.502 R/L KHG	CCET 0602005 R/L KHG	1/4	.002					®Ⓛ							
	CCET 21.503 R/L KHG	CCET 0602008 R/L KHG	1/4	.003					®Ⓛ							
	CCET 21.507 R/L KHG	CCET 0602018 R/L KHG	1/4	.007					®Ⓛ							
	CCET 21.508 R/L KHG	CCET 060202 R/L KHG	1/4	.008					®Ⓛ							
	CCET 32.502 R/L KHG	CCET 09T3005 R/L KHG	3/8	.002				®	®Ⓛ							
	CCET 32.503 R/L KHG	CCET 09T3008 R/L KHG	3/8	.003				®	®Ⓛ							
	CCET 32.507 R/L KHG	CCET 09T3018 R/L KHG	3/8	.007				®	®Ⓛ							
	CCET 32.508 R/L KHG	CCET 09T302 R/L KHG	3/8	.008				®	®Ⓛ							
	CCGT 21.508 FR/L F1	CCGT 060202 FR/L F1	1/4	.008				®								
	CCGT 21.51 FR/L F1	CCGT 060204 FR/L F1	1/4	.016				®								
	CCGT 32.508 FR/L F1	CCGT 09T302 FR/L F1	3/8	.008				®								
	CCGT 32.51 FR/L F1	CCGT 09T304 FR/L F1	3/8	.016				®								
	CCGW 21.501 FN	CCGW 060200 FN	1/4	.001						○						
	CCGW 21.501 H Ⓜ	CCGW 060200 H	1/4	.001							○					
	CCGW 21.504 FN	CCGW 060201 FN	1/4	.004						○						
	CCGW 21.504 H Ⓜ	CCGW 060201 H	1/4	.004							○					
	CCGW 21.508 H Ⓜ	CCGW 060202 H	1/4	.008							○					
	CCGW 21.51 FN	CCGW 060204 FN	1/4	.016						○						
	CCGW 21.52 FN	CCGW 060208 FN	1/4	.031						■						
	CCGW 32.500 V Ⓜ	CCGW 09T30 V	3/8	0					○							
	CCGW 32.501 FN	CCGW 09T300 FN	3/8	.001						○						
	CCGW 32.501 H Ⓜ	CCGW 09T300 H	3/8	.001							○					
	CCGW 32.504 FN	CCGW 09T301 FN	3/8	.004						○						
	CCGW 32.504 H Ⓜ	CCGW 09T301 H	3/8	.004							○					
	CCGW 32.504 P Ⓜ	CCGW 09T301 P	3/8	.004					○							
	CCGW 32.508M P Ⓜ	CCGW 09T302M P	3/8	.007		○										
	CCGW 32.508 H Ⓜ	CCGW 09T302 H	3/8	.008							○					
	CCGW 32.508 P Ⓜ	CCGW 09T302 P	3/8	.008					○							









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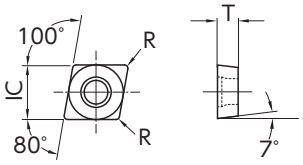
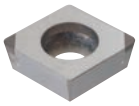
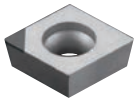
CC.. inserts - CBN / PCD



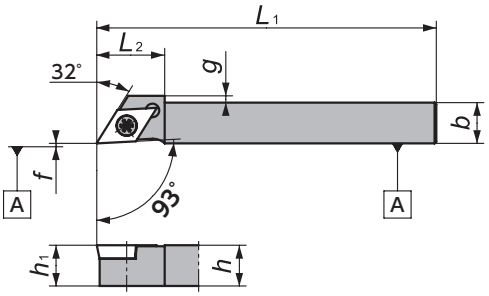
			Steel				P												
			Stainless Steel				M												
			Cast Iron				K	●	●							●	●		
			Non-Ferrous Material				N											●	●
			Heat Resistant Alloy				S												
			Hardened Material				H	●	●	●	●	●							
Shape	Item Number	ISO Item Number	Edge Prep.	IC	R	No. of edge	Length of edge	CBN (Brazed)							PCD	
								Coated		Coated						
								B5K	B52	B6K	B36	B40	B23	B30	PD1	PD2
	**CCGW 21.51 PD**	CCGW 060204 PD	S0415	1/4	.016	2	.091		●							
	CCGW 32.508 PD	CCGW 09T302 PD	S0415	3/8	.008	2	.091		●							
	CCGW 32.508 PD	CCGW 09T302 PD	S0635	3/8	.008	2	.091					●				
	CCGW 32.51 PD	CCGW 09T304 PD	S0415	3/8	.016	2	.091		●							
	CCGW 32.51 PD	CCGW 09T304 PD	S0635	3/8	.016	2	.091					●				
	CCGW 32.52 PD	CCGW 09T308 PD	S0415	3/8	.031	2	.087		●							
	CCGW 32.52 PD	CCGW 09T308 PD	S0635	3/8	.031	2	.087					●				
	**CCMW 32.504**	CCMW 09T301	None	3/8	.004	1	–								○	
	CCMW 32.508	CCMW 09T302	None	3/8	.008	1	–								○	
	CCMW 32.51	CCMW 09T304	None	3/8	.016	1	–								○	
	CCMW 32.52	CCMW 09T308	None	3/8	.031	1	–								○	
NEW  with chipbreaker	**CCMT 32.508 PF**	CCMT 09T302PF	None	3/8	.008	1	–									●
	CCMT 32.51 PF	CCMT 09T304PF	None	3/8	.016	1	–									●

● : Stock ○ : 1-2 week delivery ■ : While stock lasts
R : Stock (Right-hand only) L : Stock (Left-hand only)
Ⓡ : 1-2 week delivery (Right-hand only) Ⓛ : 1-2 week delivery (Left-hand only) Ⓜ : Mirror finish

Holders ➡K36
Cutting condition ➡K30
Chipbreaker ➡K21

Toolholders for DC.. Inserts

SDJC-N



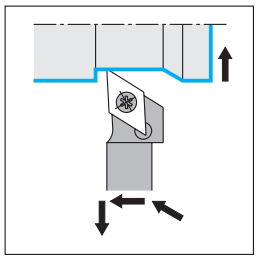
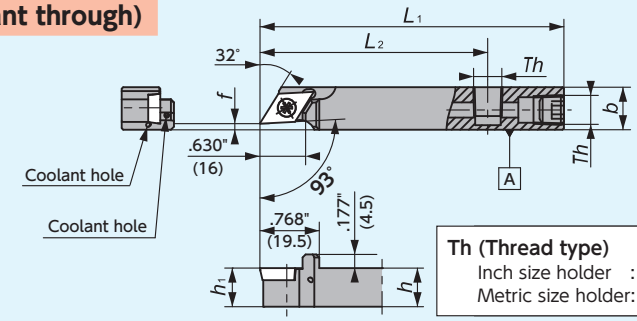


Figure-1

Right-Hand style shown

SDJC-N-OH (Coolant through)

NEW



Th (Thread type)
Inch size holder : NPT1/8
Metric size holder: M6, Rc1/8 (PT1/8)

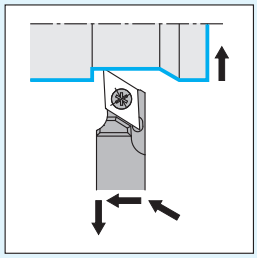
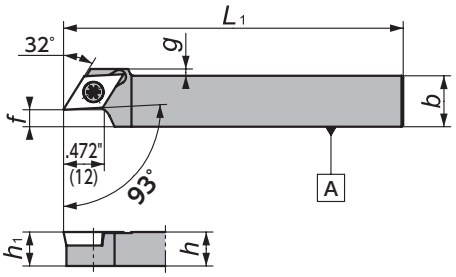


Figure-2

Right-Hand style shown

SDJC-N-F (Shifted)



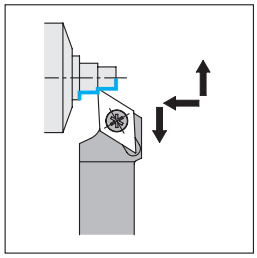
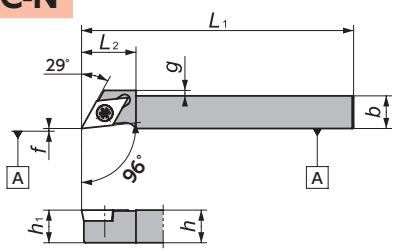


Figure-3

Right-Hand style shown

SDXC-N



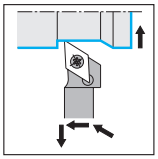
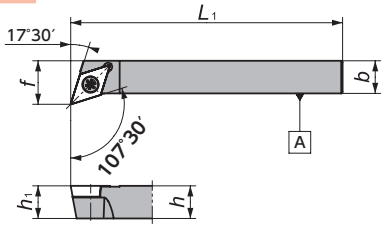


Figure-4

Right-Hand style shown

SDQC



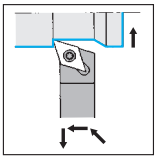
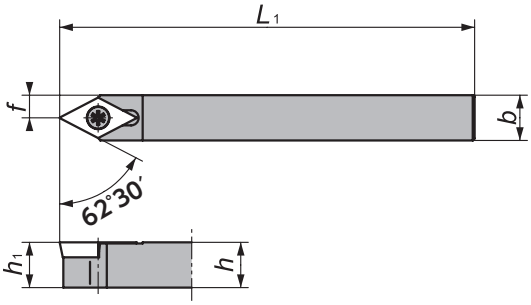


Figure-5

Right-Hand style shown

SDNC



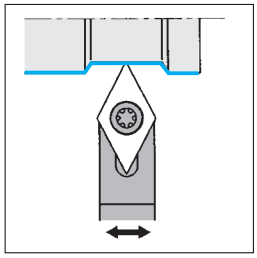


Figure-6

CH-SDUC

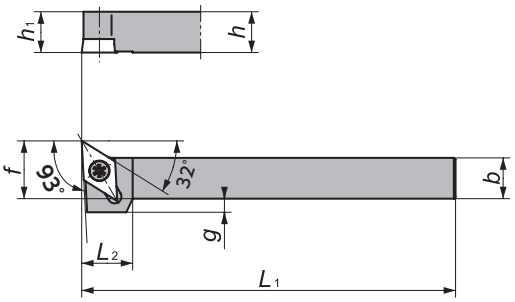
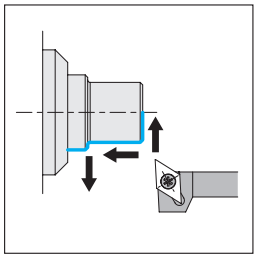
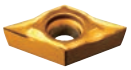


Figure-7



Left-Hand style shown
Takes Right-hand or Neutral insert

DC.. Series - Toolholders I



Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h_1 (Inch)	h_1 (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	L_2 (Inch)	L_2 (mm)	g (Inch)	g (mm)	Th	Clamp Screw	Wrench
			N																		
DC..21.5.. DC..21.5..WP	SDJC℅-062C	1	●	●	3/8		3/8		3/8		4.724	120	0	0	–	–	–	–	–	LRIS-2.5 × 7	CLR-15S
	SDJC℅-082C	1	●	●	1/2		1/2		1/2		4.724	120	0	0	–	–	–	–	–	LRIS-2.5 × 7	CLR-15S
	SDJC℅0808X07N	1	○	○	.315	8	.315	8	.315	8	4.724	120	0	0	–	–	–	–	–	LRIS-2.5 × 7	CLR-15S
	SDJC℅1010GX07N	1	○		.394	10	.394	10	.394	10	3.346	85	0	0	–	–	–	–	–	LRIS-2.5 × 7	CLR-15S
	SDJC℅1010X07N	1	○	○	.394	10	.394	10	.394	10	4.724	120	0	0	–	–	–	–	–	LRIS-2.5 × 7	CLR-15S
DC..32.5.. DC..32.5..WP	SDJC℅-083C	1	●	●	1/2		1/2		1/2		4.724	120	0	0	–	–	–	–	–	LRIS-4 × 10	LLR-25S
	SDJC℅-103C	1	●	●	5/8		5/8		5/8		4.724	120	0	0	–	–	–	–	–	LRIS-4 × 10	LLR-25S
	SDJC℅1010H11N	1	○		.394	10	.394	10	.394	10	3.937	100	0	0	.748	19	.079	2	–	LRIS-4 × 10	LLR-25S
	SDJC℅1010X11N	1	○	○	.394	10	.394	10	.394	10	4.724	120	0	0	.748	19	.079	2	–	LRIS-4 × 10	LLR-25S
	SDJC℅1210X11N	1	○		.394	10	.472	12	.394	10	4.724	120	0	0	–	–	–	–	–	LRIS-4 × 10	LLR-25S
	SDJC℅1212GX11N	1	○	○	.472	12	.472	12	.472	12	3.346	85	0	0	–	–	–	–	–	LRIS-4 × 10	LLR-25S
	SDJC℅1216GX11N	1	○		.472	12	.630	16	.472	12	3.346	85	0	0	–	–	–	–	–	LRIS-4 × 10	LLR-25S
	SDJC℅1212X11N	1	●	●	.472	12	.472	12	.472	12	4.724	120	0	0	–	–	–	–	–	LRIS-4 × 10	LLR-25S
	SDJC℅1616X11N	1	○	○	.630	16	.630	16	.630	16	4.724	120	0	0	–	–	–	–	–	LRIS-4 × 10	LLR-25S
	SDJC℅20-X11	1	○	○	.787	20	.787	20	.787	20	4.724	120	.984	25	–	–	–	–	–	LRIS-4 × 10	LLR-25S
DC..21.5../DC..21.5..WP	SDJC℅082H-F079-OH 💧	2	●		1/2		.551	14	1/2		3.937	100	.079	2	2.953	75	–	–	NPT1/8	LRIS-2.5 × 7	CLR-15S
DC..32.5.. DC..32.5..WP	SDJC℅083H-F079-OH 💧	2	●		1/2		.551	14	1/2		3.937	100	.079	2	2.953	75	–	–	NPT1/8	LRIS-4 × 10	LLR-25S
	SDJC℅103H-F079-OH 💧	2	●		5/8		5/8		5/8		3.937	100	.079	2	2.953	75	–	–	NPT1/8	LRIS-4 × 10	LLR-25S
	SDJC℅1014F11N-F02OH 💧	2	○		.392	10	.551	14	.394	10	3.150	80	.079	2	2.165	55	–	–	M6 × 1	LRIS-4 × 10	LLR-25S
	SDJC℅1214H11N-F02OH 💧	2	●		.472	12	.551	14	.472	12	3.937	100	.079	2	2.953	75	–	–	Rc1/8(PT1/8)	LRIS-4 × 10	LLR-25S
	SDJC℅1616H11N-F02OH 💧	2	○		.630	16	.630	16	.630	16	3.937	100	.079	2	2.953	75	–	–	Rc1/8(PT1/8)	LRIS-4 × 10	LLR-25S
DC..21.5.. DC..21.5..WP	SDJC℅1015X07N-F05	3	○		.394	10	.591	15	.394	10	4.724	120	.197	5	–	–	–	–	–	LRIS-2.5 × 7	CLR-15S
	SDJC℅1020X07N-F10	3	○		.394	10	.787	20	.394	10	4.724	120	.394	10	–	–	–	–	–	LRIS-2.5 × 7	CLR-15S
DC..32.5.. DC..32.5..WP	SDJC℅083C-F250	3	●		1/2		.728	18.5	1/2		4.724	120	0	0	–	–	–	–	–	LRIS-4 × 10	LLR-25S
	SDJC℅083C-F500	3	●		1/2		1		1/2		4.724	120	0	0	–	–	–	–	–	LRIS-4 × 10	LLR-25S
	SDJC℅1015X11N-F05	3	○		.394	10	.591	15	.394	10	4.724	120	.197	5	.748	19	.079	2	–	LRIS-4 × 10	LLR-25S
	SDJC℅1020X11N-F10	3	○		.394	10	.787	20	.394	10	4.724	120	.394	10	.748	19	.079	2	–	LRIS-4 × 10	LLR-25S
	SDJC℅1218X11N-F06	3	●		.472	12	.709	18	.472	12	4.724	120	.236	6	–	–	–	–	–	LRIS-4 × 10	LLR-25S
	SDJC℅1224X11N-F12	3	●		.472	12	.945	24	.472	12	4.724	120	.472	12	–	–	–	–	–	LRIS-4 × 10	LLR-25S
DC..32.5..	SDXC℅1010X11N	4	○		.394	10	.394	10	.394	10	4.724	120	0	0	.787	20	.118	3	–	LRIS-4 × 10	LLR-25S
	SDXC℅1016X11N	4	○		.394	10	.630	16	.394	10	4.724	120	0	0	–	–	–	–	–	LRIS-4 × 10	LLR-25S
	SDXC℅1212X11N	4	○		.472	12	.472	12	.472	12	4.724	120	0	0	.787	20	.039	1	–	LRIS-4 × 10	LLR-25S
	SDXC℅1216X11N	4	○		.472	12	.630	16	.472	12	4.724	120	0	0	–	–	–	–	–	LRIS-4 × 10	LLR-25S
	SDXC℅1616X11N	4	○		.630	16	.630	16	.630	16	4.724	120	0	0	–	–	–	–	–	LRIS-4 × 10	LLR-25S
DC..21.5..	SDQC℅10-X07	5	○	○	.394	10	.394	10	.394	10	4.724	120	.472	12	–	–	–	–	–	LRIS-2.5 × 7	CLR-15S
DC..32.5..	SDQC℅12-X11	5	○	○	.472	12	.472	12	.472	12	4.724	120	.630	16	–	–	–	–	–	LRIS-4 × 10	LLR-25S
	SDQC℅16-X11	5	○	○	.630	16	.630	16	.630	16	4.724	120	.787	20	–	–	–	–	–	LRIS-4 × 10	LLR-25S
	SDQC℅20-X11	5	○		.787	20	.787	20	.787	20	4.724	120	.984	25	–	–	–	–	–	LRIS-4 × 10	LLR-25S
DC..21.5..	SDNCN-062	6	●		3/8		3/8		3/8		2.5	63.5	3/16		–	–	–	–	–	LRIS-2.5 × 7	CLR-15S
	SDNCN-082	6	●		1/2		1/2		1/2		3.5	88.9	1/4		–	–	–	–	–	LRIS-2.5 × 7	CLR-15S
	SDNCN08-X07	6	○		.315	8	.315	8	.315	8	4.724	120	.157	4	–	–	–	–	–	LRIS-2.5 × 7	CLR-15S
	SDNCN10-X07	6	○		.394	10	.394	10	.394	10	4.724	120	.197	5	–	–	–	–	–	LRIS-2.5 × 7	CLR-15S
DC..32.5..	SDNCN-083	6	●		1/2		1/2		1/2		3.937	100	1/4		–	–	–	–	–	LRIS-4 × 10	LLR-25S
	SDNCN-103	6	●		5/8		5/8		5/8		3.937	100	5/16		–	–	–	–	–	LRIS-4 × 10	LLR-25S
	SDNCN12-X11	6	○		.472	12	.472	12	.472	12	4.724	120	.236	6	–	–	–	–	–	LRIS-4 × 10	LLR-25S
	SDNCN16-X11	6	○		.630	16	.630	16	.630	16	4.724	120	.315	8	–	–	–	–	–	LRIS-4 × 10	LLR-25S
	SDNCN20-X11	6	○		.787	20	.787	20	.787	20	4.724	120	.394	10	–	–	–	–	–	LRIS-4 × 10	LLR-25S
DC..32.5.. DC..32.5..WP	CH-SDUC℅1010H11	7		○	.394	10	.394	10	.394	10	3.937	100	.591	15	.591	15	.236	6	–	LRIS-4 × 10PW	CLR-15S
	CH-SDUC℅1212H11	7		○	.472	12	.472	12	.472	12	3.937	100	.669	17	.591	15	.157	4	–	LRIS-4 × 10PW	CLR-15S

● : Stock ○ : 1-2 week delivery 💧 : Coolant through

Inserts ➡K46 Cutting condition ➡K30

Y-Axis Holders for DC.. Inserts

Y-SDJC

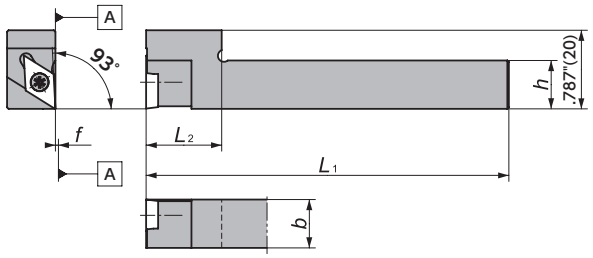
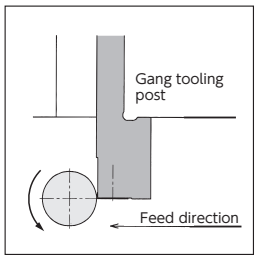


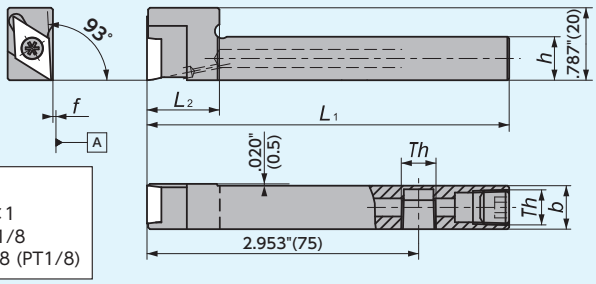
Figure-1



Right-Hand style shown
Takes Right-hand or Neutral insert

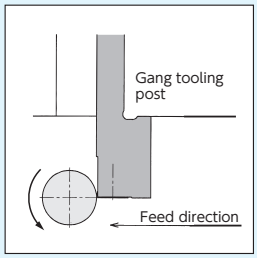
Y-SDJC-OH (Coolant through)

NEW



Th (Thread type)
3/8" holder : M6×1
1/2", 5/8" holder : NPT1/8
Metric size holder: Rc1/8 (PT1/8)

Figure-2



Right-Hand style shown
Takes Right-hand or Neutral insert

Y-SDNC

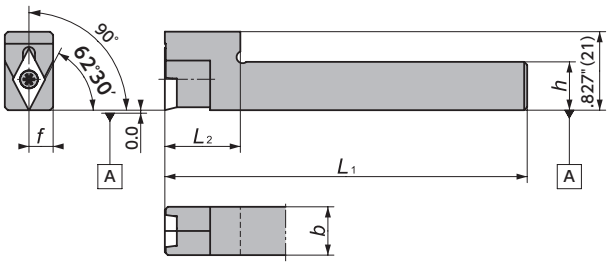
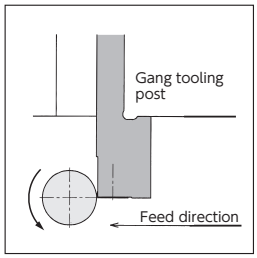
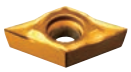


Figure-3



Takes Right-hand or Neutral insert

DC.. Series - Toolholders II



Gage Insert	Item Number	Figure	Stock R	Stock L	Stock N	h (Inch)	h (mm)	b (Inch)	b (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	L_2 (Inch)	L_2 (mm)	Th	Clamp Screw	Wrench
DC..21.5.. DC..21.5..WP	Y-SDJCR062-IN	1	●			3/8		3/8		4.724	120	0	0	.984	25	–	LRIS-2.5 × 7	CLR-15S
	Y-SDJCR082-IN	1	●			1/2		1/2		4.724	120	0	0	.984	25	–	LRIS-2.5 × 7	CLR-15S
	Y-SDJCR10-07S	1	○			.394	10.0	.394	10	4.724	120	0	0	.787	20	–	LRIS-2.5 × 7	CLR-15S
	Y-SDJCR12-07S	1	○			.472	12.0	.472	12	4.724	120	0	0	.787	20	–	LRIS-2.5 × 7	CLR-15S
DC..32.5.. DC..32.5..WP	Y-SDJCR083-IN	1	●			1/2		1/2		4.724	120	0	0	.984	25	–	LRIS-4 × 10	LLR-25S-20 × 65
	Y-SDJCR103-IN	1	●			5/8		5/8		4.724	120	0	0	.984	25	–	LRIS-4 × 10	LLR-25S-20 × 65
	Y-SDJCR12-11S	1	○			.472	12.0	.630	16	4.724	120	0	0	.787	20	–	LRIS-4 × 10	LLR-25S-20 × 65
	Y-SDJCR16-11S	1	○			.630	16.0	.630	16	4.724	120	0	0	.787	20	–	LRIS-4 × 10	LLR-25S-20 × 65
DC..21.5.. DC..21.5..WP	Y-SDJCR062H-IN-OH	2	●			3/8		3/8		3.937	100	0	0	.984	25	M6 × 1	LRIS-2.5 × 7	CLR-15S
	Y-SDJCR082H-IN-OH	2	●			1/2		1/2		3.937	100	0	0	.984	25	NPT1/8	LRIS-2.5 × 7	CLR-15S
DC..32.5.. DC..32.5..WP	Y-SDJCR083H-IN-OH	2	●			1/2		1/2		3.937	100	0	0	.984	25	NPT1/8	LRIS-4 × 10	LLR-25S-20 × 65
	Y-SDJCR103H-IN-OH	2	●			5/8		5/8		3.937	100	0	0	.984	25	NPT1/8	LRIS-4 × 10	LLR-25S-20 × 65
	Y-SDJCR1212H11S-OH	2	●			.472	12.0	.472	12.0	3.937	100	0	0	.787	20	Rc1/8(PT1/8)	LRIS-4 × 10	LLR-25S-20 × 65
	Y-SDJCR1616H11-OH	2	○			.630	16.0	.630	16.0	3.937	100	0	0	.984	25	Rc1/8(PT1/8)	LRIS-4 × 10	LLR-25S-20 × 65
DC..32.5..	Y-SDNCN083-IN	3	●			1/2		1/2		4.724	120	1/4	6.35	.984	25	–	LRIS-4 × 10	LLR-25S-20 × 65
	Y-SDNCN12-11S	3	○			.472	12.0	.472	12	4.724	120	.236	6.0	.787	20	–	LRIS-4 × 10	LLR-25S-20 × 65
	Y-SDNCN16-11S	3	○			.630	16.0	.630	16	4.724	120	.315	8.0	.787	20	–	LRIS-4 × 10	LLR-25S-20 × 65

DS Toolholders for DC.. Inserts

DS-SDU

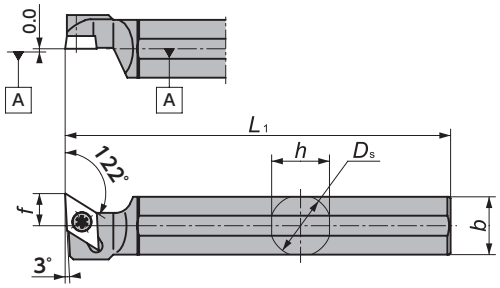
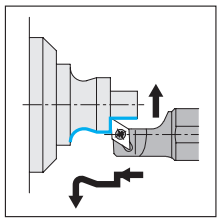


Figure-4



Left-Hand style shown
Takes Right-hand or Neutral insert

DS-SDU-ACH (Adjustable centerline height)

〈Parts〉

Shank	Wedge	Screw for Wedge
ϕ.630" (16)	ACH-W18 (5805601)	WS060415-003 (5795539)
ϕ3/4" (19.05)		
ϕ.787" (20)		WS060419-004 (5799226)
ϕ.866" (22)		
ϕ1" (25.4)	ACH-W24 (5805619)	

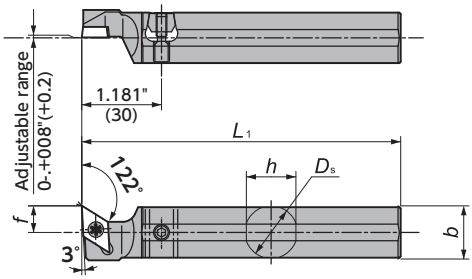
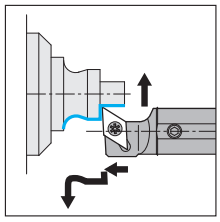


Figure-5



Left-Hand style shown
Takes Right-hand or Neutral insert

DS-SDX / DS-SDX (Coolant through)

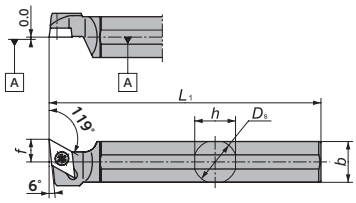
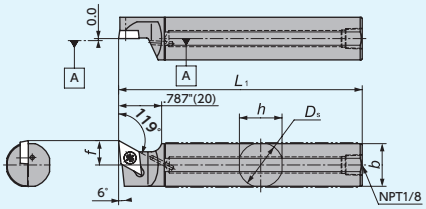
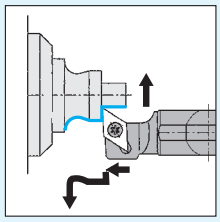


Figure-6

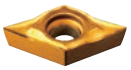
DS-SDXL22-11-006 (Coolant through)





Left-Hand style shown
Takes Right-hand or Neutral insert

DC.. Series - Toolholders Ⅲ



Gage Insert	Item Number	Figure	Stock R	Stock L	D_s (Inch)	D_s (mm)	h (Inch)	h (mm)	b (Inch)	b (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	Clamp Screw	Wrench
DC..21.5.. DC..21.5..WP	DS-SDU□14F-07	4		○	.551	14.000	.512	13.0	.512	13.0	3.150	80	.236	6.0	LRIS-2.5 × 7	CLR-15S
	DS-SDU□15H-07	4		○	5/8	15.875	.591	15.0	.591	15.0	3.937	100	.236	6.0	LRIS-2.5 × 7	CLR-15S
	DS-SDU□16F-07	4		○	.630	16.000	.591	15.0	.591	15.0	3.150	80	.236	6.0	LRIS-2.5 × 7	CLR-15S
	DS-SDU□16X-07	4		○	.630	16.000	.591	15.0	.591	15.0	3.740	95	.236	6.0	LRIS-2.5 × 7	CLR-15S
	DS-SDU□19-07	4		○	3/4	19.050	.709	18.0	.709	18.0	4.724	120	.236	6.0	LRIS-2.5 × 7	CLR-15S
	DS-SDU□20X-07	4		○	.787	20.000	.748	19.0	.748	19.0	3.740	95	.236	6.0	LRIS-2.5 × 7	CLR-15S
	DS-SDU□20-07	4		●	.787	20.000	.748	19.0	.748	19.0	4.724	120	.236	6.0	LRIS-2.5 × 7	CLR-15S
	DS-SDU□22-07	4		●	.866	22.000	.827	21.0	.827	21.0	4.724	120	.236	6.0	LRIS-2.5 × 7	CLR-15S
DC..32.5.. DC..32.5..WP	DS-SDU□14F-11	4		○	.551	14.000	.512	13.0	.512	13.0	3.150	80	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDU□16F-11	4		○	.630	16.000	.591	15.0	.591	15.0	3.150	80	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDU□19-11	4		●	3/4	19.050	.709	18.0	.709	18.0	4.724	120	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDU□19-11SPL	4		○	3/4	19.050	.709	18.0	.709	18.0	6.300	160	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDU□20X-11	4		○	.787	20.000	.748	19.0	.748	19.0	3.740	95	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDU□20-11	4		●	.787	20.000	.748	19.0	.748	19.0	4.724	120	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDU□22-11	4		●	.866	22.000	.827	21.0	.827	21.0	4.724	120	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDU□23-11-007	4		○	.906	23.000	.866	22.0	.866	22.0	2.756	70	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDU□25-11MET	4		●	.984	25.000	.945	24.0	.945	24.0	4.724	120	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDU□25-11	4		●	1	25.400	.945	24.0	.945	24.0	5.906	150	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDU□25-11SPL	4		○	1	25.400	.945	24.0	.945	24.0	5.906	150	.492	12.5	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDU□16F-11-ACH	5		●	.630	16.000	.610	15.5	.610	15.5	3.150	80	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDU□19-11-ACH	5		●	3/4	19.050	.709	18.0	.709	18.0	4.724	120	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDU□20-11-ACH	5		●	.787	20.000	.748	19.0	.748	19.0	4.724	120	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDU□22-11-ACH	5		●	.866	22.000	.827	21.0	.827	21.0	4.724	120	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDU□25-11-ACH	5		●	1	25.400	.945	24.0	.945	24.0	5.906	150	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDX□22-11-006 💧	6		●	.866	22.000	.827	21.0	.827	21.0	4.724	120	.472	12.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDX□19-11	6		○	3/4	19.050	.709	18.0	.709	18.0	4.724	120	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDX□20X-11	6		○	.787	20.000	.748	19.0	.748	19.0	3.740	95	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDX□20-11	6		○	.787	20.000	.748	19.0	.748	19.0	4.724	120	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-SDX□25-11MET	6		○	.984	25.000	.945	24.0	.945	24.0	4.724	120	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65

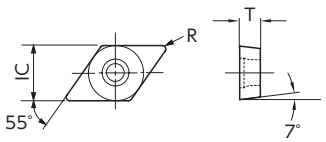
● : Stock ○ : 1-2 week delivery 💧 : Coolant through

Inserts ➡K46 Cutting condition ➡K30

DC.. inserts - Carbide / Cermet

[Molded Chipbreakers]

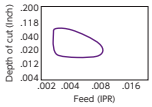
(inch)	IC	T
DC..21.5	1/4	3/32
DC..32.5	3/8	5/32

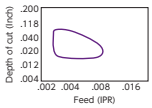


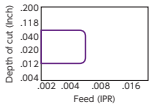
Steel	P	● ● ● ● ● ● ● ● ● ● ● ● ●
Stainless Steel	M	● ● ● ● ● ● ● ● ● ● ● ● ●
Cast Iron	K	● ● ● ●
Non-Ferrous Material	N	● ● ● ● ● ● ●
Heat Resistant Alloy	S	● ● ● ●
Hardened Material	H	● ● ●

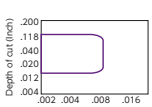
● : 1st Choice
● : Alternate choice

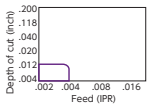
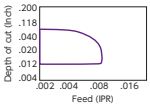
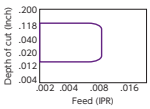
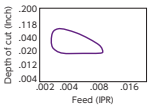
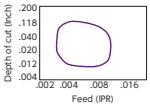
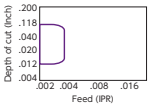
Shape	Item Number	ISO Item Number	IC	R	Carbide PVD Coated QM3	DT4	DM4	TM4	VM1	ZM3	KM1	Cermet XT3	C7X	XN4	Cermet PVD Coated Q15	C7Z
	DCGT 21.501 FNAM3	DCGT 070200 FNAM3	1/4	.001	●	●			○	○						
	DCGT 21.504M FNAM3	DCGT 070201 MFNAM3	1/4	.003	●	●										
	DCGT 21.504 FNAM3	DCGT 070201 FNAM3	1/4	.004					○	○						
	DCGT 21.504 FNAM3	DCGT 070201 FNXAM3	1/4	.004									●			
	DCGT 21.508M FNAM3	DCGT 070202 MFNAM3	1/4	.007	●	●										
	DCGT 21.508 AM3	DCGT 070202 ENBAM3	1/4	.008								●				
	DCGT 21.508 FNAM3	DCGT 070202 FNAM3	1/4	.008					○	○						
	DCGT 21.508 FNAM3	DCGT 070202 FNXAM3	1/4	.008									●			
	DCGT 21.51M FNAM3	DCGT 070204 MFNAM3	1/4	.015	●	●										
	DCGT 21.51 AM3	DCGT 070204 ENBAM3	1/4	.016								●				
	DCGT 21.51 FNAM3	DCGT 070204 FNAM3	1/4	.016					○	○						
	DCGT 21.51 FNAM3	DCGT 070204 FNXAM3	1/4	.016									●			
	DCGT 32.501 FNAM3	DCGT 11T300 FNAM3	3/8	.001	●	●		○	○	●						
	DCGT 32.504M FNAM3	DCGT 11T301 MFNAM3	3/8	.003	●	●		○	○	○						
	DCGT 32.504 FNAM3	DCGT 11T301 FNXAM3	3/8	.004									●			
	DCGT 32.508M FNAM3	DCGT 11T302 MFNAM3	3/8	.007	●	●		○	○	○						
	DCGT 32.508 AM3	DCGT 11T302 ENBAM3	3/8	.008									●			
	DCGT 32.508 FNAM3	DCGT 11T302 FNAM3	3/8	.008	●				○	●						
	DCGT 32.508 FNAM3	DCGT 11T302 FNXAM3	3/8	.008									●			
	DCGT 32.51M FNAM3	DCGT 11T304 MFNAM3	3/8	.015	●	●		○	○	○						
	DCGT 32.51 FNAM3	DCGT 11T304 FNAM3	3/8	.016	●				○	●						
	DCGT 32.51 FNAM3	DCGT 11T304 FNXAM3	3/8	.016									●			
	DCGT 32.52 FNAM3	DCGT 11T308 FNAM3	3/8	.031	●											
	DCGT 32.52 AM3	DCGT 11T308 ENBAM3	3/8	.031								●				
	DCGT 32.52 FNAM3	DCGT 11T308 FNXAM3	3/8	.031									●			
	DCMT 21.508 AM3	DCMT 070202 ENBAM3	1/4	.008									○			○
	DCMT 21.508 FNAM3	DCMT 070202 FNAM3	1/4	.008			○									
	DCMT 21.51 AM3	DCMT 070204 ENBAM3	1/4	.016									●	○		○
	DCMT 21.51 FNAM3	DCMT 070204 FNAM3	1/4	.016			○									
	DCMT 21.52 AM3	DCMT 070208 ENBAM3	1/4	.031										○		
	DCMT 32.508 AM3	DCMT 11T302 ENBAM3	3/8	.008									○			○
	DCMT 32.508 FNAM3	DCMT 11T302 FNAM3	3/8	.008			○									
	DCMT 32.51 AM3	DCMT 11T304 ENBAM3	3/8	.016									●	●		○
	DCMT 32.51 FNAM3	DCMT 11T304 FNAM3	3/8	.016			○									
	DCMT 32.52 AM3	DCMT 11T308 ENBAM3	3/8	.031									●	●		○
	DCMT 32.52 FNAM3	DCMT 11T308 FNAM3	3/8	.031			○									
	DCMT 32.53 AM3	DCMT 11T312 ENBAM3	3/8	.047									○			○
NEW wiper insert	DCGT 32.502 AM3-WP*	TFD 11FR05AM3	3/8	.002		●										
	DCGT 32.506 AM3-WP*	TFD 11FR15AM3	3/8	.006		●										
NEW	DCGT 32.504M YL	DCGT 11T301M YL	3/8	.005			●	○								
	DCGT 32.508M YL	DCGT 11T302M YL	3/8	.007			●	○								
	DCGT 32.51M YL	DCGT 11T304M YL	3/8	.015			●	○								
	DCGT 21.504M CL	DCGT 070201M CL	1/4	.003		●		○								
	DCGT 21.508M CL	DCGT 070202M CL	1/4	.007		●		○								
	DCGT 32.504M CL	DCGT 11T301M CL	3/8	.003		●		●								
	DCGT 32.508M CL	DCGT 11T302M CL	3/8	.007		●		●								
	DCGT 32.51M CL	DCGT 11T304M CL	3/8	.015		●		●								

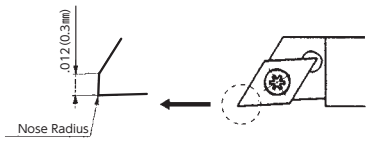








Shape	Item Number	ISO Item Number	IC	R	Carbide							Cermet					
					PVD Coated										PVD Coated		
					QM3	DT4	DM4	TM4	VM1	ZM3	KM1	XT3	C7X	XN4	Q15	C7Z	
	DCGT 21.504M AMX	DCGT 070201M AMX	1/4	.003				●									
	DCGT 21.508M AMX	DCGT 070202M AMX	1/4	.007				●									
	DCGT 32.504M AMX	DCGT 11T301M AMX	3/8	.003			●	●									
	DCGT 32.508M AMX	DCGT 11T302M AMX	3/8	.007			●	●									
	DCGT 32.51M AMX	DCGT 11T304M AMX	3/8	.015			●										
	DCGT 21.501 FNAZ7	DCGT 070200 FNAZ7	1/4	.001	○												
	DCGT 21.504M FNAZ7	DCGT 070201M FNAZ7	1/4	.003	○												
	DCGT 21.508M FNAZ7	DCGT 070202M FNAZ7	1/4	.007	○												
	DCGT 32.501 FNAZ7	DCGT 11T300 FNAZ7	3/8	.001	●	○		○		○							
	DCGT 32.504M FNAZ7	DCGT 11T301M FNAZ7	3/8	.003	●	○		○		○							
	DCGT 32.508M FNAZ7	DCGT 11T302M FNAZ7	3/8	.007	●	○		○		○							
	DCGT 32.51M FNAZ7	DCGT 11T304M FNAZ7	3/8	.015	●	○		○		○							
	DCGT 32.52 FNAZ7	DCGT 11T308 FNAZ7	3/8	.031	●	○				○							
	DCGT 21.51 FN1L	DCGT 070204 FN1L	1/4	.016	○												
	DCGT 32.508 FN1L	DCGT 11T302 FN1L	3/8	.008	○												
	DCGT 32.51 FN1L	DCGT 11T304 FN1L	3/8	.016	○												
	DCGT 32.508 AF3	DCGT 11T302 ENBAF3	3/8	.008								●					
	DCGT 32.51 AF3	DCGT 11T304 ENBAF3	3/8	.016								●					
	DCGT 32.508 FM	DCGT 11T302 ENBFM	3/8	.008								○					
	DCGT 32.51 FM	DCGT 11T304 ENBFM	3/8	.016								○					
	DCGT 32.52 FM	DCGT 11T308 ENBFM	3/8	.031								●					
	DCMT 21.508 ENBZR	DCMT 070202 ENBZR	1/4	.008									○			○	
	DCMT 21.51 ENBZR	DCMT 070204 ENBZR	1/4	.016									○			○	
	DCMT 32.508 ENBZR	DCMT 11T302 ENBZR	3/8	.008									○			○	
	DCMT 32.51 ENBZR	DCMT 11T304 ENBZR	3/8	.016									○			○	
	DCMT 32.52 ENBZR	DCMT 11T308 ENBZR	3/8	.031									○			○	



＊Note: NTK WP style inserts have a wiper facet design.
The insert has a 0.3mm (.012") flat on the cutting edge when the insert is set into the toolholder.
The flat on the cutting edge ensures a superior surface finish when feed rates are increased.
WP style inserts can be used in toolholders: SDJC, CH-SDUC and DS-SDUL.

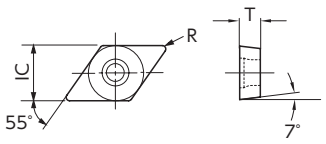
● : Stock ○ : 1-2 week delivery

Holders ➡K42 • 44 • 45
Cutting condition ➡K30
Chipbreaker ➡K21

DC..11.. inserts - Carbide / Cermet

[Ground Chipbreakers]

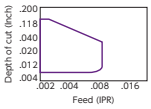
(inch)	IC	T
DC..21.5	1/4	3/32
DC..32.5	3/8	5/32



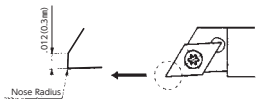
Steel	P	●
Stainless Steel	M	●
Cast Iron	K	●
Non-Ferrous Material	N	●
Heat Resistant Alloy	S	●
Hardened Material	H	●

● : 1st Choice
● : Alternate choice

Shape	Item Number	ISO Item Number	IC	R	Carbide PVD Coated QM3	DT4	DM4	TM4	VM1	ZM3	KM1	Cermet XT3	C7X	XN4	Cermet PVD Coated Q15	C7Z
	DCGT 21.501 R/L S	DCGT 070200 R/L S	1/4	.001	R				Ⓡ Ⓛ	R Ⓛ						
	DCGT 21.504M R/L S	DCGT 070201M R/L S	1/4	.003	R	R										
	DCGT 21.504 R/L S	DCGT 070201 R/L S	1/4	.004					R Ⓛ	R Ⓛ			Ⓡ			
	DCGT 21.508M R/L S	DCGT 070202M R/L S	1/4	.007	R	R										
	DCGT 21.508 R/L S	DCGT 070202 R/L S	1/4	.008					Ⓡ Ⓛ	R Ⓛ			Ⓡ Ⓛ			
	DCGT 21.51 R/L S	DCGT 070204 R/L S	1/4	.016	R				Ⓡ							
	DCGT 32.501 R/L S	DCGT 11T300 R/L S	3/8	.001	R	R		R	Ⓡ Ⓛ	R						
	DCGT 32.504M R/L S	DCGT 11T301M R/L S	3/8	.003	R	R		R								
	DCGT 32.504 R/L S	DCGT 11T301 R/L S	3/8	.004	Ⓡ				Ⓡ Ⓛ	R						
	DCGT 32.508M R/L S	DCGT 11T302M R/L S	3/8	.007	Ⓡ	R		Ⓡ								
	DCGT 32.508 R/L S	DCGT 11T302 R/L S	3/8	.008	R				Ⓡ Ⓛ	R						
	DCGT 32.51M R/L S	DCGT 11T304M R/L S	3/8	.015	Ⓡ			R								
	DCGT 32.51 R/L S	DCGT 11T304 R/L S	3/8	.016	R											
	DCMT 21.504 TR/L AS	DCMT 070201 TR/L AS	1/4	.004									Ⓡ Ⓛ			Ⓡ Ⓛ
	DCMT 21.508 TR/L AS	DCMT 070202 TR/L AS	1/4	.008									Ⓡ Ⓛ			Ⓡ Ⓛ
	DCMT 21.51 TR/L AS	DCMT 070204 TR/L AS	1/4	.016									Ⓡ Ⓛ			Ⓡ Ⓛ
	DCMT 32.504 TR/L AS	DCMT 11T301 TR/L AS	3/8	.004									Ⓡ Ⓛ			Ⓡ Ⓛ
	DCMT 32.508 TR/L AS	DCMT 11T302 TR/L AS	3/8	.008									Ⓡ Ⓛ			Ⓡ Ⓛ
	DCMT 32.51 TR/L AS	DCMT 11T304 TR/L AS	3/8	.016									Ⓡ Ⓛ			Ⓡ Ⓛ
 wiper insert	DCGT 21.502 R/L S-WP*	TFD 07FR/L 05	1/4	.002	R				Ⓡ	R Ⓛ						
	DCGT 21.506 R/L S-WP*	TFD 07FR/L 15	1/4	.006	R					R Ⓛ						
	DCGT 32.502 R/L S-WP*	TFD 11FR/L 05	3/8	.002	R				Ⓡ	Ⓡ						
	DCGT 32.506 R/L S-WP*	TFD 11FR/L 15	3/8	.006	R					Ⓡ						
	DCGT 21.501 R/L U	DCGT 070200 R/L U	1/4	.001					Ⓡ	Ⓡ						
	DCGT 21.504 R/L U	DCGT 070201 R/L U	1/4	.004					Ⓡ	Ⓡ						
	DCGT 21.508 R/L U	DCGT 070202 R/L U	1/4	.008					Ⓡ	R Ⓛ						
	DCGT 32.501 R/L U1	DCGT 11T300 R/L U1	3/8	.001				Ⓡ	Ⓡ	R Ⓛ						
	DCGT 32.504 R/L U1	DCGT 11T301 R/L U1	3/8	.004		Ⓡ		Ⓡ	Ⓡ	R Ⓛ						
	DCGT 32.508 R/L U1	DCGT 11T302 R/L U1	3/8	.008		Ⓡ		Ⓡ	Ⓡ	R Ⓛ						
	DCGT 32.51 R/L U1	DCGT 11T304 R/L U1	3/8	.016				Ⓡ	Ⓡ	R Ⓛ						
 wiper insert	DCGT 21.502 R/L U-WP*	TFD 07FR/L 05U	1/4	.002	Ⓡ				Ⓡ	Ⓡ						
	DCGT 21.506 R/L U-WP*	TFD 07FR/L 15U	1/4	.006	Ⓡ					Ⓡ						
	DCGT 32.502 R/L U1-WP*	TFD 11FR/L 05U1	3/8	.002	Ⓡ				Ⓡ	Ⓡ						
	DCGT 32.506 R/L U1-WP*	TFD 11FR/L 15U1	3/8	.006	Ⓡ					Ⓡ						
	DCET 21.502 R/L KHG	DCET 0702005 R/L KHG	1/4	.002					R Ⓛ							
	DCET 21.503 R/L KHG	DCET 0702008 R/L KHG	1/4	.003					R Ⓛ							
	DCET 21.507 R/L KHG	DCET 0702018 R/L KHG	1/4	.007					R Ⓛ							
	DCET 21.508 R/L KHG	DCET 070202 R/L KHG	1/4	.008					R Ⓛ							
	DCET 32.502 R/L KHG	DCET 11T3005 R/L KHG	3/8	.002				R	R Ⓛ							
	DCET 32.503 R/L KHG	DCET 11T3008 R/L KHG	3/8	.003				R	R Ⓛ							
	DCET 32.507 R/L KHG	DCET 11T3018 R/L KHG	3/8	.007				R	R Ⓛ							
	DCET 32.508 R/L KHG	DCET 11T302 R/L KHG	3/8	.008				R	R Ⓛ							
	DCET 21.503 UHG	DCET 0702008 R/L UHG	1/4	.003					Ⓡ							
	DCET 32.503 UHG	DCET 11T3008 R/L UHG	3/8	.003					Ⓡ							

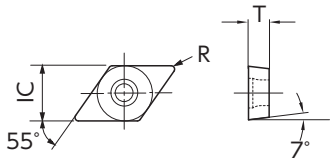


Shape	Item Number	ISO Item Number	IC	R	Carbide PVD Coated QM3	DT4	DM4	TM4	VM1	ZM3	KM1	Cermet XT3	C7X	XN4	PVD Coated Q15	C7Z	
	DCGW 21.500 V Ⓜ	DCGW 07020 V	1/4	0					○								—
	DCGW 21.501 FN	DCGW 070200 FN	1/4	.001						○							
	DCGW 21.501 H Ⓜ	DCGW 070200 H	1/4	.001							●						
	DCGW 21.504 FN	DCGW 070201 FN	1/4	.004						○							
	DCGW 21.504 H Ⓜ	DCGW 070201 H	1/4	.004							●						
	DCGW 21.508 H Ⓜ	DCGW 070202 H	1/4	.008							○						
	DCGW 32.500 V Ⓜ	DCGW 11T30 V	3/8	0					○								
	DCGW 32.501 FN	DCGW 11T300 FN	3/8	.001						○							
	DCGW 32.501 H Ⓜ	DCGW 11T300 H	3/8	.001							○						
	DCGW 32.504 FN	DCGW 11T301 FN	3/8	.004						○							
	DCGW 32.504 H Ⓜ	DCGW 11T301 H	3/8	.004							○						
	DCGW 32.508 H Ⓜ	DCGW 11T302 H	3/8	.008							○						
 wiper insert	DCGW 21.502RH-WP* Ⓜ	TFD 07FR05H	1/4	.002							○						—
	DCGW 32.502RH-WP* Ⓜ	TFD 11FR05H	3/8	.006							○						

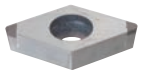
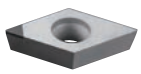
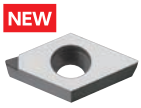


*Note: NTK WP style inserts have a wiper facet design.
The insert has a 0.3mm (.012") flat on the cutting edge when the insert is set into the toolholder.
The flat on the cutting edge ensures a superior surface finish when feed rates are increased.
WP style inserts can be used in toolholders: SDJC, CH-SDUC and DS-SDUL.

DC.. Inserts - CBN / PCD



Steel	P	
Stainless Steel	M	
Cast Iron	K	● ● ● ●
Non-Ferrous Material	N	● ●
Heat Resistant Alloy	S	
Hardened Material	H	● ● ● ● ●

Shape	Item Number	ISO Item Number	Edge Prep.	IC	R	No. of edge	Length of edge	CBN (Brazed) Coated B5K	B52	Coated B6K	B36	B40	B23	B30	PCD PD1	PD2
	DCGW 21.508 PD	DCGW 070202 PD	S0415	1/4	.008	2	.094		●							
	DCGW 21.51 PD	DCGW 070204 PD	S0415	1/4	.016	2	.087		●							
	DCGW 21.51 PD	DCGW 070204 PD	S0635	1/4	.016	2	.087					●				
	DCGW 21.52 PD	DCGW 070208 PD	S0415	1/4	.031	2	.075		●							
	DCGW 32.508 PD	DCGW 11T302 PD	S0415	3/8	.008	2	.094	●	●							
	DCGW 32.508 PD	DCGW 11T302 PD	S0635	3/8	.008	2	.094					●				
	DCGW 32.51 PD	DCGW 11T304 PD	S0415	3/8	.016	2	.087	●	●							
	DCGW 32.51 PD	DCGW 11T304 PD	S0635	3/8	.016	2	.087					●				
	DCGW 32.52 PD	DCGW 11T308 PD	S0415	3/8	.031	2	.075		●							
	DCGW 32.52 PD	DCGW 11T308 PD	S0635	3/8	.031	2	.075					●				
	DCMW 32.504	DCMW 11T301	None	3/8	.004	1	–								○	
	DCMW 32.508	DCMW 11T302	None	3/8	.008	1	–								○	
	DCMW 32.51	DCMW 11T304	None	3/8	.016	1	–								○	
	DCMW 32.52	DCMW 11T308	None	3/8	.031	1	–								○	
NEW  with chipbreaker	DCMT 32.508 PF	DCMT 11T302 PF	None	3/8	.008	1	–									●
	DCMT 32.51 PM	DCMT 11T304 PF	None	3/8	.016	1	–									●

● : Stock ○ : 1-2 week delivery
R : Stock (Right-hand only) L : Stock (Left-hand only)
Ⓡ : 1-2 week delivery (Right-hand only) Ⓛ : 1-2 week delivery (Left-hand only) Ⓜ : Mirror finish

Holders ➡K42 • 44 • 45
Cutting condition ➡K30
Chipbreaker ➡K21

Toolholders for VB.. Inserts

SVJB-OH (Coolant through)

NEW

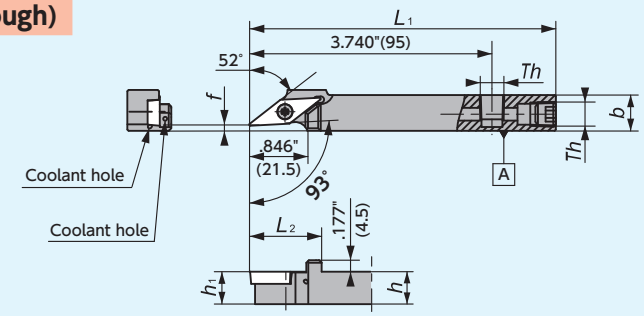


Figure-1

● Left-Hand coolant through holders are designed for Right-Hand machines

Th (Thread type)
Inch size holder : NPT1/8
Metric size holder: Rc1/8 (PT1/8)

Right-Hand style shown

■VBGT33

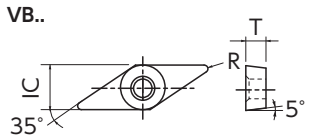
Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h1 (Inch)	h1 (mm)	L1 (Inch)	L1 (mm)	f (Inch)	f (mm)	g (Inch)	g (mm)	Th	Clamp Screw	Wrench
 VBGT33..	SVJB*083C-F079-OH	1	●	●	1/2		.551	14	1/2		4.724	120	.079	2	.079	2	NPT1/8	LRIS-4 × 10	LLR-25S
	SVJB*103C-F079-OH	1	●	●	5/8		5/8		5/8		4.724	120	.079	2	0	0	NPT1/8	LRIS-4 × 10	LLR-25S
	SVJB*1214-X16N-F02OH	1	●	●	.472	12	.551	14	.472	12	4.724	120	.079	2	.079	2	Rc1/8(PT1/8)	LRIS-4 × 10	LLR-25S
	SVJB*1616-X16N-F02OH	1	●	●	.630	16	.630	16	.630	16	4.724	120	.079	2	0	0	Rc1/8(PT1/8)	LRIS-4 × 10	LLR-25S

● Left-Hand coolant through holders are designed for Right-Hand machines

VB.. inserts - Carbide / Cermet

[Molded Chipbreaker]

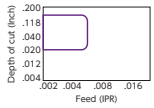
(inch)	IC	T
VB33	3/8	3/16



		P	M	K	N	S	H	Carbide QM3	Carbide DT4	Carbide DM4	Carbide TM4	Carbide VM1	Carbide ZM3	Carbide KM1	Cermet XT3	Cermet C7X	Cermet XN4	Cermet Q15	Cermet C7Z
Steel	P	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless Steel	M	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cast Iron	K														●	●		●	●
Non-Ferrous Material	N				●	●	●	●							●	●			●
Heat Resistant Alloy	S	●	●	●	●														
Hardened Material	H	●	●	●															

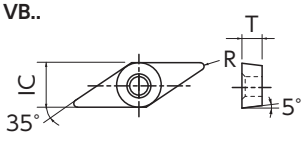
● : 1st Choice
● : Alternate choice

Shape	Item Number	ISO Item Number	IC	R	QM3	DT4	DM4	TM4	VM1	ZM3	KM1	XT3	C7X	XN4	Q15	C7Z
NEW 	VBGT 3308 YL*	VBGT 160402 YL	3/8	.008	●		●	○								
	VBGT 331 YL	VBGT 160404 YL	3/8	.016	●		●	○								
	VBGT 332 YL*	VBGT 160408 YL	3/8	.031	●		●	○								

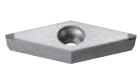


*To be released in March 2015

VB.. inserts - CBN / PCD



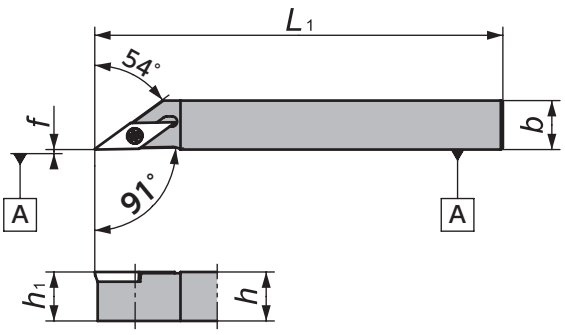
		P	M	K	N	S	H	CBN (Brazed) B5K (Coated)	CBN (Brazed) B52	CBN (Brazed) B6K (Coated)	CBN (Brazed) B36	CBN (Brazed) B40	CBN (Brazed) B23	CBN (Brazed) B30	PCD PD1	PCD PD2
Steel	P															
Stainless Steel	M															
Cast Iron	K	●	●										●	●		
Non-Ferrous Material	N														●	●
Heat Resistant Alloy	S															
Hardened Material	H	●	●	●	●	●										

Shape	Item Number	ISO Item Number	Edge Prep.	IC	R	No. of edge	Length of edge
	VBGW 332 PD	VBGW 160408 PD	S0415	3/8	.031	2	.063

○

Toolholders for VC.. Inserts

SVAC-N-1L



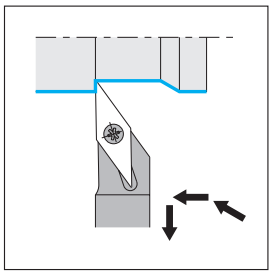


Figure-1

Right-Hand style shown

■SVAC-N

Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h1 (Inch)	h1 (mm)	L1 (Inch)	L1 (mm)	f (Inch)	f (mm)	Clamp Screw	Wrench
 VCGT21.508	SVAC□1010X11N-1L	1	○	○	.394	10	.394	10	.394	10	4.724	120	0.0	0.0	LR1S-2.5 × 7	CLR-15S
	SVAC□1212X11N-1L	1	○	○	.472	12	.472	12	.472	12	4.724	120	0.0	0.0	LR1S-2.5 × 7	RLR-20S

■SVAC-N

Shape	Item Number	ISO Item Number	IC (Inch)	IC (mm)	T (Inch)	T (mm)	R (Inch)	R (mm)	Coated Carbide QM3
	VCGT21.508FN1L	VCGT110202FN1L	1/4	6.35	1/8	3.175	.008	0.2	○

SVAC-NW

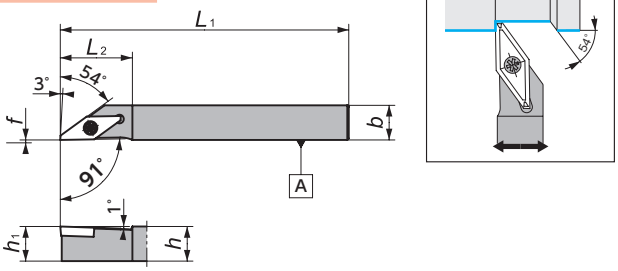


Figure-2

Right-Hand style shown

SVAC-W

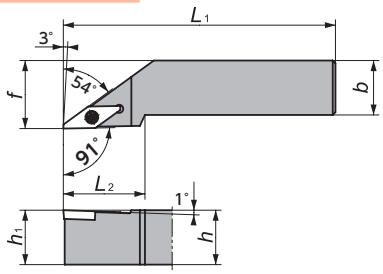


Figure-3

Right-Hand style shown

■SVAC□L

Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h1 (Inch)	h1 (mm)	L1 (Inch)	L1 (mm)	f (Inch)	f (mm)	L2 (Inch)	L2 (mm)	Clamp Screw	Wrench
 VCGT13030	SVAC□1010L13NW	2	○	○	.394	10	.394	10	.394	10	5.512	140	0.0	0.0	.984	25	LR1S-3 × 8	RLR-20S
	SVAC□1212L13NW	2	○	○	.472	12	.472	12	.472	12	5.512	140	0.0	0.0	.984	25	LR1S-3 × 8	RLR-20S
	SVAC□1616M13NW	2	○	○	.630	16	.630	16	.630	16	5.512	140	0.0	0.0	.984	25	LR1S-3 × 8	RLR-20S
	SVAC□2020M13W	3	○		.787	20	.787	20	.787	20	5.906	150	.984	25.0	1.181	30	LR1S-3 × 8	RLR-20S

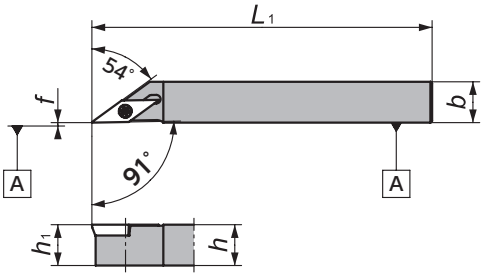
■SVAC□L

Shape	Item Number	ISO Item Number	IC (Inch)	IC (mm)	T (Inch)	T (mm)	R (Inch)	R (mm)	Coated Carbide QM3
	VCGT130300F□2M	VCGT130300F□2M	.313	7.95	1/8	3.175	.001	0.02	○
	VCGT130301F□2M	VCGT130301F□2M	.313	7.95	1/8	3.175	.004	0.1	○

● : Stock　○ : 1-2 week delivery　💧 : Coolant through　Cutting condition ➡K30　Chipbreaker ➡K21

Toolholders for VC.. Inserts

SVAC-N



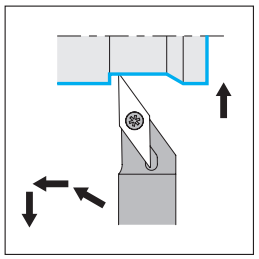
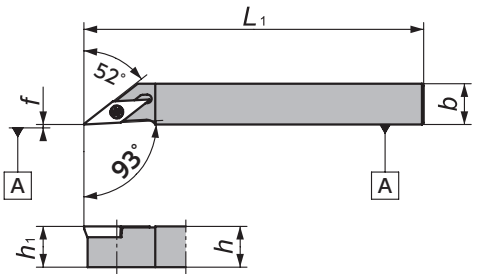


Figure-1

Right-Hand style shown

SVJC



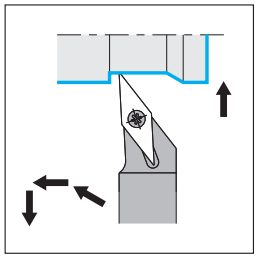
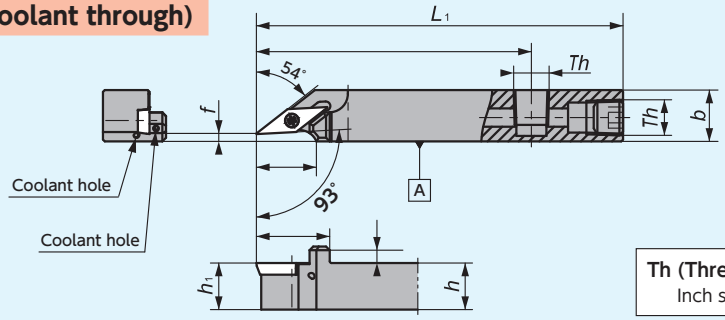


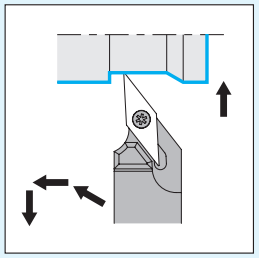
Figure-2

Right-Hand style shown

SVJC-OH (Coolant through)

NEW



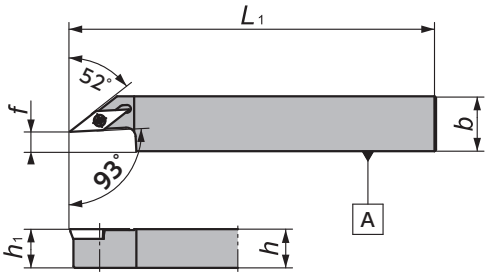


Th (Thread type)
Inch size holder: NPT1/8

Figure-3

Right-Hand style shown

SVJC-F (Shifted)



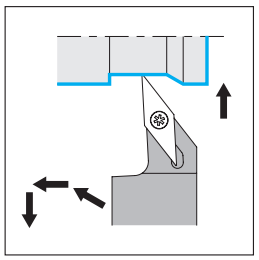
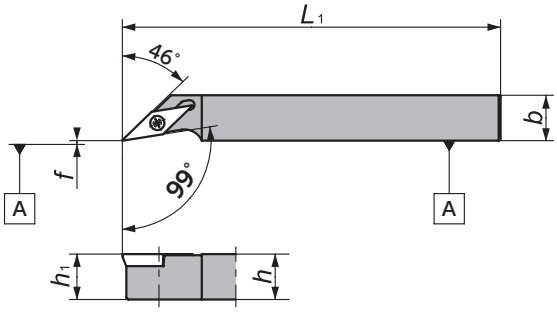


Figure-4

Right-Hand style shown

SVXC-N



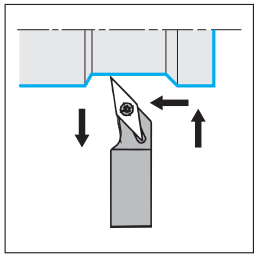
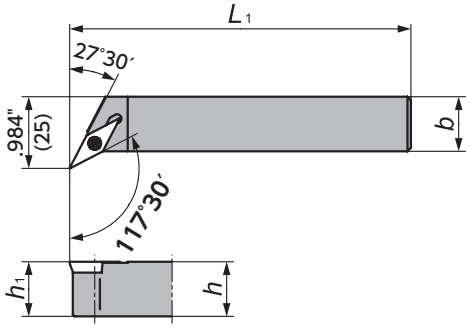


Figure-5

Right-Hand style shown

SVQC



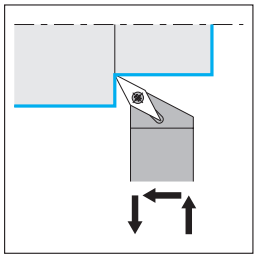


Figure-6

Right-Hand style shown

SVVC-N

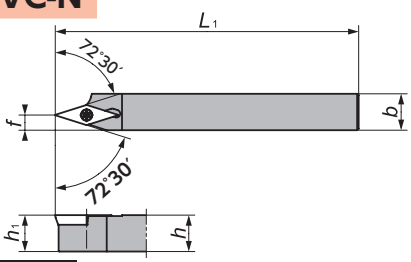


Figure-7

Right-Hand style shown

SVVC-N

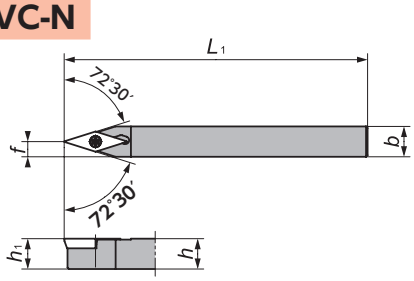
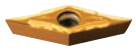


Figure-8

VC.. Series - Toolholders I



Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h_1 (Inch)	h_1 (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	Th	Clamp Screw	Wrench
			N	N													
VC..22 VC..22-WP	SVAC□0808X11N	1	●	●	.315	8	.315	8	.315	8	4.724	120	0.0	0.0	–	LRIS-2.5 × 7	CLR-15S
	SVAC□1010X11N	1	○	○	.394	10	.394	10	.394	10	4.724	120	0.0	0.0	–	LRIS-2.5 × 7	CLR-15S
	SVAC□1212X11N	1	○	○	.472	12	.472	12	.472	12	4.724	120	0.0	0.0	–	LRIS-2.5 × 7	CLR-15S
	SVAC□1616X11N	1	○		.630	16	.630	16	.630	16	4.724	120	0.0	0.0	–	LRIS-2.5 × 7	CLR-15S
VC..22	SVJC□-062C	4	●	●	3/8		3/8		3/8		4.724	120	0.0	0.0	–	LRIS-2.5 × 7	CLR-15S
	SVJC□-082C	4	●	●	1/2		1/2		1/2		4.724	120	0.0	0.0	–	LRIS-2.5 × 7	CLR-15S
	SVJC□-102C	4	●	●	5/8		5/8		5/8		4.724	120	0.0	0.0	–	LRIS-2.5 × 7	CLR-15S
	SVJC□1010X11N	2	○	○	.394	10	.394	10	.394	10	4.724	120	0.0	0.0	–	LRIS-2.5 × 7	CLR-15S
	SVJC□1212X11N	2	●	○	.472	12	.472	12	.472	12	4.724	120	0.0	0.0	–	LRIS-2.5 × 7	CLR-15S
	SVJC□1616X11N	2	○	○	.630	16	.630	16	.630	16	4.724	120	0.0	0.0	–	LRIS-2.5 × 7	CLR-15S
VC..22	SVJC□-082H-F079-OH 💧	3	●		1/2		.551	14	1/2		3.937	100	.079	2.0	NPT1/8	LRIS-2.5 × 7	CLR-15S
	SVJC□-102H-F079-OH 💧	3	●		5/8		5/8		5/8		3.937	100	.079	2.0	NPT1/8	LRIS-2.5 × 7	CLR-15S
VC..22	SVJC□-082C-F250	4	●		1/2		1/2		.709	18	4.724	120	1/4		–	LRIS-2.5 × 7	CLR-15S
	SVJC□-082C-F500	4	●		1/2		1/2		.984	25	4.724	120	1/2		–	LRIS-2.5 × 7	CLR-15S
VC..22	SVXC□1210X11N	5	○	○	.394	10	.472	12	.394	10	4.724	120	0.0	0.0	–	LRIS-2.5 × 7	CLR-15S
	SVXC□1212X11N	5	○		.472	12	.472	12	.472	12	4.724	120	0.0	0.0	–	LRIS-2.5 × 7	CLR-15S
VC..22	SVQC□20-X11	6	○		.787	20	.787	20	.787	20	4.724	120	–	–	–	LRIS-2.5 × 7	CLR-15S
VC..22	SVVC□1212X11N	7	●		.472	12	.472	12	.472	12	4.724	120	.197	5	–	LRIS-2.5 × 7	CLR-15S
	SVVC□1616X11N	7	○		.630	16	.630	16	.630	16	4.724	120	.197	5	–	LRIS-2.5 × 7	CLR-15S
	SVVCN1010X11N	8	○		.394	10	.394	10	.394	10	4.724	120	.197	5	–	LRIS-2.5 × 7	CLR-15S
	SVVCN20-X11	8	○		.787	20	.787	20	.787	20	4.724	120	.394	10	–	LRIS-2.5 × 7	CLR-15S

● : Stock ○ : 1-2 week delivery 💧 : Coolant through

Inserts ➡K55 Cutting condition ➡K30

Y-axis Toolholders for VC.. Inserts

Y-SVJCR

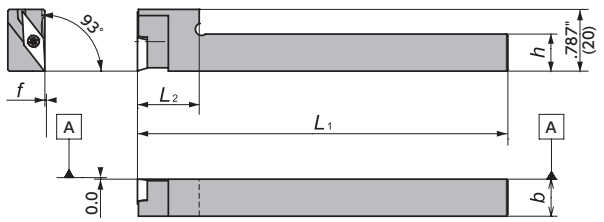


Figure-1

Right-Hand style shown
Takes Right-hand or Neutral insert

Y-SVJCR-OH (Coolant through)

NEW

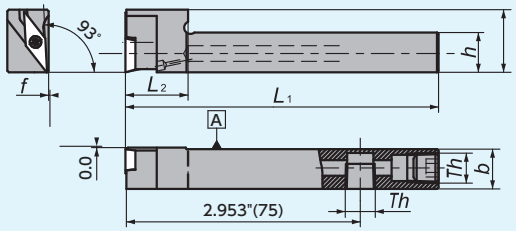


Figure-2

Th (Thread type)
Inch size holder: NPT1/8

Right-Hand style shown
Takes Right-hand or Neutral insert

VC.. Series - Toolholders Ⅱ

Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	L_2 (Inch)	L_2 (mm)	Th	Clamp Screw	Wrench
VC..22..	Y-SVJCR062-IN	1	●		3/8	3/8	4.724	120	0.0	0.0	.787	20	–		LRIS-2.5 × 7	CLR-15S
	Y-SVJCR082-IN	1	●		1/2	1/2	4.724	120	0.0	0.0	.787	20	–		LRIS-2.5 × 7	CLR-15S
	Y-SVJCR102-IN	1	●		5/8	5/8	4.724	120	0.0	0.0	.984	25	–		LRIS-2.5 × 7	CLR-15S
VC..22..	Y-SVJCR082SHS-IN-OH	2	●		1/2	1/2	3.937	100	0.0	0.0	.787	20	NPT1/8		LRIS-2.5 × 7	CLR-15S
	Y-SVJCR102H-IN-OH	2	●		5/8	5/8	3.937	100	0.0	0.0	.984	25	NPT1/8		LRIS-2.5 × 7	CLR-15S

DS Toolholders for VC.. Inserts

DS-SVX

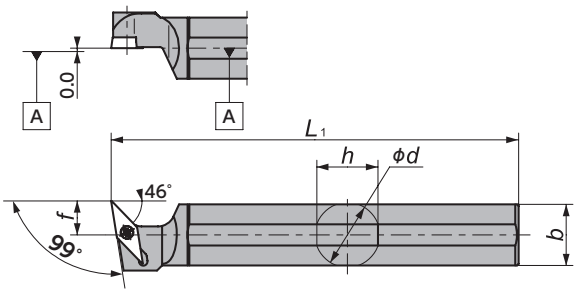
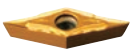


Figure-3

Left-Hand style shown
Takes Right-hand or Neutral insert

VC.. Series - Toolholders Ⅲ



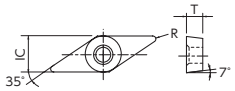
Gage Insert	Item Number	Figure	Stock R	Stock L	ϕ d (Inch)	ϕ d (mm)	h (Inch)	h (mm)	b (Inch)	b (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	Clamp Screw	Wrench
VC..22..	DS-SVXR/L14F-11	3		○	.551	14.000	.512	13	.512	13	3.150	80	.394	10.0	LRIS-2.5 × 7	CLR-15S
	DS-SVXR/L15H-11	3		○	5/8	15.875	.591	15	.591	15	3.937	100	.394	10.0	LRIS-2.5 × 7	CLR-15S
	DS-SVXR/L16F-11	3		●	.630	16.000	.591	15	.591	15	3.150	80	.394	10.0	LRIS-2.5 × 7	CLR-15S
	DS-SVXR/L19-11	3		●	3/4	19.050	.709	18	.709	18	4.724	120	.394	10.0	LRIS-2.5 × 7	CLR-15S
	DS-SVXR/L19-11SPL	3		○	3/4	19.050	.709	18	.709	18	6.299	160	.433	11.0	LRIS-2.5 × 7	CLR-15S
	DS-SVXR/L20X-11	3		○	.787	20.000	.748	19	.748	19	3.740	95	.394	10.0	LRIS-2.5 × 7	CLR-15S
	DS-SVXR/L20-11	3		●	.787	20.000	.748	19	.748	19	4.724	120	.394	10.0	LRIS-2.5 × 7	CLR-15S
	DS-SVXR/L22-11	3		●	.866	22.000	.827	21	.827	21	4.724	120	.394	10.0	LRIS-2.5 × 7	CLR-15S
	DS-SVXR/L25-11	3		●	1	25.400	.945	24	.945	24	5.906	150	.394	10.0	LRIS-2.5 × 7	CLR-15S

● : Stock ○ : 1-2 week delivery ■ : While stock lasts R : Stock (Right-hand only) L : Stock (Left-hand only)
Ⓡ : 1-2 week delivery (Right-hand only) Ⓛ : 1-2 week delivery (Left-hand only) Ⓜ : Mirror finish : Coolant through

Cutting condition ➡K30
Chipbreaker ➡K21

VC.. Inserts - Carbide / Cermet

(inch)	IC	T
VC..22	1/4	1/8

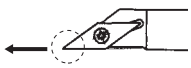


VC_ _

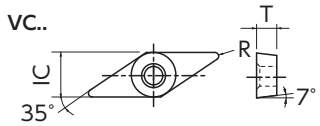
		Carbide							Cermet					
		PVD Coated										PVD Coated		
		QM3	DT4	DM4	TM4	VM1	ZM3	KM1	XT3	C7X	XN4	Q15	C7Z
Steel	P	●	●	●	●	●	●	●	●	●	●	●	●
Stainless Steel	M	●	●	●	●	●	●	●	●	●	●	●	●
Cast Iron	K								●	●		●	●
Non-Ferrous Material	N				●	●	●	●	●	●			●
Heat Resistant Alloy	S	●	●	●	●								
Hardened Material	H	●	●	●									

● : 1st Choice
● : Alternate choice

Shape	Item Number	ISO Item Number	IC	R	QM3	DT4	DM4	TM4	VM1	ZM3	KM1	XT3	C7X	XN4	Q15	C7Z
	VCGT 2201 FNAM3	VCGT 110300 FNAM3	1/4	.001	●	●			●	■						
	VCGT 2204M FNAM3	VCGT 110301M FNAM3	1/4	.003	●	●		○	○							
	VCGT 2204 FNAM3	VCGT 110301 FNAM3	1/4	.004					●	○						
	VCGT 2208M FNAM3	VCGT 110302M FNAM3	1/4	.007	●	●		○	○							
	VCGT 2208 FNAM3	VCGT 110302 FNAM3	1/4	.008					●	○						
	VCGT 2208 FNAM3	VCGT 110302 FNXAM3	1/4	.008									○			
	VCGT 221M FNAM3	VCGT 110304M FNAM3	1/4	.015	●	●		○								
	VCGT 221 FNAM3	VCGT 110304 FNAM3	1/4	.016									○			
NEW	VCGT 2204M YL	VCGT 110301M YL	1/4	.003			●	○								
	VCGT 2208M YL	VCGT 110302M YL	1/4	.007			●	○								
	VCGT 221M YL	VCGT 110304M YL	1/4	.015			●	○								
	VCGT 2204M CL	VCGT 110301M CL	1/4	.003		●		●								
	VCGT 2208M CL	VCGT 110302M CL	1/4	.007		●		●								
	VCGT 2201 FNAZ7	VCGT 110300 FNAZ7	1/4	.001	●					○						
	VCGT 2204M FNAZ7	VCGT 110301M FNAZ7	1/4	.003	●					○						
	VCGT 2208M FNAZ7	VCGT 110302M FNAZ7	1/4	.007	●					○						
	VCGT 221M FNAZ7	VCGT 110304M FNAZ7	1/4	.015	●					○						
	VCMT 2204 T℀AS	VCMT 110301 T℀AS	1/4	.004									Ⓡ Ⓛ			Ⓡ Ⓛ
	VCMT 2208 T℀AS	VCMT 110302 T℀AS	1/4	.008									Ⓡ Ⓛ			Ⓡ Ⓛ
	VCMT 221 T℀AS	VCMT 110304 T℀AS	1/4	.016									Ⓡ Ⓛ			Ⓡ Ⓛ
wiper insert	VCGT 2202 ℀S-WP*	TFV 11F℀05SX	1/4	.002					R	Ⓡ						
wiper insert	VCGT 2204 ℀S-WP*	TFV 11F℀10SX	1/4	.004					R	Ⓡ						
	VCGT 2201 ℀U	VCGT 110300 ℀U	1/4	.001					Ⓡ	Ⓡ						
	VCGT 2204M ℀U	VCGT 110301M ℀U	1/4	.003		Ⓡ										
	VCGT 2204 ℀U	VCGT 110301 ℀U	1/4	.004					Ⓡ	Ⓡ						
	VCGT 2208M ℀U	VCGT 110302M ℀U	1/4	.007		Ⓡ										
	VCGT 2208 ℀U	VCGT 110302 ℀U	1/4	.008					Ⓡ	Ⓡ						
wiper insert	VCGT 2202 ℀U-WP*	TFV 11F℀05U	1/4	.002					Ⓡ	Ⓡ						
wiper insert	VCGT 2204 ℀U-WP*	TFV 11F℀10U	1/4	.004					Ⓡ	Ⓡ						
	VCET 2203 ℀UHG	VCET 1103008 ℀UHG	1/4	.003					Ⓡ							
	VCGW 2201 H Ⓜ	VCGW 110300 H	1/4	.001							●					
	VCGW 2204 H Ⓜ	VCGW 110301 H	1/4	.004							●					
	VCGW 2208 H Ⓜ	VCGW 110302 H	1/4	.008							●					



＊Note: NTK WP style inserts have a wiper facet design.
The insert has a 0.2mm (.008") flat on the cutting edge when the insert is set into the toolholder.
The flat on the cutting edge ensures a superior surface finish when feed rates are increased.
WP style inserts can be used in toolholders: SVAC



		CBN (Brazed)							PCD	
		Coated		Coated						
		B5K	B52	B6K	B36	B40	B23	B30	PD1	PD2
Steel	P									
Stainless Steel	M									
Cast Iron	K	●	●				●	●		
Non-Ferrous Material	N								●	●
Heat Resistant Alloy	S									
Hardened Material	H	●	●	●	●	●				

Shape	Item Number	ISO Item Number	Edge Prep.	IC	R	No. of edge	Length of edge	B5K	B52	B6K	B36	B40	B23	B30	PD1	PD2
	VCGW 221 PD	VCGW 110304 PD	S0415	1/4	.016	2	.098		○							
	VCGW 221 PD	VCGW 110304 PD	S0635	1/4	.016	2	.098					○				
	VCGW 222 PD	VCGW 110308 PD	S0415	1/4	.031	2	.063		○							
	VCGW 222 PD	VCGW 110308 PD	S0635	1/4	.031	2	.063					○				
	VCMW 2204	VCMW 110301	None	1/4	.004	1	–								○	
	VCMW 2208	VCMW 110302	None	1/4	.008	1	–								○	
	VCMW 221	VCMW 110304	None	1/4	.016	1	–								○	

Toolholders VP..08 Inserts

SVQP-N

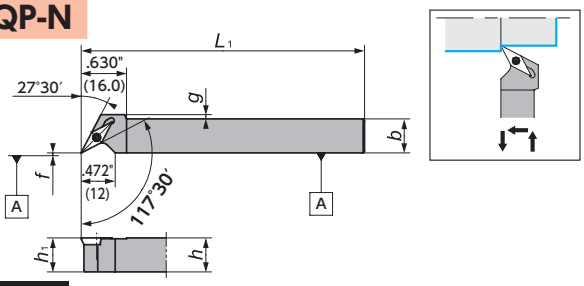


Figure-1

Right-Hand style shown

CH-SVUP

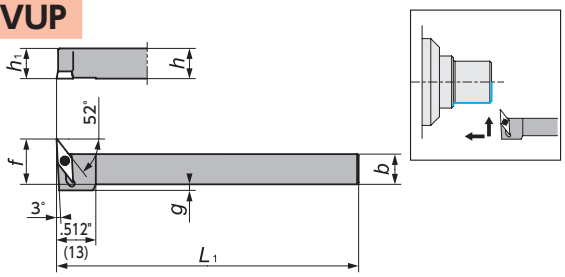


Figure-2

Left-Hand style shown
Takes Right-hand or Neutral insert

DS-SVXP

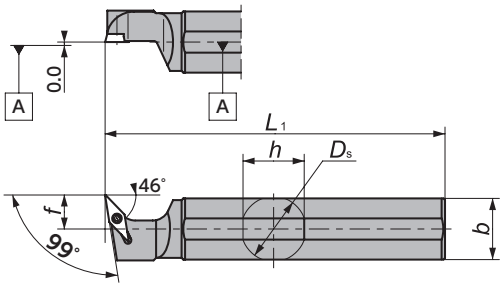
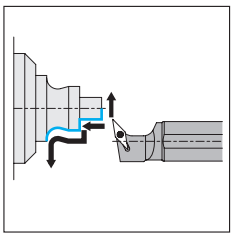


Figure-3



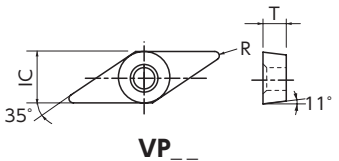
Left-Hand style shown
Takes Right-hand or Neutral insert

Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h1 (Inch)	h1 (mm)	L1 (Inch)	L1 (mm)	f (Inch)	f (mm)	g (Inch)	g (mm)	Clamp Screw	Wrench
 VP..0802	SVQP□1010X08N	1	○	○	.394	10	.394	10	.394	10	4.724	120	0.0	0.0	.138	3.5	LRIS-2 × 6	CLR-13S
	SVQP□1212X08N	1	○	○	.472	12	.472	12	.394	10	4.724	120	0.0	0.0	.059	1.5	LRIS-2 × 6	CLR-13S
	SVQP□1616X08N	1	○	○	.630	16	.630	16	.394	10	4.724	120	0.0	0.0	0	0	LRIS-2 × 6	CLR-13S
	CH-SVUP□1010H08	2		○	.394	10	.394	10	.394	10	3.937	100	.591	15	.079	2	LRIS-2 × 6	CLR-13S
	CH-SVUP□1212H08	2		○	.472	12	.472	12	.472	12	3.937	100	.669	17	0	0	LRIS-2 × 6	CLR-13S

Gage Insert	Item Number	Figure	Stock R	Stock L	Ds (Inch)	Ds (mm)	h (Inch)	h (mm)	b (Inch)	b (mm)	L1 (Inch)	L1 (mm)	f (Inch)	f (mm)	Clamp Screw	Wrench
 VP..0802	DS-SVXP□19-08	3		○	3/4	19.050	.709	18	.709	18	4.724	120	.394	10	LRIS-2 × 6	CLR-13S
	DS-SVXP□20-08	3		○	.787	20.000	.748	19	.748	19	4.724	120	.394	10	LRIS-2 × 6	CLR-13S
	DS-SVXP□22-08	3		○	.866	22.000	.827	21	.827	21	4.724	120	.394	10	LRIS-2 × 6	CLR-13S
	DS-SVXP□25-08	3		○	1	25.400	.945	24	.945	24	5.906	150	.394	10	LRIS-2 × 6	CLR-13S

VP.. Inserts - Carbide / Cermet

(inch)	IC	T
VP..08	3/16	3/32



VP__

		Carbide QM3	Carbide DT4	Carbide DM4	Carbide TM4	Carbide VM1	Carbide ZM3	Carbide KM1	Cermet XT3	Cermet C7X	Cermet XN4	Cermet Q15	Cermet C7Z
						PVD Coated						PVD Coated	
Steel	P	●	●	●	●	●	●	●	●	●	●	●	●
Stainless Steel	M	●	●	●	●	●	●	●	●	●	●	●	●
Cast Iron	K								●	○		●	○
Non-Ferrous Material	N				○	○	○	●	○	○			○
Heat Resistant Alloy	S	●	●	●	○								
Hardened Material	H	●	○	●									

● : 1st Choice
○ : Alternate choice

Shape	Item Number	ISO Item Number	IC	R	QM3	DT4	DM4	TM4	VM1	ZM3	KM1	XT3	C7X	XN4	Q15	C7Z
	VPET 0802005 □KHG	VPET 0802005 □KHG	.187	.002					Ⓡ Ⓛ							
	VPET 0802008 □KHG	VPET 0802008 □KHG	.187	.003		Ⓡ		Ⓡ	Ⓡ Ⓛ							
	VPET 0802018 □KHG	VPET 0802018 □KHG	.187	.007				Ⓡ	Ⓡ Ⓛ							
	VPET 080202 □KHG	VPET 080202 □KHG	.187	.008				Ⓡ	Ⓡ Ⓛ							
	VPET 0802008 □UHG	VPET 0802008 □UHG	.187	.003		Ⓡ Ⓛ										

Toolholders for VP..22 Inserts

SVXP-N

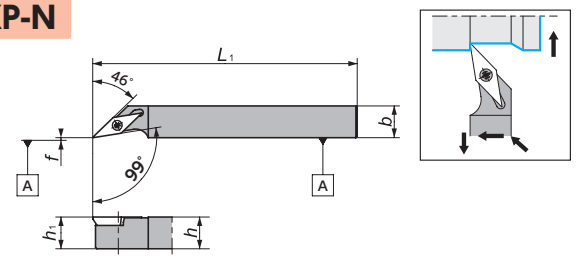


Figure-1

Right-Hand style shown

DS-SVVP

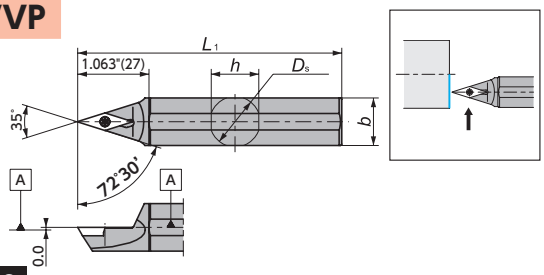


Figure-2

DS-SVVP-ACH (Adjustable centerline height)

〈Parts〉

Shank	Wedge	Screw for Wedge
ϕ.630" (16)	ACH-W18 (5805601)	WS060415-003 (5795539)
ϕ3/4" (19.05)		
ϕ.787" (20)		WS060419-004 (5799226)
ϕ.866" (22)		
ϕ1" (25.4)	ACH-W24 (5805619)	

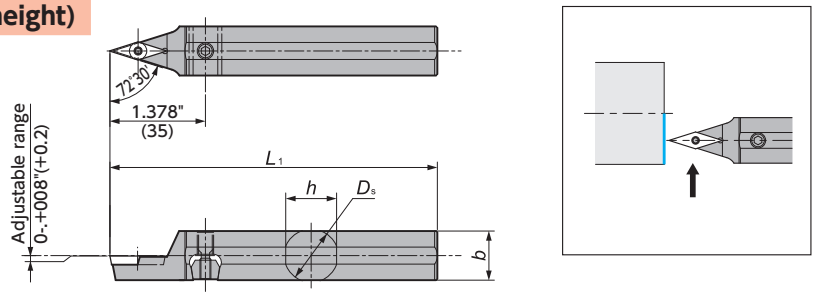


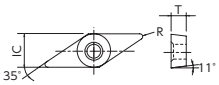
Figure-3

Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h1 (Inch)	h1 (mm)	L1 (Inch)	L1 (mm)	f (Inch)	f (mm)	Clamp Screw	Wrench
 VP..22	SVXP℞1012X11N	1	○	○	.394	10	.472	12	.394	10	4.724	120	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	SVXP℞1212X11N	1	○	○	.472	12	.472	12	.472	12	4.724	120	0.0	0.0	LRIS-2.5 × 7	CLR-15S

Gage Insert	Item Number	Figure	Stock R	Stock L	Ds (Inch)	Ds (mm)	h (Inch)	h (mm)	b (Inch)	b (mm)	L1 (Inch)	L1 (mm)	Clamp Screw	Wrench
 VP..22	DS-SVVPN19-11	2	○		3/4	19.050	.709	18.0	.709	18	4.724	120	LRIS-2.5 × 7	CLR-15S
	DS-SVVPN22-11	2	○		.866	22.00	.827	21.0	.827	21	4.724	120	LRIS-2.5 × 7	CLR-15S
	DS-SVVPN16-11-ACH	3	●		.630	16.000	.610	15.5	.610	15	4.724	120	LRIS-2.5 × 7	CLR-15S
	DS-SVVPN19-11-ACH	3	●		3/4	19.050	.709	18.0	.709	18	4.724	120	LRIS-2.5 × 7	CLR-15S
	DS-SVVPN20-11-ACH	3	●		.787	20.000	.748	19.0	.748	19	4.724	120	LRIS-2.5 × 7	CLR-15S
	DS-SVVPN22-11-ACH	3	●		.866	22.000	.827	21.0	.827	21	4.724	120	LRIS-2.5 × 7	CLR-15S
	DS-SVVPN25-11-ACH	3	●		1	25.400	.945	24.0	.945	24	5.906	150	LRIS-2.5 × 7	CLR-15S

VP.. Inserts - Carbide / Cermet

(inch)	IC	T
VP..22	1/4	1/8

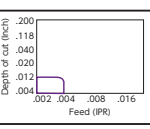


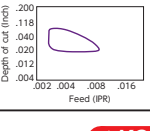
VP__

Steel	P	● ● ● ● ● ● ● ● ● ● ● ●
Stainless Steel	M	● ● ● ● ● ● ● ● ● ● ● ●
Cast Iron	K	● ● ● ●
Non-Ferrous Material	N	● ● ● ● ● ●
Heat Resistant Alloy	S	● ● ● ●
Hardened Material	H	● ● ●

● : 1st Choice
● : Alternate choice

Shape	Item Number	ISO Item Number	IC	R	Carbide PVD Coated QM3	DT4	DM4	TM4	VM1	ZM3	KM1	Cermet XT3	C7X	XN4	Cermet PVD Coated Q15	C7Z
	VPET 2202 ℞KHG	VPET 1103005 ℞KHG	1/4	.002				Ⓡ	Ⓡ Ⓛ							
	VPET 2203 ℞KHG	VPET 1103008 ℞KHG	1/4	.003				Ⓡ	Ⓡ Ⓛ							
	VPET 2207 ℞KHG	VPET 1103018 ℞KHG	1/4	.007				Ⓡ	Ⓡ Ⓛ							
	VPET 2208 ℞KHG	VPET 110302 ℞KHG	1/4	.008				Ⓡ	Ⓡ Ⓛ							
	VPGT 2201 FNAM3	VPGT 110300 FNAM3	1/4	.001		●		○								
	VPGT 2204M FNAM3	VPGT 110301M FNAM3	1/4	.003	●	●		○								
	VPGT 2208M FNAM3	VPGT 110302M FNAM3	1/4	.007	●	●		○								





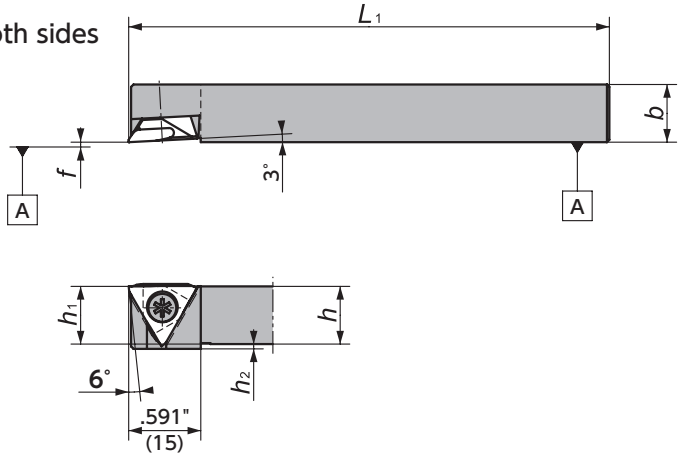
● : Stock ○ : 1-2 week delivery Ⓡ : 1-2 week delivery (Right-hand only) Ⓛ : 1-2 week delivery (Left-hand only)

Cutting condition →K30
Chipbreaker →K21

Toolholders for TFT series

TFT

Screw accessible from both sides



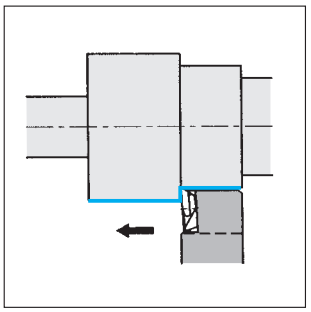
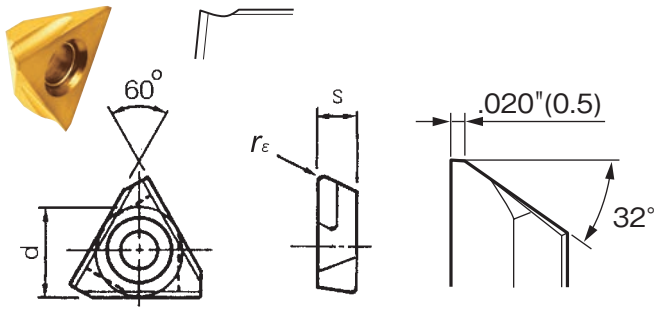


Figure-1

Right-Hand style shown

Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h1 (Inch)	h1 (mm)	L1 (Inch)	L1 (mm)	f (Inch)	f (mm)	h2 (Inch)	h2 (mm)	Clamp Screw	Wrench
 TF33	TFT□06-IN	1	●		3/8		3/8		3/8		4.724	120	0.0	0.0	.118	3	LR-S-4 × 10PW	CLR-15S
	TFT□08-IN	1	●		1/2		1/2		1/2		4.724	120	0.0	0.0	.039	1	LR-S-4 × 10PW	CLR-15S
	TFT□10	1	○		.394	10	.394	10	.394	10	4.724	120	0.0	0.0	.118	3	LR-S-4 × 10PW	CLR-15S
	TFT□12	1	○		.472	12	.472	12	.472	12	4.724	120	0.0	0.0	.039	1	LR-S-4 × 10PW	CLR-15S
	TFT□16	1	○		.630	16	.630	16	.630	16	4.724	120	0.0	0.0	0.0	0	LR-S-4 × 10PW	CLR-15S
	TFT□20	1	○		.787	20	.787	20	.787	20	4.724	120	0.0	0.0	0.0	0	LR-S-4 × 10PW	CLR-15S

TFT Series - Inserts



Right-Hand style shown

Note: Up to .157"(4.0mm) D.O.C.
All angles shown are obtained when insert is set in the holder.

Item Number	d (Inch)	d (mm)	s (Inch)	s (mm)	rε (Inch)	rε (mm)	ZM3 R	ZM3 L
TF3300□	3/8	9.525	3/16	4.76	0	0	●	
TF3305□	3/8	9.525	3/16	4.76	.002	0.05	●	
TF3315□	3/8	9.525	3/16	4.76	.006	0.15	●	
TF3320□	3/8	9.525	3/16	4.76	.008	0.2	○	

Toolholders for TC.. Inserts

STAC-N

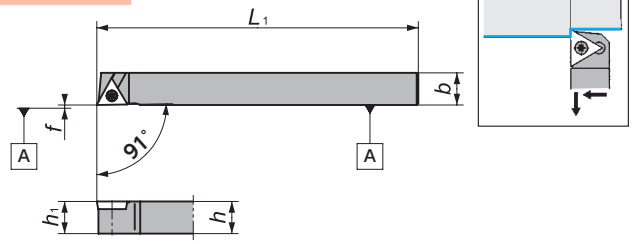


Figure-1

Right-Hand style shown

CH-STUC

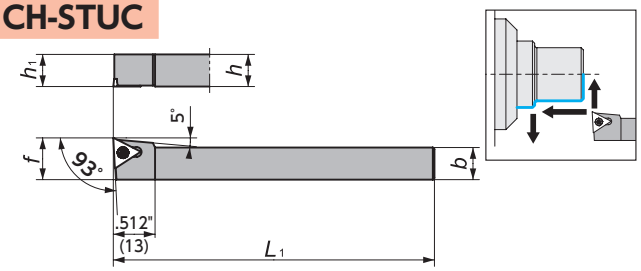


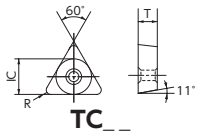
Figure-2

Left-Hand style shown
Takes Right-hand or Neutral insert

Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h_1 (Inch)	h_1 (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	Clamp Screw	Wrench
TC..73..	STAC□1010X09N	1	○		.394	10	.394	10	.394	10	4.724	120	0.0	0.0	LRIS-2.2 × 6	CLR-13S
	STAC□1212X11N	1	○	○	.472	12	.472	12	.472	12	4.724	120	0.0	0.0	LRIS-2.5 × 7	CLR-15S
TC..21.5..	CH-STUC□1010H09	2		○	.394	10	.394	10	.394	10	3.937	100	.512	13	LRIS-2.2 × 6	CLR-13S
TC..73..	CH-STUC□1212H09	2		○	.472	12	.472	12	.472	12	3.937	100	.591	15	LRIS-2.2 × 6	CLR-13S

TC.. Inserts - Carbide / Cermet

(inch) TC..21	IC 1/4	T 3/32	(inch) TC..73	IC 7/32	T 3/32

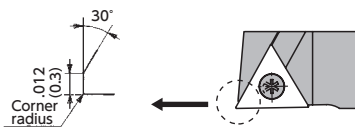


TC□□

Steel	P	●
Stainless Steel	M	●
Cast Iron	K	●
Non-Ferrous Material	N	●
Heat Resistant Alloy	S	●
Hardened Material	H	●

● : 1st Choice
● : Alternate choice

Shape	Item Number	ISO Item Number	IC	R	Carbide PVD Coated QM3	DT4	DM4	TM4	VM1	ZM3	KM1	Cermet XT3	C7X	XN4	Cermet PVD Coated Q15	C7Z
	TCGT 21.508 FNAM3	TCGT 110202 FNXAM3	1/4	.008									○			
	TCGT 7304 □S	TCGT 090201 □S	7/32	.004					Ⓡ Ⓛ	Ⓡ			Ⓡ			
	TCGT 7308 □S	TCGT 090202 □S	7/32	.008						Ⓡ			Ⓡ Ⓛ			
	TCGT 21.504 □S	TCGT 110201 □S	1/4	.004					Ⓡ Ⓛ	Ⓡ						
 wiper insert	TCGT 7302 □S-WP*	TFT 09F□05	7/32	.002						Ⓡ						
	TCGT 7306 □S-WP*	TFT 09F□15	7/32	.006						Ⓡ						
	TCGT 21.502 □S-WP*	TFT 11F□05	1/4	.002						Ⓡ						
	TCGT 21.506 □S-WP*	TFT 11F□15	1/4	.006						Ⓡ						
	TCGT 7304 □U	TCGT 090201 □U	7/32	.004						Ⓡ						
	TCGT 7308 □U	TCGT 090202 □U	7/32	.008						Ⓡ						
 wiper insert	TCGT 7302 □U-WP*	TFT 09F□05U	7/32	.002						Ⓡ						
	TCGT 7306 □U-WP*	TFT 09F□15U	7/32	.006						Ⓡ						
	TCGT 21.502 □U1-WP*	TFT 11F□05U1	1/4	.002						Ⓡ						
	TCGT 21.506 □U1-WP*	TFT 11F□15U1	1/4	.006						Ⓡ						
	TCGW 7301 FN	TCGW 090200 FN	7/32	.001						○						
	TCGW 7304 FN	TCGW 090201 FN	7/32	.004						○						
	TCGW 21.501 FN	TCGW 110200 FN	1/4	.001						○						
	TCGW 21.504 FN	TCGW 110201 FN	1/4	.004						○						



*Note: NTK WP style inserts have a wiper facet design.
The insert has a 0.3mm (.012") flat on the cutting edge when the insert is set into the toolholder.
The flat on the cutting edge ensures a superior surface finish when feed rates are increased.
WP style inserts can be used in toolholders: STAC

● : Stock ○ : 1-2 week delivery Ⓡ : 1-2 week delivery (Right-hand only) Ⓛ : 1-2 week delivery (Left-hand only)

Cutting condition ➡K30
Chipbreaker ➡K21

Toolholders for TN.. Inserts

PTXN-N

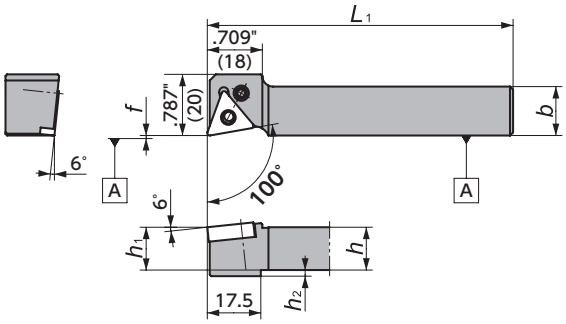
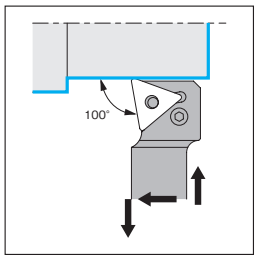


Figure-1

Shim	Clamp Pin	Spring
–	LCL33N	–



Right-Hand style shown

PTAN-N

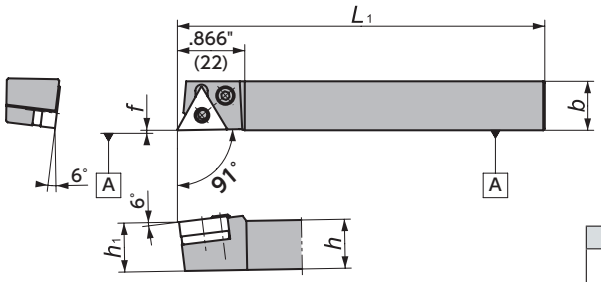
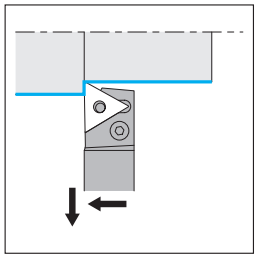


Figure-2

Shim	Clamp Pin	Spring
LST317	LCL3	LSP3



Right-Hand style shown

PTLN

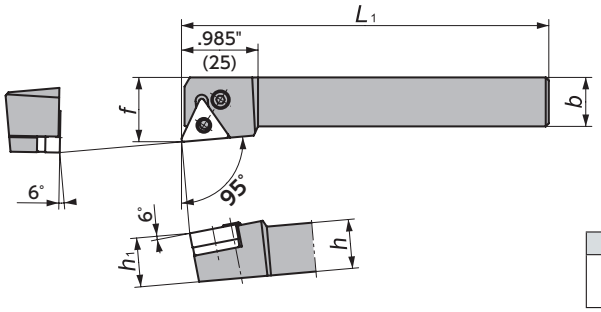
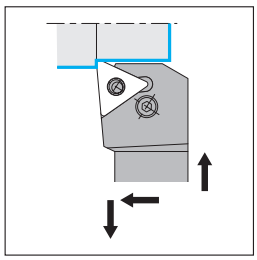


Figure-3

Shim	Clamp Pin	Spring
LST317	LCL3	LSP3



Right-Hand style shown

DS-PTX

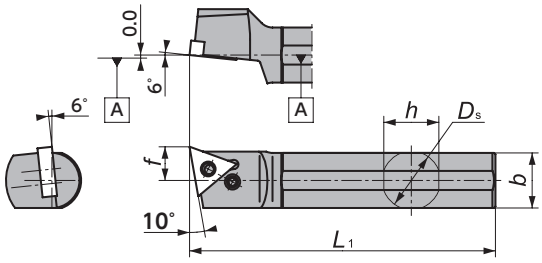
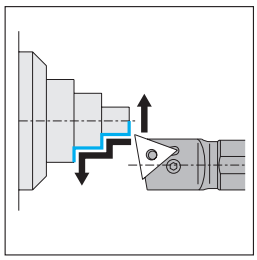


Figure-4

Shim	Clamp Pin	Spring
–	LCL33N	–



Left-Hand style shown
Takes Right-hand or Neutral insert

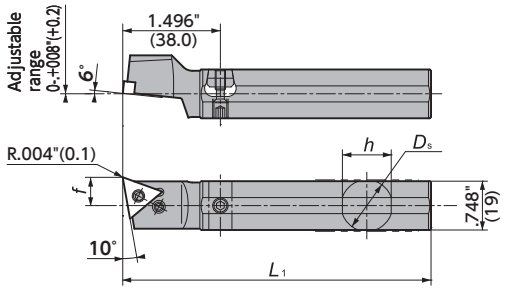
DS-PTX-ACH (Adjustable centerline height)

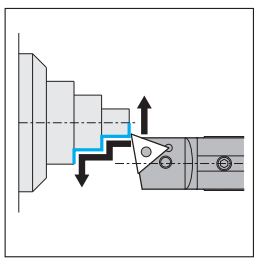
〈Parts〉

Shank	Wedge	Screw for Wedge
ϕ.630" (16)	ACH-W18 (5805601)	WS060415-003 (5795539)
ϕ3/4" (19.05)		
ϕ.787" (20)		WS060419-004 (5799226)
ϕ.866" (22)		
ϕ1" (25.4)	ACH-W24 (5805619)	

Shim	Clamp Pin	Spring
–	LCL33N	–

Figure-5





Left-Hand style shown
Takes Right-hand or Neutral insert

TN.. Series - Toolholders

■PTXN-N / PTAN-N / PTLN

Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h_1 (Inch)	h_1 (mm)	L_1 (Inch)	L_1 (mm)	h_2 (Inch)	h_2 (mm)	f (Inch)	f (mm)	Clamp Screw	Wrench
TN..33..	PTXN℞063C	1	●		3/8		5/8		3/8		4.724	120	.097	2.475	0.0	0.0	LCS33	LW-2
	PTXN℞083C	1	●		1/2		5/8		1/2		4.724	120	–	–	0.0	0.0	LCS33	LW-2
	PTXN℞103C	1	●		5/8		5/8		5/8		4.724	120	–	–	0.0	0.0	LCS33	LW-2
TN..33..	PTXN℞1016X33N	1	○		.394	10.0	.630	16	.394	10	4.724	120	.079	2	0.0	0.0	LCS33	LW-2
	PTXN℞1216X33N	1	●		.472	12.0	.630	16	.472	12	4.724	120	–	–	0.0	0.0	LCS33	LW-2
	PTXN℞1616X33N	1	○		.630	16.0	.630	16	.630	16	4.724	120	–	–	0.0	0.0	LCS33	LW-2
	PTXN℞2020X33N	1	○		.787	20.0	.787	20	.787	20	4.724	120	–	–	0.0	0.0	LCS33	LW-2
TN..33..	PTAN℞1616X33N	2	○		.630	16.0	.630	16	.630	16	4.724	120	–	–	0.0	0.0	LCS3	LW-2.5
TN..33..	PTLN℞2020L33	3	○	○	.787	20.0	.787	20	.787	20	5.512	140	–	–	.984	25	LCS3	LW-2.5

■DS-PTX / DS-PTX-ACH

Gage Insert	Item Number	Figure	Stock R	Stock L	D_s (Inch)	D_s (mm)	h (Inch)	h (mm)	b (Inch)	b (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	Clamp Screw	Wrench
TN..33..	DS-PTX℞19-33	4		○	3/4	19.050	.709	18.0	.709	18	4.724	120	.433	11.0	LCS33	LW-2
	DS-PTX℞20-33	4		○	.787	20.000	.748	19.0	.748	19	4.724	120	.433	11.0	LCS33	LW-2
	DS-PTX℞22-33	4		○	.866	22.000	.827	21.0	.827	21	4.724	120	.472	12.0	LCS33	LW-2
	DS-PTX℞25M-33	4		○	1	25.400	.945	24.0	.945	24	5.906	150	.512	13.0	LCS33	LW-2
TN..33..	DS-PTX℞16-33-ACH	5		●	.630	16.000	.610	15.5	.591	15	4.724	120	.433	11.0	LCS33	LW-2
	DS-PTX℞19-33-ACH	5		●	3/4	19.050	.709	18.0	.709	18	4.724	120	.433	11.0	LCS33	LW-2
	DS-PTX℞20-33-ACH	5		●	.787	20.000	.748	19.0	.748	19	4.724	120	.433	11.0	LCS33	LW-2
	DS-PTX℞22-33-ACH	5		●	.866	22.000	.827	21.0	.827	21	4.724	120	.472	12.0	LCS33	LW-2
	DS-PTX℞25-33-ACH	5		●	1	25.400	.945	24.0	.945	24	5.906	150	.512	13.0	LCS33	LW-2

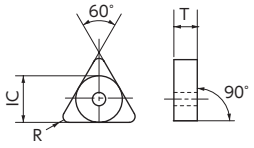
Note: All angles shown are obtained when insert is set in the holder

● : Stock ○ : 1-2 week delivery

Inserts ➡K62
Cutting condition ➡K30

TN..33 inserts - Carbide / Cermet

(inch)	IC	T
TN..33	3/8	3/16

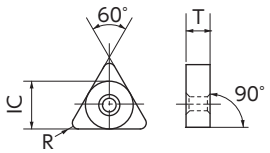


		Carbide							Cermet				
		PVD Coated										PVD Coated	
		QM3	DT4	DM4	TM4	VM1	ZM3	KM1	XT3	C7X	XN4	Q15	C7Z
Steel	P	●	●	●	●	●	●	●	●	●	●	●	●
Stainless Steel	M	●	●	●	●	●	●	●	●	●	●	●	●
Cast Iron	K								●	●		●	●
Non-Ferrous Material	N				●	●	●	●	●	●			●
Heat Resistant Alloy	S	●	●	●	●								
Hardened Material	H	●	●	●									

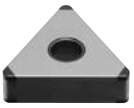
● : 1st Choice
● : Alternate choice

Shape	Item Number	ISO Item Number	IC	R	QM3	DT4	DM4	TM4	VM1	ZM3	KM1	XT3	C7X	XN4	Q15	C7Z
	TNGG 3304M FNUL	TNGG 160401M FNUL	3/8	.003			●	●								
	TNGG 3308M FNUL	TNGG 160402M FNUL	3/8	.007			●	●								
	TNGG 331M FNUL	TNGG 160404M FNUL	3/8	.015			●	●								
	TNGG 3308 FNZP	TNGG 160402 FNZP	3/8	.008	●		○		○	○						
	TNGG 331 FNZP	TNGG 160404 FNZP	3/8	.016	●		○		○	●						
	TNGG 332 FNZP	TNGG 160408 FNZP	3/8	.031	●		○		○	●						
	TNGG 3304 FR/LU2	TNGG 160401 FR/LU2	3/8	.004					Ⓡ	Ⓡ		Ⓡ				
	TNGG 3308 FR/LU2	TNGG 160402 FR/LU2	3/8	.008			Ⓡ/Ⓛ			Ⓡ/Ⓛ		Ⓡ/Ⓛ				
	TNGG 331 FR/LU2	TNGG 160404 FR/LU2	3/8	.016			Ⓡ/Ⓛ			Ⓡ/Ⓛ		Ⓡ/Ⓛ				
	TNGG 332 FR/LU2	TNGG 160408 FR/LU2	3/8	.031						Ⓡ/Ⓛ						
	TNEG 3304M FR/LD1	TNEG 160401M FR/LD1	3/8	.003												Ⓡ/Ⓛ
	TNEG 3308 FR/LD1	TNEG 160402 FR/LD1	3/8	.008				Ⓡ/Ⓛ								Ⓡ/Ⓛ
	TNEG 331 FR/LD1	TNEG 160404 FR/LD1	3/8	.016				Ⓡ/Ⓛ								Ⓡ/Ⓛ
	TNEG 332 FR/LD1	TNEG 160408 FR/LD1	3/8	.031				Ⓡ/Ⓛ								Ⓡ/Ⓛ
	TNGG 3304 FR/LDA	TNGG 160401 FR/LDA	3/8	.004					Ⓡ	Ⓡ		Ⓡ				
	TNGG 331 FNZF1	TNGG 160404 FNZF1	3/8	.016								●				
	TNGG 332 FNZF1	TNGG 160408 FNZF1	3/8	.031								●				

TN..33 Inserts - CBN / PCD



		Steel	Stainless Steel	Cast Iron	Non-Ferrous Material	Heat Resistant Alloy	Hardened Material
		P	M	K	N	S	H
CBN (Brazed)	B5K (Coated)			●			●
	B52			●			●
	B6K (Coated)						●
	B36						●
	B40						●
	B23			●			
	B30			●			
PCD	PD1				●		
	PD2				●		

Shape	Item Number	ISO Item Number	Edge Prep.	IC	R	No. of edge	Length of edge
	TNGA 331C PH	TNGA 160401 PH	S0415	3/8	.004	6	.083
	TNGA 3308 PH	TNGA 160402 PH	S0415	3/8	.008	6	.087
	TNGA 3308 PH	TNGA 160402 PH	S0635	3/8	.008	6	.087
	TNGA 331 PH	TNGA 160404 PH	S0415	3/8	.016	6	.079
	TNGA 331 PH	TNGA 160404 PH	T0420	3/8	.016	6	.079
	TNGA 331 PH	TNGA 160404 PH	S0525	3/8	.016	6	.079
	TNGA 331 PH	TNGA 160404 PH	S0635	3/8	.016	6	.079
	TNGA 332 PH	TNGA 160408 PH	S0415	3/8	.031	6	.067
	TNGA 332 PH	TNGA 160408 PH	S0420	3/8	.031	6	.067
	TNGA 332 PH	TNGA 160408 PH	T0420	3/8	.031	6	.067
	TNGA 332 PH	TNGA 160408 PH	S0525	3/8	.031	6	.067
	TNGA 332 PH	TNGA 160408 PH	S0635	3/8	.031	6	.067
	TNGA 333 PH	TNGA 160412 PH	S0415	3/8	.047	6	.091
	TNGA 333 PH	TNGA 160412 PH	S0420	3/8	.047	6	.091
	TNGA 333 PH	TNGA 160412 PH	T0420	3/8	.047	6	.091
	TNMA 333 PH	TNMA 160412 PH	S0525	3/8	.047	6	.091
	TNGA 333 PH	TNGA 160412 PH	S0635	3/8	.047	6	.091
NEW  with chipbreaker	TNMX 331 PF	TNMX 160404 PF	none	3/8	.016	1	–
	TNMX 332 PF	TNMX 160408 PF	none	3/8	.031	1	–

● : Stock ○ : 1-2 week delivery Ⓡ : 1-2 week delivery (Right-hand only) Ⓛ : 1-2 week delivery (Left-hand only)

Holders ➡K60 Cutting condition ➡K30 Chipbreaker ➡K25

Toolholders for CN.. Inserts

PCLN-N

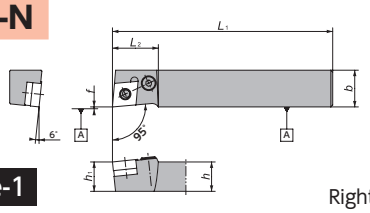
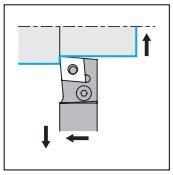


Figure-1



Right-Hand style shown

PCLN

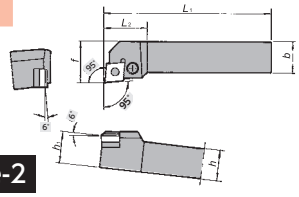
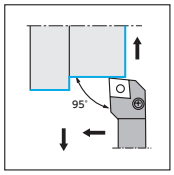


Figure-2

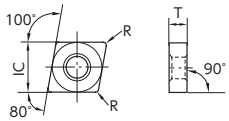


Right-Hand style shown

Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h_1 (Inch)	h_1 (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	L_2 (Inch)	L_2 (mm)	Shim	Clamp Pin	Clamp Screw	Spring	Wrench
 CN..43..	PCLN※1620X43N	1	○		.630	16	.787	20	.630	16	4.724	120	0.0	0.0	.984	25	LSC42	LCL4	LCS4CA	LSP4	LW-3
	PCLN※2020K43	2	○	○	.787	20	.787	20	.787	20	4.921	125	.984	25	1.102	28	LSD42	LCL4	LCS4	LSP4	LW-3
	PCLN※2525M43	2	○	○	.984	25	.984	25	.984	25	5.906	150	1.260	32	1.102	28	LSD42	LCL4	LCS4	LSP4	LW-3

CN..43 Inserts

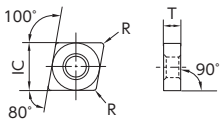
(inch)	IC	T
CN..43	1/2	3/16



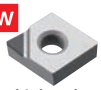
		QM3	DT4	DM4	TM4	VM1	ZM3	KM1	XT3	C7X	XN4	Q15	C7Z
		Carbide PVD Coated							Cermet			PVD Coated	
Steel	P	●	●	●	●	●	●	●	●	●	●	●	●
Stainless Steel	M	●	●	●	●	●	●	●	●	●	●	●	●
Cast Iron	K								●	●		●	●
Non-Ferrous Material	N				●	●	●	●	●	●			●
Heat Resistant Alloy	S	●	●	●	●								
Hardened Material	H	●	●	●									

● : 1st Choice
● : Alternate choice

Shape	Item Number	ISO Item Number	IC	R	QM3	DT4	DM4	TM4	VM1	ZM3	KM1	XT3	C7X	XN4	Q15	C7Z
	CNGG 431 FNUL	CNGG 120404 FNUL	1/2	.016			●	○								
	CNGG 432 FNUL	CNGG 120408 FNUL	1/2	.031			●	○								
	CNGG 431 FNZP	CNGG 120404 FNZP	1/2	.016	●		●			●						
	CNMP 432 ZP	CNMG 120408 ENBZP	1/2	.031								●				
	CNGG 432 FNZP	CNGG 120408 FNZP	1/2	.031	●		●			●						
	CNGG 4304 FNZF1	CNGG 120401 FNZF1	1/2	.004								●				
	CNGG 4308 FNZF1	CNGG 120402 FNZF1	1/2	.008								●				
	CNGG 431 FNZF1	CNGG 120404 FNZF1	1/2	.016								●				
	CNGG 432 FNZF1	CNGG 120408 FNZF1	1/2	.031								●				



		P	M	K	N	S	H
Steel	P						
Stainless Steel	M						
Cast Iron	K	●	●			●	●
Non-Ferrous Material	N						●
Heat Resistant Alloy	S						●
Hardened Material	H	●	●	●	●	●	

Shape	Item Number	ISO Item Number	Edge Prep.	IC	R	No. of edge	Length of edge	CBN (Brazed) Coated B5K	B52	Coated B6K	B36	B40	B23	B30	PCD PD1	PD2
	CNGA 4308 PQ	CNGA 120402 PQ	S0415	1/2	.008	4	.091		●							
	CNGA 4308 PQ	CNGA 120402 PQ	S0635	1/2	.008	4	.091					●				
	CNGA 431 PQ	CNGA 120404 PQ	S0415	1/2	.016	4	.091	●	●							
	CNGA 431 PQ	CNGA 120404 PQ	S0420	1/2	.016	4	.091						○			
	CNGA 431 PQ	CNGA 120404 PQ	T0420	1/2	.016	4	.091							○		
	CNGA 431 PQ	CNGA 120404 PQ	S0525	1/2	.016	4	.091			●	○					
	CNGA 431 PQ	CNGA 120404 PQ	S0635	1/2	.016	4	.091					●				
	CNGA 432 PQ	CNGA 120408 PQ	S0415	1/2	.031	4	.087	●	●							
	CNGA 432 PQ	CNGA 120408 PQ	S0420	1/2	.031	4	.087						○			
	CNGA 432 PQ	CNGA 120408 PQ	T0420	1/2	.031	4	.087							○		
	CNGA 432 PQ	CNGA 120408 PQ	S0525	1/2	.031	4	.087			●	○					
	CNGA 432 PQ	CNGA 120408 PQ	S0635	1/2	.031	4	.087					●				
	CNGA 433 PQ	CNGA 120412 PQ	S0415	1/2	.047	4	.106	●	●							
	CNGA 433 PQ	CNGA 120412 PQ	S0420	1/2	.047	4	.106						○			
	CNGA 433 PQ	CNGA 120412 PQ	T0420	1/2	.047	4	.106							○		
	CNMA 433 PQ	CNMA 120412 PQ	S0525	1/2	.047	4	.094				○					
	CNGA 433 PQ	CNGA 120412 PQ	S0635	1/2	.047	4	.106					●				
 with wiper	CNGA 431 PQW	CNGA 120404 PQW	S0415	1/2	.016	4	.091		●							
	CNGA 431 PQW	CNGA 120404 PQW	S0635	1/2	.016	4	.091					●				
	CNGA 432 PQW	CNGA 120408 PQW	S0415	1/2	.031	4	.087		●							
	CNGA 432 PQW	CNGA 120408 PQW	S0635	1/2	.031	4	.087					●				
	CNGA 433 PQW	CNGA 120412 PQW	S0415	1/2	.047	4	.106		●							
	CNGA 433 PQW	CNGA 120412 PQW	S0635	1/2	.047	4	.106					●				
NEW  with chipbreaker	CNMX 431 PF	CNMX 120404 PF	none	1/2	.016	1	–									●
	CNMX 432 PF	CNMX 120408 PF	none	1/2	.031	1	–									●

Toolholders for DN.. Inserts

PDJN-N

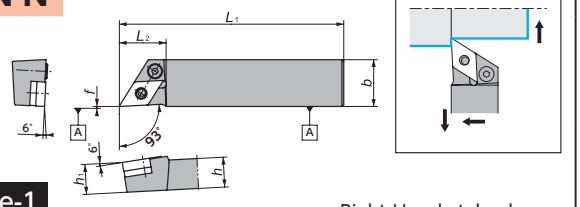


Figure-1

Right-Hand style shown

PDJN

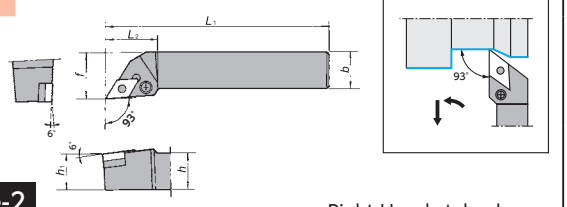
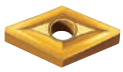


Figure-2

Right-Hand style shown

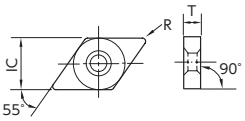
Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h_1 (Inch)	h_1 (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	L_2 (Inch)	L_2 (mm)	Shim	Clamp Pin	Clamp Screw	Spring	Wrench
 DN..43..	PDJN※1625X43N	1	○		.630	16	.984	25	.630	16	4.724	120	0.0	0.0	.984	25	LSD42	LCL4	LCS4CA	LSP4	LW-3
	PDJN※2020K43	2	○	○	.787	20	.787	20	.787	20	4.921	125	.984	25	1.260	32	LSD42	LCL4	LCS4	LSP4	LW-3
	PDJN※2525M43	2	○		.984	25	.984	25	.984	25	5.906	150	1.260	32	1.260	32	LSD42	LCL4	LCS4	LSP4	LW-3

Note: All angles shown are obtained when insert is set in the holder

DN.. Inserts

[Molded Chipbreakers]

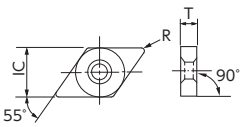
(inch)	IC	T
DN..43	1/2	3/16



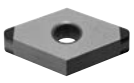
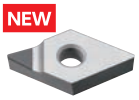
Steel	P	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Stainless Steel	M	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cast Iron	K								●	●	●			●	●		●
Non-Ferrous Material	N				●	●	●	●	●	●							●
Heat Resistant Alloy	S	●	●	●	●												
Hardened Material	H	●	●	●													

● : 1st Choice
● : Alternate choice

Shape	Item Number	ISO Item Number	IC	R	Carbide PVD Coated QM3	DT4	DM4	TM4	VM1	ZM3	KM1	Cermet XT3	C7X	XN4	Cermet PVD Coated Q15	C7Z
	DNGG 431 FNZP	DNGG 150404 FNZP	1/2	.016	●		●			●						
	DNGG 432 FNZP	DNGG 150408 FNZP	1/2	.031	●		●			●						
	DNGG 4304 FNZF1	DNGG 150401 FNZF1	1/2	.004								●				
	DNGG 4308 FNZF1	DNGG 150402 FNZF1	1/2	.008								●				
	DNGG 431 FNZF1	DNGG 150404 FNZF1	1/2	.016								●				
	DNGG 432 FNZF1	DNGG 150408 FNZF1	1/2	.031								●				



Steel	P																
Stainless Steel	M																
Cast Iron	K	●	●								●	●					
Non-Ferrous Material	N															●	●
Heat Resistant Alloy	S																
Hardened Material	H	●	●	●	●	●											

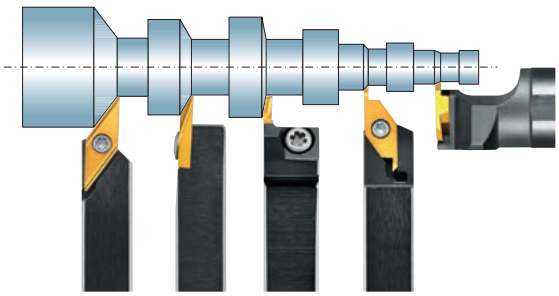
Shape	Item Number	ISO Item Number	Edge Prep.	IC	R	No. of edge	Length of edge	CBN (Brazed) Coated B5K	B52	Coated B6K	B36	B40	B23	B30	PCD PD1	PD2
	DNGA 4308 PQ	DNGA 150402 PQ	S0415	1/2	.008	4	.094		●							
	DNGA 4308 PQ	DNGA 150402 PQ	S0635	1/2	.008	4	.094					●				
	DNGA 431 PQ	DNGA 150404 PQ	S0415	1/2	.016	4	.087	●	●							
	DNGA 431 PQ	DNGA 150404 PQ	S0525	1/2	.016	4	.087			●	○					
	DNGA 431 PQ	DNGA 150404 PQ	S0635	1/2	.016	4	.087					●				
	DNGA 432 PQ	DNGA 150408 PQ	S0415	1/2	.031	4	.075	●	●							
	DNGA 432 PQ	DNGA 150408 PQ	S0420	1/2	.031	4	.075						○			
	DNGA 432 PQ	DNGA 150408 PQ	T0420	1/2	.031	4	.075							○		
	DNGA 432 PQ	DNGA 150408 PQ	S0525	1/2	.031	4	.075			●	○					
	DNGA 432 PQ	DNGA 150408 PQ	S0635	1/2	.031	4	.075					●				
	DNGA 433 PQ	DNGA 150412 PQ	S0415	1/2	.047	4	.102		●							
	DNGA 433 PQ	DNGA 150412 PQ	S0420	1/2	.047	4	.102						○			
	DNGA 433 PQ	DNGA 150412 PQ	T0420	1/2	.047	4	.102							○		
	DNMA 433 PQ	DNMA 150412 PQ	S0525	1/2	.047	4	.087				●					
	DNGA 433 PQ	DNGA 150412 PQ	S0635	1/2	.047	4	.102					●				
NEW  with chipbreaker	DNMX 431 PF	DNMX 150404 PF	none	1/2	.016	1	–									●
	DNMX 432 PF	DNMX 150408 PF	none	1/2	.031	1	–									●

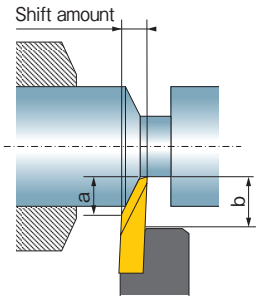
Cutting condition ➡K30 Chipbreaker ➡K25

K

Back Turning

NTK Back Turning Tools - Product Lines

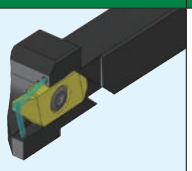
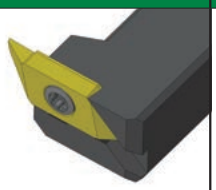


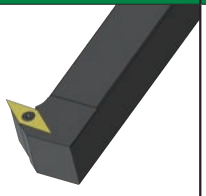


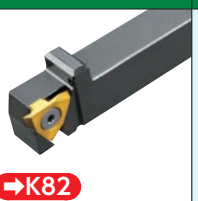
a: Length of Blade
b: Max Depth of Cut

Insert	CSVB ➡K70	
	CSV-NC	DS-CSV
Holder	 ➡K70	 ➡K70
a	~.039" (~1.0㎜)	
b	~.079" (~2.0㎜)	
Shift amount	.043"-.055" (1.1-1.5㎜)	

Insert	CTPS ➡K71	TBP ➡K73				
	CTPS	TBP	TBP-OH	Y-TBP	Y-TBP-OH	DS-TBP
Holder	 ➡K71	 ➡K72	NEW  ➡K72 Coolant through	 ➡K72 Y-axis	NEW  ➡K72 Y-axis w/ Coolant through	 ➡K73
a	~.189" (~4.8㎜)	~.189" (~4.8㎜)				
b	~.189" (~4.8㎜)	~.209" (~5.3㎜)				
Shift amount	.094" (2.4㎜)	.138" (3.5㎜)				

Insert	TBPA ➡K75				TB ➡K81
	CTPA	CTPA-OH	Y-CTPA	CH-TBPA	TB
Holder	 ➡K74	NEW  ➡K74 Coolant through	 ➡K74 Y-axis	 ➡K74	 ➡K80
a	~.248" (~6.3㎜)				~.157" (~4.0㎜)
b	~.268" (~6.8㎜)				~.335" (~8.8㎜)
Shift amount	.134" (3.4㎜)				.157" (4.0㎜)

Insert	TBDP ➡K76		VC..22 ➡K79 TBVC ➡K78		VCGT1303 ➡K77
	TBDP	Y-TBDP	TBVC	CH-SVXCL	SVAC-W
Holder	 ➡K76	NEW  ➡K76 Y-axis	 ➡K78	 ➡K78	 ➡K77
a	.138" (3.5㎜)		.315" (8.0㎜)	—	—
b	~.204" (~5.0㎜)		.315" (8.0㎜)	—	—
Shift amount	.081" (2.05㎜)		.295"/.394" (7.5/10㎜)	.394" (10㎜)	—

Insert	TBMH ➡K83					
Holder	GTT	GTT-OH	Y-GTT	Y-GTT-OH	DS-GTT	CH-GTT
	 ➡K82	NEW  ➡K82 Coolant through	 ➡K82 Y-axis	NEW  ➡K82 Y-axis w/ Coolant through	 ➡K82	 ➡K82
a	~.051" (~1.3㎜)					
b	~.106" (~2.7㎜)					
Shift amount	.039"/.059" (1.0/1.5㎜)					

Recommended Cutting conditions

Back Turning

CSVB

Work Material		High Temperature Alloys	Titanium Alloys	Cobalt Chrome Alloys	Stainless Steels		Alloy Steels	Carbon Steels
					Hard to cut	Free cutting		
Common Name		Inconel Hastelloy MP35N	Ti-6Al-4V	ASTM F-75	304 316 17-4PH	303 430F	5120 4137	1045 1046
Grade	1st choice	DT4					VM1	
	2nd choice	VM1					DT4	
Cutting Speed (SFM)		75 125 225	100 200 275			100 200 300		
Feed Rate (IPR)	X Direction	.0004 .0008 .0012						
	Z Direction	.0004 .0012 .0016						

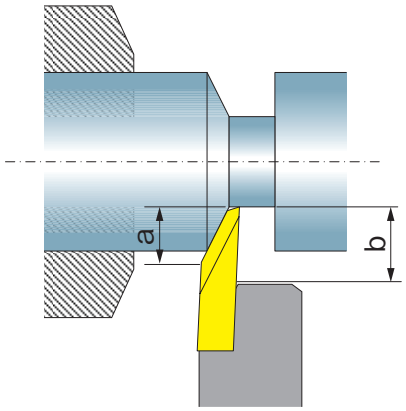
TBDP / TBMH / TBP / TBPA / TBVC

Work Material		High Temperature Alloys	Titanium Alloys	Cobalt Chrome Alloys	Stainless Steels		Alloy Steels	Carbon Steels
					Hard to cut	Free cutting		
Common Name		Inconel Hastelloy MP35N	Ti-6Al-4V	ASTM F-75	304 316 17-4PH	303 430F	5120 4137	1045 1046
Grade	1st choice	DT4			DT4 / QM3	TM4	QM3	
	2nd choice	TM4 / QM3			VM1	QM3	TM4 / DT4 / C7Z(X)	
Cutting Speed (SFM)		75 125 225	100 200 275			150 300 500		
Feed Rate (IPR)	X Direction	.0004 .0008 .0012				.0004 .0008 .0016		
	Z Direction	.0008 .0016 .0024				.0008 .0016 .0031		

TB32 / TB43

Work Material		High Temperature Alloys	Titanium Alloys	Cobalt Chrome Alloys	Stainless Steels		Alloy Steels	Carbon Steels
					Hard to cut	Free cutting		
Common Name		Inconel Hastelloy MP35N	Ti-6Al-4V	ASTM F-75	304 316 17-4PH	303 430F	5120 4137	1045 1046
Grade	1st choice	ZM3					ZM3	
	2nd choice						Z15	
Cutting Speed (SFM)		50 100 150				ZM3 150 300 425 Z15 400 600 800		
Feed Rate (IPR)	X Direction	.0004 .0012 .0020				.0004 .0012 .0020		
	Z Direction	.0016 .0020 .0031				.0016 .0031 .0059		

Back Turning



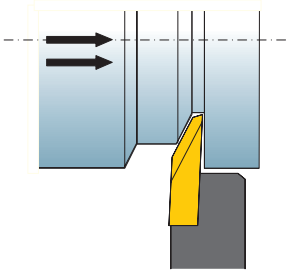
Recommended max. depth of cut for each pass

(Multiply this ratio by the length of blade (a) to obtain the max. depth of cut for each pass)

Work material \ Grade	PVD Coated Carbide QM3·DT4·DM4·TM4·VM1·ZM3	Cermet XT3・XN4
Steel	.028"(0.7㎜)	.020"(0.5㎜)
Stainless Steel	.024"(0.6㎜)	.016"(0.4㎜)
Non-ferrous material	.035"(0.9㎜)	.031"(0.8㎜)
Plastic	.035"(0.9㎜)	.035"(0.9㎜)

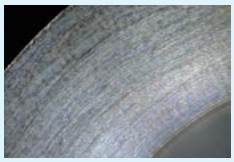
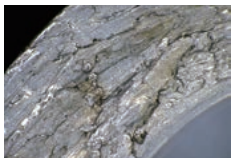
a : Length of Blade　b : Max. Depth of Cut

When the length of blade (a) is not long enough

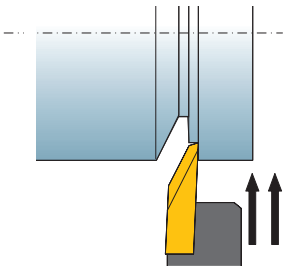


Back turning can be performed multiple times until the total depth of cut reaches (b).

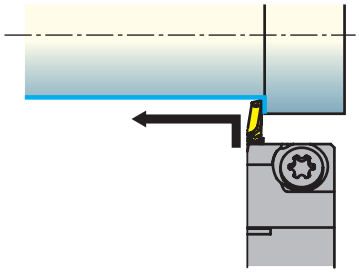
End face

NTK BM-chipbreaker	Competitor
	
Excellent surface	Rough surface

When experiencing rough finish on shoulder



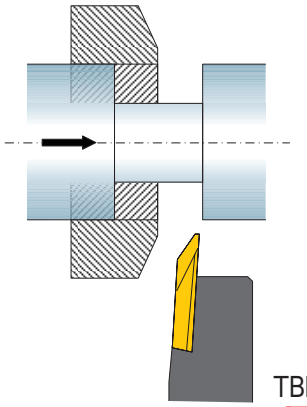
Turning the shoulder twice can improve the finish.
This problem can be solved by using TBP-BM, TBPA-BM, TBDP inserts without increasing the number of passes



TBP-BM, TBPA-BM, TBDP come with NTK's uniquely designed molded chipbreaker providing single pass machining. These inserts can provide excellent surface finish.

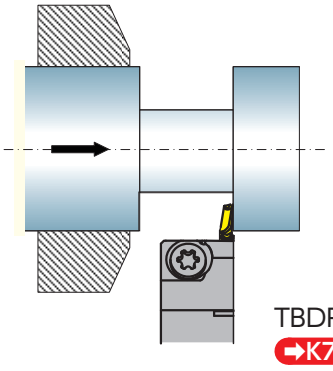
TBP-BM ➡K73
TBPA-BM ➡K75
TBDP ➡K76

■Finishing cut



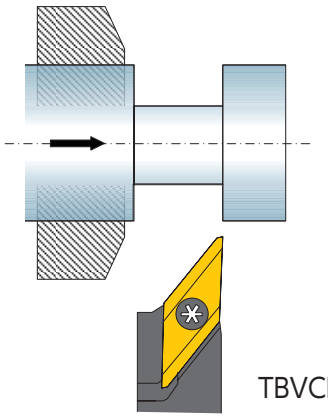
Roughed section goes into the guide bushing when performing finish cuts.
(Deburring may be needed upon roughing)

TBP
➡K72



TBDP-L
➡K76

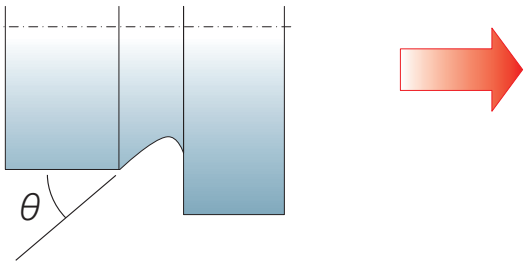
TBDP Left-hand toolholder will eliminate the risky process of pulling back the turned bar stock into the guide-bushing for finishing process, because its cutting point is away from the guide-bushing.



TBVCR··F10
➡K78

Cutting edge is located away from the guide-bushing. Roughing can be performed without retracting roughed part from guide-bushing.

■Undercut



Assume undercut exists on back turning section

$\theta = 22^\circ$ type

$\theta = 45^\circ$ type

TBMH style inserts should be used to cut the undercut

TBMH32 ➡K83
GTTR ➡K82
DS-GTTL ➡K82

CSV Series

Best for up to .200" diameter material

CSV-NC

For Gang-style machine

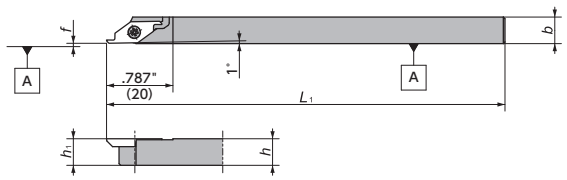


Figure-1

Right-Hand style shown

CSV

For Cam-style machine

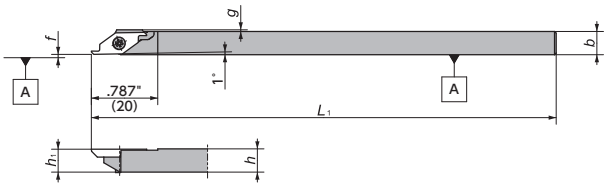


Figure-2

Right-Hand style shown

DS-CSVL

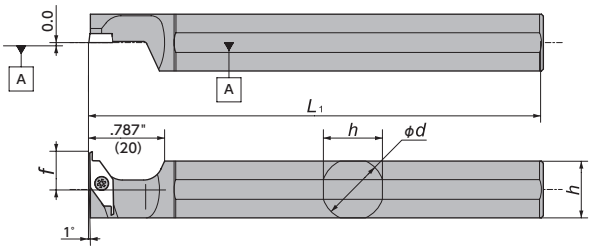


Figure-3

Left-Hand style shown
Takes Right-hand insert

CSVR/L / CSVR/L-NC

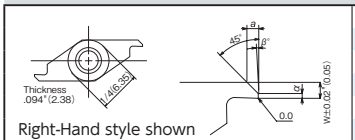
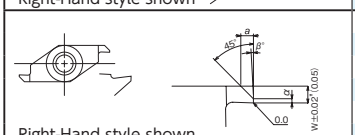
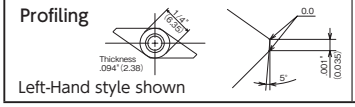
Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h_1 (Inch)	h_1 (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	g (Inch)	g (mm)	Clamp Screw	Wrench
 CSV..11..	CSVR/L06-IN-NC	1	●	●	3/8		3/8		3/8		4.724	120	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L08-IN-NC	1	●	●	1/2		1/2		1/2		4.724	120	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L08NC	1	○	○	.315	8	.315	8	.315	8	4.724	120	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L08NC-F	1	○		.315	8	.315	8	.315	8	4.724	120	0–.004	0.0–0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L10GXNC	1	○		.394	10	.394	10	.394	10	3.346	85	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L10NC	1	○	○	.394	10	.394	10	.394	10	4.724	120	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L12NC	1	●	●	.472	12	.472	12	.472	12	4.724	120	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L07GX	2	○		.275	7	.275	7	.275	7	3.346	85	.004	0.1	.020	0.5	LRIS-2.5 × 7	CLR-15S
	CSVR/L07	2	○	●	.275	7	.275	7	.275	7	5.512	140	.004	0.1	.020	0.5	LRIS-2.5 × 7	CLR-15S
	CSVR/L08GX	2	○		.315	8	.315	8	.315	8	3.346	85	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L08	2	●	●	.315	8	.315	8	.315	8	5.512	140	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L095	2	○		.374	9.5	.374	9.5	.374	9.5	5.512	140	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L10	2	●	○	.394	10	.394	10	.394	10	5.512	140	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L12GX	2	○		.472	12	.472	12	.472	12	3.346	85	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L12	2	●		.472	12	.472	12	.472	12	5.512	140	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S

DS-CSVL (Takes right-hand insert)

Gage Insert	Item Number	Figure	Stock R	Stock L	D_s (Inch)	D_s (mm)	h (Inch)	h (mm)	b (Inch)	b (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	Clamp Screw	Wrench
 CSV..11FR..	DS-CSVL15	3		●	5/8	15.875	.591	15	.591	15	4.724	120	.394	10	LRIS-2.5 × 7	CLR-15S

CSVB - Back Turning

Mirror finish

Shape	Item Number		Chip-breaker	Length of Blade (Inch)	Length of Blade (mm)	Max Depth of Cut (Inch)	Max Depth of Cut (mm)	W (Inch)	W (mm)	Edge Geometry (α × β°) (Inch)	Edge Geometry (α × β°) (mm)	Coated Carbide DT4 R	DT4 L	VM1 R	VM1 L	ZM3 R	ZM3 L
 Right-Hand style shown	CSVB11FR/LV	M	No	.028	0.7	.079	2.0	.039	1.00	.012 × 5°	0.3 × 5°			○	○		
	CSVB11FR/LV-A	M	No	.028	0.7	.079	2.0	.039	1.00	.012 × 2°	0.3 × 2°			○			
	CSVB11FR/LV-M	M	No	.028	0.7	.079	2.0	.039	1.00	.006 × 5°	0.15 × 2°	●		●	○	○	
	CSVB11FR/LV-C	M	No	.028	0.7	.079	2.0	.039	1.00	.006 × 5°	0.15 × 5°			○			
	CSVB11FR/LV12	M	No	.031	0.8	.079	2.0	.047	1.20	.012 × 5°	0.3 × 5°			○			
	CSVB11FR/LV14	M	No	.039	1.0	.079	2.0	.055	1.40	.012 × 5°	0.3 × 5°			○			
 Right-Hand style shown	CSVB11FR/LVB	M	Yes	.028	0.7	.079	2.0	.039	1.00	.012 × 5°	0.3 × 5°			○			
	CSVB11FR/LVB-A	M	Yes	.028	0.7	.079	2.0	.039	1.00	.012 × 2°	0.3 × 2°			○			
	CSVB11FR/LVB-M	M	Yes	.028	0.7	.079	2.0	.039	1.00	.006 × 2°	0.15 × 2°	●		●	○	○	
	CSVB11FR/LVB-C	M	Yes	.028	0.7	.079	2.0	.039	1.00	.006 × 5°	0.15 × 5°			○			
	CSVB11FR/LVB12	M	Yes	.031	0.8	.079	2.0	.047	1.20	.012 × 2°	0.3 × 5°			○			
	CSVB11FR/LVB14	M	Yes	.039	1.0	.079	2.0	.055	1.40	.012 × 2°	0.3 × 5°			○			
Profiling  Left-Hand style shown	CSVB11FR/LVX	M	No	–	–	–	–	–	–						○		

Note: All angles shown are obtained when insert is set in the holder

CSV series ➡J36

CTPS Series

CTPS

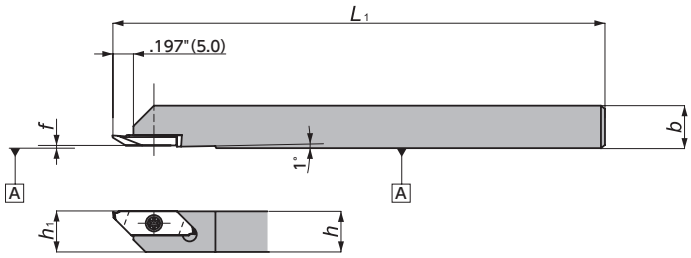


Figure-1

Right-Hand style shown

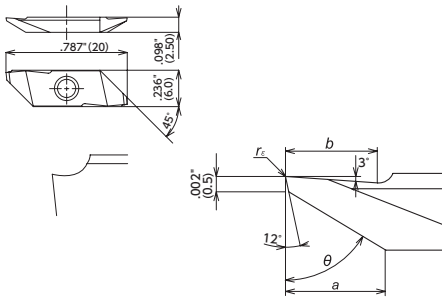
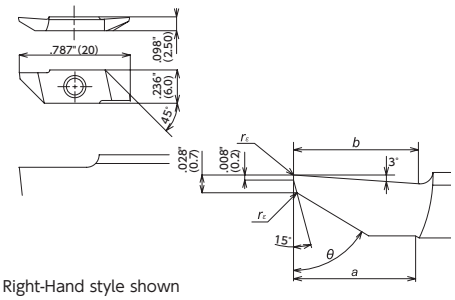
CTPS Series - Toolholders

■CTPS

Gage Insert	Item Number	Figure	Stock	h (Inch)	h (mm)	b (Inch)	b (mm)	h_1 (Inch)	h_1 (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	Clamp Screw	Wrench
 TBPS..	**CTPSR06-IN**	1	●	3/8		3/8		3/8		4.724	120	0.0	0.0	LR1S-2.5 × 7	CLR-15S
	CTPSR08-IN	1	●	1/2		1/2		1/2		4.724	120	0.0	0.0	LR1S-2.5 × 7	CLR-15S
	CTPSR10	1	○	.394	10	.394	10	.394	10	4.724	120	0.0	0.0	LR1S-2.5 × 7	CLR-15S
	CTPSR12	1	○	.472	12	.472	12	.472	12	4.724	120	0.0	0.0	LR1S-2.5 × 7	CLR-15S

TBPS Series - Inserts

■TBPS – Back Turning

Shape	Item Number	Chip-breaker	Length of Blade a (Inch)	a (mm)	Max Depth of Cut b (Inch)	b (mm)	θ	r_ε (Inch)	r_ε (mm)	Coated Carbide VM1	Coated Carbide ZM3
with Chipbreaker  Right-Hand style shown	**TBPS60FR00**	Yes	.122	3.1	.138	3.5	60°	0.0	0.0	○	○
	TBPS60FR10	Yes	.122	3.1	.138	3.5	60°	.004	0.1	○	○
without Chipbreaker Mirror finish  Right-Hand style shown	**TBPS60FRV** Ⓜ	No	.189	4.8	.189	4.8	60°	0.0	0.0	○	○

Note: All angles shown are obtained when insert is set in the holder

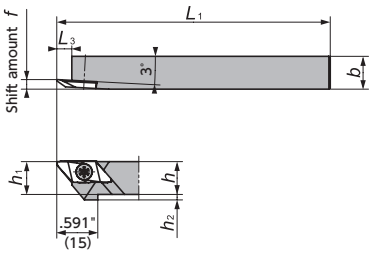
● : Stock ○ : 1-2 week delivery Ⓜ : Mirror finish

CTPS series ➡J40 Cutting condition ➡K67

TBP Series

TBP

Screw accessible from both sides



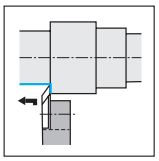


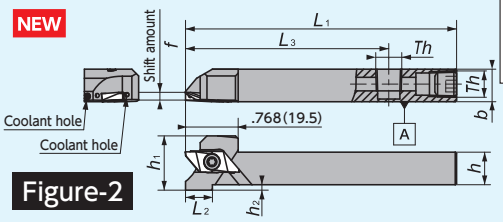
Figure-1

Right-Hand style shown

TBP-OH (Coolant through)

Screw accessible from both sides

NEW



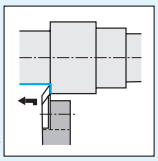


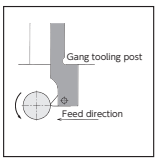
Figure-2

Th (Thread type)
3/8" holder : M6×1
1/2", 5/8" holder : NPT1/8
Metric size holder : Rc1/8 (PT1/8)

Right-Hand style shown

Y-TBP

Screw accessible from both sides



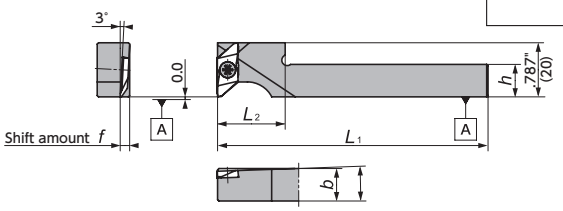


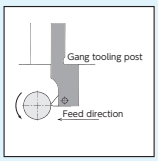
Figure-3

Right-Hand style shown
Takes Right-hand Insert

Y-TBP-OH (Coolant through)

Screw accessible from both sides

NEW



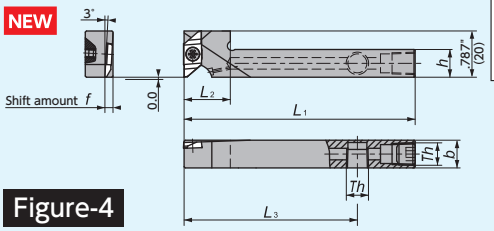


Figure-4

Th (Thread type)
Inch size holder : NPT1/8
Metric size holder: M6, Rc1/8 (PT1/8)

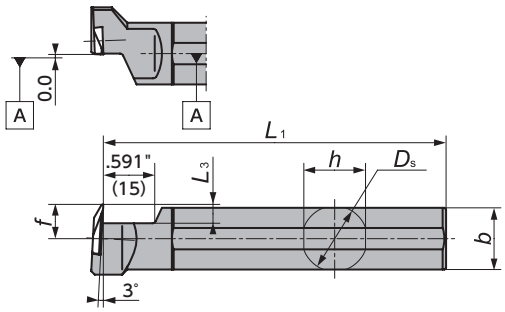
Right-Hand style shown
Takes Right-hand Insert

TBP Series - Toolholders

TBP

Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h_1 (Inch)	h_1 (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	L_2 (Inch)	L_2 (mm)	h_2 (Inch)	h_2 (mm)	L_3 (Inch)	L_3 (mm)	Th	Clamp Screw	Wrench
 TBP..	TBP⅜06-IN	1	●		3/8		3/8		3/8		4.724	120	.138	3.5	—	—	.079	2	.217	5.5	—	LRIS-4×10PW	CLR-15S
	TBP⅜08-IN	1	●		1/2		1/2		1/2		4.724	120	.138	3.5	—	—	0	0	.217	5.5	—	LRIS-4×12PW	CLR-15S
	TBP⅜10-IN	1	●		5/8		5/8		5/8		4.724	120	.138	3.5	—	—	0	0	.217	5.5	—	LRIS-4×12PW	CLR-15S
	TBP⅜08	1	○	○	.315	8	.394	10	.315	8	4.724	120	.138	3.5	—	—	.157	4	.217	5.5	—	LRIS-4×10PW	CLR-15S
	TBP⅜10H	1	○		.394	10	.394	10	.394	10	3.937	100	.138	3.5	—	—	.394	2	.217	5.5	—	LRIS-4×10PW	CLR-15S
	TBP⅜10	1	○	○	.394	10	.394	10	.394	10	4.724	120	.138	3.5	—	—	.394	2	.217	5.5	—	LRIS-4×10PW	CLR-15S
	TBP⅜12GX	1	○		.472	12	.472	12	.472	12	3.346	85	.138	3.5	—	—	0	0	.217	5.5	—	LRIS-4×12PW	CLR-15S
	TBP⅜12	1	●	○	.472	12	.472	12	.472	12	4.724	120	.138	3.5	—	—	0	0	.217	5.5	—	LRIS-4×12PW	CLR-15S
	TBP⅜13	1	○		.512	13	.512	13	.512	13	4.724	120	.138	3.5	—	—	0	0	.217	5.5	—	LRIS-4×12PW	CLR-15S
	TBP⅜16H	1	○		.630	16	.630	16	.630	16	3.937	100	.138	3.5	—	—	0	0	.217	5.5	—	LRIS-4×12PW	CLR-15S
	TBP⅜16	1	○	○	.630	16	.630	16	.630	16	4.724	120	.138	3.5	—	—	0	0	.217	5.5	—	LRIS-4×12PW	CLR-15S
	TBP⅜06-IN-OH	2	●		3/8		.472	12	3/8		3.937	100	.138	3.5	.748	19	.176	4.475	2.953	75	M6×1	LRIS-4×10PW	CLR-15S
	TBP⅜08-IN-OH	2	●		1/2		1/2		1/2		3.937	100	.138	3.5	.394	10	.051	1.3	2.953	75	NPT1/8	LRIS-4×12PW	CLR-15S
	TBP⅜10-IN-OH	2	●		5/8		5/8		5/8		3.937	100	.138	3.5	0	0	0	0	2.953	75	NPT1/8	LRIS-4×12PW	CLR-15S
	TBP⅜1012H-OH	2	○		.394	10	.472	12	.394	10	3.937	100	.138	3.5	.748	19	.176	4.475	2.953	75	M6×1	LRIS-4×10PW	CLR-15S
	TBP⅜12H-OH	2	●		.472	12	.472	12	.472	12	3.937	100	.138	3.5	.394	10	.051	1.3	2.953	75	Rc1/8(PT1/8)	LRIS-4×12PW	CLR-15S
	TBP⅜16H-OH	2	○		.630	16	.630	16	.630	16	3.937	100	.138	3.5	0	0	0	0	2.953	75	Rc1/8(PT1/8)	LRIS-4×12PW	CLR-15S
	Y-TBP⅜06-IN	3	●		3/8		3/8		—	—	2.756	70	.138	3.5	.984	25	—	—	—	—	—	LRIS-4×10PW	CLR-15S
	Y-TBP⅜08-IN	3	●		1/2		1/2		—	—	2.756	70	.138	3.5	.984	25	—	—	—	—	—	LRIS-4×12PW	CLR-15S
	Y-TBP⅜10-IN	3	●		5/8		5/8		—	—	2.756	70	.138	3.5	.984	25	—	—	—	—	—	LRIS-4×12PW	CLR-15S
	Y-TBP⅜10S	3	○		.394	10	.394	10	—	—	4.724	120	.138	3.5	.787	20	—	—	—	—	—	LRIS-4×10PW	CLR-15S
	Y-TBP⅜12S	3	○		.472	12	.472	12	—	—	4.724	120	.138	3.5	.787	20	—	—	—	—	—	LRIS-4×12PW	CLR-15S
	Y-TBP⅜08H-IN-OH	4	●		1/2		1/2		—	—	3.937	100	.138	3.5	.984	25	—	—	2.953	75	NPT1/8	LRIS-4×12PW	CLR-15S
	Y-TBP⅜12HS-OH	4	●		.472	12	.472	12	—	—	3.937	100	.138	3.5	.787	20	—	—	2.953	75	Rc1/8(PT1/8)	LRIS-4×12PW	CLR-15S
	Y-TBP⅜16H-OH	4	○		.630	16	.630	16	—	—	3.937	100	.138	3.5	.984	25	—	—	2.953	75	Rc1/8(PT1/8)	LRIS-4×12PW	CLR-15S

DS-TBP



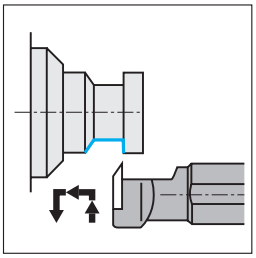


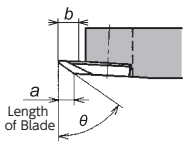
Figure-5

Left-Hand style shown
Takes Right-hand Insert

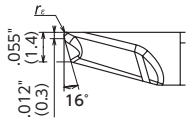
DS-TBP (Takes right-hand inserts)

Gage Insert	Item Number	Figure	Stock R	Stock L	D_s (Inch)	D_s (mm)	h (Inch)	h (mm)	b (Inch)	b (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	L_3 (Inch)	L_3 (mm)	Clamp Screw	Wrench
 TBP..FR..	DS-TBPR/L19	5		○	3/4	19.050	.709	18	.709	18	4.724	120	.433	11.0	.217	5.5	LRIS-4 × 10	LLR-25S-20×65
	DS-TBPR/L20	5		○	.787	20.000	.748	19	.748	19	4.724	120	.433	11.0	.217	5.5	LRIS-4 × 10	LLR-25S-20×65
	DS-TBPR/L25	5		○	1.00	25.400	.945	24	.945	24	5.906	150	.512	13.0	.217	5.5	LRIS-4 × 10	LLR-25S-20×65

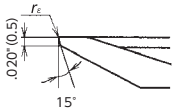
TBP Series - Inserts

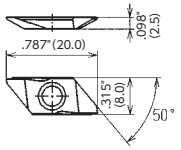


with BM-Chipbreaker NEW



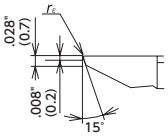
with Chipbreaker



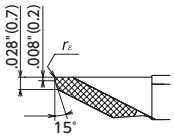


without Chipbreaker

Mirror finish



〈PD1〉 PCD tipped



Right-Hand style shown

TBP - Back Turning

Item Number	Chip-breaker	Length of Blade a (Inch)	Length of Blade a (mm)	Max Depth of Cut b (Inch)	Max Depth of Cut b (mm)	θ	r_ε (Inch)	r_ε (mm)	Coated Carbide QM3 R	QM3 L	DT4 R	DT4 L	DM4 R	DM4 L	TM4 R	TM4 L	VM1 R	VM1 L	ZM3 R	ZM3 L	Carbide KM1 R	KM1 L	Coated Cermet C7Z R	C7Z L	PCD PD1 R	PD1 L
TBP72FR/L05-BM	Yes-BM	.138	3.5	.209	5.3	72°	.002	0.05					●		○											
TBP72FR/L10M-BM	Yes-BM	.138	3.5	.209	5.3	72°	.003	0.08					●		○											
TBP72FR/L20M-BM	Yes-BM	.138	3.5	.209	5.3	72°	.007	0.18					●		○											
TBP55FR/L00	Yes	.118	3.0	.209	5.3	55°	0.00	0.00									○		●	○						
TBP55FR/L10	Yes	.118	3.0	.209	5.3	55°	.004	0.10									○		●	○						
TBP60FR/L00	Yes	.146	3.7	.209	5.3	60°	0.00	0.00	●		●				○		○		●	○						
TBP60FR/L05	Yes	.146	3.7	.209	5.3	60°	.002	0.05															○			
TBP60FR/L10	Yes	.146	3.7	.209	5.3	60°	.004	0.10	●						○		●		●	○			○			
TBP60FR/L10M	Yes	.146	3.7	.209	5.3	60°	.003	*0.08	●		●						○									
TBP60FR/L20	Yes	.146	3.7	.209	5.3	60°	.008	0.2							○											
TBP60FR/LV Ⓜ	No	.189	4.8	.209	5.3	60°	0.00	0.00									○	○	○		○					
TBP60FR/LV00-P	No	.157	4.0	.209	5.3	60°	0.00	0.00																	○	
TBP60FR/LV05 Ⓜ	No	.189	4.8	.209	5.3	60°	.002	0.05									○				○					
TBP60FR/LV10 Ⓜ	No	.189	4.8	.209	5.3	60°	.004	0.10									○		○		○					
TBP60FR/LV10-P	No	.157	4.0	.209	5.3	60°	.004	0.10																	○	

Note: All angles shown are obtained when insert is set in the holder

● : Stock ○ : 1-2 week delivery 💧 : Coolant through Ⓜ : Mirror finish

Cutting condition ➡K67

TBPA (CTPA Series) *Can use same holder with CTPA inserts.

CTPA

Screw accessible from both sides

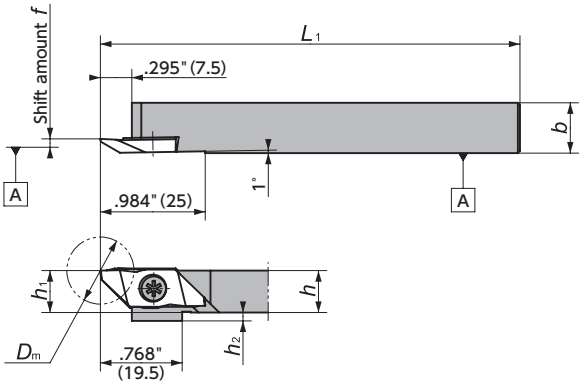
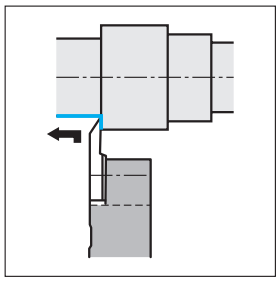


Figure-1

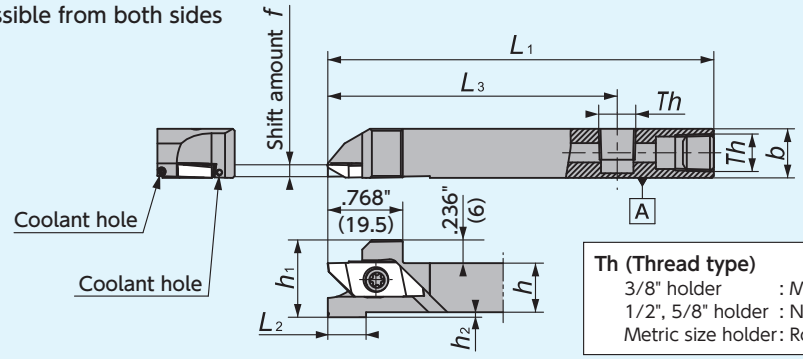


Right-Hand style shown

CTPA-OH (Coolant through)

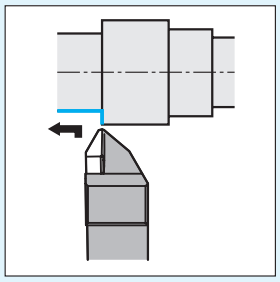
Screw accessible from both sides

NEW



Th (Thread type)
3/8" holder : M6×1
1/2", 5/8" holder : NPT1/8
Metric size holder: Rc1/8 (PT1/8)

Figure-2



Right-Hand style shown

Y-CTPA

Screw accessible from both sides

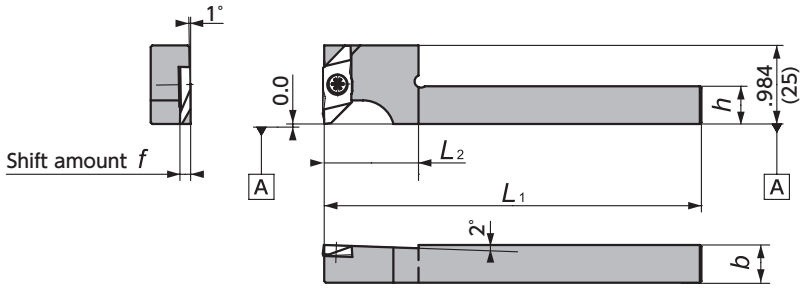
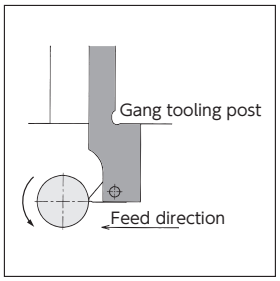


Figure-3



Right-Hand style shown
Takes Right-hand Insert

CH-TBPA

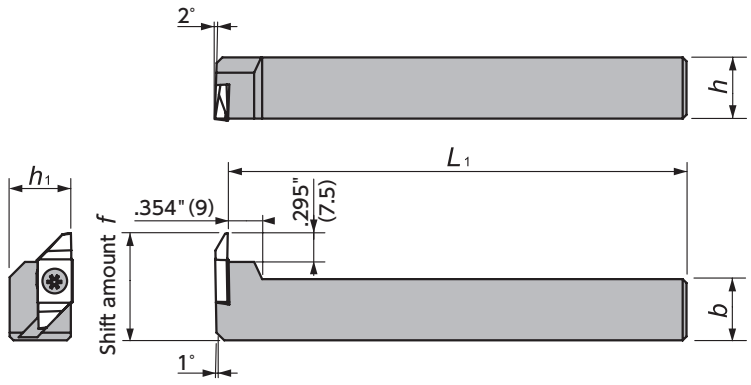
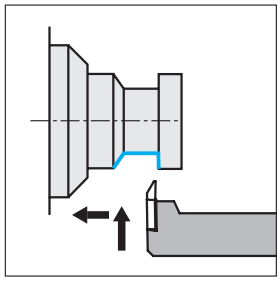


Figure-4



Left-Hand style shown
Takes Right-hand Insert

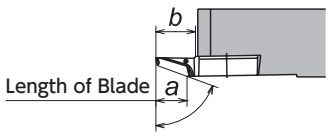
TBPA (CTPA) Series - Toolholders

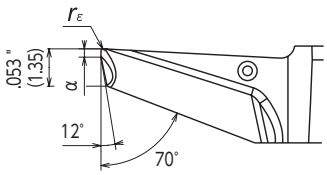
■CTPA

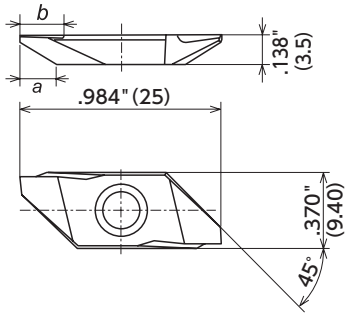
Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h_1 (Inch)	h_1 (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	L_2 (Inch)	L_2 (mm)	h_2 (Inch)	h_2 (mm)	L_3 (Inch)	L_3 (mm)	Th	Clamp Screw	Wrench
 TBPA..	CTPA□06-IN	1	●	●	3/8		3/8		3/8		4.724	120	.134	3.4	–	–	0	0	–	–	–	LR-S-4 × 10PW	CLR-15S
	CTPA□08-IN	1	●	●	1/2		1/2		1/2		4.724	120	.134	3.4	–	–	0	0	–	–	–	LR-S-4 × 12PW	CLR-15S
	CTPA□10-IN	1	●	●	5/8		5/8		5/8		4.724	120	.134	3.4	–	–	0	0	–	–	–	LR-S-4 × 12PW	CLR-15S
	CTPA□10	1	○	○	.394	10	.394	10	.394	10	4.724	120	.134	3.4	–	–	.790	2	–	–	–	LR-S-4 × 10PW	CLR-15S
	CTPA□12	1	●	●	.472	12	.472	12	.472	12	4.724	120	.134	3.4	–	–	0	0	–	–	–	LR-S-4 × 12PW	CLR-15S
	CTPA□16	1	○	○	.630	16	.630	16	.630	16	4.724	120	.134	3.4	–	–	0	0	–	–	–	LR-S-4 × 12PW	CLR-15S
	CTPA□20F	1	○	○	.787	20	.787	20	.787	20	3.150	80	.134	3.4	–	–	0	0	–	–	–	LR-S-4 × 10	LLR-15S
	CTPA□06H-IN-OH 💧	2	●	●	3/8		3/8		3/8		3.937	100	.134	3.4	.787	20	.176	4.475	2.165	55	M6 × 1	LR-S-4 × 10PW	CLR-15S
	CTPA□08H-IN-OH 💧	2	●	●	1/2		1/2		1/2		3.937	100	.134	3.4	.394	10	.051	1.3	2.953	75	NPT1/8	LR-S-4 × 12PW	CLR-15S
	CTPA□10H-IN-OH 💧	2	●	●	5/8		5/8		5/8		3.937	100	.134	3.4	0	0	0	0	2.953	75	NPT1/8	LR-S-4 × 12PW	CLR-15S
	Y-CTPA□08L-IN	3	●		1/2		1/2		–	–	4.724	120	1.34	34	–	–	–	–	–	–	–	LR-S-4 × 12PW	CLR-15S
	CH-TBPAL16	4		○	.630	16	.630	16	.630		4.724	120	1.102	28	–	–	–	–	–	–	–	LR-S-4 × 10	LLR-15S
	CH-TBPAL20	4		○	.787	20	.787	20	.787		4.724	120	1.260	32	–	–	–	–	–	–	–	LR-S-4 × 10	LLR-15S

TBPA Series - Inserts

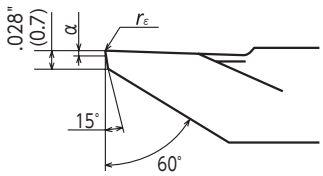
with BM-Chipbreaker NEW



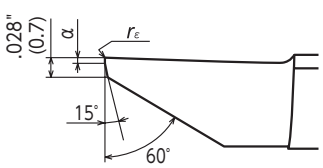




with Chipbreaker



without Chipbreaker



Right-Hand style shown

■TBPA - Back Turning

Item Number	Chip-breaker	Length of Blade a (Inch)	Length of Blade a (mm)	Max Depth of Cut b (Inch)	Max Depth of Cut b (mm)	α (Inch)	α (mm)	r_ε (Inch)	r_ε (mm)	Coated Carbide QM3 R	QM3 L	DT4 R	DT4 L	DM4 R	DM4 L	TM4 R	TM4 L	VM1 R	VM1 L	ZM3 R	ZM3 L
TBPA70F□05-BM	Yes-BM	.217	5.5	.256	6.5	.012	0.3	.002	0.05					●		○					
TBPA70F□10M-BM	Yes-BM	.217	5.5	.256	6.5	.012	0.3	.003	0.08					●		○					
TBPA70F□20M-BM	Yes-BM	.217	5.5	.256	6.5	.012	0.3	.007	0.18					●		○					
TBPA60F□VB Ⓜ	Yes	.177	4.5	.209	5.3	.008	0.2	.000	0.00			○						○		●	○
TBPA60F□10M	Yes	.177	4.5	.209	5.3	.012	0.3	.003	0.08	●											
TBPA60F□PB10M Ⓜ	Yes	.177	4.5	.209	5.3	.012	0.3	.003	0.08			●						○			
TBPA60F□PB10 Ⓜ	Yes	.177	4.5	.209	5.3	.012	0.3	.004	0.10									○		○	○
TBPA60F□PB20M Ⓜ	Yes	.177	4.5	.209	5.3	.012	0.3	.007	0.18			●									
TBPA60F□V Ⓜ	No	.248	6.3	.268	6.8	.008	0.2	.000	0.00									○		○	○

● : Stock ○ : 1-2 week delivery 💧 : Coolant through Ⓜ : Mirror finish

Cutting condition ➡K67

TBDP (Back Duo) Series

TBDP

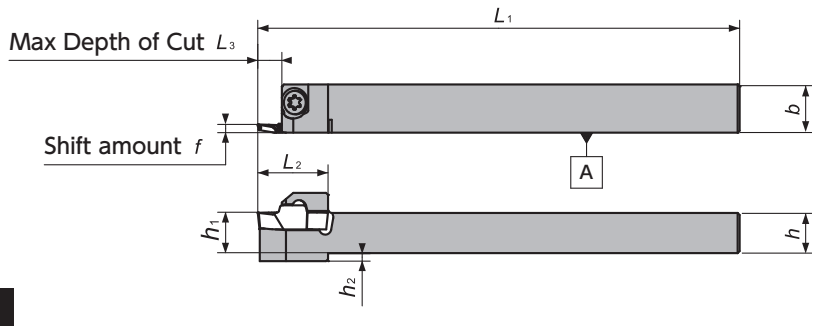
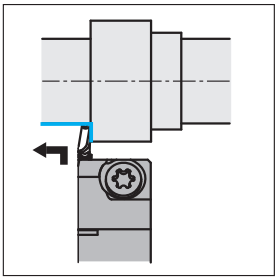


Figure-1



Right-Hand style shown

Y-TBDP

NEW

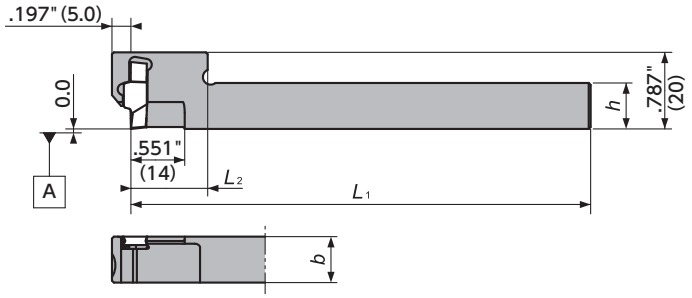
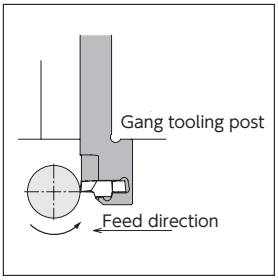


Figure-2



Right-Hand style shown

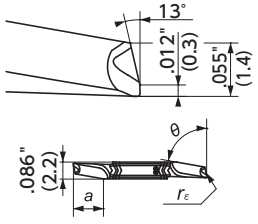
TBDP Series - Toolholders

■TBDP

Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h_1 (Inch)	h_1 (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	L_2 (Inch)	L_2 (mm)	L_3 (Inch)	L_3 (mm)	h_2 (Inch)	h_2 (mm)	Clamp Screw	Wrench
 TBDP..	**TBDPR06-IN**	1	●		3/8		.472	12	3/8		4.724	120	.081	2.05	.571	14.5	.118	3	.079	2	LRIS-4 × 12	LLR-25S
	TBDPR08-IN	1	●		1/2		1/2		1/2		4.724	120	.081	2.05	.689	17.5	.197	5	0	0	LRIS-4 × 12	LLR-25S
	TBDPR10-IN	1	●		5/8		5/8		5/8		4.724	120	.081	2.05	.768	19.5	.197	5	0	0	LRIS-4 × 12	LLR-25S
	TBDPR1012H	1	○		.394	10	.472	12	.394	10	3.937	100	.081	2.05	.591	15	.118	3	.079	2	LRIS-4 × 12	LLR-25S
	TBDP□1012	1	○	○	.394	10	.472	12	.394	10	4.724	120	.081	2.05	.591	15	.118	3	.079	2	LRIS-4 × 12	LLR-25S
	TBDP□12	1	●	○	.472	12	.472	12	.472	12	4.724	120	.081	2.05	.709	18	.197	5	0	0	LRIS-4 × 12	LLR-25S
	TBDP□16	1	○	○	.630	16	.630	16	.630	16	4.724	120	.081	2.05	.768	19.5	.197	5	0	0	LRIS-4 × 12	LLR-25S
	TBDP□20	1	○		.787	20	.787	20	.787	20	4.724	120	.081	2.05	.768	19.5	.197	5	0	0	LRIS-4 × 12	LLR-25S
	Y-TBDPR12S	2	○		.472	12	.472	12	—	—	4.724	120	.081	2.05	.787	20	.197	5	—	—	LRIS-4 × 12	LLR-25S

TBDP Series - Inserts

■TBDP

Shape	Item Number	Length of Blade a (Inch)	Length of Blade a (mm)	θ	r_ε (Inch)	r_ε (mm)	Coated Carbide QM3	Coated Carbide DM4	Coated Carbide TM4
	**TBDP22005R**	.138	3.5	80	.002	0.05	●	○	●
	TBDP2201MR	.138	3.5	80	.003	0.08	●	○	●
	TBDP2202MR	.138	3.5	80	.007	0.18	●	○	●

SVAC Series

SVAC-NW

Double-edge tool

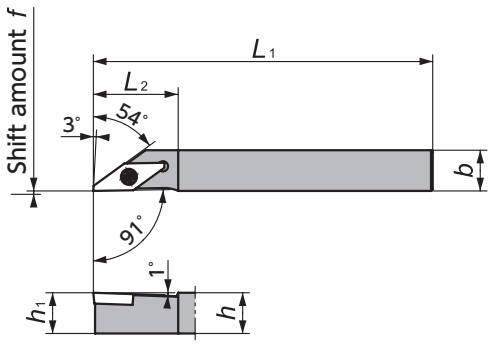
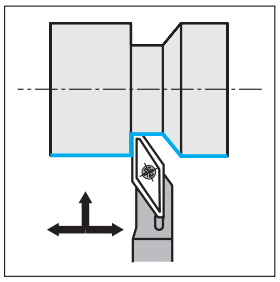


Figure-1



Right-Hand style shown

SVAC-W

Double-edge tool

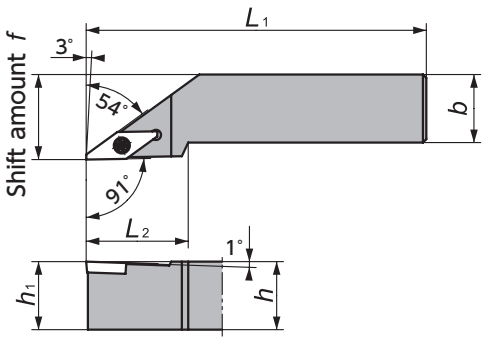
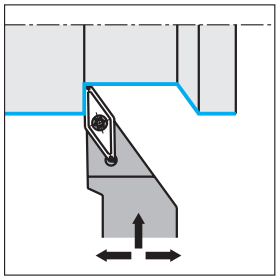


Figure-2



Right-Hand style shown

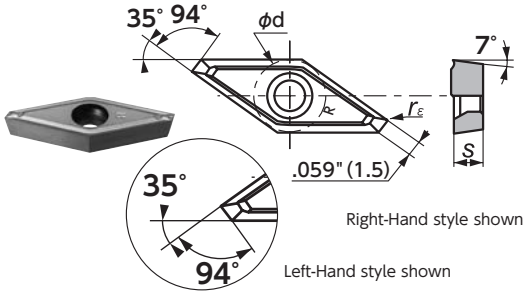
SVAC Series - Toolholders

■SVAC

Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h_1 (Inch)	h_1 (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	L_2 (Inch)	L_2 (mm)	Clamp Screw	Wrench
 VCGT1303..	SVAC□1010L13NW	1	○	○	.394	10	.394	10	.394	10	5.512	140	0.0	0.0	.984	25	LRIS-3 × 8	RLR-20S
	SVAC□1212L13NW	1	○	○	.472	12	.472	12	.472	12	5.512	140	0.0	0.0	.984	25	LRIS-3 × 8	RLR-20S
	SVAC□1616M13NW	1	○	○	.630	16	.630	16	.630	16	5.906	150	0.0	0.0	.984	25	LRIS-3 × 8	RLR-20S
	SVAC□2020M13W	2	○		.787	20	.787	20	.787	20	5.906	150	.984	25.0	1.181	30	LRIS-3 × 8	RLR-20S

SVAC Series - Inserts

■VCGT1303

Shape	Item Number	d (Inch)	d (mm)	s (Inch)	s (mm)	r_ε (Inch)	r_ε (mm)	Coated Carbide QM3 R	Coated Carbide QM3 L
 Right-Hand style shown Left-Hand style shown	VCGT1303□00F2M	.313	7.94	.125	3.18	0.0	0.0	○	○
	VCGT1303□01F2M	.313	7.94	.125	3.18	.004	0.1	○	○

● : Stock ○ : 1-2 week delivery

Cutting condition ➡K67

TBVC Series

TBVC

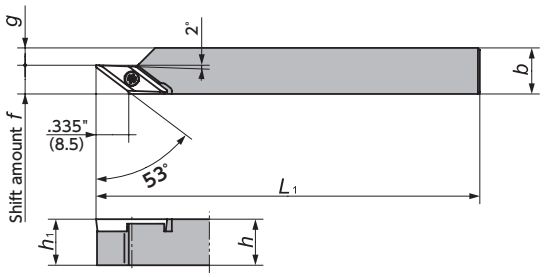
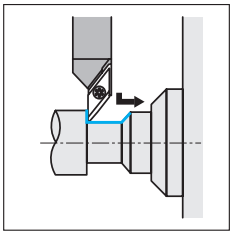


Figure-1



Right-Hand style shown
For non - ferrous material

TBVC-F10

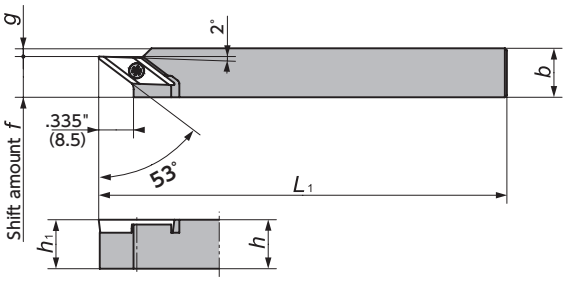
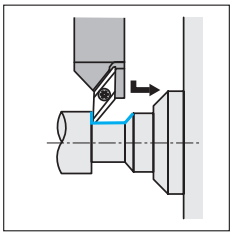


Figure-2



Right-Hand style shown

CH-SVXCL

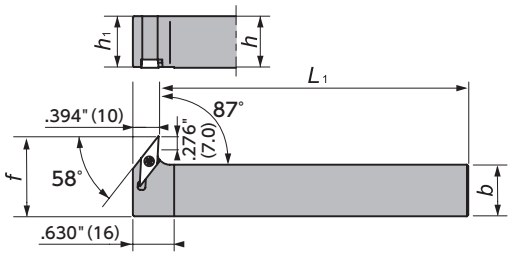
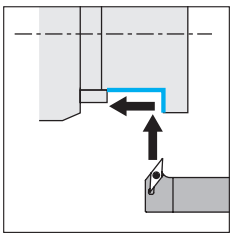


Figure-3

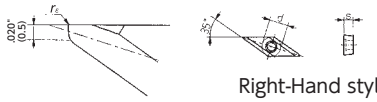


Left-Hand style shown
Takes Right-hand or Neutral chip breaker

TBVC Series - Toolholders

Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h_1 (Inch)	h_1 (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	g (Inch)	g (mm)	Clamp Screw	Wrench
 TBVC VC..22	TBVC⅜10	1	○		.394	10	.394	10	.394	10	4.724	120	.295	7.5	.098	2.5	LRIS-2.5 × 7	CLR-15S
	TBVC⅜12	1	○		.472	12	.472	12	.472	12	4.724	120	.295	7.5	.098	4.5	LRIS-2.5 × 7	CLR-15S
	TBVC⅜16	1	○		.630	16	.630	16	.630	16	4.724	120	.295	7.5	.098	8.5	LRIS-2.5 × 7	CLR-15S
	TBVC⅜08-F10-IN	2	●		1/2		1/2		1/2		4.724	120	.394	10	0	0	LRIS-2.5 × 7	CLR-15S
	TBVC⅜10-F10	2	○		.394	10	.394	10	.394	10	4.724	120	.394	10	0	0	LRIS-2.5 × 7	CLR-15S
	TBVC⅜12GX-F10	2	○		.472	12	.472	12	.472	12	3.346	85	.394	10	.079	2	LRIS-2.5 × 7	CLR-15S
	TBVC⅜12-F10	2	●		.472	12	.472	12	.472	12	4.724	120	.394	10	.079	2	LRIS-2.5 × 7	CLR-15S
	TBVC⅜16H-F10	2	○		.630	16	.630	16	.630	16	3.150	100	.394	10	.234	6	LRIS-2.5 × 7	CLR-15S
	TBVC⅜16-F10	2	●		.630	16	.630	16	.630	16	4.724	120	.394	10	.234	6	LRIS-2.5 × 7	CLR-15S
	TBVC⅜20F-F10	2	○		.787	20	.787	20	.787	20	3.150	80	.394	10	.394	10	LRIS-2.5 × 7	CLR-15S
	CH-SVXC⅜1616 × 11	3		○	.630	16	.630	16	.787	20	4.724	120	1.063	27	—	—	LRIS-2.5 × 7	CLR-15S
	CH-SVXC⅜2020 × 11	3		○	.630	16	.630	16	.787	20	4.724	120	1.220	31	—	—	LRIS-2.5 × 7	CLR-15S

TBVC Series - Inserts

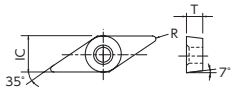
Shape	Item Number	d (Inch)	d (mm)	s (Inch)	s (mm)	r_ε (Inch)	r_ε (mm)	Coated Carbide VM1 R	VM1 L	ZM3 R	ZM3 L
 Right-Hand style shown	TBVC11F⅜05U	1/4	6.35	1/8	3.18	.002	0.05			●	
	TBVC11F⅜10U	1/4	6.35	1/8	3.18	.004	0.10	●		●	
	TBVC11F⅜10S	1/4	6.35	1/8	3.18	.004	0.10			●	

● : Stock ○ : 1-2 week delivery

Cutting condition ➡K67

VC.. Inserts - Carbide / Cermet

(inch)	IC	T
VC..22	1/4	1/8

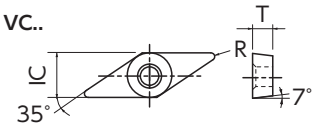


VC_ _

		Carbide							Cermet					
		PVD Coated										PVD Coated		
		QM3	DT4	DM4	TM4	VM1	ZM3	KM1	XT3	C7X	XN4	Q15	C7Z
Steel	P	●	●	●	●	●	●	●	●	●	●	●	●
Stainless Steel	M	●	●	●	●	●	●	●	●	●	●	●	●
Cast Iron	K								●	●		●	●
Non-Ferrous Material	N				●	●	●	●	●	●			●
Heat Resistant Alloy	S	●	●	●	●								
Hardened Material	H	●	●	●									

● : 1st Choice
● : Alternate choice

Shape	Item Number	ISO Item Number	IC	R	QM3	DT4	DM4	TM4	VM1	ZM3	KM1	XT3	C7X	XN4	Q15	C7Z
	VCGT 2201 FNAM3	VCGT 110300 FNAM3	1/4	.001	●	●			●	■						
	VCGT 2204M FNAM3	VCGT 110301M FNAM3	1/4	.003	●	●		○	○							
	VCGT 2204 FNAM3	VCGT 110301 FNAM3	1/4	.004					●	○						
	VCGT 2208M FNAM3	VCGT 110302M FNAM3	1/4	.007	●	●		○	○							
	VCGT 2208 FNAM3	VCGT 110302 FNAM3	1/4	.008					●	○						
	VCGT 2208 FNAM3	VCGT 110302 FNXAM3	1/4	.008									○			
	VCGT 221M FNAM3	VCGT 110304M FNAM3	1/4	.015	●	●		○								
	VCGT 221 FNAM3	VCGT 110304 FNAM3	1/4	.016									○			
NEW	VCGT 2204M YL	VCGT 110301M YL	1/4	.003			●	○								
	VCGT 2208M YL	VCGT 110302M YL	1/4	.007			●	○								
	VCGT 221M YL	VCGT 110304M YL	1/4	.015			●	○								
	VCGT 2204M CL	VCGT 110301M CL	1/4	.003		●		●								
	VCGT 2208M CL	VCGT 110302M CL	1/4	.007		●		●								
	VCGT 2201 FNAZ7	VCGT 110300 FNAZ7	1/4	.001	●					○						
	VCGT 2204M FNAZ7	VCGT 110301M FNAZ7	1/4	.003	●					○						
	VCGT 2208M FNAZ7	VCGT 110302M FNAZ7	1/4	.007	●					○						
	VCGT 221M FNAZ7	VCGT 110304M FNAZ7	1/4	.015	●					○						
	VCMT 2204 T℞ℒAS	VCMT 110301 T℞ℒAS	1/4	.004									®L			®L
	VCMT 2208 T℞ℒAS	VCMT 110302 T℞ℒAS	1/4	.008									®L			®L
	VCMT 221 T℞ℒAS	VCMT 110304 T℞ℒAS	1/4	.016									®L			®L
	VCGT 2201 ℞ℒU	VCGT 110300 ℞ℒU	1/4	.001					®	®						
	VCGT 2204M ℞ℒU	VCGT 110301M ℞ℒU	1/4	.003		®										
	VCGT 2204 ℞ℒU	VCGT 110301 ℞ℒU	1/4	.004					®	®						
	VCGT 2208M ℞ℒU	VCGT 110302M ℞ℒU	1/4	.007		®										
	VCGT 2208 ℞ℒU	VCGT 110302 ℞ℒU	1/4	.008					®	®						
	VCET 2203 RUHG	VCET 1103008 ℞ℒUHG	1/4	.003					®							
	VCGW 2201 H Ⓜ	VCGW 110300 H	1/4	.001							●					
	VCGW 2204 H Ⓜ	VCGW 110301 H	1/4	.004							●					
	VCGW 2208 H Ⓜ	VCGW 110302 H	1/4	.008							●					



		CBN (Brazed)							PCD	
		Coated		Coated						
		B5K	B52	B6K	B36	B40	B23	B30	PD1	PD2
Steel	P									
Stainless Steel	M									
Cast Iron	K	●	●				●	●		
Non-Ferrous Material	N								●	●
Heat Resistant Alloy	S									
Hardened Material	H	●	●	●	●	●				

Shape	Item Number	ISO Item Number	Edge Prep.	IC	R	No. of edge	Length of edge	B5K	B52	B6K	B36	B40	B23	B30	PD1	PD2
	VCGW 221 PD	VCGW 110304 PD	S0415	1/4	.016	2	.098		○							
	VCGW 221 PD	VCGW 110304 PD	S0635	1/4	.016	2	.098					○				
	VCGW 222 PD	VCGW 110308 PD	S0415	1/4	.031	2	.063		○							
	VCGW 222 PD	VCGW 110308 PD	S0635	1/4	.031	2	.063					○				
	VCMW 2204	VCMW 110301	None	1/4	.004	1	–								○	
	VCMW 2208	VCMW 110302	None	1/4	.008	1	–								○	
	VCMW 221	VCMW 110304	None	1/4	.016	1	–								○	

TB Series

TBT

Screw accessible from both sides

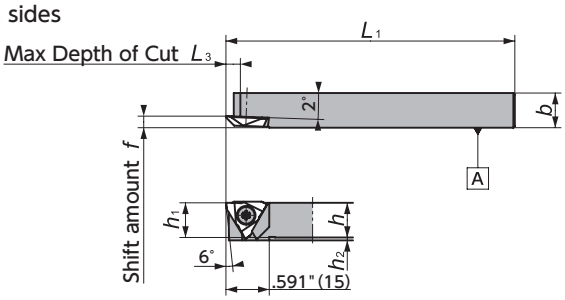
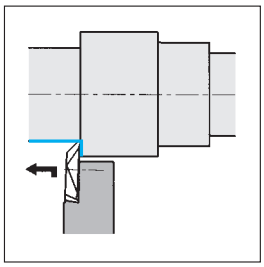


Figure-1



Right-Hand style shown

TB-N

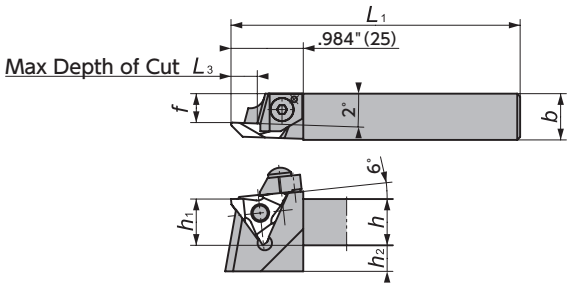
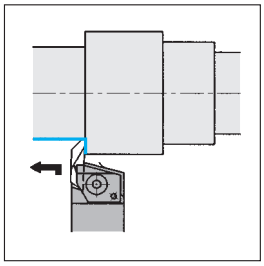


Figure-2



Right-Hand style shown

TB-F

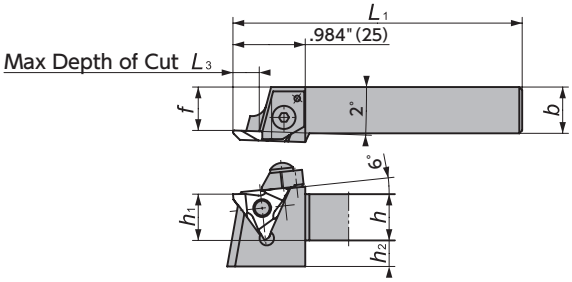
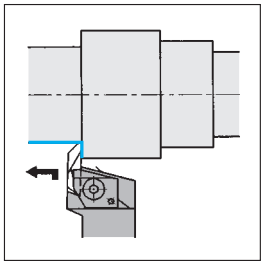


Figure-3



Right-Hand style shown

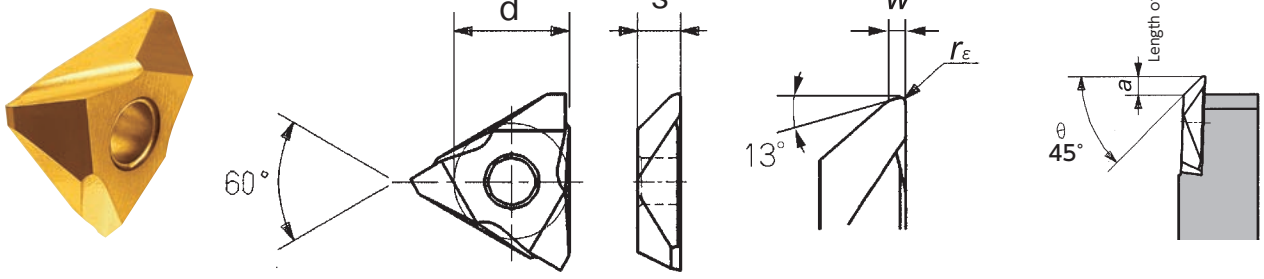
TB Series - Toolholders

TB

Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h_1 (Inch)	h_1 (mm)	L_1 (Inch)	L_1 (mm)	h_2 (Inch)	h_2 (mm)	f (Inch)	f (mm)	L_3 (Inch)	L_3 (mm)	Clamp Screw	Wrench
 TB32	TBT☓06-IN	1	●		3/8		3/8		3/8		4.724	120	.118	3	.157	4	.197	5.0	LR-S-4 × 10PW	CLR-15S
	TBT☓08-IN	1	●		1/2		1/2		1/2		4.724	120	.039	1	.157	4	.197	5.0	LR-S-4 × 10PW	CLR-15S
	TBT☓08F	1	○	○	.315	8	.315	8	.315	8	3.150	80	.157	5	.157	4	.197	5.0	LR-S-4 × 10PW	CLR-15S
	TBT☓08K	1	○	○	.315	8	.315	8	.315	8	4.724	120	.157	5	.157	4	.197	5.0	LR-S-4 × 10PW	CLR-15S
	TBT☓10F	1	○	○	.394	10	.394	10	.394	10	3.150	80	.118	3	.157	4	.197	5.0	LR-S-4 × 10PW	CLR-15S
	TBT☓10K	1	○	○	.394	10	.394	10	.394	10	4.724	120	.118	3	.157	4	.197	5.0	LR-S-4 × 10PW	CLR-15S
	TBT☓12F	1	○	○	.472	12	.472	12	.472	12	3.150	80	.039	1	.157	4	.197	5.0	LR-S-4 × 10PW	CLR-15S
	TBT☓12K	1	○	○	.472	12	.472	12	.472	12	4.724	120	.039	1	.157	4	.197	5.0	LR-S-4 × 10PW	CLR-15S
TB42	TB☓16N-42	2	○		.630	16	.630	16	.630	16	3.071	78	.354	9	.453	11.5	.354	9.0	—	LW-2.5
TB43	TB☓16NS	2	○		.630	16	.630	16	.630	16	3.071	78	.354	9	.394	10	.197	5.0	—	LW-2.5
	TB☓16N	2	○	○	.630	16	.630	16	.630	16	3.071	78	.354	9	.394	10	.354	9.0	—	LW-2.5
	TB☓16N-H	2	○		.630	16	.630	16	.630	16	3.937	100	.354	9	.394	10	.354	9.0	—	LW-2.5
	TB☓16N-K	2	○		.630	16	.630	16	.630	16	4.921	125	.354	9	.394	10	.354	9.0	—	LW-2.5
	TB☓20N	2	○	○	.787	20	.787	20	.787	20	3.937	100	.157	5	.394	10	.354	9.0	—	LW-2.5
	TB☓25N	2		○	.984	25	.984	25	.984	25	5.906	150	0	0	.394	10	.354	9.0	—	LW-2.5
	TB☓16FS	3	○		.630	16	.630	16	.630	16	3.937	100	.354	9	.591	15	.197	5.0	—	LW-2.5
	TB☓16F	3	○		.630	16	.630	16	.630	16	3.937	100	.354	9	.591	15	.354	9.0	—	LW-2.5
	TB☓20FS	3	○		.787	20	.787	20	.787	20	3.937	100	.157	5	.787	20	.197	5.0	—	LW-2.5
	TB☓20F	3	○		.787	20	.787	20	.787	20	3.937	100	.157	5	.787	20	.354	9.0	—	LW-2.5
	TB☓25F	3	○		.984	25	.984	25	.984	25	5.906	150	0	0	.984	25	.354	9.0	—	LW-2.5

TB32 • 42 • 43 - Inserts

■TB32 • 42 • 43



Right-Hand style shown

Item Number	Chip-breaker	a (Inch)	a (mm)	θ	r_ε (Inch)	r_ε (mm)	w (Inch)	w (mm)	d (Inch)	d (mm)	s (Inch)	s (mm)	Coated Carbide ZM3 R	Coated Carbide ZM3 L	Cermet XT3 R	Cermet XT3 L	Coated Cermet Z15 R	Coated Cermet Z15 L
TB3200R/L	Yes	.106	2.7	45°	0	0.00	.020	0.5	3/8	9.525	1/8	3.18	●					
TB3205R/L	Yes	.106	2.7	45°	.002	0.05	.020	0.5	3/8	9.525	1/8	3.18	●	○	●			
TB3210R/L	Yes	.106	2.7	45°	.004	0.10	.020	0.5	3/8	9.525	1/8	3.18				○		
TB3215R/L	Yes	.106	2.7	45°	.006	0.15	.020	0.5	3/8	9.525	1/8	3.18	●	○	●	○	○	
TB3220R/L	Yes	.106	2.7	45°	.008	0.20	.020	0.5	3/8	9.525	1/8	3.18	○					
TB4215R/L	Yes	.091	2.3	45°	.006	0.15	.040	1.0	1/2	12.70	1/8	3.18	○					
TB4300R/L	Yes	.157	4.0	45°	0	0.00	.040	1.0	1/2	12.70	3/16	4.76						
TB4305R/L	Yes	.157	4.0	45°	.002	0.05	.040	1.0	1/2	12.70	3/16	4.76	●		○			
TB4315R/L	Yes	.157	4.0	45°	.006	0.15	.040	1.0	1/2	12.70	3/16	4.76	●		○	○	○	
TB4340R/L	Yes	.154	3.9	45°	.016	0.40	.040	1.0	1/2	12.70	3/16	4.76	●		○	○	○	

Note: All angles shown are obtained when insert is set in the holder

● : Stock ○ : 1-2 week delivery

Cutting condition ➡K67

GTT Series

GTT

Screw accessible from both sides

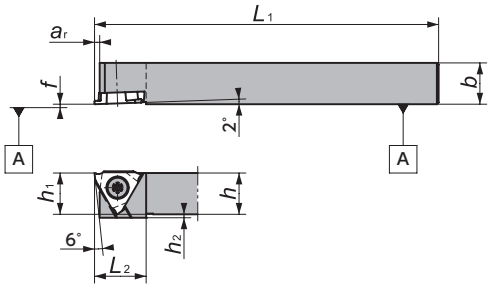
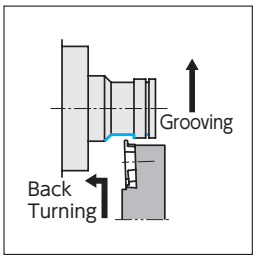


Figure-1

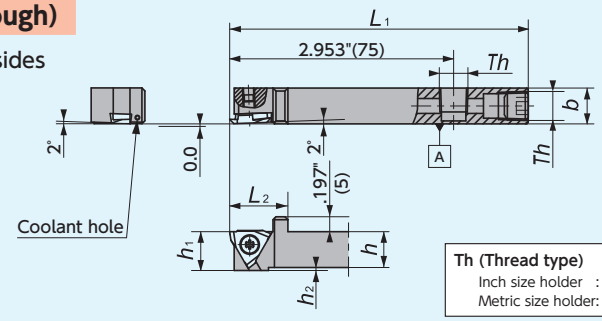


Right-Hand style shown

GTT-OH (Coolant through)

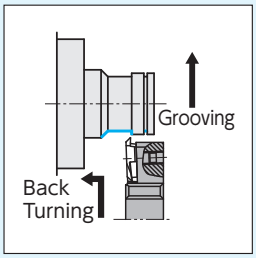
Screw accessible from both sides

NEW



Th (Thread type)
Inch size holder : NPT1/8
Metric size holder: M6, Rc1/8 (PT1/8)

Figure-2



Right-Hand style shown

Y-GTT

Screw accessible from both sides

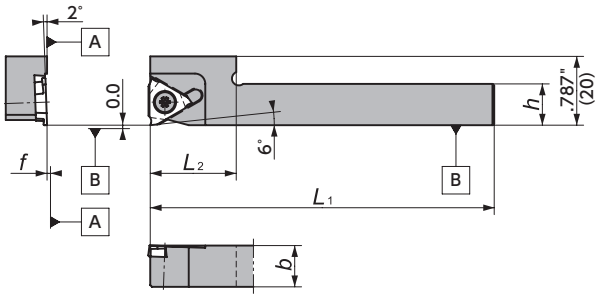
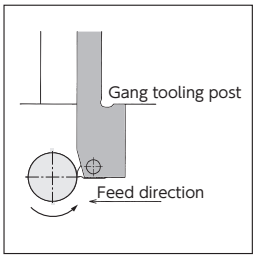


Figure-3

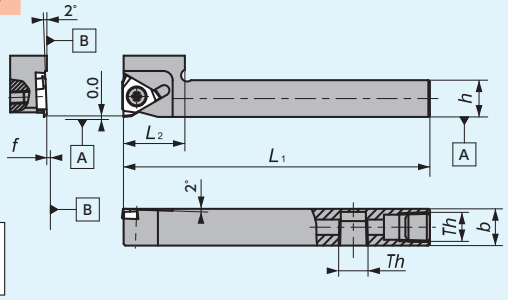


Right-Hand style shown
Takes Right-hand Insert

Y-GTT-OH (Coolant through)

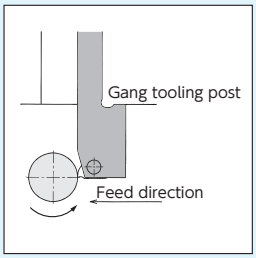
Screw accessible from both sides

NEW



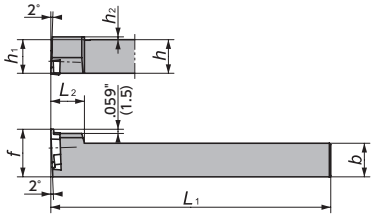
Th (Thread type)
Inch size holder : NPT1/8
Metric size holder: Rc1/8 (PT1/8)

Figure-4



Right-Hand style shown
Takes Right-hand Insert

CH-GTT



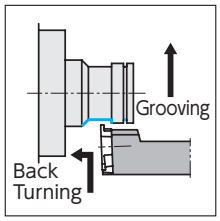
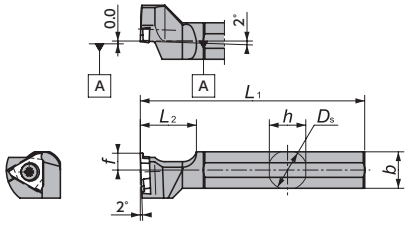


Figure-5

Left-Hand style shown
Takes Right-hand Insert

DS-GTT



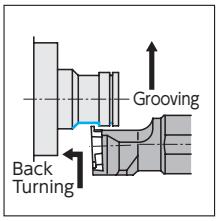


Figure-6

Left-Hand style shown
Takes Right-hand Insert

● : Stock ○ : 1-2 week delivery 💧 : Coolant through

Cutting condition ➡K67

GTT

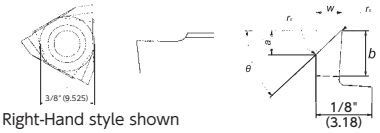
Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h_1 (Inch)	h_1 (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	L_2 (Inch)	L_2 (mm)	a_r (Inch)	a_r (mm)	h_2 (Inch)	h_2 (mm)	Th	Clamp Screw	Wrench
 TBMH32..	GTT□06A-IN	1	●	●	3/8		3/8		3/8		4.724	120	.000	0	.591	15.0	.071	1.8	.118	3	–	LR-S-4×10PW	CLR-15S
	GTT□06B-IN	1	●	●	3/8		3/8		3/8		4.724	120	.000	0	.591	15.0	.106	2.7	.118	3	–	LR-S-4×10PW	CLR-15S
	GTT□08A-IN	1	●	●	1/2		1/2		1/2		4.724	120	.000	0	.591	15.0	.071	1.8	.039	1	–	LR-S-4×10PW	CLR-15S
	GTT□08B-IN	1	●	●	1/2		1/2		1/2		4.724	120	.000	0	.591	15.0	.106	2.7	.039	1	–	LR-S-4×10PW	CLR-15S
	GTT□10A-IN	1	●	●	5/8		5/8		5/8		4.724	120	.000	0	.591	15.0	.071	1.8	.000	0	–	LR-S-4×10PW	CLR-15S
	GTT□10B-IN	1	●	●	5/8		5/8		5/8		4.724	120	.000	0	.591	15.0	.106	2.7	.000	0	–	LR-S-4×10PW	CLR-15S
	GTT□12A-IN	1	●	●	3/4		3/4		3/4		4.724	120	.000	0	.591	15.0	.071	1.8	.000	0	–	LR-S-4×10PW	CLR-15S
	GTT□12B-IN	1	●		3/4		3/4		3/4		4.724	120	.000	0	.591	15.0	.106	2.7	.000	0	–	LR-S-4×10PW	CLR-15S
	GTT□08F00	1	○	○	.315	8	.315	8	.315	8	3.150	80	.000	0	.591	15.0	.071	1.8	.157	5	–	R:LR-S-4×10PW L:LR-S-4×5.8	CLR-15S
	GTT□0810F00	1	○	○	.315	8	.394	10	.315	8	3.150	80	.000	0	.591	15.0	.071	1.8	.157	5	–	LR-S-4×10PW	CLR-15S
	GTT□08K00	1	○	○	.315	8	.315	8	.315	8	4.724	120	.000	0	.591	15.0	.071	1.8	.157	5	–	R:LR-S-4×10PW L:LR-S-4×5.8	CLR-15S
	GTT□0810K00	1	○	○	.315	8	.394	10	.315	8	4.724	120	.000	0	.591	15.0	.071	1.8	.157	5	–	LR-S-4×10PW	CLR-15S
	GTT□10F00	1	○		.394	10	.394	10	.394	10	3.150	80	.000	0	.591	15.0	.071	1.8	.118	3	–	LR-S-4×10PW	CLR-15S
	GTT□10K00	1	○		.394	10	.394	10	.394	10	4.724	120	.000	0	.591	15.0	.071	1.8	.118	3	–	LR-S-4×10PW	CLR-15S
	GTT□12F00	1	○	○	.472	12	.472	12	.472	12	3.150	80	.000	0	.591	15.0	.071	1.8	.040	1	–	LR-S-4×10PW	CLR-15S
	GTT□12K00	1	●	○	.472	12	.472	12	.472	12	4.724	120	.000	0	.591	15.0	.071	1.8	.040	1	–	LR-S-4×10PW	CLR-15S
	GTT□16H00	1	○	○	.630	16	.630	16	.630	16	3.937	100	.000	0	.591	15.0	.071	1.8	.000	0	–	LR-S-4×10PW	CLR-15S
	GTT□16K00	1	○	○	.630	16	.630	16	.630	16	4.724	120	.000	0	.591	15.0	.071	1.8	.000	0	–	LR-S-4×10PW	CLR-15S
	GTT□20K00	1	○	○	.787	20	.787	20	.787	20	4.921	125	.000	0	.591	15.0	.106	2.7	.000	0	–	LR-S-4×10PW	CLR-15S
	GTT□25M00	1	○	○	.984	25	.984	25	.984	25	5.906	150	.000	0	.591	15.0	.106	2.7	.000	0	–	LR-S-4×10PW	CLR-15S
	GTT□10F15	1	○	○	.394	10	.394	10	.394	10	3.150	80	.000	0	.591	15.0	.106	2.7	.118	3	–	LR-S-4×10PW	CLR-15S
	GTT□10K15	1	○	○	.394	10	.394	10	.394	10	4.724	120	.000	0	.591	15.0	.106	2.7	.118	3	–	LR-S-4×10PW	CLR-15S
	GTT□12F15	1	○	○	.472	12	.472	12	.472	12	3.150	80	.000	0	.591	15.0	.106	2.7	.040	1	–	LR-S-4×10PW	CLR-15S
	GTT□12K15	1	○	○	.472	12	.472	12	.472	12	4.724	120	.000	0	.591	15.0	.106	2.7	.040	1	–	LR-S-4×10PW	CLR-15S
	GTT□16H15	1	○	○	.630	16	.630	16	.630	16	3.937	100	.000	0	.591	15.0	.106	2.7	.000	0	–	LR-S-4×10PW	CLR-15S
	GTT□16K15	1	●	○	.630	16	.630	16	.630	16	4.724	120	.000	0	.591	15.0	.106	2.7	.000	0	–	LR-S-4×10PW	CLR-15S
	GTT□10F25	1	○	○	.394	10	.394	10	.394	10	3.150	80	.000	0	.591	15.0	.106	2.7	.118	3	–	LR-S-4×10PW	CLR-15S
	GTT□10K25	1	○	○	.394	10	.394	10	.394	10	4.724	120	.000	0	.591	15.0	.106	2.7	.118	3	–	LR-S-4×10PW	CLR-15S
	GTT□12F25	1	○	○	.472	12	.472	12	.472	12	3.150	80	.000	0	.591	15.0	.106	2.7	.040	1	–	LR-S-4×10PW	CLR-15S
	GTT□12K25	1	○	○	.472	12	.472	12	.472	12	4.724	120	.000	0	.591	15.0	.106	2.7	.040	1	–	LR-S-4×10PW	CLR-15S
	GTT□16H25	1	○	○	.630	16	.630	16	.630	16	3.937	100	.000	0	.591	15.0	.106	2.7	.000	0	–	LR-S-4×10PW	CLR-15S
	GTT□16K25	1	○	○	.630	16	.630	16	.630	16	4.724	120	.000	0	.591	15.0	.106	2.7	.000	0	–	LR-S-4×10PW	CLR-15S
	GTT□08HA-IN-OH	2	●		1/2		1/2		1/2		3.937	100	.000	0	.768	19.5	.071	1.8	.039	1	NPT1/8	LR-S-4×10PW	CLR-15S
	GTT□08HB-IN-OH	2	●		1/2		1/2		1/2		3.937	100	.000	0	.768	19.5	.106	2.7	.039	1	NPT1/8	LR-S-4×10PW	CLR-15S
	GTT□10HA-IN-OH	2	●		5/8		5/8		5/8		3.937	100	.000	0	.768	19.5	.071	1.8	.000	0	NPT1/8	LR-S-4×10PW	CLR-15S
	GTT□10HB-IN-OH	2	●		5/8		5/8		5/8		3.937	100	.000	0	.768	19.5	.106	2.7	.000	0	NPT1/8	LR-S-4×10PW	CLR-15S
	GTT□1012H00-OH	2	○		.394	10	.472	12	.394	10	3.937	100	.000	0	.768	19.5	.071	1.8	.039	1	M6 × 1	LR-S-4×10PW	CLR-15S
	GTT□12H00-OH	2	●		.472	12	.472	12	.472	12	3.937	100	.000	0	.768	19.5	.071	1.8	.039	1	Rc1/8(PT1/8)	LR-S-4×10PW	CLR-15S
	GTT□16H00-OH	2	○		.630	16	.630	16	.630	16	3.937	100	.000	0	.768	19.5	.071	1.8	0	0	Rc1/8(PT1/8)	LR-S-4×10PW	CLR-15S
	Y-GTTR□06-IN	3	●		3/8		3/8		–	–	4.724	120	.000	0	.984	25.0	.063	1.6	–	–	–	LR-S-4×10PW	CLR-15S
	Y-GTTR□08-IN	3	●		1/2		1/2		–	–	4.724	120	.000	0	.984	25.0	.063	1.6	–	–	–	LR-S-4×10PW	CLR-15S
	Y-GTTR□10-IN	3	●		5/8		5/8		–	–	4.724	120	.000	0	.984	25.0	.063	1.6	–	–	–	LR-S-4×10PW	CLR-15S
	Y-GTT□10S	3	○		.394	10	.394	10	–	–	4.724	120	.000	0	.787	20.0	.063	1.6	–	–	–	LR-S-4×10PW	CLR-15S
	Y-GTT□12S	3	○		.472	12	.472	12	–	–	4.724	120	.000	0	.787	20.0	.063	1.6	–	–	–	LR-S-4×10PW	CLR-15S
	Y-GTT□08H-IN-OH	4	●		1/2		1/2		–	–	3.937	100	.000	0	.984	25.0	.063	1.6	–	–	NPT1/8	LR-S-4×10PW	CLR-15S
	Y-GTT□12H00S-OH	4	●		.472	12	.472	12	–	–	3.937	100	.000	0	.787	20.0	.063	1.6	–	–	Rc1/8(PT1/8)	LR-S-4×10PW	CLR-15S
	Y-GTT□16H00-OH	4	○		.630	16	.472	16	–	–	3.937	100	.000	0	.984	25.0	.063	1.6	–	–	Rc1/8(PT1/8)	LR-S-4×10PW	CLR-15S
	CH-GTT□10H00	5		○	.394	10	.394	10	.394	10.0	4.724	120	.591	15	.472	12.0	.059	1.5	.118	3	–	LR-S-4×10PW	CLR-15S
	CH-GTT□12H00	5		○	.472	12	.472	12	.472	12.0	4.724	120	.669	17	.472	12.0	.059	1.5	.040	1	–	LR-S-4×10PW	CLR-15S

DS-GTT

Gage Insert	Item Number	Figure	Stock R	Stock L	D_s (Inch)	D_s (mm)	h (Inch)	h (mm)	b (Inch)	b (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	L_2 (Inch)	L_2 (mm)	Clamp Screw	Wrench
 TBMH32..	DS-GTT□14F	6		○	.551	14.000	.512	13	.512	13	3.150	80	.236	6	.787	20	LR-S-4 × 9	RLR-20S
	DS-GTT□15H	6		○	.518	15.875	.591	15	.591	15	3.937	100	.236	6	.787	20	LR-S-4 × 9	RLR-20S
	DS-GTT□16X	6		●	.630	16.000	.591	15	.591	15	3.740	95	.236	6	.787	20	LR-S-4 × 9	RLR-20S
	DS-GTT□19	6		●	3/4	19.050	.709	18	.709	18	4.724	120	.236	6	.787	20	LR-S-4 × 9	RLR-20S
	DS-GTT□20	6		●	.787	20.000	.748	19	.748	19	4.724	120	.236	6	.787	20	LR-S-4 × 9	RLR-20S
	DS-GTT□22	6		●	.866	22.000	.827	21	.827	21	4.724	120	.236	6	.787	20	LR-S-4 × 9	RLR-20S
	DS-GTT□25	6		●	1	25.400	.945	24	.945	24	4.724	120	.394	10	.787	20	LR-S-4 × 9	RLR-20S

GTT Series - Inserts

TBMH32

Shape	Item Number	Chip-breaker	Length of Blade a (Inch)	Length of Blade a (mm)	Max Depth of Cut b (Inch)	Max Depth of Cut b (mm)	w (Inch)	w (mm)	θ	$r_ε$ (Inch)	$r_ε$ (mm)	Coated Carbide ZM3 R	Coated Carbide ZM3 L
 Right-Hand style shown	TBMH32100□05-22	Yes	.012	0.3	.071	1.8	.039	1.0	22°	.002	0.05	●	
	TBMH32100□05-45	Yes	.035	0.9	.071	1.8	.039	1.0	45°	.002	0.05	●	
	TBMH32150□05-22	Yes	.020	0.5	.106	2.7	.059	1.5	22°	.002	0.05	●	
	TBMH32150□05-45	Yes	.051	1.3	.102	2.6	.059	1.5	45°	.002	0.05	●	

Note: All angles shown are obtained when insert is set in the holder

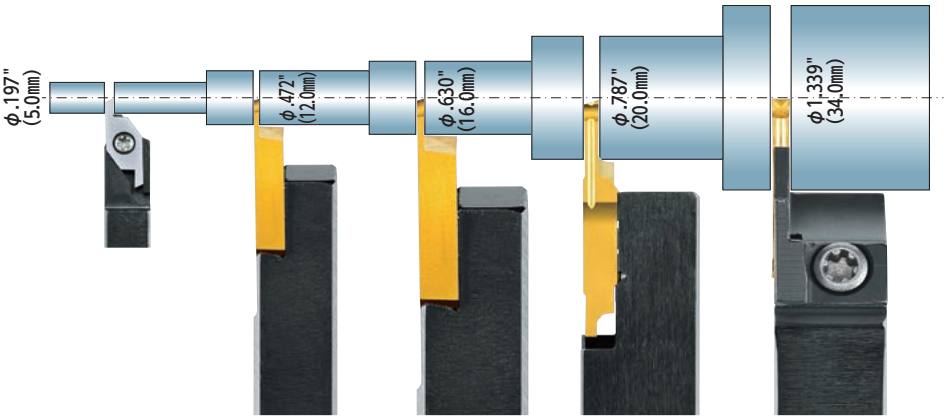
MEMO

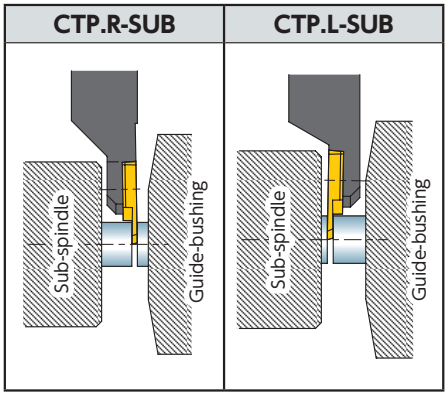
K

Cut-off / Parting

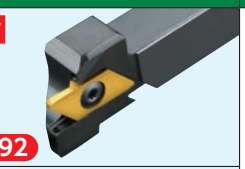
NTK Cut-off Tools - Product Lines

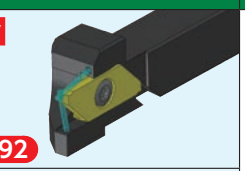
NTK offers a variety of cut-off tools with as narrow a width as .020" (0.5mm)
NTK cut-off tools are specialized for small part applications





Insert	CSV ➡K90	CTPS ➡K91	CTPS-001 ➡K91
Holder	CSV-NC  ➡K90	CTPS  ➡K91	CTPSR-SUB  ➡K91
Max Cut-off Diameter	~ϕ.197" (~5.0mm)	~ϕ.394" (~10.0mm)	~ϕ.157" (~4.0mm)
Blade width	.024" - .059" (0.6 - 1.5mm)	.047" - .079" (1.2 - 2.0mm)	.028" (0.7mm)

Insert	CTP ➡K94 • K96			
Holder	CTP  ➡K92	CTP-OH NEW  ➡K92 Coolant through	CTPR-SUB  ➡K92	CTPL-SUB  ➡K92
Max Cut-off Diameter	~ϕ.472" (~12.0mm)			
Blade width	.020" - .079" (0.5 - 2.0mm)			

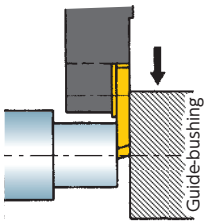
Insert	CTPA ➡K94 • K96			
Holder	CTPA  ➡K92	CTPA-OH NEW  ➡K92 Coolant through	CTPAR-SUB  ➡K92	CTPAL-SUB  ➡K92
Max Cut-off Diameter	~ϕ.630" (~16.0mm)			
Blade width	.028" - .118" (0.7 - 3.0mm)			

Insert	CTPW ➡K94・K96	CTDP ➡K98
Holder	CTPW  ➡K92	CTDP  ➡K98
Max Cut-off Diameter	~ϕ.787" (~20.0mm)	~ϕ1.339" (~34.0mm)
Blade width	.098" (2.5mm)	.079"•.098" (2.0•2.5mm)

Insert	CTV-S ➡K99		CTV ➡K101		
Holder	CTV-K2  ➡K99	CTVN-K2  ➡K99	CTV-S  ➡K100	CTV-M (B)  ➡K100	CTV-X  ➡K100
Max Cut-off Diameter	~ϕ.787" (~20.0mm)		~ϕ1.378" (~35.0mm)	~ϕ1.772" (~45.0mm)	~1.378" (~35.0mm)
Blade width	.087" - .098" (2.2 - 2.5mm)		.098"•.118" (2.5•3.0mm)	.098"•.118" (2.5•3.0mm)	.118" (3.0mm)

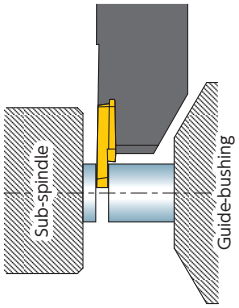
■ CTP/CTPA/CTPS/CTPW selection guide : Right hand? Or Left hand?

Right-hand recommended



R-hand Toolholder using a R-hand insert with lead angle

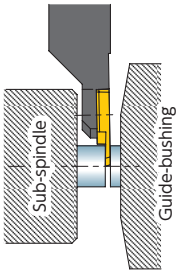
Left-hand recommended



L-hand Toolholder with a non-lead angle insert when the bar stock is held by sub-spindle

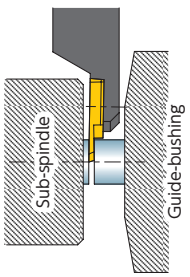
■ CTP/CTPA-SUB selection guide Right hand? Or Left hand?

Right-hand recommended



R-hand Toolholder with R-hand insert with lead angle for longer parts or small diameter part. When part length is too short for sub-spindle to hold, use L-hand with slower speed.

Left-hand recommended



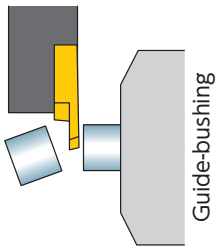
L-hand with L-hand insert with lead angle for short part

More information ➡K88

Cut-off Tool Selection Guide

Right-hand combination

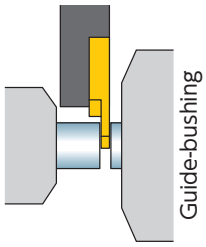
FR, FRFT, FRV Style



FRFT: Flat top
FRV : Flat top with mirror finish

- Common geometry in cut-off
- Lead angle minimizes center-boss
- End face is likely to get scratched from chip control because of lead angle and chip-breaker configuration
- Good for small diameter machining as it cuts near guide-bushing

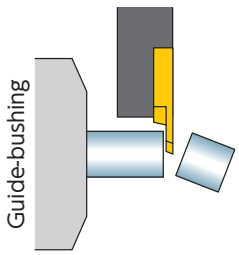
FRN, FRS,FRNV Style



FRS : Flat top
FRNV: Flat top with mirror finish

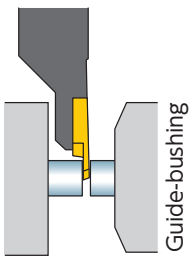
- Good for small diameter machining as it cuts near guide-bushing
- 1st recommendation when sub-spindle holds the part
- No lead angle helps to prevent scratches on both faces

FRK Style



- Used with inverse spindle rotation
- Short part length and using sub-spindle
- Less burrs with hollow work

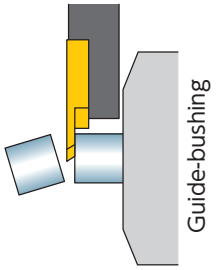
CTP. R-SUB



- Recommended when cut-off point is close to guide-bushing for small and thin parts
- When the part length is short, extended sub-spindle guide-bushing is generally used

Left-hand combination

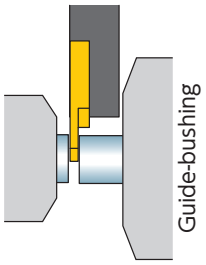
FLK, FLKFT, FLKV Style



FLKFT: Flat top
FLKV : Flat top with mirror finish

- Can cut-off closer to the sub-spindle
- Less burrs with hollow work
- Sub-spindle should hold the work

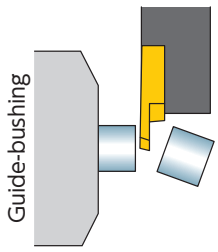
FLN, FLS Style



FLS: Flat top

- Recommended when required to cut-off close to the sub-spindle due to short part length
- Good for big diameter part
- No lead angle helps to prevent scratches on both faces
- Sub-spindle should hold the work

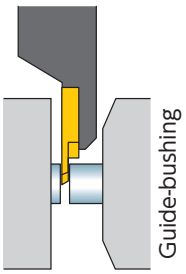
FL, FLV Style



FLV: Flat top with mirror finish

- Used with inverse spindle rotation
- Without sub-spindle
- Less burrs with hollow work

CTP. L-SUB



- Recommended when required to cut-off close to the sub-spindle especially with small diameters
- Can cut much closer to the sub-spindle than the other left-handed tool holders
- Sub-spindle should hold the work

Recommended Cutting Conditions

Cut-off

CSVT

Work Material		High Temperature Alloys	Titanium Alloys	Cobalt Chrome Alloys	Stainless Steels		Alloy Steels	Carbon Steels
					Hard to cut	Free cutting		
Common Name		Inconel Hastelloy MP35N	Ti-6Al-4V	ASTM F-75	304 316 17-4PH	303 430F	5120 4137	1045 1046
Grade	1st choice	DT4					VM1	
	2nd choice	VM1					DT4	
Cutting Speed (SFM)		100 160 230				100 200 300		
Feed Rate (IPR)		.0004 .0008 .0012				.0004 .0012 .0020		

CTP / CTPA / CTPS / CTPW

Work Material		High Temperature Alloys	Titanium Alloys	Cobalt Chrome Alloys	Stainless Steels		Alloy Steels	Carbon Steels
					Hard to cut	Free cutting		
Common Name		Inconel Hastelloy MP35N	Ti-6Al-4V	ASTM F-75	304 316 17-4PH	303 430F	5120 4137	1045 1046
Grade	1st choice	DT4				TM4	QM3	
	2nd choice	TM4			QM3 / VM1	QM3	TM4 / DT4 / C7Z(X)	
Cutting Speed (SFM)		100 160 230				100 200 300		
Feed Rate (IPR)		.0008 .0012 .0020				.0008 .0016 .0024		

CTDP / CTV

Work Material		High Temperature Alloys	Titanium Alloys	Cobalt Chrome Alloys	Stainless Steels		Alloy Steels	Carbon Steels
					Hard to cut	Free cutting		
Common Name		Inconel Hastelloy MP35N	Ti-6Al-4V	ASTM F-75	304 316 17-4PH	303 430F	5120 4137	1045 1046
Grade	1st choice	DM4				TM4	QM3	
	2nd choice	TM4 / QM3				QM3	TM4 / DM4	
Cutting Speed (SFM)		100 160 230				100 200 300		
Feed Rate (IPR)		.0012 .0020 .0031				.0016 .0031 .0047		

1st Recommendation style for Cut-off Diameter

Cut-off diameter (ϕ)		
-.197"	CSV style	➡K90 
.197"-.472"	CTP style	➡K92 
.472"-.630"	CTPA style	➡K92 
	CTDP style	➡K98 
.630"-	CTDP style	➡K98 

CSV Series

Best for up to .200" diameter material

CSV-NC For Gang-style machine

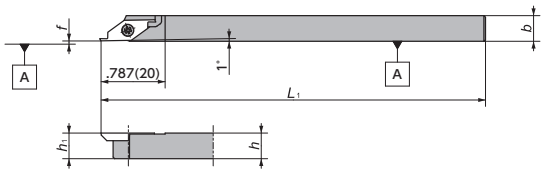


Figure-1

Right-Hand style shown

CSV For Cam-style machine

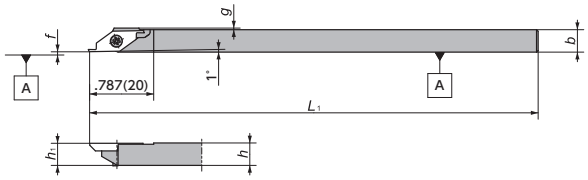


Figure-2

Right-Hand style shown

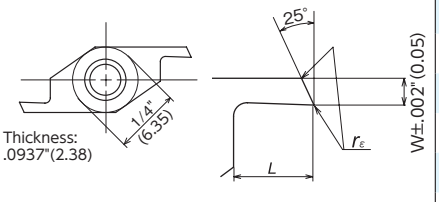
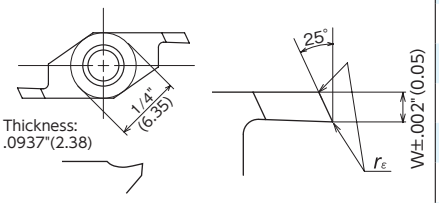
CSV Series - Toolholders

■CSV R/L / CSV R/L-NC

Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h_1 (Inch)	h_1 (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	g (Inch)	g (mm)	Clamp Screw	Wrench
 CSV..11..	CSVR/L06-IN-NC	1	●	●	3/8		3/8		3/8		4.724	120	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L08-IN-NC	1	●	●	1/2		1/2		1/2		4.724	120	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L08NC	1	○	○	.315	8	.315	8	.315	8	4.724	120	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L08NC-F	1	○		.315	8	.315	8	.315	8	4.724	120	0–.004	0.0-0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L10GXNC	1	○		.394	10	.394	10	.394	10	3.346	85	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L10NC	1	○	○	.394	10	.394	10	.394	10	4.724	120	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L12NC	1	●	●	.472	12	.472	12	.472	12	4.724	120	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L07GX	2	○		.275	7	.275	7	.275	7	3.346	85	.004	0.1	.020	0.5	LRIS-2.5 × 7	CLR-15S
	CSVR/L07	2	○	●	.275	7	.275	7	.275	7	5.512	140	.004	0.1	.020	0.5	LRIS-2.5 × 7	CLR-15S
	CSVR/L08GX	2	○		.315	8	.315	8	.315	8	3.346	85	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L08	2	●	●	.315	8	.315	8	.315	8	5.512	140	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L095	2	○		.374	9.5	.374	9.5	.374	9.5	5.512	140	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L10	2	●	○	.394	10	.394	10	.394	10	5.512	140	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L12GX	2	○		.472	12	.472	12	.472	12	3.346	85	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L12	2	●		.472	12	.472	12	.472	12	5.512	140	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S

CSV Series - Inserts

■CSVC - Cut-off Mirror finish

Shape	Item Number	Chip-breaker	Max. Cut-off Dia. φD (Inch)	Max. Cut-off Dia. φD (mm)	w (Inch)	w (mm)	L (Inch)	L (mm)	r_ε (Inch)	r_ε (mm)	VM1 R	VM1 L
 Thickness: .0937"(2.38) 1/4" (6.35) 25° W±.002" (0.05) L r_ε Right-Hand style shown	CSVC11FR/LV06 Ⓜ	No	.118	3.0	.024	0.6	.079	2.0	0	0.0	○	
	CSVC11FR/LV07 Ⓜ	No	.157	4.0	.028	0.7	.098	2.5	0	0.0	●	●
	CSVC11FR/LV08 Ⓜ	No	.157	4.0	.031	0.8	.098	2.5	0	0.0	○	○
	CSVC11FR/LV09 Ⓜ	No	.157	4.0	.035	0.9	.098	2.5	0	0.0	○	
	CSVC11FR/LV10 Ⓜ	No	.197	5.0	.039	1.0	.118	3.0	0	0.0	●	●
	CSVC11FR/LV13 Ⓜ	No	.197	5.0	.051	1.3	.118	3.0	0	0.0	●	○
	CSVC11FR/LV15 Ⓜ	No	.197	5.0	.059	1.5	.118	3.0	0	0.0	○	○
 Thickness: .0937"(2.38) 1/4" (6.35) 25° W±.002" (0.05) r_ε Right-Hand style shown	CSVC11FR/LVB06 Ⓜ	Yes	.118	3.0	.024	0.6	.079	2.0	0	0.0	○	
	CSVC11FR/LVB07 Ⓜ	Yes	.157	4.0	.028	0.7	.098	2.5	0	0.0	●	
	CSVC11FR/LVB08 Ⓜ	Yes	.157	4.0	.031	0.8	.098	2.5	0	0.0	○	
	CSVC11FR/LVB09 Ⓜ	Yes	.157	4.0	.035	0.9	.098	2.5	0	0.0	○	
	CSVC11FR/LVB10 Ⓜ	Yes	.197	5.0	.039	1.0	.118	3.0	0	0.0	●	
	CSVC11FR/LVB13 Ⓜ	Yes	.197	5.0	.051	1.3	.118	3.0	0	0.0	○	
	CSVC11FR/LVB15 Ⓜ	Yes	.197	5.0	.059	1.5	.118	3.0	0	0.0	○	

Note: All angles shown are obtained when insert is set in the holder

CSV series ➡J36

CTPS Series

CTPS Max. Cut-off Dia. .394" (10.0mm)

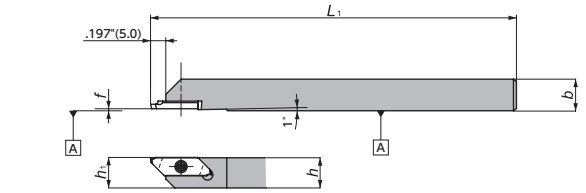


Figure-1 Right-Hand style shown

CTPSR-SUB Max. Cut-off Dia. .157" (4.0mm)

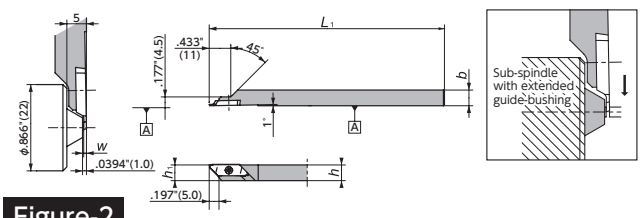


Figure-2 Right-Hand style shown

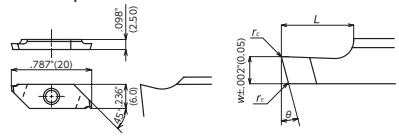
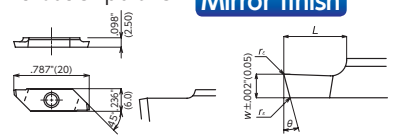
CTPS Series - Toolholders

■CTPS / CTPSR

Gage Insert	Item Number	Figure	Stock R	Stock L	Max. Cut-off Dia. ϕD (Inch)	Max. Cut-off Dia. ϕD (mm)	h (Inch)	h (mm)	b (Inch)	b (mm)	h1 (Inch)	h1 (mm)	L1 (Inch)	L1 (mm)	f (Inch)	f (mm)	Clamp Screw	Wrench
 CTPS..	**CTPSR06-IN**	1	●		**.394**	**10.0**	3/8		3/8		3/8		4.724	120	0	0.0	LR1S-2.5 × 7	CLR-15S
	CTPSR08-IN	1	●		**.394**	**10.0**	1/2		1/2		1/2		4.724	120	0	0.0	LR1S-2.5 × 7	CLR-15S
	CTPSR10	1	○		**.394**	**10.0**	.394	10	.394	10	.394	10	4.724	120	0	0.0	LR1S-2.5 × 7	CLR-15S
	CTPSR12	1	○		**.394**	**10.0**	.472	12	.472	12	.472	12	4.724	120	0	0.0	LR1S-2.5 × 7	CLR-15S
CTPS-001	**CTPSR08-SUB04**	2	○		**.157**	**4.0**	.315	8	.315	8	.315	8	4.724	120		—	LR1S-2.5 × 5	CLR-15S

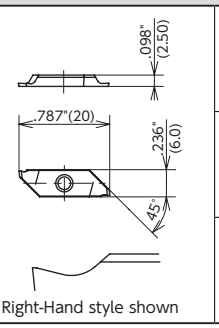
CTPS Series - Inserts

■CTPS - Cut-off

Shape	Item Number	Chip-breaker	Max. Cut-off Dia. ϕD (Inch)	Max. Cut-off Dia. ϕD (mm)	w (Inch)	w (mm)	L (Inch)	L (mm)	θ	rε (Inch)	rε (mm)	Coated Carbide VM1 R	Coated Carbide VM1 L	Coated Carbide ZM3 R	Coated Carbide ZM3 L
with chipbraker  Right-Hand style shown	**CTPS12FR**	Yes	**.157**	**4.0**	**.047**	**1.2**	.138	3.5	16°	.002	0.05	○		●	
	CTPS15FR	Yes	**.197**	**5.0**	**.059**	**1.5**	.157	4.0	16°	.002	0.05	○		●	
	CTPS18FR	Yes	**.335**	**8.5**	**.071**	**1.8**	.217	5.5	16°	.002	0.05	○		●	
	CTPS20FR	Yes	**.394**	**10.0**	**.079**	**2.0**	.236	6.0	16°	.002	0.05	○		○	
without chipbraker Mirror finish  Right-Hand style shown	**CTPS12FRV** Ⓜ	No	**.157**	**4.0**	**.047**	**1.2**	.138	3.5	20°	0	0.0	●		○	
	CTPS15FRV Ⓜ	No	**.197**	**5.0**	**.059**	**1.5**	.157	4.0	20°	0	0.0	○		○	
	CTPS18FRV Ⓜ	No	**.335**	**8.5**	**.071**	**1.8**	.217	5.5	20°	0	0.0	○		○	
	CTPS20FRV Ⓜ	No	**.394**	**10.0**	**.079**	**2.0**	.236	6.0	20°	0	0.0	○		○	

Note: All angles shown are obtained when insert is set in the holder

■CTPS-001 - Cut-off

Shape	Item Number	Chip-breaker	Max. Cut-off Dia. ϕD (Inch)	Max. Cut-off Dia. ϕD (mm)	w (Inch)	w (mm)	θ	rε (Inch)	rε (mm)	Coated Carbide ZM3 R	Coated Carbide ZM3 L
 Right-Hand style shown	**CTPS07FRN-001**	Yes	**.157**	**4.0**	**.028**	**0.7**	0°	.002	0.05	○	
	CTPS07FR-001	Yes	**.157**	**4.0**	**.028**	**0.7**	16°	.002	0.05	○	
	CTPS07FRV-001 Ⓜ	No	**.157**	**4.0**	**.028**	**0.7**	20°	0	0.0	○	

Note: All angles shown are obtained when insert is set in the holder

● : Stock ○ : 1-2 week delivery Ⓜ : Mirror finish

CTPS series ➡J40 Cutting condition ➡K89

CTP / CTPA / CTPW - Toolholders

CTP / CTPA

Screw Accessible from both sides

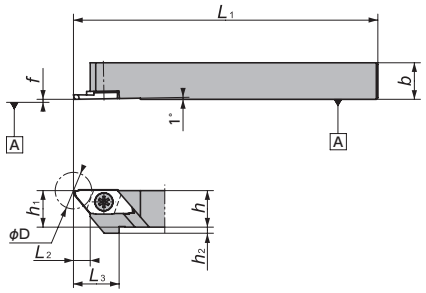
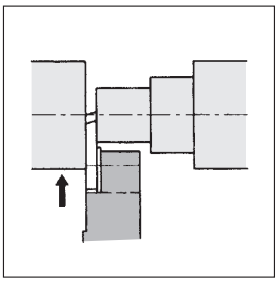


Figure-1



Right-Hand style shown

CTP-OH / CTPA-OH (Coolant through)

Screw Accessible from both sides

NEW

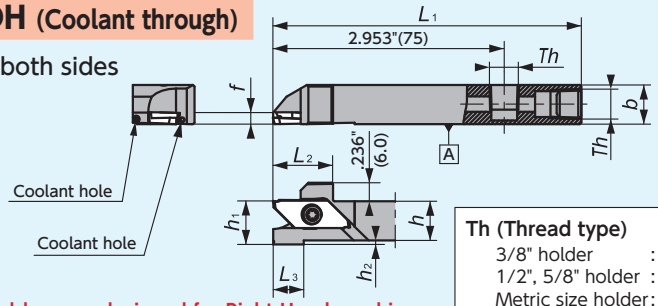
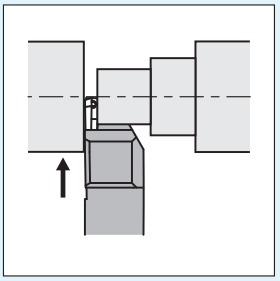


Figure-2

● Left-Hand holders are designed for Right-Hand machines

Th (Thread type)
3/8" holder : M6×1
1/2", 5/8" holder : NPT1/8
Metric size holder: Rc1/8 (PT1/8)



Right-Hand style shown

CTPW

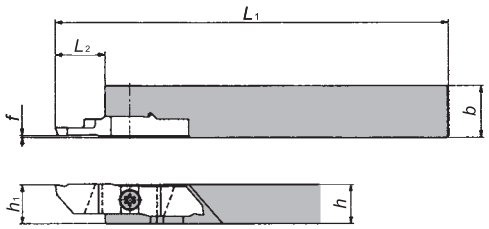
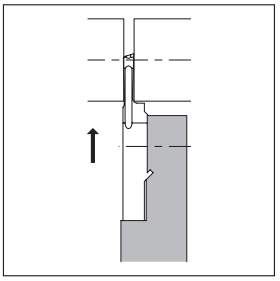


Figure-3



Right-Hand style shown

CTPR-SUB / CTPAR-SUB

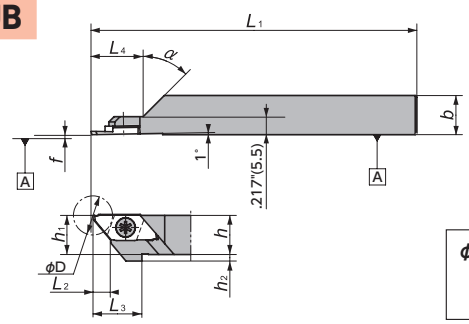
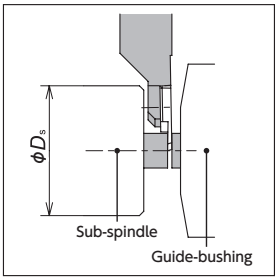


Figure-4

ϕDs
CTPR-SUB: ϕ1.18" (ϕ30㎜)
CTPAR-SUB: ϕ1.42" (ϕ36㎜)



CTPL-SUB / CTPAL-SUB

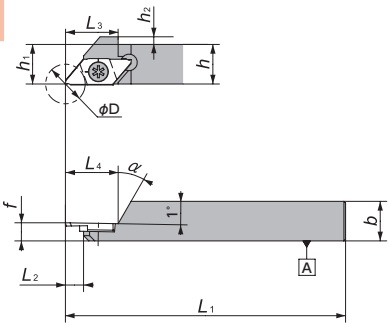
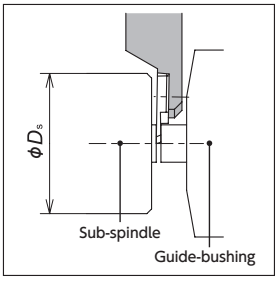


Figure-5

ϕDs
CTPR-SUB: ϕ1.18" (ϕ30㎜)
CTPAR-SUB: ϕ1.42" (ϕ36㎜)



■CTP / CTPA / CTPW

Gage Insert	Item Number	Figure	Stock R	Stock L	Max. Cut-off Dia. φD* (Inch)	(mm)	h (Inch)	(mm)	h1 (Inch)	(mm)	b (Inch)	(mm)	L1 (Inch)	(mm)	h2 (Inch)	(mm)	L2 (Inch)	(mm)	L3 (Inch)	(mm)	Th	f (Inch)	(mm)	Clamp Screw	Wrench
 CTP FR../FL..	CTPR□06-IN	1	●	●	.472	12	3/8		3/8		3/8		4.724	120	.079	2	.217	5.5	.591	15	—	0.0	0.0	LRIS-4×10PW	CLR-15S
	CTPR□08-IN	1	●	●	.472	12	1/2		1/2		1/2		4.724	120	0	0	.217	5.5	.591	15	—	0.0	0.0	LRIS-4×12PW	CLR-15S
	CTPR□10-IN	1	●	●	.472	12	5/8		5/8		5/8		4.724	120	0	0	.217	5.5	.591	15	—	0.0	0.0	LRIS-4×12PW	CLR-15S
	CTPR□08	1	●	●	.472	12	.315	8	.315	8	.394	10	4.724	120	.157	4	.217	5.5	.591	15	—	0.0	0.0	LRIS-4×10PW	CLR-15S
	CTPR□10H	1	○	○	.472	12	.394	10	.394	10	.394	10	3.937	100	.079	2	.217	5.5	.591	15	—	0.0	0.0	LRIS-4×10PW	CLR-15S
	CTPR□10	1	○	○	.472	12	.394	10	.394	10	.394	10	4.724	120	.079	2	.217	5.5	.591	15	—	0.0	0.0	LRIS-4×10PW	CLR-15S
	CTPR□12GX	1	○	○	.472	12	.472	12	.472	12	.472	12	3.346	85	0	0	.217	5.5	.591	15	—	0.0	0.0	LRIS-4×12PW	CLR-15S
	CTPR□12	1	○	○	.472	12	.472	12	.472	12	.472	12	4.724	120	0	0	.217	5.5	.591	15	—	0.0	0.0	LRIS-4×12PW	CLR-15S
	CTPR□13	1	○	○	.472	12	.519	13	.519	13	.519	13	4.724	120	0	0	.217	5.5	.591	15	—	0.0	0.0	LRIS-4×12PW	CLR-15S
	CTPR□16H	1	○		.472	12	.630	16	.630	16	.630	16	3.937	100	0	0	.217	5.5	.591	15	—	0.0	0.0	LRIS-4×12PW	CLR-15S
	CTPR□16	1	○	○	.472	12	.630	16	.630	16	.630	16	4.724	120	0	0	.217	5.5	.591	15	—	0.0	0.0	LRIS-4×12PW	CLR-15S
	CTPR□06H-IN-OH 💧	2	●	●	.472	12	3/8		.472	12	3/8		3.937	100	.176	4.475	.768	19.5	.748	19	M6 × 1	0.0	0.0	LRIS-4×10PW	CLR-15S
	CTPR□08H-IN-OH 💧	2	●	●	.472	12	1/2		1/2		1/2		3.937	100	.051	1.3	.768	19.5	.394	10	NPT1/8	0.0	0.0	LRIS-4×12PW	CLR-15S
	CTPR□1012H-OH 💧	2	○	○	.472	12	.394	10	.472	12	.394	10	3.937	100	.176	4.475	.768	19.5	.748	19	M6 × 1	0.0	0.0	LRIS-4×12PW	CLR-15S
	CTPR□12H-OH 💧	2	●	●	.472	12	.472	12	.472	12	.472	12	3.937	100	.051	1.3	.768	19.5	.394	10	Rc1/8(PT1/8)	0.0	0.0	LRIS-4×12PW	CLR-15S
	CTPR□16H-OH 💧	2	○	○	.472	12	.630	16	.630	16	.630	16	3.937	100	0	0	.768	19.5	—	—	Rc1/8(PT1/8)	0.0	0.0	LRIS-4×12PW	CLR-15S
 CTPA FR../FL..	CTPAR□06-IN	1	●	●	.630	16	3/8		3/8		3/8		4.724	120	.079	2	.295	7.5	.768	19.5	—	0.0	0.0	LRIS-4×10PW	CLR-15S
	CTPAR□08-IN	1	●	●	.630	16	1/2		1/2		1/2		4.724	120	0	0	.295	7.5	.768	19.5	—	0.0	0.0	LRIS-4×12PW	CLR-15S
	CTPAR□10-IN	1	●	●	.630	16	5/8		5/8		5/8		4.724	120	0	0	.295	7.5	.768	19.5	—	0.0	0.0	LRIS-4×12PW	CLR-15S
	CTPAR□10	1	○	○	.630	16	.394	10	.394	10	.394	10	4.724	120	.079	2	.295	7.5	.768	19.5	—	0.0	0.0	LRIS-4×10PW	CLR-15S
	CTPAR□12	1	●	●	.630	16	.472	12	.472	12	.472	12	4.724	120	0	0	.295	7.5	.768	19.5	—	0.0	0.0	LRIS-4×12PW	CLR-15S
	CTPAR□16	1	○	○	.630	16	.630	16	.630	16	.630	16	4.724	120	0	0	.295	7.5	.768	19.5	—	0.0	0.0	LRIS-4×12PW	CLR-15S
	CTPAR□20F	1	○	○	.630	16	.787	20	.787	20	.787	20	3.150	80	0	0	.295	7.5	.768	19.5	—	0.0	0.0	LRIS-4×10	LLR-25S
	CTPAR□06H-IN-OH 💧	2	●	●	.630	16	3/8		.472	12	3/8		3.937	100	.176	4.475	.768	19.5	.787	20	M6 × 1	0.0	0.0	LRIS-4×10PW	CLR-15S
	CTPAR□08H-IN-OH 💧	2	●	●	.630	16	1/2		1/2		1/2		3.937	100	.051	1.3	.768	19.5	.394	10	NPT1/8	0.0	0.0	LRIS-4×12PW	CLR-15S
	CTPAR□10H-IN-OH 💧	2	●	●	.630	16	5/8		5/8		5/8		3.937	100	0	0	.768	19.5	—	—	NPT1/8	0.0	0.0	LRIS-4×12PW	CLR-15S
 CTPW FR../FL..	CTPW□08-IN	3	●	●	.787	20	1/2		.498		.630	16	4.724	120	—	—	.591	15	—	—	—	0.0	0.0	LRIS-4×10	LLR-25S
	CTPW□10-IN	3	●	●	.787	20	5/8		.623		.630	16	4.724	120	—	—	.591	15	—	—	—	0.0	0.0	LRIS-4×10	LLR-25S
	CTPW□10A	3		○	.787	20	.394	10	.392	9.95	.630	16	4.724	120	—	—	.591	15	—	—	—	0.0	0.0	LRIS-4×10	LLR-25S
	CTPW□10	3	○		.787	20	.394	10	.392	9.95	.472	12	4.724	120	—	—	.591	15	—	—	—	0.0	0.0	LRIS-4×10	LLR-25S
	CTPW□12A	3		○	.787	20	.472	12	.470	11.95	.630	16	4.724	120	—	—	.591	15	—	—	—	0.0	0.0	LRIS-4×10	LLR-25S
	CTPW□12	3	○		.787	20	.472	12	.470	11.95	.472	12	4.724	120	—	—	.591	15	—	—	—	0.0	0.0	LRIS-4×10	LLR-25S
	CTPW□16	3	○	○	.787	20	.630	16	.628	15.95	.630	16	4.724	120	—	—	.591	15	—	—	—	0.0	0.0	LRIS-4×10	LLR-25S
	CTPW□20	3	○	○	.787	20	.787	20	.785	19.95	.787	20	4.724	120	—	—	.591	15	—	—	—	0.0	0.0	LRIS-4×10	LLR-25S

●Left-Hand coolant through holders are designed for Right-Hand machines

＊Would be changed by insert

■CTPR-SUB / CTPAR-SUB

Gage Insert	Item Number	Figure	Stock R	Max. Cut-off Dia. φD* (Inch)	(mm)	h (Inch)	(mm)	h1 (Inch)	(mm)	b (Inch)	(mm)	L1 (Inch)	(mm)	h2 (Inch)	(mm)	L2 (Inch)	(mm)	L3 (Inch)	(mm)	L4 (Inch)	(mm)	α	f (Inch)	(mm)	Clamp Screw	Wrench
 CTP..FR..	CTPR06-IN-SUB	4	●	.472	12	3/8		3/8		3/8		4.724	120	.079	2	.217	5.5	.591	15	.630	16	45°	.217	5.5	LRIS-4×5	LLR-25S
	CTPR08-IN-SUB	4	●	.472	12	1/2		1/2		1/2		4.724	120	0	0	.217	5.5	.591	15	.630	16	45°	.217	5.5	LRIS-4×5	LLR-25S
	CTPR10-IN-SUB	4	●	.472	12	5/8		5/8		5/8		4.724	120	0	0	.217	5.5	.591	15	.630	16	45°	.217	5.5	LRIS-4×5	LLR-25S
	CTPR08-SUB	4	○	.472	12	.315	8	.315	8	.315	8	4.724	120	.157	4	.217	5.5	.591	15	.630	16	45°	.217	5.5	LRIS-4×5	LLR-25S
	CTPR08J-SUB	4	○	.472	12	.315	8	.315	8	.315	8	4.331	110	.157	4	.217	5.5	.591	15	.630	16	45°	.217	5.5	LRIS-4×5	LLR-25S
	CTPR10F-SUB	4	○	.472	12	.394	10	.394	10	.394	10	3.150	80	.079	2	.217	5.5	.591	15	.630	16	45°	.217	5.5	LRIS-4×5	LLR-25S
	CTPR10KX-SUB	4	○	.472	12	.394	10	.394	10	.394	10	4.724	120	.079	2	.217	5.5	.591	15	.630	16	45°	.217	5.5	LRIS-4×5	LLR-25S
	CTPR12GX-SUB	4	○	.472	12	.472	12	.472	12	.472	12	3.346	85	0	0	.217	5.5	.591	15	.630	16	45°	.217	5.5	LRIS-4×5	LLR-25S
	CTPR12-SUB	4	○	.472	12	.472	12	.472	12	.472	12	4.724	120	0	0	.217	5.5	.591	15	.630	16	45°	.217	5.5	LRIS-4×5	LLR-25S
 CTPA..FR..	CTPAR06-IN-SUB	4	●	.630	16	3/8		3/8		3/8		4.724	120	.079	2	.295	7.5	.768	19.5	.787	20	25°	.217	5.5	LRIS-4×5	LLR-25S
	CTPAR08-IN-SUB	4	●	.630	16	1/2		1/2		1/2		4.724	120	0	0	.295	7.5	.768	19.5	.787	20	25°	.217	5.5	LRIS-4×5	LLR-25S
	CTPAR10-IN-SUB	4	●	.630	16	5/8		5/8		5/8		4.724	120	0	0	.295	7.5	.768	19.5	.787	20	25°	.217	5.5	LRIS-4×5	LLR-25S
	CTPAR10GX-SUB	4	○	.630	16	.394	10	.394	10	.394	10	3.346	85	.079	2	.787	20	.768	19.5	.787	20	25°	0	0.0	LRIS-4×5	LLR-25S
	CTPAR12GX-SUB	4	○	.630	16	.472	12	.472	12	.472	12	3.346	85	0	0	.787	20	.768	19.5	.787	20	25°	0	0.0	LRIS-4×5	LLR-25S
	CTPAR12KX-SUB	4	○	.630	16	.472	12	.472	12	.472	12	4.724	120	0	0	.787	20	.768	19.5	.787	20	25°	0	0.0	LRIS-4×5	LLR-25S

＊Would be changed by insert

■CTPL-SUB / CTPAL-SUB

Gage Insert	Item number	Figure	Stock L	Max. Cut-off Dia. φD* (Inch)	(mm)	h (Inch)	(mm)	h1 (Inch)	(mm)	b (Inch)	(mm)	L1 (Inch)	(mm)	h2 (Inch)	(mm)	L2 (Inch)	(mm)	L3 (Inch)	(mm)	L4 (Inch)	(mm)	α	f (Inch)	(mm)	Clamp screw	Wrench
 CTP..FL..	CTPL08-SUB	5	○	.472	12	.315	8	.315	8	.394	10	4.724	120	.157	4	.217	5.5	.591	15	.630	16	30°	.217	5.5	LRIS-4×5	LLR-25S
	CTPL08J-SUB	5	○	.472	12	.315	8	.315	8	.315	8	4.331	110	.157	4	.217	5.5	.591	15	.630	16	30°	.217	5.5	LRIS-4×5	LLR-25S
	CTPL10GX-SUB	5	○	.472	12	.394	10	.394	10	.394	10	3.346	85	.079	2	.217	5.5	.591	15	.630	16	30°	.217	5.5	LRIS-4×5	LLR-25S
	CTPL12GX-SUB	5	○	.472	12	.472	12	.472	12	.472	12	3.346	85	0	0	.217	5.5	.591	15	.630	16	30°	.217	5.5	LRIS-4×5	LLR-25S
 CTPA..FL..	CTPAL06-IN-SUB	5	●	.630	16	3/8		3/8		3/8		4.724	120	.079	2	.295	7.5	.768	19.5	.787	20	30°	.295	7.5	LRIS-4×5	LLR-25S
	CTPAL08-IN-SUB	5	●	.630	16	1/2		1/2		1/2		4.724	120	0	0	.295	7.5	.768	19.5	.787	20	30°	.295	7.5	LRIS-4×5	LLR-25S
	CTPAL10-IN-SUB	5	●	.630	16	5/8		5/8		5/8		4.724	120	0	0	.295	7.5	.768	19.5	.787	20	30°	.295	7.5	LRIS-4×5	LLR-25S
	CTPAL10GX-SUB	5	○	.630	16	.394	10	.394	10	.394	10	3.346	85	.079	2	.787	20	.768	19.5	.787	20	30°	.217	5.5	LRIS-4×5	LLR-25S
	CTPAL12GX-SUB	5	○	.630	16	.472	12	.472	12	.472	12	3.346	85	0	0	.787	20	.768	19.5	.787	20	30°	.217	5.5	LRIS-4×5	LLR-25S
	CTPAL12KX-SUB	5	○	.630	16	.472	12	.472	12	.472	12	4.724	120	0	0	.787	20	.768	19.5	.787	20	30°	.217	5.5	LRIS-4×5	LLR-25S
	CTPAL16GX-SUB	5	○	.630	16	.630	16	.630	16	.630	16	3.346	85	0	0	1.102	28	.768	19.5	1.102	28	30°	.217	5.5	LRIS-4×5	LLR-25S

＊Would be changed by insert

Cutting condition ➡K89

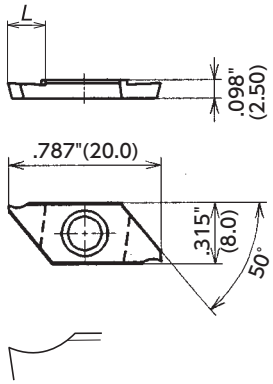
Inserts (Right-hand) ➡K94 Inserts (Left-hand) ➡K96

● : Stock ○ : 1-2 week delivery 💧 : Coolant through

CTP / CTPA / CTPW Inserts (Right-Hand)

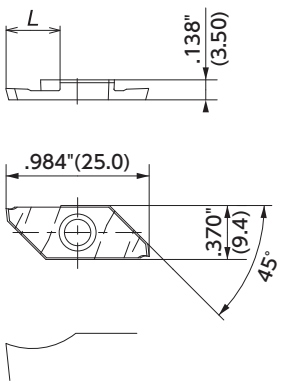
Two-sided insert

■CTP / CTPX / CTP-X



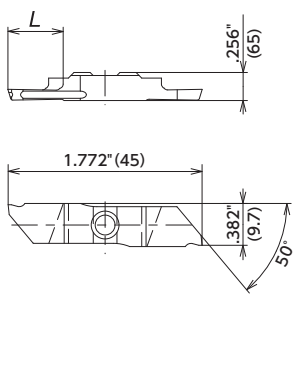
Right-Hand style shown

■CTPA / CTPAX



Right-Hand style shown

■CTPW

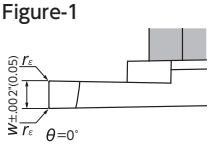
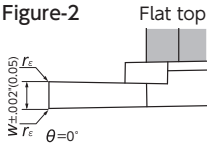
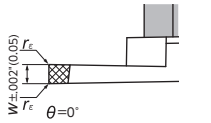
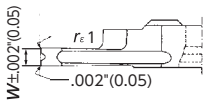
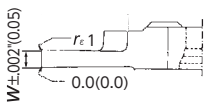


Right-Hand style shown

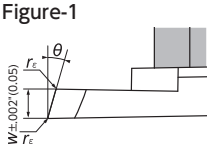
■FR

Shape	Item Number	Figure	Chip-breaker	Max. Cut-off Dia. φD (Inch)	(mm)	w (Inch)	(mm)	L (Inch)	(mm)	θ	$r_{\varepsilon 1}$ (Inch)	(mm)	Coated Carbide QM3	DT4	VM1	ZM3	Carbide KM1	PCD PD1
Figure-1	CTP05FR-SH	1	Yes	.197	5.0	.020	0.5	.110	2.8	15°	.001	0.03				●		
	CTP07FR	1	Yes	.315	8.0	.028	0.7	.177	4.5	16°	.002	0.05				●		
	CTP10FR-SH	1	Yes	.275	7.0	.039	1.0	.161	4.1	15°	.002	0.05		○		○		
	CTP10FR	1	Yes	.472	12.0	.039	1.0	.264	6.7	16°	.002	0.05		●	●	●		
	CTP10FRFT	3	No	.472	12.0	.039	1.0	.264	6.7	16°	.002	0.05	●					
	CTP10FRV Ⓜ	2	No	.472	12.0	.039	1.0	.264	6.7	20°	0.0	0.0		○	●	●	○	
Figure-2 Flat top	CTP15FR	1	Yes	.472	12.0	.059	1.5	.264	6.7	16°	.002	0.05			●	●		
	CTPX15FR	1	Yes	.472	12.0	.059	1.5	.264	6.7	16°	.002	0.05	●	●		○		
	CTP15FRX	1	Yes	.472	12.0	.059	1.5	.264	6.7	16°	.002	0.05				○		
	CTP15FRV Ⓜ	2	No	.472	12.0	.059	1.5	.264	6.7	20°	0.0	0.0			●	●	○	
Figure-3 Flat top	CTP20FR	1	Yes	.472	12.0	.079	2.0	.264	6.7	16°	.002	0.05			●	●		
	CTPX20FR	1	Yes	.472	12.0	.079	2.0	.264	6.7	16°	.002	0.05	●	●		○		
	CTP20FRX	1	Yes	.472	12.0	.079	2.0	.264	6.7	16°	.002	0.05				○		
	CTP20FRV Ⓜ	2	No	.472	12.0	.079	2.0	.264	6.7	20°	0.0	0.0			●	●	○	
Figure-4	CTPA07FR	1	Yes	.315	8.0	.028	0.7	.177	4.5	16°	.002	0.05				●		
	CTPA10FR	1	Yes	.472	12.0	.039	1.0	.264	6.7	16°	.002	0.05	●		●	●		
	CTPA10FRFT	3	No	.472	12.0	.039	1.0	.264	6.7	20°	.002	0.05	●					
	CTPA15FR	1	Yes	.630	16.0	.059	1.5	.362	9.2	16°	.002	0.05	●	●	●	●		
	CTPA15FRFT	3	No	.630	16.0	.059	1.5	.362	9.2	20°	.002	0.05	●					
Figure-5 Flat top	CTPA20FR	1	Yes	.630	16.0	.079	2.0	.362	9.2	16°	.002	0.05	●	●	●	●		
	CTPA20FRV Ⓜ	2	No	.630	16.0	.079	2.0	.362	9.2	20°	0.0	0.0			○		○	
	CTPW25FR	4	Yes	.787	20.0	.098	2.5	.472	12	17°	.002	0.05				●		
	CTPW25FRP Ⓜ	5	No	.787	20.0	.098	2.5	.472	12	17°	.002	0.05				○		

■FRN

Shape	Item Number	Figure	Chip-breaker	Max. Cut-off Dia. ϕD (Inch)	(mm)	w (Inch)	(mm)	L (Inch)	(mm)	θ	$r_{\varepsilon 1}$ (Inch)	(mm)	Coated Carbide QM3	DT4	VM1	ZM3	Carbide KM1	PCD PD1
Figure-1 	**CTP05FRN-SH**	1	Yes	**.197**	**5.0**	.020	0.5	.110	2.8	0°	.001	0.03				●		
	CTP10FRN-SH	1	Yes	**.275**	**7.0**	.039	1.0	.161	4.1	0°	.002	0.05		○		○		
	CTP10FRN	1	Yes	**.472**	**12.0**	.039	1.0	.264	6.7	0°	.002	0.05		●		●		
	CTP15FRN	1	Yes	**.472**	**12.0**	.059	1.5	.264	6.7	0°	.002	0.05			●	●		
	CTPX15FRN	1	Yes	**.472**	**12.0**	.059	1.5	.264	6.7	0°	.002	0.05	●	●				
	CTP15FRNX	1	Yes	**.472**	**12.0**	.059	1.5	.264	6.7	0°	.002	0.05				○		
Figure-2 Flat top 	**CTP15FRNV** Ⓜ	2	No	**.472**	**12.0**	.059	1.5	.264	6.7	0°	0.0	0.0					○	
	CTP20FRN	1	Yes	**.472**	**12.0**	.079	2.0	.264	6.7	0°	.002	0.05			●	●		
	CTPX20FRN	1	Yes	**.472**	**12.0**	.079	2.0	.264	6.7	0°	.002	0.05	●	●				
	CTP20FRNX	1	Yes	**.472**	**12.0**	.079	2.0	.264	6.7	0°	.002	0.05				○		
Figure-3 PCD tipped 	**CTP20FRNV** Ⓜ	2	No	**.472**	**12.0**	.079	2.0	.264	6.7	0°	0.0	0.0					○	
	CTPA07FRN	1	Yes	**.315**	**8.0**	.028	0.7	.177	4.5	0°	.002	0.05				●		
	CTPA10FRN	1	Yes	**.472**	**12.0**	.039	1.0	.264	6.7	0°	.002	0.05	●			●		
	CTPA10FRS Ⓜ	2	No	**.472**	**16.0**	.039	1.0	.362	9.2	0°	.002	0.05	●					
Figure-4 	**CTPA15FRN**	1	Yes	**.630**	**16.0**	.059	1.5	.362	9.2	0°	.002	0.05	●	●	●	●		
	CTPA15FRS Ⓜ	2	No	**.630**	**16.0**	.059	1.5	.362	9.2	0°	.002	0.05	●					
	CTPA20FRN	1	Yes	**.630**	**16.0**	.079	2.0	.362	9.2	0°	.002	0.05	●	●	●	●		
	CTPA20FRS Ⓜ	2	No	**.630**	**16.0**	.079	2.0	.362	9.2	0°	.002	0.05	●			○		
	CTPA20FRNV Ⓜ	2	No	**.630**	**16.0**	.079	2.0	.362	9.2	0°	0.0	0.0					○	
Figure-5 Flat top 	**CTPA20FRN-P**	3	Yes	**.630**	**16.0**	.079	2.0	.362	9.2	0°	.004	0.1						○
	CTPA30FRN	1	Yes	**.630**	**16.0**	.118	3.0	.362	9.2	0°	.002	0.05	○					
	CTPW25FRN	4	Yes	**.787**	**20.0**	.098	2.5	.472	12	0°	.002	0.05				●		
	CTPW25FRNV Ⓜ	5	No	**.787**	**20.0**	.098	2.5	.472	12	0°	0.0	0.0				●		

■FRK

Shape	Item Number	Figure	Chip-breaker	Max. Cut-off Dia. ϕD (Inch)	(mm)	w (Inch)	(mm)	L (Inch)	(mm)	θ	$r_{\varepsilon 1}$ (Inch)	(mm)	Coated Carbide QM3	DT4	VM1	ZM3	Carbide KM1	PCD PD1
Figure-1 	**CTP10FRK**	1	Yes	**.433**	**11.0**	.039	1.0	.264	6.7	16°	.002	0.05				○		
	CTP15FRK	1	Yes	**.433**	**11.0**	.059	1.5	.264	6.7	16°	.002	0.05				○		
	CTP20FRK	1	Yes	**.433**	**11.0**	.079	2.0	.264	6.7	16°	.002	0.05				○		

Note: All angles shown are obtained when insert is set in the holder.

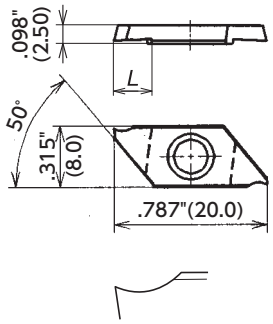
● : Stock ○ : 1-2 week delivery Ⓜ : Mirror finish

Holders ➡K92
Tool selection guide ➡K88
Cutting condition ➡K89

CTP / CTPA / CTPW Inserts (Left-Hand)

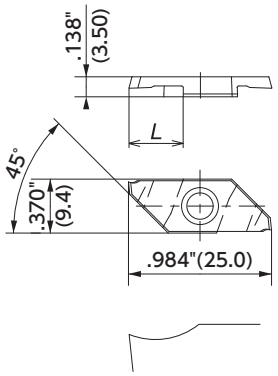
Two-sided insert

■CTP / CTPX / CTP-X



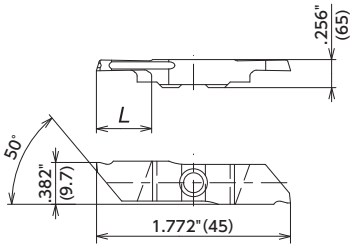
Left-Hand style shown

■CTPA / CTPAX



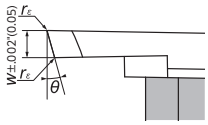
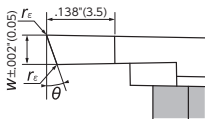
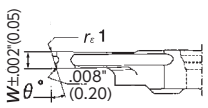
Left-Hand style shown

■CTPW



Left-Hand style shown

■FLK

Shape	Item Number	Figure	Chip-breaker	Max. Cut-off Dia. ϕD (Inch)	(mm)	w (Inch)	(mm)	L (Inch)	(mm)	θ	$r_{\varepsilon 1}$ (Inch)	(mm)	Coated Carbide QM3	DT4	VM1	ZM3	Carbide KM1	PCD PD1
Figure-1 	CTP05FLK-SH	1	Yes	.197	5.0	.020	0.5	.110	2.8	17°	.001	0.03				●		
	CTP10FLK-SH	1	Yes	.275	7.0	.039	1.0	.161	4.1	17°	.002	0.05		○		○		
	CTP10FLK	1	Yes	.433	11.0	.039	1.0	.264	6.7	16°	.002	0.05		●	○	●		
	CTP10FLK-211	1	Yes	.472	12.0	.039	1.0	.295	7.5	16°	.002	0.05			●			
	CTP15FLK	1	Yes	.433	11.0	.059	1.5	.264	6.7	16°	.002	0.05			○	●		
	CTP15FLKB	1	Yes	.433	11.0	.059	1.5	.264	6.7	16°	.002	0.05				○		
	CTPX15FLK	1	Yes	.433	11.0	.059	1.5	.264	6.7	16°	.002	0.05	●	●				
	CTP15FLKV Ⓜ	2	No	.433	11.0	.059	1.5	.264	6.7	20°	0.0	0.0			●		○	
	CTP20FLK	1	Yes	.433	11.0	.079	2.0	.264	6.7	16°	.002	0.05			○	●		
Figure-2 Flat top 	CTPX20FLK	1	Yes	.433	11.0	.079	2.0	.264	6.7	16°	.002	0.05	●	●				
	CTPA07FLK	1	Yes	.256	6.5	.028	0.7	.177	4.5	16°	.002	0.05				●		
	CTPA10FLK	1	Yes	.433	11.0	.039	1.0	.264	6.7	16°	.002	0.05	●		●	●		
	CTPA10FLKD	1	Yes	.630	16.0	.039	1.0	.362	9.2	16°	.002	0.05				○		
	CTPA10FLKFT	2	No	.630	16.0	.039	1.0	.311	7.9	16°	.0.0	0.0	●					
Figure-3 	CTPA15FLK	1	Yes	.571	14.5	.059	1.5	.362	9.2	16°	.002	0.05	●	●	●	●		
	CTPA15FLKFT	2	No	.630	16.0	.059	1.5	.394	10.0	16°	0.0	0.0	●					
	CTPA15FLKV Ⓜ	2	No	.571	14.5	.059	1.5	.362	9.2	20°	0.0	0.0	●					
	CTPA20FLK	1	Yes	.571	14.5	.079	2.0	.362	9.2	16°	.002	0.05	●	●	●	●		
	CTPA20FLKV Ⓜ	2	No	.571	14.5	.079	2.0	.362	9.2	20°	0.0	0.0			○		○	
	CTPW25FLK	3	Yes	.787	20.0	.098	2.5	.472	12	17°	.002	0.05				●		

Note: All angles shown are obtained when insert is set in the holder

■FLN

Shape	Item Number	Figure	Chip-breaker	Max. Cut-off Dia. φD (Inch)	(mm)	w (Inch)	(mm)	L (Inch)	(mm)	θ	$r_{\varepsilon 1}$ (Inch)	(mm)	Coated Carbide QM3	DT4	VM1	ZM3	Carbide KM1	PCD PD1
Figure-1	CTP05FLN-SH	1	Yes	.197	5.0	.020	0.5	.110	2.8	0°	.001	0.03				●		
	CTP10FLN-SH	1	Yes	.275	7.0	.039	1.0	.161	4.1	0°	.002	0.05		○		○		
	CTP10FLN	1	Yes	.472	12.0	.039	1.0	.264	6.7	0°	.002	0.05		●		●		
	CTP15FLN	1	Yes	.472	12.0	.059	1.5	.264	6.7	0°	.002	0.05			○	●		
	CTPX15FLN	1	Yes	.472	12.0	.059	1.5	.264	6.7	0°	.002	0.05	●	●				
Figure-2 Flat top	CTP15FLNV	2	No	.472	12.0	.059	1.5	.264	6.7	0°	0.0	0.0					○	
	CTP20FLN	1	Yes	.472	12.0	.079	2.0	.264	6.7	0°	.002	0.05			○	●		
	CTPX20FLN	1	Yes	.472	12.0	.079	2.0	.264	6.7	0°	.002	0.05	●	●				
	CTP20FLNV	2	No	.472	12.0	.079	2.0	.264	6.7	0°	0.0	0.0					○	
Figure-3 PCD tipped	CTPA10FLN	1	Yes	.472	12.0	.039	1.0	.264	6.7	0°	.002	0.05	●		○	●		
	CTPA10FLND	1	Yes	.630	16.0	.039	1.0	.362	9.2	0°	.002	0.05				○		
	CTPA10FLS (M)	2	No	.630	16.0	.039	1.0	.362	9.2	0°	.002	0.05	●					
	CTPA15FLN	1	Yes	.630	16.0	.059	1.5	.362	9.2	0°	.002	0.05	●	●	○	●		
	CTPA15FLS (M)	2	No	.630	16.0	.059	1.5	.362	9.2	0°	.002	0.05	●					
Figure-4	CTPA20FLN	1	Yes	.630	16.0	.079	2.0	.362	9.2	0°	.002	0.05	●	●	○	●		
	CTPA20FLS (M)	2	No	.630	16.0	.079	2.0	.362	9.2	0°	.002	0.05	●			○		
	CTPA20FLNV (M)	2	No	.630	16.0	.079	2.0	.362	9.2	0°	0.0	0.0					○	
Figure-5 Flat top	CTPA20FLN-P	3	Yes	.630	16.0	.079	2.0	.362	9.2	0°	.004	0.1						○
	CTPA30FLN	1	Yes	.630	16.0	.118	3.0	.362	9.2	0°	.002	0.05	○					
	CTPW25FLN	4	Yes	.787	20.0	.098	2.5	.472	12	0°	.002	0.05				●		
	CTPW25FLNV (M)	5	No	.787	20.0	.098	2.5	.472	12	0°	0.0	0.0				●		

■FL

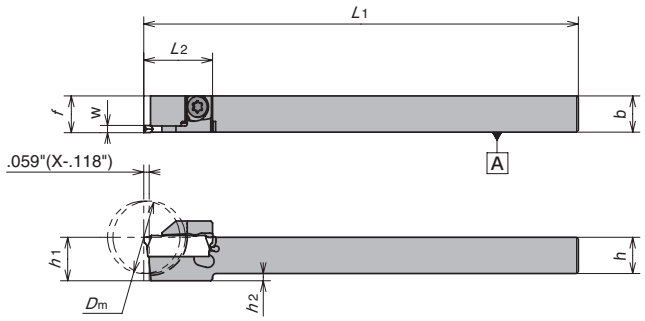
Shape	Item Number	Figure	Chip-breaker	Max. Cut-off Dia. φD (Inch)	(mm)	w (Inch)	(mm)	L (Inch)	(mm)	θ	$r_{\varepsilon 1}$ (Inch)	(mm)	Coated Carbide QM3	DT4	VM1	ZM3	Carbide KM1	PCD PD1
Figure-1	CTP07FL	1	Yes	.315	8.0	.028	0.7	.177	4.5	16°	.002	0.05				●		
	CTP10FL	1	Yes	.472	12.0	.039	1.0	.264	6.7	16°	.002	0.05				●		
	CTP10FLV (M)	2	No	.472	12.0	.039	1.0	.264	6.7	20°	0.0	0.0			○	○		
	CTP15FL	1	Yes	.472	12.0	.059	1.5	.264	6.7	16°	.002	0.05				○		
	CTPX15FL	1	Yes	.472	12.0	.059	1.5	.264	6.7	16°	.002	0.05		●				
Figure-2 Flat top	CTP15FLV (M)	2	No	.472	12.0	.059	1.5	.264	6.7	20°	0.0	0.0			○	○		
	CTP20FL	1	Yes	.472	12.0	.079	2.0	.264	6.7	16°	.002	0.05				●		
	CTPX20FL	1	Yes	.472	12.0	.079	2.0	.264	6.7	16°	.002	0.05		●				
	CTP20FLV (M)	2	No	.472	12.0	.079	2.0	.264	6.7	20°	0.0	0.0			○	○		
Figure-3	CTPA07FL	1	Yes	.315	8.0	.028	0.7	.177	4.5	16°	.002	0.05				○		
	CTPA10FL	1	Yes	.472	12.0	.039	1.0	.264	6.7	16°	.002	0.05				○		
	CTPA15FL	1	Yes	.630	16.0	.059	1.5	.362	9.2	16°	.002	0.05		●		○		
Figure-4 Flat top	CTPA20FL	1	Yes	.630	16.0	.079	2.0	.362	9.2	16°	.002	0.05		●	○	○		
	CTPA20FLV (M)	2	No	.630	16.0	.079	2.0	.362	9.2	20°	0.0	0.0			○			
	CTPW25FL	3	Yes	.787	20.0	.098	2.5	.472	12	17°	.002	0.05				○		
	CTPW25FLP (M)	4	No	.787	20.0	.098	2.5	.472	12	17°	.002	0.05				○		

● : Stock ○ : 1-2 week delivery (M) : Mirror finish Holders ➡K92 Tool selection guide ➡K88 Cutting Condition ➡K89

CTDP (Cut Duo) Series

Max. Cut-off Dia. -ϕ.787"(20.0㎜), -ϕ1"(25.4㎜), ϕ1.260"(32.0㎜), -ϕ1.339"(34.0㎜)

CTDP



Right-Hand style shown

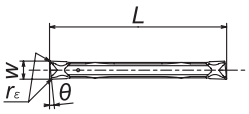
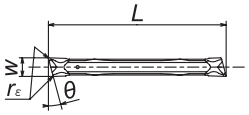
CTDP Series - Toolholders

■CTDP

Gage Insert	Item Number	Stock R	Stock L	Max. Cut-off Dia. D_m (Inch)	(㎜)	w (Inch)	(㎜)	h (Inch)	(㎜)	b (Inch)	(㎜)	h_1 (Inch)	(㎜)	L_1 (Inch)	(㎜)	h_2 (Inch)	(㎜)	L_2 (Inch)	(㎜)	f (Inch)	(㎜)	Clamp Screw	Wrench
	CTDP※06-IN-20D20	●	●	.787	20.0	.079	2.0	3/8		.394	10	3/8		4.729	120	.019	0.5	.748	19.0	.400	10.150	LRIS-4 × 12	LLR-25S
	CTDP※08-IN-20D25	●	●	.984	25.0	.079	2.0	1/2		1/2		1/2		4.729	120	0	0	.866	22.0	.506	12.850	LRIS-4 × 12	LLR-25S
	CTDP※10-IN-20D32	●	●	1.260	32.0	.079	2.0	5/8		5/8		5/8		4.729	120	0	0	1.083	27.5	.631	16.025	LRIS-5 × 10	LLR-28S
	CTDP※12-IN-20D32	●	●	1.260	32.0	.079	2.0	3/4		3/4		3/4		4.729	120	0	0	1.083	27.5	.756	19.200	LRIS-5 × 10	LLR-28S
	CTDP※10-20D20	○	○	.787	20.0	.079	2.0	.394	10	.394	10	.394	10	4.724	120	.079	2	.748	19.0	.400	10.15	LRIS-4 × 12	LLR-25S
	CTDP※12-20D20	○	○	.787	20.0	.079	2.0	.472	12	.472	12	.472	12	4.724	120	0	0	.748	19.0	.478	12.15	LRIS-4 × 12	LLR-25S
CTDP20	CTDP※12-20D25	●	○	1.000	25.4	.079	2.0	.472	12	.472	12	.472	12	4.724	120	0	0	.866	22.0	.478	12.15	LRIS-4 × 12	LLR-25S
	CTDP※16-20D25	●	○	1.000	25.4	.079	2.0	.630	16	.630	16	.630	16	4.724	120	0	0	.866	22.0	.636	16.15	LRIS-4 × 12	LLR-25S
	CTDP※16-20D32A	○	○	1.260	32.0	.079	2.0	.630	16	.630	16	.630	16	4.724	120	0	0	1.083	27.5	.636	16.15	LRIS5 × 10	LLR-28S
	CTDP※2012-20D32A	○	○	1.260	32.0	.079	2.0	.787	20	.472	12	.787	20	4.724	120	0	0	1.161	29.5	.478	12.15	LRIS5 × 10	LLR-28S
	CTDP※20-20D32A	○	○	1.260	32.0	.079	2.0	.787	20	.787	20	.787	20	4.724	120	0	0	1.161	29.5	.793	20.15	LRIS5 × 10	LLR-28S
	CTDP※16-25D34A	●	○	1.339	34.0	.098	2.5	.630	16	.630	16	.630	16	4.724	120	0	0	1.122	28.5	.636	16.15	CS0516LSH	LW-3
CTDP25	CTDP※2012-25D34A	○	○	1.339	34.0	.098	2.5	.787	20	.472	12	.787	20	4.724	120	0	0	1.161	29.5	.478	12.15	CS0516LSH	LW-3
	CTDP※20-25D34A	○	○	1.339	34.0	.098	2.5	.787	20	.787	20	.787	20	4.724	120	0	0	1.161	29.5	.793	20.15	CS0516LSH	LW-3

CTDP Series - Inserts

■CTDP

Shape			Item Number	w (Inch)	(㎜)	L (Inch)	(㎜)	θ	$r_ε$ (Inch)	(㎜)	Coated Carbide QM3	DM4	TM4
 Two-sided	 Neutral style shown		CTDP20N	.079	2.0	.752	19.1	0°	.002	0.05	●	●	○
			CTDP20N02	.079	2.0	.752	19.1	0°	.008	0.2	●	●	○
			CTDP20R6	.079	2.0	.752	19.1	6°	.002	0.05	●	●	○
			CTDP20R15	.079	2.0	.752	19.1	15°	.002	0.05	●	●	○
	 Right-Hand style shown		CTDP25N	.098	2.5	.835	21.2	0°	.002	0.05	●	●	○
			CTDP25N02	.098	2.5	.835	21.2	0°	.008	0.2	●	●	○
			CTDP25R6	.098	2.5	.835	21.2	6°	.002	0.05	●	●	○
			CTDP25R15	.098	2.5	.835	21.2	15°	.002	0.05	●	●	○

CTV Series

Max. Cut-off Dia. -ϕ.787"(20.0㎜)

CTV-K2

Screw Accessible from both sides

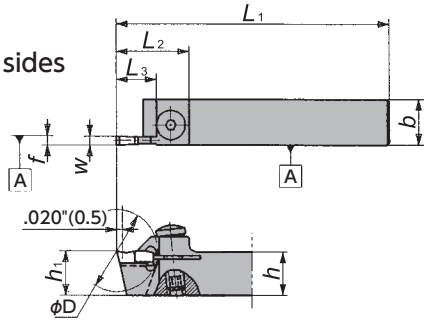
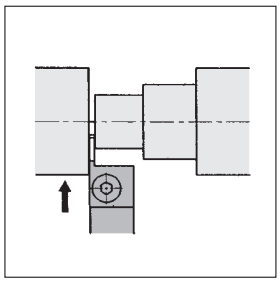


Figure-1



Right-Hand style shown

CTVN-K2

Screw Accessible from both sides

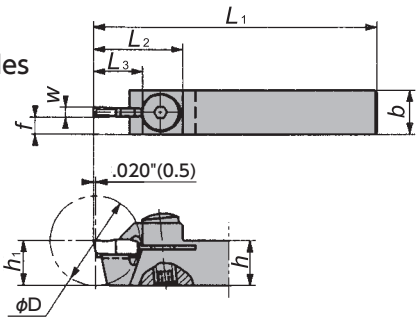
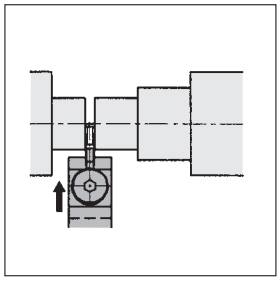


Figure-2



CTV Series - Toolholders

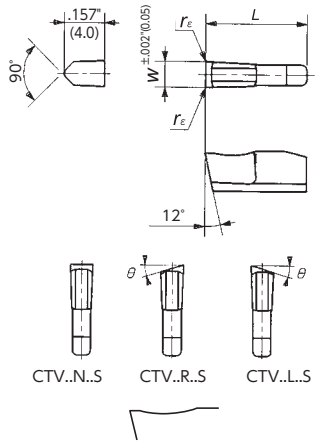
■CTV

Gage Insert	Item Number	Figure	Stock R	Stock L	Max. Cut-off Dia. ϕD (Inch)	Max. Cut-off Dia. ϕD (㎜)	w (Inch)	w (㎜)	h (Inch)	h (㎜)	b (Inch)	b (㎜)	h1 (Inch)	h1 (㎜)	L1 (Inch)	L1 (㎜)	L2 (Inch)	L2 (㎜)	L3 (Inch)	L3 (㎜)	f (Inch)	f (㎜)	Clamp Screw	Wrench
 CTV-S	CTV※10K2	1	○	○	.787	20.0	.087(.098)	2.2(2.5)	.394	10	.394	10	.394	10	4.724	120	.787	20.0	.433	11	0.0	0.0	A0S-5 × 16	LW-2.5S
	CTV※12GX2	1		○	.787	20.0	.087(.098)	2.2(2.5)	.472	12	.472	12	.472	12	3.346	85	.787	20.0	.433	11	0.0	0.0	A0S-5 × 16	LW-2.5S
	CTV※12K2	1	○	○	.787	20.0	.087(.098)	2.2(2.5)	.472	12	.472	12	.472	12	4.724	120	.787	20.0	.433	11	0.0	0.0	A0S-5 × 16	LW-2.5S
	CTVN10K2	2		○	.787	20.0	.087(.098)	2.2(2.5)	.394	10	.394	10	.394	10	4.724	120	.768	19.5	.433	11	.154	3.9	A0S-5 × 16	LW-2.5S
	CTVN12K2	2		○	.787	20.0	.087(.098)	2.2(2.5)	.472	12	.472	12	.472	12	4.724	120	.768	19.5	.433	11	.193	4.9	A0S-5 × 16	LW-2.5S

Note: *f* shows when takes CTV22.. insert

CTV Series - Inserts

■CTV-S

Shape	Item Number	w (Inch)	w (㎜)	L (Inch)	L (㎜)	θ	rε (Inch)	rε (㎜)	Coated Carbide ZM3
  Single-sided	CTV22N05S	.087	2.2	.394	10	0°	.002	0.05	○
	CTV22N10S	.087	2.2	.394	10	0°	.004	0.10	○
	CTV25N05S	.098	2.5	.394	10	0°	.002	0.05	○
	CTV25N10S	.098	2.5	.394	10	0°	.004	0.10	○
	CTV22R05S	.087	2.2	.394	10	17°	.002	0.05	○
	CTV22R10S	.087	2.2	.394	10	17°	.004	0.10	○
	CTV25R05S	.098	2.5	.394	10	17°	.002	0.05	○
	CTV25R10S	.098	2.5	.394	10	17°	.004	0.10	○
	CTV22L05S	.087	2.2	.394	10	17°	.002	0.05	○
	CTV22L10S	.087	2.2	.394	10	17°	.004	0.10	○
	CTV25L05S	.098	2.5	.394	10	17°	.002	0.05	○
	CTV25L10S	.098	2.5	.394	10	17°	.004	0.10	○

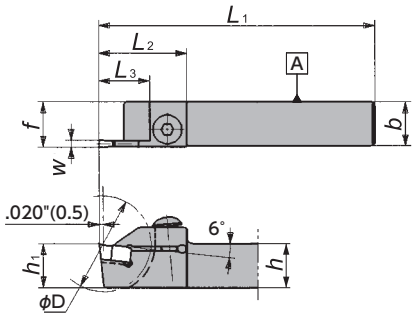
● : Stock ○ : 1-2 week delivery

Cutting condition ➡K89

CTV Series

Max. Cut-off Dia. -ϕ1.772"(45.0㎜)

CTV (-S)



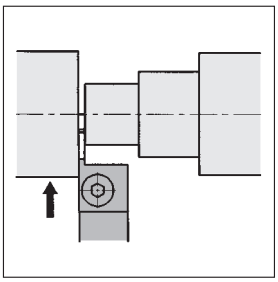
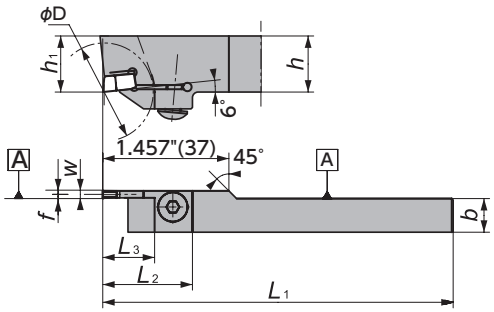


Figure-1

Right-Hand style shown

CTV-X



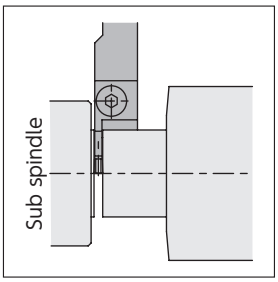
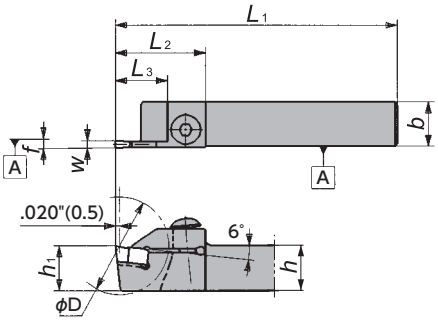


Figure-2

Left-Hand style shown

CTV-M (B)



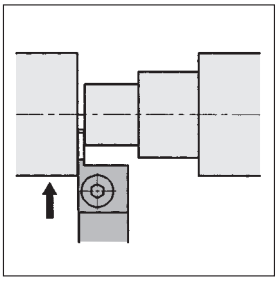


Figure-3

Right-Hand style shown

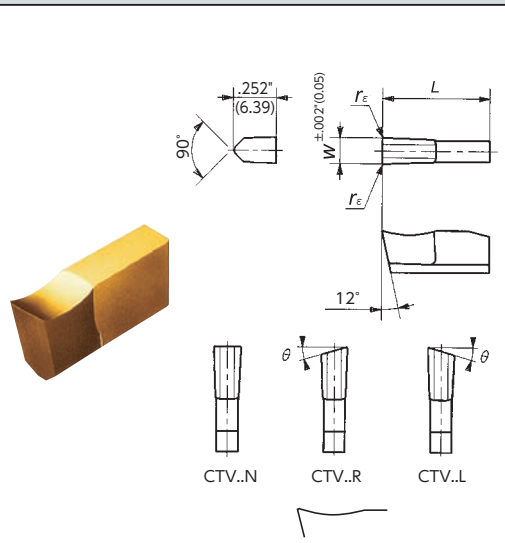
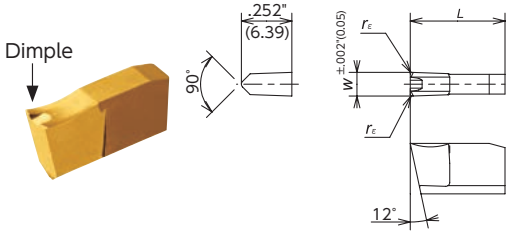
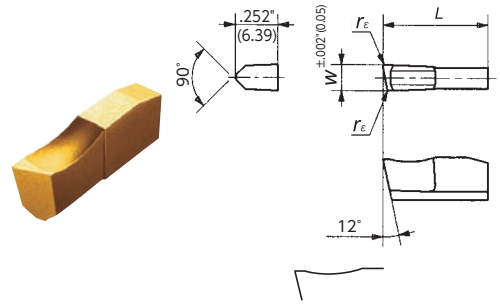
CTV Series - Toolholders

■CTV

Gage Insert	Item Number	Figure	Stock R	Stock L	Max. Cut-off Dia. D_m (Inch)	(㎜)	w (Inch)	(㎜)	h (Inch)	(㎜)	b (Inch)	(㎜)	h_1 (Inch)	(㎜)	L_1 (Inch)	(㎜)	L_2 (Inch)	(㎜)	L_3 (Inch)	(㎜)	f (Inch)	(㎜)	Clamp Screw	Wrench
CTV25	CTV*08B	1	●		.900	22.9	.098	2.5	1/2		1/2		1/2		4.5	114	.945	24	.480	12.2	.520	13.2	BS0620	LW-4
	CTV*16K25	1	●	●	1.378	35.0	.098	2.5	.630	16	.630	16	.630	16	4.921	125	1.260	32	.728	18.5	.650	16.5	BS0620	LW-4
	CTV*16K25S	1	○		.906	23.0	.098	2.5	.630	16	.630	16	.630	16	4.921	125	.945	24	.480	12.2	.650	16.5	BS0620	LW-4
	CTV*16-25M	3	○		1.102	28.0	.098	2.5	.630	16	.630	16	.630	16	4.724	120	1.004	25.5	.591	15	.020	0.5	BS0520	LW-3
	CTV*20K25	1	●	○	1.378	35.0	.098	2.5	.787	20	.787	20	.787	20	4.921	125	1.260	32	.728	18.5	.807	20.5	BS0620	LW-4
	CTV*20K25S	1	○		.906	23.0	.098	2.5	.787	20	.787	20	.787	20	4.921	125	.945	24	.480	12.2	.807	20.5	BS0620	LW-4
	CTV*20-25M	3	○		1.102	28.0	.098	2.5	.787	20	.787	20	.787	20	4.724	120	1.004	25.5	.591	15	.020	0.5	BS0520	LW-3
	CTV*1913L25	1	○	○	1.378	35.0	.098	2.5	.748	19	.512	13	.748	19	5.512	140	1.260	32	.728	18.5	.512	13.0	BS0620	LW-4
CTV30	CTV*16K30	1	○	○	1.378	35.0	.118	3.0	.630	16	.630	16	.630	16	4.921	125	1.260	32	.728	18.5	.650	16.5	BS0620	LW-4
	CTV*16K30S	1	○		.906	23.0	.118	3.0	.630	16	.630	16	.630	16	4.921	125	.945	24	.480	12.2	.650	16.5	BS0620	LW-4
	CTV*16-30M	3	○		1.102	28.0	.118	3.0	.630	16	.630	16	.630	16	4.724	120	1.004	25.5	.591	15	.020	0.5	BS0520	LW-3
	CTV*20K30	1	○	○	1.378	35.0	.118	3.0	.787	20	.787	20	.787	20	4.921	125	1.260	32	.728	18.5	.807	20.5	BS0620	LW-4
	CTV*20K30S	1	○		.906	23.0	.118	3.0	.787	20	.787	20	.787	20	4.921	125	.945	24	.480	12.2	.807	20.5	BS0620	LW-4
	CTV*20-30M	3	○		1.102	28.0	.118	3.0	.787	20	.787	20	.787	20	4.724	120	1.004	25.5	.591	15	.020	0.5	BS0520	LW-3
	CTV*25-30B	3	○	○	1.772	45.0	.118	3.0	.984	25	.984	25	.984	25	5.906	150	1.358	34.5	.925	23.5	.020	0.5	BS0625	LW-4
	CTV*1913L30	1	○	○	1.378	35.0	.118	3.0	.748	19	.512	13	.748	19	5.512	140	1.260	32	.728	18.5	.512	13.0	BS0620	LW-4
	CTVL2012K30X-1	2		○	1.378	35.0	.118	3.0	.787	20	.472	12	.787	20	4.921	125	1.260	32	.728	18.5	.118	3.0	BS0620	LW-4

CTV Series - Inserts

■CTV

Shape	Item Number	w (Inch)	w (mm)	L (Inch)	L (mm)	θ	r_ε (Inch)	r_ε (mm)	Coated Carbide QM3	Coated Carbide ZM3
 Single-sided	**CTV25N**	.098	2.5	.472	12	0°	.008	0.20		○
	CTV30N	.118	3.0	.472	12	0°	.008	0.20	○	○
	CTV25R	.098	2.5	.472	12	8°	.008	0.20		●
	CTV30R	.118	3.0	.472	12	8°	.008	0.20		○
	CTV30L	.118	3.0	.472	12	8°	.008	0.20		○
 Single-sided	**CTV30N038**	.118	3.0	.472	12	0°	.008	0.20		○
 Single-sided	**CTV25R00A**	.098	2.5	.472	12	8°	.002 MAX.	0.05 max.		●
	CTV30R00A	.118	3.0	.472	12	8°	.002 MAX.	0.05 max.		○
	CTV25R00B	.098	2.5	.472	12	17°	.002 MAX.	0.05 max.		●
	CTV30R00B	.118	3.0	.472	12	17°	.002 MAX.	0.05 max.		○

● : Stock　　○ : 1-2 week delivery

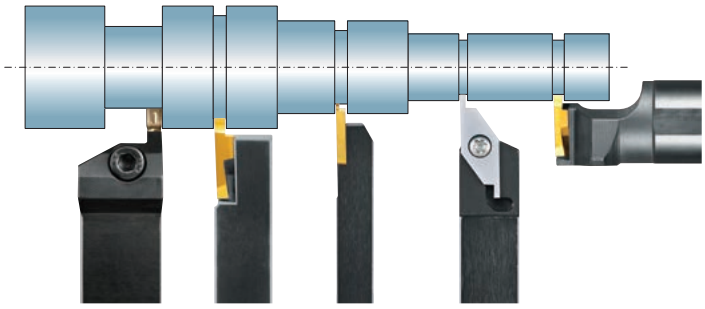
Cutting condition ➡K89

MEMO

K

Grooving / Side Turning

NTK Grooving / Side Turning Tools - Product Lines

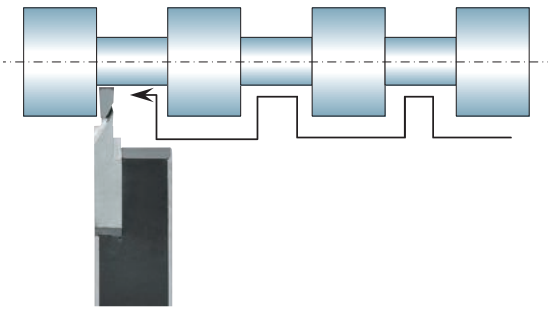


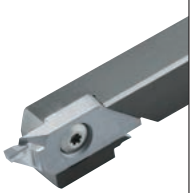
Insert	CSVG ➡K109		GTPS ➡K110
Holder	CSV	DS-CSV	CTPS
	 ➡K108	 ➡K108	 ➡K110
Blade width	.010" - .059" (0.25 - 1.50mm)		.030" - .079" (0.75 - 2.0mm)
Depth of cut	~.102" (~2.59mm)		~.098" (~2.50mm)

Insert	GTMH32 / GTMX32 / GTM32 / TMG32 ➡K114					
Holder	GTT	GTT-OH	Y-GTT	Y-GTT-OH	DS-GTT	CH-GTT
	 ➡K112	NEW  ➡K112 Coolant through	 ➡K112 Y-axis	NEW  ➡K112 Y-axis w/ Coolant through	 ➡K112	 ➡K112
Blade width	.012" - .118" (0.3 - 3.0mm)					
Depth of cut	~.106" (~2.69mm)					

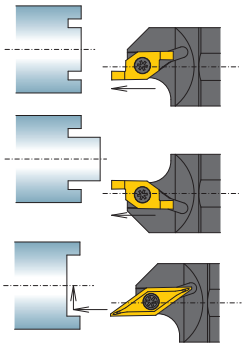
Insert	GWP ➡K111	GTM43 / GTMA43 / GTMT43 ➡K121		TWG ➡K119
Holder	GTWP	NGTN	NGTB	TWG
	NEW  ➡K111	 ➡K120	 ➡K120	 ➡K119
Blade width	.118" - .236" (3.0 - 5.9mm)	.039" - .216" (1.0 - 5.49mm)		.079" - .118" (2.0 - 3.0mm)
Depth of cut	~.354" (~9.0mm)	.177" (4.50mm)		~.118" (~3.0mm)

Multifunctional Grooving for non-ferrous material



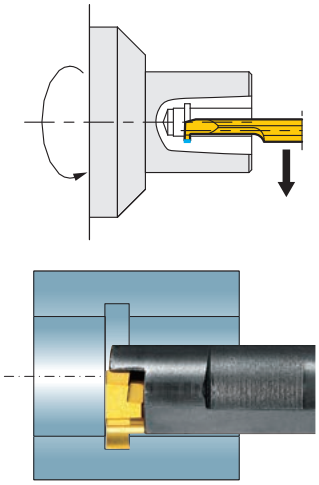
Insert	GTPA ➡K126		
Holder	GTPA	Y-GTPA	Y-GTPA-OH
	 ➡K126	 ➡K126 Y-axis	NEW  ➡K126 Y-axis w/ Coolant through
Blade width	.079" - .098" (2.0 - 2.50mm)		
Depth of cut	~.236" (~6.0mm)		

Face Grooving



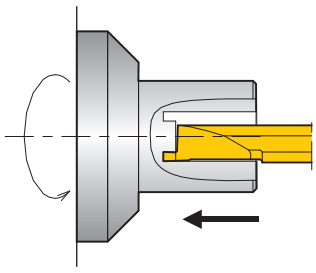
Insert	FGV ➡K125	FBV ➡K125	
Holder	FGV	DS-FGV	CH-FGV
	 ➡K124	 ➡K124	 ➡K124
Blade width	.039" - .079" (1.0㎜ - 2.0㎜)		
Depth of cut	~.118" (~3.0㎜)	FGV : ~.118" (~3.0㎜)	
		FBV : ~.157" (~4.0㎜)	

ID Grooving



Insert	SBG ➡K166	GTG ➡K167
Holder	NBH	S-BG / BG
	 ➡K162	 ➡K167
Blade width	.020" - .079" (0.5 - 2.0㎜)	.020" - .079" (0.5 - 2.0㎜)
Depth of cut	~.079" (~2.0㎜)	~.118" (~3.0㎜)

ID Face Grooving



Insert	SFG ➡K166
Holder	NBH
	 ➡K162
Blade width	.039" - .118" (1.0 - 3.0㎜)
Depth of cut	~.110" (~2.79㎜)

Recommended Cutting Condition

Grooving

CSV / GTPS / GTG / GTMH / GTMT / GTMX / TMG / SBG

Work Material		High Temperature Alloys	Titanium Alloys	Cobalt Chrome Alloys	Stainless Steels		Alloy Steels	Carbon Steels
					Hard to cut	Free cutting		
Common Name		Inconel Hastelloy MP35N	Ti-6Al-4V	ASTM F-75	304 316 17-4PH	303 430F	5120 4137	1045 1046
Grade	1st choice	DT4			DM4 / DT4	TM4	QM3	
	2nd choice	TM4 / QM3			QM3 / VM1	QM3	TM4 / DT4 / C7Z(X)	
Cutting Speed (SFM)		75 125 225	100 200 275		130 230 330	150 300 600	Carbide 150 300 500 C7Z(X) 400 500 800	
Feed Rate (IPR) A. Grooving B. Side turning*	Width .010-.020	A. .0002 - .0012 B. .0001 - .0002						
	.020-.040	A. .0008 - .0024 B. .0002 - .0004						A. .0008 - .0028 B. .0002 - .0004
	.040-.080	A. .0012 - .0028 B. .0008 - .0020						A. .0012 - .0031 B. .0012 - .0024
	> .080	A. .0012 - .0079 B. .0012 - .0024						

*When side turining, Max. DOC is under .0079". Under .016" width side turning impossible

GVP / GWP / TWG

Work Material		High Temperature Alloys	Titanium Alloys	Cobalt Chrome Alloys	Stainless Steels		Alloy Steels	Carbon Steels
					Hard to cut	Free cutting		
Common Name		Inconel Hastelloy MP35N	Ti-6Al-4V	ASTM F-75	304 316 17-4PH	303 430F	5120 4137	1045 1046
Grade	1st choice	QM3						
	2nd choice							
Cutting Speed (SFM)		75 125 225	100 200 275		130 230 330	150 300 600	150 300 500	
Feed Rate (IPR) A. Grooving B. Side turning*	Width .118-.157	A. .0020 - .0059						
	.157-.197	A. .0039 - .0079					A. .0039 - .0098 B. .0059 - .0118	
	> .197	A. .0059 - .0138						

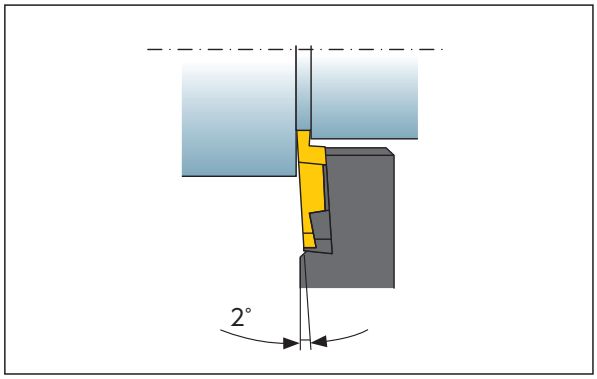
*Max DOC is 80% of width

GTPA

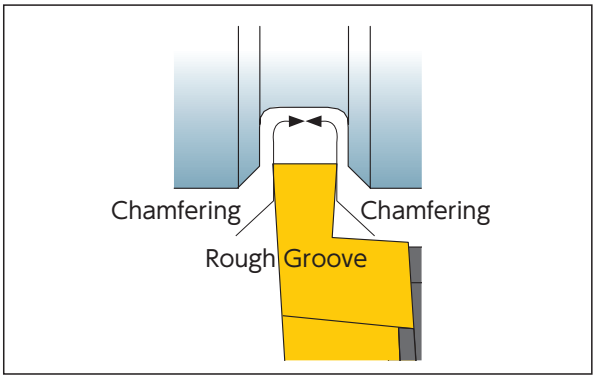
Work Material		Aluminum Alloy
Common Name		ASTM 5056 ASTM 6061
Grade	1st choice	PD1
	2nd choice	KM1
Cutting Speed (SFM)		PD1 330 650 1000 KM1 160 330 650
Feed Rate (IPR) A. Grooving B. Side turning		A. .0020 - .0079 B. .0039 - .0079

OD Grooving

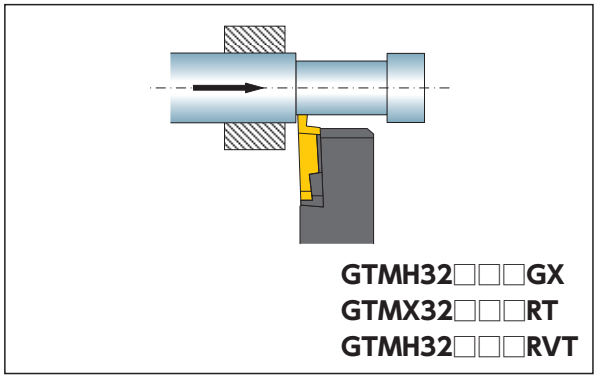
NTK GTMT / GTMH series can be used for uneven diameter grooving thanks to the 2 degree slanted insert mounting on the toolholder



Chamfering and radius machining can be done after the rough grooving process at the center of the groove

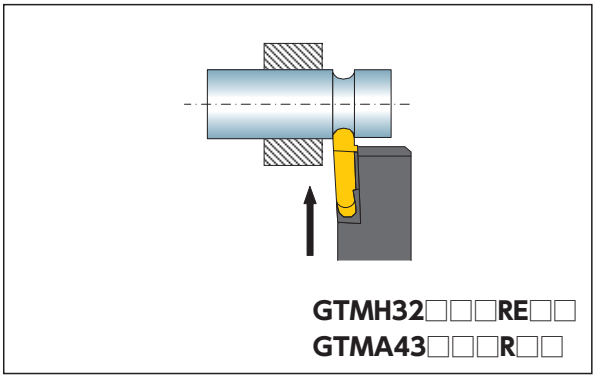


Side Turning



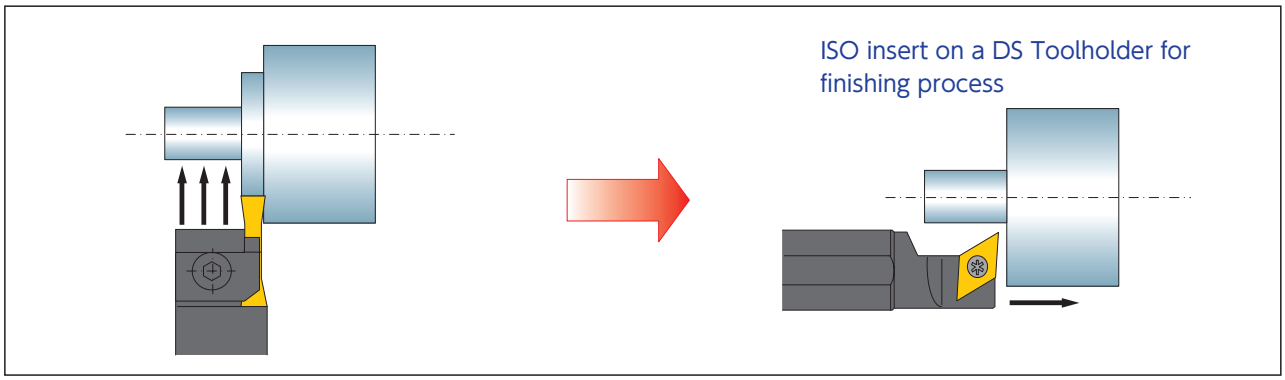
GTMH32□□□GX
GTMX32□□□RT
GTMH32□□□RVT

Full Radius

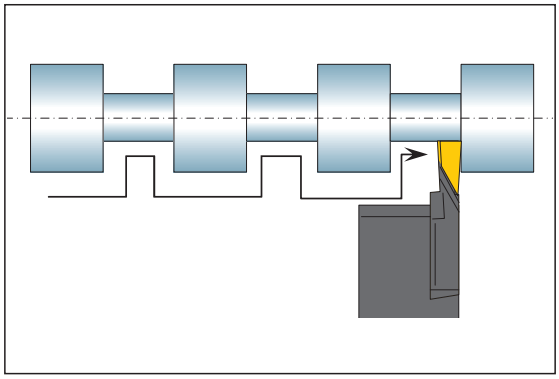


GTMH32□□□RE□□
GTMA43□□□R□□

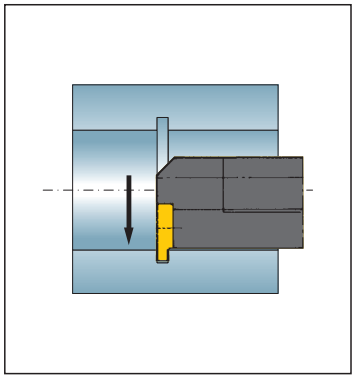
Rough Plunging for OD Turning



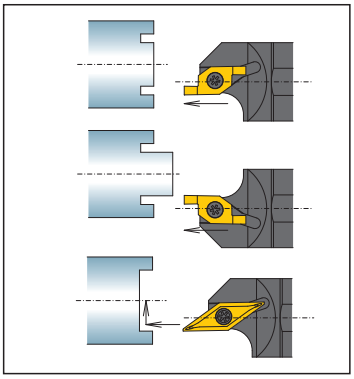
Spool Grooving



ID Grooving



Face Grooving



CSV Series

Best for up to .200" diameter material

CSV-NC

For Gang-style machine

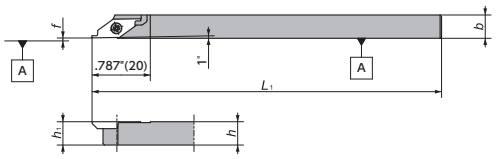


Figure-1

Right-Hand style shown

CSV

For Cam-style machine

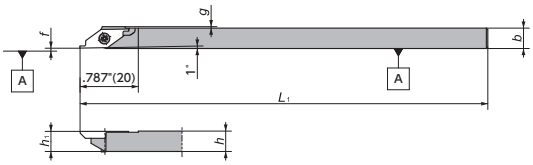


Figure-2

Right-Hand style shown

DS-CSVL

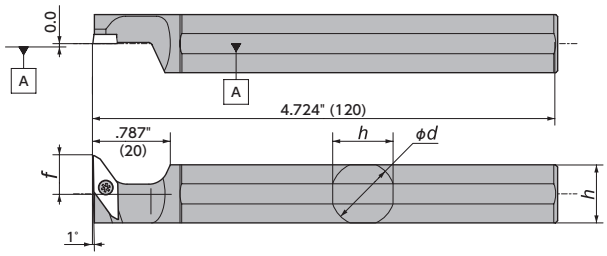


Figure-3

Left-Hand style shown
Takes Right-hand insert

CSV Series - Toolholders

■CSVR/L / CSVR/L-NC

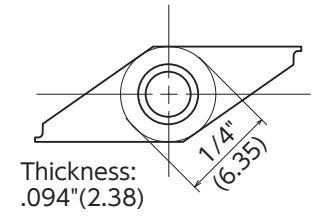
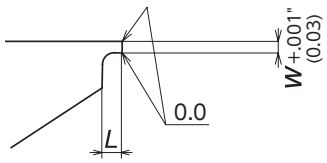
Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h_1 (Inch)	h_1 (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	g (Inch)	g (mm)	Clamp Screw	Wrench
 CSV..11..	CSVR/L06-IN-NC	1	●	●	3/8		3/8		3/8		4.724	120	.004	0.1	0.0	0.0	LR1S-2.5 × 7	CLR-15S
	CSVR/L08-IN-NC	1	●	●	1/2		1/2		1/2		4.724	120	.004	0.1	0.0	0.0	LR1S-2.5 × 7	CLR-15S
	CSVR/L08NC	1	○	○	.315	8	.315	8	.315	8	4.724	120	.004	0.1	0.0	0.0	LR1S-2.5 × 7	CLR-15S
	CSVR/L08NC-F	1	○		.315	8	.315	8	.315	8	4.724	120	0–.004	0.0–0.1	0.0	0.0	LR1S-2.5 × 7	CLR-15S
	CSVR/L10GXNC	1	○		.394	10	.394	10	.394	10	3.346	85	.004	0.1	0.0	0.0	LR1S-2.5 × 7	CLR-15S
	CSVR/L10NC	1	○	○	.394	10	.394	10	.394	10	4.724	120	.004	0.1	0.0	0.0	LR1S-2.5 × 7	CLR-15S
	CSVR/L12NC	1	●	●	.472	12	.472	12	.472	12	4.724	120	.004	0.1	0.0	0.0	LR1S-2.5 × 7	CLR-15S
	CSVR/L07GX	2	○		.275	7	.275	7	.275	7	3.346	85	.004	0.1	.020	0.5	LR1S-2.5 × 7	CLR-15S
	CSVR/L07	2	○	●	.275	7	.275	7	.275	7	5.512	140	.004	0.1	.020	0.5	LR1S-2.5 × 7	CLR-15S
	CSVR/L08GX	2	○		.315	8	.315	8	.315	8	3.346	85	.004	0.1	0.0	0.0	LR1S-2.5 × 7	CLR-15S
	CSVR/L08	2	●	●	.315	8	.315	8	.315	8	5.512	140	.004	0.1	0.0	0.0	LR1S-2.5 × 7	CLR-15S
	CSVR/L095	2	○		.374	9.5	.374	9.5	.374	9.5	5.512	140	.004	0.1	0.0	0.0	LR1S-2.5 × 7	CLR-15S
	CSVR/L10	2	●	○	.394	10	.394	10	.394	10	5.512	140	.004	0.1	0.0	0.0	LR1S-2.5 × 7	CLR-15S
	CSVR/L12GX	2	○		.472	12	.472	12	.472	12	3.346	85	.004	0.1	0.0	0.0	LR1S-2.5 × 7	CLR-15S
	CSVR/L12	2	●		.472	12	.472	12	.472	12	5.512	140	.004	0.1	0.0	0.0	LR1S-2.5 × 7	CLR-15S

■DS-CSVL (Takes right-hand insert)

Gage Insert	Item Number	Figure	Stock R	Stock L	D_s (Inch)	D_s (mm)	h (Inch)	h (mm)	b (Inch)	b (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	Clamp Screw	Wrench
 CSV..11FR..	DS-CSVL15	3		●	5/8	15.875	.591	15	.591	15	4.724	120	.394	10	LR1S-2.5 × 7	CLR-15S

CSV Series - Inserts

■CSVG - Grooving Mirror finish

Shape	Item Number	Chip-breaker	Groove Width W (Inch)	Groove Width W (mm)	Max Depth of Cut (Inch)	Max Depth of Cut (mm)	L (Inch)	L (mm)	r_ε (Inch)	r_ε (mm)	Coated Carbide VM1 R	Coated Carbide VM1 L
	CSVG11F☒V025 Ⓜ	No	.010	0.25	.006	0.15	.020	0.50	0.0	0.0	●	
	CSVG11F☒V030 Ⓜ	No	.012	0.30	.006	0.15	.020	0.50	0.0	0.0	●	
	CSVG11F☒V035 Ⓜ	No	.014	0.35	.006	0.15	.020	0.50	0.0	0.0	●	
	CSVG11F☒V040 Ⓜ	No	.016	0.40	.006	0.15	.020	0.50	0.0	0.0	●	
	CSVG11F☒V045 Ⓜ	No	.018	0.45	.018	0.45	.039	1.00	0.0	0.0	●	
	CSVG11F☒V050 Ⓜ	No	.020	0.50	.018	0.45	.039	1.00	0.0	0.0	●	
	CSVG11F☒V055 Ⓜ	No	.022	0.55	.018	0.45	.039	1.00	0.0	0.0	●	
	CSVG11F☒V060 Ⓜ	No	.024	0.60	.018	0.45	.039	1.00	0.0	0.0	●	
	CSVG11F☒V065 Ⓜ	No	.026	0.65	.018	0.45	.039	1.00	0.0	0.0	●	
	CSVG11F☒V070 Ⓜ	No	.028	0.70	.018	0.45	.039	1.00	0.0	0.0	●	
	CSVG11F☒V075 Ⓜ	No	.030	0.75	.050	1.40	.079	2.00	0.0	0.0	●	○
	CSVG11F☒V080 Ⓜ	No	.031	0.80	.050	1.40	.079	2.00	0.0	0.0	●	
	CSVG11F☒V085 Ⓜ	No	.033	0.85	.050	1.40	.079	2.00	0.0	0.0	●	
	CSVG11F☒V090 Ⓜ	No	.035	0.90	.050	1.40	.079	2.00	0.0	0.0	●	
	CSVG11F☒V095 Ⓜ	No	.037	0.95	.050	1.40	.079	2.00	0.0	0.0	●	○
	CSVG11F☒V100 Ⓜ	No	.039	1.00	.050	1.40	.079	2.00	0.0	0.0	●	
	CSVG11F☒V110 Ⓜ	No	.043	1.10	.102	2.60	.102	2.60	0.0	0.0	●	
	CSVG11F☒V120 Ⓜ	No	.047	1.20	.102	2.60	.102	2.60	0.0	0.0	●	○
	CSVG11F☒V130 Ⓜ	No	.051	1.30	.102	2.60	.102	2.60	0.0	0.0	●	
	CSVG11F☒V140 Ⓜ	No	.055	1.40	.102	2.60	.102	2.60	0.0	0.0	●	
Right-Hand style shown	CSVG11F☒V150 Ⓜ	No	.059	1.50	.102	2.60	.102	2.60	0.0	0.0	●	

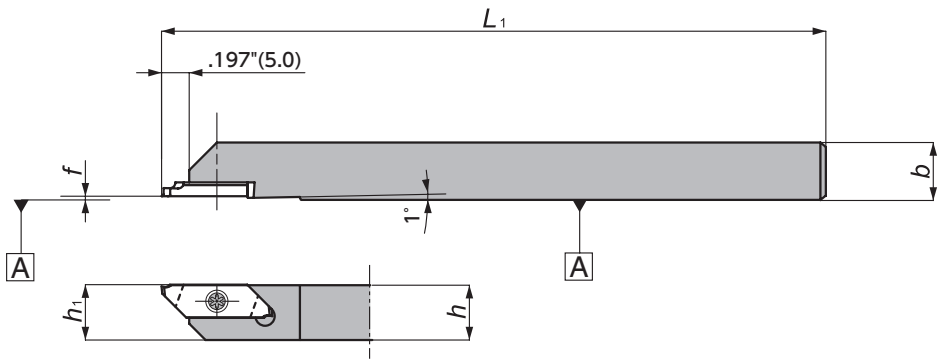
● : Stock ○ : 1-2 week delivery Ⓜ : Mirror finish

CSV series ➡J36 Cutting condition ➡K106

CTPS Series

CTPS

For Cam-style machine



Right-Hand style shown

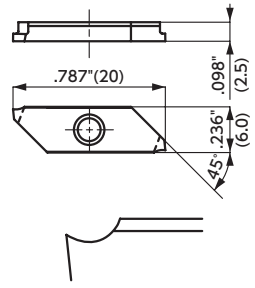
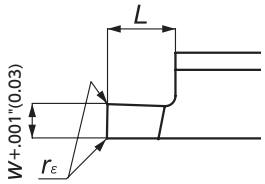
CTPS - Toolholders

■CTPS

Gage Insert	Item Number	Figure	Stock	Groove Width Range w (Inch)	(mm)	h (Inch)	(mm)	b (Inch)	(mm)	h1 (Inch)	(mm)	L1 (Inch)	(mm)	f (Inch)	(mm)	Clamp Screw	Wrench
 GTPS	**CTPSR06-IN**	1	●	.030-.079	0.75-2.00	3/8		3/8		3/8		4.724	120	0	0.0	LRIS-2.5 × 7	CLR-15S
	CTPSR08-IN	1	●	.030-.079	0.75-2.00	1/2		1/2		1/2		4.724	120	0	0.0	LRIS-2.5 × 7	CLR-15S
	CTPSR10	1	○	.030-.079	0.75-2.00	.394	10	.394	10	.394	10	4.724	120	0	0.0	LRIS-2.5 × 7	CLR-15S
	CTPSRR12	1	○	.030-.079	0.75-2.00	.472	12	.472	12	.472	12	4.724	120	0	0.0	LRIS-2.5 × 7	CLR-15S

CTPS Series - Inserts

■CTPS - Grooving

Shape		Item Number	Groove Width w (Inch)	(mm)	Max Depth of Cut (Inch)	(mm)	r_ε (Inch)	(mm)	L (Inch)	(mm)	Coated Carbide VM1	ZM3
 Right-Hand style shown ☆θ shows the angle when the holder is set.		**GTPS075FR**	.030	0.75	.039	1.0	0.0	0.0	.059	1.5	○	○
		GTPS095FR	.037	0.95	.059	1.5	0.0	0.0	.079	2.0	○	○
		GTPS100FR	.039	1.00	.059	1.5	0.0	0.0	.079	2.0	○	○
		GTPS120FR	.047	1.20	.098	2.5	0.0	0.0	.118	3.0	○	○
		GTPS150FR	.059	1.50	.098	2.5	0.0	0.0	.118	3.0	○	○
		GTPS200FR	.079	2.00	.098	2.5	0.0	0.0	.118	3.0	○	○

● : Stock ○ : 1-2 week delivery

CTPS series ➡J40 Cutting condition ➡K106

GTW (GROOVE DUO) Series

GTWP

Side Turning Capable
For Swiss Machine

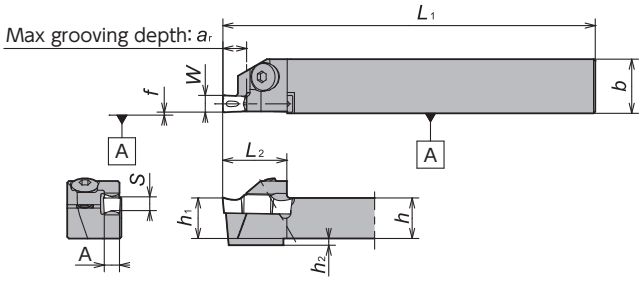
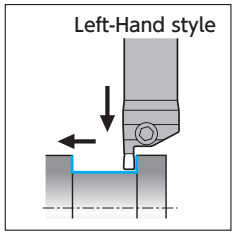


Figure-1



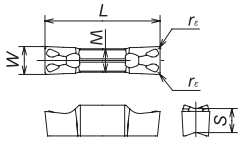
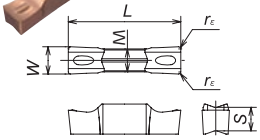
Right-Hand style shown

GTW Series - Toolholders

■GWP

Gage Insert	Item Number	Figure	Stock R	Stock L	Groove Width w (Inch)	Groove Width w (mm)	a_r (Inch)	a_r (mm)	h (Inch)	h (mm)	b (Inch)	b (mm)	h_1 (Inch)	h_1 (mm)	L_1 (Inch)	L_1 (mm)	h_2 (Inch)	h_2 (mm)	f (Inch)	f (mm)	L_2 (Inch)	L_2 (mm)	A (Inch)	A (mm)	Seat Size s	Clamp Screw	Wrench
GWP ○ 300	GTWP※08-IN3D07	1	●		.118	3	.275	7	1/2		.630	16	1/2		4.724	120	0	0	.012	0.3	.748	19	.102	2.6	D	A0B-5×14	LW-3S
	GTWP※08-IN3D09	1	●		.118	3	.354	9	5/8		.630	16	5/8		4.724	120	0	0	.012	0.3	.866	22	.102	2.6	D	A0B-5×16	LW-3S
	GTWP※1016-3D07	1	○		.118	3	.275	7	.394	10	.630	16	.472	12	4.724	120	.079	2	.012	0.3	.748	19	.102	2.6	D	A0B-5×14	LW-3S
	GTWP※1216-3D07	1	●	○	.118	3	.275	7	.472	12	.630	16	.472	12	4.724	120	0	0	.012	0.3	.768	19.5	.102	2.6	D	A0B-5×16	LW-3S
	GTWP※1616-3D09	1	○	○	.118	3	.354	9	.630	16	.630	16	.630	16	4.724	120	0	0	.012	0.3	.866	22	.102	2.6	D	A0B-5×16	LW-3S
GWP ○ 400	GTWP※08-IN4E07	1	●		.157	4	.275	7	1/2		.630	16	1/2		4.724	120	0	0	.012	0.3	.748	19	.138	3.5	E	A0B-5×14	LW-3S
	GTWP※08-IN4E09	1	●		.157	4	.354	9	5/8		.630	16	5/8		4.724	120	0	0	.012	0.3	.866	22	.138	3.5	E	A0B-5×16	LW-3S
	GTWP※1016-4E07	1	○		.157	4	.275	7	.394	10	.630	16	.472	12	4.724	120	.079	2	.012	0.3	.748	19	.138	3.5	E	A0B-5×14	LW-3S
	GTWP※1216-4E07	1	●	○	.157	4	.275	7	.472	12	.630	16	.472	12	4.724	120	0	0	.012	0.3	.768	19.5	.138	3.5	E	A0B-5×16	LW-3S
	GTWP※1616-4E09	1	○	○	.157	4	.354	9	.630	16	.630	16	.630	16	4.724	120	0	0	.012	0.3	.866	22	.138	3.5	E	A0B-5×16	LW-3S
GWP ○ 500	GTWP※1016-5F07	1	○		.197	5	.275	7	.394	10	.630	16	.472	12	4.724	120	.079	2	.012	0.3	.748	19	.177	4.5	F	A0B-5×14	LW-3S
	GTWP※1216-5F07	1	○	○	.197	5	.275	7	.472	12	.630	16	.472	12	4.724	120	0	0	.012	0.3	.768	19.5	.177	4.5	F	A0B-5×16	LW-3S
	GTWP※1616-5F09	1	○	○	.197	5	.354	9	.630	16	.630	16	.630	16	4.724	120	0	0	.012	0.3	.866	22	.177	4.5	F	A0B-5×16	LW-3S
GWP ○ 600	GTWP※1020-6G07	1	○		.236	6	.275	7	.394	10	.787	20	.394	10	4.724	120	.079	2	.012	0.3	.866	22	.209	5.3	G	A0B-5×14	LW-3S
	GTWP※1220-6G07	1	○		.236	6	.275	7	.472	12	.787	20	.472	12	4.724	120	0	0	.012	0.3	.886	22.5	.209	5.3	G	A0B-5×16	LW-3S
	GTWP※1620-6G09	1	○	○	.236	6	.354	9	.630	16	.787	20	.630	16	4.724	120	0	0	.012	0.3	.984	25	.209	5.3	G	A0B-5×16	LW-3S

GTW Series - Inserts

Shape	Item Number	w Groove Width (Inch)	w Groove Width (mm)	w Width Tolerance (Inch)	w Width Tolerance (mm)	r_ε (Inch)	r_ε (mm)	M (Inch)	M (mm)	L (Inch)	L (mm)	Seat Size s	Coated Carbide DM4
 	GWPG300N02D-GW	.118	3.0	.001	± 0.025	.008	0.2	.098	2.5	.811	20.6	D	●
	GWPG300N04D-GW	.118	3.0	.001	± 0.025	.016	0.4	.098	2.5	.811	20.6	D	●
	GWPG400N02E-GW	.157	4.0	.001	± 0.025	.008	0.2	.134	3.4	.811	20.6	E	●
	GWPG400N04E-GW	.157	4.0	.001	± 0.025	.016	0.4	.134	3.4	.811	20.6	E	●
	GWPG400N08E-GW	.157	4.0	.001	± 0.025	.031	0.8	.134	3.4	.811	20.6	E	●
	GWPG500N02F-GW	.197	5.0	.001	± 0.025	.008	0.2	.169	4.3	.811	20.6	F	○
	GWPG500N04F-GW	.197	5.0	.001	± 0.025	.016	0.4	.169	4.3	.811	20.6	F	○
	GWPG500N08F-GW	.197	5.0	.001	± 0.025	.031	0.8	.169	4.3	.811	20.6	F	○
	GWPG600N02G-GW	.236	6.0	.001	± 0.025	.008	0.2	.205	5.2	1.008	25.6	G	○
	GWPG600N04G-GW	.236	6.0	.001	± 0.025	.016	0.4	.205	5.2	1.008	25.6	G	○
	GWPG600N08G-GW	.236	6.0	.001	± 0.025	.031	0.8	.205	5.2	1.008	25.6	G	○
GWPG: Outside ground GWPM: Full-molded ●Excellent chip control ●Best for side turning	GWPM300N04D-GW	.118	3.0	.002	± 0.05	.016	0.4	.098	2.5	.811	20.6	D	○
	GWPM400N04E-GW	.157	4.0	.002	± 0.05	.016	0.4	.134	3.4	.811	20.6	E	○
	GWPM500N04F-GW	.197	5.0	.002	± 0.05	.016	0.4	.169	4.3	.811	20.6	F	○
	GWPM600N04G-GW	.236	6.0	.002	± 0.05	.016	0.4	.205	5.2	1.008	25.6	G	○
 	GWPG300N02D-GV	.118	3.0	.001	± 0.025	.008	0.2	.205	2.5	.811	20.6	D	●
	GWPG300N04D-GV	.118	3.0	.001	± 0.025	.016	0.4	.205	2.5	.811	20.6	D	●
	GWPG400N02E-GV	.157	4.0	.001	± 0.025	.008	0.2	.169	4.3	.811	20.6	E	●
	GWPG400N04E-GV	.157	4.0	.001	± 0.025	.016	0.4	.169	4.3	.811	20.6	E	●
	GWPG500N02F-GV	.197	5.0	.001	± 0.025	.008	0.2	.169	4.3	.811	20.6	F	○
	GWPG500N04F-GV	.197	5.0	.001	± 0.025	.016	0.4	.169	4.3	.811	20.6	F	○
	GWPG600N02G-GV	.236	6.0	.001	± 0.025	.008	0.2	.169	4.3	1.008	25.6	G	○
●Less tool pressure design	GWPG600N04G-GV	.236	6.0	.001	± 0.025	.016	0.4	.169	4.3	1.008	25.6	G	○

GTT Series

GTT

Screw accessible from both sides

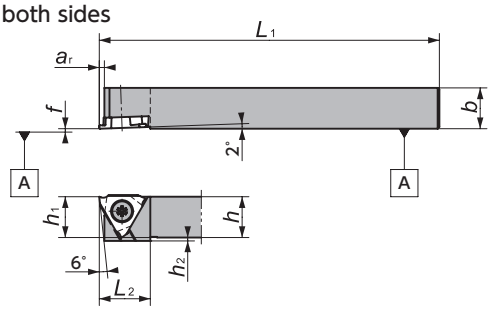
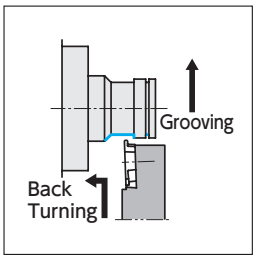


Figure-1

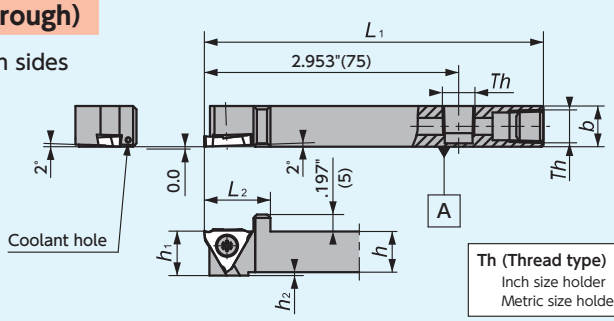


Right-Hand style shown

GTT-OH (Coolant through)

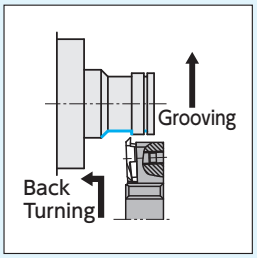
Screw accessible from both sides

NEW



Th (Thread type)
Inch size holder : NPT1/8
Metric size holder: M6, Rc1/8 (PT1/8)

Figure-2



Right-Hand style shown

Y-GTT

Screw accessible from both sides

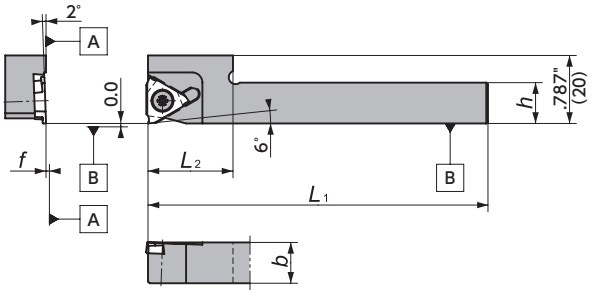
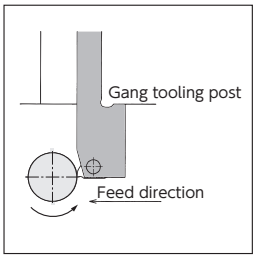


Figure-3

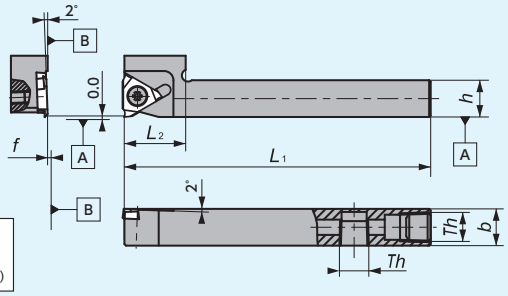


Right-Hand style shown
Takes Right-hand Insert

Y-GTT-OH (Coolant through)

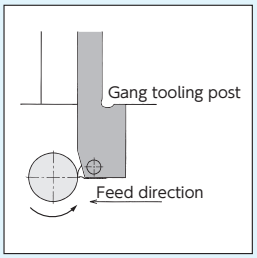
Screw accessible from both sides

NEW



Th (Thread type)
Inch size holder : NPT1/8
Metric size holder: M6, Rc1/8 (PT1/8)

Figure-4



Right-Hand style shown
Takes Right-hand Insert

CH-GTT

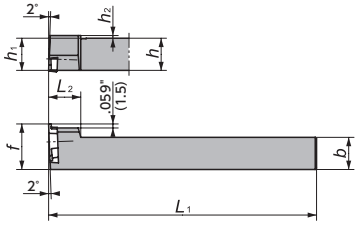
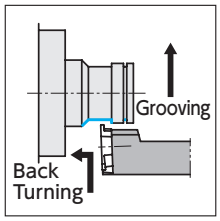


Figure-5



Left-Hand style shown
Takes Right-hand Insert

DS-GTT

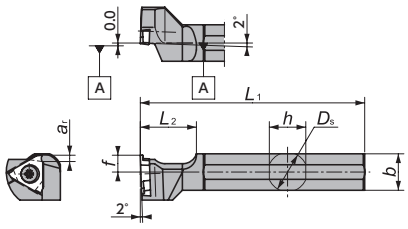
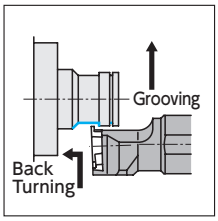


Figure-6



Left-Hand style shown
Takes Right-hand Insert

● : Stock ○ : 1-2 week delivery 💧 : Coolant through

Inserts ➡K114 Cutting condition ➡K106

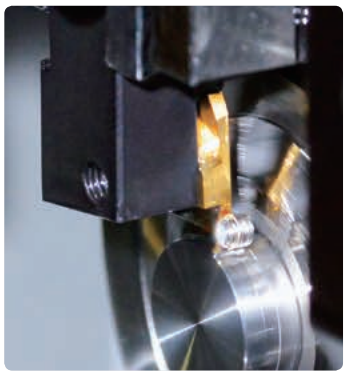
GTT

Gage Insert	Item Number	Figure	Stock R	Stock L	Groove Width W (Inch)	Groove Width W (mm)	h (Inch)	h (mm)	b (Inch)	b (mm)	h_1 (Inch)	h_1 (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	L_2 (Inch)	L_2 (mm)	a_r (Inch)	a_r (mm)	h_2 (Inch)	h_2 (mm)	Th	Clamp Screw	Wrench
	GTT□06A-IN	1	●	●	.012-.125	0.30-3.17	3/8		3/8		3/8		4.724	120	.000	0	.591	15.0	.071	1.8	.118	3	–	LR-S-4×10PW	CLR-15S
	GTT□06B-IN	1	●	●	.057-.125	1.45-3.17	3/8		3/8		3/8		4.724	120	.000	0	.591	15.0	.106	2.7	.118	3	–	LR-S-4×10PW	CLR-15S
	GTT□08A-IN	1	●	●	.012-.125	0.30-3.17	1/2		1/2		1/2		4.724	120	.000	0	.591	15.0	.071	1.8	.039	1	–	LR-S-4×10PW	CLR-15S
	GTT□08B-IN	1	●	●	.057-.125	1.45-3.17	1/2		1/2		1/2		4.724	120	.000	0	.591	15.0	.106	2.7	.039	1	–	LR-S-4×10PW	CLR-15S
	GTT□10A-IN	1	●	●	.012-.125	0.30-3.17	5/8		5/8		5/8		4.724	120	.000	0	.591	15.0	.071	1.8	.000	0	–	LR-S-4×10PW	CLR-15S
	GTT□10B-IN	1	●	●	.057-.125	1.45-3.17	5/8		5/8		5/8		4.724	120	.000	0	.591	15.0	.106	2.7	.000	0	–	LR-S-4×10PW	CLR-15S
	GTT□12A-IN	1	●	●	.012-.125	0.30-3.17	3/4		3/4		3/4		4.724	120	.000	0	.591	15.0	.071	1.8	.000	0	–	LR-S-4×10PW	CLR-15S
	GTT□12B-IN	1	●		.057-.125	1.45-3.17	3/4		3/4		3/4		4.724	120	.000	0	.591	15.0	.106	2.7	.000	0	–	LR-S-4×10PW	CLR-15S
	GTT□08F00	1	○	○	.012-.125	0.30-3.17	.315	8	.315	8	.315	8	3.150	80	.000	0	.591	15.0	.071	1.8	.157	5	–	R:LR-S-4×10PW L:LR-S-4×5.8	CLR-15S
	GTT□0810F00	1	○	○	.012-.125	0.30-3.17	.315	8	.394	10	.315	8	3.150	80	.000	0	.591	15.0	.071	1.8	.157	5	–	LR-S-4×10PW	CLR-15S
	GTT□08K00	1	○	○	.012-.125	0.30-3.17	.315	8	.315	8	.315	8	4.724	120	.000	0	.591	15.0	.071	1.8	.157	5	–	R:LR-S-4×10PW L:LR-S-4×5.8	CLR-15S
	GTT□0810K00	1	○	○	.012-.125	0.30-3.17	.315	8	.394	10	.315	8	4.724	120	.000	0	.591	15.0	.071	1.8	.157	5	–	LR-S-4×10PW	CLR-15S
	GTT□10F00	1	○		.012-.125	0.30-3.17	.394	10	.394	10	.394	10	3.150	80	.000	0	.591	15.0	.071	1.8	.118	3	–	LR-S-4×10PW	CLR-15S
	GTT□10K00	1	○		.012-.125	0.30-3.17	.394	10	.394	10	.394	10	4.724	120	.000	0	.591	15.0	.071	1.8	.118	3	–	LR-S-4×10PW	CLR-15S
	GTT□12F00	1	○	○	.012-.125	0.30-3.17	.472	12	.472	12	.472	12	3.150	80	.000	0	.591	15.0	.071	1.8	.040	1	–	LR-S-4×10PW	CLR-15S
	GTT□12K00	1	●	○	.012-.125	0.30-3.17	.472	12	.472	12	.472	12	4.724	120	.000	0	.591	15.0	.071	1.8	.040	1	–	LR-S-4×10PW	CLR-15S
	GTT□16H00	1	○	○	.012-.125	0.30-3.17	.630	16	.630	16	.630	16	3.937	100	.000	0	.591	15.0	.071	1.8	.000	0	–	LR-S-4×10PW	CLR-15S
	GTT□16K00	1	○	○	.012-.125	0.30-3.17	.630	16	.630	16	.630	16	4.724	120	.000	0	.591	15.0	.071	1.8	.000	0	–	LR-S-4×10PW	CLR-15S
	GTT□20K00	1	○	○	.012-.125	0.30-3.17	.787	20	.787	20	.787	20	4.921	125	.000	0	.591	15.0	.106	2.7	.000	0	–	LR-S-4×10PW	CLR-15S
	GTT□25M00	1	○	○	.012-.125	0.30-3.17	.984	25	.984	25	.984	25	5.906	150	.000	0	.591	15.0	.106	2.7	.000	0	–	LR-S-4×10PW	CLR-15S
	GTT□10F15	1	○	○	.057-.125	1.45-3.17	.394	10	.394	10	.394	10	3.150	80	.000	0	.591	15.0	.106	2.7	.118	3	–	LR-S-4×10PW	CLR-15S
	GTT□10K15	1	○	○	.057-.125	1.45-3.17	.394	10	.394	10	.394	10	4.724	120	.000	0	.591	15.0	.106	2.7	.118	3	–	LR-S-4×10PW	CLR-15S
	GTT□12F15	1	○	○	.057-.125	1.45-3.17	.472	12	.472	12	.472	12	3.150	80	.000	0	.591	15.0	.106	2.7	.040	1	–	LR-S-4×10PW	CLR-15S
	GTT□12K15	1	○	○	.057-.125	1.45-3.17	.472	12	.472	12	.472	12	4.724	120	.000	0	.591	15.0	.106	2.7	.040	1	–	LR-S-4×10PW	CLR-15S
	GTT□16H15	1	○	○	.057-.125	1.45-3.17	.630	16	.630	16	.630	16	3.937	100	.000	0	.591	15.0	.106	2.7	.000	0	–	LR-S-4×10PW	CLR-15S
GTM..32 TMG32	GTT□16K15	1	●	○	.057-.125	1.45-3.17	.630	16	.630	16	.630	16	4.724	120	.000	0	.591	15.0	.106	2.7	.000	0	–	LR-S-4×10PW	CLR-15S
	GTT□10F25	1	○	○	.098-.125	2.50-3.17	.394	10	.394	10	.394	10	3.150	80	.000	0	.591	15.0	.106	2.7	.118	3	–	LR-S-4×10PW	CLR-15S
	GTT□10K25	1	○	○	.098-.125	2.50-3.17	.394	10	.394	10	.394	10	4.724	120	.000	0	.591	15.0	.106	2.7	.118	3	–	LR-S-4×10PW	CLR-15S
	GTT□12F25	1	○	○	.098-.125	2.50-3.17	.472	12	.472	12	.472	12	3.150	80	.000	0	.591	15.0	.106	2.7	.040	1	–	LR-S-4×10PW	CLR-15S
	GTT□12K25	1	○	○	.098-.125	2.50-3.17	.472	12	.472	12	.472	12	4.724	120	.000	0	.591	15.0	.106	2.7	.040	1	–	LR-S-4×10PW	CLR-15S
	GTT□16H25	1	○	○	.098-.125	2.50-3.17	.630	16	.630	16	.630	16	3.937	100	.000	0	.591	15.0	.106	2.7	.000	0	–	LR-S-4×10PW	CLR-15S
	GTT□16K25	1	○	○	.098-.125	2.50-3.17	.630	16	.630	16	.630	16	4.724	120	.000	0	.591	15.0	.106	2.7	.000	0	–	LR-S-4×10PW	CLR-15S
	GTT□08HA-IN-OH	2	●		.012-.125	0.30-3.17	1/2		1/2		1/2		3.937	100	.000	0	.768	19.5	.071	1.8	.039	1	NPT1/8	LR-S-4×10PW	CLR-15S
	GTT□08HB-IN-OH	2	●		.057-.125	1.45-3.17	1/2		1/2		1/2		3.937	100	.000	0	.768	19.5	.106	2.7	.039	1	NPT1/8	LR-S-4×10PW	CLR-15S
	GTT□10HA-IN-OH	2	●		.012-.125	0.30-3.17	5/8		5/8		5/8		3.937	100	.000	0	.768	19.5	.071	1.8	.000	0	NPT1/8	LR-S-4×10PW	CLR-15S
	GTT□10HB-IN-OH	2	●		.057-.125	1.45-3.17	5/8		5/8		5/8		3.937	100	.000	0	.768	19.5	.106	2.7	.000	0	NPT1/8	LR-S-4×10PW	CLR-15S
	GTT□1012H00-OH	2	○		.012-.125	0.30-3.17	.394	10	.472	12	.394	10	3.937	100	.000	0	.768	19.5	.071	1.8	.039	1	M6 × 1	LR-S-4×10PW	CLR-15S
	GTT□12H00-OH	2	●		.012-.125	0.30-3.17	.472	12	.472	12	.472	12	3.937	100	.000	0	.768	19.5	.071	1.8	.039	1	Rc1/8(PT1/8)	LR-S-4×10PW	CLR-15S
	GTT□16H00-OH	2	○		.012-.125	0.30-3.17	.630	16	.630	16	.630	16	3.937	100	.000	0	.768	19.5	.071	1.8	0	0	Rc1/8(PT1/8)	LR-S-4×10PW	CLR-15S
	Y-GTTR□06-IN	3	●		.012-.125	0.30-3.17	3/8		3/8		–	–	4.724	120	.000	0	.984	25.0	.063	1.6	–	–	–	LR-S-4×10PW	CLR-15S
	Y-GTTR□08-IN	3	●		.012-.125	0.30-3.17	1/2		1/2		–	–	4.724	120	.000	0	.984	25.0	.063	1.6	–	–	–	LR-S-4×10PW	CLR-15S
	Y-GTTR□10-IN	3	●		.012-.125	0.30-3.17	5/8		5/8		–	–	4.724	120	.000	0	.984	25.0	.063	1.6	–	–	–	LR-S-4×10PW	CLR-15S
	Y-GTT□10S	3	○		.012-.125	0.30-3.17	.394	10	.394	10	–	–	4.724	120	.000	0	.787	20.0	.063	1.6	–	–	–	LR-S-4×10PW	CLR-15S
	Y-GTT□12S	3	○		.012-.125	0.30-3.17	.472	12	.472	12	–	–	4.724	120	.000	0	.787	20.0	.063	1.6	–	–	–	LR-S-4×10PW	CLR-15S
	Y-GTT□08H-IN-OH	4	●		.012-.125	0.30-3.17	1/2		1/2		–	–	3.937	100	.000	0	.984	25.0	.063	1.6	–	–	NTP1/8	LR-S-4×10PW	CLR-15S
	Y-GTT□12H00S-OH	4	●		.012-.125	0.30-3.17	.472	12	.472	12	–	–	3.937	100	.000	0	.787	20.0	.063	1.6	–	–	Rc1/8(PT1/8)	LR-S-4×10PW	CLR-15S
	Y-GTT□16H00-OH	4	○		.012-.125	0.30-3.17	.630	16	.472	16	–	–	3.937	100	.000	0	.984	25.0	.063	1.6	–	–	Rc1/8(PT1/8)	LR-S-4×10PW	CLR-15S
	CH-GTT□10H00	5		○	.012-.125	0.30-3.17	.394	10	.394	10	.394	10.0	4.724	120	.591	15	.472	12.0	.059	1.5	.118	3	–	LR-S-4×10PW	CLR-15S
	CH-GTT□12H00	5		○	.012-.125	0.30-3.17	.472	12	.472	12	.472	12.0	4.724	120	.669	17	.472	12.0	.059	1.5	.040	1	–	LR-S-4×10PW	CLR-15S

DS-GTT

Gage Insert	Item Number	Figure	Stock R	Stock L	D_s (Inch)	D_s (mm)	h (Inch)	h (mm)	b (Inch)	b (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	L_2 (Inch)	L_2 (mm)	Clamp Screw	Wrench
	DS-GTT□14F	6		○	.551	14.000	.512	13	.512	13	3.150	80	.236	6	.787	20	LR-S-4 × 9	RLR-20S
	DS-GTT□15H	6		○	.518	15.875	.591	15	.591	15	3.937	100	.236	6	.787	20	LR-S-4 × 9	RLR-20S
	DS-GTT□16X	6		●	.630	16.000	.591	15	.591	15	3.740	95	.236	6	.787	20	LR-S-4 × 9	RLR-20S
	DS-GTT□19	6		●	3/4	19.050	.709	18	.709	18	4.724	120	.236	6	.787	20	LR-S-4 × 9	RLR-20S
GTM..32 TMG32	DS-GTT□20	6		●	.787	20.000	.748	19	.748	19	4.724	120	.236	6	.787	20	LR-S-4 × 9	RLR-20S
	DS-GTT□22	6		●	.866	22.000	.827	21	.827	21	4.724	120	.236	6	.787	20	LR-S-4 × 9	RLR-20S
	DS-GTT□25	6		●	1	25.400	.945	24	.945	24	4.724	120	.394	10	.787	20	LR-S-4 × 9	RLR-20S

NEW GTMH-GX Chipbreaker for Grooving / Side Turning



Groove width .059"～

Groove width ～.039"

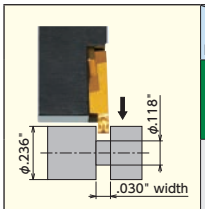
WATCH ON YouTube

Features

- Can solve either problems of chips remaining in the grooves or bird's nest of chips
- Good surface finishes on groove side faces
- UP to .078" DOC side turning capability

Excellent Chip Control

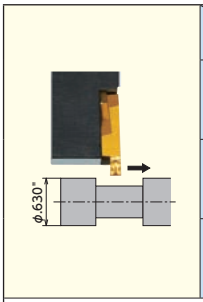
● Grooving



DOC \ Feed rate (IPR)	.0004"	.0011"	.0020"
GX chipbreaker			
Competiton's chipbreaker			

Material : 304 SS(ϕ.630"), 260 SFM, .059", DOC

● Side Turning



DOC \ Feed rate (IPR)	.0004"	.0011"	.0020"	.0031"
.010"				
.020"				
.030"				

Material : 304 SS(ϕ.630"), 260 SFM, .030" width insert

Best Solution for Chip Control

Now available in Coolant through toolholders

GTT-OH

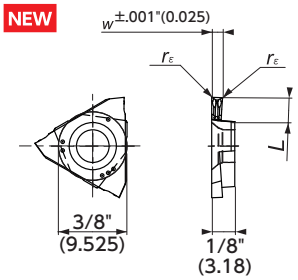
➡K112

Y-GTT-OH

➡K112

GTMH32.. Inserts - Carbide

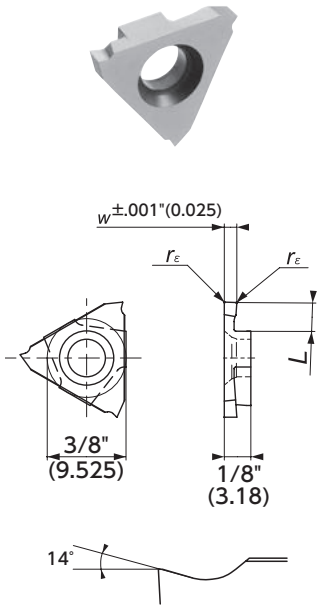
■GTMH32-GX

Shape	Item Number	Groove Width W (Inch)	Groove Width W (mm)	Max Depth of Cut Grooving (Inch)	Max Depth of Cut Grooving (mm)	Max Depth of Cut Side turning (Inch)	Max Depth of Cut Side turning (mm)	L (Inch)	L (mm)	r_ε (Inch)	r_ε (mm)	Coated Carbide DM4 R	Coated Carbide DM4 L	Coated Carbide TM4 R	Coated Carbide TM4 L
Side Turning Capable NEW  Right-Hand style shown	GTMH32075RGX*	.030	0.75	.106	2.7	.030	0.75	.079	2.0	.002	0.05	●		○	
	GTMH32095RGX*	.037	0.95	.106	2.7	.059	1.50	.079	2.0	.002	0.05	●		○	
	GTMH32100RGX*	.039	1.00	.106	2.7	.059	1.50	.079	2.0	.002	0.05	●		○	
	GTMH32100RGX01*	.039	1.00	.106	2.7	.059	1.50	.079	2.0	.004	0.1	●		○	
	GTMH32150RGX	.059	1.50	.106	2.7	.079	2.00	.118	3.0	.002	0.05	●		○	
	GTMH32150RGX01	.059	1.50	.106	2.7	.079	2.00	.118	3.0	.004	0.1	●		○	
	GTMH32150RGX02	.059	1.50	.106	2.7	.079	2.00	.118	3.0	.008	0.2	●		○	
	GTMH32200RGX	.079	2.00	.106	2.7	.079	2.00	.118	3.0	.002	0.05	●		○	
	GTMH32200RGX01	.079	2.00	.106	2.7	.079	2.00	.118	3.0	.004	0.1	●		○	
	GTMH32200RGX02	.079	2.00	.106	2.7	.079	2.00	.118	3.0	.008	0.2	●		○	
	GTMH32300RGX	.118	3.00	.106	2.7	.079	2.00	.118	3.0	.002	0.05	●		○	
	GTMH32300RGX02	.118	3.00	.106	2.7	.079	2.00	.118	3.0	.008	0.2	●		○	

* To be released in January 2015

■GTMX32

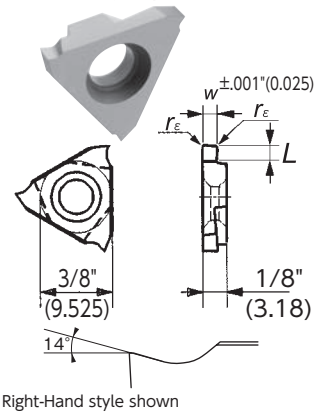
Shape	Item Number	Groove Width W (Inch)	Groove Width W (mm)	Max Depth of Cut Grooving (Inch)	Max Depth of Cut Grooving (mm)	L (Inch)	L (mm)	r_ε (Inch)	r_ε (mm)	Coated Carbide QM3 R	QM3 L	DT4 R	DT4 L
Side Turning Capable	GTMX32030R/LT	.012	0.30	.010	0.25	.024	0.6	.002	0.05	●	□	○	
	GTMX32033R/LT	.013	0.33	.010	0.25	.024	0.6	.002	0.05	●	■		
	GTMX32043R/LT	.017	0.43	.035	0.9	.047	1.2	.002	0.05	●	□	○	
	GTMX32050R/LT	.020	0.50	.035	0.9	.047	1.2	.002	0.05	●	■	○	
	GTMX32053R/LT	.021	0.53	.035	0.9	.047	1.2	.002	0.05	●	□		
	GTMX32065R/LT	.026	0.65	.035	0.9	.047	1.2	.002	0.05	●	□	○	
	GTMX32075R/LT	.030	0.75	.063	1.6	.079	2.0	.002	0.05	●	●	○	○
	GTMX32080R/LT	.031	0.80	.063	1.6	.079	2.0	.002	0.05	●	■	○	
	GTMX32095R/LT	.037	0.95	.063	1.6	.079	2.0	.002	0.05	○	○	○	○
	GTMX32100R/LT	.039	1.00	.063	1.6	.079	2.0	.002	0.05	●	□	○	
	GTMX32100R/LT01	.039	1.00	.063	1.6	.079	2.0	.004	0.1	●	□	○	
	GTMX32110R/LT	.043	1.10	.063	1.6	.079	2.0	.002	0.05	○	□		
	GTMX32120R/LT	.047	1.20	.063	1.6	.079	2.0	.002	0.05	●	□	○	
	GTMX32120R/LT01	.047	1.20	.063	1.6	.079	2.0	.004	0.1	●	□	○	
	GTMX32125R/LT	.049	1.25	.063	1.6	.079	2.0	.002	0.05	●	■	○	
	GTMX32130R/LT	.051	1.30	.063	1.6	.079	2.0	.002	0.05	○	□	○	
	GTMX32140R/LT	.055	1.40	.063	1.6	.079	2.0	.002	0.05	○	□	○	
	GTMX32145R/LT	.057	1.45	.106	2.7	.118	3.0	.002	0.05	○	□		
	GTMX32150R/LT	.059	1.50	.106	2.7	.118	3.0	.002	0.05	●	●	○	○
	GTMX32150R/LT01	.059	1.50	.106	2.7	.118	3.0	.004	0.1	●	□	○	
	GTMX32150R/LT02	.059	1.50	.106	2.7	.118	3.0	.008	0.2	●		○	
	GTMX32160R/LT	.063	1.60	.106	2.7	.118	3.0	.002	0.05	●	□	○	
	GTMX32175R/LT	.069	1.75	.106	2.7	.118	3.0	.002	0.05	○	●	○	
	GTMX32180R/LT	.071	1.80	.106	2.7	.118	3.0	.002	0.05	○	□	○	
	GTMX32200R/LT	.079	2.00	.106	2.7	.118	3.0	.002	0.05	●	●	○	○
	GTMX32200R/LT01	.079	2.00	.106	2.7	.118	3.0	.004	0.1	○	○	○	○
	GTMX32200R/LT02	.079	2.00	.106	2.7	.118	3.0	.008	0.2	●		○	
	GTMX32250R/LT	.098	2.50	.106	2.7	.118	3.0	.002	0.05	●	○	○	○
	GTMX32250R/LT01	.098	2.50	.106	2.7	.118	3.0	.004	0.1	○		○	
	GTMX32250R/LT02	.098	2.50	.106	2.7	.118	3.0	.008	0.2	○		○	
	GTMX32300R/LT	.118	3.00	.106	2.7	.118	3.0	.002	0.05	●	■	○	
	GTMX32300R/LT02	.118	3.00	.106	2.7	.118	3.0	.008	0.2	●		○	



Right-Hand style shown

■GTMH32 - VT Mirror finish

Shape	Item Number	Groove Width W (Inch)	Groove Width W (mm)	Max Depth of Cut Grooving (Inch)	Max Depth of Cut Grooving (mm)	L (Inch)	L (mm)	r_ε (Inch)	r_ε (mm)	Coated Carbide VM1 R	VM1 L
Side Turning Capable	GTMH32033R/LVT Ⓜ	.013	0.33	.010	0.25	.024	0.6	0.0	0.0	●	
	GTMH32043R/LVT Ⓜ	.017	0.43	.035	0.9	.047	1.2	0.0	0.0	●	
	GTMH32053R/LVT Ⓜ	.021	0.53	.063	1.6	.079	2.0	0.0	0.0	●	
	GTMH32065R/LVT Ⓜ	.026	0.65	.063	1.6	.079	2.0	0.0	0.0	●	
	GTMH32075R/LVT Ⓜ	.030	0.75	.063	1.6	.079	2.0	0.0	0.0	●	
	GTMH32080R/LVT Ⓜ	.031	0.80	.063	1.6	.079	2.0	0.0	0.0	○	
	GTMH32085R/LVT Ⓜ	.033	0.85	.063	1.6	.079	2.0	0.0	0.0	○	
	GTMH32095R/LVT Ⓜ	.037	0.95	.063	1.6	.079	2.0	0.0	0.0	○	
	GTMH32100R/LVT Ⓜ	.039	1.00	.063	1.6	.079	2.0	0.0	0.0	●	
	GTMH32110R/LVT Ⓜ	.043	1.10	.063	1.6	.079	2.0	0.0	0.0	○	
	GTMH32120R/LVT Ⓜ	.047	1.20	.063	1.6	.079	2.0	0.0	0.0	○	
	GTMH32130R/LVT Ⓜ	.051	1.30	.063	1.6	.079	2.0	0.0	0.0	○	
	GTMH32140R/LVT Ⓜ	.055	1.40	.063	1.6	.079	2.0	0.0	0.0	○	
	GTMH32150R/LVT Ⓜ	.059	1.50	.106	2.7	.118	3.0	0.0	0.0	●	
	GTMH32200R/LVT Ⓜ	.079	2.00	.106	2.7	.118	3.0	0.0	0.0	●	



Right-Hand style shown

■Side turning instruction for GTMH-GX / GTMX-T / GTMH-VT

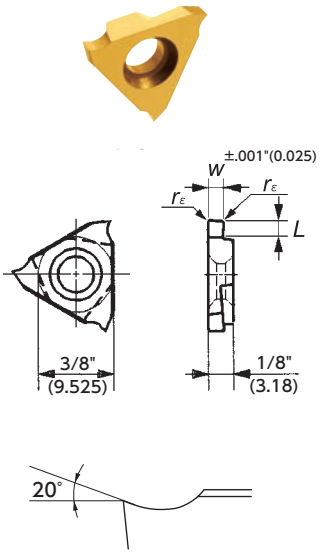
①To perform side turning with an insert whose groove width is greater than .017" set side turning feed rate to .001 IPR or smaller.

②When performing side turning with an insert whose groove width is greater than .017" and the feed rate is over .001 IPR (.004 IPR max), it is likely that chips will damage grooved sides. In this case, please perform grooving in two or more passes to make room for chips before performing side turning.

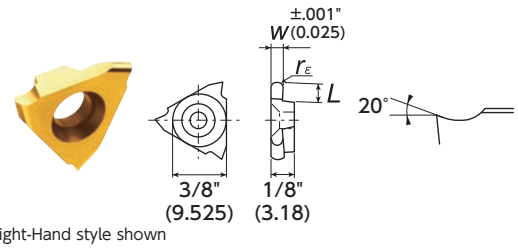
● : Stock ○ : 1-2 week delivery ■,□ : While stock lasts Ⓜ : Mirror finish Holders ➡K112 Cutting condition ➡K106

Grooving / Side Turning

GTMH32 – E

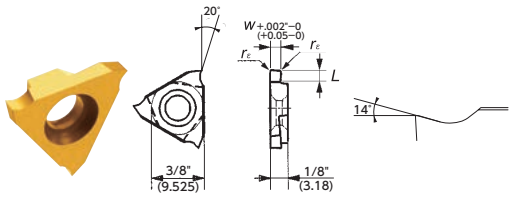
Shape	Item Number	Groove width W (Inch)	Groove width W (mm)	Max Depth of Cut (Inch)	Max Depth of Cut (mm)	L (Inch)	L (mm)	r_ε (Inch)	r_ε (mm)	Coated Carbide ZM3 R	Coated Carbide ZM3 L
	GTMH32033R/LE	.013	0.33	.012	0.3	.024	0.6	.001	0.03	○	○
	GTMH32043R/LE	.017	0.43	.035	0.9	.047	1.2	.001	0.03	●	○
	GTMH32053R/LE	.021	0.53	.035	0.9	.047	1.2	.002	0.05	○	○
	GTMH32075R/LE	.030	0.75	.063	1.6	.079	2.0	.002	0.05	○	○
	GTMH32077R/LE	.030	0.77	.063	1.6	.079	2.0	.002	0.05	○	
	GTMH32095R/LE	.037	0.95	.063	1.6	.079	2.0	.002	0.05	○	○
	GTMH32097R/LE	.038	0.97	.063	1.6	.079	2.0	.002	0.05	○	
	GTMH32100R/LE	.039	1.00	.063	1.6	.079	2.0	.002	0.05	○	○
	GTMH32100R/LE01	.039	1.00	.063	1.6	.079	2.0	.004	0.1	○	○
	GTMH32120R/LE	.047	1.20	.063	1.6	.079	2.0	.002	0.05	●	○
	GTMH32120R/LE01	.047	1.20	.063	1.6	.079	2.0	.004	0.1	○	○
	GTMH32125R/LE	.049	1.25	.063	1.6	.079	2.0	.002	0.05	○	
	GTMH32140R/LE	.055	1.40	.063	1.6	.079	2.0	.002	0.05	○	○
	GTMH32145R/LE	.057	1.45	.063	1.6	.079	2.0	.002	0.05	○	
	GTMH32150R/LE	.059	1.50	.106	2.7	.118	3.0	.002	0.05	○	○
	GTMH32150R/LE01	.059	1.50	.106	2.7	.118	3.0	.004	0.1	○	○
	GTMH32175R/LE	.069	1.75	.106	2.7	.118	3.0	.002	0.05	○	
	GTMH32180R/LE	.071	1.80	.106	2.7	.118	3.0	.002	0.05	○	○
	GTMH32200R/LE	.079	2.00	.106	2.7	.118	3.0	.002	0.05	○	○
	GTMH32200R/LE01	.079	2.00	.106	2.7	.118	3.0	.004	0.1	○	○
	GTMH32225R/LE	.089	2.25	.106	2.7	.118	3.0	.002	0.05	○	○
	GTMH32250R/LE	.098	2.50	.106	2.7	.118	3.0	.002	0.05	○	○
	GTMH32275R/LE	.108	2.75	.106	2.7	.118	3.0	.002	0.05	○	○
Right-Hand style shown	GTMH32300R/LE	.118	3.00	.106	2.7	.118	3.0	.002	0.05	○	○

GTMH32 (Full radius style)

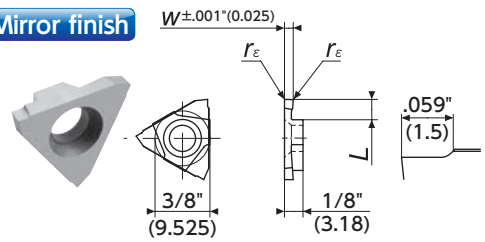
Shape	Item Number	Groove Width w (Inch)	Groove Width w (mm)	Max Depth of Cut (Inch)	Max Depth of Cut (mm)	L (Inch)	L (mm)	r_ε (Inch)	r_ε (mm)	Coated Carbide QM3 R	Coated Carbide QM3 L	Coated Carbide ZM3 R	Coated Carbide ZM3 L
	GTMH32050R/LE025	.020	0.50	.035	0.9	.047	1.2	.010	0.25	●		●	
	GTMH32070R/LE035	.028	0.70	.063	1.6	.079	2.0	.014	0.35	●		●	
	GTMH32100R/LE05	.039	1.00	.063	1.6	.079	2.0	.020	0.50	●		●	
	GTMH32150R/LE075	.059	1.50	.106	2.7	.118	3.0	.002	0.05	●			
	GTMH32200R/LE10	.079	2.00	.106	2.7	.118	3.0	.039	1.00	●		○	
Right-Hand style shown	GTMH32300R/LE15	.118	3.00	.106	2.7	.118	3.0	.059	1.50	●		○	

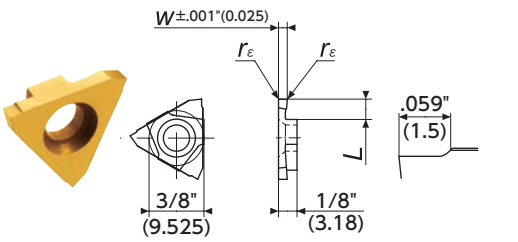
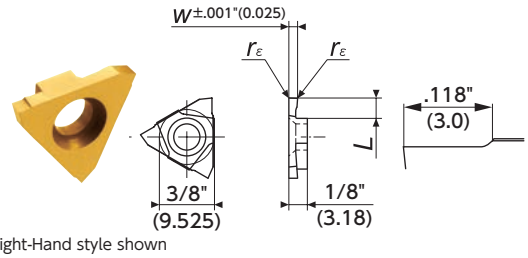
● : Stock ○ : 1-2 week delivery ■,□ : While stock lasts Ⓜ : Mirror finish Holders ➡K112 Cutting condition ➡K106

■TMG32-E

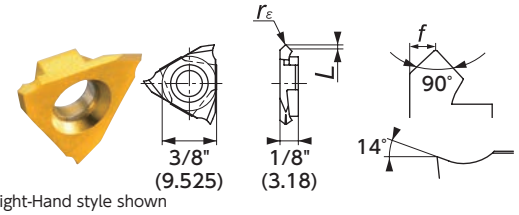
Shape	Item Number	Groove Width w (Inch)	Groove Width w (mm)	Max Depth of Cut (Inch)	Max Depth of Cut (mm)	L (Inch)	L (mm)	r_ε (Inch)	r_ε (mm)	Coated Carbide ZM3 R	Coated Carbide ZM3 L
 Right-Hand style shown	TMG32031R/LE01	.031	0.79	.063	1.6	.079	2.0	.004	0.1	●	■
	TMG32039R/LE01	.039	1.00	.063	1.6	.079	2.0	.004	0.1	●	●
	TMG32049R/LE01	.049	1.25	.063	1.6	.079	2.0	.004	0.1	●	■
	TMG32062R/LE02	.062	1.57	.106	2.7	.118	3.0	.008	0.2	●	□
	TMG32079R/LE02	.079	2.00	.106	2.7	.118	3.0	.008	0.2	●	□
	TMG32094R/LE02	.094	2.39	.106	2.7	.118	3.0	.008	0.2	●	
	TMG32125R/LE02	.125	3.18	.106	2.7	.118	3.0	.008	0.2	●	□

■GTMH • X32 (Flat top chipbreaker)

Shape	Item Number	Groove Width w (Inch)	Groove Width w (mm)	Max Depth of Cut (Inch)	Max Depth of Cut (mm)	L (Inch)	L (mm)	r_ε (Inch)	r_ε (mm)	Carbide KM1 R	Carbide KM1 L
Mirror finish  Right-Hand style shown	GTMH32100R/LSSH Ⓜ	.039	1.00	.063	1.6	.079	2.0	.002	0.05	○	
	GTMH32150R/LSSH Ⓜ	.059	1.50	.106	2.7	.118	3.0	.002	0.05	○	
	GTMH32200R/LSSH Ⓜ	.079	2.00	.106	2.7	.118	3.0	.002	0.05	○	

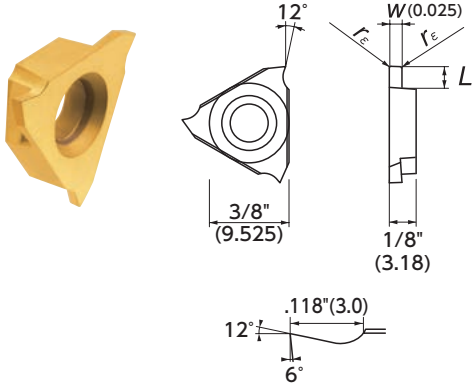
Shape	Item Number	Groove Width w (Inch)	Groove Width w (mm)	Max Depth of Cut (Inch)	Max Depth of Cut (mm)	L (Inch)	L (mm)	r_ε (Inch)	r_ε (mm)	Coated Carbide ZM3 R	Coated Carbide ZM3 L
 Right-Hand style shown	GTMX32100R/LSS	.039	1.00	.063	1.6	.079	2.0	.002	0.05	○	
	GTMX32150R/LSS	.059	1.50	.106	2.7	.118	3.0	.002	0.05	○	
	GTMX32200R/LSS	.079	2.00	.106	2.7	.118	3.0	.002	0.05	○	
 Right-Hand style shown	GTMX32100R/LLS	.039	1.00	.063	1.6	.079	2.0	.002	0.05	○	
	GTMX32150R/LLS	.059	1.50	.106	2.7	.118	3.0	.002	0.05	○	
	GTMX32200R/LLS	.079	2.00	.106	2.7	.118	3.0	.002	0.05	○	

■GTMX32 (90 Degree V-style)

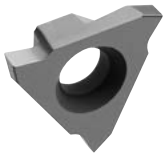
Shape	Item Number	Max Depth of Cut (Inch)	Max Depth of Cut (mm)	Edge Geometry	r_ε (Inch)	r_ε (mm)	L (Inch)	L (mm)	Coated Carbide TM4 R	Coated Carbide TM4 L
 Right-Hand style shown	GTMX32V90R/L005	.020	0.5	90°	.002	0.05	.020	0.5	○	
	GTMX32V90R/L010	.028	0.7	90°	.004	0.1	.040	1.0	○	

GTMH32.. Inserts - Cermet

■GTMH32-J

Shape	Item Number	Groove Width *w* (Inch)	(mm)	Max Depth of Cut (Inch)	(mm)	*L* (Inch)	(mm)	r_ε (Inch)	(mm)	Coated Cermet C7Z R	L
	GTMH32075R/LJ005	.030	0.75	.063	1.6	.079	2.0	.002	0.05	○	○
	GTMH32080R/LJ005	.031	0.80	.063	1.6	.079	2.0	.002	0.05	○	
	GTMH32095R/LJ005	.037	0.95	.063	1.6	.079	2.0	.002	0.05	○	
	GTMH32100R/LJ005	.039	1.00	.063	1.6	.079	2.0	.002	0.05	○	○
	GTMH32115R/LJ005	.045	1.15	.063	1.6	.079	2.0	.002	0.05	○	○
	GTMH32120R/LJ01	.047	1.20	.063	1.6	.079	2.0	.004	0.1	○	○
	GTMH32125R/LJ01	.049	1.25	.063	1.6	.079	2.0	.004	0.1	○	
	GTMH32145R/LJ01	.057	1.45	.106	2.7	.118	3.0	.004	0.1	○	
	GTMH32150R/LJ01	.059	1.50	.106	2.7	.118	3.0	.004	0.1	○	
	GTMH32150R/LJ	.059	1.50	.106	2.7	.118	3.0	.008	0.2	○	○
	GTMH32160R/LJ01	.063	1.60	.106	2.7	.118	3.0	.004	0.1	○	
	GTMH32175R/LJ01	.069	1.75	.106	2.7	.118	3.0	.004	0.1	○	
	GTMH32180R/LJ01	.071	1.80	.106	2.7	.118	3.0	.004	0.1	○	○
	GTMH32200R/LJ01	.079	2.00	.106	2.7	.118	3.0	.004	0.1	○	○
	GTMH32200R/LJ	.079	2.00	.106	2.7	.118	3.0	.008	0.2	○	○
	GTMH32250R/LJ01	.098	2.50	.106	2.7	.118	3.0	.004	0.1	○	○
	GTMH32250R/LJ	.098	2.50	.106	2.7	.118	3.0	.008	0.2	○	
Right-Hand style shown	GTMH32300R/LJ	.118	3.00	.106	2.7	.118	3.0	.008	0.2	○	○

■GTM32 (Molded Chipbreaker)

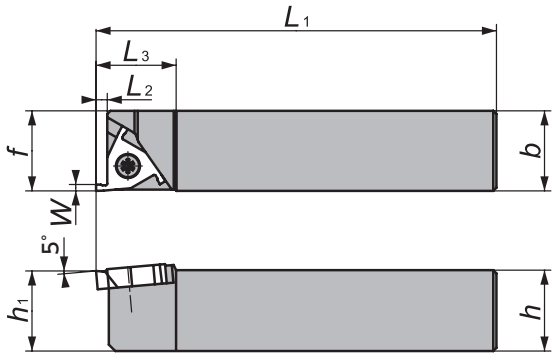
Shape	Item Number	Groove Width *w* (Inch)	(mm)	Max Depth of Cut (Inch)	(mm)	*L* (Inch)	(mm)	r_ε (Inch)	(mm)	Cermet XN4 R	L
	GTM32100R/L01	.039	1.00	.063	1.6	.079	2.0	.004	0.1	○	
	GTM32100R/L	.039	1.00	.063	1.6	.079	2.0	.008	0.2	○	
	GTM32145R/L	.057	1.45	.106	2.7	.118	3.0	.008	0.2	○	
	GTM32150R/L	.059	1.50	.106	2.7	.118	3.0	.008	0.2	○	○
	GTM32200R/L	.079	2.00	.106	2.7	.118	3.0	.008	0.2	○	○
	GTM32230R/L	.091	2.30	.106	2.7	.118	3.0	.008	0.2	○	
	GTM32250R/L	.098	2.50	.106	2.7	.118	3.0	.008	0.2	○	
Right-Hand style shown	GTM32300R/L	.118	3.00	.106	2.7	.118	3.0	.008	0.2	○	

Holders ➡K112 Cutting condition ➡K106

TWG Series

TWG

Side Turning Capable
Up to .059"(1.5㎜) doc.



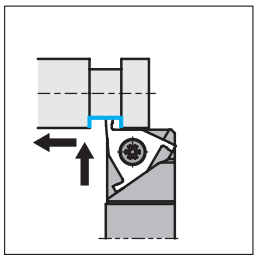


Figure-1

Right-Hand style shown

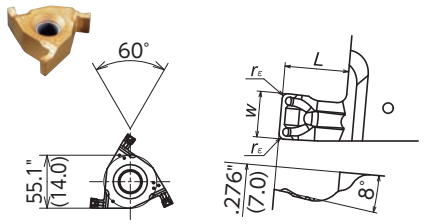
TWG Series - Toolholders

■TWG

Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (㎜)	b (Inch)	b (㎜)	h_1 (Inch)	h_1 (㎜)	L_1 (Inch)	L_1 (㎜)	f (Inch)	f (㎜)	L_2 (Inch)	L_2 (㎜)	L_3 (Inch)	L_3 (㎜)	Clamp Screw	Wrench
 TWG	**TWG2012X**	1	○		.472	12	.787	20	.472	12	4.724	120	.787	20	.138	3.5	.984	25	FSS25-5.0 × 10	RLR-20S
	TWG2016X	1	○		.630	16	.787	20	.630	16	4.724	120	.787	20	.138	3.5	.984	25	FSS10-5.0 × 14	LLR-20S
	TWG□2020K	1	○	○	.787	20	.787	20	.787	20	4.921	125	.787	20	.138	3.5	.984	25	FSS10-5.0 × 14	RLR-20S
	TWG□2525K	1	○	○	.984	25	.984	25	.984	25	4.921	125	.984	25	.138	3.5	.984	25	FSS10-5.0 × 14	RLR-20S

TWG Series - Inserts

■TWG

Shape	Item Number	Groove Width w (Inch)	Groove Width w (㎜)	Max Depth of Cut (Inch)	Max Depth of Cut (㎜)	L (Inch)	L (㎜)	r_ε (Inch)	r_ε (㎜)	Coated Carbide TM1 R	Coated Carbide TM1 L
 Right-Hand style shown	**TWG20□005**	.079	2.0	.118	3.0	.138	3.5	.002	0.05	○	○
	TWG20□020	.079	2.0	.118	3.0	.138	3.5	.008	0.2	○	○
	TWG25□010	.098	2.5	.118	3.0	.138	3.5	.004	0.1	○	○
	TWG25□030	.098	2.5	.118	3.0	.138	3.5	.012	0.3	○	○
	TWG30□010	.118	3.0	.118	3.0	.138	3.5	.004	0.1	○	○
	TWG30□030	.118	3.0	.118	3.0	.138	3.5	.012	0.3	○	○

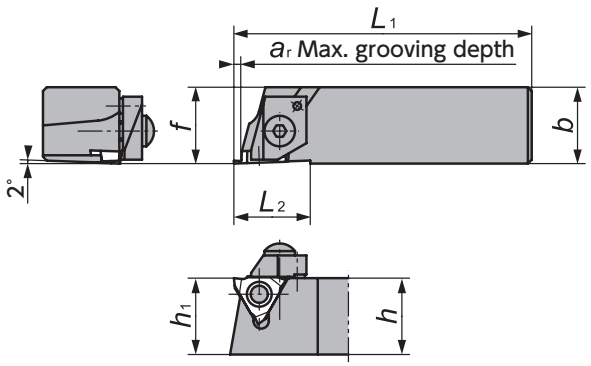
○ : 1-2 week delivery

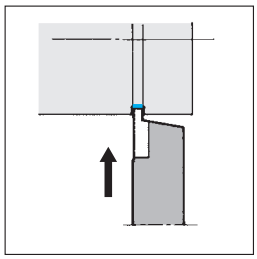
Cutting condition ➡K106

GTM.43 Series - Toolholders

NGTN

No-Offset





〈Parts〉

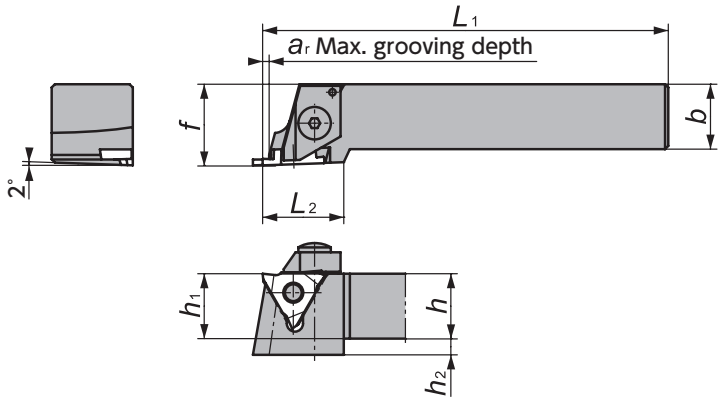
Clamp	Spring
CPR/L5S	ASG-5

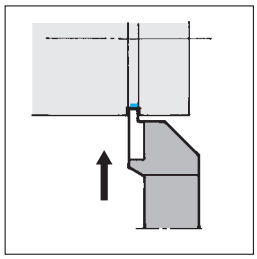
Figure-1

Right-Hand style shown

NGTB

With Offset





〈Parts〉

Clamp	Spring
CPR/L5	ASG-5
CPR/L6	ASG-6

Figure-2

Right-Hand style shown

[Grooving / Side Turning]

For Swiss-type Lathes

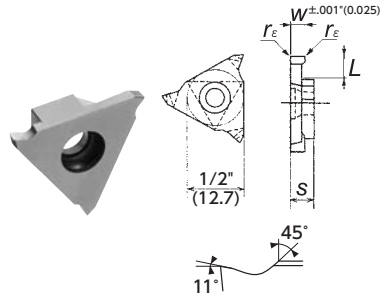
GTM.43 Series - Toolholders

■NGTN / NGTB

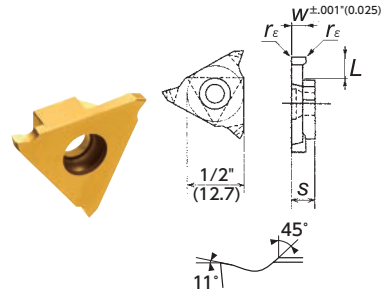
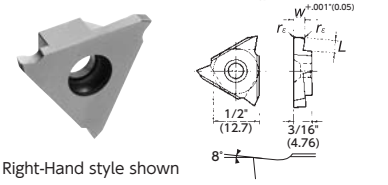
Gage Insert	Item Number	Figure	Stock R	Stock L	Groove Width Range w (Inch)	Groove Width Range w (mm)	a_r (Inch)	a_r (mm)	h (Inch)	h (mm)	b (Inch)	b (mm)	h_1 (Inch)	h_1 (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	L_2 (Inch)	L_2 (mm)	h_2 (Inch)	h_2 (mm)	Clamp Screw	Wrench
 GTM43 GTMA43 GTMT43	NGTN□161643-20	1	○	○	.079-.137	2.00-3.49	.177	4.5	.630	16	.630	16	.630	16	3.071	78	.630	16	.787	20	.354	9	A0S-5×20	LW-2.5
	NGTN□161643-35	1	○	○	.138-.217	3.50-5.50	.177	4.5	.630	16	.630	16	.630	16	3.071	78	.630	16	.787	20	.354	9	A0S-5×20	LW-2.5
	NGTB□161643-00S	2	○	○	.039-.098	1.00-2.49	.118	3.0	.630	16	.630	16	.630	16	3.150	100	.787	20	.984	25	.354	9	A0S-5×25	LW-2.5
	NGTB□161643-20S	2	○	○	.079-.137	2.00-3.49	.177	4.5	.630	16	.630	16	.630	16	3.150	100	.787	20	.984	25	.354	9	A0S-5×25	LW-2.5
	NGTB□161643-35S	2	○	○	.138-.217	3.50-5.50	.177	4.5	.630	16	.630	16	.630	16	3.150	100	.787	20	.984	25	.354	9	A0S-5×25	LW-2.5

GTMA43.. Inserts - Carbide / Cermet

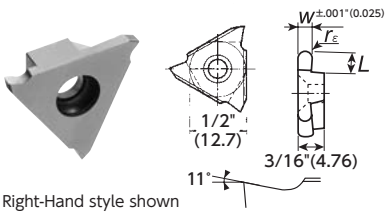
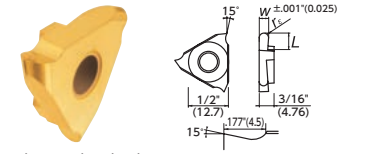
■GTMT43 / GTMA43

Shape	Item Number	Groove Width w (Inch)	Groove Width w (mm)	Max Depth of Cut (Inch)	Max Depth of Cut (mm)	L (Inch)	L (mm)	r_ε (Inch)	r_ε (mm)	s (Inch)	s (mm)	Coated Carbide QM3 R	Coated Carbide QM3 L	Coated Carbide DM4 R	Coated Carbide DM4 L
 Right-Hand style shown	GTMT43145R/L	.057	1.45	.118	3.0	.138	3.5	.008	0.2	.187	4.76	○	○	○	○
	GTMT43150R/L	.059	1.50	.118	3.0	.138	3.5	.008	0.2	.187	4.76	○	○	○	○
	GTMT43175R/L	.069	1.75	.118	3.0	.138	3.5	.008	0.2	.187	4.76	○	○	○	○
	GTMT43185R/L	.073	1.85	.118	3.0	.138	3.5	.008	0.2	.187	4.76	○	○	○	○
	GTMT43200R/L	.079	2.00	.118	3.0	.138	3.5	.008	0.2	.187	4.76	○	○	○	○
	GTMT43230R/L	.091	2.30	.118	3.0	.138	3.5	.008	0.2	.187	4.76	○	○	○	○
	GTMT43250R/L	.098	2.50	.169	4.3	.217	5.5	.012	0.3	.187	4.76	○		○	
	GTMT43265R/L	.104	2.65	.169	4.3	.217	5.5	.012	0.3	.187	4.76	○		○	
	GTMT43280R/L	.110	2.80	.169	4.3	.217	5.5	.012	0.3	.187	4.76	○	○	○	○
	GTMT43300R/L	.118	3.00	.169	4.3	.217	5.5	.012	0.3	.187	4.76	○	○	○	○
	GTMT43330R/L	.130	3.30	.169	4.3	.217	5.5	.012	0.3	.187	4.76	○	○		
	GTMT43350R/L	.138	3.50	.169	4.3	.217	5.5	.012	0.3	.187	4.76	○	○	○	○
	GTMT43400R/L	.157	4.00	.169	4.3	.217	5.5	.016	0.4	.187	4.76	○	○	○	○
	GTMT43450R/L	.177	4.50	.169	4.3	.217	5.5	.016	0.4	.187	4.76	○	○	○	○
	GTMT43500R/L	.197	5.00	.169	4.3	.217	5.5	.016	0.4	.227	5.76	○	○	○	○
	GTMT43550R/L	.217	5.50	.169	4.3	.217	5.5	.016	0.4	.227	5.76	○	○	○	○

■GTMA43 / GTMA43 / GTM43

Shape	Item Number	Groove Width w (Inch)	Groove Width w (mm)	Max Depth of Cut (Inch)	Max Depth of Cut (mm)	L (Inch)	L (mm)	r_ε (Inch)	r_ε (mm)	Coated Cermet C7Z R	Coated Cermet C7Z L	Cermet XN4 R	Cermet XN4 L
 Right-Hand style shown	GTMA43100R/L J01	.039	1.00	.063	1.6	.079	2.0	.004	0.1	○	○		
	GTMA43125R/L J01	.049	1.25	.063	1.6	.079	2.0	.004	0.1	○			
	GTMA43145R/L J01	.057	1.45	.118	3.0	.138	3.5	.004	0.1	○	○		
	GTMA43150R/L J	.059	1.50	.118	3.0	.138	3.5	.008	0.2	○	○		
	GTMA43175R/L J	.069	1.75	.118	3.0	.138	3.5	.008	0.2	○	○		
	GTMA43185R/L J	.073	1.85	.118	3.0	.138	3.5	.008	0.2	○			
	GTMA43200R/L J	.079	2.00	.118	3.0	.138	3.5	.008	0.2	○			
	GTMA43230R/L J	.091	2.30	.118	3.0	.138	3.5	.008	0.2	○			
	GTMA43250R/L J03	.098	2.50	.177	4.5	.217	5.5	.012	0.3	○			
	GTMA43265R/L J03	.104	2.65	.177	4.5	.217	5.5	.012	0.3	○			
	GTMA43280R/L J03	.110	2.80	.177	4.5	.217	5.5	.012	0.3	○			
	GTMA43300R/L J03	.118	3.00	.177	4.5	.217	5.5	.012	0.3	○	○		
	GTMA43330R/L J03	.130	3.30	.177	4.5	.217	5.5	.012	0.3	○			
	GTMA43350R/L J03	.138	3.50	.177	4.5	.217	5.5	.012	0.3	○			
	GTMA43400R/L J04	.157	4.00	.177	4.5	.217	5.5	.016	0.4	○	○		
	GTMA43450R/L J04	.177	4.50	.177	4.5	.217	5.5	.016	0.4	○	○		
 Right-Hand style shown	GTM43200R/L	.079	2.00	.118	3.0	.138	3.5	.008	0.2			○	○
	GTM43230R/L	.091	2.30	.118	3.0	.138	3.5	.008	0.2			○	
	GTM43250R/L	.098	2.50	.165	4.2	.217	5.5	.008	0.2			○	○
	GTM43265R/L	.104	2.65	.165	4.2	.217	5.5	.008	0.2			○	
	GTM43300R/L	.118	3.00	.165	4.2	.217	5.5	.008	0.2			○	○
	GTM43330R/L	.130	3.30	.165	4.2	.217	5.5	.008	0.2			○	
	GTM43350R/L	.138	3.50	.165	4.2	.217	5.5	.008	0.2			○	○
	GTM43400R/L	.157	4.00	.165	4.2	.217	5.5	.008	0.2			○	○
	GTM43450R/L	.177	4.50	.165	4.2	.217	5.5	.008	0.2			○	

■GTMA43 (Full Radius style)

Shape	Item Number	Groove Width w (Inch)	Groove Width w (mm)	Max Depth of Cut (Inch)	Max Depth of Cut (mm)	L (Inch)	L (mm)	r_ε (Inch)	r_ε (mm)	Coated Carbide QM3 R	Coated Carbide QM3 L	Coated Cermet C7Z R	Coated Cermet C7Z L
 Right-Hand style shown	GTMA43200R/L 10R	.079	2.00	.118	3.0	.138	3.5	.039	1.0	○			
	GTMA43300R/L 15R	.118	3.00	.177	4.5	.217	5.5	.059	1.5	○			
	GTMA43400 R/L 20R	.157	4.00	.177	4.5	.217	5.5	.787	2.0	○			
 Right-Hand style shown	GTMA43100R/L J05R	.039	1.00	.063	1.6	.079	2.0	.020	0.50			○	
	GTMA43150R/L J075R	.059	1.50	.118	3.0	.138	3.5	.030	0.75			○	
	GTMA43200R/L J10R	.079	2.00	.118	3.0	.138	3.5	.039	1.00			○	
	GTMA43250R/L J125R	.098	2.50	.157	4.0	.217	5.5	.049	1.25			○	
	GTMA43300R/L J15R	.118	3.00	.157	4.0	.217	5.5	.059	1.50			○	

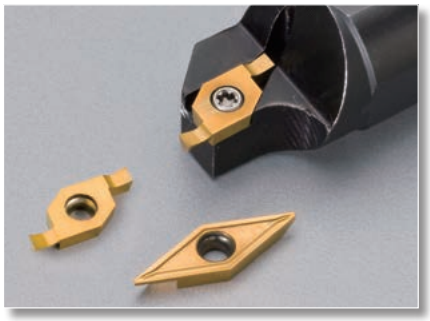
○ : 1-2 week delivery

Cutting condition ➡K106

SATURN DUO

Face grooving tool

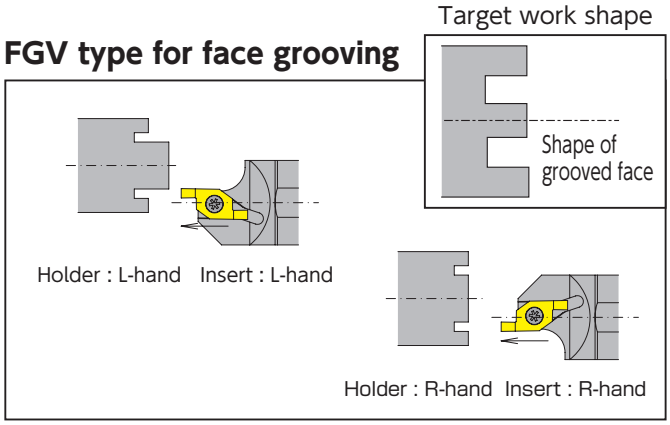
WATCH ON YouTube



Features

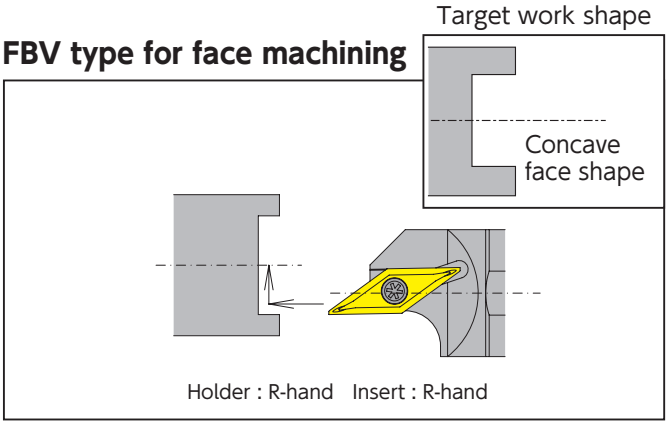
- FGV type for face grooving and FBV type for face machining
- Economical double-corner specification
- Improved tool rigidity by optimizing the overhang and holder shape
- Gang-type, front-gang-type and sleeve holder types available

FGV type for face grooving



- Grooving is possible under a wide range of cutting conditions due to strengthened rigidity of both insert and holder
- Minimum machining diameter of ϕ.236", and groove width of .039"
- Left-hand types available for machining work with a boss

FBV type for face machining



- Further improved face machining efficiency
- Minimum machining diameter of ϕ.315"

Recommended Cutting Condition for FGV Style Tooling (for Face Grooving)

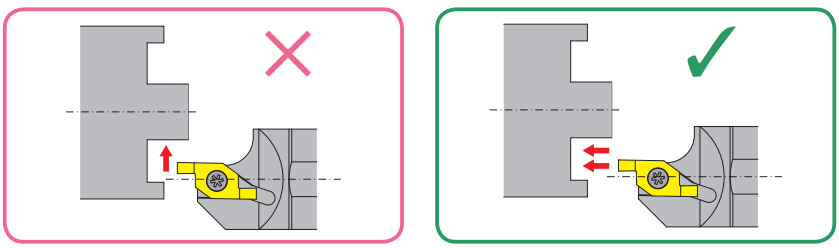
			Steel (Carbon Steel, Alloy Steel)	Stainless Steel (Excluding 303 SS)	Free Cutting Steel (Including 303 SS)	Non-ferrous Metals (Brass, Aluminum, Copper)
Speed (SFM)			160 (100 - 330)	130 (100 - 330)	200 (100 - 330)	260 (160 - 390)
Feed Rate (IPR)	Groove Depth (Inch)	.039	.001 (.0004-.002)	.0008 (.0004-.002)	.002 (.0004-.0025)	.002 (.0004-.0025)
		.059	.0008 (.0004-.002)	.0004 (.0002-.001)	.001 (.0004-.002)	.001 (.0004-.002)
		.079	.0004 (.0002-.001)	.0004 (.0002-.001)	.0008 (.0004-.002)	.0008 (.0004-.002)

☆Tips for Successful Face Grooving

①Run multiple passes if turning wider grooves.
Make sure to groove from outer diameter to inner diameter to avoid any interference.
②If lines appear on the boss section, slow down feed rate when retracting the tool.
③If scratch appears at the end of the boss, slow down the feed rate.
④If groove surface looks torn, either slow down feed rate or increase speed.
⑤If groove bottom looks torn with a speed and feed condition, increase the speed.

☆Note

Side turning cannot be performed with FGV style tooling



■Recommended Cutting Conditions for FBV Style Tooling (for Face Grooving)

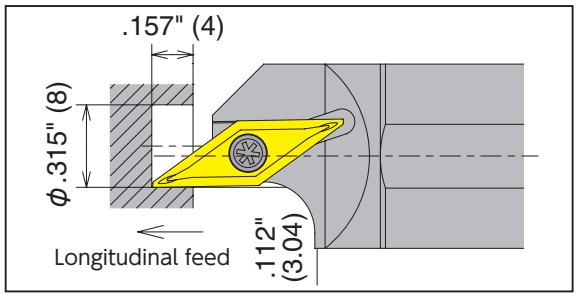
Minimum machining diameter: ϕ .315" (8㎜) WET

			Steel (Carbon Steel, Alloy Steel)	Stainless Steel (Excluding 303 SS)	Free Cutting Steel (Including 303 SS)	Non-ferrous Metals (Brass, Aluminum, Copper)
Speed (SFM)			160 (100 - 330)	130 (100 - 330)	200 (100 - 330)	260 (160 - 390)
Feed Rate (IPR)	Groove Depth (Inch)	.039	.001 (.0004-.002)	.0008 (.0004-.002)	.002 (.0004-.0025)	.002 (.0004-.0025)
		.059	.0008 (.0004-.002)	.0004 (.0002-.001)	.001 (.0004-.002)	.001 (.0004-.002)
		.079	.0004 (.0002-.001)	.0004 (.0002-.001)	.0008 (.0004-.002)	.0008 (.0004-.002)

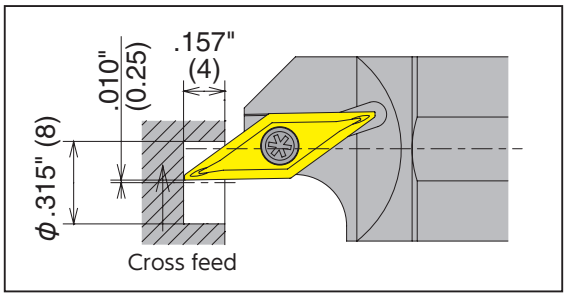
* When machining difficult materials where chip control is problematic (such as 304SS), it is recommended that the machining be carried out in several stages.

☆Machining process

- For materials with good machinability, it is possible to machine up to .157" (4㎜) deep at a low feed rate in a single pass for both longitudinal feed and cross feed.



Cutting in Z direction : Longitudinal feed



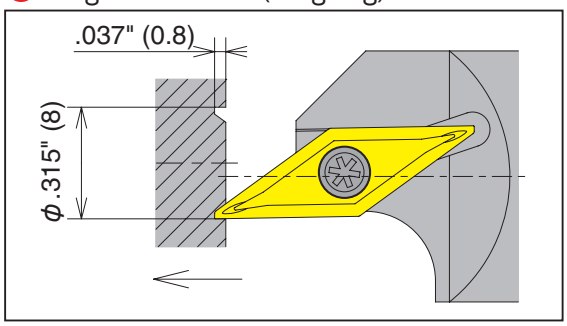
Cutting in X direction : Cross feed

☆Useful tips for machining

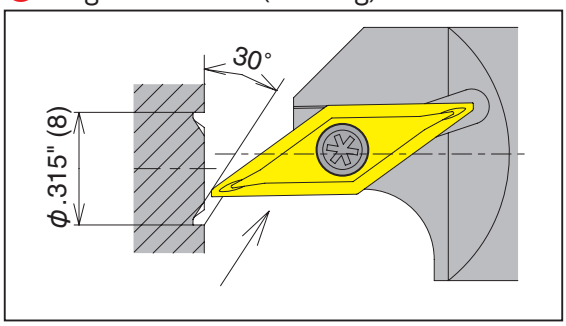
When burrs occur on ID surface, it is recommended to perform the cut in 2 passes, one for roughing and one for finishing as shown in the following procedure:

☆Example of 2-pass machining: Leave .008" (0.2㎜) on roughing then run a finish cut

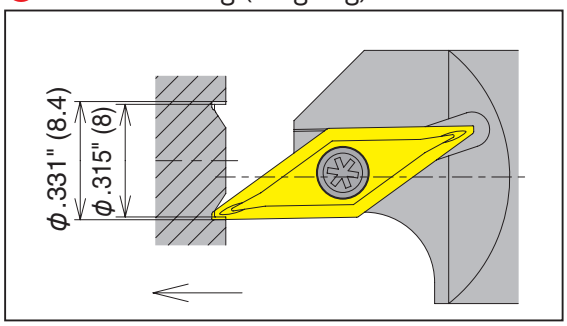
❶ Longitudinal feed (roughing)



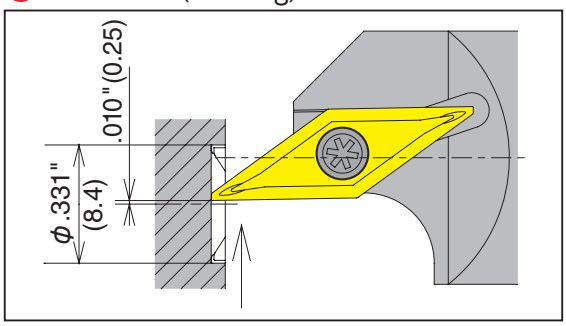
❷ Longitudinal feed (finishing)



❸ Slant machining (roughing)



❹ Cross feed (finishing)



Inserts ➡K125 Holders ➡K124

FGV Series

FGV

For Gang-style machine

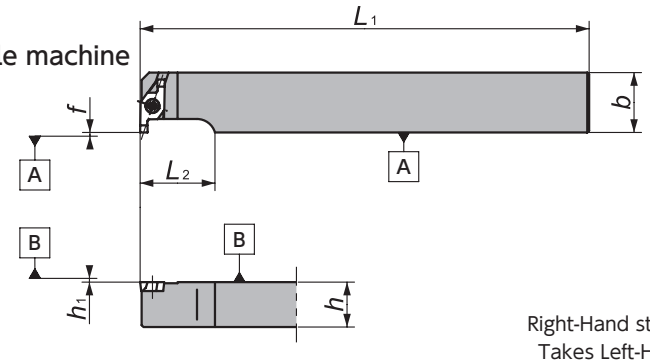
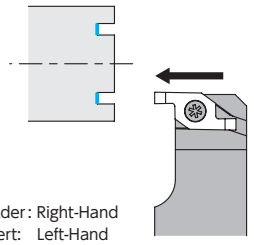


Figure-1

Right-Hand style shown
Takes Left-Hand insert



CH-FGV

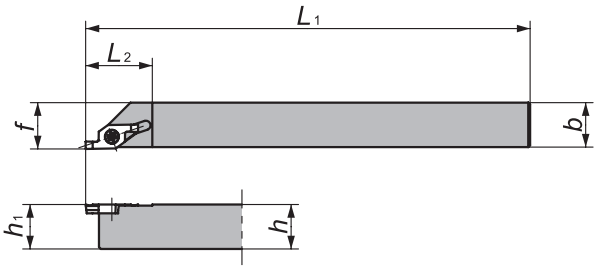
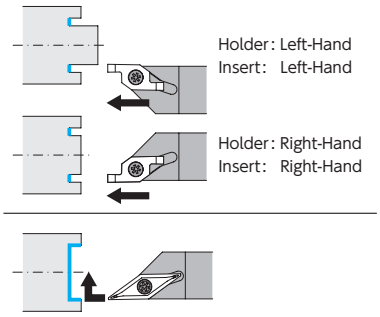


Figure-2

Right-Hand style shown



DS-FGV

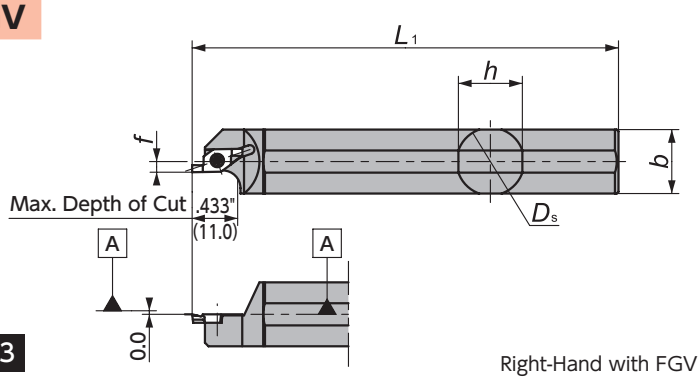
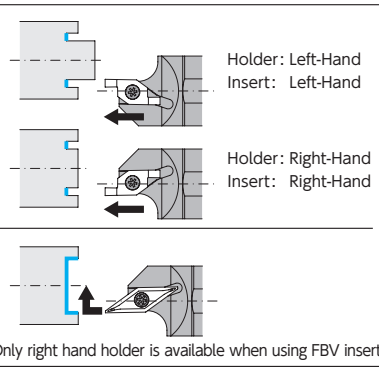


Figure-3

Right-Hand with FGV style shown



FGV - Toolholders

FGV

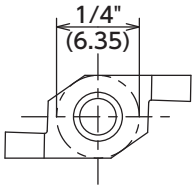
Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h_1 (Inch)	h_1 (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	L_2 (Inch)	L_2 (mm)	Clamp Screw	Wrench
FGV...L	FGV□1016	2	○		.413	10	.630	16	0	0.0	4.724	120	0	0.0	.787	20	LRIS-2.5 × 7	CLR-15S
	FGV□1216	2	○		.472	12	.630	16	0	0.0	4.724	120	0	0.0	.787	20	LRIS-2.5 × 7	CLR-15S
	FGV□1616	2	○		.630	16	.630	16	0	0.0	4.724	120	0	0.0	.787	20	LRIS-2.5 × 7	CLR-15S
FGV FBV	CH-FGV□1010	1	○	○	.413	10	.394	10	.394	10	4.724	120	.413	10.5	.709	18	LRIS-2.5 × 7	CLR-15S
	CH-FGV□1212	1	○	○	.472	12	.472	12	.472	12	4.724	120	.492	12.5	.709	18	LRIS-2.5 × 7	CLR-15S
	CH-FGV□1616	1	○	○	.630	16	.630	16	.630	16	4.724	120	.650	16.5	.709	18	LRIS-2.5 × 7	CLR-15S

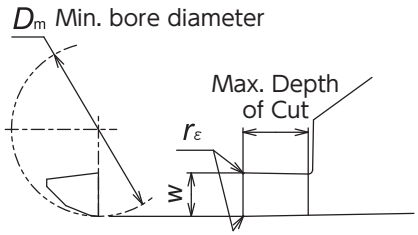
DS-FGV

Gage Insert	Item Number	Figure	Stock R	Stock L	D_s (Inch)	D_s (mm)	h (Inch)	h (mm)	b (Inch)	b (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	Clamp Screw	Wrench
 FGV FBV	DS-FGV□16-012	3	○	○	.630	16	.591	15	.591	15	3.150	80	.118	3.0	LRIS-2.5 × 7	CLR-15S
	DS-FGV□19	3	○	○	3/4	19.05	.709	18	.709	18	4.724	120	.118	3.0	LRIS-2.5 × 7	CLR-15S
	DS-FGV□20	3	○	○	.787	20	.748	19	.748	19	4.724	120	.118	3.0	LRIS-2.5 × 7	CLR-15S
	DS-FGV□22	3	○	○	.866	22	.827	21	.827	21	4.724	120	.118	3.0	LRIS-2.5 × 7	CLR-15S
	DS-FGV□25	3	○	○	1	25.4	.965	24.5	.965	24.5	4.724	120	.118	3.0	LRIS-2.5 × 7	CLR-15S

FGV - Inserts

FGV



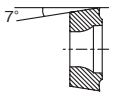


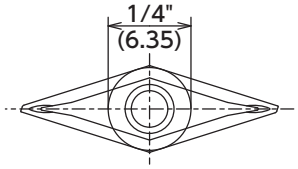
Right-Hand style shown

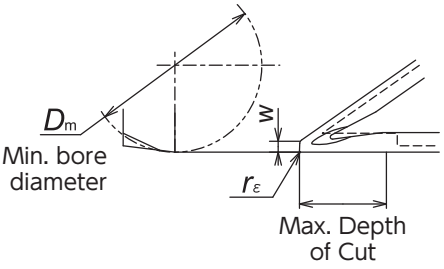
Shape	Item Number	Groove Width w (Inch)	Groove Width w (mm)	Min. Bore Diameter (Inch)	Min. Bore Diameter (mm)	Max Depth of Cut (Inch)	Max Depth of Cut (mm)	Thickness (Inch)	Thickness (mm)	rε (Inch)	rε (mm)	Coated Carbide TM4 R	Coated Carbide TM4 L
 Right-Hand style shown	FGV100RB00D6	.039	1.0	.236	6.0	.059	1.5	3/32	2.38	.000	0.00	○	
	FGV100RB05D6	.039	1.0	.236	6.0	.059	1.5	3/32	2.38	.002	0.05	○	
	FGV150RB00D6	.059	1.5	.236	6.0	.079	2.0	3/32	2.38	.000	0.00	○	
	FGV150RB05D6	.059	1.5	.236	6.0	.079	2.0	3/32	2.38	.002	0.05	○	
	FGV200RB00D6	.079	2.0	.236	6.0	.118	3.0	3/32	2.38	.000	0.00	○	
	FGV200RB05D6	.079	2.0	.236	6.0	.118	3.0	3/32	2.38	.002	0.05	○	
 Left-Hand style shown	FGV100LB00D6	.039	1.0	.236	6.0	.059	1.5	3/32	2.38	.000	0.00		○
	FGV100LB05D6	.039	1.0	.236	6.0	.059	1.5	3/32	2.38	.002	0.05		○
	FGV150LB00D6	.059	1.5	.236	6.0	.079	2.0	3/32	2.38	.000	0.00		○
	FGV150LB05D6	.059	1.5	.236	6.0	.079	2.0	3/32	2.38	.002	0.05		○
	FGV200LB00D6	.079	2.0	.236	6.0	.118	3.0	3/32	2.38	.000	0.00		○
	FGV200LB05D6	.079	2.0	.236	6.0	.118	3.0	3/32	2.38	.002	0.05		○

FBV - Inserts

FBV







Right-Hand style shown

Shape	Item Number	Groove Width w (Inch)	Groove Width w (mm)	Min. Bore Diameter (Inch)	Min. Bore Diameter (mm)	Max Depth of Cut (Inch)	Max Depth of Cut (mm)	Thickness (Inch)	Thickness (mm)	rε (Inch)	rε (mm)	Coated Carbide TM4 R	Coated Carbide TM4 L
 Right-Hand style shown	FBV40R05D8AM3	.020	0.5	.315	8.0	.157	4.0	.102	2.58	.002	0.05	○	
	FBV40R15D8AM3	.020	0.5	.315	8.0	.157	4.0	.102	2.58	.006	0.15	○	

Note: Only CH-FGVR and DS-FGVR can take FBV Right hand insert.

○ : 1-2 week delivery

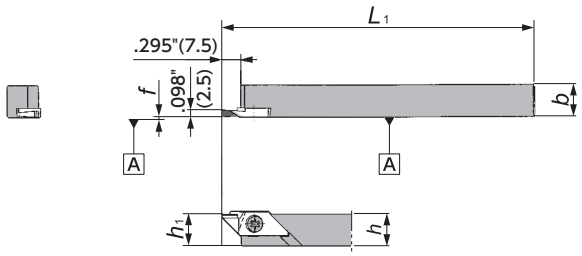
Cutting condition ➡K123

GTPA Series

Best tool for Aluminum Spool Machining

GTPA

Screw Accessible from both sides



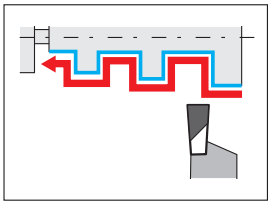


Figure-1

Right-Hand style shown

Y-GTPA

Screw Accessible from both sides

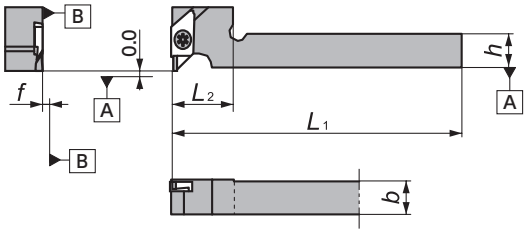


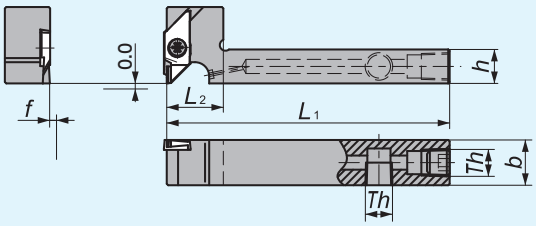
Figure-2

Right-Hand style shown

Y-GTPA-OH (Coolant through)

Screw Accessible from both sides

NEW



Th (Thread type)
Metric size holder: Rc1/8 (PT1/8)

Figure-3

Right-Hand style shown

GTPA - Toolholders

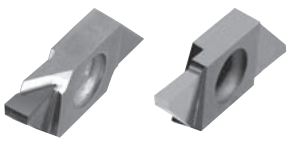
■GTPA

Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h_1 (Inch)	h_1 (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	L_2 (Inch)	L_2 (mm)	Th	Clamp Screw	Wrench
 GTPA	GTPA⅛1010	1	○		.394	10	.394	10	.394	10	4.724	120	.004	0.1	–	–	–	LR1S-4 × 10PW	CLR-15S
	GTPA⅛1212	1	○		.472	12	.472	12	.472	12	4.724	120	.004	0.1	–	–	–	LR1S-4 × 10PW	CLR-15S
	GTPA⅛1616	1	○		.630	16	.630	16	.630	16	4.724	120	.004	0.1	–	–	–	LR1S-4 × 12PW	CLR-15S
	Y-GTPA⅛1216	2	○		.472	12	.630	16	–	–	4.724	120	.004	0.1	.787	20	–	LR1S-4 × 12PW	CLR-15S
	Y-GTPA⅛1216HS-OH 💧	3	○		.472	12	.630	16	–	–	2.756	70	.004	0.1	.787	20	Rc1/8(PT1/8)	LR1S-4 × 12PW	CLR-15S
	Y-GTPA⅛1216H-OH 💧	3	○		.630	16	.630	16	–	–	2.756	70	.004	0.1	.984	25	Rc1/8(PT1/8)	LR1S-4 × 12PW	CLR-15S

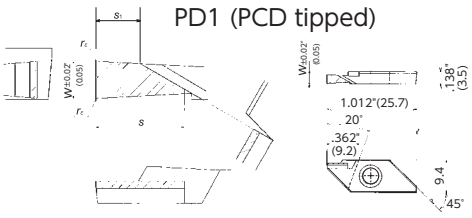
GTPA Series - Inserts

■GTPA

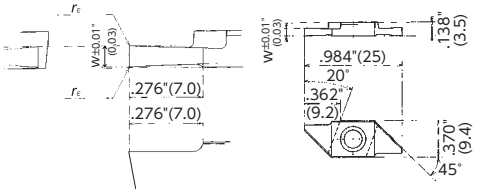
Shape



PD1 (PCD tipped)



KM1 (Carbide)



Item Number	Groove Width w (Inch)	Groove Width w (mm)	Max Depth of Cut (Inch)	Max Depth of Cut (mm)	s (Inch)	s (mm)	s_1 (Inch)	s_1 (mm)	r_ε (Inch)	r_ε (mm)	Coated Carbide KM1	PCD PD1
GTPA20FRN01-082	.079	2.0	.118	3.0	.157	4.0	.079	2.0	-.004	-0.1		○
GTPA20FRN01	.079	2.0	.197	5.0	.236	6.0	.157	4.0	-.004	-0.1		○
GTPA20FRN01	.079	2.0	.236	6.0	–	–	–	–	-.004	-0.1	○	
GTPA25FRN01-081	.098	2.5	.118	3.0	.157	4.0	.024	1.0	-.004	-0.1		○
GTPA25FRN01	.098	2.5	.197	5.0	.236	6.0	.118	3.0	-.004	-0.1		○
GTPA25FRN01	.098	2.5	.236	6.0	–	–	–	–	-.004	-0.1	○	

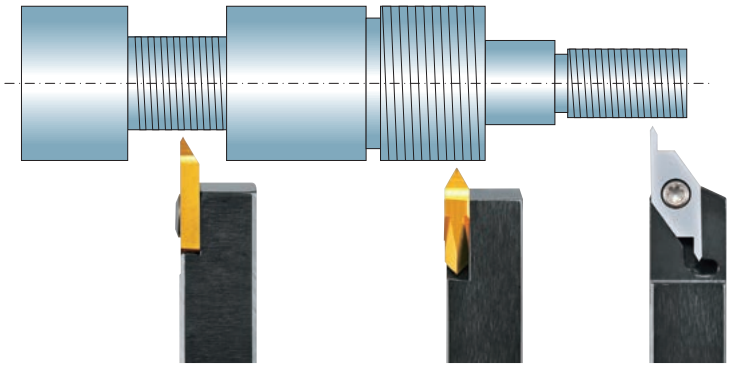
○ : 1-2 week delivery　　💧 : Coolant through

Cutting condition ➡K106

K

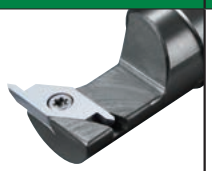
Threading

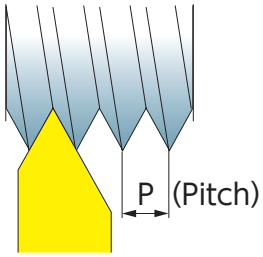
NTK Threading Tools - Product Lines

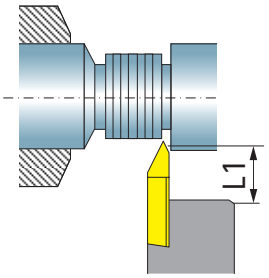


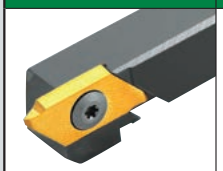
Thread Whirling System

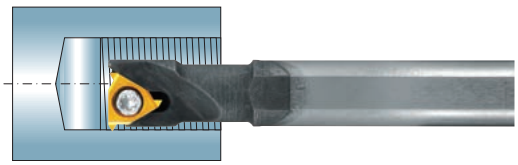
➡K142

Insert	CSVT ➡K132		TTPS ➡K134
Holder	CSV	DS-CSV	CTPS
	 ➡K132	 ➡K132	 ➡K134
Profile	60°		60°
Pitch	127 – 51 TPI (0.2 – 0.5mm)		127 - 17 TPI (0.2 - 1.5mm)
L1	.118" (3.0mm)		.197" (5.0mm)



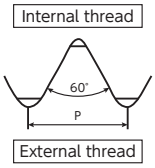
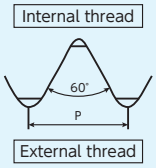
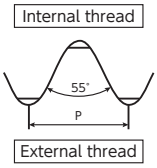
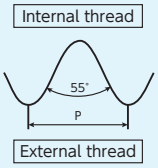
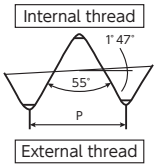
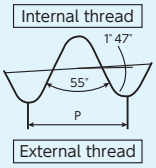
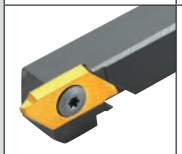


Insert	TTP ➡K137			TTMH32 ➡K140		
Holder	TTP	DS-TTP	CH-TTP	STTN	DS-STT	NTTB
	 ➡K136	 ➡K136	 ➡K136	 ➡K140	 ➡K140	 ➡K140
Profile	60° / 55°			60°		
Pitch	127 – 13 TPI (0.2 – 2.0mm)			31 – 9 TPI (0.8 – 3.0mm)		
L1	.217" (5.5mm)			.157" (4.0mm)	.118" (3.0mm)	.157" (4.0mm)



Insert	SBT ➡K168	TMN ➡K170
Holder	NBH	TGC / HN
	 ➡K157	 ➡K170
Profile	60°	60°
Pitch	51 - 15 TPI (0.5 - 1.75mm)	63 - 34 TPI (0.4 - 0.75mm)
L1	.024" - .071" (0.6 - 1.8mm)	.028" - .039" (0.7 - 1.0mm)

Tools and Thread Standards

Thread Type		ISO Metric	American Unified	Whitworth	Parallel Pipe	American Tapered Pipe	Tapered Pipe
		M	UNC UNE	W	G(PF)	NPT	R(PT)
							
Profile		60°	60°	55°	55°	60°	55°
Tool \ Pitch		mm	TPI	TPI	TPI	TPI	TPI
External Thread	 **CSVT**	0.2 - 0.5	80 - 56	—	—	—	—
	 **TTPS**	0.2 - 1.5	80 - 18	—	—	(18)	—
	 **TTP**	0.2 - 2.0	80 - 13	40/24/20/18/16	(28/19)	(18/14)	(28/19)
	 **TTMH**	0.8 - 3.0	24 - 9	—	—	18/14/11.5	—
Internal Thread	 **SBT**	0.5 - 1.75	36 - 16	—	—	(18)	—
	 **TGC/HN**	0.4 - 0.75	56 - 36	—	—	—	—

(Please check Radius [Flat] shape over inserts)

Recommended Cutting Conditions

Threading

Work Material		High Temperature Alloys	Titanium Alloys	Cobalt Chrome Alloys	Stainless Steels		Alloy Steels	Carbon Steels
					Hard to cut	Free cutting		
Common Name		Inconel Hastelloy MP35N	Ti-6Al-4V	ASTM F-75	304 316 17-4PH	303 430F	5120 4137	1045 1046
Grade	1st choice	VM1			VM1 / ZM3		QM3	
	2nd choice	ZM3			QM3		VM1 / ZM3	
Cutting Speed (SFM)		75 125 225	100 200 275		130 230 330	150 300 600	150 300 500	

*Unless your machine is equipped with high speed threading program, please set the feed rate to 80 IPM or lower to prevent making incomplete threads

Recommended Depth of Cut (DOC) for Each Pass

TTP, TTPS, TTMH, TTMA, CSVT

Thread Type		Pitch (mm)	Total DOC (mm)	Number of pass	1	2	3	4	5	6	7	8	9	10
Metric (60°)	Male thread	0.20	0.20	4	0.08	0.06	0.04	0.02						
		0.25	0.24	4	0.10	0.08	0.04	0.02						
		0.30	0.28	5	0.08	0.07	0.07	0.04	0.02					
		0.35	0.32	5	0.10	0.09	0.07	0.04	0.02					
		0.40	0.35	5	0.12	0.10	0.07	0.04	0.02					
		0.45	0.39	5	0.16	0.10	0.07	0.04	0.02					
		0.50	0.33	5	0.10	0.10	0.07	0.04	0.02					
		0.60	0.40	6	0.10	0.10	0.08	0.06	0.04	0.02				
		0.70	0.48	6	0.10	0.10	0.10	0.10	0.06	0.02				
		0.75	0.52	7	0.10	0.10	0.10	0.08	0.07	0.05	0.02			
		0.80	0.56	7	0.10	0.10	0.10	0.10	0.08	0.06	0.02			
		1.00	0.71	8	0.15	0.15	0.12	0.10	0.08	0.06	0.03	0.02		
		1.25	0.90	9	0.20	0.18	0.13	0.10	0.10	0.07	0.05	0.05	0.02	
		1.50	1.09	10	0.22	0.20	0.15	0.12	0.10	0.10	0.08	0.05	0.05	0.02

Thread Type		Pitch (TPI)	Total DOC (inch)	Number of pass	1	2	3	4	5	6	7	8	9	10
American Unified	Male thread	80	.008	4	.003	.003	.002	.001						
		72	.009	4	.004	.003	.002	.001						
		64	.011	5	.003	.003	.002	.002	.001					
		56	.012	5	.004	.003	.002	.002	.001					
		48	.015	5	.005	.004	.003	.002	.001					
		44	.016	6	.005	.004	.003	.002	.002	.001				
		40	.018	6	.005	.004	.004	.003	.002	.001				
		36	.020	6	.005	.005	.004	.003	.002	.001				
		32	.022	7	.005	.005	.004	.003	.002	.002	.001			
		28	.025	7	.006	.005	.004	.004	.003	.002	.001			
		24	.030	8	.007	.006	.005	.004	.003	.002	.002	.001		
		20	.033	9	.007	.006	.005	.004	.003	.003	.002	.002	.001	
		18	.038	9	.008	.007	.006	.005	.004	.003	.002	.002	.001	
		16	.036	9	.007	.007	.006	.005	.004	.003	.002	.002	.001	
		14	.043	10	.008	.008	.007	.006	.005	.003	.002	.002	.002	.001

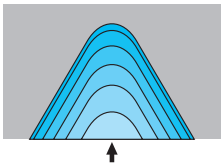
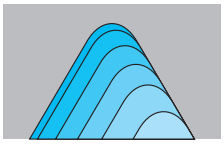
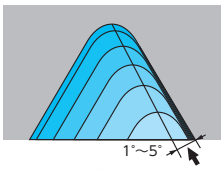
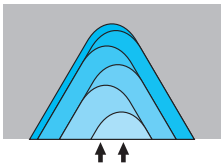
Cutting Conditions for STICK DUO

For 600 - 1500 RPM Recommended Depth of Cut (DOC) for Each Pass

Metric Thread		Number of Pass																				
Pitch (mm)	Total DOC (mm)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
0.5	0.3	0.06	0.05	0.05	0.04	0.04	0.03	0.02	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—
0.7	0.43	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.03	0.02	0.01	—	—	—	—	—	—	—	—	—	—	—
0.75	0.46	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.04	0.03	0.02	0.01	—	—	—	—	—	—	—	—	—	—
0.8	0.49	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.04	0.03	0.03	0.02	0.01	—	—	—	—	—	—	—	—	—
1.0	0.62	0.07	0.07	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03	0.02	0.01	—	—	—	—	—	—	—
1.25	0.76	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.04	0.03	0.03	0.02	0.01	—	—	—	—	—	—
1.5	0.92	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.02	0.01	—	—	—
1.75	1.09	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.02	0.01

UNF Thread		Number of Pass																		
Pitch (TPI)	Total DOC (inch)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
36	.017	.002	.002	.002	.002	.002	.002	.001	.001	.0008	.0004	—	—	—	—	—	—	—	—	—
32	.019	.002	.002	.002	.002	.002	.001	.001	.001	.001	.0008	.0004	—	—	—	—	—	—	—	—
28	.022	.003	.002	.002	.002	.002	.002	.001	.001	.001	.001	.001	.0008	.0004	—	—	—	—	—	—
24	.026	.003	.002	.002	.002	.002	.002	.002	.002	.001	.001	.001	.001	.0008	.0004	—	—	—	—	—
20	.031	.003	.003	.003	.003	.002	.002	.002	.002	.002	.002	.001	.001	.001	.001	.0008	.0004	—	—	—
18	.034	.003	.003	.003	.003	.003	.002	.002	.002	.002	.002	.002	.002	.001	.001	.001	.0008	.0004	—	—
16	.039	.003	.003	.003	.003	.003	.003	.003	.002	.002	.002	.002	.002	.002	.001	.001	.001	.001	.0008	.0004

Infeed Threading Method

	Features	
	Advantage	Disadvantage
 Radial Infeed	●Most popular and easiest method ●Easy to change parameter ●Uniform wear on both sides of insert	●Chip evacuation ●Vibration due to higher cutting force ●Ineffective for large pitch threading
 Flank Infeed	●2nd most popular and easy method ●Effective for larger pitch and gummy material thanks to lower cutting force ●Excellent chip evacuation	●Larger flank wear on right side of the insert ●Difficult to change cutting depth per cut
 Modified Flank Infeed	●Reduce flank wear on right side ●Effective for larger pitch and gummy material thanks to lower cutting force ●Excellent chip evacuation	●Difficult to program ●Difficult to change cutting depth per cut
 Incremental Infeed	●Uniform flank wear ●Effective for larger pitch and gummy material thanks to lower cutting force	●Difficult to program ●Difficult to change cutting depth per cut ●Chip evacuation

CSV Series

Best for up to .200" diameter material

CSV-NC For Gang-style machine

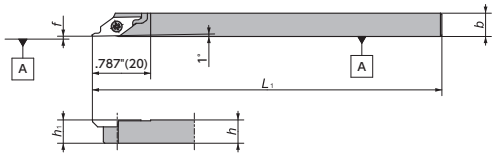


Figure-1

Right-Hand style shown

CSV For Cam-style machine

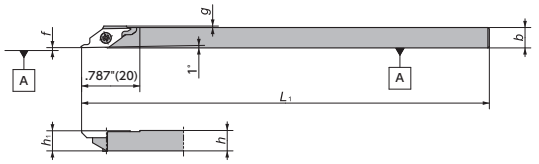


Figure-2

Right-Hand style shown

DS-CSVL

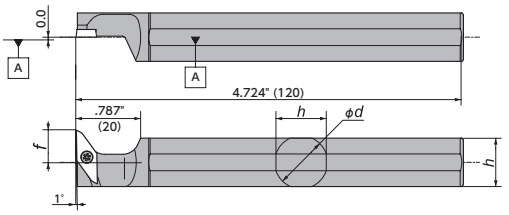


Figure-3

Left-Hand style shown
Takes Right-hand insert

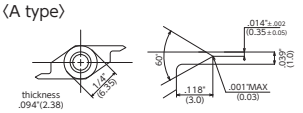
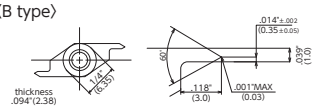
■CSVR/L / CSVR/L-NC

Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h_1 (Inch)	h_1 (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	g (Inch)	g (mm)	Clamp Screw	Wrench
 CSV..11..	CSVR/L06-IN-NC	1	●	●	3/8		3/8		3/8		4.724	120	.004	0.1	–	–	LRIS-2.5 × 7	CLR-15S
	CSVR/L08-IN-NC	1	●	●	1/2		1/2		1/2		4.724	120	.004	0.1	–	–	LRIS-2.5 × 7	CLR-15S
	CSVR/L08NC	1	○	○	.315	8	.315	8	.315	8	4.724	120	.004	0.1	–	–	LRIS-2.5 × 7	CLR-15S
	CSVR/L08NC-F	1	○		.315	8	.315	8	.315	8	4.724	120	0-.004	0.0-0.1	–	–	LRIS-2.5 × 7	CLR-15S
	CSVR/L10GXNC	1	○		.394	10	.394	10	.394	10	3.346	85	.004	0.1	–	–	LRIS-2.5 × 7	CLR-15S
	CSVR/L10NC	1	○	○	.394	10	.394	10	.394	10	4.724	120	.004	0.1	–	–	LRIS-2.5 × 7	CLR-15S
	CSVR/L12NC	1	○	○	.472	12	.472	12	.472	12	4.724	120	.004	0.1	–	–	LRIS-2.5 × 7	CLR-15S
	CSVR/L07GX	2	○		.275	7	.275	7	.275	7	3.346	85	.004	0.1	.020	0.5	LRIS-2.5 × 7	CLR-15S
	CSVR/L07	2	○	●	.275	7	.275	7	.275	7	5.512	140	.004	0.1	.020	0.5	LRIS-2.5 × 7	CLR-15S
	CSVR/L08GX	2	○		.315	8	.315	8	.315	8	3.346	85	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L08	2	●	●	.315	8	.315	8	.315	8	5.512	140	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L095	2	○		.374	9.5	.374	9.5	.374	9.5	5.512	140	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L10	2	●	○	.394	10	.394	10	.394	10	5.512	140	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L12GX	2	○		.472	12	.472	12	.472	12	3.346	85	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CSVR/L12	2	●		.472	12	.472	12	.472	12	5.512	140	.004	0.1	0.0	0.0	LRIS-2.5 × 7	CLR-15S

■DS-CSVL (Takes right-hand insert)

Gage Insert	Item Number	Figure	Stock R	Stock L	D_s (Inch)	D_s (mm)	h (Inch)	h (mm)	b (Inch)	b (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	Clamp Screw	Wrench
 CSV..11FR..	DS-CSVL15	3		●	5/8	15.875	.591	15	.591	15	4.724	120	.394	10	LRIS-2.5 × 7	CLR-15S

■CSVT - Threading Mirror finish

Shape	Item Number	Chip-breaker	r_ε (TPI)	r_ε (mm)	Pitch (TPI)	Pitch (mm)	Coated Carbide VM1 R	Coated Carbide VM1 L
〈A type〉  Right-Hand style shown	CSVT11FR/LP60-035A (M)	No	-R.001	R0.03 MAX	127 - 51	0.2 - 0.5	●	●
〈B type〉  Right-Hand style shown	CSVT11FR/LP60-035B (M)	No	-R.001	R0.03 MAX	127 - 51	0.2 - 0.5	●	●

Note: All angles shown are obtained when insert is set in the holder

CSVT Style

Unified Standard (UN, UNF, UNC) Threads

	Thread Type		Pitch			Applicable Inserts
	#1	#2	(TPI)	(inch)	(mm)	
Coarse		No.1-64 UNC	64	.016	0.3969	CSVT11F1/4P60-035A CSVT11F1/4P60-035B
	No.2-56 UNC		56	.018	0.4536	
Fine	No.0-80 UNF		80	.013	0.3175	
		No.1-72 UNF	72	.014	0.3528	
	No.2-64 UNF		64	.016	0.3969	
		No.3-56 UNF	56	.018	0.4536	

Metric (M) Threads / Fine and Coarse

	Pitch (mm)				
	0.50	0.40	0.35	0.25	0.20
M1				Coarse	Fine
M2		Coarse		Fine	
M3	Coarse		Fine		
M4	Fine				
M5					

Recommended Depth of Cut (DOC) for Each Pass (mm)

TTP, TTPS, TTMH, TTMA, CSVT

Thread Type		Pitch (mm)	Total DOC (mm)	Number of pass	1	2	3	4	5	6	7	8	9	10
Metric (60°)	Male thread	0.20	0.20	4	0.08	0.06	0.04	0.02						
		0.25	0.24	4	0.10	0.08	0.04	0.02						
		0.30	0.28	5	0.08	0.07	0.07	0.04	0.02					
		0.35	0.32	5	0.10	0.09	0.07	0.04	0.02					
		0.40	0.35	5	0.12	0.10	0.07	0.04	0.02					
		0.45	0.39	5	0.16	0.10	0.07	0.04	0.02					
		0.50	0.33	5	0.10	0.10	0.07	0.04	0.02					
		0.60	0.40	6	0.10	0.10	0.08	0.06	0.04	0.02				
		0.70	0.48	6	0.10	0.10	0.10	0.10	0.06	0.02				
		0.75	0.52	7	0.10	0.10	0.10	0.08	0.07	0.05	0.02			
		0.80	0.56	7	0.10	0.10	0.10	0.10	0.08	0.06	0.02			
		1.00	0.71	8	0.15	0.15	0.12	0.10	0.08	0.06	0.03	0.02		
		1.25	0.90	9	0.20	0.18	0.13	0.10	0.10	0.07	0.05	0.05	0.02	
		1.50	1.09	10	0.22	0.20	0.15	0.12	0.10	0.10	0.08	0.05	0.05	0.02

● : Stock ○ : 1-2 week delivery Ⓜ : Mirror finish

CSV series ➡J36 Cutting condition ➡K130

CTPS Series

CTPS

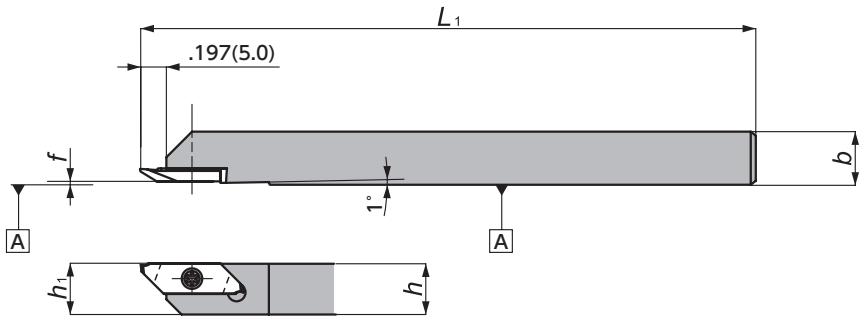


Figure-1

Right-Hand style shown

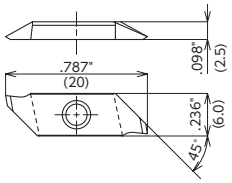
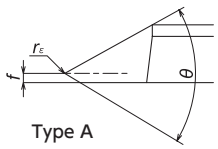
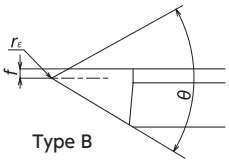
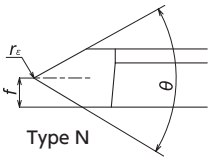
CTPS Series - Toolholders

■CTPS (Takes right-hand inserts)

Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h_1 (Inch)	h_1 (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	Clamp Screw	Wrench
 TTPS	**CTPSR06-IN**	1	●		3/8		3/8		3/8		4.724	120	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CTPSR08-IN	1	●		1/2		1/2		1/2		4.724	120	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CTPSR10	1	○		.394	10	.394	10	.394	10	4.724	120	0.0	0.0	LRIS-2.5 × 7	CLR-15S
	CTPSR12	1	○		.472	12	.472	12	.472	12	4.724	120	0.0	0.0	LRIS-2.5 × 7	CLR-15S

CTPS Series - Inserts

■TTPS - Threading

Shape	Item Number	Type	θ	f (Inch)	f (mm)	r_ε (Inch)	r_ε (mm)	Pitch (TPI)	Pitch (mm)	Coated Carbide VM1	Coated Carbide ZM3
	**TTPS60FR4A**	A	60°	.016	0.4	.002 MAX Flat	(0.05) MAX Flat	**127 - 34**	**0.2 - 0.75**	○	○
 Type A	**TTPS60FR4B**	B	60°	.016	0.4	.002 MAX Flat	(0.05) MAX Flat	**127 - 34**	**0.2 - 0.75**	○	○
 Type B	**TTPS60FR8A**	A	60°	.031	0.8	R.002	(0.05)	**63 - 21**	**0.4 - 1.25**	○	○
 Type N	**TTPS60FR8B**	B	60°	.031	0.8	R.002	(0.05)	**63 - 21**	**0.4 - 1.25**	○	○
 Right-Hand style shown	**TTPS60FR-N**	N	60°	.049	1.25	R.004	(0.1)	**25 - 17**	**1.0 - 1.5**	○	○

Note: All angles shown are obtained when insert is set in the holder

TTPS Style

Unified Standard (UN, UNF, UNC) Threads

	Thread Type		Pitch		Applicable Inserts
	#1	#2	(TPI)	(mm)	
Coarse		No.1-64 UNC	64	0.397	**TTPS60FR4A (B)**
	No.2-56 UNC		56	0.454	**TTPS60FR4A (B)** **TTPS60FR8A (B)**
		No.3-48 UNC	48	0.529	
	No.4-40 UNC		40	0.635	
	No.5-40 UNC		40	0.635	
	No.6-32 UNC		32	0.794	
	No.8-32 UNC		32	0.794	
	No.10-24 UNC		24	1.058	**TTPS60FR4A (B)** **TTPS60FR8A (B)** **TTPS60FR-N**
		No.12-24 UNC	24	1.058	
	1/4-20 UNC		20	1.270	
	5/16-18 UNC		18	1.411	**TTPS60FR-N**
Fine	No.0-80 UNF		80	0.318	**TTPS60FR4A (B)**
		No.1-72 UNF	72	0.353	
	No.2-64 UNF		64	0.397	
		No.3-56 UNF	56	0.454	**TTPS60FR4A (B)** **TTPS60FR8A (B)**
	No.4-48 UNF		48	0.529	
	No.5-44 UNF		44	0.577	
	No.6-40 UNF		40	0.635	
	No.8-36 UNF		36	0.706	
	No.10-32 UNF		32	0.794	
		No.12-28 UNF	28	0.907	**TTPS60FR8A (B)**
	1/4-28 UNF		28	0.907	
	5/16-24 UNF		24	1.058	**TTPS60FR8A (B)** **TTPS60FR-N**
	3/8-24 UNF		24	1.058	
	7/16-20 UNF		20	1.270	
	1/2-20 UNF		20	1.270	
	9/16-18 UNF		18	1.411	**TTPS60FR-N**
	5/8-18 UNF		18	1.411	

Metric (M) Threads / Fine and Coarse

Thread Type			Pitch (mm)										
#1	#2	#3	1.50	1.25	1.00	0.80	0.75	0.70	0.50	0.40	0.35	0.25	0.20
M1												Coarse	Fine
M2										Coarse		Fine	
M3									Coarse		Fine		
M4								Coarse	Fine				
M5						Coarse							
M6					Coarse		Fine						
	M7												
M8				Coarse	Fine								
		M9											
M10			Coarse	Fine									
		M11											
M12			Fine	Fine									
	M14												
		M15			Fine								
M16													
		M17											
	M18												
M20			Fine										
	M22												
M24													
		M25											
		M26											
	M27				Fine								
		M28											

Covered Thread Pitch Range

Inserts	Pitch	
	(TPI)	(mm)
TTPS60FR4A(B)	127 - 34	0.2 - 0.75
TTPS60FR8A(B)	63 - 21	0.4 - 1.25
TTPS60FR-N	25 - 17	1.0 - 1.5

● : Stock ○ : 1-2 week delivery

CTPS series ➡J40 Cutting condition ➡K130

TTP Series

TTP

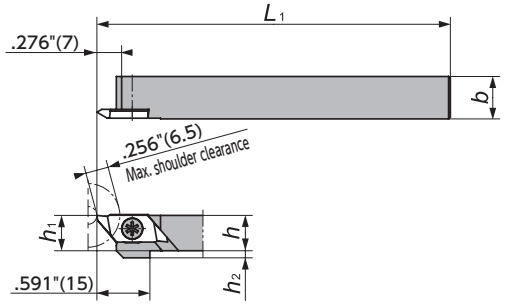
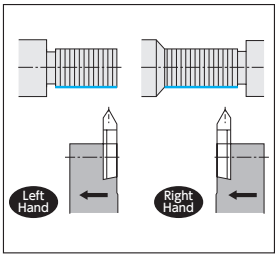


Figure-1



Right-Hand style shown

CH-TTP

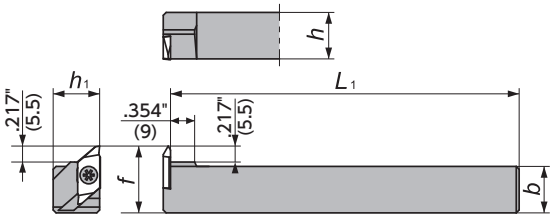
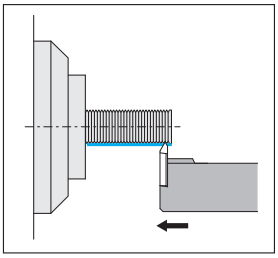


Figure-2



Left-Hand style shown
Takes Right-hand insert

DS-TTP

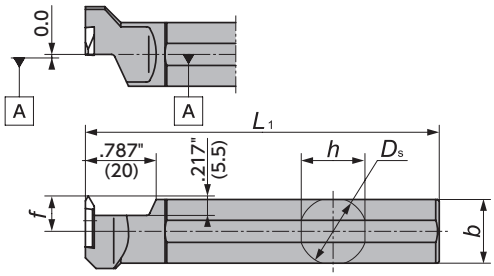
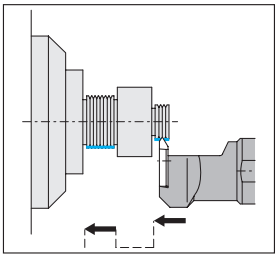


Figure-3



Left-Hand style shown
Takes Right-hand insert

■TTP$^{R}_{L}$ / CH-TTPL

Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h_1 (Inch)	h_1 (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	h_2 (Inch)	h_2 (mm)	Clamp Screw	Wrench
 TTP.. TTP..FR	TTP$^{R}_{L}$06-IN	1	●	●	3/8		3/8		3/8		4.724	120	–	–	.079	2	LRIS-4 × 10PW	CLR-15S
	TTP$^{R}_{L}$08-IN	1	●	●	1/2		1/2		1/2		4.724	120	–	–	0	0	LRIS-4 × 10PW	CLR-15S
	TTP$^{R}_{L}$10-IN	1	●	●	5/8		5/8		5/8		4.724	120	–	–	0	0	LRIS-4 × 12PW	CLR-15S
	TTP$^{R}_{L}$08	1	○	○	.315	8	.394	10	.315	8	4.724	120	–	–	.157	4	LRIS-4 × 12PW	CLR-15S
	TTP$^{R}_{L}$10	1	○	○	.394	10	.394	10	.394	10	4.724	120	–	–	.079	2	LRIS-4 × 12PW	CLR-15S
	TTP$^{R}_{L}$12GX	1	○	○	.472	12	.472	12	.472	12	3.346	85	–	–	0	0	LRIS-4 × 12PW	CLR-15S
	TTP$^{R}_{L}$12	1	●	●	.472	12	.472	12	.472	12	4.724	120	–	–	0	0	LRIS-2.5 × 7	CLR-15S
	TTP$^{R}_{L}$16H	1	○	○	.630	16	.630	16	.630	16	3.937	100	–	–	0	0	LRIS-2.5 × 7	CLR-15S
	TTP$^{R}_{L}$16	1	○	○	.630	16	.630	16	.630	16	4.724	120	–	–	0	0	LRIS-2.5 × 7	CLR-15S
	TTP$^{R}_{L}$20F	1	○	○	.787	20	.787	20	.787	20	3.150	80	–	–	0	0	LRIS-2.5 × 7	CLR-15S
	CH-TTPL16	2		○	.630	16	.630	16	.630	16	4.724	120	.906	23	–	–	LRIS-4 × 10	LLR-25S
	CH-TTPL20	2		○	.787	20	.787	20	.787	20	4.724	120	1.063	27	–	–	LRIS-4 × 10	LLR-25S

■DS-TTP

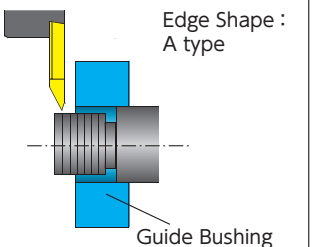
Gage Insert	Item Number	Figure	Stock R	Stock L	D_s (Inch)	D_s (mm)	h (Inch)	h (mm)	b (Inch)	b (mm)	L_1 (Inch)	L_1 (mm)	f (Inch)	f (mm)	Clamp Screw	Wrench
 TTP..	DS-TTP$^{R}_{L}$16F	3		○	.630	16.00	.591	15	.591	15	3.150	80	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-TTP$^{R}_{L}$19	3		●	3/4	19.05	.709	18	.709	18	4.724	120	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-TTP$^{R}_{L}$20	3		●	.787	20.00	.748	19	.748	19	4.724	120	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-TTP$^{R}_{L}$22	3		●	.866	22.00	.827	21	.827	21	4.724	120	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65
	DS-TTP$^{R}_{L}$25	3		●	1	25.40	.945	24	.945	24	5.906	150	.394	10.0	LRIS-4 × 10	LLR-25S-20 × 65

TTP Series - Inserts

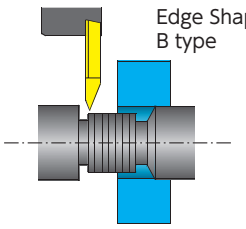
TTP - Threading

	Shape	Item Number	θ	f (Inch)	f (mm)	r_ε (Inch)	r_ε (mm)	Pitch (TPI)	Pitch (mm)	Coated Carbide QM3 R	Coated Carbide QM3 L	Coated Carbide ZM3 R	Coated Carbide ZM3 L	Carbide KM1 R	Carbide KM1 L
Right-Hand	A type	TTP60FR2A	60°	.008	0.2	(.002) MAX Flat	(0.05) MAX Flat	127 - 63	0.2 - 0.4			○			
		TTP60FR4A	60°	.016	0.4	(.002) MAX Flat	(0.05) MAX Flat	127 - 34	0.2 - 0.75	●		●			
		TTP60FR4AS Ⓜ	60°	.016	0.4	(.002) MAX Flat	(0.05) MAX Flat	127 - 34	0.2 - 0.75					○	
		TTP60FR8A	60°	.031	0.8	(R.002)	(R0.05)	63 - 21	0.4 - 1.25	●		●			
		TTP60FR8AS Ⓜ	60°	.031	0.8	(R.002)	(R0.05)	63 - 21	0.4 - 1.25					○	
		TTP55FR8A	55°	.031	0.8	(R.002)	(R0.05)	48 - 16	–			●			
	B type	TTP60FR2B	60°	.008	0.2	(.002) MAX Flat	(0.05) MAX Flat	127 - 63	0.2 - 0.4			○			
		TTP60FR4B	60°	.016	0.4	(.002) MAX Flat	(0.05) MAX Flat	127 - 34	0.2 - 0.75	●		●			
		TTP60FR4BS Ⓜ	60°	.016	0.4	(.002) MAX Flat	(0.05) MAX Flat	127 - 34	0.2 - 0.75					○	
		TTP60FR8B	60°	.031	0.8	(R.002)	(R0.05)	63 - 21	0.4 - 1.25	●		●			
		TTP60FR8BS Ⓜ	60°	.031	0.8	(R.002)	(R0.05)	63 - 21	0.4 - 1.25					○	
		TTP55FR8B	55°	.031	0.8	(R.002)	(R0.05)	48 - 16	–			●			
	N type	TTP60FR-N	60°	.049	1.25	(R.004)	(R0.1)	25 - 17	1.0 - 1.5	●		●			
		TTP60FR-NS Ⓜ	60°	.049	1.25	(R.004)	(R0.1)	25 - 17	1.0 - 1.5					○	
		TTP60FR-N02	60°	.049	1.25	(R.008)	(R0.2)	16 - 13	1.5 - 2.0	●		○			
Left-Hand	A type	TTP60FL2A	60°	.008	0.2	(.002) MAX Flat	(0.05) MAX Flat	127 - 63	0.2 - 0.4				○		
		TTP60FL4A	60°	.016	0.4	(.002) MAX Flat	(0.05) MAX Flat	127 - 34	0.2 - 0.75		●		●		
		TTP60FL4AS Ⓜ	60°	.016	0.4	(.002) MAX Flat	(0.05) MAX Flat	127 - 34	0.2 - 0.75						○
		TTP60FL8A	60°	.031	0.8	(R.002)	(R0.05)	63 - 21	0.4 - 1.25		●		●		
		TTP60FL8AS Ⓜ	60°	.031	0.8	(R.002)	(R0.05)	63 - 21	0.4 - 1.25						○
		TTP55FL8A	55°	.031	0.8	(R.002)	(R0.05)	48 - 16	–				●		
	B type	TTP60FL2B	60°	.008	0.2	(.002) MAX Flat	(0.05) MAX Flat	127 - 63	0.2 - 0.4				○		
		TTP60FL4B	60°	.016	0.4	(.002) MAX Flat	(0.05) MAX Flat	127 - 34	0.2 - 0.75		●		●		
		TTP60FL4BS Ⓜ	60°	.016	0.4	(.002) MAX Flat	(0.05) MAX Flat	127 - 34	0.2 - 0.75						○
		TTP60FL8B	60°	.031	0.8	(R.002)	(R0.05)	63 - 21	0.4 - 1.25		○		●		
		TTP60FL8BS Ⓜ	60°	.031	0.8	(R.002)	(R0.05)	63 - 21	0.4 - 1.25						○
		TTP55FL8B	55°	.031	0.8	(R.002)	(R0.05)	48 - 16	–				●		
	N type	TTP60FL-N	60°	.049	1.25	(R.004)	(R0.1)	25 - 17	1.0 - 1.5		●		●		
		TTP60FL-NS Ⓜ	60°	.049	1.25	(R.004)	(R0.1)	25 - 17	1.0 - 1.5						○
		TTP60FL-N02	60°	.049	1.25	(R.008)	(R0.2)	16 - 13	1.5 - 2.0		●		○		

Right Hand Toolholders

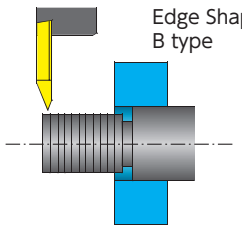


Toolholder	TTPR
Insert	TTP..FR..A

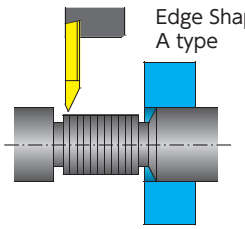


Toolholder	TTPR
Insert	TTP..FR..B

Left Hand Toolholders



Toolholder	TTPL
Insert	TTP..FL..B



Toolholder	TTPL
Insert	TTP..FL..A

● : Stock ○ : 1-2 week delivery Ⓜ : Mirror finish

Cutting condition ➡K130

TTP Style

Unified Standard (UN, UNF, UNC) Threads

	Thread Type		Pitch		Applicable Inserts
			(TPI)	(mm)	
Coarse (UNC)		No.1-64 UNC	64	0.3969	**TTP60FR¼2A(B) TTP60FR¼4A, AS(B, BS)**
	No.2-56 UNC		56	0.4536	**TTP60FR¼4A, AS(B, BS) TTP60FR¼8A, AS(B, BS)**
		No.3-48 UNC	48	0.5292	
	No.4-40 UNC		40	0.6350	
	No.5-40 UNC		40	0.6350	
	No.6-32 UNC		32	0.7938	**TTP60FR¼8A, AS(B, BS)**
	No.8-32 UNC		32	0.7938	
	No.10-24 UNC		24	1.0583	**TTP60FR¼8A, AS(B, BS) TTP60FR¼-N(S)**
		No.12-24 UNC	24	1.0583	
	1/4-20 UNC		20	1.2700	
	5/16-18 UNC		18	1.4111	**TTP60FR¼-N(S)**
	3/8-16 UNC		16	1.5875	**TTP60FR¼-N02**
	7/16-14 UNC		14	1.8143	
	1/2-13 UNC		13	1.9538	
Fine (UNC)	No.0-80 UNF		80	0.3175	**TTP60FR¼2A(B) TTP60FR¼4A, AS(B, BS)**
		No.1-72 UNF	72	0.3528	
	No.2-64 UNF		64	0.3969	
		No.3-56 UNF	56	0.4536	**TTP60FR¼4A, AS(B, BS) TTP60FR¼8A, AS(B, BS)**
	No.4-48 UNF		48	0.5292	
	No.5-44 UNF		44	0.5773	
	No.6-40 UNF		40	0.6350	
	No.8-36 UNF		36	0.7056	
	No.10-32 UNF		32	0.7938	**TTP60FR¼8A, AS(B, BS)**
		No.12-28 UNF	28	0.9071	
	1/4-28 UNF		28	0.9071	
	5/16-24 UNF		24	1.0583	**TTP60FR¼8A, AS(B, BS) TTP60FR¼-N(S)**
	3/8-24 UNF		24	1.0583	
	7/16-20 UNF		20	1.2700	**TTP60FR¼-N(S)**
	1/2-20 UNF		20	1.2700	
	9/16-18 UNF		18	1.4111	
	5/8-18 UNF		18	1.4111	
	3/4-16 UNF		16	1.5875	**TTP60FR¼-N02**
	7/8-14 UNF		14	1.8143	

Metric (M) Threads / Fine and Coarse

Thread Type			Pitch (mm)										
			2.00	1.50	1.25	1.00	0.80	0.75	0.70	0.50	0.40	0.35	0.25	0.20
M1													Coarse	Fine
M2											Coarse		Fine	
M3										Coarse		Fine		
M4									Coarse	Fine				
M5							Coarse							
M6						Coarse		Fine						
	M7													
M8					Coarse	Fine								
		M9												
M10				Coarse	Fine									
		M11												
M12				Fine										
	M14		Coarse											
		M15												
M16			Coarse											
		M17												
	M18		Fine	Fine										
M20														
	M22													
M24														
		M25												
		M26												
	M27		Fine			Fine								
		M28												
M30														
		M32												

Covered Thread Pitch Range

Inserts	Pitch	
	(TPI)	(mm)
TTP60FR/L2A(B)	127 - 63	0.2 - 0.4
TTP60FR/L4A,AS(B,BS)	127 - 34	0.2 - 0.75
TTP60FR/L8A,AS(B,BS)	63 - 21	0.4 - 1.25
TTP60FR/L-N(S)	25 - 17	1.0 - 1.5
TTP60FR/L-N02	16 - 13	1.5 - 2.0

TTP60FR/L-N02 can be used up to M150 when the pitch is 2.0 mm

Whitworth

Applicable Insert	Thread Type	Pitch	
		(TPI)	(mm)
TTP55FR/L8A (B)	W 1/8	40	0.63
	W 3/16	24	1.06
	W 1/4	20	1.27
	W 5/16	18	1.41
	W 3/8	16	1.54

STTN Series

STTN

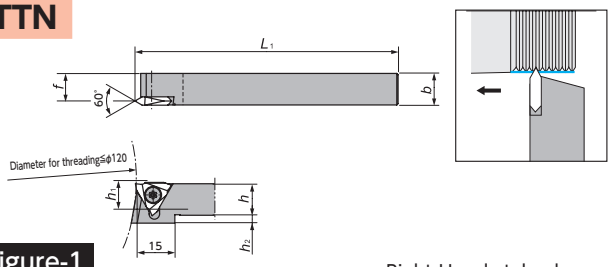


Figure-1

Right-Hand style shown

NTTB

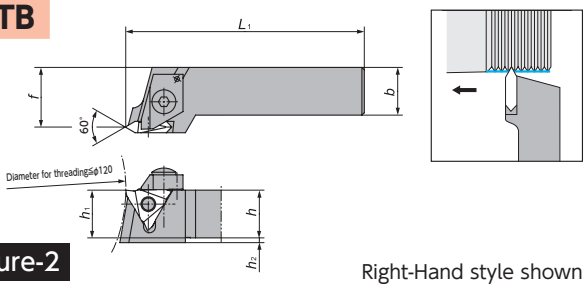


Figure-2

Right-Hand style shown

DS-STT

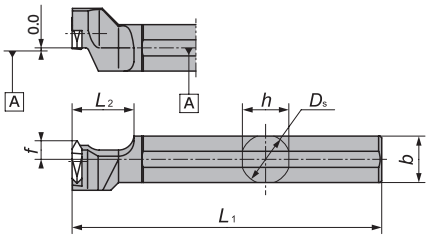
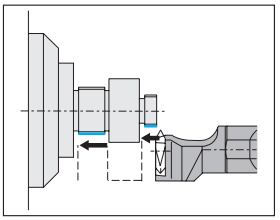


Figure-3



Left-Hand style shown
Takes Right-hand insert

■STTNR/L / NTTBR/L

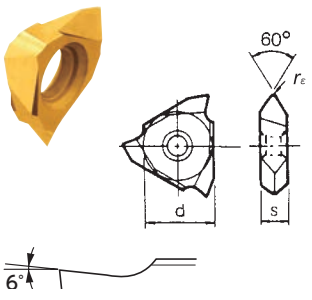
Gage Insert	Item Number	Figure	Stock R	Stock L	h (Inch)	h (mm)	b (Inch)	b (mm)	h1 (Inch)	h1 (mm)	L1 (Inch)	L1 (mm)	f (Inch)	f (mm)	h2 (Inch)	h2 (mm)	Clamp Screw	Wrench
 TTMH3260	STTNR/L101032	1	○		.394	10	.394	10	.394	10	3.150	80	.335	8.5	.197	5.0	LR-S-4 × 9	RLR-20S
	STTNR/L121232	1	○		.472	12	.472	12	.472	12	3.150	80	.413	10.5	.197	5.0	LR-S-4 × 9	RLR-20S
	STTNR/L121232-K	1	○		.472	12	.472	12	.472	12	4.912	125	.413	10.5	.197	5.0	LR-S-4 × 9	RLR-20S
	NTTBR/L161632	2	○		.630	16	.630	16	.630	16	4.724	120	.787	20.0	.157	4.0	–	LW-2.5
	NTTBR/L202032	2	○		.787	20	.787	20	.787	20	5.512	140	.984	25.0	0.0	0.0	–	LW-2.5

■DS-STTR/L

Gage Insert	Item Number	Figure	Stock R	Stock L	Ds (Inch)	Ds (mm)	h (Inch)	h (mm)	b (Inch)	b (mm)	L1 (Inch)	L1 (mm)	f (Inch)	f (mm)	Clamp Screw	Wrench
 TTMH3260	DS-STTR/L14F	3		○	.551	14.000	.512	13	.512	13	3.150	80	.236	6.0	LR-S-4 × 9	RLR-20S
	DS-STTR/L15H	3		○	5/8	15.875	591	15	591	15	3.937	100	.236	6.0	LR-S-4 × 9	RLR-20S
	DS-STTR/L16X*	3		○	.630	16.000	591	15	591	15	3.346	85	.236	6.0	LR-S-4 × 9	RLR-20S

STTN Series - Inserts

■TTMH

Shape	Item Number	d (Inch)	d (mm)	s (Inch)	s (mm)	rε (Inch)	rε (mm)	Pitch (Inch)	Pitch (mm)	Coated Carbide ZM3 R	Coated Carbide ZM3 L	Coated Cermet C7X R	Coated Cermet C7X L
 Right-Hand style shown	TTMH3260R010	3/8	9.525	1/8	3.18	.004	0.10	31 - 9	0.8 - 3.0	○		○	
	TTMH3260R015	3/8	9.525	1/8	3.18	.006	0.15	25 - 9	1.0 - 3.0	○		○	
	TTMH3260R020	3/8	9.525	1/8	3.18	.008	0.20	16 - 9	1.5 - 3.0	○			
	TTMH3260R025	3/8	9.525	1/8	3.18	.010	0.25	14 - 9	1.75 - 3.0			○	

TTMH Style

Unified Standard (UN, UNF, UNC) Threads

	Thread Type		Pitch		Applicable Inserts
	#1	#2	(TPI)	(mm)	
Coarse (UNC)	No.10-24 UNC		24	1.0583	TTMH3260R010 TTMH3260R015
		No.12-24 UNC	24	1.0583	
	1/4-20 UNC		20	1.2700	
	5/16-18 UNC		18	1.4111	
	3/8-16 UNC		16	1.5875	TTMH3260R010,R015 TTMH3260R020
	7/16-14 UNC		14	1.8143	TTMH3260R010,R015 TTMH3260R020,R025
	1/2-13 UNC		13	1.9538	
	9/16-12 UNC		12	2.1167	
	5/8-11 UNC		11	2.3091	
	3/4-10 UNC		10	2.5400	
	7/8-9 UNC		9	2.8222	
Fine (UNF)		No.12-28 UNF	28	0.9071	TTMH3260R010
	1/4-28 UNF		28	0.9071	
	5/16-24 UNF		24	1.0583	TTMH3260R010 TTMH3260R015
	3/8-24 UNF		24	1.0583	
	7/16-20 UNF		20	1.2700	
	1/2-20 UNF		20	1.2700	
	9/16-18 UNF		18	1.4111	
	5/8-18 UNF		18	1.4111	
	3/4-16 UNF		16	1.5875	TTMH3260R010,R015 TTMH3260R020
	7/8-14 UNF		14	1.8143	TTMH3260R010,R015 TTMH3260R020,R025
	1-12 UNF		12	2.1167	
	1 1/8-12 UNF		12	2.1167	
	1 1/4-12 UNF		12	2.1167	
	1 3/8-12 UNF		12	2.1167	
	1 1/2-12 UNF		12	2.1167	

Metric (M) Threads / Fine and Coarse

Thread Type			Pitch (mm)							
#1	#2	#3	3.00	2.50	2.00	1.75	1.50	1.25	1.00	0.80
M5										Coarse
M6									Coarse	
	M7									
M8								Coarse	Fine	
		M9								
M10							Coarse	Fine		
		M11								
M12						Coarse	Fine	Fine		
	M14				Coarse					
		M15								
M16					Coarse					
		M17								
	M18			Coarse	Fine					
M20										
	M22									
M24			Coarse							
		M25								
		M26					Fine			
	M27		Coarse		Fine					
		M28								
M30			Fine							
		M32								
	M33		Fine							
		M35								
M36			Fine		Fine					
		M38								
	M39		Fine		Fine					
		M40								

Covered Thread Pitch Range

Inserts	Pitch	
	(TPI)	(mm)
TTMH3260R010	31 - 9	0.8 - 3.0
TTMH3260R015	25 - 9	1.0 - 3.0
TTMH3260R020	16 - 9	1.5 - 3.0
TTMH3260R025	14 - 9	1.75 - 3.0

● : Stock ○ : 1-2 week delivery

Cutting condition ➡K130

Thread Whirling

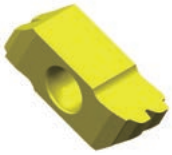
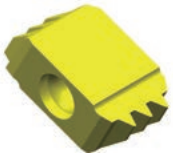
Features

WATCH ON YouTube

- NTK's unique patented design technology makes precise and correct inserts possible the first time, *without any redesign or remanufacture even if it is a multiple-lead thread*
- The sharper cutting edges produce a better surface finish and longer tool life than competitor's inserts

Form Double-lead or Multiple-lead with Single Pass

Patented

	Double-lead threads	Triple-lead threads
Work	Bone screw	Worm gear
Work material	Ti-6Al-4V ELI	brass
Work appearance		
Insert appearance		
Major Dia.	ϕ.157"(4.0㎜)	ϕ.278"(7.0㎜)
Minor Dia.	ϕ.094"(2.4㎜)	ϕ.185"(4.7㎜)
Lead [Pitch×No. of Lead]	.135"(3.42㎜) [.067"×2(1.71㎜×2)]	.193"(4.9㎜) [.064"×3(1.63㎜×3)]

- Can reduce cycle time by more than half
- NTK can achieve what other competitors cannot

Double-lead Bone Screw Process Example

1. 1st thread whirl at taper part
2. Rotate the bar 180° and whirl the 2nd thread on same part as 1
3. Thread whirl whole straight part
4. Thread whirl at very last part to get two-exits, after back of bar has been backed up a half lead (one pitch) and rotated 180°

Special Item Capability

- Even though almost all bone screw shapes are special, NTK thread whirling inserts can make the correct shape of thread the first time, without any redesign and remanufacture
- Inserts will be delivered in 5 weeks after the order is received
- Within a 3 week time period, expedite delivery is available with an expedite fee
- Basically NTK thread whirling inserts are ground with topping and coated

Recommended Cutting Conditions

Conditions \ No. of teeth		9	6	4	
Main spindle	RPM	**10 - 40**	10 - 25	7 - 15	Faster RPM reduces machining time
	F	**5400 - 14400**	3600 - 9000	2500 - 5400	
Whirling Catter	RPM	**1500 - 4000**			
Feed Rate		**Same as thread-lead**			
Bar stock	ϕ	**~ϕ.400" ***		~ϕ.200"	* For cutter with ϕ12㎜ ID
Work Material		**Ti-6Al-4V ELI / 316SS / Titanium**			

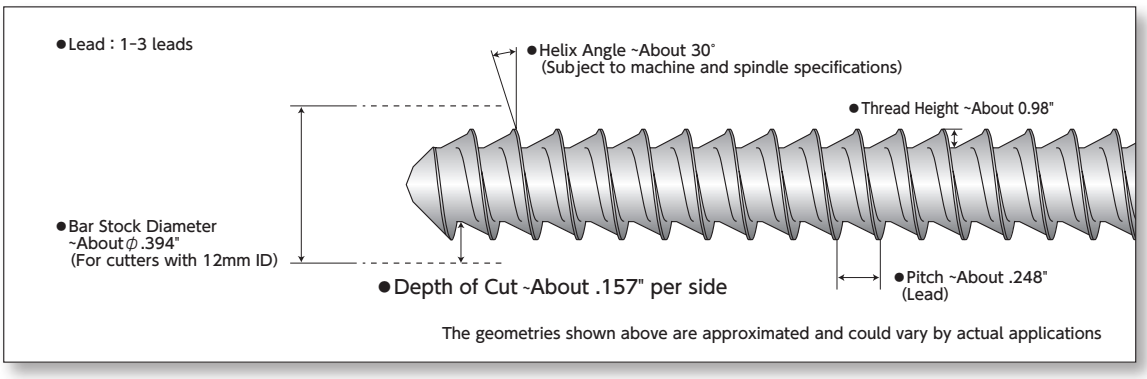
- Formula for calculating thread whirling process time

$$T\ (\text{Seconds}) = \frac{60 \times \text{Thread length}}{\text{Main spindle rpm} \times \text{Feed rate (Thread lead)}}$$

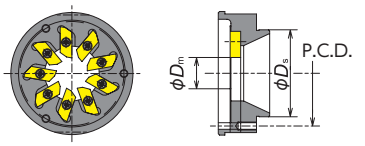
Ex.) Double lead / 2" length / .100" lead (2×.050" pitch) / 30 rpm

$$T\ (\text{Seconds}) = \frac{60 \times 2}{30 \times .100"} = 40 \text{ Seconds}$$

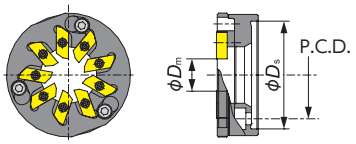
Applicable Thread Geometry (Approximated)



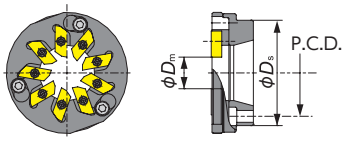
Thread Whiring System



Type 1

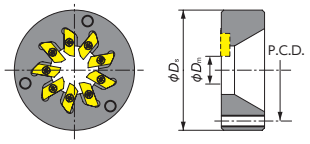


Type 2
Quick-change

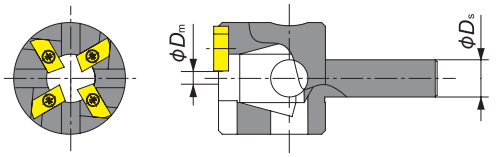


Type 3
Quick-change

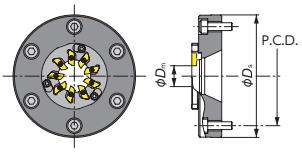
Machine make	Model	Location	Spindle make	Spindle model	Helix angle	NTK Thread whirling system	Stock	No. of tooth	ϕD_m (mm)	Type	ϕD_s	P.C.D.	Mount adapter screw
CITIZEN	$M_4$32-VIII	Gang	CITIZEN	BTW-4000	0° – 15°	**TWC9C0746HP1**	●	**9**	**ϕ12**	**1**	ϕ46	ϕ35	M3
	L20E/L20X	Gang		BTW-3000	0° – 15°								
	A20	Gang		BTW-2000	±25°	**TWC9C1040HP1** **TWC6C1040HP1** **TWC9C1040HP1-D16**	● ● ●	**9** **6** **9**	**ϕ12** **ϕ12** **ϕ16**	**1**	ϕ33	ϕ40	M3 (Provided with spindle)
	$M_4$32			BTW-1000	0° – 25°								
	C32				±25°								
	L20												
	M20				+20° – –25°								
	$M_3$32				±25°								
	C12/16	Gang	CITIZEN	LTR0170	±15°	**TWC9C1037P2**	●	**9**	**ϕ12**	**2**	ϕ37	ϕ30.5	CS0310(M3)
	M12/16	Turret		LTR0168									
	M12/16 III			MSW105									
	M20/32 III			KSW110									
	L20	Gang		LTR0183	±15°	**TWC9J1040P2**	●	**9**	**ϕ12**	**2**	ϕ40	ϕ32.5	H-M4 × 12
	M20/32												
	M20/32	Turret		LTR0169									
	K16	Attachment	PCM	GSW-101	±15°	**TWC6P1620HP1-D9**	●	**6**	**ϕ9**	**1**	ϕ32	ϕ26	M4 (Provided with spindle)
	L20	Gang		LSW-101-L20	±10°	**TWC9P1340P2**	●	**9**	**ϕ12**	**2**	ϕ40	ϕ32.5	M4 (Provided with spindle)
	M12/16	Turret		MSW-101									
	M20/M32			KSW-101									
STAR	ECAS-12/20	Attachment	STAR	54178	±10°	**TWC9S1640P2**	●	**9**	**ϕ12**	**3**	ϕ40	ϕ33	CS04148S(M4)
	SB-20R			OM171	-20° – 0°								
	SR-20J/20R III/20R IV			54172	-20° – 0°								
	ECAS-20T	Turret		59172	±20°								
	ECAS-32T			58171	±10°								
	ST-38			43156	±10°								
	SV-12			45172	±10°								
	SV-20			42173	±10°								
	SV-32			43172	±10°								
	SV-38R			43156	±20°								
TSUGAMI	BH20/BH38	Turret	TSUGAMI	3263-Y481	±10°	**TWC9TS2252P2**	●	**9**	**ϕ12**	**3**	ϕ52	ϕ42	CS0515(M5)
	BS20	Attachment		3214-Y1371	±10°	**TWC9TS20550P2**	●	**9**	**ϕ16**	**3**	ϕ50	ϕ40	CS0515(M5)
	SS20/SS26/SS32 B0265/B0266 - II B0325/B0326 - II	Attachment		3268-Y450 3268-Y451	0° – 10°	**TWC9TS2244HP1**	●	**9**	**ϕ12**	**4**	ϕ52	ϕ44	CS0520(M5)
	S205/S206			3281-Y450 3281-Y451	0° – 20°	**TWC9TS1944HP1**	●	**9**	**ϕ12**	**4**	ϕ52	ϕ44	CS0520(M5)
	B0123/B0124/B0125/ B0126 - II / III B0203/B0204/B0205/ B0205/B0206 - II / III			3220-Y6540 3220-Y6541	0° – 25°	**TWC9TS1644HP1**	●	**9**	**ϕ12**	**4**	ϕ52	ϕ44	CS0515(M5)
					0° – 30°	**TWC9TS1044HP1**	●	**9**	**ϕ12**	**4**	ϕ52	ϕ44	CS0515(M5)
	SS20/SS26/SS32			3268-Y271	0° – 10°	**TWC9TS1952P2BK**	●	**9**	**ϕ12**	**4**	ϕ52	ϕ38	CS0515(M5)
					0° – 20°	**TWC9TS1652P2BK**	●	**9**	**ϕ12**	**4**	ϕ52	ϕ38	CS0515(M5)
	SS207/SS267/SS327	—	Using B-axis		0° – 15°	**TWC4TS3010HP1**	●	**4**	**ϕ7**	**5**	ϕ10	For single-corner inserts only	



Type 4



Type 5



Type 6
Quick-change

Machine make	Model	Location	Spindle make	Spindle model	Helix angle	NTK Thread whirling system	Stock	No. of tooth	ϕD_m (mm)	Type	ϕD_s	P.C.D.	Mount adapter screw
TORNOS	DECO 10/10a	Attachment	TORNOS	224-1900	±15°	**TWC6TO11542HP1**	●	**6**	**φ12**	**4**	φ42	φ32	CS0410(M4)
	Evo DECO 10/10			242-1900									
	DECO 13a/13e			226-1900	±15°	**TWC9TO10540P2**	●	**9**	**φ12**	**3**	φ40	φ31	CS0410(M4)
	Evo DECO 16/10			243-1900									
	Swiss ST26			246-1900									
	DECO 20a			223-1900									
	DECO 26a			225-1900									
	Sigma 20			234-2750	±25°	**TWC9TO12050P2-D18**	●	**9**	**φ18**	**3**	φ50	φ40	CS0410(M4)
	Sigma 32			236-2750									
HASEGAWA	JS-1W	—	HASEGAWA	—	0° - 20°	**TWC9HA22594P2**		**9**	**φ16**	**6**	φ94	φ76	CS0620(M6)

■Spare Insert Holder (Cartridge)

Item number	No. of tooth	ϕD_m (mm)	Compatible cutters
TWC6HP2	6	12	For Type 2 and Type 3*
TWC9HP2	9	12	For Type 2 and Type 3*
TWC9HP2-D16	9	16	For TWC9TS20550P2 and Type 6

Note: Insert holder comes with insert screws and wrench
Insert holder mounting screw is not included
*Cannot be used for TWC9TS20550P2, TWC9TO12050P2-D18 and TWC9HA22594P2

■Spare Parts

Description		Item number
Insert Screw	For 4mm thick inserts	**FSI17-2.2×6.0**
	For 6.5mm thick inserts	**FSI24-2.2×7.9**
Wrench		**T-07**
Insert Holder Mounting Screw		**CS0309-TW**

NTK's Unique Attachment System

NTK's whirling insert holder can be attached and detached without removing mounting screws

① Loosen the Mounting Screws

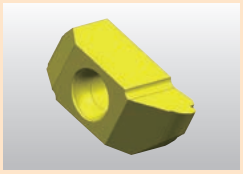
② Rotate the Insert Holder 10 degrees

③ Detach the Insert Holder without removing the Mounting Screws

● : Stock ○ : 1-2 week delivery

Basic Insert Grade

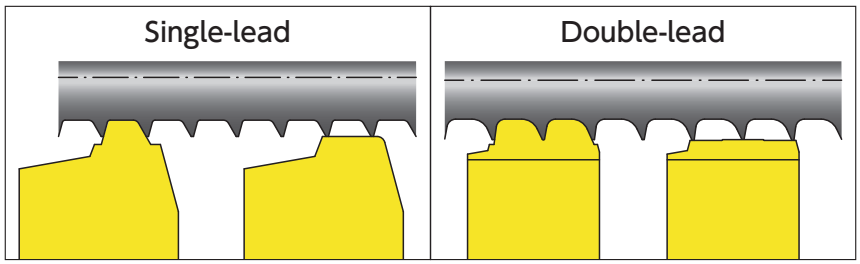
ZM3



- ZM3 is our basic grade for NTK thread whirling
- ZM3 offers excellent surface finish
- NTK can make inserts with other coatings to meet customers demands

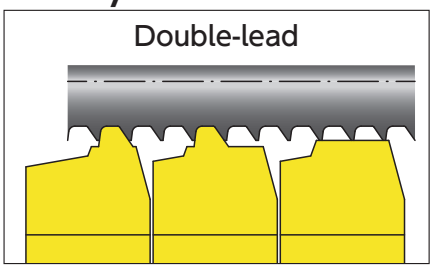
NTK Experiences and Solutions Example

For absolute flat on OD



- Two insert combination brings absolute flat on OD to meet the drawing

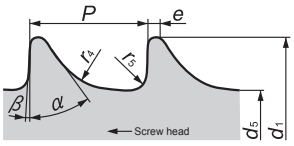
For tiny thread



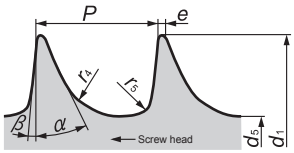
- NTK's Thread Whirling system can machine small diameter multi-lead screws to spec, with lower tool pressure, by using several types of specially designed and accurately ground inserts on the cutter.

Standard Thread Whirling Inserts (two-sided) for ISO Style Threads

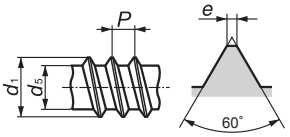
(Note: Must use Thread whirling cutters with 12㎜ ϕDm dimension. See page K18-19 to find ϕDm for each cutter.)



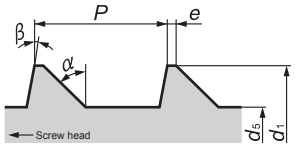
ISO5835 HA



ISO5835 HB



ISO9268 HC



ISO9268 HD

Metric dimensions

Item number	ISO Standard		d_1	d_5	P	e	r_4	r_5	α	β	Supposition material Dia.	Coated Carbide ZM3
TW5835-HA1.5-D12	ISO5835	HA1.5	$1.5^{0}_{-0.15}$	$1.1^{0}_{-0.1}$	0.5	0.1	0.3	0.1	35°	3°	ϕ8	○
TW5835-HA2.0-D12		HA2.0	$2.0^{0}_{-0.15}$	$1.3^{0}_{-0.1}$	0.6	0.1	0.4	0.1	35°	3°		○
TW5835-HA2.7-D12		HA2.7	$2.7^{0}_{-0.15}$	$1.9^{0}_{-0.15}$	1	0.1	0.6	0.2	35°	3°		○
TW5835-HA3.5-D12		HA3.5	$3.5^{0}_{-0.15}$	$2.4^{0}_{-0.15}$	1.25	0.1	0.8	0.2	35°	3°		○
TW5835-HA4.0-D12		HA4.0	$4.0^{0}_{-0.15}$	$2.9^{0}_{-0.15}$	1.5	0.1	0.8	0.2	35°	3°		○
TW5835-HA4.5-D12		HA4.5	$4.5^{0}_{-0.15}$	$3.0^{0}_{-0.15}$	1.75	0.1	1	0.3	35°	3°		○
TW5835-HA5.0-D12		HA5.0	$5.0^{0}_{-0.15}$	$3.5^{0}_{-0.15}$	1.75	0.1	1	0.3	35°	3°	ϕ10	○
TW5835-HB4.0-D12		HB4.0	$4.0^{0}_{-0.15}$	$1.9^{0}_{-0.15}$	1.75	0.1	0.8	0.3	25°	5°	ϕ8	○
TW5835-HB6.5-D12		HB6.5	$6.5^{0}_{-0.15}$	$3.0^{0}_{-0.15}$	2.75	0.2	1.2	0.8	25°	5°	ϕ10	○
TW9268-HC2.9-D12	ISO9268	HC2.9	2.79 to 2.9	2.03 to 2.18	1.06	0.1max	—	—	—	—	ϕ8	
TW9268-HC3.5-D12		HC3.5	3.43 to 3.53	2.51 to 2.64	1.27	0.1max	—	—	—	—		
TW9268-HC3.9-D12		HC3.9	3.78 to 3.91	2.77 to 2.92	1.27	0.1max	—	—	—	—		
TW9268-HC4.2-D12		HC4.2	4.09 to 4.22	2.95 to 3.25	1.27	0.1max	—	—	—	—		
TW9268-HD4.0-D12		HD4.0	4.0±0.03	2.92±0.03	1.59	0.1	—	—	45°	10°		
TW9268-HD4.5-D12		HD4.5	4.5±0.03	2.92±0.03	2.18	0.1	—	—	45°	10°		

● : Stock ○ : 1-2 week delivery

Application Examples

Double-lead Bone Screw

Work Material : Ti-6Al-4v ELI

Bar Stock Dia.	ϕ.375	Number of start	2
Major Dia.	ϕ.157	Helix Angle	28.5˚
Minor Dia.	ϕ.098	Hand of thread	Right
Cutting condition			
Main Spindle Speed (rpm)	15	Speed of whirling cutter (rpm)	3,500
Lead = Feed (IPR)	.217	Result	OK

NTK Thread Whirling	Dramatically improved productivity
Competitor's Thread Whiring	*Cannot complete with single pass. Requires feeding stock multiple times and two passes for threading each time.*

NTK thread whirling succeeded in double lead screw machining when one of the major thread whirling suppliers has failed many times.

Double-lead Bone Screw

Work Material : Ti-6Al-4v ELI

Bar Stock Dia.	ϕ.350	Number of start	2
Major Dia.	ϕ.180	Helix Angle	23.0˚
Minor Dia.	ϕ.120	Hand of thread	Right
Cutting condition			
Main Spindle Speed (rpm)	12	Speed of whirling cutter (rpm)	2,500
Lead = Feed (IPR)	.200	Result	OK

NTK Thread Whirling	Dramatically improved productivity
Competitor's Thread Whiring	*Cannot complete with single pass. Requires feeding stock multiple times and two passes for threading each time.*

The customer could not get perfect double lead thread form in single pass from other manufacturers. NTK got perfect thread form with a single pass on first trial saving cycle time.

Double-lead Bone Screw

Work Material : Ti-6Al-4v ELI

Bar Stock Dia.	ϕ.250	Number of start	2
Major Dia.	ϕ.118	Helix Angle	15.4˚
Minor Dia.	ϕ.083	Hand of thread	Right
Cutting condition			
Main Spindle Speed (rpm)	11	Speed of whirling cutter (rpm)	2,200
Lead = Feed (IPR)	.087	Result	OK

NTK Thread Whirling	Dramatically improved productivity
Competitor's Thread Whiring	*Cannot complete with single pass. Requires feeding stock multiple times and two passes for threading each time.*

Customer was concerned with stock rigidity and long cycle time. NTK applied three geometry inserts to achieve single pass machining, in dramatically short time. The up-sharp cutting edges and low cutting pressure produced "excellent" surface finish.

Single-lead Bone Screw

Work Material : 316SS

Bar Stock Dia.	ϕ.315	Number of start	1
Major Dia.	ϕ.138	Helix Angle	7.5˚
Minor Dia.	ϕ.098	Hand of thread	Right
Cutting condition			
Main Spindle Speed (rpm)	23	Speed of whirling cutter (rpm)	2,000
Pitch = Feed (IPR)	.049	Result	OK

NTK Thread Whirling	2600 pcs
Competitor's Thread Whiring	1000 pcs

Some thread whirling manufacturers offer 6-teeth or 12-teeth systems, too many teeth cause chip packing issues and more tool pressure. Fewer teeth means greater cycle time. NTK concluded that 9-teeth is the best configuration. Our customers can run 1.5 times faster and get longer tool life.

Single-lead Bone Screw

Work Material : Ti-6Al-4v ELI

Bar Stock Dia.	ϕ.197	Number of start	1
Major Dia.	ϕ.091	Helix Angle	5.3˚
Minor Dia.	ϕ.067	Hand of thread	Right
Cutting condition			
Main Spindle Speed (rpm)	30	Speed of whirling cutter (rpm)	3,100
Pitch = Feed (IPR)	.023	Result	OK

NTK Thread Whirling	2200 pcs

This thread is up to 1.26" length with a small pitch. Cycle time could be increased with a single-point threading tool. NTK's inserts, designed for lower tool pressure, ran 2,200 pcs/corner at 30 rpm of bar stock (F10,800). It only took 110 seconds to finish a 1.26" length thread.

Triple-lead Worm Gear

Work Material : Brass

Bar Stock Dia.	ϕ.315	Number of start	3
Major Dia.	ϕ.276	Helix Angle	14.6˚
Minor Dia.	ϕ.185	Hand of thread	Left
Cutting condition			
Main Spindle Speed (rpm)	20	Speed of whirling cutter (rpm)	3,500
Lead = Feed (IPR)	.189	Result	OK

Multi-lead threads, common in the Worm Gear industry are made by a forming or cutting process. The large helix angle is difficult to machine with single-point threading.
NTK now makes thread whilring inserts for multi-lead threads. Cycle time is reduced with a one pass process and thread form dimensions are stable with the low tool pressure.

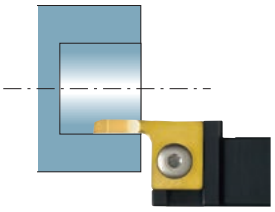
MEMO

K

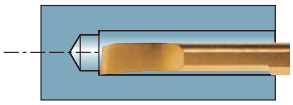
ID Tooling

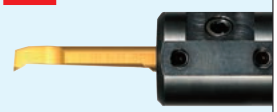
NTK ID Tooling - Product Lines

■ ID Boring

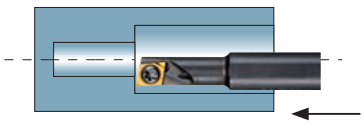


Insert	LBM ➡K155		
Holder	LBMA	DS-LBMB	CH-LBM
	 ➡K154	 ➡K154	 ➡K154
Min. Bore Dia.	ϕ.039"(1.0mm)		

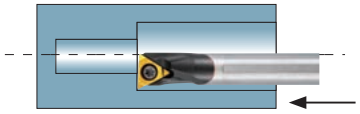


Insert	SHFS • SHFB • SBFS • SBFB ➡K160 • 164		
Holder	HY-NBH-OH	HY-NBH	NBH
	NEW  ➡K157 STICK DUO HYPER with Coolant through	 ➡K159 STICK DUO HYPER	 ➡K162
Min. Bore Dia.	ϕ.079"(2.0mm)		

	Holder / Insert	HY-NBH-OH	HY-NBH	NBH
		STICK DUO HYPER with Coolant through	STICK DUO HYPER	STICK DUO
"S" chip breaker  Sharp cutting edge	SHFS-S High Precision Insert	Best fit	Best fit	2nd OPT.
	SBFS-S	2nd OPT.	2nd OPT.	Best fit
"F" chip breaker  Evacuates chips BACKWARD	SHFB-F High Precision Insert	Best fit	Best fit	2nd OPT.
	SBFB-F	2nd OPT.	2nd OPT.	Best fit
"H" Flat type  Mirror finish edge	SHFS-H High Precision Insert	Best fit	Best fit	2nd OPT.
	SBFS-H	2nd OPT.	2nd OPT.	Best fit
Back turning	SBB	2nd OPT.	2nd OPT.	Best fit
Grooving	SBG	2nd OPT.	2nd OPT.	Best fit
Threading	SBT	2nd OPT.	2nd OPT.	Best fit

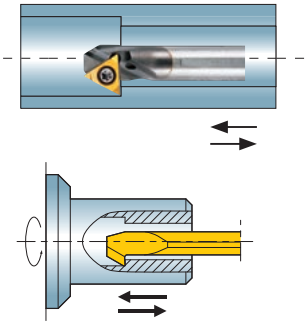


Insert	MBL ➡K171		ERGP ➡K172	
Holder	C-MBR (Carbide shank)	S-MBR (Steel shank)	C-SEXR (Carbide shank)	S-SEXR (Steel shank)
	 ➡K171 Coolant through	 ➡K171 Coolant through	 ➡K172 Coolant through	 ➡K172 Coolant through
Min. Bore Dia.	ϕ.197"(5.0mm)		ϕ.236"(6.0mm)	



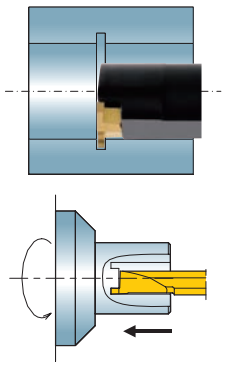
Insert	CC/CP ➡K173・174		TC/TP ➡K178	
Holder	C-SCLC/P (Carbide shank)	S-SCLC/P (Steel shank)	C-STUC/P (Carbide shank)	S-STUC/P (Steel shank)
	Coolant through ➡K173・174	Coolant through ➡K173・174	➡K178 Coolant through	➡K178 Coolant through
Min. Bore Dia.	ϕ.276"(7.0mm)		ϕ.315"(8.0mm)	

ID Back Turning



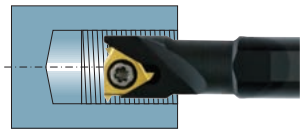
Insert	NEW SBB ➡K165		TC/TP ➡K178
Holder	HY-NBH-OH	NBH	C-STZP/C (Carbide shank)
	NEW ➡K157 Coolant through	➡K162	➡K178
Min. Bore Dia.	ϕ.118"(3.0mm)		ϕ.394"(10mm)

ID Grooving



Insert	SBG ➡K166		SFG ➡K166	GTG ➡K167
Holder	HY-NBH-OH	NBH	NBH	S-BGR/BGR
	NEW ➡K157 Coolant through	➡K162	➡K162	➡K167
Min. Bore Dia.	ϕ.118"(3.0mm)		ϕ.118"(3.0mm)	ϕ.394"(10mm)

ID Threading



Insert	SBT ➡K168		TMN ➡K170
Holder	HY-NBH-OH	NBH	TGC/HN
	NEW ➡K157 Coolant through	➡K162	➡K170
Min. Bore Dia.	ϕ.118"(3.0mm)		ϕ.315"(8.0mm)

Recommended Cutting Conditions

ID Boring

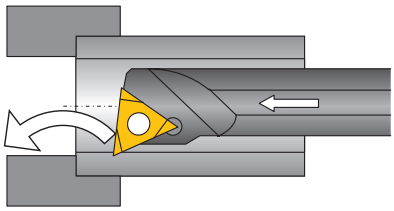
diameter ≤ .240"

Work Material		High Temperature Alloys	Titanium Alloys	Cobalt Chrome Alloys	Stainless Steels		Alloy Steels	Carbon Steels
					Hard to cut	Free cutting		
Common Name		Inconel Hastelloy MP35N	Ti-6Al-4V	ASTM F-75	304 316 17-4PH	303 430F	5120 4137	1045 1046
Grade	1st choice	TM4					VM1 / TM4	
	2nd choice	VM1 / ZM3					ZM3	
Cutting Speed (SFM)		60 160 230				100 200 300		
Feed Rate (IPR)		.0004 .0012 .0020						
Depth Of Cut (DOC)		.0020 .0031 .0039						

diameter > .240"

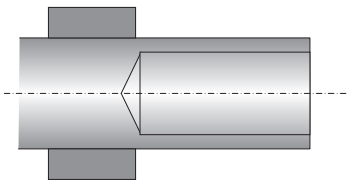
Work Material		High Temperature Alloys	Titanium Alloys	Cobalt Chrome Alloys	Stainless Steels		Alloy Steels	Carbon Steels
					Hard to cut	Free cutting		
Common Name		Inconel Hastelloy MP35N	Ti-6Al-4V	ASTM F-75	304 316 17-4PH	303 430F	5120 4137	1045 1046
Grade	1st choice	DT4			DT4	TM4	QM3	
	2nd choice	TM4			QM3 / TM4	QM3	TM4 / DT4 / C7Z(X)	
Cutting Speed (SFM)		150 230 330			130 230 330	150 300 600	Carbide 150 300 500 C7Z(X) 400 500 800	
Feed Rate (IPR)		.0008 .0024 .0047						
Depth Of Cut (DOC)		.0039 .0197 .0787						

Through hole

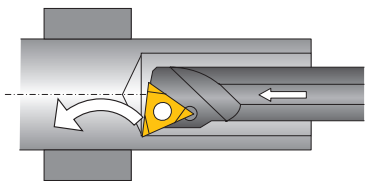


For chip control : chips can be evacuated forward

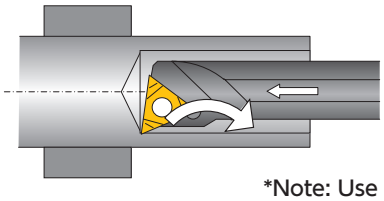
Blind hole



Blind hole due to bar stock



Typical inserts direct flow chips forward. Then packed chips damage and break cutting edge



F05, F1, and FG chipbreakers will direct chips backwards and eliminate chipping on inserts

*Note: Use right-hand inserts with F05, F1 and FG chipbreaker for right-hand boring bars

ID Grooving

GTG / SBG

Work Material		High Temperature Alloys	Titanium Alloys	Cobalt Chrome Alloys	Stainless Steels		Alloy Steels	Carbon Steels
					Hard to cut	Free cutting		
Common Name		Inconel Hastelloy MP35N	Ti-6Al-4V	ASTM F-75	304 316 17-4PH	303 430F	5120 4137	1045 1046
Grade	1st choice	DT4			DM4 / DT4	TM4	QM3	
	2nd choice	TM4 / QM3			QM3 / VM1	QM3	TM4 / DT4 / C7Z(X)	
Cutting Speed (SFM)		75 125 225	100 200 275		130 230 330	150 300 600	Carbide 150 300 500 C7Z(X) 400 500 800	
Feed Rate (IPR) A. Grooving B. Side turning*	Width .010-.020	A. .0002 - .0012 B. .0001 - .0002						
	.020-.040	A. .0008 - .0024 B. .0002 - .0004					A. .0008 - .0028 B. .0002 - .0004	
	.040-.080	A. .0012 - .0028 B. .0008 - .0020					A. .0012 - .0031 B. .0012 - .0024	
	> .080	A. .0012 - .0079 B. .0012 - .0024						

*When side turining, Max. DOC is under .0079". Under .016" width side turning impossible

ID Threading

●Threading

For 600 - 1500 RPM　Recommended Depth of Cut (DOC) for Each Pass

UNF Thread		Number of Pass																		
Pitch (TPI)	Total DOC (inch)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
36	0.43	.002	.002	.002	.002	.002	.002	.001	.001	.0008	.0004	—	—	—	—	—	—	—	—	—
32	0.49	.002	.002	.002	.002	.002	.001	.001	.001	.001	.0008	.0004	—	—	—	—	—	—	—	—
28	0.56	.003	.002	.002	.002	.002	.002	.001	.001	.001	.001	.001	.0008	.0004	—	—	—	—	—	—
24	0.66	.003	.002	.002	.002	.002	.002	.002	.002	.001	.001	.001	.001	.0008	.0004	—	—	—	—	—
20	0.78	.003	.003	.003	.003	.002	.002	.002	.002	.002	.002	.001	.001	.001	.001	.0008	.0004	—	—	—
18	0.87	.003	.003	.003	.003	.003	.002	.002	.002	.002	.002	.002	.002	.001	.001	.001	.0008	.0004	—	—
16	0.98	.003	.003	.003	.003	.003	.003	.003	.002	.002	.002	.002	.002	.002	.001	.001	.001	.001	.0008	.0004

Metric Thread		Number of Pass																				
Pitch (mm)	Total DOC (mm)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
0.5	0.3	0.06	0.05	0.05	0.04	0.04	0.03	0.02	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—
0.7	0.43	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.03	0.02	0.01	—	—	—	—	—	—	—	—	—	—	—
0.75	0.46	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.04	0.03	0.02	0.01	—	—	—	—	—	—	—	—	—	—
0.8	0.49	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.04	0.03	0.03	0.02	0.01	—	—	—	—	—	—	—	—	—
1.0	0.62	0.07	0.07	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03	0.02	0.01	—	—	—	—	—	—	—
1.25	0.76	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.04	0.03	0.03	0.02	0.01	—	—	—	—	—	—
1.5	0.92	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.02	0.01	—	—	—
1.75	1.09	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.02	0.01

LBM Series

Minimum bore diameter ϕ.039"(1.0㎜)-ϕ.118"(3.0㎜)

LBMA / LBMA-S

LBMAR□□-S

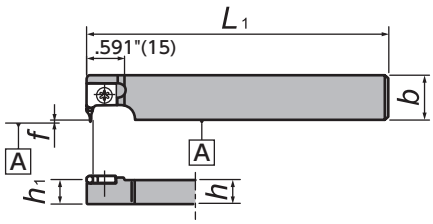


Figure-1

LBMAR□□

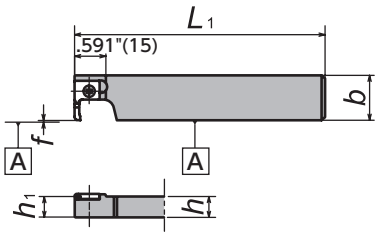


Figure-2

LBMAR□□-F

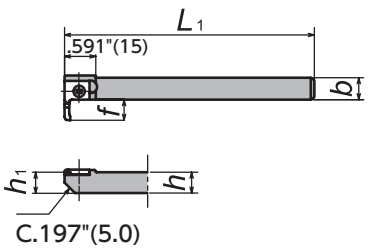


Figure-3

Right-Hand style shown

DS-LBMB

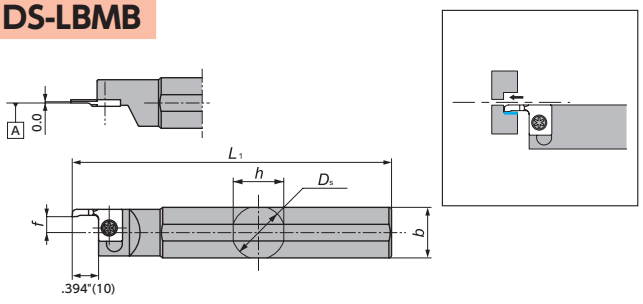


Figure-4

Left-Hand style shown

CH-LBM

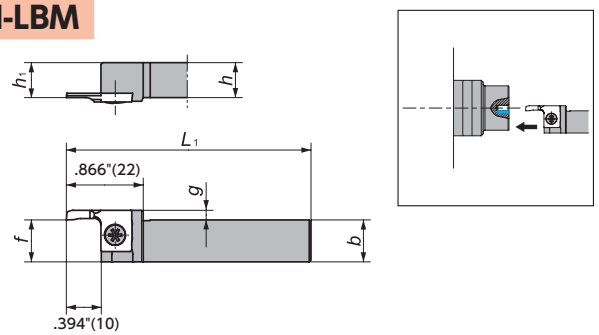


Figure-5

Left-Hand style shown

■LBMAR / CH-TTPL

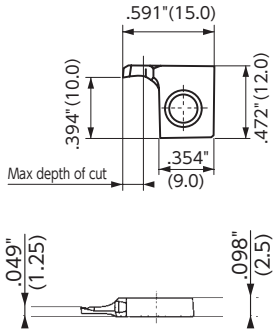
Gage Insert	Item Number	Figure	Stock	D_s (Inch)	D_s (㎜)	h (Inch)	h (㎜)	b (Inch)	b (㎜)	h_1 (Inch)	h_1 (㎜)	L_1 (Inch)	L_1 (㎜)	f (Inch)	f (㎜)	Clamp Screw	Wrench
Short type	**LBMAR10SGX**	1	○	–	–	.394	10	.709	18	.394	10	3.346	85	0	0.0	LRIS-4 × 10PW	CLR-15S
	LBMAR10S	1	○	–	–	.394	10	.709	18	.394	10	4.724	120	0	0.0	LRIS-4 × 10PW	CLR-15S
	LBMAR12S	1	○	–	–	.472	12	.709	18	.472	12	4.724	120	0	0.0	LRIS-4 × 12PW	CLR-15S
Long type	**LBMAR06-IN**	2	●	–	–	3/8		3/8		3/8		4.724	120	0	0.0	LRIS-4 × 10PW	CLR-15S
	LBMAR08-IN	2	●	–	–	1/2		1/2		1/2		4.724	120	0	0.0	LRIS-4 × 12PW	CLR-15S
	LBMAR10-IN	2	●	–	–	5/8		5/8		5/8		4.724	120	0	0.0	LRIS-4 × 12PW	CLR-15S
	LBMAR08	2	○	–	–	.315	8	.846	21.5	.315	8	4.724	120	0	0.0	LRIS-4 × 10	LLR-25S
	LBMAR10	2	○	–	–	.394	10	.846	21.5	.394	10	4.724	120	0	0.0	LRIS-4 × 10PW	CLR-15S
	LBMAR12	2	○	–	–	.472	12	.846	21.5	.472	12	4.724	120	0	0.0	LRIS-4 × 10PW	CLR-15S
	LBMAR16	2	○	–	–	630	16	.846	21.5	630	16	4.724	120	0	0.0	LRIS-4 × 12PW	CLR-15S
Long type	**LBMAR10-F**	3	○	–	–	.394	10	.394	10.0	.394	10	4.724	120	.394	10.0	LRIS-4 × 12PW	CLR-15S
 Long type	**DS-LBMBL14F**	4	○	.551	14.000	.512	13	.512	13	–	–	3.150	80 ＊1	＊3	＊3	LRIS-4 × 10PW	CLR-15S
	DS-LBMBL15H	4	○	5/8	15.875	.591	15	.591	15	–	–	3.937	100 ＊1	＊3	＊3	LRIS-4 × 10PW	CLR-15S
	DS-LBMBL16X	4	●	.630	16.000	.591	15	.591	15	–	–	3.740	95 ＊1	＊2	＊2	LRIS-4 × 10PW	CLR-15S
	DS-LBMBL19	4	●	3/4	19.050	.709	18	.709	18	–	–	4.724	120 ＊1	＊2	＊2	LRIS-4 × 10PW	CLR-15S
	DS-LBMBL20	4	●	.787	20.000	.748	19	.748	19	–	–	4.724	120 ＊1	＊2	＊2	LRIS-4 × 10PW	CLR-15S
	DS-LBMBL22	4	●	.866	22.000	.827	21	.827	21	–	–	4.724	120 ＊1	＊2	＊2	LRIS-4 × 10PW	CLR-15S
	DS-LBMBL25-MET	4	○	.984	25.000	.945	24	.945	24	–	–	4.724	120 ＊1	＊2	＊2	LRIS-4 × 10PW	CLR-15S
	DS-LBMBL25	4	○	1	25.400	.945	24	.945	24	–	–	5.906	150 ＊1	＊2	＊2	LRIS-4 × 10PW	CLR-15S
Short type	**CH-LBML1012H**	5	○	–	–	.394	10	.472	12	.394	10	3.937	100	＊3	＊3	LRIS-4 × 10PW	CLR-15S
	CH-LBML1212H	5	○	–	–	.472	12	.472	12	.472	12	3.937	100	＊3	＊3	LRIS-4 × 10PW	CLR-15S

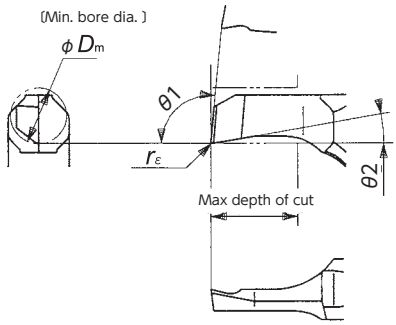
LBM Series - Toolholders

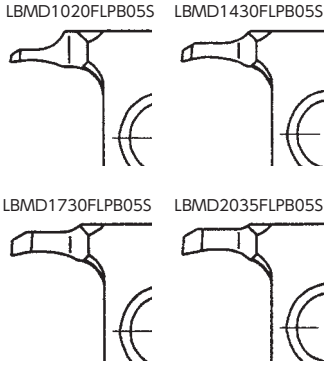
LBMD-S

Short type

Mirror finish





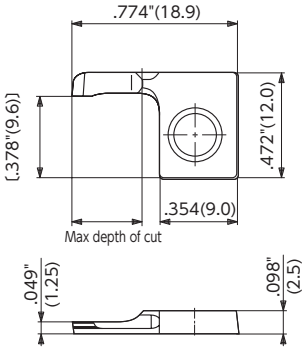


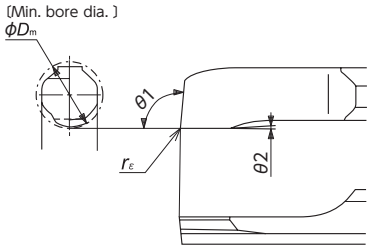
LBMD2335FLPB05S shown

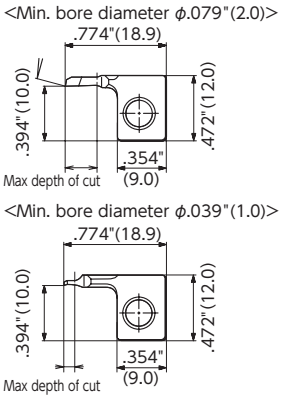
DS-LBMB

Long type

Mirror finish







Min. bore diameter ϕ.118"(3.0) shown

■LBM Mirror finish

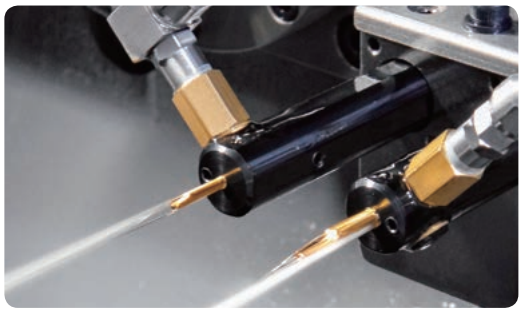
Insert type	Item Number		Chip-breaker	Min. Bore Dia. ϕDm (Inch)	Min. Bore Dia. ϕDm (mm)	Max. Depth (Inch)	Max. Depth (mm)	θ1	θ2	rε (Inch)	rε (mm)	Coated Carbide VM1	Coated Carbide ZM3
Short type	LBMD1020FLVBS	Ⓜ	Yes	.039	1.0	.079	2.0	95°	10°	.000	0.00	○	
	LBMD1020FLPB05S	Ⓜ	Yes	.039	1.0	.079	2.0	95°	10°	.002	0.05	○	
	LBMD1430FLVBS	Ⓜ	Yes	.055	1.4	.118	3.0	95°	10°	.000	0.00	○	
	LBMD1430FLPB05S	Ⓜ	Yes	.055	1.4	.118	3.0	95°	10°	.002	0.05	●	
	LBMD1730FLVBS	Ⓜ	Yes	.067	1.7	.118	3.0	95°	10°	.000	0.00	○	
	LBMD1730FLPB05S	Ⓜ	Yes	.067	1.7	.118	3.0	95°	10°	.002	0.05	○	
	LBMD2035FLVBS	Ⓜ	Yes	.079	2.0	.138	3.5	95°	10°	.000	0.00	○	
	LBMD2035FLPB05S	Ⓜ	Yes	.079	2.0	.138	3.5	95°	10°	.002	0.05	○	
	LBMD2335FLVBS	Ⓜ	Yes	.091	2.3	.138	3.5	95°	10°	.000	0.00	○	
	LBMD2335FLPB05S	Ⓜ	Yes	.091	2.3	.138	3.5	95°	10°	.002	0.05	●	
Long type	LBMD1020FLVB	Ⓜ	Yes	.039	1.0	.079	2.0	95°	10°	.000	0.00	●	
	LBMD1020FLPB05	Ⓜ	Yes	.039	1.0	.079	2.0	95°	10°	.002	0.05	●	
	LBMD2060FLVB	Ⓜ	Yes	.079	2.0	.236	6.0	95°	10°	.000	0.00	●	
	LBMD2060FLPB05	Ⓜ	Yes	.079	2.0	.236	6.0	95°	10°	.002	0.05	●	
	LBME2060FLV	Ⓜ	No	.079	2.0	.236	6.0	105°	2°	.000	0.00	○	
	LBME2060FLP05	Ⓜ	No	.079	2.0	.236	6.0	105°	2°	.002	0.05	○	
	LBME2060FLVB	Ⓜ	Yes	.079	2.0	.236	6.0	105°	2°	.000	0.00	○	
	LBME2060FLPB05	Ⓜ	Yes	.079	2.0	.236	6.0	105°	2°	.002	0.05	○	
	LBMC3080FLV	Ⓜ	No	.118	3.0	.315	8.0	95°	2°	.000	0.00	○	○
	LBMC3080FLP05	Ⓜ	No	.118	3.0	.315	8.0	95°	2°	.002	0.05	○	○
	LBM3080FLVB	Ⓜ	Yes	.118	3.0	.315	8.0	90°	2°	.000	0.00	●	
	LBM3080FLPB05	Ⓜ	Yes	.118	3.0	.315	8.0	90°	2°	.002	0.05	●	
	LBMC3080FLVB	Ⓜ	Yes	.118	3.0	.315	8.0	95°	2°	.000	0.00	○	○
	LBMC3080FLPB05	Ⓜ	Yes	.118	3.0	.315	8.0	95°	2°	.002	0.05	○	○

● : Stock ○ : 1-2 week delivery Ⓜ : Mirror finish

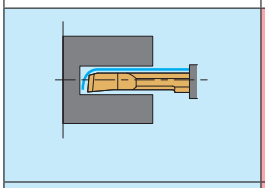
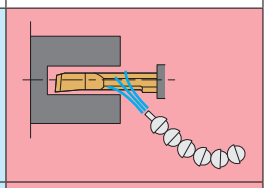
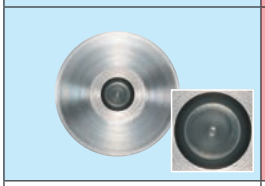
Cutting condition ➡K152

STICK DUO SPLASH

- Coolant through sleeves for ID Boring with Adjustable Overhang Mechanism -

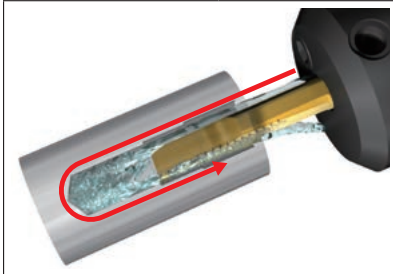
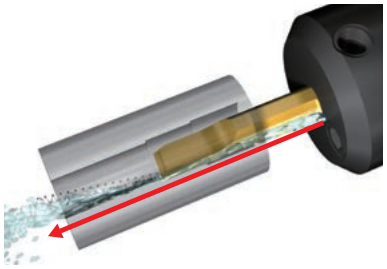
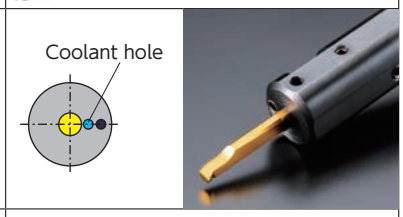
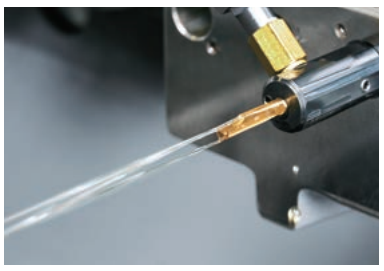
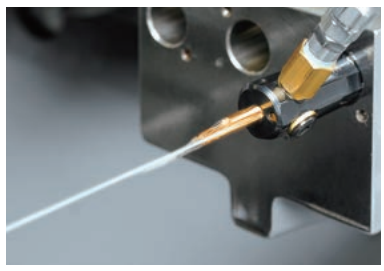


■No chip problems

STICK DUO SPLASH	External coolant
	
	
No chip inside hole	*Chip packed*

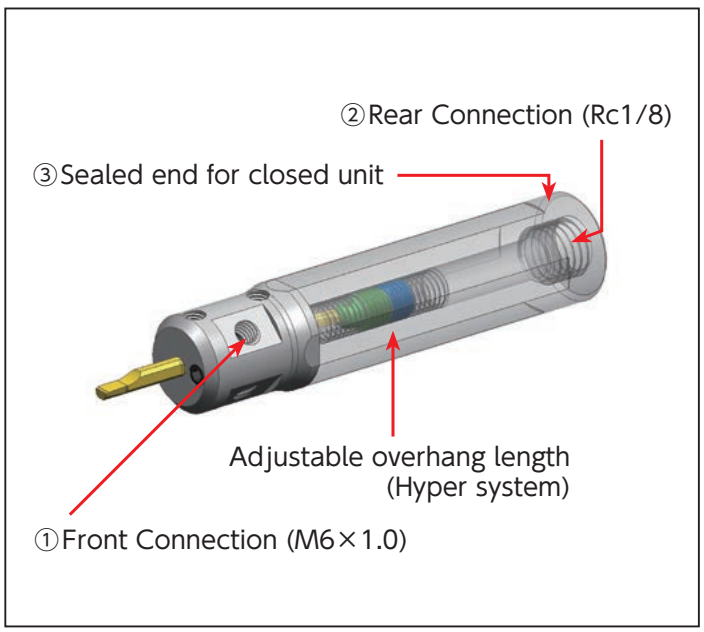
Material : 4140
Insert bar : SHFS040R005S
Hole depth : .590"(15㎜)
Pilot hole : φ.201"×1.102"L(φ5.1×28.0㎜L)
Coolant Pressure : 725psi(5MPa)

■Can choose 2-way coolant direct

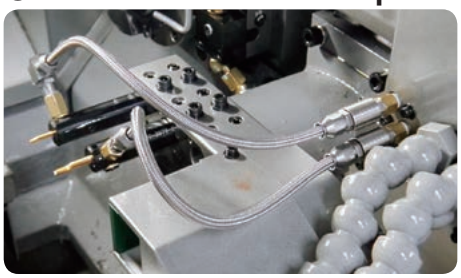
Ⅰ) For Blind hole	Ⅱ) For Through hole
	
	
	

Just rotated 180 degrees

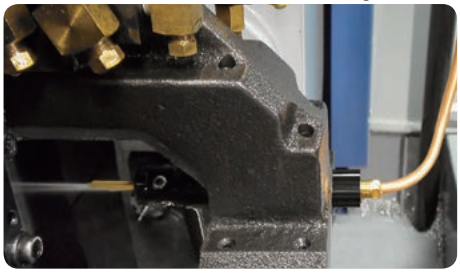
■3-way coolant connection



①Front Connection example



②Rear Connection example



SPLASH DUO - Stick Duo Hyper with Coolant through -

HY-NBH-OH (Coolant through)

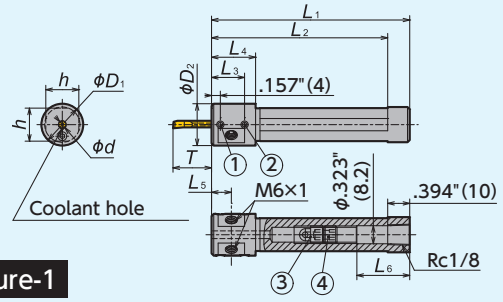


Figure-1

HY-NBH-OH (Coolant through)

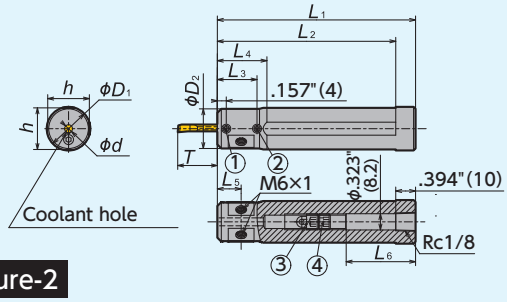
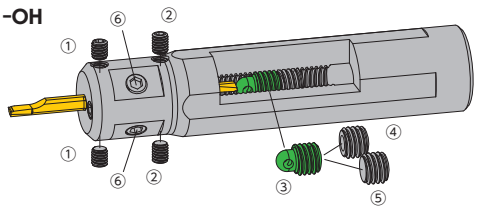


Figure-2

Item Number	Stock	Figure	φ d		φD1		φD2	h	L1	L2	L3	L4	L5	L6	Overhang Length of Bar T			
															Min.		Max.	
			(Inch)	(mm)	(Inch)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(Inch)	(mm)	(Inch)	(mm)
HY-NBH02016G-OH	●	1	.079	2	.630	16	19	15	90	80	15	19	9.5	29	.197	5.0	.709	18.0
HY-NBH02516G-OH	●	1	.098	2.5	.630	16	19	15	90	80	15	19	9.5	30	.248	6.3	.768	19.5
HY-NBH03016G-OH	●	1	.118	3	.630	16	19	15	90	80	15	19	9.5	31	.295	7.5	.827	21.0
HY-NBH03516G-OH	●	1	.138	3.5	.630	16	19	15	90	80	15	19	9.5	23	.346	8.8	.965	24.5
HY-NBH04016G-OH	●	1	.157	4	.630	16	19	15	90	80	20	24	12	23	.394	10.0	1.102	28.0
HY-NBH05016G-OH	●	1	.197	5	.630	16	19	15	90	80	20	24	12	16	.492	12.5	1.378	35.0
HY-NBH02019J-OH	●	2	.079	2	3/4	19.05	19.05	18	110	100	15	—	9.5	49	.197	5.0	.709	18.0
HY-NBH02519J-OH	●	2	.098	2.5	3/4	19.05	19.05	18	110	100	15	—	9.5	50	.248	6.3	.768	19.5
HY-NBH03019J-OH	●	2	.118	3	3/4	19.05	19.05	18	110	100	15	—	9.5	51	.295	7.5	.827	21.0
HY-NBH03519J-OH	●	2	.138	3.5	3/4	19.05	19.05	18	110	100	15	—	9.5	43	.346	8.8	.965	24.5
HY-NBH04019J-OH	●	2	.157	4	3/4	19.05	19.05	18	110	100	20	—	12	43	.394	10.0	1.102	28.0
HY-NBH05019J-OH	●	2	.197	5	3/4	19.05	19.05	18	110	100	20	—	12	36	.492	12.5	1.378	35.0
HY-NBH02020J-OH	●	2	.079	2	.787	20	20	19	110	100	15	—	9.5	49	.197	5.0	.709	18.0
HY-NBH02520J-OH	●	2	.098	2.5	.787	20	20	19	110	100	15	—	9.5	50	.248	6.3	.768	19.5
HY-NBH03020J-OH	●	2	.118	3	.787	20	20	19	110	100	15	—	9.5	51	.295	7.5	.827	21.0
HY-NBH03520J-OH	●	2	.138	3.5	.787	20	20	19	110	100	15	—	9.5	43	.346	8.8	.965	24.5
HY-NBH04020J-OH	●	2	.157	4	.787	20	20	19	110	100	20	—	12	43	.394	10.0	1.102	28.0
HY-NBH05020J-OH	●	2	.197	5	.787	20	20	19	110	100	20	—	12	36	.492	12.5	1.378	35.0
HY-NBH02022X-OH	●	2	.079	2	.866	22	20	21	120	110	15	25	9.5	59	.197	5.0	.709	18.0
HY-NBH02522X-OH	●	2	.098	2.5	.866	22	20	21	120	110	15	25	9.5	60	.248	6.3	.768	19.5
HY-NBH03022X-OH	●	2	.118	3	.866	22	20	21	120	110	15	25	9.5	61	.295	7.5	.827	21.0
HY-NBH03522X-OH	●	2	.138	3.5	.866	22	20	21	120	110	15	25	9.5	53	.346	8.8	.965	24.5
HY-NBH04022X-OH	●	2	.157	4	.866	22	20	21	120	110	20	25	12	53	.394	10.0	1.102	28.0
HY-NBH05022X-OH	●	2	.197	5	.866	22	20	21	120	110	20	25	12	46	.492	12.5	1.378	35.0
HY-NBH02025.0K-OH	●	2	.079	2	.984	25.0	20	24	125	115	15	25	9.5	64	.197	5.0	.709	18.0
HY-NBH02525.0K-OH	●	2	.098	2.5	.984	25.0	20	24	125	115	15	25	9.5	65	.248	6.3	.768	19.5
HY-NBH03025.0K-OH	●	2	.118	3	.984	25.0	20	24	125	115	15	25	9.5	66	.295	7.5	.827	21.0
HY-NBH03525.0K-OH	●	2	.138	3.5	.984	25.0	20	24	125	115	15	25	9.5	58	.346	8.8	.965	24.5
HY-NBH04025.0K-OH	●	2	.157	4	.984	25.0	20	24	125	115	20	25	12	58	.394	10.0	1.102	28.0
HY-NBH05025.0K-OH	●	2	.197	5	.984	25.0	20	24	125	115	20	25	12	51	.492	12.5	1.378	35.0
HY-NBH02025.4K-OH	●	2	.079	2	1	25.4	20	24	125	115	15	25	9.5	64	.197	5.0	.709	18.0
HY-NBH02525.4K-OH	●	2	.098	2.5	1	25.4	20	24	125	115	15	25	9.5	65	.248	6.3	.768	19.5
HY-NBH03025.4K-OH	●	2	.118	3	1	25.4	20	24	125	115	15	25	9.5	66	.295	7.5	.827	21.0
HY-NBH03525.4K-OH	●	2	.138	3.5	1	25.4	20	24	125	115	15	25	9.5	58	.346	8.8	.965	24.5
HY-NBH04025.4K-OH	●	2	.157	4	1	25.4	20	24	125	115	20	25	12	58	.394	10.0	1.102	28.0
HY-NBH05025.4K-OH	●	2	.197	5	1	25.4	20	24	125	115	20	25	12	51	.492	12.5	1.378	35.0

Parts for SPLASH DUO

Item Number	Clamp Screw		Overhang Adjustment		
HY-NBH ... -OH	①	②	③	④	⑤
	SS04045FS	SS0406F	SS0811R-OH	SS0806F-OH (Through hole)	SS0806F
	M6 Screw		Wrench		
	⑥		for ①②	for ③④⑤	for ⑥
	SS0606SC		LW-2	LW-4×104	LW-3

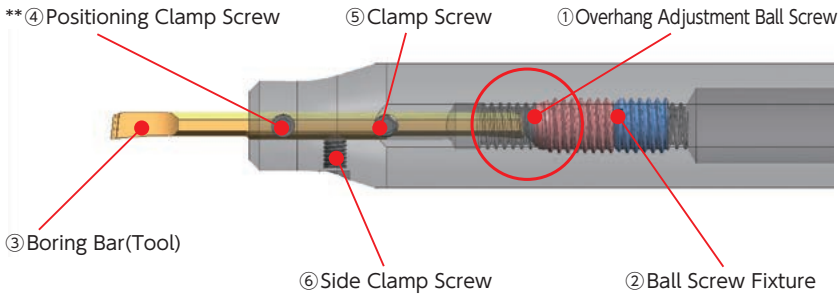
● : Stock　　💧 : Coolant through

Insert bars ➡K160

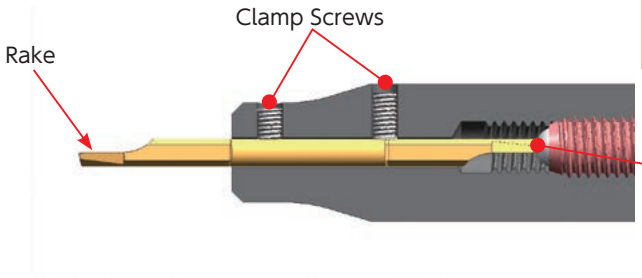
STICK DUO HYPER

- Sleeves for ID Boring with Adjustable Overhang Mechanism -

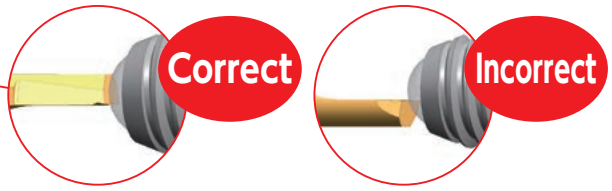
■Can Index boring bars like inserts

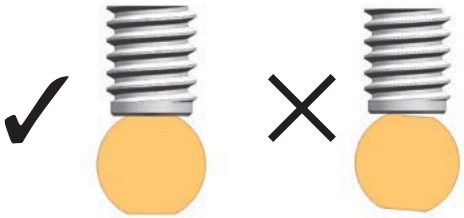


■Installation Procedure for STICK DUO Hyper



Caution: Improper installation dramatically increases the chance of chipping cutting edge

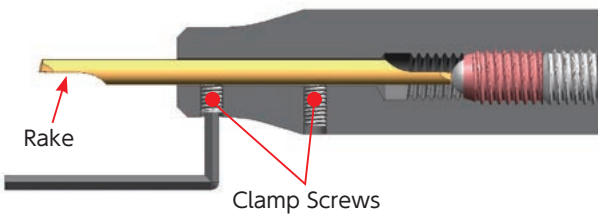




Improper clamping of boring bar causes unstable centerline height and offset

①Position the overhang adjustment ball screw to determine overhang amount
②Slide the ball screw fixture to secure the ball screw location
③Insert a boring bar (tool)
Note: Make sure to insert the boring bar correctly so that the rake faces is toward the side where the clamp screws are located
④Secure the boring bar by tightening the positioning clamp screw ▶Recommended Clamping Torque:17.7 lb in
** Make sure to clamp the boring bar so that flat surface of the bar makes proper contacts with clamp screws
⑤Secure the boring bar by tightening the remaining clamp screws ▶Recommended Clamping Torque:17.7 lb in
⑥Even if 4 and 5 cannot be performed due to tool clearance and layout, the tool can be used by only securing the side clamp screw
Once the initial setup is complete, repeat the above procedures 3 thru 5 for each index

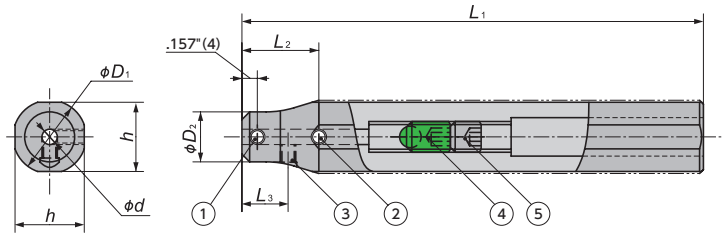
■When the tool is installed upside down



Toolholder must be installed so that clamp screws and rake of the tool face toward the same side

STICK DUO HYPER

HY-NBH



Please refer to φd to find correct-size inserts (bars)

Item Number	Stock	φd (Inch)	φd (mm)	φD1 (Inch)	φD1 (mm)	φD2 (mm)	h (mm)	L1 (mm)	L2 (mm)	L3 (mm)	Clamp Screws ①	②	③
HY-NBH02016H	○	.079	2.0	**.630**	**16**	11	15	100	15	9.5	SS04045FS	SS0406F	SS0404F
HY-NBH02516H	○	.098	2.5	**.630**	**16**	11.5	15	100	15	9.5	SS04045FS	SS0406F	SS0404F
HY-NBH03016H	○	.118	3.0	**.630**	**16**	12	15	100	15	9.5	SS04045FS	SS0406F	SS0404F
HY-NBH03516H	○	.138	3.5	**.630**	**16**	12.5	15	100	20	12	SS04045FS	SS0404F	SS0404F
HY-NBH04016H	○	.157	4.0	**.630**	**16**	13	15	100	20	12	SS04045FS	SS0404F	SS0404F
HY-NBH05016H	○	.197	5.0	**.630**	**16**	14	15	100	20	12	SS04045FS	SS0404F	SS0404F
HY-NBH02019K	●	.079	2.0	**3/4**	**19.05**	11	18	125	15	9.5	SS04045FS	SS0406F	SS0404F
HY-NBH02519K	●	.098	2.5	**3/4**	**19.05**	11.5	18	125	15	9.5	SS04045FS	SS0406F	SS0404F
HY-NBH03019K	●	.118	3.0	**3/4**	**19.05**	12	18	125	15	9.5	SS04045FS	SS0406F	SS0404F
HY-NBH03519K	●	.138	3.5	**3/4**	**19.05**	12.5	18	125	20	12	SS04045FS	SS0406F	SS0404F
HY-NBH04019K	●	.157	4.0	**3/4**	**19.05**	13	18	125	20	12	SS04045FS	SS0406F	SS0404F
HY-NBH05019K	●	.197	5.0	**3/4**	**19.05**	14	18	125	20	12	SS04045FS	SS0406F	SS0404F
HY-NBH02020K	○	.079	2.0	**.787**	**20**	11	19	125	15	9.5	SS04045FS	SS0406F	SS0404F
HY-NBH02520K	○	.098	2.5	**.787**	**20**	11.5	19	125	15	9.5	SS04045FS	SS0406F	SS0404F
HY-NBH03020K	○	.118	3.0	**.787**	**20**	12	19	125	15	9.5	SS04045FS	SS0406F	SS0404F
HY-NBH03520K	○	.138	3.5	**.787**	**20**	12.5	19	125	20	12	SS04045FS	SS0406F	SS0404F
HY-NBH04020K	○	.157	4.0	**.787**	**20**	13	19	125	20	12	SS04045FS	SS0406F	SS0404F
HY-NBH05020K	○	.197	5.0	**.787**	**20**	14	19	125	20	12	SS04045FS	SS0406F	SS0404F
HY-NBH02022K	●	.079	2.0	**.866**	**22**	11	21	125	15	9.5	SS04045FS	SS0406F	SS0404F
HY-NBH02522K	●	.098	2.5	**.866**	**22**	11.5	21	125	15	9.5	SS04045FS	SS0406F	SS0404F
HY-NBH03022K	●	.118	3.0	**.866**	**22**	12	21	125	15	9.5	SS04045FS	SS0406F	SS0404F
HY-NBH03522K	●	.138	3.5	**.866**	**22**	12.5	21	125	20	12	SS04045FS	SS0406F	SS0404F
HY-NBH04022K	●	.157	4.0	**.866**	**22**	13	21	125	20	12	SS04045FS	SS0406F	SS0404F
HY-NBH05022K	●	.197	5.0	**.866**	**22**	14	21	125	20	12	SS04045FS	SS0406F	SS0404F
HY-NBH02025K-MET	○	.079	2.0	**.984**	**25**	11	24	125	15	9.5	SS04045FS	SS0406F	SS0404F
HY-NBH02525K-MET	○	.098	2.5	**.984**	**25**	11.5	24	125	15	9.5	SS04045FS	SS0406F	SS0404F
HY-NBH03025K-MET	○	.118	3.0	**.984**	**25**	12	24	125	15	9.5	SS04045FS	SS0406F	SS0404F
HY-NBH03525K-MET	○	.138	3.5	**.984**	**25**	12.5	24	125	20	12	SS04045FS	SS0406F	SS0404F
HY-NBH04025K-MET	○	.157	4.0	**.984**	**25**	13	24	125	20	12	SS04045FS	SS0406F	SS0404F
HY-NBH05025K-MET	○	.197	5.0	**.984**	**25**	14	24	125	20	12	SS04045FS	SS0406F	SS0404F
HY-NBH02025K	●	.079	2.0	**1**	**25.4**	11	24	125	15	9.5	SS04045FS	SS0406F	SS0404F
HY-NBH02525K	●	.098	2.5	**1**	**25.4**	11.5	24	125	15	9.5	SS04045FS	SS0406F	SS0404F
HY-NBH03025K	●	.118	3.0	**1**	**25.4**	12	24	125	15	9.5	SS04045FS	SS0406F	SS0404F
HY-NBH03525K	●	.138	3.5	**1**	**25.4**	12.5	24	125	20	12	SS04045FS	SS0406F	SS0404F
HY-NBH04025K	●	.157	4.0	**1**	**25.4**	13	24	125	20	12	SS04045FS	SS0406F	SS0404F
HY-NBH05025K	●	.197	5.0	**1**	**25.4**	14	24	125	20	12	SS04045FS	SS0406F	SS0404F

Spare Parts

Item Number	Overhang Adjustment ④	Overhang Adjustment ⑤	Wrench for ①②③	Wrench for ④⑤
HY-NBH ... K	SS0812R	SS0808F	LW-2	LW-4×104

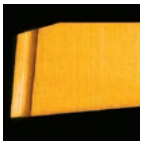
● : Stock ○ : 1-2 week delivery

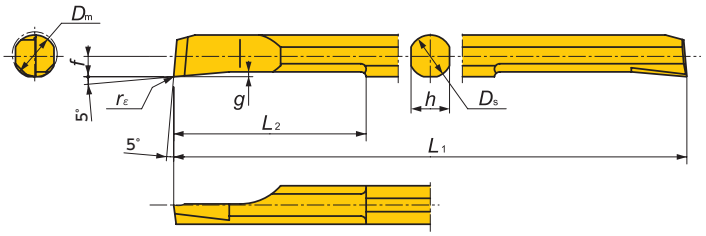
Insert bars ➡K160

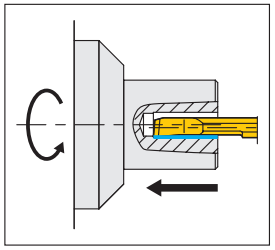
Bars for STICK DUO SPLASH / STICK DUO HYPER

SHFS-S type (for ID Boring)

Minimum Bore Diameter .087" (2.2㎜)

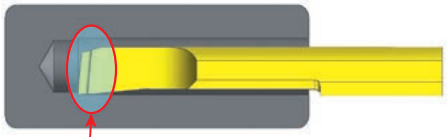






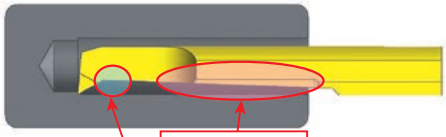
Item Number	Ds (Inch)	Ds (㎜)	Min Bore Dia. Dm (Inch)	Min Bore Dia. Dm (㎜)	L1 (㎜)	L2 (㎜)	f (㎜)	h (㎜)	g (㎜)	rε (Inch)	rε (㎜)	Chipbreaker	Coated Carbide TM4
SHFS020R005S	.079	2	**.087**	**2.2**	50	10	0.9	1.8	0.25	.002	0.05	Type S	●
SHFS025R005S	.098	2.5	**.106**	**2.7**	50	12.5	1.15	2.3	0.30	.002	0.05	Type S	●
SHFS025R015S	.098	2.5	**.106**	**2.7**	50	12.5	1.15	2.3	0.30	.006	0.15	Type S	●
SHFS030R005S	.118	3	**.126**	**3.2**	50	15	1.4	2.7	0.40	.002	0.05	Type S	●
SHFS030R015S	.118	3	**.126**	**3.2**	50	15	1.4	2.7	0.40	.006	0.15	Type S	●
SHFS035R005S	.138	3.5	**.146**	**3.7**	60	17.5	1.65	3.2	0.40	.002	0.05	Type S	●
SHFS035R015S	.138	3.5	**.146**	**3.7**	60	17.5	1.65	3.2	0.40	.006	0.15	Type S	●
SHFS040R005S	.157	4	**.165**	**4.2**	60	20	1.9	3.6	0.45	.002	0.05	Type S	●
SHFS040R015S	.157	4	**.165**	**4.2**	60	20	1.9	3.6	0.45	.006	0.15	Type S	●
SHFS050R005S	.197	5	**.205**	**5.2**	70	25	2.4	4.5	0.50	.002	0.05	Type S	●
SHFS050R015S	.197	5	**.205**	**5.2**	70	25	2.4	4.5	0.50	.006	0.15	Type S	●

S.FS-S type



Chipbreaker for sharp cutting

S.FB-F type

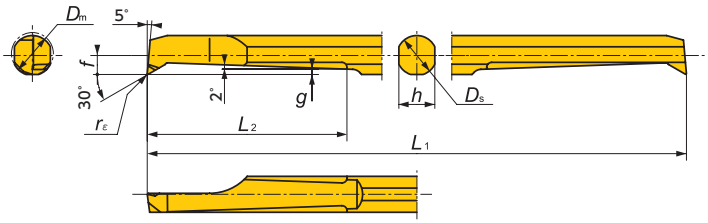


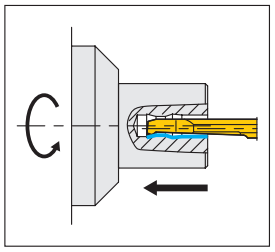
Back taper

Wide area of chippocket

SHFB-F type (for ID Boring)

Minimum Bore Diameter .087" (2.2㎜)

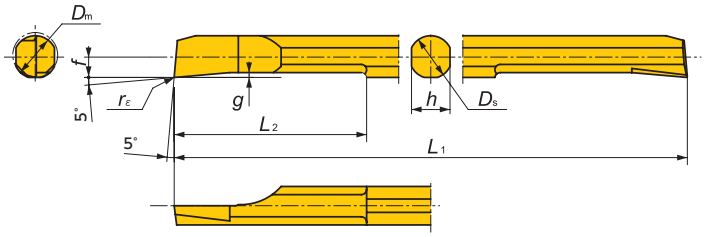


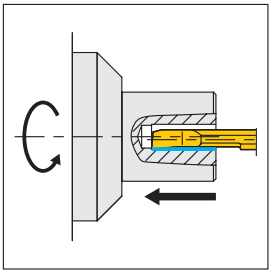


Evacuate chips backward

Item Number	Ds (Inch)	Ds (㎜)	Min Bore Dia. Dm (Inch)	Min Bore Dia. Dm (㎜)	L1 (㎜)	L2 (㎜)	f (㎜)	h (㎜)	g (㎜)	rε (Inch)	rε (㎜)	Chipbreaker	Coated Carbide TM4
SHFB020R005F	.087	2	**.087**	**2.2**	50	8	0.95	1.8	0.25	.002	0.05	Type F	●
SHFB025R005F	.098	2.5	**.106**	**2.7**	50	12.5	1.2	2.3	0.30	.002	0.05	Type F	●
SHFB025R015F	.098	2.5	**.106**	**2.7**	50	12.5	1.2	2.3	0.30	.006	0.15	Type F	●
SHFB030R005F	.118	3	**.126**	**3.2**	50	15	1.4	2.7	0.45	.002	0.05	Type F	●
SHFB030R015F	.118	3	**.126**	**3.2**	50	15	1.4	2.7	0.45	.006	0.15	Type F	●
SHFB035R005F	.138	3.5	**.146**	**3.7**	60	17.5	1.65	3.2	0.50	.002	0.05	Type F	●
SHFB035R015F	.138	3.5	**.146**	**3.7**	60	17.5	1.65	3.2	0.50	.006	0.15	Type F	●
SHFB040R005F	.157	4	**.165**	**4.2**	60	20	1.9	3.6	0.50	.002	0.05	Type F	●
SHFB040R015F	.157	4	**.165**	**4.2**	60	20	1.9	3.6	0.50	.006	0.15	Type F	●
SHFB050R005F	.197	5	**.205**	**5.2**	70	25	2.4	4.5	0.70	.002	0.05	Type F	●
SHFB050R015F	.197	5	**.205**	**5.2**	70	25	2.4	4.5	0.70	.006	0.15	Type F	●

SHFS-H type (for ID Boring) Minimum Bore Diameter .087" (2.2㎜)

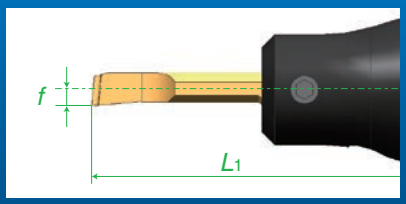




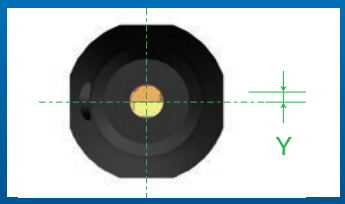
Mirror finish

Item Number	Ds (Inch)	Ds (㎜)	Min Bore Dia. Dm (Inch)	Min Bore Dia. Dm (㎜)	L1 (㎜)	L2 (㎜)	f (㎜)	h (㎜)	g (㎜)	rε (Inch)	rε (㎜)	Chipbreaker	Coated Carbide TM4
SHFS020R005H Ⓜ	.079	2	.087	2.2	50	10	0.9	1.8	0.25	.002	0.05	None	●
SHFS025R005H Ⓜ	.098	2.5	.106	2.7	50	12.5	1.15	2.3	0.30	.002	0.05	None	●
SHFS025R015H Ⓜ	.098	2.5	.106	2.7	50	12.5	1.15	2.3	0.30	.006	0.15	None	●
SHFS030R005H Ⓜ	.118	3	.126	3.2	50	15	1.4	2.7	0.40	.002	0.05	None	●
SHFS030R015H Ⓜ	.118	3	.126	3.2	50	15	1.4	2.7	0.40	.006	0.15	None	●
SHFS035R005H Ⓜ	.138	3.5	.146	3.7	60	17.5	1.65	3.2	0.40	.002	0.05	None	●
SHFS035R015H Ⓜ	.138	3.5	.146	3.7	60	17.5	1.65	3.2	0.40	.006	0.15	None	●
SHFS040R005H Ⓜ	.157	4	.165	4.2	60	20	1.9	3.6	0.45	.002	0.05	None	●
SHFS040R015H Ⓜ	.157	4	.165	4.2	60	20	1.9	3.6	0.45	.006	0.15	None	●
SHFS050R005H Ⓜ	.197	5	.205	5.2	70	25	2.4	4.5	0.50	.002	0.05	None	●
SHFS050R015H Ⓜ	.197	5	.205	5.2	70	25	2.4	4.5	0.50	.006	0.15	None	●

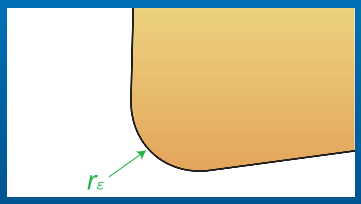
■Tolerance of SHFS-S/SHFB-F/SHFS-H bars



Offset f : ±.0006"
Tool Length L_1 : ±.0008"

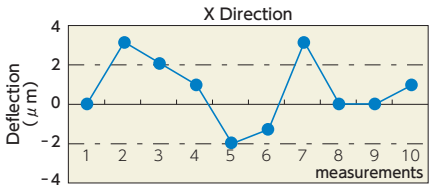


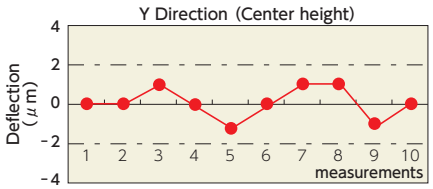
Centerline Y : +.002"/−.000"

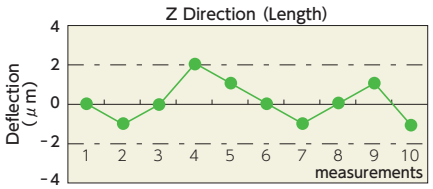


Corner r ε : ±.0006"

■Repeatability of (STICK DUO SPLASH / STICK DUO Hyper) with (SHFS / SHFB) bars





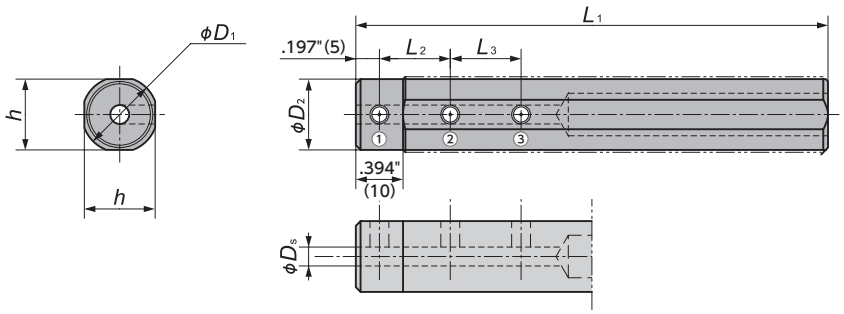


● : Stock ○ : 1-2 week delivery Ⓜ : Mirror finish

Sleeves ➡K157 • 159 Cutting condition ➡K152

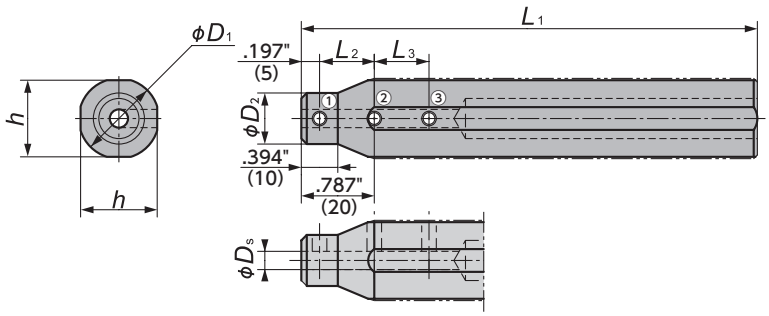
STICK DUO - Sleeves for ID machining -

NBH



Item number	Stock	ϕDs (Inch)	ϕDs (mm)	ϕD1 (Inch)	ϕD1 (mm)	ϕD2 (mm)	h (mm)	L1 (mm)	L2 (mm)	L3 (mm)	Clamp screw ①	Clamp screw ②	Clamp screw ③	Wrench
NBH02015H	○	.079	2.0	**5/8**		15	15	100	10	—	SS0406F	SS0406F	—	LW-2
NBH02515H	○	.098	2.5	**5/8**		15	15	100	10	—	SS0406F	SS0406F	—	LW-2
NBH03015H	○	.118	3.0	**5/8**		15	15	100	10	10	SS0404F	SS0404F	SS0404F	LW-2
NBH03515H	○	.138	3.5	**5/8**		15	15	100	10	10	SS0404F	SS0404F	SS0404F	LW-2
NBH04015H	○	.157	4.0	**5/8**		15	15	100	15	15	SS0404F	SS0404F	SS0404F	LW-2
NBH04515H	○	.177	4.5	**5/8**		15	15	100	15	15	SS0404F	SS0404F	SS0404F	LW-2
NBH05015H	○	.197	5.0	**5/8**		15	15	100	15	15	SS0404F	SS0404F	SS0404F	LW-2
NBH06015H	○	.236	6.0	**5/8**		15	15	100	20	20	SS0404F	SS0404F	SS0404F	LW-2
NBH08015H	○	.315	8.0	**5/8**		15	15	100	20	20	SS0403F	SS0403F	SS0403F	LW-2
NBH02016H	○	.079	2.0	**.630**	**16**	15	15	100	10	—	SS0406F	SS0406F	—	LW-2
NBH02516H	○	.098	2.5	**.630**	**16**	15	15	100	10	—	SS0406F	SS0406F	—	LW-2
NBH03016H	○	.118	3.0	**.630**	**16**	15	15	100	10	10	SS0404F	SS0404F	SS0404F	LW-2
NBH03516H	○	.138	3.5	**.630**	**16**	15	15	100	10	10	SS0404F	SS0404F	SS0404F	LW-2
NBH04016H	○	.157	4.0	**.630**	**16**	15	15	100	15	15	SS0404F	SS0404F	SS0404F	LW-2
NBH04516H	○	.177	4.5	**.630**	**16**	15	15	100	15	15	SS0404F	SS0404F	SS0404F	LW-2
NBH05016H	○	.197	5.0	**.630**	**16**	15	15	100	15	15	SS0404F	SS0404F	SS0404F	LW-2
NBH06016H	○	.236	6.0	**.630**	**16**	15	15	100	20	20	SS0404F	SS0404F	SS0404F	LW-2
NBH07016H	○	.276	7.0	**.630**	**16**	15	15	100	20	20	SS0403F	SS0404F	SS0404F	LW-2
NBH08016H	○	.315	8.0	**.630**	**16**	15	15	100	20	20	SS0403F	SS0403F	SS0403F	LW-2
NBH02019K	○	.079	2.0	**3/4**		18	18	125	10	—	SS0408F	SS0408F	—	LW-2
NBH02519K	○	.098	2.5	**3/4**		18	18	125	10	—	SS0408F	SS0408F	—	LW-2
NBH03019K	○	.118	3.0	**3/4**		18	18	125	10	10	SS0406F	SS0406F	SS0406F	LW-2
NBH03519K	○	.138	3.5	**3/4**		18	18	125	10	10	SS0406F	SS0406F	SS0406F	LW-2
NBH04019K	○	.157	4.0	**3/4**		18	18	125	15	15	SS0406F	SS0406F	SS0406F	LW-2
NBH04519K	○	.177	4.5	**3/4**		18	18	125	15	15	SS0406F	SS0406F	SS0406F	LW-2
NBH05019K	○	.197	5.0	**3/4**		18	18	125	15	15	SS0406F	SS0406F	SS0406F	LW-2
NBH06019K	○	.236	6.0	**3/4**		18	18	125	20	20	SS0406F	SS0406F	SS0406F	LW-2
NBH07019K	○	.276	7.0	**3/4**		18	18	125	20	20	SS0404F	SS0404F	SS0404F	LW-2
NBH08019K	○	.315	8.0	**3/4**		18	18	125	20	20	SS0404F	SS0404F	SS0404F	LW-2
NBH10019K	○	.394	10.0	**3/4**		18	18	125	20	20	SS0403F	SS0404F	SS0404F	LW-2

NBH

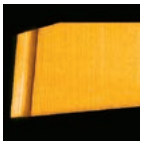


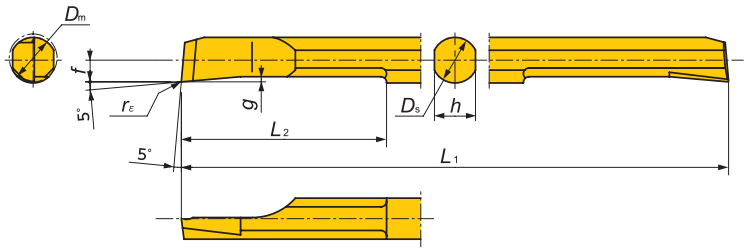
Item number	Stock	ϕD_s (Inch)	ϕD_s (mm)	ϕD_1 (Inch)	ϕD_1 (mm)	ϕD_2 (mm)	h_1 (mm)	L_1 (mm)	L_2 (mm)	L_3 (mm)	Clamp screw ①	Clamp screw ②	Clamp screw ③	Wrench
NBH02020K	○	.079	2.0	.787	20	11	19	125	10	—	SS0404F	SS0404F	—	LW-2
NBH02520K	○	.098	2.5	.787	20	11	19	125	10	—	SS0404F	SS0404F	—	LW-2
NBH03020K	○	.118	3.0	.787	20	12	19	125	10	10	SS0404F	SS0404F	SS0406F	LW-2
NBH03520K	○	.138	3.5	.787	20	12	19	125	10	10	SS0404F	SS0404F	SS0406F	LW-2
NBH04020K	○	.157	4.0	.787	20	13	19	125	15	15	SS0404F	SS0406F	SS0406F	LW-2
NBH04520K	○	.177	4.5	.787	20	13	19	125	15	15	SS0404F	SS0406F	SS0406F	LW-2
NBH05020K	○	.197	5.0	.787	20	14	19	125	15	15	SS0404F	SS0406F	SS0406F	LW-2
NBH06020K	○	.236	6.0	.787	20	15	19	125	20	20	SS0404F	SS0406F	SS0406F	LW-2
NBH07020K	○	.276	7.0	.787	20	16	19	125	20	20	SS0404F	SS0406F	SS0406F	LW-2
NBH08020K	○	.315	8.0	.787	20	17	19	125	20	20	SS0404F	SS0404F	SS0404F	LW-2
NBH10020K	○	.394	10.0	.787	20	19	19	125	20	20	SS0404F	SS0404F	SS0404F	LW-2
NBH02022K	○	.079	2.0	.866	22	11	21	125	10	—	SS0404F	SS0406F	—	LW-2
NBH02522K	○	.098	2.5	.866	22	11	21	125	10	—	SS0404F	SS0406F	—	LW-2
NBH03022K	○	.118	3.0	.866	22	12	21	125	10	10	SS0404F	SS0406F	SS0408F	LW-2
NBH03522K	○	.138	3.5	.866	22	12	21	125	10	10	SS0404F	SS0406F	SS0406F	LW-2
NBH04022K	○	.157	4.0	.866	22	13	21	125	15	15	SS0404F	SS0406F	SS0406F	LW-2
NBH04522K	○	.177	4.5	.866	22	13	21	125	15	15	SS0404F	SS0406F	SS0406F	LW-2
NBH05022K	○	.197	5.0	.866	22	14	21	125	15	15	SS0404F	SS0406F	SS0406F	LW-2
NBH06022K	○	.236	6.0	.866	22	15	21	125	20	20	SS0404F	SS0406F	SS0406F	LW-2
NBH07022K	○	.276	7.0	.866	22	16	21	125	20	20	SS0404F	SS0406F	SS0406F	LW-2
NBH08022K	○	.315	8.0	.866	22	17	21	125	20	20	SS0404F	SS0406F	SS0406F	LW-2
NBH10022K	○	.394	10.0	.866	22	19	21	125	20	20	SS0404F	SS0404F	SS0404F	LW-2
NBH12022K	○	.472	12.0	.866	22	21	21	125	25	25	SS0404F	SS0404F	SS0404F	LW-2
NBH02023K	○	.079	2.0	.906	23	11	21	125	10	—	SS0404F	SS0406F	—	LW-2
NBH02523K	○	.098	2.5	.906	23	11	21	125	10	—	SS0404F	SS0406F	—	LW-2
NBH03023K	○	.118	3.0	.906	23	12	21	125	10	10	SS0404F	SS0406F	SS0408F	LW-2
NBH03523K	○	.138	3.5	.906	23	12	21	125	10	10	SS0404F	SS0406F	SS0406F	LW-2
NBH04023K	○	.157	4.0	.906	23	13	21	125	15	15	SS0404F	SS0406F	SS0406F	LW-2
NBH04523K	○	.177	4.5	.906	23	13	21	125	15	15	SS0404F	SS0406F	SS0406F	LW-2
NBH05023K	○	.197	5.0	.906	23	14	21	125	15	15	SS0404F	SS0406F	SS0406F	LW-2
NBH06023K	○	.236	6.0	.906	23	15	21	125	20	20	SS0404F	SS0406F	SS0406F	LW-2
NBH08023K	○	.315	8.0	.906	23	17	21	125	20	20	SS0404F	SS0406F	SS0406F	LW-2
NBH10023K	○	.394	10.0	.906	23	19	21	125	20	20	SS0404F	SS0404F	SS0404F	LW-2
NBH12023K	○	.472	12.0	.906	23	21	21	125	25	25	SS0404F	SS0404F	SS0404F	LW-2
NBH02025K-MET	○	.079	2.0	.984	25	11	24	125	10	—	SS0404F	SS0406F	—	LW-2
NBH02525K-MET	○	.098	2.5	.984	25	11	24	125	10	—	SS0404F	SS0406F	—	LW-2
NBH03025K-MET	○	.118	3.0	.984	25	12	24	125	10	10	SS0404F	SS0406F	SS0408F	LW-2
NBH03525K-MET	○	.138	3.5	.984	25	12	24	125	10	10	SS0404F	SS0406F	SS0408F	LW-2
NBH04025K-MET	○	.157	4.0	.984	25	13	24	125	15	15	SS0404F	SS0408F	SS0408F	LW-2
NBH04525K-MET	○	.177	4.5	.984	25	13	24	125	15	15	SS0404F	SS0408F	SS0408F	LW-2
NBH05025K-MET	○	.197	5.0	.984	25	14	24	125	15	15	SS0404F	SS0408F	SS0408F	LW-2
NBH06025K-MET	○	.236	6.0	.984	25	15	24	125	20	20	SS0404F	SS0408F	SS0408F	LW-2
NBH07025K-MET	○	.276	7.0	.984	25	16	24	125	20	20	SS0404F	SS0408F	SS0408F	LW-2
NBH08025K-MET	○	.315	8.0	.984	25	17	24	125	20	20	SS0404F	SS0406F	SS0406F	LW-2
NBH10025K-MET	○	.394	10.0	.984	25	19	24	125	20	20	SS0404F	SS0406F	SS0406F	LW-2
NBH12025K-MET	○	.472	12.0	.984	25	21	24	125	25	25	SS0404F	SS0404F	SS0404F	LW-2
NBH02025K	○	.079	2.0	1	25.4	11	24	125	10	—	SS0404F	SS0406F	—	LW-2
NBH02525K	○	.098	2.5	1	25.4	11	24	125	10	—	SS0404F	SS0406F	—	LW-2
NBH03025K	○	.118	3.0	1	25.4	12	24	125	10	10	SS0404F	SS0406F	SS0408F	LW-2
NBH03525K	○	.138	3.5	1	25.4	12	24	125	10	10	SS0404F	SS0406F	SS0408F	LW-2
NBH04025K	○	.157	4.0	1	25.4	13	24	125	15	15	SS0404F	SS0408F	SS0408F	LW-2
NBH04525K	○	.177	4.5	1	25.4	13	24	125	15	15	SS0404F	SS0408F	SS0408F	LW-2
NBH05025K	○	.197	5.0	1	25.4	14	24	125	15	15	SS0404F	SS0408F	SS0408F	LW-2
NBH06025K	○	.236	6.0	1	25.4	15	24	125	20	20	SS0404F	SS0408F	SS0408F	LW-2
NBH07025K	○	.276	7.0	1	25.4	16	24	125	20	20	SS0404F	SS0408F	SS0408F	LW-2
NBH08025K	○	.315	8.0	1	25.4	17	24	125	20	20	SS0404F	SS0406F	SS0406F	LW-2
NBH10025K	○	.394	10.0	1	25.4	19	24	125	20	20	SS0404F	SS0406F	SS0406F	LW-2
NBH12025K	○	.472	12.0	1	25.4	21	24	125	25	25	SS0404F	SS0404F	SS0404F	LW-2

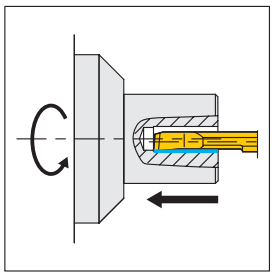
○ : 1-2 week delivery

Insert bars ➡K164

SBFS-S type (for ID Boring) Minimum Bore Diameter .087" (2.2㎜)

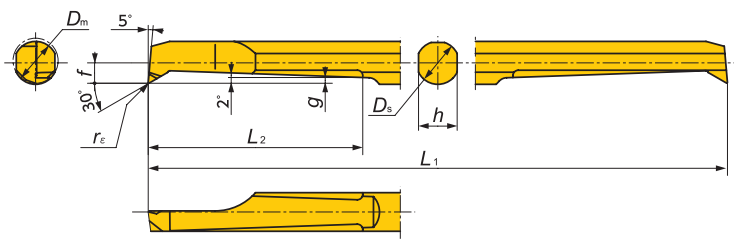


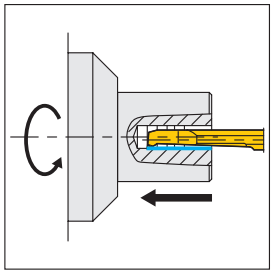




Item Number	Ds (Inch)	Ds (㎜)	Min Bore Dia. Dm (Inch)	Min Bore Dia. Dm (㎜)	L1 (㎜)	L2 (㎜)	f (㎜)	h (㎜)	g (㎜)	rε (Inch)	rε (㎜)	Chipbreaker	Coated Carbide DT4	Coated Carbide ZM3
SBFS020R005S	.079	2	.087	2.2	50	10	0.9	1.8	0.25	.002	0.05	Type S	○	○
SBFS025R005S	.098	2.5	.106	2.7	50	12.5	1.15	2.3	0.30	.002	0.05	Type S	○	○
SBFS025R015S	.098	2.5	.106	2.7	50	12.5	1.15	2.3	0.30	.006	0.15	Type S	○	○
SBFS030R005S	.118	3	.126	3.2	50	15	1.4	2.7	0.40	.002	0.05	Type S	○	○
SBFS030R015S	.118	3	.126	3.2	50	15	1.4	2.7	0.40	.006	0.15	Type S	○	○
SBFS035R005S	.138	3.5	.146	3.7	60	17.5	1.65	3.2	0.40	.002	0.05	Type S	○	○
SBFS035R015S	.138	3.5	.146	3.7	60	17.5	1.65	3.2	0.40	.006	0.15	Type S	○	○
SBFS040R005S	.157	4	.165	4.2	60	20	1.9	3.6	0.45	.002	0.05	Type S	○	○
SBFS040R015S	.157	4	.165	4.2	60	20	1.9	3.6	0.45	.006	0.15	Type S	○	○
SBFS050R005S	.197	5	.205	5.2	70	25	2.4	4.5	0.50	.002	0.05	Type S	○	○
SBFS050R015S	.197	5	.205	5.2	70	25	2.4	4.5	0.50	.006	0.15	Type S	○	○
SBFS060R005S	.236	6	.244	6.2	80	30	2.9	5.4	0.60	.002	0.05	Type S	○	○
SBFS060R015S	.236	6	.244	6.2	80	30	2.9	5.4	0.60	.006	0.15	Type S	○	○

SBFB-F type (for ID Boring) Minimum Bore Diameter .087" (2.2㎜)

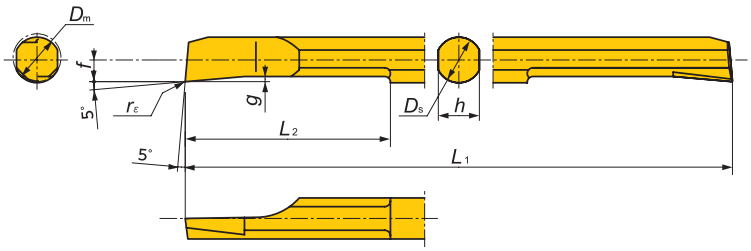


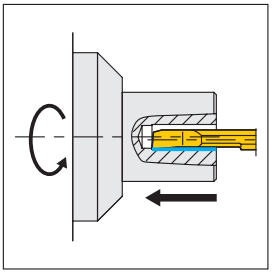


Evacuate chips backward

Item Number	Ds (Inch)	Ds (㎜)	Min Bore Dia. Dm (Inch)	Min Bore Dia. Dm (㎜)	L1 (㎜)	L2 (㎜)	f (㎜)	h (㎜)	g (㎜)	rε (Inch)	rε (㎜)	Chipbreaker	Coated Carbide DT4	Coated Carbide ZM3
SBFB020R005F	.087	2	.087	2.2	50	8	0.95	1.8	0.25	.002	0.05	Type F	○	○
SBFB025R005F	.098	2.5	.106	2.7	50	12.5	1.2	2.3	0.30	.002	0.05	Type F	○	○
SBFB025R015F	.098	2.5	.106	2.7	50	12.5	1.2	2.3	0.30	.006	0.15	Type F	○	○
SBFB030R005F	.118	3	.126	3.2	50	15	1.4	2.7	0.45	.002	0.05	Type F	○	○
SBFB030R015F	.118	3	.126	3.2	50	15	1.4	2.7	0.45	.006	0.15	Type F	○	○
SBFB035R005F	.138	3.5	.146	3.7	60	17.5	1.65	3.2	0.50	.002	0.05	Type F	○	○
SBFB035R015F	.138	3.5	.146	3.7	60	17.5	1.65	3.2	0.50	.006	0.15	Type F	○	○
SBFB040R005F	.157	4	.165	4.2	60	20	1.9	3.6	0.50	.002	0.05	Type F	○	○
SBFB040R015F	.157	4	.165	4.2	60	20	1.9	3.6	0.50	.006	0.15	Type F	○	○
SBFB050R005F	.197	5	.205	5.2	70	25	2.4	4.5	0.70	.002	0.05	Type F	○	○
SBFB050R015F	.197	5	.205	5.2	70	25	2.4	4.5	0.70	.006	0.15	Type F	○	○
SBFB060R005F	.236	6	.244	6.2	80	30	2.9	5.4	0.90	.002	0.05	Type F	○	○
SBFB060R015F	.236	6	.244	6.2	80	30	2.9	5.4	0.90	.006	0.15	Type F	○	○

SBFS-H type (for ID Boring) Minimum Bore Diameter .087" (2.2㎜)





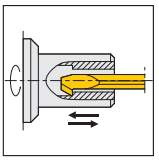
Mirror finish

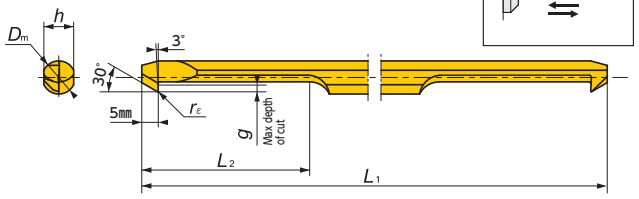
Item Number	Ds (Inch)	Ds (㎜)	Min Bore Dia. Dm (Inch)	Min Bore Dia. Dm (㎜)	L1 (㎜)	L2 (㎜)	f (㎜)	h (㎜)	g (㎜)	rε (Inch)	rε (㎜)	Chipbreaker	Coated Carbide DT4	Coated Carbide ZM3
SBFS020R005H Ⓜ	.079	2	.087	2.2	50	10	0.9	1.8	0.25	.002	0.05	None		○
SBFS025R005H Ⓜ	.098	2.5	.106	2.7	50	12.5	1.15	2.3	0.30	.002	0.05	None		○
SBFS025R015H Ⓜ	.098	2.5	.106	2.7	50	12.5	1.15	2.3	0.30	.006	0.15	None		○
SBFS030R005H Ⓜ	.118	3	.126	3.2	50	15	1.4	2.7	0.40	.002	0.05	None		○
SBFS030R015H Ⓜ	.118	3	.126	3.2	50	15	1.4	2.7	0.40	.006	0.15	None		○
SBFS035R005H Ⓜ	.138	3.5	.146	3.7	60	17.5	1.65	3.2	0.40	.002	0.05	None		○
SBFS035R015H Ⓜ	.138	3.5	.146	3.7	60	17.5	1.65	3.2	0.40	.006	0.15	None		○
SBFS040R005H Ⓜ	.157	4	.165	4.2	60	20	1.9	3.6	0.45	.002	0.05	None		○
SBFS040R015H Ⓜ	.157	4	.165	4.2	60	20	1.9	3.6	0.45	.006	0.15	None		○
SBFS050R005H Ⓜ	.197	5	.205	5.2	70	25	2.4	4.5	0.50	.002	0.05	None		○
SBFS050R015H Ⓜ	.197	5	.205	5.2	70	25	2.4	4.5	0.50	.006	0.15	None		○
SBFS060R005H Ⓜ	.236	6	.244	6.2	80	30	2.9	5.4	0.60	.002	0.05	None		○
SBFS060R015H Ⓜ	.236	6	.244	6.2	80	30	2.9	5.4	0.60	.006	0.15	None		○
SBFS080R005H Ⓜ	.315	8	.323	8.2	80	30	3.9	7.3	0.80	.002	0.05	None		○
SBFS080R015H Ⓜ	.315	8	.323	8.2	80	30	3.9	7.3	0.80	.006	0.15	None		○

SBB Series ID Back turning

SBB-S type (for ID Back turning)

Minimum Bore Diameter .118" (3.0㎜)

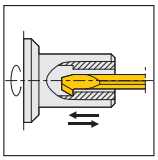


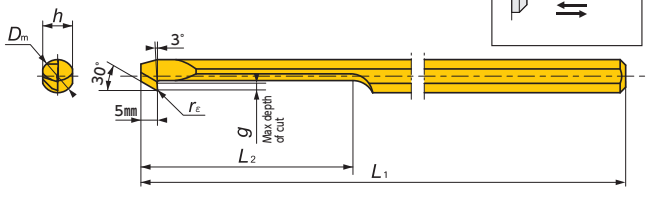


Short type
two-sided

SBB type (for ID Back turning)

Minimum Bore Diameter .118" (3.0㎜)





Long type
single-sided

	Item Number	Ds (Inch)	Ds (㎜)	Min Bore Dia. Dm (Inch)	Min Bore Dia. Dm (㎜)	L1 (㎜)	L2 (㎜)	f (㎜)	h (㎜)	g (㎜)	rε (Inch)	rε (㎜)	Chipbreaker	No. of edge	Coated Carbide ZM3
Short Type	SBB030RB005-S	.118	3	.118	3	50	15	1.3	2.7	0.5	.002	0.05	Yes	2	○
	SBB030RB010-S	.118	3	.118	3	50	15	1.3	2.7	0.5	.004	0.1	Yes	2	○
	SBB040RB005-S	.157	4	.157	4	60	18	1.8	3.6	0.8	.002	0.05	Yes	2	○
	SBB040RB015-S	.157	4	.157	4	60	18	1.8	3.6	0.8	.006	0.15	Yes	2	○
Long Type	SBB030RB005	.118	3	.118	3	50	19	1.3	2.7	0.5	.002	0.05	Yes	1	○
	SBB030RB010	.118	3	.118	3	50	19	1.3	2.7	0.5	.004	0.1	Yes	1	○
	SBB040RB005	.157	4	.157	4	60	24	1.8	3.6	0.8	.002	0.05	Yes	1	○
	SBB040RB015	.157	4	.157	4	60	24	1.8	3.6	0.8	.006	0.15	Yes	1	○

○ : 1-2 week delivery Ⓜ : Mirror finish

Sleeves ➡K157 • 162 Cutting condition ➡K152

SBG / SFG Series ID Grooving

SBG (for ID Grooving)

Minimum Bore Diameter .118" (3.0mm)

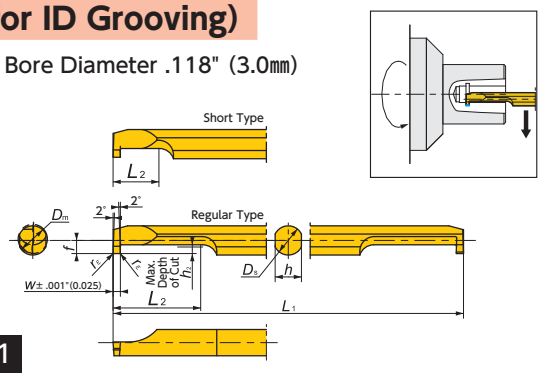


Figure-1

SFG (for ID Face Grooving)

Minimum Bore Diameter .236" (6.0mm)

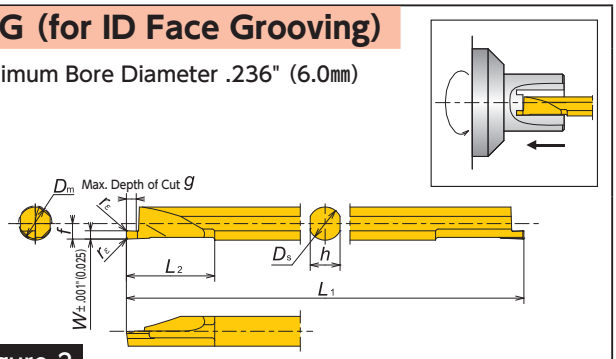


Figure-2

SBG

	Item Number	Groove width W (Inch)	Groove width W (mm)	Min Bore Dia. Dm (Inch)	Min Bore Dia. Dm (mm)	Ds (Inch)	Ds (mm)	L1 (mm)	L2 (mm)	f (mm)	h (mm)	h2 (mm)	rε (Inch)	rε (mm)	Chip-breaker	Coated Carbide ZM3
Regular type	SBG030050RB	.020	0.50	.118	3	.118	3	50	9	1.3	2.7	0.8	.002	0.05	Yes	●
	SBG030075RB	.030	0.75	.118	3	.118	3	50	9	1.3	2.7	0.8	.002	0.05	Yes	●
	SBG030100RB	.039	1.00	.118	3	.118	3	50	9	1.3	2.7	0.8	.002	0.05	Yes	●
	SBG040050RB	.020	0.50	.157	4	.157	4	60	12	1.8	3.6	1.0	.002	0.05	Yes	●
	SBG040075RB	.030	0.75	.157	4	.157	4	60	12	1.8	3.6	1.0	.002	0.05	Yes	●
	SBG040100RB	.039	1.00	.157	4	.157	4	60	12	1.8	3.6	1.0	.002	0.05	Yes	●
	SBG050050RB	.020	0.50	.197	5	.197	5	70	20	2.3	4.5	1.2	.002	0.05	Yes	●
	SBG050100RB	.039	1.00	.197	5	.197	5	70	20	2.3	4.5	1.2	.002	0.05	Yes	●
	SBG050150RB	.059	1.50	.197	5	.197	5	70	20	2.3	4.5	1.2	.002	0.05	Yes	●
	SBG060100RB	.039	1.00	.236	6	.236	6	80	20	2.8	5.4	1.8	.002	0.05	Yes	●
	SBG060150RB	.059	1.50	.236	6	.236	6	80	20	2.8	5.4	1.8	.002	0.05	Yes	●
	SBG060200RB	.079	2.00	.236	6	.236	6	80	20	2.8	5.4	1.8	.002	0.05	Yes	●
	SBG080100RB	.039	1.00	.315	8	.315	8	80	20	3.8	7.3	2.2	.002	0.05	Yes	●
	SBG080150RB	.059	1.50	.315	8	.315	8	80	20	3.8	7.3	2.2	.002	0.05	Yes	●
	SBG080200RB	.079	2.00	.315	8	.315	8	80	20	3.8	7.3	2.2	.002	0.05	Yes	●
Short type	SBG030050RB-S	.020	0.50	.118	3	.118	3	50	4.5	1.3	2.7	0.8	.002	0.05	Yes	●
	SBG030075RB-S	.030	0.75	.118	3	.118	3	50	4.5	1.3	2.7	0.8	.002	0.05	Yes	○
	SBG030100RB-S	.039	1.00	.118	3	.118	3	50	4.5	1.3	2.7	0.8	.002	0.05	Yes	○
	SBG030150RB-S	.059	1.50	.118	3	.118	3	50	4.5	1.3	2.7	0.8	.002	0.05	Yes	○
	SBG040050RB-S	.020	0.50	.157	4	.157	4	60	6	1.8	3.6	1.0	.002	0.05	Yes	○
	SBG040075RB-S	.030	0.75	.157	4	.157	4	60	6	1.8	3.6	1.0	.002	0.05	Yes	○
	SBG040100RB-S	.039	1.00	.157	4	.157	4	60	6	1.8	3.6	1.0	.002	0.05	Yes	○
	SBG040150RB-S	.059	1.50	.157	4	.157	4	60	6	1.8	3.6	1.0	.002	0.05	Yes	○
	SBG050050RB-S	.020	0.50	.197	5	.197	5	70	7.5	2.3	4.5	1.2	.002	0.05	Yes	○
	SBG050100RB-S	.039	1.00	.197	5	.197	5	70	7.5	2.3	4.5	1.2	.002	0.05	Yes	○
	SBG050150RB-S	.059	1.50	.197	5	.197	5	70	7.5	2.3	4.5	1.2	.002	0.05	Yes	○
	SBG050200RB-S	.079	2.00	.197	5	.197	5	70	7.5	2.3	4.5	1.2	.002	0.05	Yes	○
	SBG060100RB-S	.039	1.00	.236	6	.236	6	80	7.5	2.8	5.4	1.8	.002	0.05	Yes	○
	SBG060150RB-S	.059	1.50	.236	6	.236	6	80	7.5	2.8	5.4	1.8	.002	0.05	Yes	○
	SBG060200RB-S	.079	2.00	.236	6	.236	6	80	7.5	2.8	5.4	1.8	.002	0.05	Yes	○
	SBG080100RB-S	.039	1.00	.315	8	.315	8	80	8.5	3.8	7.3	2.2	.002	0.05	Yes	○
	SBG080150RB-S	.059	1.50	.315	8	.315	8	80	8.5	3.8	7.3	2.2	.002	0.05	Yes	○
	SBG080200RB-S	.079	2.00	.315	8	.315	8	80	8.5	3.8	7.3	2.2	.002	0.05	Yes	○

SFG

Item Number	Groove width W (Inch)	Groove width W (mm)	Min Bore Dia. Dm (Inch)	Min Bore Dia. Dm (mm)	Ds (Inch)	Ds (mm)	L1 (mm)	L2 (mm)	f (mm)	h (mm)	g (mm)	rε (Inch)	rε (mm)	Chip-breaker	Coated Carbide TM4
SFG060R100B	.039	1.00	.236	6	.236	6	80	16.0	2.8	5.4	1.5	.002	0.05	Yes	○
SFG060R150B	.059	1.50	.236	6	.236	6	80	16.0	2.8	5.4	2.5	.002	0.05	Yes	○
SFG060R200B	.079	2.00	.236	6	.236	6	80	16.0	2.8	5.4	3.0	.002	0.05	Yes	○
SFG080R100B	.039	1.00	.315	8	.315	8	80	16.0	3.8	7.3	1.5	.002	0.05	Yes	○
SFG080R150B	.059	1.50	.315	8	.315	8	80	16.0	3.8	7.3	2.5	.002	0.05	Yes	○
SFG080R200B	.079	2.00	.315	8	.315	8	80	16.0	3.8	7.3	3.0	.002	0.05	Yes	○
SFG080R300B	.118	3.00	.315	8	.315	8	80	16.0	3.8	7.3	3.0	.002	0.05	Yes	○

Sleeves ➡K157 • 162

BG Series - Toolholders

S-BG (Takes Left-Hand Insert)

Minimum Bore Diameter .394"(10.0㎜)

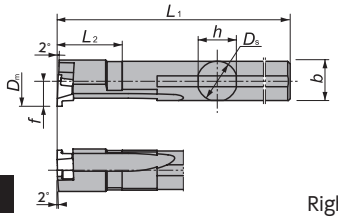


Figure-1

Right-Hand style shown

BG (Takes Left-Hand Insert)

Minimum Bore Diameter .394"(10.0㎜)

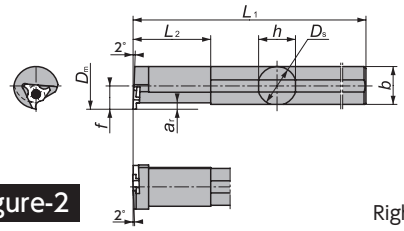


Figure-2

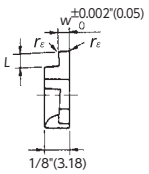
Right-Hand style shown

■S08H-BG / S10K-BG / BG

Gage Insert	Item Number	Figure	Stock R	Stock L	Min. Bore Dia. D_m (Inch)	Min. Bore Dia. D_m (㎜)	Max. Depth Of Cut. a_r (Inch)	Max. Depth Of Cut. a_r (㎜)	D_s (Inch)	D_s (㎜)	h (Inch)	h (㎜)	b (Inch)	b (㎜)	L_1 (Inch)	L_1 (㎜)	f (Inch)	f (㎜)	L_2 (Inch)	L_2 (㎜)	Groove width covered w (Inch)	Groove width covered w (㎜)	Clamp Screw	Wrench
 GTG10	S08H-BG□10D10	1	○		.394	10	.039	1.0	.315	8	.303	7.7	.309	7.85	4.724	120	.197	5.0	.787	20	.020-.079	0.50-2.00	LR-S-2.5×6.8	CLR-15S
	S10K-BG□10D12	1	○		.472	12	.039	1.0	.394	10	.378	9.6	.386	9.8	4.724	120	.236	6.0	.984	25	.020-.079	0.50-2.00	LR-S-2.5×6.8	CLR-15S
GTG10	BG□08-00S	2	○		.394	10	.039	1.0	.315	8	.276	7.0	.295	7.5	4.921	125	.197	5.0	.787	20	.020-.079	0.50-2.00	LR-S-2.5×6.8	CLR-15S
	BG□08-10S	2	○		.394	10	.039	1.0	.315	8	.276	7.0	.295	7.5	4.921	125	.197	5.0	.787	20	.039-.079	1.00-2.00	LR-S-2.5×6.8	CLR-15S
	BG□10-00S	2	○		.472	12	.079	2.0	.394	10	.354	9.0	.374	9.5	5.906	150	.236	6.0	.984	25	.020-.079	0.50-2.00	LR-S-2.5×6.8	CLR-15S
	BG□10-10S	2	○		.472	12	.079	2.0	.394	10	.354	9.0	.374	9.5	5.906	150	.236	6.0	.984	25	.039-.079	1.00-2.00	LR-S-2.5×6.8	CLR-15S
GTG14	BG□12-00S	2	○		.551	14	.079	2.0	.472	12	.433	11.0	.453	11.5	7.087	180	.276	7.0	1.181	30	.039-.079	1.00-2.00	LR-S-3×7.8	RLR-20S
	BG□12-12S	2	○		.551	14	.079	2.0	.472	12	.433	11.0	.453	11.5	7.087	180	.276	7.0	1.181	30	.057-.079	1.45-2.00	LR-S-3×7.8	RLR-20S
	BG□14-00S	2	○		.630	16	.118	3.0	.551	14	.512	13.0	.531	13.5	7.087	180	.315	8.0	1.378	35	.039-.079	1.00-2.00	LR-S-3×7.8	RLR-20S
	BG□14-12S	2	○		.630	16	.118	3.0	.551	14	.512	13.0	.531	13.5	7.087	180	.315	8.0	1.378	35	.057-.079	1.45-2.00	LR-S-3×7.8	RLR-20S
GTG20	BG□16	2	○		.787	20	.118	3.0	.630	16	.591	15.0	.610	15.5	7.874	200	.394	10.0	1.575	40	.059-.079	1.50-2.00	LR-S-3×7.8	RLR-20S
	BG□20	2	○		.984	25	.118	3.0	.787	20	.748	19.0	.768	19.5	7.874	200	.472	12.0	1.575	40	.059-.079	1.50-2.00	LR-S-3×7.8	RLR-20S

BG Series - Inserts

■GTG

Shape	Item Number	Groove width w (Inch)	Groove width w (㎜)	Max. Depth Of Cut. a_r (Inch)	Max. Depth Of Cut. a_r (㎜)	L (Inch)	L (㎜)	r_ε (Inch)	r_ε (㎜)	d (Inch)	d (㎜)	Coated Carbide QM3	Coated Carbide TM4	Coated Carbide ZM3	Coated Cermet C7X
	GTG10050FL005	0.020	0.50	.039	1.0	.047	1.2	.002	0.05	.219	5.56		○		
	GTG10075FL005	0.030	0.75	.039	1.0	.047	1.2	.002	0.05	.219	5.56		○		
	GTG10100FL005	0.039	1.00	.039	1.0	.047	1.2	.002	0.05	.219	5.56		○		
	GTG10150FL005	0.059	1.50	.039	1.0	.047	1.2	.002	0.05	.219	5.56		○		
	GTG10200FL005	0.079	2.00	.039	1.0	.047	1.2	.002	0.05	.219	5.56		○		
	GTG10050FL00	0.020	0.50	.039	1.0	.047	1.2	.002	0.05	.219	5.56			○	
	GTG10065FL00	0.026	0.65	.039	1.0	.047	1.2	.002	0.05	.219	5.56			○	
	GTG10075FL00	0.030	0.75	.039	1.0	.047	1.2	.002	0.05	.219	5.56			○	
	GTG10100FL00	0.039	1.00	.039	1.0	.047	1.2	.002	0.05	.219	5.56			○	
	GTG10125L	0.049	1.25	.039	1.0	.047	1.2	.008	0.2	.219	5.56				○
	GTG10150FL00	0.059	1.50	.039	1.0	.047	1.2	.002	0.05	.219	5.56			○	
	GTG10200FL01	0.079	2.00	.039	1.0	.047	1.2	.004	0.1	.219	5.56			○	
	GTG14100FL00	0.039	1.00	.079	2.0	.087	2.2	.002	0.05	.313	7.94			○	
	GTG14145L	0.057	1.45	.079	2.0	.087	2.2	.008	0.2	.313	7.94				○
	GTG14150FL00	0.059	1.50	.079	2.0	.087	2.2	.002	0.05	.313	7.94			○	
	GTG14175L	0.069	1.75	.079	2.0	.087	2.2	.008	0.2	.313	7.94				○
	GTG14200FL01	0.079	2.00	.079	2.0	.087	2.2	.004	0.1	.313	7.94			○	
	GTG20150FL	0.059	1.50	.118	3.0	.126	3.2	.008	0.2	.375	9.525	○			
	GTG20175L	0.069	1.75	.118	3.0	.126	3.2	.008	0.2	.375	9.525				○
	GTG20200L	0.079	2.00	.118	3.0	.126	3.2	.008	0.2	.375	9.525				○
	GTG20200FL	0.079	2.00	.118	3.0	.126	3.2	.008	0.2	.375	9.525	○			

Left-Hand style shown

● : Stock　　○ : 1-2 week delivery

Cutting condition ➡K153

SBT Series ID Threading

SBT Minimum Bore Diameter .098" (2.5㎜) ～

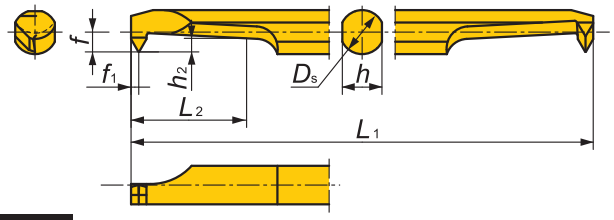
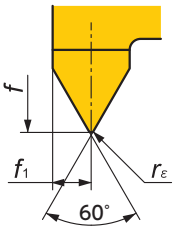
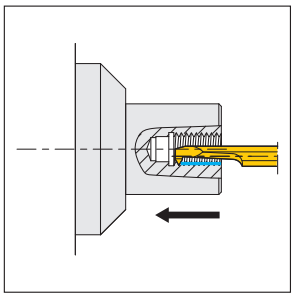


Figure-1





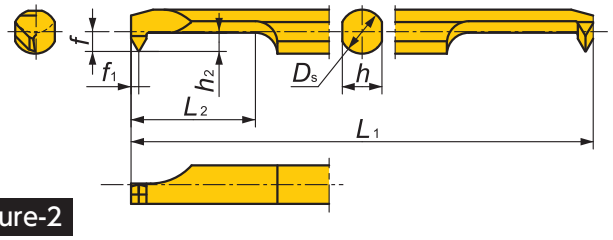


Figure-2

Right-Hand style shown

■SBT Insert dimension

Item Number	Figure	Chip-breaker	Min. Bore Dia. D_m (Inch)	(㎜)	D_s (Inch)	(㎜)	L_2 (Inch)	(㎜)	h_2 (Inch)	(㎜)	L_1 (Inch)	(㎜)	f (Inch)	(㎜)	f_1 (Inch)	(㎜)	h (Inch)	(㎜)	r_ε (Inch)	(㎜)	Coated Carbide ZM3
SBT025M3R	1	No	**.098**	**2.5**	.098	2.5	.213	5.4	.024	0.6	1.969	50	.043	1.10	.016	0.40	.091	2.3	.002 MAX Flat	0.05 MAX Flat	●
SBT030M4R	1	No	**.118**	**3.0**	.118	3.0	.295	7.5	.031	0.8	1.969	50	.051	1.30	.020	0.50	.028	2.7	.002 MAX Flat	0.05 MAX Flat	●
SBT030M4RB	1	Yes	**.118**	**3.0**	.118	3.0	.295	7.5	.031	0.8	1.969	50	.051	1.30	.020	0.50	.028	2.7	.002 MAX Flat	0.05 MAX Flat	●
SBT035M5RB	1	Yes	**.138**	**3.5**	.138	3.5	.335	8.5	.039	1.0	2.362	60	.061	1.55	.022	0.55	.013	3.2	.002 MAX Flat	0.05 MAX Flat	●
SBT040M6RB	1	Yes	**.157**	**4.0**	.157	4.0	.413	10.5	.047	1.2	2.362	60	.071	1.80	.028	0.70	.142	3.6	R.002	R0.05	●
SBT050M8RB	2	Yes	**.197**	**5.0**	.197	5.0	.622	15.8	.059	1.5	2.756	70	.091	2.30	.031	0.80	.117	4.5	R.002	R0.05	●
SBT060M10RB	2	Yes	**.236**	**6.0**	.236	6.0	.724	18.4	.071	1.8	3.150	80	.110	2.80	.037	0.95	.213	5.4	R.002	R0.05	●

■SBT Applicable Thread

Item Number	Figure	Chip-breaker	Min. Bore Dia. D_m (Inch)	(㎜)	Thread Type: Metric Thread		UNF Thread		Recommended Thread Type: Metric Thread	UNF Thread
SBT025M3R	1	No	**.098**	**2.5**	M3	0.5	—	—	M3 × 0.5	—
SBT030M4R	1	No	**.118**	**3.0**	M4-	0.5-0.8	No.8-32UNC-	36-32	M4 × 0.7	No.8-32UNC
SBT030M4RB	1	Yes	**.118**	**3.0**	M4-	0.5-0.8	No.8-32UNC-	36-32	M4 × 0.7	No.8-32UNC
SBT035M5RB	1	Yes	**.138**	**3.5**	M4.5-	0.5-1.0	No.10-24UNC-	32-24	M5 × 0.8	No.10-24UNC No.12-24UNC
SBT040M6RB	1	Yes	**.157**	**4.0**	M5.5-	0.75-1.25	No.12-24UNC-	28-20	M6 × 1.0	1/4-20UNC
SBT050M8RB	2	Yes	**.197**	**5.0**	M7-	0.75-1.5	1/4-28UNF-	28-18	M8 × 1.25	5/16-18UNC
SBT060M10RB	2	Yes	**.236**	**6.0**	M8-	0.75-1.75	5/16-24UNF-	28-16	M10 × 1.5	3/8-16UNC

● : Stock ○ : 1-2 week delivery

Sleeves ➡K157 • 162

Unified Standard

	Thread Type		Pilot hole(mm)	Pitch		Applicable Inserts
	#1	#2		TPI	(mm)	
Coarse	No.8-32UNC	–	ϕ3.42	32	0.7938	SBT030M4R(B)
	No.10-24UNC	–	ϕ3.83	24	1.0583	SBT035M5RB
	–	No.12-24UNC	ϕ4.47	24	1.0583	
	1/4-20UNC	–	ϕ5.12	20	1.2700	SBT040M6RB
	5/16-18UNC	–	ϕ6.57	18	1.4111	SBT050M8RB
	3/8-16UNC	–	ϕ7.98	16	1.5875	SBT060M10RB
Fine	No.8-36UNF	–	ϕ3.51	36	0.7056	SBT030M4RB
	No.10-32UNF	–	ϕ4.07	32	0.7938	SBT035M5RB
	–	No.12-28UNF	ϕ4.61	28	0.9071	SBT040M6RB
	1/4-28UNF	–	ϕ5.47	28	0.9071	
	5/16-24UNF	–	ϕ6.91	24	1.0583	SBT050M8RB
	3/8-24UNF	–	ϕ8.51	24	1.0583	SBT060M10RB
	7/16-20UNF	–	ϕ9.88	20	1.2700	
	1/2-20UNF	–	ϕ11.47	20	1.2700	
	9/16-18UNF	–	ϕ12.9	18	1.4111	
	5/8-18UNF	–	ϕ14.5	18	1.4111	
	3/4-16UNF	–	ϕ17.5	16	1.5875	

ISO Metric

Thread Type			Pitch (mm)								
#1	#2	#3	2.0	1.75	1.5	1.25	1.0	0.8	0.75	0.7	0.5
M3											Coarse
M4										Coarse	Fine
	M4.5								Coarse		
M5								Coarse			
		M5.5									
M6							Coarse		Fine		
	M7										
M8						Coarse	Fine				
		M9									
M10					Coarse	Fine					
		M11									
M12				Coarse	Fine	Fine					
	M14		Coarse								
		M15									

Cutting Conditions

●Threading

For 600 - 1500 RPM Recommended Depth of Cut (DOC) for Each Pass

Metric Thread		Number of Pass																				
Pitch (mm)	Total DOC (mm)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
0.5	0.3	0.06	0.05	0.05	0.04	0.04	0.03	0.02	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—
0.7	0.43	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.03	0.02	0.01	—	—	—	—	—	—	—	—	—	—	—
0.75	0.46	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.04	0.03	0.02	0.01	—	—	—	—	—	—	—	—	—	—
0.8	0.49	0.06	0.06	0.06	0.05	0.05	0.04	0.04	0.04	0.03	0.03	0.02	0.01	—	—	—	—	—	—	—	—	—
1.0	0.62	0.07	0.07	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.03	0.03	0.02	0.01	—	—	—	—	—	—	—
1.25	0.76	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.04	0.03	0.03	0.02	0.01	—	—	—	—	—	—
1.5	0.92	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.02	0.01	—	—	—
1.75	1.09	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.04	0.04	0.03	0.03	0.02	0.01

UNF Thread		Number of Pass																		
Pitch (TPI)	Total DOC (inch)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
36	.017	.002	.002	.002	.002	.002	.002	.001	.001	.0008	.0004	—	—	—	—	—	—	—	—	—
32	.019	.002	.002	.002	.002	.002	.001	.001	.001	.001	.0008	.0004	—	—	—	—	—	—	—	—
28	.022	.003	.002	.002	.002	.002	.002	.001	.001	.001	.001	.001	.0008	.0004	—	—	—	—	—	—
24	.026	.003	.002	.002	.002	.002	.002	.002	.002	.001	.001	.001	.001	.0008	.0004	—	—	—	—	—
20	.031	.003	.003	.003	.003	.002	.002	.002	.002	.002	.002	.001	.001	.001	.001	.0008	.0004	—	—	—
18	.034	.003	.003	.003	.003	.003	.002	.002	.002	.002	.002	.002	.002	.001	.001	.001	.0008	.0004	—	—
16	.039	.003	.003	.003	.003	.003	.003	.003	.002	.002	.002	.002	.002	.002	.001	.001	.001	.001	.0008	.0004

TMN Series

TGC Minimum Bore Diameter .315" (80㎜) ~

Carbide shank

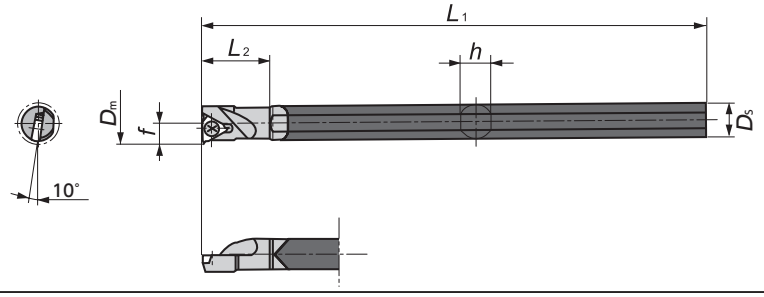
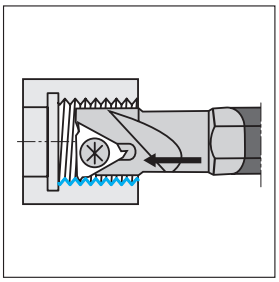


Figure-1



Right-Hand style shown

HN Minimum Bore Diameter .315" (80㎜) ~

Steel shank

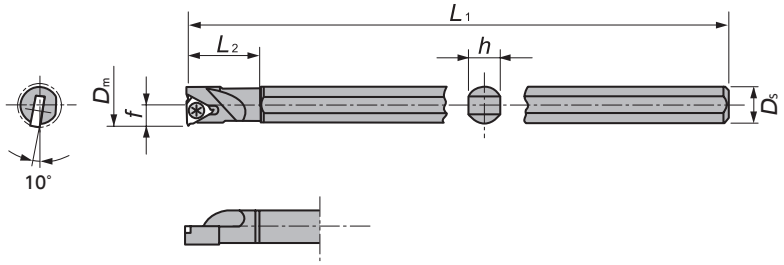
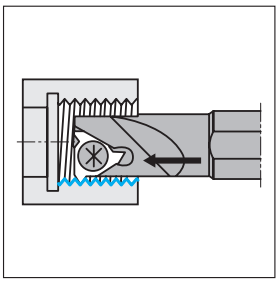


Figure-2



Right-Hand style shown

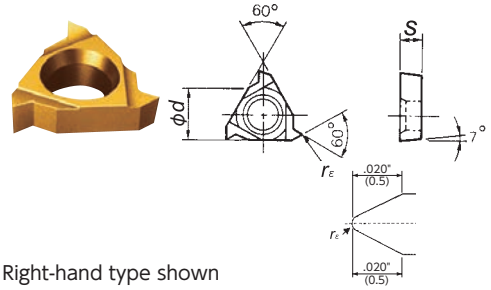
TMN Series - Toolholders

■TGC/HN

Gage Insert	Item Number	Figure	Stock	Min. Machining Dia. D_m (Inch)	(㎜)	D_s (Inch)	(㎜)	h (Inch)	(㎜)	L_1 (Inch)	(㎜)	f (Inch)	(㎜)	L_2 (Inch)	(㎜)	Clamp Screw	Wrench
TMN..06..	**TGC10T06H161R**	1	○	**.315**	**8**	.236	6	.217	5.5	3.937	100	.150	3.8	.512	13.0	LR-S-2 × 4.4	CLR-13S
TMN..08..	**TGC10T08K162R**	1	○	**.394**	**10**	.315	8	.276	7.0	4.921	125	.185	4.7	.669	17.0	LR-S-2 × 5.5	CLR-13S
TMN..09..	**TGC10T10M163R**	1	○	**.472**	**12**	.394	10	.354	9.0	5.906	150	.236	6.0	.787	20.0	LRIS-2.2 × 6	CLR-13S
TMN..06..	**HN59Z-0028**	2	○	**.315**	**8**	.236	6	.217	5.5	3.937	100	.150	3.8	.512	13.0	LR-S-2 × 4.4	CLR-13S
TMN..08..	**HN59Z-0029**	2	○	**.394**	**10**	.315	8	.276	7.0	4.921	125	.185	4.7	.669	17.0	LR-S-2 × 5.5	CLR-13S
TMN..09..	**HN59Z-0030**	2	○	**.472**	**12**	.236	10	.354	9.0	5.906	150	.236	6.0	.787	20.0	LRIS-2.2 × 6	CLR-13S

TMN Series - Inserts

■TMN

Shape	Item Number	ϕd (Inch)	(㎜)	s (Inch)	(㎜)	r_ε (Inch)	(㎜)	Recommended Pitch (TPI)	(㎜)	Pitch (TPI)	(㎜)	Coated Carbide ZM3
 Right-hand type shown	**TMN06FR03**	.156	3.97	.063	1.59	.001	.003	51	0.5	63-34	0.4-0.75	○
	TMN08FR03	.187	4.76	.094	2.38	.001	.003	51	0.5	63-34	0.4-0.75	○
	TMN09FR03	.219	5.56	.094	2.38	.001	.003	51	0.5	63-34	0.4-0.75	○

Cutting condition ➡K153

Mogul Bar for 75° Diamond (MBL style)

Minimum Bore Diameter .197"(5.0㎜)

S-MBR (Coolant through) Steel shank (tapered type)

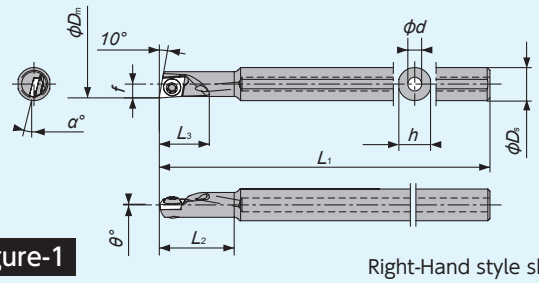
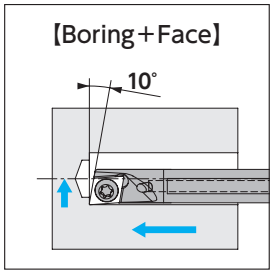


Figure-1

Right-Hand style shown



F1 chipbreakers evacuates chips BACKWARD (S-STUC style shown)

C-MBR (Coolant through) Carbide shank (straight type)

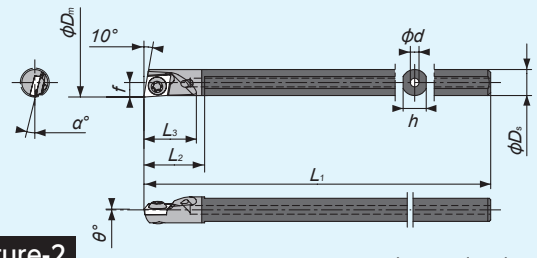


Figure-2

Right-Hand style shown

C-MBR (Coolant through) Carbide shank (tapered type)

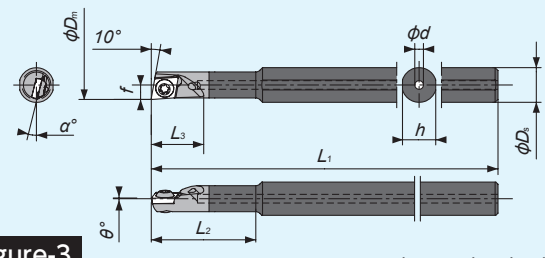


Figure-3

Right-Hand style shown

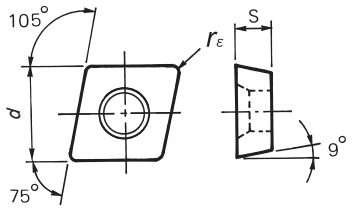
MBL style - Toolholders

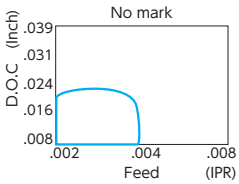
Gage Insert	Item number*	Figure	Stock	ϕDs (inch)	ϕDs (㎜)	Min. bore Dia. ϕDm (inch)	Min. bore Dia. ϕDm (㎜)	h (㎜)	L1 (㎜)	f (㎜)	L2 (㎜)	L3 (㎜)	L4 (㎜)	ϕd (㎜)	θ	α	Std. corner radius rε (inch)	Std. corner radius rε (㎜)	Clamp screw	Wrench
 MBL	S06F-MBRD05-OH	1	●	.236	6.0	.197	5.0	5.7	80	2.5	13.5	9	—	2.5	0°	−13°	.0059	0.15	LR-S-2 × 3.5	CLR-13S
	C045F-MBRD05-OH	2	●	.177	4.5	.197	5.0	4.0	80	2.5	10.5	9	—	1.5	0°	−13°	.0059	0.15	LR-S-2 × 3.5	CLR-13S
	C06F-MBRD05-OH	3	●	.236	6.0	.197	5.0	5.7	80	2.5	18	9	—	1.5	0°	−13°	.0059	0.15	LR-S-2 × 3.5	CLR-13S

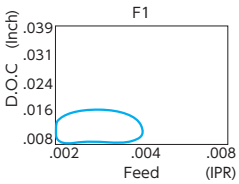
* "S" denotes steel shank, "C" denotes carbide shank

MBL style - Insert

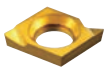
MBL







MBL

	Item Number	d (Inch)	d (㎜)	s (Inch)	s (㎜)	rε (Inch)	rε (㎜)	Coated Carbide TM4	Coated Carbide ZM3
 L-hand shown	MBL 005 FL	.142	3.6	.039	1.0	.002	0.05	●	○
	MBL 015 FL	.142	3.6	.039	1.0	.006	0.15	●	○
 R-hand shown	MBL 005 FR F1	.142	3.6	.039	1.0	.002	0.05	●	
	MBL 015 FR F1	.142	3.6	.039	1.0	.006	0.15	●	

*For F1 chipbreaker, right-hand inserts fit to right-hand toolholder

Note: F1 chipbreaker evacuates chips BACKWARD

● : Stock ○ : 1-2 week delivery 💧 : Coolant through

Cutting condition ➡K152

Mogul Bar for 75° Diamond (ERGP style)

Minimum Bore Diameter .236"(6.0㎜)

S-SEXR (Coolant through) Steel shank (tapered type)

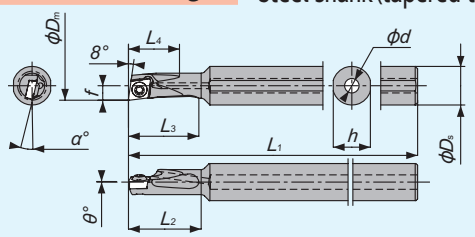
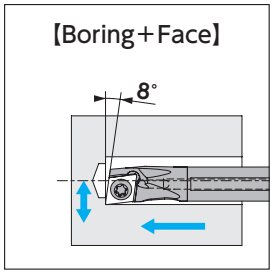


Figure-1

Right-Hand style shown



F1 chipbreakers evacuates chips BACKWARD (S-STUC style shown)

C-SEXR (Coolant through) Carbide shank (straight type)

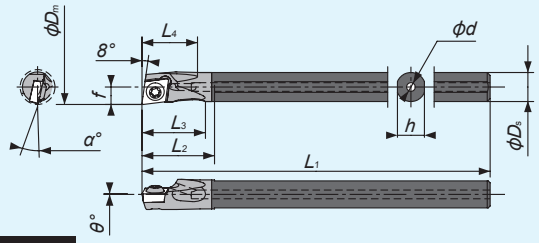


Figure-2

Right-Hand style shown

C-SEXR (Coolant through) Carbide shank (tapered type)

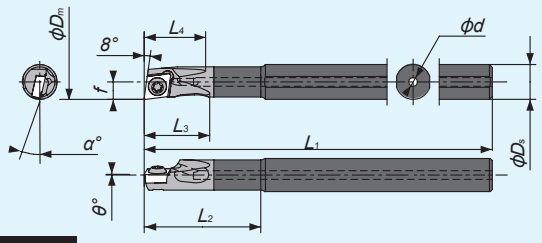


Figure-3

Right-Hand style shown

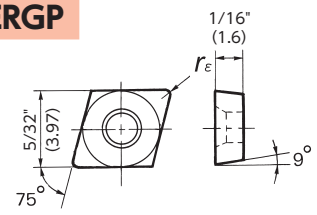
ERGP style - Toolholders

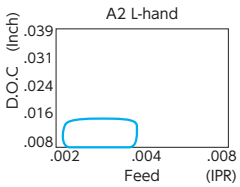
Gage Insert	Item number*	Figure	Stock R	Stock L	ϕDs (inch)	ϕDs (㎜)	Min. bore Dia. ϕDm (inch)	Min. bore Dia. ϕDm (㎜)	h (㎜)	L1 (㎜)	f (㎜)	L2 (㎜)	L3 (㎜)	L4 (㎜)	ϕd (㎜)	θ	α	Std. corner radius rε (inch)	Std. corner radius rε (㎜)	Clamp screw	Wrench
 ERGP52..	S08G-SEXR☆3D06-OH	1	●		.315	8.0	.236	6.0	7.7	90	3.0	15	15	10	3.0	0°	− 13°	.008	0.2	LR-S-2 × 3.7	CLR-13S
	C05G-SEXR☆3D06-OH	2	●	○	.197	5.0	.236	6.0	4.0	90	3.0	12.5	11	10	1.5	0°	− 13°	.008	0.2	LR-S-2 × 3.7	CLR-13S
	C06G-SEXR☆3D06-OH	3	●	○	.236	6.0	.236	6.0	5.7	90	3.0	20	11	10	1.5	0°	− 13°	.008	0.2	LR-S-2 × 3.7	CLR-13S

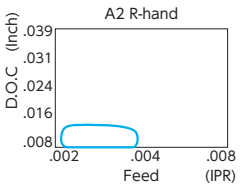
* "S" denotes steel shank, "C" denotes carbide shank

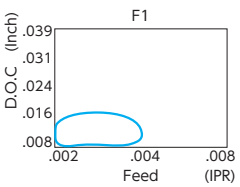
ERGP style - Insert

ERGP



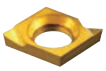






●Right-Hand style shown

■ ERGP

	Item Number	ISO Item Number	IC (Inch)	IC (㎜)	Thickness (Inch)	Thickness (㎜)	rε (Inch)	rε (㎜)	Coated Carbide TM4 R	Coated Carbide TM4 L	Coated Carbide VM1 R	Coated Carbide VM1 L	Coated Carbide ZM3 R	Coated Carbide ZM3 L	Cermet XT3 R	Cermet XT3 L	Cermet C7X R	Cermet C7X L
 L-hand shown	ERGP 52Y- F☆ A2	ERGHT 30102 FR A2	5/32	3.97	1/16	1.6	.008	0.2	R	Ⓛ	Ⓡ	Ⓛ	Ⓡ	Ⓛ	Ⓡ	Ⓛ	Ⓡ	Ⓛ
	ERGP 521- F☆ A2	ERGHT 30104 FR A2	5/32	3.97	1/16	1.6	.016	0.4	R					Ⓛ				
 R-hand shown	ERGP 5204 FR-- F1	ERGHT 30101 FR F1	5/32	3.97	1/16	1.6	.004	0.1							R			
	ERGP 52Y- FR-- F1	ERGHT 30102 FR F1	5/32	3.97	1/16	1.6	.008	0.2							R			
	ERGP 521- FR-- F1	ERGHT 30104 FR F1	5/32	3.97	1/16	1.6	.016	0.4							R			

*For F1 chipbreaker, right-hand inserts fit to right-hand toolholder

Note: F1 chipbreaker evacuates chips BACKWARD

● : Stock ○ : 1-2 week delivery
R : Stock (Right-hand only) L : Stock (Left-hand only)
Ⓡ : 1-2 week delivery (Right-hand only) Ⓛ : 1-2 week delivery (Left-hand only) 💧 : Coolant through

Cutting condition ➡K152

Mogul Bar for 80° Diamond (CP style)

Minimum Bore Diameter .276"(7.0㎜)

S-SCLP (Coolant through) Steel shank

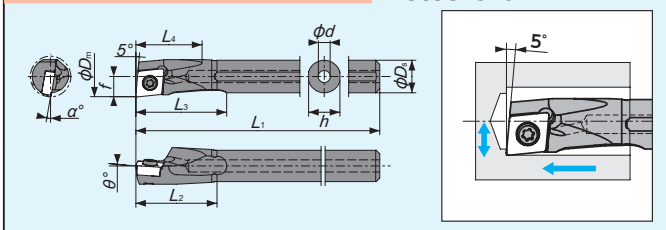


Figure-1

Right-Hand style shown

C-SCLP (Coolant through) Carbide shank

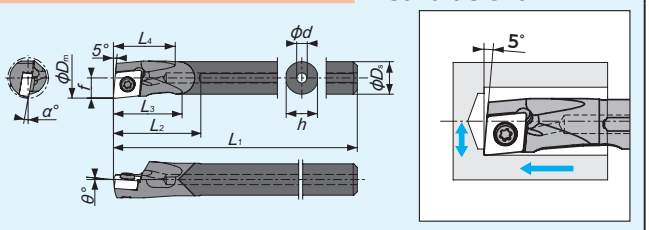


Figure-2

Right-Hand style shown

CP style - Toolholders

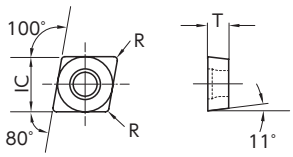
Gage Insert	Item number*	Figure	Stock R	Stock L	ϕD_s (inch)	ϕD_s (㎜)	Min. bore Dia. ϕD_m (inch)	Min. bore Dia. ϕD_m (㎜)	h (㎜)	L_1 (㎜)	f (㎜)	L_2 (㎜)	L_3 (㎜)	L_4 (㎜)	ϕd (㎜)	θ	α	Std. corner radius r_ε (inch)	Std. corner radius r_ε (㎜)	Clamp screw	Wrench
CP..62..	S06F-SCLP R/L 04D07-OH	1	●		.236	6.0	.276	7.0	5.75	80	3.5	14	17.0	12.0	2.5	+5° −9°		.008	0.2	LR-S-2 × 3.7	CLR-13S
	S07G-SCLP R/L 04D08-OH	1	●		.276	7.0	.315	8.0	6.75	90	4.0	16	19.5	13.5	3.0	+5° −7°		.008	0.2	LR-S-2 × 3.7	CLR-13S
CP..21.5..	S08H-SCLP R/L 06D10-OH	1	●		.315	8.0	.394	10.0	7.7	100	5.0	20	22.0	16.0	3.0	+5° −10°		.016	0.4	LR-S-2.5 × 6	CLR-15S
CP..62..	C06H-SCLP R/L 04D07-OH	2	●	○	.236	6.0	.276	7.0	5.75	100	3.5	15.5	11.5	12.0	2.0	+5° −9°		.008	0.2	LR-S-2 × 3.7	CLR-13S
	C07J-SCLP R/L 04D08-OH	2	●		.276	7.0	.315	8.0	6.75	110	4.0	17.5	13.0	13.5	2.0	+5° −7°		.008	0.2	LR-S-2 × 3.7	CLR-13S
CP..21.5..	C08K-SCLP R/L 06D10-OH	2	●	○	.315	8.0	.394	10.0	7.7	125	5.0	21.5	16.5	15.0	2.5	+5° −10°		.016	0.4	LR-S-2.5 × 6	CLR-15S

* "S" denotes steel shank, "C" denotes carbide shank

CP style - Insert - Carbide/Cermet

(inch)	IC	T
CP..21.5	1/4	3/32
CP..32.5	3/8	5/32

80 degree Diamond Positive type (CP..)



		P	M	K	N	S	H
Steel	P	●	●	●	●	●	●	●	●	●	●	●	●
Stainless Steel	M	●	●	●	●	●	●	●	●	●	●	●	●
Cast Iron	K							●	●		●	●
Non-Ferrous Material	N				●	●	●	●	●	●			●
Heat Resistant Alloy	S	●	●	●	●								
Hardened Material	H	●	●	●									

● : 1st Choice
● : Alternate choice

Shape	Item Number	ISO Item Number	IC	R	Carbide PVD Coated QM3	DT4	DM4	TM4	VM1	ZM3	KM1	Cermet XT3	C7X	XN4	Cermet PVD Coated Q15	C7Z
	CPGT 21.504 FNAM3	CPGT 060201 FNXAM3	1/4	.004									●			
	CPGT 21.508 FNAM3	CPGT 060202 FNXAM3	1/4	.008									●			
	CPGT 21.51 FNAM3	CPGT 060204 FNXAM3	1/4	.016									●			
	CPGH 21.504 AM5	CPGH 060201 ENBAM5	1/4	.004								●				
	CPGH 21.508 AM5	CPGH 060202 ENBAM5	1/4	.008								●		○		
	CPGH 21.508 FNAM5	CPGH 060202 FNAM5	1/4	.008				○		○						
	CPGH 21.51 AM5	CPGH 060204 ENBAM5	1/4	.016								●				
	CPGH 21.51 FNAM5	CPGH 060204 FNAM5	1/4	.016								●				
	CPGH 21.52 AM5	CPGH 060208 ENBAM5	1/4	.031								●				
	CPGP 6208 FR/L A1	CPGH 040102 FR/L A1	.187	.008				Ⓛ			Ⓛ					
	CPGP 621 FR/L A1	CPGH 040104 FR/L A1	.187	.016				Ⓛ			Ⓛ					
	CPGP 21.508 FR/L A	CPGH 060202 FR/L A	1/4	.008				Ⓛ			Ⓛ					
	CPGP 21.51 FR/L A	CPGH 060204 FR/L A	1/4	.016				Ⓛ			Ⓛ					
	CPGP 6208 R/L A1	CPGH 040102 TR/L A1	.187	.008								Ⓛ	Ⓛ			
	CPGP 621 R/L A1	CPGH 040104 TR/L A1	.187	.016								Ⓛ	Ⓛ			
	CPGP 21.508 R/L A	CPGH 060202 TR/L A	1/4	.008								Ⓛ	Ⓛ			
	CPGP 21.51 R/L A	CPGH 060204 TR/L A	1/4	.016								Ⓛ	Ⓛ			
	CPGP 6204 FR/L F1	CPGH 040101 FR/L F1	.187	.004				R								
	CPGP 6208 FR/L F1	CPGH 040102 FR/L F1	.187	.008				R								
	CPGP 621 FR/L F1	CPGH 040104 FR/L F1	.187	.016				R								
	CPGP 21.504 FR/L F1	CPGH 060201 FR/L F1	1/4	.004				Ⓡ								
	CPGP 21.508 FR/L F1	CPGH 060202 FR/L F1	1/4	.008				R								
	CPGP 21.51 FR/L F1	CPGH 060204 FR/L F1	1/4	.016				R								
	CPGP 6208 R/L S	CPGH 040102 R/L S	.187	.008				Ⓛ								
	CPGP 621 R/L S	CPGH 040104 R/L S	.187	.016				Ⓛ								
	CPGP 21.508 R/L S	CPGH 060202 R/L S	1/4	.008				Ⓛ								
	CPGP 21.51 R/L S	CPGH 060204 R/L S	1/4	.016				Ⓛ								

*For F1 chipbreaker, right-hand inserts fit to right-hand toolholder
Note: F1 chipbreaker evacuates chips BACKWARD

Mogul Bar for 80° Diamond ("CC" style)

Minimum Bore Diameter .394"(10㎜)

S-SCLC (Coolant through)

Steel shank

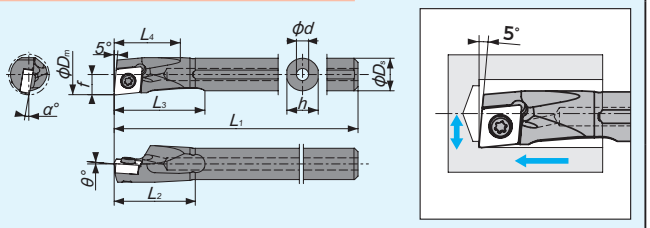


Figure-1

Right-Hand style shown

C-SCLC (Coolant through)

Carbide shank

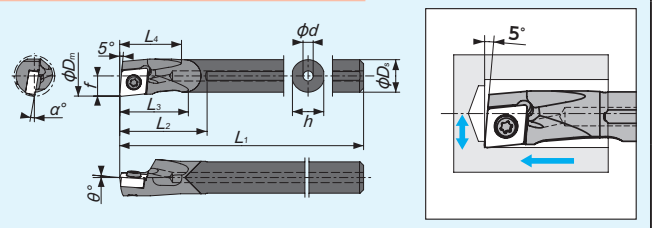


Figure-2

Right-Hand style shown

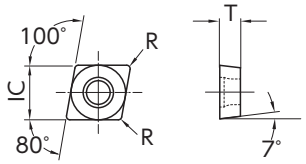
"CC" style - Toolholders

Gage Insert	Item number*	Figure	Stock R	Stock L	φ D_s (inch)	φ D_s (㎜)	Min. bore Dia. φ D_m (inch)	Min. bore Dia. φ D_m (㎜)	h (㎜)	L_1 (㎜)	f (㎜)	L_2 (㎜)	L_3 (㎜)	L_4 (㎜)	φ d (㎜)	θ	α	Std. corner radius r_ε (inch)	Std. corner radius r_ε (㎜)	Clamp screw	Wrench
CC..21.5..	S08H-SCLC⅜06D10-OH	1	●		.315	8.0	.394	10.0	7.7	100	5.0	20.0	22.0	16.0	3.0	0°	−13°	.016	0.4	LRIS-2.5×5	CLR-15S
	S10K-SCLC⅜06D12-OH	1	●		.394	10.0	.472	12.0	9.6	125	6.0	24.0	27.5	20.0	3.5	0°	−11°	.016	0.4	LRIS-2.5×5	CLR-15S
	S12M-SCLC⅜06D14-OH	1	●		.472	12.0	.551	14.0	11.5	150	7.0	28.0	32.5	23.0	4.0	0°	−9°	.016	0.4	LRIS-2.5×5	CLR-15S
CC..32.5..	S16Q-SCLC⅝09D18-OH	1	●		.630	16.0	.709	18.0	15.4	180	9.0	36.0	42.5	30.0	5.0	0°	−10°	.016	0.4	LRIS-4×8	LLR-25S
CC..21.5..	C08K-SCLC⅜06D10-OH	2	●		.315	8.0	.394	10.0	7.7	125	5.0	21.5	16.5	15.0	2.5	0°	−13°	.016	0.4	LRIS-2.5×5	CLR-15S
	C10M-SCLC⅜06D12-OH	2	●	○	.394	10.0	.472	12.0	9.6	150	6.0	25.0	20.0	19.5	2.5	0°	−11°	.016	0.4	LRIS-2.5×5	CLR-15S
	C12M-SCLC⅜06D14-OH	2	●		.472	12.0	.551	14.0	11.5	150	7.0	29.0	23.5	22.5	3.0	0°	−9°	.016	0.4	LRIS-2.5×5	CLR-15S

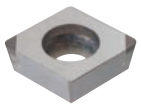
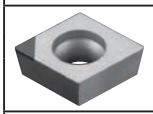
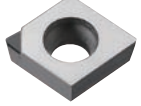
* "S" denotes steel shank, "C" denotes carbide shank

CC.. inserts - CBN / PCD

■80° Diamond Positive type (CC..)



Steel	P	
Stainless Steel	M	
Cast Iron	K	● ● ● ●
Non-Ferrous Material	N	● ●
Heat Resistant Alloy	S	
Hardened Material	H	● ● ● ● ●

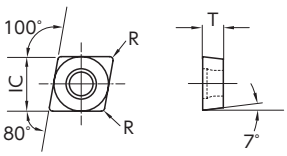
Shape	Item Number	ISO Item Number	Edge Prep.	IC	R	No. of edge	Length of edge	CBN (Brazed) B5K (Coated)	CBN (Brazed) B52	CBN (Brazed) B6K (Coated)	CBN (Brazed) B36	CBN (Brazed) B40	CBN (Brazed) B23	CBN (Brazed) B30	PCD PD1	PCD PD2
	CCGW 21.51 PD	CCGW 060204 PD	S0415	1/4	.016	2	.091		●							
	CCGW 32.508 PD	CCGW 09T302 PD	S0415	3/8	.008	2	.091		●							
	CCGW 32.508 PD	CCGW 09T302 PD	S0635	3/8	.008	2	.091					●				
	CCGW 32.51 PD	CCGW 09T304 PD	S0415	3/8	.016	2	.091		●							
	CCGW 32.51 PD	CCGW 09T304 PD	S0635	3/8	.016	2	.091					●				
	CCGW 32.52 PD	CCGW 09T308 PD	S0415	3/8	.031	2	.087		●							
	CCGW 32.52 PD	CCGW 09T308 PD	S0635	3/8	.031	2	.087					●				
	CCMW 32.504	CCMW 09T301	None	3/8	.004	1	–								○	
	CCMW 32.508	CCMW 09T302	None	3/8	.008	1	–								○	
	CCMW 32.51	CCMW 09T304	None	3/8	.016	1	–								○	
	CCMW 32.52	CCMW 09T308	None	3/8	.031	1	–								○	
NEW  with chipbreaker	CCMT 32.508 PF	CCMT 09T302PF	None	3/8	.008	1	–									●
	CCMT 32.51 PF	CCMT 09T304PF	None	3/8	.016	1	–									●

● : Stock　○ : 1-2 week delivery
R : Stock (Right-hand only)　L : Stock (Left-hand only)
Ⓡ : 1-2 week delivery (Right-hand only)　Ⓛ : 1-2 week delivery (Left-hand only)　💧 : Coolant through

Cutting condition ➡K152

CC.. inserts - Carbide / Cermet

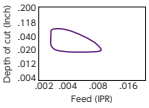
(inch)	IC	T
CC..21.5	1/4	3/32
CC..32.5	3/8	5/32

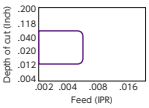


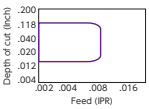
		Carbide							Cermet				
		PVD Coated										PVD Coated	
		QM3	DT4	DM4	TM4	VM1	ZM3	KM1	XT3	C7X	XN4	Q15	C7Z
Steel	P	●	●	●	●	●	●	●	●	●	●	●	●
Stainless Steel	M	●	●	●	●	●	●	●	●	●	●	●	●
Cast Iron	K								●	●		●	●
Non-Ferrous Material	N				●	●	●	●	●	●			●
Heat Resistant Alloy	S	●	●	●	●								
Hardened Material	H	●	●	●									

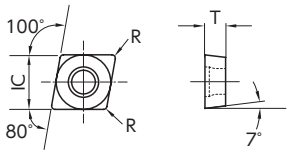
● : 1st Choice
● : Alternate choice

Shape	Item Number	ISO Item Number	IC	R	QM3	DT4	DM4	TM4	VM1	ZM3	KM1	XT3	C7X	XN4	Q15	C7Z
	CCGT 21.501 FNAM3	CCGT 060200 FNAM3	1/4	.001	●	●			○							
	CCGT 21.504M FNAM3	CCGT 060201M FNAM3	1/4	.003	●											
	CCGT 21.504 FNAM3	CCGT 060201 FNXAM3	1/4	.004									●			
	CCGT 21.508M FNAM3	CCGT 060202M FNAM3	1/4	.007	●	●										
	CCGT 21.508 FNAM3	CCGT 060202 FNAM3	1/4	.008					○	○						
	CCGT 21.508 FNAM3	CCGT 060202 FNXAM3	1/4	.008									●			
	CCGT 21.51M FNAM3	CCGT 060204M FNAM3	1/4	.015	●	●										
	CCGT 21.51 FNAM3	CCGT 060204 FNAM3	1/4	.016						○			●			
	CCGT 32.501 FNAM3	CCGT 09T300 FNAM3	3/8	.001	●	●		○	○							
	CCGT 32.504M FNAM3	CCGT 09T301M FNAM3	3/8	.003	●	●		○	○	○						
	CCGT 32.504 FNAM3	CCGT 09T301 FNXAM3	3/8	.004									●			
	CCGT 32.508M FNAM3	CCGT 09T302M FNAM3	3/8	.007	●	●		○	○	○						
	CCGT 32.508 FNAM3	CCGT 09T302 FNAM3	3/8	.008	●				○							
	CCGT 32.508 FNAM3	CCGT 09T302 FNXAM3	3/8	.008									●			
	CCGT 32.51M FNAM3	CCGT 09T304M FNAM3	3/8	.015	●	●		○	○	○						
	CCGT 32.51 FNAM3	CCGT 09T304 FNAM3	3/8	.016	●				○							
	CCGT 32.51 FNAM3	CCGT 09T304 FNXAM3	3/8	.016									●			
	CCGT 32.52 FNAM3	CCGT 09T308 FNAM3	3/8	.031	●											
	CCGT 32.52 FNXAM3	CCGT 09T308 FNXAM3	3/8	.031									●			
	CCMT 21.508 FNAM3	CCMT 060202 FNAM3	1/4	.008			○									
	CCMT 21.508 AM3	CCMT 060202 ENBAM3	1/4	.008									○			○
	CCMT 21.51 FNAM3	CCMT 060204 FNAM3	1/4	.016			○									
	CCMT 21.51 AM3	CCMT 060204 ENBAM3	1/4	.016									●			○
	CCMT 32.508 AM3	CCMT 09T302 ENBAM3	3/8	.008									○			○
	CCMT 32.51 FNAM3	CCMT 09T304 FNAM3	3/8	.016			○									
	CCMT 32.51 AM3	CCMT 09T304 ENBAM3	3/8	.016									●			○
	CCMT 32.52 FNAM3	CCMT 09T308 FNAM3	3/8	.031			○									
	CCMT 32.52 AM3	CCMT 09T308 ENBAM3	3/8	.031									●			○
	CCMT 32.53 AM3	CCMT 09T312 ENBAM3	3/8	.047									○			○
NEW	CCGT 32.504M YL	CCGT 09T301M YL	3/8	.003			●	○								
	CCGT 32.508M YL	CCGT 09T302M YL	3/8	.007			●	○								
	CCGT 32.51M YL	CCGT 09T304M YL	3/8	.015			●	○								
	CCGT 21.504M CL	CCGT 060201M CL	1/4	.003		●		●								
	CCGT 21.508M CL	CCGT 060202M CL	1/4	.007		●		●								
	CCGT 32.504M CL	CCGT 09T301M CL	3/8	.003		●		●								
	CCGT 32.508M CL	CCGT 09T302M CL	3/8	.007		●		●								
	CCGT 32.51M CL	CCGT 09T304M CL	3/8	.015		●		●								





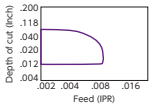


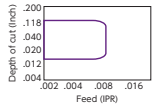


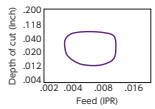
Steel	P	● ● ● ● ● ● ● ● ● ● ● ●
Stainless Steel	M	● ● ● ● ● ● ● ● ● ● ● ●
Cast Iron	K	● ● ● ● ● ●
Non-Ferrous Material	N	● ● ● ● ● ●
Heat Resistant Alloy	S	● ● ● ●
Hardened Material	H	● ● ●

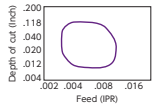
● : 1st Choice
● : Alternate choice

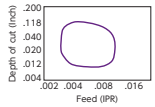
Shape	Item Number	ISO Item Number	IC	R	Carbide PVD Coated QM3	DT4	DM4	TM4	VM1	ZM3	KM1	Cermet XT3	C7X	XN4	Cermet PVD Coated Q15	C7Z
	CCGT 21.501 FNAZ7	CCGT 060200 FNAZ7	1/4	.001	○											
	CCGT 21.504M FNAZ7	CCGT 060201M FNAZ7	1/4	.003	○											
	CCGT 21.508M FNAZ7	CCGT 060202M FNAZ7	1/4	.007	○											
	CCGT 32.501 FNAZ7	CCGT 09T300 FNAZ7	3/8	.001	●	○		○		○						
	CCGT 32.504M FNAZ7	CCGT 09T301M FNAZ7	3/8	.003	●	○		○		○						
	CCGT 32.508M FNAZ7	CCGT 09T302M FNAZ7	3/8	.007	●	○		○		○						
	CCGT 32.51M FNAZ7	CCGT 09T304M FNAZ7	3/8	.015	●	○		○		○						
	CCGT 21.508 FN1L	CCGT 060202 FN1L	1/4	.008	○											
	CCGT 32.51 FN1L	CCGT 09T304 FN1L	3/8	.016	○											
	CCGT 21.504 AF1	CCGT 060201 ENBAF1	1/4	.004								●				
	CCGT 21.508 AF1	CCGT 060202 ENBAF1	1/4	.008								●				
	CCGT 21.51 AF1	CCGT 060204 ENBAF1	1/4	.016								●				
	CCGT 21.51 FNAF1	CCGT 060204 FNAF1	1/4	.016								●				
	CCGT 21.52 AF1	CCGT 060208 ENBAF1	1/4	.031								●				
	CCGT 32.508 AF1	CCGT 09T302 ENBAF1	3/8	.008								○				
	CCGT 32.508 FNAF1	CCGT 09T302 FNAF1	3/8	.008								●				
	CCGT 32.51 FNAF1	CCGT 09T304 FNAF1	3/8	.016								●				
	CCGT 32.51 AF1	CCGT 09T304 ENBAF1	3/8	.016								○				
	CCGT 32.52 FNAF1	CCGT 09T308 FNAF1	3/8	.031								●				
	CCGT 32.52 AF1	CCGT 09T308 ENBAF1	3/8	.031								○				
	CCMT 21.51 AM5	CCMT 060204 ENBAM5	1/4	.016										○		
	CCMT 32.51 AM5	CCMT 09T304 ENBAM5	3/8	.016										○		
	CCMT 32.52 AM5	CCMT 09T308 ENBAM5	3/8	.031										○		
	CCGT 21.508 ENBFM	CCGT 060202 ENBFM	1/4	.008								○				
	CCGT 21.51 ENBFM	CCGT 060204 ENBFM	1/4	.016								○				
	CCMT 21.508 ENBZR	CCMT 060202 ENBZR	1/4	.008									○			○
	CCMT 21.51 ENBZR	CCMT 060204 ENBZR	1/4	.016									○			○
	CCMT 32.508 ENBZR	CCMT 09T302 ENBZR	3/8	.008									○			○
	CCMT 32.51 ENBZR	CCMT 09T304 ENBZR	3/8	.016									○			○
	CCMT 32.52 ENBZR	CCMT 09T308 ENBZR	3/8	.031									○			○

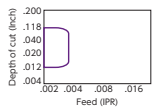






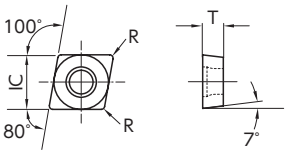






● : Stock ○ : 1-2 week delivery ■ : While stock lasts
R : Stock (Right-hand only) L : Stock (Left-hand only)
Ⓡ : 1-2 week delivery (Right-hand only) Ⓛ : 1-2 week delivery (Left-hand only) Ⓜ : Mirror finish

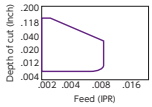
ID boring bars →K174
Cutting condition →K152

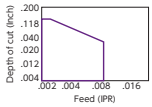


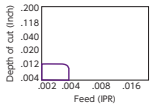
Steel	P	● ● ● ● ● ● ● ● ● ● ● ● ●
Stainless Steel	M	● ● ● ● ● ● ● ● ● ● ● ● ●
Cast Iron	K	● ● ● ● ●
Non-Ferrous Material	N	● ● ● ● ●
Heat Resistant Alloy	S	● ● ● ●
Hardened Material	H	● ● ●

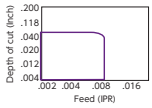
● : 1st Choice
● : Alternate choice

Shape	Item Number	ISO Item Number	IC	R	Carbide PVD Coated QM3	DT4	DM4	TM4	VM1	ZM3	Carbide KM1	Cermet XT3	C7X	XN4	Cermet PVD Coated Q15	C7Z
	CCGT 21.501 R/L-S	CCGT 060200 R/L-S	1/4	.001	R	Ⓡ			ⓇⓁ	ⓇL						
	CCGT 21.504M R/L-S	CCGT 060201M R/L-S	1/4	.003	R	Ⓡ										
	CCGT 21.504 R/L-S	CCGT 060201 R/L-S	1/4	.004					ⓇⓁ	RⓁ			ⓇⓁ			
	CCGT 21.508M R/L-S	CCGT 060202M R/L-S	1/4	.007	R											
	CCGT 21.508 R/L-S	CCGT 060202 R/L-S	1/4	.008					RⓁ	ⓇⓁ			ⓇⓁ			
	CCGT 21.51 R/L-S	CCGT 060204 R/L-S	1/4	.016	R											
	CCGT 32.501 R/L-S	CCGT 09T300 R/L-S	3/8	.001	R	R		R	ⓇⓁ	Ⓡ						
	CCGT 32.504M R/L-S	CCGT 09T301M R/L-S	3/8	.003	Ⓡ	R		R								
	CCGT 32.504 R/L-S	CCGT 09T301 R/L-S	3/8	.004	R				ⓇⓁ	ⓇⓁ						
	CCGT 32.508M R/L-S	CCGT 09T302M R/L-S	3/8	.007	Ⓡ	R		R								
	CCGT 32.508 R/L-S	CCGT 09T302 R/L-S	3/8	.008	R				RⓁ	Ⓡ						
	CCGT 32.51M R/L-S	CCGT 09T304M R/L-S	3/8	.015	Ⓡ			R								
	CCGT 32.51 R/L-S	CCGT 09T304 R/L-S	3/8	.016	R											
	CCMT 21.504 TR/L-AS	CCMT 060201 TR/L-AS	1/4	.004									ⓇⓁ			ⓇⓁ
	CCMT 21.508 TR/L-AS	CCMT 060202 TR/L-AS	1/4	.008									ⓇⓁ			ⓇⓁ
	CCMT 21.51 TR/L-AS	CCMT 060204 TR/L-AS	1/4	.016									ⓇⓁ			ⓇⓁ
	CCMT 32.504 TR/L-AS	CCMT 09T301 TR/L-AS	3/8	.004									ⓇⓁ			ⓇⓁ
	CCMT 32.508 TR/L-AS	CCMT 09T302 TR/L-AS	3/8	.008									ⓇⓁ			ⓇⓁ
	CCMT 32.51 TR/L-AS	CCMT 09T304 TR/L-AS	3/8	.016									ⓇⓁ			ⓇⓁ
	CCGT 21.501 R/L-U	CCGT 060200 R/L-U	1/4	.001		Ⓡ				Ⓡ						
	CCGT 21.504 R/L-U	CCGT 060201 R/L-U	1/4	.004		Ⓡ				ⓇⓁ						
	CCGT 21.508 R/L-U	CCGT 060202 R/L-U	1/4	.008		Ⓡ				ⓇⓁ						
	CCGT 32.501 R/L-U1	CCGT 09T300 R/L-U1	3/8	.001				Ⓡ		ⓇⓁ						
	CCGT 32.504 R/L-U1	CCGT 09T301 R/L-U1	3/8	.004		Ⓡ		Ⓡ		ⓇⓁ						
	CCGT 32.508 R/L-U1	CCGT 09T302 R/L-U1	3/8	.008		Ⓡ		Ⓡ		ⓇⓁ						
	CCGT 32.51 R/L-U1	CCGT 09T304 R/L-U1	3/8	.016				Ⓡ		ⓇⓁ						
	CCET 21.502 R/L-KHG	CCET 0602005 R/L-KHG	1/4	.002					ⓇⓁ							
	CCET 21.503 R/L-KHG	CCET 0602008 R/L-KHG	1/4	.003					ⓇⓁ							
	CCET 21.507 R/L-KHG	CCET 0602018 R/L-KHG	1/4	.007					ⓇⓁ							
	CCET 21.508 R/L-KHG	CCET 060202 R/L-KHG	1/4	.008					ⓇⓁ							
	CCET 32.502 R/L-KHG	CCET 09T3005 R/L-KHG	3/8	.002				Ⓡ	ⓇⓁ							
	CCET 32.503 R/L-KHG	CCET 09T3008 R/L-KHG	3/8	.003				Ⓡ	ⓇⓁ							
	CCET 32.507 R/L-KHG	CCET 09T3018 R/L-KHG	3/8	.007				Ⓡ	ⓇⓁ							
	CCET 32.508 R/L-KHG	CCET 09T302 R/L-KHG	3/8	.008				Ⓡ	ⓇⓁ							
	CCGT 21.508 FR/L-F1	CCGT 060202 FR/L-F1	1/4	.008				Ⓡ								
	CCGT 21.51 FR/L-F1	CCGT 060204 FR/L-F1	1/4	.016				Ⓡ								
	CCGT 32.508 FR/L-F1	CCGT 09T302 FR/L-F1	3/8	.008				Ⓡ								
	CCGT 32.51 FR/L-F1	CCGT 09T304 FR/L-F1	3/8	.016				Ⓡ								
	CCGW 21.501 FN	CCGW 060200 FN	1/4	.001						○						
	CCGW 21.501 H Ⓜ	CCGW 060200 H	1/4	.001							○					
	CCGW 21.504 FN	CCGW 060201 FN	1/4	.004						○						
	CCGW 21.504 H Ⓜ	CCGW 060201 H	1/4	.004							○					
	CCGW 21.508 H Ⓜ	CCGW 060202 H	1/4	.008							○					
	CCGW 21.51 FN	CCGW 060204 FN	1/4	.016						○						
	CCGW 21.52 FN	CCGW 060208 FN	1/4	.031						■						
	CCGW 32.500 V Ⓜ	CCGW 09T30 V	3/8	0					○							
	CCGW 32.501 FN	CCGW 09T300 FN	3/8	.001						○						
	CCGW 32.501 H Ⓜ	CCGW 09T300 H	3/8	.001							○					
	CCGW 32.504 FN	CCGW 09T301 FN	3/8	.004						○						
	CCGW 32.504 H Ⓜ	CCGW 09T301 H	3/8	.004							○					
	CCGW 32.504 P Ⓜ	CCGW 09T301 P	3/8	.004					○							
	CCGW 32.508M P Ⓜ	CCGW 09T302M P	3/8	.007		○										
	CCGW 32.508 H Ⓜ	CCGW 09T302 H	3/8	.008							○					
	CCGW 32.508 P Ⓜ	CCGW 09T302 P	3/8	.008					○							









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Mogul Bar for 60° Triangle (TC/TP style)

Minimum Bore Diameter .315"(8.0㎜)

S-STUC(P) (Coolant through)

Steel shank

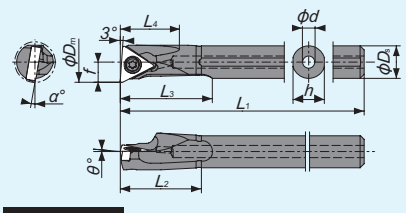
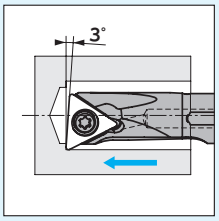


Figure-3



Right-Hand style shown

C-STUC(P) (Coolant through)

Carbide shank

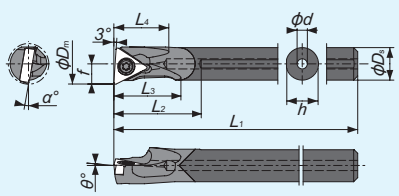
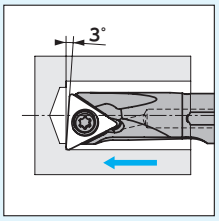


Figure-4



Right-Hand style shown

TC/TP style - Toolholders

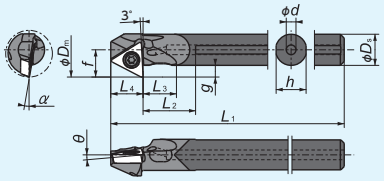
GageInsert	Item number*	Figure	Stock R	Stock L	φ D_s (inch)	φ D_s (mm)	Min. bore Dia. φ D_m (inch)	Min. bore Dia. φ D_m (mm)	h (mm)	L_1 (mm)	f (mm)	L_2 (mm)	L_3 (mm)	L_4 (mm)	φ d (mm)	θ	α	Std. corner radius r_ε (inch)	Std. corner radius r_ε (mm)	Clamp screw	Wrench
TC..52..	S07G-STUC☔06D08-OH	3	●		.276	7.0	.315	8.0	6.75	90	4.0	16	19.5	12.5	2.5	0°	−11°	.008	0.2	LR-S-2 × 4.4	CLR-13S
TP..73..	S08H-STUP☔09D10-OH	3	●		.315	8.0	.394	10.0	7.7	100	5.0	20	22.5	14.5	3.0	+5°	−10°	.016	0.4	LR-S-2.5 × 4.8	CLR-15S
TP..22..	S10K-STUP☔11D12-OH	3	●		.394	10.0	.472	12.0	9.6	125	6.0	24	27.5	18.5	3.5	+5°	−7.5°	.016	0.4	LR-S-3 × 5.8	RLR-20S
	S12M-STUP☔11D14-OH	3	●		.472	12.0	.551	14.0	11.5	150	7.0	28	32.5	22.0	4.0	+5°	−5°	.016	0.4	LR-S-3 × 5.8	RLR-20S
	S16Q-STUP☔11D18-OH	3	●		.630	16.0	.709	18.0	15.4	180	9.0	32	42.5	28.5	5.0	+5°	−3°	.016	0.4	LR-S-3 × 5.8	RLR-20S
TC..52..	C07J-STUC☔06D08-OH	4	●	○	.276	7.0	.315	8.0	6.75	110	4.0	17.5	13.0	12.5	2.0	0°	−11°	.008	0.2	LR-S-2 × 4.4	CLR-13S
TP..73..	C08K-STUP☔09D10-OH	4	●	○	.315	8.0	.394	10.0	7.7	125	5.0	21.5	16.5	14.5	2.5	+5°	−10°	.016	0.4	LR-S-2.5 × 4.8	CLR-15S
TP..22..	C10M-STUP☔11D12-OH	4	●	○	.394	10.0	.472	12.0	9.6	150	6.0	25.0	20.0	17.5	2.5	+5°	−7.5°	.016	0.4	LR-S-3 × 5.8	RLR-20S
	C12M-STUP☔11D14-OH	4	●		.472	12.0	.551	14.0	11.5	150	7.0	29.0	23.0	21.5	3.0	+5°	−5°	.016	0.4	LR-S-3 × 5.8	RLR-20S
	C16Q-STUP☔11D18-OH	4	●		.630	16.0	.709	18.0	15.4	180	9.0	37.0	29.0	28.0	4.0	+5°	−3°	.016	0.4	LR-S-3 × 5.8	RLR-20S

* "S" denotes steel shank, "C" denotes carbide shank

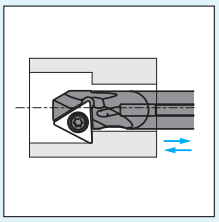
C-STZP(C) (Coolant through)

NEW

Minimum Bore Diameter .394"(10㎜) Carbide shank



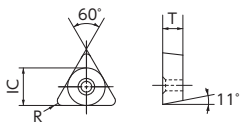
●Use right-hand inserts for machining backward
Use left-hand inserts for machining forward



Insert	Item number*	Stock R	φ D_s (inch)	φ D_s (mm)	Min. bore Dia. φ D_m (inch)	Min. bore Dia. φ D_m (mm)	Max. shoulder height g (inch)	Max. shoulder height g (mm)	h (mm)	L_1 (mm)	f (mm)	L_2 (mm)	L_3 (mm)	L_4 (mm)	φ d (mm)	θ	α	Std. corner radius r_ε (inch)	Std. corner radius r_ε (mm)	Clamp screw	Wrench
TC..52..	C06H-STZCR06D10-OH	○	.236	6	.394	10	.098	2.5	5.75	100	5.5	10.5	6	6	2.0	0°	-10°	.008	0.2	LR-S-2 × 4	CLR-13S
TP..73..	C08K-STZPR09D12-OH	○	.315	8	.472	12	.118	3	7.7	125	7	13.5	8.5	8.3	2.5	+5°	-10°	.016	0.4	LR-S-2.5 × 4.8	CLR-15S
	C10M-STZPR09D14-OH	○	.394	10	.551	14	.118	3	9.6	150	8	18.5	12	8.3	2.5	+5°	-7°	.118	0.4	LR-S-2.5 × 4.8	CLR-15S
TP..22..	C12M-STZPR11D175-OH	○	.472	12	.689	17.5	.177	4.5	11.5	150	10.5	22	14.5	9.6	3.0	+5°	-5°	.117	0.4	LR-S-3 × 5.8	RLR-20S

TPG
CBN / PCD

(inch)	IC	T
TP.. 22	1/4	1/8

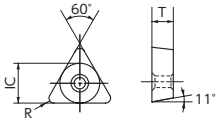


Steel	P	
Stainless Steel	M	
Cast Iron	K	● ● ● ●
Non-Ferrous Material	N	● ●
Heat Resistant Alloy	S	
Hardened Material	H	● ● ● ● ●

Shape	Item Number	ISO Item Number	Edge Prep.	IC	R	No. of edge	Length of edge	CBN (Brazed) Coated B5K	B52	Coated B6K	B36	B40	B23	B30	PCD PD1	PD2
	TPGW 2208 PT	TPGW 110302 PT	S0415	1/4	.008	3	.087		○							
	TPGW 221 PT	TPGW 110304 PT	S0415	1/4	.016	3	.079		○							
	TPGW 221 PT	TPGW 110304 PT	T0615	1/4	.016	3	.079						○			
	TPGW 221 PT	TPGW 110304 PT	S0635	1/4	.016	3	.079					○				
	TPGW 222 PT	TPGW 110308 PT	S0415	1/4	.031	3	.067		○							
	TPGW 222 PT	TPGW 110308 PT	S0635	1/4	.031	3	.067					○				
NEW 	TPMT 7308 PF	TPMT 090202 PF	None	7/32	.008	1	–									○
	TPMT 731 PF	TPMT 090204 PF	None	7/32	.016	1	–									○
	TPMT 2208 PF	TPMT 110302 PF	None	1/4	.008	1	–									○
	TPMT 221 PF	TPMT 110304 PF	None	1/4	.016	1	–									○

■60° Triangle Positive type Carbide / Cermet (TC..52)

(inch)	IC	T
TC..52	5/32	1/16



		QM3	DT4	DM4	TM4	VM1	ZM3	KM1	XT3	C7X	XN4	Q15	C7Z
Steel	P	●	●	●	●	●	●	●	●	●	●	●	●
Stainless Steel	M	●	●	●	●	●	●	●	●	●	●	●	●
Cast Iron	K								●	●		●	●
Non-Ferrous Material	N				●	●	●	●	●	●			●
Heat Resistant Alloy	S	●	●	●	●								
Hardened Material	H	●	●	●									

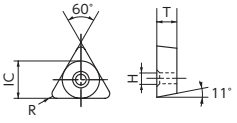
● : 1st Choice
● : Alternate choice

Shape	Item Number	ISO Item Number	IC	R	TM4	XT3	C7X	XN4	Q15	C7Z
	TCGH 5204 TR/LB1	TCGH 060101 TR/LB1	5/32	.004		L				
	TCGH 5208 FR/LB1	TCGH 060102 FR/LB1	5/32	.008	Ⓛ					Ⓛ
	TCGH 5208 TR/LB1	TCGH 060102 TR/LB1	5/32	.008		ⓇⓁ				
	TCGH 521 FR/LB1	TCGH 060104 FR/LB1	5/32	.016	Ⓛ					Ⓛ
	TCGH 521 TR/LB1	TCGH 060104 TR/LB1	5/32	.016		L				
	TCGP 5204 FR/LF05	TCGH 060101 FR/LF05	5/32	.004	R					
	TCGP 5208 FR/LF05	TCGH 060102 FR/LF05	5/32	.008	ⓁR	Ⓡ	ⓇⓁ			
	TCGP 5208 R/LF05	TCGH 060102 TR/LF05	5/32	.008			Ⓛ			ⓇⓁ
	TCGP 521 FR/LF05	TCGH 060104 FR/LF05	5/32	.016	R	Ⓡ	Ⓡ			
	TCGP 521 R/LF05	TCGH 060104 TR/LF05	5/32	.016			Ⓛ			ⓇⓁ
	TCGH 5208 FR/LK	TCGB 060102 FR/LK	5/32	.008	Ⓛ					
	TCGH 5521 FR/LK	TCGB 060104 FR/LK	5/32	.016	Ⓛ					
	TCGD 52Y	TCGB 060102 TN	5/32	.008		○				
	TCGD 521	TCGB 060104 TN	5/32	.016		●				

■60° Triangle Positive type Carbide / Cermet (TP..)

(inch)	IC	T
TP..22	1/4	1/8

(inch)	IC	T
TP..73	7/32	3/32



		QM3	DT4	DM4	TM4	VM1	ZM3	KM1	XT3	C7X	XN4	Q15	C7Z
Steel	P	●	●	●	●	●	●	●	●	●	●	●	●
Stainless Steel	M	●	●	●	●	●	●	●	●	●	●	●	●
Cast Iron	K								●	●		●	●
Non-Ferrous Material	N				●	●	●	●	●	●			●
Heat Resistant Alloy	S	●	●	●	●								
Hardened Material	H	●	●	●									

● : 1st Choice
● : Alternate choice

Shape	Item Number	ISO Item Number	IC	R	TM4	XT3	C7X	XN4	Q15	C7Z
	TPGH 7308 FR/LB2	TPGH 090202 FR/LB2	7/32	.008	Ⓛ					
	TPGH 731 FR/LB2	TPGH 090204 FR/LB2	7/32	.016	Ⓛ					
	TPGH 731 R/LB2	TPGH 090204 TR/LB2	7/32	.016		R L				
	TPGH 732 R/LB2	TPGH 090208 FR/LB2	7/32	.031	Ⓛ					
	TPGH 2204 R/LB3	TPGH 110301 TR/LB3	1/4	.004		L				
	TPGH 221 R/LB3	TPGH 110304 TR/LB3	1/4	.016		L				
	TPGH 222 R/LB3	TPGH 110308 TR/LB3	1/4	.031		L				
	TPGH 7304 FR/LF1	TPGH 090201 FR/LF1	7/32	.004	Ⓡ					
	TPGH 7308 FR/LF1	TPGH 090202 FR/LF1	7/32	.008	Ⓡ	Ⓡ	Ⓡ			
	TPGH 731 FR/LF1	TPGH 090204 FR/LF1	7/32	.016	Ⓡ	Ⓡ	Ⓡ			
	TPGH 732 FR/LF1	TPGH 090208 FR/LF1	7/32	.031	Ⓡ		Ⓡ			
	TPGH 2208 FR/LF1	TPGH 110302 FR/LF1	1/4	.008	Ⓡ	Ⓡ	Ⓡ			
	TPGH 221 FR/LF1	TPGH 110304 FR/LF1	1/4	.016	Ⓡ	Ⓡ	Ⓡ			
	TPGH 222 FR/LF1	TPGH 110308 FR/LF1	1/4	.031	Ⓡ		Ⓡ			
	TPGP 7308 R/LF1	TPGH 090202 TR/LF1	7/32	.008			Ⓡ			Ⓡ
	TPGP 731 R/LF1	TPGHP 090204 TR/LF1	7/32	.016			Ⓡ			Ⓡ
	TPGP 2208 R/LF1	TPGH 110302 TR/LF1	1/4	.008			Ⓡ			Ⓡ
	TPGP 221 R/LF1	TPGH 110304 TR/LF1	1/4	.016			Ⓡ			Ⓡ
	TPGP 222 R/LF1	TPGH 110308 TR/LF1	1/4	.031			Ⓡ			Ⓡ
	TPGP 7308 R/LFG	TPGH 090202 R/LFG	7/32	.008	R					Ⓡ
	TPGP 731 R/LFG	TPGH 090204 R/LFG	7/32	.016	R					Ⓡ
	TPGH 2208 R/LFG	TPGH 110302 R/LFG	1/4	.008	R					Ⓡ
	TPGH 221 R/LFG	TPGH 110304 R/LFG	1/4	.016	R					Ⓡ
	TPGP 7308 FR/LK	TPGH 090202 FR/LK	1/4	.008	Ⓛ					
	TPGP 7318 FR/LK	TPGH 090204 FR/LK	1/4	.016	Ⓛ					
	TPGP 7328 FR/LK	TPGH 090208 FR/LK	1/4	.031	Ⓛ					

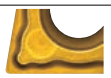
● : Stock ○ : 1-2 week delivery
R : Stock (Right-hand only)
Ⓡ : 1-2 week delivery (Right-hand only)
L : Stock (Left-hand only)
Ⓛ : 1-2 week delivery (Left-hand only)
💧 : Coolant through

*For F05, F1 and FG chipbreaker, right-hand inserts fit to right-hand toolholder
Note: F05, F1 and FG chipbreaker evacuates chips BACKWARD

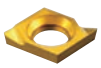
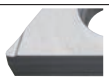
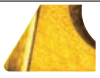
Cutting condition ➡K152

Chipbreakers for Mogul Bar

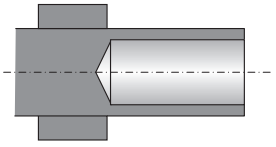
Molded Chipbreakers

Name	Chipbreaker Geometry	Features	ER Style	CC Style	CP Style	TC Style	TP Style
FG		●Evacuate chips BACKWARD at light depth of cut	—	—	—	—	
AM3		●Great combination of sharp edge and chip control	—			—	—
YL		●Great combination of sharpness and toughness ●Covers extremely wide range ●Excellent chip control	—		—	—	—
CL		●Double-positive geometry ●Sharp edge and low tool pressure ●Very wide chip control range	—		—	—	—
AZ7		●Excellent chip control at light feed and light depth of cut	—		—	—	—
ZR		●Covers a wide range of depth of cut under high-speed and low-feed conditions	—		—	—	—
AM5		●Provides both good cutting performance and chip control	—			—	—

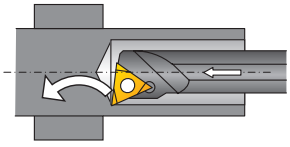
Ground Chipbreakers

Name	Chipbreaker Geometry	Features	ER Style	CC Style	CP Style	TC Style	TP Style
F05・F1		●Exclusively designed for ID boring ●Evacuate chips BACKWARD					
S		●Sharp cutting edge with excellent chip control	—			—	—
U・U1		●Sharp cutting edge prevents work materials from work hardening	—		—	—	—
KHG		●Excellent chip control on finishing cuts ●For super high-precision machining	—		—	—	—
K		●Superb chip control on finishing applications	—	—	—		—
A・A1		●Tough cutting edge and good chip control ●General-purpose ID chipbreaker	—	—		—	—
A2		●Sharp cutting edge due to large rake angle		—	—	—	—
B1・B2・B3		●Stable cutting in boring thanks to sharp and tough cutting edge	—	—	—		

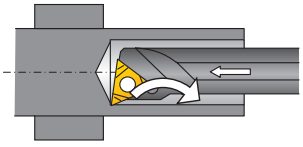
Boring on CNC Swiss-Type Lathes



Blind hole due to bar stock



Typical inserts direct chips forward
Then packed chips damage and break cutting edges



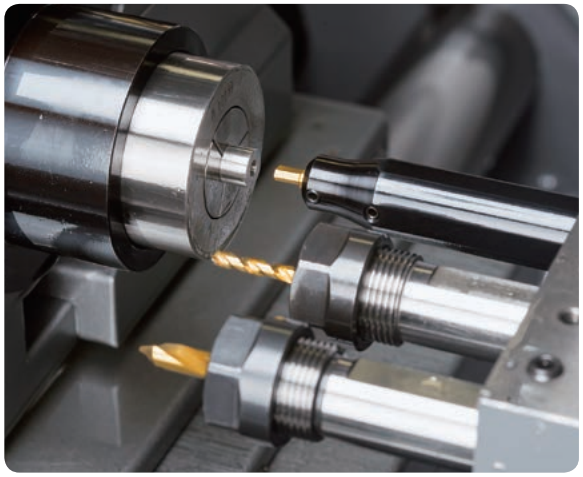
FG, F1 and F05 chipbreakers direct chips backward and prevent cuttting edges from breaking

Note: Use right-hand inserts with FG, F1 and F05 chipbreakers for right-hand boring bars

K

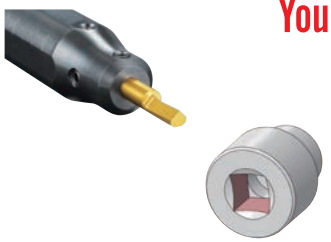
Shaper

SHAPER DUO



■Hexagon Socket

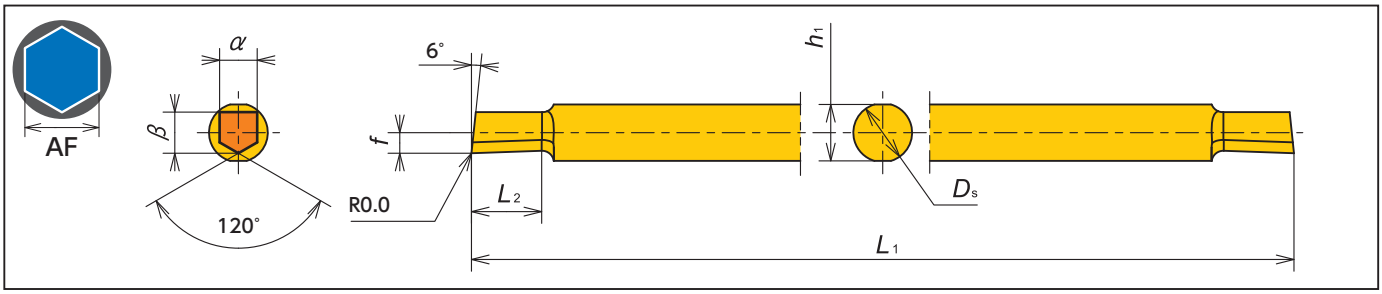
■Square Socket



WATCH ON YouTube

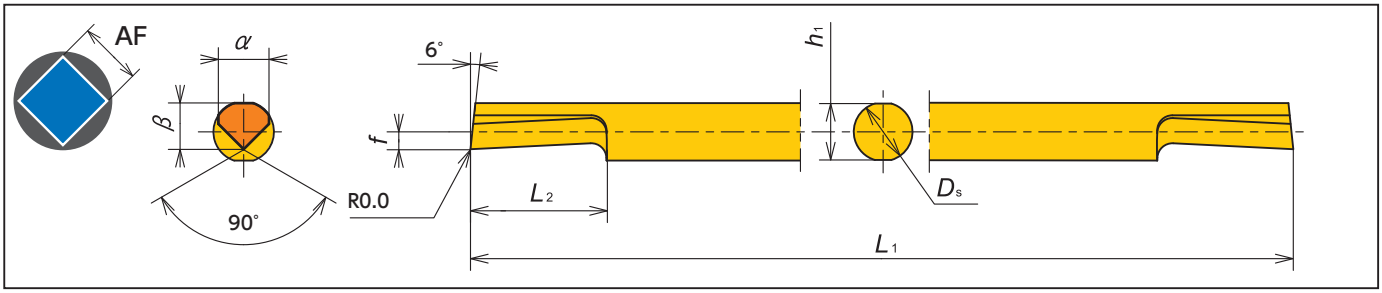
- Perfect fit for back spinde of Swiss machine
- Achieves good corner edge sharpness
- Less tool pressure than Rotary-Broaching
- Easy to adjust for correct dimension
- Economical two-sided insert bar

Insert Bar -Hexagon-



Item Number	Base AF (mm)	HEX Standard size range (mm)	AF range (mm)	D_s (mm)	L_1 (mm)	L_2 (mm)	h_1 (mm)	α (mm)	β (mm)	f (mm)	Corted Carbide TM4
SSP020N1130H	HEX 1.5	HEX 1.5 – 2.0	1.4 – 2.0	φ 2	50	3.0	1.8	1.1	0.8	0.40	●
SSP020N1430H	HEX 2.0	HEX 2.0 – 2.5	1.9 – 2.6	φ 2	50	3.0	1.8	1.4	1.1	0.55	●
SSP030N1940H	HEX 3.0	HEX 2.5 – 3.5	2.4 – 3.6	φ 3	50	4.0	2.8	1.9	1.6	0.8	●
SSP040N2450H	HEX 4.0	HEX 3.5 – 4.5	3.4 – 4.6	φ 4	60	5.0	3.8	2.4	2.6	1.3	●
SSP050N3260H	HEX 5.0	HEX 4.5 – 6.0	4.4 – 6.2	φ 5	70	6.0	4.8	3.2	3.4	1.70	●
SSP060N42120H	HEX 6.0	HEX 6.0 – 8.0	5.9 – 8.2	φ 6	80	12.0	5.6	4.2	4.0	2.00	●
SSP080N62160H	HEX 8.0	HEX 8.0 – 12.0	7.9 – 12.2	φ 8	80	16.0	7.6	6.2	4.7	2.35	●

Insert Bar -Square-



Item Number	Base AF (mm)	AF range (mm)	D_s (mm)	L_1 (mm)	L_2 (mm)	h_1 (mm)	α (mm)	β (mm)	f (mm)	Corted Carbide TM4
SSP020N1740S	2.0	1.9 – 2.3	φ 2.0	50	4.0	1.8	1.70	1.60	0.70	○
SSP025N1940S	2.5	2.2 – 2.6	φ 2.5	50	4.0	2.3	1.95	1.80	0.65	○
SSP030N2260S	3.0	2.5 – 3.0	φ 3.0	50	6.0	2.8	2.20	2.05	0.65	○
SSP035N2760S	3.5	2.9 – 3.7	φ 3.5	60	6.0	3.3	2.70	2.25	0.60	○
SSP040N3380S	4.0	3.6 – 4.6	φ 4.0	60	8.0	3.8	3.35	3.05	1.15	○
SSP050N39100S	5.0	4.5 – 5.4	φ 5.0	70	10.0	4.8	3.90	3.95	1.55	○
SSP060N47120S	6.0	5.3 – 6.6	φ 6.0	80	12.0	5.6	4.75	4.50	1.70	○
SSP080N58160S	8.0	6.5 – 8.1	φ 8.0	80	16.0	7.6	5.80	5.50	1.70	○

● : Stock ○ : 1-2 week delivery

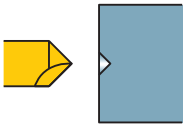
Sleeves ➡K186 • K187 • K188

Comparison Chart of HEX Socket Machining

	Tool Pressure	Cycle Time	Pliability	Tool Cost	
Shaper Duo 	◎	△ ＊Can be off-set by over-wrapping operation	○	◎	●Less tool pressure-especially on small diameter parts ●One size can cover several socket sizes
Broach Tool	△	○	×	△	●Need to have tools for each socket size

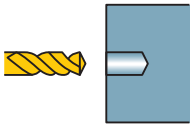
Process Chart

① Center drilling



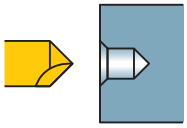
Select a pilot hole drill which is bigger dia. than AF.

② Drilling (Pilot hole)



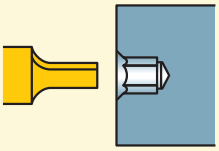
Select a drill with same dia. as AF and machine a bit deeper because burrs may cause chipping on shaper insert

③ Chamfering



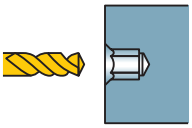
Chamfer with the same pilot hole drill as ① (Chamfer could be done at same time as ①).

④ Shaper tool



Machine HEX portion rotating 120 degrees 6 times

⑤ Deburring



Finishing and deburring with the same drill as in process②
☆Reduce cutting conditions due to heavy interruption

SHAPER DUO Process Chart

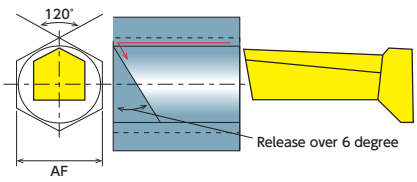
HEX Standard	Tool	Pilot bore Dia. (㎜)	Total DOC /side (㎜)	Number of passes: Total pass /side	Roughing pass 0.025㎜	Finishing pass 0.010㎜	Estimated cycle time *: ISO 2936 standard depth of Hex hole (㎜)	Whole process ①-⑤	Process④ Shaper
HEX 1.5	**SSP020N1130H**	1.5	0.116	6	5	1	2	39 sec	14 sec
HEX 2.0	**SSP020N1430H**	2.0	0.155	7	6	1	2.5	44 sec	16 sec
HEX 2.5	**SSP030N1940H**	2.5	0.193	9	8	1	3	50 sec	20 sec
HEX 3.0	**SSP030N1940H**	3.0	0.232	10	9	1	3.5	55 sec	23 sec
HEX 4.0	**SSP040N2450H**	4.0	0.309	13	12	1	5	73 sec	33 sec
HEX 5.0	**SSP050N3260H**	5.0	0.387	17	16	1	6	90 sec	46 sec
HEX 6.0	**SSP060N42120H**	6.0	0.464	20	19	1	8	117 sec	63 sec
HEX 8.0	**SSP080N62160H**	8.0	0.619	26	25	1	10	155 sec	92 sec

＊Pilot bore diameter is same as AF
＊Using Carbide drill

＊Shaper cutting conditions
Feed : 3000 ㎜/min
DOC : 0.025 ㎜ (Roughing), 0.010 ㎜ (Finishing)

Recommended Cutting Conditions

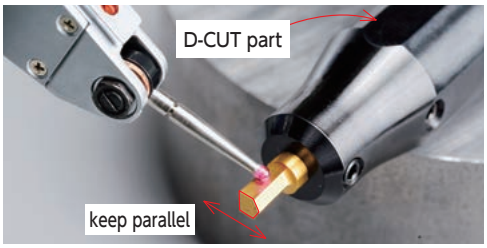
Feed : 4000-1000 ㎜/min (150-40 IPM)
DOC : 0.05 ㎜-0.01 ㎜ (.0020"-.0004")
☆Combination of Roughing (0.025 ㎜) and Finishing (0.010 ㎜) is recommended



SHAPER DUO Set-up Instruction -Hexagontal

■Outside machine

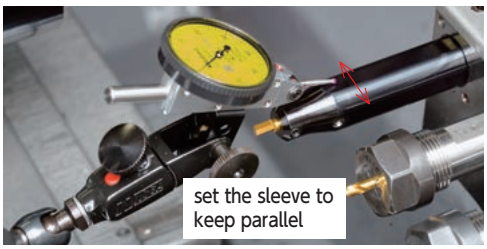
①



- Set the insert bar in the sleeve and check the parallelism of the flat portion of the sleeve and the insert bar.
- Minimize the overhang of the insert.

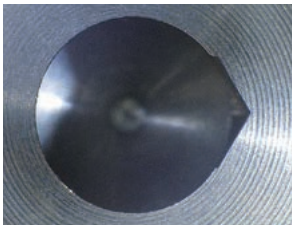
■Inside machine

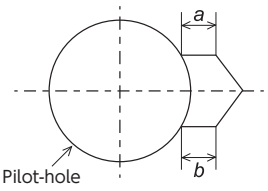
②



- Set the sleeve into the tool post and make sure the sleeve is set parallel.
- Minimize sleeve overhang.

③





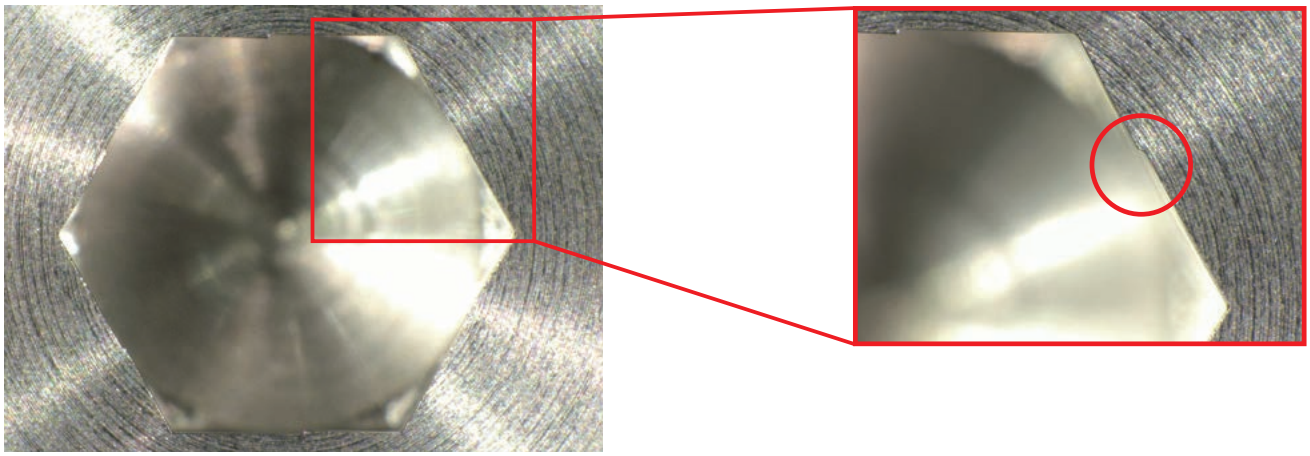
- Machine one angle a bit wider than the drilled hole.
  *Increase the number of machining passes because the insert may get chipped with increased depth of cut.
  (0.025mm×5pass is recommended)
  No chamfering process is required for measuring purpose.
- Measure the length of both [a] and [b] with comparator or magnifier.
- Adjust centerline height by rotating the sleeve until you get the same length for [a] and [b].(The difference should be less than .0008")
  *If the straight is not seen with increased passes, please reset the insert and the sleeve.
  Please make sure both the insert and the sleeve are set up correctly.

④ **Machine Hexagontal shape**

- Run full HEX machining program.

SHAPER DUO Trouble Shooting

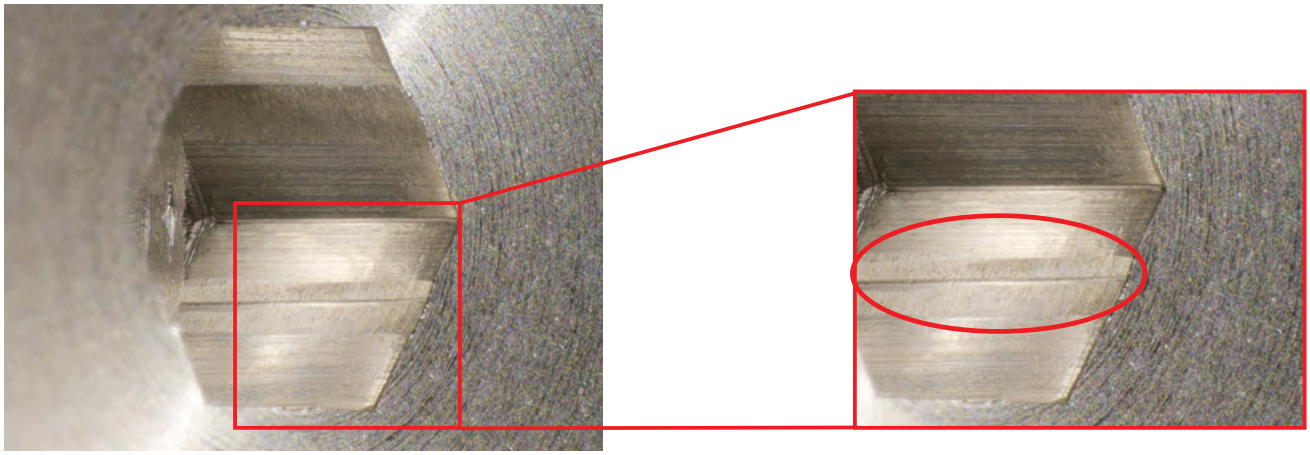
■Problem: Step on sides



Cause: Incorrect tool set-up
(Center-line shift)

Solution: Machine one angle and make sure both [a] and [b] lengths are identical, rotating the sleeve if necessary

■Problem: Wall dented



Cause: Pilot hole remaining

Solution: Need pilot hole tool's offset

■Problem: Wall tapered

Solution:
- Smaller depth of cut
- Less tool overhang

■Problem: Chuck is slipping / Insert Chipped

Solution:
- Slower feed rate
- Smaller depth of cut

SPLASH DUO - Stick Duo Hyper with Coolant through -

HY-NBH-OH (Coolant through)

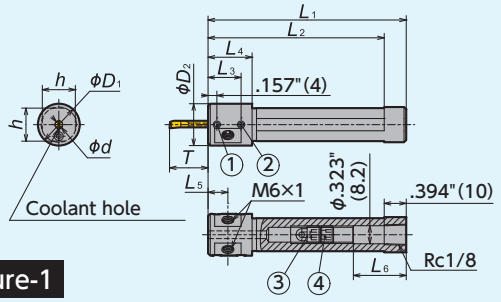


Figure-1

HY-NBH-OH (Coolant through)

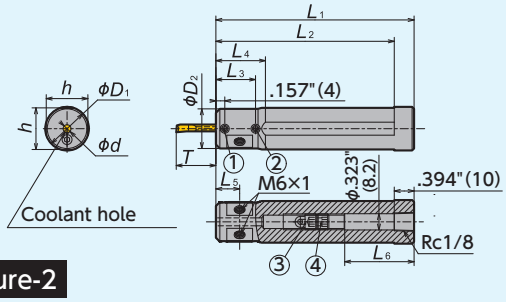
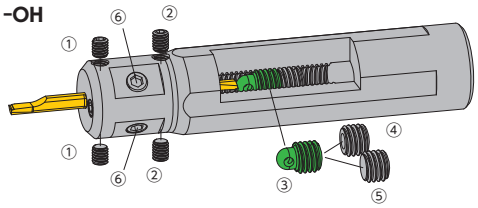


Figure-2

Item Number	Stock	Figure	φ d		φD1		φD2	h	L1	L2	L3	L4	L5	L6	Overhang Length of Bar T			
															Min.		Max.	
			(Inch)	(mm)	(Inch)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(Inch)	(mm)	(Inch)	(mm)
HY-NBH02016G-OH	●	1	.079	2	.630	16	19	15	90	80	15	19	9.5	29	.197	5.0	.709	18.0
HY-NBH02516G-OH	●	1	.098	2.5	.630	16	19	15	90	80	15	19	9.5	30	.248	6.3	.768	19.5
HY-NBH03016G-OH	●	1	.118	3	.630	16	19	15	90	80	15	19	9.5	31	.295	7.5	.827	21.0
HY-NBH03516G-OH	●	1	.138	3.5	.630	16	19	15	90	80	15	19	9.5	23	.346	8.8	.965	24.5
HY-NBH04016G-OH	●	1	.157	4	.630	16	19	15	90	80	20	24	12	23	.394	10.0	1.102	28.0
HY-NBH05016G-OH	●	1	.197	5	.630	16	19	15	90	80	20	24	12	16	.492	12.5	1.378	35.0
HY-NBH02019J-OH	●	2	.079	2	3/4	19.05	19.05	18	110	100	15	—	9.5	49	.197	5.0	.709	18.0
HY-NBH02519J-OH	●	2	.098	2.5	3/4	19.05	19.05	18	110	100	15	—	9.5	50	.248	6.3	.768	19.5
HY-NBH03019J-OH	●	2	.118	3	3/4	19.05	19.05	18	110	100	15	—	9.5	51	.295	7.5	.827	21.0
HY-NBH03519J-OH	●	2	.138	3.5	3/4	19.05	19.05	18	110	100	15	—	9.5	43	.346	8.8	.965	24.5
HY-NBH04019J-OH	●	2	.157	4	3/4	19.05	19.05	18	110	100	20	—	12	43	.394	10.0	1.102	28.0
HY-NBH05019J-OH	●	2	.197	5	3/4	19.05	19.05	18	110	100	20	—	12	36	.492	12.5	1.378	35.0
HY-NBH02020J-OH	●	2	.079	2	.787	20	20	19	110	100	15	—	9.5	49	.197	5.0	.709	18.0
HY-NBH02520J-OH	●	2	.098	2.5	.787	20	20	19	110	100	15	—	9.5	50	.248	6.3	.768	19.5
HY-NBH03020J-OH	●	2	.118	3	.787	20	20	19	110	100	15	—	9.5	51	.295	7.5	.827	21.0
HY-NBH03520J-OH	●	2	.138	3.5	.787	20	20	19	110	100	15	—	9.5	43	.346	8.8	.965	24.5
HY-NBH04020J-OH	●	2	.157	4	.787	20	20	19	110	100	20	—	12	43	.394	10.0	1.102	28.0
HY-NBH05020J-OH	●	2	.197	5	.787	20	20	19	110	100	20	—	12	36	.492	12.5	1.378	35.0
HY-NBH02022X-OH	●	2	.079	2	.866	22	20	21	120	110	15	25	9.5	59	.197	5.0	.709	18.0
HY-NBH02522X-OH	●	2	.098	2.5	.866	22	20	21	120	110	15	25	9.5	60	.248	6.3	.768	19.5
HY-NBH03022X-OH	●	2	.118	3	.866	22	20	21	120	110	15	25	9.5	61	.295	7.5	.827	21.0
HY-NBH03522X-OH	●	2	.138	3.5	.866	22	20	21	120	110	15	25	9.5	53	.346	8.8	.965	24.5
HY-NBH04022X-OH	●	2	.157	4	.866	22	20	21	120	110	20	25	12	53	.394	10.0	1.102	28.0
HY-NBH05022X-OH	●	2	.197	5	.866	22	20	21	120	110	20	25	12	46	.492	12.5	1.378	35.0
HY-NBH02025.0K-OH	●	2	.079	2	.984	25.0	20	24	125	115	15	25	9.5	64	.197	5.0	.709	18.0
HY-NBH02525.0K-OH	●	2	.098	2.5	.984	25.0	20	24	125	115	15	25	9.5	65	.248	6.3	.768	19.5
HY-NBH03025.0K-OH	●	2	.118	3	.984	25.0	20	24	125	115	15	25	9.5	66	.295	7.5	.827	21.0
HY-NBH03525.0K-OH	●	2	.138	3.5	.984	25.0	20	24	125	115	15	25	9.5	58	.346	8.8	.965	24.5
HY-NBH04025.0K-OH	●	2	.157	4	.984	25.0	20	24	125	115	20	25	12	58	.394	10.0	1.102	28.0
HY-NBH05025.0K-OH	●	2	.197	5	.984	25.0	20	24	125	115	20	25	12	51	.492	12.5	1.378	35.0
HY-NBH02025.4K-OH	●	2	.079	2	1	25.4	20	24	125	115	15	25	9.5	64	.197	5.0	.709	18.0
HY-NBH02525.4K-OH	●	2	.098	2.5	1	25.4	20	24	125	115	15	25	9.5	65	.248	6.3	.768	19.5
HY-NBH03025.4K-OH	●	2	.118	3	1	25.4	20	24	125	115	15	25	9.5	66	.295	7.5	.827	21.0
HY-NBH03525.4K-OH	●	2	.138	3.5	1	25.4	20	24	125	115	15	25	9.5	58	.346	8.8	.965	24.5
HY-NBH04025.4K-OH	●	2	.157	4	1	25.4	20	24	125	115	20	25	12	58	.394	10.0	1.102	28.0
HY-NBH05025.4K-OH	●	2	.197	5	1	25.4	20	24	125	115	20	25	12	51	.492	12.5	1.378	35.0

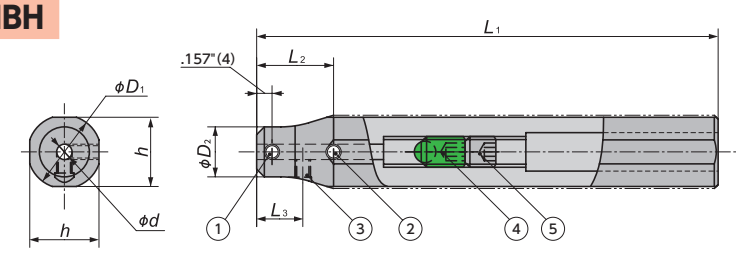
Parts for SPLASH DUO

Item Number	Clamp Screw		Overhang Adjustment		
HY-NBH ... -OH	①	②	③	④	⑤
	SS04045FS	SS0406F	SS0811R-OH	SS0806F-OH (Through hole)	SS0806F
	M6 Screw		Wrench		
	⑥		for ①②	for ③④⑤	for ⑥
	SS0606SC		LW-2	LW-4×104	LW-3

● : Stock　　💧 : Coolant through

STICK DUO HYPER

HY-NBH



Spare Parts

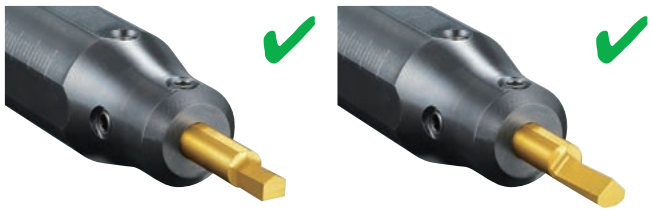
Item Number	Overhang Adjustment		Wrench	
	④	⑤	for①②③	for④⑤
HY-NBH ... K	SS0812R	SS0808F	LW-2	LW-4×104

Please refer to ϕd to find correct-size inserts (bars)

Item Number	Stock	ϕd (Inch)	ϕd (mm)	ϕD_1 (Inch)	ϕD_1 (mm)	ϕD_2 (mm)	h (mm)	L_1 (mm)	L_2 (mm)	L_3 (mm)	Clamp Screws ①	②	③
HY-NBH02016H	○	.079	2.0	.630	16	11	15	100	15	9.5	SS04045FS	SS0406F	SS0404F
HY-NBH02516H	○	.098	2.5	.630	16	11.5	15	100	15	9.5	SS04045FS	SS0406F	SS0404F
HY-NBH03016H	○	.118	3.0	.630	16	12	15	100	15	9.5	SS04045FS	SS0406F	SS0404F
HY-NBH03516H	○	.138	3.5	.630	16	12.5	15	100	20	12	SS04045FS	SS0404F	SS0404F
HY-NBH04016H	○	.157	4.0	.630	16	13	15	100	20	12	SS04045FS	SS0404F	SS0404F
HY-NBH05016H	○	.197	5.0	.630	16	14	15	100	20	12	SS04045FS	SS0404F	SS0404F
HY-NBH02019K	●	.079	2.0	3/4	19.05	11	18	125	15	9.5	SS04045FS	SS0406F	SS0404F
HY-NBH02519K	●	.098	2.5	3/4	19.05	11.5	18	125	15	9.5	SS04045FS	SS0406F	SS0404F
HY-NBH03019K	●	.118	3.0	3/4	19.05	12	18	125	15	9.5	SS04045FS	SS0406F	SS0404F
HY-NBH03519K	●	.138	3.5	3/4	19.05	12.5	18	125	20	12	SS04045FS	SS0406F	SS0404F
HY-NBH04019K	●	.157	4.0	3/4	19.05	13	18	125	20	12	SS04045FS	SS0406F	SS0404F
HY-NBH05019K	●	.197	5.0	3/4	19.05	14	18	125	20	12	SS04045FS	SS0406F	SS0404F
HY-NBH02020K	○	.079	2.0	.787	20	11	19	125	15	9.5	SS04045FS	SS0406F	SS0404F
HY-NBH02520K	○	.098	2.5	.787	20	11.5	19	125	15	9.5	SS04045FS	SS0406F	SS0404F
HY-NBH03020K	○	.118	3.0	.787	20	12	19	125	15	9.5	SS04045FS	SS0406F	SS0404F
HY-NBH03520K	○	.138	3.5	.787	20	12.5	19	125	20	12	SS04045FS	SS0406F	SS0404F
HY-NBH04020K	○	.157	4.0	.787	20	13	19	125	20	12	SS04045FS	SS0406F	SS0404F
HY-NBH05020K	○	.197	5.0	.787	20	14	19	125	20	12	SS04045FS	SS0406F	SS0404F
HY-NBH02022K	●	.079	2.0	.866	22	11	21	125	15	9.5	SS04045FS	SS0406F	SS0404F
HY-NBH02522K	●	.098	2.5	.866	22	11.5	21	125	15	9.5	SS04045FS	SS0406F	SS0404F
HY-NBH03022K	●	.118	3.0	.866	22	12	21	125	15	9.5	SS04045FS	SS0406F	SS0404F
HY-NBH03522K	●	.138	3.5	.866	22	12.5	21	125	20	12	SS04045FS	SS0406F	SS0404F
HY-NBH04022K	●	.157	4.0	.866	22	13	21	125	20	12	SS04045FS	SS0406F	SS0404F
HY-NBH05022K	●	.197	5.0	.866	22	14	21	125	20	12	SS04045FS	SS0406F	SS0404F
HY-NBH02025K-MET	○	.079	2.0	.984	25	11	24	125	15	9.5	SS04045FS	SS0406F	SS0404F
HY-NBH02525K-MET	○	.098	2.5	.984	25	11.5	24	125	15	9.5	SS04045FS	SS0406F	SS0404F
HY-NBH03025K-MET	○	.118	3.0	.984	25	12	24	125	15	9.5	SS04045FS	SS0406F	SS0404F
HY-NBH03525K-MET	○	.138	3.5	.984	25	12.5	24	125	20	12	SS04045FS	SS0406F	SS0404F
HY-NBH04025K-MET	○	.157	4.0	.984	25	13	24	125	20	12	SS04045FS	SS0406F	SS0404F
HY-NBH05025K-MET	○	.197	5.0	.984	25	14	24	125	20	12	SS04045FS	SS0406F	SS0404F
HY-NBH02025K	●	.079	2.0	1	25.4	11	24	125	15	9.5	SS04045FS	SS0406F	SS0404F
HY-NBH02525K	●	.098	2.5	1	25.4	11.5	24	125	15	9.5	SS04045FS	SS0406F	SS0404F
HY-NBH03025K	●	.118	3.0	1	25.4	12	24	125	15	9.5	SS04045FS	SS0406F	SS0404F
HY-NBH03525K	●	.138	3.5	1	25.4	12.5	24	125	20	12	SS04045FS	SS0406F	SS0404F
HY-NBH04025K	●	.157	4.0	1	25.4	13	24	125	20	12	SS04045FS	SS0406F	SS0404F
HY-NBH05025K	●	.197	5.0	1	25.4	14	24	125	20	12	SS04045FS	SS0406F	SS0404F

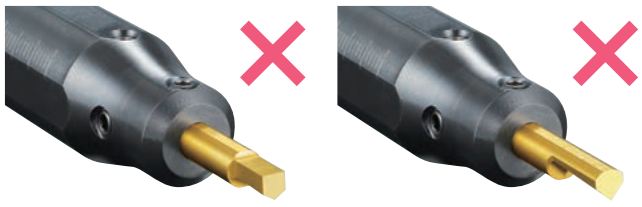
Precaution for Shaper duo with STICK DUO HYPER sleeve

● Set insert in this position



Hexagon Square

● To avoid insert chipping don't set insert in this position



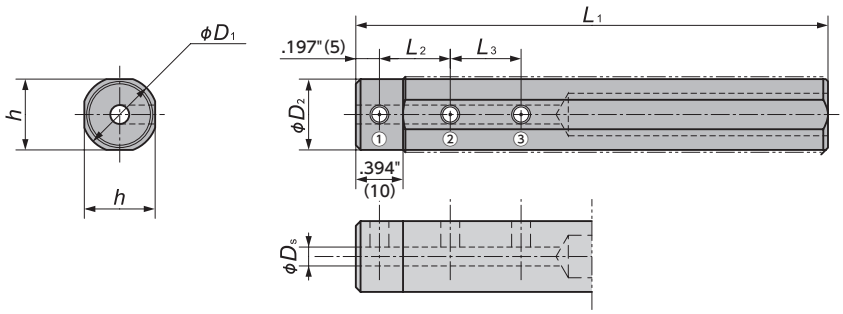
Hexagon Square

● : Stock ○ : 1-2 week delivery 💧 : Coolant through

Insert bars ➡K182 Cutting condition ➡K183

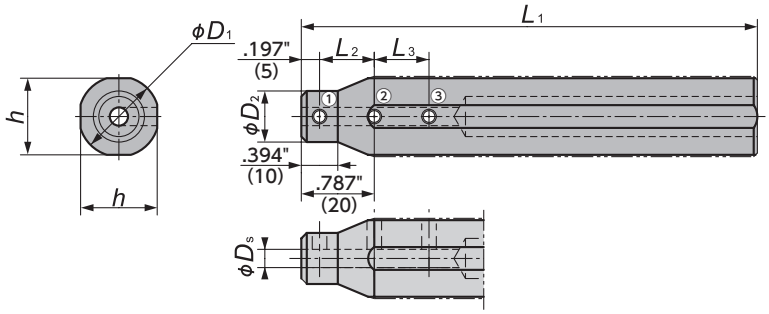
STICK DUO - Sleeves for ID machining -

NBH



Item number	Stock	ϕDs (Inch)	ϕDs (mm)	ϕD1 (Inch)	ϕD1 (mm)	ϕD2 (mm)	h (mm)	L1 (mm)	L2 (mm)	L3 (mm)	Clamp screw ①	Clamp screw ②	Clamp screw ③	Wrench
NBH02015H	○	.079	2.0	5/8		15	15	100	10	—	SS0406F	SS0406F	—	LW-2
NBH02515H	○	.098	2.5	5/8		15	15	100	10	—	SS0406F	SS0406F	—	LW-2
NBH03015H	○	.118	3.0	5/8		15	15	100	10	10	SS0404F	SS0404F	SS0404F	LW-2
NBH03515H	○	.138	3.5	5/8		15	15	100	10	10	SS0404F	SS0404F	SS0404F	LW-2
NBH04015H	○	.157	4.0	5/8		15	15	100	15	15	SS0404F	SS0404F	SS0404F	LW-2
NBH04515H	○	.177	4.5	5/8		15	15	100	15	15	SS0404F	SS0404F	SS0404F	LW-2
NBH05015H	○	.197	5.0	5/8		15	15	100	15	15	SS0404F	SS0404F	SS0404F	LW-2
NBH06015H	○	.236	6.0	5/8		15	15	100	20	20	SS0404F	SS0404F	SS0404F	LW-2
NBH08015H	○	.315	8.0	5/8		15	15	100	20	20	SS0403F	SS0403F	SS0403F	LW-2
NBH02016H	○	.079	2.0	.630	16	15	15	100	10	—	SS0406F	SS0406F	—	LW-2
NBH02516H	○	.098	2.5	.630	16	15	15	100	10	—	SS0406F	SS0406F	—	LW-2
NBH03016H	○	.118	3.0	.630	16	15	15	100	10	10	SS0404F	SS0404F	SS0404F	LW-2
NBH03516H	○	.138	3.5	.630	16	15	15	100	10	10	SS0404F	SS0404F	SS0404F	LW-2
NBH04016H	○	.157	4.0	.630	16	15	15	100	15	15	SS0404F	SS0404F	SS0404F	LW-2
NBH04516H	○	.177	4.5	.630	16	15	15	100	15	15	SS0404F	SS0404F	SS0404F	LW-2
NBH05016H	○	.197	5.0	.630	16	15	15	100	15	15	SS0404F	SS0404F	SS0404F	LW-2
NBH06016H	○	.236	6.0	.630	16	15	15	100	20	20	SS0404F	SS0404F	SS0404F	LW-2
NBH07016H	○	.276	7.0	.630	16	15	15	100	20	20	SS0403F	SS0404F	SS0404F	LW-2
NBH08016H	○	.315	8.0	.630	16	15	15	100	20	20	SS0403F	SS0403F	SS0403F	LW-2
NBH02019K	○	.079	2.0	3/4		18	18	125	10	—	SS0408F	SS0408F	—	LW-2
NBH02519K	○	.098	2.5	3/4		18	18	125	10	—	SS0408F	SS0408F	—	LW-2
NBH03019K	○	.118	3.0	3/4		18	18	125	10	10	SS0406F	SS0406F	SS0406F	LW-2
NBH03519K	○	.138	3.5	3/4		18	18	125	10	10	SS0406F	SS0406F	SS0406F	LW-2
NBH04019K	○	.157	4.0	3/4		18	18	125	15	15	SS0406F	SS0406F	SS0406F	LW-2
NBH04519K	○	.177	4.5	3/4		18	18	125	15	15	SS0406F	SS0406F	SS0406F	LW-2
NBH05019K	○	.197	5.0	3/4		18	18	125	15	15	SS0406F	SS0406F	SS0406F	LW-2
NBH06019K	○	.236	6.0	3/4		18	18	125	20	20	SS0406F	SS0406F	SS0406F	LW-2
NBH07019K	○	.276	7.0	3/4		18	18	125	20	20	SS0404F	SS0404F	SS0404F	LW-2
NBH08019K	○	.315	8.0	3/4		18	18	125	20	20	SS0404F	SS0404F	SS0404F	LW-2
NBH10019K	○	.394	10.0	3/4		18	18	125	20	20	SS0403F	SS0404F	SS0404F	LW-2

NBH



Item number	Stock	ϕD_s (Inch)	ϕD_s (mm)	ϕD_1 (Inch)	ϕD_1 (mm)	ϕD_2 (mm)	h_1 (mm)	L_1 (mm)	L_2 (mm)	L_3 (mm)	Clamp screw ①	Clamp screw ②	Clamp screw ③	Wrench
NBH02020K	○	.079	2.0	.787	20	11	19	125	10	—	SS0404F	SS0404F	—	LW-2
NBH02520K	○	.098	2.5	.787	20	11	19	125	10	—	SS0404F	SS0404F	—	LW-2
NBH03020K	○	.118	3.0	.787	20	12	19	125	10	10	SS0404F	SS0404F	SS0406F	LW-2
NBH03520K	○	.138	3.5	.787	20	12	19	125	10	10	SS0404F	SS0404F	SS0406F	LW-2
NBH04020K	○	.157	4.0	.787	20	13	19	125	15	15	SS0404F	SS0406F	SS0406F	LW-2
NBH04520K	○	.177	4.5	.787	20	13	19	125	15	15	SS0404F	SS0406F	SS0406F	LW-2
NBH05020K	○	.197	5.0	.787	20	14	19	125	15	15	SS0404F	SS0406F	SS0406F	LW-2
NBH06020K	○	.236	6.0	.787	20	15	19	125	20	20	SS0404F	SS0406F	SS0406F	LW-2
NBH07020K	○	.276	7.0	.787	20	16	19	125	20	20	SS0404F	SS0406F	SS0406F	LW-2
NBH08020K	○	.315	8.0	.787	20	17	19	125	20	20	SS0404F	SS0404F	SS0404F	LW-2
NBH10020K	○	.394	10.0	.787	20	19	19	125	20	20	SS0404F	SS0404F	SS0404F	LW-2
NBH02022K	○	.079	2.0	.866	22	11	21	125	10	—	SS0404F	SS0406F	—	LW-2
NBH02522K	○	.098	2.5	.866	22	11	21	125	10	—	SS0404F	SS0406F	—	LW-2
NBH03022K	○	.118	3.0	.866	22	12	21	125	10	10	SS0404F	SS0406F	SS0408F	LW-2
NBH03522K	○	.138	3.5	.866	22	12	21	125	10	10	SS0404F	SS0406F	SS0406F	LW-2
NBH04022K	○	.157	4.0	.866	22	13	21	125	15	15	SS0404F	SS0406F	SS0406F	LW-2
NBH04522K	○	.177	4.5	.866	22	13	21	125	15	15	SS0404F	SS0406F	SS0406F	LW-2
NBH05022K	○	.197	5.0	.866	22	14	21	125	15	15	SS0404F	SS0406F	SS0406F	LW-2
NBH06022K	○	.236	6.0	.866	22	15	21	125	20	20	SS0404F	SS0406F	SS0406F	LW-2
NBH07022K	○	.276	7.0	.866	22	16	21	125	20	20	SS0404F	SS0406F	SS0406F	LW-2
NBH08022K	○	.315	8.0	.866	22	17	21	125	20	20	SS0404F	SS0406F	SS0406F	LW-2
NBH10022K	○	.394	10.0	.866	22	19	21	125	20	20	SS0404F	SS0404F	SS0404F	LW-2
NBH12022K	○	.472	12.0	.866	22	21	21	125	25	25	SS0404F	SS0404F	SS0404F	LW-2
NBH02023K	○	.079	2.0	.906	23	11	21	125	10	—	SS0404F	SS0406F	—	LW-2
NBH02523K	○	.098	2.5	.906	23	11	21	125	10	—	SS0404F	SS0406F	—	LW-2
NBH03023K	○	.118	3.0	.906	23	12	21	125	10	10	SS0404F	SS0406F	SS0408F	LW-2
NBH03523K	○	.138	3.5	.906	23	12	21	125	10	10	SS0404F	SS0406F	SS0406F	LW-2
NBH04023K	○	.157	4.0	.906	23	13	21	125	15	15	SS0404F	SS0406F	SS0406F	LW-2
NBH04523K	○	.177	4.5	.906	23	13	21	125	15	15	SS0404F	SS0406F	SS0406F	LW-2
NBH05023K	○	.197	5.0	.906	23	14	21	125	15	15	SS0404F	SS0406F	SS0406F	LW-2
NBH06023K	○	.236	6.0	.906	23	15	21	125	20	20	SS0404F	SS0406F	SS0406F	LW-2
NBH08023K	○	.315	8.0	.906	23	17	21	125	20	20	SS0404F	SS0406F	SS0406F	LW-2
NBH10023K	○	.394	10.0	.906	23	19	21	125	20	20	SS0404F	SS0404F	SS0404F	LW-2
NBH12023K	○	.472	12.0	.906	23	21	21	125	25	25	SS0404F	SS0404F	SS0404F	LW-2
NBH02025K-MET	○	.079	2.0	.984	25	11	24	125	10	—	SS0404F	SS0406F	—	LW-2
NBH02525K-MET	○	.098	2.5	.984	25	11	24	125	10	—	SS0404F	SS0406F	—	LW-2
NBH03025K-MET	○	.118	3.0	.984	25	12	24	125	10	10	SS0404F	SS0406F	SS0408F	LW-2
NBH03525K-MET	○	.138	3.5	.984	25	12	24	125	10	10	SS0404F	SS0406F	SS0408F	LW-2
NBH04025K-MET	○	.157	4.0	.984	25	13	24	125	15	15	SS0404F	SS0408F	SS0408F	LW-2
NBH04525K-MET	○	.177	4.5	.984	25	13	24	125	15	15	SS0404F	SS0408F	SS0408F	LW-2
NBH05025K-MET	○	.197	5.0	.984	25	14	24	125	15	15	SS0404F	SS0408F	SS0408F	LW-2
NBH06025K-MET	○	.236	6.0	.984	25	15	24	125	20	20	SS0404F	SS0408F	SS0408F	LW-2
NBH07025K-MET	○	.276	7.0	.984	25	16	24	125	20	20	SS0404F	SS0408F	SS0408F	LW-2
NBH08025K-MET	○	.315	8.0	.984	25	17	24	125	20	20	SS0404F	SS0406F	SS0406F	LW-2
NBH10025K-MET	○	.394	10.0	.984	25	19	24	125	20	20	SS0404F	SS0406F	SS0406F	LW-2
NBH12025K-MET	○	.472	12.0	.984	25	21	24	125	25	25	SS0404F	SS0404F	SS0404F	LW-2
NBH02025K	○	.079	2.0	1	25.4	11	24	125	10	—	SS0404F	SS0406F	—	LW-2
NBH02525K	○	.098	2.5	1	25.4	11	24	125	10	—	SS0404F	SS0406F	—	LW-2
NBH03025K	○	.118	3.0	1	25.4	12	24	125	10	10	SS0404F	SS0406F	SS0408F	LW-2
NBH03525K	○	.138	3.5	1	25.4	12	24	125	10	10	SS0404F	SS0406F	SS0408F	LW-2
NBH04025K	○	.157	4.0	1	25.4	13	24	125	15	15	SS0404F	SS0408F	SS0408F	LW-2
NBH04525K	○	.177	4.5	1	25.4	13	24	125	15	15	SS0404F	SS0408F	SS0408F	LW-2
NBH05025K	○	.197	5.0	1	25.4	14	24	125	15	15	SS0404F	SS0408F	SS0408F	LW-2
NBH06025K	○	.236	6.0	1	25.4	15	24	125	20	20	SS0404F	SS0408F	SS0408F	LW-2
NBH07025K	○	.276	7.0	1	25.4	16	24	125	20	20	SS0404F	SS0408F	SS0408F	LW-2
NBH08025K	○	.315	8.0	1	25.4	17	24	125	20	20	SS0404F	SS0406F	SS0406F	LW-2
NBH10025K	○	.394	10.0	1	25.4	19	24	125	20	20	SS0404F	SS0406F	SS0406F	LW-2
NBH12025K	○	.472	12.0	1	25.4	21	24	125	25	25	SS0404F	SS0404F	SS0404F	LW-2

● : Stock ○ : 1-2 week delivery

Insert bars ➡K182 Cutting condition ➡K183

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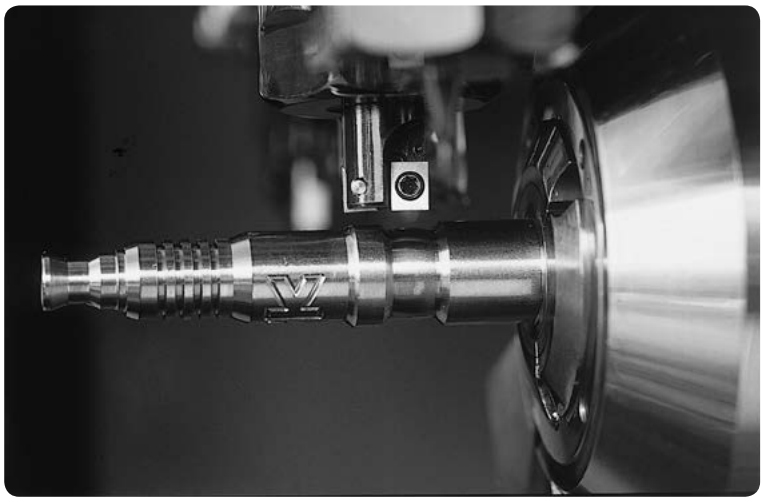
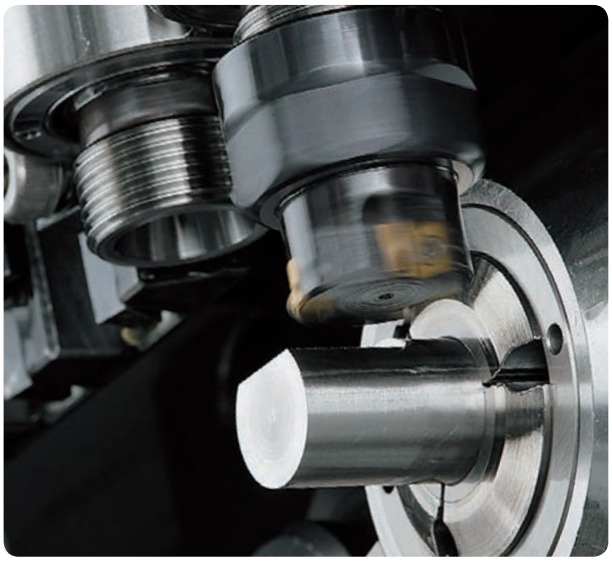
Indexable End Mills

Small Diameter Indexable End Mills





Features

- **Attach .787"(20㎜) end mills in ER16 collet**
- Just change inserts to index. No need to make any adjustments
- High quality surface finish, as low as 1um (Rz) when wiper inserts are used
- Corner radius as small as .002"
- In addition to D cut, ramp machining can be performed*

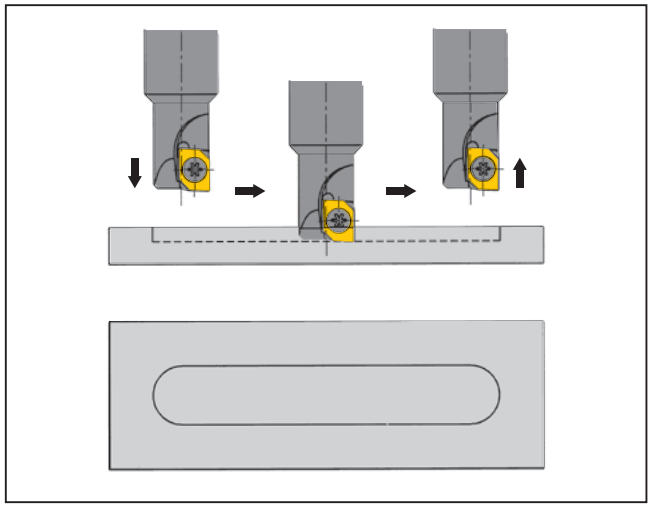
*A combination of single-blade type endmills and inserts with center blade is required

【Recommended Cutting Conditions】

Work Material	Speed SFM	Axial feed IPR	Traverse feed IPR	Depth of cut Inch	Width of cut
Steel	260 - 400	~.001	~.002	~.118	~50% of cutter diameter
Stainless Steel	130 - 200	~.0008	~.0015	~.079	~50% of cutter diameter

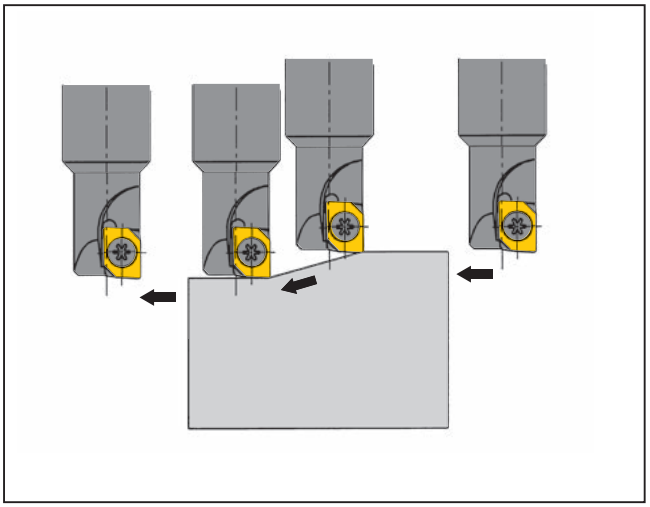
Application Example

■Application Example-1



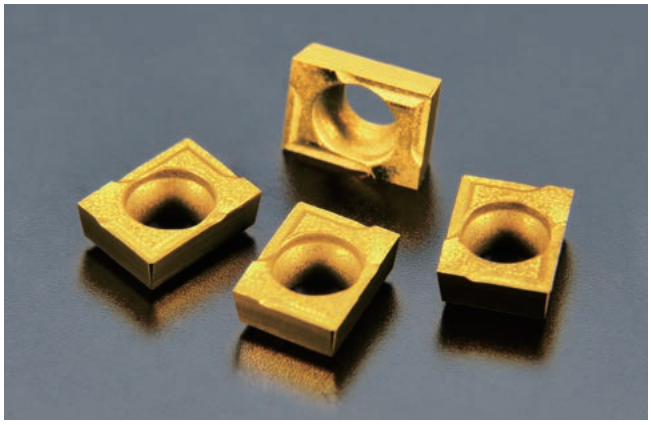
- A single tooth endmill equipped with a center cutting edge insert can be used for both plunge and side cut operations.

■Application Example-2



- A single tooth endmill equipped with a center cutting edge insert can be used for slope milling operations.

Insert



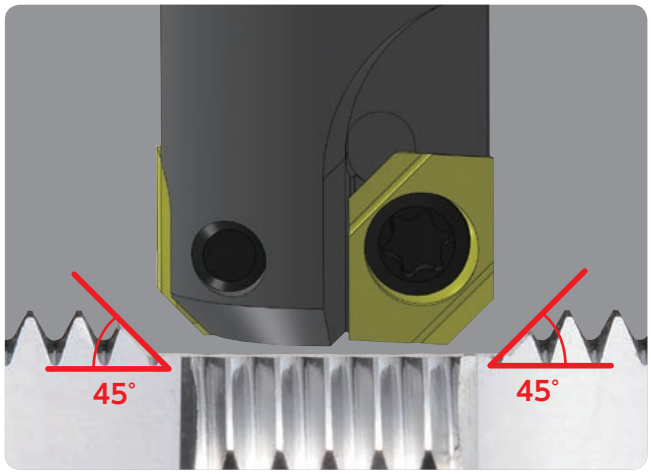
Wiper

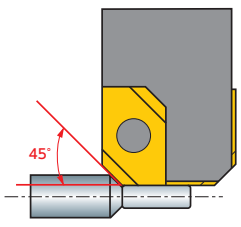
- Excellent surface finish obtained with new wiper insert

Chipbreaker

- Less tool pressure with chipbreaker

45°



Chamfered surface finish insert	
S45C	
310 SFM	
.0056 IPR	
.039 DOC	
WET	
NTK : **QM3 C45 type**	700 pcs
Competitor's solid endmill	500 pcs

REZ Series

REZ

〈D cutting = lead angle 90 type end milling tool〉

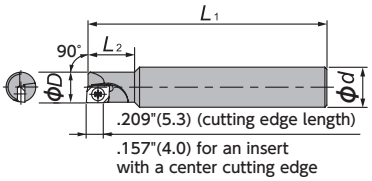


Figure-1

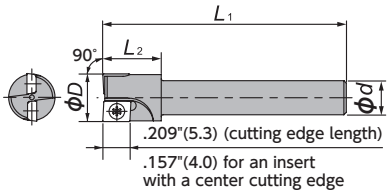


Figure-2

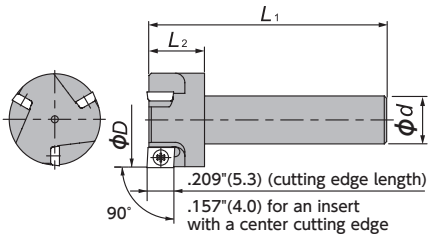


Figure-3

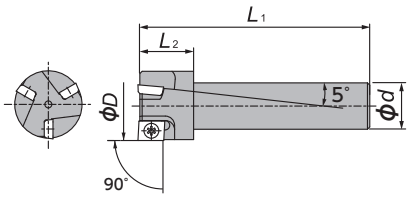


Figure-4 Right-Hand style shown

〈D cutting = lead angle 45 type end milling tool〉

NEW

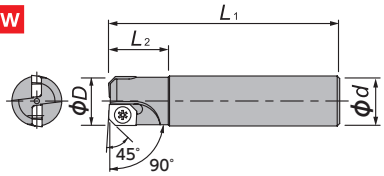


Figure-5

REZ Series - Toolholders

■REZ

Gage Insert	Item Number	Figure	Stock R	Stock L	No. of teeth	ϕD (Inch)	ϕD (mm)	ϕd (Inch)	ϕd (mm)	L_1 (Inch)	L_1 (mm)	L_2 (Inch)	L_2 (mm)	Clamp Screw	Wrench
CZH04..CFR...	**REZ080C1R212**	1	○		1	.315	8	.394	10	2.362	60	.472	12	FS102-2.2 × 4.0	T-07
CZH05..CFR...	**REZ100C1R218**	1	○		1	.394	10	.394	10	2.953	75	.472	12	FS102-2.2 × 4.3	T-07
CZH04..CFR...	**REZ100B2R329**	2	○		2	.394	10	.197	5	1.575	40	.394	10	FS102-2.2 × 4.3	T-07
	REZ100C2R133	2	○		2	.394	10	.236	6	1.969	50	.472	12	FS102-2.2 × 4.3	T-07
	REZ100C2R132	2	○		2	.394	10	.276	7	1.969	50	.472	12	FS102-2.2 × 4.3	T-07
	REZ100C2R141	2	●		2	.394	10	.394	10	1.969	50	.472	12	FS102-2.2 × 4.3	T-07
	REZ120C2R141	2	○		2	.472	12	.394	10	1.969	50	.472	12	FS102-2.2 × 4.3	T-07
	REZ140C2R141	2	○		2	.551	14	.394	10	1.969	50	.472	12	FS102-2.2 × 4.3	T-07
	REZ150B3R330	3	○		3	.591	15	.197	5	1.575	40	.394	10	FS102-2.2 × 4.3	T-07
	REZ200M3R319	3	○		3	.787	20	.276	7	1.969	50	.472	12	FS102-2.2 × 4.3	T-07
	REZ200M3R320	3	●		3	.787	20	.394	10	1.969	50	.472	12	FS102-2.2 × 4.3	T-07
	REZ200C3R403	4	●		3	.787	20	.394	10	1.969	50	.472	12	FS102-2.2 × 4.3	T-07
CZH0400CFR-C45 CZH04..CFR...	**REZ100C2R466**	5	○		2	.394	10	.276	7	1.969	50	.472	12	FS102-2.2 × 4.3	T-07
	REZ100C2R461	5	●		2	.394	10	.394	10	1.969	50	.472	12	FS102-2.2 × 4.3	T-07

CZH Series - Inserts

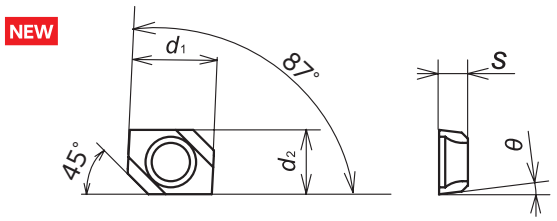


Figure-1 Chipbreaker with wiper

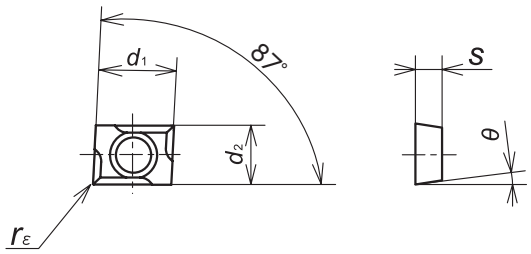


Figure-2 Chipbreaker

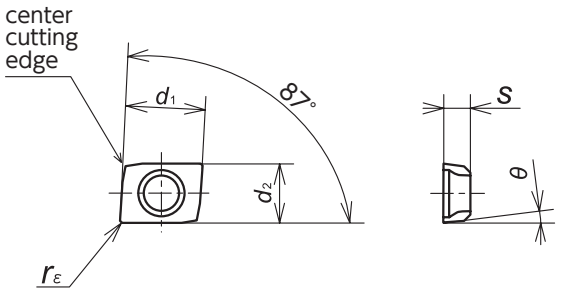


Figure-3 Center cutting edge without wiper

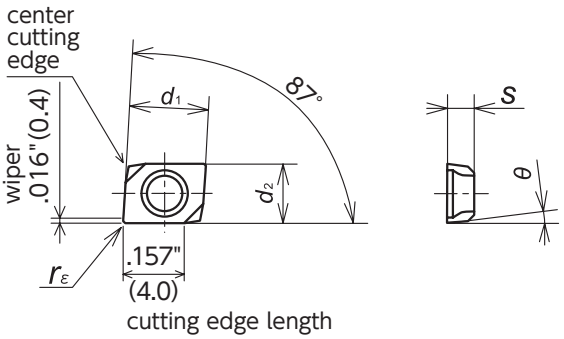


Figure-4 Center cutting edge with wiper

■CZH

Item Number	Figure	Chip-breaker	Center Blade	Wiper	d_1 (Inch)	d_1 (mm)	d_2 (Inch)	d_2 (mm)	s (Inch)	s (mm)	θ	C or r_ε (Inch)	C or r_ε (mm)	Coated Carbide QM3	DT4	DM4	TM4	ZM3
CZH0400CFR-C45 *	1	Yes	No	Yes	.219	5.56	.165	4.20	.074	1.88	7°	C.053	C1.35	○	●			
CZH04005CFR-BL	2	Yes	No	No	.219	5.56	.165	4.20	.074	1.88	7°	.002	0.05			●	○	
CZH0402CFR-BL	2	Yes	No	No	.219	5.56	.165	4.20	.074	1.88	7°	.008	0.2			●	○	
CZH04005CFR-070	3	No	Yes	No	.219	5.56	.165	4.20	.074	1.88	7°	.002	0.05		●			●
CZH0402CFR-070	3	No	Yes	No	.219	5.56	.165	4.20	.074	1.88	7°	.008	0.2		●			○
CZH04005CFR-140	4	No	Yes	Yes	.219	5.56	.165	4.20	.074	1.88	7°	.002	0.05		●			●
CZH0402CFR-140	4	No	Yes	Yes	.219	5.56	.165	4.20	.074	1.88	7°	.008	0.2		●			●
CZH05005CFR-141	4	No	Yes	Yes	.208	5.28	.219	5.56	.086	2.18	10°	.002	0.05					○
CZH0502CFR-141	4	No	Yes	Yes	.208	5.28	.219	5.56	.086	2.18	10°	.008	0.2					○

*Must be used with REZ100C2R461/466Cuters

● : Stock ○ : 1-2 week delivery

Cutting condition ➡K192

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Information

Grade Comparison Chart

* Italic type = Coated insert

BIDEMICS/Ceramics

	NTK	GREENLEAF	HERTEL	INDEXABLE	ISCAR	KENNAMETAL	KYOCERA	NEWCOMER	ROMAY	SANDVIK	SPK	SSANGYONG	SUMIOTOMO	TAEGUTECH	TUNGALOY	VALENITE
Cast iron K	**HC1** **HW2**	GEM19	AC5	I50	IN11		KA30	NP5200	CC10			SZ200 SZ300		AW20 AB120		
	HC2 **HC5** **HC6**	GEM7	MC2	I100	IN22 IN23	K090 KY1615	A65 *A66N* *PT600M*	NP5000	CC20 CC30	CC620 CC650	SH2	ST100 ST300 ST500 SD200 *TC300* *TA300*	NB90S	AB30	*LX11* LX21 CX710	Q32
	SX6 ***SP9***	CSN100 *CSN200*		MW30 MW43	IS8 *IS80*	*KYK25* KYK35 KY3000 KY3400 KY3500	*CS7050* KS6000 KS6050		CC510 CC513 CC514 *CC514SC* CC516 *CC516SC*	CC6190 *CC1690*	SL506 SL508 *SL554C* SL808 *SL550C* SL654 *SL854C*	SN26 SN300 SN400 SN600 SN500 SN600 SN700 SN800	SN2000K SN2100K NS260 NS260C	AS10 SC10 AS500	FX105	VPQ130 VPQ135
Heat resistant alloy S	**JX1** **WA1**	WG300 *WG600*			IW7	KY4300			CC600	CC670		SW400 SW500 SW700	WX2000	TC430		
	SX5 **SX7** **SX9**			MW37		*KYS25* KYS30 KY2100 KY1525 KY1540	CF1		CC5477	CC6060 CC6065		SN900		AS20		
Hardened material H	**HC4** ***ZC4*** **HC5** **HC7** ***ZC7***	GEN7		I100	IN22	*KY4400*	A65 KT66 *A66N* *PT600M*		CC30SC	CC6050			NB90S	*AB20*	LX11	Q35 *VPZ215* *VPZ205*
	WA1	WG300 WG600			IW7	KYS25 KY4300				CC670		SW400 SW500 SW700				

Cermet

	NTK	DIJET	HITACHI	ISCAR	KENNAMETAL	KYOCERA	MITSUBISHI	SANDVIK	SECO	SSANGYONG	SUMIOTOMO	TAEGUTECH	TUNGALOY
Steel P	**XT3** ***Q15*** **C7X** ***C7Z*** **XN4**	LN10 CX50 CX75 CX90 CX99 NIT NAT SUZ	CH350 CZ25 CH550 CH7030 *CZ1025*	IC20N IC520N IC530N IC75T IC30N	*KT315* *KTP10*	TN30 *PV30* TN6010 *PV7010* TN60 TN6020 *PV7020* *PV7025* TN90	*AP25N* NX2525 NX3035 *VP45N*	CT5015 *GC1525*	CM C15M	TX510 TX515 TX520 TX530	T110A T1200A *T2000Z* *T3000Z*	PV3010 PV3030 CT3000 CT5000	NS520 *GT530* *GT730* NS730 NS740
Stainless steel M	**XT3** ***Q15*** **C7X** ***C7Z*** **XN4**	LN10 CX50 CX75 CX90 CX99 NIT NAT SUZ	CH350 CH550 CH7030 *CZ1025*	IC20N IC520N IC530N IC30N	*KT315* *KTP10*	TN60 TN6020 *PV7020* *PV7025* TN90	NX2525 *AP25N* NX3035	*GC1525*	CM C15M	TX510 TX515 TX520 TX530	*T2000Z*	PV3010 PV3030 CT3000 CT5000	NS520 NS530 *GT730* NS740
Cast iron K	**T15** ***Q15***	LN10 NIT	CH350		*KT315* *KTP10*	TN30 *PV30* *PV7005* TN60 TN6010 *PV7005* *PV7010*	*AP25N* NX2525	CT5015		TX510 TX515 TX520 TX530	T110A T1200A	PV3010 PV3030 CT3000 CT5000	NS520 NS530 NS730 *GT730*

Non coated carbide

	NTK	DIJET	GREENLEAF	HITACHI	INDEXABLE	ISCAR	KENNAMETAL	KYOCERA	MITSUBISHI	ROMAY	SANDVIK	SECO	SUMIOTOMO	TAEGUTECH	TUNGALOY	WALTER
Steel P	**KM1**	SRT DX30 DX35 SR30	G60 G20M	WS10 EX35 EX40 EX45	CI9 CI7 CI6 CI5	IC70 IC50M IC54	KU10	PW30	UTi20T			S10M S25M S60M	ST10P ST20E ST30E A30	CT3000	UX30 TX40	
Cast iron K	**KM1**	KG03 KG1 KG10 KT9 CR1 KG20 KG30 LF12	G02	WH02 WH05 WH10 WH20D	CI65 CI2 CI3 CI1 CI4	IC04 IC20 IC10 IC28	K68 K313	KW10 GW15 GW25	HTi05T HTi10T UTi20T	R600	H10 H13A	890 883 HX	G10E	UF1	TH03 KS05F G1F TH10 G2 G2F KS15F KS20 G3	WSN10 WK1

● PVD coated carbide

	NTK	DIJET	GREENLEAF	HITACHI	INDEXABLE	ISCAR	KENNAMETAL	KYOCERA	MITSUBISHI	SANDVIK	SECO	SUMIOTOMO	TAEGUTECH	TUNGALOY	WALTER
Steel P	**VM1 ZM3 QM3 TM4 DT4 DM4**	JC5003 JC5030 JC5015 JC5040	G915 G920 G925	CY15 CY150 IP2000 CY250 CY9020 HC844 IP3000	CI29 CI25A	IC507 IC807 IC907 IC908 IC328 IC928 IC3028	KC5510 KC5010 KCU10 KCU25 KC5025 KC5525	PR915 PR1005 PR930 PR1025 PR1115 PR1215 PR1225	VP10MF VP10RT VP15TF VP20MF VP20RT	GC1125 GC1525	CP200 CP250 CP500	ACZ150 ACZ310 AC520U ACZ330 ACZ350 AC530U	TT1040 TT7220 TT8010 TT8020 TT9030 TT9080	AH710 AH725 AH730 SH730 GH330 AH120 AH740 AH130 GH130 AH140	WSM30 WXP43 WXM33 WXP20
Stainless steel M	**VM1 ZM3 QM3 TM4 DT4 DM4**	JC5003 JC5015 JC5030 JC5040	G915 G920 G925	IP050S IP100S CY250 CY9020	CI29 CI24 CI23	IC507 IC520 IC907 IC308 IC908 IC3028 IC1008 IC1028 IC3028 IC928	KCU10 KCU25 KC5010 KC5025 KC5510 KC5525	PR915 PR1025 PR1215 PR1225 PR930 PR1125	VP10MF VP10RT VP15TF VP20MF VP20RT	GC15 GC1005 GC1105 GC1115 GC1525 GC2035	TS2000 CP200 TS2500 CP500	EH510Z ACZ150 AC510U EH520Z ACZ310 AC520U ACZ330 ACZ350 AC530U	TT1040 TT5080 TT7010 TT7080 TT7220 TT8010 TT8020	AH710 AH725 AH730 GH330 SH730 GH730 AH120 AH130 GH130 AH140	WXN10 WXP43 WXM33 WXP20 WXM20
Cast iron K	**QM3 DM4**	JC5003 JC5015		CY100H CY10H CY9020		IC910 IC507 IC908 IC508	KCU10 KCU25 KC5010 KC5025 KC5510 KC5525	PR905 PR1215	VP10RT VP15TF VP20RT		TS2000 CP200 DTS2500 CP250 CP500	EH10Z EH510Z AC510U EH20Z ACZ310 AC520U AC530U	TT1040 TT6080 TT7010 TT7080	AH110 GH110 AH120 GH130	

● CVD coated carbide

	NTK	DIJET	GREENLEAF	HITACHI	INDEXABLE	ISCAR	KENNAMETAL	KYOCERA	MITSUBISHI	ROMAY	SANDVIK	SECO	SUMIOTOMO	TAEGUTECH	TUNGALOY	WALTER
Cast iron K	**CP1**	JC105V JC605X JC605W JC050W JC110V JC610 JC215V	GA5022 GA5023	HG3305 HG3315 HX3505 HX3515 GM8015 HG8010 GM8020 GM8025 GM25	CIN2 CIT3 CIT6 CINX CIX	IC428 IC9007 IC9150 IC418 IC428 IC9015 IC9007	KCP05 KCK05 KCP10 KCK15 KCP25 KCK20 KCP30	CA4010 CA4505 CA5505 CA4115 CA4515 CA4120	UC5105 UC5115 UC6110 UE6110	R100 R200 R500	GC3005 GC3205 GC3210 GC3215 GC4215	TK1000 TH1000 TK2000 MK1500 TX150 TP200 TP2500	AC300G AC410K AC700G ACK200 DAC820P AC420K ACK200	TT6300 TT6800 TT7005 TT7015	T5105 T5115 T1115 T5125	WPP01 WPP10 WPP20

● BIDEMICS/CBN

	NTK	DIJET	HITACHI	INDEXABLE	ISCAR	KENNAMETAL	KYOCERA	MITSUBISHI	SANDVIK	SECO	SPK	SSANGYONG	SUMIOTOMO	TAEGUTECH	TUNGALOY	WALTER
Cast iron K	**B23 B30 B99**	JBN795 JBN330	BH200 BH250	CBN90 CBN95 CBN100	IB50 IB85 IB55	KB5630 KB1630 KB1345 *KB9610* *KB9640*	*KBN60M* *KBN900*	MB710 MB5015 MB730 MBS140 BC5030	CB7525 CB7925	*CBN050C* *CBN300P* CBN20 CBN200 CBN300 CBN350	WBN115 WBN105 WBN100 WBN120 WBN750	SBN1600	BN700 BNS800 BN600 BN500	TB730 TB650 KB90 KB90A TB670	BX930 BX90S BX870 BX470 BX480 BX950 BXC90	
Heat resistant alloy S	***JP2***		CBN80		KB5630 KB1630 KB1340		MB730		CBN170				BN700	TB730 KB90	BX950	
Hardened material H	**B52 B36 B40 *B5K* *B6K***	JBN300 JBN245	BH200 BH250	CBN45 CBN50 CBN60 CBN70	IB50 IB55	KB1610 KB1625 KB5610 KB1340 KB5625 *KB9610* *KB9640*	KBN510 KBN525 *KBN10C* *KBN25C* *KBN05M* *KBN10M* *KBN25M* *KBN30M* *KBN35N* *KBN900*	*MBC010* MB810 *BC8020* MB8025 MB825 MB835	CB7015 CB20 CB50 CB7025 CB7525	*CBN050C* CBN10 CBN100 CBN150 CBN170 CBN200 *CBN160P* CBN350 *CBN300P*		SBN2000	BNX10 BNX20 BN250 BNX25 BN300 *BNC150* *BNC80* *DBNC200* *BNC300*	KB50 TB650 TB610 TB670	BX310 *BXM10* BX330 BX360 *BXC50* BX530 BX380 *BXM20*	WLB30 WLB50

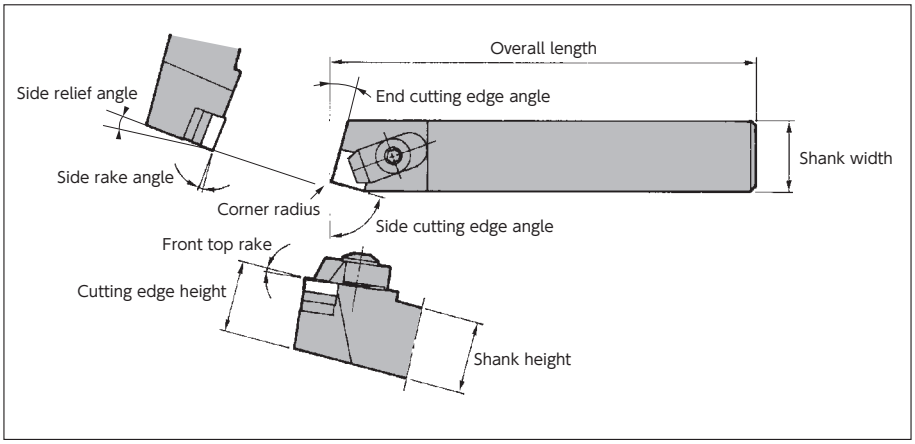
● PCD

	NTK	DIJET	INDEXABLE	ISCAR	KENNAMETAL	KYOCERA	MITSUBISHI	SANDVIK	SECO	SSANGYONG	SUMIOTOMO	TAEGUTECH	TUNGALOY	WALTER
Non-ferrous material N	**PD1 PD2**	JDA30 JDA735 JDA40 JDA745 JDA10 JDA715	PCD3 PCD-F PCD-UF	ID5	KD1400 KD1405 KD1425	KPD001 KPD010 KPD230	MD205 MD220 MD230	CD10	PD10 PD20 PD30	SPD100 SPD200 SPD300	DA1000 DA2200 DA150 DA200 DA90	KP100 KP300 KP500	DX180 DX160 DX140 DX110 DX120	WCD10

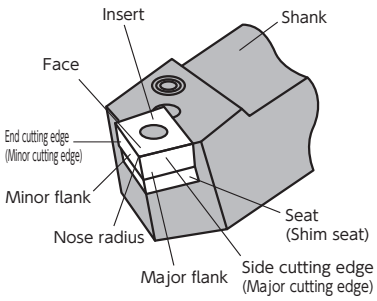
(Note) This chart is based on published data and not authorized by each manufacturer

Turning Tool Terminology

Toolholder part names



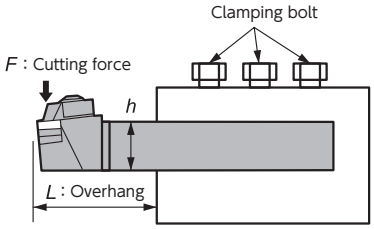
Part names of a cutting tool



Holder rigidity

Toolholder deflection

$$\delta = \frac{4 \times F \times L^3}{E \times b \times h^3} = \frac{4 \times k_c \times f \times L^3}{E \times b \times h^3}$$

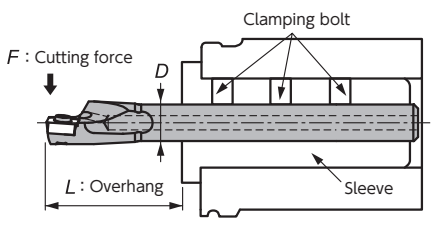


Symbol	Term	Unit
δ	Deflection amount	mm
b	Shank width	mm
h	Shank height	mm
E	Young's modulus	N/mm²
a_p	Depth of cut	mm
f	Feed amount	mm/rev
k_c	Specific cutting force	N/mm²
L	Overhang	mm
F	Cutting force	N

($F = k_c \times a_p \times f$)

Boring bar deflection

$$\delta = \frac{64 \times F \times L^3}{3 \times E \times \pi \times D^4} = \frac{64 \times k_c \times a_p \times f \times L^3}{3 \times E \times \pi \times D^4}$$



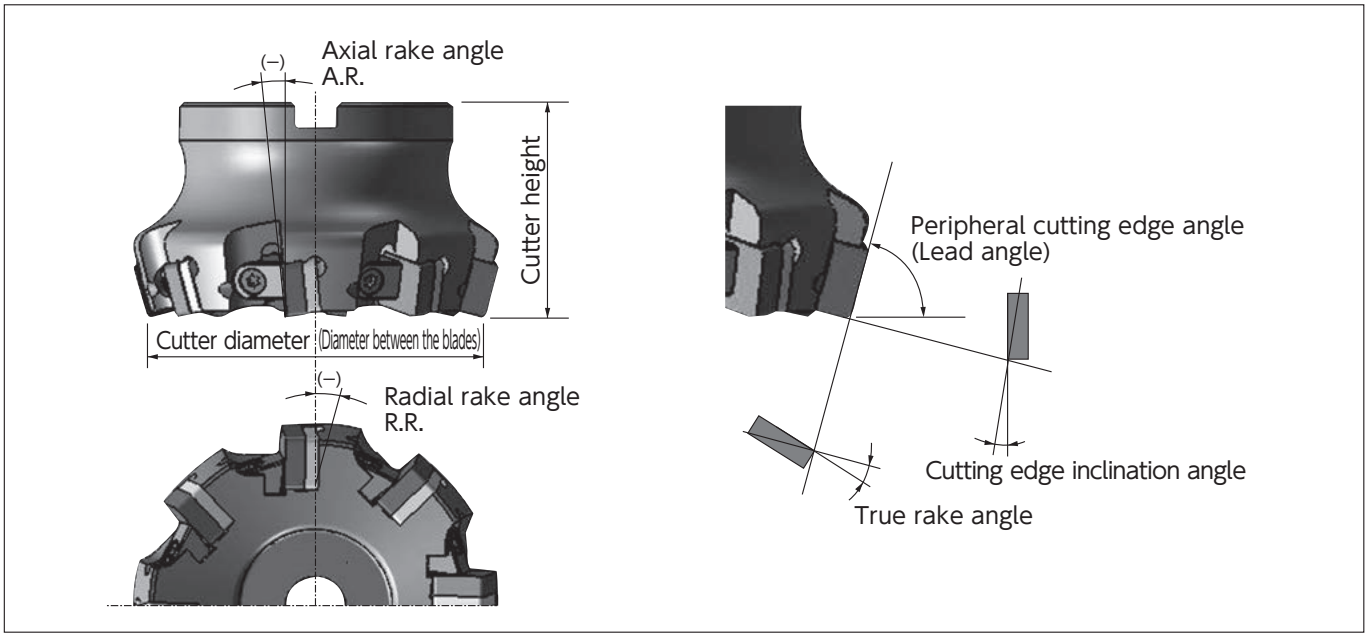
Symbol	Term	Unit
δ	Deflection amount	mm
D	Shank width	mm
E	Young's modulus	N/mm²
a_p	Depth of cut	mm
f	Feed amount	mm/rev
k_c	Specific cutting force	N/mm²
L	Overhang	mm
F	Cutting force	N

($F = k_c \times a_p \times f$)

An important factor in improving the rigidity of a toolholder is to ensure the overhang of the tool shank is as short as possible.

Milling Cutter Terminology

Milling cutter terminology



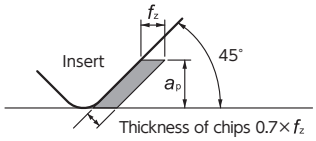
Functions of each cutting edge angle

Name	Function	Effects
Radial rake angle: R.R.	Controls the direction of chip evacuation and cutting force	Negative (−): Excels in chip control performance
Axial rake angle: A.R.	Controls the direction of chip evacuation and cutting force	Positive (+): Excels in cutting performance and BUE resistance
Lead angle	Controls the thickness and evacuation direction of chips	Larger lead angles decrease the thickness of chips and relieves cutting load
True rake angle	Actual rake angle	Larger angles excel in cutting performance and BUE resistance, but lower the cutting edge strength Smaller angles increase the cutting edge strength but lower the BUE resistance
Cutting edge tilt angle	Controls the direction of chip evacuation	Larger angles excel in chip control performance and relieve cutting load, but lower the strength of the insert corner

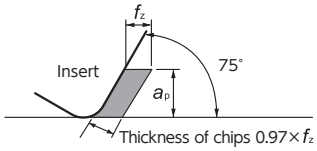
Functions of each angle

《Lead angle》: Relationship of this angle and chip thickness

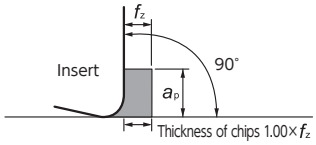
Lead angle : 45 degrees



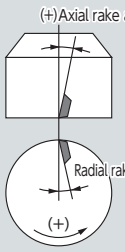
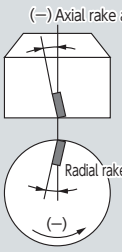
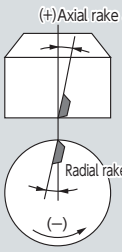
Lead angle : 75 degrees



Lead angle : 90 degrees

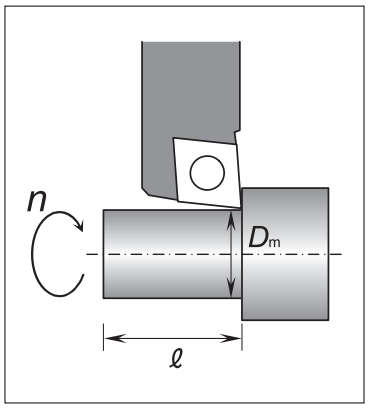


《Rake angle》: Combinations and characteristics

Combinations of the angles for basic cutting edge shapes		 Double-positive cutting edge shape (DP edge shape)	 Double-negative cutting edge shape (DN edge shape)	 Negative-positive cutting edge shape (NP edge shape)
Radial rake angle (R.R.)		Positive (+)	Negative (–)	Negative (–)
Axial rake angle (A.R.)		Positive (+)	Negative (–)	Positive (+)
Insert specification		Positive (single side used)	Negative (both sides used)	Positive (single side used)
Work material	Steel	●	–	●
	Cast iron	–	●	●
	Aluminum alloy	●	–	–

Calculation Formula for Turning

Calculating the cutting speed



Calculating the cutting speed from the rotation speed

$$V_c = \frac{\pi \times D_m \times n}{12} \quad (SFM)$$

Calculating the revolution speed from the cutting speed

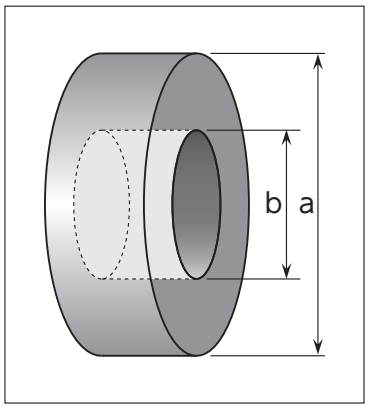
$$n = \frac{12 \times V_c}{\pi \times D_m} \quad (rmp)$$

V_c : Cutting speed (SFM)
D_m : Machining diameter (inch)
n : Spindle speed (rpm)
π : Pi (3.14)

Example : Obtaining a cutting speed for machining a work piece of 2" diameter at the spindle speed of 1,000 min^{-1}:

$$V_c = \frac{\pi \times 2 \times 1000}{12} = \underline{523\,(SFM)}$$

Calculating the cutting time



Calculating the cutting time for OD (ID) machining

$$T = \frac{\ell}{f \times n} \quad (min)$$

Calculating the cutting time for facing

$$T = \frac{\pi \times (a^2 - b^2)}{4000 \times V_c \times f} \quad (min)$$

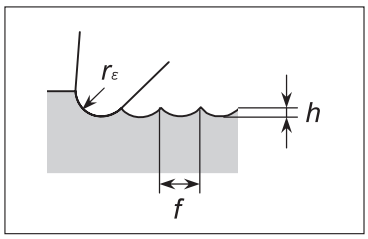
T : Cutting time (min)
ℓ : Cutting length (inch)
f : Feed rate (IPR)
n : Spindle speed (rpm)

T : Cutting time (min)
V_c : Cutting speed (m/min)
f : Feed amount (mm/rev)
π : Pi (3.14)

Example : Obtaining a cutting time for machining of work to be cut 4" long at the spindle speed of 1,000 rpm and at a feed rate of .004IPR:

$$T = \frac{4}{.004 \times 1000} = \underline{1\,(min)}$$

Calculating the theoretical surface roughness



$$h = \frac{f^2}{8\,r_\varepsilon} \times 1000^2 \quad (\mu inch)$$

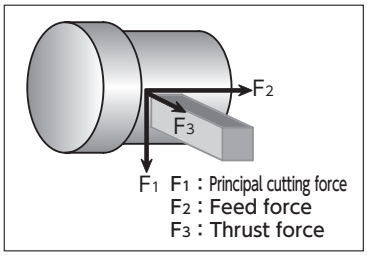
h : Theoretical surface roughness (μinch)
f : Feed amount (IPR)
r_ε : Corner radius (inch)

Example : Obtaining the theoretical surface roughness when machining with an insert having .031 corner nose radius at a feed rate of 0.004 IPR:

$$h = \frac{.004^2}{8 \times .031} \times 1000^2 = \underline{64.51\,(\mu inch)}$$

【Guidelines for actually finished surface roughness】
Steel type work: Theoretical surface roughness × 1.5 to 3
Cast iron type work: Theoretical surface roughness × 3 to 5

Calculating the cutting force



$$F_{(N)} = k_c \times a_p \times f$$

F : Cutting force (N)
k_c : Specific cutting force (N/mm²) *See the table below.
a_p : Depth of cut (mm)
f : Feed amount (mm/rev)

Example : Calculating the cutting force for grey cast iron cut at the feed rate of 0.2 mm/rev and with a depth of cut of 3 mm:

$$F = 1800 \times 3 \times 0.2 = \underline{1080\,(N)}$$

Calculating the power required

$$P_{c\,(kW)} = \frac{v_c \times f \times a_p \times k_c}{60 \times 10^3 \times \eta}$$

P_c : Required power (kW)
v_c : Cutting speed (m/min)
f : Feed amount (mm/rev)
a_p : Depth of cut (mm)
k_c : Specific cutting force (N/mm²) *See the table below.
η : Mechanical efficiency (0.7~0.8)

Example : Calculating the cutting power for the machining of grey cast iron at a cutting speed of 700 m/min, feed rate of 0.4 mm/rev, and with a depth of cut of 2 mm (with 0.8 set as the mechanical efficiency):

$$P_c = \frac{700 \times 0.4 \times 2 \times 1400}{60 \times 10^3 \times 0.8} = \underline{16.33\,(kW)}$$

Specific cutting force

Work material		Tensile strength or hardness	Specific cutting force (N/mm²) "k_c" to cutting feed rate (mm/rev)				
			0.1mm/rev	0.2mm/rev	0.3mm/rev	0.4mm/rev	0.6mm/rev
Soft steel		520	3,610	3,100	2,720	2,500	2,280
Medium steel		620	3,080	2,700	2,570	2,450	2,300
Hard steel		720	4,500	3,600	6,250	2,950	2,640
Tool steel	SKD	670	3,040	2,800	2,630	2,500	2,400
		770	3,150	2,850	2,620	2,450	2,340
Cr-Mo steel	SCM	600	3,610	3,200	2,880	2,700	2,500
		730	4,500	3,900	3,400	3,150	2,850
Alloy steel	SNCM	900	3,070	2,650	2,350	2,200	1,980
		HB350	3,310	2,900	2,580	2,400	2,200
Gray cast iron	FC	HB200	2,110	1,800	1,600	1,400	1,330

Calculating the volume of chips produced

$$Q_{(cm^3/min)} = v_c \times f \times a_p$$

Q : Volume of evacuated chips (cm³/min)
v_c : Cutting speed (m/min)
a_p : Depth of cut (mm)
f : Feed amount (mm/rev)

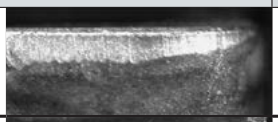
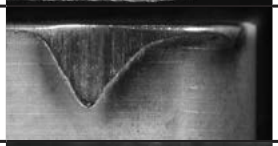
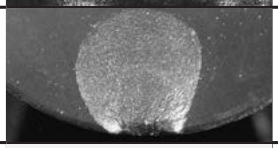
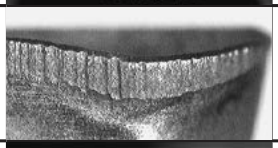
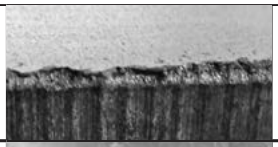
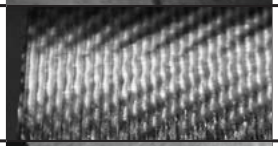
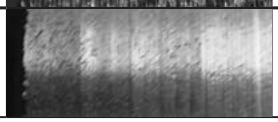
Example : Obtaining the volume of chips evacuated per minute for machining at a cutting speed of 700 m/min, feed of 0.4 mm/rev, and a depth of cut of 2mm

$$Q = 700 \times 0.4 \times 2 = \underline{560\,(cm^3/min)}$$

Troubleshooting for Turning

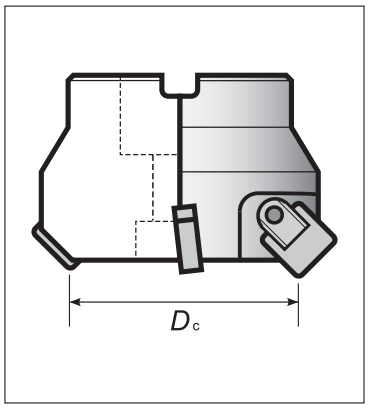
Type of problem	Possible cause	Corrective measures	Material/grade selection: Change to a harder material/grade	Material/grade selection: Change to a tougher material/grade	Material/grade selection: Change to a material/grade more resistant to thermal shock	Material/grade selection: Change to a material/grade more resistant to deposition	Cutting conditions: Cutting speed (Decrease ↘ / Increase ↗)	Cutting conditions: Feed rate (Decrease ↘ / Increase ↗)	Cutting conditions: Depth of cut (Decrease ↘ / Increase ↗)	Cutting conditions: Coolant: Use non-water-soluble type	Cutting conditions: Coolant: Review dry or wet operation	Tool shape: Review the type of chipbreaker	Tool shape: Rake angle (Decrease ↘ / Increase ↗)	Tool shape: Nose radius of the insert	Tool shape: Side cutting edge angle	Tool shape: Cutting edge strength, honing	Tool shape: Improve the accuracy of insert	Tool shape: Improve the rigidity of the holder	Machine/installation: Improve the installation accuracy of the cutting tool	Machine/installation: Review the overhang of the cutting tool	Machine/installation: Prevent vibration of the machine, improve the machine rigidity
Short tool life	Excessive insert wear	Unsuitable tool material/grade	●																		
		Unsuitable cutting edge shape										●	↗	↗	↗	↘					
		Improper cutting conditions					↘	↗			Wet										
	Fracture/chipping of the cutting edge	Unsuitable tool material/grade		●																	
		Improper cutting conditions						↘	↘												
		Insufficient cutting edge strength										●		↗		↗					
		Thermal shock			●		↘	↘	↘	●	Dry										
		Built-up edge				●	↗	↗		●	Wet										
		Insufficient toughness																●	●	●	●
Poor dimensional accuracy	Variation in dimensions during cutting	Improper accuracy of insert															●				
		Clearance/relief of the work/tool										●	↗	↘	↘	↘		●	●	●	●
	Need for offsetting during cutting	Increased flank wear	●											↗							
		Built-up edge				●	↗														
		Improper cutting conditions					↘	↗													
Poor surface finish	Poor surface roughness	Deposition					↗			●	Wet										
		Unsuitable cutting edge shape										●		↗							
		Chatter					↘	↘	↘									●	●	●	●
Heat	Deterioration in tool life/accuracy due to excessive heat generation	Improper cutting conditions					↘	↘	↘												
		Unsuitable cutting edge shape										●	↗			↘					
Burring, chipping, scuffing	Burring	Boundary wear	●																		
		Improper cutting conditions					↘	↕			Wet										
		Unsuitable cutting edge shape										●	↗	↘	↘	↘					
	Chipping	Improper cutting conditions						↘	↘												
		Unsuitable cutting edge shape										●	↗	↗	↗	↘					
		Vibration																●	●	●	●
	Scuffing	Unsuitable tool material/grade				●															
		Improper cutting conditions					↗			●	Wet										
		Unsuitable cutting edge shape										●	↗			↘					
		Vibration																●	●	●	●
Chip control	Elongated chips	Improper cutting conditions					↘	↗	↗		Wet										
		Chipbreaker's effective chip control range										●									
		Unsuitable cutting edge shape												↘	↘						

Troubleshooting Case Studies: Turning

	Case/Symptom		Possible causes	Corrective measures
Insert	VB wear		●The material / grade is too soft ●Cutting speed is too high ●Relief angle is too small	●Use a coated grade ●Choose a material/grade highly resistant to wear ●Decrease the cutting speed
	Wear on face		●High temperature causes chemical reactions between the insert material and chips	●Use a coated grade ●Decrease both of the cutting speed and feed rate ●Widen the rake angle
	Notching wear		●The work surface is too hard ●Boundary area has been oxidized ●Burrs, caused by chips in the sheared form, have been cut	●Widen the side cutting edge angle ●Make the nose radius larger so that cutting is performed within the radius ●Use a round insert
	Chipping/ fracture		●Feed rate is too high ●Chips have become trapped ●Chatter resulting in vibration	●Enlarge the honed edge ●Make the nose radius larger ●Narrow the rake angle to secure the cutting edge strength
	Flaking		●This is due to compressive forces being applied to the cutting edge from elastic deformation in the area being cut ●This occurs when deposited/adhered material is peeled off	●Change the cutting conditions by checking the cutting edge ●Choose a material/grade highly resistant to fracture ●Increase the coolant rate and pressure ●Improve the run-out of the main spindle of the machine
	Plastic deformation		●High cutting force and excessive heat is applied to the cutting edge	●Choose a material/grade highly resistant to wear ●Decrease both of the cutting speed and feed rate ●Make the nose radius larger ●Use coolant
	Built-up edge		●This occurs because the cutting temperature is lower than the recrystallization temperature of the work material	●Increase the cutting speed ●Use coolant with excellent lubrication performance ●Change to a grade with less affinity to the work material
	Deposition		●The deposition is caused to the face by a chemical reactions of the work material due to heat generation	●Increase the cutting speed ●Widen the relief angle ●Hone the face with a mirror-like-surface finish ●Change to a grade with less affinity to the work material
	Clamping crack		●The insert was clamped under improper seating conditions	●Clean the clamping areas and install the insert in the recommended way ●Tighten to the specified torque
Work piece	Chipping		●The feed rate is too high ●An unsuitable insert was selected	●Decrease the feed rate ●Use a smaller edge preparation ●Change to a grade highly resistant to boundary wear ●Change the cutting edge angle of the holder
	Burring		●The feed rate is incorrect ●The shape of insert is not suitable	●Decrease the feed rate ●Use a smaller edge preparation
	Chatter mark		●The cutting force is too great ●The rigidity of the work piece and cutting tool is insufficient	●Decrease the feed rate ●Use a smaller edge preparation ●Ensure tool overhang is minimised ●Change the cutting edge angle of the holder
	Gouging		●Vibration of the cutting edge due to deposition/built-up edge	●Increase the cutting speed ●Use cutting oil excellent in lubrication performance ●Change to a grade with less affinity to the work material

Calculation Formula for Milling Processes

Calculating the cutting speed



Calculating the cutting speed from the rotation speed

$$v_c \underset{(SFM)}{=} \frac{\pi \times D_c \times n}{12}$$

Calculating the revolution speed from the cutting speed

$$n \underset{(rpm)}{=} \frac{12 \times v_c}{\pi \times D_c}$$

v_c : Cutting speed (SFM)
D_c : Cutter diameter (inch)
n : Spindle speed (rpm)
π : Pi (3.14)

Example : Obtaining the cutting speed for machining with an 8" diameter cutter at the Spindle speed of 1,000 rpm:

$$v_c = \frac{\pi \times 8 \times 1000}{12} = \underline{2093\,(SFM)}$$

Calculating the feeding speed and feed rate

Calculating the feed rate per blade

$$f_z \underset{(IPT)}{=} \frac{v_f}{z \times n}$$

Calculating the feeding speed per minute

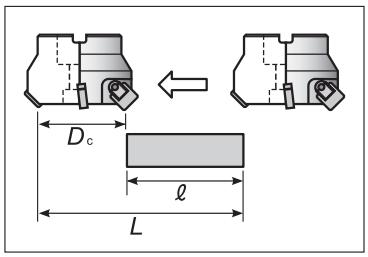
$$v_f \underset{(inch/min)}{=} f_z \times z \times n$$

f_z : Inch amount per tooth (IPT)
v_f : Table feed (inch/min)
z : Number of tooth
n : Spindle speed (rpm)

Example : Obtaining the feed rate for milling with a 10-teeth cutter at the .008IPT and the revolution speed of 1,000 rpm

$$v_f = .008 \times 10 \times 1000 = \underline{80\,(inch/min)}$$

Calculating the machining time



$$T \underset{(min)}{=} \frac{L}{v_f}$$

T : Cutting time (min)
L : Total length of table feed ($\ell + D_c$)
v_f : Table feed (inch/min)

Example : Obtaining the machining time for milling 8" on a work piece fed at the rate of 40 inch/min:

$$T = \frac{8}{40} = \underline{0.2\,(min)}$$

● Calculating the cutting power

$$P_{c\,(kW)} = \frac{a_e \times a_p \times v_f \times k_c}{60 \times 10^6 \times \eta}$$

P_c : Required power (kW)
a_e : Cutting length (mm)
a_p : Depth of cut (mm)
v_f : Feed rate (mm/min)
k_c : Specific cutting force (N/mm²) *See the table below.
η : Mechanical efficiency (0.7~0.8)

Example : Calculating the power required to machine gray cast iron for a length of 150 mm, at a feed rate of 1,100 mm/min, and with a depth of cut of 3 mm (with 0.8 set as the mechanical efficiency and 0.2 mm as the feed par tooth/blade)

$$P_c = \frac{150 \times 3 \times 1100 \times 1400}{60 \times 10^6 \times 0.8} = \underline{14.44\,(kW)}$$

● Specific cutting force

Work material		Tensile strength or hardness	Specific cutting force (N/mm²) "k_c" to cutting feed amount (mm/rev)				
			0.1mm/t	0.2mm/t	0.3mm/t	0.4mm/t	0.6mm/t
Soft steel		520	2,200	1,950	1,820	1,700	1,580
Medium steel		620	1,980	1,800	1,730	1,600	1,570
Hard steel		720	2,520	2,200	2,040	1,850	1,740
Tool steel	SKD	670	1,980	1,800	1,730	1,700	1,600
		770	2,030	2,030	1,800	1,750	1,700
Cr-Mo steel	SCM	600	2,180	2,000	1,860	1,800	1,670
		730	2,540	2,250	2,140	2,000	1,800
Alloy steel	SNCM	900	2,000	1,800	1,680	1,600	1,500
		HB350	2,100	1,900	1,760	1,700	1,530
Gray cast iron	FC	HB200	1,750	1,400	1,240	1,050	970
Aluminum alloy	AC, ADC	160	580	480	400	350	320

※For power required for NTK HCC, please refer to page P31.

● Calculating the volume of evacuated chips

$$Q_{(cm^3/min)} = a_e \times a_p \times v_f$$

Q : Volume of evacuated chips (cm³/min)
a_e : Cutting length (mm)
a_p : Depth of cut (mm)
v_f : Feed rate (mm/min)

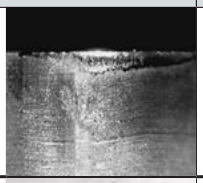
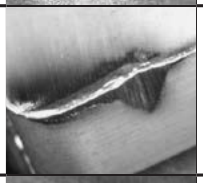
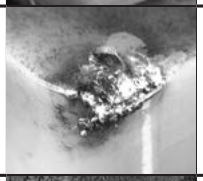
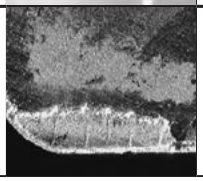
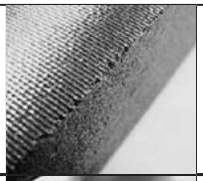
Example : Obtaining the volume of chips evacuated per minute for machining at a cutting speed of 700 m/min, feed rate of 0.4 mm/rev, and with a 2 mm depth of cut:

$$Q = 150 \times 3 \times 1100 = \underline{495\,(cm^3/min)}$$

Troubleshooting for Milling

Type of problem	Possible cause	Corrective measures: Change to a harder material/grade	Change to a tougher material/grade	Change to a material/grade more resistant to thermal shock	Change to a material/grade more resistant to deposition	Cutting speed ↘ Decrease	Feed rate ↘ Decrease	Depth of cut ↘ Decrease	Cutting speed ↗ Increase	Feed rate ↗ Increase	Depth of cut ↗ Increase	Review cutter diameter and cutting width	Review tool path	Coolant: Wet	Coolant: Dry	Relief angle of insert ↘ Decrease	Nose radius of cutting edge ↘ Decrease	Cutting edge strength, honing ↘ Decrease	Relief angle of insert ↗ Increase	Nose radius of cutting edge ↗ Increase	Cutting edge strength, honing ↗ Increase	Number of teeth/blades	Enlarge the chip pocket	Check the wiper shape	Improve accuracy of cutting edge run-out	Improve rigidity of tool
Damaged or broken cutting edge of the insert	Increased flank wear	Improper cutting conditions					↘							●												
		Unsuitable cutting edge shape	●																↗			↘			●		
	Increased wear on face	Improper cutting conditions					↘	↘	↘					●												
		Unsuitable cutting edge shape	●																↗	↗		↘					
	Fracture/ chipping on cutting edge	Improper cutting conditions						↘	↘					●												
		Unsuitable cutting edge shape		●															↘	↗		↗			●	●	●
	Thermal shock	Improper cutting conditions					↘	↘	↘							●											
		Unsuitable cutting edge shape			●														↗			↘					
	Built-up edge	Improper cutting conditions					↗	↗							●												
		Unsuitable cutting edge shape				●													↗			↘					
Machining accuracy	Poor surface finish	Improper cutting conditions					↗	↘	↘						●												
		Unsuitable cutting edge shape	●			●															↘	↘			●	●	
	Burring	Improper cutting conditions						↓↑	↘	●			●														
		Unsuitable cutting edge shape																	↗	↘	↘				●		
	Chipping	Improper cutting conditions						↘	↘				●														
		Unsuitable cutting edge shape																	↗	↗	↘	↗			●		
	Poor flatness and parallelism	Improper cutting conditions						↘	↘					●					↗	↘	↘	↘			●	●	●
Others	Increased chatter/ vibration	Improper cutting conditions					↘	↘	↘	●			●						↗	↘	↘	↘					
	Poor chip evacuation	Improper cutting conditions					↗	↘		●				●	●												
		Unsuitable tool/blade edge shape																	↗			↘	●				

Troubleshooting Case Studies: Milling

	Case/Symptom		Possible causes	Corrective measures
Insert	VB wear		●Cutting speed is too high. ●Feed rate is too low. ●The shape of the insert is not suitable. ●The material / grade of the insert is not suitable.	●Decrease the cutting speed. ●Increase the feed rate. ●Make the nose radius larger. ●Change to a grade highly resistant to boundary wear.
	Notching wear		●The material / grade of the inserts is not suitable. ●The shape of the cutter is not suitable ●The shape of insert is not suitable.	●Change to a grade highly resistant to boundary wear. ●Widen the rake angle. ●Change the Insert shape to a different one.
	Chipping / fracture		●The cutting speed is incorrect. ●The shape of the cutter is not suitable ●The shape of insert is not suitable.	●Decrease the feed rate and depth of cut in order to reduce the cutting force. ●Use a smaller edge preparation. ●Prepare the cutting edge to give it a round honing. ●Change to a grade highly resistant to fracture.
	Thermal crack		●The cutting conditions are incorrect ●The material / grade of insert is not suitable	●Decrease the cutting speed. ●Change to dry cutting from wet cutting. ●Use a material / grade highly resistant to thermal shock
Work piece	Chipping		●The feed rate is too high. ●An unsuitable insert is selected. ●The shape of the cutter is not suitable.	●Decrease the feed rate. ●Use a smaller edge preparation ●Change to a grade highly resistant to boundary wear. ●Set the lead angle at 45 degrees.
	Burring		●The feed rate is incorrect. ●The shape of insert is not suitable. ●The shape of the cutter is not suitable.	●Adjust the feed rate. ●Use a smaller edge preparation. ●Make the lead angle narrower.

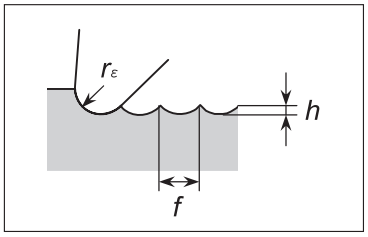
Surface Roughness Standards

			JIS B0601 (2001) ISO 4287 (1997) / ISO 1302 (2002)	JIS B0601 (1994) JIS B0031 (1982)
Cross-section curve			No filter, digital signal	No filter, digital signal
	Evaluation length		Shape length	—
	Maximum height		Pt	—
	10-point average roughness		—	—
Roughness curve			Phase correction, band λs-λc	Phase correction, short wavelength λc
	Evaluation length		Determine individually for each standard length λc.	Average for ℓn, calculated for each standard length λc
	Maximum height		Maximum height **Rz**	Maximum height Ry
	Set standard length based on height parameters Rz, Rmax, and Ry.	0.25mm	0.1~0.5μm	0.1~0.5μm
		0.8mm	0.5~10μm	0.5~10μm
		2.5mm	10~50μm	10~50μm
	Dimension indicated in drawing		U 0.008 – 2.5/Rz 1.5 L – 2.5/Rz 0.7	Ry = 1.6~0.8 λc 0.25
	10-point average roughness		**Rz_{JIS}**	Rz
	Center line average roughness		Ra_{75}	Ra75
	Arithmetic average roughness		Arithmetic average roughness **Ra**	Arithmetic average roughness Ra
	Set standard length based on height parameters Rz, Rmax, and Ry.	0.25mm	0.1~0.5μm	0.1~0.5μm
		0.8mm	0.5~10μm	0.5~10μm
		2.5mm	10~50μm	10~50μm
	Dimension indicated in drawing		U "2RC" – 0.8/Ra75 3.1 L "2RC" – 0.8/Ra75 1.5	1.6~3.2

Theoretical surface roughness

The theoretical surface roughness for lathe machining is the minimum value which can be obtained under the set machining conditions, and can be expressed by the following formula.

$$h_{(\mu m)} = \frac{f^2}{8\,r_\varepsilon} \times 1000$$



h : Theoretical surface roughness (μm)
f : Feed amount (mm/rev)
r_ε : Nose radius (mm)

Actual surface roughness

- When machining steel: Theoretical surface roughness x 1.5-3
- When machining cast iron: Theoretical surface roughness x 3-5

Surface finish improvement measures

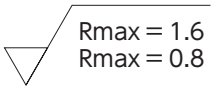
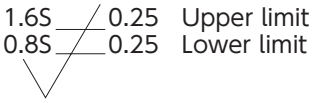
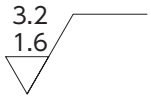
- Increase the nose radius.
- Adjust the cutting speed and/or feed amount.
- Use a wiper insert.
- Change the material and/or shape of the insert

Relationship with triangle symbols

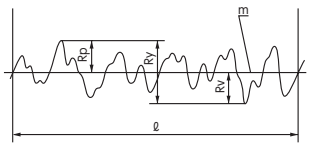
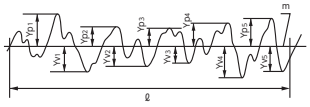
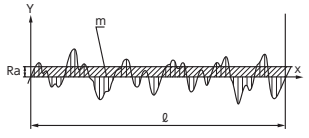
Arithmetic average roughness Ra (μm)	Maximum height Rz (μm)	10-point average roughness Rz_{JIS} (μm)	※ (Triangle symbol)
0.025	0.1	0.1	▽▽▽▽
0.05	0.2	0.2	
0.1	0.4	0.4	
0.2	0.8	0.8	
0.4	1.6	1.6	▽▽▽
0.8	3.2	3.2	
1.6	6.3	6.3	
3.2	12.5	12.5	▽▽
6.3	25	25	
12.5	50	50	▽
25	100	100	

• Examples of reading
(i) When Ra = 1.6μm ➡ 1.6μm Ra
(ii) When Rz = 6.3μm ➡ 6.3μm Rz
(iii) When Rz_{JIS} = 6.3μm ➡ 6.3μm Rz_{JIS}

※The finishing symbols (triangle symbol ▽ and symbol ~) are no longer used in JIS pursuant to the 1994 revision.

JIS B0601 (1982) JIS B0031 (1982)	JIS B0601 (1970) JIS B0031 (1970)	JIS B0601 (1970)
No filter, analog signal	No filter, analog signal	No filter, analog signal
One standard length	One standard length	One standard length
Rmax	Rmax (S indication)	Hmax (S)
Rz	Rz (Z indication)	—
2RC, short wavelength cut-off λc	2RC, short wavelength cut-off λc	—
One measured length ≧ 3λc	One measured length ≧ 3λc	—
—	—	—
0.8μm or less	0.8μm or less	Select from 0.3, 1, 3, 5 and 10mm
0.8~6.3μm	0.8~6.3μm	Select from 0.3, 1, 3, 5 and 10mm
6.3~25μm	6.3~25μm	Select from 0.3, 1, 3, 5 and 10mm
	Surface symbol or triangle symbol 	Triangle symbol 0.8S or less ▽▽▽▽ 1.5S~6S ▽▽▽ 12S~25S ▽▽ 35S or higher ▽
—	—	—
Ra	Ra ("a" indication)	—
—	—	—
—	—	—
Ra shall be 12.5μm or less.	λc shall be 0.8 mm.	—
12.5~100μm	—	—
	Surface symbol or triangle symbol 0.2a or less ▽▽▽▽ 0.4a~1.6a ▽▽▽ 3.2a~6.3a ▽▽ 12.5a to 25a or more ▽	—

Obtaining the surface roughness

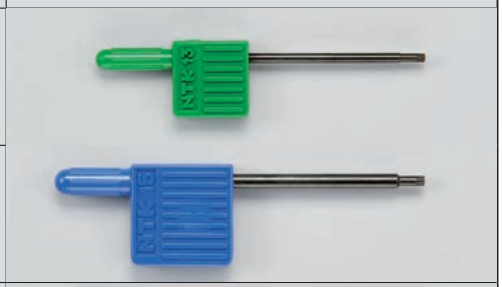
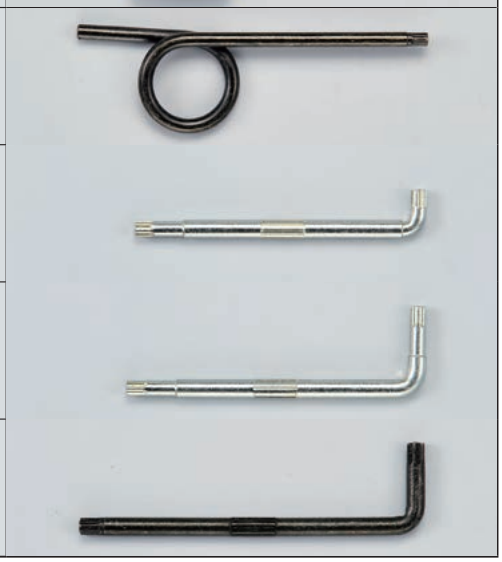
Type	New symbol JIS B0601:'01	Old symbol JIS B0601:'94	Calculation	Obtaining method (example)
Max. height (Peak)	Rz	Ry	The addition of the max. value for the depth Rv and the max. height Rp on the roughness curve for the reference length: $Rz = Rp + Rv$	
Average roughness of 10 points	Rz_{JIS}	Rz	The addition of the average of the maximum to fifth highest vales and the average of the deepest to the fifth deepest values on the roughness curve for the reference length: $Rz_{JIS} = \frac{(Yp1+Yp2+Yp3+Yp4+Yp5)+(Yv1+Yv2+Yv3+Yv4+Yv5)}{5}$	
Arithmetic average of roughness	Ra	Ra	The average of absolute values on the roughness curve f (x) for the reference length: $Ra = \frac{1}{\ell}\int_0^{\ell}\{f(x)\}$	

Conditions for measuring R parameters

Non-cyclic wave form (random wave form)		Settings for measuring	
Range of Ra (μm)	Range of Rz (μm)	Reference length ℓr (mm) = cut-off λc (mm)	Evaluated length ℓn (mm) = ℓr × 5
0.006 < Ra ≦ 0.2	0.025 < Rz ≦ 0.1	0.08	0.4
0.02 < Ra ≦ 0.1	0.1 < Rz ≦ 0.5	0.25	1.25
0.1 < Ra ≦ 2	0.5 < Rz ≦ 10	0.8	4
2 < Ra ≦ 10	10 < Rz ≦ 50	2.5	12.5
10 < Ra ≦ 80	50 < Rz ≦ 200	8	40

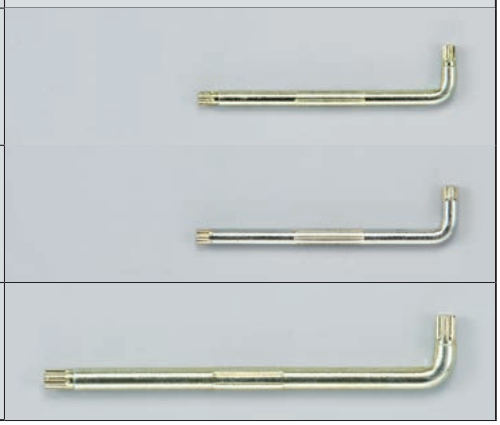
Spare Parts - Wrenches

Standard Items

Item Number	Appearance
CLR-13S (Formerly RLR-13S)	
CLR-15S (Formerly RLR-15S)	
RLR-20S	
LLR-25S	
LLR-25S-20＊65	
LLR-28S	

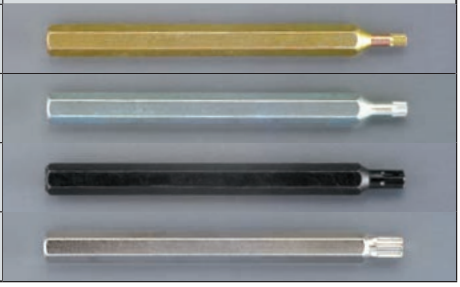
Optional Items

〈LLR Type〉

Item Number	Appearance
LLR-13S	
LLR-15S	
LLR-20S	

〈Driver type wrench for increased adaptability〉

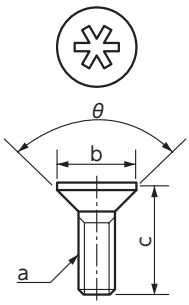
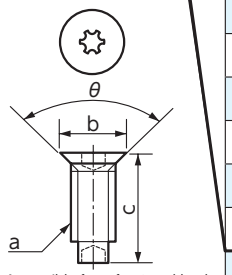
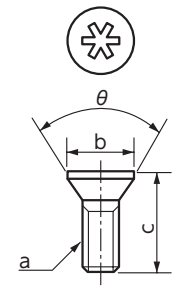
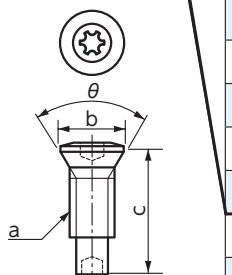
Item Number	Magnetic Driver Handle
XX2815-04	

Item Number	Replaceable Bits
HLR-13S	
HLR-15S	
HLR-20S	
HLR-25S	

〈Driver type wrench kits〉

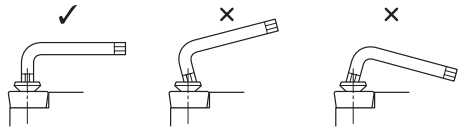
Item Number	Contents
XX2815-04-13S	XX2815-04 with HLR-25S (HLR-13S)
XX2815-04-15S	XX2815-04 with HLR-25S (HLR-15S)
XX2815-04-20S	XX2815-04 with HLR-25S (HLR-20S)
XX2815-04-25S	XX2815-04 with HLR-25S (HLR-25S)

Clamp Screws and Wrenches

Clamp Screw			Dimension (mm)				Standard Wrench	
Appearance	Order Code	Item Number	a	b	c	θ (°)	Order Code	Item Number
	5704739	**LR-S-2×3.5**	M2×P0.4	3.1	3.5	82	5681994	**CLR-13S**
	5907704	**LR-S-2×3.7**	M2×P0.4	3.1	3.7	82		
	5907712	**LR-S-2×4.4**	M2×P0.4	3.1	4.4	82		
	5907720	**LR-S-2×5.5**	M2×P0.4	3.0	5.5	90		
	5907738	**LR-S-2.5×4.8**	M2.5×P0.45	3.6	4.8	82	5681978	**CLR-15S**
	5704747	**LR-S-2.5×5.5**	M2.5×P0.45	3.6	5.5	82		
	5907746	**LR-S-2.5×6**	M2.5×P0.45	3.5	6.0	90		
	5907753	**LR-S-2.5×6.8**	M2.5×P0.45	3.5	6.8	90		
 Accessible from front and back	5773619	**LR-S-3×5.8**	M3×P0.5	4.1	5.8	90	5485164	**RLR-20S**
	5907761	**LR-S-3×6.2**	M3×P0.5	5.2	6.2	82		
	5907779	**LR-S-3×7.8**	M3×P0.5	4.0	7.8	90		
	5907787	**LR-S-4×5.8**	M4×P0.7	5.8	6.0	82		
	5907795	**LR-S-4×9**	M4×P0.7	5.8	9.0	82		
	5116991	**LR-S-4×10PW**	M4×P0.7	5.8	10.0	90	5681978	**CLR-15S**
	5534029	**LRIS-2×6**	M2×P0.4	2.6	6.0	60	5681994	**CLR-13S**
	5907803	**LRIS-2.2×6**	M2.2×P0.45	3.15	6.0	60		
	5989181	**LRIS-2.5×5**	M2.5×P0.45	3.6	5.0	60	5681978	**CLR-15S**
	5907811	**LRIS-2.5×7**	M2.5×P0.45	3.6	7.0	60		
	5907829	**LRIS-3×6**	M3×P0.5	4.0	6.0	60	5485164	**RLR-20S**
	5428156	**LRIS-3×8**	M3×P0.5	4.2	8.0	60		
	5477328	**LRIS-4×5**	M4×P0.7	5.85	5.0	60	5364930 5794698	**LLR-25S** **LLR-25S-20＊65**
	5907837	**LRIS-4×6**	M4×P0.7	5.85	6.0	60		
	5977566	**LRIS-4×8**	M4×P0.7	5.85	8.0	60		
	5907845	**LRIS-4×10**	M4×P0.7	5.85	10.0	60		
	5684105	**LRIS-4×12**	M4×P0.7	5.85	12.0	60		
 Accessible from front and back	5907852	**LRIS-5×10**	M5×P0.8	7.0	9.5	60	5364948	**LLR-28S**
	5116983	**LRIS-4×10PW**	M4×P0.7	5.7	10.0	60	5681978	**CLR-15S**
	5090576	**LRIS-4×12PW**	M4×P0.7	5.7	12.0	60		

Attention: When tightening screws

- Make sure the wrench tip and wrench hole are neither deformed nor stripped
- Engage the wrench wrench straight to screw hole



- Do not apply more torque than the recommended amount (as shown to the right)

Note: Wrenches and bits come in a pack of five
Clamp screws come in a pack of ten

Recommended Tightening Torque

Item Number	Recommended Tightening Torque (lbs)
CLR LLR HLR **13S**	6.2 (0.7N·m)
CLR LLR HLR **15S**	12.4 (1.4N·m)
RLR LLR HLR **20S**	26.6 (3.0N·m)
LLR HLR **25S**	44.3 (5.0N·m)
LLR HLR **28S**	62.0 (7.0N·m)

Material Cross Reference Chart

ISO	Country	U.S.A.	Japan	Germany
	Standard	AISI / SAE	JIS	DIN
Stainless steel M		**Stainless Steel (Ferrite/Martensitic)**		
		403	SUS403	X6Cr13
				X7Cr14
		416	SUS416	X12CrS13
		430	SUS430	X6Cr17
		410	SUS410	X10Cr13
			SUS420J2	X46Cr13
		405		X6CrAL13
		420		X20Cr13
		431	SUS431	X19CrNi17-2
		430F	SUS430F	X14CrMoS17
		434	SUS434	X6CrMoS17-2
		CA6-	SCS5	X3CrNiMo13-4
		405	SUS405	X10CrAL13
		HNV6	SUH4	X85CrMoV18-2
		446	SUH446	X10CrAL2-4
		EV8	SUH35,SUH36	X53CrMnNiN21-9
		S44400		X1CrMoTi18-2
				X20CrMoV12-1
		630		X5CrNiCuNb16-4
		Stainless Steel (Austenitic)		
		304L		X2CrNi19-11
		304	SUS304	X5CrNi18-10
		303	SUS303	X8CrNiS18-9
			SUS304L	
		304L	SCS19	X2CrNi19-11
		301	SUS301	X9CrNi18-8
		304LN	SUS304LN	X2CrNi18-10
		316	SUS316	X5CrNiMo17-2-2
		316LN	SUS316LN	X2CrNiMoN17-13-3
		316L		X2CrNiMoN17-12-2
		316L	SCS16	X2CrNiMo18-14-3
			SUS316L	
		317L	SUS317L	X2CrNiMo18-15-4
		UNS		X1NiCrMoCu25-20-5
		V 0890A		
		321	SUS321	X6CrNiTi18-10
		347	SUS347	X10CrNiNb18-10
		316Ti		X6CrNiMoTi17-12-2
		318		X10CrNiMoNb 18-12
		309	SUH309	X15CrNiSi20-12
		310S	SUH310	X8CrNi25-21
		308	SCS17	X2CrNiMoN17-11-2
		17-7PH		X7CrNiAL 17-7
		N08028		X1NiCrMoCu31-27-4
		Stainless Steel (Austenitic/Ferrite)		
		S31500		X2CrNiN23-4
		S32900		X8CrNiMo27-5
		S32304		X2CrNiN23-4
		S31803		X2CrNiMoN22-53
Hardened material H		5130H	SCr430H	34Cr4
		5135H	SCr435H	37Cr4
		4135H	SCM435H	34CrMo4
		4140H	SCM440H	42CrMo4

ISO	Country	U.S.A.	Japan	Germany
	Standard	AISI / SAE	JIS	DIN
Cast iron K		**Malleable cast iron**		
		–	FCMB310	–
		32510	FCMW330	EN-GJMB350-10
		40010	FCMW370	EN-GJMB450-6
		50005	FCMW490	EN-GJMB550-4
		70003	FCMP540	
		A220-70003	FCMP590	EN-GJMB650-2
		A220-80002	FCMP690	EN-GJMB700-2
		Gray cast iron		
		No 20 B	FC100	EN-GJL-100
		No 25 B	FC150	EN-GJL-150
		No 30 B	FC200	EN-GJL-200
		No 35 B	FD250	EN-GJL-250
		No 40 B	–	–
		No 45 B	FC300	EN-GJL-300
		No 50 B	FC350	EN-GJL-350
		No 55 B	–	EN-JLZ
		A436 Type 2	–	GGL-NiCr20-2
		Ductile cast iron		
		60-40-18	FCD400	EN-GJL-400-15
		–	–	EN-GJL-400-18-LT
		80-55-06	FCD500	EN-GJL-500-7
		A43D2	–	EN-GJSA-500
		–	FCD600	EN-GJS-600-3
		100-70-03	FCD700	EN-GJS-700-2
Nonferrous material N		SC64D	C4BS	G-AlSi9MGWA
		GD-AlSI12	AC4A	G-ALMG5
		356.1	A5052	
		A413.0	A6061	GD-AlSi12
		A380.1	A7075	GD-AlSi8Cu3
		A413.1	ADC12	G-AlSi12(Cu)
		A413.2		G-AlSi12
		A360.2		G-AlSi10Mg(Cu)
Heat-resistant alloy S		**Heat-resistant alloy**		
		330	SUH330	X12NiCrSi36 16
			SCH15	G-X40NiCrSi36-18
		5390A		
		5666		NiCr22Mo9Nb
				NiCr20Ti
		5660		NiFe35Cr14MoTi
		5391		S-NiCr13A16MoNb
		5383		NiCr19Fe19NbMo
		4676		NiCu30AL3Ti
				NiCr20TiAk
		AMS 5399		NiCr19Co11MoTi
		AMS 5544		NiCr19Fe19NbMo
		AMS 5397		NiCo15Cr10MoAl
		5537C		CoCr20W15Ni
		AMS 5772		CoCr22W14Ni
		Titanium alloy		
		AMS R54520		TiAl5Sn2.5
		AMS R56400		TiAl6V4
		AMS R56401		TiAl6V4ELl
				TiAl4Mo4Sn4Si0.5

Heat resistant alloys for Aerospace ⇒ L20-L25

ISO	Country	U.S.A.	Japan	Germany
	Standard	AISI/SAE	JIS	DIN
Steel P		**Carbon steel**		
		A570.36	STKM12A;C	S235JRG2
		1115		GC16E
		A573-8165		S235J2G3
		1015		C15
		1020		C22
		1213	SUM22	11SMn30
		12L13	SUM22L	11SMnPb30
				10SPb20
		1215		11SMn37
		12L14		11SMnPb37
		1015	S15C	Ck15E
		1025	S25C	Ck25E
		A572-60		S380N
		A572-60		17MnV7
		1035		C35
		1045		C45
		1040		35S20
		1039		40Mn4
		1335	SMn438(H)	36Mn5
		1330	SCMn1	28Mn6
		1035	S35C	C35G
		1045	S45C	C45E
		1050	S50C	C53G
		1055		C55
		1060		C60E
		1055	S55C	C55E
		1060	S58C	C60E
		1095		C101E
		W1	SK3	C101u
		W210	SUP4	C105W1
		Alloy steel		
		ASTMA353		X8Ni9
		2515		12Ni19
				14NiCrMo13
		D3	SKD1	X210Cr12
		H13	SKD61	X40CrMo134
		A2	SKD12	X100CrMoV51
			SKD2	X210CrW12
		S1		45WCrV7
		H21	SKD5	X30WCrV93
				X30WCrV9
				X165CrMoV12
		HW3	SUH1	X45GrSi93
		D3	SUH3	S6-5-2
		M2	SKH51	S6-5-2
		M35	SKH55	S6-5-2-5
		M7		S6-9-2
		HNV3		X210Cr12G

ISO	Country	U.S.A.	Japan	Germany
	Standard	AISI/SAE	JIS	DIN
Steel P		A573-81	SM400A;B;C	S275J2G3
			SM490A;B;C;YA;YB	S355J2G3+C2
		5120		DS355J2G3
		9255		55Si7
		9262		S340MGC
		52100	SUJ2	100Cr6
		ASTM		16Mo3
		4520		16Mo5
		ASTM		14Ni6
		8620	SNCM220(H)	21NiCrMo2
		8740	SNCM240	40NiCrMo22
				17CrNiMo6
		5015	SCr415(H)	15Cr3
		5140	SCr440	42Cr4
		5155	SUP9(A)	55Cr3
			SCM415(H)	15CrMo5
		8740	SNCM240	40NiCrMo8-4
		5015	SCr415(H)	15Cr3
		ASTMA182		13CrMo5
		ASTMA182		13CrMo4-5
				14MoV63
				31CrMo12
				39CrMoV13
		L1		41CrS4
		8620		22Mo4
				50CoMo4
				16MnCr5
				31NiCrMo14
		L6		50NiCr13
		3135	SNC236	36NiCr6
		3415	SNC415(H)	14NiCr10
		3415;3310	SNC815(H)	14NiCr14
		9255		
		9840		36CrNiMo4
		4340		34CrNiMo6
		5132	SCr430(H)	34Cr4
		5140	SCr440(H)	41Cr4
		5115		16MnCr5
		4130	SCM420;SCM430	25CrMo4
		4137;4135	SCM432;SCCRM3	34CrMo4
		4140;4142	SCM440	41CrMo4
		4140	SCM440(H)	42CrMo4
				32CrMo12
		6150	SUP10	51CrV4
				41CrMo7
		L3		100Cr6
			SKS31	105WCr6
			SKS2,SKS3	
		L6	SKT4	55NiCrMoV6
		Cast steel		
			SEMnH1	
			SCMnH/1	G-X120Mn12

Ni-based Heat Resistant Alloys

● Material Specifications Cross-Reference List-Aerospace Material Designation

Commercial designation	Hardness Brinell HB		Nominal composition Approximate content in %										
	Ann.	Aged	Ni	Cr	Co	Fe	Mo	C	Mn	Si	Al	Ti	Others
Astroloy*	—	—	56.9	15.0	15.0	—	5.25	0.06	—	—	4.0	3.5	0.05
GMR 235*	—	—	63.3	15.5	—	10.0	5.2	0.15	0.25	0.6	3.0	2.0	0.06
GMR 235D	—	—	63.0	15.5	—	4.5	5.0	0.15	0.1	0.3	3.5	2.5	0.05
Hastalloy B*	140	—	64.3	0.6	1.25	5.5	28.0	0.1	0.8	0.7	—	—	—
Hastalloy C*	200	—	54.1	16.0	1.25	5.75	17.0	0.07	0.8	0.7	—	—	4.0
Hastalloy N*	—	—	72.2	7.0	0.25	3.0	16.5	0.06	0.4	0.25	0.5	—	0.21
Hastalloy W*	—	—	62.7	5.0	1.25	5.5	24.5	0.06	0.5	0.5	—	—	—
Hastalloy X*	160	—	47.1	22.0	1.5	18.5	9.0	0.1	0.6	0.6	—	—	0.6
Hastelloy R235*	—	—	61.0	15.0	2.5	10.0	5.5	0.15	0.25	0.6	3.0	2.0	—
Haynes 75	—	—	73.7	20.0	—	5.0	—	0.12	—	—	0.25	0.4	0.5
Haynes 80A	—	—	70.9	20.0	2.0	3.0	—	0.1	—	—	1.5	2.5	—
Haynes 263	—	25	51.4	20.0	20.0	—	6.0	0.06	—	—	1.0	1.5	—
Haynes 600	—	—	75.9	16.0	—	8.0	—	0.08	—	—	—	—	—
Haynes 625	—	—	61.4	21.0	—	5.0	9.0	0.1	—	—	—	—	3.5
Haynes 718	—	43	53.5	18.0	—	19.0	3.0	0.08	—	—	0.5	0.9	5.0
Haynes X-750	—	37	74.9	16.0	—	7.0	—	0.08	—	—	0.8	0.25	1.0
IN-100*	—	—	61.6	10.0	15.0	—	3.0	0.18	1.2	0.5	5.5	4.75	—
Incoloy 804*	—	—	41.0	29.5	—	26.0	—	0.1	1.0	0.75	0.25	0.6	0.5
Incoloy 825*	180	—	42.0	21.0	—	30.0	3.0	0.04	—	—	—	1.0	2.0
Incoloy 901*	180	300	44.3	12.5	—	34.0	6.0	0.05	0.24	0.12	0.15	2.7	0.15
Incoloy 903*	—	380	39.0	—	15.0	41.0	—	0.02	—	—	0.7	1.4	3.0
Inconel 600*	170	—	75.0	15.5	—	8.0	—	0.05	—	—	—	—	—
Inconel 601*	150	—	60.0	23.0	—	14.0	—	0.05	—	—	1.4	—	—
Inconel 604*	180	—	74.4	15.8	—	7.2	—	0.04	0.2	0.2	—	—	0.1
Inconel 625*	180	—	61.0	21.5	—	2.5	9.0	0.04	0.5	0.5	0.4	0.4	3.6
Inconel 700*	—	350	46.0	15.0	23.5	0.7	3.75	0.12	0.1	0.3	3.0	2.2	—
Inconel 702*	—	—	79.6	15.6	—	0.35	—	0.04	0.05	0.2	3.0	0.7	—
Inconel 706*	—	—	42.0	16.0	—	40.0	—	0.03	0.2	0.3	0.4	1.75	—
Inconel 713*	—	—	75.0	12.5	—	—	4.2	0.12	—	—	6.1	0.8	—
Inconel 718*	180	380	52.5	19.0	—	19.0	3.0	0.04	0.35	0.35	0.9	0.9	0.1
Inconel 722*	—	380	74.8	15.0	—	6.5	—	0.04	0.55	0.2	0.6	2.4	—
Inconel 751*	—	—	70.0	15.5	—	7.0	—	0.1	1.0	0.5	1.5	2.6	0.5
Inconel 781	—	—	70.0	16.0	—	8.0	—	0.07	2.25	0.15	0.1	3.0	0.2
Inconel X-750*	—	390	73.0	15.5	—	7.0	—	0.04	0.35	0.35	0.7	2.5	—
Jessop G39*	130	—	67.5	19.5	—	5.0	3.0	0.5	—	—	—	—	4.5
Jessop G64*	220	—	60.7	11.0	—	2.0	3.0	0.15	—	—	6.0	—	4.0
Jessop G81*	—	300	79.3	20.0	13.0	—	—	0.05	—	—	1.3	2.3	—
Jethete M-252*	—	320	55.3	20.0	10.0	—	10.0	0.15	0.5	0.5	1.0	2.6	—
MAR-M 200*	—	—	69.4	9.0	10.0	—	—	0.15	—	—	5.0	2.0	13.5
MAR-M 246*	—	270	59.5	9.0	10.0	0.2	2.5	0.15	—	—	5.5	1.5	11.5
MAR-M 421*	—	—	62.3	15.5	10.0	—	1.7	0.15	—	—	4.3	1.75	5.3
MAR-M 432*	—	—	52.3	15.5	20.0	—	—	0.15	—	—	2.8	4.3	5.0
Monel 400*	110	—	65.0	—	—	1.5	—	0.12	1.0	—	—	—	32.0
Monel K-500*	120	290	64.0	—	—	1.0	—	0.13	0.8	—	2.8	0.6	30.0

* These alloys can be hardened by an aging process

USA		UK	France	Germany		Others
SAE	AMS	BS	AFNOR	Werkst.-Nr	DIN1706	
—	—	—	—	—	—	—
—	—	—	—	—	—	AISI:686
—	—	—	—	—	NiCr16MoAl	—
5396A	5396	—	ND37FeV	2.48	S-NiMo30	N10001
5388C	5388	—	—	2.4602	NiCr17Mo17FeW	N10002
5771	5607	—	—	—	—	N10003
—	5786	—	—	—	—	N10004
5390A	5390	—	NC22FeD	2.4603	—	N06002
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	5872	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	5596/5597	—	—	—	—	—
—	5542/5593	—	NC15TNbA	—	—	—
—	5397	—	—	LW2.4674	NiCo15Cr10MoAlTi	N13100
—	—	—	—	—	—	—
—	—	3072-76	NC21FeDU	2.4858	NiCr21Mo	N08825
—	5660	—	ZSNCDT42	LW2.4662	NiFe35Cr14MoTi	N09901
—	—	—	—	—	—	—
5540	5580	3072-76	NC15Fe	2.4816	NiCr15Fe	N06600
—	5715	—	—	2.4851	NiCr23Fe	N06601
—	—	—	—	—	—	—
—	5666	—	NC22FeDNB	2.4856	NiCr22Mo9Nb	N06625
—	—	—	NK27CADT	—	NiCo29Cr15MoAlTi	—
—	5550	—	—	—	—	N07702
—	5702	—	—	—	—	N09707
—	5391	3146-3	NC12AD	LW2.4670	S-NiCr13Al6MoNb	—
5383	5589	HR8	NC19FeNB	LW24668	NiCr19Fe19NbMo	N07713
—	5541	—	NC16FeTi	—	NiCr16FeTi	N07722
—	—	—	—	—	—	N07751
—	—	—	—	—	—	—
5542G	5582	—	NC16FeTNb	2.4669	NiCr16FeTi	N07750
—	—	—	—	—	NiCr20MoW	—
—	—	—	—	—	NiCr11AlWNb	—
—	—	—	—	—	NiCr20Co18Ti	—
—	5551	—	—	2.4916	S-NiCr19Co	N07252
—	—	—	—	—	NiW13Co10Cr9AlTi	—
—	—	—	—	2.4675	NiCo10W10Cr9AlTi	—
—	—	—	—	—	NiCR16Co10WAlTi	—
—	—	—	—	—	NiCo20Cr16WAlTi	—
4544	4574	3072-76	NU30	2.436	NiCu30Fe	N04400
4676	—	3072-76	—	2.4375	NiCu30Al	N05500

Ni-based Heat Resistant Alloys

● Material Specifications Cross-Reference List-Aerospace Material Designation

Commercial designation	Hardness Brinell HB		Nominal composition Approximate content in %										
	Ann.	Aged	Ni	Cr	Co	Fe	Mo	C	Mn	Si	Al	Ti	Others
Monel R-405*	110	—	66.0	—	—	1.2	—	0.15	1.0	—	—	—	31.06
Nimocast 80*	—	—	69.9	20.0	2.0	5.0	—	0.1	—	—	1.0	2.0	—
Nimocast 90*	—	—	52.9	20.0	18.0	5.0	—	0.1	—	—	1.5	2.5	—
Nimocast 713	—	—	72.6	13.4	—	—	4.5	0.12	—	—	6.2	1.0	2.3
Nimocast 842	—	—	57.7	22.0	10.0	—	10.0	0.3	—	—	—	—	—
Nimocast PD16	—	—	43.8	16.5	—	34.0	3.3	0.06	—	—	1.2	1.2	—
Nimocast PE10	—	—	56.4	20.0	—	—	6.0	—	—	—	—	—	9.0
Nimocast PK24	—	—	61.1	9.5	15.0	—	3.0	0.17	—	—	5.5	4.7	1.0
Nimonic 75*	170	—	75.0	19.5	—	4.0	—	0.12	—	—	—	0.4	—
Nimonic 80A*	—	350	75.0	19.5	—	—	—	0.08	—	—	1.4	2.4	—
Nimonic 90*	—	346	59.0	19.5	16.5	—	—	0.08	—	—	1.5	2.5	—
Nimonic 95	—	—	49.9	19.5	—	5.0	—	0.11	—	1.0	2.0	3.5	—
Nimonic 105*	—	320	53.0	15.0	20.0	—	5.0	0.12	—	—	4.7	1.2	—
Nimonic 115*	—	350	59.0	14.2	13.2	—	4.0	0.16	—	—	5.0	4.0	—
Nimonic 242	—	—	58.0	21.5	10.0	—	10.5	—	—	—	—	—	—
Nimonic 263/C263*	—	275	51.5	20.2	20.0	—	6.0	0.06	—	—	0.5	2.0	—
Nimonic 901*	—	350	44.0	12.5	—	35.0	5.7	0.04	—	—	0.3	2.9	—
Nimonic PE13	—	—	49.0	21.8	1.5	18.5	9.0	0.1	0.5	0.5	—	—	0.6
Nimonic PE16*	—	250	43.5	16.5	—	34.0	3.3	0.06	—	—	1.2	1.2	—
Nimonic PK25	—	—	49.9	19.0	19.5	—	4.0	0.08	0.8	0.8	2.9	2.9	—
Nimonic PK31	—	—	53.8	20.0	14.0	—	4.5	—	—	—	0.4	2.3	5.0
Nimonic PK33*	—	350	55.9	18.0	14.0	0.5	7.0	0.05	0.25	0.25	2.1	2.2	—
R-235*	—	—	63.3	15.0	1.2	10.0	5.5	0.12	0.1	0.3	2.0	2.5	—
Refractaloy 26	—	—	38.0	19.0	20.0	16.0	3.2	0.03	0.8	1.0	0.2	2.75	—
Rene 41	—	—	53.1	19.0	11.0	1.8	10.0	0.09	0.3	0.3	1.5	3.1	—
Rene 63	—	—	54.4	14.0	15.0	0.5	6.0	0.05	0.1	0.2	3.8	2.5	3.5
Rene 77	—	—	57.6	15.0	15.0	0.4	4.2	0.17	0.1	0.1	4.3	3.3	—
Rene 80	—	—	61.0	14.0	9.5	—	4.0	0.15	—	—	—	4.0	8.0
Rene 95	—	—	64.5	14.0	8.0	—	3.5	0.15	—	—	—	2.5	3.5
Rene 100	—	—	60.6	10.0	15.0	—	3.0	0.18	—	—	5.5	4.7	—
Rene 125	—	—	60.0	8.9	10.0	—	2.0	0.1	—	—	4.7	2.5	7.0
TRW 1800	—	—	70.0	13.0	—	—	—	0.1	—	—	6.0	0.06	10.5
TRW V1 A	—	—	70.5	6.0	7.5	—	2.0	0.13	—	—	5.4	1.0	6.3
Udimet 500*	—	—	51.7	19.0	19.0	—	4.0	0.1	0.1	0.1	3.0	3.0	—
Udimet 630	—	—	51.0	17.0	—	17.5	3.0	0.04	—	—	0.6	1.1	4.1
Udimel 700	—	—	54.6	15.0	17.5	—	—	0.1	—	—	4.4	3.4	—
Udimet 710	—	—	55.0	18.0	15.0	0.5	1.5	0.07	—	—	2.5	5.0	1.5
Udimet 718*	180	380	52.5	18.0	—	18.0	3.0	0.05	—	—	0.6	0.1	5.2
Waspaloy*	—	HRC35-42	56.9	19.8	13.5	0.8	4.45	0.07	0.1	0.1	1.4	3.0	—

* These alloys can be hardened by an aging process

USA		UK	France	Germany		Others
SAE	AMS	BS	AFNOR	Werkst.-Nr	DIN1706	
4674	7234	—	—	—	—	N04405
—	—	3146	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
5391A	—	HC203	NC13AD	2.467	S-NiCr13Al6MoNb	—
—	5397	HC204	NK15CAT	LW2.4674	—	—
—	—	—	—	—	NiFe33Cr17Mo	—
—	—	3146	—	—	—	—
—	—	HR5,203-4	NC20T	2.463	NiCr20Ti	—
—	—	Hr401,601	NC20TA	2.4631	NiCr20TiAk	N07080
—	—	Hr2,202	Nc20ATV	2.4632	NiCr20Co18Ti	N07090
—	—	—	—	—	—	—
—	—	HR3	NCKD20ATV	2.4634	NiCo20C15MoAlTi	—
—	—	HR4	NCK15ATD	2.4636	NiCo15Cr15MoAlTi	—
—	—	—	—	—	—	—
—	—	HR10	NCK20D	2.465	NiCr15Co19MoTi	—
5660C	5661A	—	ZSNCDT42	2.4662	NiCr15MoTi	—
5536E	5754E	HR6,204	NC22FeD	2.4665	NiCr22Fe18Mo	—
—	—	HR207	NW11AC	—	NiFe33Cr17Mo	—
5751A	5753	—	NKOD20ATU	2.4666	NiCr18CoMo	—
—	—	—	—	—	—	—
—	—	—	NC19KDUV	—	NiCr20Co16MoTi	—
—	—	—	—	—	—	—
—	—	—	Z6NKCDT38	—	—	—
—	5399	—	NC19KDT	2.4973	NiCr19Co11MoTi	N07041
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	NC14K8	—	—	—
—	—	—	—	—	NiCo15Cr10MoAlTi	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	NiTa9Co8W6CrAl	—
—	5751	—	NCK19DAT	2.4983	NiCr18Co18MoTi	N07500
—	—	—	—	2.4668	NiCr19NbMo	—
—	—	—	NCKD20AT	2.4636	NiCo15CrMoAlTi	—
—	—	—	NC18TDA	—	—	—
5383	5589	HR8	NC19FeN	LW2.4668	NiCr19Fe19NbMo	N07718
—	5544	—	NC20K14	LW2.4668	NiCr19Fe19NbMo	N07001

Co-based Heat Resistant Alloys

● Material Specifications Cross-Reference List-Aerospace Material Designation

Commercial designation	Hardness Brinell HB		Nominal composition Approximate content in %										
	Ann.	Aged	Ni	Cr	Co	Fe	Mo	W	Mn	Si	Al	Ti	Others
Air Resist 13	—	—	1.0	—	79.6	2.5	—	11.0	—		3.5	—	4.12
Air Resist 213	—	—	—	19.0	65.8	—	—	4.7	—	—	3.5	—	6.68
Altemp S 816	—	—	20.0	20.0	47.6	—	4.0	4.0	—	—	—	—	0.4
FSX 414	—	—	10.0	29.0	52.8	1.0	—	7.0	—	—	—	—	0.25
Haynes 25*	—	—	10.0	20.0	49.0	3.0	—	15.0	1.5	0.5	—	—	0.1
Haynes 36	—	—	10.0	18.5	52.8	2.0	—	14.5	1.2	0.6	—	—	0.4
Haynes 151	—	—	—	20.0	65.6	—	—	12.8	0.5	0.5	—	0.15	0.47
Haynes 188*	—	—	22.0	22.0	38.0	2.5	—	14.0	1.0	0.4	—	—	0.1
HS 6*	—	—	2.5	28.0	60.5	3.0	—	5.0	—	—	—	—	1.0
HS 21*	—	—	3.0	27.0	62.6	2.0	5.0	—	0.6	0.6	—	—	0.25
HS 25	—	—	10.0	20.0	48.4	3.0	—	15.0	1.5	2.0	—	—	0.1
HS 30	—	—	16.0	24.0	51.4	1.0	6.0	—	0.6	0.6	—	—	0.4
HS 31	—	—	10.0	25.0	53.8	1.5	—	8.0	0.6	0.8	—	—	0.4
HS 36	—	—	10.0	18.0	53.1	2.0	—	15.0	1.5	—	—	—	0.4
J 1570*	—	—	28.0	19.0	39.0	2.0	—	7.0⌓	—	—	—	—	—
J 1650	—	—	27.0	19.0	38.0	—	—	12.0	—	—	—	—	0.2
Jessop 832	—	—	12.0	19.0	44.0	17.0	2.0	—	0.8	0.3	—	—	3.5
Jessop 834	—	—	12.0	19.0	42.0	20.0	2.0	—	—	—	—	—	6.5
Jessop 865	—	—	10.5	25.5	53.0	2.0	—	7.5	0.6	0.6	—	—	0.45
Jessop 875	—	—	—	21.0	66.0	—	—	11.0	—	—	—	—	2.45
Jessop 887	—	—	10.0	20.0	50.0	3.0	—	15.0	0.5	1.5	—	—	0.1
Jessop X-40			10.5	25.5	53.0	1.5	—	7.5	0.75	0.75	—	—	0.5
Jessop X-45			10.5	25.5	54.7	2.0	—	7.0	—	—	—	—	0.25
Jessop X-50			20.5	25.5	40.3	4.0	—	12.0	—	—	—	—	0.75
Jessop X-63			10.0	25.0	57.6	1.0	6.0	—	—	—	—	—	0.45
Jetalloy 209	—	—	10.0	20.0	52.0	1.0	—	15.0	—	—	—	2.0	0.02
L-251	—	—	10.0	19.0	56.0	1.0	—	14.0	—	—	—	—	0.4
L-605	—	—	10.0	20.0	51.0	1.6	—	15.0	1.5	0.6	—	—	0.1
M 203	—	—	25.0	20.0	38.0	1.6	—	12.0	0.8	1.0	0.7	2.0	1.67
M 204	—	—	25.0	18.0	42.0	1.6	—	12.0	—	—	—	—	1.27
M 205	—	—	25.0	18.0	40.0	1.6	—	12.0	—	—	2.7	—	1.67
MAR-M 302	—	—	—	21.5	57.0	0.75	—	10.0	0.1	0.2	—	—	10.0
MAR-M 322	—	—	—	21.5	60.0	0.75	—	9.0	0.1	0.1	—	0.75	7.7
MAR-M 509	—	—	10.0	23.0	55.0	—	—	7.0	0.05	0.05	—	0.2	4.6
MAR-M 905	—	—	20.0	20.0	55.0	—	—	—	—	—	—	0.5	7.65
MAR-M 918	—	—	20.0	20.0	52.0	0.4	—	—	0.1	0.1	—	0.5	7.65
Refractaloy 70	—	—	20.0	21.0	46.0	0.5	8.0	4.0	—	—	—	—	0.08
V-36	—	—	20.0	25.0	43.2	2.4	4.0	2.0	0.6	0.5	—	—	2.29
Wl-52			0.5	21.0	62.6	2.0	—	11.0	0.25	0.25	—	—	2.45

* These alloys can be hardened by an aging process

USA		UK	France	Germany		Others
SAE	AMS	BS	AFNOR	Werkst.-Nr	DIN1706	
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	(5534)	—	—	LW2.4989	CoCr20Ni20W	—
—	—	—	—	—	—	—
5537C	5759	—	KC20WN	LW2.4964	CoCr20W15Ni	—
—	—	—	—	—	CoCr19W14NiB	—
—	—	—	—	—	CoCr20W13	—
—	5772	—	KC22WN	—	CoCr22W14Ni	—
—	5373	—	—	—	—	R30006
—	5385	3531	—	—	CoCr29Mo	R30021
	5759	—	KC20WN	LW2.4964	CoCr20W15Ni	—
5380	—	—	—	—	CoCr25NiW	R30030
5382	—	3146	—	LW2.4670	CoCr25NiW	R30031
—	—	—	—	—	CoCr19W14NiB	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	CoCr19Fe16NiMoVNb	—
—	—	—	—	—	CoCr19Fe20NiMoVNb	—
—	—	—	—	—	CoCr25Niw	—
—	—	—	—	—	CoCr21W11Nb	—
—	—	—	—	—	CoCr20W15Ni	—
—	5382	3156-2	—	LW2.4670	CoCr25NiW	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	5759	—	—	2.4964	CoCr20W15Ni	R30605
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	—	CoCrW10TaZrB	—
—	—	—	—	—	CoCr22W9TaZrNb	—
—	—	3146-3	—	—	CoCr24Ni10WTaZrB	—
—	—	—	—	—	—	—
—	—	—	—	—	CoCr20Ni20Ta	—
—	—	—	—	—	—	—
—	—	—	—	—	CoCr25NiMoWNb	—
—	—	—	—	—	CoCr12MoW	—

Swiss Machine List

Citizen/Cincom

Machine Model	Gang Station					Turret Station						Sleeve Station		Hand	Max cutting dia
	Inch		Metric		Number of tools	Inch		Metric		Number of tools		Inch	Metric		
	h×b	L	h×b	L		h×b	L	h×b	L	Turret	Station	"	mm		mm
A12	□3/8	4.75	□10	100	5			—	—	—	—	ϕ3/4	ϕ20	R	ϕ12
A16	□3/8	4.75	□10	100	5			—	—	—	—	ϕ3/4	ϕ20	R	ϕ16
A20	□1/2	4	□12(□13)	120	5-7			—	—	—	—	ϕ1		R	ϕ20
A25	□1/2	4	□12(□13)	120	5/6			—	—	—	—	ϕ1		R	ϕ25
A32	□5/8	4.75	□16	150	6			—	—	—	—	ϕ1		R	ϕ32
B12, B12E	□3/8	4.75	□10	100	5			—	—	—	—	ϕ3/4	ϕ20	R	ϕ12
B16E	□3/8	4.75	□10	10	5			—	—	—	—	ϕ3/4	ϕ20	R	ϕ16
B20	□1/2	4.75	□12(□13)	120	6			—	—	—	—	ϕ3/4	ϕ20	R	ϕ20
BL12	□3/8	4.75	□10	60-120	5			—	—	—	—	ϕ3/4	ϕ20	R	ϕ12
BL20			□12(□13)	120	7			—	—	—	—	ϕ3/4	ϕ20	R	ϕ20
BL25			□12(□13)	120	7			—	—	—	—	ϕ3/4	ϕ20	R	ϕ25
C12	□3/8	4.75	□10	120	6			—	—	—	—	ϕ3/4		R	ϕ12
C16	□3/8	4.75	□10	120	6			—	—	—	—	ϕ3/4		R	ϕ16
C32	□5/8	4.75	□16	130	5			—	—	—	—	ϕ1		R	ϕ32
E32			—	—	—			□16(19×13)	90	2	10/Turret	ϕ1		R	ϕ32
F10			—	—	—			□10	60	1	10	ϕ3/4		R	ϕ10
F12			—	—	—			□10	60	1	10	ϕ3/4		R	ϕ12
F16			—	—	—			□10	60	1	10	ϕ3/4		R	ϕ16
F20			—	—	—			□16(19×13)	90	1	10	ϕ1		R	ϕ20
F25			—	—	—			□16(19×13)	90	1	10	ϕ1		R	ϕ25
FL25			—	—	—			□16	90	1	12		ϕ16	R	ϕ25
FL42			—	—	—			□16	90	1	12		ϕ16	R	ϕ42
G10			—	—	—			□10	60	1	8	—	—	R	ϕ10
G16			—	—	—			□10	60	1	8	—	—	R	ϕ16
G32			—	—	—			□16(19×13)	90	1	10	—	—	R	ϕ32
K12, K12E	□3/8		□10	100	7			—	—	—	—		ϕ20	R	ϕ12
K16, K16E	□3/8		□12	100	6			—	—	—	—		ϕ20	R	ϕ16
L10			□8	100-130	5			—	—	—	—	ϕ5/8		R	ϕ10
L12	□3/8	4	□10	100	6			—	—	—	—	ϕ3/4	ϕ20	R	ϕ12
L16, L16E			□12(□10)	130	7			—	—	—	—	ϕ3/4		R	ϕ16
L20, L20E	□1/2	4.75	□12	130	7			—	—	—	—	ϕ3/4		R	ϕ20
L25	□5/8	4.75	□16	130	5			—	—	—	—	ϕ1		R	ϕ25
L32	□5/8	4.75	□16	130	5			—	—	—	—	ϕ1		R	ϕ32
$M_1$12, $M_3$12	□3/8		□10	120	5			□10	60	1	10	ϕ3/4		R	ϕ12
$M_1$16, $M_3$16, $M_4$16	□3/8		□10	120	5			□10	60	1	10	ϕ3/4		R	ϕ16
$M_1$20, $M_3$20	□5/8	4.75	□12	130	5	□3/4		□16	90	1	10	ϕ1		R	ϕ20
$M_1$32, $M_3$32, $M_4$32	□5/8	4.75	□16	130	5	□3/4		□16	90	1	10	ϕ1		R	ϕ32
M20	□1/2	4	□13(□12)	150	5	□1/2		□10	60	1	10	ϕ3/4		R	ϕ20
MSL12			□10	120	—			—	—	—	—	—	—	R	ϕ12
R04			□8	120	7			—	—	—	—	ϕ5/8		R	ϕ4
R07			□8	120	5			—	—	—	—	ϕ5/8		R	ϕ7
RL02			□16	60-150	Max 6			—	—	—	—		ϕ16/ϕ20	L	ϕ20
RL21			□10(□12)	90	—			—	—	—	—	ϕ3/4		R	ϕ20

● STAR

Machine Model	Gang Station					Turret Station						Sleeve Station		Hand	DS-Sleeve item number	Max cutting dia
	Inch		Metric		Number of tools	Inch		Metric		Number of tools		Inch	Metric			
	h×b	L	h×b	L		h×b	L	h×b	L	Turret	Station	"	mm			mm
ECAS-12			□10	95-150	6								ϕ22	R	SS-DSU-L23 SS-DSU-SK	ϕ13
ECAS-20			□12(16)	80-144	6								ϕ22	R	SS-DSU-L23 SS-DSU-SK	ϕ20
ECAS-20T								□12(16)	80	3	8/Turret		ϕ22	R	—	ϕ20
ECAS-32T			□16	80-120	4			□16	60-78	2	10/Turret		ϕ22/32	R	SS-DSU-SK	ϕ32
JNC-10								□8	65	1	6		-	L	—	ϕ10
JNC-16								□10	80	1	6		-	L	—	ϕ16
JNC-25/32								□16	78-120	1	10		ϕ22	R	—	ϕ25/ϕ32
KJR-16B/25B								□16	78	1	12/16		ϕ22	R	—	ϕ16/ϕ25
KNC-16/20								□16	68	1	16		ϕ22	R	—	ϕ16/ϕ20
KNC-25II/32II								□16	78	1	20		ϕ22/32	R	—	ϕ25/ϕ32
RNC-10/16			□10	80-120	5								ϕ22	R	—	ϕ10/ϕ16
RNC-16II/16BII			□10	80-120	5								ϕ22	R	—	ϕ16
SA-16R			□10	95-120	6								ϕ22	R	—	ϕ16
SB-12II/12R/16II			□12(10)	95-130	6(7)								ϕ22	R	SS-DSU-L23 SS-DSU-SK	ϕ12/ϕ13/ϕ16
SB-16/16R			□12(10)	95-130	6(7)								ϕ22	R	SS-DSU-L23 SS-DSU-SK	ϕ16
SB-20/20R			□12(10)	95-130	6(7)								ϕ22	R	SS-DSU-L23 SS-DSU-SK	ϕ20
SC-20			□12	95-130	6								ϕ22	R	—	ϕ20
SE-12/12B, 16/16B			□10	95-120	5								ϕ22	R	—	ϕ13/ϕ16
SF-25								□16	73-98	1	10		ϕ22/32	R	—	ϕ25
SG-42								□16(20)	84-88	1	10		ϕ22/32	R	—	ϕ42
SH-12/16			□10	95-120	5								ϕ22	R	—	ϕ13/ϕ16
SH-7			□8	95-120	5								ϕ22	R	—	ϕ7
SI-12/12C			□10	80-130	6								ϕ22	R	—	ϕ13
SR-10J			□8	67-110	6								ϕ22	R	SS-DSU-L23 SS-DSU-SK	ϕ10
SR-16/20			□12	95-120	5								ϕ22	R	—	ϕ16/ϕ20
SR-20J			□12	100-135	6								ϕ22	R	SS-DSU-L23 SS-DSU-SK	ϕ20
SR-20R/20RII/20RIII			□12	100-135	6								ϕ22	R	SS-DSU-L23 SS-DSU-SK	ϕ20
SR-20RIV			□12	100-130	7								ϕ22	R	SS-DSU-B8L23	ϕ20
SR-25J/32J			□16	95-155	6								ϕ22/32	R	SS-DSU-L23 SS-DSU-SK	ϕ25/ϕ32
SR-32			□16	100-135	6								ϕ22	R	—	ϕ32
SST-16			□12	95-115	5								ϕ22	R	—	ϕ16
ST-20								□12(16)	70-78	3	8/Turret		ϕ22	R	—	ϕ20
ST-38								□16	85	3	10/Turret		ϕ22/32	R	—	ϕ38
SV-12/20			□12	95-135	4			□12	70-78	1	8		ϕ22	R	—	ϕ13/ϕ20
			□16	95-135	5			□16	65-70	1	8			R	—	
SV-32			□16	95-135	4			□16	80-88	1	10		ϕ22/32	R	—	ϕ32
SV-32J/32JII			□16	95-135	4			□16	65-70	1	8		ϕ22/32	R	—	ϕ32
SV-38R			□16+□20 (Cut off)	95-135	5			□16(20)	84-88	1	10		ϕ22/32	R	SS-DSU-B8L23	ϕ38
SW-12RII			□10	80-115	6								ϕ16	R	SS-DSU-B8L23	ϕ13
SW-20			□12(16)	80-144	6								ϕ22	R	—	ϕ20
SW-7			□8	80-120	4								—	R	—	ϕ7

TSUGAMI

Machine Model	Gang Station					Turret Station						Sleeve Station		Hand	Max cutting dia
	Inch		Metric		Number of tools	Inch		Metric		Number of tools		Inch	Metric		
	h×b	L	h×b	L		h×b	L	h x b	L	Turret	Station	"	mm		mm
P013H/P014H			□8	100-120	6			—	—	—	—		ϕ16	R	ϕ1
P033H/P034H			□8	100-120	6			—	—	—	—		ϕ16	R	ϕ3
B007-III	—	—	□7(□8/□10)	85	8			—	—	—	—		ϕ25	R	ϕ7
B073-II	—	—	□8	85	9								ϕ20	R	ϕ7
B074/B07-V	—	—	□8	85	9			—	—	—	—		ϕ20	R	ϕ7
B0123/B0124/B0125/B0126	—	—	□12	85	9			—	—	—	—		ϕ20	R	ϕ12
B012F/B012-V/BE12-V	—	—	□12	85	9			—	—	—	—		ϕ20	R	ϕ12
B016MF	—	—	□12	85	9			—	—	—	—		ϕ20	R	ϕ16
B018-III	—	—	□12	85	9			—	—	—	—		ϕ20	R	ϕ18
B0203/B0204/B0205/B025-II/B0205-III/B0206-II	—	—	□12	85	9			—	—	—	—		ϕ20	R	ϕ20
B020F/B020-V/BE20-V	—	—	□12	85	9			—	—	—	—		ϕ20	R	ϕ20
B026-V	—	—	□12(□16)	85	6			—	—	—	—		ϕ25	R	ϕ26
B0265-II/B0266-II	—	—	□16	100	12								ϕ25	R	ϕ26
B0325-II/B0326-II	—	—	□16	100	12								ϕ25	R	ϕ32
B0385/B0385L	—	—	□16	125	8			—	—	—	—		ϕ32	R	ϕ38
B038T	—	—	□16	125	3			□20	125	1	8		ϕ25/ϕ32	R	ϕ38
BA20-III			□12	85	6			—	—	—	—		ϕ25	R	ϕ20
BA26-III			□12(□16)	85	6			—	—	—	—		ϕ25	R	ϕ26
BC18	□1/2		□12	85	10			—	—	—	—		ϕ25	R	ϕ18
BC25	□1/2		□12	85	10			—	—	—	—		ϕ10/ϕ25	R	ϕ25
BE18	□1/2		□12	85	9			—	—	—	—		ϕ20	R	ϕ18
BH20/BH20Z	□1/2		□12	85	4			□12	85	1	12		ϕ25/ϕ32	R	ϕ20
BH38	□5/8		□16	125	7			□20	125	1	12		ϕ25/ϕ32	R	ϕ38
BM07			□8	85	9			—	—	—	—		ϕ20	R	ϕ7
BM163/BM164/BM165	□1/2		□12	85	9			—	—	—	—		ϕ20	R	ϕ16
BM20-V	□1/2		□12	85	9			—	—	—	—		ϕ20	R	ϕ20
BN12-III			□12	85	7			—	—	—	—		ϕ20	R	ϕ12
BN20-III			□12(□16)	85	7			—	—	—	—		ϕ20	R	ϕ20
BS12-V	□1/2		□12	85	8(12)			—	—	—	—		ϕ20/ϕ25	R	ϕ12
BS18-III	□1/2		□12	85	7(10)			—	—	—	—		ϕ14/ϕ25	R	ϕ18
BS20-V	□1/2		□12	85	8(12)			—	—	—	—		ϕ20/ϕ25	R	ϕ20
BS26(ABC)-V	□5/8		□16	100	7(10)			—	—	—	—		ϕ16/ϕ25	R	ϕ26
BS32C-V	□5/8		□16	100	6			—	—	—	—		ϕ16/ϕ25	R	ϕ32
BU12			□12	85	4			□12	80	1	8		ϕ20	R	ϕ51
BU20			□12	85	4			□12	80	1	8		ϕ20	R	ϕ20
BU26			□16	100	7			□20	80	1	8		ϕ20/ϕ32	R	ϕ26
BU38	□1/2		□16	100	7			□20	80	1	8		ϕ20/ϕ32	R	ϕ38
BW07-III	□1/2		□12	85	7			—	—	—	—		ϕ20	R	ϕ7
BW12-III	□1/2		□12	85	7			—	—	—	—		ϕ20	R	ϕ12
BW20-III	□1/2		□12(□16)	85	7			—	—	—	—		ϕ20	R	ϕ20
C004-III			□13	60-100	6-8			—	—	—	—		-ϕ10	R/L	ϕ120
C150	—	—	□10	60-100	4-6			—	—	—	—		-ϕ8	R/L	ϕ80
C180	—	—	□12	60-100	4-6			—	—	—	—		-ϕ10	R/L	ϕ120
C220	—	—	□13	60-100	6-8			—	—	—	—		-ϕ10	R/L	ϕ120
C300-III	—	—	□16	100-130	6-10			—	—	—	—		-ϕ14	R/L	ϕ170
CH154			□12	60-100	-16			—	—	—	—		-ϕ10	R/L	ϕ15
M34J			—	—	—			□20	125	1	12		ϕ20/ϕ32	R	ϕ34
M42J/M42D/M42SD			—	—	—			□20	125	1	12		ϕ25/ϕ32	R	ϕ42
M50SY-III			—	—	—			□20	100	1	12		ϕ32	R	ϕ51
M50J			—	—	—			□20	100	1	12		ϕ20/ϕ32	R	ϕ51
MB25			—	—	—			□20	80	2	8/Turret		ϕ20/ϕ32	R	ϕ25
MB35-III			—	—	—			□20	80	2	8/Turret		ϕ20/ϕ32	R	ϕ35
MB38-III			—	—	—			□20	80	2	8/Turret		ϕ20/ϕ32	R*	ϕ38
MB50-III			—	—	—			□20	80	2	8/Turret		ϕ20/ϕ32	R	ϕ50
MU26			—	—	—			□20	80	2	8/Turret		ϕ20/ϕ32	R	ϕ26
MU38			—	—	—			□20	80	2	8/Turret		ϕ20/ϕ32	R	ϕ38
NU50-III			—	—	—			□20	100	1	12		ϕ20/ϕ32	R	ϕ51
B020M-II/SS20M/SS20M-5AX			□10*	46	—			BT15 spindle			24		ϕ20	R	ϕ20
S205/S206	□1/2		□12(□16)	100	8			—	—	—	—		ϕ20/ϕ22	R	ϕ20
SS20	□1/2		□16	100	8			—	—	—	—		ϕ20/ϕ22	R	ϕ20
SS207/SS207-5AX	□1/2		□12(□16)	100	8			—	—	—	—		ϕ20/ϕ22	R	ϕ20
SS26	□5/8		□16	100	7			—	—	—	—		ϕ20/ϕ22	R	ϕ26
SS267/SS267-5AX	□5/8		□16	100	8								ϕ25	R	ϕ26
SS32/SS32L	□5/8		□16	100	7			—	—	—	—		ϕ20/ϕ22	R	ϕ32
SS327/SS327-5AX	□5/8		□16	100	8								ϕ25	R	ϕ32
TMB2			—	—	—			□20	125	1	16		ϕ32	R	ϕ51
TMU1			—	—	—			□20	125	1	16		ϕ32	R	ϕ38
TMA8-IV/TMA8J			□20*	100				KM40 spindle			30			R	ϕ220
M06J								□25	150	1	8		ϕ32/ϕ40	R	ϕ260
M06SY								□25	150	1	12		ϕ32/ϕ40	R	ϕ260
M06JC								□20	125	1	8		ϕ32/ϕ40	R	ϕ260
M08J								□25	150	1	8		ϕ32/ϕ40	R	ϕ280
M08SY/M08D/M08SD								□25	150	1	12		ϕ32/ϕ40	R	ϕ280

TORNOS

Machine Model						Sleeve Station		Hand	Max cutting dia
	Metric				Number of tools	Inch	Metric		
	h×b	L	h×b	L		"	mm		mm
EvoDECO 10/10	□5/16		□8		8		ϕ20/ϕ25	R	ϕ10
EvoDECO 10/8	□5/16		□8		8		ϕ20/ϕ25	R	ϕ10
EvoDECO 16/10	□1/2		□12		10		ϕ20/ϕ25	R	ϕ16
EvoDECO 16/8	□1/2		□12		10		ϕ20/ϕ25	R	ϕ16
EvoDECO 20	□5/8		□16		10		ϕ20/ϕ25	R	ϕ25.4
EvoDECO 32	□5/8		□16		10		ϕ20/ϕ25	R	ϕ32
Swiss ST 26	□1/2		□12		17		ϕ20/ϕ22/ϕ25	R	ϕ25.4
Sigma 20/6	□5/8		□16		14	ϕ1	ϕ20	R	ϕ25.4
Sigma 32/6	□5/8		□16		14	ϕ1.26	ϕ32	R	ϕ32
SwissNano	□5/16		□8		7		ϕ12/ϕ16	R	ϕ4
Delta 12/4	□1/2*		□12	85	5		ϕ20	R	ϕ12
Delta 12/5	□1/2*		□12	85	5		ϕ20	R	ϕ12
Delta 20/4	□1/2*		□12	85	5		ϕ20	R	ϕ20
Delta 20/5	□1/2*		□12	85	5		ϕ20	R	ϕ20
Delta 38/5B			□20	125	8		ϕ25/ϕ32	R	ϕ38
Delta 38/5BL			□20	125	8		ϕ25/ϕ32	R	ϕ38
Gamma 20/5			□16	100	8		ϕ20/ϕ22	R	ϕ20
Gamma 20/6			□16	100	8		ϕ20/ϕ22	R	ϕ20
CT20	□1/2		□12	100	5			R	ϕ20

*Except cut off must be 12mm

NOMURA

Machine Model	Gang Station					Sleeve Station		Hand	Max cutting dia
	Inch		Metric		Number of tools	Inch	Metric		
	h×b	L	h×b	L		"	mm		mm
NS-P1053A			□9.5	130	5	—	—	R	ϕ10
NN-10C			□10	130	6		ϕ17	R	ϕ10
NN-10E			□10	130	6		ϕ16	R	ϕ10
NN-10C2			□10	130	6		ϕ17	R	ϕ10
NN-10CS			□10	130	6		ϕ17	R	ϕ10
NN-10CS (No live tools)			□10	130	5		ϕ17	R	ϕ10
NN-10SII			□10	130	5		ϕ23	R	ϕ10
NN-10T			□10	130	7		ϕ23	R	ϕ10
NN-10SB5			□10	130	5		ϕ23	R	ϕ16
NN-16SB5			□10	130	5		ϕ23	R	ϕ16
NN-16SB6 Type1	□1/2	5.12	□12.7	130	5		ϕ17(ϕ22)	R	ϕ16
NN-16SB6 Type2	□1/2	5.12	□12.7	130	5		ϕ17(ϕ22)	R	ϕ16
NN-16SB6 Type2.5	□1/2	5.12	□12.7	130	5		ϕ17(ϕ22)	R	ϕ16
NN-16SB6 Type3	□1/2	5.12	□12.7	130	5		ϕ17(ϕ22)	R	ϕ16
NN-16HIII			□12	130	6		ϕ23	R	ϕ16
NN-20HIII			□12	130	6		ϕ23	R	ϕ20
NN-16UIII			□12	130	5		ϕ23	R	ϕ16
NN-20UIII			□12	130	5		ϕ23	R	ϕ20
NN-20CS	□1/2	5.12	□12.7	130	5(6)		ϕ22	R	ϕ20(ϕ25)
NN-20U5	□1/2	5.12	□12.7	130	5(6)		ϕ22	R	ϕ20(ϕ25)
NN-16UB5			□12	130	5		ϕ23	R	ϕ16
NN-20UB5			□12	130	5		ϕ23	R	ϕ20
NN-20UB7			□12	130	6		ϕ23	R	ϕ20
NN-20UB8	□1/2	5.12	□12.7	130	5(6)		ϕ22	R	ϕ20(ϕ25)
NN-20YB			□12	130	8		ϕ23	R	ϕ20
NN-25YB/32YB			□16	130	8		ϕ23/ϕ32	R	ϕ25
NN-32YB2			□16	130	5		ϕ22/ϕ32	R	ϕ32
NN-16J	□1/2	5.12	□12.7	130	6		ϕ23	R	ϕ16
NN-20J	□1/2	5.12	□12.7	130	6		ϕ23	R	ϕ20
NN-20J2	□1/2	5.12	□12.7	130	6		ϕ22	R	ϕ20

Hardness Comparison Chart

Vickers Hardness (HV)	Rockwell hardness			Brinell hardness, 10 mm balls, 3000 kgf load	Shore hardness	Tensile strength Kgf/mm² [N/m²] Approximate value MPa (1)
	Scale A Load: 60 kgf brale indenter (HRA)	Scale C Load: 150 kgf brale indenter (HRC)	Scale B Load: 100 kgf Diameter 1/16" indenter (HRB)	Tungsten carbide ball		
2200	(95.1)	–	–	–	–	
2100	(94.6)	–	–	–	–	
2000	94.2	–	–	–	–	
1900	93.7	(80.5)	–	–	–	
1800	93.2	(79.2)	–	–	–	
1700	92.7	(77.9)	–	–	–	
1600	91.8	(76.6)	–	–	–	
1500	91.0	(75.3)	–	–	–	
1450	90.4	(74.6)	–	–	–	
1400	90.0	74.0	–	–	–	
1350	89.6	73.4	–	–	–	
1300	89.1	72.7	–	–	–	
1250	88.6	72.1	–	–	–	
1200	88.1	71.5	–	–	–	
1150	87.6	70.9	–	–	–	
1100	87.1	70.3	–	–	–	
1050	86.6	69.6	–	–	–	
1000	86.2	68.9	–	–	–	
940	85.6	68.0	–	–	97	
920	85.3	67.5	–	–	96	
900	85.0	67.0	–	–	95	
880	84.7	66.4	–	(767)	93	
860	84.4	65.9	–	(757)	92	
840	84.1	65.3	–	(745)	91	
820	83.8	64.7	–	(733)	90	
800	83.4	64.0	–	(722)	88	
780	83.0	63.3	–	(710)	87	
760	82.6	62.5	–	(698)	86	
740	82.2	61.8	–	(684)	84	
720	81.8	61.0	–	(670)	83	
700	81.3	60.1	–	(656)	81	
690	81.1	59.7	–	(647)	–	
680	80.8	59.2	–	(638)	80	
670	80.6	58.8	–	630	–	
660	80.3	58.3	–	620	79	
650	80.0	57.8	–	611	–	
640	79.8	57.3	–	601	77	
630	79.5	56.8	–	591	–	
620	79.2	56.3	–	582	75	
610	78.9	55.7	–	573	–	
600	78.6	55.2	–	564	74	
590	78.4	54.7	–	554	–	
580	78.0	54.1	–	545	72	
570	77.8	53.6	–	535	–	
560	77.4	53.0	–	525	71	
550	77.0	52.3	–	517	–	
540	76.7	51.7	–	507	69	
530	76.4	51.1	–	497	–	
520	76.1	50.5	–	488	67	
510	75.7	49.8	–	479	–	
500	75.3	49.1	–	471	66	

Vickers Hardness (HV)	Rockwell hardness			Brinell hardness, 10 mm balls, 3000 kgf load	Shore hardness	Tensile strength Kgf/mm² [N/m²] Approximate value MPa (1)
	Scale A Load: 60 kgf brale indenter (HRA)	Scale C Load: 150 kgf brale indenter (HRC)	Scale B Load: 100 kgf Diameter 1/16" indenter (HRB)	Tungsten carbide ball		
490	74.9	48.4	–	460	–	
480	74.5	47.7	–	452	64	
470	74.1	46.9	–	442	–	
460	73.6	46.1	–	433	62	
450	73.3	45.3	–	425	–	
440	72.8	44.5	–	415	59	
430	72.3	43.6	–	405	–	
420	71.8	42.7	–	397	57	
410	71.4	41.8	–	388	–	
400	70.8	40.8	–	379	55	
390	70.3	39.8	–	369	–	
380	69.8	38.8	(110.0)	360	52	
370	69.2	37.7	–	350	–	
360	68.7	36.6	(109.0)	341	50	
350	68.1	35.5	–	331	–	
340	67.6	34.4	(108.0)	322	47	
330	67.0	33.3	–	313	–	
320	66.4	32.2	(107.0)	303	45	
310	65.8	31.0	–	294	–	
300	65.2	29.8	(105.5)	284	42	
295	64.8	29.2	–	280	–	
290	64.5	28.5	104.5	275	41	
285	64.2	27.8	–	270	–	
280	63.8	27.0	103.5	265	40	
275	63.5	26.4	–	261	–	
270	63.1	25.6	102.0	256	38	
265	62.7	24.8	–	252	–	
260	62.4	24.0	101.0	247	37	825
255	62.0	23.1	–	243	–	805
250	61.6	22.2	99.5	238	36	795
245	61.2	21.3	–	233	–	780
240	60.7	20.3	98.1	228	34	765
230	–	18.0	96.7	219	33	730
220	–	15.7	95.0	209	32	695
210	–	13.4	93.4	200	30	670
200	–	(11.0)	91.5	190	29	635
190	–	(8.5)	89.5	181	28	605
180		(6.0)	87.1	171	26	580
170		(3.0)	85.0	162	25	545
160		(0.0)	81.7	152	24	515
150			78.7	143	22	490
140			75.0	133	21	455
130			71.2	124	20	425
120			66.7	114		390
110			52.3	105		–
100			56.2	95		–
95			52.0	90		–
90			48.0	86		–
85			41.0	81		–

(1) 1 MPa = 1 N/mm²

(2)This table is an excerpt from the JIS Iron and Steel Handbook

(3)Values in parentheses in the above table are not usually used

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GTPA	Insert	K126
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S40T-WCLN	Toolholder	G5
S40T-WDUN	Toolholder	G5
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S40T-WWLN	Toolholder	G6
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Metalcutting Safety

Applicable Products	Possible Risks	Safety Measures
General Cutting Tools	◎Contact with a sharp cutting edge with bare hands may result in injury.	＊Use protective gear such as protective gloves when taking the tool out of packaging and installing into the machine.
	◎Misuse or using under inappropriate conditions may cause the cutting tool to break and/or shatter into pieces, resulting in personal injury.	＊Use protective equipment, machine guarding and/or protective glasses. ＊Use within the range of recommended conditions. Please refer to the instruction manual and catalog.
	◎Sudden increase in cutting resistance due to sudden impact load or excessive wear may cause the cutting tool to break and/or shatter into pieces, resulting in personal injury.	＊Use protective gear such as protective gloves when taking the tool out of packaging and installing into the machine.
	◎High-temperature chips may be produced and long chips may be ejected, resulting in injury and/or burns.	＊Use protective equipment, machine guarding and/or protective glasses. ＊Before removing chips, always stop the machine. Wear protective gloves and use proper equipment for chip removal.
	◎The tool and material/work being cut can become very hot. Touching them immediately after use may cause burns.	＊Use protective gear such as protective gloves.
	◎Sparks, heat generation due to breakage and/or chips during cutting may cause fire.	＊Do not use the machine and tools in locations where there are risks of ignition or explosion. ＊When using water-insoluble cutting oil, fire prevention measures must be implemented.
	◎Out of balance machine set ups when used at a high-speed, may cause insert breakage due to excess vibration or chatter, resulting in injury.	＊Use protective equipment, machine guarding and/or protective glasses. ＊Perform a trial-run beforehand to make sure the setup is stable, free of chatter, vibration and abnormal noise.
	◎Touching burrs and flashes on machined work may result in personal injury.	＊Use adequate hand protection.
Throw-Away Type Tools (With indexable insert)	◎Inappropriately clamped inserts and/or components may become detached from the machine during cutting, resulting in injury.	＊Before installing the insert, clean the seating surface and clamping components so that they are free of debris. ＊Use the wrench supplied to install the insert and check that the insert and components are securely clamped. Do not use any inserts or components other than the items specified.
	◎Excessively tightening with a device such as a pipe extension may cause the insert and/or components to break or detach due to over clamping.	＊Do not use tightening devices such as pipe extensions to obtain further torque. Always use the supplied wrench.
	◎At high speeds, inserts and/or components may lose clamping pressure due to the loosening effect of centrifugal force. This is very dangerous. Always ensure secure clamping systems and check regularly.	＊Use within the range of recommended conditions. Please refer to the instruction manual and catalog.
Cutters and Rotational Tools	◎As cutters have sharp cutting edges, contact with bare hands may result in injury.	＊Use protective equipment such as protective gloves.
	◎Imbalance or excessive rotation may cause the tool to break due to vibration or chatter, resulting in potential injury.	＊Use at a rotational speed within the recommended conditions. ＊To prevent excessive rotation and vibration due to worn bearings, regularly check the machine rotor/rotating parts for the accuracy and balance and adjust as required.
Brazed Inserts / Tools	◎Inserts may break or become, detached due to incorrect brazing.	＊Use protective equipment such as machine guards and/or protective glasses. Additional guarding around the chuck and drill may be advisable.
Others	◎It is not advisable to use brazed inserts repeatedly as the braze may progressively weaken.	＊Do not use brazed inserts repeatedly as the strength of such inserts is lowered.
	◎Use only for the original and intended purpose. Using outside recommended parameters is very dangerous, causing damages to machines and/or tools.	＊Always use and operate as specified, observing the required safety rules and conditions.

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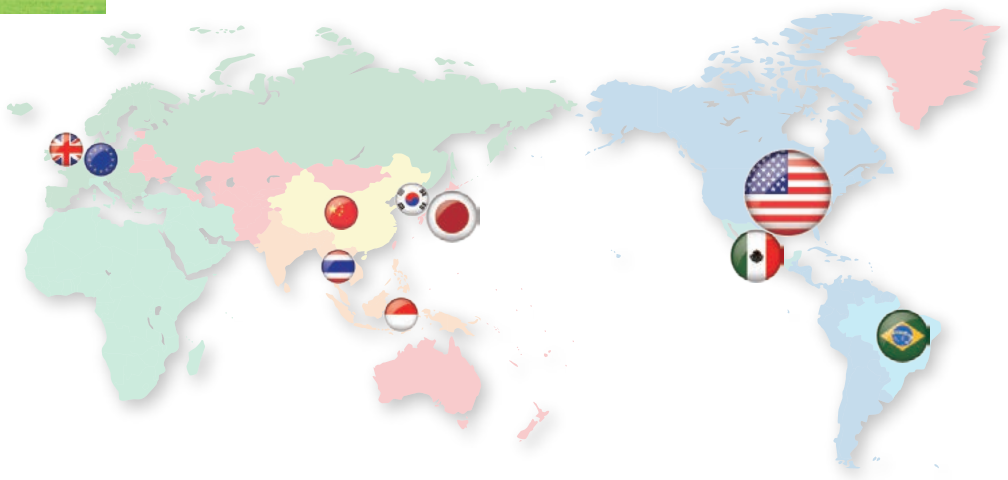

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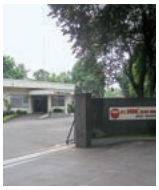

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