

EXTERNAL TURNING TOOLHOLDERS



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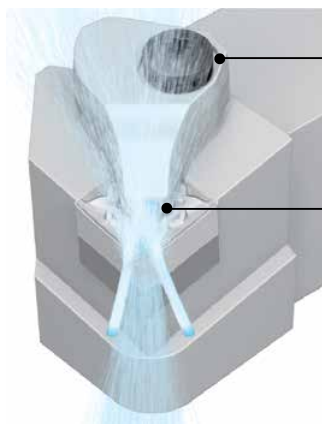
Double-Clamp-JCT

Coolant-Through Turning Holders

Discharges coolant in three directions to improve chip control and lengthen tool life for a wide variety of workpieces including steel, hardened material and difficult-to-cut material

1 Superior Chip Control Performance

Special coolant-through structure designed by careful simulation and analysis technology



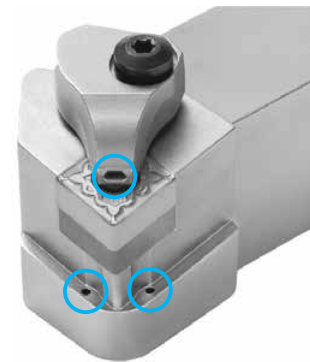
Double-Clamp

Firm insert clamp and easy to use in single operations
High-density coolant supply close to the cutting edge

Unique Nozzle Shape

Provides coolant to a wide area of the insert surface

○ : Coolant Hole



Discharges coolant in three directions
and the cutting edge stays cool

2 Advantages of Internal Coolant

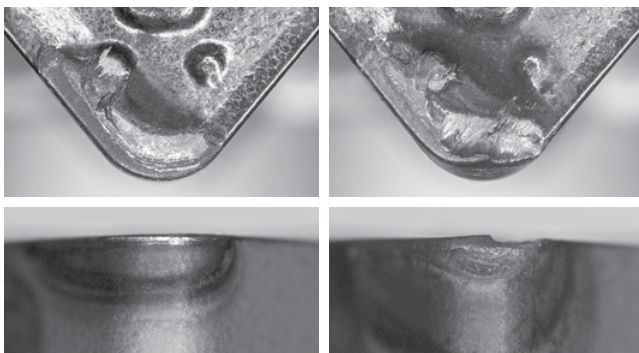
Discharges Coolant towards the Cutting Edge

Internal Coolant Provides Longer Tool Life and Excellent Chip Control

Extended Tool Life

Wear Resistance Comparison (Internal Evaluation)

Internal Coolant (1,015 psi) External Coolant (58 psi)



Cutting Conditions: $V_c = 820$ sfm, $f = 0.079$ ipr, D.O.C. = $0.079''$, Wet
CNMG432 Insert Workpiece: 4137
External Turning After Machining 42.2 min

Improved Chip Control

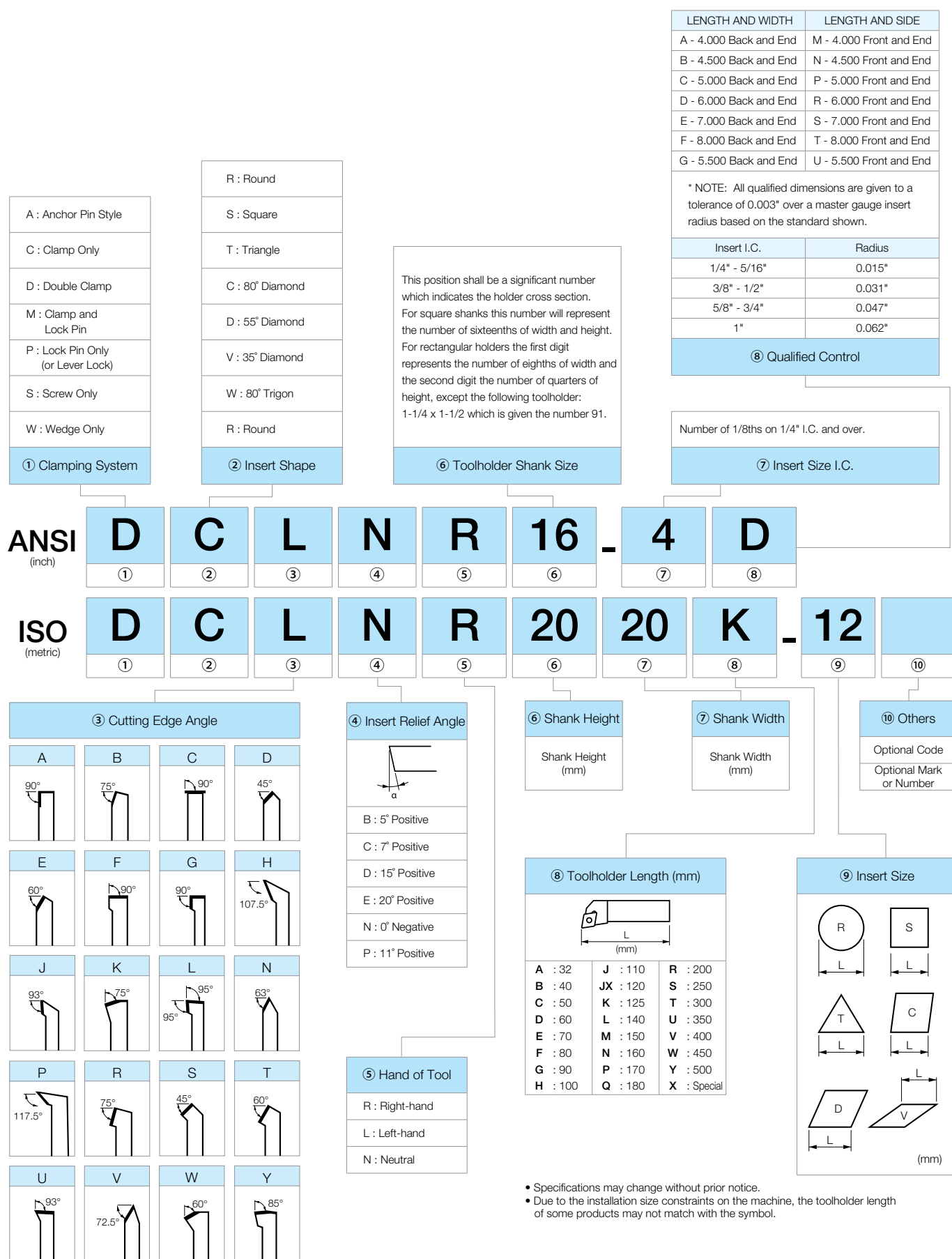
Chip Control Comparison (Internal Evaluation)

Internal Coolant (1,015 psi) External Coolant (58 psi)



Cutting Conditions: $V_c = 660$ sfm, $f = 0.002$ ipr, D.O.C. = $0.020''$, Wet
DNMG432 Insert Workpiece: 4131 External Turning

EXTERNAL TOOLHOLDER IDENTIFICATION SYSTEM



General Purpose Turning Holders

Applicable Insert Shape	CN..	WN..	TN..	DN..	RC..	RN..	VN..
Application	External / Facing			External / Facing / Copying			External / Facing / Copying / Undercutting
Cutting Edge Angle	95°		105°	107.5°	Special		117.5°
Lever Lock (Pin Lock)							
Ref. Page	D9	D27		D13	D25	D25	D24
Wedge Lock							
Ref. Page		D27	D18				
Double Clamp							
Ref. Page	D8	D26		D12			D20, D21
Multi-Lock							
Ref. Page	D8	D26					

Applicable Insert Shape	VN..	DN..	SN..	TN..	SN..	SN..	TN..	SN..	TN..
Application	External / Copying			External / Chamfering		External / Facing / Chamfering	External		Facing
Cutting Edge Angle	72.5°	95°	93°	45°	60°	45°	75°	91°	15°
Lever Lock (Pin Lock)									
Ref. Page	D24	D24	D13	D15		D15	D15	D17	D15
Wedge Lock									
Ref. Page			D18	D18					
Double Clamp									
Ref. Page	D20, D21	D20, D21	D12			D14	D16		
Multi-Lock									
Ref. Page	D22	D22	D13			D14	D16		

Toolholders for Ceramic Tools

Application	External / Facing			External / Copying		External / Chamfering	External / Facing / Chamfering
Cutting Edge Angle	95°	97.5°	Special	93°	Special	45°	45°
Top Clamp							
Ref. Page	D32	D33	D37	D33	D37	D35	D35

Application	External			Facing		
Cutting Edge Angle	75°	85°	93°	5°	15°	-3°
Top Clamp						
Ref. Page	D35	D35	D36	D35	D35	D36

Toolholders for Solid CBN Tools

Application	External / Facing	External / Copying	External / Chamfering	External / Facing / Chamfering	External		
Cutting Edge Angle	95°	Special	Special	45°	45°	75°	93°
Top Clamp							
Ref. Page	D38	D39	D39	D41	D41	D38	D42

Application	Facing
Cutting Edge Angle	15°
Top Clamp	
Ref. Page	D40

Toolholders for Bearing Machining

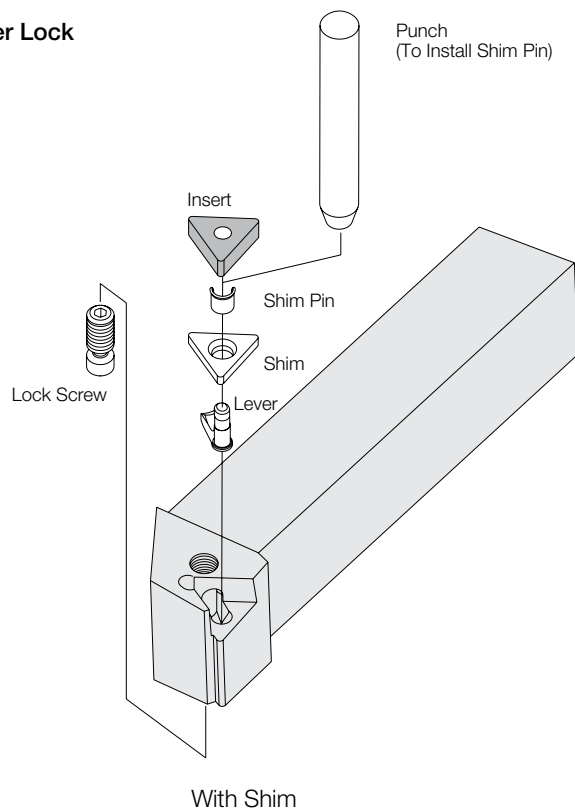
Application	External
Cutting Edge Angle	Special
Lever Lock	
Ref. Page	D43

Application	Round Chamfering
Cutting Edge Angle	Special
Top Clamp	
Ref. Page	D44

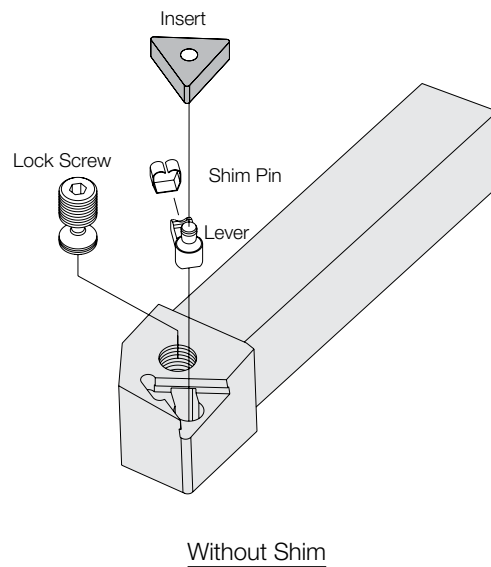
Clamping System

Series	Design		Features	Series	Design		Features
Top Clamp (C)			<ul style="list-style-type: none"> • Rigid Clamping • Negative Insert : Medium to Heavy Machining (Mainly for Ceramic Insert) • Positive Insert : Low Cutting Force 	Multi-Lock (M)			<ul style="list-style-type: none"> • Combination of Top Clamp and Pin Lock • Rigid Clamping • Heavy Machining
Double Clamp (D)			<ul style="list-style-type: none"> • Firmly clamp the insert in two directions with one action. 	Lever Lock (P)			<ul style="list-style-type: none"> • Easy Insert Replacement • General Use
Pin Lock (P)			<ul style="list-style-type: none"> • Easy Insert Replacement 	Wedge Lock (W)			<ul style="list-style-type: none"> • Rigid Clamping • Heavy Machining
Screw Clamp (S)			<ul style="list-style-type: none"> • Simple Mechanism • Fewer Parts • Finishing to Medium Machining 				

● Lever Lock



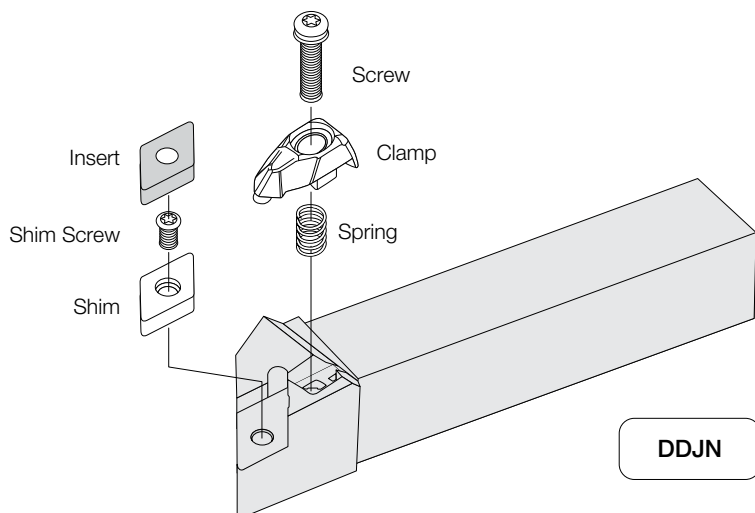
PCLN
PWLN
PTGN / PTFN / PTLN
PDJN / PDHN
PSBN / PSKN / PSSN / PSDN
PRGN
PRGC / PRXC



PTGN-11 / PTFN-11

CLAMPING SYSTEM

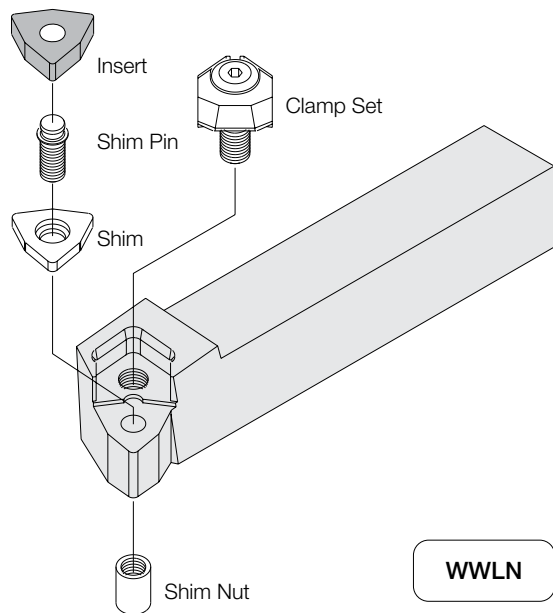
● Double Clamp



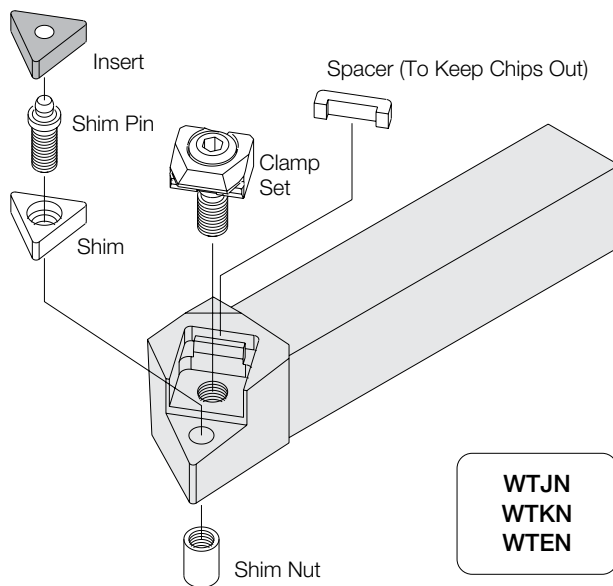
DCLN
DDJN / DDHN
DSBN
DTGN
DVLN / DVJN / DVPN / DVVN
DWLN

DDJN

● Wedge Lock

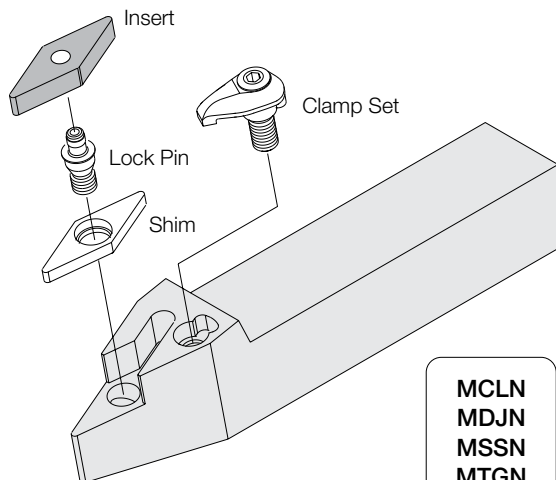


WWLN



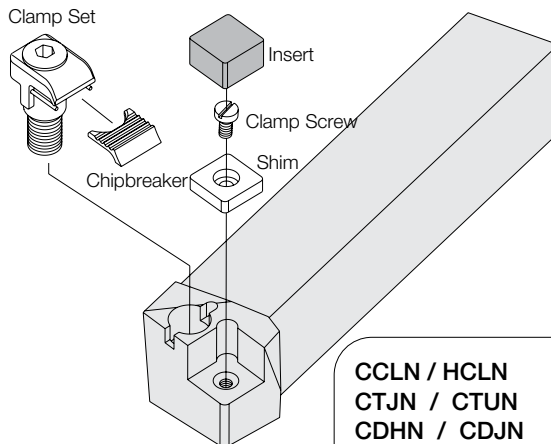
WTJN
WTKN
WTEN

● Multi Lock



MCLN
MDJN
MSSN
MTGN
MVJN
MVVN
MWLN

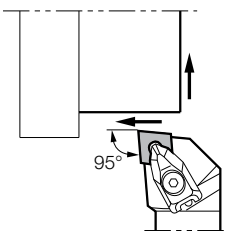
● Top Clamp



CCLN / HCLN
CTJN / CTUN
CDHN / CDJN
CELN
CSRN / HSRN / CS-N / CSKN
CSYN / CSSN / CSDN / HSDN
*CRSN / HRSN / *CRDN / CRDC

* Chipbreaker is not included with CRSN / CRDN.

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

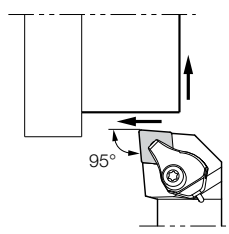
DCLN (External / Facing)


Side Rake Angle: -6°
Angle of Inclination: -6°

• Right-hand shown

● **Applicable Inserts**

Toolholder	Insert
DCLN%...12-4B	CN□A
DCLN%...16-4D	CN□G
DCLN%...-12	CN□M

DCLN-JCT (External / Facing, Jet Coolant-Through)


Side Rake Angle: -6°
Angle of Inclination: -6°
















• Right-hand shown

Fig.1 Fig.2

● **Applicable Inserts**

Toolholder	Insert
DCLN%...-12JCT	CN□A CN□G CN□M

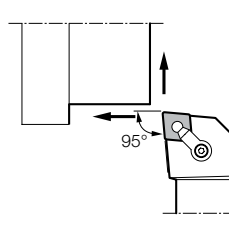
● **Toolholder Dimensions**JCT Coolant Connections and Pipe Parts ● **D10~D11**

Part Number	Stock		Unit	Dimensions									Standard Corner-R (RE)	Drawing	Spare Parts							
	R	L		H	HF	HBH	B	HBKW	LF	LH	WF	MHD			Clamp	Pipe Connection (*1 with O-Ring)	Screw	Spring	Shim	Shim Screw	Wrench	Wrench (Sold Separately)
																						
DCLN% 12-4B	●	●	inch	0.75	0.75	-	0.75	-	4.50	1.30	1.00	-	1/32	-		-						
16-4D	●	●	inch	1.00	1.00	-	1.00	-	6.00	1.26	1.25	-	1/32	-	CP-3D	-	CS-3D	SP-3D	^{*2} DC-44 ^{*3} DC-44-C	SB-4085TR	LW-3	FT-15
DCLN% 2020K-12	●	●	mm	20	20	-	20	-	125	33	25	-	0.8	-	CP-3D	-	CS-3D	SP-3D	^{*2} DC-44 ^{*3} DC-44-C	SB-4085TR	LW-3	FT-15
2525M-12	●	●	mm	25	25	-	25	-	150	32	32	-	0.8	-	CP-3D	-	CS-3D	SP-3D	^{*2} DC-44 ^{*3} DC-44-C	SB-4085TR	LW-3	FT-15
DCLN% 12-4BJCT	●	●	inch	0.75	0.75	0.23	0.75	0.26	4.50	1.06	1.00	3.87	1/32	Fig.1	CP-3D-%JCT	FP-12	CS-3D-TR	SP-3D	^{*2} DC-44 ^{*3} DC-44-C	SB-4085TR	-	FT-15
16-4DJCT	●	●	inch	1.00	1.00	-	1.00	-	6.00	1.06	1.25	5.37	1/32	Fig.2	CP-3D-%JCT	FP-12	CS-3D-TR	SP-3D	^{*2} DC-44 ^{*3} DC-44-C	SB-4085TR	-	FT-15
DCLN% 2020K-12JCT	●	●	mm	25	25	5	20	7	125	27	25	109	0.8	Fig.1	CP-3D-%JCT	FP-12	CS-3D-TR	SP-3D	^{*2} DC-44 ^{*3} DC-44-C	SB-4085TR	-	FT-15
2525M-12JCT	●	●	mm	25	25	-	25	-	150	27	32	134	0.8	Fig.2	CP-3D-%JCT	FP-12	CS-3D-TR	SP-3D	^{*2} DC-44 ^{*3} DC-44-C	SB-4085TR	-	FT-15

*1 O-ring (SS-035) is available to order separately

*2 When using inserts with a corner-R (RE) greater than 1/16", additional modifications of the shim are necessary in order to prevent workpiece and shim from interfering with each other

*3 This shim is required for SX chipbreaker inserts (sold separately)

MCLN (External / Facing)
















Side Rake Angle: -6°
Angle of Inclination: -6°

• Right-hand shown

● **Applicable Inserts**

Toolholder	Insert
MCLN%...-12-4B	CN□A
MCLN%...-16-4D	CN□G
MCLN%...-16-5D	CN□M
MCLN%...-20-5D	CN□M
MCLN%...-20-6D	CN□M

● **Toolholder Dimensions**

Part Number	Stock		Unit	Dimensions						Standard Corner-R (RE)	Spare Parts							
	R	L		H	HF	B	LF	LH	WF		Clamp	Clamp Screw	Wrench	Shim	Shim Screw	Lock Pin	Wrench	
																		
MCLN% 12-4B	●	●	inch	0.75	0.75	0.75	4.00	1.190	1.00	1/32								
16-4D	●	●		1.00	1.00	1.00	6.00	1.260	1.25		CL-20	XNS-48	LW-125	ICSN433	S-46	NL46	LW-094	
16-5D	●	●		1.00	1.00	1.00	6.00	1.375	1.25		1/32	CL-12	XNS-510	LW-156	ICSN533	S-58	NL58	LW-125
20-5D	●	●		1.25	1.25	1.25	6.00	1.375	1.50			CL-12	XNS-510	LW-156	ICSN533	S-58	NL58	LW-125
20-6D	●	●		1.25	1.25	1.25	6.00	1.500	1.50	1/32	CL-12	XNS-510	LW-156	ICSN633	S-68	NL68	LW-140	

Applicable Inserts ● **D9**

PCLN (External / Facing)

• Right-hand shown

Side Rake Angle: -6°
Angle of Inclination: -6°

● Applicable Inserts

Toolholder	Insert
PCLN%...12-4B	CN□A CN□G CN□M
PCLN%...16-4D	43..
PCLN%...-09	CN□G
PCLN%...-12	CN□A CN□G CN□M
PCLN%...-16	54..

Toolholder Dimensions

Part Number	Stock		Unit	Dimensions						Standard Corner-R(RE)	Spare Parts					
	R	L		H	HF	B	LF	LH	WF		Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench
PCLN% 12-4B	●		inch	0.75	0.75	0.75	4.50	1.06	1.00	1/32						
PCLN% 16-4D	●		inch	1.00	1.00	1.00	6.00	1.06	1.25							
PCLN% 1616H-09	●	●		16	16	16	100	22	20	0.8						
PCLN% 2020K-09	●	●		20	20	20	125	22	25							
PCLN% 2525M-09	●	●		25	25	25	150	22	32							
PCLN% 1616H-12	●		mm	16	16	16	100	27	20	0.8						
PCLN% 2020H-12*1	●		mm	20	20	20	100	27	25							
PCLN% 2020K-12	●	●	mm	20	20	20	125	27	25							
PCLN% 2525M-12	●	●	mm	25	25	25	150	27	32							
PCLN% 3225P-12	●	●	mm	32	32	25	170	27	32							
PCLN% 2525M-16	●	●		25	25	25	150	32	32	0.8						
PCLN% 3232P-16	●	●		32	32	32	170	32	40							

*1 Short shank type.

*2 When using inserts whose corner-R(RE) is greater than 1/16", purchase this shim (sold separately) to prevent workpiece and shim from interfering with each other.

*3 This shim is required for SX chipbreaker inserts.

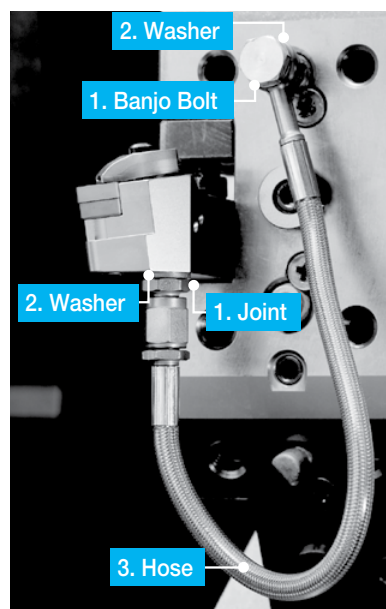
Applicable Inserts

Application	Finishing	Finishing-Medium	Finishing	Finishing-Medium	Finishing-Medium	Finishing-Medium	Medium-Roughing	Medium-Roughing	Medium-Roughing	Medium-Roughing / High Feed Rate
Insert	WF (Wiper)	WE (Wiper)	PP	PQ	CQ	CJ	GS	PG	PS	PT
Size	43..	43..	43..	43..	43.., 54..	43.., 54..	33.., 43..	43..	43.., 54..	43.., 54..
Ref. Page	● B16	● B16	● B16	● B16	● B17	● B17	● B17	● B17	● B17	● B18
Application	Roughing	Roughing	Single Sided / Roughing / High Feed Rate	Finishing	Medium	Soft Steel / Small D.O.C.	Soft Steel / Finishing	Soft Steel / Medium	Soft Steel / Roughing	Stainless Steel / Finishing
Insert	Standard	PH	PX	%-S	%	XF	XP	XQ	XS	MQ
Size	43.., 54.., 64..	43.., 54.., 64..	43.., 54.., 64..	33..	33.., 43..	43..	43..	43..	43..	43..
Ref. Page	● B18	● B18	● B19	● B22	● B22	● B19	● B19	● B19	● B19	● B20
Application	Stainless Steel / Medium-Roughing	Stainless Steel / Medium-Roughing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron
Insert	MS	MU	KQ	KG	KH	C	ZS	GC	Without Chipbreaker	Ceramic
Size	43..	43.., 54.., 64..	43..	43..	43..	43..	43..	43..	43..	43..
Ref. Page	● B20	● B20	● B21	● B21	● B21	● B21	● B21	● B21	● B21	● B108
Application	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Heat-Resistant Alloys	Heat-Resistant Alloy Roughing	Heat-Resistant Alloy Roughing	Hard Materials			
Insert	A3	AH	PCD	SQ	SG	%-SX	CBN			
Size	43..	43..	43..	43.., 54.., 64..	43.., 54.., 64..	43.., 54.., 64..	43..			
Ref. Page	● B22	● B22	● C23	● B20	● B20	● B21	● C6, C7			

Recommended Cutting Conditions ● D45-D46

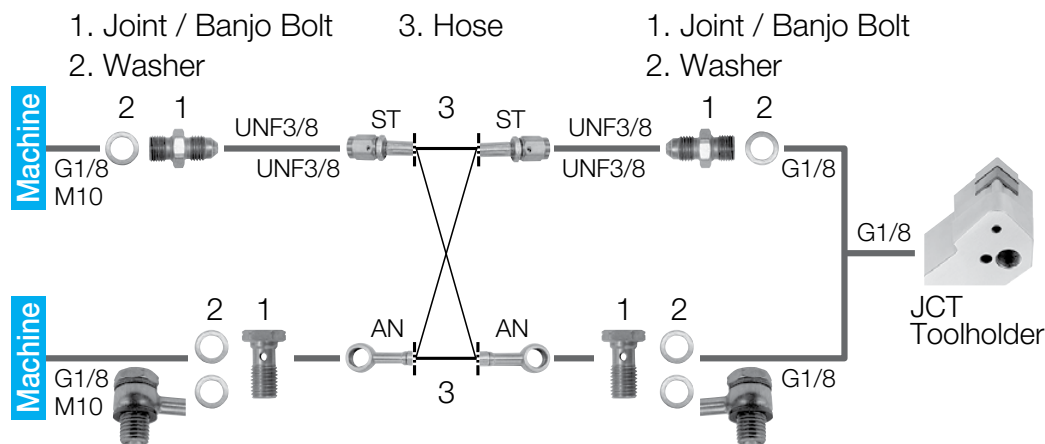
Easy Coolant Connections

Easy Connection with High Pressure Hose and Joint



- Even without a high pressure pump, internal coolant can be used at a normal pressure
- Banjo bolt available for angled hose connection and can be used in a variety of machines

Piping Installation Guide



● Improved performance and stable machining with internal coolant even with low pressure

Pressure Range	Tool Life	Chip Control	Notes
~ 290 psi (Low Pressure)	Good	Poor	Tool life is improved even when machining with low pressure coolant systems
290 psi ~ 1,015 psi (Medium Pressure)	Excellent	Good	Improved tool life and chip control performance
1,015 psi ~ 2,175 psi (High Pressure)	Excellent	Excellent	Chips become smaller and are easily evacuated
2,175 psi ~ 4,350 psi (Extra High Pressure)	Excellent	Excellent	Chips are smaller and high-speed machining of heat-resistant alloys is possible

Piping Parts

Optional Piping Parts Available

Choose from parts below to match your machine specifications


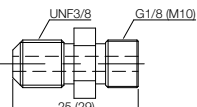
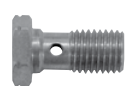
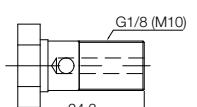
1. **Joint / Banjo bolt** × 2

2. **Washer** × 2-4

3. **Hose** × 1


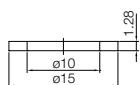
1. Joint / Banjo Bolt

Pressure Resistance: up to 4,350 psi

Shape	Part Number	Stock	Thread Standard	
			Holder / Machine Connection	
 	J-G1/8-UNF3/8	●	G1/8	
	J-M10X1.5-UNF3/8	●	M10X1.5	
Banjo Bolt (for Angle Hose)  	BB-G1/8	●	G1/8	
	BB-M10X1.5	●	M10X1.5	

2. Washer




Pressure Resistance: up to 4,350 psi

Shape	Part Number	Stock
 	WS-10	●

* Use 2 washers for a banjo bolt

3. Hose

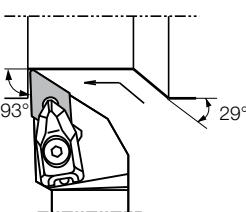
Pressure Resistance: up to 4,350 psi

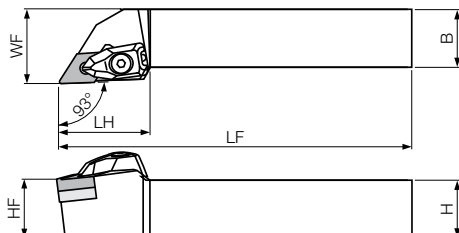
Shape	Part Number	Stock	Thread Standard		Dimensions (mm)
					L
	HS-ST-ST-200	●	UNF3/8	UNF3/8	200
	HS-ST-ST-250	●			250
	HS-ST-AN-200	●	UNF3/8	(Banjo Bolt)	200
	HS-ST-AN-250	●			250
	HS-AN-AN-200	●	(Banjo Bolt)	(Banjo Bolt)	200
	HS-AN-AN-250	●			250

Precautions

1. Make sure machine door is completely closed before use of these parts.
2. Use appropriate seal for the male thread of the piping parts and make sure the connection is secure. Use plugs to seal off unused coolant holes.
3. Connect and fasten the coolant hose firmly.
4. The use of copper washers may cause leakage but will have no effect on the performance.
5. Commercial piping parts can be used if the thread standards are the same. Check the pressure resistance before use.
6. Regularly changing the coolant filter is recommended.

DDJN (External / Copying)





Side Rake Angle: -6°
Angle of Inclination: -7°

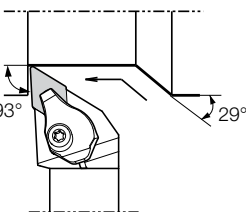
● **Applicable Inserts**

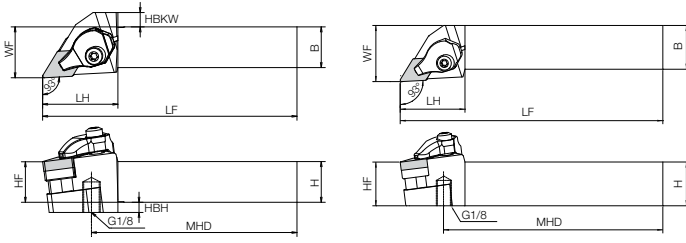
Toolholder	Insert
DDJN%...12-4B	DN□A DN□G DN□M DN□X
DDJN%...16-4D	43.. (44..)
DDJN%...-1504	43.. (44..)
DDJN%...-1506	44.. (43..)

• Right-hand shown

DDJN-JCT (External / Copying, Jet Coolant-Through)

JCT Coolant Connections and Pipe Parts ● **D10~D11**
Pressure Resistance: up to 4,350 psi





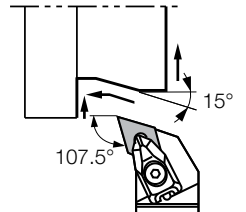
Side Rake Angle: -6°
Angle of Inclination: -7°

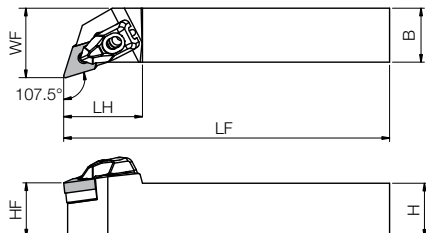
● **Applicable Inserts**

Toolholder	Insert
DDJN%...-15JCT	DN□A DN□G DN□M DN□X
	44.. (43..)

• Right-hand shown Fig.1 Fig.2

DDHN (External / Face Grooving / Copying)













Side Rake Angle: -6°
Angle of Inclination: -6°

● **Applicable Inserts**

Toolholder	Insert
DDHN%...-1504	DN□A DN□G DN□M DN□X
DDHN%...-1506	44.. (43..)

• Right-hand shown

Toolholder Dimensions

Part Number	Stock		Unit	Dimensions										Standard Corner-R(RE)	Drawing	Spare Parts							
	R	L		H	HF	HBH	B	HBKW	LF	LH	WF	MHD	Clamp			Pipe Connection (*1 with O-Ring)	Screw	Spring	Shim	Shim Screw	Wrench	Wrench	
										 For Clamp	 For Shim												
DDJN% 12-4B	●	●	inch	0.75	0.75		0.75	-	4.50	1.54	1.00	-	1/32	-	CP-3D	-	CS-3D	SP-3D	*DD-44 (DD-43)	SB-4085TR	LW-3	FT-15 Sold Separately	
16-4D	●	●	inch	1.00	1.00		1.00	-	6.00	1.54	1.25	-	1/32	-	CP-3D	-	CS-3D	SP-3D	*DD-44 (DD-43)	SB-4085TR	LW-3		
DDJN% 2020K-1504	●	●	mm	20	20		20	-	125	39	25	-	0.8	-	CP-3D	-	CS-3D	SP-3D	*DD-44 (DD-43)	SB-4085TR	LW-3		
2525M-1504	●	●		25	25		25	-	150	39	32	-	0.8	-	CP-3D	-	CS-3D	SP-3D	DD-44 (*DD-44)	SB-4085TR	LW-3		
DDJN% 2020K-1506	●	●		20	20		20	-	125	39	25	-	0.8	-	CP-3D	-	CS-3D	SP-3D	DD-43 (*DD-44)	SB-4085TR	LW-3		
2525M-1506	●	●	mm	25	25		25	-	150	39	32	-	0.8	-	CP-3D	-	CS-3D	SP-3D	DD-43 (*DD-44)	SB-4085TR	LW-3		
DDJN% 12-4BJCT	●	●	inch	0.75	0.75	0.23	0.75	0.26	4.50	1.46	1.00	3.56	1/32	Fig.1	CP-4D-%-JCT	FP-12	CS-3D-TR	SP-3D	*DD-44 (DD-43)	SB-4085TR	-	FT-15	
16-4DJCT	●	●	inch	1.00	1.00	-	1.00	-	6.00	1.46	1.25	5.06	1/32	Fig.2	CP-4D-%-JCT	FP-12	CS-3D-TR	SP-3D	*DD-44 (DD-43)	SB-4085TR	-	FT-15	
DDJN% 2020K-15JCT	●	●	mm	20	20	5	20	7	125	37	25	101	0.8	Fig.1	CP-4D-%-JCT	FP-12	CS-3D-TR	SP-3D	*DD-44 (DD-43)	SB-4085TR	-	FT-15	
2525M-15JCT	●	●		25	25	-	25	-	150	37	32	126		Fig.2	CP-4D-%-JCT	FP-12	CS-3D-TR	SP-3D	*DD-44 (DD-43)	SB-4085TR	-	FT-15	
DDHN% 2020K-1504	●	●	mm	20	20		20	-	125	37	25	-	0.8	-	CP-3D	-	CS-3D	SP-3D	*2DD-44 (DD-43)	SB-4085TR	LW-3	FT-15 Sold Separately	
2525M-1504	●	●		25	25		25	-	150	37	32	-											
DDHN% 2020K-1506	●	●		20	20		20	-	125	37	25	-											
2525M-1506	●	●	mm	25	25		25	-	150	37	32	-	0.8	-	CP-3D	-	CS-3D	SP-3D	DD-43 (*2DD-44)	SB-4085TR	LW-3		

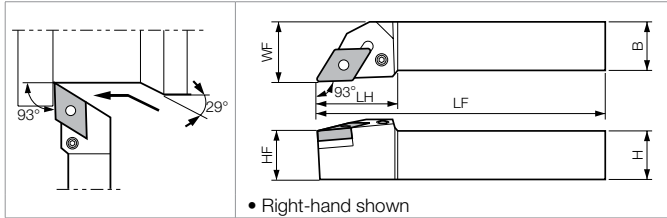
Shims indicated within () are not included with the toolholder. To change insert thickness, please purchase it separately.

*1 O-ring (SS-035) is available to order separately

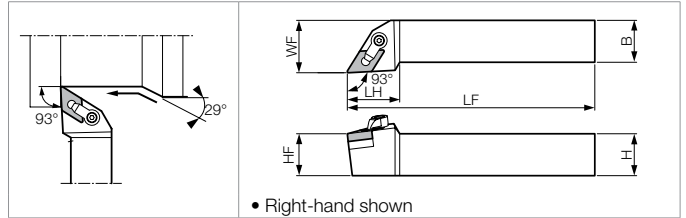
*2 When using inserts with a corner-R (RE) greater than 1/16", additional modifications of the shim are necessary in order to prevent workpiece and shim from interfering with each other

Applicable Inserts ● **D13**

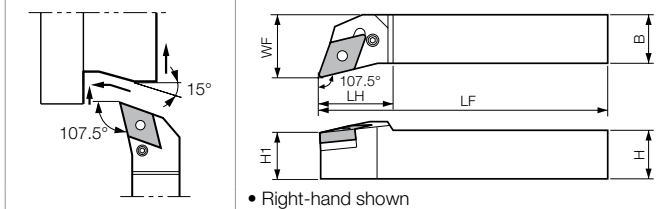
■ PDJN (External / Copying)

Side Rake Angle: -6°
Angle of Inclination: -7°

■ MDJN (External / Copying)

Side Rake Angle: -6°
Angle of Inclination: -6°

■ PDHN (External / Face Grooving / Copying)

Side Rake Angle: -6°
Angle of Inclination: -6°

● PDJN / MDJN Applicable Inserts

Toolholder	Insert
PDJN%...-3□ PDJN%...-11	DN□A DN□G 33..
PDJN%...-4□ PDJN%...-15	DN□A DN□G 43.. (43..)
PDJN%...-15U	DN□M DN□X 43..
MDJN%...-4□	43..

● PDHN Applicable Inserts

Toolholder	Insert
PDHN%...-15	DN□A DN□G 43.. (44..)

● Toolholder Dimensions

Part Number	Stock		Unit	Dimensions						Standard Corner-R (RE)	Spare Parts																				
	R	L		H	HF	B	LF	LH	WF		Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench	Clamp	Clamp Screw	Shim Screw	Lock Pin											
PDJN% 12-3B	●		inch	0.75	0.75	0.75	4.50	0.87	1.00	1/64	LL-1N	LS-1N	LD-32N	LSP-1	PC-1	FH-2.5	-	-	-	-											
16-3D	●	●		1.00	1.00	1.00	6.00	0.87	1.25																						
PDJN% 16-4D	●	●		1.00	1.00	0.75	4.50	1.06	1.00	1/32	LL-3N	LS-2N	LD-42 *2 LD-42-20	LSP-2	PC-2	LW-3	-	-	-	-											
PDJN% 1616H-11	●	●	mm	16	16	16	100	28	20	0.4	LL-1DN	LS-1N	LD-32N	LSP-1	PC-1	FH-2.5	-	-	-	-											
2020K-11	●	●		20	20	20	125	28	25																						
2525M-11	●	●		25	25	25	150	28	32																						
PDJN% 2020H-15*1	●			20	20	20	100	36	25	0.8	LL-3N	LS-2N	LD-42 LD-42-20	LSP-2	PC-2	LW-3	-	-	-	-											
2020K-15	●	●		20	20	20	125	36	25																						
2525M-15	●	●		25	25	25	150	36	32																						
3225P-15	●	●		32	32	25	170	36	32																						
PDJN% 2525M-15U	●	●		25	25	25	150	34	32	0.8	LL-4	LS-3	LD-42 LD-42-20 (LD-43) (*2 LD-43-20)	LSP-2	PC-2	LW-3	-	-	-	-											
3232P-15U	●	●	32	32	32	170	36	40																							
PDHN% 2020K-15	●	●	mm	20	20	20	125	35	25	0.8	LL-4	LS-3	LD-43 *2 LD-43-20 (LD-42) (*2 LD-42-20)	LSP-2	PC-2	LW-3	-	-	-	-											
2525M-15	●	●		25	25	25	150	34	32																						
MDJN% 12-4B	●	●	inch	0.75	0.75	0.75	4.50	1.25	1.00	1/32	-	-	IDSN443	-	-	LW-125, LW-094	CL-20	XNS-48	S-46	NL46											
16-4D	●	●		1.00	1.00	1.00	6.00	1.25	1.25																						

^{*1} Short shank type.

● Shim: PDJN%...15U...LD-42 is attached to PDJN%...15U. When using DN□□43 type insert, please purchase LD-43 separately.

PDHN ...LD-43 is attached to PDHN. When using DN□□44 type Insert, please purchase LD-42 separately.

^{*2} When using inserts whose corner-R(RE) is greater than 1/16", please purchase this shim in order to prevent workpiece and shim from interfering each other.

● Applicable Inserts

Application	Finishing	Finishing	Finishing-Medium	Finishing-Medium	Finishing-Medium	Medium-Roughing	Medium-Roughing	Medium-Roughing	Medium-Roughing / High Feed Rate	Roughing
Insert	WF (Wiper)	PP	PQ	CQ	CJ	GS	PG	PS	PT	Standard
Size	43.., 44..	43.., 44..	43.., 44..	43.., 44..	43.., 44..	33.., 43.., 44..	43.., 44..	43.., 44..	43.., 44..	43.., 44..
Ref. Page	● B23	● B23	● B23	● B24	● B24	● B24	● B25	● B25	● B25	● B26
Application	Roughing	Single Sided Roughing / High Feed Rate	Finishing	Medium	Soft Steel / Finishing	Soft Steel / Medium	Soft Steel / Roughing	Stainless Steel / Finishing	Stainless Steel / Medium-Roughing	Stainless Steel / Medium-Roughing
Insert	PH	PX	□-S	□	XP	XQ	XS	MQ	MS	MU
Size	43.., 44..	43.., 44..	33..	33.., 43..	43.., 44..	43.., 44..	43..	43.., 44..	43.., 44..	43.., 44..
Ref. Page	● B26	● B26	● B30	● B30	● B26	● B26	● B26	● B27	● B28	● B28
Application	Heat-Resistant Alloy / Roughing	Stainless Steel / Medium-Roughing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Non-ferrous Metals
Insert	SG	TK	C	KQ	KG	KH	ZS	GC	Ceramic	□-A3
Size	43..	43.., 44..	43.., 44..	43.., 44..	43.., 44..	43.., 44..	43.., 44..	43.., 44..	43.., 44..	43..
Ref. Page	● B28	● B27	● B29	● B29	● B29	● B29	● B29	● B29	● B109	● B30
Application	Non-ferrous Metals	Non-ferrous Metals	Heat-Resistant Alloys	Hard Materials						
Insert	AH	PCD	SQ	CBN						
Size	43.., 44..	43..	43.., 44..	43.., 44..						
Ref. Page	● B30	● C23	● B28	● C8, C9						

Recommended Cutting Conditions ● D45-D46

● : Standard Item △ : Phaseout Item (will be removed from next catalog)

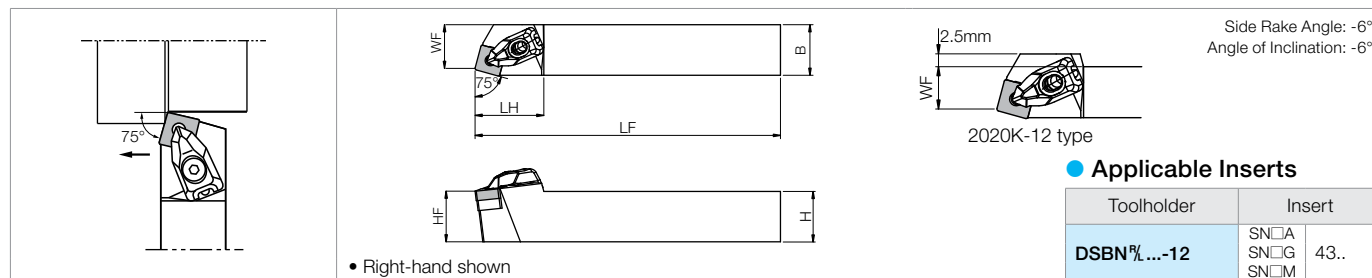
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DSBN (External)



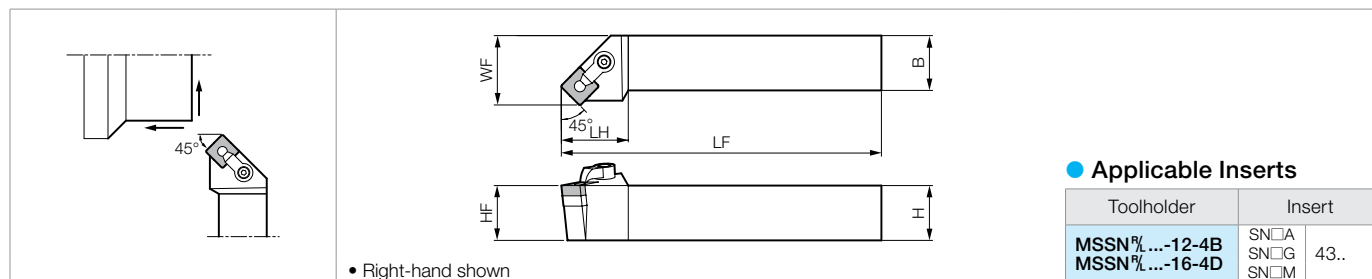
Applicable Inserts

Toolholder	Insert
DSBN%/L...-12	SN□A SN□G SN□M 43..

Toolholder Dimensions

Part Number	Stock		Unit	Dimensions						Standard Corner-R (RE)	Spare Parts					
	R	L		H	HF	B	LF	LH	WF		Clamp	Screw	Spring	Shim	Shim Screw	Wrench
DSBN% 2020K-12	●	●	mm	20	20	20	125	34	17	0.8						
2525M-12	●	●	mm	25	25	25	150	34	22		CP-3D	CS-3D	SP-3D	DS-44	SB-4085TR	LW-3

MSSN (External / Facing / Chamfering)



Applicable Inserts

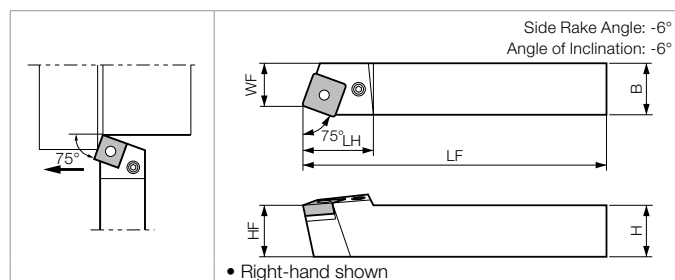
Toolholder	Insert
MSSN%/...-12-4B MSSN%/...-16-4D	SN□A SN□G SN□M 43..

Toolholder Dimensions

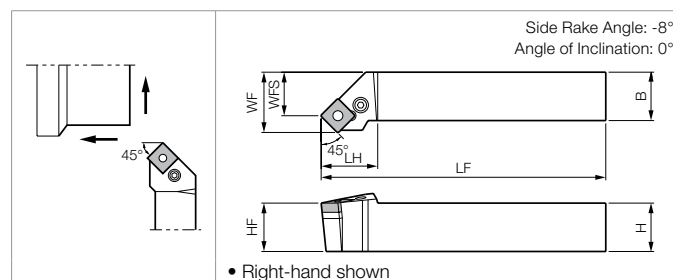
Part Number	Stock		Unit	Dimensions						Standard Corner-R (RE)	Spare Parts					
	R	L		H	HF	B	LF	LH	WF		Clamp	Clamp Screw	Wrench	Shim	Shim Screw	Lock Pin
MSSN% 16-4D	●	□	inch	1.00	1.00	1.00	6.00	1.23	0.925	1/32						

Applicable Inserts D15

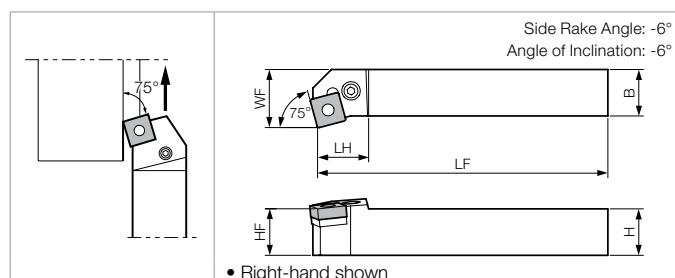
■ PSBN (External)



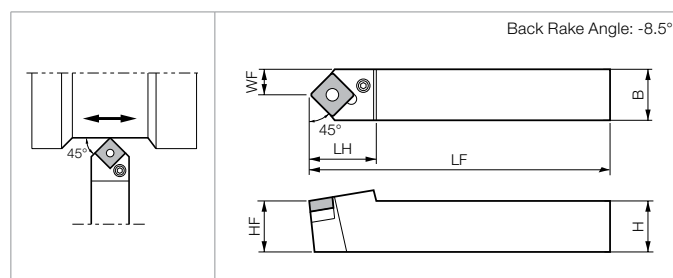
■ PSSN (External / Facing / Chamfering)



■ PSKN (Facing)



■ PSDN (External / Chamfering)



● Toolholder Dimensions

Part Number	Stock			Unit	Dimensions							Standard Corner-R (RE)	Spare Parts					
	R	N	L		H	HF	B	LF	LH	WF	WFS		Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench
PSBN% 1616H-09	△		△	mm	16	16	16	100	21.0	13	-	0.8	LL-1N	LS-1N	LS-32	LSP-1	PC-1	FH-2.5
2020K-12	●		●		20	20	20	125	27.0	17	-	0.8	LL-2N	LS-2N	LS-42	LSP-2	PC-2	LW-3
2525M-12	●		●		25	25	25	150	24.0	22	-	0.8	LL-2N	LS-2N	LS-42	LSP-2	PC-2	LW-3
PSKN% 1616H-09	△		△		16	16	16	100	19.0	20	-	0.8	LL-1N	LS-1N	LS-32	LSP-1	PC-1	FH-2.5
2020K-12	●		●		20	20	20	125	22.5	25	-	0.8	LL-2N	LS-2N	LS-42	LSP-2	PC-2	LW-3
2525M-12	●		●		25	25	25	150	22.5	32	-	0.8	LL-2N	LS-2N	LS-42	LSP-2	PC-2	LW-3
PSSN% 1616H-09	●		●		16	16	16	100	22	20	13.6	0.8	LL-1N	LS-1N	LS-32	LSP-1	PC-1	FH-2.5
2020K-12	●		●		20	20	20	125	29	25	16.4	0.8	LL-2N	LS-2N	LS-42	LSP-2	PC-2	LW-3
2525M-12	●		●		25	25	25	150	29	32	23.4	0.8	LL-2N	LS-2N	LS-42	LSP-2	PC-2	LW-3
PSDNN 1616H-09		●			16	16	16	100	21	8	-	0.8	LL-1N	LS-1N	LS-32	LSP-1	PC-1	FH-2.5
2020K-12		●			20	20	20	125	30	10	-	0.8	LL-2N	LS-2N	LS-42	LSP-2	PC-2	LW-3
2525M-12		●			25	25	25	150	30	12.5	-	0.8	LL-2N	LS-2N	LS-42	LSP-2	PC-2	LW-3

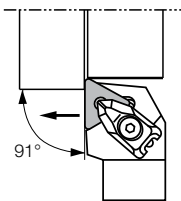
● Applicable Inserts

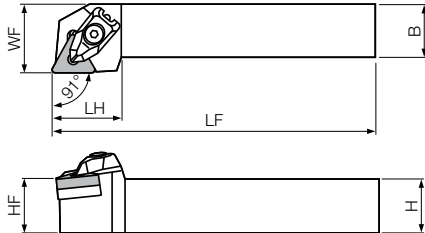
Toolholder	Insert	Application	Finishing-Medium	Medium-Roughing	Medium-Roughing	Medium-Roughing	Medium-Roughing / High Feed Rate	Roughing	Roughing	Single Sided Roughing High Feed
PSBN% ...-09	SN□G 32..	Insert	PQ	PG	PS	HS	PT	Standard	PH	PX
PSKN% ...-09		Size	43..	43..	43..	43..	43..	32.., 43..	43..	43..
PSSN% ...-09		Ref. Page	● B32	● B32	● B32	● B32	● B32	● B32	● B33	● B33
PSDNN...-09	SN□A SN□G SN□M 43..	Application	Finishing-Roughing	Medium-Roughing / Low Cutting Force	Soft Steel / Finishing	Soft Steel / Medium	Soft Steel / Roughing	Stainless Steel / Finishing	Stainless Steel / Medium-Roughing	Heat-Resistant Alloy Roughing
PSBN% ...-12		Insert	□-□	□-25R	XP	XQ	XS	MQ	MS	SG
PSKN% ...-12		Size	32.., 43..	43..	43..	43..	43..	43..	43..	43..
PSSN% ...-12		Ref. Page	● B35	● B35	● B33	● B33	● B33	● B34	● B34	● B34
PSDNN...-12		Application	Cast Iron	Cast Iron / Roughing	Cast Iron / Roughing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Hard Materials
		Insert	C	KG	KH	ZS	GC	Without Chipbreaker	Ceramic	CBN
		Size	43..	43..	43..	43..	43..	43..	43..	43..
		Ref. Page	● B34	● B34	● B34	● B34	● B34	● B35	● B111	● C10

- PSKN%: Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.
- PSSN%: For External Turning, Right-hand Insert for Right-hand Toolholder, Left-hand Insert for Left-hand Toolholder. For Facing, Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder.

Recommended Cutting Conditions ● D45-D46

DTGN (External)





Side Rake Angle: -6°
Angle of Inclination: -6°

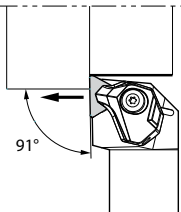
● **Applicable Inserts** ● **D19**

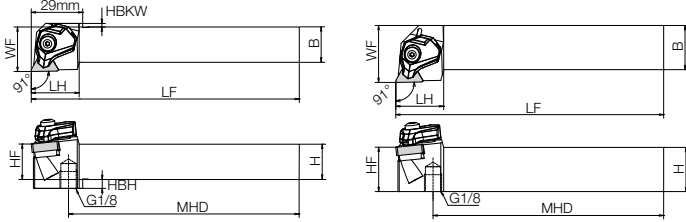
Toolholder	Insert
DTGN%/-16	TN□A TN□G TN□M TN□X

• Right-hand shown

DTGN-JCT (External, Jet Coolant-Through) NEWJCT Coolant Connections and Pipe Parts ● **D10~D11**

Pressure Resistance: up to 4,350 psi













Side Rake Angle: -6°
Angle of Inclination: -6°

● **Applicable Inserts** ● **D19**

Toolholder	Insert
DTGN%/-16JCT	TN□A TN□G TN□M TN□X

• Right-hand shown

● **Toolholder Dimensions**

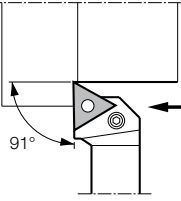
Part Number	Stock		Unit	Dimensions										Standard Corner-R (RE)	Drawing	Spare Parts								
	R	L		H	HF	HBH	B	HBWK	LF	LH	WF	MHD	Clamp			Pipe Connection (+1 with O-Ring)	Screw	Spring	Shim	Shim Screw	Wrench	Wrench (Sold Separately)		
DTGN% 2020K-16 2525M-16	●	●	mm	20	20	-	20	-	125	25	25	-	0.8	-	 ...JCT						 LW FT For Clamp	 For Shim		
DTGN% 2020K-16JCT 2525M-16JCT	●	●	mm	20	20	5	20	2	125	27	25	104	0.8	Fig.1 Fig.2	CP-2D-%-JCT	FP-12	CS-3D-TR	SP-3D	*2 DT-32	SB-3080TR	FT-15	FT-10		

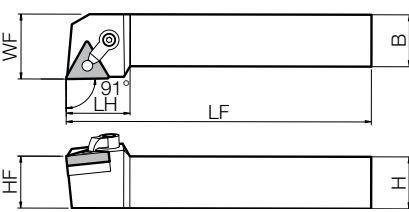
• When using WF chipbreaker (wiper insert), tool edge offset or program corrections are required. See ● **R50**

*1 O-ring (SS-035) is available to order separately

*2 When using inserts with a corner-R (RE) greater than 1/16", additional modifications of the shim are necessary in order to prevent workpiece and shim from interfering with each other

MTGN (External)


























Side Rake Angle: -5°
Angle of Inclination: -5°

● **Applicable Inserts** ● **D19**

Toolholder	Insert
MTGN%/-12-3B	TN□A TN□G TN□M TN□X
MTGN%/-16-4D	TN□A TN□G TN□M TN□X

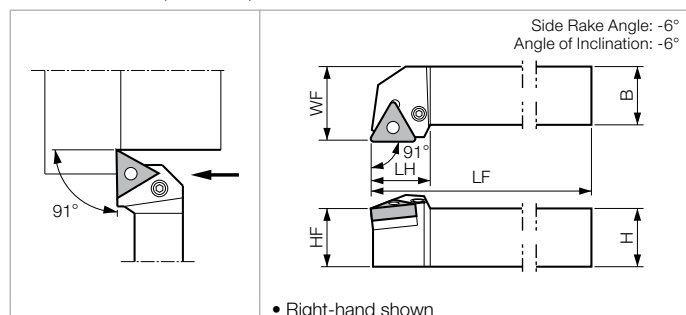
• Right-hand shown

● **Toolholder Dimensions**

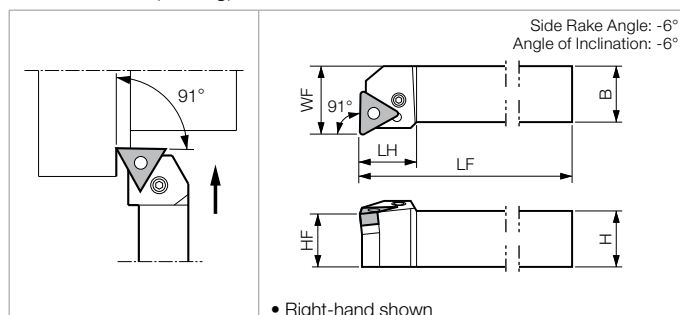
Part Number	Stock		Unit	Dimensions						Standard Corner-R (RE)	Spare Parts						
	R	L		H	HF	B	LF	LH	WF		Clamp	Clamp Screw	Wrench	Shim	Shim Screw	Lock Pin	Wrench
																	
MTGN% 12-3B	●	●	inch	0.75	0.75	0.75	4.50	0.94	1.00	1/64							
16-4D	●	●	inch	1.00	1.00	1.00	6.00	1.19	1.25	1/32							

• Shim: ITSN333 is included with MTGN%12-3B. When using TN__33_ insert, please purchase ITSN323 separately.







PTGN (External)



PTFN (Facing)



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions						Standard Corner-R (RE)	Spare Parts					
	R	L		H	HF	B	LF	LH	WF		Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench
																
PTGN% 12-3B	●		inch	0.75	0.75	0.75	4.50	0.96	1.00	1/32	LL-1N	LS-1N	LT-32N *LT-32N-20	LSP-1	PC-1	LW-2.5
PTGN% 1212F-11	●	●	mm	12	12	12	80	18.0	16	0.8	LL-03N	LS-03N	-	P-03	-	FH-2
1616H-11	●			16	16	16	100	22.0	20	0.8	LL-03TN	LS-03SN	-	P-03S	-	FH-2.5
2020K-11	●	●		20	20	20	125	22.0	25							
2525M-11	●	●		25	25	25	150	22.0	32							
PTGN% 1616H-16	●	●		16	16	16	100	24.0	20	0.8	LL-1N	LS-1N	LT-32N *2LT-32N-20	LSP-1	PC-1	FH-2.5
2020H-16*	●		20	20	20	100	24.0	25								
2020K-16	●		20	20	20	125	24.0	25								
2525M-16	●	●	25	25	25	150	24.0	32								
PTGN% 2525M-22	●	●		25	25	25	150	29.0	32	0.8	LL-2N	LS-2N	LT-42N *2LT-42N-20	LSP-2	PC-2	LW-3
PTFN% 12-3C		●	inch	0.75	0.75	0.75	5.00	0.88	1.00	1/32	LL-1N	LS-1N	LT-32N *2LT-32N-20	LSP-1	PC-1	FH-2.5
PTFN% 1212F-11	●	●	mm	12	12	12	80	15.0	16	0.8	LL-03N	LS-03N	-	P-03	-	FH-2
PTFN% 1616H-11	●	●		16	16	16	100	22.5	20	0.8	LL-03TN	LS-03SN	-	P-03S	-	FH-2.5
2020K-11	●			20	20	20	125	22.5	25							
2525M-11	●	●		25	25	25	150	22.5	32							
PTFN% 2020K-16	●	●		20	20	20	125	22.0	25	0.8	LL-1N	LS-1N	LT-32N *2LT-32N-20	LSP-1	PC-1	FH-2.5
2525M-16	●	●	25	25	25	150	23.0	32								
PTFN% 2525M-22	●	●		25	25	25	150	28.0	32	0.8	LL-2N	LS-2N	LT-42N *2LT-42N-20	LSP-2	PC-2	LW-3

*1 Short shank type.

*2 When using inserts whose corner-R(RE) is greater than 1/16", please purchase this shim in order to prevent workpiece and shim from interfering each other.

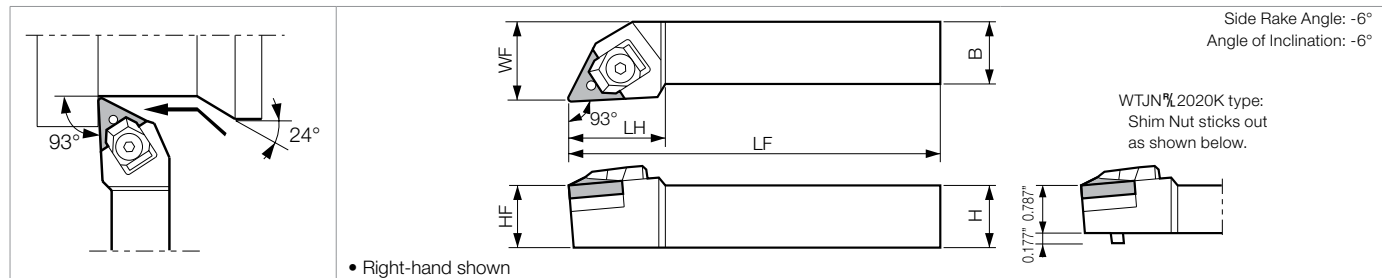
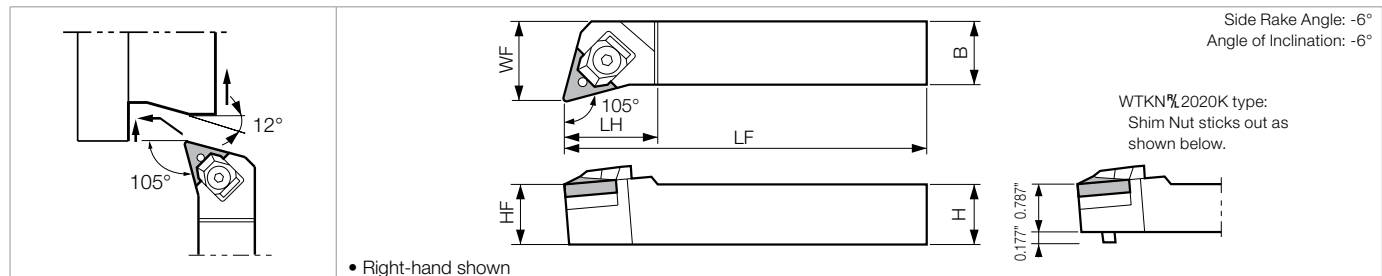
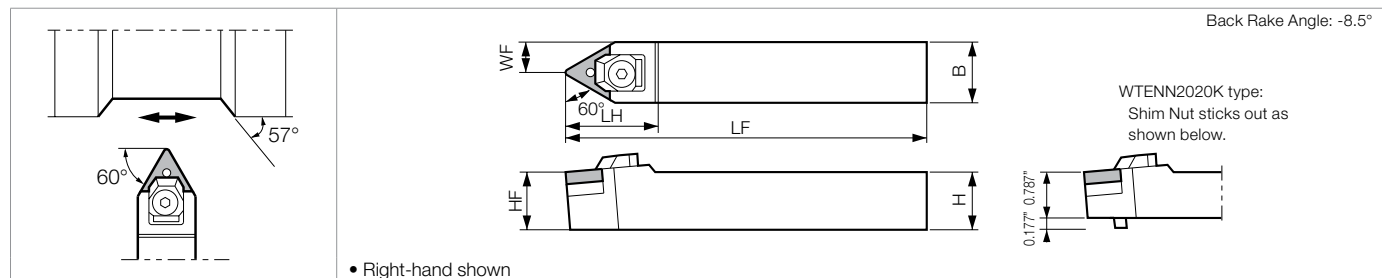
• When using WF chipbreaker (wiper insert), tool edge offset or program corrections are required. See [R50](#)Applicable Inserts [D19](#)

Toolholder	Insert	
PTGN% ...12-3B	TN□A TN□G TN□M TNMX	33..
PTFN% ...12-3C	TN□A TN□G TNMX	33..
PT□N% 12...-11	TN□□	22..
PT□N% ...-11	TN□□	23..
PT□N% ...-16	TN□A TN□G TN□M TNMX*	33..
PT□N% ...-22	TN□A TN□G TN□M TNMX*	43..

PTGN% 1212F-11 } Insert applicable for above
PTFN% 1212F-11 }
TN□□1103-type Insert is applicable.

• PTFN% : Left-hand Insert for Right-hand Toolholder, Right-hand Insert for Left-hand Toolholder

*3 TNMX insert is NOT applicable for PT□N% ...-22 type toolholders.

WTJN (External / Copying)**WTKN** (External / Facing / Copying)**WTEN** (External / Chamfering)**Toolholder Dimensions**

Part Number	Stock			Unit	Dimensions						Standard Corner-R (RE)	Spare Parts					
	R	N	L		H	HF	B	LF	LH	WF		Clamp Set	Shim	Shim Pin	Shim Nut	Wrench	Spacer
WTJN% 12-3C	●			inch	0.75	0.75	0.75	5.00	1.26	1.00	1/32	WCS-1N	WTN-33	WP-1S	WN-1	LW-3	WSP-1
16-3D	●		●	inch	1.00	1.00	1.00	6.00	1.26	1.25	1/32	WCS-1N	*WTN-33-20	WP-1S	WN-1	LW-3	WSP-1
WTJN% 2020K-16N	●		●	mm	20	20	20	125	32	25.0	0.8	WCS-1N	WTN-33	WP-1S	WN-1	LW-3	WSP-1
2525M-16N	●		●	mm	25	25	25	150	32	32.0	0.8	WCS-1N	*WTN-33-20	WP-1S	WN-1	LW-3	WSP-1
WTKN% 12-3C			●	inch	0.75	0.75	0.75	5.00	1.26	1.00	1/32	WCS-1N	WTN-33	WP-1S	WN-1	LW-3	WSP-1
WTKN% 2020K-16N	●		●	mm	20	20	20	125	32	25.0	0.8	WCS-1N	WTN-33	WP-1S	WN-1	LW-3	WSP-1
2525M-16N	●		●	mm	25	25	25	150	32	32.0	0.8	WCS-1N	*WTN-33-20	WP-1S	WN-1	LW-3	WSP-1
WTENN 2020K-16N		●		mm	20	20	20	125	32	10.0	0.8	WCS-1N	WTN-33	WP-1S	WN-1	LW-3	WSP-1
2525M-16N		●		mm	25	25	25	150	32	12.5	0.8	WCS-1N	*WTN-33-20	WP-1S	WN-1	LW-3	WSP-1

* When using inserts whose corner-R (RE) is greater than 1/16", please purchase a shim (WTN-33-20) with * mark and use it in order to prevent workpiece and shim from interfering with each other.

Applicable Inserts **D19**

Toolholder	Insert
WTJN% ...12-3C	TN□A TN□G TN□M
WTJN% ...16-3D	
WTJN% ...-16N	
WTKN% ...12-3C	
WTKN% ...16-3D	
WTKN% ...-16N	

Toolholder	Insert
WTENN...-16N	TN□A TN□G TN□M
	33..

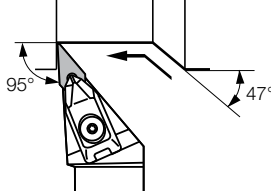
● Applicable Inserts

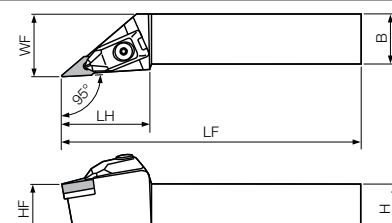
Application	Finishing	Finishing-Medium	Finishing-Medium	Medium-Roughing	Medium-Roughing	Medium-Roughing	Medium-Roughing / High Feed Rate	Medium-Roughing / High Feed Rate	Medium-Roughing	Single Sided / Roughing / High Feed	Roughing
Insert	PP	PQ	CQ	GS	PG	PS	PT	GT	PH	PX	Standard
Size	33..	33..	33.., 43..	23.., 33..	33..	33.., 43..	33..	33..	33.., 43..	33.., 43..	23.., 33..
Ref. Page	● B36	● B36	● B36	● B36	● B36	● B37	● B37	● B37	● B37	● B38	● B37
Application	Finishing	Finishing-Roughing	Medium-Roughing Low Cutting Force	Soft Steel / Small D.O.C.	Soft Steel / Finishing	Soft Steel / Medium	Soft Steel / Roughing	Stainless Steel / Finishing	Stainless Steel / Medium-Roughing	Stainless Steel / Medium-Roughing	Heat-Resistant Alloy Roughing
Insert	ℓ-S	ℓ-□	ℓ-25R	XF	XP	XQ	XS	MQ	MS	MU	SG
Size	23.., 33..	22.., 23.., 33.., 43..	33..	33..	33..	33..	33..	33..	33..	33..	33.., 43..
Ref. Page	● B42	● B42, B43	● B43	● B38	● B38	● B38	● B38	● B39	● B39	● B39	● B39
Application	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Non-ferrous Metals	Hard Materials		
Insert	KQ	KG	KH	ZS	Ceramic	ℓ-A3	AH	PCD	CBN		
Size	33..	33..	33..	33..	33..	33..	33..	33..	33..		
Ref. Page	● B40	● B40	● B40	● B40	● B113	● B41	● B41	● C23	● C10, C11		

• In wedge lock, use of ceramic insert other than silicon nitride insert is not recommended due to strong restrain force.

Recommended Cutting Conditions ● D45-D46

■ DVJN / DVLN (External / Copying)



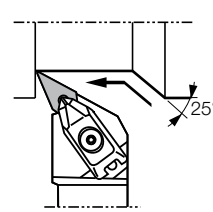


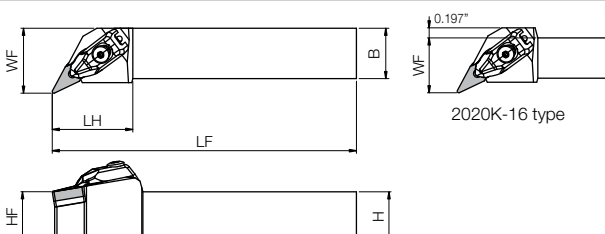
• Right-hand shown

Side Rake Angle: -6°
 Angle of Inclination: -9°

Toolholder	Insert
DVJN% 12-3B	VN□A VN□G VN□M 33..
DVJN% 16-3D	
DVLN% ...-16	

■ DVPN (External / Facing / Copying / Undercutting)



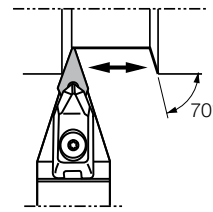


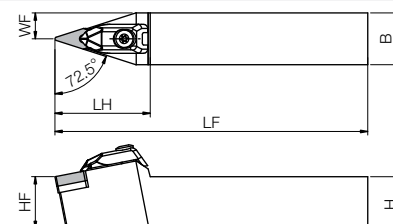
• Right-hand shown

Side Rake Angle: -13°
 Angle of Inclination: -10°

Toolholder	Insert
DVPN% 12-3B	VN□A VN□G VN□M 33..
DVPN% 16-3D	
DVPN% ...-16	

■ DVVN (External / Copying)





• Right-hand shown




































Back Rake Angle: -11°

Toolholder	Insert
DVVNN12-3B	VN□A VN□G VN□M 33..
DVVNN16-3D	
DVVNN...-16	

● Toolholder Dimensions

Part Number	Stock			Unit	Dimensions						Standard Corner-R (RE)	Spare Parts						
	R	N	L		H	HF	B	LF	LH	WF		Clamp	Screw	Spring	Shim	Shim Screw	Wrench	Wrench (sold separately)
DVJN% 12-3B	●	●	●	inch	0.75	0.75	0.75	4.50	1.77	1.00	1/32	CP-5D	CS-5D	SP-5D	DV-33	SB-4085TR	LW-3	FT-15
16-3D	●	●	●	inch	1.00	1.00	1.00	6.00	1.77	1.25	1/32	CP-5D	CS-5D	SP-5D	DV-33	SB-4085TR	LW-3	FT-15
DVLN% 2020K-16	●	●	●	mm	20	20	20	125	45	25.0	0.8	CP-5D	CS-5D	SP-5D	DV-33	SB-4085TR	LW-3	FT-15
2525M-16	●	●	●	mm	25	25	25	150	45	32.0	0.8	CP-5D	CS-5D	SP-5D	DV-33	SB-4085TR	LW-3	FT-15
DVPN% 12-3B	●	●	●	inch	0.75	0.75	0.75	4.50	1.58	1.00	1/32	CP-5D	CS-5D	SP-5D	DV-33	SB-4085TR	LW-3	FT-15
16-3D	●	●	●	inch	1.00	1.00	1.00	6.00	1.58	1.25	1/32	CP-5D	CS-5D	SP-5D	DV-33	SB-4085TR	LW-3	FT-15
DVPN% 2020K-16	●	●	●	mm	20	20	20	125	40	27.0	0.8	CP-5D	CS-5D	SP-5D	DV-33	SB-4085TR	LW-3	FT-15
2525M-16	●	●	●	mm	25	25	25	150	40	32.0	0.8	CP-5D	CS-5D	SP-5D	DV-33	SB-4085TR	LW-3	FT-15
DVVNN 12-3B	●	●	●	inch	0.75	0.75	0.75	4.50	1.81	0.40	1/32	CP-5D	CS-5D	SP-5D	DV-33	SB-4085TR	LW-3	FT-15
16-3D	●	●	●	inch	1.00	1.00	1.00	6.00	1.81	0.52	1/32	CP-5D	CS-5D	SP-5D	DV-33	SB-4085TR	LW-3	FT-15
DVVNN 2020K-16	●	●	●	mm	20	20	20	125	46	10.0	0.8	CP-5D	CS-5D	SP-5D	DV-33	SB-4085TR	LW-3	FT-15
2525M-16	●	●	●	mm	25	25	25	150	46	12.5	0.8	CP-5D	CS-5D	SP-5D	DV-33	SB-4085TR	LW-3	FT-15

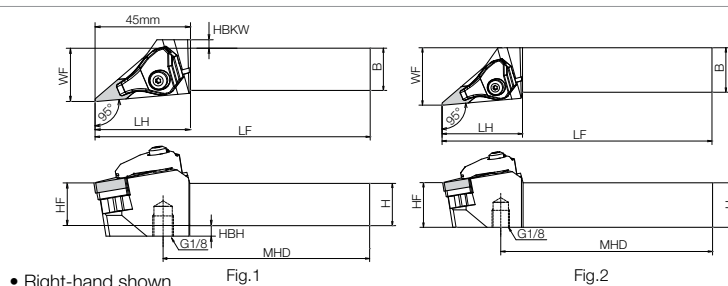
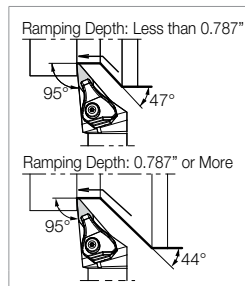
● Applicable Inserts

Toolholder	Insert		Application	Finishing	Finishing-Medium	Finishing-Medium	Finishing-Medium	Medium	Roughing	Finishing-Medium	Stainless Steel / Finishing	Stainless Steel / Medium-Roughing		
DVJN%...-3□(JCT)	VN□A VN□G VN□M	33..	Insert											
DVLN%...-3□(JCT)			Size	33..	33..	33..	33..	33..	33..	33..	33..	33..	33..	
DVLN%...-16(JCT)			Ref. Page	 B44	 B44	 B44	 B44	 B44	 B44	 B44	 B45	 B45	 B45	
DVPN%...-3□(JCT)			Application	Stainless Steel / Medium-Roughing	Heat-Resistant Alloy Roughing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Non-ferrous Metals	Hard Materials		
DVPN%...-16(JCT)			Insert					Without Chipbreaker						
DVNN%...-3□(JCT)			Size	33..	33..	33..	33..	33..	33..	33..	33..	33..	33..	33..
DVNN%...-16(JCT)			Ref. Page	 B45	 B45	 B45	 B45	 B45	 B45	 B114	 C23	 C12		

Recommended Cutting Conditions ● D45-D46

DVLN-JCT (External / Copying, Jet Coolant-Through) **NEW**

Pressure Resistance: up to 4,350 psi



• Right-hand shown

Fig.1

Fig.2

Side Rake Angle: -6°
Angle of Inclination: -9°

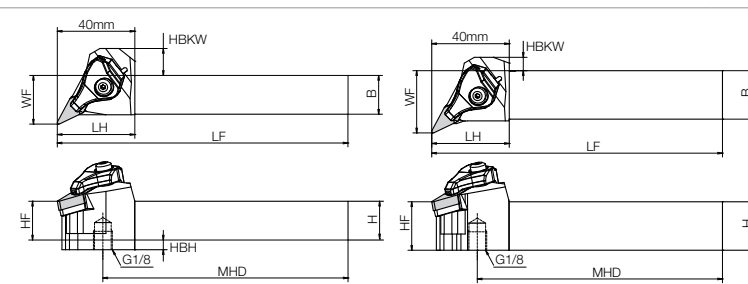
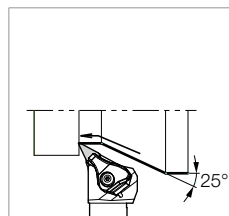
● Applicable Inserts ◆ D20

Toolholder	Insert
DVLN% 12-3BJCT	VN□A VN□G VN□M
DVLN% 16-3DJCT	
DVLN% ...-16JCT	

DVPN-JCT (External / Facing / Copying / Undercutting, Jet Coolant-Through) **NEW**

JCT Coolant Connections and Pipe Parts ◆ D10-D11

Pressure Resistance: up to 4,350 psi



• Right-hand shown

Fig.3

Fig.4

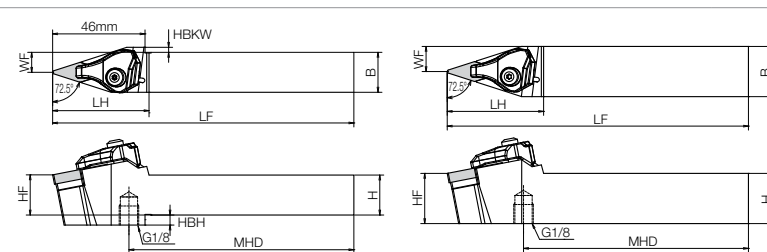
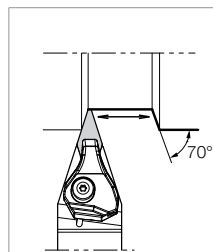
Side Rake Angle: -13°
Angle of Inclination: -10°

● Applicable Inserts ◆ D20

Toolholder	Insert
DVPN% ...-16JCT	VN□A VN□G VN□M

DVNN-JCT (External / Copying, Jet Coolant-Through) **NEW**

Pressure Resistance: up to 4,350 psi



• Right-hand shown

Fig.5














































Fig.6

Back Rake Angle: -11°

● Applicable Inserts ◆ D20

Toolholder	Insert
DVNN...-16JCT	VN□A VN□G VN□M

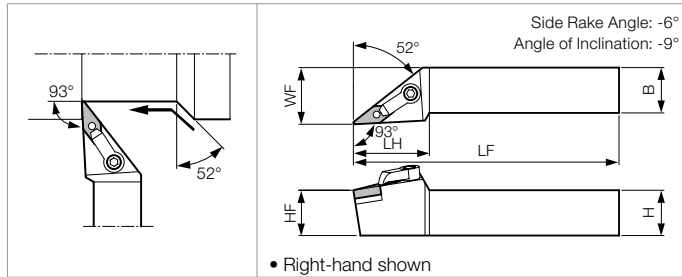
● Toolholder Dimensions

Part Number	Stock			Unit	Dimensions									Standard Corner-R (RE)	Drawing	Spare Parts							
	R	N	L		H	HF	HBH	B	HBKW	LF	LH	WF	MHD										
DVLNR 12-3BJCT	●			inch	0.750	0.750	0.234	0.750	0.142	4.500	1.771	1.000	3.220	1/32		CP-5D-JCT							
16-3DJCT	●				1.000	1.000	-	1.000	-	6.000	1.771	1.250	4.720										
DVLNL 12-3BJCT			●		0.750	0.750	0.234	0.750	0.142	4.500	1.771	1.000	3.060										
16-3DJCT			●		1.000	1.000	-	1.000	-	6.000	1.771	1.250	4.560										
DVLNR 2020K-16JCT	●			mm	20	20	5	20	4	125	45	25	92.5	0.8		CP-5D-JCT							
2525M-16JCT	●				25	25	-	25	-	150		32	117.5										
DVLNL 2020K-16JCT			●		20	20	5	20	4	125		25	88.5										
2525M-16JCT			●		25	25	-	25	-	150		32	113.5										
DVPNR 2020K-16JCT	●			mm	20	20	5	20	14	125	40	25	101.5	0.8		CP-5D-JCT							
2525M-16JCT	●				25	25	-	25	7	150		32	126.5										
DVPNL 2020K-16JCT			●		20	20	5	20	14	125		25	93.5										
2525M-16JCT			●		25	25	-	25	7	150		32	118.5										
DVVNN 2020K-16JCT		●			20	20	5	20	2.5	125	48	10	87.0	0.8		CP-5D-JCT							
2525M-16JCT		●			25	25	-	25	-	150		12.5	112.0										

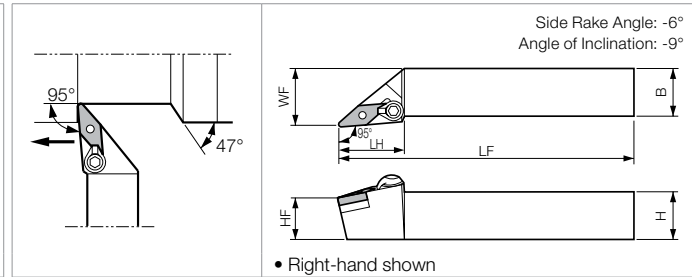
*1 O-ring (SS-035) is available to order separately

*2 When using inserts with a corner-R (RE) greater than 1/16", additional modifications of the shim are necessary in order to prevent workpiece and shim from interfering with each other

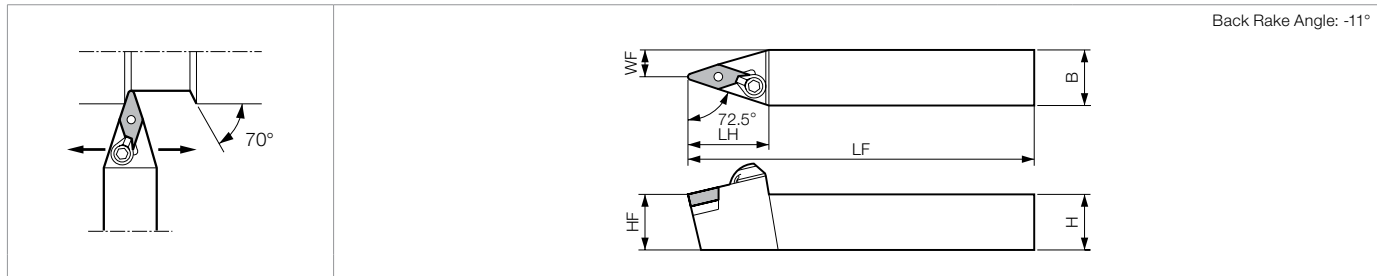
MVJN (External / Copying)



































MVLN (External / Copying)



MVVN (External / Copying)



Toolholder Dimensions

Part Number	Stock			Unit	Dimensions						Standard Corner-R (RE)	Spare Parts							
	R	N	L		H	HF	B	LF	LH	WF		Clamp Set	Wrench	Shim	Shim Screw	Lock Pin	Wrench	Clamp	Clamp Screw
MVJN% 12-3B	●		●	inch	0.75	0.75	0.75	4.5	1.69	1.00	1/32								
16-3C	●		●		1.00	1.00	1.00	5.0	1.69	1.25		-	(5/64 hex)	IVSN322	S-34	NL34L	LX-156	CL-30	XNS48
MVLN% 2020K-16	●		●	mm	20	20	20	125	38	25.0	0.8								
2525M-16	●		●		25	25	25	150	38	32.0		CPS-5%	FH-2.5	MVN-32	-	TS-3S	FH-2	-	-
MVVNN 12-3B		●		inch	0.75	0.75	0.75	4.50	1.67	0.375	1/32								
16-3D		●			1.00	1.00	1.00	6.00	1.67	0.500		-	(5/64 Hex)	IVSN322	-	NL34L	LW-156	CL-12	XNS510
MVVNN 2020K-16		●		mm	20	20	20	125	39	10.0	0.8								
2525M-16		●			25	25	25	150	39	12.5		CPS-5R	FH-2.5	MVN-32	-	TS-3S	FH-2	-	-

• Clamp Set: CPS-5R for Right-hand Toolholder, CPS-5L for Left-hand Toolholder.

EXTERNAL TOOLHOLDERS [VN INSERT]

● Applicable Inserts

Toolholder	Insert	Application	Finishing	Finishing-Medium	Finishing-Medium	Finishing-Medium	Medium	Roughing	Finishing-Medium	Stainless Steel / Finishing	Stainless Steel / Medium-Roughing
MVJN%...12-3B	VN□A VN□G VN□M 33..	Insert	PP	% -VC	VF	PQ	TN-V	Standard	%	MQ	MS
MVJN%...16-3C		Size	33..	33..	33..	33..	33..	33..	33..	33..	33..
MVLN%...-16		Ref. Page	➡ B44	➡ B44	➡ B44	➡ B44	➡ B44	➡ B44	➡ B45	➡ B45	➡ B45
MVVNN...12-3B		Application	Stainless Steel / Medium-Roughing	Heat-Resistant Alloy Roughing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Non-ferrous Metals	Hard Materials	
MVVNN...16-3D		Insert	MU	SG	KG	KH	Without Chipbreaker	Ceramic	PCD	CBN	
MVVNN...-16		Size	33..	33..	33..	33..	33..	33..	33..	33..	33..
		Ref. Page	➡ B45	➡ B45	➡ B45	➡ B45	➡ B45	➡ B114	➡ C23	➡ C12	

Recommended Cutting Conditions ➡ D45-D46

◆ Rotation Directions of the Clamp Set



MVVNN type
(Neutral)



MVLNR type
(Right-hand Toolholder)

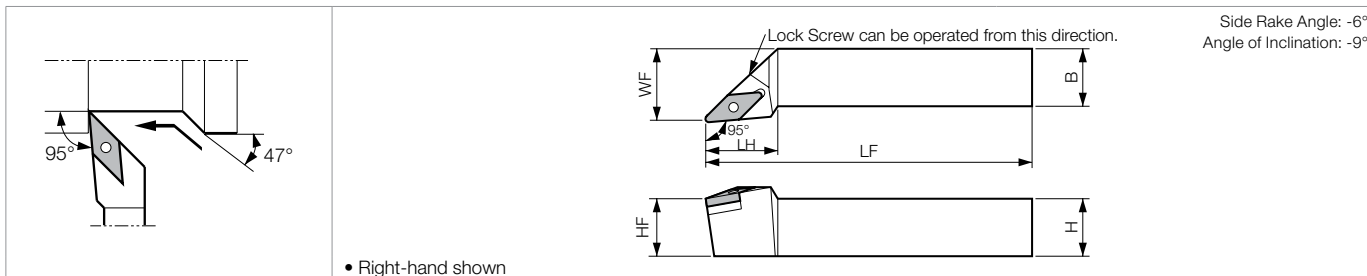


MVLNL type
(Left-hand Toolholder)

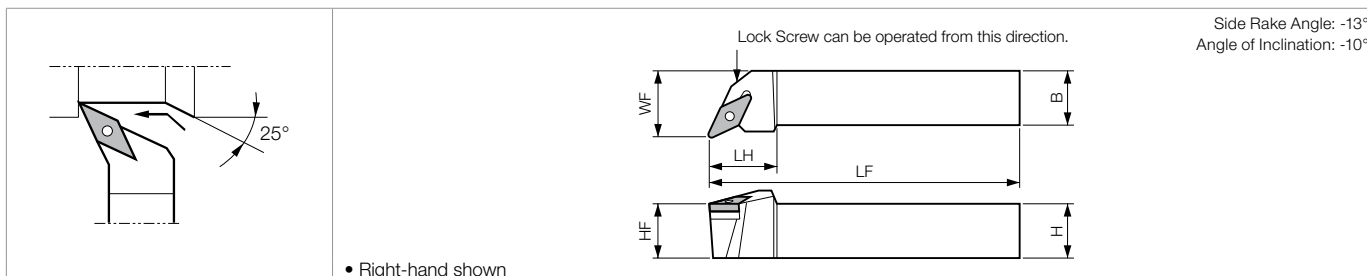
Clamp set: (CPS-5R) has Right-hand thread.
When clamping the insert, turn the screw in the arrow direction (clockwise).
When removing the insert, turn the screw away from the arrow (counterclockwise).

Clamp set: (CPS-5L) has Left-hand thread.
When clamping the insert, turn the screw in the arrow direction (counterclockwise).
When removing the insert, turn the screw away from the arrow (clockwise).

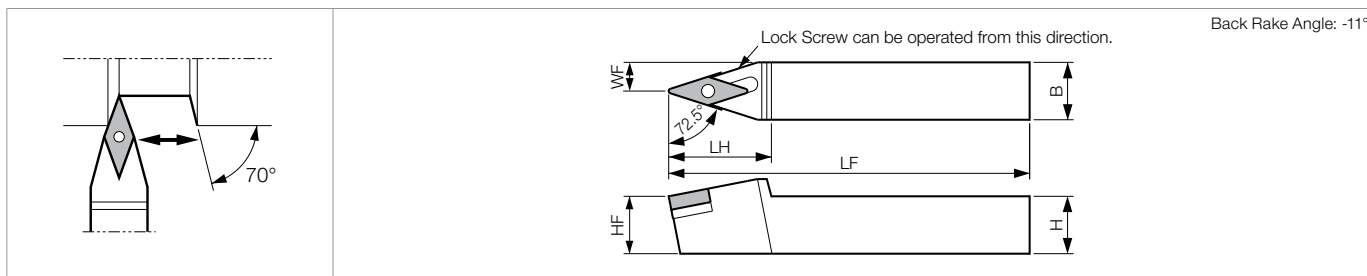
PVLN (External / Copying)



PVPN (External / Facing / Copying / Undercutting)



PVVN (External / Copying)



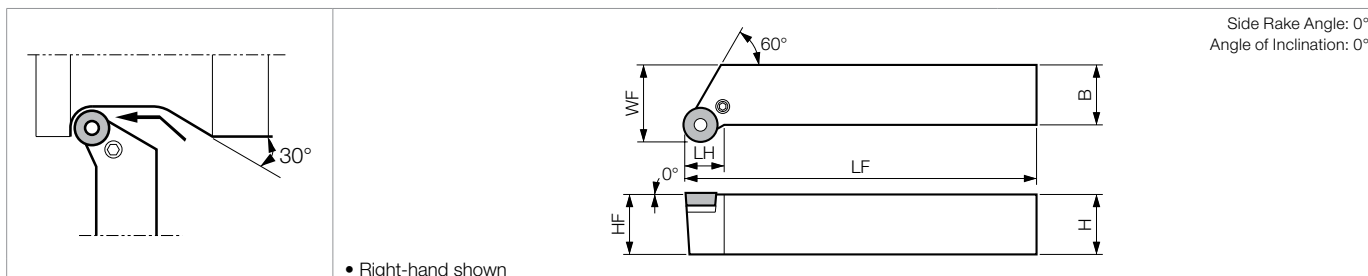
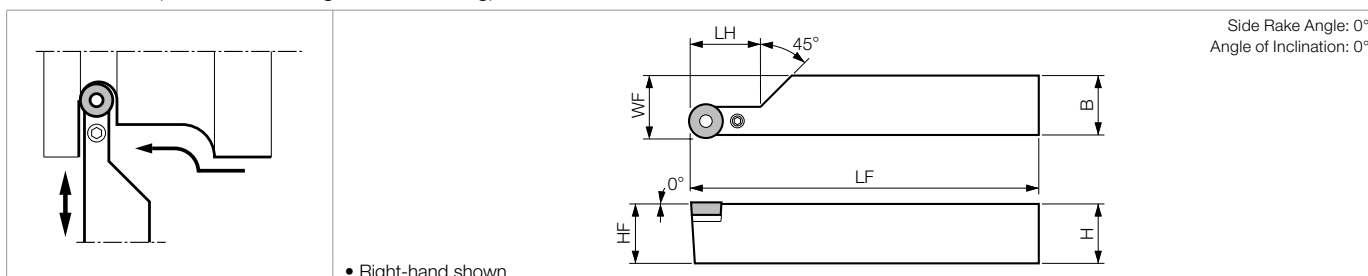
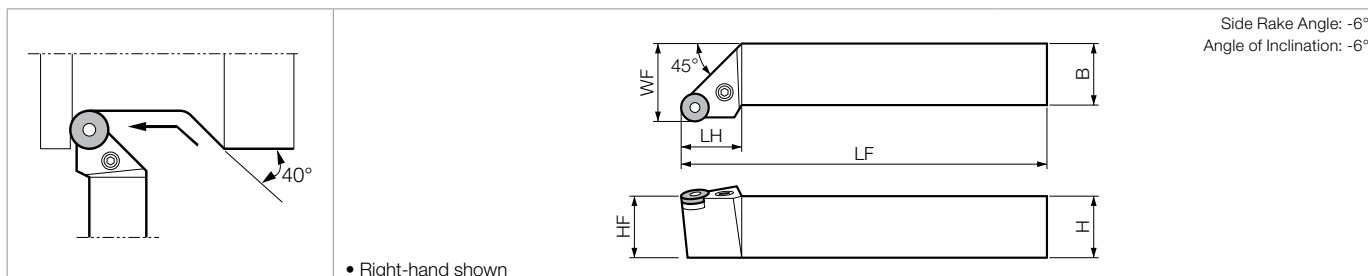
Toolholder Dimensions

Part Number	Stock			Unit	Dimensions						Standard Corner-R (RE)	Spare Parts			
	R	N	L		H	HF	B	LF	LH	WF		Lock Pin	Lock Screw	Shim	Wrench
PVLN% 2525M-16Q	●		●	mm	25	25	25	150	37	32.0	0.8	LP-6S	LS-15	KVN-32	LW-3
PVPN% 2020K-16Q	●		●		20	20	20	125	30	25.0	0.8	LP-2S	LS-11	KVN-32	LW-3
2525M-16Q	●		●		25	25	25	150	30	32.0	0.8	LP-6S			
PVVN 2020K-16Q		●			20	20	20	125	35	10.0	0.8	LP-2S	LS-15	KVN-32	LW-3
2525M-16Q		●			25	25	25	150	40	12.5	0.8	LP-6S			

Applicable Inserts

Toolholder	Insert	Application	Finishing	Finishing-Medium	Finishing-Medium	Finishing-Medium	Medium	Roughing	Finishing-Medium	Stainless Steel / Finishing	Stainless Steel / Medium-Roughing
PVLN%...-16Q	VN□A VN□G VN□M	Insert	PP	% -VC	VF	PQ	TN-V	Standard	%	MQ	MS
PVPN%...-16Q		Size	33..	33..	33..	33..	33..	33..	33..	33..	33..
PVVN...-16Q		Ref. Page	● B44	● B44	● B44	● B44	● B44	● B44	● B45	● B45	● B45
		Application	Stainless Steel / Medium-Roughing	Heat-Resistant Alloy Roughing	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Non-ferrous Metals	Hard Materials	
		Insert	MU	SG	KG	KH	Without Chipbreaker	Ceramic	PCD	CBN	
		Size	33..	33..	33..	33..	33..	33..	33..	33..	
		Ref. Page	● B45	● B45	● B45	● B45	● B45	● B114	● C23	● C12	

Recommended Cutting Conditions ● D45-D46

■ **PRGC** (External / Facing / Undercutting)■ **PRXC** (External / Facing / Undercutting)■ **PRGN** (External / Facing / Undercutting)● **Toolholder Dimensions**

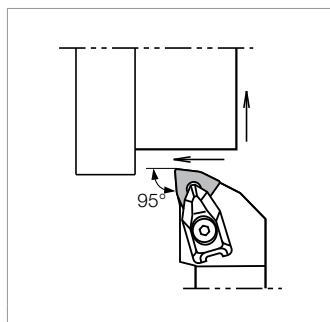
Part Number	Stock		Unit	Dimensions						Standard Corner-R (RE)	Spare Parts					
	R	L		H	HF	B	LF	LH	WF		Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench
PRGC% 12-10MC	●	●	inch	0.75	0.75	0.75	5.00	0.60	1.00	-	LL-05C	LS-05	LR-10C	LSP-1	PC-1	FH-2
16-10MD	●	●		1.00	1.00	1.00	6.00	0.60	1.25	-	LL-1CN	LS-1N	LR-12C	LSP-1	PC-1	FH-2.5
PRGC% 12-12MC	●	●		0.75	0.75	0.75	5.00	0.60	1.00	-	LL-1CN	LS-1N	LR-12C	LSP-1	PC-1	FH-2.5
16-12MD	●	●	mm	1.00	1.00	1.00	6.00	0.60	1.25	-	LL-05C	LS-05	LR-10C	LSP-1	PC-1	FH-2
PRGC% 2020K-10	●	●		20	20	20	125	15	25.0	-	LL-1CN	LS-1N	LR-12C	LSP-1	PC-1	FH-2.5
2525M-10	●	●		25	25	25	150	15	32.0	-	LL-05C	LS-05	LR-10C	LSP-1	PC-1	FH-2
PRGC% 2020K-12	●	●	mm	20	20	20	125	14	25.0	-	LL-1CN	LS-1N	LR-12C	LSP-1	PC-1	FH-2.5
2525M-12	●	●		25	25	25	150	17	32.0	-	LL-05C	LS-05	LR-10C	LSP-1	PC-1	FH-2
PRGC% 2525Q-10	●	●		25	25	25	180	30	25.5	-	LL-1CN	LS-1N	LR-12C	LSP-1	PC-1	FH-2.5
PRXC% 12-10MC	●	●	inch	0.75	0.75	0.75	5.00	1.00	0.77	-	LL-05C	LS-05	LR-10C	LSP-1	PC-1	FH-2
16-10MD	●	●		1.00	1.00	1.00	6.00	1.00	1.02	-	LL-1CN	LS-1N	LR-12C	LSP-1	PC-1	FH-2.5
PRXC% 12-12MC	●	●		0.75	0.75	0.75	5.00	1.00	0.77	-	LL-1CN	LS-1N	LR-12C	LSP-1	PC-1	FH-2.5
16-12MD	●	●	mm	1.00	1.00	1.00	6.00	1.00	1.02	-	LL-05C	LS-05	LR-10C	LSP-1	PC-1	FH-2
PRXC% 2020K-10	●	●		20	20	20	125	25	20.5	-	LL-1CN	LS-1N	LR-12C	LSP-1	PC-1	FH-2.5
2525M-10	●	●		25	25	25	150	30	25.5	-	LL-05C	LS-05	LR-10C	LSP-1	PC-1	FH-2
PRXC% 2525M-12	●	●	mm	25	25	25	150	30	25.7	-	LL-1CN	LS-1N	LR-12C	LSP-1	PC-1	FH-2.5
PRGN% 2020K-09	●	●		20	20	20	125	19	25.0	-	LL-1N	LS-1N	LR-80	LSP-1	PC-1	FH-2.5
2525M-12	●	●		25	25	25	150	26	32.0	-	LL-2N	LS-2N	LR-81	LSP-2	PC-2	LW-3

● **Applicable Inserts**

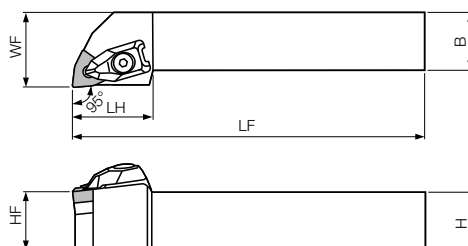
Toolholder	Insert	Toolholder	Insert
PR□C%...12-10..	RCGX RCMX	PRGC%...-10	1003M0
PR□C%...16-10..	RCGX RCMX	PRGC%...-12	1204M0
PR□C%...12-12..	RCGX RCMX	PRXC%...-10	1003M0
PR□C%...16-12..	RCGX RCMX	PRXC%...-12	1204M0
		PRGN%...-09	32
		PRGN%...-12	43

Application	Medium	Non-ferrous Metals	Medium-Roughing
Insert	Standard	AQ	Standard
Size	RC□X10.., RC□X12..	RC□X10..	RNMG32, RNMG43..
Ref. Page	● B74	● B74	● B31

Recommended Cutting Conditions ● D45-D46

DWLN (External / Facing)

• Right-hand shown

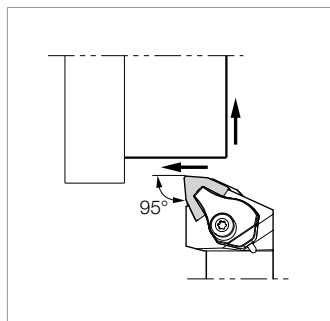
Side Rake Angle: -6°
Angle of Inclination: -6°

● Applicable Inserts ● D27

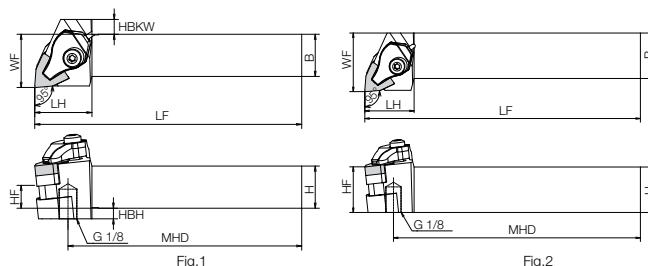
Toolholder	Insert	
DWLN% 12-3B	WN□G	33..
DWLN% 16-3D	WN□M	
DWLN% 12-4B	WN□A	43..
DWLN% 16-4D	WN□G	
DWLN% ...-08	WN□M	

DWLN-JCT (External / Facing, Jet Coolant-Through) **NEW**

Pressure Resistance: up to 4,350 psi



• Right-hand shown









Side Rake Angle: -6°
Angle of Inclination: -6°

● Applicable Inserts ● D27

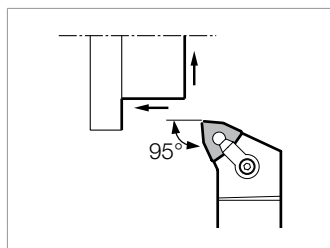
Toolholder	Insert	
DWLN% 12-4BJCT	WN□A	43..
DWLN% 16-4DJCT	WN□G	
DWLN% ...-08JCT	WN□M	

● Toolholder Dimensions

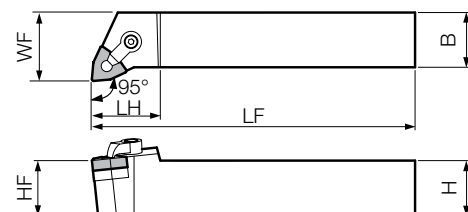
JCT Coolant Connections and Pipe Parts ● D10~D11

Part Number	Stock		Unit	Dimensions										Standard Corner-R (RE)	Drawing	Spare Parts							
	R	L		H	HF	HBH	B	HBKW	LF	LH	WF	MHD	Clamp			Pipe Connection (*1 with O-Ring)	Screw	Spring	Shim	Shim Screw	Wrench	Wrench	
																							
DWLN% 12-3B	●	●	inch	0.75	0.75	-	0.75	-	4.50	1.06	1.00	-	1/32	-	CP-2D	-	CS-2D	SP-2D	DW-32	SB-3080TR	LW-2.5	FT-10 Sold Separately	
16-3D	●	●		1.00	1.00	-	1.00	-	6.00	1.06	1.25	-	1/32	-	CP-3D	-	CS-3D	SP-3D	DW-44	SB-4085TR	LW-3	FT-15 Sold Separately	
DWLN% 12-4B	●	●	inch	0.75	0.75	-	0.75	-	4.50	1.34	1.25	-	1/32	-	CP-3D	-	CS-3D	SP-3D	DW-44	SB-4085TR	LW-3	FT-15 Sold Separately	
16-4D	●	●		1.00	1.00	-	1.00	-	6.00	1.34	1.25	-	1/32	-	CP-3D	-	CS-3D	SP-3D	DW-44	SB-4085TR	LW-3	FT-15 Sold Separately	
DWLN% 2020K-08	●	●	mm	20	20	-	20	-	125	34	25	-	0.8	-	CP-3D	-	CS-3D	SP-3D	DW-44	SB-4085TR	LW-3	FT-15 Sold Separately	
2525M-08	●	●		25	25	-	25	-	150	34	32	-	0.8	-	CP-3D	-	CS-3D	SP-3D	DW-44	SB-4085TR	LW-3	FT-15 Sold Separately	
DWLN% 12-4BJCT	●	●	inch	0.75	0.75	0.23	0.75	0.26	4.50	1.06	1.00	3.88	1/32	Fig.1	CP-3D-%-JCT	FP-12	CS-3D-TR	SP-3D	DW-44	SB-4085TR	-	FT-15	
16-4DJCT	●	●		1.00	1.00	-	1.00	-	6.00	1.06	1.25	5.38		Fig.2	CP-3D-%-JCT	FP-12	CS-3D-TR	SP-3D	DW-44	SB-4085TR			
DWLN% 2020K-08JCT	●	●	mm	20	20	5	20	7	125	27	25	109	0.8	Fig.1	CP-3D-%-JCT	FP-12	CS-3D-TR	SP-3D	DW-44	SB-4085TR	-	FT-15	
2525M-08JCT	●	●		25	25	-	25	-	150	27	32	134		Fig.2	CP-3D-%-JCT	FP-12	CS-3D-TR	SP-3D	DW-44	SB-4085TR			

*1 O-ring (SS-035) is available to order separately

MWLN (External / Facing)








• Right-hand shown

Side Rake Angle: -5°
Angle of Inclination: -5°

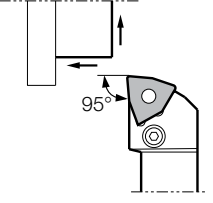
● Applicable Inserts ● D27

Toolholder	Insert	
MWLN% ...-16-4D	WN□A WN□G WN□M	43..

● Toolholder Dimensions

Part Number	Stock		Unit	Dimensions						Standard Corner-R (RE)	Spare Parts						
	R	L		H	HF	B	LF	LH	WF		Clamp	Clamp Screw	Wrench	Shim	Shim Screw	Lock Pin	Wrench
																	
MWLN% 16-4D	●	●	inch	1.00	1.00	1.00	6.00	1.19	1.25	1/32	CL-9	XNS-510	LW-156	IWSN432	S-46	NL46	LW-094

PWLN (External / Facing)



Side Rake Angle: -6°
Angle of Inclination: -6°

• Right-hand shown

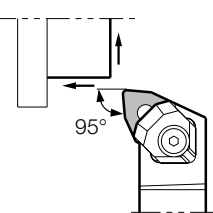
Applicable Inserts

Toolholder	Insert
PWLN%...12-3B	WN□G 33..
PWLN%...16-3D	WN□G 33..
PWLN%...-06	WN□A WN□G WN□M 43..
PWLN%...-08	WN□M 43..

Toolholder Dimensions

Part Number	Stock		Unit	Dimensions						Standard Corner-R (RE)	Spare Parts					
	R	L		H	HF	B	LF	LH	WF		Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench
PWLN% 12-3B	●		inch	0.75	0.75	0.75	4.50	0.87	1.00	1/32	LL-1N	LS-1N	LW-32N	LSP-1	PC-1	FH-2.5
PWLN% 16-3D	●		inch	1.00	1.00	1.00	6.00	0.87	1.25							
PWLN% 1616H-06	●	●		16	16	16	100	22	20							
2020K-06	●	●		20	20	20	125	22	25	0.8	LL-1N	LS-1N	LW-32N	LSP-1	PC-1	FH-2.5
2525M-06	●	●	mm	25	25	25	150	22	32							
2020K-08	●	●		20	20	20	125	26	25	0.8	LL-2N	LS-2N	LW-42N	LSP-2	PC-2	LW-3
2525M-08	●	●	mm	25	25	25	150	26	32							

WWLN (External / Facing)



Side Rake Angle: -6°
Angle of Inclination: -6°

• Right-hand shown

WWLN% 2020K type:
Shim Nut sticks out as shown below.

Applicable Inserts

Toolholder	Insert
WWLN%...-08	WN□A WN□G WN□M 43..

Toolholder Dimensions

Part Number	Stock		Unit	Dimensions						Standard Corner-R (RE)	Spare Parts				
	R	L		H	HF	B	LF	LH	WF		Clamp Set	Shim	Shim Pin	Shim Nut	Wrench
WWLN% 2020K-08	●	●	mm	20	20	20	125	30	25	1.2	WCS-8	WWN-42	WP5X15	WN-1	LW-3
2525M-08	●	●	mm	25	25	25	150	30	32						

Applicable Inserts

Application	Finishing	Finishing-Medium	Finishing	Finishing-Medium	Finishing-Medium	Finishing-Medium	Medium-Roughing	Medium-Roughing	Medium-Roughing	Medium-Roughing / High Feed Rate
Insert	WF (Wiper)	WE (Wiper)	PP	PQ	CQ	CJ	GS	PG	PS	PT
Size	43..	43..	43..	43..	43..	43..	33.., 43..	43..	43..	43..
Ref. Page	● B46	● B46	● B46	● B46	● B47	● B47	● B47	● B47	● B47	● B47
Application	Roughing	Finishing	Medium	Soft Steel / Finishing	Soft Steel / Medium	Soft Steel / Roughing	Stainless Steel / Finishing	Stainless Steel Medium-Roughing	Stainless Steel Medium-Roughing	Heat-Resistant Alloy Roughing
Insert	Standard	%-S	%	XP	XQ	XS	MQ	MS	MU	SG
Size	43..	33..	33..	43..	43..	43..	43..	43..	43..	43..
Ref. Page	● B47	● B49	● B49	● B48	● B48	● B48	● B48	● B48	● B48	● B48
Application	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Non-ferrous Metals	Non-ferrous Metals	Hard Materials		
Insert	KQ	KG	KH	ZS	GC	AH	PCD	CBN		
Size	43..	43..	43..	43..	43..	43..	43..	43..		
Ref. Page	● B49	● B49	● B49	● B49	● B49	● B49	● C23	● C13		

• In wedge lock, use of ceramic insert other than silicon nitride insert is not recommended due to strong restrain force.

Recommended Cutting Conditions ● D45-D46

● : Standard Item △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

(Customer Service) 800.823.7284 - Option 1

(Technical Support) 800.823.7284 - Option 2

Visit us online at KyoceraPrecisionTools.com

ZBMT Series ^{NEW}

25° Insert Profiling Tools

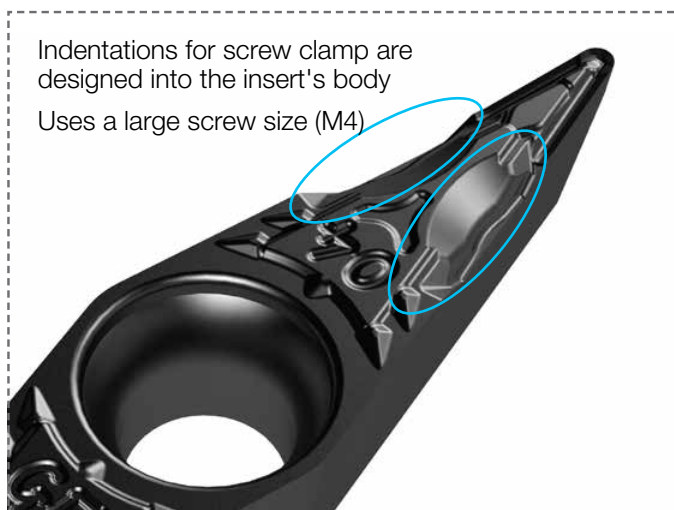
Unique clamping structure and a wide lineup of external toolholders and boring bars.
High precision and stable machining in a wide range of applications including copying, undercutting, tapering, V-slotting, spherical machining, and more.

1 Newly Developed Self-Clamping Mechanism Achieves a Higher Rigidity

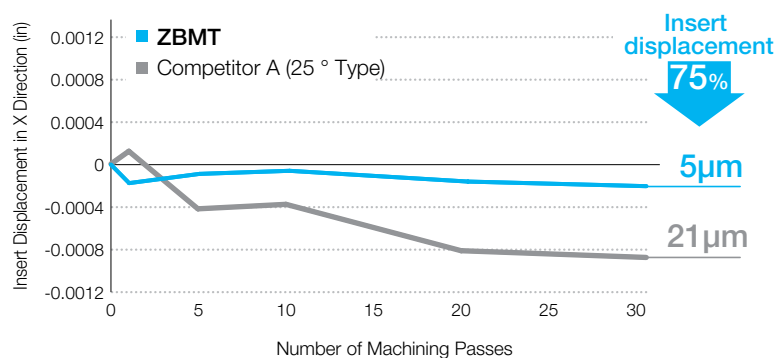
Side Lock Mechanism



Unique design holds insert at 2 points
Safe even for insert with small tip angle that is difficult to mount



Insert Displacement During Facing Comparison (Internal Evaluation)



Cutting Conditions : $V_c = 750$ sfm, D.O.C. = 0.012", $f = 0.006$ ipr, Wet Workpiece 4137

*The above figures are not guaranteed and depends on cutting conditions.

Stable Insert Design

By controlling insert displacement,

- Machining precision is stabilized and prolongs tool life
- Reduces defect rate due to sudden dimensional deviation

*Please check P5 for how to attach and detach insert using the new insert clamp

2

Unique Holder Design to Meet Customers' Needs

Both boring bars and external toolholders are compatible with internal coolant.

Unique Double Coolant Hole Design

Supplies coolant directly to the cutting edge and provides improved chip evacuation and long tool life (Coolant discharge direction: Fine adjustment possible)

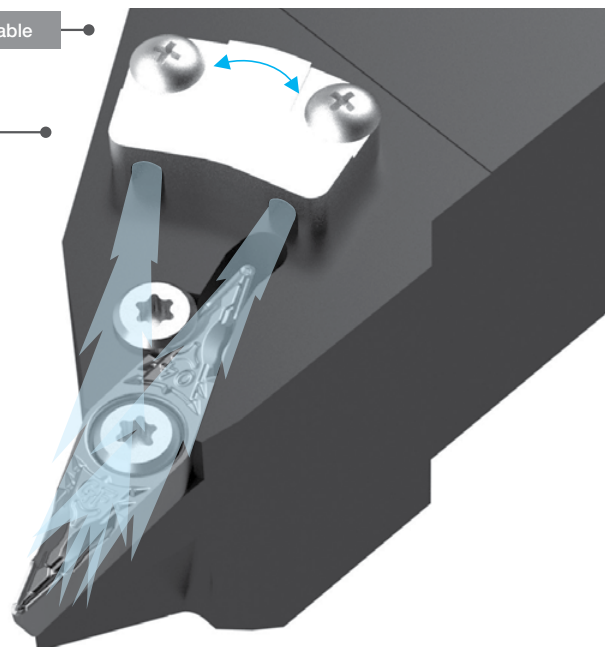
*Though coolant stream hits side clamp screw, machining performance is not affected

*Pressure resistance: ~ 435 psi

Uses a clamp with a small thickness that does not interfere with chip flow

Fine Tuned and Adjustable

± 4 ° Adjustable Oscillation



Easy to use for Facing

Insert corner : 2-Step Positive Type (20°)

Effective for facing applications

Holder: Tapered shape

Inserts and toolholders have a unique end shape
No additional machining is required when trying to avoid interference with workpiece.

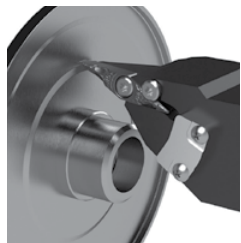


Case Study

Significant reduction in quality defect costs

(User Evaluation)

Suppresses dimensional fluctuations due to insert displacement.
Reduces defect rates.



Dimensional defect rate

GF Chipbreaker

Competitor B

100 +/-month

Cutting Conditions : Vc = 750 sfm, D.O.C. = 0.012", f = 0.006 ipr, Wet
Workpiece 4137

Defect rate
Reduction



GF Chipbreaker chip condition

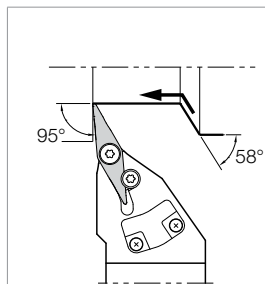


Customer Feedback

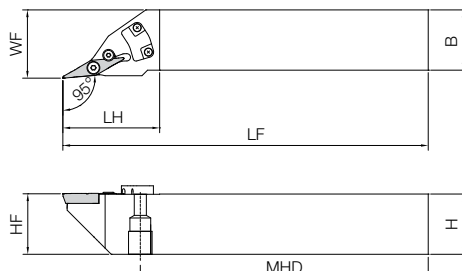
- Some parts require an insert with a tip angle of 25° to allow machining.
- The dimensional error of the GC chipbreaker was drastically improved in comparison with the competitors.
- Greatly reduced the cost of quality defects

SZLB (External / Copying) **NEW**

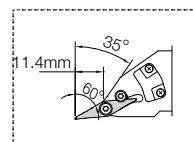
Pressure resistance : ~ 435 psi



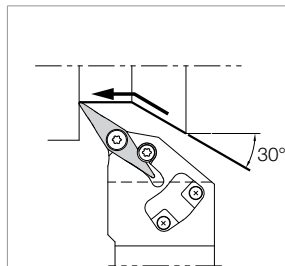
• Right-hand Shown



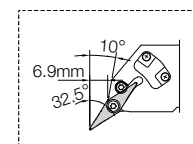
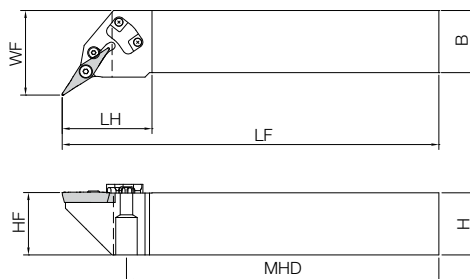
• When using ZBMT13T304R-GF-15D inserts, use a Right-hand holder only

Side Rake Angle : 0°
Angle of Inclination : 0°**SZPB** (External / Facing / Copying / Undercutting) **NEW**

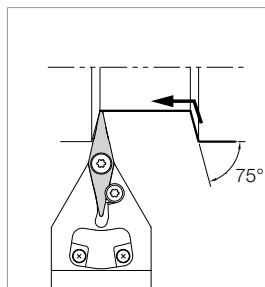
Pressure resistance : ~ 435 psi



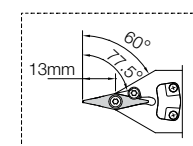
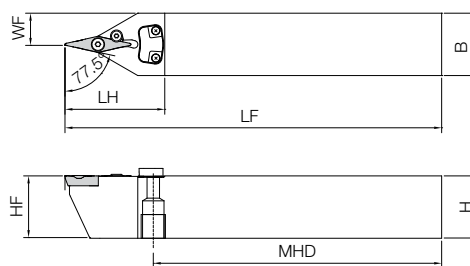
• Right-hand Shown





Side Rake Angle : 0°
Angle of Inclination : 0°**SZVB** (External / Copying) **NEW**

Pressure resistance : ~ 435 psi



• Right-hand Shown

Side Rake Angle : 0°
Angle of Inclination : 0°**Toolholder Dimensions**

Part Number	Stock			Dimensions (mm)							Standard Corner-R(RE)	Coolant Hole	Spare Parts						
	R	N	L	H	HF	B	LF	LH	WF	MHD			Clamp	Clamp Screw	Insert Screw	Wrench			
																			
SZLB% 2020K-13C	●		●	20	20	20	125	40	23	92.6	0.4	Yes	ZCP-13	BH2X6	SB-3079TR	FT-8			
2525M-13C	●		●	25	25	25	150	40	28.2	118									
SZPB% 2020K-13C	●		●	20	20	20	125	37	27.2	95	0.4	Yes							
2525M-13C	●		●	25	25	25	150	36	33.9	124.2									
SZVBN 2020K-13C		●		20	20	20	125	40	10	89.6	0.4	Yes					Recommended tightening torque 1.2 Nm		
2525M-13C		●		25	25	25	150	40	12.5	114.6									

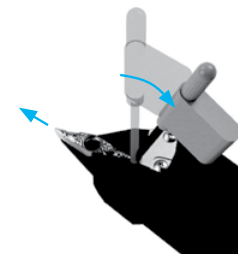
Recommended tightening
torque 1.2 Nm**Applicable Inserts**

Application	25° Tip Angle	15° Tip Angle
Ref. Page	● B101	● B101
Insert	GF	GF-15D
Toolholder		
SZLB...-13C SZPB...-13C SZVB...-13C	ZBMT13T3	ZBMT13T3

Recommended Cutting Conditions ● **B101****When mounting the insert (Tightening torque: 1.2 Nm)**

1. Tighten the main screw with the insert pressed against the contact surface with fingertips.

2. Tighten the side screw to complete the installation.

When removing the insert

Remove the two screws and put the wrench into the gap at the back end of the insert. It can be easily removed by pushing out the insert as shown above.


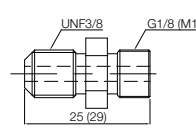

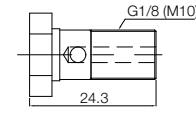
Piping Parts

Optional Piping Parts Available

Choose from parts below to match your machine specifications

1. Joint / Banjo Bolt

Pressure Resistance: up to 4,350 psi

Shape	Part Number	Stock	Thread Standard Holder / Machine Connection
		●	G1/8
	J-M10X1.5-UNF3/8	●	M10X1.5
		●	G1/8
	BB-M10X1.5	●	M10X1.5


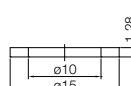
1. Joint / Banjo bolt × 2

2. Washer × 2-4

3. Hose × 1

2. Washer

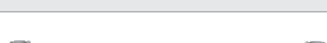


Pressure Resistance: up to 4,350 psi

Shape	Part Number	Stock
		●

* Use 2 washers for a banjo bolt

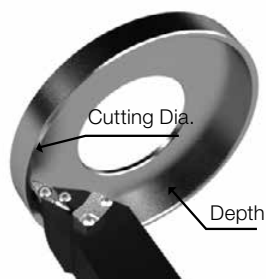
3. Hose

Pressure Resistance: up to 4,350 psi

Shape	Part Number	Stock	Thread Standard	Dimensions (mm)
	HS-ST-ST-200	●	UNF3/8	L
	HS-ST-ST-250	●	UNF3/8	200
	HS-ST-AN-200	●	UNF3/8	250
	HS-ST-AN-250	●	(Banjo Bolt)	200
	HS-AN-AN-200	●	(Banjo Bolt)	250
	HS-AN-AN-250	●	(Banjo Bolt)	200

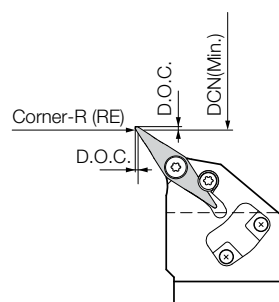
● Boring/Facing Available Cutting Dia. and Max. D.O.C.

● Undercutting Diameter of SZPB



Standard Corner-R
0.4mm (RE)

Cutting Dia. (mm)	Depth (mm)
Ø30	0.5
Ø50	1.5
Ø65	3.0
Ø80	6.0
Ø100	10.0
Ø150	14.0



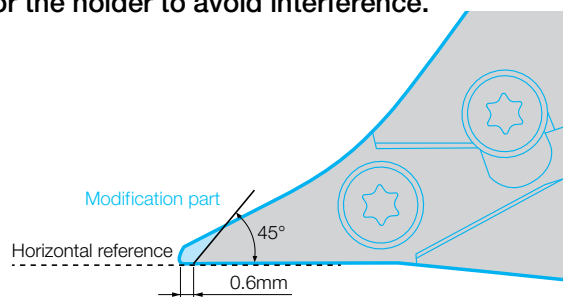
Corner-R (RE)	D.O.C. (mm)	DCN (Min.)
0.2	0.5	Ø30
	1	Ø35
0.4	0.5	Ø30
	1	Ø35
0.8	0.5	Ø110
	1	Ø150

How to Modify Toolholder when Using 15° Insert

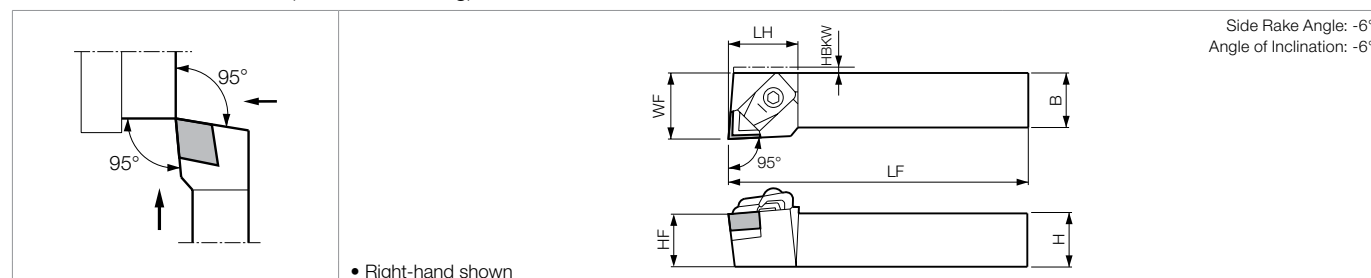
When using 15° insert, additional modification is required for the holder to avoid interference.

Recommended Additional Modification












- Set the edge of insert bearing surface at the end of the holder at horizontal reference shown below.
- Modify the holder to 0.6 mm from the tip at an angle of not less than 45 degrees from the horizontal.



CCLN / HCLN (External / Facing)



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions							Standard Corner-R (RE)	Spare Parts										
	R	L		H	HF	B	LF	LH	WF	HBKW		Chipbreaker	Clamp Set		Wrench	Shim	Shim Screw		Lock Pin	Wrench		
																						
CCLN% 2020K-12	●	●	mm	20	20	20	125	32	27	5	0.8			CE		HCL		LW-4	SP-441 (SP-443)	M3X8 (M3X12)	-	-
2525M-12	●	●		25	25	25	150	32	32	-		CB-16	CE-010	LW-4	SP-454	M4X10	-	-				
CCLN% 3225P-16	●	●		32	32	25	170	35	32	-	0.8	CB-17	CE-220	LW-4	SP-454	M4X10	-	-				
HCLN% 16-4D	●	□	inch	1.00	1.00	1.00	6.00	1.26	1.25	-	1/32	HCB318	HCL008	LW-4	ICSN433 (ICSN453)	S-46	NL46L	LW-094				

• Shim & Shim Screw: When using CN□43 Insert, purchase spare parts in () separately.

Applicable Inserts












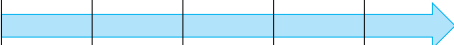

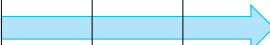
Application	Cast Iron / Hard Materials	Hard Materials / Cast Iron	Application	Cast Iron / Hard Materials	Cast Iron / Hard Materials
Ref. Page	● B108	● C19	Ref. Page	● B108	● B108
Shape	Ceramic	CBN (KBN900)	Shape	Ceramic	Ceramic
Toolholder			Toolholder		
CCLN%...-12	CNG45.., (CNG43..) CNM45	(CNM43..)	HCLN%...16-4D	CNG 45.. (43..)	CN□A 45.. (43..)
CCLN%...-16	CNG55..	-			

Recommended Cutting Conditions ● D45-D46

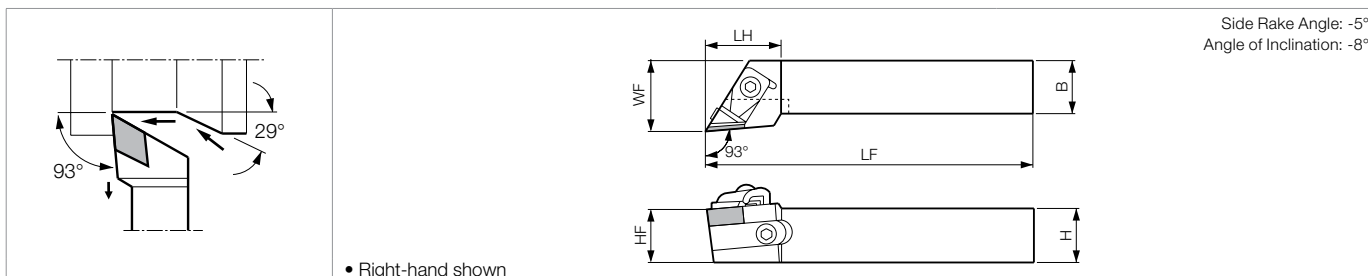
Ceramic Insert Selection Guide

Select the suitable ceramic specifications (Corner-R(RE), Feed Rate, Chamfer, etc.) from the table below.

(No.45, Cutting Edge Angle: 0°~15°)

Insert Shape		Corner-R (RE)	f (ipr)									D.O.C.
			0.004	0.006	0.008	0.010	0.012	0.014	0.016	0.018	0.020	
	RN	—										0.012~0.157
 	SN	2.0										0.012~0.157
		1.6										
	EN	1.2										
	CN	0.8										
		0.4										
 	TN	1.6										0.012~0.079
	DN	1.2										
		0.8										
Chamfer			0.002"×20°		(0.004"~0.008")×(20°~25°)				0.012"×30°			—
Insert Thickness			5/16"									

CDJN (External / Copying / Back Turning)



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions						Standard Corner-R (RE)	Spare Parts				
	R	L		H	HF	B	LF	LH	WF		Chipbreaker	Clamp Set	Wrench	Shim	Shim Screw
CDJN% 2525M-15	●	●	mm	25	25	25	150	32	32	0.8					
3225P-15	●	●		32	32	25	170	32	32		CB-14/15	CE-010	LW-4	556C%	HH5X16

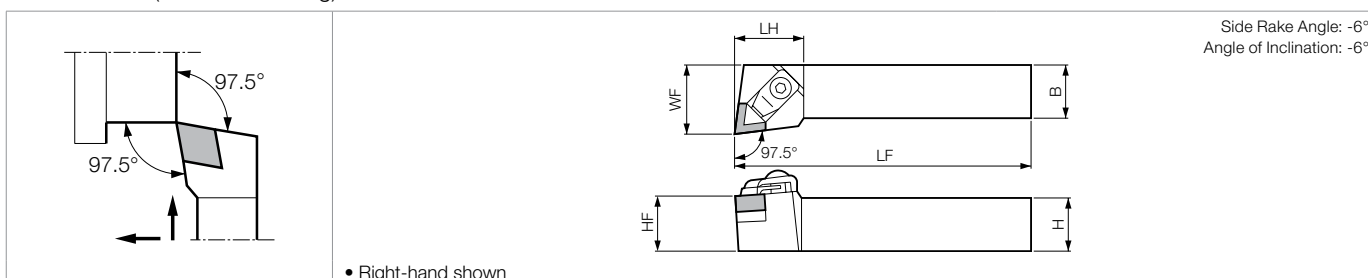
- Chipbreaker: CB-14 for Right-hand Toolholder, and CB-15 for Left-hand Toolholder.
- Shim: 556CR for Right-hand Toolholder, and 556CL for Left-hand Toolholder.

Applicable Inserts

Application	Cast Iron / Hard Materials
Ref. Page	B109
Shape	Ceramic
Toolholder	
CDJN% ...-15	DNG45..

Recommended Cutting Conditions [D39-D40](#)

CELN (External / Facing)



Toolholder Dimensions

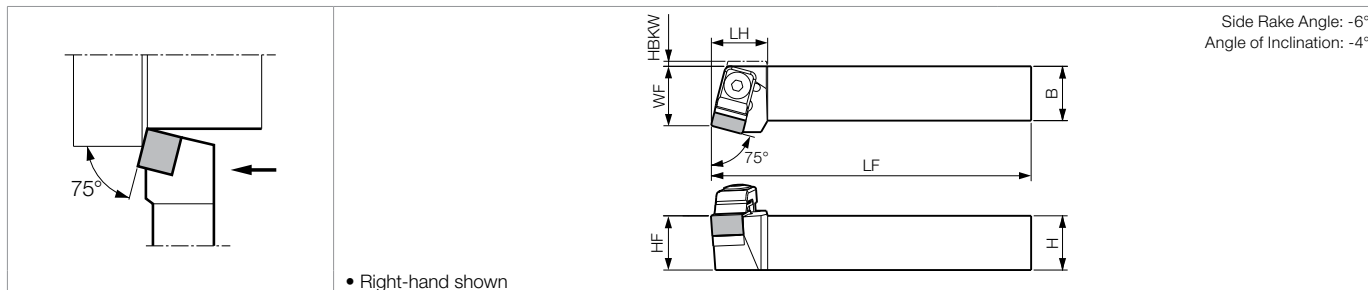
Part Number	Stock		Unit	Dimensions						Standard Corner-R (RE)	Spare Parts				
	R	L		H	HF	B	LF	LH	WF		Chipbreaker	Clamp Set	Wrench	Shim	Shim Screw
CELN% 2525M-13	●	●	mm	25	25	25	150	32	32	0.8					

Applicable Inserts

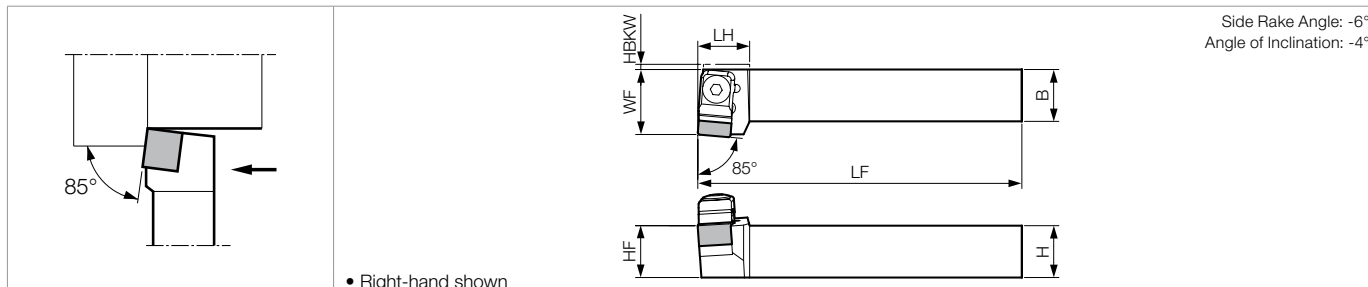
Application	Cast Iron / Hard Materials
Ref. Page	B109
Shape	Ceramic
Toolholder	
CELN% ...-13	ENG45..

Recommended Cutting Conditions [D45-D46](#)

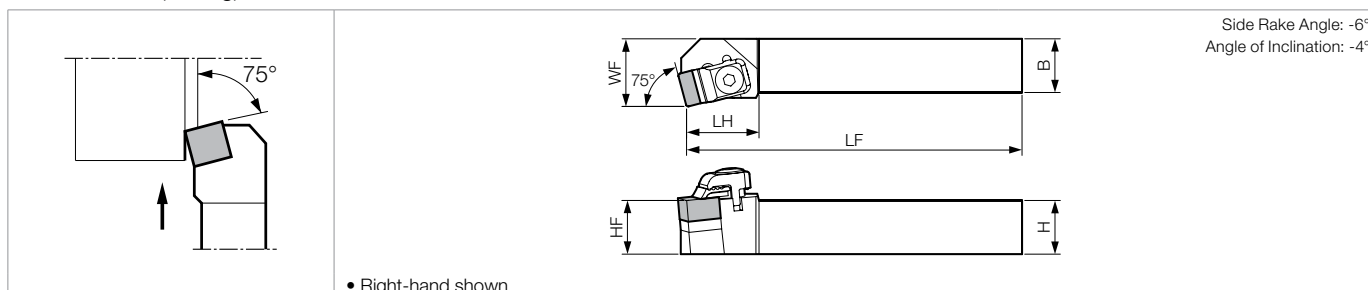
CSRN / HSRN (External)



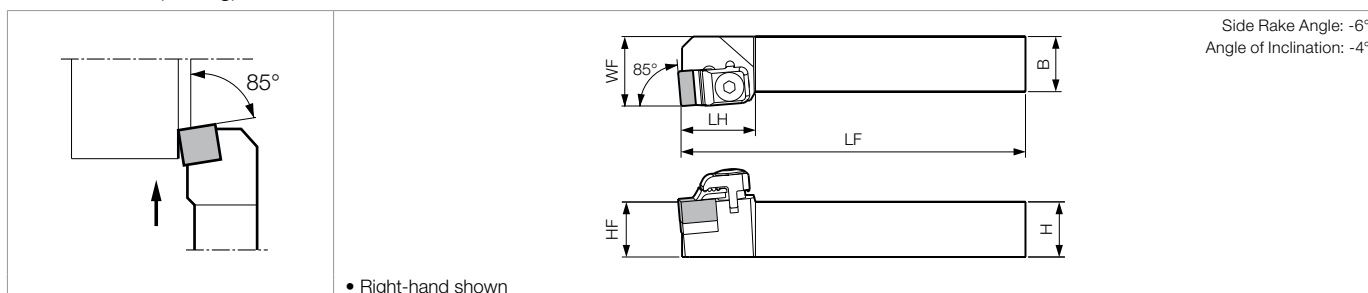
CS-N (External)



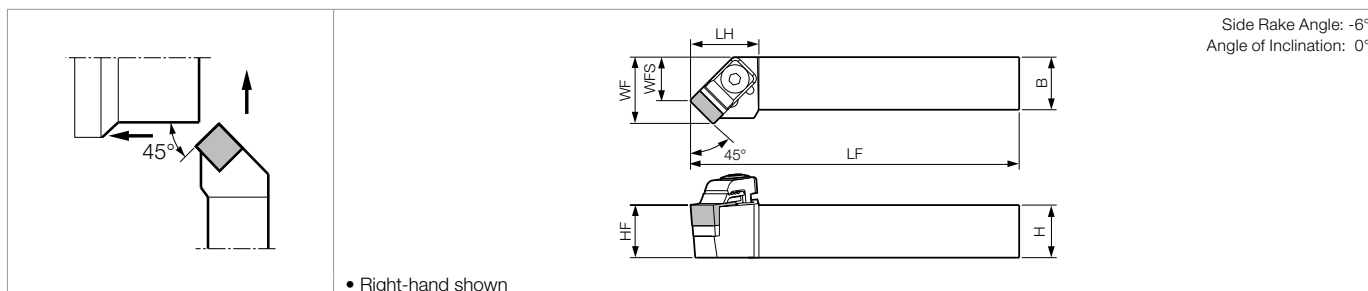
CSKN (Facing)



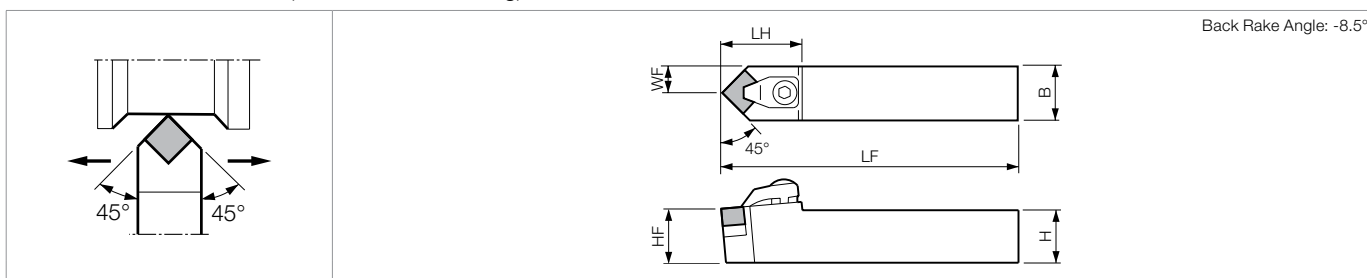
CSYN (Facing)














CSSN (External / Facing / Chamfering)



CSDN / HSDN (External / Chamfering)



Toolholder Dimensions

Part Number	Stock			Unit	Dimensions								Standard Corner-R (RE)	Spare Parts										
	R	N	L		H	HF	B	LF	LH	WF	HBKW	WFS		Chipbreaker	Clamp Set				Wrench	Shim	Shim Screw	Lock Pin	Wrench	
																								
CSRN% 20-4E	●		●	inch	1.25	1.25	1.25	7.00	0.88	1.50	-	-	1/32	CB-11	CE-020				LW-4	SP-141	M3X8	-	-	
CSRN% 2020K-12	●		●		20	20	20	125	22	22.0	2	-	0.8	CB-11	CE-020				LW-4	SP-141 (SP-143)	M3X8 (M3X12)	-	-	
2525M-12	●		●		25	25	25	150	22	27.0	-	-		0.8	CB-51	CE-220				LW-4	SP-162	M4X10	-	-
3225P-12	●		●		32	32	25	170	22	27.0	-	-	0.8		CB-51	CE-220				LW-4	SP-162	M4X10	-	-
3225P-15	●				32	32	25	170	30	32.4	-	-			0.8	CB-51	CE-220				LW-4	SP-162	M4X10	-
4040R-15	●		●		40	40	40	200	30	43.0	-	-		CB-11		CE-020				LW-4	SP-141 (SP-143)	M3X8 (M3X12)	-	-
CS-N% 2525M-12	●		●	mm	25	25	25	150	20	32.0	-	-		0.8	CB-11	CE-020				LW-4	SP-141 (SP-143)	M3X8 (M3X12)	-	-
CSKN% 2020K-12	●				20	20	20	125	27	25.0	-	-		0.8	CB-11	CE-020				LW-4	SP-141 (SP-143)	M3X8 (M3X12)	-	-
2525M-12	●		●		25	25	25	150	27	32.0	-	-			0.8	CB-51	CE-220				LW-4	SP-162	M4X10	-
3225P-15	●				32	32	25	170	37	32.0	-	-		0.8		CB-51	CE-220				LW-4	SP-162	M4X10	-
CSYN% 2525M-12	●		●		25	25	25	150	27	32.0	-	-	0.8	CB-11	CE-020				LW-4	SP-141 (SP-143)	M3X8 (M3X12)	-	-	
CSSN% 16-4D	●		●	inch	1.00	1.00	1.00	6.00	1.00	1.25	-	-	1/32	CB-11	CE-020				LW-4	SP-141 (SP-143)	M3X8 (M3X12)	-	-	
CSSN% 2020K-12	●				20	20	20	125	26	25.0	-	16	0.8	CB-11	CE-020				LW-4	SP-141 (SP-143)	M3X8 (M3X12)	-	-	
2525M-12	●		●		25	25	25	150	26	32.0	-	23			-	CE-040				LW-4	SP-141 (SP-143)	M3X8 (M3X12)	-	-
CSDNN 2020K-12		●		mm	20	20	20	125	32	10.0	-	-	0.8		-	CE-040	LW-4	SP-141 (SP-143)	M3X8 (M3X12)	-	-			
2525M-12		●		25	25	25	150	32	12.5	-	-													
3225P-12		●		32	32	25	170	32	12.5	-	-													
HSRN% 16-4D	●			inch	1.00	1.00	1.00	6.00	0.87	1.13	-	-	1/32	HCB300	HCL-000 (HCL-001)				LW-4	ISSN433 (ISSN453)	S-46	NL46L	LW-094	
HSDNN 20-4D		●			1.25	1.25	1.25	6.00	1.30	0.625	-	-	1/32	-	HCL-002				LW-4	ISSN433 (ISSN453)	S-46	NL46L	LW-094	

● Shim & Shim Screw : When using SN□□43 Insert, purchase spare parts in () separately.

Applicable Inserts

Application	Cast Iron / Hard Materials	Cast Iron / Hard Materials	Cast Iron	Hard Materials / Cast Iron	When using as toolholder for CBN tools (KBN900), prepare spare parts below separately.		
Ref. Page	● B111, B112	● B111	● B35	● C19			
Shape	Ceramic	Ceramic	Coated Carbide	CBN (KBN900)	Clamp Set	Shim	Shim Screw
Toolholder							
CSRN% ...-4E CSRN% ...-12	SNG45.. (SNG43..) SNM45..	-	(SNM43..)	(SNM43..)	CE-030A	SP-143	M3X12
CSRN% ...-15	SNG55..	-	-	-	-	-	-
CS-N% ...-12	SNG45.. (SNG43..) SNM45..	-	(SNM43..)	(SNM43..)	CE-030A	SP-143	M3X12
CSKN% ...-12	SNG45.. (SNG43..) SNM45..	-	(SNM43..)	(SNM43..)	CE-030A	SP-143	M3X12
CSKN% ...-15	SNG55..	-	-	-	-	-	-
CSYN% ...-12	SNG45.. (SNG43..) SNM45..	-	(SNM43..)	(SNM43..)	CE-030A	SP-143	M3X12
CSSN% ...-4D CSSN% ...-12	SNG45.. (SNG43..) SNM45..	-	(SNM43..)	(SNM43..)	CE-030A	SP-143	M3X12
CSDNN...-12	SNG45.. (SNG43..) SNM45..	-	(SNM43..)	(SNM43..)	-	SP-143	M3X12
HSRN% ...-4D	SNG45.. (SNG43..) SNM45..	(SNGA43..) (SNMA43..)	(SNM43..)	(SNM43..)	HCL-001	ISSN453	S-46
HSDNN...-4D	SNG45.. (SNG43..) SNM45..	(SNGA43..) (SNMA43..)	(SNM43..)	(SNM43..)	-	ISSN453	S-46

● Shim & Shim Screw : When using SN□□43 Insert, purchase spare parts in () separately.

*CSDNN...-12: Clamp Set CE-040 is used continuously.

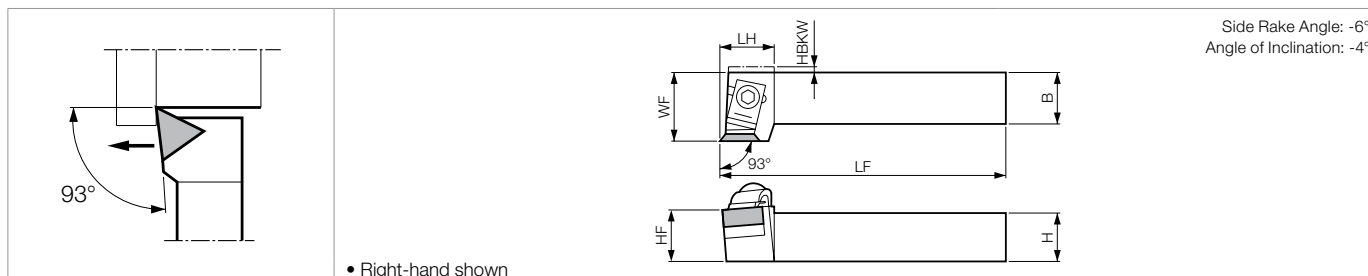
● : Standard Item △ : Phaseout Item (will be removed from next catalog)

Contact your local Kyocera sales engineer to upgrade old products to new technology

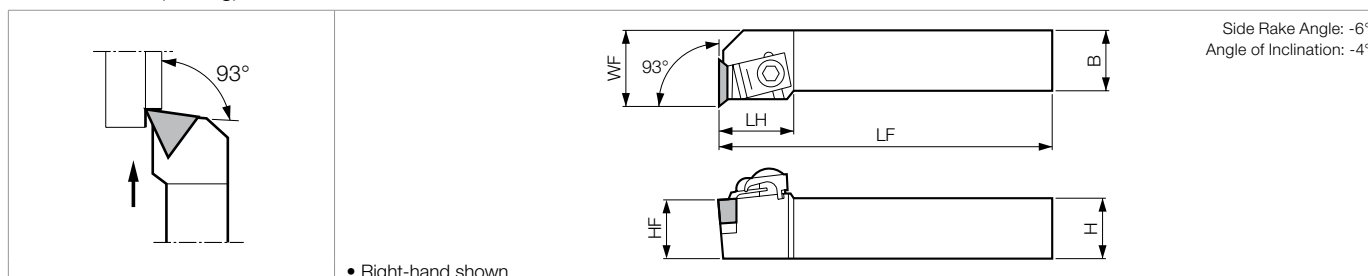
Recommended Cutting Conditions ● D45-D46

(Customer Service) 800.823.7284 - Option 1
(Technical Support) 800.823.7284 - Option 2
Visit us online at KyoceraPrecisionTools.com

CTJN (External)



CTUN (Facing)



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions							Standard Corner-R (RE)	Spare Parts				
	R	L		H	HF	B	LF	LH	WF	HBKW		Chipbreaker	Clamp Set	Wrench	Shim	Shim Screw
CTJN% 16-3D	●	●	inch	1.00	1.00	1.00	6.00	0.88	1.25	-	1/32					
16-4D	●	●		1.00	1.00	1.00	6.00	0.88	1.25	-						
CTJN% 2020K-16	●	●	mm	20	20	20	125	21	25	2	0.8					
2525M-16	●	●		25	25	25	150	21	32	-						
CTUN% 2020K-16	●	●		20	20	20	125	27	25	-	0.8					
2525M-16	●	●		25	25	25	150	27	32	-						

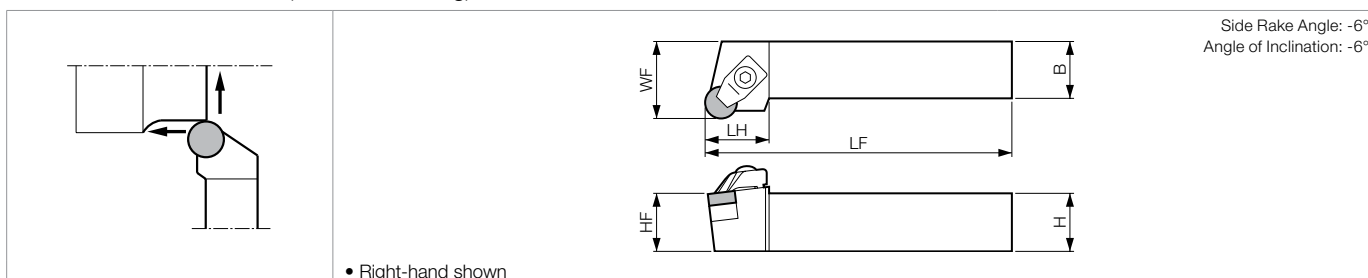
- CTJN (Chipbreaker): CB-12 for Right-hand Toolholder, CB-13 for Left-hand Toolholder.
- CTUN (Chipbreaker): CB-13 for Right-hand Toolholder, CB-12 for Left-hand Toolholder.
- Shim & Shim Screw: When using TN□□33 Insert, purchase spare parts in () separately.

Applicable Inserts

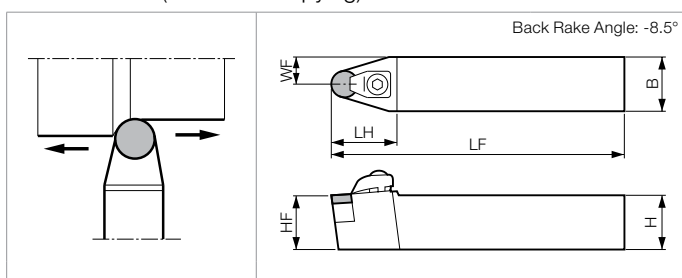
Application	Cast Iron / Hard Materials	Hard Materials / Cast Iron
Ref. Page	● B113	● C19
Shape	Ceramic	CBN (KBN900)
Toolholder		
CTJN%...-3D	TNG35.. (TNG33..) (TNM33..)	(TNM33..)
CTJN%...-4D	TNG45.. (TNG43..) (TNM43..)	(TNM43..)
CTJN%...-16	TNG35.. (TNG33..) (TNM33..)	(TNM33..)
CTUN%...-16	TNG35.. (TNG33..) (TNM33..)	(TNM33..)

Recommended Cutting Conditions ● D45-D46

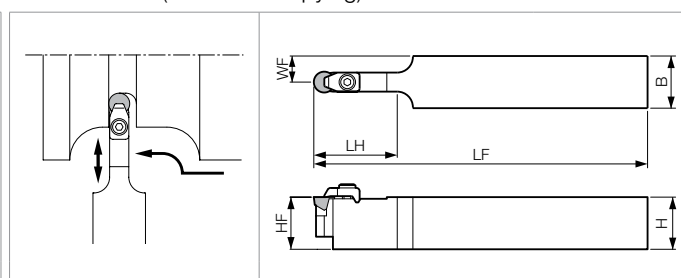
■ CRSN / HRSN (External / Facing)



■ CRDN (External / Copying)



■ CRDC (External / Copying)



● Toolholder Dimensions

Part Number	Stock			Unit	Dimensions						Standard Corner-R (RE)	Spare Parts					
	R	N	L		H	HF	B	LF	LH	WF		Clamp Set	Wrench	Shim	Shim Screw	Lock Pin	Wrench
												CE HCL		SP HSH	M S		
CRSN% 2020K-12	●		●	mm	20	20	20	125	26	25.0	-	CE-030	LW-4	SP-841 (SP-843)	M3X8 (M3X12)	-	-
2525M-12	●		●		25	25	25	150	26	32.0	-						
3225P-12	●		●		32	32	25	170	26	32.0	-						
CRDNN 16-4D		●		inch	1.00	1.00	1.00	6.00	1.13	0.500	-	CE-030	LW-4	SP-841 (SP-843)	M3X8	-	-
20-4E		●			1.25	1.25	1.25	7.00	1.13	0.625	-						
CRDNN 2020K-12		●		mm	20	20	20	125	28	10.0	-	CE-030	LW-4	SP-841 (SP-843)	M3X8 (M3X12)	-	-
2525M-12		●			25	25	25	150	28	12.5	-						
3225P-12		●			32	32	25	170	28	12.5	-						
3232P-15		●			32	32	32	170	35	16.0	-						
4040R-15		●			40	40	40	200	35	20.0	-						
HRSN% 16-4D	●		□	inch	1.00	1.00	1.00	6.00	1.03	1.250	-	HCL-001	LW-4	IRSN43 (IRSN45)	S-46	NL46L	LW-094
20-4D	●		□		1.25	1.25	1.25	6.00	1.03	1.500	-						
CRDCN 16-2		●		inch	1.00	1.00	1.00	8.00	1.00	0.500	-	HCL-017C	LW-2	HSH665A	-	-	-
16-3		●			1.00	1.00	1.00	8.00	1.50	0.500	-	HCL-016	LW-25IP	HSH655			
20-3		●			1.25	1.25	1.25	8.00	1.50	0.625	-	HCL-007	LW-4	HSH657			
20-4		●			1.25	1.25	1.25	8.00	2.00	0.625	-	HCL-007	LW-4	HSH657			
20-6		●			1.25	1.25	1.25	8.00	2.00	0.625	-	HCL-013	LW-4	HSH661			
		●			1.25	1.25	1.25	8.00	2.00	0.625	-	HCL-013	LW-4	HSH661			

● Shim & Shim Screw : When using RN□43 Insert, purchase spare parts in () separately.

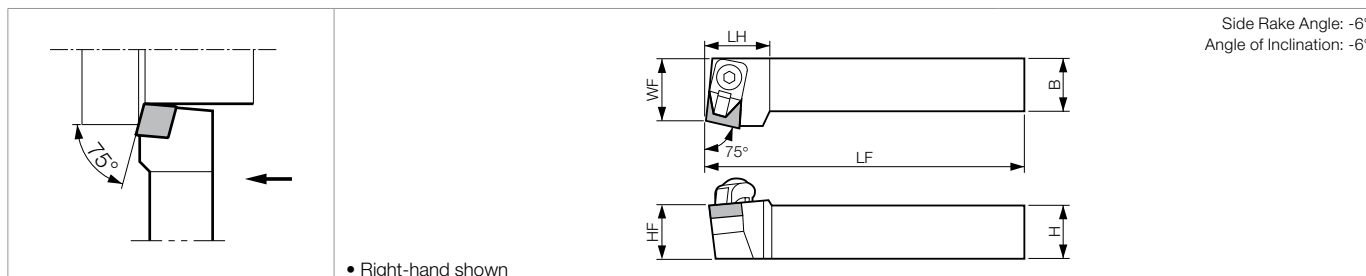
● Applicable Inserts

Application	Cast Iron / Hard Materials	Hard Materials / Cast Iron	When using as toolholder for CBN tools (KBN900), prepare spare parts below separately.		
Ref. Page	● B110	● C19	Clamp Set	Shim	Shim Screw
Shape	Ceramic	CBN (KBN900)			
Toolholder					
CRSN%...-12	RNG45.. (RNG43..)	(RNM43..)	CE-030A	SP-843	M3X12
CRDNN...-4D/4E CRDNN...-12	RNG45.. (RNG43..)	(RNM43..)	CE-030A	SP-843	M3X12
CRDNN...-15	RNG55..	-	-	-	-
HRSN%...-4D	RNG45.. (RNG43..)	(RNM43..)	HCL-001	IRSN45	S-46

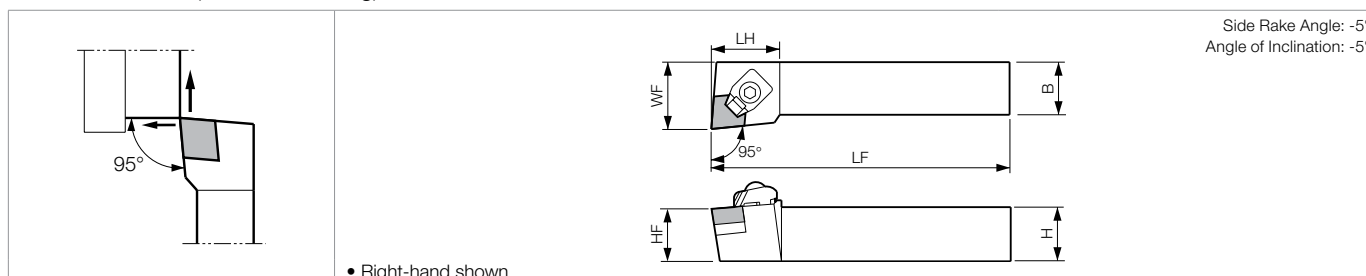
Application	Cast Iron / Hard Materials
Ref. Page	● B116
Shape	Ceramic
Toolholder	
CRDCN...-2	RCGX 102T04015
CRDCN...-3	RCGX 35.., 103..
CRDCN...-4	RCGX 45.., 104..
CRDCN...-6	RCGX 106..

Recommended Cutting Conditions ● D45-D46

CCRN-A (External)



CCLN-A (External / Facing)



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions						Standard Corner-R (RE)	Spare Parts			
	R	L		H	HF	B	LF	LH	WF		Clamp Set	Wrench	Shim	Shim Screw
CCRN% 2525M-09A	●	●	mm	25	25	25	150	27	27	0.8				
CCLN% 2525M-09A	●	●		25	25	25	150	28	32	0.8				

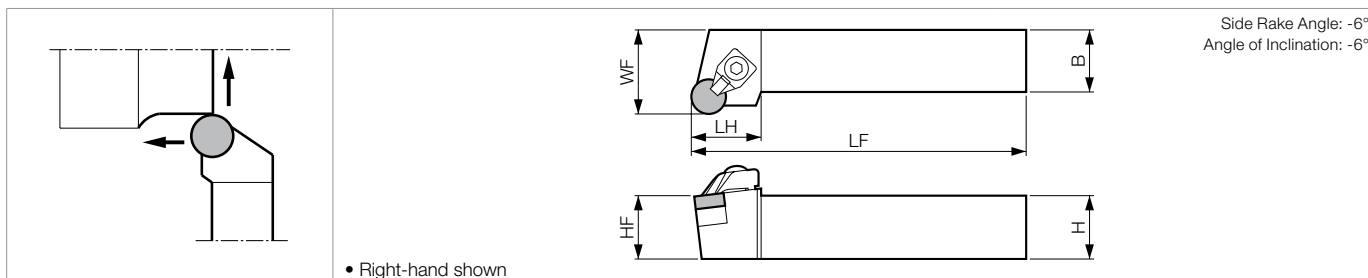
Applicable Inserts

Application	Hard Materials / Cast Iron
Ref. Page	● C19
Shape	CBN (KBN900)
Toolholder	
CCRN%...-09A	CNM32..
CCLN%...-09A	

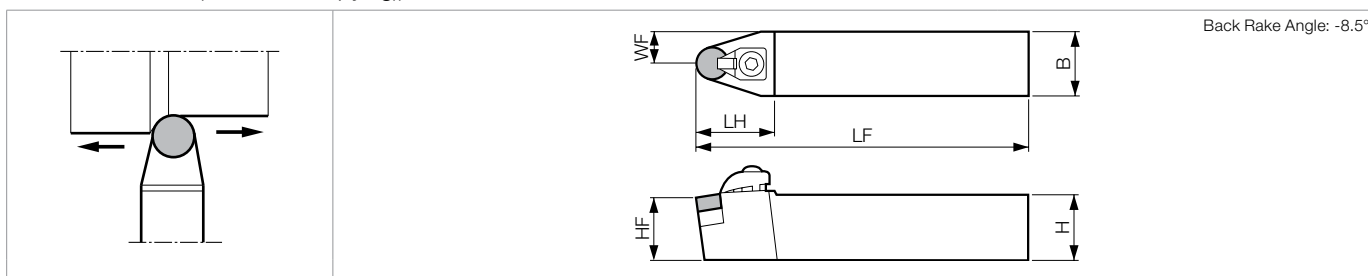
* For Ceramic CNM43 Insert toolholder ● D32

Recommended Cutting Conditions ● D45-D46







CRSN-A (External / Facing)



CRDN-A (External / Copying)



Toolholder Dimensions

Part Number	Stock			Unit	Dimensions						Standard Corner-R (RE)	Spare Parts					
	R	N	L		H	HF	B	LF	LH	WF		Clamp Set	Wrench	Shim		Shim Screw	
																	
CRSN% 2525M-09A 3225P-09A 2525M-12A 3225P-12A	●		●	mm	25	25	25	150	26	32.0	-	CE-030A	LW-4	SP-829	-	HH3X12	
	●		●		32	32	25	170	26	32.0	-	CE-030A	LW-4	-	SP-849 (SP-843)	BH3X12	
	●		●		25	25	25	150	26	32.0	-	CE-030A	LW-4	-	SP-849 (SP-843)	BH3X12	
	●		●		32	32	25	170	26	32.0	-	CE-030A	LW-4	-	SP-849 (SP-843)	BH3X12	
CRDNN 2525M-09A 3225P-09A 2525M-12A 3225P-12A		●			25	25	25	150	29	12.5	-	CE-030A	LW-4	SP-829	-	HH3X12	
		●			32	32	25	170	29	12.5	-	CE-030A	LW-4	SP-829	-	HH3X12	
		●			25	25	25	150	28	12.5	-	CE-030A	LW-4	-	SP-849 (SP-843)	BH3X12	
		●			32	32	25	170	28	12.5	-	CE-030A	LW-4	-	SP-849 (SP-843)	BH3X12	

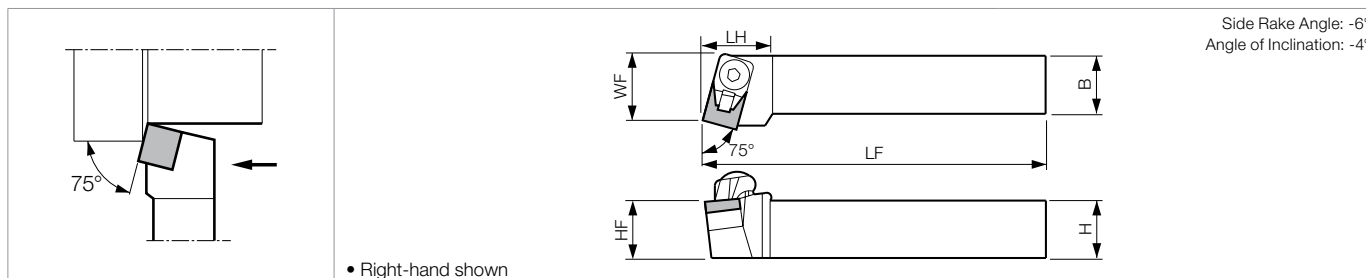
• -12A toolholder Shim: When using RNM□43 Insert, purchase spare parts: SP-843 in () separately.

Applicable Inserts

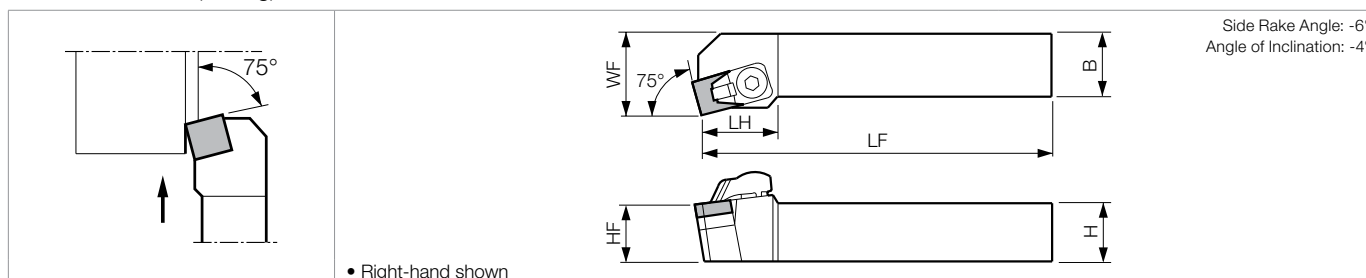
Application	Hard Materials / Cast Iron	Cast Iron / Hard Materials	When using as toolholder for ceramic tools, prepare spare parts below separately.	
Ref. Page	C19	B112		
Shape			Shim	Shim Screw
CRSN% ...-09A	RNM32	(RNG33)	SP-826	-
CRSN% ...-12A	RNM42 (RNM43)	(RNG43)	SP-843	M3X12
		(RNG45)	SP-841	M3X8
CRDNN ...-09A	RNM32	(RNG33)	SP-826	-
CRDNN ...-12A	RNM42 (RNM43)	(RNG43)	SP-843	M3X12
		(RNG45)	SP-841	M3X8

Recommended Cutting Conditions **D45-D46**

CSRN-A (External)



CSKN-A (Facing)



Toolholder Dimensions

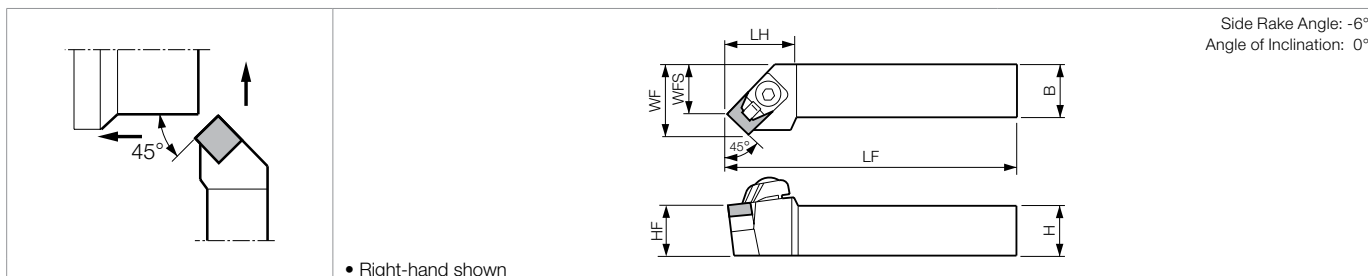
Part Number	Stock		Unit	Dimensions						Standard Corner-R (RE)	Spare Parts				
	R	L		H	HF	B	LF	LH	WF		Clamp Set	Wrench	Shim	Shim Screw	
CSRN% 2525M-12A	●	●	mm	25	25	25	150	22	27	0.8			-	SP-148 (SP-143)	BH3X12
CSKNR 2525M-09A	●			25	25	25	150	27	32	0.8			SP-129	-	HH3X12

• -12A toolholder Shim: When using SN□□43 Insert, purchase spare parts: SP-143 in () separately.

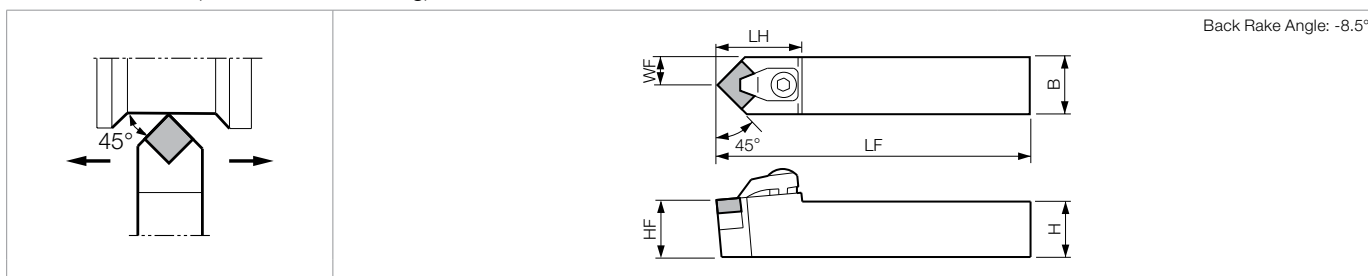
Applicable Inserts

Application	Hard Materials / Cast Iron	Cast Iron	Cast Iron / Hard Materials	When using as toolholder for ceramic tools, prepare spare parts below separately.			
Ref. Page	● C19	● B35	● B111, B112	Chipbreaker	Clamp Set	Shim	Shim Screw
Shape	CBN (KBN900)	Coated Carbide	Ceramic				
Toolholder							
CSRN%L...-12A	SNM42.. (SNM43..)	(SNM43..)	(SNG43..) (SNM43..) (SNG45..) (SNM45..)	CB-11	CE-020	SP-143 SP-141	M3X12 M3X8
CSKNR...-09A	SNM32..	-	-	-	-	-	-

CSSN-A (External / Facing / Chamfering)



CSDN-A (External / Chamfering)



Toolholder Dimensions

Part Number	Stock			Unit	Dimensions							Standard Corner-R (RE)	Spare Parts				
	R	N	L		H	HF	B	LF	LH	WF	WFS		Clamp Set	Wrench	Shim	Shim Screw	
CSSN% 2525M-09A	●		●	mm	25	25	25	150	26	32.0	25	0.8	CE-030A	LW-4	SP-129	-	HH3X12
2525M-12A	●		●		25	25	25	150	26	32.0	23				-	SP-148 (SP-143)	BH3X12
CSDNN 2525M-09A		●			25	25	25	150	32	12.5	-	0.8	CE-040	LW-4	SP-129	-	HH3X12
2525M-12A		●			25	25	25	150	32	12.5	-				-	SP-148 (SP-143)	BH3X12

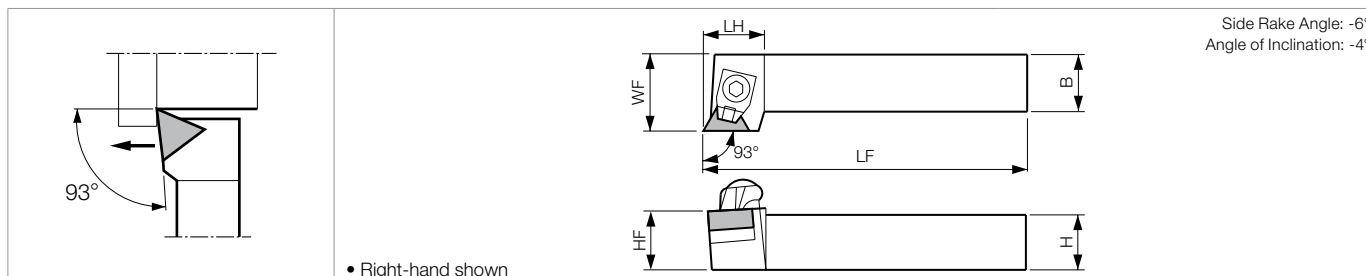
• -12A toolholder Shim: When using SN□□43 Insert, purchase spare parts: SP-143 in () separately.

Applicable Inserts





Application	Hard Materials / Cast Iron	Cast Iron	Cast Iron / Hard Materials	When using as toolholder for ceramic tools, prepare spare parts below separately.			
Ref. Page	● C19	● B35	● B111, B112	Chipbreaker	Clamp Set	Shim	Shim Screw
Shape	CBN (KBN900)	Coated Carbide	Ceramic				
CSSN%...-09A	SNM32..	-	-	-	-	-	-
CSSN%...-12A	SNM42.. (SNM43..)	(SNM43..)	(SNG43..) (SNM43..) (SNG45..) (SNM45..)	CB-11	CE-020	SP-143 SP-141	M3X12 M3X8
CSDNN...-09A	SNM32..	-	-	-	-	-	-
CSDNN...-12A	SNM42.. (SNM43..)	(SNM43..)	(SNG43..) (SNM43..) (SNG45..) (SNM45..)	-	-	SP-143 SP-141	M3X12 M3X8

Recommended Cutting Conditions ➡ D45-D46




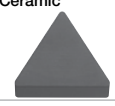
CTJN-A (External)



Toolholder Dimensions

Part Number	Stock		Unit	Dimensions						Standard Corner-R(RE)	Spare Parts			
	R	L		H	HF	B	LF	LH	WF		Clamp Set	Wrench	Shim	Shim Screw
CTJN% 2525M-11A	●	●	mm	25	25	25	150	22	32	0.8				
											CE-030A	LW-4	SP-219	HH3X12

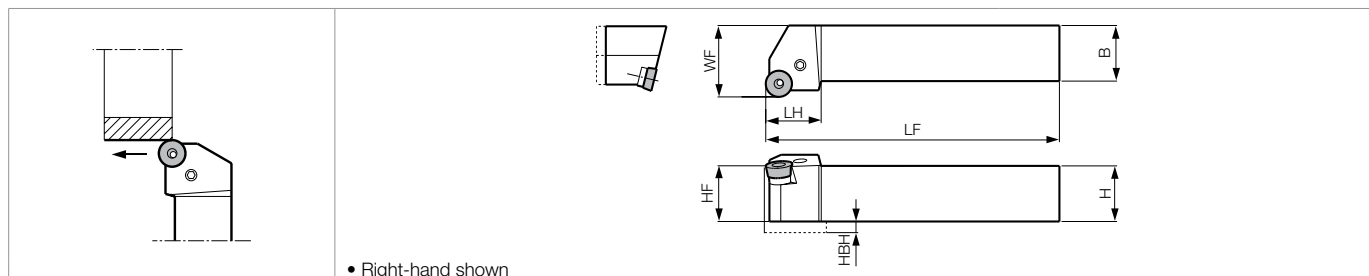
Applicable Inserts

Application	Hard Materials / Cast Iron	Cast Iron / Hard Materials
Ref. Page	 C19	 B111
Shape	CBN (KBN900)	Ceramic
Toolholder		
CTJN%...-11A	TNM22..	TNG22..

* TNM33 Insert toolholder is described in  D36

Recommended Cutting Conditions  D45-D46

PRGC-BE (External)

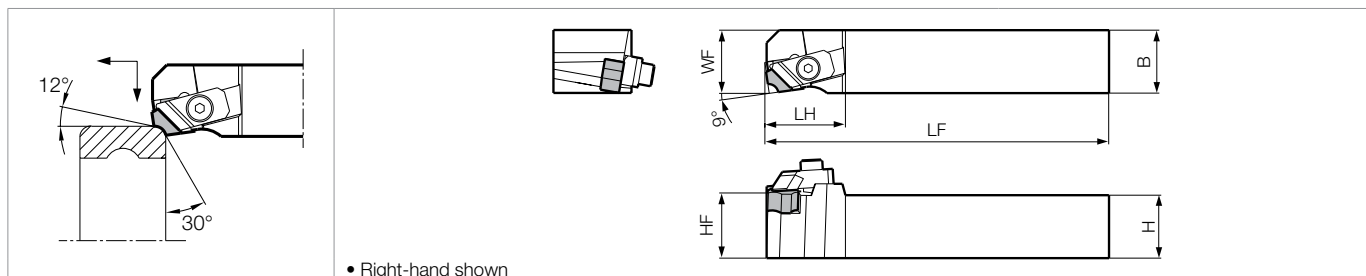


Toolholder Dimensions

Part Number	Stock	Unit	Dimensions							Spare Parts						Applicable Inserts ➔ B105
			H	HF	HBH	B	LF	LH	WF	Lever	Lock Screw	Shim	Shim Pin	Punch	Wrench	
PRGCR 2525M-12BE	●	mm	25	25	-	25	150	25	32	LL-1CN	LS-1N	LR-12C	LSP-1	PC-1	FH-2.5	RCMT 1204M0-BB
2525M-16BE	△		25	25	-	25	150	27	32	LL-2C	LS-1T	LR-16C	LSP-2	PC-2	FH-2.5	RCMT 1606M0-BB

Recommended Cutting Conditions ➔ D45-D46

CBSN (External Corner Filleting)



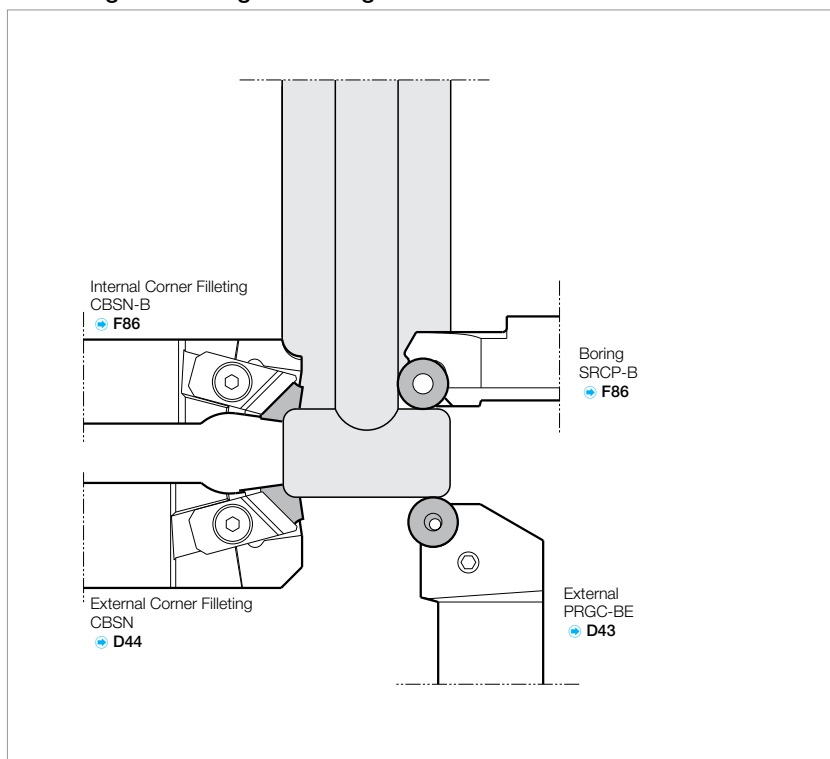
Toolholder Dimensions

Part Number	Stock		Unit	Dimensions						Spare Parts				Applicable Inserts ➡ B105
	R	L		H	HF	B	LF	LH	WF	Clamp Set	Wrench	Shim	Shim Screw	
CBSN% 2020K-12	●	●	mm	20	20	20	125	32	20	CP-RC%	LW-5	SP-RC	SP3X8	SNMF1204○○-21
2525M-12	●	●		25	25	25	150	32	25					

• Clamp Set: CP-RCR for Right-hand Toolholder, and CP-RCL for Left-hand Toolholder.

Recommended Cutting Conditions ➡ D45-D46

Tooling for Bearing Machining



RECOMMENDED CUTTING CONDITIONS

Recommended Cutting Conditions - External Turning (Negative Insert) [D.O.C. Indicates Radius]

ISO Classification	Workpiece Material	Hardness	Cutting Range	Applications	Recommended Chipbreaker	Recommended Insert Grade	Corner-R (RE)	Lower Limit - Recommendation - Upper Limit		
								Vc (sfm)	D.O.C. (in)	Feed Rate (ipr)
P	Low Carbon Steel Low Carbon Alloy	HB 140 300	Finishing (High Speed)	Continuous	XP	CCX	1/32	980 - 1970 - 2620	0.008 - 0.020 - 0.028	0.003 - 0.005 - 0.008
			Finishing (Small D.O.C.)	Continuous Interruption	XF	PV710 PV720	1/64 1/32	820 - 1150 - 1710 790 - 1050 - 1570	0.002 - 0.005 - 0.024 0.002 - 0.006 - 0.024	0.001 - 0.004 - 0.009 0.002 - 0.005 - 0.010
			Finishing (Gloss Oriented)	Continuous Interruption	XP	TN610 TN620	1/64 1/32	820 - 1050 - 1310 790 - 1020 - 1210	0.008 - 0.020 - 0.028 0.008 - 0.020 - 0.028	0.003 - 0.005 - 0.008 0.003 - 0.005 - 0.008
			Finishing (Tool Life Oriented)	Continuous Interruption	XP	PV710 PV720	1/64 1/32	820 - 980 - 1210 790 - 950 - 1120	0.008 - 0.020 - 0.028 0.008 - 0.020 - 0.028	0.003 - 0.005 - 0.008 0.003 - 0.005 - 0.008
			Finishing-Medium (Gloss Oriented)	Continuous Interruption	XQ	TN610 TN620	1/64 1/32	820 - 1050 - 1310 790 - 920 - 1120	0.020 - 0.039 - 0.059 0.020 - 0.039 - 0.059	0.007 - 0.010 - 0.012 0.007 - 0.010 - 0.012
			Finishing-Medium (Tool Life Oriented)	Continuous Interruption	XQ	PV710 PV720	1/32 1/32	820 - 980 - 1210 790 - 920 - 1120	0.020 - 0.039 - 0.059 0.020 - 0.039 - 0.059	0.007 - 0.010 - 0.012 0.007 - 0.010 - 0.012
			Medium-Roughing	Continuous Interruption	XS	PV720 CA515	1/32 1/32	720 - 850 - 1050 520 - 690 - 850	0.031 - 0.059 - 0.079 0.031 - 0.059 - 0.079	0.010 - 0.012 - 0.016 0.010 - 0.012 - 0.016
			Roughing	Continuous Interruption	PG	CA515 CA025P	1/32 3/64	590 - 720 - 850 490 - 660 - 790	0.039 - 0.098 - 0.138 0.039 - 0.098 - 0.138	0.008 - 0.012 - 0.016 0.008 - 0.012 - 0.016
			Medium-Roughing High Feed Rate	Continuous Interruption	PT	CA515 CA025P	1/32 3/64	490 - 660 - 790 390 - 590 - 720	0.059 - 0.118 - 0.177 0.059 - 0.118 - 0.177	0.010 - 0.014 - 0.018 0.010 - 0.014 - 0.018
			Roughing High Feed Rate	Continuous Interruption	PH	CA515 CA025P	3/64 1/16	490 - 660 - 790 390 - 590 - 720	0.079 - 0.197 - 0.315 0.079 - 0.197 - 0.315	0.016 - 0.024 - 0.031 0.012 - 0.020 - 0.028
			Roughing (Low Cutting Force)	Continuous Interruption	PX (Single Side)	CA515 CA025P	3/64 1/16	490 - 660 - 790 390 - 590 - 720	0.079 - 0.197 - 0.315 0.079 - 0.197 - 0.315	0.016 - 0.024 - 0.031 0.012 - 0.020 - 0.028
	Medium Carbon Steel Medium Carbon Alloy	HB 140 300	Finishing (Time Oriented)	Continuous Interruption	WF (Wiper)	PV710 CA515	1/32 1/32	660 - 820 - 1050 520 - 720 - 920	0.012 - 0.020 - 0.039 0.012 - 0.020 - 0.039	0.008 - 0.012 - 0.016 0.008 - 0.012 - 0.016
			Finishing-Medium (Time Oriented)	Continuous Interruption	WE (Wiper)	PV710 CA025P	1/32 1/32	590 - 720 - 920 430 - 590 - 790	0.039 - 0.079 - 0.118 0.039 - 0.079 - 0.118	0.008 - 0.012 - 0.016 0.008 - 0.012 - 0.016
			Finishing (High Speed)	Continuous	PP	CCX	1/32	660 - 980 - 1480	0.008 - 0.020 - 0.059	0.002 - 0.006 - 0.011
			Finishing (Gloss Oriented)	Continuous Interruption	PP	TN610	1/64 1/32	660 - 820 - 1050 590 - 750 - 980	0.008 - 0.020 - 0.059 0.008 - 0.020 - 0.059	0.002 - 0.006 - 0.011 0.002 - 0.008 - 0.014
			Finishing (Tool Life Oriented)	Continuous Interruption	PP	PV710 PV720	1/64 1/32	660 - 820 - 1050 660 - 790 - 950	0.008 - 0.020 - 0.059 0.008 - 0.020 - 0.059	0.002 - 0.006 - 0.011 0.002 - 0.008 - 0.014
			Finishing-Medium (Gloss Oriented)	Continuous Interruption	PQ	TN610 TN620	1/32 3/64	590 - 750 - 980 520 - 720 - 850	0.020 - 0.059 - 0.098 0.020 - 0.059 - 0.098	0.004 - 0.008 - 0.012 0.004 - 0.007 - 0.010
			Finishing-Medium (Tool Life Oriented)	Continuous Interruption	PQ	PV710 CA025P	1/32 1/32	520 - 690 - 920 460 - 660 - 790	0.020 - 0.059 - 0.098 0.020 - 0.059 - 0.098	0.004 - 0.008 - 0.012 0.004 - 0.007 - 0.010
			Medium-Roughing	Continuous Interruption	PG	CA515 CA025P	1/32 3/64	490 - 660 - 790 390 - 530 - 660	0.039 - 0.098 - 0.138 0.039 - 0.098 - 0.138	0.008 - 0.012 - 0.016 0.008 - 0.012 - 0.016
			Medium-Roughing High Feed Rate	Continuous Interruption	PT	CA515 CA025P	1/32 3/64	390 - 590 - 750 330 - 490 - 660	0.059 - 0.118 - 0.177 0.059 - 0.118 - 0.177	0.010 - 0.014 - 0.018 0.010 - 0.014 - 0.018
			Roughing High Feed Rate	Continuous Interruption	PH	CA515 CA025P	3/64 1/16	390 - 590 - 750 330 - 490 - 660	0.079 - 0.197 - 0.315 0.079 - 0.197 - 0.315	0.016 - 0.024 - 0.031 0.012 - 0.020 - 0.028
			Roughing (Low Cutting Force)	Continuous Interruption	PX (Single Side)	CA515 CA025P	3/64 1/16	390 - 590 - 750 330 - 490 - 660	0.079 - 0.197 - 0.315 0.079 - 0.197 - 0.315	0.016 - 0.024 - 0.031 0.012 - 0.020 - 0.028
	High Carbon Alloy	HB 140 280	Finishing (High Speed)	Continuous	PP	CCX	1/32	660 - 980 - 1310	0.008 - 0.020 - 0.059	0.002 - 0.006 - 0.011
			Finishing (Gloss Oriented)	Continuous Interruption	PP	TN610 TN620	1/64 1/32	490 - 660 - 920 460 - 590 - 790	0.008 - 0.020 - 0.059 0.008 - 0.020 - 0.059	0.002 - 0.006 - 0.011 0.002 - 0.008 - 0.014
			Finishing (Tool Life Oriented)	Continuous Interruption	PP	PV710 CA515	1/64 1/32	390 - 590 - 850 330 - 490 - 660	0.008 - 0.020 - 0.059 0.008 - 0.020 - 0.059	0.002 - 0.006 - 0.011 0.002 - 0.008 - 0.014
			Finishing-Medium	Continuous Interruption	PQ	CA515 CA025P	1/32 1/32	390 - 520 - 720 330 - 460 - 590	0.020 - 0.059 - 0.098 0.020 - 0.059 - 0.098	0.006 - 0.010 - 0.012 0.006 - 0.008 - 0.010
			Medium-Roughing	Continuous Interruption	PG	CA515 CA025P	1/32 1/32	390 - 490 - 660 330 - 430 - 590	0.039 - 0.079 - 0.118 0.039 - 0.079 - 0.118	0.008 - 0.012 - 0.020 0.006 - 0.008 - 0.012
			Medium-Roughing High Feed Rate	Continuous Interruption	PT	CA515 CA025P	1/32 3/64	330 - 460 - 590 260 - 390 - 520	0.059 - 0.118 - 0.177 0.059 - 0.118 - 0.177	0.010 - 0.014 - 0.018 0.010 - 0.014 - 0.018
			Roughing High Feed Rate	Continuous Interruption	PH	CA515 CA025P	3/64 1/16	330 - 460 - 590 260 - 390 - 520	0.079 - 0.197 - 0.315 0.079 - 0.197 - 0.315	0.016 - 0.024 - 0.031 0.012 - 0.020 - 0.028
			Roughing (Low Cutting Force)	Continuous Interruption	PX (Single Side)	CA515 CA025P	3/64 1/16	330 - 460 - 590 260 - 390 - 520	0.079 - 0.197 - 0.315 0.079 - 0.197 - 0.315	0.016 - 0.024 - 0.031 0.012 - 0.020 - 0.028

INSERT GRADES	A
TURNING INSERTS	B
GEN/PCD INSERTS	C
TURNING HOLDERS	D
SMALL TOOLS	E
BORING	F
GROOVING	G
CUT-OFF	H
THREADING	J
DRILLING	K
MILLING	M
QUICK CHANGE TOOLING	N
SPARE PARTS	P
TECHNICAL	R
INDEX	T

RECOMMENDED CUTTING CONDITIONS

Recommended Cutting Conditions - External Turning (Negative Insert) [D.O.C. Indicates Radius]

ISO Classification	Workpiece Material	Hardness	Cutting Range	Applications	Recommended Chipbreaker	Recommended Insert Grade	Corner-R (RE)	Lower Limit - Recommendation - Upper Limit		
								Vc (sfm)	D.O.C. (in)	Feed Rate (ipr)
M	Stainless Steel (Austenitic)	HB 220	Finishing (Gloss Oriented)	Continuous Interruption	PQ	TN620	1/32	390 - 520 - 660	0.020 - 0.039 - 0.059	0.003 - 0.006 - 0.008
			Finishing	Continuous Interruption	MQ	CA6515 CA6525	1/64	390 - 590 - 790	0.020 - 0.039 - 0.059	0.003 - 0.006 - 0.008
			Medium-Roughing (Chip Control Oriented)	Continuous Interruption	MS	CA6515 CA6525	1/64	390 - 520 - 660	0.039 - 0.079 - 0.118	0.004 - 0.008 - 0.012
			Medium-Roughing (Sharpness Oriented)	Continuous Interruption	MU	CA6515 CA6525	1/32	260 - 460 - 590	0.039 - 0.079 - 0.118	0.008 - 0.012 - 0.016
			Roughing	Continuous Interruption	Standard	CA6515 CA6525	3/64	330 - 460 - 590	0.039 - 0.079 - 0.157	0.008 - 0.012 - 0.016
	Stainless Steel (Precipitation Hardened)	HB 300	Finishing (Gloss Oriented)	Continuous Interruption	PQ	TN620	1/32	330 - 390 - 490	0.020 - 0.039 - 0.059	0.002 - 0.004 - 0.006
			Finishing	Continuous Interruption	MQ	CA6515 CA6525	1/64	330 - 390 - 490	0.020 - 0.039 - 0.059	0.003 - 0.006 - 0.008
			Medium-Roughing (Chip Control Oriented)	Continuous Interruption	MS	CA6515 CA6525	1/32	260 - 330 - 390	0.039 - 0.059 - 0.079	0.004 - 0.006 - 0.010
			Medium-Roughing (Sharpness Oriented)	Continuous Interruption	MU	CA6515 CA6525	1/32	260 - 330 - 390	0.039 - 0.059 - 0.079	0.004 - 0.006 - 0.010
			Roughing	Continuous Interruption	Standard	CA6515 CA6525	3/64	200 - 260 - 330	0.039 - 0.079 - 0.157	0.008 - 0.012 - 0.016
K	Gray Cast Iron	HB 250	High Speed Machining	Continuous Interruption	Without Chipbreaker	KBN475 KBN900	1/32	1310 - 2620 - 3940	0.002 - 0.008 - 0.020	0.004 - 0.008 - 0.012
			Finishing (Gloss Oriented)	Continuous Interruption	Standard	PV7005 PV720	1/32	980 - 1150 - 1310	0.020 - 0.039 - 0.059	0.004 - 0.008 - 0.012
			Finishing (Ceramic)	Continuous	Without Chipbreaker	KA30 PT600M	3/64	980 - 1640 - 2300	0.012 - 0.020 - 0.039	0.004 - 0.008 - 0.012
			Medium (Ceramic)	Continuous Interruption	Without Chipbreaker	CS7050 KS6050	3/64	980 - 1480 - 1800	0.039 - 0.079 - 0.118	0.006 - 0.010 - 0.014
			Medium	Continuous Interruption	KH	CA310 CA315	3/64	660 - 820 - 980	0.020 - 0.079 - 0.098	0.003 - 0.006 - 0.008
			Roughing	Continuous Interruption	KH	CA310 CA315	3/64	660 - 820 - 980	0.039 - 0.079 - 0.157	0.008 - 0.012 - 0.016
			High Speed Machining	Continuous	Without Chipbreaker	KBN60M PT600M	1/32	660 - 980 - 1310	0.004 - 0.012 - 0.020	0.004 - 0.006 - 0.008
	Nodular Cast Iron	HB 270	Finishing (Gloss Oriented)	Continuous Interruption	Standard	PV7005 PV720	1/32	490 - 820 - 980	0.020 - 0.039 - 0.059	0.004 - 0.008 - 0.012
			Medium	Continuous Interruption	KG	CA310 CA315	3/64	390 - 590 - 720	0.020 - 0.079 - 0.098	0.003 - 0.006 - 0.008
			Roughing	Continuous Interruption	KG	CA315 CA320	3/64	490 - 660 - 820	0.039 - 0.079 - 0.157	0.008 - 0.012 - 0.016
			High Speed Machining	Continuous	Without Chipbreaker	KPD001	1/64	980 - 2620 - 6560	0.002 - 0.020 - 0.039	0.002 - 0.004 - 0.006
N	Non-ferrous Metals Copper Alloy Aluminum Aluminum Alloys	HB 100	Finishing (Long Tool Life)	Continuous Interruption	A3	PDL025	1/32	1310 - 1640 - 2300	0.020 - 0.039 - 0.079	0.004 - 0.008 - 0.010
			Finishing	Continuous Interruption	A3	KW10	1/32	1310 - 1640 - 2300	0.020 - 0.039 - 0.079	0.004 - 0.008 - 0.010
			Medium	Continuous Interruption	AH	KW10	1/32	660 - 980 - 1640	0.039 - 0.079 - 0.138	0.004 - 0.012 - 0.016
			High Speed Machining (Glossy Surface)	Continuous	Without Chipbreaker	KPD001	1/64	330 - 490 - 590	0.002 - 0.012 - 0.020	0.001 - 0.004 - 0.006
	Titanium Alloys	HB 400	Finishing	Continuous Interruption	MQ	SW05	1/64	130 - 230 - 330	0.008 - 0.020 - 0.039	0.002 - 0.006 - 0.008
			Medium	Continuous Interruption	MU	SW05	1/32	130 - 200 - 260	0.020 - 0.039 - 0.118	0.004 - 0.010 - 0.014
			Finishing	Continuous Interruption	MQ	PR005S PR015S	1/32	100 - 180 - 300	0.012 - 0.020 - 0.059	0.004 - 0.007 - 0.014
			Medium	Continuous Interruption	SQ	PR005S PR015S	1/32	80 - 150 - 230	0.012 - 0.020 - 0.059	0.004 - 0.007 - 0.014
S	Heat-resistant Alloys	HB 350	Finishing	Continuous Interruption	SG	PR005S PR015S	1/32	100 - 180 - 300	0.020 - 0.079 - 0.157	0.004 - 0.012 - 0.016
			Medium	Continuous Interruption	SX	PR005S PR015S	1/32	80 - 150 - 230	0.020 - 0.079 - 0.157	0.004 - 0.012 - 0.016
			Roughing	Continuous Interruption	Without Chipbreaker	PT600M	3/64	100 - 125 - 200	0.008 - 0.020 - 0.028	0.002 - 0.004 - 0.006
			Finishing	Continuous Interruption	ME MET	KBN05M	1/32	325 - 500 - 650	0.002 - 0.012 - 0.020	0.002 - 0.003 - 0.004
	Hardened Steel Hard Materials	40-50 HRC	Finishing	Continuous Interruption	Without Chipbreaker	KBN900	3/64	250 - 325 - 400	0.020 - 0.039 - 0.079	0.002 - 0.004 - 0.008
			Medium	Continuous Interruption	Without Chipbreaker	KBN900	Radius	225 - 300 - 350	0.012 - 0.028 - 0.039	0.002 - 0.004 - 0.006
			Finishing	Continuous Interruption	Without Chipbreaker	KBN900	Radius	225 - 300 - 350	0.012 - 0.028 - 0.039	0.002 - 0.004 - 0.006
			Medium	Continuous Interruption	Without Chipbreaker	KBN900	Radius	225 - 300 - 350	0.012 - 0.028 - 0.039	0.002 - 0.004 - 0.006
H	Hardened Steel Hard Materials	50-68 HRC	Finishing	Continuous Interruption	Without Chipbreaker	KBN900	Radius	225 - 300 - 350	0.012 - 0.028 - 0.039	0.002 - 0.004 - 0.006
			Medium	Continuous Interruption	Without Chipbreaker	KBN900	Radius	225 - 300 - 350	0.012 - 0.028 - 0.039	0.002 - 0.004 - 0.006
			Finishing	Continuous Interruption	Without Chipbreaker	KBN900	Radius	225 - 300 - 350	0.012 - 0.028 - 0.039	0.002 - 0.004 - 0.006
			Medium	Continuous Interruption	Without Chipbreaker	KBN900	Radius	225 - 300 - 350	0.012 - 0.028 - 0.039	0.002 - 0.004 - 0.006
	Hardened Steel Hard Materials	50-68 HRC	Finishing	Continuous Interruption	Without Chipbreaker	KBN900	Radius	225 - 300 - 350	0.012 - 0.028 - 0.039	0.002 - 0.004 - 0.006
			Medium	Continuous Interruption	Without Chipbreaker	KBN900	Radius	225 - 300 - 350	0.012 - 0.028 - 0.039	0.002 - 0.004 - 0.006
			Finishing	Continuous Interruption	Without Chipbreaker	KBN900	Radius	225 - 300 - 350	0.012 - 0.028 - 0.039	0.002 - 0.004 - 0.006
			Medium	Continuous Interruption	Without Chipbreaker	KBN900	Radius	225 - 300 - 350	0.012 - 0.028 - 0.039	0.002 - 0.004 - 0.006