

**D-type**  
double-clamping tool holder

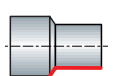


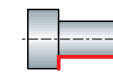
### Applications sketch map of turning tools

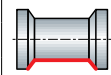
#### External and internal turning

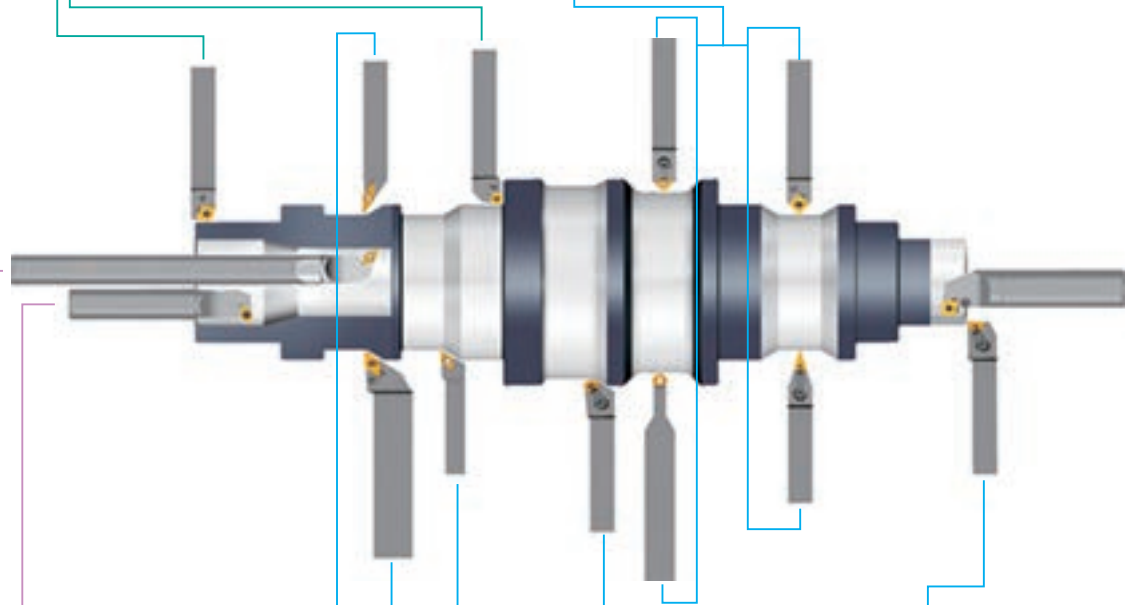
General turning

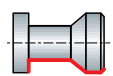
Applications sketch map of turning tools

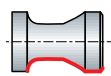
External turning	Tool holder type						
	DTGNR/L□□	DSBNR/L□□	PCBNR/L□□	PSBNR/L□□	PSSNR/L□□	PTGNR/L□□	PTTNR/L□□
	SCACR/L□□	SSBCR/L□□	SSSCR/L□□	STACR/L□□	STGCR/L□□	STECR/L□□	SWACR/L□□

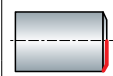
External and end surface turning	Tool holder type
	DCLNR/L□□ DWLNR/L□□
	PCLNR/L□□ PWLNR/L□□
	SCLCR/L□□







Profile turning	Tool holder type			
	DVVNN□□	PDPNN□□	PSDNN□□	SDNCN□□
	SVVBN□□	SVVCN□□	SSDCN□□	SRDCN□□
	CKNNR/L□□			







Profile turning	Tool holder type		
	DDJNR/L□□	DVJNR/L□□	PDJNR/L□□
	SDACR/L□□	SDJCR/L□□	SVABR/L□□
	SVJBR/L□□	SVJCR/L□□	CKJNR/L□□

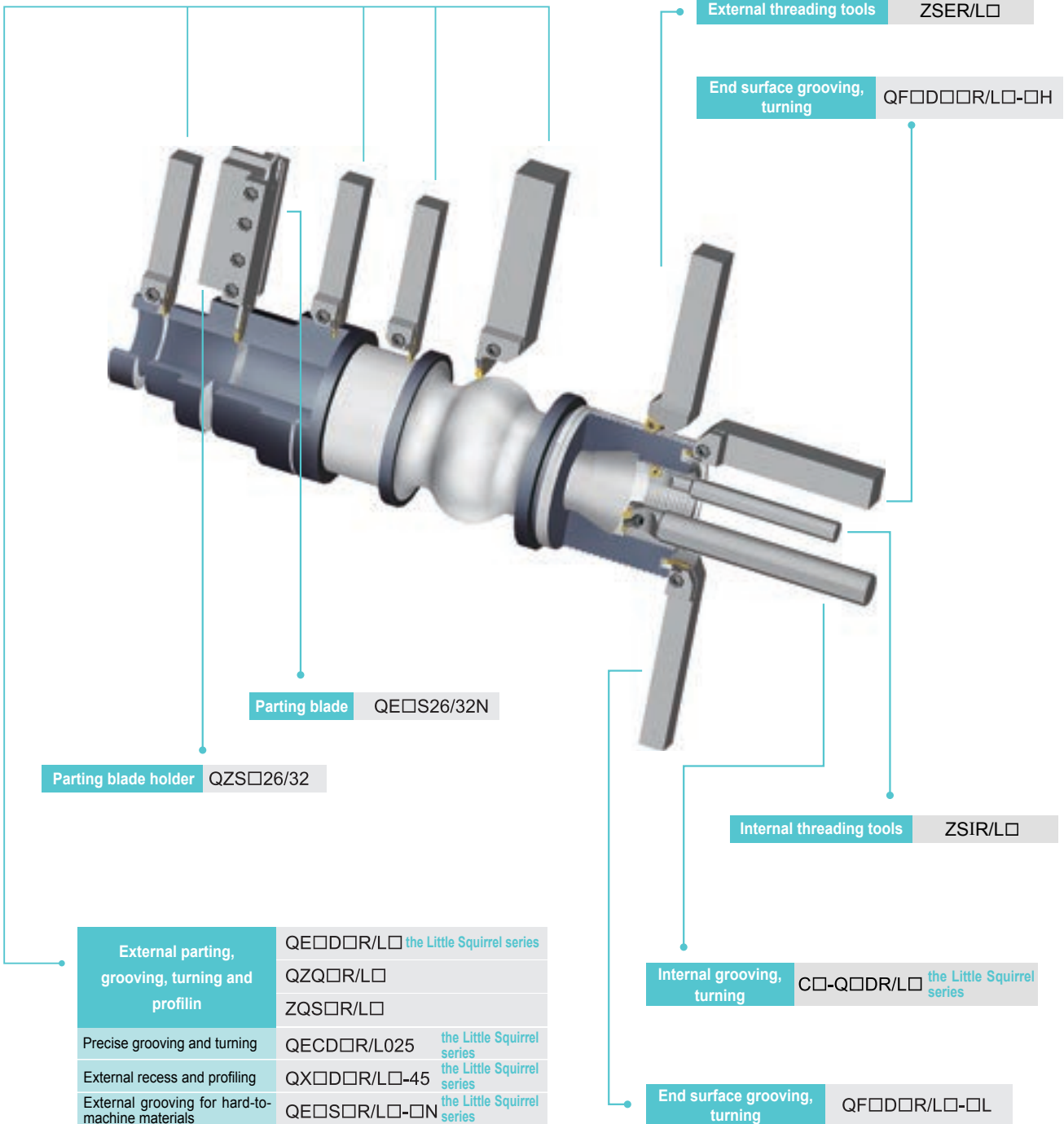
Profile turning	Tool holder type
	SRGCR/L□□

End surface turning	Tool holder type	
	PSKNR/L□□	PTFNR/L□□
	SSKCR/L□□	STFCR/L□□

Tool holders for internal turning (Steel tool shank)						
	S□-PSKNR/L□	S□-PCLNR/L□	S□-PDPNR/L□	S□-PDUNR/L□	S□-SDQCR/L□	S□-SDZCR/L□
	S□-PTFNR/L□	S□-PWLNR/L□		S□-SDUCR/L□	S□-SDQPR/L□	
	S□-SCFCR/L□	S□-SCLCR/L□		S□-SDUPR/L□	S□-SVQBR/L□	
	S□-SSKCR/L□	S□-SCLPR/L□		S□-SVUBR/L□	S□-SVQCR/L□	
	S□-STFCR/L□			S□-SVUCR/L□		
	S□-STUPR/L□					

Tool holders for internal turning (Cemented carbide tool shank)				
	C□-STUPR/L□	C□-SCLPR/L□	C□-SDUPR/L□	C□-SDQPR/L□
		C□-SVUCR/L□	C□-SVQCR/L□	

● Parting, grooving and threading tools



General turning

Applications sketch map of turning tools

## How to select external turning tools

### How to select external turning tools

#### Explanation of external turning tools detailed table

- Listed according to clamping types.

Approach angle of tools

Tools type  
The first 4 letters in the type description stands for tool shape and application

Inserts type

Specification chart

Application chart  
The arrow shows suitable applications such as external turning, profiling and end turning, etc.

Corresponding tool holders of insert **CN**   **D-type clamping**

**DCLNR/L**

Kr:95°

Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Clamp	Shim screw	Spring	
	R	L	a	b	L	h	s	e							
<b>DCLNR/L</b>	1616H09	▲	△	16	16	100	16	20	24	CM5×22C	C09BM	WH30L	C1RA	SM5×8.65XA1	SPR6
	2020K09	▲	△	20	20	125	20	25	24						
	2525M09	▲	△	25	25	150	25	32	24						
	2020K12	▲	▲	20	20	125	20	25	28	CM6×25C	C12BM	WH40L	C2RA	SM6×10XA1	SPR4
	2525M12	▲	▲	25	25	150	25	32	28						
	3225P12	▲	▲	32	25	170	32	32	28						

▲Stock available    △Make-to-order

Applicable inserts						
Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN&PCD inserts
Inserts shape	<b>DF</b> Wiper A54	<b>WGM</b> Wiper A55	<b>DR</b> Double side A58	<b>HDR</b> A59	<b>Without chipbreaker</b> A59	<b>A118</b>
	<b>WGF</b> Wiper A54	<b>PM</b> A55	<b>DR</b> Single side A58	<b>HPR</b> A59		<b>A118</b> <b>-A119</b>
	<b>SF</b> A54	<b>DM</b> A56	<b>ER</b> Double side A58			<b>A119</b>
	<b>EF</b> A54	<b>EM</b> A56	<b>ER</b> Single side A58			
	<b>NF</b> A55	<b>NM</b> A57	<b>SNR</b> Double side A58			
			<b>LR</b> Single side A57			
Tool holder type	<b>DCLNR/L</b> □□H/K/M09		CN□□0903□□	CN□□0903□□		
	<b>DCLNR/L</b> □□K/M/P12		CN□□1204□□	CN□□1204□□	CN□□1204□□	CN□□1204□□

Products specification  
Including product description, stock (left and right hand), basic dimensions and applicable spare parts.

Applicable inserts  
Including applications of inserts, reference page, insert shape and corresponding tool holders.



# TURNING



## External Turning Tools >>>

**External turning tools overview** ● A158-A161

**External turning tools code key** ● A162-A163

**Detailed table of external turning tools** ● A166-A204

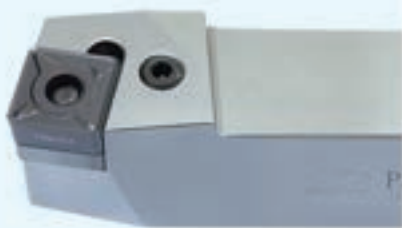
External turning tool holders by D type clamping ● A166-A171

External turning tool holders by P type clamping ● A172-A183

External turning tool holders by S type clamping ● A184-A203

External turning tool holders by C type clamping ● A204

**Detailed table of external turning tools (ceramic)** ● A205





### External turning tools overview

General turning

External turning tools overview

Clamping system	Tool type	Approach angle (K <sup>o</sup> )	Turning type						Applicable workpiece shape		Page
			External turning	End surface turning	External and end surface turning	Profile turning	Profile turning	Profile turning	Short, Thick	Thin, Long	
											
<b>D</b>	 <b>DCLNR/L</b>	95			☺				☺		A166
	 <b>DDJNR/L</b>	93					☺		☺	☺	A167
	 <b>DSBNR/L</b>	75	☺						☺		A168
	 <b>DTGNR/L</b>	91	☺						☺	☺	A169
	 <b>DVVNN</b>	72.5						☺	☺		A170
	 <b>DVJNR/L</b>	93					☺		☺	☺	A170
	 <b>DWLNR/L</b>	95			☺				☺		A171
<b>P</b>	 <b>PCBNR/L</b>	75	☺						☺		A172
	 <b>PCLNR/L</b>	95			☺				☺		A173
	 <b>PDJNR/L</b>	93					☺		☺	☺	A174
	 <b>PDPNN</b>	62.5						☺	☺		A175

☺ Recommended    ☺ Available



External turning tools overview

Clamping system	Tool type	Approach angle (K <sup>o</sup> )	Turning type						Applicable workpiece shape		Page
			External turning	End surface turning	External and end surface turning	Profile turning	Profile turning	Profile turning	Short, Thick	Thin, Long	
<b>P</b>	PSBNR/L 	75	☺						☺		A176
	PSDNN 	45						☺	☺		A177
	PSKNR/L 	75		☺					☺		A178
	PSSNR/L 	45	☺						☺		A179
	PTFNR/L 	90		☺					☺	☺	A180
	PTTNR/L 	60	☺						☺		A181
	PTGNR/L 	90	☺						☺	☺	A182
	PWLNRL/L 	95			☺				☺		A183
<b>S</b>	SCACR/L 	90	☺						☺	☺	A184
	SCLCR/L 	95			☺				☺	☺	A185
	SDACR/L 	90					☺		☺	☺	A186

☺ Recommended    ☺ Available

General turning

External turning tools overview



## External turning tools overview

General turning

External turning tools overview

Clamping system	Tool type	Approach angle (K <sub>r</sub> )°	Turning type						Applicable workpiece shape		Page
			External turning	End surface turning	External and end surface turning	Profile turning	Profile turning	Profile turning	Short, Thick	Thin, Long	
S	SDJCR/L	93					☺		☺	☺	A187
	SDNCN	62.5						☺	☺	☺	A188
	SVJBR/L	93					☺		☺	☺	A189
	SVABR/L	90					☺		☺	☺	A190
	SVVBN	72.5						☺	☺	☺	A191
	SVVCN	72.5						☺	☺	☺	A192
	SVJCR/L	93					☺		☺	☺	A193
	SSBCR/L	75	☺						☺		A194
	SSDCN	45						☺	☺		A195
	SSKCR/L	75		☺					☺		A196
	SSSCR/L	45	☺						☺		A197

☺ Recommended    ☹ Available





External turning tools overview

Clamping system	Tool type	Approach angle (K <sub>r</sub> )°	Turning type						Applicable workpiece shape		Page
			External turning	End surface turning	External and end surface turning	Profile turning	Profile turning	Profile turning	Short, Thick	Thin, Long	
<b>S</b>	STACR/L 	90	☺						☺	☺	A198
	STFCR/L 	90		☺					☺		A198
	STGCR/L 	91	☺						☺	☺	A199
	STECR/L 	60	☺						☺		A200
	SWACR/L 	90	☺						☺	☺	A201
	SRDCN 	--						☺	☺		A202
	SRGCR/L 	--				☺			☺		A203
<b>C</b>	CKJNR/L 	93					☺		☺		A204
	CKNNR/L 	63						☺	☺		A204
	CRDCR/L CRDPR/L 	--					☺		☺		A205

☺ Recommended    ☹ Available

General turning

External turning tools overview



# TURNING

## General Turning Tools

### External turning tools code key

General turning

External turning tools code key

Clamping system
 D – double clamping
 P – Hole clamping
 S – Screw on
 C – Top clamping

Insert shape	
 80° C	 55° D
 R	 90° S
 60° T	 35° V
 80° W	

Clearance angle of insert	
 5°	B
 7°	C
 15°	D
 20°	E
 0°	N
 11°	P

Cutting direction
 L - Left-hand
 R - Right-hand
 N - Right and left hand

P

C

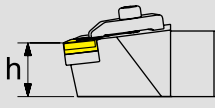
L

N

L

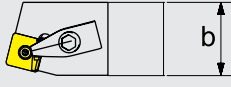
Tool holder style and approach angle							
A	B	C	D	E	F	G	H
 90°	 75°	 90°	 45°	 60°	 90°	 90°	 107°30'
 93°	 75°	 95°	 50°	 63°	 117°30'	 62°30'	 107°30'
 75°	 45°	 60°	 93°	 72°30'	 60°	 120°	

**Nose height (mm)**



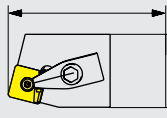
Code	Height
<b>12</b>	12
<b>16</b>	16
<b>20</b>	20
<b>25</b>	25
<b>32</b>	32
<b>40</b>	40
<b>50</b>	50

**Width of tool holder (mm)**



Code	Width
<b>12</b>	12
<b>16</b>	16
<b>20</b>	20
<b>25</b>	25
<b>32</b>	32
<b>40</b>	40
<b>50</b>	50

**Length of tool holder (mm)**






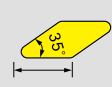


Code	Length
<b>E</b>	70
<b>F</b>	80
<b>H</b>	100
<b>K</b>	125
<b>M</b>	150
<b>P</b>	170
<b>Q</b>	180
<b>R</b>	200
<b>S</b>	250
<b>T</b>	300

**25 25 M 12**

General turning

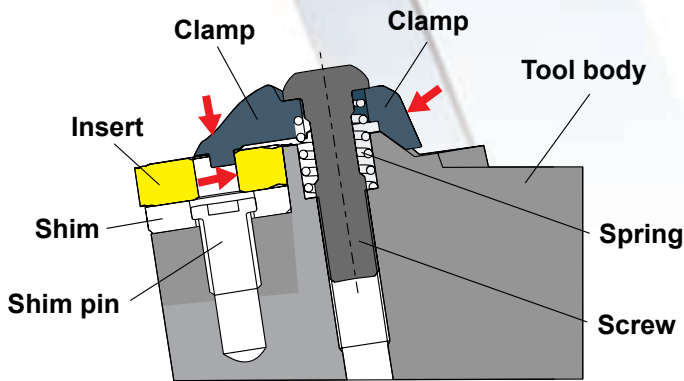
External turning tools code key

Length of cutting edge							
Inserts shape	C	D	R	S	T	V	W
							
Inscribed circle (mm)	Length of cutting edge(mm)						
5.556	---	---	---	---	09	---	---
6.350	06	07	---	---	11	---	---
9.525	09	11	09	09	16	16	06
12.700	12	15	12	12	22	22	08
15.875	16	19	15	15	27	---	---
19.050	19	---	19	19	33	---	---
25.400	25	---	25	25	44	---	---
32.000	---	---	32	---	---	---	---



# D-type double-clamping tool holder

With newly developed double-clamping structure, D-type turning tools have high clamping rigidity and high positioning accuracy, achieving easy and secure clamping of inserts. It is the best choice for the clamping of straight hole negative inserts.



## Convenient secure clamping device



Slots in the tool body match perfectly with the clamp, realizing simple and easy clamping.

## Uniquely clamp

The clamp and the inner wall of insert hole make an arc contact. The stable and evenly distributed clamping force ensures more secure clamping.

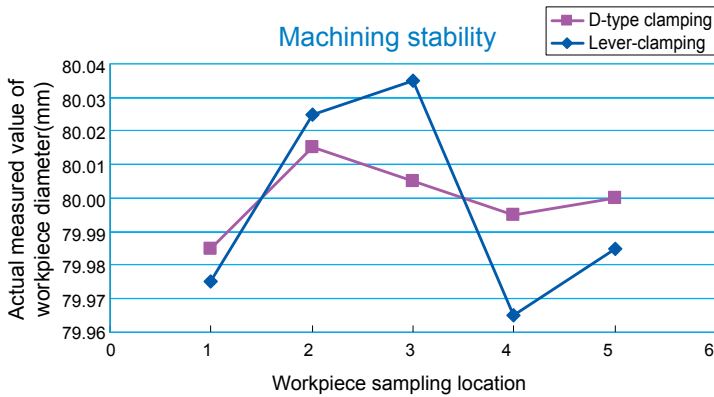
lug boss on both ends and double-locating make more insert clamp secure .

Arc locating surface makes large contact area and the force is evenly distributed.

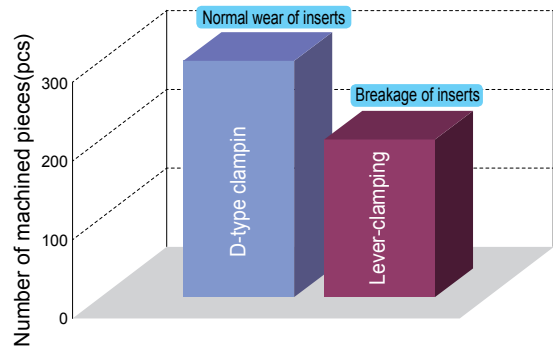
Simple and compact structure effectively prevents chip blocking while ensuring high clamping rigidity.

## Compared with lever-clamping:

① Accurate locating ensures more stable machining accuracy.



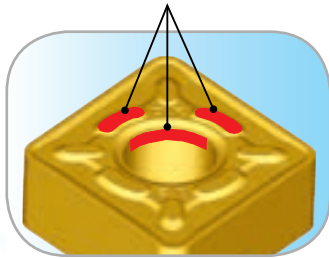
② High clamping rigidity effectively improves resistance to breakage of insert.



## Compared with similar products of company A:

① Locating surface contact: (checking the contact location of clamp by dyeing)

Force evenly distributed, firm clamping, high locating accuracy.



Similar product of company A

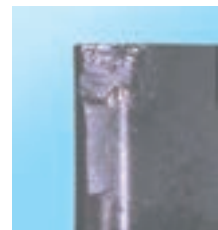
② Effect on tool life:

Tool holder: DCLNL3225P12  
 Insert: YBC252/CNMG120408-DR  
 Cutting material: 45# steel  
 Cutting parameters:  $V_c=250\text{m/min}$   
 $a_p=2\text{mm}$   
 $f=0.6\text{mm/r}$

After 60 minutes of cutting



ZCC-CT



Similar product of company A



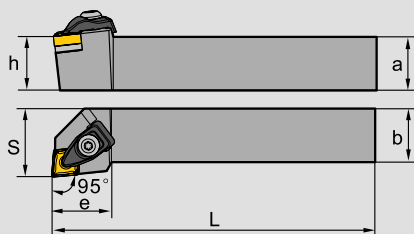


## External turning tools

### Corresponding tool holders of insert **CN** D-type clamping

#### DCLNR/L

Kr:95°



Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Clamp	Shim screw	Spring	
	R	L	a	b	L	h	s	e							
<b>DCLNR/L</b>	<b>1616H09</b>	▲	△	16	16	100	16	20	24	CM5×22C	C09BM	WH30L	C1RA	SM5×8.65XA1	SPR6
	<b>2020K09</b>	▲	△	20	20	125	20	25	24						
	<b>2525M09</b>	▲	△	25	25	150	25	32	24						
	<b>2020K12</b>	▲	▲	20	20	125	20	25	28	CM6×25C	C12BM	WH40L	C2RA	SM6×10XA1	SPR4
	<b>2525M12</b>	▲	▲	25	25	150	25	32	28						
	<b>3225P12</b>	▲	▲	32	25	170	32	32	28						

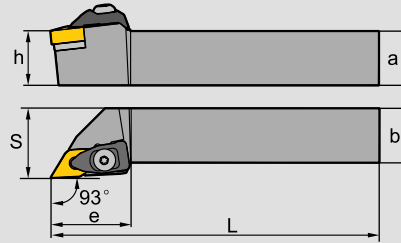
▲Stock available    △Make-to-order

### Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN&PCD inserts
Inserts shape	<b>DF</b> A54	<b>WGM</b> Wiper A55	<b>DR</b> Double-side A58	<b>HDR</b> A59	Without chipbreaker A59	A118
	<b>WGF</b> Wiper A54	<b>PM</b> A55	<b>DR</b> Single-side A58	<b>HPR</b> A59		A118 -A119
	<b>SF</b> A54	<b>DM</b> A56	<b>ER</b> Double-side A58			A119
	<b>EF</b> A54	<b>EM</b> A56	<b>ER</b> Single-side A58			
	<b>NF</b> A55	<b>NM</b> A57	<b>SNR</b> Double-side A58			
			<b>LR</b> Single-side A57			
<b>Tool holder type</b>	<b>DCLNR/L□□H/K/M09</b>	CN□□0903□□    CN□□0903□□				
	<b>DCLNR/L□□K/M/P12</b>	CN□□1204□□    CN□□1204□□    CN□□1204□□    CN□□1204□□    CN□□1204□□    CN□□1204□□				

Corresponding tool holders of insert **DN**   D-type clamping

**DDJNR/L**  
Kr:93°



Type	Stock		Basic dimensions(mm)							Screw	Shim	Wrench	Clamp	Shim screw	Spring
	R	L	a	b	L	h	s	e							
<b>DDJNR/L</b>	1616H11	△	△	16	16	100	16	20	30	CM5×22C	D11BM	WH30L	C1RA	SM5×8.65XA1	SPR6
	2020K11	▲	△	20	20	125	20	25	30						
	2525M11	▲	△	25	25	150	25	32	30						
	3225P11	△	△	32	25	170	32	32	30	CM6×25C	D15BM	WH40L	C2RA	SM6×10XA1	SPR4
	2020K15	▲	▲	20	20	125	20	25	35						
	2525M15	▲	▲	25	25	150	25	32	35						
	3232P15	▲	▲	32	32	170	32	40	35						

▲Stock available    △Make-to-order

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN&PCD inserts
Inserts shape	<b>DF</b> A61	<b>WGM</b> Wiper A63	<b>DR</b> Double-side A65	<b>HDR</b> A66	Without chipbreaker A66	A121 -A122
	<b>WGF</b> Wiper A61	<b>PM</b> A63	<b>DR</b> Single-side A65			A122 -A123
	<b>SF</b> A62	<b>DM</b> A64	<b>ER</b> Double-side A65			A124
	<b>EF</b> A62	<b>EM</b> A64	<b>ER</b> Single-side A65			
	<b>NF</b> A62	<b>NM</b> A64	<b>SNR</b> Double-side A65			
	<b>NGF</b> A62		<b>LR</b> Single-side A65			
<b>Tool holder type</b>	<b>DDJNR/L□□H/K/M/P11</b>	DN□□1104□□	DN□□1104□□		DN□□1104□□	
	<b>DDJNR/L□□K/M/P15</b>	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□

General turning  
External turning tools

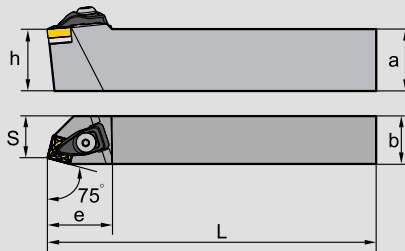


## External turning tools

### Corresponding tool holders of insert **SN** D-type clamping

#### DSBNR/L

Kr:75°



Type		Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Clamp	Shim screw	Spring
		R	L	a	b	L	h	s	e						
<b>DSBNR/L</b>	<b>1616H09</b>	▲	△	16	16	100	16	13	26	CM5×22C	S09BM	WH30L	C1RA	SM5×8.65XA1	SPR6
	<b>2020K12</b>	▲	▲	20	20	125	20	17	34						
	<b>2525M12</b>	▲	▲	25	25	150	25	22	34	CM6×25C	S12BM	WH40L	C2RA	SM6×10XA1	SPR4
	<b>3225P12</b>	▲	▲	32	25	170	32	22	34						
	<b>3232P15</b>	▲	▲	32	32	170	32	27	41	CM6×25C	S15BM	WH40L	C3RA	SM6×10XA2	SPR4

▲Stock available    △Make-to-order

### Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN&PCD inserts
Inserts shape	<b>DF</b> A67	<b>PM</b> A68	<b>DR</b> Double-side  A70	<b>HDR</b> A72	Without chipbreaker  A74	A126
	<b>EF</b> A67	<b>DM</b> A68	<b>DR</b> Single-side  A70-71	<b>HPR</b> A72		A127
	<b>SF</b> A67	<b>EM</b> A69	<b>ER</b> Double-side  A71			A128
		<b>NM</b> A69	<b>ER</b> Single-side  A71			
			<b>SNR</b> Double-side  A71			
			<b>LR</b> Single-side  A69			
<b>Tool holder type</b>	<b>DSBNR/L</b> <input type="checkbox"/> <input type="checkbox"/> <b>H09</b>	SN <input type="checkbox"/> <input type="checkbox"/> 0903 <input type="checkbox"/> <input type="checkbox"/>	SN <input type="checkbox"/> <input type="checkbox"/> 0903 <input type="checkbox"/> <input type="checkbox"/>		SN <input type="checkbox"/> <input type="checkbox"/> 0903 <input type="checkbox"/> <input type="checkbox"/>	
	<b>DSBNR/L</b> <input type="checkbox"/> <input type="checkbox"/> <b>K/M/P12</b>	SN <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>	SN <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>	SN <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>	SN <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>	SN <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>
	<b>DSBNR/L</b> <input type="checkbox"/> <input type="checkbox"/> <b>P15</b>	SN <input type="checkbox"/> <input type="checkbox"/> 1506 <input type="checkbox"/> <input type="checkbox"/>	SN <input type="checkbox"/> <input type="checkbox"/> 1506 <input type="checkbox"/> <input type="checkbox"/>	SN <input type="checkbox"/> <input type="checkbox"/> 1506 <input type="checkbox"/> <input type="checkbox"/>	SN <input type="checkbox"/> <input type="checkbox"/> 1506 <input type="checkbox"/> <input type="checkbox"/>	

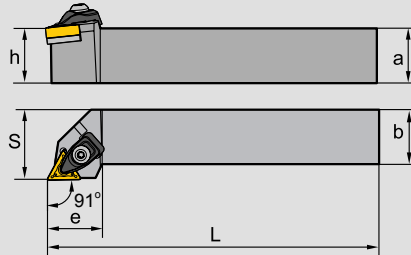
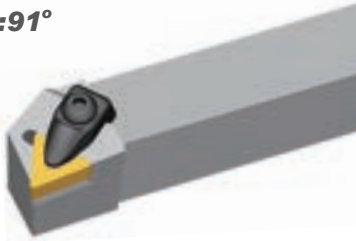




Corresponding tool holders of insert **TN**   D-type clamping

**DTGNR/L**

Kr:91°





















Type		Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Clamp	Shim screw	Spring
		R	L	a	b	L	h	s	e						
<b>DTGNR/L</b>	<b>1616H16</b>	△	△	16	16	100	16	20	25	CM5×22C	T16BM	WH30L	C1RA	SM5×8.65XA1	SPR6
	<b>2020K16</b>	▲	▲	20	20	125	20	25	25						
	<b>2525M16</b>	▲	▲	25	25	150	25	32	25						

▲Stock available    △Make-to-order

General turning

External turning tools

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN&PCD inserts
Inserts shape	<b>DF</b>  A75	<b>WGM</b> Wiper  A76	<b>DR</b> Double-side  A78	<b>HDR</b>  A79	Without chipbreaker  A80	 A130
	<b>WGF</b> Wiper  A75	<b>PM</b>  A76	<b>DR</b> Single-side  A78			 A130-A131
	<b>SF</b>  A75	<b>DM</b>  A77	<b>ER</b> Double-side  A78			 A131
	<b>EF</b>  A76	<b>EM</b>  A77	<b>SNR</b> Double-side  A78			
			<b>LR</b> Single-side  A77			

Tool holder type	<b>DTGNR/L</b> <input type="checkbox"/> <input type="checkbox"/> H/K/M16	TN <input type="checkbox"/> <input type="checkbox"/> 1604 <input type="checkbox"/> <input type="checkbox"/>	TN <input type="checkbox"/> <input type="checkbox"/> 1604 <input type="checkbox"/> <input type="checkbox"/>	TN <input type="checkbox"/> <input type="checkbox"/> 1604 <input type="checkbox"/> <input type="checkbox"/>	TN <input type="checkbox"/> <input type="checkbox"/> 1604 <input type="checkbox"/> <input type="checkbox"/>	TN <input type="checkbox"/> <input type="checkbox"/> 1604 <input type="checkbox"/> <input type="checkbox"/>	TN <input type="checkbox"/> <input type="checkbox"/> 1604 <input type="checkbox"/> <input type="checkbox"/>

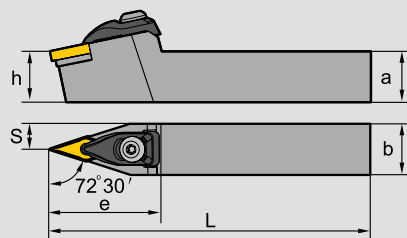


## External turning tools

### Corresponding tool holders of insert **VN** D-type clamping

#### DVVNN

Kr:72°30'

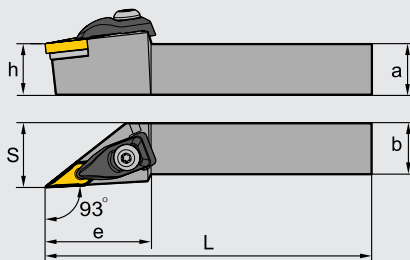


Type	Stock	Basic dimensions(mm)							Screw	Shim	Wrench	Clamp	Shim screw	Spring
		a	b	L	h	s	e							
<b>DVVNN</b>	<b>2020K16</b>	△	20	20	125	20	10	44	CM5×22C	V16BM	WH30L	C6RA	SM5×8.65XA1	SPR6
	<b>2525M16</b>	▲	25	25	150	25	12.5	44						

▲Stock available    △Make-to-order

#### DVJNR/L





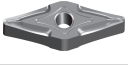


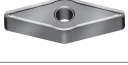
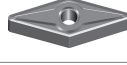

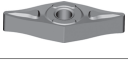
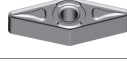

Kr:93°



Type	Stock		Basic dimensions(mm)							Screw	Shim	Wrench	Clamp	Shim screw	Spring
	R	L	a	b	L	h	s	e							
<b>DVJNR/L</b>	<b>2020K16</b>	▲	▲	20	20	125	20	25	41	CM5×22C	V16BM	WH30L	C6RA	SM5×8.65XA1	SPR6
	<b>2525M16</b>	▲	▲	25	25	150	25	32	41						

▲Stock available    △Make-to-order

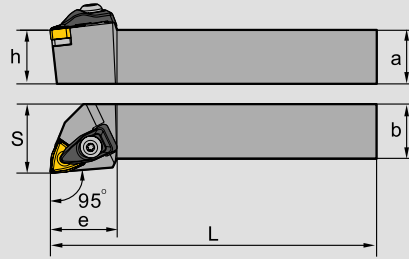
### Applicable inserts

Application	For finishing	For semi-finishing	For roughing	PCBN&PCD inserts	
Inserts shape	<b>DF</b>  A81	<b>PM</b>  A82	<b>SNR</b>  A82	 A133	
	<b>EF</b>  A81	<b>DM</b>  A82		 A133 -A134	
	<b>SF</b>  A81	<b>EM</b>  A82		 A134	
	<b>NF</b>  A81	<b>NM</b>  A82			
	<b>NGF</b>  A81				
Tool holder type	<b>DVVNN</b> □□K/M16	VN□□1604□□	VN□□1604□□	VN□□1604□□	VN□□1604□□
	<b>DVJNR/L</b> □□K/M16	VN□□1604□□	VN□□1604□□	VN□□1604□□	VN□□1604□□



Corresponding tool holders of insert **WN**   D-type clamping

**DWLNRL**  
Kr:95°



Type		Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Clamp	Shim screw	Spring
		R	L	a	b	L	h	s	e						
<b>DWLNRL/L</b>	<b>1616H06</b>	▲	△	16	16	100	16	25	25						
	<b>2020K06</b>	▲	▲	20	20	125	20	25	24						
	<b>2525M06</b>	▲	▲	25	25	150	25	32	24						
	<b>2020K08</b>	▲	▲	20	20	125	20	25	31	CM6×25C	W08BM	WH40L	C2RA	SM6×10XA1	SPR4
	<b>2525M08</b>	▲	▲	25	25	150	25	32	31						
	<b>3225P08</b>	△	△	32	25	170	32	32	31						

▲Stock available    △Make-to-order

General turning

External turning tools

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For cast iron machining	PCBN&PCD inserts
Inserts shape	<b>DF</b> Wiper  A83	<b>WGM</b> Wiper  A84	<b>DR</b> Double-side  A86	Without chipbreaker  A86	 A136
	<b>WGF</b> Wiper  A83	<b>PM</b>  A85	<b>SNR</b> Double-side  A86		 A136 -A137
	<b>SF</b>  A83	<b>DM</b>  A85			 A137
	<b>EF</b>  A84	<b>EM</b>  A85			
	<b>NF</b>  A84	<b>NM</b>  A86			

Tool holder type	<b>DWLNRL/□□□H/K/M06</b>	WN□□0604□□	WN□□0604□□	WN□□0604□□	WN□□0604□□	
	<b>DWLNRL/□□□K/M/P08</b>	WN□□0804□□	WN□□0804□□	WN□□0804□□	WN□□0804□□	WN□□0804□□



## External turning tools

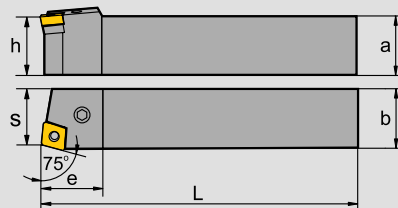
### Corresponding tool holders of insert **CN** P-type clamping

#### PCBNR/L

Kr:75°



R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Lever	Shim pin	
	R	L	a	b	L	h	s	e						
<b>PCBNR/L</b>	2020K12	▲	▲	20	20	125	20	17	27	LEM8×21	C12AP	WH30L	L4	SP4
	2525M12	▲	▲	25	25	150	25	22	27					
	3232P12	▲	▲	32	32	170	32	27	33					
	2525M16	▲	▲	25	25	150	25	22	33	LEM8×25	C16AP	WH30L	L5	SP5
	3232P16	▲	▲	32	32	170	32	27	33					
	4040R16	▲	▲	40	40	200	40	35	38	LEM10×27	C19AP	WH40L	L6	SP6
	3232P19	▲	▲	32	32	170	32	27	38					
	4040R19	▲	▲	40	40	200	40	35	40	LEM12×36A	C25AP-07 C25AP	WH50L	L8	SP8
	4040S2507	▲	▲	40	40	250	40	35	50					
	4040S2509	▲	▲	40	40	250	40	35	50					

▲Stock available    △Make-to-order

#### Applicable inserts

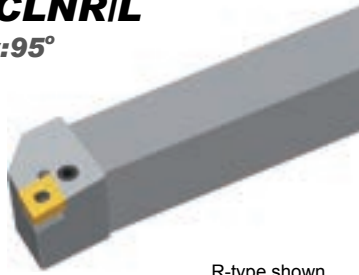
Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining
Inserts shape	<b>DF</b>  A54	<b>WGM</b> Wiper  A55	<b>DR</b> Double-side  A58	<b>HDR</b>  A59	Without chipbreaker  A59
	<b>WGF</b> Wiper  A54	<b>PM</b>  A55	<b>DR</b> Single-side  A58	<b>HPR</b>  A59	
	<b>SF</b>  A54	<b>DM</b>  A55	<b>ER</b> Double-side  A58		
	<b>EF</b>  A54	<b>EM</b>  A56	<b>ER</b> Single-side  A58		
	<b>NF</b>  A55	<b>NM</b>  A57	<b>SNR</b> Double-side  A58		
		<b>LR</b> Single-side  A57			

Tool holder type	PCBNR/L□□K/M/P12	PCBNR/L□□M/P/R16	PCBNR/L□□P/R19	PCBNR/L□□S2507	PCBNR/L□□S2509
	CN□□1204□□	CN□□1606□□	CN□□1906□□	CN□□2507□□	CN□□2509□□

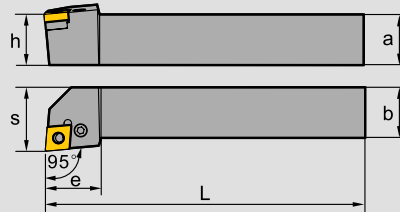


Corresponding tool holders of insert **CN**   P-type clamping

**PCLNR/L**  
Kr:95°



R-type shown



Type		Stock		Basic dimensions(mm)					Screw	Shim	Wrench	Lever	Shim pin	
		R	L	a	b	L	h	s	e					
<b>PCLNR/L</b>	<b>2020K12</b>	▲	▲	20	20	125	20	25	28	LEM8×21	C12AP	WH30L	L4	SP4
	<b>2525M12</b>	▲	▲	25	25	150	25	32	28					
	<b>3225P12</b>	△	△	32	25	170	32	32	33					
	<b>3232P12</b>	▲	▲	32	32	170	32	40	28					
	<b>2525M16</b>	▲	▲	25	25	150	25	32	33	LEM8×25	C16AP	WH30L	L5	SP5
	<b>3225P16</b>	△	△	32	25	170	32	32	33					
	<b>3232P16</b>	▲	▲	32	32	170	32	40	33					
	<b>4040R16</b>	△	△	40	40	200	40	50	42	LEM10×27	C19AP	WH40L	L6	SP6
	<b>3232P19</b>	▲	▲	32	32	170	32	40	38					
	<b>4040R19</b>	▲	▲	40	40	200	40	50	40					
	<b>4040S2507</b>	▲	▲	40	40	250	40	50	49	LEM12×36A	C25AP-07	WH50L	L8	SP8
	<b>4040S2509</b>	▲	▲	40	40	250	40	50	49		C25AP			

▲Stock available    △Make-to-order

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN&PCD inserts
Inserts shape	<b>DF</b>  A54	<b>WGM</b> Wiper  A55	<b>DR</b> Double-side  A58	<b>HDR</b>  A59	 Without chipbreaker A59	 A118
	<b>WGF</b> Wiper  A54	<b>PM</b>  A55	<b>DR</b> Single-side  A58	<b>HPR</b>  A59		 A118 A119
	<b>SF</b>  A54	<b>DM</b>  A56	<b>ER</b> Double-side  A58			 A119
	<b>EF</b>  A54	<b>EM</b>  A56	<b>ER</b> Single-side  A58			
	<b>NF</b>  A55	<b>NM</b>  A57	<b>SNR</b> Double-side  A58			
			<b>LR</b> Single-side  A57			
Tool holder type	<b>PCLNR/L□□K/M/P12</b>	CN□□1204□□	CN□□1204□□	CN□□1204□□	CN□□1204□□	CN□□1204□□
	<b>PCLNR/L□□M/P/R16</b>	CN□□1606□□	CN□□1606□□	CN□□1606□□	CN□□1606□□	CN□□1606□□
	<b>PCLNR/L□□P/R19</b>		CN□□1906□□	CN□□1906□□	CN□□1906□□	CN□□1906□□
	<b>PCLNR/L□□S2507</b>			CN□□2507□□		
	<b>PCLNR/L□□S2509</b>			CN□□2509□□		

General turning

External turning tools



## External turning tools

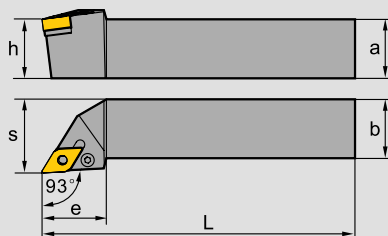
### Corresponding tool holders of insert **DN** P-type clamping

#### PDJNR/L

Kr:93°



R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Lever	Shim pin	
	R	L	a	b	L	h	s	e						
<b>PDJNR/L</b>	<b>1616H11</b>	▲	▲	16	16	100	16	20	25	LEM6×17	D11AP	WH25L	L3	SP3
	<b>2020K11</b>	▲	▲	20	20	125	20	25	25					
	<b>2525M11</b>	▲	▲	25	25	150	25	32	30					
	<b>2020K15</b>	▲	▲	20	20	125	20	25	35	LEM8×21	D15AP	WH30L	L4B	SP4
	<b>2525M15</b>	▲	▲	25	25	150	25	32	35					
	<b>3232P15</b>	▲	▲	32	32	170	32	40	35					
	<b>2020K15-3</b>	▲	△	20	20	125	20	25	35	LEM8×21	D15AP	WH30L	L4	SP4
	<b>2525M15-3</b>	▲	▲	25	25	150	25	32	35					
<b>3232P15-3</b>	▲	△	32	32	170	32	40	35						

▲Stock available    △Make-to-order

### Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN&PCD inserts
Inserts shape	<b>DF</b> A61	<b>WGM</b> Wiper A63	<b>DR</b> Double-side A65	<b>HDR</b> A66	Without chipbreaker A66	A121 -A122
	<b>WGF</b> Wiper A61	<b>PM</b> A63	<b>DR</b> Single-side A65			A122 -A123
	<b>SF</b> A62	<b>DM</b> A64	<b>ER</b> Double-side A65			A124
	<b>EF</b> A62	<b>EM</b> A64	<b>ER</b> Single-side A65			
	<b>NF</b> A62	<b>NM</b> A64	<b>SNR</b> Double-side A65			
	<b>NGF</b> A62		<b>LR</b> Single-side A65			
<b>Tool holder type</b>	<b>PDJNR/L□□H/K/M11</b>	DN□□1104□□	DN□□1104□□		DN□□1104□□	
	<b>PDJNR/L□□K/M/P15</b>	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□
	<b>PDJNR/L□□K/M/P15-3</b>	DN□□1504□□	DN□□1504□□		DN□□1504□□	DN□□1504□□

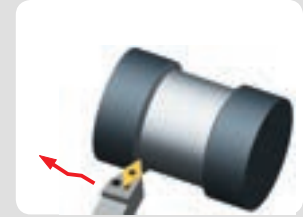
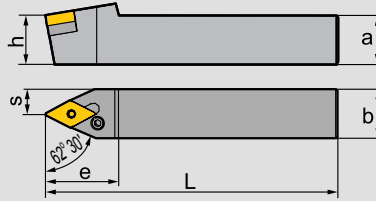


Corresponding tool holders of insert **DN**   P-type clamping

**PDPNN**  
Kr:62°30'



R-type shown



Type	Stock	Basic dimensions(mm)						Screw	Shim	Wrench	Lever	Shim pin	
		a	b	L	h	s	e						
<b>PDPNN</b>	<b>2020K15</b>	▲	20	20	125	20	8	38	LEM8×21	D15AP	WH30L	L4B	SP4
	<b>2525M15</b>	▲	25	25	150	25	12.5	38					
	<b>3232P15</b>	▲	32	32	170	32	16	38					
	<b>2020K15-3</b>	▲	20	20	125	20	8	38	LEM8×21	D15AP	WH30L	L4	SP4
	<b>2525M15-3</b>	▲	25	25	150	25	12.5	38					
	<b>3232P15-3</b>	▲	32	32	170	32	16	38					

▲Stock available    △Make-to-order

General turning

External turning tools

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN&PCD inserts
Inserts shape	<b>DF</b> A61	<b>WGM</b> Wiper A63	<b>DR</b> Double-side A65	<b>HDR</b> A66	Without chipbreaker A66	A121 -A122
	<b>WGF</b> Wiper A61	<b>PM</b> A63	<b>DR</b> Single-side A65			A122 -A123
	<b>SF</b> A62	<b>DM</b> A64	<b>ER</b> Double-side A65			A124
	<b>EF</b> A62	<b>EM</b> A64	<b>ER</b> Single-side A65			
	<b>NF</b> A62	<b>NM</b> A64	<b>SNR</b> Double-side A65			
	<b>NGF</b> A62		<b>LR</b> Single-side A65			

Tool holder type	<b>PDPNN</b> □□K/M/P15	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□
	<b>PDPNN</b> □□K/M/P15-3	DN□□1504□□	DN□□1504□□		DN□□1504□□	DN□□1504□□

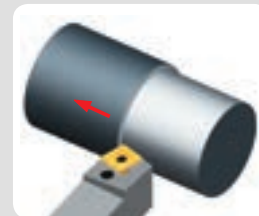
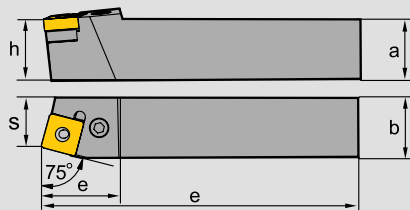
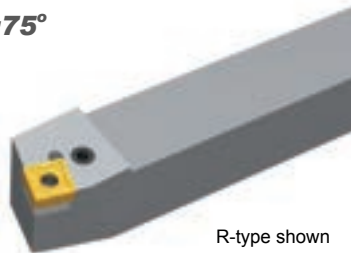


## External turning tools

### Corresponding tool holders of insert **SN** P-type clamping

#### PSBNR/L

Kr:75°



Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Lever	Shim pin	
	R	L	a	b	L	h	s	e						
<b>PSBNR/L</b>	<b>1616H09</b>	▲	▲	16	16	100	16	13	21	LEM6×13.4A	S09AP	WH25L	L3	SP3
	<b>2020K09</b>	▲	▲	20	20	125	20	17	23					
	<b>2020K12</b>	▲	▲	20	20	125	20	17	28					
	<b>2525M12</b>	▲	▲	25	25	150	25	22	28	LEM8×21	S12AP	WH30L	L4	SP4
	<b>3225P12</b>	▲	△	32	25	170	32	22	28					
	<b>3232P12</b>	▲	▲	32	32	170	32	27	28	LEM8×25	S15AP	WH30L	L5	SP5
	<b>2525M15</b>	▲	▲	25	25	150	25	22	35					
	<b>3232P15</b>	▲	▲	32	32	170	32	27	35					
	<b>3232P19</b>	▲	▲	32	32	170	32	27	40	LEM10×27	S19AP	WH40L	L6	SP6
	<b>4040R19</b>	▲	▲	40	40	200	40	35	40					
	<b>4040S2507</b>	▲	▲	40	40	250	40	35	48	LEM12×36A	S25AP	WH50L	L8	SP8
	<b>4040S2509</b>	▲	▲	40	40	250	40	35	48		S25AP-09			

▲Stock available    △Make-to-order

#### Applicable inserts

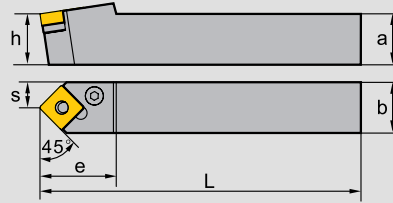
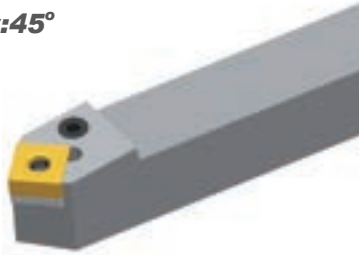
Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining Without chipbreaker	PCBN&PCD inserts
Inserts shape	<b>DF</b> A67	<b>PM</b> A68	<b>DR</b> Double-side  A70	<b>HDR</b> A72	A74	A126
	<b>EF</b> A67	<b>DM</b> A68	<b>DR</b> Single-side  A70-71	<b>HPR</b> A72		A127
	<b>SF</b> A67	<b>EM</b> A69	<b>ER</b> Double-side  A71			A128
		<b>NM</b> A69	<b>ER</b> Single-side  A71			
			<b>SNR</b> Double-side  A71			
			<b>LR</b> Single-side  A69			
<b>Tool holder type</b>	<b>PSBNR/L□□H/K09</b>	SN□□0903□□	SN□□0903□□		SN□□0903□□	
	<b>PSBNR/L□□K/M/P12</b>	SN□□1204□□	SN□□1204□□	SN□□1204□□	SN□□1204□□	SN□□1204□□
	<b>PSBNR/L□□M/P15</b>	SN□□1506□□	SN□□1506□□	SN□□1506□□	SN□□1506□□	SN□□1506□□
	<b>PSBNR/L□□P/R19</b>		SN□□1906□□	SN□□1906□□	SN□□1906□□	SN□□1906□□
	<b>PSBNR/L□□S2507</b>		SN□□2507□□	SN□□2507□□		
	<b>PSBNR/L□□S2509</b>		SN□□2509□□	SN□□2509□□		





Corresponding tool holders of insert **SN**   P-type clamping




















**PSDNN**  
Kr:45°



Type	Stock	Basic dimensions(mm)						Screw	Shim	Wrench	Lever	Shim pin	
		a	b	L	h	s	e						
<b>PSDNN</b>	<b>2020K12</b>	▲	20	20	125	20	10	30	LEM8×21	S12AP	WH30L	L4	SP4
	<b>2525M12</b>	▲	25	25	150	25	12.5	30					
	<b>3232P12</b>	▲	32	32	170	32	16	40					
	<b>2525M15</b>	▲	25	25	150	25	12.5	40	LEM8×25	S15AP	WH30L	L5	SP5
	<b>3232P15</b>	▲	32	32	170	32	16	40					
	<b>3232P19</b>	▲	32	32	170	32	16	40	LEM10×27	S19AP	WH40L	L6	SP6
	<b>4040R19</b>	▲	40	40	200	40	20	40					

▲Stock available    △Make-to-order

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining Without chipbreaker	PCBN&PCD inserts
Inserts shape	<b>DF</b>  A67	<b>PM</b>  A68	<b>DR</b> Double-side  A70	<b>HDR</b>  A72	 A74	 A126
	<b>EF</b>  A67	<b>DM</b>  A68	<b>DR</b> Single-side  A70-71	<b>HPR</b>  A72		 A127
	<b>SF</b>  A67	<b>EM</b>  A69	<b>ER</b> Double-side  A71			 A128
		<b>NM</b>  A69	<b>ER</b> Single-side  A71			
			<b>SNR</b> Double-side  A71			
			<b>LR</b> Single-side  A69			
Tool holder type	<b>PSDNN□□K/M/P12</b>	SN□□1204□□	SN□□1204□□	SN□□1204□□	SN□□1204□□	SN□□1204□□
	<b>PSDNN□□M/P15</b>	SN□□1506□□	SN□□1506□□	SN□□1506□□	SN□□1506□□	SN□□1506□□
	<b>PSDNN□□P/R19</b>		SN□□1906□□	SN□□1906□□	SN□□1906□□	SN□□1906□□

General turning

External turning tools



## External turning tools

### Corresponding tool holders of insert **SN** P-type clamping

#### PSKNR/L

Kr:75°



R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Lever	Shim pin	
	R	L	a	b	L	h	s	e						
<b>PSKNR/L</b>	<b>1616H09</b>	▲	▲	16	16	100	16	20	17	LEM6×13.4A	S09AP	WH25L	L3	SP3
	<b>2020K09</b>	▲	△	20	20	125	20	25	20					
	<b>2020K12</b>	▲	▲	20	20	125	20	25	26					
	<b>2525M12</b>	▲	▲	25	25	150	25	32	26	LEM8×21	S12AP	WH30L	L4	SP4
	<b>3232P12</b>	▲	▲	32	32	170	32	40	26					
	<b>2525M15</b>	▲	▲	25	25	150	25	32	32	LEM8×25	S15AP	WH30L	L5	SP5
	<b>3232P15</b>	▲	▲	32	32	170	32	40	32					
	<b>3232P19</b>	▲	▲	32	32	170	32	40	36	LEM10×27	S19AP	WH40L	L6	SP6
<b>4040R19</b>	▲	▲	40	40	200	40	50	40						

▲Stock available    △Make-to-order

### Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining Without chipbreaker	PCBN&PCD inserts
Inserts shape	<b>DF</b> A67	<b>PM</b> A68	<b>DR</b> Double-side  A70	<b>HDR</b> A72	A74	A126
	<b>EF</b> A67	<b>DM</b> A68	<b>DR</b> Single-side  A70 -71	<b>HPR</b> A72		A127
	<b>SF</b> A67	<b>EM</b> A69	<b>ER</b> Double-side  A71			A128
		<b>NM</b> A69	<b>ER</b> Single-side  A71			
			<b>SNR</b> Double-side  A71			
			<b>LR</b> Single-side  A69			

Tool holder type	PSKNR/L□□H/K09	PSKNR/L□□K/M/P12	PSKNR/L□□M/P15	PSKNR/L□□P/R19
	SN□□0903□□	SN□□1204□□	SN□□1506□□	SN□□1906□□
	SN□□0903□□	SN□□1204□□	SN□□1506□□	SN□□1906□□
	SN□□0903□□	SN□□1204□□	SN□□1506□□	SN□□1906□□
	SN□□0903□□	SN□□1204□□	SN□□1506□□	SN□□1906□□

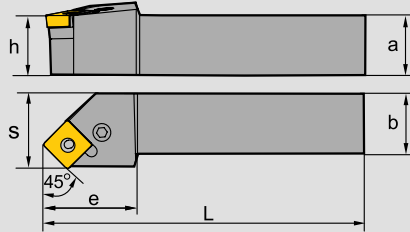


Corresponding tool holders of insert **SN**   P-type clamping

**PSSNR/L**  
Kr:45°



R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Lever	Shim pin	
	R	L	a	b	L	h	s	e						
<b>PSSNR/L</b>	<b>1616H09</b>	▲	▲	16	16	100	16	20	25	LEM6×13.4A	S09AP	WH25L	L3	SP3
	<b>2020K09</b>	△	△	20	20	125	20	25	25					
	<b>2020K12</b>	▲	▲	20	20	125	20	25	30					
	<b>2525M12</b>	▲	▲	25	25	150	25	32	30	LEM8×21	S12AP	WH30L	L4	SP4
	<b>3232P12</b>	▲	▲	32	32	170	32	40	40					
	<b>2525M15</b>	▲	▲	25	25	150	25	32	30	LEM8×25	S15AP	WH30L	L5	SP5
	<b>3232P15</b>	▲	▲	32	32	170	32	40	40					
	<b>3232P19</b>	▲	▲	32	32	170	32	40	40	LEM10×27	S19AP	WH40L	L6	SP6
	<b>4040R19</b>	▲	▲	40	40	200	40	50	40					
	<b>4040S2507</b>	▲	▲	40	40	250	40	50	50	LEM12×36A	S25AP	WH50L	L8	SP8
	<b>4040S2509</b>	▲	▲	40	40	250	40	50	50					

▲Stock available    △Make-to-order

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining Without chipbreaker	PCBN&PCD inserts
Inserts shape	<b>DF</b> A67	<b>PM</b> A68	<b>DR</b> Double-side  A70	<b>HDR</b> A72	A74	A126
	<b>EF</b> A67	<b>DM</b> A68	<b>DR</b> Single-side  A70 -71	<b>HPR</b> A72		A127
	<b>SF</b> A67	<b>EM</b> A69	<b>ER</b> Double-side  A71			A128
		<b>NM</b> A69	<b>ER</b> Single-side  A71			
			<b>SNR</b> Double-side  A71			
			<b>LR</b> Single-side  A69			

Tool holder type	PSSNR/L□□H/K09	PSSNR/L□□K/M/P12	PSSNR/L□□M/P15	PSSNR/L□□P/R19	PSSNR/L□□S2507	PSSNR/L□□S2509
	SN□□0903□□	SN□□1204□□	SN□□1506□□	SN□□1906□□	SN□□2507□□	SN□□2509□□
	SN□□0903□□	SN□□1204□□	SN□□1506□□	SN□□1906□□	SN□□2507□□	SN□□2509□□
	SN□□0903□□	SN□□1204□□	SN□□1506□□	SN□□1906□□	SN□□2507□□	SN□□2509□□
	SN□□0903□□	SN□□1204□□	SN□□1506□□	SN□□1906□□	SN□□2507□□	SN□□2509□□
	SN□□0903□□	SN□□1204□□	SN□□1506□□	SN□□1906□□	SN□□2507□□	SN□□2509□□
	SN□□0903□□	SN□□1204□□	SN□□1506□□	SN□□1906□□	SN□□2507□□	SN□□2509□□

General turning  
External turning tools



## External turning tools

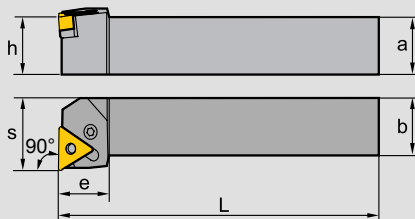
### Corresponding tool holders of insert **TN** P-type clamping

#### PTFNRIL

Kr:90°





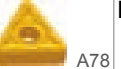















R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Lever	Shim pin	
	R	L	a	b	L	h	s	e						
<b>PTFNR/L</b>	<b>1616H16</b>	△	▲	16	16	100	16	20	20	LEM6×13.4A	T16AP	WH25L	L3	SP3
	<b>2020K16</b>	▲	▲	20	20	125	20	25	20					
	<b>2525M16</b>	▲	▲	25	25	150	25	32	20					
	<b>2525M22</b>	▲	▲	25	25	150	25	32	25	LEM8×21	T22AP	WH30L	L4	SP4
	<b>3232P22</b>	▲	▲	32	32	170	32	40	25					
	<b>3232P27</b>	▲	▲	32	32	170	32	40	34	LEM8×25	T27AP	WH30L	L5	SP5
	<b>4040S27</b>	▲	▲	40	40	250	40	50	34					

▲Stock available    △Make-to-order

### Applicable inserts

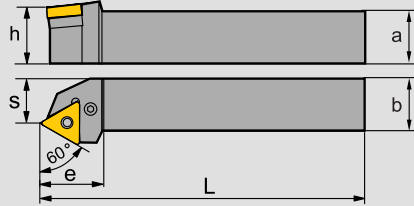
Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN&PCD inserts
Inserts shape	<b>DF</b>  A75	<b>WGM</b> Wiper  A76	<b>DR</b> Double-side  A78	<b>HDR</b>  A79	Without chipbreaker  A80	 A130
	<b>WGF</b> Wiper  A75	<b>PM</b>  A76	<b>DR</b> Single-side  A78			 A130 A131
	<b>SF</b>  A75	<b>DM</b>  A77	<b>ER</b> Double-side  A78			 A131
	<b>EF</b>  A76	<b>EM</b>  A77	<b>SNR</b>  A78			
			<b>LR</b> Single-side  A77			
<b>Tool holder type</b>	<b>PTFNR/L□□H/K/M16</b>	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□
	<b>PTFNR/L□□M/P22</b>	TN□□2204□□	TN□□2204□□	TN□□2204□□	TN□□2204□□	TN□□2204□□
	<b>PTFNR/L□□P/S27</b>		TN□□2706□□	TN□□2706□□	TN□□2706□□	

Corresponding tool holders of insert **TN**   P-type clamping

**PTTNRIL**  
Kr:60°



R-type shown





















Type		Stock		Basic dimensions(mm)					Screw	Shim	Wrench	Lever	Shim pin	
		R	L	a	b	L	h	s						e
<b>PTTNR/L</b>	<b>1616H16</b>	▲	▲	16	16	100	16	13	25	LEM6×13.4A	T16AP	WH25L	L3	SP3
	<b>2020K16</b>	▲	▲	20	20	125	20	17	25					
	<b>2525M16</b>	△	△	25	25	150	25	22	25					
	<b>2525M22</b>	▲	▲	25	25	150	20	22	32	LEM8×21	T22AP	WH30L	L4	SP4

▲Stock available    △Make-to-order

General turning  
External turning tools

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN&PCD inserts	
Inserts shape	<b>DF</b>  A75	<b>WGM</b> Wiper  A76	<b>DR</b> Double-side  A78	<b>HDR</b>  A79	Without chipbreaker  A80	 A130	
	<b>WGF</b> Wiper  A75	<b>PM</b>  A76	<b>DR</b> Single-side  A78			 A130 A131	
	<b>SF</b>  A75	<b>DM</b>  A77	<b>ER</b> Double-side  A78			 A131	
	<b>EF</b>  A76	<b>EM</b>  A77	<b>SNR</b>  A78				
			<b>LR</b> Single-side  A77				
Tool holder type	<b>PTTNR/L□□H/K/M16</b>	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□
	<b>PTTNR/L□□M22</b>	TN□□2204□□	TN□□2204□□	TN□□2204□□	TN□□2204□□		

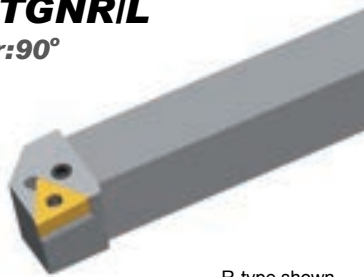


## External turning tools

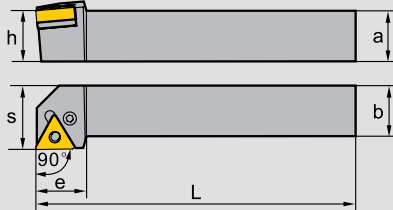
### Corresponding tool holders of insert **TN** P-type clamping

#### PTGNR/L

Kr:90°



R-type shown



Type		Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Lever	Shim pin
		R	L	a	b	L	h	s	e					
<b>PTGNR/L</b>	<b>1616H16</b>	▲	▲	16	16	100	16	20	20	LEM6×13.4A	T16AP	WH25L	L3	SP3
	<b>2020K16</b>	▲	▲	20	20	125	20	25	20					
	<b>2525M16</b>	▲	▲	25	25	150	25	32	20					
	<b>3232P16</b>	▲	▲	32	32	170	32	40	20	LEM8×21	T22AP	WH30L	L4	SP4
	<b>2525M22</b>	▲	▲	25	25	150	25	32	28					
	<b>3232P22</b>	▲	▲	32	32	170	32	40	28					
	<b>3232P27</b>	▲	▲	32	32	170	32	40	33					
<b>4040S27</b>	▲	▲	40	40	250	40	50	33	LEM8×25	T27AP	WH30L	L5	SP5	

▲Stock available    △Make-to-order

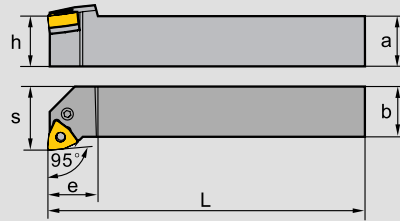
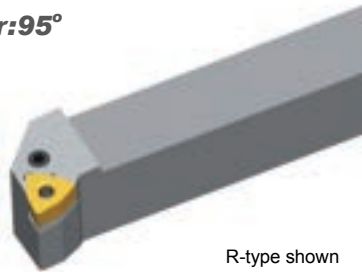
### Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN&PCD inserts
Inserts shape	<b>DF</b> A75	<b>WGM</b> Wiper A76	<b>DR</b> Double-side A78	<b>HDR</b> A79	Without chipbreaker A80	A130
	<b>WGF</b> Wiper A75	<b>PM</b> A76	<b>DR</b> Single-side A78			A130-A131
	<b>SF</b> A75	<b>DM</b> A77	<b>ER</b> Double-side A78			A131
	<b>EF</b> A76	<b>EM</b> A77	<b>SNR</b> A78			
			<b>LR</b> Single-side A77			
Tool holder type	<b>PTGNR/L□□H/K/M/P16</b>	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□	TN□□1604□□
	<b>PTGNR/L□□M/P22</b>	TN□□2204□□	TN□□2204□□	TN□□2204□□	TN□□2204□□	
	<b>PTGNR/L□□P/S27</b>			TN□□2706□□	TN□□2706□□	



Corresponding tool holders of insert **WN**   P-type clamping

**PWLNRR/L**  
Kr:95°



Type	Stock		Basic dimensions(mm)						Screw	Shim	Wrench	Lever	Shim pin	
	R	L	a	b	L	h	s	e						
<b>PWLNRR/L</b>	<b>1616H06</b>	▲	▲	16	16	100	16	20	20	LEM6×13.4A	W06AP	WH25L	L3	SP3
	<b>2020K06</b>	▲	▲	20	20	125	20	25	20					
	<b>2525M06</b>	▲	▲	25	25	150	25	32	20					
	<b>2020K08</b>	▲	▲	20	20	125	20	25	26	LEM8×21	W08AP	WH30L	L4	SP4
	<b>2525M08</b>	▲	▲	25	25	150	25	32	26					
	<b>3232P08</b>	△	△	32	32	170	32	40	28					

▲Stock available    △Make-to-order

General turning

External turning tools

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For cast iron machining	PCBN&PCD inserts
Inserts shape	<b>DF</b> A83	<b>WGM</b> Wiper  A84	<b>DR</b> Double-side  A86	Without chipbreaker  A86	A136
	<b>WGF</b> Wiper  A83	<b>PM</b> A85	<b>SNR</b> Double-side  A86		A136 -A137
	<b>SF</b> A83	<b>DM</b> A85			A137
	<b>EF</b> A84	<b>EM</b> A85			
	<b>NF</b> A84	<b>NM</b> A86			

Tool holder type	<b>PWLNRR/L</b> □□H/K/M06	WN□□0604□□	WN□□0604□□	WN□□0604□□	WN□□0604□□	
	<b>PWLNRR/L</b> □□K/M/P08	WN□□0804□□	WN□□0804□□	WN□□0804□□	WN□□0804□□	WN□□0804□□

## External turning tools

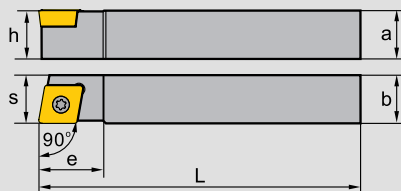
### Corresponding tool holders of insert **CC** S-type clamping

#### SCACRIL

Kr:90°



R-type shown



Type		Stock		Basic dimensions(mm)						Screw	Wrench
		R	L	a	b	L	h	s	e		
<b>SCACR/L</b>	<b>0808F06</b>	△	△	8	8	80	8	8	16	I60M2.5×6.5	
	<b>1010H06</b>	▲	△	10	10	100	10	10	16		
	<b>1212H06</b>	△	△	12	12	100	12	12	16		
	<b>1212H09</b>	▲	▲	12	12	100	12	12	20	I60M3.5×8	WT15IP
	<b>1616H09</b>	△	△	16	16	100	16	16	20		

▲Stock available    △Make-to-order

### Applicable inserts

Application	For extra finishing	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	PCBN&PCD inserts
Inserts shape	<b>USF</b>  A89	<b>HF</b>  A89	<b>HM</b>  A90	<b>HR</b>  A91	<b>LH</b>  A91-92	 Without chipbreaker A92	 A139
	<b>SF</b>  A89	<b>EF</b>  A90	<b>EM</b>  A90		<b>LC</b>  A91		 A144
Tool holder type	<b>SCACR/L□□H/F06</b>	CC□□0602□□	CC□□0602□□	CC□□0602□□	CC□□0602□□	CCGX 0602□□	CC□□ 0602□□
	<b>SCACR/L□□H09</b>	CC□□09T3□□	CC□□09T3□□	CC□□09T3□□	CC□□09T3□□	CCGX 09T3□□	CC□□ 09T3□□



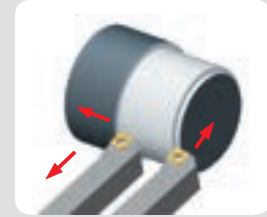





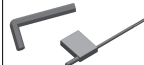
Corresponding tool holders of insert **CC**   S-type clamping

**SCLCRIL**  
Kr:95°















R-type shown



Type	Stock		Basic dimensions(mm)							Screw	Shim	Shim screw	Wrench
	R	L	a	b	L	h	s	e					
<b>SCLCR/L</b>	<b>0808F06</b>	▲	△	08	08	80	08	10	12	I60M2.5×6.5	---	---	WT07IP
	<b>1010F06</b>	▲	▲	10	10	80	10	12	12				
	<b>1212H06</b>	△	△	12	12	100	12	16	12				
	<b>1616H06</b>	△	△	16	16	100	16	20	16				
	<b>1212H09</b>	▲	▲	12	12	100	12	16	16	I60M3.5×8	---	---	WT15IP
	<b>1616H09</b>	▲	▲	16	16	100	16	20	16				
	<b>2020K09</b>	△	△	20	20	125	20	25	16				
	<b>2525M09</b>	△	△	25	25	150	25	32	16				
	<b>2020K12</b>	▲	▲	20	20	125	20	25	20	I60M4×11X	C12BS	SM6×10XA	WT15IP WH40L
	<b>2525M12</b>	▲	▲	25	25	150	25	32	20				
<b>3225M12</b>	▲	▲	32	25	150	32	32	20					

▲Stock available    △Make-to-order

Applicable inserts

Application	For extra finishing	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	PCBN&PCD inserts
Inserts shape	<b>USF</b>  A89	<b>HF</b>  A89	<b>HM</b>  A90	<b>HR</b>  A91	<b>LH</b>  A91-92	 Without chipbreaker A92	 A139
	<b>SF</b>  A89	<b>EF</b>  A90	<b>EM</b>  A90		<b>LC</b>  A91		 A144
Tool holder type	<b>SCLCR/L□□H/F06</b>	CC□□ 0602□□	CC□□ 0602□□	CC□□ 0602□□	CC□□ 0602□□	CCGX 0602□□	CC□□ 0602□□
	<b>SCLCR/L□□H/K/M09</b>	CC□□ 09T3□□	CC□□ 09T3□□	CC□□ 09T3□□	CC□□ 09T3□□	CCGX 09T3□□	CC□□ 09T3□□
	<b>SCLCR/L□□K/M12</b>		CC□□ 1204□□	CC□□ 1204□□	CC□□ 1204□□	CCGX 1204□□	CC□□ 1204□□

General turning

External turning tools

## External turning tools

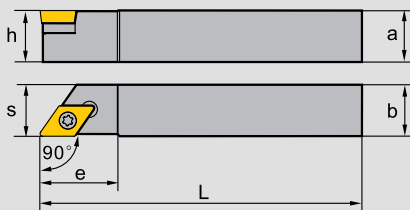
### Corresponding tool holders of insert DC S-type clamping

#### SDACRIL

Kr:90°



R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench	
	R	L	a	b	L	h	s	e					
<b>SDACR/L</b>	<b>0808K07</b>	△	△	8	8	125	8	8	15	I60M2.5×6.5	---	---	WT07IP
	<b>1010K07</b>	△	△	10	10	125	10	10	15				
	<b>1212K07</b>	△	△	12	12	125	10	10	15				
	<b>1212K11</b>	△	△	12	12	125	12	12	22	I60M3.5×8	---	---	WT15IP
	<b>1616K11</b>	△	△	16	16	125	16	16	22	I60M3.5×12	D11BS	SM5×8.65XA	WT15IP WH35L
	<b>2020K11</b>	△	△	20	20	125	20	20	22				
	<b>2525M11</b>	△	△	25	25	150	25	25	22				

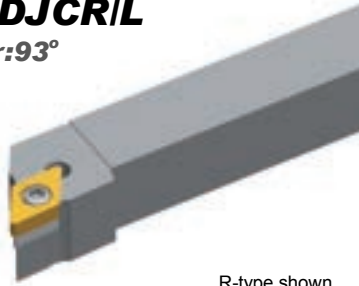
▲Stock available    △Make-to-order

### Applicable inserts

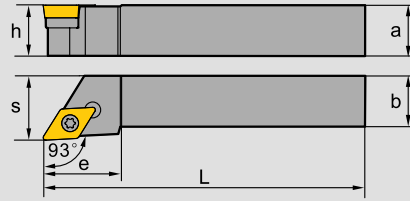
Application	For extra finishing	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	PCBN&PCD inserts
Inserts shape	<b>USF</b>  A93	<b>HF</b>  A93	<b>HM</b>  A94	<b>HR</b>  A95	<b>LH</b>  A95	<b>Without chipbreaker</b>  A95	 A140
	<b>SF</b>  A93	<b>EF</b>  A94	<b>EM</b>  A94		<b>LC</b>  A95		 A145
Tool holder type	<b>SDACR/L□□K07</b>	DC□□ 0702□□	DC□□ 0702□□	DC□□ 0702□□		DCGX 0702□□	DC□□0702□□
	<b>SDACR/L□□K/M11</b>	DC□□ 11T3□□	DC□□ 11T3□□	DC□□ 11T3□□	DC□□ 11T3□□	DCGX 11T3□□	DC□□ 11T3□□

Corresponding tool holders of insert **DC**   S-type clamping

**SDJCR/L**  
Kr:93°











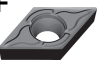
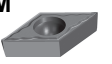


R-type shown



Type	Stock		Basic dimensions(mm)							Screw	Shim	Shim screw	Wrench
	R	L	a	b	L	h	s	e					
<b>SDJCR/L</b>	<b>0808F07</b>	△	△	8	8	80	8	10	15	I60M2.5×6.5	---	---	WT071P
	<b>1010F07</b>	▲	△	10	10	80	10	12	15				
	<b>1212H07</b>	▲	▲	12	12	100	12	16	15				
	<b>1414H07</b>	△	△	14	14	100	14	18	15				
	<b>1616H07</b>	▲	▲	16	16	100	16	20	15				
	<b>2020K07</b>	△	△	20	20	125	20	25	28				
	<b>2525M07</b>	△	△	25	25	150	25	32	28				
	<b>1212K11</b>	△	△	12	12	125	12	16	22	I60M3.5×12	D11BS	SM5×8.65XA	WT151P WH35L
	<b>1616K11</b>	▲	▲	16	16	125	16	20	22				
	<b>2020K11</b>	▲	▲	20	20	125	20	25	22				
<b>2525M11</b>	▲	▲	25	25	150	25	32	22					

▲Stock available    △Make-to-order

Applicable inserts

Application	For extra finishing	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	PCBN&PCD inserts	
Inserts shape	<b>USF</b>  A93	<b>HF</b>  A93	<b>HM</b>  A94	<b>HR</b>  A95	<b>LH</b>  A95	 Without chipbreaker A95	 A140	
	<b>SF</b>  A93	<b>EF</b>  A94	<b>EM</b>  A94		<b>LC</b>  A95		 A145	
Tool holder type	<b>SDJCR/L□□F/H/K/M07</b>	DC□□0702□□	DC□□0702□□	DC□□0702□□		DCGX 0702□□	DC□□0702□□	DC□□0702□□
	<b>SDJCR/L□□K/M11</b>	DC□□11T3□□	DC□□11T3□□	DC□□11T3□□	DC□□11T3□□	DCGX 11T3□□	DC□□11T3□□	DC□□11T3□□

General turning

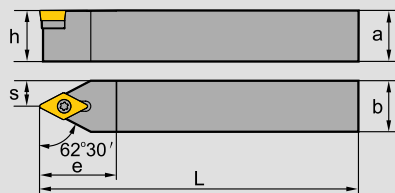
External turning tools



## External turning tools

### Corresponding tool holders of insert **DC** S-type clamping










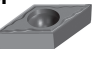


#### SDNCN Kr:62°30'



Type	Stock	Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench	
		a	b	L	h	s	e					
<b>SDNCN</b>	<b>0808F07</b>	△	8	8	80	8	4	15	I60M2.5×6.5	---	---	WT07IP
	<b>1010F07</b>	▲	10	10	80	10	5	15				
	<b>1212H07</b>	▲	12	12	100	12	6	15				
	<b>1616H07</b>	△	16	16	100	16	8	15				
	<b>2020K07</b>	△	20	20	125	20	10	20				
	<b>2525M07</b>	△	25	25	150	25	12.5	20				
	<b>1616K11</b>	▲	16	16	125	16	8	22	I60M3.5×12	D11BS	SM5×8.65XA	WT15IP WH35L
	<b>2020K11</b>	▲	20	20	125	20	10	22				
	<b>2525M11</b>	▲	25	25	150	25	12.5	22				
	<b>3225M11</b>	△	32	25	150	32	12.5	22				
	<b>3232P11</b>	△	32	32	170	32	16	22				

▲Stock available    △Make-to-order

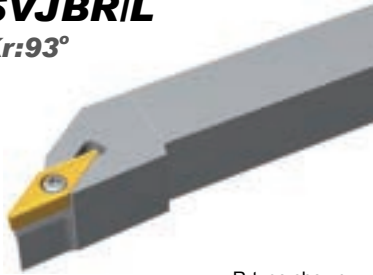
#### Applicable inserts

Application	For extra finishing	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	PCBN&PCD inserts
Inserts shape	<b>USF</b>  A93	<b>HF</b>  A93	<b>HM</b>  A94	<b>HR</b>  A95	<b>LH</b>  A95	 Without chipbreaker A95	 A140
	<b>SF</b>  A93	<b>EF</b>  A94	<b>EM</b>  A94		<b>LC</b>  A95		 A145
Tool holder type	<b>SDNCN□□F/H/K/M07</b>	DC□□0702□□	DC□□0702□□	DC□□0702□□		DCGX 0702□□	DC□□0702□□
	<b>SDNCN□□K/M/P11</b>	DC□□11T3□□	DC□□11T3□□	DC□□11T3□□	DC□□11T3□□	DCGX 11T3□□	DC□□11T3□□

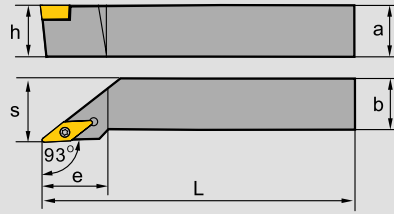


Corresponding tool holders of insert **VB**   S-type clamping

**SVJBRIL**  
Kr:93°



R-type shown



Type		Stock		Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench
		R	L	a	b	L	h	s	e				
<b>SVJBR/L</b>	1212H11	▲	▲	12	12	100	12	16	25	I60M2.5×6.5	---	---	WT071P
	1616H11	▲	▲	16	16	100	16	20	25				
	2020K11	▲	▲	20	20	125	20	25	25				
	2525M11	▲	▲	25	25	150	25	32	25	I60M3.5×12	V16BS	SM5×8.65XA	WT15IP WH35L
	1616H16	▲	▲	16	16	100	16	20	35				
	2020K16	▲	▲	20	20	125	20	25	35				
	2525M16	▲	▲	25	25	150	25	32	35				

▲Stock available    △Make-to-order

General turning  
External turning tools

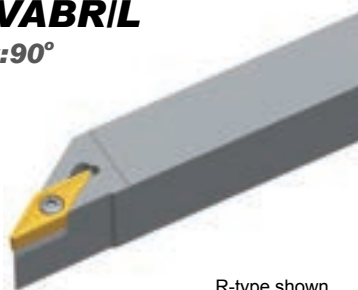
Applicable inserts

Application	For extra finishing	For finishing	For semi-finishing	For roughing	PCBN&PCD inserts
Inserts shape	<b>SF</b>  A108	<b>HF</b>  A108	<b>HM</b>  A109	<b>HR</b>  A109	 A142
		<b>NF</b>  A108	<b>EM</b>  A109	<b>SNR</b>  A109	 A147
		<b>EF</b>  A108			
		<b>NGF</b>  A108			
Tool holder type	<b>SVJBR/L□□H/K/M11</b>	VB□□1103□□	VB□□1103□□	VB□□1103□□	
	<b>SVJBR/L□□H/K/M16</b>		VB□□1604□□	VB□□1604□□	VB□□1604□□

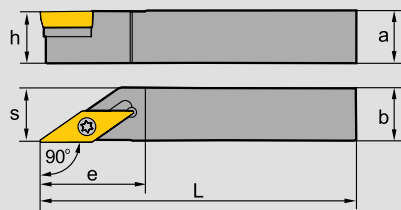
### Corresponding tool holders of insert **VB** S-type clamping

#### SVABRIL

Kr:90°



R-type shown



Type		Stock		Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench
		R	L	a	b	L	h	s	e				
<b>SVABR/L</b>	<b>1010F11</b>	△	△	10	10	80	10	10	25	I60M2.5×6.5	---	---	WT07IP
	<b>1616H16</b>	△	△	16	16	100	16	16	28	I60M3.5×12	V16BS	SM5×8.65XA	WT15IP WH35L
	<b>2020K16</b>	△	△	20	20	125	20	20	28				
	<b>2525M16</b>	△	△	25	25	150	25	25	28				

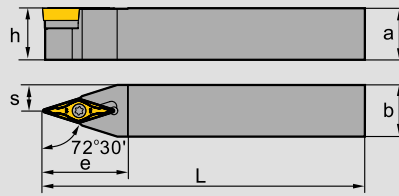
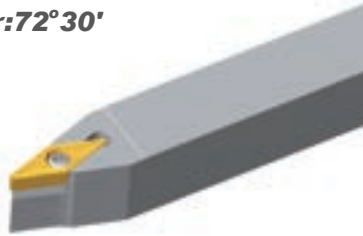
▲Stock available    △Make-to-order

#### Applicable inserts

Application	For extra finishing	For finishing	For semi-finishing	For roughing	PCBN&PCD inserts
Inserts shape	<b>SF</b>  A108	<b>HF</b>  A108	<b>HM</b>  A109	<b>HR</b>  A109	 A142
		<b>NF</b>  A108	<b>EM</b>  A109	<b>SNR</b>  A109	 A147
		<b>EF</b>  A108			
		<b>NGF</b>  A108			
Tool holder type	<b>SVABR/L□□F11</b>	VB□□1103□□	VB□□1103□□	VB□□1103□□	
	<b>SVABR/L□□H/K/M16</b>		VB□□1604□□	VB□□1604□□	VB□□1604□□

Corresponding tool holders of insert **VB**   S-type clamping

**SVVBN**  
Kr:72°30'



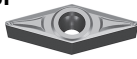





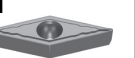


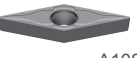

Type		Stock	Basic dimensions(mm)					Screw	Shim	Shim screw	Wrench	
			a	b	L	h	s					e
<b>SVVBN</b>	<b>1212H11</b>	▲	12	12	100	12	6	25	I60M2.5×6.5	---	---	WT07IP
	<b>1616H11</b>	▲	16	16	100	16	8	25				
	<b>2020K11</b>	▲	20	20	125	20	10	25				
	<b>2525M11</b>	△	25	25	150	25	12.5	35	I60M3.5×12	V16BS	SM5×8.65XA	WT15IP WH35L
	<b>1616H16</b>	▲	16	16	100	16	8	35				
	<b>2020K16</b>	▲	20	20	125	20	10	35				
	<b>2525M16</b>	▲	25	25	150	25	12.5	35				

▲Stock available    △Make-to-order

General turning

External turning tools

Applicable inserts

Application	For extra finishing	For finishing	For semi-finishing	For roughing	PCBN&PCD inserts
Inserts shape	<b>SF</b>  A108	<b>HF</b>  A108	<b>HM</b>  A109	<b>HR</b>  A109	 A142
		<b>NF</b>  A108	<b>EM</b>  A109	<b>SNR</b>  A109	 A147
		<b>EF</b>  A108			
		<b>NGF</b>  A108			
Tool holder type	<b>SVVBN□□H/K/M11</b>	VB□□1103□□	VB□□1103□□	VB□□1103□□	
	<b>SVVBN□□H/K/M16</b>		VB□□1604□□	VB□□1604□□	VB□□1604□□

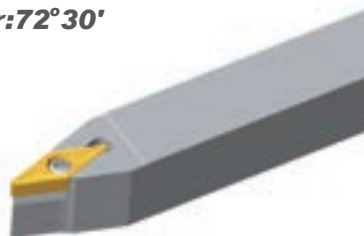


## External turning tools

### Corresponding tool holders of insert VC □ □ S-type clamping

#### SVVCN










Kr:72°30'



Type	Stock	Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench	
		a	b	L	h	s	e					
<b>SVVCN</b>	<b>1212H11</b>	▲	12	12	100	12	6	25	I60M2.5×6.5	---	---	WT07IP
	<b>1616H11</b>	▲	16	16	100	16	8	27				
	<b>2020K11</b>	▲	20	20	125	20	10	30				
	<b>2525M11</b>	△	25	25	150	25	12.5	38				
	<b>1616H16</b>	▲	16	16	100	16	8	33	I60M3.5×12	V16BSC	SM5×8.65XA	WT15IP WH35L
	<b>2020K16</b>	▲	20	20	125	20	10	33				
	<b>2525M16</b>	▲	25	25	150	25	12.5	38				

▲Stock available    △Make-to-order

#### Applicable inserts

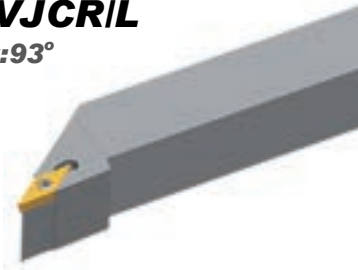
Application	For extra finishing	For finishing	For Al machining	PCBN&PCD inserts
Inserts shape	<b>USF</b>  A105	<b>HF</b>  A105	<b>LH</b>  A106	 A143
	<b>SF</b>  A105	<b>NF</b>  A105	<b>LC</b>  A106	 A148
		<b>NGF</b>  A105		
Tool holder type	<b>SVVCN□□H/K/M11</b>	VC□□1103□□	VC□□1103□□	VCGX1103□□
	<b>SVVCN□□H/K/M16</b>		VC□□1604□□	VCGX1604□□    VC□□1604□□



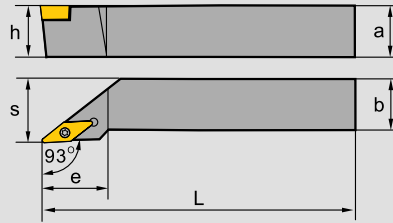





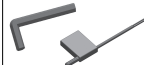
Corresponding tool holders of insert **VC**   S-type clamping

**SVJCRIL**  
Kr:93°



R-type shown





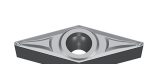






Type		Stock		Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench
		R	L	a	b	L	h	s	e				
<b>SVJCR/L</b>	<b>1212H11</b>	△	△	12	12	100	12	16	25	I60M2.5×6.5	---	---	WT071P
	<b>1616H11</b>	▲	▲	16	16	100	16	20	25				
	<b>2020K11</b>	▲	▲	20	20	125	20	25	25				
	<b>2525M11</b>	▲	▲	25	25	150	25	32	35	I60M3.5×12	V16BSC	SM5×8.65XA	WT151P WH35L
	<b>1616H16</b>	▲	▲	16	16	100	16	20	35				
	<b>2020K16</b>	▲	▲	20	20	125	20	25	35				
	<b>2525M16</b>	▲	▲	25	25	150	25	32	35				

▲Stock available    △Make-to-order

General turning  
External turning tools

Applicable inserts

Application	For extra finishing	For finishing	For AI machining	PCBN&PCD inserts
Inserts shape	<b>USF</b>  A105	<b>HF</b>  A105	<b>LH</b>  A106	 A143
	<b>SF</b>  A105	<b>NF</b>  A105	<b>LC</b>  A106	 A148
		<b>NGF</b>  A105		
Tool holder type	<b>SVJCR/L□□H/K/M11</b>	VC□□1103□□	VC□□1103□□	VCGX1103□□
	<b>SVJCR/L□□H/K/M16</b>		VC□□1604□□	VCGX1604□□

## External turning tools

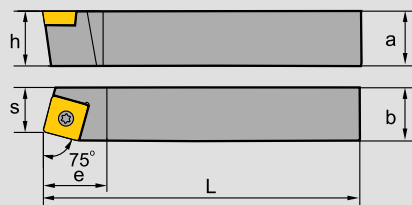
### Corresponding tool holders of insert **SC** S-type clamping

#### SSBCRIL

Kr:75°



R-type shown



Type		Stock		Basic dimensions(mm)					Screw	Shim	Shim screw	Wrench	
		R	L	a	b	L	h	s	e				
<b>SSBCR/L</b>	1212H09	▲	▲	12	12	100	12	9	16	I60M3.5×8	---	---	WT15IP
	1616H09	▲	▲	16	16	100	16	13	16				
	2020K09	△	△	20	20	125	20	17	20				
	2525M09	△	△	25	25	150	25	22	20				
	2020K12	▲	▲	20	20	125	20	17	25	I60M4×11X	S12BS	SM6×10XA	WT15IP WH40L
	2525M12	△	△	25	25	150	25	22	25				

▲Stock available    △Make-to-order

### Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining					
Inserts shape	<b>HF</b>  A98	<b>HM</b>  A98	<b>HR</b>  A99	<b>LH</b>  A99	Without chipbreaker  A99					
	<b>EF</b>  A98	<b>EM</b>  A98		<b>LC</b>  A99						
Tool holder type	SSBCR/L□□H/K/M09		SC□□09T3□□	SC□□09T3□□	SC□□09T3□□	SC□□09T3□□	SC□□09T3□□	SC□□09T3□□	SC□□09T3□□	SC□□09T3□□
	SSBCR/L□□K/M12		SC□□1204□□	SC□□1204□□	SC□□1204□□	SC□□1204□□	SC□□1204□□	SC□□1204□□	SC□□1204□□	SC□□1204□□



Corresponding tool holders of insert **SC**   S-type clamping

**SSDCN**  
Kr:45°











Type		Stock	Basic dimensions(mm)					Screw	Shim	Shim screw	Wrench	
			a	b	L	h	s					e
<b>SSDCN</b>	<b>1212H09</b>	▲	12	12	100	12	6	16	I60M3.5×8	---	---	WT15IP
	<b>1616H09</b>	▲	16	16	100	16	8	16	I60M3.5×12	S09BS	SM5×8.65XA	WT15IP WH35L
	<b>2020K09</b>	△	20	20	125	20	10	20				
	<b>2525M09</b>	△	25	25	150	25	12.5	20	I60M4×11	S12BS	SM6×10XA	WT15IP WH40L
	<b>2525M12</b>	▲	25	25	150	25	12.5	22				

▲Stock available    △Make-to-order

General turning  
External turning tools

Applicable inserts

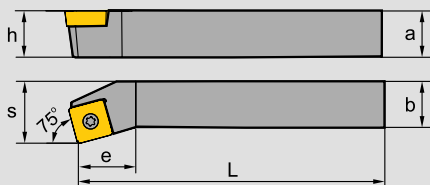
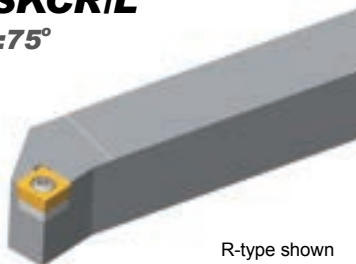
Application	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining
Inserts shape	<b>HF</b>  A98	<b>HM</b>  A98	<b>HR</b>  A99	<b>LH</b>  A99	 A99 Without chipbreaker
	<b>EF</b>  A98	<b>EM</b>  A98		<b>LC</b>  A99	
Tool holder type	<b>SSDCN□□H/K/M09</b>	SC□□09T3□□	SC□□09T3□□	SC□□09T3□□	SC□□09T3□□
	<b>SSDCN□□M12</b>		SC□□1204□□	SC□□1204□□	SC□□1204□□

## External turning tools

### Corresponding tool holders of insert **SC** S-type clamping

#### SSKCRIL

Kr:75°



R-type shown

Type		Stock		Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench
		R	L	a	b	L	h	s	e				
<b>SSKCR/L</b>	<b>1212H09</b>	△	△	12	12	100	12	16	16	I60M3.5×8	---	---	WT15IP
	<b>1616H09</b>	▲	△	16	16	100	16	20	16				
	<b>2020K09</b>	△	△	20	20	125	20	25	20				
	<b>2525M09</b>	△	△	25	25	150	25	32	20	I60M4×11X	S09BS	SM5×8.65XA	WT15IP WH35L
	<b>2020K12</b>	△	△	20	20	125	20	25	22				
	<b>2525M12</b>	△	△	25	25	150	25	32	22				

▲Stock available    △Make-to-order

#### Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining
Inserts shape	<b>HF</b>  A98	<b>HM</b>  A98	<b>HR</b>  A99	<b>LH</b>  A99	Without chipbreaker  A99
	<b>EF</b>  A98	<b>EM</b>  A98		<b>LC</b>  A99	
Tool holder type	<b>SSKCR/L□□H/K/M09</b>	SC□□09T3□□	SC□□09T3□□	SC□□09T3□□	SC□□09T3□□
	<b>SSKCR/L□□K/M12</b>		SC□□1204□□	SC□□1204□□	SC□□1204□□

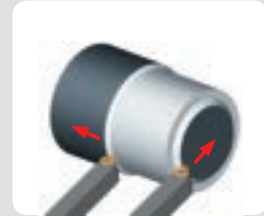
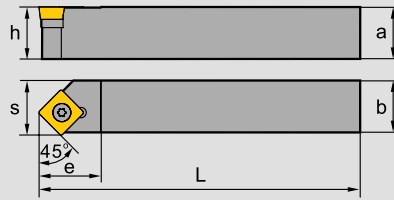


Corresponding tool holders of insert **SC**   S-type clamping

**SSSCRIL**  
Kr:45°



R-type shown



Type		Stock		Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench	
		R	L	a	b	L	h	s	e					
<b>SSSCR/L</b>	<b>1212H09</b>	△	△	12	12	100	12	16	16	I60M3.5×8	---	---	WT15IP	
	<b>1616H09</b>	▲	▲	16	16	100	16	17	16	I60M3.5×12	S09BS	SM5×8.65XA	WT15IP WH35L	
	<b>2020K09</b>	△	△	20	20	125	20	21	20		I60M4×11X	S12BS	SM6×10XA	WT15IP WH40L
	<b>2525M09</b>	△	△	25	25	150	25	32	20					
	<b>2020K12</b>	▲	▲	20	20	125	20	21	24					
	<b>2525M12</b>	△	△	25	25	150	25	32	22					

▲Stock available    △Make-to-order

General turning

External turning tools

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining
Inserts shape	<b>HF</b>  A98	<b>HM</b>  A98	<b>HR</b>  A99	<b>LH</b>  A99	Without chipbreaker  A99
	<b>EF</b>  A98	<b>EM</b>  A98		<b>LC</b>  A99	
Tool holder type	<b>SSSCR/L□□H/K/M09</b>	SC□□09T3□□	SC□□09T3□□	SC□□09T3□□	SC□□09T3□□
	<b>SSSCR/L□□K/M12</b>		SC□□1204□□	SC□□1204□□	SC□□1204□□

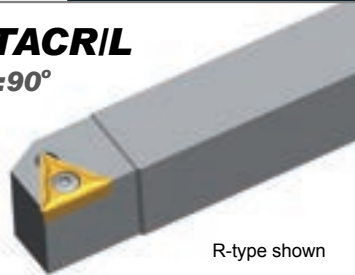


## External turning tools

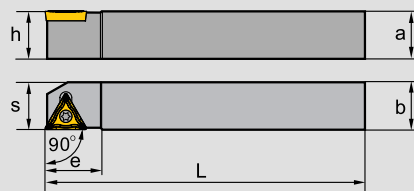
### Corresponding tool holders of insert **TC** S-type clamping

#### STACRIL

Kr:90°



R-type shown

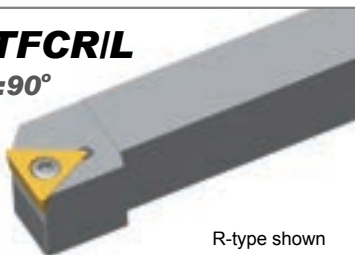


Type		Stock		Basic dimensions(mm)						Screw	Wrench	---	---
		R	L	a	b	L	h	s	e				
STACR/L	1010K11	△	△	10	10	100	10	10	12	I60M2.5×6.5	WT07IP	---	---
	1212F11	△	△	12	12	100	12	12	14				
	1616K11	△	△	16	16	100	16	16	16				

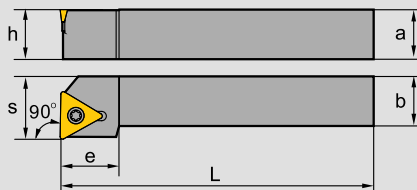
▲Stock available    △Make-to-order

#### STFCRIL

Kr:90°












R-type shown



Type		Stock		Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench
		R	L	a	b	L	h	s	e				
STFCR/L	1212H11	▲	▲	12	12	100	12	16	14	I60M2.5×6.5	---	---	WT07IP
	1616H11	▲	▲	16	16	100	16	20	14				
	2020K11	△	△	20	20	125	20	25	20				
	2525M11	△	△	25	25	150	25	32	20	I60M3.5×12	T16BS	SM5×8.65XA	WT15IP WH35L
	1616K16	▲	▲	16	16	125	16	20	20				
	2020K16	▲	▲	20	20	125	20	25	20				
2525M16	△	△	25	25	150	25	32	25					

▲Stock available    △Make-to-order

#### Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining Without chipbreaker	PCBN&PCD inserts
Inserts shape	HF  A101	HM  A103	HR  A103	LH  A104	 A104	 A141
	EF  A102	EM  A102		LC  A103		
Tool holder type	STACR/L□□K/F11	TC□□1102□□	TC□□1102□□	TC□□1102□□	TCGX1102□□	TC□□1102□□
	STFCR/L□□H/K/M11	TC□□1102□□	TC□□1102□□	TC□□1102□□	TCGX1102□□	TC□□1102□□
	STFCR/L□□K/M16	TC□□16T3□□	TC□□16T3□□	TC□□16T3□□	TCGX16T3□□	TC□□16T3□□

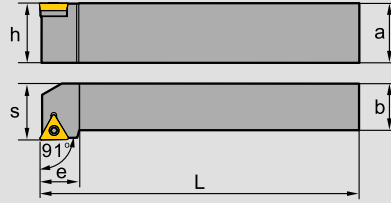


Corresponding tool holders of insert **TC**   S-type clamping

**STGCRIL**  
Kr:91°














R-type shown



Type		Stock		Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench
		R	L	a	b	L	h	s	e				
<b>STGCR/L</b>	<b>0808F09</b>	▲	△	08	08	80	8	10	12	I60M2.2×5.5	---	---	WT06IP
	<b>1010F09</b>	▲	▲	10	10	80	10	12	12				
	<b>1212H09</b>	△	△	12	12	100	12	16	12				
	<b>1212H11</b>	▲	▲	12	12	100	12	16	16	I60M2.5×6.5	---	---	WT07IP
	<b>1616H11</b>	▲	▲	16	16	100	16	20	16				
	<b>2020K11</b>	△	△	20	20	125	20	25	20				
	<b>2525M11</b>	△	△	25	25	150	25	32	20	I60M3.5×12	T16BS	SM5×8.65XA	WT15IP WH35L
	<b>1616K16</b>	△	△	16	16	125	16	20	20				
	<b>2020K16</b>	▲	▲	20	20	125	20	25	21				
	<b>2525M16</b>	▲	▲	25	25	150	25	32	21				

▲Stock available    △Make-to-order

Applicable inserts

Application	For extra finishing	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	PCBN&PCD inserts
Inserts shape	<b>USF</b>  A100	<b>HF</b>  A101	<b>HM</b>  A103	<b>HR</b>  A103	<b>LH</b>  A104	Without chipbreaker  A104	 A141
	<b>SF</b>  A100	<b>EF</b>  A102	<b>EM</b>  A102		<b>LC</b>  A103		

Tool holder type	<b>STGCR/L□□F/H09</b>	TC□□0902□□	TC□□0902□□	TC□□0902□□	TC□□0902□□	TCGX0902□□	TC□□0902□□	TC□□0902□□
	<b>STGCR/L□□H/K/M11</b>		TC□□1102□□	TC□□1102□□	TC□□1102□□	TCGX1102□□	TC□□1102□□	TC□□1102□□
	<b>STGCR/L□□K/M16</b>		TC□□16T3□□	TC□□16T3□□	TC□□16T3□□	TCGX16T3□□	TC□□16T3□□	

General turning

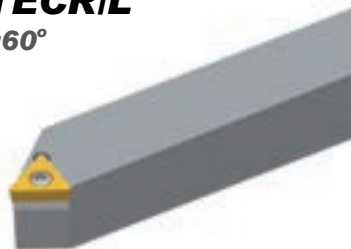
External turning tools



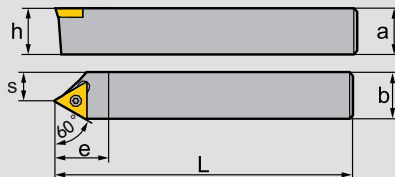
## External turning tools




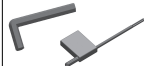
### Corresponding tool holders of insert **TC** S-type clamping

#### STECRIL Kr:60°












R-type shown



Type	Stock		Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench	
	R	L	a	b	L	h	s	e					
<b>STECR/L</b>	<b>1616H11</b>	△	△	16	16	100	16	10.5	16	I60M2.5×6.5	---	---	WT07IP
	<b>2020K11</b>	△	△	20	20	125	20	14.5	20		---	---	WT15IP
	<b>2020K16</b>	△	△	20	20	125	20	12.5	20	I60M3.5×12	T16BS	SM5×8.65XA	WT35IP
	<b>2525M16</b>	△	△	25	25	150	25	17.0	25		---	---	---

▲Stock available    △Make-to-order

#### Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining Without chipbreaker	PCBN&PCD inserts
Inserts shape	<b>HF</b>  A101	<b>HM</b>  A103	<b>HR</b>  A103	<b>LH</b>  A104	 A104	 A141
	<b>EF</b>  A102	<b>EM</b>  A102		<b>LC</b>  A103		
Tool holder type	<b>STECR/L□□H/K11</b>	TC□□1102□□	TC□□1102□□	TC□□1102□□	TCGX1102□□	TC□□1102□□
	<b>STECR/L□□K/M16</b>	TC□□16T3□□	TC□□16T3□□	TC□□16T3□□	TCGX16T3□□	TC□□16T3□□







Corresponding tool holders of insert **WC**   S-type clamping

**SWACR/L**  
Kr:90°



R-type shown




Type		Stock		Basic dimensions(mm)						Screw	Wrench	—	—
		R	L	a	b	L	h	s	e			—	—
<b>SWACR/L</b>	<b>1010E04</b>	△	△	10	10	70	10	10	10	I60M2.5×6.5	WT07IP	---	---
	<b>1212F04</b>	▲	△	12	12	80	12	12	14				
	<b>1616H06</b>	▲	△	16	16	100	16	16	20	I60M3×7	WT10IP	---	---
	<b>2020K08</b>	▲	▲	20	20	125	20	20	24	I60M3.5×12	WT15IP	---	---

▲Stock available    △Make-to-order

General turning

External turning tools

Applicable inserts

Application	For finishing
Inserts shape	<p><b>53</b></p>  <p>A107</p>
<b>SWACR/L</b> <input type="checkbox"/> <input type="checkbox"/> E/F04	WC <input type="checkbox"/> X0402 <input type="checkbox"/> <input type="checkbox"/>
<b>SWACR/L</b> <input type="checkbox"/> <input type="checkbox"/> H06	WC <input type="checkbox"/> X06T3 <input type="checkbox"/> <input type="checkbox"/>
<b>SWACR/L</b> <input type="checkbox"/> <input type="checkbox"/> K08	WC <input type="checkbox"/> X0804 <input type="checkbox"/> <input type="checkbox"/>

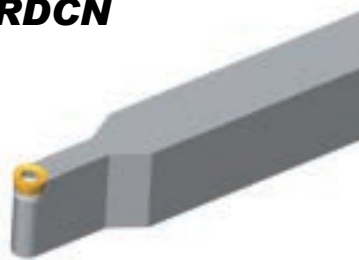
Tool holder type



## External turning tools

### Corresponding tool holders of insert **RC** S-type clamping

#### SRDCN



Type	Stock	Basic dimensions(mm)						Screw	Shim	Shim screw	Wrench	
		a	b	L	h	s	e					
<b>SRDCN</b>	<b>1616H08</b>	△	16	16	100	16	8	16	I60M3×7	---	---	WT10IP
	<b>2020K08</b>	△	20	20	125	20	10	16				
	<b>2525M08</b>	△	25	25	150	25	12.5	16				
	<b>2020K10</b>	△	20	20	125	20	10	20	I60M3.5×10	---	---	WT15IP
	<b>2525M10</b>	▲	25	25	150	25	12.5	20				
	<b>2525M12</b>	▲	25	25	150	25	12.5	35	I60M3.5×12	R12BS	SM5×8.65XA	WT15IP WH35L
	<b>3232P12</b>	△	32	32	170	32	16	35				
	<b>3225P16</b>	▲	32	25	170	32	12.5	35	I60M4×15X	R16BS	SM6×10XA	WT15IP WH40L
<b>4040S16</b>	△	40	40	250	40	20	40					

▲ Stock available    △ Make-to-order

#### Applicable inserts

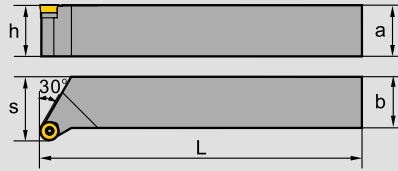
Application	For semi-finishing	For roughing	For Al machining
Inserts shape			<b>LH</b> 
<b>SRDCN□□K/M/H08</b>	RCMT0803MO	RCMT0803MO	RCGX0803MO-LH
<b>SRDCN□□K/M10</b>	RCMT10T3MO	RCMT10T3MO	
<b>SRDCN□□M/P12</b>	RCMT1204MO	RCMT1204MO	
<b>SRDCN□□P/S16</b>	RCMT1606MO	RCMT1606MO	

Corresponding tool holders of insert **RC**   S-type clamping

**SRGCR/L**



R-type shown



Type		Stock		Basic dimensions(mm)					Screw	Shim	Shim screw	Wrench
		R	L	a	b	L	h	s				
<b>SRGCR/L</b>	<b>1616H08</b>	△	△	16	16	100	16	20	I60M3×7	---	---	WT10IP
	<b>2020K08</b>	△	△	20	20	125	20	25				
	<b>2525M08</b>	△	△	25	25	150	25	32				
	<b>1616H10</b>	△	△	16	16	100	16	20	I60M3.5×10	---	---	WT15IP
	<b>2020K10</b>	▲	▲	20	20	125	20	25				
	<b>2525M10</b>	▲	▲	25	25	150	25	32				
	<b>2020K12</b>	▲	△	20	20	125	20	27	I60M3.5×12	R12BS	SM5×8.65XA	WT15IP WH35L
	<b>2525M12</b>	▲	▲	25	25	150	25	32				
<b>3232P16</b>	▲	△	32	32	170	32	40	I60M4×15X	R16BS	SM6×10XA	WT15IP WH40L	

▲Stock available    △Make-to-order

Applicable inserts

Application	For semi-finishing	For roughing	For Al machining
Inserts shape			<b>LH</b> 
	A96	A96	A96
Tool holder type	<b>SRGCR/L□□H/K/M08</b>	RCMT0803MO	RCMT0803MO
	<b>SRGCR/L□□H/K/M10</b>	RCMT10T3MO	RCMT10T3MO
	<b>SRGCR/L□□K/M12</b>	RCMT1204MO	RCMT1204MO
	<b>SRGCR/L□□P16</b>	RCMT1606MO	RCMT1606MO

General turning

External turning tools

## External turning tools

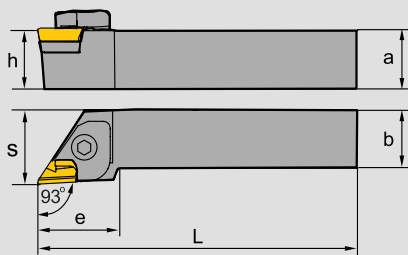
### Corresponding tool holders of insert **KNUX** C-type clamping

#### CKJNRIL

Kr:93°



R-type shown



Type	Stock	Basic dimensions(mm)						Applicable inserts	Clamp	Clamp screw	Spring	Clamping stud	Shim	Shim screw	Wrench	
		a	b	L	h	s	e									
<b>CKJNR</b>	2525M16	△	25	25	150	25	32	KNUX1604□□R A87	C6R1T	CM6×25A	SPR1 SPR2	P0515	K16CC	SM3×10B	WH20L WH40L	
	3232P16	△	32	32	170	32	40									32
	4040R16	△	40	40	200	40	50									32
<b>CKJNL</b>	2525M16	△	25	25	150	25	32	KNUX1604□□L A87	C6L1T	CM6×25A	SPR1 SPR2	P0515	K16CCL	SM3×10B	WH20L WH40L	
	3232P16	△	32	32	170	32	40									32
	4040R16	△	40	40	200	40	50									32

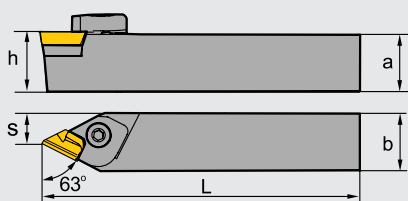
▲Stock available    △Make-to-order

#### CKNNRIL

Kr:63°



R-type shown



Type	Stock	Basic dimensions(mm)					Applicable inserts	Clamp	Clamp screw	Spring	Clamping stud	Shim	Shim screw	Wrench	
		a	b	L	h	s									
<b>CKNNR</b>	2525M16	△	25	25	150	25	14.3	KNUX1604□□R A87	C6R1T	CM6×25A	SPR1 SPR2	P0515	K16CC	SM3×10B	WH20L WH40L
	3232P16	△	32	32	170	32	16.8								
<b>CKNNL</b>	2525M16	△	25	25	150	25	14.3	KNUX1604□□L A87	C6L1T	CM6×25A	SPR1 SPR2	P0515	K16CCL	SM3×10B	WH20L WH40L
	3232P16	△	32	32	170	32	16.8								

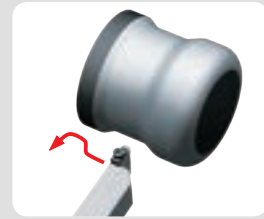
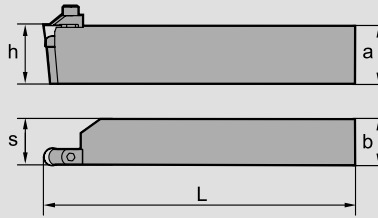
▲Stock available    △Make-to-order

Corresponding tool holders of insert **RC/P**   C-type clamping

**CRDCR/L**  
**CRDPR/L**



R-type shown



Type		Stock		Basic dimensions(mm)						Applicable inserts	Clamp	Clamping screw	Wrench	Shim	
		R	L	a	b	L	h	s	Ar						
<b>CRDCR/L</b>	<b>2525M09V-19</b>	△	△	25	25	150	25	25.5	19	RCGN0907 <input type="checkbox"/> <input type="checkbox"/> A152	C3RH	M5*16(GB70-85)	WH40L	RC09XC	
	<b>3232P09V-28</b>	△	△	32	32	170	32	32.5	28						
	<b>4040S09V-38</b>	△	△	40	40	250	40	40.5	38						
		<b>2525M12V-19</b>	△	△	25	25	150	25	25.5	19	RCGN1207 <input type="checkbox"/> <input type="checkbox"/> A152	C4RH	M6*20(GB70-85)	WH50L	RC12XC
		<b>3232P12V-28</b>	△	△	32	32	170	32	32.5	28					
		<b>4040S12V-38</b>	△	△	40	40	250	40	40.5	38					
<b>CRDPR/L</b>	<b>2525M09V-19</b>	△	△	25	25	150	25	25.5	19	RPGN0907 <input type="checkbox"/> <input type="checkbox"/> A152	C3RH	M5*16(GB70-85)	WH40L	RP09XC	
	<b>3232P09V-28</b>	△	△	32	32	170	32	32.5	28						
	<b>4040S09V-38</b>	△	△	40	40	250	40	40.5	38						
		<b>2525M12V-19</b>	△	△	25	25	150	25	25.5	19	RPGN1207 <input type="checkbox"/> <input type="checkbox"/> A152	C4RH	M6*20(GB70-85)	WH50L	RP12XC
		<b>3232P12V-28</b>	△	△	32	32	170	32	32.5	28					
		<b>4040S12V-38</b>	△	△	40	40	250	40	40.5	38					

▲Stock available    △Make-to-order

General turning

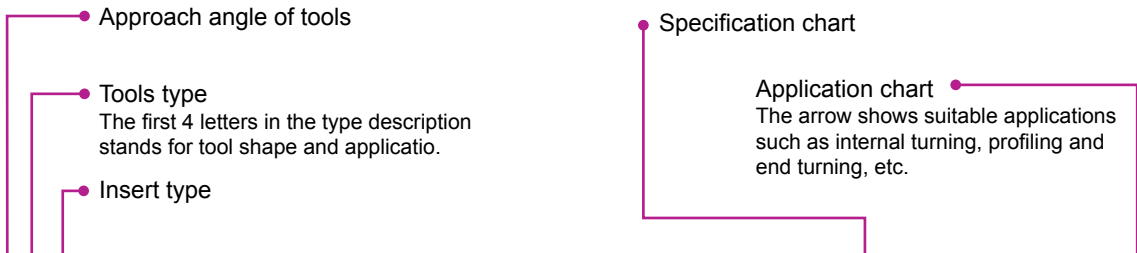
External turning tools for ceramic inserts

## How to select internal turning tools

### How to select internal turning tools

#### Explanation of internal turning tools detailed table

- Listed according to clamping types.



Corresponding tool holders of insert DN□□ P-type clamping

**PDPNR/L**  
Kr:62°30'

Type	Stock		Basic dimensions(mm)					Screw	Wrench	Lever	Shim	Shim pin
	R	L	Dmin	ød	h	L	S					
S32T-PDPNR/L15-3	▲	▲	40	32	30	300	22					
S40U-PDPNR/L15-3	▲	▲	50	40	38	350	27	LEM8×21	WH30L	L4	D15AP	SP4
S32T-PDPNR/L15	△	△	40	32	30	300	22	LEM8×21	WH30L	L4B	D15AP	SP4
S40U-PDPNR/L15	△	△	50	40	38	350	27					

▲ Stock available    △ Make-to-order

Applicable inserts		For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN/PCD inserts
Inserts shape	DF	WGM	DR	HDR		Without chipbreaker	A121 A122
	WGF	PM	DR				A122 A123
	SF	DM	ER				A123
	EF	EM	ER				
	NF	NM	SNR				
	NGF		LR				
Tool holder type	□□-PDPNR/L15-3	DN□□1504□□	DN□□1504□□	DN□□1504□□		DN□□1504□□	DN□□1504□□
	□□-PDPNR/L15	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□

- Tool holders with oil hole
- Products specification  
Including product description, stock (left and right hand), basic dimensions and applicable spare parts.

- Applicable inserts  
Including applications of inserts, reference page, insert shape and corresponding tool holders.



# TURNING



## Internal turning tools

**Internal turning tools overview** ● A209

**Internal turning tools code key** ● A210-A211

**Detailed table of internal turning tools** ● A212-A240

Internal turning Tools by P-type clamping A212-A217

Internal turning tools by S-type clamping A218-A233

Damping internal turning tools and their features ● A234-A240



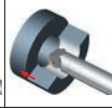
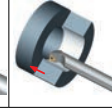
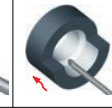

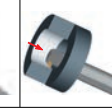
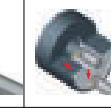
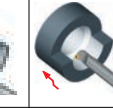













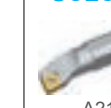








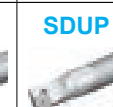


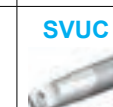
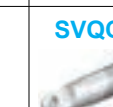


# ***Internal turning tools***







Name	Feature	62°30'	75°	90°	90°	93°	93°	95°	95°	107°30'
P-type internal turning tools	<ul style="list-style-type: none"> <li>The minimum machining diameter is 20mm.</li> <li>Applicable inserts are economic negative inserts.</li> <li>Hole clamping</li> </ul>									
		 A213	 A215	 A216				 A214		 A212
S-type internal turning tools	<ul style="list-style-type: none"> <li>The minimum machining diameter is 10mm.</li> <li>Applicable inserts are 5° , 7° and 11° positive inserts.</li> <li>Screw clamping.</li> </ul>		 A222	 A232	 A223	 A231	 A220	 A221		 A219
							 A230		 A218	 A229
							 A225		 A226	 A226
							 A227		 A228	 A224
Damping internal turning tools	<ul style="list-style-type: none"> <li>The minimum diameter can be machined is 12mm.</li> <li>Applicable inserts are 7° , 11° positive inserts.</li> <li>Good Performance on reducing shake.</li> </ul>					 A238	 A237		 A235	 A236
							 A240			 A239



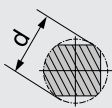
# TURNING / General Turning Tools

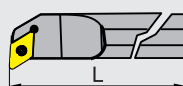
## Internal turning tools code key



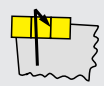

General turning


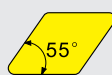



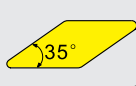
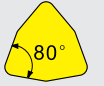
Internal turning tools code key

Type of tool holder	
Code	Type
<b>A</b>	Steel tool holder with oil-hole
<b>C</b>	Cemented carbide tool holder
<b>E</b>	Cemented carbide tool holder with oil hole
<b>S</b>	Steel tool holder
<b>X</b>	Special inserts applied

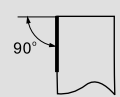


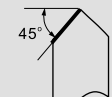


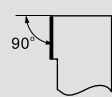

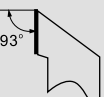
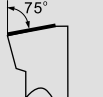
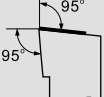
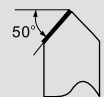


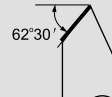




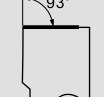



Diameter of tool holder	
	
Code	Diameter
<b>08</b>	08
<b>10</b>	10
<b>16</b>	16
<b>20</b>	20
<b>25</b>	25
<b>32</b>	32
<b>40</b>	40
<b>50</b>	50

Length of tool holder	
	
Code	Length
<b>H</b>	100
<b>K</b>	125
<b>M</b>	150
<b>N</b>	160
<b>Q</b>	180
<b>R</b>	200
<b>S</b>	250
<b>T</b>	300
<b>U</b>	350
<b>V</b>	400

Clamping system
 <b>P-Hole clamping</b>
 <b>M-Top and hole clamping</b>
 <b>S-Screw on</b>
 <b>C-Top clamping</b>

Inserts shape	
 <b>80°</b> <b>C</b>	 <b>55°</b> <b>D</b>
 <b>R</b>	 <b>S</b>
 <b>60°</b> <b>T</b>	 <b>35°</b> <b>V</b>
 <b>80°</b> <b>W</b>	

**S 16 R - S D U**

Tool holder style and approach angle							
A	B	C	D	E	F	G	H
							
J	K	L	M	N	O	P	Q
							
R	S	T	U	V	W	X	
							



Clearance angle of insert	
5°	<b>B</b>
7°	<b>C</b>
15°	<b>D</b>
20°	<b>E</b>
0°	<b>N</b>
11°	<b>P</b>

Cutting direction
 <b>L - Left hand</b>
 <b>R - Right hand</b>

Manufacture option	
<b>D</b>	Increase offset f size+1.0mm
<b>E</b>	Increase offset f size+2.0mm
<b>R</b>	Round shank
<b>W</b>	Wedge clamping
<b>X</b>	Back boring

**C** **R** **07**  

Length of cutting edge							
Inserts shape	<b>C</b>	<b>D</b>	<b>R</b>	<b>S</b>	<b>T</b>	<b>V</b>	<b>W</b>
Inscribed circle	Length of cutting edge(mm)						
5.556	---	---	---	---	09	---	---
6.350	06	07	---	---	11	---	---
9.525	09	11	09	09	16	16	06
12.700	12	15	12	12	22	22	08
15.875	16	19	15	15	27	---	---
19.050	19	---	19	19	33	---	---
25.400	25	---	25	25	44	---	---

General turning

Internal turning tools code key



## Internal turning tools

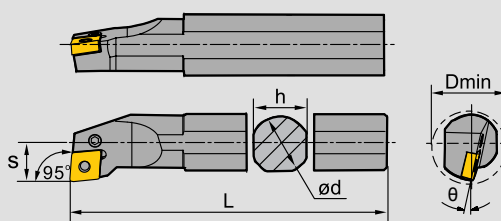
### Corresponding tool holders of insert **CN** P-type clamping

#### PCLNR/L

Kr:95°

























R-type shown



Type	Stock		Basic dimensions(mm)					Screw	Wrench	Lever	Shim	Shim pin
	R	L	Dmin	ød	h	L	S					
S16Q-PCLNR/L09	△	△	20	16	15	180	10	LEM5×12	WH20L	L3C	---	---
S20R-PCLNR/L09	△	△	25	20	19	200	12.5					
S25S-PCLNR/L09	△	△	32	25	24	250	15					
S25S-PCLNR/L12	△	△	32	25	24	250	16	LEM6×14	WH25L	L4A	---	---
S32T-PCLNR/L12	▲	▲	40	32	30	300	21					
S40U-PCLNR/L12	▲	▲	50	40	38	350	26	LEM8×21	WH30L	L4	C12APB	SP4
S50V-PCLNR/L12	▲	▲	63	50	48	400	31					
S50V-PCLNR/L16	△	△	63	50	48	400	31					
S50S-PCLNR/L19	△	△	63	50	47	250	35	LEM10×27	WH40L	L6	C19AP	SP6
S50W-PCLNR/L19	▲	▲	63	50	47	450	35					

▲Stock available    △Make-to-order

### Applicable inserts

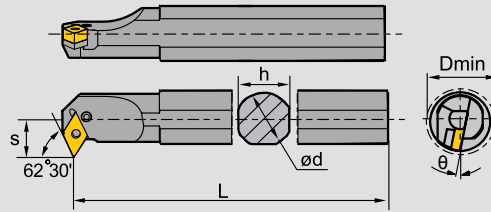
Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN/PCD inserts
Inserts shape	DF  A54	WGM Wiper  A55	DR Double-side  A58	HDR  A59	Without chipbreaker  A59	 A118
	WGF Wiper  A54	PM  A55	DR Single-side  A58	HPR  A59		 A118 -A119
	SF  A54	DM  A56	ER Double-side  A58			 A119
	EF  A54	EM  A56	ER Single-side  A58			
	NF  A55	NM  A57	SNR Double-side  A58			
			LR Single-side  A57			
Tool holder type	□□-PCLNR/L09	CN□□0903□□	CN□□0903□□			
	□□-PCLNR/L12	CN□□1204□□	CN□□1204□□	CN□□1204□□	CN□□1204□□	CN□□1204□□
	□□-PCLNR/L16	CN□□1606□□	CN□□1606□□	CN□□1606□□	CN□□1606□□	
	□□-PCLNR/L19		CN□□1906□□	CN□□1906□□	CN□□1906□□	






Corresponding tool holders of insert **DN**   P-type clamping

**PDPNR/L**  
Kr:62°30'



R-type shown




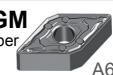


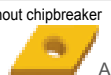





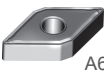



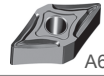
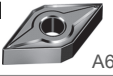


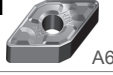



Type	Stock		Basic dimensions(mm)					Screw	Wrench	Lever	Shim	Shim pin
	R	L	Dmin	ød	h	L	S					
S32T-PDPNR/L15-3	▲	▲	40	32	30	300	22	LEM8×21	WH30L	L4	D15AP	SP4
S40U-PDPNR/L15-3	▲	▲	50	40	38	350	27					
S32T-PDPNR/L15	△	△	40	32	30	300	22	LEM8×21	WH30L	L4B	D15AP	SP4
S40U-PDPNR/L15	△	△	50	40	38	350	27					

▲Stock available    △Make-to-order

General turning

Internal turning tools

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN/PCD inserts	
Inserts shape	<b>DF</b>  A61	<b>WGM</b> Wiper  A63	<b>DR</b> Double-side  A65	<b>HDR</b>  A66	Without chipbreaker  A66	 A121 -A122	
	<b>WGF</b> Wiper  A61	<b>PM</b>  A63	<b>DR</b> Single-side  A65			 A122 -A123	
	<b>SF</b>  A62	<b>DM</b>  A64	<b>ER</b> Double-side  A65			 A123	
	<b>EF</b>  A62	<b>EM</b>  A64	<b>ER</b> Single-side  A65				
	<b>NF</b>  A62	<b>NM</b>  A64	<b>SNR</b> Double-side  A65				
	<b>NGF</b>  A62		<b>LR</b> Single-side  A65				
Tool holder type	<input type="checkbox"/> -PDPNR/L15-3	DN <input type="checkbox"/> 1504 <input type="checkbox"/>	DN <input type="checkbox"/> 1504 <input type="checkbox"/>	DN <input type="checkbox"/> 1504 <input type="checkbox"/>		DN <input type="checkbox"/> 1504 <input type="checkbox"/>	DN <input type="checkbox"/> 1504 <input type="checkbox"/>
	<input type="checkbox"/> -PDPNR/L15	DN <input type="checkbox"/> 1506 <input type="checkbox"/>	DN <input type="checkbox"/> 1506 <input type="checkbox"/>	DN <input type="checkbox"/> 1506 <input type="checkbox"/>	DN <input type="checkbox"/> 1506 <input type="checkbox"/>	DN <input type="checkbox"/> 1506 <input type="checkbox"/>	DN <input type="checkbox"/> 1506 <input type="checkbox"/>



## Internal turning tools

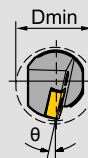
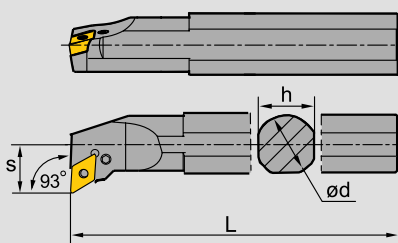
### Corresponding tool holders of insert **DN** P-type clamping

**PDUNR/L**

Kr:93°



R-type shown



Type	Stock		Basic dimensions(mm)					Screw	Wrench	Lever	Shim	Shim pin
	R	L	Dmin	ød	h	L	S					
S20R-PDUNR/L11	△	△	25	20	19	200	13	LEM5×12	WH20L	L3D	---	---
S25S-PDUNR/L11	△	△	32	25	24	250	17					
S32T-PDUNR/L15	△	△	40	32	30	300	23	LEM8×21	WH30L	L4B	D15AP	SP4
S32T-PDUNR/L15-3	△	△	40	32	30	300	23	LEM8×21	WH30L	L4	D15AP	SP4
S40U-PDUNR/L15	△	△	50	40	38	350	27	LEM8×21	WH30L	L4B	D15AP	SP4
S40U-PDUNR/L15-3	▲	▲	50	40	38	350	27	LEM8×21	WH30L	L4	D15AP	SP4

▲Stock available    △Make-to-order

### Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN/PCD inserts
Inserts shape	<b>DF</b> A61	<b>WGM</b> Wiper A63	<b>DR</b> Double-side A65	<b>HDR</b> A66	Without chipbreaker A66	A121 -A122
	<b>WGF</b> Wiper A61	<b>PM</b> A63	<b>DR</b> Single-side A65			A122 -A123
	<b>SF</b> A62	<b>DM</b> A64	<b>ER</b> Double-side A65			A123
	<b>EF</b> A62	<b>EM</b> A64	<b>ER</b> Single-side A65			
	<b>NF</b> A62	<b>NM</b> A64	<b>SNR</b> Double-side A65			
	<b>NGF</b> A62		<b>LR</b> Single-side A65			
Tool holder type	□□-PDUNR/L11	DN□□1104□□	DN□□1104□□	DN□□1104□□		
	□□-PDUNR/L15-3	DN□□1504□□	DN□□1504□□	DN□□1504□□	DN□□1504□□	DN□□1504□□
	□□-PDUNR/L15	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□	DN□□1506□□

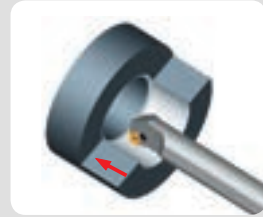
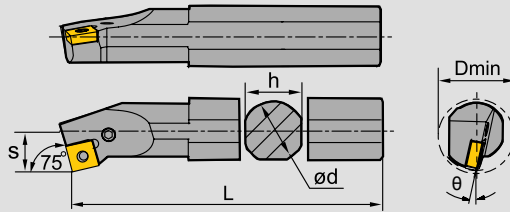


Corresponding tool holders of insert **SN**   P-type clamping

**PSKNR/L**  
Kr:75°



R-type shown



Type	Stock		Basic dimensions(mm)					Screw	Wrench	Lever	Shim	Shim pin
	R	L	Dmin	ød	h	L	S					
<b>S25S-PSKNR/L12</b>	▲	▲	32	25	24	250	17	LEM6×14	WH25L	L4A	---	---
<b>S32T-PSKNR/L12</b>	△	△	41	32	30	300	22	LEM8×21	WH30L	L4	S12APB	SP4
<b>S40U-PSKNR/L12</b>	△	△	50	40	38	350	27					

▲Stock available    △Make-to-order

General turning  
Internal turning tools

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For roughing	PCBN/PCD inserts
Inserts shape	<b>DF</b> A67	<b>PM</b> A68	<b>DR</b> Double-side  A70	<b>HDR</b> A72	Without chipbreaker  A74	A126
	<b>EF</b> A67	<b>DM</b> A68	<b>DR</b> Single-side  A70-71	<b>HPR</b> A72		A127
	<b>SF</b> A67	<b>EM</b> A69	<b>ER</b> Double-side  A71			A128
		<b>NM</b> A69	<b>ER</b> Single-side  A71			
			<b>SNR</b> Double-side  A71			
			<b>LR</b> Single-side  A69			

Tool holder type	<input type="checkbox"/> -PSKNR/L12	SN <input type="checkbox"/> 1204 <input type="checkbox"/>	SN <input type="checkbox"/> 1204 <input type="checkbox"/>	SN <input type="checkbox"/> 1204 <input type="checkbox"/>	SN <input type="checkbox"/> 1204 <input type="checkbox"/>	SN <input type="checkbox"/> 1204 <input type="checkbox"/>	SN <input type="checkbox"/> 1204 <input type="checkbox"/>



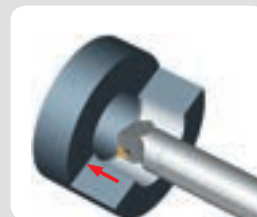
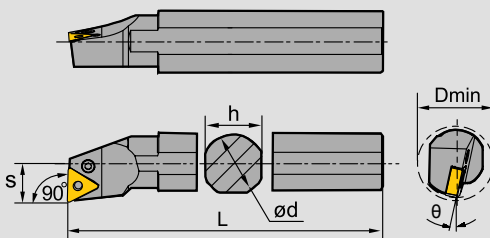
## Internal turning tools

### Corresponding tool holders of insert **TN** P-type clamping

**PTFNRL**  
Kr:90°



R-type shown



Type	Stock		Basic dimensions(mm)					Screw	Wrench	Lever	Shim	Shim pin
	R	L	Dmin	ød	h	L	S					
<b>S25S-PTFNR/L16</b>	▲	▲	32	25	24	250	16	LEM5×12	WH20L	L3B	---	---
<b>S32T-PTFNR/L16</b>	△	△	41	32	30	300	21	LEM6×17	WH25L	L3	T16APB	SP3
<b>S40U-PTFNR/L16</b>	△	△	50	40	38	350	26					

▲Stock available    △Make-to-order

### Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For heavy machining	For cast iron machining	PCBN/PCD inserts
Inserts shape	<b>DF</b>  A75	<b>WGM</b> Wiper  A76	<b>DR</b> Double-side  A78	<b>HDR</b>  A79	Without chipbreaker  A80	 A130
	<b>WG</b> Wiper  A75	<b>PM</b>  A76	<b>DR</b> Single-side  A78			 A130 -A131
	<b>SF</b>  A75	<b>DM</b>  A77	<b>ER</b> Double-side  A78			 A131
	<b>EF</b>  A76	<b>EM</b>  A77	<b>SN</b> Double-side  A78			
			<b>LR</b> Single-side  A77			

Tool holder type	<input type="checkbox"/> -PTFNR/L16	TN <input type="checkbox"/> 1604 <input type="checkbox"/>	TN <input type="checkbox"/> 1604 <input type="checkbox"/>	TN <input type="checkbox"/> 1604 <input type="checkbox"/>	TN <input type="checkbox"/> 1604 <input type="checkbox"/>	TN <input type="checkbox"/> 1604 <input type="checkbox"/>	TN <input type="checkbox"/> 1604 <input type="checkbox"/>

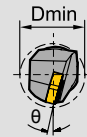
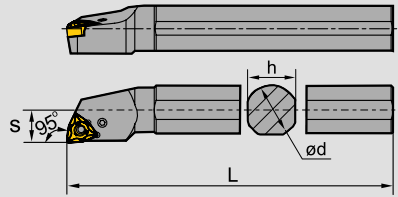


Corresponding tool holders of insert **WN**   P-type clamping

**PWLNRL**  
Kr:95°



R-type shown



Type	Stock		Basic dimensions(mm)					Screw	Wrench	Lever	Shim	Shim pin
	R	L	Dmin	ød	h	L	S					
S16R-PWLNRL/L06	△	△	20	16	15	200	10	LEM5X12	WH20L	L3D	---	---
S20R-PWLNRL/L06	△	△	25	20	19	200	12			L3B		
S25S-PWLNRL/L06	△	△	35	25	24	250	15					
S20R-PWLNRL/L08	△	△	23	20	19	200	12.5	LEM6X14	WH25L	L4A	---	---
S25S-PWLNRL/L08	△	△	32	25	24	250	16			L4		
S32T-PWLNRL/L08	△	△	41	32	30	300	21			WH30L		

▲Stock available    △Make-to-order

General turning

Internal turning tools

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For cast iron machining	PCBN/PCD inserts
Inserts shape	<b>DF</b> A83	<b>WGM</b> Wiper A84	<b>DR</b> Double-side A86	Without chipbreaker A86	A136
	<b>WGF</b> Wiper A83	<b>PM</b> A85	<b>SNR</b> Double-side A86		A136 -A137
	<b>SF</b> A83	<b>DM</b> A85			A137
	<b>EF</b> A84	<b>EM</b> A85			
	<b>NF</b> A84	<b>NM</b> A86			

Tool holder type	WN□□0604□□	WN□□0604□□	WN□□0604□□	WN□□0604□□	WN□□0804□□
□□-PWLNRL/L06	WN□□0604□□	WN□□0604□□	WN□□0604□□	WN□□0604□□	WN□□0804□□
□□-PWLNRL/L08	WN□□0804□□	WN□□0804□□	WN□□0804□□	WN□□0804□□	WN□□0804□□



## Internal turning tools

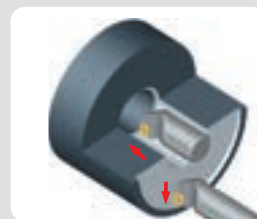
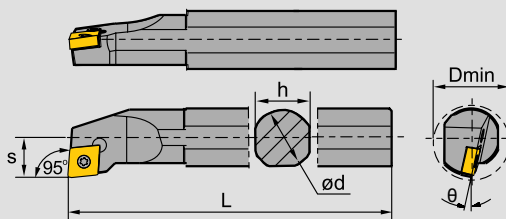
### Corresponding tool holders of insert **CC** S-type clamping

#### SCLCR/L

Kr:95°



R-type shown















Type	Stock		Basic dimensions(mm)					Screw	Wrench	Shim	Shim screw
	R	L	Dmin	ød	h	L	S				
S08K-SCLCR/L06	▲	▲	10	8	7.4	125	5	I60M2.5×5.5	WT07IP	---	---
S10K-SCLCR/L06	▲	▲	13	10	9	125	6.5				
S12M-SCLCR/L06	▲	▲	16	12	11	150	9				
S12M-SCLCR/L09	▲	▲	16	12	11	150	9	I60M3.5×8	WT15IP	---	---
S14N-SCLCR/L09	△	△	18	14	13	160	9				
S16Q-SCLCR/L09	△	△	20	16	15	180	10	I60M3.5×10	WT15IP	---	---
S20R-SCLCR/L09	△	△	25	20	19	200	12				
S25S-SCLCR/L09	△	△	32	25	24	250	15.5				
S20R-SCLCR/L12	△	△	25	20	19	200	12.5	I60M4×11X	WT15IP	---	---
S25S-SCLCR/L12	▲	▲	32	25	24	250	15.5	I60M4×11X	WT15IP	---	---
S32T-SCLCR/L12	△	△	39	32	30	300	20	I60M4×11X	WH40L	C12BS	SM6×10×A
S40U-SCLCR/L12	△	△	50	40	38	350	24.5				

▲Stock available

△Make-to-order

### Applicable inserts

Application	For extra finishing	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining Without chipbreaker	PCBN/PCD inserts	
Inserts shape	<b>USF</b>  A89	<b>HF</b>  A89	<b>HM</b>  A90	<b>HR</b>  A91	<b>LH</b>  A91-92	 A92	 A139	
	<b>SF</b>  A89	<b>EF</b>  A90	<b>EM</b>  A90		<b>LC</b>  A91		 A144	
Tool holder type	<input type="checkbox"/> -SCLCR/L06	CC <input type="checkbox"/> <input type="checkbox"/> 0602 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 0602 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 0602 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 0602 <input type="checkbox"/> <input type="checkbox"/>	CCGX0602 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 0602 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 0602 <input type="checkbox"/> <input type="checkbox"/>
	<input type="checkbox"/> -SCLCR/L09	CC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>	CCGX09T3 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>
	<input type="checkbox"/> -SCLCR/L12		CC <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>	CCGX1204 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>

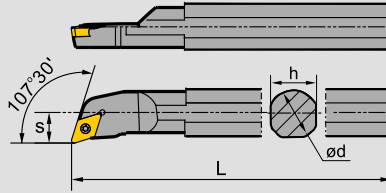


Corresponding tool holders of insert **DC**   S-type clamping

**SDQCR/L**  
Kr:107°30'



R-type shown








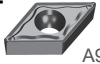






Type	Stock		Basic dimensions(mm)					Screw	Wrench	---	---
	R	L	Dmin	ød	h	L	S				
S10K-SDQCR/L07	▲	▲	13	10	9	125	7	I60M2.5×5.5	WT07IP	---	---
S12M-SDQCR/L07	▲	▲	16	12	11	150	9				
S16Q-SDQCR/L07	△	△	20	16	15	180	11	I60M2.5×6.5	WT15IP	---	---
S20R-SDQCR/L11	△	△	25	20	19	200	13	I60M3.5×8			
S25S-SDQCR/L11	△	△	32	25	24	250	17	I60M3.5×10			
S32T-SDQCR/L11	△	△	40	32	30	300	22				
S40T-SDQCR/L11	△	△	50	40	38	350	27				

▲Stock available    △Make-to-order

General turning  
Internal turning tools

Applicable inserts

Application	For extra finishing	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	PCBN/PCD inserts
Inserts shape	<b>USF</b>  A93	<b>HF</b>  A93	<b>HM</b>  A94	<b>HR</b>  A95	<b>LH</b>  A95	<b>Without chipbreaker</b>  A95	 A140
	<b>SF</b>  A93	<b>EF</b>  A94	<b>EM</b>  A94		<b>LC</b>  A95		 A145
Tool holder type	<input type="checkbox"/> -SDQCR/L07	DC <input type="checkbox"/> <input type="checkbox"/> 0702 <input type="checkbox"/> DC <input type="checkbox"/> <input type="checkbox"/> 0702 <input type="checkbox"/> DC <input type="checkbox"/> <input type="checkbox"/> 0702 <input type="checkbox"/>			DCGX0702 <input type="checkbox"/> DC <input type="checkbox"/> <input type="checkbox"/> 0702 <input type="checkbox"/> DC <input type="checkbox"/> <input type="checkbox"/> 0702 <input type="checkbox"/>		
	<input type="checkbox"/> -SDQCR/L11	DC <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/> DC <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/> DC <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/> DC <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/>			DCGX11T3 <input type="checkbox"/> DC <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/> DC <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/>		

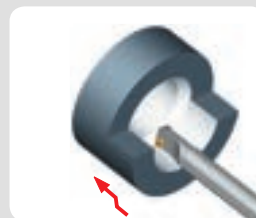
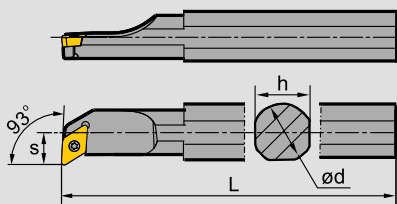
## Internal turning tools

### Corresponding tool holders of insert **DC** S-type clamping

**SDUCR/L**  
Kr:93°



R-type shown



Type	Stock		Basic dimensions(mm)					Screw	Wrench	---	---
	R	L	Dmin	ød	h	L	S				
<b>S10K-SDUCR/L07</b>	▲	▲	13	10	9	125	7	I60M2.5×5.5	WT07IP	---	---
<b>S12M-SDUCR/L07</b>	▲	▲	16	12	11	150	9				
<b>S16Q-SDUCR/L07</b>	△	△	20	16	15	180	11	I60M2.5×6.5	WT07IP	---	---
<b>S20R-SDUCR/L11</b>	△	△	25	20	19	200	13				
<b>S25S-SDUCR/L11</b>	△	△	32	25	24	250	17	I60M3.5×10	WT15IP	---	---
<b>S32T-SDUCR/L11</b>	△	△	40	32	30	300	22				
<b>S40U-SDUCR/L11</b>	△	△	50	40	38	350	27				

▲Stock available    △Make-to-order

### Applicable inserts

Application	For extra finishing	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	PCBN/PCD inserts	
Inserts shape	<b>USF</b>  A93	<b>HF</b>  A93	<b>HM</b>  A94	<b>HR</b>  A95	<b>LH</b>  A95	<b>Without chipbreaker</b>  A95	 A140	
	<b>SF</b>  A93	<b>EF</b>  A94	<b>EM</b>  A94		<b>LC</b>  A95		 A145	
Tool holder type	<input type="checkbox"/> -SDUCR/L07	DC <input type="checkbox"/> <input type="checkbox"/> 0702 <input type="checkbox"/> <input type="checkbox"/>	DC <input type="checkbox"/> <input type="checkbox"/> 0702 <input type="checkbox"/> <input type="checkbox"/>	DC <input type="checkbox"/> <input type="checkbox"/> 0702 <input type="checkbox"/> <input type="checkbox"/>	DC <input type="checkbox"/> <input type="checkbox"/> 0702 <input type="checkbox"/> <input type="checkbox"/>	DCGX0702 <input type="checkbox"/> <input type="checkbox"/>	DC <input type="checkbox"/> <input type="checkbox"/> 0702 <input type="checkbox"/> <input type="checkbox"/>	DC <input type="checkbox"/> <input type="checkbox"/> 0702 <input type="checkbox"/> <input type="checkbox"/>
	<input type="checkbox"/> -SDUCR/L11	DC <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/> <input type="checkbox"/>	DC <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/> <input type="checkbox"/>	DC <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/> <input type="checkbox"/>	DC <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/> <input type="checkbox"/>	DCGX11T3 <input type="checkbox"/> <input type="checkbox"/>	DC <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/> <input type="checkbox"/>	DC <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/> <input type="checkbox"/>



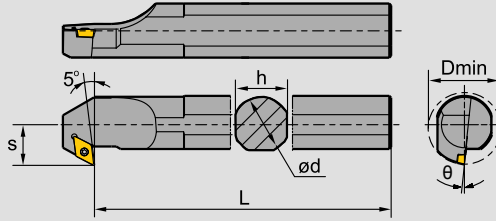
Corresponding tool holders of insert **DC**   S-type clamping


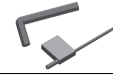


**SDZCRIL**

Kr:95°



R-type shown










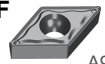
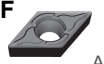
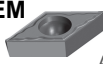
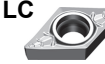

Type	Stock		Basic dimensions(mm)					Screw	Wrench	Shim	Shim screw
	R	L	Dmin	ød	h	L	S				
<b>S25S-SDZCR/L11</b>	△	△	33	25	24	250	18	I60M3.5×10	WT15IP	---	---
<b>S32T-SDZCR/L11</b>	△	△	40	32	30	300	22	I60M3.5×12	WT15IP	D11BS	SM5×8.65XA
<b>S40U-SDZCR/L11</b>	△	△	48	40	38	350	27		WH35L		

▲Stock available    △Make-to-order

General turning

Internal turning tools

Applicable inserts

Application	For extra finishing	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	PCBN/PCD inserts
Inserts shape	<b>USF</b>  A93	<b>HF</b>  A93	<b>HM</b>  A94	<b>HR</b>  A95	<b>LH</b>  A95	<b>Without chipbreaker</b>  A95	 A140
	<b>SF</b>  A93	<b>EF</b>  A94	<b>EM</b>  A94		<b>LC</b>  A95		 A145
Tool holder type	□□-SDZCR/L11    DC□□11T3□□    DC□□11T3□□    DC□□11T3□□    DC□□11T3□□    DCGX11T3□□    DC□□11T3□□    DC□□11T3□□						

## Internal turning tools

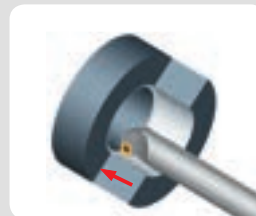
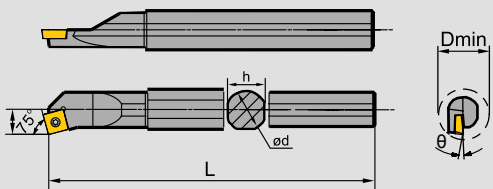
### Corresponding tool holders of insert **SC** S-type clamping

#### SSKCRIL

Kr:75°











R-type shown



Type	Stock		Basic dimensions(mm)					Screw	Wrench	Shim	Shim screw
	R	L	Dmin	ød	h	L	S				
<b>S12M-SSKCR/L09</b>	▲	△	16	12	11	150	9	I60M3.5×8	WT15IP	---	---
<b>S16Q-SSKCR/L09</b>	△	△	20	16	15	180	11				
<b>S20R-SSKCR/L09</b>	△	△	25	20	19	200	13				
<b>S25S-SSKCR/L12</b>	△	△	32	25	24	250	17	I60M4×11X	WT15IP WH40L	---	---
<b>S32T-SSKCR/L12</b>	△	△	40	32	30	300	22				

▲Stock available    △Make-to-order

#### Applicable inserts

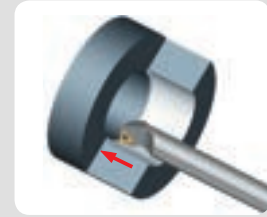
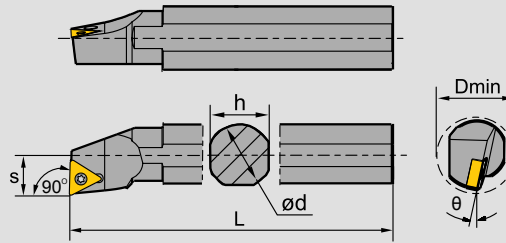
Application	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	
Inserts shape	<b>HF</b>  A98	<b>HM</b>  A98	<b>HR</b>  A99	<b>LH</b>  A99	Without chipbreaker  A99	
	<b>EF</b>  A98	<b>EM</b>  A98		<b>LC</b>  A99		
Tool holder type	<input type="checkbox"/> -SSKCR/L09	SC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>	SC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>	SC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>	SCGX09T3 <input type="checkbox"/> <input type="checkbox"/>	SC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>
	<input type="checkbox"/> -SSKCR/L12		SC <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>	SC <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>	SCGX1204 <input type="checkbox"/> <input type="checkbox"/>	SC <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>

Corresponding tool holders of insert **TC**   S-type clamping

**STFCRIL**  
Kr:90°



R-type shown



Type	Stock		Basic dimensions(mm)					Screw	Wrench	Shim	Shim screw
	R	L	Dmin	ød	h	L	S				
<b>S12M-STFCR/L11</b>	▲	▲	16	12	11	150	9	I60M2.5×6.5	WT07IP	---	---
<b>S16Q-STFCR/L11</b>	△	△	20	16	15	180	10				
<b>S20R-STFCR/L11</b>	△	△	25	20	19	200	12				
<b>S25S-STFCR/L16</b>	△	△	32	25	24	250	16	I60M3.5×10	WT15IP	---	---
<b>S32T-STFCR/L16</b>	△	△	40	32	30	300	21	I60M3.5×12	WT15IP WH35L	T16BS	SM5×8.65XA
<b>S40U-STFCR/L16</b>	△	△	50	40	38	350	25				

▲Stock available    △Make-to-order

General turning

Internal turning tools

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	PCBN/PCD inserts	
Inserts shape	<b>HF</b> A101	<b>HM</b> A103	<b>HR</b> A103	<b>LH</b> A104	Without chipbreaker A104	A141	
	<b>EF</b> A102	<b>EM</b> A102		<b>LC</b> A103			
Tool holder type	<input type="checkbox"/> -STFCR/L11	TC <input type="checkbox"/> <input type="checkbox"/> 1102 <input type="checkbox"/> <input type="checkbox"/>	TC <input type="checkbox"/> <input type="checkbox"/> 1102 <input type="checkbox"/> <input type="checkbox"/>	TC <input type="checkbox"/> <input type="checkbox"/> 1102 <input type="checkbox"/> <input type="checkbox"/>	TCGX1102 <input type="checkbox"/> <input type="checkbox"/>	TC <input type="checkbox"/> <input type="checkbox"/> 1102 <input type="checkbox"/> <input type="checkbox"/>	TC <input type="checkbox"/> <input type="checkbox"/> 1102 <input type="checkbox"/> <input type="checkbox"/>
	<input type="checkbox"/> -STFCR/L16	TC <input type="checkbox"/> <input type="checkbox"/> 16T3 <input type="checkbox"/> <input type="checkbox"/>	TC <input type="checkbox"/> <input type="checkbox"/> 16T3 <input type="checkbox"/> <input type="checkbox"/>	TC <input type="checkbox"/> <input type="checkbox"/> 16T3 <input type="checkbox"/> <input type="checkbox"/>	TCGX16T3 <input type="checkbox"/> <input type="checkbox"/>	TC <input type="checkbox"/> <input type="checkbox"/> 16T3 <input type="checkbox"/> <input type="checkbox"/>	TC <input type="checkbox"/> <input type="checkbox"/> 16T3 <input type="checkbox"/> <input type="checkbox"/>



## Internal turning tools

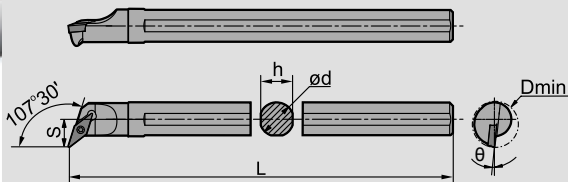
### Corresponding tool holders of insert VC□□ S-type clamping

#### SVQCR/L

Kr:107°30'



R-type shown



Type	Stock		Basic dimensions(mm)					Screw	Wrench	Shim	Shim screw
	R	L	Dmin	ød	h	L	S				
<b>S16Q-SVQCR/L11</b>	▲	▲	22	16	15	180	13	I60M2.5×6.5	WT07IP	---	---
<b>S20R-SVQCR/L16</b>	△	△	27	16	19	200	14	I60M3.5×12	WT15IP WH35L	V16BSC	SM5×8.65×A
<b>S25S-SVQCR/L16</b>	△	△	35	25	24	250	20				
<b>S32T-SVQCR/L16</b>	△	△	42	32	30	300	23				

▲Stock available    △Make-to-order

#### Applicable inserts

Application	For extra finishing	For finishing	For AI machining	PCBN/PCD inserts
Inserts shape	<b>USF</b>  A105	<b>HF</b>  A105	<b>LH</b>  A106	 A143
	<b>SF</b>  A105	<b>NF</b>  A105	<b>LC</b>  A106	 A148
Tool holder type	□□-SVQCR/L11	VC□□1103□□	VCGX1103□□	
	□□-SVQCR/L16		VCGX1604□□	VC□□1604□□



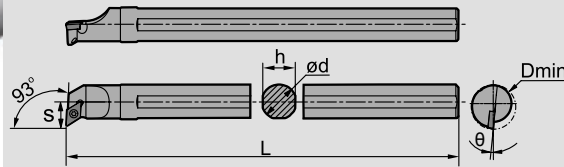
Corresponding tool holders of insert **VC**   S-type clamping

**SVUCRIL**

Kr:93°



R-type shown







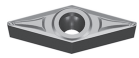



Type	Stock		Basic dimensions(mm)					Screw	Wrench	Shim	Shim screw
	R	L	Dmin	ød	h	L	S				
<b>S16Q-SVUCR/L11</b>	△	△	24	16	15	180	15	I60M2.5×6.5	WT07IP	---	---
<b>S20R-SVUCR/L11</b>	△	△	28	20	19	200	17				
<b>S25S-SVUCR/L16</b>	△	△	35	25	24	250	20	I60M3.5×12	WT15IP WH35L	V16BS	SM5×8.65×A
<b>S32T-SVUCR/L16</b>	△	△	42	32	30	300	23				

▲Stock available    △Make-to-order

General turning  
Internal turning tools



Applicable inserts

Application	For extra finishing	For finishing	For AI machining	PCBN/PCD inserts
Inserts shape	<b>USF</b>  A105	<b>HF</b>  A105	<b>LH</b>  A106	 A143
	<b>SF</b>  A105	<b>NF</b>  A105	<b>LC</b>  A106	 A148
Tool holder type	<input type="checkbox"/> -SVUCR/L11	VC <input type="checkbox"/> 1103 <input type="checkbox"/>	VC <input type="checkbox"/> 1103 <input type="checkbox"/>	VCGX1103 <input type="checkbox"/>
	<input type="checkbox"/> -SVUCR/L16	VC <input type="checkbox"/> 1604 <input type="checkbox"/>	VC <input type="checkbox"/> 1604 <input type="checkbox"/>	VC <input type="checkbox"/> 1604 <input type="checkbox"/>



## Internal turning tools

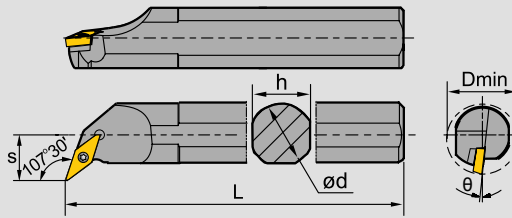
### Corresponding tool holders of insert **VB** S-type clamping

#### SVQBR/L

Kr:107°30'



R-type shown



Type	Stock		Basic dimensions(mm)					Screw	Wrench	Shim	Shim screw
	R	L	Dmin	ød	h	L	S				
<b>S20R-SVQBR/L16</b>	△	△	27	20	19	200	14	I60M3.5×12		V16BS	SM5×8.65XA
<b>S25S-SVQBR/L16</b>	△	△	35	25	24	250	20				
<b>S32T-SVQBR/L16</b>	▲	▲	42	32	30	300	23				

▲Stock available    △Make-to-order

### Applicable inserts

Application	For finishing	For semi-finishing	For roughing	PCBN/PCD inserts
Inserts shape	<b>EF</b>  A108	<b>HM</b>  A109	<b>HR</b>  A109	 A147
	<b>NF</b>  A108	<b>EM</b>  A109	<b>SNR</b>  A109	 A147
	<b>NGF</b>  A108			
Tool holder type	<input type="checkbox"/> <input type="checkbox"/> -SVQBR/L16	VB <input type="checkbox"/> <input type="checkbox"/> 1604 <input type="checkbox"/> <input type="checkbox"/>	VB <input type="checkbox"/> <input type="checkbox"/> 1604 <input type="checkbox"/> <input type="checkbox"/>	VB <input type="checkbox"/> <input type="checkbox"/> 1604 <input type="checkbox"/> <input type="checkbox"/>

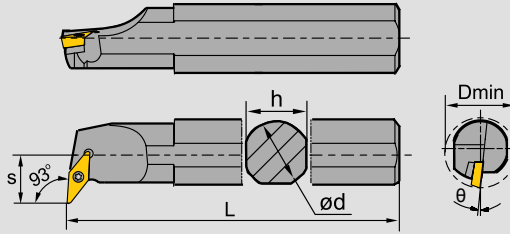


Corresponding tool holders of insert **VB**   S-type clamping

**SVUBRIL**  
Kr:93°



R-type shown



Type	Stock		Basic dimensions(mm)					Screw	Wrench	Shim	Shim screw
	R	L	Dmin	ød	h	L	S				
<b>S25S-SVUBR/L16</b>	△	△	35	25	24	250	20	I60M3.5×12	WT15IP WH35L	V16BS	SM5×8.65XA
<b>S32T-SVUBR/L16</b>	△	△	42	32	30	300	23				

▲Stock available    △Make-to-order

General turning  
Internal turning tools

Applicable inserts

Application	For finishing	For semi-finishing	For roughing	PCBN/PCD inserts
Inserts shape	<b>EF</b>  A108	<b>HM</b>  A109	<b>HR</b>  A109	 A147
	<b>NF</b>  A108	<b>EM</b>  A109	<b>SNR</b>  A109	 A147
	<b>NGF</b>  A108			
Tool holder type	<input type="checkbox"/> <input type="checkbox"/> -SVUBR/L16	VB <input type="checkbox"/> <input type="checkbox"/> 1604 <input type="checkbox"/> <input type="checkbox"/>	VB <input type="checkbox"/> <input type="checkbox"/> 1604 <input type="checkbox"/> <input type="checkbox"/>	VB <input type="checkbox"/> <input type="checkbox"/> 1604 <input type="checkbox"/> <input type="checkbox"/>

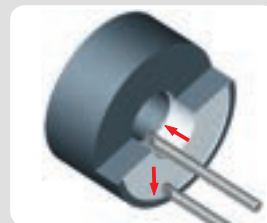
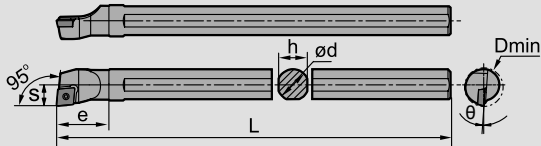
### Corresponding tool holders of insert CP S-type clamping

#### SCLPR/L

Kr:95°



R-type shown



Type	Stock		Basic dimensions(mm)							Screw	Wrench	---	---
	R	L	Dmin	ød	h	L	S	θ	e				
<b>S10K-SCLPR/L06</b>	▲	▲	12	10	9	125	6	-7°	17	I60M2.5×5.5	WT07IP	---	---
<b>S12M-SCLPR/L06</b>	▲	▲	16	12	11	150	8	-4°	20				
<b>S16Q-SCLPR/L09</b>	▲	▲	20	16	15	180	10	-4°	29	I60M3.5×8	WT15IP	---	---
<b>S20R-SCLPR/L09</b>	△	△	25	20	18	200	13	-4°	35				

▲Stock available    △Make-to-order

#### Applicable inserts

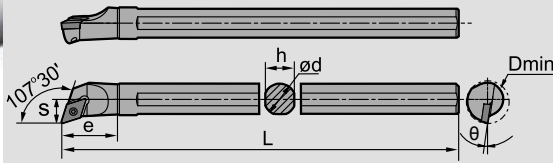
Application	For extra finishing
Inserts shape	<b>SF</b>  A110
Tool holder type	<input type="checkbox"/> -SCLPR/L06      CP <input type="checkbox"/> <input type="checkbox"/> 0602 <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> -SCLPR/L09      CP <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>

Corresponding tool holders of insert **DP**   S-type clamping

**SDQPR/L**  
Kr:107°30'




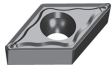
R-type shown



Type	Stock		Basic dimensions(mm)							Screw	Wrench	---	---
	R	L	Dmin	ød	h	L	S	θ	e				
S10K-SDQPR/L07	△	△	13	10	9	125	7	-8°	20	I60M2.5×5.5	WT071P	---	---
S12M-SDQPR/L07	▲	△	16	12	11	150	9	-8°	22				
S16Q-SDQPR/L07	▲	△	20	16	15	180	11	-6°	27	I60M2.5×6.5	WT151P	---	---
S16Q-SDQPR/L11	▲	△	20	16	15	180	11	-6°	32	I60M3.5×8			
S16Q-SDQPR/L11	△	△	25	20	18	200	13	-6°	33				

▲Stock available    △Make-to-order

Applicable inserts

Application	For extra finishing
Inserts shape	<b>USF</b>  A111
	<b>SF</b>  A111
Tool holder type	<input type="checkbox"/> -SDQPR/L07      DP <input type="checkbox"/> <input type="checkbox"/> 0702 <input type="checkbox"/> <input type="checkbox"/>
	<input type="checkbox"/> -SDQPR/L11      DP <input type="checkbox"/> <input type="checkbox"/> 11T3 <input type="checkbox"/> <input type="checkbox"/>



General turning  
Internal turning tools

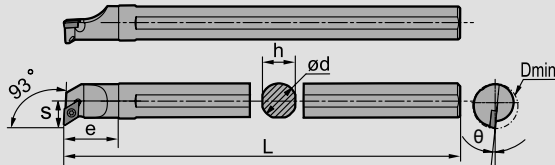
### Corresponding tool holders of insert **DP** S-type clamping

#### SDUPR/L

Kr:93°



R-type shown



Type	Stock		Basic dimensions(mm)							Screw	Wrench	---	---
	R	L	Dmin	ød	h	L	S	θ	e				
S10K-SDUPR/L07	▲	▲	15	10	9	125	9	-8°	18	I60M2.5×5.5	WT071P	---	---
S12M-SDUPR/L07	▲	△	16	12	11	150	9	-8°	19				
S16Q-SDUPR/L07	△	△	20	16	15	180	11	-6°	25	I60M2.5×6.5			

▲ Stock available    △ Make-to-order

#### Applicable inserts

Application	For extra finishing
Inserts shape	<b>SF</b>  A111
Tool holder type	DP□□0702□□

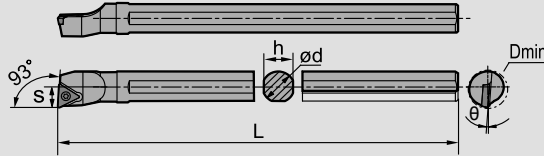




Corresponding tool holders of insert **TP**   S-type clamping

**STUPRIL**  
Kr:93°



R-type shown




Type	Stock		Basic dimensions(mm)					Screw	Wrench	---	---
	R	L	Dmin	ød	h	L	S			---	---
<b>S10M-STUPR/L09</b>	△	△	13	10	9.4	150	6	I60M2.2×5.5	WT07IP	---	---
<b>S10M-STUPR/L11</b>	△	△	13	10	9.4	150	6			---	---
<b>S12Q-STUPR/L11</b>	△	△	16	12	11.4	180	7.5	I60M2.5×6.5	WT07IP	---	---
<b>S16R-STUPR/L11</b>	△	△	20	16	15	200	10			---	---

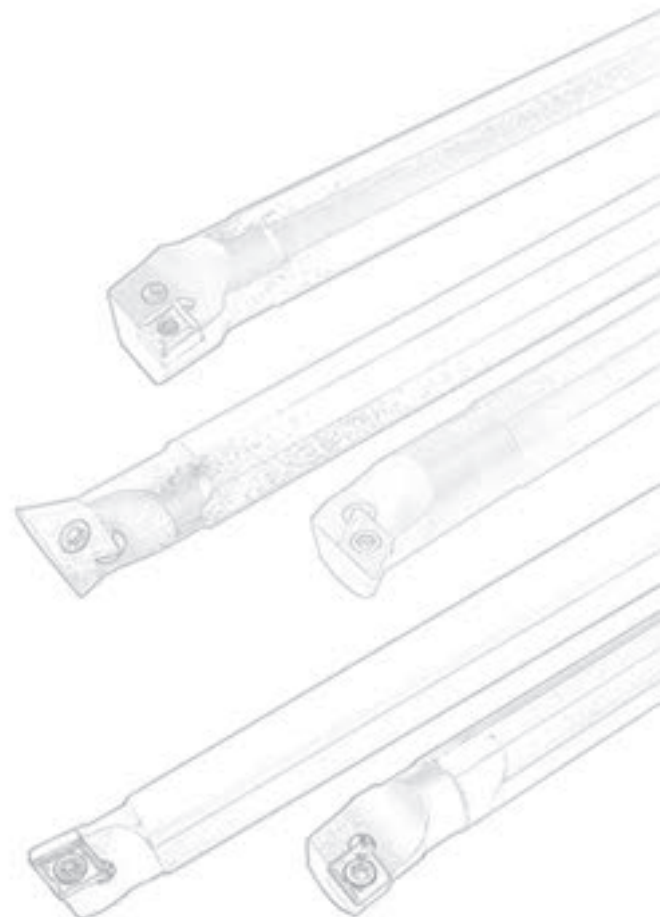
▲Stock available    △Make-to-order

General turning

Internal turning tools

Applicable inserts

Application	For extra finishing
Inserts shape	<b>SF</b>  A113
Tool holder type	<input type="checkbox"/> -STUPR/L09      TP <input type="checkbox"/> <input type="checkbox"/> 0902 <input type="checkbox"/> <input type="checkbox"/>
	<input type="checkbox"/> -STUPR/L11      TP <input type="checkbox"/> <input type="checkbox"/> 1103 <input type="checkbox"/> <input type="checkbox"/>



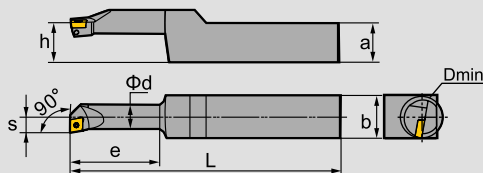
### Corresponding tool holders of insert **CC** S-type clamping

#### SCFCRIL

Kr:90°















R-type shown



Type	Stock		Basic dimensions(mm)							Screw	Wrench	---	---
	R	L	Dmin	ød	L	s	a	b	e				
S10M-SCFCR/L06S25	▲	▲	13	10	150	7	27	25	30	I60M2.5×5.5	WT07IP	---	---
S12P-SCFCR/L06S25	▲	▲	16	12	170	9	27	25	35	I60M2.5×6.5		---	---
S16Q-SCFCR/L09S25	▲	▲	20	16	180	11	27	25	40	I60M3.5×8	WT15IP	---	---
S20R-SCFCR/L09S25	△	△	25	20	200	13	27	25	45			---	---
S25R-SCFCR/L12S25	△	△	30	25	200	16	27	25	50			I60M4×11X	---

▲ Stock available    △ Make-to-order

#### Applicable inserts

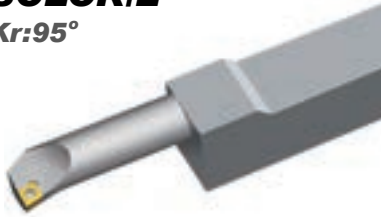
Application	For extra finishing	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	PCBN/PCD inserts	
Inserts shape	USF  A89	HF  A89	HM  A90	HR  A91	LH  A91-92	 A92 Without chipbreaker	 A139	
	SF  A89	EF  A90	EM  A90		LC  A91		 A144	
Tool holder type	<input type="checkbox"/> -SCFCR/L06S25	CC <input type="checkbox"/> <input type="checkbox"/> 0602 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 0602 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 0602 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 0602 <input type="checkbox"/> <input type="checkbox"/>	CCGX0602 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 0602 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 0602 <input type="checkbox"/> <input type="checkbox"/>
	<input type="checkbox"/> -SCFCR/L09S25	CC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>	CCGX09T3 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>
	<input type="checkbox"/> -SCFCR/L12S25		CC <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>	CCGX1204 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 1204 <input type="checkbox"/> <input type="checkbox"/>



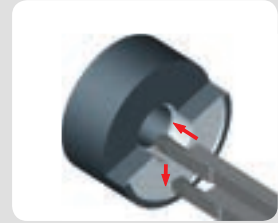
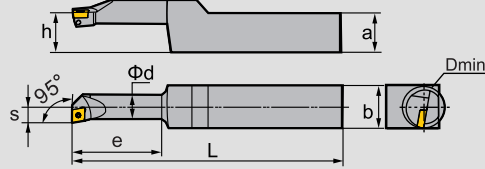




Corresponding tool holders of insert **CC**   S-type clamping

**SCLCRIL**  
Kr:95°



R-type shown















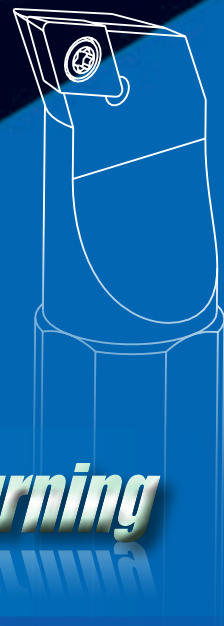
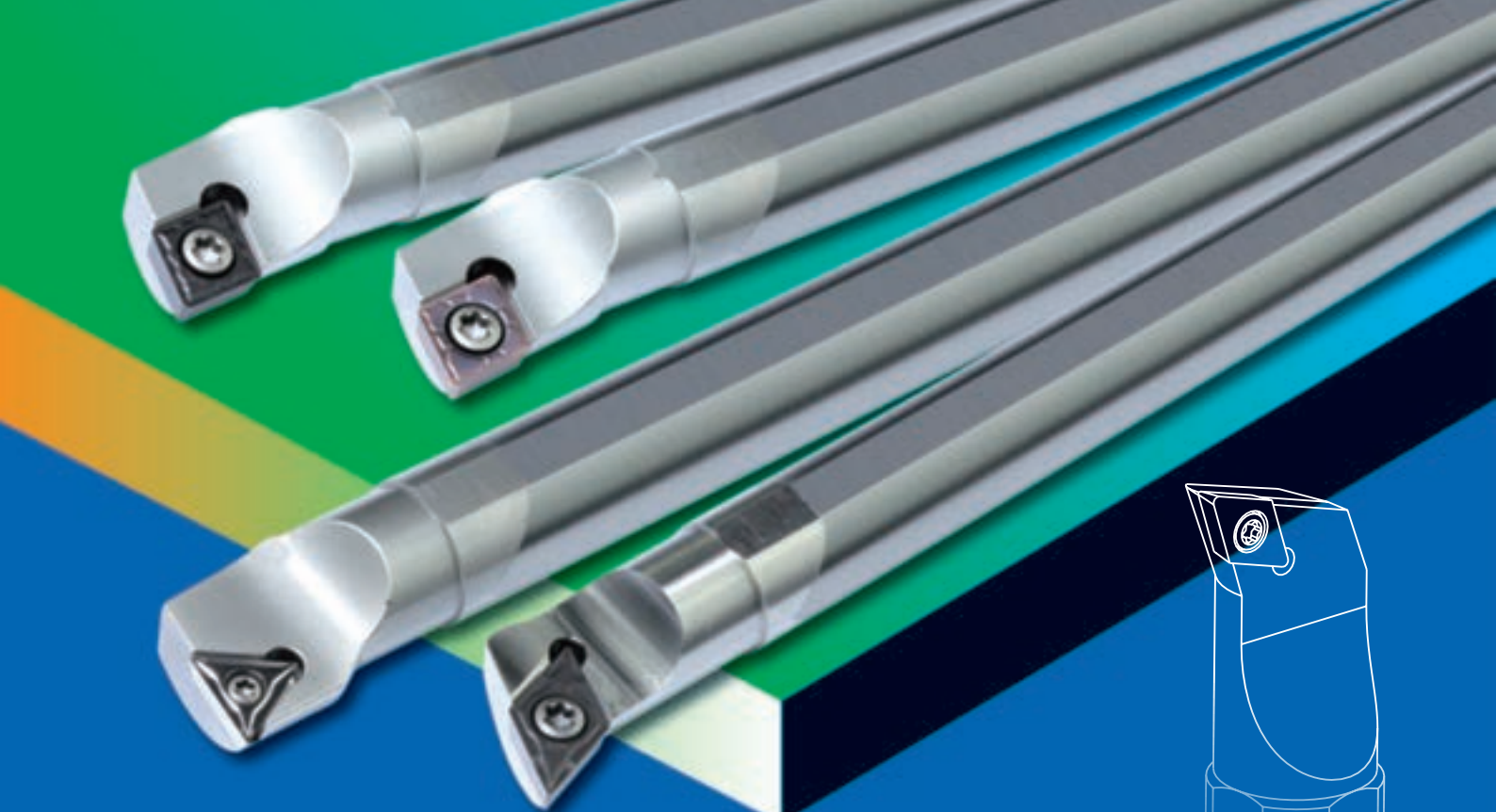
Type	Stock		Basic dimensions(mm)							Screw	Wrench	---	---
	R	L	Dmin	ϕd	L	s	a	b	e			---	---
<b>S10M-SCLCR/L06S20</b>	▲	▲	13	10	150	7	22	20	30	I60M2.5×5.5	WT07IP	---	---
<b>S12P-SCLCR/L06S20</b>	▲	▲	16	12	170	9	22	20	35			---	---
<b>S16Q-SCLCR/L09S20</b>	▲	▲	20	16	180	11	22	20	40	I60M3.5×8	WT15IP	---	---
<b>S20R-SCLCR/L09S20</b>	△	△	25	20	200	13	22	20	60			---	---

▲Stock available    △Make-to-order

General turning  
Internal turning tools

Applicable inserts

Application	For extra finishing	For finishing	For semi-finishing	For roughing	For Al machining	For cast iron machining	PCBN/PCD inserts	
Inserts shape	<b>USF</b>  A89	<b>HF</b>  A89	<b>HM</b>  A90	<b>HR</b>  A91	<b>LH</b>  A91-92	 A92 <small>Without chipbreaker</small>	 A139	
	<b>SF</b>  A89	<b>EF</b>  A90	<b>EM</b>  A90		<b>LC</b>  A91		 A144	
Tool holder type	<input type="checkbox"/> -SCLCR/L06S20	CC <input type="checkbox"/> <input type="checkbox"/> 0602 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 0602 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 0602 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 0602 <input type="checkbox"/> <input type="checkbox"/>	CCGX0602 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 0602 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 0602 <input type="checkbox"/> <input type="checkbox"/>
	<input type="checkbox"/> -SCLCR/L09S20	CC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>	CCGX09T3 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>	CC <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>



## *Damping tool holders for internal turning*

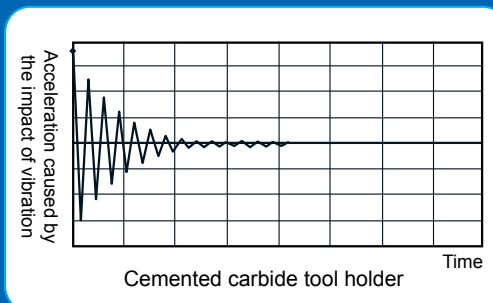
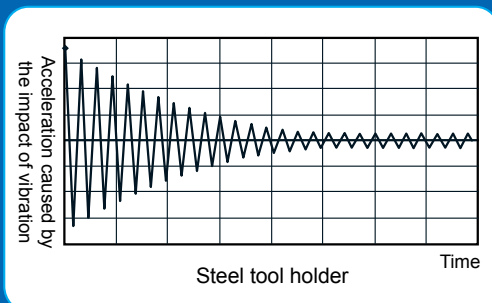
### Technical features

Increasing material rigidity of tool holder can reduce the amplitude, or obtain larger overhang under the condition of same systemic stability. Therefore, compared with steel tool holder, cemented carbide tool holder has better dampening effect, smaller amplitude and reaches convergence point sooner. As for machining under the condition of long overhang and easy vibration, they can exert excellent performance and achieve higher dimensional accuracy and surface quality.



Under the same machining condition

the maximum overhang of cemented carbide tool holder can reach  $L \leq 6D$ , while the recommended maximum overhang of steel tool holder is  $L \leq 3D$ .





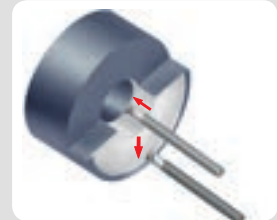
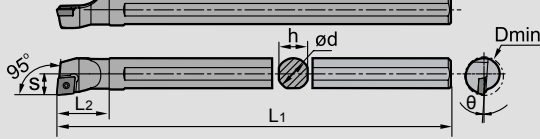
Corresponding tool holders of insert **CP**   (Damping tool holder) S-type clamping

**SCLPRIL**

Kr:95°




R-type shown



Type	Stock		Basic dimensions(mm)							Screw	Wrench	---	---
	R	L	Dmin	ød	s	L <sub>1</sub>	L <sub>2</sub>	h	θ				
<b>C10M-SCLPR/L06</b>	▲	△	12	10	6	150	17	9	-7°	I60M2.5×5.5	WT07IP	--	--
<b>C12Q-SCLPR/L06</b>	△	△	16	12	8	180	20	11	-4°				
<b>C16R-SCLPR/L09</b>	▲	△	20	16	10	200	29	15	-4°	I60M3.5×8	WT15IP	--	--
<b>C20S-SCLPR/L09</b>	△	△	25	20	13	250	35	18	-4°				

▲Stock available    △Make-to-order

Applicable inserts

Application	For extra finishing
Inserts shape	<b>SF</b>  A110
Tool holder type	<input type="checkbox"/> -SCLPR/L06      CP <input type="checkbox"/> <input type="checkbox"/> 0602 <input type="checkbox"/> <input type="checkbox"/>
	<input type="checkbox"/> -SCLPR/L09      CP <input type="checkbox"/> <input type="checkbox"/> 09T3 <input type="checkbox"/> <input type="checkbox"/>

General turning

Internal turning tools



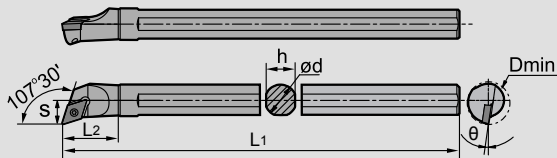
#### Corresponding tool holders of insert **DP** (Damping tool holder) S-type clamping

### SDQPR/L

Kr:107°30'



R-type shown



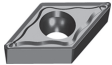
General turning

Internal turning tools

Type	Stock		Basic dimensions(mm)							Screw	Wrench	---	---
	R	L	Dmin	ød	s	L <sub>1</sub>	L <sub>2</sub>	h	θ				
C10M-SDQPR/L07	▲	△	13	10	7	150	20	9	-8°	I60M2.5×5.5	WT071P	---	---
C12Q-SDQPR/L07	△	△	16	12	9	180	22	11	-8°				
C16R-SDQPR/L07	△	△	20	16	11	200	27	15	-6°	I60M2.5×6.5	WT151P	---	---
C16R-SDQPR/L11	△	△	20	16	11	200	32	15	-6°				
C20S-SDQPR/L11	▲	△	25	20	13	250	33	18	-6°	I60M3.5×8	WT151P	---	---

▲Stock available    △Make-to-order

#### Applicable inserts

Application	For extra finishing
Inserts shape	<b>SF</b>  A111
Tool holder type	□□-SDQPR/L07      DP□□0702□□ □□-SDQPR/L11      DP□□11T3□□



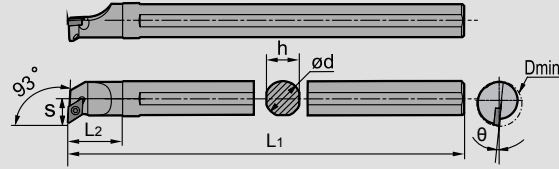
Corresponding tool holders of insert **DP**   (Damping tool holder) S-type clamping




**SDUPRIL**

Kr:93°

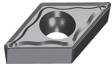


R-type shown



Type	Stock		Basic dimensions(mm)							Screw	Wrench	---	---
	R	L	Dmin	ød	s	L <sub>1</sub>	L <sub>2</sub>	h	θ			---	---
<b>C10M-SDUPR/L07</b>	△	△	15	10	9	150	18	9	-8°	I60M2.5×5.5		---	---
<b>C12Q-SDUPR/L07</b>	△	△	16	12	9	180	19	11	-8°			---	---
<b>C16R-SDUPR/L07</b>	△	△	20	16	11	200	25	15	-6°			---	---

▲Stock available    △Make-to-order

Applicable inserts	
Application	For extra finishing
Inserts shape	<b>SF</b>  A111
Tool holder type	<input type="checkbox"/> -SDUPR/L07      DP <input type="checkbox"/> <input type="checkbox"/> 0702 <input type="checkbox"/> <input type="checkbox"/>

General turning  
Internal turning tools



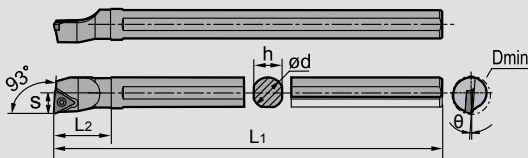
Corresponding tool holders of insert **TP**   (Damping tool holder) S-type clamping

### STUPRIL

Kr:93°



R-type shown




General turning

Internal turning tools

Type	Stock		Basic dimensions(mm)							Screw	Wrench	---	---
	R	L	Dmin	ød	s	L <sub>1</sub>	L <sub>2</sub>	h	θ				
<b>C10M-STUPR/L09</b>	▲	△	12	10	6	150	20	9	-6°	I60M2.2×5.5	WT071P	---	---
<b>C12Q-STUPR/L09</b>	▲	△	16	12	8	180	22	11	-4°				
<b>C12Q-STUPR/L11</b>	▲	△	16	12	8	180	25	11	-4°	I60M2.5×6.5	WT071P	---	---
<b>C16R-STUPR/L11</b>	▲	△	20	16	10	200	27	15	-3°				

▲ Stock available    △ Make-to-order

### Applicable inserts

Application	For extra finishing
Inserts shape	<b>SF</b>  A113
Tool holder type	<input type="checkbox"/> -STUPR/L09
	<input type="checkbox"/> -STUPR/L11



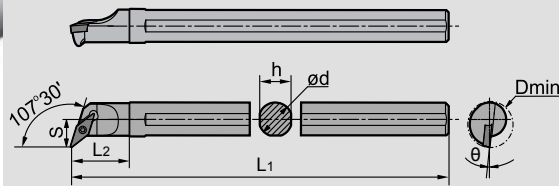




Corresponding tool holders of insert **VC**   (Damping tool holder) S-type clamping

**SVQCR/L**  
Kr:107°30'








R-type shown



Type	Stock		Basic dimensions(mm)							Screw	Wrench	---	---
	R	L	Dmin	ød	s	L1	L2	h	θ			---	---
<b>C16R-SVQCR/L11</b>	△	△	22	16	13	200	28	15	-6°	I60M2.5×6.5	WT071P	---	---
<b>C20S-SVQCR/L11</b>	△	△	26	20	15	250	32	18	-4°			---	---

▲Stock available    △Make-to-order

Applicable inserts

Application	For extra finishing	For finishing	For AI machining
Inserts shape	<b>USF</b>  A105	<b>HF</b>  A105	<b>LH</b>  A106
	<b>SF</b>  A105		<b>LC</b>  A106
Tool holder type	<input type="checkbox"/> -SVQCR/L11	VC <input type="checkbox"/> <input type="checkbox"/> 1103 <input type="checkbox"/> <input type="checkbox"/>	VC <input type="checkbox"/> <input type="checkbox"/> 1103 <input type="checkbox"/> <input type="checkbox"/> VCGX1103 <input type="checkbox"/> <input type="checkbox"/>

General turning  
Internal turning tools



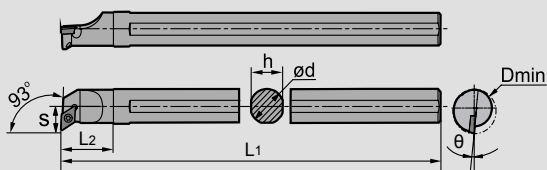
### Corresponding tool holders of insert VC□□ (Damping tool holder) S-type clamping

**SVUCRIL**

Kr:93°






R-type shown



Type	Stock		Basic dimensions(mm)							Screw	Wrench	---	---
	R	L	Dmin	ød	s	L1	L2	h	θ				
<b>C16R-SVUCR/L11</b>	△	△	24	16	15	200	25	15	-6°	I60M2.5×6.5	WT071P	---	---
<b>C20S-SVUCR/L11</b>	△	△	28	20	17	250	30	18	-4°				

▲Stock available    △Make-to-order

### Applicable inserts

Application	For extra finishing	For finishing	For Al machining
Inserts shape	<b>USF</b>  A105	<b>HF</b>  A105	<b>LH</b>  A106
	<b>SF</b>  A105		<b>LC</b>  A106
Tool holder type	VC□□1103□□	VC□□1103□□	VCGX1103□□





**Table of recommended cutting parameters for general turning**

ISO	Materials	Hardness HB	CVD Coating						PVD Coating			Cermet	Coated cermet	Cemented carbide		
			YBC151	YBC251	YBC152	YBC252	YBC351	YBC352	YBG102	YBG202	YBG302	YNG151	YNG151C	YC10	YC40	
			Feed rate (mm/rev)													
			0.1-0.6	0.1-0.8	0.1-0.6	0.1-0.8	0.2-1.0	0.2-1.0	0.2-0.4	0.1-0.6	0.05-0.8	0.05-0.2	0.05-0.2	0.1-0.4	0.1-0.5	
			Cutting speed (m/min)													
<b>P</b>	Carbon steel	C=0.15%	125	430-200	430-190	500-270	480-240	380-165	430-220	460-220	380-180	360-165	550-350	580-350	360-165	300-145
		C=0.35%	150	380-180	410-180	460-250	460-230	300-150	350-200	440-210	300-170	280-150	500-300	520-300	280-150	220-130
		C=0.60%	200	330-150	350-150	400-220	400-200	260-130	310-180	380-180	260-150	240-130	460-260	480-260	240-130	180-80
	Alloy steel	Anneal	180	350-170	350-150	400-180	400-200	200-100	250-150	380-180	200-120	180-100	410-240	430-240	180-100	160-80
		Hardened	275	230-100	210-100	280-150	260-140	140-70	200-120	240-120	140-90	120-70	300-180	320-180	120-70	120-50
		Hardened	300	210-100	190-70	260-150	240-120	125-60	180-110	220-100	125-80	100-60	250-170	270-170	100-60	80-40
	High alloy steel	Hardened	350	180-80	170-70	230-120	220-120	110-55	160-100	200-100	110-75	90-55	230-150	250-150	90-55	70-45
		Anneal	200	320-150	260-120	360-190	310-170	175-80	220-130	290-150	175-100	155-80	350-200	370-200	155-80	135-60
	Cast steel	Hardene	325	140-90	100-50	190-130	150-100	85-40	140-90	130-80	85-60	65-40	170-110	190-110	65-40	45-30
		Non-Alloy	180	240-120	200-100	280-160	250-140	135-75	190-130	230-125	135-95	115-75	260-170	280-170	115-75	95-55
		Low alloy	200	230-70	170-60	280-110	220-110	120-80	170-130	200-90	120-100	100-80	260-170	280-170	100-80	80-60
		High alloy	225	160-70	140-50	210-110	190-100	95-55	150-110	170-80	95-55	95-55	260-100	280-100	95-55	75-35

ISO	Materials	Hardness HB	CVD Coating				PVD Coating				Cermet	Coated cermet	
			YBM151	YBM153	YBM251	YBM253	YBM215	YBG202	YBG205	YBG302	YNG151	YNG151C	
			Feed rate (mm/rev)										
			0.2-0.6	0.2-0.6	0.2-0.6	0.2-0.6	0.2-0.4	0.1-0.4	0.2-0.4	0.2-0.6	0.1-0.3	0.1-0.3	
			Cutting speed (m/min)										
<b>M</b>	Stainless steel	Ferrite	180	280-180	280-180	250-140	260-140	290-190	300-190	290-190	250-150	330-220	350-210
		Austenite	260	250-150	250-150	200-110	210-110	240-160	250-160	240-160	220-120	250-150	270-140
		Martensite	330	200-140	200-140	210-130	220-130	250-170	260-170	250-170	210-120	270-170	290-160

General turning

Application information of general turning



### Recommended table of cutting parameters for general turning

General turning

Application information of general turning

ISO	Materials		Hardness HB	CVD Coating				Cermet	Coated cermet	Ceramics	Cemented carbide		
				YBD052	YBD102	YBD152	YBD252	YNG151	YNG151C	CN3100	YC10	YC40	
				Feed rate (mm/rev)									
				0.1-0.4	0.1-0.4	0.1-0.5	0.1-0.8	0.1-0.4	0.1-0.4	0.1-1.5	0.1-0.3	0.1-0.4	
				Cutting speed (m/min)									
<b>K</b>	Malleable cast iron	Ferrite	130	350-230	330-220	320-105	250-170	280-160	300-180	800-600	150-90	105-45	
		Pearlite	230	250-105	230-100	230-100	180-75	220-120	240-150	700-500	120-70	80-30	
	Low cast iron		180	520-200	480-200	480-190	380-150	400-250	420-270	700-500	170-100	130-60	
	High cast iron		260	230-120	220-115	210-100	170-90	360-240	380-260	800-600	130-70	95-40	
	Nodular cast iron	Ferrite	160	310-150	300-150	290-140	220-110	330-190	350-210	600-450	140-80	115-45	
		Pearlite	250	230-110	220-105	210-100	170-90	310-200	330-220	500-350	110-70	80-30	

ISO	Materials		Hardness HB	PVD Coating					Cemented carbide	Ceramics	
				YBG102	YBG105	YBG202	YBS103	YBG212	YD101	CN3100	
				Feed rate (mm/rev)							
				0.05-0.15	0.05-0.15	0.05-0.2	0.05-0.2	0.05-0.2	0.05-0.35	0.05-0.2	
				Cutting speed (m/min)							
<b>N</b>	Al alloy	No heat treatment	60						1750-800		
		Heat treatment	100						510-250		
	Cast aluminum alloy	No heat treatment	75						460-175		
		Heat treatment	90						300-110		
	Copper alloy	Lead alloy	110						610-205		
		Copper, pure copper	90						310-195		
Copper, nonleaded Copper, electrolytic copper		100						225-115			
<b>S</b>	Ni-base alloy	Ni-base alloy	40	90-30	90-40	90-30	90-20	90-30	70-20	15-260	



**Recommended table of cutting parameters for general turning**

ISO	Materials	PCBN											
		BK1011	BK1021	BK2511	BK2541	BH0121	BH1020	BH2011	BH2511	BH3511	BS1011	BS2011	BS3011
		Feed rate (mm/rev)											
		0.02-0.5		0.1-0.5		0.05-0.5				0.05-0.25			
		Cutting speed (m/min)											
<b>K</b>	Gray cast iron	400-1500		300-600									
	Hard cast iron	80-160		50-150									
<b>S</b>	Powder metallurgy and high temperature alloys									70-180	100-200	50-160	
<b>H</b>	Hardened steel					150-250	140-220	100-170	120-180	80-150			

ISO	Materials	PCD			
		DN0121	DN0511	DN1021	DN3021
		Feed rate (mm/rev)			
		0.05~0.4			
		Cutting speed (m/min)			
<b>N</b>	Silumin ( si≤12% )	500~1000	900~3500	400~1200	300~700
	fibre reinforced composite materials	200~1000			
	Metal base compound		1500~1800		
	Copper and magnesium alloyssilumin		400~1260	400~1260	
	Cemented carbide		20~40		
	Unsintered ceramic materials				100~200
	Sintered Ceramic				20~50

General turning

Application information of general turning

### Table of correctional cutting parameters of internal turning

#### Internal turning tools by P-type clamping

Workpiece material	Hardness HB	Machining category	L/D≤3		L/D=3-4 (Diameter of shank ≥ Φ 16mm)	
			Feed rate (mm/rev)	Cutting depth (mm)	Feed rate (mm/rev)	Cutting depth (mm)
<b>P</b> Carbon steel, Alloy steel 45#, 42CrMo	HB180—280	For semi-finishing	0.1- <b>0.25</b> -0.4	<5.0	0.1- <b>0.2</b> -0.3	<4.0
<b>M</b> Stainless steel 1Cr18Ni9Ti 0Cr18Ni9	≤ HB220	For semi-finishing	0.1- <b>0.2</b> -0.3	<4.0	0.1- <b>0.15</b> -0.25	<3.0
<b>K</b> Cast iron HT250	HB170—230	For semi-finishing	0.1- <b>0.25</b> -0.4	<5.0	0.1- <b>0.2</b> -0.3	<4.0

#### Internal turning tools by S-type clamping

Workpiece material	Hardness HB	Machining category	L/D≤3		L/D=4		L/D=5		L/D=6	
			Feed rate (mm/rev)	Cutting depth (mm)	Feed rate (mm/rev)	Cutting depth (mm)	Feed rate (mm/rev)	Cutting depth (mm)	Feed rate (mm/rev)	Cutting depth (mm)
<b>P</b> Carbon steel, Alloy steel 45#, 42CrMo	HB180-280	For finishing	0.05- <b>0.1</b> -0.15	<0.2	0.05- <b>0.1</b> -0.15	<0.2				
		For semi-finishing	0.15- <b>0.25</b> -0.35	<3.0	0.1- <b>0.15</b> -0.2	<1.5				
<b>M</b> Stainless steel 1Cr18Ni9Ti 0Cr18Ni9	≤ HB220	For finishing	0.05- <b>0.1</b> -0.15	<0.2	0.05- <b>0.1</b> -0.15	<0.2				
		For semi-finishing	0.15- <b>0.2</b> -0.25	<2.0	0.1- <b>0.15</b> -0.2	<1.0				
<b>N</b> Al alloy	---	For finishing	0.05- <b>0.1</b> -0.15	<0.2	0.05- <b>0.1</b> -0.15	<0.2	0.05- <b>0.1</b> -0.15	-0.15	0.05- <b>0.1</b> -0.15	<0.1
		For semi-finishing	0.05- <b>0.1</b> -0.15	<2.0	0.05- <b>0.1</b> -0.15	<1.5	0.05- <b>0.1</b> -0.15	-1.0	0.05- <b>0.1</b> -0.15	<1.0

#### Damping internal turning tools

Workpiece material	Machining conditions	Chipbreaker	Inserts material	Feed rate (mm/rev)	Cutting depth (mm)
<b>P</b> Steel HB180—280	For finishing	SF	YNG151 YNG151C	0.05- <b>0.2</b> -0.35	0.05- <b>0.1-0.3</b> -0.5
<b>M</b> Stainless steel ≤ HB220				0.05- <b>0.2</b> -0.35	0.05- <b>0.1-0.3</b> -0.5
<b>K</b> Cast iron HB170—230				0.05- <b>0.2</b> -0.35	0.05- <b>0.1-0.3</b> -0.5

Blue words are recommended cutting parameters.



Frequent problems of turning and solutions

Common problem	Cause	Tool material		Cutting conditions				Tool shape					Machine clamping system					
		Harder materials	Tougher materials	Cutting speed	Feed rate	Cutting depth	Cutting liquid	Change chipbreaker of inserts	Rake face	Nose radius	Approach angle	Cutting edge strength	Cutting edge inserts	Increase precision of tool holder	Increase rigidity of tool holder and workpiece	Clamping of tool holder	Overhang of tool holder	Power gap
Over abrasion on nose	Bad precision during machining	✓								↑								
				↓	↑													
Surface deterioration	Bad surface quality	✓		↓			✓		↑	↑		↓	✓					
			✓		↓	↓		✓		↑		↑			✓	✓	✓	
								✓		↑		↓	✓					
					↑	↓	↓	✓										
			✓		↑	↓	↓	✓	✓	↑	↓	↑	↓		✓	✓	✓	✓
					↑	↑		✓	✓	↑		↓	✓					
Radiation of heat	Effect of cutting heat			↓	↓	↓												
		✓						✓	↑			↓						
Bad precision of dimensions	Dimensions fluctuate during cutting												✓					
								✓	↑	↓	↑			✓	✓	✓	✓	
Breakage	Abrasion on flank and rake face	✓		↓				✓	↑	↑		↓						
		✓		↓	↓	↓		✓	↑			↓						
	Edge chipping		✓		↓	↓		✓				↓	↑		✓	✓	✓	✓
	Built-up edge			↑	↑		✓	✓	↑			↓	✓					
	Thermal cracking			↓	↓	↓	✓	✓	↑			↓						
	Cutting edge nose deformation	✓		↑	↓	↓	✓	✓	↑	↑	↓	↓						
	Tool life		✓		↓	↓		✓		↑	↓	↑		✓	✓	✓	✓	✓
Chip controlling	Long, unbroken and snarled chips			↓	↑	↑	✓					↓	↑					
								✓		↓	↑							
	Too short and hard chips				↓	↓	✓					↓	↑					
								✓		↑	↓							
Burr and knockdown flange	Steel and Al, burrs occurring			↑	↓		✓											
		✓						✓	↑	↓	↑	↓						
	Edge break out on cast iron			↓	↑		✓											
		✓						✓	✓	↓	↓	↓						
	Heavy burr on soft steel	✓			↓	↓								✓	✓	✓	✓	

General turning

Application information of general turning



### Abrasion of tools and various damages

Tool damage type	Phenomenon	Cause	Solution
<b>Flank wear</b>	Cutting resistant force increasing Groove wear on flank	Tool material is too soft. Cutting speed is too high. Clearance angle is too small. Feed rate is too low.	<ul style="list-style-type: none"> <li>◆ Select tool materials with good wear resistance.</li> <li>◆ Reduce cutting speed.</li> <li>◆ Enlarge clearance angle.</li> <li>◆ Increase feed rate.</li> </ul>
<b>Rake face wear (Crater wear)</b>	Bad chip controlling Surface quality deterioration	Tool material is too soft. Cutting speed is too high. Feed rate is too high.	<ul style="list-style-type: none"> <li>◆ Select tool materials with good wear resistance.</li> <li>◆ Reduce cutting speed.</li> <li>◆ Reduce feed rate.</li> </ul>
<b>Cutting edge breakage</b>	Occasional breakage Instability of tool life	Tool material is too hard. Feed rate is high. Cutting edge strength is not high enough. Rigidity of tool holder and tool bar is small.	<ul style="list-style-type: none"> <li>◆ Select tool materials with good toughness.</li> <li>◆ Reduce feed rate.</li> <li>◆ Increase land width (if rounding changes into chamfering).</li> <li>◆ Enlarge tool bar size.</li> </ul>
<b>Breakage</b>	Cutting resistant force increasing Deterioration of surface roughness	Tool material is too hard. Feed rate is high. Cutting edge strength is not high enough. Rigidity of tool holder and tool bar is low.	<ul style="list-style-type: none"> <li>◆ Select tool materials with good toughness.</li> <li>◆ Reduce feed rate.</li> <li>◆ Increase land width (if rounding changes into chamfering).</li> <li>◆ Enlarge tool bar size.</li> </ul>
<b>Plastic deformation (Cutting edge collapse)</b>	Workpiece dimensions change Nose abrasion	Tool material is too soft. Cutting speed is too high. Cutting depth and feed rate are too high. Cutting edge temperature is too high.	<ul style="list-style-type: none"> <li>◆ Select tool material with good wear resistance</li> <li>◆ Reduce cutting speed.</li> <li>◆ Reduce cutting depth and feed rate.</li> <li>◆ Select tool materials with good heat conductivity.</li> </ul>
<b>Built-up edge (Bonding)</b>	Surface quality deterioration during finishing Cutting resistant force increasing	Cutting speed is low. Cutting edge is not sharp enough. Tool material is unsuitable.	<ul style="list-style-type: none"> <li>◆ Increase cutting speed.</li> <li>◆ Enlarge rake angle.</li> <li>◆ Select tool materials that are not easy to adhere together (coating, cermet, etc.)</li> </ul>
<b>Thermal cracking</b>	Damage because of thermal circulation Normally occurring during intermittent machining	Premature edge failure due to thermal cracks. Tool material is too hard.	<ul style="list-style-type: none"> <li>◆ Adopt dry cutting.</li> <li>◆ Select tool materials with good toughness.</li> </ul>
<b>Chattering</b>	burrs occurring Cutting resistant force increasing	Feed rate and cutting speed are too high.	<ul style="list-style-type: none"> <li>◆ Select tool materials with good wear resistance.</li> <li>◆ Sharpen cutting edge by enlarging rake angle.</li> <li>◆ Reduce cutting speed.</li> </ul>
<b>Flaking</b>	Usually occurring when machining super hard materials, which is accompanied with vibration	Bonding occurs on cutting edge. Chip flow is obstructed.	<ul style="list-style-type: none"> <li>◆ Sharpen cutting edge by enlarging rake angle.</li> <li>◆ Enlarge chip pocket.</li> </ul>