

# HOW TO READ THE STANDARD OF BORING BARS

## How this section page is organised

- Organised by product series. (Refer to the index on the next page.)

**TYPE OF BORING BAR** indicates the initial letters for the order number, as well as applicable insert types.

**TITLE OF PRODUCT SERIES**

**PRODUCT SECTION**

**PRODUCT FEATURES**

**FIGURE SHOWING THE TOOLING APPLICATION** uses illustrations and arrows to depict available machining applications along with cutting edge lead angles.

**GEOMETRY**

**CHIP BREAKER BY CUTTING APPLICATION**

**BORING BARS**

**DIMPLE BAR**

**FSCLC/P**

Order Number	Stock	Insert Number	DCON	LF	LDRED	WF	H	GAMF	DMIN	Insert	Wrench	
FSCLP1008R-L-06S	R/L	CC-BHTM 0602	8	125	18	5	7.2	12°	10	3	TS253	TKY0F
FSCLP1210R-L-06S	R/L	0602	10	150	22.5	6	9	5°	12	3.5	TS3D	TKY0F
FSCLP1412R-L-06S	R/L	CPMB CPMA CPMT 42	12	150	27	7	11	4°	14	4	TS3D	TKY0F
FSCLP1616R-L-09S	R/L	0903	12	150	30	8	11	4°	16	4	TS4D	TKY0F
FSCLP1816R-L-09S	R/L	0903	16	180	36	9	15	3.5°	18	5	TS4D	TKY0F
FSCLP2220R-L-09S	R/L	0903	20	220	45	11	19	2°	22	5	TS4D	TKY0F
FSCLP3228R-L-09S	R/L	0903	25	290	56.3	13	23.4	0°	30	5	TS4D	TKY0F

\* Clamp Torque (N·m) : TS25D+1.0, TS3D+2.5, TS4D+3.5

**FSCLC/P-E**

Order Number	Stock	Insert Number	DCON	LF	LDRED	WF	H	GAMF	DMIN	Insert	Wrench	
FSCLP1008R-L-06E	R/L	CC-B 0602	8	140	13.8	5	7.2	12°	10	7	TS253	TKY0F
FSCLP1008R-06E-2/3	R/L	CC-H 0602	8	90	13.8	5	7.2	12°	10	5	TS253	TKY0F
FSCLP1008R-06E-1/2	R/L	CC-W 0602	8	70	13.8	5	7.2	12°	10	3	TS253	TKY0F
FSCLP1210R-08E-2/3	R/L	0802	10	105	16.0	6	9	5°	12	7.5	TS3D	TKY0F
FSCLP1210R-08E-1/2	R/L	0802	10	80	16.0	6	9	5°	12	3	TS3D	TKY0F
FSCLP1412R-08E	R/L	0802	12	150	17.8	7	11	4°	14	8	TS3D	TKY0F
FSCLP1412R-08E-2/3	R/L	0802	12	120	17.8	7	11	4°	14	3	TS3D	TKY0F
FSCLP1412R-08E-1/2	R/L	0802	12	90	17.8	7	11	4°	14	3	TS3D	TKY0F
FSCLP1816R-L-09E	R/L	0903	16	220	21.8	9	15	3.5°	18	8	TS4D	TKY0F
FSCLP1816R-09E-2/3	R/L	0903	16	140	21.8	9	15	3.5°	18	5	TS4D	TKY0F
FSCLP1816R-09E-1/2	R/L	0903	16	110	21.8	9	15	3.5°	18	3	TS4D	TKY0F
FSCLP2220R-L-09E	R/L	0903	20	250	24.0	11	19	2°	22	8	TS4D	TKY0F
FSCLP2220R-09E-2/3	R/L	0903	20	165	24.0	11	19	2°	22	5	TS4D	TKY0F
FSCLP2220R-09E-1/2	R/L	0903	20	125	24.0	11	19	2°	22	3	TS4D	TKY0F

\*1 Clamp Torque (N·m) : TS25D+1.0, TS3D+2.5, TS4D+3.5  
\*2 By changing the clamp screw, it is possible to use the different insert. Please refer to page E005.  
Note 1) The insert photos are only examples. The letters refer to the chip breaker and the dimension refers to the inscribed circle.  
Note 2) Dimensions shown for insert corner (R0.4 / Model of 2-Mark is R0.3).  
Note 3) When using insert with right and left hand chip breaker, please use left hand CP insert for right hand holder and right hand insert for left hand holder.

**E006** Inventory maintained in Japan.

CC type inserts → A140-A147  
CP type inserts → A148  
CEN & PCD inserts → B041-B043, B047

**FSTUP**

Order Number	Stock	Insert Number	DCON	LF	LDRED	WF	H	GAMF	DMIN	Insert	Wrench	
FSTUP1008R-L-08S	R/L	0802	8	125	18	5	7.2	10°	10	3	TS253	TKY0F
FSTUP1210R-L-08S	R/L	0902	10	150	22.5	6	9	8°	12	3.5	TS253	TKY0F
FSTUP1412R-L-08S	R/L	TRMB TRMH TRMX 42	12	150	27	7	11	7°	14	4	TS253	TKY0F
FSTUP1210R-L-11S	R/L	1103	10	150	22.5	6	9	8°	12	3.5	TS310	TKY0F
FSTUP1412R-L-11S	R/L	1103	12	150	27	7	11	7°	14	4	TS310	TKY0F
FSTUP1816R-L-11S	R/L	1103	16	180	36	9	15	4°	18	5	TS310	TKY0F
FSTUP2220R-L-11S	R/L	1103	20	220	45	11	19	0°	22	5	TS310	TKY0F
FSTUP3228R-L-11S	R/L	1603	25	270	56.3	13	23.4	0°	32	5	TS340	TKY0F

\* Clamp Torque (N·m) : TS25D+1.0, TS25D+1.0, TS31D+2.5, TS31D+2.5, TS34D+3.5

**FSTUP-E**

Order Number	Stock	Insert Number	DCON	LF	LDRED	WF	H	GAMF	DMIN	Insert	Wrench	
FSTUP1008R-L-08E	R/L	0802	8	140	13.8	5	7.2	10°	10	7	TS253	TKY0F
FSTUP1008R-08E-2/3	R/L	0802	8	90	13.8	5	7.2	10°	10	5	TS253	TKY0F
FSTUP1008R-08E-1/2	R/L	0802	8	70	13.8	5	7.2	10°	10	3	TS253	TKY0F
FSTUP1210R-09E-2/3	R/L	0902	10	105	16.0	6	9	8°	12	7.5	TS253	TKY0F
FSTUP1210R-09E-1/2	R/L	0902	10	80	16.0	6	9	8°	12	3	TS253	TKY0F
FSTUP1210R-09E	R/L	0902	12	150	16.0	6	9	8°	12	3	TS253	TKY0F
FSTUP1412R-09E	R/L	0902	12	180	17.8	7	11	7°	14	8	TS253	TKY0F
FSTUP1412R-09E-2/3	R/L	0902	12	120	17.8	7	11	7°	14	3	TS253	TKY0F
FSTUP1412R-09E-1/2	R/L	0902	12	90	17.8	7	11	7°	14	3	TS253	TKY0F
FSTUP1816R-L-11E	R/L	1103	16	220	21.8	9	15	4°	18	8	TS310	TKY0F
FSTUP1816R-11E-2/3	R/L	1103	16	145	21.8	9	15	4°	18	5	TS310	TKY0F
FSTUP1816R-11E-1/2	R/L	1103	16	110	21.8	9	15	4°	18	3	TS310	TKY0F
FSTUP2220R-L-11E	R/L	1103	20	250	24.0	11	19	0°	22	8	TS310	TKY0F
FSTUP2220R-11E-2/3	R/L	1103	20	165	24.0	11	19	0°	22	5	TS310	TKY0F
FSTUP2220R-11E-1/2	R/L	1103	20	125	24.0	11	19	0°	22	3	TS310	TKY0F

\*1 Clamp Torque (N·m) : TS25D+1.0, TS25D+1.0, TS31D+2.5  
\*2 By changing the clamp screw, it is possible to use the different insert. Please refer to page E005.

TP type inserts → A164-A168  
CEN & PCD inserts → B051-B053, B071, B072

CUTTING CONDITIONS → E012  
SPARE PARTS → G001  
TECHNICAL DATA → R001

**E007**

**LEGEND FOR STOCK STATUS MARK** is shown on the left hand page of each double-page spread.

**PRODUCT STANDARDS** indicates order numbers, stock status (per right/left hand), applicable inserts, dimensions, minimum cutting diameters, standard corner radius, recommended l/d ratios, and spare parts.

**MIN. CUTTING DIAMETER** is colour-coded to let you find, at a glance, the maximum / minimum cutting diameters for internal machining.

**REFERENCE PAGE FOR APPLICABLE INSERTS** indicates reference pages for details of inserts that are applicable to the title product.

**PAGE REFERENCE** indicates reference pages, including the above, on the right hand page of each double-page spread.

**To Order : Please specify**  
 ① Order number and hand of tool (right/left).

# TURNING TOOLS

## BORING BARS

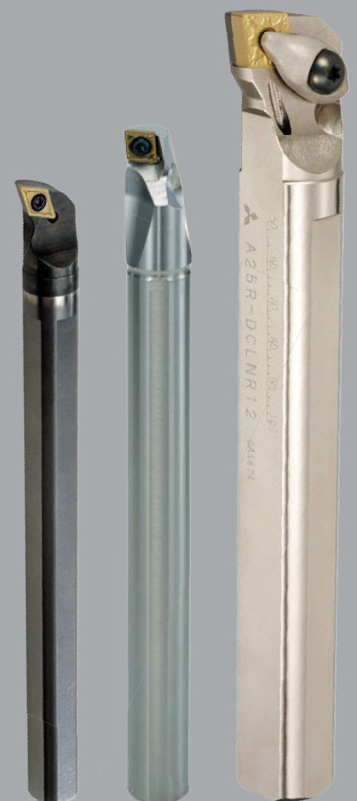
CLASSIFICATION OF BORING TOOLS ..... E002  
 IDENTIFICATION ..... E004

### STANDARD OF BORING BARS

FEATURES OF DIMPLE BAR ..... E005  
 DIMPLE BAR ..... E006  
 DOUBLE CLAMP DIMPLE BAR ..... E013  
 MICRO-DEX BORING BARS ..... E016  
 MICRO-MINI TWIN BORING BARS ..... E019  
 MICRO-MINI BORING BARS ..... E022  
 F TYPE BORING BARS ..... E025  
 S TYPE BORING BARS ..... E028  
 P TYPE BORING BARS ..... E035  
 M TYPE BORING BARS ..... E039  
 D TYPE BORING HEAD ..... E040  
 AL TYPE BORING BARS ..... E043

\*Arranged by Alphabetical order

E013 A○○○-DCLN	E029 C○○○SDUC	E007 FSTUP
E013 A○○○-DDUN	E028 C○○○STFC	E012 FSVJB/C
E014 A○○○-DSKN	E017 C○○○STUC	E011 FSVPB/C
E014 A○○○-DTFN	E032 C○○○SVQC	E011 FSVUB/C
E015 A○○○-DVUN	E016 C○○○SWUB	E027 FSWL1
E015 A○○○-DWLN	E019 CB	E027 FSWL2
E039 A○○○MWLN	E020 CR	E010 FSWUB/P
E036 A○○○PCLN	E041 DPCL	E018 RBH
E037 A○○○PDQN	E041 DPDH	E023 RBH
E036 A○○○PDUN	E040 DPDU	E030 S○○○SCLC
E038 A○○○PDZN	E040 DPTF	E034 S○○○SCZC
E035 A○○○PSKN	E042 DPVP	E031 S○○○SDQC
E035 A○○○PTFN	E026 FCTU1	E029 S○○○SDUC
E037 A○○○PWLN	E026 FCTU2	E033 S○○○SSKC
E042 B1○○○○	E006 FSCLC/P	E028 S○○○STFC
E022 C○○○-BLS	E009 FSDQC	E043 S○○○STFE
E016 C○○○SCLC	E008 FSDUC	E032 S○○○SVQC
E030 C○○○SCLC	E025 FSTU1	E033 S○○○SVUC
E031 C○○○SDQC	E025 FSTU2	E024 SBH


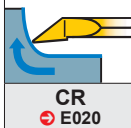
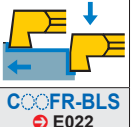
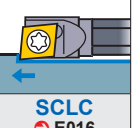
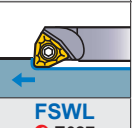
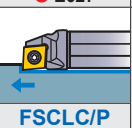
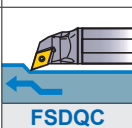
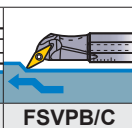
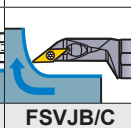
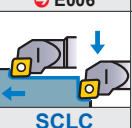

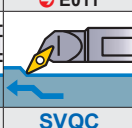
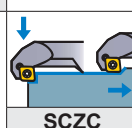
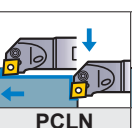
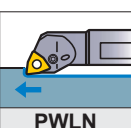
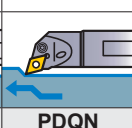
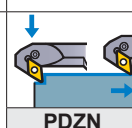
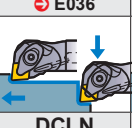
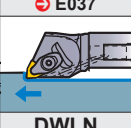
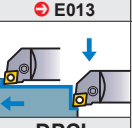
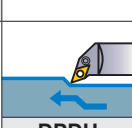
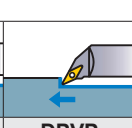
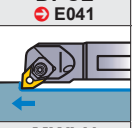


# CLASSIFICATION

**E**  
BORING BARS

Name of Tool Holder	DMIN Minimum Cutting Diameter	Features	KAPR=75°		KAPR=91°		KAPR=93°	
<b>MICRO-MINI TWIN Boring Bars</b> 	φ2.2 — φ8.2	<ul style="list-style-type: none"> <li>● Solid carbide type with two cutting edges.</li> <li>● Continuous cutting from boring to facing.</li> <li>● With or without a chip breaker.</li> </ul>						
<b>MICRO-MINI Boring Bars</b> 	φ3.2 — φ5.2	<ul style="list-style-type: none"> <li>● Solid carbide type (Single cutting edges).</li> <li>● l/d is 5 times the diameter.</li> <li>● Cutting edge can be shaped according to the application. Thus, it covers a wide cutting range (threading, grooving, copying, etc.).</li> </ul>						
<b>MICRO-DEX Boring Bars (Carbide Shank)</b> 	φ5 — φ8	<ul style="list-style-type: none"> <li>● 7° positive insert.</li> <li>● Carbide shank type.</li> <li>● Easy-to-use tool geometries.</li> <li>● Suitable for small workpieces.</li> <li>● l/d is 5 times the diameter.</li> </ul>						
<b>F Type Boring Bars</b> 	φ5.8 — φ40	<ul style="list-style-type: none"> <li>● 11° positive insert.</li> <li>● Screw-on type and Clamp-on type.</li> <li>● l/d is 3 to 5 times the diameter.</li> <li>● FSWL type is 7° positive insert.</li> </ul>						
<b>DIMPLE BAR</b> 	φ10 — φ40	<ul style="list-style-type: none"> <li>● 5°, 7°, 11° positive insert.</li> <li>● Excellent vibration resistance due to a light dimple head.</li> <li>● l/d is 3 to 5 times the diameter (Carbide shank is 3 to 8 times the diameter).</li> </ul>						
<b>S Type Boring Bars</b> 	φ11 — φ50	<ul style="list-style-type: none"> <li>● ISO standard.</li> <li>● 7° positive insert.</li> <li>● Screw-on type.</li> <li>● l/d is 3 to 5 times the diameter (Carbide shank is 7 times the diameter).</li> </ul>						
<b>AL Type Boring Bars (For Aluminium Alloy)</b> 	φ20 — φ32	<ul style="list-style-type: none"> <li>● Suitable for non-ferrous metal.</li> <li>● 20° positive insert.</li> <li>● Screw-on type.</li> <li>● l/d is 6 times the diameter.</li> <li>● Excellent vibration resistance.</li> </ul>						
<b>P Type Boring Bars</b> 	φ20 — φ70	<ul style="list-style-type: none"> <li>● ISO standard.</li> <li>● Economical negative insert.</li> <li>● Lever lock type, and pin lock type.</li> <li>● l/d is 3 times the diameter.</li> </ul>						
<b>DOUBLE CLAMP DIMPLE BAR</b> 	φ32 — φ50	<ul style="list-style-type: none"> <li>● Economical negative insert.</li> <li>● Single action type.</li> <li>● Excellent vibration resistance due to a light dimple head. (With coolant hole.)</li> <li>● l/d is 3 to 4 times the diameter.</li> </ul>						
<b>D Type Boring Head</b> 	φ40 — φ60	<ul style="list-style-type: none"> <li>● Economical negative insert.</li> <li>● Lever lock type.</li> <li>● Exchangeable head type.</li> </ul>						
<b>M Type Boring Bars</b> 	φ63	<ul style="list-style-type: none"> <li>● Negative trigon shape insert.</li> <li>● Double clamp type.</li> <li>● l/d is 3 times the diameter.</li> </ul>						

Note 1) Holders with blue colour symbol have an anti-vibration carbide shank. (For Micro-dex boring bars, carbide shank only.)  
 Note 2) l/d represents the ratio of the projection length L to the cutting edge and the shank diameter d.

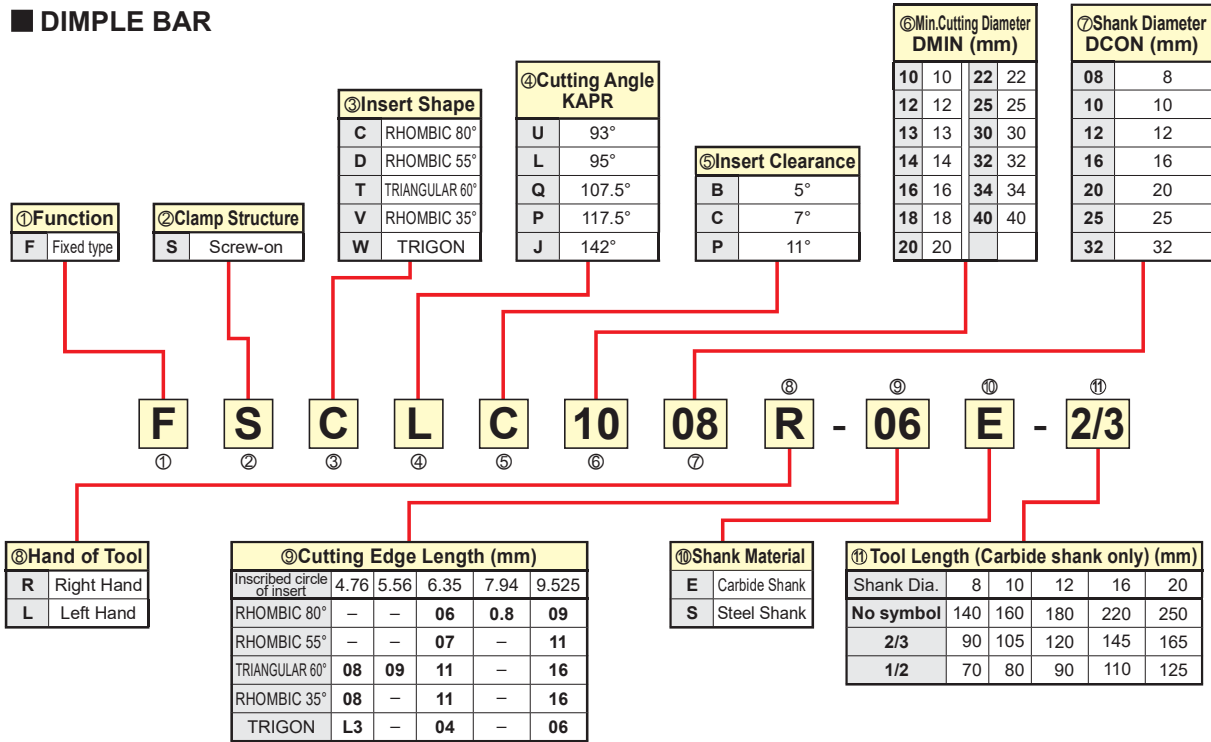
KAPR=94°		KAPR=95°		KAPR=107.5°—117.5°		KAPR=142°	KAPR=3°,5°		Selection Standard								
Economical	Low Cutting Resistance (Sharpness)	Clamp Rigidity	Vibration Resistance	Operation Efficiency	Coolant Hole	Specialized	Small Diameter Cutting										
																	
																	
																	
																	
																	
																	
																	
																	
																	
																	

**E**  
BORING BARS

Note 3) ◎ : 1st recommendation. ○ : 2nd recommendation.  
 Note 4) \*Indicates that the shank material is carbide.

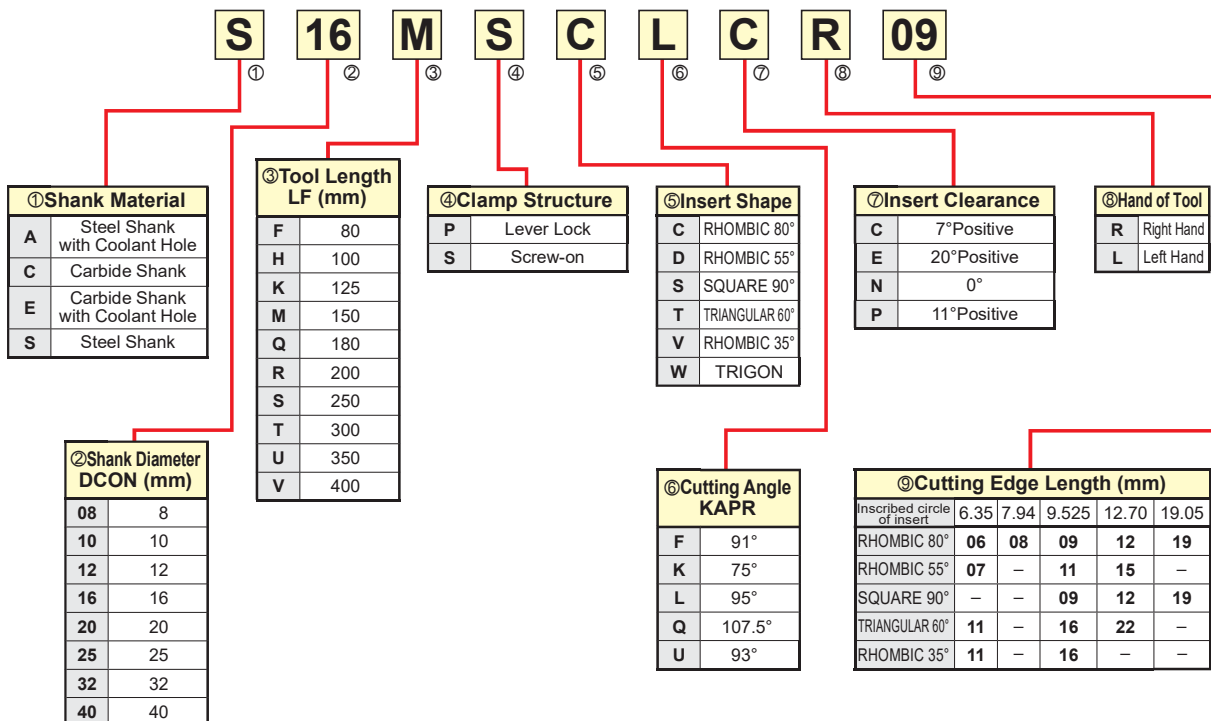
# IDENTIFICATION

■ DIMPLE BAR



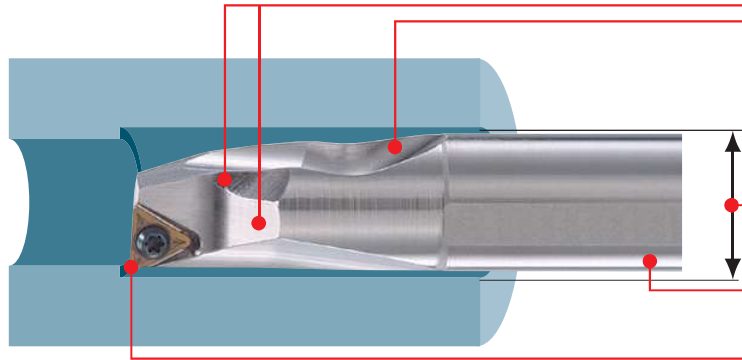
■ ISO TYPE BORING TOOLS

[For Aluminium Alloy, P-type and S-type]



# FEATURES OF DIMPLE BAR

Highly rigid steel shank and a lightweight head configuration designed by computer simulation analysis reduces chatter and improves the vibration damping properties.



Chip disposal is improved by having two channels for chip evacuation.

The lightweight head with its large dimple reduces chatter.

Available in sizes smaller than the ISO standard. Therefore the boring of small diameter holes is possible.

The boring bar has a laser printed scale on the shank to facilitate easy installation.

"F and FS" breakers improves the quality of the surface finish, "MV" breaker offers excellent chip disposal. High wear resistant CBN inserts are also available for the machining of hardened materials.

E

BORING BARS

## VIBRATION RESISTANCE

### ● DIMPLE BAR

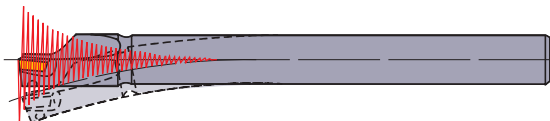
Weight of the Head	Damping Time
49.7g	15.8ms



By reducing the weight of the head, the damping properties are increased.

### ● Conventional Product

Weight of the Head	Damping Time
70.1g	20ms



\* The simulation data stated above was conducted with a FSCLP1816R-09S holder, under the following conditions; l/d=5, depth of cut=0.5mm, and feed=0.05mm/rev.

## Direction for the use of CCG/MT • CPG/MT • CPMX • TPG/MX type inserts

By changing the clamp screw, it is possible to use the inserts listed in the table below.

Holder : FSCLC/P • FSCLC/P...E		Holder : FSTUP • FSTUP...E	
Insert Number	Clamp Screw	Insert Number	Clamp Screw
CCG/MT0602 (φ6.35)	Can be used as it is.	TPG/MX0802 (φ4.76)	Change to CS200T
CPG/MT0802 (φ7.94)	Change to TS3	TPG/MX0902 (φ5.56)	Change to CS250T
CPG/MT0903 (φ9.525)	Change to TS4	TPG/MX1103 (φ9.525)	Change to CS300890T
CPMX0802 (φ7.94)	Can be used as it is.		
CPMX0903 (φ9.525)	Can be used as it is.		

\* If the screw is too long the please shorten as necessary.

Note 1) TPMT/W09, W11 types cannot be used due to a different clamp screw size.



# BORING BARS

## DIMPLE BAR

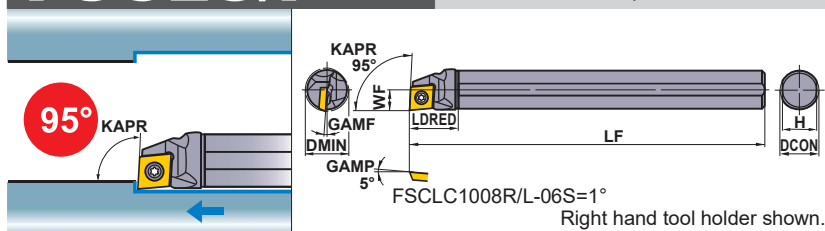
- Excellent vibration resistance due to light dimple head.
- Chip disposal is improved by having two channels for chip evacuation.
- A laser printed scale on the side for easy installation (Steel shank).
- I/d is 3 to 5 times the diameter (Carbide shank is 3 to 8 times the diameter).



TOOL NEWS

### FSCLC/P

#### CC<sup>○</sup>inserts, CP<sup>○</sup>inserts



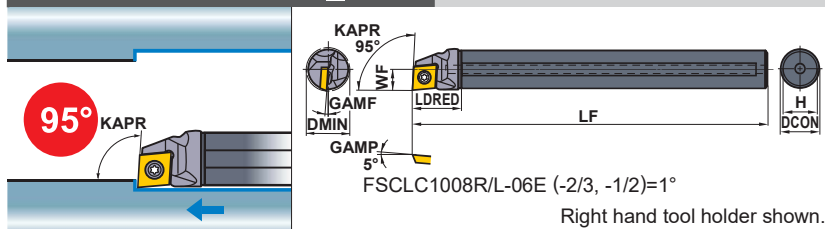
Finish	Finish	Finish	Light
FP (06)	FV (06,08,09)	FM (06)	SV (06,08,09)
Light	Medium	Medium	CBN/PCD
LP (06)	MV (06,08,09)	MP (06)	(06,08,09)

Order Number	Stock		Insert Number	Dimensions(mm)							Maximum Recommendation I/d Ratio	*1	
	R	L		DCON	LF	LDRED	WF	H	GAMP	DMIN		Clamp Screw	Wrench
FSCLC1008R/L-06S	●	●	CC <sup>○</sup> B/H/T/W 0602 <sup>○</sup>	8	125	18	5	7.2	12°	10	3	TS253	TKY08F
FSCLP1210R/L-08S	●	●	0802 <sup>○</sup>	10	150	22.5	6	9	5°	12	3.5	TS3D	TKY10F
FSCLP1412R/L-08S	●	●	CPMB CPMH	12	150	27	7	11	4°	14	4	TS3D	TKY10F
FSCLP1612R/L-09S	●	●	CPMT *2	12	150	30	8	11	4°	16	4	TS4D	TKY15F
FSCLP1816R/L-09S	●	●	CPMX *2	16	180	36	9	15	3.5°	18	5	TS4D	TKY15F
FSCLP2220R/L-09S	●	●	CPGB	20	220	45	11	19	2°	22	5	TS4D	TKY15F
FSCLP3025R/L-09S	●	●	CPGT *2	25	250	56.3	15	23.4	0°	30	5	TS4D	TKY15F

\* Clamp Torque (N · m) : TS253=1.0, TS3D=2.5, TS4D=3.5

### FSCLC/P\_E

#### Carbide shank with coolant hole CC<sup>○</sup>inserts, CP<sup>○</sup>inserts



Finish	Finish	Finish	Light
FP (06)	FV (06,08,09)	FM (06)	SV (06,08,09)
Light	Medium	Medium	CBN/PCD
LP (06)	MV (06,08,09)	MP (06)	(06,08,09)

Order Number	Stock		Insert Number	Dimensions(mm)							Maximum Recommendation I/d Ratio	*1	
	R	L		DCON	LF	LDRED	WF	H	GAMP	DMIN		Clamp Screw	Wrench
FSCLC1008R/L-06E	●	●	CC <sup>○</sup> B 0602 <sup>○</sup>	8	140	13.8	5	7.2	12°	10	7	TS253	TKY08F
FSCLC1008R-06E-2/3	●	●	CC <sup>○</sup> H 0602 <sup>○</sup>	8	90	13.8	5	7.2	12°	10	5	TS253	TKY08F
FSCLC1008R-06E-1/2	●	●	CC <sup>○</sup> T 0602 <sup>○</sup>	8	70	13.8	5	7.2	12°	10	3	TS253	TKY08F
FSCLP1210R/L-08E	●	●	CC <sup>○</sup> W 0602 <sup>○</sup>	10	160	16.0	6	9	5°	12	7.5	TS3D	TKY10F
FSCLP1210R-08E-2/3	●	●	0802 <sup>○</sup>	10	105	16.0	6	9	5°	12	5	TS3D	TKY10F
FSCLP1210R-08E-1/2	●	●	0802 <sup>○</sup>	10	80	16.0	6	9	5°	12	3	TS3D	TKY10F
FSCLP1412R/L-08E	●	●	0802 <sup>○</sup>	12	180	17.8	7	11	4°	14	8	TS3D	TKY10F
FSCLP1412R-08E-2/3	●	●	CPMB CPMH	12	120	17.8	7	11	4°	14	5	TS3D	TKY10F
FSCLP1412R-08E-1/2	●	●	CPMT *2	12	90	17.8	7	11	4°	14	3	TS3D	TKY10F
FSCLP1816R/L-09E	●	●	CPMX *2	16	220	21.8	9	15	3.5°	18	8	TS4D	TKY15F
FSCLP1816R-09E-2/3	●	●	CPGB	16	145	21.8	9	15	3.5°	18	5	TS4D	TKY15F
FSCLP1816R-09E-1/2	●	●	CPGT *2	16	110	21.8	9	15	3.5°	18	3	TS4D	TKY15F
FSCLP2220R/L-09E	●	●	0903 <sup>○</sup>	20	250	24.0	11	19	2°	22	8	TS4D	TKY15F
FSCLP2220R-09E-2/3	●	●	0903 <sup>○</sup>	20	165	24.0	11	19	2°	22	5	TS4D	TKY15F
FSCLP2220R-09E-1/2	●	●	0903 <sup>○</sup>	20	125	24.0	11	19	2°	22	3	TS4D	TKY15F

\*1 Clamp Torque (N · m) : TS253=1.0, TS3D=2.5, TS4D=3.5

\*2 By changing the clamp screw, it is possible to use the different insert. Please refer to page E005.

Note 1) The insert photos are only examples. The letters refer to the chip breaker and the dimension refers to the inscribed circle.

Note 2) Dimensions shown for insert corner RE 0.4. (Model of ☆ Mark is RE 0.8)

Note 3) When using insert with right and left hand chip breaker, please use left hand insert for right hand holder and right hand insert for left hand holder.

CC<sup>○</sup> type inserts > A140—A147

CP<sup>○</sup> type inserts > A148

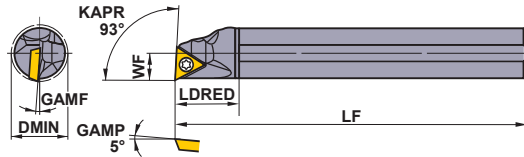
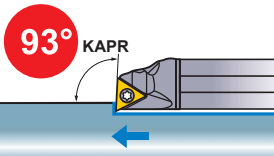
CBN & PCD inserts > B049—B053, B072

E

BORING BARS

# FSTUP

## TP $\odot$ inserts



Right hand tool holder shown.

Finish	Light	Medium
FV  (08,09,11,16)	SV  (08,09,11,16)	MV  (08,09,11,16)
PCD	CBN	
R/L-F  (08,09,11,16)	 (08,09,11,16)	

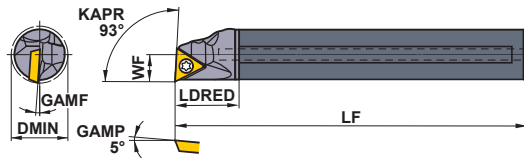
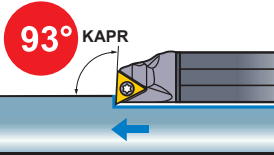
Order Number	Stock		Insert Number	Dimensions(mm)							Maximum Recommendation l/d Ratio	*1 Clamp Screw	Wrench	
	R	L		DCON	LF	LDRED	WF	H	GAMF	DMIN				
FSTUP1008R/L-08S	●	●	TPMB TPMH TPMX*2 TPGB TPGH TPGX*2	0802 $\odot$	8	125	18	5	7.2	10°	10	3	TS2D	TKY06F
FSTUP1210R/L-09S	●	●		0902 $\odot$	10	150	22.5	6	9	8°	12	3.5	TS25D	TKY08F
FSTUP1412R/L-09S	●	●		0902 $\odot$	12	150	27	7	11	7°	14	4	TS25D	TKY08F
FSTUP1210R/L-11S	●	●		1103 $\odot$	10	150	22.5	6	9	8°	12	3.5	TS31D	TKY10F
FSTUP1412R/L-11S	●	●		1103 $\odot$	12	150	27	7	11	7°	14	4	TS31D	TKY10F
FSTUP1816R/L-11S	●	●		1103 $\odot$	16	180	36	9	15	4°	18	5	TS31D	TKY10F
FSTUP2220R/L-11S	●	●		1103 $\odot$	20	220	45	11	19	0°	22	5	TS31D	TKY10F
FSTUP3225R/L-16S	●	●		1603 $\odot$	25	270	56.3	16	23.4	0°	32	5	TS4D	TKY15F

\* Clamp Torque (N · m) : TS2D=0.6, TS25D=1.0, TS31D=2.5, TS4D=3.5

# FSTUP\_E

Carbide shank with coolant hole

## TP $\odot$ inserts



Right hand tool holder shown.

Finish	Light	Medium
FV  (08,09,11)	SV  (08,09,11)	MV  (08,09,11)
PCD	CBN	
R/L-F  (08,09,11)	 (08,09,11)	

Order Number	Stock		Insert Number	Dimensions(mm)							Maximum Recommendation l/d Ratio	*1 Clamp Screw	Wrench	
	R	L		DCON	LF	LDRED	WF	H	GAMF	DMIN				
FSTUP1008R/L-08E	●	●	TPMB TPMH TPMX*2 TPGB TPGH TPGX*2	0802 $\odot$	8	140	13.8	5	7.2	10°	10	7	TS2D	TKY06F
FSTUP1008R-08E-2/3	●			0802 $\odot$	8	90	13.8	5	7.2	10°	10	5	TS2D	TKY06F
FSTUP1008R-08E-1/2	●			0802 $\odot$	8	70	13.8	5	7.2	10°	10	3	TS2D	TKY06F
FSTUP1210R/L-09E	●	●		0902 $\odot$	10	160	16.0	6	9	8°	12	7.5	TS25D	TKY08F
FSTUP1210R-09E-2/3	●			0902 $\odot$	10	105	16.0	6	9	8°	12	5	TS25D	TKY08F
FSTUP1210R-09E-1/2	●			0902 $\odot$	10	80	16.0	6	9	8°	12	3	TS25D	TKY08F
FSTUP1412R/L-09E	●	●		0902 $\odot$	12	180	17.8	7	11	7°	14	8	TS25D	TKY08F
FSTUP1412R-09E-2/3	●			0902 $\odot$	12	120	17.8	7	11	7°	14	5	TS25D	TKY08F
FSTUP1412R-09E-1/2	●			0902 $\odot$	12	90	17.8	7	11	7°	14	3	TS25D	TKY08F
FSTUP1816R/L-11E	●	●		1103 $\odot$	16	220	21.8	9	15	4°	18	8	TS31D	TKY10F
FSTUP1816R-11E-2/3	●			1103 $\odot$	16	145	21.8	9	15	4°	18	5	TS31D	TKY10F
FSTUP1816R-11E-1/2	●			1103 $\odot$	16	110	21.8	9	15	4°	18	3	TS31D	TKY10F
FSTUP2220R/L-11E	●	●		1103 $\odot$	20	250	24.0	11	19	0°	22	8	TS31D	TKY10F
FSTUP2220R-11E-2/3	●			1103 $\odot$	20	165	24.0	11	19	0°	22	5	TS31D	TKY10F
FSTUP2220R-11E-1/2	●			1103 $\odot$	20	125	24.0	11	19	0°	22	3	TS31D	TKY10F

\*1 Clamp Torque (N · m) : TS2D=0.6, TS25D=1.0, TS31D=2.5

\*2 By changing the clamp screw, it is possible to use the different insert. Please refer to page E005.

TP $\odot$  type inserts > A164—A166  
CBN & PCD inserts > B058—B060, B075, B076

CUTTING CONDITIONS > E012  
SPARE PARTS > Q001  
TECHNICAL DATA > R001

BORING BARS

E



# DIMPLE BAR

- Excellent vibration resistance due to light dimple head.
- Chip disposal is improved by having two channels for chip evacuation.
- A laser printed scale on the side for easy installation (Steel shank).
- l/d is 3 to 5 times the diameter (Carbide shank is 3 to 8 times the diameter).



## FSDUC

### DC $\odot$ inserts

Right hand tool holder shown.

Finish	Finish	Light	Light
FP (07,11)	FM (07,11)	LP (07,11)	LM (07,11)
Medium MP (07,11)	Medium MM (07,11)	PCD R/L-F (07,11)	CBN (07,11)

Order Number	Stock		Insert Number	Dimensions(mm)								Maximum Recommendation l/d Ratio	*		
	R	L		DCON	LF	LDRED	WF	WF2	H	GAMF	DMIN		Clamp Screw	Wrench	
FSDUC1410R/L-07S	●	●	DCMT DCMW DCGT DCGW	0702 $\odot$	10	150	18	8.3	3.3	9	7.5°	14	3.5	TS25	TKY08F
FSDUC1612R/L-07S	●	●		0702 $\odot$	12	150	20	9.3	3.3	11	6°	16	4	TS25	TKY08F
FSDUC2016R/L-07S	●	●		0702 $\odot$	16	180	20	11.3	3.3	15	5°	20	5	TS25	TKY08F
FSDUC3220R/L-11S $\star$	●	●		11T3 $\odot$	20	180	22.5	16.1	6.1	19	5°	32	5	TS43	TKY15F

\* Clamp Torque (N · m) : TS25=1.0, TS43=3.5

BORING BARS

## FSDUC $\cdot$ E

### Carbide shank with coolant hole DC $\odot$ inserts

Right hand tool holder shown.

Finish	Finish	Light	Light
FP (07,11)	FM (07,11)	LP (07,11)	LM (07,11)
Medium MP (07,11)	Medium MM (07,11)	PCD R/L-F (07,11)	CBN (07,11)

Order Number	Stock		Insert Number	Dimensions(mm)								Maximum Recommendation l/d Ratio	*		
	R	L		DCON	LF	LDRED	WF	WF2	H	GAMF	DMIN		Clamp Screw	Wrench	
FSDUC1410R/L-07E	●	●	DCMT DCMW DCGT DCGW	0702 $\odot$	10	160	16.0	8.3	3.3	9	7.5°	14	7.5	TS25	TKY08F
FSDUC1612R/L-07E	●	●		0702 $\odot$	12	180	17.8	9.3	3.3	11	6.0°	16	8	TS25	TKY08F
FSDUC2016R/L-07E	●	●		0702 $\odot$	16	220	21.8	11.3	3.3	15	5.0°	20	8	TS25	TKY08F
FSDUC3220R/L-11E $\star$	●	●		11T3 $\odot$	20	250	24.0	16.1	6.1	19	5.0°	32	8	TS43	TKY15F

\* Clamp Torque (N · m) : TS25=1.0, TS43=3.5

Note 1) The insert photos are only examples. The letters refer to the chip breaker and the dimension refers to the inscribed circle.

Note 2) Dimensions shown for insert corner RE 0.4. (Model of  $\star$  Mark is RE 0.8)

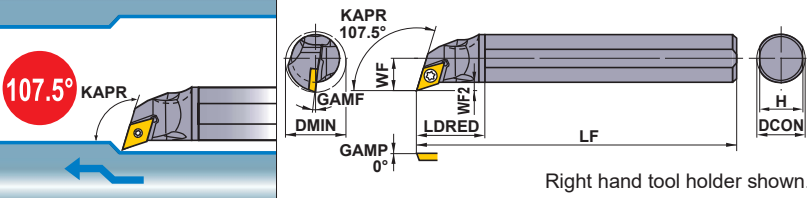
Note 3) When using insert with right and left hand chip breaker, please use left hand insert for right hand holder and right hand insert for left hand holder.









● : Inventory maintained in Japan.

DC $\odot$  type inserts > A149—A154  
CBN & PCD inserts > B054—B056, B073

# FSDQC

## DC $\odot$ inserts



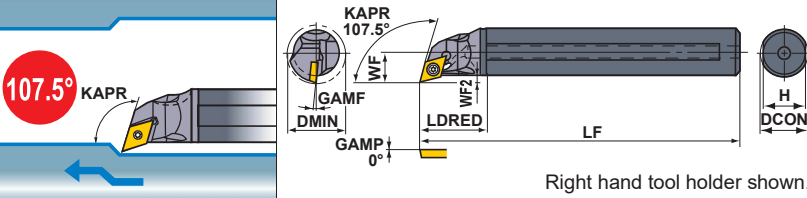
Finish	Finish	Light	Light
FP  (07,11)	FM  (07,11)	LP  (07,11)	LM  (07,11)
Medium MP  (07,11)	Medium MM  (07,11)	PCD R/L-F  (07,11)	CBN  (07,11)









Order Number	Stock		Insert Number	Dimensions(mm)								Maximum Recommendation l/d Ratio	*		
	R	L		DCON	LF	LDRED	WF	WF2	H	GAMF	DMIN		Clamp Screw	Wrench	
FSDQC1310R/L-07S	●	●	DCMT DCMW DCGT DCGW	0702 $\odot$	10	150	20.5	7.6	2.6	9	8°	13	3.5	TS25	TKY08F
FSDQC1612R/L-07S	●	●		0702 $\odot$	12	150	22.5	8.6	2.6	11	6°	16	4	TS25	TKY08F
FSDQC2016R/L-07S	●	●		0702 $\odot$	16	180	22.5	10.6	2.6	15	5°	20	5	TS25	TKY08F
FSDQC2520R/L-11S <sup>*</sup>	●	●		11T3 $\odot$	20	180	26	13.7	3.7	19	7°	25	5	TS43	TKY15F

\* Clamp Torque (N · m) : TS25=1.0, TS43=3.5

# FSDQC.E

## Carbide shank with coolant hole DC $\odot$ inserts



Finish	Finish	Light	Light
FP  (07,11)	FM  (07,11)	LP  (07,11)	LM  (07,11)
Medium MP  (07,11)	Medium MM  (07,11)	PCD R/L-F  (07,11)	CBN  (07,11)

Order Number	Stock		Insert Number	Dimensions(mm)								Maximum Recommendation l/d Ratio	*		
	R	L		DCON	LF	LDRED	WF	WF2	H	GAMF	DMIN		Clamp Screw	Wrench	
FSDQC1310R/L-07E	●	●	DCMT DCMW DCGT DCGW	0702 $\odot$	10	162	18.4	7.6	2.6	9	8°	13	7.5	TS25	TKY08F
FSDQC1612R/L-07E	●	●		0702 $\odot$	12	182	20.2	8.6	2.6	11	6°	16	8	TS25	TKY08F
FSDQC2016R/L-07E	●	●		0702 $\odot$	16	222	24.2	10.6	2.6	15	5°	20	8	TS25	TKY08F
FSDQC2520R/L-11E <sup>*</sup>	●	●		11T3 $\odot$	20	254	28.0	13.7	3.7	19	7°	25	8	TS43	TKY15F

\* Clamp Torque (N · m) : TS25=1.0, TS43=3.5

BORING BARS

E

# DIMPLE BAR

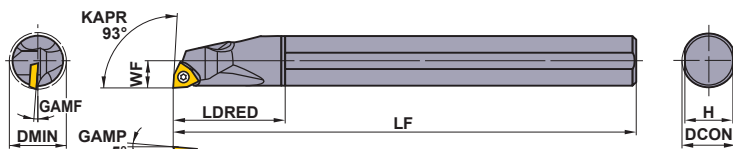
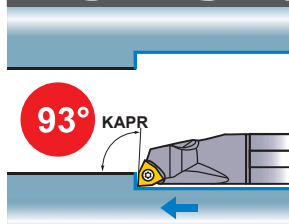
- Excellent vibration resistance due to light dimple head.
- Chip disposal is improved by having two channels for chip evacuation.
- A laser printed scale on the side for easy installation (Steel shank).
- l/d is 3 to 5 times the diameter (Carbide shank is 3 to 8 times the diameter).



TOOL NEWS

## FSWUB/P

### WB $\odot$ inserts, WP $\odot$ inserts



The  $\phi 8$  and  $\phi 10$  shanks are 0°

Right hand tool holder shown.

Finish  
R/L-F-FS



(L3,04,06)

Medium

MV



(L3,04,06)

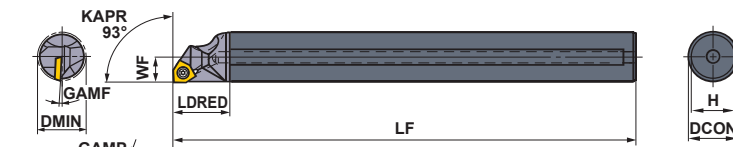
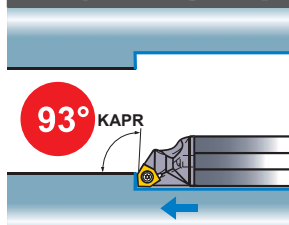
Order Number	Stock		Insert Number	Dimensions(mm)							Maximum Recommendation l/d Ratio	* Clamp Screw	Wrench	
	R	L		DCON	LF	LDRED	WF	H	GAMF	DMIN				
FSWUB1008R/L-L3S <sup>☆1</sup>	●	●	WBMT WBGT	L302 $\odot$	8	125	18	5	7.2	14°	10	3	TS2	TKY06F
FSWUB1210R/L-L3S <sup>☆1</sup>	●	●	WBMT WBGT	L302 $\odot$	10	150	22.5	6	9	11°	12	3.5	TS2	TKY06F
FSWUP1412R/L-04S	●	●	WPMT WPGT	0402 $\odot$	12	150	27	7	11	4°	14	4	TS253	TKY08F
FSWUP1816R/L-04S	●	●		0402 $\odot$	16	180	36	9	15	1°	18	5	TS253	TKY08F
FSWUP2220R/L-06S <sup>☆2</sup>	●	●		0603 $\odot$	20	220	45	11	19	2°	22	5	TS4	TKY15F
FSWUP3025R/L-06S <sup>☆2</sup>	●	●		0603 $\odot$	25	250	56.3	15	23.4	0°	30	5	TS4	TKY15F

\* Clamp Torque (N · m) : TS2=0.6, TS253=1.0, TS4=3.5

## FSWUB/P\_E

Carbide shank with coolant hole

### WB $\odot$ inserts, WP $\odot$ inserts



The  $\phi 8$  and  $\phi 10$  shanks are 0°

Right hand tool holder shown.

Finish  
R/L-F-FS



(L3,04,06)

Medium

MV



(L3,04,06)

Order Number	Stock		Insert Number	Dimensions(mm)							Maximum Recommendation l/d Ratio	* Clamp Screw	Wrench	
	R	L		DCON	LF	LDRED	WF	H	GAMF	DMIN				
FSWUB1008R/L-L3E <sup>☆1</sup>	●	●	WBMT WBGT	L302 $\odot$	8	140	13.8	5	7.2	14°	10	7	TS2	TKY06F
FSWUB1008R-L3E-2/3 <sup>☆1</sup>	●	●		L302 $\odot$	8	90	13.8	5	7.2	14°	10	5	TS2	TKY06F
FSWUB1008R-L3E-1/2 <sup>☆1</sup>	●	●		L302 $\odot$	8	70	13.8	5	7.2	14°	10	3	TS2	TKY06F
FSWUB1210R/L-L3E <sup>☆1</sup>	●	●		L302 $\odot$	10	160	16.0	6	9	11°	12	7.5	TS2	TKY06F
FSWUB1210R-L3E-2/3 <sup>☆1</sup>	●	●		L302 $\odot$	10	105	16.0	6	9	11°	12	5	TS2	TKY06F
FSWUB1210R-L3E-1/2 <sup>☆1</sup>	●	●		L302 $\odot$	10	80	16.0	6	9	11°	12	3	TS2	TKY06F
FSWUP1412R/L-04E	●	●	WPMT WPGT	0402 $\odot$	12	180	17.8	7	11	4°	14	8	TS253	TKY08F
FSWUP1412R-04E-2/3	●	●		0402 $\odot$	12	120	17.8	7	11	4°	14	5	TS253	TKY08F
FSWUP1412R-04E-1/2	●	●		0402 $\odot$	12	90	17.8	7	11	4°	14	3	TS253	TKY08F
FSWUP1816R/L-04E	●	●		0402 $\odot$	16	220	21.8	9	15	1°	18	8	TS253	TKY08F
FSWUP1816R-04E-2/3	●	●		0402 $\odot$	16	145	21.8	9	15	1°	18	5	TS253	TKY08F
FSWUP1816R-04E-1/2	●	●		0402 $\odot$	16	110	21.8	9	15	1°	18	3	TS253	TKY08F
FSWUP2220R/L-06E <sup>☆2</sup>	●	●		0603 $\odot$	20	250	24.0	11	19	2°	22	8	TS4	TKY15F
FSWUP 2220R-06E-2/3 <sup>☆2</sup>	●	●		0603 $\odot$	20	165	24.0	11	19	2°	22	5	TS4	TKY15F
FSWUP 2220R-06E-1/2 <sup>☆2</sup>	●	●		0603 $\odot$	20	125	24.0	11	19	2°	22	3	TS4	TKY15F

\* Clamp Torque (N · m) : TS2=0.6, TS253=1.0, TS4=3.5

Note 1) The insert photos are only examples. The letters refer to the chip breaker and the dimension refers to the inscribed circle.

Note 2) Dimensions shown for insert corner RE 0.4. (Model of ☆1 Mark is RE 0.2, Model of ☆2 Mark is RE 0.8)

Note 3) When using insert with right and left hand chip breaker, please use left hand insert for right hand holder and right hand insert for left hand holder.

● : Inventory maintained in Japan.

WB $\odot$  type inserts > A175

WP $\odot$  type inserts > A177

PCD inserts > B078

Order Number		Stock		Insert Number		Dimensions(mm)						Maximum Recommendation I/d Ratio	Tools				
						DCON	LF	LDRED	WF	WF2	H		GAMF	DMIN	Shim	Shim Pin	Clamp Screw
<b>FSVUC1612R/L-08S</b>	●●	VCMT	VCMT	0802	12	150	25	11	5.5	11	8°	16	4	—	—	TS202	TKY06F
<b>FSVUB2016R/L-11S</b>	●●	VBMT	VBMT	1103	16	180	32.5	15.5	8	15	8°	20	5	—	—	TS255	TKY08F
<b>FSVUB2520R/L-11S</b>	●●	VBMT	VBMT	1103	20	200	40.5	17.5	8	19	7°	25	5	—	—	TS255	TKY08F
<b>FSVUB3425R/L-16S</b> <sup>☆2</sup>	●●	VBET	VBET	1604	25	220	50	20.5	8.5	23.4	13°	34	5	SPSVN32	BCP141	TS35D	TKY15F
<b>FSVUB4032R/L-16S</b> <sup>☆2</sup>	●●	VBGW	VBGW	1604	32	250	84.0	27.5	12	30.4	9°	40	5	SPSVN32	BCP141	TS35D	TKY15F

\* Clamp Torque (N · m) : TS202=0.6, TS255=1.0, TS35D=3.5

Order Number		Stock		Insert Number		Dimensions(mm)						Maximum Recommendation I/d Ratio	Tools				
						DCON	LF	LDRED	WF	WF2	H		GAMF	DMIN	Shim	Shim Pin	Clamp Screw
<b>FSVPC1610R/L-08S</b>	●●	VCMT	VCMT	0802	10	150	25	8	3	9	8°	16	3.5	—	—	TS202	TKY06F
<b>FSVPC2012R/L-11S</b>	●●	VBMT	VBMT	1103	12	150	28	10	4.5	11	8°	20	4	—	—	TS255	TKY08F
<b>FSVPC2516R/L-11S</b>	●●	VBMT	VBMT	1103	16	180	35	12.5	5	15	5°	25	5	—	—	TS255	TKY08F
<b>FSVPC3020R/L-11S</b>	●●	VBMT	VBMT	1103	20	200	40	15	5	19	5°	30	5	—	—	TS255	TKY08F
<b>FSVPC3425R/L-16S</b> <sup>☆2</sup>	●●	VBET	VBET	1604	25	220	50	17	5	23.4	13°	34	5	SPSVN32	BCP141	TS35D	TKY15F
<b>FSVPC4032R/L-16S</b> <sup>☆2</sup>	●●	VBGW	VBGW	1604	32	250	55	22	6.5	30.4	9°	40	5	SPSVN32	BCP141	TS35D	TKY15F

\* Clamp Torque (N · m) : TS202=0.6, TS255=1.0, TS35D=3.5

VB type inserts > A167—A169  
 VC type inserts > A170—A172  
 CBN & PCD inserts > B061, B077

CUTTING CONDITIONS > E012  
 SPARE PARTS > Q001  
 TECHNICAL DATA > R001

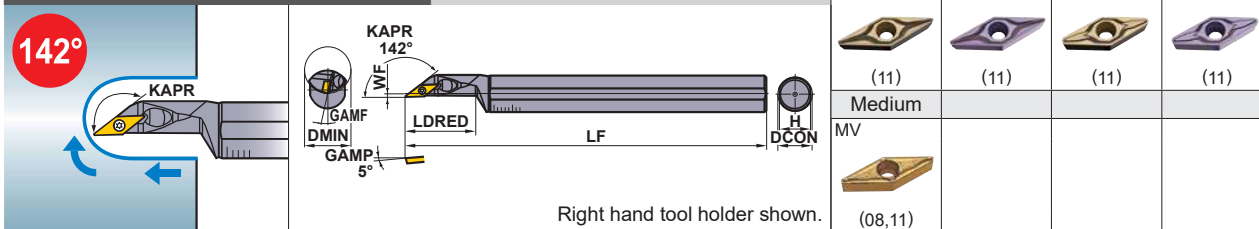
# DIMPLE BAR

- Excellent vibration resistance due to light dimple head.
- Chip disposal is improved by having two channels for chip evacuation.
- A laser printed scale on the side for easy installation (Steel shank).
- l/d is 3 to 5 times the diameter.



## FSVJB/C

### VC Inserts, VB Inserts



Right hand tool holder shown.

Order Number	Stock		Insert Number	Dimensions(mm)							Maximum Recommendation l/d Ratio	*		
	R	L		DCON	LF	LDRED	WF	H	GAMF	DMIN		Clamp Screw	Wrench	
FSVJC1612R/L-08S ☆	●	●	VCGT VCMT	0802	12	150	26	2	11	5°	16	4	TS202	TKY06F
FSVJC2016R/L-08S ☆	●	●	VCGT VCMT	0802	16	180	36	2	15	5°	20	5	TS202	TKY06F
FSVJB2520R/L-11S ☆	●	●	VBMT VBMW VBET VBGW	1103	20	200	37.5	2	19	5°	25	5	TS255	TKY08F
FSVJB3025R/L-11S ☆	●	●	VBMT VBMW VBET VBGW	1103	25	250	45	3.5	23.4	5°	30	5	TS255	TKY08F

\* Clamp Torque (N · m) : TS202=0.6, TS255=1.0

BORING BARS

## RECOMMENDED CUTTING CONDITIONS

Work Material	Cutting Mode	Breaker	Recom- mendation	Grade	Cutting Speed (m/min)	l/d ≤ 3 (Steel shank) l/d ≤ 6 (Carbide shank)		l/d = 4-5 (Steel shank) l/d = 7-8 (Carbide shank)	
						Feed (mm/rev)	Depth of Cut (mm)	Feed (mm/rev)	Depth of Cut (mm)
P Mild Steel ≤ 180HB	Finish	FP	①	NX2525	170 (120-220)	0.10 (0.05-0.15)	-0.5	0.10 (0.05-0.15)	-0.5
			②	MP3025	150 (100-200)	0.20 (0.10-0.25)	-1.0	0.15 (0.05-0.20)	-1.0
	Light	LP	①	NX2525	160 (110-210)	0.20 (0.10-0.25)	-1.0	0.15 (0.05-0.20)	-1.0
			②	MP3025	140 (90-190)	0.25 (0.15-0.35)	-2.0	0.20 (0.15-0.25)	-1.5
	Medium	MP	①	NX2525	150 (100-200)	0.25 (0.15-0.35)	-2.0	0.20 (0.15-0.25)	-1.5
			②	MP3025	140 (90-190)	0.10 (0.05-0.15)	-0.5	0.10 (0.05-0.15)	-0.5
Carbon Steel Alloy Steel 180-350HB	Finish	FP	①	MC6015	140 (90-190)	0.10 (0.05-0.15)	-0.5	0.10 (0.05-0.15)	-0.5
			②	NX2525	130 (80-180)	0.10 (0.05-0.15)	-0.5	0.10 (0.05-0.15)	-0.5
	Light	LP	①	MC6025	140 (90-190)	0.20 (0.10-0.25)	-1.0	0.15 (0.05-0.20)	-1.0
			②	MP3025	110 (60-160)	0.20 (0.10-0.25)	-1.0	0.15 (0.05-0.20)	-1.0
	Medium	MP	①	MC6025	130 (80-180)	0.25 (0.15-0.35)	-2.0	0.20 (0.15-0.25)	-1.5
			②	MP3025	100 (60-150)	0.25 (0.15-0.35)	-2.0	0.20 (0.15-0.25)	-1.5
M Stainless Steel ≤ 200HB	Finish	FM	①	VP15TF	150 (110-190)	0.10 (0.05-0.15)	-0.5	0.10 (0.05-0.15)	-0.5
			②	MC7025	125 (85-165)	0.20 (0.10-0.25)	-1.0	0.15 (0.05-0.20)	-1.0
	Light	LM	①	VP15TF	130 (90-170)	0.20 (0.10-0.25)	-1.0	0.15 (0.05-0.20)	-1.0
			②	MC7025	105 (70-135)	0.20 (0.15-0.25)	-2.0	0.20 (0.15-0.25)	-1.0
	Medium	MM	①	VP15TF	120 (80-160)	0.20 (0.15-0.25)	-2.0	0.20 (0.15-0.25)	-1.0
			②	MC7025	120 (80-160)	0.20 (0.15-0.25)	-2.0	0.20 (0.15-0.25)	-1.0
K Gray Cast Iron Tensile Strength ≤ 350MPa	Finish	F, FS	①	HT110	130 (90-160)	0.15 (0.10-0.20)	-0.5	0.15 (0.10-0.20)	-0.5
			②	MC5015	90 (60-120)	0.20 (0.15-0.25)	-2.0	0.20 (0.15-0.25)	-1.5
N Aluminium Alloy	Finish	F, FS	①	HT110	300 (200-400)	0.10 (0.05-0.15)	-0.5	0.10 (0.05-0.15)	-0.5
			②	MD220	200 (150-250)	0.10 (0.05-0.15)	-2.0	0.10 (0.05-0.15)	-1.0
H Hardened Steel 35-65HRC	Finish	Flat Top	①	MB8120	100 (80-200)	0.10 (0.05-0.15)	-0.15	0.10 (0.05-0.15)	-0.1

When vibrations occur, reduce cutting speed by 30%.

The depth of cut needs to be less than the corner diameter when using the FSVJ type.

Note 1) The insert photos are only examples. The letters refer to the chip breaker and the dimension refers to the inscribed circle.

Note 2) Dimensions shown for insert corner RE 0.4. (Model of ☆ Mark is RE 0.8)

Note 3) When using insert with right and left hand chip breaker, please use left hand insert for right hand holder and right hand insert for left hand holder.

● : Inventory maintained in Japan.

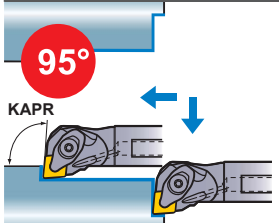
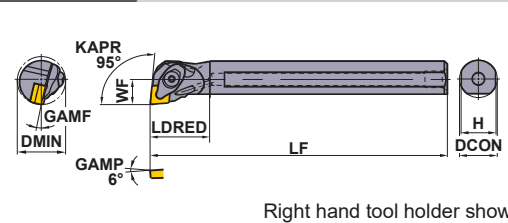
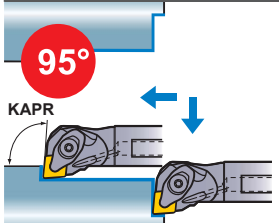
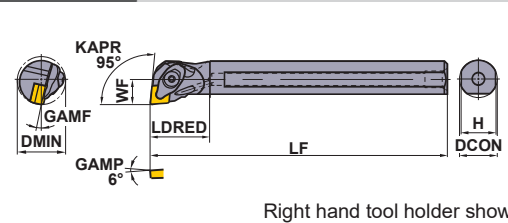
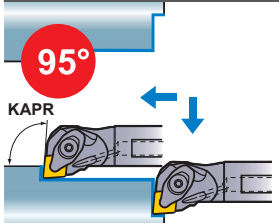
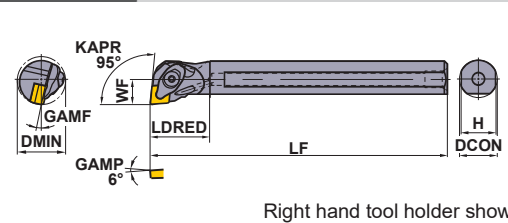
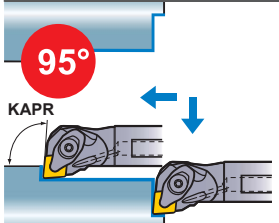
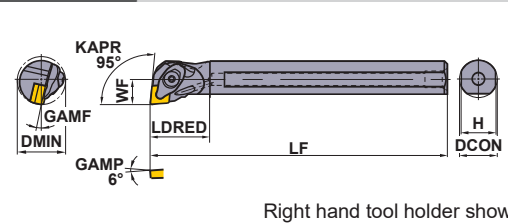






VB type inserts > A167-A169

VC type inserts > A170-A172

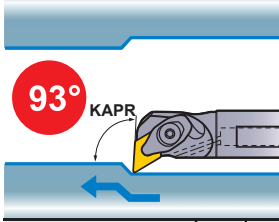
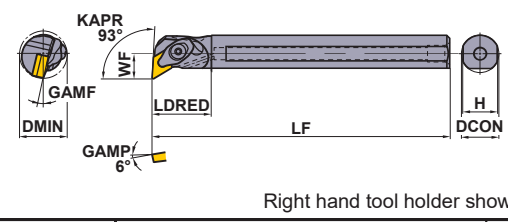
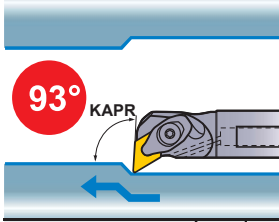
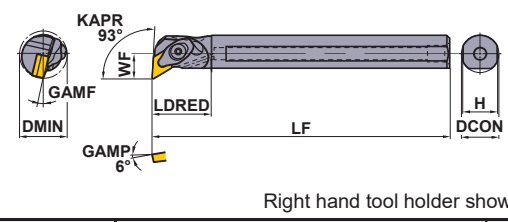
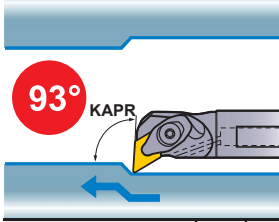
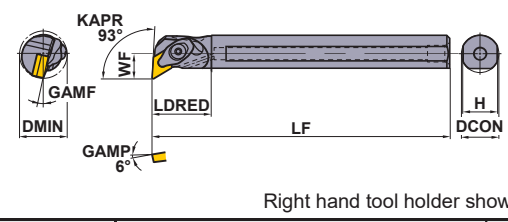
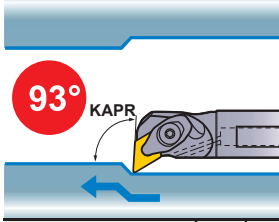
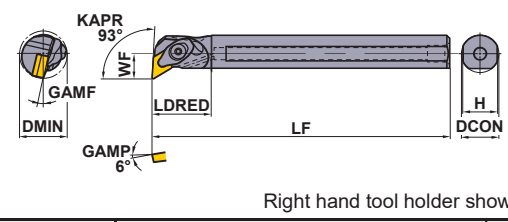






CBN & PCD inserts > B061, B062, B077

# DOUBLE CLAMP DIMPLE BAR

- Economical negative insert.
- Single action type.
- Excellent vibration resistance due to a light dimple head. (With coolant hole.)
- l/d is 3 to 4 times the diameter.

A○○○-DCLN		With coolant hole		CN○○inserts		Finish	Light	Light	Light							
				FP	SA	LP	LM									
				(12)	(12)	(12)	(12)									
				Medium	Medium	Stainless	CBN/PCD									
				MP	Standard	MM										
Right hand tool holder shown.																
Order Number	Stock	Insert Number	Dimensions(mm)							 Shim	 Shim Pin	 Clamp Bridge	 Spring	 Clamp Screw *	 Wrench	
			DCON	LF	LDRED	WF	H	GAMF	DMIN							
A25R-DCLNR/L12	●●	CN○○A	1204○○	25	200	40	17	23	13°	32	LLSCP42	LLP14	DCK2613	DCS1	DC0621T	TKY20F
A32S-DCLNR/L12	●●	CN○○G	1204○○	32	250	50	22	30	13°	40	LLSCN42	LLP14	DCK2613	DCS1	DC0621T	TKY20F
A40T-DCLNR/L12	●●	CN○○M	1204○○	40	300	63	27	37	10°	50	LLSCN42	LLP14	DCK2613	DCS1	DC0621T	TKY20F

\* Clamp Torque (N · m) : DC0621T=5.0

A○○○-DDUN		With coolant hole		DN○○inserts		Finish	Light	Medium	Medium							
				FP	LP	MP	MH									
				(15)	(15)	(15)	(15)									
				Medium	Stainless	G class	CBN/PCD									
				Standard	MM	R/L										
Right hand tool holder shown.																
Order Number	Stock	Insert Number	Dimensions(mm)							 Shim	 Shim Pin	 Clamp Bridge	 Spring	 Clamp Screw *	 Wrench	
			DCON	LF	LDRED	WF	H	GAMF	DMIN							
A25R-DDUNR/L15	●●	DN○○A	1504○○	25	200	40	17	23	13°	35	LLSDP42	LLP14	DCK2613	DCS1	DC0621T	TKY20F
A32S-DDUNR/L15	●●	DN○○G	1504○○	32	250	50	22	30	13°	40	LLSDN42	LLP14	DCK2613	DCS1	DC0621T	TKY20F
A40T-DDUNR/L15	●●	DN○○M	1504○○	40	300	63	27	37	10°	50	LLSDN42	LLP14	DCK2613	DCS1	DC0621T	TKY20F

\* Clamp Torque (N · m) : DC0621T=5.0

## RECOMMENDED CUTTING CONDITIONS

Work Material	Hardness	Cutting Mode	l/d ≤ 3			l/d = 3-4		
			Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
<b>P</b> Carbon Steel Alloy Steel	180-350HB	Medium	110 (80-140)	0.25 (0.1-0.4)	-5.0	110 (80-140)	0.2 (0.1-0.3)	-4.0
<b>M</b> Stainless Steel	≤200HB	Medium	80 (60-100)	0.2 (0.1-0.3)	-4.0	70 (50-100)	0.15 (0.1-0.25)	-3.0
<b>K</b> Gray Cast Iron	Tensile Strength ≤350MPa	Medium	80 (60-100)	0.25 (0.1-0.4)	-5.0	80 (60-100)	0.2 (0.1-0.3)	-4.0

CN○○ type inserts > A100-A106  
 DN○○ type inserts > A107-A113  
 CBN & PCD inserts > B028-B031, B068

SPARE PARTS > Q001  
 TECHNICAL DATA > R001



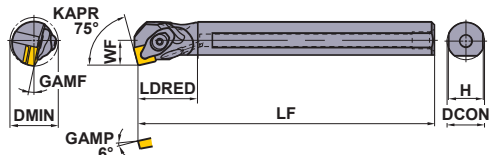
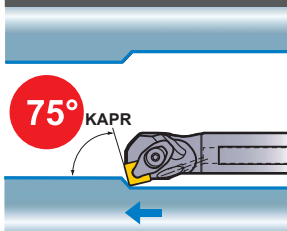
# BORING BARS

## DOUBLE CLAMP DIMPLE BAR

- Economical negative insert.
- Single action type.
- Excellent vibration resistance due to a light dimple head. (With coolant hole.)
- l/d is 3 to 4 times the diameter.

### A○○○-DSKN

With coolant hole SN○○inserts



Right hand tool holder shown.

Finish	Light	Medium	Medium
FP (12)	LP (12)	MP (12)	MH (12)
Medium	Stainless	G class	CBN/PCD
Standard (12)	MM (12)	R/L (12)	(12)

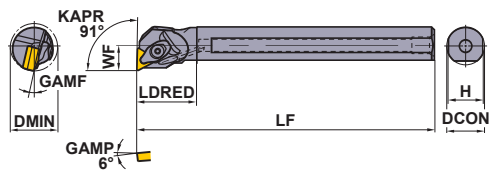
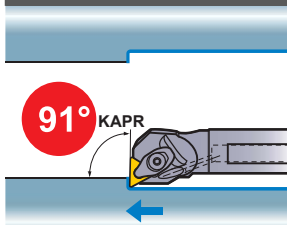
Order Number	Stock		Insert Number	Dimensions(mm)							Tools						
	R	L		DCON	LF	LDRED	WF	H	GAMF	DMIN	Shim	Shim Pin	Clamp Bridge	Spring	Clamp Screw	Wrench	
A25R-DSKNR/L12	●	●	SNMA SNMG SNMM SNGA SNGG	1204	25	200	40	17	23	13°	32	LLSSP42	LLP14	DCK2613	DCS1	DC0621T	TKY20F
A32S-DSKNR/L12	●	●	SNMA SNMG SNMM SNGA SNGG	1204	32	250	50	22	30	13°	40	LLSSN42	LLP14	DCK2613	DCS1	DC0621T	TKY20F

\* Clamp Torque (N · m) : DC0621T=5.0

BORING BARS

### A○○○-DTFN

With coolant hole TN○○inserts



Right hand tool holder shown.

Finish	Light	Medium	Medium
FP (16)	LP (16)	MP (16)	MH (16)
Medium	Stainless	G class	CBN/PCD
Standard (16)	MM (16)	R/L (16)	(16)

Order Number	Stock		Insert Number	Dimensions(mm)							Tools						
	R	L		DCON	LF	LDRED	WF	H	GAMF	DMIN	Shim	Shim Pin	Clamp Bridge	Spring	Clamp Screw	Wrench	
A25R-DTFNR/L16	●	●	TN○○A TN○○G TN○○M	1604	25	200	40	17	23	13°	32	LLSTP32	LLP23	DCK2211	DCS2	DC0520T	TKY15F
A32S-DTFNR/L16	●	●	TN○○A TN○○G TN○○M	1604	32	250	50	22	30	13°	40	LLSTN32	LLP23	DCK2211	DCS2	DC0520T	TKY15F

\* Clamp Torque (N · m) : DC0520T=3.5

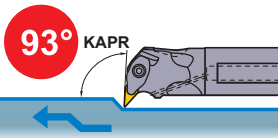
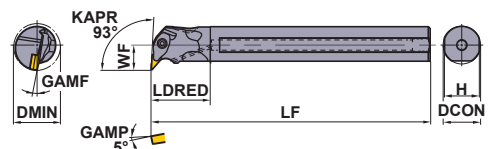
Note 1) The insert photos are only examples. The letters refer to the chip breaker and the dimension refers to the inscribed circle.

Note 2) Dimensions shown for insert corner RE 0.8.

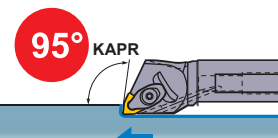
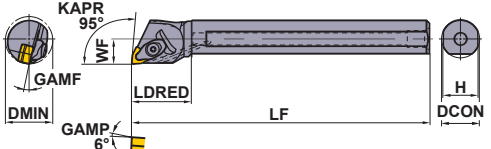
Note 3) When using insert with right and left hand chip breaker, please use left hand insert for right hand holder and right hand insert for left hand holder.

● : Inventory maintained in Japan.

SN○○ type inserts	> A115—A120
TN○○ type inserts	> A121—A127
CBN & PCD inserts	> B037—B041, B069

A○○○-DVUN		With coolant hole		VN○○inserts		Finish	Light	Medium	Medium								
				Right hand tool holder shown.		FP (16)	LP (16)	MP (16)	MH (16)								
						Medium Standard	Stainless MM	G class R/L	CBN/PCD (16)								
Order Number	Stock		Insert Number	Dimensions(mm)						Tools							
	R	L		DCON	LF	LDRED	WF	H	GAMF	DMIN	Shim	Shim Pin	Clamp Bridge	Spring	Clamp Screw	Wrench	
<b>A40T-DVUNR/L16</b>	●	●	VN A VN G VN M	1604	40	300	63	27	37	9°	50	DCSVN32	LLP13	DCK3113	DCS2	DC0520T	TKY15F

\* Clamp Torque (N · m) : DC0520T=3.5

A○○○-DWLN		With coolant hole		WN○○inserts		Finish	Light	Medium	Medium								
				Right hand tool holder shown.		FP (08)	LP (06, 08)	MP (06,08)	MK (08)								
						Medium Standard	Medium - Rough RP	Stainless MM									
Order Number	Stock		Insert Number	Dimensions(mm)						Tools							
	R	L		DCON	LF	LDRED	WF	H	GAMF	DMIN	Shim	Shim Pin	Clamp Bridge	Spring	Clamp Screw	Wrench	
<b>A25R-DWLN R/L06</b>	●	●	WNMA WNMG	0604	25	200	40	17	23	13°	35	LLSWP32	LLP23	DCK2211	DCS2	DC0520T	TKY15F
<b>A25R-DWLN R/L08</b>	●	●	WNMA	0804	25	200	40	17	23	13°	35	LLSWP42	LLP14	DCK2613	DCS1	DC0621T	TKY20F
<b>A32S-DWLN R/L08</b>	●	●	WNMG	0804	32	250	50	22	30	13°	40	LLSWN42	LLP14	DCK2613	DCS1	DC0621T	TKY20F
<b>A40T-DWLN R/L08</b>	●	●	WNGA	0804	40	300	63	27	37	10°	50	LLSWN42	LLP14	DCK2613	DCS1	DC0621T	TKY20F

\* Clamp Torque (N · m) : DC0520T=3.5, DC0621T=5.0

## RECOMMENDED CUTTING CONDITIONS

Work Material	Hardness	Cutting Mode	l/d≤3			l/d=3-4		
			Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
<b>P</b> Carbon Steel Alloy Steel	180-350HB	Medium	110 (80-140)	0.25 (0.1-0.4)	-5.0	110 (80-140)	0.2 (0.1-0.3)	-4.0
<b>M</b> Stainless Steel	≤200HB	Medium	80 (60-100)	0.2 (0.1-0.3)	-4.0	70 (50-100)	0.15 (0.1-0.25)	-3.0
<b>K</b> Gray Cast Iron	Tensile Strength ≤350MPa	Medium	80 (60-100)	0.25 (0.1-0.4)	-5.0	80 (60-100)	0.2 (0.1-0.3)	-4.0

VN○○ type inserts > A128-A131  
 WN○○ type inserts > A132-A136  
 CBN & PCD inserts > B042-B044, B070

SPARE PARTS > Q001  
 TECHNICAL DATA > R001

# BORING BARS

## MICRO-DEX BORING BARS

- The minimum cutting diameter is from  $\phi 5$ .
- 7° positive insert, carbide shank type.
- Easy-to-use tool geometries.
- Suitable for small workpieces.



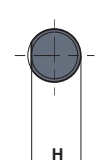
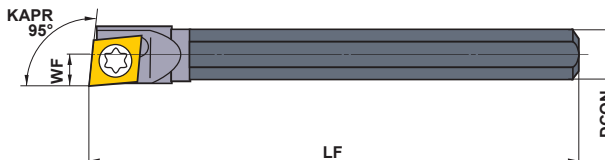
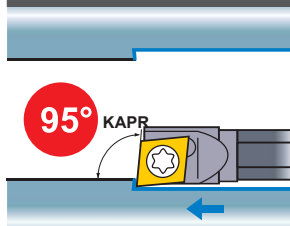
TOOL NEWS

### CC SCLC

Carbide shank

### CC inserts

Finish



(03,04)



(03,04)

Right hand tool holder shown.

Order Number	Stock R	Insert Number	Dimensions(mm)							*2 Clamp Screw	*2 Wrench
			DCON	LF	WF	H	GAMF	DMIN			
C04GSCLCR03	●	*1 CCGT	4	90	2.5	3.7	15°	5	TS16	TKY06F	
C05HSCLCR03	●	CCGW	5	100	3.0	4.7	13°	6	TS16	TKY06F	
C06JSCLCR04	●	CCMW	6	110	3.5	5.7	13°	7	TS21	TKY06F	
C07KSCLCR04	●		7	125	4.0	6.7	11°	8	TS21	TKY06F	

\*1 Diameter of inscribed circle is special. (For SCLC type)

\*2 Clamp Torque (N · m) : TS16=0.6, TS21=0.6

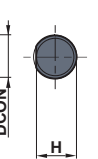
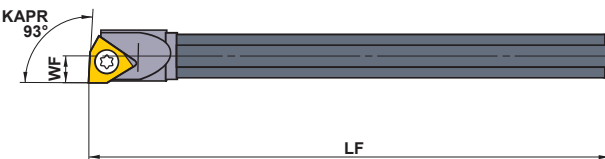
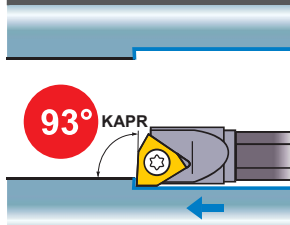
BORING BARS

### CC SWUB

Carbide shank

### WB inserts

Finish



(02,L3)

Right hand tool holder shown.

Order Number	Stock R	Insert Number	Dimensions(mm)							* Clamp Screw	* Wrench
			DCON	LF	WF	H	GAMF	DMIN			
C05HSWUBR02	●	WBGT	5	100	3.0	4.7	15°	6	TS21	TKY06F	
C06JSWUBR02	●	WBMT	6	110	3.5	5.7	13°	7	TS2C	TKY06F	
C07KSWUBRL3	●		7	125	4.0	6.7	15°	8	TS2	TKY06F	

\* Clamp Torque (N · m) : TS21=0.6, TS2C=0.6, TS2=0.6

Note 1) The insert photos are only examples. The letters refer to the chip breaker and the dimension refers to the inscribed circle.

Note 2) Dimensions shown for insert corner RE 0.2.

Note 3) When using insert with right and left hand chip breaker, please use left hand insert for right hand holder and right hand insert for left hand holder.

● : Inventory maintained in Japan.

CCGT type inserts > A141

WBGT type inserts > A175

CBN inserts > B051, B052

C07KSTUC			Carbide shank		TCGT inserts					Finish R/L-F		
										 (06)		
Order Number	Stock R	Insert Number	Dimensions(mm)								*	
			DCON	LF	WF	WF2	H	GAMF	DMIN	Clamp Screw	Wrench	
<b>C07KSTUCR06</b>	●	TCGT 0601	7	125	4.0	0.35	6.7	12°	8	TS2C	TKY06F	

\* Clamp Torque (N · m) : TS2C=0.6

E  
BORING BARS

## RECOMMENDED CUTTING CONDITIONS

	Work Material	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)	l/d
P	Carbon Steel, Alloy Steel 180–350HB	<b>NX2525</b>	80 (40–120)	0.03 (0.01–0.05)	0.2 (0.1–0.3)	3–5
M	Stainless Steel ≤200HB	<b>VP15TF</b>	80 (40–120)	0.03 (0.01–0.05)	0.2 (0.1–0.3)	3–5
K	Gray Cast Iron ≤350MPa	<b>VP15TF</b>	80 (40–120)	0.03 (0.01–0.05)	0.2 (0.1–0.3)	3–5
N	Non-Ferrous Material	<b>VP15TF</b>	120 (80–160)	0.05 (0.01–0.08)	0.4 (0.1–0.6)	3–5
		<b>MD220</b>	120 (80–160)	0.05 (0.01–0.08)	0.4 (0.1–0.6)	3–5
H	Hardened Steel 35–65HRC	<b>MB8110</b>	80 (40–120)	0.03 (0.01–0.05)	0.1 (0.03–0.2)	3–5

TCGT type inserts > A160  
 SPARE PARTS > Q001  
 TECHNICAL DATA > R001

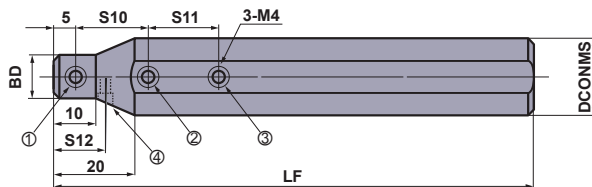
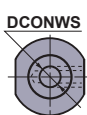
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# BORING BARS

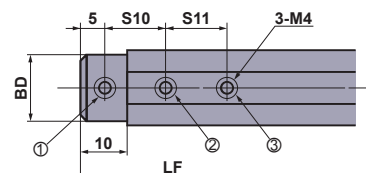
## MICRO-DEX BORING BARS



### STANDARD HOLDER



RBH2200N has a temporary set screw for different machine specifications.  
(Represented by number 4)



RBH15800N, RBH1600N,  
RBH1900N

E

BORING BARS

Order Number	Stock	Dimensions(mm)						MICRO-DEX	*Clamp Screw				Wrench	Torque (N·m)	
		DCONMS	DCONWS	BD	LF	S10	S11		S12	①	②	③			④
RBH15840N	●	15.875	4	15	100	15	15	—	C04GS	A	A	A	—	HKY20F	2.0
RBH15850N	●	15.875	5	15	100	15	15	—	C05HS	A	A	A	—	HKY20F	2.0
RBH15860N	●	15.875	6	15	100	15	15	—	C06JS	A	A	A	—	HKY20F	2.0
RBH15870N	●	15.875	7	15	100	20	20	—	C07KS	A	A	A	—	HKY20F	2.0
RBH1640N	●	16	4	15	100	15	15	—	C04GS	A	A	A	—	HKY20F	2.0
RBH1650N	●	16	5	15	100	15	15	—	C05HS	A	A	A	—	HKY20F	2.0
RBH1660N	●	16	6	15	100	15	15	—	C06JS	A	A	A	—	HKY20F	2.0
RBH1670N	●	16	7	15	100	20	20	—	C07KS	A	A	A	—	HKY20F	2.0
*2 RBH19040N	●	19.05	4	18	125	15	15	—	C04GS	B	B	B	—	HKY20F	2.0
*2 RBH19050N	●	19.05	5	18	125	15	15	—	C05HS	B	B	B	—	HKY20F	2.0
*2 RBH19060N	●	19.05	6	18	125	15	15	—	C06JS	B	B	B	—	HKY20F	2.0
*2 RBH19070N	●	19.05	7	18	125	20	20	—	C07KS	B	B	B	—	HKY20F	2.0
RBH2040N	●	20	4	13	125	15	15	—	C04GS	A	B	B	—	HKY20F	2.0
RBH2050N	●	20	5	14	125	15	15	—	C05HS	A	B	B	—	HKY20F	2.0
RBH2060N	●	20	6	15	125	15	15	—	C06JS	A	B	B	—	HKY20F	2.0
RBH2070N	●	20	7	16	125	20	20	—	C07KS	A	B	B	—	HKY20F	2.0
RBH2240N	●	22	4	13	125	15	15	12.5	C04GS	A	B	B	A	HKY20F	2.0
RBH2250N	●	22	5	14	125	15	15	12.5	C05HS	A	B	B	A	HKY20F	2.0
RBH2260N	●	22	6	15	125	15	15	15	C06JS	A	B	B	A	HKY20F	2.0
RBH2270N	●	22	7	16	125	20	20	15	C07KS	A	B	B	A	HKY20F	2.0
RBH2540N	●	25	4	13	150	15	15	—	C04GS	A	C	C	—	HKY20F	2.0
RBH2550N	●	25	5	14	150	15	15	—	C05HS	A	C	C	—	HKY20F	2.0
RBH2560N	●	25	6	15	150	15	15	—	C06JS	A	C	C	—	HKY20F	2.0
RBH2570N	●	25	7	16	150	20	20	—	C07KS	A	C	C	—	HKY20F	2.0
RBH25440N	●	25.4	4	13	150	15	15	—	C04GS	A	C	C	—	HKY20F	2.0
RBH25450N	●	25.4	5	14	150	15	15	—	C05HS	A	C	C	—	HKY20F	2.0
RBH25460N	●	25.4	6	15	150	15	15	—	C06JS	A	C	C	—	HKY20F	2.0
RBH25470N	●	25.4	7	16	150	20	20	—	C07KS	A	C	C	—	HKY20F	2.0

\*1 Order number of clamp screw A=HSS04004, B=HSS04006, C=HSS04008

\*2 Revised order number.

Conventional Order Number	Revised Order Number
RBH1940N	RBH19040N
RBH1950N	RBH19050N
RBH1960N	RBH19060N
RBH1970N	RBH19070N

● : Inventory maintained in Japan. (MICRO-MINI TWIN is available in 1 piece in one pack.)

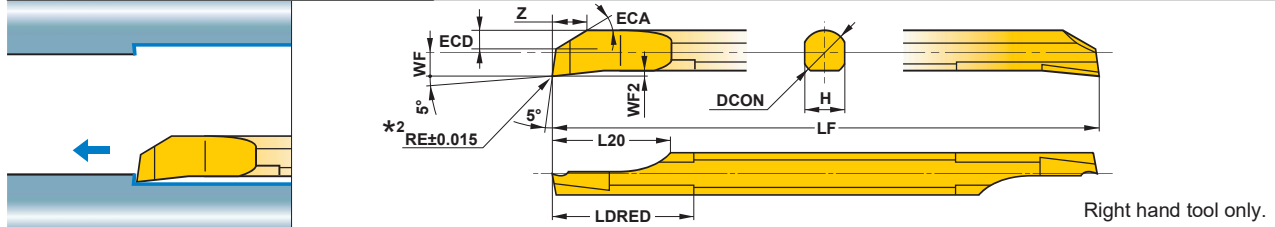
# MICRO-MINI TWIN



TOOL NEWS

## CB

For internal machining



Order Number	Stock		Breaker	Dimensions(mm)										
	Micro Grain	Coated		DMIN*1		RE	DCON	LF	L20	LDRED	WF	WF2	H	Z
	TF15	VP15TF		l/d ≤ 3	l/d > 3									
CB02RS	●	●	without	2.2	3.6	0.05	2	50	5	6	1	0.25	1.8	1.4
CB02RS-B	●	●	with	2.2	3.9	0.05	2	50	5	6	1	0.25	1.8	1.4
CB02RS-01	●	●	without	2.2	3.6	0.1	2	50	5	6	1	0.25	1.8	1.4
CB02RS-01B	●	●	with	2.2	4.2	0.1	2	50	5	6	1	0.25	1.8	1.4
CB02RS-02	●	●	without	2.2	3.6	0.2	2	50	5	6	1	0.25	1.8	1.4
CB02RS-02B	●	●	with	2.2	4.9	0.2	2	50	5	6	1	0.25	1.8	1.4
CB03RS	●	●	without	3.2	4.2	0.05	3	50	7.5	9	1.5	0.35	2.7	2.3
CB03RS-B	●	●	with	3.2	4.4	0.05	3	50	7.5	9	1.5	0.35	2.7	2.3
CB03RS-01	●	●	without	3.2	4.2	0.1	3	50	7.5	9	1.5	0.35	2.7	2.3
CB03RS-01B	●	●	with	3.2	4.5	0.1	3	50	7.5	9	1.5	0.35	2.7	2.3
CB03RS-02	●	●	without	3.2	4.2	0.2	3	50	7.5	9	1.5	0.35	2.7	2.3
CB03RS-02B	●	●	with	3.2	4.8	0.2	3	50	7.5	9	1.5	0.35	2.7	2.3
CB04RS	●	●	without	4.2	5.1	0.05	4	60	10	12	2	0.45	3.6	3.1
CB04RS-B	●	●	with	4.2	5.2	0.05	4	60	10	12	2	0.45	3.6	3.1
CB04RS-01	●	●	without	4.2	5.1	0.1	4	60	10	12	2	0.45	3.6	3.1
CB04RS-01B	●	●	with	4.2	5.3	0.1	4	60	10	12	2	0.45	3.6	3.1
CB04RS-02	●	●	without	4.2	5.1	0.2	4	60	10	12	2	0.45	3.6	3.1
CB04RS-02B	●	●	with	4.2	5.5	0.2	4	60	10	12	2	0.45	3.6	3.1
CB05RS	●	●	without	5.2	6.0	0.05	5	70	12.5	15	2.5	0.55	4.5	3.9
CB05RS-B	●	●	with	5.2	6.1	0.05	5	70	12.5	15	2.5	0.55	4.5	3.9
CB05RS-02	●	●	without	5.2	6.0	0.2	5	70	12.5	15	2.5	0.55	4.5	3.9
CB05RS-02B	●	●	with	5.2	6.4	0.2	5	70	12.5	15	2.5	0.55	4.5	3.9
CB06RS	●	●	without	6.2	7.2	0.05	6	75	12.5	18	3	0.65	5.4	4.7
CB06RS-B	●	●	with	6.2	7.3	0.05	6	75	12.5	18	3	0.65	5.4	4.7
CB06RS-02	●	●	without	6.2	7.2	0.2	6	75	12.5	18	3	0.65	5.4	4.7
CB06RS-02B	●	●	with	6.2	7.8	0.2	6	75	12.5	18	3	0.65	5.4	4.7
CB07RS	●	●	without	7.2	8.6	0.05	7	85	12.5	21	3.5	0.75	6.3	5.5
CB07RS-B	●	●	with	7.2	8.8	0.05	7	85	12.5	21	3.5	0.75	6.3	5.5
CB07RS-02	●	●	without	7.2	8.6	0.2	7	85	12.5	21	3.5	0.75	6.3	5.5
CB07RS-02B	●	●	with	7.2	9.2	0.2	7	85	12.5	21	3.5	0.75	6.3	5.5
CB08RS	●	●	without	8.2	9.5	0.05	8	95	15	24	4	0.85	7.2	6.3
CB08RS-B	●	●	with	8.2	9.6	0.05	8	95	15	24	4	0.85	7.2	6.3
CB08RS-02	●	●	without	8.2	9.5	0.2	8	95	15	24	4	0.85	7.2	6.3
CB08RS-02B	●	●	with	8.2	9.8	0.2	8	95	15	24	4	0.85	7.2	6.3

\*1 DMIN : Min. Cutting Diameter

\*2 The RE dimension represents the size before grinding a chip breaker.

## RECOMMENDED CUTTING CONDITIONS

Work Material	Micro-Mini Twin CB				Micro-Mini Twin CR		
	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)	l/d	Cutting Speed (m/min)	Feed(mm/rev)	
						03RS/04RS	05RS
<b>P</b> Carbon Steel Alloy Steel 180-350HB	80 (40-120)	0.03 (0.01-0.05)	0.2 (0.1-0.3)	3-5	80 (40-120)	0.02 (0.01-0.03)	0.03 (0.01-0.05)
<b>M</b> Stainless Steel ≤200HB	80 (40-120)	0.03 (0.01-0.05)	0.2 (0.1-0.3)	3-5	80 (40-120)	0.02 (0.01-0.03)	0.03 (0.01-0.05)
<b>K</b> Gray Cast Iron ≤350MPa	80 (40-120)	0.03 (0.01-0.05)	0.2 (0.1-0.3)	3-5	80 (40-120)	0.03 (0.01-0.05)	0.03 (0.01-0.05)
<b>N</b> Non-Ferrous Material	120 (80-160)	0.05 (0.01-0.08)	0.3 (0.1-0.5)	3-5	120 (80-160)	0.03 (0.01-0.05)	0.05 (0.01-0.08)

Note 1) Recommend wet machining.

BORING BARS

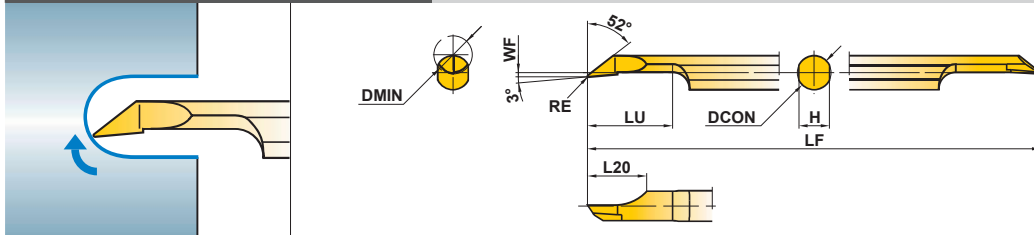


## MICRO-MINI TWIN



CR

For internal copying



Right hand tool only.

Order Number	Stock		Breaker	Dimensions(mm)							
	Micro Grain	Coated		DMIN	RE	DCON	LF	LU	L20	WF	H
	TF15	VP15TF									
CR03RS-01	●	●	without	3.5	0.1	3	50	8	6	0.15	2.7
CR03RS-01B	●	●	with	3.5	0.1	3	50	8	6	0.15	2.7
CR04RS-01	●	●	without	4.5	0.1	4	60	10	7	0.15	3.6
CR04RS-01B	●	●	with	4.5	0.1	4	60	10	7	0.15	3.6
CR05RS-01	●	●	without	5.5	0.1	5	70	12	8	0.15	4.5
CR05RS-01B	●	●	with	5.5	0.1	5	70	12	8	0.15	4.5

BORING BARS

## RECOMMENDED CUTTING CONDITIONS

Work Material	Micro-Mini Twin CB				Micro-Mini Twin CR		
	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)	l/d	Cutting Speed (m/min)	Feed(mm/rev)	
						03RS/04RS	05RS
P Carbon Steel Alloy Steel 180-350HB	80 (40-120)	0.03 (0.01-0.05)	0.2 (0.1-0.3)	3-5	80 (40-120)	0.02 (0.01-0.03)	0.03 (0.01-0.05)
M Stainless Steel ≤200HB	80 (40-120)	0.03 (0.01-0.05)	0.2 (0.1-0.3)	3-5	80 (40-120)	0.02 (0.01-0.03)	0.03 (0.01-0.05)
K Gray Cast Iron ≤350MPa	80 (40-120)	0.03 (0.01-0.05)	0.2 (0.1-0.3)	3-5	80 (40-120)	0.03 (0.01-0.05)	0.03 (0.01-0.05)
N Non-Ferrous Material	120 (80-160)	0.05 (0.01-0.08)	0.3 (0.1-0.5)	3-5	120 (80-160)	0.03 (0.01-0.05)	0.05 (0.01-0.08)

Note 1) Recommend wet machining.

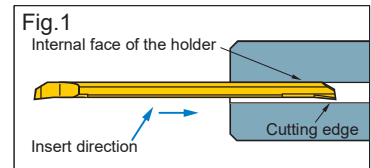
Note 2) The recommended tool overhang of CR type is LU+2mm.

● : Inventory maintained in Japan. (MICRO-MINI TWIN is available in 1 piece in one pack.)

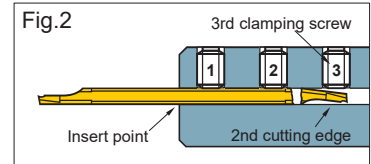
## ■ PRECAUTIONS WHEN USING THE MICRO-MINI TWIN

● When using a holder for general purpose / small automatic lathe:

- 1 To avoid chipping of the 2nd cutting edge take care when inserting the boring bar into the holder. Refer to fig.1. If the 2nd edge contacts the internal face of the holder there is a possibility that it may chip.



- 2 When using this type of holder, there is a possibility that damage to the shank and the 2nd cutting edge can occur. Make sure that the clamping screws are tightened to the set torque value. Additionally make sure that there is no clamping screw near the 2nd cutting edge as this can break the boring bar.

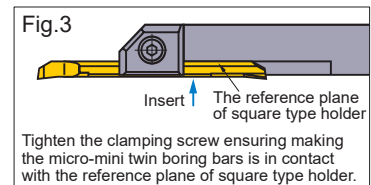


◎ When using Mitsubishi holders

When using holders with a tool overhang of recommended quantity, ensure that the 3rd clamping screw is removed prior to machining. (RBH1620N, RBH19020N, RBH2020N and RBH2520N do not have the 3rd screw.) The set torque value for clamping screw is 2.0 N•m.

● When using a square type holder:

- 1 When installing the boring bar into the holder, tighten the clamp screws after ensuring the flats on the tool holder are parallel to the reference flats on the micro-mini bar. Refer to fig.3.
- 2 Make sure that the clamping screws are tightened to the recommended values.
- 3 Do not tighten the clamp screw without a bar in place, otherwise the bridge will be deformed.



E  
BORING BARS

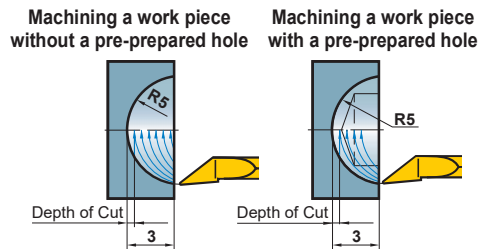
## MACHINING METHODS OF THE CR TYPE

### ● Profile turning

By drilling a pre-prepared hole, the machining time will be shortened and chip control will be improved.

<Cutting Conditions>

Workpiece : JIS S20C  
Holder : CR05RS-01B  
Cutting Speed : 80m/min  
Feed : 0.05mm/rev  
Depth of Cut : 0.05mm  
Wet Cutting

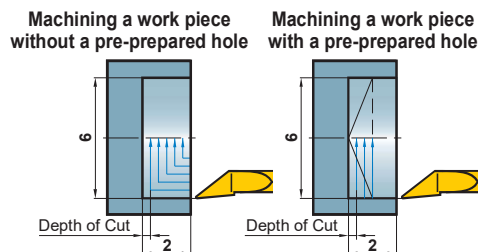


### ● Inner end facing

By drilling a pre-prepared hole, the machining time will be shortened and chip control will be improved.

<Cutting Conditions>

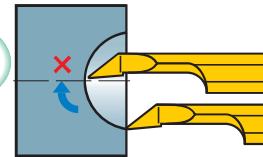
Workpiece : JIS S20C  
Holder : CR05RS-01B  
Cutting Speed : 80m/min  
Feed : 0.05mm/rev  
Depth of Cut : 0.05mm  
Wet Cutting



## ■ NOTES FOR USE

### Profile turning, Inner end facing

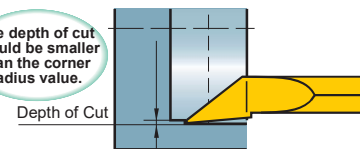
The cutting edge should not be cross the centre line of the work piece.



If the cutting edge crosses the centre line of a work piece, the cutting edge can fracture.

### Copying

The depth of cut should be smaller than the corner radius value.



With depths of cut larger than the corner radius value, burrs will be formed.

# BORING BARS

## MICRO-MINI BORING BARS

- Solid carbide type with minimum cutting diameter  $\phi 3.2$ mm.
- l/d is 5 times the diameter.
- Cutting edge can be shaped according to the application thus, it covers a wide application range (threading, grooving, copying, etc).

94°



### STANDARD MICRO-MINI BORING BARS (Solid carbide boring bar)

Order Number	Stock	Dimensions(mm)						Geometry
		CW	DCON	LF	LDRED	DMIN*	F2	
C03FR-BLS	●	2.0	3	80	15	3.2	1.0	
C04FR-BLS	●	2.5	4	80	20	4.2	1.5	
C05HR-BLS	●	3.0	5	100	25	5.2	2.0	

\*DMIN : Min. Cutting Diameter

E

BORING BARS

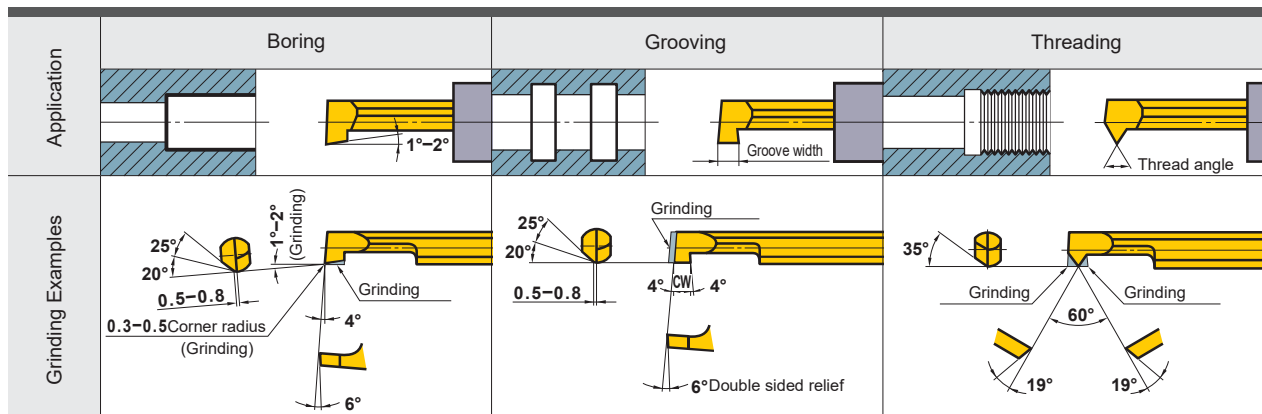
### RECOMMENDED CUTTING CONDITIONS

	Work Material	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)	l/d	Edge Condition (mm)	
						*Corner Radius or BCH	*Honing
P	Carbon Steel, Alloy Steel 180-350HB	40 (30-50)	0.05 (-0.1)	0.2 (0.1-0.3)	5	0.1-0.5	0.01-0.05
M	Stainless Steel ≤200HB	40 (30-50)	0.05 (-0.1)	0.2 (0.1-0.3)	5	≤0.4	≤0.03 (Honing not required)
K	Gray Cast Iron ≤350MPa	40 (30-50)	0.05 (-0.05)	0.2 (0.1-0.3)	5	0.1-0.5	0.01-0.05
N	Non-Ferrous Material	80 (60-100)	0.05 (-0.1)	0.3 (0.1-0.5)	5	0.1-0.5	≤0.03 (Honing not required)

\*Cutting edge is not honed. Please hone according to the workpiece before machining.

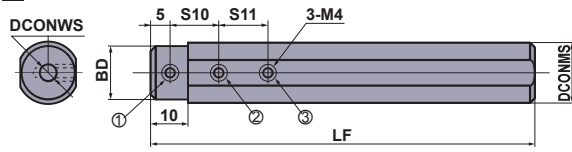
### GRINDING THE CUTTING EDGE OF MICRO-MINI BORING BAR

- MICRO-MINI boring bar can be applied to boring and grooving without any modifications. It can also be reground as shown below.
- For shaping and regrounding, use a diamond whetstone approximately #250-#400. Please grind according to the application using the figure below as a reference.

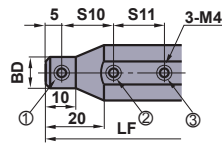


● : Inventory maintained in Japan. (MICRO MINI is available in 1 piece in one pack.)

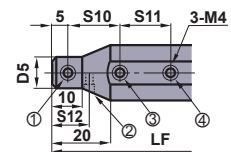
# ROUND TYPE HOLDER



RBH158, RBH16, RBH190



RBH20, RBH25, RBH254



RBH22

Order Number	Stock	Dimensions(mm)							Micro-Mini C	Micro-Mini Twin		*1 Clamp Screw				Wrench	Torque (N·m)
		DCONMS	DCONWS	BD	LF	S10	S11	S12		CB	CR	①	②	③	④		
RBH15820N	●	15.875	2	15	100	10	—	—	02RS-(B) 02RS-0 (B)	—	B	B	—	—	HKY20F	2.0	
RBH15830N	●	15.875	3	15	100	10	10	—	03FR-BLS 03RS-(B) 03RS-0 (B)	03RS-01(B)	A	A	A	—	HKY20F	2.0	
RBH15840N	●	15.875	4	15	100	15	15	—	04FR-BLS 04RS-(B) 04RS-0 (B)	04RS-01(B)	A	A	A	—	HKY20F	2.0	
RBH15850N	●	15.875	5	15	100	15	15	—	05HR-BLS 05RS-(B) 05RS-0 (B)	05RS-01(B)	A	A	A	—	HKY20F	2.0	
RBH15860N	●	15.875	6	15	100	15	15	—	06RS-(B) 06RS-0 (B)	—	A	A	A	—	HKY20F	2.0	
RBH15870N	●	15.875	7	15	100	20	20	—	07RS-(B) 07RS-0 (B)	—	A	A	A	—	HKY20F	2.0	
RBH15880N	●	15.875	8	15	100	20	20	—	08RS-(B) 08RS-0 (B)	—	D	D	D	—	HKY20F	2.0	
RBH1620N	●	16	2	15	100	10	—	—	02RS-(B) 02RS-0 (B)	—	B	B	—	—	HKY20F	2.0	
RBH1630N	●	16	3	15	100	10	10	—	03FR-BLS 03RS-(B) 03RS-0 (B)	03RS-01(B)	A	A	A	—	HKY20F	2.0	
RBH1640N	●	16	4	15	100	15	15	—	04FR-BLS 04RS-(B) 04RS-0 (B)	04RS-01(B)	A	A	A	—	HKY20F	2.0	
RBH1650N	●	16	5	15	100	15	15	—	05HR-BLS 05RS-(B) 05RS-0 (B)	05RS-01(B)	A	A	A	—	HKY20F	2.0	
RBH1660N	●	16	6	15	100	15	15	—	06RS-(B) 06RS-0 (B)	—	A	A	A	—	HKY20F	2.0	
RBH1670N	●	16	7	15	100	20	20	—	07RS-(B) 07RS-0 (B)	—	A	A	A	—	HKY20F	2.0	
RBH1680N	●	16	8	15	100	20	20	—	08RS-(B) 08RS-0 (B)	—	D	D	D	—	HKY20F	2.0	
*2 RBH19020N	●	19.05	2	18	125	10	—	—	02RS-(B) 02RS-0 (B)	—	C	C	—	—	HKY20F	2.0	
*2 RBH19030N	●	19.05	3	18	125	10	10	—	03FR-BLS 03RS-(B) 03RS-0 (B)	03RS-01(B)	B	B	B	—	HKY20F	2.0	
*2 RBH19040N	●	19.05	4	18	125	15	15	—	04FR-BLS 04RS-(B) 04RS-0 (B)	04RS-01(B)	B	B	B	—	HKY20F	2.0	
*2 RBH19050N	●	19.05	5	18	125	15	15	—	05HR-BLS 05RS-(B) 05RS-0 (B)	05RS-01(B)	B	B	B	—	HKY20F	2.0	
*2 RBH19060N	●	19.05	6	18	125	15	15	—	06RS-(B) 06RS-0 (B)	—	B	B	B	—	HKY20F	2.0	
*2 RBH19070N	●	19.05	7	18	125	20	20	—	07RS-(B) 07RS-0 (B)	—	B	B	B	—	HKY20F	2.0	
RBH19080N	●	19.05	8	18	125	20	20	—	08RS-(B) 08RS-0 (B)	—	A	A	A	—	HKY20F	2.0	
RBH2020N	●	20	2	11	125	10	—	—	02RS-(B) 02RS-0 (B)	—	A	A	—	—	HKY20F	2.0	
RBH2030N	●	20	3	12	125	10	10	—	03FR-BLS 03RS-(B) 03RS-0 (B)	03RS-01(B)	A	A	B	—	HKY20F	2.0	
RBH2040N	●	20	4	13	125	15	15	—	04FR-BLS 04RS-(B) 04RS-0 (B)	04RS-01(B)	A	B	B	—	HKY20F	2.0	
RBH2050N	●	20	5	14	125	15	15	—	05HR-BLS 05RS-(B) 05RS-0 (B)	05RS-01(B)	A	B	B	—	HKY20F	2.0	
RBH2060N	●	20	6	15	125	15	15	—	06RS-(B) 06RS-0 (B)	—	A	B	B	—	HKY20F	2.0	
RBH2070N	●	20	7	16	125	20	20	—	07RS-(B) 07RS-0 (B)	—	A	B	B	—	HKY20F	2.0	
RBH2080N	●	20	8	17	125	20	20	—	08RS-(B) 08RS-0 (B)	—	A	A	A	—	HKY20F	2.0	
RBH2220N	●	22	2	11	125	10	—	10	02RS-(B) 02RS-0 (B)	—	A	B	—	A	HKY20F	2.0	
RBH2230N	●	22	3	12	125	10	10	10	03FR-BLS 03RS-(B) 03RS-0 (B)	03RS-01(B)	A	B	C	A	HKY20F	2.0	
RBH2240N	●	22	4	13	125	15	15	12.5	04FR-BLS 04RS-(B) 04RS-0 (B)	04RS-01(B)	A	B	B	A	HKY20F	2.0	
RBH2250N	●	22	5	14	125	15	15	12.5	05HR-BLS 05RS-(B) 05RS-0 (B)	05RS-01(B)	A	B	B	A	HKY20F	2.0	
RBH2260N	●	22	6	15	125	15	15	15	06RS-(B) 06RS-0 (B)	—	A	B	B	A	HKY20F	2.0	
RBH2270N	●	22	7	16	125	20	20	15	07RS-(B) 07RS-0 (B)	—	A	B	B	A	HKY20F	2.0	
RBH2280N	●	22	8	17	125	20	20	15	08RS-(B) 08RS-0 (B)	—	A	B	B	A	HKY20F	2.0	
RBH2520N	●	25	2	11	150	10	—	—	02RS-(B) 02RS-0 (B)	—	A	B	—	—	HKY20F	2.0	
RBH2530N	●	25	3	12	150	10	10	—	03FR-BLS 03RS-(B) 03RS-0 (B)	03RS-01(B)	A	B	C	—	HKY20F	2.0	
RBH2540N	●	25	4	13	150	15	15	—	04FR-BLS 04RS-(B) 04RS-0 (B)	04RS-01(B)	A	C	C	—	HKY20F	2.0	
RBH2550N	●	25	5	14	150	15	15	—	05HR-BLS 05RS-(B) 05RS-0 (B)	05RS-01(B)	A	C	C	—	HKY20F	2.0	
RBH2560N	●	25	6	15	150	15	15	—	06RS-(B) 06RS-0 (B)	—	A	C	C	—	HKY20F	2.0	
RBH2570N	●	25	7	16	150	20	20	—	07RS-(B) 07RS-0 (B)	—	A	C	C	—	HKY20F	2.0	
RBH2580N	●	25	8	17	150	20	20	—	08RS-(B) 08RS-0 (B)	—	A	B	B	—	HKY20F	2.0	
RBH25420N	●	25.4	2	11	150	10	—	—	02RS-(B) 02RS-0 (B)	—	A	B	—	—	HKY20F	2.0	
RBH25430N	●	25.4	3	12	150	10	10	—	03FR-BLS 03RS-(B) 03RS-0 (B)	03RS-01(B)	A	B	C	—	HKY20F	2.0	
RBH25440N	●	25.4	4	13	150	15	15	—	04FR-BLS 04RS-(B) 04RS-0 (B)	04RS-01(B)	A	C	C	—	HKY20F	2.0	
RBH25450N	●	25.4	5	14	150	15	15	—	05HR-BLS 05RS-(B) 05RS-0 (B)	05RS-01(B)	A	C	C	—	HKY20F	2.0	
RBH25460N	●	25.4	6	15	150	15	15	—	06RS-(B) 06RS-0 (B)	—	A	C	C	—	HKY20F	2.0	
RBH25470N	●	25.4	7	16	150	20	20	—	07RS-(B) 07RS-0 (B)	—	A	C	C	—	HKY20F	2.0	
RBH25480N	●	25.4	8	17	150	20	20	—	08RS-(B) 08RS-0 (B)	—	A	B	B	—	HKY20F	2.0	

\*1 Order number of clamp screw A=HSS04004, B=HSS04006, C=HSS04008, D=HSS04003 \*2 Revised order number.

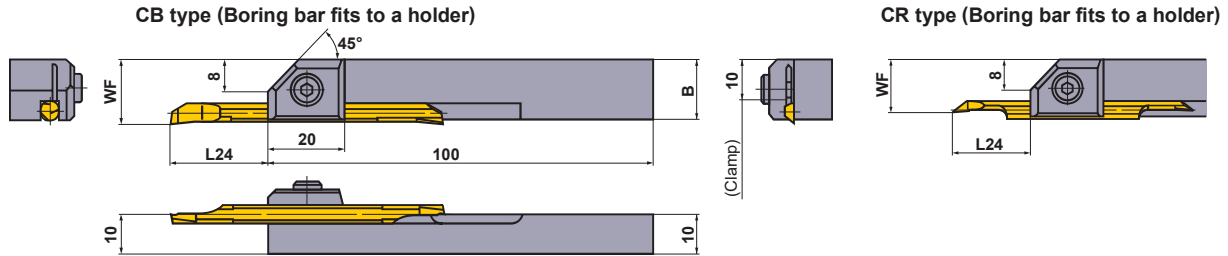
Conventional Order Number	Revised Order Number	Conventional Order Number	Revised Order Number
RBH1920N	RBH19020N	RBH1950N	RBH19050N
RBH1930N	RBH19030N	RBH1960N	RBH19060N
RBH1940N	RBH19040N	RBH1970N	RBH19070N

SPARE PARTS > Q001  
TECHNICAL DATA > R001

## MICRO-MINI TWIN



### ■ SQUARE TYPE HOLDER



Order Number	Stock	Dimensions(mm)						Micro-Mini Twin		Clamp Screw	Wrench	Torque (N·m)
		WF		L24 *		B		CB	CR			
		CB	CR	CB	CR	CB	CR					
<b>SBH1020R</b>	●	13	—	6—24 (6—10)		—	12.9	02RS(-B) 02RS-0(B)	—	HSC04010	HKY30R	4.8
<b>SBH1030R</b>	●	14	12.65	8.5—22 (9—15)		11—19.5 (12)	13.8	03RS(-B) 03RS-0(B)	03RS-01(B)	HSC05012	HKY40R	9.5
<b>SBH1040R</b>	●	15	13.15	11—29.5 (12—20)		13—27.5 (14)	14.7	04RS(-B) 04RS-0(B)	04RS-01(B)	HSC05012	HKY40R	9.5
<b>SBH1050R</b>	●	16	13.65	13.5—37 (15—25)		15—35.5 (16)	15.6	05RS(-B) 05RS-0(B)	05RS-01(B)	HSC05012	HKY40R	9.5
<b>SBH1060R</b>	●	17	—	13.5—42 (18—30)		—	16.5	06RS(-B) 06RS-0(B)	—	HSC05012	HKY40R	9.5
<b>SBH1070R</b>	●	18	—	13.5—52 (21—35)		—	17.4	07RS(-B) 07RS-0(B)	—	HSC05012	HKY40R	9.5

Note 1) The MICRO-DEX and the MICRO-MINI cannot be fit to square holders.

\*L24 is the length of overhang for sufficient clamping, and ( ) is the recommended length for machining of carbon and alloy steel.

# F TYPE BORING BARS

- The minimum cutting diameter is from  $\phi 10$ .
- 11° positive insert.
- Screw-on type.
- l/d is 3 to 5 times the diameter (Carbide shank is 7 times the diameter).

FSTU1		TP $\odot$ inserts									Finish	Flat Top	
		Right hand tool holder shown.									R/L		
											PCD	CBN/PCD	
											R/L-F		
											(09,11)	(08,09,11)	
Order Number	Stock		Insert Number	Dimensions(mm)							*		
	R	L		DCON	LF	LDRED	WF	H	GAMF	DMIN	Clamp Screw	Wrench	
FSTU108R/L	●	●	TPGX TPMX	0802 $\odot$	8	125	18	5	7	15°	10	CS200T	TKY06F
FSTU110R/L	●	●		0902 $\odot$	10	150	22	6	9	13°	12	CS250T	TKY08F
FSTU112R/L	●	●		0902 $\odot$	12	180	25	8	11	10°	16	CS250T	TKY08F
FSTU116R/L	●	●		1103 $\odot$	16	200	30	11	14	7°	22	CS300890T	TKY08F

\* Clamp Torque (N · m) : CS200T=0.6, CS250T=1.0, CS300890T=1.0

FSTU2		Carbide shank TP $\odot$ inserts									Finish	Flat Top	
		Right hand tool holder shown.									R/L		
											PCD	CBN/PCD	
											R/L-F		
											(09,11)	(08,09,11)	
Order Number	Stock		Insert Number	Dimensions(mm)							*		
	R	L		DCON	LF	LDRED	WF	H	GAMF	DMIN	Clamp Screw	Wrench	
FSTU208R/L	●	●	TPGX TPMX	0802 $\odot$	8	125	13	5	7	15°	10	CS200T	TKY06F
FSTU210R/L	●	●		0902 $\odot$	10	150	16	6	9	13°	12	CS250T	TKY08F
FSTU212R/L	●	●		0902 $\odot$	12	180	19	8	11	10°	16	CS250T	TKY08F
FSTU216R/L	●	●		1103 $\odot$	16	200	26	11	14	7°	22	CS300890T	TKY08F

\* Clamp Torque (N · m) : CS200T=0.6, CS250T=1.0, CS300890T=1.0

## RECOMMENDED CUTTING CONDITIONS

Steel Shank			l/d ≤ 3			l/d = 3-4 (Shank Diameter ≥ 25mm)		
Carbide Shank			l/d ≤ 5			l/d = 6-7		
Work Material	Hardness	Cutting Mode	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
P Carbon Steel Alloy Steel	180-350HB	Light Cutting	130 (90-160)	0.1 (0.05-0.15)	0.2	120 (80-150)	0.1 (0.05-0.15)	0.2
		Medium Cutting	90 (60-120)	0.25 (0.15-0.35)	-3.0	80 (50-110)	0.15 (0.1-0.2)	-1.5
M Stainless Steel	≤200HB	Light Cutting	140 (100-180)	0.1 (0.05-0.15)	0.2	140 (100-180)	0.1 (0.05-0.15)	0.2
		Medium Cutting	70 (50-90)	0.2 (0.15-0.25)	-2.0	60 (40-80)	0.15 (0.1-0.2)	-1.0
N Aluminium Alloy	-	Light Cutting	300 (200-400)	0.1 (0.05-0.15)	0.2	300 (200-400)	0.1 (0.05-0.15)	0.2
		Medium Cutting	200 (150-250)	0.1 (0.05-0.15)	-2.0	200 (150-250)	0.1 (0.05-0.15)	-1.5

Note 1) The insert photos are only examples. The letters refer to the chip breaker and the dimension refers to the inscribed circle.

Note 2) Dimensions shown for insert corner RE 0.4.

Note 3) When using insert with right and left hand chip breaker, please use left hand insert for right hand holder and right hand insert for left hand holder.

TP $\odot$  type inserts > A165, A166  
CBN & PCD inserts > B059, B060, B075, B076

SPARE PARTS > Q001  
TECHNICAL DATA > R001

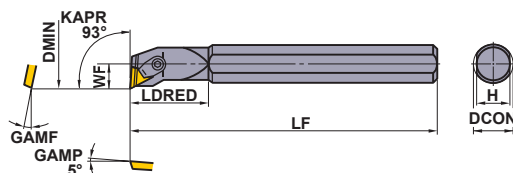
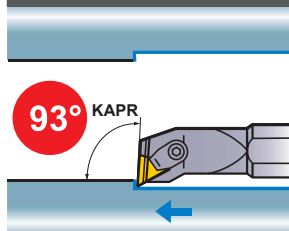


# BORING BARS

## F TYPE BORING BARS

- The minimum cutting diameter is from  $\phi 22$ .
- 11° positive insert.
- Clamp-on type.
- l/d is 3 to 5 times the diameter (Carbide shank is 7 times the diameter).

### FCTU1



Right hand tool holder shown.

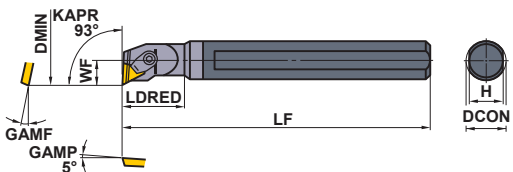
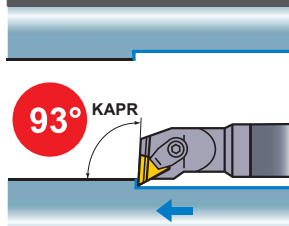
TP Inserts		M Class	M Class	G class
Standard				R/L 
		(11,16)	(11,16)	(11,16)
G class				
		(11,16)	(11,16)	

Order Number	Stock		Insert Number	Dimensions(mm)							Shim	Shim Pin	Clamp Set*	Breaker Piece	Wrench	
	R	L		DCON	LF	LDRED	WF	H	GAMF	DMIN						
FCTU116R/L	●	●	TPMN TPMR TPGN TPGR	1103	16	200	30	11	14	7°	22	—	—	C3	CBT2N	HKY25R
FCTU120R/L ☆	●	●		1603	20	200	37	13	18	5°	26	—	—	C4	CBT3F	HKY30R
FCTU125R/L ☆ (4 Side Flat Shank)	●	●		1603	25	250	40	16	22	5°	32	PT32	BCP202	C4	CBT3F	HKY30R
FCTU132R/L ☆ (4 Side Flat Shank)	●	●		1603	32	300	45	20	29	0°	40	PT32	BCP201	C4	CBT3F	HKY30R

\* Clamp Torque (N · m) : C3=2.2, C4=3.3

BORING BARS

### FCTU2



Right hand tool holder only.

TP Inserts		M Class	M Class	G class
Standard				R/L 
		(11,16)	(11,16)	(11,16)
G class				
		(11,16)	(11,16)	

Order Number	Stock		Insert Number	Dimensions(mm)							Shim	Shim Pin	Clamp Set*	Breaker Piece	Wrench	
	R	L		DCON	LF	LDRED	WF	H	GAMF	DMIN						
FCTU216R	●	●	TPMN TPMR TPGN TPGR	1103	16	200	26	11	14	7°	22	—	—	C3	CBT2N	HKY25R
FCTU220R ☆	●	●		1603	20	200	33	13	18	5°	26	—	—	C4	CBT3F	HKY30R
FCTU225R ☆	●	●		1603	25	250	37	16	22	5°	32	PT32	BCP202	C4	CBT3F	HKY30R

\* Clamp Torque (N · m) : C3=2.2, C4=3.3

Note 1) The insert photos are only examples. The letters refer to the chip breaker and the dimension refers to the inscribed circle.

Note 2) Dimensions shown for insert corner RE 0.4.(Model of ☆ Mark is RE 0.8)

Note 3) When using insert with right and left hand chip breaker, please use left hand insert for right hand holder and right hand insert for left hand holder.

● : Inventory maintained in Japan.

TP type inserts > A182  
CBN & PCD inserts > B065, B081

# F TYPE BORING BARS

- The minimum cutting diameter is from  $\phi 5.8$ .
- 7° positive insert.
- Screw-on type.
- l/d is 3 to 5 times the diameter (Carbide shank is 7 times the diameter).

FSWL1			WC $\odot$ inserts								Finish	Light	
											R/L	Standard	
											 (02,L3)		 (02,L3,04,06)
											 (L3,04,06)		
Order Number	Stock		Insert Number	Dimensions(mm)							*		
	R	L		DCON	LF	LDRED	WF	H	GAMF	DMIN	Clamp Screw	Wrench	
FSWL108R/LS	●	●	WCMT WCGT	0201 $\odot$	8	100	19	2.9	7	17°	5.8	TS21	TKY06F
FSWL108R/LM	●	●	WCMT WCGT WCMW	L302 $\odot$	8	100	25	4	7	15°	8	TS2	TKY06F
FSWL108R/L	●	●	WCMT	0402 $\odot$	8	125	10	5	7	15°	10	TS25	TKY08F
FSWL110R/L	●	●		0402 $\odot$	10	150	12	6	9	13°	12	TS25	TKY08F
FSWL112R/L	☆	●	WCMW	06T3 $\odot$	12	180	15	8	11	13°	16	TS4	TKY15F
FSWL116R/L	☆	●		06T3 $\odot$	16	200	20	11	14	7°	22	TS4	TKY15F

\* Clamp Torque (N · m) : TS21=0.6, TS2=0.6, TS25=1.0, TS4=3.5

FSWL2			Carbide shank WC $\odot$ inserts								Finish	Light	
											R/L	Standard	
											 (02,L3)		 (02,L3,04,06)
											 (L3,04,06)		
Order Number	Stock		Insert Number	Dimensions(mm)							*		
	R	L		DCON	LF	LDRED	WF	H	GAMF	DMIN	Clamp Screw	Wrench	
FSWL208R/LS	●	●	WCMT WCGT	0201 $\odot$	8	122	25	2.9	7	17°	5.8	TS21	TKY06F
FSWL208R/LM	●	●	WCMT WCGT WCMW	L302 $\odot$	8	125	33	4	7	15°	8	TS2	TKY06F
FSWL208R/L	●	●	WCMT	0402 $\odot$	8	125	10	5	7	15°	10	TS25	TKY08F
FSWL210R/L	●	●		0402 $\odot$	10	150	12	6	9	13°	12	TS25	TKY08F
FSWL212R/L	☆	●	WCMW	06T3 $\odot$	12	180	15	8	11	13°	16	TS4	TKY15F
FSWL216R/L	☆	●		06T3 $\odot$	16	200	20	11	14	7°	22	TS4	TKY15F

\* Clamp Torque (N · m) : TS21=0.6, TS2=0.6, TS25=1.0, TS4=3.5

## RECOMMENDED CUTTING CONDITIONS

Steel Shank			l/d ≤ 3			l/d = 3—4 (Shank Diameter ≥ 25mm)		
Carbide Shank			l/d ≤ 5			l/d = 6—7		
Work Material	Hardness	Cutting Mode	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
P Carbon Steel Alloy Steel	180—350HB	Light Cutting	130 (90—160)	0.1 (0.05—0.15)	0.2	120 (80—150)	0.1 (0.05—0.15)	0.2
		Medium Cutting	90 (60—120)	0.25 (0.15—0.35)	—3.0	80 (50—110)	0.15 (0.1—0.2)	—1.5
M Stainless Steel	≤200HB	Light Cutting	140 (100—180)	0.1 (0.05—0.15)	0.2	140 (100—180)	0.1 (0.05—0.15)	0.2
		Medium Cutting	70 (50—90)	0.2 (0.15—0.25)	—2.0	60 (40—80)	0.15 (0.1—0.2)	—1.0
N Aluminium Alloy	—	Light Cutting	300 (200—400)	0.1 (0.05—0.15)	0.2	300 (200—400)	0.1 (0.05—0.15)	0.2
		Medium Cutting	200 (150—250)	0.1 (0.05—0.15)	—2.0	200 (150—250)	0.1 (0.05—0.15)	—1.5

- WC $\odot$  type inserts > A176
- CBN & PCD inserts > B063, B078
- SPARE PARTS > Q001
- TECHNICAL DATA > R001

E BORING BARS

# BORING BARS

## S TYPE BORING BARS



- The minimum cutting diameter is from  $\phi 11$ .
- ISO standard.
- 7° positive insert.
- Screw-on type.
- l/d is 3 to 5 times the diameter (Carbide shank is 7 times the diameter).

### S O O O STFC

### TC inserts

Right hand tool holder shown.

Finish	Finish	Light	Light
FP (09,11,16)	FM (09,11,16)	LP (09,11,16)	LM (09,11,16)
Medium	Medium	Flat top	CBN/PCD
MP (09,11,16)	MM (09,11,16)	(11,16)	(09,11,16)

Order Number	Stock		Insert Number	Dimensions(mm)							*  		
	R	L		DCON	LF	LDRED	WF	H	GAMF	DMIN	Clamp Screw	Wrench	
S08FSTFCR/L09	●	●	TCMT TCGW	0902	8	80	12	6	7	15°	11	TS22	TKY06F
S10HSTFCR/L11	●	●	TCMW TCMT TCGW TCGT	1102	10	100	16	7	9	13°	13	TS25	TKY08F
S12KSTFCR/L11	●	●		1102	12	125	20	9	11	10°	16	TS25	TKY08F
S16MSTFCR/L11	●	●		1102	16	150	25	11	14	7°	20	TS25	TKY08F
S20QSTFCR/L16	☆	●		16T3	20	180	32	13	18	7°	25	TS4	TKY15F
S25RSTFCR/L16	☆	●		16T3	25	200	40	17	23	5°	32	TS4	TKY15F
S32SSTFCR/L16	☆	●		16T3	32	250	50	22	30	5°	40	TS4	TKY15F



\* Clamp Torque (N · m) : TS22=0.6, TS25=1.0, TS4=3.5

### C O O O STFC

### Carbide shank TC inserts

Right hand tool holder only.

Finish	Finish	Light	Light
FP (09,11,16)	FM (09,11,16)	LP (09,11,16)	LM (09,11,16)
Medium	Medium	Flat top	CBN/PCD
MP (09,11,16)	MM (09,11,16)	(11,16)	(11)

Order Number	Stock		Insert Number	Dimensions(mm)							*  		
	R	L		DCON	LF	LDRED	WF	H	GAMF	DMIN	Clamp Screw	Wrench	
C08HSTFCR09	●	●	TCMT TCGW	0902	8	100	12	6	7	15°	11	TS22	TKY06F
C10KSTFCR11	●	●	TCMW TCMT TCGW TCGT	1102	10	125	16	7	9	13°	13	TS25	TKY08F
C12MSTFCR11	●	●		1102	12	150	20	9	11	10°	16	TS25	TKY08F
C16RSTFCR11	●	●		1102	16	200	25	11	14	7°	20	TS25	TKY08F
C20SSTFCR16	☆	●		16T3	20	250	32	13	18	7°	25	TS4	TKY15F
C25TSTFCR16	☆	●		16T3	25	300	40	17	23	5°	32	TS4	TKY15F

\* Clamp Torque (N · m) : TS22=0.6, TS25=1.0, TS4=3.5

Note 1) The insert photos are only examples. The letters refer to the chip breaker and the dimension refers to the inscribed circle.

Note 2) Dimensions shown for insert corner RE 0.4.(Model of ☆ Mark is RE 0.8)

Note 3) When using insert with right and left hand chip breaker, please use left hand insert for right hand holder and right hand insert for left hand holder.

● : Inventory maintained in Japan.

TC type inserts > A160—A162  
CBN & PCD inserts > B057, B074

SDUC			DC inserts								Finish	Finish	Light	Light
											FP	FM	LP	LM
											(07,11)	(07,11)	(07,11)	(07,11)
											Medium	Medium	Medium	Flat top
											MP	MM	Standard	
											(07,11,15)	(07,11,15)	(07,11,15)	(07,11,15)
Order Number	Stock		Insert Number	Dimensions(mm)								*		
	R	L		DCON	LF	LDRED	WF	WF2	H	GAMF	DMIN	Clamp Screw	Wrench	
S10HSDUCR/L07	●	●	DCMT DCET DCGT DCMW DCGW	0702	10	100	16	7	2.4	9	13°	13	TS25	TKY08F
S12KSDUCR/L07	●	●		0702	12	125	20	9	3.4	11	10°	16	TS25	TKY08F
S16MSDUCR/L07	●	●		0702	16	150	25	11	3.9	14	7°	20	TS25	TKY08F
S20QSDUCR/L11☆	●	●		11T3	20	180	32	13	4.4	18	7°	25	TS4	TKY15F
S25RSDUCR/L15☆	●	●		1504	25	200	40	17	6.9	23	5°	32	TS5	TKY25F
S32SSDUCR/L15☆	●	●		1504	32	250	50	22	8.4	30	5°	40	TS5	TKY25F
S40TSDUCR/L15☆	●	●		1504	40	300	63	27	9.4	37	5°	50	TS5	TKY25F

\* Clamp Torque (N · m) : TS25=1.0, TS4=3.5, TS5=7.5

SDUC			Carbide shank DC inserts								Finish	Finish	Light	Light
											FP	FM	LP	LM
											(07,11)	(07,11)	(07,11)	(07,11)
											Medium	Medium	Medium	Flat top
											MP	MM	Standard	
											(07,11,15)	(07,11,15)	(07,11,15)	(07,11,15)
Order Number	Stock		Insert Number	Dimensions(mm)								*		
	R	L		DCON	LF	LDRED	WF	WF2	H	GAMF	DMIN	Clamp Screw	Wrench	
C10KSDUCR07	●		DCMT DCET DCGT DCMW DCGW	0702	10	125	16	7	2.1	9	13°	13	TS25	TKY08F
C12MSDUCR07	●			0702	12	150	20	9	3.1	11	10°	16	TS25	TKY08F
C16RSDUCR07	●			0702	16	200	25	11	3.1	14	7°	20	TS25	TKY08F
C20SSDUCR11☆	●			11T3	20	250	32	13	3.1	18	7°	25	TS4	TKY15F
C25TSDUCR15☆	●			1504	25	300	40	17	4.9	23	5°	32	TS5	TKY25F

\* Clamp Torque (N · m) : TS25=1.0, TS4=3.5, TS5=7.5

## RECOMMENDED CUTTING CONDITIONS

Steel Shank			l/d ≤ 3			l/d = 3—4 (Shank Diameter ≥ 25mm)		
Carbide Shank			l/d ≤ 5			l/d = 6—7		
Work Material	Hardness	Cutting Mode	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
P Carbon Steel Alloy Steel	180—350HB	Light Cutting	130 (90—160)	0.1 (0.05—0.15)	0.2	120 (80—150)	0.1 (0.05—0.15)	0.2
		Medium Cutting	90 (60—120)	0.25 (0.15—0.35)	—3.0	80 (50—110)	0.15 (0.1—0.2)	—1.5
M Stainless Steel	≤200HB	Light Cutting	140 (100—180)	0.1 (0.05—0.15)	0.2	140 (100—180)	0.1 (0.05—0.15)	0.2
		Medium Cutting	70 (50—90)	0.2 (0.15—0.25)	—2.0	60 (40—80)	0.15 (0.1—0.2)	—1.0
N Aluminium Alloy	—	Light Cutting	300 (200—400)	0.1 (0.05—0.15)	0.2	300 (200—400)	0.1 (0.05—0.15)	0.2
		Medium Cutting	200 (150—250)	0.1 (0.05—0.15)	—2.0	200 (150—250)	0.1 (0.05—0.15)	—1.5

DC type inserts > A149—A154  
 CBN & PCD inserts > B054—B056, B073  
 SPARE PARTS > Q001  
 TECHNICAL DATA > R001

BORING BARS

# BORING BARS

## S TYPE BORING BARS

- The minimum cutting diameter is from  $\phi 11$ .
- ISO standard.
- 7° positive insert.
- Screw-on type.
- l/d is 3 to 5 times the diameter (Carbide shank is 7 times the diameter).

### SCLC

### CC inserts

Right hand tool holder shown.

Finish	Finish	Light	Light
FP (06,09)	FM (06,09)	LP (06,09)	LM (06,09)
Medium MP (06,09,12)	Medium MM (06,09,12)	Flat top (06,09,12)	CBN/PCD (06,09,12)

Order Number	Stock		Insert Number	Dimensions(mm)							*	
	R	L		DCON	LF	LDRED	WF	H	GAMF	DMIN	Clamp Screw	Wrench
S08FSCLCR/L06	●	●	0602	8	80	12	6	7	15°	11	TS25	TKY08F
S10HSCLCR/L06	●	●	CCMB	10	100	16	7	9	13°	13	TS25	TKY08F
S12KSCLCR/L06	●	●	CCMH	12	125	20	9	11	10°	16	TS25	TKY08F
S16MSCLCR/L09	●	●	CCMT	16	150	25	11	14	7°	20	TS4	TKY15F
S20QSCLCR/L09	●	●	CCMW	20	180	32	13	18	7°	25	TS4	TKY15F
S25RSCLCR/L12	●	●	CCET	25	200	40	17	23	5°	32	TS5	TKY25F
S32SSCLCR/L12	●	●	CCGB	32	250	50	22	30	5°	40	TS5	TKY25F
S40TSCLCR/L12	●	●	CCGH	40	300	63	27	37	5°	50	TS5	TKY25F
			CCGT									
			CCGW									

\* Clamp Torque (N · m) : TS25=1.0, TS4=3.5, TS5=7.5

### SCLC

### Carbide shank CC inserts

Right hand tool holder only.

Finish	Finish	Light	Light
FP (06,09)	FM (06,09)	LP (06,09)	LM (06,09)
Medium MP (06,09)	Medium MM (06,09)	Flat top (06,09)	CBN/PCD (06,09)

Order Number	Stock		Insert Number	Dimensions(mm)							*	
	R	L		DCON	LF	LDRED	WF	H	GAMF	DMIN	Clamp Screw	Wrench
C08HSCLCR06	●	●	CCMB	8	100	12	6	7	15°	11	TS25	TKY08F
C10KSCLCR06	●	●	CCMH	10	125	16	7	9	13°	13	TS25	TKY08F
C12MSCLCR06	●	●	CCMT	12	150	20	9	11	10°	16	TS25	TKY08F
C16RSCLCR09	●	●	CCMW	16	200	25	11	14	7°	20	TS4	TKY15F
C20SSCLCR09	●	●	CCET	20	250	32	13	18	7°	25	TS4	TKY15F
			CCGB									
			CCGH									
			CCGT									
			CCGW									

\* Clamp Torque (N · m) : TS25=1.0, TS4=3.5

Note 1) The insert photos are only examples. The letters refer to the chip breaker and the dimension refers to the inscribed circle.

Note 2) Dimensions shown for insert corner RE 0.4.(Model of ☆ Mark is RE 0.8)

Note 3) When using insert with right and left hand chip breaker, please use left hand insert for right hand holder and right hand insert for left hand holder.

● : Inventory maintained in Japan.

CC type inserts > A140—A147

CBN & PCD inserts > B049—B052, B072

SDQC			DC inserts								Finish	Finish	Light	Light
											FP	FM	LP	LM
											(07,11)	(07,11)	(07,11)	(07,11)
											Medium	Medium	Flat top	CBN/PCD
											MP	MM		
											(07,11,15)	(07,11,15)	(07,11,15)	(07,11)
Order Number	Stock		Insert Number	Dimensions(mm)								*		
	R	L		DCON	LF	LDRED	WF	WF2	H	GAMF	DMIN	Clamp Screw	Wrench	
S10HSDQCR/L07	●	●	DCMT DCET DCGT DCMW DCGW	0702	10	100	16	7	2.4	9	13°	13	TS25	TKY08F
S12KSDQCR/L07	●	●		0702	12	125	20	9	3.4	11	10°	16	TS25	TKY08F
S16MSDQCR/L07	●	●		0702	16	150	25	11	3.9	14	7°	20	TS25	TKY08F
S20QSDQCR/L11 ☆	●	●		11T3	20	180	32	13	4.4	18	7°	25	TS4	TKY15F
S25RSDQCR/L15 ☆	●	●		1504	25	200	40	17	6.9	23	5°	32	TS5	TKY25F
S32SSDQCR15 ☆	●	●		1504	32	250	50	22	8.4	30	5°	40	TS5	TKY25F
S40TSDQCR15 ☆	●	●		1504	40	300	63	27	9.4	37	5°	50	TS5	TKY25F

\* Clamp Torque (N · m) : TS25=1.0, TS4=3.5, TS5=7.5

SDQC			Carbide shank DC inserts								Finish	Finish	Light	Light
											FP	FM	LP	LM
											(07,11)	(07,11)	(07,11)	(07,11)
											Medium	Medium	Flat top	CBN/PCD
											MP	MM		
											(07,11,15)	(07,11,15)	(07,11,15)	(07,11)
Order Number	Stock		Insert Number	Dimensions(mm)								*		
	R	L		DCON	LF	LDRED	WF	WF2	H	GAMF	DMIN	Clamp Screw	Wrench	
C10KSDQCR07	●	●	DCMT DCET DCGT DCMW DCGW	0702	10	125	16	7	2.1	9	13°	13	TS25	TKY08F
C12MSDQCR07	●	●		0702	12	150	20	9	3.1	11	10°	16	TS25	TKY08F
C16RSDQCR07	●	●		0702	16	200	25	11	3.1	14	7°	20	TS25	TKY08F
C20SSDQCR11 ☆	●	●		11T3	20	250	32	13	3.1	18	7°	25	TS4	TKY15F
C25TSDQCR15 ☆	●	●		1504	25	300	40	17	4.9	23	5°	32	TS5	TKY25F

\* Clamp Torque (N · m) : TS25=1.0, TS4=3.5, TS5=7.5

## RECOMMENDED CUTTING CONDITIONS

Steel Shank			l/d ≤ 3			l/d = 3-4 (Shank Diameter ≥ 25mm)		
Carbide Shank			l/d ≤ 5			l/d = 6-7		
Work Material	Hardness	Cutting Mode	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
P Carbon Steel Alloy Steel	180-350HB	Light Cutting	130 (90-160)	0.1 (0.05-0.15)	0.2	120 (80-150)	0.1 (0.05-0.15)	0.2
		Medium Cutting	90 (60-120)	0.25 (0.15-0.35)	-3.0	80 (50-110)	0.15 (0.1-0.2)	-1.5
M Stainless Steel	≤200HB	Light Cutting	140 (100-180)	0.1 (0.05-0.15)	0.2	140 (100-180)	0.1 (0.05-0.15)	0.2
		Medium Cutting	70 (50-90)	0.2 (0.15-0.25)	-2.0	60 (40-80)	0.15 (0.1-0.2)	-1.0
N Aluminium Alloy	-	Light Cutting	300 (200-400)	0.1 (0.05-0.15)	0.2	300 (200-400)	0.1 (0.05-0.15)	0.2
		Medium Cutting	200 (150-250)	0.1 (0.05-0.15)	-2.0	200 (150-250)	0.1 (0.05-0.15)	-1.5

DC type inserts > A149-A154  
 CBN & PCD inserts > B054-B056, B073  
 SPARE PARTS > Q001  
 TECHNICAL DATA > R001

BORING BARS



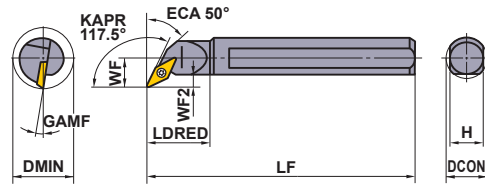
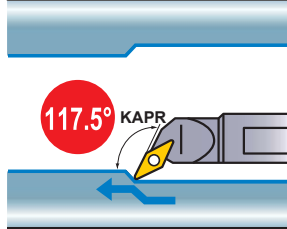
# BORING BARS

## S TYPE BORING BARS









- The minimum cutting diameter is from  $\phi 20$ .
- ISO standard.
- 7° positive insert.
- Screw-on type.
- $l/d$  is 3 to 5 times the diameter (Carbide shank is 7 times the diameter).



### SVQC

#### VC inserts



Right hand tool holder shown.

Finish	Finish	Light	Light
FP	FM	LP	LM
			
(11,16)	(11,16)	(11,16)	(11,16)
Medium	Medium	Medium	Flat top
MP	MM	Standard	
			
(16)	(16)	(11,16)	(11,16)

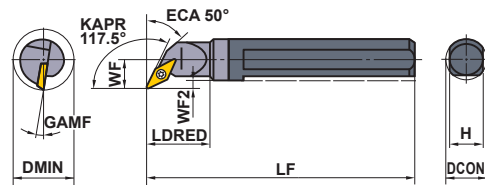
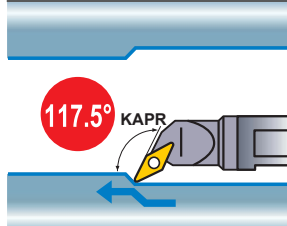
Order Number	Stock		Insert Number	Dimensions(mm)								*  	
	R	L		DCON	LF	LDRED	WF	WF2	H	GAMF	DMIN	Clamp Screw	Wrench
S16MSVQCR/L11	●	●	1103	16	150	25	11	3.9	14	7°	20	TS25	TKY08F
S20QSVQCR/L11	●	●	VCMW	20	180	32	13	4.4	18	7°	25	TS25	TKY08F
S25RSVQCR/L16 ☆	●	●	VCMT	25	200	40	17	6.9	23	5°	32	TS4	TKY15F
S32SSVQCR/L16 ☆	●	●	VCGW	32	250	50	22	8.4	30	5°	40	TS4	TKY15F
S40TSVQCR16 ☆	●	●	VCGT	40	300	63	27	9.4	37	5°	50	TS4	TKY15F

\* Clamp Torque (N · m) : TS25=1.0, TS4=3.5








BORING BARS



### CSVQC

#### Carbide shank VC inserts



Right hand tool holder only.

Finish	Finish	Light	Light
FP	FM	LP	LM
			
(11,16)	(11,16)	(11,16)	(11,16)
Medium	Medium	Medium	Flat top
MP	MM	Standard	
			
(16)	(16)	(11,16)	(11,16)

Order Number	Stock		Insert Number	Dimensions(mm)								*  	
	R	L		DCON	LF	LDRED	WF	WF2	H	GAMF	DMIN	Clamp Screw	Wrench
C16RSVQCR11	●	●	VCMW	16	200	25	11	3.1	14	7°	20	TS25	TKY08F
C20SSVQCR11	●	●	VCMT	20	250	32	13	3.1	18	7°	25	TS25	TKY08F
C25TSVQCR16 ☆	●	●	VCGW	25	300	40	17	4.9	23	5°	32	TS4	TKY15F

\* Clamp Torque (N · m) : TS25=1.0, TS4=3.5

Note 1) The insert photos are only examples. The letters refer to the chip breaker and the dimension refers to the inscribed circle.

Note 2) Dimensions shown for insert corner RE 0.4.(Model of ☆ Mark is RE 0.8)

Note 3) When using insert with right and left hand chip breaker, please use left hand insert for right hand holder and right hand insert for left hand holder.

● : Inventory maintained in Japan.

VC type inserts > A170—A172  
CBN & PCD inserts > B062, B077

S		SSKC		SC <sup>o</sup> inserts							Finish	Finish	Light	Light
Order Number	Stock		Insert Number	Dimensions(mm)							* Clamp Screw	* Wrench		
	R	L		DCON	LF	LDRED	WF	H	GAMF	DMIN				
S16MSSKCR/L09 ☆	●	●	SCMW SCMT	09T3 <sup>o</sup>	16	150	25	11	14	7°	20	TS4	TKY15F	
S20QSSKCR/L09 ☆	●	●		09T3 <sup>o</sup>	20	180	32	13	18	7°	25	TS4	TKY15F	
S25RSSKCR/L12 ☆	●	●		1204 <sup>o</sup>	25	200	40	17	23	5°	32	TS5	TKY25F	

\* Clamp Torque (N · m) : TS4=3.5, TS5=7.5

S		SVUC		VC <sup>o</sup> inserts							Finish	Finish	Light	Light
Order Number	Stock		Insert Number	Dimensions(mm)							* Clamp Screw	* Wrench		
	R	L		DCON	LF	LDRED	WF	WF2	H	GAMF			DMIN	
S20QSVUCR/L11	●	●	VCMW VCMT VCGW VCGT	1103 <sup>o</sup>	20	180	32	13	4.4	18	7°	25	TS25	TKY08F
S25RSVUCR/L16 ☆	●	●		1604 <sup>o</sup>	25	200	40	17	6.9	23	5°	32	TS4	TKY15F
S32SSVUCR/L16 ☆	●	●		1604 <sup>o</sup>	32	250	50	22	8.4	30	5°	40	TS4	TKY15F
S40TSVUCR/L16 ☆	●	●		1604 <sup>o</sup>	40	300	63	27	9.4	37	5°	50	TS4	TKY15F

\* Clamp Torque (N · m) : TS25=1.0, TS4=3.5

## RECOMMENDED CUTTING CONDITIONS

Steel Shank			l/d ≤ 3			l/d = 3-4 (Shank Diameter ≥ 25mm)		
Carbide Shank			l/d ≤ 5			l/d = 6-7		
Work Material	Hardness	Cutting Mode	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
P Carbon Steel Alloy Steel	180-350HB	Light Cutting	130 (90-160)	0.1 (0.05-0.15)	0.2	120 (80-150)	0.1 (0.05-0.15)	0.2
		Medium Cutting	90 (60-120)	0.25 (0.15-0.35)	-3.0	80 (50-110)	0.15 (0.1-0.2)	-1.5
M Stainless Steel	≤200HB	Light Cutting	140 (100-180)	0.1 (0.05-0.15)	0.2	140 (100-180)	0.1 (0.05-0.15)	0.2
		Medium Cutting	70 (50-90)	0.2 (0.15-0.25)	-2.0	60 (40-80)	0.15 (0.1-0.2)	-1.0
N Aluminium Alloy	-	Light Cutting	300 (200-400)	0.1 (0.05-0.15)	0.2	300 (200-400)	0.1 (0.05-0.15)	0.2
		Medium Cutting	200 (150-250)	0.1 (0.05-0.15)	-2.0	200 (150-250)	0.1 (0.05-0.15)	-1.5

SC<sup>o</sup> type inserts > A157, A158

VC<sup>o</sup> type inserts > A170-A172

CBN inserts > B062, B077

SPARE PARTS > Q001

TECHNICAL DATA > R001

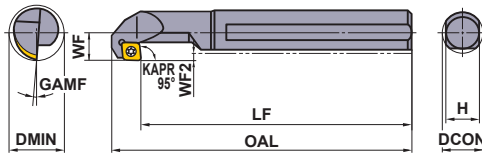
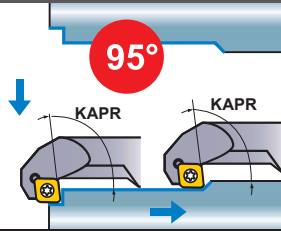
# BORING BARS

## S TYPE BORING BARS

- The minimum cutting diameter is from  $\phi 20$ .
- ISO standard.
- 7° positive insert.
- Screw-on type.
- l/d is 3 to 5 times the diameter

### SCZC

### CC inserts



Right hand tool holder shown.

Finish	Finish	Light	Light
FP (06,09)	FM (06,09)	LP (06,09)	LM (06,09)
Medium	Medium	Flat top	CBN/PCD
MP (06,09)	MM (06,09)		

Order Number	Stock		Insert Number	Dimensions(mm)									* Clamp Screw Wrench	
	R	L		DCON	OAL	LF	WF	WF2	H	GAMF	DMIN	Clamp Screw	Wrench	
S16MSCZCR/L06	●	●	CC B CC H CC T CC W	0602	16	161	150	11	3	14	10°	20	TS25	TKY08F
S20QSCZCR/L09	●	●	CC T CC W	09T3	20	198	180	13	3	18	7°	25	TS4	TKY15F

Note 1) The insert photos are only examples. The letters refer to the chip breaker and the dimension refers to the inscribed circle.

Note 2) When using insert with right and left hand chip breaker, please use right hand insert for right hand holder and left hand insert for left hand holder.

\* Clamp Torque (N · m) : TS25=1.0, TS4=3.5

BORING BARS

## RECOMMENDED CUTTING CONDITIONS

Work Material	Hardness	Cutting Mode	l/d ≤ 3			l/d = 3-4 (Shank Diameter ≥ 25mm)		
			Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
P Carbon Steel Alloy Steel	180-350HB	Light Cutting	130 (90-160)	0.1 (0.05-0.15)	0.2	120 (80-150)	0.1 (0.05-0.15)	0.2
		Medium Cutting	90 (60-120)	0.25 (0.15-0.35)	-3.0	80 (50-110)	0.15 (0.1-0.2)	-1.5
M Stainless Steel	≤200HB	Light Cutting	140 (100-180)	0.1 (0.05-0.15)	0.2	140 (100-180)	0.1 (0.05-0.15)	0.2
		Medium Cutting	70 (50-90)	0.2 (0.15-0.25)	-2.0	60 (40-80)	0.15 (0.1-0.2)	-1.0
N Aluminium Alloy	-	Light Cutting	300 (200-400)	0.1 (0.05-0.15)	0.2	300 (200-400)	0.1 (0.05-0.15)	0.2
		Medium Cutting	200 (150-250)	0.1 (0.05-0.15)	-2.0	200 (150-250)	0.1 (0.05-0.15)	-1.5

● : Inventory maintained in Japan.

CC type inserts > A140-A147

CBN & PCD inserts > B049-B052, B072

# P TYPE BORING BARS

- The minimum cutting diameter is from  $\phi 25$ .
- ISO standard.
- Economical negative insert.
- Lever lock type.
- l/d is 3 times the diameter.

## A $\circ\circ\circ$ PSKN With coolant hole SN $\circ\circ$ inserts

Order Number	Stock		Insert Number	Dimensions(mm)							Finish		Light	Medium	Medium				
	R	L		DCON	LF	LDRED	WF	H	GAMF	DMIN	Shim	Shim Pin	Clamp Lever	Clamp Screw	Wrench	Plug	Clamp Pin	Pin	Screw
A20QPSKNR/L09	●	●	SNMA 0903	20	180	32	13	18	13°	25	—	—	—	—	HKY15R HGM-PT1/8	HGM-PT1/8	HP3T	P208AM	HSS03005
A25RPSKNR/L12	●	●	SNMG 1204	25	200	40	17	23	13°	32	MLSP42	—	—	—	HKY15R HGM-PT1/4	HGM-PT1/4	HP43	P210AM	HSS03005
A32SPSKNR/L12	●	●	SNGA SNGG 1204	32	250	50	22	30	13°	44	LLSN42	LLP14	LLCL14	LLCS108S	HKY30R HGM-PT3/8	HGM-PT3/8	—	—	—

\*1 Pin Lock Type : A20QPSKNR/L09, A25RPSKNR/L12  
\*2 Clamp Torque (N · m) : LLCS108S=3.3, HP3T=2.2, HP43=3.3

## A $\circ\circ\circ$ PTFN With coolant hole TN $\circ\circ$ inserts

Order Number	Stock		Insert Number	Dimensions(mm)							Finish		Light	Medium	Medium				
	R	L		DCON	LF	LDRED	WF	H	GAMF	DMIN	Shim	Shim Pin	Clamp Lever	Clamp Screw	Wrench	Plug	Clamp Pin	Pin	Screw
A20QPTFNR/L16	●	●	TNMA 1604	20	180	32	13	18	15°	25	—	—	—	—	HKY15R HGM-PT1/8	HGM-PT1/8	HP31	P208AM	HSS03005
A25RPTFNR/L16	●	●	TNMG 1604	25	200	40	17	23	13°	32	MLTP32	—	—	—	HKY15R HGM-PT1/4	HGM-PT1/4	HP33	P208AM	HSS03005
A32SPTFNR/L16	●	●	TNMM TNGA 1604	32	250	50	22	30	13°	44	LLSTN32	LLP13	LLCL13	LLCS106	HKY25R HGM-PT3/8	HGM-PT3/8	—	—	—
A40TPTFNR/L22	●	●	TNGG 2204	40	300	63	27	37	10°	54	LLSTN42	LLP14	LLCL14	LLCS108S	HKY30R HGM-PT3/8	HGM-PT3/8	—	—	—
A50UPTFNR/L22	●	●	TNGH 2204	50	350	80	35	47	9°	70	LLSTN42	LLP14	LLCL14	LLCS108S	HKY30R HGM-PT3/8	HGM-PT3/8	—	—	—

\*1 Pin Lock Type : A20QPTFNR/L16, A25RPTFNR/L16  
\*2 Clamp Torque (N · m) : LLCS106=2.2, LLCS108S=3.3, HP31=2.2, HP33=2.2

## RECOMMENDED CUTTING CONDITIONS

Work Material	Hardness	Cutting Mode	l/d ≤ 3			l/d = 3-4		
			Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
<b>P</b> Carbon Steel Alloy Steel	180-350HB	Medium Cutting	110 (80-140)	0.25 (0.1-0.4)	-5.0	110 (80-140)	0.2 (0.1-0.3)	-4.0
<b>M</b> Stainless Steel	≤200HB	Medium Cutting	80 (60-100)	0.2 (0.1-0.3)	-4.0	70 (50-100)	0.15 (0.1-0.25)	-3.0
<b>K</b> Gray Cast Iron	Tensile Strength ≤350MPa	Medium Cutting	80 (60-100)	0.25 (0.1-0.4)	-5.0	80 (60-100)	0.2 (0.1-0.3)	-4.0

Note 1) The insert photos are only examples. The letters refer to the chip breaker and the dimension refers to the inscribed circle.  
Note 2) Dimensions shown for insert corner RE 0.8.

Note 3) When using insert with right and left hand chip breaker, please use left hand insert for right hand holder and right hand insert for left hand holder.

- SN $\circ\circ$  type inserts > A115-A120
- TN $\circ\circ$  type inserts > A121-A127
- CBN & PCD inserts > B037-B041, B069

- SPARE PARTS > Q001
- TECHNICAL DATA > R001

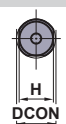
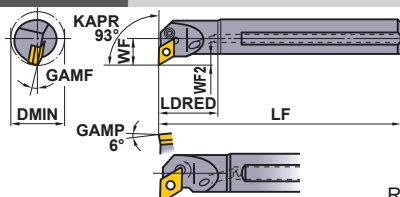
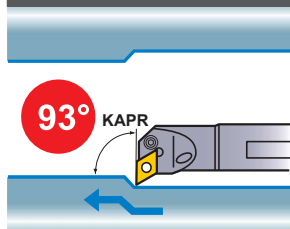
# BORING BARS

## P TYPE BORING BARS

- The minimum cutting diameter is from  $\phi 20$ .
- ISO standard.
- Economical negative insert.
- Lever lock type.
- l/d is 3 times the diameter.

### A○○○PDUN

With coolant hole DN○○ inserts



\*1 Pin Lock Type

Right hand tool holder shown.

Finish	Light	Medium	Medium
FP	LP	MP	MH
(15)	(11, 15)	(15)	(15)
Medium	Stainless	G class	CBN/PCD
Standard	MM	R/L	
(11, 15)	(15)	(15)	(15)

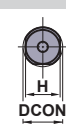
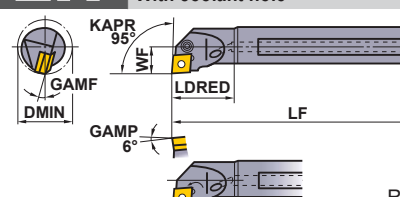
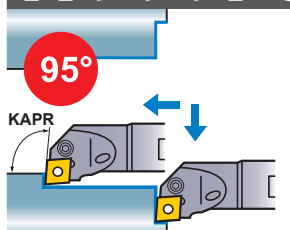
Order Number	Stock		Insert Number	Dimensions(mm)							Tools										
	R	L		DCON	LF	LDRED	WF	F2	H	GAMF	DMIN	Shim	Shim Pin	Clamp Lever	Clamp Screw	Wrench	Plug	Clamp Pin	Pin	Screw	
A20QPDUNR/L11	●	●		1104	20	180	32	15	6.4	18	13°	26	—	—	LLCL23S	LLCS125	HKY20R	HGM-PT1/8	—	—	—
A25RPDUNR/L11	●	●	DNMA	1104	25	200	40	17	6.9	23	15°	32	LLSDN32	LLP13	LLCL23	LLCS106	HKY25R	HGM-PT1/4	—	—	—
A25RPDUNR/L15	●	●	DNMG DNMX	1504	25	200	40	17	6.9	23	13°	32	MLDP42	—	—	—	HKY15R HKY30R	HGM-PT1/4	HP43	P210AM	HSS03005
A32SPDUNR/L11	●	●	DNMM	1104	32	250	50	22	8.4	30	13°	44	LLSDN32	LLP13	LLCL23	LLCS106	HKY25R	HGM-PT3/8	—	—	—
A32SPDUNR/L15	●	●	DNGA DNGG	1504	32	250	50	22	8.4	30	13°	44	LLSDN42	LLP14	LLCL24	LLCS108S	HKY30R	HGM-PT3/8	—	—	—
A40TPDUNR/L15	●	●	DNGM	1504	40	300	63	27	9.4	37	10°	54	LLSDN42	LLP14	LLCL24	LLCS108S	HKY30R	HGM-PT3/8	—	—	—
A50UPDUNR/L15	●	●		1504	50	350	80	35	12.4	47	9°	70	LLSDN42	LLP14	LLCL24	LLCS108S	HKY30R	HGM-PT3/8	—	—	—

\*1 Pin Lock Type : A25RPDUNR/L15

\*2 Clamp Torque (N · m) : LLCS125=1.5, LLCS106=2.2, LLCS108S=3.3, HP43=3.3

### A○○○PCLN

With coolant hole CN○○ inserts



\*1 Pin Lock Type

Right hand tool holder shown.

Finish	Light	Light	Medium
FP	SA	LP	MP
(12)	(12)	(12)	(12)
Medium	Medium	Stainless	CBN/PCD
MH	Standard	MM	
(12)	(09, 12)	(12)	(12)

Order Number	Stock		Insert Number	Dimensions(mm)							Tools									
	R	L		DCON	LF	LDRED	WF	H	GAMF	DMIN	Shim	Shim Pin	Clamp Lever	Clamp Screw	Wrench	Plug	Clamp Pin	Pin	Screw	
A16MPCLNR/L09	●	●		09T3	16	150	25	11	14	15°	20	—	—	LLCL13S	LLCS105	HKY20R	HGM-PT1/8	—	—	—
A20QPCLNR/L09	●	●		09T3	20	180	32	13	18	13°	25	—	—	—	—	HKY25R HKY15R	HGM-PT1/8	HP3T	P208AM	HSS03005
A20QPCLNR/L09N	●	●	CNMA	09T3	20	180	32	13	18	13°	25	—	—	LLCL13S	LLCS105	HKY20R	HGM-PT1/8	—	—	—
A25RPCLNR/L09	●	●	CNMG CNMM	09T3	25	200	40	17	23	13°	32	—	—	LLCL13S	LLCS105	HKY20R	HGM-PT1/4	—	—	—
A25RPCLNR/L12	●	●	CNGA CNGG	1204	25	200	40	17	23	13°	32	MLCP42	—	—	—	HKY30R HKY15R	HGM-PT1/4	HP43	P210AM	HSS03005
A32SPCLNR/L12	●	●	CNGM	1204	32	250	50	22	30	13°	44	LLSCN42	LLP14	LLCL14	LLCS108S	HKY30R	HGM-PT3/8	—	—	—
A40TPCLNR/L12	●	●		1204	40	300	63	27	37	10°	54	LLSCN42	LLP14	LLCL14	LLCS108S	HKY30R	HGM-PT3/8	—	—	—
A50UPCLNR12	●	●		1204	50	350	80	35	47	10°	63	LLSCP42	LLP14	LLCL14	LLCS108S	HKY30R	HGM-PT3/8	—	—	—

\*1 Pin Lock Type : A20QPCLNR/L09, A25RPCLNR/L12

\*2 Clamp Torque (N · m) : LLCS105=1.5, LLCS106=2.2, LLCS108S=3.3, HP3T=2.2, HP43=3.3

\*3 When replacing clamp Lever LLCL13S, please consider purchasing lever spring HLS2 as necessary.

Note 1) The insert photos are only examples. The letters refer to the chip breaker and the dimension refers to the inscribed circle.

Note 2) Dimensions shown for insert corner RE 0.8.

Note 3) When using insert with right and left hand chip breaker, please use left hand insert for right hand holder and right hand insert for left hand holder.

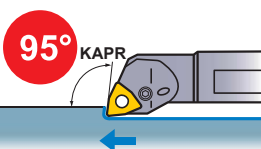
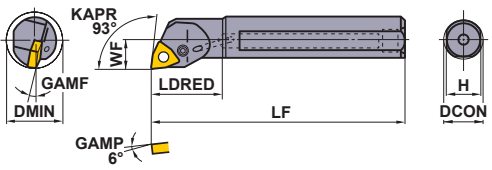



● : Inventory maintained in Japan.

DN○○ type inserts > A107—A113

CN○○ type inserts > A100—A106

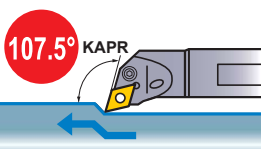
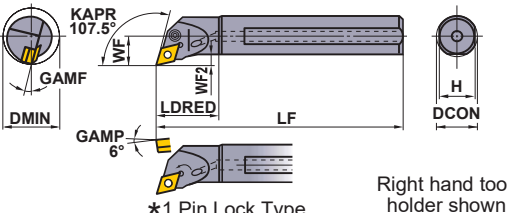








CBN & PCD inserts > B028—B036, B068



A○○○PWLN			With coolant hole		WN○○inserts				Light	Medium				
										 (06)	 (06)			
			 (06)							Stainless				
			Right hand tool holder shown.											
Order Number	Stock		Insert Number	Dimensions(mm)							*2		*1	
	R	L		DCON	LF	LDRED	WF	H	GAMP	DMIN	Clamp Lever	Clamp Screw	Wrench	Plug
A16MPWLNR/L06	●	●	06T3○○○	16	150	25	11	14	15°	20	LLCL13S	LLCS105	HKY20R	HGM-PT1/8
A20QPWLNR/L06	●	●	WNMG 06T3○○○	20	180	32	13	18	13°	25	LLCL13S	LLCS105	HKY20R	HGM-PT1/8
A25RPWLNR/L06	●	●	06T3○○○	25	200	40	17	23	13°	32	LLCL13S	LLCS105	HKY20R	HGM-PT1/4

\*1 Clamp Torque (N · m) : LLCS105=1.5

\*2 When replacing clamp Lever LLCL13S, please consider purchasing lever spring HLS2 as necessary.

A○○○PDQN			With coolant hole		DN○○inserts				Finish	Light	Medium	Medium								
										 (15)	 (15)	 (15)	 (15)							
			 (15)							 (15)	 (15)	 (15)								
			*1 Pin Lock Type																	
Order Number	Stock		Insert Number	Dimensions(mm)							*2		*1							
	R	L		DCON	LF	LDRED	WF	WF2	H	GAMP	DMIN	Shim	Shim Pin	Clamp Lever	Clamp Screw	Wrench	Plug	Clamp Pin	Pin	Screw
A25RPDQNR/L15	●	●	DNMA 1504○○○	25	200	40	17	6.9	23	13°	32	MLDP42	—	—	—	HKY15R HKY30R	HGM-PT1/4	HP43	P210AM	HSS03005
A32SPDQNR/L15	●	●	DNMG 1504○○○	32	250	50	22	8.4	30	13°	44	LLSDN42	LLP14	LLCL24	LLCS108S	HKY30R	HGM-PT3/8	—	—	—
A40TPDQNR/L15	●	●	DNGA 1504○○○	40	300	63	27	9.4	37	10°	54	LLSDN42	LLP14	LLCL24	LLCS108S	HKY30R	HGM-PT3/8	—	—	—
A50UPDQNR/L15	●	●	DNGG 1504○○○	50	350	80	35	12.4	47	9°	70	LLSDN42	LLP14	LLCL24	LLCS108S	HKY30R	HGM-PT3/8	—	—	—

\*1 Pin Lock Type : A25RPDQNR/L15

\*2 Clamp Torque (N · m) : LLCS108S=3.3, HP43=3.3

## RECOMMENDED CUTTING CONDITIONS

Work Material	Hardness	Cutting Mode	l/d ≤ 3			l/d = 3—4		
			Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
<b>P</b> Carbon Steel Alloy Steel	180—350HB	Medium Cutting	110 (80—140)	0.25 (0.1—0.4)	—5.0	110 (80—140)	0.2 (0.1—0.3)	—4.0
<b>M</b> Stainless Steel	≤200HB	Medium Cutting	80 (60—100)	0.2 (0.1—0.3)	—4.0	70 (50—100)	0.15 (0.1—0.25)	—3.0
<b>K</b> Gray Cast Iron	Tensile Strength ≤350MPa	Medium Cutting	80 (60—100)	0.25 (0.1—0.4)	—5.0	80 (60—100)	0.2 (0.1—0.3)	—4.0

WN○○ type inserts > A132—A136  
 DN○○ type inserts > A107—A113  
 CBN & PCD inserts > B032—A036, B068

SPARE PARTS > Q001  
 TECHNICAL DATA > R001



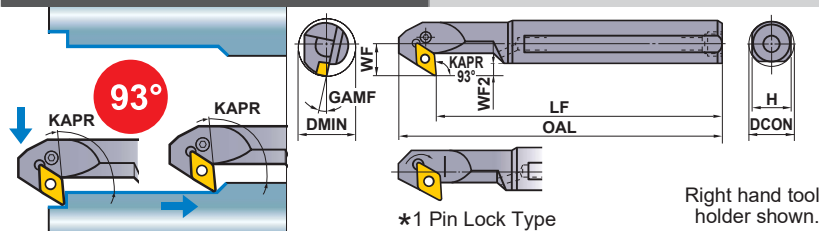
# BORING BARS

## P TYPE BORING BARS

- The minimum cutting diameter is from  $\phi 32$ .
- ISO standard.
- Economical negative insert.
- Lever lock type.
- $l/d$  is 3 times the diameter.

### A O O O PDZN

With coolant hole DN inserts



Finish	Light	Medium	Medium
FP	LP	MP	MH
(15)	(15)	(15)	(15)
Medium	Stainless	G class	CBN/PCD
Standard	MM	R/L	
(15)	(15)	(15)	(15)

Order Number	Stock		Insert Number	Dimensions(mm)								Tools									
	R	L		DCON	OAL	LF	WF	WF2	H	GAMF	DMIN	Shim	Shim Pin	Clamp Lever	Clamp Screw	Wrench	Plug	Clamp Pin	Pin	Screw	
A25RPDZNR/L15	●	●	DNMA DNMG	1504	25	225	200	17	6.7	23	13°	32	MLDP42	—	—	—	HKY15R HKY30R	HGM-PT1/4	HP43	P210AM	HSS03005
A32SPDZNR/L15	●	●	DNMX DNMM	1504	32	275	250	22	8.2	30	13°	40	LLSDN42	LLP14	LLCL24	LLCS108S	HKY30R	HGM-PT3/8	—	—	—
A40TPDZNR/L15	●	●	DNGA DNGG	1504	40	325	300	27	9.2	37	10°	50	LLSDN42	LLP14	LLCL24	LLCS108S	HKY30R	HGM-PT3/8	—	—	—
A50UPDZNR/L15	●	●	DNGM	1504	50	375	350	35	12.2	47	9°	63	LLSDN42	LLP14	LLCL24	LLCS108S	HKY30R	HGM-PT3/8	—	—	—

\*1 Pin Lock Type : A25RPDZNR/L15

\*2 Clamp Torque (N · m) : LLCS108S=3.3, HP43=3.3

Note 1) The insert photos are only examples. The letters refer to the chip breaker and the dimension refers to the inscribed circle.

Note 2) Dimensions shown for insert corner RE 0.8.

Note 3) When using insert with right and left hand chip breaker, please use right hand insert for right hand holder and left hand insert for left hand holder.

BORING BARS

## RECOMMENDED CUTTING CONDITIONS

Work Material	Hardness	Cutting Mode	$l/d \leq 3$			$l/d = 3-4$		
			Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
P Carbon Steel Alloy Steel	180—350HB	Medium Cutting	110 (80—140)	0.25 (0.1—0.4)	—5.0	110 (80—140)	0.2 (0.1—0.3)	—4.0
M Stainless Steel	$\leq 200$ HB	Medium Cutting	80 (60—100)	0.2 (0.1—0.3)	—4.0	70 (50—100)	0.15 (0.1—0.25)	—3.0
K Gray Cast Iron	Tensile Strength $\leq 350$ MPa	Medium Cutting	80 (60—100)	0.25 (0.1—0.4)	—5.0	80 (60—100)	0.2 (0.1—0.3)	—4.0

● : Inventory maintained in Japan.

DN type inserts > A107—A113

CBN & PCD inserts > B032—B036, B068

# M TYPE BORING BARS

- The minimum cutting is from  $\phi 63$ .
- Negative trigon shape insert.
- Double clamp type.
- $l/d$  is 3 times the diameter.

A○○○MWLNR

With coolant hole **WN○○inserts**

95° KAPR  
GAMF

DMIN  
KAPR 95°  
WF  
LDRED  
LF  
H  
DCON

Right hand tool holder only.

Finish	Light	Medium	Medium
FP  (08)	LP  (08)	MP  (08)	MH  (08)
Medium Standard	Medium to Rough RP	Stainless MM	
 (08)	 (08)	 (08)	

Order Number	Stock	Insert Number	Dimensions(mm)								Shim Shim Pin Clamp Bridge Side Lock Plate Spring Clamp Screw Wrench Plug							
	R		DCON	LF	LDRED	WF	H	GAMF	DMIN	WPS WC43	CCP44	CCK13	CPT24	MES2	SLCS105	HKY25R HKY40R	HGM- PT3/8	
<b>A50UMWLN08</b>	●	WNMA WNMG WNGA 0804○○	50	350	80	35	63	9°	63									

\*1 Clamp Torque (N · m) : SLCS105=7.0

Note 1) The insert photos are only examples. The letters refer to the chip breaker and the dimension refers to the inscribed circle.

Note 2) Dimensions shown for insert corner RE 0.8.

**E**

BORING BARS

## RECOMMENDED CUTTING CONDITIONS

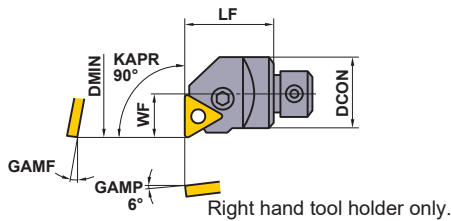
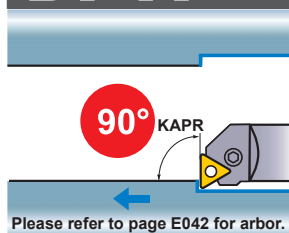
Work Material	Hardness	Cutting Mode	l/d ≤ 3			l/d = 3-4		
			Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
<b>P</b> Carbon Steel Alloy Steel	180-350HB	Medium Cutting	110 (80-140)	0.25 (0.1-0.4)	-5.0	110 (80-140)	0.2 (0.1-0.3)	-4.0
<b>M</b> Stainless Steel	≤200HB	Medium Cutting	80 (60-100)	0.2 (0.1-0.3)	-4.0	70 (50-100)	0.15 (0.1-0.25)	-3.0
<b>K</b> Gray Cast Iron	Tensile Strength ≤350MPa	Medium Cutting	80 (60-100)	0.25 (0.1-0.4)	-5.0	80 (60-100)	0.2 (0.1-0.3)	-4.0

# BORING BARS

## D TYPE BORING HEAD

- The minimum cutting diameter is from  $\phi 40$ .
- Economical negative insert.
- Lever lock type.
- Exchangeable head type.

### DPTF



### TN inserts

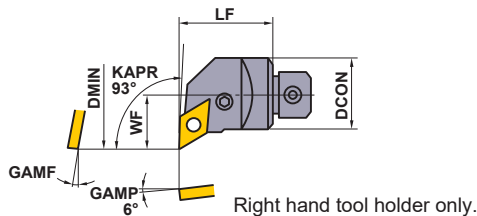
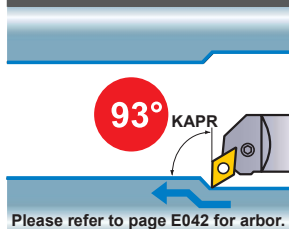
Finish	Light	Medium	Medium
FP  (16)	LP  (16,22)	MP  (16,22)	MH  (16,22)
Medium  (16,22)	Stainless  (16,22)	G class  (16,22)	CBN/PCD  (16)
Standard	MM	R/L	

Order Number	Stock R	Insert Number	Dimensions(mm)					DMIN	Shim	Shim Pin	Clamp Lever	Clamp Screw*	Wrench
			DCON	LF	WF	GAMF							
DPTF132R	●	TN A TN G TN M	1604	32	40	20	12°	40	LLSTN32	LLP13	LLCL13	LLCS106	HKY25R
DPTF140R	●	TN A TN G TN M	2204	40	50	25	10°	50	LLSTN42	LLP14	LLCL14	LLCS108	HKY30R

\* Clamp Torque (N · m) : LLCS106=2.2, LLCS108=3.3

BORING BARS

### DPDU



### DN inserts

Finish	Light	Medium	Medium
FP  (15)	LP  (15)	MP  (15)	MH  (15)
Medium  (15)	Stainless  (15)	G class  (15)	CBN/PCD  (15)
Standard	MM	L	

Order Number	Stock R	Insert Number	Dimensions(mm)					DMIN	Shim	Shim Pin	Clamp Lever	Clamp Screw*	Wrench
			DCON	LF	WF	GAMF							
DPDU132R	●	DN A DN G DN M DN X	1504	32	40	25	10°	50	LLSDN42	LLP14	LLCL24	LLCS108	HKY30R
DPDU140R	●	DN A DN G DN M DN X	1504	40	50	30	9°	60	LLSDN42	LLP14	LLCL24	LLCS108	HKY30R

\* Clamp Torque (N · m) : LLCS108=3.3

Note 1) The insert photos are only examples. The letters refer to the chip breaker and the dimension refers to the inscribed circle.

Note 2) Dimensions shown for insert corner RE 0.8.

Note 3) When using insert with right and left hand chip breaker, please use left hand insert for right hand holder and right hand insert for left hand holder.

● : Inventory maintained in Japan.

TN type inserts > A121-A127

DN type inserts > A107-A113

CBN & PCD inserts > B032-B036, B039-B041, B068, B069

DPCL		CN $\odot$ inserts					Finish	Light	Light	Light			
		FP	SA	LP	LM								
		(12)	(12)	(12)	(12)	Medium	Medium	Stainless	CBN/PCD				
Order Number	Stock	Insert Number	Dimensions(mm)										
	R		DCON	LF	WF	GAMF	DMIN	Shim	Shim Pin	Clamp Lever	Clamp Screw	Wrench	
DPCL132R	●	CN $\odot$ A CN $\odot$ G CN $\odot$ M	1204 $\odot$	32	40	20	12°	40	LLSCN42	LLP14	LLCL14	LLCS108	HKY30R
DPCL140R	●		1204 $\odot$	40	50	25	10°	50	LLSCN42	LLP14	LLCL14	LLCS108	HKY30R

\* Clamp Torque (N · m) : LLCS108=3.3

DPDH		DN $\odot$ inserts					Finish	Light	Medium	Medium			
		FP	LP	MP	MH								
		(15)	(15)	(15)	(15)	Medium	Stainless	G class	CBN/PCD				
Order Number	Stock	Insert Number	Dimensions(mm)										
	R		DCON	LF	WF	GAMF	DMIN	Shim	Shim Pin	Clamp Lever	Clamp Screw	Wrench	
DPDH132R	●	DN $\odot$ A DN $\odot$ G DN $\odot$ M	1504 $\odot$	32	40	25	10°	50	LLSDN42	LLP14	LLCL24	LLCS108	HKY30R
DPDH140R	●		1504 $\odot$	40	50	30	9°	60	LLSDN42	LLP14	LLCL24	LLCS108	HKY30R

\* Clamp Torque (N · m) : LLCS108=3.3

## RECOMMENDED CUTTING CONDITIONS

Work Material	Hardness	Cutting Mode	l/d $\leq$ 3			l/d=3-4		
			Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
<b>P</b> Carbon Steel Alloy Steel	180-350HB	Medium Cutting	110 (80-140)	0.25 (0.1-0.4)	-5.0	110 (80-140)	0.2 (0.1-0.3)	-4.0
<b>M</b> Stainless Steel	$\leq$ 200HB	Medium Cutting	80 (60-100)	0.2 (0.1-0.3)	-4.0	70 (50-100)	0.15 (0.1-0.25)	-3.0
<b>K</b> Gray Cast Iron	Tensile Strength $\leq$ 350MPa	Medium Cutting	80 (60-100)	0.25 (0.1-0.4)	-5.0	80 (60-100)	0.2 (0.1-0.3)	-4.0

CN $\odot$  type inserts > A100-A106  
 DN $\odot$  type inserts > A107-A113  
 CBN & PCD inserts > B028-B036, B068

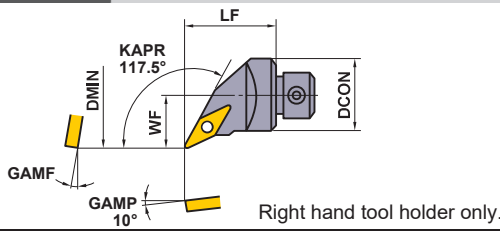
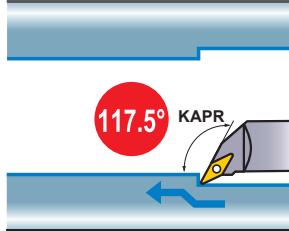
SPARE PARTS > Q001  
 TECHNICAL DATA > R001

# BORING BARS









## D TYPE BORING HEAD

- The minimum cutting diameter is from  $\phi 40$ .
- Economical negative insert.
- Lever lock type.
- Exchangeable head type.

### DPVP



### VN $\odot$ inserts

Finish	Light	Medium	Medium
FP	LP	MP	MH
			
(16)	(16)	(16)	(16)
Stainless	G class	PCD	CBN
MM	L	L-F	
			
(16)	(16)	(16)	(16)

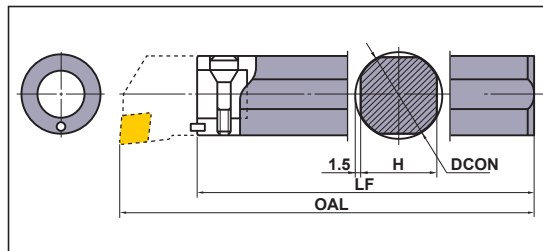
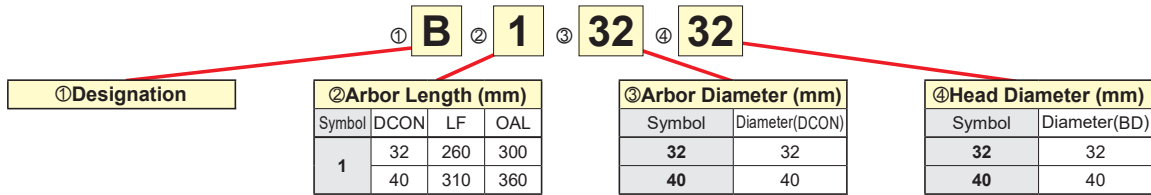
Order Number	Stock	Insert Number	Dimensions(mm)					Shim	Lock Pin	Lock Screw	* Stop Ring	Wrench	
			DCON	LF	WF	GAMF	DMIN						
DPVP132R	●	VN $\odot$ A VN $\odot$ G VN $\odot$ M	1604 $\odot$	32	40	25	13°	50	PV322	P11S	HSP05008C	E03	HKY25R
DPVP140R	●	VN $\odot$ A VN $\odot$ G VN $\odot$ M	1604 $\odot$	40	50	30	13°	60	PV322	P11S	HSP05008C	E03	HKY25R

\* Clamp Torque (N · m) : HSP05008C=2.5  
 Note 1) Dimensions shown for insert corner RE 0.8.

E

BORING BARS

### STANDARD ARBOR FOR D TYPE BORING HEAD



Order Number	Stock	Dimensions (mm)				Set Bolt	Wrench	Head Order Number
		DCON	LF	H	OAL			
B13232	●	32	260	29	300	SD32	HKY60R	DP $\odot$ 132R
B14040	●	40	310	37	360	SD40	HKY60R	DP $\odot$ 140R

● : Inventory maintained in Japan.

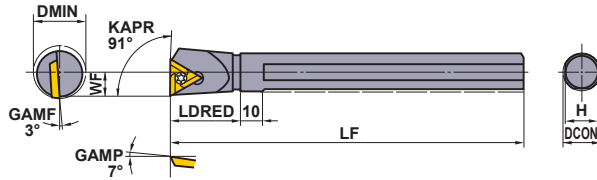
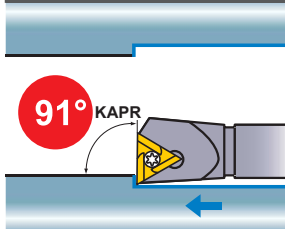
VN $\odot$  type inserts > A128—A131  
 CBN & PCD inserts > B042, B043, B070

# AL TYPE BORING BARS

- Suitable for non-ferrous metal.
- 20° positive insert.
- Screw-on type.
- l/d is 6 times the diameter.
- Excellent vibration resistance.
- The minimum cutting diameter is from  $\phi 20$ .

## STFE

## TE $\odot$ inserts



Right hand tool holder shown.

Medium	PCD
R/L  (16)	R/L  (16)
PCD  (16)	

Order Number	Stock		Insert Number	Dimensions(mm)						*		
	R	L		DCON	LF	LDRED	WF	H	DMIN	Clamp Screw	Wrench	
S16RSTFER/L16	●	●	TEGX $\odot$ $\odot$ R/L TEGX	1603 $\odot$	16	200	30	11	14.6	20	FC400890T	TKY10F
S20RSTFER/L16	●	●		1603 $\odot$	20	200	37	13	18	25	FC400890T	TKY10F
S25SSTFER/L16	●	●		1603 $\odot$	25	250	40	17	23	32	FC400890T	TKY10F

\* Clamp Torque (N · m) : FC400890T=2.5

BORING BARS

## RECOMMENDED CUTTING CONDITIONS

Work Material	Grade	Cutting Speed (m/min)	l/d=3		l/d=4		l/d=5		l/d=6	
			Feed (mm/rev)	Depth of Cut (mm)	Feed (mm/rev)	Depth of Cut (mm)	Feed (mm/rev)	Depth of Cut (mm)	Feed (mm/rev)	Depth of Cut (mm)
N Aluminium Alloy	HTi10	400 (200—600)	0.15 (0.05—0.25)	—3.0	0.15 (0.05—0.25)	—3.0	0.1 (0.05—0.2)	—2.5	0.1 (0.05—0.2)	—1.0
	MD220	800 (200—1500)	0.15 (0.05—0.25)	—3.0	0.15 (0.05—0.25)	—3.0	0.1 (0.05—0.2)	—2.5	0.1 (0.05—0.2)	—1.0

Note 1) The insert photos are only examples. The letters refer to the chip breaker and the dimension refers to the inscribed circle.

Note 2) Dimensions shown for insert corner RE 0.4.

Note 3) When using insert with right and left hand chip breaker, please use left hand insert for right hand holder and right hand insert for left hand holder.

TE $\odot$  type inserts > A163 SPARE PARTS > Q001  
PCD inserts > B079 TECHNICAL DATA > R001

E043