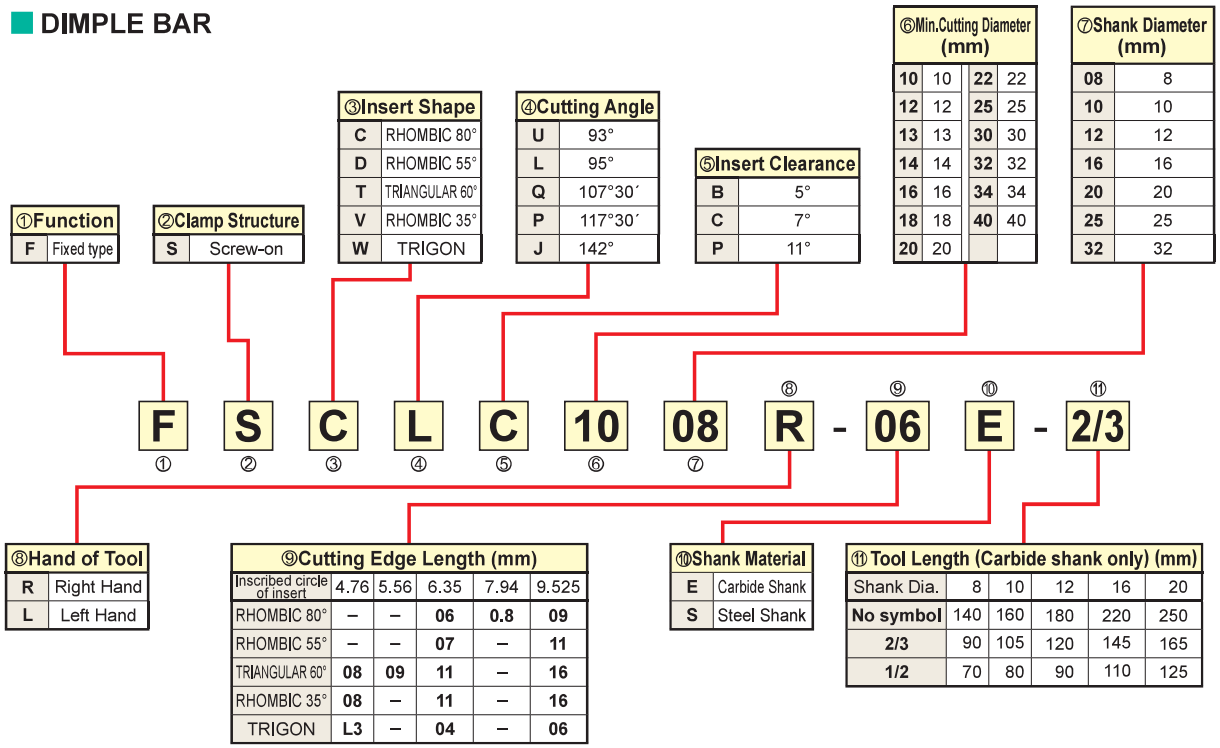
IDENTIFICATION

DIMPLE BAR



①Function	
F	Fixed type

②Clamp Structure	
S	Screw-on

③Insert Shape	
C	RHOMBIC 80°
D	RHOMBIC 55°
T	TRIANGULAR 60°
V	RHOMBIC 35°
W	TRIGON

④Cutting Angle	
U	93°
L	95°
Q	107°30′
P	117°30′
J	142°

⑤Insert Clearance	
B	5°
C	7°
P	11°

⑥Min.Cutting Diameter (mm)			
10	10	22	22
12	12	25	25
13	13	30	30
14	14	32	32
16	16	34	34
18	18	40	40
20	20		

⑦Shank Diameter (mm)	
08	8
10	10
12	12
16	16
20	20
25	25
32	32

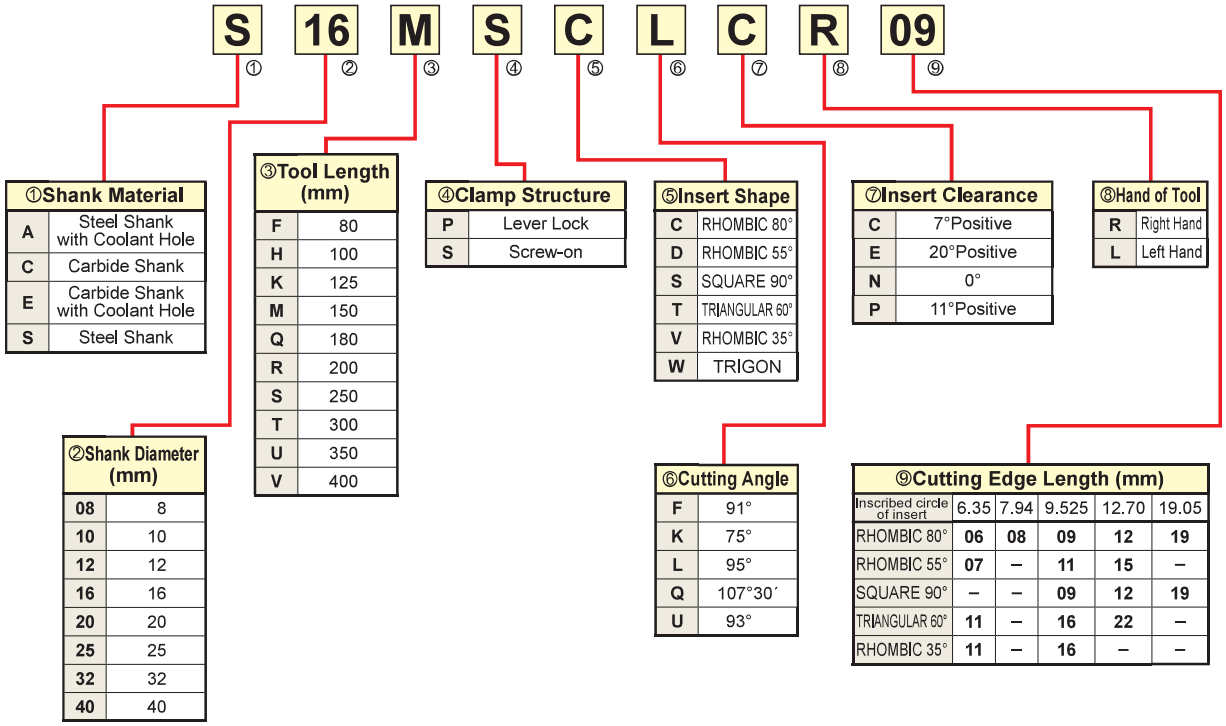
⑧Hand of Tool	
R	Right Hand
L	Left Hand

⑨Cutting Edge Length (mm)					
Inscribed circle of insert	4.76	5.56	6.35	7.94	9.525
RHOMBIC 80°	–	–	06	0.8	09
RHOMBIC 55°	–	–	07	–	11
TRIANGULAR 60°	08	09	11	–	16
RHOMBIC 35°	08	–	11	–	16
TRIGON	L3	–	04	–	06

⑩Shank Material	
E	Carbide Shank
S	Steel Shank

⑪ Tool Length (Carbide shank only) (mm)					
Shank Dia.	8	10	12	16	20
No symbol	140	160	180	220	250
2/3	90	105	120	145	165
1/2	70	80	90	110	125

ISO TYPE Boring tools
[For Aluminium Alloy, P-type and S-type]



①Shank Material	
A	Steel Shank with Coolant Hole
C	Carbide Shank
E	Carbide Shank with Coolant Hole
S	Steel Shank

②Shank Diameter (mm)	
08	8
10	10
12	12
16	16
20	20
25	25
32	32
40	40

③Tool Length (mm)	
F	80
H	100
K	125
M	150
Q	180
R	200
S	250
T	300
U	350
V	400

④Clamp Structure	
P	Lever Lock
S	Screw-on

⑤Insert Shape	
C	RHOMBIC 80°
D	RHOMBIC 55°
S	SQUARE 90°
T	TRIANGULAR 60°
V	RHOMBIC 35°
W	TRIGON

⑥Cutting Angle	
F	91°
K	75°
L	95°
Q	107°30′
U	93°

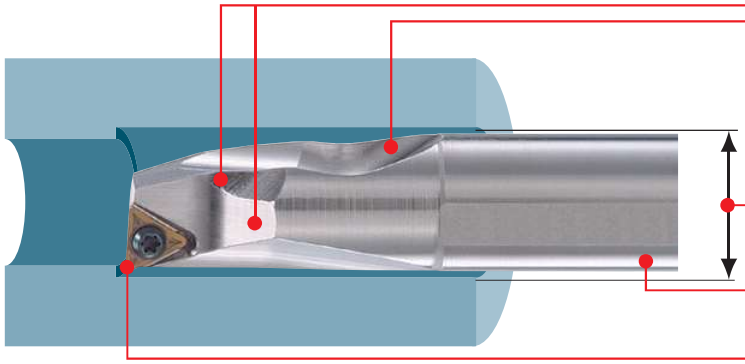
⑦Insert Clearance	
C	7°Positive
E	20°Positive
N	0°
P	11°Positive

⑧Hand of Tool	
R	Right Hand
L	Left Hand

⑨Cutting Edge Length (mm)					
Inscribed circle of insert	6.35	7.94	9.525	12.70	19.05
RHOMBIC 80°	06	08	09	12	19
RHOMBIC 55°	07	–	11	15	–
SQUARE 90°	–	–	09	12	19
TRIANGULAR 60°	11	–	16	22	–
RHOMBIC 35°	11	–	16	–	–

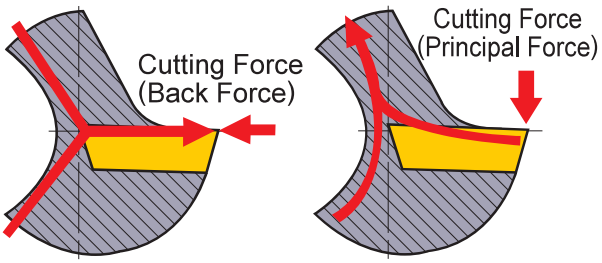
FEATURES OF DIMPLE BAR

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.

DEFLECTION RESISTANCE



The unique cross sectional shape engineered into the dimple effectively balances the cutting forces (principal and back force), and reduces deflection by up to 17 %.

Boring Bar	Deflection
DIMPLE BAR	28.3μm
Conventional Bar	34μm

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

Insert Number	Clamp Screw
CCG/MT0602○○ (ϕ6.35)	Can be used as it is.
CPG/MT0802○○ (ϕ7.94)	Change to **TS3**
CPG/MT0903○○ (ϕ9.525)	Change to **TS4**
CPMX0802○○ (ϕ7.94)	Can be used as it is.
CPMX0903○○ (ϕ9.525)	Can be used as it is.

Holder : FSTUP • FSTUP...E

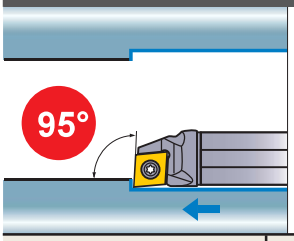
Insert Number	Clamp Screw
TPG/MX0802○○ (ϕ4.76)	Change to **CS200T**
TPG/MX0902○○ (ϕ5.56)	Change to **CS250T**
TPG/MX1103○○ (ϕ9.525)	Change to **CS300890T**

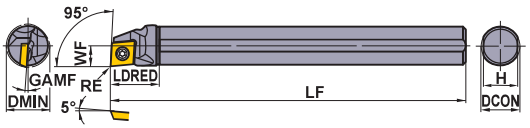
* If the screw is too long the please shorten as necessary.
(Note) TPMT/W09, W11 types cannot be used due to a different clamp screw size.

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 7 to 8 times the diameter).

FSCLC/P — CC○○inserts, CP○○inserts





FSCLC1008R/L-06S=1°

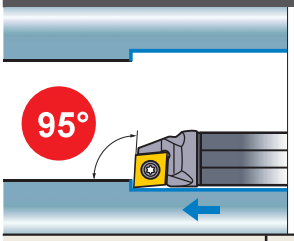
Right hand tool holder shown.

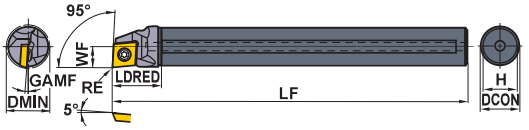
Finish	Finish	Light	Light
FP	FM	LP	LM
			
(06,09)	(06,09)	(06,09)	(06,09)
Medium	**Medium**	**PCD/CBN**	
MP	MM		
			
(06,09)	(06,09)	(06,08,09)	

Order Number	Stock		Insert Number		Dimensions(mm)								Maximum recommendation l/d ratio	* Clamp Screw	Wrench
	R	L			DCON	LF	LDRED	WF	H	GAMF	DMIN	RE			
FSCLC1008R/L-06S	●	●	CCG/MH NP-CCGT NP-CCGW	0602○○	8	125	18	5	7.2	12°	**10**	0.4	3	TS253	TKY08F
FSCLP1210R/L-08S	●	●	CPMH NP-CPGB NP-CPMB NP-CPMH	0802○○	10	150	22.5	6	9	5°	**12**	0.4	3.5	TS3D	TKY10F
FSCLP1412R/L-08S	●	●		0802○○	12	150	27	7	11	4°	**14**	0.4	4	TS3D	TKY10F
FSCLP1612R/L-09S	●	●		0903○○	12	150	30	8	11	4°	**16**	0.4	4	TS4D	TKY15F
FSCLP1816R/L-09S	●	●		0903○○	16	180	36	9	15	3.5°	**18**	0.4	5	TS4D	TKY15F
FSCLP2220R/L-09S	●	●		0903○○	20	220	45	11	19	2°	**22**	0.4	5	TS4D	TKY15F
FSCLP3025R/L-09S	●	●		0903○○	25	250	56.3	15	23.4	0°	**30**	0.4	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○○inserts, CP○○inserts





FSCLC1008R/L-06E (-2/3, -1/2)=1°

Right hand tool holder shown.

Finish	Finish	Light	Light
FP	FM	LP	LM
			
(06,09)	(06,09)	(06,09)	(06,09)
Medium	**Medium**	**PCD/CBN**	
MP	MM		
			
(06,09)	(06,09)	(06,08,09)	

Order Number	Stock		Insert Number		Dimensions(mm)								Maximum recommendation l/d ratio	* Clamp Screw	Wrench
	R	L			DCON	LF	LDRED	WF	H	GAMF	DMIN	RE			
FSCLC1008R/L-06E	●	●	CCGH CCMH NP-CCGT NP-CCGW	0602○○	8	140	13.8	5	7.2	12°	**10**	0.4	7	TS253	TKY08F
FSCLC1008R-06E-2/3	●			0602○○	8	90	13.8	5	7.2	12°	**10**	0.4	7	TS253	TKY08F
FSCLC1008R-06E-1/2	●			0602○○	8	70	13.8	5	7.2	12°	**10**	0.4	7	TS253	TKY08F
FSCLP1210R/L-08E	●	●	CPMH NP-CPGB NP-CPMB NP-CPMH	0802○○	10	160	16.0	6	9	5°	**12**	0.4	7.5	TS3D	TKY10F
FSCLP1210R-08E-2/3	●			0802○○	10	105	16.0	6	9	5°	**12**	0.4	7.5	TS3D	TKY10F
FSCLP1210R-08E-1/2	●			0802○○	10	80	16.0	6	9	5°	**12**	0.4	7.5	TS3D	TKY10F
FSCLP1412R/L-08E	●	●		0802○○	12	180	17.8	7	11	4°	**14**	0.4	8	TS3D	TKY10F
FSCLP1412R-08E-2/3	●			0802○○	12	120	17.8	7	11	4°	**14**	0.4	8	TS3D	TKY10F
FSCLP1412R-08E-1/2	●			0802○○	12	90	17.8	7	11	4°	**14**	0.4	8	TS3D	TKY10F
FSCLP1816R/L-09E	●	●		0903○○	16	220	21.8	9	15	3.5°	**18**	0.4	8	TS4D	TKY15F
FSCLP1816R-09E-2/3	●			0903○○	16	145	21.8	9	15	3.5°	**18**	0.4	8	TS4D	TKY15F
FSCLP1816R-09E-1/2	●			0903○○	16	110	21.8	9	15	3.5°	**18**	0.4	8	TS4D	TKY15F
FSCLP2220R/L-09E	●	●		0903○○	20	250	24.0	11	19	2°	**22**	0.4	8	TS4D	TKY15F
FSCLP2220R-09E-2/3	●			0903○○	20	165	24.0	11	19	2°	**22**	0.4	8	TS4D	TKY15F
FSCLP2220R-09E-1/2	●			0903○○	20	125	24.0	11	19	2°	**22**	0.4	8	TS4D	TKY15F

* Clamp Torque (N • m) : TS253=1.0, TS3D=2.5, TS4D=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.

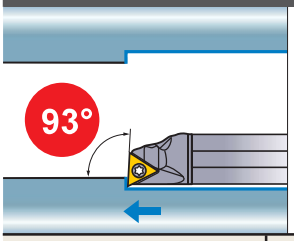
(Note 2) When using insert with right and left hand chip breaker, please use left hand insert for right hand holder and right hand insert for left hand holder.

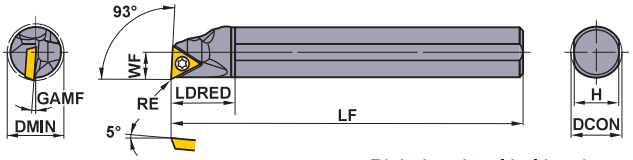
● : Inventory maintained in Japan.

CC○○ type inserts	➤ A126—A130
CP○○ type inserts	➤ A131
CBN & PCD inserts	➤ B039—B042, B059

FSTUP

TP○○inserts





Right hand tool holder shown.

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

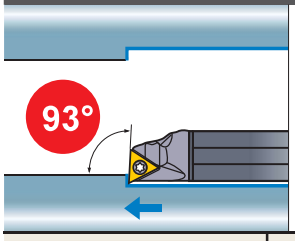
Order Number	Stock		Insert Number		Dimensions(mm)								Maximum recommendation l/d ratio	* Clamp Screw	Wrench
	R	L			DCON	LF	LDRED	WF	H	GAMF	DMIN	RE			
FSTUP1008R/L-08S	●	●	TPGH TPMH NP-TPGB NP-TPMB NP-TPMH	0802○○	8	125	18	5	7.2	10°	**10**	0.4	3	TS2D	TKY06F
FSTUP**1210R/L-09S**	●	●		0902○○	10	150	22.5	6	9	8°	**12**	0.4	3.5	TS25D	TKY08F
FSTUP**1412R/L-09S**	●	●		0902○○	12	150	27	7	11	7°	**14**	0.4	4	TS25D	TKY08F
FSTUP**1210R/L-11S**	●	●		1103○○	10	150	22.5	6	9	8°	**12**	0.4	3.5	TS31D	TKY10F
FSTUP**1412R/L-11S**	●	●		1103○○	12	150	27	7	11	7°	**14**	0.4	4	TS31D	TKY10F
FSTUP**1816R/L-11S**	●	●		1103○○	16	180	36	9	15	4°	**18**	0.4	5	TS31D	TKY10F
FSTUP**2220R/L-11S**	●	●		1103○○	20	220	45	11	19	0°	**22**	0.4	5	TS31D	TKY10F
FSTUP**3225R/L-16S**	●	●		1603○○	25	270	56.3	16	23.4	0°	**32**	0.8	5	TS4D	TKY15F

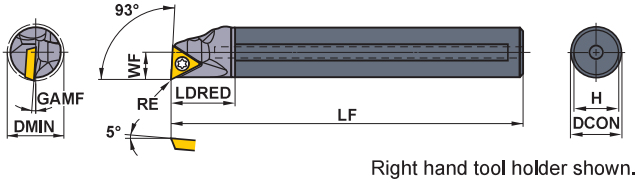
* Clamp Torque (N • m) : TS2D=0.6, TS25D=1.0, TS31D=2.5, TS4D=3.5

FSTUP_E

Carbide shank with coolant hole

TP○○inserts





Right hand tool holder shown.

Finish	Light	Medium
FV	SV	MV
		
(08,09)	(08,09,11)	(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	* Clamp Screw	Wrench
	R	L			DCON	LF	LDRED	WF	H	GAMF	DMIN	RE			
FSTUP1008R/L-08E	●	●	TPGH TPMH NP-TPGB NP-TPMB NP-TPMH	0802○○	8	140	13.8	5	7.2	10°	**10**	0.4	7	TS2D	TKY06F
FSTUP**1008R-08E-2/3**	●			0802○○	8	90	13.8	5	7.2	10°	**10**	0.4	7	TS2D	TKY06F
FSTUP**1008R-08E-1/2**	●			0802○○	8	70	13.8	5	7.2	10°	**10**	0.4	7	TS2D	TKY06F
FSTUP**1210R/L-09E**	●	●		0902○○	10	160	16.0	6	9	8°	**12**	0.4	7.5	TS25D	TKY08F
FSTUP**1210R-09E-2/3**	●			0902○○	10	105	16.0	6	9	8°	**12**	0.4	7.5	TS25D	TKY08F
FSTUP**1210R-09E-1/2**	●			0902○○	10	80	16.0	6	9	8°	**12**	0.4	7.5	TS25D	TKY08F
FSTUP**1412R/L-09E**	●	●		0902○○	12	180	17.8	7	11	7°	**14**	0.4	8	TS25D	TKY08F
FSTUP**1412R-09E-2/3**	●			0902○○	12	120	17.8	7	11	7°	**14**	0.4	8	TS25D	TKY08F
FSTUP**1412R-09E-1/2**	●			0902○○	12	90	17.8	7	11	7°	**14**	0.4	8	TS25D	TKY08F
FSTUP**1816R/L-11E**	●	●		1103○○	16	220	21.8	9	15	4°	**18**	0.4	8	TS31D	TKY10F
FSTUP**1816R-11E-2/3**	●			1103○○	16	145	21.8	9	15	4°	**18**	0.4	8	TS31D	TKY10F
FSTUP**1816R-11E-1/2**	●			1103○○	16	110	21.8	9	15	4°	**18**	0.4	8	TS31D	TKY10F
FSTUP**2220R/L-11E**	●	●		1103○○	20	250	24.0	11	19	0°	**22**	0.4	8	TS31D	TKY10F
FSTUP**2220R-11E-2/3**	●			1103○○	20	165	24.0	11	19	0°	**22**	0.4	8	TS31D	TKY10F
FSTUP**2220R-11E-1/2**	●			1103○○	20	125	24.0	11	19	0°	**22**	0.4	8	TS31D	TKY10F

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

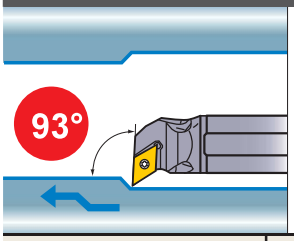
TP○○ type inserts	➤ A145—A147
CBN & PCD inserts	➤ B046, B062

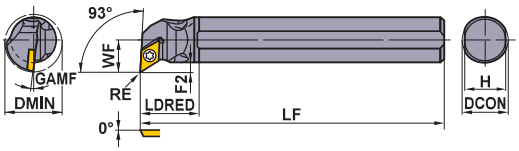
CUTTING CONDITIONS	➤ E012
SPARE PARTS	➤ P001
TECHNICAL DATA	➤ Q001

DIMPLE BAR

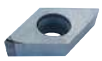
- Excellent vibration resistance due to light dimple head.
- Chip disposal is improved by having two channels for chip evacuation.
- A laser printed scale on the side for easy installation (Steel shank).
- l/d is 3 to 5 times the diameter (Carbide shank is 7 to 8 times the diameter).

FSDUC — DC○○inserts





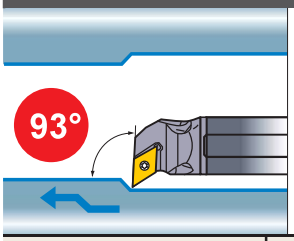
Right hand tool holder shown.

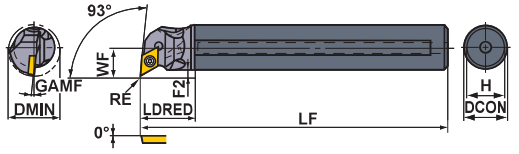
Finish	Finish	Light	Light
FP	FM	LP	LM
			
(07,11)	(07,11)	(07,11)	(07,11)
Medium	**Medium**	**PCD**	**CBN**
MP	MM	R/L-F	
			
(07,11)	(07,11)	(07,11)	(07,11)

Order Number	Stock R	Stock L	Insert Number		Dimensions(mm) DCON	LF	LDRED	WF	F2	H	GAMF	DMIN	RE	Maximum recommendation l/d ratio	Clamp Screw *	Wrench
FSDUC1410R/L-07S	●	●	DCMT DCET DCGT NP-DCMT NP-DCMW	0702○○	10	150	18	8.3	3.3	9	7.5°	**14**	0.4	3.5	TS25	TKY08F
FSDUC1612R/L-07S	●	●		0702○○	12	150	20	9.3	3.3	11	6°	**16**	0.4	4	TS25	TKY08F
FSDUC2016R/L-07S	●	●		0702○○	16	180	20	11.3	3.3	15	5°	**20**	0.4	5	TS25	TKY08F
FSDUC3220R/L-11S	●	●		11T3○○	20	180	22.5	16.1	6.1	19	5°	**32**	0.8	5	TS43	TKY15F

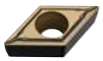
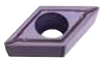
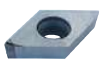
* Clamp Torque (N • m) : TS25=1.0, TS43=3.5

FSDUC_E — Carbide shank with coolant hole — DC○○inserts





Right hand tool holder shown.

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

Order Number	Stock R	Stock L	Insert Number		Dimensions(mm) DCON	LF	LDRED	WF	F2	H	GAMF	DMIN	RE	Maximum recommendation l/d ratio	Clamp Screw *	Wrench
FSDUC1410R/L-07E	●	●	DCMT DCET DCGT NP-DCMT NP-DCMW	0702○○	10	160	16.0	8.3	3.3	9	7.5°	**14**	0.4	7.5	TS25	TKY08F
FSDUC1612R/L-07E	●	●		0702○○	12	180	17.8	9.3	3.3	11	6.0°	**16**	0.4	8	TS25	TKY08F
FSDUC2016R/L-07E	●	●		0702○○	16	220	21.8	11.3	3.3	15	5.0°	**20**	0.4	8	TS25	TKY08F
FSDUC3220R/L-11E	●	●		11T3○○	20	250	24.0	16.1	6.1	19	5.0°	**32**	0.8	8	TS43	TKY15F

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

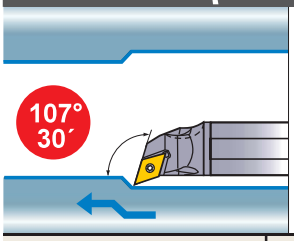
(Note 1) The insert photos are only examples. The letters refer to the chip breaker and the dimension refers to the inscribed circle.
(Note 2) When using insert with right and left hand chip breaker, please use left hand insert for right hand holder and right hand insert for left hand holder.

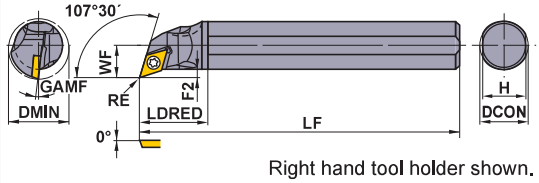
● : **Inventory maintained in Japan.**

DC○○ type inserts ➤ A132—A135
CBN & PCD inserts ➤ B043, B044, B060

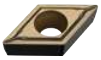
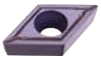
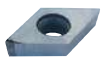
FSDQC

DC○○inserts





Right hand tool holder shown.

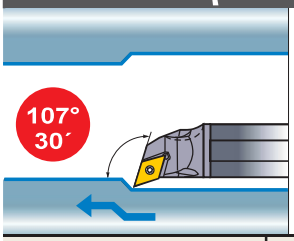
Finish	Finish	Light	Light
FP	FM	LP	LM
			
(07,11)	(07,11)	(07,11)	(07,11)
Medium	**Medium**	**PCD**	**CBN**
MP	MM	R/L-F	
			
(07,11)	(07,11)	(07,11)	(07,11)

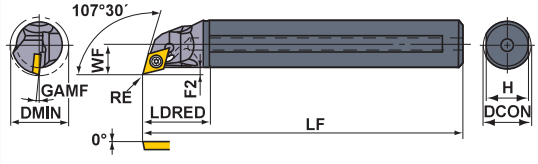
Order Number	Stock		Insert Number		Dimensions(mm)									Maximum recommendation l/d ratio	* Clamp Screw	Wrench
	R	L			DCON	LF	LDRED	WF	F2	H	GAMF	DMIN	RE			
FSDQC1310R/L-07S	●	●	DCMT DCET DCGT NP-DCMT NP-DCMW	0702○○	10	150	20.5	7.6	2.6	9	8°	**13**	0.4	3.5	TS25	TKY08F
FSDQC1612R/L-07S	●	●		0702○○	12	150	22.5	8.6	2.6	11	6°	**16**	0.4	4	TS25	TKY08F
FSDQC2016R/L-07S	●	●		0702○○	16	180	22.5	10.6	2.6	15	5°	**20**	0.4	5	TS25	TKY08F
FSDQC2520R/L-11S	●	●		11T3○○	20	180	26	13.7	3.7	19	7°	**25**	0.8	5	TS43	TKY15F

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

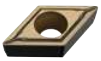
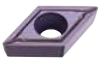
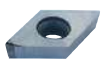
FSDQC_E

Carbide shank with coolant hole DC○○inserts





Right hand tool holder shown.

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

Order Number	Stock		Insert Number		Dimensions(mm)									Maximum recommendation l/d ratio	* Clamp Screw	Wrench
	R	L			DCON	LF	LDRED	WF	F2	H	GAMF	DMIN	RE			
FSDQC1310R/L-07E	●	●	DCMT DCET DCGT NP-DCMT NP-DCMW	0702○○	10	162	18.4	7.6	2.6	9	8°	**13**	0.4	7.5	TS25	TKY08F
FSDQC1612R/L-07E	●	●		0702○○	12	182	20.2	8.6	2.6	11	6°	**16**	0.4	8	TS25	TKY08F
FSDQC2016R/L-07E	●	●		0702○○	16	222	24.2	10.6	2.6	15	5°	**20**	0.4	8	TS25	TKY08F
FSDQC2520R/L-11E	●	●		11T3○○	20	254	28.0	13.7	3.7	19	7°	**25**	0.8	8	TS43	TKY15F

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

BORING

DC○○ type inserts ➤ A132—A135
CBN & PCD inserts ➤ B043, B044, B060

CUTTING CONDITIONS ➤ E012
SPARE PARTS ➤ P001
TECHNICAL DATA ➤ Q001

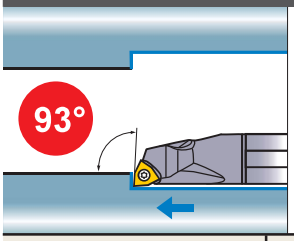
DIMPLE BAR

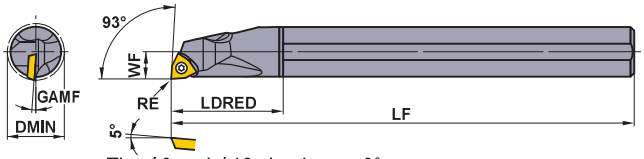
- Excellent vibration resistance due to light dimple head.
- Chip disposal is improved by having two channels for chip evacuation.
- A laser printed scale on the side for easy installation (Steel shank).
- l/d is 3 to 5 times the diameter (Carbide shank is 7 to 8 times the diameter).

FSWUB/P

WB○○inserts, WP○○inserts

Finish: R/L-F·FS (L3,04,06) / Medium: MV (L3,04,06)





The ϕ8 and ϕ10 shanks are 0°

Right hand tool holder shown.

Order Number	Stock R	Stock L	Insert Number		Dimensions(mm) DCON	LF	LDRED	WF	H	GAMF	DMIN	RE	Maximum recommendation l/d ratio	Clamp Screw *	Wrench
FSWUB1008R/L-L3S	●	●	WBMT WBGT	L302○○	8	125	18	5	7.2	14°	10	0.2	3	TS2	TKY06F
FSWUB1210R/L-L3S	●	●		L302○○	10	150	22.5	6	9	11°	12	0.2	3.5	TS2	TKY06F
FSWUP1412R/L-04S	●	●	WPMT WPGT	0402○○	12	150	27	7	11	4°	14	0.4	4	TS253	TKY08F
FSWUP1816R/L-04S	●	●		0402○○	16	180	36	9	15	1°	18	0.4	5	TS253	TKY08F
FSWUP2220R/L-06S	●	●		0603○○	20	220	45	11	19	2°	22	0.8	5	TS4	TKY15F
FSWUP3025R/L-06S	●	●		0603○○	25	250	56.3	15	23.4	0°	30	0.8	5	TS4	TKY15F

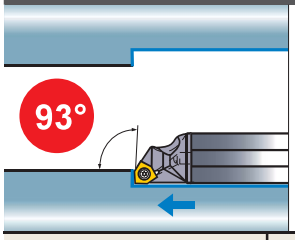
* Clamp Torque (N • m) : TS2=0.6, TS253=1.0, TS4=3.5

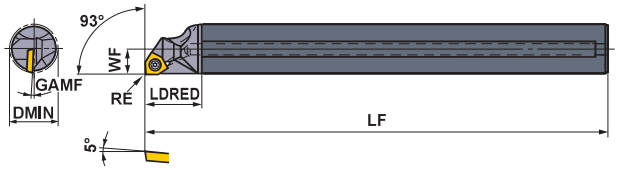
FSWUB/P_E

Carbide shank with coolant hole

WB○○inserts, WP○○inserts

Finish: R/L-F·FS (L3,04,06) / Medium: MV (L3,04,06)





The ϕ8 and ϕ10 shanks are 0°

Right hand tool holder shown.

Order Number	Stock R	Stock L	Insert Number		Dimensions(mm) DCON	LF	LDRED	WF	H	GAMF	DMIN	RE	Maximum recommendation l/d ratio	Clamp Screw *	Wrench
FSWUB1008R/L-L3E	●	●	WBMT WBGT	L302○○	8	140	13.8	5	7.2	14°	10	0.2	7	TS2	TKY06F
FSWUB1008R-L3E-2/3	●			L302○○	8	90	13.8	5	7.2	14°	10	0.2	7	TS2	TKY06F
FSWUB1008R-L3E-1/2	●			L302○○	8	70	13.8	5	7.2	14°	10	0.2	7	TS2	TKY06F
FSWUB1210R/L-L3E	●	●		L302○○	10	160	16.0	6	9	11°	12	0.2	7.5	TS2	TKY06F
FSWUB1210R-L3E-2/3	●			L302○○	10	105	16.0	6	9	11°	12	0.2	7.5	TS2	TKY06F
FSWUB1210R-L3E-1/2	●			L302○○	10	80	16.0	6	9	11°	12	0.2	7.5	TS2	TKY06F
FSWUP1412R/L-04E	●	●	WPMT WPGT	0402○○	12	180	17.8	7	11	4°	14	0.4	8	TS253	TKY08F
FSWUP1412R-04E-2/3	●			0402○○	12	120	17.8	7	11	4°	14	0.4	8	TS253	TKY08F
FSWUP1412R-04E-1/2	●			0402○○	12	90	17.8	7	11	4°	14	0.4	8	TS253	TKY08F
FSWUP1816R/L-04E	●	●		0402○○	16	220	21.8	9	15	1°	18	0.4	8	TS253	TKY08F
FSWUP1816R-04E-2/3	●			0402○○	16	145	21.8	9	15	1°	18	0.4	8	TS253	TKY08F
FSWUP1816R-04E-1/2	●			0402○○	16	110	21.8	9	15	1°	18	0.4	8	TS253	TKY08F
FSWUP2220R/L-06E	●	●		0603○○	20	250	24.0	11	19	2°	22	0.8	8	TS4	TKY15F
FSWUP2220R-06E-2/3	●			0603○○	20	165	24.0	11	19	2°	22	0.8	8	TS4	TKY15F
FSWUP2220R-06E-1/2	●			0603○○	20	125	24.0	11	19	2°	22	0.8	8	TS4	TKY15F

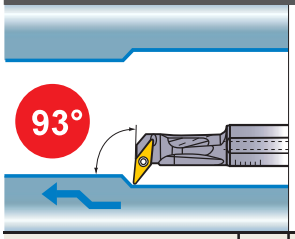
* Clamp Torque (N • m) : TS2=0.6, TS253=1.0, TS4=3.5

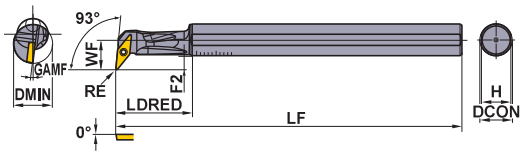
(Note 1) The insert photos are only examples. The letters refer to the chip breaker and the dimension refers to the inscribed circle.
(Note 2) When using insert with right and left hand chip breaker, please use left hand insert for right hand holder and right hand insert for left hand holder.

● : **Inventory maintained in Japan.**

WB○○ type inserts	➤ A155
WP○○ type inserts	➤ A157
PCD inserts	➤ B065

FSVUB/C VC○○inserts, VB○○inserts





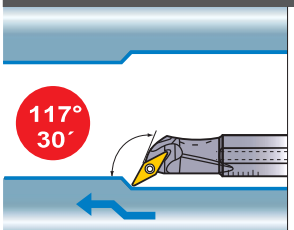
Right hand tool holder shown.

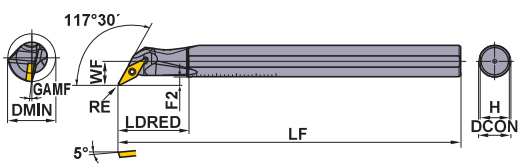
Finish	Finish	Light	Light
FP	FM	LP	LM
(11,16)	(11,16)	(11,16)	(11,16)
Medium	Medium	Medium	CBN
MP	MM	Standard	
(16)	(16)	(16)	(16)

Order Number	Stock		Insert Number		Dimensions(mm)									Maximum recommendation l/d ratio	Shim	Shim Pin	Clamp Screw *	Wrench
	R	L			DCON	LF	LDRED	WF	F2	H	GAMF	DMIN	RE					
FSVUC1612R/L-08S	●	●	VCGT VCMT	0802○○	12	150	25	11	5.5	11	8°	**16**	0.4	4	—	—	TS202	TKY06F
FSVUB2016R/L-11S	●	●	VBET VBGT VBMT NP-VBGW	1103○○	16	180	32.5	15.5	8	15	8°	**20**	0.4	5	—	—	TS255	TKY08F
FSVUB2520R/L-11S	●	●		1103○○	20	200	40.5	17.5	8	19	7°	**25**	0.4	5	—	—	TS255	TKY08F
FSVUB3425R/L-16S	●	●		1604○○	25	220	50	20.5	8.5	23.4	13°	**34**	0.8	5	SPSVN32	BCP141	TS35D	TKY15F
FSVUB4032R/L-16S	●	●		1604○○	32	250	84.0	27.5	12	30.4	9°	**40**	0.8	5	SPSVN32	BCP141	TS35D	TKY15F

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

FSVPB/C VC○○inserts, VB○○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	CBN
MP	MM	Standard	
(16)	(16)	(16)	(16)

Order Number	Stock		Insert Number		Dimensions(mm)									Maximum recommendation l/d ratio	Shim	Shim Pin	Clamp Screw *	Wrench
	R	L			DCON	LF	LDRED	WF	F2	H	GAMF	DMIN	RE					
FSVPC1610R/L-08S	●	●	VCGT VCMT	0802○○	10	150	25	8	3	9	8°	**16**	0.4	3.5	—	—	TS202	TKY06F
FSVPB2012R/L-11S	●	●	VBET VBGT VBMT NP-VBGW	1103○○	12	150	28	10	4.5	11	8°	**20**	0.4	4	—	—	TS255	TKY08F
FSVPB2516R/L-11S	●	●		1103○○	16	180	35	12.5	5	15	5°	**25**	0.4	5	—	—	TS255	TKY08F
FSVPB3020R/L-11S	●	●		1103○○	20	200	40	15	5	19	5°	**30**	0.4	5	—	—	TS255	TKY08F
FSVPB3425R/L-16S	●	●		1604○○	25	220	50	17	5	23.4	13°	**34**	0.8	5	SPSVN32	BCP141	TS35D	TKY15F
FSVPB4032R/L-16S	●	●		1604○○	32	250	55	22	6.5	30.4	9°	**40**	0.8	5	SPSVN32	BCP141	TS35D	TKY15F

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

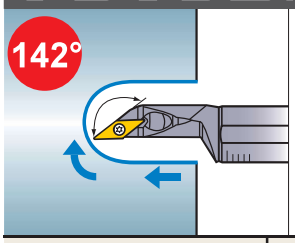
VB○○ type inserts	➤ A148—A150	CUTTING CONDITIONS	➤ E012
VC○○ type inserts	➤ A151, A152	SPARE PARTS	➤ P001
CBN & PCD inserts	➤ B048, B064	TECHNICAL DATA	➤ Q001

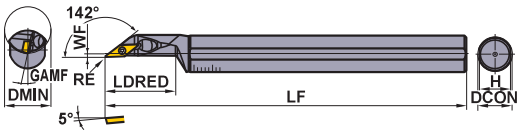
DIMPLE BAR

- 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.

Finish	Finish	Light	Light
FP	FM	LP	LM
			
(11)	(11)	(11)	(11)
Finish	**Medium**		
FV	MV		
			
(08,11)	(08,11)		

Order Number	Stock R	Stock L	Insert Number		Dimensions(mm) DCON	LF	LDRED	WF	H	GAMF	DMIN	RE	Maximum recommendation l/d ratio	Clamp Screw *	Wrench
FSVJC1612R/L-08S	●	●	VCGT VCMT	0802○○	12	150	26	2	11	5°	**16**	0.4	4	TS202	TKY06F
FSVJC2016R/L-08S	●	●	VCGT VCMT	0802○○	16	180	36	2	15	5°	**20**	0.4	5	TS202	TKY06F
FSVJB2520R/L-11S	●	●	VBET VBGT VBMT	1103○○	20	200	37.5	2	19	5°	**25**	0.4	5	TS255	TKY08F
FSVJB3025R/L-11S	●	●	VBET VBGT VBMT	1103○○	25	250	45	3.5	23.4	5°	**30**	0.4	5	TS255	TKY08F

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

BORING

RECOMMENDED CUTTING CONDITIONS

	Work Material	Cutting Mode	Breaker	Recommendation	Grade	Cutting Speed (m/min)	l/d ≤ 3 (Steel shank) l/d ≤ 6 (Carbide shank) Feed (mm/rev)	Depth of Cut (mm)	l/d = 4—5 (Steel shank) l/d = 7—8 (Carbide shank) Feed (mm/rev)	Depth of Cut (mm)
P	Mild Steel ≤180HB	Finish	FV	①	NX2525	170 (120—220)	0.10 (0.05—0.15)	—0.5	0.10 (0.05—0.15)	—0.5
		Light	SV	①	NX3035	150 (100—200)	0.20 (0.10—0.25)	—1.0	0.15 (0.05—0.20)	—1.0
				②	NX2525	160 (110—210)	0.20 (0.10—0.25)	—1.0	0.15 (0.05—0.20)	—1.0
		Medium	MV	①	NX3035	140 (90—190)	0.25 (0.15—0.35)	—2.0	0.20 (0.15—0.25)	—1.5
				②	NX2525	150 (100—200)	0.25 (0.15—0.35)	—2.0	0.20 (0.15—0.25)	—1.5
	Carbon Steel Alloy Steel 180—350HB	Finish	FV	①	VP15TF	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	SV	①	UE6020	140 (90—190)	0.20 (0.10—0.25)	—1.0	0.15 (0.05—0.20)	—1.0
				②	NX3035	110 (60—160)	0.20 (0.10—0.25)	—1.0	0.15 (0.05—0.20)	—1.0
		Medium	MV	①	UE6020	130 (80—180)	0.25 (0.15—0.35)	—2.0	0.20 (0.15—0.25)	—1.5
				②	NX3035	100 (60—150)	0.25 (0.15—0.35)	—2.0	0.20 (0.15—0.25)	—1.5
M	Stainless Steel ≤200HB	Finish	FV	①	VP15TF	150 (110—190)	0.10 (0.05—0.15)	—0.5	0.10 (0.05—0.15)	—0.5
		Light	SV	①	US735	125 (85—165)	0.20 (0.10—0.25)	—1.0	0.15 (0.05—0.20)	—1.0
				②	VP15TF	130 (90—170)	0.20 (0.10—0.25)	—1.0	0.15 (0.05—0.20)	—1.0
		Medium	MV	①	US735	105 (70—135)	0.20 (0.15—0.25)	—2.0	0.20 (0.15—0.25)	—1.0
				②	VP15TF	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	HTi10	130 (90—160)	0.15 (0.10—0.20)	—0.5	0.15 (0.10—0.20)	—0.5
		Medium	MV	①	VP15TF	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	HTi10	300 (200—400)	0.10 (0.05—0.15)	—0.5	0.10 (0.05—0.15)	—0.5
			Flat Top	①	MD220	200 (150—250)	0.10 (0.05—0.15)	—2.0	0.10 (0.05—0.15)	—1.0
H	Heat Treated Steel 35—65HRC	Finish	Flat Top	①	MB825	100 (80—200)	0.10 (0.05—0.15)	—0.15	0.10 (0.05—0.15)	—0.1

(Note 1) When vibrations occur, reduce cutting speed by 30%.
(Note 2) 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) 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.**

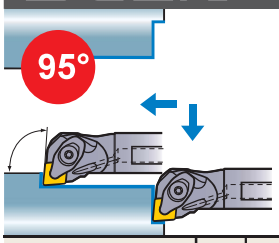
VB○○ type inserts	➤ A148—A150
VC○○ type inserts	➤ A151, A152
CBN & PCD inserts	➤ B048, B064

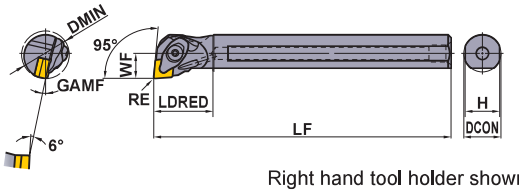
DOUBLE CLAMP DIMPLE BAR

- 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.

DCLN

With coolant hole **CN○○ inserts**





Right hand tool holder shown.

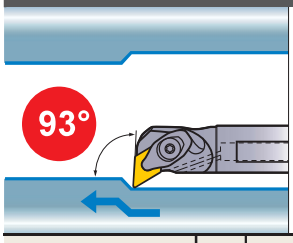
Finish	Light	Light	Medium
FH	SA	LP	MP
(12)	(12)	(12)	(12)
Medium	**Medium**	**Stainless**	**CBN**
MH	Standard	MM	
(12)	(12)	(12)	(12)

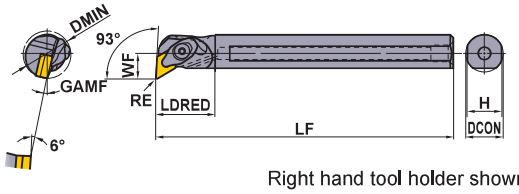
Order Number	Stock R	Stock L	Insert Number		Dimensions(mm) DCON	LF	LDRED	WF	H	GAMF	DMIN	RE	Shim	Shim Pin	Clamp Bridge	Spring	Clamp Screw *	Wrench
A25R-DCLNR/L12	●	●	CNMA CNMG CNMM CNGG	1204○○	25	200	40	17	23	11°	32	0.8	LLSCP42	LLP14	DCK2613	DCS1	DC0621T	TKY20F
A32S-DCLNR/L12	●	●		1204○○	32	250	50	22	30	13°	40	0.8	LLSCN42	LLP14	DCK2613	DCS1	DC0621T	TKY20F
A40T-DCLNR/L12	●	●		1204○○	40	300	63	27	37	10°	50	0.8	LLSCN42	LLP14	DCK2613	DCS1	DC0621T	TKY20F

* Clamp Torque (N • m) : DC0621T=5.0

DDUN

With coolant hole **DN○○ inserts**





Right hand tool holder shown.

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

Order Number	Stock R	Stock L	Insert Number		Dimensions(mm) DCON	LF	LDRED	WF	H	GAMF	DMIN	RE	Shim	Shim Pin	Clamp Bridge	Spring	Clamp Screw *	Wrench
A25R-DDUNR/L15	●	●	DNMA DNMG DNMX DNGA DNGG	1504○○	25	200	40	17	23	13°	32	0.8	LLSDP42	LLP14	DCK2613	DCS1	DC0621T	TKY20F
A32S-DDUNR/L15	●	●		1504○○	32	250	50	22	30	13°	40	0.8	LLSDN42	LLP14	DCK2613	DCS1	DC0621T	TKY20F
A40T-DDUNR/L15	●	●		1504○○	40	300	63	27	37	10°	50	0.8	LLSDN42	LLP14	DCK2613	DCS1	DC0621T	TKY20F

* Clamp Torque (N • m) : DC0621T=5.0

BORING

RECOMMENDED CUTTING CONDITIONS

	Work Material	Hardness	Cutting Mode	l/d≤3 Cutting Speed (m/min)	l/d≤3 Feed (mm/rev)	l/d≤3 Depth of Cut (mm)	l/d=3—4 Cutting Speed (m/min)	l/d=3—4 Feed (mm/rev)	l/d=3—4 Depth of Cut (mm)
P	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
M	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
K	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

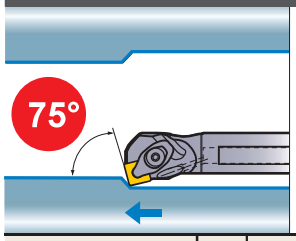
CN○○ type inserts ➤ A092—A097
DN○○ type inserts ➤ A098—A103
CBN & PCD inserts ➤ B022—B027, B055
SPARE PARTS ➤ P001
TECHNICAL DATA ➤ Q001

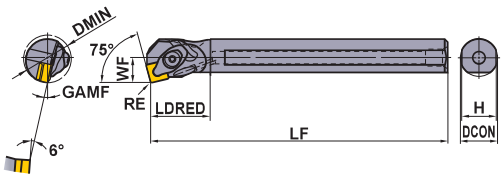
DOUBLE CLAMP DIMPLE BAR

- 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.

DSKN

With coolant hole **SN○○ inserts**





Right hand tool holder shown.

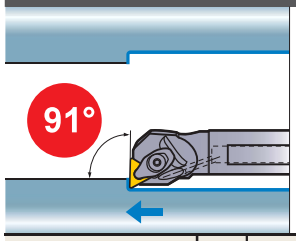
Finish	Light	Medium	Medium
FH	LP	MP	MH
 (12)	 (12)	 (12)	 (12)
Medium	**Stainless**	**G class**	**CBN**
Standard	MM	R/L	
 (12)	 (12)	 (12)	 (12)

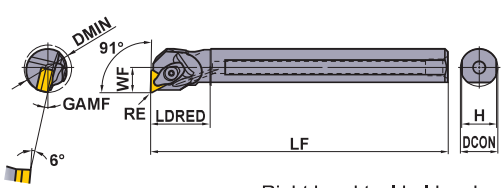
Order Number	Stock R	Stock L	Insert Number		Dimensions(mm) DCON	LF	LDRED	WF	H	GAMF	DMIN	RE	Shim	Shim Pin	Clamp Bridge	Spring	Clamp Screw *	Wrench
A25R-DSKNR/L12	●	●	SNMA SNMG SNMM SNGA SNGG	1204○○	25	200	40	17	23	13°	32	0.8	LLSSP42	LLP14	DCK2613	DCS1	DC0621T	TKY20F
A32S-DSKNR/L12	●	●		1204○○	32	250	50	22	30	13°	40	0.8	LLSSN42	LLP14	DCK2613	DCS1	DC0621T	TKY20F

* Clamp Torque (N • m) : DC0621T=5.0

DTFN

With coolant hole **TN○○ inserts**





Right hand tool holder shown.

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

Order Number	Stock R	Stock L	Insert Number		Dimensions(mm) DCON	LF	LDRED	WF	H	GAMF	DMIN	RE	Shim	Shim Pin	Clamp Bridge	Spring	Clamp Screw *	Wrench
A25R-DTFNR/L16	●	●	TNMA TNMG TNMM TNGA TNGG	1604○○	25	200	40	17	23	13°	32	0.8	LLSTP32	LLP23	DCK2211	DCS2	DC0520T	TKY15F
A32S-DTFNR/L16	●	●		1604○○	32	250	50	22	30	13°	40	0.8	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) 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.

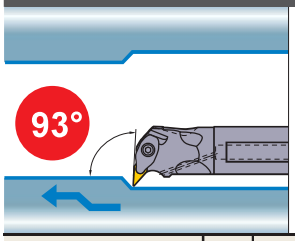
● : **Inventory maintained in Japan.**

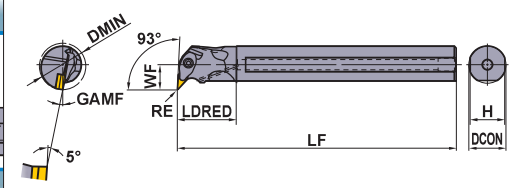
SN○○ type inserts	➤ A105—A109
TN○○ type inserts	➤ A110—A115
CBN & PCD inserts	➤ B028—B031, B056

DVUN

With coolant hole

VN○○inserts





Right hand tool holder shown.

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

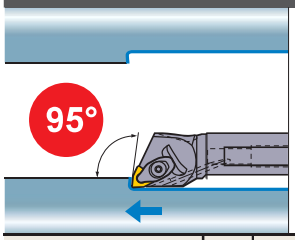
Order Number	Stock R	Stock L	Insert Number		Dimensions(mm) DCON	LF	LDRED	WF	H	GAMF	DMIN	RE	Shim	Shim Pin	Clamp Bridge	Spring	Clamp Screw *	Wrench
A40T-DVUNR/L16	●	●	VNMA VNGA	1604○○	40	300	63	27	37	9°	50	0.8	DCSVN32	LLP13	DCK3113	DCS2	DC0520T	TKY15F

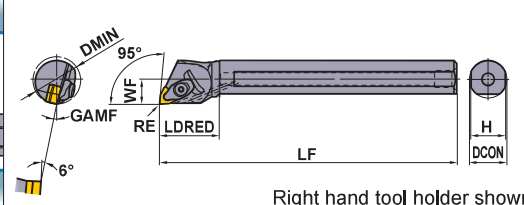
* Clamp Torque (N • m) : DC0520T=3.5

DWLN

With coolant hole

WN○○inserts





Right hand tool holder shown.

Finish	Light	Medium	Medium
FH	LP	MP	MH
(08)	(08)	(06,08)	(08)
Medium	**Medium — Rough**	**Stainless**	
Standard	RP	MM	
(08)	(08)	(06,08)	

Order Number	Stock R	Stock L	Insert Number		Dimensions(mm) DCON	LF	LDRED	WF	H	GAMF	DMIN	RE	Shim	Shim Pin	Clamp Bridge	Spring	Clamp Screw *	Wrench
A25R-DWLNR/L06	●	●	WNMG	0604○○	25	200	40	17	23	13°	32	0.8	LLSWP32	LLP23	DCK2211	DCS2	DC0520T	TKY15F
A25R-DWLNR/L08	●	●	WNMA WNMG	0804○○	25	200	40	17	23	13°	32	0.8	LLSWP42	LLP14	DCK2613	DCS1	DC0621T	TKY20F
A32S-DWLNR/L08	●	●		0804○○	32	250	50	22	30	13°	40	0.8	LLSWN42	LLP14	DCK2613	DCS1	DC0621T	TKY20F
A40T-DWLNR/L08	●	●		0804○○	40	300	63	27	37	10°	50	0.8	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 Cutting Speed (m/min)	l/d≤3 Feed (mm/rev)	l/d≤3 Depth of Cut (mm)	l/d=3—4 Cutting Speed (m/min)	l/d=3—4 Feed (mm/rev)	l/d=3—4 Depth of Cut (mm)
P	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
M	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
K	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 ➤ A116—A118
WN○○ type inserts ➤ A119—A123
CBN & PCD inserts ➤ B032—B034, B057

SPARE PARTS ➤ P001
TECHNICAL DATA ➤ Q001