

CUTTING TOOLS



E1 - TURNING TOOLS (E01-E95)



E2 - BLOCKS, ROTARY BROACHING TOOLS
& KNURLING TOOLS (E96-E107)



E3 - MILLING TOOLS (E108-E205)



E4 - CARTRIDGES (E206-E207)



E5 - DRILLS & TAPS (E208-E222)



E6 - REAMERS (E223-E242)

E “ CUTTING TOOLS



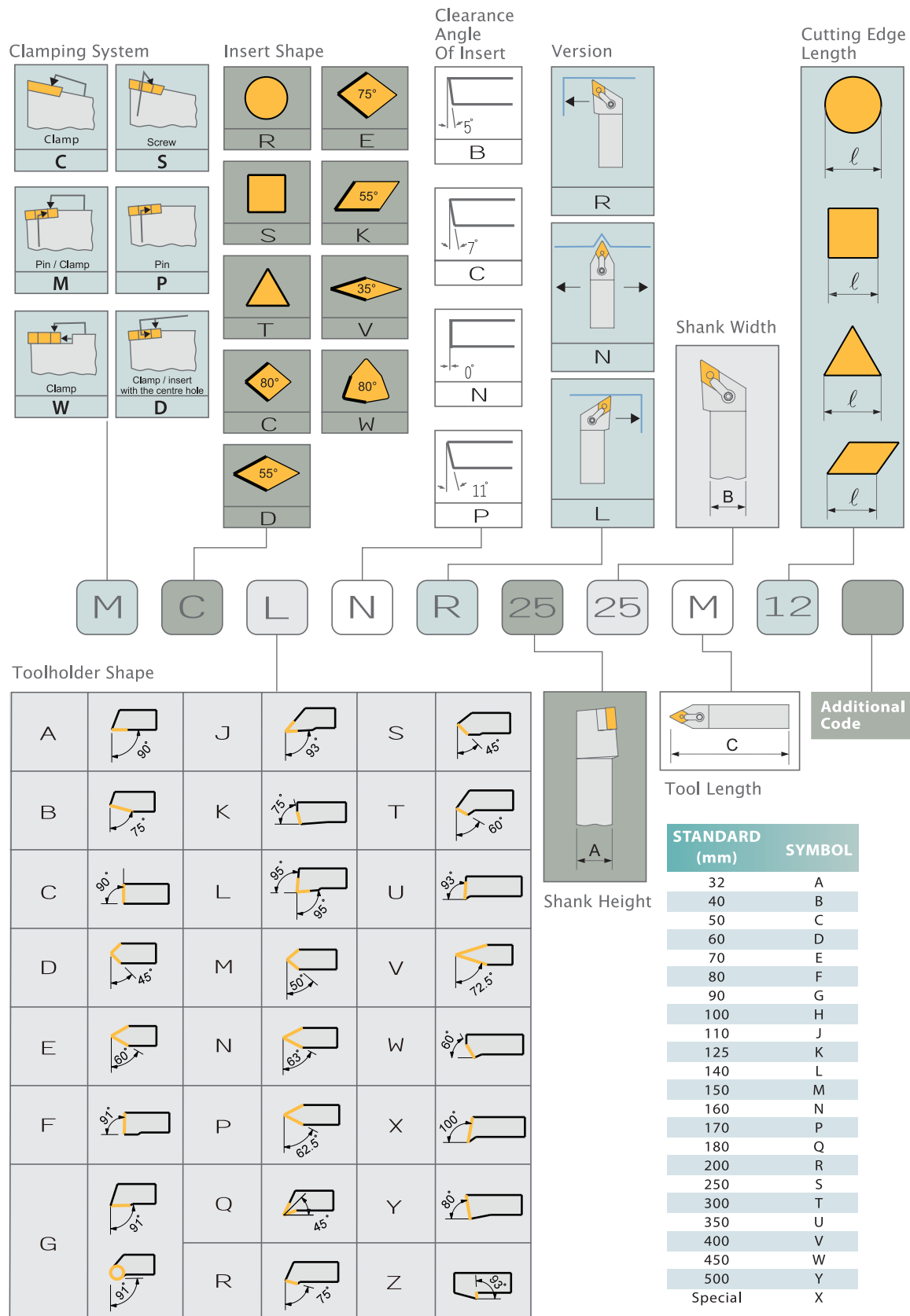
TURNING TOOLS



**GROOVING
TOOL HOLDERS
THREADING
BORING BARS**



IDENTIFICATION SYSTEM OF EXTERNAL TURNING TOOLS



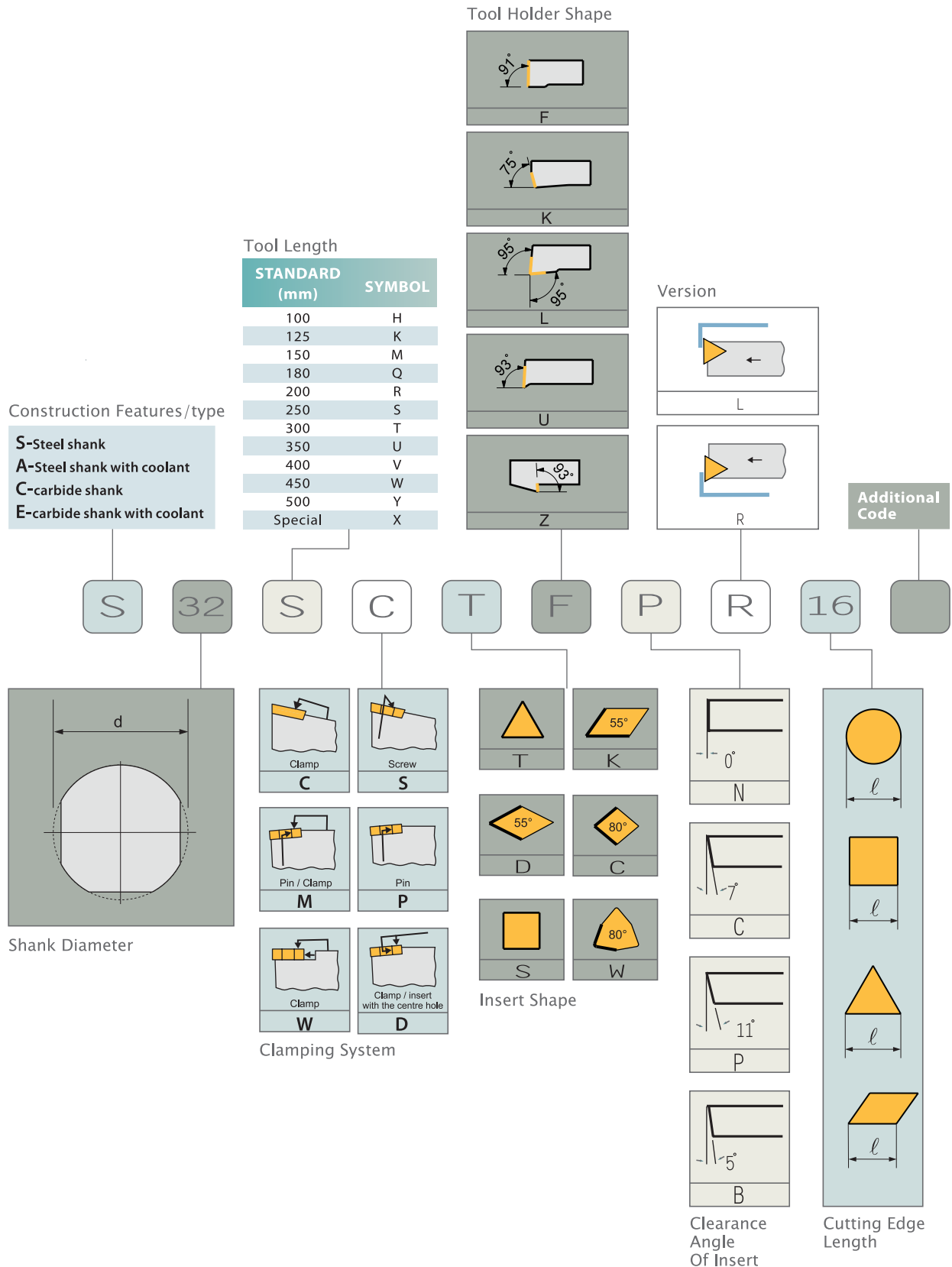
E1 - TURNING TOOLS

CUTTING TOOLS

E “ CUTTING TOOLS



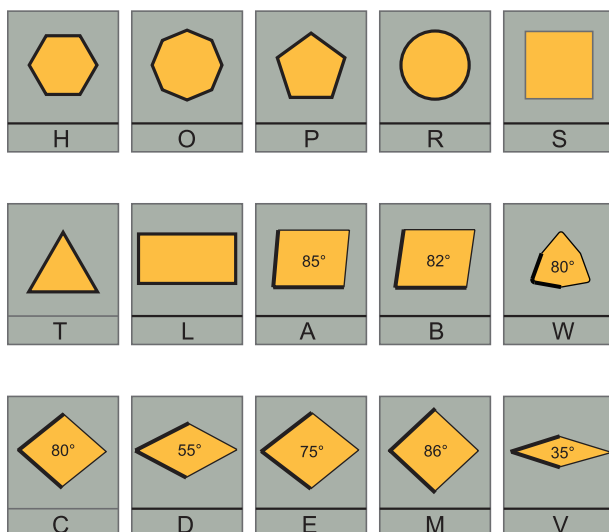
IDENTIFICATION SYSTEM OF BORING BARS



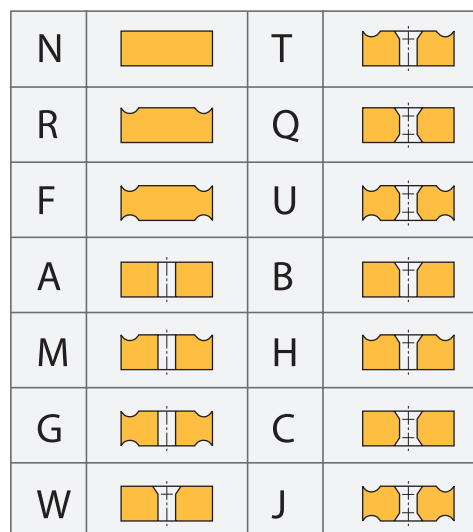


IDENTIFICATION SYSTEM OF INSERT

1. Insert Shape

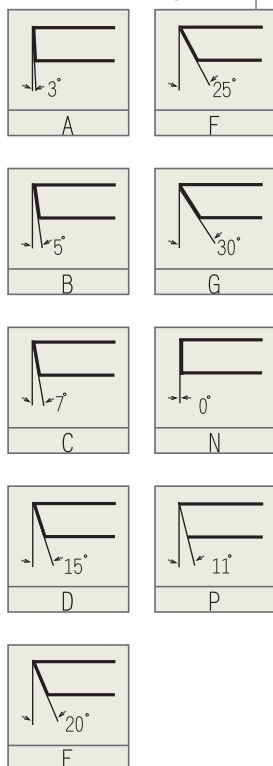


4. Insert Features



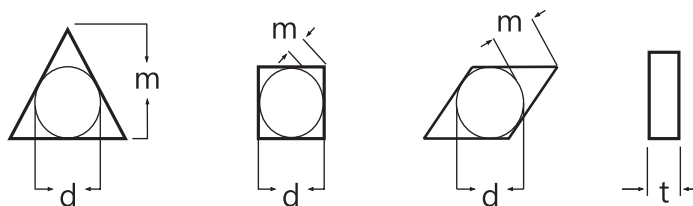
INCH SERIES	C	N	M	G
METRIC SERIES	C	N	M	G
	1	2	3	4

2. Clearance Angle



3. Tolerance Class

d: Diameter of inscribed circle
m: Nose Height
t: Thickness



SYMBOL	TOLERANCE ON "d" (mm)	TOLERANCE ON "m" (mm)	TOLERANCE ON "t" (mm)
C	±0.025	±0.013	±0.025
H	±0.013	±0.013	±0.025
E	±0.025	±0.025	±0.025
G	±0.025	±0.025	±0.013
M	±0.05~±0.13	±0.08~±0.20	±0.013
U	±0.08~±0.25	±0.13~±0.38	±0.013



E “ CUTTING TOOLS



IDENTIFICATION SYSTEM OF INSERT

6. Thickness

THICKNESS		SYMBOL	
inch	mm	inch	mm
1/32	0.79	0.5(1)	-
1/16	1.59	1(2)	01
5/64	1.98	1.2	T1
3/32	2.38	1.5(3)	02
1/8	3.18	2	03
5/32	3.97	2.5	T3
3/16	4.76	3	04
7/32	5.56	3.5	05
1/4	6.35	4	06
5/16	7.94	5	07
3/8	9.52	6	09
7/16	11.11	7	11
1/2	12.70	8	12

7. Corner radius

CORNER RADIUS		SYMBOL	
inch	mm	inch	mm
0.004	0.1	0	01
0.008	0.2	0.5	02
1/64	0.4	1	04
1/32	0.8	2	08
3/64	1.2	3	12
1/16	1.6	4	16
5/64	2.0	5	20
3/32	2.4	6	24
7/64	2.8	7	28
1/8	3.2	8	32
Round insert (inch)		-	00
Round insert (metric)		-	M0

9. Chip breaker

4	3	2	☐	☐
12	04	08	☐	☐
5	6	7	8	9

5. Edge length & Diameter of inscribed circle

INCH SERIES	d (mm)		METRIC SERIES						
	inch	mm	C	D	R	S	T	V	W
1.2(5)	5/32	3.97	-	04	03	03	06	-	-
1.5(6)	3/16	4.76	04	05	04	04	08	08	-
1.8(7)	7/32	5.56	05	06	05	05	09	09	03
-	0.236	6.00	-	-	06	-	-	-	-
2	1/4	6.35	06	07	06	06	11	11	04
2.5	5/16	7.94	08	09	07	07	13	19	05
-	0.315	8.00	-	-	08	-	-	-	-
3	3/8	9.52	09	11	09	09	16	16	06
-	0.394	10.00	-	-	10	-	-	-	-
3.5	7/16	11.11	11	13	11	11	19	19	07
-	0.472	12.00	-	-	12	-	-	-	-
4	1/2	12.70	12	15	12	12	22	22	08
4.5	9/16	14.29	14	17	14	14	24	24	09
5	5/8	15.88	16	19	15	15	27	27	10
-	0.630	16.00	-	-	16	-	-	-	-
5.5	11/16	17.46	17	21	17	17	30	30	11
6	3/4	19.05	19	23	19	19	33	33	13
-	0.787	20.00	-	-	20	-	-	-	-
7	7/8	22.22	22	27	22	22	38	38	15
-	0.984	25.00	-	-	25	-	-	-	-
8	1	25.40	25	31	25	25	44	44	17
10	1-1/4	31.75	32	38	31	31	54	54	21
-	1.260	32.00	-	-	32	-	-	-	-

8. Cutting direction





D TYPE-TOOL HOLDERS

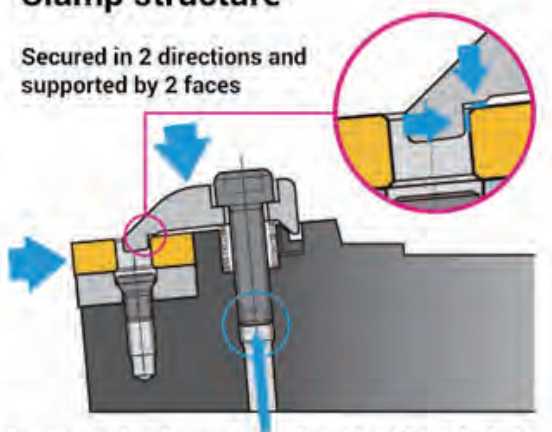


ROBUST DOUBLE-CLAMPED HOLDER

- Stable clamping improves fracture resistance of the insert.
- Improved machining accuracy with high indexing accuracy.
- Easy tool tip replacement with a single operation.

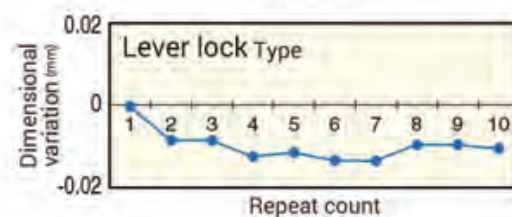
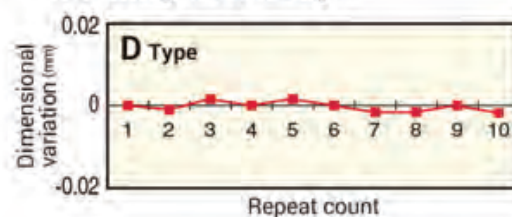
Clamp structure

Secured in 2 directions and supported by 2 faces



Inserts can be changed from the underside of the holder

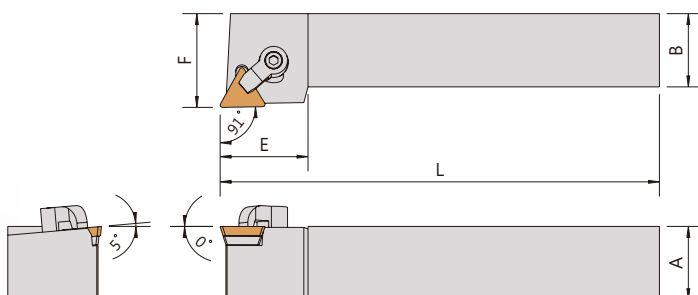
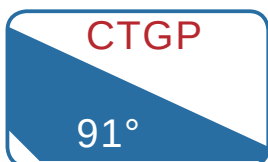
Indexing accuracy



E “ CUTTING TOOLS

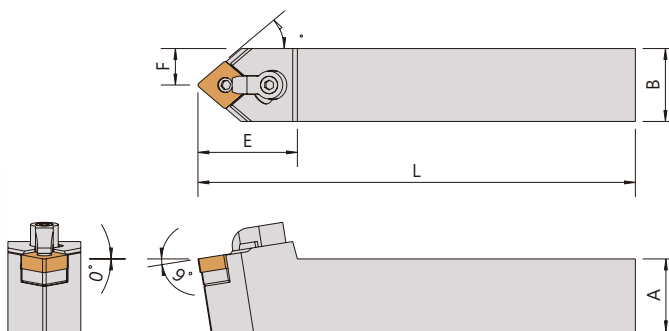
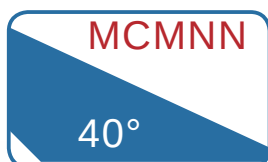


EXTERNAL TURNING TOOLS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS				WRENCH
	Right / Left		A	B	C	E	F						
55100151 R/L	CTGPR/L-1212F11	TPMN1103	12	12	80	20	16	-	-	CP50-21	CS7-5015	LW025	
55100152 R/L	CTGPR/L-1616H11	TPMN1103	16	16	100	20	20	-	-	CP50-21	CS7-5015	LW025	
55100153 R/L	CTGPR/L-2020K16	TPMN1603	20	20	125	30	25	SMT-321	CS20045	CP50-22	CS7-6024	LW030	
55100154 R/L	CTGPR/L-2525M16	TPMN1603	25	25	150	30	32	SMT-321	CS20045	CP50-22	CS7-6024	LW030	



UNIT: mm

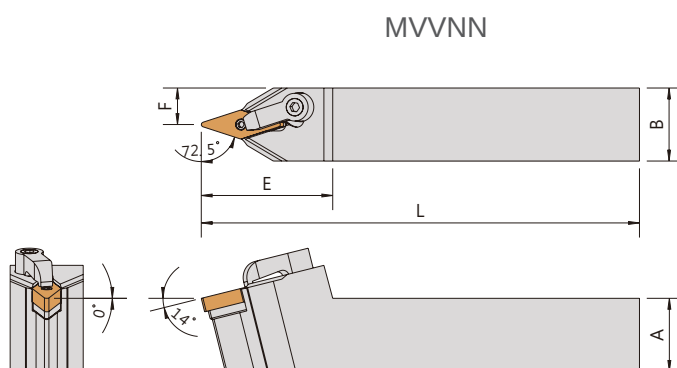
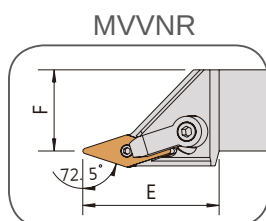
ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS				WRENCH
			A	B	C	E	F						
55100155	MCMNN-2020K12	CNMG1204	20	20	125	37	10	SMC-432	LCS-617	CP50-22	CS7-6030	LW030	
55100156	MCMNN-2525M12	CNMG1204	25	25	150	37	12.5	SMC-432	LCS-617	CP50-22	CS7-6030	LW030	
55100157	MCMNN-3225P12	CNMG1204	32	25	170	37	12.5	SMC-432	LCS-617	CP50-22	CS7-6030	LW030	
55100158	MCMNN-3232P12	CNMG1204	32	32	170	40	16	SMC-432	LCS-617	CP50-22	CS7-6030	LW030	
55100158-1	MCMNN-3232P16	CNMG1606	32	32	170	40	16	SMC-533	LCS-0822	CP50-22	CS7-6030	LW030	
55100158-2	MCMNN-3232P19	CNMG1906	32	32	170	40	16	SMC-633	LCS-1022	CP50-29	CS7-8030	LW040	



EXTERNAL TURNING TOOLS

MVVNN
MVVN

72.5°

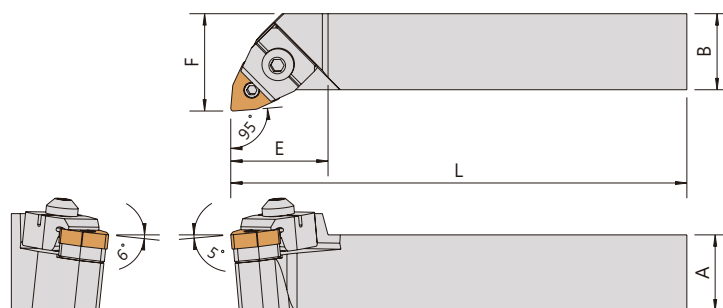


UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS					WRENCH	
			A	B	C	E	F								
55100159	MVVNN-2020K16	VNMG1604	20	20	125	45	10	SMV-322	LCS-513	CP50-25	CS7-6030	LW020	LW030		
55100160	MVVNN-2525M16	VNMG1604	25	25	150	45	12.5	SMV-322	LCS-513	CP50-25	CS7-6030	LW020	LW030		
55100161	MVVNN-3225P16	VNMG1604	32	25	170	45	12.5	SMV-322	LCS-513	CP50-25	CS7-6030	LW020	LW030		
55100162	MVVNN-3232P16	VNMG1604	32	32	170	45	16	SMV-322	LCS-513	CP50-25	CS7-6030	LW020	LW030		
55100163 R/L	MVVN R/L-2020K16	VNMG1604	20	20	125	42	20	SMV-322	LCS-513	CP50-25	CS7-6030	LW020	LW030		
55100164 R/L	MVVN R/L-2525M16	VNMG1604	25	25	150	42	25	SMV-322	LCS-513	CP50-25	CS7-6030	LW020	LW030		

WWLN

95°



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS					WRENCH	
	Right / Left		A	B	C	E	F								
55100165 R/L	WWLNR/L-2020K08	WNMG0804	20	20	125	32	25	SMW-433	LCS-520N	MMW-40	CSE6030	ER-5	LW025	LW040	
55100166 R/L	WWLNR/L-2525M08	WNMG0804	25	25	150	32	32	SMW-433	LCS-520N	MMW-40	CSE6030	ER-5	LW025	LW040	
55100167 R/L	WWLNR/L-3225P08	WNMG0804	32	25	170	32	32	SMW-433	LCS-520N	MMW-40	CSE6030	ER-5	LW025	LW040	
55100168 R/L	WWLNR/L-3232P08	WNMG0804	32	32	170	32	40	SMW-433	LCS-520N	MMW-40	CSE6030	ER-5	LW025	LW040	



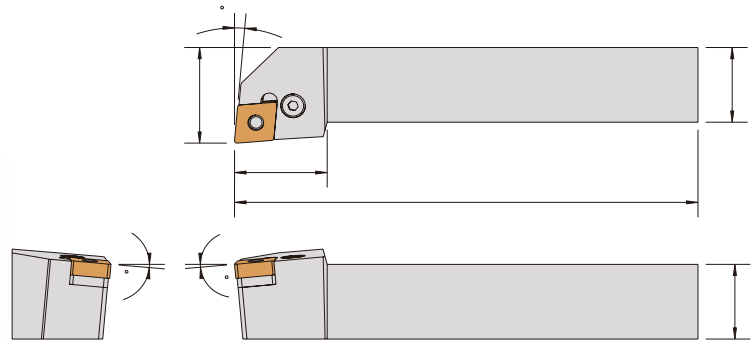
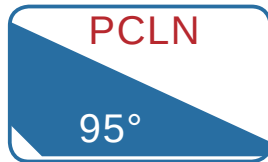
E1 - TURNING TOOLS

CUTTING TOOLS

E “ CUTTING TOOLS

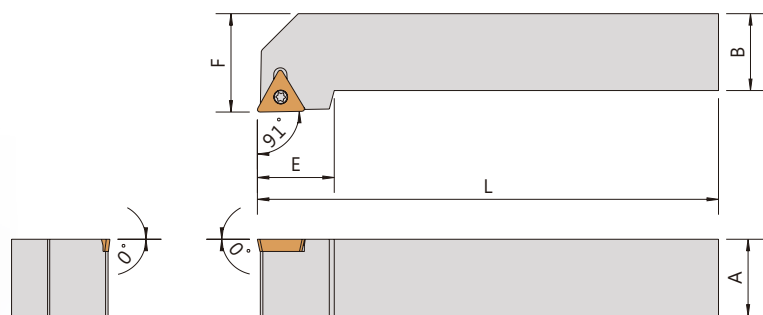
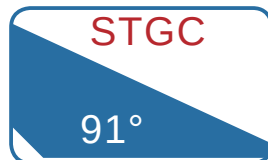


EXTERNAL TURNING TOOLS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS		WRENCH	
	Right / Left		A	B	C	E	F					
55100169 R/L	PCLNR/L-1616H09	CNMG0903	16	16	100	21	20	SMC-322	CS-LSP3	CP-LL3	CS-LS3	LW025
55100170 R/L	PCLNR/L-2020K12	CNMG1204	20	20	125	30	25	SMC-422	CS-LSP4	CP-LL4	CS-LS4	LW030
55100171 R/L	PCLNR/L-2525M12	CNMG1204	25	25	150	30	32	SMC-422	CS-LSP4	CP-LL4	CS-LS4	LW030
55100172 R/L	PCLNR/L-3225P12	CNMG1204	32	25	170	35	32	SMC-422	CS-LSP4	CP-LL4	CS-LS4	LW030
55100173 R/L	PCLNR/L-3232P12	CNMG1204	32	32	170	35	40	SMC-422	CS-LSP4	CP-LL4	CS-LS4	LW030
55100173-1 R/L	PCLNR/L-2525M16	CNMG1606	25	25	150	35	32	SMC-532	CS-LSP7	CP-LL7	CS-LS7	LW030
55100173-2 R/L	PCLNR/L-2525M19	CNMG1906	25	25	150	35	32	SMC-632	CS-LSP8	CP-LL8	CS-LS8	LW040

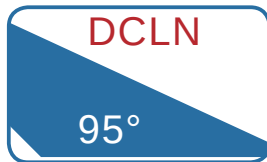


UNIT: mm

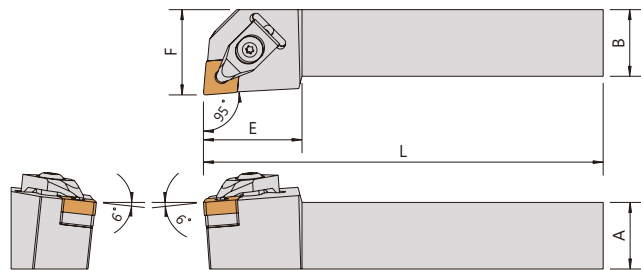
ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS	WRENCH
	Right / Left		A	B	C	E	F			
55100174 R/L	STGCR/L-1212H11	TCMT1102	12	12	100	17	16	CS25060	FT-7	
55100175 R/L	STGCR/L-1616H11	TCMT1102	16	16	100	18	20	CS25060	FT-7	
55100176 R/L	STGCR/L-2020K16	TCMT16T3	20	20	125	22	25	CS40090	FT-15	
55100177 R/L	STGCR/L-2525M16	TCMT16T3	25	25	150	25	32	CS40090	FT-15	



EXTERNAL TURNING TOOLS



-D TYPE



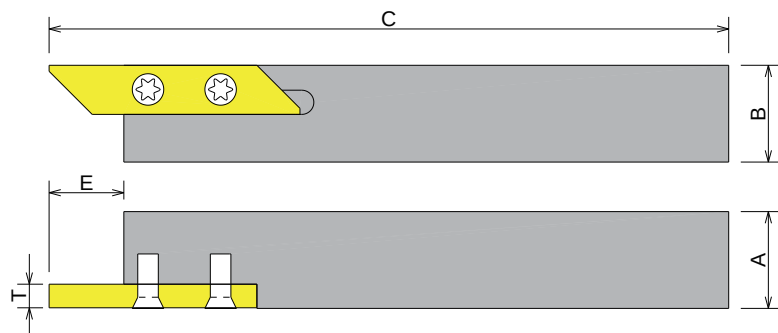
UNIT: mm

ITEM NO.	MODEL		INSERT	DIMENSIONS						PARTS					
	Right / Left			A	B	C	E	F							
55100178 R/L	DCLNR/L-1616H09	CNMG 09T3	09T3○○	16	16	100	32	20	SMC-322	CSF-3008	CP-D2	SP0612	CSB0415T	TL15	
55100179 R/L	DCLNR/L-2020K09		09T3○○	20	20	125	32	25	SMC-322	CSF-3008	CP-D2	SP0612	CSB0415T	TL15	
55100180 R/L	DCLNR/L-2525M09		09T3○○	25	25	150	32	32	SMC-322	CSF-3008	CP-D2	SP0612	CSB0415T	TL15	
55100181 R/L	DCLNR/L-2020K12	CNMG 1204	1204○○	20	20	125	37	25	SMC-432	CSF-4010	CP-D4	SP0816	CSB0620T	TL20	
55100182 R/L	DCLNR/L-2525M12		1204○○	25	25	150	37	32	SMC-432	CSF-4010	CP-D4	SP0816	CSB0620T	TL20	
55100183 R/L	DCLNR/L-3225P12		1204○○	32	25	170	37	32	SMC-432	CSF-4010	CP-D4	SP0816	CSB0620T	TL20	



EXTERNAL TURNING TOOLS FOR GROOVING

V SLAL



UNIT: mm

ITEM NO.	MODEL	INSERT	A	B	C	E	T	SCREW	WRENCH
	Right / Left								
55100731 R/L	SLALR/L1010K38	L R38	10	10	130	9	4.0	CS35091	FT15
55100732 R/L	SLALR/L1212K38	L R38	12	12	130	9	4.0	CS35091	FT15
55100733 R/L	SLALR/L1616K38	L R38	16	16	130	9	4.0	CS35091	FT15
55100734 R/L	SLALR/L2020K38	L R38	20	20	130	9	4.0	CS35091	FT15

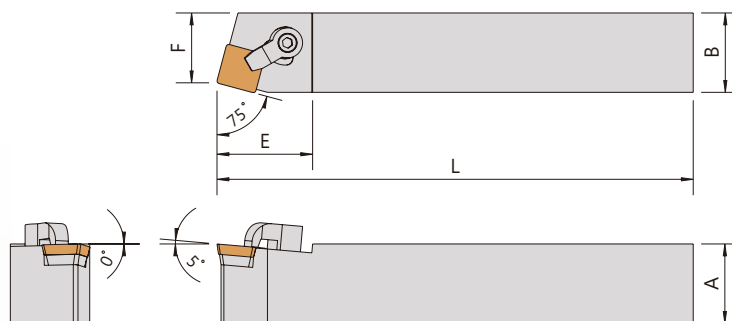
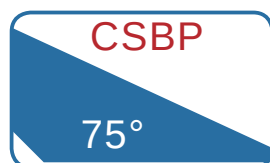


E1 - TURNING TOOLS

CUTTING TOOLS

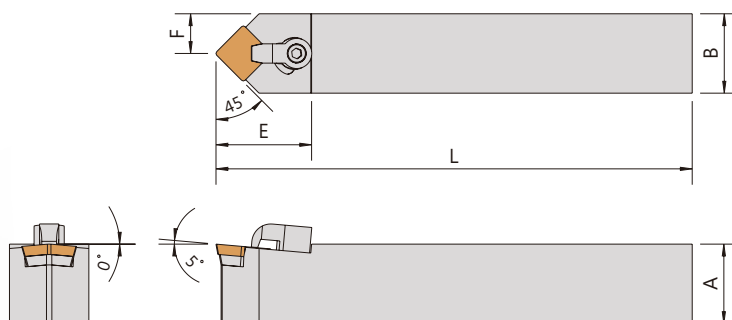
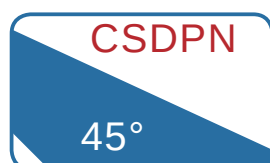
E “ CUTTING TOOLS

EXTERNAL TURNING TOOLS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS				WRENCH
	Right / Left		A	B	L	E	F					
55100735 R/L	CSBPR/L-2020K12	SPMN1203	20	20	125	30	17	SMS-421	CSF3010	CP50-22	CS7-6024	LW030
55100736 R/L	CSBPR/L-2525M12	SPMN1203	25	25	150	30	22	SMS-421	CSF3010	CP50-22	CS7-6024	LW030

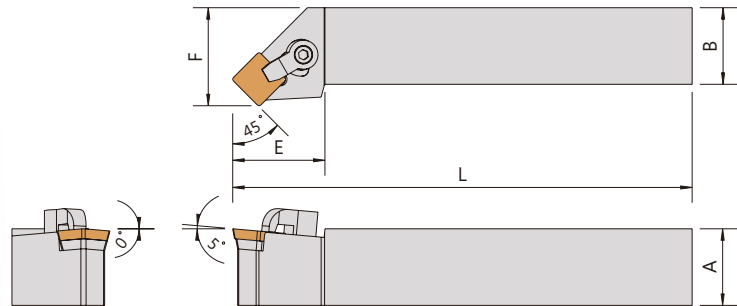
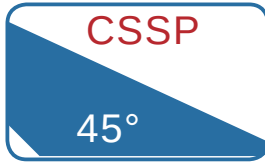


UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS			WRENCH
			A	B	L	E	F					
55100737	CSDPN-2020K12	SPMN1203	20	20	125	30	10	SMS-421	CSF3010	CP50-22	CS7-6024	LW030
55100738	CSDPN-2525M12	SPMN1203	25	25	150	30	12.5	SMS-421	CSF3010	CP50-22	CS7-6024	LW030



EXTERNAL TURNING TOOLS

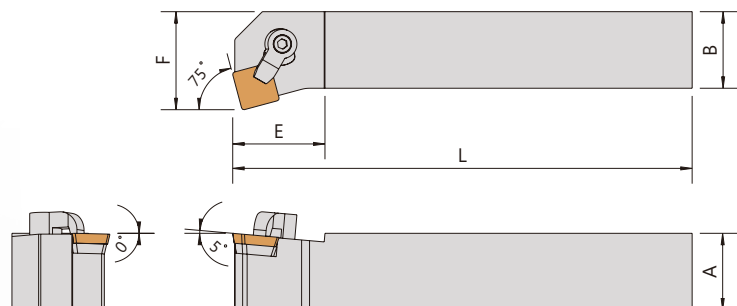
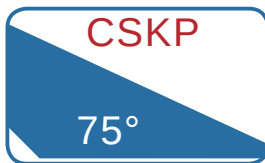


E1 - TURNING TOOLS

CUTTING TOOLS

UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS				WRENCH
	Right / Left		A	B	L	E	F						
55100739 R/L	CSSPR/L-2020K12	SPMN1203	20	20	125	30	25	SMS-421	CSF3010	CP50-22	CS7-6024		LW030
55100740 R/L	CSSPR/L-2525M12	SPMN1203	25	25	150	30	32	SMS-421	CSF3010	CP50-22	CS7-6024		LW030

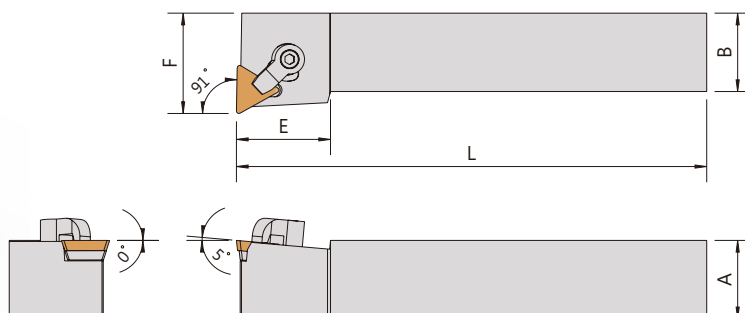
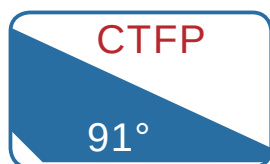


UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS				WRENCH
	Right / Left		A	B	L	E	F						
55100741 R/L	CSKPR/L-2020K12	SPMN1203	20	20	125	30	25	SMS-421	CSF3010	CP50-22	CS7-6024		LW030
55100742 R/L	CSKPR/L-2525M12	SPMN1203	25	25	150	30	32	SMS-421	CSF3010	CP50-22	CS7-6024		LW030

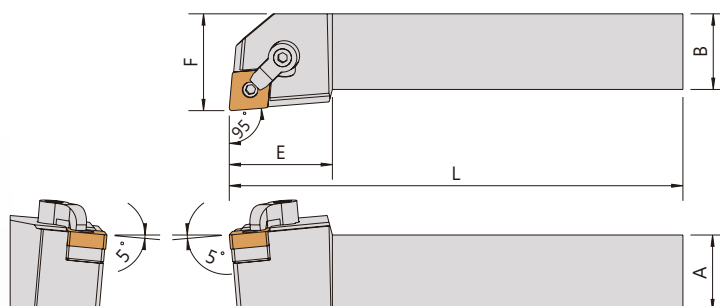
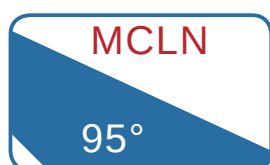
E “ CUTTING TOOLS

EXTERNAL TURNING TOOLS



ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS			WRENCH
	Right / Left		A	B	L	E	F					
55100743 R/L	CTFPR/L-1616H11	TPMN1103	16	16	100	20	20	-	-	CP50-21	CS7-5015	LW025
55100744 R/L	CTFPR/L-2020K16	TPMN1603	20	20	125	30	25	SMT-321	CS20045	CP50-22	CS7-6024	LW030
55100745 R/L	CTFPR/L-2525M16	TPMN1603	25	25	150	30	32	SMT-321	CS20045	CP50-22	CS7-6024	LW030

UNIT: mm

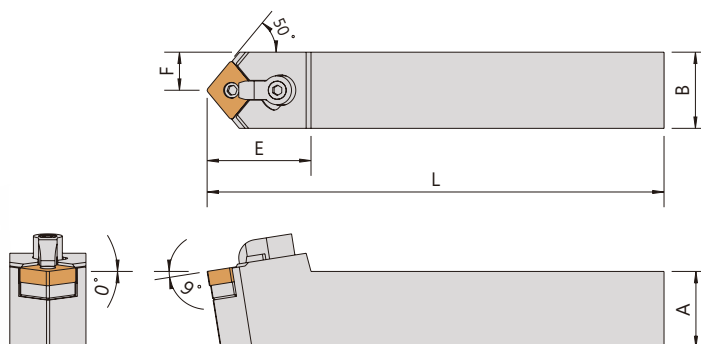
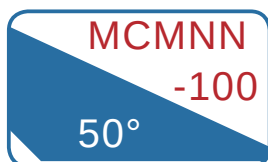


ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS			WRENCH
	Right / Left		A	B	L	E	F					
55100746 R/L	MCLNR/L-1616H12	CNMG1204	16	16	100	30	20	SMC-432	LCS-617	CP50-22	CS7-6024	LW030
55100747 R/L	MCLNR/L-2020K12	CNMG1204	20	20	125	34	25	SMC-432	LCS-617	CP50-22	CS7-6030	LW030
55100748 R/L	MCLNR/L-2525M12	CNMG1204	25	25	150	34	32	SMC-432	LCS-617	CP50-22	CS7-6030	LW030
55100749 R/L	MCLNR/L-3225P12	CNMG1204	32	25	170	34	32	SMC-432	LCS-617	CP50-22	CS7-6030	LW030
55100750 R/L	MCLNR/L-3232P12	CNMG1204	32	32	170	34	40	SMC-432	LCS-617	CP50-22	CS7-6030	LW030
55100751 R/L	MCLNR/L-2525M16	CNMG1606	25	25	150	34	32	SMC-533	LCS-0822	CP50-22	CS7-6030	LW030
55100752 R/L	MCLNR/L-3225P16	CNMG1606	32	25	170	34	32	SMC-533	LCS-0822	CP50-22	CS7-6030	LW030
55100753 R/L	MCLNR/L-3232P16	CNMG1606	32	32	170	34	40	SMC-533	LCS-0822	CP50-22	CS7-6030	LW030
55100754 R/L	MCLNR/L-4040S16	CNMG1606	40	40	250	34	50	SMC-533	LCS-0822	CP50-22	CS7-6030	LW030
55100755 R/L	MCLNR/L-2525M19	CNMG1906	25	25	150	40	32	SMC-633	LC S-1022	CP50-29	CS7-8030	LW040
55100756 R/L	MCLNR/L-3225P19	CNMG1906	32	25	170	43	32	SMC-633	LCS-1022	CP50-29	CS7-8030	LW040
55100757 R/L	MCLNR/L-3232P19	CNMG1906	32	32	170	43	40	SMC-633	LCS-1022	CP50-29	CS7-8030	LW040
55100758 R/L	MCLNR/L-4040S19	CNMG1906	40	40	250	40	50	SMC-633	LCS-1022	CP50-29	CS7-8030	LW040

UNIT: mm

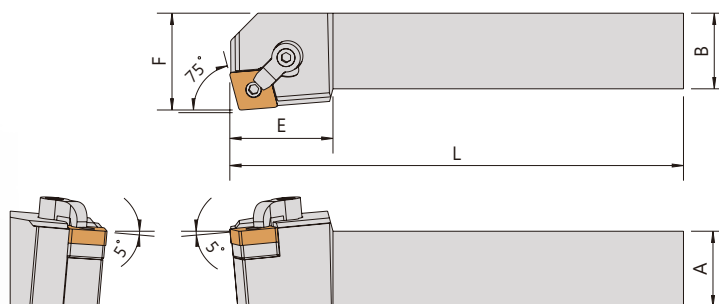
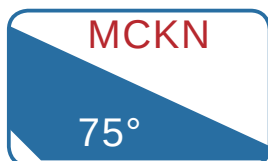


EXTERNAL TURNING TOOLS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS				WRENCH
			A	B	L	E	F						
55100759	MCMNN-2020K12-100	CNMG1204	20	20	125	37	10	SMC-432	LCS-617	CP50-22	CS7-6030	LW030	
55100760	MCMNN-2525M12-100	CNMG1204	25	25	150	37	12.5	SMC-432	LCS-617	CP50-22	CS7-6030	LW030	
55100761	MCMNN-3225P12-100	CNMG1204	32	25	170	37	12.5	SMC-432	LCS-617	CP50-22	CS7-6030	LW030	
55100762	MCMNN-3232P12-100	CNMG1204	32	32	170	40	16	SMC-432	LCS-617	CP50-22	CS7-6030	LW030	
55100762-1	MCMNN-3232P16-100	CNMG1606	32	32	170	40	16	SMC-533	LCS-0822	CP50-22	CS7-6030	LW030	
55100762-2	MCMNN-3232P19-100	CNMG1906	32	32	170	40	16	SMC-633	LCS-1022	CP50-29	CS7-8030	LW040	



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS				WRENCH
	Right / Left		A	B	L	E	F						
55100763 R/L	MCKNR/L-2020K12	CNMG1204	20	20	125	37	25	SMC-432	LCS-617	CP50-22	CS7-6030	LW030	
55100764 R/L	MCKNR/L-2525M12	CNMG1204	25	25	150	34	32	SMC-432	LCS-617	CP50-22	CS7-6030	LW030	
55100765 R/L	MCKNR/L-3225P12	CNMG1204	32	25	170	34	32	SMC-432	LCS-617	CP50-22	CS7-6030	LW030	
55100766 R/L	MCKNR/L-3232P12	CNMG1204	32	32	170	40	40	SMC-432	LCS-617	CP50-22	CS7-6030	LW030	

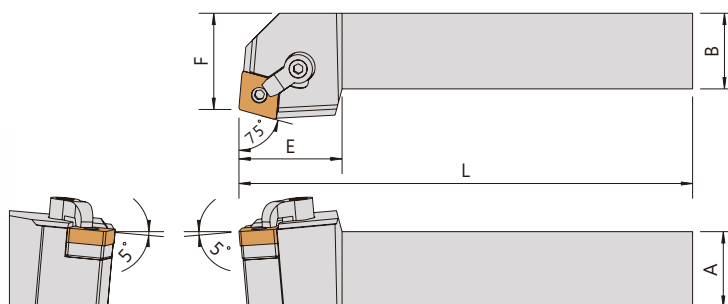
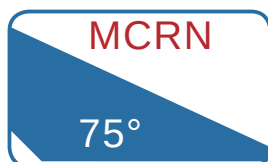


E1 - TURNING TOOLS

CUTTING TOOLS

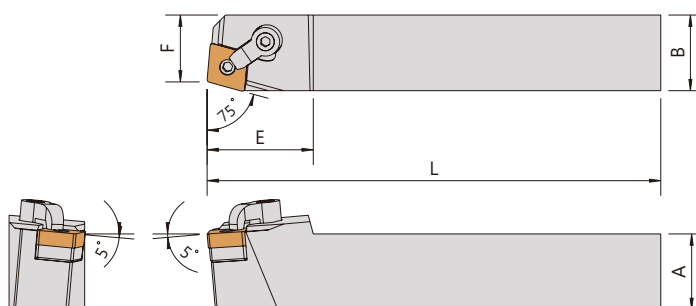
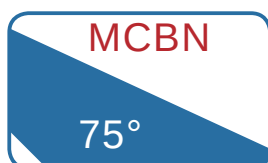
E “ CUTTING TOOLS

EXTERNAL TURNING TOOLS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS				WRENCH
	Right / Left		A	B	L	E	F						
55100767 R/L	MCRNR/L-2020K12	CNMG1204	20	20	125	37	25	SMC-432	LCS-617	CP50-22	CS7-6030	LW030	
55100768 R/L	MCRNR/L-2525M12	CNMG1204	25	25	150	34	32	SMC-432	LCS-617	CP50-22	CS7-6030	LW030	
55100769 R/L	MCRNR/L-3225P12	CNMG1204	32	25	170	34	32	SMC-432	LCS-617	CP50-22	CS7-6030	LW030	
55100770 R/L	MCRNR/L-3232P12	CNMG1204	32	32	170	40	40	SMC-432	LCS-617	CP50-22	CS7-6030	LW030	

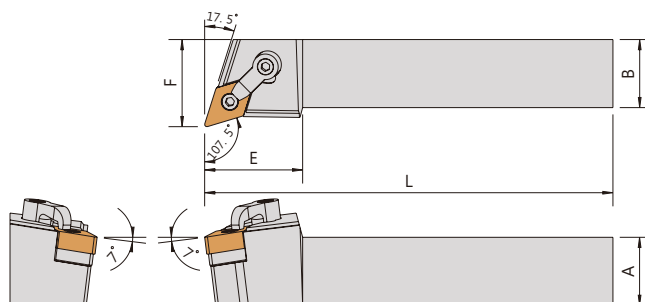
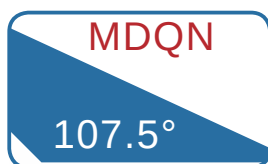


UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS				WRENCH
	Right / Left		A	B	L	E	F						
55100771 R/L	MCBNR/L-2020K12	CNMG1204	20	20	125	35	17	SMC-432	LCS-617	CP50-22	CS7-6030	LW030	
55100772 R/L	MCBNR/L-2525M12	CNMG1204	25	25	150	35	22	SMC-432	LCS-617	CP50-22	CS7-6030	LW030	
55100773 R/L	MCBNR/L-3225P12	CNMG1204	32	25	170	40	22	SMC-432	LCS-617	CP50-22	CS7-6030	LW030	
55100774 R/L	MCBNR/L-3232P12	CNMG1204	32	32	170	40	29	SMC-432	LCS-617	CP50-22	CS7-6030	LW030	

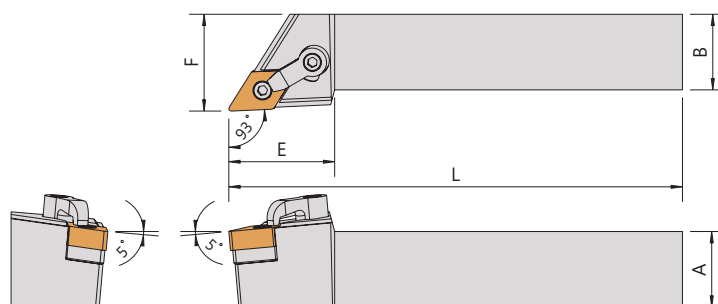
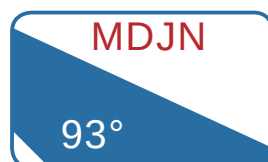


EXTERNAL TURNING TOOLS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS				WRENCH
	Right / Left		A	B	L	E	F					
55100775 R/L	MDQNR/L-2020K1504	DNMG1504	20	20	125	36	25	SMD-463	LCS-619	CP50-24	CS7-6030	LW030
55100776 R/L	MDQNR/L-2525M1504	DNMG1504	25	25	150	36	32	SMD-463	LCS-619	CP50-24	CS7-6030	LW030
55100777 R/L	MDQNR/L-3225P1504	DNMG1504	32	25	170	40	32	SMD-463	LCS-619	CP50-24	CS7-6030	LW030
55100778 R/L	MDQNR/L-3232P1504	DNMG1504	32	32	170	40	40	SMD-463	LCS-619	CP50-24	CS7-6030	LW030
55100779 R/L	MDQNR/L-2020K1506	DNMG1506	20	20	125	36	25	SMD-443	LCS-619	CP50-24	CS7-6030	LW030
55100780 R/L	MDQNR/L-2525M1506	DNMG1506	25	25	150	36	32	SMD-443	LCS-619	CP50-24	CS7-6030	LW030
55100781 R/L	MDQNR/L-3225P1506	DNMG1506	32	25	170	40	32	SMD-443	LCS-619	CP50-24	CS7-6030	LW030
55100782 R/L	MDQNR/L-3232P1506	DNMG1506	32	32	170	40	40	SMD-443	LCS-619	CP50-24	CS7-8030	LW030



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS				WRENCH
	Right / Left		A	B	L	E	F					
55100783 R/L	MDJNR/L-2020K1504	DNMG1504	20	20	125	37	25	SMD-463	LCS-619	CP50-24	CS7-6030	LW030
55100784 R/L	MDJNR/L-2525M1504	DNMG1504	25	25	150	37	32	SMD-463	LCS-619	CP50-24	CS7-6030	LW030
55100785 R/L	MDJNR/L-3225P1504	DNMG1504	32	25	170	42	32	SMD-463	LCS-619	CP50-24	CS7-6030	LW030
55100786 R/L	MDJNR/L-3232P1504	DNMG1504	32	32	170	42	40	SMD-463	LCS-619	CP50-24	CS7-6030	LW030
55100787 R/L	MDJNR/L-2020K1506	DNMG1506	20	20	125	37	25	SMD-443	LCS-619	CP50-24	CS7-6030	LW030
55100788 R/L	MDJNR/L-2525M1506	DNMG1506	25	25	150	37	32	SMD-443	LCS-619	CP50-24	CS7-6030	LW030
55100789 R/L	MDJNR/L-3225P1506	DNMG1506	32	25	170	42	32	SMD-443	LCS-619	CP50-24	CS7-6030	LW030
55100790 R/L	MDJNR/L-3232P1506	DNMG1506	32	32	170	42	40	SMD-443	LCS-619	CP50-24	CS7-6030	LW030



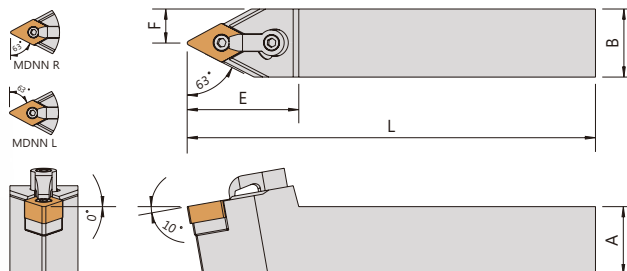
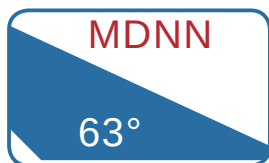
E1 - TURNING TOOLS

CUTTING TOOLS

E “ CUTTING TOOLS

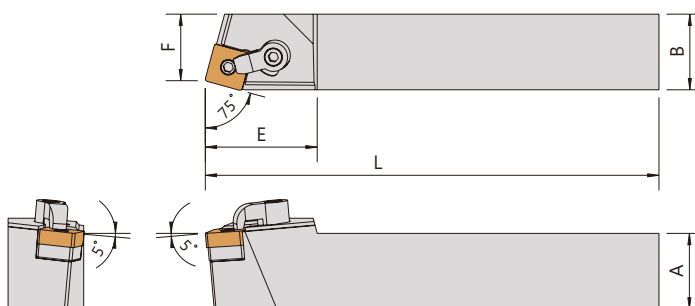
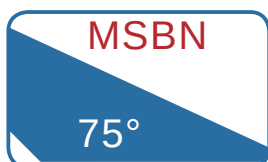


EXTERNAL TURNING TOOLS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS			WRENCH
	Right / Left		A	B	L	E	F					
55100791 R/L	MDNNR/L-2020K1504	DNMG1504	20	20	125	41	10	SMD-463	LCS-619	CP50-24	CS7-6030	LW030
55100792 R/L	MDNNR/L-2525M1504	DNMG1504	25	25	150	41	12.5	SMD-463	LCS-619	CP50-24	CS7-6030	LW030
55100793 R/L	MDNNR/L-3225P1504	DNMG1504	32	25	170	42	12.5	SMD-463	LCS-619	CP50-24	CS7-6030	LW030
55100794 R/L	MDNNR/L-3232P1504	DNMG1504	32	32	170	43	16	SMD-463	LCS-619	CP50-24	CS7-6030	LW030
55100795 R/L	MDNNR/L-2020K1506	DNMG1506	20	20	125	41	10	SMD-443	LCS-619	CP50-24	CS7-6030	LW030
55100796 R/L	MDNNR/L-2525M1506	DNMG1506	25	25	150	41	12.5	SMD-443	LCS-619	CP50-24	CS7-6030	LW030
55100797 R/L	MDNNR/L-3225P1506	DNMG1506	32	25	170	42	12.5	SMD-443	LCS-619	CP50-24	CS7-6030	LW030
55100798 R/L	MDNNR/L-3232P1506	DNMG1506	32	32	170	42	16	SMD-443	LCS-619	CP50-24	CS7-6030	LW030

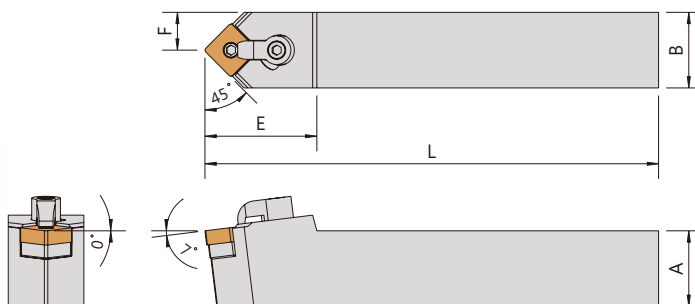
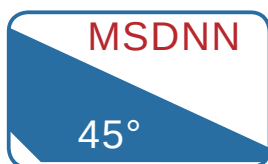


UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS			WRENCH
	Right / Left		A	B	L	E	F					
55100799 R/L	MSBNR/L-2020K12	SNMG1204	20	20	125	37	17	SMS-432	LCS-617	CP50-22	CS7-6030	LW030
55100800 R/L	MSBNR/L-2525M12	SNMG1204	25	25	150	37	22	SMS-432	LCS-617	CP50-22	CS7-6030	LW030
55100801 R/L	MSBNR/L-3225P12	SNMG1204	32	25	170	42	22	SMS-432	LCS-617	CP50-22	CS7-6030	LW030
55100802 R/L	MSBNR/L-3232P12	SNMG1204	32	32	170	42	27	SMS-432	LCS-617	CP50-22	CS7-6030	LW030
55100803 R/L	MSBNR/L-2020K15	SNMG1506	20	20	125	40	17	SMS-533	LCS-0822	CP50-22	CS7-6030	LW030
55100804 R/L	MSBNR/L-2525M15	SNMG1506	25	25	150	40	22	SMS-533	LCS-0822	CP50-22	CS7-6030	LW030
55100805 R/L	MSBNR/L-3225P15	SNMG1506	32	25	170	42	22	SMS-533	LCS-0822	CP50-22	CS7-6030	LW030
55100806 R/L	MSBNR/L-3232P15	SNMG1506	32	32	170	42	27	SMS-533	LCS-0822	CP50-22	CS7-6030	LW030
55100807 R/L	MSBNR/L-2525M19	SNMG1906	25	25	150	42	22	SMS-633	LCS-1022	CP50-29	CS7-8030	LW040
55100808 R/L	MSBNR/L-3225P19	SNMG1906	32	25	170	42	22	SMS-633	LCS-1022	CP50-29	CS7-8030	LW040
55100809 R/L	MSBNR/L-3232P19	SNMG1906	32	32	170	42	27	SMS-633	LCS-1022	CP50-29	CS7-8030	LW040
55100810 R/L	MSBNR/L-4040R19	SNMG1906	40	40	200	42	35	SMS-633	LCS-1022	CP50-29	CS7-8030	LW040

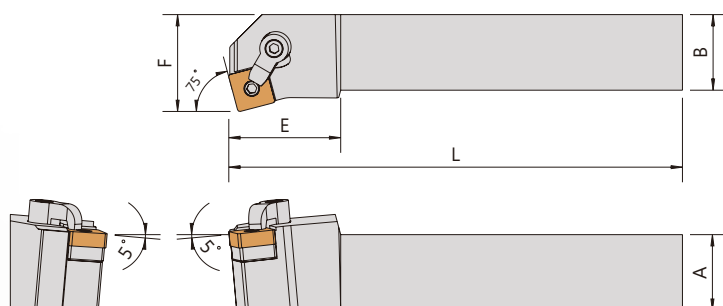
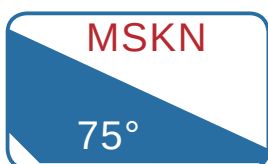


EXTERNAL TURNING TOOLS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS			WRENCH
			A	B	L	E	F					
55100811	MSDNN-2020K12	SNMG1204	20	20	125	35	10	SMS-432	LCS-617	CP50-22	CS7-6030	LW030
55100812	MSDNN-2525M12	SNMG1204	25	25	150	37	12.5	SMS-432	LCS-617	CP50-22	CS7-6030	LW030
55100813	MSDNN-3225P12	SNMG1204	32	25	170	42	12.5	SMS-432	LCS-617	CP50-22	CS7-6030	LW030
55100814	MSDNN-3232P12	SNMG1204	32	32	170	43	16	SMS-432	LCS-617	CP50-22	CS7-6030	LW030



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS			WRENCH
	Right / Left		A	B	L	E	F					
55100815 R/L	MSKNR/L-2020K12	SNMG1204	20	20	125	37	25	SMS-432	LCS-617	CP50-22	CS7-6030	LW030
55100816 R/L	MSKNR/L-2525M12	SNMG1204	25	25	150	37	32	SMS-432	LCS-617	CP50-22	CS7-6030	LW030
55100817 R/L	MSKNR/L-3225P12	SNMG1204	32	25	170	42	32	SMS-432	LCS-617	CP50-22	CS7-6030	LW030
55100818 R/L	MSKNR/L-3232P12	SNMG1204	32	32	170	42	40	SMS-432	LCS-617	CP50-22	CS7-6030	LW030
55100819 R/L	MSKNR/L-2525M15	SNMG1506	25	25	150	37	32	SMS-432	LCS-0822	CP50-22	CS7-6030	LW030
55100820 R/L	MSKNR/L-3225P15	SNMG1506	32	25	170	42	32	SMS-533	LCS-0822	CP50-22	CS7-6030	LW030
55100821 R/L	MSKNR/L-3232P15	SNMG1506	32	32	170	42	40	SMS-533	LCS-0822	CP50-22	CS7-6030	LW030
55100822 R/L	MSKNR/L-4040R19	SNMG1906	40	40	200	42	50	SMS-633	LCS-1022	CP50-29	CS7-8030	LW040



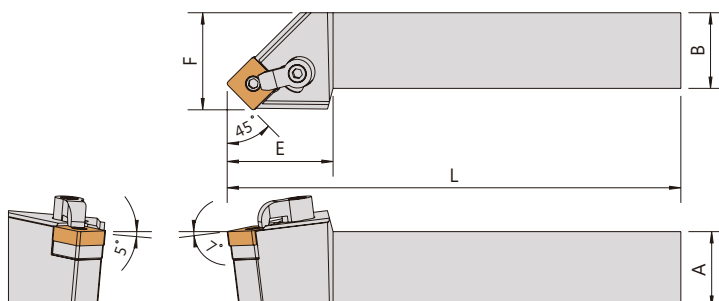
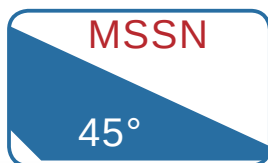
E1 - TURNING TOOLS

CUTTING TOOLS

E “ CUTTING TOOLS

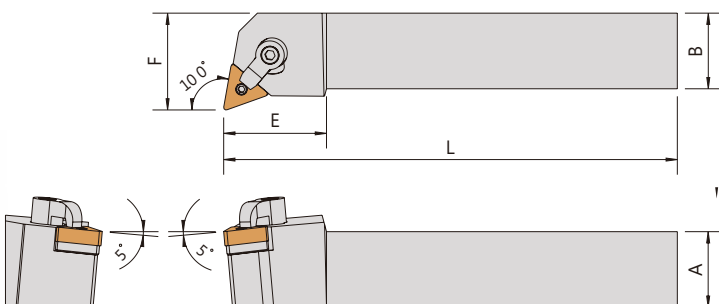
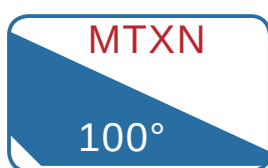


EXTERNAL TURNING TOOLS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS				WRENCH
	Right / Left		A	B	L	E	F					
55100823 R/L	MSSNR/L-2020K12	SNMG1204	20	20	125	35	25	SMS-432	LCS-617	CP50-22	CS7-6030	LW030
55100824 R/L	MSSNR/L-2525M12	SNMG1204	25	25	150	35	32	SMS-432	LCS-617	CP50-22	CS7-6030	LW030
55100825 R/L	MSSNR/L-3225P12	SNMG1204	32	25	170	42	32	SMS-432	LCS-617	CP50-22	CS7-6030	LW030
55100826 R/L	MSSNR/L-3232P12	SNMG1204	32	32	170	42	40	SMS-432	LCS-617	CP50-22	CS7-6030	LW030
55100827 R/L	MSSNR/L-2525M15	SNMG1506	25	25	150	40	32	SMS-533	LCS-0822	CP50-22	CS7-6030	LW030
55100828 R/L	MSSNR/L-3225P15	SNMG1506	32	25	170	40	40	SMS-533	LCS-0822	CP50-22	CS7-6030	LW030
55100829 R/L	MSSNR/L-3232P15	SNMG1506	32	32	170	40	40	SMS-533	LCS-0822	CP50-22	CS7-6030	LW030
55100830 R/L	MSSNR/L-3232P19	SNMG1906	32	32	170	42	40	SMS-633	LCS-1022	CP50-29	CS7-8030	LW040
55100831 R/L	MSSNR/L-4040R19	SNMG1906	40	40	200	42	40	SMS-633	LCS-1022	CP50-29	CS7-8030	LW040

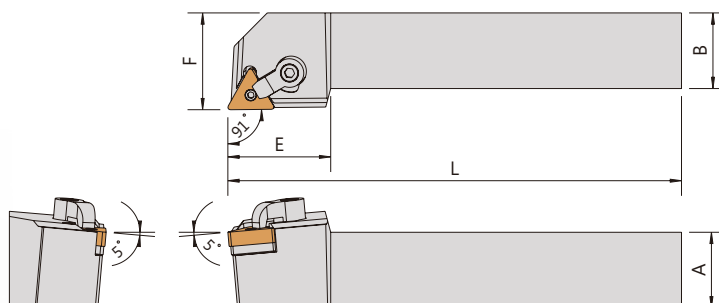
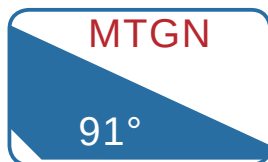


UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS				WRENCH
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55100832 R/L	MTXNR/L-2020K16	TNMG1604	20	20	125	34	25	SMT-322	LCS-513	CP50-22	CS7-6030	LW020
55100833 R/L	MTXNR/L-2525M16	TNMG1604	25	25	150	34	32	SMT-322	LCS-513	CP50-22	CS7-6030	LW032

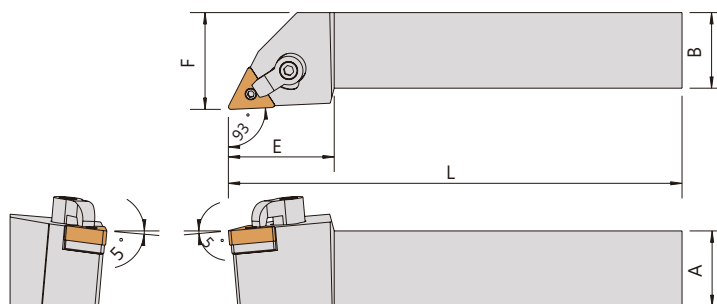
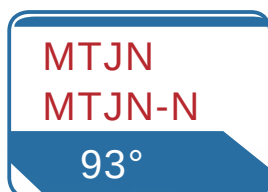


EXTERNAL TURNING TOOLS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS				WRENCH	
	Right / Left		A	B	L	E	F							
55100834 R/L	MTGNR/L-1616H16	TNMG1604	16	16	100	30	20	SMT-322	LCS-513	CP50-22	CS7-6024	LW020	LW030	
55100835 R/L	MTGNR/L-2020K16	TNMG1604	20	20	125	34	25	SMT-322	LCS-513	CP50-22	CS7-6030	LW020	LW030	
55100836 R/L	MTGNR/L-2525M16	TNMG1604	25	25	150	34	32	SMT-322	LCS-513	CP50-22	CS7-6030	LW020	LW030	
55100837 R/L	MTGNR/L-3232P16	TNMG1604	32	32	170	34	40	SMT-322	LCS-513	CP50-22	CS7-6030	LW020	LW030	



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS				WRENCH	
	Right / Left		A	B	L	E	F							
55100838 R/L	MTJNR/L-1616H16	TNMG1604	16	16	100	30	20	SMT-322	LCS-513	CP50-22	CS7-6024	LW020	LW030	
55100839 R/L	MTJNR/L-2020K16	TNMG1604	20	20	125	33	25	SMT-322	LCS-513	CP50-22	CS7-6024	LW020	LW030	
55100840 R/L	MTJNR/L-2525M16	TNMG1604	25	25	150	35	32	SMT-322	LCS-513	CP50-22	CS7-6030	LW020	LW030	
55100841 R/L	MTJNR/L-3225P16	TNMG1604	32	25	170	43	32	SMT-322	LCS-513	CP50-22	CS7-6030	LW020	LW030	
55100842 R/L	MTJNR/L-3232P16	TNMG1604	32	32	170	43	40	SMT-322	LCS-513	CP50-22	CS7-6030	LW020	LW030	
55100843 R/L	MTJNR/L-2525M22	TNMG2204	25	25	150	43	32	SMT-433	LCS-617	CP50-28	CS7-8030	LW030	LW040	
55100844 R/L	MTJNR/L-3225P22	TNMG2204	32	25	170	43	32	SMT-433	LCS-617	CP50-28	CS7-8030	LW030	LW040	
55100845 R/L	MTJNR/L-3232P22	TNMG2204	32	32	170	43	40	SMT-433	LCS-617	CP50-28	CS7-8030	LW030	LW040	
55100846 R/L	MTJNR/L-4040S22	TNMG2204	40	40	250	43	50	SMT-433	LCS-617	CP50-28	CS7-8030	LW030	LW040	
55100847 R/L	MTJNR/L-4040S27	TNMG2706	40	40	250	43	50	SMT-534	LCS-0822	CP50-28	CS7-8030	LW030	LW040	
55100848 R/L	MTJNR/L-1212H16N	TNMG1604	12	12	100	30	12	-	LCS-510	CP50-22	CS7-6024	LW020	LW030	
55103845 R/L	MTJNR/L-1616H16N	TNMG1604	16	16	100	30	16	SMT-322	LCS-513	CP50-22	CS7-6024	LW020	LW030	



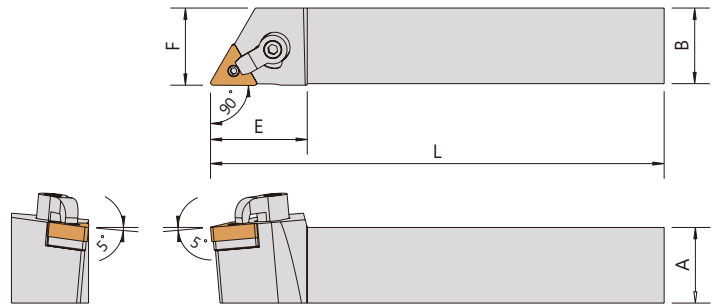
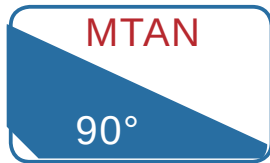
E1 - TURNING TOOLS

CUTTING TOOLS

E “ CUTTING TOOLS

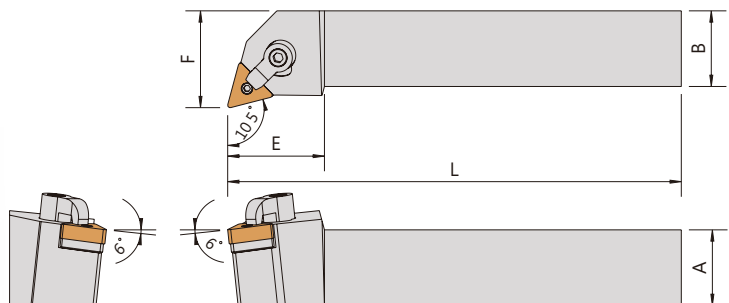
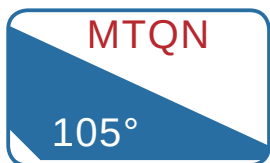


EXTERNAL TURNING TOOLS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS			WRENCH	
	Right / Left		A	B	L	E	F					
55100849 R/L	MTANR/L-2020K16	TNMG1604	20	20	125	32	20.5	SMT-322	LCS-513	CP50-22	CS7-6030	LW020 LW030
55100850 R/L	MTANR/L-2525M16	TNMG1604	25	25	150	32	25.5	SMT-322	LCS-513	CP50-22	CS7-6030	LW020 LW030

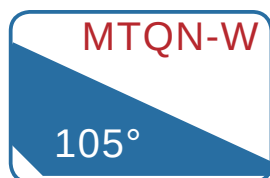


UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS			WRENCH	
	Right / Left		A	B	L	E	F					
55100851 R/L	MTQNR/L-2020K16	TNMG1604	20	20	125	32	25	SMT-322	LCS-513	CP50-22	CS7-6030	LW020 LW030
55100852 R/L	MTQNR/L-2525M16	TNMG1604	25	25	150	32	32	SMT-322	LCS-513	CP50-22	CS7-6030	LW020 LW030

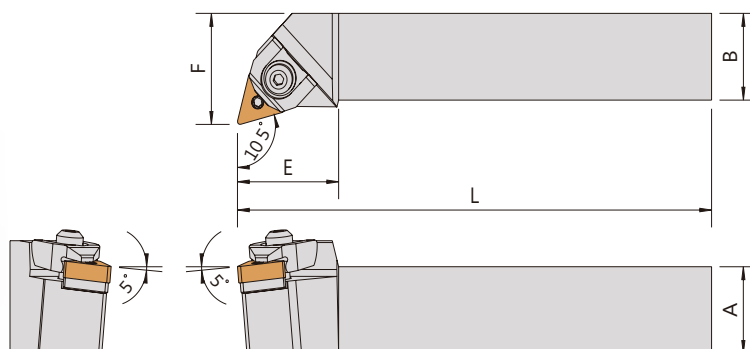


EXTERNAL TURNING TOOLS



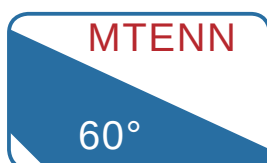
MTQN-W

105°



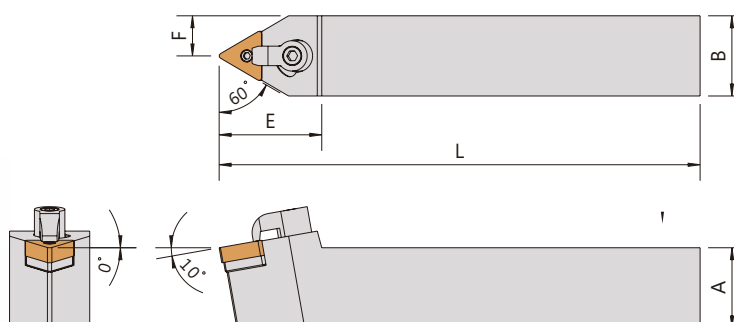
UNIT: mm

UNIT: mm															
ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS					WRENCH	
	Right / Left		A	B	L	E	F								
55100853 R/L	MTQNR/L-2020K16-W	TNMG1604	20	20	125	32	25	SMT-322	LCS-420N	MTW-30	CSE5026	ER04	WS06	LW025	LW030
55100854 R/L	MTQNR/L-2525M16-W	TNMG1604	25	25	150	32	32	SMT-322	LCS-420N	MTW-30	CSE5026	ER04	WS06	LW025	LW030
55100854-1 R/L	MTQNR/L-3232P16W	TNMG1604	32	32	170	32	40	SMT-322	LCS-420N	MTW-30	CSE5026	ER04	WS06	LW025	LW030



MTENN

60°



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS					WRENCH	
			A	B	L	E	F							
55100855	MTENN-2020K16	TNMG1604	20	20	125	38	10	SMT-322	LCS-513	CP50-22	CS7-6030	LW020	LW030	
55100856	MTENN-2525M16	TNMG1604	25	25	150	40	12.5	SMT-322	LCS-513	CP50-22	CS7-6030	LW020	LW030	
55100857	MTENN-3225P16	TNMG1604	32	25	170	38	12.5	SMT-322	LCS-513	CP50-22	CS7-6030	LW020	LW030	
55100858	MTENN-3232P16	TNMG1604	32	32	170	43	16	SMT-322	LCS-513	CP50-22	CS7-6030	LW020	LW030	
55100859	MTENN-2525M22	TNMG2204	25	25	150	40	12.5	SMT-433	LCS-617	CP50-28	CS7-8030	LW030	LW040	
55100860	MTENN-3225P22	TNMG2204	32	25	170	43	12.5	SMT-433	LCS-617	CP50-28	CS7-8030	LW030	LW040	
55100861	MTENN-3232P22	TNMG2204	32	32	170	43	16	SMT-433	LCS-617	CP50-28	CS7-8030	LW030	LW040	



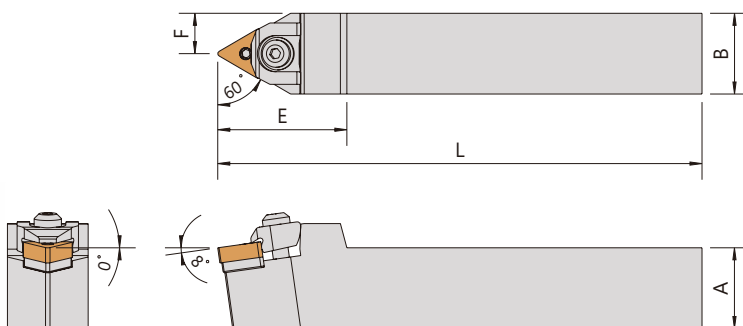
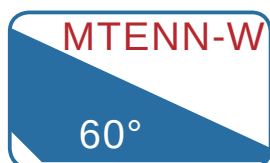
E1 - TURNING TOOLS

CUTTING TOOLS

E “ CUTTING TOOLS

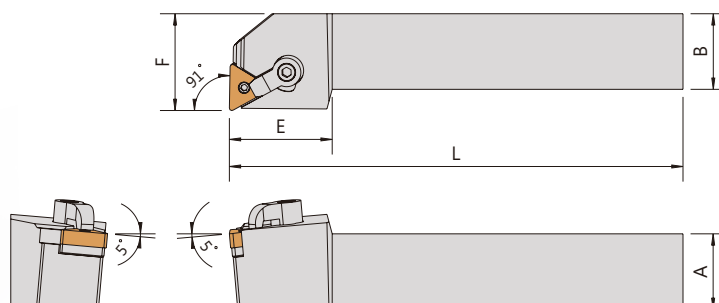
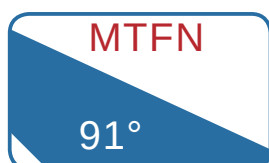


EXTERNAL TURNING TOOLS



UNIT: mm

UNIT: mm																
ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS						WRENCH	
			A	B	L	E	F									
55100862	MTENN-2020K16-W	TNMG1604	20	20	125	32	10	SMT-322	LCS-420N	MTW-30	CSE5026	ER04	WS06	LW025	LW030	
55100863	MTENN-2525M16-W	TNMG1604	25	25	150	32	12.5	SMT-322	LCS-420N	MTW-30	CSE5026	ER04	WS06	LW025	LW030	
55100864	MTENN-3225P16-W	TNMG1604	32	25	170	32	12.5	SMT-322	LCS-420N	MTW-30	CSE5026	ER04	WS06	LW025	LW030	
55100865	MTENN-3232P16-W	TNMG1604	32	32	170	32	16	SMT-322	LCS-420N	MTW-30	CSE5026	ER04	WS06	LW025	LW030	
55100866	MTENN-3225P22-W	TNMG1604	32	25	170	32	12.5	SMT-431	LCS-520W	MTW-34	CSE6027	ER05	WS07	LW025	LW040	

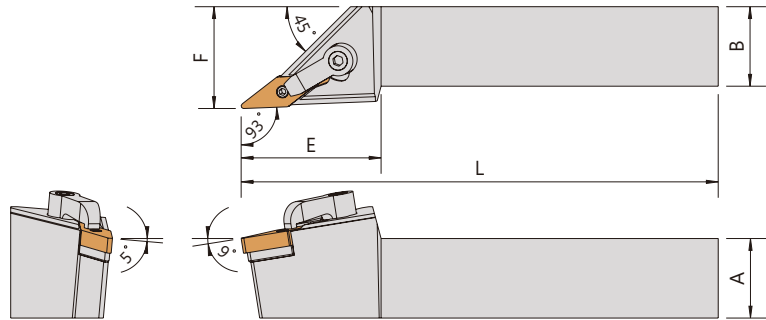
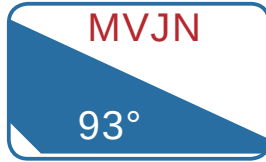


UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS				WRENCH	
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55100867 R/L	MTFNR/L-1616H16	TNMG1604	16	16	100	30	20	SMT-322	LCS-513	CP50-22	CS7-6024	LW020	LW030	
55100868 R/L	MTFNR/L-2020K16	TNMG1604	20	20	125	34	25	SMT-322	LCS-513	CP50-22	CS7-6030	LW020	LW030	
55100869 R/L	MTFNR/L-2525M16	TNMG1604	25	25	150	34	32	SMT-322	LCS-513	CP50-22	CS7-6030	LW020	LW030	

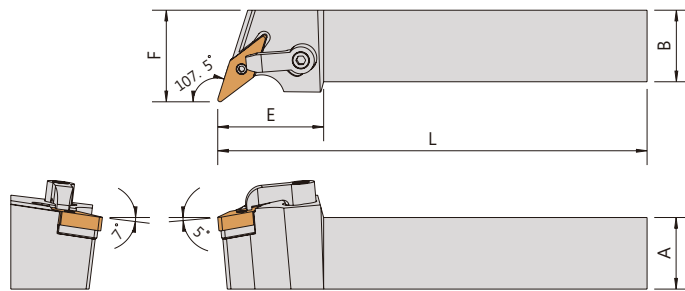
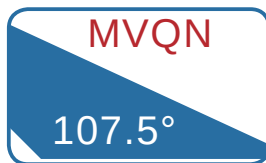


EXTERNAL TURNING TOOLS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS			WRENCH	
	Right / Left		A	B	L	E	F						
55100870 R/L	MVJNR/L-2020K16	VNMG1604	20	20	125	39	25	SMV-322	LCS-513	CP50-25	CS7-6030	LW020	LW030
55100871 R/L	MVJNR/L-2525M16	VNMG1604	25	25	150	44	32	SMV-322	LCS-513	CP50-25	CS7-6030	LW020	LW030
55100872 R/L	MVJNR/L-3225P16	VNMG1604	32	25	170	44	32	SMV-322	LCS-513	CP50-25	CS7-6030	LW020	LW030
55100873 R/L	MVJNR/L-3232P16	VNMG1604	32	32	170	45	40	SMV-322	LCS-513	CP50-25	CS7-6030	LW020	LW030



UNIT: mm

UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS			WRENCH	
	Right / Left		A	B	L	E	F						
55100874 R/L	MVQNR/L-2020K16	VNMG1604	20	20	125	37	25	SMV-322	LCS-513	CP50-25	CS7-6030	LW020	LW030
55100875 R/L	MVQNR/L-2525M16	VNMG1604	25	25	150	37	32	SMV-322	LCS-513	CP50-25	CS7-6030	LW020	LW030
55100876 R/L	MVQNR/L-3225P16	VNMG1604	32	25	170	42	32	SMV-322	LCS-513	CP50-25	CS7-6030	LW020	LW030
55100877 R/L	MVQNR/L-3232P16	VNMG1604	32	32	170	42	40	SMV-322	LCS-513	CP50-25	CS7-6030	LW020	LW030



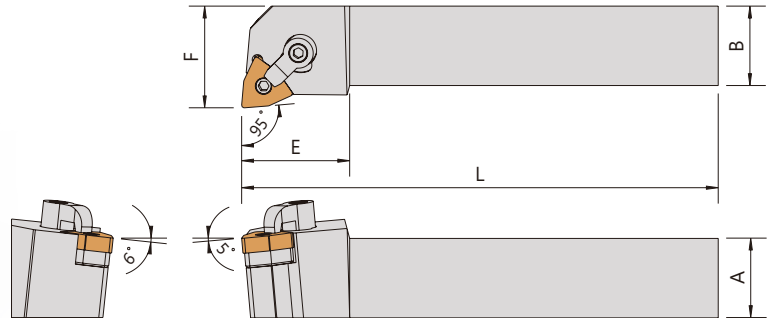
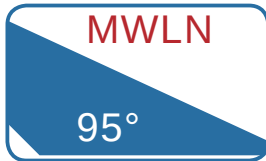
E1 - TURNING TOOLS

CUTTING TOOLS

E “ CUTTING TOOLS

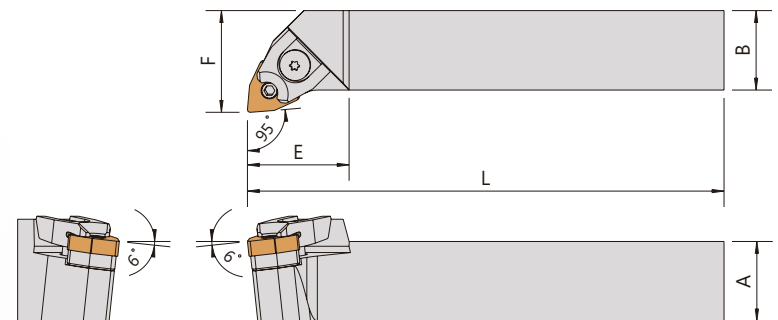
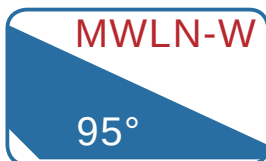


EXTERNAL TURNING TOOLS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS				WRENCH	
	Right / Left		A	B	L	E	F						
55100878 R/L	MWLN/L-2020K06	WNMG0604	20	20	125	34	25	SMW-321	LCS-513	CP50-30	CS7-5018	LW020	LW025
55100879 R/L	MWLN/L-2525M06	WNMG0604	25	25	150	34	32	SMW-321	LCS-513	CP50-30	CS7-5018	LW020	LW025
55100880 R/L	MWLN/L-2020K08	WNMG0804	20	20	125	34	25	SMW-432	LCS-617	CP50-22	CS7-6030	-	LW030
55100881 R/L	MWLN/L-2525M08	WNMG0804	25	25	150	34	32	SMW-432	LCS-617	CP50-22	CS7-6030	-	LW030
55100882 R/L	MWLN/L-3225P08	WNMG0804	32	25	170	40	32	SMW-432	LCS-617	CP50-22	CS7-6030	-	LW030
55100883 R/L	MWLN/L-3232P08	WNMG0804	32	32	170	40	40	SMW-432	LCS-617	CP50-22	CS7-6030	-	LW030

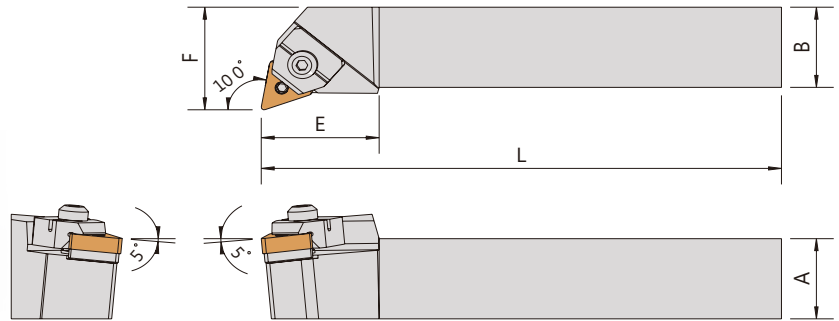


UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS					WRENCH	
	Right / Left		A	B	L	E	F							
55100884 R/L	MWLN/L-2020K08-W	WNMG0804	20	20	125	32	25	SMW-433	LCS-520W	MTW-40	CSB0623T	SP-0816	WS07	TL-25
55100885 R/L	MWLN/L-2525M08-W	WNMG0804	25	25	150	32	32	SMW-433	LCS-520W	MTW-40	CSB0623T	SP-0816	WS07	TL-25
55100886 R/L	MWLN/L-3225P08-W	WNMG0804	32	25	170	32	32	SMW-433	LCS-520W	MTW-40	CSB0623T	SP-0816	WS07	TL-25
55100887 R/L	MWLN/L-3232P08-W	WNMG0804	32	32	170	32	40	SMW-433	LCS-520W	MTW-40	CSB0623T	SP-0816	WS07	TL-25

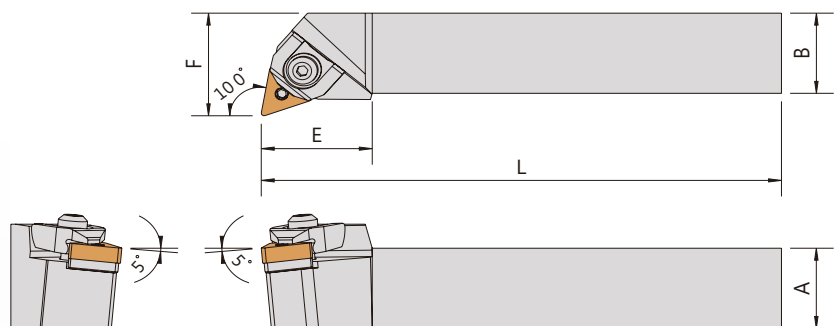
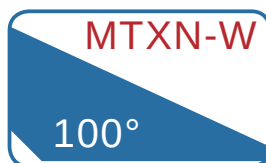


EXTERNAL TURNING TOOLS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS						WRENCH
	Right / Left		A	B	L	E	F								
55100888 R/L	WTXNR/L-2020K16	TNMG1604	20	20	125	33	25	SMT-322	LCS-420N	MWW-30	CSE5026	ER-4	LW025	LW030	
55100889 R/L	WTXNR/L-2525M16	TNMG1604	25	25	150	34	32	SMT-322	LCS-420N	MWW-30	CSE5026	ER-4	LW025	LW030	



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS					WRENCH	
	Right / Left		A	B	L	E	F								
55100890 R/L	MTXNR/L-2020K16-W	TNMG1604	20	20	125	32	25	SMT-322	LCS-420N	MTW-30	CSE5026	ER04	WS06	LW025 LW030	
55100891 R/L	MTXNR/L-2525M16-W	TNMG1604	25	25	150	32	32	SMT-322	LCS-420N	MTW-30	CSE5026	ER04	WS06	LW025 LW030	



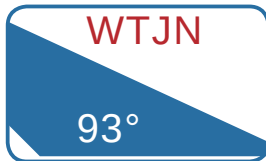
E1 - TURNING TOOLS

CUTTING TOOLS

E “ CUTTING TOOLS

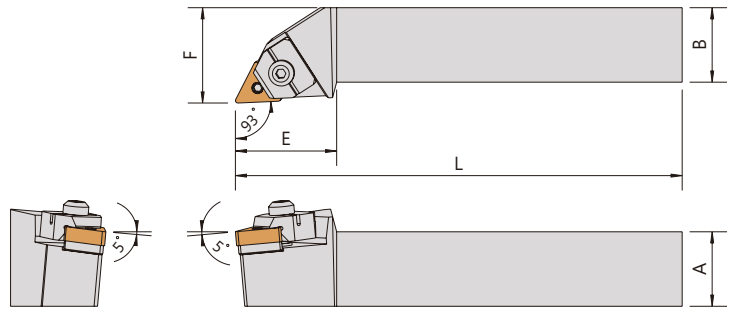


EXTERNAL TURNING TOOLS



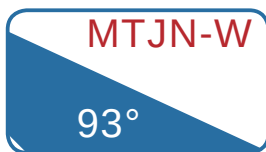
WTJN

93°



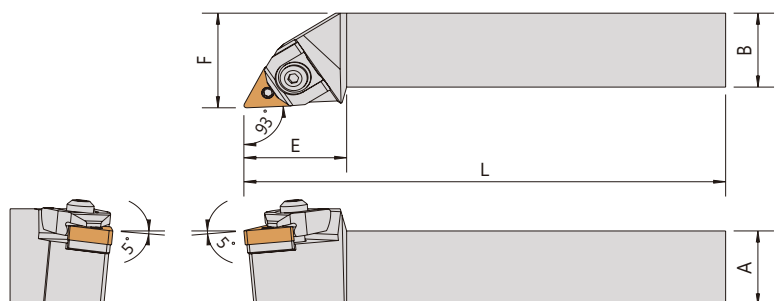
UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS				WRENCH	
	Right / Left		A	B	L	E	F							
55103841 R/L	WTJNR/L-2020K16	TNMG1604	20	20	125	34	25	SMT-322	LCS-420N	MWW-30	CSE5026	ER-4	LW025	LW030
55103842 R/L	WTJNR/L-2525M16	TNMG1604	25	25	150	34	32	SMT-322	LCS-420N	MWW-30	CSE5026	ER-4	LW025	LW030
55103843 R/L	WTJNR/L-3225P16	TNMG1604	32	25	170	34	32	SMT-322	LCS-420N	MWW-30	CSE5026	ER-4	LW025	LW030
55103844 R/L	WTJNR/L-3232P16	TNMG1604	32	32	170	34	40	SMT-322	LCS-420N	MWW-30	CSE5026	ER-4	LW025	LW030



MTJN-W

93°



UNIT: mm

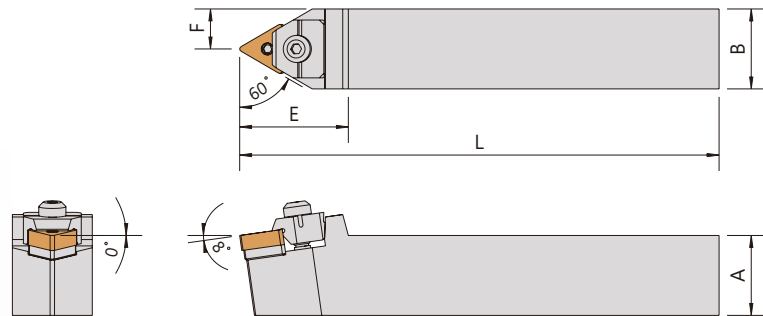
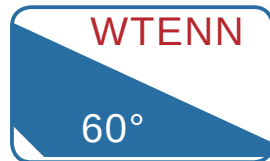
ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS						WRENCH	
	Right / Left									UNIT: mm						
										A	B	L	E	F		
55100892 R/L	MTJNR/L-2020K16-W	TNMG1604	20	20	125	32	25	SMT-322	LCS-420N	MTW-30	CSE5026	ER04	WS06	LW025	LW030	
55100729 R/L	MTJNR/L-2525M16-W	TNMG1604	25	25	150	32	32	SMT-322	LCS-420N	MTW-30	CSE5026	ER04	WS06	LW025	LW030	
55100893 R/L	MTJNR/L-3225P16-W	TNMG1604	32	25	170	32	32	SMT-322	LCS-420N	MTW-30	CSE5026	ER04	WS06	LW025	LW030	
55100894 R/L	MTJNR/L-3232P16-W	TNMG1604	32	32	170	32	40	SMT-322	LCS-420N	MTW-30	CSE5026	ER04	WS06	LW025	LW030	
55100895 R/L	MTJNR/L-2525M22-W	TNMG2204	25	25	150	32	32	SMT-431	LCS-520W	MTW-34	CSE6027	ER05	WS07	LW025	LW040	
55100896 R/L	MTJNR/L-3225P22-W	TNMG2204	32	25	170	32	32	SMT-431	LCS-520W	MTW-34	CSE6027	ER05	WS07	LW025	LW040	
55100897 R/L	MTJNR/L-3232P22-W	TNMG2204	32	32	170	32	40	SMT-431	LCS-520W	MTW-34	CSE6027	ER05	WS07	LW025	LW040	



EXTERNAL TURNING TOOLS

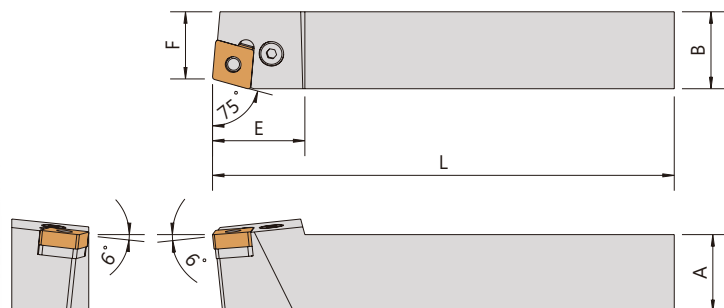


E1 - TURNING TOOLS



UNIT: mm

CUTTING DATA														
ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS				WRENCH	
			A	B	L	E	F							
55100898	WTENN-2020K16	TNMG1604	20	20	125	34	10	SMT-322	LCS-420N	MWW-30	CSE5026	ER-4	LW025	LW030
55100899	WTENN-2525M16	TNMG1604	25	25	150	34	12.5	SMT-322	LCS-420N	MWW-30	CSE5026	ER-4	LW025	LW030
55100900	WTENN-3225P16	TNMG1604	32	25	170	34	12.5	SMT-322	LCS-420N	MWW-30	CSE5026	ER-4	LW025	LW030
55100901	WTENN-3232P16	TNMG1604	32	32	170	34	16	SMT-322	LCS-420N	MWW-30	CSE5026	ER-4	LW025	LW030



UNIT: mm

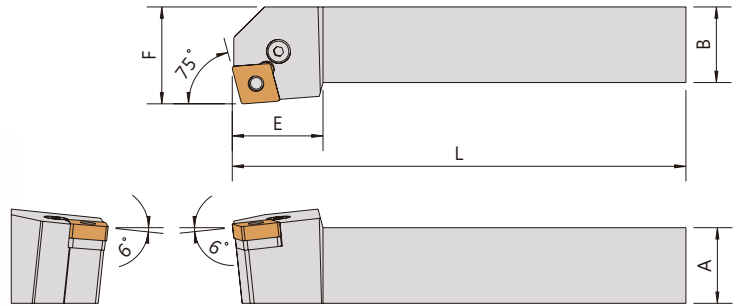
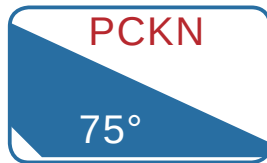
UNIT: mm												
ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS			WRENCH
	Right / Left		A	B	L	E	F					
55100902 R/L	PCBNR/L-2020K12	CNMG1204	20	20	125	30	17	SMC-422	CS-LSP4	CP-LL4	CS-LS4	LW030
55100903 R/L	PCBNR/L-2525M12	CNMG1204	25	25	150	30	22	SMC-422	CS-LSP4	CP-LL4	CS-LS4	LW030
55100904 R/L	PCBNR/L-3225P12	CNMG1204	32	25	170	30	22	SMC-422	CS-LSP4	CP-LL4	CS-LS4	LW030
55100905 R/L	PCBNR/L-3232P12	CNMG1204	32	32	170	30	29	SMC-422	CS-LSP4	CP-LL4	CS-LS4	LW030

CUTTING TOOLS

E “ CUTTING TOOLS

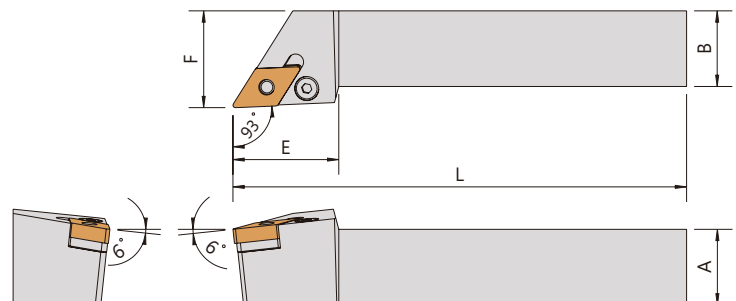
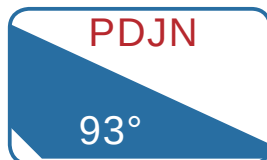


EXTERNAL TURNING TOOLS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS				WRENCH
	Right / Left		A	B	L	E	F						
55100906 R/L	PCKNR/L-2020K12	CNMG1204	20	20	125	30	25	SMC-422	CS-LSP4	CP-LL4	CS-LS4	LW030	
55100907 R/L	PCKNR/L-2525M12	CNMG1204	25	25	150	30	32	SMC-422	CS-LSP4	CP-LL4	CS-LS4	LW030	
55100908 R/L	PCKNR/L-3225P12	CNMG1204	32	25	170	30	32	SMC-422	CS-LSP4	CP-LL4	CS-LS4	LW030	
55100909 R/L	PCKNR/L-3232P12	CNMG1204	32	32	170	30	40	SMC-422	CS-LSP4	CP-LL4	CS-LS4	LW030	

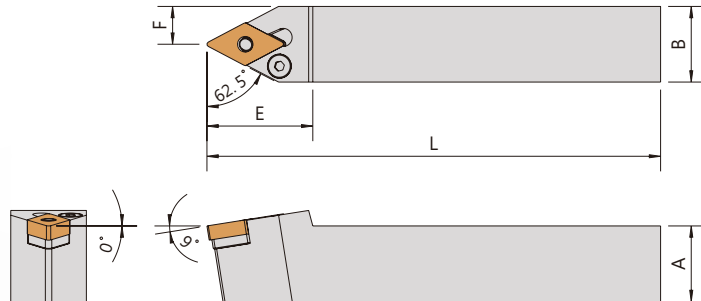
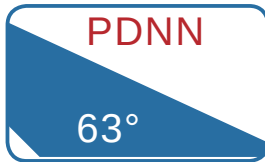


UNIT: mm

UNIT: mm												
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	Right / Left		A	B	L	E	F					
55100910 R/L	PDJNR/L-2020K11	DNMG1104	20	20	125	35	25	SMD-331	CS-LSP3	CP-LL6	CS-LS3	LW025
55100911 R/L	PDJNR/L-2525M11	DNMG1104	25	25	150	35	32	SMD-331	CS-LSP3	CP-LL6	CS-LS3	LW025
55100911-1 R/L	PDJNR/L-2020K1504	DNMG1504	25	25	150	35	25	SMD-424	CS-LSP4	CP-LL4	CS-LS4	LW030
55100912 R/L	PDJNR/L-2525M1504	DNMG1504	25	25	150	35	32	SMD-424	CS-LSP4	CP-LL4	CS-LS4	LW030
55100913 R/L	PDJNR/L-3225P1504	DNMG1504	32	25	170	35	32	SMD-424	CS-LSP4	CP-LL4	CS-LS4	LW030
55100914 R/L	PDJNR/L-3232P1504	DNMG1504	32	32	170	35	40	SMD-424	CS-LSP4	CP-LL4	CS-LS4	LW030
55100914-1 R/L	PDJNR/L-2020K1506	DNMG1506	25	25	150	35	25	SMD-424	CS-LSP4	CP-LL4	CS-LS4	LW030
55100915 R/L	PDJNR/L-2525M1506	DNMG1506	25	25	150	35	32	SMD-424	CS-LSP4	CP-LL4	CS-LS4	LW030
55100916 R/L	PDJNR/L-3225P1506	DNMG1506	32	25	170	35	32	SMD-424	CS-LSP4	CP-LL4	CS-LS4	LW030
55100917 R/L	PDJNR/L-3232P1506	DNMG1506	32	32	170	35	40	SMD-424	CS-LSP4	CP-LL4	CS-LS4	LW030

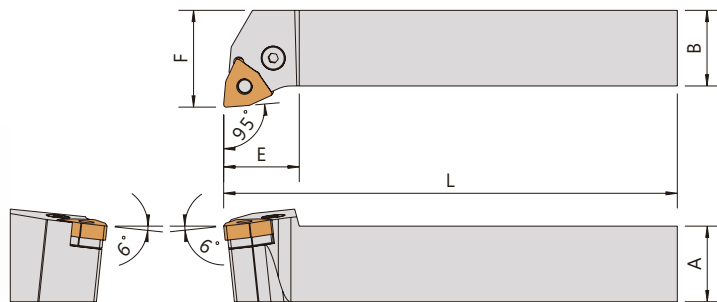
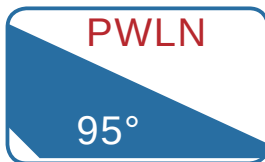


EXTERNAL TURNING TOOLS



UNIT: mm

ITEM NO.	MODEL	INSERT 	DIMENSIONS						PARTS				WRENCH
			A	B	L	E	F						
55100918	PDNNR-2525M1504	DNMG1504	25	25	150	35	12.5	SMD-424	CS-LSP4	CP-LL4	CS-LS4	LW030	
55100919	PDNNR-3225P1504	DNMG1504	32	25	170	35	12.5	SMD-424	CS-LSP4	CP-LL4	CS-LS4	LW030	
55100920	PDNNR-3232P1504	DNMG1504	32	32	170	35	16	SMD-424	CS-LSP4	CP-LL4	CS-LS4	LW030	
55100921	PDNNR-2525M1506	DNMG1504	25	25	150	35	12.5	SMD-424	CS-LSP4	CP-LL4	CS-LS4	LW030	
55100922	PDNNR-3225P1506	DNMG1504	32	25	170	35	12.5	SMD-424	CS-LSP4	CP-LL4	CS-LS4	LW030	
55100923	PDNNR-3232P1506	DNMG1504	32	32	170	35	16	SMD-424	CS-LSP4	CP-LL4	CS-LS4	LW030	



UNIT: mm

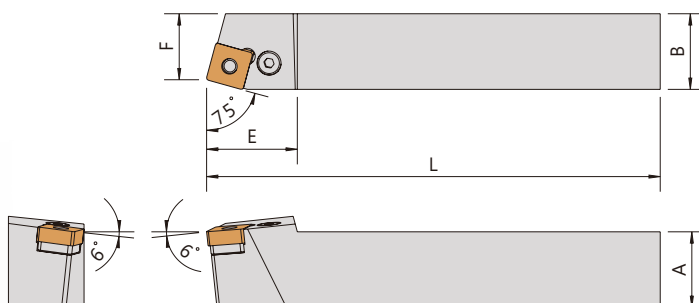
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			A	B	L	E	F						
55100924 R/L	PWLNR/L-1616H06	WNMG0604	16	16	100	25	20	SMW-322	CS-LSP3	CP-LL3	CS-LS3	LW025	
55100925 R/L	PWLNR/L-2020K06	WNMG0604	20	20	125	25	25	SMW-322	CS-LSP3	CP-LL3	CS-LS3	LW025	
55100926 R/L	PWLNR/L-2525M06	WNMG0604	25	25	150	25	32	SMW-322	CS-LSP3	CP-LL3	CS-LS3	LW025	
55100927 R/L	PWLNR/L-2020K08	WNMG0804	20	20	125	25	25	SMW-423	CS-LSP4	CP-LL4	CS-LS4	LW030	
55100928 R/L	PWLNR/L-2525M08	WNMG0804	25	25	150	25	32	SMW-423	CS-LSP4	CP-LL4	CS-LS4	LW030	
55100929 R/L	PWLNR/L-3225P08	WNMG0804	32	25	170	25	32	SMW-423	CS-LSP4	CP-LL4	CS-LS4	LW030	
55100930 R/L	PWLNR/L-3232P08	WNMG0804	32	32	170	30	40	SMW-423	CS-LSP4	CP-LL4	CS-LS4	LW030	



E “ CUTTING TOOLS

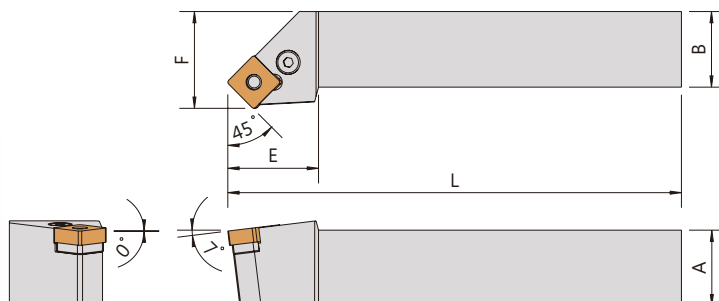


EXTERNAL TURNING TOOLS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS				WRENCH
	Right / Left		A	B	L	E	F						
55100931 R/L	PSBNR/L-2020K12	SNMG1204	20	20	125	30	17	SMS-422	CS-LSP4	CP-LL4	CS-LS4	LW030	
55100932 R/L	PSBNR/L-2525M12	SNMG1204	25	25	150	30	22	SMS-422	CS-LSP4	CP-LL4	CS-LS4	LW030	
55100933 R/L	PSBNR/L-3225P12	SNMG1204	32	25	170	30	22	SMS-422	CS-LSP4	CP-LL4	CS-LS4	LW030	
55100934 R/L	PSBNR/L-3232P12	SNMG1204	32	32	170	35	29	SMS-422	CS-LSP4	CP-LL4	CS-LS4	LW030	

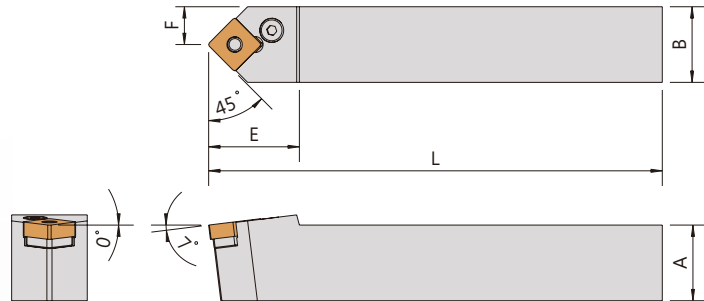
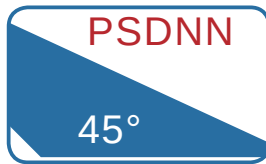


UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS				WRENCH
	Right / Left		A	B	L	E	F						
55100935 R/L	PSSNR/L-2020K12	SNMG1204	20	20	125	30	25	SMS-422	CS-LSP4	CP-LL4	CS-LS4	LW030	
55100936 R/L	PSSNR/L-2525M12	SNMG1204	25	25	150	30	32	SMS-422	CS-LSP4	CP-LL4	CS-LS4	LW030	
55100937 R/L	PSSNR/L-3225P12	SNMG1204	32	25	170	30	32	SMS-422	CS-LSP4	CP-LL4	CS-LS4	LW030	
55100938 R/L	PSSNR/L-3232P12	SNMG1204	32	32	170	35	40	SMS-422	CS-LSP4	CP-LL4	CS-LS4	LW030	

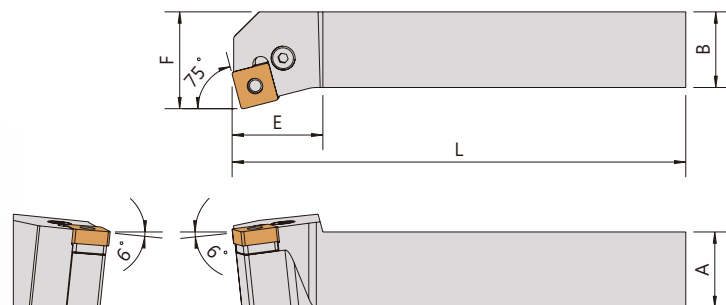


EXTERNAL TURNING TOOLS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS					WRENCH
			A	B	L	E	F						
55100939	PSDNN-2020K12	SNMG1204	20	20	125	30	10	SMS-422	CS-LSP4	CP-LL4	CS-LS4	LW030	
55100940	PSDNN-2525M12	SNMG1204	25	25	150	30	12.5	SMS-422	CS-LSP4	CP-LL4	CS-LS4	LW030	
55100941	PSDNN-3225P12	SNMG1204	32	25	170	30	12.5	SMS-422	CS-LSP4	CP-LL4	CS-LS4	LW030	
55100942	PSDNN-3232P12	SNMG1204	32	32	170	30	16	SMS-422	CS-LSP4	CP-LL4	CS-LS4	LW030	



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS					WRENCH
			A	B	L	E	F						
55100943 R/L	PSKNR/L-2020K12	SNMG1204	20	20	125	30	25	SMS-422	CS-LSP4	CP-LL4	CS-LS4	LW030	
55100945 R/L	PSKNR/L-2525M12	SNMG1204	25	25	150	30	32	SMS-422	CS-LSP4	CP-LL4	CS-LS4	LW030	
55100946 R/L	PSKNR/L-3225P12	SNMG1204	32	25	170	30	32	SMS-422	CS-LSP4	CP-LL4	CS-LS4	LW030	
55100947 R/L	PSKNR/L-3232P12	SNMG1204	32	32	170	30	40	SMS-422	CS-LSP4	CP-LL4	CS-LS4	LW030	



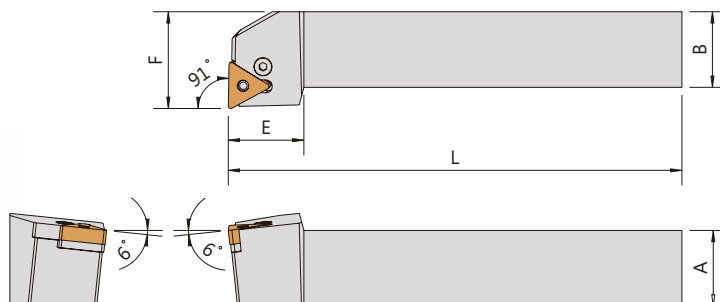
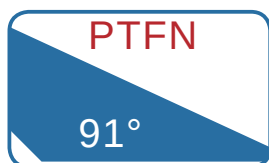
E1 - TURNING TOOLS

CUTTING TOOLS

E “ CUTTING TOOLS

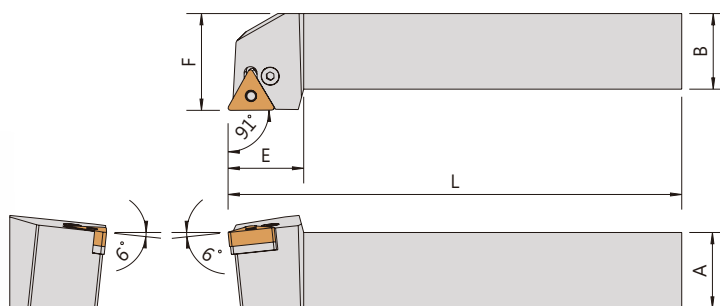
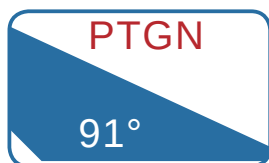


EXTERNAL TURNING TOOLS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS				WRENCH
	Right / Left		A	B	L	E	F						
55100948 R/L	PTFNR/L-2020K16	TNMG1604	20	20	125	25	25	SMT-31T	CS-LSP3	CP-LL3	CS-LS3	LW025	
55100949 R/L	PTFNR/L-2525M16	TNMG1604	25	25	150	25	32	SMT-31T	CS-LSP3	CP-LL3	CS-LS3	LW025	

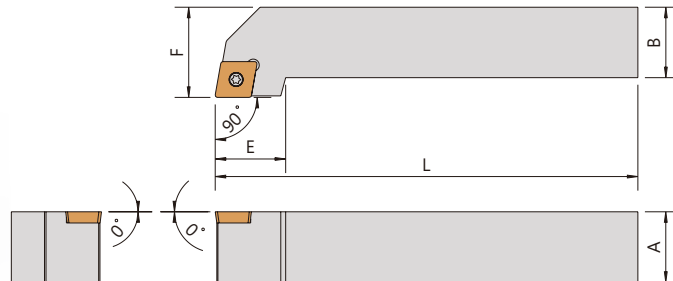
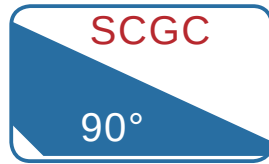


UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS				WRENCH
	Right / Left		A	B	L	E	F						
55100950 R/L	PTGNR/L-2020K16	TNMG1604	20	20	125	25	25	SMT-31T	CS-LSP3	CP-LL3	CS-LS3	LW025	
55100951 R/L	PTGNR/L-2525M16	TNMG1604	25	25	150	25	32	SMT-31T	CS-LSP3	CP-LL3	CS-LS3	LW025	

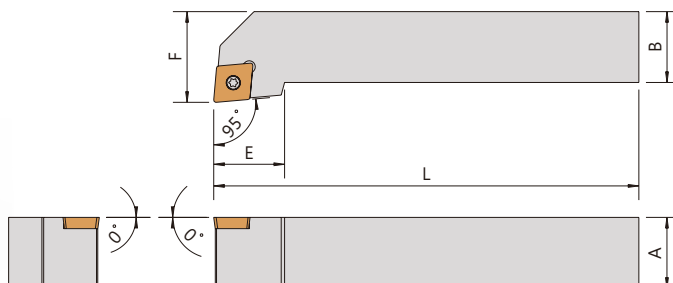
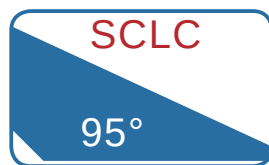


EXTERNAL TURNING TOOLS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS	WRENCH
	Right / Left		A	B	L	E	F		
55100952 R/L	SCGCR/L-0808H06	CCMT0602	8	8	100	12	10	CS25060	FT-7
55100953 R/L	SCGCR/L-1010H06	CCMT0602	10	10	100	12	12	CS25060	FT-7
55100954 R/L	SCGCR/L-1212H09	CCMT09T3	12	12	100	17	16	CS35090	FT-15
55100953 R/L	SCGCR/L-1616H09	CCMT09T3	16	16	100	18	20	CS35090	FT-15
55100956 R/L	SCGCR/L-2020K12	CCMT1204	20	20	125	22	25	CS40115	FT-15
55100957 R/L	SCGCR/L-2525M12	CCMT1204	25	25	150	25	32	CS40115	FT-15



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS	WRENCH
	Right / Left		A	B	L	E	F		
55100958 R/L	SCLCR/L-0808H06	CCMT0602	8	8	100	12	10	CS25060	FT-7
55100959 R/L	SCLCR/L-1010H06	CCMT0602	10	10	100	12	12	CS25060	FT-7
55100960 R/L	SCLCR/L-1212H06	CCMT0602	12	12	100	17	16	CS25060	FT-7
55100961 R/L	SCLCR/L-1212H09	CCMT09T3	12	12	100	17	16	CS35090	FT-15
55100962 R/L	SCLCR/L-1616H09	CCMT09T3	16	16	100	18	20	CS35090	FT-15
55100963 R/L	SCLCR/L-2020K09	CCMT09T3	20	20	125	22	25	CS35090	FT-15
55100964 R/L	SCLCR/L-2525M09	CCMT09T3	25	25	150	25	32	CS35090	FT-15
55100965 R/L	SCLCR/L-2020K12	CCMT1204	20	20	125	22	25	CS40115	FT-15
55100966 R/L	SCLCR/L-2525M12	CCMT1204	25	25	150	25	32	CS40115	FT-15

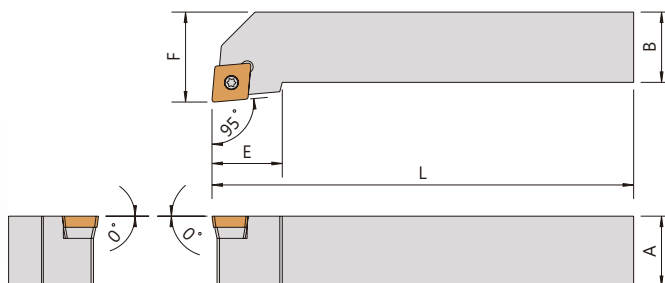
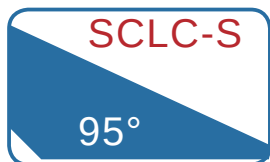


E1 - TURNING TOOLS

CUTTING TOOLS

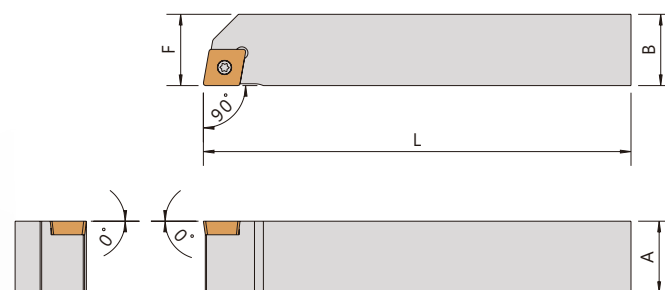
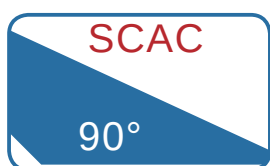


EXTERNAL TURNING TOOLS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS		WRENCH	
	Right / Left		A	B	L	E	F					
55100967 R/L	SCLCR/L-2020K09S	CCMT09T3	20	20	125	22	25	SMC-343	SN535	CS35115	FT-15	LW035
55100968 R/L	SCLCR/L-2525M09S		25	25	150	25	32					
55100969 R/L	SCLCR/L-2020K12S	CCMT1204	20	20	125	22	25	SMC-453	SN630	CS40145	FT-15	LW040
55100970 R/L	SCLCR/L-2525M12S		25	25	150	25	32					

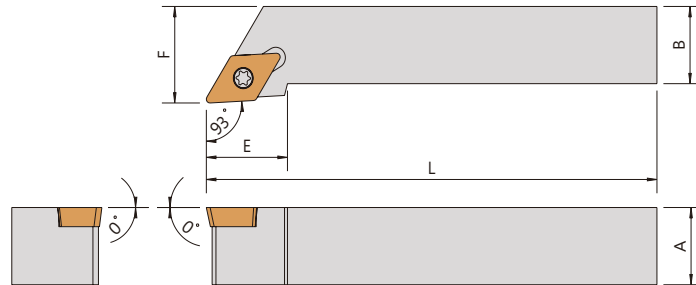
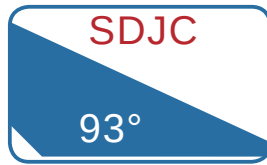


UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS				PARTS	WRENCH
	Right / Left		A	B	L	F		
55100971 R/L	SCACR/L-0808H06	CCMT0602	8	8	100	8.5	CS25060	FT-7
55100972 R/L	SCACR/L-1010H06	CCMT0602	10	10	100	10.5	CS25060	FT-7
55100973 R/L	SCACR/L-1212H06	CCMT0602	12	12	100	12.5	CS25060	FT-7
55100974 R/L	SCACR/L-0808K06	CCMT0602	8	8	125	8.5	CS25060	FT-7
55100975 R/L	SCACR/L-1010K06	CCMT0602	10	10	125	10.5	CS25060	FT-7
55100976 R/L	SCACR/L-1212K06	CCMT0602	12	12	125	12.5	CS25060	FT-7
55100977 R/L	SCACR/L-1212H09	CCMT09T3	12	12	100	12.5	CS35090	FT-15
55100978 R/L	SCACR/L-1616H09	CCMT09T3	16	16	100	16.5	CS35090	FT-15
55100979 R/L	SCACR/L-1212K09	CCMT09T3	12	12	125	12.5	CS35090	FT-15
55100980 R/L	SCACR/L-1616K09	CCMT09T3	16	16	125	16.5	CS35090	FT-15
55100981 R/L	SCACR/L-2020K12	CCMT1204	20	20	125	20.5	CS40115	FT-15
55100982 R/L	SCACR/L-2525M12	CCMT1204	25	25	150	25.5	CS40115	FT-15

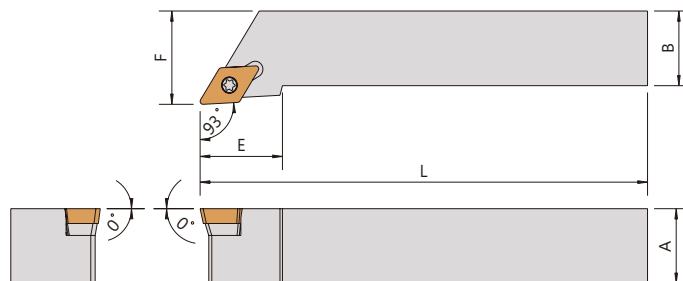
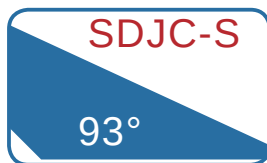


EXTERNAL TURNING TOOLS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS	WRENCH
	Right / Left		A	B	L	E	F		
55100983 R/L	SDJCR/L-0808H07	DCMT0702	8	8	100	12.5	10	CS25060	FT-7
55100984 R/L	SDJCR/L-1010H07	DCMT0702	10	10	100	15	12	CS25060	FT-7
55100985 R/L	SDJCR/L-1212H07	DCMT0702	12	12	100	16	16	CS25060	FT-7
55100986 R/L	SDJCR/L-1212H11	DCMT11T3	12	12	100	16	16	CS35095	FT-15
55100987 R/L	SDJCR/L-1616H11	DCMT11T3	16	16	100	18	20	CS35095	FT-15
55100988 R/L	SDJCR/L-2020K11	DCMT11T3	20	20	125	23	25	CS35095	FT-15
55100989 R/L	SDJCR/L-2525M11	DCMT11T3	25	25	150	27	32	CS35095	FT-15



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS	WRENCH
	Right / Left		A	B	L	E	F		
55100990 R/L	SDJCR/L-2020K11S	DCMT11T3	20	20	125	22	25	SMD-343	SN535
55100991 R/L	SDJCR/L-2525M11S		25	25	150	25	32	CS35115	FT-15



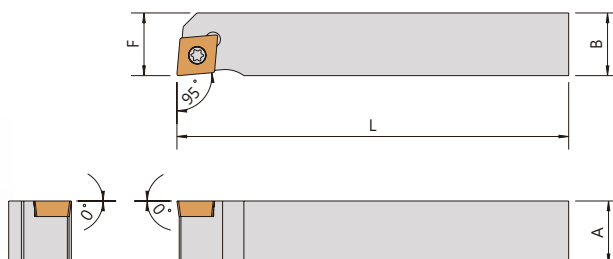
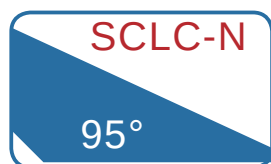
E1 - TURNING TOOLS

CUTTING TOOLS

E “ CUTTING TOOLS

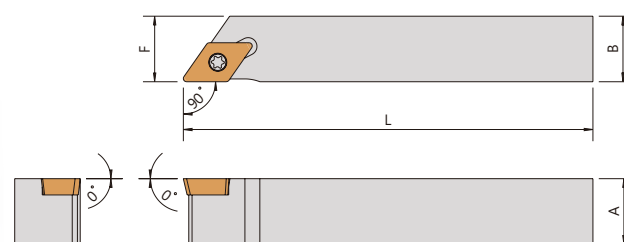
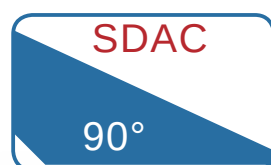


EXTERNAL TURNING TOOLS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS				PARTS	WRENCH
	Right / Left		A	B	L	F		
55100992 R/L	SCLCR/L-0808H06N	CCMT0602	8	8	100	8	CS25060	FT-7
55100993 R/L	SCLCR/L-1010H06N	CCMT0602	10	10	100	10	CS25060	FT-7
55100994 R/L	SCLCR/L-0808K06N	CCMT0602	8	8	125	8	CS25060	FT-7
55100995 R/L	SCLCR/L-1010K06N	CCMT0602	10	10	125	10	CS25060	FT-7
55100996 R/L	SCLCR/L-1212H09N	CCMT09T3	12	12	100	12	CS35090	FT-15
55100997 R/L	SCLCR/L-1616H09N	CCMT09T3	16	16	100	16	CS35090	FT-15
55100998 R/L	SCLCR/L-1212K09N	CCMT09T3	12	12	125	12	CS35090	FT-15
55100999 R/L	SCLCR/L-1616K09N	CCMT09T3	16	16	125	16	CS35090	FT-15

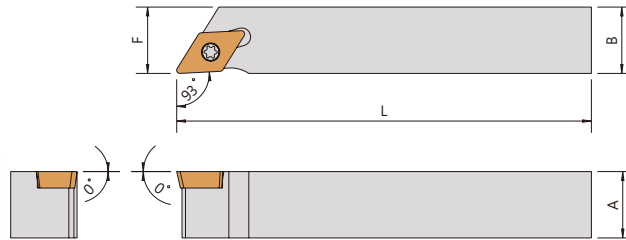
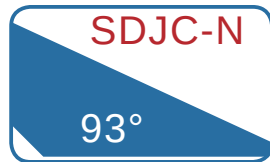


UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS				PARTS	WRENCH
	Right / Left		A	B	L	F		
55101000 R/L	SDACR/L-0808H07	DCMT0702	8	8	100	8	CS25060	FT-7
55101001 R/L	SDACR/L-1010H07	DCMT0702	10	10	100	10	CS25060	FT-7
55101002 R/L	SDACR/L-1212H07	DCMT0702	12	12	100	12	CS25060	FT-7
55101003 R/L	SDACR/L-0808K07	DCMT0702	8	8	125	8	CS25060	FT-7
55101004 R/L	SDACR/L-1010K07	DCMT0702	10	10	125	10	CS25060	FT-7
55101005 R/L	SDACR/L-1212K07	DCMT0702	12	12	125	12	CS25060	FT-7
55101006 R/L	SDACR/L-1212H11	DCMT11T3	12	12	100	12	CS35095	FT-15
55101007 R/L	SDACR/L-1616H11	DCMT11T3	16	16	100	16	CS35095	FT-15
55101008 R/L	SDACR/L-1212K11	DCMT11T3	12	12	125	12	CS35095	FT-15
55101009 R/L	SDACR/L-1616K11	DCMT11T3	16	16	125	16	CS35095	FT-15
55101010 R/L	SDACR/L-2020K11	DCMT11T3	20	20	125	20	CS35095	FT-15
55101011 R/L	SDACR/L-2525M11	DCMT11T3	25	25	150	25	CS35095	FT-15

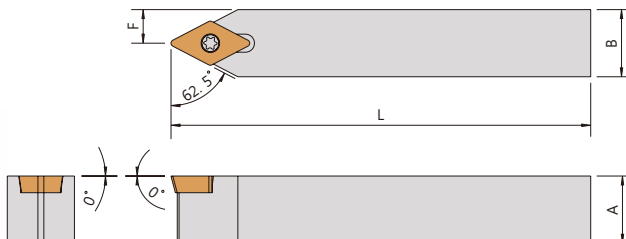
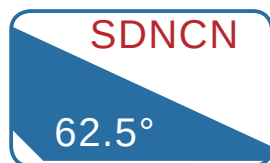


EXTERNAL TURNING TOOLS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS				PARTS	WRENCH
	Right / Left		A	B	L	F		
55101012 R/L	SDJCR/L-0808H07N	DCMT0702	8	8	100	8	CS25060	FT-7
55101013 R/L	SDJCR/L-1010H07N	DCMT0702	10	10	100	10	CS25060	FT-7
55101014 R/L	SDJCR/L-1212H07N	DCMT0702	12	12	100	12	CS25060	FT-7
55101015 R/L	SDJCR/L-0808K07N	DCMT0702	8	8	125	8	CS25060	FT-7
55101016 R/L	SDJCR/L-1010K07N	DCMT0702	10	10	125	10	CS25060	FT-7
55101017 R/L	SDJCR/L-1212K07N	DCMT0702	12	12	125	12	CS25060	FT-7
55101018 R/L	SDJCR/L-1212H11N	DCMT11T3	12	12	100	12	CS35095	FT-15
55101019 R/L	SDJCR/L-1616H11N	DCMT11T3	16	16	100	16	CS35095	FT-15
55101020 R/L	SDJCR/L-1212K11N	DCMT11T3	12	12	125	12	CS35095	FT-15
55101021 R/L	SDJCR/L-1616K11N	DCMT11T3	16	16	125	16	CS35095	FT-15



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS				PARTS	WRENCH
			A	B	L	F		
55101022	SDNCN-0808H07	DCMT0702	8	8	100	4	CS25060	FT-7
55101023	SDNCN-1010H07	DCMT0702	10	10	100	5	CS25060	FT-7
55101024	SDNCN-1212H11	DCMT11T3	12	12	100	6	CS35095	FT-15
55101025	SDNCN-1616H11	DCMT11T3	16	16	100	8	CS35095	FT-15
55101026	SDNCN-2020K11	DCMT11T3	20	20	125	10	CS35095	FT-15
55101027	SDNCN-2525M11	DCMT11T3	25	25	150	12.5	CS35095	FT-15



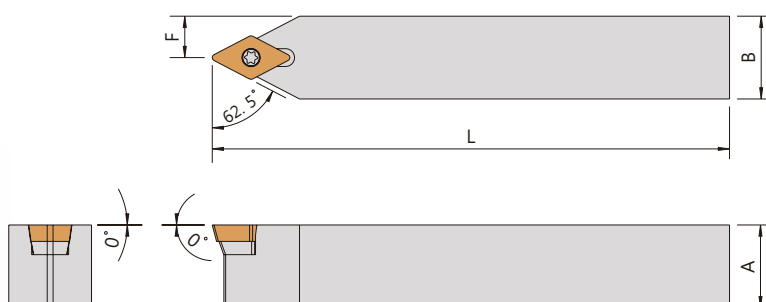
E1 - TURNING TOOLS

CUTTING TOOLS

E “ CUTTING TOOLS

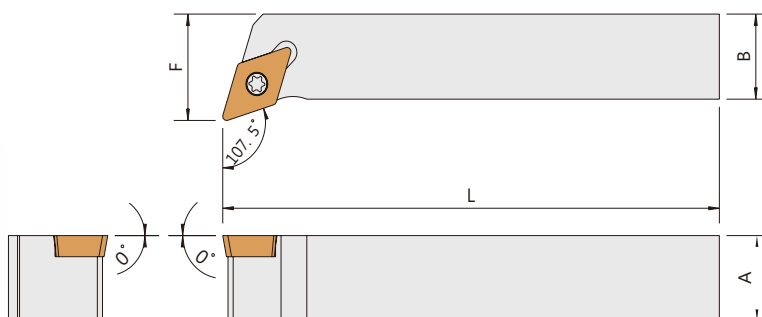
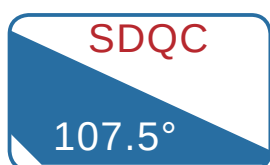


EXTERNAL TURNING TOOLS



UNIT: mm

ITEM NO.	MODEL	INSERT 	DIMENSIONS				PARTS			WRENCH	
			A	B	L	F					
55101027-1	SDNCN-2020K11S	DCMT11T3	20	20	125	25	SMD-343	SN535	CS35115	FT-15	LW035
55101027-2	SDNCN-2525M11S		25	25	150	32					

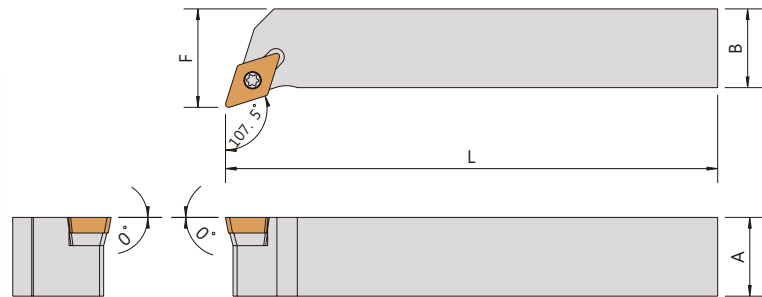
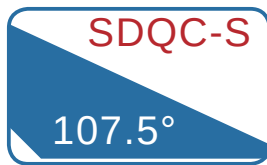


UNIT: mm

ITEM NO.	MODEL	INSERT 	DIMENSIONS				PARTS 	WRENCH
	Right / Left		A	B	L	F		
55101028 R/L	SDQCR/L-1010H07	DCMT0702	10	10	100	12	CS25060	FT-7
55101029 R/L	SDQCR/L-1212H11	DCMT11T3	12	12	100	16	CS35095	FT-15
55101030 R/L	SDQCR/L-1616H11	DCMT11T3	16	16	100	20	CS35095	FT-15
55101031 R/L	SDQCR/L-2020K11	DCMT11T3	20	20	125	25	CS35095	FT-15
55101032 R/L	SDQCR/L-2525M11	DCMT11T3	25	25	150	32	CS35095	FT-15

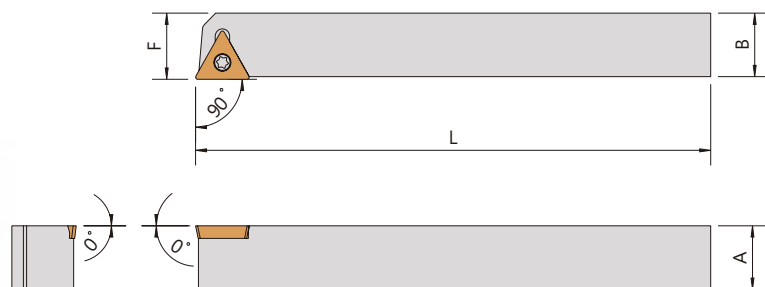
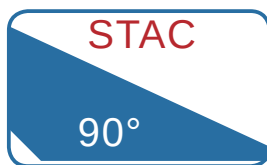


EXTERNAL TURNING TOOLS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS				PARTS			WRENCH	
	Right / Left		A	B	L	F					
55101033 R/L	SDQCR/L-2020K11S	DCMT11T3	20	20	125	25	SMD-343	SN535	CS35115	FT-15	LW035
55101034 R/L	SDQCR/L-2525M11S		25	25	150	32					



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS				PARTS	WRENCH
	Right / Left		A	B	L	F		
55101035 R/L	STACR/L-0808H09	TCMT0902	8	8	100	8.5	CS22050	FT-7
55101036 R/L	STACR/L-1010H09	TCMT0902	10	10	100	10.5	CS22050	FT-7
55101037 R/L	STACR/L-1212H11	TCMT1102	12	12	100	12.5	CS25060	FT-7
55101038 R/L	STACR/L-1616H11	TCMT1102	16	16	100	16.5	CS25060	FT-7

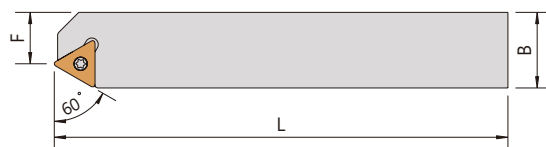
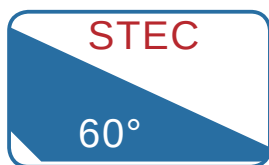


E1 - TURNING TOOLS

CUTTING TOOLS

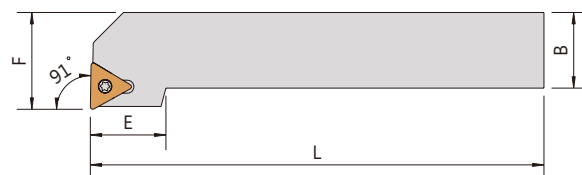
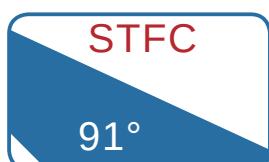
E “ CUTTING TOOLS

EXTERNAL TURNING TOOLS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS				PARTS	WRENCH
	Right / Left		A	B	L	F		
55101039 R/L	STECR/L-2020K11	TCMT1102	20	20	125	14.5	CS25060	FT-7
55101040 R/L	STECR/L-2525M11	TCMT1102	25	25	150	19.5	CS25060	FT-7
55101041 R/L	STECR/L-2020K16	TCMT16T3	20	20	125	12	CS40090	FT-15
55101042 R/L	STECR/L-2525M16	TCMT16T3	25	25	150	17	CS40090	FT-15

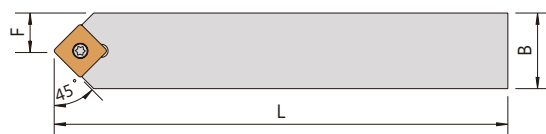
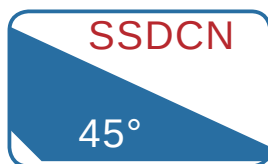


UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS	WRENCH
	Right / Left		A	B	L	E	F		
55101043 R/L	STFCR/L-0808H09	TCMT0902	8	8	100	12	10	CS22050	FT-7
55101044 R/L	STFCR/L-1010H09	TCMT0902	10	10	100	12	12	CS22050	FT-7
55101045 R/L	STFCR/L-1212H11	TCMT1102	12	12	100	17	16	CS25060	FT-7
55101046 R/L	STFCR/L-1616H11	TCMT1102	16	16	100	18	20	CS25060	FT-7
55101047 R/L	STFCR/L-2020K16	TCMT16T3	20	20	125	22	25	CS40090	FT-15
55101048 R/L	STFCR/L-2525M16	TCMT16T3	25	25	150	25	32	CS40090	FT-15

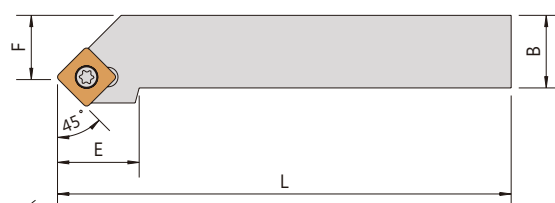
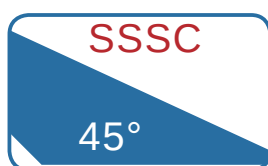


EXTERNAL TURNING TOOLS



UNIT: mm

ITEM NO.	MODEL	INSERT 	DIMENSIONS				PARTS 	WRENCH 
			A	B	L	F		
55101049	SSDCN-1212H09	SCMT09T3	12	12	100	6	CS40090	FT-15
55101050	SSDCN-1616H09	SCMT09T3	16	16	100	8	CS40090	FT-15
55101051	SSDCN-2020K09	SCMT09T3	20	20	125	10	CS40090	FT-15
55101052	SSDCN-2525M09	SCMT09T3	25	25	150	12.5	CS40090	FT-15
55101053	SSDCN-1616H12	SCMT1204	16	16	100	8	CS40115	FT-15
55101054	SSDCN-2020K12	SCMT1204	20	20	125	10	CS40115	FT-15
55101055	SSDCN-2525M12	SCMT1204	25	25	150	12.5	CS40115	FT-15



UNIT: mm

UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS	WRENCH
	Right / Left		A	B	L	E	F		
55101056 R/L	SSSCR/L-1212H09	SCMT09T3	12	12	100	18	16	CS40090	FT-15
55101057 R/L	SSSCR/L-1616H09	SCMT09T3	16	16	100	18	20	CS40090	FT-15
55101058 R/L	SSSCR/L-1616H12	SCMT1204	16	16	100	25	20	CS40115	FT-15



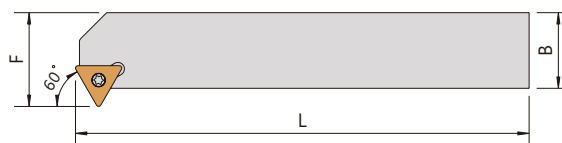
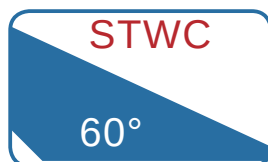
E1 - TURNING TOOLS

CUTTING TOOLS

E “ CUTTING TOOLS

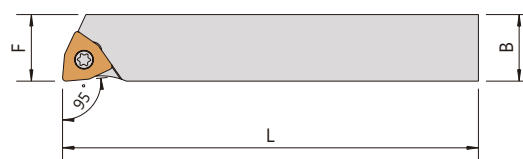
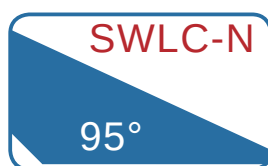


EXTERNAL TURNING TOOLS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS				PARTS	WRENCH
	Right / Left		A	B	L	F		
55101059 R/L	STWCR/L-1212H11	TCMT1102	12	12	100	15.3	CS25060	FT-7
55101060 R/L	STWCR/L-1616H11	TCMT1102	16	16	100	19.3	CS25060	FT-7
55101061 R/L	STWCR/L-2020K11	TCMT1102	20	20	125	23.3	CS25060	FT-7
55101062 R/L	STWCR/L-2525M11	TCMT1102	25	25	150	28.3	CS25060	FT-7
55101063 R/L	STWCR/L-1616H16	TCMT16T3	16	16	100	21	CS40090	FT-15
55101064 R/L	STWCR/L-2020K16	TCMT16T3	20	20	125	26	CS40090	FT-15
55101065 R/L	STWCR/L-2525M16	TCMT16T3	25	25	150	31	CS40090	FT-15
55101066 R/L	STWCR/L-3232P16	TCMT16T3	32	32	170	38	CS40090	FT-15

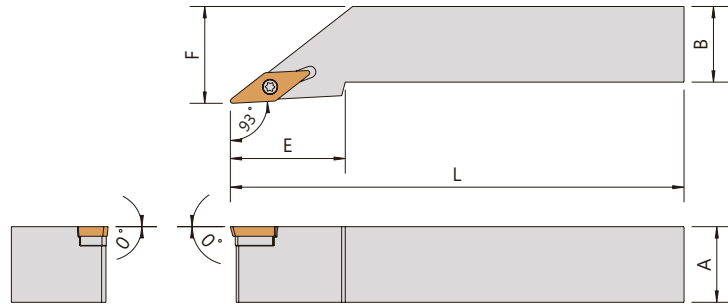
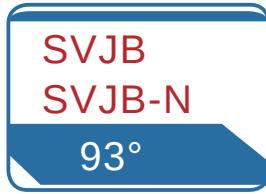


UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS				PARTS	WRENCH
	Right / Left		A	B	L	F		
55101066-1 R/L	SWLCR/L-1212H06N	WCMT06T3	12	12	100	12	CS40090	FT15
55101066-2 R/L	SWLCR/L-1616H06N	WCMT06T3	16	16	100	16	CS40090	FT15

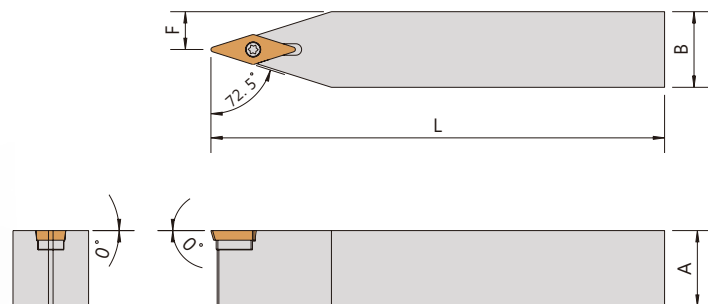
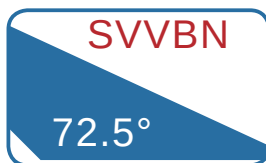


EXTERNAL TURNING TOOLS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS				
	Right / Left		A	B	L	E	F					
55101067 R/L	SVJBR/L-2020K11	VBMT1103	20	20	125	22	25	-	-	CS25060	FT-7	-
55101068 R/L	SVJBR/L-2020K16	VBMT1604	20	20	125	33	25	SMV-321	SN535	CS35115	FT-15	LW035
55101069 R/L	SVJBR/L-2525M16	VBMT1604	25	25	150	38	32	SMV-321	SN535	CS35115	FT-15	LW035
55101070 R/L	SVJBR/L-1212H11N	VBMT1103	12	12	100	-	12.5	-	-	CS25060	FT-7	-
55101071 R/L	SVJBR/L-1616H11N	VBMT1103	16	16	100	-	16.5	-	-	CS25060	FT-7	-
55101072 R/L	SVJBR/L-1212K11N	VBMT1103	12	12	125	-	12.5	-	-	CS25060	FT-7	-
55101073 R/L	SVJBR/L-1616K11N	VBMT1103	16	16	125	-	16.5	-	-	CS25060	FT-7	-
55101074 R/L	SVJBR/L-1616H16N	VBMT1604	16	16	100	-	16.5	SMV-321	SN535	CS35115	FT-15	LW035



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS				PARTS			WRENCH	
			A	B	L	F					
55101075	SVVBN-2020K11	VBMT1103	20	20	125	10	-	-	CS25060	FT-7	-
55101076	SVVBN-2525M11	VBMT1103	25	25	150	12.5	-	-	CS25060	FT-7	-
55101077	SVVBN-2020K16	VBMT1604	20	20	125	10	SMV-321	SN535	CS35115	FT-15	LW035
55101078	SVVBN-2525M16	VBMT1604	25	25	150	12.5	SMV-321	SN535	CS35115	FT-15	LW035



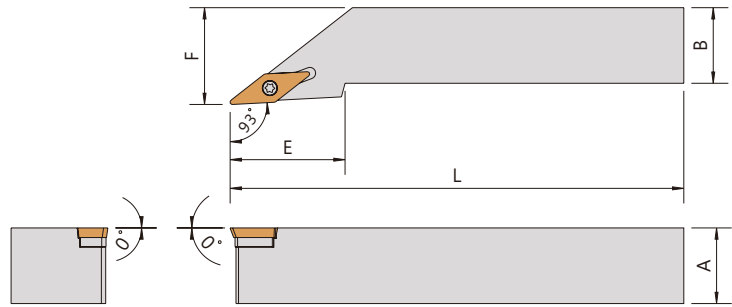
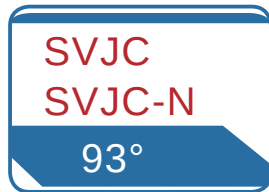
E1 - TURNING TOOLS

CUTTING TOOLS

E “ CUTTING TOOLS

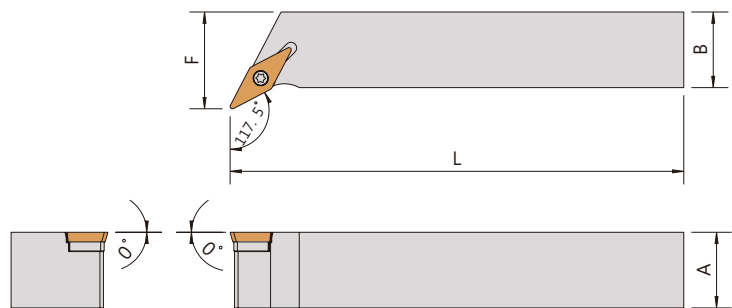
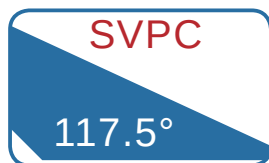


EXTERNAL TURNING TOOLS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS			WRENCH	
	Right / Left		A	B	L	E	F					
55101079 R/L	SVJCR/L-2020K11	VCMT1103	20	20	125	22	25	-	-	CS25060	FT-7	-
55101080 R/L	SVJCR/L-2525M11	VCMT1103	25	25	150	25	32	-	-	CS25060	FT-7	-
55101081 R/L	SVJCR/L-2020K16	VCMT1604	20	20	125	33	25	SMV-321	SN535	CS35115	FT-15	LW035
55101082 R/L	SVJCR/L-2525M16	VCMT1604	25	25	150	38	32	SMV-321	SN535	CS35115	FT-15	LW035
55101083 R/L	SVJCR/L-1010H11N	VCMT1103	10	10	100	-	10.5	-	-	CS25060	FT-7	-
55101084 R/L	SVJCR/L-1212H11N	VCMT1103	12	12	100	-	12.5	-	-	CS25060	FT-7	-
55101085 R/L	SVJCR/L-1616H11N	VCMT1103	16	16	100	-	16.5	-	-	CS25060	FT-7	-
55101086 R/L	SVJCR/L-1010K11N	VCMT1103	10	10	125	-	10.5	-	-	CS25060	FT-7	-
55101087 R/L	SVJCR/L-1212K11N	VCMT1103	12	12	125	-	12.5	-	-	CS25060	FT-7	-
55101088 R/L	SVJCR/L-1616K11N	VCMT1103	16	16	125	-	16.5	-	-	CS25060	FT-7	-
55101089 R/L	SVJCR/L-1616H16N	VCMT1604	16	16	100	-	16.5	SMV-321	SN535	CS35115	FT-15	LW035

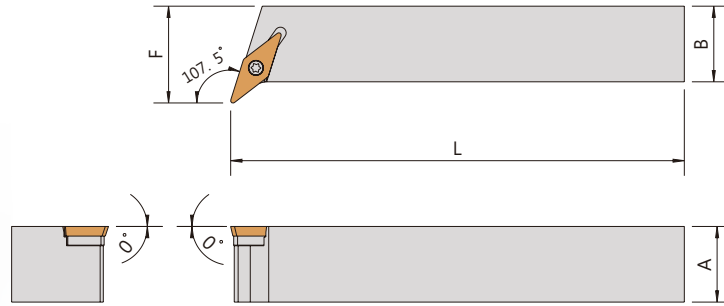


UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS			WRENCH	
	Right / Left		A	B	L	F						
55101090 R/L	SVPCR/L-1010H11	VCMT1103	10	10	100	14.5	-	-	CS25060	FT-7	-	-
55101091 R/L	SVPCR/L-1212H11	VCMT1103	12	12	100	16.5	-	-	CS25060	FT-7	-	-
55101092 R/L	SVPCR/L-1616H11	VCMT1103	16	16	100	20.5	-	-	CS25060	FT-7	-	-
55101093 R/L	SVPCR/L-2020K16	VCMT1604	20	20	125	25	SMV-321	SN535	CS35115	FT-15	LW035	-
55101094 R/L	SVPCR/L-2525M16	VCMT1604	25	25	150	32	SMV-321	SN535	CS35115	FT-15	LW035	-

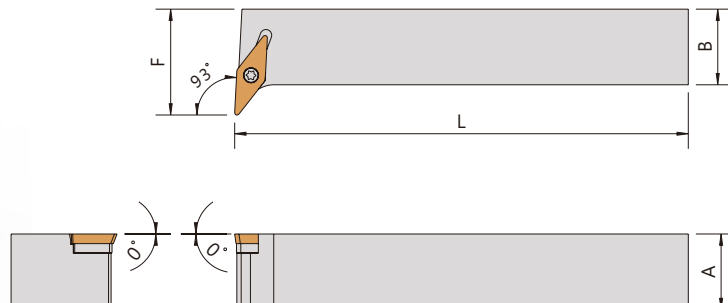
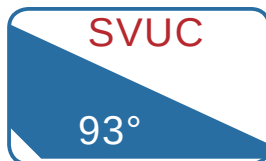


EXTERNAL TURNING TOOLS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS				PARTS			WRENCH	
	Right / Left		A	B	L	F					
55101095 R/L	SVQCR/L-2020K16	VCMT1604	20	20	125	25	SMV-321	SN535	CS35115	FT-15	LW035
55101096 R/L	SVQCR/L-2525M16	VCMT1604	25	25	150	32	SMV-321	SN535	CS35115	FT-15	LW035



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS				PARTS			WRENCH	
	Right / Left		A	B	L	F					
55101097 R/L	SVUCR/L-2020K16	VCMT1604	20	20	125	30	SMV-321	SN535	CS35115	FT-15	LW035
55101098 R/L	SVUCR/L-2525M16	VCMT1604	25	25	150	35	SMV-321	SN535	CS35115	FT-15	LW035



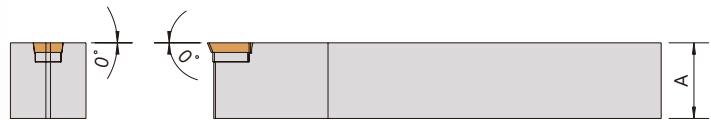
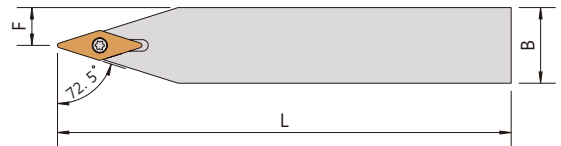
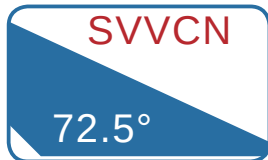
E1 - TURNING TOOLS

CUTTING TOOLS

E “ CUTTING TOOLS

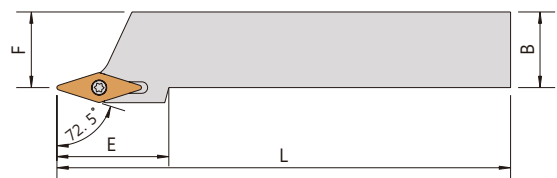
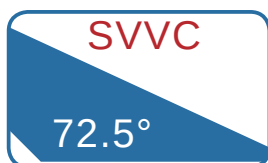


EXTERNAL TURNING TOOLS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS				PARTS			WRENCH	
			A	B	L	F					
55101099	SVVCN-0808H11	VCMT1103	8	8	100	4	-	-	CS25060	FT-7	-
55101100	SVVCN-1010H11	VCMT1103	10	10	100	5	-	-	CS25060	FT-7	-
55101101	SVVCN-1212H11	VCMT1103	12	12	100	6	-	-	CS25060	FT-7	-
55101102	SVVCN-1616H11	VCMT1103	16	16	100	8	-	-	CS25060	FT-7	-
55101103	SVVCN-2020K16	VCMT1604	20	20	125	10	SMV-321	SN535	CS35115	FT-15	LW035
55101104	SVVCN-2525M16	VCMT1604	25	25	150	12.5	SMV-321	SN535	CS35115	FT-15	LW035



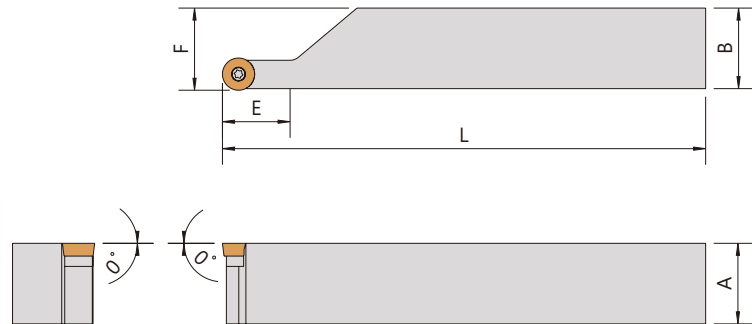
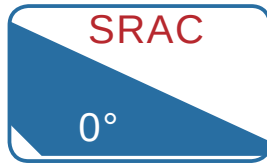
UNIT: mm

Unit: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS			WRENCH	
	Right / Left		A	B	L	E	F					
55101105 R/L	SVVCR/L-2020K16	VCMT1604	20	20	125	37	20	SMV-321	SN535	CS35115	FT-15	LW035
55101106 R/L	SVVCR/L-2525M16	VCMT1604	25	25	150	37	25	SMV-321	SN535	CS35115	FT-15	LW035



EXTERNAL TURNING TOOLS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS	WRENCH
	Right / Left		A	B	L	E	F		
55101107 R/L	SRACR/L-1010H05	RCMT0502	10	10	100	10	10.3	CS22050	FT-7
55101108 R/L	SRACR/L-1212H05		12	12	100	10	12.3	CS22050	FT-7
55101109 R/L	SRACR/L-1616H05		16	16	100	10	16.3	CS22050	FT-7
55101110 R/L	SRACR/L-2020K05		20	20	125	10	20.3	CS22050	FT-7
55101111 R/L	SRACR/L-2525M05		25	25	150	10	25.3	CS22050	FT-7
55101112 R/L	SRACR/L-1212H06	RCMT0602	12	12	100	12	12.4	CS25060	FT-7
55101113 R/L	SRACR/L-1616H06		16	16	100	12	16.4	CS25060	FT-7
55101114 R/L	SRACR/L-2020K06		20	20	125	12	20.4	CS25060	FT-7
55101115 R/L	SRACR/L-2525M06		25	25	150	12	25.4	CS25060	FT-7
55101116 R/L	SRACR/L-1616H08	RCMT0803	16	16	100	16	16.4	CS30070	FT-10
55101117 R/L	SRACR/L-2020K08		20	20	125	16	20.4	CS30070	FT-10
55101118 R/L	SRACR/L-2525M08	RCMT1003 (MITSUBISHI)	25	25	150	16	25.4	CS30070	FT-10
55101119 R/L	SRACR/L-2020K1003		20	20	125	20	20.4	CS30070	FT-10
55101120 R/L	SRACR/L-2525M1003		25	25	150	20	25.4	CS30070	FT-10

UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS		WRENCH
	Right / Left		A	B	L	E	F			
55101121 R/L	SRACR/L-2020K10	RCMT10T3	20	20	125	20	20.4	SMR-1003	SN535	CS35115
55101122 R/L	SRACR/L-2525M10		25	25	150	20	25.4	SMR-1003	SN535	CS35115



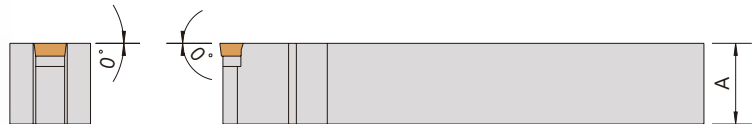
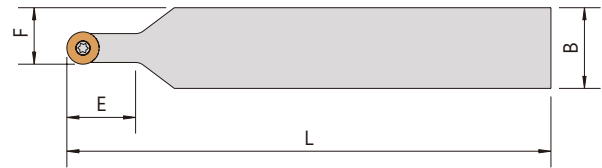
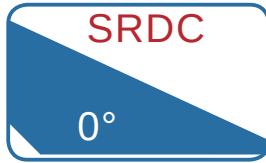
E1 - TURNING TOOLS

CUTTING TOOLS

E “ CUTTING TOOLS



EXTERNAL TURNING TOOLS



UNIT: mm

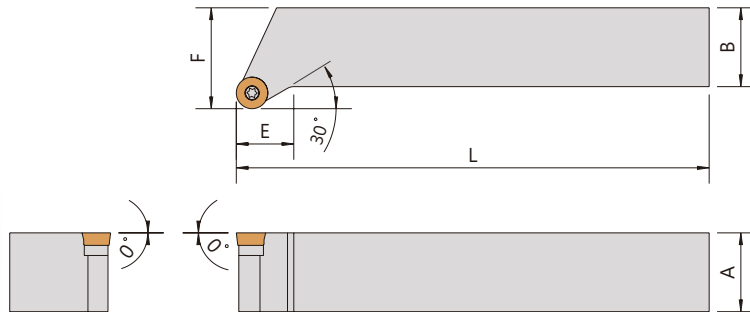
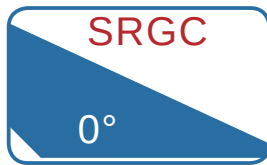
ITEM NO.	MODEL	INSERT 	DIMENSIONS					PARTS 	WRENCH 
			A	B	L	E	F		
55101123	SRDCN-0808H06	RCMT0602	8	8	100	12	7	CS25060	FT-7
55101124	SRDCN-1010H06		10	10	100	12	8	CS25060	FT-7
55101125	SRDCN-1212H06		12	12	100	12	9	CS25060	FT-7
55101126	SRDCN-1616H06		16	16	100	12	11	CS25060	FT-7
55101127	SRDCN-1212H08	RCMT0803	12	12	100	16	9	CS30070	FT-10
55101128	SRDCN-1616H08		16	16	100	16	12	CS30070	FT-10
55101129	SRDCN-2020K08		20	20	125	16	14	CS30070	FT-10
55101130	SRDCN-2525M08	RCMT1003 (MITSUBISHI)	25	25	150	16	16.5	CS30070	FT-10
55101131	SRDCN-1616H1003		16	16	100	20.3	13	CS30070	FT-10
55101132	SRDCN-2020K1003		20	20	125	20.3	15	CS30070	FT-10
55101133	SRDCN-2525M1003		25	25	150	20.3	17.5	CS30070	FT-10

UNIT: mm

ITEM NO.	MODEL	INSERT 	DIMENSIONS					PARTS  	WRENCH  	
			A	B	L	E	F			
55101134	SRDCN-1616H10	RCMT10T3	16	16	100	20.3	13	SMR-1003 SN535	CS35115	FT-15 LW035
55101135	SRDCN-2020K10		20	20	125	20.3	15	SMR-1003 SN535	CS35115	FT-15 LW035
55101136	SRDCN-2525M10		25	25	150	20.3	17.5	SMR-1003 SN535	CS35115	FT-15 LW035
55101137	SRDCN-2020K12	RCMT1204	20	20	125	24	16	SMR-1203 SN535	CS35115	FT-15 LW035
55101138	SRDCN-2525M12		25	25	150	24	18.5	SMR-1203 SN535	CS35115	FT-15 LW035



EXTERNAL TURNING TOOLS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS	WRENCH
	Right / Left		A	B	L	E	F		
55101139 R/L	SRGCR/L-1212H05	RCMT0502	12	12	100	10.5	16	CS22050	FT-7
55101140R/L	SRGCR/L-1616H05		16	16	100	10.5	20	CS22050	FT-7
55101141 R/L	SRGCR/L-2020K05		20	20	125	12	25	CS22050	FT-7
55101142 R/L	SRGCR/L-2525M05		25	25	150	15.5	32	CS22050	FT-7
55101143 R/L	SRGCR/L-1212H06	RCMT0602	12	12	100	10.5	16	CS25060	FT-7
55101144 R/L	SRGCR/L-1616H06		16	16	100	10.5	20	CS25060	FT-7
55101145 R/L	SRGCR/L-2020K06		20	20	125	12.5	25	CS25060	FT-7
55101146 R/L	SRGCR/L-2525M06		25	25	150	16	32	CS25060	FT-7
55101147 R/L	SRGCR/L-1616H08	RCMT0803	16	16	100	11.5	20	CS30070	FT-10
55101148 R/L	SRGCR/L-2020K08		20	20	125	14	25	CS30070	FT-10
55101149 R/L	SRGCR/L-2525M08		25	25	150	17	32	CS30070	FT-10
55101150 R/L	SRGCR/L-2020K1003	RCMT1003 (MITSUBISHI)	20	20	125	15	25	CS30070	FT-10
55101151 R/L	SRGCR/L-2525K1003		25	25	125	18.5	32	CS30070	FT-10

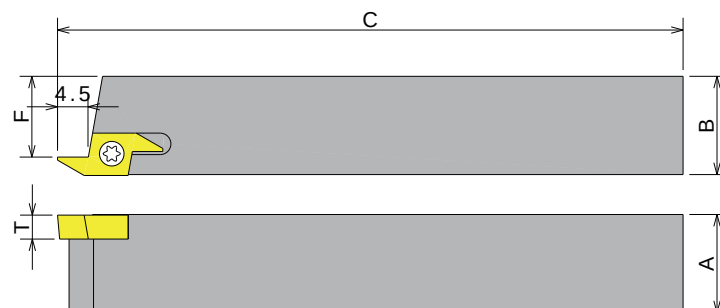
UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS			WRENCH	
	Right / Left		A	B	L	E	F					
55101152 R/L	SRGCR/L-2020K10	RCMT10T3	20	20	125	15	25	SMR-1003	SN535	CS35115	FT-15	LW035
55101153 R/L	SRGCR/L-2525M10		25	25	150	18.5	32	SMR-1003	SN535	CS35115	FT-15	LW035



EXTERNAL TURNING TOOLS FOR GROOVING

V SBR



UNIT: mm

ITEM NO.	MODEL	INSERT	A	B	C	F	T	SCREW	WRENCH
55101154	SBR1010K19	BBR19	10	10	125	7.5	4.0	CS30080	FT10
55101155	SBR1212K19	BBR19	12	12	125	9.5	4.0	CS30080	FT10
55101156	SBR1616K19	BBR19	16	16	125	13.5	4.0	CS30080	FT10



E1 - TURNING TOOLS

CUTTING TOOLS

E “ CUTTING TOOLS

12mm LATHE TURNING TOOL KIT – INSERT TYPE (5PCS/SET) – FOR GROOVING

> ITEM. 55101157
MODEL: TB-T02-12
(TOOLS: SBR/ SLALR/ UASR/ TGWCR/ GHR, W/ INSERTS)



V SBR1212K19



UNIT: mm

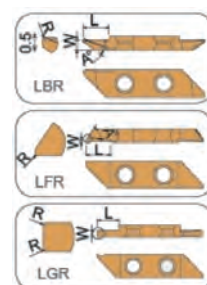
INSERT	DIMENSIONS					PARTS	WRENCH
	A	B	C	F	t		
S*R19 / BBR19	12	12	125	9.5	4.0	CS30070	FT10

V SLALR1212K38



UNIT: mm

INSERT	DIMENSIONS				PARTS	WRENCH
	A	B	L	F		
L*R/L38	12	12	125	12	CS35091	FT15



V UASR1212M2Q



UNIT: mm

INSERT	DIMENSIONS					PARTS			WRENCH
	A	B	L	F	t	CLAMP			
						R	L		
N**R/L2	12	12	150	12	3.5	CPK3A	CPK3A	CSH3512	LW025

V TGWCR-1212-3



UNIT: mm

INSERT	DIMENSIONS					PARTS					WRENCH
	A	B	L	F	FIG	INSERT SCREW	INSERT WRENCH	CLAMP	CLAMP SCREW	WASH	
TGA3	12	12	125	12	2	CS40090	FT-45	-	-	-	-

V GHR-1212H02-16K



UNIT: mm

UNIT: mm

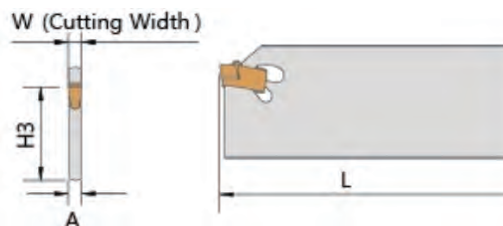
INSERT	DIMENSIONS						PARTS	WRENCH
	A	B	L	F	a	t		
A2-02/A3-02	12	12	100	12.3	2.25~3.05	10	CSH0412	LW030



CUTOFF INSERT



< ITEM NO. 55101704-1
MODEL: TB-T04SG32
(TOOLS: SGFH32M3-GFN3, W/ 10PCS INSERTS)



UNIT: mm

INSERT HOLDER	CUTTING DIA	DIMENSIONS			INSERT WIDTH
	MAX DIA	A	L	H3	W
SGFH32M3	100	2.4	150	25	3



FACE SLOTTING KITS



< ITEM NO. 55101704-2
MODEL: TB-T05UE25
(TOOLS: UER2525M3, W/ 10PCS INSERTS)

✓ UER2525M3



UNIT: mm

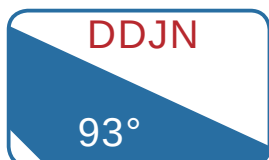
INSERT	DIMENSIONS					PARTS		WRENCH
	A	B	L	F	t	CLAMP		
N**R/L3	25	25	150	32	3.5	CPK2 CPK1	CSH0516	LW040



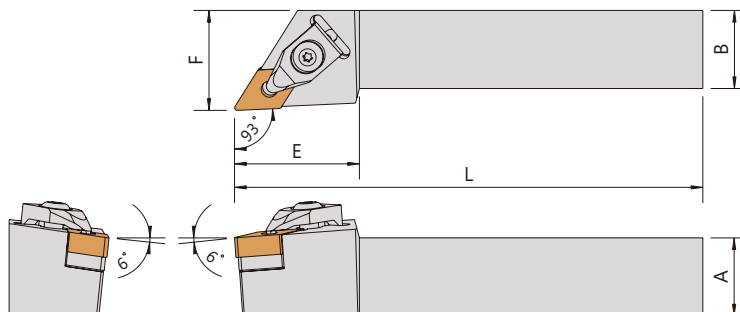
E “ CUTTING TOOLS



EXTERNAL TURNING TOOLS

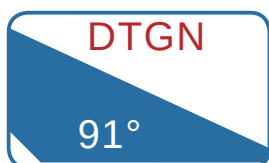


- D TYPE

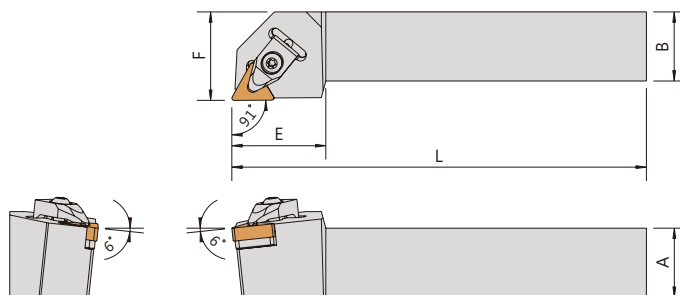


UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS					WRENCH
	Right / Left		A	B	L	E	F							
55101158 R/L	DDJNR/L1616H11	DNMG1104	16	16	100	34	20	SMD-343	CS40075	CP-D2	SP0612	CSB0415T	TL15	
55101159 R/L	DDJNR/L2020K11		20	20	125	34	25	SMD-343	CS40075	CP-D2	SP0612	CSB0415T	TL15	
55101160 R/L	DDJNR/L2525M11		25	25	150	34	32	SMD-343	CS40075	CP-D2	SP0612	CSB0415T	TL15	
55101162 R/L	DDJNR/L2020K15	DNMG1504-SMD463	25	25	150	40	32	SMD-4X3	CSF4010	CP-D4	SP0816	CSB0620T	TL20	
55101163 R/L	DDJNR/L2525M15	DNMG1506-SMD443	20	20	125	42	25	SMD-4X3	CSF4010	CP-D4	SP0816	CSB0620T	TL20	
55101164 R/L	DDJNR/L3232P15		32	32	170	40	40	SMD-4X3	CSF4010	CP-D4	SP0816	CSB0620T	TL20	



- D TYPE

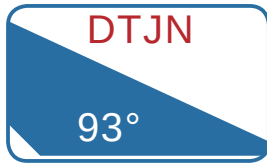


UNIT: mm

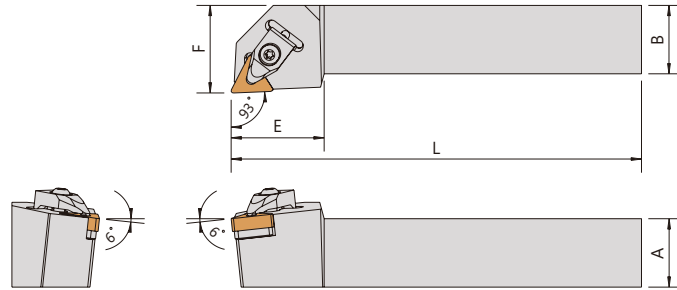
ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS					WRENCH
	Right / Left		A	B	L	E	F							
55101165 R/L	DTGNR/L1616H16	TNMG1604	16	16	100	32	20	SMT-323	CS40075	CP-D2	SP0612	CSB0415T	TL15	
55101166 R/L	DTGNR/L2020K16		20	20	125	32	25	SMT-323	CS40075	CP-D2	SP0612	CSB0415T	TL15	
55100728 R/L	DTGNR/L2525M16		25	25	150	32	32	SMT-323	CS40075	CP-D2	SP0612	CSB0415T	TL15	



EXTERNAL TURNING TOOLS

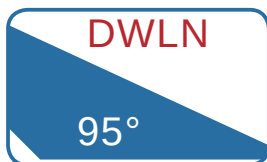


- D TYPE

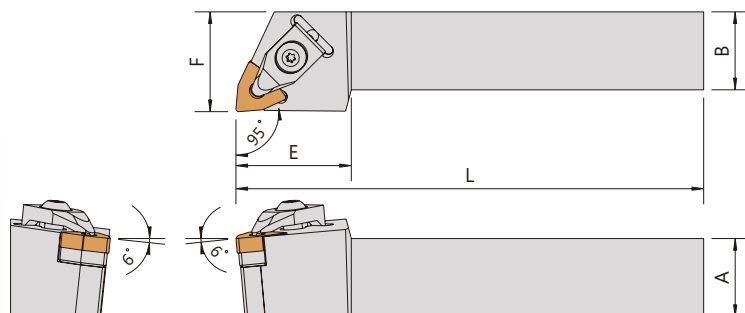


UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS					WRENCH
	Right / Left		A	B	L	E	F						
55101167 R/L	DTJNR/L1616H16	TNMG1604	16	16	100	32	20	SMT-323	CS40075	CP-D2	SP0612	CSB0415T	TL15
55101168 R/L	DTJNR/L2020K16		20	20	125	32	25	SMT-323	CS40075	CP-D2	SP0612	CSB0415T	TL15
55101169 R/L	DTJNR/L2525M16		25	25	150	32	32	SMT-323	CS40075	CP-D2	SP0612	CSB0415T	TL15



- D TYPE



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS					WRENCH
	Right / Left		A	B	L	E	F						
55101170 R/L	DWLNR/L1616H06	WNMG0604	16	16	100	30	20	SMW-321	CS40075	CP-D2	SP0612	CSB0415T	TL15
55101171 R/L	DWLNR/L2020K06		20	20	125	34	25	SMW-321	CS40075	CP-D2	SP0612	CSB0415T	TL15
55101772 R/L	DWLNR/L2525M06		25	25	150	34	32	SMW-321	CS40075	CP-D2	SP0612	CSB0415T	TL15
55101173 R/L	DWLNR/L2020K08	WNMG0804	20	20	125	34	25	SMW-432	CSF4010	CP-D4	SP0816	CSB0620T	TL20
55101174 R/L	DWLNR/L2525M08		25	25	150	34	32	SMW-432	CSF4010	CP-D4	SP0816	CSB0620T	TL20
55101175 R/L	DWLNR/L3232P08		32	32	170	34	32	SMW-432	CSF4010	CP-D4	SP0816	CSB0620T	TL20



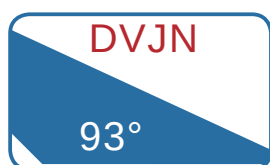
E1 - TURNING TOOLS

CUTTING TOOLS

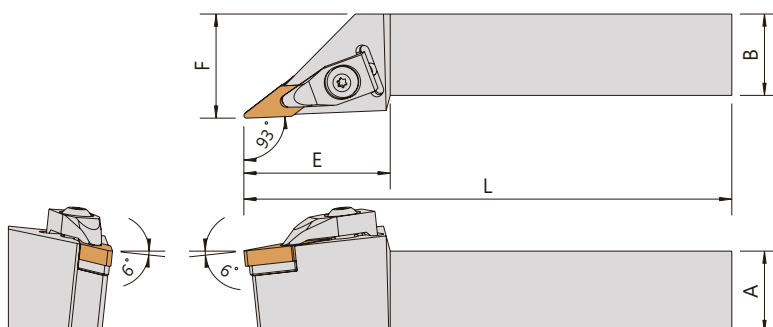
E “ CUTTING TOOLS



EXTERNAL TURNING TOOLS



- D TYPE

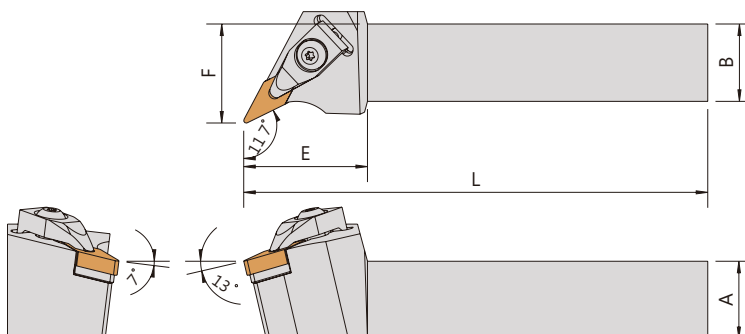


UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS					WRENCH
	Right / Left		A	B	L	E	F							
55101176 R/L	DVJNR/L2020K16	VNMG1604	20	20	125	42	25	SMV-322	CS40075	CP-D3	SP0816	CSB0620T	TL20	
55101177 R/L	DVJNR/L2525M16		25	25	150	45	32	SMV-322	CS40075	CP-D3	SP0816	CSB0620T	TL20	



- D TYPE



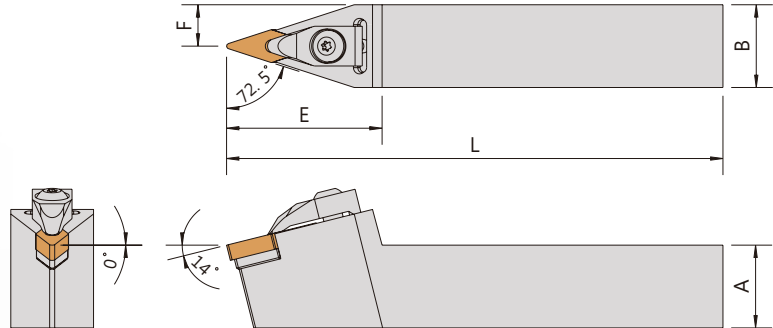
UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS					WRENCH
	Right / Left		A	B	L	E	F							
55101178 R/L	DVPNR/L2020K16	VNMG1604	20	20	125	40	25	SMV-322	CS40075	CP-D3	SP0816	CSB0620T	TL20	
55101179 R/L	DVPNR/L2525M16		25	25	150	40	32	SMV-322	CS40075	CP-D3	SP0816	CSB0620T	TL20	

EXTERNAL TURNING TOOLS



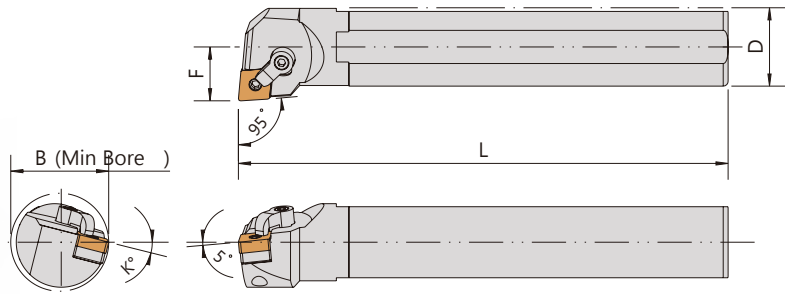
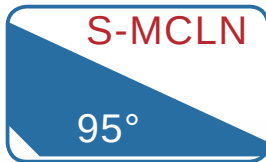
- D TYPE



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS					WRENCH
			A	B	L	E	F						
55101180	DVVNN2020K16	VNMG1604	20	20	125	47	10	SMV-322	CS40075	CP-D3	SP0816	CSB0620T	TL20
55101181	DVVNN2525M16		25	25	150	47	12.5	SMV-322	CS40075	CP-D3	SP0816	CSB0620T	TL20

BORING BARS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS				WRENCH
	Right / Left		D	F	L	B	K°						
55100184 R/L	S16Q-MCLNR/L12	CNMG1204	16	11	180	20	20°	-	LCS-511	CP50-26	CS7-5018	LW025	-
55100185 R/L	S20R-MCLNR/L12	CNMG1204	20	13	200	25	17°	-	LCS-511	CP50-26	CS7-5018	LW025	-
55100186 R/L	S25R-MCLNR/L12	CNMG1204	25	17	200	32	14°	-	LCS-511	CP50-22	CS7-6024	LW025	LW030
55100187 R/L	S32S-MCLNR/L12	CNMG1204	32	22	250	40	14°	SMC-432	LCS-617	CP50-22	CS7-6030	-	LW030
55100188 R/L	S40T-MCLNR/L12	CNMG1204	40	27	300	50	12°	SMC-432	LCS-617	CP50-22	CS7-6030	-	LW030
55100189 R/L	S50U-MCLNR/L12	CNMG1204	50	35	350	63	12°	SMC-432	LCS-617	CP50-22	CS7-6030	-	LW030
55100190 R/L	S60V-MCLNR/L12	CNMG1204	60	36	400	70	10°	SMC-432	LCS-617	CP50-22	CS7-6030	-	LW030
55100191 R/L	S63Y-MCLNR/L12	CNMG1204	63	38	500	75	10°	SMC-432	LCS-617	CP50-22	CS7-6030	-	LW030
55100192 R/L	S40T-MCLNR/L16	CNMG1606	40	27	300	50	11°	SMC-533	LCS-0822	CP50-22	CS7-6030	-	LW030
55100193 R/L	S50U-MCLNR/L16	CNMG1606	50	35	350	63	12°	SMC-533	LCS-0822	CP50-22	CS7-6030	-	LW030
55100194 R/L	S63Y-MCLNR/L16	CNMG1606	63	38	500	75	10°	SMC-533	LCS-0822	CP50-22	CS7-6030	-	LW030
55100195 R/L	S50U-MCLNR/L19	CNMG1906	50	35	350	63	12°	SMC-633	LCS-1022	CP50-29	CS7-8030	-	LW030
55100196 R/L	S63Y-MCLNR/L19	CNMG1906	63	38	500	75	10°	SMC-633	LCS-1022	CP50-29	CS7-8030	-	LW030

E “ CUTTING TOOLS

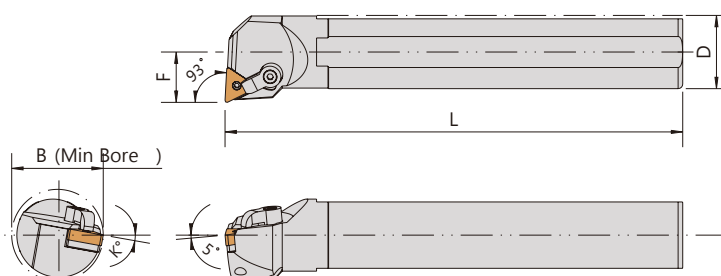
BORING BARS

S-MTUN

93°



S-MTUN

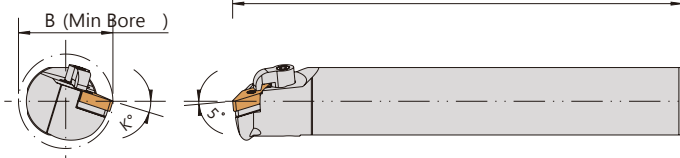
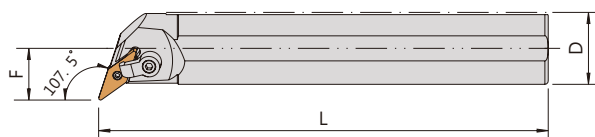


UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS			WRENCH	
	Right / Left		D	F	L	B	K°						
55100197 R/L	S16Q-MTUNR/L16	TNMG1604	16	11	180	20	20°	-	LCS-510	CP50-26S	CS7-5018	LW020	LW025
55100198 R/L	S20R-MTUNR/L16	TNMG1604	20	13	200	25	17°	-	LCS-510	CP50-26	CS7-5018	LW020	LW025
55100199 R/L	S25R-MTUNR/L16	TNMG1604	25	17	200	32	12°	-	LCS-510	CP50-22	CS7-6024	LW020	LW030
55100200 R/L	S32S-MTUNR/L16	TNMG1604	32	22	250	40	10°	SMT-322	LCS-513	CP50-22	CS7-6024	LW020	LW030
55100201 R/L	S40T-MTUNR/L16	TNMG1604	40	26.5	300	50	10°	SMT-322	LCS-513	CP50-22	CS7-6030	LW020	LW030
55100202 R/L	S50U-MTUNR/L16	TNMG1604	50	31	350	63	8°	SMT-322	LCS-513	CP50-22	CS7-6030	LW020	LW030
55100203 R/L	S60V-MTUNR/L16	TNMG1604	60	36	400	70	10°	SMT-322	LCS-513	CP50-22	CS7-6030	LW020	LW030
55100204 R/L	S63Y-MTUNR/L16	TNMG1604	63	37.5	500	75	10°	SMT-322	LCS-513	CP50-22	CS7-6030	LW020	LW030
55100205 R/L	S40T-MTUNR/L22	TNMG2204	40	26.5	300	50	15°	SMT-433	LCS-617	CP50-28	CS7-8030	LW030	LW040
55100206 R/L	S50U-MTUNR/L22	TNMG2204	50	31	350	63	12°	SMT-433	LCS-617	CP50-28	CS7-8030	LW030	LW040

S-MVQN

107.5°

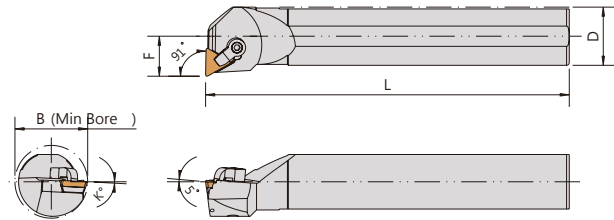
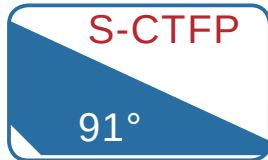


UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS			WRENCH	
	Right / Left		D	F	L	B	K°						
55100207 R/L	S25R-MVQNR/L16	VNMG1604	25	20	200	33	12°	SMV-322	LCS-513	CP50-22	CS7-6024	LW020	LW030
55100208 R/L	S32S-MVQNR/L16	VNMG1604	32	23	250	40	17°	SMV-322	LCS-513	CP50-22	CS7-6024	LW020	LW030
55100209 R/L	S40T-MVQNR/L16	VNMG1604	40	27	300	50	15°	SMV-322	LCS-513	CP50-22	CS7-6030	LW020	LW030
55100210 R/L	S50U-MVQNR/L16	VNMG1604	50	33	350	63	12°	SMV-322	LCS-513	CP50-22	CS7-6030	LW020	LW030

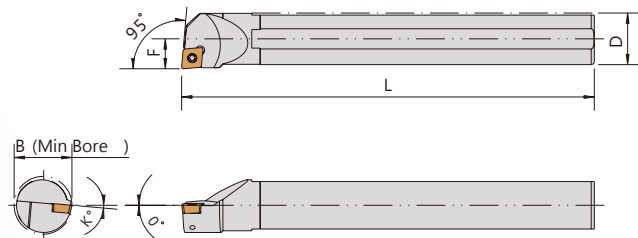


BORING BARS



UNIT: mm

ITEM NO.	MODEL		INSERT	DIMENSIONS						PARTS			WRENCH
		Right / Left		D	F	L	B	K°					
55100211	R/L	S12M-CTFPR/L11	TPMN1103	12	8.5	150	16	6°	-	-	CP50-27S		LW025
55100212	R/L	S16Q-CTFPR/L11	TPMN1103	16	11	180	22	4°	-	-	CP50-21	CS7-5015	LW025
55100213	R/L	S20R-CTFPR/L11	TPMN1103	20	13	200	26	3°	-	-	CP50-21	CS7-5015	LW025
55100213-1	R/L	S25R-CTFPR/L 11	TPMN1103	25	17	200	34	3°	-	-	CP50-21	CS7-5018	LW025
55100213-2	R/L	S20R-CTFPR/L16	TPMN1603	20	13	200	26	0°	-	-	CP50-26	CS7-5015	LW025
55100214	R/L	S25R-CTFPR/L16	TPMN1603	25	17	200	34	3°	SMT-321	CS20045	CP50-22	CS7-6024	LW030
55100215	R/L	S32S-CTFPR/L16	TPMN1603	32	22	250	44	3°	SMT-321	CS20045	CP50-22	CS7-6024	LW030



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS			WRENCH	
	Right / Left		D	F	L	B	K°						
55100216 R/L	S08H-SCLCR/L06	CCMT0602	8	6	100	12	13°	-	-	CS25050	FT-7	-	
55100217 R/L	S08H-SCLCR/L06-10	CCMT0602	8	5	100	10	13°	-	-	CS25050	FT-7	-	
55100218 R/L	S10K-SCLCR/L06	CCMT0602	10	7	125	14	12°	-	-	CS25060	FT-7	-	
55100219 R/L	S10K-SCLCR/L06-12	CCMT0602	10	6	125	12	12°	-	-	CS25060	FT-7	-	
55100220 R/L	S12M-SCLCR/L06	CCMT0602	12	9	150	16	9°	-	-	CS25060	FT-7	-	
55100221 R/L	S12M-SCLCR/L06-14	CCMT0602	12	7	150	14	9°	-	-	CS25060	FT-7	-	
55100222 R/L	S16Q-SCLCR/L06	CCMT0602	16	11	180	20	7°	-	-	CS25060	FT-7	-	
55100223 R/L	S16Q-SCLCR/L06-18	CCMT0602	16	9	180	18	7°	-	-	CS25060	FT-7	-	
55100224 R/L	S12M-SCLCR/L09	CCMT09T3	12	9	150	16	13°	-	-	CS35075	FT-15	-	
55100225 R/L	S12M-SCLCR/L09-14	CCMT09T3	12	7	150	14	13°	-	-	CS35075	FT-15	-	
55100226 R/L	S16Q-SCLCR/L09	CCMT09T3	16	11	180	20	9°	-	-	CS35075	FT-15	-	
55100227 R/L	S16Q-SCLCR/L09-18	CCMT09T3	16	9	180	18	9°	-	-	CS35075	FT-15	-	
55100228 R/L	S20R-SCLCR/L09	CCMT09T3	20	13	200	25	7°	-	-	CS35090	FT-15	-	
55100229 R/L	S20R-SCLCR/L09-22	CCMT09T3	20	11	200	22	5°	-	-	CS35090	FT-15	-	
55100230 R/L	S25R-SCLCR/L09	CCMT09T3	25	17	200	32	5°	-	-	CS35090	FT-15	-	
55100231 R/L	S25R-SCLCR/L09-28	CCMT09T3	25	14.5	200	28	5°	-	-	CS35090	FT-15	-	
55100232 R/L	S32S-SCLCR/L09	CCMT09T3	32	17.5	250	40	5°	-	-	CS35090	FT-15	-	
55100233 R/L	S20R-SCLCR/L12	CCMT1204	20	13	200	25	8°	-	-	CS40115	FT-15	-	
55100234 R/L	S25R-SCLCR/L12	CCMT1204	25	17	200	32	8°	-	-	CS40115	FT-15	-	
55100235 R/L	S32S-SCLCR/L12S	CCMT1204	32	22	250	40	6°	SMC-543	SN630	CS40145	FT-15	LW040	
55100236 R/L	S40T-SCLCR/L12S	CCMT1204	40	27	300	50	4°						



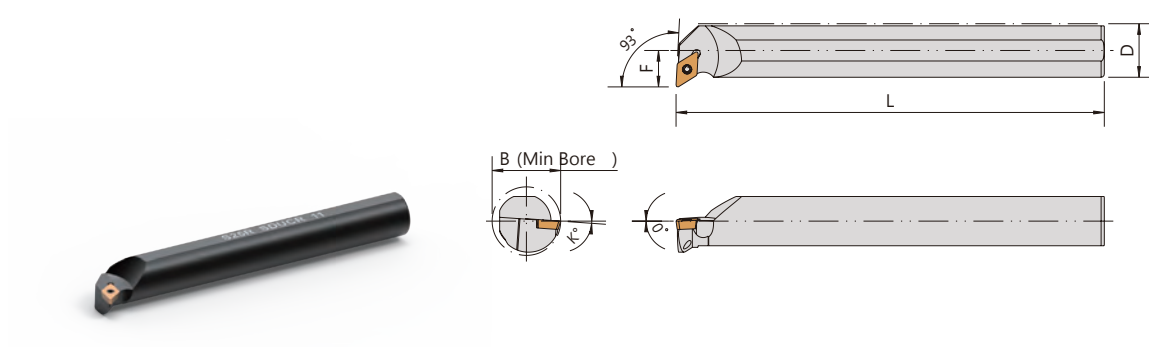
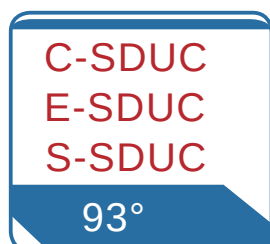
E1 - TURNING TOOLS

CUTTING TOOLS

E “ CUTTING TOOLS



BORING BARS



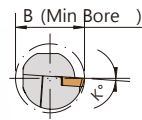
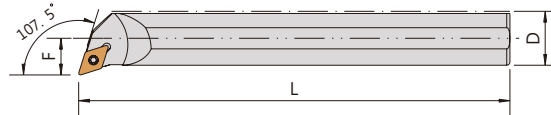
C-Carbide Shank
S-Steel Shank
E-Carbide Shank with Coolant

UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS	WRENCH
	Right / Left		D	F	L	B	K°		
55100237	C10M-SDUCR07	DCMT0702	10	7	150	13	10°	CS25060	FT-7
55100238	C12Q-SDUCR07	DCMT0702	12	9	180	16	8°	CS25060	FT-7
55100239	C16R-SDUCR07	DCMT0702	16	11	200	20	6°	CS25060	FT-7
55100239-1	C16R-SDUCR11	DCMT11T3	16	11	200	20	7°	CS35095	FT-15
55100239-2	C20S-SDUCR11	DCMT11T3	20	13	250	25	8°	CS35095	FT-15
55100239-3	C25T-SDUCR11	DCMT11T3	25	17	300	32	4°	CS35095	FT-15
55100240	E10Q-SDUCR07	DCMT0702	10	7	180	13	10°	CS25060	FT-7
55100241	E12R-SDUCR07	DCMT0702	12	9	200	16	8°	CS25060	FT-7
55100242	E16R-SDUCR07	DCMT0702	16	11	200	20	6°	CS25060	FT-7
55100242-1	E20S-SDUCR11	DCMT11T3	20	13	250	25	8°	CS35095	FT-15
55100242-2	E25T-SDUCR11	DCMT11T3	25	17	300	32	4V	CS35095	FT-15
55100243 R/L	S10M-SDUCR/L07	DCMT0702	10	7	150	13	10°	CS25060	FT-7
55100244 R/L	S12M-SDUCR/L07	DCMT0702	12	9	150	16	8°	CS25060	FT-7
55100245 R/L	S16Q-SDUCR/L07	DCMT0702	16	11	180	20	6°	CS25060	FT-7
55100246 R/L	S20R-SDUCR/L07	DCMT0702	20	13	200	25	5°	CS25060	FT-7
55100247 R/L	S16Q-SDUCR/L11	DCMT11T3	16	11	180	20	7°	CS35095	FT-15
55100248 R/L	S20R-SDUCR/L11	DCMT11T3	20	13	200	25	8°	CS35095	FT-15
55100249 R/L	S25R-SDUCR/L11	DCMT11T3	25	17	200	32	4°	CS35095	FT-15
55100250 R/L	S32S-SDUCR/L11	DCMT11T3	32	22	250	39	4°	CS35095	FT-15
55100251 R/L	S40T-SDUCR/L11	DCMT11T3	40	24	300	50	2°	CS35095	FT-15



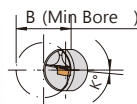
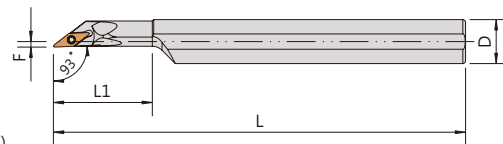
BORING BARS



C-Carbide Shank
S-Steel Shank
E-Carbide Shank with Coolant

UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS	WRENCH
	Right / Left		D	F	L	B	K°		
55100252	C10M-SDQCR07	DCMT0702	10	7	150	13	10°	CS25060	FT-7
55100253	C12Q-SDQCR07	DCMT0702	12	9	180	16	7°	CS25060	FT-7
55100254	C16R-SDQCR07	DCMT0702	16	11	200	20	6°	CS25060	FT-7
55100255	E10Q-SDQCR07	DCMT0702	10	7	180	13	10°	CS25060	FT-7
55100256	E12R-SDQCR07	DCMT0702	12	9	200	16	7°	CS25060	FT-7
55100257	E16R-SDQCR07	DCMT0702	16	11	200	20	6°	CS25060	FT-7
55100258 R/L	S10M-SDQCR/L07	DCMT0702	10	7	150	13	10°	CS25060	FT-7
55100259 R/L	S12M-SDQCR/L07	DCMT0702	12	9	150	16	8°	CS25060	FT-7
55100260 R/L	S16Q-SDQCR/L07	DCMT0702	16	11	180	20	6°	CS25060	FT-7
55100261 R/L	S20R-SDQCR/L07	DCMT0702	20	13	200	25	6°	CS25060	FT-7
55100262 R/L	S16Q-SDQCR/L11	DCMT11T3	16	11	180	20	6°	CS35095	FT-15
55100263 R/L	S20R-SDQCR/L11	DCMT11T3	20	13	200	25	8°	CS35095	FT-15
55100264 R/L	S25R-SDQCR/L11	DCMT11T3	25	17	200	32	4°	CS35095	FT-15
55100265 R/L	S32S-SDQCR/L11	DCMT11T3	32	20	250	38	4°	CS35095	FT-15
55100265-1 R/L	S40T-SDQCR/L11	DCMT11T3	40	24	300	46	3°	CS35095	FT-15
55100265-2 R/L	S50U-SDQCR/L11	DCMT11T3	50	35	350	62	2°	CS35095	FT-15



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS	WRENCH
			D	F	L	B	L1	K°	
55100278-1	S12M-SVJCR08-16E	VCMT0802	12	2	150	16	26.5	5°	CS20045
55100278-2	S16Q-SVJCR08-20E	VCMT0802	16	2	180	20	36.5	5°	CS20045
55100278-3	S20R-SVJBR11-25E	VBMT1103	20	2	200	25	38	5°	CS25060
55100278-4	S25R-SVJBR11-30E	VBMT1103	25	2	200	30	45.5	5°	CS25060

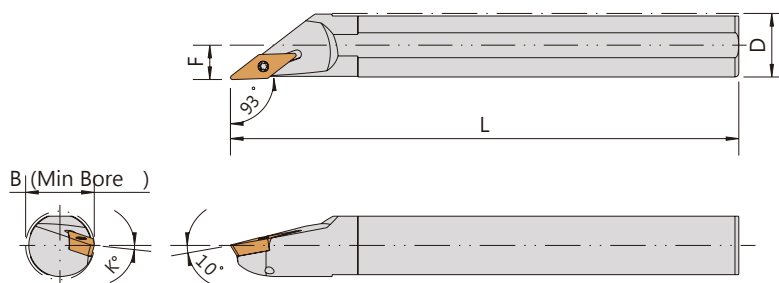
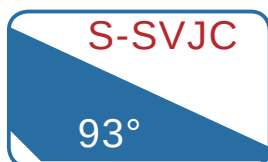


E1 - TURNING TOOLS

CUTTING TOOLS

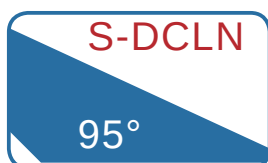
E “ CUTTING TOOLS

BORING BARS

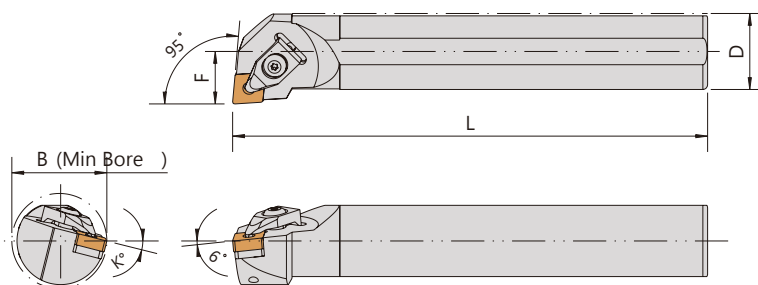


UNIT: mm

ITEM NO.	MODEL		INSERT	DIMENSIONS					PARTS	WRENCH
	Right / Left			D	F	L	B	K°		
55100272 R/L	S12M-SVJCR/L11		VCMT1103	12	7	150	14	7 °	CS25060	FT-7
55100273 R/L	S16Q-SVJCR/L11		VCMT1103	16	9	180	18	7 °	CS25060	FT-7
55100274 R/L	S16Q-SVJCR/L16		VCMT1604	16	9	180	18	7 °	CS35090	FT-15
55100275 R/L	S20R-SVJCR/L16		VCMT1604	20	10.5	200	21	6 °	CS35090	FT-15
55100276 R/L	S25R-SVJCR/L16		VCMT1604	25	13.5	200	27	6 °	CS35090	FT-15
55100277 R/L	S32S-SVJCR/L16		VCMT1604	32	17	250	34	4 °	CS35090	FT-15
55100278 R/L	S40T-SVJCR/L16		VCMT1604	40	22	300	44	4 °	CS35115	FT-15



- D TYPE

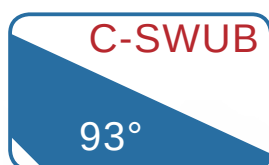


UNIT: mm

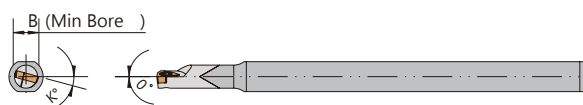
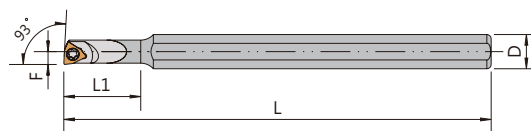
ITEM NO.	MODEL		INSERT	DIMENSIONS					PARTS					WRENCH
	Right / Left			D	F	L	B	K°						
55100279 R/L	S25R-DCLNR/L12		CNMG1204	25	17	200	32	14°	SMC-422	CSF4010	CP-D4	SP0816	CSB0620T	TL20
55100280 R/L	S32S-DCLNR/L12			32	22	250	40	14°	SMC-422	CSF4010	CP-D4	SP0816	CSB0620T	TL20
55100281 R/L	S40T-DCLNR/L12			40	27	300	50	12°	SMC-422	CSF4010	CP-D4	SP0816	CSB0620T	TL20



BORING BARS



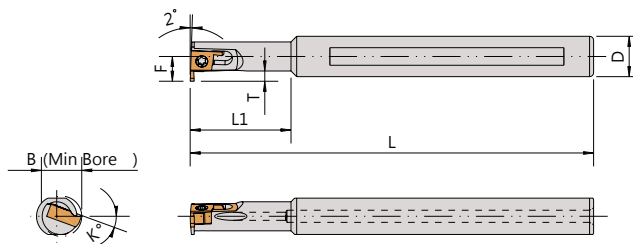
▲ Carbide Shank



ITEM NO.	MODEL	INSERT	DIMENSIONS							PARTS	WRENCH
			D	F	L	B	L1	K°	H		
55100282	C05H-SWUBR 06-5.5	WBG0601	5	3.0	100	5.5	-	13°	4.7	CS20038	FT-6
55100283	C06H-SWUBR 06-07		6	3.5	100	7	-	13°	5.7	CS20038	
55100284	C07H-SWUBR 06-08		7	4.0	100	8	-	11°	6.7	CS20038	
55100284-1	C08K-SWUBR 06-5.5		8	3.0	125	5.5	30	13°	7.7	CS20038	

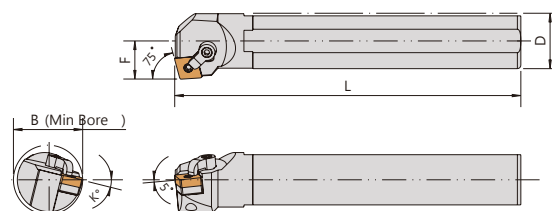
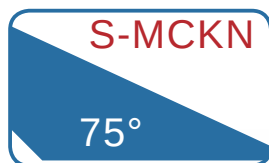


- FOR GROOVING



Recommended Inserts: KYOCERA

ITEM NO.	MODEL	INSERT	DIMENSIONS							PARTS	WRENCH
			D	F	L	B min	L1	t			
55101182	L08H-SIGER08A	GER/L 100-005A ~ 200-010A	8	4.8	100	8	20	1.5		CS20038	FT-6
55101183	L10K-SIGER10B	GER/L 100-005B ~ 300-020B	10	6.2	125	10	25	2.2		CS25060	FT-7
55101184	L10K-SIGER12B	GER/L 100-005B ~ 300-020B	10	7.0	125	12	30	2.2		CS25060	FT-7
55101185	L12M-SIGER14B	GER/L 100-005B ~ 300-020B	12	8.0	150	14	30	2.2		CS25060	FT-7
55101185-1	L16M-SIGER14B	GER/L 100-005B ~ 300-020B	16	8.0	150	14	40	2.2		CS25060	FT-7

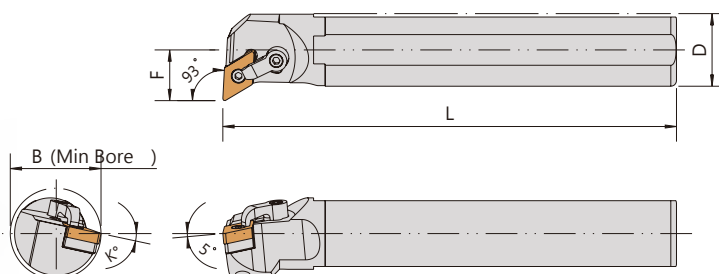
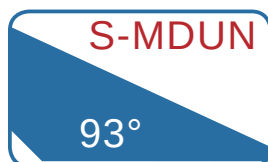


ITEM NO.	MODEL	INSERT	DIMENSIONS							PARTS			WRENCH	
			D	F	L	B	K°							
55101186 R/L	S20R-MCKNR/L12	CNMG1204	20	13	200	25	17°	-	LCS-511	CP50-26	CS7-5018	LW025	-	
55101187 R/L	S25R-MCKNR/L12	CNMG1204	25	17	200	32	14°	-	LCS-511	CP50-22	CS7-6024	LW025	LW030	
55101188 R/L	S32S-MCKNR/L12	CNMG1204	32	22	250	40	14°	SMC-432	LCS-617	CP50-22	CS7-6024	-	LW030	
55101189 R/L	S40T-MCKNR/L12	CNMG1204	40	27	300	50	12°	SMC-432	LCS-617	CP50-22	CS7-6030	-	LW030	
55101190 R/L	S50U-MCKNR/L12	CNMG1204	50	35	350	63	12°	SMC-432	LCS-617	CP50-22	CS7-6030	-	LW030	

E “ CUTTING TOOLS

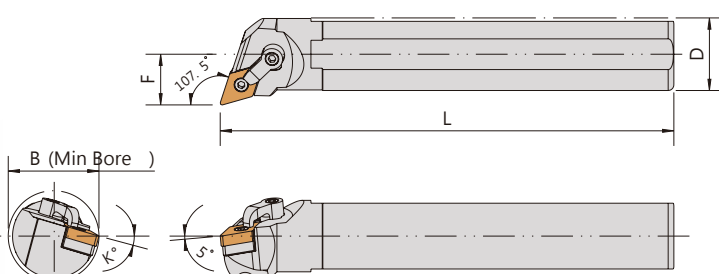
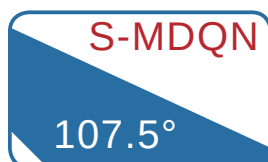


BORING BARS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS			WRENCH	
	Right / Left		D	F	L	B	K°					
55100730 R/L	S25R-MDUNR/L1504	DNMG1504	25	17	200	32	15°	SMD-463	LCS-619	CP50-24	CS7-6024	LW030
55101191 R/L	S32S-MDUNR/L1504	DNMG1504	32	22	250	40	12°	SMD-463	LCS-619	CP50-24	CS7-6024	LW030
55101192 R/L	S40T-MDUNR/L1504	DNMG1504	40	27	300	50	10°	SMD-463	LCS-619	CP50-24	CS7-6030	LW030
55101193 R/L	S50U-MDUNR/L1504	DNMG1504	50	35	350	63	10°	SMD-463	LCS-619	CP50-24	CS7-6030	LW030
55101194 R/L	S32S-MDUNR/L1506	DNMG1506	32	22	250	40	17°	SMD-443	LCS-619	CP50-24	CS7-6024	LW030
55101195 R/L	S40T-MDUNR/L1506	DNMG1506	40	27	300	50	15°	SMD-443	LCS-619	CP50-24	CS7-6030	LW030
55101196 R/L	S50U-MDUNR/L1506	DNMG1506	50	35	350	63	12°	SMD-443	LCS-619	CP50-24	CS7-6030	LW030

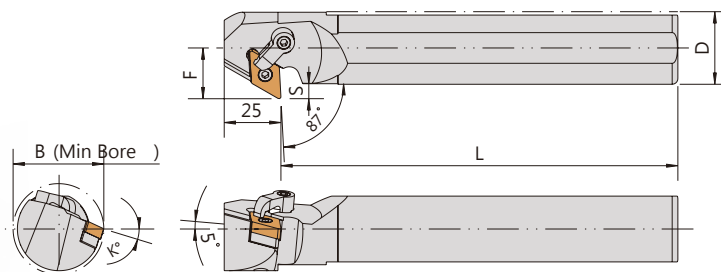
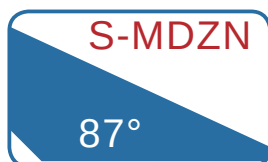


UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS			WRENCH	
	Right / Left		D	F	L	B	K°					
55101197 R/L	S25R-MDQNR/L1504	DNMG1504	25	17	200	32	15°	SMD-463	LCS-619	CP50-24	CS7-6024	LW030
55101198 R/L	S32S-MDQNR/L1504	DNMG1504	32	22	250	40	12°	SMD-463	LCS-619	CP50-24	CS7-6024	LW030
55101199 R/L	S40T-MDQNR/L1504	DNMG1504	40	27	300	50	10°	SMD-463	LCS-619	CP50-24	CS7-6030	LW030
55101200 R/L	S50U-MDQNR/L1504	DNMG1504	50	35	350	63	10°	SMD-463	LCS-619	CP50-24	CS7-6030	LW030
55101201 R/L	S32S-MDQNR/L1506	DNMG1506	32	22	250	40	17°	SMD-443	LCS-619	CP50-24	CS7-6024	LW030
55101202 R/L	S40T-MDQNR/L1506	DNMG1506	40	27	300	50	15°	SMD-443	LCS-619	CP50-24	CS7-6030	LW030
55101203 R/L	S50U-MDQNR/L1506	DNMG1506	50	35	350	63	12°	SMD-443	LCS-619	CP50-24	CS7-6030	LW030

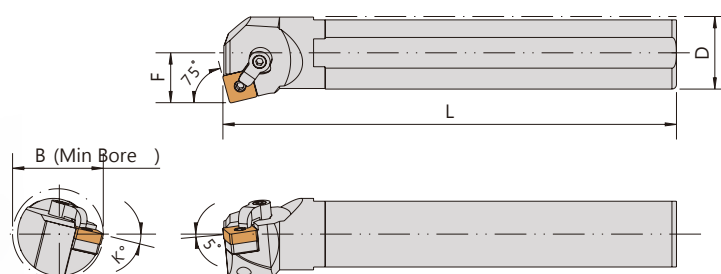


BORING BARS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS							PARTS				WRENCH
	Right / Left		D	F	S	L	B	K°						
55101204 R/L	S32S-MDZNR/L1504	DNMG1504	32	22	6	250	40	17°	SMD-463	LCS-619	CP50-24	CS7-6024	LW030	
55101205 R/L	S40T-MDZNR/L1504	DNMG1504	40	27	7	300	50	15°	SMD-463	LCS-619	CP50-24	CS7-6030	LW030	
55101206192	S50U-MDZNR/L1504	DNMG1504	50	35	10	350	63	12°	SMD-463	LCS-619	CP50-24	CS7-6030	LW030	
55101207 R/L	S32S-MDZNR/L1506	DNMG1506	32	22	6	250	40	17°	SMD-443	LCS-619	CP50-24	CS7-6024	LW030	
55101208 R/L	S40T-MDZNR/L1506	DNMG1506	40	27	7	300	50	15°	SMD-443	LCS-619	CP50-24	CS7-6030	LW030	
55101209 R/L	S50U-MDZNR/L1506	DNMG1506	50	35	10	350	63	12°	SMD-443	LCS-619	CP50-24	CS7-6030	LW030	



UNIT: mm

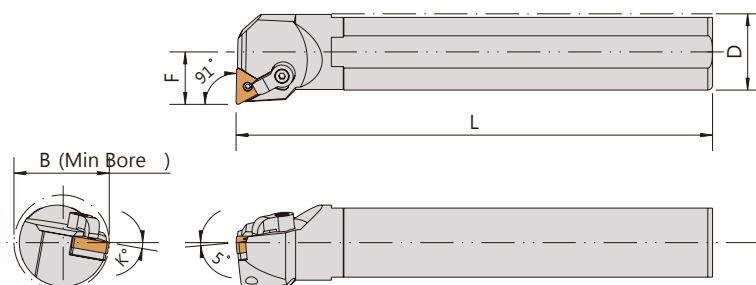
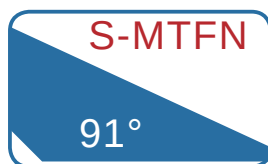
ITEM NO.	MODEL	INSERT	DIMENSIONS							PARTS				WRENCH
	Right / Left		D	F	L	B	K°							
55101210 R/L	S20R-MSKNR/L12	SNMG1204	20	13	200	25	17°	-	LCS-511	CP50-26	CS7-5018	LW025	-	
55101211 R/L	S25R-MSKNR/L12	SNMG1204	25	17	200	32	14°	-	LCS-511	CP50-22	CS7-6024	LW025	LW030	
55101212 R/L	S32S-MSKNR/L12	SNMG1204	32	22	250	40	14°	SMS-432	LCS-617	CP50-22	CS7-6030	-	LW030	
55101213 R/L	S40T-MSKNR/L12	SNMG1204	40	27	300	50	15°	SMS-432	LCS-617	CP50-22	CS7-6030	-	LW030	
55101214 R/L	S50U-MSKNR/L12	SNMG1204	50	35	350	63	12°	SMS-432	LCS-617	CP50-22	CS7-6030	-	LW030	
55101215 R/L	S40T-MSKNR/L15	SNMG1506	40	27	300	50	15°	SMS-533	LCS-0822	CP50-22	CS7-6030	-	LW030	
55101216 R/L	S50U-MSKNR/L19	SNMG1906	50	35	350	63	8°	SMS-633	LCS-1022	CP50-29	CS7-8030	-	LW030	



E “ CUTTING TOOLS

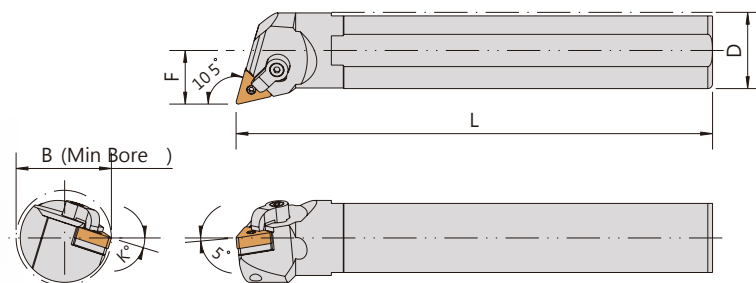
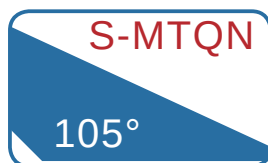


BORING BARS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS			WRENCH	
	Right / Left		D	F	L	B	K°						
55101217R/L	S20R-MTFNR/L16	TNMG1604	20	13	200	25	17°	-	LCS-510	CP50-26	CS7-5018	LW020	LW025
55101218R/L	S25R-MTFNR/L16	TNMG1604	25	17	200	32	12°	-	LCS-510	CP50-22	CS7-6024	LW020	LW030
55101219R/L	S32S-MTFNR/L16	TNMG1604	32	22	250	40	10°	SMT-322	LCS-513	CP50-22	CS7-6024	LW020	LW030
55101220R/L	S40T-MTFNR/L16	TNMG1604	40	27	300	50	10°	SMT-322	LCS-513	CP50-22	CS7-6030	LW020	LW030
55101221R/L	S50U-MTFNR/L16	TNMG1604	50	35	350	63	8°	SMT-322	LCS-513	CP50-22	CS7-6030	LW020	LW030
55101222R/L	S40T-MTFNR/L22	TNMG2204	40	27	300	50	9°	SMT-433	LCS-617	CP50-28	CS7-8030	LW030	LW040
55101223R/L	S50U-MTFNR/L22	TNMG2204	50	35	350	63	7°	SMT-433	LCS-617	CP50-28	CS7-8030	LW030	LW040



UNIT: mm

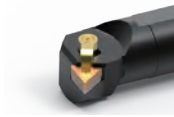
ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS			WRENCH	
	Right / Left		D	F	L	B	K°						
55101224 R/L	S20R-MTQNR/L16	TNMG1604	20	12.5	200	25	15°	-	LCS-510	CP50-26	CS7-5018	LW020	LW025
55101225 R/L	S25R-MTQNR/L16	TNMG1604	25	16	200	32	12°	-	LCS-510	CP50-22	CS7-6024	LW020	LW030
55101226 R/L	S32S-MTQNR/L16	TNMG1604	32	22.5	250	40	17°	SMT-322	LCS-513	CP50-22	CS7-6024	LW020	LW030
55101227 R/L	S40T-MTQNR/L16	TNMG1604	40	26.5	300	50	15°	SMT-322	LCS-513	CP50-22	CS7-6030	LW020	LW030
55101228 R/L	S50U-MTQNR/L16	TNMG1604	50	31	350	63	12°	SMT-322	LCS-513	CP50-22	CS7-6030	LW030	LW030



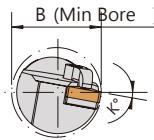
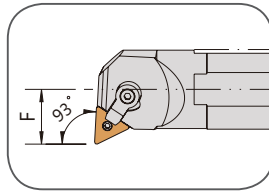
BORING BARS

S-MTUN-A

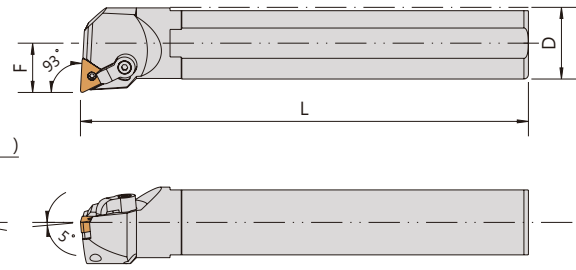
93°



S-MTUN-A



S-MTUN

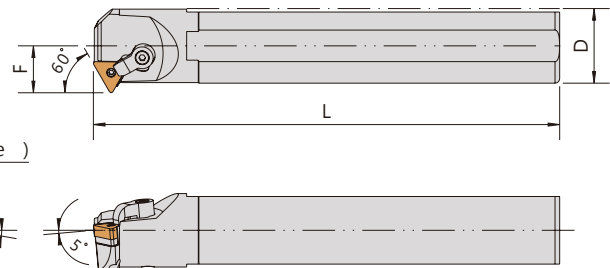
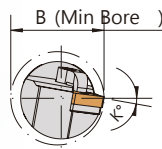


UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS				WRENCH	
	Right / Left		D	F	L	B	K°							
55101229 R/L	S16Q-MTUNR/L16A	TNMG1604	16	11	180	20	20°	-	LCS-510	CP50-26S	CS7-5018	LW020	LW025	
55101230 R/L	S20R-MTUNR/L16A	TNMG1604	20	13	200	25	17°	-	LCS-510	CP50-26	CS7-5018	LW020	LW025	
55101231 R/L	S25R-MTUNR/L16A	TNMG1604	25	17	200	32	12°	-	LCS-510	CP50-22	CS7-6024	LW020	LW030	
55101232 R/L	S32S-MTUNR/L16A	TNMG1604	32	22	250	40	10°	SMT-322	LCS-513	CP50-22	CS7-6024	LW020	LW030	
55101233 R/L	S40T-MTUNR/L16A	TNMG1604	40	26.5	300	50	10°	SMT-322	LCS-513	CP50-22	CS7-6030	LW020	LW030	
55101234 R/L	S50U-MTUNR/L16A	TNMG1604	50	31	350	63	8°	SMT-322	LCS-513	CP50-22	CS7-6030	LW020	LW030	
55101235 R/L	S60V-MTUNR/L16A	TNMG1604	60	36	400	70	10°	SMT-322	LCS-513	CP50-22	CS7-6030	LW020	LW030	
55101236 R/L	S63Y-MTUNR/L16A	TNMG1604	63	37.5	500	75	10°	SMT-322	LCS-513	CP50-22	CS7-6030	LW020	LW030	
55101237 R/L	S40T-MTUNR/L22A	TNMG2204	40	26.5	300	50	15°	SMT-433	LCS-617	CP50-28	CS7-8030	LW030	LW040	
55101238 R/L	S50U-MTUNR/L22A	TNMG2204	50	31	350	63	12°	SMT-433	LCS-617	CP50-28	CS7-8030	LW030	LW040	

S-MTWN

60°



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS				WRENCH	
	Right / Left		D	F	L	B	K°							
55101239 R/L	S16Q-MTWNR/L16	TNMG1604	16	11	180	20	20°	-	LCS-510	CP50-26S	CS7-5018	LW020	LW025	
55101240 R/L	S20R-MTWNR/L16	TNMG1604	20	13	200	25	17°	-	LCS-510	CP50-26	CS7-5018	LW020	LW025	
55101241 R/L	S25R-MTWNR/L16	TNMG1604	25	17	200	32	12°	-	LCS-510	CP50-22	CS7-6024	LW020	LW030	
55101242 R/L	S32S-MTWNR/L16	TNMG1604	32	20	250	40	10°	SMT-322	LCS-513	CP50-22	CS7-6024	LW020	LW030	
55101243 R/L	S40T-MTWNR/L16	TNMG1604	40	24	300	50	15°	SMT-322	LCS-513	CP50-22	CS7-6030	LW020	LW030	
55101244 R/L	S50U-MTWNR/L16	TNMG1604	50	29	350	57	12°	SMT-322	LCS-513	CP50-22	CS7-6030	LW020	LW030	



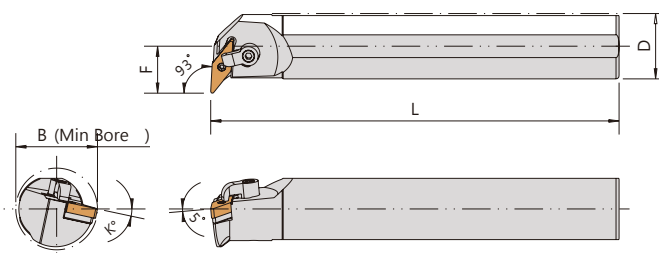
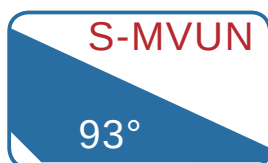
E1 - TURNING TOOLS

CUTTING TOOLS

E “ CUTTING TOOLS

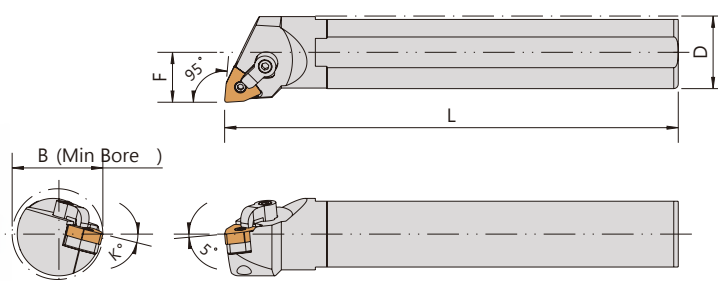
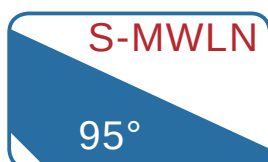


BORING BARS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS				WRENCH	
	Right / Left		D	F	L	B	K°							
55101245 R/L	S25R-MVUNR/L16	VNMG1604	25	20	200	37	12°	SMV-322	LCS-513	CP50-22	CS7-6024	LW020	LW030	
55101246 R/L	S32S-MVUNR/L16	VNMG1604	32	22	250	40	12°	SMV-322	LCS-513	CP50-22	CS7-6030	LW020	LW030	
55101247 R/L	S40T-MVUNR/L16	VNMG1604	40	27	300	50	15°	SMV-322	LCS-513	CP50-22	CS7-6030	LW020	LW030	
55101248 R/L	S50U-MVUNR/L16	VNMG1604	50	32	350	63	12°	SMV-322	LCS-513	CP50-22	CS7-6030	LW020	LW030	

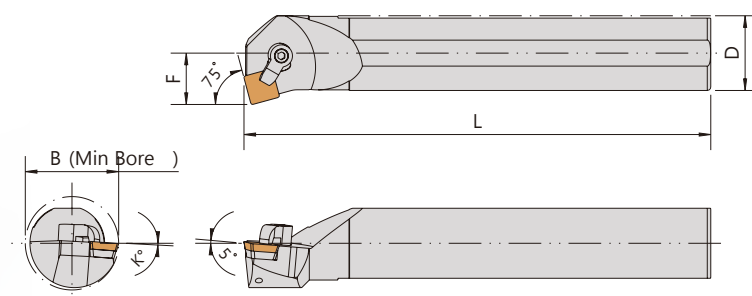
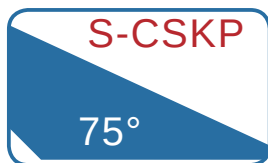


UNIT: mm

ITEM NO.	MODEL		INSERT	DIMENSIONS					PARTS			WRENCH		
	Right / Left			D	F	L	B	K°						
55101249 R/L	S16Q-MWLNR/L06		WNMG0604	16	11	180	22	18°	-	LCS-510	CP50-26	CS7-5018	LW020	LW025
55101250 R/L	S20R-MWLNR/L08		WNMG0804	20	13	200	25	17°	-	LCS-511	CP50-26	CS7-5018	-	LW025
55101251 R/L	S25R-MWLNR/L08		WNMG0804	25	17	200	32	14°	-	LCS-511	CP50-22	CS7-6024	LW025	LW030
55101252 R/L	S32S-MWLNR/L08		WNMG0804	32	22	250	40	14°	SMW-432	LCS-617	CP50-22	CS7-6030	-	LW030
55101253 R/L	S40T-MWLNR/L08		WNMG0804	40	27	300	50	12°	SMW-432	LCS-617	CP50-22	CS7-6030	-	LW030
55101254 R/L	S50U-MWLNR/L08		WNMG0804	50	35	350	63	12°	SMW-432	LCS-617	CP50-22	CS7-6030	-	LW030
55101255 R/L	S63Y-MWLNR/L08		WNMG0804	63	38	500	75	10°	SMW-432	LCS-617	CP50-22	CS7-6030	-	LW030

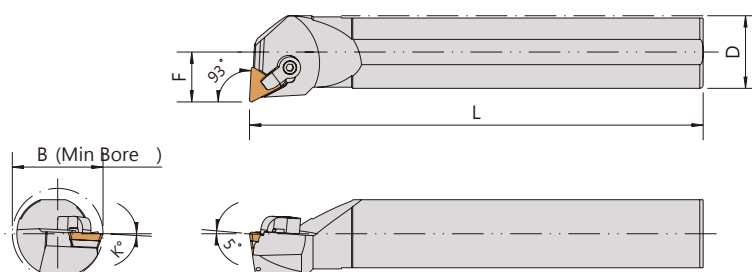
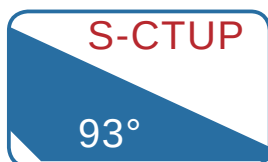


BORING BARS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS				WRENCH
	Right / Left		D	F	L	B	K°					
55101256 R/L	S16Q-CSKPR/L09	SPMN0903	16	11	180	20	0°	-	-	CP50-21	CS7-5015	LW025
55101257 R/L	S20R-CSKPR/L09	SPMN0903	20	13	200	25	0°	-	-	CP50-21	CS7-5015	LW025
55101258 R/L	S25R-CSKPR/L12	SPMN1203	25	17	200	32	2°	SMS-421	CSF3010	CP50-22	CS7-6024	LW030
55101259 R/L	S32S-CSKPR/L12	SPMN1203	32	22	250	40	0°	SMS-421	CSF3010	CP50-22	CS7-6024	LW030



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS				WRENCH
	Right / Left		D	F	L	B	K°					
55101260 R/L	S12M-CTUPR/L11	TPMN1103	12	9	150	16	0°	-	-	CP50-27S		LW025
55101261 R/L	S16Q-CTUPR/L11	TPMN1103	16	11	180	20	3°	-	-	CP50-21	CS7-5015	LW025
55101262 R/L	S20R-CTUPR/L11	TPMN1103	20	13	200	25	3°	-	-	CP50-21	CS7-5015	LW025
55101263 R/L	S25R-CTUPR/L16	TPMN1603	25	17	200	32	3°	SMT-321	CS20045	CP50-22	CS7-6024	LW030
55101264 R/L	S32S-CTUPR/L16	TPMN1603	32	22	250	40	3°	SMT-321	CS20045	CP50-22	CS7-6024	LW030



E1 - TURNING TOOLS

CUTTING TOOLS

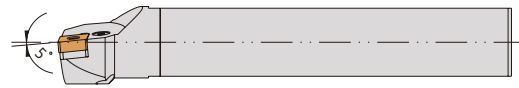
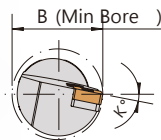
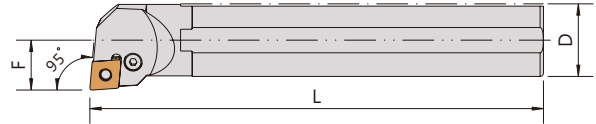
E “ CUTTING TOOLS



BORING BARS

S-PCLN

95°

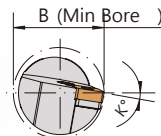
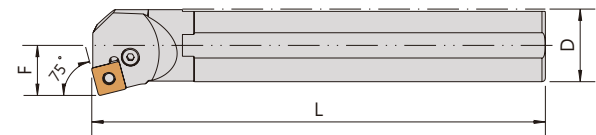


UNIT: mm

ITEM NO.	MODEL	INSERT 	DIMENSIONS						PARTS			WRENCH 
			D	F	L	B	K°					
55101265 R/L	S16Q-PCLNR/L09	CNMG0903	16	11	180	20	14°	-	CS-LSP2	CP-LL2	CS-LS2	LW025
55101266 R/L	S20R-PCLNR/L09	CNMG0903	20	13	200	25	12°	-	CS-LSP2	CP-LL2	CS-LS2	LW025
55101267 R/L	S25R-PCLNR/L09	CNMG0903	25	17	200	32	11°	SMC-322	CS-LSP3	CP-LL3	CS-LS3	LW025
55101268 R/L	S25R-PCLNR/L12	CNMG1204	25	17	200	32	11°	-	CS-LSP5	CP-LL5	CS-LS3	LW025
55101269 R/L	S32S-PCLNR/L12	CNMG1204	32	22	250	40	11°	SMC-422	CS-LSP4	CP-LL4	CS-LS4	LW030
55101270 R/L	S40T-PCLNR/L12	CNMG1204	40	27	300	50	10°	SMC-422	CS-LSP4	CP-LL4	CS-LS4	LW030

S-PSKN

75°

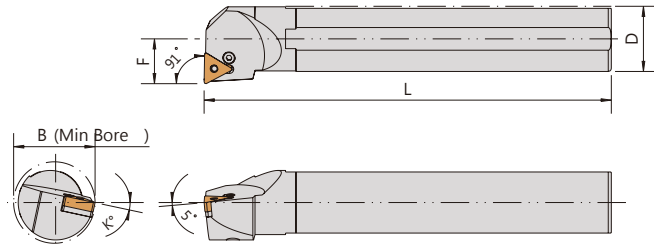
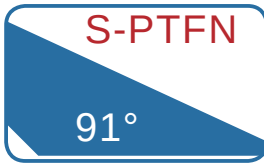


UNIT: mm

ITEM NO.	MODEL Right / Left	INSERT 	DIMENSIONS						PARTS			WRENCH 
			D	F	L	B	K°					
55101271 R/L	S25R-PSKNR/L12	SNMG1204	25	17	200	30	10°	-	CS-LSP5	CP-LL5	CS-LS3	LW025
55101272 R/L	S32S-PSKNR/L12	SNMG1204	32	22	250	40	10°	SMS-422	CS-LSP4	CP-LL4	CS-LS4	LW030
55101273 R/L	S40T-PSKNR/L12	SNMG1204	40	27	300	48	10°	SMS-422	CS-LSP4	CP-LL4	CS-LS4	LW030

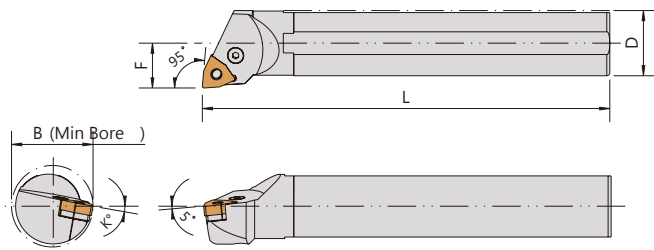
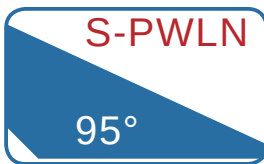


BORING BARS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS					WRENCH
	Right / Left		D	F	L	B	K°						
55101274 R/L	S20R-PTFNR/L16	TNMG1604	20	17	200	25	17°	SMT-31T	CS-LSP3	CP-LL6	CS-LS6	LW030	
55101275 R/L	S25R-PTFNR/L16	TNMG1604	25	17	200	30	15°	SMT-31T	CS-LSP3	CP-LL3	CS-LS3	LW025	
55101276 R/L	S32S-PTFNR/L16	TNMG1604	32	22	250	40	12°	SMT-31T	CS-LSP3	CP-LL3	CS-LS3	LW025	
55101277 R/L	S40T-PTFNR/L16	TNMG1604	40	27	300	48	10°	SMT-31T	CS-LSP3	CP-LL3	CS-LS3	LW025	



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS					WRENCH
	Right / Left		D	F	L	B	K°						
55101280-1 R/L	S16R-PWLNLR/L06	WNMG0604	16	11	200	20	14°	-	CS-LSP2	CP-LL2	CS-LS2	LW025	
55101280-2 R/L	S20S-PWLNLR/L06	WNMG0604	20	13	250	25	12°	-	CS-LSP2	CP-LL2	CS-LS2	LW025	
55101278-1 R/L	S25T-PWLNLR/L06	WNMG0604	25	17	300	32	12°	-	CS-LSP2	CP-LL2	CS-LS2	LW025	
55101279-1 R/L	S32U-PWLNLR/L06	WNMG0604	32	22	350	40	10°	SMW-322	CS-LSP3	CP-LL3	CS-LS3	LW025	
55101278 R/L	S25R-PWLNLR/L08	WNMG0804	25	17	200	30	12°	-	CS-LSP5	CP-LL5	CS-LS3	LW030	
55101279 R/L	S32S-PWLNLR/L08	WNMG0804	32	22	250	40	10°	SMW-423	CS-LSP4	CP-LL4	CS-LS4	LW030	
55101280 R/L	S40T-PWLNLR/L08	WNMG0804	40	27	300	48	8°	SMW-423	CS-LSP4	CP-LL4	CS-LS4	LW030	



E “ CUTTING TOOLS

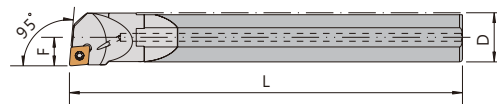
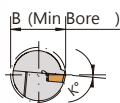


BORING BARS

C-SCLC
E-SCLC

95°

C-Carbide Shank
E-Carbide Shank with Coolant

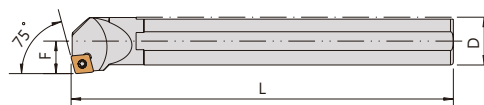
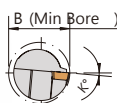


UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS	WRENCH
			D	F	L	B	K°		
55101281	C08K-SCLCR06-10	CCMT0602	8	5	125	10	9°	CS25050	FT-7
55101282	C10M-SCLCR06-12	CCMT0602	10	6	150	12	7°	CS25050	FT-7
55101283	C12Q-SCLCR06-14	CCMT0602	12	7	180	14	6°	CS25050	FT-7
55101284	C16R-SCLCR06-18	CCMT0602	16	9	200	18	7°	CS25060	FT-7
55101285	C12Q-SCLCR09-14	CCMT09T3	12	7	180	14	6°	CS35075	FT-15
55101286	C16R-SCLCR09-18	CCMT09T3	16	9	200	18	7°	CS35075	FT-15
55101287	C20S-SCLCR09-22	CCMT09T3	20	11	250	22	5°	CS35090	FT-15
55101288	C25T-SCLCR09-28	CCMT09T3	25	14.5	300	28	5°	CS35090	FT-15
55101289	E08M-SCLCR06-10	CCMT0602	8	5	150	10	9°	CS25050	FT-7
55101290	E10Q-SCLCR06-12	CCMT0602	10	6	180	12	7°	CS25050	FT-7
55101291	E12R-SCLCR06-14	CCMT0602	12	7	200	14	6°	CS25050	FT-7
55101292	E12R-SCLCR09-14	CCMT09T3	12	7	200	14	6°	CS35075	FT-15
55101293	E16R-SCLCR09-18	CCMT09T3	16	9	200	18	7°	CS35075	FT-15
55101294	E20S-SCLCR09-22	CCMT09T3	20	11	250	22	5°	CS35090	FT-15
55101295	E25T-SCLCR09-28	CCMT09T3	25	14.5	300	28	5°	CS35090	FT-15

S-SCKC

75°

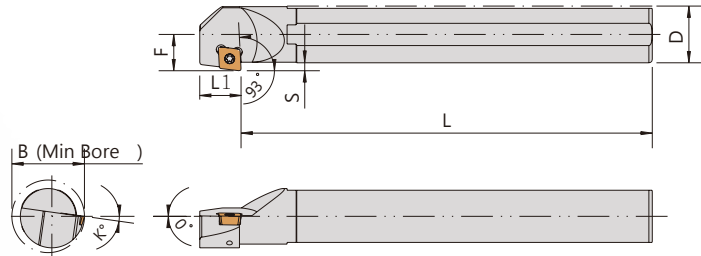
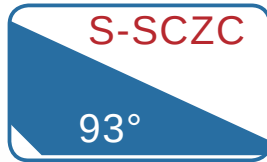


UNIT: mm

ITEM NO.	MODEL		INSERT	DIMENSIONS					PARTS	WRENCH
	Right / Left			D	F	L	B	K°		
55101296	R/L	S08H-SCKCR/L06	CCMT0602	8	6	100	12	13°	CS25050	FT-7
55101297	R/L	S10K-SCKCR/L06	CCMT0602	10	7	125	14	12°	CS25060	FT-7
55101298	R/L	S12M-SCKCR/L06	CCMT0602	12	9	150	16	9°	CS25060	FT-7
55101299	R/L	S16Q-SCKCR/L06	CCMT0602	16	9.5	180	20	7°	CS25060	FT-7
55101300	R/L	S12M-SCKCR/L09	CCMT09T3	12	8	150	16	13°	CS35075	FT-15
55101301	R/L	S16Q-SCKCR/L09	CCMT09T3	16	9.5	180	20	9°	CS35090	FT-15
55101302	R/L	S20R-SCKCR/L09	CCMT09T3	20	13	200	25	7°	CS35090	FT-15
55101303	R/L	S25R-SCKCR/L09	CCMT09T3	25	17	200	32	5°	CS35090	FT-15

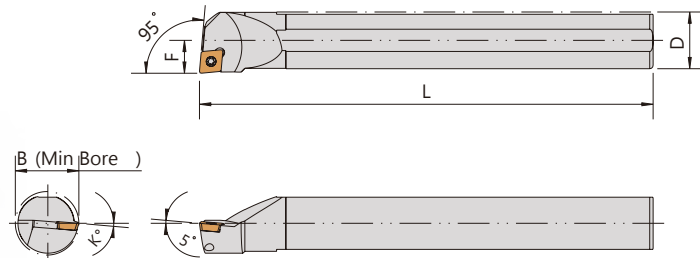
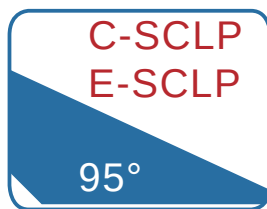


BORING BARS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS							PARTS	WRENCH
	Right / Left		D	F	S	L	B	L1	K°		
55101304 R/L	S08H-SCZCR/L06	CCMT0602	8	6.5	2.5	100	12	10	13°	CS25050	FT-7
55101305 R/L	S10K-SCZCR/L06	CCMT0602	10	7.5	2.5	125	14	10	12°	CS25060	FT-7
55101306 R/L	S12M-SCZCR/L06	CCMT0602	12	8.5	2.5	150	16	10	10°	CS25060	FT-7
55101307 R/L	S16Q-SCZCR/L09	CCMT09T3	16	11.5	3.5	180	21	16	10°	CS35090	FT-15
55101308 R/L	S20R-SCZCR/L09	CCMT09T3	20	13.5	3.5	200	25	18	8°	CS35090	FT-15
55101309 R/L	S25R-SCZCR/L09	CCMT09T3	25	16	3.5	200	32	18	8°	CS35090	FT-15



C-Carbide Shank
E-Carbide Shank with Coolant

UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS	WRENCH
	Right / Left		D	F	L	B	K°		
55101310	C10M-SCLPR08-12	CPMT0802	10	6	150	12	7°	CS30070	FT-10
55101311	C12Q-SCLPR08-14	CPMT0802	12	7	180	14	6°	CS30070	FT-10
55101312	C12Q-SCLPR09	CPMT0903	12	9	180	16	6°	CS30090	FT-15
55101313	C16R-SCLPR09-18	CPMT0903	16	9	200	18	7°	CS30090	FT-15
55101314	C20S-SCLPR09-22	CPMT0903	20	11	250	22	5°	CS30090	FT-15
55101315/6 R/L	C25T-SCLPR/L09-28	CPMT0903	25	14.5	300	28	5°	CS30090	FT-15
55101317	E10Q-SCLPR08-12	CPMT0802	10	6	180	12	7°	CS30070	FT-10
55101318	E12R-SCLPR08-14	CPMT0802	12	7	200	14	6°	CS30070	FT-10
55101319	E12R-SCLPR09	CPMT0903	12	9	200	16	6°	CS30090	FT-15
55101320	E16R-SCLPR09-18	CPMT0903	16	9	200	18	7°	CS30090	FT-15
55101321	E20S-SCLPR09-22	CPMT0903	20	11	250	22	5°	CS30090	FT-15
55101322/3 R/L	E25T-SCLPR/L09-28	CPMT0903	25	14.5	300	28	5°	CS30090	FT-15



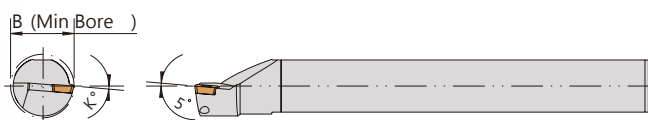
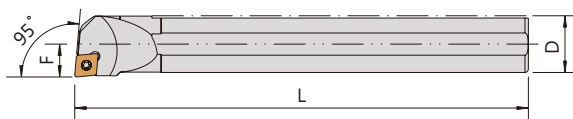
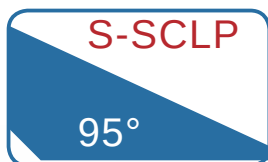
E1 - TURNING TOOLS

CUTTING TOOLS

E “ CUTTING TOOLS

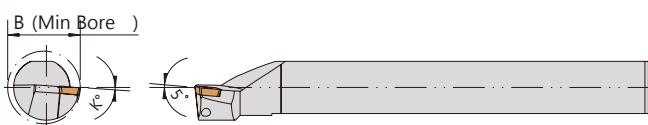
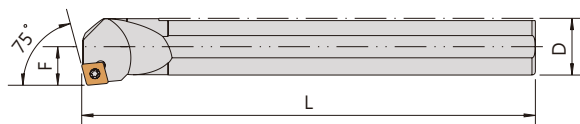
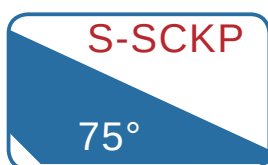


BORING BARS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS	WRENCH
	Right / Left		D	F	L	B	K°		
55101324 R/L	S08H-SCLPR/L06	CPMT0602	8	6	100	12	7°	CS25050	FT-7
55101325 R/L	S10K-SCLPR/L06	CPMT0602	10	7	125	14	7°	CS25060	FT-7
55101326 R/L	S12M-SCLPR/L06	CPMT0602	12	9	150	16	6°	CS25060	FT-7
55101327 R/L	S10K-SCLPR/L08	CPMT0802	10	7	125	14	7°	CS30070	FT-10
55101328 R/L	S10K-SCLPR/L08-12	CPMT0802	10	6	125	12	7°	CS30070	FT-10
55101329 R/L	S12M-SCLPR/L08	CPMT0802	12	8	150	16	6°	CS30070	FT-10
55101330 R/L	S12M-SCLPR/L08-14	CPMT0802	12	7	150	14	6°	CS30070	FT-10
55101331 R/L	S16Q-SCLPR/L08	CPMT0802	16	9	180	18	7°	CS30070	FT-10
55101332 R/L	S12M-SCLPR/L09	CPMT0903	12	9	150	16	12°	CS40090	FT-15
55101333 R/L	S16Q-SCLPR/L09	CPMT0903	16	11	180	20	7°	CS40090	FT-15
55101334 R/L	S16Q-SCLPR/L09-18	CPMT0903	16	9	180	18	7°	CS40090	FT-15
55101335 R/L	S20R-SCLPR/L09	CPMT0903	20	13	200	25	5°	CS40090	FT-15
55101336 R/L	S20R-SCLPR/L09-22	CPMT0903	20	11	200	22	5°	CS40090	FT-15
55101337 R/L	S25R-SCLPR/L09	CPMT0903	25	17	200	32	5°	CS40090	FT-15
55101338 R/L	S25R-SCLPR/L09-28	CPMT0903	25	14.5	200	28	5°	CS40090	FT-15
55101339 R/L	S32S-SCLPR/L09	CPMT0903	32	17.5	250	39	5°	CS40090	FT-15

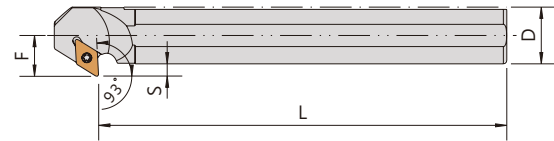
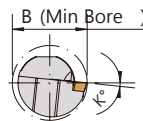
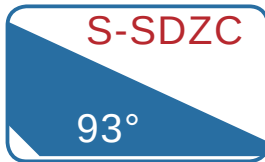


UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS	WRENCH
	Right / Left		D	F	L	B	K°		
55101340 R/L	S08H-SCKPR/L06	CPMT0602	8	6	100	10	10°	CS25050	FT-7
55101341 R/L	S10K-SCKPR/L06	CPMT0602	10	7	125	13	8°	CS25060	FT-7
55101342 R/L	S12M-SCKPR/L06	CPMT0602	12	9	150	16	6°	CS25060	FT-7
55101343 R/L	S16Q-SCKPR/L06	CPMT0606	16	11	180	20	6°	CS25060	FT-7
55101344 R/L	S12M-SCKPR/L09	CPMT0903	12	9	150	16	6°	CS40090	FT-15
55101345 R/L	S16Q-SCKPR/L09	CPMT0903	16	11	180	20	4°	CS40090	FT-15
55101346 R/L	S20R-SCKPR/L09	CPMT0903	20	13	200	25	4°	CS40090	FT-15
55101347 R/L	S25R-SCKPR/L09	CPMT0903	25	17	200	32	4°	CS40090	FT-15

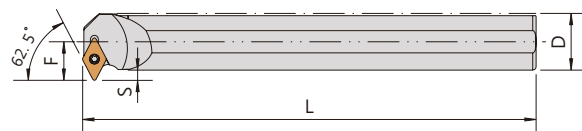
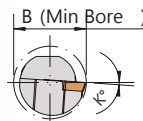
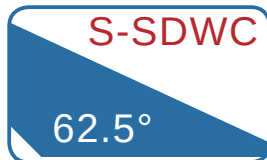


BORING BARS



UNIT: mm

ITEM NO.	MODEL Right / Left	INSERT 	DIMENSIONS							PARTS 	WRENCH
			D	F	S	L	B	L1	K°		
55101348 R/L	S10M-SDZCR/L07	DCMT0702	10	8.5	3.5	150	14	11	10°	CS25060	FT-7
55101349 R/L	S12M-SDZCR/L07	DCMT0702	12	10.5	4.5	150	17	11	9°	CS25060	FT-7
55101350 R/L	S16Q-SDZCR/L07	DCMT0702	16	12.5	4.5	180	21	11	8°	CS25060	FT-7
55101351 R/L	S20R-SDZCR/L11	DCMT11T3	20	15.5	5.5	200	26	16	8°	CS35095	FT-15
55101352 R/L	S25R-SDZCR/L11	DCMT11T3	25	18	5.5	200	33	20	6°	CS35095	FT-15
55101353 R/L	S32S-SDZCR/L11	DCMT11T3	32	21.5	5.5	250	38	20	4°	CS35095	FT-15



UNIT: mm

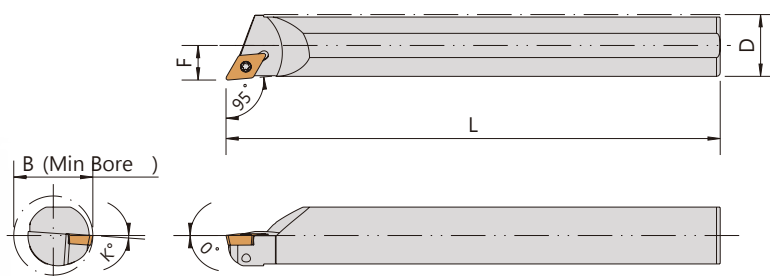
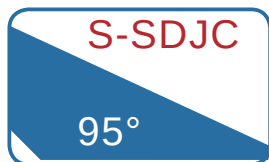
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	Right / Left		D	F	S	L	B	K°			
55101354-1 R/L	S10K-SDWCR/L07	DCMT0702	10	9.5	4.5	125	17	12°	CS25060	FT-7	
55101354 R/L	S12M-SDWCR/L07	DCMT0702	12	10.5	4.5	150	19	10°	CS25060	FT-7	
55101355 R/L	S16Q-SDWCR/L07	DCMT0702	16	12.5	4.5	180	23	8°	CS25060	FT-7	
55101355-1 R/L	S20R-SDWCR/L07	DCMT0702	20	14.5	4.5	200	27	6°	CS25060	FT-7	
55101356 R/L	S16Q-SDWCR/L11	DCMT11T3	16	12.5	4.5	180	23	8°	CS35095	FT-15	
55101357 R/L	S20R-SDWCR/L11	DCMT11T3	20	14.5	4.5	200	27	6°	CS35095	FT-15	
55101358 R/L	S25R-SDWCR/L11	DCMT11T3	25	17	4.5	200	32	4°	CS35095	FT-15	
55101359 R/L	S32S-SDWCR/L11	DCMT11T3	32	20	4	250	40	2°	CS35095	FT-15	



E “ CUTTING TOOLS

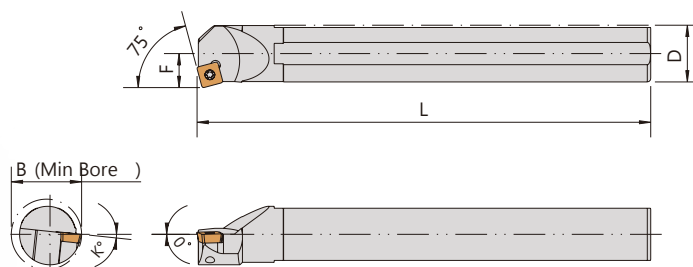
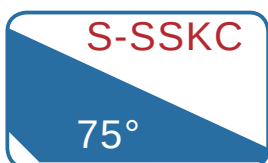


BORING BARS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS	WRENCH
	Right / Left		D	F	L	B	K°		
55101360-1 R/L	S08K-SDJCR/L07	DCMT0702	8	5	125	11	10°	CS25050	FT-7
55101360 R/L	S10M-SDJCR/L07	DCMT0702	10	6	150	13	10°	CS25060	FT-7
55101361 R/L	S12M-SDJCR/L07	DCMT0702	12	7	150	19	10°	CS25060	FT-7
55101362 R/L	S16Q-SDJCR/L07	DCMT0702	16	9.5	180	23	8°	CS25060	FT-7
55101363 R/L	S16Q-SDJCR/L11	DCMT11T3	16	9.5	180	23	8°	CS35095	FT-15
55101364 R/L	S20R-SDJCR/L11	DCMT11T3	20	11.5	200	27	6°	CS35095	FT-15
55101365 R/L	S25R-SDJCR/L11	DCMT11T3	25	14	200	32	4°	CS35095	FT-15
55101366 R/L	S32S-SDJCR/L11	DCMT11T3	32	17.5	250	40	2°	CS35095	FT-15

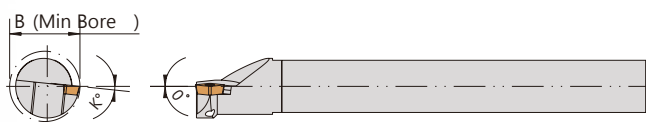
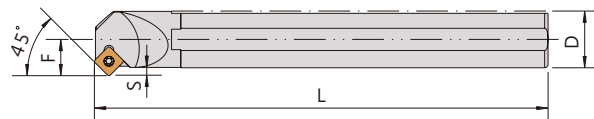
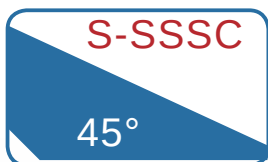


UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS	WRENCH
	Right / Left		D	F	L	B	K°		
55101367 R/L	S12M-SSKCR/L09	SCMT09T3	12	8.5	150	16	12°	CS40090	FT-15
55101368 R/L	S16Q-SSKCR/L09	SCMT09T3	16	11	180	20	11°	CS40090	FT-15
55101369 R/L	S20R-SSKCR/L09	SCMT09T3	20	13	200	25	6°	CS40090	FT-15
55101370 R/L	S25R-SSKCR/L09	SCMT09T3	25	15	200	31	6°	CS40090	FT-15
55101371 R/L	S25R-SSKCR/L12	SCMT1204	25	17	200	32	7°	CS40115	FT-15
55101372 R/L	S32S-SSKCR/L12	SCMT1204	32	22	250	40	7°	CS40115	FT-15

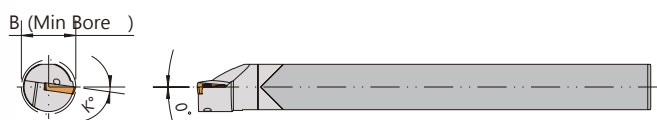
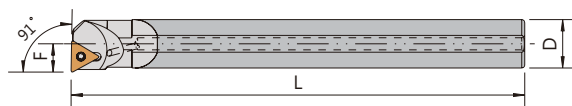
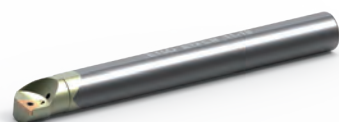


BORING BARS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS	WRENCH
	Right / Left		D	F	S	L	B	K°		
55101373 R/L	S12M-SSSCR/L09	SCMT09T3	12	8.5	2.5	150	16	12°	CS40090	FT-15
55101374 R/L	S16Q-SSSCR/L09	SCMT09T3	16	11.5	3.5	180	20	10°	CS40090	FT-15
55101375 R/L	S20R-SSSCR/L09	SCMT09T3	20	13.5	3.5	200	26	8°	CS40090	FT-15
55101376 R/L	S25R-SSSCR/L09	SCMT09T3	25	16	3.5	200	31	6°	CS40090	FT-15



C-Carbide Shank
E-Carbide Shank with Coolant

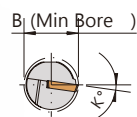
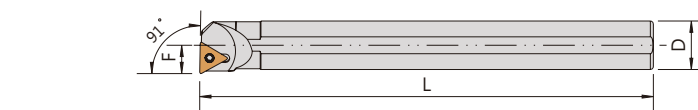
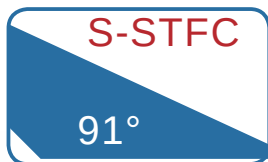
UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS	WRENCH
			D	F	L	B	K°			
55101377	C08K-STFCR09-10	TCMT0902	8	5	125	10	15°		CS22050	FT-7
55101378	C10M-STFCR09-12	TCMT0902	10	6	150	12	13°		CS22050	FT-7
55101379	C12Q-STFCR09-14	TCMT0902	12	7	180	14	10°		CS22050	FT-7
55101380	C12Q-STFCR11-14	TCMT1102	12	7	180	14	10°		CS25060	FT-7
55101381	C16R-STFCR11-18	TCMT1102	16	9	200	18	8°		CS25060	FT-7
55101382	C20S-STFCR11-22	TCMT1102	20	11	250	22	6°		CS25060	FT-7
55101383	C25T-STFCR16-28	TCMT16T3	25	14	300	28	6°		CS35090	FT-15
55101384	E08M-STFCR09-10	TCMT0902	8	5	150	10	15°		CS22050	FT-7
55101385	E10Q-STFCR09-12	TCMT0902	10	6	180	12	13°		CS22050	FT-7
55101386	E12R-STFCR11-14	TCMT1102	12	7	200	14	10°		CS25060	FT-7
55101387	E16R-STFCR11-18	TCMT1102	16	9	200	18	8°		CS25060	FT-7
55101388	E20S-STFCR11-22	TCMT1102	20	11	250	22	6°		CS25060	FT-7
55101389	E25T-STFCR16-28	TCMT16T3	25	14	300	28	6°		CS35090	FT-15



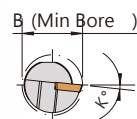
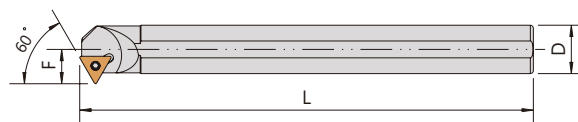
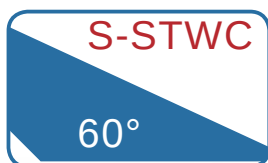
E “ CUTTING TOOLS

BORING BARS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS	WRENCH
	Right / Left		D	F	L	B	K°		
55101390 R/L	S08H-STFCR/L09	TCMT0902	8	6	100	12	15°	CS22050	FT-7
55101391 R/L	S10K-STFCR/L09	TCMT0902	10	7	125	14	15°	CS22050	FT-7
55101392 R/L	S12M-STFCR/L09	TCMT0902	12	9	150	16	10°	CS22050	FT-7
55101393 R/L	S10K-STFCR/L11	TCMT1102	10	7	125	14	15°	CS25060	FT-7
55101394 R/L	S12M-STFCR/L11	TCMT1102	12	9	150	16	10°	CS25060	FT-7
55101395 R/L	S12M-STFCR/L11-14	TCMT1102	12	7	150	14	10°	CS25060	FT-7
55101396 R/L	S16Q-STFCR/L11	TCMT1102	16	11	180	20	6°	CS25060	FT-7
55101397 R/L	S16Q-STFCR/L11-18	TCMT1102	16	9	180	18	8°	CS25060	FT-7
55101398 R/L	S20R-STFCR/L11	TCMT1102	20	13	200	25	3°	CS25060	FT-7
55101399 R/L	S20R-STFCR/L16	TCMT16T3	20	13	200	25	8°	CS35090	FT-15
55101400 R/L	S25R-STFCR/L16	TCMT16T3	25	17	200	32	6°	CS35090	FT-15
55101401 R/L	S32S-STFCR/L16	TCMT16T3	32	17.5	250	39	4°	CS35090	FT-15

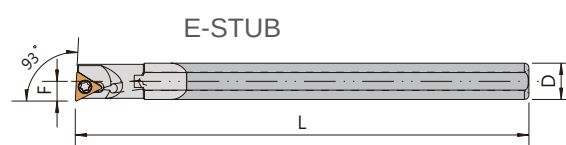
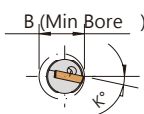
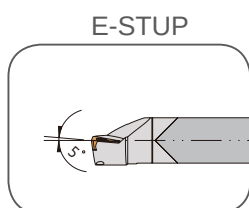
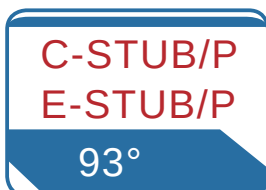


UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS	WRENCH
	Right / Left		D	F	L	B	K°		
55101402 R/L	S08H-STWCR/L09	TCMT0902	8	6	100	10	13°	CS22050	FT-7
55101403 R/L	S10K-STWCR/L09	TCMT0902	10	7	125	13	8°	CS22050	FT-7
55101404 R/L	S10K-STWCR/L11	TCMT1102	10	7	125	13	8°	CS25060	FT-7
55101405 R/L	S12M-STWCR/L11	TCMT1102	12	9	150	16	8°	CS25060	FT-7
55101406 R/L	S16Q-STWCR/L11	TCMT1102	16	11	180	20	6°	CS25060	FT-7
55101407 R/L	S20R-STWCR/L11	TCMT1102	20	13	200	25	4°	CS25060	FT-7
55101408 R/L	S25R-STWCR/L11	TCMT1102	25	15	200	31	6°	CS25060	FT-7
55101409 R/L	S20R-STWCR/L16	TCMT16T3	20	14.5	200	25	2°	CS35090	FT-15
55101410 R/L	S25R-STWCR/L16	TCMT16T3	25	17	200	32	6°	CS35090	FT-15
55101411 R/L	S32S-STWCR/L16	TCMT16T3	32	20.5	250	39	4°	CS35090	FT-15



BORING BARS



C-Carbide Shank

E-Carbide Shank with Coolant

UNIT: mm

ITEM NO.	MODEL	INSERT 	DIMENSIONS					PARTS 	WRENCH 
			D	F	L	B	K°		
55101412	C06H-STUBR06-07	TBGT0601	6	3.5	100	7	12°	CS20038	FT-6
55101413	C08K-STUBR06-08	TBGT0601	8	4	125	8	10°	CS20038	FT-6
55101414	C08K-STUPR08-10	TPGT0802	8	5	125	10	10°	CS20045	FT-6
55101415	C10M-STUPR08-12	TPGT0802	10	6	150	12	8°	CS20045	FT-6
55101416	C08K-STUPR09-10	TPMT0902	8	5	125	8	10°	CS25065	FT-8
55101417	C10M-STUPR09-12	TPMT0902	10	6	150	12	8°	CS25065	FT-8
55101418	C10M-STUPR11-12	TPMT1103	10	6	150	12	8°	CSA30060	FT-10
55101419	C12Q-STUPR11-14	TPMT1103	12	7	180	14	7°	CSA30060	FT-10
55101420	C16R-STUPR11-18	TPMT1103	16	9	200	18	4°	CSA30070	FT-10
55101421	C20S-STUPR11-22	TPMT1103	20	11	250	22	2°	CSA30070	FT-10
55101422	C20S-STUPR16-22	TPMT1604	20	11	250	22	2°	CS40090	FT-15
55101423	C25T-STUPR16-28	TPMT1604	25	14	300	28	2°	CS40090	FT-15
55101424	E06K-STUBR06-07	TBMT0601	6	3.5	125	7	12 °	CS20038	FT-6
55101425	E08M-STUPR08-10	TPMT0802	8	5	150	10	10 °	CS20038	FT-6
55101426	E10Q-STUPR08-12	TPMT0802	10	6	180	12	8 °	CS20045	FT-6
55101427	E10Q-STUPR09-12	TPMT0902	10	6	180	12	8 °	CS25065	FT-8
55101428	E10Q-STUPR11-12	TPMT1103	10	6	180	12	8 °	CSA30060	FT-10
55101429	E12R-STUPR11-14	TPMT1103	12	7	200	14	7 °	CSA30060	FT-10
55101430	E16R-STUPR11-18	TPMT1103	16	9	200	18	4 °	CSA30070	FT-10
55101431	E20S-STUPR11-22	TPMT1103	20	11	250	22	2 °	CSA30070	FT-10
55101432	E20S-STUPR16-22	TPMT1604	20	11	250	22	2 °	CS40090	FT-15
55101433	E25T-STUPR16-28	TPMT1604	25	14	300	28	2 °	CS40090	FT-15



E1 - TURNING TOOLS

CUTTING TOOLS

E “ CUTTING TOOLS

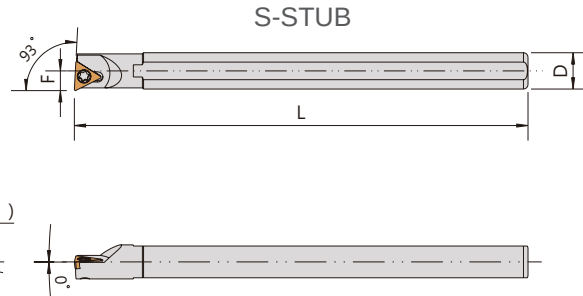
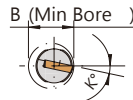
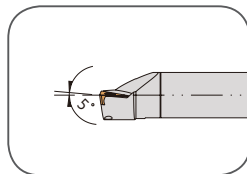
BORING BARS

S-STUB
S-STUP

93°



S-STUP

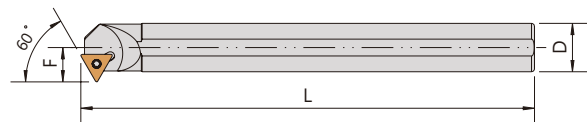
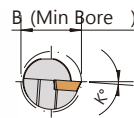


UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS	WRENCH
	Right / Left		D	F	L	B	K°		
55101434 R/L	S08H-STUBR/L06-10	TBGT0601	8	4	100	10	12°	CS20038	FT-6
55101435 R/L	S08H-STUPR/L08-10	TPGT0802	8	5	100	10	12°	CS20045	FT-6
55101436 R/L	S08H-STUPR/L09	TPMT0902	8	6	100	12	10°	CS25065	FT-8
55101437 R/L	S08H-STUPR/L09-10	TPMT0902	8	5	100	10	12°	CS25065	FT-8
55101438 R/L	S10K-STUPR/L09-12	TPMT0902	10	6	125	12	8°	CS25065	FT-8
55101439 R/L	S12M-STUPR/L09	TPMT0902	12	8	150	16	5°	CS25065	FT-8
55101440 R/L	S12M-STUPR/L09-14	TPMT0902	12	7	150	14	5°	CS25065	FT-8
55101441 R/L	S10K-STUPR/L11-12	TPMT1103	10	6	125	12	8°	CSA30060	FT-10
55101442 R/L	S12M-STUPR/L11	TPMT1103	12	8	150	16	6°	CSA30070	FT-10
55101443 R/L	S12M-STUPR/L11-14	TPMT1103	12	7	150	14	7°	CSA30060	FT-10
55101444 R/L	S16Q-STUPR/L11	TPMT1103	16	10	180	20	2°	CSA30070	FT-10
55101445 R/L	S16Q-STUPR/L11-18	TPMT1103	16	9	180	18	4°	CSA30070	FT-10
55101446 R/L	S20R-STUPR/L11	TPMT1103	20	12.5	200	25	2°	CSA30070	FT-10
55101447 R/L	S20R-STUPR/L11-22	TPMT1103	20	11	200	22	2°	CSA30070	FT-10
55101448 R/L	S20R-STUPR/L16	TPMT1604	20	12	200	25	8°	CS40090	FT-15
55101449 R/L	S20R-STUPR/L16-22	TPMT1604	20	11	200	22	8°	CS40090	FT-15
55101450 R/L	S25R-STUPR/L16	TPMT1604	25	14.5	200	32	8°	CS40090	FT-15
55101451 R/L	S25R-STUPR/L16-28	TPMT1604	25	14	200	28	8°	CS40090	FT-15
55101452 R/L	S32S-STUPR/L16	TPMT1604	32	18	250	39	6°	CS40090	FT-15

S-STWP

60°

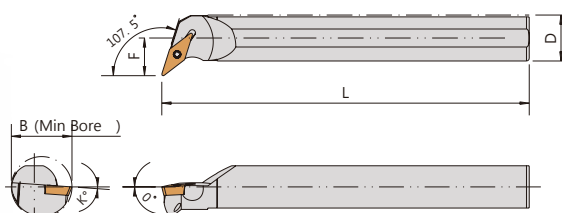


UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS	WRENCH
	Right / Left		D	F	L	B	K°		
55101453 R/L	S08H-STWPR/L08	TPMT0802	8	6	100	10	10°	CS20045	FT-6
55101454 R/L	S10K-STWPR/L09	TPMT0902	10	7	125	13	8°	CS25065	FT-8
55101455 R/L	S10K-STWPR/L11	TPMT1103	10	7	125	13	8°	CSA30060	FT-10
55101456 R/L	S12M-STWPR/L11	TPMT1103	12	9	150	16	5°	CSA30070	FT-10
55101457 R/L	S16Q-STWPR/L11	TPMT1103	16	11	180	20	4°	CSA30070	FT-10
55101458 R/L	S20R-STWPR/L11	TPMT1103	20	13	200	25	3°	CSA30070	FT-10

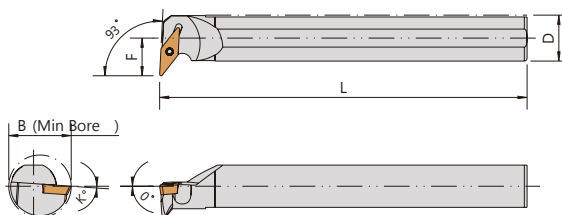
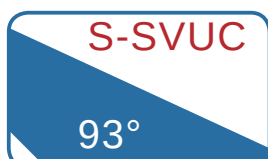


BORING BARS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS	WRENCH
	Right / Left		D	F	L	B	K°		
55101459 R/L	S16Q-SVQCR/L11	VCMT1103	16	13	180	22	7°	CS25060	FT-7
55101460 R/L	S20R-SVQCR/L11	VCMT1103	20	15	200	27	6°	CS25060	FT-7
55101461 R/L	S20R-SVQCR/L16	VCMT1604	20	19	200	30	8°	CS35090	FT-15
55101462 R/L	S25R-SVQCR/L16	VCMT1604	25	20.5	200	34	4°	CS35090	FT-15
55101463 R/L	S32S-SVQCR/L16	VCMT1604	32	22.5	250	41	8°	CS35090	FT-15
55101464 R/L	S40T-SVQCR/L16	VCMT1604	40	27	300	50	6°	CS35090	FT-15



UNIT: mm

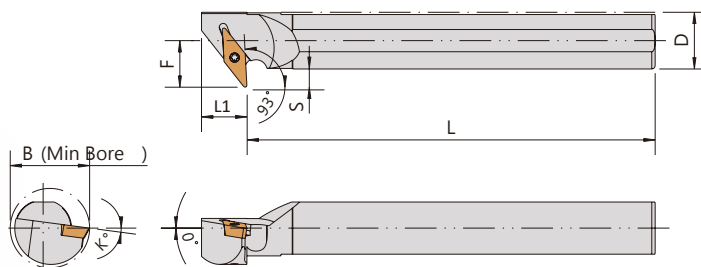
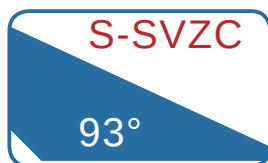
UNIT: mm										
ITEM NO.	MODEL		INSERT	DIMENSIONS					PARTS	WRENCH
		Right / Left		D	F	L	B	K°		
55101465	R/L	S16Q-SVUCR/L11	VCMT1103	16	13	180	22	7°	CS25060	FT-7
55101466	R/L	S20R-SVUCR/L11	VCMT1103	20	15	200	27	6°	CS25060	FT-7
55101466-1	R/L	S25R-SVUCR/L11	VCMT1103	25	20.5	200	33	4°	CS25060	FT-7
55101467	R/L	S20R-SVUCR/L16	VCMT1604	20	19	200	31	8°	CS35090	FT-15
55101468	R/L	S25R-SVUCR/L16	VCMT1604	25	20.5	200	33	4°	CS35090	FT-15
55101469	R/L	S32S-SVUCR/L16	VCMT1604	32	22.5	250	42	8°	CS35090	FT-15
55101470	R/L	S40T-SVUCR/L16	VCMT1604	40	27	300	51	6°	CS35090	FT-15



E “ CUTTING TOOLS

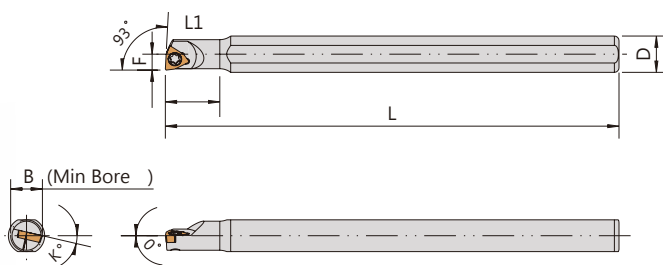
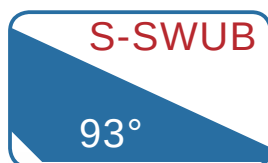


BORING BARS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS							PARTS	WRENCH
	Right / Left		D	F	S	L	B	L1	K°		
55101471-2 R/L	S16Q-SVZCR/L11	VCMT1103	16	13	5	180	20	10	7.5°	CS35090	FT-15
55101471-1 R/L	S20R-SVZCR/L16	VCMT1604	20	17	7	200	30	20	7.5°	CS35090	FT-15
55101471 R/L	S25R-SVZCR/L16	VCMT1604	25	19.5	7	200	35	20	7.5°	CS35090	FT-15
55101472 R/L	S32S-SVZCR/L16	VCMT1604	32	23	7	250	40	20	7.5°	CS35090	FT-15
55101473 R/L	S40T-SVZCR/L16	VCMT1604	40	27	7	300	50	20	7.5°	CS35090	FT-15



UNIT: mm

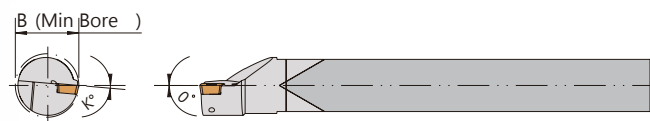
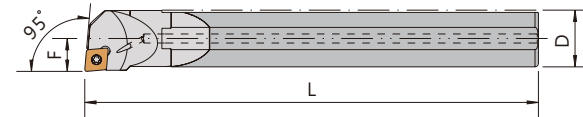
ITEM NO.	MODEL	INSERT	DIMENSIONS							PARTS	WRENCH
	Right / Left		D	F	L	B	L1	K°			
55101474 R/L	S08H-SWUBR/L06-5.5	WBG0601	8	3	100	5.5	18	15°		CS20038	FT-6
55101475 R/L	S08H-SWUBR/L06-07	WBG0601	8	3.5	100	7	18	13°		CS20038	FT-6
55101476 R/L	S08H-SWUBR/L06-10	WBG0601	8	5	100	10	—	13°		CS20038	FT-6
55101476-1 R/L	S16K-SWUBR/L06-5.5	WBG0601	16	3	125	5.5	12	13°		CS20038	FT-6
55101477 R/L	S10K-SWUBR/L08-12	WBG0802	10	6	125	12	—	11°		CS20045	FT-6
55101478 R/L	S12M-SWUBR/L08-14	WBG0802	12	7	150	14		11°		CS20045	FT-6



BORING BAR – ANTI-VIBRATIC TYPE



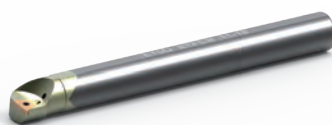
※ ANTI-VIBRATIC RATIO ACHIEVES 4~5



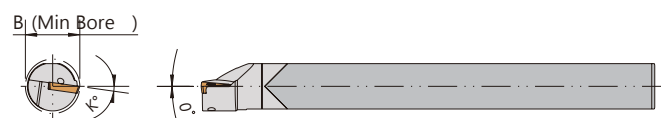
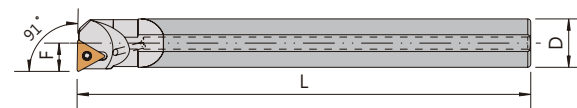
L-Anti-vibration shank with coolant

UNIT: mm

ITEM NO.	MODEL	INSERT 	DIMENSIONS					PARTS 	WRENCH
			D	F	L	B	K°		
55101479	L08K-SCLCR06-10	CCMT0602	8	5	125	10	9°	CS25050	FT-7
55101480	L10K-SCLCR06-12	CCMT0602	10	6	125	12	7°	CS25050	FT-7
55101481	L12M-SCLCR06-14	CCMT0602	12	7	150	14	6°	CS25050	FT-7
55101482	L16R-SCLCR09-18	CCMT09T3	16	9	200	18	6°	CS35075	FT-15



※ ANTI-VIBRATIC RATIO ACHIEVES 4~5



L-Anti-vibration shank with coolant

UNIT: mm

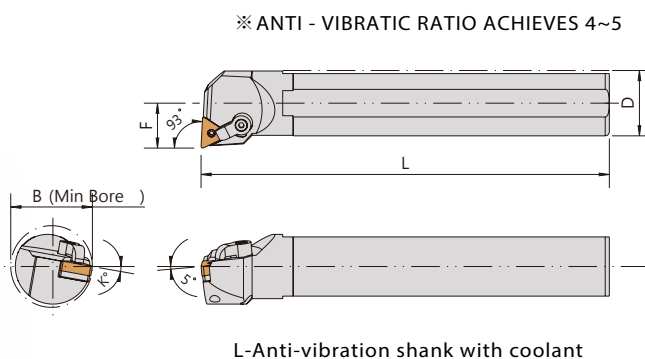
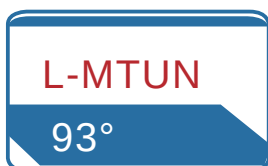
ITEM NO.	MODEL	INSERT 	DIMENSIONS					PARTS 	WRENCH
			D	F	L	B	K°		
55101483	L08K-STFCR09-10	TCMT0902	8	5	125	10	15°	CS22050	FT-7
55101484	L10K-STFCR11-12	TCMT1102	10	6	125	12	13°	CS22050	FT-7
55101485	L12M-STFCR11-14	TCMT1102	12	7	150	14	10°	CS25060	FT-7
55101486	L16R-STFCR11-18	TCMT1102	16	9	200	18	8°	CS25060	FT-7



E “ CUTTING TOOLS



BORING BAR – ANTI-VIBRATIC TYPE

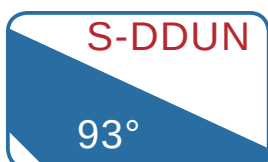


UNIT: mm

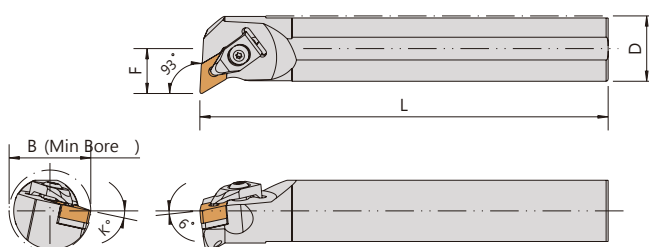
ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS			WRENCH	
			D	F	L	B	K°						
55101487	L20R-MTUNR16A	TNMG1604	20	13	200	25	17°	-	LCS-510	CP50-26	CS7-5018	LW020	LW025
55101488	L25S-MTUNR16A	TNMG1604	25	17	250	32	12°	-	LCS-510	CP50-22	CS7-6024	LW020	LW030
55101489	L32T-MTUNR16A	TNMG1604	32	22	300	40	10°	SMT-322	LCS-513	CP50-22	CS7-6024	LW020	LW030



BORING BARS



-D TYPE

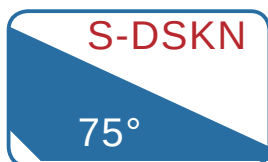


UNIT: mm

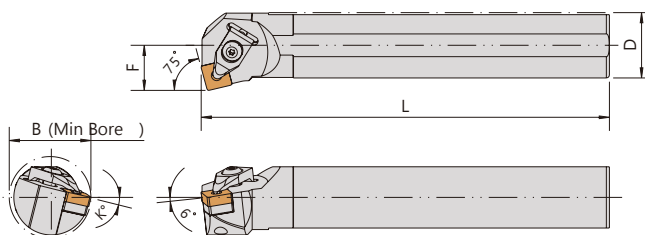
ITEM NO.	MODEL Right / Left	INSERT	DIMENSIONS						PARTS				WRENCH
			D	F	L	B	K°						
55101490	R/L S25R-DDUNR/L15	DNMG1504-SMD443	25	17	200	32	16°	SMD-4XX	CSF4010	CP-D4	SP0816	CSB0620T	TL20
55101491	R/L S32S-DDUNR/L15	DNMG1506-SMD424	32	22	250	40	12°	SMD-4XX	CSF4010	CP-D4	SP0816	CSB0620T	TL20
55101492	R/L S40T-DDUNR/L15		40	27	300	50	10°	SMD-4XX	CSF4010	CP-D4	SP0816	CSB0620T	TL20



BORING BARS

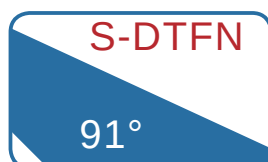


-D TYPE

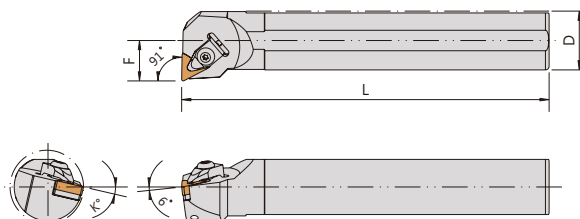


UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS					WRENCH
	Right / Left		D	F	L	B	K°						
55101493 R/L	S25R-DSKNR/L12	SNMG1204	25	17	200	32	14°	-	-	CP-D4	SP0816	CSB0620T	TL20
55101494 R/L	S32S-DSKNR/L12		32	22	250	40	14°	SMS-422	CSF4010	CP-D4	SP0816	CSB0620T	TL20

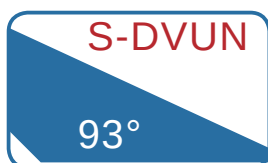


-D TYPE

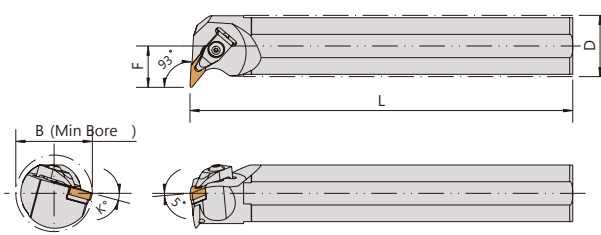


UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS					WRENCH
	Right / Left		D	F	L	B	K°						
55101495 R/L	S25R-DTFNR/L16	TNMG1604	25	17	200	32	13°	SMT-323	CS40075	CP-D2	SP0612	CSB0415T	TL15
55101496 R/L	S32S-DTFNR/L16		32	22	250	40	13°	SMT-323	CS40075	CP-D2	SP0612	CSB0415T	TL15



-D TYPE



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS					WRENCH
	Right / Left		D	F	L	B	K°						
55101497 R/L	S40T-DVUNR/L16	VNMG1604	40	27	300	50	15°	SMV-322	CSA40079	CP-D3	SP0816	CSB0620T	TL20

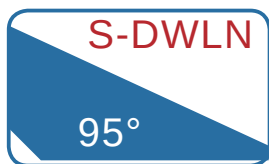


E1 - TURNING TOOLS

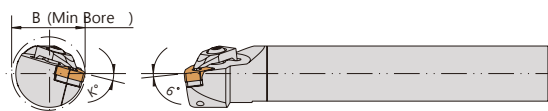
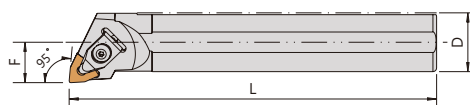
CUTTING TOOLS

E “ CUTTING TOOLS

BORING BARS



- D TYPE

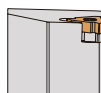
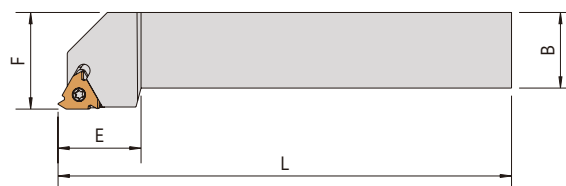


UNIT: mm

ITEM NO.	MODEL Right / Left	INSERT	DIMENSIONS					PARTS					WRENCH
			D	F	L	B	K°						
55101498 R/L	S25R-DWLNR/L06	WNMG0604	25	17	200	32	14°	SMW-322	CSA4009F	CP-D2	SP0612	CSB0415T	TL15
55101499 R/L	S25R-DWLNR/L08	WNMG0804	25	17	200	32	14°	SMW-423	CSF4010	CP-D4	SP0816	CSB0620T	TL20
55101500 R/L	S32S-DWLNR/L08		32	22	250	40	14°	SMW-423	CSF4010	CP-D4	SP0816	CSB0620T	TL20
55101501 R/L	S40T-DWLNR/L08		40	27	300	50	12°	SMW-423	CSF4010	CP-D4	SP0816	CSB0620T	TL20



TOOLHOLDERS – EXTERNAL TURNING FOR THREADING

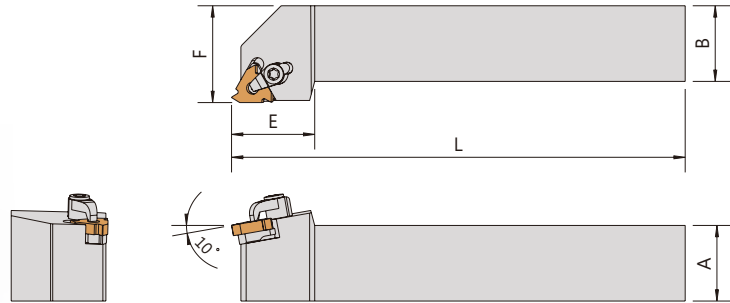


UNIT: mm

ITEM NO.	MODEL Right / Left	INSERT	DIMENSIONS					PARTS		WRENCH			
			A	B	L	E	F	 Shim R	 Shim L				
55100285-1 R/L	SER/L1010H16N	16ER/L	10	10	100	20	10	AE16	AI16	CSH0306	CS35115	FT-15	LW025
55100285 R/L	SER/L1212H16N	16ER/L	12	12	100	20	12	AE16	AI16	CSH0306	CS35115	FT-15	LW025
55100286 R/L	SER/L1616H16	16ER/L	16	16	100	22	20	AE16	AI16	CSH0306	CS35115	FT-15	LW025
55100287 R/L	SER/L2020K16	16ER/L	20	20	125	25	25	AE16	AI16	CSH0306	CS35115	FT-15	LW025
55100288 R/L	SER/L2525M16	16ER/L	25	25	150	25	32	AE16	AI16	CSH0306	CS35115	FT-15	LW025
55100289 R/L	SER/L3232P16	16ER/L	32	32	170	32	40	AE16	AI16	CSH0306	CS35115	FT-15	LW025
55100289-1 R/L	SER/L4040R16	16ER/L	40	40	200	32	50	AE16	AI16	CSH0306	CS35115	FT-15	LW025
55100289-2 R/L	SER/L2020M22	22ER/L	20	20	150	25	25	AE22	AI22	CSH0408	CS40145	FT-15	LW030
55100290 R/L	SER/L2525M22	22ER/L	25	25	150	29	32	AE22	AI22	CSH0408	CS40145	FT-15	LW030
55100290-1 R/L	SER/L3232P22	22ER/L	32	32	170	32	40	AE22	AI22	CSH0408	CS40145	FT-15	LW030
55100290-2 R/L	SER/L4040R22	22ER/L	40	40	200	32	50	AE22	AI22	CSH0408	CS40145	FT-15	LW030



TOOLHOLDERS – EXTERNAL TURNING FOR THREADING

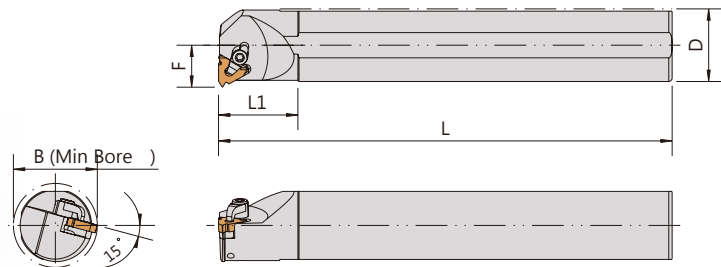
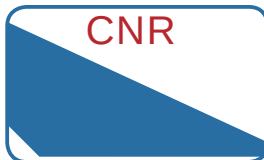


UNIT: mm

ITEM NO.	MODEL		INSERT	DIMENSIONS						PARTS				WRENCH	
	Right / Left			A	B	L	E	F							
				Shim R	Shim L										
55100291	R/L	CER/L1616H16	16ER/L	16	16	100	22	20	AE16	AI16	CSF3008	SP-CP16S	FT-15	LW020	
55100292	R/L	CER/L2020K16	16ER/L	20	20	125	22	25	AE16	AI16	CSF3008	SP-CP16S	FT-15	LW020	
55100293	R/L	CER/L2525M16	16ER/L	25	25	150	25	32	AE16	AI16	CSF3008	SP-CP16S	FT-15	LW020	
55100294	R/L	CER/L3232P16	16ER/L	32	32	170	32	40	AE16	AI16	CSF3008	SP-CP16S	FT-15	LW020	
55100295	R/L	CER/L2020K22	22ER/L	20	20	125	22	25	AIE22	AIE22	CSF3008	SP-CP22S	FT-15	LW020	
55100296	R/L	CER/L2525M22	22ER/L	25	25	150	25	32	AIE22	AIE22	CSF3008	SP-CP22S	FT-15	LW020	
55100297	R/L	CER/L3232P22	22ER/L	32	32	170	34	40	AIE22	AIE22	CSF3008	SP-CP22S	FT-15	LW020	
55100297-1	R/L	CER/L2525M27	27ER/L	25	25	150	25	32	AE27	AI27	CSF4010	SP-CP27S	FT-15	LW025	
55100297-2	R/L	CER/L3232P27	27ER/L	32	32	170	34	40	AE27	AI27	CSF4010	SP-CP27S	FT-15	LW025	
55100297-3	R/L	CER/L4040S27	27ER/L	40	40	250	42	50	AE27	AI27	CSF4010	SP-CP27S	FT-15	LW025	



BORING BARS FOR THREADING



UNIT: mm

ITEM NO.		MODEL	INSERT	DIMENSIONS					PARTS			WRENCH		
		Right / Left												
									Shim R	Shim L				
55100309	R/L	CNR/L2420S-16	16 IR/L	20	12	180	24	35	AI16	AE16	CSF3008	SP-CP16S	FT-15	LW020
55100310	R/L	CNR/L3025S-16	16 IR/L	25	15	200	30	35	AI16	AE16	CSF3008	SP-CP16S	FT-15	LW020
55100311	R/L	CNR/L3732S-16	16 IR/L	32	18.5	250	37	35	AI16	AE16	CSF3008	SP-CP16S	FT-15	LW020
55100312	R/L	CNR/L4440S-16	16 IR/L	40	22.5	300	44	35	AI16	AE16	CSF3008	SP-CP16S	FT-15	LW020
55100312-1	R/L	CNR/L5450S-16	16 IR/L	50	28.5	350	54	35	AI16	AE16	CSF3008	SP-CP16S	FT-15	LW020
55100313	R/L	CNR/L3025S-22	22 IR/L	25	16	200	30	35	AIE22	AIE22	CSF3008	SP-CP22S	FT-15	LW020
55100314	R/L	CNR/L3732S-22	22 IR/L	32	20.5	250	37	35	AIE22	AIE22	CSF3008	SP-CP22S	FT-15	LW020
55100315	R/L	CNR/L4440S-22	22 IR/L	40	24.5	300	45	35	AIE22	AIE22	CSF3008	SP-CP22S	FT-15	LW020
55100315-1	R/L	CNR/L5450S-22	22 IR/L	50	30.5	350	56	35	AIE22	AIE22	CSF3008	SP-CP22S	FT-15	LW020
55100315-2	R/L	CNR/L3732S-27	27 IR/L	32	20	250	37	35	AIE27	AIE27	CSF4010	SP-CP27S	FT-15	LW025
55100315-3	R/L	CNR/L4440S-27	27 IR/L	40	25	300	46	35	AIE27	AIE27	CSF4010	SP-CP27S	FT-15	LW025
55100315-4	R/L	CNR/L5450S-27	27 IR/L	50	31.5	350	58	35	AIE27	AIE27	CSF4010	SP-CP27S	FT-15	LW025



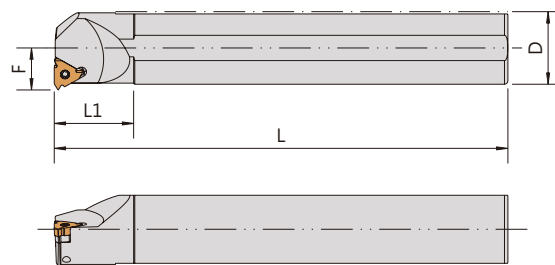
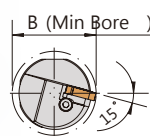
E1 - TURNING TOOLS

CUTTING TOOLS

E “ CUTTING TOOLS



BORING BARS FOR THREADING

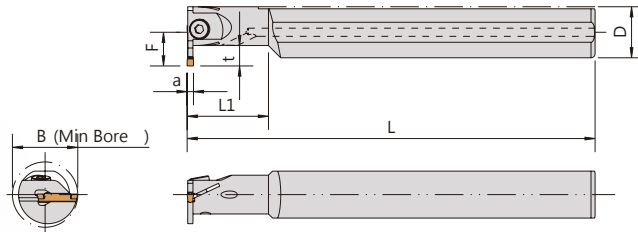


UNIT: mm

ITEM NO.	MODEL		INSERT	DIMENSIONS						PARTS		WRENCH		
	Right / Left			A	B	L	E	F	Shim R	Shim L				
55100298	R/L	SIR/L1010-11	11IR/L	10	5.2	150	10	25	-	-	-	CS25080	FT-8	-
55100299	R/L	SIR/L1012-11	11IR/L	12	5.2	150	10	25	-	-	-	CS25080	FT-8	-
55100299-1	R/L	SIR/L1412-11	11IR/L	12	7.5	150	14	25	-	-	-	CS25080	FT-8	-
55100300	R/L	SIR/L1216-11	11IR/L	16	6.3	150	12	25	-	-	-	CS25080	FT-8	-
55100301	R/L	SIR/L1516-11	11IR/L	16	7.5	150	15	30	-	-	-	CS25080	FT-8	-
55100302	R/L	SIR/L1516-16	16IR/L	16	7.5	150	15	30	-	-	-	CS35090	FT-15	-
55100303	R/L	SIR/L2016-16	16IR/L	16	10	150	20	35	-	-	-	CS35090	FT-15	-
55100304	R/L	SIR/L2420S-16	16IR/L	20	12	180	24	35	AI16	AE16	CSH0306	CS35115	FT-15	LW025
55100305	R/L	SIR/L3025S-16	16IR/L	25	15	200	30	35	AI16	AE16	CSH0306	CS35115	FT-15	LW025
55100306	R/L	SIR/L3732S-16	16IR/L	32	18.5	250	37	35	AI16	AE16	CSH0306	CS35115	FT-15	LW025
55100307	R/L	SIR/L4440S-16	16IR/L	40	22.5	300	44	35	AI16	AE16	CSH0306	CS35115	FT-15	LW025
55100307-1	R/L	SIR/L5550S-16	16IR/L	50	28.5	350	54	35	AI16	AE16	CSH0306	CS35115	FT-15	LW025
55100307-2	R/L	SIR/L6660S-16	16IR/L	60	33.5	400	64	40	AI16	AE16	CSH0306	CS35115	FT-15	LW025
55100308	R/L	SIR/L2420-22	22IR/L	20	12	150	24	35	-	-	-	CS40115	FT-15	-
55100308-1	R/L	SIR/L3025S-22	22IR/L	25	16	200	30	35	AI22	AE22	CSH0408	CS40145	FT-15	LW030
55100308-2	R/L	SIR/L3732S-22	22IR/L	32	20.5	250	37	35	AI22	AE22	CSH0408	CS40145	FT-15	LW030
55100308-3	R/L	SIR/L4440S-22	22IR/L	40	24.5	300	45	35	AI22	AE22	CSH0408	CS40145	FT-15	LW030
55100308-4	R/L	SIR/L5550S-22	22IR/L	50	30.5	350	56	35	AI22	AE22	CSH0408	CS40145	FT-15	LW030
55100308-5	R/L	SIR/L6660S-22	22IR/L	60	35.5	400	66	40	AI22	AE22	CSH0408	CS40145	FT-15	LW030
55100308-6	R/L	SIR/L5550S-27	27IR/L	50	31.5	350	58	35	AI27	AE27	CSH0408	CSF5020	-	LW030
55100308-7	R/L	SIR/L6660S-27	27IR/L	60	36.5	400	68	40	AI27	AE27	CSH0408	CSF5020	-	LW030
55100308-8	R/L	HSIR0605-06	06IR	5	3.5	100	6	10	-	-	-	CS20038	FT-6	-
55100308-9	R/L	HSIR0706-06	06IR	6	4.4	100	7	12	-	-	-	CS20038	FT-6	-
55100308-10	R/L	HSIR0908-08	08IR	8	5.5	125	9	15	-	-	-	CS20045	FT-6	-
55100308-11	R/L	HSIR1210-11	11IR	10	6.7	125	11	18	-	-	-	CS25080	FT-8	-
55100308-12	R/L	CSIR0706-06	06IR	6	3.5	100	7.5	-	-	-	-	CS20038	FT-6	-
55100308-13	R/L	CSIR0908-08	08IR	8	5.5	125	9	18	-	-	-	CS20038	FT-6	-
55100308-14	R/L	CSIR1210-11	11IR	10	6.7	150	11	18	-	-	-	CS25080	FT-8	-
55100308-15	R/L	CSIR1412-11	11IR	12	7.7	180	14	25	-	-	-	CS25080	FT-8	-
55100308-16	R/L	CSIR2016-16	16IR	16	10	200	20	35	-	-	-	CS35090	FT-15	-



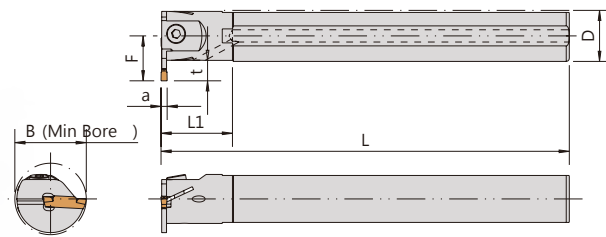
BORING BARS FOR GROOVING



Recommended Inserts: KENAMETAL

UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS							PARTS	WRENCH
			D	F	L	L1	B min	a	t		
55100325	A20R GIDR307	A4-03	20	13	200	40	23	3	7	CSH0412	LW-030
55100326	A25R GIDR310		25	17	200	50	32	3	10	CSH0516	LW-040
55100327	A32S GIDR312		32	22	250	64	40	3	12	CSH0516	LW-040
55100328	A20R GIDR407	A4-04	20	13	200	40	25	4	7	CSH0412	LW-030
55100329	A25R GIDR410		25	17	200	50	32	4	10	CSH0516	LW-040
55100330	A32S GIDR412		32	22	250	64	40	4	12	CSH0516	LW-040
55100331	A40T GIDR416	A4-05	40	30	300	80	52	4	16	CSH0520	LW-040
55100332	A32S GIDR516		32	26	250	64	44	5	16	CSH0516	LW-040
55100333	A40T GIDR516		40	30	300	80	52	5	16	CSH0520	LW-040
55100334	A40T GIDR616	A4-06	40	30	300	80	52	6	16	CSH0516	LW-040



Recommended Inserts: KORLOY

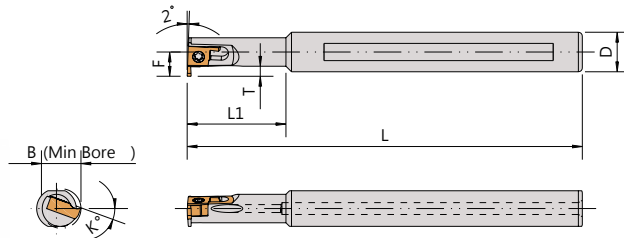
UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS							PARTS	WRENCH
			D	F	L	B min	L1	a	t		
55101502	MGIVR 2016M2	MGMN200	16	12	150	20	25	2	4	CSH0312	LW025
55101503	MGIVR 2520M2		20	14.5	150	25	25	2	4	CSH0512	LW040
55101504	MGIVR 2925R2		25	16.5	200	29	30	2	4	CSH0516	LW040
55101505	MGIVR 2620M3	MGMN300	20	16	150	26	25	3	6	CSH0512	LW040
55101506	MGIVR 3020M3		20	20	150	30	25	3	10	CSH0512	LW040
55101507	MGIVR 3125R3		25	18.5	200	31	30	3	6	CSH0516	LW040
55101508	MGIVR 3525R3		25	22.5	200	35	30	3	10	CSH0516	LW040
55101509	MGIVR 3832S3		32	22	250	38	40	3	6	CSH0516	LW040
55101510	MGIVR 4232S3		32	26	250	42	40	3	10	CSH0516	LW040
55101511	MGIVR 2620M4	MGMN400	20	16	150	26	25	4	6	CSH0512	LW040
55101512	MGIVR 3020M4		20	20	150	30	25	4	10	CSH0512	LW040
55101513	MGIVR 3125R4		25	18.5	200	31	30	4	6	CSH0516	LW040
55101514	MGIVR 3525R4		25	22.5	200	35	30	4	10	CSH0516	LW040
55101515	MGIVR 3832S4		32	22	250	38	40	4	6	CSH0516	LW040
55101516	MGIVR 4232S4		32	26	250	42	40	4	10	CSH0516	LW040
55101516-1	MGIVR 5040T4		40	30	300	50	45	4	10	CSH0516	LW040
55101516-2	MGIVR 5540T4		40	35	300	55	45	4	15	CSH0516	LW040

E “ CUTTING TOOLS



BORING BARS FOR GROOVING



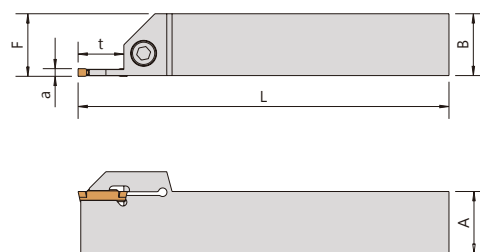
Recommended Inserts: KYOCERA

UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS							PARTS	WRENCH
			D	F	L	B min	L1	t			
55101517	L08H-SIGER08A	GER/L 100-005A ~ 200-010A	8	4.8	100	8	20	1.5			
55101518	L10K-SIGER10B	GER/L 100-005B ~ 300-020B	10	6.2	125	10	25	2.2			
55101519	L10K-SIGER12B	GER/L 100-005B ~ 300-020B	10	7.0	125	12	30	2.2			
55101520	L12M-SIGER14B	GER/L 100-005B ~ 300-020B	12	8.0	150	14	30	2.2			
55101520-1	L16M-SIGER14B	GER/L 100-005B ~ 300-020B	16	8.0	150	14	40	2.2			



TOOLHOLDERS – EXTERNAL TURNING FOR GROOVING



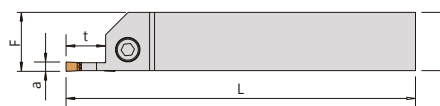
Recommended Inserts: KENNAMETAL

UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						PARTS	WRENCH
			A	B	L	F	a	t		
55100335	GHDR 1616H0314	A4-03	16	16	100	16.3	3	14	CSH0514	LW040
55100336	GHDR 2020K0314		20	20	125	20.3	3	14	CSH0616	LW050
55100337	GHDR 2525M0317		25	25	150	25.3	3	17	CSH0616	LW050
55100338	GHDR 2020K0414	A4-04	20	20	125	20.3	4	14	CSH0616	LW050
55100339	GHDR 2525M0417		25	25	150	25.3	4	17	CSH0616	LW050
55100340	GHDR 3225P0417		32	25	170	32.3	4	17	CSH0616	LW050
55100341	GHDR 2020K0519	A4-05	20	20	125	20.3	5	19	CSH0616	LW050
55100342	GHDR 2525M0520		25	25	150	25.3	5	20	CSH0616	LW050
55100343	GHDR 3225P0522		32	25	170	32.3	5	22	CSH0616	LW050
55100344	GHDR 2525M0620	A4-06	25	25	150	25.4	6	20	CSH0616	LW050
55100345	GHDR 3225P0626		32	25	170	32.4	6	26	CSH0616	LW050
55100346	GHDR 2525M0820		25	25	150	25.4	8	20	CSH0616	LW050
55100347	GHDR 3225P0826	A4-08	32	25	170	32.4	8	26	CSH0616	LW050



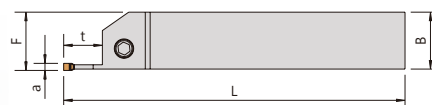
TOOLHOLDERS – EXTERNAL TURNING FOR GROOVING



Recommended Inserts: KORLOY

UNIT: mm

ITEM NO.	MODEL	INSERT 	DIMENSIONS						PARTS 	WRENCH
			A	B	L	F	a	t		
55101521	GHDR 2020K02-14KO	MGMN200	20	20	125	20.3	2	14	CSH0616	LW050
55101522	GHDR 2525M02-14KO		25	25	150	25.3	2	14	CSH0616	LW050
55101523	GHDR 2525M02-20KO		25	25	150	25.3	2	20	CSH0616	LW050
55101524	GHDR 1616H03-16KO	MGMN300	16	16	100	16.3	3	16	CSH0514	LW040
55101525	GHDR 2020K03-10KO		20	20	125	20.3	3	10	CSH0616	LW050
55101526	GHDR 2020K03-20KO		20	20	125	20.3	3	20	CSH0616	LW050
55101527	GHDR 2525M03-10KO		25	25	150	25.3	3	10	CSH0616	LW050
55101528	GHDR 2525M03-16KO	MGMN400	25	25	150	25.3	3	16	CSH0616	LW050
55101529	GHDR 2525M03-20KO		25	25	150	25.3	3	20	CSH0616	LW050
55101530	GHDR 2020K04-20KO		20	20	125	20.3	4	20	CSH0616	LW050
55101531	GHDR 2525M04-10KO	MGMN500	25	25	150	25.3	4	10	CSH0616	LW050
55101532	GHDR 2525M04-16KO		25	25	150	25.3	4	16	CSH0616	LW050
55101533	GHDR 2525M04-20KO	MGMN500	25	25	150	25.3	4	20	CSH0616	LW050
55101534	GHDR 2525M05-16KO		25	25	150	25.3	5	16	CSH0616	LW050
55101535	GHDR 2525M05-20KO		25	25	150	25.3	5	20	CSH0616	LW050



-FOR PARTING-OFF

Recommended Inserts: KENAMETAL

UNIT: mm

ITEM NO.	MODEL	INSERT 	DIMENSIONS						PARTS 	WRENCH
			A	B	L	F	a	t		
55100348	GHR 1010H0210	A2-02 A3-02	10	10	100	10.3	2.25~3.05	10	CSH0412	LW030
55100349	GHR 1212H0210		12	12	100	12.3	2.25~3.05	10	CSH0412	LW030
55100350	GHR 1616H0216		16	16	100	16.3	2.25~3.05	16	CSH0514	LW040
55100351	GHR 2020K0216	A2-03 A3-03	20	20	125	20.3	2.25~3.05	16	CSH0616	LW050
55100352	GHR 1212H0310		12	12	100	12.3	3.05~4.05	10	CSH0514	LW040
55100353	GHR 1616H0316		16	16	100	16.3	3.05~4.05	16	CSH0514	LW040
55100354	GHR 2020K0316		20	20	125	20.3	3.05~4.05	16	CSH0616	LW050
55100355	GHR 2020K0326		20	20	125	20.3	3.05~4.05	26	CSH0616	LW050
55100356	GHR 2525M0316		25	25	150	25.3	3.05~4.05	16	CSH0616	LW050
55100357	GHR 2525M0326		25	25	150	25.3	3.05~4.05	26	CSH0616	LW050
55100358	GHR 3225P0332		32	25	170	25.3	3.05~4.05	32	CSH0616	LW050
55100359	GHR 2020K0416	A2-04 A3-04	20	20	125	20.3	4.05~5.05	16	CSH0616	LW050
55100360	GHR 2020K0426		20	20	125	20.3	4.05~5.05	26	CSH0616	LW050
55100361	GHR 2525M0416		25	25	150	25.3	4.05~5.05	16	CSH0616	LW050
55100362	GHR 2525M0426		25	25	150	25.3	4.05~5.05	26	CSH0616	LW050
55100363	GHR 3225P0432		32	25	170	25.3	4.05~5.05	32	CSH0616	LW050



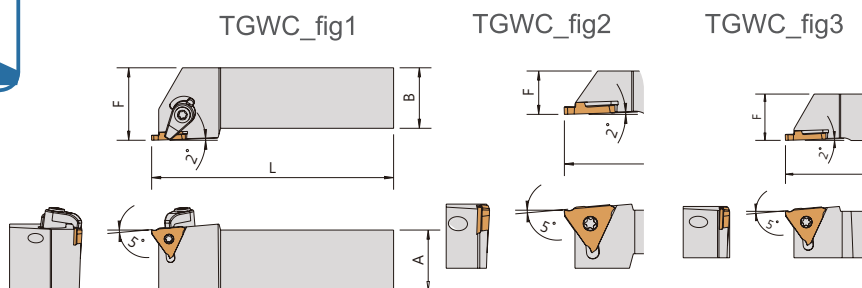
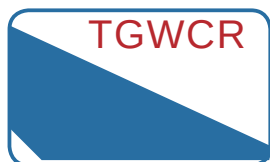
E1 - TURNING TOOLS

CUTTING TOOLS

E “ CUTTING TOOLS



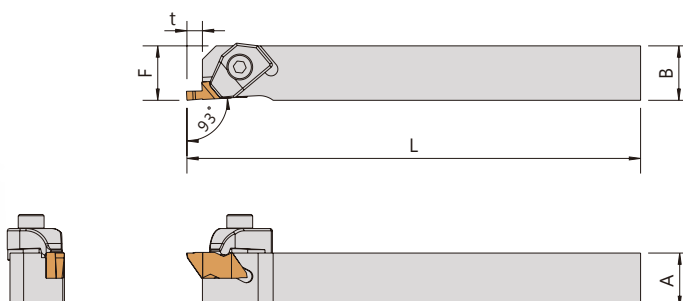
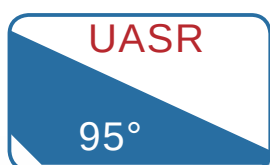
TOOLHOLDERS – EXTERNAL TURNING FOR GROOVING



Recommended Inserts: SUMITOMO

UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					PARTS		WRENCH			
			A	B	L	F	Fig	Insert screw	Insert wrench	Clamp	Clamp screw	Wash	Clamp wrench
55101536	TGWCR1010-3	TGAR3	10	10	125	10	2	CS40090	FT-15	-	-	-	-
55101537	TGWCR1212-3	TGAR3	12	12	125	12	2	CS40090	FT-15	-	-	-	-
55101538	TGWCR1616-3	TGAR3	16	16	125	16	3	CS40090	FT-15	-	-	-	-
55101539	TGWCR2020-3	TGAR3	20	20	125	25	1	CS40090	TL-15	CP50-23	CSE5021	ER04	LW030
55101540	TGWCR2525-3	TGAR3	25	25	150	30	1	CS40090	TL-15	CP50-23	CSE5021	ER04	LW030
55101541	TGWCR2020-15	TGAR4 (W1~1.45)	20	20	125	25	1	CS50120	TL-20	CP50-23	CSE5021	ER04	LW030
55101542	TGWCR2525-15	TGAR4 (W1~1.45)	25	25	150	30	1	CS50120	TL-20	CP50-23	CSE5021	ER04	LW030
55101543	TGWCR2020-25	TGAR4 (W1.5~2.3)	20	20	125	25	1	CS50120	TL-20	CP50-23	CSE5021	ER04	LW030
55101544	TGWCR2525-25	TGAR4 (W1.5~2.3)	25	25	150	30	1	CS50120	TL-20	CP50-23	CSE5021	ER04	LW030
55101545	TGWCR2020-35	TGAR4 (W2.5~4.8)	20	20	125	25	1	CS50120	TL-20	CP50-23	CSE5021	ER04	LW030
55101546	TGWCR2525-35	TGAR4 (W2.5~4.8)	25	25	150	30	1	CS50120	TL-20	CP50-23	CSE5021	ER04	LW030



UNIT: mm

ITEM NO.	MODEL		DIMENSIONS						PARTS		WRENCH
	Right / Left	INSERT	A	B	L	F	t	Clamp			
								R	L		
55101547 R/L	UASR/L1010M2Q	N**R/L2	10	10	150	10	3.5	CPK3A	CPK4A	CSH3512	LW025
55101548 R/L	UASR/L1212M2Q	N**R/L2	12	12	150	12	3.5	CPK3A	CPK4A	CSH3512	LW025
55101549 R/L	UASR/L1616K3Q	N**R/L3	16	16	125	16	5.3	CPK1A	CPK2A	CSH0516	LW040

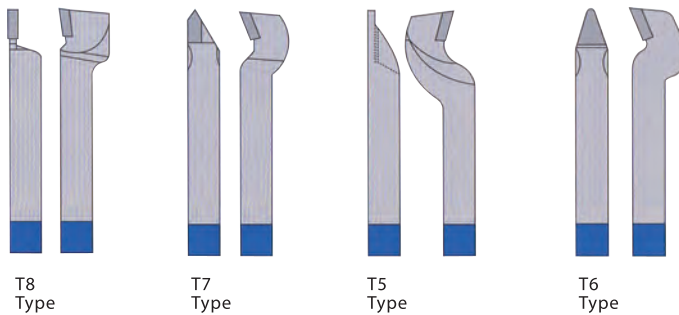
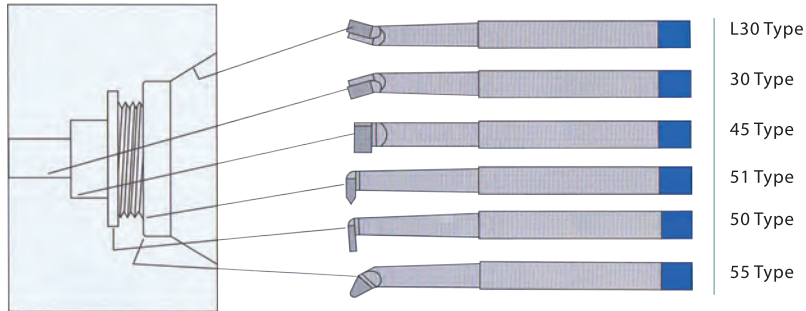
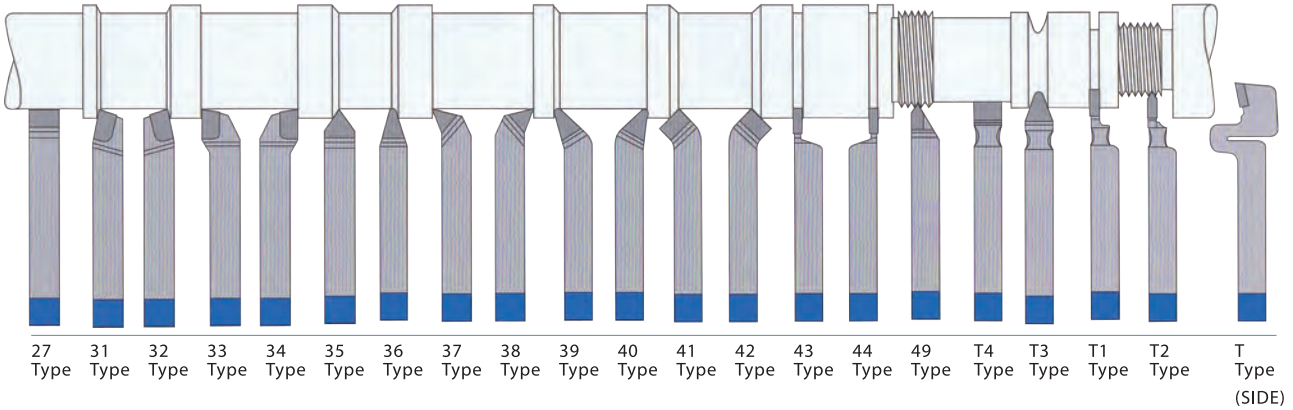


STANDARD TYPE TUNGSTEN STEEL LATHE TOOLS (JAPANESE MITSUBISHI TUNGSTEN STEEL BLADE)



E1 - TURNING TOOLS

CUTTING TOOLS



ITEM NO.	TYPE
55100364	27
55100365	31
55100366	32
55100366A	33
55100367	34
55100368	35
55100369	36
55100370	37
55100371	38
55100372	39
55100373	40
55100374	41
55100375	42
55100376	43
55100377	44
55100378	49
55100379	T4
55100380	T3
55100381	T1
55100382	T2
55100383	L30
55100384	30
55100385	45
55100386	51
55100387	50
55100388	55
55100389	T8
55100390	T7
55100391	T5
55100392	T6

✓ SPECIFICATIONS

ISO	3/8"	1/2"	5/8"	3/4"	1"
P10 STI 10 K05 HTI 05					
P20 STI 20 K10 HTI 10	0	1	2	3	4
P40 STI 40 K20 HTI 20					

U.S.A	U.S.A
C—1 C—5	1/4", 5/16", 3/8", 7/16", 1/2", 5/8", 3/4", 1", 1 1/4"
C—2 C—6	AR & AL. BR & BL. C.D.E. ER & EL. FR & FL. GR & GL. COR & COL. MN. TSA. TSC & TSE. TRC & TRE
C—3 C—7	
C—4 C—8	

E “ CUTTING TOOLS



FIRTHITE GRADES (INSERTS-APPLICATION & SELECTION GUIDE)

✓ ABRASION RESISTANT GRADES FOR MACHINING
CAST IRONS AND OTHER SHORT CHIP MATERIALS

"C" CLASS	ISO CLASS	FIRTHITE GRADE		APPLICATION
		UNCOATED	COATED	
C-1	K40	H91	TC+4	ROUGHING
	K30	H17		
C-2	K20	H21		GENERAL PURPOSE
	K10	HA HTA		
C-3		HTA	TC+	SEMI-FINISHING
		HF		
C-4	K01	HF SD3		FINE FINISHING PRECISION BORING

✓ CRATER & HEAT RESISTANT GRADES FOR MACHINING
STEEL AND OTHER CONTINUOUS CHIP MATERIALS

"C" CLASS	ISO CLASS	FIRTHITE GRADE		APPLICATION
		UNCOATED	COATED	
	P40	T04	TC+4	HEAVY ROUGHING
	P30	T14		
C-5	P25	NTA		LIGHT ROUGHING GENERAL PURPOSE
		TXH		
C-6	P20	T22	TC+	SEMI-FINISHING
		T24		
C-7	P10	T25		FINISHING
		SD3		
C-8	P01	SD3	TC+1	FINE FINISHING PRECISION FINISHING

✓ EDGE TREATMENT POLICY REGARDING GRADES

All coated grades are supplied with a factory applied edge treatment as follows unless otherwise specified:

STYLES	SIZES	EDGE TREATMENT
All styles Except 3/4" (19.05 mm) I.C. Triangles	1/4" (6.35 mm) I.C. 3/8" (9.53 mm) I.C. 1/2" (12.70 mm) I.C. 5/8" (15.88 mm) I.C. 3/4" (19.05 mm) I.C.	0.001"-0.003" (0.03 mm)-(0.08 mm) HONE
All styles Including 3/4" (19.05 mm) I.C. Triangles	3/4" (19.05 mm) I.C. Triangles And 1" (25.40 mm) I.C. and Larger	0.003"-0.005" (0.08 mm)-(0.13 mm) HONE

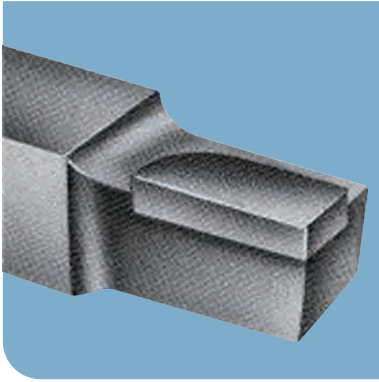


BRAZED TOOLS / SINGLE POINTS

AR & AL

A-STYLE (SS & 0° SCEA)

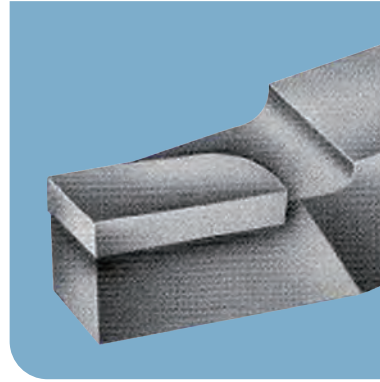
For turning, facing or boring to 90° square shoulder.



BR & BL

B-STYLE (SS & 15° SCEA)

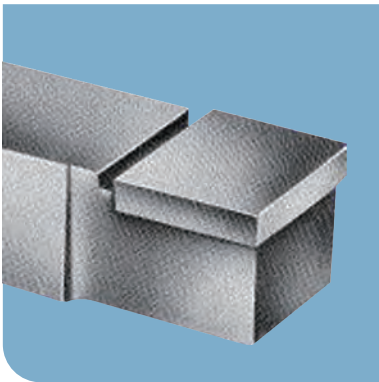
For turning, facing or boring with lead angle to reduce tool pressure at heavier feeds.



C

C-STYLE (SS & 0° ECEA)

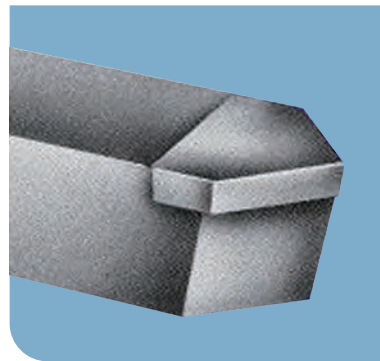
For plunge cutting, chamfering & facing.
Easily modified for special machining operations.



D

D-STYLE (SS & 40° SCEA)

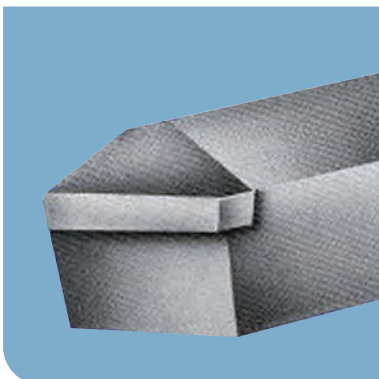
For turning, boring & chamfering in either right hand or left hand direction. Additional cutting point clearance may be required in small hole boring application.



E

E-STYLE (SS & 30° SCEA)

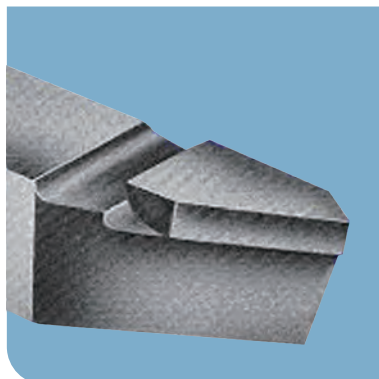
For 60° V threading also suitable for 30° angle boring bars.
Easily modified for ACME or round bottom thread forms.



ER & EL

E-STYLE (SS & 30° SCEA)

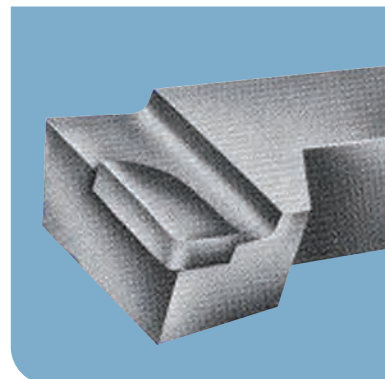
For 60° V threading also suitable for 30° angle boring bars.
Easily modified for ACME or round bottom thread forms.



FR & FL

F-STYLE (OS & 0° ECEA)

For facing with tool shank at 90° to the work axis or turning & boring with tool shank parallel to the work axis.



E1 - TURNING TOOLS

CUTTING TOOLS

E “ CUTTING TOOLS

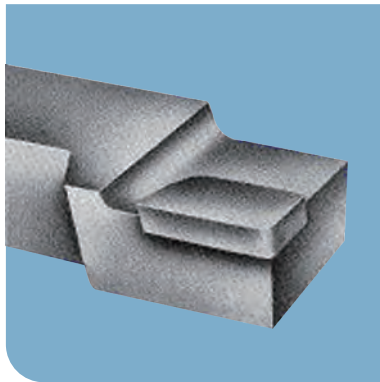


BRAZED TOOLS / SINGLE POINTS

GR & GL

G-STYLE (OS & 0° SCEA)

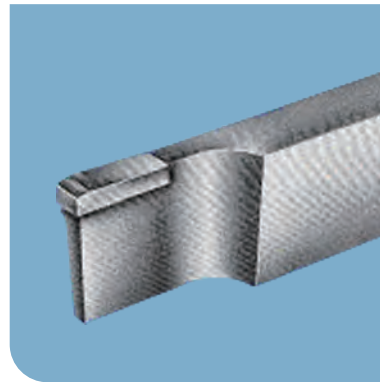
For turning a shoulder close to the chuck face with tool shank at 90° to the work axis.



COR & COL

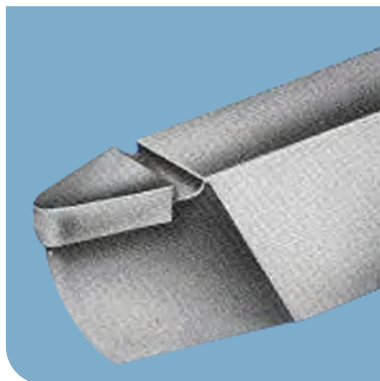
CO-STYLE (CUT-OFF)

For cutting off tubes, rods, round or octagonal bars and other work pieces.



MN

For plunge cutting or turning in either direction where relatively large fillet radii are required on the workpiece.

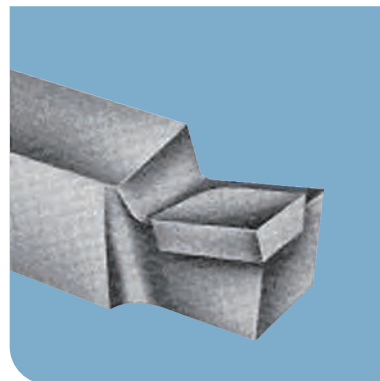


TSA

TOOL BIT SQUARE SHANK

A-STYLE (SS & 0° SCEA)

For large diameter boring bars to bore to a square shoulder.



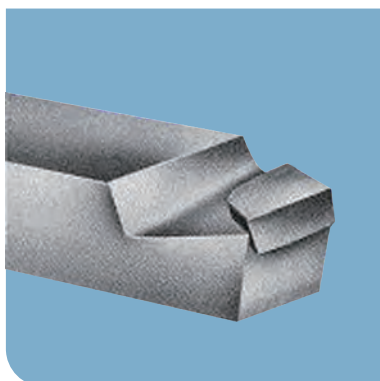
TSC & TSE

TOOL BIT SQUARE SHANK

C-STYLE FOR 30° SETTING

E-STYLE FOR 45° SETTING

For large diameter boring bars.



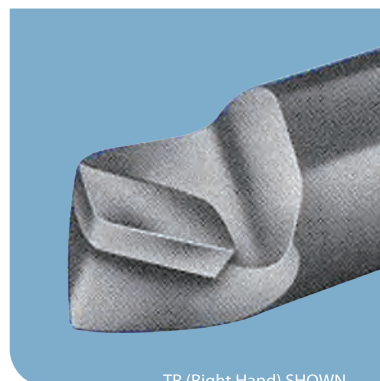
TRC & TRE

TOOL BIT ROUND SHANK

C-STYLE FOR 30° SETTING

E-STYLE FOR 45° SETTING

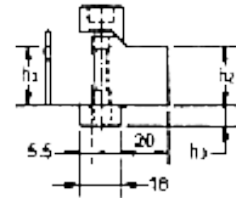
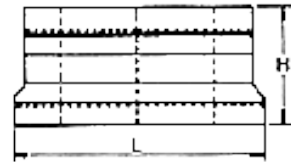
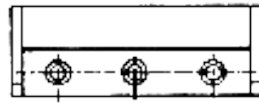
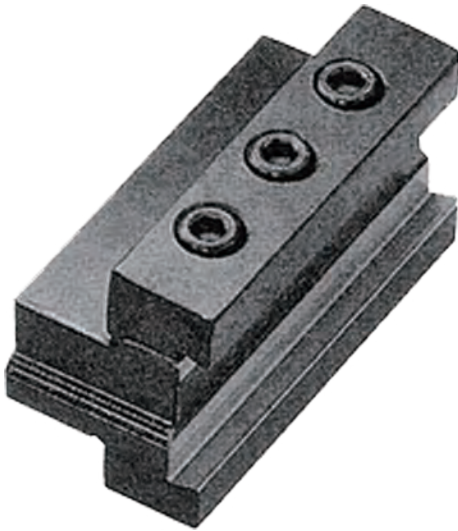
For large diameter boring bars.



TR (Right Hand) SHOWN



CUTTING BLOCKS



UNIT: mm

ITEM NO.	MODEL	DIMENSION						SCREW	WRENCH
		h_1	h_2	h_3	H	L	CLAMP		
55100393	SBU16-26	16	16	9	45	80	BCS15	BX0625	LH-050
55100394	SBU20-26	20	20	10	45	80	BCS15		
55100395	SBU25-26	20	25	10	45	80	BCS15		
55100396	SBU20-32	25	20	13.5	50	100	BCS20		
55100397	SBU25-32	25	25	8.5	50	110	BCS25		



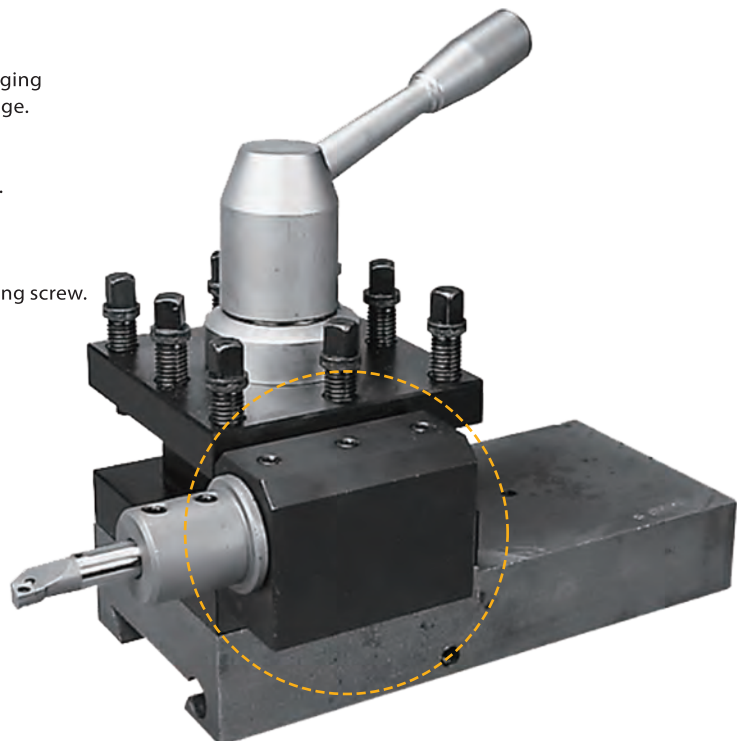
LATHE QUICK CENTRE BLOCK

APPLICATIONS:

- To achieve same centre height when changing internal tools. Very fast and easy tool change.

Advantages:

- Save time searching for packings or shims.
- Save time setting to centre height.
- Much better rigidity.
- Better accuracy.
- No damage to tools from tool-post clamping screw.
- Convenience and better tools handling.



E “ CUTTING TOOLS



LATHE QUICK CENTRE BLOCK



▼ BLOCK (PAT. NO:93696)

ITEM NO.	MODEL	ØD	DIMENSION (mm)			
			L	L ₁	H	H ₁
55100398	THR 2032	32	80	18	64	20
55100399	THR 2532					25
55100400	THR 2540					25
55100401	THR 3240	40	90	30	76	32
55100402	THR 2040					20

▼ SLEEVE-1

ITEM NO.	MODEL	ØD	DIMENSION (mm)			CENTRE BLOCK TOOLS	
			ØD ₁	L ₁	L		
55100403	CHR 08-32	8	32	78	117	THR 2032	THR 2532
55100404	CHR 10-32	10					
55100405	CHR 12-32	12					
55100406	CHR 14-32	14	40	80	127	THR 2540	THR 3240
55100407	CHR 08-40	8					
55100408	CHR 10-40	10					
55100409	CHR 12-40	12					
55100410	CHR 14-40	14					

▼ SLEEVE-2

ITEM NO.	MODEL	ØD	DIMENSION (mm)			CENTRE BLOCK TOOLS	
			ØD ₁	L ₁	L		
55100411	CHR 16-32	16	32	79	86	THR 2032	THR 2532
55100412	CHR 20-32	20					
55100413	CHR 25-32	25					
55100414	CHR 16-40	16	40	89	96	THR 2540	THR 3240
55100415	CHR 20-40	20					
55100416	CHR 25-40	25					
55100417	CHR 32-40	32					



ROTARY BROACHING TOOLS



EXAMPLE



FEATURES:

- Broaching hexagon, square, torx and other profiles. Specifications: 16x16 / 20x20 / 25x25 / 32x32
- Used on Lathe, CNC Lathe, Milling Machines, Machine Center and Other Special Purpose Machines to produce regular or irregular polygons in blind or through holes.



E2 -BLOCKS, ROTARY BROACHING TOOLS & KNURLING TOOLS

CUTTING TOOLS

CUTTING TOOLS

ROTARY BROACHING TOOLHOLDERS

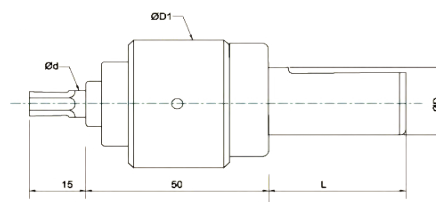
400daN (Light Duty) 16 x 16 / 20 x 20

TYPE: BCM21

Max. Thrust 400 daN

UNIT: mm

ITEM NO.	DIMENSIONS				INSERT	SCOPE OF APPLICATION
	D	D1	d	L		
55104883	16					hexagonal
		38	8	38	BCM32-***	trox
55104884	20					square
						grooves
						special profiles



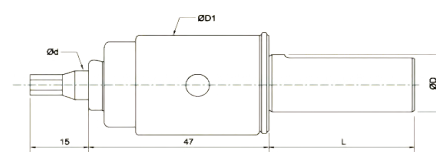
1000daN (Medium Duty) 16 x 16 / 20 x 20 / 25 x 25

TYPE: BCM22

Max. Thrust 1000 daN

UNIT: mm

ITEM NO.	DIMENSIONS				INSERT	SCOPE OF APPLICATION
	D	D1	d	L		
55104885	16			38		hexagonal
55104886	20	28	8	38	BCM32-***	trox
55104887	20			60		square
55104888	25			60		grooves
						special profiles



ADJUSTABLE CENTER ROTARY BROACHING TOOLHOLDERS

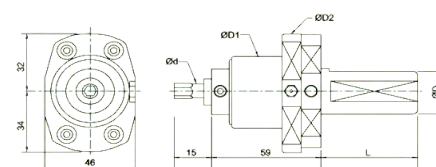
1200daN Center Adjustable (Medium Duty) 16 x 16 / 20 x 20 / 25 x 25 / 30 x 30 / 32 x 32

TYPE: BCM26

Max. Thrust 1200 daN

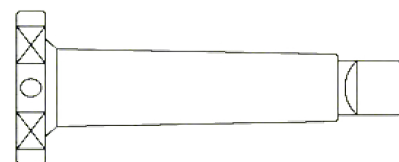
UNIT: mm

ITEM NO.	DIMENSIONS					INSERT	SCOPE OF APPLICATION
	D	D1	D2	d	L		
55104889	16						hexagonal
55104890	20						trox
55104891	25	40	66	8	50	BCM32-***	square
55104892	30						grooves
55104893	32						special profiles



V SPECIAL SHANK (MORSE TAPER)

ITEM NO.	SHANK
55104894	MT4



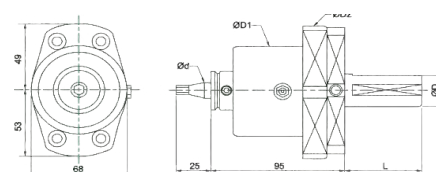
4000daN (Heavy Duty) 25 x 25 / 32 x 32

TYPE: BCM27

Max. Thrust 4000 daN

UNIT: mm

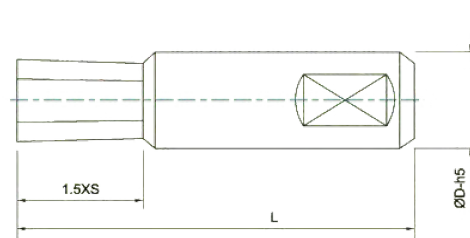
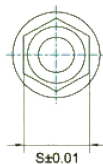
ITEM NO.	DIMENSIONS					INSERT	SCOPE OF APPLICATION
	D	D1	D2	d	L		
55104895	25						hexagonal
		68	98	12	55	BCM37-***	trox
55104896	32						square
							grooves
							special profiles



✓ HEXAGON BROACHES: BCM32

UNIT: mm

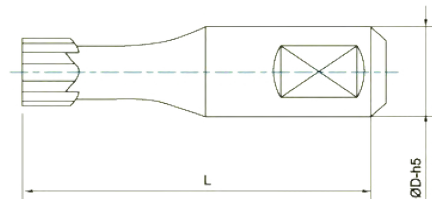
ITEM NO.	DIMENSIONS			GRADE	
	S	D	L	HSS	CARBIDE
55104897	1.55			●	○
55104898	2.05			●	○
55104899	2.55			●	○
55104900	3.05			●	○
55104901	3.55			●	○
55104902	4.06	8	28 ^{+0.3} ₋₀	●	○
55104903	5.06			●	○
55104904	6.06			●	○
55104905	7.06			●	○
55104906	8.08			●	○
55104907	9.08			●	○
55104908	10.08			●	○



✓ TROX BROACHES: BCM32

UNIT: mm

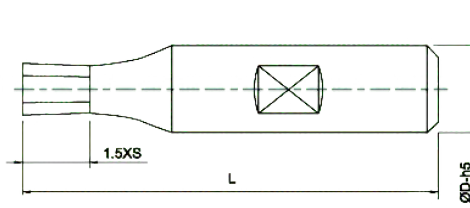
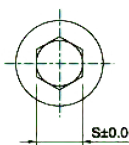
ITEM NO.	DIMENSIONS			GRADE	
	S	D	L	HSS	CARBIDE
55104909	T6			○	○
55104910	T8			●	○
55104911	T10			●	○
55104912	T15			●	○
55104913	T20			●	○
55104914	T25	8	28 ^{+0.3} ₋₀	●	○
55104915	T30			●	○
55104916	T40			●	○
55104917	T45			○	○
55104918	T50			●	○
55104919	T55			○	○



✓ HEXAGON BROACHES: BCM37

UNIT: mm

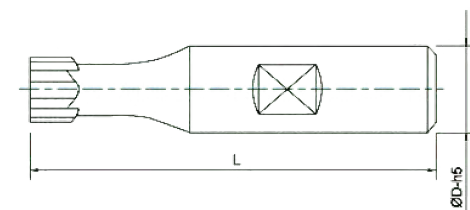
ITEM NO.	DIMENSIONS			GRADE	
	S	D	L	HSS	CARBIDE
55104920	3			○	○
55104921	4			○	○
55104922	5			○	○
55104923	6			○	○
55104924	7			○	○
55104925	8			○	○
55104926	9			○	○
55104927	10	12	55 ^{+0.3} ₋₀	○	○
55104928	11			○	○
55104929	12			○	○
55104930	13			○	○
55104931	14			○	○
55104932	15			○	○
55104933	16			○	○
55104934	17			○	○
55104935	18			○	○



✓ TROX BROACHES: BCM37

UNIT: mm

ITEM NO.	DIMENSIONS			GRADE	
	S	D	L	HSS	CARBIDE
55104936	T20			○	○
55104937	T25			○	○
55104938	T30			○	○
55104939	T40	12	55 ^{+0.3} ₋₀	○	○
55104940	T45			○	○
55104941	T50			○	○
55104942	T55			○	○



- STANDARD STOCK
- STANDARD (PLEASE CHECK DELIVERY)
- ※ (Custom specifications are available upon request.)



E “ CUTTING TOOLS



KNURLING TOOLHOLDERS & KNURLING WHEELS

FEATURES:

- The knurling tool is applied to work piece just like cutting, less pressure to lathe spindle and less machining resistance, forming a clear patterns, the best choice for using on CNC lathes.

EXAMPLE

- **55105018** (PRZSR-1236-K) / **55105019** (PRZSR-1636-K)
For Swiss Auto Lathe
Straight (0°) Knurls

- **55105020** (PRZSR-20511) / **55105021** (PRZSR-25511)
For Lathe and CNC Lathe
Straight (0°) Knurls

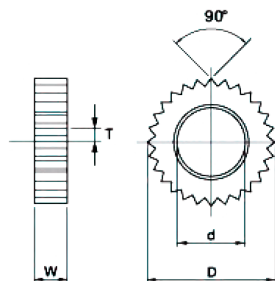
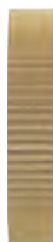
- **55105022** (PRKDR-1236-K) / **55105023** (PRKDR-1636-K)
For Swiss Auto Lathe
Diamond (30°) Knurls
Cross (45°) Knurls

- **55105024** (PRKDR-20511) / **55105025** (PRKDR-25511)
For Lathe and CNC Lathe
Diamond (30°) Knurls
Cross (45°) Knurls



ROLLS FOR KNURLING BY CUTTING

TYPE: RFAA
SPIRAL ANGLE $\beta=0^\circ$
MATERIAL: HSS



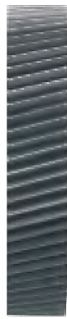
UNIT: mm

ITEM NO.	MODEL	PITCH T	DIMENSIONS			ADAPTABLE HOLDERS
			D	W	d	
55104943	RFAA-110306-0003	0.3	11	3	6	55105023 (PRKDR-1636) or 55105022 (PRKDR1236)
55104944	RFAA-110306-0004	0.4				
55104945	RFAA-110306-0005	0.5				
55104946	RFAA-110306-0006	0.6				
55104947	RFAA-110306-0007	0.7				
55104948	RFAA-110306-0008	0.8				
55104949	RFAA-110306-0010	1.0				
55104950	RFAA-110306-0012	1.2				
55104951	RFAA-110306-0015	1.5	20	5	11	55105024 (PRKDR20511)
55104952	RFAA-200511-0005	0.5				
55104953	RFAA-200511-0006	0.6				
55104954	RFAA-200511-0008	0.8				
55104955	RFAA-200511-0010	1.0				
55104956	RFAA-200511-0012	1.2				
55104957	RFAA-200511-0015	1.5				
55104958	RFAA-200511-00175	1.75				
55104959	RFAA-200511-0020	2.0	25	5	11	55105025 (PRKDR25511)
55104960	RFAA-250511-0005	0.5				
55104961	RFAA-250511-0006	0.6				
55104962	RFAA-250511-0008	0.8				
55104963	RFAA-250511-0010	1.0				
55104964	RFAA-250511-0012	1.2				
55104965	RFAA-250511-0015	1.5				
55104966	RFAA-250511-00175	1.75				
55104967	RFAA-250511-0020	2.0				

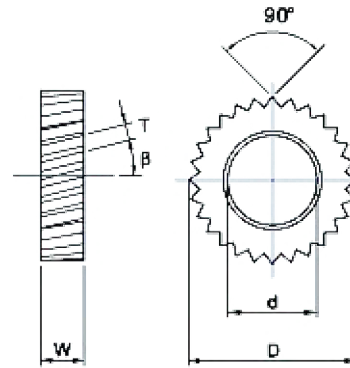


ROLLS FOR KNURLING BY CUTTING

TYPE: RFBL
SPIRAL ANGLE $\beta=15^\circ$



TYPE: RFBR
SPIRAL ANGLE $\beta=15^\circ$



UNIT: mm

ITEM NO.	MODEL	ITEM NO.	MODEL	PITCH T	DIMENSIONS D W d			ADAPTABLE HOLDERS
55104968	RFBL-110306-1503	55104993	RFBR-110306-1503	0.3	11	3	6	55105022 (PRKDR1236) or 55105023 (PRKDR1636)
55104969	RFBL-110306-1504	55104994	RFBR-110306-1504	0.4				
55104970	RFBL-110306-1505	55104995	RFBR-110306-1505	0.5				
55104971	RFBL-110306-1506	55104996	RFBR-110306-1506	0.6				
55104972	RFBL-110306-1507	55104997	RFBR-110306-1507	0.7				
55104973	RFBL-110306-1508	55104998	RFBR-110306-1508	0.8				
55104974	RFBL-110306-1510	55104999	RFBR-110306-1510	1.0				
55104975	RFBL-110306-1512	55105000	RFBR-110306-1512	1.2				
55104976	RFBL-110306-1515	55105001	RFBR-110306-1515	1.5				
55104977	RFBL-200511-1505	55105002	RFBR-200511-1505	0.5	20	5	11	55105024 (PRKDR20511)
55104978	RFBL-200511-1506	55105003	RFBR-200511-1506	0.6				
55104979	RFBL-200511-1508	55105004	RFBR-200511-1508	0.8				
55104980	RFBL-200511-1510	55105005	RFBR-200511-1510	1.0				
55104981	RFBL-200511-1512	55105006	RFBR-200511-1512	1.2				
55104982	RFBL-200511-1515	55105007	RFBR-200511-1515	1.5				
55104983	RFBL-200511-15175	55105008	RFBR-200511-15175	1.75				
55104984	RFBL-200511-1520	55105009	RFBR-200511-1520	2.0				
55104985	RFBL-250511-1505	55105010	RFBR-250511-1505	0.5	25	5	11	55105025 (PRKDR25511)
55104986	RFBL-250511-1506	55105011	RFBR-250511-1506	0.6				
55104987	RFBL-250511-1508	55105012	RFBR-250511-1508	0.8				
55104988	RFBL-250511-1510	55105013	RFBR-250511-1510	1.0				
55104989	RFBL-250511-1512	55105014	RFBR-250511-1512	1.2				
55104990	RFBL-250511-1515	55105015	RFBR-250511-1515	1.5				
55104991	RFBL-250511-15175	55105016	RFBR-250511-15175	1.75				
55104992	RFBL-250511-1520	55105017	RFBR-250511-1520	2.0				

※ MATERIAL: HSS



E “ CUTTING TOOLS

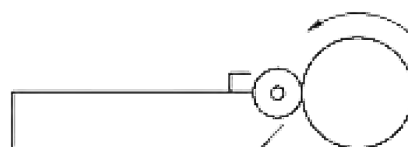
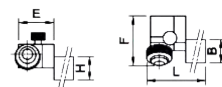
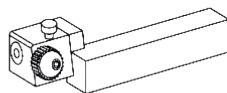


KNURLING ROLL HOLDERS FOR KNURLING BY CUTTING

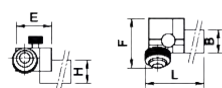
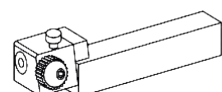
• RIGHT-HEAD SERIES



▲ PRZSR-K OFFSET TYPE



▲ PRZSR STANDARD TYPE



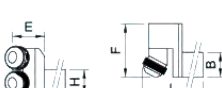
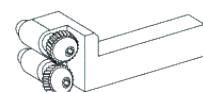
STRAIGHT KNURL
USE RFBR-15°

UNIT: mm

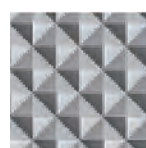
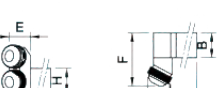
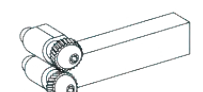
ITEM NO.	MODEL	DIMENSIONS					RANGE OF PROCESSING	ROLLS SPEC.		
		H x B	L	F	E					
55105018	PRZSR-1236-K	12 x 12	110	24	19		3-40	11	3	6
55105019	PRZSR-1636-K	16 x 16	110	24	19		4-60	11	3	6
55105020	PRZSR-20511	20 x 20	130	36	30		6-100	20	5	11
55105021	PRZSR-25511	25 x 25	150	41	35		6-250	25	5	11



▲ PRKDR-K OFFSET TYPE



▲ PRKDR STANDARD TYPE



CROSS45° KNURL
USE RFBR-15°
RFBL-15° 1 EACH



CROSS30° KNURL
USE RFAA-00° 2PCS

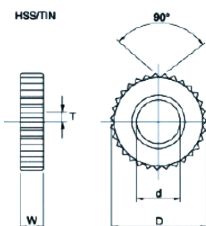
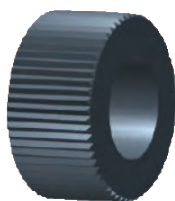
UNIT: mm

ITEM NO.	MODEL	DIMENSIONS					RANGE OF PROCESSING	ROLLS SPEC.		
		H x B	L	F	E					
55105022	PRKDR-1236-K	12 x 12	110	24	20		3-40	11	3	6
55105023	PRKDR-1636-K	16 x 16	110	24	20		4-60	11	3	6
55105024	PRKDR-20511	20 x 20	130	49	23		6-100	20	5	11
55105025	PRKDR-25511	25 x 25	150	62	35		6-250	25	5	11



ROLLS FOR KNURLING BY DEFORMATION

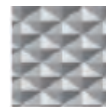
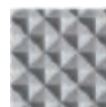
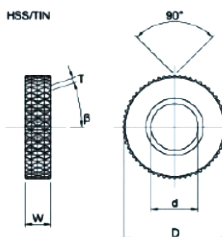
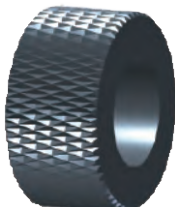
TYPE: RDAA
SPIRAL ANGLE $\beta=0^\circ$



UNIT: mm

ITEM NO.	MODEL	PITCH T	DIMENSIONS D W d			ADAPTABLE HOLDERS
55105053	RDAA-150404-0004	0.4	15	4	4	55105110 (PRCSR-1244) or 55105111 (PRCSR-1644)
55105054	RDAA-150404-0005	0.5				
55105055	RDAA-150404-0006	0.6				
55105056	RDAA-150404-0007	0.7				
55105057	RDAA-150404-0008	0.8				
55105058	RDAA-150404-0010	1.0				
55105059	RDAA-150404-0012	1.2				
55105060	RDAA-150404-0015	1.5	20	8	6	55105114 (PRCSR-2086) or 55105115 (PRCSR-2586)
55105061	RDAA-200806-0004	0.4				
55105062	RDAA-200806-0005	0.5				
55105063	RDAA-200806-0006	0.6				
55105064	RDAA-200806-0007	0.7				
55105065	RDAA-200806-0008	0.8				
55105066	RDAA-200806-0010	1.0				
55105067	RDAA-200806-0012	1.2				
55105068	RDAA-200806-0015	1.5				
55105069	RDAA-200806-00175	1.75				
55105070	RDAA-200806-0020	2.0				

TYPE: RDGV
SPIRAL ANGLE $\beta=30^\circ/45^\circ$



UNIT: mm

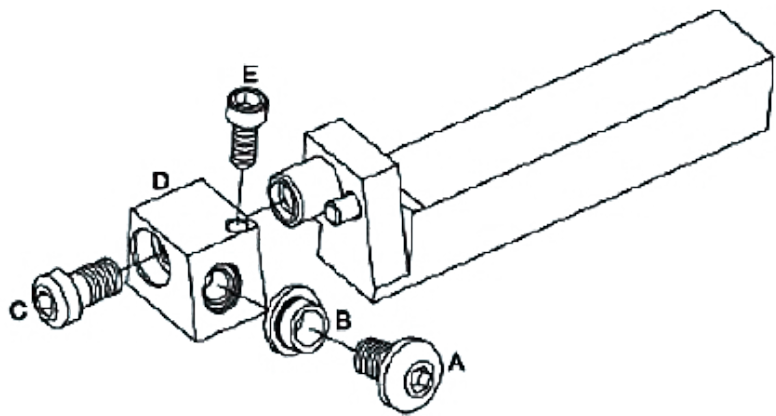
ITEM NO.	MODEL	ITEM NO.	MODEL	PITCH T	DIMENSIONS D W d			ADAPTABLE HOLDERS
55105071	RDGV-150404-3004	55105090	RDGV-150404-4504	0.4	15	4	4	55105110 (PRCSR-1244) or 55105111 (PRCSR-1644)
55105072	RDGV-150404-3005	55105091	RDGV-150404-4505	0.5				
55105073	RDGV-150404-3006	55105092	RDGV-150404-4506	0.6				
55105074	RDGV-150404-3007	55105093	RDGV-150404-4507	0.7				
55105075	RDGV-150404-3008	55105094	RDGV-150404-4508	0.8				
55105076	RDGV-150404-3010	55105095	RDGV-150404-45010	1.0				
55105077	RDGV-150404-3012	55105096	RDGV-150404-45012	1.2				
55105078	RDGV-150404-3015	55105097	RDGV-150404-45015	1.5	20	8	6	55105114 (PRCSR-2086) or 55105115 (PRCSR-2586)
55105079	RDGV-200806-3003	55105098	RDGV-200806-4503	0.3				
55105080	RDGV-200806-3004	55105099	RDGV-200806-4504	0.4				
55105081	RDGV-200806-3005	55105100	RDGV-200806-4505	0.5				
55105082	RDGV-200806-3006	55105101	RDGV-200806-4506	0.6				
55105083	RDGV-200806-3007	55105102	RDGV-200806-4507	0.7				
55105084	RDGV-200806-3008	55105103	RDGV-200806-4508	0.8				
55105085	RDGV-200806-3010	55105104	RDGV-200806-4510	1.0				
55105086	RDGV-200806-3012	55105105	RDGV-200806-4512	1.2				
55105087	RDGV-200806-3015	55105106	RDGV-200806-4515	1.5				
55105088	RDGV-200806-30175	55105107	RDGV-200806-45175	1.75				
55105089	RDGV-200806-3020	55105108	RDGV-200806-4520	2.0				



E “ CUTTING TOOLS

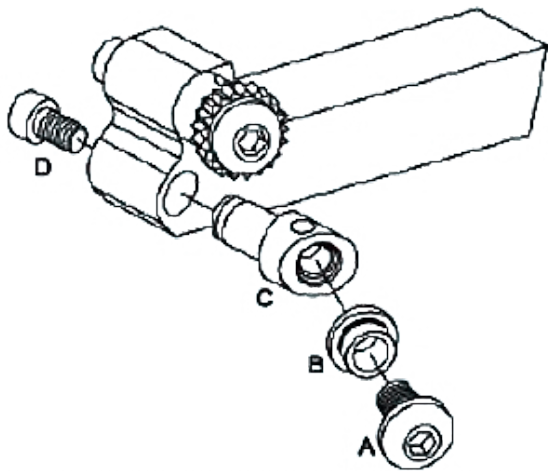


SPARE PARTS FOR HOLDER



UNIT: mm

ITEM NO.	MODEL	SPARE PARTS				
		A	B	C	D	E
55105018	PRZSR-1236-K	55105026	55105027	55105028	55105029	55105030
55105019	PRZSR-1636-K	55105031	55105032	55105033	55105034	55105035
55105020	PRZSR-20511	55105036	55105037	55105038	55105039	55105040



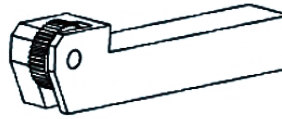
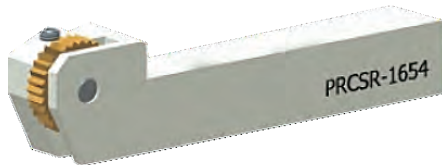
UNIT: mm

ITEM NO.	MODEL	SPARE PARTS			
		A	B	C	D
55105022	PRKDR-1236-K	55105041	55105042	55105043	55105044
55105023	PRKDR-1636-K	55105045	55105046	55105047	55105048
55105024	PRKDR-2051105	55105049	55105050	55105051	55105052

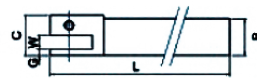


KNURLING ROLL HOLDERS FOR KNURLING BY DEFORMATION

• RIGHT-HEAD SERIES



- TYPE: PRCR
- USE RDAA, RDGV KNURLING ROLL



UNIT: mm

ITEM NO.	MODEL	DIMENSIONS							ROLLS SPEC.		
		H x B	L	C	E	G	K				
55105109	PRCSR-1044	10 x 10	100	10	15	2	4		15	4	4
55105110	PRCSR-1244	12 x 12	120	12	15	2	4		15	4	4
55105111	PRCSR-1644	16 x 16	120	16	15	2	4		15	4	4
55105112	PRCSR-2066	20 x 20	100	20	22	3	5		20	6	6
55105113	PRCSR-2566	25 x 25	130	25	25	3	5		20	6	6
55105114	PRCSR-2086	20 x 20	120	20	20	2	5		20	8	6
55105115	PRCSR-2586	25 x 25	130	25	23	2	5		20	8	6

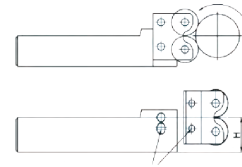
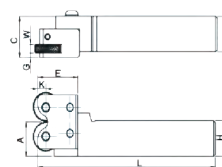


KNURLING ROLL HOLDERS FOR KNURLING BY DEFORMATION—HOLDERS ARE ADJUSTABLE

TWO KNURLING ROLLS SET UP SHOWN



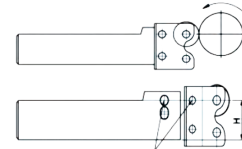
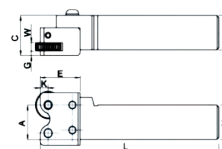
CROSS30° KNURL
USE MRRV-30°
MRLV-30°
1 EACH



SINGLE KNURLING ROLLS SET UP SHOWN



STRAIGHT KNURL (00°)
USE MRSV-00° 1PC



UNIT: mm

ITEM NO.	MODEL	DIMENSIONS							ROLLS SPEC.		
		H x B	G	C	L	E	K				
55105016	PSHMR-2066	20 x 20	3.3	29	125	32	6.5		20	6	6
55105017	PSHMR-2566	25 x 25	3.3	32	140	32	6.5		20	6	6



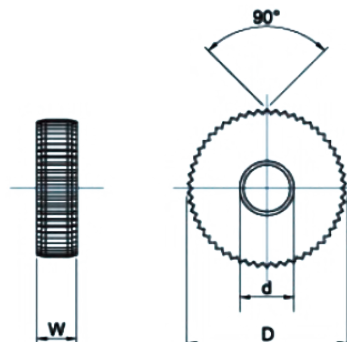
E “ CUTTING TOOLS



ROLLS FOR KNURLING BY DEFORMATION (CONVEX SERIES)

• CONVEX SERIES FOR AXIAL FEEDING

TYPE: MRSV
SPIRAL ANGLE $\beta=0^\circ$



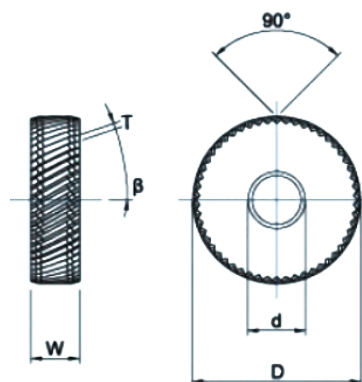
UNIT: mm

ITEM NO.	MODEL	PITCH T	DIMENSIONS			ADAPTABLE HOLDERS
			D	W	d	
55105118	MRSV-200606-0004	0.4	20	6	6	51105116 (PSHMR-2066) or 51105117 (PSHMR-2566)
55105119	MRSV-200606-0005	0.5				
55105120	MRSV-200606-0006	0.6				
55105121	MRSV-200606-0008	0.8				
55105122	MRSV-200606-0010	1.0				
55105123	MRSV-200606-0012	1.2				
55105124	MRSV-200606-0015	1.5				
55105125	MRSV-200606-0016	1.6				
55105126	MRSV-200606-0020	2.0				

TYPE: MRLV
SPIRAL ANGLE $\beta=30^\circ$



TYPE: MRRV
SPIRAL ANGLE $\beta=30^\circ$



UNIT: mm

ITEM NO.	MODEL	ITEM NO.	MODEL	PITCH T	DIMENSIONS			ADAPTABLE HOLDERS
					D	W	d	
55105127	MRLV-200606-3004	55105136	MRRV-200606-3004	0.4	20	6	6	51105116 (PSHMR-2066) or 51105117 (PSHMR-2566)
55105128	MRLV-200606-3005	55105137	MRRV-200606-3005	0.5				
55105129	MRLV-200606-3006	55105138	MRRV-200606-3006	0.6				
55105130	MRLV-200606-3008	55105139	MRRV-200606-3008	0.8				
55105131	MRLV-200606-3010	55105140	MRRV-200606-3010	1.0				
55105132	MRLV-200606-3012	55105141	MRRV-200606-3012	1.2				
55105133	MRLV-200606-3015	55105142	MRRV-200606-3015	1.5				
55105134	MRLV-200606-3016	55105143	MRRV-200606-3016	1.6				
55105135	MRLV-200606-3020	55105144	MRRV-200606-3020	2.0				



MILLING TOOLS



E3 - MILLING TOOLS



- END MILLS
- FACE MILLS
- SIDE MILLS



CUTTING TOOLS

E “ CUTTING TOOLS

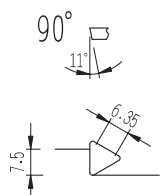
END MILLS



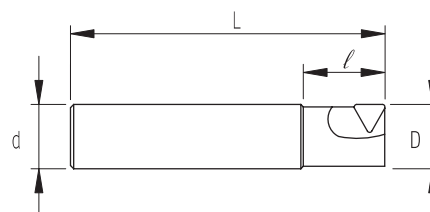
–Straight Shank 90° shoulder.



Positive Axial Rake



For indexable inserts TP 1102, TP 1103



UNIT: mm

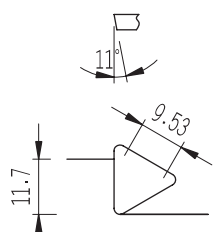
ITEM NO.	MODEL	INSERT	DIMENSIONS					CLAMP	SCREW	WRENCH
			D	L	ℓ	d	I No			
55101550	ME16T	TP 1102	16	100	26	16	1	CP50-4	CS70-5	LW030
55101551	ME18T		18	100	26	16	1			
55101552	ME20T		20	100	26	20	2			
55101553	ME22T		22	100	26	20	2			
55101554	ME25Tx20		25	100	26	20	2			
55101555	ME16TxTP1103	TP 1103	16	100	26	16	1	CP50-4	CS70-5	LW030
55101556	ME20TxTP1103		20	100	26	20	2			
55101557	ME22TxTP1103		22	100	26	20	2			
55101558	ME25Tx25xTP1103		25	100	26	25	2			
55101559	ME30Tx25xTP1103		30	100	26	25	2			

Positive Axial Rake

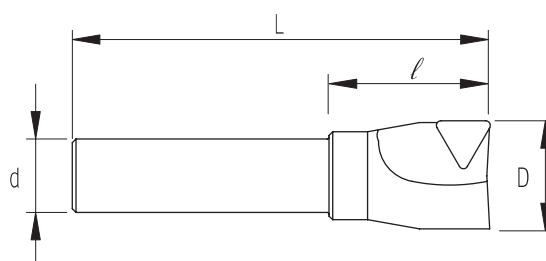
ME□□T (TP1603)

–Straight Shank 90° shoulder.

90°



For indexable inserts
TP 1603



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					CLAMP	SCREW	SPRING	WRENCH
			D	L	ℓ	MT No	I No				
55100418	ME30Tx25	TP 1603	30	114	34	25	2	CP50-3	CSB0617T	SP030	TL-25
55100419	ME32Tx25		32	114	34	25	2				
55100419-1	ME32Tx32		32	114	34	32	2				
55100420	ME35Tx32		35	114	34	32	2				
55100421	ME40Tx32		40	114	34	32	3				
55100422	ME45Tx32		45	116	36	32	3				
55100423	ME50Tx32		50	116	36	32	3				

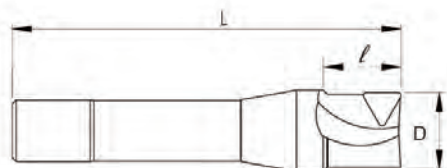
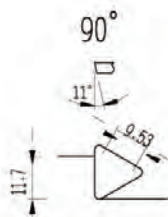


END MILLS



–R8–Shank (Bridgeport) 90° shoulder.

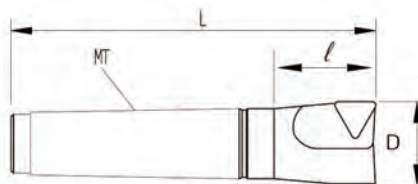
Positive Axial Rake



For indexable inserts TP 1603

UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					CLAMP	SCREW	SPRING	WRENCH
			D	L	ℓ	MT No	I No				
55101560	ME30TR8	TP 1603	30	140	29	R8	2				
55101561	ME32TR8		32	140	29	R8	2				
55101562	ME35TR8		35	140	29	R8	2				
55101563	ME40TR8		40	140	29	R8	3				
55101564	ME45TR8		45	146	35	R8	3				
55101565	ME50TR8		50	146	35	R8	3				
55101566	ME63TR8		63	153	40	R8	4				
55101567	ME75TR8		75	153	40	R8	5				



Drawbar thread = M12x1.75 or 1/2-12

UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					CLAMP	SCREW	SPRING	WRENCH
			D	L	ℓ	MT No	I No				
55100424	ME30TMT3	TP 1603	30	132	34	3	2				
55100425	ME32TMT3		32	132	34	3	2				
55100426	ME35TMT3		35	132	34	3	2				
55100427	ME40TMT3		40	132	34	3	3				
55100428	ME45TMT3		45	132	34	3	3				
55100429	ME50TMT3		50	132	34	3	3				
55100429-1	ME63TMT3		63	132	34	3	4				



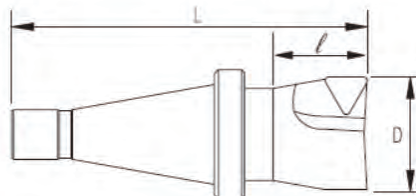
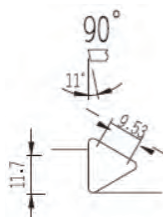
E “ CUTTING TOOLS

END MILLS



– National Taper Shank 90° shoulder.

Positive Axial Rake



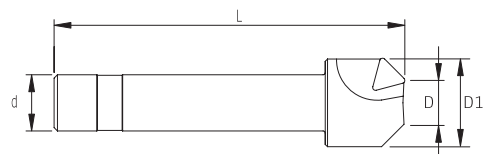
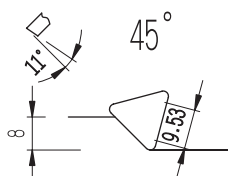
For indexable inserts TP1603

NT30 drawbar thread = M12x1.75 or 1/2-12

NT40 drawbar thread = M16x2.0 or 5/8-1

UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					CLAMP	SCREW	SPRING	WRENCH
			D	L	ℓ	MT No	I No				
55101568	ME35TNT30	TP 1603	35	124	34	30	2	CP50-3	CSB0617T	SP030	TL-25
55101569	ME40TNT30		40	124	34	30	3				
55101570	ME45TNT30		45	124	34	30	3				
55101571	ME50TNT30		50	124	34	30	3				
55101572	ME63TNT30		63	124	34	30	4				
55101573	ME75TNT30		75	124	34	30	5				
55101574	ME50TNT40		50	149	34	40	3				
55101575	ME63TNT40		63	149	34	40	4				
55101576	ME75TNT40		75	149	34	40	5				



For indexable inserts TP 1603

UNIT: mm

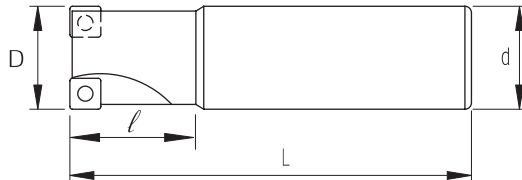
ITEM NO.	MODEL	INSERT	DIMENSIONS					CLAMP	SCREW	WRENCH
			D	L	d	D1	I No			
55101577	ME05C	TP 1603	5	100	20	25	1	CP50-5	CS70-11	LW040
55101578	ME10C		10	120	20	29	2			
55101579	ME20C		20	156	25	40	3			



END MILLS

E90SE09

- New generation of 90° face and shoulder milling cutter with screw-on inserts.
- Low costs per cutting edge through Indexable insert with four edges.

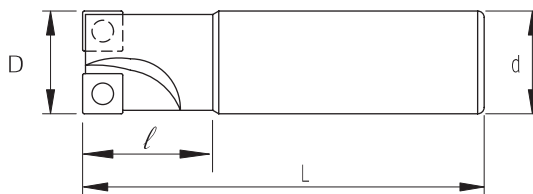


Recommended Inserts: KYOCERA

UNIT: mm

ITEM NO.	MODEL	INSERT 	DIMENSIONS					SCREW 	WRENCH 
			D	L	ℓ	d	I No		
55101580	E90SE09-D25K02	SEMM09T3PESR	25	120	30	25	2	CS30070	DBIT-T10
55101581	E90SE09-D32K03		32	125	35	32	3		
55101582	E90SE09-D40K04		40	125	40	32	4		
55101583	E90SE09-D50K05		50	125	40	32	5		

E90SD12



Recommended Inserts: KENAMETAL & KYOCERA

UNIT: mm

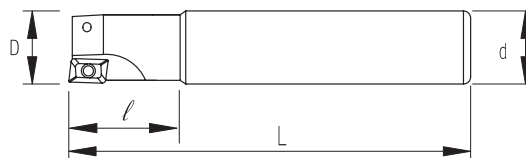
ITEM NO.	MODEL	INSERT 	DIMENSIONS					SCREW 	WRENCH 
			D	L	ℓ	d	I No		
55101584	E90SD12-D32K02	SDPT1204PDEN	32	125	35	32	2	CS35090	DBIT-T15
55101585	E90SD12-D40K02		40	125	40	32	3		
55101586	E90SD12-D50K03		50	125	40	32	5		



E “ CUTTING TOOLS



END MILLS



Recommended Inserts: SUMITOMO & NACHI

UNIT: mm

		INSERT	DIMENSIONS					SCREW	WRENCH
ITEM NO.	MODEL		D	L	ℓ	d	I No		
55100430-1	E90AP10-D10F01	APMT1035PDER	10	80	20	10	1	CS25045	DBIT-T8
55100430-2	E90AP10-D10K01		10	120	30	10	1		
55100430-3	E90AP10-D10M01		10	150	30	10	1		
55100430-4	E90AP10-D10F01-12		10	80	20	12	1		
55100430	E90AP10-D12F01		12	80	25	12	1	CS25055	
55100430-5	E90AP10-D12K01		12	120	25	12	1		
55100430-6	E90AP10-D12M01		12	150	25	12	1		
55100430-7	E90AP10-D14G01		14	90	25	16	1		
55100431	E90AP10-D16G02		16	90	25	16	2	CS25065	
55100431-1	E90AP10-D16L02		16	130	25	16	2		
55100431-2	E90AP10-D16M02		16	150	25	16	2		
55100431-3	E90AP10-D16R02		16	200	25	16	2		
55100431-4	E90AP10-D18G02		18	90	25	16	2	CS25065	
55100432	E90AP10-D20J02		20	110	30	20	2		
55100434	E90AP10-D20M02		20	150	30	20	2		
55100434-1	E90AP10-D20R02		20	200	30	20	2		
55100434-2	E90AP10-D21M03		21	150	30	20	3	CS25065	
55100433	E90AP10-D25K03		25	125	35	25	3		
55100435	E90AP10-D25N03		25	160	35	25	3		
55100435-1	E90AP10-D25R03		25	200	35	25	3		
55100435-2	E90AP10-D30K04		30	120	35	32	4	CS25065	
55100435-3	E90AP10-D32Q04		32	180	35	32	4		

(FINE PITCH)

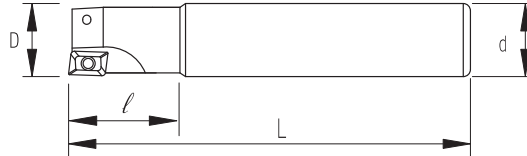
UNIT: mm

ITEM NO.	MODEL	INSERT 	DIMENSIONS					SCREW 	WRENCH 
			D	L	ℓ	d	I No		
55100435-4	E90AP10-D20J03	APMT1035PDER	20	110	30	20	3	CS25065	DBIT-T8
55100435-5	E90AP10-D20M03		20	150	30	20	3		
55100435-6	E90AP10-D25K04		25	120	35	25	4		
55100435-7	E90AP10-D25N04		25	160	60	25	4		
55100435-8	E90AP10-D26N04		26	160	35	25	4		
55100435-9	E90AP10-D32K05		32	120	35	32	5		
55100435-10	E90AP10-D32Q05		32	180	80	32	5		
55100435-11	E90AP10-D33Q05		33	180	35	32	5		
55100435-12	E90AP10-D40K06		40	125	40	32	6		
55100435-13	E90AP10-D40R06		40	200	100	32	6		



END MILLS

E90AP16



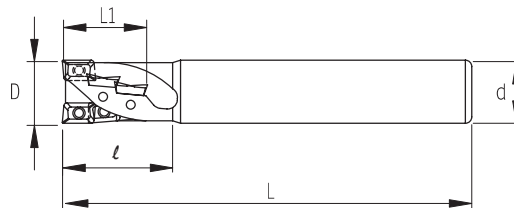
Recommended Inserts: SUMITOMO & NACHI

UNIT: mm

ITEM NO.	MODEL	INSERT 	DIMENSIONS					SCREW 	WRENCH 
			D	L	ℓ	d	I No		
55100436	E90AP16-D25K02	APMT1605PDER	25	125	35	25	2	CS35090	DBIT-T15
55100440	E90AP16-D25N02		25	160	35	25	2		
55100440-1	E90AP16-D25R02		25	200	35	25	2		
55100440-2	E90AP16-D25S02		25	250	35	25	2		
55100440-3	E90AP16-D26N02		26	160	35	25	2		
55100437	E90AP16-D32K03		32	125	40	32	3		
55100441	E90AP16-D32Q03		32	180	60	32	3		
55100441-1	E90AP16-D35K03		35	125	40	32	3		
55100438	E90AP16-D40K04		40	125	45	32	4		
55100438-1	E90AP16-D40M04		40	150	45	32	4		
55100442	E90AP16-D40R04		40	200	45	32	4		
55100439	E90AP16-D50K05		50	125	40	32	5		
55100439-1	E90AP16-D63K06		63	125	40	32	4		

EM90AP

- FOR HELICAL



HELICAL END MILLS

Recommended Inserts: SUMITOMO & NACHI

UNIT: mm

ITEM NO.	MODEL	INSERT 	DIMENSIONS							SCREW 	WRENCH 
			D	L	ℓ	d	L1	T No	I No		
55100443	EM90AP10-D20K06	APMT1035PDER	20	120	35	20	23	2	6	CS25065	DBIT-T8
55100444	EM90AP10-D25K08		25	130	45	25	36	2	8		
55100445	EM90AP10-D32L15		32	140	55	32	44	3	15		
55100446	EM90AP10-D40M21		40	150	65	32	54	3	21		
55100447	EM90AP16-D40M12	APMT1605PDER	40	150	65	42	51	3	12	CS35090	DBIT-T15
55100448	EM90AP16-D50N15		50	165	75	42	59	3	15		



E3 - MILLING TOOLS

CUTTING TOOLS

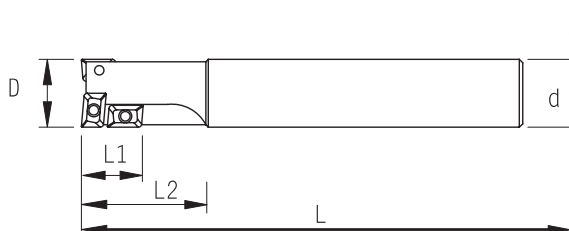
E “ CUTTING TOOLS



END MILLS

DM90AP

- FOR CENTER CUTTING



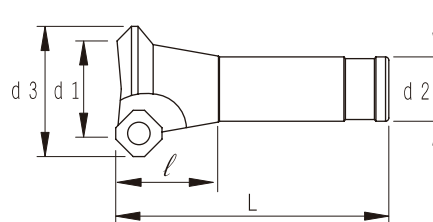
Recommended Inserts: SUMITOMO & NACHI

UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						SCREW	WRENCH
	Right / Left		D	L	d	L1	L2	I No		
55100449	DM90AP10-D20K03	APMT1035PDER	20	130	20	16	35	3	CS25065	DBIT-T8
55100453	DM90AP10-D20Q03		20	185	20	16	35	3		
55100450	DM90AP10-D21K03		21	130	20	16	35	3		
55100451	DM90AP10-D25L04		25	140	25	24	35	4		
55100455	DM90AP10-D25R04		25	220	25	24	35	4		
55100452	DM90AP10-D26L04	APMT1605PDER	26	140	25	24	35	4	CS35090	DBIT-T15
55100452-1	DM90AP10-D30M05		30	150	25	32	50	5		
55100456	DM90AP16-D32M04		32	150	32	40	50	4		
55100459	DM90AP16-D32S04		32	230	32	40	60	4		
55100457	DM90AP16-D33M04		33	150	32	40	50	4		
55100458	DM90AP16-D40N04		40	160	32	40	60	4		
55100461	DM90AP16-D40S04		40	240	32	40	60	4		

E45SE12

- FOR RADIUS



UNIT: mm

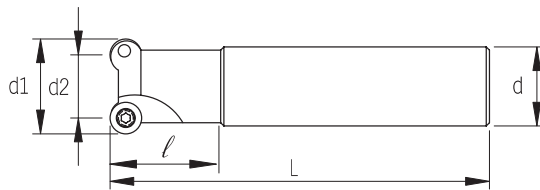
ITEM NO.	MODEL	INSERT	DIMENSIONS						SCREW	WRENCH
			d1	d2	d3	L	l	I No		
55100462	E45SE12-D25H02	SEHW1204AFTN SEKT1204AF	25	20	37	100	31	2	CS45090	DBIT-T15
55100463	E45SE12-D30H02		30	20	42	100	31	2		
55100464	E45SE12-D40J03		40	25	52	110	37	3		
55100465	E45SE12-D50K04		50	32	62	125	37	4		
55100465-1	E45SE12-D63M05		63	32	75	150	37	5		



END MILLS



- FOR RADIUS



R END MILLS

Recommended Inserts: MITSUBISHI

UNIT: mm

		INSERT	DIMENSIONS						SCREW	WRENCH
ITEM NO.	MODEL		d1	d2	d	L	ℓ	I No		
55100466	EM4R-D16K01	RPMT08T2MOE	16	8	16	120	30	1	CS25065	DBIT-T8
55100466-1	EM4R-D16M01		16	8	16	150	30	1		
55100466-2	EM4R-D16R01		16	8	16	200	30	1		
55100467	EM4R-D20K02		20	12	20	120	30	2		
55100467-1	EM4R-D20M02		20	12	20	150	30	2		
55100467-2	EM4R-D20R02		20	12	20	200	30	2		
55100467-3	EM4R-D25K03		25	17	20	120	35	3		
55100467-4	EM4R-D25M03		25	17	20	150	35	3		
55100467-5	EM4R-D25R03	RPMT10T3MOE	25	17	20	200	35	3	CS35090	DBIT-T15
55100467-6	EM5R-D25K02		25	15	25	120	40	2		
55100467-7	EM5R-D25M02		25	15	25	150	40	2		
55100467-8	EM5R-D25R02		25	15	25	200	40	2		
55100468	EM5R-D30K03		30	20	25	120	40	3		
55100469	EM5R-D30M03		30	20	25	150	40	3		
55100470	EM5R-D30R03		30	20	25	200	40	3		
55100471	EM5R-D35K03		35	25	32	120	40	3		
55100472	EM5R-D35M03	RPMT1204MOE	35	25	32	150	40	3	CS35090	DBIT-T15
55100473	EM5R-D35R03		35	25	32	200	50	3		
55100473-1	EM6R-D35K02		35	23	32	120	50	2		
55100473-2	EM6R-D35M02		35	23	32	150	50	2		
55100473-3	EM6R-D35R02		35	23	32	200	50	2		
55100474	EM6R-D40K03		40	28	32	120	50	3		
55100475	EM6R-D40M03		40	28	32	150	50	3		
55100476	EM6R-D40R03		40	28	32	200	50	3		
55100477	EM6R-D50R04		50	38	32	200	50	4		



E3 - MILLING TOOLS

CUTTING TOOLS

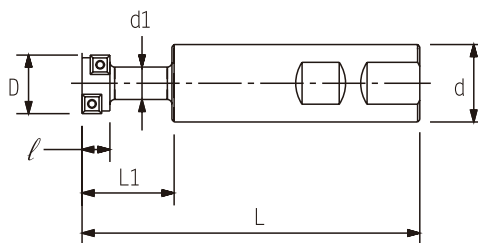
E “ CUTTING TOOLS



END MILLS



- FOR T-SLOT



T-SLOT END MILLS

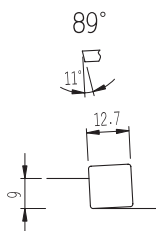
Recommended Inserts: KYOCERA & KENNAMETAL

UNIT: mm

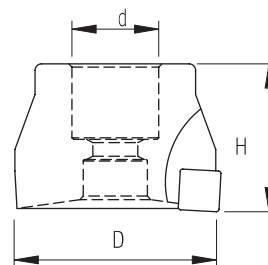
ITEM NO.	MODEL	INSERT 	DIMENSIONS							SCREW 	WRENCH 
			D	d	d1	ℓ	L	L1	I No		
55100478-1	ETS2008-S25	SDMT060304E-K	20	25	10.5	8	109	29	2	CS25065	DBIT-T8
55100478-2	ETS2009-S25		20	25	11.5	9	109	30	2		
55100478	ETS2109-S25		21	25	10.5	9	109	29	2		
55100478-3	ETS2209-S25		22	25	10.5	9	109	29	2		
55100478-4	ETS2210-S25		22	25	12	10	109	30	2		
55100478-5	ETS2410-S25		24	25	12	10	109	30	2		
55100478-6	ETS2509-S25	SDMT080308E-K	25	25	12.5	9	112	32	4	CS30070	DBIT-T10
55100479	ETS2511-S25		25	25	12.5	11	112	32	4		
55100479-1	ETS3011-S25		30	25	15.5	11	120	38	4		
55100479-2	ETS3014-S25		30	25	15.5	14	120	38	4		
55100480	ETS3214-S32		32	32	15.5	14	120	38	4		
55100481	ETS4018-S32		40	32	20.5	18	130	50	4		
55100482	ETS5022-S32	SDMT120408E-K	50	32	26.5	22	140	60	4	CS40090	DBIT-T15



SHELL END MILLS



For indexable inserts SP 1203

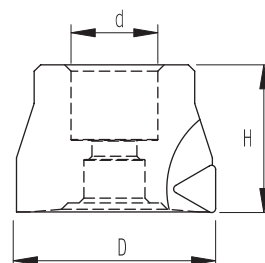
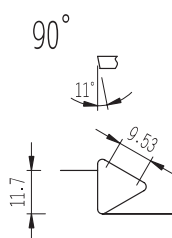


UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					CLAMP 	SCREW 	SPRING 	WRENCH 
			D	H	d	d (inch)	I No				
55101587	MS50S	SP 1203	50	46	22	-	3	CP50-3	CSB0617T	SP030	TL-25
55101588	MS63S		63	46	27	1"	4				
55101589	MS75S		75	46.5	27	1"	5				
55101590	MS100S		100	50	32	1-1/4"	6				



SHELL END MILLS



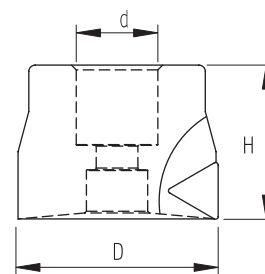
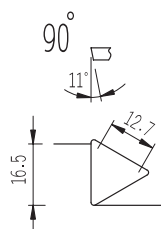
For indexable inserts TP 1603

UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					CLAMP	SCREW	SPRING	WRENCH
			D	H	d	d (inch)	I No				
55100483	MS50T	TP 1603	50	46	22	-	3	CP50-3	CSB0617T	SP030	TL-25
55100484	MS63T		63	46	27	1"	4				
55100485	MS75T		75	46.5	27	1"	5				
55100486	MS100T		100	50	32	1-1/4"	6				



- POSITIVE AXIAL RAKE



For indexable inserts TP 2204

UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					SHIM	SHIM SCREW	CLAMP	CLAMP SCREW	WRENCH
			D	H	d	d (inch)	I No					
55101591	MS63T22S	TP 2204	63	50	22	1"	3	SMT-42	CSA4009F	CP50-10	CS6-8026	LW060
55101592	MS80T22S		80	50	27	1"	4					
55101593	MS100T22S		100	50	32	1-1/4"	5					
55101594	MS125T22S		125	61	40	1-1/2"	6					

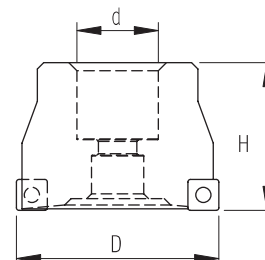
E “ CUTTING TOOLS



SHELL END MILLS



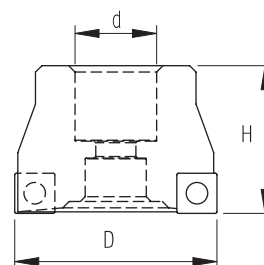
New generation of 90° face and shoulder milling cutter with screw-on inserts. Low costs per cutting edge through indexable insert with four edges.



Recommended Inserts: KYOCERA

UNIT: mm

ITEM NO.	MODEL	INSERT 	DIMENSIONS					SCREW 	WRENCH 
			D	H	d	d (inch)	I No		
55101595	F90SE09-D40A04R	SEMM09T3PESR	40	40	16	-	4	CS30070	DBIT-T10
55101596	F90SE09-D50A05R		50	46	22	-	5		
55101597	F90SE09-D63A05R		63	46	22	1"	5		
55101598	F90SE09-D80B06R		80	50	27	1"	6		
55101599	F90SE09-D100B08R		100	50	32	1-1/4"	8		
55101600	F90SE09-D125B10R		125	55	40	1-1/2"	10		



Recommended Inserts: KENNAMETAL & KYOCERA

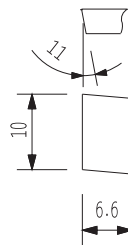
UNIT: mm

SDMT.1204											
ITEM NO.	MODEL	INSERT	DIMENSIONS					SHIM	SHIM SCREW	SCREW	WRENCH
			D	H	d	d (inch)	I No				
55100487	F90SD12-D050A03R	SDMT1204 PDEN	50	40	22	-	3	-	-	CS35115	DBIT-T15
55100488	F90SD12-D063A04R		63	46	22	1"	4	-	-		
55100489	F90SD12-D080B05R		80	50	27	1"	5	SMS321	SN535		
55100490	F90SD12-D100B06R		100	50	32	1-1/4"	6				
55100491	F90SD12-D125B07R		125	61	40	1-1/2"	7				
55100492	F90SD12-D160B08R		160	65	40	2"	8				
55100493	F90SD12-D050A05R		50	40	22	-	5	-	-		
55100494	F90SD12-D063A06R		63	46	22	1"	6	-	-		
55100495	F90SD12-D080B07R		80	50	27	1"	7	SMS321	SN535		
55100496	F90SD12-D100B10R		100	50	32	1-1/4"	10				
55100497	F90SD12-D125B12R		125	61	40	1-1/2"	12				
55100498	F90SD12-D160C14R		160	65	40	2"	14				

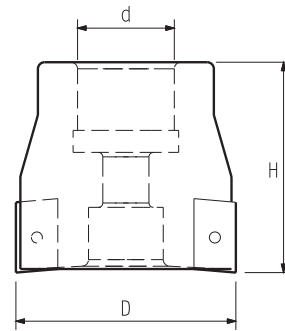


SHELL END MILLS

MSAP10



For indexable inserts
APMT1035

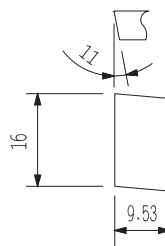


Recommended Inserts: SUMITOMO & NACHI

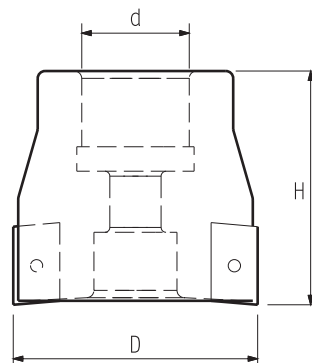
UNIT: mm

ITEM NO.	MODEL	INSERT 	DIMENSIONS					SCREW 	WRENCH 
			D	H	d	d (inch)	I No		
55100499	MSAP10-D040A06R		40	40	16	-	6		
55100500	MSAP10-D050A07R	APMT 1035PDER	50	40	22	-	7	CS25065	DBIT-T8
55100501	MSAP10-D063A09R		63	46	22	1"	9		

MSAP16



For indexable inserts
APMT1605



Recommended Inserts: SUMITOMO & NACHI

UNIT: mm

ITEM NO.	MODEL	INSERT 	DIMENSIONS					SCREW 	WRENCH 
			D	H	d	d (inch)	I No		
55100502	MSAP16-D050A05R		50	40	22	-	5		
55100503	MSAP16-D063A06R	APMT 1605PDER	63	46	22	1"	6	CS35090	DBIT-T15
55100504	MSAP16-D080B08R		80	46	27	1"	8		
55100505	MSAP16-D100B10R		100	50	32	1 1/4"	10		



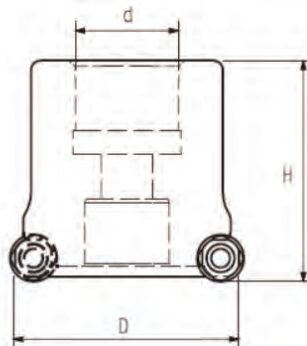
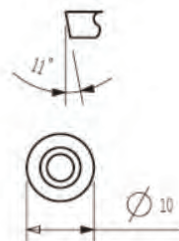
E “ CUTTING TOOLS



SHELL END MILLS



RPMT10T3MOE



For indexable inserts

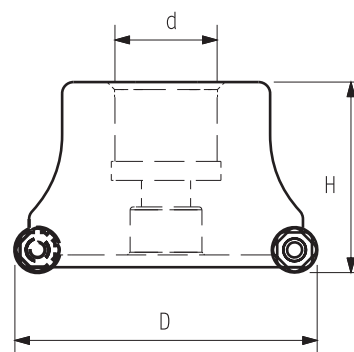
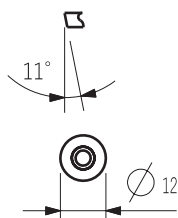
Recommended Inserts: MITSUBISHI

UNIT: mm

ITEM NO.	MODEL	INSERT 	DIMENSIONS				SCREW 	WRENCH
			D	H	d	I No		
55101601	MS5R-050A04R	RPMT10T3MOE RPMW10T3MOE	50	46	22	4	CS35090	DBIT-T15
55101602	MS5R-063A05R		63	46	22	5		
55101603	MS5R-080B06R		80	50	27	6		
55101604	MS5R-100B07R		100	50	32	7		



RPMT1204MOE



For indexable inserts

Recommended Inserts: MITSUBISHI

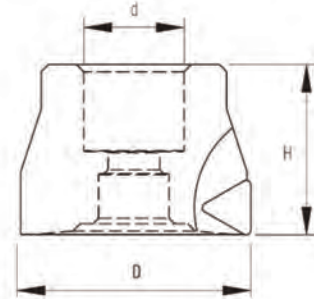
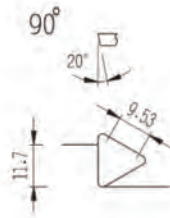
UNIT: mm

ITEM NO.	MODEL	INSERT 	DIMENSIONS				SCREW 	WRENCH
			D	H	d	I No		
55101605	MS6R-050A04R	RPMT1204MOE RPMW1204MOE	50	46	22	4	CS35090	DBIT-T15
55101606	MS6R-063A05R		63	50	22	5		
55101607	MS6R-080B06R		80	50	27	6		
55101608	MS6R-100B07R		100	50	32	7		
55101609	MS6R-125B08R		125	54	40	8		



FACE MILLS

MTE3

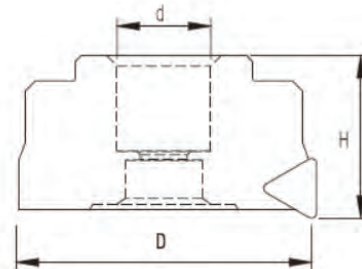
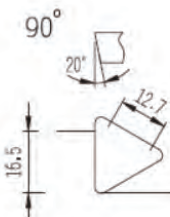


For indexable inserts
TE 1603

UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					CLAMP	CLAMP SCREW	CLAMP SPRING	SHIM	SHIM SCREW	WRENCH
			D	H	d	d (inch)	I No						
55101610	MTE3050R	TE1603	50	46	22	-	3	CP50-3	CSB0617T	SP030	SMT32E	CS6-3006	TL-25
55101611	MTE3063R		63	46	27	1"	4						
55101612	MTE3080R		80	46.5	27	1"	5						
55101613	MTE3100R	TE1603	100	50	32	1-1/4"	6	MTEL60-20	CP50-7	CS70-1	CSH0414	CS70-3	TW040
55101613-1	NMTE3125R		125	55	40	-	6						
55101613-2	NMTE3160R		160	60	40	-	8						
55101613-3	NMTE3200R		200	60	60	-	12						

MTE4



For indexable inserts
TE 2204

UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					LOCATOR	INSERT CLAMP	CLAMP SCREW	LOCATOR SCREW	WASHER	WRENCH
			D	H	d	d (inch)	I No						
55101614	MTE4080R	TE 2204	80	55	27	1"	4	MTEL60-16	CP50-7	CS70-1	CSH0414	CS70-3	TW040
55101615	MTE4100R		100	55	32	1-1/4"	5						
55101616	MTE4125R		125	55	40	1-1/2"	6						
55101617	MTE4160R		160	60	40	2"	8						
55101618	MTE4200R		200	60	60	1-7/8"	12						



E3 - MILLING TOOLS

CUTTING TOOLS

E “ CUTTING TOOLS

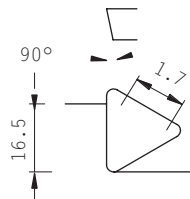


FACE MILLS

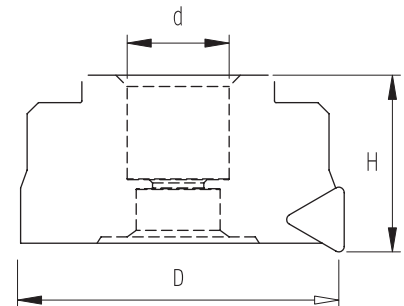
MTP4



Positive Axial Rake Radial Rake



For indexable inserts
TP 2204



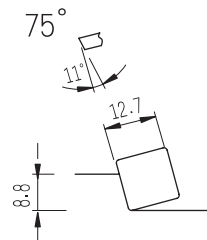
UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					LOCATOR	INSERT CLAMP	CLAMP SCREW	LOCATOR SCREW	WASHER	WRENCH
			D	H	d	d (inch)	I No						
55100536	MTP4080R	TP 2204	80	55	27	1"	5	MTPL60-8	CP50-7	CS70-1	CSH0412	CS70-3	TW040
55100537	MTP4100R		100	55	32	1-1/4"	6						
55100538	MTP4125R		125	55	40	1-1/2"	8						
55100539	MTP4160R		160	60	40	2"	10						
55100540	MTP4200R		200	60	60	1-7/8"	14						
55100541	MTP4250R		250	65	60	1-7/8"	16						
55100542	MTP4315R		315	65	60	1-7/8"	18						
55100543	MTP4360R		360	65	60	1-7/8"	20						

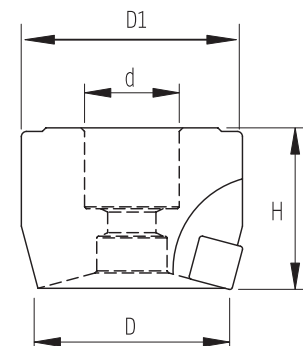
SPC4



Positive Axial Rake



For indexable inserts
SP 1203



UNIT: mm

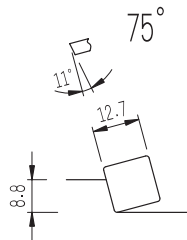
												UNIT: mm
ITEM NO.	MODEL	INSERT	DIMENSIONS						CLAMP	SCREW	SPRING	WRENCH
			D	D1	H	d	d (inch)	I No				
55100506	SPC4050	SP 1203	50	57.6	46	22	-	3				
55100507	SPC4063		63	70.6	46	27	1"	4				
55100508	SPC4075		75	82.6	46	27	1"	5				



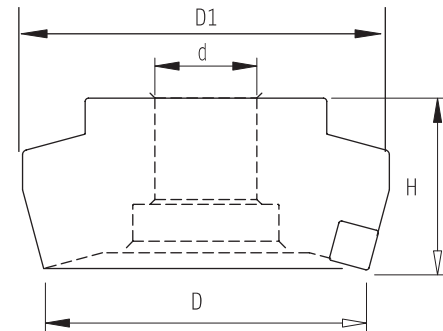
FACE MILLS

NSP4

Negative Axial Rake Radial Rake



For indexable inserts
SP 1203

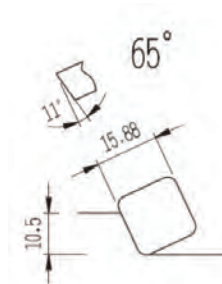


UNIT: mm

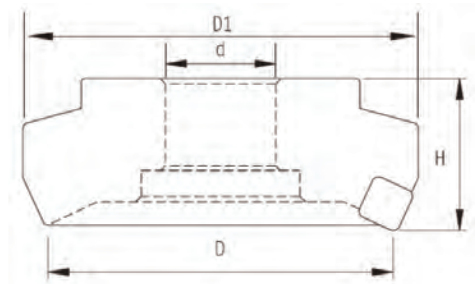
ITEM NO.	MODEL	INSERT	DIMENSIONS					LOCATOR	INSERT CLAMP	CLAMP SCREW	LOCATOR SCREW	WASHER	WRENCH	
			D	D1	H	d	d (inch)	I No						
55100510	NSP4080R	SP 1203	80	93	46	27	1"	5	NSPL60-17	CP50-7	CS70-1	CSH0414	CS70-3	TW040
55100511	NSP4100R		100	109	51	32	1-1/4"	6						
55100512	NSP4125R		125	138	55	40	1-1/2"	8						
55100513	NSP4160R		160	169	57	40	2"	10						
55100514	NSP4200R		200	215	57	60	1-7/8"	14						
55100515	NSP4250R		250	263	57	60	1-7/8"	16						
55100516	NSP4315R		315	318	62	60	1-7/8"	18						
55100517	NSP4360R	360	369	62	60	1-7/8"	20							

SP5

Positive Axial Rake Radial Rake



For indexable inserts
SP 1504



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						LOCATOR	INSERT CLAMP	CLAMP SCREW	LOCATOR SCREW	WASHER	WRENCH
			D	D1	H	d	d (inch)	I No						
55101619	SP5080R	SP 1504	80	98	50	27	1"	4	SPL60-5	CP50-7	CS70-1	CSH0412	CS70-3	TW040
55101620	SP5100R		100	118	55	32	1-1/4"	5						
55101621	SP5125R		125	143	55	40	1*1/2"	6						
55101622	SP5160R		160	178	60	40	2"	8						
55101623	SP5200R		200	218	60	60	1-7/8"	10						
55101624	SP5250R		250	268	60	60	1-7/8"	12						
55101625	SP5315R		315	328	60	60	1-7/8"	14						
55101626	SP5360R	360	378	65	60	1-7/8"	16							



E3 - MILLING TOOLS

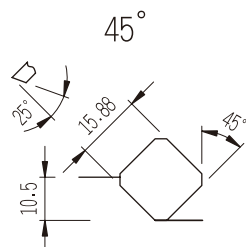
CUTTING TOOLS

E “ CUTTING TOOLS

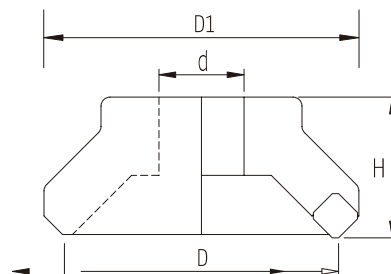
FACE MILLS

SF5

Positive Axial Rake Radial Rake



For indexable inserts
SF 1504

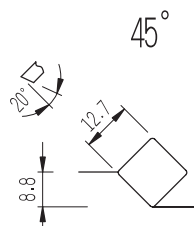


UNIT: mm

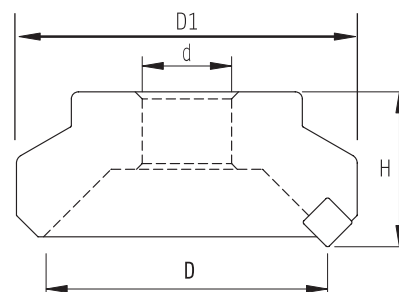
ITEM NO.	MODEL		DIMENSIONS		SHIM	SHIM SCREW	LOCKING SCREW(R)	LOCKING SCREW(L)	WRENCH	
	Right / Left	INSERT	D	D1						
55101627 R/L	SF5063R/L		63	81	50	22	1"	4		
55101628 R/L	SF5080R/L		80	95	50	27	1"	5		
55101629 R/L	SF5100R/L	SF 1504	100	116	50	32	1-1/4"	6	SMS-53	CSA4009F
55101630 R/L	SF5125R/L		125	141	63	40	1-1/2"	7	CS6-0823L	CS6-0823R
55101631 R/L	SF5160R/L		160	176	65	40	2"	7	FT -7	TW040

SE445

Negative Axial Rake Radial Rake



For indexable inserts
SE 1203



UNIT: mm

ITEM NO.	MODEL		INSERT	DIMENSIONS				
	Right / Left			D	D1	H	d	d (inch)
55100518 R/L	SE445 R/L 6304		SE 1203	63	83	50	27	1"
55100519 R/L	SE445 R/L 0304			80	98	50	27	1"
55100520 R/L	SE445 R/L 0405			100	120	55	32	1-1/4"
55100521 R/L	SE445 R/L 0506			125	148	55	40	1-1/2"
55100522 R/L	SE445 R/L 0608			160	180	60	40	2"
55100523 R/L	SE445 R/L 0810			200	220	60	60	1-7/8"
55100524 R/L	SE445 R/L 1012			250	274	63	60	1-7/8"
55100525 R/L	SE445 R/L 1214			305	325	63	60	1-7/8"
55100526 R/L	SE445 R/L 1416			356	376	63	60	1-7/8"
55100527 R/L	SE445 R/L 0306			80	98	50	27	1"
55100528 R/L	SE445 R/L 0407			100	120	55	32	1-1/4"
55100529 R/L	SE445 R/L 0509			125	148	55	40	1-1/2"
55100530 R/L	SE445 R/L 0611			160	180	60	40	2"
55100531 R/L	SE445 R/L 0814			200	220	60	60	1-7/8"
55100532 R/L	SE445 R/L 1018			250	274	63	60	1-7/8"
55100533 R/L	SE445 R/L 1222			305	325	63	60	1-7/8"
55100534 R/L	SE445 R/L 1426			356	376	63	60	1-7/8"

FOR ITEM NO. 55100518 R/L ~ 55100534 R/L

LOCATOR		INSERT CLAMP		CLAMP SCREW	LOCATOR SCREW	WASHER	WRENCH
SEL60-11	SEL60-11L	CP50-7	CP50-7L	CS70-1	CSH0412	CS70-3	TW040

FACE MILLS SE445

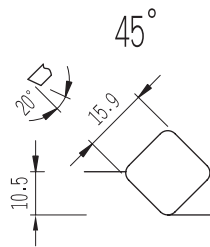
ITEM NO.	MODEL	DIMENSIONS					SHIM	SHIM SCREW	INSERT CLAMP	CLAMP SCREW	WRENCH
		D	D1	H	d	I No					
55105145	SE445R 50045	50	60	40	22	4	SMS-42	CS-F4009	CP50-7	CS70-1	TW040



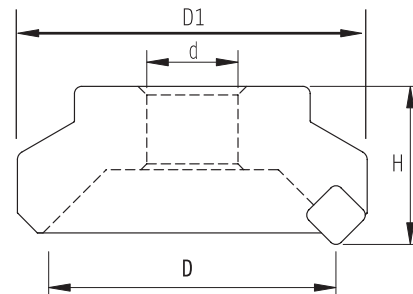
FACE MILLS



Negative Axial Rake Radial Rake



For indexable inserts
SE 1504



UNIT: mm

MODEL		INSERT	DIMENSIONS					
ITEM NO.	Right / Left		D	D1	H	d	d (inch)	I No
55101632 R/L	SE545R/L0304	SE 1504	80	98	50	27	1"	4
55101633 R/L	SE545R/L0405		100	120	55	32	1-1/4"	5
55101634 R/L	SE545R/L0506		125	148	55	40	1-1/2"	6
55101635 R/L	SE545R/L0608		160	180	60	40	2"	8
55101636 R/L	SE545R/L0810		200	220	60	60	1-7/8"	10
55101637 R/L	SE545R/L1012		254	274	65	60	1-7/8"	12
55101638 R/L	SE545R/L1214		305	325	65	60	1-7/8"	14
55101639 R/L	SE545R/L1416		356	376	65	60	1-7/8"	16
55101640 R/L	SE545R/L0407		100	120	55	32	1-1/4"	7
55101641 R/L	SE545R/L0509		125	148	55	40	1-1/2"	9
55101642 R/L	SE545R/L0611		160	180	60	40	2"	11
55101643 R/L	SE545R/L0814		200	220	60	60	1-7/8"	14
55101644 R/L	SE545R/L1018		254	274	65	60	1-7/8"	18
55101645 R/L	SE545R/L1222		305	325	65	60	1-7/8"	22
55101646 R/L	SE545R/L1426		356	376	65	60	1-7/8"	26

Right / Left	LOCATOR	INSERT CLAMP	CLAMP SCREW	LOCATOR SCREW	WASHER	WRENCH
R	SEL60-10	CP50-7	CS70-1	CSH0412	CS70-3	TW040
L	SEL60-10L	CP50-7L	CS70-1	CSH0412	CS70-3	TW040

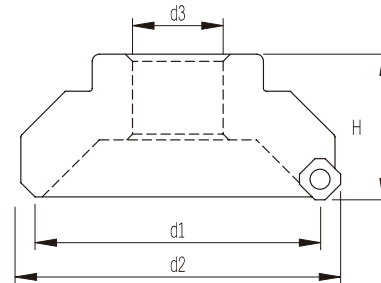


E “ CUTTING TOOLS



FACE MILLS

F45SE12



UNIT: mm

ITEM NO.	MODEL	INSERT 	DIMENSIONS						SCREW 	WRENCH 
			d1	H	d2	d3	d3(inch)	I No.		
55101647	F45SE12-D050A04R	SEHW1204AFTN SEKT1204AF	50	40	60	22	-	4	CS45110	DBIT-T15
55101648	F45SE12-D063A05R		63	50	81	22	1"	5		
55101649	F45SE12-D080B06R		80	50	95	27	1"	6		
55101650	F45SE12-D100B06R		100	50	116	32	1-1/4"	6		
55101651	F45SE12-D125B07R		125	63	141	40	1-1/2"	7		
55101652	F45SE12-D160C10R		160	63	176	40	2"	10		

F45SE13



Fig 1

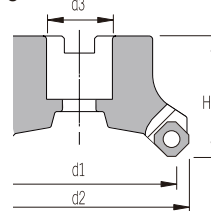
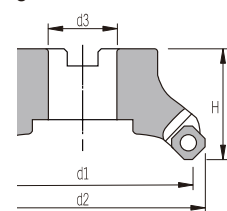


Fig 2



Recommended Inserts: SUMITOMO & MITSUBISHI & KENAMETAL

UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS						I No.	
			d1	H	d2	d3	d3(inch)			
55100635	F45SE13-D040A03R/L	SEET13T3 SEMT13T3	40	40	53	16	-	-	3	-
55100636	F45SE13-D050A04R/L		50	40	63	22	-	3	4	5
55100637	F45SE13-D063A05R/Lxd3		63	50	76	22	1"	4	5	6
55100638	F45SE13-D080B06R/Lxd3		80	50	93	27	1"	4	6	8
55100639	F45SE13-D100B07R/Lxd3		100	50	113	32	1-1/4"	5	7	10
55100640	F45SE13-D125B08R/Lxd3		125	63	138	40	1-1/2"	6	8	12
55100641	F45SE13-D160B10R/Lxd3		160	63	173	40	2"	7	10	16
55100641-1	F45SE13-D200C12R/Lxd3		200	63	213	60	1-7/8"	8	12	20
55100641-2	F45SE13-D250C14R/Lxd3		250	63	263	60	1-7/8"	10	14	24

INSERT SCREW	WRENCH	SHIM	SHIM SCREW	WRENCH
CS35115	DBIT-T15/DBIT-T15L	SME-42	SN5356	LW035

ex: F45SE13-D063A04Rx22, F45SE13-D080B08Rx1"

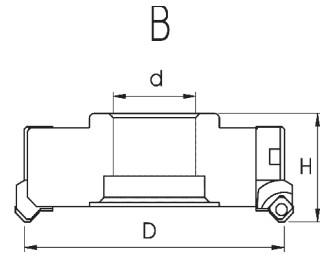


FACE MILLS

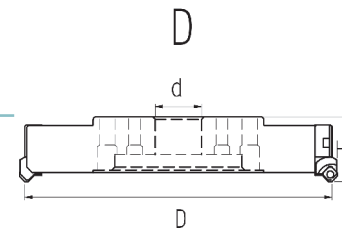
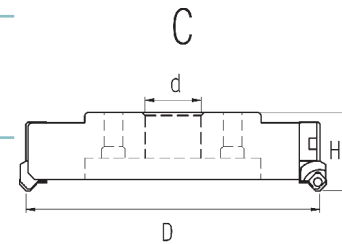


Face mill interchangeable cassettes
high-strength aluminium body for easy
and precise adjustment.

UNIT: mm



ITEM NO.	MODEL	D	H	d	d(inch)	I NO.
55100544-1	F125B06R-S45SE12	125	65	40	1-1/2"	6
55100544-2	-S75SP12					
55100544-3	-S90AP16					
55100544-4	-S90AP1604					
55100544-5	SMORP12					
55100544	F160B06R-S45SE12	160	65	40	2"	8
55100545	-S75SP12					
55100546	-S90AP16					
55100546-1	-S90AP1604					
55100547	SMORP12					
55100548	F200C10R-S45SE12	200	65	60	1-7/8"	10
55100549	-S75SP12					
55100550	-S90AP16					
55100550-1	-S90AP1604					
55100551	SMORP12					
55100552	F250C14R-S45SE12	250	65	60	1-7/8"	14
55100553	-S75SP12					
55100554	-S90AP16					
55100554-1	-S90AP1604					
55100555	SMORP12					
55100556	F315D16R-S45SE12	315	73	60	1-7/8"	16
55100557	-S75SP12					
55100558	-S90AP16					
55100558-1	-S90AP1604					
55100559	SMORP12					
55100560	F360D18R-S45SE12	360	73	60	1-7/8"	18
55100561	-S75SP12					
55100562	-S90AP16					
55100562-1	-S90AP1604					
55100563	SMORP12					



MODEL	INSERT	INSERT CLAMPING SCREW	INSERT WRENCH
 S45SE12	SEHW120 SEKT1204	CS45110	DBIT-T15
 S90AP16	SUMITOMO APMT1605	CS35090	DBIT-T15
 S90AP1604	MITSUBISHI APMT1604	CS35090	DBIT-T15
 SMORP12	MITSUBISHI RPMT1204	CS35090	DBIT-T15
 S75SP12	SPMN1203	CP50-22 CS7-6024	LW030

PARTS	CLAMPING SCREW	MICRO ADJUSTING PIN	CASSETTES CLAMP	LOCKING SCREW	WRENCH
	CS70-12	AP-01	CP50-9	CS7-6016	LW050



E3 - MILLING TOOLS

CUTTING TOOLS

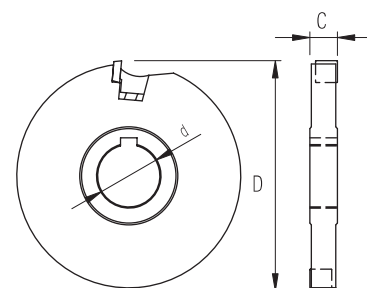
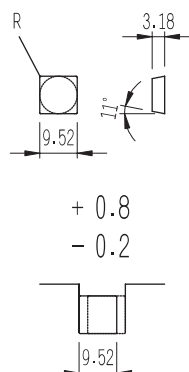
E “ CUTTING TOOLS

SIDE MILLS

TSSP3



For indexable inserts
SP 0903



- Machine steel. Cast iron. Non-ferrous application.
- General purpose cutter.
- Can be used as double side mills.
- Can be adjustable for -0.2mm to +0.8mm

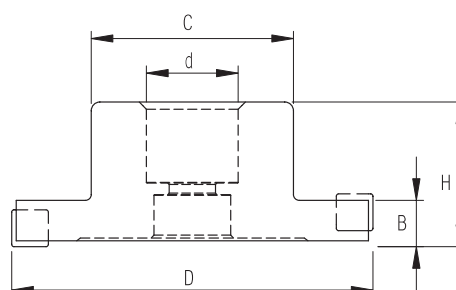
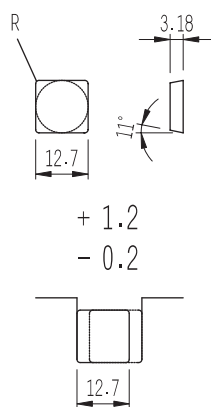
UNIT: mm

ITEM NO.	MODEL	DIMENSIONS					INSERT CLAMP	LOCKING SCREW	CLAMP SCREW	LITTLE SCREW	WRENCH
		D	C	d	d (inch)	I No					
55100564	TSSP308010	80	10	27	1"	6	CP50-6	CS7-6016	CS70-8	CS9-4003	LW020 LW025 LW030
55100565	TSSP308012	80	12	27	1"	6					
55100566	TSSP310010	100	10	27	1"	8					
55100567	TSSP310012	100	12	27	1"	8					
55100568	TSSP313012	130	12	32	1-1/4"	12					
55100569	TSSP316012	160	12	32	1-1/4"	16					

NTSSP4



For indexable inserts
SP 1203



UNIT: mm

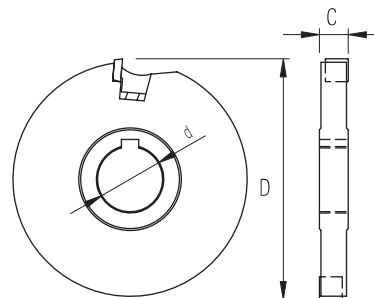
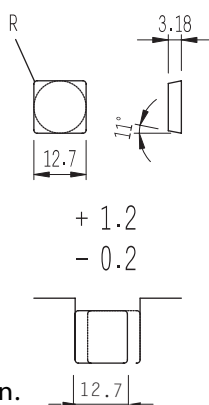
ITEM NO.	MODEL	DIMENSIONS							INSERT CLAMP	LOCKING SCREW	CLAMP SCREW	LITTLE SCREW	WRENCH
		D	B	H	C	d	d (inch)	I No					
55101653	NTSSP410016	100	16	50	48	27	1"	8	CP50-9	CS7-6016	CS70-7	CS9-4004	LW020 LW025 LW030
55101654	NTSSP412518	125	18	50	70	32	1-1/4"	12					
55101655	NTSSP416018	160	18	50	70	32	1-1/4"	16					
55101656	NTSSP416020	160	20	50	70	32	1-1/4"	16					
55101657	NTSSP417518	175	18	50	70	40	1-1/2"	18					
55101658	NTSSP417520	175	20	50	70	40	1-1/2"	18					
55101659	NTSSP420020	200	20	50	90	40	1-1/2"	20					
55101660	NTSSP420022	200	22	50	90	40	1-1/2"	20					

SIDE MILLS

TSSP4



Positive



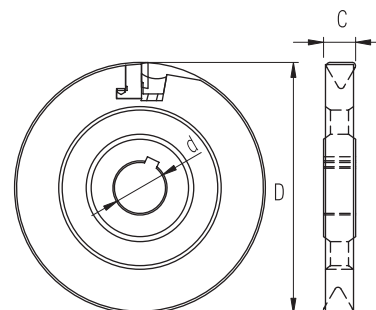
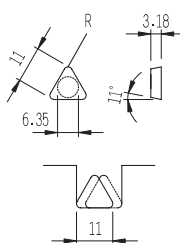
For indexable inserts
SP 1203

- Machine steel. Cast iron. Non-ferrous application.
- General purpose cutter.
- Can be used as double side mills.
- Can be adjustable for -0.2 mm to + 1.2 mm

UNIT: mm

ITEM NO.	MODEL	DIMENSIONS					INSERT CLAMP	LOCKING SCREW	CLAMP SCREW	LITTLE SCREW	WRENCH
		D	C	d	d (inch)	I No					
55101661	TSSP410016	100	16	27	1"	8	CP50-9	CS7-6016	CS70-7	CS9-4004	LW020 LW025 LW030
55101662	TSSP410018	100	18	27	1"	8					
55101663	TSSP412516	125	16	32	1-1/4"	12					
55101664	TSSP412518	125	18	32	1-1/4"	12					
55101665	TSSP412520	125	20	32	1-1/4"	12					
55101666	TSSP416016	160	16	32	1-1/4"	16					
55101667	TSSP416018	160	18	32	1-1/4"	16					
55101668	TSSP416020	160	20	32	1-1/4"	16					
55101669	TSSP417516	175	16	40	1-1/2"	18					
55101670	TSSP417518	175	18	40	1-1/2"	18					
55101671	TSSP417520	175	20	40	1-1/2"	18					
55101672	TSSP420016	200	16	40	1-1/2"	20					
55101673	TSSP420018	200	18	40	1-1/2"	20					
55101674	TSSP420020	200	20	40	1-1/2"	20					
55101675	TSSP425016	250	16	50	2"	24					
55101676	TSSP425018	250	18	50	2"	24					
55101677	TSSP425020	250	20	50	2"	24					

TSTP2



For indexable inserts
TPAN1103PPN

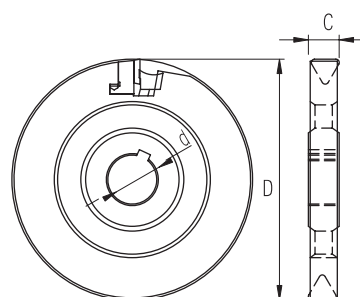
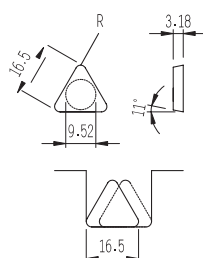
UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					LOCATOR		LOCATOR SCREW	CLAMP	CLAMP SCREW	WRENCH
			D	C	d	d (inch)	I No.	(R) 	(L) 				
55101678	TSTP208012	TPAN1103 PPN	80	12	27	1"	6						
55101679	TSTP210012		100	12	27	1"	8						
55101680	TSTP212512		125	12	32	1-1/4"	10	TSL60-12	TSL60-13	CS9-3003 CS9-3006	CP50-6	CS7-6016	LW030 LW020
55101681	TSTP216012		160	12	32	1-1/4"	12						

E “ CUTTING TOOLS



SIDE MILLS



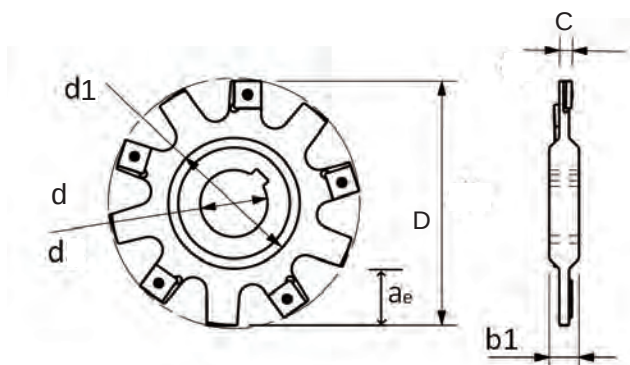
For indexable inserts
TPAN1603PPN

UNIT: mm

														UNIT: mm
ITEM NO.	MODEL	INSERT	DIMENSIONS					LOCATOR		LOCATOR SCREW	CLAMP	CLAMP SCREW	WRENCH	
			D	C	d	d (inch)	I No.	(R)	(L)					
55100570-1	TSTP310016	TPAN1603 PPN	100	16	27	1"	6	TSL60-14		CS9-4004 CS9-4012	CP50-9	CS7-6016	LW030 LW020	
55100570	TSTP310018		100	18	27	1"	6							
55100570-2	TSTP312516		125	16	32	1-1/4"	8							
55100571	TSTP312518		125	18	32	1-1/4"	8							
55100572	TSTP312520		125	20	32	1-1/4"	8							
55100573	TSTP316016		160	16	32	1-1/4"	10							
55100574	TSTP316018		160	18	32	1-1/4"	10							
55100575	TSTP316020		160	20	32	1-1/4"	10							
55100575-1	TSTP320018		200	18	40	1-1/2"	12							
55100576	TSTP320020		200	20	40	1-1/2"	12							
55100577	TSTP320022		200	22	40	1-1/2"	12							
55100578	TSTP320024		200	24	40	1-1/2"	12							
55100578-1	TSTP325018		250	18	50	2"	16							
55100578-2	TSTP325020		250	20	50	2"	16							



SIDE MILLS



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS							CLAMP SCREW	WRENCH	
			D	ae	b1	C	d1	d	d (inch)	I No.		
55100579	TSSN11020-08004	SNHX1102	80	18	12	4	44	27	1"	10	CSA300355	DBIT-T7
55100583	TSSN11020-10004		100	27	12	4	45	27	1"	12		
55100589	TSSN11020-12504		125	33	12	4	58	40	1-1/2"	14		
55100594	TSSN11020-16004		160	46	12	4	68	40	1-1/2"	18		
55100580	TSSN11030-08005	SNHX1103	80	18	12	5	44	27	1"	10	CSA30042	DBIT-T7
55100584	TSSN11030-10005		100	27	12	5	45	27	1"	12		
55100590	TSSN11030-12505		125	33	12	5	55	40	1-1/2"	14		
55100595	TSSN11030-16005		160	46	12	5	68	40	1-1/2"	18		
55100585	TSSN12030-10006	SNHX1203	100	27	12	6	45	27	1"	10	CSA40051	DBIT-T15
55100591	TSSN12030-12506		125	33	12	6	55	40	1-1/2"	12		
55100596	TSSN12030-16006		160	46	12	6	68	40	1-1/2"	16		
55100599	TSSN12030-20006		200	61	12	6	78	50	2"	18		
55100602	TSSN12030-25006	SNHX1204	250	82	12	6	86	50	2"	24	CSA40059	
55100586	TSSN12040-10007		100	27	12	7	45	27	1"	10		
55100586-1	TSSN12040-12507		125	33	12	7	55	40	1-1/2"	12		
55100586-2	TSSN12040-16007		160	46	12	7	68	40	1-1/2"	16		
55100586-3	TSSN12040-20007	SNHX1205	200	61	12	7	78	61	2"	18	CSA40079	
55100586-4	TSSN12040-25007		250	82	12	7	86	82	2"	24		
55100588	TSSN12050-10010		100	27	12	10	45	27	1"	10		
55100593	TSSN12050-12510		125	33	12	10	55	40	1-1/2"	12		
55100598	TSSN12050-16010		160	46	12	10	68	40	1-1/2"	16		
55100601	TSSN12050-20010		200	61	12	10	78	50	2"	18		
55100604	TSSN12050-25010		250	82	12	10	86	50	2"	24		



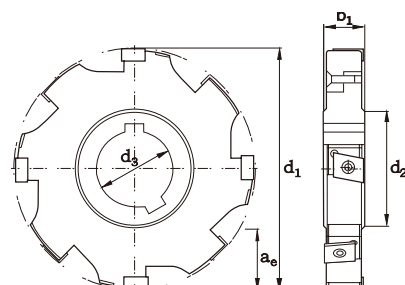
E3 - MILLING TOOLS

CUTTING TOOLS

E “ CUTTING TOOLS



SIDE MILLS



Recommended Inserts: KENAMETAL

Insert: CNHU1005 Acceptable Customized Thickness: 13~17 mm

UNIT: mm

ITEM NO.	MODEL	DIMENSIONS							
		d1	ap	ae	D1	d2	d3	d3(inch)	I No.
55101682	TSCN10-08014	80	14	18	14	44	27	1"	6
55101683	TSCN10-10014	100	14	26	14	48	27	1"	8
55101684	TSCN10-12514	125	14	35	14	55	32	1-1/4"	10
55101685	TSCN10-16014	160	14	46	14	68	40	1-1/2"	12
55101686	TSCN10-20014	200	14	61	14	78	50	2"	16
55101687	TSCN10-25014	250	14	82	14	86	50	2"	20

Insert: CNHU1205 Acceptable Customized Thickness: 17~21 mm

UNIT: mm

ITEM NO.	MODEL	DIMENSIONS							
		d1	ap	ae	D1	d2	d3	d3(inch)	I No.
55101688	TSCN12-08018	80	18	18	18	44	27	1"	6
55101689	TSCN12-10018	100	18	26	18	48	27	1"	8
55101690	TSCN12-12518	125	18	35	18	55	32	1-1/4"	10
55101691	TSCN12-16018	160	18	46	18	68	40	1-1/2"	12
55101692	TSCN12-20018	200	18	61	18	78	50	2"	16
55101693	TSCN12-25018	250	18	82	18	86	50	2"	20

Insert: CNHU1606 Acceptable Customized Thickness: 21~30 mm

UNIT: mm

ITEM NO.	MODEL	DIMENSIONS							
		d1	ap	ae	D1	d2	d3	d3(inch)	I No.
55101694	TSCN16-08022	80	22	18	22	44	27	1"	6
55101695	TSCN16-10022	100	22	26	22	48	27	1"	8
55101696	TSCN16-12522	125	22	35	22	55	32	1-1/4"	10
55101697	TSCN16-16022	160	22	46	22	68	40	1-1/2"	12
55101698	TSCN16-20022	200	22	61	22	78	50	2"	16
55101699	TSCN16-25022	250	22	82	22	86	50	2"	20

Order example: TSCN10-08014 x1"

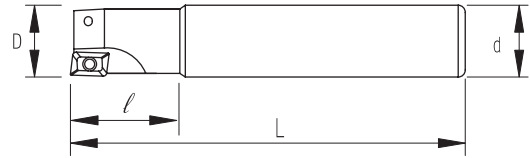
UNIT: mm

ap	INSERT	L1	SCREW	WRENCH
13 ~ 17	CNHU1005 / CNHQ1005	10.0	CS40110	DBIT-T15
17 ~ 21	CNHU1205 / CNHQ1205	12.7	CS40110	DBIT-T15
21 ~ 30	CNHU1606 / CNHQ1606	16.0	CS50130	DBIT-T20



NEW AX SERIES END MILLS

E90AX12
E90AX12-H
E90AX12-LH



Recommended Inserts: SUMITOMO & NACHI

UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS					SCREW	WRENCH
			D	L	ℓ	d	I No		
55100605/605H	E90AX12-D14/H	AXMT 1235	14	80	25	16	1	CS30051	DBIT-T8
55100606/606H	E90AX12-D16/H		16	100	25	16	2		
55100606-1/606-1H	E90AX12-D17/H		17	150	25	16	2	CS30058	
55100606-2/606-2H	E90AX12-D17/H		17	200	25	16	2		
55100607/607H	E90AX12-D18/H		18	100	25	16	2		
55100608/608H	E90AX12-D20/H		20	110	30	20	3		
55100608-1/608-1H	E90AX12-D21/H		21	150	30	20	3		
55100608-2/608-2H	E90AX12-D21/H		21	200	30	20	3		
55100609/609H	E90AX12-D22/H		22	110	30	20	3		

Recommended Inserts: SUMITOMO & NACHI

UNIT: mm

ITEM NO.	MODEL	INSERT 	DIMENSIONS					SCREW 	WRENCH
			D	L	ℓ	d	I No		
55100610/610H	E90AX12-D25/H	AXMT 1235	25	120	35	25	4	CS30058	DBIT-T8
55100610-1/610-1H	E90AX12-D26/H		26	150	35	25	4		
55100610-2/610-2H	E90AX12-D26/H		26	200	35	25	4		
55100611/611H	E90AX12-D28/H		28	120	35	25	4		
55100612/612H	E90AX12-D30/H		30	120	35	25	4		
55100613/613H	E90AX12-D32/H		32	130	40	32	5		
55100613-1/613-1H	E90AX12-D33/H		33	200	40	32	5		
55100614/614H	E90AX12-D40/H		40	150	30	32	6		

Recommended Inserts: SUMITOMO & NACHI

UNIT: mm

		INSERT	DIMENSIONS					SCREW	WRENCH
ITEM NO.	MODEL		D	L	ℓ	d	I No		
55100605LH	E90AX12-D14LH	AXMT 1235	14	120	25	16	1	CS30051	DBIT-T8
55100606LH	E90AX12-D16LH		16	145	25	16	2		
55100607LH	E90AX12-D18LH		18	145	25	16	2	CS30058	
55100608LH	E90AX12-D20LH		20	150	40	20	2		
55100609LH	E90AX12-D22LH		22	150	30	20	2		
55100610LH	E90AX12-D25LH		25	170	50	25	2		
55100611LH	E90AX12-D28LH		28	170	30	25	2		
55100612LH	E90AX12-D30LH		30	170	30	25	2		
55100613LH	E90AX12-D32LH		32	180	60	32	2		
55100614LH	E90AX12-D40LH		40	180	30	32	2		

E90AX12-D16 without cooling channel

E90AX12-D16H with cooling channel

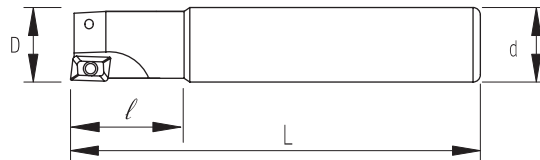
E90AX12-D16LH with longer shank and cooling channel



“ CUTTING TOOLS

NEW AX SERIES END MILLS

E90AX17
E90AX17-H
E90AX17-LH



Recommended Inserts: SUMITOMO & NACHI

UNIT: mm

ITEM NO.	MODEL	INSERT		DIMENSIONS				SCREW		WRENCH	
			D	L	ℓ	d	I No				
55100615/615H	E90AX17-D25/H	AXMT 1705	25	120	35	25	2	CS4009P		DBIT-TP15	
55100616/616H	E90AX17-D28/H		28	120	35	25	2				
55100617/617H	E90AX17-D30/H		30	130	40	25	3				
55100618/618H	E90AX17-D32/H		32	130	40	32	3				
55100619/619H	E90AX17-D35/H		35	130	40	32	3				
55100620/620H	E90AX17-D40/H		40	170	50	32	4				

UNIT: mm

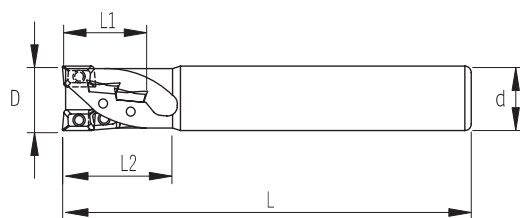
ITEM NO.	MODEL	INSERT		DIMENSIONS				SCREW		WRENCH	
			D	L	ℓ	d	I No				
55100615/615H	E90AX17-D25LH	AXMT 1705	25	170	50	25	2	CS4009P		DBIT-TP15	
55100616/616H	E90AX17-D28LH		28	170	50	25	2				
55100617/617H	E90AX17-D30LH		30	180	60	25	2				
55100618/618H	E90AX17-D32LH		32	180	60	32	2				
55100619/619H	E90AX17-D35LH		35	180	60	32	2				
55100620/620H	E90AX17-D40LH		40	220	80	32	2				

E90AX17-D25 without cooling channel

E90AX17-D25H with cooling channel

E90AX17-D25LH with longer shank and cooling channel

EM90AX



Recommended Inserts: SUMITOMO & NACHI

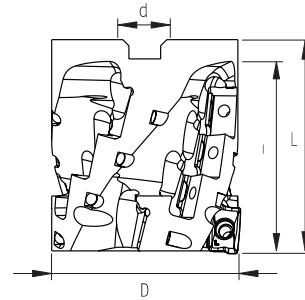
UNIT: mm

ITEM NO.	MODEL	INSERT		DIMENSIONS						SCREW		WRENCH	
			D	d	L1	L2	L	T No.	I No.				
55100621-1	EM90AX12-D20X	AXMT 1235	20	20	27	45	130	2	6	CS30058		DBIT-T8	
55100622	EM90AX12-D25		25	25	27	45	130	2	6				
55100623	EM90AX12-D32		32	32	27	45	130	3	9				
55100624-1	EM90AX12-D40		40	42	36	35	130	4	16				
55100621	EM90AX12-D20L	AXMT 1235	20	20	36	45	130	1	4	CS30058		DBIT-T8	
55100622-1	EM90AX12-D25L		25	25	36	45	130	2	8				
55100623-1	EM90AX12-D32L		32	32	45	65	150	3	15				
55100624	EM90AX17-D32	AXMT 1705	32	32	40	65	150	2	6	CS4009P		DBIT-TP15	
55100625	EM90AX17-D40		40	42	40	65	150	3	9				
55100625-1	EM90AX17-D50		50	42	53	75	165	3	12				

T No. = inserts per level I No. = total inserts I / T = ladders



NEW AX SERIES END MILLS



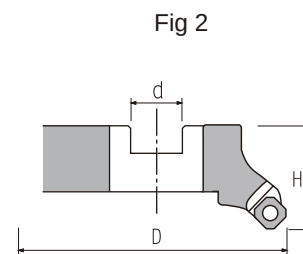
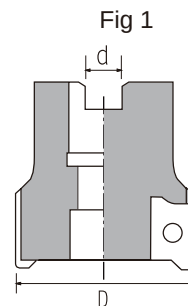
Recommended Inserts: SUMITOMO & NACHI

UNIT: mm

ITEM NO.	MODEL	INSERT		DIMENSIONS				SCREW		WRENCH	
			D	d	I	L	T No.	I No.			
55101700	EM90AX17-D50S	AXMT 1705	50	22	53	70	3	12	CS4009P	DBIT-TP15	
55101701	EM90AX17-D63S		63	27	53	70	4	16			
55101702	EM90AX17-D80S		80	32	53	85	5	20			
55101703	EM90AX17-D100S		100	40	53	85	6	24			

T No. = effective inserts per cut

I No. = total inserts



Recommended Inserts: SUMITOMO & NACHI

UNIT: mm

ITEM NO.	MODEL	INSERT		DIMENSIONS				SCREW		WRENCH	
			D	H	d	d (inch)	I No.	Arbor Type			
55100626/626H	MSAX12-D040A06/H	AXMT 1235	40	40	16	-	6	Fig. 1	CS30058	DBIT-T8	
55100627/627H	MSAX12-D050A07/H		50	40	22	-	7	Fig. 1			
55100628/628H	MSAX12-D063A08/H		63	40	22	1"	8	Fig. 1			

MSAX12-D040A06H x16 with cooling channel

Standard Pitch Type

UNIT: mm

ITEM NO.	MODEL	INSERT		DIMENSIONS				SCREW		WRENCH	
			D	H	d	d (inch)	I No.	Arbor Type			
55100629/629H	MSAX17-D040A04/H	AXMT 1705	40	40	16	-	4	Fig. 1	CS4009P	DBIT-T15	
55100630/630H	MSAX17-D050A05/H		50	40	22	-	5	Fig. 1			
55100631/631H	MSAX17-D063A06/H		63	50	22	1"	6	Fig. 1			
55100632/632H	MSAX17-D080B07/H		80	50	27	1"	7	Fig. 2			
55100633/633H	MSAX17-D100B08/H		100	63	32	1-1/4"	8	Fig. 2			
55100634/634H	MSAX17-D125B09/H		125	63	40	1-1/2"	9	Fig. 2			

MSAX17-D040A04H x16 with cooling channel



E3 - MILLING TOOLS

CUTTING TOOLS

E “ CUTTING TOOLS



NEW AX SERIES END MILL TOOL KIT – INSERT TYPE (3PCS / SET)

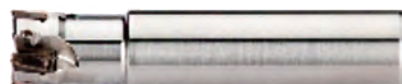


◀ ITEM NO. 55101704
MODEL: TB-M02AX12
(TOOLS: E90AX12-D16/D20/D25, W/ 20PCS INSERTS)

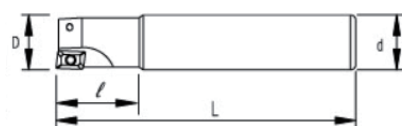
Recommended Inserts: SUMITOMO & NACHI

MODEL	INSERT 	DIMENSIONS					SCREW 	WRENCH 
		D	L	ℓ	d	I No.		
E90AX12-D16(H)	AXMT 1235	16	100	25	16	2	CS30051	DBIT-T8
E90AX12-D16(H)		20	110	30	20	3	CS30058	
E90AX12-D16(H)		25	120	35	25	4		

E90AX12 (W/O COOLING CHANNEL)
E90AX12-H (W/COOLING CHANNEL)
E90AX12-LH (W/COOLING CHANNEL & LONGER SHANK)



MODEL	INSERT 	DIMENSIONS					SCREW 	WRENCH 
		D	L	ℓ	d	I No.		
E90AX12-D16(LH)	AXMT 1235	16	145	25	16	2	CS30051	DBIT-T8
E90AX12-D16(LH)		20	150	40	20	2	CS30058	
E90AX12-D16(LH)		25	170	50	25	2		





GUIDE LINES TO

WORK MATERIAL



WORK MATERIAL HARDNESS IS UP TO HRC50°, HRC55°



WORK MATERIAL HARDNESS IS UP TO HRC50°, HRC55°, HRC60°



WORK MATERIAL HARDNESS IS UP TO HRC50°, HRC55°, HRC60°, HRC65°

COATING



HELIX ANGLE



HELIX 5°, 25°, 30°, 35°, 40°, 50°, 55°

SHINK NECK



BEST FOR LONG NECK MACHINING.

CORNER R



CARBIDE



SUPER MICRO GRAIN



SUPER MICRO GRAIN



MICRO GRAIN

FLUTE



COATING CLASSIFYING AND ADVANTAGE

END MILL EXPERT

ITEM	COATING TYPE	ALTiN	TIALN	nBCob	Ticrsin	HELICA
CHARACTERISTIC	hardness (hv)	~3200	~2800	45(Gpa)	~3600	~2800
	thickness (m)	2.5~3	2.5~3	3	2.0~2.5	1~4
	oxidation temp	900	800	1200	1100	1000
	friction coefficient	0.3	0.3	0.45	0.4	0.25
	color	black	black	blue	SoFe Gold	copper
APPLICATION	carbon steel	◎	◎	◎	○	○
	alloy / tool / high speed steel	◎	◎	◎	○	◎
	stainless steel	X	○	○	◎	◎
	alloy	◎	○	◎	◎	○
	copper / aluminum	X	X	X	X	X
	incolnet	◎	○	◎	◎	○
	titanium	X	○	○	◎	X
CUTTING WAY	plastic / composites / wood / paper	X	X	X	X	X
	dry cutting	◎	◎	○	◎	◎
	wet cutting	X	○	X	○	○
	oil spray	○	◎	◎	○	◎

ICON: ◎ Recommend ○ Suitable X Not Recommend



E “ CUTTING TOOLS

HIGH SPEED CUTTING & HIGH HARD CUTTING

- **STANDARD 2 FLUTES BALL NOSE END MILLS**
- **STANDARD 4 FLUTES BALL NOSE END MILLS**
- **LONG SHANK 2 FLUTES BALL NOSE END MILLS**
- **STANDARD 4 FLUTES SQUARE END MILLS**
- **4 FLUTES SQUARE END MILLS**
- **4 FLUTES CORNER RADIUS END MILLS**
- **4 FLUTES LONG SHANK CORNER RADIUS END MILLS**
- **SHORT FIUTE 4 FLUTES CORNER RADIUS END MILLS**
- **LONG NECK SHORT FLUTES LENGTH 2 FLUTES BALL NOSE END MILLS**



HIGH SPEED CUTTING & HIGH HARD CUTTING

MICRO DIAMETER 2 FLUTES BALL NOSE END MILLS



UNIT: mm

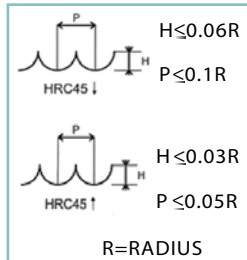
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55102410	VSBN 0022	R0.10	0.4	50	4
55102411	VSBN 0032	R0.15	0.6	50	4
55102412	VSBN 0042	R0.20	0.8	50	4
55102413	VSBN 0052	R0.25	1.0	50	4
55102414	VSBN 0062	R0.30	1.2	50	4
55102415	VSBN 0072	R0.35	1.4	50	4
55102416	VSBN 0082	R0.40	1.6	50	4
55102417	VSBN 0092	R0.45	1.8	50	4
55102418	VSBN 0122	R0.6	2.4	50	4
55102419	VSBN 0142	R0.7	2.8	50	4
55102420	VSBN 0162	R0.8	3.2	50	4
55102421	VSBN 0182	R0.9	3.6	50	4



RECOMMENDED CUTTING CONDITION FOR BALL NOSE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C, FC, FCD, SCM, S50C, SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM, SKD11, SKD61, NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
RADIUS	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
0.1	32000	500-600	32000	400-500	25000	300-400
0.15	32000	500-600	32000	400-500	25000	300-400
0.2	32000	500-600	32000	400-500	25000	300-400
0.25	32000	600-700	32000	500-600	25000	400-500
0.3	32000	600-700	32000	500-600	25000	400-500
0.35	32000	700-800	32000	600-700	25000	500-600
0.4	32000	900-1000	32000	800-900	25000	600-700
0.45	32000	1000-1100	32000	900-1000	25000	600-700

DEPTH OF CUT



MICRO DIAMETER MINIATURE 2 FLUTES END MILLS

UNIT: mm

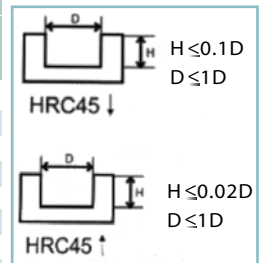
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55102422	V SEN 0022	0.2	0.4	50	4
55102423	V SEN 0032	0.3	0.6	50	4
55102424	V SEN 0042	0.4	0.8	50	4
55102425	V SEN 0052	0.5	1.0	50	4
55102426	V SEN 0062	0.6	1.2	50	4
55102427	V SEN 0072	0.7	1.4	50	4
55102428	V SEN 0082	0.8	1.6	50	4
55102429	V SEN 0092	0.9	1.8	50	4
55102430	V SEN 0122	1.2	3	50	4
55102431	V SEN 0142	1.4	3	50	4
55102432	V SEN 0162	1.6	4	50	4
55102433	V SEN 0182	1.8	5	50	4



RECOMMENDED CUTTING CONDITION FOR MICRO DIAMETER SQUARE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C, FC, FCD, SCM, S50C, SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM, SKD11, SKD61, NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
0.2	40000	100-300	30000	80-250	15000	50-150
0.3	40000	100-350	30000	80-300	15000	50-200
0.4	40000	100-400	25000	80-350	10000	50-250
0.5	40000	100-500	25000	80-400	10000	50-250
0.6	38000	100-600	25000	80-500	8000	50-250
0.7	36000	100-700	20000	80-600	8000	50-250
0.8	34000	100-800	20000	80-700	8000	50-250
0.9	32000	100-1000	20000	80-800	8000	50-250

DEPTH OF CUT



E3 - MILLING TOOLS

CUTTING TOOLS

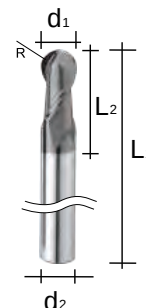
STANDARD 2 FLUTES BALL NOSE END MILLS



UNIT: mm



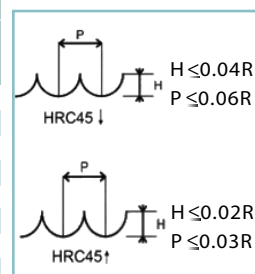
ITEM NO.	TYPE NO.	DIAMETER(D1)	FLUTE LENGTH(L2)	O.A.L(L1)	SHANK DIA(d2)
55102434	VB 0102	R0.5	2	50	4
55102435	VB 0152	R0.75	3	50	4
55102436	VB 0202	R1.0	4	50	4
55102437	VB 0252	R1.25	5	50	4
55102438	VB 0302	R1.5	6	50	4
55102439	VB 0302A	R1.5	6	50	3
55102440	VB 0402	R2.0	8	50	4
55102441	VB 0502	R2.5	10	50	6
55102442	VB 0602	R3.0	12	50	6
55102443	VB 0802	R4.0	16	60	8
55102444	VB 1002	R5.0	20	75	10
55102445	VB 1202	R6.0	24	75	12
55102446	VB 1602	R8.0	32	100	16
55102447	VB 2002	R10.0	32	100	20



RECOMMENDED CUTTING CONDITION FOR BALL NOSE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C, FC, FCD, SCM, S50C, SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM, SKD11, SKD61, NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
RADIUS (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
R0.5	45000	2000	45000	1800	28000	1000
R1	23000	2000	22000	1800	16000	900
R1.5	16000	2000	15000	1800	11000	900
R2	15000	2400	14000	2000	10000	1300
R3	13000	3200	11000	2000	9000	1500
R4	9000	2300	8000	1500	6200	1400
R5	7500	1900	6500	1200	5200	900
R6	6300	1600	5500	1000	4300	800
R8	4500	1200	3800	800	3300	700

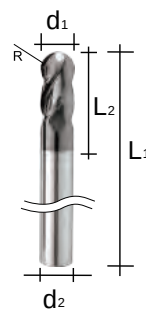
DEPTH OF CUT



STANDARD 4 FLUTES BALL NOSE END MILLS

UNIT: mm

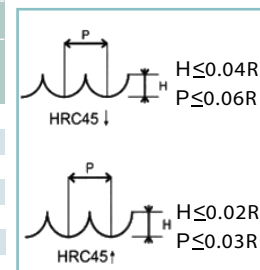
ITEM NO.	TYPE NO.	DIAMETER(D1)	FLUTE LENGTH(L2)	O.A.L(L1)	SHANK DIA(d2)
55102448	VB 0104	R0.5	2	50	4
55102449	VB 0154	R0.75	3	50	4
55102450	VB 0204	R1.0	4	50	4
55102451	VB 0304	R1.5	6	50	4
55102452	VB 0304A	R1.5	6	50	3
55102453	VB 0404	R2.0	8	50	4
55102454	VB 0504	R2.5	10	50	6
55102455	VB 0604	R3.0	12	50	6
55102456	VB 0804	R4.0	16	60	8
55102457	VB 1004	R5.0	20	75	10
55102458	VB 1204	R6.0	24	75	12
55102459	VB 1604	R8.0	32	100	16
55102460	VB 2004	R10.0	32	100	20



RECOMMENDED CUTTING CONDITION FOR BALL NOSE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C, FC, FCD, SCM, S50C, SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM, SKD11, SKD61, NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
RADIUS (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
R2	15000	3000	14000	2600	10000	1700
R3	13000	4000	11000	2600	9000	1900
R4	9000	2900	8000	1900	6200	1800
R5	7500	2400	6500	1500	5200	1100
R6	6300	2100	5500	1300	4300	1000
R8	4500	1500	3800	1000	3300	900
R10	3700	1200	3200	750	2600	600

DEPTH OF CUT



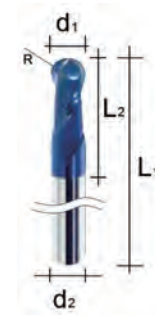
HIGH SPEED CUTTING & HIGH HARD CUTTING

STANDARD 2 FLUTES BALL NOSE END MILLS



UNIT: mm

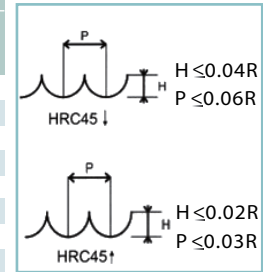
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55102461	VBN 0102	R0.5	2	50	4
55102462	VBN 0152	R0.75	3	50	4
55102463	VBN 0202	R1.0	4	50	4
55102464	VBN 0252	R1.25	5	50	4
55102465	VBN 0302	R1.5	6	50	4
55102466	VBN 0302A	R1.5	6	50	3
55102467	VBN 0402	R2.0	8	50	4
55102468	VBN 0502	R2.5	10	50	6
55102469	VBN 0602	R3.0	12	50	6
55102470	VBN 0802	R4.0	16	60	8
55102471	VBN 1002	R5.0	20	75	10
55102472	VBN 1202	R6.0	24	75	12
55102473	VBN 1602	R8.0	32	100	16
55102474	VBN 2002	R10.0	32	100	20



RECOMMENDED CUTTING CONDITION FOR BALL NOSE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C,FC,FCD,SCM,S50C,SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM,SKD11,SKD61,NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
RADIUS (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
R0.5	45000	2000	45000	1800	28000	1000
R1	23000	2000	22000	1800	16000	900
R1.5	16000	2000	15000	1800	11000	900
R2	15000	2400	14000	2000	10000	1300
R3	13000	3200	11000	2000	9000	1500
R4	9000	2300	8000	1500	6200	1400
R5	7500	1900	6500	1200	5200	900
R6	6300	1600	5500	1000	4300	800
R8	4500	1200	3800	800	3300	700

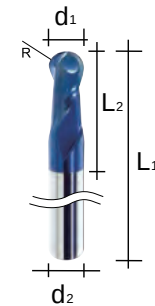
DEPTH OF CUT



LONG SHANK 2 FLUTES BALL NOSE END MILLS

UNIT: mm

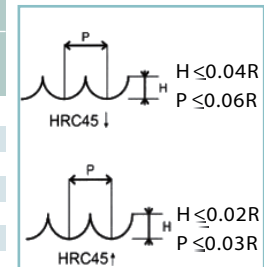
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55102475	VIBN 0202	R1.0	4	75	6
55102476	VIBN 0302	R1.5	6	75	6
55102477	VIBN 0402	R2.0	8	75	6
55102478	VIBN 0502	R2.5	10	75	6
55102479	VIBN 0602	R3.0	12	75	6
55102480	VIBN 0802	R4.0	16	75	8
55102481	VJBN 0602	R3.0	12	100	6
55102482	VJBN 0802	R4.0	16	100	8
55102483	VJBN 1002	R5.0	20	100	10
55102484	VJBN 1202	R6.0	24	100	12



RECOMMENDED CUTTING CONDITION FOR BALL NOSE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C,FC,FCD,SCM,S50C,SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM,SKD11,SKD61,NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
RADIUS (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
1	23000	2000	22000	1800	16000	900
1.5	16000	2000	15000	1800	11000	900
2	15000	2400	14000	2000	10000	1300
3	13000	3200	11000	2000	9000	1500
4	9000	2300	8000	1500	6200	1400
5	7500	1900	6500	1200	5200	900
6	6300	1600	5500	1000	4300	800

DEPTH OF CUT



E3 - MILLING TOOLS

CUTTING TOOLS

E “ CUTTING TOOLS

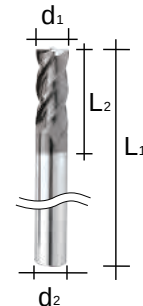
HIGH SPEED CUTTING & HIGH HARD CUTTING

STANDARD 4 FLUTES SQUARE END MILLS



UNIT: mm

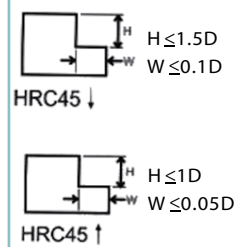
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55102485	VE 0104	1.0	3	50	4
55102486	VE 0154	1.5	4	50	4
55102487	VE 0204	2.0	6	50	4
55102488	VE 0254	2.5	7	50	4
55102489	VE 0304	3.0	8	50	4
55102490	VE 0304A	3.0	8	50	3
55102491	VE 0404	4.0	11	50	4
55102492	VE 0504	5.0	13	50	6
55102493	VE 0604	6.0	15	50	6
55102494	VE 0804	8.0	20	60	8
55102495	VE 1004	10.0	30	75	10
55102496	VE 1204	12.0	30	75	12
55102497	VE 1404	14.0	35	100	16
55102498	VE 1604	16.0	40	100	16
55102499	VE 1804	18.0	40	100	20
55102500	VE 2004	20.0	45	100	20
55102501	VE 2504	25.0	45	100	25



RECOMMENDED CUTTING CONDITION FOR SQUARE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C, FC, FCD, SCM, S50C, SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM, SKD11, SKD61, NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
1	22000	400	18000	200	9000	140
1.5	12000	500	11000	280	5200	150
2	10000	550	10000	280	4600	170
3	9000	600	5500	310	3500	220
4	6000	600	5000	400	2200	220
5	4800	750	4000	400	1700	240
6	4500	800	3800	420	1600	300
8	3500	820	2800	420	1000	300
10	3000	820	1800	420	900	300
12	2000	820	1600	350	800	300
16	1500	650	1000	300	500	150
20	1200	600	900	300	400	150

DEPTH OF CUT



4 FLUTES SQUARE END MILLS

UNIT: mm

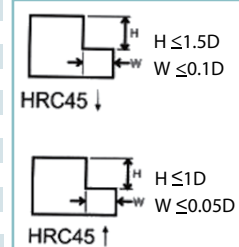
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55102502	VEA 0504	5.0	13	50	6
55102503	VEA 0604	6.0	15	50	6
55102504	VEA 0804	8.0	20	60	8
55102505	VEA 1004	10.0	30	75	10
55102506	VEA 1204	12.0	30	75	12
55102507	VEA 1404	14.0	35	100	16
55102508	VEA 1604	16.0	40	100	16
55102509	VEA 1804	18.0	40	100	20
55102510	VEA 2004	20.0	45	100	20
55102511	VEA 2504	25.0	45	100	25



RECOMMENDED CUTTING CONDITION FOR SQUARE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C, FC, FCD, SCM, S50C, SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM, SKD11, SKD61, NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
1	22000	400	18000	200	9000	140
1.5	12000	500	11000	280	5200	150
2	10000	550	10000	280	4600	170
3	9000	600	5500	310	3500	220
4	6000	600	5000	400	2200	220
5	4800	750	4000	400	1700	240
6	4500	800	3800	420	1600	300
8	3500	820	2800	420	1000	300
10	3000	820	1800	420	900	300
12	2000	820	1600	350	800	300
16	1500	650	1000	300	500	150
20	1200	600	900	300	400	150

DEPTH OF CUT



HIGH SPEED CUTTING & HIGH HARD CUTTING

4 FLUTES SQUARE END MILLS



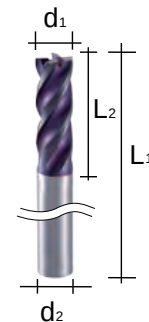
UNIT: mm

ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55102512	VEN 0104	1.0	3	50	4
55102513	VEN 0154	1.5	4	50	4
55102514	VEN 0204	2.0	6	50	4
55102515	VEN 0304	3.0	8	50	4
55102516	VEN 0404	4.0	11	50	4
55102517	VEN 0504	5.0	13	50	6
55102518	VEN 0604	6.0	16	50	6
55102519	VEN 0804	8.0	20	60	8
55102520	VEN 1004	10.0	30	75	10
55102521	VEN 1204	12.0	30	75	12
55102522	VEN 1604	16.0	40	100	16
55102523	VEN 2004	20.0	45	100	20



RECOMMENED CUTTING CONDITION FOR LONG SHANK SQUARE END MILLS

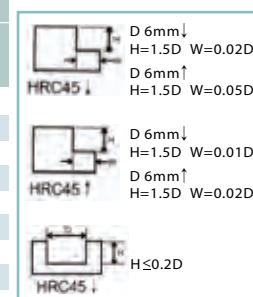
MATERIAL	CARBON STEELS, ALLOY STEELS S45C,FC,FCD,SCM,S50C,SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM,SKD11,SKD61,NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
3	20000	2000	16000	1000	9000	500
4	19000	2000	12000	1300	6000	550
5	13000	1800	10000	1400	5000	500
6	10000	3000	8000	1500	4500	700
8	8000	3200	5000	1300	3500	600
10	7000	3000	4500	1200	3000	550
12	5000	2000	4000	1100	2000	500
16	4000	1800	3500	1000	1800	450
20	3500	1600	3000	1000	1300	450



RECOMMENED CUTTING CONDITION FOR LONG SHANK SQUARE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C,FC,FCD,SCM,S50C,SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM,SKD11,SKD61,NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
3	20000	2000	20000	1200	16000	1200
4	16000	2000	16000	1200	12000	1300
5	13000	1800	13000	1100	10000	1400
6	10000	3000	10000	2100	8000	1500
8	8000	2900	8000	1800	6000	1400
10	7000	2800	6000	1700	5000	1300
12	5000	2300	5500	1700	4500	1200
16	3500	1800	4500	1800	3500	1200
20	3000	1400	3000	1500	2600	1100

DEPTH OF CUT



E3 - MILLING TOOLS

CUTTING TOOLS

E “ CUTTING TOOLS

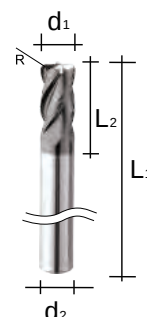
HIGH SPEED CUTTING & HIGH HARD CUTTING



4 FLUTES CORNER RADIUS END MILLS

UNIT: mm

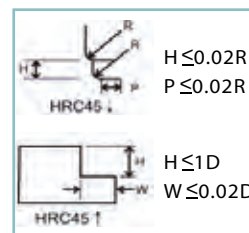
ITEM NO.	TYPE NO.	DIAMETER (D1)	CORNER R	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55102524	VER 0102	1.0	0.2	2	50	4
55102525	VER 0202	2.0	0.2	4	50	4
55102526	VER 0205	2.0	0.5	4	50	4
55102527	VER 0252	2.5	0.2	5	50	4
55102528	VER 0255	2.5	0.5	5	50	4
55102529	VER 0302	3.0	0.2	6	50	4
55102530	VER 0305	3.0	0.5	6	50	4
55102531	VER 0310	3.0	1.0	6	50	4
55102532	VER 0402	4.0	0.2	8	50	4
55102533	VER 0405	4.0	0.5	8	50	4
55102534	VER 0410	4.0	1.0	8	50	4
55102535	VER 0505	5.0	0.5	10	50	6
55102536	VER 0510	5.0	1.0	10	50	6
55102537	VER 0602	6.0	0.2	12	50	6
55102538	VER 0605	6.0	0.5	12	50	6
55102539	VER 0610	6.0	1.0	12	50	6
55102540	VER 0615	6.0	1.5	12	50	6
55102541	VER 0620	6.0	2.0	12	50	6
55102542	VER 0805	8.0	0.5	16	60	8
55102543	VER 0810	8.0	1.0	16	60	8
55102544	VER 0820	8.0	2.0	16	60	8
55102545	VER 1005	10.0	0.5	20	75	10
55102546	VER 1010	10.0	1.0	20	75	10
55102547	VER 1020	10.0	2.0	20	75	10
55102548	VER 1030	10.0	3.0	20	75	10
55102549	VER 1205	12.0	0.5	24	75	12
55102550	VER 1210	12.0	1.0	24	75	12
55102551	VER 1220	12.0	2.0	24	75	12
55102552	VER 1230	12.0	3.0	24	75	12



RECOMMENDED CUTTING CONDITION FOR CORNER RADIUS END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C, FC, FCD, SCM, S50C, SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM, SKD11, SKD61, NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
2	26000	1600	16500	1000	7500	300
3	19000	1800	12000	1200	5400	380
4	16000	3200	10000	1900	4800	480
5	14000	3300	8000	2000	3800	500
6	12000	3600	7200	2200	3500	650
8	9600	4000	5600	2200	2700	750
10	7000	3400	4400	1700	2100	650
12	6000	2800	3600	1400	1800	600
16	4500	2000	2800	1000	1400	450

DEPTH OF CUT



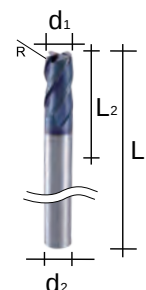
HIGH SPEED CUTTING & HIGH HARD CUTTING

4 FLUTES LONG SHANK CORNER RADIUS END MILLS



UNIT: mm

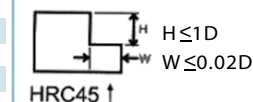
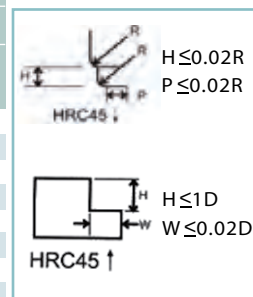
ITEM NO.	TYPE NO.	DIAMETER (D1)	CORNER R	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55102553	V LER 0605	6.0	0.5	12	75	6
55102554	V LER 0605A	6.0	0.5	12	100	6
55102555	V LER 0610	6.0	1.0	12	75	6
55102556	V LER 0610A	6.0	1.0	12	100	6
55102557	V LER 0805	8.0	0.5	16	100	8
55102558	V LER 0810	8.0	1.0	16	100	8
55102559	V LER 1005	10.0	0.5	20	100	10
55102560	V LER 1010	10.0	1.0	20	100	10
55102561	V LER 1020	10.0	2.0	20	100	10
55102562	V LER 1210	12.0	1.0	24	100	12
55102563	V LER 1220	12.0	2.0	24	100	12



RECOMMENDED CUTTING CONDITION FOR LONG SHANK CORNER RADIUS END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C, FC, FCD, SCM, S50C, SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM, SKD11, SKD61, NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
2	26000	1600	16500	1000	7500	300
3	19000	1800	12000	1200	5400	360
4	16000	320	10000	1900	4800	480
5	14000	3300	8000	2000	3800	500
6	12000	3600	7200	2200	3500	650
8	9600	4000	5600	2200	2700	750
10	7000	3400	4400	1700	2100	650
12	6000	2800	3600	1400	1800	600

DEPTH OF CUT



SHORT FLUTE 4 FLUTES CORNER RADIUS END MILLS

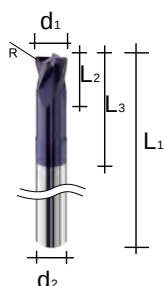
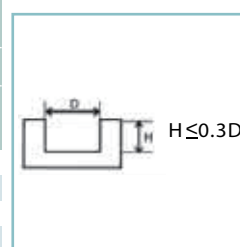
UNIT: mm

ITEM NO.	TYPE NO.	DIAMETER (D1)	CORNER R	FLUTE LENGTH (L2)	EFFECTIVE LENGTH (L3)	O.A.L (L1)	SHANK DIA (d2)
55102564	V MR 0605	6	0.5	6	15	50	6
55102565	V MR 0610	6	1.0	6	15	50	6
55102566	V MR 0805	8	0.5	8	20	50	8
55102567	V MR 0810	8	1.0	8	20	50	8
55102568	V MR 1010	10	1.0	10	25	50	10
55102569	V MR 1020	10	2.0	10	25	75	10
55102570	V MR 1030	10	3.0	10	25	75	10
55102571	V MR 1210	12	1.0	12	30	75	12
55102572	V MR 1220	12	2.0	12	30	75	12

RECOMMENDED CUTTING CONDITION FOR CORNER RADIUS END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C, FC, FCD, SCM, S50C, SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM, SKD11, SKD61, NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
6	12000	12000	8000	8000	5000	4000
8	10000	10000	8000	8000	6000	4800
10	7000	5000	6000	4000	4500	2000
12	5000	7000	4000	6000	3000	3000

DEPTH OF CUT



E “ CUTTING TOOLS

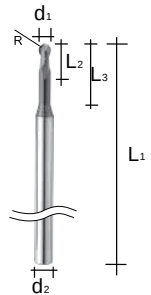
HIGH SPEED CUTTING & HIGH HARD CUTTING

LONG NECK SHORT FLUTES LENGTH 2 FLUTES BALL NOSE END MILLS



UNIT: mm

ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	EFFECTIVE LENGTH (L3)	O.A.L (L1)	SHANK DIA (d2)
55102573	VNB 0402	R0.2	0.8	2	50	4
55102574	VNB 0404	R0.2	0.8	4	50	4
55102575	VNB 0504	R0.25	1.0	4	50	4
55102576	VNB 0506	R0.25	1.0	6	50	4
55102577	VNB 0604	R0.3	1.2	4	50	4
55102578	VNB 0606	R0.3	1.2	6	50	4
55102579	VNB 0608	R0.3	1.2	8	50	4
55102580	VNB 0804	R0.4	1.2	4	50	4
55102581	VNB 0806	R0.4	1.2	6	50	4
55102582	VNB 0808	R0.4	1.2	8	50	4
55102583	VNB 0810	R0.4	1.2	10	50	4
55102584	VNB 1004	R0.5	1.5	4	50	4
55102585	VNB 1006	R0.5	1.5	6	50	4
55102586	VNB 1008	R0.5	1.5	8	50	4
55102587	VNB 1010	R0.5	1.5	10	50	4
55102588	VNB 1012	R0.5	1.5	12	50	4
55102589	VNB 1506	R0.75	3.0	6	50	4
55102590	VNB 1508	R0.75	3.0	8	50	4
55102591	VNB 1512	R0.75	3.0	12	50	4
55102592	VNB 1516	R0.75	3.0	16	50	4
55102593	VNB 1520	R0.75	3.0	20	50	4
55102594	VNB 2006	R1.0	4.0	6	50	4
55102595	VNB 2008	R1.0	4.0	8	50	4
55102596	VNB 2012	R1.0	4.0	12	50	4
55102597	VNB 2016	R1.0	4.0	16	50	4
55102598	VNB 2020	R1.0	4.0	20	50	4
55102599	VNB 3008	R1.5	4.0	8	50	4
55102600	VNB 3012	R1.5	4.0	12	50	4
55102601	VNB 3016	R1.5	4.0	16	50	4
55102602	VNB 3020	R1.5	4.0	20	75	6
55102603	VNB 3025	R1.5	4.0	25	75	6
55102604	VNB 4010	R2.0	5.0	10	75	6
55102605	VNB 4016	R2.0	5.0	16	75	6
55102606	VNB 4020	R2.0	5.0	20	75	6
55102607	VNB 4025	R2.0	5.0	25	75	6
55102608	VNB 4030	R2.0	5.0	30	75	6



HIGH SPEED CUTTING & HIGH HARD CUTTING

LONG NECK SHORT FLUTES LENGTH 2 FLUTES BALL NOSE END MILLS

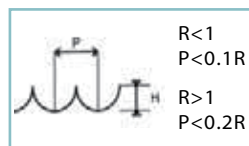


RECOMMENDED CUTTING CONDITION FOR LONG NECK BALL NOSE END MILLS SERIES (FOR ITEM NO. 55102573~55102608)

UNIT: mm

MATERIAL	ALLOY STEELS.TOOL STEELS.HARDENED STEELS S45C,SCM,S50C,SKS,SCR,SNM,SKD11,SKD61,NAK80			
	RADIUS	EFFECTIVE LENGTH	SPEED (mm-1)	FEED mm/min
	0.25	4	30000-40000	200-650
	0.25	6	30000-40000	200-650
	0.3	4	27000-40000	180-650
	0.3	6	27000-40000	180-650
	0.4	6	25000-40000	400-750
	0.4	8	25000-40000	400-750
	0.5	6	20000-32000	500-750
	0.5	8	20000-32000	300-750
	0.5	10	20000-32000	300-750
	0.5	12	20000-32000	300-750
	0.6	8	22000-25000	500-600
	0.6	12	22000-25000	500-600
	0.75	8	18000-20000	300-550
	0.75	12	18000-20000	300-550
	0.75	16	18000-20000	300-550
	0.75	20	18000-20000	300-550
	0.8	8	13000-18000	350-800
	0.8	12	13000-18000	350-800
	0.8	16	13000-18000	350-800
	1.0	8	12000-17000	500-900
	1.0	12	12000-17000	500-900
	1.0	16	12000-17000	500-900
	1.0	20	12000-17000	500-900
	1.5	8	8000-11000	500-700
	1.5	10	8000-11000	500-700
	1.5	16	8000-11000	500-700
	1.5	20	8000-11000	500-700
	1.5	25	8000-11000	500-700
	2.0	10	5000-8000	400-600
	2.0	15	5000-8000	400-600
	2.0	20	5000-8000	400-600
	2.0	25	5000-8000	400-600
	2.0	30	5000-8000	400-600

DEPTH OF CUT



E “ CUTTING TOOLS

HIGH SPEED CUTTING & HIGH HARD CUTTING

- 3 FLUTES SQUARE END MILLS
- 4 FLUTES SQUARE END MILLS
- 5 FLUTES SQUARE END MILLS
- 6 FLUTES SQUARE END MILLS
- 6 FLUTES LONG SHANK END MILLS
- 4 FLUTES CORNER RADIUS END MILLS
- 6 FLUTES CORNER RADIUS END MILLS
- STANDARD 4 FLUTES BALL NOSE END MILLS
- LONG FLUTES SQUARE 2 FLUTES END MILLS
- 4 FLUTES LONG SHANK SQUARE END MILLS
- STANDARD 2 FLUTES BALL NOSE END MILLS
- LONG SHANK 2 FLUTES BALL NOSE END MILLS
- 2 FLUTES CORNER RADIUS SQUARE END MILLS
- SHORT LENGTH 2 FLUTES BALL NOSE END MILLS
- MICRO DIAMETER MINIATURE 2 FLUTES END MILLS
- MICRO DIAMETER 2 FLUTES BALL NOSE END MILLS
- SHORT FLUTE 4 FLUTES CORNER RADIUS END MILLS
- 2 FLUTES LONG NECK CORNER RADIUS END MILLS
- LONG NECK SHORT 2 FLUTES BALL NOSE END MILLS
- 4 FLUTES LONG SHANK CORNER RADIUS END MILLS
- 4 FLUTES SHORT LENGTH LONG SQUARE END MILLS
- LONG NECK TAPER 2 FLUTES BALL NOSE END MILLS
- 4 FLUTES SQUARE VARIABLE HELIX ANGLE END MILLS
- HEAVY CUTTING 3 FLUTES CORNER RADIUS END MILLS
- HEAVY CUTTING 4 FLUTES CORNER RADIUS END MILLS
- LONG NECK SHORT LENGTH SQUARE 2 FLUTES END MILLS
- 2 FLUTES LONG SHANK SHORT LENGTH SQUARE END MILLS
- 2 FLUTES LONG SHANK CORNER RADIUS SQUARE END MILLS



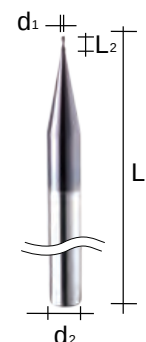
HIGH SPEED CUTTING & HIGH HARD CUTTING

MICRO DIAMETER MINIATURE 2 FLUTES END MILLS



UNIT: mm

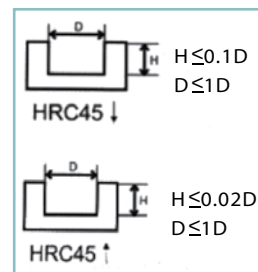
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55102609	HSE 0022	0.2	0.4	50	4
55102610	HSE 0032	0.3	0.6	50	4
55102611	HSE 0042	0.4	0.8	50	4
55102612	HSE 0052	0.5	1.0	50	4
55102613	HSE 0062	0.6	1.2	50	4
55102614	HSE 0072	0.7	1.4	50	4
55102615	HSE 0082	0.8	1.6	50	4
55102616	HSE 0092	0.9	1.8	50	4
55102617	HSE 0122	1.2	3	50	4
55102618	HSE 0142	1.4	3	50	4
55102619	HSE 0162	1.6	4	50	4
55102620	HSE 0182	1.8	5	50	4



RECOMMENDED CUTTING CONDITION FOR MICRO DIAMETER SQUARE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C, FC, FCD, SCM, S50C, SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNM, SKD11, SKD61, NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
0.2	40000	100-300	30000	80-250	15000	50-150
0.3	40000	100-350	30000	80-300	15000	50-200
0.4	40000	100-400	25000	80-350	10000	50-250
0.5	40000	100-500	25000	80-400	10000	50-250
0.6	38000	100-600	25000	80-500	8000	50-250
0.7	36000	100-700	20000	80-600	8000	50-250
0.8	34000	100-800	20000	80-700	8000	50-250
0.9	32000	100-1000	20000	80-800	8000	50-250

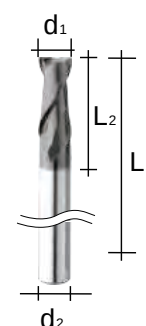
DEPTH OF CUT



2 FLUTES SQUARE END MILLS

UNIT: mm

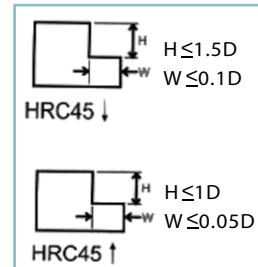
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55102621	HE 0102	1.0	3	50	4
55102622	HE 0152	1.5	4	50	4
55102623	HE 0202	2.0	6	50	4
55102624	HE 0252	2.5	7	50	4
55102625	HE 0302	3.0	8	50	4
55102626	HE 0302A	3.0	8	50	3
55102627	HE 0402	4.0	11	50	4
55102628	HE 0502	5.0	13	50	6
55102629	HE 0602	6.0	15	50	6
55102630	HE 0802	8.0	20	60	8
55102631	HE 1002	10.0	30	75	10
55102632	HE 1202	12.0	30	75	12
55102633	HE 1402	14.0	35	100	16
55102634	HE 1602	16.0	40	100	16
55102635	HE 1802	18.0	40	100	20
55102636	HE 2002	20.0	40	100	20
55102637	HE 2502	25.0	40	100	25



RECOMMENDED CUTTING CONDITION FOR SQUARE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C, FC, FCD, SCM, S50C, SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNM, SKD11, SKD61, NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
1	20000	80	15000	45	11000	30
1.5	13600	135	10000	60	9000	40
2	9600	150	8500	50	6000	45
3	6500	200	5800	75	4000	60
4	5500	250	4000	80	3200	60
5	4500	300	3000	80	2500	70
6	4000	300	2500	80	2200	70
8	3500	350	2200	90	1700	70
10	3000	400	2000	90	1500	70
12	2500	400	1500	100	1000	70
16	2000	400	1200	100	800	70

DEPTH OF CUT



E3 - MILLING TOOLS

CUTTING TOOLS

E “ CUTTING TOOLS

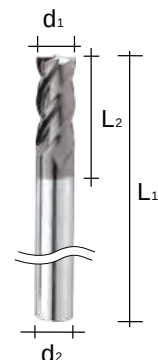
HIGH SPEED CUTTING & HIGH HARD CUTTING

4 FLUTES SQUARE END MILLS



UNIT: mm

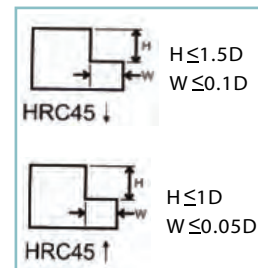
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55102638	HE 0104	1.0	3	50	4
55102639	HE 0154	1.5	4	50	4
55102640	HE 0204	2.0	6	50	4
55102641	HE 0254	2.5	7	50	4
55102642	HE 0304	3.0	8	50	4
55102643	HE 0304A	3.0	8	50	3
55102644	HE 0404	4.0	11	50	4
55102645	HE 0504	5.0	13	50	6
55102646	HE 0604	6.0	15	50	6
55102647	HE 0804	8.0	20	60	8
55102648	HE 1004	10.0	30	75	10
55102649	HE 1204	12.0	30	75	12
55102650	HE 1404	14.0	35	100	16
55102651	HE 1604	16.0	40	100	16
55102652	HE 1804	18.0	40	100	20
55102653	HE 2004	20.0	45	100	20
55102654	HE 2504	25.0	45	100	25



RECOMMENED CUTTING CONDITION FOR SUQARE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C, FC, FCD, SCM, S50C, SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM, SKD11, SKD61, NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
1	22000	400	18000	200	9000	140
1.5	12000	500	11000	280	5200	150
2	10000	550	10000	280	4600	170
3	9000	600	5500	310	3500	220
4	6000	600	5000	400	2200	220
5	4800	750	4000	400	1700	240
6	4500	800	3800	420	1600	300
8	3500	820	2800	420	1000	300
10	3000	820	1800	420	900	300
12	2000	820	1600	350	800	300
16	1500	650	1000	300	500	150
20	1200	600	900	300	400	150

DEPTH OF CUT



4 FLUTES SQUARE END MILLS

UNIT: mm

ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55102655	HEA 0104	1.0	3	50	4
55102656	HEA 0154	1.5	4	50	4
55102657	HEA 0204	2.0	6	50	4
55102658	HEA 0254	2.5	7	50	4
55102659	HEA 0304	3.0	8	50	4
55102660	HEA 0404	4.0	11	50	4
55102661	HEA 0504	5.0	13	50	6
55102662	HEA 0604	6.0	15	50	6
55102663	HEA 0804	8.0	20	60	8
55102664	HEA 1004	10.0	30	75	10
55102665	HEA 1204	12.0	30	75	12
55102666	HEA 1404	14.0	35	100	16
55102667	HEA 1604	16.0	40	100	16
55102668	HEA 1804	18.0	40	100	20
55102669	HEA 2004	20.0	45	100	20
55102670	HEA 2504	25.0	45	100	25

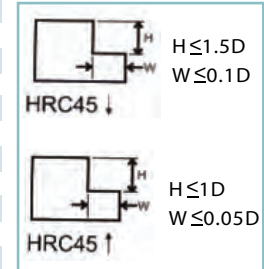


HIGH SPEED CUTTING & HIGH HARD CUTTING

RECOMMENDED CUTTING CONDITION FOR SQUARE END MILLS (FOR ITEM NO. 55102655~55102670)

MATERIAL	CARBON STEELS, ALLOY STEELS S45C,FC,FCD,SCM,S50C,SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM,SKD11,SKD61,NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
1	22000	400	18000	200	9000	140
1.5	12000	500	11000	280	5200	150
2	10000	550	10000	280	4600	170
3	9000	600	5500	310	3500	220
4	6000	600	5000	400	2200	220
5	4800	750	4000	400	1700	240
6	4500	800	3800	420	1600	300
8	3500	820	2800	420	1000	300
10	3000	820	1800	420	900	300
12	2000	820	1600	350	800	300
16	1500	650	1000	300	500	150
20	1200	600	900	300	400	150

DEPTH OF CUT

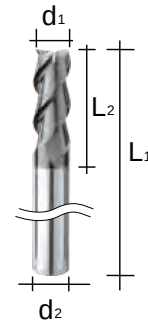


3 FLUTES SQUARE END MILLS



UNIT: mm

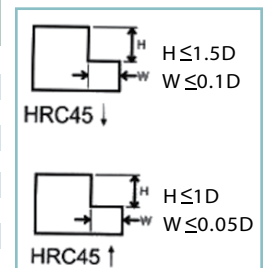
ITEM NO.	TYPE NO.	DIAMETER(D1)	FLUTE LENGTH(L2)	O.A.L(L1)	SHANK DIA(d2)
55102671	HEF 0103	1.0	3	50	4
55102672	HEF 0203	2.0	6	50	4
55102673	HEF 0303	3.0	8	50	4
55102674	HEF 0403	4.0	11	50	4
55102675	HEF 0503	5.0	13	50	6
55102676	HEF 0603	6.0	15	50	6
55102677	HEF 0803	8.0	20	60	8
55102678	HEF 1003	10.0	30	75	10
55102679	HEF 1203	12.0	30	75	12
55102680	HEF 1603	16.0	40	100	16
55102681	HEF 2003	20.0	40	100	20
55102682	HEF 2503	25.0	40	100	25



RECOMMENDED CUTTING CONDITION FOR SQUARE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C,FC,FCD,SCM,S50C,SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM,SKD11,SKD61,NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
1	22000	400	18000	200	9000	140
1.5	12000	500	11000	280	5200	150
2	10000	550	10000	280	4600	170
3	9000	600	5500	310	3500	220
4	6000	600	5000	400	2200	220
5	4800	750	4000	400	1700	240
6	4500	800	3800	420	1600	300
8	3500	820	2800	420	1000	300
10	3000	820	1800	420	900	300
12	2000	820	1600	350	800	300
16	1500	650	1000	300	500	150
20	1200	600	900	300	400	150

DEPTH OF CUT



E3 - MILLING TOOLS

CUTTING TOOLS

E “ CUTTING TOOLS

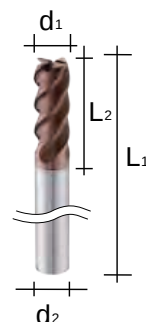
HIGH SPEED CUTTING & HIGH HARD CUTTING

4 FLUTES SQUARE END MILLS



UNIT: mm

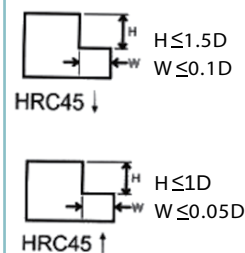
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55102683	HEB 0204	2.0	6	50	6
55102684	HEB 0204A	2.0	6	50	4
55102685	HEB 0304	3.0	8	50	6
55102686	HEB 0304A	3.0	8	50	4
55102687	HEB 0404	4.0	11	50	6
55102688	HEB 0404A	4.0	11	50	4
55102689	HEB 0504	5.0	13	50	6
55102690	HEB 0604	6.0	16	50	6
55102691	HEB 0804	8.0	20	60	8
55102692	HEB 1004	10.0	30	75	10
55102693	HEB 1204	12.0	30	75	12
55102694	HEB 1604	16.0	40	100	16
55102695	HEB 2004	20.0	45	100	20



RECOMMENED CUTTING CONDITION FOR SQUARE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C, FC, FCD, SCM, S50C, SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNM, SKD11, SKD61, NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
3	9000	600	5500	310	3500	220
4	6000	600	5000	400	2200	220
5	4800	750	4000	400	1700	240
6	4500	800	3800	420	1600	300
8	3500	820	2800	420	1000	300
10	3000	820	1800	420	900	300
12	2000	820	1600	350	800	300
16	1500	650	1000	300	500	150
20	1200	600	900	300	400	150

DEPTH OF CUT

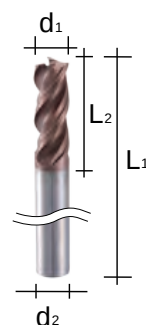


HEAVY CUTTING 3 FLUTES END MILLS



UNIT: mm

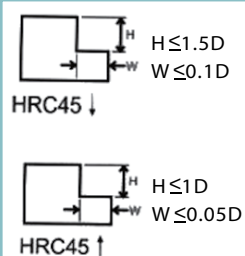
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55102696	HXE 0203	2.0	6	50	4
55102697	HXE 0303	3.0	8	50	4
55102698	HXE 0403	4.0	11	50	4
55102699	HXE 0503	5.0	13	50	6
55102700	HXE 0603	6.0	16	50	6
55102701	HXE 0803	8.0	20	60	8
55102702	HXE 1003	10.0	30	75	10
55102703	HXE 1203	12.0	30	75	12
55102704	HXE 1603	16.0	40	100	16
55102705	HXE 2003	20.0	45	100	20



RECOMMENED CUTTING CONDITION FOR POWER SQUARE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C, FC, FCD, SCM, S50C, SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNM, SKD11, SKD61, NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
3	9000	600	5500	310	3500	220
4	6000	600	5000	400	2200	220
5	4800	750	4000	400	1700	240
6	4500	800	3800	420	1600	300
8	3500	820	2800	420	1000	300
10	3000	820	1800	420	900	300
12	2000	820	1600	350	800	300
16	1500	650	1000	300	500	150
20	1200	600	900	300	400	150

DEPTH OF CUT



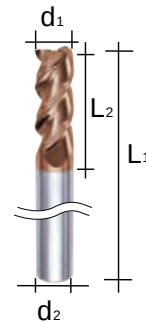
HIGH SPEED CUTTING & HIGH HARD CUTTING

HEAVY CUTTING 3 FLUTES END MILLS



UNIT: mm

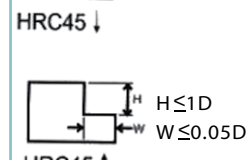
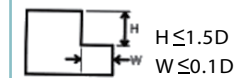
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55102706	HX W 0603	6.0	16	50	6
55102707	HX W 0803	8.0	20	60	8
55102708	HX W 1003	10.0	30	75	10
55102709	HX W 1203	12.0	30	75	12
55102710	HX W 1603	16.0	45	100	16
55102711	HX W 2003	20.0	55	120	20



RECOMMENDED CUTTING CONDITION FOR POWER SQUARE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C, FC, FCD, SCM, S50C, SKS,...		ALLOY STEELS, TOOL STEELS, SCR, SNCM, SKD11, SKD61, NAK80,...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
3	9000	600	5500	310	3500	220
4	6000	600	5000	400	2200	220
5	4800	750	4000	400	1700	240
6	4500	800	3800	420	1600	300
8	3500	820	2800	420	1000	300
10	3000	820	1800	420	900	300
12	2000	820	1600	350	800	300
16	1500	650	1000	300	500	150
20	1200	600	900	300	400	150

DEPTH OF CUT

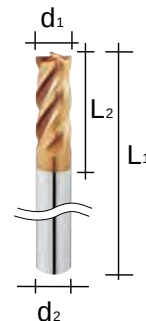


4 FLUTES SQUARE VARIABLE HELIX ANGLE END MILLS



UNIT: mm

ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55102712	HVE 0304	3.0	8	50	6
55102713	HVE 0404	4.0	11	50	6
55102714	HVE 0504	5.0	13	50	6
55102715	HVE 0604	6.0	16	50	6
55102716	HVE 0804	8.0	20	60	8
55102717	HVE 1004	10.0	25	75	10
55102718	HVE 1204	12.0	30	75	12
55102719	HVE 1604	16.0	40	100	16
55102720	HVE 2004	20.0	45	100	20



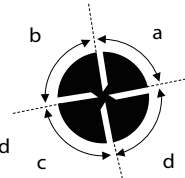
Variable
helix angle

$$\beta_1 = \beta_2$$



Variable
rate

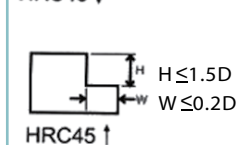
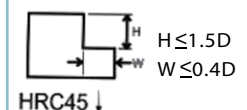
$$a \neq b \neq c \neq d$$



RECOMMENDED CUTTING CONDITION FOR SQUARE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C, FC, FCD, SCM, S50C, SKS,...		ALLOY STEELS, TOOL STEELS, SCR, SNCM, SKD11, SKD61, NAK80,...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
3	22000	1800	16000	1300	10000	800
4	15000	1400	12000	1250	7000	700
5	13000	1600	10000	1400	6000	650
6	11500	1650	8500	1300	5000	800
8	8000	1800	6500	1350	3500	700
10	7000	1800	5000	1400	2800	750
12	6000	1700	4000	1300	2300	650
16	3560	1500	3000	1250	1800	700
20	3000	1450	2500	1250	1500	780

DEPTH OF CUT



E “ CUTTING TOOLS

HIGH SPEED CUTTING & HIGH HARD CUTTING

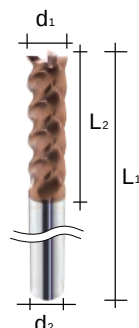
HEAVY CUTTING 4 FLUTES END MILLS



UNIT: mm



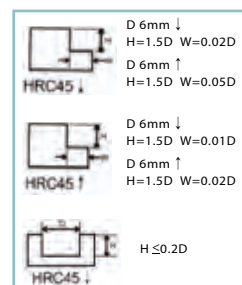
ITEM NO.	TYPE NO.	DIAMETER(D1)	FLUTE LENGTH(L2)	O.A.L(L1)	SHANK DIA(d2)
55102721	HX E 0204	2.0	6	50	4
55102722	HX E 0254	2.0	6	50	4
55102723	HX E 0304	3.0	8	50	4
55102724	HX E 0304A	3.0	8	75	6
55102725	HX E 0404	4.0	11	50	4
55102726	HX E 0404A	4.0	11	75	6
55102727	HX E 0504	5.0	13	50	6
55102728	HX E 0604	6.0	15	50	6
55102729	HX E 0604A	6.0	15	75	6
55102730	HX E 0804	8.0	20	60	8
55102731	HX E 0804A	8.0	20	100	8
55102732	HX E 1004	10.0	25	75	10
55102733	HX E 1004A	10.0	25	100	10
55102734	HX E 1204	12.0	30	75	12
55102735	HX E 1204A	12.0	30	100	12
55102736	HX E 1604	16.0	40	100	16
55102737	HX E 1604A	16.0	40	150	16
55102738	HX E 2004	20.0	40	100	20
55102739	HX E 2004A	20.0	40	150	20



RECOMMENDED CUTTING CONDITION FOR POWER SQUARE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C,FC,PCD,SCM,S50C,SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM,SKD11,SKD61,NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
3	20000	2000	16000	1000	9000	500
4	19000	2000	12000	1300	6000	550
5	13000	1800	10000	1400	5000	500
6	10000	3000	8000	1500	4500	700
8	8000	3200	5000	1300	3500	600
10	7000	3000	4500	1200	3000	500
12	5000	2000	4000	1100	2000	500
16	4000	1800	3500	1000	1800	450
20	3500	1600	3000	1000	1300	450
DEPTH OF CUT						
3	20000	2000	20000	1200	16000	1200
4	16000	2000	16000	1200	12000	1300
5	13000	1800	13000	1100	10000	1400
6	10000	3000	10000	2100	8000	1500
8	8000	2900	8000	1800	6000	1400
10	7000	2800	6000	1700	5000	1300
12	5000	2300	5500	1700	4500	1200
16	3500	1800	4500	1800	3500	1200
20	3000	1400	3000	1500	2600	1100

DEPTH OF CUT



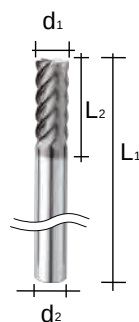
6 FLUTES SQUARE END MILLS



UNIT: mm



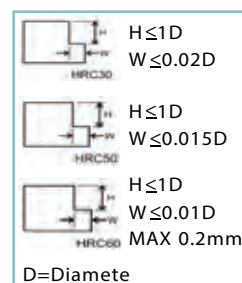
ITEM NO.	TYPE NO.	DIAMETER(D1)	FLUTE LENGTH(L2)	O.A.L(L1)	SHANK DIA(d2)
55102740	HVT 0606	6.0	15	50	6
55102741	HVT 0806	8.0	20	60	8
55102742	HVT 1006	10.0	25	75	10
55102743	HVT 1206	12.0	30	75	12
55102744	HVT 1606	16.0	40	100	16
55102745	HVT 2006	20.0	40	100	20
55102746	HVT 2506	25.0	40	100	25



RECOMMENDED CUTTING CONDITION FOR HIGH HARDNESS END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C,FC,PCD,SCM,S50C,SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM,SKD11,SKD61,NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
6	12000	3000	8000	2000	5600	1400
8	90000	2400	6700	1900	3600	1200
10	6900	2100	5000	1600	3000	900
12	6000	2400	4300	1700	2400	1000
16	4500	2100	2500	1000	1600	700

DEPTH OF CUT



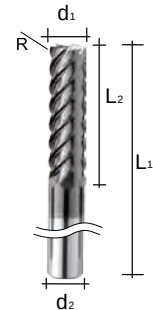
HIGH SPEED CUTTING & HIGH HARD CUTTING

6 FLUTES LONG SHANK END MILLS



UNIT: mm

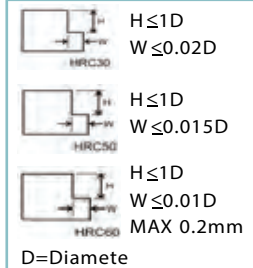
ITEM NO.	TYPE NO.	DIAMETER(D1)	FLUTE LENGTH(L2)	O.A.L(L1)	SHANK DIA(d2)
55102747	LHV T 0606	6.0	25	75	6
55102748	LHV T 0606A	6.0	30	100	6
55102749	LHV T 0806	8.0	35	75	8
55102750	LHV T 0806A	8.0	35	100	8
55102751	LHV T 1006	10.0	40	100	10
55102752	LHV T 1006A	10.0	40	150	10
55102753	LHV T 1206	12.0	45	100	12
55102754	LHV T 1206A	12.0	45	150	12
55102755	LHV T 1606	16.0	60	150	16
55102756	LHV T 1606A	16.0	100	200	16
55102757	LHV T 2006	20.0	80	150	20
55102758	LHV T 2006A	20.0	100	200	20



RECOMMENDED CUTTING CONDITION FOR HIGH HARDNESS END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C,FC,FCD,SCM,S50C,SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM,SKD11,SKD61,NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
6	12000	3000	8000	2000	5600	1400
8	9000	2400	6700	1900	3600	1200
10	6900	2100	5000	1600	3000	900
12	6000	2400	4300	1700	2400	1000
16	4500	2100	2500	1000	1600	700

DEPTH OF CUT

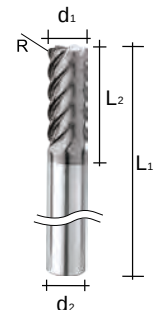


6 FLUTES CORNER RADIUS END MILLS



UNIT: mm

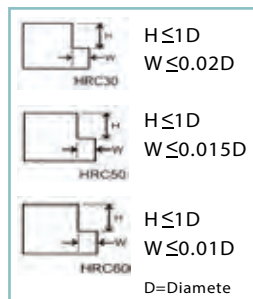
ITEM NO.	TYPE NO.	DIAMETER(D1)	CORNER R	FLUTE LENGTH(L2)	O.A.L(L1)	SHANK DIA(d2)
55102759	HV TR 0602	6.0	0.2	12	50	6
55102760	HV TR 0605	6.0	0.5	12	50	6
55102761	HV TR 0610	6.0	1.0	12	50	6
55102762	HV TR 0802	8.0	0.2	16	60	8
55102763	HV TR 0805	8.0	0.5	16	60	8
55102764	HV TR 0810	8.0	1.0	16	60	8
55102765	HV TR 1005	10.0	0.5	20	75	10
55102766	HV TR 1010	10.0	1.0	20	75	10
55102767	HV TR 1205	12.0	0.5	24	75	12
55102768	HV TR 1210	12.0	1.0	24	75	12
55102769	HV TR 1605	16.0	0.5	30	100	16
55102770	HV TR 1610	16.0	1.0	30	100	16



RECOMMENDED CUTTING CONDITION FOR HIGH HARDNESS CORNER RADIUS END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C,FC,FCD,SCM,S50C,SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM,SKD11,SKD61,NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
6	15000	4000	9500	2500	6800	1800
8	11000	3000	8000	2300	4400	1500
10	8500	2500	6000	2000	3600	1100
12	7200	2800	5200	2000	2900	1200
16	5500	2500	3000	1200	2000	900

DEPTH OF CUT



E “ CUTTING TOOLS

HIGH SPEED CUTTING & HIGH HARD CUTTING

2 FLUTES LONG SHANK SHORT LENGTH SQUARE END MILLS



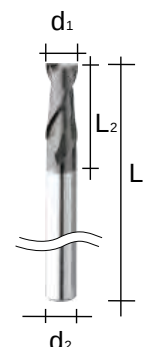
UNIT: mm



ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55102771	HEL 0102	1.0	3	75	4
55102772	HEL 0202	2.0	6	75	4
55102773	HEL 0302	3.0	8	75	4
55102774	HEL 0402	4.0	10	75	4
55102775	HEL 0502	5.0	13	75	6
55102776	HEL 0602	6.0	15	75	6
55102777	HEL 0802	8.0	20	75	8

ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55102778	HEI 0302	3.0	8	100	4
55102779	HEI 0302A	3.0	8	100	6
55102780	HEI 0402	4.0	10	100	4
55102781	HEI 0402A	4.0	10	100	6
55102782	HEI 0502	5.0	13	100	6
55102783	HEI 0602	6.0	15	100	6
55102784	HEI 0802	8.0	20	100	8
55102785	HEI 1002	10.0	25	100	10
55102786	HEI 1202	12.0	30	100	12

ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55102787	HEJ 0602	6.0	15	150	6
55102788	HEJ 0802	8.0	20	150	8
55102789	HEJ 1002	10.0	25	150	10
55102790	HEJ 1202	12.0	30	150	12
55102791	HEJ 1402	14.0	35	150	14
55102792	HEJ 1602	16.0	40	150	16
55102793	HEJ 1802	18.0	40	150	18



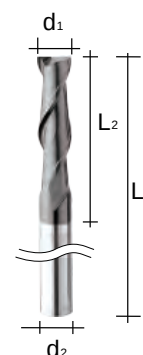
LONG FLUTES SQUARE 2 FLUTES END MILLS



UNIT: mm



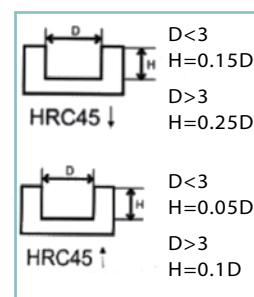
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55102794	HELF 0202	2.0	15	75	4
55102795	HELF 0302	3.0	15	75	4
55102796	HELF 0402	4.0	20	75	4
55102797	HELF 0502	5.0	25	75	6
55102798	HELF 0602	6.0	25	75	6
55102799	HELF 0602A	6.0	30	100	6
55102800	HELF 0802	8.0	25	75	8
55102801	HELF 0802A	8.0	35	100	8
55102802	HELF 1002	10.0	40	100	10
55102803	HELF 1002A	10.0	40	150	10
55102804	HELF 1202	12.0	45	100	12
55102805	HELF 1202A	12.0	45	150	12
55102806	HELF 1402	14.0	60	150	16
55102807	HELF 1602	16.0	60	150	16
55102808	HELF 1802	18.0	60	150	20
55102809	HELF 2002	20.0	60	150	20



RECOMMENDED CUTTING CONDITION FOR LONG SHANK SQUARE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C, FC, FCD, SCM, S50C, SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM, SKD11, SKD61, NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
1	20000	80	15000	45	11000	30
1.5	13600	135	10000	60	9000	40
2	9600	150	8500	50	6000	45
3	6500	200	5800	75	4000	60
4	5500	250	4000	80	3200	60
5	4500	300	3000	80	2500	70
6	4000	300	2500	80	2200	70
8	3500	350	2200	90	1700	70
10	3000	400	2000	90	1500	70
12	2500	400	1500	100	1000	70
16	2000	400	1200	100	800	70

DEPTH OF CUT



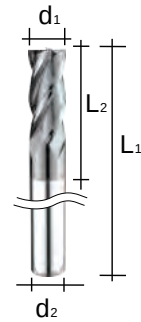
HIGH SPEED CUTTING & HIGH HARD CUTTING

4 FLUTES SHORT LENGTH LONG SQUARE END MILLS



UNIT: mm

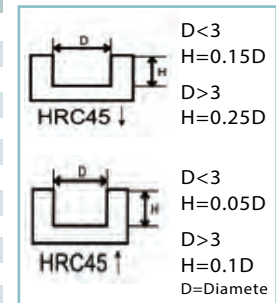
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55102810	HEL 0104	1.0	3	75	4
55102811	HEL 0104A	1.0	3	100	6
55102812	HEL 0154	1.5	4.5	75	4
55102813	HEL 0154A	1.5	4.5	100	6
55102814	HEL 0204	2.0	6	75	4
55102815	HEL 0204A	2.0	6	100	6
55102816	HEL 0304	3.0	8	75	4
55102817	HEL 0304A	3.0	8	100	6
55102818	HEL 0404	4.0	10	75	4
55102819	HEL 0404A	4.0	10	100	6
55102820	HEL 0504	5.0	13	75	6
55102821	HEL 0504A	5.0	13	100	6
55102822	HEL 0604	6.0	15	75	6
55102823	HEL 0604A	6.0	15	100	6
55102824	HEL 0604B	6.0	15	150	6
55102825	HEL 0804	8.0	20	75	8
55102826	HEL 0804A	8.0	20	100	8
55102827	HEL 0804B	8.0	20	150	8
55102828	HEL 1004	10.0	25	100	10
55102829	HEL 1004A	10.0	25	150	10
55102830	HEL 1204	12.0	30	100	12
55102831	HEL 1204A	12.0	30	150	12
55102832	HEL 1604	16.0	40	150	16
55102833	HEL 1604A	16.0	40	200	16
55102834	HEL 2004	20.0	40	150	20
55102835	HEL 2004A	20.0	40	200	20



RECOMMENDED CUTTING CONDITION FOR LONG SHANK SQUARE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C,FC,FC2,SCM,S50C,SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM,SKD11,SKD61,NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
1	22000	400	18000	200	9000	140
1.5	12000	500	11000	280	5200	150
2	10000	550	10000	280	4600	170
3	9000	600	5500	310	3500	220
4	6000	600	5000	400	2200	220
5	4800	750	4000	400	1700	240
6	4500	800	3800	420	1600	300
8	3500	820	2800	420	1000	300
10	3000	820	1800	420	900	300
12	2000	820	1600	350	800	300
16	1500	650	1000	300	500	150
20	1200	600	900	300	400	150

DEPTH OF CUT

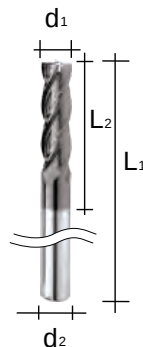


4 FLUTES LONG SHANK SQUARE END MILLS



UNIT: mm

ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55102836	HEL 0204	2.0	15	75	4
55102837	HEL 0304	3.0	15	75	6
55102838	HEL 0404	4.0	20	75	6
55102839	HEL 0504	5.0	25	75	6
55102840	HEL 0604	6.0	25	75	6
55102841	HEL 0604A	6.0	30	100	6
55102842	HEL 0804	8.0	25	75	8
55102843	HEL 0804A	8.0	35	100	8
55102844	HEL 1004	10.0	45	100	10
55102845	HEL 1004A	10.0	45	150	10
55102846	HEL 1204	12.0	45	100	12
55102847	HEL 1204A	12.0	45	150	12
55102848	HEL 1404	14.0	60	150	16
55102849	HEL 1604	16.0	60	150	16
55102850	HEL 1804	18.0	60	150	20
55102851	HEL 2004	20.0	60	150	20



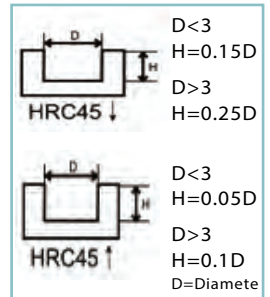
E “ CUTTING TOOLS

HIGH SPEED CUTTING & HIGH HARD CUTTING

RECOMMENDED CUTTING CONDITION FOR LONG SHANK SQUARE END MILLS (FOR ITEM NO. 55102836~55102851)

MATERIAL	CARBON STEELS, ALLOY STEELS S45C,FC,PCD,SCM,S50C,SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM,SKD11,SKD61,NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
1	22000	400	18000	200	9000	140
1.5	12000	500	11000	280	5200	150
2	10000	550	10000	280	4600	170
3	9000	600	5500	310	3500	220
4	6000	600	5000	400	2200	220
5	4800	750	4000	400	1700	240
6	4500	800	3800	420	1600	300
8	3500	820	2800	420	1000	300
10	3000	820	1800	420	900	300
12	2000	820	1600	350	800	300
16	1500	650	1000	300	500	150
20	1200	600	900	300	400	150

DEPTH OF CUT

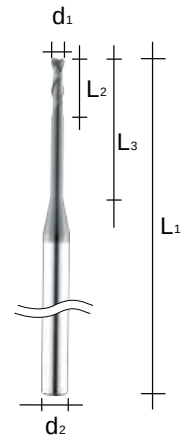


LONG NECK SHORT LENGTH SQUARE 2 FLUTES END MILLS



UNIT: mm

ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)	
55102852	HNE 0402	0.4	0.8	2	50	4
55102853	HNE 0404	0.4	0.8	4	50	4
55102854	HNE 0504	0.5	1.0	4	50	4
55102855	HNE 0506	0.5	1.0	6	50	4
55102856	HNE 0604	0.6	1.2	4	50	4
55102857	HNE 0606	0.6	1.2	6	50	4
55102858	HNE 0608	0.6	1.2	8	50	4
55102859	HNE 0804	0.8	1.6	4	50	4
55102860	HNE 0806	0.8	1.6	6	50	4
55102861	HNE 0808	0.8	1.6	8	50	4
55102862	HNE 1006	1.0	3.0	6	50	4
55102863	HNE 1008	1.0	3.0	8	50	4
55102864	HNE 1010	1.0	3.0	10	50	4
55102865	HNE 1012	1.0	3.0	12	50	4
55102866	HNE 1016	1.0	3.0	16	50	4
55102867	HNE 1506	1.5	4.0	6	50	4
55102868	HNE 1508	1.5	4.0	8	50	4
55102869	HNE 1510	1.5	4.0	10	50	4
55102870	HNE 1512	1.5	4.0	12	50	4
55102871	HNE 1516	1.5	4.0	16	50	4
55102872	HNE 2008	2.0	6.0	8	50	4
55102873	HNE 2010	2.0	6.0	10	50	4
55102874	HNE 2012	2.0	6.0	12	50	4
55102875	HNE 2014	2.0	6.0	14	50	4
55102876	HNE 2016	2.0	6.0	16	50	4
55102877	HNE 2020	2.0	6.0	20	50	4
55102878	HNE 3010	3.0	6.0	10	50	4
55102879	HNE 3012	3.0	6.0	12	50	4
55102880	HNE 3014	3.0	6.0	14	50	4
55102881	HNE 3016	3.0	6.0	16	50	4
55102882	HNE 3020	3.0	6.0	20	75	4
55102883	HNE 3025	3.0	6.0	25	75	4
55102884	HNE 4014	4.0	10	14	75	6
55102885	HNE 4016	4.0	10	16	75	6
55102886	HNE 4020	4.0	10	20	75	6
55102887	HNE 4025	4.0	10	25	75	6
55102888	HNE 4030	4.0	10	30	75	6



HIGH SPEED CUTTING & HIGH HARD CUTTING

LONG NECK SHORT LENGTH SQUARE 2 FLUTES END MILLS (ITEM NO. 55102852~55102888)

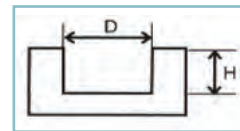


RECOMMENDED CUTTING CONDITION FOR LONG NECK END MILLS

UNIT: mm

MATERIAL	ALLOY STEELS, TOOL STEELS, HARDENED STEELS S45C, SCM, S50C, SKS, SCR, SNCM, SKD11, SKD61, NAK80			
DIAMETER	EFFECTIVE LENGTH	SPEED (mm-1)	FEED mm/min	DEPTH OF CUT
1	4	25000	1500	0.05
1	6	25000	1500	0.03
1	10	25000	1500	0.01
1.5	4	15000	1200	0.1
1.5	8	15000	1200	0.05
1.5	10	15000	1200	0.025
1.5	12	15000	1200	0.018
2	8	12000	900	0.2
2	10	8800	700	0.012
2	12	7500	600	0.05
2	16	7000	500	0.02
3	8	8000	600	0.5
3	12	8000	600	0.45
3	16	5500	450	0.18
3	20	4000	300	0.15
4	10	6000	400	0.7
4	16	6000	400	0.4

DEPTH OF CUT



MICRO DIAMETER 2 FLUTES BALL NOSE END MILLS



UNIT: mm

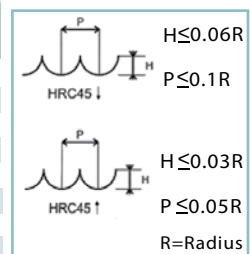
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55102889	HSB 0022	R0.10	0.4	50	4
55102890	HSB 0032	R0.15	0.6	50	4
55102891	HSB 0042	R0.20	0.8	50	4
55102892	HSB 0052	R0.25	1.0	50	4
55102893	HSB 0062	R0.30	1.2	50	4
55102894	HSB 0072	R0.35	1.4	50	4
55102895	HSB 0082	R0.40	1.6	50	4
55102896	HSB 0092	R0.45	1.8	50	4
55102897	HSB 0122	R0.6	2.4	50	4
55102898	HSB 0142	R0.7	2.8	50	4
55102899	HSB 0162	R0.8	3.2	50	4
55102900	HSB 0182	R0.9	3.6	50	4



RECOMMENDED CUTTING CONDITION FOR BALL NOSE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C, FC, FCD, SCM, S50C, SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM, SKD11, SKD61, NAK80...		HARDENED STEELS SKD11 ~HRC60	
HARDNESS	~HRC30		~HRC50		~HRC60	
RADIUS (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
0.1	32000	500-600	32000	400-500	25000	300-400
0.15	32000	500-600	32000	400-500	25000	300-400
0.2	32000	500-600	32000	400-500	25000	300-400
0.25	32000	600-700	32000	500-600	25000	400-500
0.3	32000	600-700	32000	500-600	25000	400-500
0.35	32000	700-800	32000	600-700	25000	500-600
0.4	32000	900-1000	32000	800-900	25000	600-700
0.45	32000	1000-1100	32000	900-1000	25000	600-700

DEPTH OF CUT



E “ CUTTING TOOLS

HIGH SPEED CUTTING & HIGH HARD CUTTING

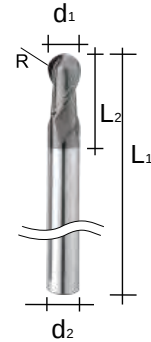
STANDARD 2 FLUTES BALL NOSE END MILLS



UNIT: mm



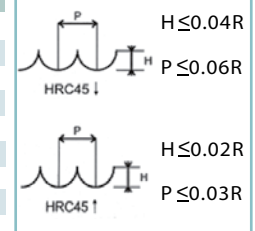
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55102901	HB 0102	R0.5	2	50	4
55102902	HB 0152	R0.75	3	50	4
55102903	HB 0202	R1.0	4	50	4
55102904	HB 0252	R1.25	5	50	4
55102905	HB 0302	R1.5	6	50	4
55102906	HB 0302A	R1.5	6	50	3
55102907	HB 0402	R2.0	8	50	4
55102908	HB 0502	R2.5	10	50	6
55102909	HB 0602	R3.0	12	50	6
55102910	HB 0802	R4.0	16	60	8
55102911	HB 1002	R5.0	20	75	10
55102912	HB 1202	R6.0	24	75	12
55102913	HB 1602	R8.0	32	100	16
55102914	HB 2002	R10.0	32	100	20



RECOMMENDED CUTTING CONDITION FOR BALL NOSE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C, FC, FCD, SCM, S50C, SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM, SKD11, SKD61, NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
RADIUS (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
0.5	45000	2000	45000	1800	28000	1000
1	23000	2000	22000	1800	16000	900
1.5	16000	2000	15000	1800	11000	900
2	15000	2400	14000	2000	10000	1300
3	13000	3200	11000	2000	9000	1500
4	9000	2300	8000	1500	6200	1400
5	7500	1900	6500	1200	5200	900
6	6300	1600	5500	1000	4300	800
8	4500	1200	3800	800	3300	700

DEPTH OF CUT



LONG SHANK 2 FLUTES BALL NOSE END MILLS



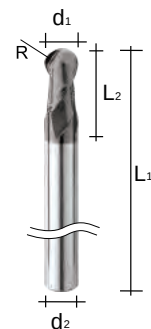
UNIT: mm



ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55102915	HIB 0102	R0.5	2	75	4
55102916	HIB 0102A	R0.5	2	75	6
55102917	HIB 0152	R0.75	3	75	4
55102918	HIB 0152A	R0.75	3	75	6
55102919	HIB 0202	R1.0	4	75	4
55102920	HIB 0202A	R1.0	4	75	6
55102921	HIB 0302	R1.5	6	75	4
55102922	HIB 0302A	R1.5	6	75	6
55102923	HIB 0402	R2.0	8	75	4
55102924	HIB 0402A	R2.0	8	75	6
55102925	HIB 0502	R2.5	10	75	6
55102926	HIB 0602	R3.0	12	75	6
55102927	HIB 0802	R4.0	16	75	8

ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55102928	HJB 0202	R1.0	4	100	6
55102929	HJB 0302	R1.5	6	100	6
55102930	HJB 0402	R2.0	8	100	6
55102931	HJB 0602	R3.0	12	100	6
55102932	HJB 0802	R4.0	16	100	8
55102933	HJB 1002	R5.0	20	100	10
55102934	HJB 1202	R6.0	24	100	12

ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55102935	HKB 0602	R3.0	12	150	6
55102936	HKB 0802	R4.5	16	150	8
55102937	HKB 1002	R5.0	20	150	10
55102938	HKB 1202	R6.0	24	150	12
55102939	HKB 1602	R8.0	32	150	16
55102940	HKB 2002	R10.0	40	150	20
55102941	HKB 2502	R 12.5	40	150	25



HIGH SPEED CUTTING & HIGH HARD CUTTING

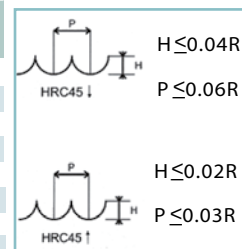
LONG SHANK 2 FLUTES BALL NOSE END MILLS (ITEM NO. 55102915~55102941)



RECOMMENDED CUTTING CONDITION FOR LONG SHANK BALL NOSE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C, FC, FCD, SCM, S50C, SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM, SKD11, SKD61, NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
RADIUS (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
1	23000	2000	22000	1800	16000	900
1.5	16000	2000	15000	1800	11000	900
2	15000	2400	14000	2000	10000	1300
3	13000	3200	11000	2000	9000	1500
4	9000	2300	8000	1500	6200	1400
5	7500	1900	6500	1200	5200	900
6	6300	1600	5500	1000	4300	800
8	4500	1200	3800	800	3300	700

DEPTH OF CUT

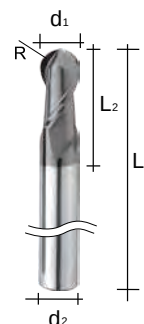


STANDARD 2 FLUTES BALL NOSE END MILLS



UNIT: mm

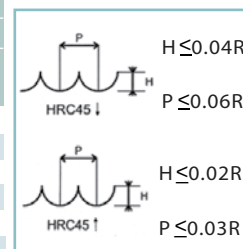
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55102942	HBA 0102	R0.5	2	50	6
55102943	HBA 0152	R0.75	3	50	6
55102944	HBA 0202	R1.0	4	50	6
55102945	HBA 0252	R1.25	5	50	6
55102946	HBA 0302	R1.5	6	50	6
55102947	HBA 0402	R2.0	8	50	6



RECOMMENDED CUTTING CONDITION FOR BALL NOSE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C, FC, FCD, SCM, S50C, SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM, SKD11, SKD61, NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
RADIUS (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
0.5	20000	700	15000	2000	10000	1500
0.75	18500	800	14500	680	12000	5000
1	18000	830	14000	740	11000	640
1.25	17000	1060	12800	950	9900	640
1.5	15360	1400	11500	1020	9900	640
2	14700	2050	10800	960	8900	870

DEPTH OF CUT

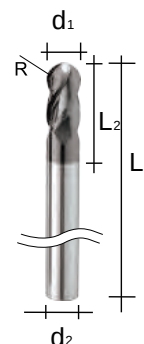


STANDARD 4 FLUTES BALL NOSE END MILLS



UNIT: mm

ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55102948	HB 0104	R0.5	2	50	4
55102949	HB 0154	R0.75	3	50	4
55102950	HB 0204	R1.0	4	50	4
55102951	HB 0304	R1.5	6	50	4
55102952	HB 0304A	R1.5	6	50	3
55102953	HB 0404	R2.0	8	50	4
55102954	HB 0504	R2.5	10	50	6
55102955	HB 0604	R3.0	12	50	6
55102956	HB 0804	R4.0	16	60	8
55102957	HB 1004	R5.0	20	75	10
55102958	HB 1204	R6.0	24	75	12
55102959	HB 1604	R8.0	32	100	16
55102960	HB 2004	R10.0	32	100	20



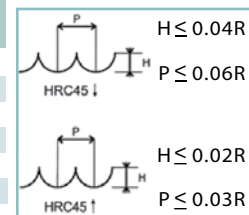
E “ CUTTING TOOLS

HIGH SPEED CUTTING & HIGH HARD CUTTING

RECOMMENDED CUTTING CONDITION FOR BALL NOSE END MILLS (ITEM NO. 55102948~55102960)

MATERIAL	CARBON STEELS, ALLOY STEELS S45C,FC,FC,SCM,550C,SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM,SKD11,SKD61,NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
RADIUS (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
2	15000	3000	14000	2600	10000	1700
3	13000	4000	11000	2600	9000	1900
4	9000	2900	8000	1900	6200	1800
5	7500	2400	6500	1500	5200	1100
6	6300	2100	5500	1300	4300	1000
8	4500	1500	3800	1000	3300	900
10	3700	1200	3200	750	2600	600

DEPTH OF CUT

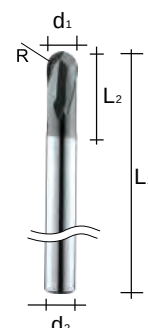


SHORT LENGTH 2 FLUTES BALL NOSE END MILLS



UNIT: mm

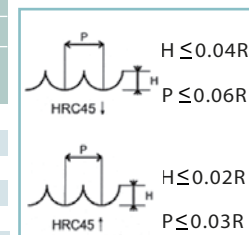
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55102961	HOB 0102	R0.5	1.0	50	6
55102962	HOB 0152	R0.75	1.5	50	6
55102963	HOB 0202	R1.0	1.5	50	6
55102964	HOB 0302	R1.5	2.5	50	6
55102965	HOB 0402	R2.0	3.0	50	6
55102966	HOB 0502	R2.5	3.5	50	6
55102967	HOB 0602	R3.0	4.5	50	6
55102968	HOB 0602A	R3.0	4.5	100	6
55102969	HOB 0802	R4.0	5.5	60	8
55102970	HOB 0802A	R4.0	5.5	100	8
55102971	HOB 1002	R5.0	6.5	75	10
55102972	HOB 1002A	R5.0	6.5	100	10
55102973	HOB 1202	R6.0	7.5	75	12
55102974	HOB 1202A	R6.0	7.5	100	12



RECOMMENDED CUTTING CONDITION FOR POWER BALL NOSE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C,FC,FC,SCM,550C,SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM,SKD11,SKD61,NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
RADIUS (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
1	45000	2000	18000	1500	12000	1200
1.5	42000	2000	18000	1500	12000	1200
2	15000	3000	18000	1500	12000	1200
3	13000	5000	11000	3500	8000	1700
4	9000	3000	8000	2000	4000	1400
5	7500	2500	6500	1800	3500	1300

DEPTH OF CUT

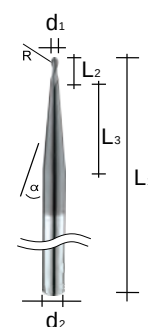


LONG NECK TAPER 2 FLUTES BALL NOSE END MILLS



UNIT: mm

ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	TAPER ANGLE (α)	FLUTE LENGTH (L3)	O.A.L (L1)	SHANK DIA (d2)
55102975	HLB 0103	R0.5	2	3°	32	75	6
55102976	HLB 0105	R0.5	2	5°	32	75	6
55102977	HLB 0203	R1.0	4	3°	27	100	6
55102978	HLB 0205	R1.0	4	5°	27	100	6
55102979	HLB 0315	R1.5	6	1.5°	35	100	6
55102980	HLB 0303	R1.5	6	3°	35	100	6
55102981	HLB 0415	R2.0	8	1.5°	28	100	6
55102982	HLB 0403	R2.0	8	3°	28	100	6
55102983	HLB 0603	R3.0	12	3°	32	100	8
55102984	HLB 0605	R3.0	12	5°	35	100	10
55102985	HLB 0603A	R3.0	12	3°	32	150	8
55102986	HLB 0605A	R3.0	12	5°	35	150	10
55102987	HLB 0803	R4.0	16	3°	36	100	10
55102988	HLB 0805	R4.0	16	5°	39	100	12
55102989	HLB 0803A	R4.0	16	3°	36	150	10
55102990	HLB 0805A	R4.0	16	5°	39	150	12
55102991	HLB 1003	R5.0	20	3°	40	100	12
55102992	HLB 1003A	R5.0	20	3°	40	150	12
55102993	HLB 1205	R6.0	24	5°	47	100	16

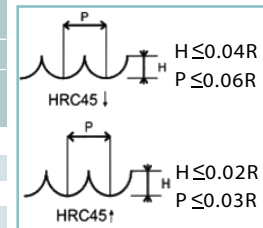


HIGH SPEED CUTTING & HIGH HARD CUTTING

RECOMMENDED CUTTING CONDITION FOR TAPER NECK BALL NOSE END MILLS (FOR ITEM NO. 55102975~55102993)

MATERIAL	CARBON STEELS, ALLOY STEELS S45C,FC,FCD,SCM,S50C,SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNM,SKD11,SKD61,NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
RADIUS (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
1	23000	2000	22000	1800	16000	900
1.5	16000	2000	15000	1800	11000	900
2	15000	2400	14000	2000	10000	1300
3	13000	3200	11000	2000	9000	1500

DEPTH OF CUT

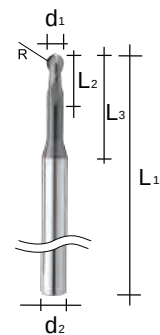


LONG NECK SHORT 2 FLUTES BALL NOSE END MILLS



UNIT: mm

ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	EFFECTIVE LENGTH (L3)	O.A.L (L1)	SHANK DIA (d2)
55102994	HNB 0402	R0.2	0.8	2	50	4
55102995	HNB 0404	R0.2	0.8	4	50	4
55102996	HNB 0504	R0.25	1.0	4	50	4
55102997	HNB 0506	R0.25	1.0	6	50	4
55102998	HNB 0604	R0.3	1.2	4	50	4
55102999	HNB 0606	R0.3	1.2	6	50	4
55103000	HNB 0608	R0.3	1.2	8	50	4
55103001	HNB 0804	R0.4	1.2	4	50	4
55103002	HNB 0806	R0.4	1.2	6	50	4
55103003	HNB 0808	R0.4	1.2	8	50	4
55103004	HNB 0810	R0.4	1.2	10	50	4
55103005	HNB 1004	R0.5	1.5	4	50	4
55103006	HNB 1006	R0.5	1.5	6	50	4
55103007	HNB 1008	R0.5	1.5	8	50	4
55103008	HNB 1010	R0.5	1.5	10	50	4
55103009	HNB 1012	R0.5	1.5	12	50	4
55103010	HNB 1506	R0.75	3.0	6	50	4
55103011	HNB 1508	R0.75	3.0	8	50	4
55103012	HNB 1512	R0.75	3.0	12	50	4
55103013	HNB 1516	R0.75	3.0	16	50	4
55103014	HNB 1520	R0.75	3.0	20	50	4
55103015	HNB 2006	R1.0	4.0	6	50	4
55103016	HNB 2008	R1.0	4.0	8	50	4
55103017	HNB 2012	R1.0	4.0	12	50	4
55103018	HNB 2016	R1.0	4.0	16	50	4
55103019	HNB 2020	R1.0	4.0	20	50	4
55103020	HNB 3008	R1.5	4.0	8	50	4
55103021	HNB 3012	R1.5	4.0	12	50	4
55103022	HNB 3016	R1.5	4.0	16	50	4
55103023	HNB 3020	R1.5	4.0	20	75	6
55103024	HNB 3025	R1.5	4.0	25	75	6
55103025	HNB 4010	R2.0	5.0	10	75	6
55103026	HNB 4016	R2.0	5.0	16	75	6
55103027	HNB 4020	R2.0	5.0	20	75	6
55103028	HNB 4025	R2.0	5.0	25	75	6
55103029	HNB 4030	R2.0	5.0	30	75	6



“ CUTTING TOOLS

HIGH SPEED CUTTING & HIGH HARD CUTTING

LONG NECK SHORT 2 FLUTES BALL NOSE END MILLS



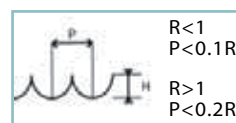
RECOMMENDED CUTTING CONDITION FOR

LONG NECK BALL NOSE END MILLS (FOR ITEM NO. 55102994~55103029)

UNIT: mm

MATERIAL	ALLOY STEELS.TOOL STEELS.HARDENED STEELS S45C,SCM,S50C,SKS,SCR,SNM,SKD11,SKD61,NAK80			
RADIUS	EFFECTIVE LENGTH	SPEED (mm-1)	FEED mm/min	DEPTH OF CUT
0.25	4	30000-40000	200-650	0.015
0.25	6	30000-40000	200-650	0.013
0.3	4	27000-40000	180-650	0.025
0.3	6	27000-40000	180-650	0.015
0.4	6	25000-40000	400-750	0.025
0.4	8	25000-40000	400-750	0.025
0.5	6	20000-32000	500-750	0.04
0.5	8	20000-32000	300-750	0.03
0.5	10	20000-32000	300-750	0.025
0.5	12	20000-32000	300-750	0.015
0.6	8	22000-25000	500-600	0.05
0.6	12	22000-25000	500-600	0.03
0.75	8	18000-20000	300-550	0.07
0.75	12	18000-20000	300-550	0.04
0.75	16	18000-20000	300-550	0.03
0.75	20	18000-20000	300-550	0.02
0.8	8	13000-18000	350-800	0.08
0.8	12	13000-18000	350-800	0.06
0.8	16	13000-18000	350-800	0.05
1.0	8	12000-17000	500-900	0.1
1.0	12	12000-17000	500-900	0.1
1.0	16	12000-17000	500-900	0.07
1.0	20	12000-17000	500-900	0.04
1.5	8	8000-11000	500-700	0.17
1.5	10	8000-11000	500-700	0.15
1.5	16	8000-11000	500-700	0.14
1.5	20	8000-11000	500-700	0.12
1.5	25	8000-11000	500-700	0.1
2.0	10	5000-8000	400-600	0.18
2.0	15	5000-8000	400-600	0.17
2.0	20	5000-8000	400-600	0.16
2.0	25	5000-8000	400-600	0.15
2.0	30	5000-8000	400-600	0.14

DEPTH OF CUT

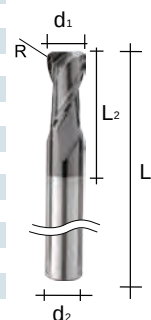


2 FLUTES CORNER RADIUS SQUARE END MILLS



UNIT: mm

ITEM NO.	TYPE NO.	DIAMETER (D1)	CORNER R	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55103030	HNR 0102	1.0	0.2	2	50	4
55103031	HNR 0202	2.0	0.2	4	50	4
55103032	HNR 0205	2.0	0.5	4	50	4
55103033	HNR 0302	3.0	0.2	6	50	4
55103034	HNR 0305	3.0	0.5	6	50	4
55103035	HNR 0310	3.0	1.0	6	50	4
55103036	HNR 0402	4.0	0.2	8	50	4
55103037	HNR 0405	4.0	0.5	8	50	4
55103038	HNR 0410	4.0	1.0	8	50	4
55103039	HNR 0602	6.0	0.2	12	50	6
55103040	HNR 0605	6.0	0.5	12	50	6
55103041	HNR 0610	6.0	1.0	12	50	6
55103042	HNR 0620	6.0	2.0	12	60	6
55103043	HNR 0805	8.0	0.5	16	60	8
55103044	HNR 0810	8.0	1.0	16	60	8
55103045	HNR 0820	8.0	2.0	16	60	8
55103046	HNR 1005	10.0	0.5	20	75	10
55103047	HNR 1010	10.0	1.0	20	75	10
55103048	HNR 1020	10.0	2.0	20	75	10
55103049	HNR 1205	12.0	0.5	24	75	12
55103050	HNR 1210	12.0	1.0	24	75	12
55103051	HNR 1220	12.0	2.0	24	75	12
55103052	HNR 1230	12.0	3.0	24	75	12

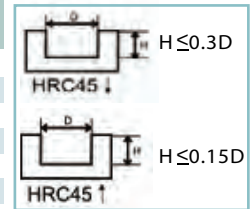


HIGH SPEED CUTTING & HIGH HARD CUTTING

RECOMMENDED CUTTING CONDITION FOR CORNER RADIUS END MILLS (FOR ITEM NO. 55103030~55103052)

MATERIAL	CARBON STEELS, ALLOY STEELS S45C,FC,FCD,SCM,S50C,SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM,SKD11,SKD61,NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
3	7600	180	4800	120	2900	50
4	6500	260	4000	160	2500	55
5	5500	270	3200	160	2000	60
6	4800	300	2900	170	1800	70
8	3700	325	2200	170	1500	85
10	2900	280	1700	140	1100	70
12	2400	230	1400	120	1000	65
16	1800	170	1100	90	700	45

DEPTH OF CUT

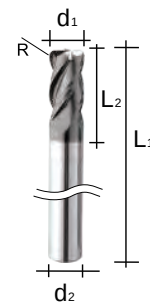


4 FLUTES CORNER RADIUS END MILLS



UNIT: mm

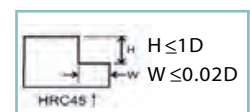
ITEM NO.	TYPE NO.	DIAMETER (D1)	CORNER R	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55103053	HER 0102	1.0	0.2	2	50	4
55103054	HER 0202	2.0	0.2	4	50	4
55103055	HER 0205	2.0	0.5	4	50	4
55103056	HER 0252	2.5	0.2	5	50	4
55103057	HER 0255	2.5	0.5	5	50	4
55103058	HER 0302	3.0	0.2	6	50	4
55103059	HER 0305	3.0	0.5	6	50	4
55103060	HER 0310	3.0	1.0	6	50	4
55103061	HER 0402	4.0	0.2	8	50	4
55103062	HER 0405	4.0	0.5	8	50	4
55103063	HER 0410	4.0	1.0	8	50	4
55103064	HER 0505	5.0	0.5	10	50	6
55103065	HER 0510	5.0	1.0	10	50	6
55103066	HER 0602	6.0	0.2	12	50	6
55103067	HER 0605	6.0	0.5	12	50	6
55103068	HER 0610	6.0	1.0	12	50	6
55103069	HER 0615	6.0	1.5	12	50	6
55103070	HER 0620	6.0	2.0	12	50	6
55103071	HER 0805	8.0	0.5	16	60	8
55103072	HER 0810	8.0	1.0	16	60	8
55103073	HER 0820	8.0	2.0	16	60	8
55103074	HER 1005	10.0	0.5	20	75	10
55103075	HER 1010	10.0	1.0	20	75	10
55103076	HER 1020	10.0	2.0	20	75	10
55103077	HER 1030	10.0	3.0	20	75	10
55103078	HER 1205	12.0	0.5	24	75	12
55103079	HER 1210	12.0	1.0	24	75	12
55103080	HER 1220	12.0	2.0	24	75	12
55103081	HER 1230	12.0	3.0	24	75	12



RECOMMENDED CUTTING CONDITION FOR CORNER RADIUS END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C,FC,FCD,SCM,S50C,SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM,SKD11,SKD61,NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
2	26000	1600	16500	1000	7500	300
3	19000	1800	12000	1200	5400	380
4	16000	3200	10000	1900	4800	480
5	14000	3300	8000	2000	3800	500
6	12000	3600	7200	2200	3500	650
8	9600	4000	5600	2200	2700	750
10	7000	3400	4400	1700	2100	650
12	6000	2800	3600	1400	1800	600
16	4500	2000	2800	1000	1400	450

DEPTH OF CUT



E3 - MILLING TOOLS

CUTTING TOOLS

E “ CUTTING TOOLS

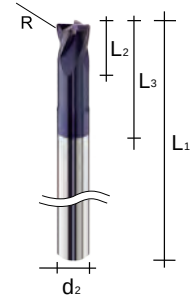
HIGH SPEED CUTTING & HIGH HARD CUTTING

SHORT FLUTE 4 FLUTES CORNER RADIUS END MILLS



UNIT: mm

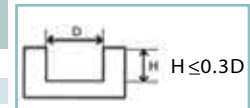
ITEM NO.	TYPE NO.	DIAMETER (D1)	CORNER R	FLUTE LENGTH (L2)	EFFECTIVE LENGTH (L3)	O.A.L (L1)	SHANK DIA(d2)
55103082	HMR 0605	6	0.5	6	15	50	6
55103083	HMR 0610	6	1.0	6	15	50	6
55103084	HMR 0805	8	0.5	8	20	50	8
55103085	HMR 0810	8	1.0	8	20	50	8
55103086	HMR 1010	10	1.0	10	25	50	10
55103087	HMR 1020	10	2.0	10	25	75	10
55103088	HMR 1030	10	3.0	10	25	75	10
55103089	HMR 1210	12	1.0	12	30	75	12
55103090	HMR 1220	12	2.0	12	30	75	12



RECOMMENDED CUTTING CONDITION FOR CORNER RADIUS END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C,FC,PCD,SCM,S50C,SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM,SKD11,SKD61,NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
6	12000	12000	8000	8000	5000	4000
8	10000	10000	8000	8000	6000	4800
10	7000	5000	6000	4000	4500	2000
12	5000	7000	4000	6000	3000	3000

DEPTH OF CUT

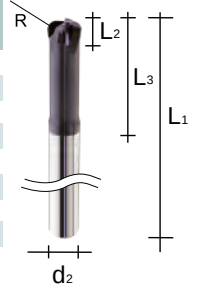


HEAVY CUTTING 4 FLUTES CORNER RADIUS END MILLS



UNIT: mm

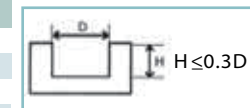
ITEM NO.	TYPE NO.	DIAMETER (D1)	DIAMETER (D1)	CORNER R	FLUTE LENGTH (L2)	EFFECTIVE LENGTH (L3)	O.A.L (L1)	SHANK DIA (d2)
55103091	HXR 0615	6.0	5.4	1.5	3	18	50	6
55103092	HXR 0615A	6.0	5.4	1.5	3	18	75	6
55103093	HXR 0820	8.0	7.2	2.0	4	24	60	8
55103094	HXR 0820A	8.0	7.2	2.0	4	24	75	8
55103095	HXR 1020	10.0	9.0	2.0	5	30	75	10
55103096	HXR 1020A	10.0	9.0	2.0	5	30	100	10
55103097	HXR 1230	12.0	11.0	3.0	6	36	75	12
55103098	HXR 1230A	12.0	11.0	3.0	6	36	100	12



RECOMMENDED CUTTING CONDITION FOR CORNER RADIUS END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C,FC,PCD,SCM,S50C,SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM,SKD11,SKD61,NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
2x0.8	30250	9500	30400	9050	22800	6120
3x0.8	19950	11850	19950	11000	15200	7250
4x1	15200	11500	15200	11400	11400	7590
6x1.5	10050	12500	10000	11500	9050	8150
8x2	7550	13000	7550	12050	5650	8150
10x2	6030	13000	4510	9070	3040	3610
12x3	5030	13000	5030	12050	3800	8150

DEPTH OF CUT



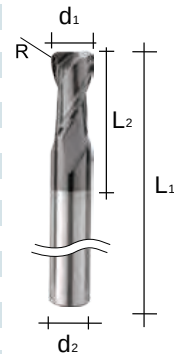
HIGH SPEED CUTTING & HIGH HARD CUTTING

2 FLUTES LONG SHANK CORNER RADIUS SQUARE END MILLS



UNIT: mm

ITEM NO.	TYPE NO.	DIAMETER (D1)	CORNER R	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55103099	HLNR 0402	4.0	0.2	8	75	4
55103100	HLNR 0405	4.0	0.5	8	75	4
55103101	HLNR 0410	4.0	1.0	8	75	4
55103102	HLNR 0602	6.0	0.2	12	100	6
55103103	HLNR 0605	6.0	0.5	12	100	6
55103104	HLNR 0610	6.0	1.0	12	100	6
55103105	HLNR 0620	6.0	2.0	12	100	6
55103106	HLNR 0805	8.0	0.5	16	100	8
55103107	HLNR 0810	8.0	1.0	16	100	8
55103108	HLNR 0820	8.0	2.0	16	100	8
55103109	HLNR 1005	10.0	0.5	20	100	10
55103110	HLNR 1010	10.0	1.0	20	100	10
55103111	HLNR 1020	10.0	2.0	20	100	10
55103112	HLNR 1030	10.0	3.0	20	100	10
55103113	HLNR 1205	12.0	0.5	24	100	12
55103114	HLNR 1210	12.0	1.0	24	100	12
55103115	HLNR 1220	12.0	2.0	20	100	12
55103116	HLNR 1230	12.0	3.0	20	100	12

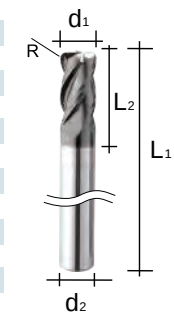


4 FLUTES LONG SHANK CORNER RADIUS END MILLS



UNIT: mm

ITEM NO.	TYPE NO.	DIAMETER (D1)	CORNER R	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55103117	HLR 0305	3.0	0.5	6	75	3
55103118	HLR 0305A	3.0	0.5	6	75	4
55103119	HLR 0402	4.0	0.2	8	75	4
55103120	HLR 0405	4.0	0.5	8	75	4
55103121	HLR 0602	6.0	0.2	12	75	6
55103122	HLR 0605	6.0	0.5	12	75	6
55103123	HLR 0605A	6.0	0.5	12	100	6
55103124	HLR 0610	6.0	1.0	12	75	6
55103125	HLR 0610A	6.0	1.0	12	100	6
55103126	HLR 0805	8.0	0.5	16	75	8
55103127	HLR 0805A	8.0	0.5	16	100	8
55103128	HLR 0810	8.0	1.0	16	75	8
55103129	HLR 0810A	8.0	1.0	16	100	8
55103130	HLR 1005	10.0	0.5	20	100	10
55103131	HLR 1005A	10.0	0.5	20	150	10
55103132	HLR 1010	10.0	1.0	20	100	10
55103133	HLR 1010A	10.0	1.0	20	150	10
55103134	HLR 1020	10.0	2.0	20	100	10
55103135	HLR 1020A	10.0	2.0	20	150	10
55103136	HLR 1030	10.0	3.0	20	100	10
55103137	HLR 1030A	10.0	3.0	20	150	10
55103138	HLR 1205	12.0	0.5	24	100	12
55103139	HLR 1205A	12.0	0.5	24	150	12
55103140	HLR 1210	12.0	1.0	24	100	12
55103141	HLR 1210A	12.0	1.0	24	150	12
55103142	HLR 1220	12.0	2.0	24	100	12
55103143	HLR 1220A	12.0	2.0	24	150	12
55103144	HLR 1230	12.0	3.0	24	100	12
55103145	HLR 1230A	12.0	3.0	24	150	12



E3 - MILLING TOOLS

CUTTING TOOLS

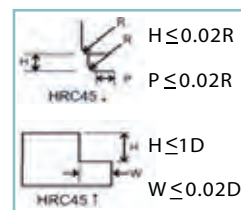
E “ CUTTING TOOLS

HIGH SPEED CUTTING & HIGH HARD CUTTING

RECOMMENDED CUTTING CONDITION FOR LONG SHANK CORNER RADIUS END MILLS (FOR ITEM NO. 55103117~55103145)

MATERIAL	CARBON STEELS, ALLOY STEELS S45C,FC,PCD,SCM,S50C,SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM,SKD11,SKD61,NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
2	26000	1600	16500	1000	7500	300
3	19000	1800	12000	1200	5400	380
4	16000	3200	10000	1900	4800	480
5	14000	3300	8000	2000	3800	500
6	12000	3600	7200	2200	3500	650
8	9600	4000	5600	2200	2700	750
10	7000	3400	4400	1700	2100	650
12	6000	2800	3600	1400	1800	600

DEPTH OF CUT

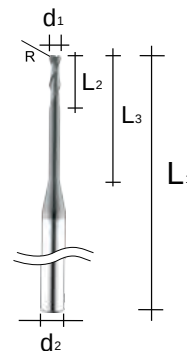


2 FLUTES LONG NECK CORNER RADIUS END MILLS



UNIT: mm

ITEM NO.	TYPE NO.	DIAMETER (D1)	CORNER R	FLUTE LENGTH (L2)	EFFECTIVE LENGTH (L3)	O.A.L (L1)	SHANK DIA (d2)
55103146	HNMR 1004	1.0	0.2	2.0	4	50	4
55103147	HNMR 1006	1.0	0.2	2.0	6	50	4
55103148	HNMR 1008	1.0	0.2	2.0	8	50	4
55103149	HNMR 1012	1.0	0.2	2.0	12	50	4
55103150	HNMR 1504	1.5	0.2	2.0	4	50	4
55103151	HNMR 1506	1.5	0.2	2.0	6	50	4
55103152	HNMR 1508	1.5	0.2	2.0	8	50	4
55103153	HNMR 1512	1.5	0.2	2.0	12	50	4
55103154	HNMR 2008	2.0	0.2	4.0	8	50	4
55103155	HNMR 2010	2.0	0.2	4.0	10	50	4
55103156	HNMR 2012	2.0	0.2	4.0	12	50	4
55103157	HNMR 2016	2.0	0.2	4.0	16	50	4
55103158	HNMR 2008A	2.0	0.5	4.0	8	50	4
55103159	HNMR 2010A	2.0	0.5	4.0	10	50	4
55103160	HNMR 2012A	2.0	0.5	4.0	12	50	4
55103161	HNMR 2016A	2.0	0.5	4.0	16	50	4
55103162	HNMR 3008A	3.0	0.5	6.0	8	50	4
55103163	HNMR 3012A	3.0	0.5	6.0	12	50	4
55103164	HNMR 3016A	3.0	0.5	6.0	16	50	6
55103165	HNMR 3020A	3.0	0.5	6.0	20	50	6
55103166	HNMR 0308	3.0	0.2	6.0	8	50	4
55103167	HNMR 0312	3.0	0.2	6.0	12	50	4
55103168	HNMR 0316	3.0	0.2	6.0	16	50	4
55103169	HNMR 0320	3.0	0.2	6.0	20	50	4
55103170	HNMR 4012A	4.0	0.5	8.0	12	50	6
55103171	HNMR 4016A	4.0	0.5	8.0	16	75	6
55103172	HNMR 4020A	4.0	0.5	8.0	20	75	6
55103173	HNMR 4025A	4.0	0.5	8.0	25	75	6
55103174	HNMR 4030A	4.0	0.5	8.0	30	75	6
55103175	HNMR 0412	4.0	0.2	8.0	12	50	6
55103176	HNMR 0416	4.0	0.2	8.0	16	75	6
55103177	HNMR 0420	4.0	0.2	8.0	20	75	6
55103178	HNMR 0425	4.0	0.2	8.0	25	75	6
55103179	HNMR 0430	4.0	0.2	8.0	30	75	6



HIGH SPEED CUTTING & HIGH HARD CUTTING

2 FLUTES LONG NECK CORNER RADIUS END MILLS

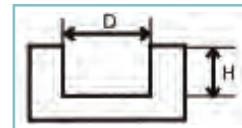


RECOMMENDED CUTTING CONDITION FOR CORNER RADIUS LONG NECK END MILLS (FOR ITEM NO. 55103146~55103179)

UNIT: mm

MATERIAL	ALLOY STEELS.TOOL STEELS.HARDENED STEELS S45C,SCM,S50C,SKS,SCR,SNM,SKD11,SKD61,NAK80			
DIAMETER (mm)	EFFECTIVE LENGTH	SPEED (mm-1)	FEED mm/min	DEPTH OF CUT
1	4	30000	2200	0.15
1	6	30000	2200	0.12
1	8	30000	2200	0.12
1	10	30000	2200	0.12
1.5	4	25000	1800	0.20
1.5	6	25000	1800	0.18
1.5	8	25000	1800	0.15
1.5	10	25000	1800	0.15
1.5	12	25000	1800	0.15
2	8	20000	1500	0.30
2	10	20000	1500	0.30
2	12	20000	1500	0.25
2	16	20000	1500	0.25
3	8	12000	900	0.40
3	12	12000	900	0.40
3	16	12000	900	0.30
3	20	12000	900	0.30
4	10	9000	850	0.50
4	16	9000	850	0.40

DEPTH OF CUT



E “ CUTTING TOOLS

END MILLS SERIES

- 2 FLUTES SQUARE END MILLS
- 3 FLUTES SQUARE END MILLS
- 4 FLUTES SQUARE END MILLS
- 4 FLUTES LONG SHANK SQUARE END MILLS
- 4 FLUTES SHORT LENGTH LONG SQUARE END MILLS
- 2 FLUTES SHORT LENGTH LONG SQUARE END MILLS
- 2 FLUTES LONG SHORT LENGTH SQUARE END MILLS



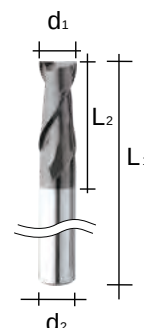
END MILLS SERIES

2 FLUTES SQUARE END MILLS



UNIT: mm

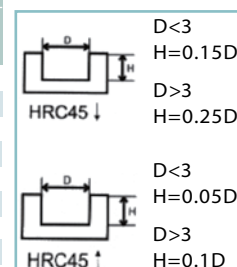
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55103850	JE 0102	1.0	3	50	4
55103851	JE 0152	1.5	4	50	4
55103052	JE 0202	2.0	6	50	4
55103853	JE 0252	2.5	7	50	4
55103854	JE 0302	3.0	8	50	4
55103855	JE 0302A	3.0	8	50	3
55103856	JE 0402	4.0	11	50	4
55103857	JE 0502	5.0	13	50	6
55103858	JE 0602	6.0	15	50	6
55103859	JE 0802	8.0	20	60	8
55103860	JE 1002	10.0	30	75	10
55103861	JE 1202	12.0	30	75	12
55103862	JE 1402	14.0	35	100	16
55103863	JE 1602	16.0	40	100	16
55103864	JE 1802	18.0	40	100	20
55103865	JE 2002	20.0	40	100	20
55103866	JE 2502	25.0	40	100	25



RECOMMENDED CUTTING CONDITION FOR ROUGHING CUT SQUARE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C, FC, FCD, SCM, S50C, SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM, SKD11, SKD61, NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
1	20000	80	15000	45	11000	30
1.5	13600	135	10000	60	9000	40
2	9600	150	8500	50	6000	45
3	6500	200	5800	75	4000	60
4	5500	250	4000	80	3200	60
5	4500	300	3000	80	2500	70
6	4000	300	2500	80	2200	70
8	3500	350	2200	90	1700	70
10	3000	400	2000	90	1500	70
12	2500	400	1500	100	1000	70
16	2000	400	1200	100	800	70

DEPTH OF CUT

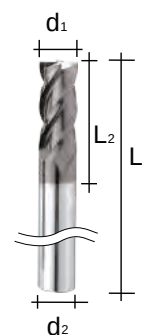


4 FLUTES SQUARE END MILLS



UNIT: mm

ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55103867	JEA 0104	1.0	3	50	4
55103868	JEA 0154	1.5	4	50	4
55103869	JEA 0204	2.0	6	50	4
55103870	JEA 0254	2.5	7	50	4
55103871	JEA 0304	3.0	8	50	4
55103872	JEA 0304A	3.0	8	50	3
55103873	JEA 0404	4.0	11	50	4
55103874	JEA 0504	5.0	13	50	6
55103875	JEA 0604	6.0	15	50	6
55103876	JEA 0804	8.0	20	60	8
55103877	JEA 1004	10.0	30	75	10
55103878	JEA 1204	12.0	30	75	12
55103079	JEA 1404	14.0	35	100	16
55103880	JEA 1604	16.0	40	100	16
55103881	JEA 1804	18.0	40	100	20
55103882	JEA 2004	20.0	45	100	20
55103883	JEA 2504	25.0	45	100	25



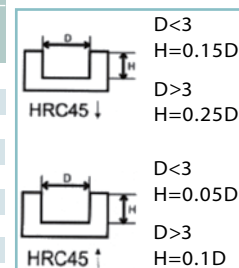
E “ CUTTING TOOLS

END MILLS SERIES

RECOMMENED CUTTING CONDITION FOR SQUARE END MILLS (FOR ITEM NO. 55103867~55103883)

MATERIAL	CARBON STEELS, ALLOY STEELS S45C,FC,FCD,SCM,S50C,SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM,SKD11,SKD61,NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
1	20000	80	15000	45	11000	30
1.5	13600	135	10000	60	9000	40
2	9600	150	8500	50	6000	45
3	6500	200	5800	75	4000	60
4	5500	250	4000	80	3200	60
5	4500	300	3000	80	2500	70
6	4000	300	2500	80	2200	70
8	3500	350	2200	90	1700	70
10	3000	400	2000	90	1500	70
12	2500	400	1500	100	1000	70
16	2000	400	1200	100	800	70

DEPTH OF CUT



4 FLUTES SQUARE END MILLS



UNIT: mm

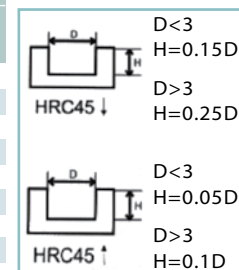
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55103884	JE 0104	1.0	3	50	4
55103885	JE 0154	1.5	4	50	4
55103886	JE 0204	2.0	6	50	4
55103887	JE 0254	2.5	7	50	4
55103888	JE 0304	3.0	8	50	4
55103889	JE 0304A	3.0	8	50	3
55103890	JE 0404	4.0	11	50	4
55103891	JE 0504	5.0	13	50	6
55103892	JE 0604	6.0	15	50	6
55103893	JE 0804	8.0	20	60	8
55103894	JE 1004	10.0	30	75	10
55103895	JE 1204	12.0	30	75	12
55103896	JE 1404	14.0	35	100	16
55103897	JE 1604	16.0	40	100	16
55103898	JE 1804	18.0	40	100	20
55103899	JE 2004	20.0	45	100	20
55103900	JE 2504	25.0	45	100	25



RECOMMENED CUTTING CONDITION FOR SQUARE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C,FC,FCD,SCM,S50C,SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM,SKD11,SKD61,NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
1	20000	80	15000	45	11000	30
1.5	13600	135	10000	60	9000	40
2	9600	150	8500	50	6000	45
3	6500	200	5800	75	4000	60
4	5500	250	4000	80	3200	60
5	4500	300	3000	80	2500	70
6	4000	300	2500	80	2200	70
8	3500	350	2200	90	1700	70
10	3000	400	2000	90	1500	70
12	2500	400	1500	100	1000	70
16	2000	400	1200	100	800	70

DEPTH OF CUT



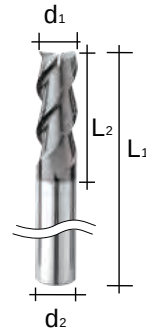
END MILLS SERIES

3 FLUTES SQUARE END MILLS



UNIT: mm

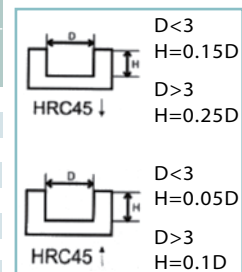
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55103901	JEF 0103	1.0	3	50	4
55103902	JEF 0203	2.0	6	50	4
55103903	JEF 0303	3.0	8	50	4
55103904	JEF 0403	4.0	11	50	4
55103905	JEF 0503	5.0	13	50	6
55103906	JEF 0603	6.0	15	50	6
55103907	JEF 0803	8.0	20	60	8
55103908	JEF 1003	10.0	30	75	10
55103909	JEF 1203	12.0	30	75	12
55103910	JEF 1603	16.0	40	100	16
55103911	JEF 2003	20.0	40	100	20
55103912	JEF 2503	25.0	40	100	25



RECOMMENDED CUTTING CONDITION FOR SQUARE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C, FC, FCD, SCM, S50C, SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNM, SKD11, SKD61, NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
3	8000	550(300)	5500	300(100)	3500	200(95)
4	6500	550(300)	4500	300(100)	2200	200(95)
5	5000	800(400)	3600	350(120)	1800	210(100)
6	4000	800(400)	2800	350(120)	1500	210(110)
8	3500	800(400)	2600	350(120)	1300	210(100)
10	2500	800(400)	2000	350(120)	1100	210(100)
12	1800	750(350)	1500	350(120)	700	210(100)
16	1400	700(300)	1000	300(100)	500	170(70)

DEPTH OF CUT

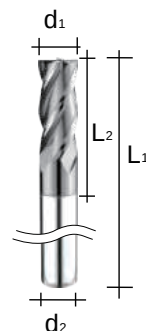


4 FLUTES LONG SHANK SQUARE END MILLS



UNIT: mm

ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55103913	JEL 0104	1.0	3	75	4
55103914	JEL 0104A	1.0	3	100	6
55103915	JEL 0154	1.5	4.5	75	4
55103916	JEL 0154A	1.5	4.5	100	6
55103917	JEL 0204	2.0	6	75	4
55103918	JEL 0204A	2.0	6	100	6
55103919	JEL 0304	3.0	8	75	4
55103920	JEL 0304A	3.0	8	100	6
55103921	JEL 0404	4.0	10	75	4
55103922	JEL 0404A	4.0	10	100	6
55103923	JEL 0504	5.0	13	75	6
55103924	JEL 0504A	5.0	13	100	6
55103925	JEL 0604	6.0	15	75	6
55103926	JEL 0604A	6.0	15	100	6
55103927	JEL 0604B	6.0	15	150	6
55103928	JEL 0804	8.0	20	75	8
55103929	JEL 0804A	8.0	20	100	8
55103930	JEL 0804B	8.0	20	150	8
55103931	JEL 1004	10.0	30	100	10
55103932	JEL 1004A	10.0	30	150	10
55103933	JEL 1204	12.0	30	100	12
55103934	JEL 1204A	12.0	30	150	12
55103935	JEL 1604	16.0	40	150	16
55103936	JEL 1604A	16.0	40	200	16
55103937	JEL 2004	20.0	40	150	20
55103938	JEL 2004A	20.0	40	200	20



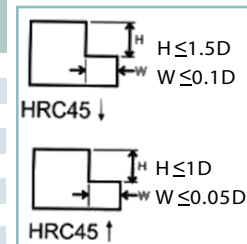
E “ CUTTING TOOLS

END MILLS SERIES

RECOMMENED CUTTING CONDITION FOR SQUARE END MILLS (FOR ITEM NO. 55103913~55103938)

MATERIAL	CARBON STEELS, ALLOY STEELS S45C,FC,FCD,SCM,S50C,SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNM,SKD11,SKD61,NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
1	20000	80	15000	45	11000	30
1.5	13600	135	10000	60	9000	40
2	9600	150	8500	50	6000	45
3	6500	200	5800	75	4000	60
4	5500	250	4000	80	3200	60
5	4500	300	3000	80	2500	70
6	4000	300	2500	80	2200	70
8	3500	350	2200	90	1700	70
10	3000	400	2000	90	1500	70
12	2500	400	1500	100	1000	70
16	2000	400	1200	100	800	70

DEPTH OF CUT

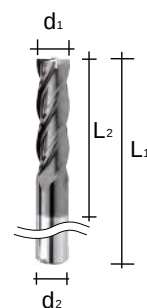


4 FLUTES SHORT LENGTH LONG SQUARE END MILLS



UNIT: mm

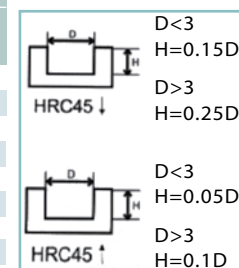
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH(L2)	O.A.L (L1)	SHANK DIA(d2)
55103939	JELF 0204	2.0	15	75	4
55103940	JELF 0304	3.0	15	75	6
55103941	JELF 0404	4.0	20	75	6
55103942	JELF 0504	5.0	25	75	6
55103943	JELF 0604	6.0	25	75	6
55103944	JELF 0604A	6.0	30	100	6
55103945	JELF 0804	8.0	25	75	8
55103946	JELF 0804A	8.0	35	100	8
55103947	JELF 1004	10.0	45	100	10
55103948	JELF 1004A	10.0	50	150	10
55103949	JELF 1204	12.0	45	100	12
55103950	JELF 1204A	12.0	50	150	12
55103951	JELF 1404	14.0	60	150	16
55103952	JELF 1604	16.0	60	150	16
55103953	JELF 1804	18.0	60	150	20
55103954	JELF 2004	20.0	60	150	20



RECOMMENED CUTTING CONDITION FOR SUQARE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C,FC,FCD,SCM,S50C,SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNM,SKD11,SKD61,NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
2	3000	25	1700	20	1000	15
3	2300	35	1900	25	800	10
4	2000	45	1600	35	650	15
5	1800	40	1400	40	600	20
6	1700	60	1300	50	550	25
8	1300	60	1000	50	450	25
10	1000	60	800	50	350	25
12	800	60	700	50	300	25
16	700	50	600	40	250	20
20	500	40	400	30	200	20

DEPTH OF CUT



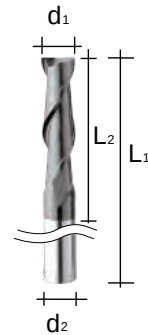
END MILLS SERIES

2 FLUTES SHORT LENGTH LONG SQUARE END MILLS



UNIT: mm

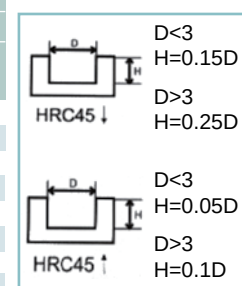
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55103955	JELF 0202	2.0	15	75	4
55103956	JELF 0302	3.0	15	75	4
55103957	JELF 0402	4.0	20	75	4
55103958	JELF 0502	5.0	25	75	6
55103959	JELF 0602	6.0	25	75	6
55103960	JELF 0602A	6.0	30	100	6
55103961	JELF 0802	8.0	25	75	8
55103962	JELF 0802A	8.0	35	100	8
55103963	JELF 1002	10.0	40	100	10
55103964	JELF 1002A	10.0	40	150	10
55103965	JELF 1202	12.0	45	100	12
55103966	JELF 1202A	12.0	45	150	12
55103967	JELF 1402	14.0	60	150	16
55103968	JELF 1602	16.0	60	150	16
55103969	JELF 1802	18.0	60	150	20
55103970	JELF 2002	20.0	60	150	20



RECOMMENDED CUTTING CONDITION FOR LONG FLUTE SQUARE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C,FC, FCD, SCM, S50C, SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM, SKD11, SKD61, NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
2	3000	50	2500	40	1000	15
3	2500	60	2000	50	800	20
4	2000	80	1700	70	700	30
5	1800	110	1500	85	600	40
6	1500	110	1400	75	550	50
8	1300	110	1100	75	450	50
10	1000	110	800	75	300	50
12	900	110	700	75	250	40
16	800	95	500	70	150	20
20	500	80	400	60	120	20

DEPTH OF CUT

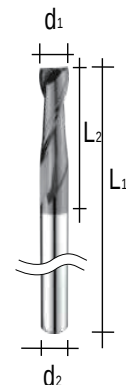


2 FLUTES LONG SHORT LENGTH SQUARE END MILLS



UNIT: mm

ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55103971	JEL 0102	1.0	3	75	4
55103972	JEL 0202	2.0	6	75	4
55103973	JEL 0302	3.0	8	75	4
55103974	JEL 0402	4.0	10	75	4
55103975	JEL 0502	5.0	13	75	6
55103976	JEL 0602	6.0	15	75	6
55103977	JEL 0802	8.0	20	75	8
55103978	JEI 0302	3.0	8	100	4
55103979	JEI 0302A	3.0	8	100	6
55103980	JEI 0402	4.0	10	100	4
55103981	JEI 0402A	4.0	10	100	6
55103982	JEI 0502	5.0	13	100	6
55103983	JEI 0602	6.0	15	100	6
55103984	JEI 0802	8.0	20	100	8
55103985	JEI 1002	10.0	25	100	10
55103986	JEI 1202	12.0	30	100	12
55103987	JEJ 0602	6.0	15	150	6
55103988	JEJ 0802	8.0	20	150	8
55103989	JEJ 1002	10.0	25	150	10
55103990	JEJ 1202	12.0	30	150	12
55103991	JEJ 1402	14.0	40	150	14
55103992	JEJ 1602	16.0	40	150	16
55103993	JEJ 1802	18.0	50	150	20
55103994	JEJ 2002	20.0	50	150	20



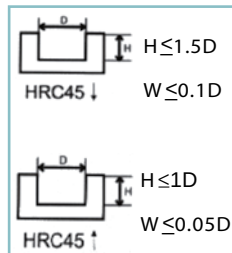
E “ CUTTING TOOLS

END MILLS SERIES

2 FLUTES LONG SHORT LENGTH SQUARE END MILLS (FOR ITEM NO. 55103971~55103994) RECOMMENDED CUTTING CONDITION FOR LONG SHANK SQUARE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C,FC,PCD,SCM,S50C,SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM,SKD11,SKD61,NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
1	20000	80	15000	45	11000	30
1.5	13600	135	10000	60	9000	40
2	9600	150	8500	50	6000	45
3	6500	200	5800	75	4000	60
4	5500	250	4000	80	3200	60
5	4500	300	3000	80	2500	70
6	4000	300	2500	80	2200	70
8	3500	350	2200	90	1700	70
10	3000	400	2000	90	1500	70
12	2500	400	1500	100	1000	70
16	2000	400	1200	100	800	70

DEPTH OF CUT

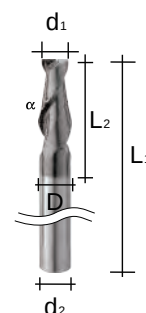


2 FLUTES TAPER SQUARE END MILLS



UNIT: mm

ITEM NO.	TYPE NO.	SMALL MILL DIA (D1)	FLUTE LENGTH (L2)	FLUTE LENGTH (α)	LARGE MILL DIA (D)	O.A.L (L1)	SHANK DIA (d2)
55103995	JTA 010005	1.0	4	0.5°	1.07	50	4
55103996	JTA 010010	1.0	4	1°	1.14	50	4
55103997	JTA 010015	1.0	4	1.5°	1.21	50	4
55103998	JTA 010020	1.0	4	2°	1.28	50	4
55103999	JTA 010025	1.0	4	2.5°	1.35	50	4
55104000	JTA 010030	1.0	4	3°	1.42	50	4
55104001	JTA 010050	1.0	5	5°	1.7	50	4
55104002	JTA 010070	1.0	5	7°	1.98	50	4
55104003	JTA 010100	1.5	5	10°	2.41	50	4
55104004	JTA 015005	1.5	5	0.5°	1.59	50	4
55104005	JTA 015010	1.5	5	1°	1.67	50	4
55104006	JTA 015015	1.5	5	1.5°	1.76	50	4
55104007	JTA 015020	1.5	5	2°	1.85	50	4
55104008	JTA 015025	1.5	5	2.5°	1.93	50	4
55104009	JTA 015030	1.5	5	3°	2.02	50	4
55104010	JTA 015050	1.5	5	5°	2.37	50	4
55104011	JTA 015070	1.5	5	7°	2.73	50	4
55104012	JTA 015100	1.5	5	10°	3.26	50	4
55104013	JTA 020005	2.0	6	0.5°	2.10	50	4
55104014	JTA 020010	2.0	6	1°	2.21	50	4
55104015	JTA 020015	2.0	6	1.5°	2.31	50	4
55104016	JTA 020020	2.0	6	2°	2.41	50	4
55104017	JTA 020025	2.0	6	2.5°	2.52	50	4
55104018	JTA 020030	2.0	6	3°	2.62	50	4
55104019	JTA 020050	2.0	6	5°	3.05	50	4
55104020	JTA 020070	2.0	6	7°	3.47	50	4
55104021	JTA 020100	2.0	6	10°	4.12	50	4
55104022	JTA 025005	2.5	8	0.5°	2.64	50	4
55104023	JTA 025010	2.5	8	1°	2.78	50	4
55104024	JTA 025015	2.5	8	1.5°	2.91	50	4
55104025	JTA 025020	2.5	8	2°	3.05	50	4
55104026	JTA 025025	2.5	8	2.5°	3.20	50	4
55104027	JTA 025030	2.5	8	3°	3.33	50	4
55104028	JTA 025050	2.5	8	5°	3.90	50	4
55104029	JTA 025070	2.5	8	7°	4.46	50	4
55104030	JTA 025100	2.5	8	10°	5.32	50	4
55104031	JTA 030005	3.0	10	0.5°	3.17	50	4
55104032	JTA 030010	3.0	10	1°	3.35	50	4
55104033	JTA 030015	3.0	10	1.5°	3.52	50	4
55104034	JTA 030020	3.0	10	2°	3.69	50	4
55104035	JTA 030025	3.0	10	2.5°	3.87	50	4
55104036	JTA 030030	3.0	10	3°	4.05	50	6
55104037	JTA 030050	3.0	10	5°	4.75	50	6
55104038	JTA 030070	3.0	10	7°	5.45	50	6
55104039	JTA 030100	3.0	10	10°	6.53	60	8



END MILLS SERIES

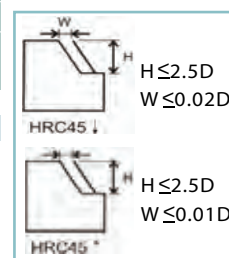
2 FLUTES TAPER SQUARE END MILLS (FOR ITEM NO. 55103995~55104039)



RECOMMENDED CUTTING CONDITION FOR LONG FLUTE, TAPER END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C, FC, FCD, SCM, S50C, SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM, SKD11, SKD61, NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
1	12000	65	6800	40	5000	15
1.5	9600	70	5200	45	2000	15
2	7500	85	4000	48	1500	18
2.5	6800	100	3700	60	1700	20
4	3500	120	1800	60	600	20
6	2500	150	1600	80	550	25
8	2000	150	1200	80	450	25
10	1500	150	1000	80	350	25

DEPTH OF CUT

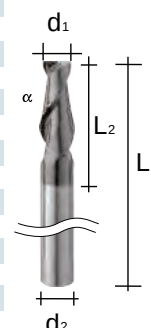


2 FLUTES TAPER SQUARE END MILLS



UNIT: mm

ITEM NO.	TYPE NO.	SMALL MILL DIA (D1)	FLUTE LENGTH (L2)	FLUTE LENGTH (α)	LARGE MILL DIA (D)	O.A.L (L1)	SHANK DIA (d2)
55104040	JTA 040005	4.0	15	0.5°	4.26	50	6
55104041	JTA 040010	4.0	15	1°	4.52	50	6
55104042	JTA 040015	4.0	15	1.5°	4.79	50	6
55104043	JTA 040020	4.0	15	2°	5.04	50	6
55104044	JTA 040025	4.0	15	2.5°	5.31	50	6
55104045	JTA 040030	4.0	15	3°	5.57	50	6
55104046	JTA 040050	4.0	15	5°	6.62	60	8
55104047	JTA 040070	4.0	15	7°	7.68	60	8
55104048	JTA 040100	4.0	15	10°	9.30	75	10
55104049	JTA 050005	5.0	20	0.5°	5.34	55	6
55104050	JTA 050010	5.0	20	1°	5.70	55	6
55104051	JTA 050015	5.0	20	1.5°	6.04	60	8
55104052	JTA 050020	5.0	20	2°	6.39	60	8
55104053	JTA 050025	5.0	20	2.5°	6.74	60	8
55104054	JTA 050030	5.0	20	3°	7.10	60	8
55104055	JTA 050050	5.0	20	5°	8.50	75	10
55104056	JTA 050070	5.0	20	7°	9.91	75	10
55104057	JTA 050100	5.0	20	10°	12.05	75	12
55104058	JTA 060005	6.0	20	0.5°	6.35	60	8
55104059	JTA 060010	6.0	20	1°	6.70	60	8
55104060	JTA 060015	6.0	20	1.5°	7.05	60	8
55104061	JTA 060020	6.0	20	2°	7.40	60	8
55104062	JTA 060025	6.0	20	2.5°	7.75	60	8
55104063	JTA 060030	6.0	20	3°	8.10	75	10
55104064	JTA 060050	6.0	20	5°	9.50	75	10
55104065	JTA 060070	6.0	20	7°	10.91	75	12
55104066	JTA 060100	6.0	20	10°	13.05	75	12
55104067	JTA 080005	8.0	25	0.5°	8.44	75	10
55104068	JTA 080010	8.0	25	1°	8.87	75	10
55104069	JTA 080015	8.0	25	1.5°	9.31	75	10
55104070	JTA 080020	8.0	25	2°	9.74	75	10
55104071	JTA 080025	8.0	25	2.5°	10.18	75	12
55104072	JTA 080030	8.0	25	3°	10.62	75	12
55104073	JTA 080050	8.0	25	5°	12.37	100	12
55104074	JTA 080070	8.0	25	7°	14.14	100	16
55104075	JTA 080100	8.0	25	10°	16.82	100	16
55104076	JTA 100005	10.0	35	0.5°	10.61	100	12
55104077	JTA 100010	10.0	35	1°	11.22	100	12
55104078	JTA 100015	10.0	35	1.5°	11.83	100	12
55104079	JTA 100020	10.0	35	2°	12.44	100	12
55104080	JTA 100025	10.0	35	2.5°	13.06	100	12
55104081	JTA 100030	10.0	35	3°	13.67	100	12
55104082	JTA 100050	10.0	35	5°	16.12	100	16
55104083	JTA 100070	10.0	35	7°	18.60	100	16
55104084	JTA 100100	10.0	35	10°	22.34	100	16



E “ CUTTING TOOLS

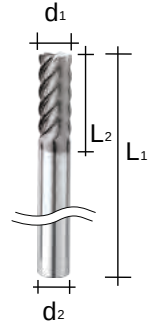
END MILLS SERIES

6 FLUTES STANDARD END MILLS



UNIT: mm

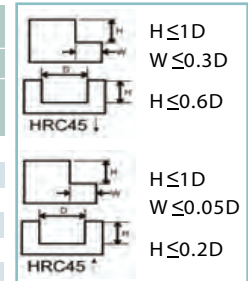
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55104085	JVT 0606	6.0	15	50	6
55104086	JVT 0806	8.0	20	60	8
55104087	JVT 1006	10.0	25	75	10
55104088	JVT 1206	12.0	30	75	12
55104089	JVT 1606	16.0	40	100	16
55104090	JVT 2006	20.0	40	100	20
55104091	JVT 2506	25.0	40	100	25



RECOMMENED CUTTING CONDITION FOR END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C,FC,FCD,SCM,S50C,SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM,SKD11,SKD61,NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
6	5500	1000	4500	850	3800	650
8	4000	1000	3500	850	3000	650
10	3300	1000	3100	850	2400	650
12	3000	900	2500	700	2000	600
16	2500	700	2000	550	1500	450
20	1800	550	1500	420	1200	380

DEPTH OF CUT

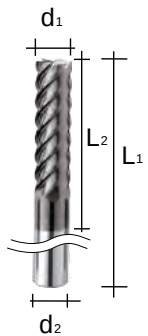


6 FLUTES LONG SHANK END MILLS



UNIT: mm

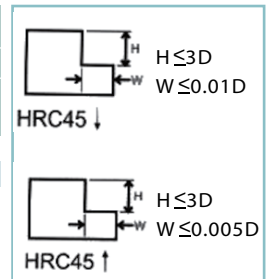
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55104092	LJVT 0606	6.0	25	75	6
55104093	LJVT 0606A	6.0	30	100	6
55104094	LJVT 0806	8.0	35	75	8
55104095	LJVT 0806A	8.0	35	100	8
55104096	LJVT 1006	10.0	40	100	10
55104097	LJVT 1006A	10.0	40	150	10
55104098	LJVT 1206	12.0	45	100	12
55104099	LJVT 1206A	12.0	45	150	12
55104100	LJVT 1606	16.0	60	150	16
55104101	LJVT 1606A	16.0	100	200	16
55104102	LJVT 2006	20.0	80	150	20
55104103	LJVT 2006A	20.0	100	200	20



RECOMMENED CUTTING CONDITION FOR LONG FLUTE HIGH HARDNESS SQUARE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C,FC,FCD,SCM,S50C,SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM,SKD11,SKD61,NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
6	1900	400	1500	300	1200	220
8	1500	380	1100	280	900	200
10	1200	360	850	260	750	190
12	1000	340	700	230	650	180
16	750	280	550	200	450	150
20	600	240	450	170	350	120

DEPTH OF CUT



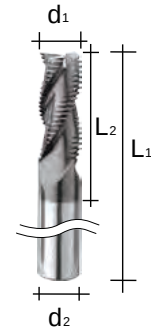
END MILLS SERIES

3 FLUTES ROUGHING END MILLS



UNIT: mm

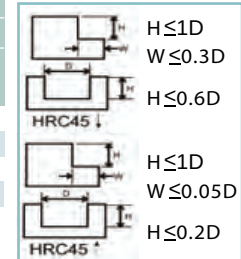
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55104104	JWA 0603	6.0	15	50	6
55104105	JWA 0803	8.0	20	60	8
55104106	JWA 1003	10.0	25	75	10
55104107	JWA 1203	12.0	30	75	12
55104108	JWA 1603	16.0	40	100	16
55104109	JWA 2003	20.0	40	100	20



RECOMMENDED CUTTING CONDITION FOR ROUGHING CUT SQUARE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C, FC, FCD, SCM, S50C, SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM, SKD11, SKD61, NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
6	5500	550	3000	310	1150	120
8	4600	550	2500	310	920	120
10	3700	550	2000	310	730	120
12	3000	500	1700	310	600	120
16	2300	520	1200	310	460	120

DEPTH OF CUT

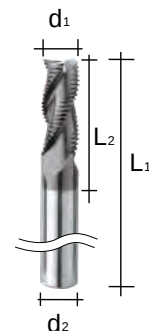


3 FLUTES LONG SHANK SQUARE ROUGHING END MILLS



UNIT: mm

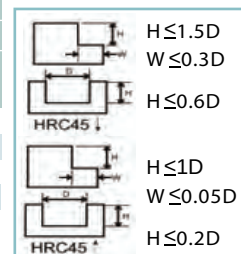
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55104110	LJWA 0603	6.0	15	100	6
55104111	LJWA 0803	8.0	20	100	8
55104112	LJWA 1003	10.0	25	100	10
55104113	LJWA 1203	12.0	30	100	12
55104114	LJWA 1603	16.0	40	150	16
55104115	LJWA 2003	20.0	40	150	20



RECOMMENDED CUTTING CONDITION FOR ROUGHING CUT SQUARE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C, FC, FCD, SCM, S50C, SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM, SKD11, SKD61, NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
6	4400	440	2400	250	920	100
8	3600	440	2000	250	730	100
10	3000	440	1600	250	580	100
12	2400	440	1350	250	480	100
16	1800	440	960	250	370	100

DEPTH OF CUT



E “ CUTTING TOOLS

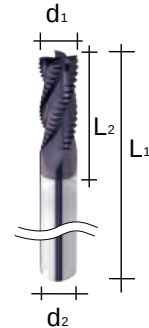
END MILLS SERIES

4 FLUTES ROUGHING END MILLS



UNIT: mm

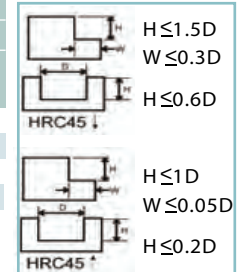
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55104116	JWA 0604	6.0	15	50	6
55104117	JWA 0804	8.0	20	60	8
55104118	JWA 1004	10.0	25	75	10
55104119	JWA 1204	12.0	30	75	12
55104120	JWA 1604	16.0	40	100	16
55104121	JWA 2004	20.0	40	100	20



RECOMMENED CUTTING CONDITION FOR ROUGHING CUT SQUARE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C,FC,FCD,SCM,S50C,SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM,SKD11,SKD61,NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
6	5500	550	3000	310	1150	120
8	4600	550	2500	310	920	120
10	3700	550	2000	310	730	120
12	3000	500	1700	310	600	120
16	2300	520	1200	310	460	120

DEPTH OF CUT

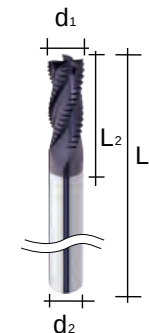


4 FLUTES LONG SHANK SQUARE ROUGHING END MILLS



UNIT: mm

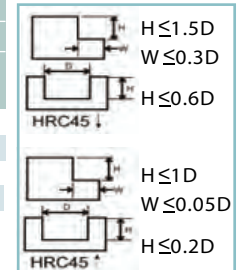
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55104122	LJWA 0604	6.0	15	100	6
55104123	LJWA 0804	8.0	20	100	8
55104124	LJWA 1004	10.0	25	100	10
55104125	LJWA 1204	12.0	30	100	12
55104126	LJWA 1604	16.0	40	150	16
55104127	LJWA 2004	20.0	40	150	20



RECOMMENED CUTTING CONDITION FOR ROUGHING CUT SQUARE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C,FC,FCD,SCM,S50C,SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM,SKD11,SKD61,NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
6	4400	440	2400	250	920	100
8	3600	440	2000	250	730	100
10	3000	440	1600	250	580	100
12	2400	440	1350	250	480	100
16	1800	440	960	250	370	100

DEPTH OF CUT





CORNER RADIUS END MILLS

- 3 FLUTES ROUGHING END MILLS
- 4 FLUTES ROUGHING END MILLS
- 6 FLUTES LONG SHANK END MILLS
- 2 FLUTES TAPER SQUARE END MILLS
- 4 FLUTES CORNER RADIUS END MILLS
- 2 FLUTES CORNER RADIUS SQUARE END MILLS
- 4 FLUTES LONG SHANK CORNER RADIUS END MILLS
- 2 FLUTES LONG SHANK CORNER RADIUS END MILLS
- 3 FLUTES LONG SHANK SQUARE ROUGHING END MILLS
- 4 FLUTES LONG SHANK SQUARE ROUGHING END MILLS



E “ CUTTING TOOLS

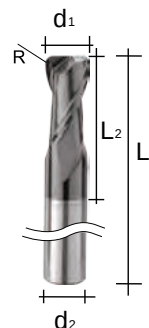
CORNER RADIUS END MILLS

2 FLUTES CORNER RADIUS SQUARE END MILLS



UNIT: mm

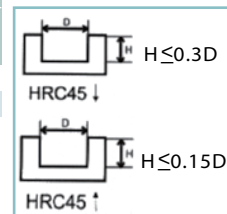
ITEM NO.	TYPE NO.	DIAMETER (D1)	CORNER R	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55104128	JNR 0102	1.0	0.2	2	50	4
55104129	JNR 0202	2.0	0.2	4	50	4
55104130	JNR 0205	2.0	0.5	4	50	4
55104131	JNR 0302	3.0	0.2	6	50	4
55104132	JNR 0305	3.0	0.5	6	50	4
55104133	JNR 0310	3.0	1.0	6	50	4
55104134	JNR 0402	4.0	0.2	8	50	4
55104135	JNR 0405	4.0	0.5	8	50	4
55104136	JNR 0410	4.0	1.0	8	50	4
55104137	JNR 0602	6.0	0.2	12	50	6
55104138	JNR 0605	6.0	0.5	12	50	6
55104139	JNR 0610	6.0	1.0	12	50	6
55104140	JNR 0620	6.0	2.0	12	60	6
55104141	JNR 0805	8.0	0.5	16	60	8
55104142	JNR 0810	8.0	1.0	16	60	8
55104143	JNR 0820	8.0	2.0	16	60	8
55104144	JNR 1005	10.0	0.5	20	75	10
55104145	JNR 1010	10.0	1.0	20	75	10
55104146	JNR 1020	10.0	2.0	20	75	10
55104147	JNR 1205	12.0	0.5	24	75	12
55104148	JNR 1210	12.0	1.0	24	75	12
55104149	JNR 1220	12.0	2.0	24	75	12
55104150	JNR 1230	12.0	3.0	24	75	12



RECOMMENDED CUTTING CONDITION FOR CORNER RADIUS END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C,FC,PCD,SCM,S50C,SK5...		ALLOY STEELS, TOOL STEELS, SCR, SNCM,SKD11,SKD61,NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
3	7600	180	4800	120	2900	50
4	6500	260	4000	160	2500	55
5	5500	270	3200	160	2000	60
6	4800	300	2900	170	1800	70
8	3700	350	2200	170	1500	85
10	2900	280	1700	140	1100	70
12	2400	230	1400	120	1000	65
16	1800	170	1100	90	700	45

DEPTH OF CUT

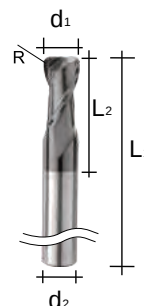


2 FLUTES LONG SHANK CORNER RADIUS END MILLS



UNIT: mm

ITEM NO.	TYPE NO.	DIAMETER (D1)	CORNER R	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55104151	JLNR 0402	4.0	0.2	8	75	4
55104152	JLNR 0405	4.0	0.5	8	75	4
55104153	JLNR 0410	4.0	1.0	8	75	4
55104154	JLNR 0602	6.0	0.2	12	100	6
55104155	JLNR 0605	6.0	0.5	12	100	6
55104156	JLNR 0610	6.0	1.0	12	100	6
55104157	JLNR 0620	6.0	2.0	12	100	6
55104158	JLNR 0805	8.0	0.5	16	100	8
55104159	JLNR 0810	8.0	1.0	16	100	8
55104160	JLNR 0820	8.0	2.0	16	100	8
55104161	JLNR 1005	10.0	0.5	20	100	10
55104162	JLNR 1010	10.0	1.0	20	100	10
55104163	JLNR 1020	10.0	2.0	20	100	10
55104164	JLNR 1030	10.0	3.0	20	100	10
55104165	JLNR 1205	12.0	0.5	24	100	12
55104166	JLNR 1210	12.0	1.0	24	100	12
55104167	JLNR 1220	12.0	2.0	20	100	12
55104168	JLNR 1230	12.0	3.0	20	100	12



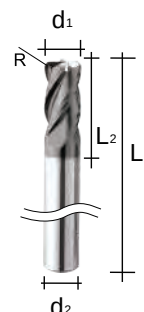
CORNER RADIUS END MILLS

4 FLUTES CORNER RADIUS END MILLS



UNIT: mm

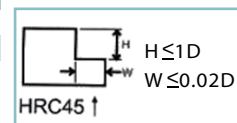
ITEM NO.	TYPE NO.	DIAMETER (D1)	CORNER R	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55104169	JER 0102	1.0	0.2	2	50	4
55104170	JER 0202	2.0	0.2	4	50	4
55104171	JER 0205	2.0	0.5	4	50	4
55104172	JER 0252	2.5	0.2	5	50	4
55104173	JER 0255	2.5	0.5	5	50	4
55104174	JER 0302	3.0	0.2	6	50	4
55104175	JER 0305	3.0	0.5	6	50	4
55104176	JER 0310	3.0	1.0	6	50	4
55104177	JER 0402	4.0	0.2	8	50	4
55104178	JER 0405	4.0	0.5	8	50	4
55104179	JER 0410	4.0	1.0	8	50	4
55104180	JER 0505	5.0	0.5	10	50	6
55104181	JER 0510	5.0	1.0	10	50	6
55104182	JER 0602	6.0	0.2	12	50	6
55104183	JER 0605	6.0	0.5	12	50	6
55104184	JER 0610	6.0	1.0	12	50	6
55104185	JER 0615	6.0	1.5	12	50	6
55104186	JER 0620	6.0	2.0	12	50	6
55104187	JER 0805	8.0	0.5	16	60	8
55104188	JER 0810	8.0	1.0	16	60	8
55104189	JER 0820	8.0	2.0	16	60	8
55104190	JER 1005	10.0	0.5	20	75	10
55104191	JER 1010	10.0	1.0	20	75	10
55104192	JER 1020	10.0	2.0	20	75	10
55104193	JER 1030	10.0	3.0	20	75	10
55104194	JER 1205	12.0	0.5	24	75	12
55104195	JER 1210	12.0	1.0	24	75	12
55104196	JER 1220	12.0	2.0	24	75	12
55104197	JER 1230	12.0	3.0	24	75	12



RECOMMENDED CUTTING CONDITION FOR CORNER RADIUS END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C, FC, FCD, SCM, S50C, SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM, SKD11, SKD61, NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
3	9500	450	6000	290	3600	120
4	8000	800	5000	480	3200	160
5	6800	820	4000	500	2500	170
6	6000	900	3600	530	2300	220
8	4600	1000	2800	530	1800	250
10	3500	850	2200	420	1400	220
12	3000	720	1800	350	1200	200
16	2300	520	1400	250	900	150

DEPTH OF CUT



E3 - MILLING TOOLS

CUTTING TOOLS

E “ CUTTING TOOLS

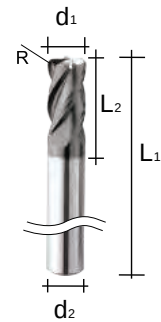
CORNER RADIUS END MILLS

4 FLUTES LONG SHANK CORNER RADIUS END MILLS



UNIT: mm

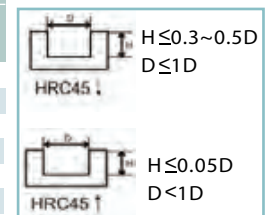
ITEM NO.	TYPE NO.	DIAMETER (D1)	CORNER R	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55104198	JLR 0305	3.0	0.5	6	75	3
55104199	JLR 0305A	3.0	0.5	6	75	4
55104200	JLR 0402	4.0	0.2	8	75	4
55104201	JLR 0405	4.0	0.5	8	75	4
55104202	JLR 0602	6.0	0.2	12	75	6
55104203	JLR 0605	6.0	0.5	12	75	6
55104204	JLR 0605A	6.0	0.5	12	100	6
55104205	JLR 0610	6.0	1.0	12	75	6
55104206	JLR 0610A	6.0	1.0	12	100	6
55104207	JLR 0805	8.0	0.5	16	75	8
55104208	JLR 0805A	8.0	0.5	16	100	8
55104209	JLR 0810	8.0	1.0	16	75	8
55104210	JLR 0810A	8.0	1.0	16	100	8
55104211	JLR 1005	10.0	0.5	20	100	10
55104212	JLR 1005A	10.0	0.5	20	150	10
55104213	JLR 1010	10.0	1.0	20	100	10
55104214	JLR 1010A	10.0	1.0	20	150	10
55104215	JLR 1020	10.0	2.0	20	100	10
55104216	JLR 1020A	10.0	2.0	20	150	10
55104217	JLR 1030	10.0	3.0	20	100	10
55104218	JLR 1030A	10.0	3.0	20	150	10
55104219	JLR 1205	12.0	0.5	24	100	12
55104220	JLR 1205A	12.0	0.5	24	150	12
55104221	JLR 1210	12.0	1.0	24	100	12
55104222	JLR 1210A	12.0	1.0	24	150	12
55104223	JLR 1220	12.0	2.0	24	100	12
55104224	JLR 1220A	12.0	2.0	24	150	12
55104225	JLR 1230	12.0	3.0	24	100	12
55104226	JLR 1230A	12.0	3.0	24	150	12



RECOMMENED CUTTING CONDITION FOR CORNER RADIUS END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C,FC,FCD,SCM,S50C,SK5...		ALLOY STEELS, TOOL STEELS, SCR, SNCM,SKD11,SKD61,NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
2	9900	245	6500	150	4400	65
3	7600	270	4800	180	2900	80
4	6500	490	4000	300	2500	100
5	5500	510	3200	320	2000	110
6	4800	560	2900	330	1800	140
8	3700	620	2200	330	1500	160
10	2900	530	1700	260	1100	140
12	2400	450	1400	220	1000	125
16	1800	320	1100	160	700	90

DEPTH OF CUT





BALL NOSE END MILLS SERIES

- 2 FLUTES BALL NOSE END MILLS
- 4 FLUTES BALL NOSE END MILLS
- 2 FLUTES LONG SHANK BALL NOSE END MILLS



“ CUTTING TOOLS

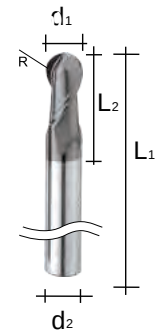
BALL NOSE END MILLS SERIES

2 FLUTES BALL NOSE END MILLS



UNIT: mm

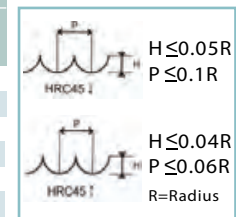
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55104227	JB 0102	R0.5	2	50	4
55104228	JB 0152	R0.75	3	50	4
55104229	JB 0202	R1.0	4	50	4
55104230	JB 0252	R1.25	5	50	4
55104231	JB 0302	R1.5	6	50	4
55104232	JB 0302A	R1.5	6	50	3
55104233	JB 0402	R2.0	8	50	4
55104234	JB 0502	R2.5	10	50	6
55104235	JB 0602	R3.0	12	50	6
55104236	JB 0802	R4.0	16	60	8
55104237	JB 1002	R5.0	20	75	10
55104238	JB 1202	R6.0	24	75	12
55104239	JB 1602	R8.0	32	100	16
55104240	JB 2002	R10.0	32	100	20



RECOMMENDED CUTTING CONDITION FOR BALL NOSE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C, FC, FCD, SCM, S50C, SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM, SKD11, SKD61, NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
RADIUS (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
0.5	45000	800	35000	600	20000	200
1	23000	800	18000	600	10000	200
1.5	16000	1000	12000	600	6500	200
2	12000	1000	9500	700	5000	300
3	8000	1100	6000	700	3500	300
4	6000	1200	5000	800	2500	350
5	5000	1100	4000	800	2000	350
6	4000	1000	3000	700	1500	300
8	3000	1000	2000	700	1000	300

DEPTH OF CUT

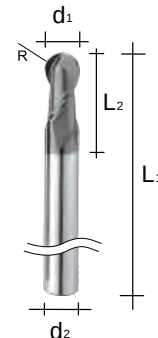


2 FLUTES BALL NOSE END MILLS



UNIT: mm

ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55104241	JBA 0102	R0.5	2	50	6
55104242	JBA 0152	R0.75	3	50	6
55104243	JBA 0202	R1.0	4	50	6
55104244	JBA 0252	R1.25	5	50	6
55104245	JBA 0302	R1.5	6	50	6
55104246	JBA 0402	R2.0	8	50	6

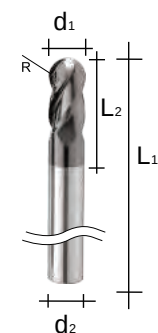


4 FLUTES BALL NOSE END MILLS



UNIT: mm

ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55104247	JB 0104	R0.5	2	50	4
55104248	JB 0154	R0.75	3	50	4
55104249	JB 0204	R1.0	4	50	4
55104250	JB 0304	R1.5	6	50	4
55104251	JB 0304A	R1.5	6	50	3
55104252	JB 0404	R2.0	8	50	4
55104253	JB 0504	R2.5	10	50	6
55104254	JB 0604	R3.0	12	50	6
55104255	JB 0804	R4.0	16	60	8
55104256	JB 1004	R5.0	20	75	10
55104257	JB 1204	R6.0	24	75	12
55104258	JB 1604	R8.0	32	100	16
55104259	JB 2004	R10.0	32	100	20

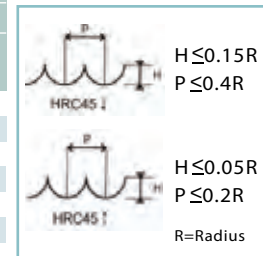


BALL NOSE END MILLS SERIES

RECOMMENDED CUTTING CONDITION FOR BALL NOSE END MILLS (FOR ITEM NO. 55104247~55104259)

MATERIAL	CARBON STEELS, ALLOY STEELS S45C, FC, FCD, SCM, S50C, SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM, SKD11, SKD61, NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
RADIUS (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
2	12000	1200	9500	900	5000	400
3	8000	1400	6000	900	3500	500
4	6000	1600	5000	1000	2500	600
5	5000	1400	4000	1000	2000	600
6	4000	1200	3000	900	1500	500
8	3000	1200	2500	900	1000	500
10	2500	1000	2000	600	900	300

DEPTH OF CUT

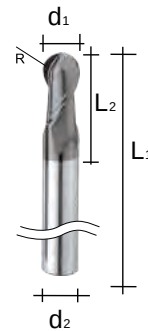


2 FLUTES LONG SHANK BALL NOSE END MILLS



UNIT: mm

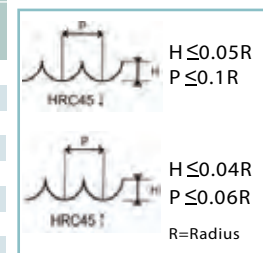
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55104260	JIB 0102	R0.5	2	75	4
55104261	JIB 0102A	R0.5	2	75	6
55104262	JIB 0152	R0.75	3	75	4
55104263	JIB 0152A	R0.75	3	75	6
55104264	JIB 0202	R1.0	4	75	4
55104265	JIB 0202A	R1.0	4	75	6
55104266	JIB 0302	R1.5	6	75	4
55104267	JIB 0302A	R1.5	6	75	6
55104268	JIB 0402	R2.0	8	75	4
55104269	JIB 0402A	R2.0	8	75	6
55104270	JIB 0502	R2.5	10	75	6
55104271	JIB 0602	R3.0	12	75	6
55104272	JIB 0802	R4.0	16	75	8
55104273	JJB 0202	R1.0	4	100	6
55104274	JJB 0302	R1.5	6	100	6
55104275	JJB 0402	R2.0	8	100	6
55104276	JJB 0602	R3.0	12	100	6
55104277	JJB 0802	R4.0	16	100	8
55104278	JJB 1002	R5.0	20	100	10
55104279	JJB 1202	R6.0	24	100	12
55104280	JKB 0602	R3.0	12	150	6
55104281	JKB 0802	R4.0	16	150	8
55104282	JKB 1002	R5.0	20	150	10
55104283	JKB 1202	R6.0	24	150	12
55104284	JKB 1602	R8.0	32	150	16
55104285	JKB 2002	R10.0	40	150	20
55104286	JKB 2502	R12.5	40	150	25



RECOMMENDED CUTTING CONDITION FOR LONG SHANK BALL NOSE END MILLS

MATERIAL	CARBON STEELS, ALLOY STEELS S45C, FC, FCD, SCM, S50C, SKS...		ALLOY STEELS, TOOL STEELS, SCR, SNCM, SKD11, SKD61, NAK80...		HARDENED STEELS SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
RADIUS (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
0.5	45000	800	35000	600	20000	200
1	23000	800	18000	600	10000	200
1.5	16000	1000	12000	600	6500	200
2	12000	1000	9500	700	5000	300
3	8000	1100	6000	700	3500	300
4	6000	1200	5000	800	2500	350
5	5000	1100	4000	800	2000	350
6	4000	1000	3000	700	1500	300
8	3000	1000	2000	700	1000	300

DEPTH OF CUT



E “ CUTTING TOOLS

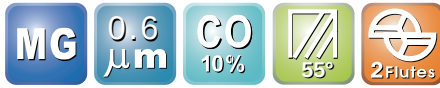
SOFT MATERIALS CUTTING SERIES

- 3F CORNER ROUNDING CUTTER
- 2 FLUTES ALUMINUM SQUARE END MILLS
- 3 FLUTES ALUMINUM SQUARE END MILLS
- 3 FLUTES ALUMINUM SQUARE END MILLS
- 2 FLUTES LONG SHANK SQUARE END MILLS
- 3 FLUTES LONG SHANK SQUARE END MILLS
- 2 FLUTES ALUMINUM BALL NOSE END MILLS
- NC SPOT DRILLS 60, 90, 120, DEGREE END MILLS



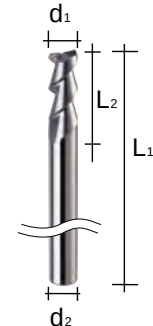
SOFT MATERIALS CUTTING SERIES

2 FLUTES ALUMINUM SQUARE END MILLS



UNIT: mm

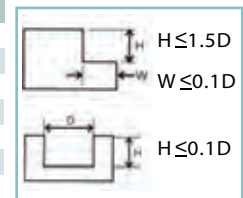
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55104287	AE 0102	1.0	3	50	4
55104288	AE 0202	2.0	6	50	4
55104289	AE 0302	3.0	8	50	4
55104290	AE 0402	4.0	10	50	4
55104291	AE 0502	5.0	13	50	6
55104292	AE 0602	6.0	15	50	6
55104293	AE 0802	8.0	20	60	8
55104294	AE 1002	10.0	30	75	10
55104295	AE 1202	12.0	30	75	12
55104296	AE 1602	16.0	40	100	16
55104297	AE 2002	20.0	40	100	20



RECOMMENDED CUTTING CONDITION FOR SQUARE END MILLS

MATERIAL	ALUMINUM 1070		ALUMINUM ALLOY 2014/4032/5052/6061/7075		ALUMINUM ALLOY AC85	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
2	37000	2000 (800)	16000	850 (350)	20000	1100 (450)
3	35000	2000 (900)	14000	850 (450)	18000	1100 (550)
4	26000	2000 (1100)	11000	850 (550)	13000	1100 (660)
5	21000	2000 (1100)	9000	850 (550)	10000	1100 (660)
6	17000	2000 (1100)	7000	850 (550)	9000	1100 (660)
8	13000	2000 (1100)	5500	850 (650)	7000	1100 (800)
10	11000	2000 (1300)	7000	850 (650)	5500	1100 (800)
12	8800	2000 (1300)	3600	850 (800)	4500	1100 (800)
16	6500	2000 (1100)	3000	850 (550)	3500	1100 (900)
20	5300	2000 (1100)	2200	850 (550)	2500	1100 (650)

DEPTH OF CUT

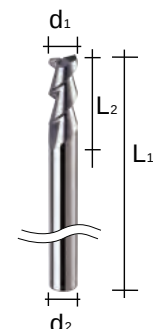


2 FLUTES LONG SHANK SQUARE END MILLS



UNIT: mm

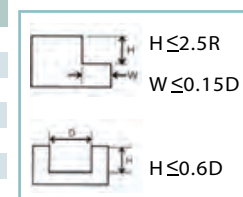
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55104298	LAE 0302	3.0	12	75	6
55104299	LAE 0402	4.0	16	75	6
55104300	LAE 0502	5.0	20	75	6
55104301	LAE 0602	6.0	25	75	6
55104302	LAE 0802	8.0	32	75	8
55104303	LAE 0802A	8.0	35	100	8
55104304	LAE 1002	10.0	50	100	10
55104305	LAE 1202	12.0	50	100	12
55104306	LAE 1602	16.0	65	150	16
55104307	LAE 2002	20.0	75	150	20



RECOMMENDED CUTTING CONDITION FOR LONG FLUTE SQUARE END MILLS

MATERIAL	ALUMINUM 1070		ALUMINUM ALLOY 2014/4032/5052/6061/7075		ALUMINUM ALLOY AC85	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
2	30000	600 (500)	15000	250 (250)	18000	300 (300)
3	26000	600 (500)	11000	250 (250)	13500	300 (350)
4	20000	600 (550)	8500	250 (200)	10000	300 (350)
5	15600	600 (550)	6700	250 (200)	8000	300 (350)
6	13500	600 (550)	5500	250 (200)	6700	300 (350)
8	10000	600 (600)	4200	250 (200)	5000	300 (350)
10	7500	600 (600)	3300	250 (200)	4000	300 (350)
12	6700	600 (600)	2700	250 (200)	3400	300 (350)
16	5000	600 (500)	2300	250 (200)	2500	300 (350)
20	4000	600 (500)	1700	250 (200)	2000	300 (350)

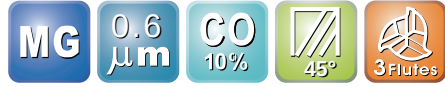
DEPTH OF CUT



E “ CUTTING TOOLS

SOFT MATERIALS CUTTING SERIES

3 FLUTES ALUMINUM SQUARE END MILLS



UNIT: mm

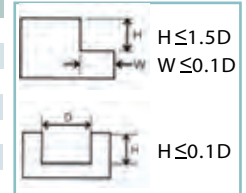
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55104308	AEW 0606	6.0	16	50	6
55104309	AEW 0808	8.0	20	60	8
55104310	AEW 1010	10.0	25	75	10
55104311	AEW 1212	12.0	30	75	12
55104312	AEW 1616	16.0	40	100	16
55104313	AEW 2020	20.0	45	100	20



RECOMMENDED CUTTING CONDITION FOR SQUARE END MILLS

MATERIAL	ALUMINUM 1070		ALUMINUM ALLOY 2014/4032/5052/6061/7075		ALUMINUM ALLOY AC85	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
2	37000	2000 (800)	16000	850 (350)	20000	1100 (450)
3	35000	2000 (900)	14000	850 (450)	18000	1100 (550)
4	26000	2000 (1100)	11000	850 (550)	13000	1100 (660)
5	21000	2000 (1100)	9000	850 (550)	10000	1100 (660)
6	17000	2000 (1100)	7000	850 (550)	9000	1100 (660)
8	13000	2000 (1100)	5500	850 (650)	7000	1100 (800)
10	11000	2000 (1300)	7000	850 (650)	5500	1100 (800)
12	8800	2000 (1300)	3600	850 (800)	4500	1100 (800)
16	6500	2000 (1100)	3000	850 (550)	3500	1100 (900)
20	5300	2000 (1100)	2200	850 (550)	2500	1100 (650)

DEPTH OF CUT

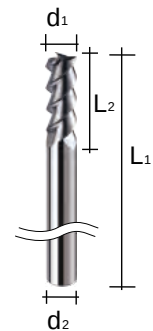


3 FLUTES ALUMINUM SQUARE END MILLS



UNIT: mm

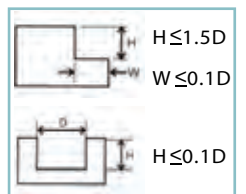
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55103180	AE 0103	1.0	3	50	4
55103181	AE 0203	2.0	6	50	4
55103182	AE 0303	3.0	8	50	4
55103183	AE 0403	4.0	10	50	4
55103184	AE 0503	5.0	13	50	6
55103185	AE 0603	6.0	15	50	6
55103186	AE 0803	8.0	20	60	8
55103187	AE 1003	10.0	30	75	10
55103188	AE 1203	12.0	30	75	12
55103189	AE 1603	16.0	40	100	16
55103190	AE 2003	20.0	40	100	20



RECOMMENDED CUTTING CONDITION FOR SQUARE END MILLS

MATERIAL	ALUMINUM 1070		ALUMINUM ALLOY 2014/4032/5052/6061/7075		ALUMINUM ALLOY AC85	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
2	37000	2400 (950)	16000	1000 (380)	20000	1300 (500)
3	35000	2400 (1050)	14000	1000 (500)	18000	1300 (600)
4	26000	2400 (1200)	11000	1000 (600)	13000	1300 (720)
5	21000	2400 (1200)	9000	1000 (600)	10000	1300 (720)
6	17000	2400 (1200)	7000	1000 (600)	9000	1300 (720)
8	13000	2400 (1200)	5500	1000 (700)	7000	1300 (880)
10	11000	2400 (1400)	7000	1000 (700)	5500	1300 (880)
12	8800	2400 (1400)	3600	1000 (880)	4500	1300 (880)
16	6500	2400 (1200)	3000	1000 (600)	3500	1300 (1000)
20	5300	2400 (1200)	2200	1000 (600)	2500	1300 (700)

DEPTH OF CUT



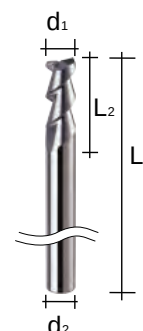
SOFT MATERIALS CUTTING SERIES

3 FLUTES LONG SHANK SQUARE END MILLS



ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55104314	LAE 0303	3.0	12	75	6
55104315	LAE 0403	4.0	16	75	6
55104316	LAE 0503	5.0	20	75	6
55104317	LAE 0603	6.0	25	75	6
55104318	LAE 0803	8.0	32	75	8
55104319	LAE 0803A	8.0	35	100	8
55104320	LAE 1003	10.0	45	100	10
55104321	LAE 1203	12.0	50	100	12
55104322	LAE 1603	16.0	65	150	16
55104323	LAE 2003	20.0	75	150	20

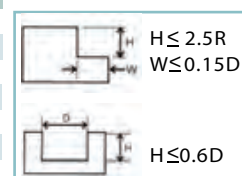
UNIT: mm



RECOMMENDED CUTTING CONDITION FOR LONG SHANK SQUARE END MILLS

MATERIAL	ALUMINUM 1070		ALUMINUM ALLOY 2014/4032/5052/6061/7075		ALUMINUM ALLOY AC85	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
2	37000	2400 (950)	16000	1000 (380)	20000	1300 (500)
3	35000	2400 (1050)	14000	1000 (500)	18000	1300 (600)
4	26000	2400 (1200)	11000	1000 (600)	13000	1300 (720)
5	21000	2400 (1200)	9000	1000 (600)	10000	1300 (720)
6	17000	2400 (1200)	7000	1000 (600)	9000	1300 (720)
8	13000	2400 (1200)	5500	1000 (700)	7000	1300 (880)
10	11000	2400 (1400)	7000	1000 (700)	5500	1300 (880)
12	8800	2400 (1400)	3600	1000 (880)	4500	1300 (880)
16	6500	2400 (1200)	3000	1000 (600)	3500	1300 (1000)
20	5300	2400 (1200)	2200	1000 (600)	2500	1300 (700)

DEPTH OF CUT

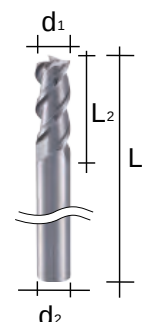


3 FLUTES ALUMINUM SQUARE END MILLS



ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55104324	AEE 0203	2.0	6	50	4
55104325	AEE 0303	3.0	9	50	4
55104326	AEE 0403	4.0	12	50	4
55104327	AEE 0503	5.0	15	50	6
55104328	AEE 0603	6.0	18	50	6
55104329	AEE 0803	8.0	20	60	8
55104330	AEE 1003	10.0	30	75	10
55104331	AEE 1203	12.0	30	75	12
55104332	AEE 1603	16.0	45	100	16
55104333	AEE 2003	20.0	45	100	20

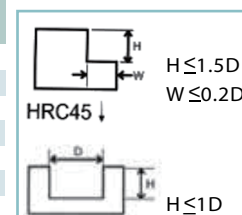
UNIT: mm



RECOMMENDED CUTTING CONDITION FOR SQUARE END MILLS

MATERIAL	ALUMINUM 1070		ALUMINUM ALLOY 2014/4032/5052/6061/7075		ALUMINUM ALLOY AC85	
DIAMETER (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
2	37000	2400 (950)	16000	1000 (380)	20000	1300 (500)
3	35000	2400 (1050)	14000	1000 (500)	18000	1300 (600)
4	26000	2400 (1200)	11000	1000 (600)	13000	1300 (720)
5	21000	2400 (1200)	9000	1000 (600)	10000	1300 (720)
6	17000	2400 (1200)	7000	1000 (600)	9000	1300 (720)
8	13000	2400 (1200)	5500	1000 (700)	7000	1300 (880)
10	11000	2400 (1400)	7000	1000 (700)	5500	1300 (880)
12	8800	2400 (1400)	3600	1000 (880)	4500	1300 (880)
16	6500	2400 (1200)	3000	1000 (600)	3500	1300 (1000)
20	5300	2400 (1200)	2200	1000 (600)	2500	1300 (700)

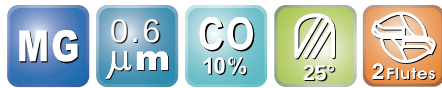
DEPTH OF CUT



E “ CUTTING TOOLS

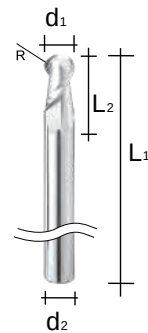
SOFT MATERIALS CUTTING SERIES

2 FLUTES ALUMINUM BALL NOSE END MILLS



UNIT: mm

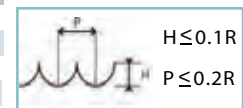
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55103191	AB 0102	R0.5	2	50	4
55103192	AB 0152	R0.75	3	50	4
55103193	AB 0202	R1.0	4	50	4
55103194	AB 0302	R1.5	6	50	4
55103195	AB 0402	R2.0	8	50	4
55103196	AB 0502	R2.5	10	50	6
55103197	AB 0602	R3.0	12	50	6
55103198	AB 0802	R4.0	16	60	8
55103199	AB 1002	R5.0	20	75	10
55103200	AB 1202	R6.0	24	75	12
55103201	AB 1602	R8.0	32	100	16
55103202	AB 2002	R10.0	32	100	20



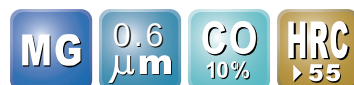
RECOMMENDED CUTTING CONDITION FOR BALL NOSE END MILLS

MATERIAL	ALUMINUM 1070		ALUMINUM ALLOY 2014/4032/5052/6061/7075		ALUMINUM ALLOY AC85	
RADIUS (mm)	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min	SPEED (mm-1)	FEED mm/min
0.5	50000	2300	37000	2000	50000	1400
0.75	50000	3000	28000	2000	50000	1800
1	44000	4000	18500	2000	44000	2500
1.5	28000	4000	11500	2000	28000	2500
2	22000	4000	8800	2000	22000	2500
3	16000	4000	6400	2000	16000	2500
4	12000	4000	4800	2000	12000	2500
5	10000	4000	4000	2000	10000	2500
6	8000	4000	3200	2000	8000	2500

DEPTH OF CUT

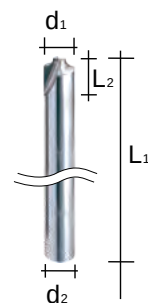


3F CORNER ROUNDING CUTTER



UNIT: mm

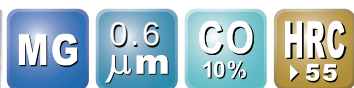
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55104334	R0.5	1.5	2.7	50	4
55104335	R0.75	1.5	3.2	50	4
55104336	R1.0	1.5	3.7	50	4
55104337	R1.25	1.5	4.2	50	4
55104338	R1.5	1.5	4.7	50	6
55104339	R1.75	1.5	5.2	50	6
55104340	R2.0	1.5	5.7	50	6
55104341	R2.5	1.5	6.7	50	8
55104342	R3.0	1.5	7.7	50	8
55104343	R4.0	2	10.2	60	12
55104344	R5.0	3	13.2	75	16
55104345	R6.0	3	15.2	75	16





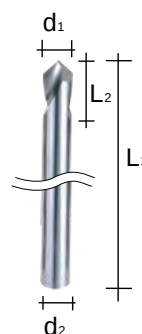
SOFT MATERIALS CUTTING SERIES

NC SPOT DRILLS 60, 90, 120, DEGREE END MILLS



UNIT: mm

ITEM NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55104346	2.0	4	50	2
55104347	3.0	6	50	3
55104348	4.0	8	50	4
55104349	4.0	8	75	4
55104350	4.0	8	100	4
55104351	6.0	12	50	6
55104352	6.0	12	75	6
55104353	6.0	12	100	6
55104354	6.0	12	150	6
55104355	8.0	16	60	8
55104356	8.0	16	100	8
55104357	8.0	16	150	8
55104358	8.0	16	200	8
55104359	10.0	20	75	10
55104360	10.0	20	100	10
55104361	10.0	20	150	10
55104362	10.0	20	200	10
55104363	12.0	24	75	12
55104364	12.0	24	100	12
55104365	12.0	24	150	12
55104366	12.0	24	200	12
55104367	16.0	30	100	16
55104368	16.0	30	150	16
55104369	16.0	30	200	16
55104370	20.0	30	100	20
55104371	20.0	30	150	20
55104372	20.0	30	200	20



E “ CUTTING TOOLS

CARBIDE DRILLS SERIES HIGH PERFORMANCE DRILLS

- MICRO PRECISION DRILLS
- HIGH PERFORMANCE DRILLS
- 3-FLUTE DRILLS FOR ALUMINIUM, COPPER
- COMBINED DRILL AND CHAMFER TOOL



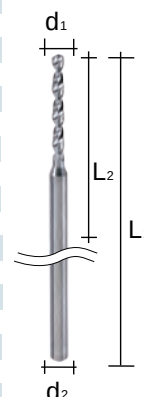
MICRO PRECISION DRILLS

FOR ALUMINIUM, COPPER, PLASTICS, COMPOSITE MATERIAL

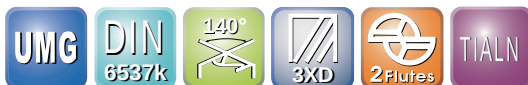


UNIT: mm

ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55104409	DSE 0030	0.30	1.9	25	1.00
55104410	DSE 0035	0.35	2.4	25	1.00
55104411	DSE 0040	0.40	3.0	25	1.00
55104412	DSE 0045	0.45	3.0	25	1.00
55104413	DSE 0050	0.50	3.4	25	1.00
55104414	DSE 0055	0.55	3.9	25	1.00
55104415	DSE 0060	0.60	3.9	25	1.00
55104416	DSE 0065	0.65	4.2	25	1.00
55104417	DSE 0070	0.70	4.8	25	1.00
55104418	DSE 0075	0.75	4.8	25	1.00
55104419	DSE 0080	0.80	5.3	25	1.50
55104420	DSE 0085	0.85	5.3	25	1.50
55104421	DSE 0090	0.90	6.0	25	1.50
55104422	DSE 0095	0.95	6.0	25	1.50
55104423	DSE 0100	1.00	6.8	25	1.50
55104424	DSE 0105	1.05	6.8	25	1.50
55104425	DSE 0110	1.10	7.6	25	1.50
55104426	DSE 0115	1.15	7.6	25	1.50
55104427	DSE 0120	1.20	8.5	25	1.50
55104428	DSE 0125	1.25	8.5	25	1.50
55104429	DSE 0130	1.30	8.5	25	1.50
55104430	DSE 0135	1.35	9.5	25	1.50
55104431	DSE 0140	1.40	9.5	25	1.50

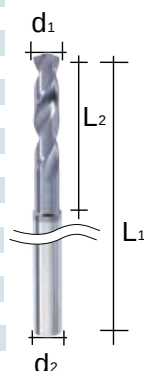


HIGH PERFORMANCE DRILLS



UNIT: mm

ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55104432	DE 0300	3.0	20	62	6
55104433	DE 0310	3.1	20	62	6
55104434	DE 0320	3.2	20	62	6
55104435	DE 0330	3.3	20	62	6
55104436	DE 0340	3.4	20	62	6
55104437	DE 0350	3.5	20	62	6
55104438	DE 0360	3.6	20	62	6
55104439	DE 0370	3.7	20	62	6
55104440	DE 0380	3.8	24	66	6
55104441	DE 0390	3.9	24	66	6
55104442	DE 0400	4.0	24	66	6
55104443	DE 0410	4.1	24	66	6
55104444	DE 0420	4.2	24	66	6
55104445	DE 0430	4.3	24	66	6
55104446	DE 0440	4.4	24	66	6
55104447	DE 0450	4.5	24	66	6
55104448	DE 0460	4.6	24	66	6
55104449	DE 0470	4.7	24	66	6
55104450	DE 0480	4.8	28	66	6
55104451	DE 0490	4.9	28	66	6
55104452	DE 0500	5.0	28	66	6
55104453	DE 0510	5.1	28	66	6
55104454	DE 0520	5.2	28	66	6
55104455	DE 0530	5.3	28	66	6
55104456	DE 0540	5.4	28	66	6
55104457	DE 0550	5.5	28	66	6
55104458	DE 0560	5.6	28	66	6
55104459	DE 0570	5.7	28	66	6



E3 - MILLING TOOLS

CUTTING TOOLS

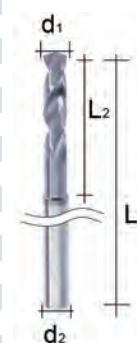
E “ CUTTING TOOLS

HIGH PERFORMANCE DRILLS



UNIT: mm

ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55104460	DE 0580	5.8	28	66	6
55104461	DE 0590	5.9	28	66	6
55104462	DE 0600	6.0	28	66	6
55104463	DE 0610	6.1	34	79	8
55104464	DE 0620	6.2	34	79	8
55104465	DE 0630	6.3	34	79	8
55104466	DE 0640	6.4	34	79	8
55104467	DE 0650	6.5	34	79	8
55104468	DE 0660	6.6	34	79	8
55104469	DE 0670	6.7	34	79	8
55104470	DE 0680	6.8	34	79	8
55104471	DE 0690	6.9	34	79	8
55104472	DE 0700	7.0	34	79	8
55104473	DE 0710	7.1	41	79	8
55104474	DE 0720	7.2	41	79	8
55104475	DE 0730	7.3	41	79	8
55104476	DE 0740	7.4	41	79	8
55104477	DE 0750	7.5	41	79	8
55104478	DE 0760	7.6	41	79	8
55104479	DE 0770	7.7	41	79	8
55104480	DE 0780	7.8	41	79	8
55104481	DE 0790	7.9	41	79	8
55104482	DE 0800	8.0	41	79	8
55104483	DE 0810	8.1	47	89	10
55104484	DE 0820	8.2	47	89	10
55104485	DE 0830	8.3	47	89	10
55104486	DE 0840	8.4	47	89	10
55104487	DE 0850	8.5	47	89	10
55104488	DE 0860	8.6	47	89	10
55104489	DE 0870	8.7	47	89	10
55104490	DE 0880	8.8	47	89	10
55104491	DE 0890	8.9	47	89	10
55104492	DE 0900	9.0	47	89	10
55104493	DE 0910	9.1	47	89	10
55104494	DE 0920	9.2	47	89	10
55104495	DE 0930	9.3	47	89	10
55104496	DE 0940	9.4	47	89	10
55104497	DE 0950	9.5	47	89	10
55104498	DE 0960	9.6	47	89	10
55104499	DE 0970	9.7	47	89	10
55104500	DE 0980	9.8	47	89	10
55104501	DE 0990	9.9	47	89	10
55104502	DE 1000	10.0	47	89	10
55104503	DE 1020	10.2	55	102	12
55104504	DE 1050	10.5	55	102	12
55104505	DE 1080	10.8	55	102	12
55104506	DE 1100	11.0	55	102	12
55104507	DE 1150	11.5	55	102	12
55104508	DE 1200	12.0	55	102	12
55104509	DE 1250	12.5	60	107	14
55104510	DE 1300	13.0	60	107	14
55104511	DE 1350	13.5	60	107	14
55104512	DE 1400	14.0	60	107	14
55104513	DE 1450	14.5	65	115	16
55104514	DE 1500	15.0	65	115	16
55104515	DE 1550	15.5	65	115	16
55104516	DE 1600	16.0	65	115	16
55104517	DE 1650	16.5	73	123	18
55104518	DE 1700	17.0	73	123	18
55104519	DE 1750	17.5	73	123	18
55104520	DE 1800	18.0	73	123	18
55104521	DE 1850	18.5	79	131	20
55104522	DE 1900	19.0	79	131	20
55104523	DE 1950	19.5	79	131	20
55104524	DE 2000	20.0	79	131	20

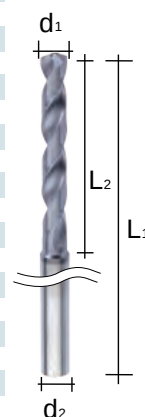


HIGH PERFORMANCE DRILLS



UNIT: mm

ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55104525	DEF 0300	3.0	28	66	6
55104526	DEF 0310	3.1	28	66	6
55104527	DEF 0320	3.2	28	66	6
55104528	DEF 0330	3.3	28	66	6
55104529	DEF 0340	3.4	28	66	6
55104530	DEF 0350	3.5	28	66	6
55104531	DEF 0360	3.6	28	66	6
55104532	DEF 0370	3.7	27	66	6
55104533	DEF 0380	3.8	36	74	6
55104534	DEF 0390	3.9	36	74	6
55104535	DEF 0400	4.0	36	74	6
55104536	DEF 0410	4.1	36	74	6
55104537	DEF 0420	4.2	36	74	6
55104538	DEF 0430	4.3	36	74	6
55104539	DEF 0440	4.4	36	74	6
55104540	DEF 0450	4.5	36	74	6
55104541	DEF 0460	4.6	36	74	6
55104542	DEF 0470	4.7	36	74	6
55104543	DEF 0480	4.8	44	82	6
55104544	DEF 0490	4.9	44	82	6
55104545	DEF 0500	5.0	44	82	6
55104546	DEF 0510	5.1	44	82	6
55104547	DEF 0520	5.2	44	82	6
55104548	DEF 0530	5.3	44	82	6
55104549	DEF 0540	5.4	44	82	6
55104550	DEF 0550	5.5	44	82	6
55104551	DEF 0560	5.6	44	82	6
55104552	DEF 0570	5.7	44	82	6
55104553	DEF 0580	5.8	44	82	6
55104554	DEF 0590	5.9	44	82	6
55104555	DEF 0600	6.0	44	82	6
55104556	DEF 0610	6.1	53	91	8
55104557	DEF 0620	6.2	53	91	8
55104558	DEF 0630	6.3	53	91	8
55104559	DEF 0640	6.4	53	91	8
55104560	DEF 0650	6.5	53	91	8
55104561	DEF 0660	6.6	53	91	8
55104562	DEF 0670	6.7	53	91	8
55104563	DEF 0680	6.8	53	91	8
55104564	DEF 0690	6.9	53	91	8
55104565	DEF 0700	7.0	53	91	8
55104566	DEF 0710	7.1	53	91	8
55104567	DEF 0720	7.2	53	91	8
55104568	DEF 0730	7.3	53	91	8
55104569	DEF 0740	7.4	53	91	8
55104570	DEF 0750	7.5	53	91	8
55104571	DEF 0760	7.6	53	91	8
55104572	DEF 0770	7.7	53	91	8
55104573	DEF 0780	7.8	53	91	8
55104574	DEF 0790	7.9	53	91	8
55104575	DEF 0800	8.0	53	91	8
55104576	DEF 0810	8.1	61	103	10
55104577	DEF 0820	8.2	61	103	10
55104578	DEF 0830	8.3	61	103	10
55104579	DEF 0840	8.4	61	103	10
55104580	DEF 0850	8.5	61	103	10
55104581	DEF 0860	8.6	61	103	10
55104582	DEF 0870	8.7	61	103	10
55104583	DEF 0880	8.8	61	103	10
55104584	DEF 0890	8.9	61	103	10



E3 - MILLING TOOLS

CUTTING TOOLS

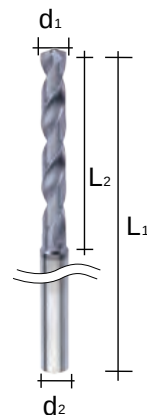
E “ CUTTING TOOLS

HIGH PERFORMANCE DRILLS



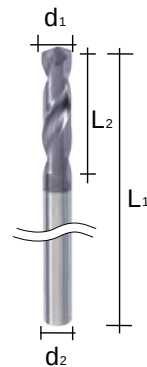
UNIT: mm

ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55104585	DEF 0900	9.0	61	103	10
55104586	DEF 0910	9.1	61	103	10
55104587	DEF 0920	9.2	61	103	10
55104588	DEF 0930	9.3	61	103	10
55104589	DEF 0940	9.4	61	103	10
55104590	DEF 0950	9.5	61	103	10
55104591	DEF 0960	9.6	61	103	10
55104592	DEF 0970	9.7	61	103	10
55104593	DEF 0980	9.8	61	103	10
55104594	DEF 0990	9.9	61	103	10
55104595	DEF 1000	10.0	61	103	10
55104596	DEF 1020	10.2	71	118	12
55104597	DEF 1050	10.5	71	118	12
55104598	DEF 1080	10.8	71	118	12
55104599	DEF 1100	11.0	71	118	12
55104600	DEF 1150	11.5	71	118	12
55104601	DEF 1200	12.0	71	118	12
55104602	DEF 1250	12.5	77	124	14
55104603	DEF 1300	13.0	77	124	14
55104604	DEF 1350	13.5	77	124	14
55104605	DEF 1400	14.0	77	124	14
55104606	DEF 1450	14.5	83	133	16
55104607	DEF 1500	15.0	83	133	16
55104608	DEF 1550	15.5	83	133	16
55104609	DEF 1600	16.0	83	133	16
55104610	DEF 1650	16.5	93	143	18
55104611	DEF 1700	17.0	93	143	18
55104612	DEF 1750	17.5	93	143	18
55104613	DEF 1800	18.0	93	143	18
55104614	DEF 1850	18.5	101	153	20
55104615	DEF 1900	19.0	101	153	20
55104616	DEF 1950	19.5	101	153	20
55104617	DEF 2000	20.0	101	153	20



UNIT: mm

ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)
55104618	DEE 0200	2.0	12	38
55104619	DEE 0210	2.1	12	38
55104620	DEE 0220	2.2	13	40
55104621	DEE 0230	2.3	13	40
55104622	DEE 0240	2.4	14	43
55104623	DEE 0250	2.5	14	43
55104624	DEE 0260	2.6	14	43
55104625	DEE 0270	2.7	16	46
55104626	DEE 0280	2.8	16	46
55104627	DEE 0290	2.9	16	46
55104628	DEE 0300	3.0	16	46
55104629	DEE 0310	3.1	18	49
55104630	DEE 0320	3.2	18	49
55104631	DEE 0330	3.3	18	49
55104632	DEE 0340	3.4	20	52
55104633	DEE 0350	3.5	20	52
55104634	DEE 0360	3.6	20	52
55104635	DEE 0370	3.7	20	55
55104636	DEE 0380	3.8	22	55
55104637	DEE 0390	3.9	22	55
55104638	DEE 0400	4.0	22	55
55104639	DEE 0410	4.1	22	55
55104640	DEE 0420	4.2	22	55
55104641	DEE 0430	4.3	24	58
55104642	DEE 0440	4.4	24	58
55104643	DEE 0450	4.5	24	58
55104644	DEE 0460	4.6	24	58
55104645	DEE 0470	4.7	24	58
55104646	DEE 0480	4.8	26	62

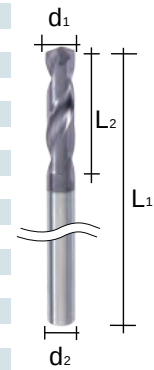


HIGH PERFORMANCE DRILLS



UNIT: mm

ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)
55104647	DEE 0490	4.9	26	62
55104648	DEE 0500	5.0	26	62
55104649	DEE 0510	5.1	26	62
55104650	DEE 0520	5.2	26	62
55104651	DEE 0530	5.3	26	62
55104652	DEE 0540	5.4	28	66
55104653	DEE 0550	5.5	28	66
55104654	DEE 0560	5.6	28	66
55104655	DEE 0570	5.7	28	66
55104656	DEE 0580	5.8	28	66
55104657	DEE 0590	5.9	28	66
55104658	DEE 0600	6.0	28	66
55104659	DEE 0610	6.1	31	70
55104660	DEE 0620	6.2	31	70
55104661	DEE 0630	6.3	31	70
55104662	DEE 0640	6.4	31	70
55104663	DEE 0650	6.5	31	70
55104664	DEE 0660	6.6	31	70
55104665	DEE 0670	6.7	31	70
55104666	DEE 0680	6.8	34	74
55104667	DEE 0690	6.9	34	74
55104668	DEE 0700	7.0	34	74
55104669	DEE 0710	7.1	34	74
55104670	DEE 0720	7.2	34	74
55104671	DEE 0730	7.3	34	74
55104672	DEE 0740	7.4	34	74
55104673	DEE 0750	7.5	34	74
55104674	DEE 0760	7.6	37	79
55104675	DEE 0770	7.7	37	79
55104676	DEE 0780	7.8	37	79
55104677	DEE 0790	7.9	37	79
55104678	DEE 0800	8.0	37	79
55104679	DEE 0810	8.1	37	79
55104680	DEE 0820	8.2	37	79
55104681	DEE 0830	8.3	37	79
55104682	DEE 0840	8.4	37	79
55104683	DEE 0850	8.5	37	79
55104684	DEE 0860	8.6	40	84
55104685	DEE 0870	8.7	40	84
55104686	DEE 0880	8.8	40	84
55104687	DEE 0890	8.9	40	84
55104688	DEE 0900	9.0	40	84
55104689	DEE 0910	9.1	40	84
55104690	DEE 0920	9.2	40	84
55104691	DEE 0930	9.3	40	84
55104692	DEE 0940	9.4	40	84
55104693	DEE 0950	9.5	40	84
55104694	DEE 0960	9.6	43	89
55104695	DEE 0970	9.7	43	89
55104696	DEE 0980	9.8	43	89
55104697	DEE 0990	9.9	43	89
55104698	DEE 1000	10.0	43	89
55104699	DEE 1020	10.2	43	89
55104700	DEE 1050	10.5	43	89
55104701	DEE 1080	10.8	47	95
55104702	DEE 1100	11.0	47	95
55104703	DEE 1150	11.5	47	95
55104704	DEE 1200	12.0	51	102
55104705	DEE 1250	12.5	51	102
55104706	DEE 1300	13.0	51	102



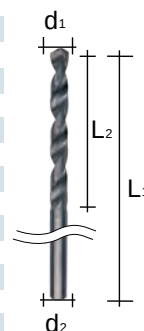
E “ CUTTING TOOLS

HIGH PERFORMANCE DRILLS



UNIT: mm

ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)
55104707	DEEF 0200	2.0	24	49
55104708	DEEF 0210	2.1	24	49
55104709	DEEF 0220	2.2	27	53
55104710	DEEF 0230	2.3	27	53
55104711	DEEF 0240	2.4	30	57
55104712	DEEF 0250	2.5	30	57
55104713	DEEF 0260	2.6	30	57
55104714	DEEF 0270	2.7	33	61
55104715	DEEF 0280	2.8	33	61
55104716	DEEF 0290	2.9	33	61
55104717	DEEF 0300	3.0	33	61
55104718	DEEF 0310	3.1	36	65
55104719	DEEF 0320	3.2	36	65
55104720	DEEF 0330	3.3	36	65
55104721	DEEF 0340	3.4	39	70
55104722	DEEF 0350	3.5	39	70
55104723	DEEF 0360	3.6	39	70
55104724	DEEF 0370	3.7	39	70
55104725	DEEF 0380	3.8	43	75
55104726	DEEF 0390	3.9	43	75
55104727	DEEF 0400	4.0	43	75
55104728	DEEF 0410	4.1	43	75
55104729	DEEF 0420	4.2	43	75
55104730	DEEF 0430	4.3	47	80
55104731	DEEF 0440	4.4	47	80
55104732	DEEF 0450	4.5	47	80
55104733	DEEF 0460	4.6	47	80
55104734	DEEF 0470	4.7	47	80
55104735	DEEF 0480	4.8	52	86
55104736	DEEF 0490	4.9	52	86
55104737	DEEF 0500	5.0	52	86
55104738	DEEF 0510	5.1	52	86
55104739	DEEF 0520	5.2	52	86
55104740	DEEF 0530	5.3	52	86
55104741	DEEF 0540	5.4	57	93
55104742	DEEF 0550	5.5	57	93
55104743	DEEF 0560	5.6	57	93
55104744	DEEF 0570	5.7	57	93
55104745	DEEF 0580	5.8	57	93
55104746	DEEF 0590	5.9	57	93
55104747	DEEF 0600	6.0	57	93
55104748	DEEF 0610	6.1	63	101
55104749	DEEF 0620	6.2	63	101
55104750	DEEF 0630	6.3	63	101
55104751	DEEF 0640	6.4	63	101
55104752	DEEF 0650	6.5	63	101
55104753	DEEF 0660	6.6	63	101
55104754	DEEF 0670	6.7	63	101
55104755	DEEF 0680	6.8	69	109
55104756	DEEF 0690	6.9	69	109
55104757	DEEF 0700	7.0	69	109
55104758	DEEF 0710	7.1	69	109
55104759	DEEF 0720	7.2	69	109
55104760	DEEF 0730	7.3	69	109
55104761	DEEF 0740	7.4	69	109
55104762	DEEF 0750	7.5	69	109
55104763	DEEF 0760	7.6	75	117
55104764	DEEF 0770	7.7	75	117
55104765	DEEF 0780	7.8	75	117
55104766	DEEF 0790	7.9	75	117
55104767	DEEF 0800	8.0	75	117
55104768	DEEF 0810	8.1	75	117

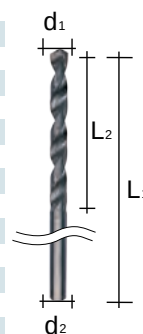


• HIGH PERFORMANCE DRILLS



UNIT: mm

ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)
55104769	DEEF 0820	8.2	75	117
55104770	DEEF 0830	8.3	75	117
55104771	DEEF 0840	8.4	75	117
55104772	DEEF 0850	8.5	75	117
55104773	DEEF 0860	8.6	81	125
55104774	DEEF 0870	8.7	81	125
55104775	DEEF 0880	8.8	81	125
55104776	DEEF 0890	8.9	81	125
55104777	DEEF 0900	9.0	81	125
55104778	DEEF 0910	9.1	81	125
55104779	DEEF 0920	9.2	81	125
55104780	DEEF 0930	9.3	81	125
55104781	DEEF 0940	9.4	81	125
55104782	DEEF 0950	9.5	81	125
55104783	DEEF 0960	9.6	87	133
55104784	DEEF 0970	9.7	87	133
55104785	DEEF 0980	9.8	87	133
55104786	DEEF 0990	9.9	87	133
55104787	DEEF 1000	10.0	87	133
55104788	DEEF 1020	10.2	87	133
55104789	DEEF 1050	10.5	87	133
55104790	DEEF 1080	10.8	94	142
55104791	DEEF 1100	11.0	94	142
55104792	DEEF 1150	11.5	94	142
55104793	DEEF 1200	12.0	101	151
55104794	DEEF 1250	12.5	101	151
55104795	DEEF 1300	13.0	101	151

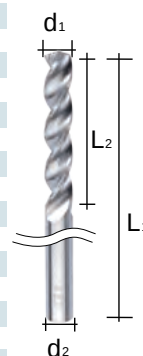


3-FLUTE DRILLS FOR ALUMINIUM, COPPER



UNIT: mm

ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)
55104796	DA 0300	3.0	22	46
55104797	DA 0310	3.1	24	49
55104798	DA 0320	3.2	24	49
55104799	DA 0330	3.3	24	49
55104800	DA 0340	3.4	27	52
55104801	DA 0350	3.5	27	52
55104802	DA 0360	3.6	27	52
55104803	DA 0370	3.7	27	52
55104804	DA 0380	3.8	30	55
55104805	DA 0390	3.9	30	55
55104806	DA 0400	4.0	30	55
55104807	DA 0410	4.1	30	55
55104808	DA 0420	4.2	30	55
55104809	DA 0430	4.3	32	58
55104810	DA 0440	4.4	32	58
55104811	DA 0450	4.5	32	58
55104812	DA 0460	4.6	32	58
55104813	DA 0470	4.7	32	58
55104814	DA 0480	4.8	35	62
55104815	DA 0490	4.9	35	62
55104816	DA 0500	5.0	35	62
55104817	DA 0510	5.1	35	62
55104818	DA 0520	5.2	35	62
55104819	DA 0530	5.3	35	62
55104820	DA 0540	5.4	39	66
55104821	DA 0550	5.5	39	66
55104822	DA 0560	5.6	39	66
55104823	DA 0570	5.7	39	66
55104824	DA 0580	5.8	39	66
55104825	DA 0590	5.9	39	66
55104826	DA 0600	6.0	39	66
55104827	DA 0610	6.1	42	70
55104828	DA 0620	6.2	42	70
55104829	DA 0630	6.3	42	70
55104830	DA 0640	6.4	42	70
55104831	DA 0650	6.5	42	70
55104832	DA 0660	6.6	42	70



E3 - MILLING TOOLS

CUTTING TOOLS

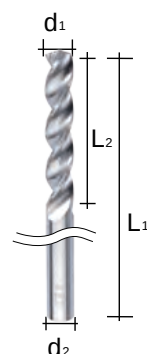
E “ CUTTING TOOLS

• 3-FLUTE DRILLS FOR ALUMINUM, COPPER



UNIT: mm

ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L2)	O.A.L (L1)
55104833	DA 0670	6.7	42	70
55104834	DA 0680	6.8	45	74
55104835	DA 0690	6.9	45	74
55104836	DA 0700	7.0	45	74
55104837	DA 0710	7.1	45	74
55104838	DA 0720	7.2	45	74
55104839	DA 0730	7.3	45	74
55104840	DA 0740	7.4	45	74
55104841	DA 0750	7.5	45	74
55104842	DA 0760	7.6	48	79
55104843	DA 0770	7.7	48	79
55104844	DA 0780	7.8	48	79
55104845	DA 0790	7.9	48	79
55104846	DA 0800	8.0	48	79
55104847	DA 0810	8.1	48	79
55104848	DA 0820	8.2	48	79
55104849	DA 0830	8.3	48	79
55104850	DA 0840	8.4	48	79
55104851	DA 0850	8.5	48	79
55104852	DA 0860	8.6	52	84
55104853	DA 0870	8.7	52	84
55104854	DA 0880	8.8	52	84
55104855	DA 0890	8.9	52	84
55104856	DA 0900	9.0	52	84
55104857	DA 0910	9.1	52	84
55104858	DA 0920	9.2	52	84
55104859	DA 0930	9.3	52	84
55104860	DA 0940	9.4	52	84
55104861	DA 0950	9.5	52	84
55104862	DA 0960	9.6	55	89
55104863	DA 0970	9.7	55	89
55104864	DA 0980	9.8	55	89
55104865	DA 0990	9.9	55	89
55104866	DA 1000	10.0	55	89
55104867	DA 1020	10.2	55	89
55104868	DA 1050	10.5	55	89
55104869	DA 1080	10.8	60	95
55104870	DA 1100	11.0	60	95
55104871	DA 1150	11.5	60	95
55104872	DA 1200	12.0	65	102
55104873	DA 1250	12.5	65	102
55104874	DA 1300	13.0	65	102

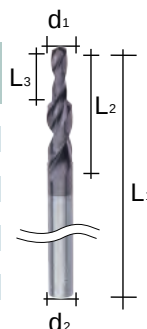


COMBINED DRILL AND CHAMFER TOOL



UNIT: mm

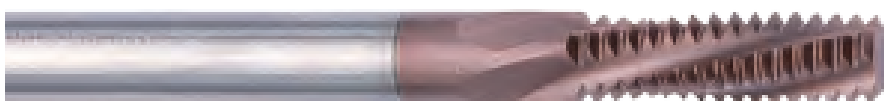
ITEM NO.	TYPE NO.	DIAMETER (D1)	FLUTE LENGTH (L3)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)
55104875	M4	3.3	11.4	28	66	6
55104876	M5	4.2	13.6	28	66	6
55104877	M6	5.0	16.5	41	79	8
55104878	M8	6.8	21.0	47	89	10
55104879	M10	8.5	25.5	55	102	12
55104880	M12	10.2	30.0	60	107	14
55104881	M14	12.0	34.5	65	115	16
55104882	M16	14.0	38.5	73	123	18





THREAD MILLING TOOL SERIES

- THREAD MILLING TOOL SERIES



E3 - MILLING TOOLS

CUTTING TOOLS

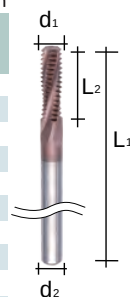
E “ CUTTING TOOLS

THREAD MILLING TOOL SERIES



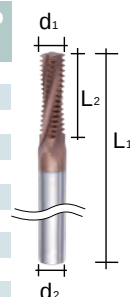
UNIT: mm

ITEM NO.	TYPE NO.	PITCH	COARSE	FINE	DIAMETER (d1)	SHANK DIA (d2)	FLUTE	FLUTE LENGTH (L2)	O.A.L (L1)
55104373	TR 230505	0.5	M3	≥ M4	2.3	6	4	5.2	40
55104374	TR 230507	0.5	M3	≥ M4	2.3	6	4	7.2	40
55104375	TR 300707	0.7	M4		3.0	6	4	7.28	40
55104376	TR 300710	0.7	M4		3.0	6	4	10.08	40
55104377	TR 380809	0.8	M5		3.8	6	4	9.12	50
55104378	TR 380812	0.8	M5		3.8	6	4	12.32	50
55104379	TR 451010	1.0	M6	≥ M8	4.5	6	4	10.4	60
55104380	TR 451014	1.0	M6	≥ M8	4.5	6	4	14.4	60
55104381	TR 6012514	1.25	M8	≥ M10	6.0	6	4	14.25	60
55104382	TR 6012519	1.25	M8	≥ M10	6.0	6	4	19.25	60



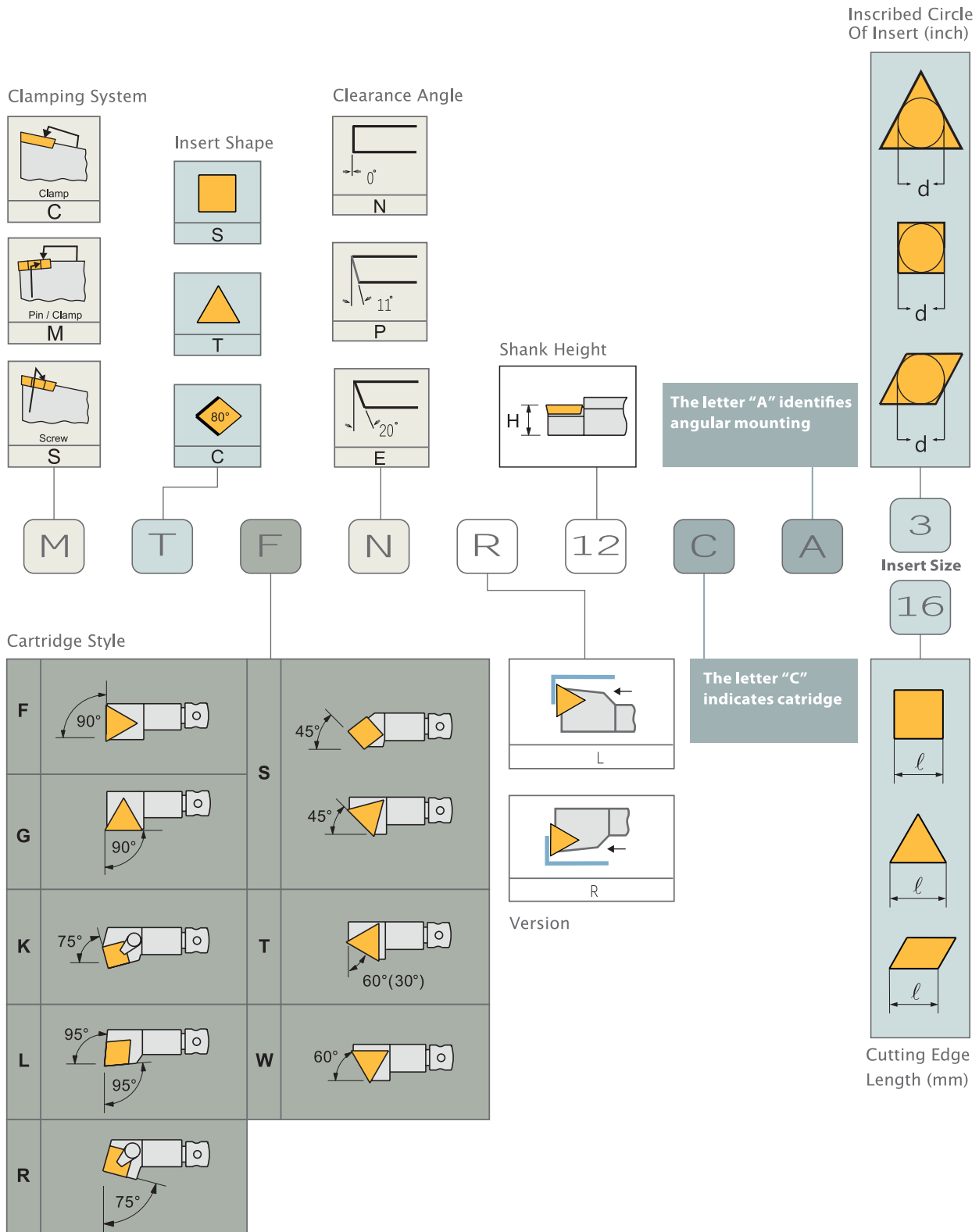
UNIT: mm

ITEM NO.	TYPE NO.	DIAMETER (d1)	FLUTE LENGTH (L2)	O.A.L (L1)	SHANK DIA (d2)	FLUTE	PITCH	THREAD SIZE
55104383	TH 023005M3	2.3	5.2	40	6	3	0.5	M3
55104384	TH 023007M3	2.3	7.2	40	6	3	0.5	M3
55104385	TH 030007M4	3.0	7.28	40	6	3	0.7	M4
55104386	TH 030010M4	3.0	10.08	40	6	3	0.7	M4
55104387	TH 038009M5	3.8	9.12	50	6	3	0.8	M5
55104388	TH 038012M5	3.8	12.32	50	6	3	0.8	M5
55104389	TH 045010M6	4.5	10.4	60	6	3	1.0	M6
55104390	TH 045014M6	4.5	14.4	60	6	3	1.0	M6
55104391	TH 060014M8	6.0	14.25	60	8	3	1.25	M8
55104392	TH 060019M8	6.0	19.25	60	8	3	1.25	M8
55104393	TH 075017M10	7.5	17.1	60	8	3	1.5	M10
55104394	TH 075024M10	7.5	24.6	75	8	3	1.5	M10
55104395	TH 080019M12	8.0	19.95	60	8	3	1.75	M12
55104396	TH 080028M12	8.0	28.7	75	8	3	1.75	M12
55104397	TH 090019M12	9.0	19.95	75	10	4	1.75	M12
55104398	TH 090028M12	9.0	28.7	75	10	4	1.75	M12
55104399	TH 100026M14	10.0	26.8	75	10	4	2.0	M14
55104400	TH 100038M14	10.0	38.8	100	10	4	2.0	M14
55104401	TH 120026M16	12.0	26.8	80	12	4	2.0	M16
55104402	TH 120038M16	12.0	38.8	100	12	4	2.0	M16
55104403	TH 120031M18	12.0	31	100	12	4	2.5	M18
55104404	TH 120043M18	12.0	43.5	100	12	4	2.5	M18
55104405	TH 140033M20	14.0	33.5	100	14	4	2.5	M20
55104406	TH 140048M20	14.0	48.5	100	14	4	2.5	M20
55104407	TH 160040M24	16.0	40.2	100	16	5	3.0	M24
55104408	TH 160058M24	16.0	58.2	120	16	5	3.0	M24





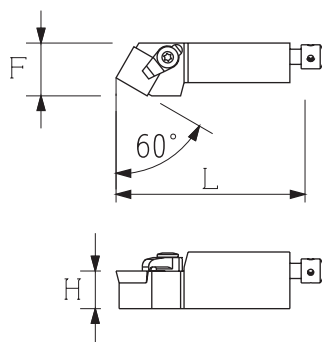
IDENTIFICATION SYSTEM OF CARTRIDGE



E “ CUTTING TOOLS

CARTRIDGES

V CSTP 60°

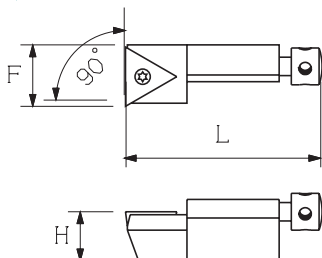


UNIT: mm

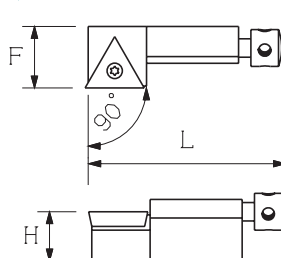
ITEM NO.	MODEL	INSERT	DIMENSIONS			PARTS		WRENCH	
			F	L	H				
55100642	CSTPR10CA-09	SPMN0903	14	50	10	CP50-27S		LW020	LW025
55100643	CSTPR12CA-12	SPMN1203	20	55	12	CP50-26	CS70-21	LW020	LW025

CARTRIDGES

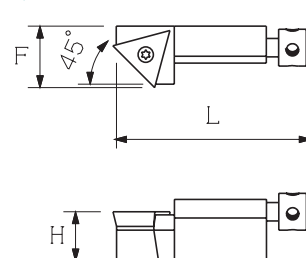
V STFC 90°



V STGC 90°



V STSC 45°



UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS			PARTS	WRENCH
			F	L	H		
55100644	STFCR06CA-06	TCMT0602	08	25	06	CS20040	FT-6
55100645	STFCR08CA-09	TCMT0902	11	32	08	CS22050	FT-7
55100646	STFCR10CA-11	TCMT1102	14	50	10	CS25065	FT-8
55100647	STFCR12CA-16	TCMT16T3	20	55	12	CS35090	FT-15

UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS			PARTS	WRENCH
			F	L	H		
55100648	STGCR08CA-09	TCMT0902	10	32	08	CS22050	FT-7
55100649	STGCR10CA-11	TCMT1102	14	50	10	CS25065	FT-8
55100650	STGCR12CA-16	TCMT16T3	20	55	12	CS35090	FT-15

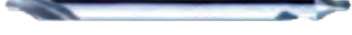
UNIT: mm

ITEM NO.	MODEL	INSERT	DIMENSIONS			PARTS	WRENCH
			F	L	H		
55100651	STSCR08CA-09	TCMT0902	10	26	08	CS22050	FT-7
55100652	STSCR10CA-11	TCMT1102	14	44	10	CS25065	FT-8
55100653	STSCR12CA-16	TCMT16T3	20	47	12	CS35090	FT-15



TWIST DRILLS / TAPS

STRAIGHT SHANK TWIST DRILLS

	S561	(P E209)	M2 HSS	Uncoated Blank		
	S562	(P E210)	M2 HSS	Uncoated Blank		
	S564 S565 S566 S567	(P E211)	M2 HSS	Uncoated Blank		
	S571	(P E212)	M2 HSS	Uncoated Blank		
	S559	(P E213)	Super HSS-E	Uncoated Blank	JIS	
	S560	(P E214)	Super HSS-E	Uncoated Blank	JIS	

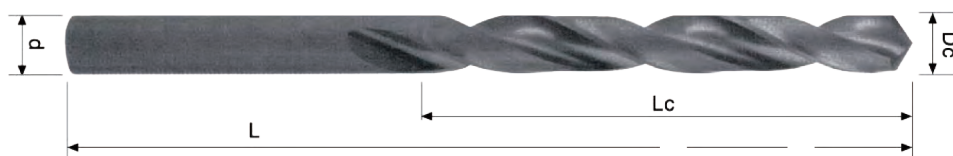
SERIAL FLUTE TAPS / SPIRAL POINT TAPS / HAND TAPS / TAPER PIPE TAPS

	S700	(P E214)	Super HSS-E	Uncoated Blank	JIS	ISO 6H
	S710	(P E214)	Super HSS-E	Uncoated Blank	JIS	ISO 6H
	S701	(P E215)	Super HSS-E	Uncoated Blank	JIS	ISO 6H
	S711	(P E216)	Super HSS-E	Uncoated Blank	JIS	ISO 6H
	S701	(P E217)	Super HSS-E	Uncoated Blank	JIS	ISO 6H
	S711	(P E218)	Super HSS-E	Uncoated Blank	JIS	ISO 6H
	S730	(P E219) (P E220)	SKS	Uncoated Blank		JISII
	S731	(P E221)	SKS	Uncoated Blank		JIS
	S732	(P E221)	SKS	Uncoated Blank		JIS
	S733	(P E221)	SKS	Uncoated Blank		JIS
	S734	(P E222)	SKS	Uncoated Blank		ANSI
	S735	(P E222)	SKS	Uncoated Blank		ANSI

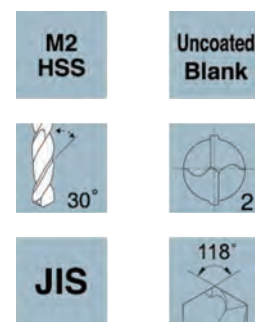


E “ CUTTING TOOLS

STRAIGHT SHANK TWIST DRILLS



ITEM NO.	Dc h8	Lc mm	L mm	HSS S561	ITEM NO.	Dc h8	Lc mm	L mm	HSS S561	ITEM NO.	Dc h8	Lc mm	L mm	HSS S561
55101705	0.3	3.5	20	•	55101753	5.1	62	92	•	55101801	9.9	95	130	•
55101706	0.4	5.5	24	•	55101754	5.2	64	95	•	55101802	10	95	130	•
55101707	0.5	7.5	27	•	55101755	5.3	64	95	•	55101803	10.1	98	133	•
55101708	0.6	8.5	30	•	55101756	5.4	64	95	•	55101804	10.2	98	133	•
55101709	0.7	10	32	•	55101757	5.5	64	95	•	55101805	10.3	98	133	•
55101710	0.8	11	34	•	55101758	5.6	67	98	•	55101806	10.4	98	133	•
55101711	0.9	13	36	•	55101759	5.7	67	98	•	55101807	10.5	100	137	•
55101712	1	18	40	•	55101760	5.8	67	98	•	55101808	10.6	100	137	•
55101713	1.1	20	42	•	55101761	5.9	67	98	•	55101809	10.7	100	137	•
55101714	1.2	20	42	•	55101762	6	70	102	•	55101810	10.8	103	140	•
55101715	1.3	22	45	•	55101763	6.1	70	102	•	55101811	10.9	103	140	•
55101716	1.4	23	48	•	55101764	6.2	70	102	•	55101812	11	103	140	•
55101717	1.5	23	48	•	55101765	6.3	70	102	•	55101813	11.1	103	140	•
55101718	1.6	25	50	•	55101766	6.4	73	105	•	55101814	11.2	106	143	•
55101719	1.7	25	50	•	55101767	6.5	73	105	•	55101815	11.3	106	143	•
55101720	1.8	28	52	•	55101768	6.6	73	105	•	55101816	11.4	106	143	•
55101721	1.9	28	52	•	55101769	6.7	73	105	•	55101817	11.5	106	143	•
55101722	2	29	55	•	55101770	6.8	73	105	•	55101818	11.6	109	146	•
55101723	2.1	29	55	•	55101771	6.9	73	105	•	55101819	11.7	109	146	•
55101724	2.2	30	58	•	55101772	7	73	105	•	55101820	11.8	109	146	•
55101725	2.3	30	58	•	55101773	7.1	75	108	•	55101821	11.9	109	146	•
55101726	2.4	35	61	•	55101774	7.2	75	108	•	55101822	12	111	149	•
55101727	2.5	35	61	•	55101775	7.3	75	108	•	55101822-1	12.1	111	149	•
55101728	2.6	37	64	•	55101776	7.4	78	111	•	55101823	12.2	111	149	•
55101729	2.7	37	64	•	55101777	7.5	78	111	•	55101824	12.3	111	149	•
55101730	2.8	39	67	•	55101778	7.6	78	111	•	55101825	12.4	114	149	•
55101731	2.9	42	71	•	55101779	7.7	81	114	•	55101826	12.5	114	152	•
55101732	3	42	71	•	55101780	7.8	81	114	•	55101827	12.6	114	152	•
55101733	3.1	42	671	•	55101781	7.9	81	114	•	55101828	12.7	114	152	•
55101734	3.2	42	71	•	55101782	8	81	114	•	55101829	12.8	114	152	•
55101735	3.3	45	73	•	55101783	8.1	84	117	•	55101830	12.9	114	152	•
55101736	3.4	45	73	•	55101784	8.2	84	117	•	55101831	13	114	152	•
55101737	3.5	45	73	•	55101785	8.3	84	117	•	55101832	13.5	108	160	•
55101738	3.6	48	76	•	55101786	8.4	87	121	•	55101833	14	108	160	•
55101739	3.7	48	76	•	55101787	8.5	87	121	•	55101834	14.5	114	169	•
55101740	3.8	48	76	•	55101788	8.6	87	121	•	55101835	15	114	169	•
55101741	3.9	51	79	•	55101789	8.7	87	121	•	55101836	15.5	120	178	•
55101742	4	54	83	•	55101790	8.8	89	124	•	55101837	16	120	178	•
55101743	4.1	54	83	•	55101791	8.9	89	124	•	55101838	16.5	125	184	•
55101744	4.2	54	83	•	55101792	9	89	124	•	55101839	17	125	184	•
55101745	4.3	54	83	•	55101793	9.1	89	124	•	55101840	17.5	130	191	•
55101746	4.4	56	86	•	55101794	9.2	92	127	•	55101841	18	130	191	•
55101747	4.5	56	86	•	55101795	9.3	92	127	•	55101842	18.5	135	198	•
55101748	4.6	56	86	•	55101796	9.4	92	127	•	55101843	19	135	198	•
55101749	4.7	59	89	•	55101797	9.5	92	127	•	55101844	19.5	140	205	•
55101750	4.8	59	89	•	55101798	9.6	95	130	•	55101845	20	140	205	•
55101751	4.9	62	92	•	55101799	9.7	95	130	•					
55101752	5	62	92	•	55101800	9.8	95	130	•					



WORK MATERIAL			
P	GR1	CARBON STEEL	•
	GR2	<24 HRC LOW-ALLOYED STEEL	•
	GR3	<30 HRC HI-ALLOYED STEEL	•
H	GR4	<30~38 HRC HARDENED STEEL	
	GR5	<30~48 HRC HARDENED STEEL	
	GR6	<48~56 HRC HARDENED STEEL	
	GR7	<56~68 HRC HARDENED STEEL	
M	GR8	STAINLESS STEEL	
K	GR9	CAST IRON	•
N	GR10	ALUMINIUM	○
	GR11	COPPER	○
	GR12	PLASTICS	
	GR13	FRP CFRP COMPOSITE MATERIAL	
S	GR14	GRAPHITE	
	GR15	TITANIUM	
	GR16	NICKEL	
	GR17	HEAT-RESISTANT STEEL	



STRAIGHT SHANK TWIST DRILLS, LONG



ITEM NO.	Dc h8	Lc mm	L mm	HSS S562
55101846	1	33	56	•
55101847	1.1	37	60	•
55101848	1.2	41	65	•
55101849	1.3	41	65	•
55101850	1.4	45	70	•
55101851	1.5	45	70	•
55101852	1.6	50	76	•
55101853	1.7	50	76	•
55101854	1.8	53	80	•
55101855	1.9	53	80	•
55101856	2	56	85	•
55101857	2.1	56	85	•
55101858	2.2	59	90	•
55101859	2.3	59	90	•
55101859-1	2.4	62	95	•
55101860	2.5	62	95	•
55101861	2.6	62	95	•
55101862	2.7	66	100	•
55101863	2.8	66	100	•
55101864	2.9	66	100	•
55101865	3	66	100	•
55101866	3.1	69	106	•
55101867	3.2	69	106	•
55101868	3.3	69	106	•
55101869	3.4	73	112	•
55101870	3.5	73	112	•
55101871	3.6	73	112	•
55101872	3.7	73	112	•
55101873	3.8	78	119	•
55101874	3.9	78	119	•
55101875	4	78	119	•
55101876	4.1	78	119	•
55101877	4.2	78	119	•
55101878	4.3	82	126	•
55101879	4.4	82	126	•
55101880	4.5	82	126	•
55101881	4.6	82	126	•
55101882	4.7	82	126	•
55101883	4.8	87	132	•
55101884	4.9	87	132	•
55101885	5	87	132	•
55101886	5.1	87	132	•
55101887	5.2	87	132	•
55101888	5.3	87	132	•
55101889	5.4	91	139	•
55101890	5.5	91	139	•
55101891	5.6	91	139	•
55101892	5.7	91	139	•
55101893	5.8	91	139	•

ITEM NO.	Dc h8	Lc mm	L mm	HSS S562
55101894	5.9	91	139	•
55101895	6	91	139	•
55101896	6.1	97	148	•
55101897	6.2	97	148	•
55101898	6.3	97	148	•
55101899	6.4	97	148	•
55101900	6.5	97	148	•
55101901	6.6	97	148	•
55101902	6.7	97	148	•
55101903	6.8	102	156	•
55101904	6.9	102	156	•
55101905	7	102	156	•
55101906	7.1	102	156	•
55101907	7.2	102	156	•
55101908	7.3	102	156	•
55101909	7.4	102	156	•
55101910	7.5	102	156	•
55101911	7.6	109	165	•
55101912	7.7	109	165	•
55101913	7.8	109	165	•
55101914	7.9	109	165	•
55101915	8	109	165	•
55101916	8.1	109	165	•
55101917	8.2	109	165	•
55101918	8.3	109	165	•
55101919	8.4	109	165	•
55101920	8.5	109	165	•
55101921	8.6	115	175	•
55101922	8.7	115	175	•
55101923	8.8	115	175	•
55101924	8.9	115	175	•
55101925	9	115	175	•
55101926	9.1	115	175	•
55101927	9.2	115	175	•
55101928	9.3	115	175	•
55101929	9.4	115	175	•
55101930	9.5	115	175	•
55101930-1	9.6	121	184	•
55101930-2	9.7	121	184	•
55101930-3	9.8	121	184	•
55101930-4	9.9	121	184	•
55101931	10	121	184	•
55101932	10.5	121	184	•
55101933	11	128	195	•
55101934	11.5	128	195	•
55101935	12	134	205	•
55101936	12.5	134	205	•
55101937	13	134	205	•

M2
HSS



JIS

Uncoated
Blank



WORK MATERIAL

P	GR1	CARBON STEEL	•
	GR2	<24 HRC LOW-ALLOYED STEEL	•
	GR3	<30 HRC HI-ALLOYED STEEL	•
H	GR4	<30~38 HRC HARDENED STEEL	
	GR5	<30~48 HRC HARDENED STEEL	
	GR6	<48~56 HRC HARDENED STEEL	
	GR7	<56~68 HRC HARDENED STEEL	
M	GR8	STAINLESS STEEL	
K	GR9	CAST IRON	•
N	GR10	ALUMINIUM	○
	GR11	COPPER	○
	GR12	PLASTICS	
	GR13	FRP CFRP COMPOSITE MATERIAL	
	GR14	GRAPHITE	
S	GR15	TITANIUM	
	GR16	NICKEL	
	GR17	HEAT- RESISTANT STEEL	

E “ CUTTING TOOLS



STRAIGHT SHANK TWIST DRILLS, LONG



ITEM NO.	Dc h8	Lc mm	L mm	HSS S564
55101938	2	100	150	•
55101939	2.5	100	150	•
55101940	3	100	150	•
55101941	3.5	100	150	•
55101942	4	100	150	•
55101943	4.5	100	150	•
55101944	5	100	150	•

ITEM NO.	Dc h8	Lc mm	L mm	HSS S564
55101945	5.5	100	150	•
55101946	6	100	150	•
55101947	6.5	100	150	•
55101948	7	100	150	•
55101949	7.5	100	150	•
55101950	8	100	150	•

**M2
HSS**

**Uncoated
Blank**



JIS



ITEM NO.	Dc h8	Lc mm	L mm	HSS S565
55101951	2	150	200	•
55101952	2.5	150	200	•
55101953	3	150	200	•
55101954	3.5	150	200	•
55101955	4	150	200	•
55101956	4.5	150	200	•
55101957	5	150	200	•
55101958	5.5	150	200	•
55101959	6	150	200	•
55101960	6.5	150	200	•
55101961	7	150	200	•
55101962	7.5	150	200	•

ITEM NO.	Dc h8	Lc mm	L mm	HSS S565
55101963	8	150	200	•
55101964	8.5	150	200	•
55101965	9	150	200	•
55101966	9.5	150	200	•
55101967	10	150	200	•
55101968	10.5	150	200	•
55101969	11	150	200	•
55101970	11.5	150	200	•
55101971	12	150	200	•
55101972	12.5	150	200	•
55101973	13	150	200	•

ITEM NO.	Dc h8	Lc mm	L mm	HSS S566
55101974	4	200	250	•
55101975	4.5	200	250	•
55101976	5	200	250	•
55101977	5.5	200	250	•
55101978	6	200	250	•
55101979	6.5	200	250	•
55101980	7	200	250	•
55101981	7.5	200	250	•
55101982	8	200	250	•
55101983	8.5	200	250	•

ITEM NO.	Dc h8	Lc mm	L mm	HSS S566
55101984	9	200	250	•
55101985	9.5	200	250	•
55101986	10	200	250	•
55101987	10.5	200	250	•
55101988	11	200	250	•
55101989	11.5	200	250	•
55101990	12	200	250	•
55101991	12.5	200	250	•
55101992	13	200	250	•

ITEM NO.	Dc h8	Lc mm	L mm	HSS S567
55101993	6	200	300	•
55101994	6.5	200	300	•
55101995	7	200	300	•
55101996	7.5	200	300	•
55101997	8	200	300	•
55101998	8.5	200	300	•
55101999	9	200	300	•
55102000	9.5	200	300	•
55102001	10	200	300	•

ITEM NO.	Dc h8	Lc mm	L mm	HSS S567
55102001-1	10.5	200	300	•
55102002	11	200	300	•
55102003	11.5	200	300	•
55102004	12	200	300	•
55102005	12.5	200	300	•
55102006	13	200	300	•
55102007	10A	200	300	•
55102008	12A	200	300	•
55102009	13A	200	300	•

WORK MATERIAL

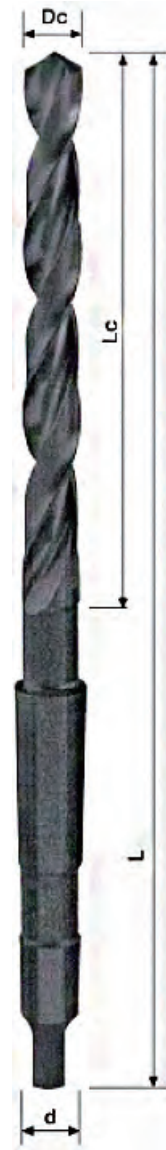
P	GR1	CARBON STEEL	•
	GR2	<24 HRC LOW-ALLOYED STEEL	•
	GR3	<30 HRC HI-ALLOYED STEEL	•
H	GR4	<30~38 HRC HARDENED STEEL	
	GR5	<30~48 HRC HARDENED STEEL	
	GR6	<48~56 HRC HARDENED STEEL	
	GR7	<56~68 HRC HARDENED STEEL	
M	GR8	STAINLESS STEEL	
K	GR9	CAST IRON	•
N	GR10	ALUMINIUM	○
	GR11	COPPER	○
	GR12	PLASTICS	
	GR13	FRP CFRP COMPOSITE MATERIAL	
S	GR14	GRAPHITE	
	GR15	TITANIUM	
	GR16	NICKEL	
	GR17	HEAT- RESISTANT STEEL	



MORSE TAPER SHANK TWIST DRILLS



ITEM NO.	Dc h8	Lc mm	L mm	d M.T.	HSS S571
55102010	13	115	198	1	•
55102011	13.5	118	202	1	•
55102012	14	122	205	1	•
55102013	14.5	122	222	2	•
55102014	15	125	225	2	•
55102015	15.5	128	228	2	•
55102016	16	130	230	2	•
55102017	16.5	132	232	2	•
55102018	17	135	235	2	•
55102019	17.5	140	240	2	•
55102020	18	140	240	2	•
55102021	18.5	145	245	2	•
55102022	19	145	245	2	•
55102023	19.5	150	250	2	•
55102024	20	150	250	2	•
55102025	20.5	155	255	2	•
55102026	21	155	255	2	•
55102027	21.5	160	260	2	•
55102028	22	160	260	2	•
55102029	22.5	165	265	2	•
55102030	23	165	265	2	•
55102031	23.5	165	285	3	•
55102032	24	165	285	3	•
55102033	24.5	165	285	3	•
55102034	25	165	285	3	•
55102035	25.5	165	285	3	•
55102036	26	165	285	3	•
55102037	26.5	170	290	3	•
55102038	27	170	290	3	•
55102039	27.5	175	295	3	•
55102040	28	175	295	3	•
55102041	28.5	180	300	3	•
55102042	29	180	300	3	•
55102043	29.5	185	305	3	•
55102044	30	185	305	3	•
55102045	31	190	310	3	•
55102046	32	195	315	3	•
55102047	33	200	345	4	•
55102048	34	205	350	4	•
55102049	35	205	350	4	•
55102050	36	210	355	4	•
55102056	37	210	355	4	•
55102057	38	215	360	4	•
55102058	39	215	360	4	•
55102059	40	220	365	4	•
55102060	41	220	365	4	•
55102061	42	225	370	4	•
55102062	43	225	370	4	•
55102063	44	230	375	4	•
55102064	45	230	375	4	•
55102065	46	235	380	4	•
55102066	47	235	380	4	•
55102067	48	240	385	4	•
55102068	49	240	385	4	•
55102069	50	245	390	4	•

M2
HSSUncoated
Blank

JIS



WORK MATERIAL

P	GR1	CARBON STEEL	•
	GR2	<24 HRC LOW-ALLOYED STEEL	•
	GR3	<30 HRC HI-ALLOYED STEEL	•
H	GR4	<30~38 HRC HARDENED STEEL	
	GR5	<30~48 HRC HARDENED STEEL	
	GR6	<48~56 HRC HARDENED STEEL	
	GR7	<56~68 HRC HARDENED STEEL	
M	GR8	STAINLESS STEEL	
K	GR9	CAST IRON	•
N	GR10	ALUMINIUM	○
	GR11	COPPER	○
	GR12	PLASTICS	
	GR13	FRP CFRP COMPOSITE MATERIAL	
	GR14	GRAPHITE	
S	GR15	TITANIUM	
	GR16	NICKEL	
	GR17	HEAT- RESISTANT STEEL	



E “ CUTTING TOOLS



CENTER DRILLS



ITEM NO.	Dc mm	Lc mm	L mm	d mm	HSS-E S559
55102070	1	1	35	4	•
55102071	1.5	1.5	40	5	•
55102072	2	2	45	6	•
55102073	2.5	2.5	50	7.7	•
55102074	3	3	55	7.7	•
55102075	3.2	3	55	7.7	•
55102076	4	4.5	65	10	•
55102077	5	5.5	78	11	•



WORK MATERIAL			
P	GR1	CARBON STEEL	•
	GR2	<24 HRC LOW-ALLOYED STEEL	•
	GR3	<30 HRC HI-ALLOYED STEEL	•
H	GR4	<30~38 HRC HARDENED STEEL	
	GR5	<30~48 HRC HARDENED STEEL	
	GR6	<48~56 HRC HARDENED STEEL	
	GR7	<56~68 HRC HARDENED STEEL	
M	GR8	STAINLESS STEEL	○
K	GR9	CAST IRON	•
N	GR10	ALUMINIUM	○
	GR11	COPPER	○
	GR12	PLASTICS	
	GR13	FRP CFRP COMPOSITE MATERIAL	
S	GR14	GRAPHITE	
	GR15	TITANIUM	
	GR16	NICKEL	
	GR17	HEAT- RESISTANT STEEL	



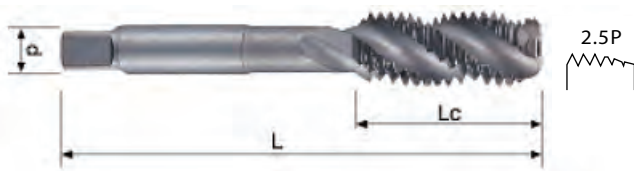
CENTER DRILLS / LONG



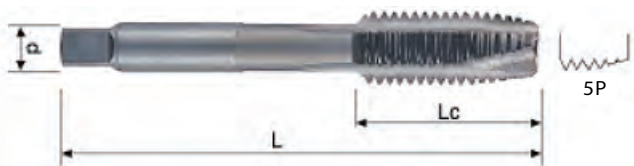
ITEM NO.	Dc mm	Lc mm	L mm	d mm	HSS-E S560
55102078	1	1	100	4	•
55102079	1.5	1.5	100	5	•
55102080	2	2	100	6	•
55102081	2.5	2.5	100	7	•
55102082	3	3	100	8	•
55102083	3.2	3	100	9	•
55102084	4	4.5	100	10	•
55102085	5	5.5	100	12	•



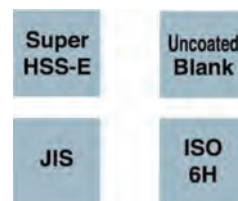
SERIAL FLUTE TAPS / SPIRAL POINT TAPS



ITEM NO.	SIZE x PITCH	Lc mm	L mm	d mm	FLUTE	S700
55102086	M2 x 0.4	9.5	40	3	2	•
55102087	M2.5 x 0.45	9.5	44	3	2	•
55102088	M2.6 x 0.45	9.5	44	3	2	•
55102089	M3 x 0.5	11	46	4	3	•
55102090	M3.5 x 0.6	13	48	4	3	•
55102091	M4 x 0.7	13	52	5	3	•
55102092	M5 x 0.8	16	60	5.5	3	•
55102093	M6 x 1	19	62	6	3	•
55102094	M8 x 1.25	22	70	6.2	3	•
55102095	M10 x 1.5	24	75	7	3	•
55102096	M12 x 1.75	29	82	8.5	3	•
55102097	M14 x 2	30	88	10.5	3	•
55102098	M16 x 2	32	95	12.5	3	•
55102099	M20 x 2.5	37	105	15	4	•



ITEM NO.	SIZE x PITCH	Lc mm	L mm	d mm	FLUTE	S710
55102100	M2 x 0.4	9.5	40	3	2	•
55102101	M2.5 x 0.45	9.5	44	3	2	•
55102102	M2.6 x 0.45	9.5	44	3	2	•
55102103	M3 x 0.5	11	46	4	3	•
55102104	M3.5 x 0.6	13	48	4	3	•
55102105	M4 x 0.7	13	52	5	3	•
55102106	M5 x 0.8	16	60	5.5	3	•
55102107	M6 x 1	19	62	6	3	•
55102108	M8 x 1.25	22	70	6.2	3	•
55102109	M10 x 1.5	24	75	7	3	•
55102110	M12 x 1.75	29	82	8.5	3	•
55102111	M14 x 2	30	88	10.5	3	•
55102112	M16 x 2	32	95	12.5	3	•
55102113	M20 x 2.5	37	105	15	4	•



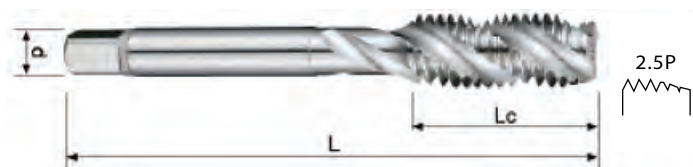
WORK MATERIAL			
P	GR1	CARBON STEEL	•
	GR2	<24 HRC LOW-ALLOYED STEEL	•
	GR3	<30 HRC HI-ALLOYED STEEL	•
H	GR4	<30~38 HRC HARDENED STEEL	○
	GR5	<30~48 HRC HARDENED STEEL	○
	GR6	<48~56 HRC HARDENED STEEL	
	GR7	<56~68 HRC HARDENED STEEL	
M	GR8	STAINLESS STEEL	•
K	GR9	CAST IRON	•
N	GR10	ALUMINIUM	•
	GR11	COPPER	•
	GR12	PLASTICS	•
	GR13	FRP CFRP COMPOSITE MATERIAL	
S	GR14	GRAPHITE	
	GR15	TITANIUM	
	GR16	NICKEL	
	GR17	HEAT-RESISTANT STEEL	



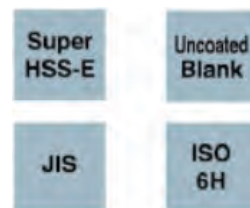
E “ CUTTING TOOLS



SERIAL FLUTE TAPS



ITEM NO.	SIZE x PITCH	Lc mm	L mm	d mm	FLUTE	S701
55102114	M2 x 0.4	9.5	40	3	2	•
55102115	M2.5 x 0.45	9.5	44	3	2	•
55102116	M2.6 x 0.45	9.5	44	3	2	•
55102117	M3 x 0.5	11	46	4	3	•
55102118	M3.5 x 0.6	13	48	4	3	•
55102119	M4 x 0.5	13	52	5	3	•
55102120	M4 x 0.7	13	52	5	3	•
55102121	M4.5 x 0.75	13	55	5	3	•
55102122	M5 x 0.5	16	60	5.5	3	•
55102123	M5 x 0.8	16	60	5.5	3	•
55102124	M6 x 0.75	19	62	6	3	•
55102125	M6 x 1	19	62	6	3	•
55102126	M7 x 0.75	19	65	6.2	3	•
55102127	M7 x 1	19	65	6.2	3	•
55102128	M8 x 1	22	70	6.2	3	•
55102129	M8 x 1.25	22	70	6.2	3	•
55102130	M9 x 1	22	72	7	3	•
55102131	M9 x 1.25	22	72	7	3	•
55102132	M10 x 1	24	75	7	3	•
55102133	M10 x 1.25	24	75	7	3	•
55102134	M10 x 1.5	24	75	7	3	•
55102135	M12 x 1	29	82	8.5	3	•
55102136	M12 x 1.25	29	82	8.5	3	•
55102137	M12 x 1.5	29	82	8.5	3	•
55102138	M12 x 1.75	29	82	8.5	3	•
55102139	M14 x 1	30	88	10.5	3	•
55102140	M14 x 1.25	30	88	10.5	3	•
55102141	M14 x 1.5	30	88	10.5	3	•
55102142	M14 x 2	30	88	10.5	3	•
55102143	M16 x 1	32	95	12.5	3	•
55102144	M16 x 1.5	32	95	12.5	3	•
55102145	M16 x 2	32	95	12.5	3	•
55102146	M18 x 1	37	100	14	3	•
55102147	M18 x 1.5	37	100	14	3	•
55102148	M18 x 2	37	100	14	3	•
55102149	M18 x 2.5	37	100	14	3	•
55102150	M20 x 1	37	105	15	3	•
55102151	M20 x 1.5	37	105	15	3	•
55102152	M20 x 2	37	105	15	3	•
55102153	M20 x 2.5	37	105	15	3	•
55102154	M22 x 2.5	38	115	17	3	•
55102155	M24 x 3	45	120	19	3	•
55102156	M27 x 3	45	130	20	4	•
55102157	M30 x 3.5	48	135	23	4	•



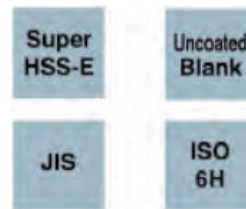
WORK MATERIAL			
P	GR1	CARBON STEEL	•
	GR2	<24 HRC LOW-ALLOYED STEEL	•
	GR3	<30 HRC HI-ALLOYED STEEL	•
H	GR4	<30~38 HRC HARDENED STEEL	○
	GR5	<30~48 HRC HARDENED STEEL	○
	GR6	<48~56 HRC HARDENED STEEL	
	GR7	<56~68 HRC HARDENED STEEL	
M	GR8	STAINLESS STEEL	•
K	GR9	CAST IRON	•
N	GR10	ALUMINIUM	•
	GR11	COPPER	•
	GR12	PLASTICS	•
	GR13	FRP CFRP COMPOSITE MATERIAL	
	GR14	GRAPHITE	
S	GR15	TITANIUM	○
	GR16	NICKEL	○
	GR17	HEAT-RESISTANT STEEL	○



SPIRAL POINT TAPS



ITEM NO.	SIZE x PITCH	Lc mm	L mm	d mm	FLUTE	S711
55102158	M2 x 0.4	9.5	40	3	2	•
55102159	M2.5 x 0.45	9.5	44	3	2	•
55102160	M2.6 x 0.45	9.5	44	3	2	•
55102161	M3 x 0.5	11	46	4	3	•
55102162	M3.5 x 0.6	13	48	4	3	•
55102163	M4 x 0.5	13	52	5	3	•
55102164	M4 x 0.7	13	52	5	3	•
55102165	M4.5 x 0.75	13	55	5	3	•
55102166	M5 x 0.5	16	60	5.5	3	•
55102167	M5 x 0.8	16	60	5.5	3	•
55102168	M6 x 0.75	19	62	6	3	•
55102169	M6 x 1	19	62	6	3	•
55102170	M7 x 0.75	19	65	6.2	3	•
55102171	M7 x 1	19	65	6.2	3	•
55102172	M8 x 1	22	70	6.2	3	•
55102173	M8 x 1.25	22	70	6.2	3	•
55102174	M9 x 1	22	72	7	3	•
55102175	M9 x 1.25	22	72	7	3	•
55102176	M10 x 1	24	75	7	3	•
55102177	M10 x 1.25	24	75	7	3	•
55102178	M10 x 1.5	24	75	7	3	•
55102179	M12 x 1	29	82	8.5	3	•
55102180	M12 x 1.25	29	82	8.5	3	•
55102181	M12 x 1.5	29	82	8.5	3	•
55102182	M12 x 1.75	29	82	8.5	3	•
55102183	M14 x 1	30	88	10.5	3	•
55102184	M14 x 1.25	30	88	10.5	3	•
55102185	M14 x 1.5	30	88	10.5	3	•
55102186	M14 x 2	30	88	10.5	3	•
55102187	M16 x 1	32	95	12.5	3	•
55102188	M16 x 1.5	32	95	12.5	3	•
55102189	M16 x 2	32	95	12.5	3	•
55102190	M18 x 1	37	100	14	3	•
55102191	M18 x 1.5	37	100	14	3	•
55102192	M18 x 2	37	100	14	3	•
55102193	M18 x 2.5	37	100	14	3	•
55102194	M20 x 1	37	105	15	3	•
55102195	M20 x 1.5	37	105	15	3	•
55102196	M20 x 2	37	105	15	3	•
55102197	M20 x 2.5	37	105	15	3	•
55102198	M22 x 2.5	38	115	17	3	•
55102199	M24 x 3	45	120	19	3	•
55102200	M27 x 3	45	130	20	4	•
55102201	M30 x 3.5	48	135	23	4	•



WORK MATERIAL

P	GR1	CARBON STEEL	•
	GR2	<24 HRC LOW-ALLOYED STEEL	•
	GR3	<30 HRC HI-ALLOYED STEEL	•
H	GR4	<30~38 HRC HARDENED STEEL	○
	GR5	<30~48 HRC HARDENED STEEL	○
	GR6	<48~56 HRC HARDENED STEEL	
	GR7	<56~68 HRC HARDENED STEEL	
M	GR8	STAINLESS STEEL	•
K	GR9	CAST IRON	•
N	GR10	ALUMINIUM	•
	GR11	COPPER	•
	GR12	PLASTICS	•
	GR13	FRP CFRP COMPOSITE MATERIAL	
S	GR14	GRAPHITE	
	GR15	TITANIUM	○
	GR16	NICKEL	○
	GR17	HEAT-RESISTANT STEEL	○



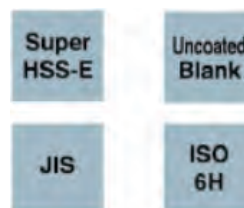
E “ CUTTING TOOLS



SERIAL FLUTE TAPS



ITEM NO.	SIZE x PITCH	Lc mm	L mm	d mm	FLUTE	S701
55102202	#4 x 40 UNC	9.5	44	3	3	•
55102203	#5 x 40 UNC	11	46	4	3	•
55102204	#6 x 32 UNC	13	48	4	3	•
55102205	#8 x 32 UNC	13	52	5	3	•
55102206	#1 x 24 UNC	16	60	5.5	3	•
55102207	#12 x 24 UNC	16	60	5.5	3	•
55102208	1/4 x 20 UNC	19	62	6	3	•
55102209	5/16 x 18 UNC	22	70	6.1	3	•
55102210	3/8 x 16 UNC	24	75	7	3	•
55102211	7/16 x 14 UNC	25	80	8	3	•
55102212	1/2 x 13 UNC	29	85	9	3	•
55102213	9/16 x 12 UNC	30	90	10.5	3	•
55102214	5/8 x 11 UNC	32	95	12	3	•
55102215	3/4 x 10 UNC	37	105	14	4	•
55102216	7/8 x 9 UNC	38	115	17	4	•
55102217	1" x 8 UNC	45	125	20	4	•
55102218	#4 x 48 UNF	9.5	44	3	3	•
55102219	#5 x 44 UNF	11	46	4	3	•
55102220	#6 x 40 UNF	13	48	4	3	•
55102221	#8 x 36 UNF	13	52	5	3	•
55102222	#10 x 32 UNF	16	60	5.5	3	•
55102223	#12 x 28 UNF	16	60	5.5	3	•
55102224	1/4 x 28 UNF	19	62	6	3	•
55102225	5/16 x 24 UNF	22	70	6.1	3	•
55102226	3/8 x 24 UNF	24	75	7	3	•
55102227	7/16 x 20 UNF	25	80	8	3	•
55102228	1/2 x 20 UNF	29	85	9	3	•
55102229	9/16 x 18 UNF	30	90	10.5	3	•
55102230	5/8 x 18 UNF	32	95	12	3	•
55102231	3/4 x 16 UNF	37	105	14	4	•
55102232	7/8 x 14 UNF	38	115	17	4	•
55102233	1" x 12 UNF	45	125	20	4	•
55102234	1/8 x W40	11	46	4	3	•
55102235	5/32 x W32	13	52	5	3	•
55102236	3/16 x W24	16	60	5.5	3	•
55102237	1/4 x W20	19	62	6	3	•
55102238	5/16 x W18	22	70	6.1	3	•
55102239	3/8 x W16	24	75	7	3	•
55102240	7/16 x W14	25	80	8	3	•
55102241	1/2 x W12	29	85	9	3	•
55102242	9/16 x W12	30	90	10.5	3	•
55102243	5/8 x W11	32	95	12	3	•
55102244	3/4 x W10	37	105	14	4	•
55102245	7/8 x W9	38	115	17	4	•
55102246	1" x W8	45	125	20	4	•



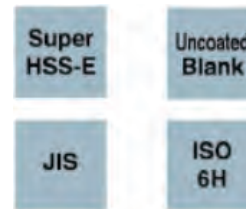
WORK MATERIAL			
P	GR1	CARBON STEEL	•
	GR2	<24 HRC LOW-ALLOYED STEEL	•
	GR3	<30 HRC HI-ALLOYED STEEL	•
H	GR4	<30~38 HRC HARDENED STEEL	○
	GR5	<30~48 HRC HARDENED STEEL	○
	GR6	<48~56 HRC HARDENED STEEL	
	GR7	<56~68 HRC HARDENED STEEL	
M	GR8	STAINLESS STEEL	•
K	GR9	CAST IRON	•
N	GR10	ALUMINIUM	•
	GR11	COPPER	•
	GR12	PLASTICS	•
	GR13	FRP CFRP COMPOSITE MATERIAL	
	GR14	GRAPHITE	
S	GR15	TITANIUM	○
	GR16	NICKEL	○
	GR17	HEAT- RESISTANT STEEL	○



SPIRAL POINT TAPS



ITEM NO.	SIZE x PITCH	Lc mm	L mm	d mm	FLUTE	S711
55102247	#4 x 40 UNC	9.5	44	3	3	•
55102248	#5 x 40 UNC	11	46	4	3	•
55102249	#6 x 32 UNC	13	48	4	3	•
55102250	#8 x 32 UNC	13	52	5	3	•
55102251	#1 x 24 UNC	16	60	5.5	3	•
55102252	#12 x 24 UNC	16	60	5.5	3	•
55102253	1/4 x 20 UNC	19	62	6	3	•
55102254	5/16 x 18 UNC	22	70	6.1	3	•
55102255	3/8 x 16 UNC	24	75	7	3	•
55102256	7/16 x 14 UNC	25	80	8	3	•
55102257	1/2 x 13 UNC	29	85	9	3	•
55102258	9/16 x 12 UNC	30	90	10.5	3	•
55102259	5/8 x 11 UNC	32	95	12	3	•
55102260	3/4 x 10 UNC	37	105	14	4	•
55102261	7/8 x 9 UNC	38	115	17	4	•
55102262	1" x 8 UNC	45	125	20	4	•
55102263	#4 x 48 UNF	9.5	44	3	3	•
55102264	#5 x 44 UNF	11	46	4	3	•
55102265	#6 x 40 UNF	13	48	4	3	•
55102266	#8 x 36 UNF	13	52	5	3	•
55102267	#10 x 32 UNF	16	60	5.5	3	•
55102268	#12 x 28 UNF	16	60	5.5	3	•
55102269	1/4 x 28 UNF	19	62	6	3	•
55102270	5/16 x 24 UNF	22	70	6.1	3	•
55102271	3/8 x 24 UNF	24	75	7	3	•
55102272	7/16 x 20 UNF	25	80	8	3	•
55102273	1/2 x 20 UNF	29	85	9	3	•
55102274	9/16 x 18 UNF	30	90	10.5	3	•
55102275	5/8 x 18 UNF	32	95	12	3	•
55102276	3/4 x 16 UNF	37	105	14	4	•
55102277	7/8 x 14 UNF	38	115	17	4	•
55102278	1" x 12 UNF	45	125	20	4	•
55102279	1/8 x W40	11	46	4	3	•
55102280	5/32 x W32	13	52	5	3	•
55102281	3/16 x W24	16	60	5.5	3	•
55102282	1/4 x W20	19	62	6	3	•
55102283	5/16 x W18	22	70	6.1	3	•
55102284	3/8 x W16	24	75	7	3	•
55102285	7/16 x W14	25	80	8	3	•
55102286	1/2 x W12	29	85	9	3	•
55102287	9/16 x W12	30	90	10.5	3	•
55102288	5/8 x W11	32	95	12	3	•
55102289	3/4 x W10	37	105	14	4	•
55102290	7/8 x W9	38	115	17	4	•
55102291	1" x W8	45	125	20	4	•



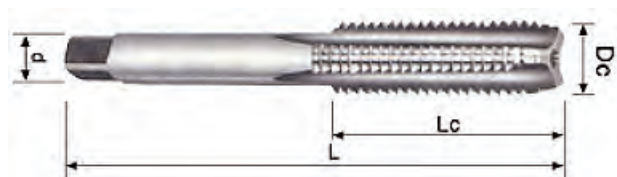
WORK MATERIAL			
P	GR1	CARBON STEEL	•
	GR2	<24 HRC LOW-ALLOYED STEEL	•
	GR3	<30 HRC HI-ALLOYED STEEL	•
H	GR4	<30~38 HRC HARDENED STEEL	○
	GR5	<30~48 HRC HARDENED STEEL	○
	GR6	<48~56 HRC HARDENED STEEL	
	GR7	<56~68 HRC HARDENED STEEL	
M	GR8	STAINLESS STEEL	•
K	GR9	CAST IRON	•
N	GR10	ALUMINIUM	•
	GR11	COPPER	•
	GR12	PLASTICS	•
	GR13	FRP CFRP COMPOSITE MATERIAL	
S	GR14	GRAPHITE	
	GR15	TITANIUM	○
	GR16	NICKEL	○
	GR17	HEAT-RESISTANT STEEL	○



E “ CUTTING TOOLS



HAND TAPS (SET OF 3 PIECES)



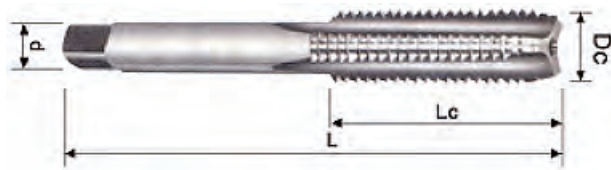
ITEM NO.	SIZE x PITCH	Lc mm	L mm	d mm	FLUTE	SKS S730
55102292	M2.5 x 0.45	16	44	3	3	•
55102293	M2.6 x 0.45	16	44	3	3	•
55102294	M3 x 0.5	18	46	4	3	•
55102295	M3.5 x 0.6	18	48	4	3	•
55102296	M4 x 0.5	15	52	5	3	•
55102297	M4 x 0.7	20	52	5	3	•
55102298	M4.5 x 0.75	20	55	5	3	•
55102299	M5 x 0.5	22	60	5.5	3	•
55102300	M5 x 0.8	22	60	5.5	3	•
55102301	M6 x 0.75	20	62	6	3	•
55102302	M6 x 1	24	62	6	3	•
55102303	M7 x 1	26	65	6.2	4	•
55102304	M8 x 0.75	20	62	6.2	4	•
55102305	M8 x 1	30	70	6.2	4	•
55102306	M8 x 1.25	30	70	6.2	4	•
55102307	M9 x 1.25	30	72	7	4	•
55102308	M10 x 1	30	70	7	4	•
55102309	M10 x 1.25	32	75	7	4	•
55102310	M10 x 1.5	32	75	7	4	•
55102311	M12 x 1.25	38	80	8.5	4	•
55102312	M12 x 1.5	38	82	8.5	4	•
55102313	M12 x 1.75	38	82	8.5	4	•
55102314	M14 x 1.25	38	80	10.5	4	•
55102315	M14 x 1.5	42	88	10.5	4	•
55102316	M14 x 2	42	88	10.5	4	•
55102317	M16 x 1.5	45	95	12.5	4	•
55102318	M16 x 2	45	95	12.5	4	•
55102319	M18 x 1.5	45	95	14	4	•
55102320	M18 x 2	45	95	14	4	•
55102321	M18 x 2.5	48	100	14	4	•
55102322	M20 x 1.5	45	95	15	4	•
55102323	M20 x 2	45	95	15	4	•
55102324	M20 x 2.5	50	105	15	4	•
55102325	M22 x 1.5	45	95	17	4	•
55102326	M22 x 2	45	95	17	4	•
55102327	M22 x 2.5	55	115	17	4	•
55102328	M24 x 1.5	45	95	19	4	•
55102329	M24 x 2	45	95	19	4	•
55102340	M24 x 3	58	120	19	4	•
55102341	M27 x 3	62	130	20	4	•
55102342	M30 x 3.5	65	135	23	4	•



WORK MATERIAL			
P	GR1	CARBON STEEL	•
	GR2	<24 HRC LOW-ALLOYED STEEL	○
	GR3	<30 HRC HI-ALLOYED STEEL	○
H	GR4	<30~38 HRC HARDENED STEEL	
	GR5	<30~48 HRC HARDENED STEEL	
	GR6	<48~56 HRC HARDENED STEEL	
	GR7	<56~68 HRC HARDENED STEEL	
M	GR8	STAINLESS STEEL	○
K	GR9	CAST IRON	•
N	GR10	ALUMINIUM	•
	GR11	COPPER	•
	GR12	PLASTICS	•
	GR13	FRP CFRP COMPOSITE MATERIAL	
S	GR14	GRAPHITE	
	GR15	TITANIUM	
	GR16	NICKEL	
	GR17	HEAT-RESISTANT STEEL	



HAND TAPS (SET OF 3 PIECES)



UNIT: mm

ITEM NO.	SIZE x PITCH	Lc mm	L mm	d mm	FLUTE	SKS S730
55102343	#4 x 40 UNC	16	44	3	3	•
55102344	#5 x 40 UNC	18	46	4	3	•
55102345	#6 x 32 UNC	18	48	4	3	•
55102346	#8 x 32 UNC	20	52	5	3	•
55102347	#10 x 24 UNC	22	60	5.5	3	•
55102348	#12 x 24 UNC	22	60	5.5	3	•
55102349	#4 x 48 UNF	16	44	3	3	•
55102350	#5 x 44 UNF	18	46	4	3	•
55102351	#6 x 40 UNF	18	48	4	3	•
55102352	#8 x 36 UNF	20	52	5	3	•
55102353	#10 x 32 UNF	22	60	5.5	3	•
55102354	#12 x 28 UNF	22	60	5.5	3	•
55102355	1/8 x W40	18	46	4	3	•
55102356	3/16 x W24	22	60	5.5	3	•
55102357	1/4 x W20	24	62	6	3	•
55102358	5/16 x W18	30	70	6.1	3	•
55102359	3/8 x W16	35	75	7	4	•
55102360	7/16 x W14	38	80	8	4	•
55102361	1/2 x W12	42	85	9	4	•
55102362	9/16 x W12	42	90	10.5	4	•
55102363	5/8 x W11	45	95	12	4	•
55102364	3/4 x W10	50	105	14	4	•
55102365	7/8 x W9	55	110	17	4	•
55102366	1 x W8	60	125	20	4	•



WORK MATERIAL		
P	GR1	CARBON STEEL •
	GR2	<24 HRC LOW-ALLOYED STEEL ○
	GR3	<30 HRC HI-ALLOYED STEEL ○
	GR4	<30~38 HRC HARDENED STEEL
H	GR5	<30~48 HRC HARDENED STEEL
	GR6	<48~56 HRC HARDENED STEEL
	GR7	<56~68 HRC HARDENED STEEL
M	GR8	STAINLESS STEEL ○
K	GR9	CAST IRON •
N	GR10	ALUMINIUM •
	GR11	COPPER •
	GR12	PLASTICS •
	GR13	FRP CFRP COMPOSITE MATERIAL
S	GR14	GRAPHITE
	GR15	TITANIUM
	GR16	NICKEL
	GR17	HEAT-RESISTANT STEEL



E “ CUTTING TOOLS

TAPER PIPE TAPS FOR PT THREADS



ITEM NO.	SIZE x PITCH	Lc mm	L mm	d mm	NO. OF	SKS S731
55102367	PT 1/16-28	19	55	6.5	4	•
55102368	PT 1/8-28	19	55	8	4	•
55102369	PT 1/4-19	28	62	11	4	•
55102370	PT 3/8-19	28	65	14	4	•
55102371	PT 1/2-14	35	80	18	4	•
55102372	PT 3/4-14	35	85	23	4	•
55102373	PT 1-11	45	95	26	5	•
55102374	PT 1 x 1/4-11	45	105	32	5	•
55102375	PT 1 x 1/2-11	45	110	38	6	•
55102376	PT 2-11	50	120	46	6	•



STRAIGHT PIPE TAPS FOR PS THREADS



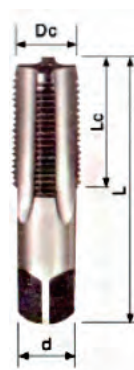
ITEM NO.	SIZE x PITCH	Lc mm	L mm	d mm	NO. OF	SKS S732
55102377	PS 1/8-28	19	55	8	4	•
55102378	PS 1/4-19	28	62	11	4	•
55102379	PS 3/8-19	28	65	14	4	•
55102380	PS 1/2-14	35	80	18	4	•
55102381	PS 3/4-14	35	85	23	4	•
55102382	PS 1-11	45	95	26	5	•
55102383	PS 1 x 1/4-11	45	105	32	5	•
55102384	PS 1 x 1/2-11	45	110	38	6	•
55102385	PS 2-11	50	120	46	6	•



STRAIGHT PIPE TAPS FOR PT THREADS



ITEM NO.	SIZE x PITCH	Lc mm	L mm	d mm	NO. OF	SKS S733
55102386	PF 1/8-28	19	55.8	8	4	•
55102387	PF 1/4-19	28	62	11	4	•
55102388	PF 3/8-19	28	65	14	4	•
55102389	PF 1/2-14	35	80	18	4	•
55102390	PF 3/4-14	35	85	23	4	•
55102391	PF 1-11	45	95	26	5	•
55102392	PF 1 x 1/4-11	45	105	32	5	•
55102393	PF 1 x 1/2-11	45	110	38	6	•
55102394	PF 2-11	50	120	46	6	•

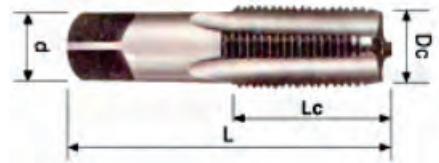


WORK MATERIAL

P	GR1	CARBON STEEL	•
	GR2	<24 HRC LOW-ALLOYED STEEL	○
	GR3	<30 HRC HI-ALLOYED STEEL	○
H	GR4	<30~38 HRC HARDENED STEEL	
	GR5	<30~48 HRC HARDENED STEEL	
	GR6	<48~56 HRC HARDENED STEEL	
	GR7	<56~68 HRC HARDENED STEEL	
M	GR8	STAINLESS STEEL	○
K	GR9	CAST IRON	•
N	GR10	ALUMINIUM	•
	GR11	COPPER	•
	GR12	PLASTICS	•
	GR13	FRP CFRP COMPOSITE MATERIAL	
S	GR14	GRAPHITE	
	GR15	TITANIUM	
	GR16	NICKEL	
	GR17	HEAT- RESISTANT STEEL	



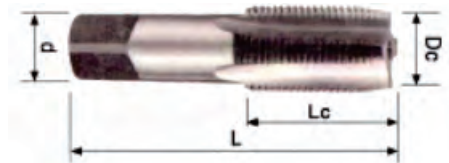
AMERICAN TAPER PIPE TAPS FOR NPT THREADS



ITEM NO.	SIZE x PITCH	Lc mm	L mm	d mm	NO. OF	SKS S734
55102395	NPT 1/8-27	19	55	8	4	•
55102396	NPT 1/4-18	28	62	11	4	•
55102397	NPT 3/8-18	28	65	14	4	•
55102398	NPT 1/2-14	35	80	18	4	•
55102399	NPT 3/4-14	35	85	23	4	•
55102400	NPT 1-11 1/2	45	95	26	5	•



STRAIGHT PIPE TAPS FOR NPS THREADS



ITEM NO.	SIZE x PITCH	Lc mm	L mm	d mm	NO. OF	SKS S735
55102401	NPS 1/8-27	19	55	8	4	•
55102402	NPS 1/4-18	28	62	11	4	•
55102403	NPS 3/8-18	28	65	14	4	•
55102404	NPS 1/2-14	35	80	18	4	•
55102405	NPS 3/4-14	35	85	23	4	•
55102406	NPS 1-11 1/2	45	95	26	5	•
55102407	NPS 1 x 1/4-11 1/2	45	105	32	5	•
55102408	NPS 1 x 1/2-11 1/2	45	110	38	6	•
55102409	NPS 2 x -11 1/2	50	120	46	6	•

WORK MATERIAL			
P	GR1	CARBON STEEL	•
	GR2	<24 HRC LOW-ALLOYED STEEL	○
	GR3	<30 HRC HI-ALLOYED STEEL	○
H	GR4	<30~38 HRC HARDENED STEEL	
	GR5	<30~48 HRC HARDENED STEEL	
	GR6	<48~56 HRC HARDENED STEEL	
	GR7	<56~68 HRC HARDENED STEEL	
M	GR8	STAINLESS STEEL	○
K	GR9	CAST IRON	•
N	GR10	ALUMINIUM	•
	GR11	COPPER	•
	GR12	PLASTICS	•
	GR13	FRP CFRP COMPOSITE MATERIAL	
S	GR14	GRAPHITE	
	GR15	TITANIUM	
	GR16	NICKEL	
	GR17	HEAT- RESISTANT STEEL	



E “ CUTTING TOOLS



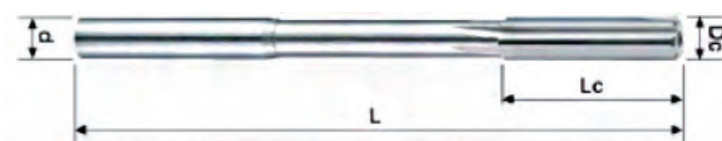
REAMERS

REAMERS (MACHINE / NC MACHINE / ADJUSTMENT / HAND)

	R300	(P E224)	MG Carbide	Uncoated Blank		
	R301	(P E225)	MG Carbide	Uncoated Blank		
	R302	(P E226)	MG Carbide	Uncoated Blank		
	R303	(P E227)	MG Carbide	Uncoated Blank		
	R305	(P E228)	MG Carbide	Uncoated Blank		
	R308	(P E229)	MG Carbide	Uncoated Blank		
	R308	(P E230) (P E231)	MG Carbide	Uncoated Blank		
	R309	(P E232) (P E233)	MG Carbide	Uncoated Blank		
	R319	(P E234) (P E235)	MG Carbide	Uncoated Blank		
	R329	(P E236) (P E237)	MG Carbide	Uncoated Blank		



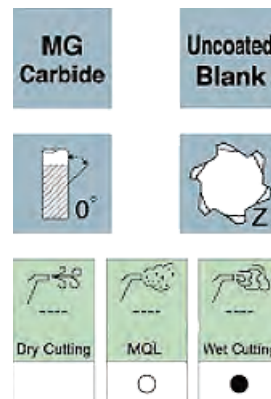
MACHINE REAMERS / DIN



ITEM NO.	Dc H7	Lc mm	L mm	d mm	Z teeth	BLANK R300
55103203	2	11	49	2	4	•
55103204	2.5	14	57	2.5	4	•
55103205	3	15	61	3	4	•
55103206	3.5	18	70	3.5	4	•
55103207	4	19	75	4	4	•
55103208	4.5	21	80	4.5	4	•
55103209	5	23	86	5	6	•
55103210	6	26	93	6	6	•
55103211	7	31	109	7	6	•
55103212	8	33	117	8	6	•
55103213	9	36	125	9	6	•
55103214	10	38	133	10	6	•
55103215	11	41	142	10	6	•
55103216	12	44	151	10	6	•
55103217	13	44	151	10	6	•
55103218	14	47	160	12.5	6	•
55103219	15	50	162	12.5	6	•
55103220	16	52	170	12.5	6	•
55103221	18	56	182	14.0	6	•
55103222	20	60	195	16.0	6	•

※ 2.0 - 9.5 SOLID CARBIDE

※ 10.0 - 20.0 CARBIDE TIPPED



WORK MATERIAL		
P	GR1	CARBON STEEL •
	GR2	<24 HRC LOW-ALLOYED STEEL •
	GR3	<30 HRC HI-ALLOYED STEEL •
H	GR4	<30~38 HRC HARDENED STEEL •
	GR5	<30~48 HRC HARDENED STEEL •
	GR6	<48~56 HRC HARDENED STEEL ○
	GR7	<56~68 HRC HARDENED STEEL
M	GR8	STAINLESS STEEL
K	GR9	CAST IRON •
N	GR10	ALUMINIUM ○
	GR11	COPPER ○
	GR12	PLASTICS
	GR13	FRP CFRP COMPOSITE MATERIAL
S	GR14	GRAPHITE
	GR15	TITANIUM
	GR16	NICKEL
	GR17	HEAT-RESISTANT STEEL



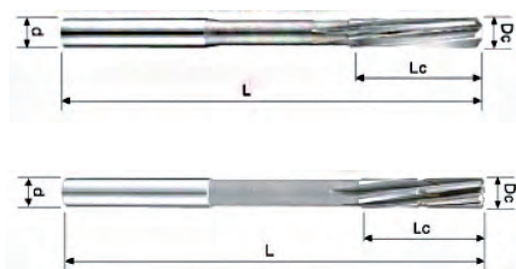
E6 - REAMERS

CUTTING TOOLS

E “ CUTTING TOOLS



MACHINE REAMERS / DIN



ITEM NO.	Dc H7	Lc mm	L mm	d mm	Z teeth	BLANK R301
55103223	2	11	49	2	4	•
55103224	2.5	14	57	2.5	4	•
55103225	3	15	61	3	4	•
55103226	3.5	18	70	3.5	4	•
55103227	4	19	75	4	4	•
55103228	4.5	21	80	4.5	4	•
55103229	5	23	86	5	6	•
55103230	5.5	26	93	5.5	6	•
55103231	6	26	93	6	6	•
55103232	6.5	28	101	6.5	6	•
55103233	7	31	109	7	6	•
55103234	7.5	31	109	7.5	6	•
55103235	8	33	117	8	6	•
55103236	8.5	33	117	8.5	6	•
55103237	9	36	125	9	6	•
55103238	9.5	36	125	9.5	6	•
55103239	10	38	133	10	6	•
55103240	10.5	38	133	10	6	•
55103241	11	41	142	10	6	•
55103242	11.5	41	142	10	6	•
55103243	12	44	151	10	6	•
55103244	12.5	44	151	10	6	•
55103245	13	44	151	10	6	•
55103246	13.5	47	160	12.5	6	•
55103247	14	47	160	12.5	6	•
55103248	14.5	50	162	12.5	6	•
55103249	15	50	162	12.5	6	•
55103250	15.5	52	170	12.5	6	•
55103251	16	52	170	12.5	6	•
55103252	17	54	175	14	6	•
55103253	18	56	182	14	6	•
55103254	19	58	189	16	6	•
55103255	20	60	195	16	6	•

※ 2.0 - 9.5 SOLID CARBIDE

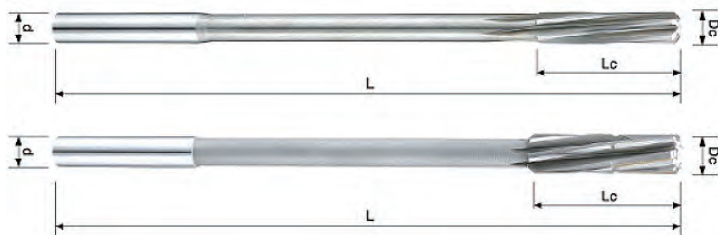
※ 10.0 - 20.0 CARBIDE TIPPED

WORK MATERIAL

P	GR1	CARBON STEEL	•
	GR2	<24 HRC LOW-ALLOYED STEEL	•
	GR3	<30 HRC HI-ALLOYED STEEL	•
H	GR4	<30~38 HRC HARDENED STEEL	•
	GR5	<30~48 HRC HARDENED STEEL	•
	GR6	<48~56 HRC HARDENED STEEL	○
	GR7	<56~68 HRC HARDENED STEEL	
M	GR8	STAINLESS STEEL	
K	GR9	CAST IRON	•
N	GR10	ALUMINIUM	○
	GR11	COPPER	○
	GR12	PLASTICS	
	GR13	FRP CFRP COMPOSITE MATERIAL	
S	GR14	GRAPHITE	
	GR15	TITANIUM	
	GR16	NICKEL	
	GR17	HEAT- RESISTANT STEEL	



MACHINE REAMERS LONG LENGTH / DIN



ITEM NO.	Dc H7	Lc mm	L mm	d mm	Z teeth	BLANK R302
55103256	3	15	100	3	4	•
55103257	3.5	18	112	3.5	4	•
55103258	4	19	119	4	4	•
55103259	4.5	21	126	4.5	4	•
55103260	5	23	132	5	6	•
55103261	6	26	139	6	6	•
55103262	7	31	156	7	6	•
55103263	8	33	165	8	6	•
55103264	9	36	175	9	6	•
55103265	10	38	184	10	6	•
55103266	11	41	195	10	6	•
55103267	12	44	205	10	6	•
55103268	13	44	205	10	6	•
55103269	14	47	214	12.5	6	•
55103270	15	50	220	12.5	6	•
55103271	16	54	227	12.5	6	•
55103272	17	52	235	14	6	•
55103273	18	56	241	14	6	•
55103274	19	58	247	16	6	•
55103275	20	60	254	16	6	•

※ 3.0 - 9.0 SOLID CARBIDE

※ 10.0 - 20.0 CARBIDE TIPPED

WORK MATERIAL			
P	GR1	CARBON STEEL	•
	GR2	<24 HRC LOW-ALLOYED STEEL	•
	GR3	<30 HRC HI-ALLOYED STEEL	•
H	GR4	<30~38 HRC HARDENED STEEL	•
	GR5	<30~48 HRC HARDENED STEEL	•
	GR6	<48~56 HRC HARDENED STEEL	○
	GR7	<56~68 HRC HARDENED STEEL	
M	GR8	STAINLESS STEEL	
K	GR9	CAST IRON	•
N	GR10	ALUMINIUM	○
	GR11	COPPER	○
	GR12	PLASTICS	
	GR13	FRP CFRP COMPOSITE MATERIAL	
S	GR14	GRAPHITE	
	GR15	TITANIUM	
	GR16	NICKEL	
	GR17	HEAT- RESISTANT STEEL	



E6 - REAMERS

CUTTING TOOLS

E “ CUTTING TOOLS



MACHINE REAMERS CARBIDE TIPPED / DIN

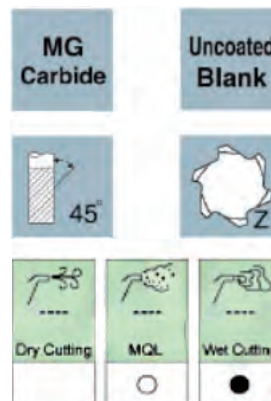


ITEM NO.	Dc H7	Lc mm	L mm	d M.T.	Z teeth	BLANK R303
55103276	10	38	168	1	6	•
55103277	11	41	175	1	6	•
55103278	12	44	182	1	6	•
55103279	13	44	182	1	6	•
55103280	14	47	189	1	6	•
55103281	15	50	204	2	6	•
55103282	16	52	210	2	6	•
55103283	17	54	214	2	6	•
55103284	18	56	219	2	6	•
55103285	19	58	223	2	6	•
55103286	20	60	228	2	6	•
55103287	22	64	237	2	6	•
55103288	24	68	268	3	8	•
55103289	25	68	268	3	8	•
55103290	26	70	273	3	8	•
55103291	28	71	277	3	8	•
55103292	30	73	281	3	8	•
55103293	32	77	317	4	8	•
55103294	35	78	321	4	8	•
55103295	36	79	325	4	8	•
55103296	38	81	329	4	8	•
55103297	40	81	329	4	8	•

WORK MATERIAL			
P	GR1	CARBON STEEL	•
	GR2	<24 HRC LOW-ALLOYED STEEL	•
	GR3	<30 HRC HI-ALLOYED STEEL	•
H	GR4	<30~38 HRC HARDENED STEEL	•
	GR5	<30~48 HRC HARDENED STEEL	•
	GR6	<48~56 HRC HARDENED STEEL	○
	GR7	<56~68 HRC HARDENED STEEL	
M	GR8	STAINLESS STEEL	
K	GR9	CAST IRON	•
N	GR10	ALUMINIUM	○
	GR11	COPPER	○
	GR12	PLASTICS	
	GR13	FRP CFRP COMPOSITE MATERIAL	
S	GR14	GRAPHITE	
	GR15	TITANIUM	
	GR16	NICKEL	
	GR17	HEAT- RESISTANT STEEL	



MACHINE REAMERS 45° LEFT HAND HELIX / DIN



ITEM NO.	Dc H7	Lc mm	L mm	d mm	Z teeth	BLANK R305
55103298	3	20	105	3	3	•
55103299	3.5	20	105	3.5	3	•
55103300	4	20	105	4	3	•
55103301	4.5	20	105	4.5	3	•
55103302	5	25	130	5	3	•
55103303	5.5	25	130	5.5	3	•
55103304	6	25	130	6	3	•
55103305	6.5	25	130	6.5	3	•
55103306	7	25	130	7	3	•
55103307	8	25	130	8	3	•
55103308	9	30	150	9	3	•
55103309	10	30	150	10	3	•
55103310	11	30	170	11	3	•
55103311	12	30	170	12	3	•
55103312	13	35	170	13	3	•
55103313	14	35	210	14	3	•
55103314	15	35	210	15	4	•
55103315	16	35	210	16	4	•
55103316	20	35	260	20	4	•

WORK MATERIAL

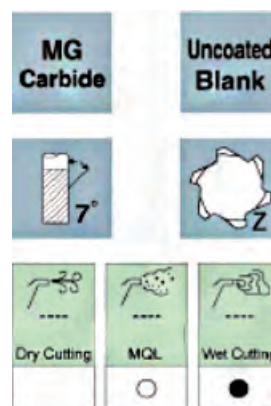
P	GR1	CARBON STEEL	•
	GR2	<24 HRC LOW-ALLOYED STEEL	•
	GR3	<30 HRC HI-ALLOYED STEEL	•
	GR4	<30~38 HRC HARDENED STEEL	
H	GR5	<30~48 HRC HARDENED STEEL	
	GR6	<48~56 HRC HARDENED STEEL	
	GR7	<56~68 HRC HARDENED STEEL	
M	GR8	STAINLESS STEEL	
K	GR9	CAST IRON	
N	GR10	ALUMINIUM	•
	GR11	COPPER	•
	GR12	PLASTICS	
	GR13	FRP CFRP COMPOSITE MATERIAL	
S	GR14	GRAPHITE	
	GR15	TITANIUM	
	GR16	NICKEL	
	GR17	HEAT- RESISTANT STEEL	



E “ CUTTING TOOLS



MACHINE REAMERS / DIN



ITEM NO.	Dc H7	Lc mm	L mm	Z teeth	BLANK R308
55103317	1	6	34	4	•
55103319	1.2	7	38	4	•
55103321	1.4	8	40	4	•
55103322	1.5	8	40	4	•
55103323	1.6	9	43	4	•
55103325	1.8	10	46	4	•
55103327	2	11	449	4	•
55103329	2.2	12	53	4	•
55103332	2.5	14	57	4	•
55103335	2.8	15	61	4	•
55103337	3	15	61	4	•
55103339	3.2	16	65	4	•
55103342	3.5	18	70	4	•
55103347	4	19	75	4	•
55103352	4.5	21	80	4	•
55103357	5	23	86	6	•
55103362	5.5	26	93	6	•
55103367	6	26	93	6	•
55103372	6.5	28	101	6	•
55103377	7	31	109	6	•
55103382	7.5	31	109	6	•
55103387	8	33	117	6	•
55103392	8.5	33	117	6	•
55103397	9	36	125	6	•
55103402	9.5	36	125	6	•
55103407	10	38	133	6	•
55103412	10.5	38	133	6	•
55103417	11	41	142	6	•
55103422	11.5	41	142	6	•
55103427	12	44	151	6	•

※ Dc=d.

※ 1.0-12.0 SOLID CARBIDE

WORK MATERIAL			
P	GR1	CARBON STEEL	•
	GR2	<24 HRC LOW-ALLOYED STEEL	•
	GR3	<30 HRC HI-ALLOYED STEEL	•
H	GR4	<30~38 HRC HARDENED STEEL	•
	GR5	<30~48 HRC HARDENED STEEL	•
	GR6	<48~56 HRC HARDENED STEEL	○
	GR7	<56~68 HRC HARDENED STEEL	
M	GR8	STAINLESS STEEL	
K	GR9	CAST IRON	•
N	GR10	ALUMINIUM	○
	GR11	COPPER	○
	GR12	PLASTICS	
	GR13	FRP CFRP COMPOSITE MATERIAL	
S	GR14	GRAPHITE	
	GR15	TITANIUM	
	GR16	NICKEL	
	GR17	HEAT- RESISTANT STEEL	



MACHINE REAMERS IN STEP OF 0.1 mm / DIN



ITEM NO.	Dc H7	Lc mm	L mm	Z teeth	BLANK R308
55103317	1	6	34	4	•
55103318	1.1	7	36	4	•
55103319	1.2	7	38	4	•
55103320	1.3	7	38	4	•
55103321	1.4	8	40	4	•
55103322	1.5	8	40	4	•
55103323	1.6	9	43	4	•
55103324	1.7	9	43	4	•
55103325	1.8	10	46	4	•
55103326	1.9	10	46	4	•
55103327	2	11	49	4	•
55103328	2.1	11	49	4	•
55103329	2.2	12	53	4	•
55103330	2.3	12	53	4	•
55103331	2.4	14	57	4	•
55103332	2.5	14	57	4	•
55103333	2.6	14	57	4	•
55103334	2.7	15	61	4	•
55103335	2.8	15	61	4	•
55103336	2.9	15	61	4	•
55103337	3	15	61	4	•
55103338	3.1	16	65	4	•
55103339	3.2	16	65	4	•
55103340	3.3	16	65	4	•
55103341	3.4	18	70	4	•
55103342	3.5	18	70	4	•
55103343	3.6	18	70	4	•
55103344	3.7	18	70	4	•
55103345	3.8	19	75	4	•
55103346	3.9	19	75	4	•

ITEM NO.	Dc H7	Lc mm	L mm	Z teeth	BLANK R308
55103347	4	19	75	4	•
55103348	4.1	19	75	4	•
55103349	4.2	21	75	4	•
55103350	4.3	21	80	4	•
55103351	4.4	21	80	4	•
55103352	4.5	21	80	4	•
55103353	4.6	21	80	6	•
55103354	4.7	23	80	6	•
55103355	4.8	23	86	6	•
55103356	4.9	23	86	6	•
55103357	5	23	86	6	•
55103358	5.1	23	86	6	•
55103359	5.2	23	86	6	•
55103360	5.3	26	86	6	•
55103361	5.4	26	93	6	•
55103362	5.5	26	93	6	•
55103363	5.6	26	93	6	•
55103364	5.7	26	93	6	•
55103365	5.8	26	93	6	•
55103366	5.9	26	93	6	•
55103367	6	2628	93	6	•
55103368	6.1	28	101	6	•
55103369	6.2	28	101	6	•
55103370	6.3	28	101	6	•
55103371	6.4	28	101	6	•
55103372	6.5	28	101	6	•
55103373	6.6	28	101	6	•
55103374	6.7	31	101	6	•
55103375	6.8	31	109	6	•
55103376	6.9	31	109	6	•

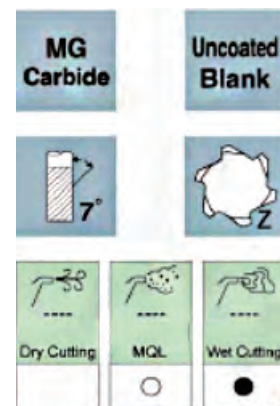
※ Dc=d

WORK MATERIAL		
P	GR1	CARBON STEEL
	GR2	<24 HRC LOW-ALLOYED STEEL
	GR3	<30 HRC HI-ALLOYED STEEL
H	GR4	<30~38 HRC HARDENED STEEL
	GR5	<30~48 HRC HARDENED STEEL
	GR6	<48~56 HRC HARDENED STEEL
	GR7	<56~68 HRC HARDENED STEEL
M	GR8	STAINLESS STEEL
K	GR9	CAST IRON
N	GR10	ALUMINIUM
	GR11	COPPER
	GR12	PLASTICS
	GR13	FRP CFRP COMPOSITE MATERIAL
	GR14	GRAPHITE
S	GR15	TITANIUM
	GR16	NICKEL
	GR17	HEAT- RESISTANT STEEL

E “ CUTTING TOOLS



MACHINE REAMERS IN STEP OF 0.1 mm / DIN



ITEM NO.	Dc H7	Lc mm	L mm	Z teeth	BLANK R308
55103377	7	31	109	6	•
55103378	7.1	31	109	6	•
55103379	7.2	31	109	6	•
55103380	7.3	31	109	6	•
55103381	7.4	31	109	6	•
55103382	7.5	31	109	6	•
55103383	7.6	33	117	6	•
55103384	7.7	33	117	6	•
55103385	7.8	33	117	6	•
55103386	7.9	33	117	6	•
55103387	8	33	117	6	•
55103388	8.1	33	117	6	•
55103389	8.2	33	117	6	•
55103390	8.3	33	117	6	•
55103391	8.4	33	117	6	•
55103392	8.5	33	117	6	•
55103393	8.6	36	125	6	•
55103394	8.7	36	125	6	•
55103395	8.8	36	125	6	•
55103396	8.9	36	125	6	•
55103397	9	36	125	6	•
55103398	9.1	36	125	6	•
55103399	9.2	36	125	6	•
55103400	9.3	36	125	6	•
55103401	9.4	36	125	6	•
55103402	9.5	36	125	6	•
55103403	9.6	38	133	6	•
55103404	9.7	38	133	6	•
55103405	9.8	38	133	6	•
55103406	9.9	38	133	6	•

ITEM NO.	Dc H7	Lc mm	L mm	Z teeth	BLANK R308
55103407	10	38	133	6	•
55103408	10.1	38	133	6	•
55103409	10.2	38	133	6	•
55103410	10.3	38	133	6	•
55103411	10.4	38	133	6	•
55103412	10.5	38	133	6	•
55103413	10.6	38	133	6	•
55103414	10.7	41	142	6	•
55103415	10.8	41	142	6	•
55103416	10.9	41	142	6	•
55103417	11	41	142	6	•
55103418	11.1	41	142	6	•
55103419	11.2	41	142	6	•
55103420	11.3	41	142	6	•
55103421	11.4	41	142	6	•
55103422	11.5	41	142	6	•
55103423	11.6	41	142	6	•
55103424	11.7	41	142	6	•
55103425	11.8	41	142	6	•
55103426	11.9	44	151	6	•
55103427	12	44	151	6	•

※Dc=d

WORK MATERIAL			
P	GR1	CARBON STEEL	●
	GR2	<24 HRC LOW-ALLOYED STEEL	●
	GR3	<30 HRC HI-ALLOYED STEEL	●
H	GR4	<30~38 HRC HARDENED STEEL	●
	GR5	<30~48 HRC HARDENED STEEL	●
	GR6	<48~56 HRC HARDENED STEEL	○
	GR7	<56~68 HRC HARDENED STEEL	
M	GR8	STAINLESS STEEL	
K	GR9	CAST IRON	●
N	GR10	ALUMINIUM	○
	GR11	COPPER	○
	GR12	PLASTICS	
	GR13	FRP CFRP COMPOSITE MATERIAL	
	GR14	GRAPHITE	
S	GR15	TITANIUM	
	GR16	NICKEL	
	GR17	HEAT- RESISTANT STEEL	



NC MACHINE REAMERS / DIN



ITEM NO.	Dc +0.003 -0	Lc mm	L mm	d h6	Z teeth	BLANK R309	ITEM NO.	Dc +0.003 -0	Lc mm	L mm	d h6	Z teeth	BLANK R309
55103428	2.95	15	61	3	4	•	55103458	5.03	23	86	5	6	•
55103429	2.96	15	61	3	4	•	55103459	5.04	23	86	5	6	•
55103430	2.97	15	61	3	4	•	55103460	5.05	26	86	5	6	•
55103431	2.98	15	61	3	4	•	55103461	5.95	26	93	6	6	•
55103432	2.99	15	61	3	4	•	55103462	5.96	26	93	6	6	•
55103433	3	15	61	3	4	•	55103463	5.97	26	93	6	6	•
55103434	3.01	15	61	3	4	•	55103464	5.98	26	93	6	6	•
55103435	3.02	15	61	3	4	•	55103465	5.99	26	93	6	6	•
55103436	3.03	15	61	3	4	•	55103466	6	26	93	6	6	•
55103437	3.04	15	61	3	4	•	55103467	6.01	26	93	6	6	•
55103438	3.05	15	61	3	4	•	55103468	6.02	26	93	6	6	•
55103439	3.95	19	75	4	4	•	55103469	6.03	26	93	6	6	•
55103440	3.96	19	75	4	4	•	55103470	6.04	26	93	6	6	•
55103441	3.97	19	75	4	4	•	55103471	6.05	26	93	6	6	•
55103442	3.98	19	75	4	4	•	55103472	6.95	31	93	7	6	•
55103443	3.99	19	75	4	4	•	55103473	6.96	31	109	7	6	•
55103444	4	19	75	4	4	•	55103474	6.97	31	109	7	6	•
55103445	4.01	19	75	4	4	•	55103475	6.98	31	109	7	6	•
55103446	4.02	19	75	4	4	•	55103476	6.99	31	109	7	6	•
55103447	4.03	19	75	4	4	•	55103477	7	31	109	7	6	•
55103448	4.04	19	75	4	4	•	55103478	7.01	31	109	7	6	•
55103449	4.05	19	75	4	4	•	55103479	7.02	31	109	7	6	•
55103450	4.95	23	86	5	6	•	55103480	7.03	31	109	7	6	•
55103451	4.96	23	86	5	6	•	55103481	7.04	31	109	7	6	•
55103452	4.97	23	86	5	6	•	55103482	7.05	31	109	7	6	•
55103453	4.98	23	86	5	6	•	55103483	7.95	33	117	8	6	•
55103454	4.99	23	86	5	6	•	55103484	7.96	33	117	8	6	•
55103455	5	23	86	5	6	•	55103485	7.97	33	117	8	6	•
55103456	5.01	23	86	5	6	•	55103486	7.98	33	117	8	6	•
55103457	5.02	23	86	5	6	•	55103487	7.99	33	117	8	6	•

WORK MATERIAL		
P	GR1	CARBON STEEL •
	GR2	<24 HRC LOW-ALLOYED STEEL •
	GR3	<30 HRC HI-ALLOYED STEEL •
H	GR4	<30~38 HRC HARDENED STEEL •
	GR5	<30~48 HRC HARDENED STEEL •
	GR6	<48~56 HRC HARDENED STEEL ○
	GR7	<56~68 HRC HARDENED STEEL
M	GR8	STAINLESS STEEL
K	GR9	CAST IRON •
N	GR10	ALUMINIUM ○
	GR11	COPPER ○
	GR12	PLASTICS
	GR13	FRP CFRP COMPOSITE MATERIAL
S	GR14	GRAPHITE
	GR15	TITANIUM
	GR16	NICKEL
	GR17	HEAT-RESISTANT STEEL

E “ CUTTING TOOLS



NC MACHINE REAMERS / DIN



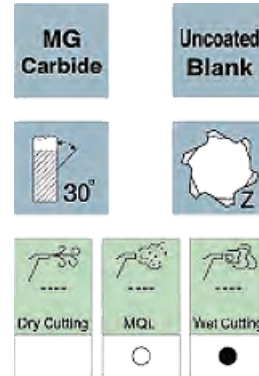
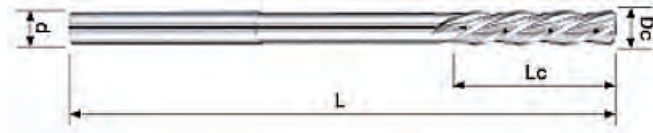
ITEM NO.	Dc +0.003 -0	Lc mm	L mm	d h6	Z teeth	BLANK R309
55103488	8	33	117	8	6	•
55103489	8.01	33	117	8	6	•
55103490	8.02	33	117	8	6	•
55103491	8.03	33	117	8	6	•
55103492	8.04	33	117	8	6	•
55103493	8.05	33	117	8	6	•
55103494	8.95	36	125	9	6	•
55103495	8.96	36	125	9	6	•
55103496	8.97	36	125	9	6	•
55103497	8.98	36	125	9	6	•
55103498	8.99	36	125	9	6	•
55103499	9	36	125	9	6	•
55103500	9.01	36	125	9	6	•
55103501	9.02	36	125	9	6	•
55103502	9.03	36	125	9	6	•
55103503	9.04	36	125	9	6	•
55103504	9.05	36	125	9	6	•
55103505	9.95	38	133	10	6	•
55103506	9.96	38	133	10	6	•
55103507	9.97	38	133	10	6	•
55103508	9.98	38	133	10	6	•
55103509	9.99	38	133	10	6	•
55103510	10	38	133	10	6	•
55103511	10.01	38	133	10	6	•
55103512	10.02	38	133	10	6	•
55103513	10.03	38	133	10	6	•
55103514	10.04	38	133	10	6	•
55103515	10.05	38	133	10	6	•
55103516	10.95	41	142	11	6	•
55103517	10.96	41	142	11	6	•

ITEM NO.	Dc +0.003 -0	Lc mm	L mm	d h6	Z teeth	BLANK R309
55103518	10.97	41	142	11	6	•
55103519	10.98	41	142	11	6	•
55103520	10.99	41	142	11	6	•
55103521	11	41	142	11	6	•
55103522	11.01	41	142	11	6	•
55103523	11.02	41	142	11	6	•
55103524	11.03	41	142	11	6	•
55103525	11.04	41	142	11	6	•
55103526	11.05	41	142	11	6	•
55103527	11.95	44	151	12	6	•
55103528	11.96	44	151	12	6	•
55103529	11.97	44	151	12	6	•
55103530	11.98	44	151	12	6	•
55103531	11.99	44	151	12	6	•
55103532	12	44	151	12	6	•
55103533	12.01	44	151	12	6	•
55103534	12.02	44	151	12	6	•
55103535	12.03	44	151	12	6	•
55103536	12.04	44	151	12	6	•
55103537	12.05	44	151	12	6	•

WORK MATERIAL		
P	GR1	CARBON STEEL
	GR2	<24 HRC LOW-ALLOYED STEEL
	GR3	<30 HRC HI-ALLOYED STEEL
H	GR4	<30~38 HRC HARDENED STEEL
	GR5	<30~48 HRC HARDENED STEEL
	GR6	<48~56 HRC HARDENED STEEL
	GR7	<56~68 HRC HARDENED STEEL
M	GR8	STAINLESS STEEL
K	GR9	CAST IRON
N	GR10	ALUMINIUM
	GR11	COPPER
	GR12	PLASTICS
	GR13	FRP CFRP COMPOSITE MATERIAL
S	GR14	GRAPHITE
	GR15	TITANIUM
	GR16	NICKEL
	GR17	HEAT-RESISTANT STEEL



NC MACHINE REAMERS LEFT HAND HELIX / DIN



ITEM NO.	Dc +0.003 -0	Lc mm	L mm	d h6	Z teeth	BLANK R319	ITEM NO.	Dc +0.003 -0	Lc mm	L mm	d h6	Z teeth	BLANK R319
55103538	2.95	15	61	3	4	•	55103568	5.03	23	86	5	4	•
55103539	2.96	15	61	3	4	•	55103569	5.04	23	86	5	4	•
55103540	2.97	15	61	3	4	•	55103570	5.05	26	86	5	4	•
55103541	2.98	15	61	3	4	•	55103571	5.95	26	93	6	4	•
55103542	2.99	15	61	3	4	•	55103572	5.96	26	93	6	4	•
55103543	3	15	61	3	4	•	55103573	5.97	26	93	6	4	•
55103544	3.01	15	61	3	4	•	55103574	5.98	26	93	6	4	•
55103545	3.02	15	61	3	4	•	55103575	5.99	26	93	6	4	•
55103546	3.03	15	61	3	4	•	55103576	6	26	93	6	4	•
55103547	3.04	15	61	3	4	•	55103577	6.01	26	93	6	4	•
55103548	3.05	15	61	3	4	•	55103578	6.02	26	93	6	4	•
55103549	3.95	19	75	4	4	•	55103579	6.03	26	93	6	4	•
55103550	3.96	19	75	4	4	•	55103580	6.04	26	93	6	4	•
55103551	3.97	19	75	4	4	•	55103581	6.05	26	93	6	4	•
55103552	3.98	19	75	4	4	•	55103582	6.95	31	109	7	4	•
55103553	3.99	19	75	4	4	•	55103583	6.96	31	109	7	4	•
55103554	4	19	75	4	4	•	55103584	6.97	31	109	7	4	•
55103555	4.01	19	75	4	4	•	55103585	6.98	31	109	7	4	•
55103556	4.02	19	75	4	4	•	55103586	6.99	31	109	7	4	•
55103557	4.03	19	75	4	4	•	55103587	7	31	109	7	4	•
55103558	4.04	19	75	4	4	•	55103588	7.01	31	109	7	4	•
55103559	4.05	19	75	4	4	•	55103589	7.02	31	109	7	4	•
55103560	4.95	23	86	5	4	•	55103590	7.03	31	109	7	4	•
55103561	4.96	23	86	5	4	•	55103591	7.04	31	109	7	4	•
55103562	4.97	23	86	5	4	•	55103592	7.05	31	109	7	4	•
55103563	4.98	23	86	5	4	•	55103593	7.95	33	117	8	4	•
55103564	4.99	23	86	5	4	•	55103594	7.96	33	117	8	4	•
55103565	5	23	86	5	4	•	55103595	7.97	33	117	8	4	•
55103566	5.01	23	86	5	4	•	55103596	7.98	33	117	8	4	•
55103567	5.02	23	86	5	4	•	55103597	7.99	33	117	8	4	•

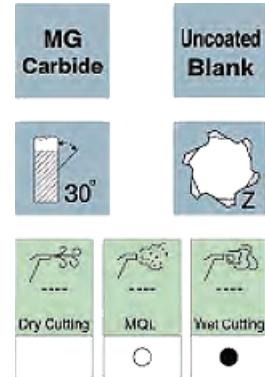
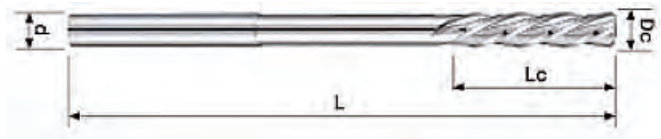
※ FOR THROUGH HOLE

WORK MATERIAL			
P	GR1	CARBON STEEL	●
	GR2	<24 HRC LOW-ALLOYED STEEL	●
	GR3	<30 HRC HI-ALLOYED STEEL	●
H	GR4	<30~38 HRC HARDENED STEEL	●
	GR5	<30~48 HRC HARDENED STEEL	●
	GR6	<48~56 HRC HARDENED STEEL	○
	GR7	<56~68 HRC HARDENED STEEL	
M	GR8	STAINLESS STEEL	●
K	GR9	CAST IRON	●
N	GR10	ALUMINIUM	○
	GR11	COPPER	○
	GR12	PLASTICS	
	GR13	FRP CFRP COMPOSITE MATERIAL	
	GR14	GRAPHITE	
S	GR15	TITANIUM	○
	GR16	NICKEL	○
	GR17	HEAT- RESISTANT STEEL	○

E “ CUTTING TOOLS



NC MACHINE REAMERS LEFT HAND HELIX / DIN



ITEM NO.	Dc +0.003 -0	Lc mm	L mm	d h6	Z teeth	BLANK R319
55103598	8	33	117	8	4	•
55103599	8.01	33	117	8	4	•
55103600	8.02	33	117	8	4	•
55103601	8.03	33	117	8	4	•
55103602	8.04	33	117	8	4	•
55103603	8.05	33	117	8	4	•
55103604	8.95	36	125	9	4	•
55103605	8.96	36	125	9	4	•
55103606	8.97	36	125	9	4	•
55103607	8.98	36	125	9	4	•
55103608	8.99	36	125	9	4	•
55103609	9	36	125	9	4	•
55103610	9.01	36	125	9	4	•
55103611	9.02	36	125	9	4	•
55103612	9.03	36	125	9	4	•
55103613	9.04	36	125	9	4	•
55103614	9.05	36	125	9	4	•
55103615	9.95	38	113	10	4	•
55103616	9.96	38	113	10	4	•
55103617	9.97	38	133	10	4	•
55103618	9.98	38	133	10	4	•
55103619	9.99	38	133	10	4	•
55103620	10	38	113	10	4	•
55103621	10.01	38	113	10	4	•
55103622	10.02	38	133	10	4	•
55103623	10.03	38	133	10	4	•
55103624	10.04	38	133	10	4	•
55103625	10.05	38	133	10	4	•
55103626	10.95	41	142	11	4	•
55103627	10.96	41	142	11	4	•

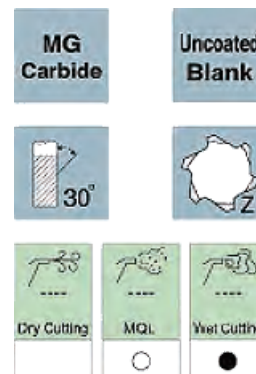
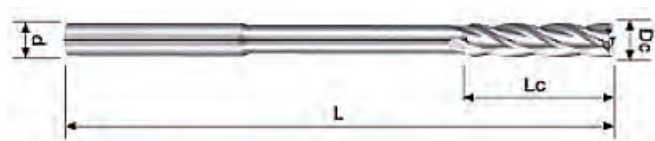
※ FOR THROUGH HOLE

ITEM NO.	Dc +0.003 -0	Lc mm	L mm	d h6	Z teeth	BLANK R319
55103628	10.97	41	142	11	4	•
55103629	10.98	41	142	11	4	•
55103630	10.99	41	142	11	4	•
55103631	11	41	142	11	4	•
55103632	11.01	41	142	11	4	•
55103633	11.02	41	142	11	4	•
55103634	11.03	41	142	11	4	•
55103635	11.04	41	142	11	4	•
55103636	11.05	41	142	11	4	•
55103637	11.95	44	151	12	4	•
55103638	11.96	44	151	12	4	•
55103639	11.97	44	151	12	4	•
55103640	11.98	44	151	12	4	•
55103641	11.99	44	151	12	4	•
55103642	12	44	151	12	4	•
55103643	12.01	44	151	12	4	•
55103644	12.02	44	151	12	4	•
55103645	12.03	44	151	12	4	•
55103646	12.04	44	151	12	4	•
55103647	12.05	44	151	12	4	•

WORK MATERIAL		
P	GR1	CARBON STEEL
	GR2	<24 HRC LOW-ALLOYED STEEL
	GR3	<30 HRC HI-ALLOYED STEEL
H	GR4	<30~38 HRC HARDENED STEEL
	GR5	<30~48 HRC HARDENED STEEL
	GR6	<48~56 HRC HARDENED STEEL
	GR7	<56~68 HRC HARDENED STEEL
M	GR8	STAINLESS STEEL
K	GR9	CAST IRON
N	GR10	ALUMINIUM
	GR11	COPPER
	GR12	PLASTICS
	GR13	FRP CFRP COMPOSITE MATERIAL
S	GR14	GRAPHITE
	GR15	TITANIUM
	GR16	NICKEL
	GR17	HEAT-RESISTANT STEEL



NC MACHINE REAMERS RIGHT HAND HELIX (END CUTTING) / DIN



ITEM NO.	Dc +0.003 -0	Lc mm	L mm	d h6	Z teeth	BLANK R329
55103648	2.95	15	61	3	4	•
55103649	2.96	15	61	3	4	•
55103650	2.97	15	61	3	4	•
55103651	2.98	15	61	3	4	•
55103652	2.99	15	61	3	4	•
55103653	3	15	61	3	4	•
55103654	3.01	15	61	3	4	•
55103655	3.02	15	61	3	4	•
55103656	3.03	15	61	3	4	•
55103657	3.04	15	61	3	4	•
55103658	3.05	15	61	3	4	•
55103659	3.95	19	75	4	4	•
55103660	3.96	19	75	4	4	•
55103661	3.97	19	75	4	4	•
55103662	3.98	19	75	4	4	•
55103663	3.99	19	75	4	4	•
55103664	4	19	75	4	4	•
55103665	4.01	19	75	4	4	•
55103666	4.02	19	75	4	4	•
55103667	4.03	19	75	4	4	•
55103668	4.04	19	75	4	4	•
55103669	4.05	19	75	4	4	•
55103670	4.95	23	86	5	4	•
55103671	4.96	23	86	5	4	•
55103672	4.97	23	86	5	4	•
55103673	4.98	23	86	5	4	•
55103674	4.99	23	86	5	4	•
55103675	5	23	86	5	4	•
55103676	5.01	23	86	5	4	•
55103677	5.02	23	86	5	4	•

ITEM NO.	Dc +0.003 -0	Lc mm	L mm	d h6	Z teeth	BLANK R329
55103678	5.03	23	86	5	4	•
55103679	5.04	23	86	5	4	•
55103679-1	5.05	26	86	5	4	•
55103680	5.95	26	93	6	4	•
55103681	5.96	26	93	6	4	•
55103682	5.97	26	93	6	4	•
55103683	5.98	26	93	6	4	•
55103684	5.99	26	93	6	4	•
55103685	6	26	93	6	4	•
55103686	6.01	26	93	6	4	•
55103687	6.02	26	93	6	4	•
55103688	6.03	26	93	6	4	•
55103689	6.04	26	93	6	4	•
55103690	6.05	26	93	6	4	•
55103691	6.95	31	93	6	4	•
55103692	6.96	31	109	7	4	•
55103693	6.97	31	109	7	4	•
55103694	6.98	31	109	7	4	•
55103695	6.99	31	109	7	4	•
55103696	7	31	109	7	4	•
55103697	7.01	31	109	7	4	•
55103698	7.02	31	109	7	4	•
55103699	7.03	31	109	7	4	•
55103700	7.04	31	109	7	4	•
55103701	7.05	31	109	7	4	•
55103702	7.95	33	117	8	4	•
55103703	7.96	33	117	8	4	•
55103704	7.97	33	117	8	4	•
55103705	7.98	33	117	8	4	•
55103706	7.99	33	117	8	4	•

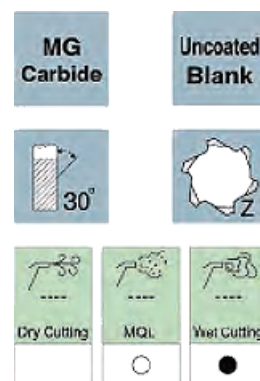
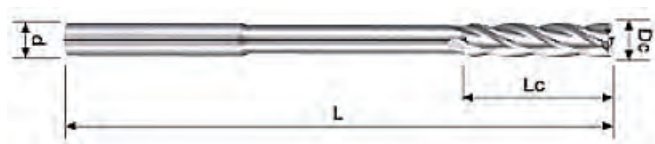
WORK MATERIAL		
P	GR1	CARBON STEEL •
	GR2	<24 HRC LOW-ALLOYED STEEL •
	GR3	<30 HRC HI-ALLOYED STEEL •
	GR4	<30~38 HRC HARDENED STEEL •
H	GR5	<30~48 HRC HARDENED STEEL •
	GR6	<48~56 HRC HARDENED STEEL ○
	GR7	<56~68 HRC HARDENED STEEL
M	GR8	STAINLESS STEEL •
K	GR9	CAST IRON •
	GR10	ALUMINIUM ○
N	GR11	COPPER ○
	GR12	PLASTICS
	GR13	FRP CFRP COMPOSITE MATERIAL
	GR14	GRAPHITE
S	GR15	TITANIUM ○
	GR16	NICKEL ○
	GR17	HEAT-RESISTANT STEEL ○

※ The reamers with internal coolant for stop holes. The bottom can be perfectly processwed.

E “ CUTTING TOOLS



NC MACHINE REAMERS RIGHT HAND HELIX (END CUTTING) / DIN



ITEM NO.	Dc +0.003 -0	Lc mm	L mm	d h6	Z teeth	BLANK R329
55103707	8	33	117	8	4	•
55103708	8.01	33	117	8	4	•
55103709	8.02	33	117	8	4	•
55103710	8.03	33	117	8	4	•
55103711	8.04	33	117	8	4	•
55103712	8.05	33	117	8	4	•
55103713	8.95	36	125	9	4	•
55103714	8.96	36	125	9	4	•
55103715	8.97	36	125	9	4	•
55103716	8.98	36	125	9	4	•
55103717	8.99	36	125	9	4	•
55103718	9	36	125	9	4	•
55103719	9.01	36	125	9	4	•
55103720	9.02	36	125	9	4	•
55103721	9.03	36	125	9	4	•
55103722	9.04	36	125	9	4	•
55103723	9.05	36	125	9	4	•
55103724	9.95	38	113	10	4	•
55103725	9.96	38	113	10	4	•
55103726	9.97	38	133	10	4	•
55103727	9.98	38	133	10	4	•
55103728	9.99	38	133	10	4	•
55103729	10	38	113	10	4	•
55103730	10.01	38	113	10	4	•
55103731	10.02	38	133	10	4	•
55103732	10.03	38	133	10	4	•
55103733	10.04	38	133	10	4	•
55103734	10.05	38	133	10	4	•
55103735	10.95	41	142	11	4	•
55103736	10.96	41	142	11	4	•

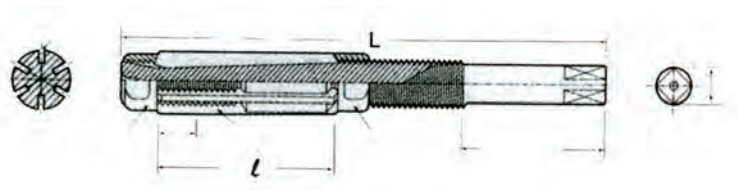
ITEM NO.	Dc +0.003 -0	Lc mm	L mm	d h6	Z teeth	BLANK R329
55103737	10.97	41	142	11	4	•
55103738	10.98	41	142	11	4	•
55103739	10.99	41	142	11	4	•
55103740	11	41	142	11	4	•
55103741	11.01	41	142	11	4	•
55103742	11.02	41	142	11	4	•
55103743	11.03	41	142	11	4	•
55103744	11.04	41	142	11	4	•
55103745	11.05	41	151	11	4	•
55103746	11.95	44	151	12	4	•
55103747	11.96	44	151	12	4	•
55103748	11.97	44	151	12	4	•
55103749	11.98	44	151	12	4	•
55103750	11.99	44	151	12	4	•
55103751	12	44	151	12	4	•
55103752	12.01	44	151	12	4	•
55103753	12.02	44	151	12	4	•
55103754	12.03	44	151	12	4	•
55103755	12.04	44	151	12	4	•
55103756	12.05	44	151	12	4	•

WORK MATERIAL		
P	GR1	CARBON STEEL
	GR2	<24 HRC LOW-ALLOYED STEEL
	GR3	<30 HRC HI-ALLOYED STEEL
H	GR4	<30~38 HRC HARDENED STEEL
	GR5	<30~48 HRC HARDENED STEEL
	GR6	<48~56 HRC HARDENED STEEL
	GR7	<56~68 HRC HARDENED STEEL
	GR8	STAINLESS STEEL
K	GR9	CAST IRON
N	GR10	ALUMINIUM
	GR11	COPPER
	GR12	PLASTICS
	GR13	FRP CFRP COMPOSITE MATERIAL
	GR14	GRAPHITE
S	GR15	TITANIUM
	GR16	NICKEL
	GR17	HEAT-RESISTANT STEEL

※ The reamers with internal coolant for stop holes. The bottom can be perfectly processed.



ADJUSTABLE REAMERS



UNIT: mm

ITEM NO.	MODEL	RANGE OF ADJUSTMENT	L OVERALL LENGTH	ℓ BLADE LENGTH	WEIGHT IN CASE (g)
55100654-1	9A	5.95~6.35	91	32	13
55100654	8A	6.35~7.15	83	35	13
55100655	7A	7.15~7.95	91	35	17
55100656	6A	7.95~8.70	107	38	26
55100657	5A	8.70~9.50	112	38	30
55100658	4A	9.50~10.25	121	38	37
55100659	3A	10.25~11	127	38	45
55100660	2A	11~12	134	42	59
55100661	A	12~13.5	141	42	71
55100662	B	13.5~15	146	45	90
55100663	C	15~16.75	166	53	129
55100664	D	16.75~18.25	172	56	172
55100665	E	18.25~19.75	178	64	227
55100666	F	19.75~21.50	188	67	292
55100667	G	21.50~23.75	204	76	393
55100668	H	23.75~27	230	83	525
55100669	I	27~30.25	254	86	785
55100670	J	30.25~34.25	280	98	945
55100671	K	34.25~38	305	109	1360
55100672	L	38~46	356	113	2115
55100673	M	46~56	407	128	3600
55100674	N	56~70	457	124	6140
55100675	O	70~85	509	135	9875



E6 - REAMERS

CUTTING TOOLS

E “ CUTTING TOOLS



ADJUSTABLE REAMERS SETS (WOODEN CASE)

✓ ITEM NO. 55103758
(6A-J 15PCS)



✓ ITEM NO. 55103759-1
(A-K 11PCS)

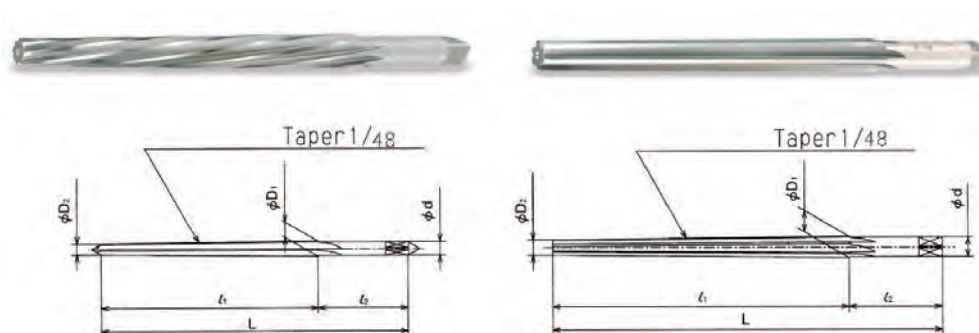


ITEM NO.	MODEL	SIZE / EXPANSION RANGE mm / inch		PACKING WEIGHT (kgs)
55103757	6A-F 11PCS	7.95 - 21.50	5/16" - 27/32"	1.87
55103758	6A-J 15PCS	7.95 - 34.25	5/16" - 1 11/32"	6.50
55103758-1	2A-E 6PCS	11.00 - 18.25	7/16" - 23/32"	1.2
55103759	A-H 8PCS	12.00 - 27.00	15/32" - 1 1/16"	2.55
55103759-1	A-K 11PCS	12.00 - 38.00	15/32" - 1 1/2"	5.70
55103760	4A-K 14PCS	9.50 - 38.00	3/8" - 1 1/2"	5.95
55103761	4A-M 16PCS	9.50 - 56.00	3/8" - 2 7/32"	11.50

※ PILOT SETS A-H 8 PCS (PILOT GUIDE ONLY)



TAPER PIN REAMERS (JIS)



UNIT: mm

ITEM NO.	MODEL	ØD1 DIAMETER	ØD2 SHANK DIAMETER	ℓ FLUTE LENGTH	L OVERALL LENGTH	d SHANK DIA
55100677-1	#4/0	2.23	2.90	32	58	4
55100677	#3/0	2.56	3.29	35	62	4
55100678	#2/0	2.89	3.68	38	70	4
55100679	#0	3.22	4.10	42	70	4
55100680	#1	3.70	4.64	45	75	5
55100681	#2	4.11	5.19	52	82	5
55100682	#3	4.64	5.85	58	90	5.5
55100683	#4	5.28	6.63	65	105	6
55100684	#5	6.09	7.72	78	115	7
55100685	#6	7.08	9.00	92	130	8
55100686	#7	8.40	10.80	115	155	9
55100687	#8	10.11	12.92	135	175	11
55100688	#9	12.24	15.47	155	205	13
55100689	#10	14.75	18.50	180	230	16
55100690	#11	17.93	22.31	210	285	19
55100691	#12	21.38	26.69	255	340	23

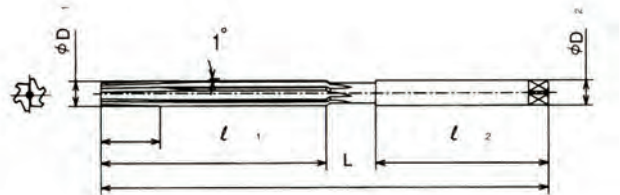


HAND REAMERS / JIS

STRAIGHT FLUTE



SPIRAL FLUTE



HIGH SPEED STEEL REAMERS

UNIT: mm

ITEM NO.	DIAMETER φD1	BLADE LENGTH ℓ	OVERALL LENGTH L	NOS. OF BLADES
55103762	2.0	30	60	4
55103763	2.5	35	65	4
55103764	3.0	40	72	6
55103765	3.5	40	72	6
55103766	4.0	40	80	6
55103767	4.5	45	85	6
55103768	5.0	45	90	6
55103769	5.5	45	95	6
55103770	6.0	50	100	6
55103771	6.5	50	100	6
55103772	7.0	55	105	6
55103773	7.5	55	110	6
55103774	8.0	60	115	6
55103775	8.5	60	120	6
55103776	9.0	65	125	6
55103777	9.5	65	125	6
55103778	10.0	70	130	6
55103779	11.0	75	140	6
55103780	12.0	75	150	6
55103781	13.0	80	160	8
55103782	14.0	85	165	8
55103783	15.0	90	175	8
55103784	16.0	95	185	8
55103785	17.0	100	190	8
55103786	18.0	105	200	8
55103787	19.0	105	210	8
55103788	20.0	110	220	8
55103789	21.0	120	230	8
55103790	22.0	120	235	8
55103791	23.0	130	250	8
55103792	24.0	130	255	8
55103793	25.0	130	260	8
55103794	26.0	140	270	10

UNIT: mm

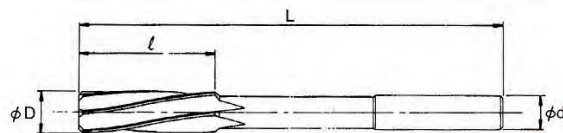
ITEM NO.	DIAMETER	BLADE LENGTH	OVERALL LENGTH	SHANK LENGTH	CHAMFER LENGTH
55103795	1 / 8"	40	72	23	8
55103796	3 / 16"	45	90	35	9
55103797	1 / 4"	50	100	38	10
55103798	5 / 16"	60	115	42	12
55103799	3 / 8"	70	130	45	13
55103800	7 / 16"	75	140	50	15
55103801	1 / 2"	80	160	62	16
55103802	9 / 16"	90	170	62	18
55103803	5 / 8"	95	185	70	19
55103804	11 / 16"	105	200	75	21
55103805	3 / 4"	105	210	85	21
55103806	13 / 16"	120	230	88	22
55103807	7 / 8"	130	250	95	22
55103808	15 / 16"	130	255	100	22
55103809	1"	140	270	102	23



E “ CUTTING TOOLS



SPIRAL CHUCKING REAMERS WITH STRAIGHT SHANK / JIS

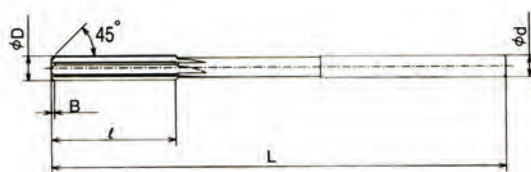


UNIT: mm

ITEM NO.	ϕD DIAMETER	ϕd DIAMETER	ℓ BLADE LENGTH	L OVERALL LENGTH	NOS. OF BLADES
55100692	2.0	2.0	11	49	4
55100693	2.5	2.5	14	57	4
55100694	3.0	3.0	15	61	4
55100695	3.5	3.5	15	61	4
55100696	4.0	4.0	19	75	6
55100697	4.5	4.5	21	80	6
55100698	5.0	5.0	23	86	6
55100699	5.5	5.0	26	93	6
55100700	6.0	6.0	26	93	6
55100701	6.5	6.0	26	93	6
55100702	7.0	6.0	31	109	6
55100703	7.5	6.0	31	109	6
55100704	8.0	6.0	33	117	6
55100705	8.5	6.0	33	117	6
55100706	9.0	8.0	36	125	6
55100707	9.5	8.0	36	125	6
55100708	10.0	10.0	38	133	6
55100709	10.5	10.0	38	133	6
55100710	11.0	10.5	41	142	6
55100711	11.5	11.0	41	142	6
55100712	12.0	11.0	44	151	6
55100713	13.0	12.0	44	151	6
55100714	14.0	13.0	47	160	6
55100715	15.0	14.0	50	162	6
55100716	16.0	14.0	52	170	6
55100717	17.0	16.0	54	175	6
55100718	18.0	16.0	56	182	6
55100719	19.0	18.0	58	189	6
55100720	20.0	18.0	60	195	6



LONG CHUCKING REAMERS WITH STRAIGHT SHANK / JIS



UNIT: mm

ITEM NO.	FLUTE DIAMETER	SHANK DIAMETER	BLADE LENGTH	OVERALL LENGTH	NUMBER OF FLUTE
55103810	3.0	2.5	30	110	6 NT
55103811	4.0	3.5	30	110	6 NT
55103812	5.0	4.0	30	120	6 NT
55103813	6.0	5.0	30	130	6 NT
55103814	8.0	6.0	40	150	6 NT
55103815	10.0	8.0	40	160	6 NT
55103816	12.0	10.0	45	170	6 NT



CARBIDE MACHINE REAMERS – G SERIES / JIS

FEATURES:

- Most generally-recommended reamer among other carbide reamers.
- Product durability is enhanced by 5 to 10 times greater than that of conventional high-speed-steel reamers with lasting precision.
- Preciser reaming achieved than that of conventional high-speed-steel reamer as well as allowing faster speeds and feeds.
- All around type corresponding to the work that is wide from cast iron to steel.



UNIT: mm

ITEM NO.	DIAMETER (m5)	FLUTE LENGTH	OVERALL LENGTH	SHANK DIAMETER (h6)	NUMBER OF FLUTE	CHAMFER OF LENGTH
55103817	CGR 3.000	27	60	3.0	4	0.5
55103818	CGR 4.000	27	60	4.0	6	0.5
55103819	CGR 5.000	30	70	5.0	6	0.5
55103820	CGR 6.000	30	80	6.0	6	0.8
55103821	CGR 7.000	35	80	7.0	6	0.8
55103822	CGR 8.000	35	80	8.0	6	0.8
55103823	CGR 10.000	40	90	10.0	6	1.0
55103824	CGR 12.000	45	90	12.0	6	1.2



CARBIDE CHUCKING REAMERS WITH STRAIGHT SHANK

UNIT: mm

ITEM NO.	DIAMETER (m5)	FLUTE LENGTH	OVERALL LENGTH	SHANK DIAMETER (h6)	NUMBER OF FLUTE	CHAMFER OF LENGTH
55103825	CCSR 3.000	15	61	3.0	4	0.5
55103826	CCSR 4.000	19	75	4.0	6	0.5
55103827	CCSR 5.000	23	86	5.0	6	0.5
55103828	CCSR 6.000	26	93	6.0	6	0.8
55103829	CCSR 7.000	31	109	7.0	6	0.8
55103830	CCSR 8.000	33	117	8.0	6	0.8
55103831	CCSR 10.000	38	133	10.0	6	1.0
55103832	CCSR 12.000	44	151	12.0	6	1.2

LONG TYPE CARBIDE CHUCKING REAMERS WITH STRAIGHT SHANK

UNIT: mm

ITEM NO.	DIAMETER (m5)	FLUTE LENGTH	OVERALL LENGTH	SHANK DIAMETER (h6)	NUMBER OF FLUTE	CHAMFER OF LENGTH
55103833	LCSR 3.000	26	80	3.0	4	0.5
55103834	LCSR 4.000	26	80	4.0	6	0.5
55103835	LCSR 5.000	26	80	5.0	6	0.5
55103836	LCSR 6.000	26	100	6.0	6	0.8
55103837	LCSR 7.000	26	110	7.0	6	0.8
55103838	LCSR 8.000	26	125	8.0	6	0.8
55103839	LCSR 10.000	31	150	10.0	6	1.0
55103840	LCSR 12.000	31	160	12.0	6	1.2



E6 - REAMERS

CUTTING TOOLS

