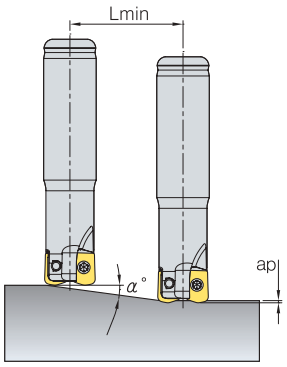
HFM MILL

RAMPING • HELICAL CUTTING • CORNER R PROGRAMMING

CUTTING DATA

- Adjust feed to under 70% of recommended cutting condition when ramping & helical cutting
- In helical ramping, max. cutting depth per 1 helical revolution of cutter should not exceed max. cutting depth as per insert size
- in ramping, max. cutting depth for 1 ramping process should not exceed max. depth of cut as per used insert size

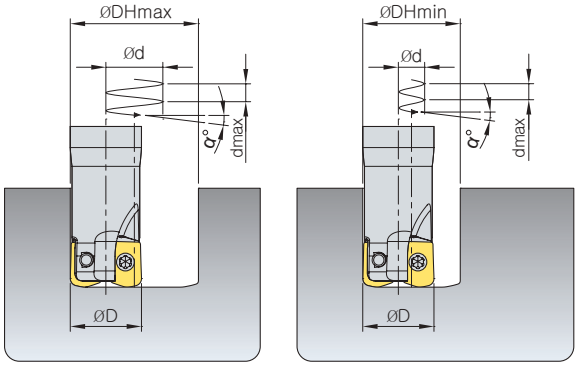
Ramping



$$Lmin = \frac{ap}{\tan \alpha°} \text{ (mm)}$$

Lmin = Min. inclination cutting length
α° = Max. ramping angle
ap = Depth of cut

Helical Cutting



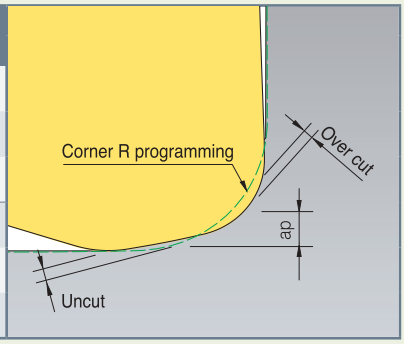
ØD = Tool Diameter
Ød = Tool path(mm) = ØDHmin, max - ØD
ØDHmin(Min diameter, mm) = ØD × 2 - 5.4
ØDHmax(Max diameter, mm) = ØD×2 - 2

ORDER CODE	Tool Diameter ØD	Depth of Cut ap	Max. Angle α°	Cutting Length Lmin	Max diameter ØDHmax	Max pitch Dmax	Min diameter ØDHmin	Max pitch dmax
HFMS END MILL								
HFMS1010HR	**10**	0.4~0.5	3.5	7	18	1.1	15	0.9
HFMS1011HR	**11**	0.4~0.5	3.1	8	20	1.1	17	0.9
HFMS1012HR	**12**	0.4~0.5	2.7	9	22	1	19	0.9
HFMS1013HR	**13**	0.4~0.5	2.4	10	24	1	21	0.9
HFMS1014HR	**14**	0.4~0.5	2.2	11	26	1	23	0.9
HFMS1015HR	**15**	0.4~0.5	2	12	28	1	25	0.9
HFMS1016HR	**16**	0.4~0.5	1.8	13	30	1	27	0.9
HFMS1017HR	**17**	0.4~0.5	1.7	14	32	0.9	29	0.9
HFMS1018HR	**18**	0.4~0.5	1.6	15	34	0.9	31	0.9
HFMS1019HR	**19**	0.4~0.5	1.5	16	36	0.9	33	0.9
HFMS1020HR	**20**	0.4~0.5	1.4	17	38	0.9	35	0.8
HFMS1021HR	**21**	0.4~0.5	1.3	18	40	0.9	37	0.8
HFMS1025HR	**25**	0.4~0.5	1.1	22	48	0.9	45	0.8
HFMS1026HR	**26**	0.4~0.5	1	23	50	0.9	47	0.8
HFMS1030HR	**30**	0.4~0.5	0.9	27	58	0.9	55	0.8
HFMS1032HR	**32**	0.4~0.5	0.8	29	62	0.9	59	0.8
HFMS1033HR	**33**	0.4~0.5	0.8	30	64	0.9	61	0.8

CORNER R PROGRAMMING

- When using CNC program, overcut & uncut occurs on the corner processing site if entering the correct program corner R value for each insert.
- To prevent overcut, you will need to complete a CNC program considering the above overcut.

INSERT	Corner R Programming	Cutting Condition		Over Cut	Uncut
		Nose R	Max. ap		
LPMT040210R-MF LPMW040210R LPEW040210R	R1.0(Standard)	1.0	0.4	0	0.17
	R1.5			0.10	0.08
	R2.0			0.31	0
LPMT040220R-MF LPMW040220R LPEW040220R	R1.0	2.0	0.5	0	0.41
	R1.5			0	0.2
	R2.0(Standard)			0	0



HFM MILL

RECOMMENDED CUTTING CONDITIONS

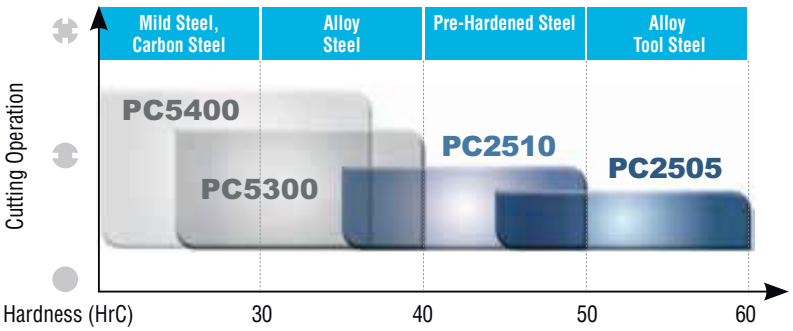
CUTTING DATA

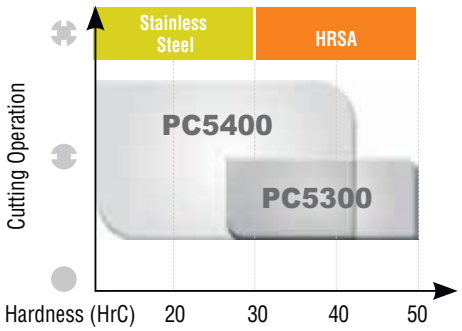
ISO	WORK PIECE Material	Hardness HB (HrC)	Grades	Chip Breaker MF	Chip Breaker None	Cutting Data vc (m/min)	fz (mm/t)	ap (mm)	ae (mm)
P STEEL	Mild Steel	120-180	PC5400 (PC5300)	●	-	100~220	0.5~1.0	~0.5	0.7D~0.1D
	Carbon Steel	200	PC5400 (PC5300)	●	-	100~200	0.5~1.0	~0.5	0.7D~0.1D
	Alloy Steel	270 (28)	PC5300	●	-	100~200	0.5~1.0	~0.5	0.7D~0.1D
	Pre-Hardened Steel	300 (32)	PC5300 (PC2510)	●	○	100~180	0.5~0.9	~0.4	0.7D~0.1D
		370 (40)	PC5300 (PC2510)	●	○	100~180	0.5~0.9	~0.4	0.7D~0.1D
		400 (43)	PC5300	○	-	100~160	0.5~0.7	~0.4	0.7D~0.1D
				-	●	100~180	0.5~0.9	~0.4	0.7D~0.1D
		510 (52)	PC2510 (PC5300)	●	-	80~150	0.3~0.6	~0.4	0.7D~0.1D
	Alloy Tool Steel	-(40-50)	PC2510 (PC2505)	-	●	80~130	0.3~0.55	~0.3	0.7D~0.1D
		630 (60)	PC2505	-	●	30~75	0.3~0.5	~0.2	0.7D~0.1D
M STAINLESS STEEL	Stainless Steel	<270	PC5400 (PC5300)	●	-	70~150	0.5~0.7	~0.5	0.7D~0.1D
K CAST IRON	Grey & Ductile Cast Iron	Tensile Strength >450Mpa	PC5300	●	-	130~220	0.6~0.8	~0.5	0.7D~0.1D
S HRSA	HRSA Fe Series	-(25-35)	PC5300 PC5400	●	-	30~100	0.3~0.5	~0.3	0.4D~0.7D
	HRSA Ni or Co Series	-(35-45)	PC5300 PC5400	●	-	20~50	0.3~0.6	~0.3	0.4D~0.7D
	Titanium	-(40-45)	PC5300	●	-	30~50	0.4~1.0	~0.3	0.7D~0.1D

● First Choice ○ Second Choice

RECOMMENDED GRADES BY MATERIAL & HARDNESS

ACCORDING TO CUTTING OPERATION





● = Continuous Cutting ● = General Cutting ● = General Cutting

ACCORDING TO VELOCITY