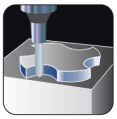
MILLING CONDITIONS

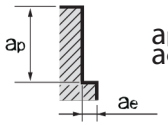
2 flute and 3 flute carbide end mill (see notes below for long series & coated)

SIDE MILLING



	Aluminium		Cast Iron		HYP-EDS,CR-EDS,EDL,EDXL,ETS,CR-ETS							
					Mild Steels Carbon Steels		Pre-hardened Steels Die & Alloy Steels				Hardened Steels	
			< 180 HB		< 180 HB		< 30 HRC		< 40 HRC		< 50 HRC	
Vc	100 ~ 120 m/min		30 ~ 45 m/min		30 ~ 45 m/min		25 ~ 35 m/min		25 ~ 35 m/min		15 m/min	
ø	Speed (min-1)	Feed (mm/min.)	Speed (min-1)	Feed (mm/min.)	Speed (min-1)	Feed (mm/min.)	Speed (min-1)	Feed (mm/min.)	Speed (min-1)	Feed (mm/min.)	Speed (min-1)	Feed (mm/min.)
1	31,500	450	14,000	175	11,000	85	8,000	60	8,000	35	4,800	14
1.5	21,200	450	9,500	175	7,500	85	5,300	60	5,400	35	3,200	14
2	16,000	450	7,100	250	5,500	85	4,000	60	4,000	35	2,400	14
3	12,500	450	4,750	300	4,500	150	3,550	120	3,150	45	1,600	25
4	9,500	475	3,550	300	3,550	175	2,650	120	2,360	45	1,200	25
5	7,500	475	2,800	300	2,800	200	2,120	125	1,900	45	950	25
6	6,300	475	2,360	300	2,360	200	1,700	125	1,600	45	800	25
8	4,750	500	1,800	300	1,800	200	1,320	125	1,180	45	600	25
10	3,750	500	1,400	315	1,400	225	1,060	125	950	45	480	25
12	3,150	560	1,180	315	1,180	225	850	125	800	45	400	25
16	2,360	560	900	375	900	250	670	140	600	45	300	25
20	1,900	560	710	375	710	250	530	150	475	45	240	25
25	1,500	500	560	375	560	250	425	140	375	35	190	20

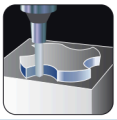
Maximum depth of cut



ap=1.5D
ae=0.1D

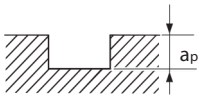
(1) Reduce speeds & feeds 20-30% for HYP-EDL (Long series).
(2) Reduce speeds & feeds 40-50% for HYP-EDXL. (Extra long series).
(3) Increase speeds & feeds 20-30% for HYP-EDS-XCEED (coated).
(4) Column for Hardened Steels (40-50 HRC) is for XCEED coated tools only.
(5) Increase speeds & feeds 20-30% for HYP-ETS.
(6) Increase speeds & feeds 20-40% for HYP-ETS-XCEED (coated).

SLOTTING



	Aluminium		Cast Iron		HYP-EDS,CR-EDS,EDL,EDXL,ETS,CR-ETS							
					Mild Steels Carbon Steels		Pre-hardened Steels Die & Alloy Steels				Hardened Steels	
			< 180 HB		< 180 HB		< 30 HRC		< 40 HRC		< 50 HRC	
Vc	100 ~ 120 m/min		30 ~ 45 m/min		30 ~ 45 m/min		25 ~ 35 m/min		25 ~ 35 m/min		15 m/min	
ø	Speed (min-1)	Feed (mm/min.)	Speed (min-1)	Feed (mm/min.)	Speed (min-1)	Feed (mm/min.)	Speed (min-1)	Feed (mm/min.)	Speed (min-1)	Feed (mm/min.)	Speed (min-1)	Feed (mm/min.)
1	31,500	200	14,000	140	12,500	75	7,500	30	7,000	15	4,800	8
1.5	21,200	200	9,500	140	8,500	90	6,500	35	5,000	20	3,200	11
2	16,000	300	7,100	150	6,300	100	5,000	60	4,000	30	2,400	16
3	11,200	300	4,750	160	4,250	100	3,200	80	2,600	30	1,600	16
4	8,000	300	3,550	160	3,150	100	2,400	80	2,000	30	1,200	16
5	6,300	300	2,800	160	2,500	100	2,000	80	1,600	30	950	16
6	5,300	300	2,360	200	2,120	100	1,600	80	1,300	30	800	16
8	4,000	300	1,800	236	1,600	100	1,200	80	1,000	30	600	16
10	3,150	300	1,400	236	1,250	100	1,000	80	800	30	480	16
12	2,650	300	1,180	236	1,060	100	820	80	700	30	400	16
16	2,000	300	900	236	800	100	640	85	500	37	300	12
20	1,600	300	710	236	630	100	500	85	400	37	240	10
25	1,250	300	560	236	500	100	400	85	320	37	190	8

Maximum depth of cut



D < 2	0.5D
2 < D	1D

(1) Reduce speeds & feeds 20-30% for HYP-EDL (Long series).
(2) Reduce speeds & feeds 40-50% for HYP-EDXL. (Extra long series).
(3) Increase speeds & feeds 20-30% for HYP-EDS-XCEED (coated).
(4) Column for Hardened Steels (40-50 HRC) is for XCEED coated tools only.
(5) Increase speeds & feeds 20-30% for HYP-ETS.
(6) Increase speeds & feeds 20-40% for HYP-ETS-XCEED (coated).