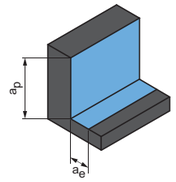
Cutting data recommendations for corner radius milling cutters

Feed and cutting speed

Roughing



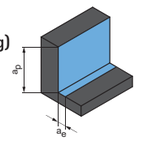
Plunge angle
1.0° - 3.0°

OptiMill-3D-CR-Graphite | MCR111, 112, 113, 114, 115, 116

MMG*		Workpiece material	Strength/hardness [N/mm²] [HRC]	Cooling			a_p [mm]	a_e [mm]	v_c [m/min]	f_z [mm]														
										Diameter of milling cutter [mm]													
				Dry	Air/MQL	KSS				0.40	0.50	0.60	0.80	1.00	1.50	2.00	3.00	4.00	5.00	6.00	8.00	10.00	12.00
N	N3.1	Graphite, > 8 µm			✓	✓	0.25xD	0.8xD	**500-600**	0.016	0.018	0.019	0.020	0.022	0.038	0.045	0.057	0.062	0.082	0.090	0.102	0.120	0.155
N	N3.2	Graphite, ≤ 8 µm			✓	✓	0.25xD	0.8xD	**400-500**	0.016	0.018	0.019	0.020	0.022	0.038	0.045	0.057	0.062	0.082	0.090	0.102	0.120	0.155

Next table:
Finishing (3D, face milling)

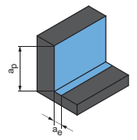
Finishing (3D, face milling)



OptiMill-3D-CR-Graphite | MCR111, 112, 113, 114, 115, 116

MMG*		Workpiece material	Strength/hardness [N/mm²] [HRC]	Cooling			a_p [mm]	a_e [mm]	v_c [m/min]	f_z [mm]														
										Diameter of milling cutter [mm]													
				Dry	Air/MQL	KSS				0.40	0.50	0.60	0.80	1.00	1.50	2.00	3.00	4.00	5.00	6.00	8.00	10.00	12.00
N	N3.1	Graphite, > 8 µm			✓	✓	0.015xD	0.025xD	**700-800**	0.016	0.018	0.019	0.020	0.022	0.038	0.045	0.057	0.062	0.082	0.090	0.102	0.120	0.155
N	N3.2	Graphite, ≤ 8 µm			✓	✓	0.015xD	0.025xD	**600-700**	0.016	0.018	0.019	0.020	0.022	0.038	0.045	0.057	0.062	0.082	0.090	0.102	0.120	0.155

Finishing (flat areas)



Plunge angle
0.5° - 1.0°

Next table:
Finishing (flat areas)

OptiMill-3D-CR-Graphite | MCR111, 112, 113, 114, 115, 116

MMG*		Workpiece material	Strength/hardness [N/mm²] [HRC]	Cooling			a_p [mm]	a_e [mm]	v_c [m/min]	f_z [mm]														
										Diameter of milling cutter [mm]													
				Dry	Air/MQL	KSS				0.40	0.50	0.60	0.80	1.00	1.50	2.00	3.00	4.00	5.00	6.00	8.00	10.00	12.00
N	N3.1	Graphite, > 8 µm			✓	✓	0.015xD	0.6xD	**700-800**	0.016	0.018	0.019	0.020	0.022	0.038	0.045	0.057	0.062	0.082	0.090	0.102	0.120	0.155
N	N3.2	Graphite, ≤ 8 µm			✓	✓	0.015xD	0.6xD	**600-700**	0.016	0.018	0.019	0.020	0.022	0.038	0.045	0.057	0.062	0.082	0.090	0.102	0.120	0.155

Working depth correction factor - k_{AT}

AT	k_{AT}		
	a_p	n	v_f
≤ 3xD	1,00	1,00	1,00
≤ 5xD	0,80	0,90	0,90
≤ 6xD	0,70	0,85	0,85
≤ 8xD	0,60	0,75	0,75
≤ 10xD	0,50	0,70	0,70
≤ 12xD	0,45**	0,65	0,65
≤ 15xD	0,40**	0,60	0,60
≤ 20xD	0,35**	0,60	0,60
≤ 25xD	0,35**	0,50	0,50
≤ 30xD	0,30**	0,50	0,50
≤ 35xD	0,30**	0,50	0,50

Cone angle correction factor - k_{KW}

φ [°]	k_{KW}		
	a_p	n	v_f
0	1,00	1,00	1,00
0,5	1,01	1,01	1,01
1	1,02	1,02	1,02
1,5	1,03	1,03	1,03
3	1,06	1,06	1,06

Note:
To determine cutting data, please observe the notes on page 548-551.

* MAPAL machining groups
** Consultation with a MAPAL application engineer.

The specified machining values are guide values.
The optimum data for the respective machining task should be determined during the test or machining.