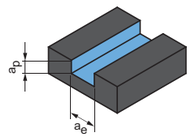
Cutting data recommendations for shoulder milling cutters

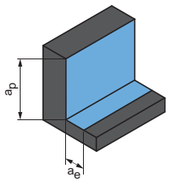
Feed and cutting speed

Groove milling



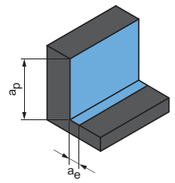
a_p = 1xD
a_e = 1xD

Roughing



a_p = 1.5xD
a_e = 0.25xD

Finishing



a_p = 1.5xD
a_e = 0.1xD

OptiMill-Composite-Speed-Plus, uncoated | SCM982, 992

MMG*		Workpiece material	Strength/ hardness [N/mm²] [HRC]	Cooling			v_c [m/min]	f_z [mm] Diameter of milling cutter [mm]							v_c [m/min]	f_z [mm] Diameter of milling cutter [mm]							v_c [m/min]	f_z [mm] Diameter of milling cutter [mm]						
				MQL/Air	Dry	Coolant		4.00	6.00	8.00	10.00	12.00	16.00	20.00		4.00	6.00	8.00	10.00	12.00	16.00	20.00		4.00	6.00	8.00	10.00	12.00	16.00	20.00
N	N4.1	Plastic, thermoplastics		✓	✓	✓																								
N	N4	N4.2	Plastic, thermosets		✓	✓	✓	**125**	0.020	0.029	0.038	0.045	0.052	0.063	0.072	**190**	0.029	0.041	0.053	0.063	0.072	0.089	0.101	**230**	0.040	0.057	0.073	0.088	0.101	0.123	0.141
N		N4.3	Plastic, foams		✓	✓																								
C		C1.1	Plastic matrix, aramide fibre-reinforced (AFRP)		✓	✓	✓																							
C	C1	C1.2	Plastic matrix (thermosetting), CFRP/GFRP		✓	✓	✓	**120**	0.021	0.026	0.031	0.035	0.038	0.042	0.043	**200**	0.021	0.026	0.031	0.035	0.038	0.042	0.043	**295**	0.021	0.026	0.031	0.035	0.038	0.042	0.043
C	C1	C1.3	Plastic matrix (thermoplastic), CFRP/GFRP		✓	✓	✓	**80**	0.021	0.026	0.031	0.035	0.038	0.042	0.043	**135**	0.021	0.026	0.031	0.035	0.038	0.042	0.043	**195**	0.021	0.026	0.031	0.035	0.038	0.042	0.043
C	C2	C2.1	Carbon matrix, carbon fibre-reinforced (CFC)		✓	✓	✓	**120**	0.018	0.023	0.027	0.031	0.033	0.037	0.038	**200**	0.018	0.023	0.027	0.031	0.033	0.037	0.038	**295**	0.018	0.023	0.027	0.031	0.033	0.037	0.038
C	C4	C4.1	Sandwich construction, honeycomb core		✓	✓		**165**	0.012	0.015	0.017	0.019	0.021	0.023	0.024	**270**	0.012	0.015	0.017	0.019	0.021	0.023	0.024	**395**	0.012	0.015	0.017	0.019	0.021	0.023	0.024
C	C4	C4.2	Sandwich construction, foam core		✓	✓		**125**	0.019	0.024	0.028	0.032	0.035	0.039	0.041	**200**	0.019	0.024	0.028	0.032	0.035	0.039	0.041	**300**	0.019	0.024	0.028	0.032	0.035	0.039	0.041

OptiMill-Composite-Speed-Plus, coated | SCM980, 990

MMG*		Workpiece material	Strength/ hardness [N/mm²] [HRC]	Cooling			v_c [m/min]	f_z [mm] Diameter of milling cutter [mm]							v_c [m/min]	f_z [mm] Diameter of milling cutter [mm]							v_c [m/min]	f_z [mm] Diameter of milling cutter [mm]						
				MQL/Air	Dry	Coolant		4.00	6.00	8.00	10.00	12.00	16.00	20.00		4.00	6.00	8.00	10.00	12.00	16.00	20.00		4.00	6.00	8.00	10.00	12.00	16.00	20.00
C		C1.1	Plastic matrix, aramide fibre-reinforced (AFRP)		✓	✓	✓																							
C	C1	C1.2	Plastic matrix (thermosetting), CFRP/GFRP		✓	✓	✓	**145**	0.021	0.026	0.031	0.035	0.038	0.042	0.043	**240**	0.021	0.026	0.031	0.035	0.038	0.042	0.043	**355**	0.021	0.026	0.031	0.035	0.038	0.042	0.043
C	C1	C1.3	Plastic matrix (thermoplastic), CFRP/GFRP		✓	✓	✓	**100**	0.021	0.026	0.031	0.035	0.038	0.042	0.043	**160**	0.021	0.026	0.031	0.035	0.038	0.042	0.043	**235**	0.021	0.026	0.031	0.035	0.038	0.042	0.043
C	C2	C2.1	Carbon matrix, carbon fibre-reinforced (CFC)		✓	✓	✓	**145**	0.018	0.023	0.027	0.031	0.033	0.037	0.038	**240**	0.018	0.023	0.027	0.031	0.033	0.037	0.038	**355**	0.018	0.023	0.027	0.031	0.033	0.037	0.038
C	C4	C4.1	Sandwich construction, honeycomb core		✓	✓		**195**	0.012	0.015	0.017	0.019	0.021	0.023	0.024	**325**	0.012	0.015	0.017	0.019	0.021	0.023	0.024	**480**	0.012	0.015	0.017	0.019	0.021	0.023	0.024
C	C4	C4.2	Sandwich construction, foam core		✓	✓		**150**	0.019	0.024	0.028	0.032	0.035	0.039	0.041	**245**	0.019	0.024	0.028	0.032	0.035	0.039	0.041	**360**	0.019	0.024	0.028	0.032	0.035	0.039	0.041

* MAPAL machining groups

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