



Series 20, 31 Fractional		Ae x D ₁	Ap x D ₁	Vc (SFM)		Diameter (D ₁) (inch)			
						1/4	5/16	3/8	1/2
CFRP, AFRP (CARBON FIBER, ARAMID FIBER)	Slot 	1	≤ 1	400	RPM	6112	4890	4075	3056
				(320-480)	Fz	0.0060	0.0075	0.0090	0.0120
					Feed (IPM)	36.7	36.7	36.7	36.7
	Profile 	≤ 0.5	≤ 1.5	500	RPM	7640	6112	5093	3820
				(400-600)	Fz	0.0060	0.0075	0.0090	0.0120
					Feed (IPM)	45.8	45.8	45.8	45.8
	HSM 	≤ 0.5	≤ 2	825	RPM	12606	10085	8404	6303
				(660-990)	Fz	0.0138	0.0173	0.0207	0.0276
					Feed (IPM)	174.0	174.0	174.0	174.0
GFRP (FIBERGLASS)	Slot 	1	≤ 1	320	RPM	4890	3912	3260	2445
				(256-384)	Fz	0.0060	0.0075	0.0090	0.0120
					Feed (IPM)	29.3	29.3	29.3	29.3
	Profile 	≤ 0.5	≤ 1.5	400	RPM	6112	4890	4075	3056
				(320-480)	Fz	0.0060	0.0075	0.0090	0.0120
					Feed (IPM)	36.7	36.7	36.7	36.7
	HSM 	≤ 0.05	≤ 2	660	RPM	10085	8068	6723	5042
				(528-792)	Fz	0.0138	0.0172	0.0207	0.0276
					Feed (IPM)	139.0	139.0	139.0	139.0
CARBON, GRAPHITE	Slot 	1	≤ 1	480	RPM	7334	5868	4890	3667
				(384-576)	Fz	0.0075	0.0094	0.0112	0.0150
					Feed (IPM)	55.0	55.0	55.0	55.0
	Profile 	≤ 0.5	≤ 1.5	600	RPM	9168	7334	6112	4584
				(480-720)	Fz	0.0075	0.0094	0.0112	0.0150
					Feed (IPM)	68.7	68.7	68.7	68.7
	HSM 	≤ 0.05	≤ 2	990	RPM	15127	12102	10085	7564
				(792-1188)	Fz	0.0172	0.0215	0.0258	0.0344
					Feed (IPM)	260.0	260.0	260.0	260.0
PLASTICS	Slot 	1	≤ 1	800	RPM	12224	9779	8149	6112
				(640-690)	Fz	0.0075	0.0094	0.0113	0.0150
					Feed (IPM)	91.7	91.7	91.7	91.7
	Profile 	≤ 0.5	≤ 1.5	1000	RPM	15280	12224	10187	7640
				(800-1200)	Fz	0.0075	0.0094	0.0113	0.0150
					Feed (IPM)	114.6	114.6	114.6	114.6
	HSM 	≤ 0.05	≤ 2	1650	RPM	25212	20170	16808	12606
				(1320-1980)	Fz	0.0069	0.0086	0.0104	0.0138
					Feed (IPM)	174.0	174.0	174.0	174.0

rpm = sfm x 3.82 / D₁

ipm = (inch / revolution) x rpm

HSM (high speed machining)

adjust parameters based on resin type and fiber structure

reduce speed when overheating causes melting or damage to resin

reduce feed if delamination or fraying occur

finish cuts typically required reduced feed and cutting depths

rates shown are for use without coolant; rates may be increased with coolant

dust collection is vital when machining dry

diamond coating will increase tool life in graphite and composite materials

refer to the SGS Tool Wizard for complete technical information (I)