

CP Composite Cutting Data Recommendations

APPLICATION	GOOD	BETTER	BEST
Carbon Fiber Reinforced Plastic (CFRP)-Finishing	N/A	66-700	68-000
Carbon Fiber Reinforced Plastic (CFRP)-Semi Finishing	66-900	66-775	68-200
Carbon Fiber Reinforced Plastic (CFRP)-Roughing	66-900	66-500	68-300
Glass Fiber Reinforced Plastic (GFRP)-Finishing	54-200	66-700	68-000
Glass Fiber Reinforced Plastic (GFRP)-Semi Finishing	54-200	66-775	68-200
Glass Fiber Reinforced Plastic (GFRP)-Roughing	66-900	66-500	68-300
Phenolic-Finishing	67-200	54-200	68-000
Phenolic-Semi Finishing	67-200	67-255	67-220
Phenolic-Roughing	67-200	66-500	68-200
Kevlar-Finishing	N/A	N/A	68-000
Speciality-Edge Finish		66-800	
Speciality-Contouring		68-400	

DEPTH OF CUT:

- 1 x D Use recommended chip load
- 2 x D Reduce chip load by 25%
- 3 x D Reduce chip load by 50%

Recommended Chip Load per Tooth by Cutting Diameter (in)																							
Series	Cut	1/16	3/32	1/8	5/32	3/16	7/32	1/4	5/16	3/8	7/16	1/2	9/16	5/8	3/4	7/8	1	1 1/8	1 1/4	1 1/2	1 3/4	2	
54-200	1 x D			.002-.004		.002-.004		.002-.004		.003-.006		.005-.010											
56-000P	1 x D			.002-.004		.002-.004		.004-.006		.004-.006		.004-.006											
56-450	1 x D					.002-.005		.003-.005	.003-.006	.004-.006		.005-.007											
57-000	1 x D			.003-.005		.003-.005		.004-.006		.006-.008		.010-.012											
63-000	1 x D			.003-.005		.003-.005		.003-.005	.004-.006			.005-.007											
66-500	See page 127 for technical data																						
66-700	See page 127 for technical data																						
66-750	See page 127 for technical data																						
66-775	See page 127 for technical data																						
66-800	See page 127 for technical data																						
66-900	1 x D			.002-.004		.002-.004		.004-.006		.004-.006		.006-.008											
67-000	1 x D							.004-.006		.004-.006		.004-.006											
67-200	1 x D									.002-.010		.002-.010											
67-220*	1 x D									.001-.002		.001-.002											
67-250	1 x D			.002-.004				.004-.006		.004-.006													
67-400	1 x D			.002-.004				.004-.006		.004-.006		.004-.006											
67-500	1 x D			.001-.003		.001-.003		.002-.004	.002-.004	.003-.005		.004-.006											
68-000*	See page 128 for technical data																						
68-200*	See page 129 for technical data																						
68-300*	See page 129 for technical data																						
68-400	See page 129 for technical data																						

NOTE: *Spindle RPM's generally range from 12,000-16,000 for PCD tools when cutting composite materials.

Consider 66-500, 66-900, 67-000, 67-250, 67-500 series tools as a single flute in speed & feed rate calculations.

FORMULAS: Chip Load = Feed Rate / (RPM x # of cutting edges)
 Feed Rate (IPM) = RPM x # of cutting edges x chip load
 Speed (RPM) = Feed Rate / (# of cutting edges x chip load)

DEFINITIONS: IPM = Inches Per Minute

RECOMMENDED STARTING	
DIA	RPM
1/8-3/16	10,000-12,000
1/4	8,000-10,000
3/8	6,000-8,000
1/2	4,000-6,000

CP

66-500/66-700/66-750 66-775/66-800 Series Cutting Data Recommendations

ISO Grade	Material	Application	Recommended Starting Parameters										
			Rad DOC	Axial DOC	SFM Range	Chip Load Per Tooth							
						SFM Starting 1/8	1/8	SFM Starting 1/4	1/4	SFM Starting 3/8	3/8	SFM Starting 1/2	1/2
66-500 DFC Multi Flute													
O	CFRP	Full Slotting	1 x DIA	.50 x DIA	450/ 1600	450	0.0015	850	0.0026	1200	0.0035	1600	0.0045
		Heavy Profile	.33 x DIA	1.25 x DIA		450	0.0022	850	0.0035	1200	0.0045	1600	0.0055
		HEM* Profile	.15 x DIA	2 x DIA		450	0.0030	850	0.0050	1200	0.0060	1600	0.0065
		Finishing	.05 x DIA	2 x DIA		450	0.0025	850	0.0035	1200	0.0045	1600	0.0550
	GFRP	Full Slotting	1 x DIA	.50 x DIA	275/ 1000	275	0.0020	500	0.0030	750	0.0040	1000	0.0050
		Heavy Profile	.33 x DIA	1.25 x DIA		275	0.0030	500	0.0035	750	0.0055	1000	0.0065
		HEM* Profile	.15 x DIA	2 x DIA		275	0.0045	500	0.0052	750	0.0080	1000	0.0095
		Finishing	.05 x DIA	2 x DIA		275	0.0035	500	0.0045	750	0.0062	1000	0.0068
	Phenolic	Full Slotting	1 x DIA	.50 x DIA	325/ 1400	325	0.0015	700	0.0026	1000	0.0035	1400	0.0045
		Heavy Profile	.33 x DIA	1.25 x DIA		325	0.0022	700	0.0035	1000	0.0045	1400	0.0055
		HEM* Profile	.15 x DIA	2 x DIA		325	0.0030	700	0.0050	1000	0.0060	1400	0.0065
		Finishing	.05 x DIA	2 x DIA		325	0.0025	700	0.0035	1000	0.0045	1400	0.0550
66-700 DFC Low-Helix Finisher Upcut													
O	CFRP	Finishing	.05 x DIA	2 x DIA	450/1000	-	-	1000	0.0008	1000	0.0010	1000	0.0015
	GFRP	Finishing	.05 x DIA	2 x DIA	450/1000	-	-	450	0.0015	450	0.0020	450	0.0030
	Phenolic	Finishing	.05 x DIA	2 x DIA	450/1000	-	-	650	0.0011	650	0.0023	650	0.0025
66-750 DFC Low-Helix Cutter													
O	CFRP	Full Slotting	1 x DIA	.5 x DIA	500/ 1600	-	-	850	0.001	1200	0.001	1600	0.0008
		Heavy Profile	.33 x DIA	1.25 x DIA		-	-	850	0.001	1200	0.001	1600	0.0012
		HEM* Profile	.15 x DIA	2 x DIA		-	-	850	0.001	1200	0.001	1600	0.0016
		Finishing	.05 x DIA	2 x DIA		-	-	850	0.001	1200	0.001	1600	0.0014
	GFRP	Full Slotting	1 x DIA	.5 x DIA	500/ 1500	-	-	500	0.001	750	0.002	1000	0.0018
		Heavy Profile	.33 x DIA	1.25 x DIA		-	-	500	0.001	750	0.002	1000	0.0022
		HEM* Profile	.15 x DIA	2 x DIA		-	-	500	0.002	750	0.002	1000	0.0026
		Finishing	.05 x DIA	2 x DIA		-	-	500	0.002	750	0.002	1000	0.0024
	Phenolic	Full Slotting	1 x DIA	.5 x DIA	500/ 1200	-	-	700	0.001	1000	0.001	1400	0.0008
		Heavy Profile	.33 x DIA	1.25 x DIA		-	-	700	0.001	1000	0.001	1400	0.0012
		HEM* Profile	.15 x DIA	2 x DIA		-	-	700	0.001	1000	0.001	1400	0.0016
		Finishing	.05 x DIA	2 x DIA		-	-	700	0.001	1000	0.001	1400	0.0014
66-775 DFC Low-Helix Rougher-Finisher-Upcut													
O	CFRP	Full Slotting	1 x DIA	1 x DIA	500/ 2000	-	-	850	0.0005	1200	0.0006	1600	0.00080
		Heavy Profile	.33 x DIA	1.25 x DIA		-	-	850	0.0008	1200	0.0010	1600	0.00120
		HEM* Profile	.15 x DIA	2 x DIA		-	-	850	0.0013	1200	0.0014	1600	0.00160
		Finishing	.06 x DIA	2 x DIA		-	-	850	0.0011	1200	0.0012	1600	0.00140
	GFRP	Full Slotting	1 x DIA	1 x DIA	500/ 2000	-	-	500	0.0010	750	0.0015	1000	0.00180
		Heavy Profile	.33 x DIA	1.25 x DIA		-	-	500	0.0014	750	0.0019	1000	0.00220
		HEM* Profile	.15 x DIA	2 x DIA		-	-	500	0.0019	750	0.0023	1000	0.00260
		Finishing	.06 x DIA	2 x DIA		-	-	500	0.0015	750	0.0016	1000	0.00240
	Phenolic	Full Slotting	1 x DIA	1 x DIA	300/ 2000	-	-	700	0.0005	1000	0.0006	1400	0.00080
		Heavy Profile	.33 x DIA	1.25 x DIA		-	-	700	0.0008	1000	0.0010	1400	0.00120
		HEM* Profile	.15 x DIA	2 x DIA		-	-	700	0.0013	1000	0.0014	1400	0.00160
		Finishing	.06 x DIA	2 x DIA		-	-	700	0.0011	1000	0.0012	1400	0.00140
66-800 DFC Compression													
O	CFRP	Full Slotting	1 x DIA	1 x DIA	500/ 1600	-	-	850	0.0008	1200	0.0010	1600	0.0012
		Heavy Profile	.33 x DIA	1.25 x DIA		-	-	850	0.0010	1200	0.0012	1600	0.0014
		HEM* Profile	.15 x DIA	2 x DIA		-	-	850	0.0015	1200	0.0016	1600	0.0018
		Finishing	.06 x DIA	2 x DIA		-	-	850	0.0014	1200	0.0013	1600	0.0015