

Soft Plastic Cutting Data Recommendations

SP

< 1/2 DIAMETER TOOL

APPLICATION	GOOD	BETTER	BEST
Single Pass	61-000P	65-000	63-750
Roughing			60-000

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%

≥ 1/2 DIAMETER TOOL

APPLICATION	GOOD	BETTER	BEST
Single Pass	56-600	52-600	52-700
Roughing			60-000

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
10-00	1 x D	.002-.004		.004-.006		.006-.008		.006-.008		.007-.009		.008-.010										
37-00/37-20	Varies							.004-.006														
37-50*	1 x D					.003-.006		.003-.006		.003-.006												
37-60*	1 x D									.004-.006		.004-.006			.006-.008		.008-.010					
52-200B/BL	1 x D	.002-.004		.002-.004		.004-.006		.004-.006		.004-.006		.006-.008		.010-.012	.012-.014							
52-600	1 x D							.008-.010		.010-.012		.012-.014		.014-.016	.016-.018							
52-700	1 x D											.012-.014		.014-.016	.016-.018							
56-430	1 x D			.006-.008		.006-.008		.007-.009		.008-.010		.009-.011										
56-600	1 x D			.004-.006		.006-.008		.008-.010		.010-.012		.012-.014										
57-600	1 x D							.008-.010		.010-.012		.012-.014		.014-.016	.016-.018							
60-000	1 x D									.004-.006		.006-.008		.008-.010	.012-.014							
60-200	1 x D							.004-.006		.004-.006		.006-.010			.012-.016							
60-900	1 x D									.004-.006		.006-.008										
61-000P	1 x D			.004-.006		.006-.008		.008-.012		.014-.018		.018-.022										
61-400	1 x D			.017-.019		.017-.019		.018-.020		.019-.021		.020-.021										
62-750	1 x D			.004-.006		.006-.008		.008-.012		.008-.012		.010-.014										
62-850	1 x D			.004-.006		.006-.008		.008-.012		.008-.012		.010-.014										
63-500	1 x D	.002-.004		.004-.006		.005-.007		.006-.008		.007-.009												
63-750	1 x D	.002-.004		.004-.006		.006-.008		.008-.012		.008-.012		.010-.014										
63-850	1 x D	.002-.004		.004-.006		.006-.008		.008-.012		.008-.012		.010-.014										
64-000/ 65-000	1 x D	.002-.004		.004-.006		.006-.008		.008-.012		.008-.012												
65-200B/ 65-300B	1 x D	.002-.003		.002-.003		.003-.004		.003-.005	.003-.005	.004-.006		.006-.008										
66-000	1 x D							.004-.008		.004-.008		.004-.008										
66-200	1 x D							.004-.006		.006-.008												
66-300	1 x D			.002-.004				.004-.006		.006-.008		.006-.008										
77-100 (DE)	1 x D			.005-.007																		
77-100 (BE)	1 x D							.008-.010														

* = 12,500 RPM

NOTE: To eliminate rewelding increase the feedrate or change to a single edge tool.
 If using a downcut spiral and chip rewelding occurs, cut a slot in your spoilboard to allow the chips a place to expand.
 Incorrect chiploads can lead to knife marks occurring.

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

DEFINITIONS: IPM = Inches Per Minute

Hard Plastic Cutting Data Recommendations

HP

< 1/2 DIAMETER TOOL

APPLICATION	GOOD	BETTER	BEST
Single Pass	56-000P	65-000	63-700
Roughing			60-000
Finishing			60-200

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%

≥ 1/2 DIAMETER TOOL

APPLICATION	GOOD	BETTER	BEST
Single Pass	56-000P	52-600	60-200
Roughing			60-000
Finishing			60-200

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	
37-00/37-20	Varies							.004-.006															
37-50	1 x D					.003-.006		.003-.006		.003-.006													
37-60	1 x D									.004-.006		.004-.006			.006-.008		.008-.010						
52-200B/BL	1 x D	.002-.004		.002-.004		.004-.006		.004-.006		.004-.006		.006-.008		.008-.010	.010-.012								
52-600	1 x D							.006-.008		.008-.010		.010-.012		.012-.014	.014-.016								
56-000	1 x D			.002-.004		.004-.006		.004-.006	.004-.006			.008-.010											
56-000P	1 x D		.002-.004			.004-.006		.004-.006		.006-.008		.008-.010											
56-430	1 x D		.005-.007			.005-.007		.006-.008		.007-.009		.008-.010											
56-450	1 x D					.005-.007		.006-.008		.007-.009		.008-.010											
56-600	1 x D		.003-.005			.005-.007		.007-.009		.009-.011		.011-.013											
57-600	1 x D							.006-.008		.008-.010		.010-.012											
60-000	1 x D								.004-.006		.004-.006		.006-.008		.008-.012	.012-.016							
60-200	1 x D							.004-.006		.004-.006		.006-.010			.012-.016								
60-900	1 x D								.004-.006		.006-.008												
61-000P	1 x D			.003-.005		.005-.007		.007-.011		.013-.017		.017-.021											
61-400	1 x D			.014-.016		.014-.016		.015-.017		.016-.018		.017-.019											
62-700	1 x D			.006-.008		.008-.010		.010-.012		.010-.012		.012-.016											
62-750	1 x D			.004-.006		.006-.008		.008-.012		.008-.012		.010-.014											
62-800	1 x D			.006-.008		.008-.010		.010-.012		.010-.012		.012-.016											
62-850	1 x D			.004-.006		.006-.008		.008-.012		.008-.012		.010-.014											
63-500	1 x D	.002-.004		.003-.005		.003-.005		.004-.006		.005-.007													
63-700	1 x D	.002-.004		.006-.008		.008-.010		.010-.012		.010-.012		.012-.016											
63-750	1 x D	.002-.004		.004-.006		.006-.008		.008-.012		.008-.012		.010-.014											
63-800	1 x D	.002-.004		.006-.008		.008-.010		.010-.012		.010-.012		.012-.016											
63-850	1 x D	.002-.004		.004-.006		.006-.008		.008-.012		.008-.012		.010-.014											
64-000/65-000	1 x D	.002-.004		.006-.008		.008-.010		.010-.012		.010-.012													
66-000	1 x D							.004-.008		.004-.008		.004-.008											
66-200	1 x D							.004-.006		.006-.008													
66-300	1 x D			.002-.004				.004-.006		.006-.008		.006-.008											
77-100 (DE)	1 x D			.005-.007																			
77-100 (BE)	1 x D							.008-.010															

NOTE: When chip rewelding occurs while cutting plastic, increase feedrate or go to a single edge tool. Incorrect chiploads can result in cratering.

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

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