

 **DATA FLUTE**TM



DataFlute Our Approach...

For over four decades, the Data Flute brand has been synonymous with high performance, application specific cutting tools. "Application specific" and "high performance" go hand-in-glove. From our perspective it is very difficult to optimize cutting tool performance, and therefore machine productivity, without application specific tooling. If you want the highest metal removal rates, with the best finish, most consistent tool life and the lowest levels of unwanted harmonics, it is essential to match the round tool to the job at hand.

This is the approach that we take at Data Flute. We have been at this since 1976 and we believe that our current catalog represents our best offering to date in application specific, high performance, solid, round, carbide end mills. Our tools cover the entire range of applications and work materials. Whether you need to maximize your metal removal rate in the roughest of roughing applications, or you need a mirror smooth finish, we have you covered. Similarly, our tools feature material

specific geometries to maximize your productivity in the entire range of ferrous & non-ferrous metals. These tools have been developed at our in-house machining and testing center. They have been refined through rigorous, follow-on, field testing.

Here at Data Flute we have the tools, the factory support, the field support and the desire, to work with you to maximize your machining productivity. Give us a call, we always love to help. We are passionate about high performance tooling and we would like to share that passion with you.



High Performance Cutting Tools For High Performance Customers



By Work Material

Aluminum and Non-Ferrous
Titanium and Ferrous

Table of Contents

This section allows you to quickly reference the substrate or type of tool you are looking for. We have divided the catalog into three sections; Aluminum-Non Ferrous, Titanium-Ferrous and Miniatures, Chamfer Mills and Corner Rounds.

Coatings and Application.....	Page 3
Aluminum and Non-Ferrous Cutting Tool Index.....	Page 4
Titanium and Ferrous Cutting Tool Index.....	Page 49
Miniatures, Chamfer Mills, Corner Rounds Tool Index.....	Page 106
Feeds and Speeds Chart Explanation.....	Page 118
Trouble Shooting Guide.....	Page 119
Neck Relieved Tool Application.....	Page 119
Tool Performance Report.....	Page 120
Request for a Quote.....	Page 121
Application Matrix.....	Page 122
EDP Number Index.....	Page 123












Material Application Guide

We have tried to organize the tools in this catalog consistent with the manner in which our customers use them and think about them. The end mills have been categorized into one of two material machining areas: 1) Aluminum and Non-Ferrous Alloys; and 2) Titanium and Ferrous Alloys. Within each of the aforementioned listings, the tools are organized by operations beginning with Roughing and following a continuum through Finishing. While some are clearly intended as pure roughers or finishers, there are tools that cover the ground between serving as rougher-finishers or finisher-roughers. Use this guide to begin searching for a tool. First select the machined material group, next select the tool series that best fits your application. The first page of each material/substrate group provides a brief description and page number for each tool series. As always, if you have any questions regarding tool selection or application, call the appropriate technical support line listed at the bottom of each page.

Coatings

All of our tools are available in a variety of application specific surface treatments and coatings. Please see individual tool listings for stocked treatments and coatings. Other treatments and coatings are available upon request. These surface treatments and coatings are designed to enhance performance as well as the life of the tool. The chart below is a handy reference outlining the surface treatment and coating composition as well as the suggested application. If the material you are preparing to machine is not listed, please give us a call and we can help.

	Code No.	Coating No.	Characteristics	Application
	C-1*	88	A general purpose coating which has excellent wear resistance, reduces friction and prevents galling.	Most ferrous materials. Although it's unlikely, galling may occur in titanium and titanium alloys. (Not recommended for aluminum).
	C-4	89	An extremely hard coating which has outstanding wear resistance, reduces friction and prevents galling.	Most ferrous, non-ferrous and non-metallic materials. Very effective at higher speeds. Although it's unlikely galling may occur in titanium and titanium alloys.
	C-5	86	A thin hard coating that improves lubricity and increases oxidation resistance. Specifically designed for machining abrasive and gummy materials.	Suitable for machining aluminum alloys, high silica aluminum, cast iron, high temperature alloys, stainless steel and glass filled plastics. Not recommended for machining carbon steels.
	C-6*	77	Outstanding self-lubricating properties, Silver/Gray in color.	For machining aluminum, (silcon content less than 10%), copper and titanium.
	C-7*	83	A very hard coating recommended for harder alloys which has very good wear resistance, reduces friction and prevents galling.	Titanium, titanium alloys, nickel-base alloys, stainless steel and cast iron. Effective at higher speed. Not recommended for wrought aluminum, copper or brass.
	C-10	70	Excellent coating that provides high oxidation resistance and high temperature wear resistance.	Very effective in wet/dry milling of steels, cast iron, aerospace inconel and titanium alloys.
	C-11	85	An extremely hard coating very similar to C7 with outstanding wear resistance. C-11 has a higher aluminum content which makes it harder and smoother than C7.	Very effective in the same materials as C7. Excellent for small depths of cut and excels in high speed and dry machining applications.
	C-19	19	Multilayer, extremely hard, smooth temperature resistant.	Hard Machining 50-70 HRC, Dry Machining.
	C-21*	61	Synthetic diamond. Low co-efficient of friction. Approximately three times harder than C4.	High abrasive applications, graphite, fiberglass, ceramics and composites.
		00	No Coating	

*Available as Non-Stock Standard

Aluminum

and Non-Ferrous Alloys



ROUGHING

FINISHING

SERIES	ITEM	DESCRIPTION	PAGE
Triple Threat (M)	Aluminum Rougher/Finisher	3 Flute 45° Helix Standard and Reduced Neck Rougher/Finisher	7
Triple Threat-C (M)	Aluminum Rougher/Finisher Chip Breakers	3 Flute 45° Helix Standard and Reduced Neck Rougher/Finisher Chip Breakers	13
ALDH	Aluminum Double Helix	3 Flute Double Helix Rougher/Finisher	18
ALDH-C	Aluminum Double Helix Chip Breaker	3 Flute Double Helix Rougher/Finisher Chip Breaker	20
ARF	Aluminum Rougher/Finisher	2 Flute 48° Helix Rougher/Finisher	22
HSM	High Speed Machining	2 Flute 48° Helix Reduced Neck Rougher/Finisher	24
HVM-2	High Velocity Machining	2 Flute 35° Helix Reduced Neck Finisher/Rougher	26
HVM-3	High Velocity Machining	3 Flute 35° Helix Reduced Neck Finisher/Rougher	28
HVMag-2 (M)	Hyper Velocity Machining	2 Flute 35° Helix Reduced Neck Finisher/Rougher	32
HVMag-3 (M)	Hyper Velocity Machining	3 Flute 35° Helix Reduced Neck Finisher/Rougher	34
ARF-BN	2 Flute Ball End Mill	2 Flute 48° Helix Rougher/Finisher	36
HSM-BN	High Speed Machining Ball Nose	2 Flute 48° Helix Reduced Neck Finisher/Rougher Ball Nose	38
HVM-BN	High Velocity Machining Ball Nose	2 Flute 35° Helix Reduced Neck Finisher/Rougher Ball Nose	40
AFI	Aluminum Finishing	3 Flute 35° Helix Aluminum Finisher	42
AMF	Aluminum Finishing	Multi-Flute 35° Helix Aluminum Finisher	46

(M) This Series of Tools Also Offered in Metric Sizes

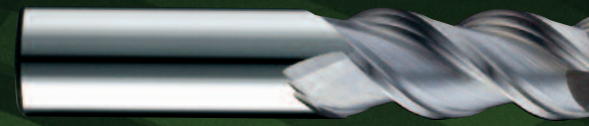


NEW TRIPLE THREAT™ TOOL SERIES



Triple Threat™ Three Flute Rougher/Finisher, Inch

High Performance Carbide



The Triple Threat™ tool is a multi-patented three flute high performance carbide end mill designed to finish and rough in aluminum and non-ferrous metals. The high shear, 45 degree helix and improved inter-flute geometries enhanced chip evacuation and permit increased chip loads as well as aggressive feed rates.

Materials		Aluminum Alloys	Aluminum Cast	Aluminum	Copper	Brass	Magnesium
Diameter	Description	6061, 7075	Sand & Permanent Mold	>10% Silicon High Silicon Based	Cast, Wrought	Yellow, Red Leaded Brass	Cast, Wrought
	SFM	800 - Max	250 - 600	600 - 1000	700 - 1000	500 - 900	500 - 900
1/4"	HP	0.0032	0.0030	0.0026	0.0026	0.0026	0.0026
	LP	0.0041	0.0041	0.0036	0.0036	0.0036	0.0036
	FINISH	0.0049	0.0055	0.0045	0.0045	0.0045	0.0045
5/16"	HP	0.0038	0.0035	0.0030	0.0030	0.0030	0.0030
	LP	0.0048	0.0047	0.0041	0.0041	0.0041	0.0041
	FINISH	0.0059	0.0062	0.0056	0.0056	0.0056	0.0056
3/8"	HP	0.0048	0.0045	0.0039	0.0039	0.0039	0.0036
	LP	0.0061	0.0061	0.0055	0.0055	0.0055	0.0055
	FINISH	0.0074	0.0082	0.0068	0.0068	0.0068	0.0068
1/2"	HP	0.0075	0.0075	0.0065	0.0065	0.0065	0.0065
	LP	0.0095	0.0095	0.0085	0.0085	0.0085	0.0085
	FINISH	0.0115	0.0115	0.0095	0.0095	0.0095	0.0095
5/8"	HP	0.0080	0.0076	0.0066	0.0066	0.0066	0.0066
	LP	0.0102	0.0102	0.0091	0.0091	0.0091	0.0086
	FINISH	0.0102	0.0102	0.0091	0.0091	0.0091	0.0091
3/4"	HP	0.0085	0.0080	0.0070	0.0070	0.0070	0.0070
	LP	0.0115	0.0115	0.0103	0.0103	0.0103	0.0103
	FINISH	0.0140	0.0155	0.0128	0.0128	0.0128	0.0128
1"	HP	0.0135	0.0128	0.0111	0.0111	0.0111	0.0111
	LP	0.0171	0.0171	0.0153	0.0153	0.0153	0.0153
	FINISH	0.0207	0.0230	0.0190	0.0190	0.0190	0.0190

HP = HEAVY PERIPHERAL

Axial Depth up to
Effective Length of Cut
Radial width .3 x Diameter

FINISH = FINISH OPERATION

Axial Depth up to
Effective Length of Cut
Radial width .02 x Diameter

LP = LIGHT PERIPHERAL

Axial Depth up to
Effective Length of Cut
Radial width .01 x Diameter

Note! Horsepower will be the limiting factor with larger diameter end mills.

Horsepower = IPM x RDC x ADC x PC

IPM = Inches Per Minute

RDC = Radial Depth of Cut (Width)

ADC = Axial Depth of Cut (Depth)

PC = Power Constants (Aluminum = (0.25))

Example Slotting = 3/4 diameter x 3/8 @ 150 IPM

HP = 150 IPM x .750 RDC x .375 ADC x PC of 0.25

HP = 10.8 @ cutter/80%Efficiency = 12.8 @ Spindle Motor

Triple Threat™ Three Flute Rougher/Finisher, Inch Continued

High Performance Carbide

- 45 Degree Helix for Enhanced Chip Evacuation
- Plain Cylindrical Shank
- Three Flutes Permit High Machine Productivity
- Stocked Stub, Regular and Reduced Neck

- Available Upon Request:
 - Coolant Grooves
 - Additional Coatings
 - Additional Radius

Part Number	Dia.	Shank	LOC	OAL	LBS*	Radius	Neck Dia.	EDP	C5 EDP
TT-ST-30250-000	1/4	1/4	3/8	2				36764-00-D	36764-86-D
TT-ST-30250-020	1/4	1/4	3/8	2		.020		36950-00-D	36950-86-D
TT-30250-000	1/4	1/4	3/4	2-1/2				36766-00-D	36766-86-D
TT-30250-020	1/4	1/4	3/4	2-1/2		.020		36951-00-D	36951-86-D
TT-RN-30250-000	1/4	1/4	3/8	2-1/2	1-1/8		.235	36768-00-D	36768-86-D
TT-RN-30250-020	1/4	1/4	3/8	2-1/2	1-1/8	.020	.235	36952-00-D	36952-86-D
TT-RN-M-30250-000	1/4	1/4	3/8	4	2-1/8		.235	36770-00-D	36770-86-D
TT-RN-M-30250-020	1/4	1/4	3/8	4	2-1/8	.020	.235	36953-00-D	36953-86-D
TT-ST-30312-000	5/16	5/16	7/16	2-1/2				36772-00-D	36772-86-D
TT-ST-30312-020	5/16	5/16	7/16	2-1/2		.020		36954-00-D	36954-86-D
TT-30312-000	5/16	5/16	13/16	2-1/2				36774-00-D	36774-86-D
TT-30312-020	5/16	5/16	13/16	2-1/2		.020		36955-00-D	36955-86-D
TT-RN-30312-000	5/16	5/16	7/16	2-1/2	1-1/8		.297	36776-00-D	36776-86-D
TT-RN-30312-020	5/16	5/16	7/16	2-1/2	1-1/8	.020	.297	36956-00-D	36956-86-D
TT-RN-M-30312-000	5/16	5/16	7/16	4	2-1/8		.297	36778-00-D	36778-86-D
TT-RN-M-30312-020	5/16	5/16	7/16	4	2-1/8	.020	.297	36957-00-D	36957-86-D
TT-ST-30375-000	3/8	3/8	1/2	2-1/2				36780-00-D	36780-86-D
TT-ST-30375-020	3/8	3/8	1/2	2-1/2		.020		36958-00-D	36958-86-D
TT-30375-000	3/8	3/8	1	2-1/2				36786-00-D	36786-86-D
TT-30375-020	3/8	3/8	1	2-1/2		.020		36959-00-D	36959-86-D
TT-RN-30375-000	3/8	3/8	1/2	2-1/2	1-1/8		.355	36789-00-D	36789-86-D
TT-RN-30375-020	3/8	3/8	1/2	2-1/2	1-1/8	.020	.355	36960-00-D	36960-86-D
TT-RN-M-30375-000	3/8	3/8	1/2	4	2-1/8		.355	36792-00-D	36792-86-D
TT-RN-M-30375-020	3/8	3/8	1/2	4	2-1/8	.020	.355	36961-00-D	36961-86-D
TT-ST-30500-000	1/2	1/2	5/8	3				36795-00-D	36795-86-D
TT-ST-30500-030	1/2	1/2	5/8	3		.030		36796-00-D	36796-86-D
TT-ST-30500-060	1/2	1/2	5/8	3		.060		36797-00-D	36797-86-D
TT-30500-000	1/2	1/2	1-1/4	3				36798-00-D	36798-86-D
TT-30500-030	1/2	1/2	1-1/4	3		.030		36799-00-D	36799-86-D
TT-30500-060	1/2	1/2	1-1/4	3		.060		36800-00-D	36800-86-D
TT-RN-30500-000	1/2	1/2	5/8	3	1-3/8		.475	36801-00-D	36801-86-D
TT-RN-30500-030	1/2	1/2	5/8	3	1-3/8	.030	.475	36803-00-D	36803-86-D
TT-RN-30500-060	1/2	1/2	5/8	3	1-3/8	.060	.475	36805-00-D	36805-86-D
TT-RN-M-30500-000	1/2	1/2	5/8	4	2-1/8		.475	36807-00-D	36807-86-D
TT-RN-M-30500-030	1/2	1/2	5/8	4	2-1/8	.030	.475	36809-00-D	36809-86-D
TT-RN-M-30500-060	1/2	1/2	5/8	4	2-1/8	.060	.475	36811-00-D	36811-86-D

*LBS: Length Below Shank

Continued next page

Triple Threat™ Three Flute Rougher/Finisher, Inch

High Performance Carbide

- 45 Degree Helix for Enhanced Chip Evacuation
- Plain Cylindrical Shank
- Three Flutes Permit High Machine Productivity
- Stocked Stub, Regular and Reduced Neck

- Available Upon Request:
 - Coolant Grooves
 - Additional Coatings
 - Additional Radius

Part Number	Dia.	Shank	LOC	OAL	LBS*	Radius	Neck Dia.	EDP	C5 EDP
TT-ST-30625-000	5/8	5/8	3/4	3				36813-00-D	36813-86-D
TT-ST-30625-030	5/8	5/8	3/4	3		.030		36814-00-D	36814-86-D
TT-ST-30625-060	5/8	5/8	3/4	3		.060		36815-00-D	36815-86-D
TT-30625-000	5/8	5/8	1-5/8	3-1/2				36816-00-D	36816-86-D
TT-30625-030	5/8	5/8	1-5/8	3-1/2		.030		36817-00-D	36817-86-D
TT-30625-060	5/8	5/8	1-5/8	3-1/2		.060		36818-00-D	36818-86-D
TT-RN-30625-000	5/8	5/8	3/4	4	1-5/8		.590	36819-00-D	36819-86-D
TT-RN-30625-030	5/8	5/8	3/4	4	1-5/8	.030	.590	36820-00-D	36820-86-D
TT-RN-30625-060	5/8	5/8	3/4	4	1-5/8	.060	.590	36821-00-D	36821-86-D
TT-RN-M-30625-000	5/8	5/8	3/4	6	2-3/8		.590	36822-00-D	36822-86-D
TT-RN-M-30625-030	5/8	5/8	3/4	6	2-3/8	.030	.590	36823-00-D	36823-86-D
TT-RN-M-30625-060	5/8	5/8	3/4	6	2-3/8	.060	.590	36824-00-D	36824-86-D
TT-ST-30750-000	3/4	3/4	1	3				36825-00-D	36825-86-D
TT-ST-30750-030	3/4	3/4	1	3		.030		36826-00-D	36826-86-D
TT-ST-30750-060	3/4	3/4	1	3		.060		36827-00-D	36827-86-D
TT-30750-000	3/4	3/4	1-5/8	4				36828-00-D	36828-86-D
TT-30750-030	3/4	3/4	1-5/8	4		.030		36829-00-D	36829-86-D
TT-30750-060	3/4	3/4	1-5/8	4		.060		36830-00-D	36830-86-D
TT-RN-30750-000	3/4	3/4	1	4	2		.715	36831-00-D	36831-86-D
TT-RN-30750-030	3/4	3/4	1	4	2	.030	.715	36832-00-D	36832-86-D
TT-RN-30750-060	3/4	3/4	1	4	2	.060	.715	36833-00-D	36833-86-D
TT-RN-M-30750-000	3/4	3/4	1	6	2-5/8		.715	36834-00-D	36834-86-D
TT-RN-M-30750-030	3/4	3/4	1	6	2-5/8	.030	.715	36835-00-D	36835-86-D
TT-RN-M-30750-060	3/4	3/4	1	6	2-5/8	.060	.715	36836-00-D	36836-86-D
TT-ST-31000-000	1	1	1-1/4	4				36837-00-D	36837-86-D
TT-ST-31000-030	1	1	1-1/4	4		.030		36838-00-D	36838-86-D
TT-ST-31000-060	1	1	1-1/4	4		.060		36839-00-D	36839-86-D
TT-31000-000	1	1	2	5				36840-00-D	36840-86-D
TT-31000-030	1	1	2	5		.030		36841-00-D	36841-86-D
TT-31000-060	1	1	2	5		.060		36842-00-D	36842-86-D
TT-RN-31000-000	1	1	1-1/4	5	2-5/8		.960	36843-00-D	36843-86-D
TT-RN-31000-030	1	1	1-1/4	5	2-5/8	.030	.960	36844-00-D	36844-86-D
TT-RN-31000-060	1	1	1-1/4	5	2-5/8	.060	.960	36845-00-D	36845-86-D
TT-RN-M-31000-000	1	1	1-1/4	7	3-5/8		.960	36846-00-D	36846-86-D
TT-RN-M-31000-030	1	1	1-1/4	7	3-5/8	.030	.960	36847-00-D	36847-86-D
TT-RN-M-31000-060	1	1	1-1/4	7	3-5/8	.060	.960	36848-00-D	36848-86-D

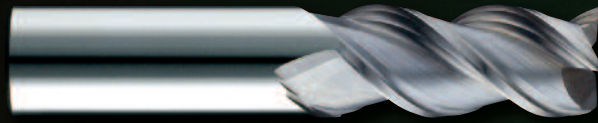
*LBS: Length Below Shank

For additional support and for maximum optimization of your Data Flute tools, call us toll free at 800.447.1476 and ask to speak to our Technical Support Department.



Triple Threat™ Three Flute Rougher/Finisher, Metric

High Performance Carbide



The Triple Threat™ tool is a multi-patented three flute high performance carbide end mill designed to finish and rough in aluminum and non-ferrous metals. The high shear, 45 degree helix and improved inter-flute geometries enhanced chip evacuation and permit increased chip loads as well as aggressive feed rates.

Triple Threat™ Three Flute Rougher/Finisher, Metric Continued

High Performance Carbide

- 45 Degree Helix for Enhanced Chip Evacuation
- Plain Cylindrical Shank
- Three Flutes Permit High Machine Productivity
- Stocked Stub, Regular and Reduced Neck

- Available Upon Request:
 - Coolant Grooves
 - Additional Coatings
 - Additional Radius

Feeds and Speeds Chart with Chip-Load per/tooth in Inches

Materials		Aluminum Alloys	Aluminum Cast	Aluminum	Copper	Brass	Magnesium
Diameter	Description	6061, 7075	Sand & Permanent Mold	>10%Silicon High Silicon Based	Cast, Wrought	Yellow, Red Lead Brass	Cast, Wrought
	SFM	800 - Max	250 - 600	600 - 1000	700 - 1000	500 - 900	500 - 900
6	HP	0.003	0.003	0.003	0.003	0.003	0.003
	LP	0.004	0.004	0.004	0.004	0.004	0.004
	Finish	0.005	0.006	0.005	0.005	0.005	0.005
8	HP	0.004	0.004	0.003	0.003	0.003	0.003
	LP	0.005	0.005	0.004	0.004	0.004	0.004
	Finish	0.006	0.006	0.006	0.006	0.006	0.006
10	HP	0.005	0.005	0.004	0.004	0.004	0.004
	LP	0.006	0.006	0.006	0.006	0.006	0.006
	Finish	0.007	0.008	0.007	0.007	0.007	0.007
12	HP	0.008	0.008	0.007	0.007	0.007	0.007
	LP	0.010	0.010	0.009	0.009	0.009	0.009
	Finish	0.012	0.012	0.010	0.010	0.010	0.010
16	HP	0.008	0.008	0.007	0.007	0.007	0.007
	LP	0.010	0.010	0.009	0.009	0.009	0.009
	Finish	0.010	0.010	0.009	0.009	0.009	0.009
18	HP	0.009	0.008	0.007	0.007	0.007	0.007
	LP	0.012	0.012	0.010	0.010	0.010	0.010
	Finish	0.014	0.016	0.013	0.013	0.013	0.013
20	HP	0.009	0.008	0.007	0.007	0.007	0.007
	LP	0.012	0.012	0.011	0.011	0.011	0.011
	Finish	0.015	0.016	0.014	0.014	0.014	0.014
25	HP	0.014	0.013	0.011	0.011	0.011	0.011
	LP	0.017	0.017	0.015	0.015	0.015	0.015
	Finish	0.021	0.023	0.019	0.019	0.019	0.019

HP = HEAVY PERIPHERAL
Axial Depth up to
Effective Length of Cut
Radial width .3 x Diameter

FINISH = FINISH OPERATION
Axial Depth up to
Effective Length of Cut
Radial width .02 x Diameter

LP = LIGHT PERIPHERAL
Axial Depth up to
Effective Length of Cut
Radial width .01 x Diameter

Note! Horsepower will be the limiting factor with larger diameter end mills.

Horsepower = IPM x RDC x ADC x PC
IPM = Inches Per Minute
RDC = Radial Depth of Cut (Width)
ADC = Axial Depth of Cut (Depth)
PC = Power Constants (Aluminum = (0.25))
Example Slotting = 3/4 diameter x 3/8 @ 150 IPM
HP = 150 IPM x .750 RDC x .375 ADC x PC of 0.25
HP = 10.8 @ cutter/80%Efficiency = 12.8 @ Spindle Motor

Part Number	Dia.	Shank	LOC	OAL	LBS*	Radius	Neck Dia.	EDP	C5 EDP
TT-ST-306M-.3	6	6	10	55		.3		36962-00-D	36962-86-D
TT-306M-.3	6	6	20	58		.3		36963-00-D	36963-86-D
TT-RN-306M-.3	6	6	10	58	21	.3	5.48	36964-00-D	36964-86-D
TT-RN-M-306M-.3	6	6	10	80	44	.3	5.48	36965-00-D	36965-86-D
TT-ST-308M-.3	8	8	12	59		.3		36966-00-D	36966-86-D
TT-ST-308M-1	8	8	12	59		1		36967-00-D	36967-86-D
TT-308M-.3	8	8	22	64		.3		36968-00-D	36968-86-D
TT-308M-1	8	8	22	64		1		36969-00-D	36969-86-D
TT-RN-308M-.3	8	8	12	64	27	.3	7.59	36970-00-D	36970-86-D
TT-RN-308M-1	8	8	12	64	27	1	7.59	36971-00-D	36971-86-D
TT-RN-M-308M-.3	8	8	12	100	54	.3	7.59	36972-00-D	36972-86-D
TT-RN-M-308M-1	8	8	12	100	54	1	7.59	36973-00-D	36973-86-D
TT-ST-310M-.3	10	10	14	67		.3		36974-00-D	36974-86-D
TT-ST-310M-1	10	10	14	67		1		36975-00-D	36975-86-D
TT-310M-.3	10	10	25	73		.3		36976-00-D	36976-86-D
TT-310M-1	10	10	25	73		1		36977-00-D	36977-86-D
TT-RN-310M-.3	10	10	14	73	32	.3	9.47	36978-00-D	36978-86-D
TT-RN-310M-1	10	10	14	73	32	1	9.47	36979-00-D	36979-86-D
TT-RN-M-310M-.3	10	10	14	100	60	.3	9.47	36980-00-D	36980-86-D
TT-RN-M-310M-1	10	10	14	100	60	1	9.47	36981-00-D	36981-86-D
TT-ST-312M-.3	12	12	16	74		.3		36982-00-D	36982-86-D
TT-ST-312M-1	12	12	16	74		1		36983-00-D	36983-86-D
TT-312M-.3	12	12	26	84		.3		36984-00-D	36984-86-D
TT-312M-1	12	12	26	84		1		36985-00-D	36985-86-D
TT-RN-312M-.3	12	12	16	84	38	.3	11.22	36986-00-D	36986-86-D
TT-RN-312M-1	12	12	16	84	38	1	11.22	36987-00-D	36987-86-D
TT-RN-M-312M-.3	12	12	16	100	60	.3	11.22	36988-00-D	36988-86-D
TT-RN-M-312M-1	12	12	16	100	60	1	11.22	36989-00-D	36989-86-D
TT-ST-314M-.3	14	14	18	76		.3		36990-00-D	36990-86-D
TT-ST-314M-1	14	14	18	76		1		36991-00-D	36991-86-D
TT-314M-.3	14	14	26	84		.3		36992-00-D	36992-86-D
TT-314M-1	14	14	26	84		1		36993-00-D	36993-86-D
TT-RN-314M-.3	14	14	18	84	38	.3	13.13	36994-00-D	36994-86-D
TT-RN-314M-1	14	14	18	84	38	1	13.13	36995-00-D	36995-86-D
TT-RN-M-314M-.3	14	14	18	100	60	.3	13.13	36996-00-D	36996-86-D
TT-RN-M-314M-1	14	14	18	100	60	1	13.13	36997-00-D	36997-86-D

*LBS: Length Below Shank

Continued next page

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Triple Threat™ Three Flute Rougher/Finisher, Metric

High Performance Carbide

- 45 Degree Helix for Enhanced Chip Evacuation
- Plain Cylindrical Shank
- Three Flutes Permit High Machine Productivity
- Stocked Stub, Regular and Reduced Neck

- Available Upon Request:
 - Coolant Grooves
 - Additional Coatings
 - Additional Radius

Triple Threat™ Three Flute Rougher/Finisher, With Chip Breakers, Inch High Performance Carbide



The Triple Threat™ tool is a multi-patented three flute high performance carbide end mill designed to finish and rough in aluminum and non-ferrous metals. The high shear, 45 degree helix and improved inter-flute geometries enhanced chip evacuation and permit increased chip loads as well as aggressive feed rates.

Part Number	Dia.	Shank	LOC	OAL	LBS*	Radius	Neck Dia.	EDP	C5 EDP
TT-ST-316M-1	16	16	22	83		1		36999-00-D	36999-86-D
TT-ST-316M-2	16	16	22	83		2		37000-00-D	37000-86-D
TT-316M-1	16	16	32	93		1		37001-00-D	37001-86-D
TT-316M-2	16	16	32	93		2		37003-00-D	37003-86-D
TT-RN-316M-1	16	16	22	93	44	1	15.03	37005-00-D	37005-86-D
TT-RN-316M-2	16	16	22	93	44	2	15.03	37007-00-D	37007-86-D
TT-RN-M-316M-1	16	16	22	130	75	1	15.03	37008-00-D	37008-86-D
TT-RN-M-316M-2	16	16	22	130	75	2	15.03	37009-00-D	37009-86-D
TT-ST-318M-1	18	18	24	85		1		37010-00-D	37010-86-D
TT-ST-318M-2	18	18	24	85		2		37011-00-D	37011-86-D
TT-318M-1	18	18	32	93		1		37012-00-D	37012-86-D
TT-318M-2	18	18	32	93		2		37013-00-D	37013-86-D
TT-RN-318M-1	18	18	24	93	44	1	16.88	37014-00-D	37014-86-D
TT-RN-318M-2	18	18	24	93	44	2	16.88	37015-00-D	37015-86-D
TT-RN-M-318M-1	18	18	24	130	75	1	16.88	37016-00-D	37016-86-D
TT-RN-M-318M-2	18	18	24	130	75	2	16.88	37017-00-D	37017-86-D
TT-ST-320M-1	20	20	26	93		1		37018-00-D	37018-86-D
TT-ST-320M-2	20	20	26	93		2		37019-00-D	37019-86-D
TT-320M-1	20	20	38	105		1		37020-00-D	37020-86-D
TT-320M-2	20	20	38	105		2		37021-00-D	37021-86-D
TT-RN-320M-1	20	20	26	105	54	1	18.76	37022-00-D	37022-86-D
TT-RN-320M-2	20	20	26	105	54	2	18.76	37023-00-D	37023-86-D
TT-RN-M-320M-1	20	20	26	150	96	1	18.76	37024-00-D	37024-86-D
TT-RN-M-320M-2	20	20	26	150	96	2	18.76	37025-00-D	37025-86-D
TT-ST-325M-1	25	25	38	104		1		37026-00-D	37026-86-D
TT-ST-325M-2	25	25	38	104		2		37027-00-D	37027-86-D
TT-325M-1	25	25	45	120		1		37028-00-D	37028-86-D
TT-325M-2	25	25	45	120		2		37029-00-D	37029-86-D
TT-RN-325M-1	25	25	38	120	64	1	24.00	37030-00-D	37030-86-D
TT-RN-325M-2	25	25	38	120	64	2	24.00	37031-00-D	37031-86-D
TT-RN-M-325M-1	25	25	38	150	96	1	24.00	37032-00-D	37032-86-D
TT-RN-M-325M-2	25	25	38	150	96	2	24.00	37033-00-D	37033-86-D

*LBS: Length Below Shank

Materials		Aluminum Alloys	Aluminum Cast	Aluminum	Copper	Brass	Magnesium
Diameter	Description	6061, 7075	Sand & Permanent Mold	>10%Silicon High Silicon Based	Cast, Wrought	Yellow, Red Leaded Brass	Cast, Wrought
	SFM	800 - Max	250 - 600	600 - 1000	700 - 1000	500 - 900	500 - 900
1/4"	HP	0.0037	0.0035	0.0030	0.0030	0.0030	0.0030
	LP	0.0047	0.0047	0.0041	0.0041	0.0041	0.0041
	Finish	0.0056	0.0063	0.0052	0.0052	0.0052	0.0052
5/16"	HP	0.0044	0.0040	0.0035	0.0035	0.0035	0.0035
	LP	0.0055	0.0054	0.0047	0.0047	0.0047	0.0047
	Finish	0.0068	0.0071	0.0064	0.0064	0.0064	0.0064
3/8"	HP	0.0055	0.0052	0.0045	0.0045	0.0045	0.0041
	LP	0.0070	0.0070	0.0063	0.0063	0.0063	0.0063
	Finish	0.0085	0.0094	0.0078	0.0078	0.0078	0.0078
1/2"	HP	0.0086	0.0086	0.0075	0.0075	0.0075	0.0075
	LP	0.0109	0.0109	0.0098	0.0098	0.0098	0.0098
	Finish	0.0132	0.0132	0.0109	0.0109	0.0109	0.0109
5/8"	HP	0.0092	0.0087	0.0076	0.0076	0.0076	0.0076
	LP	0.0117	0.0117	0.0105	0.0105	0.0105	0.0099
	Finish	0.0117	0.0117	0.0105	0.0105	0.0105	0.0105
3/4"	HP	0.0098	0.0092	0.0081	0.0081	0.0081	0.0081
	LP	0.0132	0.0132	0.0118	0.0118	0.0118	0.0118
	Finish	0.0161	0.0178	0.0147	0.0147	0.0147	0.0147
1"	HP	0.0155	0.0147	0.0128	0.0128	0.0128	0.0128
	LP	0.0197	0.0197	0.0176	0.0176	0.0176	0.0176
	Finish	0.0238	0.0265	0.0219	0.0219	0.0219	0.0219

HP = HEAVY PERIPHERAL
Axial Depth up to
Effective Length of Cut
Radial width .3 x Diameter

LP = LIGHT PERIPHERAL
Axial Depth up to
Effective Length of Cut
Radial width .01 x Diameter

FINISH = FINISH OPERATION
Axial Depth up to
Effective Length of Cut
Radial width .02 x Diameter

Note! Horsepower will be the limiting factor with larger diameter end mills.

Horsepower = IPM x RDC x ADC x PC
IPM = Inches Per Minute
RDC = Radial Depth of Cut (Width)
ADC = Axial Depth of Cut (Depth)
PC = Power Constants (Aluminum = (0.25))
Example Slotting = 3/4 diameter x 3/8 @ 150 IPM
HP = 150 IPM x .750 RDC x .375 ADC x PC of 0.25
HP = 10.8 @ cutter/80%Efficiency = 12.8 @ Spindle Motor

Triple Threat™ Three Flute Rougher/Finisher, With Chip Breakers, Inch High Performance Carbide

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- Plain Cylindrical Shank
- Three Flutes Permit High Machine Productivity
- Stocked Stub, Regular and Reduced Neck

- Available Upon Request:
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 - Additional Radius

Part Number	Dia.	Shank	LOC	OAL	LBS*	Radius	Neck Dia.	EDP	C5 EDP
TT-C-ST-30250-000	1/4	1/4	3/8	2				37034-00-D	37034-86-D
TT-C-ST-30250-020	1/4	1/4	3/8	2		.020		37035-00-D	37035-86-D
TT-C-30250-000	1/4	1/4	3/4	2-1/2				37036-00-D	37036-86-D
TT-C-30250-020	1/4	1/4	3/4	2-1/2		.020		37037-00-D	37037-86-D
TT-C-RN-30250-000	1/4	1/4	3/8	2-1/2	1-1/8		.235	37038-00-D	37038-86-D
TT-C-RN-30250-020	1/4	1/4	3/8	2-1/2	1-1/8	.020	.235	37039-00-D	37039-86-D
TT-C-RN-M-30250-000	1/4	1/4	3/8	4	2-1/8		.235	37040-00-D	37040-86-D
TT-C-RN-M-30250-020	1/4	1/4	3/8	4	2-1/8	.020	.235	37041-00-D	37041-86-D
TT-C-ST-30312-000	5/16	5/16	7/16	2-1/2				37042-00-D	37042-86-D
TT-C-ST-30312-020	5/16	5/16	7/16	2-1/2		.020		37043-00-D	37043-86-D
TT-C-30312-000	5/16	5/16	13/16	2-1/2				37044-00-D	37044-86-D
TT-C-30312-020	5/16	5/16	13/16	2-1/2		.020		37045-00-D	37045-86-D
TT-C-RN-30312-000	5/16	5/16	7/16	2-1/2	1-1/8		.297	37046-00-D	37046-86-D
TT-C-RN-30312-020	5/16	5/16	7/16	2-1/2	1-1/8	.020	.297	37047-00-D	37047-86-D
TT-C-RN-M-30312-000	5/16	5/16	7/16	4	2-1/8		.297	37048-00-D	37048-86-D
TT-C-RN-M-30312-020	5/16	5/16	7/16	4	2-1/8	.020	.297	37049-00-D	37049-86-D
TT-C-ST-30375-000	3/8	3/8	1/2	2-1/2				37050-00-D	37050-86-D
TT-C-ST-30375-020	3/8	3/8	1/2	2-1/2		.020		37051-00-D	37051-86-D
TT-C-30375-000	3/8	3/8	1	2-1/2				37052-00-D	37052-86-D
TT-C-30375-020	3/8	3/8	1	2-1/2		.020		37053-00-D	37053-86-D
TT-C-RN-30375-000	3/8	3/8	1/2	2-1/2	1-1/8		.355	37054-00-D	37054-86-D
TT-C-RN-30375-020	3/8	3/8	1/2	2-1/2	1-1/8	.020	.355	37055-00-D	37055-86-D
TT-C-RN-M-30375-000	3/8	3/8	1/2	4	2-1/8		.355	37056-00-D	37056-86-D
TT-C-RN-M-30375-020	3/8	3/8	1/2	4	2-1/8	.020	.355	37057-00-D	37057-86-D
TT-C-ST-30500-000	1/2	1/2	5/8	3				37058-00-D	37058-86-D
TT-C-ST-30500-030	1/2	1/2	5/8	3		.030		37059-00-D	37059-86-D
TT-C-30500-000	1/2	1/2	1-1/4	3				37060-00-D	37060-86-D
TT-C-30500-030	1/2	1/2	1-1/4	3		.030		37061-00-D	37061-86-D
TT-C-RN-30500-000	1/2	1/2	5/8	3	1-3/8		.475	37062-00-D	37062-86-D
TT-C-RN-30500-030	1/2	1/2	5/8	3	1-3/8	.030	.475	37063-00-D	37063-86-D
TT-C-RN-M-30500-000	1/2	1/2	5/8	4	2-1/8		.475	37064-00-D	37064-86-D
TT-C-RN-M-30500-030	1/2	1/2	5/8	4	2-1/8	.030	.475	37065-00-D	37065-86-D

*LBS: Length Below Shank

Continued next page

Triple Threat™ Three Flute Rougher/Finisher, With Chip Breakers, Inch High Performance Carbide

- 45 Degree Helix for Enhanced Chip Evacuation
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 - Additional Radius

Part Number	Dia.	Shank	LOC	OAL	LBS*	Radius	Neck Dia.	EDP	C5 EDP
TT-C-ST-30625-000	5/8	5/8	3/4	3				37066-00-D	37066-86-D
TT-C-ST-30625-030	5/8	5/8	3/4	3		.030		37067-00-D	37067-86-D
TT-C-30625-000	5/8	5/8	1-5/8	3-1/2				37068-00-D	37068-86-D
TT-C-30625-030	5/8	5/8	1-5/8	3-1/2		.030		37069-00-D	37069-86-D
TT-C-RN-30625-000	5/8	5/8	3/4	4	1-5/8		.590	37070-00-D	37070-86-D
TT-C-RN-30625-030	5/8	5/8	3/4	4	1-5/8	.030	.590	37071-00-D	37071-86-D
TT-C-RN-M-30625-000	5/8	5/8	3/4	6	2-3/8		.590	37072-00-D	37072-86-D
TT-C-RN-M-30625-030	5/8	5/8	3/4	6	2-3/8	.030	.590	37073-00-D	37073-86-D
TT-C-ST-30750-000	3/4	3/4	1	3				37074-00-D	37074-86-D
TT-C-ST-30750-030	3/4	3/4	1	3		.030		37075-00-D	37075-86-D
TT-C-30750-000	3/4	3/4	1-5/8	4				37076-00-D	37076-86-D
TT-C-30750-030	3/4	3/4	1-5/8	4		.030		37077-00-D	37077-86-D
TT-C-RN-30750-000	3/4	3/4	1	4	2		.715	37078-00-D	37078-86-D
TT-C-RN-30750-030	3/4	3/4	1	4	2	.030	.715	37079-00-D	37079-86-D
TT-C-RN-M-30750-000	3/4	3/4	1	6	2-5/8		.715	37080-00-D	37080-86-D
TT-C-RN-M-30750-030	3/4	3/4	1	6	2-5/8	.030	.715	37081-00-D	37081-86-D
TT-C-ST-31000-000	1	1	1-1/4	4				37082-00-D	37082-86-D
TT-C-ST-31000-030	1	1	1-1/4	4		.030		37083-00-D	37083-86-D
TT-C-31000-000	1	1	2	5				37084-00-D	37084-86-D
TT-C-31000-030	1	1	2	5		.030		37085-00-D	37085-86-D
TT-C-RN-31000-000	1	1	1-1/4	5	2-5/8		.960	37086-00-D	37086-86-D
TT-C-RN-31000-030	1	1	1-1/4	5	2-5/8	.030	.960	37087-00-D	37087-86-D
TT-C-RN-M-31000-000	1	1	1-1/4	7	3-5/8		.960	37088-00-D	37088-86-D
TT-C-RN-M-31000-030	1	1	1-1/4	7	3-5/8	.030	.960	37089-00-D	37089-86-D

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High Performance Carbide



The Triple Threat™ tool is a multi-patented three flute high performance carbide end mill designed to finish and rough in aluminum and non-ferrous metals. The high shear, 45 degree helix and improved inter-flute geometries enhanced chip evacuation and permit increased chip loads as well as aggressive feed rates.

- 45 Degree Helix for Enhanced Chip Evacuation
- Plain Cylindrical Shank
- Three Flutes Permit High Machine Productivity
- Stocked Stub, Regular and Reduced Neck
- Available Upon Request:
 - Coolant Grooves
 - Additional Coatings
 - Additional Radius

Feeds and Speeds Chart with Chip-Load per/tooth in Inches

Materials		Aluminum Alloys	Aluminum Cast	Aluminum	Copper	Brass	Magnesium
Diameter	Description	6061, 7075	Sand & Permanent Mold	>10%Silicon High Silicon Based	Cast, Wrought	Yellow, Red Leaded Brass	Cast, Wrought
	SFM	800 - Max	250 - 600	600 - 1000	700 - 1000	500 - 900	500 - 900
6	HP	0.004	0.003	0.003	0.003	0.003	0.003
	LP	0.005	0.005	0.004	0.004	0.004	0.004
	Finish	0.006	0.006	0.005	0.005	0.005	0.005
8	HP	0.004	0.004	0.003	0.003	0.003	0.003
	LP	0.006	0.005	0.005	0.005	0.005	0.005
	Finish	0.007	0.007	0.006	0.006	0.006	0.006
10	HP	0.006	0.005	0.004	0.004	0.004	0.004
	LP	0.007	0.007	0.006	0.006	0.006	0.006
	Finish	0.009	0.009	0.008	0.008	0.008	0.008
12	HP	0.009	0.009	0.007	0.007	0.007	0.007
	LP	0.011	0.011	0.010	0.010	0.010	0.010
	Finish	0.013	0.013	0.011	0.011	0.011	0.011
16	HP	0.009	0.009	0.008	0.008	0.008	0.008
	LP	0.012	0.012	0.010	0.010	0.010	0.010
	Finish	0.012	0.012	0.010	0.010	0.010	0.010
18	HP	0.010	0.009	0.008	0.008	0.008	0.008
	LP	0.013	0.013	0.012	0.012	0.012	0.012
	Finish	0.016	0.018	0.015	0.015	0.015	0.015
20	HP	0.010	0.010	0.009	0.009	0.009	0.009
	LP	0.014	0.014	0.013	0.013	0.013	0.013
	Finish	0.017	0.019	0.016	0.016	0.016	0.016
25	HP	0.016	0.015	0.013	0.013	0.013	0.013
	LP	0.020	0.020	0.018	0.018	0.018	0.018
	Finish	0.024	0.026	0.022	0.022	0.022	0.022

HP = HEAVY PERIPHERAL

Axial Depth up to
Effective Length of Cut
Radial width .3 x Diameter

FINISH = FINISH OPERATION

Axial Depth up to
Effective Length of Cut
Radial width .02 x Diameter

LP = LIGHT PERIPHERAL

Axial Depth up to
Effective Length of Cut
Radial width .01 x Diameter

Note! Horsepower will be the limiting factor with larger diameter end mills.

Horsepower = IPM x RDC x ADC x PC
IPM = Inches Per Minute
RDC = Radial Depth of Cut (Width)
ADC = Axial Depth of Cut (Depth)
PC = Power Constants (Aluminum = (0.25))
Example Slotting = 3/4 diameter x 3/8 @ 150 IPM
HP = 150 IPM x .750 RDC x .375 ADC x PC of 0.25
HP = 10.8 @ cutter/80%Efficiency = 12.8 @ Spindle Motor

For additional support and for maximum optimization of your Data Flute tools, call us toll free at 800.447.1476 and ask to speak to our Technical Support Department.



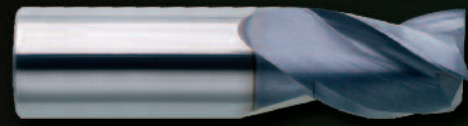
Triple Threat™ Three Flute Rougher/Finisher, With Chip Breakers, Metric

High Performance Carbide

Part Number	Dia.	Shank	LOC	OAL	LBS*	Radius	Neck Dia.	EDP	C5 EDP
TT-C-ST-306M-.3	6	6	10	55		.3		37090-00-D	37090-86-D
TT-C-306M-.3	6	6	20	58		.3		37091-00-D	37091-86-D
TT-C-RN-306M-.3	6	6	10	58	21	.3	5.48	37092-00-D	37092-86-D
TT-C-RN-M-306M-.3	6	6	10	80	44	.3	5.48	37093-00-D	37093-86-D
TT-C-ST-308M-.3	8	8	12	59		.3		37094-00-D	37094-86-D
TT-C-ST-308M-1	8	8	12	59		1		37095-00-D	37095-86-D
TT-C-308M-.3	8	8	22	64		.3		37096-00-D	37096-86-D
TT-C-308M-1	8	8	22	64		1		37097-00-D	37097-86-D
TT-C-RN-308M-.3	8	8	12	64	27	.3	7.59	37098-00-D	37098-86-D
TT-C-RN-308M-1	8	8	12	64	27	1	7.59	37099-00-D	37099-86-D
TT-C-RN-M-308M-.3	8	8	12	100	54	.3	7.59	37100-00-D	37100-86-D
TT-C-RN-M-308M-1	8	8	12	100	54	1	7.59	37101-00-D	37101-86-D
TT-C-ST-310M-.3	10	10	14	67		.3		37103-00-D	37103-86-D
TT-C-ST-310M-1	10	10	14	67		1		37105-00-D	37105-86-D
TT-C-310M-.3	10	10	25	73		.3		37107-00-D	37107-86-D
TT-C-310M-1	10	10	25	73		1		37108-00-D	37108-86-D
TT-C-RN-310M-.3	10	10	14	73	32	.3	9.47	37109-00-D	37109-86-D
TT-C-RN-310M-1	10	10	14	73	32	1	9.47	37110-00-D	37110-86-D
TT-C-RN-M-310M-.3	10	10	14	100	60	.3	9.47	37111-00-D	37111-86-D
TT-C-RN-M-310M-1	10	10	14	100	60	1	9.47	37112-00-D	37112-86-D
TT-C-ST-312M-.3	12	12	16	74		.3		37113-00-D	37113-86-D
TT-C-ST-312M-1	12	12	16	74		1		37114-00-D	37114-86-D
TT-C-312M-.3	12	12	26	84		.3		37115-00-D	37115-86-D
TT-C-312M-1	12	12	26	84		1		37116-00-D	37116-86-D
TT-C-RN-312M-.3	12	12	16	84	38	.3	11.22	37117-00-D	37117-86-D
TT-C-RN-312M-1	12	12	16	84	38	1	11.22	37118-00-D	37118-86-D
TT-C-RN-M-312M-.3	12	12	16	100	60	.3	11.22	37119-00-D	37119-86-D
TT-C-RN-M-312M-1	12	12	16	100	60	1	11.22	37120-00-D	37120-86-D
TT-C-ST-314M-.3	14	14	18	76		.3		37121-00-D	37121-86-D
TT-C-ST-314M-1	14	14	18	76		1		37122-00-D	37122-86-D
TT-C-314M-.3	14	14	26	84		.3		37123-00-D	37123-86-D
TT-C-314M-1	14	14	26	84		1		37124-00-D	37124-86-D
TT-C-RN-314M-.3	14	14	18	84	36	.3	13.13	37125-00-D	37125-86-D
TT-C-RN-314M-1	14	14	18	84	36	1	13.13	37126-00-D	37126-86-D
TT-C-RN-M-314M-.3	14	14	18	100	44	.3	13.13	37127-00-D	37127-86-D
TT-C-RN-M-314M-1	14	14	18	100	44	1	13.13	37128-00-D	37128-86-D
TT-C-ST-316M-1	16	16	22	83		1		37129-00-D	37129-86-D
TT-C-ST-316M-2	16	16	22	83		2		37130-00-D	37130-86-D
TT-C-316M-1	16	16	32	93		1		37131-00-D	37131-86-D
TT-C-316M-2	16	16	32	93		2		37132-00-D	37132-86-D
TT-C-RN-316M-1	16	16	22	93	44	1	15.03	37133-00-D	37133-86-D
TT-C-RN-316M-2	16	16	22	93	44	2	15.03	37134-00-D	37134-86-D
TT-C-RN-M-316M-1	16	16	22	130	75	1	15.03	37135-00-D	37135-86-D
TT-C-RN-M-316M-2	16	16	22	130	75	2	15.03	37136-00-D	37136-86-D
TT-C-ST-318M-1	18	18	24	85		1		37137-00-D	37137-86-D
TT-C-ST-318M-2	18	18	24	85		2		37138-00-D	37138-86-D
TT-C-318M-1	18	18	32	93		1		37139-00-D	37139-86-D
TT-C-318M-2	18	18	32	93		2		37140-00-D	37140-86-D
TT-C-RN-318M-1	18	18	24	93	44	1	16.88	37141-00-D	37141-86-D
TT-C-RN-318M-2	18	18	24	93	44	2	16.88	37142-00-D	37142-86-D
TT-C-RN-M-318M-1	18	18	24	130	75	1	16.88	37143-00-D	37143-86-D
TT-C-RN-M-318M-2	18	18	24	130	75	2	16.88	37144-00-D	37144-86-D
TT-C-ST-320M-1	20	20	26	93		1		37145-00-D	37145-86-D
TT-C-ST-320M-2	20	20	26	93		2		37146-00-D	37146-86-D
TT-C-320M-1	20	20	38	105		1		37147-00-D	37147-86-D
TT-C-320M-2	20	20	38	105		2		37148-00-D	37148-86-D
TT-C-RN-320M-1	20	20	26	105	54	1	18.76	37149-00-D	37149-86-D
TT-C-RN-320M-2	20	20	26	105	54	2	18.76	37150-00-D	37150-86-D
TT-C-RN-M-320M-1	20	20	26	150	96	1	18.76	37151-00-D	37151-86-D
TT-C-RN-M-320M-2	20	20	26	150	96	2	18.76	37152-00-D	37152-86-D
TT-C-ST-325M-1	25	25	38	104		1		37153-00-D	37153-86-D
TT-C-ST-325M-2	25	25	38	104		2		37154-00-D	37154-86-D
TT-C-325M-1	25	25	45	120		1		37155-00-D	37155-86-D
TT-C-325M-2	25	25	45	120		2		37156-00-D	37156-86-D
TT-C-RN-325M-1	25	25	38	120	64	1	24.00	37157-00-D	37157-86-D
TT-C-RN-325M-2	25	25	38	120	64	2	24.00	37158-00-D	37158-86-D
TT-C-RN-M-325M-1	25	25	38	150	96	1	24.00	37159-00-D	37159-86-D
TT-C-RN-M-325M-2	25	25	38	150	96	2	24.00	37160-00-D	37160-86-D

*LBS: Length Below Shank

ALDH Three Flute



The ALDH is the rougher of choice when optimum material removal rates are the objective. The combination of progressive geometries result in a cutting tool intended for full engagement cuts at increased feed rates. Slotting cuts of 1x the diameter or more are normally recommended. 50% greater IPM versus competitors 2 flute design is a conservative starting point.

Technical Chart

ALDH Three Flute

High Performance Carbide

- High Performance Carbide
- Double Helix
- Patented Geometry

- Available Upon Request:
 - Radius Ends
 - Coolant Grooves
 - Additional Coatings

Carbide Feeds and Speeds Chart for Non-Ferrous Materials

ALDH Materials		Aluminum Alloys	Aluminum Cast	Aluminum	Copper	Brass	Magnesium
Diameter	Description	6061, 7075	Sand & Permanent Mold	>10% Silicon High Silicon Based	Cast, Wrought	Yellow, Red, Lead Brass	Cast, Wrought
	SFM	800 - Max	250 - 600	600 - 1000	700 - 1000	500 - 900	500 - 900
1/4"	S	0.0034	0.0032	0.0028	0.0028	0.0028	0.0028
	HP	0.0043	0.0043	0.0038	0.0038	0.0038	0.0038
	LP	0.0051	0.0057	0.0048	0.0048	0.0048	0.0048
3/8"	S	0.0051	0.0048	0.0042	0.0042	0.0042	0.0042
	HP	0.0064	0.0064	0.0058	0.0058	0.0058	0.0058
	LP	0.0077	0.0086	0.0071	0.0071	0.0071	0.0071
1/2"	S	0.0080	0.0080	0.0070	0.0070	0.0070	0.0070
	HP	0.0100	0.0100	0.0090	0.0090	0.0090	0.0090
	LP	0.0120	0.0120	0.0100	0.0100	0.0100	0.0100
5/8"	S	0.0086	0.0081	0.0071	0.0071	0.0071	0.0071
	HP	0.0107	0.0107	0.0096	0.0096	0.0096	0.0096
	LP	0.0128	0.0143	0.0119	0.0119	0.0119	0.0119
3/4"	S	0.0091	0.0086	0.0075	0.0075	0.0075	0.0075
	HP	0.0122	0.0122	0.0109	0.0109	0.0109	0.0109
	LP	0.0146	0.0162	0.0135	0.0135	0.0135	0.0135
1"	S	0.0144	0.0136	0.0119	0.0119	0.0119	0.0119
	HP	0.0180	0.0180	0.0162	0.0162	0.0162	0.0162
	LP	0.0216	0.0240	0.0200	0.0200	0.0200	0.0200

S = SLOTTING
Axial Depth up to 1.0 x Diameter
Radial width .5 x Diameter

LP = LIGHT PERIPHERAL
Axial Depth up to Effective Length of Cut
Radial width .02 x Diameter

HP = HEAVY PERIPHERAL
Axial Depth up to 1.5 - 2.0 x Diameter
Radial width .3 x Diameter

Note! Horsepower will be the limiting factor with larger diameter end mills.

Horsepower = IPM x RDC x ADC x PC
IPM = Inches Per Minute
RDC = Radial Depth of Cut (Width)
ADC = Axial Depth of Cut (Depth)
PC = Power Constants (Aluminum = 0.25)
Example Slotting = 3/4 diameter x 3/8 @ 150 IPM
HP = 150 IPM x .750 RDC x .375 ADC x PC of 0.25
HP = 10.8 @ cutter/80%Efficiency = 12.8 @ Spindle Motor

Part Number	Dia.	Shank	LOC	OAL	LBS*	Radius	EDP	C4 EDP	C5 EDP
ALDH-ST-30250	1/4	1/4	3/8	2			54280-00-D	54280-89-D	54280-86-D
ALDH-30250	1/4	1/4	1/2	2-1/2			54281-00-D	54281-89-D	54281-86-D
ALDH-M-30250	1/4	1/4	3/4	3			54282-00-D	54282-89-D	54282-86-D
ALDH-RN-ST-30250	1/4	1/4	3/8	2-1/2	3/4		54283-00-D	54283-89-D	54283-86-D
ALDH-RN-M-30250	1/4	1/4	3/8	3	1-1/8		54284-00-D	54284-89-D	54284-86-D
ALDH-ST-30375	3/8	3/8	1/2	2			50501-00-D	50501-89-D	50501-86-D
ALDH-30375	3/8	3/8	3/4	2-1/2			50529-00-D	50529-89-D	50529-86-D
ALDH-M-30375	3/8	3/8	1	3			54285-00-D	54285-89-D	54285-86-D
ALDH-RN-30375	3/8	3/8	1/2	2-1/2	1-1/8		50575-00-D	50575-89-D	50575-86-D
ALDH-RN-30375-020	3/8	3/8	1/2	2-1/2	1-1/8	.020	50603-00-D	50603-89-D	50603-86-D
ALDH-RN-M-30375	3/8	3/8	1/2	3-1/2	2-1/8		54286-00-D	54286-89-D	54286-86-D
ALDH-ST-30500	1/2	1/2	5/8	2-1/2			50506-00-D	50506-89-D	50506-86-D
ALDH-ST-L-30500	1/2	1/2	1	3			54287-00-D	54287-89-D	54287-86-D
ALDH-30500	1/2	1/2	1-1/4	3			50536-00-D	50536-89-D	50536-86-D
ALDH-RN-30500	1/2	1/2	5/8	3	1-3/8		50582-00-D	50582-89-D	50582-86-D
ALDH-RN-30500-030	1/2	1/2	5/8	3	1-3/8	.030	50608-00-D	50608-89-D	50608-86-D
ALDH-RN-M-30500	1/2	1/2	5/8	4	2-1/8		54288-00-D	54288-89-D	54288-86-D
ALDH-RN-L-30500	1/2	1/2	5/8	6	3-3/8		54289-00-D	54289-89-D	54289-86-D
ALDH-ST-30625	5/8	5/8	3/4	3			50511-00-D	50511-89-D	50511-86-D
ALDH-ST-L-30625	5/8	5/8	1-1/4	4			54290-00-D	54290-89-D	54290-86-D
ALDH-30625	5/8	5/8	1-5/8	4			50544-00-D	50544-89-D	50544-86-D
ALDH-RN-30625	5/8	5/8	3/4	4	1-5/8		50587-00-D	50587-89-D	50587-86-D
ALDH-RN-30625-030	5/8	5/8	3/4	4	1-5/8	.030	50613-00-D	50613-89-D	50613-86-D
ALDH-RN-M-30625	5/8	5/8	3/4	5	2-3/8		54291-00-D	54291-89-D	54291-86-D
ALDH-RN-L-30625	5/8	5/8	3/4	6	3-3/8		54292-00-D	54292-89-D	54292-86-D
ALDH-ST-30750	3/4	3/4	1	3			50516-00-D	50516-89-D	50516-86-D
ALDH-30750	3/4	3/4	1-5/8	4			50552-00-D	50552-89-D	50552-86-D
ALDH-M-30750	3/4	3/4	2-1/4	5			54293-00-D	54293-89-D	54293-86-D
ALDH-RN-30750	3/4	3/4	1	4	2		50592-00-D	50592-89-D	50592-86-D
ALDH-RN-30750-030	3/4	3/4	1	4	2	.030	50618-00-D	50618-89-D	50618-86-D
ALDH-RN-M-30750	3/4	3/4	1	5	2-1/2		54294-00-D	54294-89-D	54294-86-D
ALDH-RN-L-30750	3/4	3/4	1	6	3-3/8		54295-00-D	54295-89-D	54295-86-D
ALDH-ST-31000	1	1	1-1/4	4			50523-00-D	50523-89-D	50523-86-D
ALDH-31000	1	1	1-3/4	4			50562-00-D	50562-89-D	50562-86-D
ALDH-M-31000	1	1	2-1/4	6			54297-00-D	54297-89-D	54297-86-D
ALDH-RN-31000	1	1	1-1/4	5	2		50597-00-D	50597-89-D	50597-86-D
ALDH-RN-31000-030	1	1	1-1/4	5	2	.030	50624-00-D	50624-89-D	50624-86-D
ALDH-RN-M-31000	1	1	1-1/4	5	2-5/8		54298-00-D	54298-89-D	54298-86-D
ALDH-RN-L-31000	1	1	1-1/4	6	3-3/8		54299-00-D	54299-89-D	54299-86-D
ALDH-RN-X-31000	1	1	1-1/4	7	4-3/8		54300-00-D	54300-89-D	54300-86-D

*LBS: Length Below Shank

For additional support and for maximum optimization of your Data Flute tools, call us toll free at 800.447.1476 and ask to speak to our Technical Support Department.



ALDH-C Three Flute



ALDH-C series combines the performance of the ALDH series with a truncated knuckle form to manage chips and Horse Power. It is designed for freer cutting without sacrificing work piece surface finishes. This unique O.D. form also aids in chip control and management in gummy, non-ferrous materials. The tools are available from stock in stub and standard lengths with coatings to match your particular applications.

Technical Chart

ALDH-C Three Flute

High Performance Carbide

- High Performance Carbide
- Double Helix
- Truncated Geometry

- Available Upon Request:
 - Radius Ends
 - Coolant Groves
 - Additional Coating

Carbide Feeds and Speeds Chart for Non-Ferrous Materials

ALDH-C Materials		Aluminum Alloys	Aluminum Cast	Aluminum	Copper	Brass	Magnesium
Diameter	Description	6061, 7075	Sand & Permanent Mold	>10% Silicon High Silicon Based	Cast, Wrought	Yellow, Red, Lead Brass	Cast, Wrought
	SFM	800 - Max	250 - 600	600 - 1000	700 - 1000	500 - 900	500 - 900
1/4"	S	0.0034	0.0032	0.0028	0.0028	0.0028	0.0028
	HP	0.0043	0.0043	0.0038	0.0038	0.0038	0.0038
	LP	0.0051	0.0057	0.0048	0.0048	0.0048	0.0048
3/8"	S	0.0051	0.0048	0.0042	0.0042	0.0042	0.0042
	HP	0.0064	0.0064	0.0058	0.0058	0.0058	0.0058
	LP	0.0077	0.0086	0.0071	0.0071	0.0071	0.0071
1/2"	S	0.0080	0.0080	0.0070	0.0070	0.0070	0.0070
	HP	0.0100	0.0100	0.0090	0.0090	0.0090	0.0090
	LP	0.0120	0.0120	0.0100	0.0100	0.0100	0.0100
5/8"	S	0.0086	0.0081	0.0071	0.0071	0.0071	0.0071
	HP	0.0107	0.0107	0.0096	0.0096	0.0096	0.0096
	LP	0.0128	0.0143	0.0119	0.0119	0.0119	0.0119
3/4"	S	0.0091	0.0086	0.0075	0.0075	0.0075	0.0075
	HP	0.0122	0.0122	0.0109	0.0109	0.0109	0.0109
	LP	0.0146	0.0162	0.0135	0.0135	0.0135	0.0135
1"	S	0.0144	0.0136	0.0119	0.0119	0.0119	0.0119
	HP	0.0180	0.0180	0.0162	0.0162	0.0162	0.0162
	LP	0.0216	0.0240	0.0200	0.0200	0.0200	0.0200

S = SLOTTING
Axial Depth up to 1.0 x Diameter
Radial width .5 x Diameter

LP = LIGHT PERIPHERAL
Axial Depth up to Effective Length of Cut
Radial width .02 x Diameter

HP = HEAVY PERIPHERAL
Axial Depth up to 1.5 - 2.0 x Diameter
Radial width .3 x Diameter

Note! Horsepower will be the limiting factor with larger diameter end mills.

Horsepower = IPM x RDC x ADC x PC
IPM = Inches Per Minute
RDC = Radial Depth of Cut (Width)
ADC = Axial Depth of Cut (Depth)
PC = Power Constants (Aluminum = (0.25))
Example Slotting = 3/4 diameter x 3/8 @ 150 IPM
HP = 150 IPM x .750 RDC x .375 ADC x PC of 0.25
HP = 10.8 @ cutter/80%Efficiency = 12.8 @ Spindle Motor

Part Number	Dia.	Shank	LOC	OAL	LBS*	Radius	EDP	C4 EDP	C5 EDP
ALDH-ST-C-30250	1/4	1/4	3/8	2			54301-00-D	54301-89-D	54301-86-D
ALDH-C-30250	1/4	1/4	1/2	2-1/2			54302-00-D	54302-89-D	54302-86-D
ALDH-M-C-30250	1/4	1/4	3/4	3			54303-00-D	54303-89-D	54303-86-D
ALDH-RN-ST-C-30250	1/4	1/4	3/8	2-1/2	3/4		54304-00-D	54304-89-D	54304-86-D
ALDH-RN-M-C-30250	1/4	1/4	3/8	3	1-1/8		54306-00-D	54306-89-D	54306-86-D
ALDH-ST-C-30375	3/8	3/8	1/2	2			50631-00-D	50631-89-D	50631-86-D
ALDH-C-30375	3/8	3/8	3/4	2-1/2			50647-00-D	50647-89-D	50647-86-D
ALDH-M-C-30375	3/8	3/8	1	3			54307-00-D	54307-89-D	54307-86-D
ALDH-RN-C-30375	3/8	3/8	1/2	2-1/2	1-1/8		50663-00-D	50663-89-D	50663-86-D
ALDH-RN-C-30375-020	3/8	3/8	1/2	2-1/2	1-1/8	.020	50678-00-D	50678-89-D	50678-86-D
ALDH-RN-M-C-30375	3/8	3/8	1/2	3-1/2	2-1/8		54308-00-D	54308-89-D	54308-86-D
ALDH-ST-C-30500	1/2	1/2	5/8	2-1/2			50634-00-D	50634-89-D	50634-86-D
ALDH-STL-C-30500	1/2	1/2	1	3			54309-00-D	54309-89-D	54309-86-D
ALDH-C-30500	1/2	1/2	1-1/4	3			50651-00-D	50651-89-D	50651-86-D
ALDH-RN-C-30500	1/2	1/2	5/8	3	1-3/8		50666-00-D	50666-89-D	50666-86-D
ALDH-RN-C-30500-030	1/2	1/2	5/8	3	1-3/8	.030	50681-00-D	50681-89-D	50681-86-D
ALDH-RN-M-C-30500	1/2	1/2	5/8	4	2-1/8		54310-00-D	54310-89-D	54310-86-D
ALDH-RN-L-C-30500	1/2	1/2	5/8	6	3-3/8		54311-00-D	54311-89-D	54311-86-D
ALDH-ST-C-30625	5/8	5/8	3/4	3			50637-00-D	50637-89-D	50637-86-D
ALDH-STL-C-30625	5/8	5/8	1-1/4	4			54312-00-D	54312-89-D	54312-86-D
ALDH-C-30625	5/8	5/8	1-5/8	4			50654-00-D	50654-89-D	50654-86-D
ALDH-RN-C-30625	5/8	5/8	3/4	4	1-5/8		50669-00-D	50669-89-D	50669-86-D
ALDH-RN-C-30625-030	5/8	5/8	3/4	4	1-5/8	.030	50684-00-D	50684-89-D	50684-86-D
ALDH-RN-M-C-30625	5/8	5/8	3/4	5	2-3/8		54313-00-D	54313-89-D	54313-86-D
ALDH-RN-L-C-30625	5/8	5/8	3/4	6	3-3/8		54314-00-D	54314-89-D	54314-86-D
ALDH-ST-C-30750	3/4	3/4	1	3			50641-00-D	50641-89-D	50641-86-D
ALDH-C-30750	3/4	3/4	1-5/8	4			50657-00-D	50657-89-D	50657-86-D
ALDH-M-C-30750	3/4	3/4	2-1/4	5			54315-00-D	54315-89-D	54315-86-D
ALDH-RN-C-30750	3/4	3/4	1	4	2		50672-00-D	50672-89-D	50672-86-D
ALDH-RN-C-30750-030	3/4	3/4	1	4	2	.030	50688-00-D	50688-89-D	50688-86-D
ALDH-RN-M-C-30750	3/4	3/4	1	5	2-1/2		54317-00-D	54317-89-D	54317-86-D
ALDH-RN-L-C-30750	3/4	3/4	1	6	3-3/8		54318-00-D	54318-89-D	54318-86-D
ALDH-ST-C-31000	1	1	1-1/4	4			50644-00-D	50644-89-D	50644-86-D
ALDH-C-31000	1	1	1-3/4	4			50660-00-D	50660-89-D	50660-86-D
ALDH-M-C-31000	1	1	2-1/4	6			54319-00-D	54319-89-D	54319-86-D
ALDH-RN-C-31000	1	1	1-1/4	5	2		50675-00-D	50675-89-D	50675-86-D
ALDH-RN-C-31000-030	1	1	1-1/4	5	2	.030	50691-00-D	50691-89-D	50691-86-D
ALDH-RN-M-C-31000	1	1	1-1/4	5	2-5/8		54320-00-D	54320-89-D	54320-86-D
ALDH-RN-L-C-31000	1	1	1-1/4	6	3-3/8		54321-00-D	54321-89-D	54321-86-D
ALDH-RN-X-C-31000	1	1	1-1/4	7	4-3/8		54322-00-D	54322-89-D	54322-86-D

*LBS: Length Below Shank

For additional support and for maximum optimization of your Data Flute tools, call us toll free at 800.447.1476 and ask to speak to our Technical Support Department.



ARF Two Flute Series

High Performance Carbide



The ARF Series is a time-honored workhorse in our aluminum cutting tool family. Designed as a 2 flute, rougher/finisher, this tool can pull "double duty" in your aluminum and non-ferrous applications. The high helix angle provides exceptional shearing action and chip removal. Available in lengths ranging from stub for aggressive roughing, to extended lengths for tall side milling cuts.

- Rough and Finish
- Higher Helix Aids in Chip Removal
- High Performance Carbide
- Available Upon Request:
 - Radius Ends
 - Coolant Groves
 - Additional Coatings

Carbide Feeds and Speeds Chart for Non-Ferrous Materials

ARF Materials		Aluminum Alloys	Aluminum Cast	Aluminum	Copper	Brass	Magnesium
Diameter	Description	6061, 7075	Sand & Permanent Mold	>10% Silicon High Silicon Based	Cast, Wrought	Yellow, Red, Leaded Brass	Cast, Wrought
	SFM	800 - Max	250 - 600	600 - 1000	700 - 1000	500 - 900	500 - 900
1/8"	S	0.0022	0.0020	0.0018	0.0018	0.0018	0.0018
	HP	0.0029	0.0029	0.0026	0.0026	0.0026	0.0026
	LP	0.0035	0.0038	0.0032	0.0032	0.0032	0.0032
1/4"	S	0.0034	0.0032	0.0028	0.0028	0.0028	0.0028
	HP	0.0043	0.0043	0.0038	0.0038	0.0038	0.0038
	LP	0.0051	0.0057	0.0048	0.0048	0.0048	0.0048
5/16"	S	0.0038	0.0036	0.0031	0.0031	0.0031	0.0031
	HP	0.0050	0.0050	0.0045	0.0045	0.0045	0.0045
	LP	0.0061	0.0067	0.0056	0.0056	0.0056	0.0056
3/8"	S	0.0051	0.0048	0.0042	0.0042	0.0042	0.0042
	HP	0.0064	0.0064	0.0058	0.0058	0.0058	0.0058
	LP	0.0077	0.0086	0.0071	0.0071	0.0071	0.0071
7/16"	S	0.0061	0.0058	0.0050	0.0050	0.0050	0.0050
	HP	0.0076	0.0076	0.0069	0.0069	0.0069	0.0069
	LP	0.0091	0.0102	0.0085	0.0085	0.0085	0.0085
1/2"	S	0.0080	0.0080	0.0070	0.0070	0.0070	0.0070
	HP	0.0100	0.0100	0.0090	0.0090	0.0090	0.0090
	LP	0.0120	0.0120	0.0100	0.0100	0.0100	0.0100
5/8"	S	0.0086	0.0081	0.0071	0.0071	0.0071	0.0071
	HP	0.0107	0.0107	0.0096	0.0096	0.0096	0.0096
	LP	0.0128	0.0143	0.0119	0.0119	0.0119	0.0119
3/4"	S	0.0091	0.0086	0.0075	0.0075	0.0075	0.0075
	HP	0.0122	0.0122	0.0109	0.0109	0.0109	0.0109
	LP	0.0146	0.0162	0.0135	0.0135	0.0135	0.0135
1"	S	0.0144	0.0136	0.0119	0.0119	0.0119	0.0119
	HP	0.0180	0.0180	0.0162	0.0162	0.0162	0.0162
	LP	0.0216	0.0240	0.0200	0.0200	0.0200	0.0200

S = SLOTTING
Axial Depth up to
1.0 x Diameter
Radial width .5 x Diameter

LP = LIGHT PERIPHERAL
Axial Depth up to
Effective Length of Cut
Radial width .015 x Diameter

HP = HEAVY PERIPHERAL
Axial Depth up to
1.5 - 2.0 x Diameter
Radial width .25 x Diameter

Note! Horsepower will be
the limiting factor with larger
diameter end mills.

Horsepower = IPM x RDC x ADC x PC
IPM = Inches Per Minute
RDC = Radial Depth of Cut (Width)
ADC = Axial Depth of Cut (Depth)
PC = Power Constants (Aluminum = (0.25))
Example Slotting = 3/4 diameter x 3/8 @ 150 IPM
HP = 150 IPM x .750 RDC x .375 ADC x PC of 0.25
HP = 10.8 @ cutter/80%Efficiency = 12.8 @ Spindle Motor

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ARF Two Flute Series

High Performance Carbide

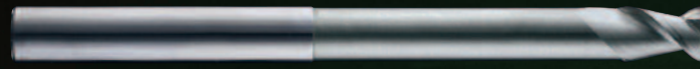
Part Number	Dia.	Shank	LOC	OAL	EDP	C4 EDP	C5 EDP
ARF-ST-20125	1/8	1/8	1/4	1-1/2	32821-00-D	32821-89-D	32821-86-D
ARF-20125	1/8	1/8	3/8	1-1/2	32588-00-D	32588-89-D	32588-86-D
ARF-ST-20156	5/32	3/16	5/16	2	32829-00-D	32829-89-D	32829-86-D
ARF-20156	5/32	3/16	9/16	2	32596-00-D	32596-89-D	32596-86-D
ARF-ST-20187	3/16	3/16	5/16	2	32837-00-D	32837-89-D	32837-86-D
ARF-20187	3/16	3/16	9/16	2	32604-00-D	32604-89-D	32604-86-D
ARF-ST-20218	7/32	1/4	3/8	2-1/2	32845-00-D	32845-89-D	32845-86-D
ARF-20218	7/32	1/4	3/4	2-1/2	32612-00-D	32612-89-D	32612-86-D
ARF-ST-20250	1/4	1/4	3/8	2-1/2	32853-00-D	32853-89-D	32853-86-D
ARF-20250	1/4	1/4	3/4	2-1/2	32620-00-D	32620-89-D	32620-86-D
ARF-L-20250	1/4	1/4	1-1/4	3-1/4	32741-00-D	32741-89-D	32741-86-D
ARF-ST-20281	9/32	5/16	7/16	2-1/2	32861-00-D	32861-89-D	32861-86-D
ARF-20281	9/32	5/16	13/16	2-1/2	32628-00-D	32628-89-D	32628-86-D
ARF-ST-20312	5/16	5/16	7/16	2-1/2	32869-00-D	32869-89-D	32869-86-D
ARF-20312	5/16	5/16	13/16	2-1/2	32636-00-D	32636-89-D	32636-86-D
ARF-L-20312	5/16	5/16	1-1/4	3-1/2	32749-00-D	32749-89-D	32749-86-D
ARF-X-20312	5/16	5/16	2-1/8	4	32949-00-D	32949-89-D	32949-86-D
ARF-ST-20343	11/32	3/8	1/2	2-1/2	32877-00-D	32877-89-D	32877-86-D
ARF-20343	11/32	3/8	1	2-1/2	32644-00-D	32644-89-D	32644-86-D
ARF-ST-20375	3/8	3/8	1/2	2-1/2	32885-00-D	32885-89-D	32885-86-D
ARF-20375	3/8	3/8	1	2-1/2	32652-00-D	32652-89-D	32652-86-D
ARF-M-20375	3/8	3/8	1-1/4	3	51622-00-D	51622-89-D	51622-86-D
ARF-L-20375	3/8	3/8	1-1/2	4	32757-00-D	32757-89-D	32757-86-D
ARF-X-20375	3/8	3/8	2-1/2	6	32957-00-D	32957-89-D	32957-86-D
ARF-ST-20406	13/32	7/16	9/16	2-3/4	32893-00-D	32893-89-D	32893-86-D
ARF-20406	13/32	7/16	1	2-3/4	32660-00-D	32660-89-D	32660-86-D
ARF-ST-20437	7/16	7/16	9/16	2-3/4	32901-00-D	32901-89-D	32901-86-D
ARF-20437	7/16	7/16	1	2-3/4	32668-00-D	32668-89-D	32668-86-D
ARF-L-20437	7/16	7/16	2	4	32765-00-D	32765-89-D	32765-86-D
ARF-ST-20468	15/32	1/2	5/8	3	32909-00-D	32909-89-D	32909-86-D
ARF-20468	15/32	1/2	1-1/4	3	32676-00-D	32676-89-D	32676-86-D
ARF-ST-20500	1/2	1/2	5/8	3	32917-00-D	32917-89-D	32917-86-D
ARF-20500	1/2	1/2	1-1/4	3	32684-00-D	32684-89-D	32684-86-D
ARF-M-20500	1/2	1/2	1-5/8	4	51629-00-D	51629-89-D	51629-86-D
ARF-L-20500	1/2	1/2	2	4	32773-00-D	32773-89-D	32773-86-D
ARF-X-20500	1/2	1/2	3-1/8	6	32965-00-D	32965-89-D	32965-86-D
ARF-ST-20625	5/8	5/8	3/4	3-1/2	32925-00-D	32925-89-D	32925-86-D
ARF-20625	5/8	5/8	1-5/8	3-1/2	32692-00-D	32692-89-D	32692-86-D
ARF-M-20625	5/8	5/8	2-1/8	4	51636-00-D	51636-89-D	51636-86-D
ARF-L-20625	5/8	5/8	2-1/2	5	32781-00-D	32781-89-D	32781-86-D
ARF-X-20625	5/8	5/8	3-3/4	6	32973-00-D	32973-89-D	32973-86-D
ARF-ST-20750	3/4	3/4	1	4	32933-00-D	32933-89-D	32933-86-D
ARF-20750	3/4	3/4	1-5/8	4	32700-00-D	32700-89-D	32700-86-D
ARF-M-20750	3/4	3/4	2-1/4	5	32805-00-D	32805-89-D	32805-86-D
ARF-L-20750	3/4	3/4	3-1/4	6	32789-00-D	32789-89-D	32789-86-D
ARF-X-20750	3/4	3/4	4	6-1/2	32981-00-D	32981-89-D	32981-86-D
ARF-ST-21000	1	1	1-1/4	5	32941-00-D	32941-89-D	32941-86-D
ARF-21000	1	1	2	5	32708-00-D	32708-89-D	32708-86-D
ARF-M-21000	1	1	2-5/8	6	32813-00-D	32813-89-D	32813-86-D
ARF-L-21000	1	1	3-1/4	6	32797-00-D	32797-89-D	32797-86-D
ARF-X-21000	1	1	4-1/8	7	32989-00-D	32989-89-D	32989-86-D

HSM Two Flute, Reduced Neck

Technical Chart

HSM Two Flute, Reduced Neck

High Performance Carbide



The HSM is a 2 flute rougher/finisher that uses the geometries of the ARF series and couples them with an extended reach design. The stub flute length, in conjunction with a wide range of reach lengths, makes the HSM series a great choice for roughing in aluminum and other non-ferrous materials in hard to reach depths of cuts.

- High Performance Carbide
- Periphery and Pocketing Operations
- Reduced Neck for Reach and Stability
- High Helix for Chip Removal

- Available Upon Request:
 - Radius Ends
 - Coolant Groves
 - Additional Coatings

Carbide Feeds and Speeds Chart for Non-Ferrous Materials

HSM Materials		Aluminum Alloys	Aluminum Cast	Aluminum	Copper	Brass	Magnesium
Diameter	Description	6061, 7075	Sand & Permanent Mold	>10% Silicon High Silicon Based	Cast, Wrought	Yellow, Red, Lead Brass	Cast, Wrought
	SFM	800 - Max	250 - 600	600 - 1000	700 - 1000	500 - 900	500 - 900
1/4"	S	0.0034	0.0032	0.0028	0.0028	0.0028	0.0028
	HP	0.0043	0.0043	0.0038	0.0038	0.0038	0.0038
	LP	0.0051	0.0057	0.0048	0.0048	0.0048	0.0048
3/8"	S	0.0051	0.0048	0.0042	0.0042	0.0042	0.0042
	HP	0.0064	0.0064	0.0058	0.0058	0.0058	0.0058
	LP	0.0077	0.0086	0.0071	0.0071	0.0071	0.0071
1/2"	S	0.0080	0.0080	0.0070	0.0070	0.0070	0.0070
	HP	0.0100	0.0100	0.0090	0.0090	0.0090	0.0090
	LP	0.0120	0.0120	0.0100	0.0100	0.0100	0.0100
5/8"	S	0.0086	0.0081	0.0071	0.0071	0.0071	0.0071
	HP	0.0107	0.0107	0.0096	0.0096	0.0096	0.0096
	LP	0.0128	0.0143	0.0119	0.0119	0.0119	0.0119
3/4"	S	0.0091	0.0086	0.0075	0.0075	0.0075	0.0075
	HP	0.0122	0.0122	0.0109	0.0109	0.0109	0.0109
	LP	0.0146	0.0162	0.0135	0.0135	0.0135	0.0135
1"	S	0.0144	0.0136	0.0119	0.0119	0.0119	0.0119
	HP	0.0180	0.0180	0.0162	0.0162	0.0162	0.0162
	LP	0.0216	0.0240	0.0200	0.0200	0.0200	0.0200

S = SLOTTING
Axial Depth up to 1.0 x Diameter
Radial width .5 x Diameter

LP = LIGHT PERIPHERAL
Axial Depth up to Effective Length of Cut
Radial width .015 x Diameter

HP = HEAVY PERIPHERAL
Axial Depth up to 1.5 – 2.0 x Diameter
Radial width .25 x Diameter

Note! Horsepower will be the limiting factor with larger diameter end mills.

Horsepower = IPM x RDC x ADC x PC
IPM = Inches Per Minute
RDC = Radial Depth of Cut (Width)
ADC = Axial Depth of Cut (Depth)
PC = Power Constants (Aluminum = (0.25))
Example Slotting = 3/4 diameter x 3/8 @ 150 IPM
HP = 150 IPM x .750 RDC x .375 ADC x PC of 0.25
HP = 10.8 @ cutter/80%Efficiency = 12.8 @ Spindle Motor

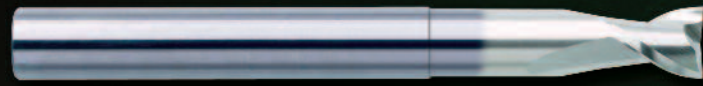
Part Number	Dia.	Shank	LOC	OAL	LBS*	Neck Dia.	EDP	C4 EDP	C5 EDP
HSM-20250	1/4	1/4	3/8	2-1/2	1-1/8	0.235	39544-00-D	39544-89-D	39544-86-D
HSM-M-20250	1/4	1/4	3/8	4	2-1/8	0.235	39640-00-D	39640-89-D	39640-86-D
HSM-20312	5/16	5/16	7/16	2-1/2	1-1/8	0.297	39552-00-D	39552-89-D	39552-86-D
HSM-M-20312	5/16	5/16	7/16	4	2-1/8	0.297	39648-00-D	39648-89-D	39648-86-D
HSM-20375	3/8	3/8	1/2	2-1/2	1-1/8	0.355	39560-00-D	39560-89-D	39560-86-D
HSM-M-20375	3/8	3/8	1/2	4	2-1/8	0.355	39656-00-D	39656-89-D	39656-86-D
HSM-20437	7/16	7/16	9/16	2-3/4	1-1/4	0.412	39568-00-D	39568-89-D	39568-86-D
HSM-20500	1/2	1/2	5/8	3	1-3/8	0.475	39576-00-D	39576-89-D	39576-86-D
HSM-M-20500	1/2	1/2	5/8	4	2-1/8	0.475	39664-00-D	39664-89-D	39664-86-D
HSM-L-20500	1/2	1/2	5/8	6	3-3/8	0.475	39608-00-D	39608-89-D	39608-86-D
HSM-20625	5/8	5/8	3/4	3-1/2	1-5/8	0.590	39584-00-D	39584-89-D	39584-86-D
HSM-M-20625	5/8	5/8	3/4	6	2-3/8	0.590	39672-00-D	39672-89-D	39672-86-D
HSM-L-20625	5/8	5/8	3/4	6	3-3/8	0.590	39616-00-D	39616-89-D	39616-86-D
HSM-20750	3/4	3/4	1	4	2	0.715	39592-00-D	39592-89-D	39592-86-D
HSM-M-20750	3/4	3/4	1	6	2-1/2	0.715	39680-00-D	39680-89-D	39680-86-D
HSM-L-20750	3/4	3/4	1	6	3-3/8	0.715	39624-00-D	39624-89-D	39624-86-D
HSM-21000	1	1	1-1/4	5	2	0.960	39600-00-D	39600-89-D	39600-86-D
HSM-M-21000	1	1	1-1/4	7	3-3/8	0.960	39688-00-D	39688-89-D	39688-86-D
HSM-L-21000	1	1	1-1/4	7	4-3/8	0.960	39632-00-D	39632-89-D	39632-86-D

*LBS = Length Below Shank

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HVM-2, Two Flute



The High Velocity Machining Series (HVM) is designed to perform at the level that its name suggests. By using shallow depths of cut, at very high speeds, this extended reach design will rough in non-ferrous applications from peripheral cuts to deep pockets. This tool is ideal for the machine tool that has ample RPM and feed rate capabilities, but may have some horsepower or torque restrictions.

Technical Chart

HVM-2, Two Flute

High Performance Carbide

- High Performance Carbide
- Periphery and Pocketing Operations
- Reduced Neck for Reach and Stability
- High and Low Horse Power Applications

- Available Upon Request:
 - Radius Ends
 - Coolant Groves
 - Additional Coatings

Carbide Feeds and Speeds Chart for Non-Ferrous Materials

HVM-2 Materials		Aluminum Alloys	Aluminum Cast	Aluminum	Copper	Brass	Magnesium
Diameter	Description	6061, 7075	Sand & Permanent Mold	>10% Silicon High Silicon Based	Cast, Wrought	Yellow, Red, Lead Brass	Cast, Wrought
	SFM	800 - Max	250 - 600	600 - 1000	700 - 1000	500 - 900	500 - 900
1/4"	S	0.0034	0.0032	0.0028	0.0028	0.0028	0.0028
	HP	0.0043	0.0043	0.0038	0.0038	0.0038	0.0038
	LP	0.0051	0.0057	0.0048	0.0048	0.0048	0.0048
3/8"	S	0.0051	0.0048	0.0042	0.0042	0.0042	0.0042
	HP	0.0064	0.0064	0.0058	0.0058	0.0058	0.0058
	LP	0.0077	0.0086	0.0071	0.0071	0.0071	0.0071
1/2"	S	0.0080	0.0080	0.0070	0.0070	0.0070	0.0070
	HP	0.0100	0.0100	0.0090	0.0090	0.0090	0.0090
	LP	0.0120	0.0120	0.0100	0.0100	0.0100	0.0100
5/8"	S	0.0086	0.0081	0.0071	0.0071	0.0071	0.0071
	HP	0.0107	0.0107	0.0096	0.0096	0.0096	0.0096
	LP	0.0128	0.0143	0.0119	0.0119	0.0119	0.0119
3/4"	S	0.0091	0.0086	0.0075	0.0075	0.0075	0.0075
	HP	0.0122	0.0122	0.0109	0.0109	0.0109	0.0109
	LP	0.0146	0.0162	0.0135	0.0135	0.0135	0.0135
1"	S	0.0144	0.0136	0.0119	0.0119	0.0119	0.0119
	HP	0.0180	0.0180	0.0162	0.0162	0.0162	0.0162
	LP	0.0216	0.0240	0.0200	0.0200	0.0200	0.0200

S = SLOTTING
Axial Depth up to 1.0 x Diameter
Radial width .5 x Diameter

LP = LIGHT PERIPHERAL
Axial Depth up to Effective Length of Cut
Radial width .02 x Diameter

HP = HEAVY PERIPHERAL
Axial Depth up to 1.5 - 2.0 x Diameter
Radial width .3 x Diameter

Note! Horsepower will be the limiting factor with larger diameter end mills.

Horsepower = IPM x RDC x ADC x PC
IPM = Inches Per Minute
RDC = Radial Depth of Cut (Width)
ADC = Axial Depth of Cut (Depth)
PC = Power Constants (Aluminum = 0.25)
Example Slotting = 3/4 diameter x 3/8 @ 150 IPM
HP = 150 IPM x .750 RDC x .375 ADC x PC of 0.25
HP = 10.8 @ cutter/80%Efficiency = 12.8 @ Spindle Motor

Part Number	Dia.	Shank	LOC	OAL	LBS.	Neck Dia.	EDP	C4 EDP	C5 EDP
HVM-20250	1/4	1/4	3/8	2-1/2	1-1/8	0.235	51800-00-D	51800-89-D	51800-86-D
HVM-M-20250	1/4	1/4	3/8	4	2-1/8	0.235	51830-00-D	51830-89-D	51830-86-D
HVM-20375	3/8	3/8	1/2	2-1/2	1-1/8	0.355	51805-00-D	51805-89-D	51805-86-D
HVM-M-20375	3/8	3/8	1/2	4	2-1/8	0.355	51835-00-D	51835-89-D	51835-86-D
HVM-20500	1/2	1/2	5/8	3	1-3/8	0.475	51810-00-D	51810-89-D	51810-86-D
HVM-M-20500	1/2	1/2	5/8	4	2-1/8	0.475	51841-00-D	51841-89-D	51841-86-D
HVM-L-20500	1/2	1/2	5/8	6	3-3/8	0.475	51866-00-D	51866-89-D	51866-86-D
HVM-20625	5/8	5/8	3/4	4	1-5/8	0.590	51815-00-D	51815-89-D	51815-86-D
HVM-M-20625	5/8	5/8	3/4	6	2-3/8	0.590	51846-00-D	51846-89-D	51846-86-D
HVM-L-20625	5/8	5/8	3/4	6	3-3/8	0.590	51871-00-D	51871-89-D	51871-86-D
HVM-20750	3/4	3/4	1	4	2	0.715	51820-00-D	51820-89-D	51820-86-D
HVM-M-20750	3/4	3/4	1	6	2-1/2	0.715	51851-00-D	51851-89-D	51851-86-D
HVM-L-20750	3/4	3/4	1	6	3-3/8	0.715	51876-00-D	51876-89-D	51876-86-D
HVM-21000	1	1	1-1/4	5	2-5/8	0.960	51825-00-D	51825-89-D	51825-86-D
HVM-M-21000	1	1	1-1/4	7	3-3/8	0.960	51856-00-D	51856-89-D	51856-86-D
HVM-L-21000	1	1	1-1/4	7	4-3/8	0.960	51881-00-D	51881-89-D	51881-86-D

*LBS: Length Below Shank

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HVM-3, Three Flute with Reduced Neck and Radius



Our High Velocity Machining-3 Series (HVM-3) builds on the successes of our HVM-2 tools. The HVM-3 can really shine in applications where the machines may not achieve the high RPMs for which the HVM-2 was designed, but have the torque and horsepower to take advantage of the 50% increase in tooth passage (3:2) of our HVM-3. The HVM-3 is available in a number of stocked radii.

Technical Chart

HVM-3, Three Flute with Reduced Neck and Radius

High Performance Carbide

- High Performance Carbide
- 35 Degree Helix
- Rough and Finish
- Reduced Neck for Reach and Stability

- Available Upon Request:
 - Radius Ends
 - Coolant Groves
 - Additional Coatings

Carbide Feeds and Speeds Chart for Non-Ferrous Materials

HVM-3 Materials		Aluminum Alloys	Aluminum Cast	Aluminum	Copper	Brass	Magnesium
Diameter	Description	6061, 7075	Sand & Permanent Mold	>10% Silicon High Silicon Based	Cast, Wrought	Yellow, Red, Lead Brass	Cast, Wrought
	SFM	800 - Max	250 - 600	600 - 1000	700 - 1000	500 - 900	500 - 900
1/4"	S	0.0034	0.0032	0.0028	0.0028	0.0028	0.0028
	HP	0.0043	0.0043	0.0038	0.0038	0.0038	0.0038
	LP	0.0051	0.0057	0.0048	0.0048	0.0048	0.0048
3/8"	S	0.0051	0.0048	0.0042	0.0042	0.0042	0.0042
	HP	0.0064	0.0064	0.0058	0.0058	0.0058	0.0058
	LP	0.0077	0.0086	0.0071	0.0071	0.0071	0.0071
1/2"	S	0.0080	0.0080	0.0070	0.0070	0.0070	0.0070
	HP	0.0100	0.0100	0.0090	0.0090	0.0090	0.0090
	LP	0.0120	0.0120	0.0100	0.0100	0.0100	0.0100
5/8"	S	0.0086	0.0081	0.0071	0.0071	0.0071	0.0071
	HP	0.0107	0.0107	0.0096	0.0096	0.0096	0.0096
	LP	0.0128	0.0143	0.0119	0.0119	0.0119	0.0119
3/4"	S	0.0091	0.0086	0.0075	0.0075	0.0075	0.0075
	HP	0.0122	0.0122	0.0109	0.0109	0.0109	0.0109
	LP	0.0146	0.0162	0.0135	0.0135	0.0135	0.0135
1"	S	0.0144	0.0136	0.0119	0.0119	0.0119	0.0119
	HP	0.0180	0.0180	0.0162	0.0162	0.0162	0.0162
	LP	0.0216	0.0240	0.0200	0.0200	0.0200	0.0200

S = SLOTTING
Axial Depth up to 1.0 x Diameter
Radial width .5 x Diameter

LP = LIGHT PERIPHERAL
Axial Depth up to Effective Length of Cut
Radial width .02 x Diameter

HP = HEAVY PERIPHERAL
Axial Depth up to 1.5 - 2.0 x Diameter
Radial width .3 x Diameter

Note! Horsepower will be the limiting factor with larger diameter end mills.

Horsepower = IPM x RDC x ADC x PC
IPM = Inches Per Minute
RDC = Radial Depth of Cut (Width)
ADC = Axial Depth of Cut (Depth)
PC = Power Constants (Aluminum = (0.25))
Example Slotting = 3/4 diameter x 3/8 @ 150 IPM
HP = 150 IPM x .750 RDC x .375 ADC x PC of 0.25
HP = 10.8 @ cutter/80%Efficiency = 12.8 @ Spindle Motor

Part Number	Dia.	Shank	LOC	OAL	LBS*	Neck Dia.	Radius	EDP	C4 EDP	C5 EDP
HVM-30250	1/4	1/4	3/8	2-1/2	1-1/8	0.235		51886-00-D	51886-89-D	51886-86-D
HVM-M-30250	1/4	1/4	3/8	4	2-1/8	0.235		51916-00-D	51916-89-D	51916-86-D
HVM-30250-015	1/4	1/4	3/8	2-1/2	1-1/8	0.235	.015	37578-00-D	37578-89-D	37578-86-D
HVM-M-30250-015	1/4	1/4	3/8	4	2-1/8	0.235	.015	37579-00-D	37579-89-D	37579-86-D
HVM-30250-030	1/4	1/4	3/8	2-1/2	1-1/8	0.235	.030	37580-00-D	37580-89-D	37580-86-D
HVM-M-30250-030	1/4	1/4	3/8	4	2-1/8	0.235	.030	37581-00-D	37581-89-D	37581-86-D
HVM-30375	3/8	3/8	1/2	2-1/2	1-1/8	0.355		51891-00-D	51891-89-D	51891-86-D
HVM-M-30375	3/8	3/8	1/2	4	2-1/8	0.355		51921-00-D	51921-89-D	51921-86-D
HVM-30375-015	3/8	3/8	1/2	2-1/2	1-1/8	0.355	.015	37582-00-D	37582-89-D	37582-86-D
HVM-M-30375-015	3/8	3/8	1/2	4	2-1/8	0.355	.015	37583-00-D	37583-89-D	37583-86-D
HVM-30375-030	3/8	3/8	1/2	2-1/2	1-1/8	0.355	.030	37584-00-D	37584-89-D	37584-86-D
HVM-M-30375-030	3/8	3/8	1/2	4	2-1/8	0.355	.030	37585-00-D	37585-89-D	37585-86-D
HVM-30500	1/2	1/2	5/8	3	1-3/8	0.475		51896-00-D	51896-89-D	51896-86-D
HVM-M-30500	1/2	1/2	5/8	4	2-1/8	0.475		51926-00-D	51926-89-D	51926-86-D
HVM-L-30500	1/2	1/2	5/8	6	3-3/8	0.475		51946-00-D	51946-89-D	51946-86-D
HVM-30500-030	1/2	1/2	5/8	3	1-3/8	0.475	.030	37586-00-D	37586-89-D	37586-86-D
HVM-M-30500-030	1/2	1/2	5/8	4	2-1/8	0.475	.030	37587-00-D	37587-89-D	37587-86-D
HVM-L-30500-030	1/2	1/2	5/8	6	3-3/8	0.475	.030	37588-00-D	37588-89-D	37588-86-D
HVM-30500-060	1/2	1/2	5/8	3	1-3/8	0.475	.060	37589-00-D	37589-89-D	37589-86-D
HVM-M-30500-060	1/2	1/2	5/8	4	2-1/8	0.475	.060	37590-00-D	37590-89-D	37590-86-D
HVM-L-30500-060	1/2	1/2	5/8	6	3-3/8	0.475	.060	37591-00-D	37591-89-D	37591-86-D
HVM-30625	5/8	5/8	3/4	4	1-5/8	0.590		51901-00-D	51901-89-D	51901-86-D
HVM-M-30625	5/8	5/8	3/4	6	2-3/8	0.590		51931-00-D	51931-89-D	51931-86-D
HVM-L-30625	5/8	5/8	3/4	6	3-3/8	0.590		51951-00-D	51951-89-D	51951-86-D
HVM-30625-030	5/8	5/8	3/4	4	1-5/8	0.590	.030	37592-00-D	37592-89-D	37592-86-D
HVM-M-30625-030	5/8	5/8	3/4	6	2-3/8	0.590	.030	37593-00-D	37593-89-D	37593-86-D
HVM-L-30625-030	5/8	5/8	3/4	6	3-3/8	0.590	.030	37594-00-D	37594-89-D	37594-86-D
HVM-30625-060	5/8	5/8	3/4	4	1-5/8	0.590	.060	37595-00-D	37595-89-D	37595-86-D
HVM-M-30625-060	5/8	5/8	3/4	6	2-3/8	0.590	.060	37596-00-D	37596-89-D	37596-86-D
HVM-L-30625-060	5/8	5/8	3/4	6	3-3/8	0.590	.060	37597-00-D	37597-89-D	37597-86-D

Continued next page

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HVM-3, Three Flute with Reduced Neck and Radius Continued

High Performance Carbide

- High Performance Carbide
- 35 Degree Helix
- Rough and Finish
- Reduced Neck for Reach and Stability

- Available Upon Request:
 - Radius Ends
 - Coolant Groves
 - Additional Coatings

Part Number	Dia.	Shank	LOC	OAL	LBS*	Neck Dia.	Radius	EDP	C4 EDP	C5 EDP
HVM-30750	3/4	3/4	1	4	2	0.715		51906-00-D	51906-89-D	51906-86-D
HVM-M-30750	3/4	3/4	1	6	2-1/2	0.715		51936-00-D	51936-89-D	51936-86-D
HVM-L-30750	3/4	3/4	1	6	3-3/8	0.715		51956-00-D	51956-89-D	51956-86-D
HVM-30750-030	3/4	3/4	1	4	2	0.715	.030	37598-00-D	37598-89-D	37598-86-D
HVM-M-30750-030	3/4	3/4	1	6	2-1/2	0.715	.030	37599-00-D	37599-89-D	37599-86-D
HVM-L-30750-030	3/4	3/4	1	6	3-3/8	0.715	.030	37600-00-D	37600-89-D	37600-86-D
HVM-30750-060	3/4	3/4	1	4	2	0.715	.060	37601-00-D	37601-89-D	37601-86-D
HVM-M-30750-060	3/4	3/4	1	6	2-1/2	0.715	.060	37602-00-D	37602-89-D	37602-86-D
HVM-L-30750-060	3/4	3/4	1	6	3-3/8	0.715	.060	37603-00-D	37603-89-D	37603-86-D
HVM-30750-090	3/4	3/4	1	4	2	0.715	.090	37604-00-D	37604-89-D	37604-86-D
HVM-M-30750-090	3/4	3/4	1	6	2-1/2	0.715	.090	37605-00-D	37605-89-D	37605-86-D
HVM-L-30750-090	3/4	3/4	1	6	3-3/8	0.715	.090	37606-00-D	37606-89-D	37606-86-D
HVM-30750-120	3/4	3/4	1	4	2	0.715	.120	37607-00-D	37607-89-D	37607-86-D
HVM-M-30750-120	3/4	3/4	1	6	2-1/2	0.715	.120	37608-00-D	37608-89-D	37608-86-D
HVM-L-30750-120	3/4	3/4	1	6	3-3/8	0.715	.120	37609-00-D	37609-89-D	37609-86-D
HVM-31000	1	1	1-1/4	5	2-5/8	0.960		51911-00-D	51911-89-D	51911-86-D
HVM-M-31000	1	1	1-1/4	7	3-3/8	0.960		51941-00-D	51941-89-D	51941-86-D
HVM-L-31000	1	1	1-1/4	7	4-3/8	0.960		51961-00-D	51961-89-D	51961-86-D
HVM-31000-030	1	1	1-1/4	5	2-5/8	0.960	.030	37610-00-D	37610-89-D	37610-86-D
HVM-M-31000-030	1	1	1-1/4	7	3-3/8	0.960	.030	37611-00-D	37611-89-D	37611-86-D
HVM-L-31000-030	1	1	1-1/4	7	4-3/8	0.960	.030	37612-00-D	37612-89-D	37612-86-D
HVM-31000-060	1	1	1-1/4	5	2-5/8	0.960	.060	37613-00-D	37613-89-D	37613-86-D
HVM-M-31000-060	1	1	1-1/4	7	3-3/8	0.960	.060	37614-00-D	37614-89-D	37614-86-D
HVM-L-31000-060	1	1	1-1/4	7	4-3/8	0.960	.060	37615-00-D	37615-89-D	37615-86-D
HVM-31000-090	1	1	1-1/4	5	2-5/8	0.960	.090	37616-00-D	37616-89-D	37616-86-D
HVM-M-31000-090	1	1	1-1/4	7	3-3/8	0.960	.090	37617-00-D	37617-89-D	37617-86-D
HVM-L-31000-090	1	1	1-1/4	7	4-3/8	0.960	.090	37618-00-D	37618-89-D	37618-86-D
HVM-31000-120	1	1	1-1/4	5	2-5/8	0.960	.120	37619-00-D	37619-89-D	37619-86-D
HVM-M-31000-120	1	1	1-1/4	7	3-3/8	0.960	.120	37620-00-D	37620-89-D	37620-86-D
HVM-L-31000-120	1	1	1-1/4	7	4-3/8	0.960	.120	37621-00-D	37621-89-D	37621-86-D

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DATA FLUTE



INTRODUCING THE HVMag
 high performance carbide cutting tools.
 The "HVMag" can handle the most powerful, highest RPM machining centers on the market today.

HVMag Two Flute, Reduced Neck

High Performance Carbide



Our HVMag is a 2 flute tool, with field tested, patented geometries designed specifically for the newest generation of hyper-velocity machining centers. We have produced an exceptionally well-balanced tool with superior chip flow. This tool achieves outstanding results in applications ranging from 15,000 rpm to 30,000+ rpm and feed rates of up to 1,000 inches per minute.

The intense competition in the marketplace and the need for ever higher rates of machining productivity has spawned a new generation of high powered, hyper-velocity machining centers. These new mega machines demand a tool that can deliver performance to match.

Data Flute has re-engineered our HVM (High Velocity Machining) series of tools to match the capabilities of the most productive machines on the market. We have done this based upon the proper combination of field testing, customer feedback and the most up-to-date analytic software available. Countless rounds of design, analysis, customer discussion, testing and re-testing have gone into this series of tools. The level of effort is consistent with the level of commitment that our valued customers have shown by investing in these next generation machining centers.

This catalog contains our standard offering in the HVMag series. We realize that there are frequently times when a more customized solution will provide better tool life, better productivity and better “fit” with a particular machining task. As always we welcome the opportunity to work with our customers to meet their machining and productivity needs with special or non-standard tooling. We also offer these tools with coolant through holes and other MQL modifications.

Data Flute believes that we have the finest hyper-velocity end mill on the market. We hope that you agree.

HVMag Two Flute, Inch and Metric

High Performance Carbide

- High Performance Carbide
- Extended Reach Design
- H6 Shank Tolerances
- Exceptional Balance

- Available Upon Request:
 - Radius Ends
 - Coolant Groves
 - Haimer Safe-Lock

Part Number	Dia.	Shank	LOC	OAL	LBS*	EDP .000 Radius	EDP .030 Radius	EDP .060 Radius	EDP .090 Radius	EDP .120 Radius
HVMag-20375	3/8	3/8	1/2	3	1-1/4	52747-00-D	52748-00-D	52750-00-D	52751-00-D	
HVMag-L-20375	3/8	3/8	1/2	4	2-1/8	52752-00-D	52754-00-D	52756-00-D	52758-00-D	
HVMag-20500	1/2	1/2	5/8	3	1-1/2	52760-00-D	52762-00-D	52766-00-D	52768-00-D	52774-00-D
HVMag-M-20500	1/2	1/2	5/8	4	2-1/8	52775-00-D	52776-00-D	52777-00-D	52778-00-D	52779-00-D
HVMag-L-20500	1/2	1/2	5/8	6	3-1/4	52780-00-D	52781-00-D	52782-00-D	52783-00-D	52784-00-D
HVMag-20625	5/8	5/8	3/4	4	1-5/8	52785-00-D	52786-00-D	52787-00-D	52788-00-D	52789-00-D
HVMag-M-20625	5/8	5/8	3/4	5	2-1/4	52790-00-D	52791-00-D	52792-00-D	52793-00-D	52794-00-D
HVMag-L-20625	5/8	5/8	3/4	6	3-1/4	52795-00-D	52796-00-D	52797-00-D	52798-00-D	52799-00-D
HVMag-20750	3/4	3/4	1	4	2-1/8	52800-00-D	52801-00-D	52802-00-D	52803-00-D	52804-00-D
HVMag-M-20750	3/4	3/4	1	5	3	52805-00-D	52806-00-D	52807-00-D	52808-00-D	52809-00-D
HVMag-L-20750	3/4	3/4	1	6	3-3/4	52810-00-D	52811-00-D	52812-00-D	52813-00-D	52814-00-D
HVMag-21000	1	1	1-1/4	5	2-3/4	52815-00-D	52816-00-D	52817-00-D	52818-00-D	52819-00-D
HVMag-M-21000	1	1	1-1/4	6	3-1/2	52820-00-D	52821-00-D	52822-00-D	52823-00-D	52824-00-D
HVMag-L-21000	1	1	1-1/4	7	4-1/4	52825-00-D	52826-00-D	52827-00-D	52828-00-D	52829-00-D

*LBS = Length Below Shank

HVMag Metric Offering

Part Number	Dia.	Shank	LOC	OAL	LBS*	EDP .000 Radius	EDP .25mm Radius	EDP 1mm Radius	EDP 2mm Radius	EDP 4mm Radius	EDP 5mm Radius
HVMag-10MM-	10	10	13	73	38	53578-00-D	53579-00-D	53580-00-D	53581-00-D		
HVMag-L-10MM-	10	10	13	100	52	53582-00-D	53583-00-D	53584-00-D	53585-00-D		
HVMag-12MM-	12	12	16	74	38	53586-00-D	54240-00-D	53587-00-D	53588-00-D	53589-00-D	53590-00-D
HVMag-M-12MM-	12	12	16	100	52	53591-00-D	54241-00-D	53592-00-D	53593-00-D	53594-00-D	53595-00-D
HVMag-L-12MM-	12	12	16	147	80	53596-00-D	54242-00-D	53597-00-D	53598-00-D	53599-00-D	53600-00-D
HVMag-16MM-	16	16	19	100	42	53601-00-D	54243-00-D	53602-00-D	53603-00-D	53604-00-D	53605-00-D
HVMag-M-16MM-	16	16	19	122	55	53606-00-D	54244-00-D	53607-00-D	53608-00-D	53609-00-D	53610-00-D
HVMag-L-16MM-	16	16	19	147	80	53611-00-D	54245-00-D	53612-00-D	53613-00-D	53614-00-D	53615-00-D
HVMag-20MM-	20	20	25	100	52	53616-00-D	54246-00-D	53617-00-D	53618-00-D	53619-00-D	53620-00-D
HVMag-M-20MM-	20	20	25	122	74	53621-00-D	54247-00-D	53622-00-D	53623-00-D	53624-00-D	53625-00-D
HVMag-L-20MM-	20	20	25	147	92	53626-00-D	54248-00-D	53627-00-D	53628-00-D	53629-00-D	53630-00-D
HVMag-25MM-	25	25	30	122	67	53631-00-D	54249-00-D	53632-00-D	53633-00-D	53634-00-D	53635-00-D
HVMag-M-25MM-	25	25	30	147	86	53636-00-D	54250-00-D	53637-00-D	53638-00-D	53639-00-D	53640-00-D
HVMag-L-25MM-	25	25	30	172	105	53641-00-D	54251-00-D	53642-00-D	53643-00-D	53644-00-D	53645-00-D

*LBS = Length Below Shank

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HVMag-3 Three Flute, Inch and Metric

High Performance Carbide



Our HVMag-3 is a 3 flute tool, with field tested, patented geometries designed specifically for the newer generation of high speed machining centers. We have produced an exceptionally well-balanced tool, with superior chip flow. This tool is best used for speeds up to 20,000 rpm and feed rates of up to 1,000 inches per minute. Best performance is achieved in spindles designed for high speed, three flute tools and machining.

HVMag-3 Three Flute, Inch and Metric

High Performance Carbide

- High Performance Carbide
- Extended Reach Design
- H6 Shank Tolerances
- Exceptional Balance

- Available Upon Request:
 - Radius Ends
 - Coolant Groves
 - Haimer Safe-Lock

HVMag-3 Materials		Aluminum Alloys	Aluminum Cast	Aluminum	Copper	Brass	Magnesium
Diameter	Description	6061, 7075	Sand & Permanent Mold	>10% Silicon High Silicon Based	Cast, Wrought	Yellow, Red, Leaded Brass	Cast, Wrought
	SFM	800 - Max	250 - 600	600 - 1000	700 - 1000	500 - 900	500 - 900
3/8"	S	0.0051	0.0048	0.0042	0.0042	0.0042	0.0042
	HP	0.0064	0.0064	0.0058	0.0058	0.0058	0.0058
	LP	0.0077	0.0086	0.0071	0.0071	0.0071	0.0071
1/2"	S	0.0080	0.0080	0.0070	0.0070	0.0070	0.0070
	HP	0.0100	0.0100	0.0090	0.0090	0.0090	0.0090
	LP	0.0120	0.0120	0.0100	0.0100	0.0100	0.0100
5/8"	S	0.0086	0.0081	0.0071	0.0071	0.0071	0.0071
	HP	0.0107	0.0107	0.0096	0.0096	0.0096	0.0096
	LP	0.0128	0.0143	0.0119	0.0119	0.0119	0.0119
3/4"	S	0.0091	0.0086	0.0075	0.0075	0.0075	0.0075
	HP	0.0122	0.0122	0.0109	0.0109	0.0109	0.0109
	LP	0.0146	0.0162	0.0135	0.0135	0.0135	0.0135
1"	S	0.0144	0.0136	0.0119	0.0119	0.0119	0.0119
	HP	0.0180	0.0180	0.0162	0.0162	0.0162	0.0162
	LP	0.0216	0.0240	0.0200	0.0200	0.0200	0.0200

S = SLOTTING
Axial Depth up to 1.0 x Diameter
Radial width .5 x Diameter

LP = LIGHT PERIPHERAL
Axial Depth up to Effective Length of Cut
Radial width .02 x Diameter

HP = HEAVY PERIPHERAL
Axial Depth up to 1.5 - 2.0 x Diameter
Radial width .3 x Diameter

Note! Horsepower will be the limiting factor with larger diameter end mills.

Note: Vibration analysis for high speed machining is recommended.

Horsepower = IPM x RDC x ADC x PC
IPM = Inches Per Minute
RDC = Radial Depth of Cut (Width)
ADC = Axial Depth of Cut (Depth)
PC = Power Constants (Aluminum = (0.25))
Example Slotting = 3/4 diameter x 3/8 @ 150 IPM
HP = 150 IPM x .750 RDC x .375 ADC x PC of 0.25
HP = 10.8 @ cutter/80%Efficiency = 12.8 @ Spindle Motor

Part Number	Dia.	Shank	LOC	OAL	LBS*	EDP .000 Radius	EDP .030 Radius	EDP .060 Radius	EDP .090 Radius	EDP .120 Radius
HVMag3-30375	3/8	3/8	1/2	3	1-1/4	37424-00-D	37425-00-D	37426-00-D	37427-00-D	
HVMag3-L-30375	3/8	3/8	1/2	4	2-1/8	37429-00-D	37431-00-D	37432-00-D	37433-00-D	
HVMag3-30500	1/2	1/2	5/8	3	1-1/2	37435-00-D	37436-00-D	37437-00-D	37438-00-D	37439-00-D
HVMag3-M-30500	1/2	1/2	5/8	4	2-1/8	37441-00-D	37442-00-D	37443-00-D	37444-00-D	37445-00-D
HVMag3-L-30500	1/2	1/2	5/8	6	3-1/4	37446-00-D	37447-00-D	37448-00-D	37449-00-D	37451-00-D
HVMag3-30625	5/8	5/8	3/4	4	1-5/8	37452-00-D	37453-00-D	37454-00-D	37455-00-D	37456-00-D
HVMag3-M-30625	5/8	5/8	3/4	5	2-1/4	37457-00-D	37458-00-D	37459-00-D	37461-00-D	37462-00-D
HVMag3-L-30625	5/8	5/8	3/4	6	3-1/4	37463-00-D	37464-00-D	37465-00-D	37466-00-D	37467-00-D
HVMag3-30750	3/4	3/4	1	4	2-1/8	37468-00-D	37469-00-D	37470-00-D	37471-00-D	37472-00-D
HVMag3-M-30750	3/4	3/4	1	5	3	37473-00-D	37474-00-D	37475-00-D	37476-00-D	37477-00-D
HVMag3-L-30750	3/4	3/4	1	6	3-3/4	37478-00-D	37479-00-D	37480-00-D	37481-00-D	37482-00-D
HVMag3-31000	1	1	1-1/4	5	2-3/4	37483-00-D	37484-00-D	37485-00-D	37486-00-D	37487-00-D
HVMag3-M-31000	1	1	1-1/4	6	3-1/2	37488-00-D	37489-00-D	37490-00-D	37491-00-D	37492-00-D
HVMag3-L-31000	1	1	1-1/4	7	4-1/4	39055-00-D	40100-00-D	40101-00-D	40102-00-D	40103-00-D

*LBS = Length Below Shank

HVMag Metric Offering

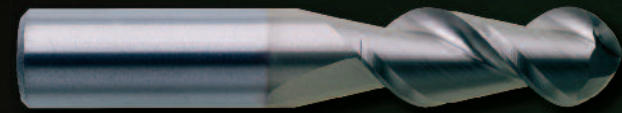
Part Number	Dia.	Shank	LOC	OAL	LBS*	EDP .000 Radius	EDP .25mm Radius	EDP 1mm Radius	EDP 2mm Radius	EDP 4mm Radius	EDP 5mm Radius
HVMag3-10MM-	10	10	13	73	38	37493-00-D	37494-00-D	37495-00-D	37496-00-D		
HVMag3-L-10MM-	10	10	13	100	52	37500-00-D	37501-00-D	37502-00-D	37503-00-D		
HVMag3-12MM-	12	12	16	74	38	37506-00-D	37507-00-D	37508-00-D	37509-00-D	37510-00-D	
HVMag3-M-12MM-	12	12	16	100	52	37512-00-D	37513-00-D	37514-00-D	37515-00-D	37516-00-D	
HVMag3-L-12MM-	12	12	16	147	80	37518-00-D	37519-00-D	37520-00-D	37521-00-D	37522-00-D	
HVMag3-16MM-	16	16	19	100	42	37524-00-D	37525-00-D	37526-00-D	37527-00-D	37528-00-D	37529-00-D
HVMag3-M-16MM-	16	16	19	122	55	37530-00-D	37531-00-D	37532-00-D	37533-00-D	37534-00-D	37535-00-D
HVMag3-L-16MM-	16	16	19	147	80	37536-00-D	37537-00-D	37538-00-D	37539-00-D	37540-00-D	37541-00-D
HVMag3-20MM-	20	20	25	100	52	37542-00-D	37543-00-D	37544-00-D	37545-00-D	37546-00-D	37547-00-D
HVMag3-M-20MM-	20	20	25	122	74	37548-00-D	37549-00-D	37550-00-D	37551-00-D	37552-00-D	37553-00-D
HVMag3-L-20MM-	20	20	25	147	92	37554-00-D	37555-00-D	37556-00-D	37557-00-D	37558-00-D	37559-00-D
HVMag3-25MM-	25	25	30	122	67	37560-00-D	37561-00-D	37562-00-D	37563-00-D	37564-00-D	37565-00-D
HVMag3-M-25MM-	25	25	30	147	86	37566-00-D	37567-00-D	37568-00-D	37569-00-D	37570-00-D	37571-00-D
HVMag3-L-25MM-	25	25	30	172	105	37572-00-D	37573-00-D	37574-00-D	37575-00-D	37576-00-D	37577-00-D

*LBS = Length Below Shank

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ARF-BN, Two Flute Ball Mill



The ARF-BN combines the proven geometry of our ARF two flute series with a precision ground, full, ball-nose radius. The high helix and high clearance angles provide a freer cutting ball with superior shearing properties. The ball nose is also ground with a vibration protection margin. When your non-ferrous applications require contour or 3-D work, the ARF-BN should be your tool of choice.

Technical Chart

ARF-BN, Two Flute Ball Mill

- Contour Milling
- High Helix
- High Performance Carbide
- H6 Tolerance

High Performance Carbide

- Available Upon Request:
 - Coolant Groves
 - Additional Coatings
 - Weldon Flats or Haimer Safe-Lock

Carbide Feeds and Speeds Chart for Non-Ferrous Materials

ARF-BN Materials		Aluminum Alloys	Aluminum Cast	Aluminum	Copper	Brass	Magnesium
Diameter	Description	6061, 7075	Sand & Permanent Mold	>10% Silicon High Silicon Based	Cast, Wrought	Yellow, Red, Lead Brass	Cast, Wrought
	SFM	800 - Max	250 - 600	600 - 1000	700 - 1000	500 - 900	500 - 900
1/4"	S	0.0026	0.0024	0.0020	0.0020	0.0020	0.0020
	HP	0.0034	0.0034	0.0030	0.0030	0.0030	0.0030
	LP	0.0043	0.0048	0.0043	0.0043	0.0043	0.0043
5/16"	S	0.0028	0.0027	0.0022	0.0022	0.0022	0.0022
	HP	0.0040	0.0040	0.0035	0.0035	0.0035	0.0035
	LP	0.0050	0.0056	0.0050	0.0050	0.0050	0.0050
3/8"	S	0.0038	0.0036	0.0030	0.0030	0.0030	0.0030
	HP	0.0051	0.0051	0.0045	0.0045	0.0045	0.0045
	LP	0.0064	0.0071	0.0064	0.0064	0.0064	0.0064
7/16"	S	0.0046	0.0043	0.0036	0.0036	0.0036	0.0036
	HP	0.0061	0.0061	0.0053	0.0053	0.0053	0.0053
	LP	0.0076	0.0085	0.0076	0.0076	0.0076	0.0076
1/2"	S	0.0060	0.0060	0.0050	0.0050	0.0050	0.0050
	HP	0.0080	0.0080	0.0070	0.0070	0.0070	0.0070
	LP	0.0100	0.0100	0.0090	0.0090	0.0090	0.0090
5/8"	S	0.0064	0.0061	0.0050	0.0050	0.0050	0.0050
	HP	0.0086	0.0086	0.0075	0.0075	0.0075	0.0075
	LP	0.0107	0.0119	0.0107	0.0107	0.0107	0.0107
3/4"	S	0.0068	0.0064	0.0054	0.0054	0.0054	0.0054
	HP	0.0097	0.0097	0.0085	0.0085	0.0085	0.0085
	LP	0.0122	0.0135	0.0122	0.0122	0.0122	0.0122
1"	S	0.0108	0.0102	0.0085	0.0085	0.0085	0.0085
	HP	0.0144	0.0144	0.0126	0.0126	0.0126	0.0126
	LP	0.0180	0.0200	0.0180	0.0180	0.0180	0.0180

S = SLOTTING
Axial Depth up to
1.0 x Diameter
Radial width .5 x Diameter

LP = LIGHT PERIPHERAL
Axial Depth up to
Effective Length of Cut
Radial width .015 x Diameter

HP = HEAVY PERIPHERAL
Axial Depth up to
1.5 - 2.0 x Diameter
Radial width .25 x Diameter

Note! Horsepower will be the limiting factor with larger diameter end mills.

Horsepower = IPM x RDC x ADC x PC
IPM = Inches Per Minute
RDC = Radial Depth of Cut (Width)
ADC = Axial Depth of Cut (Depth)
PC = Power Constants (Aluminum = (0.25))
Example Slotting = 3/4 diameter x 3/8 @ 150 IPM
HP = 150 IPM x .750 RDC x .375 ADC x PC of 0.25
HP = 10.8 @ cutter/80%Efficiency = 12.8 @ Spindle Motor

Part Number	Dia.	Shank	LOC	OAL	EDP	C4 EDP	C5 EDP
ARF-BN-ST-20250	1/4	1/4	3/8	2-1/2	33424-00-D	33424-89-D	33424-86-D
ARF-BN-20250	1/4	1/4	3/4	2-1/2	33360-00-D	33360-89-D	33360-86-D
ARF-BN-ST-20312	5/16	5/16	7/16	2-1/2	33432-00-D	33432-89-D	33432-86-D
ARF-BN-20312	5/16	5/16	13/16	2-1/2	33368-00-D	33368-89-D	33368-86-D
ARF-BN-ST-20375	3/8	3/8	1/2	2-1/2	33440-00-D	33440-89-D	33440-86-D
ARF-BN-20375	3/8	3/8	1	2-1/2	33376-00-D	33376-89-D	33376-86-D
ARF-BN-ST-20437	7/16	7/16	9/16	2-3/4	33448-00-D	33448-89-D	33448-86-D
ARF-BN-20437	7/16	7/16	1	2-3/4	33384-00-D	33384-89-D	33384-86-D
ARF-BN-ST-20500	1/2	1/2	5/8	3	33456-00-D	33456-89-D	33456-86-D
ARF-BN-20500	1/2	1/2	1-1/4	3	33392-00-D	33392-89-D	33392-86-D
ARF-BN-ST-20625	5/8	5/8	3/4	3-1/2	33464-00-D	33464-89-D	33464-86-D
ARF-BN-20625	5/8	5/8	1-5/8	3-1/2	33400-00-D	33400-89-D	33400-86-D
ARF-BN-ST-20750	3/4	3/4	1	4	33472-00-D	33472-89-D	33472-86-D
ARF-BN-20750	3/4	3/4	1-5/8	4	33408-00-D	33408-89-D	33408-86-D
ARF-BN-ST-21000	1	1	1-1/4	5	33480-00-D	33480-89-D	33480-86-D
ARF-BN-21000	1	1	2	5	33416-00-D	33416-89-D	33416-86-D

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HSM-BN, Two Flute Ball Mill



The HSM-BN is a two flute rougher/finisher that couples ARF geometries with an extended reach design. The tool provides all the advantages of the ARF's high helix, high clearance and anti-vibration margin, in a necked tool with a stub length of cut. This is your "go to" tool for extended reach, aluminum applications that call for a ball nose.

Technical Chart

HSM-BN, Two Flute Ball Mill

High Performance Carbide

- High Performance Carbide
- Periphery and Pocketing Operations
- Reduced Neck for Reach and Stability
- High Helix for Chip Removal

- Available Upon Request:
 - Coolant Groves
 - Additional Coatings
 - Weldon Flats or Haimer Safe-Lock

Carbide Feeds and Speeds Chart for Non-Ferrous Materials

HSM-BN Materials		Aluminum Alloys	Aluminum Cast	Aluminum	Copper	Brass	Magnesium
Diameter	Description	6061, 7075	Sand & Permanent Mold	>10% Silicon High Silicon Based	Cast, Wrought	Yellow, Red, Lead Brass	Cast, Wrought
	SFM	800 - Max	250 - 600	600 - 1000	700 - 1000	500 - 900	500 - 900
1/4"	S	0.0034	0.0032	0.0028	0.0028	0.0028	0.0028
	HP	0.0043	0.0043	0.0038	0.0038	0.0038	0.0038
	LP	0.0051	0.0057	0.0048	0.0048	0.0048	0.0048
3/8"	S	0.0051	0.0048	0.0042	0.0042	0.0042	0.0042
	HP	0.0064	0.0064	0.0058	0.0058	0.0058	0.0058
	LP	0.0077	0.0086	0.0071	0.0071	0.0071	0.0071
1/2"	S	0.0080	0.0080	0.0070	0.0070	0.0070	0.0070
	HP	0.0100	0.0100	0.0090	0.0090	0.0090	0.0090
	LP	0.0120	0.0120	0.0100	0.0100	0.0100	0.0100
5/8"	S	0.0086	0.0081	0.0071	0.0071	0.0071	0.0071
	HP	0.0107	0.0107	0.0096	0.0096	0.0096	0.0096
	LP	0.0128	0.0143	0.0119	0.0119	0.0119	0.0119
3/4"	S	0.0091	0.0086	0.0075	0.0075	0.0075	0.0075
	HP	0.0122	0.0122	0.0109	0.0109	0.0109	0.0109
	LP	0.0146	0.0162	0.0135	0.0135	0.0135	0.0135
1"	S	0.0144	0.0136	0.0119	0.0119	0.0119	0.0119
	HP	0.0180	0.0180	0.0162	0.0162	0.0162	0.0162
	LP	0.0216	0.0240	0.0200	0.0200	0.0200	0.0200

S = SLOTTING
Axial Depth up to 1.0 x Diameter
Radial width .5 x Diameter

LP = LIGHT PERIPHERAL
Axial Depth up to Effective Length of Cut
Radial width .015 x Diameter

HP = HEAVY PERIPHERAL
Axial Depth up to 1.5 – 2.0 x Diameter
Radial width .25 x Diameter

Note! Horsepower will be the limiting factor with larger diameter end mills.

Horsepower = IPM x RDC x ADC x PC
IPM = Inches Per Minute
RDC = Radial Depth of Cut (Width)
ADC = Axial Depth of Cut (Depth)
PC = Power Constants (Aluminum = (0.25))
Example Slotting = 3/4 diameter x 3/8 @ 150 IPM
HP = 150 IPM x .750 RDC x .375 ADC x PC of 0.25
HP = 10.8 @ cutter/80%Efficiency = 12.8 @ Spindle Motor

Part Number	Dia.	Shank	LOC	OAL	LBS*	Neck Dia.	EDP	C4 EDP	C5 EDP
HSM-BN-20250	1/4	1/4	3/8	2-1/2	1-1/8	0.235	33499-00-D	33499-89-D	33499-86-D
HSM-BN-M-20250	1/4	1/4	3/8	4	2-1/8	0.235	33595-00-D	33595-89-D	33595-86-D
HSM-BN-20312	5/16	5/16	7/16	2-1/2	1-1/8	0.297	33507-00-D	33507-89-D	33507-86-D
HSM-BN-M-20312	5/16	5/16	7/16	4	2-1/8	0.297	33603-00-D	33603-89-D	33603-86-D
HSM-BN-20375	3/8	3/8	1/2	2-1/2	1-1/8	0.355	33515-00-D	33515-89-D	33515-86-D
HSM-BN-M-20375	3/8	3/8	1/2	4	2-1/8	0.355	33611-00-D	33611-89-D	33611-86-D
HSM-BN-20437	7/16	7/16	9/16	2-3/4	1-1/4	0.412	33523-00-D	33523-89-D	33523-86-D
HSM-BN-20500	1/2	1/2	5/8	3	1-3/8	0.475	33531-00-D	33531-89-D	33531-86-D
HSM-BN-M-20500	1/2	1/2	5/8	4	2-1/8	0.475	33619-00-D	33619-89-D	33619-86-D
HSM-BN-L-20500	1/2	1/2	5/8	6	3-3/8	0.475	33563-00-D	33563-89-D	33563-86-D
HSM-BN-20625	5/8	5/8	3/4	3-1/2	1-5/8	0.590	33539-00-D	33539-89-D	33539-86-D
HSM-BN-M-20625	5/8	5/8	3/4	6	2-3/8	0.590	33627-00-D	33627-89-D	33627-86-D
HSM-BN-L-20625	5/8	5/8	3/4	6	3-3/8	0.590	33571-00-D	33571-89-D	33571-86-D
HSM-BN-20750	3/4	3/4	1	4	1-5/8	0.715	33547-00-D	33547-89-D	33547-86-D
HSM-BN-M-20750	3/4	3/4	1	6	2-1/2	0.715	33635-00-D	33635-89-D	33635-86-D
HSM-BN-L-20750	3/4	3/4	1	6	3-3/8	0.715	33579-00-D	33579-89-D	33579-86-D
HSM-BN-21000	1	1	1-1/4	5	2	0.960	33555-00-D	33555-89-D	33555-86-D
HSM-BN-M-21000	1	1	1-1/4	7	3-3/8	0.960	33643-00-D	33643-89-D	33643-86-D
HSM-BN-L-21000	1	1	1-1/4	7	4-3/8	0.960	33587-00-D	33587-89-D	33587-86-D

*LBS = Length Below Shank

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HVM-BN Two Flute Ball Mill with Reduced Neck



This is a new series that provides HVM geometry in a 2 flute, precision ground, ball nose configuration. The HVM has a slower helix than our HSM. This helix angle can be more appropriate in applications where operators are seeking to limit or control vertical cutting forces in the Z direction.

Technical Chart

HVM-BN Two Flute Ball Mill with Reduced Neck

High Performance Carbide

- High Performance Carbide
- High Speed Machining
- Reduced Neck for Reach and Stability
- Full Radius Ball

- Available Upon Request:
 - Coolant Groves
 - Additional Coatings
 - Weldon Flats or Haimer Safe-Lock

Carbide Feeds and Speeds Chart for Non-Ferrous Materials

HVM-BN Materials		Aluminum Alloys	Aluminum Cast	Aluminum	Copper	Brass	Magnesium
Diameter	Description	6061, 7075	Sand & Permanent Mold	>10% Silicon High Silicon Based	Cast, Wrought	Yellow, Red, Lead Brass	Cast, Wrought
	SFM	800 - Max	250 - 600	600 - 1000	700 - 1000	500 - 900	500 - 900
1/4"	S	0.0034	0.0032	0.0028	0.0028	0.0028	0.0028
	HP	0.0043	0.0043	0.0038	0.0038	0.0038	0.0038
	LP	0.0051	0.0057	0.0048	0.0048	0.0048	0.0048
3/8"	S	0.0051	0.0048	0.0042	0.0042	0.0042	0.0042
	HP	0.0064	0.0064	0.0058	0.0058	0.0058	0.0058
	LP	0.0077	0.0086	0.0071	0.0071	0.0071	0.0071
1/2"	S	0.0080	0.0080	0.0070	0.0070	0.0070	0.0070
	HP	0.0100	0.0100	0.0090	0.0090	0.0090	0.0090
	LP	0.0120	0.0120	0.0100	0.0100	0.0100	0.0100
5/8"	S	0.0086	0.0081	0.0071	0.0071	0.0071	0.0071
	HP	0.0107	0.0107	0.0096	0.0096	0.0096	0.0096
	LP	0.0128	0.0143	0.0119	0.0119	0.0119	0.0119
3/4"	S	0.0091	0.0086	0.0075	0.0075	0.0075	0.0075
	HP	0.0122	0.0122	0.0109	0.0109	0.0109	0.0109
	LP	0.0146	0.0162	0.0135	0.0135	0.0135	0.0135
1"	S	0.0144	0.0136	0.0119	0.0119	0.0119	0.0119
	HP	0.0180	0.0180	0.0162	0.0162	0.0162	0.0162
	LP	0.0216	0.0240	0.0200	0.0200	0.0200	0.0200

S = SLOTTING
Axial Depth up to 1.0 x Diameter
Radial width .5 x Diameter

LP = LIGHT PERIPHERAL
Axial Depth up to Effective Length of Cut
Radial width .02 x Diameter

HP = HEAVY PERIPHERAL
Axial Depth up to 1.5 - 2.0 x Diameter
Radial width .3 x Diameter

Note! Horsepower will be the limiting factor with larger diameter end mills.

Horsepower = IPM x RDC x ADC x PC
IPM = Inches Per Minute
RDC = Radial Depth of Cut (Width)
ADC = Axial Depth of Cut (Depth)
PC = Power Constants (Aluminum = (0.25))
Example Slotting = 3/4 diameter x 3/8 @ 150 IPM
HP = 150 IPM x .750 RDC x .375 ADC x PC of 0.25
HP = 10.8 @ cutter/80%Efficiency = 12.8 @ Spindle Motor

Part Number	Dia.	Shank	LOC	OAL	LBS*	Neck Dia.	EDP	C4 EDP	C5 EDP
HVM-BN-RN-20250	1/4	1/4	3/8	2-1/2	1-1/8	0.235	54323-00-D	54323-89-D	54323-86-D
HVM-BN-RN-M-20250	1/4	1/4	3/8	4	2-1/8	0.235	54324-00-D	54324-89-D	54324-86-D
HVM-BN-RN-20375	3/8	3/8	1/2	2-1/2	1-1/8	0.355	54326-00-D	54326-89-D	54326-86-D
HVM-BN-RN-M-20375	3/8	3/8	1/2	4	2-1/8	0.355	54327-00-D	54327-89-D	54327-86-D
HVM-BN-RN-20500	1/2	1/2	5/8	3	1-3/8	0.475	54328-00-D	54328-89-D	54328-86-D
HVM-BN-RN-M-20500	1/2	1/2	5/8	4	2-1/8	0.475	54329-00-D	54329-89-D	54329-86-D
HVM-BN-RN-L-20500	1/2	1/2	5/8	6	3-3/8	0.475	54330-00-D	54330-89-D	54330-86-D
HVM-BN-RN-20625	5/8	5/8	3/4	4	1-5/8	0.590	54331-00-D	54331-89-D	54331-86-D
HVM-BN-RN-M-20625	5/8	5/8	3/4	6	2-1/8	0.590	54332-00-D	54332-89-D	54332-86-D
HVM-BN-RN-L-20625	5/8	5/8	3/4	6	3-3/8	0.590	54333-00-D	54333-89-D	54333-86-D
HVM-BN-RN-20750	3/4	3/4	1	4	2	0.715	54334-00-D	54334-89-D	54334-86-D
HVM-BN-RN-M-20750	3/4	3/4	1	6	2-1/2	0.715	54335-00-D	54335-89-D	54335-86-D
HVM-BN-RN-L-20750	3/4	3/4	1	6	3-3/8	0.715	54336-00-D	54336-89-D	54336-86-D
HVM-BN-RN-21000	1	1	1-1/4	5	2-5/8	0.960	54338-00-D	54338-89-D	54338-86-D
HVM-BN-RN-M-21000	1	1	1-1/4	7	3-3/8	0.960	54339-00-D	54339-89-D	54339-86-D
HVM-BN-RN-L-21000	1	1	1-1/4	7	4-3/8	0.960	54340-00-D	54340-89-D	54340-86-D

*LBS: Length Below Shank

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AFI Three Flute



The AFI 3 flute Aluminum mill is the perfect choice for your finishing applications. The polished O.D. cylindrical margin along with material specific geometries generates an excellent surface finish. The addition of a Wiper Flat brings this series of tool to the perfect choice. The AFI series is available in stub, standard, medium, long and extra long length of cut.

Technical Chart

Carbide Feeds and Speeds Chart for Non-Ferrous Materials

AFI Materials Diameter	Description	Aluminum Alloys	Aluminum Cast	Aluminum	Copper	Brass	Magnesium
		6061, 7075	Sand & Permanent Mold	>10% Silicon High Silicon Based	Cast, Wrought	Yellow, Red, Lead Brass	Cast, Wrought
SFM		800 - Max	250 - 600	600 - 1000	700 - 1000	500 - 900	500 - 900
1/4"	S	0.0026	0.0026	0.0021	0.0021	0.0021	0.0021
	HP	0.0034	0.0034	0.0030	0.0030	0.0030	0.0030
	LP	0.0043	0.0043	0.0038	0.0038	0.0038	0.0038
3/8"	S	0.0038	0.0038	0.0032	0.0032	0.0032	0.0032
	HP	0.0051	0.0051	0.0045	0.0045	0.0045	0.0045
	LP	0.0064	0.0064	0.0058	0.0058	0.0058	0.0058
1/2"	S	0.0060	0.0060	0.0050	0.0050	0.0050	0.0050
	HP	0.0080	0.0080	0.0070	0.0070	0.0070	0.0070
	LP	0.0100	0.0100	0.0090	0.0090	0.0090	0.0090
5/8"	S	0.0064	0.0064	0.0053	0.0053	0.0053	0.0053
	HP	0.0086	0.0086	0.0075	0.0075	0.0075	0.0075
	LP	0.0107	0.0107	0.0096	0.0096	0.0096	0.0096
3/4"	S	0.0068	0.0073	0.0061	0.0061	0.0061	0.0061
	HP	0.0097	0.0097	0.0085	0.0085	0.0085	0.0085
	LP	0.0122	0.0128	0.0115	0.0115	0.0115	0.0115
1"	S	0.0108	0.0108	0.0090	0.0090	0.0090	0.0090
	HP	0.0144	0.0144	0.0126	0.0126	0.0126	0.0126
	LP	0.0180	0.0180	0.0162	0.0162	0.0162	0.0162

S = SLOTTING
Axial Depth up to 1.0 x Diameter
Radial width .5 x Diameter

LP = LIGHT PERIPHERAL
Axial Depth up to Effective Length of Cut
Radial width .015 x Diameter

HP = HEAVY PERIPHERAL
Axial Depth up to 1.5 - 2.0 x Diameter
Radial width .25 x Diameter

Note! Horsepower will be the limiting factor with larger diameter end mills.

Horsepower = IPM x RDC x ADC x PC
IPM = Inches Per Minute
RDC = Radial Depth of Cut (Width)
ADC = Axial Depth of Cut (Depth)
PC = Power Constants (Aluminum = (0.25))
Example Slotting = 3/4 diameter x 3/8 @ 150 IPM
HP = 150 IPM x .750 RDC x .375 ADC x PC of 0.25
HP = 10.8 @ cutter/80%Efficiency = 12.8 @ Spindle Motor

AFI Three Flute

- Polished O.D. Cylindrical Margin
- Wiper Flats
- High Performance Carbide
- Available in Stub to Extra Long Length-Of-Cut

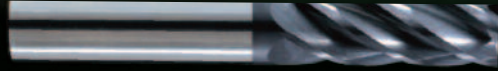
High Performance Carbide

- Available Upon Request:
 - Radius Ends
 - Coolant Groves
 - Additional Coatings

Item	Dia.	Shank	LOC	OAL	Coatings	Square			Radius Offering		
						0.000	0.015	0.030	0.060	0.090	0.125
AFIST30125-	1/8	1/8	1/4	1-1/2		32460-00-D	41000-00-D	41001-00-D			
AFIST30125C5-	1/8	1/8	1/4	1-1/2	C5	32460-86-D	41000-86-D	41001-86-D			
AFI30125-	1/8	1/8	3/8	1-1/2		32300-00-D	41002-00-D	41003-00-D			
AFI30125C5-	1/8	1/8	3/8	1-1/2	C5	32300-86-D	41002-86-D	41003-86-D			
AFIST30187-	3/16	3/16	5/16	2		32468-00-D	41004-00-D	41005-00-D			
AFIST30187C5-	3/16	3/16	5/16	2	C5	32468-86-D	41004-86-D	41005-86-D			
AFI30187-	3/16	3/16	9/16	2		32308-00-D	41006-00-D	41007-00-D			
AFI30187C5-	3/16	3/16	9/16	2	C5	32308-86-D	41006-86-D	41007-86-D			
AFIST30250-	1/4	1/4	3/8	2		32476-00-D	41008-00-D	41009-00-D	41021-00-D		
AFIST30250C5-	1/4	1/4	3/8	2	C5	32476-86-D	41008-86-D	41009-86-D	41021-86-D		
AFI30250-	1/4	1/4	5/8	2-1/2		32316-00-D	41023-00-D	41025-00-D	41027-00-D		
AFI30250C5-	1/4	1/4	5/8	2-1/2	C5	32316-86-D	41023-86-D	41025-86-D	41027-86-D		
AFIL30250-	1/4	1/4	1-1/4	3-1/4		32380-00-D	41029-00-D	41030-00-D	41031-00-D		
AFIL30250C5-	1/4	1/4	1-1/4	3-1/4	C5	32380-86-D	41029-86-D	41030-86-D	41031-86-D		
AFIST30312-	5/16	5/16	7/16	2		32484-00-D	41032-00-D	41033-00-D	41034-00-D		
AFIST30312C5-	5/16	5/16	7/16	2	C5	32484-86-D	41032-86-D	41033-86-D	41034-86-D		
AFI30312-	5/16	5/16	5/8	2-1/2		32324-00-D	41035-00-D	41036-00-D	41037-00-D		
AFI30312C5-	5/16	5/16	5/8	2-1/2	C5	32324-86-D	41035-86-D	41036-86-D	41037-86-D		
AFIL30312-	5/16	5/16	1-1/4	3-1/2		32388-00-D	41038-00-D	41039-00-D	41040-00-D		
AFIL30312C5-	5/16	5/16	1-1/4	3-1/2	C5	32388-86-D	41038-86-D	41039-86-D	41040-86-D		
AFIX30312-	5/16	5/16	2-1/8	4		32540-00-D	41041-00-D	41042-00-D	41043-00-D		
AFIX30312C5-	5/16	5/16	2-1/8	4	C5	32540-86-D	41041-86-D	41042-86-D	41043-86-D		
AFIST30375-	3/8	3/8	1/2	2		32492-00-D	41044-00-D	41045-00-D	41046-00-D	41047-00-D	
AFIST30375C5-	3/8	3/8	1/2	2	C5	32492-86-D	41044-86-D	41045-86-D	41046-86-D	41047-86-D	
AFI30375-	3/8	3/8	1	2-1/2		32332-00-D	41048-00-D	41049-00-D	41050-00-D	41051-00-D	
AFI30375C5-	3/8	3/8	1	2-1/2	C5	32332-86-D	41048-86-D	41049-86-D	41050-86-D	41051-86-D	
AFIM30375-	3/8	3/8	1-1/4	3		51600-00-D	41052-00-D	41053-00-D	41054-00-D	41055-00-D	
AFIM30375C5-	3/8	3/8	1-1/4	3	C5	51600-86-D	41052-86-D	41053-86-D	41054-86-D	41055-86-D	
AFIL30375-	3/8	3/8	1-1/2	3-1/2		32396-00-D	41056-00-D	41057-00-D	41058-00-D	41059-00-D	
AFIL30375C5-	3/8	3/8	1-1/2	3-1/2	C5	32396-86-D	41056-86-D	41057-86-D	41058-86-D	41059-86-D	
AFIX30375-	3/8	3/8	2-1/2	6		32548-00-D	41060-00-D	41061-00-D	41062-00-D	41063-00-D	
AFIX30375C5-	3/8	3/8	2-1/2	6	C5	32548-86-D	41060-86-D	41061-86-D	41062-86-D	41063-86-D	
AFIST30437-	7/16	7/16	9/16	2-1/2		32500-00-D	41064-00-D	41065-00-D	41066-00-D	41067-00-D	
AFIST30437C5-	7/16	7/16	9/16	2-1/2	C5	32500-86-D	41064-86-D	41065-86-D	41066-86-D	41067-86-D	
AFI30437-	7/16	7/16	1-1/4	2-3/4		32340-00-D	41068-00-D	41069-00-D	41070-00-D	41071-00-D	
AFI30437C5-	7/16	7/16	1-1/4	2-3/4	C5	32340-86-D	41068-86-D	41069-86-D	41070-86-D	41071-86-D	
AFIL30437-	7/16	7/16	2	4		32404-00-D	41072-00-D	41073-00-D	41074-00-D	41075-00-D	
AFIL30437C5-	7/16	7/16	2	4	C5	32404-86-D	41072-86-D	41073-86-D	41074-86-D	41075-86-D	

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The AFI 3 flute Aluminum mill is the perfect choice for your finishing applications. The polished O.D. cylindrical margin along with material specific geometries generates an excellent surface finish. The addition of a Wiper Flat brings this series of tool to the perfect choice. The AFI series is available in stub, standard, medium, long and extra long length of cut.

Item	Dia.	Shank	LOC	OAL	Coatings	Radius Offering							
						Square 0.000	0.015	0.030	0.060	0.090	0.125	0.190	
AFIST30500-	1/2	1/2	5/8	2-1/2		32508-00-D	41076-00-D	41077-00-D	41078-00-D	41079-00-D	41080-00-D		
AFIST30500C5-	1/2	1/2	5/8	2-1/2	C5	32508-86-D	41076-86-D	41077-86-D	41078-86-D	41079-86-D	41080-86-D		
AFI30500-	1/2	1/2	1-1/4	3		32348-00-D	41081-00-D	41082-00-D	41083-00-D	41084-00-D	41085-00-D		
AFI30500C5-	1/2	1/2	1-1/4	3	C5	32348-86-D	41081-86-D	41082-86-D	41083-86-D	41084-86-D	41085-86-D		
AFIM30500-	1/2	1/2	1-5/8	4		51607-00-D	41086-00-D	41087-00-D	41088-00-D	41089-00-D	41090-00-D		
AFIM30500C5-	1/2	1/2	1-5/8	4	C5	51607-86-D	41086-86-D	41087-86-D	41088-86-D	41089-86-D	41090-86-D		
AFIL30500-	1/2	1/2	2	4		32412-00-D	41091-00-D	41092-00-D	41093-00-D	41094-00-D	41095-00-D		
AFIL30500C5-	1/2	1/2	2	4	C5	32412-86-D	41091-86-D	41092-86-D	41093-86-D	41094-86-D	41095-86-D		
AFIX30500-	1/2	1/2	3-1/8	6		32556-00-D	41096-00-D	41097-00-D	41098-00-D	41099-00-D	44761-00-D		
AFIX30500C5-	1/2	1/2	3-1/8	6	C5	32556-86-D	41096-86-D	41097-86-D	41098-86-D	41099-86-D	44761-86-D		
AFIST30625-	5/8	5/8	3/4	3		32516-00-D		44763-00-D	44765-00-D	44766-00-D	44767-00-D		
AFIST30625C5-	5/8	5/8	3/4	3	C5	32516-86-D		44763-86-D	44765-86-D	44766-86-D	44767-86-D		
AFI30625-	5/8	5/8	1-5/8	3-1/2		32356-00-D		44768-00-D	44769-00-D	44770-00-D	44771-00-D		
AFI30625C5-	5/8	5/8	1-5/8	3-1/2	C5	32356-86-D		44768-86-D	44769-86-D	44770-86-D	44771-86-D		
AFIM30625-	5/8	5/8	2-1/8	4		51614-00-D		44772-00-D	44773-00-D	44774-00-D	44775-00-D		
AFIM30625C5-	5/8	5/8	2-1/8	4	C5	51614-86-D		44772-86-D	44773-86-D	44774-86-D	44775-86-D		
AFIL30625-	5/8	5/8	2-1/2	5		32420-00-D		44776-00-D	44777-00-D	44778-00-D	44779-00-D		
AFIL30625C5-	5/8	5/8	2-1/2	5	C5	32420-86-D		44776-86-D	44777-86-D	44778-86-D	44779-86-D		
AFIX30625-	5/8	5/8	3-3/4	6		32564-00-D		44780-00-D	44781-00-D	44782-00-D	44783-00-D		
AFIX30625C5-	5/8	5/8	3-3/4	6	C5	32564-86-D		44780-86-D	44781-86-D	44782-86-D	44783-86-D		
AFIST30750-	3/4	3/4	1	3		32524-00-D		44784-00-D	44785-00-D	44786-00-D	44787-00-D	44788-00-D	
AFIST30750C5-	3/4	3/4	1	3	C5	32524-86-D		44784-86-D	44785-86-D	44786-86-D	44787-86-D	44788-86-D	
AFI30750-	3/4	3/4	1-5/8	4		32364-00-D		44789-00-D	44790-00-D	44791-00-D	44792-00-D	44793-00-D	
AFI30750C5-	3/4	3/4	1-5/8	4	C5	32364-86-D		44789-86-D	44790-86-D	44791-86-D	44792-86-D	44793-86-D	
AFIM30750-	3/4	3/4	2-1/4	5		32444-00-D		44794-00-D	44795-00-D	44796-00-D	44797-00-D	44798-00-D	
AFIM30750C5-	3/4	3/4	2-1/4	5	C5	32444-86-D		44794-86-D	44795-86-D	44796-86-D	44797-86-D	44798-86-D	
AFIL30750-	3/4	3/4	3-1/4	6		32428-00-D		44799-00-D	44800-00-D	44801-00-D	44802-00-D	44803-00-D	
AFIL30750C5-	3/4	3/4	3-1/4	6	C5	32428-86-D		44799-86-D	44800-86-D	44801-86-D	44802-86-D	44803-86-D	
AFIX30750-	3/4	3/4	4	6-1/2		32572-00-D		44804-00-D	44805-00-D	44806-00-D	44807-00-D	44808-00-D	
AFIX30750C5-	3/4	3/4	4	6-1/2	C5	32572-86-D		44804-86-D	44805-86-D	44806-86-D	44807-86-D	44808-86-D	
AFIST31000-	1	1	1-1/4	4		32532-00-D		44809-00-D	44810-00-D	44811-00-D	44812-00-D	44813-00-D	
AFIST31000C5-	1	1	1-1/4	4	C5	32532-86-D		44809-86-D	44810-86-D	44811-86-D	44812-86-D	44813-86-D	
AFI31000-	1	1	2	5		32372-00-D		44814-00-D	44815-00-D	44816-00-D	44817-00-D	44818-00-D	
AFI31000C5-	1	1	2	5	C5	32372-86-D		44814-86-D	44815-86-D	44816-86-D	44817-86-D	44818-86-D	
AFIM31000-	1	1	2-5/8	6		32452-00-D		44819-00-D	44820-00-D	44821-00-D	44822-00-D	44823-00-D	
AFIM31000C5-	1	1	2-5/8	6	C5	32452-86-D		44819-86-D	44820-86-D	44821-86-D	44822-86-D	44823-86-D	
AFIL31000-	1	1	3-1/4	6		32436-00-D		44824-00-D	44825-00-D	44826-00-D	44827-00-D	44828-00-D	
AFIL31000C5-	1	1	3-1/4	6	C5	32436-86-D		44824-86-D	44825-86-D	44826-86-D	44827-86-D	44828-86-D	
AFIX31000-	1	1	4-1/8	7		32580-00-D		44829-00-D	44830-00-D	44831-00-D	44832-00-D	44833-00-D	
AFIX31000C5-	1	1	4-1/8	7	C5	32580-86-D		44829-86-D	44830-86-D	44831-86-D	44832-86-D	44833-86-D	

For additional support and for maximum optimization of your Data Flute tools, call us toll free at 800.447.1476 and ask to speak to our Technical Support Department.





The Aluminum Multi-Flute Series (AMF) features patented geometries with a flute form that reduces unwanted harmonics. The AMF provides unparalleled surface finishes at superior feed rates in aluminum and other non-ferrous materials. This tool can also profile in some peripheral roughing applications. With its special geometry for process dampening, the AMF is a perfect choice for straight wall finishing.

- Unequaled Surface Finish
- Performance Geometry Developed for Machining Aluminum
- Unique Double Duty Performance Characteristics
- Available in Stub, Standard and Long of Length-Of-Cut

- Available Upon Request:
 - Radius Ends
 - Coolant Groves
 - Additional Coatings

AMF Materials		Aluminum Alloys	Aluminum Cast	Aluminum	Copper	Brass
Diameter	Description	6061, 7075	Sand & Permanent Mold	>10% Silicon High Silicon Based	Cast, Wrought	Yellow, Red, Leaded Brass
	SFM	800 - Max	250 - 600	600 - 1000	700 - 1000	500 - 900
1/4"	HP	0.0026	0.0026	0.0021	0.0021	0.0021
	LP	0.0034	0.0034	0.0030	0.0030	0.0030
	F	0.0043	0.0043	0.0038	0.0038	0.0038
3/8"	HP	0.0038	0.0038	0.0032	0.0032	0.0032
	LP	0.0051	0.0051	0.0045	0.0045	0.0045
	F	0.0064	0.0064	0.0058	0.0058	0.0058
1/2"	HP	0.0060	0.0060	0.0050	0.0050	0.0050
	LP	0.0080	0.0080	0.0070	0.0070	0.0070
	F	0.0100	0.0100	0.0090	0.0090	0.0090
5/8"	HP	0.0064	0.0064	0.0053	0.0053	0.0053
	LP	0.0086	0.0086	0.0075	0.0075	0.0075
	F	0.0107	0.0107	0.0096	0.0096	0.0096
3/4"	HP	0.0073	0.0073	0.0061	0.0061	0.0061
	LP	0.0097	0.0097	0.0085	0.0085	0.0085
	F	0.0128	0.0128	0.0115	0.0115	0.0115
1"	HP	0.0108	0.0108	0.0090	0.0090	0.0090
	LP	0.0144	0.0144	0.0126	0.0126	0.0126
	F	0.0180	0.0180	0.0162	0.0162	0.0162

HP = HEAVY PERIPHERAL
Axial Depth up to Effective Length of Cut
Radial width .2 x Diameter

LP = LIGHT PERIPHERAL
Axial Depth up to Effective Length of Cut
Radial width .1 x Diameter

F = FINISH
Axial Depth up to Effective Length of Cut
Radial width .02 x Diameter

Note! Horsepower will be the limiting factor with larger diameter end mills.

Horsepower = IPM x RDC x ADC x PC
IPM = Inches Per Minute
RDC = Radial Depth of Cut (Width)
ADC = Axial Depth of Cut (Depth)
PC = Power Constants (Aluminum = (0.25))
Example Slotting = 3/4 diameter x 3/8 @ 150 IPM
HP = 150 IPM x .750 RDC x .375 ADC x PC of 0.25
HP = 10.8 @ cutter/80%Efficiency = 12.8 @ Spindle Motor

Part Number	Dia.	Shank	LOC	OAL	No. of Flutes	EDP	C4 EDP	C5 EDP
AMF-ST-50250	1/4	1/4	3/8	2	5	37243-00-D	37243-89-D	37243-86-D
AMF-50250	1/4	1/4	3/4	2-1/2	5	37244-00-D	37244-89-D	37244-86-D
AMF-L-50250	1/4	1/4	1-1/4	3-1/4	5	37245-00-D	37245-89-D	37245-86-D
AMF-ST-50312	5/16	5/16	7/16	2	5	37246-00-D	37246-89-D	37246-86-D
AMF-50312	5/16	5/16	13/16	2-1/2	5	37247-00-D	37247-89-D	37247-86-D
AMF-L-50312	5/16	5/16	1-1/4	3-1/2	5	37248-00-D	37248-89-D	37248-86-D
AMF-ST-50375	3/8	3/8	1/2	2	5	37249-00-D	37249-89-D	37249-86-D
AMF-50375	3/8	3/8	1	2-1/2	5	37250-00-D	37250-89-D	37250-86-D
AMF-L-50375	3/8	3/8	1-1/2	3-1/2	5	37251-00-D	37251-89-D	37251-86-D
AMF-ST-50437	7/16	7/16	9/16	2-1/2	5	37252-00-D	37252-89-D	37252-86-D
AMF-50437	7/16	7/16	1	2-3/4	5	37253-00-D	37253-89-D	37253-86-D
AMF-L-50437	7/16	7/16	2	4	5	37254-00-D	37254-89-D	37254-86-D
AMF-ST-50500	1/2	1/2	5/8	2-1/2	5	37255-00-D	37255-89-D	37255-86-D
AMF-50500	1/2	1/2	1-1/4	3	5	37256-00-D	37256-89-D	37256-86-D
AMF-L-50500	1/2	1/2	2	4	5	37257-00-D	37257-89-D	37257-86-D
AMF-ST-50625	5/8	5/8	3/4	3	5	37258-00-D	37258-89-D	37258-86-D
AMF-50625	5/8	5/8	1-5/8	3-1/2	5	37259-00-D	37259-89-D	37259-86-D
AMF-L-50625	5/8	5/8	2-1/2	5	5	37260-00-D	37260-89-D	37260-86-D
AMF-ST-70750	3/4	3/4	1	3	7	37261-00-D	37261-89-D	37261-86-D
AMF-70750	3/4	3/4	1-5/8	4	7	37262-00-D	37262-89-D	37262-86-D
AMF-L-70750	3/4	3/4	3-1/4	6	7	37263-00-D	37263-89-D	37263-86-D
AMF-ST-71000	1	1	1-1/4	3	7	37264-00-D	37264-89-D	37264-86-D
AMF-71000	1	1	2	5	7	37265-00-D	37265-89-D	37265-86-D
AMF-L-71000	1	1	3-1/4	6	7	37266-00-D	37266-89-D	37266-86-D

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Shoulder Replacement

Titanium Spina Anterior lumbar plates

Titanium Hip Stems

Cobalt Chromium Knees

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Ferrous and Exotic Alloys



Ferrous

and Exotic Alloys

	SERIES	ITEM	DESCRIPTION	PAGE
ROUGHING	MH-RO	Medium Helix Rougher	5 Flute 45° Helix Knuckled Rougher	52
	SSDH	Stainless Steel Double Helix	4 Flute Double Helix	54
	SSDH-C	Stainless Steel Double Helix Chip Breaker	4 Flute Double Helix Truncated Chip Breaker	56
	SS-3	Titanium and Stainless Steel Rougher/Finisher, With and Without Reduced Neck	3 Flute 35° Helix Rougher/Finisher	58
	SS-3-C	Stainless Steel Chip Breaker	3 Flute 35° Helix Rougher/Finisher Chip Breaker	60
	SS-BN-3	Stainless Steel Ball Nose	3 Flute 35° Helix Rougher/Finisher Ball Nose Regular and Reduced Neck	62
	SS-BN-3-C	Stainless Steel Ball Nose Chip Breaker	3 Flute 35° Helix Rougher/Finisher Ball Nose Chip Breaker	64
	SS-4	Titanium and Stainless Steel Rougher/Finisher, With and Without Reduced Neck	4 Flute 35° Helix Reduced Neck Rougher/Finisher	66
	SS-4-C	Stainless Steel Chip Breaker	4 Flute 35° Helix Rougher/Finisher Chip Breaker	68
	SS-BN-4	Stainless Steel Ball Nose	4 Flute 35° Helix Rougher/Finisher Ball Nose Regular and Reduced Neck	70
	SS-BN-4-C	Stainless Steel Ball Nose Chip Breaker	4 Flute 35° Helix Rougher/Finisher Ball Nose Chip Breaker	72
	FINISHING			

	SERIES	ITEM	DESCRIPTION	PAGE	
ROUGHING	SSI-4 (M)	Titanium and Stainless Steel Rougher/Finisher, With and Without Reduced Neck	4 Flute 35° Variably Indexed Square and Radius Ends	74	
	SSI-4 BN	Titanium and Stainless Steel Ball Nose	4 Flute Variably Indexed Ball Nose	84	
	SSI-5 (M)	Titanium and Stainless Steel Rougher/Finisher, With and Without Reduced Neck	5 Flute Variably Indexed Square and Radius Ends	86	
	SVI	Titanium and Stainless Steel Rougher/Finisher	5 Flute Variable Pitch and Variable Helix Flute to Flute	94	
	DM-BN (M)	Die Mold Ball Nose	2 Flute Ball Mill for Hard Milling Mold Applications	96	
	MH	Titanium and Stainless Steel Rougher/Finisher	Multi-Flute, 45° Helix Rougher/Finisher Multi-Flute Square End	98	
	MH-CR	Titanium and Stainless Steel Rougher/Finisher	Multi-Flute, 45° Helix Rougher/Finisher Multi-Flute Radius End	100	
	TIW	Multi-Flute Finisher for Titanium	Multi-Flute Variable Pitch and Variable Index for Thin Wall Milling	104	
	FINISHING				

(M) This Series of Tools Also Offered in Metric Sizes

SS-4 Series of Tools are Being Discontinued

MH-RO Multi-Flute Series

Technical Chart

MH-RO Multi-Flute Series

High Performance Carbide



The MH-RO series is a form relief design intended for peripheral roughing in carbon steels and cast iron. The multi-flute design allows for increased feed rates while not requiring massive amounts of horsepower. The tools are available from stock in stub and standard length with coatings for your ferrous machining applications.

- For Carbon Steel and Cast Iron
- Peripheral Milling
- Available in Stub and Standard Lengths
- High Helix for Chip Removal

- Available Upon Request:
 - Radius Ends
 - Coolant Grooves
 - Additional Coatings

Feeds and Speeds Chart with Chip-Load per/tooth

Diameter	Description	Carbon Steels	Alloy Steel	Stainless Steel 300 Series	Stainless Steel 400 Series	Precipitation Stainless Steels	Gray Cast Iron	Ductile Cast Iron	High Temp Alloys	Titanium Pure	Titanium Cast/Wrought	
		10XX, 11XX, 13XX, 15XX	40XX, 41XX, 42XX, 43XX, 44XX, 46XX, 86XX, Series	304, 304L, 316, 316L, 312	420, 420F, 416, 440C	15/5PH, 16-6PH, 17/4PH, AM-XX Series	Gray	Ductile	Inconel 625/718, A286, Haynes	Pure	Cast/Wrought 6AL4V, ASTM 1,2,3, Alpha - Beta	
		SFM < 32Rc	200 - 450	150 - 300	150 - 350	200 - 450	80 - 250	250 - 450	120 - 350	70 - 120	140 - 220	140 - 200
		SFM > 32Rc	100 - 250	80 - 200	80 - 200	100 - 250	90 - 125	130 - 300	80 - 140	40 - 90	90 - 160	90 - 160
3/8"	S	0.0021	0.0018	0.0020	0.0020	0.0018	0.0018	0.0018	0.0014	0.0020	0.0018	0.0018
	HP	0.0025	0.0021	0.0025	0.0025	0.0021	0.0021	0.0021	0.0018	0.0025	0.0021	0.0021
	LP	0.0029	0.0025	0.0027	0.0027	0.0025	0.0025	0.0025	0.0021	0.0027	0.0025	0.0025
1/2"	S	0.0030	0.0025	0.0028	0.0028	0.0025	0.0025	0.0025	0.0020	0.0028	0.0025	0.0025
	HP	0.0035	0.0030	0.0035	0.0035	0.0030	0.0030	0.0030	0.0025	0.0035	0.0030	0.0030
	LP	0.0040	0.0035	0.0038	0.0038	0.0035	0.0035	0.0035	0.0030	0.0038	0.0035	0.0035
5/8"	S	0.0038	0.0031	0.0035	0.0035	0.0031	0.0031	0.0031	0.0025	0.0035	0.0031	0.0031
	HP	0.0044	0.0038	0.0044	0.0044	0.0038	0.0038	0.0038	0.0031	0.0044	0.0038	0.0038
	LP	0.0050	0.0044	0.0048	0.0048	0.0044	0.0044	0.0044	0.0038	0.0048	0.0048	0.0044
3/4"	S	0.0045	0.0038	0.0042	0.0042	0.0038	0.0038	0.0038	0.0030	0.0042	0.0038	0.0038
	HP	0.0053	0.0045	0.0053	0.0053	0.0045	0.0045	0.0045	0.0038	0.0053	0.0045	0.0045
	LP	0.0060	0.0053	0.0057	0.0057	0.0053	0.0053	0.0053	0.0045	0.0057	0.0053	0.0053
1"	S	0.0060	0.0050	0.0056	0.0056	0.0050	0.0050	0.0050	0.0040	0.0056	0.0050	0.0050
	HP	0.0070	0.0060	0.0070	0.0070	0.0060	0.0060	0.0060	0.0050	0.0070	0.0060	0.0060
	LP	0.0080	0.0070	0.0076	0.0076	0.0070	0.0070	0.0070	0.0060	0.0076	0.0070	0.0070

Part Number	Dia.	Shank	LOC	OAL	Number of Flutes	Radius	EDP	C4 EDP	C11 EDP	C10 EDP
MH-RO-ST-50375	3/8	3/8	1/2	2	5	.040	40087-00-D	40087-89-D	40087-85-D	40087-70-D
MH-RO-50375	3/8	3/8	1	2-1/2	5	.040	40007-00-D	40007-89-D	40007-85-D	40007-70-D
MH-RO-ST-50500	1/2	1/2	5/8	2-1/2	5	.040	40203-00-D	40203-89-D	40203-85-D	40203-70-D
MH-RO-50500	1/2	1/2	1-1/4	3	5	.040	40023-00-D	40023-89-D	40023-85-D	40023-70-D
MH-RO-ST-50625	5/8	5/8	3/4	3	5	.060	40211-00-D	40211-89-D	40211-85-D	40211-70-D
MH-RO-50625	5/8	5/8	1-5/8	3-1/2	5	.060	40039-00-D	40039-89-D	40039-85-D	40039-70-D
MH-RO-ST-50750	3/4	3/4	1	3	5	.060	40219-00-D	40219-89-D	40219-85-D	40219-70-D
MH-RO-50750	3/4	3/4	1-5/8	4	5	.060	40047-00-D	40047-89-D	40047-85-D	40047-70-D
MH-RO-ST-51000	1	1	1-1/4	3	5	.060	40227-00-D	40227-89-D	40227-85-D	40227-70-D
MH-RO-51000	1	1	2	4	5	.060	40063-00-D	40063-89-D	40063-85-D	40063-70-D
MH-RO-ST-71250	1-1/4	1-1/4	2	4-1/2	7	.060	40243-00-D	40243-89-D	40243-85-D	40243-70-D
MH-RO-71250	1-1/4	1-1/4	3	6	7	.060	40079-00-D	40079-89-D	40079-85-D	40079-70-D

S = SLOTTING Axial Depth up to 1.0 x Diameter
HP = HEAVY PERIPHERAL Axial Depth up to 1.0 x Diameter Radial width .5 x Diameter
LP = LIGHT PERIPHERAL Axial Depth up to 1.5 x Diameter Radial width .2 x Diameter

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SSDH Four Flute



The SSDH series achieves superior chip flow and evacuation through the introduction of chip-release flute form technology, and a unique inter-flute helical transition all within a patent pending design. A premium, rupture resistant substrate is the foundation to which these progressive geometries are applied. The end result is a brute of an end mill, capable of ultra aggressive metal removal rates in ferrous material ranging from low carbon steel to high nickel alloys. This all adds up to cycle time reductions and improved machine tool productivity.

Technical Chart

SSDH Four Flute

High Performance Carbide

- Design that Virtually Eliminates Flute Packing and Obstruction
- No Chatter
- Freer Cutting that Demands Less Horsepower
- Stability in Aggressive Applications

- Available Upon Request:
 - Radius Ends
 - Coolant Grooves
 - Additional Coatings

Feeds and Speeds Chart with Chip-Load per/tooth

Diameter	Description	Materials		Stainless Steel 300 Series	Stainless Steel 400 Series	Precipitation Stainless Steels	Gray Cast Iron	Ductile Cast Iron	High Temp Alloys	Titanium Pure	Titanium Cast/Wrought
		Carbon Steels	Alloy Steel	304, 304L, 316, 316L, 312	40XX, 41XX, 42XX, 43XX, 44XX, 46XX, 86XX, Series	15/5PH, 16-6PH, 17/4PH, AM-XX Series	Gray	Ductile	Inconel 625/718, A286, Haynes	Pure	Cast/Wrought 6AL4V, ASTM 1,2,3, Alpha - Beta
		SFM < 32Rc	200 - 450	150 - 300	150 - 350	200 - 450	80 - 250	250 - 450	120 - 350	70 - 120	140 - 220
		SFM > 32Rc	100 - 250	80 - 200	80 - 200	100 - 250	80 - 125	130 - 300	80 - 140	40 - 90	90 - 160

Part Number	Dia.	Shank	LOC	OAL	LBS*	Radius	Neck Dia.	EDP	C7 EDP	C11 EDP	C10 EDP
SSDH-ST-40250	1/4	1/4	3/8	2		.020		51000-00-D	51000-83-D	51000-85-D	51000-70-D
SSDH-40250	1/4	1/4	3/4	2-1/2		.020		51032-00-D	51032-83-D	51032-85-D	51032-70-D
SSDH-LS-M-40250	1/4	1/4	3/8	4	2-1/8	.020	.235	51064-00-D	51064-83-D	51064-85-D	51064-70-D

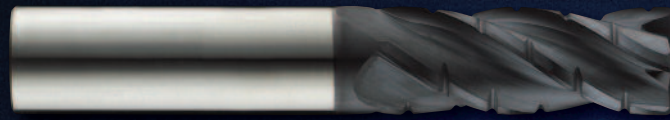
*LBS: Length Below Shank

- | | | |
|---|--|---|
| S = SLOTTING
Axial Depth up to 1.0 x Diameter | HP = HEAVY PERIPHERAL
Axial Depth up to 1.5 x Diameter
Radial width .5 x Diameter | LP = LIGHT PERIPHERAL
Axial Depth up to 2.0 x Diameter
Radial width .15 x Diameter |
|---|--|---|

For additional support and for maximum optimization of your Data Flute tools, call us toll free at 800.447.1476 and ask to speak to our Technical Support Department.



SSDH-C Four Flute



SSDH-C series combines the aggressive roughing geometries of the SSDH series with a truncated knuckle O.D. form. This unique design allows for freer cutting and better chip control while maintaining the work piece surface finishes. These tools are stocked in stub and regular lengths and coated to match your particular application.

Technical Chart

Feeds and Speeds Chart with Chip-Load per/tooth

Diameter	Description	Carbon Steels	Alloy Steel	Stainless Steel 300 Series	Stainless Steel 400 Series	Precipitation Stainless Steels	Gray Cast Iron	Ductile Cast Iron	High Temp Alloys	Titanium Pure	Titanium Cast/Wrought	
		10XX, 11XX, 13XX, 15XX	40XX, 41XX, 42XX, 43XX, 44XX, 46XX, 86XX, Series	304, 304L, 316, 316L, 312	420, 420F, 416, 440C	15/5PH, 16-6PH, 17/4PH, AM-XX Series	Gray	Ductile	Inconel 625/718, A286, Haynes	Pure	Cast/Wrought 6AL4V, ASTM 1,2,3, Alpha - Beta	
		SFM < 32Rc	200 - 450	150 - 300	150 - 350	200 - 450	80 - 250	250 - 450	120 - 350	70 - 120	140 - 220	140 - 200
		SFM > 32Rc	100 - 250	80 - 200	80 - 200	100 - 250	90 - 125	130 - 300	80 - 140	40 - 90	90 - 160	90 - 160
1/4"	S	0.0015	0.0014	0.0014	0.0014	0.0013	0.0013	0.0013	0.0010	0.0014	0.0013	
	HP	0.0018	0.0018	0.0018	0.0018	0.0015	0.0015	0.0015	0.0013	0.0018	0.0015	
	LP	0.0020	0.0019	0.0019	0.0019	0.0018	0.0018	0.0018	0.0015	0.0019	0.0018	
5/16"	S	0.0018	0.0017	0.0017	0.0017	0.0015	0.0015	0.0015	0.0012	0.0017	0.0015	
	HP	0.0021	0.0021	0.0021	0.0021	0.0018	0.0018	0.0018	0.0015	0.0021	0.0018	
	LP	0.0024	0.0023	0.0023	0.0023	0.0021	0.0021	0.0021	0.0018	0.0023	0.0021	
3/8"	S	0.0023	0.0021	0.0021	0.0021	0.0019	0.0019	0.0019	0.0015	0.0021	0.0019	
	HP	0.0026	0.0026	0.0026	0.0026	0.0023	0.0023	0.0023	0.0019	0.0026	0.0023	
	LP	0.0030	0.0029	0.0029	0.0029	0.0026	0.0026	0.0026	0.0023	0.0029	0.0026	
1/2"	S	0.0030	0.0028	0.0028	0.0028	0.0025	0.0025	0.0025	0.0020	0.0028	0.0025	
	HP	0.0035	0.0035	0.0035	0.0035	0.0030	0.0030	0.0030	0.0025	0.0035	0.0030	
	LP	0.0040	0.0038	0.0038	0.0038	0.0035	0.0035	0.0035	0.0030	0.0038	0.0035	
5/8"	S	0.0038	0.0035	0.0035	0.0035	0.0031	0.0031	0.0031	0.0025	0.0035	0.0031	
	HP	0.0044	0.0044	0.0044	0.0044	0.0038	0.0038	0.0038	0.0031	0.0044	0.0038	
	LP	0.0050	0.0048	0.0048	0.0048	0.0044	0.0044	0.0044	0.0038	0.0048	0.0044	
3/4"	S	0.0045	0.0042	0.0042	0.0042	0.0038	0.0038	0.0038	0.0030	0.0042	0.0038	
	HP	0.0053	0.0053	0.0053	0.0053	0.0045	0.0045	0.0045	0.0038	0.0053	0.0045	
	LP	0.0060	0.0057	0.0057	0.0057	0.0053	0.0053	0.0053	0.0045	0.0057	0.0053	
1"	S	0.0060	0.0056	0.0056	0.0056	0.0050	0.0050	0.0050	0.0040	0.0056	0.0050	
	HP	0.0070	0.0070	0.0070	0.0070	0.0060	0.0060	0.0060	0.0050	0.0070	0.0060	
	LP	0.0080	0.0076	0.0076	0.0076	0.0070	0.0070	0.0070	0.0060	0.0076	0.0070	

S = SLOTTING Axial Depth up to 1.0 x Diameter
HP = HEAVY PERIPHERAL Axial Depth up to 1.0 x Diameter Radial width .5 x Diameter
LP = LIGHT PERIPHERAL Axial Depth up to 1.5 x Diameter Radial width .2 x Diameter

SSDH-C Four Flute

- Double Helix Tool for Fast Chip Ejection
- Truncated Knuckle O.D. Form for Aggressive Feed
- Freer Cutting and Better Chip Control
- Available in Stub and Standard Lengths

High Performance Carbide

- Available Upon Request:
 - Radius Ends
 - Coolant Grooves
 - Additional Coatings

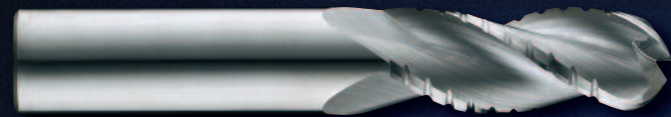
Part Number	Dia.	Shank	LOC	OAL	LBS*	Radius	Neck Dia.	EDP	C11 EDP	C10 EDP
SSDH-ST-C-40250	1/4	1/4	3/8	2		.020		51202-00-D	51202-85-D	51202-70-D
SSDH-C-40250	1/4	1/4	3/4	2-1/2		.020		51234-00-D	51234-85-D	51234-70-D
SSDH-LS-M-C-40250	1/4	1/4	3/8	4	2-1/8	.020	.235	51267-00-D	51267-85-D	51267-70-D
SSDH-ST-C-40312	5/16	5/16	7/16	2		.020		51206-00-D	51206-85-D	51206-70-D
SSDH-C-40312	5/16	5/16	13/16	2-1/2		.020		51238-00-D	51238-85-D	51238-70-D
SSDH-LS-M-C-40312	5/16	5/16	7/16	4	2-1/8	.020	.297	51271-00-D	51271-85-D	51271-70-D
SSDH-ST-C-40375	3/8	3/8	1/2	2		.020		51210-00-D	51210-85-D	51210-70-D
SSDH-C-40375	3/8	3/8	1	2-1/2		.020		51242-00-D	51242-85-D	51242-70-D
SSDH-LS-M-C-40375	3/8	3/8	1/2	6	2-3/8	.020	.355	51275-00-D	51275-85-D	51275-70-D
SSDH-ST-C-40437	7/16	7/16	9/16	2-1/2		.020		51214-00-D	51214-85-D	51214-70-D
SSDH-C-40437	7/16	7/16	1	2-3/4		.020		51246-00-D	51246-85-D	51246-70-D
SSDH-LS-M-C-40437	7/16	7/16	9/16	6	2-3/8	.020	.412	51279-00-D	51279-85-D	51279-70-D
SSDH-ST-C-40500	1/2	1/2	5/8	2-1/2		.030		51218-00-D	51218-85-D	51218-70-D
SSDH-C-40500	1/2	1/2	1-1/4	3		.030		51251-00-D	51251-85-D	51251-70-D
SSDH-LS-M-C-40500	1/2	1/2	5/8	6	2-3/8	.030	.475	51283-00-D	51283-85-D	51283-70-D
SSDH-ST-C-40625	5/8	5/8	3/4	3		.030		51222-00-D	51222-85-D	51222-70-D
SSDH-C-40625	5/8	5/8	1-5/8	3-1/2		.030		51255-00-D	51255-85-D	51255-70-D
SSDH-LS-M-C-40625	5/8	5/8	3/4	6	2-3/8	.030	.590	51287-00-D	51287-85-D	51287-70-D
SSDH-ST-C-40750	3/4	3/4	1	3		.030		51226-00-D	51226-85-D	51226-70-D
SSDH-C-40750	3/4	3/4	1-5/8	4		.030		51259-00-D	51259-85-D	51259-70-D
SSDH-LS-M-C-40750	3/4	3/4	1	6	2-1/2	.030	.715	51291-00-D	51291-85-D	51291-70-D
SSDH-ST-C-41000	1	1	1-1/4	3		.030		51230-00-D	51230-85-D	51230-70-D
SSDH-C-41000	1	1	2	4		.030		51263-00-D	51263-85-D	51263-70-D
SSDH-LS-M-C-41000	1	1	1-1/4	6	2-1/2	.030	.960	51295-00-D	51295-85-D	51295-70-D

*LBS: Length Below Shank

For additional support and for maximum optimization of your Data Flute tools, call us toll free at 800.447.1476 and ask to speak to our Technical Support Department.



SS-BN-C Three Flute Ball Nose



The SS-BN-C incorporates the chipbreaker design which allows you to take advantage of this advanced design in contour, modeling and 3-D work without jeopardizing work piece finish.

Technical Chart

SS-BN-C Three Flute Ball Nose

High Performance Carbide

- Truncated Knuckle Form for Chip Size and Form
- Freer Cutting and Better Chip Control
- Design for Contour, Modeling and 3-D Work
- Available in Stub and Standard Length

- Available Upon Request:
 - Coolant Grooves
 - Additional Coatings
 - Weldon Flats or Haimer Safe-Lock

Feeds and Speeds Chart with Chip-Load per/tooth

Diameter	Materials	Carbon Steels	Alloy Steel	Stainless Steel 300 Series	Stainless Steel 400 Series	Precipitation Stainless Steels	Gray Cast Iron	Ductile Cast Iron	High Temp Alloys	Titanium Pure	Titanium Cast/Wrought
Description	10XX, 11XX, 12XX, 13XX	40XX, 41XX, 42XX, 43XX, 44XX, 46XX, 86XX, Series	304, 304L, 316, 316L, 312	420, 420F, 416, 440L, 312	15-5PH, 16-6PH, 17-4PH, AM-XX Series	Gray	Ductile	Inconel 625/718, A286, Haynes	Pure	Cast/Wrought 6AL4V, ASTM 1,2,3, Alpha - Beta	
SFM < 32Rc	SFM > 32Rc	200 - 450	150 - 300	150 - 350	200 - 450	80 - 250	250 - 450	120 - 350	70 - 120	140 - 220	140 - 200
SFM > 32Rc	100 - 250	80 - 200	80 - 200	100 - 250	90 - 125	130 - 300	80 - 140	40 - 90	90 - 160	90 - 160	90 - 160
1/8"	S	0.0007	0.0006	0.0007	0.0007	0.0006	0.0006	0.0006	0.0005	0.0007	0.0006
	HP	0.0008	0.0007	0.0008	0.0008	0.0007	0.0007	0.0007	0.0006	0.0008	0.0007
	LP	0.0010	0.0008	0.0009	0.0009	0.0008	0.0008	0.0008	0.0007	0.0009	0.0008
1/4"	S	0.0014	0.0012	0.0013	0.0013	0.0012	0.0012	0.0012	0.0010	0.0013	0.0012
	HP	0.0017	0.0014	0.0017	0.0017	0.0014	0.0014	0.0014	0.0012	0.0017	0.0014
	LP	0.0019	0.0017	0.0018	0.0018	0.0017	0.0017	0.0017	0.0014	0.0018	0.0017
5/16"	S	0.0018	0.0015	0.0017	0.0017	0.0015	0.0015	0.0015	0.0012	0.0017	0.0015
	HP	0.0021	0.0018	0.0021	0.0021	0.0018	0.0018	0.0018	0.0015	0.0021	0.0018
	LP	0.0024	0.0021	0.0023	0.0023	0.0021	0.0021	0.0021	0.0018	0.0023	0.0021
3/8"	S	0.0021	0.0018	0.0020	0.0020	0.0018	0.0018	0.0018	0.0014	0.0020	0.0018
	HP	0.0025	0.0021	0.0025	0.0025	0.0021	0.0021	0.0021	0.0018	0.0025	0.0021
	LP	0.0029	0.0025	0.0027	0.0027	0.0025	0.0025	0.0025	0.0021	0.0027	0.0025
1/2"	S	0.0030	0.0025	0.0028	0.0028	0.0025	0.0025	0.0025	0.0020	0.0028	0.0025
	HP	0.0035	0.0030	0.0035	0.0035	0.0030	0.0030	0.0030	0.0025	0.0035	0.0030
	LP	0.0040	0.0035	0.0038	0.0038	0.0035	0.0035	0.0035	0.0030	0.0038	0.0035
5/8"	S	0.0038	0.0031	0.0035	0.0035	0.0031	0.0031	0.0031	0.0025	0.0035	0.0031
	HP	0.0044	0.0038	0.0044	0.0044	0.0038	0.0038	0.0038	0.0031	0.0044	0.0038
	LP	0.0050	0.0044	0.0048	0.0048	0.0044	0.0044	0.0044	0.0038	0.0048	0.0044
3/4"	S	0.0045	0.0038	0.0042	0.0042	0.0038	0.0038	0.0038	0.0030	0.0042	0.0038
	HP	0.0053	0.0045	0.0053	0.0053	0.0045	0.0045	0.0045	0.0038	0.0053	0.0045
	LP	0.0060	0.0053	0.0057	0.0057	0.0053	0.0053	0.0053	0.0045	0.0057	0.0053
1"	S	0.0060	0.0050	0.0056	0.0056	0.0050	0.0050	0.0050	0.0040	0.0056	0.0050
	HP	0.0070	0.0060	0.0070	0.0070	0.0060	0.0060	0.0060	0.0050	0.0070	0.0060
	LP	0.0080	0.0070	0.0076	0.0076	0.0070	0.0070	0.0070	0.0060	0.0076	0.0070

- S = SLOTTING**
Axial Depth up to .5 x Diameter
- HP = HEAVY PERIPHERAL**
Axial Depth up to Effective Length of Cut
Radial width .5 x Diameter
- LP = LIGHT PERIPHERAL**
Axial Depth up to Effective Length of Cut
Radial width .15 x Diameter

Part Number	Dia.	Shank	LOC	OAL	EDP	C4 EDP	C7 EDP	C11 EDP
SS-BN-ST-C-30125	1/8	1/8	1/4	1-1/2	34404-00-D	34404-89-D	34404-83-D	34404-85-D
SS-BN-C-30125	1/8	1/8	1/2	1-1/2	33836-00-D	33836-89-D	33836-83-D	33836-85-D
SS-BN-ST-C-30156	5/32	3/16	5/16	2	34412-00-D	34412-89-D	34412-83-D	34412-85-D
SS-BN-C-30156	5/32	3/16	9/16	2	33844-00-D	33844-89-D	33844-83-D	33844-85-D
SS-BN-ST-C-30187	3/16	3/16	5/16	2	34420-00-D	34420-89-D	34420-83-D	34420-85-D
SS-BN-C-30187	3/16	3/16	9/16	2	33852-00-D	33852-89-D	33852-83-D	33852-85-D
SS-BN-ST-C-30218	7/32	1/4	3/8	2	34428-00-D	34428-89-D	34428-83-D	34428-85-D
SS-BN-C-30218	7/32	1/4	3/4	2-1/2	33860-00-D	33860-89-D	33860-83-D	33860-85-D
SS-BN-ST-C-30250	1/4	1/4	3/8	2	34436-00-D	34436-89-D	34436-83-D	34436-85-D
SS-BN-C-30250	1/4	1/4	3/4	2-1/2	33868-00-D	33868-89-D	33868-83-D	33868-85-D
SS-BN-ST-C-30281	9/32	5/16	7/16	2	34444-00-D	34444-89-D	34444-83-D	34444-85-D
SS-BN-C-30281	9/32	5/16	13/16	2-1/2	33876-00-D	33876-89-D	33876-83-D	33876-85-D
SS-BN-ST-C-30312	5/16	5/16	7/16	2	34452-00-D	34452-89-D	34452-83-D	34452-85-D
SS-BN-C-30312	5/16	5/16	13/16	2-1/2	33884-00-D	33884-89-D	33884-83-D	33884-85-D
SS-BN-ST-C-30343	11/32	3/8	1/2	2	34460-00-D	34460-89-D	34460-83-D	34460-85-D
SS-BN-C-30343	11/32	3/8	1	2-1/2	33892-00-D	33892-89-D	33892-83-D	33892-85-D
SS-BN-ST-C-30375	3/8	3/8	1/2	2	34468-00-D	34468-89-D	34468-83-D	34468-85-D
SS-BN-C-30375	3/8	3/8	1	2-1/2	33900-00-D	33900-89-D	33900-83-D	33900-85-D
SS-BN-ST-C-30437	7/16	7/16	9/16	2-1/2	34476-00-D	34476-89-D	34476-83-D	34476-85-D
SS-BN-C-30437	7/16	7/16	1	2-3/4	33908-00-D	33908-89-D	33908-83-D	33908-85-D
SS-BN-ST-C-30500	1/2	1/2	5/8	2-1/2	34484-00-D	34484-89-D	34484-83-D	34484-85-D
SS-BN-C-30500	1/2	1/2	1-1/4	3	33916-00-D	33916-89-D	33916-83-D	33916-85-D
SS-BN-ST-C-30625	5/8	5/8	3/4	3	34492-00-D	34492-89-D	34492-83-D	34492-85-D
SS-BN-C-30625	5/8	5/8	1-5/8	3-1/2	33924-00-D	33924-89-D	33924-83-D	33924-85-D
SS-BN-ST-C-30750	3/4	3/4	1	3	34500-00-D	34500-89-D	34500-83-D	34500-85-D
SS-BN-C-30750	3/4	3/4	1-5/8	4	33932-00-D	33932-89-D	33932-83-D	33932-85-D
SS-BN-ST-C-31000	1	1	1-1/4	3	34508-00-D	34508-89-D	34508-83-D	34508-85-D
SS-BN-C-31000	1	1	2	4	33940-00-D	33940-89-D	33940-83-D	33940-85-D

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SS-C Four Flute



The SS-C four flute enable a 25% increase in feed rates. SS-C four flute is the tool of choice when periphery machining tuff gummy material. The geometries of the SS style tool along with the truncated knuckle form helps control the chip form and is freer cutting than traditional roughers.

Technical Chart

Feeds and Speeds Chart with Chip-Load per/tooth

Diameter	Materials Description	Carbon Steels 10XX, 11XX, 13XX, 15XX	Alloy Steel 40XX, 41XX, 42XX, 43XX, 44XX, 46XX, 86XX, Series	Stainless Steel 300 Series 304, 304L, 316, 316L, 321	Stainless Steel 400 Series 420, 420F, 416, 440C	Precipitation Stainless Steels 15/5PH, 16-6PH, 17/4PH, AM-XX Series	Gray Cast Iron	Ductile Cast Iron	High Temp Alloys Inconel 625/718, A286, Haynes	Titanium Pure	Titanium Cast/Wrought 6AL4V, ASTM 1,2,3, Alpha - Beta
1/8"	S	0.0007	0.0006	0.0007	0.0007	0.0006	0.0006	0.0006	0.0005	0.0007	0.0006
	HP	0.0008	0.0007	0.0008	0.0008	0.0007	0.0007	0.0007	0.0006	0.0008	0.0007
	LP	0.0010	0.0008	0.0009	0.0009	0.0008	0.0008	0.0008	0.0007	0.0009	0.0008
1/4"	S	0.0014	0.0012	0.0013	0.0013	0.0012	0.0012	0.0012	0.0010	0.0013	0.0012
	HP	0.0017	0.0014	0.0017	0.0017	0.0014	0.0014	0.0014	0.0012	0.0017	0.0014
	LP	0.0019	0.0017	0.0018	0.0018	0.0017	0.0017	0.0017	0.0014	0.0018	0.0017
5/16"	S	0.0018	0.0015	0.0017	0.0017	0.0015	0.0015	0.0015	0.0012	0.0017	0.0015
	HP	0.0021	0.0018	0.0021	0.0021	0.0018	0.0018	0.0018	0.0015	0.0021	0.0018
	LP	0.0024	0.0021	0.0023	0.0023	0.0021	0.0021	0.0021	0.0018	0.0023	0.0021
3/8"	S	0.0021	0.0018	0.0020	0.0020	0.0018	0.0018	0.0018	0.0014	0.0020	0.0018
	HP	0.0025	0.0021	0.0025	0.0025	0.0021	0.0021	0.0021	0.0018	0.0025	0.0021
	LP	0.0029	0.0025	0.0027	0.0027	0.0025	0.0025	0.0025	0.0021	0.0027	0.0025
1/2"	S	0.0030	0.0025	0.0028	0.0028	0.0025	0.0025	0.0025	0.0020	0.0028	0.0025
	HP	0.0035	0.0030	0.0035	0.0035	0.0030	0.0030	0.0030	0.0025	0.0035	0.0030
	LP	0.0040	0.0035	0.0038	0.0038	0.0035	0.0035	0.0035	0.0030	0.0038	0.0035
5/8"	S	0.0038	0.0031	0.0035	0.0035	0.0031	0.0031	0.0031	0.0025	0.0035	0.0031
	HP	0.0044	0.0038	0.0044	0.0044	0.0038	0.0038	0.0038	0.0031	0.0044	0.0038
	LP	0.0050	0.0044	0.0048	0.0048	0.0044	0.0044	0.0044	0.0038	0.0048	0.0044
3/4"	S	0.0045	0.0038	0.0042	0.0042	0.0038	0.0038	0.0038	0.0030	0.0042	0.0038
	HP	0.0053	0.0045	0.0053	0.0053	0.0045	0.0045	0.0045	0.0038	0.0053	0.0045
	LP	0.0060	0.0053	0.0057	0.0057	0.0053	0.0053	0.0053	0.0045	0.0057	0.0053
1"	S	0.0060	0.0050	0.0056	0.0056	0.0050	0.0050	0.0050	0.0040	0.0056	0.0050
	HP	0.0070	0.0060	0.0070	0.0070	0.0060	0.0060	0.0060	0.0050	0.0070	0.0060
	LP	0.0080	0.0070	0.0076	0.0076	0.0070	0.0070	0.0070	0.0060	0.0076	0.0070

S = SLOTTING Axial Depth up to .5 x Diameter
HP = HEAVY PERIPHERAL Axial Depth up to Effective Length of Cut Radial width .5 x Diameter
LP = LIGHT PERIPHERAL Axial Depth up to Effective Length of Cut Radial width .15 x Diameter

SS-C Four Flute

- Truncated Knuckle Form for Chip Size and Form
- Freer Cutting and Better Chip Control
- Tool of Choice in Gummy Materials
- Available in Stub and Standard Lengths

High Performance Carbide

- Available Upon Request:
 - Radius Ends
 - Coolant Grooves
 - Additional Coatings

Part Number	Dia.	Shank	LOC	OAL	Radius	EDP	C4 EDP	C7 EDP	C11 EDP
SS-ST-C-40125	1/8	1/8	1/4	1-1/2	.010	49200-00-D	49200-89-D	49200-83-D	49200-85-D
SS-C-40125	1/8	1/8	1/2	1-1/2	.010	49305-00-D	49305-89-D	49305-83-D	49305-85-D
SS-ST-C-40156	5/32	3/16	5/16	2	.010	49212-00-D	49212-89-D	49212-83-D	49212-85-D
SS-C-40156	5/32	3/16	9/16	2	.010	49314-00-D	49314-89-D	49314-83-D	49314-85-D
SS-ST-C-40187	3/16	3/16	5/16	2	.010	49219-00-D	49219-89-D	49219-83-D	49219-85-D
SS-C-40187	3/16	3/16	9/16	2	.010	49321-00-D	49321-89-D	49321-83-D	49321-85-D
SS-ST-C-40218	7/32	1/4	3/8	2	.020	49226-00-D	49226-89-D	49226-83-D	49226-85-D
SS-C-40218	7/32	1/4	3/4	2-1/2	.020	49328-00-D	49328-89-D	49328-83-D	49328-85-D
SS-ST-C-40250	1/4	1/4	3/8	2	.020	49233-00-D	49233-89-D	49233-83-D	49233-85-D
SS-C-40250	1/4	1/4	3/4	2-1/2	.020	49335-00-D	49335-89-D	49335-83-D	49335-85-D
SS-ST-C-40281	9/32	5/16	7/16	2	.020	49240-00-D	49240-89-D	49240-83-D	49240-85-D
SS-C-40281	9/32	5/16	13/16	2-1/2	.020	49342-00-D	49342-89-D	49342-83-D	49342-85-D
SS-ST-C-40312	5/16	5/16	7/16	2	.020	49247-00-D	49247-89-D	49247-83-D	49247-85-D
SS-C-40312	5/16	5/16	13/16	2-1/2	.020	49891-00-D	49891-89-D	49891-83-D	49891-85-D
SS-ST-C-40343	11/32	3/8	1/2	2	.020	49254-00-D	49254-89-D	49254-83-D	49254-85-D
SS-C-40343	11/32	3/8	1	2-1/2	.020	49349-00-D	49349-89-D	49349-83-D	49349-85-D
SS-ST-C-40375	3/8	3/8	1/2	2	.020	49261-00-D	49261-89-D	49261-83-D	49261-85-D
SS-C-40375	3/8	3/8	1	2-1/2	.020	49356-00-D	49356-89-D	49356-83-D	49356-85-D
SS-ST-C-40437	7/16	7/16	9/16	2-1/2	.020	49268-00-D	49268-89-D	49268-83-D	49268-85-D
SS-C-40437	7/16	7/16	1	2-3/4	.020	49363-00-D	49363-89-D	49363-83-D	49363-85-D
SS-ST-C-40500	1/2	1/2	5/8	2-1/2	.030	49275-00-D	49275-89-D	49275-83-D	49275-85-D
SS-C-40500	1/2	1/2	1-1/4	3	.030	49370-00-D	49370-89-D	49370-83-D	49370-85-D
SS-ST-C-40625	5/8	5/8	3/4	3	.030	49282-00-D	49282-89-D	49282-83-D	49282-85-D
SS-C-40625	5/8	5/8	1-5/8	3-1/2	.030	49377-00-D	49377-89-D	49377-83-D	49377-85-D
SS-ST-C-40750	3/4	3/4	1	3	.030	49289-00-D	49289-89-D	49289-83-D	49289-85-D
SS-C-40750	3/4	3/4	1-5/8	4	.030	49384-00-D	49384-89-D	49384-83-D	49384-85-D
SS-ST-C-41000	1	1	1-1/4	3	.030	49296-00-D	49296-89-D	49296-83-D	49296-85-D
SS-C-41000	1	1	2	4	.030	49391-00-D	49391-89-D	49391-83-D	49391-85-D

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SS-BN-C Four Flute Ball Nose



The 4 flute SS-BN-C series combines the ultra-effective design of the SS geometry with a truncated knuckle form. This design is best utilized in gummy material applications as it helps manage chip size and flow.

Technical Chart

Feeds and Speeds Chart with Chip-Load per/tooth

Diameter	Materials Description	Carbon Steels	Alloy Steel	Stainless Steel 300 Series	Stainless Steel 400 Series	Precipitation Stainless Steels	Gray Cast Iron	Ductile Cast Iron	High Temp Alloys	Titanium Pure	Titanium Cast/Wrought
		10XX, 11XX, 12XX, 13XX	40XX, 41XX, 42XX, 43XX, 44XX, 46XX, 86XX, Series	304, 304L, 316, 316L, 312	420, 420F, 416, 440L,	15-5PH, 16-6PH 17-4PH, AM-XX Series	Gray	Ductile	Inconel 625/718, A286, Haynes	Pure	Cast/Wrought 6AL4V, ASTM 1,2,3, Alpha - Beta
	SFM < 32Rc SFM > 32Rc	200 - 450 100 - 250	150 - 300 80 - 200	150 - 350 80 - 200	200 - 450 100 - 250	80 - 250 90 - 125	250 - 450 130 - 300	120 - 350 80 - 140	70 - 120 40 - 90	140 - 220 90 - 160	140 - 200 90 - 160
1/8"	S HP LP	0.0007 0.0008 0.0010	0.0006 0.0007 0.0008	0.0007 0.0008 0.0009	0.0007 0.0008 0.0009	0.0006 0.0007 0.0008	0.0006 0.0007 0.0008	0.0006 0.0007 0.0008	0.0005 0.0006 0.0007	0.0007 0.0008 0.0009	0.0006 0.0007 0.0008
1/4"	S HP LP	0.0014 0.0017 0.0019	0.0012 0.0014 0.0017	0.0013 0.0017 0.0018	0.0013 0.0017 0.0018	0.0012 0.0014 0.0017	0.0012 0.0014 0.0017	0.0012 0.0014 0.0017	0.0010 0.0012 0.0014	0.0013 0.0017 0.0018	0.0012 0.0014 0.0017
5/16"	S HP LP	0.0018 0.0021 0.0024	0.0015 0.0018 0.0021	0.0017 0.0021 0.0023	0.0017 0.0021 0.0023	0.0015 0.0018 0.0021	0.0015 0.0018 0.0021	0.0015 0.0018 0.0021	0.0012 0.0015 0.0018	0.0017 0.0021 0.0023	0.0015 0.0018 0.0021
3/8"	S HP LP	0.0021 0.0025 0.0029	0.0018 0.0021 0.0025	0.0020 0.0025 0.0027	0.0020 0.0025 0.0027	0.0018 0.0021 0.0025	0.0018 0.0021 0.0025	0.0018 0.0021 0.0025	0.0014 0.0018 0.0021	0.0020 0.0025 0.0027	0.0018 0.0021 0.0025
1/2"	S HP LP	0.0030 0.0035 0.0040	0.0025 0.0030 0.0035	0.0028 0.0035 0.0038	0.0028 0.0035 0.0038	0.0025 0.0030 0.0035	0.0025 0.0030 0.0035	0.0025 0.0030 0.0035	0.0020 0.0025 0.0030	0.0028 0.0035 0.0038	0.0025 0.0030 0.0035
5/8"	S HP LP	0.0038 0.0044 0.0050	0.0031 0.0038 0.0044	0.0035 0.0044 0.0048	0.0035 0.0044 0.0048	0.0031 0.0038 0.0044	0.0031 0.0038 0.0044	0.0031 0.0038 0.0044	0.0025 0.0031 0.0038	0.0035 0.0044 0.0048	0.0031 0.0038 0.0044
3/4"	S HP LP	0.0045 0.0053 0.0060	0.0038 0.0045 0.0053	0.0042 0.0053 0.0057	0.0042 0.0053 0.0057	0.0038 0.0045 0.0053	0.0038 0.0045 0.0053	0.0038 0.0045 0.0053	0.0030 0.0038 0.0045	0.0042 0.0053 0.0057	0.0038 0.0045 0.0053
1"	S HP LP	0.0060 0.0070 0.0080	0.0050 0.0060 0.0070	0.0056 0.0070 0.0076	0.0056 0.0070 0.0076	0.0050 0.0060 0.0070	0.0050 0.0060 0.0070	0.0050 0.0060 0.0070	0.0040 0.0050 0.0060	0.0056 0.0070 0.0076	0.0050 0.0060 0.0070

S = SLOTTING
Axial Depth up to
.5 x Diameter

HP = HEAVY PERIPHERAL
Axial Depth up to
Effective Length of Cut
Radial width .5 x Diameter

LP = LIGHT PERIPHERAL
Axial Depth up to
Effective Length of Cut
Radial width .15 x Diameter

SS-BN-C Four Flute Ball Nose

High Performance Carbide

- Truncated Knuckle Form for Chip Size and Form
- Freer Cutting and Better Chip Control
- Design for Contour, Modeling and 3-D Work
- Available in Stub and Standard Length

- Available Upon Request:
 - Coolant Grooves
 - Additional Coatings
 - Weldon Flats or Haimer Safe-Lock

Part Number	Dia.	Shank	LOC	OAL	EDP	C4 EDP	C7 EDP	C11 EDP
SS-BN-ST-C-40125	1/8	1/8	1/4	1-1/2	49398-00-D	49398-89-D	49398-83-D	49398-85-D
SS-BN-C-40125	1/8	1/8	1/2	1-1/2	49525-00-D	49525-89-D	49525-83-D	49525-85-D
SS-BN-ST-C-40156	5/32	3/16	5/16	2	49409-00-D	49409-89-D	49409-83-D	49409-85-D
SS-BN-C-40156	5/32	3/16	9/16	2	49532-00-D	49532-89-D	49532-83-D	49532-85-D
SS-BN-ST-C-40187	3/16	3/16	5/16	2	49421-00-D	49421-89-D	49421-83-D	49421-85-D
SS-BN-C-40187	3/16	3/16	9/16	2	49539-00-D	49539-89-D	49539-83-D	49539-85-D
SS-BN-ST-C-40218	7/32	1/4	3/8	2	49431-00-D	49431-89-D	49431-83-D	49431-85-D
SS-BN-C-40218	7/32	1/4	3/4	2-1/2	49546-00-D	49546-89-D	49546-83-D	49546-85-D
SS-BN-ST-C-40250	1/4	1/4	3/8	2	49447-00-D	49447-89-D	49447-83-D	49447-85-D
SS-BN-C-40250	1/4	1/4	3/4	2-1/2	49553-00-D	49553-89-D	49553-83-D	49553-85-D
SS-BN-ST-C-40281	9/32	5/16	7/16	2	49457-00-D	49457-89-D	49457-83-D	49457-85-D
SS-BN-C-40281	9/32	5/16	13/16	2-1/2	49560-00-D	49560-89-D	49560-83-D	49560-85-D
SS-BN-ST-C-40312	5/16	5/16	7/16	2	49465-00-D	49465-89-D	49465-83-D	49465-85-D
SS-BN-C-40312	5/16	5/16	13/16	2-1/2	49567-00-D	49567-89-D	49567-83-D	49567-85-D
SS-BN-ST-C-40343	11/32	3/8	1/2	2	49472-00-D	49472-89-D	49472-83-D	49472-85-D
SS-BN-C-40343	11/32	3/8	1	2-1/2	49574-00-D	49574-89-D	49574-83-D	49574-85-D
SS-BN-ST-C-40375	3/8	3/8	1/2	2	49479-00-D	49479-89-D	49479-83-D	49479-85-D
SS-BN-C-40375	3/8	3/8	1	2-1/2	49581-00-D	49581-89-D	49581-83-D	49581-85-D
SS-BN-ST-C-40437	7/16	7/16	9/16	2-1/2	49486-00-D	49486-89-D	49486-83-D	49486-85-D
SS-BN-C-40437	7/16	7/16	1	2-3/4	49588-00-D	49588-89-D	49588-83-D	49588-85-D
SS-BN-ST-C-40500	1/2	1/2	5/8	2-1/2	49493-00-D	49493-89-D	49493-83-D	49493-85-D
SS-BN-C-40500	1/2	1/2	1-1/4	3	49595-00-D	49595-89-D	49595-83-D	49595-85-D
SS-BN-ST-C-40625	5/8	5/8	3/4	3	49500-00-D	49500-89-D	49500-83-D	49500-85-D
SS-BN-C-40625	5/8	5/8	1-5/8	3-1/2	49603-00-D	49603-89-D	49603-83-D	49603-85-D
SS-BN-ST-C-40750	3/4	3/4	1	3	49511-00-D	49511-89-D	49511-83-D	49511-85-D
SS-BN-C-40750	3/4	3/4	1-5/8	4	49898-00-D	49898-89-D	49898-83-D	49898-85-D
SS-BN-ST-C-41000	1	1	1-1/4	3	49518-00-D	49518-89-D	49518-83-D	49518-85-D
SS-BN-C-41000	1	1	2	4	50220-00-D	50220-89-D	50220-83-D	50220-85-D

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SSI-4 Four Flute, Inch Continued

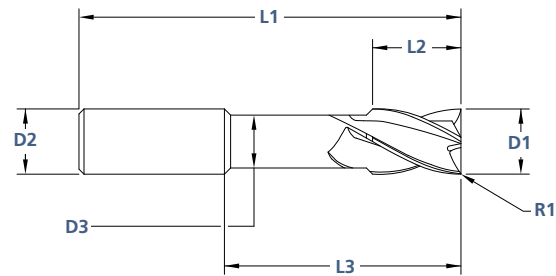
High Performance Carbide

- 4 Flute, Variably Indexed
- Roughing and Finishing in Titanium and Ferrous Alloys
- Performance Carbide
- Stocked in Square Ends and Radii

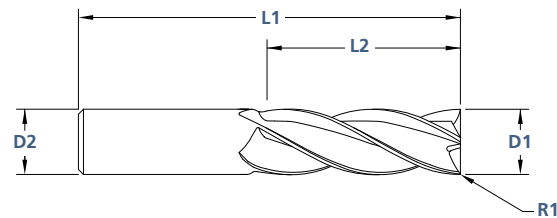
- Available Upon Request:
 - Additional Coatings
 - Weldon Flats or Haimer Safe-Lock
 - Coolant Grooves and Through Holes

Part Number	D1	D2	L2	L3	D3	L1	Form	Coating	Square				Radius Offering					
									0.000	0.010	0.020	0.030	0.060	0.090	0.120	0.156	0.190	
SSI-ST-40750-	3/4	3/4	1			3	C	C11	52688-85-D				51330-85-D	52690-85-D	52691-85-D	52692-85-D	53176-85-D	53177-85-D
								C10	52688-70-D				51330-70-D	52690-70-D	52691-70-D	52692-70-D	53176-70-D	53177-70-D
SSI-40750-	3/4	3/4	1-5/8			4	C	C11	52693-85-D				51387-85-D	52696-85-D	52697-85-D	52845-85-D	52847-85-D	52849-85-D
								C10	52693-70-D				51387-70-D	52696-70-D	52697-70-D	52845-70-D	52847-70-D	52849-70-D
SSI-M-40750-	3/4	3/4	2-1/4			5	C	C11	52698-85-D				52406-85-D	52700-85-D	52701-85-D	52702-85-D	52860-85-D	52862-85-D
								C10	52698-70-D				52406-70-D	52700-70-D	52701-70-D	52702-70-D	52860-70-D	52862-70-D
SSI-L-40750-	3/4	3/4	3			6	C	C11	52703-85-D				52410-85-D	52705-85-D	52706-85-D	52707-85-D	53196-85-D	53197-85-D
								C10	52703-70-D				52410-70-D	52705-70-D	52706-70-D	52707-70-D	53196-70-D	53197-70-D
SSI-X-40750-	3/4	3/4	4			6	C	C11	52708-85-D				52414-85-D	52710-85-D	52711-85-D	52712-85-D	53304-85-D	53305-85-D
								C10	52708-70-D				52414-70-D	52710-70-D	52711-70-D	52712-70-D	53304-70-D	53305-70-D
SSI-RN-40750-	3/4	3/4	1	2.000	0.715	4	B	C11					53518-85-D	53519-85-D	53520-85-D	53521-85-D		
SSI-RN-M-40750-	3/4	3/4	1	2.500	0.715	6	B	C11					51422-85-D	53522-85-D	53523-85-D	53524-85-D		
SSI-RN-L-40750-	3/4	3/4	1	3.375	0.715	6	B	C11					53525-85-D	53526-85-D	53527-85-D	53528-85-D		
SSI-RN-X-40750-	3/4	3/4	1	4.125	0.715	6	B	C11					53529-85-D	53530-85-D	53531-85-D	53532-85-D		
SSI-ST-41000-	1	1	1-1/4			4	C	C11	52713-85-D				51335-85-D	52715-85-D	52716-85-D	52717-85-D	53312-85-D	53313-85-D
								C10	52713-70-D				51335-70-D	52715-70-D	52716-70-D	52717-70-D	53312-70-D	53313-70-D
SSI-41000-	1	1	2			5	C	C11	52718-85-D				51391-85-D	52721-85-D	52722-85-D	52723-85-D	53320-85-D	53321-85-D
								C10	52718-70-D				51391-70-D	52721-70-D	52722-70-D	52723-70-D	53320-70-D	53321-70-D
SSI-M-41000-	1	1	2-5/8			6	C	C11	52724-85-D				52422-85-D	52726-85-D	52727-85-D	52728-85-D	53328-85-D	53329-85-D
								C10	52724-70-D				52422-70-D	52726-70-D	52727-70-D	52728-70-D	53328-70-D	53329-70-D
SSI-RN-41000-	1	1	1-1/4	2.250	0.960	4	B	C11					53533-85-D	53534-85-D	53535-85-D	53536-85-D		
SSI-RN-M-41000-	1	1	1-1/4	2.625	0.960	6	B	C11					53537-85-D	53538-85-D	53539-85-D	53540-85-D		
SSI-RN-L-41000-	1	1	1-1/4	3.375	0.960	6	B	C11					53541-85-D	53542-85-D	53543-85-D	53544-85-D		
SSI-RN-X-41000-	1	1	1-1/4	4.125	0.960	6	B	C11					53545-85-D	53546-85-D	53547-85-D	53548-85-D		

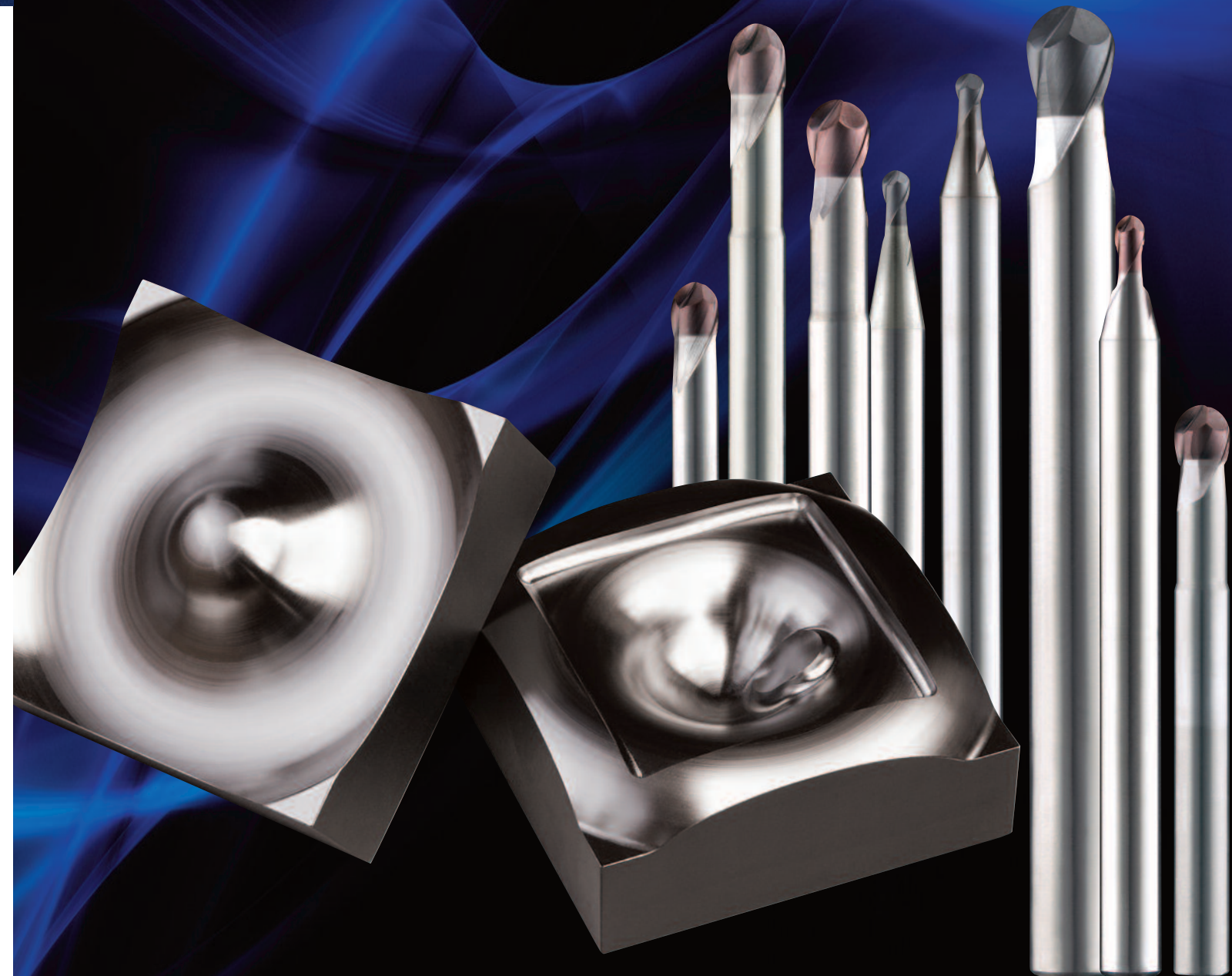
Form B



Form C



DIE MOLD BALL-NOSE SERIES (DM-BN)

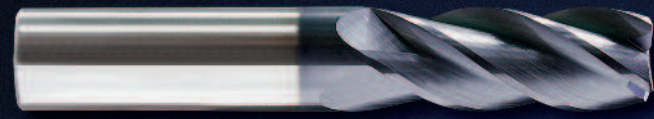


**NEW METRIC OFFERING
RE-ENGINEERED
IMPERIAL OFFERING**

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SSI-4 Four Flute, Metric



The SSI-4 is the foundation on which our variably indexed family of ferrous rougher/finishers was built. The SSI-4 is a proven, performance driven, ferrous rougher that has the geometry to successfully venture into finishing territory as well. Now updated and expanded to over 70 stocked sizes, we hope the SSI-4 will be the "go-to" tool for most of your ferrous alloy applications.

Technical Chart

Feeds and Speeds Chart with Chip-Load per/tooth in Inches

Diameter	Materials	Description	Carbon Steels		Alloy Steel		Stainless Steel		Precipitation Stainless Steels		Gray Cast Iron		Ductile Cast Iron		High Temp Alloys		Titanium Pure		Titanium Cast/Wrought	
			10XX, 11XX, 13XX, 15XX	40XX, 41XX, 42XX, 43XX, 44XX, 46XX, 86XX, Series	304, 304L, 316, 316L, 312	420, 420F, 416, 440C	15/5PH, 16-6PH, 17/4PH, AM-XX Series	Gray	Ductile	Inconel 625/718, A286, Haynes	Pure	Cast/Wrought 6AL4V, ASTM 1,2,3, Alpha - Beta								
			SFM < 32Rc	SFM > 32Rc	150 - 300	80 - 200	150 - 350	200 - 450	80 - 250	250 - 450	120 - 350	80 - 140	70 - 120	40 - 90	140 - 220	90 - 160				
3mm	S		0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0007	0.0010	0.0010					
	HP		0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0011	0.0014	0.0014					
	LP		0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0012	0.0016	0.0016					
	F		0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0021	0.0028	0.0028					
4mm	S		0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0007	0.0010	0.0010					
	HP		0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0011	0.0014	0.0014					
	LP		0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0012	0.0016	0.0016					
	F		0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0021	0.0028	0.0028					
5mm	S		0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0009	0.0013	0.0013					
	HP		0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0014	0.0018	0.0018					
	LP		0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0016	0.0021	0.0021					
	F		0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0027	0.0036	0.0036					
6mm	S		0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0011	0.0013	0.0013					
	HP		0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016					
	LP		0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019					
	F		0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033					
8mm	S		0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0009	0.0014	0.0014					
	HP		0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0015	0.0016	0.0016					
	LP		0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0017	0.0017	0.0017					
	F		0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0031	0.0036	0.0036					
10mm	S		0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0015	0.0018	0.0018					
	HP		0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021					
	LP		0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025					
	F		0.0045	0.0045	0.0045	0.0045	0.0045	0.0045	0.0045	0.0045	0.0045	0.0045	0.0045	0.0045	0.0045					
12mm and 14mm	S		0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0025	0.0028	0.0028					
	HP		0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033					
	LP		0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037					
	F		0.0066	0.0066	0.0066	0.0066	0.0066	0.0066	0.0066	0.0066	0.0066	0.0066	0.0066	0.0066	0.0066					
16mm and 18mm	S		0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0025	0.0030	0.0030					
	HP		0.0051	0.0051	0.0051	0.0051	0.0051	0.0051	0.0051	0.0051	0.0051	0.0051	0.0047	0.0051	0.0051					
	LP		0.0079	0.0079	0.0079	0.0079	0.0079	0.0079	0.0079	0.0079	0.0079	0.0079	0.0065	0.0079	0.0079					
	F		0.0142	0.0142	0.0142	0.0142	0.0142	0.0142	0.0142	0.0142	0.0142	0.0142	0.0120	0.0142	0.0142					
20mm	S		0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0035	0.0038	0.0038					
	HP		0.0049	0.0049	0.0049	0.0049	0.0049	0.0049	0.0049	0.0049	0.0049	0.0049	0.0045	0.0049	0.0049					
	LP		0.0055	0.0055	0.0055	0.0055	0.0055	0.0055	0.0055	0.0055	0.0055	0.0055	0.0050	0.0055	0.0055					
	F		0.0086	0.0086	0.0086	0.0086	0.0086	0.0086	0.0086	0.0086	0.0086	0.0086	0.0081	0.0086	0.0086					
25mm	S		0.0045	0.0045	0.0045	0.0045	0.0045	0.0045	0.0045	0.0045	0.0045	0.0045	0.0045	0.0035	0.0056	0.0056				
	HP		0.0055	0.0055	0.0055	0.0055	0.0055	0.0055	0.0055	0.0055	0.0055	0.0055	0.0059	0.0066	0.0066					
	LP		0.0065	0.0065	0.0065	0.0065	0.0065	0.0065	0.0065	0.0065	0.0065	0.0065	0.0065	0.0073	0.0073					
	F		0.0105	0.0105	0.0105	0.0105	0.0105	0.0105	0.0105	0.0105	0.0105	0.0105	0.0105	0.0085	0.0117	0.0117				

S = SLOTTING
Axial Depth up to 1.0 x Diameter

HP = HEAVY PERIPHERAL
Axial Depth up to 1.5 x Diameter
Radial width 50% x Diameter

LP = LIGHT PERIPHERAL
Axial Depth up to 2.0 x Diameter
Radial width 15% x Diameter

F = FINISH
Axial Depth up to Length of Cut
2.5 x Diameter Reduce SFM by 20%
Radial width 1% to 2% x Diameter

SSI-4 Four Flute, Metric

- 4 Flute, Variably Indexed
- Roughing and Finishing in Titanium and Ferrous Alloys
- High Performance Carbide
- Stocked in Radii and Reduced Neck

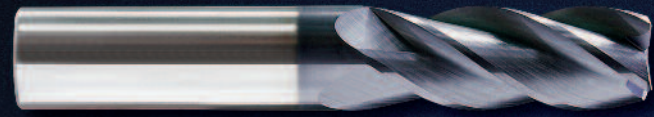
High Performance Carbide

- Available Upon Request:
 - Additional Coatings
 - Weldon Flats or Haimer Safe-Lock
 - Coolant Grooves and Through Holes

Part Number	D1	D2	L2	L3	D3	L1	Form	Coating	Radius Offering				
									.3	.5	1	2	
SSI-ST-403M-	3	6	5			55	A	C11		37347-85-D			
SSI-ST-403M-	3	6	5			55	A	C10		37347-70-D			
SSI-403M-	3	6	8			57	A	C11		37622-85-D			
SSI-403M-	3	6	8			57	A	C10		37622-70-D			
SSI-ST-404M-	4	6	8			55	A	C11		37348-85-D			
SSI-ST-404M-	4	6	8			55	A	C10		37348-70-D			
SSI-404M-	4	6	11			57	A	C11		37623-85-D			
SSI-404M-	4	6	11			57	A	C10		37623-70-D			
SSI-RN-404M-	4	6	5	21	3.61	58	B	C11			37395-85-D		
SSI-RN-404M-	4	6	5	21	3.61	58	B	C10			37395-70-D		
SSI-ST-405M-	5	6	9			55	A	C11		37349-85-D			
SSI-ST-405M-	5	6	9			55	A	C10		37349-70-D			
SSI-405M-	5	6	13			57	A	C11		37624-85-D			
SSI-405M-	5	6	13			57	A	C10		37624-70-D			
SSI-RN-405M-	5	6	6	21	4.61	58	B	C11			37396-85-D		
SSI-RN-405M-	5	6	6	21	4.61	58	B	C10			37396-70-D		
SSI-ST-406M-	6	6	10			55	C	C11		37350-85-D			
SSI-ST-406M-	6	6	10			55	C	C10		37350-70-D			
SSI-406M-	6	6	20			57	C	C11		37625-85-D			
SSI-406M-	6	6	20			57	C	C10		37625-70-D			
SSI-RN-406M-	6	6	10	21	5.48	58	B	C11			37397-85-D		
SSI-RN-406M-	6	6	10	21	5.48	58	B	C10			37397-70-D		
SSI-ST-408M-	8	8	12			59	C	C11		37351-85-D		37352-85-D	
SSI-ST-408M-	8	8	12			59	C	C10		37351-70-D		37352-70-D	
SSI-408M-	8	8	22			64	C	C11		37626-85-D		37627-85-D	
SSI-408M-	8	8	22			64	C	C10		37626-70-D		37627-70-D	
SSI-RN-408M-	8	8	12	27	7.59	64	B	C11			37398-85-D	37399-85-D	
SSI-RN-408M-	8	8	12	27	7.59	64	B	C10			37398-70-D	37399-70-D	
SSI-ST-410M-	10	10											

SSI-4 Four Flute, Metric Continued

High Performance Carbide

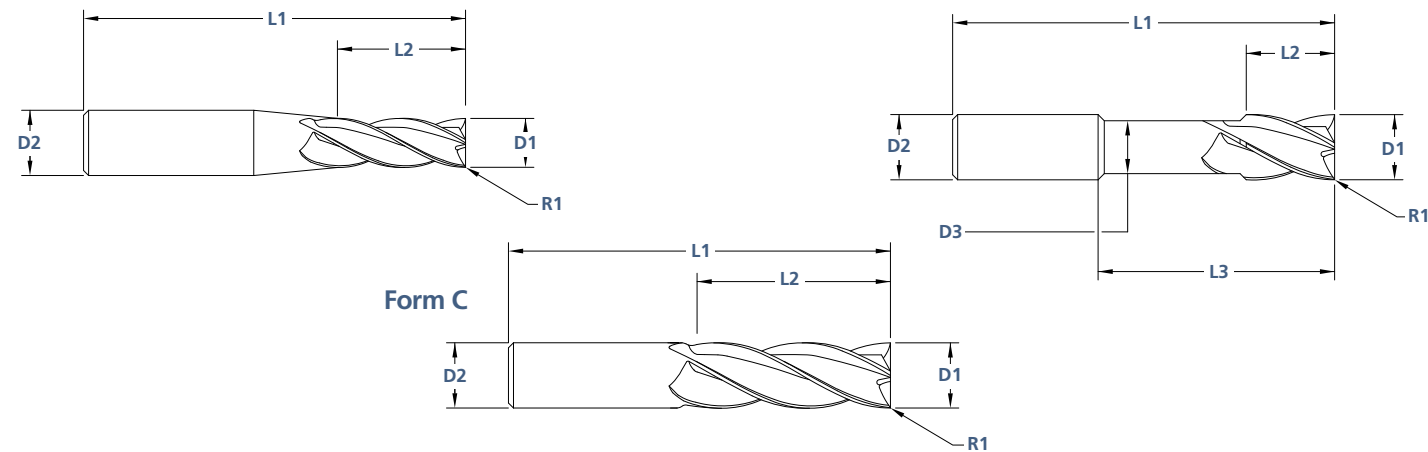


Part Number	D1	D2	L2	L3	D3	L1	Form	Coating	Radius Offering			
									.3	.5	1	2
SSI-ST-412M-	12	12	16			74	C	C11	37356-85-D	37357-85-D	37358-85-D	
SSI-ST-412M-	12	12	16			74	C	C10	37356-70-D	37357-70-D	37358-70-D	
SSI-412M-	12	12	26			84	C	C11	37631-85-D	37632-85-D	37633-85-D	
SSI-412M-	12	12	26			84	C	C10	37631-70-D	37632-70-D	37633-70-D	
SSI-RN-412M-	12	12	16	38	11.22	84	B	C11		37402-85-D	37403-85-D	
SSI-RN-412M-	12	12	16	38	11.22	84	B	C10		37402-70-D	37403-70-D	
SSI-ST-414M-	14	14	18			76	C	C11	37359-85-D	37360-85-D	37361-85-D	37362-85-D
SSI-ST-414M-	14	14	18			76	C	C10	37359-70-D	37360-70-D	37361-70-D	37362-70-D
SSI-414M-	14	14	26			84	C	C11	37634-85-D	37635-85-D	37637-85-D	37639-85-D
SSI-414M-	14	14	26			84	C	C10	37634-70-D	37635-70-D	37637-70-D	37639-70-D
SSI-RN-414M-	14	14	18	38	13.13	84	B	C11		37636-85-D	37638-85-D	37640-85-D
SSI-RN-414M-	14	14	18	38	13.13	84	B	C10		37636-70-D	37638-70-D	37640-70-D
SSI-ST-416M-	16	16	22			83	C	C11	37363-85-D	37364-85-D	37365-85-D	37366-85-D
SSI-ST-416M-	16	16	22			83	C	C10	37363-70-D	37364-70-D	37365-70-D	37366-70-D
SSI-416M-	16	16	32			93	C	C11	37379-85-D	37380-85-D	37381-85-D	37382-85-D
SSI-416M-	16	16	32			93	C	C10	37379-70-D	37380-70-D	37381-70-D	37382-70-D
SSI-RN-416M-	16	16	22	44	15.03	93	B	C11		37404-85-D	37405-85-D	37406-85-D
SSI-RN-416M-	16	16	22	44	15.03	93	B	C10		37404-70-D	37405-70-D	37406-70-D
SSI-RN-M-416M-	16	16	22	75	15.03	130	B	C11		37414-85-D	37415-85-D	37416-85-D
SSI-RN-M-416M-	16	16	22	75	15.03	130	B	C10		37414-70-D	37415-70-D	37416-70-D
SSI-ST-418M-	18	18	24			85	C	C11	37367-85-D	37368-85-D	37369-85-D	37370-85-D
SSI-ST-418M-	18	18	24			85	C	C10	37367-70-D	37368-70-D	37369-70-D	37370-70-D
SSI-418M-	18	18	32			93	C	C11	37383-85-D	37384-85-D	37385-85-D	37386-85-D
SSI-418M-	18	18	32			93	C	C10	37383-70-D	37384-70-D	37385-70-D	37386-70-D
SSI-RN-418M-	18	18	24	44	16.88	93	B	C11		37641-85-D	37643-85-D	37645-85-D
SSI-RN-418M-	18	18	24	44	16.88	93	B	C10		37641-70-D	37643-70-D	37645-70-D
SSI-RN-M-418M-	18	18	24	75	16.88	130	B	C11		37642-85-D	37644-85-D	37646-85-D
SSI-RN-M-418M-	18	18	24	75	16.88	130	B	C10		37642-70-D	37644-70-D	37646-70-D

Form A

Form B

Form C



SSI-4 Four Flute, Metric

High Performance Carbide

- 4 Flute, Variably Indexed
- Roughing and Finishing in Titanium and Ferrous Alloys
- High Performance Carbide
- Stocked in Square Ends, Radii and Reduced Neck

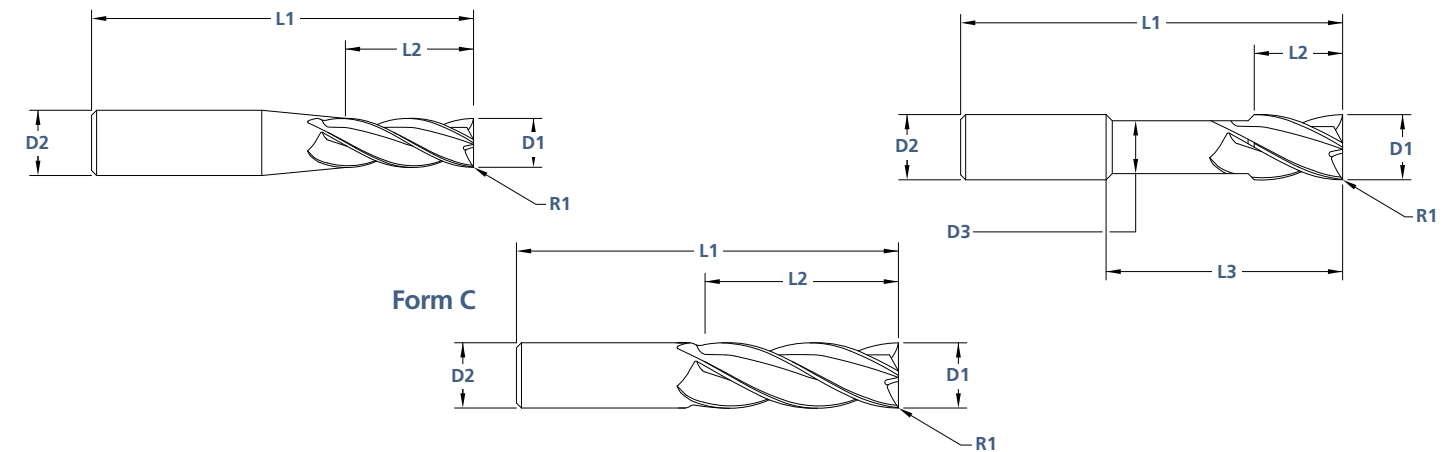
- Available Upon Request:
 - Additional Coatings
 - Weldon Flats or Haimer Safe-Lock
 - Coolant Grooves and Through Holes

Part Number	D1	D2	L2	L3	D3	L1	Form	Coating	Radius Offering			
									.3	.5	1	2
SSI-ST-420M-	20	20	26			93	C	C11	37371-85-D	37372-85-D	37373-85-D	37374-85-D
SSI-ST-420M-	20	20	26			93	C	C10	37371-70-D	37372-70-D	37373-70-D	37374-70-D
SSI-420M-	20	20	38			105	C	C11	37387-85-D	37388-85-D	37389-85-D	37390-85-D
SSI-420M-	20	20	38			105	C	C10	37387-70-D	37388-70-D	37389-70-D	37390-70-D
SSI-RN-420M-	20	20	26	54	18.76	105	B	C11		37407-85-D	37408-85-D	37409-85-D
SSI-RN-420M-	20	20	26	54	18.76	105	B	C10		37407-70-D	37408-70-D	37409-70-D
SSI-RN-M-420M-	20	20	26	96	18.76	150	B	C11		37417-85-D	37418-85-D	37419-85-D
SSI-RN-M-420M-	20	20	26	96	18.76	150	B	C10		37417-70-D	37418-70-D	37419-70-D
SSI-ST-425M-	25	25	32			104	C	C11	37375-85-D	37376-85-D	37377-85-D	37378-85-D
SSI-ST-425M-	25	25	32			104	C	C10	37375-70-D	37376-70-D	37377-70-D	37378-70-D
SSI-425M-	25	25	45			120	C	C11	37391-85-D	37392-85-D	37393-85-D	37394-85-D
SSI-425M-	25	25	45			120	C	C10	37391-70-D	37392-70-D	37393-70-D	37394-70-D
SSI-RN-425M-	25	25	32	64	24.00	120	B	C11		37411-85-D	37412-85-D	37413-85-D
SSI-RN-425M-	25	25	32	64	24.00	120	B	C10		37411-70-D	37412-70-D	37413-70-D
SSI-RN-M-425M-	25	25	32	96	24.00	150	B	C11		37421-85-D	37422-85-D	37423-85-D
SSI-RN-M-425M-	25	25	32	96	24.00	150	B	C10		37421-70-D	37422-70-D	37423-70-D

Form A

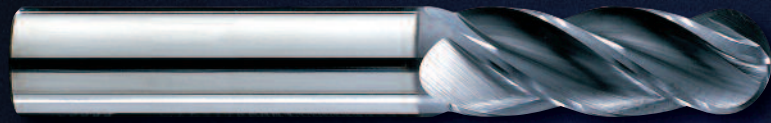
Form B

Form C



SSI-4 Four Flute, Ball Nose

High Performance Carbide



When the need arises for a tool to handle your profiling, modeling, or shaping operations in hard metals, look no farther than our SSI-4 Ball Nose Series. We have taken our SSI-4 geometry and added a precision, CNC ground, full ball radius. Our unique end design allows for heavier chip loads and faster metal removal rates than conventional ball nose end mills.

- 4 Flute, Variably Indexed
- Roughing and Finishing in Titanium and Ferrous Alloys
- Performance Carbide
- Stocked with C11 Coating

- Available Upon Request:
 - Additional Coatings
 - Weldon Flats or Haimer Safe-Lock
 - Coolant Grooves and Through Holes

Part Number	Dia.	Shank	LOC	OAL	EDP
SSI-BN-ST-40125	1/8	1/8	1/4	2	53549-85-D
SSI-BN-40125	1/8	1/8	1/2	2-1/2	53550-85-D
SSI-BN-ST-40156	5/32	3/16	5/16	2	53551-85-D
SSI-BN-40156	5/32	3/16	9/16	2-1/2	53552-85-D
SSI-BN-ST-40187	3/16	3/16	5/16	2	53553-85-D
SSI-BN-40187	3/16	3/16	9/16	2-1/2	53554-85-D
SSI-BN-ST-40218	7/32	1/4	3/8	2	53555-85-D
SSI-BN-40218	7/32	1/4	3/4	2-1/2	53556-85-D
SSI-BN-ST-40250	1/4	1/4	3/8	2	53557-85-D
SSI-BN-40250	1/4	1/4	3/4	2-1/2	53558-85-D
SSI-BN-ST-40281	9/32	5/16	7/16	2-1/2	53559-85-D
SSI-BN-40281	9/32	5/16	3/4	2-1/2	53560-85-D
SSI-BN-ST-40312	5/16	5/16	7/16	2-1/2	53561-85-D
SSI-BN-40312	5/16	5/16	13/16	2-1/2	53562-85-D
SSI-BN-ST-40343	11/32	3/8	1/2	2-1/2	53563-85-D
SSI-BN-40343	11/32	3/8	1	2-1/2	53564-85-D
SSI-BN-ST-40375	3/8	3/8	1/2	2-1/2	53565-85-D
SSI-BN-40375	3/8	3/8	1	2-1/2	53566-85-D
SSI-BN-ST-40437	7/16	7/16	9/16	2-1/2	53567-85-D
SSI-BN-40437	7/16	7/16	1	3	53569-85-D
SSI-BN-ST-40500	1/2	1/2	5/8	3	53570-85-D
SSI-BN-40500	1/2	1/2	1-1/4	3	53571-85-D
SSI-BN-ST-40625	5/8	5/8	3/4	3	53572-85-D
SSI-BN-40625	5/8	5/8	1-5/8	3-1/2	53573-85-D
SSI-BN-ST-40750	3/4	3/4	1	3	53574-85-D
SSI-BN-40750	3/4	3/4	1-5/8	4	53575-85-D
SSI-BN-ST-41000	1	1	1-1/4	4	53576-85-D
SSI-BN-41000	1	1	2	5	53577-85-D

For additional support and for maximum optimization of your Data Flute tools, call us toll free at 800.447.1476 and ask to speak to our Technical Support Department.



SSI-4 EXPANDED SSI-5 NEW SERIES

High Performance Carbide End Mills
Titanium and Ferrous Alloys

Variably Indexed • Patented Geometries

SSI-5 Five Flute, Inch



The SSI-5 is the all terrain vehicle of our ferrous alloy series tools. It can "chew up the road" in most roughing applications and at the same time provide smooth, high speed cruising well into finishing range. The SSI-5 will appeal to those who demand high performance and seek to minimize tool changes in a wide range of operations. This series has the addition of a Radius Program from stock.

Technical Chart

Feeds and Speeds Chart SSI-5 Flute

Diameter	Description	Carbon Steels	Alloy Steel	Stainless Steel 300 Series	Stainless Steel 400 Series	Precipitation Stainless Steels	Gray Cast Iron	Ductile Cast Iron	High Temp Alloys	Titanium Pure	Titanium Cast/Wrought
		10XX, 11XX, 12XX, 13XX	40XX, 41XX, 42XX, 43XX, 44XX, 46XX, 86XX, Series	304, 304L, 316, 316L, 312	420, 420F, 416, 440L,	15-5PH, 16-6PH 17-4PH, AM-XX Series	Gray	Ductile	Inconel 625/718, A286, Haynes	Pure	Cast/Wrought 6AL4V, ASTM 1,2,3, Alpha - Beta
SFM < 32Rc		200 - 450	150 - 300	150 - 350	200 - 450	80 - 250	250 - 450	120 - 350	70 - 120	140 - 220	140 - 200
SFM > 32Rc		100 - 250	80 - 200	80 - 200	100 - 250	90 - 125	130 - 300	80 - 140	40 - 90	90 - 160	90 - 160
1/8"	S	0.0008	0.0008	0.0008	0.0008	0.0008	0.0006	0.0008	0.0007	0.0008	0.0010
	HP	0.0012	0.0011	0.0012	0.0012	0.0011	0.0008	0.0012	0.0011	0.0011	0.0014
	LP	0.0013	0.0013	0.0013	0.0013	0.0013	0.0009	0.0013	0.0012	0.0013	0.0016
	F	0.0024	0.0023	0.0024	0.0024	0.0023	0.0017	0.0024	0.0021	0.0023	0.0028
1/4"	S	0.0014	0.0011	0.0014	0.0014	0.0011	0.0007	0.0013	0.0009	0.0011	0.0013
	HP	0.0016	0.0013	0.0016	0.0016	0.0013	0.0009	0.0015	0.0012	0.0013	0.0015
	LP	0.0019	0.0016	0.0019	0.0019	0.0016	0.0011	0.0017	0.0014	0.0016	0.0017
	F	0.0035	0.0028	0.0035	0.0035	0.0028	0.0020	0.0031	0.0025	0.0028	0.0031
5/16"	S	0.0013	0.0011	0.0013	0.0013	0.0011	0.0009	0.0013	0.0011	0.0011	0.0013
	HP	0.0016	0.0013	0.0016	0.0016	0.0013	0.0013	0.0016	0.0016	0.0013	0.0016
	LP	0.0019	0.0015	0.0019	0.0019	0.0015	0.0015	0.0019	0.0019	0.0015	0.0019
	F	0.0033	0.0027	0.0033	0.0033	0.0027	0.0027	0.0033	0.0033	0.0027	0.0033
3/8"	S	0.0018	0.0015	0.0018	0.0018	0.0015	0.0012	0.0018	0.0015	0.0015	0.0018
	HP	0.0021	0.0017	0.0021	0.0021	0.0017	0.0017	0.0021	0.0021	0.0017	0.0021
	LP	0.0025	0.0020	0.0025	0.0025	0.0020	0.0020	0.0025	0.0025	0.0020	0.0025
	F	0.0045	0.0036	0.0045	0.0045	0.0036	0.0036	0.0045	0.0045	0.0036	0.0045
1/2"	S	0.0028	0.0022	0.0025	0.0025	0.0022	0.0014	0.0025	0.0018	0.0022	0.0022
	HP	0.0033	0.0026	0.0029	0.0029	0.0026	0.0019	0.0029	0.0024	0.0026	0.0029
	LP	0.0037	0.0029	0.0033	0.0033	0.0029	0.0021	0.0033	0.0026	0.0029	0.0035
	F	0.0066	0.0053	0.0059	0.0059	0.0053	0.0038	0.0059	0.0047	0.0053	0.0063
5/8"	S	0.0030	0.0024	0.0030	0.0030	0.0024	0.0020	0.0030	0.0025	0.0024	0.0030
	HP	0.0049	0.0030	0.0045	0.0045	0.0030	0.0029	0.0045	0.0036	0.0030	0.0045
	LP	0.0055	0.0034	0.0050	0.0050	0.0034	0.0040	0.0050	0.0050	0.0034	0.0050
	F	0.0086	0.0065	0.0089	0.0089	0.0065	0.0064	0.0086	0.0080	0.0065	0.0086
3/4"	S	0.0038	0.0024	0.0035	0.0035	0.0024	0.0022	0.0038	0.0028	0.0024	0.0035
	HP	0.0051	0.0041	0.0051	0.0051	0.0041	0.0032	0.0051	0.0040	0.0041	0.0051
	LP	0.0079	0.0063	0.0079	0.0079	0.0063	0.0048	0.0079	0.0060	0.0063	0.0079
	F	0.0142	0.0113	0.0142	0.0142	0.0113	0.0086	0.0142	0.0108	0.0113	0.0142
1"	S	0.0045	0.0045	0.0042	0.0042	0.0045	0.0028	0.0050	0.0035	0.0045	0.0050
	HP	0.0055	0.0053	0.0052	0.0052	0.0053	0.0034	0.0059	0.0043	0.0053	0.0059
	LP	0.0065	0.0059	0.0065	0.0065	0.0059	0.0042	0.0065	0.0053	0.0059	0.0065
	F	0.0105	0.0094	0.0105	0.0105	0.0094	0.0068	0.0105	0.0085	0.0094	0.0105

S = SLOTTING
Axial Depth up to 1.0 x Diameter

HP = HEAVY PERIPHERAL
Axial Depth up to 1.5 x Diameter
Radial width .25 x Diameter

LP = LIGHT PERIPHERAL
Axial Depth up to 2.0 x Diameter
Radial width .15 x Diameter

F = FINISH
Axial Depth up to Length Of Cut
2.5 X Diameter Reduce SFM by 20%
Radial width .015 x Diameter

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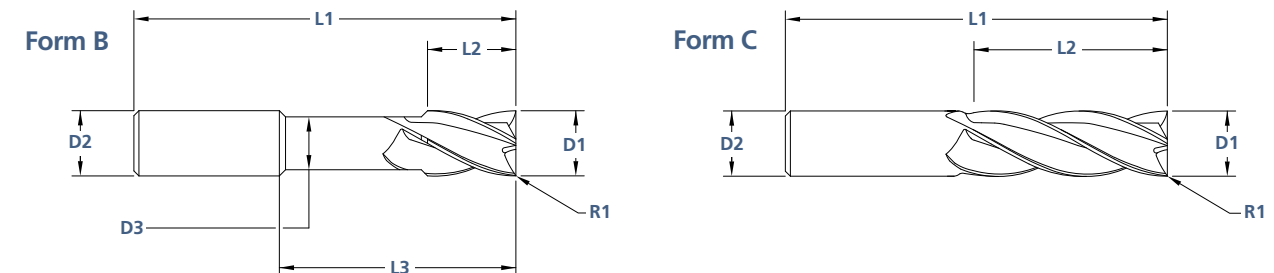
SSI-5 Five Flute, Inch

High Performance Carbide

- 5 Flute, Variably Indexed
- Roughing and Finishing in Titanium and Ferrous Alloys
- 5th Flute Enables Increased Metal Removal Rates
- Stocked in Square Ends and Radii

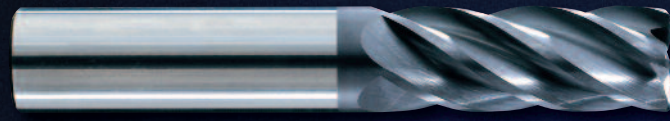
- Available Upon Request:
 - Additional Coatings
 - Weldon Flats or Haimer Safe-Lock
 - Coolant Grooves and Through Holes

Part Number	Square					Radius Offsetting											
	D1	D2	L2	L3	D3	L1	Form	Coating	0.000	0.010	0.020	0.030	0.060	0.090	0.120	0.156	0.190
SSI-ST-50125-	1/8	1/8	1/4			2	C	C11	53646-85-D	53647-85-D		53648-85-D					
SSI-50125-	1/8	1/8	1/2			2-1/2	C	C11	53646-70-D	53647-70-D		53648-70-D					
SSI-RN-50125-	1/8	1/8	1/4	0.375	0.115	2-1/2	B	C11	53652-85-D	53653-85-D		53654-85-D					
SSI-RN-M-50125-	1/8	1/8	1/4	0.500	0.115	2-1/2	B	C11	53652-70-D	53653-70-D		53654-70-D					
SSI-RN-L-50125-	1/8	1/8	1/4	0.625	0.115	2-1/2	B	C11				54134-85-D					
SSI-ST-50156-	5/32	3/16	3/16			2	C	C11	53658-85-D	53659-85-D		53660-85-D					
SSI-ST-50156-	5/32	3/16	5/16			2	C	C10	53662-85-D	53663-85-D		53664-85-D					
SSI-50156-	5/32	3/16	9/16			2-1/2	C	C11	53662-70-D	53663-70-D		53664-70-D					
SSI-ST-50187-	3/16	3/16	3/16			2	C	C11	53666-85-D	53667-85-D		53668-85-D					
SSI-ST-50187-	3/16	3/16	5/16			2	C	C10	53670-85-D	53671-85-D		53672-85-D					
SSI-50187-	3/16	3/16	9/16			2-1/2	C	C11	53670-70-D	53671-70-D		53672-70-D					
SSI-RN-50187-	3/16	3/16	5/16	0.500	0.175	3	B	C11	53676-85-D	53677-85-D		53678-85-D					
SSI-RN-M-50187-	3/16	3/16	5/16	0.750	0.175	3	B	C11	53676-70-D	53677-70-D		53678-70-D					
SSI-RN-L-50187-	3/16	3/16	5/16	1.000	0.175	3	B	C11	53682-85-D	53683-85-D		53684-85-D					
SSI-ST-50218-	7/32	1/4	3/8			2	C	C11	53682-70-D	53683-70-D		53684-70-D					
SSI-STL-50218-	7/32	1/4	1/2			2-1/2	C	C11	53682-85-D	53683-85-D		53684-85-D					
SSI-50218-	7/32	1/4	3/4			2-1/2	C	C10	53688-85-D	53689-85-D		53690-85-D					
SSI-ST-50250-	1/4	1/4	3/8			2	C	C11	53688-70-D	53689-70-D		53690-70-D					
SSI-STL-50250-	1/4	1/4	1/2			2-1/2	C	C10	53700-85-D	53701-85-D		53702-85-D					
SSI-50250-	1/4	1/4	3/4			2-1/2	C	C11	53700-70-D	53701-70-D		53702-70-D					
SSI-M-50250-	1/4	1/4	1-1/4			3	C	C11	53713-85-D	53714-85-D		53715-85-D					
SSI-RN-50250-	1/4	1/4	3/8	0.750	0.235	3	B	C11	53721-85-D	53722-85-D		53723-85-D					
SSI-RN-M-50250-	1/4	1/4	3/8	1.125	0.235	4	B	C11	53721-70-D	53722-70-D		53723-70-D					
SSI-RN-L-50250-	1/4	1/4	3/8	2.125	0.235	4	B	C11	53729-85-D	53730-85-D		53731-85-D					
SSI-ST-50281-	9/32	5/16	7/16			2-1/2	C	C11	53729-70-D	53730-70-D		53731-70-D					
SSI-50281-	9/32	5/16	3/4			2-1/2	C	C10	53737-85-D	53738-85-D		53739-85-D					
								C11	53737-70-D	53738-70-D		53739-70-D					
								C10	53742-85-D	53743-85-D		53744-85-D					
									53742-70-D	53743-70-D		53744-70-D					



SSI-5
Five Flute, Inch Continued

High Performance Carbide



SSI-5
Five Flute, Inch Continued

High Performance Carbide

- 5 Flute, Variably Indexed
- Roughing and Finishing in Titanium and Ferrous Alloys
- 5th Flute Enables Increased Metal Removal Rates
- Stocked in Square Ends and Radii

- Available Upon Request:
 - Additional Coatings
 - Weldon Flats or Haimer Safe-Lock
 - Coolant Grooves and Through Holes

Part Number	Square					Radius Offering												
	D1	D2	L2	L3	D3	L1	Form	Coating	0.000	0.010	0.020	0.030	0.060	0.090	0.120	0.156	0.190	
SSI-ST-50312-	5/16	5/16	7/16			2-1/2	C	C11	53747-85-D	53748-85-D	53749-85-D							
								C10	53747-70-D	53748-70-D	53749-70-D							
SSI-STL-50312-	5/16	5/16	5/8			2-1/2	C	C11	53754-85-D	53756-85-D	53757-85-D							
								C10	53754-70-D	53756-70-D	53757-70-D							
SSI-50312-	5/16	5/16	13/16			2-1/2	C	C11	53761-85-D	54252-85-D	54253-85-D							
								C10	53761-70-D	54252-70-D	54253-70-D							
SSI-M-50312-	5/16	5/16	1-1/4			3	C	C11	53763-85-D	53764-85-D	53765-85-D							
								C10	53763-70-D	53764-70-D	53765-70-D							
SSI-ST-50343-	11/32	3/8	1/2			2-1/2	C	C11	53769-85-D	53770-85-D								
								C10	53769-70-D	53770-70-D								
SSI-50343-	11/32	3/8	1			2-1/2	C	C11	53773-85-D	53774-85-D								
								C10	53773-70-D	53774-70-D								
SSI-M-50343-	11/32	3/8	1-1/4			3	C	C11	53777-85-D	53778-85-D								
								C10	53777-70-D	53778-70-D								
SSI-ST-50375-	3/8	3/8	1/2			2-1/2	C	C11	53781-85-D	53782-85-D	53783-85-D	53784-85-D						
								C10	53781-70-D	53782-70-D	53783-70-D	53784-70-D						
SSI-STL-50375-	3/8	3/8	3/4			2-1/2	C	C11	53789-85-D	53790-85-D	53791-85-D	53792-85-D						
								C10	53789-70-D	53790-70-D	53791-70-D	53792-70-D						
SSI-50375-	3/8	3/8	1			2-1/2	C	C11	53797-85-D	53798-85-D	53799-85-D	53800-85-D						
								C10	53797-70-D	53798-70-D	53799-70-D	53800-70-D						
SSI-M-50375-	3/8	3/8	1-1/4			3	C	C11	53805-85-D	53806-85-D	53807-85-D	53808-85-D						
								C10	53805-70-D	53806-70-D	53807-70-D	53808-70-D						
SSI-L-50375-	3/8	3/8	1-1/2			4	C	C11	53813-85-D	53814-85-D	53815-85-D	53816-85-D						
								C10	53813-70-D	53814-70-D	53815-70-D	53816-70-D						
SSI-X-50375-	3/8	3/8	2			4	C	C11	53821-85-D	53822-85-D	53823-85-D	53824-85-D						
								C10	53821-70-D	53822-70-D	53823-70-D	53824-70-D						
SSI-RN-50375-	3/8	3/8	1/2	1.125	0.355	4	B	C11		54160-85-D	54161-85-D	54162-85-D	54163-85-D					
SSI-RN-M-50375-	3/8	3/8	1/2	2.125	0.355	4	B	C11		54164-85-D	54165-85-D	54166-85-D	54167-85-D					
SSI-RN-L-50375-	3/8	3/8	1/2	3.125	0.355	6	B	C11		54168-85-D	54169-85-D	54170-85-D	54171-85-D					
SSI-RN-X-50375-	3/8	3/8	1/2	4.125	0.355	6	B	C11		54172-85-D	54173-85-D	54174-85-D	54175-85-D					
SSI-ST-50406-	13/32	7/16	9/16			2-1/2	C	C11	53829-85-D	53830-85-D								
								C10	53829-70-D	53830-70-D								
SSI-50406-	13/32	7/16	1			2-3/4	C	C11	53833-85-D	53834-85-D								
								C10	53833-70-D	53834-70-D								
SSI-ST-50437-	7/16	7/16	9/16			2-1/2	C	C11	53837-85-D	53838-85-D	53839-85-D	53840-85-D						
								C10	53837-70-D	53838-70-D	53839-70-D	53840-70-D						
SSI-50437-	7/16	7/16	1			3	C	C11	53845-85-D	53846-85-D	53847-85-D	53848-85-D						
								C10	53845-70-D	53846-70-D	53847-70-D	53848-70-D						
SSI-M-50437-	7/16	7/16	1-1/4			3-1/2	C	C11	53853-85-D	53854-85-D	53855-85-D	53856-85-D						
								C10	53853-70-D	53854-70-D	53855-70-D	53856-70-D						
SSI-ST-50469-	15/32	1/2	5/8			3	C	C11	53861-85-D	53862-85-D								
								C10	53861-70-D	53862-70-D								
SSI-50469-	15/32	1/2	1			3	C	C11	53865-85-D	53866-85-D								
								C10	53865-70-D	53866-70-D								
SSI-M-50469-	15/32	1/2	1-1/4			3-1/2	C	C11	53869-85-D	53870-85-D								
								C10	53869-70-D	53870-70-D								

Part Number	Square					Radius Offering												
	D1	D2	L2	L3	D3	L1	Form	Coating	0.000	0.010	0.020	0.030	0.060	0.090	0.120	0.156	0.190	
SSI-ST-50500-	1/2	1/2	5/8			3	C	C11	53873-85-D	53874-85-D	53875-85-D	53876-85-D	53877-85-D					
								C10	53873-70-D	53874-70-D	53875-70-D	53876-70-D	53877-70-D					
SSI-STL-50500-	1/2	1/2	1			3	C	C11	53883-85-D	53884-85-D	53885-85-D	53886-85-D	53887-85-D					
								C10	53883-70-D	53884-70-D	53885-70-D	53886-70-D	53887-70-D					
SSI-50500-	1/2	1/2	1-1/4			3	C	C11	53893-85-D	53894-85-D	53895-85-D	53896-85-D	53897-85-D					
								C10	53893-70-D	53894-70-D	53895-70-D	53896-70-D	53897-70-D					
SSI-M-50500-	1/2	1/2	1-3/4			4	C	C11	53907-85-D	53909-85-D	53911-85-D	53913-85-D	53914-85-D					
								C10	53907-70-D	53909-70-D	53911-70-D	53913-70-D	53914-70-D					
SSI-L-50500-	1/2	1/2	2			4	C	C11	53922-85-D	53924-85-D	53925-85-D	53926-85-D	53928-85-D					
								C10	53922-70-D	53924-70-D	53925-70-D	53926-70-D	53928-70-D					
SSI-X-50500-	1/2	1/2	3			5	C	C11	53936-85-D	53937-85-D	53938-85-D	53939-85-D	53941-85-D					
								C10	53936-70-D	53937-70-D	53938-70-D	53939-70-D	53941-70-D					
SSI-RN-50500-	1/2	1/2	5/8	1.500	0.475	4	B	C11		54176-85-D	54177-85-D	54178-85-D	54179-85-D					
SSI-RN-M-50500-	1/2	1/2	5/8	2.250	0.475	4	B	C11		54180-85-D	54181-85-D	54182-85-D	54183-85-D					
SSI-RN-L-50500-	1/2	1/2	5/8	3.375	0.475	6	B	C11		54184-85-D	54185-85-D	54186-85-D	54187-85-D					
SSI-RN-X-50500-	1/2	1/2	5/8	4.125	0.475	6	B	C11		54188-85-D	54189-85-D	54190-85-D	54191-85-D					
SSI-ST-50625-	5/8	5/8	3/4			3	C	C11	53948-85-D	53949-85-D	53950-85-D	53951-85-D	53952-85-D					
								C10	53948-70-D	53949-70-D	53950-70-D	53951-70-D	53952-70-D					
SSI-STL-50625-	5/8	5/8	1-1/4			3-1/2	C	C11	53960-85-D	53961-85-D	53962-85-D	53963-85-D	53964-85-D					
								C10	53960-70-D	53961-70-D	53962-70-D	53963-70-D	53964-70-D					
SSI-50625-	5/8	5/8	1-5/8			3-1/2	C	C11	53971-85-D	53971-85-D	53972-85-D	53973-85-D	53974-85-D					
								C10	53970-70-D	53971-70-D	53972-70-D	53973-70-D	53974-70-D					
SSI-M-50625-	5/8	5/8	2			4	C	C11	53985-85-D	53981-85-D	53982-85-D	53983-85-D	53984-85-D					
								C10	53985-70-D	53981-70-D	53982-70-D	53983-70-D	53984-70-D					
SSI-L-50625-	5/8	5/8	2-1/2			5	C	C11	53991-85-D	53991-85-D	53992-85-D	53993-85-D	53994-85-D					
								C10	53990-70-D	53991-70-D	53992-70-D	53993-70-D						

SSI-5 Five Flute, Metric



The SSI-5 is the all terrain vehicle of our ferrous alloy series tools. It can "chew up the road" in most roughing applications and at the same time provide smooth, high speed cruising well into finishing range. The SSI-5 will appeal to those who demand high performance and seek to minimize tool changes in a wide range of operations.

Technical Chart

SSI-5 Five Flute, Metric

High Performance Carbide

- 5 Flute, Variably Indexed
- Roughing and Finishing in Titanium and Ferrous Alloys
- 5th Flute Enables Increased Metal Removal Rates
- Stocked in Radii and Reduced Neck

- Available Upon Request:
 - Additional Coatings
 - Weldon Flats or Haimer Safe-Lock
 - Coolant Grooves and Through Holes

Feeds and Speeds Chart with Chip-Load per/tooth in Inches

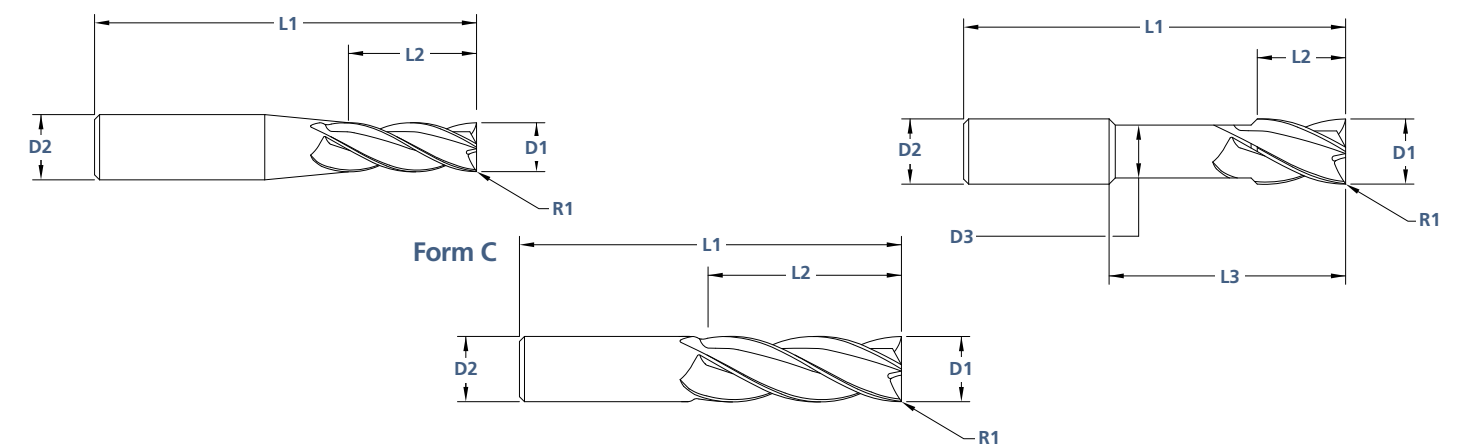
Diameter	Description	Materials	Carbon Steels	Alloy Steel	Stainless Steel 300 Series	Stainless Steel 400 Series	Precipitation Stainless Steels	Gray Cast Iron	Ductile Cast Iron	High Temp Alloys	Titanium Pure	Titanium Cast/Wrought	
			10XX, 11XX, 13XX, 15XX	40XX, 41XX, 42XX, 43XX, 44XX, 46XX, 86XX, Series	304, 304L, 316, 316L, 312	420, 420F, 416, 440C	15/5PH, 16-6PH, 17/4PH, AM-XX Series	Gray	Ductile	Inconel 625/718, A286, Haynes	Pure	Cast/Wrought 6AL4V, ASTM 1,2,3, Alpha - Beta	
			SFM < 32Rc	200 - 450	150 - 300	150 - 350	200 - 450	80 - 250	250 - 450	120 - 350	70 - 120	140 - 220	140 - 200
			SFM > 32Rc	100 - 250	80 - 200	80 - 200	100 - 250	90 - 125	130 - 300	80 - 140	40 - 90	90 - 160	90 - 160
3mm	S		0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0007	0.0010	0.0010	
	HP		0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0011	0.0014	0.0014	
	LP		0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0012	0.0016	0.0016	
	F		0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0021	0.0027	0.0027	
4mm	S		0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0008	0.0007	0.0010	0.0010	
	HP		0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0012	0.0011	0.0014	0.0014	
	LP		0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0012	0.0016	0.0016	
	F		0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024	0.0021	0.0027	0.0027	
5mm	S		0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0009	0.0013	0.0013	
	HP		0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0014	0.0018	0.0018	
	LP		0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0017	0.0015	0.0020	0.0020	
	F		0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0027	0.0036	0.0036	
6mm	S		0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0011	0.0013	0.0013	
	HP		0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	
	LP		0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	
	F		0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	
8mm	S		0.0014	0.0014	0.0014	0.0014	0.0013	0.0013	0.0013	0.0009	0.0014	0.0013	
	HP		0.0016	0.0016	0.0016	0.0016	0.0015	0.0015	0.0015	0.0012	0.0016	0.0015	
	LP		0.0019	0.0019	0.0019	0.0019	0.0017	0.0017	0.0017	0.0014	0.0019	0.0017	
	F		0.0034	0.0030	0.0034	0.0034	0.0030	0.0030	0.0030	0.0025	0.0034	0.0030	
10mm	S		0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0015	0.0018	0.0018	
	HP		0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	
	LP		0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	
	F		0.0044	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044	
12mm and 14mm	S		0.0027	0.0025	0.0025	0.0025	0.0024	0.0024	0.0024	0.0018	0.0027	0.0022	
	HP		0.0032	0.0028	0.0028	0.0028	0.0026	0.0026	0.0026	0.0024	0.0032	0.0028	
	LP		0.0036	0.0032	0.0032	0.0032	0.0029	0.0029	0.0029	0.0025	0.0036	0.0034	
	F		0.0065	0.0058	0.0058	0.0058	0.0055	0.0055	0.0055	0.0046	0.0065	0.0062	
16mm and 18mm	S		0.0029	0.0029	0.0029	0.0029	0.0027	0.0027	0.0027	0.0025	0.0029	0.0029	
	HP		0.0050	0.0050	0.0050	0.0050	0.0046	0.0046	0.0046	0.0039	0.0050	0.0050	
	LP		0.0077	0.0077	0.0077	0.0077	0.0064	0.0064	0.0064	0.0059	0.0077	0.0077	
	F		0.0139	0.0139	0.0139	0.0139	0.0118	0.0118	0.0118	0.0106	0.0139	0.0139	
20mm	S		0.0037	0.0034	0.0034	0.0034	0.0029	0.0029	0.0029	0.0027	0.0029	0.0034	
	HP		0.0048	0.0044	0.0044	0.0044	0.0037	0.0037	0.0037	0.0035	0.0037	0.0044	
	LP		0.0054	0.0049	0.0049	0.0049	0.0041	0.0041	0.0041	0.0049	0.0041	0.0049	
	F		0.0084	0.0087	0.0087	0.0087	0.0079	0.0079	0.0079	0.0078	0.0079	0.0084	
25mm	S		0.0044	0.0041	0.0041	0.0041	0.0049	0.0049	0.0049	0.0034	0.0055	0.0049	
	HP		0.0054	0.0051	0.0051	0.0051	0.0058	0.0058	0.0058	0.0042	0.0065	0.0058	
	LP		0.0064	0.0064	0.0064	0.0064	0.0064	0.0064	0.0064	0.0052	0.0072	0.0064	
	F		0.0103	0.0103	0.0103	0.0103	0.0103	0.0103	0.0103	0.0083	0.0115	0.0103	

- S = SLOTTING** Axial Depth up to 1.0 x Diameter
- HP = HEAVY PERIPHERAL** Axial Depth up to 1.5 x Diameter Radial width 50% x Diameter
- LP = LIGHT PERIPHERAL** Axial Depth up to 2.0 x Diameter Radial width 15% x Diameter
- F = FINISH** Axial Depth up to Length of Cut 2.5 x Diameter Reduce SFM by 20% Radial width 1% to 2% x Diameter

Part Number	D1	D2	L2	L3	D3	L1	Form	Coating	Radius Offering			
									.3	.5	1	2
SSI-ST-503M-	3	6	5			55	A	C11				
SSI-ST-503M-	3	6	5			55	A	C10				
SSI-503M-	3	6	8			57	A	C11				
SSI-503M-	3	6	8			57	A	C10				
SSI-ST-504M-	4	6	8			55	A	C11				
SSI-ST-504M-	4	6	8			55	A	C10				
SSI-504M-	4	6	11			57	A	C11				
SSI-504M-	4	6	11			57	A	C10				
SSI-RN-504M-	4	6	5	21	3.61	58	B	C11			37320-85-D	
SSI-RN-504M-	4	6	5	21	3.61	58	B	C10			37320-70-D	
SSI-ST-505M-	5	6	9			55	A	C11				
SSI-ST-505M-	5	6	9			55	A	C10				
SSI-505M-	5	6	13			57	A	C11				
SSI-505M-	5	6	13			57	A	C10				
SSI-RN-505M-	5	6	6	21	4.61	58	B	C11			37321-85-D	
SSI-RN-505M-	5	6	6	21	4.61	58	B	C10			37321-70-D	
SSI-ST-506M-	6	6	10			55	C	C11				
SSI-ST-506M-	6	6	10			55	C	C10				
SSI-506M-	6	6	20			58	C	C11				
SSI-506M-	6	6	20			58	C	C10				
SSI-RN-506M-	6	6	10	21	5.48	58	B	C11			37322-85-D	
SSI-RN-506M-	6	6	10	21	5.48	58	B	C10			37322-70-D	
SSI-ST-508M-	8	8	12			59	C	C11				37272-85-D
SSI-ST-508M-	8	8	12			59	C	C10				37272-70-D
SSI-508M-	8	8	22			64	C	C11				37652-85-D
SSI-508M-	8	8	22			64	C	C10				37652-70-D
SSI-RN-508M-	8	8	12	27	7.59	64	B	C11			37323-85-D	37324-85-D
SSI-RN-508M-	8	8	12	27	7.59	64	B	C10			37323-70-D	37324-70-D
SSI-ST-510M-	10	10	14			67	C	C11				37273-85-D
SSI-ST-510M-	10	10	14			67	C	C10				37273-70-D
SSI-510M-	10	10	25			73	C	C11				37653-85-D
SSI-510M-	10	10	25			73	C	C10				37653-70-D
SSI-RN-510M-	10	10	14	32	9.47	73	B	C11				37325-85-D
SSI-RN-510M-	10	10	14	32	9.47	73	B	C10				37325-70-D

Form A

Form B



Continued next page

SSI-5 Five Flute, Metric Continued

High Performance Carbide



SSI-5 Five Flute, Metric

High Performance Carbide

- 5 Flute, Variably Indexed
- Roughing and Finishing in Titanium and Ferrous Alloys
- 5th Flute Enables Increased Metal Removal Rates
- Stocked in Radii and Reduced Neck

- Available Upon Request:
 - Additional Coatings
 - Weldon Flats or Haimer Safe-Lock
 - Coolant Grooves and Through Holes

Part Number	D1	D2	L2	L3	D3	L1	Form	Coating	Radius Offering			
									.3	.5	1	2
SSI-ST-512M-	12	12	16			74	C	C11	37276-85-D	37277-85-D	37278-85-D	
SSI-ST-512M-	12	12	16			74	C	C10	37276-70-D	37277-70-D	37278-70-D	
SSI-512M-	12	12	26			84	C	C11	37656-85-D	37657-85-D	37799-85-D	
SSI-512M-	12	12	26			84	C	C10	37656-70-D	37657-70-D	37799-70-D	
SSI-RN-512M-	12	12	16	38	11.22	84	B	C11		37327-85-D	37328-85-D	
SSI-RN-512M-	12	12	16	38	11.22	84	B	C10		37327-70-D	37328-70-D	
SSI-ST-514M-	14	14	18			76	C	C11	37279-85-D	37280-85-D	37281-85-D	37282-85-D
SSI-ST-514M-	14	14	18			76	C	C10	37279-70-D	37280-70-D	37281-70-D	37282-70-D
SSI-514M-	14	14	26			84	C	C11	37847-85-D	37849-85-D	38702-85-D	38789-85-D
SSI-514M-	14	14	26			84	C	C10	37847-70-D	37849-70-D	38702-70-D	38789-70-D
SSI-RN-514M-	14	14	18	38	13.13	84	B	C11		37942-85-D	38703-85-D	38968-85-D
SSI-RN-514M-	14	14	18	38	13.13	84	B	C10		37942-70-D	38703-70-D	38968-70-D
SSI-ST-516M-	16	16	22			83	C	C11	37283-85-D	37284-85-D	37285-85-D	37286-85-D
SSI-ST-516M-	16	16	22			83	C	C10	37283-70-D	37284-70-D	37285-70-D	37286-70-D
SSI-516M-	16	16	32			93	C	C11	37299-85-D	37300-85-D	37301-85-D	37303-85-D
SSI-516M-	16	16	32			93	C	C10	37299-70-D	37300-70-D	37301-70-D	37303-70-D
SSI-RN-516M-	16	16	22	44	15.03	93	B	C11		37329-85-D	37330-85-D	37331-85-D
SSI-RN-516M-	16	16	22	44	15.03	93	B	C10		37329-70-D	37330-70-D	37331-70-D
SSI-RN-M-516M-	16	16	22	75	15.03	130	B	C11		37338-85-D	37339-85-D	37340-85-D
SSI-RN-M-516M-	16	16	22	75	15.03	130	B	C10		37338-70-D	37339-70-D	37340-70-D
SSI-ST-518M-	18	18	24			85	C	C11	37287-85-D	37288-85-D	37289-85-D	37290-85-D
SSI-ST-518M-	18	18	24			85	C	C10	37287-70-D	37288-70-D	37289-70-D	37290-70-D
SSI-518M-	18	18	32			93	C	C11	37305-85-D	37307-85-D	37309-85-D	37311-85-D
SSI-518M-	18	18	32			93	C	C10	37305-70-D	37307-70-D	37309-70-D	37311-70-D
SSI-RN-518M-	18	18	24	44	16.88	93	B	C11		38969-85-D	39047-85-D	39051-85-D
SSI-RN-518M-	18	18	24	44	16.88	93	B	C10		38969-70-D	39047-70-D	39051-70-D
SSI-RN-M-518M-	18	18	24	75	16.88	130	B	C11		39045-85-D	39049-85-D	39053-85-D
SSI-RN-M-518M-	18	18	24	75	16.88	130	B	C10		39045-70-D	39049-70-D	39053-70-D

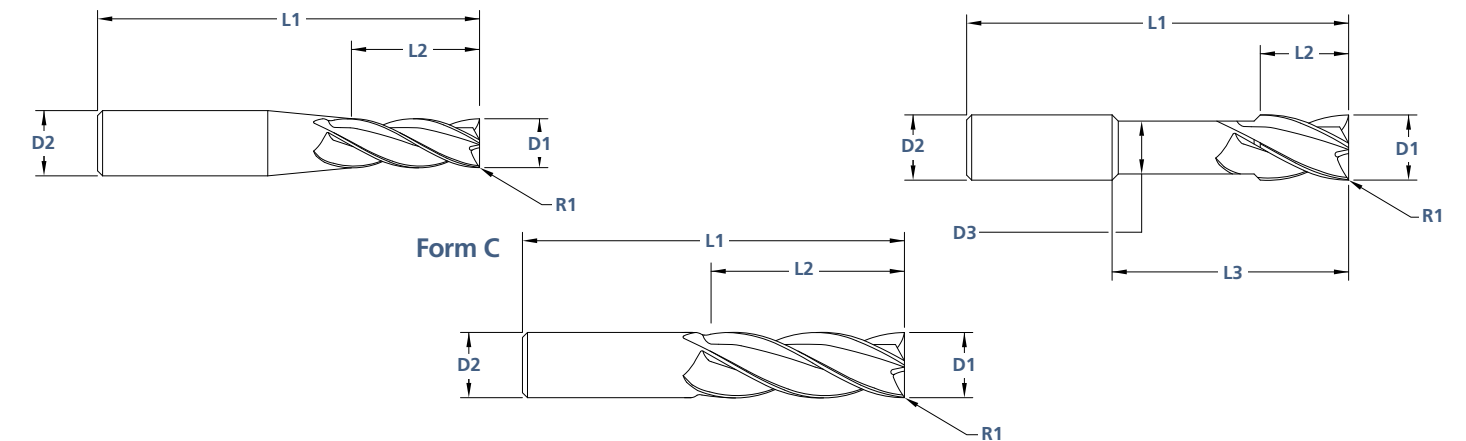
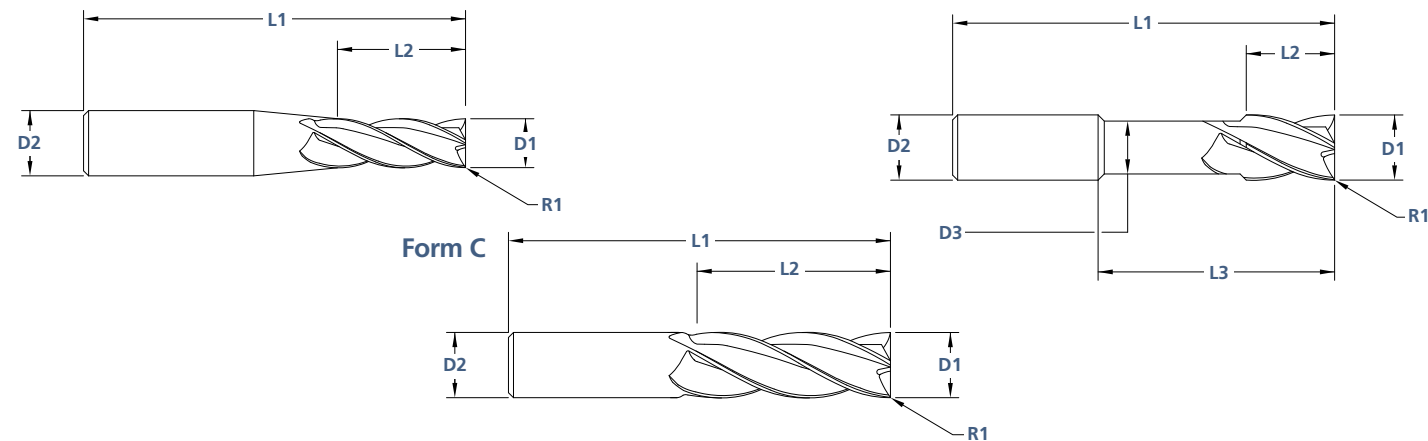
Part Number	D1	D2	L2	L3	D3	L1	Form	Coating	Radius Offering			
									.3	.5	1	2
SI-ST-520M-	20	20	26			93	C	C11	37291-85-D	37292-85-D	37293-85-D	37294-85-D
SSI-ST-520M-	20	20	26			93	C	C10	37291-70-D	37292-70-D	37293-70-D	37294-70-D
SSI-520M-	20	20	38			105	C	C11	37312-85-D	37313-85-D	37314-85-D	37315-85-D
SSI-520M-	20	20	38			105	C	C10	37312-70-D	37313-70-D	37314-70-D	37315-70-D
SSI-RN-520M-	20	20	26	54	18.76	105	B	C11		37332-85-D	37333-85-D	37334-85-D
SSI-RN-520M-	20	20	26	54	18.76	105	B	C10		37332-70-D	37333-70-D	37334-70-D
SSI-RN-M-520M-	20	20	26	96	18.76	150	B	C11		37341-85-D	37342-85-D	37343-85-D
SSI-RN-M-520M-	20	20	26	96	18.76	150	B	C10		37341-70-D	37342-70-D	37343-70-D
SSI-ST-525M-	25	25	32			104	C	C11	37295-85-D	37296-85-D	37297-85-D	37298-85-D
SSI-ST-525M-	25	25	32			104	C	C10	37295-70-D	37296-70-D	37297-70-D	37298-70-D
SSI-525M-	25	25	45			120	C	C11	37316-85-D	37317-85-D	37318-85-D	37319-85-D
SSI-525M-	25	25	45			120	C	C10	37316-70-D	37317-70-D	37318-70-D	37319-70-D
SSI-RN-525M-	25	25	32	64	24.00	120	B	C11		37335-85-D	37336-85-D	37337-85-D
SSI-RN-525M-	25	25	32	64	24.00	120	B	C10		37335-70-D	37336-70-D	37337-70-D
SSI-RN-M-525M-	25	25	32	96	24.00	150	B	C11		37344-85-D	37345-85-D	37346-85-D
SSI-RN-M-525M-	25	25	32	96	24.00	150	B	C10		37344-70-D	37345-70-D	37346-70-D

Form A

Form B

Form A

Form B



SVI Five Flute



Technical Chart

The SVI is a patented, five flute tool with both variable indexing and variable helixes. These features combine to provide the highest levels of protection against unwanted chatter and harmonics. The SVI-5 is the perfect tool for ramping at up to 3 degrees and helical interpolation of up to 3 degrees.

SVI Five Flute

- Unequaled Multi Patented Geometries
- Performance Geometry Developed for Machining Ferrous Materials
- Unique Double Duty Performance Characteristics
- Available in Stub, Standard and Long L.O.C.

High Performance Carbide

- Available Upon Request:
 - Radius Ends
 - Coolant Grooves
 - Additional Coatings

Feeds and Speeds Chart with Chip-Load per/tooth

Diameter	Description	Carbon Steels	Alloy Steel	Stainless Steel 300 Series	Stainless Steel 400 Series	Precipitation Stainless Steels	Gray Cast Iron	Ductile Cast Iron	High Temp Alloys	Titanium Pure	Titanium Cast/Wrought
		10XX, 11XX, 13XX, 15XX	40XX, 41XX, 42XX, 43XX, 44XX, 46XX, 86XX, Series	304, 304L, 316, 316L, 312	420, 420F, 416, 440C	15-5PH, 16-6PH, 17-4PH, AM-XX Series	Gray	Ductile	Inconel 625/718, A286, Haynes	Pure	Cast/Wrought 6AL4V, ASTM 1,2,3, Alpha - Beta
SFMC < 32Rc		200 - 450	150 - 300	150 - 350	200 - 450	80 - 250	250 - 450	120 - 350	70 - 120	140 - 220	140 - 200
SFMC > 32Rc		100 - 250	80 - 200	80 - 200	100 - 250	90 - 125	130 - 300	80 - 140	40 - 90	90 - 160	90 - 160
1/4"	S	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0009	0.0014	0.0013
	HP	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0012	0.0016	0.0015
	LP	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0014	0.0019	0.0017
	F	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0025	0.0035	0.0031
5/16"	S	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0011	0.0013	0.0013
	HP	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016
	LP	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019
	F	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033
3/8"	S	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0015	0.0018	0.0018
	HP	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021
	LP	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
	F	0.0045	0.0045	0.0045	0.0045	0.0045	0.0045	0.0045	0.0045	0.0045	0.0045
1/2"	S	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0018	0.0028	0.0022
	HP	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0024	0.0033	0.0029
	LP	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0026	0.0037	0.0035
	F	0.0066	0.0066	0.0066	0.0066	0.0066	0.0066	0.0066	0.0047	0.0066	0.0063
5/8"	S	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0025	0.0030	0.0030
	HP	0.0049	0.0049	0.0049	0.0049	0.0049	0.0049	0.0049	0.0036	0.0038	0.0045
	LP	0.0055	0.0055	0.0055	0.0055	0.0055	0.0055	0.0055	0.0050	0.0042	0.0050
	F	0.0086	0.0086	0.0086	0.0086	0.0086	0.0086	0.0086	0.0080	0.0081	0.0086
3/4"	S	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0028	0.0030	0.0035
	HP	0.0051	0.0051	0.0051	0.0051	0.0051	0.0051	0.0051	0.0040	0.0051	0.0051
	LP	0.0079	0.0079	0.0079	0.0079	0.0079	0.0079	0.0079	0.0060	0.0079	0.0079
	F	0.0142	0.0142	0.0142	0.0142	0.0142	0.0142	0.0142	0.0108	0.0142	0.0142
1"	S	0.0045	0.0045	0.0045	0.0045	0.0045	0.0045	0.0045	0.0035	0.0056	0.0050
	HP	0.0055	0.0055	0.0055	0.0055	0.0055	0.0055	0.0055	0.0043	0.0066	0.0059
	LP	0.0065	0.0065	0.0065	0.0065	0.0065	0.0065	0.0065	0.0053	0.0073	0.0065
	F	0.0105	0.0105	0.0105	0.0105	0.0105	0.0105	0.0105	0.0085	0.0117	0.0105

S = SLOTTING Axial Depth up to 1.0 x Diameter
HP = HEAVY PERIPHERAL Axial Depth up to 1.5 x Diameter Radial width .25 x Diameter
LP = LIGHT PERIPHERAL Axial Depth up to 2.0 x Diameter Radial width .15 x Diameter
F = FINISH Axial Depth up to Length Of Cut 2.5 X Diameter Reduce SFM by 20% Radial width .015 x Diameter

For additional support and for maximum optimization of your Data Flute tools, call us toll free at 800.447.1476 and ask to speak to our Technical Support Department.



Part Number	Dia.	Shank	LOC	OAL	Radius	C10 EDP	C11 EDP
SVI-ST-50250-020	1/4	1/4	3/8	2	0.020	37219-70-D	37219-85-D
SVI-50250-020	1/4	1/4	3/4	2-1/2	0.020	37220-70-D	37220-85-D
SVI-L-50250-020	1/4	1/4	1-1/4	3-1/4	0.020	37221-70-D	37221-85-D
SVI-ST-50312-020	5/16	5/16	7/16	2-1/2	0.020	37222-70-D	37222-85-D
SVI-50312-020	5/16	5/16	13/16	2-1/2	0.020	37223-70-D	37223-85-D
SVI-L-50312-020	5/16	5/16	1-1/4	3-1/2	0.020	37224-70-D	37224-85-D
SVI-ST-50375-020	3/8	3/8	1/2	2-1/2	0.020	37225-70-D	37225-85-D
SVI-50375-020	3/8	3/8	1	2-1/2	0.020	37226-70-D	37226-85-D
SVI-L-50375-020	3/8	3/8	1-1/2	4	0.020	37227-70-D	37227-85-D
SVI-ST-50437-020	7/16	7/16	9/16	2-1/2	0.020	37228-70-D	37228-85-D
SVI-50437-020	7/16	7/16	1	3	0.020	37229-70-D	37229-85-D
SVI-L-50437-020	7/16	7/16	2	4	0.020	37230-70-D	37230-85-D
SVI-ST-50500-030	1/2	1/2	5/8	3	0.030	37231-70-D	37231-85-D
SVI-50500-030	1/2	1/2	1-1/4	3	0.030	37232-70-D	37232-85-D
SVI-L-50500-030	1/2	1/2	2	4	0.030	37233-70-D	37233-85-D
SVI-ST-50625-030	5/8	5/8	3/4	3	0.030	37234-70-D	37234-85-D
SVI-50625-030	5/8	5/8	1-5/8	3-1/2	0.030	37235-70-D	37235-85-D
SVI-L-50625-030	5/8	5/8	2-1/2	5	0.030	37236-70-D	37236-85-D
SVI-ST-50750-030	3/4	3/4	1	3	0.030	37237-70-D	37237-85-D
SVI-50750-030	3/4	3/4	1-5/8	4	0.030	37238-70-D	37238-85-D
SVI-L-50750-030	3/4	3/4	3-1/4	6	0.030	37239-70-D	37239-85-D
SVI-ST-51000-030	1	1	1-1/4	4	0.030	37240-70-D	37240-85-D
SVI-51000-030	1	1	2	5	0.030	37241-70-D	37241-85-D
SVI-L-51000-030	1	1	3-1/4	6	0.030	37242-70-D	37242-85-D

DM-BN Two Flute Ball Nose

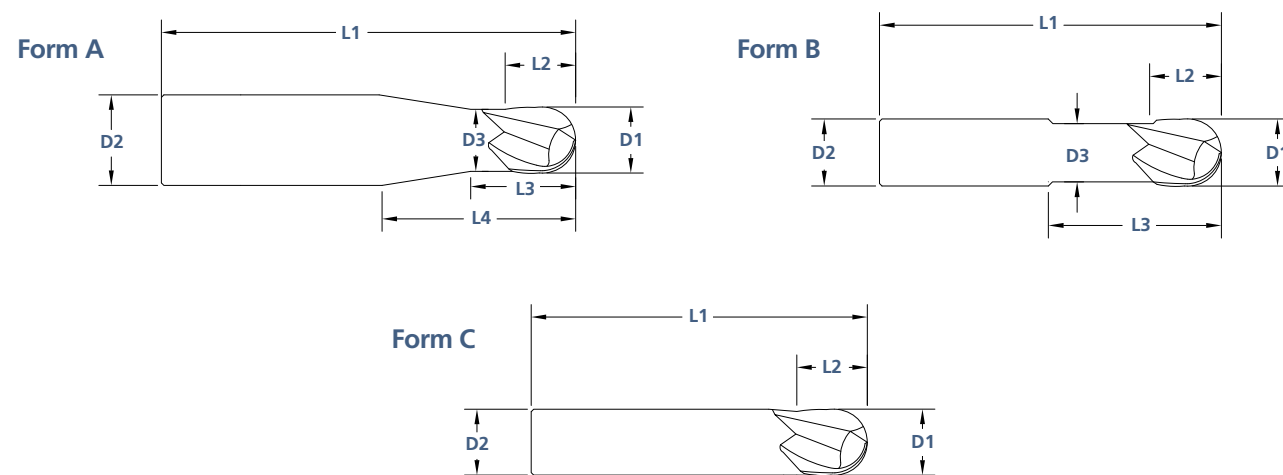
High Performance Carbide

Data Flute has re-engineered the Die Mold series solid carbide, ball-nose end-mills for hard milling, mold applications. These material and application specific tools permit machinists to use the newest, most productive high-speed machining techniques to achieve superior finish, requiring little or no handwork, while also extending tool life.



Tapered Shank Two Flute

METRIC											
Part Number	D1	D2	L2	L1	L3	D3	L4	Angle	Form	C11 EDP	C19 EDP
DM-BN-2001	1	3	1	40	2	0.7	8.4	10	A	54341-85-D	54341-19-D
DM-BN-2002	2	4	2	50	4	1.7	10.5	10	A	54342-85-D	54342-19-D
DM-BN-2003	3	6	3	57	6	2.7	15.4	10	A	54343-85-D	54343-19-D
DM-BN-2004	4	6	4	57	8	3.7	12.3	15	A	54344-85-D	54344-19-D
DM-BN-L-2004	4	6	4	75	8	3.7	12.3	15	A	54363-85-D	54363-19-D
DM-BN-2005	5	6	5	57	10	4.6	12.7	15	A	54345-85-D	54345-19-D
DM-BN-L-2005	5	6	5	100	10	4.6	12.7	15	A	54365-85-D	54365-19-D
IMPERIAL											
Part Number	D1	D2	L2	L1	L3	D3	L4	Angle	Form	C11 EDP	C19 EDP
DM-BN-20062	1/16	1/4	1/16	2-1/2	1/8	0.05	0.5	15	A	52235-85-D	52235-19-D
DM-BN-20093	3/32	1/4	3/32	2-1/2	3/16	0.082	0.5	15	A	52237-85-D	52237-19-D
DM-BN-20125	1/8	1/4	1/8	3	1/4	0.113	0.51	15	A	52239-85-D	52239-19-D
DM-BN-20187	3/16	1/4	3/16	3	3/8	0.174	0.515	15	A	52241-85-D	52241-19-D



For additional support and for maximum optimization of your Data Flute tools, call us toll free at 800.447.1476 and ask to speak to our Technical Support Department.



DM-BN Two Flute Ball Nose

High Performance Carbide

- Full Hard Milling and Mold Applications
- Superior Part Finish with Little or no Handwork
- Stock in Imperial and Metric Sizes
- Stock Straight, Necked and Tapered Shank

- Available Upon Request:
 - Haimer Safe-Lock
 - Coolant Grooves
 - Additional Coatings

Necked Shank Two Flute

METRIC											
Part Number	D1	D2	L2	L1	L3	D3	Form	C11 EDP	C19 EDP		
DM-BN-RN-2006	6	6	6	57	20	5.5	B	54346-85-D	54346-19-D		
DM-BN-RN-L-2006	6	6	6	100	20	5.5	B	54347-85-D	54347-19-D		
DM-BN-RN-2008	8	8	8	63	26	7.4	B	54348-85-D	54348-19-D		
DM-BN-RN-L-2008	8	8	8	100	26	7.4	B	54350-85-D	54350-19-D		
DM-BN-RN-2010	10	10	10	72	31	9.2	B	54351-85-D	54351-19-D		
DM-BN-RN-L-2010	10	10	10	100	31	9.2	B	54352-85-D	54352-19-D		
DM-BN-RN-2012	12	12	12	83	37	11	B	54353-85-D	54353-19-D		
DM-BN-RN-L-2012	12	12	12	110	37	11	B	54354-85-D	54354-19-D		
DM-BN-RN-2016	16	16	16	83	43	15	B	54355-85-D	54355-19-D		
DM-BN-RN-L-2016	16	16	16	140	43	15	B	54356-85-D	54356-19-D		
DM-BN-RN-2020	20	20	20	104	53	19	B	54357-85-D	54357-19-D		
DM-BN-RN-L-2020	20	20	20	160	53	19	B	54358-85-D	54358-19-D		

Straight Shank Two Flute

METRIC									
Part Number	D1	D2	L2	L1	Form	C11 EDP	C19 EDP		
DM-BN-2006	6	6	6	57	C	54366-85-D	54366-19-D		
DM-BN-L-2006	6	6	6	100	C	54368-85-D	54368-19-D		
DM-BN-2008	8	8	8	63	C	54369-85-D	54369-19-D		
DM-BN-L-2008	8	8	8	100	C	54370-85-D	54370-19-D		
DM-BN-2010	10	10	10	72	C	54371-85-D	54371-19-D		
DM-BN-L-2010	10	10	10	100	C	54373-85-D	54373-19-D		
DM-BN-2012	12	12	12	83	C	54374-85-D	54374-19-D		
DM-BN-L-2012	12	12	12	110	C	54375-85-D	54375-19-D		
DM-BN-2016	16	16	16	83	C	54377-85-D	54377-19-D		
DM-BN-L-2016	16	16	16	140	C	54378-85-D	54378-19-D		
DM-BN-2020	20	20	20	104	C	54379-85-D	54379-19-D		
DM-BN-L-2020	20	20	20	160	C	54380-85-D	54380-19-D		
IMPERIAL									
Part Number	D1	D2	L2	L1	Form	C11 EDP	C19 EDP		
DM-BN-20250	1/4	1/4	1/4	3	C	52243-85-D	52243-19-D		
DM-BN-20312	5/16	5/16	5/16	4	C	52245-85-D	52245-19-D		
DM-BN-20375	3/8	3/8	3/8	4	C	52247-85-D	52247-19-D		
DM-BN-20437	7/16	7/16	7/16	4	C	52249-85-D	52249-19-D		
DM-BN-20500	1/2	1/2	1/2	4	C	52253-85-D	52253-19-D		

MH Multi-Flute

High Performance Carbide



Our MH series is the tool of choice for finishing and light profile roughing in ferrous materials. The odd number of flutes disrupts unwanted harmonics. Our medium helix provides an optimum shear angle to aid chip evacuation. We have a full offering of stub, standard, medium, long and extra long lengths of cut.

- High Performance Carbide
- Eccentric Primary
- 45 Degree Helix
- Available in Stub, Standard, Medium, Long and Extra Long
- Available Upon Request:
 - Additional Coatings
 - Haimer Safe-Lock
 - Coolant Grooves

Initial Speeds (SFM) and Feeds (Chip-Load per/tooth)

Diameter	Description	Carbon Steels		Alloy Steel	Stainless Steel 300 Series	Stainless Steel 400 Series	Precipitation Stainless Steels	Gray Cast Iron	Ductile Cast Iron	High Temp Alloys	Titanium Pure	Titanium Cast/Wrought
		10XX, 11XX, 12XX, 13XX	40XX, 41XX, 42XX, 43XX, 44XX, 46XX, 86XX, Series	304, 304L, 316, 316L, 312	420, 420F, 416, 440C	15-5PH, 16-6PH, 17-4PH, AM-XX Series	Inconel 625/718, A286, Haynes	Gray	Ductile	70 - 120	140 - 220	140 - 200
SFM < 32Rc	SFM > 32Rc	200 - 450	150 - 300	150 - 350	200 - 450	80 - 250	250 - 450	120 - 350	70 - 120	140 - 220	140 - 200	
1/8"	HP	0.0008	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0005	0.0007	0.0007	
	LP	0.0011	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0007	0.0010	0.0010	
	F	0.0014	0.0013	0.0013	0.0013	0.0013	0.0013	0.0013	0.0010	0.0013	0.0013	

HP = HEAVY PERIPHERAL Axial Depth up to 1.0 x Diameter
LP = LIGHT PERIPHERAL Axial Depth up to Effective Length of Cut
F = FINISH Axial Depth up to Effective Length Of Cut
 Radial width .2 x Diameter
 Radial width .05 x Diameter
 Radial width .02 x Diameter

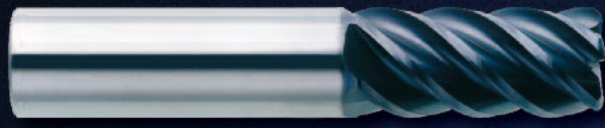
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MH Series, Multi-Flute

High Performance Carbide

Part Number	Dia.	Shank	LOC	OAL	No. of Flutes	EDP	C4 EDP	C11 EDP	C10 EDP
MH-ST-50125-375	1/8	3/8	1/4	2-1/2	5	52100-00-D	52100-89-D	52100-85-D	52100-70-D
MH-ST-50125	1/8	1/8	1/4	1-1/2	5	40251-00-D	40251-89-D	40251-85-D	40251-70-D
MH-50125-375	1/8	3/8	1/2	2-1/2	5	52118-00-D	52118-89-D	52118-85-D	52118-70-D
MH-50125	1/8	1/8	1/2	1-1/2	5	39696-00-D	39696-89-D	39696-85-D	39696-70-D



The MHCR series features our MH series as the platform to which a precision ground corner radius is applied, in a wide array of diameters and lengths, radii range from .030-.187". All of the tools are available from stock, which means no waiting for an altered tool.

- High Performance Carbide
- Eccentric Primary
- 45 Degree Helix
- Wide Array of Radii

- Available Upon Request:
 - Additional Coatings
 - Haimer Safe-Lock
 - Coolant Grooves

Initial Speeds (SFM) and Feeds (Chip-Load per/tooth)

Diameter	Description	Carbon Steels 10XX, 11XX, 12XX, 13XX	Alloy Steel 40XX, 41XX, 42XX, 43XX, 44XX, 46XX, 86XX, Series	Stainless Steel 300 Series 304, 304L, 316, 316L, 312	Stainless Steel 400 Series 420, 420F, 416, 440C	Precipitation Stainless Steels 15-5PH, 16-6PH, 17-4PH, AM-XX Series	Gray Cast Iron Gray	Ductile Cast Iron Ductile	High Temp Alloys Inconel 625/718, A286, Haynes	Titanium Pure Pure	Titanium Cast/Wrought Cast/Wrought 6AL4V, ASTM 1,2,3, Alpha - Beta
1/4"	HP	0.0017	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0010	0.0014	0.0014
	LP	0.0021	0.0019	0.0019	0.0019	0.0019	0.0019	0.0019	0.0014	0.0019	0.0019
	F	0.0028	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0020	0.0025	0.0025
5/16"	HP	0.0021	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0012	0.0018	0.0018
	LP	0.0034	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0025	0.0031	0.0031
	F	0.0034	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0025	0.0031	0.0031
3/8"	HP	0.0025	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021	0.0014	0.0021	0.0021
	LP	0.0032	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0021	0.0029	0.0029
	F	0.0041	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0030	0.0038	0.0038
1/2"	HP	0.0035	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0020	0.0030	0.0030
	LP	0.0045	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0030	0.0040	0.0040
	F	0.0055	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0040	0.0050	0.0050
5/8"	HP	0.0042	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0024	0.0036	0.0036
	LP	0.0053	0.0048	0.0048	0.0048	0.0048	0.0048	0.0048	0.0036	0.0048	0.0048
	F	0.0065	0.0059	0.0059	0.0059	0.0059	0.0059	0.0059	0.0048	0.0059	0.0059
3/4"	HP	0.0050	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043	0.0029	0.0043	0.0043
	LP	0.0064	0.0057	0.0057	0.0057	0.0057	0.0057	0.0057	0.0043	0.0057	0.0057
	F	0.0078	0.0071	0.0071	0.0071	0.0071	0.0071	0.0071	0.0057	0.0071	0.0071
1"	HP	0.0090	0.0080	0.0080	0.0080	0.0080	0.0080	0.0080	0.0060	0.0080	0.0080
	LP	0.0090	0.0080	0.0080	0.0080	0.0080	0.0080	0.0080	0.0060	0.0080	0.0080
	F	0.0110	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100	0.0080	0.0100	0.0100
1-1/4"	HP	0.0079	0.0068	0.0068	0.0068	0.0068	0.0068	0.0068	0.0045	0.0068	0.0068
	LP	0.0101	0.0090	0.0090	0.0090	0.0090	0.0090	0.0090	0.0068	0.0090	0.0090
	F	0.0124	0.0113	0.0113	0.0113	0.0113	0.0113	0.0113	0.0090	0.0113	0.0113

HP = HEAVY PERIPHERAL
Axial Depth up to
1.0 x Diameter
Radial width .2 x Diameter

LP = LIGHT PERIPHERAL
Axial Depth up to
Effective Length of Cut
Radial width .05 x Diameter

F = FINISH
Axial Depth up to
Effective Length Of Cut
Radial width .02 x Diameter

Part Number	Dia.	Shank	LOC	OAL	No. of Flutes	Coating	Radius Offering					
							.030"	.060"	.090"	.125"	.156"	.187"
MHCR-ST-50250	1/4	1/4	3/8	2	5	Uncoated C4 C11 C10	48736-00-D 48736-89-D 48736-85-D 48736-70-D					
MHCR-50250	1/4	1/4	3/4	2-1/2	5	Uncoated C4 C11 C10	48767-00-D 48767-89-D 48767-85-D 48767-70-D					
MHCR-M-50250	1/4	1/4	1	3	5	Uncoated C4 C11 C10	50292-00-D 50292-89-D 50292-85-D 50292-70-D					
MHCR-L-50250	1/4	1/4	1-1/4	4	5	Uncoated C4 C11 C10	50329-00-D 50329-89-D 50329-85-D 50329-70-D					
MHCR-X-50250	1/4	1/4	2	6	5	Uncoated C4 C11 C10	48700-00-D 48700-89-D 48700-85-D 48700-70-D					
MHCR-ST-50375	3/8	3/8	1/2	2	5	Uncoated C4 C11 C10	48740-00-D 48740-89-D 48740-85-D 48740-70-D	48748-00-D 48748-89-D 48748-85-D 48748-70-D				
MHCR-50375	3/8	3/8	1	2-1/2	5	Uncoated C4 C11 C10	48771-00-D 48771-89-D 48771-85-D 48771-70-D	48780-00-D 48780-89-D 48780-85-D 48780-70-D				
MHCR-M-50375	3/8	3/8	1-1/4	3	5	Uncoated C4 C11 C10	50296-00-D 50296-89-D 50296-85-D 50296-70-D	50306-00-D 50306-89-D 50306-85-D 50306-70-D				
MHCR-L-50375	3/8	3/8	1-1/2	4	5	Uncoated C4 C11 C10	50335-00-D 50335-89-D 50335-85-D 50335-70-D	50346-00-D 50346-89-D 50346-85-D 50346-70-D				
MHCR-X-50375	3/8	3/8	2-1/2	6	5	Uncoated C4 C11 C10	48704-00-D 48704-89-D 48704-85-D 48704-70-D	48713-00-D 48713-89-D 48713-85-D 48713-70-D				

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MH-CR Multi-Flute Continued

High Performance Carbide

MH-CR Multi-Flute

High Performance Carbide



- High Performance Carbide
- Eccentric Primary
- 45 Degree Helix
- Wide Array of Radii

- Available Upon Request:
 - Additional Coatings
 - Haimer Safe-Lock
 - Coolant Grooves

Part Number	Dia.	Shank	LOC	OAL	No. of Flutes	Coating	Radius Offering					
							.030"	.060"	.090"	.125"	.156"	.187"
MHCR-ST-50500	1/2	1/2	5/8	2-1/2	5	Uncoated	49909-00-D	49966-00-D	49993-00-D			
						C4	49909-89-D	49966-89-D	49993-89-D			
						C11	49909-85-D	49966-85-D	49993-85-D			
						C10	49909-70-D	49966-70-D	49993-70-D			
MHCR-50500	1/2	1/2	1-1/4	3	5	Uncoated	49921-00-D	49978-00-D	50005-00-D			
						C4	49921-89-D	49978-89-D	50005-89-D			
						C11	49921-85-D	49978-85-D	50005-85-D			
						C10	49921-70-D	49978-70-D	50005-70-D			
MHCR-M-50500	1/2	1/2	1-5/8	4	5	Uncoated	50228-00-D	50240-00-D	50254-00-D			
						C4	50228-89-D	50240-89-D	50254-89-D			
						C11	50228-85-D	50240-85-D	50254-85-D			
						C10	50228-70-D	50240-70-D	50254-70-D			
MHCR-L-50500	1/2	1/2	2	4	5	Uncoated	49936-00-D	50203-00-D	50020-00-D			
						C4	49936-89-D	50203-89-D	50020-89-D			
						C11	49936-85-D	50203-85-D	50020-85-D			
						C10	49936-70-D	50203-70-D	50020-70-D			
MHCR-X-50500	1/2	1/2	3-1/8	6	5	Uncoated	49951-00-D	49876-00-D	50035-00-D			
						C4	49951-89-D	49876-89-D	50035-89-D			
						C11	49951-85-D	49876-85-D	50035-85-D			
						C10	49951-70-D	49876-70-D	50035-70-D			
MHCR-ST-50625	5/8	5/8	3/4	3	5	Uncoated	49912-00-D	49969-00-D	49996-00-D	50050-00-D		
						C4	49912-89-D	49969-89-D	49996-89-D	50050-89-D		
						C11	49912-85-D	49969-85-D	49996-85-D	50050-85-D		
						C10	49912-70-D	49969-70-D	49996-70-D	50050-70-D		
MHCR-50625	5/8	5/8	1-5/8	3-1/2	5	Uncoated	49924-00-D	49981-00-D	50008-00-D	50059-00-D		
						C4	49924-89-D	49981-89-D	50008-89-D	50059-89-D		
						C11	49924-85-D	49981-85-D	50008-85-D	50059-85-D		
						C10	49924-70-D	49981-70-D	50008-70-D	50059-70-D		
MHCR-M-50625	5/8	5/8	2-1/8	4	5	Uncoated	50231-00-D	50244-00-D	50257-00-D	50271-00-D		
						C4	50231-89-D	50244-89-D	50257-89-D	50271-89-D		
						C11	50231-85-D	50244-85-D	50257-85-D	50271-85-D		
						C10	50231-70-D	50244-70-D	50257-70-D	50271-70-D		
MHCR-L-50625	5/8	5/8	2-1/2	5	5	Uncoated	49939-00-D	50206-00-D	50023-00-D	50071-00-D		
						C4	49939-89-D	50206-89-D	50023-89-D	50071-89-D		
						C11	49939-85-D	50206-85-D	50023-85-D	50071-85-D		
						C10	49939-70-D	50206-70-D	50023-70-D	50071-70-D		
MHCR-X-50625	5/8	5/8	4	6	5	Uncoated	49954-00-D	49879-00-D	50038-00-D	50083-00-D		
						C4	49954-89-D	49879-89-D	50038-89-D	50083-89-D		
						C11	49954-85-D	49879-85-D	50038-85-D	50083-85-D		
						C10	49954-70-D	49879-70-D	50038-70-D	50083-70-D		

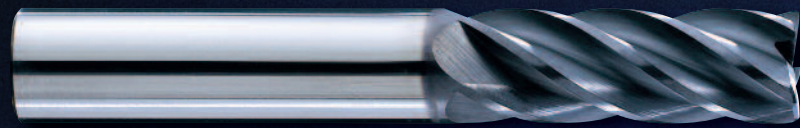
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Part Number	Dia.	Shank	LOC	OAL	No. of Flutes	Coating	Radius Offering					
							.030"	.060"	.090"	.125"	.156"	.187"
MHCR-ST-50750	3/4	3/4	1	3	5	Uncoated	49915-00-D	49972-00-D	49999-00-D	50053-00-D	50095-00-D	50160-00-D
						C4	49915-89-D	49972-89-D	49999-89-D	50053-89-D	50095-89-D	50160-89-D
						C11	49915-85-D	49972-85-D	49999-85-D	50053-85-D	50095-85-D	50160-85-D
						C10	49915-70-D	49972-70-D	49999-70-D	50053-70-D	50095-70-D	50160-70-D
MHCR-50750	3/4	3/4	1-5/8	4	5	Uncoated	49927-00-D	49984-00-D	50011-00-D	50062-00-D	50111-00-D	50168-00-D
						C4	49927-89-D	49984-89-D	50011-89-D	50062-89-D	50111-89-D	50168-89-D
						C11	49927-85-D	49984-85-D	50011-85-D	50062-85-D	50111-85-D	50168-85-D
						C10	49927-70-D	49984-70-D	50011-70-D	50062-70-D	50111-70-D	50168-70-D
MHCR-M-50750	3/4	3/4	2-1/4	5	5	Uncoated	50234-00-D	50247-00-D	50262-00-D	50274-00-D	50280-00-D	50286-00-D
						C4	50234-89-D	50247-89-D	50262-89-D	50274-89-D	50280-89-D	50286-89-D
						C11	50234-85-D	50247-85-D	50262-85-D	50274-85-D	50280-85-D	50286-85-D
						C10	50234-70-D	50247-70-D	50262-70-D	50274-70-D	50280-70-D	50286-70-D
MHCR-L-50750	3/4	3/4	3-1/4	6	5	Uncoated	49942-00-D	50209-00-D	50026-00-D	50074-00-D	50122-00-D	50182-00-D
						C4	49942-89-D	50209-89-D	50026-89-D	50074-89-D	50122-89-D	50182-89-D
						C11	49942-85-D	50209-85-D	50026-85-D	50074-85-D	50122-85-D	50182-85-D
						C10	49942-70-D	50209-70-D	50026-70-D	50074-70-D	50122-70-D	50182-70-D
MHCR-X-50750	3/4	3/4	4	6	5	Uncoated	49957-00-D	49882-00-D	50041-00-D	50086-00-D	50136-00-D	50191-00-D
						C4	49957-89-D	49882-89-D	50041-89-D	50086-89-D	50136-89-D	50191-89-D
						C11	49957-85-D	49882-85-D	50041-85-D	50086-85-D	50136-85-D	50191-85-D
						C10	49957-70-D	49882-70-D	50041-70-D	50086-70-D	50136-70-D	50191-70-D
MHCR-ST-51000	1	1	1-1/4	3	5	Uncoated	49918-00-D	49975-00-D	50002-00-D	50056-00-D	50098-00-D	50164-00-D
						C4	49918-89-D	49975-89-D	50002-89-D	50056-89-D	50098-89-D	50164-89-D
						C11	49918-85-D	49975-85-D	50002-85-D	50056-85-D	50098-85-D	50164-85-D
						C10	49918-70-D	49975-70-D	50002-70-D	50056-70-D	50098-70-D	50164-70-D
MHCR-51000	1	1	2	4	5	Uncoated	49930-00-D	49987-00-D	50014-00-D	50065-00-D	50114-00-D	50173-00-D
						C4	49930-89-D	49987-89-D	50014-89-D	50065-89-D	50114-89-D	50173-89-D
						C11	49930-85-D	49987-85-D	50014-85-D	50065-85-D	50114-85-D	50173-85-D
						C10	49930-70-D	49987-70-D	50014-70-D	50065-70-D	50114-70-D	50173-70-D
MHCR-M-51000	1	1	2-5/8	6	5	Uncoated	50237-00-D	50251-00-D	50265-00-D	50277-00-D	50283-00-D	50289-00-D
						C4	50237-89-D	50251-89-D	50265-89-D	50277-89-D	50283-89-D	50289-89-D
						C11	50237-85-D	50251-85-D	50265-85-D	50277-85-D	50283-85-D	50289-85-D
						C10	50237-70-D	50251-70-D	50265-70-D	50277-70-D	50283-70-D	50289-70-D
MHCR-L-51000	1	1	3-1/4	6	5	Uncoated	49945-00-D	50214-00-D	50029-00-D	50077-00-D	50127-00-D	50185-00-D
						C4	49945-89-D	50214-89-D	50029-89-D	50077-89-D	50127-89-D	50185-89-D
						C11	49945-85-D	50214-85-D	50029-85-D	50077-85-D	50127-85-D	50185-85-D
						C10	49945-70-D	50214-70-D	50029-70-D	50077-70-D	50127-70-D	50185-70-D
MHCR-X-51000	1	1	4-1/8	7	5	Uncoated	49960-00-D	49885-00-D	50044-00-D	50089-00-D	50141-00-D	50194-00-D
						C4	49960-89-D	49885-89-D	50044-89-D	50089-89-D	50141-89-D	50194-89-D
						C11	49960-85-D	49885-85-D	50044-85-D	50089-85-D	50141-85-D	50194-85-D
						C10	49960-70-D	49885-70-D	50044-70-D	50089-70-D	50141-70-D	50194-70-D
MHCR-71250	1-1/4	1-1/4	2	4-1/2	7	Uncoated	49933-00-D	49990-00-D	50017-00-D	50068-00-D	50118-00-D	50179-00-D
						C4	49933-89-D	49990-89-D	50017-89-D	50068-89-D	50118-89-D	50179-89-D
						C11	49933-85-D	49990-85-D	50017-85-D	50068-85-D	50118-85-D	50179-85-D
						C10	49933-70-D	49990-70-D	50017-70-D	50068-70-D	50118-70-D	50179-70-D
MHCR-L-71250	1-1/4	1-1/4	3-1/4	6	7	Uncoated	49948-00-D	50217-00-D	50032-00-D	50080-00-D	50132-00-D	50188-00-D
						C4	49948-89-D	50217-89-D	50032-89-D	50080-89-D	50132-89-D	50188-89-D
						C11	49948-85-D	50217-85-D	50032-85-D	50080-85-D	50132-85-D	50188-85-D
						C10	49948-70-D	50217-70-D	50032-70-D	50080-70-D	50132-70-D	50188-70-D
MHCR-X-71250	1-1/4	1-1/4	5	7-1/2	7	Uncoated	49963-00-D	49888-00-D	50047-00-D	50092-00-D	50145-00-D	50197-00-D
						C4	49963-89-D	49888-89-D	50047-89-D	50092-89-D	50145-89-D	50197-89-D
						C11	49963-85-D	49888-85-D	50047-85-D	50092-85-D	50145-85-D	50197-85-D
						C10	49963-70-D	49888-70-D	50047-70-D	50092-70-D	50145-70-D	50197-70-D

TiW Five Flute



Technical Chart

The introduction of the TiW series was designed for thin wall machining of Titanium Aerospace Structures with walls 3 times or more the diameter in depth of wall. The TiW series has patented geometries which improve Process Dampening in machining thin wall structures.

TiW Five Flute

- Variable Index
- Variable Helix
- Full Eccentric Grind
- Special Patented Thin Wall Geometry Design

High Performance Carbide

- Available Upon Request:
 - Additional Coatings
 - Haimer Safe-Lock
 - Coolant Grooves

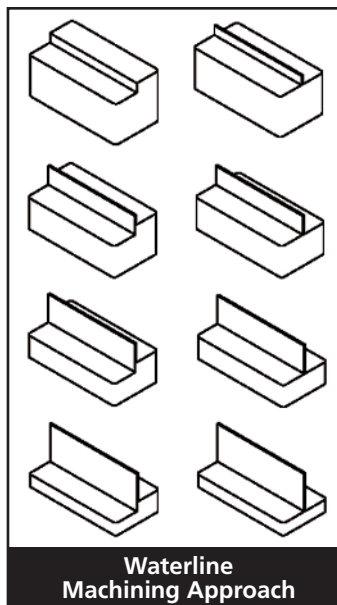
Feeds and Speeds Chart with Chip-Load per/tooth

Materials	Titanium Pure		Titanium Cast/ Wrought	
	Description	Pure	Cast/ Wrought 6AL4V, ASTM 1,2,3, Alpha - Beta	Pure
	LP	140 - 220	140 - 200	
	F	300 - 400	300 - 400	
Diameter				
1/2"	LP	0.0037	0.0035	
	F	0.0066	0.0063	
5/8"	LP	0.0079	0.0079	
	F	0.0142	0.0142	
3/4"	LP	0.0042	0.0050	
	F	0.0081	0.0086	
1"	LP	0.0073	0.0065	
	F	0.0117	0.0105	

LP = LIGHT PERIPHERAL
Axial Depth up to Length Of Cut
Radial Width .2 x Diameter

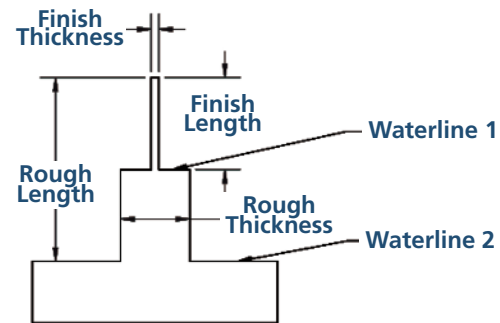
F = FINISH
Axial Depth up to Length Of Cut
Radial Width .02 x Diameter

Step-Cutting Rules of Thumb for Titanium



- Step-Cutting for Finishing Ribs
- Length (L) / Thickness (T)
- Rough (R), Finish (F)
- Maintain an 8/1 L/T Ratio

EXAMPLE:
1" LR / .130" TR = 7.7
.5" LF / .060" TF = 8.33

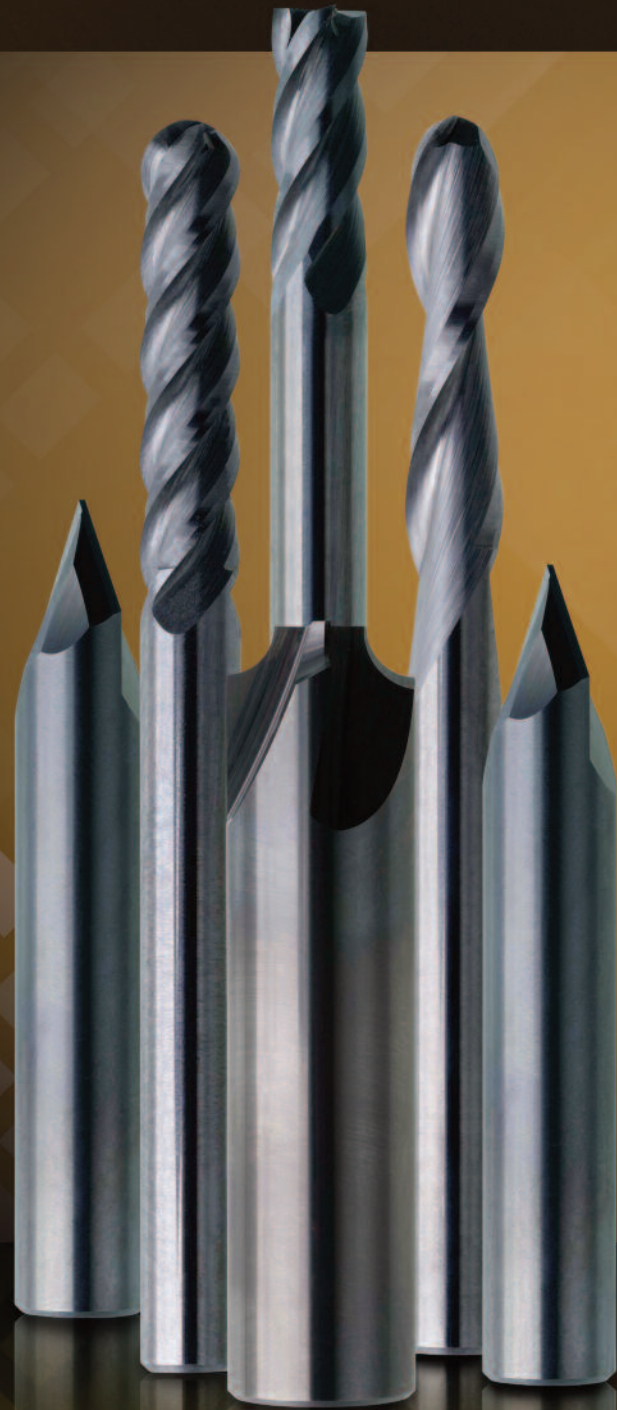


Part Number	Dia.	Shank	LOC	OAL	LBS	Neck Dia.	Coating	Radius Offering			
								.030"	.060"	.090"	.120"
TiW-50500	1/2	1/2	5/8	4	1-1/2	0.475	Uncoated	37161-00-D	37162-00-D	37163-00-D	37164-00-D
							C11	37161-85-D	37162-85-D	37163-85-D	37164-85-D
							C10	37161-70-D	37162-70-D	37163-70-D	37164-70-D
TiW-M-50500	1/2	1/2	5/8	4	2-1/4	0.475	Uncoated	37165-00-D	37166-00-D	37167-00-D	37168-00-D
							C11	37165-85-D	37166-85-D	37167-85-D	37168-85-D
							C10	37165-70-D	37166-70-D	37167-70-D	37168-70-D
TiW-L-50500	1/2	1/2	5/8	6	3-3/8	0.475	Uncoated	37169-00-D	37170-00-D	37171-00-D	37173-00-D
							C11	37169-85-D	37170-85-D	37171-85-D	37173-85-D
							C10	37169-70-D	37170-70-D	37171-70-D	37173-70-D
TiW-50625	5/8	5/8	3/4	4	1-5/8	0.590	Uncoated	37174-00-D	37175-00-D	37176-00-D	37177-00-D
							C11	37174-85-D	37175-85-D	37176-85-D	37177-85-D
							C10	37174-70-D	37175-70-D	37176-70-D	37177-70-D
TiW-M-50625	5/8	5/8	3/4	6	2-3/8	0.590	Uncoated	37178-00-D	37179-00-D	37180-00-D	37181-00-D
							C11	37178-85-D	37179-85-D	37180-85-D	37181-85-D
							C10	37178-70-D	37179-70-D	37180-70-D	37181-70-D
TiW-L-50625	5/8	5/8	3/4	6	3-3/8	0.590	Uncoated	37182-00-D	37183-00-D	37184-00-D	37185-00-D
							C11	37182-85-D	37183-85-D	37184-85-D	37185-85-D
							C10	37182-70-D	37183-70-D	37184-70-D	37185-70-D
TiW-50750	3/4	3/4	1	4	2	0.715	Uncoated	37186-00-D	37187-00-D	37188-00-D	37189-00-D
							C11	37186-85-D	37187-85-D	37188-85-D	37189-85-D
							C10	37186-70-D	37187-70-D	37188-70-D	37189-70-D
TiW-M-50750	3/4	3/4	1	6	2-1/2	0.715	Uncoated	37190-00-D	37191-00-D	37192-00-D	37193-00-D
							C11	37190-85-D	37191-85-D	37192-85-D	37193-85-D
							C10	37190-70-D	37191-70-D	37192-70-D	37193-70-D
TiW-L-50750	3/4	3/4	1	6	3-3/8	0.715	Uncoated	37194-00-D	37195-00-D	37196-00-D	37197-00-D
							C11	37194-85-D	37195-85-D	37196-85-D	37197-85-D
							C10	37194-70-D	37195-70-D	37196-70-D	37197-70-D
TiW-51000	1	1	1-1/4	4	2-1/4	0.96	Uncoated	37199-00-D	37200-00-D	37201-00-D	37203-00-D
							C11	37199-85-D	37200-85-D	37201-85-D	37203-85-D
							C10	37199-70-D	37200-70-D	37201-70-D	37203-70-D
TiW-M-51000	1	1	1-1/4	6	2-5/8	0.96	Uncoated	37205-00-D	37207-00-D	37209-00-D	37211-00-D
							C11	37205-85-D	37207-85-D	37209-85-D	37211-85-D
							C10	37205-70-D	37207-70-D	37209-70-D	37211-70-D
TiW-L-51000	1	1	1-1/4	6	3-3/8	0.96	Uncoated	37213-00-D	37215-00-D	37217-00-D	37218-00-D
							C11	37213-85-D	37215-85-D	37217-85-D	37218-85-D
							C10	37213-70-D	37215-70-D	37217-70-D	37218-70-D

For additional support and for maximum optimization of your Data Flute tools, call us toll free at 800.447.1476 and ask to speak to our Technical Support Department.



Miniatures, Chamfer Mills and Corner Rounding Cutters



ROUGHING

SERIES	ITEM	DESCRIPTION	PAGE
SH-2	Miniature Series Standard Helix	2 Flute 30° Helix	108
SH-3	Miniature Series Standard Helix	3 Flute 30° Helix	109
SH-4	Miniature Series Standard Helix	4 Flute 30° Helix	110
BN-2	Miniature Series Ball Nose	2 Flute 30° Helix Ball Nose	111
BN-3	Miniature Series Ball Nose	3 Flute 30° Helix Ball Nose	112
BN-4	Miniature Series Ball Nose	4 Flute 30° Helix Ball Nose	113
CM	Chamfer Mill	2 and 4 Flute 60° and 90° Angles Chamfer/Deburring	114
CRC	Corner Rounding Cutter	3 and 4 Flute Single End 3 Fluted Double End Corner Rounding	115

FINISHING

SH Two Flute Miniature

High Performance Carbide



Stable and versatile describe our SH series. Able to machine a variety of materials and perform well in a variety of applications, the SH series is a good all-round choice for your machining needs.

- Able to Machine a Variety of Materials
- Performs Well in a Variety of Applications
- Available in Stub and Standard Length

PartNumber	Dia.	Shank	LOC	OAL	EDP	C4 EDP	C5 EDP	C7 EDP	C11 EDP
SH-ST-20005	0.005	1/8	0.0075	1-1/2	48600-00-D	48600-89-D	48600-86-D	48600-83-D	48600-85-D
SH-20005	0.005	1/8	0.0150	1-1/2	44000-00-D	44000-89-D	44000-86-D	44000-83-D	44000-85-D
SH-ST-20010	0.010	1/8	0.0150	1-1/2	48606-00-D	48606-89-D	48606-86-D	48606-83-D	48606-85-D
SH-20010	0.010	1/8	0.0300	1-1/2	44006-00-D	44006-89-D	44006-86-D	44006-83-D	44006-85-D
SH-ST-20015	0.015	1/8	0.0225	1-1/2	48612-00-D	48612-89-D	48612-86-D	48612-83-D	48612-85-D
SH-20015	0.015	1/8	0.0450	1-1/2	44021-00-D	44021-89-D	44021-86-D	44021-83-D	44021-85-D
SH-ST-20020	0.020	1/8	0.0300	1-1/2	48618-00-D	48618-89-D	48618-86-D	48618-83-D	48618-85-D
SH-20020	0.020	1/8	0.0600	1-1/2	44027-00-D	44027-89-D	44027-86-D	44027-83-D	44027-85-D
SH-ST-20025	0.025	1/8	0.0375	1-1/2	48624-00-D	48624-89-D	48624-86-D	48624-83-D	48624-85-D
SH-20025	0.025	1/8	0.0750	1-1/2	44033-00-D	44033-89-D	44033-86-D	44033-83-D	44033-85-D
SH-ST-20030	0.030	1/8	0.0450	1-1/2	48630-00-D	48630-89-D	48630-86-D	48630-83-D	48630-85-D
SH-20030	0.030	1/8	0.0900	1-1/2	44039-00-D	44039-89-D	44039-86-D	44039-83-D	44039-85-D
SH-ST-20032	0.032	1/8	0.0620	1-1/2	43397-00-D	43397-89-D	43397-86-D	43397-83-D	43397-85-D
SH-20032	0.032	1/8	0.0930	1-1/2	40499-00-D	40499-89-D	40499-86-D	40499-83-D	40499-85-D
SH-ST-20035	0.035	1/8	0.0525	1-1/2	48636-00-D	48636-89-D	48636-86-D	48636-83-D	48636-85-D
SH-20035	0.035	1/8	0.1050	1-1/2	44045-00-D	44045-89-D	44045-86-D	44045-83-D	44045-85-D
SH-ST-20040	0.040	1/8	0.0600	1-1/2	48642-00-D	48642-89-D	48642-86-D	48642-83-D	48642-85-D
SH-20040	0.040	1/8	0.1200	1-1/2	44051-00-D	44051-89-D	44051-86-D	44051-83-D	44051-85-D
SH-ST-20045	0.045	1/8	0.0675	1-1/2	48648-00-D	48648-89-D	48648-86-D	48648-83-D	48648-85-D
SH-20045	0.045	1/8	0.1350	1-1/2	44057-00-D	44057-89-D	44057-86-D	44057-83-D	44057-85-D
SH-ST-20046	0.046	1/8	0.0930	1-1/2	43405-00-D	43405-89-D	43405-86-D	43405-83-D	43405-85-D
SH-20046	0.046	1/8	0.1406	1-1/2	40507-00-D	40507-89-D	40507-86-D	40507-83-D	40507-85-D
SH-ST-20050	0.050	1/8	0.0750	1-1/2	48654-00-D	48654-89-D	48654-86-D	48654-83-D	48654-85-D
SH-20050	0.050	1/8	0.1500	1-1/2	44063-00-D	44063-89-D	44063-86-D	44063-83-D	44063-85-D
SH-ST-20055	0.055	1/8	0.0825	1-1/2	48660-00-D	48660-89-D	48660-86-D	48660-83-D	48660-85-D
SH-20055	0.055	1/8	0.1650	1-1/2	44069-00-D	44069-89-D	44069-86-D	44069-83-D	44069-85-D
SH-ST-20062	0.062	1/8	0.1250	1-1/2	43413-00-D	43413-89-D	43413-86-D	43413-83-D	43413-85-D
SH-20062	0.062	1/8	0.1875	1-1/2	40515-00-D	40515-89-D	40515-86-D	40515-83-D	40515-85-D
SH-ST-20078	0.078	1/8	0.1250	1-1/2	43421-00-D	43421-89-D	43421-86-D	43421-83-D	43421-85-D
SH-20078	0.078	1/8	0.2500	1-1/2	40523-00-D	40523-89-D	40523-86-D	40523-83-D	40523-85-D
SH-ST-20093	0.093	1/8	0.1875	1-1/2	43429-00-D	43429-89-D	43429-86-D	43429-83-D	43429-85-D
SH-20093	0.093	1/8	0.3750	1-1/2	40531-00-D	40531-89-D	40531-86-D	40531-83-D	40531-85-D
SH-ST-20109	0.109	1/8	0.1875	1-1/2	43437-00-D	43437-89-D	43437-86-D	43437-83-D	43437-85-D
SH-20109	0.109	1/8	0.3750	1-1/2	40539-00-D	40539-89-D	40539-86-D	40539-83-D	40539-85-D
SH-ST-20125	0.125	1/8	0.2500	1-1/2	43445-00-D	43445-89-D	43445-86-D	43445-83-D	43445-85-D
SH-20125	0.125	1/8	0.5000	1-1/2	40547-00-D	40547-89-D	40547-86-D	40547-83-D	40547-85-D

In addition to the miniature sizes listed, intermediate sizes are available upon request between .005 and .060 in .001 increments.

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SH Three Flute Miniature

High Performance Carbide



Stable and versatile describe our SH series. Able to machine a variety of materials and perform well in a variety of applications, the SH series is a good all-round choice for your machining needs.

- Able to Machine a Variety of Materials
- Performs Well in a Variety of Applications
- Available in Stub and Standard Length

PartNumber	Dia.	Shank	LOC	OAL	EDP	C4 EDP	C5 EDP	C7 EDP	C11 EDP
SH-ST-30032	1/32	1/8	1/16	1-1/2	43573-00-D	43573-89-D	43573-86-D	43573-83-D	43573-85-D
SH-30032	1/32	1/8	3/32	1-1/2	40675-00-D	40675-89-D	40675-86-D	40675-83-D	40675-85-D
SH-ST-30046	3/64	1/8	3/32	1-1/2	43581-00-D	43581-89-D	43581-86-D	43581-83-D	43581-85-D
SH-30046	3/64	1/8	9/64	1-1/2	40683-00-D	40683-89-D	40683-86-D	40683-83-D	40683-85-D
SH-ST-30062	1/16	1/8	1/8	1-1/2	43589-00-D	43589-89-D	43589-86-D	43589-83-D	43589-85-D
SH-30062	1/16	1/8	3/16	1-1/2	40691-00-D	40691-89-D	40691-86-D	40691-83-D	40691-85-D
SH-ST-30078	5/64	1/8	1/8	1-1/2	43597-00-D	43597-89-D	43597-86-D	43597-83-D	43597-85-D
SH-30078	5/64	1/8	1/4	1-1/2	40699-00-D	40699-89-D	40699-86-D	40699-83-D	40699-85-D
SH-ST-30093	3/32	1/8	3/16	1-1/2	43605-00-D	43605-89-D	43605-86-D	43605-83-D	43605-85-D
SH-30093	3/32	1/8	3/8	1-1/2	40707-00-D	40707-89-D	40707-86-D	40707-83-D	40707-85-D
SH-ST-30109	7/64	1/8	3/16	1-1/2	43613-00-D	43613-89-D	43613-86-D	43613-83-D	43613-85-D
SH-30109	7/64	1/8	3/8	1-1/2	40715-00-D	40715-89-D	40715-86-D	40715-83-D	40715-85-D
SH-ST-30125	1/8	1/8	1/4	1-1/2	43621-00-D	43621-89-D	43621-86-D	43621-83-D	43621-85-D
SH-30125	1/8	1/8	1/2	1-1/2	40723-00-D	40723-89-D	40723-86-D	40723-83-D	40723-85-D

In addition to the miniature sizes listed, intermediate sizes are available upon request between .005 and .060 in .001 increments.

SH Four Flute Miniature



High Performance Carbide

Stable and versatile describe our SH series. Able to machine a variety of materials and perform well in a variety of applications, the SH series is a good all-round choice for your machining needs.

- Able to Machine a Variety of Materials
- Performs Well in a Variety of Applications
- Available in Stub and Standard Length

BN Two Flute Ball Miniature



Stable and versatile describe our BN series. Able to machine a variety of materials and perform well in a variety of applications, the BN series is a good all-round choice for your machining needs.

- Able to Machine a Variety of Materials
- Performs Well in a Variety of Applications
- Available in Stub and Standard Length

PartNumber	Dia.	Shank	LOC	OAL	EDP	C4 EDP	C5 EDP	C7 EDP	C11 EDP
SH-ST-40005	0.005	1/8	0.0075	1-1/2	43000-00-D	43000-89-D	43000-86-D	43000-83-D	43000-85-D
SH-40005	0.005	1/8	0.0150	1-1/2	41100-00-D	41100-89-D	41100-86-D	41100-83-D	41100-85-D
SH-ST-40010	0.010	1/8	0.0150	1-1/2	43006-00-D	43006-89-D	43006-86-D	43006-83-D	43006-85-D
SH-40010	0.010	1/8	0.0300	1-1/2	41106-00-D	41106-89-D	41106-86-D	41106-83-D	41106-85-D
SH-ST-40015	0.015	1/8	0.0225	1-1/2	43012-00-D	43012-89-D	43012-86-D	43012-83-D	43012-85-D
SH-40015	0.015	1/8	0.0450	1-1/2	41125-00-D	41125-89-D	41125-86-D	41125-83-D	41125-85-D
SH-ST-40020	0.020	1/8	0.0300	1-1/2	43018-00-D	43018-89-D	43018-86-D	43018-83-D	43018-85-D
SH-40020	0.020	1/8	0.0600	1-1/2	41133-00-D	41133-89-D	41133-86-D	41133-83-D	41133-85-D
SH-ST-40025	0.025	1/8	0.0375	1-1/2	43024-00-D	43024-89-D	43024-86-D	43024-83-D	43024-85-D
SH-40025	0.025	1/8	0.0750	1-1/2	41139-00-D	41139-89-D	41139-86-D	41139-83-D	41139-85-D
SH-ST-40030	0.030	1/8	0.0450	1-1/2	43030-00-D	43030-89-D	43030-86-D	43030-83-D	43030-85-D
SH-40030	0.030	1/8	0.0900	1-1/2	41145-00-D	41145-89-D	41145-86-D	41145-83-D	41145-85-D
SH-ST-40032	0.032	1/8	0.0625	1-1/2	43629-00-D	43629-89-D	43629-86-D	43629-83-D	43629-85-D
SH-40032	0.032	1/8	0.0937	1-1/2	40731-00-D	40731-89-D	40731-86-D	40731-83-D	40731-85-D
SH-ST-40035	0.035	1/8	0.0525	1-1/2	43036-00-D	43036-89-D	43036-86-D	43036-83-D	43036-85-D
SH-40035	0.035	1/8	0.1050	1-1/2	41151-00-D	41151-89-D	41151-86-D	41151-83-D	41151-85-D
SH-ST-40040	0.040	1/8	0.0600	1-1/2	43045-00-D	43045-89-D	43045-86-D	43045-83-D	43045-85-D
SH-40040	0.040	1/8	0.1200	1-1/2	41157-00-D	41157-89-D	41157-86-D	41157-83-D	41157-85-D
SH-ST-40045	0.045	1/8	0.0675	1-1/2	43054-00-D	43054-89-D	43054-86-D	43054-83-D	43054-85-D
SH-40045	0.045	1/8	0.1350	1-1/2	41163-00-D	41163-89-D	41163-86-D	41163-83-D	41163-85-D
SH-ST-40046	0.046	1/8	0.0937	1-1/2	43637-00-D	43637-89-D	43637-86-D	43637-83-D	43637-85-D
SH-40046	0.046	1/8	0.1406	1-1/2	40739-00-D	40739-89-D	40739-86-D	40739-83-D	40739-85-D
SH-ST-40050	0.050	1/8	0.0750	1-1/2	43060-00-D	43060-89-D	43060-86-D	43060-83-D	43060-85-D
SH-40050	0.050	1/8	0.1500	1-1/2	41169-00-D	41169-89-D	41169-86-D	41169-83-D	41169-85-D
SH-ST-40055	0.055	1/8	0.0825	1-1/2	43066-00-D	43066-89-D	43066-86-D	43066-83-D	43066-85-D
SH-40055	0.055	1/8	0.1650	1-1/2	41175-00-D	41175-89-D	41175-86-D	41175-83-D	41175-85-D
SH-ST-40062	0.062	1/8	0.1250	1-1/2	43645-00-D	43645-89-D	43645-86-D	43645-83-D	43645-85-D
SH-40062	0.062	1/8	0.1875	1-1/2	40747-00-D	40747-89-D	40747-86-D	40747-83-D	40747-85-D
SH-ST-40078	0.078	1/8	0.1250	1-1/2	43653-00-D	43653-89-D	43653-86-D	43653-83-D	43653-85-D
SH-40078	0.078	1/8	0.2500	1-1/2	40755-00-D	40755-89-D	40755-86-D	40755-83-D	40755-85-D
SH-ST-40093	0.093	1/8	0.1875	1-1/2	43661-00-D	43661-89-D	43661-86-D	43661-83-D	43661-85-D
SH-40093	0.093	1/8	0.3750	1-1/2	40763-00-D	40763-89-D	40763-86-D	40763-83-D	40763-85-D
SH-ST-40109	0.109	1/8	0.1875	1-1/2	43669-00-D	43669-89-D	43669-86-D	43669-83-D	43669-85-D
SH-40109	0.109	1/8	0.3750	1-1/2	40771-00-D	40771-89-D	40771-86-D	40771-83-D	40771-85-D
SH-ST-40125	0.125	1/8	0.2500	1-1/2	43677-00-D	43677-89-D	43677-86-D	43677-83-D	43677-85-D
SH-40125	0.125	1/8	0.5000	1-1/2	40779-00-D	40779-89-D	40779-86-D	40779-83-D	40779-85-D

In addition to the miniature sizes listed, intermediate sizes are available upon request between .005 and .060 in .001 increments.

PartNumber	Dia.	Shank	LOC	OAL	EDP	C4 EDP	C5 EDP	C7 EDP	C11 EDP
BN-ST-20010	0.010	1/8	0.0150	1-1/2	35006-00-D	35006-89-D	35006-86-D	35006-83-D	35006-85-D
BN-20010	0.010	1/8	0.0300	1-1/2	35186-00-D	35186-89-D	35186-86-D	35186-83-D	35186-85-D
BN-ST-20015	0.015	1/8	0.0225	1-1/2	35015-00-D	35015-89-D	35015-86-D	35015-83-D	35015-85-D
BN-20015	0.015	1/8	0.0450	1-1/2	35192-00-D	35192-89-D	35192-86-D	35192-83-D	35192-85-D
BN-ST-20020	0.020	1/8	0.0300	1-1/2	35027-00-D	35027-89-D	35027-86-D	35027-83-D	35027-85-D
BN-20020	0.020	1/8	0.0600	1-1/2	35198-00-D	35198-89-D	35198-86-D	35198-83-D	35198-85-D
BN-ST-20025	0.025	1/8	0.0375	1-1/2	35039-00-D	35039-89-D	35039-86-D	35039-83-D	35039-85-D
BN-20025	0.025	1/8	0.0750	1-1/2	35204-00-D	35204-89-D	35204-86-D	35204-83-D	35204-85-D
BN-ST-20030	0.030	1/8	0.0450	1-1/2	35051-00-D	35051-89-D	35051-86-D	35051-83-D	35051-85-D
BN-20030	0.030	1/8	0.0900	1-1/2	35211-00-D	35211-89-D	35211-86-D	35211-83-D	35211-85-D
BN-ST-20032	0.032	1/8	0.0620	1-1/2	34516-00-D	34516-89-D	34516-86-D	34516-83-D	34516-85-D
BN-20032	0.032	1/8	0.0930	1-1/2	33125-00-D	33125-89-D	33125-86-D	33125-83-D	33125-85-D
BN-ST-20035	0.035	1/8	0.0525	1-1/2	35057-00-D	35057-89-D	35057-86-D	35057-83-D	35057-85-D
BN-20035	0.035	1/8	0.1050	1-1/2	35223-00-D	35223-89-D	35223-86-D	35223-83-D	35223-85-D
BN-ST-20040	0.040	1/8	0.0600	1-1/2	35063-00-D	35063-89-D	35063-86-D	35063-83-D	35063-85-D
BN-20040	0.040	1/8	0.1200	1-1/2	35231-00-D	35231-89-D	35231-86-D	35231-83-D	35231-85-D
BN-ST-20045	0.045	1/8	0.0675	1-1/2	35069-00-D	35069-89-D	35069-86-D	35069-83-D	35069-85-D
BN-20045	0.045	1/8	0.1350	1-1/2	35237-00-D	35237-89-D	35237-86-D	35237-83-D	35237-85-D
BN-ST-20046	0.046	1/8	0.0930	1-1/2	34524-00-D	34524-89-D	34524-86-D	34524-83-D	34524-85-D
BN-20046	0.046	1/8	0.1406	1-1/2	33133-00-D	33133-89-D	33133-86-D	33133-83-D	33133-85-D
BN-ST-20050	0.050	1/8	0.0750	1-1/2	35075-00-D	35075-89-D	35075-86-D	35075-83-D	35075-85-D
BN-20050	0.050	1/8	0.1500	1-1/2	35243-00-D	35243-89-D	35243-86-D	35243-83-D	35243-85-D
BN-ST-20055	0.055	1/8	0.0825	1-1/2	35081-00-D	35081-89-D	35081-86-D	35081-83-D	35081-85-D
BN-20055	0.055	1/8	0.1650	1-1/2	35249-00-D	35249-89-D	35249-86-D	35249-83-D	35249-85-D
BN-ST-20062	0.062	1/8	0.1250	1-1/2	34532-00-D	34532-89-D	34532-86-D	34532-83-D	34532-85-D
BN-20062	0.062	1/8	0.1875	1-1/2	33141-00-D	33141-89-D	33141-86-D	33141-83-D	33141-85-D
BN-ST-20078	0.078	1/8	0.1250	1-1/2	34540-00-D	34540-89-D	34540-86-D	34540-83-D	34540-85-D
BN-20078	0.078	1/8	0.2500	1-1/2	33149-00-D	33149-89-D	33149-86-D	33149-83-D	33149-85-D
BN-ST-20093	0.093	1/8	0.1875	1-1/2	34548-00-D	34548-89-D	34548-86-D	34548-83-D	34548-85-D
BN-20093	0.093	1/8	0.3750	1-1/2	33157-00-D	33157-89-D	33157-86-D	33157-83-D	33157-85-D
BN-ST-20109	0.109	1/8	0.1875	1-1/2	34556-00-D	34556-89-D	34556-86-D	34556-83-D	34556-85-D
BN-20109	0.109	1/8	0.3750	1-1/2	33165-00-D	33165-89-D	33165-86-D	33165-83-D	33165-85-D
BN-ST-20125	0.125	1/8	0.2500	1-1/2	34564-00-D	34564-89-D	34564-86-D	34564-83-D	34564-85-D
BN-20125	0.125	1/8	0.5000	1-1/2	33173-00-D	33173-89-D	33173-86-D	33173-83-D	33173-85-D

In addition to the miniature sizes listed, intermediate sizes are available upon request between .005 and .060 in .001 increments.

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BN Three Flute Ball Miniature

High Performance Carbide



Stable and versatile describe our BN series. Able to machine a variety of materials and perform well in a variety of applications, the BN series is a good all-round choice for your machining needs.

- Able to Machine a Variety of Materials
- Performs Well in a Variety of Applications
- Available in Stub and Standard Length

PartNumber	Dia.	Shank	LOC	OAL	EDP	C4 EDP	C5 EDP	C7 EDP	C11 EDP
BN-ST-30032	1/32	1/8	1/16	1-1/2	34572-00-D	34572-89-D	34572-86-D	34572-83-D	34572-85-D
BN-30032	1/32	1/8	3/32	1-1/2	33181-00-D	33181-89-D	33181-86-D	33181-83-D	33181-85-D
BN-ST-30046	3/64	1/8	3/32	1-1/2	34580-00-D	34580-89-D	34580-86-D	34580-83-D	34580-85-D
BN-30046	3/64	1/8	9/64	1-1/2	33189-00-D	33189-89-D	33189-86-D	33189-83-D	33189-85-D
BN-ST-30062	1/16	1/8	1/8	1-1/2	34588-00-D	34588-89-D	34588-86-D	34588-83-D	34588-85-D
BN-30062	1/16	1/8	3/16	1-1/2	33197-00-D	33197-89-D	33197-86-D	33197-83-D	33197-85-D
BN-ST-30078	5/64	1/8	1/8	1-1/2	34596-00-D	34596-89-D	34596-86-D	34596-83-D	34596-85-D
BN-30078	5/64	1/8	1/4	1-1/2	33205-00-D	33205-89-D	33205-86-D	33205-83-D	33205-85-D
BN-ST-30093	3/32	1/8	3/16	1-1/2	34604-00-D	34604-89-D	34604-86-D	34604-83-D	34604-85-D
BN-30093	3/32	1/8	3/8	1-1/2	33213-00-D	33213-89-D	33213-86-D	33213-83-D	33213-85-D
BN-ST-30109	7/64	1/8	3/16	1-1/2	34612-00-D	34612-89-D	34612-86-D	34612-83-D	34612-85-D
BN-30109	7/64	1/8	3/8	1-1/2	33221-00-D	33221-89-D	33221-86-D	33221-83-D	33221-85-D
BN-ST-30125	1/8	1/8	1/4	1-1/2	34620-00-D	34620-89-D	34620-86-D	34620-83-D	34620-85-D
BN-30125	1/8	1/8	1/2	1-1/2	33229-00-D	33229-89-D	33229-86-D	33229-83-D	33229-85-D

In addition to the miniature sizes listed, intermediate sizes are available upon request between .005 and .060 in .001 increments.

BN Four Flute Ball Miniature

High Performance Carbide



Stable and versatile describe our BN series. Able to machine a variety of materials and perform well in a variety of applications, the BN series is a good all-round choice for your machining needs.

- Able to Machine a Variety of Materials
- Performs Well in a Variety of Applications
- Available in Stub and Standard Length

PartNumber	Dia.	Shank	LOC	OAL	EDP	C4 EDP	C5 EDP	C7 EDP	C11 EDP
BN-ST-40010	0.010	1/8	0.0150	1-1/2	35106-00-D	35106-89-D	35106-86-D	35106-83-D	35106-85-D
BN-40010	0.010	1/8	0.0300	1-1/2	34006-00-D	34006-89-D	34006-86-D	34006-83-D	34006-85-D
BN-ST-40015	0.015	1/8	0.0225	1-1/2	35115-00-D	35115-89-D	35115-86-D	35115-83-D	35115-85-D
BN-40015	0.015	1/8	0.0450	1-1/2	34014-00-D	34014-89-D	34014-86-D	34014-83-D	34014-85-D
BN-ST-40020	0.020	1/8	0.0300	1-1/2	35127-00-D	35127-89-D	35127-86-D	35127-83-D	35127-85-D
BN-40020	0.020	1/8	0.0600	1-1/2	34021-00-D	34021-89-D	34021-86-D	34021-83-D	34021-85-D
BN-ST-40025	0.025	1/8	0.0375	1-1/2	35138-00-D	35138-89-D	35138-86-D	35138-83-D	35138-85-D
BN-40025	0.025	1/8	0.0750	1-1/2	34027-00-D	34027-89-D	34027-86-D	34027-83-D	34027-85-D
BN-ST-40030	0.030	1/8	0.0450	1-1/2	35144-00-D	35144-89-D	35144-86-D	35144-83-D	35144-85-D
BN-40030	0.030	1/8	0.0900	1-1/2	34034-00-D	34034-89-D	34034-86-D	34034-83-D	34034-85-D
BN-ST-40032	0.031	1/8	0.0620	1-1/2	34628-00-D	34628-89-D	34628-86-D	34628-83-D	34628-85-D
BN-40032	0.031	1/8	0.0930	1-1/2	33237-00-D	33237-89-D	33237-86-D	33237-83-D	33237-85-D
BN-ST-40035	0.035	1/8	0.0525	1-1/2	35150-00-D	35150-89-D	35150-86-D	35150-83-D	35150-85-D
BN-40035	0.035	1/8	0.1050	1-1/2	34041-00-D	34041-89-D	34041-86-D	34041-83-D	34041-85-D
BN-ST-40040	0.040	1/8	0.0600	1-1/2	35156-00-D	35156-89-D	35156-86-D	35156-83-D	35156-85-D
BN-40040	0.040	1/8	0.1200	1-1/2	34047-00-D	34047-89-D	34047-86-D	34047-83-D	34047-85-D
BN-ST-40045	0.045	1/8	0.0675	1-1/2	35162-00-D	35162-89-D	35162-86-D	35162-83-D	35162-85-D
BN-40045	0.045	1/8	0.1350	1-1/2	34053-00-D	34053-89-D	34053-86-D	34053-83-D	34053-85-D
BN-ST-40046	0.046	1/8	0.0930	1-1/2	34636-00-D	34636-89-D	34636-86-D	34636-83-D	34636-85-D
BN-40046	0.046	1/8	0.1406	1-1/2	33245-00-D	33245-89-D	33245-86-D	33245-83-D	33245-85-D
BN-ST-40050	0.050	1/8	0.0750	1-1/2	35168-00-D	35168-89-D	35168-86-D	35168-83-D	35168-85-D
BN-40050	0.050	1/8	0.1500	1-1/2	34059-00-D	34059-89-D	34059-86-D	34059-83-D	34059-85-D
BN-ST-40055	0.055	1/8	0.0825	1-1/2	35174-00-D	35174-89-D	35174-86-D	35174-83-D	35174-85-D
BN-40055	0.055	1/8	0.1650	1-1/2	34065-00-D	34065-89-D	34065-86-D	34065-83-D	34065-85-D
BN-ST-40062	0.062	1/8	0.1250	1-1/2	34644-00-D	34644-89-D	34644-86-D	34644-83-D	34644-85-D
BN-40062	0.062	1/8	0.1875	1-1/2	33253-00-D	33253-89-D	33253-86-D	33253-83-D	33253-85-D
BN-ST-40078	0.078	1/8	0.1250	1-1/2	34652-00-D	34652-89-D	34652-86-D	34652-83-D	34652-85-D
BN-40078	0.078	1/8	0.2500	1-1/2	33261-00-D	33261-89-D	33261-86-D	33261-83-D	33261-85-D
BN-ST-40093	0.093	1/8	0.1875	1-1/2	34660-00-D	34660-89-D	34660-86-D	34660-83-D	34660-85-D
BN-40093	0.093	1/8	0.3750	1-1/2	33269-00-D	33269-89-D	33269-86-D	33269-83-D	33269-85-D
BN-ST-40109	0.109	1/8	0.1875	1-1/2	34668-00-D	34668-89-D	34668-86-D	34668-83-D	34668-85-D
BN-40109	0.109	1/8	0.3750	1-1/2	33277-00-D	33277-89-D	33277-86-D	33277-83-D	33277-85-D
BN-ST-40125	0.125	1/8	0.2500	1-1/2	34676-00-D	34676-89-D	34676-86-D	34676-83-D	34676-85-D
BN-40125	0.125	1/8	0.5000	1-1/2	33285-00-D	33285-89-D	33285-86-D	33285-83-D	33285-85-D

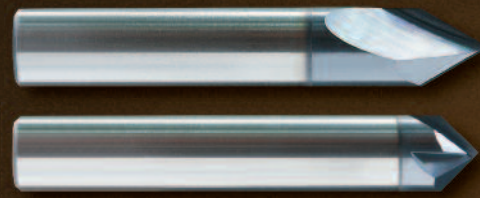
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Chamfer Mills Two and Four Flute

High Performance Carbide



If your part requires a beveled edge or you are looking to improve aesthetics over hand de-burring, the CM series can handle the job. Available in 60 and 90 degree, 2 and 4 flute designs as well as a multitude of coatings. These toolwork great in a variety of materials and applications.

- Able to Machine a Variety of Materials
- Available in 60 and 90 Degree Angles
- Multitude of Coatings Available

Corner Rounding End Mills

High Performance Carbide



Whether the print calls for a radius, or a final operation deburring cycle, the CRC Series from Data Flute will add the finishing touch to your next machined part. Save time and produce a better part. The CRC Series tools are available in single and double end in three and four flute designs.

- Able to Machine a Variety of Materials
- Available in 3 and 4 Flute
- Multitude of Coatings Available

PartNumber	Dia.	Shank	LOC	OAL	No. of Flutes	EDP	C4 EDP	C5 EDP	C7 EDP	C11 EDP
2 Flute 60 Degree										
CM-20187-60	3/16	3/16	5/32	2	2	51735-00-D	51735-89-D	51735-86-D	51735-83-D	51735-85-D
CM-20250-60	1/4	1/4	3/16	2-1/2	2	34748-00-D	34748-89-D	34748-86-D	34748-83-D	34748-85-D
CM-20375-60	3/8	3/8	5/16	2-1/2	2	34764-00-D	34764-89-D	34764-86-D	34764-83-D	34764-85-D
CM-20500-60	1/2	1/2	7/16	3	2	34780-00-D	34780-89-D	34780-86-D	34780-83-D	34780-85-D

PartNumber	Dia.	Shank	LOC	OAL	No. of Flutes	EDP	C4 EDP	C5 EDP	C7 EDP	C11 EDP
4 Flute 60 Degree										
CM-40187-60	3/16	3/16	5/32	2	4	51749-00-D	51749-89-D	51749-86-D	51749-83-D	51749-85-D
CM-40250-60	1/4	1/4	3/16	2-1/2	4	34796-00-D	34796-89-D	34796-86-D	34796-83-D	34796-85-D
CM-40375-60	3/8	3/8	5/16	2-1/2	4	34812-00-D	34812-89-D	34812-86-D	34812-83-D	34812-85-D
CM-40500-60	1/2	1/2	7/16	3	4	34828-00-D	34828-89-D	34828-86-D	34828-83-D	34828-85-D
CM-40750-60	3/4	3/4	5/8	3	4	34844-00-D	34844-89-D	34844-86-D	34844-83-D	34844-85-D

PartNumber	Dia.	Shank	LOC	OAL	No. of Flutes	EDP	C4 EDP	C5 EDP	C7 EDP	C11 EDP
2 Flute 90 Degree										
CM-20187-90	3/16	3/16	3/32	2	2	51742-00-D	51742-89-D	51742-86-D	51742-83-D	51742-85-D
CM-20250-90	1/4	1/4	1/8	2-1/2	2	34756-00-D	34756-89-D	34756-86-D	34756-83-D	34756-85-D
CM-20375-90	3/8	3/8	3/16	2-1/2	2	34772-00-D	34772-89-D	34772-86-D	34772-83-D	34772-85-D
CM-20500-90	1/2	1/2	1/4	3	2	34788-00-D	34788-89-D	34788-86-D	34788-83-D	34788-85-D

PartNumber	Dia.	Shank	LOC	OAL	No. of Flutes	EDP	C4 EDP	C5 EDP	C7 EDP	C11 EDP
4 Flute 90 Degree										
CM-40187-90	3/16	3/16	3/32	2	4	51756-00-D	51756-89-D	51756-86-D	51756-83-D	51756-85-D
CM-40250-90	1/4	1/4	1/8	2-1/2	4	34804-00-D	34804-89-D	34804-86-D	34804-83-D	34804-85-D
CM-40375-90	3/8	3/8	3/16	2-1/2	4	34820-00-D	34820-89-D	34820-86-D	34820-83-D	34820-85-D
CM-40500-90	1/2	1/2	1/4	3	4	34836-00-D	34836-89-D	34836-86-D	34836-83-D	34836-85-D
CM-40750-90	3/4	3/4	3/8	3	4	34852-00-D	34852-89-D	34852-86-D	34852-83-D	34852-85-D

For additional support and for maximum optimization of your Data Flute tools, call us toll free at 800.447.1476 and ask to speak to our Technical Support Department.

PartNumber	Radius.	Pilot Dia.	Shank	OAL	No. of Flutes	EDP	C11 EDP
3 Flute Single End							
CRC-30187-032	1/32	1/8	3/16	2	3	52000-00-D	52000-85-D
CRC-30250-062	1/16	1/8	1/4	2-1/2	3	52002-00-D	52002-85-D
CRC-30375-094	3/32	3/16	3/8	2-1/2	3	52004-00-D	52004-85-D
CRC-30500-125	1/8	1/4	1/2	3	3	52006-00-D	52006-85-D
CRC-30625-156	5/32	5/16	5/8	3	3	52008-00-D	52008-85-D
CRC-30750-187	3/16	3/8	3/4	3	3	52010-00-D	52010-85-D
CRC-31000-250	1/4	1/2	1	3	3	52012-00-D	52012-85-D

PartNumber	Radius.	Pilot Dia.	Shank	OAL	No. of Flutes	EDP	C11 EDP
3 Flute Double End							
CRC-D-30125-010	0.010	0.105	1/8	1-1/2	3	52028-00-D	52028-85-D
CRC-D-30125-015	0.015	0.095	1/8	1-1/2	3	52030-00-D	52030-85-D
CRC-D-30125-020	0.020	0.085	1/8	1-1/2	3	52032-00-D	52032-85-D
CRC-D-30125-025	0.025	0.075	1/8	1-1/2	3	52034-00-D	52034-85-D
CRC-D-30125-032	0.032	0.063	1/8	1-1/2	3	52036-00-D	52036-85-D
CRC-D-30125-035	0.035	0.055	1/8	1-1/2	3	52038-00-D	52038-85-D
CRC-D-30125-039	0.039	0.047	1/8	1-1/2	3	52040-00-D	52040-85-D
CRC-D-30187-047	0.047	0.094	3/16	2	3	52042-00-D	52042-85-D
CRC-D-30187-050	0.050	0.088	3/16	2	3	52044-00-D	52044-85-D
CRC-D-30187-055	0.055	0.078	3/16	2	3	52046-00-D	52046-85-D
CRC-D-30187-062	0.062	0.064	3/16	2	3	52048-00-D	52048-85-D
CRC-D-30250-072	0.072	0.106	1/4	2	3	52050-00-D	52050-85-D
CRC-D-30250-078	0.078	0.094	1/4	2	3	52052-00-D	52052-85-D
CRC-D-30250-094	0.093	0.063	1/4	2	3	52054-00-D	52054-85-D
CRC-D-30250-100	0.100	0.050	1/4	2	3	52056-00-D	52056-85-D
CRC-D-30312-109	0.109	0.094	5/16	2-1/2	3	52058-00-D	52058-85-D
CRC-D-30312-118	0.118	0.077	5/16	2-1/2	3	52060-00-D	52060-85-D
CRC-D-30312-125	0.125	0.063	5/16	2-1/2	3	52062-00-D	52062-85-D
CRC-D-30375-140	0.140	0.094	3/8	2-1/2	3	52064-00-D	52064-85-D
CRC-D-30375-156	0.156	0.063	3/8	2-1/2	3	52066-00-D	52066-85-D
CRC-D-30437-187	0.187	0.063	7/16	2-1/2	3	52068-00-D	52068-85-D
CRC-D-30625-250	0.250	0.125	5/8	3-1/2	3	52070-00-D	52070-85-D
CRC-D-31000-375	0.375	0.250	1	4	3	52072-00-D	52072-85-D





PartNumber	Radius.	Pilot Dia.	Shank	OAL	No. of Flutes	EDP	C11 EDP
4 Flute Single End							
CRC-40187-032	1/32	1/8	3/16	2	4	52014-00-D	52014-85-D
CRC-40250-062	1/16	1/8	1/4	2-1/2	4	52016-00-D	52016-85-D
CRC-40375-094	3/32	3/16	3/8	2-1/2	4	52018-00-D	52018-85-D
CRC-40500-125	1/8	1/4	1/2	3	4	52020-00-D	52020-85-D
CRC-40625-156	5/32	5/16	5/8	3	4	52022-00-D	52022-85-D
CRC-40750-187	3/16	3/8	3/4	3	4	52024-00-D	52024-85-D
CRC-41000-250	1/4	1/2	1	3	4	52026-00-D	52026-85-D

Standard Tolerances

Our state of the art equipment is designed to ensure consistency and accuracy tool after tool. Our standard cutting tools are manufactured to the following tolerances:

Cutting Diameter on Standard End Mills:
+.000/- .002"

Length Below Shank
+.030/- .000"

Shank Diameter:
+.000/- .0003"

Overall Length
+.062/- .062"

Ball Nose Radius:
+.000/- .001"

Cutting Diameter on Roughing End Mills:
+.000/- .005"

Length of Cut
+.030/- .000"

Runout Tolerance:
.0005" maximum shank to cutting diameter on all series except long length and extra long length

For additional support and for maximum optimization of your Data Flute tools, call us toll free at 800.447.1476 and ask to speak to our Technical Support Department.



Modular Milling System



Our Modular Milling System (MM) gives you the advantage of long reach, greater tooling flexibility and the outstanding, application specific performance that you've come to expect from Data Flute.

- Exchangeable high performance, solid carbide heads for superior results in a variety of applications.
- Material Specific geometries available for Titanium Alloys, Stainless Steel, High Temp Alloys and Aluminum.
- Significant tool savings possible where OAL is greater than 6x diameter.



The Feeds and Speeds Chart below provides an exercise on how to use the charts found with each series after Type and Diameter of tool is determined.

1. RPM and IPM are dependent upon material being machined.
2. Locate material that will be machined (Precipitation Stainless Steel in example below).
3. Determine starting SFM (80in example below).
4. Determine RPM based upon material and SFM. Multiply SFM by 3.82 divided by Tool Diameter=Starting RPMs.
5. Determine IPM based upon RPM and application (HP, LP or Finishing in example below). Multiply RPM by Chip Load per/Tooth by No. of Flutes=Starting IPM.
6. Based upon material and SFM selected, the application below would have a starting RPM of 611 with a starting feedrate of 12.22 IPM.

As always, should you have any questions, or if you are unsure of starting parameters for your application, call us toll free at 800-447-1476 and ask to speak to our Technical Support Department.

Speed (SFM) and Feed (Chip-Load per/tooth (cpt))

RPM = SFM x 3.82 / Tool Diameter
 RPM = 80 x 3.82 / .500
 RPM = 611

IPM = RPM x CPT x # of Flutes
 IPM = 611 x .004 x 5
 IPM = 12.22

MH Series, 5 Flute

Initial Speeds (SFM) and Feeds (Chip-Load per/tooth)

Diameter	Materials Description	Carbon Steels	Alloy Steel	Stainless Steel 300 Series	Stainless Steel 400 Series	Precipitation Stainless Steels	Gray Cast Iron	Ductile Cast Iron	High Temp Alloys	Titanium Pure	Titanium Cast/Wrought
		10XX, 11XX, 12XX, 13XX	40XX, 41XX, 42XX, 43XX, 44XX, 46XX, 86XX, Series	304, 304L, 316, 316L, 312	420, 420F, 416, 440C	15-5PH, 16-6PH, 17-4PH, AM-XX Series	Gray	Ductile	Inconel 625/718, A286, Haynes	Pure	Cast/Wrought 6AL4V, ASTM 1,2,3, Alpha - Beta
1/2"	SFM < 32Rc	200 - 450	150 - 300	150 - 350	200 - 450	80 - 250	250 - 450	120 - 350	70 - 120	140 - 220	140 - 200
	SFM > 32Rc	100 - 250	80 - 200	80 - 200	100 - 250	90 - 125	130 - 300	80 - 140	40 - 90	90 - 160	90 - 160
	HP	0.0035	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0020	0.0030	0.0030
	LP	0.0045	0.0040	0.0040	0.0040	0.0040	0.0040	0.0040	0.0030	0.0040	0.0040
	F	0.0055	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0040	0.0050	0.0050

HP = HEAVY PERIPHERAL Axial Depth up to 1.0 x Diameter Radial width .2 x Diameter

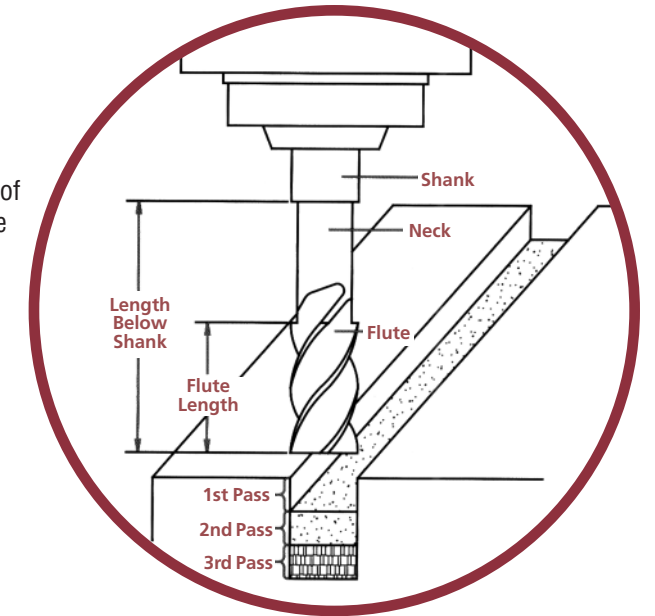
LP = LIGHT PERIPHERAL Axial Depth up to Effective Length of Cut Radial width .05 x Diameter

F = FINISH Axial Depth up to Effective Length Of Cut Radial width .02 x Diameter

Neck Relieved Tool Application

Deep Pocket and Slot Milling with Neck Relieved Series End Mills

Necked end mills for extended reach minimize tool deflection. The rigidity of these end mills enable multiple passes at faster feed rates. The appropriate depths of cut per pass are as follows: One half (1/2) times the diameter in ferrous materials and one (1) times the diameter in non-ferrous materials. The diagram at right shows 3 passes. The number of passes will vary, depending on depth of the pocket. Call us with your specific application.



Trouble Shooting Guide

PROBLEM	CAUSE	SOLUTION	PROBLEM	CAUSE	SOLUTION
Chipping	Feed to fast. Loose tool. Loose workpiece. Tool not rigid enough.	Reduce feed rate. Tighten screws. Tighten clamps. Try shorter length end mill.	Short Tool Life (Dull Teeth)	Cutting friction too great. Improper cutting angle.	Regrind more frequently. Adjust primary clearance angle.
Rapid Wear	Speed too fast. Hard metal. Feed rate too slow. Improper cutting angle. Primary relief angle too small.	Use slower speed. Add coating. Increase feed rate. Adjust cutting angle. Use larger relief angle.	Chip Packing	Cutting amount too great. Not enough chip room. Insufficient coolant.	Modify feed or speed rates. Use different end mill. Use additional coolant. Use air flow.
Breakage	Feed rate too fast. Cutting amount too large. Flute length too long. Too much wear.	Decrease feed rate. Take smaller cut per tooth. Try shorter flute length. Regrind sooner.	Rough Surface Finish	Feed rate too fast. Speed rate too slow. Too much wear. No end tooth concavity.	Decrease feed rate. Increase feed rate. Regrind sooner. Add more dish to bottom teeth.
Chattering	Feed and speed too fast. Machine and holder not rigid enough. Relief angle too great. Workpiece too loose. Cut too deep. Flute length too long.	Adjust feed and speed rates. Use appropriate machine or holder. Use smaller relief angle. Refixture part. Use shallower cut. Try shorter flute length.	Burring	Primary relief wearing. Improper cutting angle.	Regrind more frequently. Adjust cutting angle.


Data Flute

9 Betnr Industrial Drive
Pittsfield, MA 01201
800.447.1476
FAX 800.504.3224

Account Name		Date
Street		
City	State	Zip
Phone	Fax	
Contact	Title	Ext.
Application		
Competitor's Name	Part No.	

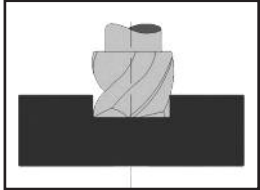
TECHNICAL DATA

Machine Type	HP	Spindle Taper
RMS Required	Coolant	
Speed	RPM	SFM
Feed	IPM	
Material	Hardness	
Chip Load per Tooth		
Depth of Cut		
A = Axial		
R = Radial		



Profile Cut

Check One



Slot Cut

TOOL SPECIFICATION

Diameter	Shank Dia.	LOC
OAL	No. Flutes	Hand of Cuts
End Style	Material	Helix
Data Flute Distributor	Contact	
Data Flute Representative		
Comments		
Results		

Note: All requests for credit will require this form and sample tool for evaluation.

Note: Each inquiry must contain the following vital information.

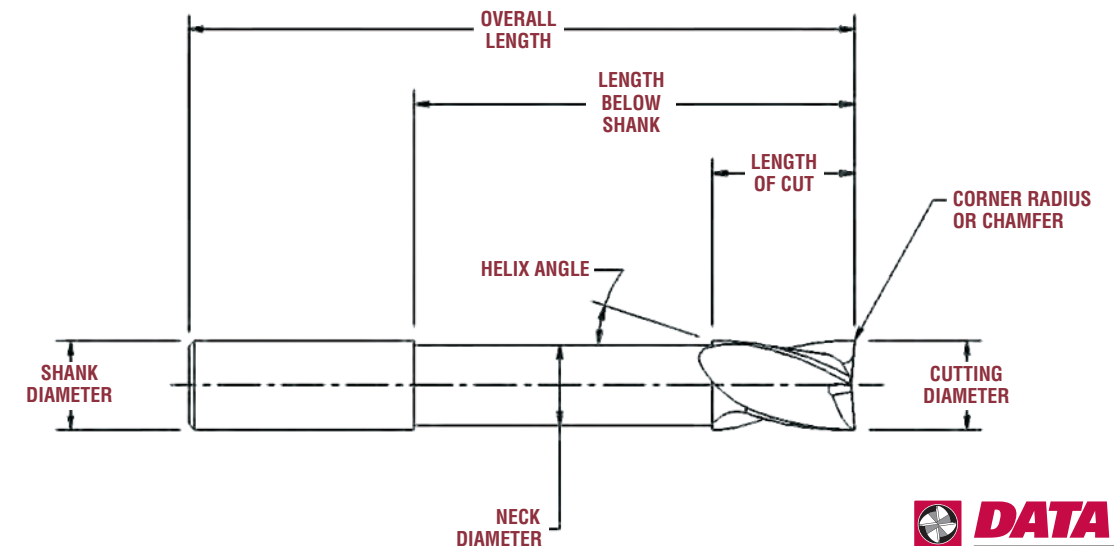
Is this a repeat inquiry/order? Yes No

If yes, please identify by customer part #, by Data Flute 8/P# or D#

Single-End or Double-End	Number of Flutes
Cutting Diameter and Tolerance	Length of Cut
Shank Diameter and Type	Overall Length
Neck Diameter (if applicable)	Length Below Shank (if applicable)
Hand of Cut and Helix Angle	
Type of End—Square or Ball	
Corner Radius and Tolerance	
Corner Chamfer—Angle, Length and Tolerance	
Type and Hardness of Material to be Milled	
Quantity Required	
Style of Special End Mill—Conventional, Tapered or Rougher	
Comments	

All orders or inquiries for special end mills must show the customer's name. This important procedure makes for much faster reference should it become necessary. If you want an immediate quote on specials, **FAX your specifications to us at 800-504-3224.**

Note: For special tapered shank and end mills, specify size of tapered shank, tang end or draw bar type and size of tapped hole.



If the EDP number is known for the desired tool, it can be found in the numeric EDP listing. Find the desired EDP number and turn to the corresponding page.

Operation							
Material	ISO Code	Description	Slotting	Heavy Peripheral	PeripheralLight	Peripheral	Finishing
			Ae 100% x D	>40% x D	25% to 40% x D	5% to 25% x D	<5% x D
			Ap 0.5 to 1.0 x D	0.5 to 1.0 x D	1.0 to 1.5 x D	2 x D	>2 x D
Carbon Steels	P	10XX 11XX 13XX 15XX	SSI4 SSDH SS MHRO	SSI4 SSDH SS MHRO	SSI4 SS SSI5	SSI4 SSI5 MH	SSI5 MH
Alloy Steels	P	40XX, 41XX 42XX, 43XX 44XX, 46XX 86XX					
Tool & Mold Steels	P	H-13 O-1 A-2 D-2 B7, P20	SSI4 SSDH SS MHRO	SSI4 SSDH SS MHRO	SSI5 SSI4	SSI5 SSI4 MH	SSI5 MH
	H	Steels > 45 HRC	SSI4 SS SSDH	SSI4 SSDH SS	SSI5 SSI4	SSI5 SSI4	SSI5 SSI4
Stainless Steel	M	Series 3XX	SSI4 SS SSDH	SSI4 SS SSDH	SSI4 SSI5 SS	SSI4 SSI5 MH	SSI5 MH SSI4
		Series 4XX					
		15-5PH, 16-6PH 17-4PH, AM-XX	SSI5 SSI4 SVI	SSI5 SVI MH	SSI5 MH SVI		
High Temp Alloys	S	Inconel 625 Inconel 718 A286	SSI4	AMAC SSI4 SSI5	AMAC SSI5 SVI SSI4	AMA AMAC SSI5 SVI	AMA SSI5 SVI MH
		Titanium Pure 6Al4V ASTM 1, 2, 3 Alpha-Beta 5553	SSI4 SS	SSI4 SSI5 SVI SS	SSI5 SVI SSI4	SSI5 TiW SVI MH	SSI5 TiW SVI MH
Cast iron	K	Gray Ductile	SSI4 SSDH MHRO	SSI4 SSDH SS	SSI5 SSI4 SS	SSI5 MH ARF	SSI5 MH ARF
Non-Ferrous Alloys	N	Aluminum High Speed Machining	HVMag HVM ARF HSM	HVMag HVM ARF HSM	HVMag HVM ARF HSM	HVMag HVM ARF HSM	HVMag HVM ARF HSM
		Aluminum Copper Brass, Bronze	TT ALDH ARF HSM	TT ALDH ARF HSM	ARF HSM HVM TT	AFI HVM AMF	AMF AFI

Highly Recommended

Recommended

Applicable

EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG
32300-00-D	....43	32508-00-D	....44	32668-89-D	....23	32837-00-D	....23	32973-86-D	....23	33189-89-D	....112	33277-83-D	....113
32300-86-D	....43	32508-86-D	....44	32676-00-D	....23	32837-86-D	....23	32973-89-D	....23	33197-00-D	....112	33277-85-D	....113
32308-00-D	....43	32516-00-D	....44	32676-86-D	....23	32837-89-D	....23	32981-00-D	....23	33197-83-D	....112	33277-86-D	....113
32308-86-D	....43	32516-86-D	....44	32676-89-D	....23	32845-00-D	....23	32981-86-D	....23	33197-85-D	....112	33277-89-D	....113
32316-00-D	....43	32524-00-D	....44	32684-00-D	....23	32845-86-D	....23	32981-89-D	....23	33197-86-D	....112	33285-00-D	....113
32316-86-D	....43	32524-86-D	....44	32684-86-D	....23	32845-89-D	....23	32989-00-D	....23	33197-89-D	....112	33285-83-D	....113
32324-00-D	....43	32532-00-D	....44	32684-89-D	....23	32853-00-D	....23	32989-86-D	....23	33205-00-D	....112	33285-85-D	....113
32324-86-D	....43	32532-86-D	....44	32692-00-D	....23	32853-86-D	....23	32989-89-D	....23	33205-83-D	....112	33285-86-D	....113
32332-00-D	....43	32540-00-D	....43	32692-86-D	....23	32853-89-D	....23	33125-00-D	....111	33205-85-D	....112	33285-89-D	....113
32332-86-D	....43	32540-86-D	....43	32692-89-D	....23	32861-00-D	....23	33125-83-D	....111	33205-86-D	....112	33360-00-D	....37
32340-00-D	....43	32548-00-D	....43	32700-00-D	....23	32861-86-D	....23	33125-85-D	....111	33205-89-D	....112	33360-86-D	....37
32340-86-D	....43	32548-86-D	....43	32700-86-D	....23	32861-89-D	....23	33125-86-D	....111	33213-00-D	....112	33360-89-D	....37
32348-00-D	....44	32556-00-D	....44	32700-89-D	....23	32869-00-D	....23	33125-89-D	....111	33213-83-D	....112	33368-00-D	....37
32348-86-D	....44	32556-86-D	....44	32708-00-D	....23	32869-86-D	....23	33133-00-D	....111	33213-85-D	....112	33368-86-D	....37
32356-00-D	....44	32564-00-D	....44	32708-86-D	....23	32869-89-D	....23	33133-83-D	....111	33213-86-D	....112	33368-89-D	....37
32356-86-D	....44	32564-86-D	....44	32708-89-D	....23	32877-00-D	....23	33133-85-D	....111	33213-89-D	....112	33376-00-D	....37
32364-00-D	....44	32572-00-D	....44	32741-00-D	....23	32877-86-D	....23	33133-86-D	....111	33221-00-D	....112	33376-86-D	....37
32364-86-D	....44	32572-86-D	....44	32741-86-D	....23	32877-89-D	....23	33133-89-D	....111	33221-83-D	....112	33376-89-D	....37
32372-00-D	....44	32580-00-D	....44	32741-89-D	....23	32885-00-D	....23	33141-00-D	....111	33221-85-D	....112	33384-00-D	....37
32372-86-D	....44	32580-86-D	....44	32749-00-D	....23	32885-86-D	....23	33141-83-D	....111	33221-86-D	....112	33384-86-D	....37
32380-00-D	....43	32588-00-D	....23	32749-86-D	....23	32885-89-D	....23	33141-85-D	....111	33221-89-D	....112	33384-89-D	....37
32380-86-D	....43	32588-86-D	....23	32749-89-D	....23	32893-00-D	....23	33141-86-D	....111	33229-00-D	....112	33392-00-D	....37
32388-00-D	....43	32588-89-D	....23	32757-00-D	....23	32893-86-D	....23	33141-89-D	....111	33229-83-D	....112	33392-86-D	....37
32388-86-D	....43	32596-00-D	....23	32757-86-D	....23	32893-89-D	....23	33149-00-D	....111	33229-85-D	....112	33392-89-D	....37
32396-00-D	....43	32596-86-D	....23	32757-89-D	....23	32901-00-D	....23	33149-83-D	....111	33229-86-D	....112	33400-00-D	....37
32396-86-D	....43	32596-89-D	....23	32765-00-D	....23	32901-86-D	....23	33149-85-D	....111	33229-89-D	....112	33400-86-D	....37
32404-00-D	....43	32604-00-D	....23	32765-86-D	....23	32901-89-D	....23	33149-86-D	....111	33237-00-D	....113	33400-89-D	....37
32404-86-D	....43	32604-86-D	....23	32765-89-D	....23	32909-00-D	....23	33149-89-D	....111	33237-83-D	....113	33408-00-D	....37
32412-00-D	....44	32604-89-D	....23	32773-00-D	....23	32909-86-D	....23	33157-00-D	....111	33237-85-D	....113	33408-86-D	....37
32412-86-D	....44	32612-00-D	....23	32773-86-D	....23	32909-89-D	....23	33157-83-D	....111	33237-86-D	....113	33408-89-D	....37
32420-00-D	....44	32612-86-D	....23	32773-89-D	....23	32917-00-D	....23	33157-85-D	....111	33237-89-D	....113	33416-00-D	....37
32420-86-D44	32612-89-D23	32781-00-D23	32917-86-D23	33157-86-D111	33245-00-D113	33416-86-D37
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32436-00-D44	32620-89-D23	32789-00-D23	32925-86-D23	33165-83-D111	33245-86-D113	33424-86-D37
32436-86-D	....44	32628-00-D	....23	32789-86-D	....23	32925-89-D	....23	33165-85-D	....111	33245-89-D	....113	33424-89-D	....37
32444-00-D	....44	32628-86-D	....23	32789-89-D	....23	32933-00-D	....23	33165-86-D	....111	33253-00-D	....113	33432-00-D	....37
32444-86-D	....44	32628-89-D	....23	32797-00-D	....23	32933-86-D	....23	33165-89-D	....111	33253-83-D	....113	33432-86-D	....37
32452-00-D	....44	32636-00-D	....23	32797-86-D	....23	32933-89-D	....23	33173-00-D	....111	33253-85-D	....113	33432-89-D	....37
32452-86-D	....44	32636-86-D	....23	32797-89-D	....23	32941-00-D	....23	33173-83-D	....111	33253-86-D	....113	33440-00-D	....37
32460-00-D	....43	32636-89-D	....23	32805-00-D	....23	32941-86-D	....23	33173-85-D	....111	33253-89-D	....113	33440-86-D	....37
32460-86-D	....43	32644-00-D	....23	32805-86-D	....23	32941-89-D	....23	33173-86-D	....111	33261-00-D	....113	33440-89-D	....37
32468-00-D	....43	32644-86-D	....23	32805-89-D	....23	32949-00-D	....23	33173-89-D	....111	33261-83-D	....113	33448-00-D	....37
32468-86-D	....43	32644-89-D	....23	32813-00-D	....23	32949-86-D	....23	33181-00-D	....112	33261-85-D	....113	33448-86-D	....37
32476-00-D	....43	32652-00-D	....23	32813-86-D	....23	32949-89-D	....23	33181-83-D	....112	33261-86-D	....113	33448-89-D	....37
32476-86-D	....43	32652-86-D	....23	32813-89-D	....23	32957-00-D	....23	33181-85-D	....112	33261-89-D	....113	33456-00-D	....37
32484-00-D	....43	32652-89-D	....23	32821-00-D	....23	32957-86-D	....23	33181-86-D	....112	33269-00-D	....113	33456-86-D	....37
32484-86-D	....43	32660-00-D	....23	32821-86-D	....23	32957-89-D	....23	33181-89-D	....112	33269-83-D	....113	33456-89-D	....37
32492-00-D	....43	32660-86-D	....23	32821-89-D	....23	32965-00-D	....23	33189-00-D	....112	33269-85-D	....113	33464-00-D	....37
32492-86-D	....43	32660-89-D	....23	32829-00-D	....23	32965-86-D	....23	33189-83-D	....112	33269-86-D	....113	33464-86-D	....37
32500-00-D	....43	32668-00-D	....23	32829-86-D	....23	32965-89-D	....23	33189-85-D	....112	33269-89-D	....113	33464-89-D	....37
32500-86-D	....43	32668-86-D	....23	32829-89-D	....23	32973-00-D	....23	33189-86-D	....112	33277-00-D	....113	33472-00-D	....37

If the EDP number is known for the desired tool, it can be found in the numeric EDP listing. Find the desired EDP number and turn to the corresponding page.

Table with 20 columns of EDP Number, PG, and EDP Number, PG pairs. Each pair represents a specific tool or part number and its corresponding page number in the listing.

If the EDP number is known for the desired tool, it can be found in the numeric EDP listing. Find the desired EDP number and turn to the corresponding page.

Table with 20 columns of EDP Number and PG. Each row contains 20 pairs of EDP Number and PG values, ranging from 37244-00-D to 37261-00-D in the first column and 37421-85-D to 37476-00-D in the last column.

EDP Number Index, 38968–40539

EDP Number Index, 40547–43949

If the EDP number is known for the desired tool, it can be found in the numeric EDP listing.
Find the desired EDP number and turn to the corresponding page.

EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG
38968-85-D	92	39648-00-D	25	39760-85-D	99	39928-85-D	99	40063-85-D	53	40283-85-D	99	40387-85-D	99	40547-00-D	108	40747-85-D	110	41145-89-D	110	43030-83-D	110	43429-86-D	108	43637-00-D	110	43845-85-D	59												
38969-70-D	92	39648-86-D	25	39760-89-D	99	39928-89-D	99	40063-89-D	53	40283-89-D	99	40387-89-D	99	40547-83-D	108	40747-86-D	110	41151-00-D	110	43030-85-D	110	43429-89-D	108	43637-83-D	110	43845-89-D	59												
38969-85-D	92	39648-89-D	25	39768-00-D	99	39936-00-D	99	40079-00-D	53	40291-00-D	99	40395-00-D	99	40547-85-D	108	40747-89-D	110	41151-83-D	110	43030-86-D	110	43437-00-D	108	43637-85-D	110	43853-00-D	59												
39045-70-D	92	39656-00-D	25	39768-70-D	99	39936-70-D	99	40079-70-D	53	40291-70-D	99	40395-70-D	99	40547-86-D	108	40755-00-D	110	41151-85-D	110	43030-89-D	110	43437-83-D	108	43637-86-D	110	43853-83-D	59												
39045-85-D	92	39656-86-D	25	39768-85-D	99	39936-85-D	99	40079-85-D	53	40291-85-D	99	40395-85-D	99	40547-89-D	108	40755-83-D	110	41151-86-D	110	43036-00-D	110	43437-85-D	108	43637-89-D	110	43853-85-D	59												
39047-70-D	92	39656-89-D	25	39768-89-D	99	39936-89-D	99	40079-89-D	53	40291-89-D	99	40395-89-D	99	40675-00-D	109	40755-85-D	110	41151-89-D	110	43036-83-D	110	43437-86-D	108	43645-00-D	110	43853-89-D	59												
39047-85-D	92	39664-00-D	25	39776-00-D	99	39944-00-D	99	40087-00-D	53	40299-00-D	99	40403-00-D	99	40675-83-D	109	40755-86-D	110	41157-00-D	110	43036-85-D	110	43437-89-D	108	43645-83-D	110	43861-00-D	59												
39049-85-D	92	39664-86-D	25	39776-70-D	99	39944-70-D	99	40087-70-D	53	40299-70-D	99	40403-70-D	99	40675-85-D	109	40755-89-D	110	41157-83-D	110	43036-86-D	110	43445-00-D	108	43645-85-D	110	43861-83-D	59												
39051-70-D	92	39664-89-D	25	39776-85-D	99	39944-85-D	99	40087-85-D	53	40299-85-D	99	40403-85-D	99	40675-86-D	109	40763-00-D	110	41157-85-D	110	43036-89-D	110	43445-83-D	108	43645-86-D	110	43861-85-D	59												
39051-85-D	92	39672-00-D	25	39776-89-D	99	39944-89-D	99	40087-89-D	53	40299-89-D	99	40403-89-D	99	40675-89-D	109	40763-83-D	110	41157-86-D	110	43045-00-D	110	43445-85-D	108	43645-89-D	110	43861-89-D	59												
39053-70-D	92	39672-86-D	25	39784-00-D	99	39952-00-D	99	40100-00-D	35	40307-00-D	99	40411-00-D	99	40683-00-D	109	40763-85-D	110	41157-89-D	110	43045-83-D	110	43445-86-D	108	43653-00-D	110	43869-00-D	59												
39053-85-D	92	39672-89-D	25	39784-70-D	99	39952-70-D	99	40101-00-D	35	40307-70-D	99	40411-70-D	99	40683-83-D	109	40763-86-D	110	41163-00-D	110	43045-85-D	110	43445-89-D	108	43653-83-D	110	43869-83-D	59												
39055-00-D	35	39680-00-D	25	39784-85-D	99	39952-85-D	99	40102-00-D	35	40307-85-D	99	40411-85-D	99	40683-85-D	109	40763-89-D	110	41163-83-D	110	43045-86-D	110	43573-00-D	109	43653-85-D	110	43869-85-D	59												
39055-00-D	35	39680-86-D	25	39784-89-D	99	39952-89-D	99	40103-00-D	35	40307-89-D	99	40411-89-D	99	40683-86-D	109	40771-00-D	110	41163-85-D	110	43045-89-D	110	43573-83-D	109	43653-86-D	110	43869-89-D	59												
39544-85-D	25	39680-89-D	25	39792-00-D	99	39960-00-D	99	40203-00-D	53	40315-00-D	99	40419-00-D	99	40683-89-D	109	40771-83-D	110	41163-86-D	110	43054-00-D	110	43573-85-D	109	43653-89-D	110	43877-00-D	59												
39544-86-D	25	39688-00-D	25	39792-70-D	99	39960-70-D	99	40203-70-D	53	40315-70-D	99	40419-70-D	99	40691-00-D	109	40771-85-D	110	41163-89-D	110	43054-83-D	110	43573-86-D	109	43661-00-D	110	43877-83-D	59												
39544-89-D	25	39688-86-D	25	39792-85-D	99	39960-85-D	99	40203-85-D	53	40315-85-D	99	40419-85-D	99	40691-83-D	109	40771-86-D	110	41169-00-D	110	43054-85-D	110	43573-89-D	109	43661-83-D	110	43877-85-D	59												
39552-00-D	25	39688-89-D	25	39792-89-D	99	39960-89-D	99	40203-89-D	53	40315-89-D	99	40419-89-D	99	40691-85-D	109	40771-89-D	110	41169-83-D	110	43054-86-D	110	43581-00-D	109	43661-85-D	110	43877-89-D	59												
39552-86-D	25	39696-00-D	99	39800-00-D	99	39968-00-D	99	40211-00-D	53	40323-00-D	99	40427-00-D	99	40691-86-D	109	40779-00-D	110	41169-85-D	110	43054-89-D	110	43581-83-D	109	43661-86-D	110	43885-00-D	59												
39552-89-D	25	39696-70-D	99	39800-70-D	99	39968-70-D	99	40211-70-D	53	40323-70-D	99	40427-70-D	99	40691-89-D	109	40779-83-D	110	41169-86-D	110	43060-00-D	110	43581-85-D	109	43661-89-D	110	43885-83-D	59												
39560-00-D	25	39696-85-D	99	39800-85-D	99	39968-85-D	99	40211-85-D	53	40323-85-D	99	40427-85-D	99	40699-00-D	109	40779-85-D	110	41169-89-D	110	43060-83-D	110	43581-86-D	109	43669-00-D	110	43885-85-D	59												
39560-86-D	25	39696-89-D	99	39800-89-D	99	39968-89-D	99	40211-89-D	53	40323-89-D	99	40427-89-D	99	40699-83-D	109	40779-86-D	110	41175-00-D	110	43060-85-D	110	43581-89-D	109	43669-83-D	110	43885-89-D	59												
39560-89-D	25	39704-00-D	99	39808-00-D	99	39984-00-D	99	40219-00-D	53	40331-00-D	99	40499-00-D	108	40699-85-D	109	40779-89-D	110	41175-83-D	110	43060-86-D	110	43589-00-D	109	43669-85-D	110	43893-00-D	59												
39568-00-D	25	39704-70-D	99	39808-70-D	99	39984-70-D	99	40219-70-D	53	40331-70-D	99	40499-83-D	108	40699-86-D	109	41100-00-D	110	41175-85-D	110	43060-89-D	110	43589-83-D	109	43669-86-D	110	43893-83-D	59												
39568-89-D	25	39704-85-D	99	39808-85-D	99	39984-85-D	99	40219-85-D	53	40331-85-D	99	40499-85-D	108	40699-89-D	109	41100-83-D	110	41175-86-D	110	43066-00-D	110	43589-85-D	109	43669-89-D	110	43893-85-D	59												
39576-00-D	25	39704-89-D	99	39808-89-D	99	39984-89-D	99	40219-89-D	53	40331-89-D	99	40499-86-D	108	40707-00-D	109	41100-85-D	110	41175-89-D	110	43066-83-D	110	43589-86-D	109	43677-00-D	110	43893-89-D	59												
39576-86-D	25	39712-00-D	99	39816-00-D	99	39991-00-D	99	40227-00-D	53	40339-00-D	99	40499-89-D	108	40707-83-D	109	41100-86-D	110	43000-00-D	110	43066-85-D	110	43589-89-D	109	43677-83-D	110	43901-00-D	59												
39576-89-D	25	39712-70-D	99	39816-70-D	99	39991-70-D	99	40227-70-D	53	40339-70-D	99	40507-00-D	108	40707-85-D	109	41100-89-D	110	43000-83-D	110	43066-86-D	110	43597-00-D	109	43677-85-D	110	43901-83-D	59												
39584-00-D	25	39712-85-D	99	39816-85-D	99	39991-85-D	99	40227-85-D	53	40339-85-D	99	40507-83-D	108	40707-86-D	109	41106-00-D	110	43000-85-D	110	43066-89-D	110	43597-83-D	109	43677-86-D	110	43901-85-D	59												
39584-86-D	25	39712-89-D	99	39816-89-D	99	39991-89-D	99	40227-89-D	53	40339-89-D	99	40507-85-D	108	40707-89-D	109	41106-83-D	110	43000-86-D	110	43069-00-D	108	43597-85-D	109	43677-89-D	110	43901-89-D	59												
39584-89-D	25	39720-00-D	99	39824-00-D	99	39999-00-D	99	40243-00-D	53	40347-00-D	99	40507-86-D	108	40715-00-D	109	41106-85-D	110	43000-89-D	110	43397-83-D	108	43597-86-D	109	43805-00-D	59	43909-00-D	59												
39592-00-D	25	39720-70-D	99	39824-70-D	99	39999-70-D	99	40243-70-D	53	40347-70-D	99	40507-89-D	108	40715-83-D	109	41106-86-D	110	43006-00-D	110	43397-85-D	108	43597-89-D	109	43805-83-D	59	43909-83-D	59												
39592-86-D	25	39720-85-D	99	39824-85-D	99	39999-85-D	99	40243-85-D	53	40347-85-D	99	40515-00-D	108	40715-85-D	109	41106-89-D	110	43006-83-D	110	43397-86-D	108	43605-00-D	109	43805-85-D	59	43909-85-D	59												
39592-89-D	25	39720-89-D	99	39824-89-D	99	39999-89-D	99	40243-89-D	53	40347-89-D	99	40515-83-D	108	40715-86-D	109	41125-00-D	110	43006-85-D	110	43397-89-D	108	43605-83-D	109	43805-89-D	59	43909-89-D	59												
39600-00-D	25	39728-00-D	99	39832-00-D	99	40007-00-D	53	40251-00-D	99	40355-00-D	99	40515-85-D	108	40715-89-D	109	41125-83-D	110	43006-86-D	110	43405-00-D	108	43605-85-D	109	43813-00-D	59	43917-00-D	61												
39600-86-D	25	39728-70-D	99	39832-70-D	99	40007-70-D	53	40251-70-D	99	40355-70-D	99	40515-86-D	108	40723-00-D	109	41125-85-D	110	43006-89-D	110	43405-83-D	108	43605-86-D	109	43813-83-D	59	43917-83-D	61												
39600-89-D	25	39728-85-D	99	39832-85-D	99	40007-85-D	53	40251-85-D	99	40355-85-D	99	40515-89-D	108	40723-83-D	109	41125-86-D	110	43012-00-D	110	43405-85-D	108	43605-89-D	109	43813-85-D	59	43917-85-D	61												
39608-00-D	25	39728-89-D	99	39832-89-D	99	40007-89-D	53	40251-89-D	99	40355-89-D	99	40523-00-D	108	40723-85-D	109	41125-89-D	110	43012-83-D	110	43405-86-D	108	43613-00-D	109	43813-89-D	59	43917-89-D	61												
39608-86-D	25	39736-00-D	99	39848-00-D	99	40023-00-D	53	40259-00-D	99	40363-00-D	99	40523-83-D	108	40723-86-D	109	41133-00-D	110	43012-85-D	110	43405-89-D																			

EDP Number Index, 43949–48771

If the EDP number is known for the desired tool, it can be found in the numeric EDP listing.
Find the desired EDP number and turn to the corresponding page.

EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG
43949-85-D...61		44039-83-D...108		46145-89-D...59		46257-89-D...59		46361-89-D...59		46465-89-D...61		48642-00-D...108	
43949-89-D...61		44039-85-D...108		46153-00-D...59		46265-00-D...59		46369-00-D...59		46473-00-D...61		48642-83-D...108	
43957-00-D...61		44039-86-D...108		46153-83-D...59		46265-83-D...59		46369-83-D...59		46473-83-D...61		48642-85-D...108	
43957-83-D...61		44039-89-D...108		46153-85-D...59		46265-85-D...59		46369-85-D...59		46473-85-D...61		48642-86-D...108	
43957-85-D...61		44045-00-D...108		46153-89-D...59		46265-89-D...59		46369-89-D...59		46473-89-D...61		48642-89-D...108	
43957-89-D...61		44045-83-D...108		46161-00-D...59		46273-00-D...59		46377-00-D...59		46481-00-D...61		48648-00-D...108	
43965-00-D...61		44045-85-D...108		46161-83-D...59		46273-83-D...59		46377-83-D...59		46481-83-D...61		48648-83-D...108	
43965-83-D...61		44045-86-D...108		46161-85-D...59		46273-85-D...59		46377-85-D...59		46481-85-D...61		48648-85-D...108	
43965-85-D...61		44045-89-D...108		46161-89-D...59		46273-89-D...59		46377-89-D...59		46481-89-D...61		48648-86-D...108	
43965-89-D...61		44051-00-D...108		46169-00-D...59		46281-00-D...59		46385-00-D...59		46489-00-D...61		48648-89-D...108	
43973-00-D...61		44051-83-D...108		46169-83-D...59		46281-83-D...59		46385-83-D...59		46489-83-D...61		48654-00-D...108	
43973-83-D...61		44051-85-D...108		46169-85-D...59		46281-85-D...59		46385-85-D...59		46489-85-D...61		48654-83-D...108	
43973-85-D...61		44051-86-D...108		46169-89-D...59		46281-89-D...59		46385-89-D...59		46489-89-D...61		48654-85-D...108	
43973-89-D...61		44051-89-D...108		46177-00-D...59		46289-00-D...59		46393-00-D...61		46497-00-D...61		48654-86-D...108	
43981-00-D...61		44057-00-D...108		46177-83-D...59		46289-83-D...59		46393-83-D...61		46497-83-D...61		48654-89-D...108	
43981-83-D...61		44057-83-D...108		46177-85-D...59		46289-85-D...59		46393-85-D...61		46497-85-D...61		48660-00-D...108	
43981-85-D...61		44057-85-D...108		46177-89-D...59		46289-89-D...59		46393-89-D...61		46497-89-D...61		48660-83-D...108	
43981-89-D...61		44057-86-D...108		46185-00-D...59		46297-00-D...59		46401-00-D...61		48600-00-D...108		48660-85-D...108	
43989-00-D...61		44057-89-D...108		46185-83-D...59		46297-83-D...59		46401-83-D...61		48600-83-D...108		48660-86-D...108	
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43997-83-D...61		44063-89-D...108		46193-85-D...59		46305-85-D...59		46409-85-D...61		48606-83-D...108		48700-89-D...101	
43997-85-D...61		44069-00-D...108		46193-89-D...59		46305-89-D...59		46409-89-D...61		48606-85-D...108		48704-00-D...101	
43997-89-D...61		44069-83-D...108		46201-00-D...59		46313-00-D...59		46417-00-D...61		48606-86-D...108		48704-70-D...101	
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44000-85-D...108		44069-89-D...108		46201-89-D...59		46313-89-D...59		46417-89-D...61		48612-83-D...108		48713-00-D...101	
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44006-00-D...108		44069-85-D...61		46209-85-D...59		46321-85-D...59		46425-85-D...61		48612-89-D...108		48713-89-D...101	
44006-83-D...108		44069-89-D...61		46209-89-D...59		46321-89-D...59		46425-89-D...61		48618-00-D...108		48736-00-D...101	
44006-85-D...108		44069-00-D...61		46217-00-D...59		46329-00-D...59		46433-00-D...61		48618-83-D...108		48736-70-D...101	
44006-86-D...108		44069-83-D...61		46217-83-D...59		46329-83-D...59		46433-83-D...61		48618-85-D...108		48736-85-D...101	
44006-89-D...108		44069-85-D...61		46217-85-D...59		46329-85-D...59		46433-85-D...61		48618-86-D...108		48736-89-D...101	
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EDP Number Index, 49472–49993

EDP Number Index, 49996–50536

If the EDP number is known for the desired tool, it can be found in the numeric EDP listing.
Find the desired EDP number and turn to the corresponding page.

EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG				
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EDP Number Index, 50536–51614

EDP Number Index, 51614–52465

If the EDP number is known for the desired tool, it can be found in the numeric EDP listing.
Find the desired EDP number and turn to the corresponding page.

EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG
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50544-00-D	19	50644-89-D	21	51004-83-D	55	51056-83-D	55	51218-85-D	57	51291-00-D	57	51454-70-D	75	51622-00-D	23	51713-89-D	67	51835-89-D	27	51931-00-D	29	52030-85-D	115	52112-70-D	99	52216-83-D	67		
50544-86-D	19	50647-00-D	21	51004-85-D	55	51056-85-D	55	51222-00-D	57	51291-70-D	57	51454-85-D	75	51622-86-D	23	51721-00-D	67	51841-00-D	27	51931-86-D	29	52032-00-D	115	52112-85-D	99	52216-85-D	67		
50544-89-D	19	50647-86-D	21	51008-00-D	55	51060-00-D	55	51222-70-D	57	51291-85-D	57	51458-70-D	75	51622-89-D	23	51721-83-D	67	51841-86-D	27	51931-89-D	29	52032-85-D	115	52112-89-D	99	52216-89-D	67		
50552-00-D	19	50647-89-D	21	51008-70-D	55	51060-70-D	55	51222-85-D	57	51295-00-D	57	51458-85-D	75	51629-00-D	23	51721-85-D	67	51841-89-D	27	51936-00-D	30	52034-00-D	115	52118-00-D	99	52222-00-D	67		
50552-86-D	19	50651-00-D	21	51008-83-D	55	51060-83-D	55	51226-00-D	57	51295-70-D	57	51462-70-D	75	51629-86-D	23	51721-89-D	67	51846-00-D	27	51936-86-D	30	52034-85-D	115	52118-70-D	99	52222-83-D	67		
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50597-00-D	19	50666-89-D	21	51024-85-D	55	51076-85-D	55	51246-85-D	57	51335-85-D	78	51508-85-D	76	51664-00-D	59	51749-85-D	114	51876-89-D	27	52000-00-D	115	52052-00-D	115	52142-85-D	99	52245-85-D	97		
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50613-00-D	19	50675-89-D	21	51036-00-D	55	51088-00-D	55	51259-85-D	57	51379-70-D	77	51538-70-D	77	51678-83-D	59	51800-86-D	27	51891-89-D	29	52008-85-D	115	52060-85-D	115	52156-89-D	99	52390-85-D	75		
50613-86-D	19	50678-00-D	21	51036-70-D	55	51088-70-D	55	51263-00-D	57	51379-85-D	77	51538-85-D	77	51678-85-D	59	51800-89-D	27	51896-00-D	29	52010-00-D	115	52062-00-D	115	52164-00-D	99	52396-70-D	77		
50613-89-D	19	50678-86-D	21	51036-83-D	55	51088-83-D	55	51263-70-D	57	51383-70-D	77	51542-70-D	77	51678-89-D	59	51805-00-D	27	51896-86-D	29	52010-85-D	115	52062-85-D	115	52164-83-D	99	52396-85-D	77		
50618-00-D	19	50678-89-D	21	51036-85-D	55	51088-85-D	55	51263-85-D	57	51383-85-D	77	51542-85-D	77	51685-00-D	59	51805-86-D	27	51896-89-D	29	52012-00-D	115	52064-00-D	115	52164-85-D	99	52400-70-D	77		
50618-86-D	19	50681-00-D	21	51040-00-D	55	51092-00-D	55	51267-00-D	57	51387-70-D	78	51547-70-D	77	51685-83-D	59	51805-89-D	27	51901-00-D	29	52012-85-D	115	52064-85-D	115	52164-89-D	99	52400-85-D	77		
50618-89-D	19	50681-86-D	21	51040-70-D	55	51092-70-D	55	51267-70-D	57	51387-85-D	78	51547-85-D	77	51685-85-D	59	51810-00-D	27	51901-86-D	29	52014-00-D	116	52066-00-D	115	52189-00-D	99	52406-70-D	78		
50624-00-D	19	50681-89-D	21	51040-83-D	55	51092-83-D	55	51267-85-D	57	51391-70-D	78	51581-70-D	77	51685-89-D	59	51810-86-D	27	51901-89-D	29	52014-85-D	116	52066-85-D	115	52189-83-D	99	52406-85-D	78		
50624-86-D	19	50684-00-D	21	51040-85-D	55	51092-85-D	55	51271-00-D	57	51391-85-D	78	51581-85-D	77	51692-00-D	59	51810-89-D	27	51906-00-D	30	52016-00-D	116	52068-00-D	115	52189-85-D	99	52410-70-D	78		
50624-89-D	19	50684-86-D	21	51044-00-D	55	51202-00-D	57	51271-70-D	57	51398-85-D	75	51585-70-D	77	51692-83-D	59	51815-00-D	27	519											

EDP Number Index, 52470–52825

EDP Number Index, 52826–53791

If the EDP number is known for the desired tool, it can be found in the numeric EDP listing.
Find the desired EDP number and turn to the corresponding page.

EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG
52470-70-D	76	52554-70-D	75	52594-70-D	76	52637-70-D	77	52670-70-D	77	52703-70-D	78
52470-85-D	76	52554-85-D	75	52594-85-D	76	52637-85-D	77	52670-85-D	77	52703-85-D	78
52475-70-D	76	52555-70-D	76	52595-70-D	76	52638-70-D	77	52671-70-D	77	52705-70-D	78
52475-85-D	76	52555-85-D	76	52595-85-D	76	52638-85-D	77	52671-85-D	77	52705-85-D	78
52480-70-D	77	52558-70-D	76	52596-70-D	76	52640-70-D	77	52672-70-D	77	52706-70-D	78
52480-85-D	77	52558-85-D	76	52596-85-D	76	52640-85-D	77	52672-85-D	77	52706-85-D	78
52523-70-D	75	52560-70-D	76	52597-70-D	76	52641-70-D	77	52673-70-D	77	52707-70-D	78
52523-85-D	75	52560-85-D	76	52597-85-D	76	52641-85-D	77	52673-85-D	77	52707-85-D	78
52524-70-D	77	52562-70-D	76	52598-70-D	76	52642-70-D	77	52675-70-D	77	52708-70-D	78
52524-85-D	77	52562-85-D	76	52598-85-D	76	52642-85-D	77	52675-85-D	77	52708-85-D	78
52525-70-D	75	52563-70-D	76	52599-70-D	76	52643-70-D	77	52676-70-D	77	52710-70-D	78
52525-85-D	75	52563-85-D	76	52599-85-D	76	52643-85-D	77	52676-85-D	77	52710-85-D	78
52526-70-D	75	52564-70-D	76	52600-70-D	76	52645-70-D	77	52677-70-D	77	52711-70-D	78
52526-85-D	75	52564-85-D	76	52600-85-D	76	52645-85-D	77	52677-85-D	77	52711-85-D	78
52527-70-D	75	52566-70-D	76	52603-70-D	76	52646-70-D	77	52678-70-D	77	52712-70-D	78
52527-85-D	75	52566-85-D	76	52603-85-D	76	52646-85-D	77	52678-85-D	77	52712-85-D	78
52529-70-D	75	52567-70-D	76	52606-70-D	76	52647-70-D	77	52680-70-D	77	52713-70-D	78
52529-85-D	75	52567-85-D	76	52606-85-D	76	52647-85-D	77	52680-85-D	77	52713-85-D	78
52531-70-D	75	52568-70-D	76	52607-70-D	76	52648-70-D	77	52681-70-D	77	52715-70-D	78
52531-85-D	75	52568-85-D	76	52607-85-D	76	52648-85-D	77	52681-85-D	77	52715-85-D	78
52533-70-D	75	52570-70-D	76	52608-70-D	76	52650-70-D	77	52682-70-D	77	52716-70-D	78
52533-85-D	75	52570-85-D	76	52608-85-D	76	52650-85-D	77	52682-85-D	77	52716-85-D	78
52534-70-D	75	52572-70-D	76	52609-70-D	76	52651-70-D	77	52683-70-D	77	52717-70-D	78
52534-85-D	75	52572-85-D	76	52609-85-D	76	52651-85-D	77	52683-85-D	77	52717-85-D	78
52535-70-D	75	52576-70-D	76	52610-70-D	76	52652-70-D	77	52685-70-D	77	52718-70-D	78
52535-85-D	75	52576-85-D	76	52610-85-D	76	52652-85-D	77	52685-85-D	77	52718-85-D	78
52536-70-D	75	52579-70-D	76	52611-70-D	76	52653-70-D	77	52686-70-D	77	52721-70-D	78
52536-85-D	75	52579-85-D	76	52611-85-D	76	52653-85-D	77	52686-85-D	77	52721-85-D	78
52537-70-D	75	52582-70-D	76	52612-70-D	76	52655-70-D	77	52687-70-D	77	52722-70-D	78
52537-85-D	75	52582-85-D	76	52612-85-D	76	52655-85-D	77	52687-85-D	77	52722-85-D	78
52538-70-D	75	52583-70-D	76	52613-70-D	76	52656-70-D	77	52688-70-D	78	52723-70-D	78
52538-85-D	75	52583-85-D	76	52613-85-D	76	52656-85-D	77	52688-85-D	78	52723-85-D	78
52539-70-D	75	52584-70-D	76	52614-70-D	76	52657-70-D	77	52690-70-D	78	52724-70-D	78
52539-85-D	75	52584-85-D	76	52614-85-D	76	52657-85-D	77	52690-85-D	78	52724-85-D	78
52541-70-D	75	52585-70-D	76	52615-70-D	77	52658-70-D	77	52691-70-D	78	52726-70-D	78
52541-85-D	75	52585-85-D	76	52615-85-D	77	52658-85-D	77	52691-85-D	78	52726-85-D	78
52544-70-D	75	52586-70-D	76	52619-70-D	77	52660-70-D	77	52692-70-D	78	52727-70-D	78
52544-85-D	75	52586-85-D	76	52619-85-D	77	52660-85-D	77	52692-85-D	78	52727-85-D	78
52546-70-D	75	52587-70-D	76	52628-70-D	77	52661-70-D	77	52693-70-D	78	52728-70-D	78
52546-85-D	75	52587-85-D	76	52628-85-D	77	52661-85-D	77	52693-85-D	78	52728-85-D	78
52547-70-D	75	52588-70-D	76	52630-70-D	77	52662-70-D	77	52696-70-D	78	52747-00-D	33
52547-85-D	75	52588-85-D	76	52630-85-D	77	52662-85-D	77	52696-85-D	78	52748-00-D	33
52548-70-D	75	52589-70-D	76	52631-70-D	77	52663-70-D	77	52697-70-D	78	52816-00-D	33
52548-85-D	75	52589-85-D	76	52631-85-D	77	52663-85-D	77	52697-85-D	78	52817-00-D	33
52549-70-D	75	52590-70-D	76	52632-70-D	77	52665-70-D	77	52698-70-D	78	52752-00-D	33
52549-85-D	75	52590-85-D	76	52632-85-D	77	52665-85-D	77	52698-85-D	78	52754-00-D	33
52550-70-D	75	52591-70-D	76	52633-70-D	77	52666-70-D	77	52700-70-D	78	52756-00-D	33
52550-85-D	75	52591-85-D	76	52633-85-D	77	52666-85-D	77	52700-85-D	78	52758-00-D	33
52551-70-D	75	52592-70-D	76	52635-70-D	77	52667-70-D	77	52701-70-D	78	52760-00-D	33
52551-85-D	75	52592-85-D	76	52635-85-D	77	52667-85-D	77	52701-85-D	78	52762-00-D	33
52552-70-D	75	52593-70-D	76	52636-70-D	77	52668-70-D	77	52702-70-D	78	52766-00-D	33
52552-85-D	75	52593-85-D	76	52636-85-D	77	52668-85-D	77	52702-85-D	78	52768-00-D	33

EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG
52826-00-D	33	53362-85-D	75	53516-85-D	77	53569-85-D	84	53621-00-D	33	53671-85-D	87
52827-00-D	33	53363-85-D	75	53517-85-D	77	53570-85-D	84	53622-00-D	33	53672-70-D	87
52828-00-D	33	53364-85-D	75	53518-85-D	78	53571-85-D	84	53623-00-D	33	53672-85-D	87
52829-00-D	33	53367-85-D	75	53519-85-D	78	53572-85-D	84	53624-00-D	33	53676-70-D	87
52845-70-D	78	53368-85-D	75	53520-85-D	78	53573-85-D	84	53625-00-D	33	53676-85-D	87
52845-85-D	78	53369-85-D	75	53521-85-D	78	53574-85-D	84	53626-00-D	33	53677-70-D	87
52847-70-D	78	53370-85-D	75	53522-85-D	78	53575-85-D	84	53627-00-D	33	53677-85-D	87
52847-85-D	78	53371-85-D	76	53523-85-D	78	53576-85-D	84	53628-00-D	33	53678-70-D	87
52849-70-D	78	53372-85-D	76	53524-85-D	78	53577-85-D	84	53629-00-D	33	53678-85-D	87
52849-85-D	78	53373-85-D	76	53525-85-D	78	53578-00-D	33	53630-00-D	33	53682-70-D	87
52860-70-D	78	53374-85-D	76	53526-85-D	78	53579-00-D	33	53631-00-D	33	53682-85-D	87
52860-85-D	78	53375-85-D	76	53527-85-D	78	53580-00-D	33	53632-00-D	33	53683-70-D	87
52862-70-D	78	53376-85-D	76	53528-85-D	78	53581-00-D	33	53633-00-D	33	53683-85-D	87
52862-85-D	78	53377-85-D	76	53529-85-D	78	53582-00-D	33	53634-00-D	33	53684-70-D	87
52872-70-D	78	53378-85-D	76	53530-85-D	78	53583-00-D	33	53635-00-D	33	53684-85-D	87
52874-85-D	77	53379-85-D	76	53531-85-D	78	53584-00-D	33	53636-00-D	33	53688-70-D	87
53176-70-D	78	53380-85-D	76	53532-85-D	78	53585-00-D	33	53637-00-D	33	53688-85-D	87
53176-85-D	78	53381-85-D	76	53533-85-D	78	53586-00-D	33	53638-00-D	33	53689-70-D	87
53177-70-D	78	53382-85-D	76	53534-85-D	78	53587-00-D	33	53639-00-D	33	53689-85-D	87
53177-85-D	78	53383-85-D	76	53535-85-D	78	53588-00-D	33	53640-00-D	33	53692-70-D	87
53196-70-D	78	53384-85-D	76	53536-85-D	78	53589-00-D	33	53641-00-D	33	53692-85-D	87
53196-85-D	78	53385-85-D	76	53537-85-D	78	53590-00-D	33	53642-00-D	33	53693-70-D	87
53197-70-D	78	53386-85-D	76	53538-85-D	78	53591-00-D	33	53643-00-D	33	53693-85-D	87
53197-85-D	78	53387-85-D	77	53539-85-D	78	53592-00-D	33	53644-00-D	33	53696-70-D	87
53304-70-D	78	53388-85-D	77	53540-85-D	78	53593-00-D	33	53645-00-D	33	53696-85-D	87
53304-85-D	78	53389-85-D	77	53541-85-D	78	53594-00-D	33	53646-70-D	87	53697-70-D	87
53305-70-D	78	53390-85-D	77	53542-85-D	78	53595-00-D	33	53646-85-D	87	53697-85-D	87
53305-85-D	78	53391-85-D	77	53543-85-D	78	53596-00-D	33	53647-70-D	87	53700-70-D	87
53312-85-D	78	53392-85-D	77	53544-85-D	78	53597-00-D	33	53647-85-D	87	53700-85-D	87
53313-70-D	78	53393-85-D	77	53545-85-D	78	53598-00-D	33	53648-70-D	87	53704-70-D	87
53313-85-D	78	53394-85-D	77	53546-85-D	78	53599-00-D	33	53648-85-D	87	53704-85-D	87
53320-70-D	78	53395-85-D	77	53547-85-D	78	53600-00-D	33	53652-70-D	87	53706-70-D	87
53320-85-D	78	53396-85-D	77	53548-85-D	78	53601-00-D	33	53652-85-D	87	53706-85-D	87
53321-70-D	78	53397-85-D	77	53549-85-D	84	53602-00-D	33	53653-70-D	87	53713-70-D	87
53321-85-D	78	53398-85-D	77	53550-85-D	84	53603-00-D	33	53653-85-D	87	53713-85-D	87
53328-70-D	78	53399-85-D	77	53551-85-D	84	53604-00-D	33	53654-70-D	87	53714-70-D	87
53328-85-D	78	53500-85-D	77	53552-85-D	84	53605-00-D	33	53654-85-D	87	53714-85-D	87
53329-70-D	78	53501-85-D	77	53553-85-D	84	53606-00-D	33	53658-70-D	87	53715-70-D	87
53329-85-D	78	53502-85-D	77	53554-85-D	84	53607-00-D	33	53658-85-D	87</		

EDP Number Index, 53791–54192

EDP Number Index, 54193–54380

If the EDP number is known for the desired tool, it can be found in the numeric EDP listing.
Find the desired EDP number and turn to the corresponding page.

EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG	EDP Number	PG						
53791-85-D	88	53845-85-D	88	53895-85-D	89	53964-70-D	89	54015-70-D	89	54069-70-D	89	54137-85-D	87	54193-85-D	89	54235-85-D	89	54287-00-D	19	54302-00-D	21	54318-00-D	21	54333-00-D	41	54352-85-D	97
53792-70-D	88	53846-70-D	88	53896-70-D	89	53964-85-D	89	54015-85-D	89	54069-85-D	89	54138-85-D	87	54194-85-D	89	54236-85-D	89	54287-86-D	19	54302-86-D	21	54318-86-D	21	54333-86-D	41	54353-19-D	97
53792-85-D	88	53846-85-D	88	53896-85-D	89	53970-70-D	89	54016-70-D	89	54070-70-D	89	54139-85-D	87	54195-85-D	89	54237-85-D	89	54287-89-D	19	54302-89-D	21	54318-89-D	21	54333-89-D	41	54353-85-D	97
53797-70-D	88	53847-70-D	88	53897-70-D	89	53970-85-D	89	54016-85-D	89	54070-85-D	89	54141-85-D	87	54196-85-D	89	54238-85-D	89	54288-00-D	19	54303-00-D	21	54319-00-D	21	54334-00-D	41	54354-19-D	97
53797-85-D	88	53847-85-D	88	53897-85-D	89	53971-70-D	89	54024-70-D	89	54071-70-D	89	54142-85-D	87	54197-85-D	89	54239-85-D	89	54288-86-D	19	54303-86-D	21	54319-86-D	21	54334-86-D	41	54354-85-D	97
53798-70-D	88	53848-70-D	88	53907-70-D	89	53971-85-D	89	54024-85-D	89	54071-85-D	89	54144-85-D	87	54198-85-D	89	54240-00-D	33	54288-89-D	19	54303-89-D	21	54319-89-D	21	54334-89-D	41	54355-19-D	97
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53799-70-D	88	53853-70-D	88	53909-70-D	89	53972-85-D	89	54025-85-D	89	54072-85-D	89	54146-85-D	87	54200-85-D	89	54242-00-D	33	54289-86-D	19	54304-86-D	21	54320-86-D	21	54335-86-D	41	54356-19-D	97
53799-85-D	88	53853-85-D	88	53909-85-D	89	53973-70-D	89	54026-70-D	89	54080-70-D	89	54147-85-D	87	54201-85-D	89	54243-00-D	33	54289-89-D	19	54304-89-D	21	54320-89-D	21	54335-89-D	41	54356-85-D	97
53800-70-D	88	53854-70-D	88	53911-70-D	89	53973-85-D	89	54026-85-D	89	54080-85-D	89	54148-85-D	87	54202-85-D	89	54244-00-D	33	54290-00-D	19	54306-00-D	21	54321-00-D	21	54336-00-D	41	54357-19-D	97
53800-85-D	88	53854-85-D	88	53911-85-D	89	53974-70-D	89	54027-70-D	89	54081-70-D	89	54149-85-D	87	54203-85-D	89	54245-00-D	33	54290-86-D	19	54306-86-D	21	54321-86-D	21	54336-86-D	41	54357-85-D	97
53805-70-D	88	53855-70-D	88	53913-70-D	89	53974-85-D	89	54027-85-D	89	54081-85-D	89	54150-85-D	87	54204-85-D	89	54246-00-D	33	54290-89-D	19	54306-89-D	21	54321-89-D	21	54336-89-D	41	54358-19-D	97
53805-85-D	88	53855-85-D	88	53913-85-D	89	53981-70-D	89	54028-70-D	89	54082-70-D	89	54151-85-D	87	54205-85-D	89	54247-00-D	33	54291-00-D	19	54307-00-D	21	54322-00-D	21	54338-00-D	41	54358-85-D	97
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53807-70-D	88	53861-70-D	88	53922-70-D	89	53982-85-D	89	54029-85-D	89	54083-85-D	89	54156-85-D	87	54208-85-D	89	54250-00-D	33	54292-00-D	19	54308-00-D	21	54323-00-D	41	54339-00-D	41	54365-19-D	96
53807-85-D	88	53861-85-D	88	53922-85-D	89	53983-70-D	89	54030-70-D	89	54084-70-D	89	54157-85-D	87	54209-85-D	89	54251-00-D	33	54292-86-D	19	54308-86-D	21	54323-86-D	41	54339-86-D	41	54365-85-D	96
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53814-70-D	88	53866-70-D	88	53926-70-D	89	53985-85-D	89	54039-85-D	89	54086-85-D	89	54162-85-D	88	54214-85-D	89	54280-00-D	19	54294-00-D	19	54310-00-D	21	54326-00-D	41	54341-19-D	96	54369-19-D	97
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53824-70-D	88	53876-70-D	89	53941-70-D	89	54000-85-D	89	54052-85-D	89	54099-85-D	89	54174-85-D	88	54226-85-D	89	54284-00-D	19	54299-00-D	19	54314-00-D	21	54330-00-D	41	54347-19-D	97	54377-19-D	97
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53829-85-D	88	53877-85-D	89	53949-70-D	89	54002-70-D	89	54054-70-D	89	54115-70-D	89	54177-85-D	89	54229-85-D	89	54285-00-D	19	54300-00-D	19	54315-00-D	21	54331-00-D	41	54348-85-D	97	54378-85-D	97
53830-70-D	88	53883-70-D	89	53949-85-D	89	54002-85-D	89	54054-85-D	89	54115-85-D	89	54178-85-D	89	54230-85-D	89	54285-86-D	19	54300-86-D	19	54315-86-D	21	54331-86-D	41	54350-19-D	97	54379-19-D	97
53830-85-D	88	53883-85-D	89	53950-70-D	89	54003-70-D	89	54055-70-D	89	54117-70-D	89	54179-85-D	89	54231-85-D	89	54285-89-D	19	54300-89-D	19	54315-89-D	21	54331-89-D	41	54350-85-D	97	54379-85-D	97
53833-70-D	88	53884-70-D	89	53950-85-D	89	54003-85-D	89	54055-85-D	89	54117-85-D	89	54180-85-D	89	54232-85-D	89	54286-00-D	19	54301-00-D	21	54317-00-D	21	54332-00-D	41	54351-19-D	97	54380-19-D	97
53833-85-D	88	53884-85-D	89	53951-70-D	89	54004-70-D	89	54056-70																			



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