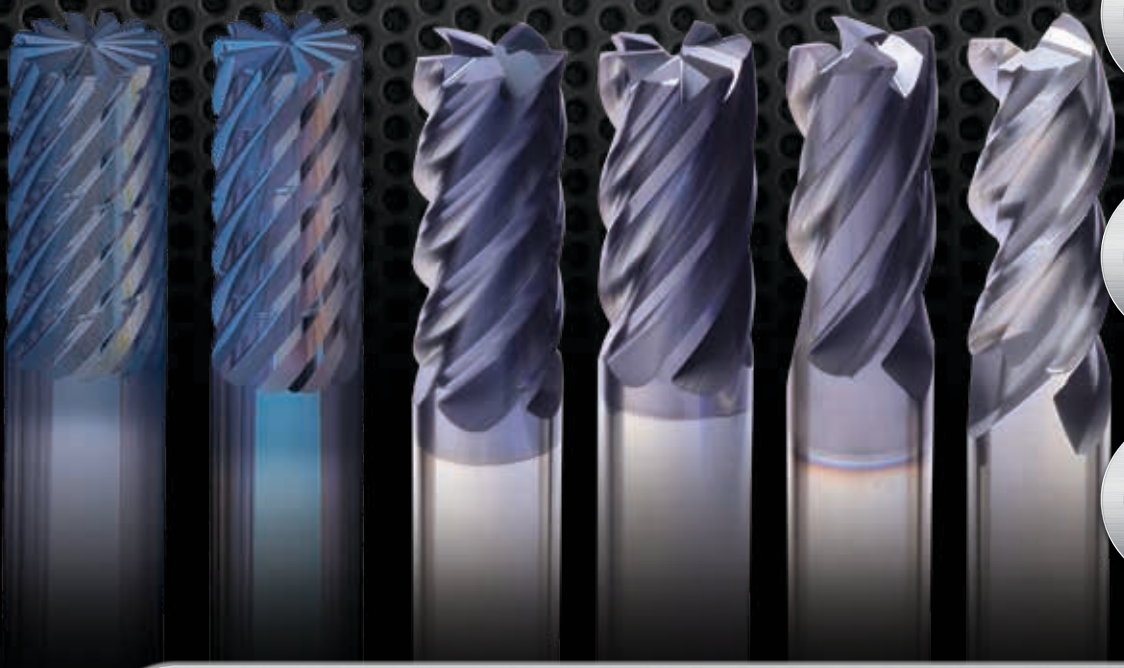
DESTINY TOOL

THE MARK OF PERFORMANCE

SOLID CARBIDE TOOLS



- **END MILLS** VARIABLE HELIX
- **MINIATURES** VARIABLE HELIX
- **CUTTING TOOLS** CARBIDE
- **SPECIAL TOOLS**

DVH Viper™ 45° HELIX END MILLS

DVH Diamond Back™ FLAT PROFILE ROUGHERS

Python™ 45° HELIX END MILLS

DVH Raptor™ 38° HELIX SOLID CARBIDE END MILLS

Cobra™ 37° HELIX END MILLS

PH: 800.527.TOOL

WWW.DESTINYTOOL.COM

Our Philosophy on End Mills

At Destiny Tool, we believe that an end mill is only as good as the engineering behind it.

We've cut our teeth in non-ferrous and hi-temp alloys for many years and we believe that our performance end mills are the best available for those specific material groups.

In our view, there are four major components that make up a performance end mill:

• Substrate • Geometry • Tolerance • Coating

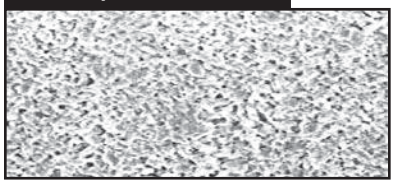
Substrate

The most commonly use term for carbide is "Micro-Grain"; however, this term does not fully encompass more recent advancements in technology. Terms such as fine grain, ultra-fine grain and sub micron grain have become popularized to better describe a tool's make up.

Two other commonly used terms are "toughness" and "wear resistance." We've found that neither term can be used as a proper gauge. Here's why:

- **Toughness** – Fracture toughness is not only a characteristic of the material but also a function of the loading conditions. Carbide rod is measured for "toughness" before geometry has been ground into the tool. A finished ground tool can vary as much as 300% in "fracture toughness" based upon geometry alone.
- **Wear Resistance** – Cutting tool wear is a result of complicated physical, chemical and thermo-mechanical actions. Mechanisms such as adhesion, abrasion, diffusion and oxidation act together within the CNC machine to cause tool wear. This is different from lab testing.

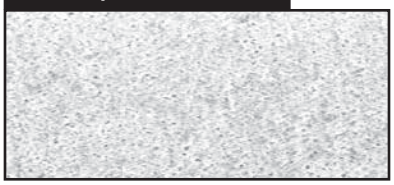
Destiny Tool



Ultra-Fine Micro Grain

H10-11 US10	TF15
Cobalt Percentage:	10%
Grain Size:	Less than .9 μm
Rockwell Hardness:	92.0
Transverse Rupture:	Avg. 580,000 psi
Density (GM/CC):	14.50

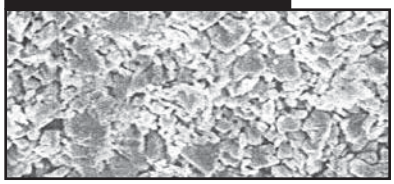
Destiny Tool



Super Sub Micro Grain

WA112	UF12
Cobalt Percentage:	12%
Grain Size:	Less than .6 μm
Rockwell Hardness:	92.0
Transverse Rupture:	Avg. 630,000 psi
Density (GM/CC):	13.90

Others



Standard Micro Grain

WA2	C2
Cobalt Percentage:	6%
Grain Size:	1.0 to 3.0 μm
Rockwell Hardness:	91.0
Transverse Rupture:	310,000 psi
Density (GM/CC):	14.97

Cemented Carbide is similar to cement in more than name only. Cobalt is the "lime" that holds the Carbide "gravel" together. If a large chunk of carbide is exposed at the cutting edge, it will fracture off like a piece of gravel on a cement walkway edge.

Bottom Line: **At Destiny Tool, through over a decade of testing, we have selected substrates that work together with our tools for optimal tool life and performance in specific materials.** Our substrates range from a transverse rupture strength of 580,000 – 630,000 psi and vary in cobalt content from 10 -12% based upon the specific tool application. You can trust that we've selected the correct substrate for your application material.

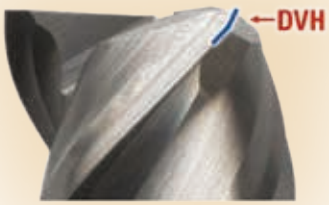
Geometry

Edge Strength

There are numerous variables that impact cutting tool performance and tool life. We designed the tools for use in different conditions and different machines. We've spent many years perfecting the length of the primary and secondary grind in combination with the eccentric relief on our tools. The Red arrow shows the direction of typical cutting tool forces. Our tools are engineered with greater edge strength than those of other companies in the market.

Double Variable Helix (DVH), Patented

Chatter has been a persistent problem in milling. Typically, most shops reduce the RPM and/or Feed to reduce the amount of chatter. Chatter is a result of natural harmonics built within the tool, which is operating at its own natural frequency. Because traditional end mills maintained a consistent helix angle along the length of the flute, the tools tended to get in "tune". Technically, it's called a Frequency Response Function (FRF).



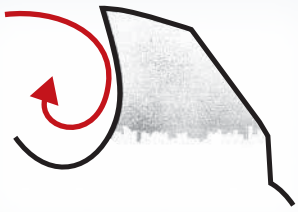
The Double Variable Helix design corrects this problem with a number of design elements that enable our tools to run at higher RPM chatter free:

Variable Flute Spacing – Each flute is unequally spaced around the circumference of the end mill, creating an out-of-phase cutting action.

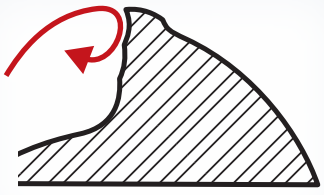
Double Variable Helix (DVH) – The helix angle changes along the cutting edge, which further creates an out-of-phase cutting action.

Heat Kills

With the exception of hard milling, it's common knowledge that the heat should be removed with the chip and the less heat transferred to the tool the longer the tool life.



Typical chip formation in an end mill.



Chip formation in a Destiny Tool end mill.

We've taken a look at that very carefully and have designed our tools to form chips a bit differently. Our chips are formed in the outer rake face of the tools. Instead of the chip traveling all the way down into the gullet of the tools, which causes a lot of friction and heat, and then 6's & 9's formed against the core diameter, we have designed our tools to take a much heavier chip load that most competitors.

By taking a heavier chip load, the material is forced to turn on itself in the outer rake face and eject from the cut without traveling down the entire length of the rake face. Think of it like throwing a tennis ball to a point 10 feet in front of you vs throwing it directly between your feet.

Tolerance

When we talk about tolerance, we are actually referring to two components of our end mills. Of course our shank diameters are held tighter than standard h6 industry specifications of -0.0001" -0.0003." Our Viper and Diamond Back End Mills are held to -0.0001" / 0.0003" on diameter AND shank. However, that is just part of the story...

We've concentrated a lot of time on the grinding tolerance as well. When you look at our competitors under a microscope, many times you will see that the primary and secondary grind finish looks like a washboard texture because of the wheel that was used to grind it with.

Tolerances:

Tolerance for Viper & Diamond Back	
End Mill Diameter	*–.0001" to –.0003"*
Shank Diameter:	*+.000" to –.0003"*
Ball Nose:	*+.001" to –.001"*
Tolerance for Flat-Profile Roughers / Raptor	
End Mill Diameter	*–.000" to –.002"*

End Mill performance in high speed machining is dependent upon the surface roughness (topography) of the rake face and relief face of the end mill. Better, smoother ground surfaces reduce the co-efficient of friction and permit the tool to perform better "in the cut". As we talked about in the previous section with regard to geometry, we make every attempt to reduce the co-efficient of friction that a chip encounters as it is being formed into 6's & 9's in our end mills. We take special care to ensure that our wheels are re-dressed often to maintain consistent surface finish. And that has an impact on coating adhesion as well. We'll be discussing that below.

Coatings

We have spent a great deal of time ensuring that our coatings work in conjunction with all the other aspects of our end mills. We have primary coatings for our tools.

AlTiN — Aluminium Titanium Nitride. This PVD coating has a gradually increasing percentage of aluminum added as it goes through the coating process. It gradually increases in the amount of Aluminum from the substrate interface until it reaches the outer surface of the coating, where there is a higher percentage (up to 65%) of aluminum in the film. As the tool heats up, the aluminum converts to aluminum oxide, staying in the film. This coating provides exceptional oxidation resistance and extreme hardness. AlTiN retains its hardness when the temperature is 800° to 930° C (1,470° to 1,700° F). This coating is ideal for dry machining environments. Used exclusively on our Raptor products for all: P – Steels (blue), M – Stainless Steel (yellow), K – Cast Iron (red), and S – Hi-Temp Alloys Special Alloys & Titanium (brown) materials.

Tolerances: AlTiN

Microhardness Hv:	*3500*
Friction Coefficient:	*0.04*
Max Temp C/F:	*930C / 1700F*

Please keep in mind that this coating CANNOT be used in Aluminum (N) machining because the Aluminum in it would have an affinity to itself and cause workpiece adhesion to the cutting tool.

X-Treme — Titanium Aluminium Nitride (TiAlN). This monolayer PVD coating has high hardness and excellent thermal stability that protects against premature tool wear. It also has excellent oxidation resistance, allowing for high speed and semi-dry or dry machining operations. Used for our Cobra and Python series tools which are for all: P – Steels (blue), M – Stainless Steel (yellow), K – Cast Iron (red), and S – Hi-Temp Alloys Special Alloys & Titanium (brown) materials.

Tolerances: X-Treme

Microhardness Hv:	*3500*
Friction Coefficient:	*0.04*
Max Temp C/F:	*800C / 1470F*

Black Stealth — Molybdenum Disulfide (MoS2). The easiest way to understand our Stealth coating is to think of the coating as being 'clear' and not 'black.' As soon as the tool enters the cut many people comment that the color has "worn off." We can assure you that this is not the case. There's several physical and chemical changes that cause this visual change and space does not permit here to explain the science. That's part of the reason we call it "stealth" because you can't see it any more! What's important is that this coating has a lower co-efficient of friction than just about everything else on the market. Our geometry works ideally with this coating. Used for our Viper and Diamond Back series tools which are for all Non Ferrous Alloy milling: N (green) materials.

Tolerances: Black Stealth

Microhardness Hv:	*NA*
Friction Coefficient:	*0.02*
Max Temp C/F:	*316C / 600F*

How To Use This Catalog

We've developed several charts to help you better identify the best tool for your application. These charts are designed to assist you in the tool selection but keep in mind that factors such as material hardness, Toolholder TIR and workholding rigidity can impact tool performance.

Color Coding We've used the ISO 513 color coding system that you're already familiar with to help you find the best tool based upon the material you're cutting.

P – Steels (blue) all kinds of steel and cast steel, except rustproof steel with austenitic microstructure.

M – Stainless Steel (yellow) stainless austenitic and austenitic-ferritic steel and cast steel

K – Cast Iron (red) cast iron with flake graphite, cast iron with spherical graphite, annealed cast iron.

N – Non-Ferrous Alloys (green) aluminum and other non-ferrous metals, non-metal work materials.

S – Hi-Temp Alloys Special Alloys & Titanium (brown) high-temperature special alloys based upon iron, nickel and cobalt, titanium and titanium alloys

H – Hardened Materials (gray) hardened steel, hardened cast iron materials, chilled cast iron.

Common Used Definitions

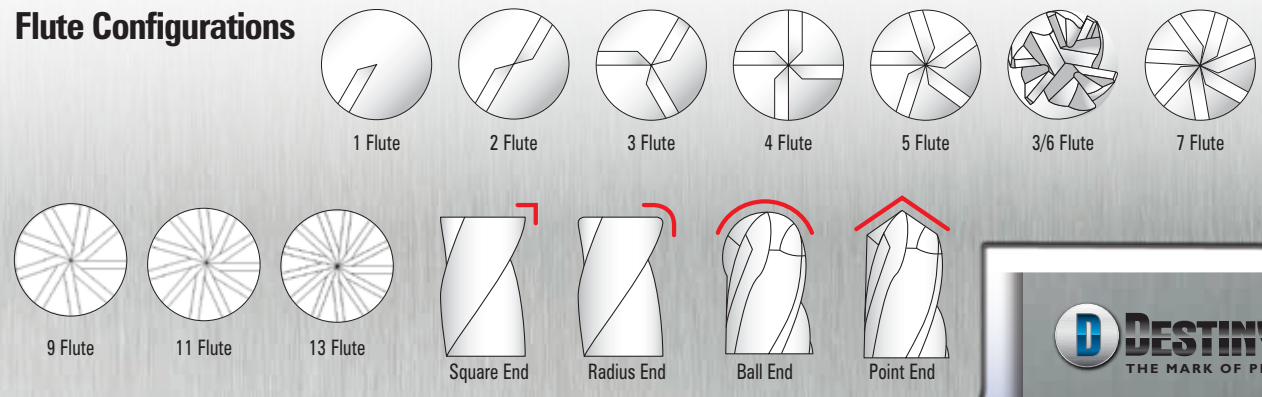
A number of industry terms are found below. Some terms are interchangeable with others and are indicated by the "a.k.a." Items in **BOLD** are the standards used in the formulas.

SFM = Surface Feet per Minute
RPM = Revolutions Per Minute
IPM = Inches Per Minute
IPT = Inches Per Tooth (a.k.a. CLPT)
CLPT = Chip Load Per Tooth (a.k.a. IPT)
CIM = Cubic Inches per Minute (a.k.a. MRR)
MRR = Metal Removal Rate (a.k.a. CIM)
HP = Horsepower of the machine tool
ADC = Axial Depth of Cut (a.k.a. ADOC/DOC)
RDC = Radial Depth of Cut (a.k.a. RDOC/WOC)

Speed & Feed Formulas

SFM = RPM X .262 X Tool Diameter
RPM = SFM X 3.82 ÷ Tool Diameter
IPM = RPM X IPT (CLPT) X Number of Flutes
IPT = IPM ÷ (RPM X Number of Flutes)
MRR = RDC X ADC X IPM (a.k.a. CIM)
HP = KW X 1.342
Torque (Full Load) = 5252 X HP ÷ RPM

Flute Configurations



Standard Tools

This chart will help you quickly find the specific product you need. Please reference the individual product pages for a more detailed ranking of good, better and best within each material group.

	P Steel	M Stainless	K Cast Iron	N Aluminum	S High Temp	H Hard
Viper DVH	3A	3A		1	2	
Diamond Back	3A	3B		1	2	
Python	3	1	3	2	2	
Raptor DVH	3	1	3	3	1	3D
Raptor 3/6	3	1	3	3C	1	3D
Cobra Miniatures	3	3	3	3	3	3

1 Designed for this material
2 Works great but we have an application tool for this
3 Works great but performs best in other materials
- 3A Only for materials under <18 – 20 HRc (Brinell Hardness <223 – 217)
- 3B Only for materials under <35 – 38 HRc (Brinell Hardness <325 – 360)
- 3C Periphery & Side Milling only; NOT for deep slotting
- 3D Special request and edge prep required

General Purpose Tools

	P Steel	M Stainless	K Cast Iron	N Aluminum	S High Temp	H Hard
Chamfer Tools	✓	✓	✓	✓	✓	✓
Spot Drills	✓	✓	✓	✓	✓	✓
Countersinks	✓	✓	✓	✓	✓	✓
Helical Dovetails	✓	✓	✓	✓	✓	✓
Thread Mills	✓	✓	✓	✓	✓	✓

SFM: Surface Feet per Minute

This chart provides general operating parameters for calculating surface footage for Destiny End Mills. These are starting condition guidelines only. The machine tool, workholding/xturing, toolholding, partcon guration, and coolant capability may significantly influence your specific applications.

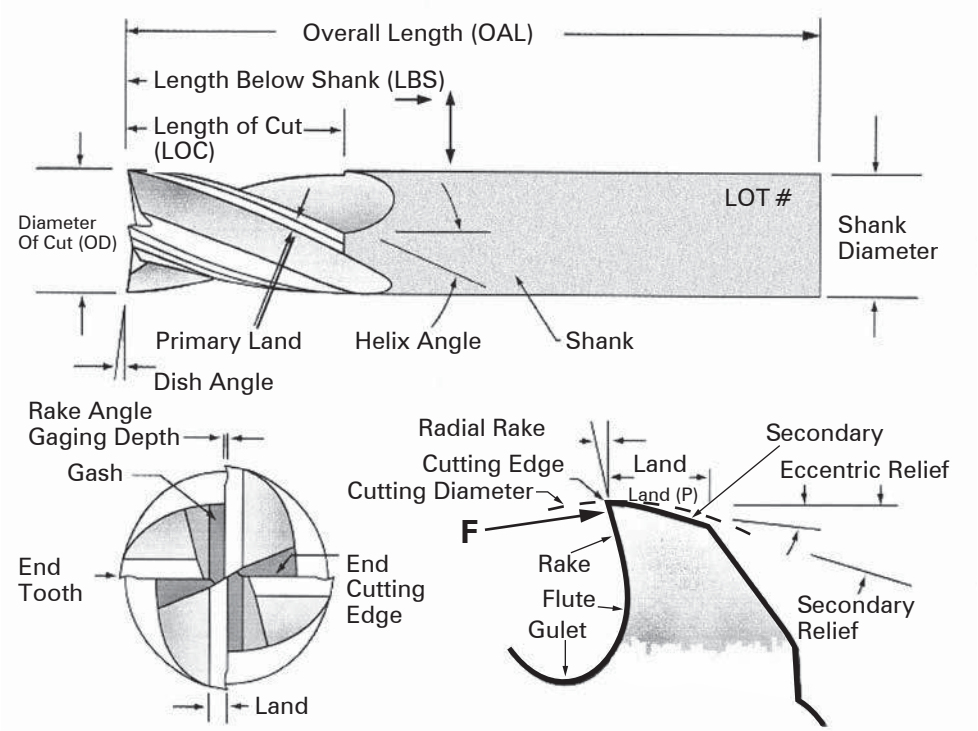
	Material	Min SFM	Median SFM	Max SFM	Destiny Tool 1st Choice	Page #	2nd Choice	Page #
N Aluminum	Aluminum	1200	65% Max RPM	Max RPM	Diamond Back	29-32	Viper	14-25
	Aluminum Cast	1000	65% Max RPM	Max RPM	Diamond Back	29-32	Viper	14-25
	Brass Yellow, Red	400	950	1500	Diamond Back	29-32	Viper	14-25
	Bronze – Alum Bronze	250	625	1000	Diamond Back	29-32	Viper	14-25
	Composites: CFRP; Aramid	200	300	400	Viper	14-25	Python	34-36
	Composites: Honeycomb	200	300	400	Viper	14-25	Python	34-36
	Composites: Phenolic	600	800	1000	Viper	14-25		
	Copper	800	900	1000	Viper	14-25	Python	34-36
	Delrin	800	1,050	1300	Viper	14-25		
	Graphite	600	800	1000	Viper	14-25		
	Plastics: Hard	500	800	1000	Viper	14-25		
	Plastics: Soft	600	800	1000	Viper	14-25		
S High Temp	Cobalt Alloys Haynes 25, 188, Stellite	60	90	110	Raptor DVH	41-47	Raptor 3/6	50-53
	Hastelloy	100	180	220	Raptor DVH	41-47	Raptor 3/6	50-53
	Inconel 525, 700, 718 , Rene 41, Nomonic, Waspaloy, Monel, Hastelloy, Astroloy, Udimet	65	158	250	Raptor DVH	41-47	Raptor 3/6	50-53
	Invar	150	200	400	Raptor DVH	41-47	Raptor 3/6	50-53
	Iron Alloys A-286, 16-25-6	150	200	400	Raptor DVH	41-47	Raptor 3/6	50-53
	Kovar	250	375	500	Raptor DVH	41-47	Raptor 3/6	50-53
	Nickel Alloys	75	150	180	Raptor DVH	41-47	Raptor 3/6	50-53
	Notronic	100	180	220	Raptor DVH	41-47	Raptor 3/6	50-53
	Titanium 4AL4V	100	180	220	Raptor DVH	41-47	Raptor 3/6	50-53
	Titanium 6AL4V	160	280	400	Raptor DVH	41-47	Raptor 3/6	50-53
	Titanium 6AL6V	160	280	400	Raptor DVH	41-47	Raptor 3/6	50-53
	Titanium Comm Pure	80	290	500	Raptor DVH	41-47	Raptor 3/6	50-53
M Stainless	Stainless Austenitic 304L, 316L, 13-8	250	325	400	Raptor DVH	41-47	Raptor 3/6	50-53
	Stainless Austenitic 303, 304	260	350	500	Raptor DVH	41-47	Raptor 3/6	50-53
	Stainless Ferritic 430, 434	250	300	400	Raptor DVH	41-47	Raptor 3/6	50-53
	Stainless Martensitic 17-4	250	425	600	Raptor DVH	41-47	Raptor 3/6	50-53
	Stainless Martensitic 420, 440	200	300	400	Raptor DVH	41-47	Raptor 3/6	50-53
	Stainless Martensitic 15-5	250	300	400	Raptor DVH	41-47	Raptor 3/6	50-53
	Stainless Martensitic 410, 416	250	325	400	Raptor DVH	41-47	Raptor 3/6	50-53
P Steel	Alloy Steel 4140, 4150, 4320, 5120, 6118, 6150, 8620	250	350	450	Raptor DVH	41-47	Raptor 3/6	50-53
	Free Machining Steel 1111, 1115, 1140	300	450	600	Raptor DVH	41-47	Raptor 3/6	50-53
	Low Carbon Steel 1010, 1018, 1020 12L14, A36	300	450	600	Raptor DVH	41-47	Raptor 3/6	50-53
	Med Carbon Steel 1035, 1040, 1095, 1525, 1572	200	320	470	Raptor DVH	41-47	Raptor 3/6	50-53
	Tool Steel A2, <35 R/c	150	300	450	Raptor DVH	41-47	Raptor 3/6	50-53
	Tool Steel D2 <35 R/c	150	300	450	Raptor DVH	41-47	Raptor 3/6	50-53
	Tool Steel P20 , H13 <35 R/c	160	305	450	Raptor DVH	41-47	Raptor 3/6	50-53
K Cast Iron	Cast Iron Ductile A536	200	350	500	Raptor DVH	41-47	Raptor 3/6	50-53
	Cast Iron Gray A48, Class 20 – 60	250	400	500	Raptor DVH	41-47	Raptor 3/6	50-53

NOTE: Reduce SFM when using long reach tools.

End Mill Nomenclature

Standard Center-Cutting Carbide End Mills

- Destiny Tool geometry, developed over years of experience, provides long tool life and increased productivity.
- CNC manufacturing environment yields tool-to-tool consistency.
- Rotary balanced chamfered.
- Minimal TIR, provides for extremely high speed and feed milling capabilities.
- Eccentric grind surface finishes yield sharper, longer-lasting cutting edges: Improved work piece finishes and lubricity with Black Stealth or AlTiN coating.



Custom Pricing

We are happy to make modifications to our standard tools and quote custom special tooling at your request.

CALL FOR DISTRIBUTOR PRICING

Custom Pricing

Pricing for Corner Radius

Size of Radius	Add to List Price:
.001 to .045	$10.00
.046 to .065	$12.00
.066 to .125	$18.00
.126 to .250	$22.00

Add R plus size at end of part number for example: V33210R187

Additional pricing may apply if radius exceeds 20% of the diameter. Please call for quote.

Pricing for Ball End Mills

Diameter	Add to List Price:
1/8, 3/16, 1/4, 5/16, 3/8"	40%
7/16, 1/2"	35%
5/8, 3/4"	35%
7/8, 1"	30%

Add B to beginning of part number for example: BP52416X

Custom Pricing

Pricing for Weldon Flats

Diameter	Add to List Price:
3/8, 1/2, 5/8, 3/4"	$10.00
7/8, 1"	$16.00
1-1/4"	$22.00

Add W at the end of part number for example: P52416W

Pricing for Coolant Grooves

Diameter	Add to List Price:
1/2"	$12.00
3/4"	$16.00
1"	$20.00
1-1/4"	$30.00

Pricing for Length Below Shank (LBS)

Diameter	Add to List Price:
1/2"	$12.00
3/4"	$16.00
1"	$20.00
1-1/4"	$30.00

Understanding Product Information

Use these diagrams to help you read product tables and order Destiny Tools.
Part number identification breaks down the structure of our part numbers.

Raptor Endmill: DVH

Part Number Identification

i.e. P/N # DVH4321017RC

DVH = Raptor Endmill: DVH
4 = Four (4) Flute
32 = Diameter (32/64" = 1/2")
10 = Length of Cut/LOC (10/16" = 5/8")
17 = Length Below Shank/LBS (17/8" = 2-1/8")
R = Radius
C = AlTiN Coating

Tolerance for Raptor Endmills Diameter + .000 – .002

Viper Endmill: 45° Helix

Part Number Identification

i.e. P/N # V2321017 (S)

V = Viper Endmill: 45° Helix
2 = Two (2) Flute
32 = Diameter (32/64" = 1/2")
10 = Length of Cut/LOC (10/16" = 5/8")
17 = Length Below Shank/LBS (17/8" = 2-1/8")
S = Black Stealth Coating

Tolerance for Viper Endmills Diameter = –.0001 –.0003

Raptor Endmill: DVH

Part Number Identification

i.e. P/N # R6321017RC

R = Raptor 3/6 Endmill: DVH
6 = Three / Six (3/6) Flute
32 = Diameter (32/64" = 1/2")
10 = Length of Cut/LOC (10/16" = 5/8")
17 = Length Below Shank/LBS (17/8" = 2-1/8")
R = Radius
C = AlTiN Coating

Tolerance for Raptor Endmills Diameter + .000 – .002

Diamond Back Rougher: 45° Helix

Part Number Identification

i.e. P/N # DR3321017R030 (S)

DR = Diamond Back Rougher: 45° Helix
3 = Three (3) Flute
32 = Diameter (32/64" = 1/2")
10 = Length of Cut/LOC (10/16" = 5/8")
17 = Length Below Shank/LBS (17/8" = 2-1/8")
R = Radius
030 = .030 Radius
S = Black Stealth Coating

Tolerance for Diamond Back Endmills Diameter = –.0001 – .0003

DESTINY TOOL
THE MARK OF PERFORMANCE

TABLE OF CONTENTS

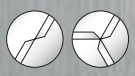
END MILLS FOR NON-FERROUS MATERIALS

DVH Viper 45° HELIX END MILLS

N Aluminum | P Steel

DVH Diamond Back FLAT PROFILE ROUGHERS

N Aluminum



Python 45° HELIX END MILLS

N Aluminum | P Steel

END MILLS FOR HIGH-TEMPERATURE & EXOTIC MATERIALS

DVH Raptor 38° HELIX SOLID CARBIDE END MILLS

M Stainless | S HighTemp

MADE IN USA

Raptor™ 38° HELIX SOLID CARBIDE END MILLS

M Stainless S HighTemp

- **RAPTOR 3/6: 38 Degree Variable Helix – For high efficiency slotting and heavy profiling in stainless steel, titanium, inconel and other high temp alloys including nickel alloys**

MINIATURES, VARIABLE HELIX

M Stainless S HighTemp N Aluminum

Cobra™ 37° HELIX END MILLS

Raptor™ 38° HELIX SOLID CARBIDE END MILLS

Viper™ 45° HELIX END MILLS

CHAMFER TOOLS, DRILL MILLS & COUNTERSINKS - CARBIDE

P Steel M Stainless K Cast Iron
N Aluminum S HighTemp H Hard

DOVETAILS, SPECIAL TOOLS & TOOL RECONDITIONING

P Steel M Stainless K Cast Iron
N Aluminum S HighTemp H Hard

RESOURCE, GENERAL & TECHNICAL INFORMATION

END MILLS

"We'd like to say your End Mills are far superior to the competition. We use your Raptors daily for our steel cutting jobs, and your Vipers for all of our aluminum jobs!"

— END USER, SANTA CLARA, CA

Torque Efficiency

Many times when machinists look at cutting tool speeds and feeds, they are often misled into believing that they should be concerned with horsepower. The real driving force is not horsepower, it's TORQUE.

Torque is the measure of how much immediate rotational force a spindle drive motor can generate.

Old School End Mills

Traditionally, a larger diameter 1" end mill would require high torque and low speed (SFM /RPM), while a 1/4" diameter end mill would require low torque and high speed (SFM / RPM). So generally, different end mill diameters & geometries have different requirements for both horsepower and torque.

Torque Efficiency

Type of Drive	Efficiency Factor %
Direct Drive *(integral motor spindle)*	***95%***
Direct Belt Drive	***90%***
Back Gear Drive	***75%***
Geared Head Drive	***75%***
Oil-Hydraulic Drive	***70%***

Destiny End Mills

As a general rule, our end mills are designed to be run at high RPM regardless of diameter. We prefer high speed AND high torque. Our tool geometry is optimized for high speed machining.

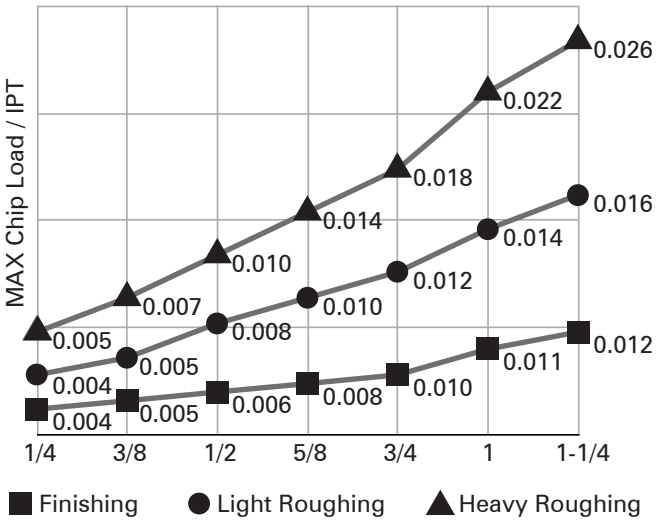
Our end mills can have up to 3 rake faces in the cutting edge of the tool. As the tool enters the cut and takes the first 3 to 5 revolutions (and remember you can be running up to 18,000 Revolutions Per Minute) there is a tremendous amount of cutting force placed upon the tool. You can notice your HP meter jump as the tool enters the cut multiple times. This entry is when the torque curve on your CNC machine is the most important. Older CNC machines were designed to quickly reach peak torque between 1200 – 3000 RPM and then drop off. Newer, high speed machining centers hold constant torque.

We like Constant Torque

Because of the unique geometry, our tools perform best under constant torque. Take a look at the torque curve for your CNC machine. If you have a 10,000 RPM spindle motor and the torque drops from it's constant peak at 8200 RPM, then 8200 RPM would be the maximum RPM. Take this into consideration FIRST when calculating the specific speeds and feeds listed in this catalog.

Viper General Rule of Thumb: Chatter

Viper Chip Load For Finishing, Heavy Roughing & Light Roughing



Viper: Understanding Roughing, Light Roughing and Finishing

One of the most common causes of chatter with our tools is running tools with TOO LIGHT of a chip load. Most chatter problems can be fixed by INCREASING the chip load per tooth (IPT)

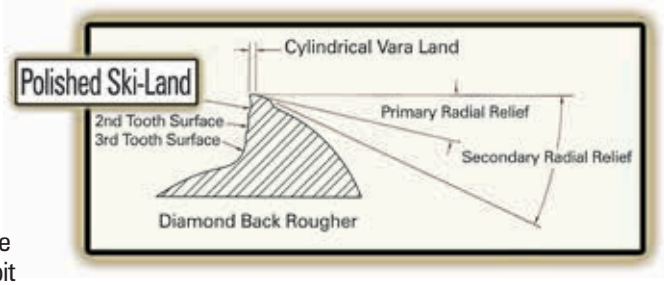
Heavy Roughing (Side Milling) Defined:
ADC (Axial Depth of Cut) = up to 1X diameter
RDC (Radial Depth of Cut) = 30% – 50% of diameter

Light Roughing (Side Milling) Defined:
ADC (Axial Depth of Cut) = up to 1X diameter
RDC (Radial Depth of Cut) = 15% – 30% of diameter

Finishing (Side Milling) Defined:
ADC (Axial Depth of Cut) = up to 1X diameter
RDC (Radial Depth of Cut) = 4% – 15% of diameter

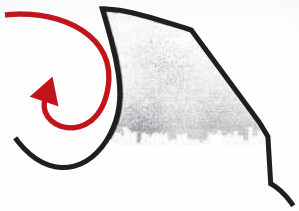
Viper & Diamond Back Chip Formation

One of the first things many people notice is the multiple rake faces on our tools. Think of these as first, second and third gear in your car. When you read our speed/feed charts, you will see that we have several recommendations for our tools. That's because, unlike most end mills on the market, our tools are designed for elevated chip loads, particularly in non-ferrous applications.

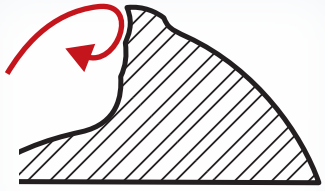


Most end mills form 6's & 9's by moving down into the rake face into the gullet (center line) of the tool. Our tools are designed a bit differently so that the chip actually forms in the outer rake face of the tool and ejects prior to traveling into the core diameter/gullet of the flute. This is part of the reason why increasing the chip load per tooth on our end mills will often reduce the horse power load of the machine. Less energy is required to form the chip and it reduces the heat put into the cutting tool. Heat is a major cause of cutting tool failure over time, so we developed our tools to remove as much heat in the chip as quickly as possible.

Unlike other end mills we have found that chatter is caused by too LIGHT of a chip load per tooth. INCREASING the chip load per tooth will eliminate most chatter problems!



Typical chip formation in an end mill.



Chip formation in a Destiny Tool end mill.

DVH Viper™ 45° HELIX END MILLS

V23216 V23216S

Square End, 2 Flute, 45 Degree Helix

For high-efficiency machining of aluminum, plastics and other non-ferrous materials.

Part No. Uncoated	Part No. Stealth	Dia. of Cut	Shank Dia.	LOC	OAL
V20401	V20401S	1/16	1/8	3/32	1-1/2
V20402	V20402S	1/16	1/8	3/16	1-1/2
V20501	V20501S	5/64	1/8	7/64	1-1/2
V20502	V20502S	5/64	1/8	15/64	1-1/2
V20601	V20601S	3/32	1/8	7/64	1-1/2
V20602	V20602S	3/32	1/8	9/32	1-1/2
V20701	V20701S	7/64	1/8	5/32	1-1/2
V20702	V20702S	7/64	1/8	21/64	1-1/2
V20804	V20804S	1/8	1/8	1/4	1-1/2
V20805	V20805S	1/8	1/8	5/16	1-1/2
V20806	V20806S	1/8	1/8	3/8	1-1/2
V20808	V20808S	1/8	1/8	1/2	1-1/2
V20810	V20810S	1/8	1/8	5/8	2
V20812	V20812S	1/8	1/8	3/4	2
V20816	V20816S	1/8	1/8	1	2-1/2
V21005	V21005S	5/32	3/16	5/16	2
V21009	V21009S	5/32	3/16	9/16	2
V21205	V21205S	3/16	3/16	5/16	2
V21206	V21206S	3/16	3/16	3/8	2
V21210	V21210S	3/16	3/16	5/8	2
V21212	V21212S	3/16	3/16	3/4	2-1/2
V21216	V21216S	3/16	3/16	1	2-1/2
V21406	V21406S	7/32	1/4	3/8	2
V21412	V21412S	7/32	1/4	3/4	2-1/2
V21606	V21606S	1/4	1/4	3/8	2
V21608	V21608S	1/4	1/4	1/2	2
V21610	V21610S	1/4	1/4	5/8	2-1/2
V21612	V21612S	1/4	1/4	3/4	2-1/2
V21616	V21616S	1/4	1/4	1	2-1/2
V21618	V21618S	1/4	1/4	1-1/8	2-1/2
V21620	V21620S	1/4	1/4	1-1/4	3
V21624	V21624S	1/4	1/4	1-1/2	3
V21632	V21632S	1/4	1/4	2	4
V22007	V22007S	5/16	5/16	7/16	2
V22008	V22008S	5/16	5/16	1/2	2
V22013	V22013S	5/16	5/16	13/16	2-1/2
V22018	V22018S	5/16	5/16	1-1/8	2-1/2
V22020	V22020S	5/16	5/16	1-1/4	3
V22024	V22024S	5/16	5/16	1-1/2	3
V22032	V22032S	5/16	5/16	2	4
V22408	V22408S	3/8	3/8	1/2	2
V22410	V22410S	3/8	3/8	5/8	2
V22412	V22412S	3/8	3/8	3/4	2-1/2
V22416	V22416S	3/8	3/8	1	2-1/2

For guidance to calculate surface footage & chip load for Viper™ End Mills refer to the Technical Section on pages 28 & 29.

S: Stealth Coating (at end of number)

— Black Stealth is an invisible, lubristic coating that is covered in a black material to support identification between uncoated and coated tools.

Continued on next page

NOTE: Additional miniature sizes with 3/16 shank diameter can also be found on page 64

NOTE: For Diamond Like Coating add DLC after the part number (limited stock)

Friction Coefficients

Tool Life

Continued from previous page

Square End, 2 Flute, 45 Degree Helix

For high-efficiency machining of aluminum, plastics and other non-ferrous materials.

Part No. Uncoated	Part No. Stealth	Dia. of Cut	Shank Dia.	LOC	OAL
V22420	V22420S	3/8	3/8	1-1/4	3
V22424	V22424S	3/8	3/8	1-1/2	4
V22432	V22432S	3/8	3/8	2	4
V22440	V22440S	3/8	3/8	2-1/2	5
V22809	V22809S	7/16	7/16	9/16	2-3/4
V22816	V22816S	7/16	7/16	1	2-3/4
V23210	V23210S	1/2	1/2	5/8	3
V23212	V23212S	1/2	1/2	3/4	3
V23216	V23216S	1/2	1/2	1	3
V23220	V23220S	1/2	1/2	1-1/4	3
V23224	V23224S	1/2	1/2	1-1/2	4
V23232	V23232S	1/2	1/2	2	4
V23236	V23236S	1/2	1/2	2-1/4	5
V23240	V23240S	1/2	1/2	2-1/2	5
V23248	V23248S	1/2	1/2	3	6
V23264	V23264S	1/2	1/2	4	8
V24012	V24012S	5/8	5/8	3/4	3-1/2
V24020	V24020S	5/8	5/8	1-1/4	3-1/2
V24026	V24026S	5/8	5/8	1-5/8	4
V24032	V24032S	5/8	5/8	2	5
V24040	V24040S	5/8	5/8	2-1/2	5
V24044	V24044S	5/8	5/8	2-3/4	5
V24052	V24052S	5/8	5/8	3-1/4	6
V24064	V24064S	5/8	5/8	4	8
V24816	V24816S	3/4	3/4	1	4
V24826	V24826S	3/4	3/4	1-5/8	4
V24832	V24832S	3/4	3/4	2	5
V24836	V24836S	3/4	3/4	2-1/4	5
V24840	V24840S	3/4	3/4	2-1/2	5
V24848	V24848S	3/4	3/4	3	6
V24852	V24852S	3/4	3/4	3-1/4	6
V24856	V24856S	3/4	3/4	3-1/2	6
V24864	V24864S	3/4	3/4	4	7
V24880	V24880S	3/4	3/4	5	8
V25620	V25620S	7/8	7/8	1-1/4	4
V25636	V25636S	7/8	7/8	2-1/4	5
V26420	V26420S	1	1	1-1/4	4
V26424	V26424S	1	1	1-1/2	4
V26432	V26432S	1	1	2	5
V26436	V26436S	1	1	2-1/4	5
V26440	V26440S	1	1	2-1/2	5
V26448	V26448S	1	1	3	6
V26456	V26456S	1	1	3-1/2	6
V26464	V26464S	1	1	4	7
V26488	V26488S	1	1	5-1/2	8

For guidance to calculate surface footage & chip load for Viper™ End Mills refer to the Technical Section on pages 28 & 29.

S: Stealth Coating (at end of number)

— Black Stealth is an invisible, lubristic coating that is covered in a black material to support identification between uncoated and coated tools.

NOTE: For Diamond Like Coating add DLC after the part number (limited stock)

Tolerances: Viper

End Mill Diameter:	*–.0001"*	*to*	*–.0003"*
Shank Diameter:	*+.000"*	*to*	*–.0003"*
Ball Nose:	*+.001"*	*to*	*–.001"*

Viper™ 45° HELIX END MILLS

See it in Action!

YouTube

DVH Viper™ 45° HELIX END MILLS

V23216 V23216S

DESTINY TOOL
THE MARK OF PERFORMANCE

DVH Viper™ 45° HELIX END MILLS

V2321017 V2321017S

V2321227 V2321227S

Square End, 2 Flute, 45 Degree Helix

Long Shank Series with Reduced Neck, LBS*

Part No. Uncoated	Part No. Stealth	Dia. of Cut	Shank Dia.	LOC	Lbs.*	Neck Dia.	OAL
V2080304	V2080304S	1/8	1/8	3/16	1/2	0.110	1-1/2
V2120404	V2120404S	3/16	3/16	1/4	1/2	0.170	2
V2160605	V2160605S	1/4	1/4	3/8	5/8	0.235	2
V2160609	V2160609S	1/4	1/4	3/8	1-1/8	0.235	2-1/2
V2160617	V2160617S	1/4	1/4	3/8	2-1/8	0.235	4
V2161217	V2161217S	1/4	1/4	3/4	2-1/8	0.235	4
V2200605	V2200605S	5/16	5/16	3/8	5/8	0.291	2
V2200708	V2200708S	5/16	5/16	7/16	1	0.291	2-1/2
V2200717	V2200717S	5/16	5/16	7/16	2-1/8	0.291	4
V2240809	V2240809S	3/8	3/8	1/2	1-1/8	0.355	2-1/2
V2240817	V2240817S	3/8	3/8	1/2	2-1/8	0.355	4
V2241617	V2241617S	3/8	3/8	1	2-1/8	0.355	4
V2321011	V2321011S	1/2	1/2	5/8	1-3/8	0.475	3
V2321017	V2321017S	1/2	1/2	5/8	2-1/8	0.475	4
V2321048	V2321048S	1/2	1/2	5/8	6	0.475	8
V2321227	V2321227S	1/2	1/2	3/4	3-3/8	0.475	6
V2321232	V2321232S	1/2	1/2	3/4	4	0.475	6
V2401212	V2401212S	5/8	5/8	3/4	1-1/2	0.590	3-1/2
V2401219	V2401219S	5/8	5/8	3/4	2-3/8	0.590	5
V2401227	V2401227S	5/8	5/8	3/4	3-3/8	0.590	6
V2401232	V2401232S	5/8	5/8	3/4	4	0.590	6
V2401248	V2401248S	5/8	5/8	3/4	6	0.590	8
V2481612	V2481612S	3/4	3/4	1	1-1/2	0.715	4
V2481620	V2481620S	3/4	3/4	1	2-1/2	0.715	5
V2481627	V2481627S	3/4	3/4	1	3-3/8	0.715	6
V2481632	V2481632S	3/4	3/4	1	4	0.715	6
V2481648	V2481648S	3/4	3/4	1	6	0.715	8
V2482627	V2482627S	3/4	3/4	1-5/8	3-3/8	0.715	6
V2641612	V2641612S	1	1	1	1-1/2	0.960	4
V2641617	V2641617S	1	1	1	2-1/8	0.960	5
V2642027	V2642027S	1	1	1-1/4	3-3/8	0.960	6
V2642032	V2642032S	1	1	1-1/4	4	0.960	6
V2642035	V2642035S	1	1	1-1/4	4-3/8	0.960	7
V2642048	V2642048S	1	1	1-1/4	6	0.960	8
V2642432	V2642432S	1	1	1-1/2	4	0.960	6

For guidance to calculate surface footage & chip load for Viper® End Mills refer to the Technical Section on pages 28 & 29.

*LBS: Length Below Shank

S: Stealth Coating

— Black Stealth is an invisible, lubristic coating that is covered in a black material to support identification between uncoated and coated tools.

NOTE: For Diamond Like Coating add DLC after the part number (limited stock)

Friction Coefficients

TiN Coated Carbide End Mill

Viper Black Stealth

.10 .09 .08 .07 .06 .05 .04 .03 .02 .01 .00

High Friction — Lower Friction

Tool Life

4 Hours: Carbide

40 hours: Viper Black Stealth

Square End, 2 Flute, 45 Degree Helix

Long Shank Series, NNK*

Part No. Uncoated	Part No. Stealth	Dia. of Cut	Shank Dia.	LOC	NNK*	OAL
V208040	V208040S	1/8	1/8	1/4	NNK	3
V212040	V212040S	3/16	3/16	1/4	NNK	3
V216080	V216080S	1/4	1/4	1/2	NNK	4
V220070	V220070S	5/16	5/16	7/16	NNK	4
V224080	V224080S	3/8	3/8	1/2	NNK	4
V224160	V224160S	3/8	3/8	1	NNK	4
V2321000	V2321000S	1/2	1/2	5/8	NNK	8
V232120	V232120S	1/2	1/2	3/4	NNK	6
V232200	V232200S	1/2	1/2	1-1/4	NNK	6
V240120	V240120S	5/8	5/8	3/4	NNK	6
V2401200	V2401200S	5/8	5/8	3/4	NNK	8
V248160	V248160S	3/4	3/4	1	NNK	6
V2481600	V2481600S	3/4	3/4	1	NNK	8
V264160	V264160S	1	1	1	NNK	5
V264200	V264200S	1	1	1-1/4	NNK	6
V2642000	V2642000S	1	1	1-1/4	NNK	8

For guidance to calculate surface footage & chip load for Viper™ End Mills refer to the Technical Section on pages 28 & 29.

Radius, 2 Flute, 45 Degree

Part No. Uncoated	Part No. Stealth	Dia. of Cut	Shank Dia.	LOC	OAL	Radius
V21612R015	V21612R015S	1/4	1/4	3/4	2-1/2	0.015
V21612R030	V21612R030S	1/4	1/4	3/4	2-1/2	0.030
V21612R060	V21612R060S	1/4	1/4	3/4	2-1/2	0.060
V22416R010	V22416R010S	3/8	3/8	1	2-1/2	0.010
V22416R030	V22416R030S	3/8	3/8	1	2-1/2	0.030
V22416R060	V22416R060S	3/8	3/8	1	2-1/2	0.060
V22416R093	V22416R093S	3/8	3/8	1	2-1/2	0.093
V23220R010	V23220R010S	1/2	1/2	1-1/4	3	0.010
V23220R030	V23220R030S	1/2	1/2	1-1/4	3	0.030
V23220R060	V23220R060S	1/2	1/2	1-1/4	3	0.060
V23220R093	V23220R093S	1/2	1/2	1-1/4	3	0.093
V23220R125	V23220R125S	1/2	1/2	1-1/4	3	0.125
V24020R010	V24020R010S	5/8	5/8	1-1/4	3	0.010
V24020R030	V24020R030S	5/8	5/8	1-1/4	3	0.030
V24020R060	V24020R060S	5/8	5/8	1-1/4	3	0.060
V24020R093	V24020R093S	5/8	5/8	1-1/4	3	0.093
V24020R125	V24020R125S	5/8	5/8	1-1/4	3	0.125
V24826R010	V24826R010S	3/4	3/4	1-5/8	4	0.010
V24826R030	V24826R030S	3/4	3/4	1-5/8	4	0.030
V24826R060	V24826R060S	3/4	3/4	1-5/8	4	0.060
V24826R093	V24826R093S	3/4	3/4	1-5/8	4	0.093
V24826R125	V24826R125S	3/4	3/4	1-5/8	4	0.125
V24826R190	V24826R190S	3/4	3/4	1-5/8	4	0.190

For guidance to calculate surface footage & chip load for Viper™ End Mills refer to the Technical Section on pages 28 & 29.

*NNK: No Neck

S: Stealth Coating

— Black Stealth is an invisible, lubristic coating that is covered in a black material to support identification between uncoated and coated tools.

NOTE: For Diamond Like Coating add DLC after the part number (limited stock)

Tolerances: Viper

End Mill Diameter:	*–.0001"*	*to*	*–.0003"*
Shank Diameter:	*+.000"*	*to*	*–.0003"*
Ball Nose:	*+.001"*	*to*	*–.001"*

Viper™ 45° HELIX END MILLS

See it in Action!

YouTube

DVH Viper™ 45° HELIX END MILLS

V232120 V232120S

P Steel N Aluminum

V23220R060 V23220R060S

DESTINY TOOL THE MARK OF PERFORMANCE

DVH Viper™ 45° HELIX END MILLS

BV23216 BV23216S

P Steel N Aluminum

Ball, 2 Flute, 45 Degree Helix

Part No. Uncoated	Part No. Stealth	Dia. of Cut	Shank Dia.	LOC	OAL
BV20201	BV20201S	1/32	1/8	3/64	1-1/2
BV20301	BV 20301S	3/64	1/8	5/64	1-1/2
BV20401	BV20401S	1/16	1/8	3/32	1-1/2
BV20601	BV20601S	3/32	1/8	9/64	1-1/2
BV20805	BV20805S	1/8	1/8	5/16	1-1/2
BV20806	BV20806S	1/8	1/8	3/8	1-1/2
BV20808	BV20808S	1/8	1/8	1/2	1-1/2
BV21206	BV21206S	3/16	3/16	3/8	2
BV21210	BV21210S	3/16	3/16	5/8	2
BV21608	BV21608S	1/4	1/4	1/2	2
BV21612	BV21612S	1/4	1/4	3/4	2-1/2
BV22008	BV22008S	5/16	5/16	1/2	2
BV22013	BV22013S	5/16	5/16	13/16	2-1/2
BV22410	BV22410S	3/8	3/8	5/8	2
BV22416	BV22416S	3/8	3/8	1	2-1/2
BV23212	BV23212S	1/2	1/2	3/4	3
BV23216	BV23216S	1/2	1/2	1	3
BV23220	BV23220S	1/2	1/2	1-1/4	3
BV24012	BV24012S	5/8	5/8	3/4	3-1/2
BV24020	BV24020S	5/8	5/8	1-1/4	3-1/2
BV24026	BV24026S	5/8	5/8	1-5/8	4
BV24816	BV24816S	3/4	3/4	1	4
BV24826	BV24826S	3/4	3/4	1-5/8	4
BV26420	BV26420S	1	1	1-1/4	4
BV26432	BV26432S	1	1	2	5

For guidance to calculate surface footage & chip load for Viper™ End Mills refer to the Technical Section on pages 28 & 29.

S: Stealth Coating

— Black Stealth is an invisible, lubristic coating that is covered in a black material to support identification between uncoated and coated tools.

Friction Coefficients

Tool Life

Ball, 2 Flute, 45 Degree Helix

Long Shank Series with Reduced Neck, LBS*

Part No. Uncoated	Part No. Stealth	Dia. of Cut	Shank Dia.	LOC	Lbs.*	Neck Dia.	OAL
BV2160617	BV2160617S	1/4	1/4	3/8	2-1/8	0.235	4
BV2161217	BV2161217S	1/4	1/4	3/4	2-1/8	0.235	4
BV2200717	BV2200717S	5/16	5/16	7/16	2-1/8	0.291	4
BV2240817	BV2240817S	3/8	3/8	1/2	2-1/8	0.355	4
BV2241617	BV2241617S	3/8	3/8	1	2-1/8	0.355	4
BV2321017	BV2321017S	1/2	1/2	5/8	2-1/8	0.475	4
BV2321227	BV2321227S	1/2	1/2	3/4	3-3/8	0.475	6
BV2401227	BV2401227S	5/8	5/8	3/4	3-3/8	0.590	6
BV2481627	BV2481627S	3/4	3/4	1	3-3/8	0.715	6

For guidance to calculate surface footage & chip load for Viper™ End Mills refer to the Technical Section on pages 28 & 29.

Ball, 2 Flute

Long Shank Series NNK*

Part No. Uncoated	Part No. Stealth	Dia. of Cut	Shank Dia.	LOC	NNK*	OAL
BV216060	BV216060S	1/4	1/4	3/8	NNK*	4
BV224080	BV224080S	3/8	3/8	1/2	NNK*	4
BV232200	BV232200S	1/2	1/2	1-1/4	NNK*	6
BV248160	BV248160S	3/4	3/4	1	NNK*	6
BV264200	BV264200S	1	1	1-1/4	NNK*	6

For guidance to calculate surface footage & chip load for Viper™ End Mills refer to the Technical Section on pages 28 & 29.

*LBS: Length Below Shank
*NNK: No Neck

S: Stealth Coating

— Black Stealth is an invisible, lubristic coating that is covered in a black material to support identification between uncoated and coated tools.

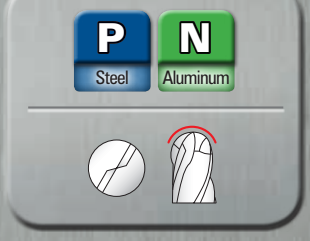
Tolerances: Viper

End Mill Diameter:	*–.0001"*	*to*	*–.0003"*
Shank Diameter:	*+.000"*	*to*	*–.0003"*
Ball Nose:	*+.001"*	*to*	*–.001"*

Viper 45° HELIX END MILLS

SEE IT IN ACTION!

BV2321017 BV2321017S



BV232200 BV232200S

DVH Viper™ 45° HELIX END MILLS

V33216 V33216S

P Steel N Aluminum

Square End, 3 Flute, 45 Degree Helix

Part No. Uncoated	Part No. Stealth	Dia. of Cut	Shank Dia.	LOC	OAL
V30401	V30401S	1/16	1/8	3/32	1-1/2
V30402	V30402S	1/16	1/8	3/16	1-1/2
V30501	V30501S	5/64	1/8	7/64	1-1/2
V30502	V30502S	5/64	1/8	15/64	1-1/2
V30601	V30601S	3/32	1/8	7/64	1-1/2
V30602	V30602S	3/32	1/8	9/32	1-1/2
V30701	V30701S	7/64	1/8	5/32	1-1/2
V30702	V30702S	7/64	1/8	21/64	1-1/2
V30804	V30804S	1/8	1/8	1/4	1-1/2
V30805	V30805S	1/8	1/8	5/16	1-1/2
V30806	V30806S	1/8	1/8	3/8	1-1/2
V30808	V30808S	1/8	1/8	1/2	1-1/2
V30810	V30810S	1/8	1/8	5/8	2
V30812	V30812S	1/8	1/8	3/4	2
V30816	V30816S	1/8	1/8	1	2-1/2
V31005	V31005S	5/32	3/16	5/16	2
V31009	V31009S	5/32	3/16	9/16	2
V31205	V31205S	3/16	3/16	5/16	2
V31206	V31206S	3/16	3/16	3/8	2
V31209	V31209S	3/16	3/16	9/16	2
V31210	V31210S	3/16	3/16	5/8	2
V31212	V31212S	3/16	3/16	3/4	2-1/2
V31216	V31216S	3/16	3/16	1	2-1/2
V31406	V31406S	7/32	1/4	3/8	2
V31412	V31412S	7/32	1/4	3/4	2-1/2
V31606	V31606S	1/4	1/4	3/8	2
V31608	V31608S	1/4	1/4	1/2	2
V31610	V31610S	1/4	1/4	5/8	2-1/2
V31612	V31612S	1/4	1/4	3/4	2-1/2
V31616	V31616S	1/4	1/4	1	2-1/2
V31618	V31618S	1/4	1/4	1-1/8	2-1/2
V31620	V31620S	1/4	1/4	1-1/4	3
V31624	V31624S	1/4	1/4	1-1/2	3
V31628	V31628S	1/4	1/4	1-3/4	4
V31632	V31632S	1/4	1/4	2	4
V31808	V31808S	9/32	5/16	1/2	2
V31812	V31812S	9/32	5/16	3/4	2-1/2
V32007	V32007S	5/16	5/16	7/16	2
V32008	V32008S	5/16	5/16	1/2	2
V32013	V32013S	5/16	5/16	13/16	2-1/2
V32018	V32018S	5/16	5/16	1-1/8	2-1/2
V32020	V32020S	5/16	5/16	1-1/4	3
V32024	V32024S	5/16	5/16	1-1/2	3
V32032	V32032S	5/16	5/16	2	4
V32210	V32210S	11/32	3/8	5/8	2
V32216	V32216S	11/32	3/8	1	2-1/2
V32408	V32408S	3/8	3/8	1/2	2
V32410	V32410S	3/8	3/8	5/8	2
V32412	V32412S	3/8	3/8	3/4	2-1/2
V32416	V32416S	3/8	3/8	1	2-1/2
V32420	V32420S	3/8	3/8	1-1/4	3
V32424	V32424S	3/8	3/8	1-1/2	4
V32432	V32432S	3/8	3/8	2	4
V32440	V32440S	3/8	3/8	2-1/2	5
V32809	V32809S	7/16	7/16	9/16	2-3/4

S: Stealth Coating

— Black Stealth is an invisible, lubristic coating that is covered in a black material to support identification between uncoated and coated tools.

For guidance to calculate surface footage & chip load for Viper® End Mills refer to the Technical Section on pages 28 & 29.

Continued on next page

NOTE: Additional miniature sizes with 3/16 shank diameter can also be found on page 67.

NOTE: For Diamond Like Coating add DLC after the part number (limited stock)

Friction Coefficients

TiN Coated Carbide End Mill

Viper Black Stealth

.10 .09 .08 .07 .06 .05 .04 .03 .02 .01 .00

High Friction — Lower Friction

Tool Life

4 Hours: Carbide

40 hours: Viper Black Stealth

Continued from previous page

Square End, 3 Flute, 45 Degree Helix

Part No. Uncoated	Part No. Stealth	Dia. of Cut	Shank Dia.	LOC	OAL
V32816	V32816S	7/16	7/16	1	2-3/4
V33210	V33210S	1/2	1/2	5/8	3
V33212	V33212S	1/2	1/2	3/4	3
V33216	V33216S	1/2	1/2	1	3
V33220	V33220S	1/2	1/2	1-1/4	3
V33224	V33224S	1/2	1/2	1-1/2	4
V33228	V33228S	1/2	1/2	1-3/4	4
V33232	V33232S	1/2	1/2	2	4
V33236	V33236S	1/2	1/2	2-1/4	5
V33240	V33240S	1/2	1/2	2-1/2	5
V33248	V33248S	1/2	1/2	3	6
V33252	V33252S	1/2	1/2	3-1/4	6
V33264	V33264S	1/2	1/2	4	7
V33280	V33280S	1/2	1/2	5	8
V34012	V34012S	5/8	5/8	3/4	3-1/2
V34016	V34016S	5/8	5/8	1	3-1/2
V34020	V34020S	5/8	5/8	1-1/4	3-1/2
V34026	V34026S	5/8	5/8	1-5/8	4
V34032	V34032S	5/8	5/8	2	5
V34036	V34036S	5/8	5/8	2-1/4	5
V34040	V34040S	5/8	5/8	2-1/2	5
V34044	V34044S	5/8	5/8	2-3/4	5
V34052	V34052S	5/8	5/8	3-1/4	6
V34064	V34064S	5/8	5/8	4	8
V34816	V34816S	3/4	3/4	1	4
V34826	V34826S	3/4	3/4	1-5/8	4
V34832	V34832S	3/4	3/4	2	5
V34836	V34836S	3/4	3/4	2-1/4	5
V34840	V34840S	3/4	3/4	2-1/2	5
V34848	V34848S	3/4	3/4	3	6
V34852	V34852S	3/4	3/4	3-1/4	6
V34856	V34856S	3/4	3/4	3-1/2	6
V34864	V34864S	3/4	3/4	4	7
V34868	V34868S	3/4	3/4	4-1/4	7
V34880	V34880S	3/4	3/4	5	8
V34896	V34896S	3/4	3/4	6	9
V35620	V35620S	7/8	7/8	1-1/4	4
V35636	V35636S	7/8	7/8	2-1/4	5
V36420	V36420S	1	1	1-1/4	4
V36424	V36424S	1	1	1-1/2	4
V36432	V36432S	1	1	2	5
V36436	V36436S	1	1	2-1/4	5
V36440	V36440S	1	1	2-1/2	5
V36448	V36448S	1	1	3	6
V36452	V36452S	1	1	3-1/4	6
V36456	V36456S	1	1	3-1/2	6
V36464	V36464S	1	1	4	7
V36468	V36468S	1	1	4-1/4	7
V36488	V36488S	1	1	5-1/2	8
V36496	V36496S	1	1	6	9
V38036	V38036S	1-1/4	1-1/4	2-1/4	5-1/2

For guidance to calculate surface footage & chip load for Viper™ End Mills refer to the Technical Section on pages 28 & 29.

S: Stealth Coating

— Black Stealth is an invisible, lubristic coating that is covered in a black material to support identification between uncoated and coated tools.

NOTE: For Diamond Like Coating add DLC after the part number (limited stock)

Tolerances: Viper

End Mill Diameter:	*–.0001"*	*to*	*–.0003"*
Shank Diameter:	*+.000"*	*to*	*–.0003"*
Ball Nose:	*+.001"*	*to*	*–.001"*

Viper 45° HELIX END MILLS

See it in Action!

YouTube

DVH Viper™ 45° HELIX END MILLS

V33216 V33216S

DVH Viper™ 45° HELIX END MILLS

V3321020 V3321020S

P Steel N Aluminum

Square End, 3 Flute, 45 Degree Helix

Long Shank Series with Reduced Neck, LBS*

Part No. Uncoated	Part No. Stealth	Dia. of Cut	Shank Dia.	LOC	Lbs.*	Neck Dia.	OAL
V3080304	V3080304S	1/8	1/8	3/16	1/2	0.110	1-1/2
V3120404	V3120404S	3/16	3/16	1/4	1/2	0.170	2
V3160605	V3160605S	1/4	1/4	3/8	5/8	0.235	2
V3160609	V3160609S	1/4	1/4	3/8	1-1/8	0.235	2-1/2
V3160617	V3160617S	1/4	1/4	3/8	2-1/8	0.235	4
V3160809	V3160809S	1/4	1/4	1/2	1-1/8	0.235	4
V3161217	V3161217S	1/4	1/4	3/4	2-1/8	0.235	4
V3200605	V3200605S	5/16	5/16	3/8	5/8	0.291	2
V3200708	V3200708S	5/16	5/16	7/16	1	0.291	2-1/2
V3200717	V3200717S	5/16	5/16	7/16	2-1/8	0.291	4
V3240809	V3240809S	3/8	3/8	1/2	1-1/8	0.355	2-1/2
V3240817	V3240817S	3/8	3/8	1/2	2-1/8	0.355	4
V3241017	V3241017S	3/8	3/8	5/8	2-1/8	0.355	4
V3241617	V3241617S	3/8	3/8	1	2-1/8	0.355	4
V3321011	V3321011S	1/2	1/2	5/8	1-3/8	0.475	3
V3321017	V3321017S	1/2	1/2	5/8	2-1/8	0.475	4
V3321020	V3321020S	1/2	1/2	5/8	2-1/2	0.475	5
V3321048	V3321048S	1/2	1/2	5/8	6	0.475	8
V3321227	V3321227S	1/2	1/2	3/4	3-3/8	0.475	6
V3321232	V3321232S	1/2	1/2	3/4	4	0.475	6
V3401212	V3401212S	5/8	5/8	3/4	1-1/2	0.590	3-1/2
V3401219	V3401219S	5/8	5/8	3/4	2-3/8	0.590	5
V3401227	V3401227S	5/8	5/8	3/4	3-3/8	0.590	6
V3401232	V3401232S	5/8	5/8	3/4	4	0.590	6
V3401248	V3401248S	5/8	5/8	3/4	6	0.590	8
V3481612	V3481612S	3/4	3/4	1	1-1/2	0.715	4
V3481616	V3481616S	3/4	3/4	1	2	0.715	5
V3481620	V3481620S	3/4	3/4	1	2-1/2	0.715	5
V3481627	V3481627S	3/4	3/4	1	3-3/8	0.715	6
V3481632	V3481632S	3/4	3/4	1	4	0.715	6
V3481648	V3481648S	3/4	3/4	1	6	0.715	8
V3482627	V3482627S	3/4	3/4	1-5/8	3-3/8	0.715	6
V3641612	V3641612S	1	1	1	1-1/2	0.960	4
V3641617	V3641617S	1	1	1	2-1/8	0.960	5
V3642027	V3642027S	1	1	1-1/4	3-3/8	0.960	6
V3642032	V3642032S	1	1	1-1/4	4	0.960	6
V3642035	V3642035S	1	1	1-1/4	4-3/8	0.960	7
V3642048	V3642048S	1	1	1-1/4	6	0.960	8
V3642432	V3642432S	1	1	1-1/2	4	0.960	6
V3643272	V3643272S	1	1	2	9	0.960	13
V3643280	V3643280S	1	1	2	10	0.960	16

For guidance to calculate surface footage & chip load for Viper® End Mills refer to the Technical Section on pages 28 & 29.

*LBS: Length Below Shank

S: Stealth Coating

— Black Stealth is an invisible, lubristic coating that is covered in a black material to support identification between uncoated and coated tools.

NOTE: For Diamond Like Coating add DLC after the part number (limited stock)

Friction Coefficients

TiN Coated Carbide End Mill

Viper Black Stealth

.10 .09 .08 .07 .06 .05 .04 .03 .02 .01 .00

High Friction — Lower Friction

Tool Life

4 Hours: Carbide

40 hours: Viper Black Stealth

Square End, 3 Flute, Regular, 45 Degree Helix

Long Shank Series, NNK*

Part No. Uncoated	Part No. Stealth	Dia. of Cut	Shank Dia.	LOC	NNK*	OAL
V308040	V308040S	1/8	1/8	1/4	NNK	3
V312040	V312040S	3/16	3/16	1/4	NNK	3
V316080	V316080S	1/4	1/4	1/2	NNK	4
V3161200	V3161200S	1/4	1/4	3/4	NNK	6
V320070	V320070S	5/16	5/16	7/16	NNK	4
V324080	V324080S	3/8	3/8	1/2	NNK	4
V324160	V324160S	3/8	3/8	1	NNK	4
V3241600	V3241600S	3/8	3/8	1	NNK	6
V3321000	V3321000S	1/2	1/2	5/8	NNK	8
V332120	V332120S	1/2	1/2	3/4	NNK	6
V332200	V332200S	1/2	1/2	1-1/4	NNK	6
V340120	V340120S	5/8	5/8	3/4	NNK	6
V3401200	V3401200S	5/8	5/8	3/4	NNK	8
V348160	V348160S	3/4	3/4	1	NNK	6
V3481600	V3481600S	3/4	3/4	1	NNK	8
V3482000	V3482000S	3/4	3/4	1-1/4	NNK	8
V34820000	V34820000S	3/4	3/4	1-1/4	NNK	12
V364160	V364160S	1	1	1	NNK	5
V364200	V364200S	1	1	1-1/4	NNK	6
V3642000	V3642000S	1	1	1-1/4	NNK	8
V36420000	V36420000S	1	1	1-1/4	NNK	12
V36432000	V36432000S	1	1	2	NNK	13
V380320	V380320S	1-1/4	1-1/4	2	NNK	7-1/2
V3803200	V3803200S	1-1/4	1-1/4	2	NNK	13

For guidance to calculate surface footage & chip load for Viper™ End Mills refer to the Technical Section on pages 28 & 29.

*NNK: No Neck

S: Stealth Coating

— Black Stealth is an invisible, lubristic coating that is covered in a black material to support identification between uncoated and coated tools.

NOTE: For Diamond Like Coating add DLC after the part number (limited stock)

Tolerances: Viper

End Mill Diameter:	*–.0001"*	*to*	*–.0003"*
Shank Diameter:	*+.000"*	*to*	*–.0003"*
Ball Nose:	*+.001"*	*to*	*–.001"*

Viper™ 45° HELIX END MILLS

See it in Action!

DVH Viper™ 45° HELIX END MILLS

V3321000 V3321000S

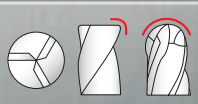
P Steel N Aluminum

DESTINY TOOL THE MARK OF PERFORMANCE

DVH Viper™ 45° HELIX END MILLS

V33220R093 V33220R093S

P Steel N Aluminum



Radius, 3 Flute, 45 Degree

Part No. Uncoated	Part No. Stealth	Dia. of Cut	Shank Dia.	LOC	OAL	Radius
V31606R010	V31606R010S	1/4	1/4	3/8	2	0.010
V31606R015	V31606R015S	1/4	1/4	3/8	2	0.015
V31606R030	V31606R030S	1/4	1/4	3/8	2	0.030
V31606R060	V31606R060S	1/4	1/4	3/8	2	0.060
V31608R010	V31608R010S	1/4	1/4	1/2	2	0.010
V31608R015	V31608R015S	1/4	1/4	1/2	2	0.015
V31608R030	V31608R030S	1/4	1/4	1/2	2	0.030
V31608R060	V31608R060S	1/4	1/4	1/2	2	0.060
V31612R010	V31612R010S	1/4	1/4	3/4	2-1/2	0.010
V31612R015	V31612R015S	1/4	1/4	3/4	2-1/2	0.015
V31612R030	V31612R030S	1/4	1/4	3/4	2-1/2	0.030
V31612R060	V31612R060S	1/4	1/4	3/4	2-1/2	0.060
V32408R010	V32408R010S	3/8	3/8	1/2	2	0.010
V32408R030	V32408R030S	3/8	3/8	1/2	2	0.030
V32408R060	V32408R060S	3/8	3/8	1/2	2	0.060
V32408R093	V32408R093S	3/8	3/8	1/2	2	0.093
V32412R010	V32412R010S	3/8	3/8	3/4	2-1/2	0.010
V32412R030	V32412R030S	3/8	3/8	3/4	2-1/2	0.030
V32412R060	V32412R060S	3/8	3/8	3/4	2-1/2	0.060
V32412R093	V32412R093S	3/8	3/8	3/4	2-1/2	0.093
V32416R010	V32416R010S	3/8	3/8	1	2-1/2	0.010
V32416R030	V32416R030S	3/8	3/8	1	2-1/2	0.030
V32416R060	V32416R060S	3/8	3/8	1	2-1/2	0.060
V32416R093	V32416R093S	3/8	3/8	1	2-1/2	0.093
V33210R010	V33210R010S	1/2	1/2	5/8	3	0.010
V33210R030	V33210R030S	1/2	1/2	5/8	3	0.030
V33210R045	V33210R045S	1/2	1/2	5/8	3	0.045
V33210R060	V33210R060S	1/2	1/2	5/8	3	0.060
V33210R090	V33210R090S	1/2	1/2	5/8	3	0.090
V33210R093	V33210R093S	1/2	1/2	5/8	3	0.093
V33210R125	V33210R125S	1/2	1/2	5/8	3	0.125
V33216R010	V33216R010S	1/2	1/2	1	3	0.010
V33216R030	V33216R030S	1/2	1/2	1	3	0.030
V33216R045	V33216R045S	1/2	1/2	1	3	0.045
V33216R060	V33216R060S	1/2	1/2	1	3	0.060
V33216R090	V33216R090S	1/2	1/2	1	3	0.090
V33216R093	V33216R093S	1/2	1/2	1	3	0.093
V33216R125	V33216R125S	1/2	1/2	1	3	0.125
V33220R010	V33220R010S	1/2	1/2	1-1/4	3	0.010
V33220R030	V33220R030S	1/2	1/2	1-1/4	3	0.030
V33220R045	V33220R045S	1/2	1/2	1-1/4	3	0.045
V33220R060	V33220R060S	1/2	1/2	1-1/4	3	0.060
V33220R090	V33220R090S	1/2	1/2	1-1/4	3	0.090
V33220R093	V33220R093S	1/2	1/2	1-1/4	3	0.093
V33220R125	V33220R125S	1/2	1/2	1-1/4	3	0.125
V34012R010	V34012R010S	5/8	5/8	3/4	3-1/2	0.010
V34012R030	V34012R030S	5/8	5/8	3/4	3-1/2	0.030
V34012R060	V34012R060S	5/8	5/8	3/4	3-1/2	0.060
V34012R093	V34012R093S	5/8	5/8	3/4	3-1/2	0.093
V34012R125	V34012R125S	5/8	5/8	3/4	3-1/2	0.125
V34020R010	V34020R010S	5/8	5/8	1-1/4	3-1/2	0.010
V34020R030	V34020R030S	5/8	5/8	1-1/4	3-1/2	0.030
V34020R060	V34020R060S	5/8	5/8	1-1/4	3-1/2	0.060
V34020R093	V34020R093S	5/8	5/8	1-1/4	3-1/2	0.093
V34020R125	V34020R125S	5/8	5/8	1-1/4	3-1/2	0.125
V34026R010	V34026R010S	5/8	5/8	1-5/8	4	0.010
V34026R030	V34026R030S	5/8	5/8	1-5/8	4	0.030
V34026R060	V34026R060S	5/8	5/8	1-5/8	4	0.060
V34026R093	V34026R093S	5/8	5/8	1-5/8	4	0.093
V34026R125	V34026R125S	5/8	5/8	1-5/8	4	0.125
V34816R010	V34816R010S	3/4	3/4	1	4	0.010
V34816R030	V34816R030S	3/4	3/4	1	4	0.030
V34816R045	V34816R045S	3/4	3/4	1	4	0.045
V34816R060	V34816R060S	3/4	3/4	1	4	0.060
V34816R093	V34816R093S	3/4	3/4	1	4	0.093
V34816R125	V34816R125S	3/4	3/4	1	4	0.125
V34816R190	V34816R190S	3/4	3/4	1	4	0.190
V34826R010	V34826R010S	3/4	3/4	1-5/8	4	0.010
V34826R030	V34826R030S	3/4	3/4	1-5/8	4	0.030
V34826R045	V34826R045S	3/4	3/4	1-5/8	4	0.045
V34826R060	V34826R060S	3/4	3/4	1-5/8	4	0.060

Continued on next page

For guidance to calculate surface footage & chip load for Viper® End Mills refer to the Technical Section on pages 28 & 29.

NOTE: For Diamond Like Coating add DLC after the part number (limited stock)

Continued from previous page

Radius, 3 Flute, 45 Degree

Part No. Uncoated	Part No. Stealth	Dia. of Cut	Shank Dia.	LOC	OAL	Radius
V34826R090	V34826R090S	3/4	3/4	1-5/8	4	0.090
V34826R093	V34826R093S	3/4	3/4	1-5/8	4	0.093
V34826R125	V34826R125S	3/4	3/4	1-5/8	4	0.125
V34826R190	V34826R190S	3/4	3/4	1-5/8	4	0.190
V34832R010	V34832R010S	3/4	3/4	2	5	0.010
V34832R030	V34832R030S	3/4	3/4	2	5	0.030
V34832R045	V34832R045S	3/4	3/4	2	5	0.045
V34832R060	V34832R060S	3/4	3/4	2	5	0.060
V34832R093	V34832R093S	3/4	3/4	2	5	0.060
V34832R125	V34832R125S	3/4	3/4	2	5	0.125
V34832R190	V34832R190S	3/4	3/4	2	5	0.190
V36424R030	V36424R030S	1	1	1-1/2	4	0.030
V36424R060	V36424R060S	1	1	1-1/2	4	0.060
V36424R093	V36424R093S	1	1	1-1/2	4	0.093
V36424R125	V36424R125S	1	1	1-1/2	4	0.125
V36424R190	V36424R190S	1	1	1-1/2	4	0.190
V36426R190	V36426R190S	1	1	2-1/4	5	0.190
V36436R030	V36436R030S	1	1	2-1/4	5	0.030
V36436R060	V36436R060S	1	1	2-1/4	5	0.060
V36436R093	V36436R093S	1	1	2-1/4	5	0.093
V36436R125	V36436R125S	1	1	2-1/4	5	0.125

For guidance to calculate surface footage & chip load for Viper™ End Mills refer to the Technical Section on pages 28 & 29.

NOTE: For Diamond Like Coating add DLC after the part number (limited stock)

Ball, 3 Flute, 45 Degree Helix

Part No. Uncoated	Part No. Stealth	Dia. of Cut	Shank Dia.	LOC	OAL
BV30805	BV30805S	1/8	1/8	5/16	1-1/2
BV30806	BV30806S	1/8	1/8	3/8	1-1/2
BV30808	BV30808S	1/8	1/8	1/2	1-1/2
BV31206	BV31206S	3/16	3/16	3/8	2
BV31210	BV31210S	3/16	3/16	5/8	2-1/2
BV31608	BV31608S	1/4	1/4	1/2	2
BV31612	BV31612S	1/4	1/4	3/4	2-1/2
BV32008	BV32008S	5/16	5/16	1/2	2
BV32013	BV32013S	5/16	5/16	13/16	2-1/2
BV32410	BV32410S	3/8	3/8	5/8	2
BV32416	BV32416S	3/8	3/8	1	2-1/2
BV33212	BV33212S	1/2	1/2	3/4	3
BV33216	BV33216S	1/2	1/2	1	3
BV33220	BV33220S	1/2	1/2	1-1/4	3
BV34012	BV34012S	5/8	5/8	3/4	3-1/2
BV34020	BV34020S	5/8	5/8	1-1/4	3-1/2
BV34026	BV34026S	5/8	5/8	1-5/8	4
BV34816	BV34816S	3/4	3/4	1	4
BV34826	BV34826S	3/4	3/4	1-5/8	4
BV36420	BV36420S	1	1	1-1/4	4
BV36432	BV36432S	1	1	2	5

For guidance to calculate surface footage & chip load for Viper™ End Mills refer to the Technical Section on pages 28 & 29.

S: Stealth Coating

— Black Stealth is an invisible, lubristic coating that is covered in a black material to support identification between uncoated and coated tools.

Tolerances: Viper

End Mill Diameter:	*–.0001"*	*to*	*–.0003"*
Shank Diameter:	*+.000"*	*to*	*–.0003"*
Ball Nose:	*+.001"*	*to*	*–.001"*

Viper 45° HELIX END MILLS

SEE IT IN ACTION! YouTube

Friction Coefficients

TiN Coated Carbide End Mill

Viper Black Stealth

.10 .09 .08 .07 .06 .05 .04 .03 .02 .01 .00

High Friction — Lower Friction

Tool Life

4 Hours: Carbide

40 hours: Viper Black Stealth

DVH Viper™ 45° HELIX END MILLS

BV33216 BV33216S

P Steel N Aluminum

DESTINY TOOL THE MARK OF PERFORMANCE

DVH Viper™ 45° HELIX END MILLS

Ball, 3 Flute, 45 Degree Helix

Long Shank Series with Reduced Neck, LBS*

Part No. Uncoated	Part No. Stealth	Dia. of Cut	Shank Dia.	LOC	Lbs.*	Neck Dia.	OAL
BV3160617	BV3160617S	1/4	1/4	3/8	2-1/8	0.235	4
BV3161217	BV3161217S	1/4	1/4	3/4	2-1/8	0.235	4
BV3200717	BV3200717S	5/16	5/16	7/16	2-1/8	0.291	4
BV3240817	BV3240817S	3/8	3/8	1/2	2-1/8	0.355	4
BV3241617	BV3241617S	3/8	3/8	1	2-1/8	0.355	4
BV3321017	BV3321017S	1/2	1/2	5/8	2-1/8	0.475	4
BV3321227	BV3321227S	1/2	1/2	5/8	3-3/8	0.475	6
BV3401227	BV3401227S	5/8	5/8	3/4	3-3/8	0.590	6
BV3481627	BV3481627S	3/4	3/4	1	3-3/8	0.715	6

For guidance to calculate surface footage & chip load for Viper™ End Mills refer to the Technical Section on pages 28 & 29.

Ball, 3 Flute

Long Shank Series NNK*

Part No. Uncoated	Part No. Stealth	Dia. of Cut	Shank Dia.	LOC	NNK*	OAL
BV316060	BV316060S	1/4	1/4	3/8	NNK*	4
BV324080	BV324080S	3/8	3/8	1/2	NNK*	4
BV332200	BV332200S	1/2	1/2	1-1/4	NNK*	6
BV348160	BV348160S	3/4	3/4	1	NNK*	6
BV364200	BV364200S	1	1	1-1/4	NNK*	6

For guidance to calculate surface footage & chip load for Viper™ End Mills refer to the Technical Section on pages 28 & 29.

*LBS: Length Below Shank
*NNK: No Neck

S: Stealth Coating

— Black Stealth is an invisible, lubristic coating that is covered in a black material to support identification between uncoated and coated tools.

BV3321017 BV3321017S

BV332200 BV332200S

Tolerances: Viper

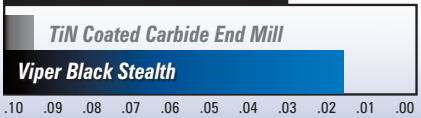
End Mill Diameter:	*–.0001"*	*to*	*–.0003"*
Shank Diameter:	*+.000"*	*to*	*–.0003"*
Ball Nose:	*+.001"*	*to*	*–.001"*

Viper™ 45° HELIX END MILLS

See it in Action!

YouTube

Friction Coefficients



Tool Life

DESTINY TOOL
THE MARK OF PERFORMANCE

DVH Viper™ 45° HELIX END MILLS

Radius, 4 Flute Viper, 45 Degree

Part No. Coated	Part No. Stealth	Dia. of Cut	Shank Dia.	LOC	OAL	Radius
V43210R030	V43210R030S	1/2	1/2	5/8	3	0.030
V43216R030	V43216R030S	1/2	1/2	1	3	0.030
V43220R030	V43220R030S	1/2	1/2	1-1/4	3	0.030
V44020R030	V44020R030S	5/8	5/8	1-1/4	3-1/2	0.030
V44026R030	V44026R030S	5/8	5/8	1-5/8	4	0.030
V44816R040	V44816R040S	3/4	3/4	1	4	0.040
V44826R040	V44826R040S	3/4	3/4	1-5/8	4	0.040
V44836R040	V44836R040S	3/4	3/4	2-1/4	5	0.040
V46424R040	V46424R040S	1	1	1-1/2	4	0.040
V46436R040	V46436R040S	1	1	2-1/4	5	0.040

For guidance to calculate surface footage & chip load for Viper™ End Mills refer to the Technical Section on pages 28 & 29.

Square End, 4 flute, 45 Degree Helix

Part No. Coated	Part No. Stealth	Dia. of Cut	Shank Dia.	LOC	OAL
V43210	V43210S	1/2	1/2	5/8	3
V43216	V43216S	1/2	1/2	1	3
V43220	V43220S	1/2	1/2	1-1/4	3
V44020	V44020S	5/8	5/8	1-1/4	3-1/2
V44026	V44026S	5/8	5/8	1-5/8	4
V44816	V44816S	3/4	3/4	1	4
V44826	V44826S	3/4	3/4	1-5/8	4
V44836	V44836S	3/4	3/4	2-1/4	5
V46424	V46424S	1	1	1-1/2	4
V46436	V46436S	1	1	2-1/4	5

For guidance to calculate surface footage & chip load for Viper™ End Mills refer to the Technical Section on pages 28 & 29.

NOTE: For Diamond Like Coating add DLC after the part number (limited stock)

V43210

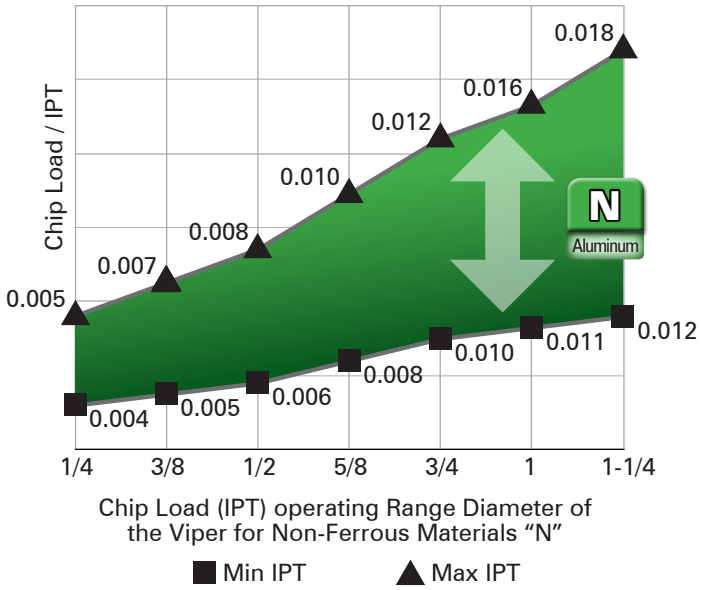
DESTINY TOOL
THE MARK OF PERFORMANCE

Viper DVH End Mills

While our Diamond Back series end mills are primarily for roughing, our Viper DVH series end mills are for both roughing and finishing.

The "General Operating Range" is based upon **1X diameter** (ADC / DOC) in full diameter (RDC / WOC) **SLOTTING**. The minimum chip loads remain constant for all applications, however, the maximum chip loads can be increased for side milling applications in finishing, heavy roughing & light roughing.

Viper – Chip Load Operating Range



Chip Load (IPT) operating Range Diameter of the Viper for Non-Ferrous Materials "N"

■ Min IPT ▲ Max IPT

N Aluminum

Viper DVH – "N" Non-Ferrous Alloys – SFM Starting Parameters

ADC	RDC	Slotting			Peripheral		
		Conservative	Moderate	Aggressive	Conservative	Moderate	Aggressive
1/2 X D	1/4 X D	1600	2400	MAX	1800	2400	MAX
1 X D	1/2 X D	1400	2000	MAX	1600	2400	MAX
1.5 X D	1 X D	1200	1600	MAX	1400	1800	MAX
2 X D	1 X D	1000	1400	MAX	1200	1600	MAX

Use 70% of your RPM when slotting over 1 X D

N Aluminum

Material	Min SFM	Median SFM	Max SFM
Aluminum	1200	65% Max RPM	Max RPM
Aluminum Cast	1000	65% Max RPM	Max RPM
Brass Yellow, Red	400	950	1500
Bronze – Alum Bronze	250	625	1000
Composites: CFRP; Aramid	200	300	400
Composites: Honeycomb	200	300	400
Composites: Phenolic	600	800	1000
Copper	800	900	1000
Delrin	800	1,050	1300
Graphite	600	800	1000
Plastics: Hard	500	800	1000
Plastics: Soft	600	800	1000

Speed & Feed Formulas

SFM = RPM X .262 X Tool Diameter

RPM = SFM X 3.82 ÷ Tool Diameter

IPM = RPM X IPT (CLPT) X Number of Flutes

IPT = IPM ÷ (RPM X Number of Flutes)

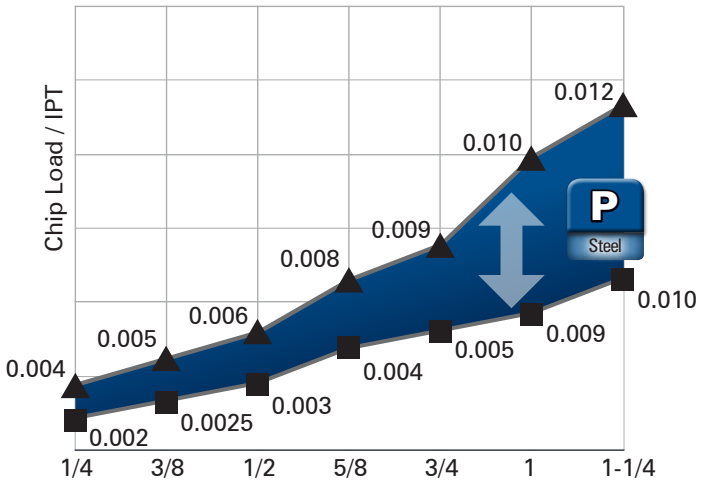
MRR = RDC X ADC X IPM (a.k.a. CIM)

HP = KW X 1.342

Torque (Full Load) = 5252 X HP ÷ RPM

NOTE: Reduce SFM when using long reach tools.

Viper – Chip Load Operating Range



Chip Load (IPT) operating Range Diameter of the Viper for Non-Ferrous Materials "N"

■ Min IPT ▲ Max IPT

P Steel

Viper DVH – "P" Mild Steel – SFM Starting Parameters

ADC	RDC	Slotting			Peripheral		
		Conservative	Moderate	Aggressive	Conservative	Moderate	Aggressive
1/2 X D	1/4 X D	500	600	800	550	700	900
1 X D	1/2 X D	400	500	600	450	600	800
1.5 X D	1 X D	350	450	500	400	500	700
2 X D	1 X D	300	400	450	350	400	600

These parameters for materials in this material group that are Only under <18 – 20 HRc (Brinell Hardness <223 – 217). Our Raptor DVH, Raptor 3/6 and Python series end mills are better suited for this material group.

P Steel

Material	Min SFM	Median SFM	Max SFM
Alloy Steel 4140, 4150, 4320, 5120, 6118, 6150, 8620	250	350	450
Free Machining Steel 1111, 1115, 1140	300	450	600
Low Carbon Steel 1010, 1018, 1020 12L14, A36	300	450	600
Med Carbon Steel 1035, 1040, 1095, 1525, 1572	200	320	470
Tool Steel A2, <35 R/c	150	300	450
Tool Steel D2 <35 R/c	150	300	450
Tool Steel P20 , H13 <35 R/c	160	305	450

Speed & Feed Formulas

SFM = RPM X .262 X Tool Diameter

RPM = SFM X 3.82 ÷ Tool Diameter

IPM = RPM X IPT (CLPT) X Number of Flutes

IPT = IPM ÷ (RPM X Number of Flutes)

MRR = RDC X ADC X IPM (a.k.a. CIM)

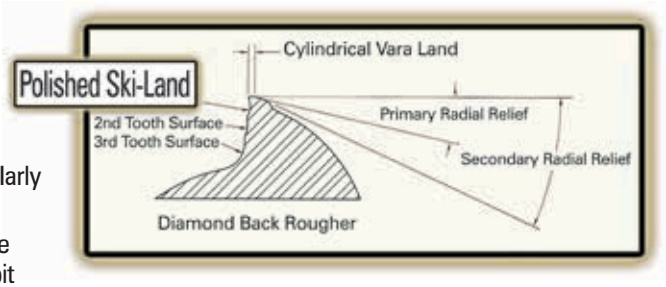
HP = KW X 1.342

Torque (Full Load) = 5252 X HP ÷ RPM

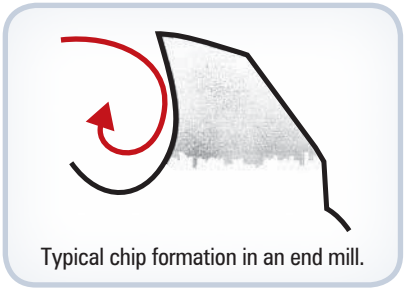
NOTE: Reduce SFM when using long reach tools.

Diamond Back Chip Formation

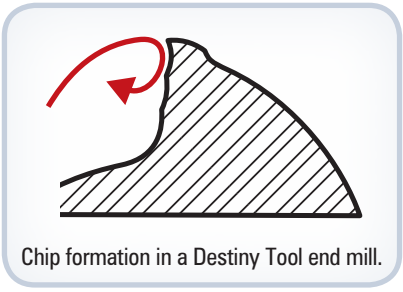
One of the first things many people first notice is the multiple rake faces on our tools. Think of these as first, second and third gear in your car. When you read our speed/feed charts you will see that we have several recommendations for our tools. That's because, unlike most end mills on the market our tools are designed for elevated chip loads particularly in non-ferrous applications.



Most end mills form 6's & 9's by moving down into the rake face into the gullet (center line) of the tool. Our tools are designed a bit differently so that the chip actually forms in the outer rake face of the tool and ejects prior to traveling into the core diameter/gullet of the flute. This is part of the reason why increasing the chip load per tooth on our end mills will often reduce the horse power load of the machine. Less energy is required to form the chip and it reduces the heat put into the cutting tool. Heat is a major cause of cutting tool failure over time, so we developed our tools to remove as much heat in the chip as quickly as possible.



Typical chip formation in an end mill.



Chip formation in a Destiny Tool end mill.

Unlike other end mills we have found that chatter is caused by too LIGHT of a chip load per tooth. INCREASING the chip load per tooth will eliminate most chatter problems!

Diamond Back General Rule of Thumb: Chatter

Diamond Back: Understanding Roughing, Light Roughing and Finishing

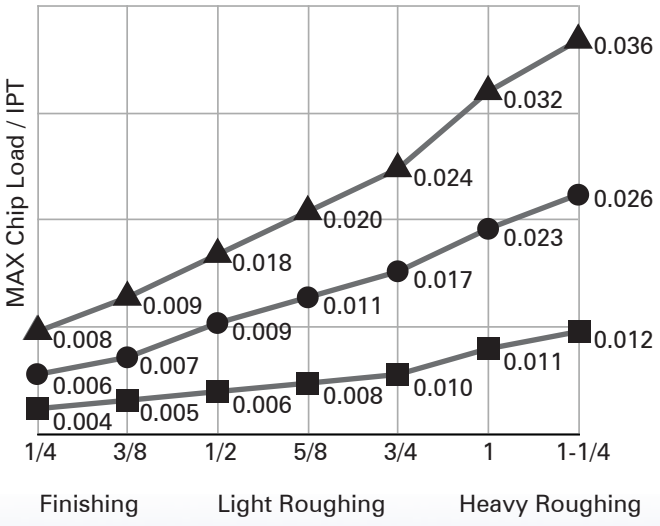
One of the most common causes of chatter with our tools is running tools with TOO LIGHT of a chip load. Most chatter problems can be fixed by INCREASING the chip load per tooth (IPT)

Heavy Roughing (Side Milling) Defined:
ADC (Axial Depth of Cut) = up to 1X dia.diameter
RDC (Radial Depth of Cut) = 30% – 50% of diameter

Light Roughing (Side Milling) Defined:
ADC (Axial Depth of Cut) = up to 1X diameter
RDC (Radial Depth of Cut) = 15% – 30% of diameter

Finishing (Side Milling) Defined:
ADC (Axial Depth of Cut) = up to 1X diameter
RDC (Radial Depth of Cut) = 4% – 15% of diameter

Diamond Back Chip Load For Finishing, Heavy Roughing & Light Roughing



DVH Diamond Back FLAT PROFILE ROUGHERS

2 Flute, Roughers, 45 Degree Helix

For high-speed machining of aluminum

Part No. Uncoated	Part No. Stealth	ZrN Coating	Dia. of Cut	Shank Dia.	LOC	OAL	Radius
DR21612R020	DR21612R020S	DR21612R020Z	1/4	1/4	3/4	2-1/2	0.020
DR22416R020	DR22416R020S	DR22416R020Z	3/8	3/8	1	2-1/2	0.020
DR23220R030	DR23220R030S	DR23220R030Z	1/2	1/2	1-1/4	3	0.030
DR24026R030	DR24026R030S	DR24026R030Z	5/8	5/8	1-5/8	4	0.030
DR24826R030	DR24826R030S	DR24826R030Z	3/4	3/4	1-5/8	4	0.030
DR24836R030	DR24836R030S	DR24836R030Z	3/4	3/4	2-1/4	5	0.030

For guidance to calculate surface footage & chip load for Diamond Back™ End Mills refer to the Technical Section on page 35.

2 Flute, Roughers

Long Shank Series with Reduced Neck, LBS*, Radius

Part No. Uncoated	Part No. Stealth	ZrN Coating	Dia. of Cut	Shank Dia.	LOC	LBS*	Neck Dia.	OAL	Radius
DR2160817R020	DR2160817R020S	DR2160817R020Z	1/4	1/4	1/2	2-1/8	0.235	4	0.020
DR2240817R020	DR2240817R020S	DR2240817R020Z	3/8	3/8	1/2	2-1/8	0.355	4	0.020
DR2321227R030	DR2321227R030S	DR2321227R030Z	1/2	1/2	3/4	3-3/8	0.475	6	0.030
DR2401227R030	DR2401227R030S	DR2401227R030Z	5/8	5/8	3/4	3-3/8	0.590	6	0.030
DR2481627R030	DR2481627R030S	DR2481627R030Z	3/4	3/4	1	3-3/8	0.715	6	0.030

For guidance to calculate surface footage & chip load for Diamond Back™ End Mills refer to the Technical Section on page 35.

*LBS: Length Below Shank

S: Stealth Coating (at end of number)
Z: Zirconium Coating, Limited Stock

DR23220R030 DR23220R030S DR23220R030Z

Tolerances: Diamond Back

End Mill Diameter:	*–.0001"*	*to*	*–.0003"*
Shank Diameter:	*+.000"*	*to*	*–.0003"*
Ball Nose:	*+.001"*	*to*	*–.001"*

Diamond Back FLAT PROFILE ROUGHERS

See it in Action! YouTube

Friction Coefficients

TiN Coated Carbide End Mill

Diamond Back Black Stealth

.10 .09 .08 .07 .06 .05 .04 .03 .02 .01 .00

High Friction — Lower Friction

Tool Life

4 Hours: Carbide

40 hours: Diamond Back Black Stealth

DESTINY TOOL THE MARK OF PERFORMANCE

DVH Diamond Back™
FLAT PROFILE ROUGHERS

BDR23220 BDR23220S BDR23220Z

Ball, 2 Flute, Roughers

Part No. Uncoated	Part No. Stealth	ZrN Coating	Dia. of Cut	Shank Dia.	LOC	OAL
BDR21612	BDR21612S	BDR21612Z	1/4	1/4	3/4	2-1/2
BDR22416	BDR22416S	BDR22416Z	3/8	3/8	1	2-1/2
BDR23220	BDR23220S	BDR23220Z	1/2	1/2	1-1/4	3
BDR24026	BDR24026S	BDR24026Z	5/8	5/8	1-5/8	4
BDR24826	BDR24826S	BDR24826Z	3/4	3/4	1-5/8	4
BDR24836	BDR24836S	BDR24836Z	3/4	3/4	2-1/4	5

For guidance to calculate surface footage & chip load for Diamond Back™ End Mills refer to the Technical Section on page 35.

Ball, 2 Flute, Roughers

Long Shank Series with Reduced Neck, LBS*

Part No. Uncoated	Part No. Stealth	ZrN Coating	Dia. of Cut	Shank Dia.	LOC	LBS*	Neck Dia.	OAL
BDR2160817	BDR2160817S	BDR2160817Z	1/4	1/4	1/2	2-1/8	0.235	4
BDR2240817	BDR2240817S	BDR2240817Z	3/8	3/8	1/2	2-1/8	0.355	4
BDR2321227	BDR2321227S	BDR2321227Z	1/2	1/2	3/4	3-3/8	0.475	6
BDR2401227	BDR2401227S	BDR2401227Z	5/8	5/8	3/4	3-3/8	0.590	6
BDR2481627	BDR2481627S	BDR2481627Z	3/4	3/4	1	3-3/8	0.715	6

For guidance to calculate surface footage & chip load for Diamond Back™ End Mills refer to the Technical Section on page 35.

*LBS: Length Below Shank

S: Stealth Coating (at end of number)
Z: Zirconium Coating, Limited Stock

Friction Coefficients

Tool Life

3 Flute, Roughers

Part No. Uncoated	Part No. Stealth	ZrN Coating	Dia. of Cut	Shank Dia.	LOC	OAL	Radius
DR31606R020	DR31606R020S	DR31606R020Z	1/4	1/4	3/8	2	0.020
DR31608R020	DR31608R020S	DR31608R020Z	1/4	1/4	1/2	2	0.020
DR31612R020	DR31612R020S	DR31612R020Z	1/4	1/4	3/4	2-1/2	0.020
DR32410R020	DR32410R020S	DR32410R020Z	3/8	3/8	5/8	2	0.020
DR32416R020	DR32416R020S	DR32416R020Z	3/8	3/8	1	2-1/2	0.020
DR33210R030	DR33210R030S	DR33210R030Z	1/2	1/2	5/8	3	0.030
DR33216R030	DR33216R030S	DR33216R030Z	1/2	1/2	1	3	0.030
DR33220R030	DR33220R030S	DR33220R030Z	1/2	1/2	1-1/4	3	0.030
DR33220R045	DR33220R045S	DR33220R045Z	1/2	1/2	1-1/4	3	0.045
DR33220R060	DR33220R060S	DR33220R060Z	1/2	1/2	1-1/4	3	0.060
DR33220R090	DR33220R090S	DR33220R090Z	1/2	1/2	1-1/4	3	0.090
DR33220R125	DR33220R125S	DR33220R125Z	1/2	1/2	1-1/4	3	0.125
DR33224R030	DR33224R030S	DR33224R030Z	1/2	1/2	1-1/2	4	0.030
DR33232R030	DR33232R030S	DR33232R030Z	1/2	1/2	2	4	0.030
DR34012R030	DR34012R030S	DR34012R030Z	5/8	5/8	3/4	3-1/2	0.030
DR34020R030	DR34020R030S	DR34020R030Z	5/8	5/8	1-1/4	3-1/2	0.030
DR34020R060	DR34020R060S	DR34020R060Z	5/8	5/8	1-1/4	3-1/2	0.060
DR34020R093	DR34020R093S	DR34020R093Z	5/8	5/8	1-1/4	3-1/2	0.093
DR34020R125	DR34020R125S	DR34020R125Z	5/8	5/8	1-1/4	3-1/2	0.125
DR34026R030	DR34026R030S	DR34026R030Z	5/8	5/8	1-5/8	4	0.030
DR34026R060	DR34026R060S	DR34026R060Z	5/8	5/8	1-5/8	4	0.060
DR34026R093	DR34026R093S	DR34026R093Z	5/8	5/8	1-5/8	4	0.093
DR34026R125	DR34026R125S	DR34026R125Z	5/8	5/8	1-5/8	4	0.125
DR34032R030	DR34032R030S	DR34032R030Z	5/8	5/8	2	5	0.030
DR34816R030	DR34816R030S	DR34816R030Z	3/4	3/4	1	4	0.030
DR34826R030	DR34826R030S	DR34826R030Z	3/4	3/4	1-5/8	4	0.030
DR34826R045	DR34826R045S	DR34826R045Z	3/4	3/4	1-5/8	4	0.045
DR34826R060	DR34826R060S	DR34826R060Z	3/4	3/4	1-5/8	4	0.060
DR34826R090	DR34826R090S	DR34826R090Z	3/4	3/4	1-5/8	4	0.090
DR34826R125	DR34826R125S	DR34826R125Z	3/4	3/4	1-5/8	4	0.125
DR34826R190	DR34826R190S	DR34826R190Z	3/4	3/4	1-5/8	4	0.190
DR34836R030	DR34836R030S	DR34836R030Z	3/4	3/4	2-1/4	5	0.030
DR34852R030	DR34852R030S	DR34852R030Z	3/4	3/4	3-1/4	6	0.030
DR36424R030	DR36424R030S	DR36424R030Z	1	1	1-1/2	4	0.030
DR36424R060	DR36424R060S	DR36424R060Z	1	1	1-1/2	4	0.060
DR36424R093	DR35424R093S	DR36424R093Z	1	1	1-1/2	4	0.093
DR36424R125	DR36424R125S	DR36424R125Z	1	1	1-1/2	4	0.125
DR36436R030	DR36436R030S	DR36436R030Z	1	1	2-1/4	5	0.030
DR36452R030	DR36452R030S	DR36452R030Z	1	1	3-1/4	6	0.030

For guidance to calculate surface footage & chip load for Diamond Back™ End Mills refer to the Technical Section on page 35.

S: Stealth Coating (at end of number)
Z: Zirconium Coating, Limited Stock

— Additional radius sizes in stock. Call for availability.

Tolerances: Diamond Back

End Mill Diameter:	*–.0001"*	*to*	*–.0003"*
Shank Diameter:	*+.000"*	*to*	*–.0003"*
Ball Nose:	*+.001"*	*to*	*–.001"*

DVH Diamond Back FLAT PROFILE ROUGHERS

DR33216R030 DR33216R030S DR33210R030Z

SEE IT IN ACTION!

DVH Diamond Back FLAT PROFILE ROUGHERS

DR3321017R030 DR3321017R030S DR3321017R030Z

DR43216R030

3 Flute, Roughers

Long Shank Series with Reduced Neck, LBS*, Radius

Part No. Uncoated	Part No. Stealth	ZrN Coating	Dia. of Cut	Shank Dia.	LOC	LBS*	Neck Dia.	OAL	Radius
DR3160617R020	DR3160617R020S	DR3160617R020Z	1/4	1/4	3/8	2-1/8	0.235	4	0.020
DR3240809R020	DR3240809R020S	DR3240809R020Z	3/8	3/8	1/2	1-1/8	0.355	2-1/2	0.020
DR3240817R020	DR3240817R020S	DR3240817R020Z	3/8	3/8	1/2	2-1/8	0.355	4	0.020
DR3321011R030	DR3321011R030S	DR3321011R030Z	1/2	1/2	5/8	1-3/8	0.475	3	0.030
DR3321017R030	DR3321017R030S	DR3321017R030Z	1/2	1/2	5/8	2-1/8	0.475	4	0.030
DR3321020R030	DR3321020R030S	DR3321020R030Z	1/2	1/2	5/8	2-1/2	0.475	5	0.030
DR3321227R030	DR3321227R030S	DR3321227R030Z	1/2	1/2	3/4	3-3/8	0.475	6	0.030
DR3401227R030	DR3401227R030S	DR3401227R030Z	5/8	5/8	3/4	3-3/8	0.590	6	0.030
DR3481616R030	DR3481616R030S	DR3481616R030Z	3/4	3/4	1	2	0.715	5	0.030
DR3481627R030	DR3481627R030S	DR3481627R030Z	3/4	3/4	1	3-3/8	0.715	6	0.030
DR3481640R030	DR3481640R030S	DR3481640R030Z	3/4	3/4	1	5	0.715	8	0.030
DR3642027R030	DR3642027R030S	DR3642027R030Z	1	1	1-1/4	3-3/8	0.960	6	0.030
DR3642040R030	DR3642040R030S	DR3642040R030Z	1	1	1-1/4	5	0.960	8	0.030
DR3643280R030	DR3643280R030S	DR3643280R030Z	1	1	2	10	0.960	13	0.030

For guidance to calculate surface footage & chip load for Diamond Back™ End Mills refer to the Technical Section on page 35.

*LBS: Length Below Shank

S: Stealth Coating (at end of number)

Z: Zirconium Coating, Limited Stock

Radius, 4 Flute Diamondback Rougher, 45 Degree

Part No. Coated	Part No. Stealth	Dia. of Cut	Shank Dia.	LOC	OAL	Radius
DR43210R030	DR43210R030S	1/2	1/2	5/8	3	0.030
DR43216R030	DR43216R030S	1/2	1/2	1	3	0.030
DR43220R030	DR43220R030S	1/2	1/2	1-1/4	3	0.030
DR44020R030	DR44020R030S	5/8	5/8	1-1/4	3-1/2	0.030
DR44026R030	DR44026R030S	5/8	5/8	1-5/8	4	0.030
DR44816R040	DR44816R040S	3/4	3/4	1	4	0.040
DR44826R040	DR44826R040S	3/4	3/4	1-5/8	4	0.040
DR44836R040	DR44836R040S	3/4	3/4	2-1/4	5	0.040
DR46424R040	DR46424R040S	1	1	1-1/2	4	0.040
DR46436R040	DR46436R040S	1	1	2-1/4	5	0.040

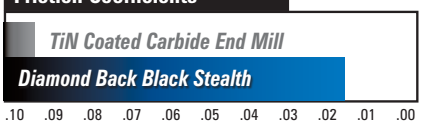
For guidance to calculate surface footage & chip load for Diamond Back™ End Mills refer to the Technical Section on page 35.

Tolerances: Diamond Back

End Mill Diameter: *–.0001" to –.0003"*

Shank Diameter: *+.000" to –.0003"*

Friction Coefficients



Tool Life

See it in Action! Diamond Back FLAT PROFILE ROUGHERS

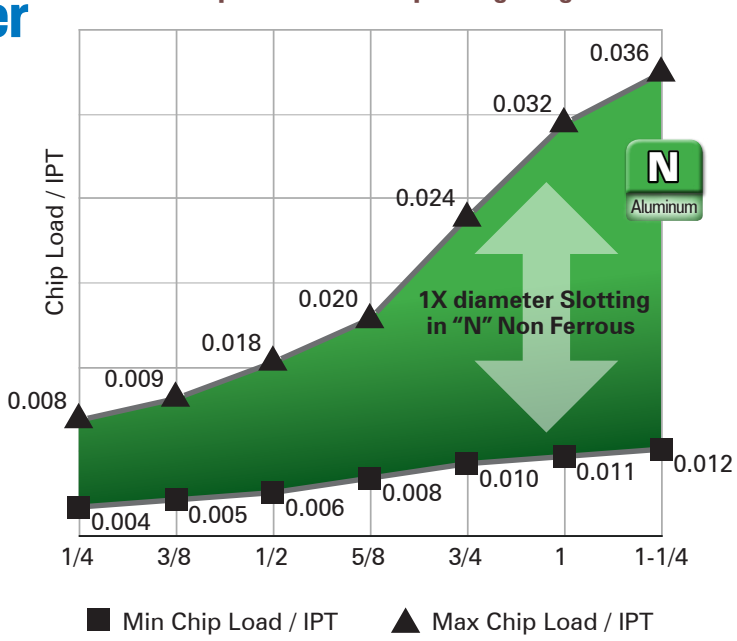
YouTube

Diamond Back Rougher

The Diamond Back Rougher is designed for maximum Metal Removal Rates (MRR) in Non Ferrous Applications. Although the charts depict a maximum chip load per tooth (IPT) value your maximum may be lower due to machine horsepower, **machine torque**, toolholder and/or workholding.

The "General Operating Range" is based upon **1X diameter** (ADC / DOC) in full diameter (RDC / WOC) **SLOTTING**. The minimum chip loads remain constant for all applications, however, the maximum chip loads can be increased for side milling applications in finishing, heavy roughing & light roughing.

Diamond Back Rougher – Chip Load General Operating Range



N Aluminum

Diamond Back – "N" Non-Ferrous Alloys – SFM Starting Parameters

ADC	RDC	Slotting			Peripheral		
		Conservative	Moderate	Aggressive	Conservative	Moderate	Aggressive
1/2 X D	1/4 X D	1600	2400	MAX	1800	2400	MAX
1 X D	1/2 X D	1400	2400	MAX	1600	2400	MAX
1.5 X D	1 X D	1200	2400	MAX	1400	1800	MAX
2 X D	1 X D	1000	2000	MAX	1200	1600	MAX

N Aluminum

Material	Min SFM	Median SFM	Max SFM
Aluminum	1200	65% Max RPM	Max RPM
Aluminum Cast	1000	65% Max RPM	Max RPM
Brass Yellow, Red	400	950	1500
Bronze – Alum Bronze	250	625	1000
Composites: CFRP; Aramid	200	300	400
Composites: Honeycomb	200	300	400
Composites: Phenolic	600	800	1000
Copper	800	900	1000
Delrin	800	1,050	1300
Graphite	600	800	1000
Plastics: Hard	500	800	1000
Plastics: Soft	600	800	1000

Speed & Feed Formulas

SFM = RPM X .262 X Tool Diameter

RPM = SFM X 3.82 ÷ Tool Diameter

IPM = RPM X IPT (CLPT) X Number of Flutes

IPT = IPM ÷ (RPM X Number of Flutes)

NOTE: Reduce SFM when using long reach tools.

MRR = RDC X ADC X IPM (a.k.a. CIM)

HP = KW X 1.342

Torque (Full Load) = 5252 X HP ÷ RPM

Python™ 45° HELIX END MILLS

3 Flute, 45 Degree Rapid Helix

For high-speed machining of stainless steel and aluminum

Part No. S/E	X-Treme Coating	Dia. of Cut	Shank Dia.	LOC	OAL
P30706	P30706X	7/64	1/8	3/8	1-1/2
P30805	P30805X	1/8	1/8	5/16	1-1/2
P30808	P30808X	1/8	1/8	1/2	1-1/2
P30812	P30812X	1/8	1/8	3/4	2
P30906	P30906X	9/64	3/16	3/8	2
P31206	P31206X	3/16	3/16	3/8	2
P31210	P31210X	3/16	3/16	5/8	2-1/2
P31212	P31212X	3/16	3/16	3/4	2-1/2

For guidance to calculate surface footage & chip load for Python™ End Mills refer to the Technical Section on pages 39 to 41.

3 Flute, Double End, 45 Degree Rapid Helix

Part No. S/E	X-Treme Coating	Dia. of Cut	Shank Dia.	LOC	OAL
P30804D	N/A	1/8	1/8	1/4	1-1/2
P31005D	P31005DX	5/32	3/16	5/16	2
P31205D	P31205DX	3/16	3/16	5/16	2
P31408D	P31408DX	7/32	1/4	1/2	2-1/2

For guidance to calculate surface footage & chip load for Python™ End Mills refer to the Technical Section on pages 39 to 41.

3 Flute, 45 Degree Rapid Helix, With Radius

Part No. S/E	X-Treme Coating	Dia. of Cut	Shank Dia.	LOC	OAL	Radius
P30706R	P30706RX	7/64	1/8	3/8	1-1/2	.015–.020
P30805R	P30805RX	1/8	1/8	5/16	1-1/2	.008–.012
P30808R	P30808RX	1/8	1/8	1/2	1-1/2	.008–.012
P30906R	P30906RX	9/64	3/16	3/8	2	.015–.020
P31206R	P31206RX	3/16	3/16	3/8	2	.008–.012
P31210R	P31210RX	3/16	3/16	5/8	2-1/2	.008–.012

X: X-Treme Coating

For guidance to calculate surface footage & chip load for Python™ End Mills refer to the Technical Section on pages 39 to 41.

5 Flute, 45 Degree Rapid Helix

Part No. S/E	X-Treme Coating	Dia. of Cut	Shank Dia.	LOC	OAL
P50805	P50805X	1/8	1/8	5/16	1-1/2
P50808	P50808X	1/8	1/8	1/2	1-1/2
P50812	P50812X	1/8	1/8	3/4	2
P51206	P51206X	3/16	3/16	3/8	2
P51210	P51210X	3/16	3/16	5/8	2-1/2
P51212	P51212X	3/16	3/16	3/4	2-1/2
P51608	P51608X	1/4	1/4	1/2	2
P51612	P51612X	1/4	1/4	3/4	2-1/2
P51618	P51618X	1/4	1/4	1-1/8	2-1/2
P52008	P52008X	5/16	5/16	1/2	2
P52013	P52013X	5/16	5/16	13/16	2-1/2
P52018	P52018X	5/16	5/16	1-1/8	2-1/2
P52410	P52410X	3/8	3/8	5/8	2
P52416	P52416X	3/8	3/8	1	2-1/2
P52420	P52420X	3/8	3/8	1-1/4	3
P52809	P52809X	7/16	7/16	9/16	2-3/4
P52816	P52816X	7/16	7/16	1	2-3/4
P53212	P53212X	1/2	1/2	3/4	3
P53216	P53216X	1/2	1/2	1	3
P53220	P53220X	1/2	1/2	1-1/4	3
P53224	P53224X	1/2	1/2	1-1/2	4
P53232	P53232X	1/2	1/2	2	4
P54012	P54012X	5/8	5/8	3/4	3-1/2
P54020	P54020X	5/8	5/8	1-1/4	3-1/2
P54026	P54026X	5/8	5/8	1-5/8	4
P54032	P54032X	5/8	5/8	2	5
P54036	P54036X	5/8	5/8	2-1/4	5
P54052	P54052X	5/8	5/8	3-1/4	6
P54816	P54816X	3/4	3/4	1	4
P54826	P54826X	3/4	3/4	1-5/8	4
P54832	P54832X	3/4	3/4	2	5
P54836	P54836X	3/4	3/4	2-1/4	5
P54840	P54840X	3/4	3/4	2-1/2	5
P54852	P54852X	3/4	3/4	3-1/4	6
P56424	P56424X	1	1	1-1/2	4
P56432	P56432X	1	1	2	5
P56440	P56440X	1	1	2-1/2	5
P56452	P56452X	1	1	3-1/4	6
P56464	P56464X	1	1	4	7

X: X-Treme Coating

For guidance to calculate surface footage & chip load for Python™ End Mills refer to the Technical Section on pages 39 to 41.

Tolerances: Python

End Mill Diameter:	*–.000"*	*to*	*–.002"*
Shank Diameter:	*+.000"*	*to*	*–.0003"*

Python 45° HELIX END MILLS

P53216 P53216X

Python 45° HELIX END MILLS

SEE IT IN ACTION!

DESTINY TOOL
THE MARK OF PERFORMANCE

Python™ 45° HELIX END MILLS

5 Flute, Double End, 45 Degree Rapid Helix

Part No. S/E	X-Treme Coating	Dia. of Cut	Shank Dia.	LOC	OAL
P50804D	P50804DX	1/8	1/8	1/4	1-1/2
P51005D	P51005DX	5/32	3/16	5/16	2
P51205D	P51205DX	3/16	3/16	5/16	2
P51408D	P51408DX	7/32	1/4	1/2	2-1/2
P51608D	P51608DX	1/4	1/4	1/2	2-1/2
P52008D	P52008DX	5/16	5/16	1/2	2-1/2
P52409D	P52409DX	3/8	3/8	9/16	2-1/2
P52809D	P52809DX	7/16	7/16	9/16	2-3/4
P53210D	P53210DX	1/2	1/2	5/8	3

For guidance to calculate surface footage & chip load for Python™ End Mills refer to the Technical Section on pages 39 to 41.

7 Flute, 45 Degree Rapid Helix

Part No. S/E	X-Treme Coating	Dia. of Cut	Shank Dia.	LOC	OAL
P78020	P78020X	1-1/4	1-1/4	1-1/4	4-1/2
P78032	P78032X	1-1/4	1-1/4	2	4-1/2
P78050	P78050X	1-1/4	1-1/4	3-1/4	6
P78080	P78080X	1-1/4	1-1/4	5	7-1/2

X: X-Treme Coating

For guidance to calculate surface footage & chip load for Python™ End Mills refer to the Technical Section on pages 39 to 41.

Tolerances: Python

End Mill Diameter: *–.0001" to –.0002"*
Shank Diameter: *+.000" to –.0003"*

Python™ 45° HELIX END MILLS

SEE IT IN ACTION! YouTube

SFM: Surface Feet per Minute

This chart provides some general operating parameters for calculating surface footage for Destiny End Mills. These are starting condition guidelines only. The machine tool, workholding/ xturing, toolholding, partcon guration, and coolant capability may significantly influence your specific applications.

	Material	Min SFM	Median SFM	Max SFM	Destiny Tool 1st Choice	Page #	2nd Choice	Page #
N Aluminum	Aluminum	1200	65% Max RPM	Max RPM	Diamond Back	29-32	Viper	14-25
	Aluminum Cast	1000	65% Max RPM	Max RPM	Diamond Back	29-32	Viper	14-25
	Brass Yellow, Red	400	950	1500	Diamond Back	29-32	Viper	14-25
	Bronze – Alum Bronze	250	625	1000	Diamond Back	29-32	Viper	14-25
	Composites: CFRP; Aramid	200	300	400	Viper	14-25	Python	34-36
	Composites: Honeycomb	200	300	400	Viper	14-25	Python	34-36
	Composites: Phenolic	600	800	1000	Viper	14-25		
	Copper	800	900	1000	Viper	14-25	Python	34-36
	Delrin	800	1,050	1300	Viper	14-25		
	Graphite	600	800	1000	Viper	14-25		
	Plastics: Hard	500	800	1000	Viper	14-25		
	Plastics: Soft	600	800	1000	Viper	14-25		
S High Temp	Cobalt Alloys Haynes 25, 188, Stellite	60	90	110	Raptor DVH	41-47	Raptor 3/6	50-53
	Hastelloy	100	180	220	Raptor DVH	41-47	Raptor 3/6	50-53
	Inconel 525, 700, 718 , Rene 41, Nomonic, Waspaloy, Monel, Hastelloy, Astroloy, Udimet	65	158	250	Raptor DVH	41-47	Raptor 3/6	50-53
	Invar	150	200	400	Raptor DVH	41-47	Raptor 3/6	50-53
	Iron Alloys A-286, 16-25-6	150	200	400	Raptor DVH	41-47	Raptor 3/6	50-53
	Kovar	250	375	500	Raptor DVH	41-47	Raptor 3/6	50-53
	Nickel Alloys	75	150	180	Raptor DVH	41-47	Raptor 3/6	50-53
	Notronic	100	180	220	Raptor DVH	41-47	Raptor 3/6	50-53
	Titanium 4AL4V	100	180	220	Raptor DVH	41-47	Raptor 3/6	50-53
	Titanium 6AL4V	160	280	400	Raptor DVH	41-47	Raptor 3/6	50-53
	Titanium 6AL6V	160	280	400	Raptor DVH	41-47	Raptor 3/6	50-53
	Titanium Comm Pure	80	290	500	Raptor DVH	41-47	Raptor 3/6	50-53
M Stainless	Stainless Austenitic 304L, 316L, 13-8	250	325	400	Raptor DVH	41-47	Raptor 3/6	50-53
	Stainless Austenitic 303, 304	260	350	500	Raptor DVH	41-47	Raptor 3/6	50-53
	Stainless Ferritic 430, 434	250	300	400	Raptor DVH	41-47	Raptor 3/6	50-53
	Stainless Martensitic 17-4	250	425	600	Raptor DVH	41-47	Raptor 3/6	50-53
	Stainless Martensitic 420, 440	200	300	400	Raptor DVH	41-47	Raptor 3/6	50-53
	Stainless Martensitic 15-5	250	300	400	Raptor DVH	41-47	Raptor 3/6	50-53
	Stainless Martensitic 410, 416	250	325	400	Raptor DVH	41-47	Raptor 3/6	50-53
P Steel	Alloy Steel 4140, 4150, 4320, 5120, 6118, 6150, 8620	250	350	450	Raptor DVH	41-47	Raptor 3/6	50-53
	Free Machining Steel 1111, 1115, 1140	300	450	600	Raptor DVH	41-47	Raptor 3/6	50-53
	Low Carbon Steel 1010, 1018, 1020 12L14, A36	300	450	600	Raptor DVH	41-47	Raptor 3/6	50-53
	Med Carbon Steel 1035, 1040, 1095, 1525, 1572	200	320	470	Raptor DVH	41-47	Raptor 3/6	50-53
	Tool Steel A2, <35 R/c	150	300	450	Raptor DVH	41-47	Raptor 3/6	50-53
	Tool Steel D2 <35 R/c	150	300	450	Raptor DVH	41-47	Raptor 3/6	50-53
	Tool Steel P20 , H13 <35 R/c	160	305	450	Raptor DVH	41-47	Raptor 3/6	50-53
K Cast Iron	Cast Iron Ductile A536	200	350	500	Raptor DVH	41-47	Raptor 3/6	50-53
	Cast Iron Gray A48, Class 20 – 60	250	400	500	Raptor DVH	41-47	Raptor 3/6	50-53

NOTE: Reduce SFM when using long reach tools.

Python

The Python is our general purpose end mill used for many common machine shop operations.

S High Temp

Python – "S" High Temp Alloys – SFM Starting Parameters

ADC	RDC	Slotting			Peripheral		
		Conservative	Moderate	Aggressive	Conservative	Moderate	Aggressive
1/2 X D	1/4 X D	125	150	175	150	175	200
1 X D	1/2 X D	100	125	150	125	150	175
1.5 X D	1 X D	75	100	125	100	125	150
2 X D	1 X D	60	80	100	80	105	125

M Stainless

Python – "M" Stainless – SFM Starting Parameters

ADC	RDC	Slotting			Peripheral		
		Conservative	Moderate	Aggressive	Conservative	Moderate	Aggressive
1/2 X D	1/4 X D	300	350	400	350	400	450
1 X D	1/2 X D	275	325	350	300	350	400
1.5 X D	1 X D	250	300	330	275	325	375
2 X D	1 X D	225	275	250	250	300	250

P Steel

Python – "P" Mild Steel – SFM Starting Parameters

ADC	RDC	Slotting			Peripheral		
		Conservative	Moderate	Aggressive	Conservative	Moderate	Aggressive
1/2 X D	1/4 X D	400	450	500	450	500	550
1 X D	1/2 X D	350	400	450	400	450	500
1.5 X D	1 X D	300	350	400	350	400	450
2 X D	1 X D	250	300	350	300	350	400

K Cast Iron

Python – "K" Cast Iron – SFM Starting Parameters

ADC	RDC	Slotting			Peripheral		
		Conservative	Moderate	Aggressive	Conservative	Moderate	Aggressive
1/2 X D	1/4 X D	250	300	350	300	350	400
1 X D	1/2 X D	225	275	325	275	325	375
1.5 X D	1 X D	250	300	350	250	300	350
2 X D	1 X D	200	225	250	200	250	350

Speed & Feed Formulas

SFM = RPM X .262 X Tool Diameter

RPM = SFM X 3.82 ÷ Tool Diameter

IPM = RPM X IPT (CLPT) X Number of Flutes

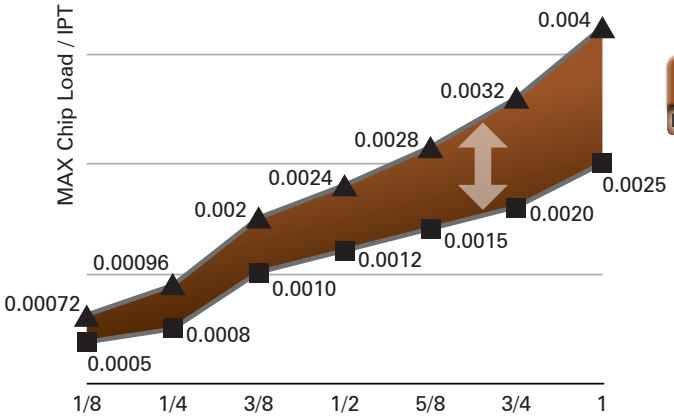
IPT = IPM ÷ (RPM X Number of Flutes)

MRR = RDC X ADC X IPM (a.k.a. CIM)

HP = KW X 1.342

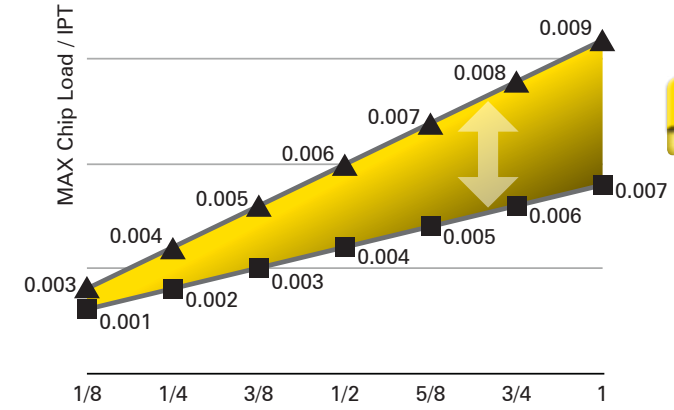
Torque (Full Load) = 5252 X HP ÷ RPM

NOTE: Reduce SFM when using long reach tools.



S High Temp — **Python – Chip Load Operating Range "S" High Temp Alloys**

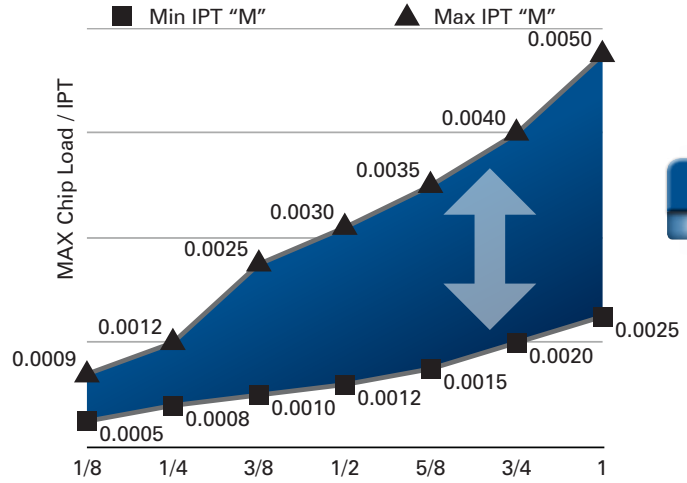
■ Min IPT "N" ▲ Max IPT "N"



M Stainless — **Python – Chip Load Operating Range "M" Stainless**

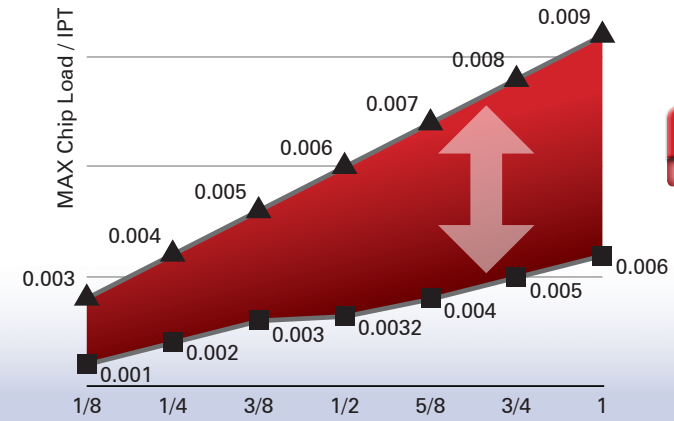
■ Min IPT "M" ▲ Max IPT "M"

■ Min IPT "N" ▲ Max IPT "N"



P Steel — **Python – Chip Load Operating Range "P" Steel**

■ Min IPT "N" ▲ Max IPT "N"



K Cast Iron — **Python – Chip Load Operating Range "K" Cast Iron**

■ Min IPT "N" ▲ Max IPT "N"

END MILLS FOR HIGH-TEMPERATURE & EXOTIC MATERIALS

"We are amazed at the Destiny Tool Raptor 3/6 tool – previous tool cut 20 pieces, your tool is on our 200th part and still running!"

— END USER, PIERCETON, IN

Some of the most common problems associated with machining Exotic materials is the abrasiveness of the materials combined with their, often times, gummy properties and their ability to quickly work harden.

Our Raptor DVH end mills are designed to address each one of those common problems with some very unique design components.

By utilizing a very up-sharp primary grind we reduce chatter and harmonics which often lead to workhardening. Our geometry also evacuates the chips from the flute quickly, so we reduce the amount of heat buildup inside the flute which results in increased material removal rates.

Our coatings are optimized for Titanium Alloys, Inconel, Nickel Alloys and other high temperature materials which a low co efficient of friction value but some great wear resistance against abrasive wear.

Our unique geometry, combined with our substrate and coatings, combined permits higher feed rates for slotting, profiling and semi-finishing.

MADE IN USA

DVH Raptor™ 38° HELIX SOLID CARBIDE END MILLS

Raptor™ 38° HELIX SOLID CARBIDE END MILLS

YouTube

See Our Tools in Action!

www.youtube.com/user/destinytool

DESTINY TOOL
THE MARK OF PERFORMANCE

Square End, 4 Flute, Variable Helix

Stub, Regular, Medium Length (AlTiN Coating)

Part No. Coated	Dia. of Cut	Shank Dia.	LOC	OAL
DVH40401C	1/16	1/8	3/32	1-1/2
DVH40402C	1/16	1/8	3/16	1-1/2
DVH40501C	5/64	1/8	7/64	1-1/2
DVH40502C	5/64	1/8	15/64	1-1/2
DVH40601C	3/32	1/8	7/64	1-1/2
DVH40602C	3/32	1/8	9/32	1-1/2
DVH40701C	7/64	1/8	5/32	1-1/2
DVH40702C	7/64	1/8	21/64	1-1/2
DVH40804C	1/8	1/8	1/4	1-1/2
DVH40806C	1/8	1/8	3/8	1-1/2
DVH40808C	1/8	1/8	1/2	2
DVH41205C	3/16	3/16	5/16	2
DVH41207C	3/16	3/16	7/16	2
DVH41210C	3/16	3/16	5/8	2
DVH41214C	3/16	3/16	7/8	2-1/2
DVH41406C	7/32	1/4	3/8	2
DVH41412C	1/4	1/4	1	2-1/2
DVH41606C	1/4	1/4	3/8	2
DVH41608C	1/4	1/4	1/2	2-1/2
DVH41612C	1/4	1/4	3/4	2-1/2
DVH41616C	1/4	1/4	1	2-1/2
DVH41620C	1/4	1/4	1-1/4	3
DVH42008C	5/16	5/16	1/2	2
DVH42013C	5/16	5/16	13/16	2-1/2
DVH42408C	3/8	3/8	1/2	2
DVH42412C	3/8	3/8	3/4	2-1/2
DVH42414C	3/8	3/8	7/8	2-1/2
DVH42416C	3/8	3/8	1	2-1/2
DVH42420C	3/8	3/8	1-1/4	3
DVH42424C	3/8	3/8	1-1/2	4
DVH43210C	1/2	1/2	5/8	3
DVH43216C	1/2	1/2	1	3
DVH43220C	1/2	1/2	1-1/4	3
DVH43224C	1/2	1/2	1-1/2	4
DVH43232C	1/2	1/2	2	4
DVH43240C	1/2	1/2	2-1/2	5
DVH43248C	1/2	1/2	3	6
DVH44012C	5/8	5/8	3/4	3
DVH44020C	5/8	5/8	1-1/4	3-1/2
DVH44024C	5/8	5/8	1-1/2	4
DVH44032C	5/8	5/8	2	5
DVH44036C	5/8	5/8	2-1/4	5
DVH44816C	3/4	3/4	1	3
DVH44824C	3/4	3/4	1-1/2	4
DVH44832C	3/4	3/4	2	5
DVH44836C	3/4	3/4	2-1/4	5
DVH44840C	3/4	3/4	2-1/2	5
DVH44852C	3/4	3/4	3-1/4	6
DVH46416C	1	1	1	3
DVH46424C	1	1	1-1/2	4
DVH46436C	1	1	2-1/4	5
DVH46452C	1	1	3-1/4	6

C: AlTiN Coating

For guidance to calculate surface footage & chip load for Raptor™ DVH End Mills refer to the Technical Section on pages 54 to 55.

A: Autonomous Coating - For high heat as well as low heat applications (limited stock)

Tolerances: Raptor

End Mill Diameter:	*–.000"*	*to*	*–.002"*
Shank Diameter:	*+.000"*	*to*	*–.0003"*

Raptor 38° HELIX SOLID CARBIDE END MILLS

See it in Action!

DVH Raptor™ 38° HELIX SOLID CARBIDE END MILLS

DVH43216C

P Steel | M Stainless | S High Temp

DESTINY TOOL THE MARK OF PERFORMANCE

DVH Raptor™
38° HELIX SOLID CARBIDE END MILLS

DVH432160C BDVH43210C

P Steel M Stainless S HighTemp

Square End, 4 Flute, Long Shank Series

(AlTiN Coating)

Part No. Coated	Dia. of Cut	Shank Dia.	LOC	OAL
DVH4060817C	1/4	1/4	1/2	4
DVH4081208C	1/8	1/8	3/16	3
DVH4120804C	3/16	3/16	.281	3
DVH416080C	1/4	1/4	1/2	4
DVH420130C	5/16	5/16	13/16	4
DVH424140C	3/8	3/8	7/8	5
DVH432160C	1/2	1/2	1	6
DVH4321600C	1/2	1/2	1	7
DVH4401600C	5/8	5/8	1	7
DVH440200C	5/8	5/8	1-1/4	6
DVH4481600C	3/4	3/4	1	7
DVH448240C	3/4	3/4	1-1/2	6
DVH4483200C	3/4	3/4	2	8
DVH44832000C	3/4	3/4	2	12
DVH464240C	1	1	1-1/2	6
DVH4642400C	1	1	1-1/2	7
DVH4643200C	1	1	2	8
DVH46432000C	1	1	2	12

For guidance to calculate surface footage & chip load for Raptor™ DVH End Mills refer to the Technical Section on pages 54 to 55.

Ball, 4 Flute

(AlTiN Coating)

Part No. Coated	Dia. of Cut	Shank Dia.	LOC	OAL
BDVH40804C	1/8	1/8	1/4	1-1/2
BDVH40806C	1/8	1/8	3/8	1-1/2
BDVH40808C	1/8	1/8	1/2	2
BDVH41205C	3/16	3/16	5/16	2
BDVH41210C	3/16	3/16	5/8	2
BDVH41606C	1/4	1/4	3/8	2
BDVH41608C	1/4	1/4	1/2	2-1/2
BDVH41612C	1/4	1/4	3/4	2-1/2
BDVH42008C	5/16	5/16	1/2	2
BDVH42013C	5/16	5/16	13/16	2-1/2
BDVH42408C	3/8	3/8	1/2	2
BDVH42414C	3/8	3/8	7/8	2-1/2
BDVH43210C	1/2	1/2	5/8	3
BDVH43216C	1/2	1/2	1	3
BDVH43220C	1/2	1/2	1-1/4	3
BDVH44012C	5/8	5/8	3/4	3
BDVH44020C	5/8	5/8	1-1/4	3-1/2
BDVH44816C	3/4	3/4	1	4
BDVH44824C	3/4	3/4	1-1/2	4
BDVH46424C	1	1	1-1/2	4

For guidance to calculate surface footage & chip load for Raptor™ DVH End Mills refer to the Technical Section on pages 54 to 55.

C: AlTiN Coating

A: Autonomous Coating - For high heat as well as low heat applications (limited stock)

Radius, 4 Flute

Stub, Regular, Medium Length (AlTiN Coating)

Part No. Coated	Dia. of Cut	Shank Dia.	LOC	OAL	Radius
DVH40401RC	1/16	1/8	3/32	1-1/2	0.005
DVH40402RC	1/16	1/8	3/16	1-1/2	0.005
DVH40501RC	5/64	1/8	7/64	1-1/2	0.005
DVH40502RC	5/64	1/8	15/64	1-1/2	0.005
DVH40601RC	3/32	1/8	7/64	1-1/2	0.005
DVH40602RC	3/32	1/8	9/32	1-1/2	0.005
DVH40701RC	7/64	1/8	5/32	1-1/2	0.005
DVH40702RC	7/64	1/8	21/64	1-1/2	0.005
DVH40804RC	1/8	1/8	1/4	1-1/2	.008–.012
DVH40806RC	1/8	1/8	3/8	1-1/2	.008–.012
DVH40808RC	1/8	1/8	1/2	2	.008–.012
DVH41205RC	3/16	3/16	5/16	2	.008–.012
DVH41207RC	3/16	3/16	7/16	2	.008–.012
DVH41210RC	3/16	3/16	5/8	2	.008–.012
DVH41214RC	3/16	3/16	7/8	2-1/2	.008–.012
DVH41406RC	7/32	1/4	3/8	2	.015–.020
DVH41412RC	7/32	1/4	3/4	2-1/2	.015–.020
DVH41604RC	1/4	1/4	1/4	2	.015–.020
DVH41606RC	1/4	1/4	3/8	2	.015–.020
DVH41608RC	1/4	1/4	1/2	2-1/2	.015–.020
DVH41612RC	1/4	1/4	3/4	2-1/2	.015–.020
DVH41616RC	1/4	1/4	1	2-1/2	.015–.020
DVH41620RC	1/4	1/4	1-1/4	3	.015–.020
DVH42005RC	5/16	5/16	5/16	2	.015–.020
DVH42008RC	5/16	5/16	1/2	2	.015–.020
DVH42013RC	5/16	5/16	13/16	2-1/2	.015–.020
DVH42406RC	3/8	3/8	3/8	2	.015–.020
DVH42408RC	3/8	3/8	1/2	2	.015–.020
DVH42414RC	3/8	3/8	7/8	2-1/2	.015–.020
DVH42416RC	3/8	3/8	1	2-1/2	.015–.020
DVH42420RC	3/8	3/8	1-1/4	3	.015–.020
DVH42424RC	3/8	3/8	1-1/2	4	.015–.020
DVH42816RC	7/16	7/16	1	2-3/4	.025–.030
DVH43208RC	1/2	1/2	1/2	3	.025–.030
DVH43210RC	1/2	1/2	5/8	3	.025–.030
DVH43216RC	1/2	1/2	1	3	.025–.030
DVH43220RC	1/2	1/2	1-1/4	3	.025–.030
DVH43224RC	1/2	1/2	1-1/2	4	.025–.030
DVH43228RC	1/2	1/2	1-3/4	4	.025–.030
DVH43232RC	1/2	1/2	2	4	.025–.030
DVH43236RC	1/2	1/2	2-1/4	5	.025–.030
DVH43240RC	1/2	1/2	2-1/2	5	.025–.030
DVH43248RC	1/2	1/2	3	6	.025–.030
DVH44010RC	5/8	5/8	5/8	3	.035–.040
DVH44012RC	5/8	5/8	3/4	3	.035–.040
DVH44020RC	5/8	5/8	1-1/4	3-1/2	.035–.040
DVH44024RC	5/8	5/8	1-1/2	4	.035–.040
DVH44032RC	5/8	5/8	2	5	.035–.040
DVH44036RC	5/8	5/8	2-1/4	5	.035–.040
DVH44812RC	3/4	3/4	3/4	3	.035–.040
DVH44816RC	3/4	3/4	1	3	.035–.040
DVH44824RC	3/4	3/4	1-1/2	4	.035–.040
DVH44832RC	3/4	3/4	2	5	.035–.040
DVH44836RC	3/4	3/4	2-1/4	5	.035–.040
DVH44840RC	3/4	3/4	2-1/2	5	.035–.040
DVH44852RC	3/4	3/4	3-1/4	6	.035–.040
DVH46416RC	1	1	1	3	.035–.040
DVH46424RC	1	1	1-1/2	4	.035–.040
DVH46436RC	1	1	2-1/4	5	.035–.040
DVH46452RC	1	1	3-1/4	6	.035–.040

C: AlTiN Coating

For guidance to calculate surface footage & chip load for Raptor™ DVH End Mills refer to the Technical Section on pages 54 to 55.

A: Autonomous Coating - For high heat as well as low heat applications (limited stock)

NOTE: Additional miniature sizes with 3/16 shank diameter can be found on page 65.

Additional radius sizes on page 46.

Tolerances: Raptor

End Mill Diameter:	*–.000"*	*to*	*–.002"*
Shank Diameter:	*+.000"*	*to*	*–.0003"*

See it in Action!

DVH43210RC

P Steel | M Stainless | S High Temp

DVH Raptor™
38° HELIX SOLID CARBIDE END MILLS

DVH4321600RC DVH42408R030C

P Steel M Stainless S High Temp

Additional Radius Sizes, 4 Flute

(AlTiN Coating)

Part No. Coated	Dia. of Cut	Shank Dia.	LOC	OAL	Radius
DVH40804R030C	1/8	1/8	1/4	1-1/2	0.030
DVH40806R030C	1/8	1/8	3/8	1-1/2	0.030
DVH41205R030C	3/16	3/16	5/16	2	0.030
DVH41207R030C	3/16	3/16	7/16	2	0.030
DVH41608R030C	1/4	1/4	1/2	2-1/2	0.030
DVH41612R030C	1/4	1/4	3/4	2-1/2	0.030
DVH42008R030C	5/16	5/16	1/2	2	0.030
DVH42013R030C	5/16	5/16	13/16	2-1/2	0.030
DVH42408R030C	3/8	3/8	1/2	2	0.030
DVH42416R030C	3/8	3/8	1	2-1/2	0.030
DVH42408R060C	3/8	3/8	1/2	2	0.060
DVH42416R060C	3/8	3/8	1	2-1/2	0.060
DVH43216R010C	1/2	1/2	1	3	0.010
DVH43216R060C	1/2	1/2	1	3	0.060
DVH43216R090C	1/2	1/2	1	3	0.090
DVH43216R125C	1/2	1/2	1	3	0.125
DVH43220R060C	1/2	1/2	1-1/4	3	0.060
DVH43220R125C	1/2	1/2	1-1/4	3	0.125
DVH44020R060C	5/8	5/8	1-1/4	3-1/2	0.060
DVH44020R090C	5/8	5/8	1-1/4	3-1/2	0.090
DVH44020R125C	5/8	5/8	1-1/4	3-1/2	0.125
DVH44824R060C	3/4	3/4	1-1/2	4	0.060
DVH44824R090C	3/4	3/4	1-1/2	4	0.090
DVH44824R125C	3/4	3/4	1-1/2	4	0.125
DVH44824R190C	3/4	3/4	1-1/2	4	0.190
DVH46424R060C	1	1	1-1/2	4	0.060
DVH46424R090C	1	1	1-1/2	4	0.090
DVH46424R125C	1	1	1-1/2	4	0.125
DVH46424R190C	1	1	1-1/2	4	0.190

— Additional radius sizes (in stock), see page 45.

For guidance to calculate surface footage & chip load for Raptor™ DVH End Mills refer to the Technical Section on pages 54 to 55.

Radius, 4 Flute, Long Shank Series

(AlTiN Coating)

Part No. Coated	Dia. of Cut	Shank Dia.	LOC	OAL	Radius
DVH416080RC	1/4	1/4	1/2	4	.015–.020
DVH420130RC	5/16	5/16	13/16	4	.015–.020
DVH424140RC	3/8	3/8	7/8	5	.015–.020
DVH432160RC	1/2	1/2	1	6	.025–.030
DVH4321600RC	1/2	1/2	1	7	.025–.030
DVH4401600RC	5/8	5/8	1	7	.035–.040
DVH440200RC	5/8	5/8	1-1/4	6	.035–.040
DVH4481600RC	3/4	3/4	1	7	.035–.040
DVH448240RC	3/4	3/4	1-1/2	6	.035–.040
DVH4483200RC	3/4	3/4	2	8	.035–.040
DVH44832000RC	3/4	3/4	2	12	.035–.040
DVH464240RC	1	1	1-1/2	6	.035–.040
DVH4642400RC	1	1	1-1/2	7	.035–.040
DVH4643200RC	1	1	2	8	.035–.040
DVH46432000RC	1	1	2	12	.035–.040

C: AlTiN Coating

For guidance to calculate surface footage & chip load for Raptor™ DVH End Mills refer to the Technical Section on pages 54 to 55.

A: Autonomous Coating - For high heat as well as low heat applications (limited stock)

4 Flute, Long Shank Series with Reduced Neck, Radius, LBS*

(AlTiN Coating)

Part No. Coated	Dia. of Cut	Shank Dia.	LOC	LBS*	Neck Dia.	OAL	Radius
DVH4240815RC	3/8	3/8	1/2	1-7/8	0.360	4	.015–.020
DVH4321011RC	1/2	1/2	5/8	1-3/8	0.480	3	.025–.030
DVH4321017RC	1/2	1/2	5/8	2-1/8	0.480	4	.025–.030
DVH4401218RC	5/8	5/8	3/4	2-1/4	0.605	5	.035–.040
DVH4481618RC	3/4	3/4	1	2-1/4	0.730	5	.035–.040
DVH4481626RC	3/4	3/4	1	3-1/4	0.730	6	.035–.040

*LBS: Length below shank

For guidance to calculate surface footage & chip load for Raptor™ DVH End Mills refer to the Technical Section on pages 54 to 55.

Rougher, 4 Flute

Stub, Regular, Medium Length with Radius (AlTiN Coating)

Part No. Coated	Dia. of Cut	Shank Dia.	LOC	OAL	Radius
DVHR41606RC	1/4	1/4	3/8	2	.015–.020
DVHR41608RC	1/4	1/4	1/2	2-1/2	.015–.020
DVHR41612RC	1/4	1/4	3/4	2-1/2	.015–.020
DVHR42008RC	5/16	5/16	1/2	2	.015–.020
DVHR42013RC	5/16	5/16	13/16	2-1/2	.015–.020
DVHR42408RC	3/8	3/8	1/2	2	.015–.020
DVHR42414RC	3/8	3/8	7/8	2-1/2	.015–.020
DVHR42416RC	3/8	3/8	1	2-1/2	.015–.020
DVHR42420RC	3/8	3/8	1-1/4	3	.015–.020
DVHR43210RC	1/2	1/2	5/8	3	.025–.030
DVHR43216RC	1/2	1/2	1	3	.025–.030
DVHR43220RC	1/2	1/2	1-1/4	3	.025–.030
DVHR43232RC	1/2	1/2	2	4	.025–.030
DVHR44012RC	5/8	5/8	3/4	3	.035–.040
DVHR44020RC	5/8	5/8	1-1/4	3-1/2	.035–.040
DVHR44024RC	5/8	5/8	1-1/2	4	.035–.040
DVHR44036RC	5/8	5/8	2-1/4	5	.035–.040
DVHR44816RC	3/4	3/4	1	3	.035–.040
DVHR44824RC	3/4	3/4	1-1/2	4	.035–.040
DVHR44836RC	3/4	3/4	2-1/4	5	.035–.040
DVHR44852RC	3/4	3/4	3-1/4	6	.035–.040
DVHR46416RC	1	1	1	3	.035–.040
DVHR46424RC	1	1	1-1/2	4	.035–.040
DVHR46436RC	1	1	2-1/4	5	.035–.040
DVHR46452RC	1	1	3-1/4	6	.035–.040

C: AlTiN Coating

For guidance to calculate surface footage & chip load for Raptor™ DVH End Mills refer to the Technical Section on pages 54 to 55.

A: Autonomous Coating - For high heat as well as low heat applications (limited stock)

Tolerances: Raptor

End Mill Diameter:	*–.000"*	*to*	*–.002"*
Shank Diameter:	*+.000"*	*to*	*–.0003"*

Raptor™ SEE IT IN ACTION! YouTube

DVH Raptor™ 38° HELIX SOLID CARBIDE END MILLS

DVHR43210RC DVH4321017RC

DVH Raptor™ 38° HELIX SOLID CARBIDE END MILLS

DVHR432160RC

DVHR4321017RC

P Steel | M Stainless | S High Temp

Rougher, 4 Flute, Long Shank Series with Radius, NNK

(AlTiN Coating)

Part No. Coated	Dia. of Cut	Shank Dia.	LOC	OAL	Radius
DVHR416080RC	1/4	1/4	1/2	4	.015–.020
DVHR420130RC	5/16	5/16	13/16	4	.015–.020
DVHR424140RC	3/8	3/8	7/8	5	.015–.020
DVHR432160RC	1/2	1/2	1	6	.025–.030
DVHR4321600RC	1/2	1/2	1	7	.025–.030
DVHR4401600RC	5/8	5/8	1	7	.035–.040
DVHR440200RC	5/8	5/8	1-1/4	6	.035–.040
DVHR4481600RC	3/4	3/4	1	7	.035–.040
DVHR448240RC	3/4	3/4	1-1/2	6	.035–.040
DVHR464240RC	1	1	1-1/2	6	.035–.040
DVHR4642400RC	1	1	1-1/2	7	.035–.040

For guidance to calculate surface footage & chip load for Raptor™ DVH End Mills refer to the Technical Section on pages 54 to 55.

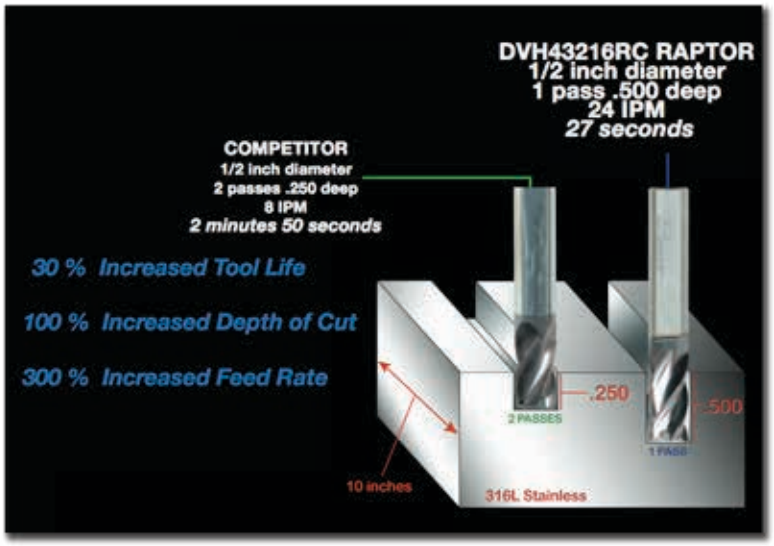
Rougher, 4 Flute, Long Shank Series

with Reduced Neck, LBS* (AlTiN Coating)

Part No. Coated	Dia. of Cut	Shank Dia.	LOC	LBS*	Neck Dia.	OAL	Radius
DVHR4240815RC	3/8	3/8	1/2	1-7/8	0.360	4	.015–.020
DVHR4321011RC	1/2	1/2	5/8	1-3/8	0.480	3	.025–.030
DVHR4321017RC	1/2	1/2	5/8	2-1/8	0.480	4	.025–.030
DVHR4401218RC	5/8	5/8	3/4	2-1/4	0.605	5	.035–.040
DVHR4481618RC	3/4	3/4	1	2-1/4	0.730	5	.035–.040
DVHR4481626RC	3/4	3/4	1	3-1/4	0.730	6	.035–.040

For guidance to calculate surface footage & chip load for Raptor™ DVH End Mills refer to the Technical Section on pages 54 to 55.

*LBS: Length below shank
C: AlTiN Coating



A: Autonomous Coating - For high heat as well as low heat applications (limited stock)

Tolerances: Raptor

End Mill Diameter:	*–.000"*	*to*	*–.002"*
Shank Diameter:	*+.000"*	*to*	*–.0003"*

Raptor™ 38° HELIX SOLID CARBIDE END MILLS

SEE IT IN ACTION! YouTube

Radius, 5 Flute, Variable Helix

Stub, Regular, Medium Length with Radius (AlTiN Coating)

Part No. Coated	Dia. of Cut	Shank Dia.	LOC	OAL	Radius
DVH51606RC	1/4	1/4	3/8	2	0.020
DVH51608RC	1/4	1/4	1/2	2-1/2	0.020
DVH51612RC	1/4	1/4	3/4	2-1/2	0.020
DVH51616RC	1/4	1/4	1	3	0.020
DVH52007RC	5/16	5/16	7/16	2	0.020
DVH52013RC	5/16	5/16	13/16	2-1/2	0.020
DVH52016RC	5/16	5/16	1	3	0.020
DVH52408RC	3/8	3/8	1/2	2	0.020
DVH52412RC	3/8	3/8	3/4	2-1/2	0.020
DVH52416RC	3/8	3/8	1	3	0.020
DVH52420RC	3/8	3/8	1-1/4	3	0.020
DVH53210RC	1/2	1/2	5/8	3	0.030
DVH53216RC	1/2	1/2	1	3	0.030
DVH53220RC	1/2	1/2	1-1/4	3	0.030
DVH53226RC	1/2	1/2	1-5/8	4	0.030
DVH53234RC	1/2	1/2	2-1/8	4	0.030
DVH53240RC	1/2	1/2	2-1/2	5	0.030
DVH54012RC	5/8	5/8	3/4	3	0.030
DVH54026RC	5/8	5/8	1-5/8	4	0.030
DVH54034RC	5/8	5/8	2-1/8	5	0.030
DVH54048RC	5/8	5/8	3	5	.035–.040
DVH54816RC	3/4	3/4	1	3	.035–.040
DVH54826RC	3/4	3/4	1-5/8	4	.035–.040
DVH54836RC	3/4	3/4	2-1/4	5	.035–.040
DVH54844RC	3/4	3/4	2-3/4	5	.035–.040
DVH54848RC	3/4	3/4	3	5	.035–.040
DVH56420RC	1	1	1-1/4	4	.035–.040
DVH56432RC	1	1	2	5	.035–.040
DVH56442RC	1	1	2-5/8	5	.035–.040
DVH56452RC	1	1	3-1/4	6	.035–.040

C: AlTiN Coating

For guidance to calculate surface footage & chip load for Raptor™ DVH End Mills refer to the Technical Section on pages 54 to 55.

5 Flute, Variable Helix

Stub, Regular, Medium Length (AlTiN Coating)

Part No. Coated	Dia. of Cut	Shank Dia.	LOC	OAL
DVH51606C	1/4	1/4	3/8	2
DVH51608C	1/4	1/4	1/2	2-1/2
DVH51612C	1/4	1/4	3/4	2-1/2
DVH51616C	1/4	1/4	1	3
DVH52007C	5/16	5/16	7/16	2
DVH52013C	5/16	5/16	13/16	2-1/2
DVH52016C	5/16	5/16	1	3
DVH52408C	3/8	3/8	1/2	2
DVH52416C	3/8	3/8	1	3
DVH52420C	3/8	3/8	1-1/4	3
DVH53210C	1/2	1/2	5/8	3
DVH53216C	1/2	1/2	1	3
DVH53220C	1/2	1/2	1-1/4	3
DVH53226C	1/2	1/2	1-5/8	4
DVH53234C	1/2	1/2	2-1/8	4
DVH53240C	1/2	1/2	2-1/2	5
DVH54012C	5/8	5/8	3/4	3
DVH54026C	5/8	5/8	1-5/8	4
DVH54034C	5/8	5/8	2-1/8	5
DVH54048C	5/8	5/8	3	5
DVH54816C	3/4	3/4	1	3
DVH54826C	3/4	3/4	1-5/8	4
DVH54836C	3/4	3/4	2-1/4	5
DVH54844C	3/4	3/4	2-3/4	5
DVH54848C	3/4	3/4	3	5
DVH56420C	1	1	1-1/4	4
DVH56432C	1	1	2	5
DVH56442C	1	1	2-5/8	5
DVH56452C	1	1	3-1/4	6

C: AlTiN Coating

For guidance to calculate surface footage & chip load for Raptor™ DVH End Mills refer to the Technical Section on pages 54 to 55.

A: Autonomous Coating - For high heat as well as low heat applications (limited stock)

DVH Raptor™ 38° HELIX SOLID CARBIDE END MILLS

DVH53216C

DESTINY TOOL THE MARK OF PERFORMANCE

5 Flute, Variable Helix with Chip Control

Stub, Regular, Medium Length (AlTiN Coating)

Part No. Coated	Dia. of Cut	Shank Dia.	LOC	OAL
DVH51612CC	1/4	1/4	3/4	2-1/2
DVH51616CC	1/4	1/4	1	3
DVH52013CC	5/16	5/16	13/16	2-1/2
DVH52016CC	5/16	5/16	1	3
DVH52416CC	3/8	3/8	1	3
DVH52420CC	3/8	3/8	1-1/4	3
DVH53216CC	1/2	1/2	1	3
DVH53220CC	1/2	1/2	1-1/4	3
DVH53226CC	1/2	1/2	1-5/8	4
DVH53234CC	1/2	1/2	2-1/8	4
DVH53240CC	1/2	1/2	2-1/2	5
DVH54026CC	5/8	5/8	1-5/8	4
DVH54034CC	5/8	5/8	2-1/8	5
DVH54048CC	5/8	5/8	3	5
DVH54826CC	3/4	3/4	1-5/8	4
DVH54836CC	3/4	3/4	2-1/4	5
DVH54844CC	3/4	3/4	2-3/4	5
DVH54848CC	3/4	3/4	3	5
DVH56432CC	1	1	2	5
DVH56442CC	1	1	2-5/8	5
DVH56452CC	1	1	3-1/4	6

C: AlTiN Coating

For guidance to calculate surface footage & chip load for Raptor™ DVH End Mills refer to the Technical Section on pages 54 to 55.

DVH53234CC

Radius, 5 Flute, Variable Helix with Chip Control

Stub, Regular, Medium Length (AlTiN Coating)

Part No. Coated	Dia. of Cut	Shank Dia.	LOC	OAL	Radius
DVH51612RCC	1/4	1/4	3/4	2 - 1/2	.020
DVH51616RCC	1/4	1/4	1	3	.020
DVH52013RCC	5/16	5/16	13/16	2 - 1/2	.020
DVH52016RCC	5/16	5/16	1	3	.020
DVH52416RCC	3/8	3/8	1	3	.020
DVH52420RCC	3/8	3/8	1 - 1/4	3	.020
DVH53216RCC	1/2	1/2	1	3	.030
DVH53220RCC	1/2	1/2	1 - 1/4	3	.030
DVH53226RCC	1/2	1/2	1 - 5/8	4	.030
DVH53234RCC	1/2	1/2	2 - 1/8	4	.030
DVH54026RCC	5/8	5/8	1 - 5/8	4	.030
DVH54034RCC	5/8	5/8	2 - 1/8	5	.030
DVH54826RCC	3/4	3/4	1 - 5/8	4	.035-.040
DVH54836RCC	3/4	3/4	2 - 1/4	5	.035-.040
DVH54844RCC	3/4	3/4	2 - 3/4	5	.035-.040
DVH56432RCC	1	1	2	5	.035-.040
DVH56442RCC	1	1	2 - 5/8	5	.035-.040
DVH56452RCC	1	1	3 - 1/4	6	.035-.040

C: AlTiN Coating

For guidance to calculate surface footage & chip load for Raptor™ DVH End Mills refer to the Technical Section on pages 54 to 55.

DVH73234CC

7 Flute, Variable Helix with Chip Control

Stub, Regular, Medium Length (AlTiN Coating)

Part No. Coated	Dia. of Cut	Shank Dia.	LOC	OAL
DVH73226CC	1/2	1/2	1-5/8	4
DVH73234CC	1/2	1/2	2-1/8	4
DVH73240CC	1/2	1/2	2-1/2	5
DVH74026CC	5/8	5/8	1-5/8	4
DVH74034CC	5/8	5/8	2-1/8	5
DVH74048CC	5/8	5/8	3	5
DVH74826CC	3/4	3/4	1-5/8	4
DVH74836CC	3/4	3/4	2-1/4	5
DVH74844CC	3/4	3/4	2-3/4	5
DVH74848CC	3/4	3/4	3	5
DVH76432CC	1	1	2	5
DVH76442CC	1	1	2-5/8	5
DVH76452CC	1	1	3-1/4	6

C: AlTiN Coating

For guidance to calculate surface footage & chip load for Raptor™ DVH End Mills refer to the Technical Section on pages 54 to 55.

A: Autonomous Coating - For high heat as well as low heat applications (limited stock)

The Chip Control (CC) option helps chip flow by breaking the cut material into optimal lengths, eliminating chip packing allowing a greater metal removal rate (MMR).

Radius, 7 Flute, Variable Helix with Chip Control

Stub, Regular, Medium Length (AlTiN Coating)

Part No. Coated	Dia. of Cut	Shank Dia.	LOC	OAL	Radius
DVH73226RCC	1/2	1/2	1 - 5/8	4	.030
DVH73234RCC	1/2	1/2	2 - 1/8	4	.030
DVH74026RCC	5/8	5/8	1 - 5/8	4	.030
DVH74034RCC	5/8	5/8	2 - 1/8	5	.030
DVH74826RCC	3/4	3/4	1 - 5/8	4	.035-.040
DVH74836RCC	3/4	3/4	2 - 1/4	5	.035-.040
DVH74844RCC	3/4	3/4	2 - 3/4	5	.035-.040
DVH76432RCC	1	1	2	5	.035-.040
DVH76442RCC	1	1	2 - 5/8	5	.035-.040
DVH76452RCC	1	1	3 - 1/4	6	.035-.040

C: AlTiN Coating

For guidance to calculate surface footage & chip load for Raptor™ DVH End Mills refer to the Technical Section on pages 54 to 55.

7 Flute, Variable Helix

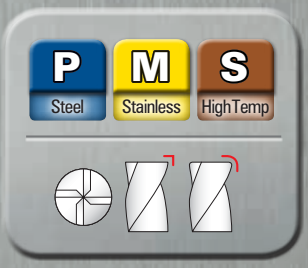
Stub, Regular, Medium Length (AlTiN Coating)

Part No. Coated	Dia. of Cut	Shank Dia.	LOC	OAL
DVH71606C	1/4	1/4	3/8	2
DVH71608C	1/4	1/4	1/2	2-1/2
DVH71612C	1/4	1/4	3/4	2-1/2
DVH71616C	1/4	1/4	1	3
DVH72007C	5/16	5/16	7/16	2
DVH72013C	5/16	5/16	13/16	2-1/2
DVH72016C	5/16	5/16	1	3
DVH72408C	3/8	3/8	1/2	2
DVH72412C	3/8	3/8	3/4	2-1/2
DVH72416C	3/8	3/8	1	3
DVH72420C	3/8	3/8	1-1/4	3
DVH73210C	1/2	1/2	5/8	3
DVH73216C	1/2	1/2	1	3
DVH73220C	1/2	1/2	1-1/4	3
DVH73226C	1/2	1/2	1-5/8	4
DVH73234C	1/2	1/2	2-1/8	4
DVH73240C	1/2	1/2	2-1/2	5
DVH74012C	5/8	5/8	3/4	3
DVH74020C	5/8	5/8	1-1/4	3-1/2
DVH74026C	5/8	5/8	1-5/8	4
DVH74034C	5/8	5/8	2-1/8	5
DVH74048C	5/8	5/8	3	5
DVH74816C	3/4	3/4	1	3
DVH74820C	3/4	3/4	1-1/4	4
DVH74826C	3/4	3/4	1-5/8	4
DVH74836C	3/4	3/4	2-1/4	5
DVH74844C	3/4	3/4	2-3/4	5
DVH74848C	3/4	3/4	3	5
DVH76420C	1	1	1-1/4	4
DVH76432C	1	1	2	5
DVH76442C	1	1	2-5/8	5
DVH76452C	1	1	3-1/4	6

C: AlTiN Coating

For guidance to calculate surface footage & chip load for Raptor™ DVH End Mills refer to the Technical Section on pages 54 to 55.

DVH73234RCC



DVH73226C

A: Autonomous Coating - For high heat as well as low heat applications (limited stock)

The Chip Control (CC) option helps chip flow by breaking the cut material into optimal lengths, eliminating chip packing allowing a greater metal removal rate (MMR).

Radius, 7 Flute, Variable Helix

Stub, Regular, Medium Length (AlTiN Coating)

DVH74026RC

Part No. Coated	Dia. of Cut	Shank Dia.	LOC	OAL	Radius
DVH71606RC	1/4	1/4	3/8	2	.020
DVH71608RC	1/4	1/4	1/2	2-1/2	.020
DVH71612RC	1/4	1/4	3/4	2-1/2	.020
DVH71616RC	1/4	1/4	1	3	.020
DVH72007RC	5/16	5/16	7/16	2	.020
DVH72013RC	5/16	5/16	13/16	2-1/2	.020
DVH72016RC	5/16	5/16	1	3	.020
DVH72408RC	3/8	3/8	1/2	2	.020
DVH72412RC	3/8	3/8	3/4	2-1/2	.020
DVH72416RC	3/8	3/8	1	3	.020
DVH72420RC	3/8	3/8	1-1/4	3	.020
DVH73210RC	1/2	1/2	5/8	3	.030
DVH73216RC	1/2	1/2	1	3	.030
DVH73220RC	1/2	1/2	1-1/4	3	.030
DVH73226RC	1/2	1/2	1-5/8	4	.030
DVH73234RC	1/2	1/2	2-1/8	4	.030
DVH73240RC	1/2	1/2	2-1/2	5	.030
DVH74012RC	5/8	5/8	3/4	3	.030
DVH74020RC	5/8	5/8	1-1/4	3-1/2	.030
DVH74026RC	5/8	5/8	1-5/8	4	.030
DVH74034RC	5/8	5/8	2-1/8	5	.030
DVH74048RC	5/8	5/8	3	5	.030
DVH74816RC	3/4	3/4	1	3	.035–.040
DVH74820RC	3/4	3/4	1-1/4	4	.035–.040
DVH74826RC	3/4	3/4	1-5/8	4	.035–.040
DVH74836RC	3/4	3/4	2-1/4	5	.035–.040
DVH74844RC	3/4	3/4	2-3/4	5	.035–.040
DVH74848RC	3/4	3/4	3	5	.035–.040
DVH76420RC	1	1	1-1/4	4	.035–.040
DVH76432RC	1	1	2	5	.035–.040
DVH76442RC	1	1	2-5/8	5	.035–.040
DVH76452RC	1	1	3-1/4	6	.035–.040

C: AlTiN Coating

For guidance to calculate surface footage & chip load for Raptor™ DVH End Mills refer to the Technical Section on pages 54 to 55.

9 Flute, Variable Helix with Chip Control

Stub, Regular, Medium Length (AlTiN Coating)

DVH94034RCC

Part No. Coated	Dia. of Cut	Shank Dia.	LOC	OAL
DVH93226CC	1/2	1/2	1-5/8	4
DVH93234CC	1/2	1/2	2-1/8	4
DVH94034CC	5/8	5/8	2-1/8	5

C: AlTiN Coating

For guidance to calculate surface footage & chip load for Raptor™ DVH End Mills refer to the Technical Section on pages 54 to 55.

Radius, 9 Flute, Variable Helix with Chip Control

Stub, Regular, Medium Length (AlTiN Coating)

Part No. Coated	Dia. of Cut	Shank Dia.	LOC	OAL	Radius
DVH93226RCC	1/2	1/2	1 - 5/8	4	.030
DVH93234RCC	1/2	1/2	2 - 1/8	4	.030
DVH94034RCC	5/8	5/8	2 - 1/8	5	.030

C: AlTiN Coating

For guidance to calculate surface footage & chip load for Raptor™ DVH End Mills refer to the Technical Section on pages 54 to 55.

9 Flute, Variable Helix

Stub, Regular, Medium Length (AlTiN Coating)

Part No. Coated	Dia. of Cut	Shank Dia.	LOC	OAL
DVH93220C	1/2	1/2	1-1/4	3
DVH93226C	1/2	1/2	1-5/8	4
DVH93234C	1/2	1/2	2-1/8	4
DVH94026C	5/8	5/8	1-5/8	4
DVH94034C	5/8	5/8	2-1/8	5

C: AlTiN Coating

For guidance to calculate surface footage & chip load for Raptor™ DVH End Mills refer to the Technical Section on pages 54 to 55.

A: Autonomous Coating - For high heat as well as low heat applications (limited stock)

The Chip Control (CC) option helps chip flow by breaking the cut material into optimal lengths, eliminating chip packing allowing a greater metal removal rate (MMR).

11 Flute, Variable Helix with Chip Control

Stub, Regular, Medium Length (AlTiN Coating)

Part No. Coated	Dia. of Cut	Shank Dia.	LOC	OAL
DVH114826CC	3/4	3/4	1-5/8	4
DVH114836CC	3/4	3/4	2-1/4	5
DVH114844CC	3/4	3/4	2-3/4	5

C: AlTiN Coating

For guidance to calculate surface footage & chip load for Raptor™ DVH End Mills refer to the Technical Section on pages 54 to 55.

Radius, 11 Flute, Variable Helix with Chip Control

Stub, Regular, Medium Length (AlTiN Coating)

Part No. Coated	Dia. of Cut	Shank Dia.	LOC	OAL	Radius
DVH114826RCC	3/4	3/4	1 - 5/8	4	.035-.040
DVH114836RCC	3/4	3/4	2 - 1/4	5	.035-.040
DVH114844RCC	3/4	3/4	2 - 3/4	5	.035-.040

C: AlTiN Coating

For guidance to calculate surface footage & chip load for Raptor™ DVH End Mills refer to the Technical Section on pages 54 to 55.

11 Flute, Variable Helix

Stub, Regular, Medium Length (AlTiN Coating)

Part No. Coated	Dia. of Cut	Shank Dia.	LOC	OAL
DVH114826C	3/4	3/4	1-5/8	4
DVH114836C	3/4	3/4	2-1/4	5
DVH114844C	3/4	3/4	2-3/4	5

C: AlTiN Coating

For guidance to calculate surface footage & chip load for Raptor™ DVH End Mills refer to the Technical Section on pages 54 to 55.

13 Flute, Variable Helix with Chip Control

Stub, Regular, Medium Length (AlTiN Coating)

Part No. Coated	Dia. of Cut	Shank Dia.	LOC	OAL
DVH136432CC	1	1	2	5
DVH136442CC	1	1	2-5/8	5
DVH136452CC	1	1	3-1/4	6

C: AlTiN Coating

For guidance to calculate surface footage & chip load for Raptor™ DVH End Mills refer to the Technical Section on pages 54 to 55.

Radius, 13 Flute, Variable Helix with Chip Control

Stub, Regular, Medium Length (AlTiN Coating)

Part No. Coated	Dia. of Cut	Shank Dia.	LOC	OAL	Radius
DVH136432RCC	1	1	2	5	.035-.040
DVH136442RCC	1	1	2 - 5/8	5	.035-.040
DVH136452RCC	1	1	3 - 1/4	6	.035-.040

C: AlTiN Coating

For guidance to calculate surface footage & chip load for Raptor™ DVH End Mills refer to the Technical Section on pages 54 to 55.

13 Flute, Variable Helix

Stub, Regular, Medium Length (AlTiN Coating)

Part No. Coated	Dia. of Cut	Shank Dia.	LOC	OAL
DVH136432C	1	1	2	5
DVH136442C	1	1	2-5/8	5
DVH136452C	1	1	3-1/4	6

C: AlTiN Coating

For guidance to calculate surface footage & chip load for Raptor™ DVH End Mills refer to the Technical Section on pages 54 to 55.

A: Autonomous Coating - For high heat as well as low heat applications (limited stock)

The Chip Control (CC) option helps chip flow by breaking the cut material into optimal lengths, eliminating chip packing allowing a greater metal removal rate (MMR).

DVH114826CC

DVH114826C

DVH136432RCC

DVH136432C

Raptor DVH 4 Flute, 5 Flute, 7 Flute, 9 Flute, 11 Flute & 13 Flute

The Raptor DVH 4 flute and 5 flute end mills are ideally suited for SLOTTING applications as well as periphery machining operations in Stainless Steel and High Temperature alloys.

S High Temp

Raptor DVH 4F & 5F – "S" High Temp Alloys – SFM Starting Parameters

ADC	RDC	Slotting			Peripheral		
		Conservative	Moderate	Aggressive	Conservative	Moderate	Aggressive
1/2 X D	1/4 X D	150	200	250	200	250	300
1 X D	1/2 X D	125	175	225	150	200	150
1.5 X D	1 X D	100	160	200	125	175	225
2 X D	1 X D	75	125	175	90	140	190

M Stainless

Raptor DVH 4F & 5F – "M" Stainless – SFM Starting Parameters

ADC	RDC	Slotting			Peripheral		
		Conservative	Moderate	Aggressive	Conservative	Moderate	Aggressive
1/2 X D	1/4 X D	350	425	500	250	450	550
1 X D	1/2 X D	250	350	450	350	425	500
1.5 X D	1 X D	250	325	375	250	350	450
2 X D	1 X D	200	275	325	225	300	400

P Steel

Raptor DVH 4F & 5F – "P" Mild Steel – SFM Starting Parameters

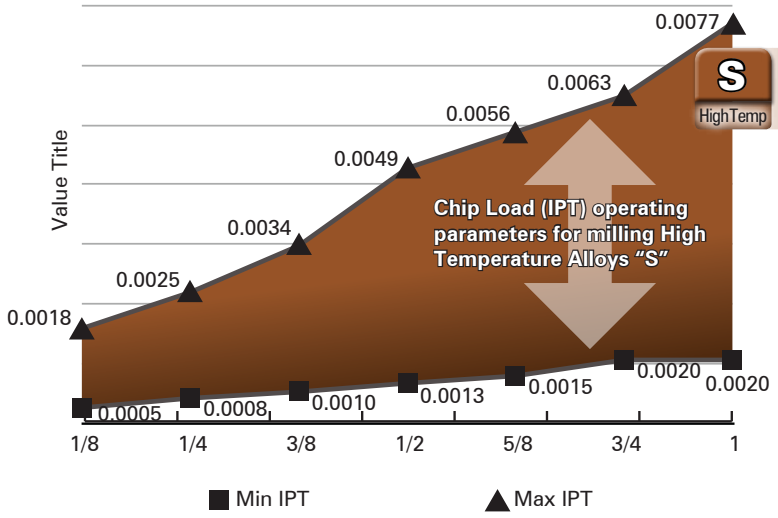
ADC	RDC	Slotting			Peripheral		
		Conservative	Moderate	Aggressive	Conservative	Moderate	Aggressive
1/2 X D	1/4 X D	500	550	700	550	600	750
1 X D	1/2 X D	400	500	550	500	550	700
1.5 X D	1 X D	350	450	500	400	500	550
2 X D	1 X D	325	425	450	350	450	475

Speed & Feed Formulas

SFM = RPM X .262 X Tool Diameter
RPM = SFM X 3.82 ÷ Tool Diameter
IPM = RPM X IPT (CLPT) X Number of Flutes
IPT = IPM ÷ (RPM X Number of Flutes)

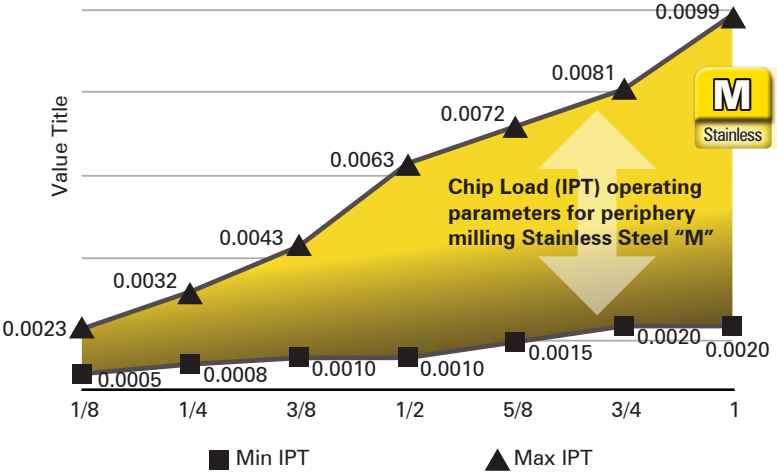
MRR = RDC X ADC X IPM (a.k.a. CIM)
HP = KW X 1.342
Torque (Full Load) = 5252 X HP ÷ RPM

NOTE: Reduce SFM when using long reach tools.



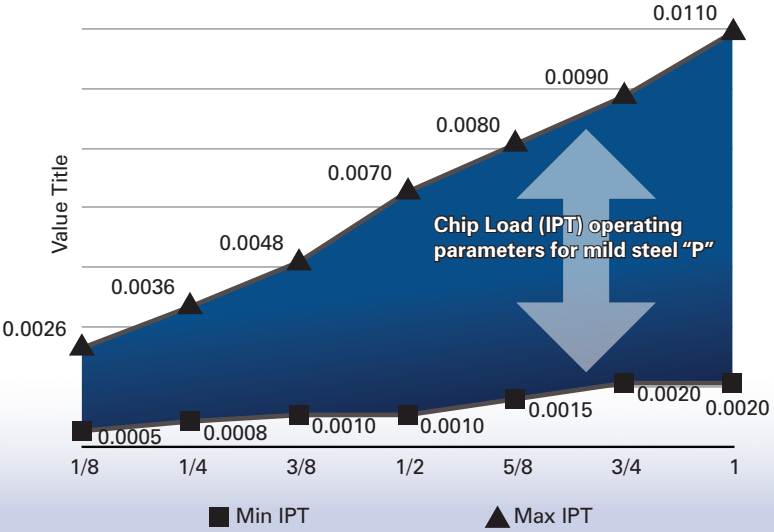
S High Temp — Raptor 4 & 5 Flute Chip Load Operating Range "S" High Temp Alloys

Material	Min SFM	Median SFM	Max SFM
Cobalt Alloys Haynes 25, 188, Stellite	60	90	110
Hastelloy	100	180	220
Inconel 525, 700, 718, Rene 41, Nomonic, Waspaloy, Monel, Hastelloy, Astroloy, Udimet	65	158	250
Invar	150	200	400
Iron Alloys A-286, 16-25-6	150	200	400
Kovar	250	375	500
Nickel Alloys	75	150	180
Notronic	100	180	220
Titanium 4AL4V	100	180	220
Titanium 6AL4V	160	280	400
Titanium 6AL6V	160	280	400
Titanium Comm Pure	80	290	500



M Stainless — Raptor 4 & 5 Flute Chip Load Operating Range "M" Stainless

Material	Min SFM	Median SFM	Max SFM
Stainless Austenitic 304L, 316L, 13-8	250	325	400
Stainless Austenitic 303, 304	260	350	500
Stainless Ferritic 430, 434	250	300	400
Stainless Martensitic 17-4	250	425	600
Stainless Martensitic 420, 440	200	300	400
Stainless Martensitic 15-5	250	300	400
Stainless Martensitic 410, 416	250	325	400



P Steel — Raptor 4 & 5 Flute Chip Load Operating Range "P" Steel

Material	Min SFM	Median SFM	Max SFM
Alloy Steel 4140, 4150, 4320, 5120, 6118, 6150, 8620	250	350	450
Free Machining Steel 1111, 1115, 1140	300	450	600
Low Carbon Steel 1010, 1018, 1020 12L14, A36	300	450	600
Med Carbon Steel 1035, 1040, 1095, 1525, 1572	200	320	470
Tool Steel A2, <35 R/c	150	300	450
Tool Steel D2 <35 R/c	150	300	450
Tool Steel P20 , H13 <35 R/c	160	305	450

Raptor™ 38° HELIX SOLID CARBIDE END MILLS

R63216C

P Steel | M Stainless | S High Temp

Raptor 3/6 Variable Helix

Raptor 3/6 Flute, Square End, Stub, Regular, Medium Length, 6-Teeth Profiling (AlTiN Coating)

Part No. Coated	Dia. of Cut	Shank Dia.	LOC	OAL
R60804C	1/8	1/8	1/4	1-1/2
R60806C	1/8	1/8	3/8	1-1/2
R61205C	3/16	3/16	5/16	2
R61207C	3/16	3/16	7/16	2
R61210C	3/16	3/16	5/8	2
R61214C	3/16	3/16	7/8	2-1/2
R61606C	1/4	1/4	3/8	2
R61608C	1/4	1/4	1/2	2-1/2
R61612C	1/4	1/4	3/4	2-1/2
R61620C	1/4	1/4	1-1/4	3
R62008C	5/16	5/16	1/2	2
R62013C	5/16	5/16	13/16	2-1/2
R62408C	3/8	3/8	1/2	2
R62414C	3/8	3/8	7/8	2-1/2
R62416C	3/8	3/8	1	2-1/2
R62420C	3/8	3/8	1-1/4	3
R63210C	1/2	1/2	5/8	3
R63216C	1/2	1/2	1	3
R63220C	1/2	1/2	1-1/4	3
R63232C	1/2	1/2	2	4
R64012C	5/8	5/8	3/4	3
R64020C	5/8	5/8	1-1/4	3-1/2
R64024C	5/8	5/8	1-1/2	4
R64036C	5/8	5/8	2-1/4	5
R64816C	3/4	3/4	1	3
R64824C	3/4	3/4	1-1/2	4
R64836C	3/4	3/4	2-1/4	5
R64852C	3/4	3/4	3-1/4	6
R66416C	1	1	1	3
R66424C	1	1	1-1/2	4
R66436C	1	1	2-1/4	5
R66452C	1	1	3-1/4	6

For guidance to calculate surface footage & chip load for Raptor™ End Mills refer to the Technical Section on pages 60 to 61.

Tolerances: Raptor 3/6

End Mill Diameter:	*–.000"*	*to*	*–.002"*
Shank Diameter:	*+.000"*	*to*	*–.0003"*

Raptor™ 38° HELIX SOLID CARBIDE END MILLS

See it in Action!

Raptor 3/6 Flute, Square End LBS*

Long Shank Series with Reduced Neck (AlTiN Coating)

Part No. Coated	Dia. of Cut	Shank Dia.	LOC	LBS*	Neck Dia.	OAL
R6240815C	3/8	3/8	1/2	1-7/8	0.360	4
R6321011C	1/2	1/2	5/8	1-3/8	0.480	3
R6321017C	1/2	1/2	5/8	2-1/8	0.480	4
R6401218C	5/8	5/8	3/4	2-1/4	0.605	5
R6481618C	3/4	3/4	1	2-1/4	0.730	5
R6481626C	3/4	3/4	1	3-1/4	0.730	6

*LBS: Length below shank
C: AlTiN Coating

For guidance to calculate surface footage & chip load for Raptor™ End Mills refer to the Technical Section on pages 60 to 61.

Raptor 3/6 Flute, Square End, Long Shank Series, NNK*

(AlTiN Coating).

Part No. Coated	Dia. of Cut	Shank Dia.	LOC	NNK*	OAL
R624140C	3/8	3/8	7/8	NNK	5
R632160C	1/2	1/2	1	NNK	6
R6321600C	1/2	1/2	1	NNK	7
R6481600C	3/4	3/4	1	NNK	7
R648240C	3/4	3/4	1-1/2	NNK	6
R664240C	1	1	1-1/2	NNK	6
R6642400C	1	1	1-1/2	NNK	7

*NNK: No Neck

For guidance to calculate surface footage & chip load for Raptor™ End Mills refer to the Technical Section on pages 60 to 61.

Raptor 3/6 Flute

Stub, Regular, Medium Length with Radius, 6-Teeth Profiling (AlTiN Coating)

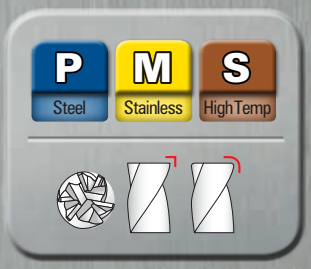
Part No. Coated	Dia. of Cut	Shank Dia.	LOC	OAL	Radius
R61606RC	1/4	1/4	3/8	2	.015–.020
R61608RC	1/4	1/4	1/2	2-1/2	.015–.020
R61612RC	1/4	1/4	3/4	2-1/2	.015–.020
R61616RC	1/4	1/4	1	2-1/2	.015–.020
R61620RC	1/4	1/4	1-1/4	3	.015–.020
R62008RC	5/16	5/16	1/2	2	.015–.020
R62013RC	5/16	5/16	13/16	2-1/2	.015–.020
R62408RC	3/8	3/8	1/2	2	.015–.020
R62414RC	3/8	3/8	7/8	2-1/2	.015–.020

C: AlTiN Coating

For guidance to calculate surface footage & chip load for Raptor™ End Mills refer to the Technical Section on pages 60 to 61.

Raptor™ 38° HELIX SOLID CARBIDE END MILLS

R6321017C R632160C R62408RC



DESTINY TOOL
THE MARK OF PERFORMANCE

Raptor™ 38° HELIX SOLID CARBIDE END MILLS

Raptor 3/6 Flute

Stub, Regular, Medium Length with Radius, 6-Teeth Profiling (AlTiN Coating)

Part No. Coated	Dia. of Cut	Shank Dia.	LOC	OAL	Radius
R62416RC	3/8	3/8	1	2-1/2	.015–.020
R62420RC	3/8	3/8	1-1/4	3	.015–.020
R63210RC	1/2	1/2	5/8	3	.025–.030
R63216RC	1/2	1/2	1	3	.025–.030
R63220RC	1/2	1/2	1-1/4	3	.025–.030
R63228RC	1/2	1/2	1-3/4	4	.025–.030
R63232RC	1/2	1/2	2	4	.025–.030
R63236RC	1/2	1/2	2-1/4	5	.025–.030
R64012RC	5/8	5/8	3/4	3	.035–.040
R64020RC	5/8	5/8	1-1/4	3-1/2	.035–.040
R64024RC	5/8	5/8	1-1/2	4	.035–.040
R64036RC	5/8	5/8	2-1/4	5	.035–.040
R64040RC	5/8	5/8	2-1/2	5	.035–.040
R64816RC	3/4	3/4	1	3	.035–.040
R64824RC	3/4	3/4	1-1/2	4	.035–.040
R64836RC	3/4	3/4	2-1/4	5	.035–.040
R66416RC	1	1	1	3	.035–.040
R66424RC	1	1	1-1/2	4	.035–.040
R66436RC	1	1	2-1/4	5	.035–.040
R66452RC	1	1	3-1/4	6	.035–.040

C: AlTiN Coating

For guidance to calculate surface footage & chip load for Raptor™ End Mills refer to the Technical Section on pages 60 to 61.

R63216RC

Raptor 3/6 Flute, Long Shank Series with Radius

(AlTiN Coating).

Part No. Coated	Dia. of Cut	Shank Dia.	LOC	OAL	Radius
R616080RC	1/4	1/4	1/2	4	.015-.020
R620130RC	5/16	5/16	13/16	4	.015-.020
R624140RC	3/8	3/8	7/8	5	.015-.020
R632160RC	1/2	1/2	1	6	.025-.030
R6321600RC	1/2	1/2	1	7	.025-.030
R6401600RC	5/8	5/8	1	7	.035-.040
R640200RC	5/8	5/8	1-1/4	6	.035-.040
R6481600RC	3/4	3/4	1	7	.035-.040
R648240RC	3/4	3/4	1-1/2	6	.035-.040
R664240RC	1	1	1-1/2	6	.035-.040
R6642400RC	1	1	1-1/2	7	.035-.040

For guidance to calculate surface footage & chip load for Raptor™ End Mills refer to the Technical Section on pages 60 to 61.

Raptor 3/6 Flute

Long Shank Series with Reduced Neck, Radius, LBS* (AlTiN Coating)

Part No. Coated	Dia. of Cut	Shank Dia.	LOC	LBS*	Neck Dia.	OAL	Radius
R6240815RC	3/8	3/8	1/2	1-7/8	0.360	4	.015–.020
R6321011RC	1/2	1/2	5/8	1-3/8	0.480	3	.025–.030
R6321017RC	1/2	1/2	5/8	2-1/8	0.480	4	.025–.030
R6401218RC	5/8	5/8	3/4	2-1/4	0.605	5	.035–.040
R6481618RC	3/4	3/4	1	2-1/4	0.730	5	.035–.040
R6481626RC	3/4	3/4	1	3-1/4	0.730	6	.035–.040

For guidance to calculate surface footage & chip load for Raptor™ End Mills refer to the Technical Section on pages 60 to 61.

*LBS: Length below shank
C: AlTiN Coating

Tolerances: Raptor 3/6

End Mill Diameter:	*–.000"*	*to*	*–.002"*
Shank Diameter:	*+.000"*	*to*	*–.0003"*

Raptor 38° HELIX SOLID CARBIDE END MILLS

R632160RC R6321011RC

P Steel | M Stainless | S High Temp

SEE IT IN ACTION!

DESTINY TOOL THE MARK OF PERFORMANCE

Raptor 3/6

The Raptor 3/6 is designed for Periphery Milling NOT slotting applications. Program the Raptor 3/6 as if it were a 6 fluted tool. The Chip Load per Tooth (IPT) values shown here are based upon 6 flute NOT 3 flute values.

Because the Raptor 3/6 has a "trailing edge" the Chip Load is spread between the leading edge which actually takes more of the chip load than the trailing edge in the cut. Additionally, because of the double variable helix design, the actual chip load per tooth will vary along the Axial Length of Cut.

Without complicating your calculations this Operating Range chart is a simple and easy-to-use reference to begin maximization of your metal removal rate.

S High Temp

Raptor 3/6 – "S" High Temp Alloys – SFM Starting Parameters

ADC	RDC	Slotting			Peripheral		
		Conservative	Moderate	Aggressive	Conservative	Moderate	Aggressive
1/2 X D	1/4 X D	NA	NA	NA	200	250	300
1 X D	1/2 X D	NA	NA	NA	150	200	250
1.5 X D	1 X D	NA	NA	NA	125	175	225
2 X D	1 X D	NA	NA	NA	100	150	175

M Stainless

Raptor 3/6 – "M" Stainless – SFM Starting Parameters

ADC	RDC	Slotting			Peripheral		
		Conservative	Moderate	Aggressive	Conservative	Moderate	Aggressive
1/2 X D	1/4 X D	NA	NA	NA	250	450	550
1 X D	1/2 X D	NA	NA	NA	350	425	500
1.5 X D	1 X D	NA	NA	NA	250	350	450
2 X D	1 X D	NA	NA	NA	200	300	400

P Steel

Raptor 3/6 – "P" Mild Steel – SFM Starting Parameters

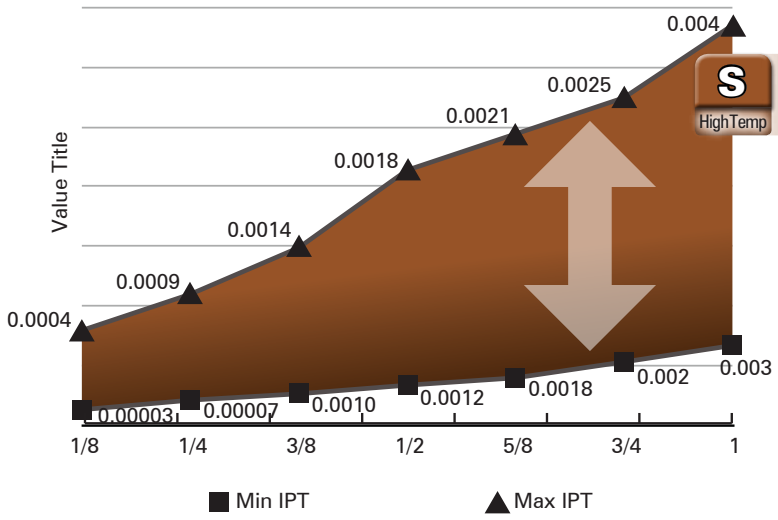
ADC	RDC	Slotting			Peripheral		
		Conservative	Moderate	Aggressive	Conservative	Moderate	Aggressive
1/2 X D	1/4 X D	NA	NA	NA	550	600	750
1 X D	1/2 X D	NA	NA	NA	500	550	700
1.5 X D	1 X D	NA	NA	NA	400	500	550
2 X D	1 X D	NA	NA	NA	300	350	450

Speed & Feed Formulas

SFM = RPM X .262 X Tool Diameter
RPM = SFM X 3.82 ÷ Tool Diameter
IPM = RPM X IPT (CLPT) X Number of Flutes
IPT = IPM ÷ (RPM X Number of Flutes)

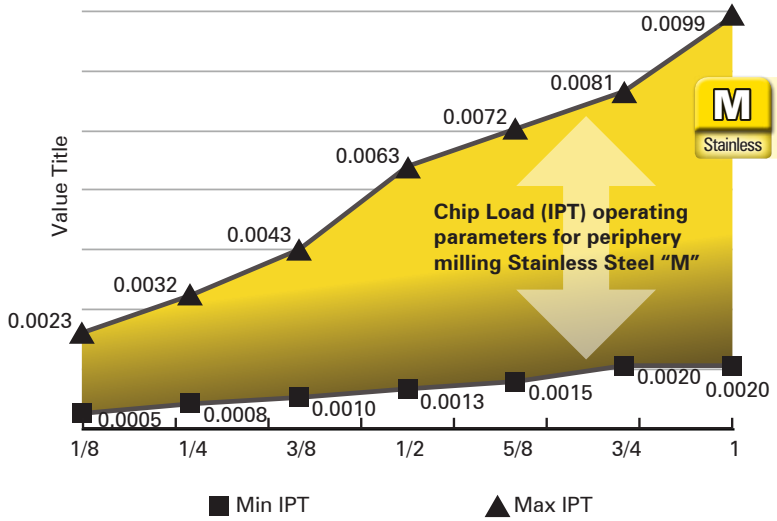
MRR = RDC X ADC X IPM (a.k.a. CIM)
HP = KW X 1.342
Torque (Full Load) = 5252 X HP ÷ RPM

NOTE: Reduce SFM when using long reach tools.



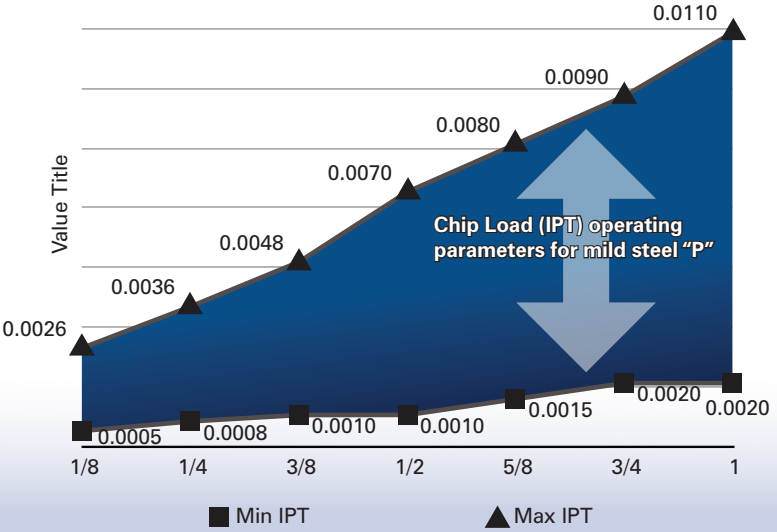
S High Temp — Raptor 3/6 Chip Load General Operating Range "S" High Temp Alloys

Material	Min SFM	Median SFM	Max SFM
Cobalt Alloys Haynes 25, 188, Stellite	60	90	110
Hastelloy	100	180	220
Inconel 525, 700, 718, Rene 41, Nomonic, Waspaloy, Monel, Hastelloy, Astroloy, Udimet	65	158	250
Invar	150	200	400
Iron Alloys A-286, 16-25-6	150	200	400
Kovar	250	375	500
Nickel Alloys	75	150	180
Notronic	100	180	220
Titanium 4AL4V	100	180	220
Titanium 6AL4V	160	280	400
Titanium 6AL6V	160	280	400
Titanium Comm Pure	80	290	500



M Stainless — Raptor 3/6 Chip Load General Operating Range "M" Stainless

Material	Min SFM	Median SFM	Max SFM
Stainless Austenitic 304L, 316L, 13-8	250	325	400
Stainless Austenitic 303, 304	260	350	500
Stainless Ferritic 430, 434	250	300	400
Stainless Martensitic 17-4	250	425	600
Stainless Martensitic 420, 440	200	300	400
Stainless Martensitic 15-5	250	300	400
Stainless Martensitic 410, 416	250	325	400



P Steel — Raptor 3/6 Chip Load General Operating Range "P" Steel

Material	Min SFM	Median SFM	Max SFM
Alloy Steel 4140, 4150, 4320, 5120, 6118, 6150, 8620	250	350	450
Free Machining Steel 1111, 1115, 1140	300	450	600
Low Carbon Steel 1010, 1018, 1020 12L14, A36	300	450	600
Med Carbon Steel 1035, 1040, 1095, 1525, 1572	200	320	470
Tool Steel A2, <35 R/c	150	300	450
Tool Steel D2 <35 R/c	150	300	450
Tool Steel P20 , H13 <35 R/c	160	305	450

MINIATURES

"Our Miniature end mills offer a broad range of intricate and precision cutting!"

MADE IN USA

Cobra™ 37° HELIX END MILLS

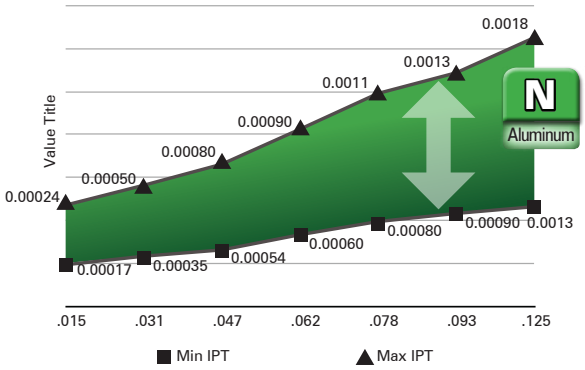
Raptor™ 38° HELIX SOLID CARBIDE END MILLS

Viper™ 45° HELIX END MILLS

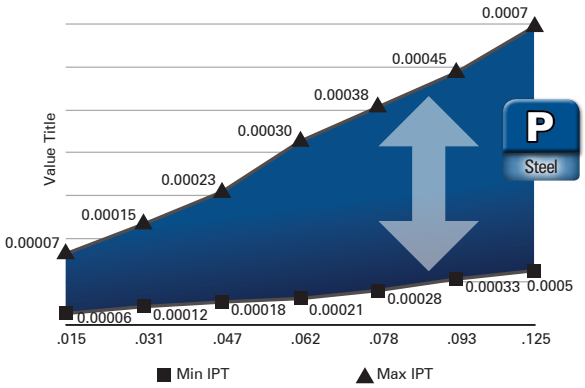
YouTube **See Our Tools in Action!**
www.youtube.com/user/destinytool

Miniatures

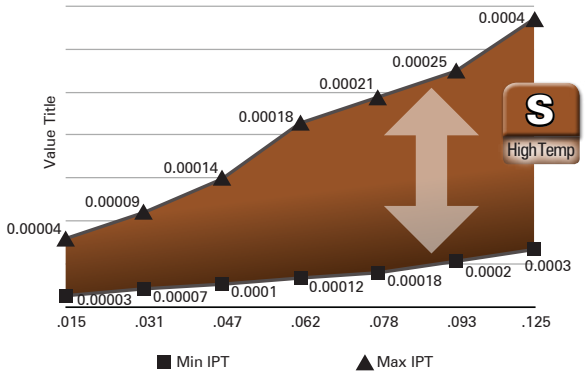
- Double variable helix design reduces chatter and harmonics, better finish, and increases material removal rates
- Corner radius for improved strength
- AlTiN coated for improved lubricity and heat resistance
- Better than h6 shank tolerance for shrink fit holders



Aluminum							
ADC	RDC	Slotting			Peripheral		
		Conservative	Moderate	Aggressive	Conservative	Moderate	Aggressive
1/4 X D	1/8 X D	600	800	900	800	1000	1200
1/4 X D	1/4 X D	600	800	900	800	1000	1200
1/2 X D	1/4 X D	500	700	800	600	800	1000
1 X D	1/2 X D	400	600	700	500	700	900



Medium Alloy – Low Carbon Steels							
ADC	RDC	Slotting			Peripheral		
		Conservative	Moderate	Aggressive	Conservative	Moderate	Aggressive
1/4 X D	1/8 X D	500	600	700	600	700	800
1/4 X D	1/4 X D	400	500	600	500	600	700
1/2 X D	1/4 X D	300	400	500	400	500	600
1 X D	1/2 X D	200	300	400	300	400	500



High Temp Alloys							
ADC	RDC	Slotting			Peripheral		
		Conservative	Moderate	Aggressive	Conservative	Moderate	Aggressive
1/4 X D	1/8 X D	70	90	150	80	100	180
1/4 X D	1/4 X D	60	80	120	70	90	150
1/2 X D	1/4 X D	50	70	90	60	80	120
1 X D	1/2 X D	40	60	80	50	70	100

NOTE: Reduce SFM when using long reach tools.

Cobra™ 37° HELIX END MILLS

Cobra Miniatures: 2 & 4 Flute, Stub Length

2 Flt P/N	2 Flt Coated P/N	4 Flt P/N	4 Flt Coated P/N	Dia. of Cut	LOC	Shank Dia.	OAL
C208S010	C208S010C	C408S010	C408S010C	0.010	0.015	1/8	1-1/2
C208S015	C208S015C	C408S015	C408S015C	0.015	0.0225	1/8	1-1/2
C208S020	C208S020C	C408S020	C408S020C	0.020	0.03	1/8	1-1/2
C208S025	C208S025C	C408S025	C408S025C	0.025	0.0375	1/8	1-1/2
C208S030	C208S030C	C408S030	C408S030C	0.030	0.045	1/8	1-1/2
C208S031	C208S031C	C408S031	C408S031C	0.031	0.0465	1/8	1-1/2
C208S045	C208S045C	C408S045	C408S045C	0.045	0.0675	1/8	1-1/2
C208S047	C208S047C	C408S047	C408S047C	0.047	0.0705	1/8	1-1/2
C208S055	C208S055C	C408S055	C408S055C	0.055	0.0825	1/8	1-1/2
C208S062	C208S062C	C408S062	C408S062C	0.062	0.093	1/8	1-1/2
C208S078	C208S078C	C408S078	C408S078C	0.078	0.117	1/8	1-1/2
C208S093	C208S093C	C408S093	C408S093C	0.093	0.1395	1/8	1-1/2
C208S100	C208S100C	C408S100	C408S100C	0.100	0.15	1/8	1-1/2
C208S120	C208S120C	C408S120	C408S120C	0.120	0.18	1/8	1-1/2

C: AlTiN Coating (at end of number)

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 63.

C208S025

Cobra Miniatures: 2 & 4 Flute - Square End, Regular Length

2 Flute Part No. Unoated	2 Flute Part No. Coated	4 Flute Part No. Uncoated	4 Flute Part No. Coated	Dia. of Cut	LOC	Shank Dia.	OAL
C208N010	C208N010C	C408N010	C408N010C	0.010	0.030	1/8	1-1/2
C208N015	C208N015C	C408N015	C408N015C	0.015	0.045	1/8	1-1/2
C208N020	C208N020C	C408N020	C408N020C	0.020	0.060	1/8	1-1/2
C208N025	C208N025C	C408N025	C408N025C	0.025	0.075	1/8	1-1/2
C208N030	C208N030C	C408N030	C408N030C	0.030	0.090	1/8	1-1/2
C208N031	C208N031C	C408N031	C408N031C	0.031	0.093	1/8	1-1/2
C208N045	C208N045C	C408N045	C408N045C	0.045	0.135	1/8	1-1/2
C208N047	C208N047C	C408N047	C408N047C	0.047	0.141	1/8	1-1/2
C208N055	C208N055C	C408N055	C408N055C	0.055	0.165	1/8	1-1/2
C208N062	C208N062C	C408N062	C408N062C	0.062	0.187	1/8	1-1/2
C208N078	C208N078C	C408N078	C408N078C	0.078	0.234	1/8	1-1/2
C208N093	C208N093C	C408N093	C408N093C	0.093	0.279	1/8	1-1/2
C208N100	C208N100C	C408N100	C408N100C	0.100	0.300	1/8	1-1/2
C208N120	C208N120C	C408N120	C408N120C	0.120	0.360	1/8	1-1/2

C: AlTiN Coating (at end of number)

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 63.

Raptor™ 38° HELIX SOLID CARBIDE END MILLS

Raptor DVH Miniatures, 4 Flute, Long Shank Series with Reduced Neck, LBS*

Part No.	Part No. Coated	Shank Dia.	Dia. of Cut	LOC	LBS*	Neck Dia.	OAL
DVH4020316	DVH4020316S	1/8	1/32	3/64	.500	.029	3
DVH4030916	DVH4030916S	1/8	3/64	.071	.500	.044	3
DVH4040616	DVH4040616S	1/8	1/16	3/32	.500	.059	3
DVH4060916	DVH4060916S	1/8	3/32	0.141	.500	.089	3

*LBS: Length below shank

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 63.

Raptor DVH Miniatures, 3 Flute, Variable Helix with Radius

(AlTiN Coating).

Part No. Coated	Dia. of Cut	Shank Dia.	LOC	OAL	Radius
DVH3S015RC	0.015	1/8	0.022	1-1/2	0.004
DVH3N015RC	0.015	1/8	0.045	1-1/2	0.004
DVH3S020RC	0.020	1/8	0.030	1-1/2	0.004
DVH3N020RC	0.020	1/8	0.060	1-1/2	0.004
DVH3S025RC	0.025	1/8	0.038	1-1/2	0.004
DVH3N025RC	0.025	1/8	0.075	1-1/2	0.004
DVH3S031RC	0.031	1/8	0.046	1-1/2	0.005
DVH3N031RC	0.031	1/8	0.093	1-1/2	0.005
DVH3S035RC	0.035	1/8	0.053	1-1/2	0.005
DVH3N035RC	0.035	1/8	0.105	1-1/2	0.005
DVH3S040RC	0.040	1/8	0.060	1-1/2	0.005
DVH3N040RC	0.040	1/8	0.120	1-1/2	0.005
DVH3S045RC	0.045	1/8	0.068	1-1/2	0.005
DVH3N045RC	0.045	1/8	0.135	1-1/2	0.005
DVH3S047RC	0.047	1/8	0.070	1-1/2	0.005
DVH3N047RC	0.047	1/8	0.141	1-1/2	0.005
DVH3S050RC	0.050	1/8	0.075	1-1/2	0.005
DVH3N050RC	0.050	1/8	0.150	1-1/2	0.005
DVH3S055RC	0.055	1/8	0.083	1-1/2	0.005
DVH3N055RC	0.055	1/8	0.165	1-1/2	0.005
DVH3S060RC	0.060	1/8	0.090	1-1/2	0.010
DVH3N060RC	0.060	1/8	0.180	1-1/2	0.010
DVH3S062RC	0.062	1/8	0.093	1-1/2	0.010
DVH3N062RC	0.062	1/8	0.186	1-1/2	0.010
DVH3S078RC	0.078	1/8	0.117	1-1/2	0.010
DVH3N078RC	0.078	1/8	0.234	1-1/2	0.010
DVH3S093RC	0.093	1/8	0.139	1-1/2	0.010
DVH3N093RC	0.093	1/8	0.279	1-1/2	0.010

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 63.

Raptor DVH Miniatures, 4 Flute, Variable Helix with Radius

With 3/16 Shank (AlTiN Coating)

Part No. Coated	Dia. of Cut	Shank Dia.	LOC	OAL	Radius
DVH404010RC	1/16	3/16	3/32	2	0.005
DVH404020RC	1/16	3/16	3/16	2	0.005
DVH405010RC	5/64	3/16	7/64	2	0.005
DVH405020RC	5/64	3/16	15/64	2	0.005
DVH406010RC	3/32	3/16	9/64	2	0.005
DVH406020RC	3/32	3/16	9/32	2	0.005
DVH407010RC	7/64	3/16	5/32	2	0.005
DVH407020RC	7/64	3/16	21/64	2	0.005
DVH408030RC	1/8	3/16	3/16	2	0.010
DVH408060RC	1/8	3/16	3/8	2	0.010

C: AlTiN Coating

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 63.

NOTE: Additional miniature sizes with 1/8 shank diameter can also be found on page 45.

Tolerances: Raptor

End Mill Diameter: *–.000" to –.002"*
Shank Diameter: *+.000" to –.0003"*

See it in Action!

DVH3S035RC DVH3N093RC

DVH408060RC

Viper™ 45° HELIX END MILLS

Viper Miniatures, 2 Flute, Long Shank Series with Reduced Neck, LBS*

Part No.	Part No. Coated	Shank Dia.	Dia. of Cut	LOC	LBS*	Neck Dia.	OAL
V2020308	V2020308S	1/8	1/32	3/64	.250	.029	3
V2031008	V2031008S	1/8	3/64	.071	.250	.044	3
V2040612	V2040612S	1/8	1/16	3/32	.375	.058	3
V2051412	V2051412S	1/8	5/64	0.117	.375	.074	3
V2060916	V2060916S	1/8	3/32	9/64	.500	.088	2-1/2
V2081216	V2081216S	1/8	1/8	3/16	.500	.118	3
V2121816	V2121816S	3/16	3/16	.281	.500	.178	3

*LBS: Length below shank

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 63.

Viper Miniatures, Square End, 2 Flute, 45 Degree Helix

Part No. Uncoated	Part No. Stealth	Dia. of Cut	Shank Dia.	LOC	OAL
V202010	V202010S	1/32	3/16	3/64	2
V202020	V202020S	1/32	3/16	3/32	2
V203010	V203010S	3/64	3/16	.071	2
V203020	V203020S	3/64	3/16	9/64	2
V204010	V204010S	1/16	3/16	3/32	2
V204020	V204020S	1/16	3/16	3/16	2
V205010	V205010S	5/64	3/16	7/64	2
V205020	V205020S	5/64	3/16	15/64	2
V206010	V206010S	3/32	3/16	7/64	2
V206020	V206020S	3/32	3/16	9/32	2
V207010	V207010S	7/64	3/16	5/32	2
V207020	V207020S	7/64	3/16	21/64	2
V208030	V208030S	1/8	3/16	3/16	2
V208060	V208060S	1/8	3/16	3/8	2
V208080	V208080S	1/8	3/16	1/2	2

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 63.

NOTE: Additional miniature sizes with 1/8 shank diameter can be found on page 14.

Viper Miniatures, Square End, 2 Flute, 45 Degree Helix

With 1/4 Shank

Part No.	Part No. Stealth	Dia. of Cut	Shank Dia.	LOC	OAL
V202010Q	V202010QS	1/32	1/4	3/64	2
V202020Q	V202020QS	1/32	1/4	3/32	2
V203010Q	V203010QS	3/64	1/4	.071	2
V203020Q	V203020QS	3/64	1/4	9/64	2
V204010Q	V204010QS	1/16	1/4	3/32	2
V204020Q	V204020QS	1/16	1/4	3/16	2
V205010Q	V205010QS	5/64	1/4	7/64	2
V205020Q	V205020QS	5/64	1/4	15/64	2
V206010Q	V206010QS	3/32	1/4	7/64	2
V206020Q	V206020QS	3/32	1/4	9/32	2
V207010Q	V207010QS	7/64	1/4	5/32	2
V207020Q	V207020QS	7/64	1/4	21/64	2
V208030Q	V208030QS	1/8	1/4	3/16	2
V208060Q	V208060QS	1/8	1/4	3/8	2
V208080Q	V208080QS	1/8	1/4	1/2	2

S: Stealth Coating
Q: Quarter Inch Shank

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 63.

V2121816

N Aluminum

V2080600

Viper™ 45° HELIX END MILLS

SEE IT IN ACTION!

YouTube

Tolerances: Viper

End Mill Diameter: –.0001" to –.0003" *Shank Diameter:* +.000" to –.0003"

Friction Coefficients

TiN Coated Carbide End Mill

Viper Black Stealth

.10 .09 .08 .07 .06 .05 .04 .03 .02 .01 .00

High Friction — Lower Friction

Tool Life

4 Hours: Carbide

40 hours: Viper Black Stealth

DESTINY TOOL
THE MARK OF PERFORMANCE

Viper Miniatures, Square End, 3 Flute, 45 Degree Helix

Part No. Uncoated	Part No. Stealth	Dia. of Cut	Shank Dia.	LOC	OAL
V302010	V302010S	1/32	3/16	3/64	2
V302020	V302020S	1/32	3/16	3/32	2
V303010	V303010S	3/64	3/16	.071	2
V303020	V303020S	3/64	3/16	9/64	2
V304010	V304010S	1/16	3/16	3/32	2
V304020	V304020S	1/16	3/16	3/16	2
V305010	V305010S	5/64	3/16	7/64	2
V305020	V305020S	5/64	3/16	15/64	2
V306010	V306010S	3/32	3/16	7/64	2
V306020	V306020S	3/32	3/16	9/32	2
V307010	V307010S	7/64	3/16	5/32	2
V307020	V307020S	7/64	3/16	21/64	2
V308030	V308030S	1/8	3/16	3/16	2
V308060	V308060S	1/8	3/16	3/8	2
V308080	V308080S	1/8	3/16	1/2	2

S: Stealth Coating

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 63.

— Black Stealth is an invisible, lubristic coating that is covered in a black material to support identification between uncoated and coated tools.

NOTE: Additional miniature sizes with 1/8 shank diameter can be found on page 20.

Viper Miniatures, Square End, 3 Flute, 45 Degree Helix

With 1/4 Shank

Part No. Coated	Part No. Stealth	Dia. of Cut	Shank Dia.	LOC	OAL
V302010Q	V302010QS	1/32	1/4	3/64	2
V302020Q	V302020QS	1/32	1/4	3/32	2
V303010Q	V303010QS	3/64	1/4	.071	2
V303020Q	V303020QS	3/64	1/4	9/64	2
V304010Q	V304010QS	1/16	1/4	3/32	2
V304020Q	V304020QS	1/16	1/4	3/16	2
V305010Q	V305010QS	5/64	1/4	7/64	2
V305020Q	V305020QS	5/64	1/4	15/64	2
V306010Q	V306010QS	3/32	1/4	7/64	2
V306020Q	V306020QS	3/32	1/4	9/32	2
V307010Q	V307010QS	7/64	1/4	5/32	2
V307020Q	V307020QS	7/64	1/4	21/64	2
V308030Q	V308030QS	1/8	1/4	3/16	2
V308060Q	V308060QS	1/8	1/4	3/8	2
V308080Q	V308080QS	1/8	1/4	1/2	2

S: Stealth Coating

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 63.

V308060 V308080

DVH Raptor™ 38° HELIX SOLID CARBIDE END MILLS

DVH4080600RC DVH4060916 DVH4060916RC

Raptor DVH Miniatures, 4 Flute, Variable Helix with Radius

With 1/4 Shank (AlTiN Coating)

Part No. Coated	Dia. of Cut	Shank Dia.	LOC	OAL	Radius
DVH4040100RC	1/16	1/4	3/32	2	0.005
DVH4040200RC	1/16	1/4	3/16	2	0.005
DVH4050100RC	5/64	1/4	7/64	2	0.005
DVH4050200RC	5/64	1/4	15/64	2	0.005
DVH4060100RC	3/32	1/4	9/64	2	0.005
DVH4060200RC	3/32	1/4	9/32	2	0.005
DVH4070100RC	7/64	1/4	5/32	2	0.005
DVH4070200RC	7/64	1/4	21/64	2	0.005
DVH4080300RC	1/8	1/4	3/16	2	0.010
DVH4080600RC	1/8	1/4	3/8	2	0.010

S: Stealth Coating

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 63.

4 Flute, DVH Miniatures

Long Shank Series with Reduced Neck, LBS*

Part No.	Part No. Coated	Shank Dia.	Dia of Cut	LOC	LBS*	Neck Dia.	OAL
DVH4020316	DVH4020316C	1/8	1/32	3/64	.500	.029	3
DVH4030916	DVH4030916C	1/8	3/64	.071	.500	.044	3
DVH4040616	DVH4040616C	1/8	1/16	3/32	.500	.059	3
DVH4060916	DVH4060916C	1/8	3/32	0.141	.500	.089	3

*LBS: Length Below Shank

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 63.

4 Flute, DVH Miniatures

Long Shank Series with Reduced Neck, Radius, LBS*

Part No. Coated	Shank Dia.	Dia of Cut	LOC	LBS*	Neck Dia.	OAL	Radius
DVH4020316RC	1/8	1/32	3/64	.500	.029	3	0.005
DVH4030916RC	1/8	3/64	.071	.500	.044	3	0.005
DVH4040616RC	1/8	1/16	3/32	.500	.059	3	0.010
DVH4060916RC	1/8	3/32	0.141	.500	.089	3	0.010

C: AltiN Coating

*LBS: Length below shank

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 63.

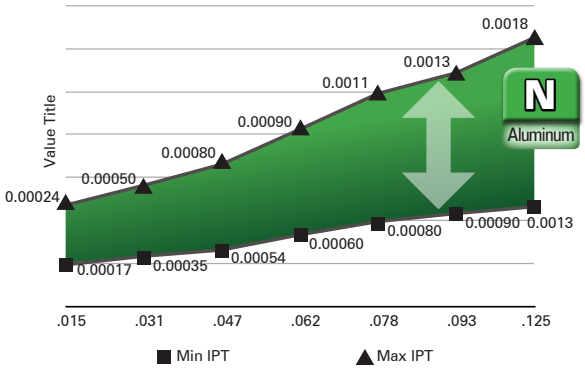
Raptor 38° HELIX SOLID CARBIDE END MILLS

SEE IT IN ACTION! YouTube

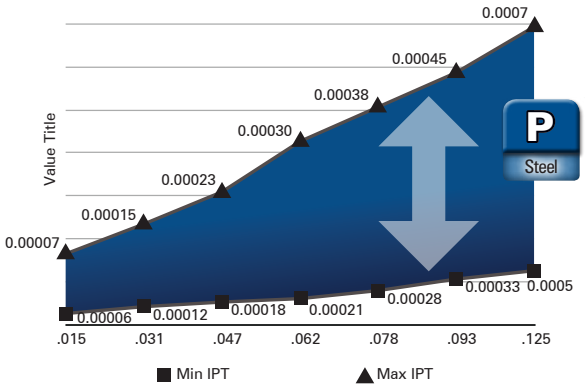
DESTINY TOOL THE MARK OF PERFORMANCE

Miniatures

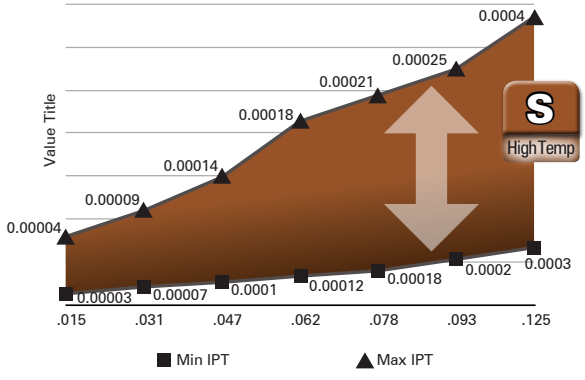
- Double variable helix design reduces chatter and harmonics, better finish, and increases material removal rates
- Corner radius for improved strength
- AlTiN coated for improved lubricity and heat resistance
- Better than h6 shank tolerance for shrink fit holders



Aluminum							
ADC	RDC	Slotting			Peripheral		
		Conservative	Moderate	Aggressive	Conservative	Moderate	Aggressive
1/4 X D	1/8 X D	600	800	900	800	1000	1200
1/4 X D	1/4 X D	600	800	900	800	1000	1200
1/2 X D	1/4 X D	500	700	800	600	800	1000
1 X D	1/2 X D	400	600	700	500	700	900



Medium Alloy – Low Carbon Steels							
ADC	RDC	Slotting			Peripheral		
		Conservative	Moderate	Aggressive	Conservative	Moderate	Aggressive
1/4 X D	1/8 X D	500	600	700	600	700	800
1/4 X D	1/4 X D	400	500	600	500	600	700
1/2 X D	1/4 X D	300	400	500	400	500	600
1 X D	1/2 X D	200	300	400	300	400	500



High Temp Alloys							
ADC	RDC	Slotting			Peripheral		
		Conservative	Moderate	Aggressive	Conservative	Moderate	Aggressive
1/4 X D	1/8 X D	70	90	150	80	100	180
1/4 X D	1/4 X D	60	80	120	70	90	150
1/2 X D	1/4 X D	50	70	90	60	80	120
1 X D	1/2 X D	40	60	80	50	70	100

CHAMFER TOOLS

"Destiny Tools are consistently very reliable, long lasting, and more importantly cost effective!"

— END USER, SAN JOSE, CA

MADE IN USA

P Steel

N Aluminum

YouTube **See Our Tools in Action!**

www.youtube.com/user/destinytool

2 Flute, Single End, 60 Degree

Part No. S/E	S/E TiCN Coating	S/E X-Treme Coating	Dia. of Cut	OAL
AS21660	AS21660N	AS21660X	1/4	2-1/2
AS22460	AS22460N	AS22460X	3/8	2-1/2
AS23260	AS23260N	AS23260X	1/2	3

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 7.

2 Flute, Single End, 82 Degree

Part No. S/E	S/E TiCN Coating	S/E X-Treme Coating	Dia. of Cut	OAL
AS20882	AS20882N	AS20882X	1/8	1-1/2
AS21682	AS21682N	AS21682X	1/4	2-1/2
AS22482	N/A	AS22482X	3/8	2-1/2
AS23282	N/A	AS23282X	1/2	3

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 7.

2 Flute, Single End, 90 Degree

Part No. S/E	S/E TiCN Coating	S/E X-Treme Coating	Dia. of Cut	OAL
AS20890	AS20890N	AS20890X	1/8	1-1/2
AS21290	AS21290N	AS21290X	3/16	2
AS21690	AS21690N	AS21690X	1/4	2-1/2
AS22490	AS22490N	AS22490X	3/8	2-1/2
AS23290	AS23290N	AS23290X	1/2	3
AS24890	AS24890N	AS24890X	3/4	4

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 7.

N: TiCN Coating
X: X-Treme Coating

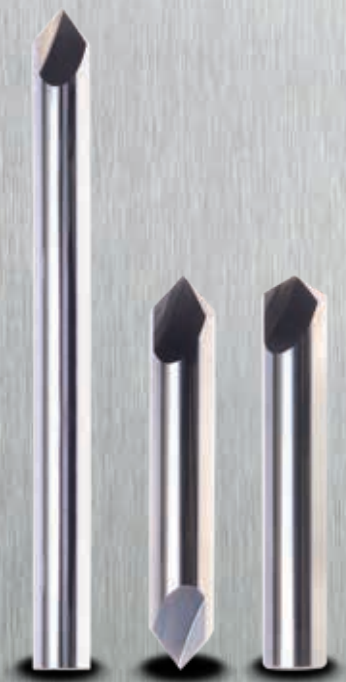
AS23260 AS23282 AS23290

Tolerances: Chamfer Tools

End Mill Diameter: –.0001" to –.002"
Shank Diameter: +.000" to –.0003"

SEE IT IN ACTION!

DESTINY TOOL
THE MARK OF PERFORMANCE



2 Flute, Single End, 90 Degree, Long Shank Series

Part No. S/E	S/E TiCN Coating	S/E X-Treme Coating	Dia. of Cut	OAL
ASL20890	ASL20890N	ASL20890X	1/8	2
ASL21690	ASL21690N	ASL21690X	1/4	4
ASL22490	ASL22490N	ASL22490X	3/8	5
ASL23290	ASL23290N	ASL23290X	1/2	6

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 7.

2 Flute, Double End, 90 Degree

Part No. S/E	S/E TiCN Coating	S/E X-Treme Coating	Dia. of Cut	OAL
AD20890	AD20890N	AD20890X	1/8	1-1/2
AD21290	AD21290N	AD21290X	3/16	2
AD21690	AD21690N	AD21690X	1/4	2-1/2
AD22490	AD22490N	AD22490X	3/8	2-1/2
AD23290	AD23290N	AD23290X	1/2	3
AD24890	AD24890N	AD24890X	3/4	4

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 7.

2 Flute, Single End, 120 Degree

Part No. S/E	S/E TiCN Coating	S/E X-Treme Coating	Dia. of Cut	OAL
AS232120	N/A	AS232120X	1/2	3

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 7.

N: TiCN Coating
X: X-Treme Coating

3 Flute, Single End, 60, 90 and 120 Degree, with Helix
(Built on helical platform)

Part No. S/E	S/E X-Treme Coating	Dia. of Cut	Tip Dia.	OAL
AS31660	AS31660X	1/4	.063	2-1/2
AS31690	AS31690X	1/4	.060	2-1/2
AS316120	AS316120X	1/4	.060	2-1/2
AS32460	AS32460X	3/8	.068	2-1/2
AS32490	AS32490X	3/8	.070	2-1/2
AS324120	AS324120X	3/8	.070	2-1/2
AS33260	AS33260X	1/2	.100	3
AS33290	AS33290X	1/2	.100	3
AS332120	AS332120X	1/2	.100	3
AS34090	AS34090X	5/8	.100	3
AS34890	AS34890X	3/4	.125	3

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 7.

5 Flute, Single End, 60, 90 and 120 Degree, with Helix
(Built on helical platform)

Part No. S/E	S/E X-Treme Coating	Dia. of Cut	Tip Dia.	OAL
AS51660	AS51660X	1/4	.063	2-1/2
AS51690	AS51690X	1/4	.060	2-1/2
AS516120	AS516120X	1/4	.060	2-1/2
AS52460	AS52460X	3/8	.068	2-1/2
AS52490	AS52490X	3/8	.070	2-1/2
AS524120	AS524120X	3/8	.070	2-1/2
AS53260	AS53260X	1/2	.100	3
AS53290	AS53290X	1/2	.100	3
AS532120	AS532120X	1/2	.100	3
AS54090	AS54090X	5/8	.100	3
AS54890	AS54890X	3/4	.125	3

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 7.

4 Flute, Single End, 60 Degree

Part No. S/E	S/E TiCN Coating	S/E X-Treme Coating	Dia. of Cut	Tip Dia.	OAL
AS41660	N/A	AS41660X	1/4	0.060	2-1/2
AS42460	N/A	AS42460X	3/8	0.060	2-1/2
AS43260	AS43260N	AS43260X	1/2	0.060	3

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 7.

4 Flute, Single End, 82 Degree

Part No. S/E	S/E TiCN Coating	S/E X-Treme Coating	Dia. of Cut	Tip Dia.	OAL
AS41682	N/A	AS41682X	1/4	0.060	2-1/2
AS42482	N/A	AS42482X	3/8	0.060	2-1/2
AS43282	N/A	AS43282X	1/2	0.060	3

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 7.

N: TiCN Coating
X: X-Treme Coating

AS33290 AS43260 AS43282

Tolerances: Chamfer Tools

End Mill Diameter: *–.0001" to –.0003"*
Shank Diameter: *+.000" to –.0003"*

See it in Action!

AS432120 AS43290PT

4 Flute, Single End, 90 Degree

Part No. S/E	S/E TiCN Coating	S/E X-Treme Coating	Dia. of Cut	Tip Dia.	OAL
AS41690	AS41690N	AS41690X	1/4	0.060	2-1/2
AS42490	AS42490N	AS42490X	3/8	0.060	2-1/2
AS43290	AS43290N	AS43290X	1/2	0.060	3
AS44890	AS44890N	AS44890X	3/4	0.060	4

N: TiCN Coating
X: X-Treme Coating

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 7.

4 Flute, Single End, 90 Degree, with Point

Part No. S/E	S/E X-Treme Coating	Dia. of Cut	OAL
AS41690PT	AS41690PTX	1/4	2-1/2
AS42490PT	AS42490PTX	3/8	2-1/2
AS43290PT	AS43290PTX	1/2	3
AS44890PT	AS44890PTX	3/4	4

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 7.

4 Flute, Double End, 90 Degree

Part No. S/E	S/E TiCN Coating	S/E X-Treme Coating	Dia. of Cut	Tip Dia.	OAL
AD41690	AD41690N	AD41690X	1/4	0.060	2-1/2
AD42490	AD42490N	AD42490X	3/8	0.060	2-1/2
AD43290	AD43290N	AD43290X	1/2	0.060	3
AD44890	AD44890N	AD44890X	3/4	0.060	4

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 7.

4 Flute, Double End, 90 Degree, with Point

Part No. S/E	S/E X-Treme Coating	Dia. of Cut	OAL
AD41690PT	AD41690PTX	1/4	2-1/2
AD42490PT	AD42490PTX	3/8	2-1/2
AD43290PT	AD43290PTX	1/2	3
AD44890PT	AD44890PTX	3/4	4

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 7.

Tolerances: Chamfer Tools

End Mill Diameter: –.0001" to –.002"
Shank Diameter: +.000" to –.0003"

See it in Action!

4 Flute, Single End, 120 Degree

Part No. S/E	S/E X-Treme Coating	Dia. of Cut	Tip Dia.	OAL
AS432120	AS432120X	1/2	0.060	3

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 7.

N: TiCN Coating
X: X-Treme Coating

Spot Drills-Carbide, 2 Flute, 90° 120° 140°

Part No. Uncoated	AlTiN Coating	Shank Dia.	OAL
SPD0890	SPD0890C	1/8	3
SPD1290	SPD1290C	3/16	3
SPD1690	SPD1690C	1/4	4
SPD2490	SPD2490C	3/8	4
SPD3290	SPD3290C	1/2	4
SPD08120	SPD08120C	1/8	3
SPD12120	SPD12120C	3/16	3
SPD16120	SPD16120C	1/4	4
SPD24120	SPD24120C	3/8	4
SPD32120	SPD32120C	1/2	4
SPD08140	SPD08140C	1/8	3
SPD12140	SPD12140C	3/16	3
SPD16140	SPD16140C	1/4	4
SPD24140	SPD24140C	3/8	4
SPD32140	SPD32140C	1/2	4

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 7.

Chamfer Endmills Viper, 2 Flute, 90° Point

Part No. Uncoated	Stealth Coating	Shank Dia.	LOC	OAL
CMV21612	CMV21612S	1/4	3/4	2-1/2
CMV22414	CMV22414S	3/8	7/8	2-1/2
CMV23220	CMV23220S	1/2	1-1/4	3
CMV24826	CMV24826S	3/4	1-5/8	4

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 7.

C: AlTiN Coating (at end of number)
S: Stealth Coating

— Black Stealth is an invisible, lubristic coating that is covered in a black material to support identification between uncoated and coated tools.

SPD08120 CMV23220

SEE IT IN ACTION!

DESTINY TOOL
THE MARK OF PERFORMANCE

Drill Mills, 2 Flute, Variable Helix, 135° Point

Part No. Uncoated	Stealth Coating	Shank Dia.	LOC	OAL
DM20808	DM20808S	1/8	1/2	2
DM21210	DM21210S	3/16	5/8	2
DM21612	DM21612S	1/4	3/4	2-1/2
DM22416	DM22416S	3/8	1	3
DM23224	DM23224S	1/2	1-1/2	4

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 7.

Drill Mills, 3 Flute Variable Helix, 135° Point

Part No. Uncoated	AlTiN Coating	Shank Dia.	LOC	OAL
DM30808	DM30808C	1/8	1/2	2
DM31210	DM31210C	3/16	5/8	2
DM31612	DM31612C	1/4	3/4	2-1/2
DM32416	DM32416C	3/8	1	3
DM33224	DM33224C	1/2	1-1/2	4

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 7.

Countersinks, 1 Flute, 60° 82° 90°

Part No. Uncoated	Stealth Coating	Dia. of Cut	Shank Dia.	Degree	OAL
CTS0860	CTS0860S	1/8	1/8	60°	2
CTS0890	CTS0890S	1/8	1/8	90°	2
CTS1682	CTS1682S	1/4	1/4	82°	2-1/2
CTS1690	CTS1690S	1/4	1/4	90°	2-1/2
CTS2482	CTS2482S	3/8	3/8	82°	2-1/2
CTS2490	CTS2490S	3/8	3/8	90°	2-1/2
CTS3282	CTS3282S	1/2	1/2	82°	3
CTS3290	CTS3290S	1/2	1/2	90°	3

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 7.

C: AlTiN Coating (at end of number)
S: Stealth Coating

— Black Stealth is an invisible, lubristic coating that is covered in a black material to support identification between uncoated and coated tools.

Tolerances: Cutting Tools

End Mill Diameter: *–.0001" to –.002"*
Shank Diameter: *+.000" to –.0003"*

See it in Action!

SPECIAL TOOLS

"Your ability to work with us when special machining needs arise, always exceeds our expectations. Destiny Tool always comes through!"

— END USER, MERIDIAN, ID

P Steel

M Stainless

S HighTemp

MADE IN USA

See Our Tools in Action!
www.youtube.com/user/destinytool

DESTINY TOOL
THE MARK OF PERFORMANCE

Thread Mills – Single Profile

Part No. S/E	Thread Size	Dia. of Cut	Shank Dia.	LOC	No. of Flutes	Neck Dia.	Min. Pitch	Max. Pitch	OAL
DESTM098	#6	0.098	3/16	0.250	3	0.049	32	64	2
DESTM098L	#6	0.098	3/16	0.400	3	0.049	32	64	2
DESTM120	#8	0.120	3/16	0.300	3	0.07	32	56	2
DESTM120L	#8	0.120	3/16	0.500	3	0.07	32	56	2
DESTM138	#10	0.138	3/16	0.400	3	0.073	24	56	2
DESTM138L	#10	0.138	3/16	0.600	3	0.073	24	56	2
DESTM182	1/4	0.182	1/4	0.400	4	0.104	20	56	2
DESTM182L	1/4	0.182	1/4	0.650	4	0.104	20	56	2-1/2
DESTM240	5/16	0.240	1/4	0.500	4	0.153	18	48	2-1/2
DESTM240L	5/16	0.240	1/4	0.800	4	0.153	18	48	2-1/2
DESTM290	3/8	0.290	3/8	0.600	4	0.192	16	40	3
DESTM290L	3/8	0.290	3/8	1.000	4	0.192	16	40	3
DESTM372	1/2	0.372	3/8	0.750	4	0.24	12	32	3
DESTM372L	1/2	0.372	3/8	1.200	4	0.24	12	32	3
DESTM488	5/8	0.488	1/2	0.850	5	0.34	11	32	3-1/2
DESTM488L	5/8	0.488	1/2	1.350	5	0.34	11	32	3-1/2

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 7.

DESTM290 DESTM290L DESTM3816H

Thread Mills – Helical, Coated

Part No. S/E	Thread Size	Shank Dia. of Cut	Dia.	LOC	OAL	No. of Flutes
DESTM-4-40-H	4 - 40	1/8	0.085	5/32	2	3
DESTM-6-32-H	6 - 32	1/8	0.095	7/32	2	3
DESTM-8-32-H	8 - 32	1/8	0.115	1/4	2	3
DESTM-8-36-H	8 - 36	1/8	0.115	1/4	2	3
DESTM-10-24-H	10 - 24	3/16	0.120	5/16	2	3
DESTM-10-32-H	10 - 32	3/16	0.120	5/16	2	3
DESTM-1/4-20-H	1/4 - 20	3/16	0.180	1/2	2-1/2	3
DESTM-1/4-28-H	1/4 - 28	3/16	0.180	1/2	2-1/2	3
DESTM-5/16-18-H	5/16 - 18	1/4	0.240	5/8	2-1/2	3
DESTM-5/16-24-H	5/16 - 24	1/4	0.240	5/8	2-1/2	3
DESTM-3/8-16-H	3/8 - 16	5/16	0.290	3/4	3	4
DESTM-3/8-24-H	3/8 - 24	5/16	0.290	3/4	3	4
DESTM-7/16-14-H	7/16 - 14	3/8	0.340	3/4	3	4
DESTM-7/16-20-H	7/16 - 20	3/8	0.340	3/4	3	4
DESTM-1/2-13-H	1/2 - 13	3/8	0.350	7/8	3-1/2	4
DESTM-1/2-20-H	1/2 - 20	3/8	0.350	7/8	3-1/2	4
DESTM-9/16-12-H	9/16 - 12	1/2	0.370	7/8	3-1/2	4
DESTM-9/16-18-H	9/16 - 18	1/2	0.370	7/8	3-1/2	4
DESTM-5/8-11-H	5/8 - 11	1/2	0.470	1-1/4	3-1/2	5
DESTM-5/8-18-H	5/8 - 18	1/2	0.470	1-1/4	3-1/2	5
DESTM-3/4-10-H	3/4 - 10	1/2	0.495	1-1/4	3-1/2	5
DESTM-3/4-12-H	3/4 - 12	1/2	0.495	1-1/4	3-1/2	5
DESTM-3/4-16-H	3/4 - 16	1/2	0.495	1-1/4	3-1/2	5

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 7.

Thread Mills – Helical with Side Coolant, Coated

Part No. S/E	Thread Size	Shank Dia. of Cut	Dia.	LOC	OAL	No. of Flutes
DESTM-1/4-20-HSC	1/4 - 20	3/16	0.180	1/2	2-1/2	3
DESTM-1/4-28-HSC	1/4 - 28	3/16	0.180	1/2	2-1/2	3
DESTM-5/16-18-HSC	5/16 - 18	1/4	0.240	5/8	2-1/2	3
DESTM-5/16-24-HSC	5/16 - 24	1/4	0.240	5/8	2-1/2	3
DESTM-3/8-16-HSC	3/8 - 16	5/16	0.290	3/4	3	4
DESTM-3/8-24-HSC	3/8 - 24	5/16	0.290	3/4	3	4
DESTM-7/16-14-HSC	7/16 - 14	3/8	0.340	3/4	3	4
DESTM-7/16-20-HSC	7/16 - 20	3/8	0.340	3/4	3	4
DESTM-1/2-13-HSC	1/2 - 13	3/8	0.350	7/8	3-1/2	4
DESTM-9/16-12-HSC	9/16 - 12	1/2	0.370	7/8	3-1/2	4
DESTM-9/16-18-HSC	9/16 - 18	1/2	0.370	7/8	3-1/2	4
DESTM-5/8-11-HSC	5/8 - 11	1/2	0.470	1-1/4	3-1/2	5
DESTM-5/8-18-HSC	5/8 - 18	1/2	0.470	1-1/4	3-1/2	5
DESTM-3/4-10-HSC	3/4 - 10	1/2	0.495	1-1/4	3-1/2	5
DESTM-3/4-12-HSC	3/4 - 12	1/2	0.495	1-1/4	3-1/2	5
DESTM-3/4-16-HSC	3/4 - 16	1/2	0.495	1-1/4	3-1/2	5

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 7.

Thread Mills – Helical with Straight Coolant, Coated

Part No. S/E	Thread Size	Shank Dia. of Cut	Dia.	LOC	OAL	No. of Flutes
DESTM-1/4-20-HC	1/4 - 20	3/16	0.180	1/2	2-1/2	3
DESTM-1/4-28-HC	1/4 - 28	3/16	0.180	1/2	2-1/2	3
DESTM-5/16-18-HC	5/16 - 18	1/4	0.240	5/8	2-1/2	3
DESTM-5/16-24-HC	5/16 - 24	1/4	0.240	5/8	2-1/2	3
DESTM-3/8-16-HC	3/8 - 16	5/16	0.290	3/4	3	4
DESTM-3/8-24-HC	3/8 - 24	5/16	0.290	3/4	3	4
DESTM-7/16-14-HC	7/16 - 14	3/8	0.340	3/4	3	4
DESTM-7/16-20-HC	7/16 - 20	3/8	0.340	3/4	3	4
DESTM-1/2-13-HC	1/2 - 13	3/8	0.350	7/8	3-1/2	4
DESTM-9/16-12-HC	9/16 - 12	1/2	0.370	7/8	3-1/2	4
DESTM-9/16-18-HC	9/16 - 18	1/2	0.370	7/8	3-1/2	4
DESTM-5/8-11-HC	5/8 - 11	1/2	0.470	1-1/4	3-1/2	5
DESTM-5/8-18-HC	5/8 - 18	1/2	0.470	1-1/4	3-1/2	5
DESTM-3/4-10-HC	3/4 - 10	1/2	0.495	1-1/4	3-1/2	5
DESTM-3/4-12-HC	3/4 - 12	1/2	0.495	1-1/4	3-1/2	5
DESTM-3/4-16-HC	3/4 - 16	1/2	0.495	1-1/4	3-1/2	5

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 7.

DESTM71620HSC DESTM3816HC

Tolerances: Special Tools

End Mill Diameter: –.0001" to –.002"
Shank Diameter: +.000" to –.0003"

See it in Action!

Carbide Engraving Cutters

Part No. Uncoated	X-Treme Coating	Shank Dia.	Tip Degree	OAL
ENG0860	ENG0860X	1/8	60	1-1/2
ENG1240	ENG1240X	3/16	40	2
ENG1260	ENG1260X	3/16	60	2
ENG1640	ENG1640X	1/4	40	2-1/2
ENG1660	ENG1660X	1/4	60	2-1/2

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 7.

Corner Rounding Carbide End Mills
With Helical Platform

Part No. Uncoated	X-Treme Coating	Shank Dia.	Radius	Pilot Dia.	OAL
CRC08R010047	CRC08R010047X	1/8	0.010	P047	1-1/2
CRC08R015047	CRC08R015047X	1/8	0.015	P047	1-1/2
CRC08R020047	CRC08R020047X	1/8	0.020	P047	1-1/2
CRC08R020080	CRC08R020080X	1/8	0.020	P080	1-1/2
CRC08R025047	CRC08R025047X	1/8	0.025	P047	1-1/2
CRC08R025070	CRC08R025070X	1/8	0.025	P070	1-1/2
CRC08R031047	CRC08R031047X	1/8	0.031	P047	1-1/2
CRC08R039047	CRC08R039047X	1/8	0.039	P047	1-1/2
CRC12R047047	CRC12R047047X	3/16	0.047	P047	2
CRC12R050047	CRC12R050047X	3/16	0.050	P047	2
CRC12R062047	CRC12R062047X	3/16	0.062	P047	2
CRC16R031140	CRC16R031140X	1/4	0.031	P140	2-1/2
CRC16R040140	CRC16R040140X	1/4	0.040	P140	2-1/2
CRC16R048047	CRC16R048047X	1/4	0.048	P047	2-1/2
CRC16R062090	CRC16R062090X	1/4	0.062	P090	2-1/2
CRC16R078047	CRC16R078047X	1/4	0.078	P047	2-1/2
CRC16R093047	CRC16R093047X	1/4	0.093	P047	2-1/2
CRC20R060047	CRC20R060047X	5/16	0.060	P047	2-1/2
CRC20R070047	CRC20R070047X	5/16	0.070	P047	2-1/2
CRC24R093125	CRC24R093125X	3/8	0.093	P125	2-1/2
CRC24R125115	CRC24R125115X	3/8	0.125	P115	2-1/2
CRC32R125235	CRC32R125235X	1/2	0.125	P235	3
CRC32R125240	CRC32R125240X	1/2	0.125	P240	4
CRC40R2500125	CRC40R2500125X	5/8	0.250	P125	6

X: X-Treme Coating

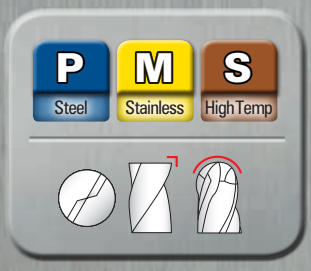
For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 7.

Ball Engraving Tools

Part No. Uncoated	Part No. Stealth	Dia. of Cut	Shank Dia.	LOC	OAL
BV20201	BV20201S	1/32	1/8	3/64	1-1/2
BV20301	BV20301S	3/64	1/8	5/64	1-1/2
BV20401	BV20401S	1/16	1/8	3/32	1-1/2
BV20601	BV20601S	3/32	1/8	9/64	1-1/2

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 7.

ENG1260 CRC12R047047



BV0601

Solid Carbide Dovetail Cutters For O-Ring Grooves

With Helical Platform

Part No. Uncoated	X-Treme Coating	Shank OAL	O-Ring Dia.	Size	Neck at Rad. N	Major Dia. M	Rad. OD T	Rad. OD B	No. of Flutes	LOC	Sharp APD*
DT062-5	DT062-5X	3/16 x 2	070	1/16	0.0595	0.0830	0.005	0.015	2	.051±001	.052*
DT062	DT062X	3/16 x 2	070	1/16	0.0640	0.0880	0.005	0.015	2	.051±001	.057*
DT093-8	DT093-8X	3/16 x 2	103	3/32	0.0850	0.1320	0.010	0.015	2	.082±001	.077*
DT093	DT093X	3/16 x 2	103	3/32	0.0930	0.1400	0.010	0.015	2	.082±001	.085*
DT125-10	DT125-10X	1/4 x 2-1/2	139	1/8	0.1150	0.1710	0.010	0.031	3	.112±001	.105*
DT125	DT125X	1/4 x 2-1/2	139	1/8	0.1250	0.1810	0.010	0.031	3	.112±001	.115*
DT187-12	DT187-12X	5/16 x 2-1/2	210	3/16	0.1760	0.2810	0.015	0.031	3	.172±001	.161*
DT187	DT187X	5/16 x 2-1/2	210	3/16	0.1880	0.2930	0.015	0.031	3	.172±001	.173*
DT250-15	DT250-15X	3/8 x 2-1/2	275	1/4	0.2330	0.3580	0.015	0.062	3	.2325±001	.218*
DT250	DT250X	3/8 x 2-1/2	275	1/4	0.2480	0.3730	0.015	0.062	3	.2325±001	.233*
DT375-15	DT375-15X	1/2 x 3	375	3/8	0.3240	0.4850	0.020	0.093	3	.317±002	.302*
DT375	DT375X	1/2 x 3	375	3/8	0.3390	0.5000	0.020	0.093	3	.317±002	.317*

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 7.

X: X-Treme Coating

Note: 3/16" Shank are 2 Flute, 1/4" thru 1/2" are 3 Flute

Solid Carbide Dovetail Cutters For O-Ring Grooves

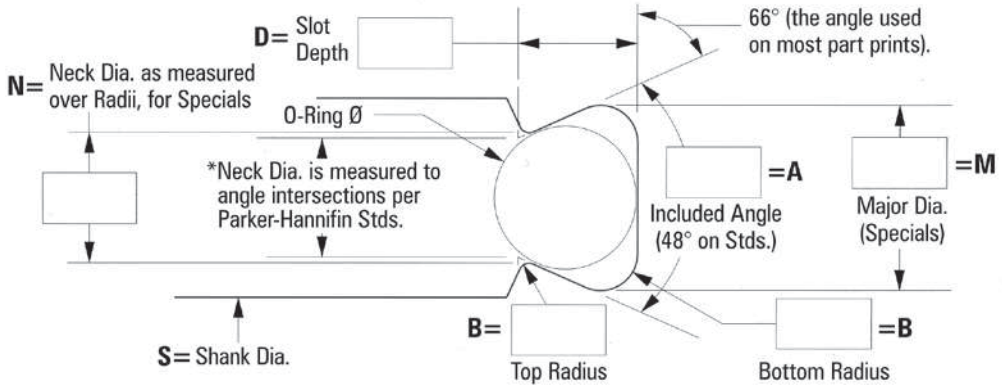
WITHOUT Drop Hole Provision

Part No. Uncoated	X-Treme Coating	Shank OAL	O-Ring Dia.	Size	Neck at Rad. N	Major Dia. M	Rad. OD T	Rad. OD B	No. of Flutes	LOC	Sharp APD*
DTNDH062	DTNDH062X	3/16 X 2	.070	1/16	.036	.060	.005	.015	1	.051±001	.057*
DTNDH093	DTNDH093X	3/16 X 2	.103	3/32	.048	.094	.010	.015	1	.082±001	.085*
DTNDH125	DTNDH125X	3/16 X 2	.139	1/8	.068	.124	.010	.031	2	.112±001	.115*
DTNDH187	DTNDH187X	1/4 X 2	.210	3/16	.083	.187	.015	.031	2	.172±001	.173*
DTNDH250	DTNDH250X	5/16 X 2.5	.275	1/4	.123	.247	.015	.062	2	.2325±001	.233*
DTNDH375	DTNDH375X	3/8 X 2.5	.375	3/8	.178	.337	.020	.094	3	.317±002	.317*

For guidance to calculate surface footage & chip load for Destiny End Mills refer to the Technical Section on page 7.

X: X-Treme Coating

Special Order Form



_____ **S** = Shank Dia.

_____ **A** = Incl. Angle

_____ **M** = Major Dia.

_____ **T** = Top Radius

_____ **N** = Neck Dia.

_____ **B** = Bottom Radius

_____ **D** = Slot Depth

Entrance Hole: Yes ____ No ____ Size_____

OAL: _____

Specify Tolerance

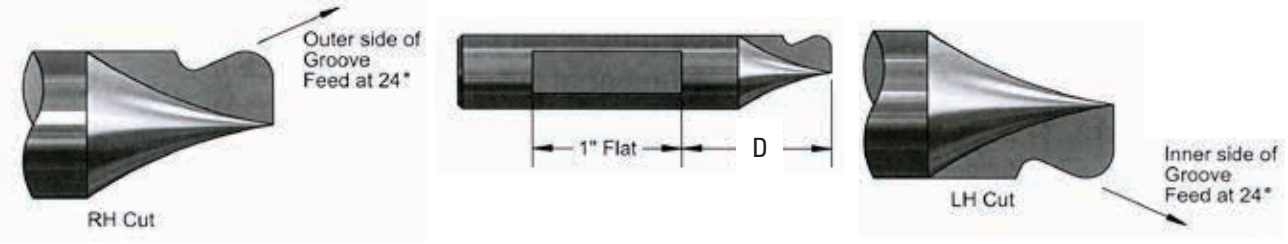
We will ship special Dove Tails in 2–3 working days and FAX a 10X drawing for final approval upon your order.

Toll Free: 800-527-8665 T: 408-988-8898
F: 408-988-2606 F: 800-870-1933

DT250

Solid Carbide O-Ring Dovetails for Lathes

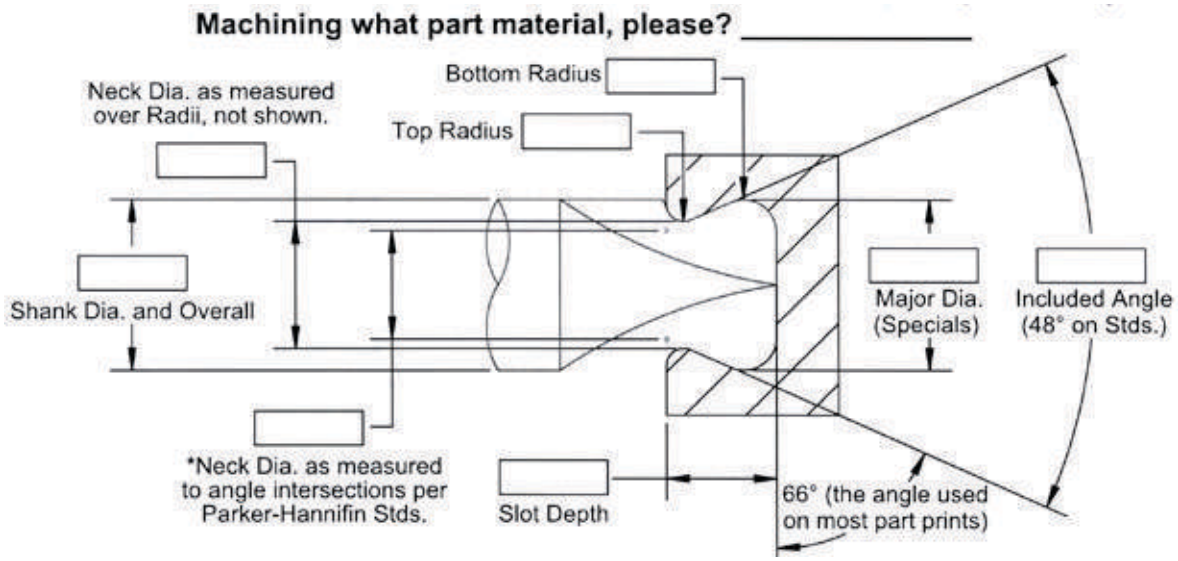
Single flute carbide O-Ring form tools for lathe applications that match Parker-Hannifin standards



Solid Carbide O-Ring Dovetails for Lathes with Helical Platform

NUMBER		O-Ring DIA.	Neck DIA	Slot Depth	Top Rad.	Bottom Rad.	D	Shank & OAL
RH Cut	LH Cut							
DTL04051-RH	DTL04051-LH	.070	.057	.051	.005	.015	1/2	3/16x2
DTL04054-RH	DTL04054-LH	.070	.059	.054	.005	.016	1/2	3/16x2
DTL06085-RH	DTL06085-LH	.103	.085	.082	.010	.015	1/2	3/16x2
DTL08115-RH	DTL08115-LH	.139	.115	.112	.010	.031	5/8	1/4x2
DTL12172-RH	DTL12172-LH	.210	.173	.172	.015	.031	5/8	5/16x2.5
DTL16232-RH	DTL16232-LH	.275	.233	.232	.015	.062	1	3/8x2.5
DTL24317-RH	DTL24317-LH	.375	.317	.317	.020	.094	1	1/2x2.5

SPECIAL IN 2-3 WORKING DAYS



Tool Reconditioning

•NO TAPER •NO BURNING •REFLUTING CAPABILITIES •RUN OUTS NO MORE

WE RECONDITION: Carbide End Mills, High Speed Steel End Mills, Angle Mills, Ball Mills, Taps, Counter Sinks, Drills, Spot Drills, Reamers, Shell Mills, Counter Bores, Chamfer Mills, and more!

We offer an approximate turn-around of three weeks folowing receipt of purchase order.
Special arrangements may be available for a shorter turn-around time, upon availability.

Pick-up and Delivery Service Upon Availability:

800-527-8665 Phone: 408-988-8898
Fax: 408-988-2606 Toll Free Fax: 800-870-1933

Tool Quote Form

Customer's Name: _____ Contact: _____

Phone: _____ Fax: _____ E-mail: _____

1. Is this a repeat inquiry / order: ____ Yes ____ No
   If yes, please identify by customer part #: _____ Destiny Part #: _____
2. Single End or Double End? _____
3. Number of Flutes? _____ *(Tapered are 3 Flute generally)*
4. Cutting Diameter & Tolerance: _____
5. Length of Cut: _____
6. Length Below Shank, LBS: _____
7. Overall Length: _____
8. Shank Diameter and Type: _____
9. Hand of Cut and Helix Angle: _____
10. Type of End-Square, Cut to Center or Ball: _____
11. Type and Hardness of Material to be Machined: _____
12. Coating Required: Annual Usage: _____
13. Quanity Required: _____
14. Quanity shipping Variation is +I-10% (Unless otherwise stated): _____
15. Style of Special End Mill: Conventional, Tapered, or Rougher: _____
16. Taper per side: _____ Taper incl. angle: _____ Tip diameter: _____

    _____
17. Comments: _____

NOTE: To avoid delays in the manufacturing or inquiry of our tools, it is essential that all information is provided. All orders or inquiries for special end mills must show the customer's name. This important procedure makes for much faster reference should it be necessary. If you want an immediate quote on specials, Fax your specifications to:

Fax: 800-870-1933 or Call: 1-800-527-TOOL

Toll Free: 800-527-8665
T: 408-988-8898
F: 408-988-2606
F: 800-870-1933

Inquiry And Consultation Report

Destiny Tool is committed to working with you to help reduce your cost on all milling. Simply photo copy this page, fill it in and send us the information requested. We will provide you with our best advice.

Company Name: _____ ***Date:*** _____

Street: _____

City: _____ State: _____ Zip Code: _____

Phone: _____ Fax: _____ E-mail: _____

Contact: _____ Title: _____

Description of Tool Currently Being Used:

Brand Name: _____ *Part #.* _____

HSS: _____ *Carbide:* _____ *Coated:* _____

Diameter: _____ *No. of Flutes:* _____

Flute Length Engated in the Cut: _____

Depth of Material Being Cut per Pass: _____

Current RPM: _____ *Current Feed Rate:* _____

Description of Material Being Machined:

Name of Material: _____ *AISI Number:* _____

Condition of Material: *Brinnel* _____ *Rockwell* _____ *Other* _____

Type of Cut: *Profile* _____ *Slot* _____ *Pocket* _____

Climb Milling: _____ *Conventional Milling:* _____

Material to be Milled: *Length* _____ *Width* _____

Description of Machine Tool and Fixtures:

Machine Make: _____

Vertical: _____ *Horizontal:* _____ *Horsepower:* _____

Spindle Speed Range: _____ *Table Feed Range:* _____

Coolant Available: *Flood:* _____ *Dry:* _____

Toll Free: 800-527-8665
T: 408-988-8898
F: 408-988-2606
F: 800-870-1933

Tool Performance Report

Company Name: _____ ***Date:*** _____

Street: _____

City: _____ State: _____ Zip Code: _____

Phone: _____ Fax: _____ E-mail: _____

Contact: _____ Title: _____

Application: _____

Brand Name: _____ ***Part No.*** _____

Technical Data: _____

Machine Type: _____ HP: _____ # Spindles: _____

RMS Req.: _____ Coolant: _____

Speed: _____ RPM: _____ SFM: _____

Feed: _____ IPM: _____

Material: _____ Hardness: _____

Chip Load Per Tooth: _____ Majority of Cuts: _____

Depth Per Cut: _____ _____ Shallow Slotting _____ Deep Slotting < 1 xd.

Axial = A: _____ _____ Med. Radial <.25 x d.

Radial = R: _____ _____ Med. Radial >.300 x d.

Tool Specification: _____ ***Lot No.*** _____

Diam: _____ *Shank Diam.:* _____ *LOC:* _____

OAL: _____ *No. Flts:* _____ *Hand of Cut:* _____

End Style: _____ *Tool Mat'l.:* _____ *Helix:* _____

Coating: _____ *Neck reach Relieved (LBS):* _____

Destiny Tool Distributor: _____ ***Contact:*** _____

Destiny Tool Representative: _____

Comments: _____

_____

_____

Results: _____

_____

Toll Free: 800-527-8665
T: 408-988-8898
F: 408-988-2606
F: 800-870-1933

Note: All request for Credit will require this form, and a sample tool for evaluation.

Terms And Conditions

Terms
2% Ten days, Net 30 days.

Shipping
F.O.B. Santa Clara, California.
All shipments ship ground, unless otherwise specified.
Orders must be in by 3:00 p.m. for same day shipping.

Customer Alterations
DESTINY TOOL cannot be responsible for the performance of, or compliance of Specifications, nor can we accept, for return, any tool that has been altered in any way by our customers. This includes surface treatments, coatings, flats, tangs, markings, or any geometry alterations.

Product Warranty
We guarantee our products will conform to the specifications listed on the customer's blueprints, orders, and quotation requests. Dimensions, specifications, and tolerances not listed, will be furnished to the current Destiny Tool manufacturing standards. Our warranty is limited to the repair, replacement, or full credit for the tools found not to be within specifications, at our option.

Return Policy
No merchandise can be returned without prior authorization. Credit will not be issued for merchandise returned without a return authorization number. Stock over 3 months old may not be returned. All returns will be subject to a 15% restocking fee. Shop minimum of $50 for all specials.

Specials
Orders for special tools, non-catalog or modified tools, are accepted on a no cancellation basis, and tools are not returnable. A confirming purchase order is required before any work begins on special tools. A 10% over or under shipment on a special is acceptable based on industry standards, unless no over shipment is stated at time of order.

Errors
DESTINY TOOL cannot be held responsible for incorrect parts made with our products, due to mislabeling, or defect. We assume all tools used by our customers are inspected before use, and that first part inspection in customer's plant is the rule. We will replace or credit tools in those situations.

Trademarks
Trademarks are the property of their perspective owners.

Test Tool Policy
Orders will be accepted for test tools under the following conditions:

- All test orders must clearly state "Test Order" "Guaranteed Trial Order" or "GTO" or any other indication included within the various order entry software commonly used by industrial distributors. This designation must appear ON THE FRONT of the Purchase Order and/or within the purchase order number itself. (Binding Purchase Order)
- The order must show end-user customers name in the notation and or the drop ship special instructions.
- Orders will be billed as a normal order, with standard FOB point and payment terms.
- Full credit for tools for failed tests will only be given upon the receipt of a written request (RGA) accompanied by a valid test report and the broken tool(s). This test report must show all cutting conditions as well as mode of failure.
- Credit WILL NOT be given for outbound freight. This is the total responsibility of the distributor for tools that were tested and performed successfully.
- Credit WILL be issued for orders and direct shipping both to and from end-user, or distributor, for failed test tools, ground shipping only.

PRICES are subject to change without notice.

Request for Return Goods Authorization (RGA)

Authorization Number: _____ ***Date:*** _____

Distributor Information

Distributor P.O.: _____

Distributor Name: _____ ***Distributor Number:*** _____

Street: _____

City: _____ *State:* _____ *Zip Code:* _____

Phone: _____ *Fax:* _____ *E-mail:* _____

Contact: _____ *Title:* _____

Agent Information

Agent Name: _____ ***Agent Number:*** _____

Street: _____

City: _____ *State:* _____ *Zip Code:* _____

Phone: _____ *Fax:* _____ *E-mail:* _____

Contact: _____ *Title:* _____

Customer Information

Customer Name: _____ ***Customer Number:*** _____

Street: _____

City: _____ *State:* _____ *Zip Code:* _____

Phone: _____ *Fax:* _____ *E-mail:* _____

Contact: _____ *Title:* _____

Destiny Tool Part Number: _____

Description of Tool: _____

Lot #/Approx date of purchase: _____

Reason for Return: _____

_____

_____

For additional items, please provide information as stated above on a separate sheet of paper and attach to this form.

Toll Free: 800-527-8665
T: 408-988-8898
F: 408-988-2606
F: 800-870-1933

Terms & Policies

General Understanding

Destiny Tool is committed to working with industrial distributor partners. We understand that due to the uniqueness in substrate, geometry, design and coating our products require additional technical support when compared to 'commodity' cutting tools that are sold on 'price points.'

Red Label/ Blue Label Shipments

These orders take priority. We operate under the assumption that if someone is ordering our tools for quick delivery that the customer job is late and the machine is down. We strive to make sure that our end-user customers can rely on Destiny Tool to deliver their tools in a timely fashion.

General Warranty

Our Warranty is in lieu of all other warranties, expressed, or implied. Implied warranty means goods sold will be merchantable and fit for the ordinary purposes for which they are to be used. Our sole liability in any claim shall in no case exceed the cost of replacement or repair as provided herein. No other warranty is expressed or implied and in no case will Destiny Tool be liable for any special, incidental or consequential damages.

Product Warranty

We Guarantee our products will conform to the specifications listed on the customer's blueprints, orders, and quotation requests. Dimensions, specifications, and tolerances not listed, will be furnished to the current Destiny Tool manufacturing standards. Our warranty is limited to the repair, replacement, or full credit for the tools found not to be within specifications, at our option.

Claims

Although goods are considered sold, and our responsibility ceases when delivery is made to the transportation company, in the event of goods being lost in transit, we will make every effort on behalf of customers to have lost goods found, or to have the transportation company make proper restitution for loss. Damage claims must be made against the carrier.

Errors

Destiny Tool cannot be held responsible for incorrect parts made with our products, due to mislabeling, or defect. We assume all tools used by our customers are inspected before use, and that first part inspection in customer's plant is the rule. We will replace or credit tools in those situations.

Prices

Prices are subject to change without notice.

Safety

Any cemented carbide endmill or cutting toos may chip, break or shatter under improper use. Additionally, the use of cutting tools can potentially cause hazardous dust and particles causing health related issues. Always ensure the use of adequate ventilation, protective clothing, machine guards and safety glasses before each and every use. Government regulations may require additional safeguards.

Distributor Order and Shipping Policy

Orders will be accepted only by fax, email or via direct entry into Destiny Tool's online order entry system. There is a minimum order value of $75.00.

Only orders that are clearly legible and are on a distributor letterhead or official company purchase order form, showing a valid PO number will be processed.

Customer Service hours are 8:00 AM until 5:00 PM, PST, Monday through Friday

Cut -off time for orders to be processed same day is 3:00 PM PST

Our Customer Service and shipping department strive to process all orders the same day, with the following conditions and exceptions:

- Orders are received before the above-mentioned cut-off time
- Items requested are in stock in our inventory
- Priority will be given to expedited shipments such as UPS Red or Blue
- Large stock or replenishment orders will be processed and shipped as time allows. Normal process time is 1-2 business days but every attempt will be made to ship within 24 hours.

Please check with Customer Service for delivery of items that are out of stock.

Returns/ Return Goods Authorization

Prior to returning any merchandise, a request for an authorization number must be made with our Customer Service Department. Please send your request showing quantity and description of each item, as well as date it was purchased.

Once a review of your request is made by our Customer Service Department, a list of acceptable items for return as well as an Return Goods Authorization (RGA) number will be sent. Items which are non-stock or special order will not be acceptable for return.

Only shipments showing the authorized RGA number plainly on top of shipment boxes as well as return paperwork will be accepted for review.

Distributor is responsible for return freight unless the shipment was an error of Destiny Tool.

A final review of products will be made once we receive the authorized return. Generally, products will be accepted, and credit given, only for products which meet the criteria outlined below "Conditions of Return – Products"

Products, which do not meet the criteria, will either be shipped back to the distributor at their expense or an additional restock charge above the normal handling fee will be accessed. Customer Service will notify you if the situation arises.

Credits will be given for actual net price paid less a 15% handling fee or full credit with an offsetting order for the same or greater amount as the credit.

A 15% handling fee will apply to all returns but may be waived should the return be a result of a obvious order error.

Conditions of Return – Products:

- Returned item must be a current Destiny Tool standard stocked product as per the current Price/Stock Schedule.
- Products must be in original full packaged quantities and in a condition that will allow immediate restocking upon receipt at the Destiny Tool central stocking warehouse.
- For volume stocking distributors all returned items must have been purchased, within the previous 14-month period, from the date of the return. A copy of the original invoice, or the original invoice number and Destiny Tool order number must be provided with the returned Products.
- Standard Products that become obsolete by Destiny Tool are subject to review and may be rejected upon receipt of the return by Destiny Tool.

- Special Products may not be returned to Destiny Tool for credit, except for quality reasons and/or to be reworked.
- Any broken Products packages, marked and defaced labels and/or packages will be rejected for return credit by Destiny Tool.
- Returned materials must be properly packaged for shipment. Any carrier damage is the responsibility of the Distributor.
- All returned Products, upon receipt by Destiny Tool, will be inspected, accepted, or rejected.
- Returned items, which do not conform, will not be returned to the Distributor and the value of non-conforming items will be deducted from the Distributor credit. Any Products not meeting all the return policy conditions, identified herein will be scrapped by Destiny Tool.
- Non-Destiny Tool items received by Destiny Tool, which have been included in a Distributor Products return will be returned to the Distributor.

Authorization – Distributor Inventory:

- Distributor inventory for return is defined as excess inventory, stock rotation or return as a result of termination.
- The total value of all excess inventory returns and /or stock rotations, within a given calendar year, is limited to 3% of the previous year's purchases which is calculated on prior fiscal year purchases and may be split into a maximum of two (2) returns within a given calendar year.
- Returns as a result of termination must be completed within 60 days of termination.
- For pre-approval, the Distributor must submit a Returned Good Authorization (RGA) listing all Products for return to the assigned Destiny Tool Regional Manager and/or Manufacturer's Agent. The Distributor list of Products submitted to request a return from Destiny Tool must include, in addition to any conditions herein, EDP part number, product description, quantity, and reason for return. Destiny Tool reserves the right to reject a Distributor excess inventory return, by item, based upon the review of a 12-month global demand and product classification. Proposed return quantities in excess of the 12-month global demand will not be approved for return. Based upon this information, a preliminary approval for return will be forwarded to the Distributor and assigned Regional Operation Center.
- Destiny Tool will issue a Returned Goods Autorhizaion, hereinafter called RGA, to the Distributor.
- RGA product shipments must be received by Destiny Tool within 60 days of the written RGA issue date. After 60 days, the RGA is considered to be invalid. Material received by Destiny Tool on an expired RGA will be returned to the Distributor at the expense of the Distributor. An additional $50.00 processing and handling charge will be accessed to the Distributors account on all expired RGA's received by Destiny Tool.

General Distributor & Customer Returns:

Distributor may also return Products for credit at any time for the following reasons:

Product Quality

- Over Shipment (above standard terms & conditions)
- Incorrect Item Shipped/Received
- Due To Customer Order Error
- Material Shipped in Error by Destiny Tool.
- Distributor will obtain a RGA for these types of returns, from Destiny Tool.

General Terms & Procedures:

- A 15% restocking charge will be applied to all excess inventory and/or stock rotation returns, except when the Distributor enters an offsetting purchase order for Products in equal to or greater value than the amount of the return credit issued. The offsetting order must be entered with Destiny Tool at the time the approved RGA is scheduled for return to Destiny Tool.
- No Distributor inventory returns will be accepted in the month of December by Destiny Tool.
- All return packages must be clearly labeled, with issued RGA number affixed to the package. A packing slip along with other return documentation must be enclosed or securely attached to the outside of the package. This information is subject to inspection prior to issuance of credit.
- Destiny Tool will issue a final credit to the Distributor on or before 30 days of receipt of returned material.
- Distributor will be advised of any non-conforming return Products. Dispute of any such return will be resolved with local Regional Manager and/or Manufacturer's Agent. Any such dispute must be resolved on or before 60 days of issued credit. Disputed returned materials that are not resolved within 60 days and/or any unauthorized returned product deduction by the Distributor may result in the suspension of the functional discount component for a period of three months.
- Distributor agrees to comply with any and all Destiny Tool forms and/or formats required to process returned materials.
- In addition to the terms and conditions herein, Destiny Tool reserves the right to charge an administration fee on any Distributor return. Should Destiny Tool at its sole discretion, invoke this right, the Distributor will be notified in writing within 15 Days of receipt of returned Products. This fee shall not exceed $100 per return, and will be deducted from the credit issued to the Distributor. Once implemented the administration fee may remain in effect for all subsequent Products returns of the Distributor.

Blanket Order Policy

Blanket orders will be accepted with the following conditions:

- Minimum order value for each line item will be $200.
- Blanket order must contain releases of no more than 12 consecutive months.
- Prices will remain firm over the term of the blanket.
- Release dates may be moved ahead of originally scheduled dates but may not be moved back.
- Quantities of each line item may be increased but not decreased.
- There will be no cancellation or changes of blanket orders without review and approval of Destiny Tool Sales Management.

Part Number Index

Part Number Index

Part Number Index

Part Number Index

Part Number Index

Part Number Index

Part Number Index

Part Number Index

Part Number Index

Part Number Index

Part Number Index

Part Number Index

Part Number Index

MISSION

The DESTINY TOOL company's pursuit of 100% customer satisfaction is achieved by manufacturing the finest caliber quality product at affordable prices. Our work is only complete when we know that our performance has met our client's requirements.

We are committed to excellence, service and evolving technology to meet the demands of today, and the future.




DESTINY TOOL
THE MARK OF PERFORMANCE

3233 De La Cruz Blvd. #C
Santa Clara, CA 95054-0264
Toll Free: 800-527-8665
PH: 408-988-8898
FAX: 408-988-2606
TFF: 800-870-1933
EMAIL: info@destinytool.com
WEB: www.destinytool.com

www.twitter.com/destinytool
www.facebook.com/destinytool
www.youtube.com/user/destinytool