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V-STAR

A COMPLETE LINE OF VARIABLE HELIX UNEQUAL INDEX END MILLS

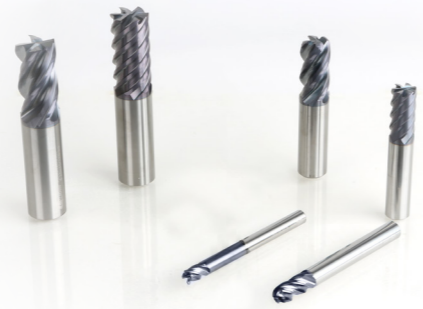


Excellent performance for difficult to cut Steels, Stainless Steel, Exotic Materials and Cast Iron

Improved work surface and tool life with variable helix and newest flute shape design



V-STAR

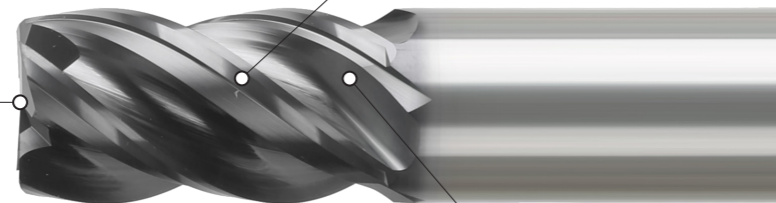
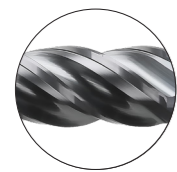
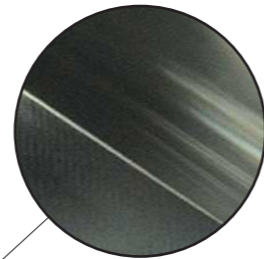


01

V-STAR Significant Improvements versus X-STAR

Outstanding Cutting Edge Preparation.

V-STAR SERIES products have a remarkable abilities to reduce cutting edge chipping, prevent tool breakage and increase tool wear performance due to advanced edge preparation techniques.

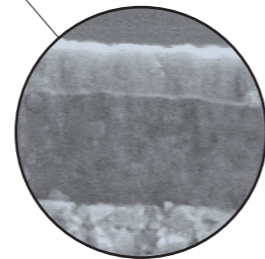


Ultra-Micro Grain

Ultra-Micro Grain Carbide has a smaller and more consistent grain size than standard micro grain material. Ultra-Micro Grain structure tends to provide both a longer and more consistent tool life with higher wear resistance and less chipping.

High Performance PVD coating

AlCr based high quality coating provides superior wear resistance, longer tool life and outstanding prevention to high temperature oxidation of tools.



Variable Helix and Unequal Index

High quality flute surface finishing allows for cutting without chattering and optimized helix angle which provides excellent anti-vibration of tools and a smooth workpiece surface finish.



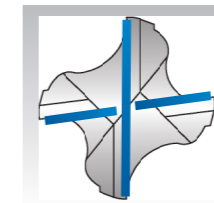
ENDMILL SERIES

02

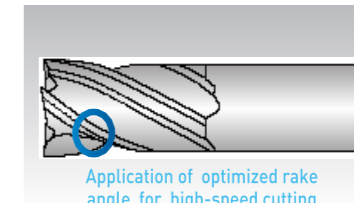
Special Feature

V-STAR Series

- Stable high-speed milling through tool geometry - variable helix and optimized rake angle
- High quality workpiece surface finish due minimization of vibration
- Excellent chip emission with minimization of the attrition



End face



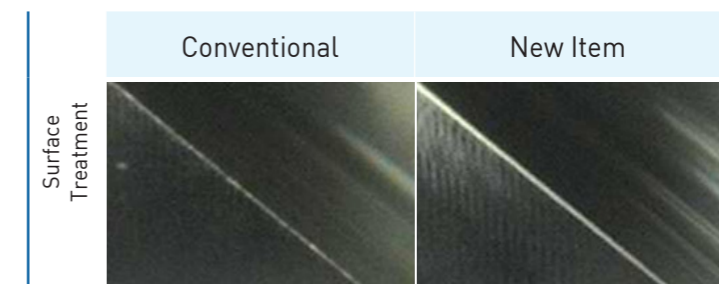
Side cutting edge

03

Improvement points

V-STAR Series

- The most significant improvement points are covered in 01 above.
- Because of geometry and coating micro chips on the flutes is minimized creating better work piece surface finish and longer tool life.

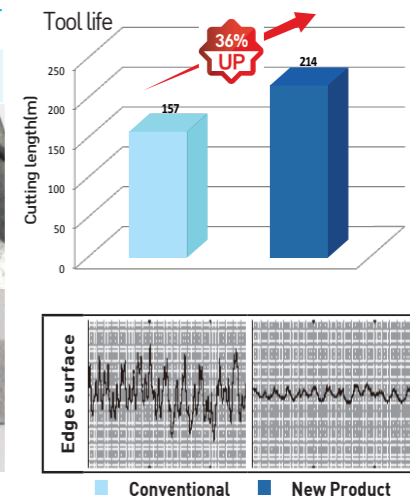
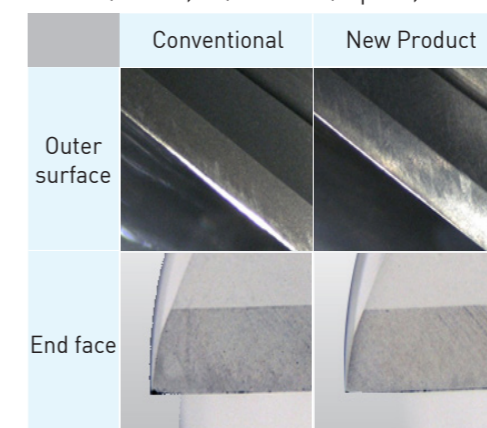


04

Case Study

V-STAR Series

SUS304 / RPM 2,546 / Feed 611 / Ap 15.0, Ae 1.0



SELECTION GUIDE - INCH

SERIES		DESCRIPTION All Tools are Variable Helix / Unequal Index	DIAMETER		PAGE	
Base Number	F-Weldon Flat N-Necked		MIN.	MAX.		
VXE (504-564) A		4 FLUTES Standard Length	SQUARE END	1/8"	1"	6 - 7
VXR (504-564) A			CORNER RADIUS	1/8"	1"	6 - 7
VXB (504-564) A			BALLNOSE	1/8"	1"	6 - 7
<hr/>						
VXE (504-564) A	F	4 FLUTES Standard Length Weldon Flats	SQUARE END	3/8"	1"	8 - 9
VXR (504-564) A	F		CORNER RADIUS	3/8"	1"	8 - 9
VXB (504-564) A	F		BALLNOSE	3/8"	1"	8 - 9
<hr/>						
VXR (504-544) A	N	4 FLUTES Extended Length Necked	SQUARE END	1/8"	1"	10 - 11
VXR (504-544) A	N		CORNER RADIUS	1/8"	1"	10 - 11
VXB (504-544) A	N		BALLNOSE	1/8"	1"	10 - 11
<hr/>						
VXE (504-544) A	F & N	4 FLUTES Extended Length Necked Weldon Flats	SQUARE END	3/8"	1"	12
VXR (504-544) A	F & N		CORNER RADIUS	3/8"	1"	12
VXB (504-544) A	F & N		BALLNOSE	3/8"	1"	12
<hr/>						
VXE (506-556) A		6 FLUTES Standard Length	SQUARE END	1/4"	1"	14-15
VXR (506-556) A			CORNER RADIUS	1/4"	1"	14-15
VXB (506-556) A			BALLNOSE	1/4"	1"	14-15
<hr/>						
VXE (506-546) A	F	6 FLUTES Standard Length Weldon Flats	SQUARE END	3/8"	1"	16-17
VXR (506-546) A	F		CORNER RADIUS	3/8"	1"	16-17
VXB (506-546) A	F		BALLNOSE	3/8"	1"	16-17
<hr/>						
VXE (506-546) A	N	6 FLUTES Extended Length Necked	SQUARE END	1/4"	1"	18-19
VXR (506-546) A	N		CORNER RADIUS	1/4"	1"	18-19
VXB (506-546) A	N		BALLNOSE	1/4"	1"	18-19
V-STAR Series Part Numbers by Cutting Diameters(D)					20-50	
RECOMMENDED CUTTING CONDITIONS					52-59	

End Cut	DESCRIPTION
VXE	Variable Helix / Unequal Index Square End
VXR	Variable Helix / Unequal Index Corner Radius End
VXB	Variable Helix / Unequal Index Ball End

SELECTION GUIDE - INCH RECOMMENDED CUTTING CONDITIONS

P				M	K	S	
Carbon Steel	Alloy Steel	Prehardened Steel	Hardened Steel	Stainless Steel	Cast Iron	High-Temp Alloy	Titanium
-HB225	HB225 - 352	HRc30 - 40	HRc 40 - 55				
E	E	E	G	E	E	G	G
E	E	E	G	E	E	G	G
E	E	E	G	E	E	G	G
E	E	E	G	E	E	G	G
E	E	E	G	E	E	G	G
E	E	E	G	E	E	G	G
E	E	E	G	E	E	G	G
E	E	E	G	E	E	G	G
E	E	E	G	E	E	G	G
E	E	E	G	E	E	G	G
E	E	E	G	E	E	G	G
E	E	E	G	E	E	G	G
E	E	E	G	E	E	G	G
E	E	E	G	E	E	G	G
E	E	E	G	E	E	G	G
E	E	E	G	E	E	G	G
E	E	E	G	E	E	G	G
E	E	E	G	E	E	G	G
E	E	E	G	E	E	G	G
E	E	E	G	E	E	G	G
E	E	E	G	E	E	G	G
E	E	E	G	E	E	G	G
E	E	E	G	E	E	G	G
E	E	E	G	E	E	G	G
E	E	E	G	E	E	G	G
E	E	E	G	E	E	G	G
E	E	E	G	E	E	G	G
E	E	E	G	E	E	G	G
E	E	E	G	E	E	G	G
E	E	E	G	E	E	G	G
E	E	E	G	E	E	G	G

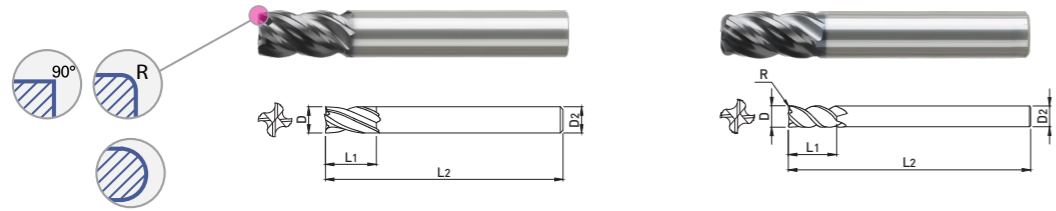
E: Excellent G: Good

Mill Dia. Tolerance (inch)	Radius Tolerance (inch)	Shank Dia. Tolerance
0 ~ -.0012	±.0008	h6

4 FLUTES Variable Helix

Unequal Index Standard Length

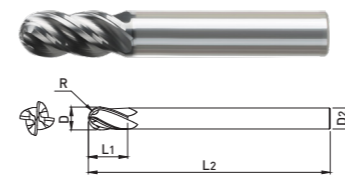
VXE, VXR, VXB (504 - 564) A



4 FLUTES Variable Helix

Unequal Index Standard Length

VXE, VXR, VXB (504 - 564) A



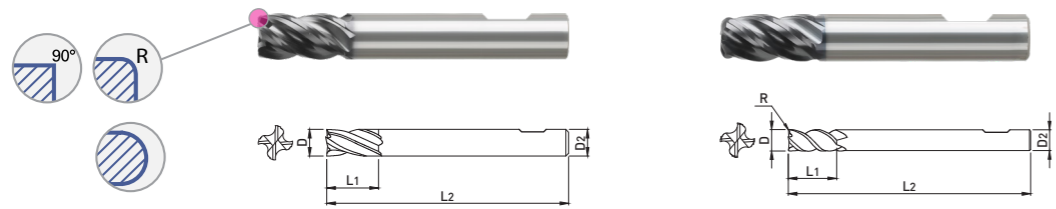
D	D2	L1	L2	SQUARE PART NO.	CORNER RADIUS		
					.010 PART NO.	.015 PART NO.	.030 PART NO.
1/8	1/8	1/8	1-1/2	VXE504A008	VXR504A008010		VXR504A008030
1/8	1/8	3/8	1-1/2	VXE514A008	VXR514A008010		VXR514A008030
1/8	1/8	1/2	2-1/2	VXE524A008	VXR524A008010		VXR524A008030
5/32	3/16	3/16	2	VXE504A010	VXR504A010010		
5/32	3/16	7/16	2	VXE514A010	VXR514A010010		
3/16	3/16	3/16	2	VXE504A012	VXR504A012010		
3/16	3/16	5/16	2	VXE514A012	VXR514A012010		VXR514A012030
3/16	3/16	7/16	2	VXE524A012	VXR524A012010		VXR524A012030
3/16	3/16	5/8	2-1/2	VXE534A012	VXR534A012010		VXR534A012030
7/32	1/4	1/4	2	VXE504A014	VXR504A014010		
7/32	1/4	7/16	2-1/2	VXE514A014	VXR514A014010		
1/4	1/4	3/8	2	VXE504A016	VXR504A016010		VXR504A016030
1/4	1/4	1/2	2-1/2	VXE514A016	VXR514A016010	VXR514A016015	VXR514A016030
1/4	1/4	3/4	2-1/2	VXE524A016		VXR524A016015	VXR524A016030
1/4	1/4	1	3	VXE534A016		VXR534A016015	VXR534A016030
9/32	5/16	5/8	2-1/2	VXE504A018		VXR504A018015	VXR504A018030
9/32	5/16	1	3	VXE514A018		VXR514A018015	VXR514A018030
5/16	5/16	7/16	2	VXE504A020			VXR504A020030
5/16	5/16	13/16	2-1/2	VXE514A020	VXR514A020010		VXR514A020030
5/16	5/16	1-1/4	3	VXE524A020		VXR524A020015	VXR524A020030
11/32	3/8	1/2	2-1/2	VXE504A022			VXR504A022030
11/32	3/8	13/16	2-1/2	VXE514A022			VXR514A022030
3/8	3/8	1/2	2-1/2	VXE504A024	VXR504A024010		VXR504A024030
3/8	3/8	7/8	2-1/2	VXE514A024	VXR514A024010		VXR514A024030
3/8	3/8	1	3	VXE524A024	VXR524A024010		VXR524A024030
3/8	3/8	1-1/4	3	VXE534A024	VXR534A024010		VXR534A024030
13/32	7/16	1/2	2-3/4	VXE504A026			VXR504A026030
13/32	7/16	15/16	2-3/4	VXE514A026			VXR514A026030
7/16	7/16	5/8	2-1/2	VXE504A028		VXR504A028015	VXR504A028030
7/16	7/16	7/8	2-3/4	VXE514A028		VXR514A028015	VXR514A028030
7/16	7/16	1	2-3/4	VXE524A028	VXR524A028010		VXR524A028030
15/32	1/2	5/8	2-1/2	VXE504A030			VXR504A030030
15/32	1/2	1	3	VXE514A030			VXR514A030030
15/32	1/2	1-1/4	3-1/2	VXE524A030			VXR524A030030
1/2	1/2	5/8	2-1/2	VXE504A032	VXR504A032010	VXR504A032015	VXR504A032030
1/2	1/2	1	3	VXE514A032	VXR514A032010	VXR514A032015	VXR514A032030
1/2	1/2	1-1/4	3-1/4	VXE524A032	VXR524A032010	VXR524A032015	VXR524A032030
1/2	1/2	1-1/4	3-1/2	VXE534A032	VXR534A032010	VXR534A032015	VXR534A032030
1/2	1/2	1-5/8	4	VXE544A032		VXR544A032015	VXR544A032030
1/2	1/2	2	4	VXE554A032		VXR554A032015	VXR554A032030
1/2	1/2	2-1/2	4-1/2	VXE564A032		VXR564A032015	VXR564A032030
5/8	5/8	3/4	3	VXE504A040	VXR504A040010	VXR504A040015	VXR504A040030
5/8	5/8	1-1/4	3-1/2	VXE514A040	VXR514A040010	VXR514A040015	VXR514A040030
5/8	5/8	1-5/8	4	VXE524A040		VXR524A040015	VXR524A040030
5/8	5/8	2	4	VXE534A040		VXR534A040015	VXR534A040030
5/8	5/8	3-1/4	6	VXE544A040		VXR544A040015	VXR544A040030
3/4	3/4	3/4	3	VXE504A048	VXR504A048015	VXR504A048015	VXR504A048030
3/4	3/4	1-1/2	4	VXE514A048	VXR514A048015	VXR514A048015	VXR514A048030
3/4	3/4	1-7/8	4	VXE524A048	VXR524A048015	VXR524A048015	VXR524A048030
3/4	3/4	2-1/4	5	VXE534A048	VXR534A048015	VXR534A048015	VXR534A048030
3/4	3/4	3-1/4	6	VXE544A048	VXR544A048015	VXR544A048015	VXR544A048030
1	1	1	4	VXE504A064	VXR504A064015	VXR504A064015	VXR504A064030
1	1	1-1/2	4	VXE514A064	VXR514A064015	VXR514A064015	VXR514A064030
1	1	2	5	VXE524A064		VXR524A064015	VXR524A064030
1	1	2-5/8	5	VXE534A064	VXR534A064015	VXR534A064015	VXR534A064030
1	1	3	6	VXE544A064	VXR544A064015	VXR544A064015	VXR544A064030
1	1	4-1/4	7	VXE554A064	VXR554A064015	VXR554A064015	VXR554A064030

CORNER RADIUS					BALL
.060	.090	.125	.190	.250	
PART NO.	PART NO.	PART NO.	PART NO.	PART NO.	PART NO.
					VXB504A008
					VXB514A008
					VXB524A008
					VXB504A010
					VXB514A010
					VXB504A012
					VXB514A012
					VXB524A012
					VXB534A012
					VXB504A014
					VXB514A014
					VXB504A016
					VXB514A016
					VXB524A016
					VXB534A016
VXR504A018060					VXB504A018
					VXB514A018
VXR514A020060					VXB504A020
VXR524A020060					VXB514A020
					VXB524A020
					VXB504A022
					VXB514A022
VXR504A024060	VXR504A024090				VXB504A024
VXR514A024060	VXR514A024090				VXB514A024
VXR524A024060	VXR524A024090				VXB524A024
VXR534A024060	VXR534A024090				VXB534A024
					VXB504A026
					VXB514A026
VXR504A028060					VXB504A028
VXR514A028060					VXB514A028
					VXB524A028
					VXB504A030
					VXB514A030
					VXB524A030
VXR504A032060	VXR504A032090	VXR504A032125			VXB504A032
VXR514A032060	VXR514A032090	VXR514A032125			VXB514A032
VXR524A032060	VXR524A032090	VXR524A032125			VXB524A032
VXR534A032060	VXR534A032090	VXR534A032125			VXB534A032
VXR544A032060	VXR544A032090	VXR544A032125			VXB544A032
VXR554A032060	VXR554A032090	VXR554A032125			VXB554A032
VXR564A032060	VXR564A032090	VXR564A032125			VXB564A032
VXR504A040060	VXR504A040090	VXR504A040125			VXB504A040
VXR514A040060	VXR514A040090	VXR514A040125			VXB514A040
VXR524A040060	VXR524A040090	VXR524A040125			VXB524A040
VXR534A040060	VXR534A040090	VXR534A040125			VXB534A040
VXR544A040060	VXR544A040090	VXR544A040125			VXB544A040
VXR504A048060	VXR504A048090	VXR504A048125	VXR504A048190	VXR504A048250	VXB504A048
VXR514A048060	VXR514A048090	VXR514A048125	VXR514A048190	VXR514A048250	VXB514A048
VXR524A048060	VXR524A048090	VXR524A048125	VXR524A048190	VXR524A048250	VXB524A048
VXR534A048060	VXR534A048090	VXR534A048125	VXR534A048190	VXR534A048250	VXB534A048
VXR544A048060	VXR544A048090	VXR544A048125	VXR544A048190	VXR544A048250	VXB544A048
VXR504A064060	VXR504A064090	VXR504A064125	VXR504A064190	VXR504A064250	VXB504A064
VXR514A064060	VXR514A064090	VXR514A064125	VXR514A064190	VXR514A064250	VXB514A064
VXR524A064060	VXR524A064090	VXR524A064125	VXR524A064190	VXR524A064250	VXB524A064
VXR534A064060	VXR534A064090	VXR534A064125	VXR534A064190	VXR534A064250	VXB534A064
VXR544A064060	VXR544A064090	VXR544A064125	VXR544A064190	VXR544A064250	VXB544A064
VXR554A064060	VXR554A064090	VXR554A064125	VXR554A064190	VXR554A064250	VXB554A064

4 FLUTES Variable Helix

Unequal Index Standard Length Weldon Flats

VXE, VXR, VXB (504 - 564) A

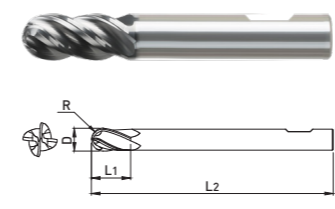


D	D ₂	L ₁	L ₂	SQUARE PART NO.	CORNER RADIUS	
					.010 PART NO.	.015 PART NO.
3/8	3/8	1/2	2-1/2	VXE504A024F	VXR504A024010F	
3/8	3/8	7/8	2-1/2	VXE514A024F	VXR514A024010F	
1/2	1/2	5/8	2-1/2	VXE504A032F	VXR504A032010F	VXR504A032015F
1/2	1/2	1	3	VXE514A032F	VXE514A032010F	
1/2	1/2	1-1/4	3-1/4	VXE524A032F	VXE524A032010F	VXR524A032015F
1/2	1/2	1-1/4	3-1/2	VXE534A032F	VXE534A032010F	VXR534A032015F
1/2	1/2	2	4	VXE554A032F		VXR554A032015F
1/2	1/2	2-1/2	4-1/2	VXE564A032F		VXR564A032015F
5/8	5/8	3/4	3	VXE504A040f	VXR504A040010F	
5/8	5/8	1-1/4	3-1/2	VXE514A040f	VXR514A040010F	VXR514A040015F
3/4	3/4	3/4	3	VXE504A048F		
3/4	3/4	1-1/2	4	VXE514A048F		VXR514A048015F
3/4	3/4	2-1/4	5	VXE534A048F		
1	1	1	4	VXE504A064F		VXR504A064015F
1	1	1-1/2	4	VXE514A064F		VXR514A064015F
1	1	2	5	VXE524A064F		VXR524A064015F

4 FLUTES Variable Helix

Unequal Index Standard Length Weldon Flats

VXE, VXR, VXB (504 - 564) A



D	D ₂	L ₁	L ₂	SQUARE PART NO.	CORNER RADIUS				BALL PART NO.
					.030 PART NO.	.060 PART NO.	.090 PART NO.	.125 PART NO.	
3/8	3/8	1/2	2-1/2	VXR504A024030F	VXR504A024060F				
3/8	3/8	7/8	2-1/2	VXR514A024030F	VXR514A024060F				VXB514A024F
1/2	1/2	5/8	2-1/2	VXR504A032030F	VXR504A032060F				
1/2	1/2	1	3	VXR514A032030F	VXR514A032060F		VXR514A032125F		VXB514A032F
1/2	1/2	1-1/4	3-1/4	VXR524A032030F	VXR524A032060F		VXR524A032125F		
1/2	1/2	1-1/4	3-1/2	VXR534A032030F	VXR534A032060F	VXR534A032090F	VXR534A032125F		VXB534A032F
1/2	1/2	2	4	VXR554A032030F	VXR554A032060F	VXR554A032090F	VXR554A032125F		VXB554A032F
1/2	1/2	2-1/2	4-1/2	VXR564A032030F	VXR564A032060F	VXR564A032090F	VXR564A032125F		VXB564A032F
5/8	5/8	3/4	3	VXR504A040030F	VXR504A040060F				
5/8	5/8	1-1/4	3-1/2	VXR514A040030F	VXR514A040060F		VXR514A040125F		VXB514A040F
3/4	3/4	3/4	3	VXR504A048030F	VXR504A048060F				
3/4	3/4	1-1/2	4	VXR514A048030F	VXR514A048060F		VXR514A048125F		VXB514A048F
3/4	3/4	2-1/4	5	VXR534A048030F	VXR534A048060F		VXR534A048125F		
1	1	1	4	VXR504A064030F	VXR504A064060F				
1	1	1-1/2	4	VXR514A064030F	VXR514A064060F		VXR514A064125F		VXB514A064F
1	1	2	5	VXR524A064030F	VXR524A064060F				

Can't find what you're looking for?

Specialty products and non-standards are not a problem. WIDIN is known for quick turnaround on specials. and making modifications to standards. Contact your local Distributor or us at 847-947-8320.

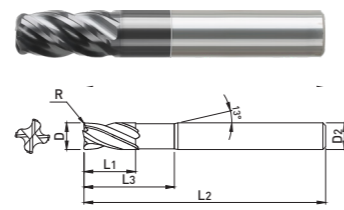
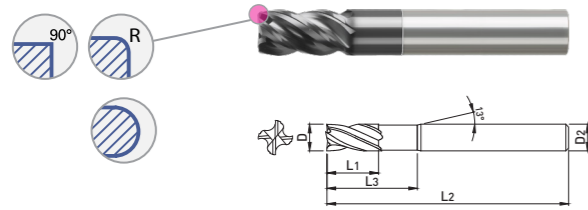
Can't find what you're looking for?

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4 FLUTES – Variable Helix

Unequal Index - Extended Length Necked

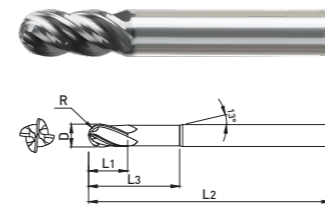
VXE, VXR, VXB (504 - 544) A - N



4 FLUTES – Variable Helix

Unequal Index - Extended Length Necked

VXE, VXR, VXB (504 - 544) A - N



D	D ₂	L ₁	L ₃	L ₂	SQUARE	CORNER RADIUS		
						.010	.015	.030
PART NO.						PART NO.	PART NO.	PART NO.
1/8	1/8	5/32	3/8	3	VXE504A008N	VXR504A008010N		VXR504A008030N
1/8	1/8	5/32	1/2	3	VXE514A008N	VXR514A008010N		VXR514A008030N
1/8	1/8	5/32	5/8	3	VXE524A008N	VXR524A008010N		VXR524A008030N
3/16	3/16	7/32	1/2	3	VXE504A012N	VXR504A012010N		VXR504A012030N
3/16	3/16	7/32	3/4	3	VXE514A012N	VXR514A012010N		VXR514A012030N
3/16	3/16	7/32	1	3	VXE524A012N	VXR524A012010N		VXR524A012030N
1/4	1/4	3/8	3/4	4	VXE504A016N		VXR504A016015N	VXR504A016030N
1/4	1/4	3/8	1-1/8	4	VXE514A016N		VXR514A016015N	VXR514A016030N
1/4	1/4	3/8	2-1/8	4	VXE524A016N		VXR524A016015N	VXR524A016030N
3/8	3/8	1/2	1-1/8	4	VXE504A024N		VXR504A024015N	VXR504A024030N
3/8	3/8	1/2	2-1/8	4	VXE514A024N		VXR514A024015N	VXR514A024030N
3/8	3/8	1/2	3-1/8	5	VXE524A024N		VXR524A024015N	VXR524A024030N
3/8	3/8	1/2	3-1/8	6	VXE534A024N		VXR534A024015N	VXR534A024030N
3/8	3/8	1/2	4-1/8	6	VXE544A024N		VXR544A024015N	VXR544A024030N
1/2	1/2	5/8	1-1/8	4	VXE504A032N		VXR504A032015N	VXR504A032030N
1/2	1/2	5/8	2-1/8	4	VXE514A032N		VXR514A032015N	VXR514A032030N
1/2	1/2	5/8	3-1/8	5	VXE524A032N		VXR524A032015N	VXR524A032030N
1/2	1/2	5/8	3-1/8	6	VXE534A032N		VXR534A032015N	VXR534A032030N
1/2	1/2	5/8	4-1/8	6	VXE544A032N		VXR544A032015N	VXR544A032030N
5/8	5/8	3/4	1-5/8	4	VXE504A040N			VXR504A040030N
5/8	5/8	3/4	2-3/8	5	VXE514A040N			VXR514A040030N
5/8	5/8	3/4	3-3/8	5	VXE524A040N			VXR524A040030N
5/8	5/8	3/4	2-3/8	6	VXE534A040N			VXR534A040030N
5/8	5/8	3/4	3-3/8	6	VXE544A040N			VXR544A040030N
3/4	3/4	1	2	4	VXE504A048N			VXR504A048030n
3/4	3/4	1	3	5	VXE514A048N			VXR514A048030n
3/4	3/4	1	2-1/2	6	VXE524A048N			VXR524A048030N
3/4	3/4	1	3	6	VXE534A048N			VXR534A048030N
3/4	3/4	1	4	6	VXE544A048N			VXR544A048030N
1	1	1-1/8	2	4	VXE504A064N			VXR504A064030N
1	1	1-1/8	2-5/8	5	VXE514A064N			VXR514A064030N
1	1	1-1/8	2-5/8	6	VXE524A064N			VXR524A064030N
1	1	1-1/8	3	6	VXE534A064N			VXR534A064030N
1	1	1-1/8	4	6	VXE544A064N			VXR544A064030N

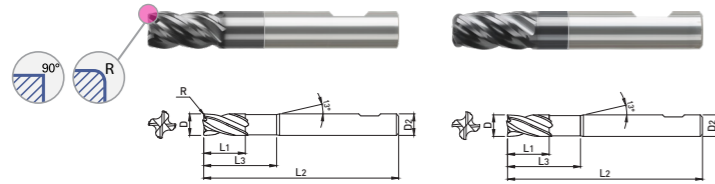
D	D ₂	L ₁	L ₃	L ₂	CORNER RADIUS	CORNER RADIUS			BALL
						.060	.090	.125	
PART NO.						PART NO.	PART NO.	PART NO.	PART NO.
									VXB504A008N
									VXB514A008N
									VXB524A008N
									VXB504A012N
									VXB514A012N
									VXB524A012N
									VXB504A016N
									VXB514A016N
									VXB524A016N
									VXB504A024N
									VXB514A024N
									VXB524A024N
									VXB534A024N
									VXB544A024N
									VXB504A032N
									VXB514A032N
									VXB524A032N
									VXB534A032N
									VXB544A032N
									VXB504A040N
									VXB514A040N
									VXB524A040N
									VXB534A040N
									VXB544A040N
									VXB504A048N
									VXB514A048N
									VXB524A048N
									VXB534A048N
									VXB544A048N
									VXB504A064N
									VXB514A064N
									VXB524A064N
									VXB534A064N
									VXB544A064N

4 FLUTES – Variable Helix

Unequal Index - Extended Length Necked- Weldon Flats

MEMO

VXE, VXR, VXB (504 - 544) A - F&N



D	D ₂	L ₁	L ₃	L ₂	SQUARE	CORNER RADIUS
					PART NO.	.030
3/8	3/8	1/2	1-1/8	4	VXE504A024NF	VXR504A024030NF
3/8	3/8	1/2	2-1/8	4	VXE514A024NF	VXR514A024030NF
3/8	3/8	1/2	3-1/8	5	VXE524A024NF	VXE524A024030NF
3/8	3/8	1/2	3-1/8	6	VXE534A024NF	VXR534A024030NF
3/8	3/8	1/2	4-1/8	6	VXE544A024NF	VXR544A024030NF
1/2	1/2	5/8	1-1/8	4	VXE504A032NF	VXR504A032030NF
1/2	1/2	5/8	2-1/8	4	VXE514A032NF	VXR514A032030NF
1/2	1/2	5/8	3-1/8	5	VXE524A032NF	VXR524A032030NF
1/2	1/2	5/8	3-1/8	6	VXE534A032NF	VXR534A032030NF
1/2	1/2	5/8	4-1/8	6	VXE544A032NF	VXR544A032030NF
5/8	5/8	3/4	1-5/8	4	VXE504A040NF	VXR504A040030NF
5/8	5/8	3/4	2-3/8	5	VXE514A040NF	VXR514A040030NF
5/8	5/8	3/4	3-3/8	5	VXE524A040NF	VXR524A040030NF
5/8	5/8	3/4	2-3/8	6	VXE534A040NF	VXR534A040030NF
5/8	5/8	3/4	3-3/8	6	VXE544A040NF	VXR544A040030NF
3/4	3/4	1	2	4	VXE504A048NF	VXR504A048030NF
3/4	3/4	1	3	5	VXE514A048NF	VXR514A048030NF
3/4	3/4	1	2-1/2	6	VXE524A048NF	VXR524A048030NF
3/4	3/4	1	3	6	VXE534A048NF	VXR534A048030NF
3/4	3/4	1	4	6	VXE544A048NF	VXR544A048030NF
1	1	1-1/8	2	4	VXE504A064NF	VXR504A064030NF
1	1	1-1/8	2-5/8	5	VXE514A064NF	VXR514A064030NF
1	1	1-1/8	2-5/8	6	VXE524A064NF	VXR524A064030NF
1	1	1-1/8	3	6	VXE534A064NF	VXR534A064030NF
1	1	1-1/8	4	6	VXE544A064NF	VXR544A064030NF

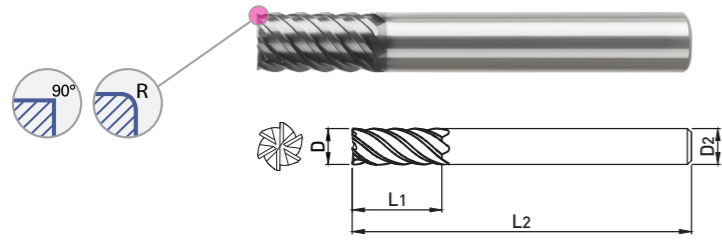
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6 FLUTES – Variable Helix

Unequal Index - Standard Length

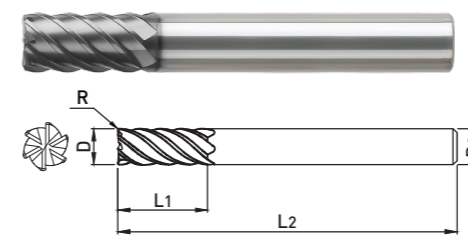
VXE, VXR (506 - 556) A



6 FLUTES – Variable Helix

Unequal Index - Standard Length

VXE, VXR (506 - 556) A



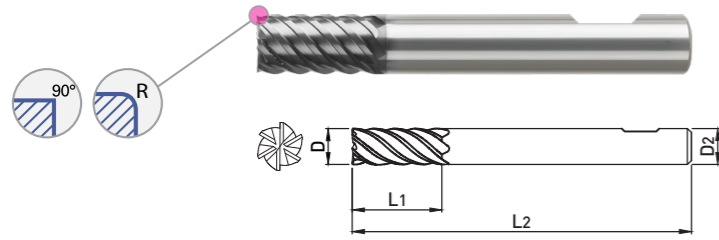
D	D ₂	L ₁	L ₂	SQUARE PART NO.	CORNER RADIUS	
					.015 PART NO.	.030 PART NO.
1/4	1/4	1/2	2-1/2	VXE506A016	VXR506A016015	VXR506A016030
1/4	1/4	3/4	2-1/2	VXE516A016	VXR516A016015	VXR516A016030
1/4	1/4	1	3	VXE526A016	VXR526A016015	VXR526A016030
1/4	1/4	1-1/4	4	VXE536A016	VXR536A016015	VXR536A016030
5/16	5/16	3/4	2-1/2	VXE506A020	VXR506A020015	
5/16	5/16	1-1/4	3	VXE516A020	VXR516A020015	VXR516A020030
5/16	5/16	1-5/8	4	VXE526A020	VXR526A020015	VXR526A020030
3/8	3/8	5/8	2-1/2	VXE506A024	VXR506A024015	VXR506A024030
3/8	3/8	1	3	VXE516A024	VXR516A024015	VXR516A024030
3/8	3/8	1-1/2	4	VXE526A024	VXR526A024015	VXR526A024030
3/8	3/8	2	4	VXE536A024	VXR536A024015	VXR536A024030
1/2	1/2	5/8	3	VXE506A032	VXR506A032015	VXR506A032030
1/2	1/2	1	3	VXE516A032	VXR516A032015	VXR516A032030
1/2	1/2	1-1/2	3-1/2	VXE526A032	VXR526A032015	VXR526A032030
1/2	1/2	2	4	VXE536A032	VXR536A032015	VXR536A032030
1/2	1/2	2-5/8	5	VXE546A032	VXR546A032015	VXR546A032030
1/2	1/2	3	5	VXE556A032	VXR556A032015	VXR556A032030
5/8	5/8	1-1/4	3-1/2	VXE506A040	VXR506A040015	VXR506A040030
5/8	5/8	2	4	VXE516A040	VXR516A040015	VXR516A040030
5/8	5/8	3	5	VXE526A040	VXR526A040015	VXR526A040030
3/4	3/4	1	3-1/2	VXE506A048	VXR506A048015	VXR506A048030
3/4	3/4	1-1/2	4	VXE516A048	VXR516A048015	VXR516A048030
3/4	3/4	1-7/8	5	VXE526A048	VXR526A048015	VXR526A048030
3/4	3/4	2-1/4	5	VXE536A048	VXR536A048015	VXR536A048030
3/4	3/4	2-3/4	5	VXE546A048	VXR546A048015	VXR546A048030
3/4	3/4	3	5-1/2	VXE556A048	VXR556A048015	VXR556A048030
1	1	1-1/2	4	VXE506A064	VXR506A064015	VXR506A064030
1	1	2	5	VXE516A064	VXR516A064015	VXR516A064030
1	1	2-5/8	5	VXE526A064	VXR526A064015	VXR526A064030
1	1	3	6	VXE536A064	VXR536A064015	VXR536A064030
1	1	4-1/4	7	VXE546A064	VXR546A064015	VXR546A064030

CORNER RADIUS				
.060 PART NO.	.090 PART NO.	.125 PART NO.	.190 PART NO.	.250 PART NO.
VXR506A016060				
VXR516A016060				
VXR526A016060				
VXR536A016060				
VXR506A024060	VXR506A024090			
VXR516A024060	VXR516A024090			
VXR526A024060	VXR526A024090			
VXR536A024060	VXR536A024090			
VXR506A032060	VXR506A032090	VXR506A032125		
VXR516A032060	VXR516A032090	VXR516A032125		
VXR526A032060	VXR526A032090	VXR526A032125		
VXR536A032060	VXR536A032090	VXR536A032125		
VXR546A032060	VXR546A032090	VXR546A032125		
VXR556A032060	VXR556A032090	VXR556A032125		
VXR506A040060	VXR506A040090	VXR506A040125		
VXR516A040060	VXR516A040090	VXR516A040125		
VXR526A040060	VXR526A040090	VXR526A040125		
VXR506A048060	VXR506A048090	VXR506A048125	VXR506A048190	VXR506A048250
VXR516A048060	VXR516A048090	VXR516A048125	VXR516A048190	VXR516A048250
VXR526A048060	VXR526A048090	VXR526A048125	VXR526A048190	VXR526A048250
VXR536A048060	VXR536A048090	VXR536A048125	VXR536A048190	VXR536A048250
VXR546A048060	VXR546A048090	VXR546A048125	VXR546A048190	VXR546A048250
VXR556A048060	VXR556A048090	VXR556A048125	VXR556A048190	VXR556A048250
VXR506A064060	VXR506A064090	VXR506A064125	VXR506A064190	VXR506A064250
VXR516A064060	VXR516A064090	VXR516A064125	VXR516A064190	VXR516A064250
VXR526A064060	VXR526A064090	VXR526A064125	VXR526A064190	VXR526A064250
VXR536A064060	VXR536A064090	VXR536A064125	VXR536A064190	VXR536A064250
VXR546A064060	VXR546A064090	VXR546A064125	VXR546A064190	VXR546A064250

6 FLUTES – Variable Helix

Unequal Index Standard Length Weldon Flats

VXE, VXR (506 - 546) A - F

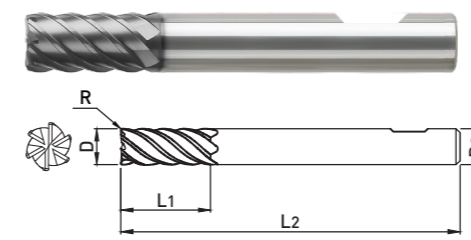


D	D ₂	L ₁	L ₂	SQUARE PART NO.	CORNER RADIUS	
					.015 PART NO.	.030 PART NO.
3/8	3/8	1	3	VXE516A024F	VXR516A024015F	VXR516A024030F
3/8	3/8	1-1/2	4	VXE526A024F	VXR526A024015F	VXR526A024030F
3/8	3/8	2	4	VXE536A024F	VXR536A024015F	VXR536A024030F
1/2	1/2	1	3	VXE516A032F	VXR516A032015F	VXR516A032030F
1/2	1/2	1-1/2	3-1/2	VXE526A032F		VXR526A032030F
1/2	1/2	2	4	VXE536A032F		VXR536A032030F
1/2	1/2	3	5	VXE546A032F		VXR546A032030F
5/8	5/8	1-1/4	3-1/2	VXE506A040F		VXR506A040030F
5/8	5/8	2	4	VXE516A040F		VXR516A040030F
5/8	5/8	3	5	VXE526A040F		VXR526A040030F
3/4	3/4	1-1/2	4	VXE516A048F		VXR516A048030F
3/4	3/4	2-1/4	5	VXE536A048F		VXR536A048030F
1	1	1-1/2	4	VXE506A064F		VXR506A064030F
1	1	4-1/4	7	VXE546A064F		VXR546A064030F

6 FLUTES – Variable Helix

Unequal Index Standard Length Weldon Flats

VXE, VXR (506 - 546) A - F



CORNER RADIUS		
.060 PART NO.	.090 PART NO.	.125 PART NO.
VXR516A024060F		
VXR526A024060F		
VXR536A024060F		
VXR516A032060F	VXR516A032090F	VXR516A032125F
VXR526A032060F	VXR526A032090F	VXR526A032125F
VXR536A032060F	VXR536A032090F	VXR536A032125F
VXR546A032060F	VXR546A032090F	VXR546A032125F
VXR506A040060F	VXR506A040090F	VXR506A040125F
VXR516A040060F	VXR516A040090F	VXR516A040125F
VXR526A040060F	VXR526A040090F	VXR526A040125F
VXR516A048060F	VXR516A048090F	VXR516A048125F
VXR536A048060F	VXR536A048090F	VXR536A048125F
VXR506A064060F	VXR506A064090F	VXR506A064125F
VXR546A064060F	VXR546A064090F	VXR546A064125F

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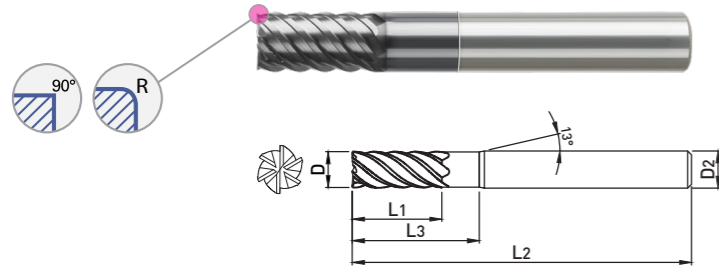
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6 FLUTES – Variable Helix

Unequal Index - Extended Length Necked

VXE, VXR (506 - 546) A - N

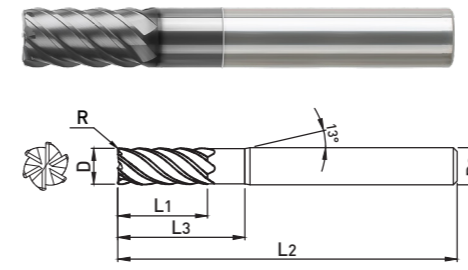


D	D ₂	L ₁	L ₃	L ₂	SQUARE PART NO.	CORNER RADIUS	
						.030 PART NO.	.060 PART NO.
1/4	1/4	3/8	3/4	4	VXE506A016N	VXR506A016030N	VXR506A016060N
1/4	1/4	3/8	1-1/8	4	VXE516A016N	VXR516A016030N	VXR516A016060N
1/4	1/4	3/8	2-1/8	4	VXE526A016N	VXR526A016030N	VXR526A016060N
3/8	3/8	1/2	1-1/8	4	VXE506A024N	VXR506A024030N	VXR506A024060N
3/8	3/8	1/2	2-1/8	4	VXE516A024N	VXR516A024030N	VXR516A024060N
3/8	3/8	1/2	3-1/8	5	VXE526A024N	VXR526A024030N	VXR526A024060N
3/8	3/8	1/2	3-1/8	6	VXE536A024N	VXR536A024030N	VXR536A024060N
3/8	3/8	1/2	4-1/8	6	VXE546A024N	VXR546A024030N	VXR546A024060N
1/2	1/2	5/8	1-1/8	4	VXE506A032N	VXR506A032030N	VXR506A032060N
1/2	1/2	5/8	2-1/8	4	VXE516A032N	VXR516A032030N	VXR516A032060N
1/2	1/2	5/8	3-1/8	5	VXE526A032N	VXR526A032030N	VXR526A032060N
1/2	1/2	5/8	3-1/8	6	VXE536A032N	VXR536A032030N	VXR536A032060N
1/2	1/2	5/8	4-1/8	6	VXE546A032N	VXR546A032030N	VXR546A032060N
5/8	5/8	3/4	1-5/8	4	VXE506A040N	VXR506A040030N	VXR506A040060N
5/8	5/8	3/4	2-3/8	5	VXE516A040N	VXR516A040030N	VXR516A040060N
5/8	5/8	3/4	3-3/8	5	VXE526A040N	VXR526A040030N	VXR526A040060N
5/8	5/8	3/4	2-3/8	6	VXE536A040N	VXR536A040030N	VXR536A040060N
5/8	5/8	3/4	3-3/8	6	VXE546A040N	VXR546A040030N	VXR546A040060N
3/4	3/4	1	2	4	VXE506A048N	VXR506A048030N	VXR506A048060N
3/4	3/4	1	3	5	VXE516A048N	VXR516A048030N	VXR516A048060N
3/4	3/4	1	2-1/2	6	VXE526A048N	VXR526A048030N	VXR526A048060N
3/4	3/4	1	3	6	VXE536A048N	VXR536A048030N	VXR536A048060N
3/4	3/4	1	4	6	VXE546A048N	VXR546A048030N	VXR546A048060N
1	1	1-1/8	2	4	VXE506A064N	VXR506A064030N	VXR506A064060N
1	1	1-1/8	2-5/8	5	VXE516A064N	VXR516A064030N	VXR516A064060N
1	1	1-1/8	2-5/8	6	VXE526A064N	VXR526A064030N	VXR526A064060N
1	1	1-1/8	3	6	VXE536A064N	VXR536A064030N	VXR536A064060N
1	1	1-1/8	4	6	VXE546A064N	VXR546A064030N	VXR546A064060N

6 FLUTES – Variable Helix

Unequal Index - Extended Length Necked

VXE, VXR (506 - 546) A - N



D	D ₂	L ₁	L ₃	L ₂	SQUARE PART NO.	CORNER RADIUS			
						.090 PART NO.	.125 PART NO.	.190 PART NO.	.250 PART NO.
1/4	1/4	3/8	3/4	4	VXE506A016N				
1/4	1/4	3/8	1-1/8	4	VXE516A016N				
1/4	1/4	3/8	2-1/8	4	VXE526A016N				
3/8	3/8	1/2	1-1/8	4	VXE506A024N	VXR506A024090N			
3/8	3/8	1/2	2-1/8	4	VXE516A024N	VXR516A024090N			
3/8	3/8	1/2	3-1/8	5	VXE526A024N	VXR526A024090N			
3/8	3/8	1/2	3-1/8	6	VXE536A024N	VXR536A024090N			
3/8	3/8	1/2	4-1/8	6	VXE546A024N	VXR546A024090N			
1/2	1/2	5/8	1-1/8	4	VXE506A032N	VXR506A032090N	VXR506A032125N		
1/2	1/2	5/8	2-1/8	4	VXE516A032N	VXR516A032090N	VXR516A032125N		
1/2	1/2	5/8	3-1/8	5	VXE526A032N	VXR526A032090N	VXR526A032125N		
1/2	1/2	5/8	3-1/8	6	VXE536A032N	VXR536A032090N	VXR536A032125N		
1/2	1/2	5/8	4-1/8	6	VXE546A032N	VXR546A032090N	VXR546A032125N		
5/8	5/8	3/4	1-5/8	4	VXE506A040N	VXR506A040090N	VXR506A040125N		
5/8	5/8	3/4	2-3/8	5	VXE516A040N	VXR516A040090N	VXR516A040125N		
5/8	5/8	3/4	3-3/8	5	VXE526A040N	VXR526A040090N	VXR526A040125N		
5/8	5/8	3/4	2-3/8	6	VXE536A040N	VXR536A040090N	VXR536A040125N		
5/8	5/8	3/4	3-3/8	6	VXE546A040N	VXR546A040090N	VXR546A040125N		
3/4	3/4	1	2	4	VXE506A048N	VXR506A048090N	VXR506A048125N	VXR506A048190N	VXR506A048250N
3/4	3/4	1	3	5	VXE516A048N	VXR516A048090N	VXR516A048125N	VXR516A048190N	VXR516A048250N
3/4	3/4	1	2-1/2	6	VXE526A048N	VXR526A048090N	VXR526A048125N	VXR526A048190N	VXR526A048250N
3/4	3/4	1	3	6	VXE536A048N	VXR536A048090N	VXR536A048125N	VXR536A048190N	VXR536A048250N
3/4	3/4	1	4	6	VXE546A048N	VXR546A048090N	VXR546A048125N	VXR546A048190N	VXR546A048250N
1	1	1-1/8	2	4	VXE506A064N	VXR506A064090N	VXR506A064125N	VXR506A064190N	VXR506A064250N
1	1	1-1/8	2-5/8	5	VXE516A064N	VXR516A064090N	VXR516A064125N	VXR516A064190N	VXR516A064250N
1	1	1-1/8	2-5/8	6	VXE526A064N	VXR526A064090N	VXR526A064125N	VXR526A064190N	VXR526A064250N
1	1	1-1/8	3	6	VXE536A064N	VXR536A064090N	VXR536A064125N	VXR536A064190N	VXR536A064250N
1	1	1-1/8	4	6	VXE546A064N	VXR546A064090N	VXR546A064125N	VXR546A064190N	VXR546A064250N

Part Numbers by Cutting Diameters(D)

V-STAR Series



NEW VARIABLE HELIX ENDMILLS

No.	D	D2	L1	L2	L3	Radius	EDP NO.	PAGE
1	1/8	1/8	1/8	1-1/2			VXE504A008	6-7
2	1/8	1/8	3/8	1-1/2			VXE514A008	6-7
3	1/8	1/8	1/2	2-1/2			VXE524A008	6-7
4	1/8	1/8	1/8	1-1/2		.010	VXR504A008010	6-7
5	1/8	1/8	3/8	1-1/2		.010	VXR514A008010	6-7
6	1/8	1/8	1/2	2-1/2		.010	VXR524A008010	6-7
7	1/8	1/8	1/8	1-1/2		.030	VXR504A008030	6-7
8	1/8	1/8	3/8	1-1/2		.030	VXR514A008030	6-7
9	1/8	1/8	1/2	2-1/2		.030	VXR524A008030	6-7
10	1/8	1/8	1/8	1-1/2			VXB504A008	6-7
11	1/8	1/8	3/8	1-1/2			VXB514A008	6-7
12	1/8	1/8	1/2	2-1/2			VXB524A008	6-7
13	1/8	1/8	5/32	3	3/8		VXE504A008N	10-11
14	1/8	1/8	5/32	3	1/2		VXE514A008N	10-11
15	1/8	1/8	5/32	3	5/8		VXE524A008N	10-11
16	1/8	1/8	5/32	3	3/8	.010	VXR504A008010N	10-11
17	1/8	1/8	5/32	3	1/2	.010	VXR514A008010N	10-11
18	1/8	1/8	5/32	3	5/8	.010	VXR524A008010N	10-11
19	1/8	1/8	5/32	3	3/8	.030	VXR504A008030N	10-11
20	1/8	1/8	5/32	3	1/2	.030	VXR514A008030N	10-11
21	1/8	1/8	5/32	3	5/8	.030	VXR524A008030N	10-11
22	1/8	1/8	5/32	3	3/8		VXB504A008N	10-11
23	1/8	1/8	5/32	3	1/2		VXB514A008N	10-11
24	1/8	1/8	5/32	3	5/8		VXB524A008N	10-11
25	5/32	3/16	3/16	2			VXE504A010	6-7
26	5/32	3/16	7/16	2			VXE514A010	6-7
27	5/32	3/16	3/16	2		.010	VXR504A010010	6-7
28	5/32	3/16	7/16	2		.010	VXR514A010010	6-7
29	5/32	3/16	3/16	2			VXB504A010	6-7
30	5/32	3/16	7/16	2			VXB514A010	6-7
31	3/16	3/16	3/16	2			VXE504A012	6-7
32	3/16	3/16	5/16	2			VXE514A012	6-7
33	3/16	3/16	7/16	2			VXE524A012	6-7
34	3/16	3/16	5/8	2-1/2			VXE534A012	6-7
35	3/16	3/16	3/16	2		.010	VXR504A012010	6-7
36	3/16	3/16	5/16	2		.010	VXR514A012010	6-7

No.	D	D2	L1	L2	L3	Radius	EDP NO.	PAGE
37	3/16	3/16	7/16	2		.010	VXR524A012010	6-7
38	3/16	3/16	5/8	2-1/2		.010	VXR534A012010	6-7
39	3/16	3/16	5/16	2		.030	VXR514A012030	6-7
40	3/16	3/16	7/16	2		.030	VXR524A012030	6-7
41	3/16	3/16	5/8	2-1/2		.030	VXR534A012030	6-7
42	3/16	3/16	3/16	2			VXB504A012	6-7
43	3/16	3/16	5/16	2			VXB514A012	6-7
44	3/16	3/16	7/16	2			VXB524A012	6-7
45	3/16	3/16	5/8	2-1/2			VXB534A012	6-7
46	3/16	3/16	7/32	3	1/2		VXE504A012N	10-11
47	3/16	3/16	7/32	3	3/4		VXE514A012N	10-11
48	3/16	3/16	7/32	3	1		VXE524A012N	10-11
49	3/16	3/16	7/32	3	1/2	.010	VXR504A012010N	10-11
50	3/16	3/16	7/32	3	3/4	.010	VXR514A012010N	10-11
51	3/16	3/16	7/32	3	1	.010	VXR524A012010N	10-11
52	3/16	3/16	7/32	3	1/2	.030	VXR504A012030N	10-11
53	3/16	3/16	7/32	3	3/4	.030	VXR514A012030N	10-11
54	3/16	3/16	7/32	3	1	.030	VXR524A012030N	10-11
55	3/16	3/16	7/32	3	1/2		VXB504A012N	10-11
56	3/16	3/16	7/32	3	3/4		VXB514A012N	10-11
57	3/16	3/16	7/32	3	1		VXB524A012N	10-11
58	7/32	1/4	1/4	2			VXE504A014	6-7
59	7/32	1/4	7/16	2-1/2			VXE514A014	6-7
60	7/32	1/4	1/4	2		.010	VXR504A014010	6-7
61	7/32	1/4	7/16	2-1/2		.010	VXR514A014010	6-7
62	7/32	1/4	1/4	2			VXB504A014	6-7
63	7/32	1/4	7/16	2-1/2			VXB514A014	6-7
64	1/4	1/4	3/8	2			VXE504A016	6-7
65	1/4	1/4	1/2	2-1/2			VXE514A016	6-7
66	1/4	1/4	3/4	2-1/2			VXE524A016	6-7
67	1/4	1/4	1	3			VXE534A016	6-7
68	1/4	1/4	3/8	2		.010	VXR504A016010	6-7
69	1/4	1/4	1/2	2-1/2		.010	VXR514A016010	6-7
70	1/4	1/4	1/2	2-1/2		.015	VXR514A016015	6-7
71	1/4	1/4	3/4	2-1/2		.015	VXR524A016015	6-7
72	1/4	1/4	1	3		.015	VXR534A016015	6-7



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Part Numbers by Cutting Diameters(D)

V-STAR Series



NEW VARIABLE HELIX ENDMILLS

No.	D	D2	L1	L2	L3	Radius	EDP NO.	PAGE
73	1/4	1/4	3/8	2		.030	VXR504A016030	6-7
74	1/4	1/4	1/2	2-1/2		.030	VXR514A016030	6-7
75	1/4	1/4	3/4	2-1/2		.030	VXR524A016030	6-7
76	1/4	1/4	1	3		.030	VXR534A016030	6-7
77	1/4	1/4	3/8	2			VXB504A016	6-7
78	1/4	1/4	1/2	2-1/2			VXB514A016	6-7
79	1/4	1/4	3/4	2-1/2			VXB524A016	6-7
80	1/4	1/4	1	3			VXB534A016	6-7
81	1/4	1/4	3/8	4	3/4		VXE504A016N	10-11
82	1/4	1/4	3/8	4	1-1/8		VXE514A016N	10-11
83	1/4	1/4	3/8	4	2-1/8		VXE524A016N	10-11
84	1/4	1/4	3/8	4	3/4	.015	VXR504A016015N	10-11
85	1/4	1/4	3/8	4	1-1/8	.015	VXR514A016015N	10-11
86	1/4	1/4	3/8	4	2-1/8	.015	VXR524A016015N	10-11
87	1/4	1/4	3/8	4	3/4	.030	VXR504A016030N	10-11
88	1/4	1/4	3/8	4	1-1/8	.030	VXR514A016030N	10-11
89	1/4	1/4	3/8	4	2-1/8	.030	VXR524A016030N	10-11
90	1/4	1/4	3/8	4	3/4	.060	VXR504A016060N	10-11
91	1/4	1/4	3/8	4	1-1/8	.060	VXR514A016060N	10-11
92	1/4	1/4	3/8	4	2-1/8	.060	VXR524A016060N	10-11
93	1/4	1/4	3/8	4	3/4		VXB504A016N	10-11
94	1/4	1/4	3/8	4	1-1/8		VXB514A016N	10-11
95	1/4	1/4	3/8	4	2-1/8		VXB524A016N	10-11
96	1/4	1/4	1/2	2-1/2			VXE506A016	14-15
97	1/4	1/4	3/4	2-1/2			VXE516A016	14-15
98	1/4	1/4	1	3			VXE526A016	14-15
99	1/4	1/4	1-1/4	4			VXE536A016	14-15
100	1/4	1/4	1/2	2-1/2		.015	VXR506A016015	14-15
101	1/4	1/4	3/4	2-1/2		.015	VXR516A016015	14-15
102	1/4	1/4	1	3		.015	VXR526A016015	14-15
103	1/4	1/4	1-1/4	4		.015	VXR536A016015	14-15
104	1/4	1/4	1/2	2-1/2		.030	VXR506A016030	14-15
105	1/4	1/4	3/4	2-1/2		.030	VXR516A016030	14-15
106	1/4	1/4	1	3		.030	VXR526A016030	14-15
107	1/4	1/4	1-1/4	4		.030	VXR536A016030	14-15
108	1/4	1/4	1/2	2-1/2		.060	VXR506A016060	14-15

No.	D	D2	L1	L2	L3	Radius	EDP NO.	PAGE
109	1/4	1/4	3/4	2-1/2		.060	VXR516A016060	14-15
110	1/4	1/4	1	3		.060	VXR526A016060	14-15
111	1/4	1/4	1-1/4	4		.060	VXR536A016060	14-15
112	1/4	1/4	3/8	4	3/4		VXE506A016N	18-19
113	1/4	1/4	3/8	4	1-1/8		VXE516A016N	18-19
114	1/4	1/4	3/8	4	2-1/8		VXE526A016N	18-19
115	1/4	1/4	3/8	4	3/4	.030	VXR506A016030N	18-19
116	1/4	1/4	3/8	4	1-1/8	.030	VXR516A016030N	18-19
117	1/4	1/4	3/8	4	2-1/8	.030	VXR526A016030N	18-19
118	1/4	1/4	3/8	4	3/4	.060	VXR506A016060N	18-19
119	1/4	1/4	3/8	4	1-1/8	.060	VXR516A016060N	18-19
120	1/4	1/4	3/8	4	2-1/8	.060	VXR526A016060N	18-19
121	9/32	5/16	5/8	2-1/2			VXE504A018	6-7
122	9/32	5/16	1	3			VXE514A018	6-7
123	9/32	5/16	5/8	2-1/2		.015	VXR504A018015	6-7
124	9/32	5/16	1	3		.015	VXR514A018015	6-7
125	9/32	5/16	5/8	2-1/2		.030	VXR504A018030	6-7
126	9/32	5/16	1	3		.030	VXR514A018030	6-7
127	9/32	5/16	5/8	2-1/2		.060	VXR504A018060	6-7
128	9/32	5/16	5/8	2-1/2			VXB504A018	6-7
129	9/32	5/16	1	3			VXB514A018	6-7
130	5/16	5/16	7/16	2			VXE504A020	6-7
131	5/16	5/16	13/16	2-1/2			VXE514A020	6-7
132	5/16	5/16	1-1/4	3			VXE524A020	6-7
133	5/16	5/16	13/16	2-1/2		.010	VXR514A020010	6-7
134	5/16	5/16	1-1/4	3		.015	VXR524A020015	6-7
135	5/16	5/16	7/16	2		.030	VXR504A020030	6-7
136	5/16	5/16	13/16	2-1/2		.030	VXR514A020030	6-7
137	5/16	5/16	1-1/4	3		.030	VXR524A020030	6-7
138	5/16	5/16	13/16	2-1/2		.060	VXR514A020060	6-7
139	5/16	5/16	1-1/4	3		.060	VXR524A020060	6-7
140	5/16	5/16	7/16	2			VXB504A020	6-7
141	5/16	5/16	13/16	2-1/2			VXB514A020	6-7
142	5/16	5/16	1-1/4	3			VXB524A020	6-7
143	5/16	5/16	3/4	2-1/2			VXE506A020	14-15
144	5/16	5/16	1-1/4	3			VXE516A020	14-15



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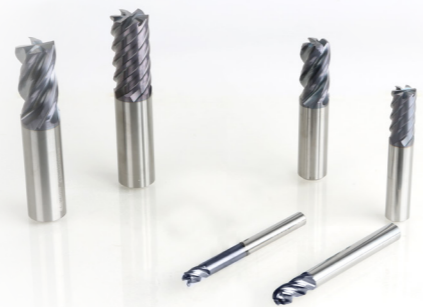


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Part Numbers by Cutting Diameters(D)

V-STAR Series



NEW VARIABLE HELIX ENDMILLS

No.	D	D2	L1	L2	L3	Radius	EDP NO.	PAGE
145	5/16	5/16	1-5/8	4			VXE526A020	14-15
146	5/16	5/16	3/4	2-1/2		.015	VXR506A020015	14-15
147	5/16	5/16	1-1/4	3		.015	VXR516A020015	14-15
148	5/16	5/16	1-5/8	4		.015	VXR526A020015	14-15
149	5/16	5/16	1-1/4	3		.030	VXR516A020030	14-15
150	5/16	5/16	1-5/8	4		.030	VXR526A020030	14-15
151	11/32	3/8	1/2	2-1/2			VXE504A022	6-7
152	11/32	3/8	13/16	2-1/2			VXE514A022	6-7
153	11/32	3/8	1/2	2-1/2		.030	VXR504A022030	6-7
154	11/32	3/8	13/16	2-1/2		.030	VXR514A022030	6-7
155	11/32	3/8	1/2	2-1/2			VXB504A022	6-7
156	11/32	3/8	13/16	2-1/2			VXB514A022	6-7
157	3/8	3/8	1/2	2-1/2			VXE504A024	6-7
158	3/8	3/8	7/8	2-1/2			VXE514A024	6-7
159	3/8	3/8	1	3			VXE524A024	6-7
160	3/8	3/8	1-1/4	3			VXE534A024	6-7
161	3/8	3/8	1/2	2-1/2		.010	VXR504A024010	6-7
162	3/8	3/8	7/8	2-1/2		.010	VXR514A024010	6-7
163	3/8	3/8	1	3		.010	VXR524A024010	6-7
164	3/8	3/8	1-1/4	3		.010	VXR534A024010	6-7
165	3/8	3/8	1/2	2-1/2		.030	VXR504A024030	6-7
166	3/8	3/8	7/8	2-1/2		.030	VXR514A024030	6-7
167	3/8	3/8	1	3		.030	VXR524A024030	6-7
168	3/8	3/8	1-1/4	3		.030	VXR534A024030	6-7
169	3/8	3/8	1/2	2-1/2		.060	VXR504A024060	6-7
170	3/8	3/8	7/8	2-1/2		.060	VXR514A024060	6-7
171	3/8	3/8	1	3		.060	VXR524A024060	6-7
172	3/8	3/8	1-1/4	3		.060	VXR534A024060	6-7
173	3/8	3/8	1/2	2-1/2		.090	VXR504A024090	6-7
174	3/8	3/8	7/8	2-1/2		.090	VXR514A024090	6-7
175	3/8	3/8	1	3		.090	VXR524A024090	6-7
176	3/8	3/8	1-1/4	3		.090	VXR534A024090	6-7
177	3/8	3/8	1/2	2-1/2			VXB504A024	6-7
178	3/8	3/8	7/8	2-1/2			VXB514A024	6-7
179	3/8	3/8	1	3			VXB524A024	6-7
180	3/8	3/8	1-1/4	3			VXB534A024	6-7

No.	D	D2	L1	L2	L3	Radius	EDP NO.	PAGE
181	3/8	3/8	1/2	2-1/2			VXE504A024F	8-9
182	3/8	3/8	7/8	2-1/2			VXE514A024F	8-9
183	3/8	3/8	1/2	2-1/2		.010	VXR504A024010F	8-9
184	3/8	3/8	7/8	2-1/2		.010	VXR514A024010F	8-9
185	3/8	3/8	1/2	2-1/2		.030	VXR504A024030F	8-9
186	3/8	3/8	7/8	2-1/2		.030	VXR514A024030F	8-9
187	3/8	3/8	1/2	2-1/2		.060	VXR504A024060F	8-9
188	3/8	3/8	7/8	2-1/2		.060	VXR514A024060F	8-9
189	3/8	3/8	7/8	2-1/2			VXB514A024F	8-9
190	3/8	3/8	1/2	4	1-1/8		VXE504A024N	10-11
191	3/8	3/8	1/2	4	2-1/8		VXE514A024N	10-11
192	3/8	3/8	1/2	5	3-1/8		VXE524A024N	10-11
193	3/8	3/8	1/2	6	3-1/8		VXE534A024N	10-11
194	3/8	3/8	1/2	6	4-1/8		VXE544A024N	10-11
195	3/8	3/8	1/2	4	1-1/8	.015	VXR504A024015N	10-11
196	3/8	3/8	1/2	4	2-1/8	.015	VXR514A024015N	10-11
197	3/8	3/8	1/2	5	3-1/8	.015	VXR524A024015N	10-11
198	3/8	3/8	1/2	6	3-1/8	.015	VXR534A024015N	10-11
199	3/8	3/8	1/2	6	4-1/8	.015	VXR544A024015N	10-11
200	3/8	3/8	1/2	4	1-1/8	.030	VXR504A024030N	10-11
201	3/8	3/8	1/2	4	2-1/8	.030	VXR514A024030N	10-11
202	3/8	3/8	1/2	5	3-1/8	.030	VXR524A024030N	10-11
203	3/8	3/8	1/2	6	3-1/8	.030	VXR534A024030N	10-11
204	3/8	3/8	1/2	6	4-1/8	.030	VXR544A024030N	10-11
205	3/8	3/8	1/2	4	1-1/8	.060	VXR504A024060N	10-11
206	3/8	3/8	1/2	4	2-1/8	.060	VXR514A024060N	10-11
207	3/8	3/8	1/2	5	3-1/8	.060	VXR524A024060N	10-11
208	3/8	3/8	1/2	6	3-1/8	.060	VXR534A024060N	10-11
209	3/8	3/8	1/2	6	4-1/8	.060	VXR544A024060N	10-11
210	3/8	3/8	1/2	4	1-1/8	.090	VXR504A024090N	10-11
211	3/8	3/8	1/2	4	2-1/8	.090	VXR514A024090N	10-11
212	3/8	3/8	1/2	5	3-1/8	.090	VXR524A024090N	10-11
213	3/8	3/8	1/2	6	3-1/8	.090	VXR534A024090N	10-11
214	3/8	3/8	1/2	6	4-1/8	.090	VXR544A024090N	10-11
215	3/8	3/8	1/2	4	1-1/8		VXB504A024N	10-11
216	3/8	3/8	1/2	4	2-1/8		VXB514A024N	10-11



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Part Numbers by Cutting Diameters(D)

V-STAR Series



NEW VARIABLE HELIX ENDMILLS

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217	3/8	3/8	1/2	5	3-1/8		VXB524A024N	10-11
218	3/8	3/8	1/2	6	3-1/8		VXB534A024N	10-11
219	3/8	3/8	1/2	6	4-1/8		VXB544A024N	10-11
220	3/8	3/8	1/2	4	1-1/8		VXE504A024NF	12
221	3/8	3/8	1/2	4	2-1/8		VXE514A024NF	12
222	3/8	3/8	1/2	5	3-1/8		VXE524A024NF	12
223	3/8	3/8	1/2	6	3-1/8		VXE534A024NF	12
224	3/8	3/8	1/2	6	4-1/8		VXE544A024NF	12
225	3/8	3/8	1/2	4	1-1/8	.030	VXR504A024030NF	12
226	3/8	3/8	1/2	4	2-1/8	.030	VXR514A024030NF	12
227	3/8	3/8	1/2	5	3-1/8	.030	VXR524A024030NF	12
228	3/8	3/8	1/2	6	3-1/8	.030	VXR534A024030NF	12
229	3/8	3/8	1/2	6	4-1/8	.030	VXR544A024030NF	12
230	3/8	3/8	5/8	2-1/2			VXE506A024	14-15
231	3/8	3/8	1	3			VXE516A024	14-15
232	3/8	3/8	1-1/2	4			VXE526A024	14-15
233	3/8	3/8	2	4			VXE536A024	14-15
234	3/8	3/8	5/8	2-1/2		.015	VXR506A024015	14-15
235	3/8	3/8	1	3		.015	VXR516A024015	14-15
236	3/8	3/8	1-1/2	4		.015	VXR526A024015	14-15
237	3/8	3/8	2	4		.015	VXR536A024015	14-15
238	3/8	3/8	5/8	2-1/2		.030	VXR506A024030	14-15
239	3/8	3/8	1	3		.030	VXR516A024030	14-15
240	3/8	3/8	1-1/2	4		.030	VXR526A024030	14-15
241	3/8	3/8	2	4		.030	VXR536A024030	14-15
242	3/8	3/8	5/8	2-1/2		.060	VXR506A024060	14-15
243	3/8	3/8	1	3		.060	VXR516A024060	14-15
244	3/8	3/8	1-1/2	4		.060	VXR526A024060	14-15
245	3/8	3/8	2	4		.060	VXR536A024060	14-15
246	3/8	3/8	5/8	2-1/2		.090	VXR506A024090	14-15
247	3/8	3/8	1	3		.090	VXR516A024090	14-15
248	3/8	3/8	1-1/2	4		.090	VXR526A024090	14-15
249	3/8	3/8	2	4		.090	VXR536A024090	14-15
250	3/8	3/8	1	3			VXE516A024F	16-17
251	3/8	3/8	1-1/2	4			VXE526A024F	16-17
252	3/8	3/8	2	4			VXE536A024F	16-17

No.	D	D2	L1	L2	L3	Radius	EDP NO.	PAGE
253	3/8	3/8	1	3		.015	VXR516A024015F	16-17
254	3/8	3/8	1-1/2	4		.015	VXR526A024015F	16-17
255	3/8	3/8	2	4		.015	VXR536A024015F	16-17
256	3/8	3/8	1	3		.030	VXR516A024030F	16-17
257	3/8	3/8	1-1/2	4		.030	VXR526A024030F	16-17
258	3/8	3/8	2	4		.030	VXR536A024030F	16-17
259	3/8	3/8	1	3		.060	VXR516A024060F	16-17
260	3/8	3/8	1-1/2	4		.060	VXR526A024060F	16-17
261	3/8	3/8	2	4		.060	VXR536A024060F	16-17
262	3/8	3/8	1/2	4	1-1/8		VXE506A024N	18-19
263	3/8	3/8	1/2	4	2-1/8		VXE516A024N	18-19
264	3/8	3/8	1/2	5	3-1/8		VXE526A024N	18-19
265	3/8	3/8	1/2	6	3-1/8		VXE536A024N	18-19
266	3/8	3/8	1/2	6	4-1/8		VXE546A024N	18-19
267	3/8	3/8	1/2	4	1-1/8	.030	VXR506A024030N	18-19
268	3/8	3/8	1/2	4	2-1/8	.030	VXR516A024030N	18-19
269	3/8	3/8	1/2	5	3-1/8	.030	VXR526A024030N	18-19
270	3/8	3/8	1/2	6	3-1/8	.030	VXR536A024030N	18-19
271	3/8	3/8	1/2	6	4-1/8	.030	VXR546A024030N	18-19
272	3/8	3/8	1/2	4	1-1/8	.060	VXR506A024060N	18-19
273	3/8	3/8	1/2	4	2-1/8	.060	VXR516A024060N	18-19
274	3/8	3/8	1/2	5	3-1/8	.060	VXR526A024060N	18-19
275	3/8	3/8	1/2	6	3-1/8	.060	VXR536A024060N	18-19
276	3/8	3/8	1/2	6	4-1/8	.060	VXR546A024060N	18-19
277	3/8	3/8	1/2	4	1-1/8	.090	VXR506A024090N	18-19
278	3/8	3/8	1/2	4	2-1/8	.090	VXR516A024090N	18-19
279	3/8	3/8	1/2	5	3-1/8	.090	VXR526A024090N	18-19
280	3/8	3/8	1/2	6	3-1/8	.090	VXR536A024090N	18-19
281	3/8	3/8	1/2	6	4-1/8	.090	VXR546A024090N	18-19
282	13/32	7/16	1/2	2-3/4			VXE504A026	6-7
283	13/32	7/16	15/16	2-3/4			VXE514A026	6-7
284	13/32	7/16	1/2	2-3/4		.030	VXR504A026030	6-7
285	13/32	7/16	15/16	2-3/4		.030	VXR514A026030	6-7
286	13/32	7/16	1/2	2-3/4			VXB504A026	6-7
287	13/32	7/16	15/16	2-3/4			VXB514A026	6-7
288	7/16	7/16	5/8	2-1/2			VXE504A028	6-7



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Part Numbers by Cutting Diameters(D)

V-STAR Series



NEW VARIABLE HELIX ENDMILLS

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289	7/16	7/16	7/8	2-3/4			VXE514A028	6-7
290	7/16	7/16	1	2-3/4			VXE524A028	6-7
291	7/16	7/16	1	2-3/4		.010	VXR524A028010	6-7
292	7/16	7/16	5/8	2-1/2		.015	VXR504A028015	6-7
293	7/16	7/16	7/8	2-3/4		.015	VXR514A028015	6-7
294	7/16	7/16	5/8	2-1/2		.030	VXR504A028030	6-7
295	7/16	7/16	7/8	2-3/4		.030	VXR514A028030	6-7
296	7/16	7/16	1	2-3/4		.030	VXR524A028030	6-7
297	7/16	7/16	5/8	2-1/2		.060	VXR504A028060	6-7
298	7/16	7/16	7/8	2-3/4		.060	VXR514A028060	6-7
299	7/16	7/16	5/8	2-1/2			VXB504A028	6-7
300	7/16	7/16	7/8	2-3/4			VXB514A028	6-7
301	7/16	7/16	1	2-3/4			VXB524A028	6-7
302	15/32	1/2	5/8	2-1/2			VXE504A030	6-7
303	15/32	1/2	1	3			VXE514A030	6-7
304	15/32	1/2	1-1/4	3-1/2			VXE524A030	6-7
305	15/32	1/2	5/8	2-1/2		.030	VXR504A030030	6-7
306	15/32	1/2	1	3		.030	VXR514A030030	6-7
307	15/32	1/2	1-1/4	3-1/2		.030	VXR524A030030	6-7
308	15/32	1/2	5/8	2-1/2			VXB504A030	6-7
309	15/32	1/2	1	3			VXB514A030	6-7
310	15/32	1/2	1-1/4	3-1/2			VXB524A030	6-7
311	1/2	1/2	5/8	2-1/2			VXE504A032	6-7
312	1/2	1/2	1	3			VXE514A032	6-7
313	1/2	1/2	1-1/4	3-1/4			VXE524A032	6-7
314	1/2	1/2	1-1/4	3-1/2			VXE534A032	6-7
315	1/2	1/2	1-5/8	4			VXE544A032	6-7
316	1/2	1/2	2	4			VXE554A032	6-7
317	1/2	1/2	2-1/2	4-1/2			VXE564A032	6-7
318	1/2	1/2	5/8	2-1/2		.010	VXR504A032010	6-7
319	1/2	1/2	1	3		.010	VXR514A032010	6-7
320	1/2	1/2	1-1/4	3-1/4		.010	VXR524A032010	6-7
321	1/2	1/2	1-1/4	3-1/2		.010	VXR534A032010	6-7
322	1/2	1/2	5/8	2-1/2		.015	VXR504A032015	6-7
323	1/2	1/2	1	3		.015	VXR514A032015	6-7
324	1/2	1/2	1-1/4	3-1/4		.015	VXR524A032015	6-7

No.	D	D2	L1	L2	L3	Radius	EDP NO.	PAGE
325	1/2	1/2	1-1/4	3-1/2		.015	VXR534A032015	6-7
326	1/2	1/2	1-5/8	4		.015	VXR544A032015	6-7
327	1/2	1/2	2	4		.015	VXR554A032015	6-7
328	1/2	1/2	2-1/2	4-1/2		.015	VXR564A032015	6-7
329	1/2	1/2	5/8	2-1/2		.030	VXR504A032030	6-7
330	1/2	1/2	1	3		.030	VXR514A032030	6-7
331	1/2	1/2	1-1/4	3-1/4		.030	VXR524A032030	6-7
332	1/2	1/2	1-1/4	3-1/2		.030	VXR534A032030	6-7
333	1/2	1/2	1-5/8	4		.030	VXR544A032030	6-7
334	1/2	1/2	2	4		.030	VXR554A032030	6-7
335	1/2	1/2	2-1/2	4-1/2		.030	VXR564A032030	6-7
336	1/2	1/2	5/8	2-1/2		.060	VXR504A032060	6-7
337	1/2	1/2	1	3		.060	VXR514A032060	6-7
338	1/2	1/2	1-1/4	3-1/4		.060	VXR524A032060	6-7
339	1/2	1/2	1-1/4	3-1/2		.060	VXR534A032060	6-7
340	1/2	1/2	1-5/8	4		.060	VXR544A032060	6-7
341	1/2	1/2	2	4		.060	VXR554A032060	6-7
342	1/2	1/2	2-1/2	4-1/2		.060	VXR564A032060	6-7
343	1/2	1/2	5/8	2-1/2		.090	VXR504A032090	6-7
344	1/2	1/2	1	3		.090	VXR514A032090	6-7
345	1/2	1/2	1-1/4	3-1/4		.090	VXR524A032090	6-7
346	1/2	1/2	1-1/4	3-1/2		.090	VXR534A032090	6-7
347	1/2	1/2	1-5/8	4		.090	VXR544A032090	6-7
348	1/2	1/2	2	4		.090	VXR554A032090	6-7
349	1/2	1/2	2-1/2	4-1/2		.090	VXR564A032090	6-7
350	1/2	1/2	5/8	2-1/2		.125	VXR504A032125	6-7
351	1/2	1/2	1	3		.125	VXR514A032125	6-7
352	1/2	1/2	1-1/4	3-1/4		.125	VXR524A032125	6-7
353	1/2	1/2	1-1/4	3-1/2		.125	VXR534A032125	6-7
354	1/2	1/2	1-5/8	4		.125	VXR544A032125	6-7
355	1/2	1/2	2	4		.125	VXR554A032125	6-7
356	1/2	1/2	2-1/2	4-1/2		.125	VXR564A032125	6-7
357	1/2	1/2	5/8	2-1/2			VXB504A032	6-7
358	1/2	1/2	1	3			VXB514A032	6-7
359	1/2	1/2	1-1/4	3-1/4			VXB524A032	6-7
360	1/2	1/2	1-1/4	3-1/2			VXB534A032	6-7



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Part Numbers by Cutting Diameters(D)

V-STAR Series



NEW VARIABLE HELIX ENDMILLS

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361	1/2	1/2	1-5/8	4			VXB544A032	6-7
362	1/2	1/2	2	4			VXB554A032	6-7
363	1/2	1/2	2-1/2	4-1/2			VXB564A032	6-7
364	1/2	1/2	5/8	2-1/2			VXE504A032F	8-9
365	1/2	1/2	1	3			VXE514A032F	8-9
366	1/2	1/2	1-1/4	3-1/4			VXE524A032F	8-9
367	1/2	1/2	1-1/4	3-1/2			VXE534A032F	8-9
368	1/2	1/2	2	4			VXE554A032F	8-9
369	1/2	1/2	2-1/2	4-1/2			VXE564A032F	8-9
370	1/2	1/2	5/8	2-1/2		.010	VXR504A032010F	8-9
371	1/2	1/2	1	3		.010	VXR514A032010F	8-9
372	1/2	1/2	1-1/4	3-1/4		.010	VXR524A032010F	8-9
373	1/2	1/2	1-1/4	3-1/2		.010	VXR534A032010F	8-9
374	1/2	1/2	5/8	2-1/2		.015	VXR504A032015F	8-9
375	1/2	1/2	1-1/4	3-1/4		.015	VXR524A032015F	8-9
376	1/2	1/2	1-1/4	3-1/2		.015	VXR534A032015F	8-9
377	1/2	1/2	2	4		.015	VXR554A032015F	8-9
378	1/2	1/2	2-1/2	4-1/2		.015	VXR564A032015F	8-9
379	1/2	1/2	5/8	2-1/2		.030	VXR504A032030F	8-9
380	1/2	1/2	1	3		.030	VXR514A032030F	8-9
381	1/2	1/2	1-1/4	3-1/4		.030	VXR524A032030F	8-9
382	1/2	1/2	1-1/4	3-1/2		.030	VXR534A032030F	8-9
383	1/2	1/2	2	4		.030	VXR554A032030F	8-9
384	1/2	1/2	2-1/2	4-1/2		.030	VXR564A032030F	8-9
385	1/2	1/2	5/8	2-1/2		.060	VXR504A032060F	8-9
386	1/2	1/2	1	3		.060	VXR514A032060F	8-9
387	1/2	1/2	1-1/4	3-1/4		.060	VXR524A032060F	8-9
388	1/2	1/2	1-1/4	3-1/2		.060	VXR534A032060F	8-9
389	1/2	1/2	2	4		.060	VXR554A032060F	8-9
390	1/2	1/2	2-1/2	4-1/2		.060	VXR564A032060F	8-9
391	1/2	1/2	1-1/4	3-1/2		.090	VXR534A032090F	8-9
392	1/2	1/2	2	4		.090	VXR554A032090F	8-9
393	1/2	1/2	2-1/2	4-1/2		.090	VXR564A032090F	8-9
394	1/2	1/2	1	3		.125	VXR514A032125F	8-9
395	1/2	1/2	1-1/4	3-1/4		.125	VXR524A032125F	8-9
396	1/2	1/2	1-1/4	3-1/2		.125	VXR534A032125F	8-9

No.	D	D2	L1	L2	L3	Radius	EDP NO.	PAGE
397	1/2	1/2	2	4		.125	VXR554A032125F	8-9
398	1/2	1/2	2-1/2	4-1/2		.125	VXR564A032125F	8-9
399	1/2	1/2	1	3			VXB514A032F	8-9
400	1/2	1/2	1-1/4	3-1/2			VXB534A032F	8-9
401	1/2	1/2	2	4			VXB554A032F	8-9
402	1/2	1/2	2-1/2	4-1/2			VXB564A032F	8-9
403	1/2	1/2	5/8	4	1-1/8		VXE504A032N	10-11
404	1/2	1/2	5/8	4	2-1/8		VXE514A032N	10-11
405	1/2	1/2	5/8	5	3-1/8		VXE524A032N	10-11
406	1/2	1/2	5/8	6	3-1/8		VXE534A032N	10-11
407	1/2	1/2	5/8	6	4-1/8		VXE544A032N	10-11
408	1/2	1/2	5/8	4	1-1/8	.015	VXR504A032015N	10-11
409	1/2	1/2	5/8	4	2-1/8	.015	VXR514A032015N	10-11
410	1/2	1/2	5/8	5	3-1/8	.015	VXR524A032015N	10-11
411	1/2	1/2	5/8	6	3-1/8	.015	VXR534A032015N	10-11
412	1/2	1/2	5/8	6	4-1/8	.015	VXR544A032015N	10-11
413	1/2	1/2	5/8	4	1-1/8	.030	VXR504A032030N	10-11
414	1/2	1/2	5/8	4	2-1/8	.030	VXR514A032030N	10-11
415	1/2	1/2	5/8	5	3-1/8	.030	VXR524A032030N	10-11
416	1/2	1/2	5/8	6	3-1/8	.030	VXR534A032030N	10-11
417	1/2	1/2	5/8	6	4-1/8	.030	VXR544A032030N	10-11
418	1/2	1/2	5/8	4	1-1/8	.060	VXR504A032060N	10-11
419	1/2	1/2	5/8	4	2-1/8	.060	VXR514A032060N	10-11
420	1/2	1/2	5/8	5	3-1/8	.060	VXR524A032060N	10-11
421	1/2	1/2	5/8	6	3-1/8	.060	VXR534A032060N	10-11
422	1/2	1/2	5/8	6	4-1/8	.060	VXR544A032060N	10-11
423	1/2	1/2	5/8	4	1-1/8	.090	VXR504A032090N	10-11
424	1/2	1/2	5/8	4	2-1/8	.090	VXR514A032090N	10-11
425	1/2	1/2	5/8	5	3-1/8	.090	VXR524A032090N	10-11
426	1/2	1/2	5/8	6	3-1/8	.090	VXR534A032090N	10-11
427	1/2	1/2	5/8	6	4-1/8	.090	VXR544A032090N	10-11
428	1/2	1/2	5/8	4	1-1/8	.125	VXR504A032125N	10-11
429	1/2	1/2	5/8	4	2-1/8	.125	VXR514A032125N	10-11
430	1/2	1/2	5/8	5	3-1/8	.125	VXR524A032125N	10-11
431	1/2	1/2	5/8	6	3-1/8	.125	VXR534A032125N	10-11
432	1/2	1/2	5/8	6	4-1/8	.125	VXR544A032125N	10-11



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Part Numbers by Cutting Diameters(D)

V-STAR Series



NEW VARIABLE HELIX ENDMILLS

No.	D	D2	L1	L2	L3	Radius	EDP NO.	PAGE
397	1/2	1/2	2	4		.125	VXR554A032125F	8-9
398	1/2	1/2	2-1/2	4-1/2		.125	VXR564A032125F	8-9
399	1/2	1/2	1	3			VXB514A032F	8-9
400	1/2	1/2	1-1/4	3-1/2			VXB534A032F	8-9
401	1/2	1/2	2	4			VXB554A032F	8-9
402	1/2	1/2	2-1/2	4-1/2			VXB564A032F	8-9
403	1/2	1/2	5/8	4	1-1/8		VXE504A032N	10-11
404	1/2	1/2	5/8	4	2-1/8		VXE514A032N	10-11
405	1/2	1/2	5/8	5	3-1/8		VXE524A032N	10-11
406	1/2	1/2	5/8	6	3-1/8		VXE534A032N	10-11
407	1/2	1/2	5/8	6	4-1/8		VXE544A032N	10-11
408	1/2	1/2	5/8	4	1-1/8	.015	VXR504A032015N	10-11
409	1/2	1/2	5/8	4	2-1/8	.015	VXR514A032015N	10-11
410	1/2	1/2	5/8	5	3-1/8	.015	VXR524A032015N	10-11
411	1/2	1/2	5/8	6	3-1/8	.015	VXR534A032015N	10-11
412	1/2	1/2	5/8	6	4-1/8	.015	VXR544A032015N	10-11
413	1/2	1/2	5/8	4	1-1/8	.030	VXR504A032030N	10-11
414	1/2	1/2	5/8	4	2-1/8	.030	VXR514A032030N	10-11
415	1/2	1/2	5/8	5	3-1/8	.030	VXR524A032030N	10-11
416	1/2	1/2	5/8	6	3-1/8	.030	VXR534A032030N	10-11
417	1/2	1/2	5/8	6	4-1/8	.030	VXR544A032030N	10-11
418	1/2	1/2	5/8	4	1-1/8	.060	VXR504A032060N	10-11
419	1/2	1/2	5/8	4	2-1/8	.060	VXR514A032060N	10-11
420	1/2	1/2	5/8	5	3-1/8	.060	VXR524A032060N	10-11
421	1/2	1/2	5/8	6	3-1/8	.060	VXR534A032060N	10-11
422	1/2	1/2	5/8	6	4-1/8	.060	VXR544A032060N	10-11
423	1/2	1/2	5/8	4	1-1/8	.090	VXR504A032090N	10-11
424	1/2	1/2	5/8	4	2-1/8	.090	VXR514A032090N	10-11
425	1/2	1/2	5/8	5	3-1/8	.090	VXR524A032090N	10-11
426	1/2	1/2	5/8	6	3-1/8	.090	VXR534A032090N	10-11
427	1/2	1/2	5/8	6	4-1/8	.090	VXR544A032090N	10-11
428	1/2	1/2	5/8	4	1-1/8	.125	VXR504A032125N	10-11
429	1/2	1/2	5/8	4	2-1/8	.125	VXR514A032125N	10-11
430	1/2	1/2	5/8	5	3-1/8	.125	VXR524A032125N	10-11
431	1/2	1/2	5/8	6	3-1/8	.125	VXR534A032125N	10-11
432	1/2	1/2	5/8	6	4-1/8	.125	VXR544A032125N	10-11

No.	D	D2	L1	L2	L3	Radius	EDP NO.	PAGE
433	1/2	1/2	5/8	4	1-1/8		VXB504A032N	10-11
434	1/2	1/2	5/8	4	2-1/8		VXB514A032N	10-11
435	1/2	1/2	5/8	5	3-1/8		VXB524A032N	10-11
436	1/2	1/2	5/8	6	3-1/8		VXB534A032N	10-11
437	1/2	1/2	5/8	6	4-1/8		VXB544A032N	10-11
438	1/2	1/2	5/8	4	1-1/8		VXE504A032NF	12
439	1/2	1/2	5/8	4	2-1/8		VXE514A032NF	12
440	1/2	1/2	5/8	5	3-1/8		VXE524A032NF	12
441	1/2	1/2	5/8	6	3-1/8		VXE534A032NF	12
442	1/2	1/2	5/8	6	4-1/8		VXE544A032NF	12
443	1/2	1/2	5/8	4	1-1/8	.030	VXR504A032030NF	12
444	1/2	1/2	5/8	4	2-1/8	.030	VXR514A032030NF	12
445	1/2	1/2	5/8	5	3-1/8	.030	VXR524A032030NF	12
446	1/2	1/2	5/8	6	3-1/8	.030	VXR534A032030NF	12
447	1/2	1/2	5/8	6	4-1/8	.030	VXR544A032030NF	12
448	1/2	1/2	5/8	3			VXE506A032	14-15
449	1/2	1/2	1	3			VXE516A032	14-15
450	1/2	1/2	1-1/4	3-1/2			VXE526A032	14-15
451	1/2	1/2	2	4			VXE536A032	14-15
452	1/2	1/2	2-5/8	5			VXE546A032	14-15
453	1/2	1/2	3	5			VXE556A032	14-15
454	1/2	1/2	5/8	3		.015	VXR506A032015	14-15
455	1/2	1/2	1	3		.015	VXR516A032015	14-15
456	1/2	1/2	1-1/4	3-1/2		.015	VXR526A032015	14-15
457	1/2	1/2	2	4		.015	VXR536A032015	14-15
458	1/2	1/2	2-5/8	5		.015	VXR546A032015	14-15
459	1/2	1/2	3	5		.015	VXR556A032015	14-15
460	1/2	1/2	5/8	3		.030	VXR506A032030	14-15
461	1/2	1/2	1	3		.030	VXR516A032030	14-15
462	1/2	1/2	1-1/4	3-1/2		.030	VXR526A032030	14-15
463	1/2	1/2	2	4		.030	VXR536A032030	14-15
464	1/2	1/2	2-5/8	5		.030	VXR546A032030	14-15
465	1/2	1/2	3	5		.030	VXR556A032030	14-15
466	1/2	1/2	5/8	3		.060	VXR506A032060	14-15
467	1/2	1/2	1	3		.060	VXR516A032060	14-15
468	1/2	1/2	1-1/4	3-1/2		.060	VXR526A032060	14-15



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Part Numbers by Cutting Diameters(D)

V-STAR Series



NEW VARIABLE HELIX ENDMILLS

No.	D	D2	L1	L2	L3	Radius	EDP NO.	PAGE
469	1/2	1/2	2	4		.060	VXR536A032060	14-15
470	1/2	1/2	2-5/8	5		.060	VXR546A032060	14-15
471	1/2	1/2	3	5		.060	VXR556A032060	14-15
472	1/2	1/2	5/8	3		.090	VXR506A032090	14-15
473	1/2	1/2	1	3		.090	VXR516A032090	14-15
474	1/2	1/2	1-1/4	3-1/2		.090	VXR526A032090	14-15
475	1/2	1/2	2	4		.090	VXR536A032090	14-15
476	1/2	1/2	2-5/8	5		.090	VXR546A032090	14-15
477	1/2	1/2	3	5		.090	VXR556A032090	14-15
478	1/2	1/2	5/8	3		.125	VXR506A032125	14-15
479	1/2	1/2	1	3		.125	VXR516A032125	14-15
480	1/2	1/2	1-1/4	3-1/2		.125	VXR526A032125	14-15
481	1/2	1/2	2	4		.125	VXR536A032125	14-15
482	1/2	1/2	2-5/8	5		.125	VXR546A032125	14-15
483	1/2	1/2	3	5		.125	VXR556A032125	14-15
484	1/2	1/2	1	3			VXE516A032F	16-17
485	1/2	1/2	1-1/4	3-1/2			VXE526A032F	16-17
486	1/2	1/2	2	4			VXE536A032F	16-17
487	1/2	1/2	3	5			VXE546A032F	16-17
488	1/2	1/2	1	3		.015	VXR516A032015F	16-17
489	1/2	1/2	1	3		.030	VXR516A032030F	16-17
490	1/2	1/2	1-1/4	3-1/2		.030	VXR526A032030F	16-17
491	1/2	1/2	2	4		.030	VXR536A032030F	16-17
492	1/2	1/2	3	5		.030	VXR546A032030F	16-17
493	1/2	1/2	1	3		.060	VXR516A032060F	16-17
494	1/2	1/2	1-1/4	3-1/2		.060	VXR526A032060F	16-17
495	1/2	1/2	2	4		.060	VXR536A032060F	16-17
496	1/2	1/2	3	5		.060	VXR546A032060F	16-17
497	1/2	1/2	1	3		.090	VXR516A032090F	16-17
498	1/2	1/2	1-1/4	3-1/2		.090	VXR526A032090F	16-17
499	1/2	1/2	2	4		.090	VXR536A032090F	16-17
500	1/2	1/2	3	5		.090	VXR546A032090F	16-17
501	1/2	1/2	1	3		.125	VXR516A032125F	16-17
502	1/2	1/2	1-1/4	3-1/2		.125	VXR526A032125F	16-17
503	1/2	1/2	2	4		.125	VXR536A032125F	16-17
504	1/2	1/2	3	5		.125	VXR546A032125F	16-17

No.	D	D2	L1	L2	L3	Radius	EDP NO.	PAGE
505	1/2	1/2	5/8	4	1-1/8		VXE506A032N	18-19
506	1/2	1/2	5/8	4	2-1/8		VXE516A032N	18-19
507	1/2	1/2	5/8	5	3-1/8		VXE526A032N	18-19
508	1/2	1/2	5/8	6	3-1/8		VXE536A032N	18-19
509	1/2	1/2	5/8	6	4-1/8		VXE546A032N	18-19
510	1/2	1/2	5/8	4	1-1/8	.030	VXR506A032030N	18-19
511	1/2	1/2	5/8	4	2-1/8	.030	VXR516A032030N	18-19
512	1/2	1/2	5/8	5	3-1/8	.030	VXR526A032030N	18-19
513	1/2	1/2	5/8	6	3-1/8	.030	VXR536A032030N	18-19
514	1/2	1/2	5/8	6	4-1/8	.030	VXR546A032030N	18-19
515	1/2	1/2	5/8	4	1-1/8	.060	VXR506A032060N	18-19
516	1/2	1/2	5/8	4	2-1/8	.060	VXR516A032060N	18-19
517	1/2	1/2	5/8	5	3-1/8	.060	VXR526A032060N	18-19
518	1/2	1/2	5/8	6	3-1/8	.060	VXR536A032060N	18-19
519	1/2	1/2	5/8	6	4-1/8	.060	VXR546A032060N	18-19
520	1/2	1/2	5/8	4	1-1/8	.090	VXR506A032090N	18-19
521	1/2	1/2	5/8	4	2-1/8	.090	VXR516A032090N	18-19
522	1/2	1/2	5/8	5	3-1/8	.090	VXR526A032090N	18-19
523	1/2	1/2	5/8	6	3-1/8	.090	VXR536A032090N	18-19
524	1/2	1/2	5/8	6	4-1/8	.090	VXR546A032090N	18-19
525	1/2	1/2	5/8	4	1-1/8	.125	VXR506A032125N	18-19
526	1/2	1/2	5/8	4	2-1/8	.125	VXR516A032125N	18-19
527	1/2	1/2	5/8	5	3-1/8	.125	VXR526A032125N	18-19
528	1/2	1/2	5/8	6	3-1/8	.125	VXR536A032125N	18-19
529	1/2	1/2	5/8	6	4-1/8	.125	VXR546A032125N	18-19
530	5/8	5/8	3/4	3			VXE504A040	6-7
531	5/8	5/8	1-1/4	3-1/2			VXE514A040	6-7
532	5/8	5/8	1-5/8	4			VXE524A040	6-7
533	5/8	5/8	2	4			VXE534A040	6-7
534	5/8	5/8	3-1/4	6			VXE544A040	6-7
535	5/8	5/8	3/4	3		.010	VXR504A040010	6-7
536	5/8	5/8	1-1/4	3-1/2		.010	VXR514A040010	6-7
537	5/8	5/8	3/4	3		.015	VXR504A040015	6-7
538	5/8	5/8	1-1/4	3-1/2		.015	VXR514A040015	6-7
539	5/8	5/8	1-5/8	4		.015	VXR524A040015	6-7
540	5/8	5/8	2	4		.015	VXR534A040015	6-7



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Part Numbers by Cutting Diameters(D)

V-STAR Series



NEW VARIABLE HELIX ENDMILLS

No.	D	D2	L1	L2	L3	Radius	EDP NO.	PAGE
541	5/8	5/8	3-1/4	6		.015	VXR544A040015	6-7
542	5/8	5/8	3/4	3		.030	VXR504A040030	6-7
543	5/8	5/8	1-1/4	3-1/2		.030	VXR514A040030	6-7
544	5/8	5/8	1-5/8	4		.030	VXR524A040030	6-7
545	5/8	5/8	2	4		.030	VXR534A040030	6-7
546	5/8	5/8	3-1/4	6		.030	VXR544A040030	6-7
547	5/8	5/8	3/4	3		.060	VXR504A040060	6-7
548	5/8	5/8	1-1/4	3-1/2		.060	VXR514A040060	6-7
549	5/8	5/8	1-5/8	4		.060	VXR524A040060	6-7
550	5/8	5/8	2	4		.060	VXR534A040060	6-7
551	5/8	5/8	3-1/4	6		.060	VXR544A040060	6-7
552	5/8	5/8	3/4	3		.090	VXR504A040090	6-7
553	5/8	5/8	1-1/4	3-1/2		.090	VXR514A040090	6-7
554	5/8	5/8	1-5/8	4		.090	VXR524A040090	6-7
555	5/8	5/8	2	4		.090	VXR534A040090	6-7
556	5/8	5/8	3-1/4	6		.090	VXR544A040090	6-7
557	5/8	5/8	3/4	3		.125	VXR504A040125	6-7
558	5/8	5/8	1-1/4	3-1/2		.125	VXR514A040125	6-7
559	5/8	5/8	1-5/8	4		.125	VXR524A040125	6-7
560	5/8	5/8	2	4		.125	VXR534A040125	6-7
561	5/8	5/8	3-1/4	6		.125	VXR544A040125	6-7
562	5/8	5/8	3/4	3			VXB504A040	6-7
563	5/8	5/8	1-1/4	3-1/2			VXB514A040	6-7
564	5/8	5/8	1-5/8	4			VXB524A040	6-7
565	5/8	5/8	2	4			VXB534A040	6-7
566	5/8	5/8	3-1/4	6			VXB544A040	6-7
567	5/8	5/8	3/4	3			VXE504A040F	8-9
568	5/8	5/8	1-1/4	3-1/2			VXE514A040F	8-9
569	5/8	5/8	3/4	3		.010	VXR504A040010F	8-9
570	5/8	5/8	1-1/4	3-1/2		.010	VXR514A040010F	8-9
571	5/8	5/8	1-1/4	3-1/2		.015	VXR514A040015F	8-9
572	5/8	5/8	3/4	3		.030	VXR504A040030F	8-9
573	5/8	5/8	1-1/4	3-1/2		.030	VXR514A040030F	8-9
574	5/8	5/8	3/4	3		.060	VXR504A040060F	8-9
575	5/8	5/8	1-1/4	3-1/2		.060	VXR514A040060F	8-9
576	5/8	5/8	1-1/4	3-1/2		.125	VXR514A040125F	8-9

No.	D	D2	L1	L2	L3	Radius	EDP NO.	PAGE
577	5/8	5/8	1-1/4	3-1/2			VXB514A040F	8-9
578	5/8	5/8	3/4	4	1-5/8		VXE504A040N	10-11
579	5/8	5/8	3/4	5	2-3/8		VXE514A040N	10-11
580	5/8	5/8	3/4	5	3-3/8		VXE524A040N	10-11
581	5/8	5/8	3/4	6	2-3/8		VXE534A040N	10-11
582	5/8	5/8	3/4	6	3-3/8		VXE544A040N	10-11
583	5/8	5/8	3/4	4	1-5/8	.030	VXR504A040030N	10-11
584	5/8	5/8	3/4	5	2-3/8	.030	VXR514A040030N	10-11
585	5/8	5/8	3/4	5	3-3/8	.030	VXR524A040030N	10-11
586	5/8	5/8	3/4	6	2-3/8	.030	VXR534A040030N	10-11
587	5/8	5/8	3/4	6	3-3/8	.030	VXR544A040030N	10-11
588	5/8	5/8	3/4	4	1-5/8	.060	VXR504A040060N	10-11
589	5/8	5/8	3/4	5	2-3/8	.060	VXR514A040060N	10-11
590	5/8	5/8	3/4	5	3-3/8	.060	VXR524A040060N	10-11
591	5/8	5/8	3/4	6	2-3/8	.060	VXR534A040060N	10-11
592	5/8	5/8	3/4	6	3-3/8	.060	VXR544A040060N	10-11
593	5/8	5/8	3/4	4	1-5/8	.090	VXR504A040090N	10-11
594	5/8	5/8	3/4	5	2-3/8	.090	VXR514A040090N	10-11
595	5/8	5/8	3/4	5	3-3/8	.090	VXR524A040090N	10-11
596	5/8	5/8	3/4	6	2-3/8	.090	VXR534A040090N	10-11
597	5/8	5/8	3/4	6	3-3/8	.090	VXR544A040090N	10-11
598	5/8	5/8	3/4	4	1-5/8	.125	VXR504A040125N	10-11
599	5/8	5/8	3/4	5	2-3/8	.125	VXR514A040125N	10-11
600	5/8	5/8	3/4	5	3-3/8	.125	VXR524A040125N	10-11
601	5/8	5/8	3/4	6	2-3/8	.125	VXR534A040125N	10-11
602	5/8	5/8	3/4	6	3-3/8	.125	VXR544A040125N	10-11
603	5/8	5/8	3/4	4	1-5/8		VXB504A040N	10-11
604	5/8	5/8	3/4	5	2-3/8		VXB514A040N	10-11
605	5/8	5/8	3/4	5	3-3/8		VXB524A040N	10-11
606	5/8	5/8	3/4	6	2-3/8		VXB534A040N	10-11
607	5/8	5/8	3/4	6	3-3/8		VXB544A040N	10-11
608	5/8	5/8	3/4	4	1-5/8		VXE504A040NF	12
609	5/8	5/8	3/4	5	2-3/8		VXE514A040NF	12
610	5/8	5/8	3/4	5	3-3/8		VXE524A040NF	12
611	5/8	5/8	3/4	6	2-3/8		VXE534A040NF	12
612	5/8	5/8	3/4	6	3-3/8		VXE544A040NF	12



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Part Numbers by Cutting Diameters(D)

V-STAR Series



NEW VARIABLE HELIX ENDMILLS

No.	D	D2	L1	L2	L3	Radius	EDP NO.	PAGE
613	5/8	5/8	3/4	4	1-5/8	.030	VXR504A040030NF	12
614	5/8	5/8	3/4	5	2-3/8	.030	VXR514A040030NF	12
615	5/8	5/8	3/4	5	3-3/8	.030	VXR524A040030NF	12
616	5/8	5/8	3/4	6	2-3/8	.030	VXR534A040030NF	12
617	5/8	5/8	3/4	6	3-3/8	.030	VXR544A040030NF	12
618	5/8	5/8	1-1/4	3-1/2			VXE506A040	14-15
619	5/8	5/8	2	4			VXE516A040	14-15
620	5/8	5/8	3	5			VXE526A040	14-15
621	5/8	5/8	1-1/4	3-1/2		.015	VXR506A040015	14-15
622	5/8	5/8	2	4		.015	VXR516A040015	14-15
623	5/8	5/8	3	5		.015	VXR526A040015	14-15
624	5/8	5/8	1-1/4	3-1/2		.030	VXR506A040030	14-15
625	5/8	5/8	2	4		.030	VXR516A040030	14-15
626	5/8	5/8	3	5		.030	VXR526A040030	14-15
627	5/8	5/8	1-1/4	3-1/2		.060	VXR506A040060	14-15
628	5/8	5/8	2	4		.060	VXR516A040060	14-15
629	5/8	5/8	3	5		.060	VXR526A040060	14-15
630	5/8	5/8	1-1/4	3-1/2		.090	VXR506A040090	14-15
631	5/8	5/8	2	4		.090	VXR516A040090	14-15
632	5/8	5/8	3	5		.090	VXR526A040090	14-15
633	5/8	5/8	1-1/4	3-1/2		.125	VXR506A040125	14-15
634	5/8	5/8	2	4		.125	VXR516A040125	14-15
635	5/8	5/8	3	5		.125	VXR526A040125	14-15
636	5/8	5/8	1-1/4	3-1/2			VXE506A040F	16-17
637	5/8	5/8	2	4			VXE516A040F	16-17
638	5/8	5/8	3	5			VXE526A040F	16-17
639	5/8	5/8	1-1/4	3-1/2		.030	VXR506A040030F	16-17
640	5/8	5/8	2	4		.030	VXR516A040030F	16-17
641	5/8	5/8	3	5		.030	VXR526A040030F	16-17
642	5/8	5/8	1-1/4	3-1/2		.060	VXR506A040060F	16-17
643	5/8	5/8	2	4		.060	VXR516A040060F	16-17
644	5/8	5/8	3	5		.060	VXR526A040060F	16-17
645	5/8	5/8	1-1/4	3-1/2		.090	VXR506A040090F	16-17
646	5/8	5/8	2	4		.090	VXR516A040090F	16-17
647	5/8	5/8	3	5		.090	VXR526A040090F	16-17
648	5/8	5/8	1-1/4	3-1/2		.125	VXR506A040125F	16-17

No.	D	D2	L1	L2	L3	Radius	EDP NO.	PAGE
649	5/8	5/8	2	4		.125	VXR516A040125F	16-17
650	5/8	5/8	3	5		.125	VXR526A040125F	16-17
651	5/8	5/8	3/4	4	1-5/8		VXE506A040N	18-19
652	5/8	5/8	3/4	5	2-3/8		VXE516A040N	18-19
653	5/8	5/8	3/4	5	3-3/8		VXE526A040N	18-19
654	5/8	5/8	3/4	6	2-3/8		VXE536A040N	18-19
655	5/8	5/8	3/4	6	3-3/8		VXE546A040N	18-19
656	5/8	5/8	3/4	4	1-5/8	.030	VXR506A040030N	18-19
657	5/8	5/8	3/4	5	2-3/8	.030	VXR516A040030N	18-19
658	5/8	5/8	3/4	5	3-3/8	.030	VXR526A040030N	18-19
659	5/8	5/8	3/4	6	2-3/8	.030	VXR536A040030N	18-19
660	5/8	5/8	3/4	6	3-3/8	.030	VXR546A040030N	18-19
661	5/8	5/8	3/4	4	1-5/8	.060	VXR506A040060N	18-19
662	5/8	5/8	3/4	5	2-3/8	.060	VXR516A040060N	18-19
663	5/8	5/8	3/4	5	3-3/8	.060	VXR526A040060N	18-19
664	5/8	5/8	3/4	6	2-3/8	.060	VXR536A040060N	18-19
665	5/8	5/8	3/4	6	3-3/8	.060	VXR546A040060N	18-19
666	5/8	5/8	3/4	4	1-5/8	.090	VXR506A040090N	18-19
667	5/8	5/8	3/4	5	2-3/8	.090	VXR516A040090N	18-19
668	5/8	5/8	3/4	5	3-3/8	.090	VXR526A040090N	18-19
669	5/8	5/8	3/4	6	2-3/8	.090	VXR536A040090N	18-19
670	5/8	5/8	3/4	6	3-3/8	.090	VXR546A040090N	18-19
671	5/8	5/8	3/4	4	1-5/8	.125	VXR506A040125N	18-19
672	5/8	5/8	3/4	5	2-3/8	.125	VXR516A040125N	18-19
673	5/8	5/8	3/4	5	3-3/8	.125	VXR526A040125N	18-19
674	5/8	5/8	3/4	6	2-3/8	.125	VXR536A040125N	18-19
675	5/8	5/8	3/4	6	3-3/8	.125	VXR546A040125N	18-19
676	3/4	3/4	3/4	3			VXE504A048	6-7
677	3/4	3/4	1-1/2	4			VXE514A048	6-7
678	3/4	3/4	1-7/8	4			VXE524A048	6-7
679	3/4	3/4	2-1/4	5			VXE534A048	6-7
680	3/4	3/4	3-1/4	6			VXE544A048	6-7
681	3/4	3/4	3/4	3		.015	VXR504A048015	6-7
682	3/4	3/4	1-1/2	4		.015	VXR514A048015	6-7
683	3/4	3/4	1-7/8	4		.015	VXR524A048015	6-7
684	3/4	3/4	2-1/4	5		.015	VXR534A048015	6-7



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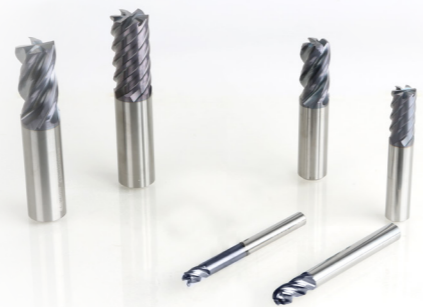


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Part Numbers by Cutting Diameters(D)

V-STAR Series



NEW VARIABLE HELIX ENDMILLS

No.	D	D2	L1	L2	L3	Radius	EDP NO.	PAGE
685	3/4	3/4	3-1/4	6		.015	VXR544A048015	6-7
686	3/4	3/4	3/4	3		.030	VXR504A048030	6-7
687	3/4	3/4	1-1/2	4		.030	VXR514A048030	6-7
688	3/4	3/4	1-7/8	4		.030	VXR524A048030	6-7
689	3/4	3/4	2-1/4	5		.030	VXR534A048030	6-7
690	3/4	3/4	3-1/4	6		.030	VXR544A048030	6-7
691	3/4	3/4	3/4	3		.060	VXR504A048060	6-7
692	3/4	3/4	1-1/2	4		.060	VXR514A048060	6-7
693	3/4	3/4	1-7/8	4		.060	VXR524A048060	6-7
694	3/4	3/4	2-1/4	5		.060	VXR534A048060	6-7
695	3/4	3/4	3-1/4	6		.060	VXR544A048060	6-7
696	3/4	3/4	3/4	3		.090	VXR504A048090	6-7
697	3/4	3/4	1-1/2	4		.090	VXR514A048090	6-7
698	3/4	3/4	1-7/8	4		.090	VXR524A048090	6-7
699	3/4	3/4	2-1/4	5		.090	VXR534A048090	6-7
700	3/4	3/4	3-1/4	6		.090	VXR544A048090	6-7
701	3/4	3/4	3/4	3		.125	VXR504A048125	6-7
702	3/4	3/4	1-1/2	4		.125	VXR514A048125	6-7
703	3/4	3/4	1-7/8	4		.125	VXR524A048125	6-7
704	3/4	3/4	2-1/4	5		.125	VXR534A048125	6-7
705	3/4	3/4	3-1/4	6		.125	VXR544A048125	6-7
706	3/4	3/4	3/4	3		.190	VXR504A048190	6-7
707	3/4	3/4	1-1/2	4		.190	VXR514A048190	6-7
708	3/4	3/4	1-7/8	4		.190	VXR524A048190	6-7
709	3/4	3/4	2-1/4	5		.190	VXR534A048190	6-7
710	3/4	3/4	3-1/4	6		.190	VXR544A048190	6-7
711	3/4	3/4	3/4	3		.250	VXR504A048250	6-7
712	3/4	3/4	1-1/2	4		.250	VXR514A048250	6-7
713	3/4	3/4	1-7/8	4		.250	VXR524A048250	6-7
714	3/4	3/4	2-1/4	5		.250	VXR534A048250	6-7
715	3/4	3/4	3-1/4	6		.250	VXR544A048250	6-7
716	3/4	3/4	3/4	3			VXB504A048	6-7
717	3/4	3/4	1-1/2	4			VXB514A048	6-7
718	3/4	3/4	1-7/8	4			VXB524A048	6-7
719	3/4	3/4	2-1/4	5			VXB534A048	6-7
720	3/4	3/4	3-1/4	6			VXB544A048	6-7

No.	D	D2	L1	L2	L3	Radius	EDP NO.	PAGE
721	3/4	3/4	3/4	3			VXE504A048F	8-9
722	3/4	3/4	1-1/2	4			VXE514A048F	8-9
723	3/4	3/4	2-1/4	5			VXE534A048F	8-9
724	3/4	3/4	1-1/2	4		.015	VXR514A048015F	8-9
725	3/4	3/4	3/4	3		.030	VXR504A048030F	8-9
726	3/4	3/4	1-1/2	4		.030	VXR514A048030F	8-9
727	3/4	3/4	2-1/4	5		.030	VXR534A048030F	8-9
728	3/4	3/4	3/4	3		.060	VXR504A048060F	8-9
729	3/4	3/4	1-1/2	4		.060	VXR514A048060F	8-9
730	3/4	3/4	2-1/4	5		.060	VXR534A048060F	8-9
731	3/4	3/4	1-1/2	4		.125	VXR514A048125F	8-9
732	3/4	3/4	2-1/4	5		.125	VXR534A048125F	8-9
733	3/4	3/4	1-1/2	4			VXB514A048F	8-9
734	3/4	3/4	1	4	2		VXE504A048N	10-11
735	3/4	3/4	1	5	3		VXE514A048N	10-11
736	3/4	3/4	1	6	2-1/2		VXE524A048N	10-11
737	3/4	3/4	1	6	3		VXE534A048N	10-11
738	3/4	3/4	1	6	4		VXE544A048N	10-11
739	3/4	3/4	1	4	2	.030	VXR504A048030N	10-11
740	3/4	3/4	1	5	3	.030	VXR514A048030N	10-11
741	3/4	3/4	1	6	2-1/2	.030	VXR524A048030N	10-11
742	3/4	3/4	1	6	3	.030	VXR534A048030N	10-11
743	3/4	3/4	1	6	4	.030	VXR544A048030N	10-11
744	3/4	3/4	1	4	2	.060	VXR504A048060N	10-11
745	3/4	3/4	1	5	3	.060	VXR514A048060N	10-11
746	3/4	3/4	1	6	2-1/2	.060	VXR524A048060N	10-11
747	3/4	3/4	1	6	3	.060	VXR534A048060N	10-11
748	3/4	3/4	1	6	4	.060	VXR544A048060N	10-11
749	3/4	3/4	1	4	2	.090	VXR504A048090N	10-11
750	3/4	3/4	1	5	3	.090	VXR514A048090N	10-11
751	3/4	3/4	1	6	2-1/2	.090	VXR524A048090N	10-11
752	3/4	3/4	1	6	3	.090	VXR534A048090N	10-11
753	3/4	3/4	1	6	4	.090	VXR544A048090N	10-11
754	3/4	3/4	1	4	2	.125	VXR504A048125N	10-11
755	3/4	3/4	1	5	3	.125	VXR514A048125N	10-11
756	3/4	3/4	1	6	2-1/2	.125	VXR524A048125N	10-11



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Part Numbers by Cutting Diameters(D)

V-STAR Series



NEW VARIABLE HELIX ENDMILLS

No.	D	D2	L1	L2	L3	Radius	EDP NO.	PAGE
757	3/4	3/4	1	6	3	.125	VXR534A048125N	10-11
758	3/4	3/4	1	6	4	.125	VXR544A048125N	10-11
759	3/4	3/4	1	4	2	.190	VXR504A048190N	10-11
760	3/4	3/4	1	5	3	.190	VXR514A048190N	10-11
761	3/4	3/4	1	6	2-1/2	.190	VXR524A048190N	10-11
762	3/4	3/4	1	6	3	.190	VXR534A048190N	10-11
763	3/4	3/4	1	6	4	.190	VXR544A048190N	10-11
764	3/4	3/4	1	4	2	.250	VXR504A048250N	10-11
765	3/4	3/4	1	5	3	.250	VXR514A048250N	10-11
766	3/4	3/4	1	6	2-1/2	.250	VXR524A048250N	10-11
767	3/4	3/4	1	6	3	.250	VXR534A048250N	10-11
768	3/4	3/4	1	6	4	.250	VXR544A048250N	10-11
769	3/4	3/4	1	4	2		VXB504A048N	10-11
770	3/4	3/4	1	5	3		VXB514A048N	10-11
771	3/4	3/4	1	6	2-1/2		VXB524A048N	10-11
772	3/4	3/4	1	6	3		VXB534A048N	10-11
773	3/4	3/4	1	6	4		VXB544A048N	10-11
774	3/4	3/4	1	4	2		VXE504A048NF	12
775	3/4	3/4	1	5	3		VXE514A048NF	12
776	3/4	3/4	1	6	2-1/2		VXE524A048NF	12
777	3/4	3/4	1	6	3		VXE534A048NF	12
778	3/4	3/4	1	6	4		VXE544A048NF	12
779	3/4	3/4	1	4	2	.030	VXR504A048030NF	12
780	3/4	3/4	1	5	3	.030	VXR514A048030NF	12
781	3/4	3/4	1	6	2-1/2	.030	VXR524A048030NF	12
782	3/4	3/4	1	6	3	.030	VXR534A048030NF	12
783	3/4	3/4	1	6	4	.030	VXR544A048030NF	12
784	3/4	3/4	1	3-1/2			VXE506A048	14-15
785	3/4	3/4	1-1/2	4			VXE516A048	14-15
786	3/4	3/4	1-7/8	5			VXE526A048	14-15
787	3/4	3/4	2-1/4	5			VXE536A048	14-15
788	3/4	3/4	2-3/4	5			VXE546A048	14-15
789	3/4	3/4	3	5-1/2			VXE556A048	14-15
790	3/4	3/4	1	3-1/2		.015	VXR506A048015	14-15
791	3/4	3/4	1-1/2	4		.015	VXR516A048015	14-15
792	3/4	3/4	1-7/8	5		.015	VXR526A048015	14-15

No.	D	D2	L1	L2	L3	Radius	EDP NO.	PAGE
793	3/4	3/4	2-1/4	5		.015	VXR536A048015	14-15
794	3/4	3/4	2-3/4	5		.015	VXR546A048015	14-15
795	3/4	3/4	3	5-1/2		.015	VXR556A048015	14-15
796	3/4	3/4	1	3-1/2		.030	VXR506A048030	14-15
797	3/4	3/4	1-1/2	4		.030	VXR516A048030	14-15
798	3/4	3/4	1-7/8	5		.030	VXR526A048030	14-15
799	3/4	3/4	2-1/4	5		.030	VXR536A048030	14-15
800	3/4	3/4	2-3/4	5		.030	VXR546A048030	14-15
801	3/4	3/4	3	5-1/2		.030	VXR556A048030	14-15
802	3/4	3/4	1	3-1/2		.060	VXR506A048060	14-15
803	3/4	3/4	1-1/2	4		.060	VXR516A048060	14-15
804	3/4	3/4	1-7/8	5		.060	VXR526A048060	14-15
805	3/4	3/4	2-1/4	5		.060	VXR536A048060	14-15
806	3/4	3/4	2-3/4	5		.060	VXR546A048060	14-15
807	3/4	3/4	3	5-1/2		.060	VXR556A048060	14-15
808	3/4	3/4	1	3-1/2		.090	VXR506A048090	14-15
809	3/4	3/4	1-1/2	4		.090	VXR516A048090	14-15
810	3/4	3/4	1-7/8	5		.090	VXR526A048090	14-15
811	3/4	3/4	2-1/4	5		.090	VXR536A048090	14-15
812	3/4	3/4	2-3/4	5		.090	VXR546A048090	14-15
813	3/4	3/4	3	5-1/2		.090	VXR556A048090	14-15
814	3/4	3/4	1	3-1/2		.125	VXR506A048125	14-15
815	3/4	3/4	1-1/2	4		.125	VXR516A048125	14-15
816	3/4	3/4	1-7/8	5		.125	VXR526A048125	14-15
817	3/4	3/4	2-1/4	5		.125	VXR536A048125	14-15
818	3/4	3/4	2-3/4	5		.125	VXR546A048125	14-15
819	3/4	3/4	3	5-1/2		.125	VXR556A048125	14-15
820	3/4	3/4	1	3-1/2		.190	VXR506A048190	14-15
821	3/4	3/4	1-1/2	4		.190	VXR516A048190	14-15
822	3/4	3/4	1-7/8	5		.190	VXR526A048190	14-15
823	3/4	3/4	2-1/4	5		.190	VXR536A048190	14-15
824	3/4	3/4	2-3/4	5		.190	VXR546A048190	14-15
825	3/4	3/4	3	5-1/2		.190	VXR556A048190	14-15
826	3/4	3/4	1	3-1/2		.250	VXR506A048250	14-15
827	3/4	3/4	1-1/2	4		.250	VXR516A048250	14-15
828	3/4	3/4	1-7/8	5		.250	VXR526A048250	14-15



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Part Numbers by Cutting Diameters(D)

V-STAR Series



NEW VARIABLE HELIX ENDMILLS

No.	D	D2	L1	L2	L3	Radius	EDP NO.	PAGE
829	3/4	3/4	2-1/4	5		.250	VXR536A048250	14-15
830	3/4	3/4	2-3/4	5		.250	VXR546A048250	14-15
831	3/4	3/4	3	5-1/2		.250	VXR556A048250	14-15
832	3/4	3/4	1-1/2	4			VXE516A048F	16-17
833	3/4	3/4	2-1/4	5			VXE536A048F	16-17
834	3/4	3/4	1-1/2	4		.030	VXR516A048030F	16-17
835	3/4	3/4	2-1/4	5		.030	VXR536A048030F	16-17
836	3/4	3/4	1-1/2	4		.060	VXR516A048060F	16-17
837	3/4	3/4	2-1/4	5		.060	VXR536A048060F	16-17
838	3/4	3/4	1-1/2	4		.090	VXR516A048090F	16-17
839	3/4	3/4	2-1/4	5		.090	VXR536A048090F	16-17
840	3/4	3/4	1-1/2	4		.125	VXR516A048125F	16-17
841	3/4	3/4	2-1/4	5		.125	VXR536A048125F	16-17
842	3/4	3/4	1	4	2		VXE506A048N	18-19
843	3/4	3/4	1	5	3		VXE516A048N	18-19
844	3/4	3/4	1	6	2-1/2		VXE526A048N	18-19
845	3/4	3/4	1	6	3		VXE536A048N	18-19
846	3/4	3/4	1	6	4		VXE546A048N	18-19
847	3/4	3/4	1	4	2	.030	VXR506A048030N	18-19
848	3/4	3/4	1	5	3	.030	VXR516A048030N	18-19
849	3/4	3/4	1	6	2-1/2	.030	VXR526A048030N	18-19
850	3/4	3/4	1	6	3	.030	VXR536A048030N	18-19
851	3/4	3/4	1	6	4	.030	VXR546A048030N	18-19
852	3/4	3/4	1	4	2	.060	VXR506A048060N	18-19
853	3/4	3/4	1	5	3	.060	VXR516A048060N	18-19
854	3/4	3/4	1	6	2-1/2	.060	VXR526A048060N	18-19
855	3/4	3/4	1	6	3	.060	VXR536A048060N	18-19
856	3/4	3/4	1	6	4	.060	VXR546A048060N	18-19
857	3/4	3/4	1	4	2	.090	VXR506A048090N	18-19
858	3/4	3/4	1	5	3	.090	VXR516A048090N	18-19
859	3/4	3/4	1	6	2-1/2	.090	VXR526A048090N	18-19
860	3/4	3/4	1	6	3	.090	VXR536A048090N	18-19
861	3/4	3/4	1	6	4	.090	VXR546A048090N	18-19
862	3/4	3/4	1	4	2	.125	VXR506A048125N	18-19
863	3/4	3/4	1	5	3	.125	VXR516A048125N	18-19
864	3/4	3/4	1	6	2-1/2	.125	VXR526A048125N	18-19

No.	D	D2	L1	L2	L3	Radius	EDP NO.	PAGE
865	3/4	3/4	1	6	3	.125	VXR536A048125N	18-19
866	3/4	3/4	1	6	4	.125	VXR546A048125N	18-19
867	3/4	3/4	1	4	2	.190	VXR506A048190N	18-19
868	3/4	3/4	1	5	3	.190	VXR516A048190N	18-19
869	3/4	3/4	1	6	2-1/2	.190	VXR526A048190N	18-19
870	3/4	3/4	1	6	3	.190	VXR536A048190N	18-19
871	3/4	3/4	1	6	4	.190	VXR546A048190N	18-19
872	3/4	3/4	1	4	2	.250	VXR506A048250N	18-19
873	3/4	3/4	1	5	3	.250	VXR516A048250N	18-19
874	3/4	3/4	1	6	2-1/2	.250	VXR526A048250N	18-19
875	3/4	3/4	1	6	3	.250	VXR536A048250N	18-19
876	3/4	3/4	1	6	4	.250	VXR546A048250N	18-19
877	1	1	1	4			VXE504A064	6-7
878	1	1	1-1/2	4			VXE514A064	6-7
879	1	1	2	5			VXE524A064	6-7
880	1	1	2-5/8	5			VXE534A064	6-7
881	1	1	3	6			VXE544A064	6-7
882	1	1	4-1/4	7			VXE554A064	6-7
883	1	1	1	4		.015	VXR504A064015	6-7
884	1	1	1-1/2	4		.015	VXR514A064015	6-7
885	1	1	2	5		.015	VXR524A064015	6-7
886	1	1	2-5/8	5		.015	VXR534A064015	6-7
887	1	1	3	6		.015	VXR544A064015	6-7
888	1	1	4-1/4	7		.015	VXR554A064015	6-7
889	1	1	1	4		.030	VXR504A064030	6-7
890	1	1	1-1/2	4		.030	VXR514A064030	6-7
891	1	1	2	5		.030	VXR524A064030	6-7
892	1	1	2-5/8	5		.030	VXR534A064030	6-7
893	1	1	3	6		.030	VXR544A064030	6-7
894	1	1	4-1/4	7		.030	VXR554A064030	6-7
895	1	1	1	4		.060	VXR504A064060	6-7
896	1	1	1-1/2	4		.060	VXR514A064060	6-7
897	1	1	2	5		.060	VXR524A064060	6-7
898	1	1	2-5/8	5		.060	VXR534A064060	6-7
899	1	1	3	6		.060	VXR544A064060	6-7
900	1	1	4-1/4	7		.060	VXR554A064060	6-7



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Part Numbers by Cutting Diameters(D)

V-STAR Series



NEW VARIABLE HELIX ENDMILLS

No.	D	D2	L1	L2	L3	Radius	EDP NO.	PAGE
901	1	1	1	4		.090	VXR504A064090	6-7
902	1	1	1-1/2	4		.090	VXR514A064090	6-7
903	1	1	2	5		.090	VXR524A064090	6-7
904	1	1	2-5/8	5		.090	VXR534A064090	6-7
905	1	1	3	6		.090	VXR544A064090	6-7
906	1	1	4-1/4	7		.090	VXR554A064090	6-7
907	1	1	1	4		.125	VXR504A064125	6-7
908	1	1	1-1/2	4		.125	VXR514A064125	6-7
909	1	1	2	5		.125	VXR524A064125	6-7
910	1	1	2-5/8	5		.125	VXR534A064125	6-7
911	1	1	3	6		.125	VXR544A064125	6-7
912	1	1	4-1/4	7		.125	VXR554A064125	6-7
913	1	1	1	4		.190	VXR504A064190	6-7
914	1	1	1-1/2	4		.190	VXR514A064190	6-7
915	1	1	2	5		.190	VXR524A064190	6-7
916	1	1	2-5/8	5		.190	VXR534A064190	6-7
917	1	1	3	6		.190	VXR544A064190	6-7
918	1	1	4-1/4	7		.190	VXR554A064190	6-7
919	1	1	1	4		.250	VXR504A064250	6-7
920	1	1	1-1/2	4		.250	VXR514A064250	6-7
921	1	1	2	5		.250	VXR524A064250	6-7
922	1	1	2-5/8	5		.250	VXR534A064250	6-7
923	1	1	3	6		.250	VXR544A064250	6-7
924	1	1	4-1/4	7		.250	VXR554A064250	6-7
925	1	1	1	4			VXB504A064	6-7
926	1	1	1-1/2	4			VXB514A064	6-7
927	1	1	2	5			VXB524A064	6-7
928	1	1	2-5/8	5			VXB534A064	6-7
929	1	1	3	6			VXB544A064	6-7
930	1	1	4-1/4	7			VXB554A064	6-7
931	1	1	1	4			VXE504A064F	8-9
932	1	1	1-1/2	4			VXE514A064F	8-9
933	1	1	2	5			VXE524A064F	8-9
934	1	1	1	4		.015	VXR504A064015F	8-9
935	1	1	1-1/2	4		.015	VXR514A064015F	8-9
936	1	1	2	5		.015	VXR524A064015F	8-9

No.	D	D2	L1	L2	L3	Radius	EDP NO.	PAGE
937	1	1	1	4		.030	VXR504A064030F	8-9
938	1	1	1-1/2	4		.030	VXR514A064030F	8-9
939	1	1	2	5		.030	VXR524A064030F	8-9
940	1	1	1	4		.060	VXR504A064060F	8-9
941	1	1	1-1/2	4		.060	VXR514A064060F	8-9
942	1	1	2	5		.060	VXR524A064060F	8-9
943	1	1	1-1/2	4		.125	VXR514A064125F	8-9
944	1	1	1-1/2	4			VXB514A064F	8-9
945	1	1	1-1/8	4	2		VXE504A064N	10-11
946	1	1	1-1/8	5	2-5/8		VXE514A064N	10-11
947	1	1	1-1/8	6	2-5/8		VXE524A064N	10-11
948	1	1	1-1/8	6	3		VXE534A064N	10-11
949	1	1	1-1/8	6	4		VXE544A064N	10-11
950	1	1	1-1/8	4	2	.030	VXR504A064030N	10-11
951	1	1	1-1/8	5	2-5/8	.030	VXR514A064030N	10-11
952	1	1	1-1/8	6	2-5/8	.030	VXR524A064030N	10-11
953	1	1	1-1/8	6	3	.030	VXR534A064030N	10-11
954	1	1	1-1/8	6	4	.030	VXR544A064030N	10-11
955	1	1	1-1/8	4	2	.060	VXR504A064060N	10-11
956	1	1	1-1/8	5	2-5/8	.060	VXR514A064060N	10-11
957	1	1	1-1/8	6	2-5/8	.060	VXR524A064060N	10-11
958	1	1	1-1/8	6	3	.060	VXR534A064060N	10-11
959	1	1	1-1/8	6	4	.060	VXR544A064060N	10-11
960	1	1	1-1/8	4	2	.090	VXR504A064090N	10-11
961	1	1	1-1/8	5	2-5/8	.090	VXR514A064090N	10-11
962	1	1	1-1/8	6	2-5/8	.090	VXR524A064090N	10-11
963	1	1	1-1/8	6	3	.090	VXR534A064090N	10-11
964	1	1	1-1/8	6	4	.090	VXR544A064090N	10-11
965	1	1	1-1/8	4	2	.125	VXR504A064125N	10-11
966	1	1	1-1/8	5	2-5/8	.125	VXR514A064125N	10-11
967	1	1	1-1/8	6	2-5/8	.125	VXR524A064125N	10-11
968	1	1	1-1/8	6	3	.125	VXR534A064125N	10-11
969	1	1	1-1/8	6	4	.125	VXR544A064125N	10-11
970	1	1	1-1/8	4	2	.190	VXR504A064190N	10-11
971	1	1	1-1/8	5	2-5/8	.190	VXR514A064190N	10-11
972	1	1	1-1/8	6	2-5/8	.190	VXR524A064190N	10-11



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Part Numbers by Cutting Diameters(D)

V-STAR Series



NEW VARIABLE HELIX ENDMILLS

No.	D	D2	L1	L2	L3	Radius	EDP NO.	PAGE
973	1	1	1-1/8	6	3	.190	VXR534A064190N	10-11
974	1	1	1-1/8	6	4	.190	VXR544A064190N	10-11
975	1	1	1-1/8	4	2	.250	VXR504A064250N	10-11
976	1	1	1-1/8	5	2-5/8	.250	VXR514A064250N	10-11
977	1	1	1-1/8	6	2-5/8	.250	VXR524A064250N	10-11
978	1	1	1-1/8	6	3	.250	VXR534A064250N	10-11
979	1	1	1-1/8	6	4	.250	VXR544A064250N	10-11
980	1	1	1-1/8	4	2		VXB504A064N	10-11
981	1	1	1-1/8	5	2-5/8		VXB514A064N	10-11
982	1	1	1-1/8	6	2-5/8		VXB524A064N	10-11
983	1	1	1-1/8	6	3		VXB534A064N	10-11
984	1	1	1-1/8	6	4		VXB544A064N	10-11
985	1	1	1-1/8	4	2		VXE504A064NF	12
986	1	1	1-1/8	5	2-5/8		VXE514A064NF	12
987	1	1	1-1/8	6	2-5/8		VXE524A064NF	12
988	1	1	1-1/8	6	3		VXE534A064NF	12
989	1	1	1-1/8	6	4		VXE544A064NF	12
990	1	1	1-1/8	4	2	.030	VXR504A064030NF	12
991	1	1	1-1/8	5	2-5/8	.030	VXR514A064030NF	12
992	1	1	1-1/8	6	2-5/8	.030	VXR524A064030NF	12
993	1	1	1-1/8	6	3	.030	VXR534A064030NF	12
994	1	1	1-1/8	6	4	.030	VXR544A064030NF	12
995	1	1	1-1/2	4			VXE506A064	14-15
996	1	1	2	5			VXE516A064	14-15
997	1	1	2-5/8	5			VXE526A064	14-15
998	1	1	3	6			VXE536A064	14-15
999	1	1	4-1/4	7			VXE546A064	14-15
1000	1	1	1-1/2	4		.015	VXR506A064015	14-15
1001	1	1	2	5		.015	VXR516A064015	14-15
1002	1	1	2-5/8	5		.015	VXR526A064015	14-15
1003	1	1	3	6		.015	VXR536A064015	14-15
1004	1	1	4-1/4	7		.015	VXR546A064015	14-15
1005	1	1	1-1/2	4		.030	VXR506A064030	14-15
1006	1	1	2	5		.030	VXR516A064030	14-15
1007	1	1	2-5/8	5		.030	VXR526A064030	14-15
1008	1	1	3	6		.030	VXR536A064030	14-15

No.	D	D2	L1	L2	L3	Radius	EDP NO.	PAGE
1009	1	1	4-1/4	7		.030	VXR546A064030	14-15
1010	1	1	1-1/2	4		.060	VXR506A064060	14-15
1011	1	1	2	5		.060	VXR516A064060	14-15
1012	1	1	2-5/8	5		.060	VXR526A064060	14-15
1013	1	1	3	6		.060	VXR536A064060	14-15
1014	1	1	4-1/4	7		.060	VXR546A064060	14-15
1015	1	1	1-1/2	4		.090	VXR506A064090	14-15
1016	1	1	2	5		.090	VXR516A064090	14-15
1017	1	1	2-5/8	5		.090	VXR526A064090	14-15
1018	1	1	3	6		.090	VXR536A064090	14-15
1019	1	1	4-1/4	7		.090	VXR546A064090	14-15
1020	1	1	1-1/2	4		.125	VXR506A064125	14-15
1021	1	1	2	5		.125	VXR516A064125	14-15
1022	1	1	2-5/8	5		.125	VXR526A064125	14-15
1023	1	1	3	6		.125	VXR536A064125	14-15
1024	1	1	4-1/4	7		.125	VXR546A064125	14-15
1025	1	1	1-1/2	4		.190	VXR506A064190	14-15
1026	1	1	2	5		.190	VXR516A064190	14-15
1027	1	1	2-5/8	5		.190	VXR526A064190	14-15
1028	1	1	3	6		.190	VXR536A064190	14-15
1029	1	1	4-1/4	7		.190	VXR546A064190	14-15
1030	1	1	1-1/2	4		.250	VXR506A064250	14-15
1031	1	1	2	5		.250	VXR516A064250	14-15
1032	1	1	2-5/8	5		.250	VXR526A064250	14-15
1033	1	1	3	6		.250	VXR536A064250	14-15
1034	1	1	4-1/4	7		.250	VXR546A064250	14-15
1035	1	1	1-1/2	4			VXE506A064F	16-17
1036	1	1	4-1/4	7			VXE546A064F	16-17
1037	1	1	1-1/2	4		.030	VXR506A064030F	16-17
1038	1	1	4-1/4	7		.030	VXR546A064030F	16-17
1039	1	1	1-1/2	4		.060	VXR506A064060F	16-17
1040	1	1	4-1/4	7		.060	VXR546A064060F	16-17
1041	1	1	1-1/2	4		.090	VXR506A064090F	16-17
1042	1	1	4-1/4	7		.090	VXR546A064090F	16-17
1043	1	1	1-1/2	4		.125	VXR506A064125F	16-17
1044	1	1	4-1/4	7		.125	VXR546A064125F	16-17



Can't find what you're looking for?

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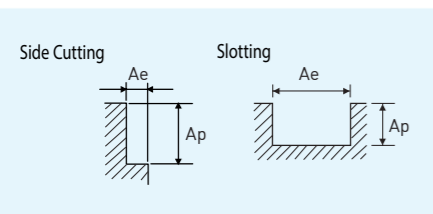
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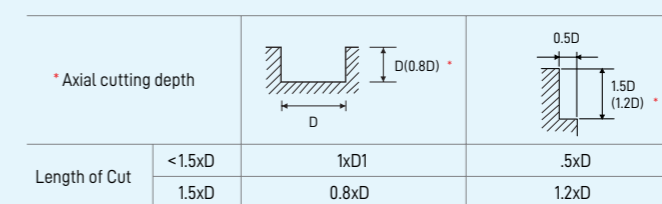
4FLUTE RECOMMENDED CUTTING CONDITIONS(INCH)

ISO Hardness (BHN)	Work Materials	Speed and Feed Recommendations				Diameter		
		Type of Cut	Ap x D1	Ae x D1	Parameters	1/8	5/32	3/16
P<300	CARBON STEEL 10**, 11**, 12**, 12L**, 15**	Side Cutting	1.5(1.2)	0.5	RPM	499 (400-599)		
					Fz	15249	15249	15249
					FEED	0.0002	0.0002	0.0002
		Slotting	1 (0.8)	1	RPM	499 (400-599)		
					Fz	15249	15249	15249
					FEED	0.0002	0.0002	0.0002
300<P<380	ALLOY STEEL 41**, 43**, 51**, 86**	Side Cutting	1.5(1.2)	0.5	RPM	351 (281-422)		
					Fz	10727	8581	7151
					FEED	0.0002	0.0003	0.0004
		Slotting	1 (0.8)	1	RPM	351 (281-422)		
					Fz	10727	8581	7151
					FEED	0.0002	0.0003	0.0004
P<380P<380	TOOL STEEL A2, D2, H13, P20, T15	Side Cutting	1.5(1.2)	0.5	RPM	210 (168-252)		
					Fz	6418	5134	4278
					FEED	0.0001	0.0002	0.0003
		Slotting	1 (0.8)	1	RPM	210 (168-252)		
					Fz	6418	5134	4278
					FEED	0.0001	0.0002	0.0003
K<260	CAST IRON GRAY, MALLEABLE, DUCTILE	Side Cutting	1.5(1.2)	0.5	RPM	367 (294-440)		
					Fz	11216	8972	7477
					FEED	0.0002	0.0004	0.0006
		Slotting	1 (0.8)	1	RPM	367 (294-440)		
					Fz	11216	8972	7477
					FEED	0.0002	0.0004	0.0006

Diameter										
7/32	1/4	9/32	5/16	11/32	3/8	7/16	1/2	5/8	3/4	1
499 (400-598)	499 (400-599)	499 (400-598)	499 (400-599)	525 (420-630)	551 (441-662)	551 (441-661)	551 (441-662)			
8714	7625	6778	6100	5834	5613	4811	4210	3368	2806	2105
0.0005	0.0006	0.0008	0.0011	0.0013	0.0015	0.0017	0.0019	0.0021	0.0026	0.0025
18.53	19.21	22.95	25.94	29.86	33.59	32.20	31.16	28.11	28.73	21.21
499 (400-598)	499 (400-599)	499 (400-598)	499 (400-599)	525 (420-630)	551 (441-662)	551 (441-661)	551 (441-662)			
8714	7625	6778	6100	5834	5613	4811	4210	3368	2806	2105
0.0005	0.0006	0.0008	0.0011	0.0013	0.0015	0.0017	0.0019	0.0021	0.0026	0.0025
18.53	19.21	22.95	25.94	29.86	33.59	32.20	31.16	28.11	28.73	21.21
351 (281-421)	351 (281-422)	351 (281-421)	351 (281-422)	351 (281-422)	368 (295-441)	384 (308-461)	384 (308-460)	384 (308-461)		
6129	5363	4767	4291	4089	3912	3353	2934	2347	1956	1467
0.0005	0.0006	0.0008	0.0011	0.0013	0.0015	0.0017	0.0019	0.0021	0.0026	0.0025
13.03	13.51	16.14	18.24	20.93	23.41	22.44	21.71	19.59	20.02	14.78
351 (281-421)	351 (281-422)	351 (281-421)	351 (281-422)	351 (281-422)	368 (295-441)	384 (308-461)	384 (308-460)	384 (308-461)		
6129	5363	4767	4291	4089	3912	3353	2934	2347	1956	1467
0.0005	0.0006	0.0008	0.0011	0.0013	0.0015	0.0017	0.0019	0.0021	0.0026	0.0025
13.03	13.51	16.14	18.24	20.93	23.41	22.44	21.71	19.59	20.02	14.78
210 (168-252)				220 (176-264)	230 (184-276)					
3667	3209	2852	2567	2445	2343	2008	1757	1406	1171	879
0.0004	0.0004	0.0006	0.0007	0.0009	0.0011	0.0012	0.0013	0.0015	0.0018	0.0018
5.49	5.56	6.74	7.68	8.86	9.96	9.33	8.86	8.19	8.30	6.23
210 (168-252)				220 (176-264)	230 (184-276)					
3667	3209	2852	2567	2445	2343	2008	1757	1406	1171	879
0.0004	0.0004	0.0006	0.0007	0.0009	0.0011	0.0012	0.0013	0.0015	0.0018	0.0018
5.49	5.56	6.74	7.68	8.86	9.96	9.33	8.86	8.19	8.30	6.23
367 (294-440)				386 (309-463)	404 (324-484)					
6409	5608	4985	4486	4290	4115	3527	3087	2469	2058	1543
0.0007	0.0008	0.0011	0.0013	0.0016	0.0019	0.0021	0.0023	0.0026	0.0032	0.0031
17.16	17.66	21.19	24.02	27.70	31.11	29.44	28.19	25.28	26.25	19.20
367 (294-440)				386 (309-463)	404 (324-484)					
6409	5608	4985	4486	4290	4115	3527	3087	2469	2058	1543
0.0007	0.0008	0.0011	0.0013	0.0016	0.0019	0.0021	0.0023	0.0026	0.0032	0.0031
17.16	17.66	21.19	24.02	27.70	31.11	29.44	28.19	25.28	26.25	19.20



NOTES: ▶ Feed to be reduced by approximately 50% if L.O.C. (Length Of Cut) is over 3xD
▶ The above recommendations are based on ideal conditions; for smaller taper machining centers or less rigid conditions please adjust parameters accordingly on diameters greater than 1/2"
▶ In profile operations, engaging more than 2xD, reduce the radial depth of cut by 50%-60%
▶ Finish cuts typically require reduced cutting feeds and speeds; also, it is recommended the radial width of cut (AE) should not exceed 2% x D1



4FLUTE RECOMMENDED CUTTING CONDITIONS(INCH)

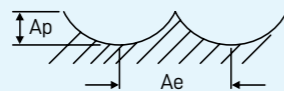
ISO Hardness (BHN)	Work Materials	Speed and Feed Recommendations				Diameter		
		Type of Cut	Ap x D1	Ae x D1	Parameters	1/8	5/32	3/16
M	STAINLESS STEELS 300 304, 316, 304L, 316L	Side Cutting	1.5 (1.2)	0.5	SFM (Vc)	348 (279-417)		
					RPM	10635	8508	7090
					Fz	0.0002	0.0003	0.0005
					FEED	8.37	10.72	14.51
		Slotting	1 (0.8)	1	SFM (Vc)	348 (279-417)		
					RPM	10635	8508	7090
Fz	0.0002				0.0003	0.0005		
FEED	8.37				10.72	14.51		
M	416, 420F, 430F, 440F	Side Cutting	1.5 (1.2)	0.5	SFM (Vc)	486 (389-583)		
					RPM	14852	11882	9901
					Fz	0.0002	0.0002	0.0004
					FEED	9.36	11.23	14.03
		Slotting	1 (0.8)	1	SFM (Vc)	486 (389-583)		
					RPM	14852	11882	9901
Fz	0.0002				0.0002	0.0004		
FEED	9.36				11.23	14.03		
M	STAINLESS STEELS (PH) 17-PH, 15-5PH, 13-8PH	Side Cutting	1.5 (1.2)	0.5	SFM (Vc)	312 (250-374)		
					RPM	9535	7628	6356
					Fz	0.0002	0.0003	0.0005
					FEED	7.51	9.61	13.01
		Slotting	1 (0.8)	1	SFM (Vc)	312 (250-374)		
					RPM	9535	7628	6356
Fz	0.0002				0.0003	0.0005		
FEED	7.51				9.61	13.01		
S	TITANIUM Ti6Al4V, Ti5Al5V5Mo, Ti7Al4Mo	Side Cutting	1	0.35	SFM (Vc)	190 (152-228)		
					RPM	5806	4645	3871
					Fz	0.0002	0.0003	0.0004
					FEED	3.66	5.12	6.71
		Slotting	0.5	1	SFM (Vc)	190 (152-228)		
					RPM	5806	4645	3871
Fz	0.0002				0.0003	0.0004		
FEED	3.66				5.12	6.71		
S	HIGH-TEMPERATURE ALLOY INCONEL, HASTALLY, RENE	Side Cutting	1.5(1.2)	0.5	SFM (Vc)	85 (68-102)		
					RPM	2598	2078	1732
					Fz	0.0002	0.0003	0.0003
					FEED	2.05	2.29	2.18
		Slotting	1(0.8)	1	SFM (Vc)	85 (68-102)		
					RPM	2598	2078	1732
Fz	0.0002				0.0003	0.0003		
FEED	2.05				2.29	2.18		

Diameter										
7/32	1/4	9/32	5/16	11/32	3/8	7/16	1/2	5/8	3/4	1
348 (279-417)										
6077	5317	4727	4254	3867	3545	3039	2659	2127	1772	1329
0.0006	0.0007	0.0009	0.0011	0.0015	0.0019	0.0020	0.0022	0.0024	0.0030	0.0030
14.83	15.07	17.12	18.76	23.14	26.80	24.64	23.03	20.77	21.49	16.12
348 (279-417)										
6077	5317	4727	4254	3867	3545	3039	2659	2127	1772	1329
0.0006	0.0007	0.0009	0.0011	0.0015	0.0019	0.0020	0.0022	0.0024	0.0030	0.0030
14.83	15.07	17.12	18.76	23.14	26.80	24.64	23.03	20.77	21.49	16.12
486 (389-583)										
8487	7426	6601	5941	5401	4951	4243	3713	2970	2475	1857
0.0004	0.0005	0.0007	0.0009	0.0011	0.0013	0.0014	0.0015	0.0018	0.0022	0.0022
14.70	15.20	18.48	20.58	23.81	26.51	24.39	22.80	21.05	21.44	16.08
486 (389-583)										
8487	7426	6601	5941	5401	4951	4243	3713	2970	2475	1857
0.0004	0.0005	0.0007	0.0009	0.0011	0.0013	0.0014	0.0015	0.0018	0.0022	0.0022
14.70	15.20	18.48	20.58	23.81	26.51	24.39	22.80	21.05	21.44	16.08
312 (250-374)										
5448	4767	4238	3814	3467	3178	2724	2384	1907	1589	1192
0.0006	0.0007	0.0009	0.0011	0.0015	0.0019	0.0020	0.0022	0.0024	0.0030	0.0030
13.30	13.51	15.35	16.82	20.75	24.02	22.09	20.65	18.62	19.02	14.26
312 (250-374)										
5448	4767	4238	3814	3467	3178	2724	2384	1907	1589	1192
0.0006	0.0007	0.0009	0.0011	0.0015	0.0019	0.0020	0.0022	0.0024	0.0030	0.0030
13.30	13.51	15.35	16.82	20.75	24.02	22.09	20.65	18.62	19.02	14.26
190 (152-228)										
3318	2903	2581	2323	2111	1935	1659	1452	1161	968	726
0.0005	0.0006	0.0008	0.0010	0.0013	0.0017	0.0018	0.0020	0.0022	0.0027	0.0027
7.05	7.32	8.33	9.14	11.14	12.80	12.02	11.43	10.06	10.36	7.89
190 (152-228)										
3318	2903	2581	2323	2111	1935	1659	1452	1161	968	726
0.0005	0.0006	0.0008	0.0010	0.0013	0.0017	0.0018	0.0020	0.0022	0.0027	0.0027
7.05	7.32	8.33	9.14	11.14	12.80	12.02	11.43	10.06	10.36	7.89
85 (68-102)										
1484	1299	1154	1039	945	866	742	649	520	433	325
0.0004	0.0005	0.0006	0.0007	0.0010	0.0013	0.0014	0.0015	0.0017	0.0021	0.0020
2.34	2.45	2.82	3.11	3.87	4.50	4.15	3.89	3.52	3.68	2.66
85 (68-102)										
1484	1299	1154	1039	945	866	742	649	520	433	325
0.0004	0.0005	0.0006	0.0007	0.0010	0.0013	0.0014	0.0015	0.0017	0.0021	0.0020
2.34	2.45	2.82	3.11	3.87	4.50	4.15	3.89	3.52	3.68	2.66

4FLUTE RECOMMENDED CUTTING CONDITIONS(INCH)

ISO Hardness (BHN)	Work Materials	Speed and Feed Recommendations				Diameter	
		Type of Cut	Ap x D1	Ae x D1	Parameters	1/8	3/16
P<300	CARBON STEEL 10**, 11**, 12**, 12L**, 15**	Side Cutting	1	0.5	RPM	531 (425-637)	
					Fz	16227	10818
					FEED	0.0010	0.0011
					SFM	63.89	46.00
300P<380	ALLOY STEEL 41**, 43**, 51**, 86**	Side Cutting	1	0.5	RPM	371 (297-445)	
					Fz	11338	7559
					FEED	0.0010	0.0011
					SFM	44.64	32.14
P<300	TOOL STEEL A2, D2, H13, P20, T15	Side Cutting	1	0.5	RPM	223 (178-268)	
					Fz	6815	4543
					FEED	0.0007	0.0007
					SFM	18.24	13.59
K←260	CAST IRON Gray, Malleable, Ductile	Side Cutting	1	0.5	RPM	390 (312-468)	
					Fz	11918	7946
					FEED	0.0012	0.0013
					SFM	58.18	41.29
M	STAINLESS STEELS 300 304, 316, 304L, 316LSUS316	Side Cutting	1	0.5	RPM	279 (223-335)	
					Fz	8526	5684
					FEED	0.0008	0.0008
					SFM	26.85	17.90
M	STAINLESS STEELS 400 416, 420F, 430F, 440F	Side Cutting	1	0.5	RPM	253 (202-304)	
					Fz	7732	5154
					FEED	0.0006	0.0006
					SFM	18.26	12.18
M	STAINLESS STEELS (PH) 17-4PH, 15-5PH, 13-8PH	Side Cutting	1	0.5	RPM	253 (202-304)	
					Fz	7732	5154
					FEED	0.0008	0.0008
					SFM	24.35	16.23
S	TITANIUM Ti6Al4V, Ti5Al5V5Mo, Ti7Al4Mo	Side Cutting	0.3	0.5	RPM	154 (123-185)	
					Fz	4706	3137
					FEED	0.0007	0.0007
					SFM	13.34	8.89
S	HIGH-TEMPERATURE ALLOY INCONEL, HASTALLOY, RENE	Side Cutting	0.3	0.2	RPM	69 (55-83)	
					Fz	2109	1406
					FEED	0.0006	0.0006
					SFM	4.65	3.10

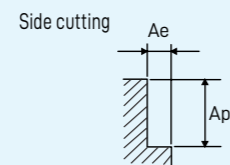
Diameter								
13/64	1/4	5/16	3/8	1/2	5/8	11/16	3/4	1
531 (425-637)								
9986	8114	6491	5409	4057	3245	2950	2705	2028
0.0012	0.0016	0.0024	0.0026	0.0028	0.0030	0.0031	0.0035	0.0039
47.18	51.11	61.33	55.37	44.72	38.33	37.17	38.33	31.62
371 (297-445)								
6977	5669	4535	3779	2834	2268	2061	1890	1417
0.0012	0.0016	0.0024	0.0026	0.0028	0.0029	0.0031	0.0035	0.0039
32.96	35.71	42.85	38.69	31.25	26.43	25.65	26.78	22.10
223 (178-268)								
4194	3407	2726	2272	1704	1363	1239	1136	852
0.0008	0.0011	0.0017	0.0018	0.0019	0.0020	0.0022	0.0025	0.0028
13.87	15.02	18.03	16.10	13.15	11.16	10.93	11.27	9.39
390 (312-468)								
7334	5959	4767	3973	2980	2384	2167	1986	1490
0.0015	0.0020	0.0029	0.0032	0.0034	0.0037	0.0039	0.0044	0.0049
42.74	46.92	55.56	50.68	40.82	34.91	33.78	35.04	29.09
279 (223-335)								
5247	4263	3410	2842	2132	1705	1550	1421	1066
0.0010	0.0016	0.0018	0.0020	0.0022	0.0024	0.0025	0.0026	0.0027
20.66	27.53	24.17	22.38	18.46	16.11	15.62	14.55	11.41
253 (202-304)								
4758	3866	3093	2577	1933	1546	1406	1289	966
0.0010	0.0012	0.0016	0.0018	0.0020	0.0021	0.0023	0.0023	0.0023
18.73	18.26	19.48	18.26	15.22	13.15	13.06	11.77	8.98
253 (202-304)								
4758	3866	3093	2577	1933	1546	1406	1289	966
0.0010	0.0016	0.0018	0.0020	0.0022	0.0024	0.0025	0.0026	0.0027
18.73	24.96	21.92	20.29	16.74	14.61	14.17	13.19	10.35
154 (123-185)								
2896	2353	1882	1569	1177	941	856	784	588
0.0009	0.0015	0.0016	0.0018	0.0019	0.0021	0.0023	0.0023	0.0024
10.03	13.71	11.86	11.12	9.08	8.00	7.82	7.16	5.65
69 (55-83)								
1298	1054	843	703	527	422	383	351	264
0.0007	0.0011	0.0012	0.0014	0.0015	0.0017	0.0018	0.0018	0.0019
3.47	4.65	4.12	3.87	3.15	2.79	2.72	2.49	1.99



6FLUTE RECOMMENDED CUTTING CONDITIONS(INCH)

ISO Hardness (BHN)	Work Materials	Speed and Feed Recommendations			
		Type of Cut	Ap x D1	Ae x D1	Parameters
P<300	CARBON STEEL 10**, 11**, 12**, 12L**, 15**	Side Cutting	2 (*)	0.05	RPM
					Fz
					FEED
					SFM
300<P<380	ALLOY STEEL 41**, 43**, 51**, 86**	Side Cutting	2 (*)	0.05	RPM
					Fz
					FEED
					SFM
P<380	TOOL STEEL A2, D2, H13, P20, T15	Side Cutting	2 (*)	0.05	RPM
					Fz
					FEED
					SFM
M	STAINLESS STEELS 300 304, 316, 304L, 316LSUS316	Side Cutting	2 (*)	0.05	RPM
					Fz
					FEED
					SFM
M	STAINLESS STEELS 400 416, 420F, 430F, 440F	Side Cutting	2 (*)	0.05	RPM
					Fz
					FEED
					SFM
M	STAINLESS STEELS (PH) 17-4PH, 15-5PH, 13-8PH	Side Cutting	2 (*)	0.05	RPM
					Fz
					FEED
					SFM
S	TITANIUM Ti6Al4V, Ti5Al5V5Mo, Ti7Al4Mo	Side Cutting	2 (*)	0.05	RPM
					Fz
					FEED
					SFM
S	HIGH-TEMPERATURE ALLOY INCONEL, HASTALLOY, RENE	Side Cutting	2 (*)	0.05	RPM
					Fz
					FEED
					SFM

Diameter						
1/4	5/16	3/8	1/2	5/8	3/4	1
984 [787-1181]						
15036	12028	10024	7518	6014	5012	3759
0.0027	0.0046	0.0057	0.0068	0.0080	0.0089	0.0091
241.52	329.60	340.96	307.22	286.98	266.38	206.00
666 [533-799]						
10176	8141	6784	5088	4071	3392	2544
0.0020	0.0033	0.0042	0.0050	0.0059	0.0066	0.0069
120.19	163.46	169.88	153.85	143.27	133.82	104.57
328 [262-394]						
5012	4009	3341	2506	2005	1671	1253
0.0016	0.0028	0.0035	0.0041	0.0048	0.0054	0.0057
48.54	67.25	69.46	62.15	58.25	54.06	42.62
482 [386-578]						
7365	5892	4910	3682	2946	2455	1841
0.0016	0.0028	0.0035	0.0041	0.0048	0.0054	0.0056
71.33	98.82	102.07	91.34	85.60	79.45	62.20
699 [559-839]						
10681	8545	7120	5340	4272	3560	2670
0.0019	0.0033	0.0041	0.0049	0.0057	0.0064	0.0066
123.63	169.55	174.93	157.69	147.34	136.24	105.97
440 [352-528]						
6723	5379	4482	3362	2689	2241	1681
0.0016	0.0028	0.0035	0.0041	0.0048	0.0054	0.0056
65.11	90.21	93.17	83.38	78.14	72.53	56.38
381 [305-457]						
5822	4657	3881	2911	2329	1941	1455
0.0013	0.0022	0.0028	0.0033	0.0038	0.0044	0.0046
45.38	60.51	64.18	57.07	53.36	51.80	40.22
108 [86-130]						
1650	1320	1100	825	660	550	413
0.0013	0.0022	0.0028	0.0032	0.0038	0.0044	0.0045
12.86	17.15	18.19	15.98	15.13	14.55	11.21



- NOTES:
- ▶ Feed to be reduced by approximately 50% if L.O.C. [Length Of Cut] is over 3xD
 - ▶ The above recommendations are based on ideal conditions; for smaller taper machining centers or less rigid conditions please adjust parameters accordingly on diameters greater than 1/2"
 - ▶ In profile operations, engaging more than 2xD, reduce the radial depth of cut by 50%-60%
 - ▶ Finish cuts typically require reduced cutting feeds and speeds; also, it is recommended the radial width of cut [AE] should not exceed 2% x D1



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