



OSG's HY-PRO® CARB Variable Geometry Lineup

Vol 2

# VGM Series

5-Flute • 6-Flute • 7-Flute



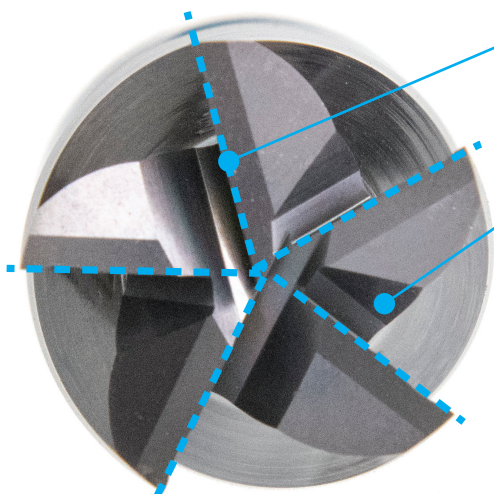
For more information  
scan the QR code to visit:  
[osgtool.com/VGM](http://osgtool.com/VGM)





# HY-PRO® CARB VGM Series

Features & Benefits



## Variable Index

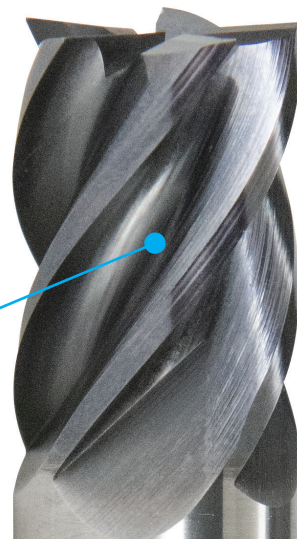
Reduces vibration during machining.

## Unique Flute Geometry

Maintains excellent cutting edge sharpness and tool rigidity.

## EXO Coating

Provides longer tool life through exceptional wear and heat resistance.



## Variable Index & Unique Flute Geometry

Reduces Vibration and Chatter & Promotes Smooth, Stable Cutting w/Low Cutting Forces

### Variable Index:

Unequal flute spacing reduces vibration during machining by altering the timing of each flute engaging in the workpiece.

### Unique Flute Geometry:

Sharp rake angle, high helix and adjusted core diameter maintain excellent cutting edge sharpness and tool rigidity to promote smooth, stable cutting with low cutting force.

## EXO Coating

Provides Long Tool Life

OSG's proprietary multi-layer coating provides longer tool life through higher wear and heat resistance than conventional TiAlN coatings.

Series	Coating	Type	Hardness (HV)	Thickness (µm)	Coefficient of Friction	Oxidation Temp (C)
VGx	TiAlN	TiAlN	2,800	3	0.3	800
VGM	EXO	TiAlN Multilayer	2,800	3	0.3	<b>850</b>

## VGM Series Comprehensive Offering

5-, 6-, and 7-Flute Lineups

OSG's VGM offering features 5-, 6-, and 7-flute lineups, and is available with multiple Lengths of Cut, with both Square End and Corner Radius variations.

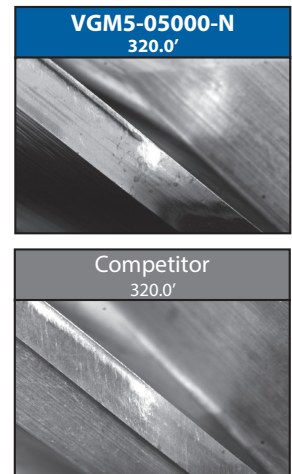
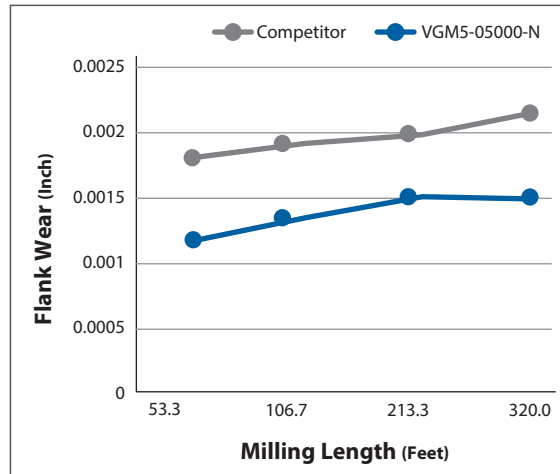
Name	No. of Flutes	Reduced Neck	LOC	Neck Length	Total # of EDPs
VGM-5	5	SQ & CR	N/A	1.25 to 6xD	<b>277</b>
VGM-5-LN	5	SQ & CR	Yes	1.25xD	<b>211</b>
VGM-6	6	SQ & CR	N/A	1.25 to 6xD	<b>186</b>
VGM-7	7	SQ & CR	N/A	1.25 to 6xD	<b>110</b>



## VGM5 - Stable Performance Even in Stainless Steel

304 Stainless Steel

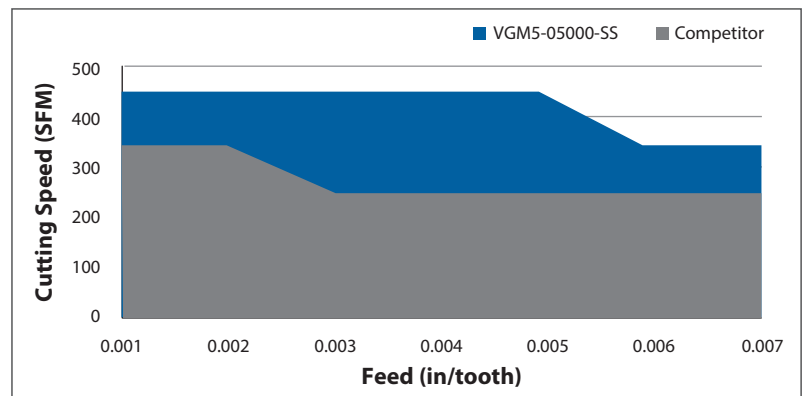
Tool	VGM5-05000-N	Competitor
Tool Size	1/2"	
Work Material	304 Stainless Steel	
Milling Method	Side Milling	
Cutting Speed	250 SFM(1,910 RPM)	
Feed	33.4 IPM(.0035IPT)	
Depth of Cut	Aa=1.2", Ar=0.05"	
Coolant	Water-Soluble	
Machine	Vertical Machining Center (CAT50)	



## VGM5 - Stable Performance in a Wide Range of Conditions

304 Stainless Steel

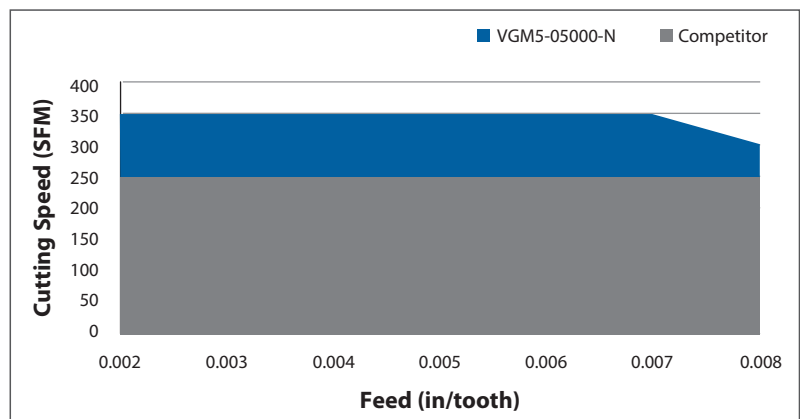
Tool Size	1/2"
Work Material	304 Stainless Steel
Milling Method	Side Milling
Depth of Cut	Aa=0.625", Ar=0.075"
Coolant	Water-Soluble
Machine	Vertical Machining Center (CAT50)



## VGM5 - Stable Performance in a Wide Range of Conditions

304 Stainless Steel

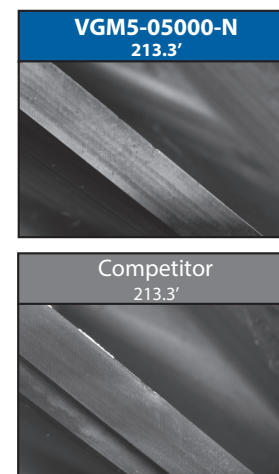
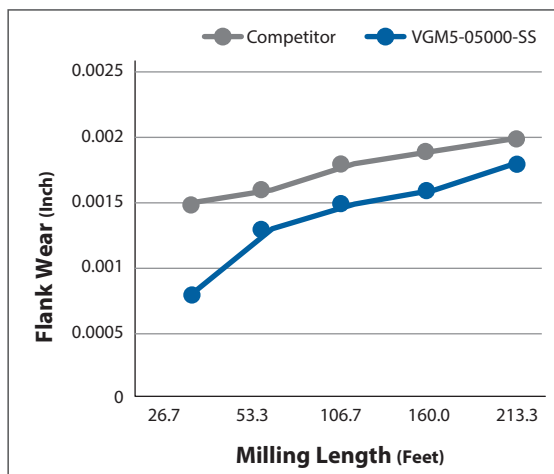
Tool Size	1/2"
Work Material	304 Stainless Steel
Milling Method	Side Milling
Depth of Cut	Aa=1.25", Ar=0.05"
Coolant	Water-Soluble
Machine	Vertical Machining Center (CAT50)



## VGM5 - Stable Performance in 1045

1045 Medium Carbon Steel

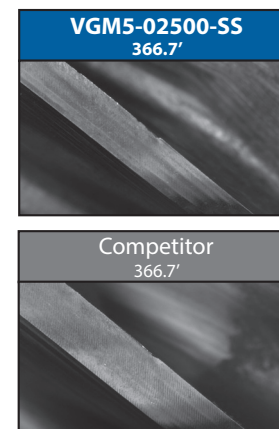
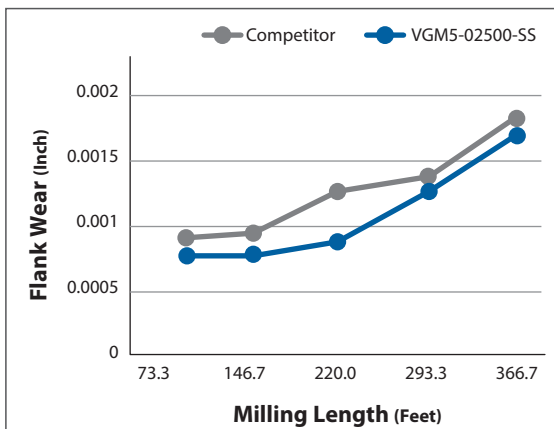
Tool	VGM5-05000-SS	Competitor
Tool Size	1/2"	
Work Material	1045 Medium Carbon Steel	
Milling Method	Side Milling	
Cutting Speed	550 SFM (4,200 RPM)	
Feed	100 IPM (0.0045IPT)	
Depth of Cut	Aa=0.625", Ar=0.2"	
Coolant	Water-Soluble	
Machine	Vertical Machining Center (CAT50)	



## VGM5 - Stable Performance in 1045

1045 Medium Carbon Steel

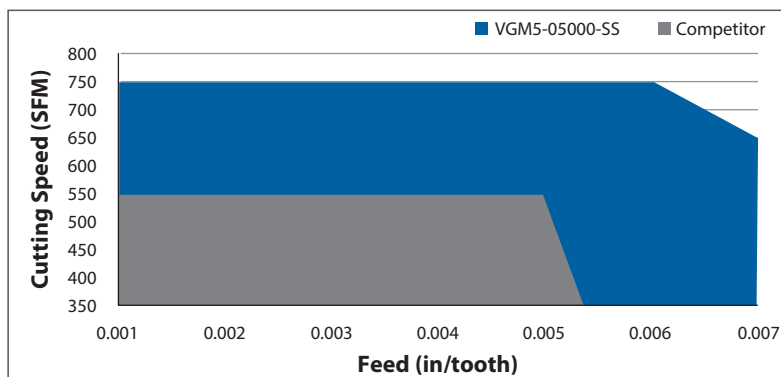
Tool	VGM5-02500-SS	Competitor
Tool Size	1/4"	
Work Material	1045 Medium Carbon Steel	
Milling Method	Side Milling	
Cutting Speed	450 SFM (6,870 RPM)	
Feed	68.7 IPM (.002IPT)	
Depth of Cut	Aa=0.375", Ar=0.075"	
Coolant	Water-Soluble	
Machine	Vertical Machining Center (CAT50)	



## VGM5 - Stable Performance in a Wide Range of Conditions

1045 Medium Carbon Steel

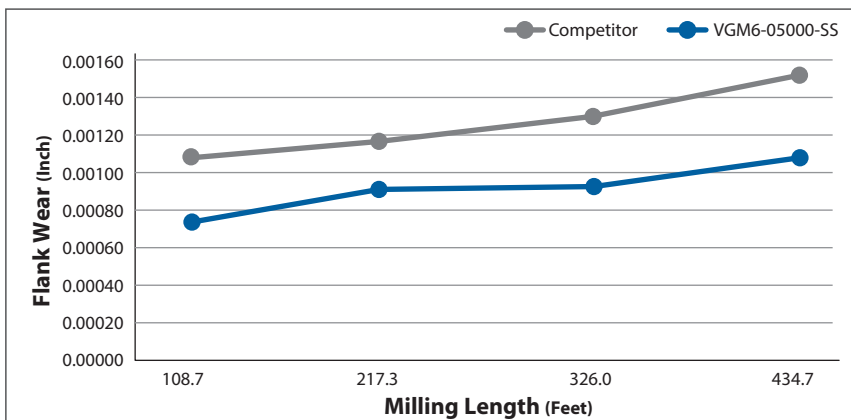
Tool Size	1/2"
Work Material	1045
Milling Method	Side Milling
Depth of Cut	Aa=0.625", Ar=0.15"
Coolant	Water-Soluble
Machine	Vertical Machining Center (CAT50)



## VGM6 - Stable Performance in 1045

### 1045 Medium Carbon Steel

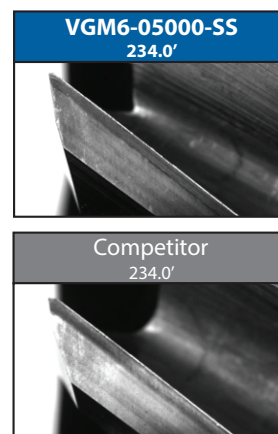
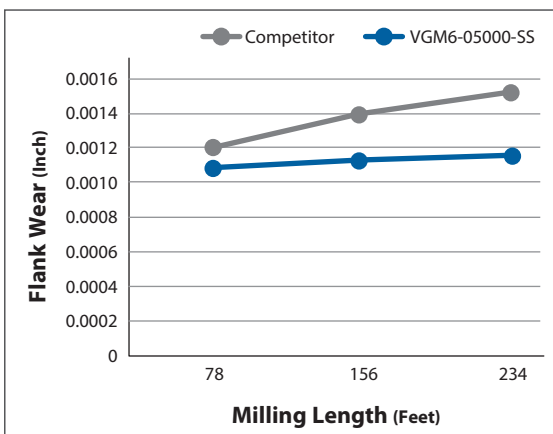
Tool	VGM6-05000-SS	Competitor
Tool Size	1/2"	
Work Material	1045	
Milling Method	Side Milling	
Cutting Speed	550 SFM(4,200 RPM)	
Feed	126 IPM(.005IPT)	
Depth of Cut	Aa=0.62", Ar=0.05"	
Coolant	Air blow	
Machine	Vertical Machininig Center (CAT50)	



## VGM6 - Stable Performance in Stainless Steel

### 304 Stainless Steel

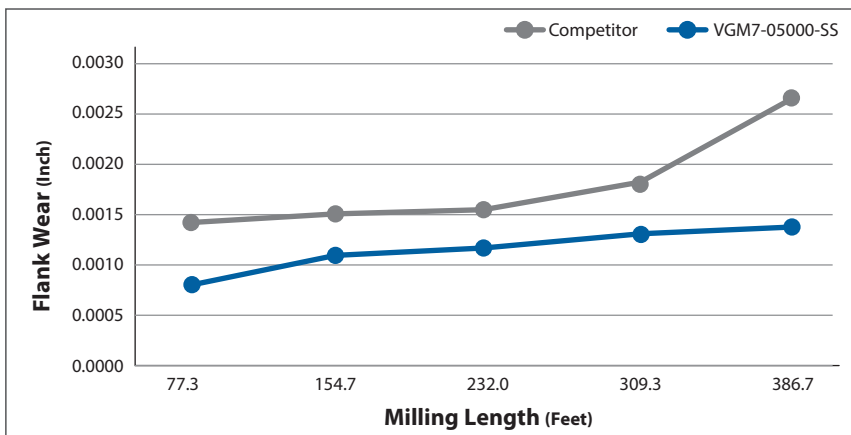
Tool	VGM6-05000-SS	Competitor
Tool Size	1/2"	
Work Material	304 Stainless Steel	
Milling Method	Side Milling	
Cutting Speed	200 SFM(1,530 RPM)	
Feed	45 IPM(.005IPT)	
Depth of Cut	Aa=.62", Ar=0.07"	
Coolant	Water-Soluble	
Machine	Vertical Machininig Center (CAT50)	



## VGM7 - Stable Performance in Stainless Steel

### 304 Stainless Steel

Tool	VGM7-05000-SS	Competitor
Tool Size	1/2"	
Work Material	304 Stainless Steel	
Milling Method	Side Milling	
Cutting Speed	200 SFM(1,530 RPM)	
Feed	53.5 IPM(.005IPT)	
Depth of Cut	Aa=0.62", Ar=0.07"	
Coolant	Water-Soluble	
Machine	Vertical Machininig Center (CAT50)	



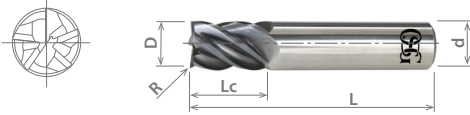
# HY-PRO® CARB VGM5

Cutting Data

## List VGM5

5 Flute, Multiple Lengths, Square & Corner Radius

<b>NEW</b>	<b>SPEED FEED</b> P20	<b>CARBIDE</b>	<b>EXO®</b>		<b>SHRINK FIT</b>
<b>Milling Diameter Tolerance</b>					
1/8 ≤ D ≤ 1			0/-0.011"		



Units: Inch

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Shank Diameter	Aspect Ratio
	D	R	L	Lc	d	Lc/D
VGM5-0001	1/8	-	1 1/2	3/16	1/8	1.50
VGM5-0002	1/8	0.010	1 1/2	3/16	1/8	1.50
VGM5-0003	1/8	-	1 1/2	1/4	1/8	2.00
VGM5-0004	1/8	0.010	1 1/2	1/4	1/8	2.00
VGM5-0005	1/8	0.015	1 1/2	1/4	1/8	2.00
VGM5-0006	1/8	0.030	1 1/2	1/4	1/8	2.00
VGM5-0007	1/8	-	1 1/2	3/8	1/8	3.00
VGM5-0008	1/8	0.010	1 1/2	3/8	1/8	3.00
VGM5-0009	1/8	-	2 1/4	1/2	1/8	4.00
VGM5-0010	1/8	0.010	2 1/4	1/2	1/8	4.00
VGM5-0011	1/8	0.015	2 1/4	1/2	1/8	4.00
VGM5-0012	1/8	0.030	2 1/4	1/2	1/8	4.00
VGM5-0013	1/8	-	2 1/4	5/8	1/8	5.00
VGM5-0014	1/8	0.010	2 1/4	5/8	1/8	5.00
VGM5-0015	1/8	-	2 1/4	3/4	1/8	6.00
VGM5-0016	1/8	0.010	2 1/4	3/4	1/8	6.00
VGM5-0017	1/8	0.015	2 1/4	3/4	1/8	6.00
VGM5-0018	1/8	0.030	2 1/4	3/4	1/8	6.00
VGM5-0019	5/32	-	2	15/64	5/32	1.50
VGM5-0020	5/32	0.010	2	15/64	5/32	1.50
VGM5-0021	5/32	-	2	5/16	5/32	2.00
VGM5-0022	5/32	0.010	2	5/16	5/32	2.00
VGM5-0023	5/32	-	2 1/4	15/32	5/32	3.00
VGM5-0024	5/32	0.010	2 1/4	15/32	5/32	3.00
VGM5-0025	3/16	-	2	9/32	3/16	1.50
VGM5-0026	3/16	0.010	2	9/32	3/16	1.50
VGM5-0027	3/16	0.015	2	9/32	3/16	1.50
VGM5-0028	3/16	0.030	2	9/32	3/16	1.50
VGM5-0029	3/16	-	2	3/8	3/16	2.00
VGM5-0030	3/16	0.010	2	3/8	3/16	2.00
VGM5-0031	3/16	-	2 1/4	9/16	3/16	3.00
VGM5-0032	3/16	0.010	2 1/4	9/16	3/16	3.00
VGM5-0033	3/16	0.015	2 1/4	9/16	3/16	3.00
VGM5-0034	3/16	0.030	2 1/4	9/16	3/16	3.00
VGM5-0035	3/16	-	2 1/4	3/4	3/16	4.00
VGM5-0036	3/16	0.010	2 1/4	3/4	3/16	4.00
VGM5-0037	3/16	0.030	2 1/4	3/4	3/16	4.00
VGM5-0038	3/16	-	2 1/4	15/16	3/16	5.00
VGM5-0039	3/16	0.010	2 1/4	15/16	3/16	5.00
VGM5-0040	3/16	0.015	2 1/4	15/16	3/16	5.00
VGM5-0041	7/32	-	2	21/64	7/32	1.50
VGM5-0042	7/32	0.010	2	21/64	7/32	1.50
VGM5-0043	7/32	-	2 1/2	7/16	7/32	2.00
VGM5-0044	7/32	0.010	2 1/2	7/16	7/32	2.00
VGM5-0045	1/4	-	2	3/8	1/4	1.50
VGM5-0046	1/4	0.010	2	3/8	1/4	1.50
VGM5-0047	1/4	0.015	2	3/8	1/4	1.50
VGM5-0048	1/4	0.020	2	3/8	1/4	1.50
VGM5-0049	1/4	0.030	2	3/8	1/4	1.50
VGM5-0050	1/4	0.060	2	3/8	1/4	1.50
VGM5-0051	1/4	-	2 1/2	1/2	1/4	2.00
VGM5-0052	1/4	0.010	2 1/2	1/2	1/4	2.00
VGM5-0053	1/4	0.015	2 1/2	1/2	1/4	2.00
VGM5-0054	1/4	0.020	2 1/2	1/2	1/4	2.00
VGM5-0055	1/4	0.030	2 1/2	1/2	1/4	2.00
VGM5-0056	1/4	0.060	2 1/2	1/2	1/4	2.00
VGM5-0057	1/4	-	2 1/2	3/4	1/4	3.00
VGM5-0058	1/4	0.010	2 1/2	3/4	1/4	3.00
VGM5-0059	1/4	0.015	2 1/2	3/4	1/4	3.00
VGM5-0060	1/4	0.020	2 1/2	3/4	1/4	3.00
VGM5-0061	1/4	0.030	2 1/2	3/4	1/4	3.00
VGM5-0062	1/4	0.060	2 1/2	3/4	1/4	3.00
VGM5-0063	1/4	-	3	1	1/4	4.00

Packed: 1 pc.

Available EXO coating only.

Stock and availability vary - Please go to [osgtool.com](http://osgtool.com) or contact customer service to confirm availability.





### List VGM5



5 Flute, Multiple Lengths, Square & Corner Radius

Units: Inch

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Shank Diameter	Aspect Ratio
	D	R	L	Lc	d	Lc/D
VGM5-0064	1/4	0.010	3	1	1/4	4.00
VGM5-0065	1/4	0.015	3	1	1/4	4.00
VGM5-0066	1/4	0.020	3	1	1/4	4.00
VGM5-0067	1/4	0.030	3	1	1/4	4.00
VGM5-0068	1/4	0.060	3	1	1/4	4.00
VGM5-0069	1/4	-	3	1 1/4	1/4	5.00
VGM5-0070	1/4	0.020	3	1 1/4	1/4	5.00
VGM5-0071	1/4	-	3	1 1/2	1/4	6.00
VGM5-0072	1/4	0.020	3	1 1/2	1/4	6.00
VGM5-0073	9/32	-	2 1/2	27/64	9/32	1.50
VGM5-0074	9/32	0.020	2 1/2	27/64	9/32	1.50
VGM5-0075	9/32	-	2 1/2	9/16	9/32	2.00
VGM5-0076	9/32	0.020	2 1/2	9/16	9/32	2.00
VGM5-0077	9/32	-	3	27/32	9/32	3.00
VGM5-0078	9/32	0.020	3	27/32	9/32	3.00
VGM5-0079	5/16	-	2	15/32	5/16	1.50
VGM5-0080	5/16	0.010	2	15/32	5/16	1.50
VGM5-0081	5/16	0.020	2	15/32	5/16	1.50
VGM5-0082	5/16	0.030	2	15/32	5/16	1.50
VGM5-0083	5/16	0.060	2	15/32	5/16	1.50
VGM5-0084	5/16	-	2 1/2	5/8	5/16	2.00
VGM5-0085	5/16	0.010	2 1/2	5/8	5/16	2.00
VGM5-0086	5/16	0.020	2 1/2	5/8	5/16	2.00
VGM5-0087	5/16	0.030	2 1/2	5/8	5/16	2.00
VGM5-0088	5/16	0.060	2 1/2	5/8	5/16	2.00
VGM5-0089	5/16	-	3	15/16	5/16	3.00
VGM5-0090	5/16	0.020	3	15/16	5/16	3.00
VGM5-0091	5/16	0.030	3	15/16	5/16	3.00
VGM5-0092	5/16	0.060	3	15/16	5/16	3.00
VGM5-0093	5/16	-	3	1 1/4	5/16	4.00
VGM5-0094	5/16	0.020	3	1 1/4	5/16	4.00
VGM5-0095	3/8	-	2	9/16	3/8	1.50
VGM5-0096	3/8	0.010	2	9/16	3/8	1.50
VGM5-0097	3/8	0.015	2	9/16	3/8	1.50
VGM5-0098	3/8	0.020	2	9/16	3/8	1.50
VGM5-0099	3/8	0.030	2	9/16	3/8	1.50
VGM5-0100	3/8	0.060	2	9/16	3/8	1.50
VGM5-0101	3/8	0.090	2	9/16	3/8	1.50
VGM5-0102	3/8	-	2 1/2	3/4	3/8	2.00
VGM5-0103	3/8	0.010	2 1/2	3/4	3/8	2.00
VGM5-0104	3/8	0.020	2 1/2	3/4	3/8	2.00
VGM5-0105	3/8	0.030	2 1/2	3/4	3/8	2.00
VGM5-0106	3/8	0.060	2 1/2	3/4	3/8	2.00
VGM5-0107	3/8	0.090	2 1/2	3/4	3/8	2.00
VGM5-0108	3/8	-	3	1 1/8	3/8	3.00
VGM5-0109	3/8	0.010	3	1 1/8	3/8	3.00
VGM5-0110	3/8	0.015	3	1 1/8	3/8	3.00
VGM5-0111	3/8	0.020	3	1 1/8	3/8	3.00
VGM5-0112	3/8	0.030	3	1 1/8	3/8	3.00
VGM5-0113	3/8	0.060	3	1 1/8	3/8	3.00
VGM5-0114	3/8	0.090	3	1 1/8	3/8	3.00
VGM5-0115	3/8	-	4	1 1/2	3/8	4.00
VGM5-0116	3/8	0.010	4	1 1/2	3/8	4.00
VGM5-0117	3/8	0.020	4	1 1/2	3/8	4.00
VGM5-0118	3/8	0.030	4	1 1/2	3/8	4.00
VGM5-0119	3/8	0.060	4	1 1/2	3/8	4.00
VGM5-0120	3/8	0.090	4	1 1/2	3/8	4.00
VGM5-0121	1/2	-	2 1/2	5/8	1/2	1.25

Packed: 1 pc.

Available EXO coating only.

Stock and availability vary - Please go to [osgtool.com](http://osgtool.com) or contact customer service to confirm availability.



List No.	Work Material																
	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High			300	400	17-4 PH		6061 7075	Casting			Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC
VGM5	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙			⊙	⊙	⊙	○			

○ good ⊙ best



# HY-PRO® CARB VGM5

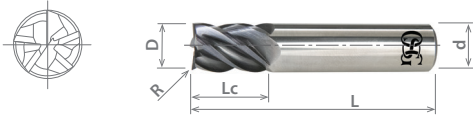
High Performance Variable Geometry End Mills

## List VGM5

5 Flute, Multiple Lengths, Square & Corner Radius

<b>NEW</b>	<b>SPEED FEED</b> P20	<b>CARBIDE</b>	<b>EXO®</b>		<b>SHRINK FIT</b>
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Milling Diameter Tolerance	
1/8 ≤ D ≤ 1	0/-0.011"



Units: Inch

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Shank Diameter	Aspect Ratio
	D	R	L	Lc	d	Lc/D
VGM5-0122	1/2	0.010	2 1/2	5/8	1/2	1.25
VGM5-0123	1/2	0.015	2 1/2	5/8	1/2	1.25
VGM5-0124	1/2	0.020	2 1/2	5/8	1/2	1.25
VGM5-0125	1/2	0.030	2 1/2	5/8	1/2	1.25
VGM5-0126	1/2	0.060	2 1/2	5/8	1/2	1.25
VGM5-0127	1/2	0.090	2 1/2	5/8	1/2	1.25
VGM5-0128	1/2	0.120	2 1/2	5/8	1/2	1.25
VGM5-0129	1/2	0.125	2 1/2	5/8	1/2	1.25
VGM5-0130	1/2	-	3	1	1/2	2.00
VGM5-0131	1/2	0.010	3	1	1/2	2.00
VGM5-0132	1/2	0.015	3	1	1/2	2.00
VGM5-0133	1/2	0.020	3	1	1/2	2.00
VGM5-0134	1/2	0.030	3	1	1/2	2.00
VGM5-0135	1/2	0.060	3	1	1/2	2.00
VGM5-0136	1/2	0.090	3	1	1/2	2.00
VGM5-0137	1/2	0.120	3	1	1/2	2.00
VGM5-0138	1/2	0.125	3	1	1/2	2.00
VGM5-0139	1/2	-	3	1 1/4	1/2	2.50
VGM5-0140	1/2	0.010	3	1 1/4	1/2	2.50
VGM5-0141	1/2	0.015	3	1 1/4	1/2	2.50
VGM5-0142	1/2	0.020	3	1 1/4	1/2	2.50
VGM5-0143	1/2	0.030	3	1 1/4	1/2	2.50
VGM5-0144	1/2	0.060	3	1 1/4	1/2	2.50
VGM5-0145	1/2	0.090	3	1 1/4	1/2	2.50
VGM5-0146	1/2	0.120	3	1 1/4	1/2	2.50
VGM5-0147	1/2	0.125	3	1 1/4	1/2	2.50
VGM5-0148	1/2	-	4	1 1/2	1/2	3.00
VGM5-0149	1/2	0.010	4	1 1/2	1/2	3.00
VGM5-0150	1/2	0.030	4	1 1/2	1/2	3.00
VGM5-0151	1/2	0.060	4	1 1/2	1/2	3.00
VGM5-0152	1/2	0.090	4	1 1/2	1/2	3.00
VGM5-0153	1/2	0.120	4	1 1/2	1/2	3.00
VGM5-0154	1/2	0.125	4	1 1/2	1/2	3.00
VGM5-0155	1/2	-	4	2	1/2	4.00
VGM5-0156	1/2	0.010	4	2	1/2	4.00
VGM5-0157	1/2	0.030	4	2	1/2	4.00
VGM5-0158	1/2	0.060	4	2	1/2	4.00
VGM5-0159	1/2	0.120	4	2	1/2	4.00
VGM5-0160	1/2	-	5	2 1/2	1/2	5.00
VGM5-0161	1/2	0.010	5	2 1/2	1/2	5.00
VGM5-0162	1/2	0.030	5	2 1/2	1/2	5.00
VGM5-0163	1/2	0.060	5	2 1/2	1/2	5.00
VGM5-0164	1/2	0.120	5	2 1/2	1/2	5.00
VGM5-0165	5/8	-	3	25/32	5/8	1.25
VGM5-0166	5/8	0.020	3	25/32	5/8	1.25
VGM5-0167	5/8	0.030	3	25/32	5/8	1.25
VGM5-0168	5/8	0.060	3	25/32	5/8	1.25
VGM5-0169	5/8	0.090	3	25/32	5/8	1.25
VGM5-0170	5/8	0.120	3	25/32	5/8	1.25
VGM5-0171	5/8	-	3	15/16	5/8	1.50
VGM5-0172	5/8	0.020	3	15/16	5/8	1.50
VGM5-0173	5/8	0.030	3	15/16	5/8	1.50
VGM5-0174	5/8	0.060	3	15/16	5/8	1.50
VGM5-0175	5/8	0.090	3	15/16	5/8	1.50
VGM5-0176	5/8	0.120	3	15/16	5/8	1.50
VGM5-0177	5/8	-	3 1/2	1 1/4	5/8	2.00
VGM5-0178	5/8	0.020	3 1/2	1 1/4	5/8	2.00
VGM5-0179	5/8	0.030	3 1/2	1 1/4	5/8	2.00
VGM5-0180	5/8	0.060	3 1/2	1 1/4	5/8	2.00
VGM5-0181	5/8	0.090	3 1/2	1 1/4	5/8	2.00
VGM5-0182	5/8	0.120	3 1/2	1 1/4	5/8	2.00
VGM5-0183	5/8	-	3 1/2	1 9/16	5/8	2.50

Packed: 1 pc.

Available EXO coating only.

Stock and availability vary - Please go to [osgtool.com](http://osgtool.com) or contact customer service to confirm availability.





### List VGM5

5 Flute, Multiple Lengths, Square & Corner Radius

NEW
SPEED FEED P20
CARBIDE
EXO\*
40°
SHRINK FIT

Units: Inch

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Shank Diameter	Aspect Ratio
	D	R	L	Lc	d	Lc/D
VGM5-0184	5/8	0.020	3 1/2	1 9/16	5/8	2.50
VGM5-0185	5/8	0.030	3 1/2	1 9/16	5/8	2.50
VGM5-0186	5/8	0.060	3 1/2	1 9/16	5/8	2.50
VGM5-0187	5/8	0.090	3 1/2	1 9/16	5/8	2.50
VGM5-0188	5/8	0.120	3 1/2	1 9/16	5/8	2.50
VGM5-0189	5/8	-	5	1 7/8	5/8	3.00
VGM5-0190	5/8	0.020	5	1 7/8	5/8	3.00
VGM5-0191	5/8	0.030	5	1 7/8	5/8	3.00
VGM5-0192	5/8	0.060	5	1 7/8	5/8	3.00
VGM5-0193	5/8	0.090	5	1 7/8	5/8	3.00
VGM5-0194	5/8	0.120	5	1 7/8	5/8	3.00
VGM5-0195	5/8	-	5	2 1/2	5/8	4.00
VGM5-0196	5/8	0.020	5	2 1/2	5/8	4.00
VGM5-0197	5/8	0.030	5	2 1/2	5/8	4.00
VGM5-0198	5/8	0.060	5	2 1/2	5/8	4.00
VGM5-0199	5/8	0.090	5	2 1/2	5/8	4.00
VGM5-0200	5/8	0.120	5	2 1/2	5/8	4.00
VGM5-0201	3/4	-	3	15/16	3/4	1.25
VGM5-0202	3/4	0.020	3	15/16	3/4	1.25
VGM5-0203	3/4	0.030	3	15/16	3/4	1.25
VGM5-0204	3/4	0.060	3	15/16	3/4	1.25
VGM5-0205	3/4	0.090	3	15/16	3/4	1.25
VGM5-0206	3/4	0.120	3	15/16	3/4	1.25
VGM5-0207	3/4	0.190	3	15/16	3/4	1.25
VGM5-0208	3/4	0.250	3	15/16	3/4	1.25
VGM5-0209	3/4	-	4	1 1/8	3/4	1.50
VGM5-0210	3/4	0.020	4	1 1/8	3/4	1.50
VGM5-0211	3/4	0.030	4	1 1/8	3/4	1.50
VGM5-0212	3/4	0.060	4	1 1/8	3/4	1.50
VGM5-0213	3/4	0.090	4	1 1/8	3/4	1.50
VGM5-0214	3/4	0.120	4	1 1/8	3/4	1.50
VGM5-0215	3/4	0.190	4	1 1/8	3/4	1.50
VGM5-0216	3/4	0.250	4	1 1/8	3/4	1.50
VGM5-0217	3/4	-	4	1 1/2	3/4	2.00
VGM5-0218	3/4	0.020	4	1 1/2	3/4	2.00
VGM5-0219	3/4	0.030	4	1 1/2	3/4	2.00
VGM5-0220	3/4	0.060	4	1 1/2	3/4	2.00
VGM5-0221	3/4	0.090	4	1 1/2	3/4	2.00
VGM5-0222	3/4	0.120	4	1 1/2	3/4	2.00
VGM5-0223	3/4	0.190	4	1 1/2	3/4	2.00
VGM5-0224	3/4	0.250	4	1 1/2	3/4	2.00
VGM5-0225	3/4	-	5	2 1/4	3/4	3.00
VGM5-0226	3/4	0.020	5	2 1/4	3/4	3.00
VGM5-0227	3/4	0.030	5	2 1/4	3/4	3.00
VGM5-0228	3/4	0.060	5	2 1/4	3/4	3.00
VGM5-0229	3/4	0.090	5	2 1/4	3/4	3.00
VGM5-0230	3/4	0.120	5	2 1/4	3/4	3.00
VGM5-0231	3/4	0.190	5	2 1/4	3/4	3.00
VGM5-0232	3/4	0.250	5	2 1/4	3/4	3.00
VGM5-0233	3/4	-	6	3	3/4	4.00
VGM5-0234	3/4	0.020	6	3	3/4	4.00
VGM5-0235	3/4	0.030	6	3	3/4	4.00
VGM5-0236	3/4	0.060	6	3	3/4	4.00
VGM5-0237	3/4	0.090	6	3	3/4	4.00
VGM5-0238	3/4	0.120	6	3	3/4	4.00
VGM5-0239	3/4	0.190	6	3	3/4	4.00
VGM5-0240	3/4	0.250	6	3	3/4	4.00
VGM5-0241	3/4	-	7	3 3/4	3/4	5.00

Packed: 1 pc.

Available EXO coating only.

Stock and availability vary - Please go to [osgtool.com](http://osgtool.com) or contact customer service to confirm availability.

continued on next page

List No.	Work Material																
	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
Low	Med.	High	4140 4340		300	400	17-4 PH		6061 7075	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	
VGM5	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙		⊙	⊙	⊙	○			

○ good ⊙ best



# HY-PRO® CARB VGM5

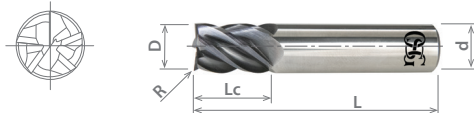
High Performance Variable Geometry End Mills

## List VGM5

5 Flute, Multiple Lengths, Square & Corner Radius

<b>NEW</b>	<b>SPEED FEED</b> P20	<b>CARBIDE</b>	<b>EXO</b>		<b>SHRINK FIT</b>
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Milling Diameter Tolerance	
1/8 ≤ D ≤ 1	0/-0.001"



Units: Inch

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Shank Diameter	Aspect Ratio
	D	R	L	Lc	d	Lc/D
VGM5-0242	3/4	0.020	7	3 3/4	3/4	5.00
VGM5-0243	3/4	0.030	7	3 3/4	3/4	5.00
VGM5-0244	3/4	0.060	7	3 3/4	3/4	5.00
VGM5-0245	3/4	0.090	7	3 3/4	3/4	5.00
VGM5-0246	3/4	0.120	7	3 3/4	3/4	5.00
VGM5-0247	3/4	0.190	7	3 3/4	3/4	5.00
VGM5-0248	3/4	0.250	7	3 3/4	3/4	5.00
VGM5-0249	1	-	4	1 1/4	1	1.25
VGM5-0250	1	0.030	4	1 1/4	1	1.25
VGM5-0251	1	0.060	4	1 1/4	1	1.25
VGM5-0252	1	0.090	4	1 1/4	1	1.25
VGM5-0253	1	0.120	4	1 1/4	1	1.25
VGM5-0254	1	0.190	4	1 1/4	1	1.25
VGM5-0255	1	0.250	4	1 1/4	1	1.25
VGM5-0256	1	-	5	2	1	2.00
VGM5-0257	1	0.030	5	2	1	2.00
VGM5-0258	1	0.060	5	2	1	2.00
VGM5-0259	1	0.090	5	2	1	2.00
VGM5-0260	1	0.120	5	2	1	2.00
VGM5-0261	1	0.190	5	2	1	2.00
VGM5-0262	1	0.250	5	2	1	2.00
VGM5-0263	1	-	6	3	1	3.00
VGM5-0264	1	0.030	6	3	1	3.00
VGM5-0265	1	0.060	6	3	1	3.00
VGM5-0266	1	0.090	6	3	1	3.00
VGM5-0267	1	0.120	6	3	1	3.00
VGM5-0268	1	0.190	6	3	1	3.00
VGM5-0269	1	0.250	6	3	1	3.00
VGM5-0270	1	-	7	4	1	4.00
VGM5-0271	1	0.030	7	4	1	4.00
VGM5-0272	1	0.060	7	4	1	4.00
VGM5-0273	1	0.090	7	4	1	4.00
VGM5-0274	1	0.120	7	4	1	4.00
VGM5-0275	1	0.190	7	4	1	4.00
VGM5-0276	1	0.250	7	4	1	4.00

Packed: 1 pc.

Available EXO coating only.

Stock and availability vary - Please go to [osgtool.com](http://osgtool.com) or contact customer service to confirm availability.



Work Material																	
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High			300	400	17-4 PH		6061	Casting			Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC
VGM5	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙			⊙	⊙	⊙	○		

○ good ⊙ best

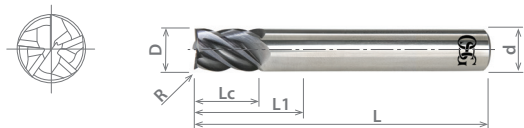


## List VGM5-LN

5 Flute, Long neck, Square & Corner Radius

**NEW** SPEED FEED P21 CARBIDE EXO® 40° SHRINK FIT

Milling Diameter Tolerance	
1/8 ≤ D ≤ 1	0/-0.0011"



Units: Inch

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck length	Neck Diameter	Shank Diameter	Aspect Ratio
	D	R	L	Lc	L1	d1	d	Lc/D
VGM5-1001	1/8	-	2 1/4	5/32	3/8	0.118	1/8	3
VGM5-1002	1/8	0.010	2 1/4	5/32	3/8	0.118	1/8	3
VGM5-1003	1/8	0.015	2 1/4	5/32	3/8	0.118	1/8	3
VGM5-1004	1/8	0.030	2 1/4	5/32	3/8	0.118	1/8	3
VGM5-1005	1/8	-	2 1/4	5/32	1/2	0.118	1/8	4
VGM5-1006	1/8	0.010	2 1/4	5/32	1/2	0.118	1/8	4
VGM5-1007	1/8	0.015	2 1/4	5/32	1/2	0.118	1/8	4
VGM5-1008	1/8	0.030	2 1/4	5/32	1/2	0.118	1/8	4
VGM5-1009	1/8	-	3	5/32	3/4	0.118	1/8	6
VGM5-1010	1/8	0.010	3	5/32	3/4	0.118	1/8	6
VGM5-1011	1/8	0.015	3	5/32	3/4	0.118	1/8	6
VGM5-1012	1/8	0.030	3	5/32	3/4	0.118	1/8	6
VGM5-1013	1/8	-	3	5/32	1	0.118	1/8	8
VGM5-1014	1/8	0.010	3	5/32	1	0.118	1/8	8
VGM5-1015	1/8	0.015	3	5/32	1	0.118	1/8	8
VGM5-1016	1/8	0.030	3	5/32	1	0.118	1/8	8
VGM5-1017	3/16	-	2	15/64	9/16	0.178	3/16	3
VGM5-1018	3/16	0.010	2	15/64	9/16	0.178	3/16	3
VGM5-1019	3/16	0.015	2	15/64	9/16	0.178	3/16	3
VGM5-1020	3/16	0.030	2	15/64	9/16	0.178	3/16	3
VGM5-1021	3/16	-	2	15/64	3/4	0.178	3/16	4
VGM5-1022	3/16	0.010	2	15/64	3/4	0.178	3/16	4
VGM5-1023	3/16	0.030	3	15/64	3/4	0.178	3/16	4
VGM5-1024	3/16	-	3	15/64	1 1/8	0.178	3/16	6
VGM5-1025	3/16	0.010	3	15/64	1 1/8	0.178	3/16	6
VGM5-1026	3/16	0.015	3	15/64	1 1/8	0.178	3/16	6
VGM5-1027	3/16	0.030	3	15/64	1 1/8	0.178	3/16	6
VGM5-1028	3/16	-	3	15/64	1 5/16	0.178	3/16	7
VGM5-1029	3/16	0.010	3	15/64	1 5/16	0.178	3/16	7
VGM5-1030	3/16	0.030	3	15/64	1 5/16	0.178	3/16	7
VGM5-1031	1/4	-	4	5/16	3/4	0.237	1/4	3
VGM5-1032	1/4	0.010	4	5/16	3/4	0.237	1/4	3
VGM5-1033	1/4	0.015	4	5/16	3/4	0.237	1/4	3
VGM5-1034	1/4	0.020	4	5/16	3/4	0.237	1/4	3
VGM5-1035	1/4	0.030	4	5/16	3/4	0.237	1/4	3
VGM5-1036	1/4	0.060	4	5/16	3/4	0.237	1/4	3
VGM5-1037	1/4	-	4	5/16	1	0.237	1/4	4
VGM5-1038	1/4	0.010	4	5/16	1	0.237	1/4	4
VGM5-1039	1/4	0.015	4	5/16	1	0.237	1/4	4
VGM5-1040	1/4	0.020	4	5/16	1	0.237	1/4	4
VGM5-1041	1/4	0.030	4	5/16	1	0.237	1/4	4
VGM5-1042	1/4	0.060	4	5/16	1	0.237	1/4	4
VGM5-1043	1/4	-	4	5/16	1 1/4	0.237	1/4	5
VGM5-1044	1/4	0.010	4	5/16	1 1/4	0.237	1/4	5
VGM5-1045	1/4	0.015	4	5/16	1 1/4	0.237	1/4	5
VGM5-1046	1/4	0.020	4	5/16	1 1/4	0.237	1/4	5
VGM5-1047	1/4	0.030	4	5/16	1 1/4	0.237	1/4	5
VGM5-1048	1/4	0.060	4	5/16	1 1/4	0.237	1/4	5
VGM5-1049	1/4	-	4	5/16	1 1/2	0.237	1/4	6
VGM5-1050	1/4	0.010	4	5/16	1 1/2	0.237	1/4	6
VGM5-1051	1/4	0.015	4	5/16	1 1/2	0.237	1/4	6
VGM5-1052	1/4	0.020	4	5/16	1 1/2	0.237	1/4	6

Packed: 1 pc.

Available EXO coating only.

Stock and availability vary - Please go to [osgtool.com](http://osgtool.com) or contact customer service to confirm availability.



### Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High			300	400	17-4 PH		6061 7075	Casting			Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC
VGM5-LN	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙			⊙	⊙	⊙	○		

○ good ⊙ best



# HY-PRO® CARB VGM5-LN

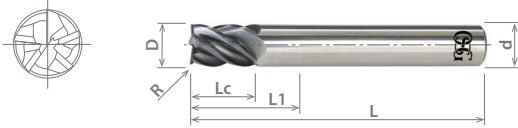
High Performance Variable Geometry End Mills

## List VGM5-LN

5 Flute, Long neck, Square & Corner Radius

<b>NEW</b>	<b>SPEED FEED</b> P21	<b>CARBIDE</b>	<b>EXO®</b>		<b>40°</b>	<b>SHRINK</b> <b>FIT</b>
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Milling Diameter Tolerance	
1/8 ≤ D ≤ 1	0/-0.011"



Units: Inch

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck length	Neck Diameter	Shank Diameter	Aspect Ratio
	D	R	L	Lc	L1	d1	d	Lc/D
VGM5-1053	1/4	0.030	4	5/16	1 1/2	0.237	1/4	6
VGM5-1054	1/4	0.060	4	5/16	1 1/2	0.237	1/4	6
VGM5-1055	1/4	-	4	5/16	2	0.237	1/4	8
VGM5-1056	1/4	0.020	4	5/16	2	0.237	1/4	8
VGM5-1057	1/4	-	4	5/16	2 1/2	0.237	1/4	10
VGM5-1058	1/4	0.020	4	5/16	2 1/2	0.237	1/4	10
VGM5-1059	3/8	-	4	15/32	1 1/8	0.356	3/8	3
VGM5-1060	3/8	0.010	4	15/32	1 1/8	0.356	3/8	3
VGM5-1061	3/8	0.015	4	15/32	1 1/8	0.356	3/8	3
VGM5-1062	3/8	0.020	4	15/32	1 1/8	0.356	3/8	3
VGM5-1063	3/8	0.030	4	15/32	1 1/8	0.356	3/8	3
VGM5-1064	3/8	0.060	4	15/32	1 1/8	0.356	3/8	3
VGM5-1065	3/8	0.090	4	15/32	1 1/8	0.356	3/8	3
VGM5-1066	3/8	-	4	15/32	1 1/2	0.356	3/8	4
VGM5-1067	3/8	0.010	4	15/32	1 1/2	0.356	3/8	4
VGM5-1068	3/8	0.020	4	15/32	1 1/2	0.356	3/8	4
VGM5-1069	3/8	0.030	4	15/32	1 1/2	0.356	3/8	4
VGM5-1070	3/8	0.060	4	15/32	1 1/2	0.356	3/8	4
VGM5-1071	3/8	0.090	4	15/32	1 1/2	0.356	3/8	4
VGM5-1072	3/8	-	4	15/32	1 7/8	0.356	3/8	5
VGM5-1073	3/8	0.010	4	15/32	1 7/8	0.356	3/8	5
VGM5-1074	3/8	0.015	4	15/32	1 7/8	0.356	3/8	5
VGM5-1075	3/8	0.020	4	15/32	1 7/8	0.356	3/8	5
VGM5-1076	3/8	0.030	4	15/32	1 7/8	0.356	3/8	5
VGM5-1077	3/8	0.060	4	15/32	1 7/8	0.356	3/8	5
VGM5-1078	3/8	0.090	4	15/32	1 7/8	0.356	3/8	5
VGM5-1079	3/8	-	5	15/32	2 1/4	0.356	3/8	6
VGM5-1080	3/8	0.010	5	15/32	2 1/4	0.356	3/8	6
VGM5-1081	3/8	0.020	5	15/32	2 1/4	0.356	3/8	6
VGM5-1082	3/8	0.030	5	15/32	2 1/4	0.356	3/8	6
VGM5-1083	3/8	0.060	5	15/32	2 1/4	0.356	3/8	6
VGM5-1084	3/8	0.090	5	15/32	2 1/4	0.356	3/8	6
VGM5-1085	3/8	-	6	15/32	3	0.356	3/8	8
VGM5-1086	3/8	0.010	6	15/32	3	0.356	3/8	8
VGM5-1087	3/8	0.020	6	15/32	3	0.356	3/8	8
VGM5-1088	3/8	0.030	6	15/32	3	0.356	3/8	8
VGM5-1089	3/8	0.060	6	15/32	3	0.356	3/8	8
VGM5-1090	3/8	0.090	6	15/32	3	0.356	3/8	8
VGM5-1091	1/2	-	4	5/8	1 1/2	0.475	1/2	3
VGM5-1092	1/2	0.010	4	5/8	1 1/2	0.475	1/2	3
VGM5-1093	1/2	0.015	4	5/8	1 1/2	0.475	1/2	3
VGM5-1094	1/2	0.020	4	5/8	1 1/2	0.475	1/2	3
VGM5-1095	1/2	0.030	4	5/8	1 1/2	0.475	1/2	3
VGM5-1096	1/2	0.060	4	5/8	1 1/2	0.475	1/2	3
VGM5-1097	1/2	0.090	4	5/8	1 1/2	0.475	1/2	3
VGM5-1098	1/2	0.120	4	5/8	1 1/2	0.475	1/2	3
VGM5-1099	1/2	0.125	4	5/8	1 1/2	0.475	1/2	3
VGM5-1100	1/2	-	4	5/8	2	0.475	1/2	4
VGM5-1101	1/2	0.010	4	5/8	2	0.475	1/2	4
VGM5-1102	1/2	0.015	4	5/8	2	0.475	1/2	4
VGM5-1103	1/2	0.020	4	5/8	2	0.475	1/2	4
VGM5-1104	1/2	0.030	4	5/8	2	0.475	1/2	4
VGM5-1105	1/2	0.060	4	5/8	2	0.475	1/2	4
VGM5-1106	1/2	0.090	4	5/8	2	0.475	1/2	4
VGM5-1107	1/2	0.120	4	5/8	2	0.475	1/2	4
VGM5-1108	1/2	0.125	4	5/8	2	0.475	1/2	4
VGM5-1109	1/2	-	5	5/8	2 1/2	0.475	1/2	5
VGM5-1110	1/2	0.010	5	5/8	2 1/2	0.475	1/2	5
VGM5-1111	1/2	0.015	5	5/8	2 1/2	0.475	1/2	5
VGM5-1112	1/2	0.020	5	5/8	2 1/2	0.475	1/2	5
VGM5-1113	1/2	0.030	5	5/8	2 1/2	0.475	1/2	5
VGM5-1114	1/2	0.060	5	5/8	2 1/2	0.475	1/2	5

Packed: 1 pc.

Available EXO coating only.

Stock and availability vary - Please go to [osgtool.com](http://osgtool.com) or contact customer service to confirm availability.





## List VGM5-LN

5 Flute, Long neck, Square & Corner Radius



Units: Inch

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck length	Neck Diameter	Shank Diameter	Aspect Ratio
	D	R	L	Lc	L1	d1	d	Lc/D
VGM5-1115	1/2	0.090	5	5/8	2 1/2	0.475	1/2	5
VGM5-1116	1/2	0.120	5	5/8	2 1/2	0.475	1/2	5
VGM5-1117	1/2	0.125	5	5/8	2 1/2	0.475	1/2	5
VGM5-1118	1/2	-	6	5/8	3	0.475	1/2	6
VGM5-1119	1/2	0.010	6	5/8	3	0.475	1/2	6
VGM5-1120	1/2	0.030	6	5/8	3	0.475	1/2	6
VGM5-1121	1/2	0.060	6	5/8	3	0.475	1/2	6
VGM5-1122	1/2	0.090	6	5/8	3	0.475	1/2	6
VGM5-1123	1/2	0.120	6	5/8	3	0.475	1/2	6
VGM5-1124	1/2	0.125	6	5/8	3	0.475	1/2	6
VGM5-1125	1/2	-	6	5/8	4	0.475	1/2	8
VGM5-1126	1/2	0.010	6	5/8	4	0.475	1/2	8
VGM5-1127	1/2	0.030	6	5/8	4	0.475	1/2	8
VGM5-1128	1/2	0.060	6	5/8	4	0.475	1/2	8
VGM5-1129	1/2	0.120	6	5/8	4	0.475	1/2	8
VGM5-1130	1/2	-	7	5/8	5	0.475	1/2	10
VGM5-1131	1/2	0.010	7	5/8	5	0.475	1/2	10
VGM5-1132	1/2	0.030	7	5/8	5	0.475	1/2	10
VGM5-1133	1/2	0.060	7	5/8	5	0.475	1/2	10
VGM5-1134	1/2	0.120	7	5/8	5	0.475	1/2	10
VGM5-1135	5/8	-	5	25/32	1 7/8	0.593	5/8	3
VGM5-1136	5/8	0.020	5	25/32	1 7/8	0.593	5/8	3
VGM5-1137	5/8	0.030	5	25/32	1 7/8	0.593	5/8	3
VGM5-1138	5/8	0.060	5	25/32	1 7/8	0.593	5/8	3
VGM5-1139	5/8	0.090	5	25/32	1 7/8	0.593	5/8	3
VGM5-1140	5/8	0.120	5	25/32	1 7/8	0.593	5/8	3
VGM5-1141	5/8	-	6	25/32	2 1/2	0.593	5/8	4
VGM5-1142	5/8	0.020	6	25/32	2 1/2	0.593	5/8	4
VGM5-1143	5/8	0.030	6	25/32	2 1/2	0.593	5/8	4
VGM5-1144	5/8	0.060	6	25/32	2 1/2	0.593	5/8	4
VGM5-1145	5/8	0.090	6	25/32	2 1/2	0.593	5/8	4
VGM5-1146	5/8	0.120	6	25/32	2 1/2	0.593	5/8	4
VGM5-1147	5/8	-	6	25/32	3 1/8	0.593	5/8	5
VGM5-1148	5/8	0.020	6	25/32	3 1/8	0.593	5/8	5
VGM5-1149	5/8	0.030	6	25/32	3 1/8	0.593	5/8	5
VGM5-1150	5/8	0.060	6	25/32	3 1/8	0.593	5/8	5
VGM5-1151	5/8	0.090	6	25/32	3 1/8	0.593	5/8	5
VGM5-1152	5/8	0.120	6	25/32	3 1/8	0.593	5/8	5
VGM5-1153	5/8	-	6	25/32	3 3/4	0.593	5/8	6
VGM5-1154	5/8	0.020	6	25/32	3 3/4	0.593	5/8	6
VGM5-1155	5/8	0.030	6	25/32	3 3/4	0.593	5/8	6
VGM5-1156	5/8	0.060	6	25/32	3 3/4	0.593	5/8	6
VGM5-1157	5/8	0.090	6	25/32	3 3/4	0.593	5/8	6
VGM5-1158	5/8	0.120	6	25/32	3 3/4	0.593	5/8	6
VGM5-1159	3/4	-	4	15/16	2 1/4	0.712	3/4	3
VGM5-1160	3/4	0.020	4	15/16	2 1/4	0.712	3/4	3
VGM5-1161	3/4	0.030	4	15/16	2 1/4	0.712	3/4	3
VGM5-1162	3/4	0.060	4	15/16	2 1/4	0.712	3/4	3
VGM5-1163	3/4	0.090	4	15/16	2 1/4	0.712	3/4	3
VGM5-1164	3/4	0.120	4	15/16	2 1/4	0.712	3/4	3
VGM5-1165	3/4	0.190	4	15/16	2 1/4	0.712	3/4	3
VGM5-1166	3/4	0.250	4	15/16	2 1/4	0.712	3/4	3
VGM5-1167	3/4	-	6	15/16	3	0.712	3/4	4
VGM5-1168	3/4	0.020	6	15/16	3	0.712	3/4	4
VGM5-1169	3/4	0.030	6	15/16	3	0.712	3/4	4
VGM5-1170	3/4	0.060	6	15/16	3	0.712	3/4	4
VGM5-1171	3/4	0.090	6	15/16	3	0.712	3/4	4
VGM5-1172	3/4	0.120	6	15/16	3	0.712	3/4	4

Packed: 1 pc.

Available EXO coating only.

Stock and availability vary - Please go to [osgtool.com](http://osgtool.com) or contact customer service to confirm availability.

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List No.	Work Material																
	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High	4140		300	400	17-4 PH			6061	Casting	Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC	45-50 HRC
VGM5-LN	1010	1035	1065	4340						7075							

good best



# HY-PRO® CARB VGM5-LN

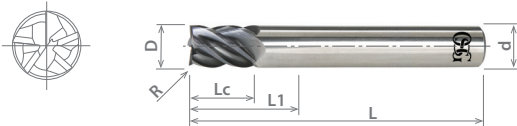
High Performance Variable Geometry End Mills

## List VGM5-LN

5 Flute, Long neck, Square & Corner Radius

<b>NEW</b>	<b>SPEED FEED</b> P21	<b>CARBIDE</b>	<b>EXO®</b>		<b>40°</b>	<b>SHRINK FIT</b>
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Milling Diameter Tolerance	
1/8 ≤ D ≤ 1	0/-0.0011"



Units: Inch

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Neck length	Neck Diameter	Shank Diameter	Aspect Ratio
	D	R	L	Lc	L1	d1	d	Lc/D
VGM5-1173	3/4	0.190	6	15/16	3	0.712	3/4	4
VGM5-1174	3/4	0.250	6	15/16	3	0.712	3/4	4
VGM5-1175	3/4	-	6	15/16	3 3/4	0.712	3/4	5
VGM5-1176	3/4	0.020	6	15/16	3 3/4	0.712	3/4	5
VGM5-1177	3/4	0.030	6	15/16	3 3/4	0.712	3/4	5
VGM5-1178	3/4	0.060	6	15/16	3 3/4	0.712	3/4	5
VGM5-1179	3/4	0.090	6	15/16	3 3/4	0.712	3/4	5
VGM5-1180	3/4	0.120	6	15/16	3 3/4	0.712	3/4	5
VGM5-1181	3/4	0.190	6	15/16	3 3/4	0.712	3/4	5
VGM5-1182	3/4	0.250	6	15/16	3 3/4	0.712	3/4	5
VGM5-1183	3/4	-	7	15/16	4 1/2	0.712	3/4	6
VGM5-1184	3/4	0.020	7	15/16	4 1/2	0.712	3/4	6
VGM5-1185	3/4	0.030	7	15/16	4 1/2	0.712	3/4	6
VGM5-1186	3/4	0.060	7	15/16	4 1/2	0.712	3/4	6
VGM5-1187	3/4	0.090	7	15/16	4 1/2	0.712	3/4	6
VGM5-1188	3/4	0.120	7	15/16	4 1/2	0.712	3/4	6
VGM5-1189	3/4	0.190	7	15/16	4 1/2	0.712	3/4	6
VGM5-1190	3/4	0.250	7	15/16	4 1/2	0.712	3/4	6
VGM5-1191	1	-	6	1 1/4	3	0.95	1	3
VGM5-1192	1	0.030	6	1 1/4	3	0.95	1	3
VGM5-1193	1	0.060	6	1 1/4	3	0.95	1	3
VGM5-1194	1	0.090	6	1 1/4	3	0.95	1	3
VGM5-1195	1	0.120	6	1 1/4	3	0.95	1	3
VGM5-1196	1	0.190	6	1 1/4	3	0.95	1	3
VGM5-1197	1	0.250	6	1 1/4	3	0.95	1	3
VGM5-1198	1	-	6	1 1/4	4	0.95	1	4
VGM5-1199	1	0.030	6	1 1/4	4	0.95	1	4
VGM5-1200	1	0.060	6	1 1/4	4	0.95	1	4
VGM5-1201	1	0.090	6	1 1/4	4	0.95	1	4
VGM5-1202	1	0.120	6	1 1/4	4	0.95	1	4
VGM5-1203	1	0.190	6	1 1/4	4	0.95	1	4
VGM5-1204	1	0.250	6	1 1/4	4	0.95	1	4
VGM5-1205	1	-	7	1 1/4	5	0.95	1	5
VGM5-1206	1	0.030	7	1 1/4	5	0.95	1	5
VGM5-1207	1	0.060	7	1 1/4	5	0.95	1	5
VGM5-1208	1	0.090	7	1 1/4	5	0.95	1	5
VGM5-1209	1	0.120	7	1 1/4	5	0.95	1	5
VGM5-1210	1	0.190	7	1 1/4	5	0.95	1	5
VGM5-1211	1	0.250	7	1 1/4	5	0.95	1	5

Packed: 1 pc.

Available EXO coating only.

Stock and availability vary - Please go to [osgtool.com](http://osgtool.com) or contact customer service to confirm availability.



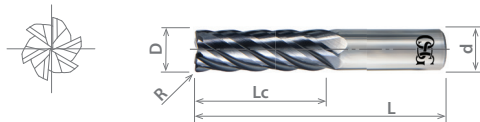
List No.	Work Material																
	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High			300	400	17-4 PH		6061 7075	Casting			Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC
VGM5-LN	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙		⊙	⊙	⊙	○			

○ good ⊙ best



### List VGM6

6 Flute, Multiple Lengths, Square & Corner Radius



**NEW** **SPEED FEED** P22 **CARBIDE** **EXO®** **37°** **SHRINK FIT**

Milling Diameter Tolerance	
1/4 ≤ D ≤ 1	0/-0.011"

Units: Inch

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Shank Diameter	Aspect Ratio
	D	R	L	Lc	d	Lc/D
VGM6-0001	1/4	-	2	3/8	1/4	1.50
VGM6-0002	1/4	0.02	2	3/8	1/4	1.50
VGM6-0003	1/4	0.03	2	3/8	1/4	1.50
VGM6-0004	1/4	0.06	2	3/8	1/4	1.50
VGM6-0005	1/4	-	2 1/2	1/2	1/4	2.00
VGM6-0006	1/4	0.02	2 1/2	1/2	1/4	2.00
VGM6-0007	1/4	0.03	2 1/2	1/2	1/4	2.00
VGM6-0008	1/4	0.06	2 1/2	1/2	1/4	2.00
VGM6-0009	1/4	-	2 1/2	3/4	1/4	3.00
VGM6-0010	1/4	0.02	2 1/2	3/4	1/4	3.00
VGM6-0011	1/4	0.03	2 1/2	3/4	1/4	3.00
VGM6-0012	1/4	0.06	2 1/2	3/4	1/4	3.00
VGM6-0013	1/4	-	3	1	1/4	4.00
VGM6-0014	1/4	0.02	3	1	1/4	4.00
VGM6-0015	1/4	0.03	3	1	1/4	4.00
VGM6-0016	1/4	0.06	3	1	1/4	4.00
VGM6-0017	1/4	-	3	1 1/4	1/4	5.00
VGM6-0018	1/4	0.02	3	1 1/4	1/4	5.00
VGM6-0019	1/4	0.03	3	1 1/4	1/4	5.00
VGM6-0020	1/4	0.06	3	1 1/4	1/4	5.00
VGM6-0021	1/4	-	3	1 1/2	1/4	6.00
VGM6-0022	1/4	0.02	3	1 1/2	1/4	6.00
VGM6-0023	1/4	0.03	3	1 1/2	1/4	6.00
VGM6-0024	1/4	0.06	3	1 1/2	1/4	6.00
VGM6-0025	5/16	-	2	15/32	5/16	1.50
VGM6-0026	5/16	0.02	2	15/32	5/16	1.50
VGM6-0027	5/16	0.03	2	15/32	5/16	1.50
VGM6-0028	5/16	0.06	2	15/32	5/16	1.50
VGM6-0029	5/16	-	2 1/2	5/8	5/16	2.00
VGM6-0030	5/16	0.02	2 1/2	5/8	5/16	2.00
VGM6-0031	5/16	0.03	2 1/2	5/8	5/16	2.00
VGM6-0032	5/16	0.06	2 1/2	5/8	5/16	2.00
VGM6-0033	5/16	-	3	15/16	5/16	3.00
VGM6-0034	5/16	0.02	3	15/16	5/16	3.00
VGM6-0035	5/16	0.03	3	15/16	5/16	3.00
VGM6-0036	5/16	0.06	3	15/16	5/16	3.00
VGM6-0037	5/16	-	3	1 1/4	5/16	4.00
VGM6-0038	5/16	0.02	3	1 1/4	5/16	4.00
VGM6-0039	5/16	0.03	3	1 1/4	5/16	4.00
VGM6-0040	5/16	0.06	3	1 1/4	5/16	4.00
VGM6-0041	3/8	-	2	9/16	3/8	1.50
VGM6-0042	3/8	0.02	2	9/16	3/8	1.50
VGM6-0043	3/8	0.03	2	9/16	3/8	1.50
VGM6-0044	3/8	0.06	2	9/16	3/8	1.50
VGM6-0045	3/8	0.09	2	9/16	3/8	1.50
VGM6-0046	3/8	-	2 1/2	3/4	3/8	2.00
VGM6-0047	3/8	0.02	2 1/2	3/4	3/8	2.00
VGM6-0048	3/8	0.03	2 1/2	3/4	3/8	2.00
VGM6-0049	3/8	0.06	2 1/2	3/4	3/8	2.00
VGM6-0050	3/8	0.09	2 1/2	3/4	3/8	2.00
VGM6-0051	3/8	-	3	1 1/8	3/8	3.00
VGM6-0052	3/8	0.02	3	1 1/8	3/8	3.00
VGM6-0053	3/8	0.03	3	1 1/8	3/8	3.00
VGM6-0054	3/8	0.06	3	1 1/8	3/8	3.00
VGM6-0055	3/8	0.09	3	1 1/8	3/8	3.00
VGM6-0056	3/8	-	4	1 1/2	3/8	4.00
VGM6-0057	3/8	0.02	4	1 1/2	3/8	4.00

Packed: 1 pc.

Available EXO coating only.

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continued on next page

#### Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High			300	400	17-4 PH		6061 7075	Casting			Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC
VGM6	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙			⊙	⊙	⊙	○		

○ good ⊙ best

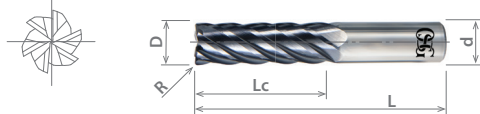


# HY-PRO® CARB VGM6

High Performance Variable Geometry End Mills

## List VGM6

6 Flute, Multiple Lengths, Square & Corner Radius



<b>NEW</b>	<b>SPEED FEED</b> P22	<b>CARBIDE</b>	<b>EXO®</b>		<b>37°</b>	<b>SHRINK FIT</b>
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Milling Diameter Tolerance	
1/4 ≤ D ≤ 1	0/-0.001"

Units: Inch

EDP Number	Mill Diameter		Corner Radius	Overall Length		Length of Cut	Shank Diameter	Aspect Ratio	
	D	R	R	L	Lc	d	Lc/D		
VGM6-0058	3/8	0.03		4	1 1/2	3/8	4.00		
VGM6-0059	3/8	0.06		4	1 1/2	3/8	4.00		
VGM6-0060	3/8	0.09		4	1 1/2	3/8	4.00		
VGM6-0061	1/2	-		2 1/2	5/8	1/2	1.25		
VGM6-0062	1/2	0.03		2 1/2	5/8	1/2	1.25		
VGM6-0063	1/2	0.06		2 1/2	5/8	1/2	1.25		
VGM6-0064	1/2	0.09		2 1/2	5/8	1/2	1.25		
VGM6-0065	1/2	0.12		2 1/2	5/8	1/2	1.25		
VGM6-0066	1/2	0.125		2 1/2	5/8	1/2	1.25		
VGM6-0067	1/2	-		3	1	1/2	2.00		
VGM6-0068	1/2	0.03		3	1	1/2	2.00		
VGM6-0069	1/2	0.06		3	1	1/2	2.00		
VGM6-0070	1/2	0.09		3	1	1/2	2.00		
VGM6-0071	1/2	0.12		3	1	1/2	2.00		
VGM6-0072	1/2	0.125		3	1	1/2	2.00		
VGM6-0073	1/2	-		3	1 1/4	1/2	2.50		
VGM6-0074	1/2	0.03		3	1 1/4	1/2	2.50		
VGM6-0075	1/2	0.06		3	1 1/4	1/2	2.50		
VGM6-0076	1/2	0.09		3	1 1/4	1/2	2.50		
VGM6-0077	1/2	0.12		3	1 1/4	1/2	2.50		
VGM6-0078	1/2	0.125		3	1 1/4	1/2	2.50		
VGM6-0079	1/2	-		4	1 1/2	1/2	3.00		
VGM6-0080	1/2	0.03		4	1 1/2	1/2	3.00		
VGM6-0081	1/2	0.06		4	1 1/2	1/2	3.00		
VGM6-0082	1/2	0.09		4	1 1/2	1/2	3.00		
VGM6-0083	1/2	0.12		4	1 1/2	1/2	3.00		
VGM6-0084	1/2	0.125		4	1 1/2	1/2	3.00		
VGM6-0085	1/2	-		4	2	1/2	4.00		
VGM6-0086	1/2	0.03		4	2	1/2	4.00		
VGM6-0087	1/2	0.06		4	2	1/2	4.00		
VGM6-0088	1/2	0.09		4	2	1/2	4.00		
VGM6-0089	1/2	0.12		4	2	1/2	4.00		
VGM6-0090	1/2	0.125		4	2	1/2	4.00		
VGM6-0091	5/8	-		3	25/32	5/8	1.25		
VGM6-0092	5/8	0.02		3	25/32	5/8	1.25		
VGM6-0093	5/8	0.03		3	25/32	5/8	1.25		
VGM6-0094	5/8	0.06		3	25/32	5/8	1.25		
VGM6-0095	5/8	0.09		3	25/32	5/8	1.25		
VGM6-0096	5/8	0.12		3	25/32	5/8	1.25		
VGM6-0097	5/8	0.125		3	25/32	5/8	1.25		
VGM6-0098	5/8	-		3 1/2	1 1/4	5/8	2.00		
VGM6-0099	5/8	0.02		3 1/2	1 1/4	5/8	2.00		
VGM6-0100	5/8	0.03		3 1/2	1 1/4	5/8	2.00		
VGM6-0101	5/8	0.06		3 1/2	1 1/4	5/8	2.00		
VGM6-0102	5/8	0.09		3 1/2	1 1/4	5/8	2.00		
VGM6-0103	5/8	0.12		3 1/2	1 1/4	5/8	2.00		
VGM6-0104	5/8	0.125		3 1/2	1 1/4	5/8	2.00		
VGM6-0105	5/8	-		3 1/2	1 9/16	5/8	2.50		
VGM6-0106	5/8	0.02		3 1/2	1 9/16	5/8	2.50		
VGM6-0107	5/8	0.03		3 1/2	1 9/16	5/8	2.50		
VGM6-0108	5/8	0.06		3 1/2	1 9/16	5/8	2.50		
VGM6-0109	5/8	0.09		3 1/2	1 9/16	5/8	2.50		
VGM6-0110	5/8	0.12		3 1/2	1 9/16	5/8	2.50		
VGM6-0111	5/8	0.125		3 1/2	1 9/16	5/8	2.50		
VGM6-0112	5/8	-		5	1 7/8	5/8	3.00		
VGM6-0113	5/8	0.02		5	1 7/8	5/8	3.00		
VGM6-0114	5/8	0.03		5	1 7/8	5/8	3.00		
VGM6-0115	5/8	0.06		5	1 7/8	5/8	3.00		
VGM6-0116	5/8	0.09		5	1 7/8	5/8	3.00		
VGM6-0117	5/8	0.12		5	1 7/8	5/8	3.00		
VGM6-0118	5/8	0.125		5	1 7/8	5/8	3.00		
VGM6-0119	5/8	-		5	2 1/2	5/8	4.00		
VGM6-0120	5/8	0.02		5	2 1/2	5/8	4.00		
VGM6-0121	5/8	0.03		5	2 1/2	5/8	4.00		
VGM6-0122	5/8	0.06		5	2 1/2	5/8	4.00		
VGM6-0123	5/8	0.09		5	2 1/2	5/8	4.00		
VGM6-0124	5/8	0.12		5	2 1/2	5/8	4.00		

Packed: 1 pc.

Available EXO coating only.

Stock and availability vary - Please go to [osgtool.com](http://osgtool.com) or contact customer service to confirm availability.





### List VGM6

6 Flute, Multiple Lengths, Square & Corner Radius



Units: Inch

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Shank Diameter	Aspect Ratio
	D	R	L	Lc	d	Lc/D
VGM6-0125	5/8	0.125	5	2 1/2	5/8	4.00
VGM6-0126	3/4	-	3	15/16	3/4	1.25
VGM6-0127	3/4	0.02	3	15/16	3/4	1.25
VGM6-0128	3/4	0.03	3	15/16	3/4	1.25
VGM6-0129	3/4	0.06	3	15/16	3/4	1.25
VGM6-0130	3/4	0.09	3	15/16	3/4	1.25
VGM6-0131	3/4	0.12	3	15/16	3/4	1.25
VGM6-0132	3/4	0.19	3	15/16	3/4	1.25
VGM6-0133	3/4	0.25	3	15/16	3/4	1.25
VGM6-0134	3/4	-	4	1 1/8	3/4	1.50
VGM6-0135	3/4	0.02	4	1 1/8	3/4	1.50
VGM6-0136	3/4	0.03	4	1 1/8	3/4	1.50
VGM6-0137	3/4	0.06	4	1 1/8	3/4	1.50
VGM6-0138	3/4	0.09	4	1 1/8	3/4	1.50
VGM6-0139	3/4	0.12	4	1 1/8	3/4	1.50
VGM6-0140	3/4	0.19	4	1 1/8	3/4	1.50
VGM6-0141	3/4	0.25	4	1 1/8	3/4	1.50
VGM6-0142	3/4	-	4	1 1/2	3/4	2.00
VGM6-0143	3/4	0.02	4	1 1/2	3/4	2.00
VGM6-0144	3/4	0.03	4	1 1/2	3/4	2.00
VGM6-0145	3/4	0.06	4	1 1/2	3/4	2.00
VGM6-0146	3/4	0.09	4	1 1/2	3/4	2.00
VGM6-0147	3/4	0.12	4	1 1/2	3/4	2.00
VGM6-0148	3/4	0.19	4	1 1/2	3/4	2.00
VGM6-0149	3/4	0.25	4	1 1/2	3/4	2.00
VGM6-0150	3/4	-	5	2 1/4	3/4	3.00
VGM6-0151	3/4	0.02	5	2 1/4	3/4	3.00
VGM6-0152	3/4	0.03	5	2 1/4	3/4	3.00
VGM6-0153	3/4	0.06	5	2 1/4	3/4	3.00
VGM6-0154	3/4	0.09	5	2 1/4	3/4	3.00
VGM6-0155	3/4	0.12	5	2 1/4	3/4	3.00
VGM6-0156	3/4	0.19	5	2 1/4	3/4	3.00
VGM6-0157	3/4	0.25	5	2 1/4	3/4	3.00
VGM6-0158	3/4	-	6	3	3/4	4.00
VGM6-0159	3/4	0.02	6	3	3/4	4.00
VGM6-0160	3/4	0.03	6	3	3/4	4.00
VGM6-0161	3/4	0.06	6	3	3/4	4.00
VGM6-0162	3/4	0.09	6	3	3/4	4.00
VGM6-0163	3/4	0.12	6	3	3/4	4.00
VGM6-0164	3/4	0.19	6	3	3/4	4.00
VGM6-0165	3/4	0.25	6	3	3/4	4.00
VGM6-0166	1	-	4	1 1/2	1	1.50
VGM6-0167	1	0.03	4	1 1/2	1	1.50
VGM6-0168	1	0.06	4	1 1/2	1	1.50
VGM6-0169	1	0.09	4	1 1/2	1	1.50
VGM6-0170	1	0.12	4	1 1/2	1	1.50
VGM6-0171	1	0.19	4	1 1/2	1	1.50
VGM6-0172	1	0.25	4	1 1/2	1	1.50
VGM6-0173	1	-	5	2	1	2.00
VGM6-0174	1	0.03	5	2	1	2.00
VGM6-0175	1	0.06	5	2	1	2.00
VGM6-0176	1	0.09	5	2	1	2.00
VGM6-0177	1	0.12	5	2	1	2.00
VGM6-0178	1	0.19	5	2	1	2.00
VGM6-0179	1	0.25	5	2	1	2.00
VGM6-0180	1	-	6	3	1	3.00
VGM6-0181	1	0.03	6	3	1	3.00
VGM6-0182	1	0.06	6	3	1	3.00
VGM6-0183	1	0.09	6	3	1	3.00
VGM6-0184	1	0.12	6	3	1	3.00
VGM6-0185	1	0.19	6	3	1	3.00
VGM6-0186	1	0.25	6	3	1	3.00

Packed: 1 pc.

Available EXO coating only.

Stock and availability vary - Please go to [osgtool.com](http://osgtool.com) or contact customer service to confirm availability.



#### Work Material

List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High			300	400	17-4 PH		6061 7075	Casting			Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC
VGM6	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙			⊙	⊙	⊙	○		

○ good ⊙ best



# HY-PRO® CARB VGM7

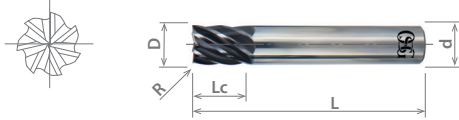
High Performance Variable Geometry End Mills

## List VGM7

7 Flute, Multiple Lengths, Square & Corner Radius

<b>NEW</b>	<b>SPEED FEED</b> P23	<b>CARBIDE</b>	<b>EXO</b>		<b>36°</b>	<b>SHRINK FIT</b>
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Milling Diameter Tolerance	
1/4 ≤ D ≤ 1	0/- .0011"



Units: Inch

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Shank Diameter	Aspect Ratio
	D	R	L	Lc	d	Lc/D
VGM7-0001	1/4	-	2	3/8	1/4	1.50
VGM7-0002	1/4	0.02	2	3/8	1/4	1.50
VGM7-0003	1/4	0.03	2	3/8	1/4	1.50
VGM7-0004	1/4	0.06	2	3/8	1/4	1.50
VGM7-0005	1/4	-	2 1/2	1/2	1/4	2.00
VGM7-0006	1/4	0.02	2 1/2	1/2	1/4	2.00
VGM7-0007	1/4	0.03	2 1/2	1/2	1/4	2.00
VGM7-0008	1/4	0.06	2 1/2	1/2	1/4	2.00
VGM7-0009	1/4	-	2 1/2	3/4	1/4	3.00
VGM7-0010	1/4	0.02	2 1/2	3/4	1/4	3.00
VGM7-0011	1/4	0.03	2 1/2	3/4	1/4	3.00
VGM7-0012	1/4	0.06	2 1/2	3/4	1/4	3.00
VGM7-0013	1/4	-	3	1	1/4	4.00
VGM7-0014	1/4	0.02	3	1	1/4	4.00
VGM7-0015	1/4	0.03	3	1	1/4	4.00
VGM7-0016	1/4	0.06	3	1	1/4	4.00
VGM7-0017	1/4	-	3	1 1/4	1/4	5.00
VGM7-0018	1/4	0.02	3	1 1/4	1/4	5.00
VGM7-0019	1/4	0.03	3	1 1/4	1/4	5.00
VGM7-0020	1/4	0.06	3	1 1/4	1/4	5.00
VGM7-0021	1/4	-	3	1 1/2	1/4	6.00
VGM7-0022	1/4	0.02	3	1 1/2	1/4	6.00
VGM7-0023	1/4	0.03	3	1 1/2	1/4	6.00
VGM7-0024	1/4	0.06	3	1 1/2	1/4	6.00
VGM7-0025	5/16	-	2	15/32	5/16	1.50
VGM7-0026	5/16	0.02	2	15/32	5/16	1.50
VGM7-0027	5/16	0.03	2	15/32	5/16	1.50
VGM7-0028	5/16	0.06	2	15/32	5/16	1.50
VGM7-0029	5/16	-	2 1/2	5/8	5/16	2.00
VGM7-0030	5/16	0.02	2 1/2	5/8	5/16	2.00
VGM7-0031	5/16	0.03	2 1/2	5/8	5/16	2.00
VGM7-0032	5/16	0.06	2 1/2	5/8	5/16	2.00
VGM7-0033	5/16	-	3	15/16	5/16	3.00
VGM7-0034	5/16	0.02	3	15/16	5/16	3.00
VGM7-0035	5/16	0.03	3	15/16	5/16	3.00
VGM7-0036	5/16	0.06	3	15/16	5/16	3.00
VGM7-0037	5/16	-	3	1 1/4	5/16	4.00
VGM7-0038	5/16	0.02	3	1 1/4	5/16	4.00
VGM7-0039	5/16	0.03	3	1 1/4	5/16	4.00
VGM7-0040	5/16	0.06	3	1 1/4	5/16	4.00
VGM7-0041	3/8	-	2	9/16	3/8	1.50
VGM7-0042	3/8	0.02	2	9/16	3/8	1.50
VGM7-0043	3/8	0.03	2	9/16	3/8	1.50
VGM7-0044	3/8	0.06	2	9/16	3/8	1.50
VGM7-0045	3/8	-	2 1/2	3/4	3/8	2.00
VGM7-0046	3/8	0.02	2 1/2	3/4	3/8	2.00
VGM7-0047	3/8	0.03	2 1/2	3/4	3/8	2.00
VGM7-0048	3/8	0.06	2 1/2	3/4	3/8	2.00
VGM7-0049	3/8	-	3	1 1/8	3/8	3.00
VGM7-0050	3/8	0.02	3	1 1/8	3/8	3.00
VGM7-0051	3/8	0.03	3	1 1/8	3/8	3.00
VGM7-0052	3/8	0.06	3	1 1/8	3/8	3.00
VGM7-0053	3/8	-	4	1 1/2	3/8	4.00
VGM7-0054	3/8	0.02	4	1 1/2	3/8	4.00
VGM7-0055	3/8	0.03	4	1 1/2	3/8	4.00
VGM7-0056	3/8	0.06	4	1 1/2	3/8	4.00
VGM7-0057	1/2	-	2 1/2	5/8	1/2	1.25
VGM7-0058	1/2	0.03	2 1/2	5/8	1/2	1.25
VGM7-0059	1/2	0.06	2 1/2	5/8	1/2	1.25
VGM7-0060	1/2	-	3	1	1/2	2.00
VGM7-0061	1/2	0.03	3	1	1/2	2.00
VGM7-0062	1/2	0.06	3	1	1/2	2.00

Packed: 1 pc.

Available EXO coating only.

Stock and availability vary - Please go to [osgtool.com](http://osgtool.com) or contact customer service to confirm availability.



### List VGM7

7 Flute, Multiple Lengths, Square & Corner Radius



Units: Inch

EDP Number	Mill Diameter	Corner Radius	Overall Length	Length of Cut	Shank Diameter	Aspect Ratio
	D	R	L	Lc	d	Lc/D
VGM7-0063	1/2	-	3	1 1/4	1/2	2.50
VGM7-0064	1/2	0.03	3	1 1/4	1/2	2.50
VGM7-0065	1/2	0.06	3	1 1/4	1/2	2.50
VGM7-0066	1/2	0.000	4	1 1/2	1/2	3.00
VGM7-0067	1/2	0.03	4	1 1/2	1/2	3.00
VGM7-0068	1/2	0.06	4	1 1/2	1/2	3.00
VGM7-0069	1/2	-	4	2	1/2	4.00
VGM7-0070	1/2	0.03	4	2	1/2	4.00
VGM7-0071	1/2	0.06	4	2	1/2	4.00
VGM7-0072	5/8	0.000	3	25/32	5/8	1.25
VGM7-0073	5/8	0.03	3	25/32	5/8	1.25
VGM7-0074	5/8	0.06	3	25/32	5/8	1.25
VGM7-0075	5/8	-	3 1/2	1 1/4	5/8	2.00
VGM7-0076	5/8	0.03	3 1/2	1 1/4	5/8	2.00
VGM7-0077	5/8	0.06	3 1/2	1 1/4	5/8	2.00
VGM7-0078	5/8	0.000	3 1/2	1 9/16	5/8	2.50
VGM7-0079	5/8	0.03	3 1/2	1 9/16	5/8	2.50
VGM7-0080	5/8	0.06	3 1/2	1 9/16	5/8	2.50
VGM7-0081	5/8	-	5	1 7/8	5/8	3.00
VGM7-0082	5/8	0.03	5	1 7/8	5/8	3.00
VGM7-0083	5/8	0.06	5	1 7/8	5/8	3.00
VGM7-0084	5/8	0.000	5	2 1/2	5/8	4.00
VGM7-0085	5/8	0.03	5	2 1/2	5/8	4.00
VGM7-0086	5/8	0.06	5	2 1/2	5/8	4.00
VGM7-0087	3/4	-	3	15/16	3/4	1.25
VGM7-0088	3/4	0.03	3	15/16	3/4	1.25
VGM7-0089	3/4	0.06	3	15/16	3/4	1.25
VGM7-0090	3/4	0.000	4	1 1/8	3/4	1.50
VGM7-0091	3/4	0.03	4	1 1/8	3/4	1.50
VGM7-0092	3/4	0.06	4	1 1/8	3/4	1.50
VGM7-0093	3/4	-	4	1 1/2	3/4	2.00
VGM7-0094	3/4	0.03	4	1 1/2	3/4	2.00
VGM7-0095	3/4	0.06	4	1 1/2	3/4	2.00
VGM7-0096	3/4	-	5	2 1/4	3/4	3.00
VGM7-0097	3/4	0.030	5	2 1/4	3/4	3.00
VGM7-0098	3/4	0.06	5	2 1/4	3/4	3.00
VGM7-0099	3/4	-	6	3	3/4	4.00
VGM7-0100	3/4	0.03	6	3	3/4	4.00
VGM7-0101	3/4	0.06	6	3	3/4	4.00
VGM7-0102	1	-	4	1 1/2	1	1.50
VGM7-0103	1	0.03	4	1 1/2	1	1.50
VGM7-0104	1	0.060	4	1 1/2	1	1.50
VGM7-0105	1	-	5	2	1	2.00
VGM7-0106	1	0.03	5	2	1	2.00
VGM7-0107	1	0.06	5	2	1	2.00
VGM7-0108	1	-	6	3	1	3.00
VGM7-0109	1	0.03	6	3	1	3.00
VGM7-0110	1	0.06	6	3	1	3.00

Packed: 1 pc.

Available EXO coating only.

Stock and availability vary - Please go to [osgtool.com](http://osgtool.com) or contact customer service to confirm availability.



Work Material																	
List No.	P					M			K	N		S		H			
	Carbon Steels			Alloy Steels	Die Steels	Stainless Steels			Cast Iron	Aluminum		Nickel Alloy	Titanium	Hardened Steels			
	Low	Med.	High			300	400	17-4 PH		6061	Casting			Inconel	6Al4V (30 HRC)	~35 HRC	35-45 HRC
VGM7	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙			⊙	⊙	⊙	○		

○ good ⊙ best



## List VGM5 - HY-PRO® CARB VGM

### Side Milling

Hardness	-		Up to 30 HRC		-		-		-		35 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Tool Steel Alloy Steel		Stainless Steel 304		Titanium Alloy Ti-6AL-4V		Cast Iron		Hardened Steel	
Cutting	350-650 SFM		350-650 SFM		200-350 SFM		200-350 SFM		350-750 SFM		200-350 SFM	
Depth of Cut	Aa = up to Max LOC, Ar = 0.3xD						Aa = up to Max LOC, Ar = 0.2xD		Aa = up to Max LOC, Ar = 0.3xD		Aa = up to Max LOC, Ar = 0.15xD	
Mill Dia. Inch	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM
	1/8	16,794	84.0	16,794	84.0	7,634	38.2	7,634	38.2	16,794	84.0	7,634
5/32	13,435	86.1	13,435	86.1	6,107	39.1	6,107	39.1	13,435	86.1	6,107	39.1
3/16	11,196	88.2	11,196	88.2	5,089	40.1	5,089	40.1	11,196	88.2	5,089	40.1
7/32	9,597	90.3	9,597	90.3	4,362	41.0	4,362	41.0	9,597	90.3	4,362	41.0
1/4	8,397	92.4	8,397	92.4	3,817	42.0	3,817	42.0	8,397	92.4	3,817	42.0
9/32	7,464	94.5	7,464	94.5	3,393	42.9	3,393	42.9	7,464	94.5	3,393	42.9
5/16	6,718	96.6	6,718	96.6	3,053	43.9	3,053	43.9	6,718	96.6	3,053	43.9
3/8	5,598	98.0	5,598	98.0	2,545	44.5	2,545	44.5	5,598	98.0	2,545	44.5
1/2	4,198	88.2	4,198	88.2	1,908	40.1	1,908	40.1	4,198	88.2	1,908	40.1
5/8	3,359	70.5	3,359	70.5	1,527	32.1	1,527	32.1	3,359	70.5	1,527	32.1
3/4	2,799	61.6	2,799	61.6	1,272	28.0	1,272	28.0	2,799	61.6	1,272	28.0
1	2,099	46.2	2,099	46.2	954	21.0	954	21.0	2,099	46.2	954	21.0

- The above milling condition is a guideline for aspect ratio 1.25 and 1.5.
- Use a rigid and precise machine and holder.
- The rotational speed is calculated by the median of the recommended cutting speed. Adjustments may be necessary depending on the rigidity of the workpiece, fixture, and machine.
- Please use a suitable fluid with high smoke retardant properties.
- During dry (no fluid) milling, please use air blow to remove chips from the milling area and to eliminate chip packing.
- Please use water-soluble coolant when machining stainless steel and titanium alloy.
- Reduce speed and feed as well as depth of cut when high precision is required.

### Speed & Feed Reduction Chart by Aspect Ratio

Hardness	-		Up to 30 HRC		-		-		-		35 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Tool Steel Alloy Steel		Stainless Steel 304		Titanium Alloy Ti-6AL-4V		Cast Iron		Hardened Steel	
Aspect Ratio	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM
2	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
2.5	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
3	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%
4	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%
5	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
6	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%

### Aa & Ar Adjustment Chart by Aspect Ratio

Hardness	-		Up to 30 HRC		-		-		-		35 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Tool Steel Alloy Steel		Stainless Steel 304		Titanium Alloy Ti-6AL-4V		Cast Iron		Hardened Steel	
Aspect Ratio	Aa	Ar	Aa	Ar	Aa	Ar	Aa	Ar	Aa	Ar	Aa	Ar
2		0.2 x D		0.2 x D		0.2 x D		0.15 x D		0.2 x D		0.1 x D
2.5		0.2 x D		0.2 x D		0.2 x D		0.15 x D		0.2 x D		0.1 x D
3	Up to Max. LOC	0.15 x D	Up to Max. LOC	0.15 x D	Up to Max. LOC	0.15 x D	Up to Max. LOC	0.1 x D	Up to Max. LOC	0.15 x D	Up to Max. LOC	0.05 x D
4		0.1 x D		0.1 x D		0.05 x D		0.1 x D		0.03 x D		
5		0.1 x D		0.1 x D		0.05 x D		0.1 x D		0.03 x D		
6		0.05 x D		0.05 x D		0.05 x D		0.03 x D		0.02 x D		





## List VGM5-LN - HY-PRO® CARB VGM

### Side Milling

Hardness	-		Up to 30 HRC		-		-		-		35 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Tool Steel Alloy Steel		Stainless Steel 304		Titanium Alloy Ti-6AL-4V		Cast Iron		Hardened Steel	
Cutting	350-650 SFM		350-650 SFM		200-350 SFM		200-350 SFM		350-750 SFM		200-350 SFM	
Depth of Cut	Aa = up to Max LOC, Ar= 0.3xD						Aa = up to Max LOC, Ar= 0.2xD		Aa = up to Max LOC, Ar= 0.3xD		Aa = up to Max LOC, Ar= 0.15xD	
Mill Dia.	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM
Inch												
1/8	16,794	84.0	16,794	84.0	7,634	38.2	7,634	38.2	16,794	84.0	7,634	38.2
3/16	11,196	88.2	11,196	88.2	5,089	40.1	5,089	40.1	11,196	88.2	5,089	40.1
1/4	8,397	92.4	8,397	92.4	3,817	42.0	3,817	42.0	8,397	92.4	3,817	42.0
3/8	5,598	98.0	5,598	98.0	2,545	44.5	2,545	44.5	5,598	98.0	2,545	44.5
1/2	4,198	88.2	4,198	88.2	1,908	40.1	1,908	40.1	4,198	88.2	1,908	40.1
5/8	3,359	70.5	3,359	70.5	1,527	32.1	1,527	32.1	3,359	70.5	1,527	32.1
3/4	2,799	61.6	2,799	61.6	1,272	28.0	1,272	28.0	2,799	61.6	1,272	28.0
1	2,099	46.2	2,099	46.2	954	21.0	954	21.0	2,099	46.2	954	21.0

- The above milling condition is a guideline for aspect ratio 3.
- Use a rigid and precise machine and holder.
- The rotational speed is calculated by the median of the recommended cutting speed.  
Adjustments may be necessary depending on the rigidity of the workpiece, fixture, and machine.
- Please use a suitable fluid with high smoke retardant properties.
- During dry (no fluid) milling, please use air blow to remove chips from the milling area and to eliminate chip packing.
- Please use water-soluble coolant when machining stainless steel and titanium alloy.
- Reduce speed and feed as well as depth of cut when high precision is required.

### Speed & Feed Reduction Chart by Aspect Ratio

Hardness	-		Up to 30 HRC		-		-		-		35 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Tool Steel Alloy Steel		Stainless Steel 304		Titanium Alloy Ti-6AL-4V		Cast Iron		Hardened Steel	
Aspect Ratio	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM
4	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
5	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%
6	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
7	45%	45%	45%	45%	45%	45%	45%	45%	45%	45%	45%	45%
8	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
9	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%
10	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%

### Aa & Ar Adjustment Chart by Aspect Ratio

Hardness	-		Up to 30 HRC		-		-		-		35 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Tool Steel Alloy Steel		Stainless Steel 304		Titanium Alloy Ti-6AL-4V		Cast Iron		Hardened Steel	
Aspect Ratio	Aa	Ar	Aa	Ar	Aa	Ar	Aa	Ar	Aa	Ar	Aa	Ar
4	1 x D		1 x D		1 x D		1 x D		1 x D		1 x D	
5	0.75 x D		0.75 x D		0.75 x D		0.75 x D		0.75 x D		0.75 x D	
6	0.6 x D		0.6 x D		0.6 x D		0.6 x D		0.6 x D		0.6 x D	
7	0.5 x D	0.3 x D	0.5 x D	0.3 x D	0.5 x D	0.3 x D	0.5 x D	0.2 x D	0.5 x D	0.3 x D	0.5 x D	0.15 x D
8	0.4 x D		0.4 x D		0.4 x D		0.4 x D		0.4 x D		0.4 x D	
9	0.2 x D		0.2 x D		0.2 x D		0.2 x D		0.2 x D		0.2 x D	
10	0.2 x D		0.2 x D		0.2 x D		0.2 x D		0.2 x D		0.2 x D	



## List VGM6 - HY-PRO® CARB VGM

### Side Milling

Hardness	-		Up to 30 HRC		-		-		-		35 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Tool Steel Alloy Steel		Stainless Steel 304		Titanium Alloy Ti-6AL-4V		Cast Iron		Hardened Steel	
Cutting	350-550 SFM		350-550 SFM		150-350 SFM		150-350 SFM		350-650SFM		150-350 SFM	
Depth of Cut	Aa = up to Max LOC, Ar= 0.2xD				Aa = up to Max LOC, Ar= 0.15xD				Aa = up to Max LOC, Ar= 0.2xD		Aa = up to Max LOC, Ar= 0.1xD	
Mill Dia. Inch	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM
	1/4	6,870	90.7	6,870	90.7	3,817	50.4	3,817	50.4	7,634	100.8	3,817
5/16	5,496	98.9	5,496	98.9	3,053	55.0	3,053	55.0	6,107	109.9	3,053	55.0
3/8	4,580	96.2	4,580	96.2	2,545	53.4	2,545	53.4	5,089	106.9	2,545	53.4
1/2	3,435	86.6	3,435	86.6	1,908	48.1	1,908	48.1	3,817	96.2	1,908	48.1
5/8	2,748	69.3	2,748	69.3	1,527	38.5	1,527	38.5	3,053	76.9	1,527	38.5
3/4	2,290	60.5	2,290	60.5	1,272	33.6	1,272	33.6	2,545	67.2	1,272	33.6
1	1,718	45.3	1,718	45.3	954	25.2	954	25.2	1,908	50.4	954	25.2

- The above milling condition is a guideline for aspect ratio 1.25 and 1.5.
- Use a rigid and precise machine and holder.
- The rotational speed is calculated by the median of the recommended cutting speed. Adjustments may be necessary depending on the rigidity or the workpiece, fixture, and machine.
- Please use a suitable fluid with high smoke retardant properties.
- During dry (no fluid) milling, please use air blow to remove chips from the milling area and to eliminate chip packing.
- Please use water-soluble coolant when machining stainless steel and titanium alloy.
- Reduce speed and feed as well as depth of cut when high precision is required.

### Speed & Feed Reduction Chart by Aspect Ratio

Hardness	-		Up to 30 HRC		-		-		-		35 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Tool Steel Alloy Steel		Stainless Steel 304		Titanium Alloy Ti-6AL-4V		Cast Iron		Hardened Steel	
Aspect Ratio	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM
2	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
2.5	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
3	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%
4	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%
5	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
6	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%

### Aa & Ar Adjustment Chart by Aspect Ratio

Hardness	-		Up to 30 HRC		-		-		-		35 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Tool Steel Alloy Steel		Stainless Steel 304		Titanium Alloy Ti-6AL-4V		Cast Iron		Hardened Steel	
Aspect Ratio	Aa	Ar	Aa	Ar	Aa	Ar	Aa	Ar	Aa	Ar	Aa	Ar
2		0.15 x D		0.15 x D		0.1 x D		0.1 x D		0.15 x D		0.08 x D
2.5		0.15 x D		0.15 x D		0.1 x D		0.1 x D		0.15 x D		0.08 x D
3	Up to Max. LOC	0.1x D	Up to Max. LOC	0.1x D	Up to Max. LOC	0.08x D	Up to Max. LOC	0.08x D	Up to Max. LOC	0.1x D	Up to Max. LOC	0.05x D
4		0.08x D		0.08x D		0.05x D		0.05x D		0.08x D		0.03x D
5		0.08x D		0.08x D		0.05x D		0.05x D		0.08x D		0.03x D
6		0.05 x D		0.05 x D		0.03 x D		0.03 x D		0.05 x D		0.02 x D



## List VGM7 - HY-PRO® CARB VGM

### Side Milling

Hardness	-		Up to 30 HRC		-		-		-		35 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Tool Steel Alloy Steel		Stainless Steel 304		Titanium Alloy Ti-6AL-4V		Cast Iron		Hardened Steel	
Cutting	350-500 SFM		350-500 SFM		150-350 SFM		150-350 SFM		350-600SFM		150-350 SFM	
Depth of Cut	Aa = up to Max LOC, Ar = 0.15xD				Aa = up to Max LOC, Ar = 0.1xD				Aa = up to Max LOC, Ar = 0.15xD		Aa = up to Max LOC, Ar = 0.08xD	
Mill Dia. Inch	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM
	1/4	6,870	105.8	6,870	105.8	3,817	58.8	3,817	58.8	7,634	117.6	3,817
5/16	5,496	115.4	5,496	115.4	3,053	64.1	3,053	64.1	6,107	128.2	3,053	64.1
3/8	4,580	112.2	4,580	112.2	2,545	62.3	2,545	62.3	5,089	124.7	2,545	62.3
1/2	3,435	101.0	3,435	101.0	1,908	56.1	1,908	56.1	3,817	112.2	1,908	56.1
5/8	2,748	80.8	2,748	80.8	1,527	44.9	1,527	44.9	3,053	89.8	1,527	44.9
3/4	2,290	70.5	2,290	70.5	1,272	39.2	1,272	39.2	2,545	78.4	1,272	39.2
1	1,718	52.9	1,718	52.9	954	29.4	954	29.4	1,908	58.8	954	29.4

- The above milling condition is a guideline for aspect ratio 1.25 and 1.5.
- Use a rigid and precise machine and holder.
- The rotational speed is calculated by the median of the recommended cutting speed.  
Adjustments may be necessary depending on the rigidity of the workpiece, fixture, and machine.
- Please use a suitable fluid with high smoke retardant properties.
- During dry (no fluid) milling, please use air blow to remove chips from the milling area and to eliminate chip packing.
- Please use water-soluble coolant when machining stainless steel and titanium alloy.
- Reduce speed and feed as well as depth of cut when high precision is required.

### Speed & Feed Reduction Chart by Aspect Ratio

Hardness	-		Up to 30 HRC		-		-		-		35 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Tool Steel Alloy Steel		Stainless Steel 304		Titanium Alloy Ti-6AL-4V		Cast Iron		Hardened Steel	
Aspect Ratio	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM	Speed RPM	Feed IPM
2	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
2.5	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
3	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%
4	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%
5	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
6	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%

### Aa & Ar Adjustment Chart by Aspect Ratio

Hardness	-		Up to 30 HRC		-		-		-		35 HRC	
Work Material	Mild Steels Carbon Steels Cast Iron		Tool Steel Alloy Steel		Stainless Steel 304		Titanium Alloy Ti-6AL-4V		Cast Iron		Hardened Steel	
Aspect Ratio	Aa	Ar	Aa	Ar	Aa	Ar	Aa	Ar	Aa	Ar	Aa	Ar
2		0.1 x D		0.1 x D		0.08 x D		0.08 x D		0.1 x D		0.05 x D
2.5		0.1 x D		0.1 x D		0.08 x D		0.08 x D		0.1 x D		0.05 x D
3	Up to Max. LOC	0.07x D	Up to Max. LOC	0.07x D	Up to Max. LOC	0.05x D	Up to Max. LOC	0.05x D	Up to Max. LOC	0.07x D	Up to Max. LOC	0.03x D
4		0.05x D		0.05x D		0.03x D		0.03x D		0.05x D		0.02x D
5		0.05x D		0.05x D		0.03x D		0.03x D		0.05x D		0.02x D
6		0.03 x D		0.03 x D		0.02x D		0.02x D		0.03 x D		0.01x D





*shaping your dreams*

 **Safe use of cutting tools**

- Use safety cover, safety glasses and safety shoes during operation.
- Do not touch cutting edges with bare hands.
- Do not touch cutting chips with bare hands. Chips will be hot after cutting.
- Stop cutting when the tool becomes dull.
- Stop cutting operation immediately if you hear any abnormal cutting sounds.
- Do not modify tools.
- Please use appropriate tools for the operation. Check dimensions to ensure proper selection.

**osgtool.com**

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