

NEW



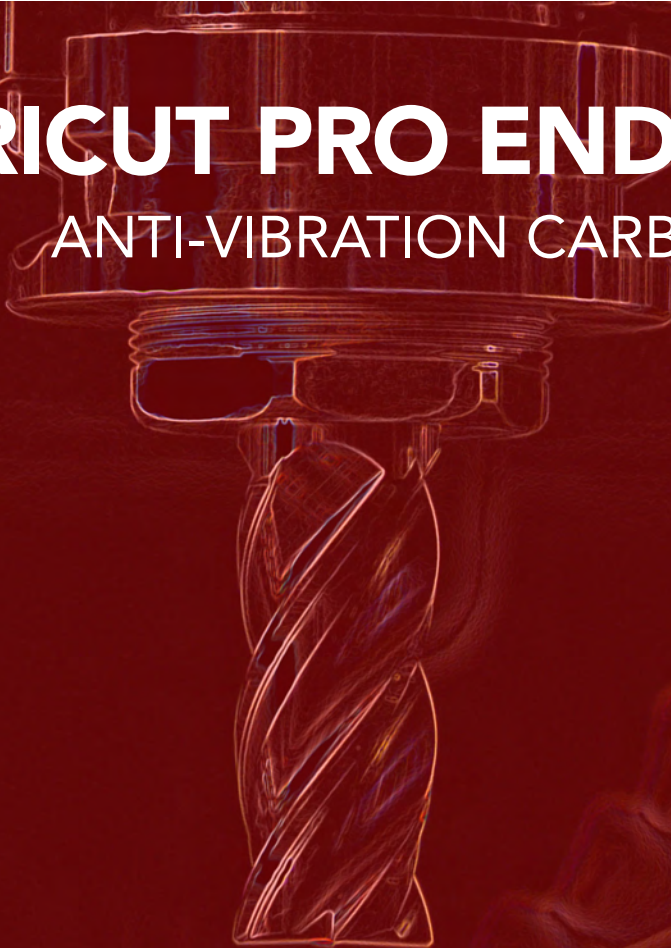
shaping your dreams



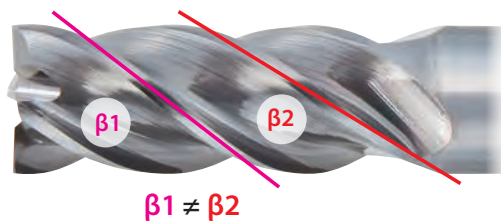
OSG GROUP COMPANY

VARICUT PRO END MILL RANGE

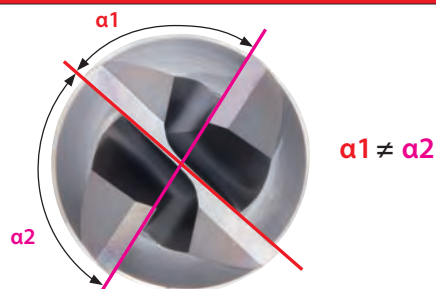
ANTI-VIBRATION CARBIDE END MILL



NEW UNEQUAL FLUTE ANGLES



NEW UNEQUAL SPACING FRONT TEETH



Introducing the **NEW** VariCut Pro

- Enhanced Design and Geometry
- Specially Adapted Edge Preparation
- Improved Surface Finish
- New Coating Technology
- Unique Manufacturing Procedure

Resulting in:

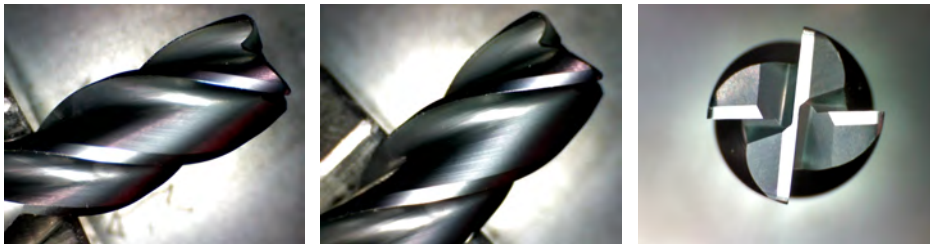
- Longer Tool Life
- Improved Feeds and Speeds
- More Versatile Machining Capabilities
- Excellent Surface Finish in a wider range of Materials

TEST RESULTS

10mm in M200 after 60 metres

.15xD Depth of Cut, Side Milling with 2mm stepover, $V_c = 120\text{m/min}$, 0.090mm/tooth Feed Rate

03VP



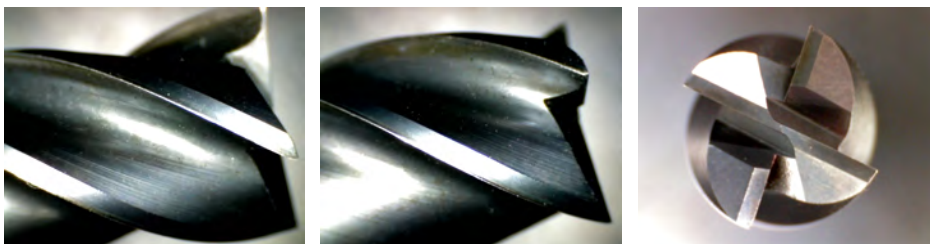
Competitor



10mm in SS 316 L after 60 metres

.15xD Depth of Cut, Side Milling with 2mm stepover, $V_c = 80\text{m/min}$, 0.057mm/tooth Feed Rate

03VP



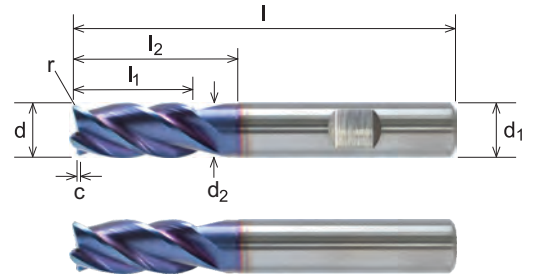
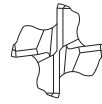
Competitor



03VP

Solid Carbide 4 Flute VariCut Pro End Mills

For roughing and finishing with high metal removal rates eliminating the use of multiple tools. Designed for tougher materials including Stainless steel and Titanium.



mm	DIN 6527L	SOLID CARBIDE		TYPE UNI		38/36°	Z 4		COATED
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P						M				K				Ti			Ni			Cu				N			Syn			H								
1.1	1.2	1.3	1.4	1.5	1.6	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3	5.1	5.2	5.3	6.1	6.2	6.3	6.4	7.1	7.2	7.3	7.4	8.1	8.2	8.3	9.1	9.2	9.3	9.4				
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

d	l ₁	l ₂	l	d ₁	d ₂	c	r		Code
4	9	14	57	6	3.8	0.2 x 45°	-	x	03VP0400X
4*	9	14	57	6	3.8	0.2 x 45°	-	-	03VP0401X
4	9	14	57	6	3.8	-	0.2	-	03VP0402X
4*	9	14	57	6	3.8	-	0.2	x	03VP0403X
4	9	14	57	6	3.8	-	0.5	-	03VP0405X
4*	9	14	57	6	3.8	-	0.5	x	03VP0406X
<hr/>									
5	13	18	57	6	4.8	0.2 x 45°	-	x	03VP0500X
5*	13	18	57	6	4.8	0.2 x 45°	-	-	03VP0501X
5	13	18	57	6	4.8	-	0.2	-	03VP0502X
5*	13	18	57	6	4.8	-	0.2	x	03VP0503X
5	13	18	57	6	4.8	-	0.5	-	03VP0505X
5*	13	18	57	6	4.8	-	0.5	x	03VP0506X
<hr/>									
6	13	18	57	6	5.8	0.2 x 45°	-	x	03VP0600X
6*	13	18	57	6	5.8	0.2 x 45°	-	-	03VP0601X
6	13	18	57	6	5.8	-	0.2	-	03VP0602X
6*	13	18	57	6	5.8	-	0.2	x	03VP0603X
6	13	18	57	6	5.8	-	0.5	-	03VP0605X
6*	13	18	57	6	5.8	-	0.5	x	03VP0606X
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8	19	24	63	8	7.7	0.25 x 45°	-	x	03VP0800X
8*	19	24	63	8	7.7	0.25 x 45°	-	-	03VP0801X
8	19	24	63	8	7.8	-	0.2	-	03VP0802X
8*	19	24	63	8	7.8	-	0.2	x	03VP0803X
8	19	24	63	8	7.8	-	0.5	-	03VP0805X
8*	19	24	63	8	7.8	-	0.5	x	03VP0806X
<hr/>									
10	22	32	72	10	9.7	0.25 x 45°	-	x	03VP1000X
10*	22	32	72	10	9.7	0.25 x 45°	-	-	03VP1001X
10	22	32	72	10	9.8	-	0.3	-	03VP1003X
10*	22	32	72	10	9.8	-	0.3	x	03VP1004X
10	22	32	72	10	9.8	-	0.5	-	03VP1005X
10*	22	32	72	10	9.8	-	0.5	x	03VP1006X
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12	26	36	83	12	11.6	0.3 x 45°	-	x	03VP1200X
12*	26	36	83	12	11.6	0.3 x 45°	-	-	03VP1201X
12	26	36	83	12	11.8	-	0.5	-	03VP1205X
12*	26	36	83	12	11.8	-	0.5	x	03VP1206X
12	26	36	83	12	11.8	-	1	-	03VP1210X
12*	26	36	83	12	11.8	-	1	x	03VP1211X
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16	32	42	92	16	15.5	0.4 x 45°	-	x	03VP1600X
16*	32	42	92	16	15.5	0.4 x 45°	-	-	03VP1601X
16	32	42	92	16	15.8	-	1	-	03VP1610X
16*	32	42	92	16	15.8	-	1	x	03VP1611X
16	32	42	92	16	15.8	-	2	-	03VP1620X
16*	32	42	92	16	15.8	-	2	x	03VP1621X
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20	38	48	104	20	19.5	0.4 x 45°	-	x	03VP2000X
20*	38	48	104	20	19.5	0.4 x 45°	-	-	03VP2001X
20	38	48	104	20	19.8	-	1	-	03VP2010X
20*	38	48	104	20	19.8	-	1	x	03VP2011X
20	38	48	104	20	19.8	-	2	-	03VP2020X
20*	38	48	104	20	19.8	-	2	x	03VP2021X

* Available on request



OSG GROUP COMPANY *shaping your dreams*

VARICUT PRO END MILL RANGE

CUTTING DATA

Parameters based on ideal conditions. Please adjust parameters accordingly to real applications.

Recommended
 Suitable

Material	Vc m/min	4	5	6	8	10	12	16	20	
		fz (mm/tooth)	fz (mm/tooth)	fz (mm/tooth)	fz (mm/tooth)	fz (mm/tooth)	fz (mm/tooth)	fz (mm/tooth)	fz (mm/tooth)	
P	1.1 Free Cutting Steel < 120 HB	140-175	0.023-0.038	0.027-0.045	0.033-0.055	0.045-0.075	0.054-0.090	0.062-0.103	0.076-0.126	0.086-0.143
	1.2 Structural Steel < 200 HB	140-165	0.023-0.038	0.027-0.045	0.033-0.055	0.045-0.075	0.054-0.090	0.062-0.103	0.076-0.126	0.086-0.143
	1.3 Plain Carbon Steel < 250 HB	130-140	0.019-0.032	0.023-0.038	0.027-0.045	0.037-0.061	0.044-0.074	0.050-0.084	0.062-0.104	0.071-0.118
	1.4 Alloy Steel < 250 HB	120-130	0.017-0.029	0.020-0.034	0.025-0.041	0.034-0.056	0.041-0.068	0.047-0.078	0.057-0.095	0.065-0.108
	1.5 Low Alloy Steel 250 - 350 HB	120-130	0.017-0.029	0.020-0.034	0.025-0.041	0.034-0.056	0.041-0.068	0.047-0.078	0.057-0.095	0.065-0.108
	1.6 Low Alloy Steel > 350 HB	110-130	0.017-0.029	0.020-0.034	0.025-0.041	0.034-0.056	0.041-0.068	0.047-0.078	0.057-0.095	0.065-0.108
M	2.1 Free Machining Stainless Steel < 250 HB	90-103	0.019-0.032	0.023-0.038	0.027-0.045	0.037-0.061	0.044-0.074	0.050-0.084	0.062-0.104	0.071-0.118
	2.2 Austenitic Stainless Steel < 320 HB	90-103	0.019-0.032	0.023-0.038	0.027-0.045	0.037-0.061	0.044-0.074	0.050-0.084	0.062-0.104	0.071-0.118
	2.3 Ferritic and Martensitic Stainless Steel < 300 HB	65-85	0.013-0.022	0.016-0.026	0.019-0.031	0.026-0.043	0.031-0.051	0.035-0.059	0.044-0.073	0.049-0.081
	2.4 Precipitation Hardened Stainless Steel 320 - 410 HB	63-80	0.013-0.022	0.016-0.026	0.019-0.031	0.026-0.043	0.031-0.051	0.035-0.059	0.044-0.073	0.049-0.081
K	3.1 Lamellar Graphite Cast Iron < 150 HB	130-140	0.023-0.038	0.027-0.045	0.033-0.055	0.045-0.075	0.054-0.090	0.062-0.103	0.076-0.126	0.086-0.143
	3.2 Lamellar Graphite Cast Iron 150 - 300 HB	120-140	0.019-0.032	0.023-0.038	0.027-0.045	0.037-0.061	0.044-0.074	0.050-0.084	0.062-0.104	0.071-0.118
	3.3 Nodular Graphite, Malleable Cast Iron < 200 HB	130-140	0.023-0.038	0.027-0.045	0.033-0.055	0.045-0.075	0.054-0.090	0.062-0.103	0.076-0.126	0.086-0.143
	3.4 Nodular Graphite, Malleable Cast Iron 200 - 300 HB	115-140	0.015-0.026	0.018-0.030	0.023-0.038	0.031-0.051	0.037-0.061	0.042-0.070	0.052-0.086	0.058-0.096
Ti	4.1 Titanium unalloyed < 200 HB	60-70	0.015-0.026	0.018-0.030	0.023-0.038	0.031-0.051	0.037-0.061	0.042-0.070	0.052-0.086	0.058-0.096
	4.2 Titanium alloyed < 270 HB	50-63	0.013-0.022	0.016-0.026	0.019-0.031	0.026-0.043	0.031-0.051	0.035-0.059	0.044-0.073	0.049-0.081
	4.3 Titanium alloyed 270 - 350 HB	45-55	0.013-0.022	0.016-0.026	0.019-0.031	0.026-0.043	0.031-0.051	0.035-0.059	0.044-0.073	0.049-0.081
	4.4 Titanium alloyed > 350 HB	30-70	0.019-0.032	0.023-0.038	0.027-0.045	0.037-0.061	0.044-0.074	0.050-0.084	0.062-0.104	0.071-0.118
Ni	5.1 Nickel unalloyed < 150 HB	30-70	0.019-0.032	0.023-0.038	0.027-0.045	0.037-0.061	0.044-0.074	0.050-0.084	0.062-0.104	0.071-0.118
	5.2 Nickel alloyed < 270 HB	30-60	0.019-0.032	0.023-0.038	0.027-0.045	0.037-0.061	0.044-0.074	0.050-0.084	0.062-0.104	0.071-0.118
	5.3 Nickel alloyed 270 - 350 HB	20-33	0.011-0.018	0.013-0.021	0.015-0.025	0.021-0.035	0.025-0.041	0.029-0.048	0.035-0.059	0.040-0.066
	5.4 Nickel alloyed > 350 HB	230-250	0.032-0.053	0.038-0.063	0.053-0.088	0.053-0.088	0.060-0.100	0.060-0.100	0.068-0.113	0.075-0.125
Cu	6.1 Copper < 100 HB	220-240	0.032-0.053	0.038-0.063	0.053-0.088	0.053-0.088	0.060-0.100	0.060-0.100	0.068-0.113	0.075-0.125
	6.2 Beta Brass, Bronze < 200 HB	220-240	0.032-0.053	0.038-0.063	0.053-0.088	0.053-0.088	0.060-0.100	0.060-0.100	0.068-0.113	0.075-0.125
	6.3 Alpha Brass < 200 HB	220-240	0.032-0.053	0.038-0.063	0.053-0.088	0.053-0.088	0.060-0.100	0.060-0.100	0.068-0.113	0.075-0.125
	6.4 High Strength Bronze < 470 HB	170-190	0.016-0.027	0.019-0.031	0.023-0.044	0.026-0.044	0.030-0.050	0.030-0.050	0.034-0.056	0.038-0.063
N	7.1 Aluminium Magnesium unalloyed < 100 HB	425-450	0.032-0.053	0.038-0.063	0.075-0.125	0.150-0.250	0.150-0.250	0.150-0.250	0.225-0.375	0.375-0.625
	7.2 Aluminium Alloy < 5% Si < 150 HB	170-185	0.032-0.053	0.038-0.063	0.075-0.125	0.150-0.250	0.150-0.250	0.150-0.250	0.225-0.375	0.375-0.625
	7.3 Aluminium Alloy 5 to 10% Si < 120 HB	100-120	0.032-0.053	0.038-0.063	0.075-0.125	0.150-0.250	0.150-0.250	0.150-0.250	0.225-0.375	0.375-0.625
	7.4 Aluminium Alloy > 10% Si	90-110	0.032-0.053	0.038-0.063	0.075-0.125	0.150-0.250	0.150-0.250	0.150-0.250	0.225-0.375	0.375-0.625
Syn	8.1 Duroplastics (short chipping)	230-250	0.011-0.019	0.014-0.023	0.017-0.028	0.023-0.038	0.027-0.045	0.033-0.055	0.044-0.073	0.055-0.091
	8.2 Thermoplastics (long chipping)	220-250	0.011-0.019	0.014-0.023	0.017-0.028	0.023-0.038	0.027-0.045	0.033-0.055	0.044-0.073	0.055-0.091
	8.3 Fibre Reinforced Synthetic Materials	90-100	0.011-0.019	0.014-0.023	0.017-0.028	0.023-0.038	0.027-0.045	0.033-0.055	0.044-0.073	0.055-0.091

Recommended
 Suitable

Material	Vc m/min	4	5	6	8	10	12	16	20	
		fz (mm/tooth)	fz (mm/tooth)	fz (mm/tooth)	fz (mm/tooth)	fz (mm/tooth)	fz (mm/tooth)	fz (mm/tooth)	fz (mm/tooth)	
P	1.1 Free Cutting Steel < 120 HB	140-175	0.033-0.055	0.045-0.075	0.056-0.094	0.064-0.106	0.075-0.125	0.075-0.125	0.090-0.150	0.090-0.150
	1.2 Structural Steel < 200 HB	140-165	0.033-0.055	0.045-0.075	0.056-0.094	0.064-0.106	0.075-0.125	0.075-0.125	0.090-0.150	0.090-0.150
	1.5 Low Alloy Steel 250 - 350 HB	120-130	0.023-0.038	0.030-0.050	0.045-0.075	0.060-0.100	0.068-0.113	0.075-0.125	0.083-0.138	0.083-0.138
	1.6 Low Alloy Steel > 350 HB	110-130	0.023-0.038	0.030-0.050	0.045-0.075	0.060-0.100	0.068-0.113	0.075-0.125	0.083-0.138	0.083-0.138
	2.2 Austenitic Stainless Steel < 320 HB	90-103	0.017-0.028	0.023-0.038	0.030-0.050	0.034-0.056	0.045-0.075	0.049-0.081	0.060-0.100	0.064-0.106
	2.4 Precipitation Hardened Stainless Steel 320 - 410 HB	63-80	0.014-0.023	0.018-0.030	0.023-0.038	0.026-0.044	0.032-0.053	0.038-0.063	0.056-0.094	0.064-0.106
K	3.1 Lamellar Graphite Cast Iron < 150 HB	130-140	0.033-0.055	0.045-0.075	0.056-0.094	0.064-0.106	0.075-0.125	0.075-0.125	0.090-0.150	0.090-0.150
	3.2 Lamellar Graphite Cast Iron 150 - 300 HB	120-140	0.033-0.055	0.045-0.075	0.056-0.094	0.064-0.106	0.075-0.125	0.075-0.125	0.090-0.150	0.090-0.150
	3.3 Nodular Graphite, Malleable Cast Iron < 200 HB	130-140	0.033-0.055	0.045-0.075	0.056-0.094	0.064-0.106	0.075-0.125	0.075-0.125	0.090-0.150	0.090-0.150
	3.4 Nodular Graphite, Malleable Cast Iron 200 - 300 HB	115-140	0.033-0.055	0.045-0.075	0.056-0.094	0.064-0.106	0.075-0.125	0.075-0.125	0.090-0.150	0.090-0.150
Ti	4.1 Titanium unalloyed < 200 HB	60-70	0.015-0.025	0.019-0.031	0.023-0.038	0.026-0.044	0.034-0.056	0.038-0.063	0.060-0.100	0.075-0.125
	4.2 Titanium alloyed < 150 HB	30-70	0.011-0.019	0.018-0.030	0.021-0.035	0.026-0.044	0.030-0.050	0.034-0.056	0.056-0.094	0.064-0.106
	9.1 Hardened Steel < 32 HRC	110-130	0.023-0.038	0.030-0.050	0.045-0.075	0.060-0.100	0.068-0.113	0.075-0.125	0.083-0.138	0.083-0.138
	9.2 Hardened Steel 33 - 41 HRC	90-100	0.019-0.031	0.026-0.044	0.038-0.063	0.049-0.081	0.053-0.088	0.053-0.088	0.060-0.100	0.060-0.100
H	9.3 Hardened Steel 42 - 50 HRC	80-100	0.019-0.031	0.026-0.044	0.038-0.063	0.049-0.081	0.053-0.088	0.053-0.088	0.060-0.100	0.060-0.100

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