M.A. FORD
High Performance Cutting Tools

*Where **high performance** is the **standard**®*



MADE IN USA

ISO 9001:2015 Certified

APG
ADVANCED PRODUCT GROUP

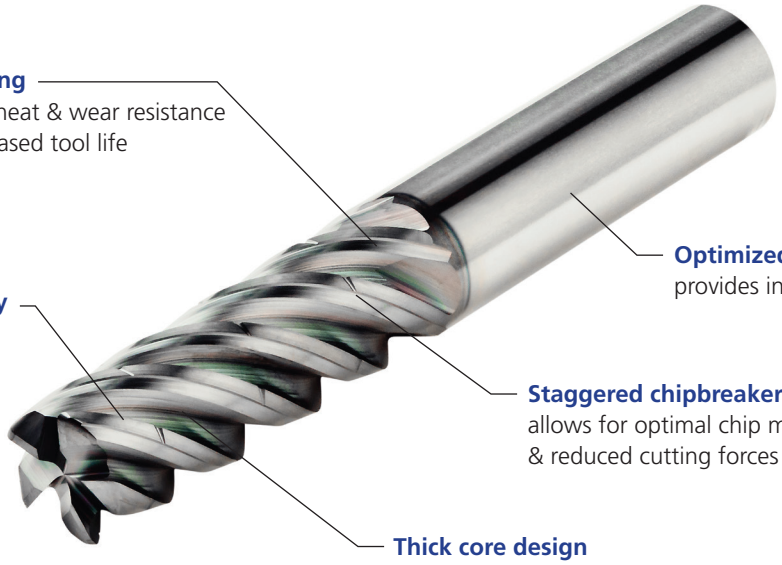
TuffCut® XV Series XV5CB

For deep, dynamic milling applications

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TuffCut® XV Series XV5CB

For deep, dynamic milling applications



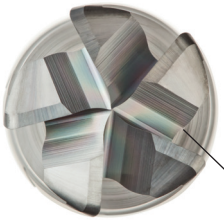
ALtima® Q coating
provides optimal heat & wear resistance allowing for increased tool life

Optimized substrate grade
provides increased TRS & toughness

40° helix, variable pitch geometry
for smooth cutting action & reduced harmonics

Staggered chipbreaker technology
allows for optimal chip management & reduced cutting forces

Thick core design
for increased strength in long ap applications



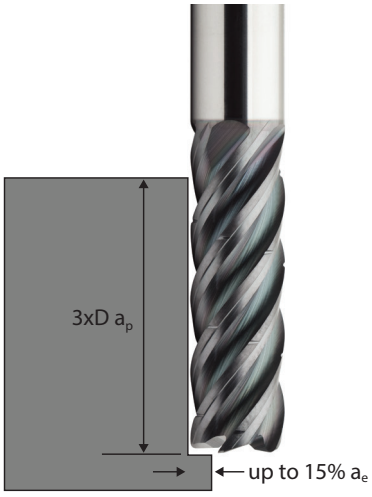
Open end geometry
allows for aggressive entry angles

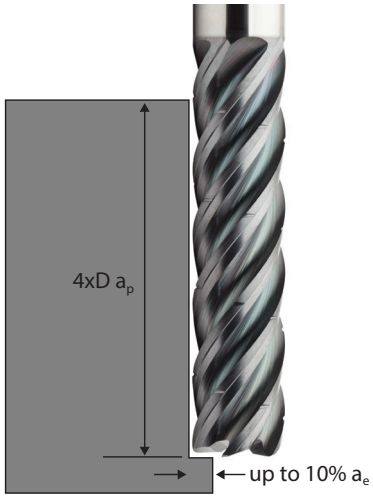
Suitable materials

P M

Applications

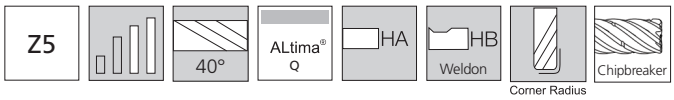
The XV5CB was developed for optimal metal removal rates in long axial engagement, dynamic milling strategies in both ISO P and ISO M material groups. Offered in both 3xD and 4xD length of cut options, the XV5CB increases productivity by utilizing its aggressive stepover capabilities while maintaining a stable and reliable process.

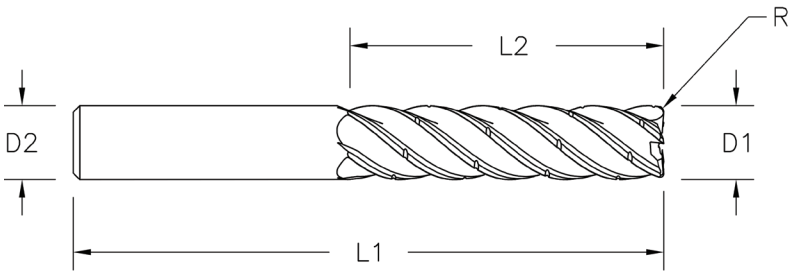




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TuffCut® XV Series XV5CB









ALtima® Q		ALtima® Q Weldon Flat		Diameter		Shank	OAL	Flute Length	Corner Radius
				D1		D2 (h6)	L1	L2	R
Tool No.	EDP	Tool No.	EDP	Inch	Decimal	Inch	Inch	Inch	Inch
XV5CB37534AQ	08090	XV5CB37534AQW	08091	3/8	.3750	3/8	3	1-1/4	.030
XV5CB37544AQ	08094	XV5CB37544AQW	08095	3/8	.3750	3/8	3-1/2	1-5/8	.030
XV5CB50034AQ	08106	XV5CB50034AQW	08107	1/2	.5000	1/2	3-1/2	1-5/8	.030
XV5CB50044AQ	08112	XV5CB50044AQW	08113	1/2	.5000	1/2	4	2-1/8	.030
XV5CB62534AQ	08116	XV5CB62534AQW	08117	5/8	.6250	5/8	4	2-1/8	.030
XV5CB62544AQ	08120	XV5CB62544AQW	08121	5/8	.6250	5/8	5	2-5/8	.030
XV5CB75034AQ	08130	XV5CB75034AQW	08131	3/4	.7500	3/4	5	2-1/2	.030
XV5CB75044AQ	08134	XV5CB75044AQW	08135	3/4	.7500	3/4	6	3-1/8	.030

M.A. Ford follows the ANSI B94.19-1985 specifications when adding a Weldon flat to any inch size end mill. All request for locations not matching these specifications must be sent to customquotes@maford.com

XV5CB Series Recommended Cutting Data - Profile Milling with 3xD Cutting Length - Inch

Workpiece Material Group	ISO	Hardness	• Preferred o Possible x Not Possible			RWOC (ae)			End Mill Diameter (inch)			
									3/8	1/2	5/8	3/4
			Emulsion	Compressed air	MQL	5%	10%	15%	Multiply fz by this Factor based on ae. When finishing, use the standard fz per chart below. Only add chip thinning when roughing or semi-finishing.			
						2.3	1.67	1.4				
						Vc - SFM			fz - in/tooth			
Low Carbon Steels 12L14, 1018, A36	P	≤ 28 HRC	o	•	o	1150	985	820	.0023	.0030	.0038	.0045
Medium Carbon Steels 1045, 1050, 1070		≤ 38 HRC	o	•	o	850	785	720	.0023	.0030	.0038	.0045
Alloy Steels 4130, 4140, 4340			o	•	o	785	720	655	.0023	.0030	.0038	.0045
Die / Tool Steels A2, D2, H13, P20		≤ 45 HRC	o	•	o	720	655	590	.0023	.0030	.0038	.0045
Stainless Steels - Free Machining 303, 400 Series	M	≤ 28 HRC	•	•	o	675	590	500	.0023	.0030	.0038	.0045
Stainless Steels - Austenitic 304, 316			•	x	o	525	460	330	.0018	.0024	.0030	.0036
Stainless Steels - Difficult to Machine 13-8PH, Nitronics		≤ 45 HRC	•	x	o	360	295	230	.0015	.0020	.0025	.0030
Stainless Steels - Precipitation Hardened 15-5 PH, 17-4 PH, 17-7 PH			•	•	o	525	460	330	.0018	.0024	.0030	.0036
Titanium Alloys 6Al-4V	S	≤ 42 HRC	•	x	x	400	330	265	.0015	.0020	.0025	.0030

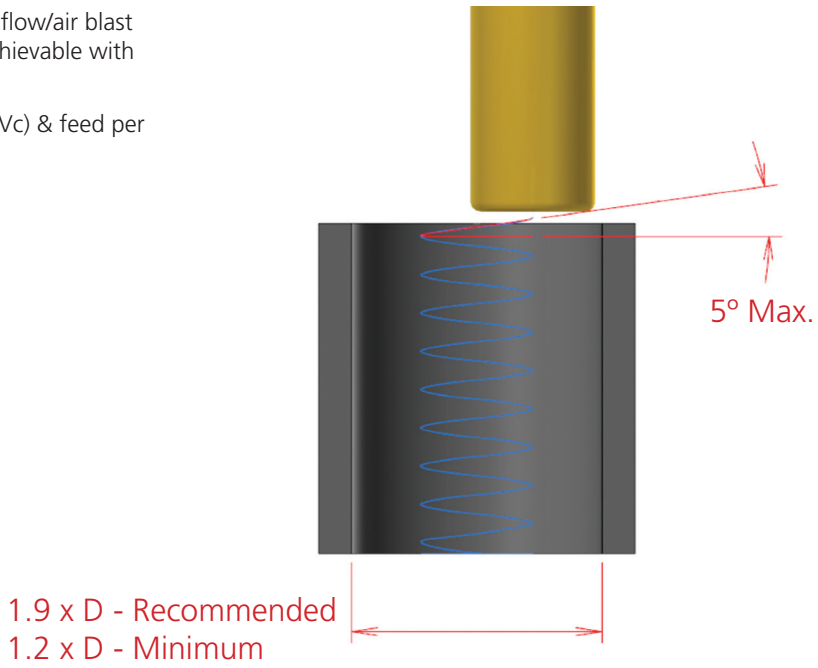
Notes

- Cutting data provided should be considered advisory only. Adjustments may be necessary depending on the application, workpiece rigidity, machine tool, etc.
- The XV5CB should only be used in accurate tool holders with high gripping power. ER collet type holders are not recommended.
- For optimal performance in ISO S materials, ae = ≤ 0.1 x D

XV5CB Series Recommended Cutting Data - Profile Milling with 3xD Cutting Length - Inch

Helical interpolation recommendations

- Under optimal conditions, with proper coolant flow/air blast techniques, up to 5° helical ramp angles are achievable with the XV5CB in most materials
- A reduction of 30-50% in both cutting speed (Vc) & feed per tooth (fz) are recommended
- Recommended hole diameter = 1.9 x D
- Minimum hole diameter = 1.2 x D



RWOC (ae)	Chip Thicknesss Compensation Factor
5%	2.30
7%	1.96
8%	1.84
10%	1.67
13%	1.49
15%	1.40

During profile milling with a radial width of less than 50% of the cutter diameter, the actual chip thickness at the cutting edge is less than the programmed chipload. The accompanying table shows the increase in chipload by given radial width percentage to adjust for chip thinning. Multiply your recommended chip thickness by the appropriate feed factor to establish the correct feed rate.

XV5CB Series Recommended Cutting Data - Profile Milling with 4xD Cutting Length - Inch

Workpiece Material Group	ISO	Hardness	• Preferred o Possible x Not Possible			RWOC (ae)		End Mill Diameter (inch)			
								3/8	1/2	5/8	3/4
			Emulsion	Compressed air	MQL	5%	10%	← Multiply fz by this Factor based on ae. When finishing, use the standard fz per chart below. Only add chip thinning when roughing or semi-finishing.			
						2.3	1.67				
						Vc - SFM		fz - in/tooth			
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Medium Carbon Steels 1045, 1050, 1070	P	≤ 38 HRC	o	•	o	785	720	.0015	.0020	.0025	.0030
Alloy Steels 4130, 4140, 4340	P	≤ 38 HRC	o	•	o	720	655	.0015	.0020	.0025	.0030
Die / Tool Steels A2, D2, H13, P20	P	≤ 45 HRC	o	•	o	655	590	.0015	.0020	.0025	.0030
Stainless Steels - Free Machining 303, 400 Series	M	≤ 28 HRC	•	•	o	590	500	.0015	.0020	.0025	.0030
Stainless Steels - Austenitic 304, 316	M	≤ 28 HRC	•	x	o	525	460	.0011	.0014	.0018	.0021
Stainless Steels - Difficult to Machine 13-8PH, Nitronics	M	≤ 45 HRC	•	x	o	295	230	.0009	.0012	.0015	.0018
Stainless Steels - Precipitation Hardened 15-5 PH, 17-4 PH, 17-7 PH	M	≤ 45 HRC	•	•	o	525	460	.0011	.0014	.0018	.0021
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Notes

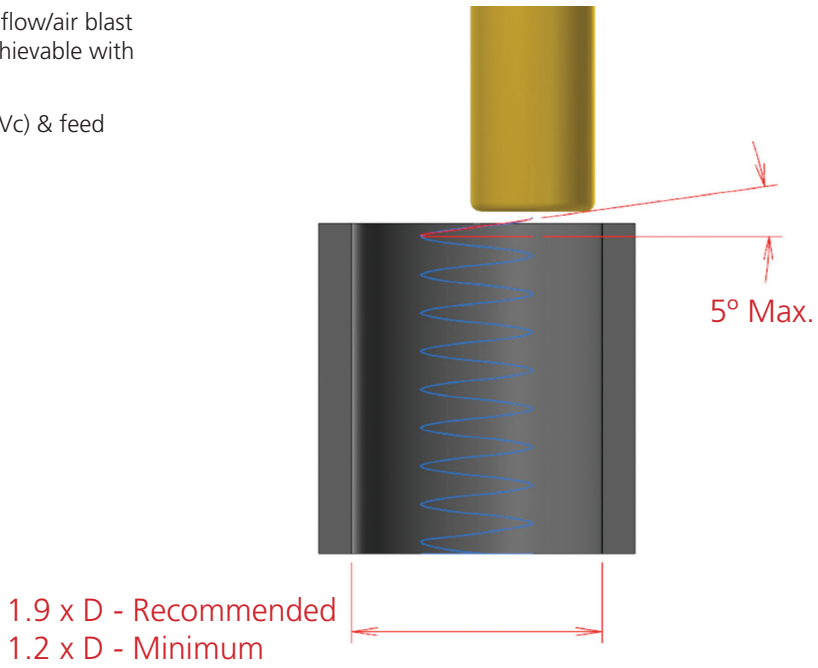
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XV5CB Series Recommended Cutting Data - Profile Milling with 4xD Cutting Length - Inch

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Also available:







Safety Note
Always wear the appropriate personal protective equipment such as safety glasses and protective clothing when using solid carbide or HSS cutting tools. Machines should be fully guarded.

⚠ **WARNING:** This product can expose you to chemicals including nickel, cobalt, and lead, which are known to the State of California to cause cancer, and chemicals including lead which are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

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