



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



ISO 9001:2015 Certified

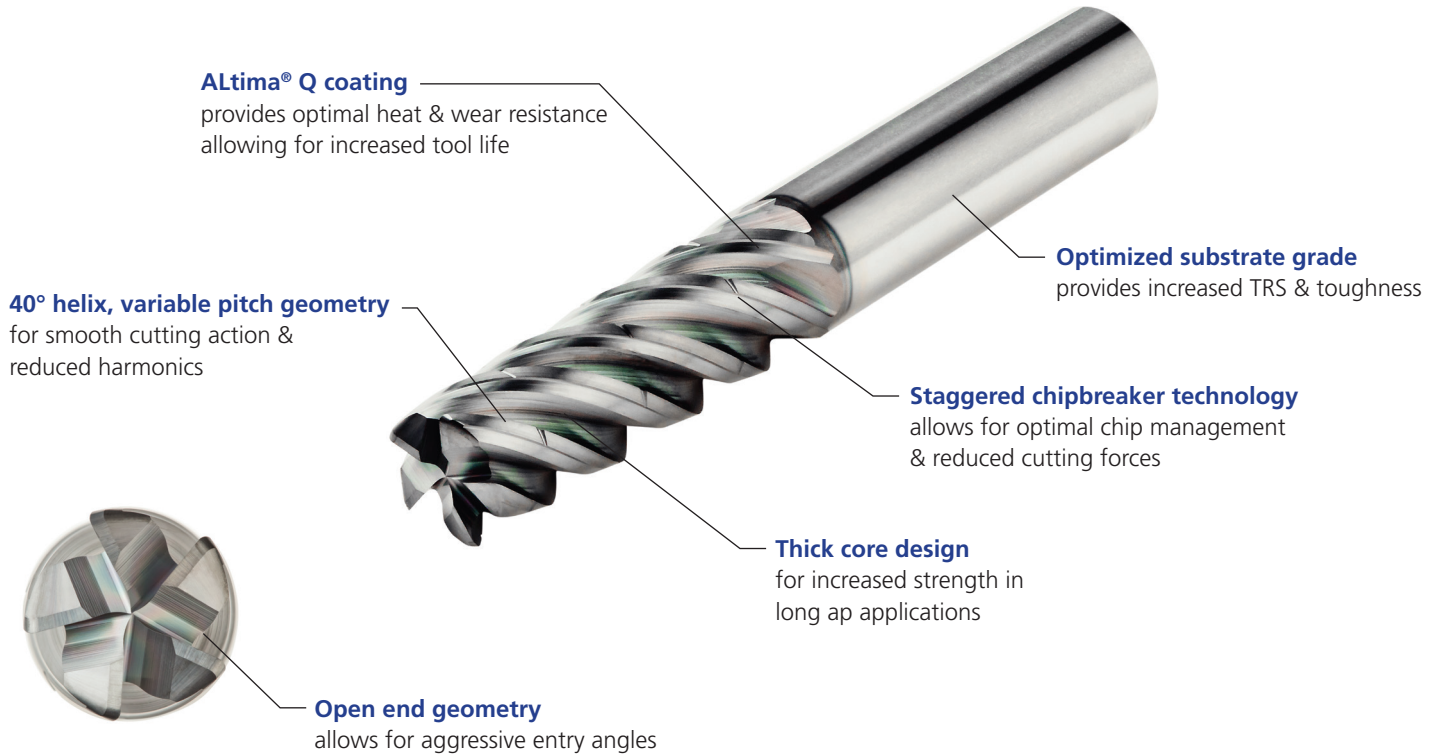
TuffCut[®] XV Series XV5CB

For deep, dynamic milling applications

www.maford.com

TuffCut® XV Series XV5CB

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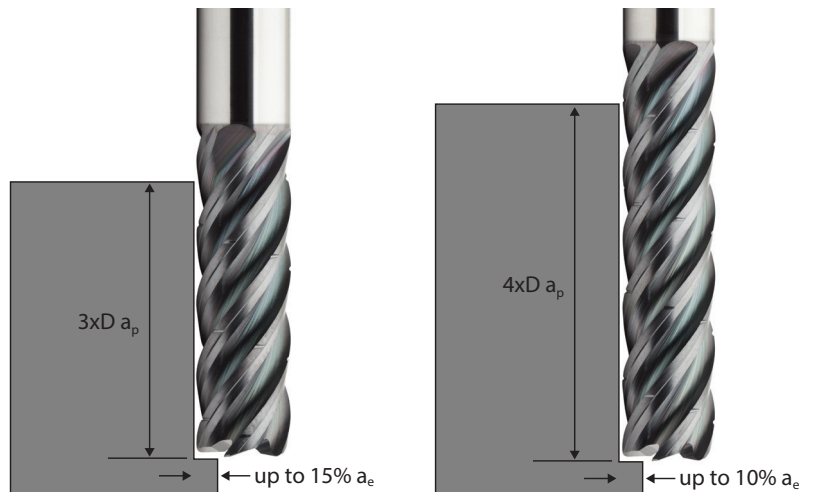


Suitable materials

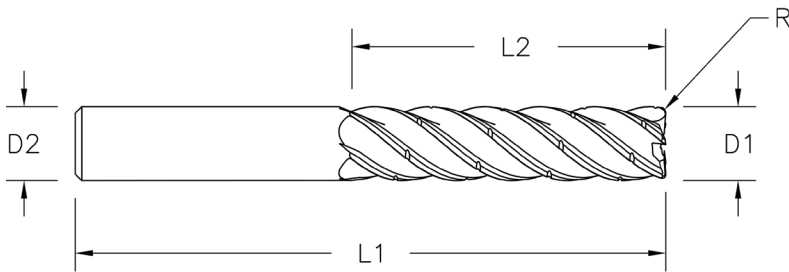
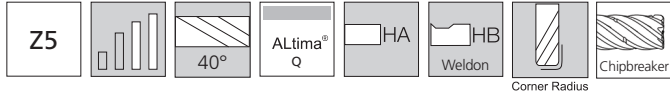


Applications

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.




TuffCut® XV Series XV5CB



| ALtima® Q | | ALtima® Q Weldon Flat | | Diameter | | Shank | OAL | Flute Length | Corner Radius |
|--------------|-------|-----------------------|-------|----------|---------|---------|-------|--------------|---------------|
| Tool No. | EDP | Tool No. | EDP | D1 | | D2 (h6) | L1 | L2 | R |
| | | | | 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 at 3xD ADOC (ap) - Inch

| Workpiece Material Group | ISO | Hardness | ● Preferred ○ Possible x Not Possible | | | RWOC (ae) | | | End Mill Diameter (inch) | | | |
|---|-----|----------|---|----------------|-----|---|------|-------|---|-------|-------|-------|
| | | | Emulsion | Compressed air | MMS |  | | | 3/8 | 1/2 | 5/8 | 3/4 |
| | | | | | | 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 | ○ | ● | ○ | 1150 | 985 | 820 | .0023 | .0030 | .0038 | .0045 |
| | | ≤ 38 HRC | ○ | ● | ○ | 850 | 785 | 720 | .0023 | .0030 | .0038 | .0045 |
| | | | ○ | ● | ○ | 785 | 720 | 655 | .0023 | .0030 | .0038 | .0045 |
| | | | ○ | ● | ○ | 720 | 655 | 590 | .0023 | .0030 | .0038 | .0045 |
| Die / Tool Steels A2, D2, H13, P20 | | ≤ 45 HRC | ○ | ● | ○ | 720 | 655 | 590 | .0023 | .0030 | .0038 | .0045 |
| Stainless Steels - Free Machining 303, 400 Series | M | ≤ 28 HRC | ● | ● | ○ | 675 | 590 | 500 | .0023 | .0030 | .0038 | .0045 |
| ● | | | x | ○ | 525 | 460 | 330 | .0018 | .0024 | .0030 | .0036 | |
| Stainless Steels - Difficult to Machine 13-8PH, Nitronics | | ≤ 45 HRC | ● | x | ○ | 360 | 295 | 230 | .0015 | .0020 | .0025 | .0030 |
| | | | ● | ● | ○ | 525 | 460 | 330 | .0018 | .0024 | .0030 | .0036 |
| Stainless Steels - Precipitation Hardened 15-5 PH, 17-4 PH, 17-7 PH | | | ● | ● | ○ | 525 | 460 | 330 | .0018 | .0024 | .0030 | .0036 |
| Titanium Alloys 6Al-4V | S | ≤ 42 HRC | ● | x | x | 400 | 330 | 265 | .0015 | .0020 | .0025 | .0030 |

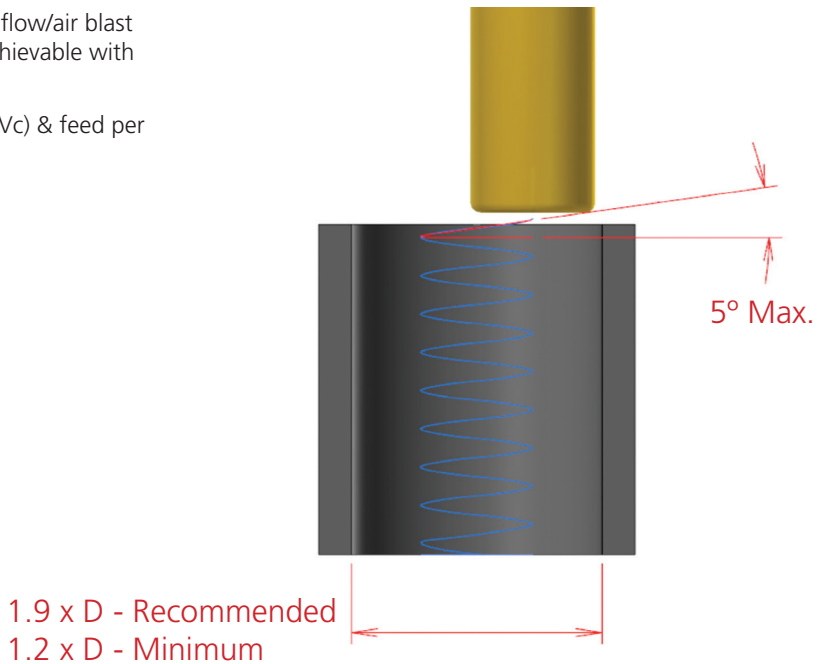
Notes

- 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, $ae = \leq 0.1 \times D$

XV5CB Series Recommended Cutting Data - Profile Milling at 3xD ADOC (ap) - 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 Thickness 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 at 4xD ADOC (ap) - Inch

| Workpiece Material Group | ISO | Hardness | ● Preferred ○ Possible x Not Possible | | | RWOC (ae) | | End Mill Diameter (inch) | | | |
|---|-----|----------|---|----------------|-----|-----------|---------------|---|-------|-------|-------|
| | | | Emulsion | Compressed air | MMS | | | 3/8 | 1/2 | 5/8 | 3/4 |
| | | | | | | 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 | | | | |
| Low Carbon Steels 12L14, 1018, A36 | P | ≤ 28 HRC | ○ | ● | ○ | 985 | 820 | .0015 | .0020 | .0025 | .0030 |
| | | ≤ 38 HRC | ○ | ● | ○ | 785 | 720 | .0015 | .0020 | .0025 | .0030 |
| | | | ○ | ● | ○ | 720 | 655 | .0015 | .0020 | .0025 | .0030 |
| | | | ○ | ● | ○ | 655 | 590 | .0015 | .0020 | .0025 | .0030 |
| Die / Tool Steels A2, D2, H13, P20 | | ≤ 45 HRC | ○ | ● | ○ | 655 | 590 | .0015 | .0020 | .0025 | .0030 |
| Stainless Steels - Free Machining 303, 400 Series | M | ≤ 28 HRC | ● | ● | ○ | 590 | 500 | .0015 | .0020 | .0025 | .0030 |
| ● | | | x | ○ | 525 | 460 | .0011 | .0014 | .0018 | .0021 | |
| Stainless Steels - Difficult to Machine 13-8PH, Nitronics | | ≤ 45 HRC | ● | x | ○ | 295 | 230 | .0009 | .0012 | .0015 | .0018 |
| | | | ● | ● | ○ | 525 | 460 | .0011 | .0014 | .0018 | .0021 |
| Stainless Steels - Precipitation Hardened 15-5 PH, 17-4 PH, 17-7 PH | | | ● | ● | ○ | 525 | 460 | .0011 | .0014 | .0018 | .0021 |
| Titanium Alloys 6Al-4V | S | ≤ 42 HRC | ● | x | x | 330 | 265 | .0009 | .0012 | .0015 | .0018 |

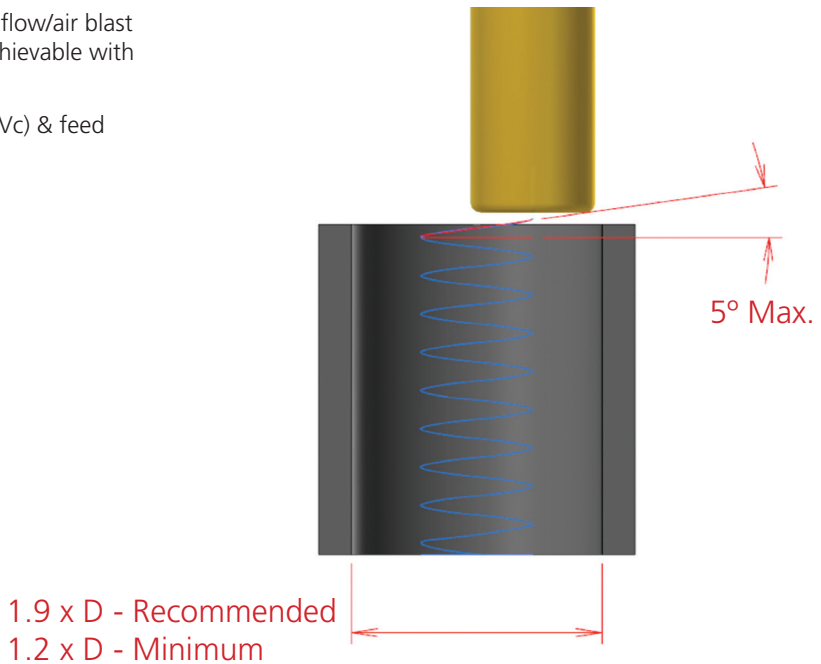
Notes

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- 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, $ae = \leq 0.07 \times D$

XV5CB Series Recommended Cutting Data - Profile Milling at 4xD ADOC (ap) - Inch

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- Minimum hole diameter = 1.2 x D



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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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