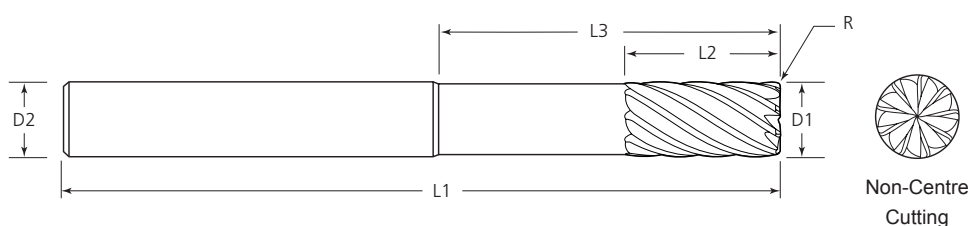
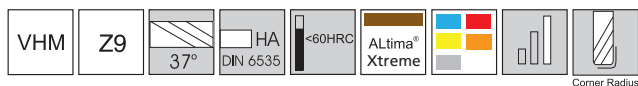


**M.A. FORD EUROPE LTD**

# TuffCut® XT9 Series 380N



## Features

- Stiff Core Technology
- Uneven 9 flute design
- ALtima® Xtreme Coating
- 4 and 5xØ reach necked versions

## Benefits

- Less deflection for long reach applications
- High feed rates with reduced harmonics for stable machining
- Excellent high heat and wear resistance
- Long reach profiling applications

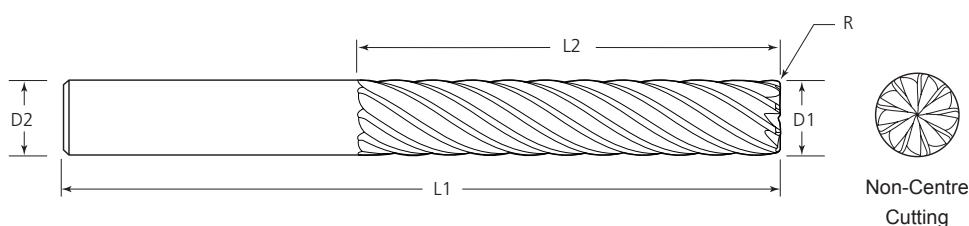
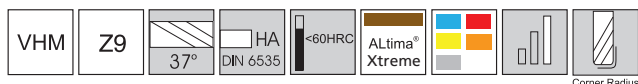
| Tool Number       | D1   | D2 (h6) | L1    | L2   | L3   | R   |
|-------------------|------|---------|-------|------|------|-----|
| 380M1200N4-1.0RAX | 12.0 | 12.0    | 100.0 | 18.0 | 50.0 | 1.0 |
| 380M1200N5-1.0RAX | 12.0 | 12.0    | 110.0 | 18.0 | 62.0 | 1.0 |
| 380M1600N4-1.0RAX | 16.0 | 16.0    | 120.0 | 35.0 | 65.0 | 1.0 |
| 380M1600N5-1.0RAX | 16.0 | 16.0    | 133.0 | 35.0 | 82.0 | 1.0 |

## ALtima® Xtreme Coating Properties

|                      |                   |
|----------------------|-------------------|
| Microhardness (HV)   | 3800              |
| Max. Service Temp.   | 1100° C / 2012° F |
| Friction Coefficient | 0.3 - 0.5         |
| Designation          | AX                |
| Colour               | Copper            |

M.A. FORD EUROPE LTD

# TuffCut® XT9 Series 380L



## Features

- Stiff Core Technology
- Uneven 9 flute design
- ALtima® Xtreme Coating
- 4 and 5xØ long flute versions

## Benefits

- Less deflection for long reach applications
- High feed rates with reduced harmonics for stable machining
- Excellent high heat and wear resistance
- Long reach profiling applications

| Tool Number     | D1   | D2 (h6) | L1    | L2   | R   |
|-----------------|------|---------|-------|------|-----|
| 380M1204-1.0RAX | 12.0 | 12.0    | 100.0 | 50.0 | 1.0 |
| 380M1205-1.0RAX | 12.0 | 12.0    | 120.0 | 62.0 | 1.0 |
| 380M1604-1.0RAX | 16.0 | 16.0    | 120.0 | 66.0 | 1.0 |
| 380M1605-1.0RAX | 16.0 | 16.0    | 150.0 | 82.0 | 1.0 |

## ALtima® Xtreme Coating Properties

|                      |                   |
|----------------------|-------------------|
| Microhardness (HV)   | 3800              |
| Max. Service Temp.   | 1100° C / 2012° F |
| Friction Coefficient | 0.3 - 0.5         |
| Designation          | AX                |
| Colour               | Copper            |

## TuffCut® XT9 Series 380N and 380L

### Recommended cutting data

| Workpiece Material Group                                                                                                                   | ISO | Hardness     | Coolant<br>● Preferred<br>○ Possible<br>x Not Possible |     |     | Profiling (ae) |     |     | End Mill Diameter (mm)                                                                                                                                    |               |
|--------------------------------------------------------------------------------------------------------------------------------------------|-----|--------------|--------------------------------------------------------|-----|-----|----------------|-----|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
|                                                                                                                                            |     |              |                                                        |     |     | 5% 7% 10%      |     |     | 12                                                                                                                                                        | 16            |
|                                                                                                                                            |     |              |                                                        |     |     | 2.3 2.0 1.8    |     |     | ← Multiply fz by this Factor based on ae.<br>When finishing, use the standard fz per chart below. Only add chip thinning when roughing or semi-finishing. |               |
|                                                                                                                                            |     |              | Max.                                                   | Air | MMS | vc - m/min     |     |     |                                                                                                                                                           | fz - mm/tooth |
| Low Carbon Steels<br>1018, 1020                                                                                                            | P   | up to 28 Rc  | ●                                                      | ●   | ●   | 385            | 350 | 310 | 0.050                                                                                                                                                     | 0.060         |
| Medium Carbon Steels<br>1140, 1145                                                                                                         | P   | 28 to 38 Rc  | ●                                                      | ●   | ●   | 250            | 230 | 200 | 0.050                                                                                                                                                     | 0.060         |
| Alloy Steels<br>4140, 4145                                                                                                                 | P   | 28 to 44 Rc  | ●                                                      | ●   | ●   | 250            | 230 | 200 | 0.050                                                                                                                                                     | 0.060         |
| Die / Tool Steels<br>A2, D2, H13, P20                                                                                                      | P   | 28 to 44 Rc  | ●                                                      | ●   | ●   | 220            | 200 | 180 | 0.050                                                                                                                                                     | 0.060         |
| Stainless Steel - Easy to Machine<br>430F, 301, 303, 410, 416 Annealed, 420F, 430                                                          | M   | up to 28 Rc  | ●                                                      | x   | ○   | 165            | 150 | 130 | 0.050                                                                                                                                                     | 0.060         |
| Stainless Steel - Austenitic<br>301, 302, 303 High Tensile, 304, 304L, 305, 420, 15-5PH, 17-4PH, 17-7PH                                    | M   | up to 28 Rc  | ●                                                      | x   | ○   | 130            | 120 | 100 | 0.050                                                                                                                                                     | 0.060         |
| Stainless Steel - Difficult to Machine<br>302B, 304B, 309, 310, 316, 316B, 316L, 316Ti, 317, 317L, 321                                     | M   | up to 28 Rc  | ●                                                      | x   | ○   | 100            | 90  | 80  | 0.050                                                                                                                                                     | 0.060         |
| Stainless Steel - Difficult to Machine<br>17-4 PH, PH13-8Mo, Nitronics                                                                     | M   | over 28 Rc   | ●                                                      | x   | ○   | 100            | 90  | 80  | 0.050                                                                                                                                                     | 0.060         |
| Cobalt Chrome Alloys                                                                                                                       | M   |              | ●                                                      | x   | ○   | 100            | 90  | 80  | 0.050                                                                                                                                                     | 0.060         |
| Duplex (22%)                                                                                                                               | M   |              | ●                                                      | x   | ○   | 60             | 50  | 45  | 0.050                                                                                                                                                     | 0.060         |
| Super Duplex (25%)                                                                                                                         | M   |              | ●                                                      | x   | ○   | 60             | 50  | 45  | 0.050                                                                                                                                                     | 0.060         |
| High Temp Alloys                                                                                                                           | S   | up to 42 Rc  | ●                                                      | x   | x   | 45             | 40  | 35  | 0.050                                                                                                                                                     | 0.060         |
| Inconel                                                                                                                                    | S   |              | ●                                                      | x   | x   | 45             | 40  | 35  | 0.025                                                                                                                                                     | 0.030         |
| Titanium Alloys<br>6Al-4V, 5Al-2.5 Sn, 6Al-2 Sn-4Zr-6Mo, 3Al-8V-6Cr4Mo-4Zr                                                                 | S   | up to 42 Rc  | ●                                                      | x   | x   | 90             | 85  | 80  | 0.030                                                                                                                                                     | 0.040         |
| Cast Iron - Gray CG, ASTM A48, CLASS 20, 25, 30, 35, SAE J431C, GRADES G1800, G3000, G3500, GG 10, 15, 20, 25, 30, 35, 40                  | K   | up to 240 HB | ●                                                      | ○   | ○   | 395            | 355 | 315 | 0.050                                                                                                                                                     | 0.060         |
| Cast Iron - Ductile & Malleable<br>CGI 60-40-18, 65-45-12, D4018, D4512, D5506, 32510, 35108, M3210, M4504, M5503, 250, 300, 350, 400, 450 | K   | over 240 HB  | ●                                                      | ○   | ○   | 165            | 150 | 130 | 0.050                                                                                                                                                     | 0.060         |
| Hardened Steels                                                                                                                            | H   | 40-50 Rc     | ●                                                      | ○   | ○   | 150            | 130 | 120 | 0.040                                                                                                                                                     | 0.050         |
| Hardened Steels                                                                                                                            |     | 50-55 Rc     | ●                                                      | ○   | ○   | 125            | 110 | 100 | 0.025                                                                                                                                                     | 0.030         |
| Hardened Steels                                                                                                                            |     | >55 Rc       | ●                                                      | ○   | ○   | 80             | 75  | 75  | 0.020                                                                                                                                                     | 0.025         |

#### 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.

Spindle Maximum - Should the calculated spindle speed be more than your actual spindle maximum, use this formula:  
(Calculated Feed x Spindle Maximum)/Calculated Speed.

Technical data provided should be considered advisory only as variations may be necessary depending on the particular application.