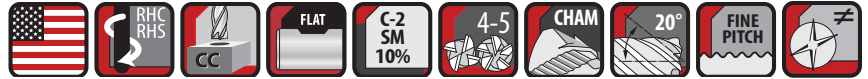


AGGRESSOR^F



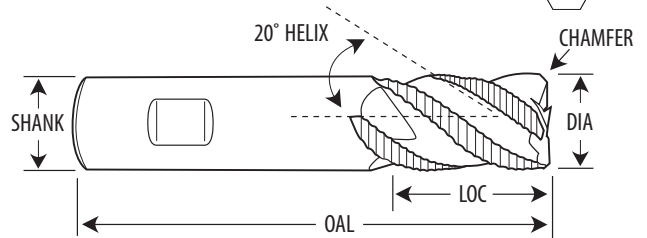
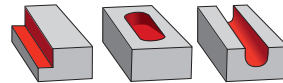
Designed for heavy material removal applications where cycle times are critical

Relaxed 20° helix enhances stability in hard materials



Fine tooth serrations promote smooth chip clearance by creating small chips in hardest materials

Corner chamfer for edge strength and wear protection



DIA TOLERANCE: +0.000 / -0.002" SHANK TOLERANCE: +0.0000 / -0.0004"

| DIA | DEC IN | FLUTES | LOC | SHANK | OAL | LENGTH | CHAMFER | BRIGHT | ALTCRN |
|------|--------|--------|-------|-------|-------|---------|---------|------------|-------------|
| 1/4 | 0.2500 | 4 | 1/2 | 1/4 | 2 | Stub | .020 | 255-100240 | 255-100240B |
| | | | 3/4 | 1/4 | 2-1/2 | Regular | .020 | 255-100250 | 255-100250B |
| 5/16 | 0.3125 | 4 | 1/2 | 5/16 | 2 | Stub | .020 | 255-100302 | 255-100302B |
| | | | 13/16 | 5/16 | 2-1/2 | Regular | .020 | 255-100312 | 255-100312B |
| 3/8 | 0.3750 | 4 | 5/8 | 3/8 | 2 | Stub | .020 | 255-100365 | 255-100365B |
| | | | 1 | 3/8 | 2-1/2 | Regular | .020 | 255-100375 | 255-100375B |
| 7/16 | 0.4375 | 4 | 1 | 7/16 | 2-3/4 | Regular | .020 | 255-100437 | 255-100437B |
| | | | 5/8 | 1/2 | 2-1/2 | Stub | .025 | 255-100490 | 255-100490B |
| 1/2 | 0.5000 | 4 | 1-1/4 | 1/2 | 3 | Regular | .025 | 255-100500 | 255-100500B |
| | | | 2 | 1/2 | 4 | Long | .025 | 255-200500 | 255-200500B |
| 5/8 | 0.6250 | 4 | 3/4 | 5/8 | 3 | Stub | .025 | 255-100615 | 255-100615B |
| | | | 1-5/8 | 5/8 | 4 | Regular | .025 | 255-100625 | 255-100625B |
| 3/4 | 0.7500 | 4 | 1 | 3/4 | 3-1/2 | Stub | .025 | 255-100740 | 255-100740B |
| | | | 1-3/4 | 3/4 | 4 | Regular | .025 | 255-100750 | 255-100750B |
| | | | 2-1/4 | 3/4 | 5 | Long | .025 | 255-200750 | 255-200750B |
| 1 | 1.0000 | 5 | 3 | 3/4 | 6 | X/Long | .025 | 255-300750 | 255-300750B |
| | | | 2 | 1 | 5 | Regular | .025 | 255-101000 | 255-101000B |
| | | | 2-5/8 | 1 | 5 | Long | .025 | 255-201000 | 255-201000B |
| | | | 3-1/4 | 1 | 6 | X/Long | .025 | 255-301000 | 255-301000B |
| | | | 4-1/8 | 1 | 7 | XX/Long | .025 | 255-301100 | 255-301100B |

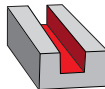
MILLING RECOMMENDATIONS



PROFILING

| Workpiece Material Group | Hardness | Surface Feet Per Minute (SFM) Radial Depth of Cut (RDOC) | | | | | Inches Per Tooth (IPT) | | | | | *CHIP THINNING Adjustments | | |
|--------------------------|---|---|------|------|------|------|------------------------|--------|--------|--------|--------|----------------------------|-------|--------------|
| | | SFM based on RDOC | | | | | IPT* (BASELINE) | | | | | | | |
| | | Cutting Diameter Engaged | | | | | Cutting Diameter | | | | | | | |
| Steels | Free Machining & Low Carbon: 10XX, 11XX, 12XX, 12LXX, ASTM A27, ASTM A36 | ≤ 28 Rc | 1485 | 1485 | 1155 | 1000 | 825 | 0.0033 | 0.0047 | 0.0066 | 0.0078 | 0.0090 | RDOC | Increase IPT |
| | Medium Carbon, High Carbon Steels, Alloy Steels & Easy to Machine Tool: 13XX, 41XX, 43XX, 51XX, 86XX, 93XX | 28 - 38 Rc | 890 | 890 | 825 | 750 | 660 | 0.0033 | 0.0047 | 0.0066 | 0.0078 | 0.0090 | | |
| Tool & Die Steels | A2, H13, L6, P20, S7 | 28 - 44 Rc | 750 | 750 | 660 | 560 | 430 | 0.0033 | 0.0047 | 0.0066 | 0.0078 | 0.0090 | 30% | 1.1 x |
| Stainless Steel | Easy to Machine, 430F, 301, 303, 410, 416 Annealed, 420F, 430, 430F | ≤ 28 Rc | 500 | 500 | 430 | 400 | 350 | 0.0033 | 0.0047 | 0.0066 | 0.0078 | 0.0090 | 25% | 1.2 x |
| | Moderately Difficult to Machine, Nitronic 50, Nitronic 60, 301, 303, 304, 304L Incoloy 27-7MO, 316 316L, 321, 347 | ≤ 28 Rc | 430 | 430 | 400 | 370 | 330 | 0.0025 | 0.0033 | 0.0049 | 0.0059 | 0.0066 | 20% | 1.3 x |
| Super Alloys | Difficult to Machine, 302B, 304B, 309, 310, 316, 316B, 316L, 316Ti, 317, 317L, 321, PH13-8Mo, Nitronics | > 28 Rc | 430 | 430 | 400 | 360 | 330 | 0.0025 | 0.0033 | 0.0049 | 0.0059 | 0.0066 | 15% | 1.4 x |
| | High Temp, Nimonic, Inconel, Monel, Hastelloy | ≤ 42 Rc | 165 | 165 | 130 | 115 | 100 | 0.0008 | 0.0011 | 0.0017 | 0.0019 | 0.0023 | 10% | 1.8 x |
| Hardened Materials | Titanium: Ti 3Al-2.5V, Ti 6Al-4V Ti 10V-2Fe-3Al | ≤ 42 Rc | 400 | 400 | 370 | 300 | 250 | 0.0008 | 0.0011 | 0.0017 | 0.0019 | 0.0023 | 7% | 2.0 x |
| | 35 - 45 Rc | 450 | 450 | 410 | 300 | 165 | 0.0029 | 0.0039 | 0.0059 | 0.0070 | 0.0078 | 5% | 2.3 x | |
| Cast-Iron | Gray: SAE J431, ASTM A48 | ≤ 240 HB | 1180 | 1180 | 1120 | 800 | 630 | 0.0033 | 0.0047 | 0.0066 | 0.0078 | 0.0090 | 3% | 3.0 x |
| | Ductile & Malleable: ASTM A536, ASTM 897, ASTM A47, ASTM A220 ASTM A602 | > 240 HB | 530 | 530 | 500 | 460 | 430 | 0.0033 | 0.0047 | 0.0066 | 0.0078 | 0.0090 | 2% | 3.5 x |
| | | | | | | | | | | | | 1% | 5.0 x | |

†1/4" AND SMALLER DIAMETERS: Use caution when Profiling more than 50% or Slotting more than 25%



SLOTTING

| Workpiece Material Group | Hardness | Surface Feet Per Minute (SFM) Radial Depth of Cut (RDOC) | | | Inches Per Tooth (IPT) | | | | | |
|--------------------------|---|---|-----|-----|------------------------|--------|--------|--------|--------|--------|
| | | SFM | | | IPT* (BASELINE) | | | | | |
| | | Cutting Diameter Engaged | | | Cutting Diameter | | | | | |
| Steels | Free Machining & Low Carbon: 10XX, 11XX, 12XX, 12LXX, ASTM A27, ASTM A36 | ≤ 28 Rc | 800 | 700 | 500 | 5/16 | 3/8 | 1/2 | 5/8 | 3/4 |
| | Medium Carbon, High Carbon Steels, Alloy Steels & Easy to Machine Tool: 13XX, 41XX, 43XX, 51XX, 86XX, 93XX | 28 - 38 Rc | 650 | 550 | 450 | 0.0010 | 0.0020 | 0.0025 | 0.0030 | 0.0035 |
| Tool & Die Steels | A2, H13, L6, P20, S7 | 28 - 44 Rc | 500 | 450 | 400 | 0.0010 | 0.0020 | 0.0025 | 0.0030 | 0.0035 |
| Stainless Steel | Easy to Machine, 430F, 301, 303, 410, 416 Annealed, 420F, 430, 430F | ≤ 28 Rc | 400 | 350 | 325 | 0.0010 | 0.0020 | 0.0025 | 0.0030 | 0.0035 |
| | Moderately Difficult to Machine, Nitronic 50, Nitronic 60, 301, 303, 304, 304L Incoloy 27-7MO, 316 316L, 321, 347 | ≤ 28 Rc | 320 | 275 | 250 | 0.0010 | 0.0020 | 0.0025 | 0.0030 | 0.0035 |
| Super Alloys | Difficult to Machine, 302B, 304B, 309, 310, 316, 316B, 316L, 316Ti, 317, 317L, 321, PH13-8Mo, Nitronics | > 28 Rc | 330 | 275 | 250 | 0.0010 | 0.0020 | 0.0025 | 0.0030 | 0.0035 |
| | High Temp, Nimonic, Inconel, Monel, Hastelloy | ≤ 42 Rc | 110 | 100 | 95 | 0.0005 | 0.0010 | 0.0010 | 0.0015 | 0.0020 |
| Hardened Materials | Titanium: Ti 3Al-2.5V, Ti 6Al-4V Ti 10V-2Fe-3Al | ≤ 42 Rc | 230 | 210 | 195 | 0.0008 | 0.0009 | 0.0011 | 0.0017 | 0.0019 |
| | 35 - 45 Rc | 200 | 180 | 150 | 0.0010 | 0.0020 | 0.0025 | 0.0030 | 0.0035 | |
| Cast-Iron | Gray: SAE J431, ASTM A48 | ≤ 240 HB | 600 | 550 | 500 | 0.0010 | 0.0020 | 0.0025 | 0.0030 | 0.0035 |
| | Ductile & Malleable: ASTM A536, ASTM 897, ASTM A47, ASTM A220 ASTM A602 | > 240 HB | 320 | 275 | 250 | 0.0010 | 0.0020 | 0.0025 | 0.0030 | 0.0035 |

