



Speeds & Feeds

**Product Table:** Engraving Cutters - Tipped Off  
**Characteristics:** 1 Flute

| Series or Item | RPM   | Chip Load (IPT) by Material                 |                                    |                     |                    |                    |         |               |            |         |                  |         |            | Axial DOC |                          |  |
|----------------|-------|---|------------------------------------|---------------------|--------------------|--------------------|---------|---------------|------------|---------|------------------|---------|------------|-----------|--------------------------|--|
|                |       | Plastics                                    |                                    | Non-Ferrous         |                    | Iron               |         | Carbon Steels |            |         | Stainless Steels |         | Titanium   |           | High Temp Alloys         |  |
|                |       | Non-Filled, Glass Filled, Carbon Fiber, G10 | Aluminum, Magnesium, Copper Alloys | Cast Iron (< 30 Rc) | Cast Iron (30+ Rc) | Ductile, Malleable | < 29 Rc | 30 < 39 Rc    | 40 < 45 Rc | < 30 Rc | 32 < 45 Rc       | < 30 Rc | 32 < 45 Rc |           | Inconel, Waspaloy, Monel |  |
| 182xx          | 6000+ | .00300                                      | .00200                             | .00200              | .00080             | .00100             | .00120  | .00090        | .00050     | .00100  | .00050           | .00100  | .00050     | .00080    | < .010                   |  |
| 25202          | 6000+ | .00168                                      | .00112                             | .00112              | .00045             | .00056             | .00067  | .00050        | .00028     | .00056  | .00028           | .00056  | .00028     | .00045    | < .010                   |  |
| 25210          | 6000+ | .00210                                      | .00140                             | .00140              | .00056             | .00070             | .00084  | .00063        | .00035     | .00070  | .00035           | .00070  | .00035     | .00056    | < .010                   |  |
| 25220          | 6000+ | .00210                                      | .00140                             | .00140              | .00056             | .00070             | .00084  | .00063        | .00035     | .00070  | .00035           | .00070  | .00035     | .00056    | < .010                   |  |
| 25224          | 6000+ | .00210                                      | .00140                             | .00140              | .00056             | .00070             | .00084  | .00063        | .00035     | .00070  | .00035           | .00070  | .00035     | .00056    | < .011                   |  |
| 25228          | 6000+ | .00168                                      | .00112                             | .00112              | .00045             | .00056             | .00067  | .00050        | .00028     | .00056  | .00028           | .00056  | .00028     | .00045    | < .010                   |  |
| 25230          | 6000+ | .00210                                      | .00140                             | .00140              | .00056             | .00070             | .00084  | .00063        | .00035     | .00070  | .00035           | .00070  | .00035     | .00056    | < .010                   |  |
| 25236          | 6000+ | .00210                                      | .00140                             | .00140              | .00056             | .00070             | .00084  | .00063        | .00035     | .00070  | .00035           | .00070  | .00035     | .00056    | < .010                   |  |
| 25242          | 6000+ | .00210                                      | .00140                             | .00140              | .00056             | .00070             | .00084  | .00063        | .00035     | .00070  | .00035           | .00070  | .00035     | .00056    | < .010                   |  |
| 25252          | 6000+ | .00210                                      | .00140                             | .00140              | .00056             | .00070             | .00084  | .00063        | .00035     | .00070  | .00035           | .00070  | .00035     | .00056    | < .010                   |  |
| 25256          | 6000+ | .00210                                      | .00140                             | .00140              | .00056             | .00070             | .00084  | .00063        | .00035     | .00070  | .00035           | .00070  | .00035     | .00056    | < .010                   |  |
| 25302          | 6000+ | .00192                                      | .00128                             | .00128              | .00051             | .00064             | .00077  | .00058        | .00032     | .00064  | .00032           | .00064  | .00032     | .00051    | < .010                   |  |
| 25302          | 6000+ | .00192                                      | .00128                             | .00128              | .00051             | .00064             | .00077  | .00058        | .00032     | .00064  | .00032           | .00064  | .00032     | .00051    | < .010                   |  |
| 25310          | 6000+ | .00240                                      | .00160                             | .00160              | .00064             | .00080             | .00096  | .00072        | .00040     | .00080  | .00040           | .00080  | .00040     | .00064    | < .010                   |  |
| 25320          | 6000+ | .00240                                      | .00160                             | .00160              | .00064             | .00080             | .00096  | .00072        | .00040     | .00080  | .00040           | .00080  | .00040     | .00064    | < .010                   |  |
| 25328          | 6000+ | .00192                                      | .00128                             | .00128              | .00051             | .00064             | .00077  | .00058        | .00032     | .00064  | .00032           | .00064  | .00032     | .00051    | < .010                   |  |
| 25330          | 6000+ | .00240                                      | .00160                             | .00160              | .00064             | .00080             | .00096  | .00072        | .00040     | .00080  | .00040           | .00080  | .00040     | .00064    | < .010                   |  |
| 25342          | 6000+ | .00240                                      | .00160                             | .00160              | .00064             | .00080             | .00096  | .00072        | .00040     | .00080  | .00040           | .00080  | .00040     | .00064    | < .010                   |  |
| 25352          | 6000+ | .00240                                      | .00160                             | .00160              | .00064             | .00080             | .00096  | .00072        | .00040     | .00080  | .00040           | .00080  | .00040     | .00064    | < .010                   |  |
| 269xx          | 6000+ | .00300                                      | .00200                             | .00200              | .00080             | .00100             | .00120  | .00090        | .00050     | .00100  | .00050           | .00100  | .00050     | .00080    | < .010                   |  |
| 276xx          | 6000+ | .00300                                      | .00200                             | .00200              | .00080             | .00100             | .00120  | .00090        | .00050     | .00100  | .00050           | .00100  | .00050     | .00080    | < .010                   |  |
| 302xx          | 6000+ | .00300                                      | .00200                             | .00200              | .00080             | .00100             | .00120  | .00090        | .00050     | .00100  | .00050           | .00100  | .00050     | .00080    | < .010                   |  |
| 30302          | 6000+ | .00264                                      | .00176                             | .00176              | .00070             | .00088             | .00106  | .00079        | .00044     | .00088  | .00044           | .00088  | .00044     | .00070    | < .010                   |  |
| 30310          | 6000+ | .00330                                      | .00220                             | .00220              | .00088             | .00110             | .00132  | .00099        | .00055     | .00110  | .00055           | .00110  | .00055     | .00088    | < .010                   |  |
| 30320          | 6000+ | .00330                                      | .00220                             | .00220              | .00088             | .00110             | .00132  | .00099        | .00055     | .00110  | .00055           | .00110  | .00055     | .00088    | < .010                   |  |
| 30324          | 6000+ | .00330                                      | .00220                             | .00220              | .00088             | .00110             | .00132  | .00099        | .00055     | .00110  | .00055           | .00110  | .00055     | .00088    | < .010                   |  |
| 30328          | 6000+ | .00264                                      | .00176                             | .00176              | .00070             | .00088             | .00106  | .00079        | .00044     | .00088  | .00044           | .00088  | .00044     | .00070    | < .010                   |  |
| 30330          | 6000+ | .00330                                      | .00220                             | .00220              | .00088             | .00110             | .00132  | .00099        | .00055     | .00110  | .00055           | .00110  | .00055     | .00088    | < .010                   |  |
| 30336          | 6000+ | .00330                                      | .00220                             | .00220              | .00088             | .00110             | .00132  | .00099        | .00055     | .00110  | .00055           | .00110  | .00055     | .00088    | < .010                   |  |
| 30342          | 6000+ | .00330                                      | .00220                             | .00220              | .00088             | .00110             | .00132  | .00099        | .00055     | .00110  | .00055           | .00110  | .00055     | .00088    | < .010                   |  |
| 30352          | 6000+ | .00330                                      | .00220                             | .00220              | .00088             | .00110             | .00132  | .00099        | .00055     | .00110  | .00055           | .00110  | .00055     | .00088    | < .010                   |  |
| 30356          | 6000+ | .00330                                      | .00220                             | .00220              | .00088             | .00110             | .00132  | .00099        | .00055     | .00110  | .00055           | .00110  | .00055     | .00088    | < .010                   |  |
| 507xx          | 6000+ | .00240                                      | .00160                             | .00160              | .00064             | .00080             | .00096  | .00072        | .00040     | .00080  | .00040           | .00080  | .00040     | .00064    | < .010                   |  |
| 793055         | 6000+ | .00300                                      | .00200                             | .00200              | .00080             | .00100             | .00120  | .00090        | .00050     | .00100  | .00050           | .00100  | .00050     | .00080    | < .010                   |  |
| 8236xx         | 6000+ | .00228                                      | .00152                             | .00152              | .00061             | .00076             | .00091  | .00068        | .00038     | .00076  | .00038           | .00076  | .00038     | .00061    | < .011                   |  |
| 954102         | 6000+ | .00288                                      | .00192                             | .00192              | .00077             | .00096             | .00115  | .00086        | .00048     | .00096  | .00048           | .00096  | .00048     | .00077    | < .010                   |  |
| 954110         | 6000+ | .00360                                      | .00240                             | .00240              | .00096             | .00120             | .00144  | .00108        | .00060     | .00120  | .00060           | .00120  | .00060     | .00096    | < .010                   |  |
| 955002         | 6000+ | .00204                                      | .00136                             | .00136              | .00054             | .00068             | .00082  | .00061        | .00034     | .00068  | .00034           | .00068  | .00034     | .00054    | < .010                   |  |
| 955010         | 6000+ | .00255                                      | .00170                             | .00170              | .00068             | .00085             | .00102  | .00077        | .00043     | .00085  | .00043           | .00085  | .00043     | .00068    | < .010                   |  |
| 955020         | 6000+ | .00255                                      | .00170                             | .00170              | .00068             | .00085             | .00102  | .00077        | .00043     | .00085  | .00043           | .00085  | .00043     | .00068    | < .010                   |  |
| 955030         | 6000+ | .00255                                      | .00170                             | .00170              | .00068             | .00085             | .00102  | .00077        | .00043     | .00085  | .00043           | .00085  | .00043     | .00068    | < .010                   |  |
| 987002         | 6000+ | .00144                                      | .00096                             | .00096              | .00038             | .00048             | .00058  | .00043        | .00024     | .00048  | .00024           | .00048  | .00024     | .00038    | < .010                   |  |
| 987010         | 6000+ | .00180                                      | .00120                             | .00120              | .00048             | .00060             | .00072  | .00054        | .00030     | .00060  | .00030           | .00060  | .00030     | .00048    | < .010                   |  |
| 990002         | 6000+ | .00132                                      | .00088                             | .00088              | .00035             | .00044             | .00053  | .00040        | .00022     | .00044  | .00022           | .00044  | .00022     | .00035    | < .010                   |  |
| 990010         | 6000+ | .00165                                      | .00110                             | .00110              | .00044             | .00055             | .00066  | .00050        | .00028     | .00055  | .00028           | .00055  | .00028     | .00044    | < .010                   |  |
| 993002         | 6000+ | .00120                                      | .00080                             | .00080              | .00032             | .00040             | .00048  | .00036        | .00020     | .00040  | .00020           | .00040  | .00020     | .00032    | < .010                   |  |
| 993010         | 6000+ | .00150                                      | .00100                             | .00100              | .00040             | .00050             | .00060  | .00045        | .00025     | .00050  | .00025           | .00050  | .00025     | .00040    | < .010                   |  |

**Please note:**

All posted speed and feed parameters are suggested starting values that may be increased given optimal setup conditions (minimal runout is required for best results).

Suggested speed is 6000 rpm or more. Choose an rpm value that creates the least amount of internal machine vibration. In many cases, a speed increaser is helpful.

Posted chip loads reflect axial depths of cut up to .009. For depths of cut = .010"-.015", reduce posted chip loads by 20%. For depths of cut = .016"-.020", reduce posted chip loads by 30%.

Posted chip loads reflect uncoated cutters. Coating is better suited to prolong tool life rather than decrease cycle times.

Posted chip loads reflect HORIZONTAL milling conditions. For VERTICAL plunge milling to depth, reduce posted chip loads by 50% (ramping is preferred to maintain tip integrity).

If you require additional information, Harvey Tool has a team of technical experts available to assist you through even the most challenging applications. Please contact us at 800-645-5609 or [Harveytech@harveyperformance.com](mailto:Harveytech@harveyperformance.com).

WARNING: Cutting tools may shatter under improper use. Government regulations require use of safety glasses and other appropriate safety equipment in the vicinity of use.