

## WIDIA-GTD™ Quick Ship Service

Rely on the WIDIA™ Quick Ship Service program to deliver the special taps you need, when and where you need them. Within minutes, we can quote, process, and release your order to the factory.

# Quick Ship Service



## Features and Benefits

- Non-standard tap sizes, pitches, PDs, coatings, etc.
- The use of standard blank gives a quick turnaround.
- Variations in design to suit your needs.
- Fast service, high quality.

## How to Order Quick Ship

### Quick Ship

WIDIA-GTD™ is now offering a Quick Ship Service, which supports its standard tap portfolio by being able to produce a basic custom tap from a blank with competitive lead times, with quality that is absent from the traditional Quick Ship companies. We will take a standard blank and modify to suit the customer needs based on the product boundaries described below.

WIDIA™ leads the industry in quoting technology. Experienced quotation specialists and product engineers use in-house designed software to generate a quote from a customer inquiry and design cutting tools with the requested features, modifications, options, and surface treatments.

### Use the following outline when selecting a tap:

1. Determine the tap that meets your cutting tool needs. For assistance, consult the Tap Selection Guide on pages V2–V17 Of the WIDIA Master Catalog (A-15-04580).
2. If the style, size, and/or quantity is not listed, consult customer service for a factory quote. WIDIA is fully equipped and ready to design your tool to your unique specifications.

### Please use the following guidelines when placing an order:

1. Tap size.
2. Catalog blank number.
3. Pitch diameter and class of fit.
4. Depth of tapped hole.
5. Depth of thread required.
6. Component material.
7. Chamfer (taper, plug, modified bottom, or bottom).
8. Surface treatments.
9. Additional features or options.

NOTE: If you do not specify the pitch, number of flutes, and/or chamfer, standard specifications will be applied and shipped uncoated.

Any additional information, such as material to be tapped, type of hole, and any general dimensions, such as overall length and shank diameter, will ensure a correct tap for your application.

## Features and Boundaries (Built out in a form)

### ■ Surface Treatments

| Features           | Limits Inch and Metric                                                                                                                    |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Thread Forms       | UNC, UNF, M, MF, STI, UNJ, UNJEF, UNS, UN                                                                                                 |
| Thread size        | Hand Tap #0 to 1" M1.5 to M25<br>Spiral Point #0 to 1" M1.5 to M25<br>Spiral Flute #2 to 1" M2 to M24<br>Form Taps #0 to 3/4" M1.6 to M12 |
| Thread TPI/Pitch   | TPI 100 to 4 Pitch 0.3-3.0                                                                                                                |
| Tolerance          | Max H Limit 12 Max D limit 12 (depending on thread diameter)                                                                              |
| Chamfer Type       | Taper, Plug, Bottom                                                                                                                       |
| Surface Treatments | Uncoated, Tin, Steam Oxide, Nitride, Steam Oxide/Nitride, TiCN, TiAlN, CrN, TiN CrC/C                                                     |

NOTE: Add to lead-time designated for special taps.

### ■ Additional Features

| Feature/options                                       |
|-------------------------------------------------------|
| Controlled root (minor diameter+/-0.001") double lead |
| interrupted threads, taper or straight, odd number    |
| External centers removed, special marking             |

### ■ Coating Recommendation Chart

● first choice  
○ alternate choice

| Material Group       | uncoated | oxide | nitride | TiN | TiCN | TiAlN | CrN  | TiN CrC/C |
|----------------------|----------|-------|---------|-----|------|-------|------|-----------|
| P                    | ○        | ○     |         | ○   | ●    | ○     |      | ●         |
| M                    | ○        | ○     |         | ○   |      | ○     | ○    | ●         |
| K                    | ○        | ○     | ○       | ○   | ●    | ○     |      | ○         |
| N                    | ○        |       | ○       | ○   |      |       |      | ○         |
| S                    | ○        |       | ○       | ○   |      | ●     | ○    | ●         |
| H                    |          |       |         |     |      |       |      |           |
| speed (SFM) increase | 0%       | 0%    | 0%      | 50% | 50%  | 100%  | 100% | 100%      |

### ■ Delivery times

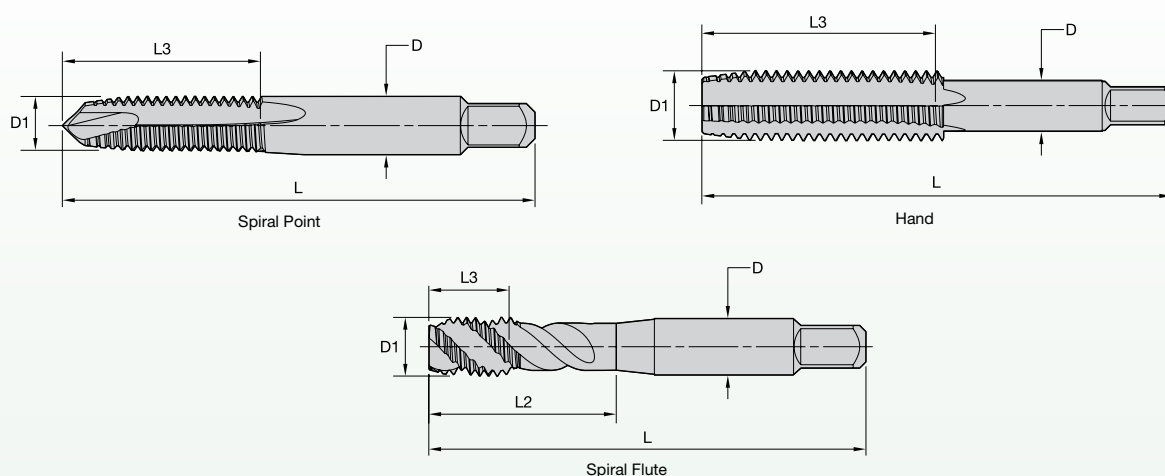
(from the date the order was placed)

| Delivery times    |
|-------------------|
| Uncoated 5–7 days |
| Coated 7–12 days  |

### ■ Pricing based on Order Qty Price break table

| Min | Max |
|-----|-----|
| 5   | 24  |
| 25  | 49  |
| 50  | 72  |

## Specials from Blanks • General Applications • HSS



| style                   | uncoated<br>2-flute | uncoated<br>3-flute | uncoated<br>4-flute | uncoated<br>6-flute | L    | L3   | L2 | D     | max H<br>limit | max<br>TPI |
|-------------------------|---------------------|---------------------|---------------------|---------------------|------|------|----|-------|----------------|------------|
| <b>#0</b>               |                     |                     |                     |                     |      |      |    |       |                |            |
| Hand — T, P, B          | 64250               | —                   | —                   | —                   | 1.63 | 0.31 | —  | 0.141 | 3              | 100        |
| Spiral-Point Gun — P, B | 64350               | —                   | —                   | —                   | 1.63 | 0.31 | —  | 0.141 | 3              | 100        |
| <b>#1</b>               |                     |                     |                     |                     |      |      |    |       |                |            |
| Hand — T, P, B          | 64251               | —                   | —                   | —                   | 1.69 | 0.38 | —  | 0.141 | 4              | 100        |
| Spiral-Point Gun — P, B | 64351               | —                   | —                   | —                   | 1.69 | 0.38 | —  | 0.141 | 4              | 100        |
| <b>#2</b>               |                     |                     |                     |                     |      |      |    |       |                |            |
| Hand — T, P, B          | 64252               | 64264               | —                   | —                   | 1.75 | 0.44 | —  | 0.141 | 4              | 100        |
| Spiral-Point Gun — P, B | 64352               | —                   | —                   | —                   | 1.75 | 0.44 | —  | 0.141 | 4              | 100        |
| Regular Spiral — P, B   | 65160               | —                   | —                   | —                   | 1.75 | 0.44 | —  | 0.141 | 4              | 100        |
| Fast Spiral — P, B      | 65161               | —                   | —                   | —                   | 1.75 | 0.44 | —  | 0.141 | 4              | 100        |
| <b>#3</b>               |                     |                     |                     |                     |      |      |    |       |                |            |
| Hand — T, P, B          | 64253               | 64265               | —                   | —                   | 1.81 | 0.50 | —  | 0.141 | 5              | 100        |
| Spiral-Point Gun — P, B | 64353               | —                   | —                   | —                   | 1.81 | 0.50 | —  | 0.141 | 5              | 100        |
| Regular Spiral — P, B   | 64455               | —                   | —                   | —                   | 1.81 | 0.50 | —  | 0.141 | 5              | 100        |
| Fast Spiral — P, B      | 64466               | —                   | —                   | —                   | 1.81 | 0.50 | —  | 0.141 | 5              | 100        |
| <b>#4</b>               |                     |                     |                     |                     |      |      |    |       |                |            |
| Hand — T, P, B          | 64254               | 64266               | —                   | —                   | 1.88 | 0.56 | —  | 0.141 | 5              | 100        |
| Spiral-Point Gun — P, B | 64354               | —                   | —                   | —                   | 1.88 | 0.56 | —  | 0.141 | 5              | 100        |
| Regular Spiral — P, B   | 64456               | —                   | —                   | —                   | 1.88 | 0.56 | —  | 0.141 | 5              | 100        |
| Fast Spiral — P, B      | 64467               | —                   | —                   | —                   | 1.88 | 0.56 | —  | 0.141 | 5              | 100        |
| <b>Oversized</b>        |                     |                     |                     |                     |      |      |    |       |                |            |
| Hand — T, P, B          | 65730               | —                   | —                   | —                   | 1.88 | 0.56 | —  | 0.141 | 11             | 100        |
| Spiral-Point Gun — P, B | 64735               | —                   | —                   | —                   | 1.88 | 0.56 | —  | 0.141 | 11             | 100        |
| <b>#5</b>               |                     |                     |                     |                     |      |      |    |       |                |            |
| Hand — T, P, B          | 64255               | 64267               | —                   | —                   | 1.94 | 0.63 | —  | 0.141 | 5              | 100        |
| Spiral-Point Gun — P, B | 64355               | —                   | —                   | —                   | 1.94 | 0.63 | —  | 0.141 | 5              | 100        |
| Regular Spiral — P, B   | 64457               | —                   | —                   | —                   | 1.94 | 0.63 | —  | 0.141 | 5              | 100        |
| Fast Spiral — P, B      | 64468               | —                   | —                   | —                   | 1.94 | 0.63 | —  | 0.141 | 5              | 100        |
| <b>Oversized</b>        |                     |                     |                     |                     |      |      |    |       |                |            |
| Hand — T, P, B          | 65731               | —                   | —                   | —                   | 1.94 | 0.63 | —  | 0.141 | 11             | 100        |
| Spiral-Point Gun — P, B | 64736               | —                   | —                   | —                   | 1.94 | 0.63 | —  | 0.141 | 11             | 100        |

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## Specials from Blanks • General Applications • HSS

| style                   | uncoated<br>2-flute | uncoated<br>3-flute | uncoated<br>4-flute | uncoated<br>6-flute | L    | L3   | L2   | D     | max H<br>limit | max<br>TPI |
|-------------------------|---------------------|---------------------|---------------------|---------------------|------|------|------|-------|----------------|------------|
| <b>#6</b>               |                     |                     |                     |                     |      |      |      |       |                |            |
| Hand — T, P, B          | 64256               | 64268               | 64836               | —                   | 2.00 | 0.69 | —    | 0.141 | 7              | 100        |
| Spiral-Point Gun — P, B | 64356               | 64839               | —                   | —                   | 2.00 | 0.69 | —    | 0.141 | 7              | 100        |
| Regular Spiral — P, B   | —                   | 65167               | —                   | —                   | 2.00 | 0.38 | 0.69 | 0.141 | 7              | 100        |
| Fast Spiral — P, B      | —                   | 65172               | —                   | —                   | 2.00 | 0.38 | 0.69 | 0.141 | 7              | 100        |
| <b>Oversized</b>        |                     |                     |                     |                     |      |      |      |       |                |            |
| Hand — T, P, B          | 65732               | 65735               | —                   | —                   | 2.00 | 0.69 | —    | 0.141 | 13             | 100        |
| Spiral-Point Gun — P, B | 64737               | 65182               | —                   | —                   | 2.00 | 0.69 | —    | 0.141 | 13             | 100        |
| <b>#8</b>               |                     |                     |                     |                     |      |      |      |       |                |            |
| Hand — T, P, B          | 64257               | 64269               | 64278               | —                   | 2.13 | 0.75 | —    | 0.168 | 7              | 100        |
| Spiral-Point Gun — P, B | 64357               | 65193               | —                   | —                   | 2.13 | 0.75 | —    | 0.168 | 7              | 100        |
| Regular Spiral — P, B   | —                   | 65168               | —                   | —                   | 2.13 | 0.38 | 0.75 | 0.168 | 7              | 100        |
| Fast Spiral — P, B      | —                   | 64476               | —                   | —                   | 2.13 | 0.38 | 0.75 | 0.168 | 7              | 100        |
| <b>Oversized</b>        |                     |                     |                     |                     |      |      |      |       |                |            |
| Hand — T, P, B          | 65733               | 65736               | 64811               | —                   | 2.13 | 0.75 | —    | 0.168 | 13             | 100        |
| Spiral-Point Gun — P, B | 64738               | 65183               | —                   | —                   | 2.13 | 0.75 | —    | 0.168 | —              | 100        |
| <b>#10</b>              |                     |                     |                     |                     |      |      |      |       |                |            |
| Hand — T, P, B          | 64258               | 64270               | 64279               | —                   | 2.38 | 0.88 | —    | 0.194 | 7              | 100        |
| Spiral-Point Gun — P, B | 64358               | 65142               | 64840               | —                   | 2.38 | 0.88 | —    | 0.194 | 7              | 100        |
| Regular Spiral — P, B   | —                   | 65169               | —                   | —                   | 2.38 | 0.50 | 0.88 | 0.194 | 7              | 100        |
| Fast Spiral — P, B      | —                   | 64477               | —                   | —                   | 2.38 | 0.50 | 0.88 | 0.194 | 7              | 100        |
| <b>Oversized</b>        |                     |                     |                     |                     |      |      |      |       |                |            |
| Hand — T, P, B          | 65734               | 65737               | 64812               | —                   | 2.38 | 0.88 | —    | 0.194 | 13             | 100        |
| Spiral-Point Gun — P, B | 64739               | 65184               | —                   | —                   | 2.38 | 0.88 | —    | 0.194 | 13             | 100        |
| <b>#12</b>              |                     |                     |                     |                     |      |      |      |       |                |            |
| Hand — T, P, B          | 64260               | 65692               | 64281               | —                   | 2.38 | 0.94 | —    | 0.220 | 7              | 100        |
| Spiral-Point Gun — P, B | 64360               | 65143               | —                   | —                   | 2.38 | 0.94 | —    | 0.220 | 7              | 100        |
| Regular Spiral — P, B   | —                   | 65171               | —                   | —                   | 2.38 | 0.50 | 0.94 | 0.220 | 7              | 100        |
| Fast Spiral — P, B      | —                   | 64479               | —                   | —                   | 2.38 | 0.50 | 0.94 | 0.220 | 7              | 100        |
| <b>Oversized</b>        |                     |                     |                     |                     |      |      |      |       |                |            |
| Hand — T, P, B          | —                   | 65738               | 65752               | —                   | 2.38 | 0.94 | —    | 0.220 | 13             | 100        |
| Spiral-Point Gun — P, B | 64740               | —                   | —                   | —                   | 2.38 | 0.94 | —    | 0.220 | 13             | 100        |
| <b>1/4"</b>             |                     |                     |                     |                     |      |      |      |       |                |            |
| Hand — T, P, B          | 64261               | 64272               | 64282               | —                   | 2.50 | 1.00 | —    | 0.255 | 7              | 80         |
| Spiral-Point Gun — P, B | 64361               | 64376               | 64832               | —                   | 2.50 | 1.00 | —    | 0.255 | 7              | 80         |
| Regular Spiral — P, B   | —                   | 64470               | —                   | —                   | 2.50 | 0.63 | 1.00 | 0.255 | 7              | 80         |
| Fast Spiral — P, B      | —                   | 64480               | —                   | —                   | 2.50 | 0.63 | 1.00 | 0.255 | 7              | 80         |
| <b>Oversized</b>        |                     |                     |                     |                     |      |      |      |       |                |            |
| Hand — T, P, B          | —                   | 65739               | 64813               | —                   | 2.50 | 1.00 | —    | 0.255 | 13             | 80         |
| Spiral-Point Gun — P, B | —                   | 64741               | 65186               | —                   | 2.50 | 1.00 | —    | 0.255 | 13             | 80         |
| <b>5/16"</b>            |                     |                     |                     |                     |      |      |      |       |                |            |
| Hand — T, P, B          | 64262               | 64273               | 64283               | —                   | 2.72 | 1.13 | —    | 0.318 | 7              | 80         |
| Spiral-Point Gun — P, B | 64362               | 64377               | —                   | —                   | 2.72 | 1.13 | —    | 0.318 | 7              | 80         |
| Regular Spiral — P, B   | —                   | 64471               | —                   | —                   | 2.72 | 0.69 | 1.12 | 0.318 | 7              | 80         |
| Fast Spiral — P, B      | —                   | 64481               | —                   | —                   | 2.72 | 0.69 | 1.12 | 0.318 | 7              | 80         |
| <b>Oversized</b>        |                     |                     |                     |                     |      |      |      |       |                |            |
| Hand — T, P, B          | —                   | 65740               | 64814               | —                   | 2.72 | 1.13 | —    | 0.318 | 13             | 80         |
| Spiral-Point Gun — P, B | —                   | 64742               | 65187               | —                   | 2.72 | 1.13 | —    | 0.318 | 13             | 80         |

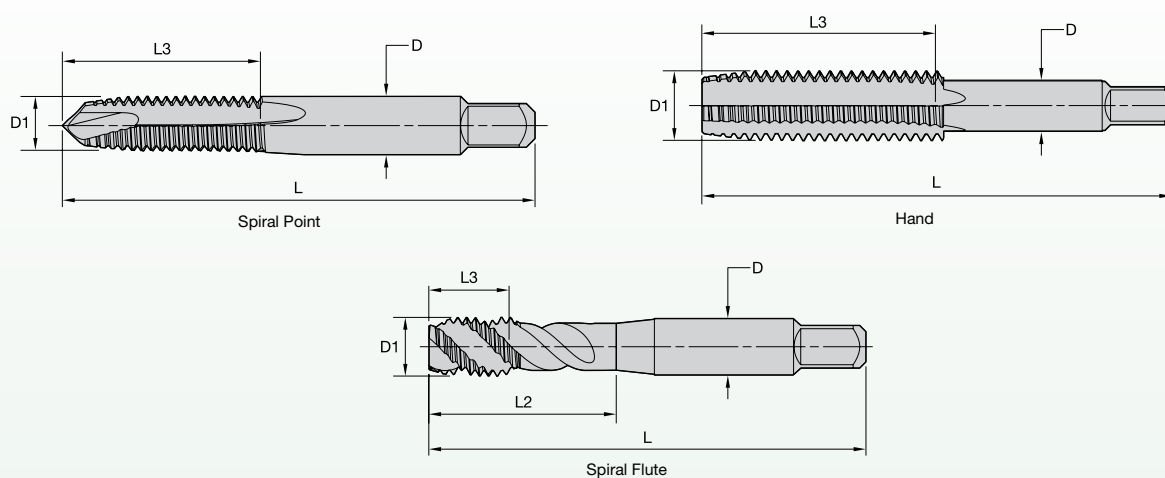
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### Pricing Based on Order Quantity

| min | max |
|-----|-----|
| 5   | 24  |
| 25  | 49  |
| 50  | 72  |

(continued)

## Specials from Blanks • General Applications • HSS



| style                   | uncoated<br>2-flute | uncoated<br>3-flute | uncoated<br>4-flute | uncoated<br>6-flute | L    | L3   | L2   | D     | max H<br>limit | max<br>TPI |
|-------------------------|---------------------|---------------------|---------------------|---------------------|------|------|------|-------|----------------|------------|
| <b>3/8"</b>             |                     |                     |                     |                     |      |      |      |       |                |            |
| Hand — T, P, B          | 64263               | 64274               | 64284               | —                   | 2.94 | 1.25 | —    | 0.381 | 7              | 80         |
| Spiral-Point Gun — P, B | 64854               | 64378               | —                   | —                   | 2.94 | 1.25 | —    | 0.381 | 7              | 80         |
| Regular Spiral — P, B   | —                   | 64472               | —                   | —                   | 2.94 | 0.75 | 1.25 | 0.381 | 7              | 80         |
| Fast Spiral — P, B      | —                   | 64482               | —                   | —                   | 2.94 | 0.75 | 1.25 | 0.381 | 7              | 80         |
| <b>Oversized</b>        |                     |                     |                     |                     |      |      |      |       |                |            |
| Hand — T, P, B          | —                   | 65741               | 64815               | —                   | 2.94 | 1.25 | —    | 0.381 | 13             | 80         |
| Spiral-Point Gun — P, B | —                   | 64767               | —                   | —                   | 2.94 | 1.25 | —    | 0.381 | 13             | 80         |
| <b>7/16"</b>            |                     |                     |                     |                     |      |      |      |       |                |            |
| Hand — T, P, B          | —                   | 64276               | 64286               | —                   | 3.16 | 1.44 | —    | 0.323 | 15             | 80         |
| Spiral-Point Gun — P, B | —                   | 64380               | —                   | —                   | 3.16 | 1.44 | —    | 0.323 | 15             | 80         |
| Regular Spiral — P, B   | —                   | 64474               | —                   | —                   | 3.16 | 0.88 | —    | 0.323 | 15             | 80         |
| Fast Spiral — P, B      | —                   | 64484               | —                   | —                   | 3.16 | 0.88 | —    | 0.323 | 15             | 80         |
| <b>1/2"</b>             |                     |                     |                     |                     |      |      |      |       |                |            |
| Hand — T, P, B          | —                   | 64277               | 64287               | 65693               | 3.38 | 1.66 | —    | 0.367 | 15             | 80         |
| Spiral-Point Gun — P, B | —                   | 64381               | —                   | —                   | 3.38 | 1.66 | —    | 0.367 | 15             | 80         |
| Regular Spiral — P, B   | —                   | 64475               | —                   | —                   | 3.38 | 0.94 | —    | 0.367 | 15             | 80         |
| Fast Spiral — P, B      | —                   | 64485               | —                   | —                   | 3.38 | 0.94 | —    | 0.367 | 15             | 80         |
| <b>9/16"</b>            |                     |                     |                     |                     |      |      |      |       |                |            |
| Hand — T, P, B          | —                   | 65100               | 64288               | 65694               | 3.59 | 1.66 | —    | 0.429 | 15             | 64         |
| Spiral-Point Gun — P, B | —                   | 64382               | 64826               | —                   | 3.59 | 1.66 | —    | 0.429 | 15             | 64         |
| Regular Spiral — P, B   | —                   | —                   | 64496               | —                   | 3.59 | 1.00 | —    | 0.429 | 15             | 64         |
| Fast Spiral — P, B      | —                   | —                   | 64502               | —                   | 3.59 | 1.00 | —    | 0.429 | 15             | 64         |
| <b>5/8"</b>             |                     |                     |                     |                     |      |      |      |       |                |            |
| Hand — T, P, B          | —                   | 65101               | 64289               | 65695               | 3.81 | 1.81 | —    | 0.480 | 15             | 64         |
| Spiral-Point Gun — P, B | —                   | 64383               | 64838               | —                   | 3.81 | 1.81 | —    | 0.480 | 15             | 64         |
| Regular Spiral — P, B   | —                   | —                   | 64497               | —                   | 3.81 | 1.09 | —    | 0.480 | 15             | 64         |
| Fast Spiral — P, B      | —                   | —                   | 64503               | —                   | 3.81 | 1.09 | —    | 0.480 | 15             | 64         |
| <b>11/16"</b>           |                     |                     |                     |                     |      |      |      |       |                |            |
| Hand — T, P, B          | —                   | —                   | 64290               | 65696               | 4.03 | 1.81 | —    | 0.542 | 15             | 64         |
| Spiral-Point Gun — P, B | —                   | 64384               | —                   | —                   | 4.03 | 1.81 | —    | 0.542 | 15             | 64         |
| Regular Spiral — P, B   | —                   | —                   | 64498               | —                   | 4.03 | 1.09 | —    | 0.542 | 15             | 64         |
| Fast Spiral — P, B      | —                   | —                   | 64504               | —                   | 4.03 | 1.09 | —    | 0.542 | 15             | 64         |

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**Specials from Blanks • General Applications • HSS**

| style                   | uncoated<br>2-flute | uncoated<br>3-flute | uncoated<br>4-flute | uncoated<br>6-flute | L    | L3   | L2 | D     | max H<br>limit | max<br>TPI   |
|-------------------------|---------------------|---------------------|---------------------|---------------------|------|------|----|-------|----------------|--------------|
| <b>3/4"</b>             |                     |                     |                     |                     |      |      |    |       |                |              |
| Hand — T, P, B          | —                   | 65103               | 64291               | 65697               | 4.25 | 2.00 | —  | 0.590 | 15             | 64           |
| Spiral-Point Gun — P, B | —                   | 64385               | 64829               | —                   | 4.25 | 2.00 | —  | 0.590 | 15             | 64           |
| Regular Spiral — P, B   | —                   | —                   | 64499               | —                   | 4.25 | 1.22 | —  | 0.590 | 15             | 64           |
| Fast Spiral — P, B      | —                   | —                   | 64505               | —                   | 4.25 | 1.22 | —  | 0.590 | 15             | 64           |
| <b>13/16"</b>           |                     |                     |                     |                     |      |      |    |       |                |              |
| Hand — T, P, B          | —                   | —                   | 64292               | 65698               | 4.47 | 2.00 | —  | 0.652 | 15             | 64           |
| Spiral-Point Gun — P, B | —                   | 64386               | —                   | —                   | 4.47 | 2.00 | —  | 0.652 | 15             | 64           |
| Regular Spiral — P, B   | —                   | —                   | 65690               | —                   | 4.47 | 1.22 | —  | 0.652 | 15             | 64           |
| Fast Spiral — P, B      | —                   | —                   | 65691               | —                   | 4.47 | 1.22 | —  | 0.652 | 15             | 64           |
| <b>7/8"</b>             |                     |                     |                     |                     |      |      |    |       |                |              |
| Hand — T, P, B          | —                   | —                   | 64293               | 65699               | 4.69 | 2.22 | —  | 0.697 | 15             | 64           |
| Spiral-Point Gun — P, B | —                   | 64387               | —                   | —                   | 4.69 | 2.22 | —  | 0.697 | 15             | 64           |
| Regular Spiral — P, B   | —                   | —                   | 64500               | —                   | 4.69 | 1.34 | —  | 0.697 | 15             | 64           |
| Fast Spiral — P, B      | —                   | —                   | 64506               | —                   | 4.69 | 1.34 | —  | 0.697 | 15             | 64           |
| <b>15/16"</b>           |                     |                     |                     |                     |      |      |    |       |                |              |
| Hand — T, P, B          | —                   | —                   | 64294               | 65700               | 4.91 | 2.22 | —  | 0.760 | 15             | 64           |
| Spiral-Point Gun — P, B | —                   | 65144               | —                   | —                   | 4.91 | 2.22 | —  | 0.760 | 15             | 64           |
| Regular Spiral — P, B   | —                   | —                   | 65173               | —                   | 4.91 | 1.34 | —  | 0.760 | 15             | 64           |
| Fast Spiral — P, B      | —                   | —                   | 65174               | —                   | 4.91 | 1.34 | —  | 0.760 | 15             | 64           |
| <b>1"</b>               |                     |                     |                     |                     |      |      |    |       |                |              |
| Hand — T, P, B          | —                   | —                   | 64295               | 65701               | 5.13 | 2.50 | —  | 0.800 | 15             | 64           |
| Spiral-Point Gun — P, B | —                   | 64388               | —                   | —                   | 5.13 | 2.50 | —  | 0.800 | 15             | 64           |
| Regular Spiral — P, B   | —                   | —                   | 64501               | —                   | 5.13 | 1.50 | —  | 0.800 | 15             | 64           |
| Fast Spiral — P, B      | —                   | —                   | 64507               | —                   | 5.13 | 1.50 | —  | 0.800 | 15             | 64           |
| style                   | uncoated<br>2-flute | uncoated<br>3-flute | uncoated<br>4-flute | uncoated<br>6-flute | L    | L3   | L2 | D     | max D<br>limit | pitch<br>min |
| <b>M1.5</b>             |                     |                     |                     |                     |      |      |    |       |                |              |
| Hand — T, P, B          | 65288               | —                   | —                   | —                   | 1.63 | 0.31 | —  | 0.141 | 3              | 0.30         |
| Spiral-Point Gun — P, B | 65381               | —                   | —                   | —                   | 1.63 | 0.31 | —  | 0.141 | 3              | 0.30         |
| <b>M1.6</b>             |                     |                     |                     |                     |      |      |    |       |                |              |
| Hand — T, P, B          | 65708               | —                   | —                   | —                   | 1.69 | 0.31 | —  | 0.141 | 3              | 0.30         |
| Spiral-Point Gun — P, B | 65766               | —                   | —                   | —                   | 1.69 | 0.31 | —  | 0.141 | 3              | 0.30         |
| <b>M1.8</b>             |                     |                     |                     |                     |      |      |    |       |                |              |
| Hand — T, P, B          | 65289               | —                   | —                   | —                   | 1.69 | 0.38 | —  | 0.141 | 4              | 0.30         |
| Spiral-Point Gun — P, B | 65382               | —                   | —                   | —                   | 1.69 | 0.38 | —  | 0.141 | 4              | 0.30         |
| <b>M2</b>               |                     |                     |                     |                     |      |      |    |       |                |              |
| Hand — T, P, B          | 65290               | 65301               | —                   | —                   | 1.75 | 0.44 | —  | 0.141 | 4              | 0.30         |
| Spiral-Point Gun — P, B | 65383               | —                   | —                   | —                   | 1.75 | 0.44 | —  | 0.141 | 4              | 0.30         |
| Regular Spiral — P, B   | 65479               | —                   | —                   | —                   | 1.75 | 0.44 | —  | 0.141 | 4              | 0.30         |
| Fast Spiral — P, B      | 65506               | —                   | —                   | —                   | 1.75 | 0.44 | —  | 0.141 | 4              | 0.30         |
| <b>M2.2</b>             |                     |                     |                     |                     |      |      |    |       |                |              |
| Hand — T, P, B          | —                   | 65713               | —                   | —                   | 1.75 | 0.44 | —  | 0.141 | 4              | 0.30         |
| Spiral-Point Gun — P, B | 65767               | —                   | —                   | —                   | 1.75 | 0.44 | —  | 0.141 | 4              | 0.30         |
| Fast Spiral — P, B      | 65773               | —                   | —                   | —                   | 1.75 | 0.44 | —  | 0.141 | 4              | 0.30         |

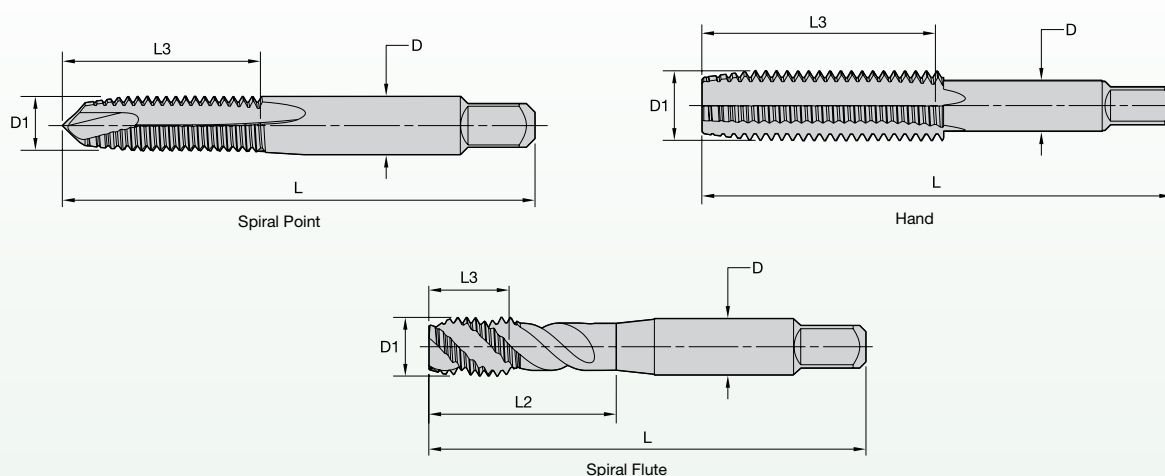
(continued)

**Pricing Based on Order Quantity**

| min | max |
|-----|-----|
| 5   | 24  |
| 25  | 49  |
| 50  | 72  |

(continued)

## Specials from Blanks • General Applications • HSS



| style                   | uncoated<br>2-flute | uncoated<br>3-flute | uncoated<br>4-flute | uncoated<br>6-flute | L    | L3   | L2   | D     | max D<br>limit | pitch<br>min |
|-------------------------|---------------------|---------------------|---------------------|---------------------|------|------|------|-------|----------------|--------------|
| <b>M2.5</b>             |                     |                     |                     |                     |      |      |      |       |                |              |
| Hand — T, P, B          | 65291               | 65302               | —                   | —                   | 1.81 | 0.50 | —    | 0.141 | 5              | 0.30         |
| Spiral-Point Gun — P, B | 65384               | —                   | —                   | —                   | 1.81 | 0.50 | —    | 0.141 | 5              | 0.30         |
| Regular Spiral — P, B   | 65498               | —                   | —                   | —                   | 1.81 | 0.50 | —    | 0.141 | 5              | 0.30         |
| Fast Spiral — P, B      | 65507               | —                   | —                   | —                   | 1.81 | 0.50 | —    | 0.141 | 5              | 0.30         |
| <b>M3</b>               |                     |                     |                     |                     |      |      |      |       |                |              |
| Hand — T, P, B          | 65292               | 65303               | 64852               | —                   | 1.94 | 0.63 | —    | 0.141 | 5              | 0.30         |
| Spiral-Point Gun — P, B | 65385               | —                   | —                   | —                   | 1.94 | 0.63 | —    | 0.141 | 5              | 0.30         |
| Fast Spiral — P, B      | 65508               | —                   | —                   | —                   | 1.94 | 0.63 | —    | 0.141 | 5              | 0.30         |
| <b>M3.5</b>             |                     |                     |                     |                     |      |      |      |       |                |              |
| Hand — T, P, B          | 65293               | 65304               | 65850               | —                   | 2.00 | 0.69 | —    | 0.141 | 7              | 0.30         |
| Spiral-Point Gun — P, B | 65386               | 64849               | —                   | —                   | 2.00 | 0.69 | —    | 0.141 | 7              | 0.30         |
| Regular Spiral — P, B   | —                   | 65515               | —                   | —                   | 2.00 | 0.38 | 0.69 | 0.141 | 7              | 0.30         |
| Fast Spiral — P, B      | —                   | 65526               | —                   | —                   | 2.00 | 0.38 | 0.69 | 0.141 | 7              | 0.30         |
| <b>Oversized</b>        |                     |                     |                     |                     |      |      |      |       |                |              |
| Hand — T, P, B          | —                   | 65783               | —                   | —                   | 2.00 | 0.69 | —    | 0.141 | 13             | 0.30         |
| Spiral-Point Gun — P, B | —                   | 65416               | —                   | —                   | 2.00 | 0.69 | —    | 0.141 | 13             | 0.30         |
| <b>M4</b>               |                     |                     |                     |                     |      |      |      |       |                |              |
| Hand — T, P, B          | 65294               | 65305               | 65317               | —                   | 2.13 | 0.75 | —    | 0.168 | 7              | 0.30         |
| Spiral-Point Gun — P, B | 65387               | 65393               | —                   | —                   | 2.13 | 0.75 | —    | 0.168 | 7              | 0.30         |
| Regular Spiral — P, B   | —                   | 65516               | —                   | —                   | 2.13 | 0.38 | 0.75 | 0.168 | 7              | 0.30         |
| Fast Spiral — P, B      | —                   | 65527               | —                   | —                   | 2.13 | 0.38 | 0.75 | 0.168 | 7              | 0.30         |
| <b>Oversized</b>        |                     |                     |                     |                     |      |      |      |       |                |              |
| Hand — T, P, B          | —                   | 65784               | 65433               | —                   | 2.13 | 0.75 | —    | 0.168 | 13             | 0.30         |
| Spiral-Point Gun — P, B | 65411               | —                   | —                   | —                   | 2.13 | 0.75 | —    | 0.168 | 13             | 0.30         |
| <b>M4.5</b>             |                     |                     |                     |                     |      |      |      |       |                |              |
| Hand — T, P, B          | —                   | 65306               | 65318               | —                   | 2.38 | 0.88 | —    | 0.194 | 7              | 0.30         |
| Spiral-Point Gun — P, B | 65388               | 65394               | —                   | —                   | 2.38 | 0.88 | —    | 0.194 | 7              | 0.30         |
| Regular Spiral — P, B   | —                   | 65517               | —                   | —                   | 2.38 | 0.50 | 0.88 | 0.194 | 7              | 0.30         |
| Fast Spiral — P, B      | —                   | 65528               | —                   | —                   | 2.38 | 0.50 | 0.88 | 0.194 | 7              | 0.30         |
| <b>Oversized</b>        |                     |                     |                     |                     |      |      |      |       |                |              |
| Hand — T, P, B          | —                   | —                   | 65434               | —                   | 2.38 | 0.88 | —    | 0.194 | 13             | 0.30         |

(continued)

(continued)

## Specials from Blanks • General Applications • HSS

| style                   | uncoated<br>2-flute | uncoated<br>3-flute | uncoated<br>4-flute | uncoated<br>6-flute | L    | L3   | L2   | D     | max D<br>limit | pitch<br>min |
|-------------------------|---------------------|---------------------|---------------------|---------------------|------|------|------|-------|----------------|--------------|
| <b>M5</b>               |                     |                     |                     |                     |      |      |      |       |                |              |
| Hand — T, P, B          | 64259               | 64271               | 64280               | —                   | 2.38 | 0.88 | —    | 0.194 | 7              | 0.30         |
| Spiral-Point Gun — P, B | 64359               | 65395               | 64827               | —                   | 2.38 | 0.88 | —    | 0.194 | 7              | 0.30         |
| Regular Spiral — P, B   | —                   | 65518               | —                   | —                   | 2.38 | 0.50 | 0.88 | 0.194 | 7              | 0.30         |
| Fast Spiral — P, B      | —                   | 64478               | —                   | —                   | 2.38 | 0.50 | 0.88 | 0.194 | 7              | 0.30         |
| <b>Oversized</b>        |                     |                     |                     |                     |      |      |      |       |                |              |
| Hand — T, P, B          | —                   | 65804               | 65806               | —                   | 2.38 | 0.88 | —    | 0.194 | 13             | 0.30         |
| Spiral-Point Gun — P, B | 65809               | 65811               | —                   | —                   | 2.38 | 0.88 | —    | 0.194 | 13             | 0.30         |
| <b>M6</b>               |                     |                     |                     |                     |      |      |      |       |                |              |
| Hand — T, P, B          | 65298               | 65308               | 65321               | —                   | 2.50 | 1.00 | —    | 0.255 | 7              | 0.30         |
| Spiral-Point Gun — P, B | 65391               | 65397               | —                   | —                   | 2.50 | 1.00 | —    | 0.255 | 7              | 0.30         |
| Regular Spiral — P, B   | —                   | 65520               | —                   | —                   | 2.50 | 0.63 | 1.00 | 0.255 | 7              | 0.30         |
| Fast Spiral — P, B      | —                   | 65531               | —                   | —                   | 2.50 | 0.63 | 1.00 | 0.255 | 7              | 0.30         |
| <b>Oversized</b>        |                     |                     |                     |                     |      |      |      |       |                |              |
| Hand — T, P, B          | —                   | 65436               | 65787               | —                   | 2.50 | 1.00 | —    | 0.255 | 13             | 0.30         |
| Spiral-Point Gun — P, B | —                   | 65414               | 65420               | —                   | 2.50 | 1.00 | —    | 0.255 | 13             | 0.30         |
| <b>M6.3</b>             |                     |                     |                     |                     |      |      |      |       |                |              |
| Hand — T, P, B          | —                   | 65715               | 65717               | —                   | 2.50 | 1.00 | —    | 0.255 | 7              | 0.30         |
| Spiral-Point Gun — P, B | 65768               | 65770               | —                   | —                   | 2.50 | 1.00 | —    | 0.255 | 7              | 0.30         |
| <b>M7</b>               |                     |                     |                     |                     |      |      |      |       |                |              |
| Hand — T, P, B          | 65299               | 65309               | 65322               | —                   | 2.72 | 1.13 | —    | 0.318 | 7              | 0.30         |
| Spiral-Point Gun — P, B | 65392               | 65398               | —                   | —                   | 2.72 | 1.13 | —    | 0.318 | 7              | 0.30         |
| Regular Spiral — P, B   | —                   | 65521               | —                   | —                   | 2.72 | 0.69 | 1.12 | 0.318 | 7              | 0.30         |
| Fast Spiral — P, B      | —                   | 65532               | —                   | —                   | 2.72 | 0.69 | 1.12 | 0.318 | 7              | 0.30         |
| <b>Oversized</b>        |                     |                     |                     |                     |      |      |      |       |                |              |
| Hand — T, P, B          | —                   | —                   | 65437               | —                   | 2.72 | 1.13 | —    | 0.318 | 13             | 0.30         |
| Spiral-Point Gun — P, B | —                   | 65421               | —                   | —                   | 2.72 | 1.13 | —    | 0.318 | 13             | 0.30         |
| <b>M8</b>               |                     |                     |                     |                     |      |      |      |       |                |              |
| Hand — T, P, B          | 65711               | 65716               | 65718               | —                   | 2.72 | 1.13 | —    | 0.318 | 7              | 0.30         |
| Spiral-Point Gun — P, B | 65769               | 65771               | 64845               | —                   | 2.72 | 1.13 | —    | 0.318 | 7              | 0.30         |
| Regular Spiral — P, B   | —                   | 65775               | —                   | —                   | 2.72 | 0.69 | 1.13 | 0.318 | 7              | 0.30         |
| Fast Spiral — P, B      | —                   | 65777               | —                   | —                   | 2.72 | 0.69 | 1.13 | 0.318 | 7              | 0.30         |
| <b>Oversized</b>        |                     |                     |                     |                     |      |      |      |       |                |              |
| Hand — T, P, B          | —                   | 65789               | 65800               | —                   | 2.72 | 1.13 | —    | 0.318 | 13             | 0.30         |
| Spiral-Point Gun — P, B | 65801               | 65802               | —                   | —                   | 2.72 | 1.13 | —    | 0.318 | 13             | 0.30         |
| <b>M9</b>               |                     |                     |                     |                     |      |      |      |       |                |              |
| Hand — T, P, B          | 65300               | 65310               | 65323               | —                   | 2.94 | 1.25 | —    | 0.381 | 7              | 0.30         |
| Spiral-Point Gun — P, B | —                   | 65399               | —                   | —                   | 2.94 | 1.25 | —    | 0.381 | 7              | 0.30         |
| Regular Spiral — P, B   | —                   | 65522               | —                   | —                   | 2.94 | 0.75 | 1.25 | 0.381 | 7              | 0.30         |
| Fast Spiral — P, B      | —                   | 65533               | —                   | —                   | 2.94 | 0.75 | 1.25 | 0.381 | 7              | 0.30         |
| <b>Oversized</b>        |                     |                     |                     |                     |      |      |      |       |                |              |
| Hand — T, P, B          | —                   | —                   | 65438               | —                   | 2.94 | 1.25 | —    | 0.381 | 13             | 0.30         |

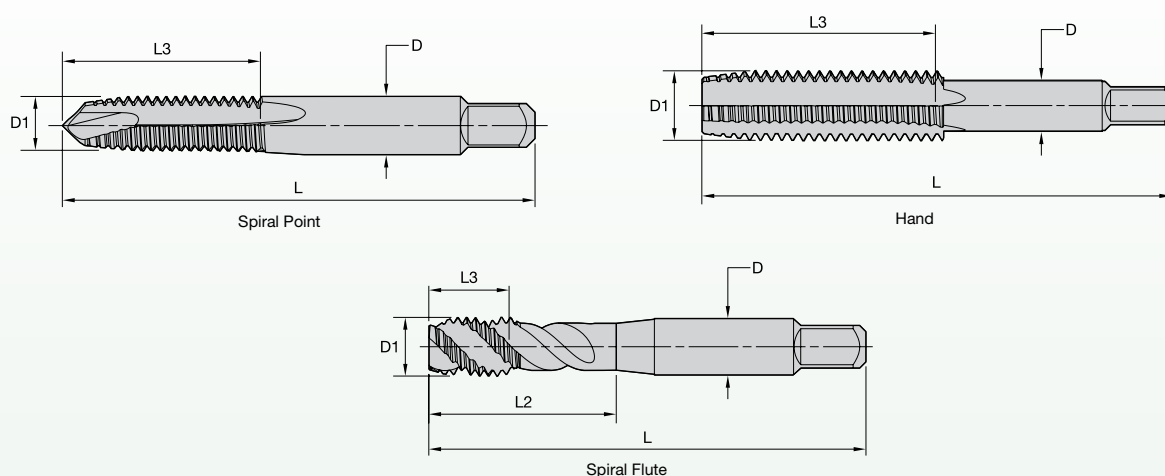
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### Pricing Based on Order Quantity

| min | max |
|-----|-----|
| 5   | 24  |
| 25  | 49  |
| 50  | 72  |

(continued)

## Specials from Blanks • General Applications • HSS



| style                   | uncoated<br>2-flute | uncoated<br>3-flute | uncoated<br>4-flute | uncoated<br>6-flute | L    | L3   | L2   | D     | max D<br>limit | pitch<br>min |
|-------------------------|---------------------|---------------------|---------------------|---------------------|------|------|------|-------|----------------|--------------|
| <b>M10</b>              |                     |                     |                     |                     |      |      |      |       |                |              |
| Hand — T, P, B          | 65712               | 64275               | 64285               | —                   | 2.94 | 1.25 | —    | 0.381 | 7              | 0.30         |
| Spiral-Point Gun — P, B | 64847               | 64379               | —                   | —                   | 2.94 | 1.25 | —    | 0.381 | 7              | 0.30         |
| Regular Spiral — P, B   | —                   | 64473               | —                   | —                   | 2.94 | 0.75 | 1.25 | 0.381 | 7              | 0.30         |
| Fast Spiral — P, B      | —                   | 64483               | —                   | —                   | 2.94 | 0.75 | 1.25 | 0.381 | 7              | 0.30         |
| <b>Oversized</b>        |                     |                     |                     |                     |      |      |      |       |                |              |
| Hand — T, P, B          | —                   | —                   | 65808               | —                   | 2.94 | 1.25 | —    | 0.381 | 13             | 0.30         |
| Spiral-Point Gun — P, B | —                   | 65813               | —                   | —                   | 2.94 | 1.25 | —    | 0.381 | 13             | 0.30         |
| <b>M11</b>              |                     |                     |                     |                     |      |      |      |       |                |              |
| Hand — T, P, B          | —                   | 65312               | 65325               | —                   | 3.16 | 1.44 | —    | 0.323 | 15             | 0.30         |
| Spiral-Point Gun — P, B | —                   | 65401               | —                   | —                   | 3.16 | 1.44 | —    | 0.323 | 15             | 0.30         |
| Fast Spiral — P, B      | —                   | 65535               | —                   | —                   | 3.16 | 0.94 | —    | 0.323 | 15             | 0.30         |
| <b>M12</b>              |                     |                     |                     |                     |      |      |      |       |                |              |
| Hand — T, P, B          | —                   | 65313               | 65326               | 65719               | 3.38 | 1.66 | —    | 0.367 | 15             | 0.30         |
| Spiral-Point Gun — P, B | —                   | 65402               | —                   | —                   | 3.38 | 1.66 | —    | 0.367 | 15             | 0.30         |
| Regular Spiral — P, B   | —                   | 65525               | —                   | —                   | 3.38 | 0.94 | —    | 0.367 | 15             | 0.30         |
| Fast Spiral — P, B      | —                   | 65536               | —                   | —                   | 3.38 | 0.94 | —    | 0.367 | 15             | 0.30         |
| <b>M14</b>              |                     |                     |                     |                     |      |      |      |       |                |              |
| Hand — T, P, B          | —                   | 65314               | 65327               | 65720               | 3.59 | 1.66 | —    | 0.429 | 15             | 0.40         |
| Spiral-Point Gun — P, B | —                   | 65403               | —                   | —                   | 3.59 | 1.66 | —    | 0.429 | 15             | 0.40         |
| Regular Spiral — P, B   | —                   | —                   | 65537               | —                   | 3.59 | 1.00 | —    | 0.429 | 15             | 0.40         |
| Fast Spiral — P, B      | —                   | —                   | 65543               | —                   | 3.59 | 1.00 | —    | 0.429 | 15             | 0.40         |
| <b>M15</b>              |                     |                     |                     |                     |      |      |      |       |                |              |
| Hand — T, P, B          | —                   | —                   | 64831               | —                   | 3.81 | 1.81 | —    | 0.480 | 15             | 0.40         |
| Spiral-Point Gun — P, B | —                   | —                   | —                   | —                   | 3.81 | 1.81 | —    | 0.480 | 15             | 0.40         |
| <b>M16</b>              |                     |                     |                     |                     |      |      |      |       |                |              |
| Hand — T, P, B          | —                   | 65315               | 65328               | 65721               | 3.81 | 1.81 | —    | 0.480 | 15             | 0.40         |
| Spiral-Point Gun — P, B | —                   | 65404               | 64828               | —                   | 3.81 | 1.81 | —    | 0.480 | 15             | 0.40         |
| Regular Spiral — P, B   | —                   | —                   | 65538               | —                   | 3.81 | 1.09 | —    | 0.480 | 15             | 0.40         |
| Fast Spiral — P, B      | —                   | —                   | 65544               | —                   | 3.81 | 1.09 | —    | 0.480 | 15             | 0.40         |
| <b>M18</b>              |                     |                     |                     |                     |      |      |      |       |                |              |
| Hand — T, P, B          | —                   | 65316               | 65329               | 65722               | 4.03 | 1.81 | —    | 0.542 | 15             | 0.40         |
| Spiral-Point Gun — P, B | —                   | 65405               | 64833               | —                   | 4.03 | 1.81 | —    | 0.542 | 15             | 0.40         |
| Regular Spiral — P, B   | —                   | —                   | 65539               | —                   | 4.03 | 1.09 | —    | 0.542 | 15             | 0.40         |
| Fast Spiral — P, B      | —                   | —                   | 65545               | —                   | 4.03 | 1.09 | —    | 0.542 | 15             | 0.40         |

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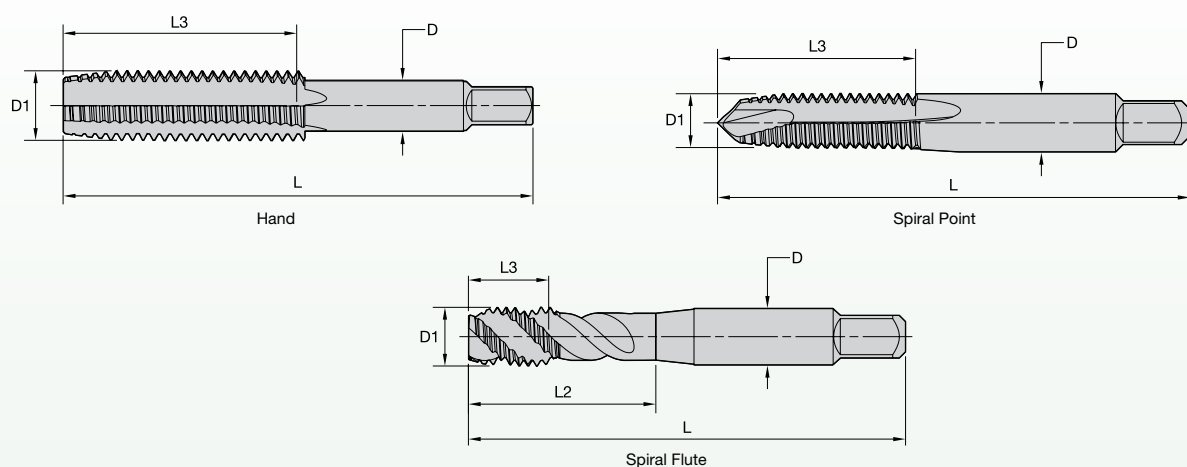
## Specials from Blanks • General Applications • HSS

| style                   | uncoated<br>2-flute | uncoated<br>3-flute | uncoated<br>4-flute | uncoated<br>6-flute | L    | L3   | L2 | D     | max D<br>limit | pitch<br>min |
|-------------------------|---------------------|---------------------|---------------------|---------------------|------|------|----|-------|----------------|--------------|
| <b>M20</b>              |                     |                     |                     |                     |      |      |    |       |                |              |
| Hand — T, P, B          | —                   | —                   | 65330               | 65723               | 4.47 | 2.00 | —  | 0.652 | 15             | 0.40         |
| Spiral-Point Gun — P, B | —                   | 65406               | —                   | —                   | 4.47 | 2.00 | —  | 0.652 | 15             | 0.40         |
| Regular Spiral — P, B   | —                   | —                   | 65778               | —                   | 4.47 | 1.22 | —  | 0.652 | 15             | 0.40         |
| Fast Spiral — P, B      | —                   | —                   | 65779               | —                   | 4.47 | 1.22 | —  | 0.652 | 15             | 0.40         |
| <b>M22</b>              |                     |                     |                     |                     |      |      |    |       |                |              |
| Hand — T, P, B          | —                   | —                   | 65331               | 65724               | 4.69 | 2.22 | —  | 0.697 | 15             | 0.40         |
| Spiral-Point Gun — P, B | —                   | 65407               | —                   | —                   | 4.69 | 2.22 | —  | 0.697 | 15             | 0.40         |
| Regular Spiral — P, B   | —                   | —                   | 65540               | —                   | 4.69 | 1.34 | —  | 0.697 | 15             | 0.40         |
| Fast Spiral — P, B      | —                   | —                   | 65546               | —                   | 4.69 | 1.34 | —  | 0.697 | 15             | 0.40         |
| <b>M24</b>              |                     |                     |                     |                     |      |      |    |       |                |              |
| Hand — T, P, B          | —                   | —                   | 65332               | 65725               | 4.91 | 2.22 | —  | 0.760 | 15             | 0.40         |
| Spiral-Point Gun — P, B | —                   | 65408               | —                   | —                   | 4.91 | 2.22 | —  | 0.760 | 15             | 0.40         |
| Regular Spiral — P, B   | —                   | —                   | 65541               | —                   | 4.91 | 1.34 | —  | 0.760 | 15             | 0.40         |
| Fast Spiral — P, B      | —                   | —                   | 65547               | —                   | 4.91 | 1.34 | —  | 0.760 | 15             | 0.40         |
| <b>M25</b>              |                     |                     |                     |                     |      |      |    |       |                |              |
| Hand — T, P, B          | —                   | —                   | 65333               | 65726               | 5.10 | 2.50 | —  | 0.800 | 15             | 0.40         |
| Spiral-Point Gun — P, B | —                   | 65409               | —                   | —                   | 5.13 | 2.50 | —  | 0.800 | 15             | 0.40         |

### Pricing Based on Order Quantity

| min | max |
|-----|-----|
| 5   | 24  |
| 25  | 49  |
| 50  | 72  |

## Specials from Blanks • STI • HSS



| style                   | uncoated<br>2-flute | uncoated<br>3-flute | uncoated<br>4-flute | L    | L3   | L2   | D     | max H<br>limit |
|-------------------------|---------------------|---------------------|---------------------|------|------|------|-------|----------------|
| <b>2 - 56 NC</b>        |                     |                     |                     |      |      |      |       |                |
| Hand — T, P, B          | 67604               | 65286               | —                   | 1.75 | 0.56 | —    | 0.141 | 5              |
| Spiral-Point Gun — P, B | 66291               | 67660               | —                   | 1.75 | 0.56 | —    | 0.141 | 5              |
| Regular Spiral — P, B   | 67701               | —                   | —                   | 1.75 | —    | —    | 0.141 | 5              |
| Fast Spiral — P, B      | 68281               | —                   | —                   | 1.75 | —    | —    | 0.141 | 5              |
| <b>3 - 48 NC</b>        |                     |                     |                     |      |      |      |       |                |
| Hand — T, P, B          | 67605               | 65287               | 67606               | 2.00 | 0.63 | —    | 0.141 | 5              |
| Spiral-Point Gun — P, B | 66292               | 67661               | —                   | 2.00 | 0.63 | —    | 0.141 | 5              |
| Regular Spiral — P, B   | 67702               | 67703               | —                   | 2.00 | —    | —    | 0.141 | 5              |
| Fast Spiral — P, B      | 68282               | 68283               | —                   | 2.00 | —    | —    | 0.141 | 5              |
| <b>3 - 56 NF</b>        |                     |                     |                     |      |      |      |       |                |
| Hand — T, P, B          | —                   | 68376               | —                   | —    | —    | —    | 0.141 | 5              |
| Spiral-Point Gun — P, B | 68333               | —                   | —                   | —    | —    | —    | 0.141 | 5              |
| <b>4 - 40 NC</b>        |                     |                     |                     |      |      |      |       |                |
| Hand — T, P, B          | 67607               | 64616               | 67608               | 2.00 | 0.69 | —    | 0.141 | 7              |
| Spiral-Point Gun — P, B | 66293               | 67662               | —                   | 2.00 | 0.69 | —    | 0.141 | 7              |
| Regular Spiral — P, B   | 67704               | 67705               | —                   | 2.00 | —    | —    | 0.141 | 7              |
| Fast Spiral — P, B      | 68284               | 68285               | —                   | 2.00 | —    | —    | 0.141 | 7              |
| <b>4 - 48 NF</b>        |                     |                     |                     |      |      |      |       |                |
| Hand — T, P, B          | —                   | 68315               | —                   | 2.00 | 0.69 | —    | 0.141 | 7              |
| Spiral-Point Gun — P, B | 72015               | —                   | —                   | 2.00 | 0.69 | —    | 0.141 | 7              |
| <b>5 - 40 NC</b>        |                     |                     |                     |      |      |      |       |                |
| Hand — T, P, B          | 67609               | 64617               | 67610               | 2.13 | 0.75 | —    | 0.168 | 7              |
| Spiral-Point Gun — P, B | 66294               | 67663               | —                   | 2.13 | 0.75 | —    | 0.168 | 7              |
| Regular Spiral — P, B   | 67706               | 67707               | —                   | 2.13 | —    | —    | 0.168 | 7              |
| Fast Spiral — P, B      | 68286               | 68287               | —                   | 2.13 | —    | —    | 0.168 | 7              |
| <b>6 - 32 NC</b>        |                     |                     |                     |      |      |      |       |                |
| Hand — T, P, B          | 67611               | 64618               | 67612               | 2.38 | 0.88 | —    | 0.194 | 7              |
| Spiral-Point Gun — P, B | 66295               | 67664               | —                   | 2.38 | 0.88 | —    | 0.194 | 7              |
| Regular Spiral — P, B   | 67708               | 68472               | —                   | 2.38 | 0.69 | 0.88 | 0.194 | 7              |
| Fast Spiral — P, B      | 68288               | 68317               | —                   | 2.38 | 0.69 | 0.88 | 0.194 | 7              |
| <b>6 - 40 NF</b>        |                     |                     |                     |      |      |      |       |                |
| Hand — T, P, B          | —                   | 68316               | —                   | 2.38 | 0.88 | —    | 0.194 | 7              |
| Spiral-Point Gun — P, B | 68323               | —                   | —                   | 2.38 | 0.88 | —    | 0.194 | 7              |
| Fast Spiral — P, B      | —                   | 68411               | —                   | 2.38 | 0.69 | 0.88 | 0.194 | 7              |
| <b>8 - 32 NC</b>        |                     |                     |                     |      |      |      |       |                |
| Hand — T, P, B          | 64830               | 65147               | 67613               | 2.38 | 0.94 | —    | 0.220 | 7              |
| Spiral-Point Gun — P, B | 66296               | 67665               | 67666               | 2.38 | 0.94 | —    | 0.220 | 7              |
| Regular Spiral — P, B   | —                   | 67709               | —                   | 2.38 | 0.75 | 0.94 | 0.220 | 7              |
| Fast Spiral — P, B      | —                   | 68289               | —                   | 2.38 | 0.75 | 0.94 | 0.220 | 7              |

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## Specials from Blanks • STI • HSS

| style                   | uncoated<br>2-flute | uncoated<br>3-flute | uncoated<br>4-flute | L    | L3   | L2   | D     | max H<br>limit |
|-------------------------|---------------------|---------------------|---------------------|------|------|------|-------|----------------|
| <b>8 - 36 NF</b>        |                     |                     |                     |      |      |      |       |                |
| Hand — T, P, B          | 67614               | 66281               | 67615               | 2.38 | 0.94 | —    | 0.220 | 7              |
| Spiral-Point Gun — P, B | 66297               | 67667               | 67668               | 2.38 | 0.94 | —    | 0.220 | 7              |
| Regular Spiral — P, B   | —                   | 67710               | —                   | 2.38 | 0.75 | 0.94 | 0.220 | 7              |
| Fast Spiral — P, B      | —                   | 68290               | —                   | 2.38 | 0.75 | 0.94 | 0.220 | 7              |
| <b>10 - 24 NC</b>       |                     |                     |                     |      |      |      |       |                |
| Hand — T, P, B          | 67616               | 64619               | 67617               | 2.50 | 1.00 | —    | 0.255 | 7              |
| Spiral-Point Gun — P, B | 64653               | 67669               | 67670               | 2.50 | 1.00 | —    | 0.255 | 7              |
| Regular Spiral — P, B   | —                   | 67711               | —                   | 2.50 | 0.88 | 1.00 | 0.255 | 7              |
| Fast Spiral — P, B      | —                   | 68291               | —                   | 2.50 | 0.88 | 1.00 | 0.255 | 7              |
| <b>10 - 32 NF</b>       |                     |                     |                     |      |      |      |       |                |
| Hand — T, P, B          | 67619               | 66282               | 67620               | 2.50 | 1.00 | —    | 0.255 | 7              |
| Spiral-Point Gun — P, B | 66298               | 67671               | 67672               | 2.50 | 1.00 | —    | 0.255 | 7              |
| Regular Spiral — P, B   | —                   | 67712               | —                   | 2.50 | 0.88 | 1.00 | 0.255 | 7              |
| Fast Spiral — P, B      | —                   | 68292               | —                   | 2.50 | 0.88 | 1.00 | 0.255 | 7              |
| <b>1/4 - 20 NC</b>      |                     |                     |                     |      |      |      |       |                |
| Hand — T, P, B          | 67622               | 64621               | 67623               | 2.72 | 1.13 | —    | 0.318 | 7              |
| Spiral-Point Gun — P, B | 64655               | 67673               | 67674               | 2.72 | 1.13 | —    | 0.318 | 7              |
| Regular Spiral — P, B   | —                   | 67713               | —                   | 2.72 | 0.63 | 1.00 | 0.318 | 7              |
| Fast Spiral — P, B      | —                   | 68293               | —                   | 2.72 | 0.63 | 1.00 | 0.318 | 7              |
| <b>1/4 - 28 NF</b>      |                     |                     |                     |      |      |      |       |                |
| Hand — T, P, B          | 67625               | 66283               | 67626               | 2.72 | 1.13 | —    | 0.318 | 7              |
| Spiral-Point Gun — P, B | 66299               | 67675               | 67676               | 2.72 | 1.13 | —    | 0.318 | 7              |
| Regular Spiral — P, B   | —                   | 67714               | —                   | 2.72 | 0.63 | 1.00 | 0.318 | 7              |
| Fast Spiral — P, B      | —                   | 68294               | —                   | 2.72 | 0.63 | 1.00 | 0.318 | 7              |
| <b>5/16 - 18 NC</b>     |                     |                     |                     |      |      |      |       |                |
| Hand — T, P, B          | 67628               | 67629               | 64630               | 2.94 | 1.25 | —    | 0.381 | 7              |
| Spiral-Point Gun — P, B | 67677               | 64565               | 67678               | 2.94 | 1.25 | —    | 0.381 | 7              |
| Regular Spiral — P, B   | —                   | 67715               | —                   | 2.94 | 1.12 | 1.25 | 0.381 | 7              |
| Fast Spiral — P, B      | —                   | 68295               | —                   | 2.94 | 1.12 | 1.25 | 0.381 | 7              |
| <b>5/16 - 24 NF</b>     |                     |                     |                     |      |      |      |       |                |
| Hand — T, P, B          | 67631               | 67632               | 66284               | 2.94 | 1.25 | —    | 0.381 | 7              |
| Spiral-Point Gun — P, B | 67679               | 66300               | 67680               | 2.94 | 1.25 | —    | 0.381 | 7              |
| Regular Spiral — P, B   | —                   | 67716               | —                   | 2.94 | 1.12 | 1.25 | 0.381 | 7              |
| Fast Spiral — P, B      | —                   | 68296               | —                   | 2.94 | 1.12 | 1.25 | 0.381 | 7              |
| <b>3/8 - 16 NC</b>      |                     |                     |                     |      |      |      |       |                |
| Hand — T, P, B          | —                   | 67634               | 64631               | 3.38 | 1.66 | —    | 0.367 | 7              |
| Spiral-Point Gun — P, B | —                   | 64657               | 67681               | 3.38 | 1.66 | —    | 0.367 | 7              |
| Regular Spiral — P, B   | —                   | 67717               | —                   | 3.38 | 1.25 | 1.66 | 0.367 | 7              |
| Fast Spiral — P, B      | —                   | 68297               | —                   | 3.38 | 1.25 | 1.66 | 0.367 | 7              |
| <b>3/8 - 24 NF</b>      |                     |                     |                     |      |      |      |       |                |
| Hand — T, P, B          | —                   | 67636               | 66285               | 3.38 | 1.66 | —    | 0.367 | 7              |
| Spiral-Point Gun — P, B | —                   | 66301               | 67682               | 3.38 | 1.66 | —    | 0.367 | 7              |
| Regular Spiral — P, B   | —                   | 67718               | —                   | 3.38 | 1.25 | 1.66 | 0.367 | 7              |
| Fast Spiral — P, B      | —                   | 68298               | —                   | 3.38 | 1.25 | 1.66 | 0.367 | 7              |

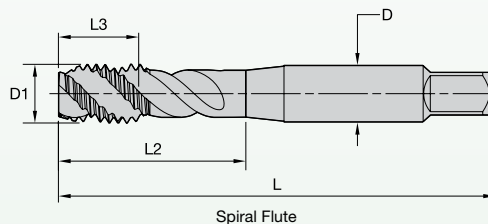
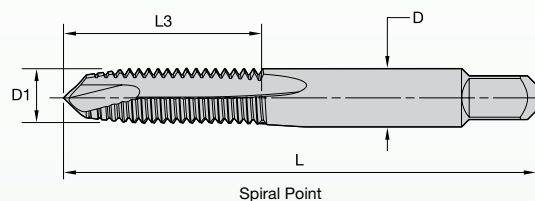
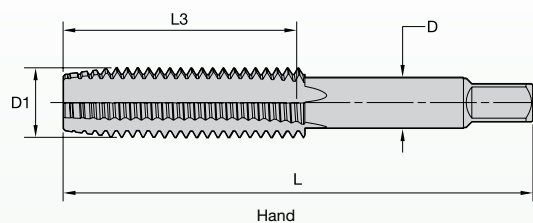
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### Pricing Based on Order Quantity

| min | max |
|-----|-----|
| 5   | 24  |
| 25  | 49  |
| 50  | 72  |

(continued)

## Specials from Blanks • STI • HSS



| style                   | uncoated<br>2-flute | uncoated<br>3-flute | uncoated<br>4-flute | L    | L3   | L2 | D     | max H<br>limit |
|-------------------------|---------------------|---------------------|---------------------|------|------|----|-------|----------------|
| <b>7/16 - 14 NC</b>     |                     |                     |                     |      |      |    |       |                |
| Hand — T, P, B          | —                   | 67638               | 64632               | 3.59 | 1.66 | —  | 0.429 | 15             |
| Spiral-Point Gun — P, B | —                   | 64658               | 67683               | 3.59 | 1.66 | —  | 0.429 | 15             |
| Regular Spiral — P, B   | —                   | 67719               | —                   | 3.59 | —    | —  | 0.429 | 15             |
| Fast Spiral — P, B      | —                   | 68299               | —                   | 3.59 | —    | —  | 0.429 | 15             |
| <b>7/16 - 20 NF</b>     |                     |                     |                     |      |      |    |       |                |
| Hand — T, P, B          | —                   | 67640               | 66286               | 3.59 | 1.66 | —  | 0.429 | 15             |
| Spiral-Point Gun — P, B | —                   | 66302               | 67684               | 3.59 | 1.66 | —  | 0.429 | 15             |
| Regular Spiral — P, B   | —                   | 67720               | —                   | 3.59 | —    | —  | 0.429 | 15             |
| Fast Spiral — P, B      | —                   | 68300               | —                   | 3.59 | —    | —  | 0.429 | 15             |
| <b>1/2 - 13 NC</b>      |                     |                     |                     |      |      |    |       |                |
| Hand — T, P, B          | —                   | 67642               | 64633               | 3.81 | 1.81 | —  | 0.480 | 15             |
| Spiral-Point Gun — P, B | —                   | 64659               | 67685               | 3.81 | 1.81 | —  | 0.480 | 15             |
| Regular Spiral — P, B   | —                   | 67721               | —                   | 3.81 | —    | —  | 0.480 | 15             |
| Fast Spiral — P, B      | —                   | 68301               | —                   | 3.81 | —    | —  | 0.480 | 15             |
| <b>1/2 - 20 NF</b>      |                     |                     |                     |      |      |    |       |                |
| Hand — T, P, B          | —                   | 67644               | 66287               | 3.81 | 1.81 | —  | 0.480 | 15             |
| Spiral-Point Gun — P, B | —                   | 66309               | 67686               | 3.81 | 1.81 | —  | 0.480 | 15             |
| Regular Spiral — P, B   | —                   | 67722               | —                   | 3.81 | —    | —  | 0.480 | 15             |
| Fast Spiral — P, B      | —                   | 68302               | —                   | 3.81 | —    | —  | 0.480 | 15             |
| <b>9/16 - 12 NC</b>     |                     |                     |                     |      |      |    |       |                |
| Hand — T, P, B          | —                   | 67646               | —                   | 3.81 | 1.81 | —  | 0.480 | 15             |
| Spiral-Point Gun — P, B | —                   | 67687               | 67688               | 3.81 | 1.81 | —  | 0.480 | 15             |
| Regular Spiral — P, B   | —                   | 67723               | —                   | 3.81 | —    | —  | 0.480 | 15             |
| Fast Spiral — P, B      | —                   | 68303               | —                   | 3.81 | —    | —  | 0.480 | 15             |
| <b>9/16 - 18 NF</b>     |                     |                     |                     |      |      |    |       |                |
| Hand — T, P, B          | —                   | 67648               | 66288               | 3.81 | 1.81 | —  | 0.480 | 15             |
| Spiral-Point Gun — P, B | —                   | 67689               | 67690               | 3.81 | 1.81 | —  | 0.480 | 15             |
| Regular Spiral — P, B   | —                   | 67724               | —                   | 3.81 | —    | —  | 0.480 | 15             |
| Fast Spiral — P, B      | —                   | 68304               | —                   | 3.81 | —    | —  | 0.480 | 15             |
| <b>5/8 - 11 NC</b>      |                     |                     |                     |      |      |    |       |                |
| Hand — T, P, B          | —                   | 67650               | 64635               | 4.25 | 2.00 | —  | 0.590 | 15             |
| Spiral-Point Gun — P, B | —                   | 67691               | 67692               | 4.25 | 2.00 | —  | 0.590 | 15             |
| Regular Spiral — P, B   | —                   | 67725               | —                   | 4.25 | —    | —  | 0.590 | 15             |
| Fast Spiral — P, B      | —                   | 68305               | —                   | 4.25 | —    | —  | 0.590 | 15             |

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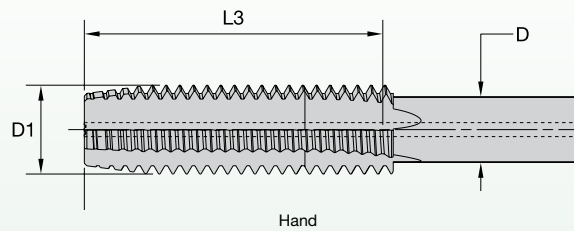
## Specials from Blanks • STI • HSS

| style                   | uncoated<br>2-flute | uncoated<br>3-flute | uncoated<br>4-flute | L    | L3   | L2 | D     | max H<br>limit |
|-------------------------|---------------------|---------------------|---------------------|------|------|----|-------|----------------|
| <b>5/8 - 18 NF</b>      |                     |                     |                     |      |      |    |       |                |
| Hand — T, P, B          | —                   | 67652               | 66289               | 4.25 | 2.00 | —  | 0.590 | 15             |
| Spiral-Point Gun — P, B | —                   | 67693               | 67694               | 4.25 | 2.00 | —  | 0.590 | 15             |
| Regular Spiral — P, B   | —                   | 67726               | —                   | 4.25 | —    | —  | 0.590 | 15             |
| Fast Spiral — P, B      | —                   | 68306               | —                   | 4.25 | —    | —  | 0.590 | 15             |
| <b>3/4 - 10 NC</b>      |                     |                     |                     |      |      |    |       |                |
| Hand — T, P, B          | —                   | 67654               | 64636               | 4.69 | 2.22 | —  | 0.697 | 15             |
| Spiral-Point Gun — P, B | —                   | 67695               | 67696               | 4.69 | 2.22 | —  | 0.697 | 15             |
| Regular Spiral — P, B   | —                   | 67727               | —                   | 4.69 | —    | —  | 0.697 | 15             |
| Fast Spiral — P, B      | —                   | 68307               | —                   | 4.69 | —    | —  | 0.697 | 15             |
| <b>3/4 - 16 NF</b>      |                     |                     |                     |      |      |    |       |                |
| Hand — T, P, B          | —                   | 67656               | 66290               | 4.69 | 2.22 | —  | 0.697 | 15             |
| Spiral-Point Gun — P, B | —                   | 67697               | 67698               | 4.69 | 2.22 | —  | 0.697 | 15             |
| Regular Spiral — P, B   | —                   | 67728               | —                   | 4.69 | —    | —  | 0.697 | 15             |

### Pricing Based on Order Quantity

| min | max |
|-----|-----|
| 5   | 24  |
| 25  | 49  |
| 50  | 72  |

## Specials from Blanks • Internal Coolant • HSS

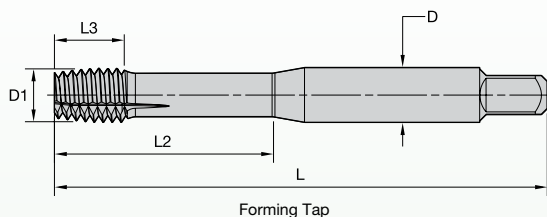


| style                 | uncoated | flutes | L    | L3   | D     | max H<br>limit | max<br>TPI |
|-----------------------|----------|--------|------|------|-------|----------------|------------|
| <b>3/8"</b>           |          |        |      |      |       |                |            |
| Hand — Plug or Bottom | 65753    | 3      | 2.94 | 0.75 | 0.381 | 13             | 80         |
| <b>7/16"</b>          |          |        |      |      |       |                |            |
| Hand — Plug or Bottom | 65754    | 4      | 3.16 | 0.88 | 0.323 | 13             | 80         |
| <b>1/2"</b>           |          |        |      |      |       |                |            |
| Hand — Plug or Bottom | 65755    | 4      | 3.38 | 0.94 | 0.367 | 13             | 80         |
| <b>9/16"</b>          |          |        |      |      |       |                |            |
| Hand — Plug or Bottom | 65756    | 4      | 3.59 | 1.00 | 0.429 | 13             | 64         |
| <b>5/8"</b>           |          |        |      |      |       |                |            |
| Hand — Plug or Bottom | 65757    | 4      | 3.81 | 1.09 | 0.480 | 13             | 64         |
| <b>3/4"</b>           |          |        |      |      |       |                |            |
| Hand — Plug or Bottom | 65758    | 4      | 4.25 | 1.22 | 0.590 | 13             | 64         |
| <b>1"</b>             |          |        |      |      |       |                |            |
| Hand — Plug or Bottom | 65760    | 4      | 5.13 | 1.50 | 0.800 | 13             | 64         |

## Pricing Based on Order Quantity

| min | max |
|-----|-----|
| 5   | 24  |
| 25  | 49  |
| 50  | 72  |

## Specials from Blanks • Form Taps • HSS



| style          | uncoated | oil grooves | L    | L3   | L2   | D     | max H limit | max TPI |
|----------------|----------|-------------|------|------|------|-------|-------------|---------|
| #0             |          |             |      |      |      |       |             |         |
| Plug or Bottom | 64508    | –           | 1.63 | 0.31 | –    | 0.141 | 7           | 100     |
| #1             |          |             |      |      |      |       |             |         |
| Plug or Bottom | 64509    | –           | 1.69 | 0.38 | –    | 0.141 | 7           | 100     |
| #2             |          |             |      |      |      |       |             |         |
| Plug or Bottom | 64510    | –           | 1.75 | 0.44 | –    | 0.141 | 11          | 100     |
| #3             |          |             |      |      |      |       |             |         |
| Plug or Bottom | 64511    | –           | 1.81 | 0.50 | –    | 0.141 | 11          | 100     |
| #4             |          |             |      |      |      |       |             |         |
| Plug or Bottom | 64512    | –           | 1.88 | 0.56 | –    | 0.141 | 11          | 100     |
| #5             |          |             |      |      |      |       |             |         |
| Plug or Bottom | 64513    | 4           | 1.94 | 0.63 | –    | 0.141 | 11          | 100     |
| #6             |          |             |      |      |      |       |             |         |
| Plug or Bottom | 64514    | 4           | 2.00 | 0.38 | 0.69 | 0.141 | 11          | 100     |
| #8             |          |             |      |      |      |       |             |         |
| Plug or Bottom | 64515    | 4           | 2.13 | 0.38 | 0.75 | 0.168 | 13          | 100     |
| #10            |          |             |      |      |      |       |             |         |
| Plug or Bottom | 64516    | 4           | 2.38 | 0.50 | 0.88 | 0.194 | 13          | 100     |
| #12            |          |             |      |      |      |       |             |         |
| Plug or Bottom | 64518    | 4           | 2.38 | 0.50 | 0.94 | 0.220 | 13          | 100     |
| 1/4"           |          |             |      |      |      |       |             |         |
| Plug or Bottom | 64519    | 4           | 2.50 | 0.63 | 1.00 | 0.255 | 13          | 80      |
| 5/16"          |          |             |      |      |      |       |             |         |
| Plug or Bottom | 64520    | 4           | 2.72 | 0.69 | 1.13 | 0.318 | 13          | 80      |
| 3/8"           |          |             |      |      |      |       |             |         |
| Plug or Bottom | 64521    | 4           | 2.94 | 0.75 | 1.25 | 0.381 | 13          | 80      |
| 7/16"          |          |             |      |      |      |       |             |         |
| Plug or Bottom | 64523    | 4           | 3.16 | 0.88 | –    | 0.323 | 15          | 80      |
| 1/2"           |          |             |      |      |      |       |             |         |
| Plug or Bottom | 64524    | 4           | 3.38 | 0.94 | –    | 0.367 | 15          | 80      |

(continued)

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## Specials from Blanks • Form Taps • HSS

| style          | uncoated | oil<br>grooves | L    | L3   | L2   | D     | max H<br>limit | max<br>TPI |
|----------------|----------|----------------|------|------|------|-------|----------------|------------|
| <b>M1.6</b>    |          |                |      |      |      |       |                |            |
| Plug or Bottom | 65549    | –              | 1.63 | 0.31 | –    | 0.141 | 7              | 0.3        |
| <b>M1.8</b>    |          |                |      |      |      |       |                |            |
| Plug or Bottom | 65550    | –              | 1.69 | 0.38 | –    | 0.141 | 7              | 0.3        |
| <b>M2</b>      |          |                |      |      |      |       |                |            |
| Plug or Bottom | 65551    | –              | 1.75 | 0.44 | –    | 0.141 | 11             | 0.3        |
| <b>M2.5</b>    |          |                |      |      |      |       |                |            |
| Plug or Bottom | 65552    | –              | 1.81 | 0.50 | –    | 0.141 | 11             | 0.3        |
| <b>M3</b>      |          |                |      |      |      |       |                |            |
| Plug or Bottom | 65553    | 4              | 1.94 | 0.63 | –    | 0.141 | 11             | 0.3        |
| <b>M3.5</b>    |          |                |      |      |      |       |                |            |
| Plug or Bottom | 65554    | 4              | 2.00 | 0.38 | 0.69 | 0.141 | 11             | 0.3        |
| <b>M4</b>      |          |                |      |      |      |       |                |            |
| Plug or Bottom | 65555    | 4              | 2.13 | 0.38 | 0.75 | 0.168 | 13             | 0.3        |
| <b>M4.5</b>    |          |                |      |      |      |       |                |            |
| Plug or Bottom | 65556    | 4              | 2.38 | 0.50 | 0.88 | 0.194 | 13             | 0.3        |
| <b>M5</b>      |          |                |      |      |      |       |                |            |
| Plug or Bottom | 64517    | 4              | 2.38 | 0.50 | 0.88 | 0.194 | 13             | 0.3        |
| <b>M6</b>      |          |                |      |      |      |       |                |            |
| Plug or Bottom | 65559    | 4              | 2.50 | 0.63 | 1.00 | 0.255 | 13             | 0.3        |
| <b>M8</b>      |          |                |      |      |      |       |                |            |
| Plug or Bottom | 65560    | 4              | 2.72 | 0.69 | 1.13 | 0.318 | 13             | 0.3        |
| <b>M9</b>      |          |                |      |      |      |       |                |            |
| Plug or Bottom | 65561    | 4              | 2.94 | 0.75 | 1.25 | 0.381 | 13             | 0.3        |
| <b>M10</b>     |          |                |      |      |      |       |                |            |
| Plug or Bottom | 64522    | 4              | 2.94 | 0.75 | 1.25 | 0.381 | 13             | 0.3        |
| <b>M11</b>     |          |                |      |      |      |       |                |            |
| Plug or Bottom | 65563    | 4              | 3.16 | 0.88 | –    | 0.323 | 15             | 0.3        |
| <b>M12</b>     |          |                |      |      |      |       |                |            |
| Plug or Bottom | 65564    | 4              | 3.38 | 0.94 | –    | 0.367 | 15             | 0.3        |

## Pricing Based on Order Quantity

| min | max |
|-----|-----|
| 5   | 24  |
| 25  | 49  |
| 50  | 72  |