# DE BOER TOOL

CUTTING TOOL EXCELLENCE

16423.11

De Boer Tool is a premier manufacturer of high-performance standard and custom solid carbide cutting tools. With a relentless commitment to quality and innovation, we pride ourselves on delivering cutting-edge solutions that empower our customers to achieve exceptional results in their machining operations.

Backed by our team of skilled engineers, technicians, and state-of-the-art manufacturing facility, we offer a comprehensive range of precision cutting tools designed to meet the most demanding requirements across various industries. Whether you need superior performance, extended tool life, or customized solutions tailored to your specific needs, De Boer Tool is your trusted partner for cutting-edge excellence. Explore our catalog and unlock the potential for unparalleled precision and productivity in your machining processes.

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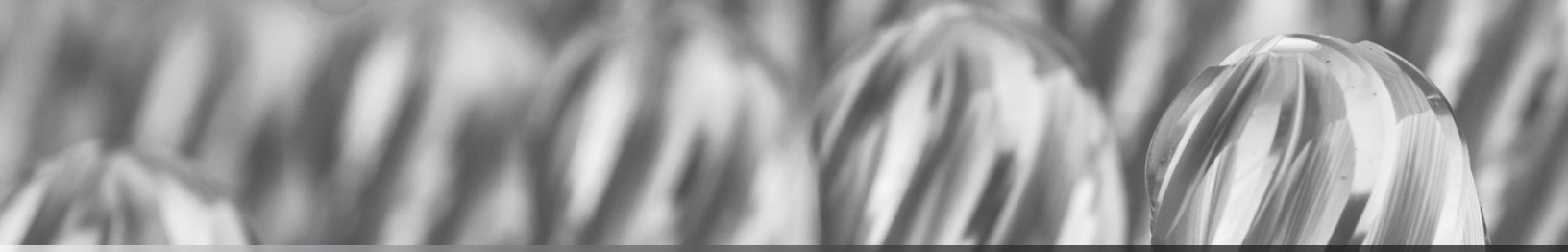


# Table of Contents by series

# Table of Contents by tool type

# Table of Contents by tool type



All tools made at De Boer Tool have shanks ground to h6 tolerance which guarantees trouble free machining when using precision holders.

Weldon flats and whistle notches are also available for side lock holders.

# ESSENTIAL

The **Essential Series** tools combine our passion for unrivaled excellence with general purpose milling applications. These versatile cutters are suitable for a wide range of materials, including ferrous and non-ferrous. Choose from a variety of geometries, lengths, and configurations such as flat bottom, ball nose, radius, chamfer mills, and more. For maximum flexibility, **Essential Series** tools are available uncoated or coated with our DuraCoat multi-layer coating for added durability and performance.

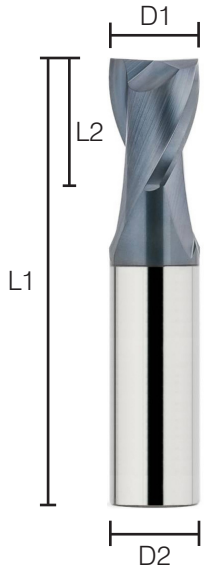
**Key Features:**

- Cost effective general purpose option for most applications
- Cutting diameters ranging from 0.005" to 1.0" and 0.5mm to 25mm
- Diverse length of cut, number of flutes, and corner radius options
- Specialty profiles such as chamfer mills, spot drills, and corner rounders
- Ball nose, flat bottom, and corner radius options
- Available coated and uncoated for maximum versatility

- General purpose 2 flute solid carbide end mill
- Excellent cost to performance ratio
- Stub length of cut
- Available coated and uncoated
- 30° helix geometry
- Center cutting

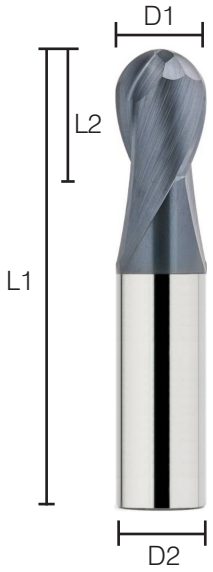
## Square Corner

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | Part # | Coated Part # |
|---|---|---|---|---|---|---|
| in | 0.005 | 1/8 | 1.5 | 0.007 | 120-0005-201 | 120-0005-201A |
| | 0.010 | 1/8 | 1.5 | 0.015 | 120-0010-201 | 120-0010-201A |
| | 0.015 | 1/8 | 1.5 | 0.022 | 120-0015-201 | 120-0015-201A |
| | 0.020 | 1/8 | 1.5 | 0.030 | 120-0020-201 | 120-0020-201A |
| | 0.025 | 1/8 | 1.5 | 0.037 | 120-0025-201 | 120-0025-201A |
| | 1/32 | 1/8 | 1.5 | 0.063 | 120-0031-201 | 120-0031-201A |
| | 3/64 | 1/8 | 1.5 | 0.094 | 120-0046-201 | 120-0046-201A |
| | 1/16 | 1/8 | 1.5 | 0.125 | 120-0062-201 | 120-0062-201A |
| | 5/64 | 1/8 | 1.5 | 0.156 | 120-0078-201 | 120-0078-201A |
| | 3/32 | 1/8 | 1.5 | 0.188 | 120-0093-201 | 120-0093-201A |
| | 1/8 | 1/8 | 1.5 | 0.250 | 120-0125-201 | 120-0125-201A |
| | 3/16 | 3/16 | 2.0 | 0.375 | 120-0187-201 | 120-0187-201A |
| | 1/4 | 1/4 | 2.0 | 0.500 | 120-0250-201 | 120-0250-201A |
| | 5/16 | 5/16 | 2.0 | 0.500 | 120-0312-201 | 120-0312-201A |
| | 3/8 | 3/8 | 2.0 | 0.625 | 120-0375-201 | 120-0375-201A |
| | 1/2 | 1/2 | 2.5 | 0.625 | 120-0500-201 | 120-0500-201A |
| | 5/8 | 5/8 | 3.0 | 0.750 | 120-0625-201 | 120-0625-201A |
| | 3/4 | 3/4 | 3.0 | 1.000 | 120-0750-201 | 120-0750-201A |
| | 1 | 1 | 3.0 | 1.000 | 120-1000-201 | 120-1000-201A |



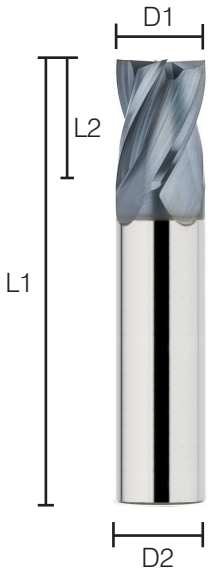

## Ball Nose

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | Part # | Coated Part # |
|---|---|---|---|---|---|---|
| in | 0.010 | 1/8 | 1.5 | 0.015 | 120-0010-202 | 120-0010-202A |
| | 0.015 | 1/8 | 1.5 | 0.022 | 120-0015-202 | 120-0015-202A |
| | 0.020 | 1/8 | 1.5 | 0.030 | 120-0020-202 | 120-0020-202A |
| | 0.025 | 1/8 | 1.5 | 0.037 | 120-0025-202 | 120-0025-202A |
| | 1/32 | 1/8 | 1.5 | 0.063 | 120-0031-202 | 120-0031-202A |
| | 3/64 | 1/8 | 1.5 | 0.094 | 120-0046-202 | 120-0046-202A |
| | 1/16 | 1/8 | 1.5 | 0.125 | 120-0062-202 | 120-0062-202A |
| | 5/64 | 1/8 | 1.5 | 0.156 | 120-0078-202 | 120-0078-202A |
| | 3/32 | 1/8 | 1.5 | 0.188 | 120-0093-202 | 120-0093-202A |
| | 1/8 | 1/8 | 1.5 | 0.250 | 120-0125-202 | 120-0125-202A |
| | 3/16 | 3/16 | 2.0 | 0.375 | 120-0187-202 | 120-0187-202A |
| | 1/4 | 1/4 | 2.0 | 0.500 | 120-0250-202 | 120-0250-202A |
| | 5/16 | 5/16 | 2.0 | 0.500 | 120-0312-202 | 120-0312-202A |
| | 3/8 | 3/8 | 2.0 | 0.625 | 120-0375-202 | 120-0375-202A |
| | 1/2 | 1/2 | 2.5 | 0.625 | 120-0500-202 | 120-0500-202A |
| | 5/8 | 5/8 | 3.0 | 0.750 | 120-0625-202 | 120-0625-202A |
| | 3/4 | 3/4 | 3.0 | 1.000 | 120-0750-202 | 120-0750-202A |
| | 1 | 1 | 3.0 | 1.000 | 120-1000-202 | 120-1000-202A |



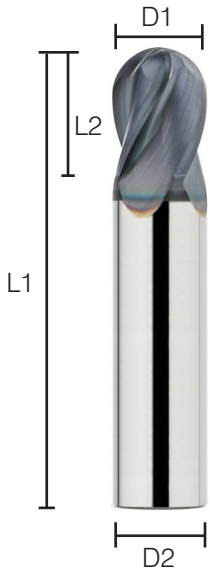
# Stub 4 Flute

- General purpose 4 flute solid carbide end mill
- Excellent cost to performance ratio
- Stub length of cut
- Available coated and uncoated
- 30° helix geometry
- Center cutting




## Square Corner

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | Part # | Coated Part # |
|---|---|---|---|---|---|---|
| in | 0.015 | 1/8 | 1.5 | 0.022 | 120-0015-401 | 120-0015-401A |
| | 0.020 | 1/8 | 1.5 | 0.030 | 120-0020-401 | 120-0020-401A |
| | 0.025 | 1/8 | 1.5 | 0.037 | 120-0025-401 | 120-0025-401A |
| | 1/32 | 1/8 | 1.5 | 0.063 | 120-0031-401 | 120-0031-401A |
| | 3/64 | 1/8 | 1.5 | 0.094 | 120-0046-401 | 120-0046-401A |
| | 1/16 | 1/8 | 1.5 | 0.125 | 120-0062-401 | 120-0062-401A |
| | 5/64 | 1/8 | 1.5 | 0.156 | 120-0078-401 | 120-0078-401A |
| | 3/32 | 1/8 | 1.5 | 0.188 | 120-0093-401 | 120-0093-401A |
| | 1/8 | 1/8 | 1.5 | 0.250 | 120-0125-401 | 120-0125-401A |
| | 3/16 | 3/16 | 2.0 | 0.375 | 120-0187-401 | 120-0187-401A |
| | 1/4 | 1/4 | 2.0 | 0.500 | 120-0250-401 | 120-0250-401A |
| | 5/16 | 5/16 | 2.0 | 0.500 | 120-0312-401 | 120-0312-401A |
| | 3/8 | 3/8 | 2.0 | 0.625 | 120-0375-401 | 120-0375-401A |
| | 1/2 | 1/2 | 2.5 | 0.625 | 120-0500-401 | 120-0500-401A |
| | 5/8 | 5/8 | 3.0 | .750 | 120-0625-401 | 120-0625-401A |
| | 3/4 | 3/4 | 3.0 | 1.000 | 120-0750-401 | 120-0750-401A |
| | 1 | 1 | 3.0 | 1.000 | 120-1000-401 | 120-1000-401A |



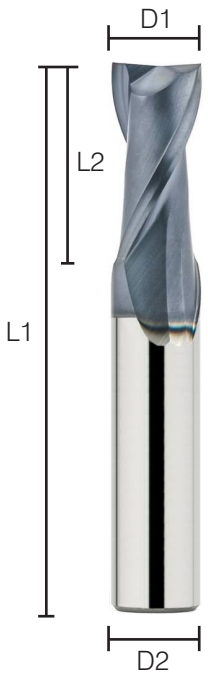

## Ball Nose

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | Part # | Coated Part # |
|---|---|---|---|---|---|---|
| in | 0.015 | 1/8 | 1.5 | 0.022 | 120-0015-402 | 120-0015-402A |
| | 0.020 | 1/8 | 1.5 | 0.030 | 120-0020-402 | 120-0020-402A |
| | 0.025 | 1/8 | 1.5 | 0.037 | 120-0025-402 | 120-0025-402A |
| | 1/32 | 1/8 | 1.5 | 0.063 | 120-0031-402 | 120-0031-402A |
| | 3/64 | 1/8 | 1.5 | 0.094 | 120-0046-402 | 120-0046-402A |
| | 1/16 | 1/8 | 1.5 | 0.125 | 120-0062-402 | 120-0062-402A |
| | 5/64 | 1/8 | 1.5 | 0.156 | 120-0078-402 | 120-0078-402A |
| | 3/32 | 1/8 | 1.5 | 0.188 | 120-0093-402 | 120-0093-402A |
| | 1/8 | 1/8 | 1.5 | 0.250 | 120-0125-402 | 120-0125-402A |
| | 3/16 | 3/16 | 2.0 | 0.375 | 120-0187-402 | 120-0187-402A |
| | 1/4 | 1/4 | 2.0 | 0.500 | 120-0250-402 | 120-0250-402A |
| | 5/16 | 5/16 | 2.0 | 0.500 | 120-0312-402 | 120-0312-402A |
| | 3/8 | 3/8 | 2.0 | 0.625 | 120-0375-402 | 120-0375-402A |
| | 1/2 | 1/2 | 2.5 | 0.625 | 120-0500-402 | 120-0500-402A |
| | 5/8 | 5/8 | 3.0 | 0.750 | 120-0625-402 | 120-0625-402A |
| | 3/4 | 3/4 | 3.0 | 1.000 | 120-0750-402 | 120-0750-402A |
| | 1 | 1 | 3.0 | 1.000 | 120-1000-402 | 120-1000-402A |

- General purpose 2 flute solid carbide end mill
- Excellent cost to performance ratio
- Standard length of cut
- Available coated and uncoated
- 30° helix geometry
- Center cutting

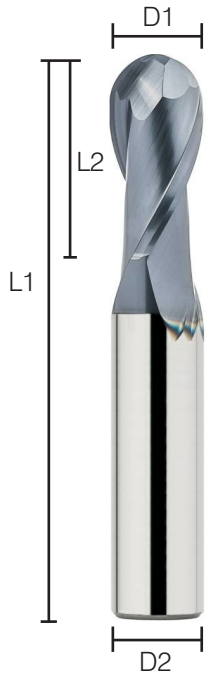
## Square Corner

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | Part # | Coated Part # |
|---|---|---|---|---|---|---|
| in | 0.005 | 1/8 | 1.5 | 0.015 | 110-0005-201 | 110-0005-201A |
| | 0.010 | 1/8 | 1.5 | 0.030 | 110-0010-201 | 110-0010-201A |
| | 0.015 | 1/8 | 1.5 | 0.045 | 110-0015-201 | 110-0015-201A |
| | 0.020 | 1/8 | 1.5 | 0.060 | 110-0020-201 | 110-0020-201A |
| | 0.025 | 1/8 | 1.5 | 0.075 | 110-0025-201 | 110-0025-201A |
| | 1/32 | 1/8 | 1.5 | 0.094 | 110-0031-201 | 110-0031-201A |
| | 3/64 | 1/8 | 1.5 | 0.141 | 110-0046-201 | 110-0046-201A |
| | 1/16 | 1/8 | 1.5 | 0.188 | 110-0062-201 | 110-0062-201A |
| | 5/64 | 1/8 | 1.5 | 0.250 | 110-0078-201 | 110-0078-201A |
| | 3/32 | 1/8 | 1.5 | 0.344 | 110-0093-201 | 110-0093-201A |
| | 7/64 | 1/8 | 1.5 | 0.375 | 110-0109-201 | 110-0109-201A |
| | 1/8 | 1/8 | 1.5 | 0.500 | 110-0125-201 | 110-0125-201A |
| | 9/64 | 3/16 | 2.0 | 0.563 | 110-0140-201 | 110-0140-201A |
| | 5/32 | 3/16 | 2.0 | 0.563 | 110-0156-201 | 110-0156-201A |
| | 11/64 | 3/16 | 2.0 | 0.563 | 110-0171-201 | 110-0171-201A |
| | 3/16 | 3/16 | 2.0 | 0.625 | 110-0187-201 | 110-0187-201A |
| | 13/64 | 1/4 | 2.5 | 0.625 | 110-0203-201 | 110-0203-201A |
| | 7/32 | 1/4 | 2.5 | 0.625 | 110-0218-201 | 110-0218-201A |
| | 15/64 | 1/4 | 2.5 | 0.750 | 110-0234-201 | 110-0234-201A |
| | 1/4 | 1/4 | 2.5 | 0.750 | 110-0250-201 | 110-0250-201A |
| | 17/64 | 5/16 | 2.5 | 0.813 | 110-0265-201 | 110-0265-201A |
| | 9/32 | 5/16 | 2.5 | 0.813 | 110-0281-201 | 110-0281-201A |
| | 19/64 | 5/16 | 2.5 | 0.813 | 110-0296-201 | 110-0296-201A |
| | 5/16 | 5/16 | 2.5 | 0.813 | 110-0312-201 | 110-0312-201A |
| | 21/64 | 3/8 | 2.5 | 0.875 | 110-0328-201 | 110-0328-201A |
| | 11/32 | 3/8 | 2.5 | 0.875 | 110-0343-201 | 110-0343-201A |
| | 23/64 | 3/8 | 2.5 | 0.875 | 110-0359-201 | 110-0359-201A |
| | 3/8 | 3/8 | 2.5 | 0.875 | 110-0375-201 | 110-0375-201A |
| | 25/64 | 7/16 | 2.5 | 0.875 | 110-0390-201 | 110-0390-201A |
| | 13/32 | 7/16 | 2.5 | 0.875 | 110-0406-201 | 110-0406-201A |
| | 27/64 | 7/16 | 2.5 | 0.875 | 110-0421-201 | 110-0421-201A |
| | 7/16 | 7/16 | 2.5 | 1.000 | 110-0437-201 | 110-0437-201A |
| | 29/64 | 1/2 | 3.0 | 1.000 | 110-0453-201 | 110-0453-201A |
| | 15/32 | 1/2 | 3.0 | 1.000 | 110-0468-201 | 110-0468-201A |
| | 31/64 | 1/2 | 3.0 | 1.000 | 110-0484-201 | 110-0484-201A |
| | 1/2 | 1/2 | 3.0 | 1.000 | 110-0500-201 | 110-0500-201A |
| | 9/16 | 9/16 | 3.5 | 1.125 | 110-0562-201 | 110-0562-201A |
| | 5/8 | 5/8 | 3.5 | 1.250 | 110-0625-201 | 110-0625-201A |
| | 11/16 | 3/4 | 4.0 | 1.500 | 110-0687-201 | 110-0687-201A |
| | 3/4 | 3/4 | 4.0 | 1.500 | 110-0750-201 | 110-0750-201A |
| | 7/8 | 7/8 | 4.0 | 1.500 | 110-0875-201 | 110-0875-201A |
| | 1 | 1 | 4.0 | 1.500 | 110-1000-201 | 110-1000-201A |



# Standard 2 Flute

- General purpose 2 flute solid carbide end mill
- Excellent cost to performance ratio
- Standard length of cut
- Available coated and uncoated
- 30° helix geometry
- Center cutting




## Ball Nose

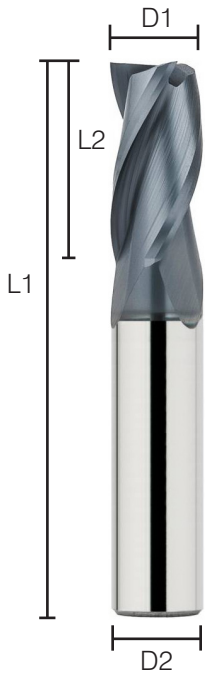
| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | Part # | Coated Part # |
|---|---|---|---|---|---|---|
| in | 0.010 | 1/8 | 1.5 | 0.030 | 110-0010-202 | 110-0010-202A |
| | 0.015 | 1/8 | 1.5 | 0.045 | 110-0015-202 | 110-0015-202A |
| | 0.020 | 1/8 | 1.5 | 0.060 | 110-0020-202 | 110-0020-202A |
| | 0.025 | 1/8 | 1.5 | 0.075 | 110-0025-202 | 110-0025-202A |
| | 1/32 | 1/8 | 1.5 | 0.094 | 110-0031-202 | 110-0031-202A |
| | 3/64 | 1/8 | 1.5 | 0.141 | 110-0046-202 | 110-0046-202A |
| | 1/16 | 1/8 | 1.5 | 0.188 | 110-0062-202 | 110-0062-202A |
| | 5/64 | 1/8 | 1.5 | 0.250 | 110-0078-202 | 110-0078-202A |
| | 3/32 | 1/8 | 1.5 | 0.344 | 110-0093-202 | 110-0093-202A |
| | 7/64 | 1/8 | 1.5 | 0.375 | 110-0109-202 | 110-0109-202A |
| | 1/8 | 1/8 | 1.5 | 0.500 | 110-0125-202 | 110-0125-202A |
| | 9/64 | 3/16 | 2.0 | 0.563 | 110-0140-202 | 110-0140-202A |
| | 5/32 | 3/16 | 2.0 | 0.344 | 110-0156-202 | 110-0156-202A |
| | 11/64 | 3/16 | 2.0 | 0.563 | 110-0171-202 | 110-0171-202A |
| | 3/16 | 3/16 | 2.0 | 0.625 | 110-0187-202 | 110-0187-202A |
| | 13/64 | 1/4 | 2.5 | 0.625 | 110-0203-202 | 110-0203-202A |
| | 7/32 | 1/4 | 2.5 | 0.625 | 110-0218-202 | 110-0218-202A |
| | 15/64 | 1/4 | 2.5 | 0.750 | 110-0234-202 | 110-0234-202A |
| | 1/4 | 1/4 | 2.5 | 0.750 | 110-0250-202 | 110-0250-202A |
| | 17/64 | 5/16 | 2.5 | 0.813 | 110-0265-202 | 110-0265-202A |
| | 9/32 | 5/16 | 2.5 | 0.813 | 110-0281-202 | 110-0281-202A |
| | 19/64 | 5/16 | 2.5 | 0.813 | 110-0296-202 | 110-0296-202A |
| | 5/16 | 5/16 | 2.5 | 0.813 | 110-0312-202 | 110-0312-202A |
| | 21/64 | 3/8 | 2.5 | 0.875 | 110-0328-202 | 110-0328-202A |
| | 11/32 | 3/8 | 2.5 | 0.875 | 110-0343-202 | 110-0343-202A |
| | 23/64 | 3/8 | 2.5 | 0.875 | 110-0359-202 | 110-0359-202A |
| | 3/8 | 3/8 | 2.5 | 0.875 | 110-0375-202 | 110-0375-202A |
| | 25/64 | 7/16 | 2.5 | 0.875 | 110-0390-202 | 110-0390-202A |
| | 13/32 | 7/16 | 2.5 | 0.875 | 110-0406-202 | 110-0406-202A |
| | 27/64 | 7/16 | 2.5 | 0.875 | 110-0421-202 | 110-0421-202A |
| | 7/16 | 7/16 | 2.75 | 1.000 | 110-0437-202 | 110-0437-202A |
| | 29/64 | 1/2 | 3.0 | 1.000 | 110-0453-202 | 110-0453-202A |
| | 15/32 | 1/2 | 3.0 | 1.000 | 110-0468-202 | 110-0468-202A |
| | 31/64 | 1/2 | 3.0 | 1.000 | 110-0484-202 | 110-0484-202A |
| | 1/2 | 1/2 | 3.0 | 1.000 | 110-0500-202 | 110-0500-202A |
| | 9/16 | 9/16 | 3.5 | 1.125 | 110-0562-202 | 110-0562-202A |
| | 5/8 | 5/8 | 3.5 | 1.250 | 110-0625-202 | 110-0625-202A |
| | 11/16 | 3/4 | 4.0 | 1.500 | 110-0687-202 | 110-0687-202A |
| | 3/4 | 3/4 | 4.0 | 1.500 | 110-0750-202 | 110-0750-202A |
| | 7/8 | 7/8 | 4.0 | 1.500 | 110-0875-202 | 110-0875-202A |
| | 1 | 1 | 4.0 | 1.500 | 110-1000-202 | 110-1000-202A |

# Standard 3 Flute

- General purpose 3 flute solid carbide end mill
- Excellent cost to performance ratio
- Standard length of cut
- Available coated and uncoated
- 30° helix geometry
- Center cutting

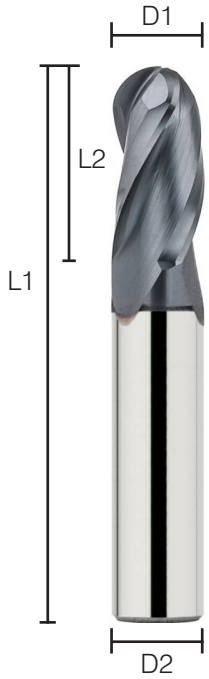
## Square Corner

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | Part # | Coated Part # |
|---|---|---|---|---|---|---|
| in | 1/32 | 1/8 | 1.5 | 0.094 | 110-0031-301 | 110-0031-301A |
| | 3/64 | 1/8 | 1.5 | 0.141 | 110-0046-301 | 110-0046-301A |
| | 1/16 | 1/8 | 1.5 | 0.188 | 110-0062-301 | 110-0062-301A |
| | 5/64 | 1/8 | 1.5 | 0.250 | 110-0078-301 | 110-0078-301A |
| | 3/32 | 1/8 | 1.5 | 0.344 | 110-0093-301 | 110-0093-301A |
| | 1/8 | 1/8 | 1.5 | 0.500 | 110-0125-301 | 110-0125-301A |
| | 5/32 | 3/16 | 2.0 | 0.563 | 110-0156-301 | 110-0156-301A |
| | 3/16 | 3/16 | 2.0 | 0.625 | 110-0187-301 | 110-0187-301A |
| | 7/32 | 1/4 | 2.5 | 0.625 | 110-0218-301 | 110-0218-301A |
| | 1/4 | 1/4 | 2.5 | 0.750 | 110-0250-301 | 110-0250-301A |
| | 5/16 | 5/16 | 2.5 | 0.813 | 110-0312-301 | 110-0312-301A |
| | 3/8 | 3/8 | 2.5 | 0.875 | 110-0375-301 | 110-0375-301A |
| | 1/2 | 1/2 | 3.0 | 1.000 | 110-0500-301 | 110-0500-301A |
| | 5/8 | 5/8 | 3.5 | 1.250 | 110-0625-301 | 110-0625-301A |
| | 3/4 | 3/4 | 4.0 | 1.500 | 110-0750-301 | 110-0750-301A |
| | 7/8 | 7/8 | 4.0 | 1.500 | 110-0875-301 | 110-0875-301A |
| | 1 | 1 | 4.0 | 1.500 | 110-1000-301 | 110-1000-301A |



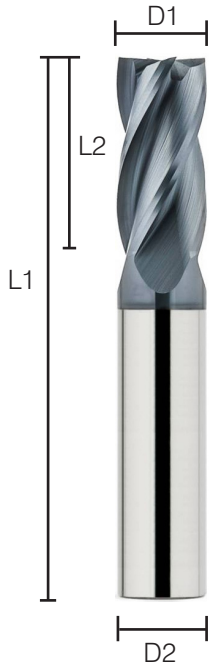

## Ball Nose

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | Part # | Coated Part # |
|---|---|---|---|---|---|---|
| in | 1/32 | 1/8 | 1.5 | 0.094 | 110-0031-302 | 110-0031-302A |
| | 3/64 | 1/8 | 1.5 | 0.141 | 110-0046-302 | 110-0046-302A |
| | 1/16 | 1/8 | 1.5 | 0.188 | 110-0062-302 | 110-0062-302A |
| | 5/64 | 1/8 | 1.5 | 0.250 | 110-0078-302 | 110-0078-302A |
| | 3/32 | 1/8 | 1.5 | 0.344 | 110-0093-302 | 110-0093-302A |
| | 1/8 | 1/8 | 1.5 | 0.500 | 110-0125-302 | 110-0125-302A |
| | 3/16 | 3/16 | 2.0 | 0.625 | 110-0187-302 | 110-0187-302A |
| | 1/4 | 1/4 | 2.5 | 0.750 | 110-0250-302 | 110-0250-302A |
| | 5/16 | 5/16 | 2.5 | 0.813 | 110-0312-302 | 110-0312-302A |
| | 3/8 | 3/8 | 2.5 | 0.875 | 110-0375-302 | 110-0375-302A |
| | 1/2 | 1/2 | 3.0 | 1.000 | 110-0500-302 | 110-0500-302A |
| | 5/8 | 5/8 | 3.5 | 1.250 | 110-0625-302 | 110-0625-302A |
| | 3/4 | 3/4 | 4.0 | 1.500 | 110-0750-302 | 110-0750-302A |
| | 7/8 | 7/8 | 4.0 | 1.500 | 110-0875-302 | 110-0875-302A |
| | 1 | 1 | 4.0 | 1.500 | 110-1000-302 | 110-1000-302A |



# Standard 4 Flute

- General purpose 4 flute solid carbide end mill
- Excellent cost to performance ratio
- Standard length of cut
- Available coated and uncoated
- 30° helix geometry
- Center cutting



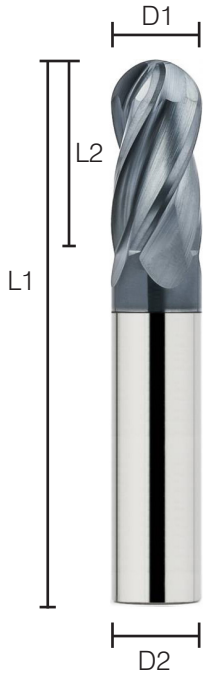

## Square Corner

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | Part # | Coated Part # |
|---|---|---|---|---|---|---|
| in | 0.015 | 1/8 | 1.5 | 0.045 | 110-0015-401 | 110-0015-401A |
| | 0.02 | 1/8 | 1.5 | 0.060 | 110-0020-401 | 110-0020-401A |
| | 0.025 | 1/8 | 1.5 | 0.075 | 110-0025-401 | 110-0025-401A |
| | 1/32 | 1/8 | 1.5 | 0.094 | 110-0031-401 | 110-0031-401A |
| | 3/64 | 1/8 | 1.5 | 0.141 | 110-0046-401 | 110-0046-401A |
| | 1/16 | 1/8 | 1.5 | 0.188 | 110-0062-401 | 110-0062-401A |
| | 5/64 | 1/8 | 1.5 | 0.250 | 110-0078-401 | 110-0078-401A |
| | 3/32 | 1/8 | 1.5 | 0.344 | 110-0093-401 | 110-0093-401A |
| | 7/64 | 1/8 | 1.5 | 0.375 | 110-0109-401 | 110-0109-401A |
| | 1/8 | 1/8 | 1.5 | 0.500 | 110-0125-401 | 110-0125-401A |
| | 9/64 | 3/16 | 2.0 | 0.563 | 110-0140-401 | 110-0140-401A |
| | 5/32 | 3/16 | 2.0 | 0.563 | 110-0156-401 | 110-0156-401A |
| | 11/64 | 3/16 | 2.0 | 0.563 | 110-0171-401 | 110-0171-401A |
| | 3/16 | 3/16 | 2.0 | 0.625 | 110-0187-401 | 110-0187-401A |
| | 13/64 | 1/4 | 2.5 | 0.625 | 110-0203-401 | 110-0203-401A |
| | 7/32 | 1/4 | 2.5 | 0.625 | 110-0218-401 | 110-0218-401A |
| | 15/64 | 1/4 | 2.5 | 0.750 | 110-0234-401 | 110-0234-401A |
| | 1/4 | 1/4 | 2.5 | 0.750 | 110-0250-401 | 110-0250-401A |
| | 17/64 | 5/16 | 2.5 | 0.813 | 110-0265-401 | 110-0265-401A |
| | 9/32 | 5/16 | 2.5 | 0.813 | 110-0281-401 | 110-0281-401A |
| | 19/64 | 5/16 | 2.5 | 0.813 | 110-0296-401 | 110-0296-401A |
| | 5/16 | 5/16 | 2.5 | 0.813 | 110-0312-401 | 110-0312-401A |
| | 21/64 | 3/8 | 2.5 | 0.875 | 110-0328-401 | 110-0328-401A |
| | 11/32 | 3/8 | 2.5 | 0.875 | 110-0343-401 | 110-0343-401A |
| | 23/64 | 3/8 | 2.5 | 0.875 | 110-0359-401 | 110-0359-401A |
| | 3/8 | 3/8 | 2.5 | 0.875 | 110-0375-401 | 110-0375-401A |
| | 25/64 | 7/16 | 2.5 | 0.875 | 110-0390-401 | - |
| | 13/32 | 7/16 | 2.5 | 0.875 | 110-0406-401 | 110-0406-401A |
| | 27/64 | 7/16 | 2.5 | 0.875 | 110-0421-401 | 110-0421-401A |
| | 7/16 | 7/16 | 2.75 | 1.000 | 110-0437-401 | 110-0437-401A |
| | 29/64 | 1/2 | 3.0 | 1.000 | 110-0453-401 | 110-0453-401A |
| | 15/32 | 1/2 | 3.0 | 1.000 | 110-0468-401 | 110-0468-401A |
| | 31/64 | 1/2 | 3.0 | 1.000 | 110-0484-401 | 110-0484-401A |
| | 1/2 | 1/2 | 3.0 | 1.000 | 110-0500-401 | 110-0500-401A |
| | 9/16 | 9/16 | 3.5 | 1.125 | 110-0562-401 | 110-0562-401A |
| | 5/8 | 5/8 | 3.5 | 1.250 | 110-0625-401 | 110-0625-401A |
| | 11/16 | 3/4 | 4.0 | 1.500 | 110-0687-401 | 110-0687-401A |
| | 3/4 | 3/4 | 4.0 | 1.500 | 110-0750-401 | 110-0750-401A |
| | 7/8 | 7/8 | 4.0 | 1.500 | 110-0875-401 | 110-0875-401A |
| | 1 | 1 | 4.0 | 1.500 | 110-1000-401 | 110-1000-401A |

- General purpose 4 flute solid carbide end mill
- Excellent cost to performance ratio
- Standard length of cut
- Available coated and uncoated
- 30° helix geometry
- Center cutting

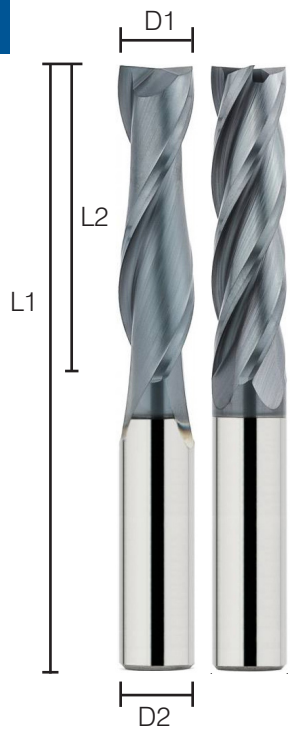
## Ball Nose

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | Part # | Coated Part # |
|---|---|---|---|---|---|---|
| in | 0.015 | 1/8 | 1.5 | 0.045 | 110-0015-402 | 110-0015-402A |
| | 0.02 | 1/8 | 1.5 | 0.060 | 110-0020-402 | 110-0020-402A |
| | 0.025 | 1/8 | 1.5 | 0.075 | 110-0025-402 | 110-0025-402A |
| | 1/32 | 1/8 | 1.5 | 0.094 | 110-0031-402 | 110-0031-402A |
| | 3/64 | 1/8 | 1.5 | 0.141 | 110-0046-402 | 110-0046-402A |
| | 1/16 | 1/8 | 1.5 | 0.188 | 110-0062-402 | 110-0062-402A |
| | 5/64 | 1/8 | 1.5 | 0.250 | 110-0078-402 | 110-0078-402A |
| | 3/32 | 1/8 | 1.5 | 0.344 | 110-0093-402 | 110-0093-402A |
| | 7/64 | 1/8 | 1.5 | 0.375 | 110-0109-402 | 110-0109-402A |
| | 1/8 | 1/8 | 1.5 | 0.500 | 110-0125-402 | 110-0125-402A |
| | 9/64 | 3/16 | 2.0 | 0.563 | 110-0140-402 | 110-0140-402A |
| | 5/32 | 3/16 | 2.0 | 0.563 | 110-0156-402 | 110-0156-402A |
| | 11/64 | 3/16 | 2.0 | 0.563 | 110-0171-402 | 110-0171-402A |
| | 3/16 | 3/16 | 2.0 | 0.625 | 110-0187-402 | 110-0187-402A |
| | 13/64 | 1/4 | 2.5 | 0.625 | 110-0203-402 | 110-0203-402A |
| | 7/32 | 1/4 | 2.5 | 0.625 | 110-0218-402 | 110-0218-402A |
| | 15/64 | 1/4 | 2.5 | 0.750 | 110-0234-402 | 110-0234-402A |
| | 1/4 | 1/4 | 2.5 | 0.750 | 110-0250-402 | 110-0250-402A |
| | 17/64 | 5/16 | 2.5 | 0.813 | 110-0265-402 | 110-0265-402A |
| | 9/32 | 5/16 | 2.5 | 0.813 | 110-0281-402 | 110-0281-402A |
| | 19/64 | 5/16 | 2.5 | 0.813 | 110-0296-402 | 110-0296-402A |
| | 5/16 | 5/16 | 2.5 | 0.813 | 110-0312-402 | 110-0312-402A |
| | 21/64 | 3/8 | 2.5 | 0.875 | 110-0328-402 | 110-0328-402A |
| | 11/32 | 3/8 | 2.5 | 0.875 | 110-0343-402 | 110-0343-402A |
| | 23/64 | 3/8 | 2.5 | 0.875 | 110-0359-402 | 110-0359-402A |
| | 3/8 | 3/8 | 2.5 | 0.875 | 110-0375-402 | 110-0375-402A |
| | 25/64 | 7/16 | 2.5 | 0.875 | 110-0390-402 | 110-0390-402A |
| | 13/32 | 7/16 | 2.5 | 0.875 | 110-0406-402 | 110-0406-402A |
| | 27/64 | 7/16 | 2.5 | 0.875 | 110-0421-402 | 110-0421-402A |
| | 7/16 | 7/16 | 2.75 | 1.000 | 110-0437-402 | 110-0437-402A |
| | 29/64 | 1/2 | 3.0 | 1.000 | 110-0453-402 | 110-0453-402A |
| | 15/32 | 1/2 | 3.0 | 1.000 | 110-0468-402 | 110-0468-402A |
| | 31/64 | 1/2 | 3.0 | 1.000 | 110-0484-402 | 110-0484-402A |
| | 1/2 | 1/2 | 3.0 | 1.000 | 110-0500-402 | 110-0500-402A |
| | 9/16 | 9/16 | 3.5 | 1.125 | 110-0562-402 | 110-0562-402A |
| | 5/8 | 5/8 | 3.5 | 1.250 | 110-0625-402 | 110-0625-402A |
| | 11/16 | 3/4 | 4.0 | 1.500 | 110-0687-402 | 110-0687-402A |
| | 3/4 | 3/4 | 4.0 | 1.500 | 110-0750-402 | 110-0750-402A |
| | 7/8 | 7/8 | 4.0 | 1.500 | 110-0875-402 | 110-0875-402A |
| | 1 | 1 | 4.0 | 1.500 | 110-1000-402 | 110-1000-402A |



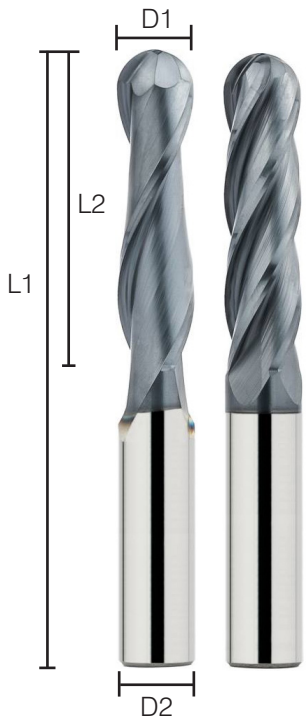
# Long 2 & 4 Flute

- General purpose 2 & 4 flute solid carbide end mill
- Excellent cost to performance ratio
- Long length of cut
- Available coated and uncoated
- 30° helix geometry
- Center cutting




## Square Corner

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | 2 Flute Part # | 2 Flute Coated Part # | 4 Flute Part # | 4 Flute Coated Part # |
|---|---|---|---|---|---|---|---|---|
| in | 1/32 | 1/8 | 2.0 | 0.125 | 130-0031-201 | 130-0031-201A | 130-0031-401 | 130-0031-401A |
| | 3/64 | 1/8 | 2.0 | 0.188 | 130-0046-201 | 130-0046-201A | 130-0046-401 | 130-0046-401A |
| | 1/16 | 1/8 | 2.0 | 0.250 | 130-0062-201 | 130-0062-201A | 130-0062-401 | 130-0062-401A |
| | 5/64 | 1/8 | 2.0 | 0.312 | 130-0078-201 | 130-0078-201A | 130-0078-401 | 130-0078-401A |
| | 3/32 | 1/8 | 2.0 | 0.484 | 130-0093-201 | 130-0093-201A | 130-0093-401 | 130-0093-401A |
| | 1/8 | 1/8 | 2.0 | 0.625 | 130-0125-201 | 130-0125-201A | 130-0125-401 | 130-0125-401A |
| | 3/16 | 3/16 | 2.5 | 0.750 | 130-0187-201 | 130-0187-201A | 130-0187-401 | 130-0187-401A |
| | 1/4 | 1/4 | 3.0 | 1.125 | 130-0250-201 | 130-0250-201A | 130-0250-401 | 130-0250-401A |
| | 5/16 | 5/16 | 3.0 | 1.125 | 130-0312-201 | 130-0312-201A | 130-0312-401 | 130-0312-401A |
| | 3/8 | 3/8 | 3.0 | 1.125 | 130-0375-201 | 130-0375-201A | 130-0375-401 | 130-0375-401A |
| | 1/2 | 1/2 | 4.0 | 2.000 | 130-0500-201 | 130-0500-201A | 130-0500-401 | 130-0500-401A |
| | 1/2 | 1/2 | 4.0 | 1.625 | - | - | 130-A500-401 | 130-A500-401A |
| | 1/2 | 1/2 | 4.0 | 1.000 | - | - | 130-B500-401 | 130-B500-401A |
| | 5/8 | 5/8 | 5.0 | 2.250 | 130-0625-201 | 130-0625-201A | 130-0625-401 | 130-0625-401A |
| | 3/4 | 3/4 | 5.0 | 2.250 | 130-0750-201 | 130-0750-201A | 130-0750-401 | 130-0750-401A |
| | 1 | 1 | 5.0 | 2.250 | 130-1000-201 | 130-1000-201A | 130-1000-401 | 130-1000-401A |




## Ball Nose

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | 2 Flute Part # | 2 Flute Coated Part # | 4 Flute Part # | 4 Flute Coated Part # |
|---|---|---|---|---|---|---|---|---|
| in | 1/32 | 1/8 | 2.0 | 0.125 | 130-0031-202 | 130-0031-202A | 130-0031-402 | 130-0031-402A |
| | 3/64 | 1/8 | 2.0 | 0.188 | 130-0046-202 | 130-0046-202A | 130-0046-402 | 130-0046-402A |
| | 1/16 | 1/8 | 2.0 | 0.250 | 130-0062-202 | 130-0062-202A | 130-0062-402 | 130-0062-402A |
| | 5/64 | 1/8 | 2.0 | 0.312 | 130-0078-202 | 130-0078-202A | 130-0078-402 | 130-0078-402A |
| | 3/32 | 1/8 | 2.0 | 0.484 | 130-0093-202 | 130-0093-202A | 130-0093-402 | 130-0093-402A |
| | 1/8 | 1/8 | 2.0 | 0.625 | 130-0125-202 | 130-0125-202A | 130-0125-402 | 130-0125-402A |
| | 3/16 | 3/16 | 2.5 | 0.750 | 130-0187-202 | 130-0187-202A | 130-0187-402 | 130-0187-402A |
| | 1/4 | 1/4 | 3.0 | 1.125 | 130-0250-202 | 130-0250-202A | 130-0250-402 | 130-0250-402A |
| | 5/16 | 5/16 | 3.0 | 1.125 | 130-0312-202 | 130-0312-202A | 130-0312-402 | 130-0312-402A |
| | 3/8 | 3/8 | 3.0 | 1.125 | 130-0375-202 | 130-0375-202A | 130-0375-402 | 130-0375-402A |
| | 1/2 | 1/2 | 4.0 | 2.000 | 130-0500-202 | 130-0500-202A | 130-0500-402 | 130-0500-402A |
| | 1/2 | 1/2 | 4.0 | 1.625 | - | - | 130-A500-402 | 130-A500-402A |
| | 1/2 | 1/2 | 4.0 | 1.000 | - | - | 130-B500-402 | 130-B500-402A |
| | 5/8 | 5/8 | 5.0 | 2.250 | 130-0625-202 | 130-0625-202A | 130-0625-402 | 130-0625-402A |
| | 3/4 | 3/4 | 5.0 | 2.250 | 130-0750-202 | 130-0750-202A | 130-0750-402 | 130-0750-402A |
| | 1 | 1 | 5.0 | 2.250 | 130-1000-202 | 130-1000-202A | 130-1000-402 | 130-1000-402A |

# X-Long 2 & 4 Flute

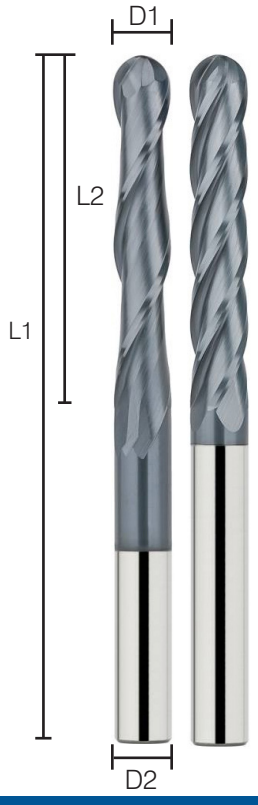
- General purpose 2 & 4 flute solid carbide end mill
- Excellent cost to performance ratio
- Extra-Long length of cut
- Available coated and uncoated
- 30° helix geometry
- Center cutting

## Square Corner

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | 2 Flute Part # | 2 Flute Coated Part # | 4 Flute Part # | 4 Flute Coated Part # |
|---|---|---|---|---|---|---|---|---|
| in | 1/32 | 1/8 | 3.0 | 0.156 | 140-0031-201 | 140-0031-201A | 140-0031-401 | 140-0031-401A |
| | 3/64 | 1/8 | 3.0 | 0.234 | 140-0046-201 | 140-0046-201A | 140-0046-401 | 140-0046-401A |
| | 1/16 | 1/8 | 3.0 | 0.313 | 140-0062-201 | 140-0062-201A | 140-0062-401 | 140-0062-401A |
| | 5/64 | 1/8 | 3.0 | 0.391 | 140-0078-201 | 140-0078-201A | 140-0078-401 | 140-0078-401A |
| | 3/32 | 1/8 | 3.0 | 0.563 | 140-0093-201 | 140-0093-201A | 140-0093-401 | 140-0093-401A |
| | 1/8 | 1/8 | 3.0 | 0.750 | 140-0125-201 | 140-0125-201A | 140-0125-401 | 140-0125-401A |
| | 3/16 | 3/16 | 3.0 | 1.125 | 140-0187-201 | 140-0187-201A | 140-0187-401 | 140-0187-401A |
| | 1/4 | 1/4 | 4.0 | 1.500 | 140-0250-201 | 140-0250-201A | 140-0250-401 | 140-0250-401A |
| | 5/16 | 5/16 | 4.0 | 1.625 | 140-0312-201 | 140-0312-201A | 140-0312-401 | 140-0312-401A |
| | 3/8 | 3/8 | 4.0 | 2.000 | 140-0375-201 | 140-0375-201A | 140-0375-401 | 140-0375-401A |
| | 1/2 | 1/2 | 6.0 | 3.000 | 140-0500-201 | 140-0500-201A | 140-0500-401 | 140-0500-401A |
| | 5/8 | 5/8 | 6.0 | 3.000 | 140-0625-201 | 140-0625-201A | 140-0625-401 | 140-0625-401A |
| | 3/4 | 3/4 | 6.0 | 3.000 | 140-0750-201 | 140-0750-201A | 140-0750-401 | 140-0750-401A |
| | 1 | 1 | 6.0 | 3.000 | 140-1000-201 | 140-1000-201A | 140-1000-401 | 140-1000-401A |
| | 1 | 1 | 7.0 | 4.000 | - | - | 140-100B-401 | 140-100B-401A |
| | 1 | 1 | 8.0 | 5.000 | - | - | 140-100C-401 | 140-100C-401A |

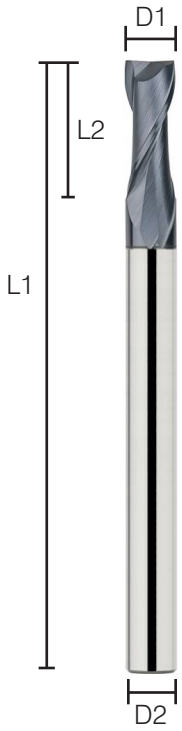

## Ball Nose

| | D1 Dia.w | D2 Dia. (h6) | L1 OAL | L2 LOC | 2 Flute Part # | 2 Flute Coated Part # | 4 Flute Part # | 4 Flute Coated Part # |
|---|---|---|---|---|---|---|---|---|
| in | 1/32 | 1/8 | 3.0 | 0.156 | 140-0031-202 | 140-0031-202A | 140-0031-402 | 140-0031-402A |
| | 3/64 | 1/8 | 3.0 | 0.234 | 140-0046-202 | 140-0046-202A | 140-0046-402 | 140-0046-402A |
| | 1/16 | 1/8 | 3.0 | 0.313 | 140-0062-202 | 140-0062-202A | 140-0062-402 | 140-0062-402A |
| | 5/64 | 1/8 | 3.0 | 0.391 | 140-0078-202 | 140-0078-202A | 140-0078-402 | 140-0078-402A |
| | 3/32 | 1/8 | 3.0 | 0.563 | 140-0093-202 | 140-0093-202A | 140-0093-402 | 140-0093-402A |
| | 1/8 | 1/8 | 3.0 | 0.750 | 140-0125-202 | 140-0125-202A | 140-0125-402 | 140-0125-402A |
| | 3/16 | 3/16 | 3.0 | 1.125 | 140-0187-202 | 140-0187-202A | 140-0187-402 | 140-0187-402A |
| | 1/4 | 1/4 | 4.0 | 1.500 | 140-0250-202 | 140-0250-202A | 140-0250-402 | 140-0250-402A |
| | 5/16 | 5/16 | 4.0 | 1.625 | 140-0312-202 | 140-0312-202A | 140-0312-402 | 140-0312-402A |
| | 3/8 | 3/8 | 4.0 | 2.000 | 140-0375-202 | 140-0375-202A | 140-0375-402 | 140-0375-402A |
| | 1/2 | 1/2 | 6.0 | 3.000 | 140-0500-202 | 140-0500-202A | 140-0500-402 | 140-0500-402A |
| | 5/8 | 5/8 | 6.0 | 3.000 | 140-0625-202 | 140-0625-202A | 140-0625-402 | 140-0625-402A |
| | 3/4 | 3/4 | 6.0 | 3.000 | 140-0750-202 | 140-0750-202A | 140-0750-402 | 140-0750-402A |
| | 1 | 1 | 6.0 | 3.000 | 140-1000-202 | 140-1000-202A | 140-1000-402 | 140-1000-402A |
| | 1 | 1 | 7.0 | 4.000 | - | - | 140-100B-402 | 140-100B-402A |
| | 1 | 1 | 8.0 | 5.000 | - | - | 140-100C-402 | 140-100C-402A |



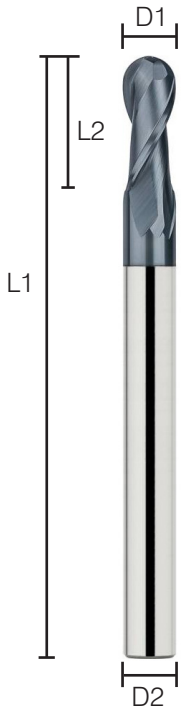
# Long Reach 2 & 4 Flute

- General purpose 2 & 4 flute solid carbide end mill
- Excellent cost to performance ratio
- Short length of cut with long overall length
- Available coated and uncoated
- 30° helix geometry
- Center cutting




## Square Corner

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | 2 Flute Part # | 2 Flute Coated Part # | 4 Flute Part # | 4 Flute Coated Part # |
|---|---|---|---|---|---|---|---|---|
| in | 1/8 | 1/8 | 3.0 | 0.375 | 140-A125-201 | 140-A125-201A | 140-A125-401 | 140-A125-401A |
| | 1/8 | 1/8 | 4.0 | 0.750 | 140-B125-201 | 140-B125-201A | 140-B125-401 | 140-B125-401A |
| | 3/16 | 3/16 | 4.0 | 0.625 | 140-A187-201 | 140-A187-201A | 140-A187-401 | 140-A187-401A |
| | 3/16 | 3/16 | 4.0 | 1.125 | 140-B187-201 | 140-B187-201A | 140-B187-401 | 140-B187-401A |
| | 1/4 | 1/4 | 6.0 | 0.875 | 140-A250-201 | 140-A250-201A | 140-A250-401 | 140-A250-401A |
| | 1/4 | 1/4 | 4.0 | 1.000 | - | - | 140-C250-401 | 140-C250-401A |
| | 5/16 | 5/16 | 6.0 | 1.000 | 140-A312-201 | 140-A312-201A | 140-A312-401 | 140-A312-401A |
| | 3/8 | 3/8 | 6.0 | 1.000 | 140-A375-201 | 140-A375-201A | 140-A375-401 | 140-A375-401A |
| | 1/2 | 1/2 | 6.0 | 1.250 | 140-A500-201 | 140-A500-201A | 140-A500-401 | 140-A500-401A |
| | 1/2 | 1/2 | 6.0 | 2.000 | - | - | 140-B500-401 | 140-B500-401A |
| | 1/2 | 1/2 | 8.0 | 1.000 | - | - | 140-C500-401 | 140-C500-401A |
| | 5/8 | 5/8 | 6.0 | 1.250 | 140-A625-201 | 140-A625-201A | 140-A625-401 | 140-A625-401A |
| | 3/4 | 3/4 | 6.0 | 1.375 | 140-A750-201 | 140-A750-201A | 140-A750-401 | 140-A750-401A |
| | 1 | 1 | 6.0 | 1.375 | 140-100A-201 | 140-100A-201A | 140-100A-401 | 140-100A-401A |

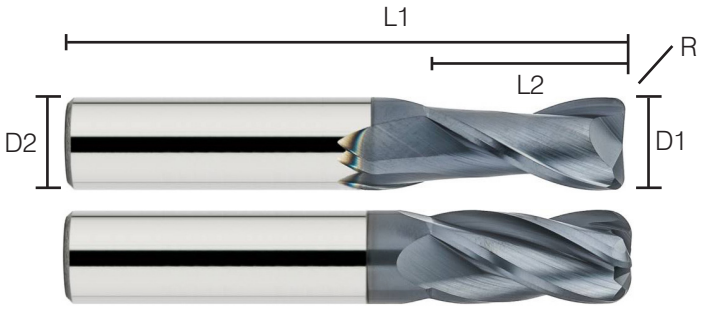



## Ball Nose

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | 2 Flute Part # | 2 Flute Coated Part # | 4 Flute Part # | 4 Flute Coated Part # |
|---|---|---|---|---|---|---|---|---|
| in | 1/8 | 1/8 | 3.0 | 0.375 | 140-A125-202 | 140-A125-202A | 140-A125-402 | 140-A125-402A |
| | 1/8 | 1/8 | 4.0 | 0.750 | 140-B125-202 | 140-B125-202A | 140-B125-402 | 140-B125-402A |
| | 3/16 | 3/16 | 4.0 | 0.625 | 140-A187-202 | 140-A187-202A | 140-A187-402 | 140-A187-402A |
| | 3/16 | 3/16 | 4.0 | 1.125 | 140-B187-202 | 140-B187-202A | 140-B187-402 | 140-B187-402A |
| | 1/4 | 1/4 | 6.0 | 0.875 | 140-A250-202 | 140-A250-202A | 140-A250-402 | 140-A250-402A |
| | 1/4 | 1/4 | 4.0 | 1.000 | - | - | 140-C250-402 | 140-C250-402A |
| | 5/16 | 5/16 | 6.0 | 1.000 | 140-A312-202 | 140-A312-202A | 140-A312-402 | 140-A312-402A |
| | 3/8 | 3/8 | 6.0 | 1.000 | 140-A375-202 | 140-A375-202A | 140-A375-402 | 140-A375-402A |
| | 1/2 | 1/2 | 6.0 | 1.250 | 140-A500-202 | 140-A500-202A | 140-A500-402 | 140-A500-402A |
| | 1/2 | 1/2 | 6.0 | 2.000 | - | - | 140-B500-402 | 140-B500-402A |
| | 1/2 | 1/2 | 8.0 | 1.000 | - | - | 140-C500-402 | 140-C500-402A |
| | 5/8 | 5/8 | 6.0 | 1.250 | 140-A625-202 | 140-A625-202A | 140-A625-402 | 140-A625-402A |
| | 5/8 | 5/8 | 8.0 | 1.250 | - | - | 140-C625-402 | 140-C625-402A |
| | 3/4 | 3/4 | 6.0 | 1.375 | 140-A750-202 | 140-A750-202A | 140-A750-402 | 140-A750-402A |
| | 3/4 | 3/4 | 8.0 | 1.500 | - | - | 140-B750-402 | 140-B750-402A |
| | 1 | 1 | 6.0 | 1.375 | 140-100A-202 | 140-100A-202A | 140-100A-402 | 140-100A-402A |

# Corner Radius 2 & 4 Flute

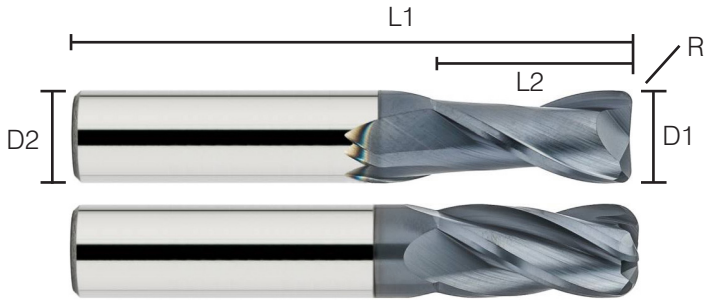
- General purpose 2 & 4 flute solid carbide end mill
- Excellent cost to performance ratio
- Several length of cut options
- Several corner radius options
- Available coated and uncoated
- 30° helix geometry
- Center cutting




| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | R Radius | 2 Flute Part # | 2 Flute Coated Part # | 4 Flute Part # | 4 Flute Coated Part # |
|---|---|---|---|---|---|---|---|---|---|
| in | 1/16 | 1/8 | 2.0 | 0.188 | 0.005 | 110-0062-2R05 | 110-0062-2AR05 | 110-0062-4R05 | 110-0062-4AR05 |
| | 1/16 | 1/8 | 2.0 | 0.188 | 0.010 | 110-0062-2R10 | 110-0062-2AR10 | 110-0062-4R10 | 110-0062-4AR10 |
| | 1/16 | 1/8 | 2.0 | 0.188 | 0.015 | 110-0062-2R15 | 110-0062-2AR15 | 110-0062-4R15 | 110-0062-4AR15 |
| | | | | | | | | | |
| | 5/64 | 1/8 | 2.0 | 0.250 | 0.005 | - | - | 110-0078-4R05 | 110-0078-4AR05 |
| | 5/64 | 1/8 | 2.0 | 0.250 | 0.010 | 110-0078-2R10 | 110-0078-2AR10 | 110-0078-4R10 | 110-0078-4AR10 |
| | 5/64 | 1/8 | 2.0 | 0.250 | 0.015 | 110-0078-2R15 | 110-0078-2AR15 | 110-0078-4R15 | 110-0078-4AR15 |
| | | | | | | | | | |
| | 3/32 | 1/8 | 2.0 | 0.344 | 0.005 | 110-0093-2R05 | 110-0093-2AR05 | 110-0093-4R05 | 110-0093-4AR05 |
| | 3/32 | 1/8 | 2.0 | 0.344 | 0.010 | 110-0093-2R10 | 110-0093-2AR10 | 110-0093-4R10 | 110-0093-4AR10 |
| | 3/32 | 1/8 | 2.0 | 0.344 | 0.015 | 110-0093-2R15 | 110-0093-2AR15 | 110-0093-4R15 | 110-0093-4AR15 |
| | 3/32 | 1/8 | 2.0 | 0.344 | 0.020 | 110-0093-2R20 | 110-0093-2AR20 | 110-0093-4R20 | 110-0093-4AR20 |
| | | | | | | | | | |
| | 1/8 | 1/8 | 2.0 | 0.500 | 0.005 | 110-0125-2R05 | 110-0125-2AR05 | 110-0125-4R05 | 110-0125-4AR05 |
| | 1/8 | 1/8 | 2.0 | 0.500 | 0.010 | 110-0125-2R10 | 110-0125-2AR10 | 110-0125-4R10 | 110-0125-4AR10 |
| | 1/8 | 1/8 | 2.0 | 0.500 | 0.015 | 110-0125-2R15 | 110-0125-2AR15 | 110-0125-4R15 | 110-0125-4AR15 |
| | 1/8 | 1/8 | 2.0 | 0.500 | 0.020 | 110-0125-2R20 | 110-0125-2AR20 | 110-0125-4R20 | 110-0125-4AR20 |
| | 1/8 | 1/8 | 2.0 | 0.500 | 0.030 | 110-0125-2R30 | 110-0125-2AR30 | 110-0125-4R30 | 110-0125-4AR30 |
| | | | | | | | | | |
| | 5/32 | 3/16 | 2.0 | 0.563 | 0.010 | - | 110-0156-2AR10 | - | 110-0156-4AR10 |
| | 5/32 | 3/16 | 2.0 | 0.563 | 0.020 | - | 110-0156-2AR20 | - | 110-0156-4AR20 |

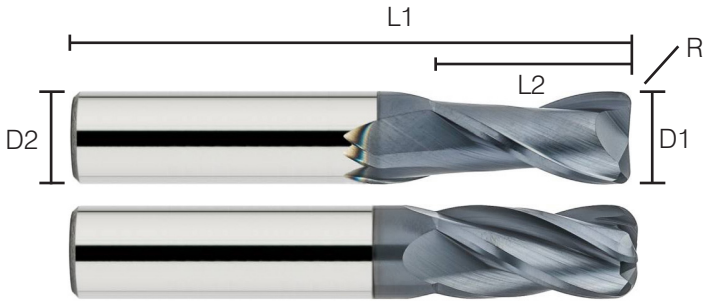
# Corner Radius 2 & 4 Flute

- General purpose 2 & 4 flute solid carbide end mill
- Excellent cost to performance ratio
- Several length of cut options
- Several corner radius options
- Available coated and uncoated
- 30° helix geometry
- Center cutting




| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | R Radius | 2 Flute Part # | 2 Flute Coated Part # | 4 Flute Part # | 4 Flute Coated Part # |
|---|---|---|---|---|---|---|---|---|---|
| in | 3/16 | 3/16 | 2.0 | 0.625 | 0.005 | 110-0187-2R05 | 110-0187-2AR05 | 110-0187-4R05 | 110-0187-4AR05 |
| | 3/16 | 3/16 | 2.0 | 0.625 | 0.010 | 110-0187-2R10 | 110-0187-2AR10 | 110-0187-4R10 | 110-0187-4AR10 |
| | 3/16 | 3/16 | 2.0 | 0.625 | 0.015 | - | - | 110-0187-4R15 | 110-0187-4AR15 |
| | 3/16 | 3/16 | 2.0 | 0.625 | 0.020 | 110-0187-2R20 | 110-0187-2AR20 | 110-0187-4R20 | 110-0187-4AR20 |
| | 3/16 | 3/16 | 2.0 | 0.625 | 0.030 | 110-0187-2R30 | 110-0187-2AR30 | 110-0187-4R30 | 110-0187-4AR30 |
| | 3/16 | 3/16 | 2.0 | 0.625 | 0.060 | - | - | 110-0187-4R60 | 110-0187-4AR60 |
| | 3/16 | 3/16 | 2.5 | 0.750 | 0.030 | 130-0187-2R30 | 130-0187-2AR30 | 130-0187-4R30 | 130-0187-4AR30 |
| | 3/16 | 3/16 | 2.5 | 0.625 | 0.060 | - | - | 130-A187-4R60 | 130-A187-4AR60 |
| | 3/16 | 3/16 | 4.0 | 0.625 | 0.030 | - | - | - | 140-0187-4AR30 |
| | | | | | | | | | |
| | 1/4 | 1/4 | 2.5 | 0.750 | 0.005 | 110-0250-2R05 | 110-0250-2AR05 | 110-0250-4R05 | 110-0250-4AR05 |
| | 1/4 | 1/4 | 2.5 | 0.750 | 0.010 | 110-0250-2R10 | 110-0250-2AR10 | 110-0250-4R10 | 110-0250-4AR10 |
| | 1/4 | 1/4 | 2.5 | 0.750 | 0.015 | 110-0250-2R15 | 110-0250-2AR15 | 110-0250-4R15 | 110-0250-4AR15 |
| | 1/4 | 1/4 | 2.5 | 0.750 | 0.020 | 110-0250-2R20 | 110-0250-2AR20 | 110-0250-4R20 | 110-0250-4AR20 |
| | 1/4 | 1/4 | 2.5 | 0.750 | 0.030 | 110-0250-2R30 | 110-0250-2AR30 | 110-0250-4R30 | 110-0250-4AR30 |
| | 1/4 | 1/4 | 2.5 | 0.750 | 0.040 | 110-0250-2R40 | 110-0250-2AR40 | 110-0250-4R40 | 110-0250-4AR40 |
| | 1/4 | 1/4 | 2.5 | 0.750 | 0.060 | - | 130-0250-2AR60 | 110-0250-4R60 | 110-0250-4AR60 |
| | 1/4 | 1/4 | 3.0 | 1.125 | 0.010 | - | 110-0250-2AR10 | - | 130-0250-4AR10 |
| | 1/4 | 1/4 | 3.0 | 1.125 | 0.030 | - | - | 130-0250-4R30 | 130-0250-4AR30 |
| | 1/4 | 1/4 | 3.0 | 1.125 | 0.060 | 130-0250-2R60 | 130-0250-2AR60 | 130-0250-4R60 | 130-0250-4AR60 |
| | 1/4 | 1/4 | 4.0 | 1.500 | 0.030 | 140-0250-2R30 | 140-0250-2AR30 | 140-0250-4R30 | 140-0250-4AR30 |
| | 1/4 | 1/4 | 4.0 | 1.500 | 0.060 | 140-0250-2R60 | 140-0250-2AR60 | 140-0250-4R60 | 140-0250-4AR60 |
| | 1/4 | 1/4 | 6.0 | 0.875 | 0.030 | - | - | 140-A250-4R30 | 140-A250-4AR30 |
| | 1/4 | 1/4 | 6.0 | 0.875 | 0.060 | - | - | 140-A250-4R60 | 140-A250-4AR60 |
| | | | | | | | | | |
| | 5/16 | 5/16 | 2.5 | 0.813 | 0.015 | 110-0312-2R15 | 110-0312-2AR15 | 110-0312-4R15 | 110-0312-4AR15 |
| | 5/16 | 5/16 | 2.5 | 0.813 | 0.020 | 110-0312-2R20 | 110-0312-2AR20 | 110-0312-4R20 | 110-0312-4AR20 |
| | 5/16 | 5/16 | 2.5 | 0.813 | 0.030 | 110-0312-2R30 | 110-0312-2AR30 | 110-0312-4R30 | 110-0312-4AR30 |
| | 5/16 | 5/16 | 2.5 | 0.813 | 0.040 | 110-0312-2R40 | 110-0312-2AR40 | 110-0312-4R40 | 110-0312-4AR40 |
| | 5/16 | 5/16 | 2.5 | 0.813 | 0.040 | - | - | 110-0312-4R60 | 110-0312-4AR60 |
| | 5/16 | 5/16 | 3.0 | 1.125 | 0.030 | - | - | 130-0312-4R30 | 130-0312-4AR30 |
| | 5/16 | 5/16 | 3.0 | 1.125 | 0.060 | - | - | 130-0312-4R60 | 130-0312-4AR60 |
| | 5/16 | 5/16 | 4.0 | 1.625 | 0.030 | 140-0312-2R30 | 140-0312-2AR30 | 140-0312-4R30 | 140-0312-4AR30 |

# Corner Radius 2 & 4 Flute

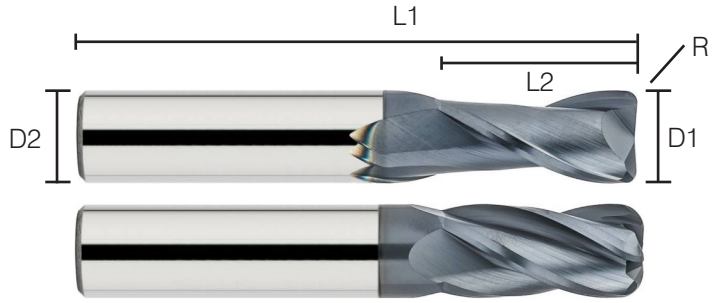



- General purpose 2 & 4 flute solid carbide end mill
- Excellent cost to performance ratio
- Several length of cut options
- Several corner radius options
- Available coated and uncoated
- 30° helix geometry
- Center cutting

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | R Radius | 2 Flute Part # | 2 Flute Coated Part # | 4 Flute Part # | 4 Flute Coated Part # |
|---|---|---|---|---|---|---|---|---|---|
| in | 3/8 | 3/8 | 2.5 | 0.875 | 0.005 | 110-0375-2R05 | 110-0375-2AR05 | 110-0375-4R05 | 110-0375-4AR05 |
| | 3/8 | 3/8 | 2.5 | 0.875 | 0.010 | 110-0375-2R10 | 110-0375-2AR10 | 110-0375-4R10 | 110-0375-4AR10 |
| | 3/8 | 3/8 | 2.5 | 0.875 | 0.015 | 110-0375-2R15 | 110-0375-2AR15 | 110-0375-4R15 | 110-0375-4AR15 |
| | 3/8 | 3/8 | 2.5 | 0.875 | 0.020 | 110-0375-2R20 | 110-0375-2AR20 | 110-0375-4R20 | 110-0375-4AR20 |
| | 3/8 | 3/8 | 2.5 | 0.875 | 0.030 | 110-0375-2R30 | 110-0375-2AR30 | 110-0375-4R30 | 110-0375-4AR30 |
| | 3/8 | 3/8 | 2.5 | 0.875 | 0.040 | 110-0375-2R40 | 110-0375-2AR40 | 110-0375-4R40 | 110-0375-4AR40 |
| | 3/8 | 3/8 | 2.5 | 0.875 | 0.060 | 110-0375-2R60 | 110-0375-2AR60 | 110-0375-4R60 | 110-0375-4AR60 |
| | 3/8 | 3/8 | 2.5 | 0.875 | 0.125 | 110-0375-2R125 | 110-0375-2AR125 | 110-0375-4R125 | 110-0375-4AR125 |
| | 3/8 | 3/8 | 3.0 | 1.125 | 0.010 | 130-0375-2R10 | 130-0375-2AR10 | 130-0375-4R10 | 130-0375-4AR10 |
| | 3/8 | 3/8 | 3.0 | 1.125 | 0.030 | 130-0375-2R30 | 130-0375-2AR30 | 130-0375-4R30 | 130-0375-4AR30 |
| | 3/8 | 3/8 | 3.0 | 1.000 | 0.060 | 130-0375-2R60 | 130-0375-2AR60 | 130-0375-4R60 | 130-0375-4AR60 |
| | 3/8 | 3/8 | 4.0 | 4.000 | 0.010 | - | - | 140-0375-4R10 | 140-0375-4AR10 |
| | 3/8 | 3/8 | 4.0 | 4.000 | 0.030 | - | - | 140-0375-4R30 | 140-0375-4AR30 |
| | 3/8 | 3/8 | 4.0 | 4.000 | 0.060 | - | - | 140-0375-4R60 | 140-0375-4AR60 |
| | 3/8 | 3/8 | 6.0 | 6.000 | 0.030 | - | - | 140-A375-4R30 | 140-A375-4AR30 |
| | 3/8 | 3/8 | 6.0 | 6.000 | 0.060 | - | - | 140-A375-4R60 | 140-A375-4AR60 |
| | | | | | | | | | |
| | 1/2 | 1/2 | 3.0 | 3.000 | 0.005 | - | - | 110-0500-4R05 | 110-0500-4AR05 |
| | 1/2 | 1/2 | 3.0 | 3.000 | 0.010 | - | - | 110-0500-4R10 | 110-0500-4AR10 |
| | 1/2 | 1/2 | 3.0 | 3.000 | 0.015 | 110-0500-2R15 | 110-0500-2AR15 | 110-0500-4R15 | 110-0500-4AR15 |
| | 1/2 | 1/2 | 3.0 | 3.000 | 0.020 | 110-0500-2R20 | 110-0500-2AR20 | 110-0500-4R20 | 110-0500-4AR20 |
| | 1/2 | 1/2 | 3.0 | 3.000 | 0.030 | 110-0500-2R30 | 110-0500-2AR30 | 110-0500-4R30 | 110-0500-4AR30 |
| | 1/2 | 1/2 | 3.0 | 3.000 | 0.040 | 110-0500-2R40 | 110-0500-2AR40 | 110-0500-4R40 | 110-0500-4AR40 |
| | 1/2 | 1/2 | 3.0 | 3.000 | 0.060 | 110-0500-2R60 | 110-0500-2AR60 | 110-0500-4R60 | 110-0500-4AR60 |
| | 1/2 | 1/2 | 3.0 | 3.000 | 0.125 | - | - | 110-0500-4R90 | 110-0500-4AR90 |
| | 1/2 | 1/2 | 3.0 | 3.000 | 0.125 | 110-0500-2R125 | 110-0500-2AR125 | 110-0500-4R125 | 110-0500-4AR125 |
| | 1/2 | 1/2 | 4.0 | 4.000 | 0.010 | - | - | 130-0500-4R10 | 130-0500-4AR10 |
| | 1/2 | 1/2 | 4.0 | 4.000 | 0.060 | - | - | 130-0500-4R60 | 130-0500-4AR60 |
| | 1/2 | 1/2 | 4.0 | 4.000 | 0.125 | - | - | 130-0500-4R125 | 130-0500-4AR125 |
| | 1/2 | 1/2 | 6.0 | 6.000 | 0.030 | - | - | 140-0500-4R30 | 140-0500-4AR30 |
| | 1/2 | 1/2 | 6.0 | 6.000 | 0.060 | - | - | 140-0500-4R60 | 140-0500-4AR60 |
| | 1/2 | 1/2 | 6.0 | 1.250 | 0.030 | - | - | 140-A500-4R30 | 140-A500-4AR30 |
| | 1/2 | 1/2 | 6.0 | 1.250 | 0.060 | - | - | 140-A500-4R60 | 140-A500-4AR60 |

# Corner Radius 2 & 4 Flute

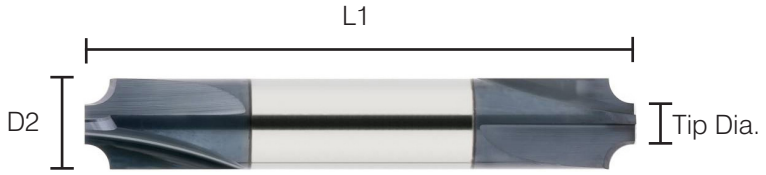
- General purpose 2 & 4 flute solid carbide end mill
- Excellent cost to performance ratio
- Several length of cut options
- Several corner radius options
- Available coated and uncoated
- 30° helix geometry
- Center cutting




| | D1 Dia. | D2 Dia. (h6) | R Radius | L1 OAL | L2 LOC | 2 Flute Part # | 2 Flute Coated Part # | 4 Flute Part # | 4 Flute Coated Part # |
|---|---|---|---|---|---|---|---|---|---|
| in | 5/8 | 5/8 | 3.5 | 1.250 | 0.015 | - | - | 110-0625-4R15 | 110-0625-4AR15 |
| | 5/8 | 5/8 | 3.5 | 1.250 | 0.020 | - | - | 110-0625-4R20 | 110-0625-4AR20 |
| | 5/8 | 5/8 | 3.5 | 1.250 | 0.030 | 110-0625-2R30 | 110-0625-2AR30 | 110-0625-4R30 | 110-0625-4AR30 |
| | 5/8 | 5/8 | 3.5 | 1.250 | 0.040 | 110-0625-2R40 | 110-0625-2AR40 | 110-0625-4R40 | 110-0625-4AR40 |
| | 5/8 | 5/8 | 3.5 | 1.250 | 0.060 | 110-0625-2R60 | 110-0625-2AR60 | 110-0625-4R60 | 110-0625-4AR60 |
| | 5/8 | 5/8 | 3.5 | 1.250 | 0.125 | - | - | 110-0625-4R125 | 110-0625-4AR125 |
| | | | | | | | | | |
| | 3/4 | 3/4 | 4.0 | 1.500 | 0.015 | - | - | 110-0750-4R15 | 110-0750-4AR15 |
| | 3/4 | 3/4 | 4.0 | 1.500 | 0.020 | - | - | 110-0750-4R20 | 110-0750-4AR20 |
| | 3/4 | 3/4 | 4.0 | 1.500 | 0.030 | - | - | 110-0750-4R30 | 110-0750-4AR30 |
| | 3/4 | 3/4 | 4.0 | 1.500 | 0.040 | - | - | 110-0750-4R40 | 110-0750-4AR40 |
| | 3/4 | 3/4 | 4.0 | 1.500 | 0.060 | - | - | 110-0750-4R60 | 110-0750-4AR60 |
| | 3/4 | 3/4 | 4.0 | 1.500 | 0.090 | 110-0750-2R90 | 110-0750-2AR90 | 110-0750-4R90 | 110-0750-4AR90 |
| | 3/4 | 3/4 | 4.0 | 1.500 | 0.125 | 110-0750-2R125 | 110-0750-2AR125 | 110-0750-4R125 | 110-0750-4AR125 |
| | 3/4 | 3/4 | 4.0 | 1.500 | 0.250 | - | - | 110-0750-4R250 | 110-0750-4A250 |
| | | | | | | | | | |
| | 1 | 1 | 4.0 | 1.500 | 0.030 | 110-1000-2R30 | 110-1000-2AR30 | 110-1000-4R30 | 110-1000-4AR30 |
| | 1 | 1 | 4.0 | 1.500 | 0.040 | - | - | - | - |
| | 1 | 1 | 4.0 | 1.500 | 0.060 | 110-1000-2R60 | 110-1000-2AR60 | 110-1000-4R60 | 110-1000-4AR60 |
| | 1 | 1 | 4.0 | 1.500 | 0.090 | - | - | - | - |
| | 1 | 1 | 4.0 | 1.500 | 0.125 | 110-1000-2R125 | 110-1000-2AR125 | 110-1000-4R125 | 110-1000-4AR125 |
| | 1 | 1 | 6.0 | 1.375 | 0.030 | 140-100A-2R30 | 140-100A-2R30A | - | - |
| | 1 | 1 | 6.0 | 1.375 | 0.060 | 140-100A-2R60 | 140-100A-2R60A | - | - |
| | 1 | 1 | 6.0 | 1.375 | 0.090 | 140-100A-2R90 | 140-100A-2R90A | - | - |
| | 1 | 1 | 6.0 | 1.375 | 0.120 | 140-100A-2R120 | 140-100A-2R120A | - | - |

# Corner Round

Corner Round Series End Mills incorporate standard geometry for an excellent general purpose End Mill. They are suited for a variety of milling applications. Tools are suitable for breaking edges and putting a smooth radius on a part. Also known as radius cutters, these tools are useful for milling deep inside a pocket or on the back side of a part. Available coated and uncoated.

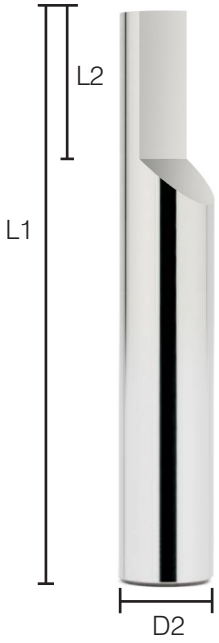



| | Corner Round | D2 Dia. (h6) | L1 OAL | No. of Flutes | Tip Dia. | Part # | Coated Part # |
|---|---|---|---|---|---|---|---|
| in | 0.010 | 1/4 | 2.5 | 4 | .219 | 111-0250-4R010 | 111-0250-4AR010 |
| | 0.015 | 1/4 | 2.5 | 4 | .209 | 111-0250-4R015 | 111-0250-4AR015 |
| | 0.020 | 1/4 | 2.5 | 4 | .199 | 111-0250-4R020 | 111-0250-4AR020 |
| | 0.032 | 1/4 | 2.5 | 4 | .173 | 111-0250-4R032 | 111-0250-4AR032 |
| | 0.050 | 1/4 | 2.5 | 4 | .134 | 111-0250-4R050 | 111-0250-4AR050 |
| | 0.032 | 3/8 | 2.5 | 4 | .298 | 111-0375-4R032 | 111-0375-4AR032 |
| | 0.040 | 3/8 | 2.5 | 4 | .284 | 111-0375-4R040 | 111-0375-4AR040 |
| | 0.050 | 3/8 | 2.5 | 4 | .260 | 111-0375-4R050 | 111-0375-4AR050 |
| | 0.062 | 3/8 | 2.5 | 4 | .233 | 111-0375-4R062 | 111-0375-4AR062 |
| | 0.062 | 1/2 | 3.0 | 4 | .358 | 111-0500-4R062 | 111-0500-4AR062 |
| | 0.078 | 1/2 | 3.0 | 4 | .324 | 111-0500-4R078 | 111-0500-4AR078 |
| | 0.093 | 1/2 | 3.0 | 4 | .294 | 111-0500-4R093 | 111-0500-4AR093 |
| | 0.125 | 1/2 | 3.0 | 4 | .225 | 111-0500-4R125 | 111-0500-4AR125 |
| | 0.125 | 5/8 | 3.5 | 4 | .350 | 111-0625-4R125 | 111-0625-4AR125 |
| | 0.156 | 5/8 | 3.5 | 4 | .278 | 111-0625-4R156 | 111-0625-4AR156 |
| | 0.187 | 3/4 | 4.0 | 4 | .341 | 111-0750-4R187 | 111-0750-4AR187 |
| | 0.250 | 3/4 | 4.0 | 4 | .206 | 111-0750-4R250 | 111-0750-4AR250 |
| | 0.312 | 1 | 4.0 | 4 | .321 | 111-1000-4R312 | 111-1000-4AR312 |
| | 0.375 | 1 | 4.0 | 3 | .195 | 111-1000-3R375 | 111-1000-3AR375 |

# Split Blank

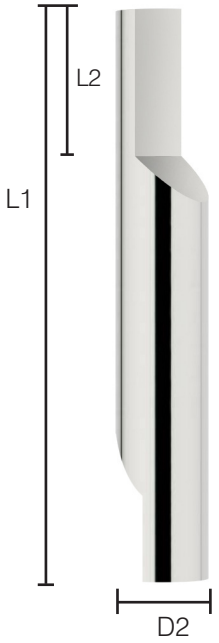
- Solid carbide split blanks
- For custom milling, lathe tools
- Available square and with various point angles

## Single End




| | D2 Dia. (h6) | L1 OAL | L2 Split Length | Standard Part # | 30° Point Part # | 60° Point Part # | 90° Point Part # |
|---|---|---|---|---|---|---|---|
| in | 1/8 | 1.5 | 0.375 | 113-A125-100 | 113-A125-130 | 113-A125-160 | 113-A125-190 |
| | 1/8 | 2.0 | 0.375 | 113-B125-100 | 113-B125-130 | 113-B125-160 | 113-B125-190 |
| | 1/8 | 3.0 | 0.375 | 113-C125-100 | 113-C125-130 | 113-C125-160 | 113-C125-190 |
| | 3/16 | 2.0 | 0.375 | 113-A187-100 | 113-A187-130 | 113-A187-160 | 113-A187-190 |
| | 3/16 | 3.0 | 0.375 | 113-C187-100 | 113-C187-130 | 113-C187-160 | 113-C187-190 |
| | 3/16 | 4.0 | 0.375 | 113-D187-100 | 113-D187-130 | 113-D187-160 | 113-D187-190 |
| | 1/4 | 2.0 | 0.375 | 113-A250-100 | 113-A250-130 | 113-A250-160 | 113-A250-190 |
| | 1/4 | 3.0 | 0.375 | 113-C250-100 | 113-C250-130 | 113-C250-160 | 113-C250-190 |
| | 1/4 | 4.0 | 0.375 | 113-D250-100 | 113-D250-130 | 113-D250-160 | 113-D250-190 |
| | 1/4 | 6.0 | 0.375 | 113-E250-100 | 113-E250-130 | 113-E250-160 | 113-E250-190 |
| | 3/8 | 3.0 | 0.500 | 113-B375-100 | 113-B375-130 | 113-B375-160 | 113-B375-190 |
| | 3/8 | 4.0 | 0.500 | 113-C375-100 | 113-C375-130 | 113-C375-160 | 113-C375-190 |
| | 3/8 | 6.0 | 0.500 | 113-D375-100 | 113-D375-130 | 113-D375-160 | 113-D375-190 |
| | 1/2 | 3.0 | 0.625 | 113-A500-100 | 113-A500-130 | 113-A500-160 | 113-A500-190 |
| | 1/2 | 4.0 | 0.625 | 113-B500-100 | 113-B500-130 | 113-B500-160 | 113-B500-190 |
| | 1/2 | 6.0 | 0.625 | 113-C500-100 | 113-C500-130 | 113-C500-160 | 113-C500-190 |

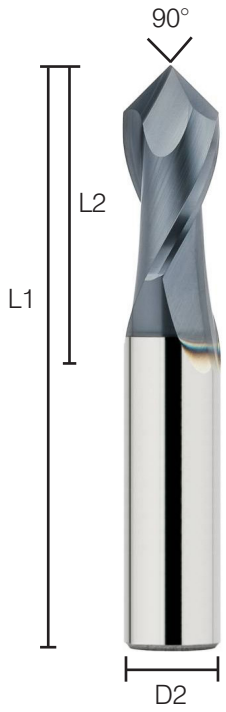
## Double End




| | D2 Dia. (h6) | L1 OAL | L2 Split Length | Standard Part # | 30° Part # | 60° Part # | 90° Part # |
|---|---|---|---|---|---|---|---|
| in | 1/8 | 1.5 | 0.375 | 114-A125-100 | 114-A125-130 | 114-A125-160 | 114-A125-190 |
| | 1/8 | 2.0 | 0.375 | 114-B125-100 | 114-B125-130 | 114-B125-160 | 114-B125-190 |
| | 1/8 | 3.0 | 0.375 | 114-C125-100 | 114-C125-130 | 114-C125-160 | 114-C125-190 |
| | 3/16 | 2.0 | 0.375 | 114-A187-100 | 114-A187-130 | 114-A187-160 | 114-A187-190 |
| | 3/16 | 3.0 | 0.375 | 114-C187-100 | 114-C187-130 | 114-C187-160 | 114-C187-190 |
| | 3/16 | 4.0 | 0.375 | 114-D187-100 | 114-D187-130 | 114-D187-160 | 114-D187-190 |
| | 1/4 | 2.0 | 0.375 | 114-A250-100 | 114-A250-130 | 114-A250-160 | 114-A250-190 |
| | 1/4 | 3.0 | 0.375 | 114-C250-100 | 114-C250-130 | 114-C250-160 | 114-C250-190 |
| | 1/4 | 4.0 | 0.375 | 114-D250-100 | 114-D250-130 | 114-D250-160 | 114-D250-190 |
| | 1/4 | 6.0 | 0.375 | 114-E250-100 | 114-E250-130 | 114-E250-160 | 114-E250-190 |
| | 3/8 | 3.0 | 0.500 | 114-B375-100 | 114-B375-130 | 114-B375-160 | 114-B375-190 |
| | 3/8 | 4.0 | 0.500 | 114-C375-100 | 114-C375-130 | 114-C375-160 | 114-C375-190 |
| | 3/8 | 6.0 | 0.500 | 114-D375-100 | 114-D375-130 | 114-D375-160 | 114-D375-190 |
| | 1/2 | 3.0 | 0.625 | 114-A500-100 | 114-A500-130 | 114-A500-160 | 114-A500-190 |
| | 1/2 | 4.0 | 0.625 | 114-B500-100 | 114-B500-130 | 114-B500-160 | 114-B500-190 |
| | 1/2 | 6.0 | 0.625 | 114-C500-100 | 114-C500-130 | 114-C500-160 | 114-C500-190 |

# Chamfering Cutters

- 2 flute solid carbide chamfer cutters
- Used for chamfering and slotting
- 90° & 120° point geometry
- Available coated and uncoated

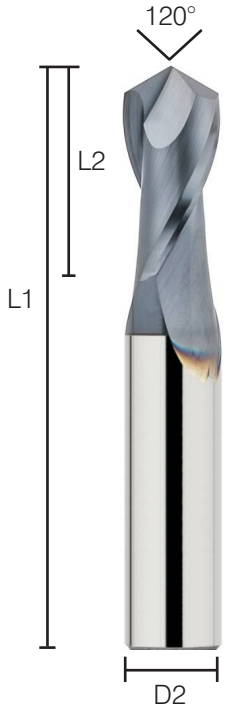



## Chamfering Cutter 90° included

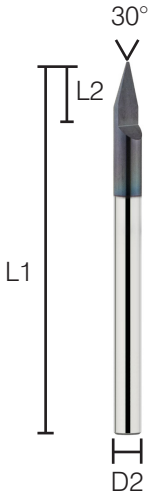
| | D2 Dia. (h6) | L1 OAL | L2 LOC | Standard Part # | Coated Part # |
|---|---|---|---|---|---|
| in | 1/8 | 1.5 | 0.500 | 116-0125-2P90 | 116-0125-2P90A |
| | 3/16 | 2.0 | 0.625 | 116-0187-2P90 | 116-0187-2P90A |
| | 1/4 | 2.5 | 0.750 | 116-0250-2P90 | 116-0250-2P90A |
| | 3/8 | 2.5 | 0.875 | 116-0375-2P90 | 116-0375-2P90A |
| | 1/2 | 3.0 | 1.000 | 116-0500-2P90 | 116-0500-2P90A |
| | 5/8 | 3.5 | 1.250 | 116-0625-2P90 | 116-0625-2P90A |
| | 3/4 | 4.0 | 1.500 | 116-0750-2P90 | 116-0750-2P90A |

## Chamfering Cutter 120° included

| | D2 Dia. (h6) | L1 OAL | L2 LOC | Standard Part # | Coated Part # |
|---|---|---|---|---|---|
| in | 1/8 | 1.5 | 0.500 | 116-0125-2P120 | 116-0125-2P120A |
| | 3/16 | 2 | 0.625 | 116-0187-2P120 | 116-0187-2P120A |
| | 1/4 | 2.5 | 0.750 | 116-0250-2P120 | 116-0250-2P120A |
| | 3/8 | 2.5 | 0.875 | 116-0375-2P120 | 116-0375-2P120A |
| | 1/2 | 3 | 1.000 | 116-0500-2P120 | 116-0500-2P120A |
| | 5/8 | 3.5 | 1.250 | 116-0625-2P120 | 116-0625-2P120A |
| | 3/4 | 4 | 1.500 | 116-0750-2P120 | 116-0750-2P120A |



# Engraving Specials / Spot Drill




## Engraving Specials

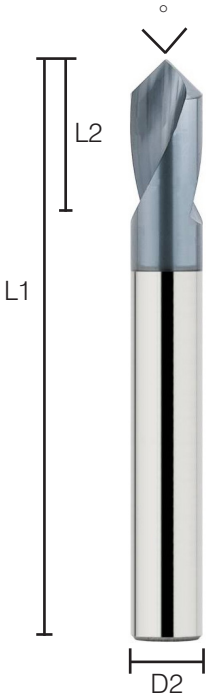
- Single flute solid carbide engraving cutters
- Used for light duty engraving
- Available coated and uncoated

| | D2 Dia. (h6) | L1 OAL | L2 Split Length | Tip Size | Standard Part # | Coated Part # |
|---|---|---|---|---|---|---|
| in | 1/8 | 2.0 | 0.120 | 0.005 | 113-B125-3005 | 113-B125-3005A |
| | 1/8 | 2.0 | 0.120 | 0.010 | 113-B125-3010 | 113-B125-3010A |
| | 1/8 | 2.0 | 0.120 | 0.015 | 113-B125-3015 | 113-B125-3015A |
| | 1/8 | 2.0 | 0.120 | 0.020 | 113-B125-3020 | 113-B125-3020A |
| | 1/8 | 2.0 | 0.120 | 0.025 | 113-B125-3025 | 113-B125-3025A |

## Carbide Spot Drill

- 2 flute solid carbide spot drills
- 90° & 120° point geometry
- Available coated and uncoated

| | D2 Dia. (h6) | L1 OAL | L2 LOC | 90° Point Part # | 90° Point Coated Part # | 120° Point Part # | 120° Point Coated Part # |
|---|---|---|---|---|---|---|---|
| in | 1/8 | 2.0 | 0.375 | 230-0125-210 | 230-0125-210A | 230-0125-211 | 230-0125-211A |
| | 3/16 | 2.5 | 0.500 | 230-0187-210 | 230-0187-210A | 230-0187-211 | 230-0187-211A |
| | 1/4 | 3.0 | 0.625 | 230-0250-210 | 230-0250-210A0 | 230-0250-211 | 230-0250-211A |
| | 5/16 | 3.0 | 0.625 | 230-0312-210 | 230-0312-210A | 230-0312-211 | 230-0312-211A |
| | 3/8 | 3.0 | 0.750 | 230-0375-210 | 230-0375-210A | 230-0375-211 | 230-0375-211A |
| | 1/2 | 4.0 | 1.000 | 230-0500-210 | 230-0500-210A | 230-0500-211 | 230-0500-211A |
| | 5/8 | 3.5 | 1.000 | 230-0625-210 | 230-0625-210A | 230-0625-211 | 230-0625-211A |
| | 3/4 | 4.0 | 1.125 | 230-0750-210 | 230-0750-210A | 230-0750-211 | 230-0750-211A |

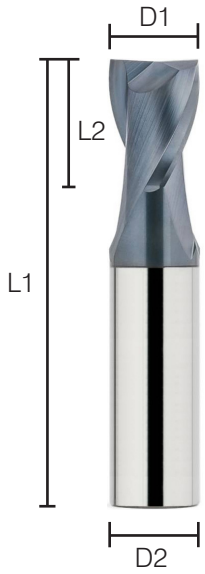


# Metric - 2 Flute Stub

- General purpose Metric 2 flute solid carbide end mill
- Excellent cost to performance ratio
- Stub length of cut
- Available coated and uncoated
- 30° helix geometry
- Center cutting

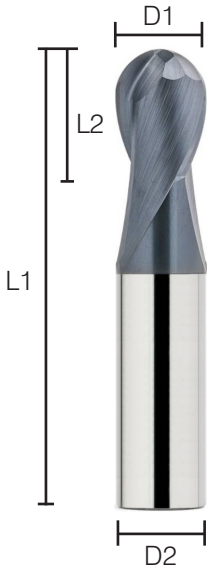
## Square Corner

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | Part # | Coated Part # |
|---|---|---|---|---|---|---|
| mm | 1.0 | 3.0 | 39.0 | 1.5 | 100-010-201 | 100-010-201A |
| | 1.5 | 3.0 | 39.0 | 2.3 | 100-015-201 | 100-015-201A |
| | 2.0 | 3.0 | 39.0 | 3.0 | 100-020-201 | 100-020-201A |
| | 2.5 | 3.0 | 39.0 | 4.0 | 100-025-201 | 100-025-201A |
| | 3.0 | 3.0 | 39.0 | 6.0 | 100-030-201 | 100-030-201A |
| | 4.0 | 4.0 | 51.0 | 8.0 | 100-040-201 | 100-040-201A |
| | 5.0 | 5.0 | 51.0 | 9.0 | 100-050-201 | 100-050-201A |
| | 6.0 | 6.0 | 51.0 | 10.0 | 100-060-201 | 100-060-201A |
| | 8.0 | 8.0 | 50.0 | 12.0 | 100-080-201 | 100-080-201A |
| | 10.0 | 10.0 | 50.0 | 16.0 | 100-100-201 | 100-100-201A |
| | 12.0 | 12.0 | 63.0 | 18.0 | 100-120-201 | 100-120-201A |
| | 16.0 | 16.0 | 83.0 | 22.0 | 100-160-201 | 100-160-201A |



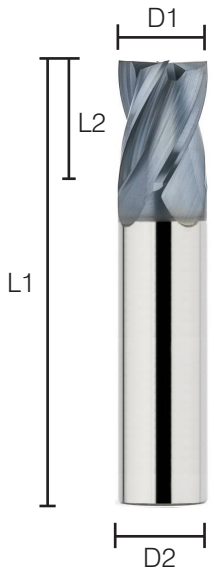

## Ball Nose

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | Part # | Coated Part # |
|---|---|---|---|---|---|---|
| mm | 1.0 | 3.0 | 39.0 | 1.5 | 100-010-202 | 100-010-202A |
| | 1.5 | 3.0 | 39.0 | 2.3 | 100-015-202 | 100-015-202A |
| | 2.0 | 3.0 | 39.0 | 3.0 | 100-020-202 | 100-020-202A |
| | 2.5 | 3.0 | 39.0 | 4.0 | 100-025-202 | 100-025-202A |
| | 3.0 | 3.0 | 39.0 | 6.0 | 100-030-202 | 100-030-202A |
| | 4.0 | 4.0 | 51.0 | 8.0 | 100-040-202 | 100-040-202A |
| | 5.0 | 5.0 | 51.0 | 9.0 | 100-050-202 | 100-050-202A |
| | 6.0 | 6.0 | 51.0 | 10.0 | 100-060-202 | 100-060-202A |
| | 8.0 | 8.0 | 50.0 | 12.0 | 100-080-202 | 100-080-202A |
| | 10.0 | 10.0 | 50.0 | 16.0 | 100-100-202 | 100-100-202A |
| | 12.0 | 12.0 | 63.0 | 18.0 | 100-120-202 | 100-120-202A |
| | 16.0 | 16.0 | 83.0 | 22.0 | 100-160-202 | 100-160-202A |



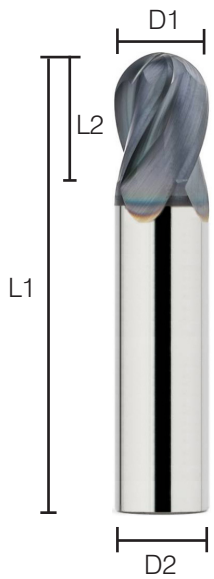
# Metric - 4 Flute Stub

- General purpose Metric 4 flute solid carbide end mill
- Excellent cost to performance ratio
- Stub length of cut
- Available coated and uncoated
- 30° helix geometry
- Center cutting




## Square Corner

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | Part # | Coated Part # |
|---|---|---|---|---|---|---|
| mm | 1.0 | 3.0 | 39.0 | 1.5 | 100-010-401 | 100-010-401A |
| | 1.5 | 3.0 | 39.0 | 2.3 | 100-015-401 | 100-015-401A |
| | 2.0 | 3.0 | 39.0 | 3.0 | 100-020-401 | 100-020-401A |
| | 2.5 | 3.0 | 39.0 | 4.0 | 100-025-401 | 100-025-401A |
| | 3.0 | 3.0 | 39.0 | 6.0 | 100-030-401 | 100-030-401A |
| | 4.0 | 4.0 | 51.0 | 8.0 | 100-040-401 | 100-040-401A |
| | 5.0 | 5.0 | 51.0 | 9.0 | 100-050-401 | 100-050-401A |
| | 6.0 | 6.0 | 51.0 | 10.0 | 100-060-401 | 100-060-401A |
| | 8.0 | 8.0 | 50.0 | 12.0 | 100-080-401 | 100-080-401A |
| | 10.0 | 10.0 | 50.0 | 16.0 | 100-100-401 | 100-100-401A |
| | 12.0 | 12.0 | 63.0 | 18.0 | 100-120-401 | 100-120-401A |
| | 16.0 | 16.0 | 83.0 | 22.0 | 100-160-401 | 100-160-401A |




## Ball Nose

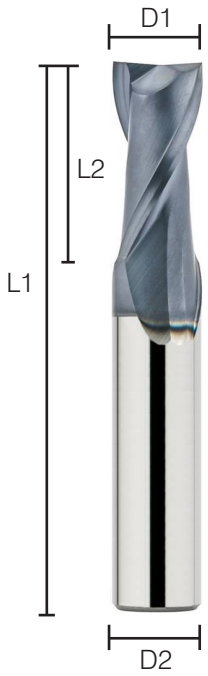
| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | Part # | Coated Part # |
|---|---|---|---|---|---|---|
| mm | 1.0 | 3.0 | 39.0 | 1.5 | 100-010-402 | 100-010-402A |
| | 1.5 | 3.0 | 39.0 | 2.3 | 100-015-402 | 100-015-402A |
| | 2.0 | 3.0 | 39.0 | 3.0 | 100-020-402 | 100-020-402A |
| | 2.5 | 3.0 | 39.0 | 4.0 | 100-025-402 | 100-025-402A |
| | 3.0 | 3.0 | 39.0 | 6.0 | 100-030-402 | 100-030-402A |
| | 4.0 | 4.0 | 51.0 | 8.0 | 100-040-402 | 100-040-402A |
| | 5.0 | 5.0 | 51.0 | 9.0 | 100-050-402 | 100-050-402A |
| | 6.0 | 6.0 | 51.0 | 10.0 | 100-060-402 | 100-060-402A |
| | 8.0 | 8.0 | 50.0 | 12.0 | 100-080-402 | 100-080-402A |
| | 10.0 | 10.0 | 50.0 | 16.0 | 100-100-402 | 100-100-402A |
| | 12.0 | 12.0 | 63.0 | 18.0 | 100-120-402 | 100-120-402A |
| | 16.0 | 16.0 | 83.0 | 22.0 | 100-160-402 | 100-160-402A |

# Metric - 2 Flute Standard

- General purpose Metric 2 flute solid carbide end mill
- Excellent cost to performance ratio
- Standard length of cut
- Available coated and uncoated
- 30° helix geometry
- Center cutting

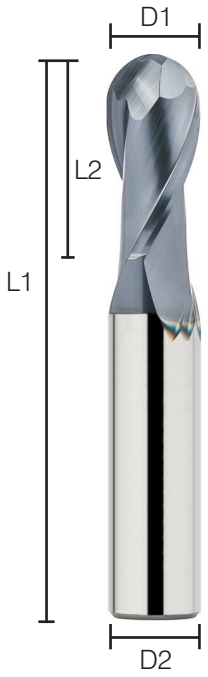
## Square Corner

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | Part # | Coated Part # |
|---|---|---|---|---|---|---|
| mm | 0.5 | 3.0 | 39.0 | 1.5 | 101-005-201 | 101-005-201A |
| | 1.0 | 3.0 | 39.0 | 3.0 | 101-010-201 | 101-010-201A |
| | 1.5 | 3.0 | 39.0 | 4.5 | 101-015-201 | 101-015-201A |
| | 2.0 | 3.0 | 39.0 | 6.0 | 101-020-201 | 101-020-201A |
| | 2.5 | 3.0 | 39.0 | 8.0 | 101-025-201 | 101-025-201A |
| | 3.0 | 3.0 | 39.0 | 10.0 | 101-030-201 | 101-030-201A |
| | 4.0 | 4.0 | 51.0 | 12.0 | 101-040-201 | 101-040-201A |
| | 5.0 | 5.0 | 64.0 | 14.0 | 101-050-201 | 101-050-201A |
| | 6.0 | 6.0 | 64.0 | 16.0 | 101-060-201 | 101-060-201A |
| | 8.0 | 8.0 | 64.0 | 20.0 | 101-080-201 | 101-080-201A |
| | 10.0 | 10.0 | 67.0 | 24.0 | 101-100-201 | 101-100-201A |
| | 12.0 | 12.0 | 74.0 | 26.0 | 101-120-201 | 101-120-201A |
| | 16.0 | 16.0 | 89.0 | 32.0 | 101-160-201 | 101-160-201A |
| | 18.0 | 18.0 | 93.0 | 36.0 | 101-180-201 | 101-180-201A |
| | 20.0 | 20.0 | 100.0 | 38.0 | 101-200-201 | 101-200-201A |
| | 25.0 | 25.0 | 100.0 | 40.0 | 101-250-201 | 101-250-201A |




## Ball Nose

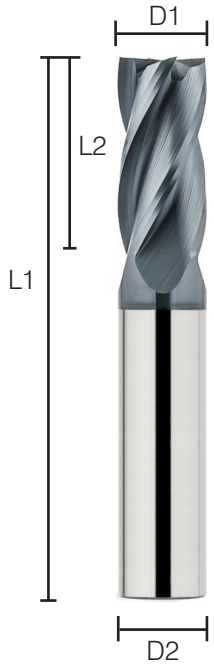
| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | Part # | Coated Part # |
|---|---|---|---|---|---|---|
| mm | 0.5 | 3.0 | 39.0 | 1.5 | 101-005-202 | 101-005-202A |
| | 1.0 | 3.0 | 39.0 | 3.0 | 101-010-202 | 101-010-202A |
| | 1.5 | 3.0 | 39.0 | 4.5 | 101-015-202 | 101-015-202A |
| | 2.0 | 3.0 | 39.0 | 6.0 | 101-020-202 | 101-020-202A |
| | 2.5 | 3.0 | 39.0 | 8.0 | 101-025-202 | 101-025-202A |
| | 3.0 | 3.0 | 39.0 | 10.0 | 101-030-202 | 101-030-202A |
| | 4.0 | 4.0 | 51.0 | 12.0 | 101-040-202 | 101-040-202A |
| | 5.0 | 5.0 | 64.0 | 14.0 | 101-050-202 | 101-050-202A |
| | 6.0 | 6.0 | 64.0 | 16.0 | 101-060-202 | 101-060-202A |
| | 8.0 | 8.0 | 64.0 | 20.0 | 101-080-202 | 101-080-202A |
| | 10.0 | 10.0 | 67.0 | 24.0 | 101-100-202 | 101-100-202A |
| | 12.0 | 12.0 | 74.0 | 26.0 | 101-120-202 | 101-120-202A |
| | 16.0 | 16.0 | 89.0 | 32.0 | 101-160-202 | 101-160-202A |
| | 18.0 | 18.0 | 93.0 | 36.0 | 101-180-202 | 101-180-202A |
| | 20.0 | 20.0 | 100.0 | 38.0 | 101-200-202 | 101-200-202A |
| | 25.0 | 25.0 | 100.0 | 40.0 | 101-250-202 | 101-250-202A |



# Metric - 4 Flute Standard

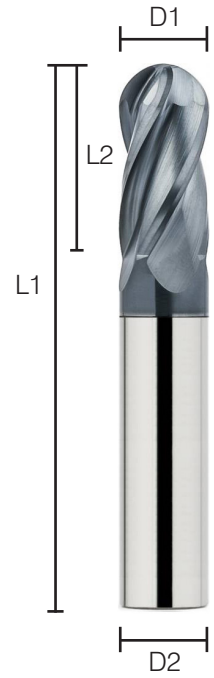
- General purpose Metric 4 flute solid carbide end mill
- Excellent cost to performance ratio
- Standard length of cut
- Available coated and uncoated
- 30° helix geometry
- Center cutting

## Square Corner




| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | Part # | Coated Part # |
|---|---|---|---|---|---|---|
| mm | 0.5 | 3.0 | 39.0 | 1.5 | 101-005-401 | 101-005-401A |
| | 1.0 | 3.0 | 39.0 | 3.0 | 101-010-401 | 101-010-401A |
| | 1.5 | 3.0 | 39.0 | 4.5 | 101-015-401 | 101-015-401A |
| | 2.0 | 3.0 | 39.0 | 6.0 | 101-020-401 | 101-020-401A |
| | 2.5 | 3.0 | 39.0 | 8.0 | 101-025-401 | 101-025-401A |
| | 3.0 | 3.0 | 39.0 | 10.0 | 101-030-401 | 101-030-401A |
| | 4.0 | 4.0 | 51.0 | 12.0 | 101-040-401 | 101-040-401A |
| | 5.0 | 5.0 | 64.0 | 14.0 | 101-050-401 | 101-050-401A |
| | 6.0 | 6.0 | 64.0 | 16.0 | 101-060-401 | 101-060-401A |
| | 8.0 | 8.0 | 64.0 | 20.0 | 101-080-401 | 101-080-401A |
| | 10.0 | 10.0 | 67.0 | 24.0 | 101-100-401 | 101-100-401A |
| | 12.0 | 12.0 | 74.0 | 26.0 | 101-120-401 | 101-120-401A |
| | 16.0 | 16.0 | 89.0 | 32.0 | 101-160-401 | 101-160-401A |
| | 18.0 | 18.0 | 93.0 | 36.0 | 101-180-401 | 101-180-401A |
| | 20.0 | 20.0 | 100.0 | 38.0 | 101-200-401 | 101-200-401A |
| | 25.0 | 25.0 | 100.0 | 40.0 | 101-250-401 | 101-250-401A |

## Ball Nose




| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | Part # | Coated Part # |
|---|---|---|---|---|---|---|
| mm | 0.5 | 3.0 | 39.0 | 1.5 | 101-005-402A | 101-005-402A |
| | 1.0 | 3.0 | 39.0 | 3.0 | 101-010-402 | 101-010-402A |
| | 1.5 | 3.0 | 39.0 | 4.5 | 101-015-402 | 101-015-402A |
| | 2.0 | 3.0 | 39.0 | 6.0 | 101-020-402 | 101-020-402A |
| | 2.5 | 3.0 | 39.0 | 8.0 | 101-025-402 | 101-025-402A |
| | 3.0 | 3.0 | 39.0 | 10.0 | 101-030-402 | 101-030-402A |
| | 4.0 | 4.0 | 51.0 | 12.0 | 101-040-402 | 101-040-402A |
| | 5.0 | 5.0 | 64.0 | 14.0 | 101-050-402 | 101-050-402A |
| | 6.0 | 6.0 | 64.0 | 16.0 | 101-060-402 | 101-060-402A |
| | 8.0 | 8.0 | 64.0 | 20.0 | 101-080-402 | 101-080-402A |
| | 10.0 | 10.0 | 67.0 | 24.0 | 101-100-402 | 101-100-402A |
| | 12.0 | 12.0 | 74.0 | 26.0 | 101-120-402 | 101-120-402A |
| | 16.0 | 16.0 | 89.0 | 32.0 | 101-160-402 | 101-160-402A |
| | 18.0 | 18.0 | 93.0 | 36.0 | 101-180-402 | 101-180-402A |
| | 20.0 | 20.0 | 100.0 | 38.0 | 101-200-402 | 101-200-402A |
| | 25.0 | 25.0 | 100.0 | 40.0 | 101-250-402 | 101-250-402A |

# Metric - 2 Flute Long

- General purpose Metric 2 flute solid carbide end mill
- Excellent cost to performance ratio
- Long length of cut
- Available coated and uncoated
- 30° helix geometry
- Center cutting

## Square Corner

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | Part # | Coated Part # |
|---|---|---|---|---|---|---|
| mm | 1.0 | 3.0 | 39.0 | 4.0 | 102-010-201 | 102-010-201A |
| | 1.5 | 3.0 | 39.0 | 6.0 | 102-015-201 | 102-015-201A |
| | 2.0 | 3.0 | 39.0 | 8.0 | 102-020-201 | 102-020-201A |
| | 2.5 | 3.0 | 51.0 | 10.0 | 102-025-201 | 102-025-201A |
| | 3.0 | 3.0 | 51.0 | 13.0 | 102-030-201 | 102-030-201A |
| | 4.0 | 4.0 | 64.0 | 16.0 | 102-040-201 | 102-040-201A |
| | 5.0 | 5.0 | 76.0 | 20.0 | 102-050-201 | 102-050-201A |
| | 6.0 | 6.0 | 76.0 | 24.0 | 102-060-201 | 102-060-201A |
| | 8.0 | 8.0 | 76.0 | 26.0 | 102-080-201 | 102-080-201A |
| | 10.0 | 10.0 | 76.0 | 30.0 | 102-100-201 | 102-100-201A |
| | 12.0 | 12.0 | 100.0 | 38.0 | 102-120-201 | 102-120-201A |
| | 16.0 | 16.0 | 125.0 | 40.0 | 102-160-201 | 102-160-201A |
| | 18.0 | 18.0 | 125.0 | 46.0 | 102-180-201 | 102-180-201A |
| | 20.0 | 20.0 | 125.0 | 52.0 | 102-200-201 | 102-200-201A |
| | 25.0 | 25.0 | 125.0 | 52.0 | 102-250-201 | 102-250-201A |


## Ball Nose

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | Part # | Coated Part # |
|---|---|---|---|---|---|---|
| mm | 1.0 | 3.0 | 39.0 | 4.0 | 102-010-202 | 102-010-202A |
| | 1.5 | 3.0 | 39.0 | 6.0 | 102-015-202 | 102-015-202A |
| | 2.0 | 3.0 | 39.0 | 8.0 | 102-020-202 | 102-020-202A |
| | 2.5 | 3.0 | 51.0 | 10.0 | 102-025-202 | 102-025-202A |
| | 3.0 | 3.0 | 51.0 | 13.0 | 102-030-202 | 102-030-202A |
| | 4.0 | 4.0 | 64.0 | 16.0 | 102-040-202 | 102-040-202A |
| | 5.0 | 5.0 | 76.0 | 20.0 | 102-050-202 | 102-050-202A |
| | 6.0 | 6.0 | 76.0 | 24.0 | 102-060-202 | 102-060-202A |
| | 8.0 | 8.0 | 76.0 | 26.0 | 102-080-202 | 102-080-202A |
| | 10.0 | 10.0 | 76.0 | 30.0 | 102-100-202 | 102-100-202A |
| | 12.0 | 12.0 | 100.0 | 38.0 | 102-120-202 | 102-120-202A |
| | 16.0 | 16.0 | 125.0 | 40.0 | 102-160-202 | 102-160-202A |
| | 18.0 | 18.0 | 125.0 | 46.0 | 102-180-202 | 102-180-202A |
| | 20.0 | 20.0 | 125.0 | 52.0 | 102-200-202 | 102-200-202A |
| | 25.0 | 25.0 | 125.0 | 52.0 | 102-250-202 | 102-250-202A |

# Metric - 4 Flute Long

- General purpose Metric 4 flute solid carbide end mill
- Excellent cost to performance ratio
- Long length of cut
- Available coated and uncoated
- 30° helix geometry
- Center cutting


## Square Corner

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | Part # | Coated Part # |
|---|---|---|---|---|---|---|
| mm | 1.0 | 3.0 | 39.0 | 4.0 | 102-010-401 | 102-010-401A |
| | 1.5 | 3.0 | 39.0 | 6.0 | 102-015-401 | 102-015-401A |
| | 2.0 | 3.0 | 39.0 | 8.0 | 102-020-401 | 102-020-401A |
| | 2.5 | 3.0 | 51.0 | 10.0 | 102-025-401 | 102-025-401A |
| | 3.0 | 3.0 | 51.0 | 13.0 | 102-030-401 | 102-030-401A |
| | 4.0 | 4.0 | 64.0 | 16.0 | 102-040-401 | 102-040-401A |
| | 5.0 | 5.0 | 76.0 | 20.0 | 102-050-401 | 102-050-401A |
| | 6.0 | 6.0 | 76.0 | 24.0 | 102-060-401 | 102-060-401A |
| | 8.0 | 8.0 | 76.0 | 26.0 | 102-080-401 | 102-080-401A |
| | 10.0 | 10.0 | 76.0 | 30.0 | 102-100-401 | 102-100-401A |
| | 12.0 | 12.0 | 100.0 | 38.0 | 102-120-401 | 102-120-401A |
| | 16.0 | 16.0 | 125.0 | 40.0 | 102-160-401 | 102-160-401A |
| | 18.0 | 18.0 | 125.0 | 46.0 | 102-180-401 | - |
| | 20.0 | 20.0 | 125.0 | 52.0 | 102-200-401 | 102-200-401A |
| | 25.0 | 25.0 | 125.0 | 52.0 | 102-250-401 | 102-250-401A |


## Ball Nose

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | Part # | Coated Part # |
|---|---|---|---|---|---|---|
| mm | 1.0 | 3.0 | 39.0 | 4.0 | 102-010-402 | 102-010-402A |
| | 1.5 | 3.0 | 39.0 | 6.0 | 102-015-402 | 102-015-402A |
| | 2.0 | 3.0 | 39.0 | 8.0 | 102-020-402 | 102-020-402A |
| | 2.5 | 3.0 | 51.0 | 10.0 | 102-025-402 | 102-025-402A |
| | 3.0 | 3.0 | 51.0 | 13.0 | 102-030-402 | 102-030-402A |
| | 4.0 | 4.0 | 64.0 | 16.0 | 102-040-402 | 102-040-402A |
| | 5.0 | 5.0 | 76.0 | 20.0 | 102-050-402 | 102-050-402A |
| | 6.0 | 6.0 | 76.0 | 24.0 | 102-060-402 | 102-060-402A |
| | 8.0 | 8.0 | 76.0 | 26.0 | 102-080-402 | 102-080-402A |
| | 10.0 | 10.0 | 76.0 | 30.0 | 102-100-402 | 102-100-402A |
| | 12.0 | 12.0 | 100.0 | 38.0 | 102-120-402 | 102-120-402A |
| | 16.0 | 16.0 | 125.0 | 40.0 | 102-160-402 | 102-160-402A |
| | 18.0 | 18.0 | 125.0 | 46.0 | 102-180-402 | - |
| | 20.0 | 20.0 | 125.0 | 52.0 | 102-200-402 | 102-200-402A |
| | 25.0 | 25.0 | 125.0 | 52.0 | 102-250-402 | 102-250-402A |

# Metric - 2 Flute X-Long

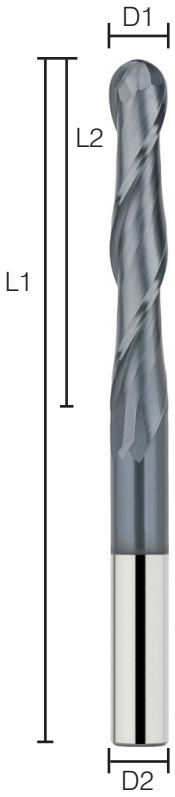
- General purpose Metric 2 flute solid carbide end mill
- Excellent cost to performance ratio
- Extra-Long length of cut
- Available coated and uncoated
- 30° helix geometry
- Center cutting

## Square Corner

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | Part # | Coated Part # |
|---|---|---|---|---|---|---|
| mm | 1.0 | 3.0 | 51.0 | 5.0 | 103-010-201 | 103-010-201A |
| | 1.5 | 3.0 | 51.0 | 7.5 | 103-015-201 | 103-015-201A |
| | 2.0 | 3.0 | 51.0 | 10.0 | 103-020-201 | 103-020-201A |
| | 2.5 | 3.0 | 51.0 | 14.0 | 103-025-201 | 103-025-201A |
| | 3.0 | 3.0 | 64.0 | 20.0 | 103-030-201 | 103-030-201A |
| | 4.0 | 4.0 | 76.0 | 22.0 | 103-040-201 | 103-040-201A |
| | 5.0 | 5.0 | 100.0 | 28.0 | 103-050-201 | 103-050-201A |
| | 6.0 | 6.0 | 100.0 | 32.0 | 103-060-201 | 103-060-201A |
| | 8.0 | 8.0 | 100.0 | 35.0 | 103-080-201 | 103-080-201A |
| | 10.0 | 10.0 | 100.0 | 45.0 | 103-100-201 | 103-100-201A |
| | 12.0 | 12.0 | 150.0 | 60.0 | 103-120-201 | 103-120-201A |
| | 16.0 | 16.0 | 150.0 | 70.0 | 103-160-201 | 103-160-201A |
| | 18.0 | 18.0 | 150.0 | 70.0 | 103-180-201 | 103-180-201A |
| | 20.0 | 20.0 | 150.0 | 75.0 | 103-200-201 | 103-200-201A |
| | 25.0 | 25.0 | 150.0 | 75.0 | 103-250-201 | 103-250-201A |

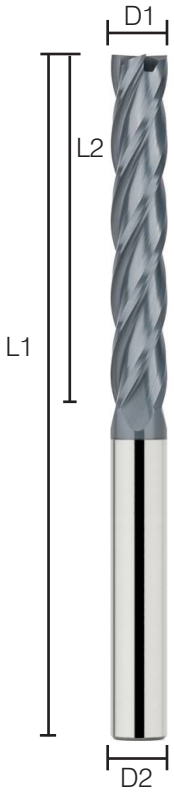

## Ball Nose

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | Part # | Coated Part # |
|---|---|---|---|---|---|---|
| mm | 1.0 | 3.0 | 51.0 | 5.0 | 103-010-202 | 103-010-202A |
| | 1.5 | 3.0 | 51.0 | 7.5 | 103-015-202 | 103-015-202A |
| | 2.0 | 3.0 | 51.0 | 10.0 | 103-020-202 | 103-020-202A |
| | 2.5 | 3.0 | 51.0 | 14.0 | 103-025-202 | 103-025-202A |
| | 3.0 | 3.0 | 64.0 | 20.0 | 103-030-202 | 103-030-202A |
| | 4.0 | 4.0 | 76.0 | 22.0 | 103-040-202 | 103-040-202A |
| | 5.0 | 5.0 | 100.0 | 28.0 | 103-050-202 | 103-050-202A |
| | 6.0 | 6.0 | 100.0 | 32.0 | 103-060-202 | 103-060-202A |
| | 8.0 | 8.0 | 100.0 | 35.0 | 103-080-202 | 103-080-202A |
| | 10.0 | 10.0 | 100.0 | 45.0 | 103-100-202 | 103-100-202A |
| | 12.0 | 12.0 | 150.0 | 60.0 | 103-120-202 | 103-120-202A |
| | 16.0 | 16.0 | 150.0 | 70.0 | 103-160-202 | 103-160-202A |
| | 18.0 | 18.0 | 150.0 | 70.0 | 103-180-202 | 103-180-202A |
| | 20.0 | 20.0 | 150.0 | 75.0 | 103-200-202 | 103-200-202A |
| | 25.0 | 25.0 | 150.0 | 75.0 | 103-250-202 | 103-250-202A |



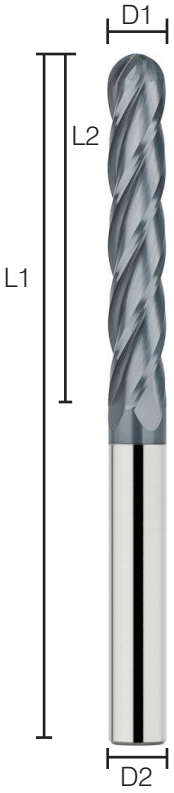
# Metric - 4 Flute X-Long

- General purpose Metric 4 flute solid carbide end mill
- Excellent cost to performance ratio
- Extra-Long length of cut
- Available coated and uncoated
- 30° helix geometry
- Center cutting




## Square Corner

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | Part # | Coated Part # |
|---|---|---|---|---|---|---|
| mm | 1.0 | 3.0 | 51.0 | 5.0 | 103-010-401 | 103-010-401A |
| | 1.5 | 3.0 | 51.0 | 7.5 | 103-015-401 | 103-015-401A |
| | 2.0 | 3.0 | 51.0 | 10.0 | 103-020-401 | 103-020-401A |
| | 2.5 | 3.0 | 51.0 | 14.0 | 103-025-401 | 103-025-401A |
| | 3.0 | 3.0 | 64.0 | 20.0 | 103-030-401 | 103-030-401A |
| | 4.0 | 4.0 | 76.0 | 22.0 | 103-040-401 | 103-040-401A |
| | 5.0 | 5.0 | 100.0 | 28.0 | 103-050-401 | 103-050-401A |
| | 6.0 | 6.0 | 100.0 | 32.0 | 103-060-401 | 103-060-401A |
| | 8.0 | 8.0 | 100.0 | 35.0 | 103-080-401 | 103-080-401A |
| | 10.0 | 10.0 | 100.0 | 45.0 | 103-100-401 | 103-100-401A |
| | 12.0 | 12.0 | 150.0 | 60.0 | 103-120-401 | 103-120-401A |
| | 16.0 | 16.0 | 150.0 | 70.0 | 103-160-401 | 103-160-401A |
| | 18.0 | 18.0 | 150.0 | 70.0 | 103-180-401 | 103-180-401A |
| | 20.0 | 20.0 | 150.0 | 75.0 | 103-200-401 | 103-200-401A |
| | 25.0 | 25.0 | 150.0 | 75.0 | 103-250-401 | 103-250-401A |

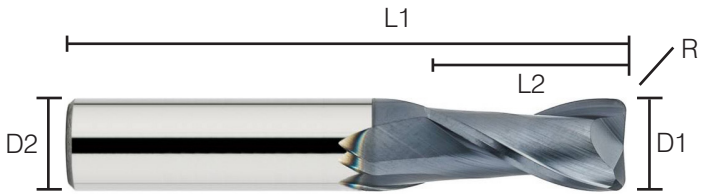



## Ball Nose

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | Part # | Coated Part # |
|---|---|---|---|---|---|---|
| mm | 1.0 | 3.0 | 51.0 | 5.0 | 103-010-402 | 103-010-402A |
| | 1.5 | 3.0 | 51.0 | 7.5 | 103-015-402 | 103-015-402A |
| | 2.0 | 3.0 | 51.0 | 10.0 | 103-020-402 | 103-020-402A |
| | 2.5 | 3.0 | 51.0 | 14.0 | 103-025-402 | 103-025-402A |
| | 3.0 | 3.0 | 64.0 | 20.0 | 103-030-402 | 103-030-402A |
| | 4.0 | 4.0 | 76.0 | 22.0 | 103-040-402 | 103-040-402A |
| | 5.0 | 5.0 | 100.0 | 28.0 | 103-050-402 | 103-050-402A |
| | 6.0 | 6.0 | 100.0 | 32.0 | 103-060-402 | 103-060-402A |
| | 8.0 | 8.0 | 100.0 | 35.0 | 103-080-402 | 103-080-402A |
| | 10.0 | 10.0 | 100.0 | 45.0 | 103-100-402 | 103-100-402A |
| | 12.0 | 12.0 | 150.0 | 60.0 | 103-120-402 | 103-120-402A |
| | 16.0 | 16.0 | 150.0 | 70.0 | 103-160-402 | 103-160-402A |
| | 18.0 | 18.0 | 150.0 | 70.0 | 103-180-402 | 103-180-402A |
| | 20.0 | 20.0 | 150.0 | 75.0 | 103-200-402 | 103-200-402A |
| | 25.0 | 25.0 | 150.0 | 75.0 | 103-250-402 | 103-250-402A |

# Metric - 2 Flute Corner Radius

- General purpose Metric 2 flute solid carbide end mill
- Excellent cost to performance ratio
- Several length of cut options
- Several corner radius options
- Available coated and uncoated
- 30° helix geometry
- Center cutting

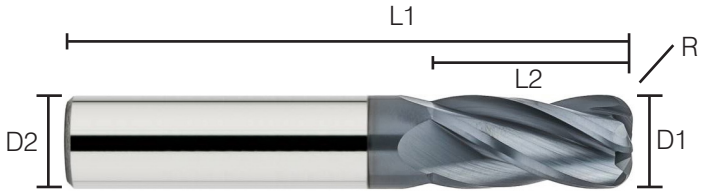



## 2 Flute

| | D1 Dia. | D2 Dia. (h6) | R Radius | L1 OAL | L2 LOC | Part # | Coated Part # |
|---|---|---|---|---|---|---|---|
| mm | 1.0 | 3.0 | 0.2 | 51.0 | 3.0 | 101-010-2R.2 | 101-010-2R.2A |
| | 1.5 | 3.0 | 0.2 | 51.0 | 4.5 | 101-015-2R.2 | 101-015-2R.2A |
| | 2.0 | 3.0 | 0.2 | 51.0 | 6.0 | 101-020-2R.2 | 101-020-2R.2A |
| | 2.5 | 3.0 | 0.2 | 51.0 | 8.0 | 101-025-2R.2 | 101-025-2R.2A |
| | 2.5 | 3.0 | 0.5 | 51.0 | 8.0 | 101-025-2R.5 | 101-025-2R.5A |
| | 3.0 | 3.0 | 0.5 | 51.0 | 10.0 | 101-030-2R.5 | 101-030-2R.5A |
| | 3.0 | 3.0 | 1.0 | 51.0 | 10.0 | 101-030-2R1 | 101-030-2R1A |
| | 4.0 | 4.0 | 0.5 | 51.0 | 12.0 | 101-040-2R.5 | 101-040-2R.5A |
| | 4.0 | 4.0 | 1.0 | 51.0 | 12.0 | 101-040-2R1 | 101-040-2R1A |
| | 5.0 | 5.0 | 0.5 | 64.0 | 14.0 | 101-050-2R.5 | 101-050-2R.5A |
| | 5.0 | 5.0 | 1.0 | 64.0 | 14.0 | 101-050-2R1 | 101-050-2R1A |
| | 6.0 | 6.0 | 0.5 | 64.0 | 16.0 | 101-060-2R.5 | 101-060-2R.5A |
| | 6.0 | 6.0 | 1.0 | 64.0 | 16.0 | 101-060-2R1 | 101-060-2R1A |
| | 6.0 | 6.0 | 1.5 | 64.0 | 16.0 | 101-060-2R1.5 | 101-060-2R1.5A |
| | 8.0 | 8.0 | 0.5 | 64.0 | 20.0 | 101-080-2R.5 | 101-080-2R.5A |
| | 8.0 | 8.0 | 1.0 | 64.0 | 20.0 | 101-080-2R1 | 101-080-2R1A |
| | 8.0 | 8.0 | 1.5 | 64.0 | 20.0 | 101-080-2R1.5 | 101-080-2R1.5A |
| | 8.0 | 8.0 | 2.0 | 64.0 | 20.0 | 101-080-2R2 | 101-080-2R2A |
| | 10.0 | 10.0 | 0.5 | 67.0 | 24.0 | 101-100-2R.5 | 101-100-2R.5A |
| | 10.0 | 10.0 | 1.0 | 67.0 | 24.0 | 101-100-2R1 | 101-100-2R1A |
| | 10.0 | 10.0 | 1.5 | 67.0 | 24.0 | 101-100-2R1.5 | 101-100-2R1.5A |
| | 10.0 | 10.0 | 2.0 | 67.0 | 24.0 | 101-100-2R2 | 101-100-2R2A |
| | 12.0 | 12.0 | 0.5 | 74.0 | 26.0 | 101-120-2R.5 | 101-120-2R.5A |
| | 12.0 | 12.0 | 1.0 | 74.0 | 26.0 | 101-120-2R1 | 101-120-2R1A |
| | 12.0 | 12.0 | 1.5 | 74.0 | 26.0 | 101-120-2R1.5 | 101-120-2R1.5A |
| | 12.0 | 12.0 | 2.0 | 74.0 | 26.0 | 101-120-2R2 | 101-120-2R2A |
| | 12.0 | 12.0 | 3.0 | 74.0 | 26.0 | 101-120-2R3 | 101-120-2R3A |

# Metric - 4 Flute Corner Radius

- General purpose Metric 4 flute solid carbide end mill
- Excellent cost to performance ratio
- Several length of cut options
- Several corner radius options
- Available coated and uncoated
- 30° helix geometry
- Center cutting




## 4 Flute

| | D1 Dia. | D2 Dia. (h6) | R Radius | L1 OAL | L2 LOC | Part # | Coated Part # |
|---|---|---|---|---|---|---|---|
| mm | 1.0 | 3.0 | 0.2 | 51.0 | 3.0 | 101-010-4R.2 | 101-010-4R.2A |
| | 1.5 | 3.0 | 0.2 | 51.0 | 4.5 | 101-015-4R.2 | 101-015-4R.2A |
| | 2.0 | 3.0 | 0.2 | 51.0 | 6.0 | 101-020-4R.2 | 101-020-4R.2A |
| | 2.5 | 3.0 | 0.2 | 51.0 | 8.0 | 101-025-4R.2 | 101-025-4R.2A |
| | 2.5 | 3.0 | 0.5 | 51.0 | 8.0 | 101-025-4R.5 | 101-025-4R.5A |
| | 3.0 | 3.0 | 0.5 | 51.0 | 10.0 | 101-030-4R.5 | 101-030-4R.5A |
| | 3.0 | 3.0 | 1.0 | 51.0 | 10.0 | 101-030-4R1 | 101-030-4R1A |
| | 4.0 | 4.0 | 0.5 | 51.0 | 12.0 | 101-040-4R.5 | 101-040-4R.5A |
| | 4.0 | 4.0 | 1.0 | 51.0 | 12.0 | 101-040-4R1 | 101-040-4R1A |
| | 5.0 | 5.0 | 0.5 | 64.0 | 14.0 | 101-050-4R.5 | 101-050-4R.5A |
| | 5.0 | 5.0 | 1.0 | 64.0 | 14.0 | 101-050-4R1 | 101-050-4R1A |
| | 6.0 | 6.0 | 0.5 | 64.0 | 16.0 | 101-060-4R.5 | 101-060-4R.5A |
| | 6.0 | 6.0 | 1.0 | 64.0 | 16.0 | 101-060-4R1 | 101-060-4R1A |
| | 6.0 | 6.0 | 1.5 | 64.0 | 16.0 | 101-060-4R1.5 | 101-060-4R1.5A |
| | 8.0 | 8.0 | 0.5 | 64.0 | 20.0 | 101-080-4R.5 | 101-080-4R.5A |
| | 8.0 | 8.0 | 1.0 | 64.0 | 20.0 | 101-080-4R1 | 101-080-4R1A |
| | 8.0 | 8.0 | 1.5 | 64.0 | 20.0 | 101-080-4R1.5 | 101-080-4R1.5A |
| | 8.0 | 8.0 | 2.0 | 64.0 | 20.0 | 101-080-4R2 | 101-080-4R2A |
| | 10.0 | 10.0 | 0.5 | 67.0 | 24.0 | 101-100-4R.5 | 101-100-4R.5A |
| | 10.0 | 10.0 | 1.0 | 67.0 | 24.0 | 101-100-4R1 | 101-100-4R1A |
| | 10.0 | 10.0 | 1.5 | 67.0 | 24.0 | 101-100-4R1.5 | 101-100-4R1.5A |
| | 10.0 | 10.0 | 2.0 | 67.0 | 24.0 | 101-100-4R2 | 101-100-4R2A |
| | 12.0 | 12.0 | 0.5 | 74.0 | 26.0 | 101-120-4R.5 | 101-120-4R.5A |
| | 12.0 | 12.0 | 1.0 | 74.0 | 26.0 | 101-120-4R1 | 101-120-4R1A |
| | 12.0 | 12.0 | 1.5 | 74.0 | 26.0 | 101-120-4R1.5 | 101-120-4R1.5A |
| | 12.0 | 12.0 | 2.0 | 74.0 | 26.0 | 101-120-4R2 | 101-120-4R2A |
| | 12.0 | 12.0 | 3.0 | 74.0 | 26.0 | 101-120-4R3 | 101-120-4R3A |

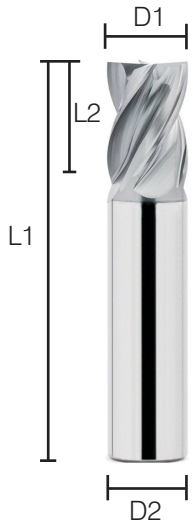
# X-MILL
## VARIABLE HELIX

The **X-Mill** is a high-performance roughing end mill engineered for aggressive machining and exceptional Metal Removal Rates in ferrous workpiece materials. Its innovative variable helix and unequal index geometry create a harmoniously balanced tool, effectively reducing chatter for an excellent machining experience. While its primary role is roughing, the **X-Mill** also excels in finishing applications.

### Key Features:

- Crafted from tough sub micron carbide substrate for enhanced wear resistance
- Variable helix and unequal index geometry combat chatter
- Eccentric relief and edge prep ensure cutting edge strength
- Wear-resistant, tough DuraCoat PVD Coating for extended tool life
- Polished PVD coating enables a free cutting action to unleash higher performance
- ***Weldon flats available upon request***

# X-Mill Variable Helix Stub

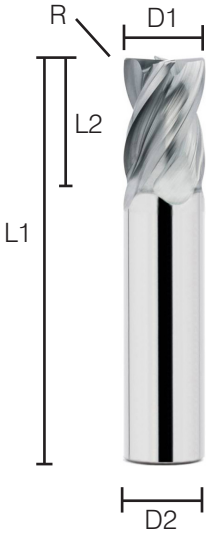


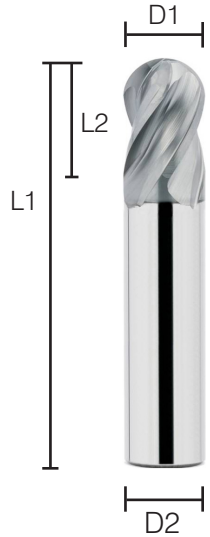

## 4 Flute Square Corner

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | Coated Part # |
|---|---|---|---|---|---|
| in | 1/8 | 1/8 | 1.5 | 0.170 | 600-0125-401X |
| | 3/16 | 3/16 | 2.0 | 0.240 | 600-0187-401X |
| | 1/4 | 1/4 | 2.0 | 0.320 | 600-0250-401X |
| | 5/16 | 5/16 | 2.0 | 0.400 | 600-0312-401X |
| | 3/8 | 3/8 | 2.0 | 0.440 | 600-0375-401X |
| | 1/2 | 1/2 | 2.5 | 0.600 | 600-0500-401X |
| | 5/8 | 5/8 | 3.0 | 0.720 | 600-0625-401X |
| | 3/4 | 3/4 | 4.0 | 0.900 | 600-0750-401X |

## 4 Flute Corner Radius

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | R Radius | Coated Part # |
|---|---|---|---|---|---|---|
| in | 1/8 | 1/8 | 1.5 | 0.170 | 0.008 | 600-0125-4R08X |
| | 3/16 | 3/16 | 2.0 | 0.240 | 0.010 | 600-0187-4R10X |
| | 1/4 | 1/4 | 2.0 | 0.320 | 0.010 | 600-0250-4R10X |
| | 5/16 | 5/16 | 2.0 | 0.400 | 0.015 | 600-0312-4R15X |
| | 3/8 | 3/8 | 2.0 | 0.440 | 0.020 | 600-0375-4R20X |
| | 1/2 | 1/2 | 2.5 | 0.600 | 0.020 | 600-0500-4R20X |
| | 5/8 | 5/8 | 3.0 | 0.720 | 0.025 | 600-0625-4R25X |
| | 3/4 | 3/4 | 4.0 | 0.900 | 0.030 | 600-0750-4R30X |



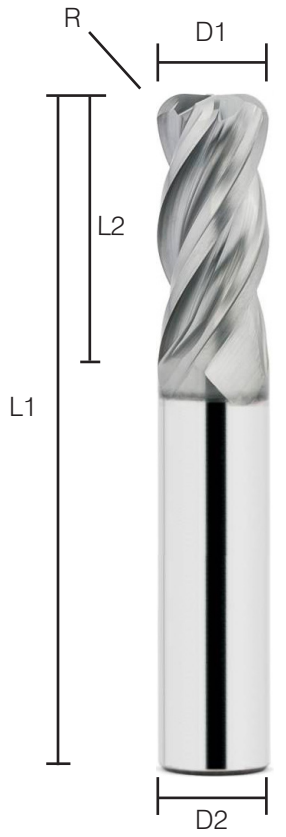

## 4 Flute Ball Nose

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | Coated Part # |
|---|---|---|---|---|---|
| in | 1/8 | 1/8 | 1.5 | 0.170 | 600-0125-402X |
| | 3/16 | 3/16 | 2.0 | 0.240 | 600-0187-402X |
| | 1/4 | 1/4 | 2.0 | 0.320 | 600-0250-402X |
| | 5/16 | 5/16 | 2.0 | 0.400 | 600-0312-402X |
| | 3/8 | 3/8 | 2.0 | 0.440 | 600-0375-402X |
| | 1/2 | 1/2 | 2.5 | 0.600 | 600-0500-402X |
| | 5/8 | 5/8 | 3.0 | 0.720 | 600-0625-402X |
| | 3/4 | 3/4 | 4.0 | 0.900 | 600-0750-402X |

# X-Mill Variable Helix Standard

## 4 Flute Corner Radius

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | R Radius | Coated Part # |
|---|---|---|---|---|---|---|
| in | 1/8 | 1/8 | 1.5 | 0.300 | 0.008 | 601-0125-4R08X |
| | 1/8 | 1/8 | 1.5 | 0.300 | 0.010 | 601-0125-4R10X |
| | 1/8 | 1/8 | 1.5 | 0.300 | 0.030 | 601-0125-4R30X |
| | 3/16 | 3/16 | 2.0 | 0.420 | 0.010 | 601-0187-4R10X |
| | 3/16 | 3/16 | 2.0 | 0.420 | 0.030 | 601-0187-4R30X |
| | 1/4 | 1/4 | 2.5 | 0.570 | 0.010 | 601-0250-4R10X |
| | 1/4 | 1/4 | 2.5 | 0.570 | 0.030 | 601-0250-4R30X |
| | 1/4 | 1/4 | 2.5 | 0.570 | 0.060 | 601-0250-4R60X |
| | 5/16 | 5/16 | 2.5 | 0.700 | 0.015 | 601-0312-4R15X |
| | 3/8 | 3/8 | 2.5 | 0.830 | 0.010 | 601-0375-4R10X |
| | 3/8 | 3/8 | 2.5 | 0.830 | 0.020 | 601-0375-4R20X |
| | 3/8 | 3/8 | 2.5 | 0.830 | 0.030 | 601-0375-4R30X |
| | 1/2 | 1/2 | 3.0 | 1.100 | 0.010 | 601-0500-4R10X |
| | 1/2 | 1/2 | 3.0 | 1.100 | 0.020 | 601-0500-4R20X |
| | 1/2 | 1/2 | 3.0 | 1.100 | 0.030 | 601-0500-4R30X |
| | 1/2 | 1/2 | 3.0 | 1.100 | 0.060 | 601-0500-4R60X |
| | 1/2 | 1/2 | 3.0 | 1.100 | 0.125 | 601-0500-4R125X |
| | 5/8 | 5/8 | 3.5 | 1.360 | 0.025 | 601-0625-4R25X |
| | 3/4 | 3/4 | 4.0 | 1.650 | 0.030 | 601-0750-4R30X |
| | 1 | 1 | 4.0 | 1.650 | 0.030 | 601-1000-4R30X |
| | | | | | | |
| | 1/2 | 1/2 | 4.0 | 1.360 | 0.010 | 602-0500-4R10X |
| | 1/2 | 1/2 | 4.0 | 1.360 | 0.020 | 602-0500-4R20X |
| | 1/2 | 1/2 | 4.0 | 1.360 | 0.030 | 602-0500-4R30X |
| | 1/2 | 1/2 | 4.0 | 1.360 | 0.060 | 602-0500-4R60X |




## 4 Flute Square Corner

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | Coated Part # |
|---|---|---|---|---|---|
| in | 1/8 | 1/8 | 1.5 | 0.300 | 601-0125-401X |
| | 3/16 | 3/16 | 2.0 | 0.420 | 601-0187-401X |
| | 1/4 | 1/4 | 2.5 | 0.570 | 601-0250-401X |
| | 5/16 | 5/16 | 2.5 | 0.700 | 601-0312-401X |
| | 3/8 | 3/8 | 2.5 | 0.830 | 601-0375-401X |
| | 1/2 | 1/2 | 3.0 | 1.100 | 601-0500-401X |
| | 5/8 | 5/8 | 3.5 | 1.360 | 601-0625-401X |
| | 3/4 | 3/4 | 4.0 | 1.650 | 601-0750-401X |
| | 1 | 1 | 4.0 | 1.600 | 601-1000-401X |
| | | | | | |
| mm | 3.0 | 3.0 | 51.0 | 8.0 | 601-030-401X |
| | 6.0 | 6.0 | 64.0 | 15.0 | 601-060-401X |
| | 8.0 | 8.0 | 65.0 | 18.0 | 601-080-401X |
| | 10.0 | 10.0 | 65.0 | 22.0 | 601-100-401X |
| | 12.0 | 12.0 | 80.0 | 25.0 | 601-120-401X |

## 4 Flute Ball Nose

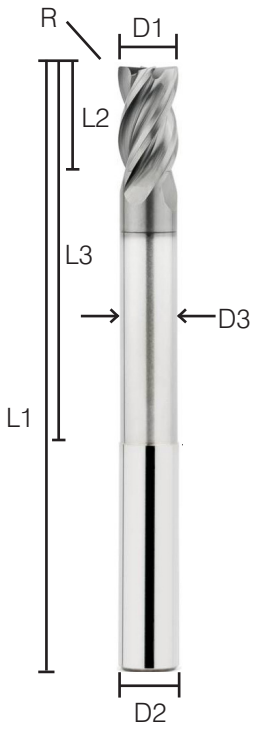
| | D1 Dia. | D2 Dia. (h6) | L2 LOC | No. of Flutes | Coated Part # |
|---|---|---|---|---|---|
| in | 1/8 | 1/8 | 1.5 | 0.300 | 601-0125-402X |
| | 3/16 | 3/16 | 2.0 | 0.420 | 601-0187-402X |
| | 1/4 | 1/4 | 2.5 | 0.570 | 601-0250-402X |
| | 5/16 | 5/16 | 2.5 | 0.700 | 601-0312-402X |
| | 3/8 | 3/8 | 2.5 | 0.830 | 601-0375-402X |
| | 1/2 | 1/2 | 3.0 | 1.100 | 601-0500-402X |
| | 5/8 | 5/8 | 3.5 | 1.360 | 601-0625-402X |
| | 3/4 | 3/4 | 4.0 | 1.650 | 601-0750-402X |
| | 1 | 1 | 4.0 | 1.600 | 601-1000-402X |

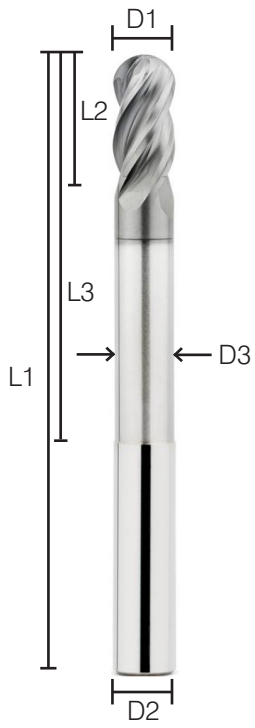
# X-Mill Variable Helix Long Reach

- High performance 4 flute end mill
- Variable helix geometry
- Reduced neck for long reach applications
- Ideal for deep wall and pockets

## 4 Flute Corner Radius

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | D3 Dia. of Neck | L3 LOR | R Radius | Coated Part # |
|---|---|---|---|---|---|---|---|---|
| in | 1/8 | 1/8 | 1.5 | 0.170 | 0.118 | 0.55 | 0.008 | 607-0125-4R08X |
| | 3/16 | 3/16 | 2.5 | 0.240 | 0.180 | 0.82 | 0.010 | 607-0187-4R10X |
| | 1/4 | 1/4 | 3.0 | 0.350 | 0.240 | 0.83 | 0.010 | 606-0250-4R10X |
| | 1/4 | 1/4 | 3.0 | 0.350 | 0.240 | 1.35 | 0.010 | 607-0250-4R10X |
| | 5/16 | 5/16 | 3.0 | 0.430 | 0.300 | 1.10 | 0.015 | 606-0312-4R15X |
| | 5/16 | 5/16 | 4.0 | 0.430 | 0.300 | 1.60 | 0.015 | 607-0312-4R15X |
| | 3/8 | 3/8 | 3.0 | 0.550 | 0.360 | 1.60 | 0.020 | 606-0375-4R20X |
| | 3/8 | 3/8 | 4.0 | 0.550 | 0.360 | 2.10 | 0.020 | 607-0375-4R20X |
| | 1/2 | 1/2 | 4.0 | 0.850 | 0.480 | 2.10 | 0.010 | 607-0500-4R10X |
| | 1/2 | 1/2 | 4.0 | 0.850 | 0.480 | 2.10 | 0.020 | 607-0500-4R20X |
| | 1/2 | 1/2 | 4.0 | 0.850 | 0.480 | 2.10 | 0.030 | 607-0500-4R30X |
| | 1/2 | 1/2 | 4.0 | 0.850 | 0.480 | 2.10 | 0.060 | 607-0500-4R60X |
| | 1/2 | 1/2 | 5.0 | 0.850 | 0.480 | 3.10 | 0.020 | 608-0500-4R20X |
| | 5/8 | 5/8 | 4.0 | 0.900 | 0.600 | 2.15 | 0.025 | 606-0625-4R25X |
| | 5/8 | 5/8 | 6.0 | 0.900 | 0.600 | 3.10 | 0.025 | 607-0625-4R25X |
| | 3/4 | 3/4 | 5.0 | 1.150 | 0.720 | 2.15 | 0.030 | 607-0750-4R30X |
| | 3/4 | 3/4 | 6.0 | 1.150 | 0.720 | 3.15 | 0.030 | 608-0750-4R30X |
| | 1 | 1 | 5.0 | 1.300 | 0.960 | 3.10 | 0.030 | 607-1000-4R30X |
| | 1 | 1 | 6.0 | 1.300 | 0.960 | 4.10 | 0.030 | 608-1000-4R30X |




## 4 Flute Ball Nose

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | D3 Dia. of Neck | L3 LOR | Coated Part # |
|---|---|---|---|---|---|---|---|
| in | 1/8 | 1/8 | 1.5 | 0.170 | 0.118 | 0.55 | 607-0125-402X |
| | 3/16 | 3/16 | 2.5 | 0.240 | 0.180 | 0.82 | 607-0187-402X |
| | 1/4 | 1/4 | 3.0 | 0.350 | 0.240 | 0.83 | 606-0250-402X |
| | 1/4 | 1/4 | 3.0 | 0.350 | 0.240 | 1.35 | 607-0250-402X |
| | 5/16 | 5/16 | 3.0 | 0.430 | 0.300 | 1.10 | 606-0312-402X |
| | 5/16 | 5/16 | 4.0 | 0.430 | 0.300 | 1.60 | 607-0312-402X |
| | 3/8 | 3/8 | 3.0 | 0.550 | 0.360 | 1.60 | 606-0375-402X |
| | 3/8 | 3/8 | 4.0 | 0.550 | 0.360 | 2.10 | 607-0375-402X |
| | 1/2 | 1/2 | 4.0 | 0.850 | 0.480 | 2.10 | 607-0500-402X |
| | 1/2 | 1/2 | 5.0 | 0.850 | 0.480 | 3.10 | 608-0500-402X |
| | 5/8 | 5/8 | 4.0 | 0.900 | 0.600 | 2.15 | 606-0625-402X |
| | 5/8 | 5/8 | 6.0 | 0.900 | 0.600 | 3.10 | 607-0625-402X |
| | 3/4 | 3/4 | 5.0 | 1.150 | 0.720 | 2.15 | 607-0750-402X |
| | 3/4 | 3/4 | 6.0 | 1.150 | 0.720 | 3.15 | 608-0750-402X |
| | 1 | 1 | 5.0 | 1.300 | 0.960 | 3.10 | 607-1000-402X |
| | 1 | 1 | 6.0 | 1.300 | 0.960 | 4.10 | 608-1000-402X |

# T-MILL

The **T-Mill** is the ultimate solution for high productivity machining of difficult-to-machine, shearable workpiece materials such as Stainless Steels and Titanium, as well as Nickel-Based Superalloys. Designed with precision and innovation, the T-Mill is available in 4, 5, and 6 flute configurations to meet your specific machining needs.

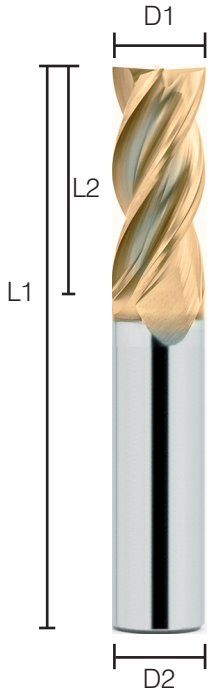
**Key Features:**

- Submicron Grade of Carbide for exceptional wear resistance and durability
- High Helix Angle and Unequally Indexed Flutes facilitates efficient and reliable machining.
- Eccentric Relief Grind and Edge Prep enhances cutting edge strength, promoting stability and performance
- Nanocomposite ArmourCoat PVD Coating maximizes tool life and provides optimum performance
- Polished PVD Coating enhances chip evacuation for higher performance and productivity

# T-Mill 4 Flute

The **4 Flute Rougher T-Mill** is designed for traditional roughing where heavy cuts and slotting are necessary.

- High performance 4 flute end mill
- Variable helix geometry
- For stainless steels, titanium and nickel alloy
- Ideal for roughing

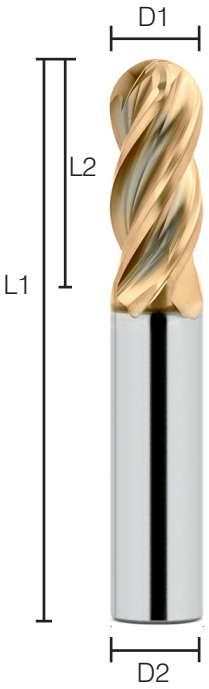


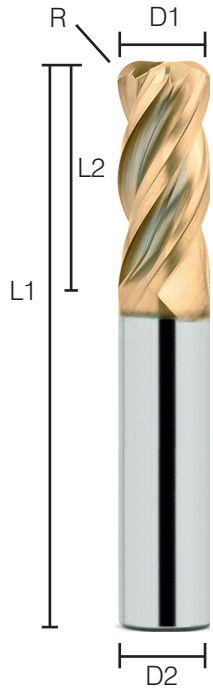

## Square Corner

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | Part # |
|---|---|---|---|---|---|
| in | 1/8 | 1/8 | 2.0 | 0.300 | 611-0125-401 |
| | 3/16 | 3/16 | 2.0 | 0.420 | 611-0187-401 |
| | 1/4 | 1/4 | 2.5 | 0.570 | 611-0250-401 |
| | 5/16 | 5/16 | 2.5 | 0.700 | 611-0312-401 |
| | 3/8 | 3/8 | 2.5 | 0.830 | 611-0375-401 |
| | 1/2 | 1/2 | 3.0 | 1.100 | 611-0500-401 |
| | 5/8 | 5/8 | 3.5 | 1.360 | 611-0625-401 |
| | 3/4 | 3/4 | 4.0 | 1.650 | 611-0750-401 |
| | 1 | 1 | 4.0 | 1.650 | 611-1000-401 |

## Ball Nose

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | Part # |
|---|---|---|---|---|---|
| in | 1/8 | 1/8 | 2.0 | 0.300 | 611-0125-402 |
| | 3/16 | 3/16 | 2.0 | 0.420 | 611-0187-402 |
| | 1/4 | 1/4 | 2.5 | 0.570 | 611-0250-402 |
| | 5/16 | 5/16 | 2.5 | 0.700 | 611-0312-402 |
| | 3/8 | 3/8 | 2.5 | 0.830 | 611-0375-402 |
| | 1/2 | 1/2 | 3.0 | 1.100 | 611-0500-402 |
| | 5/8 | 5/8 | 3.5 | 1.360 | 611-0625-402 |
| | 3/4 | 3/4 | 4.0 | 1.650 | 611-0750-402 |
| | 1 | 1 | 4.0 | 1.650 | 611-1000-402 |




## Corner Radius

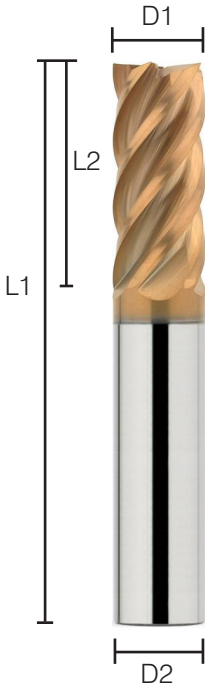
| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | R Radius | Part # |
|---|---|---|---|---|---|---|
| in | 1/8 | 1/8 | 2.0 | 0.300 | 0.008 | 611-0125-4R08 |
| | 3/16 | 3/16 | 2.0 | 0.420 | 0.008 | 611-0187-4R08 |
| | 1/4 | 1/4 | 2.5 | 0.570 | 0.010 | 611-0250-4R10 |
| | 5/16 | 5/16 | 2.5 | 0.700 | 0.015 | 611-0312-4R15 |
| | 3/8 | 3/8 | 2.5 | 0.830 | 0.020 | 611-0375-4R20 |
| | 1/2 | 1/2 | 3.0 | 1.100 | 0.020 | 611-0500-4R20 |
| | 5/8 | 5/8 | 3.5 | 1.360 | 0.025 | 611-0625-4R25 |
| | 3/4 | 3/4 | 4.0 | 1.650 | 0.030 | 611-0750-4R30 |
| | 1 | 1 | 4.0 | 1.650 | 0.030 | 611-1000-4R30 |

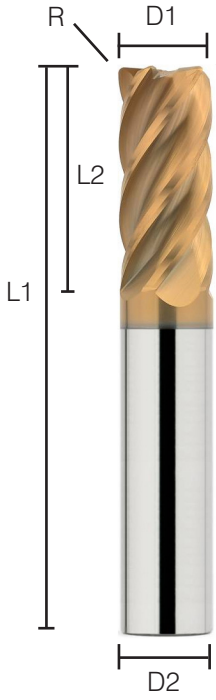
The **5 Flute T-Mill** is ideal for both roughing and finishing applications. The large core size provides increased rigidity to take advantage of efficient roughing tool paths such as trochoidal milling and also provides excellent results in finishing applications.

- High performance 5 flute end mill
- Variable helix geometry
- For stainless steels, titanium and nickel alloy
- Ideal for dynamic roughing and finishing
- Flat bottom and corner radius options

## Square Corner

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | Part # |
|---|---|---|---|---|---|
| in | 1/8 | 1/8 | 2.0 | 0.300 | 611-0125-501 |
| | 3/16 | 3/16 | 2.0 | 0.420 | 611-0187-501 |
| | 1/4 | 1/4 | 2.5 | 0.570 | 611-0250-501 |
| | 5/16 | 5/16 | 2.5 | 0.700 | 611-0312-501 |
| | 3/8 | 3/8 | 2.5 | 0.830 | 611-0375-501 |
| | 1/2 | 1/2 | 3.0 | 1.100 | 611-0500-501 |
| | 5/8 | 5/8 | 3.5 | 1.360 | 611-0625-501 |
| | 3/4 | 3/4 | 4.0 | 1.650 | 611-0750-501 |
| | 1 | 1 | 4.0 | 1.650 | 611-1000-501 |



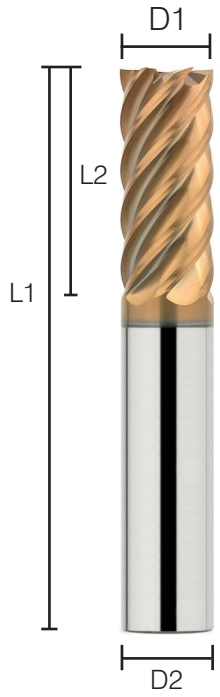

## Corner Radius

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | R Radius | Part # |
|---|---|---|---|---|---|---|
| in | 1/8 | 1/8 | 2.0 | 0.30 | 0.010 | 611-0125-5R10 |
| | 3/16 | 3/16 | 2.0 | 0.42 | 0.010 | 611-0187-5R10 |
| | 1/4 | 1/4 | 2.5 | 0.57 | 0.020 | 611-0250-5R20 |
| | 5/16 | 5/16 | 2.5 | 0.70 | 0.020 | 611-0312-5R20 |
| | 3/8 | 3/8 | 2.5 | 0.83 | 0.030 | 611-0375-5R30 |
| | 1/2 | 1/2 | 3.0 | 0.10 | 0.030 | 611-0500-5R20 |
| | 1/2 | 1/2 | 3.0 | 0.10 | 0.030 | 611-0500-5R30 |
| | 5/8 | 5/8 | 3.5 | 1.36 | 0.030 | 611-0625-5R30 |
| | 3/4 | 3/4 | 4.0 | 1.65 | 0.030 | 611-0750-5R30 |
| | 1 | 1 | 4.0 | 1.65 | 0.030 | 611-1000-5R30 |

# T-Mill 6 Flute

The **6 Flute T-Mill** is designed primarily for finishing applications where surface finish is the primary concern. It also performs well in trochoidal milling applications.

- High performance 6 flute end mill
- Variable helix geometry
- For stainless steels, titanium and nickel alloy
- Ideal for dynamic roughing and finishing
- Flat bottom and corner radius options

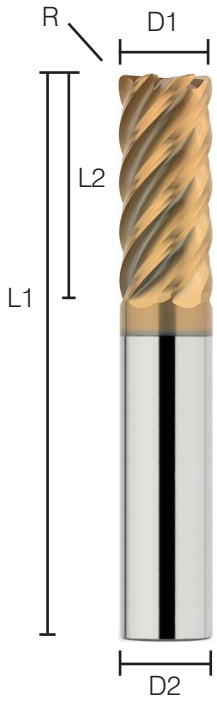



## Square Corner

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | Part # |
|---|---|---|---|---|---|
| in | 1/8 | 1/8 | 2.0 | 0.550 | 611-0125-601 |
| | 3/16 | 3/16 | 2.0 | 0.650 | 611-0187-601 |
| | 1/4 | 1/4 | 2.5 | 0.800 | 611-0250-601 |
| | 5/16 | 5/16 | 2.5 | 0.820 | 611-0312-601 |
| | 3/8 | 3/8 | 2.5 | 0.830 | 611-0375-601 |
| | 1/2 | 1/2 | 3.0 | 1.100 | 611-0500-601 |
| | 5/8 | 5/8 | 3.5 | 1.360 | 611-0625-601 |
| | 3/4 | 3/4 | 4.0 | 1.650 | 611-0750-601 |
| | 1 | 1 | 4.0 | 1.650 | 611-1000-601 |

## Corner Radius

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | R Radius | Part # |
|---|---|---|---|---|---|---|
| in | 1/8 | 1/8 | 2.0 | 0.550 | 0.010 | 611-0125-6R10 |
| | 3/16 | 3/16 | 2.0 | 0.650 | 0.010 | 611-0187-6R10 |
| | 1/4 | 1/4 | 2.5 | 0.800 | 0.020 | 611-0250-6R20 |
| | 5/16 | 5/16 | 2.5 | 0.820 | 0.020 | 611-0312-6R20 |
| | 3/8 | 3/8 | 2.5 | 0.830 | 0.030 | 611-0375-6R30 |
| | 1/2 | 1/2 | 3.0 | 1.100 | 0.030 | 611-0500-6R30 |
| | 5/8 | 5/8 | 3.5 | 1.360 | 0.030 | 611-0625-6R30 |
| | 3/4 | 3/4 | 4.0 | 1.650 | 0.030 | 611-0750-6R30 |
| | 1 | 1 | 4.0 | 1.650 | 0.030 | 611-1000-6R30 |



# XM

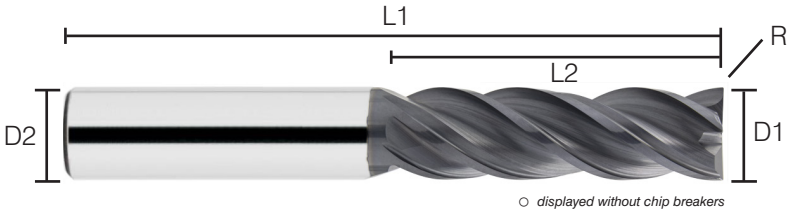
The **XM** line of tools are specifically engineered for highly efficient machining of ISO P workpiece materials. With an unequal index and variable helix design, these tools provide a chatter-free machining experience, especially when employing large Axial and Radial Depth of Cut. **XM** tools are available in 4 and 5 flute configurations, offering a wide range of options to suit your machining needs. With extensive Length of Cut and corner radius choices, as well as chip breakers, these tools provide exceptional flexibility and performance.

**Key Features:**

- Crafted from tough sub-micron carbide substrate for exceptional wear resistance
- Variable helix and unequal index geometry effectively combat chatter
- Eccentric relief and edge preparation reinforce cutting edge strength
- Wear-resistant, tough DuraCoat PVD Coating extends the tool's lifespan, ensuring reliability
- Polished PVD coating facilitates a free cutting action, enabling heightened performance
- Optional chip breakers for enhanced chip evacuation and easy chip management
- ***Weldon flats available upon request***

# XM 4 Flute

The **4 flute XM-4** is designed for ultra heavy roughing applications. It's ideally suited for roughing with a large radial engagement, full slotting up to 2xD, and ramping up to 45 degrees. While primarily designed for roughing, the **XM4** is well suited for finishing applications as well. The unique geometry provides excellent tool stability for incredibly aggressive machining.




○ *displayed without chip breakers*

## Available Configurations

| | D1 Dia. | D2 Dia. (h6) | L1 LOC | L2 OAL | SQ | R 0.005 | R 0.010 | R 0.015 | R 0.020 | R 0.030 | R 0.040 | R 0.060 | R 0.090 | R 0.125 | R 0.190 | R 0.250 | BN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| in | 1/8 | 1/4 | 0.200 | 3.0 | ○ | ○ | ○ | | ○ | ○ | | | | | | | ○ |
| | 1/8 | 1/8 | 0.250 | 2.0 | ○ | ○ | ○ | ○ | ○ | ○ | | | | | | | ○ |
| | 1/8 | 1/8 | 0.375 | 2.0 | ● | ● | ● | | ● | ● | | | | | | | ○ |
| | 1/8 | 1/8 | 0.500 | 2.0 | ● | ● | ● | ● | ● | ● | | | | | | | ○ |
| | 1/8 | 1/8 | 0.750 | 2.5 | ● | ● | ● | | ● | ● | | | | | | | ○ |
| | | | | | | | | | | | | | | | | | |
| | 3/16 | 5/16 | 0.320 | 3.0 | ○ | ○ | ○ | | ○ | ○ | | | | | | | ○ |
| | 3/16 | 3/16 | 0.375 | 2.0 | ○ | ● | ○ | | ○ | ○ | | | | | | | ○ |
| | 3/16 | 3/16 | 0.562 | 2.5 | ● | ● | ● | | ● | ● | | | | | | | ○ |
| | 3/16 | 3/16 | 0.750 | 2.5 | ● | ● | ● | | ● | ● | | | | | | | ○ |
| | 3/16 | 3/16 | 1.000 | 3.0 | ● | ● | ● | | ● | ● | | | | | | | ○ |
| | | | | | | | | | | | | | | | | | |
| | 1/4 | 1/4 | 0.440 | 4.0 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | | | | ○ |
| | 1/4 | 1/4 | 0.500 | 2.5 | ● | | ● | | ● | ● | ● | ● | | | | | ○ |
| | 1/4 | 1/4 | 0.750 | 2.5 | ● | ● | ● | ● | ● | ● | ● | ● | | | | | ○ |
| | 1/4 | 1/4 | 1.000 | 3.0 | ● | ● | ● | | ● | ● | ● | ● | | | | | ○ |
| | 1/4 | 1/4 | 1.250 | 3.0 | ● | ● | ● | ● | ● | ● | ● | ● | | | | | ○ |
| | | | | | | | | | | | | | | | | | |
| | 5/16 | 5/16 | 0.500 | 2.0 | ○ | | | | ● | ○ | | ○ | | | | | ○ |
| | 5/16 | 5/16 | 0.750 | 2.5 | ○ | | | | ○ | ○ | | ○ | | | | | ○ |
| | 5/16 | 5/16 | 1.000 | 3.0 | ● | | | | ● | ● | | ● | | | | | ○ |
| | | | | | | | | | | | | | | | | | |
| | 3/8 | 3/8 | 0.500 | 2.0 | ○ | | ○ | | ○ | ○ | | ○ | ○ | | | | ○ |
| | 3/8 | 3/8 | 0.625 | 6.0 | ○ | | ○ | | ○ | ○ | | ○ | ○ | | | | ○ |
| | 3/8 | 3/8 | 0.750 | 2.5 | ● | | ● | | ● | ● | ● | ● | ● | | | | ● |
| | 3/8 | 3/8 | 1.000 | 3.0 | ● | | ● | | ● | ● | ○ | ● | ● | | | | ● |
| | 3/8 | 3/8 | 1.250 | 3.0 | ● | | ● | | ● | ● | | ● | ● | | | | ● |
| | 3/8 | 3/8 | 1.550 | 3.5 | ● | | ● | | ● | ● | | ● | ● | | | | |
| | 3/8 | 3/8 | 2.000 | 4.0 | ● | | | | ● | ● | | ● | | | | | |

| | |
|---|---|
| ● | Available with or without chip breakers |
| ○ | Only available without chip breakers |
| ≡ | Only available with chip breakers |

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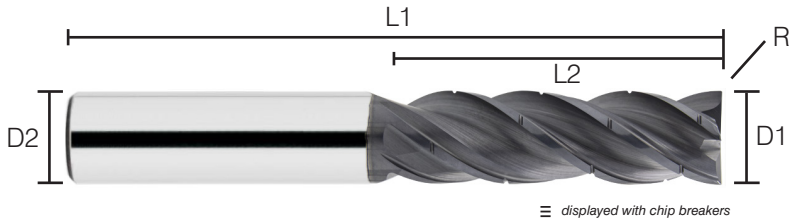


≡ *displayed with chip breakers*

| | D1 Dia. | D2 Dia. (h6) | L1 LOC | L2 OAL | SQ | R 0.005 | R 0.010 | R 0.015 | R 0.020 | R 0.030 | R 0.040 | R 0.060 | R 0.090 | R 0.125 | R 0.190 | R 0.250 | BN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| in | 1/2 | 1/2 | 0.630 | 2.5 | ○ | | ○ | | ○ | ○ | | ○ | ○ | ○ | | | ○ |
| | 1/2 | 1/2 | 0.750 | 6.0 | ○ | | ○ | | ○ | ○ | | ○ | ○ | ○ | | | ○ |
| | 1/2 | 1/2 | 1.000 | 3.0 | ● | | ● | | ● | ● | ● | ● | ○ | ○ | | | ○ |
| | 1/2 | 1/2 | 1.250 | 3.0 | ● | | ● | | ○ | ● | ● | ● | ○ | ○ | | | ○ |
| | 1/2 | 1/2 | 1.250 | 4.0 | ● | | ● | | | ● | | ● | | | | | ● |
| | 1/2 | 1/2 | 1.630 | 3.5 | ● | | ● | | ● | ● | | ● | ● | ● | | | ● |
| | 1/2 | 1/2 | 2.130 | 4.0 | ● | | ● | | ● | ● | | ● | ● | ● | | | ○ |
| | 1/2 | 1/2 | 2.630 | 5.0 | ● | | | | | ● | | ● | | | | | ○ |
| | 1/2 | 1/2 | 3.130 | 6.0 | ● | | | | | ● | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | 5/8 | 5/8 | 0.750 | 3.0 | ○ | | | | | ○ | | ○ | | ○ | | | ○ |
| | 5/8 | 5/8 | 0.750 | 6.0 | ○ | | | | | ○ | | | | | | | ○ |
| | 5/8 | 5/8 | 1.250 | 3.5 | ○ | | ○ | | | ○ | | ○ | ○ | ○ | | | ○ |
| | 5/8 | 5/8 | 1.750 | 4.0 | ● | | ● | | | ● | | ● | ○ | ● | | | ○ |
| | 5/8 | 5/8 | 2.250 | 5.0 | ● | | | | | ● | | ● | | ● | | | ○ |
| | 5/8 | 5/8 | 2.750 | 5.0 | ● | | | | | ● | | ● | | ● | | | ○ |
| | 5/8 | 5/8 | 3.250 | 6.0 | ● | | | | | ● | | ● | | ● | | | ○ |
| | | | | | | | | | | | | | | | | | |
| | 3/4 | 3/4 | 0.880 | 3.0 | ○ | | ○ | | | ○ | | ○ | | ○ | | | |
| | 3/4 | 3/4 | 1.000 | 6.0 | ○ | | | | | ○ | | ○ | ○ | ○ | ○ | ○ | ○ |
| | 3/4 | 3/4 | 1.250 | 4.0 | ○ | | ○ | | | ○ | | ○ | | ○ | | ○ | ○ |
| | 3/4 | 3/4 | 1.750 | 4.0 | ● | | ○ | | | ● | | ● | | ○ | | ○ | ○ |
| | 3/4 | 3/4 | 2.250 | 5.0 | ● | | ○ | | | ● | | ● | | ● | | ○ | ○ |
| | 3/4 | 3/4 | 2.750 | 5.0 | ● | | ○ | | | ● | | ● | | ● | | ○ | ○ |
| | 3/4 | 3/4 | 3.250 | 6.0 | ● | | | | | ● | | ○ | | ○ | | ○ | ○ |
| | 3/4 | 3/4 | 4.250 | 7.0 | ● | | | | | ● | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | 1 | 1 | 1.250 | 6.0 | ○ | | | | | ○ | | ○ | ○ | ○ | ○ | ○ | ○ |
| | 1 | 1 | 1.750 | 4.0 | ● | | | | | ● | | ○ | ○ | ○ | ○ | ○ | ○ |
| | 1 | 1 | 2.250 | 5.0 | ● | | | | | ● | | ○ | ○ | ○ | ○ | ○ | ○ |
| | 1 | 1 | 2.750 | 5.0 | ● | | | | | ● | | ○ | ○ | ○ | ○ | ○ | ○ |
| | 1 | 1 | 3.250 | 6.0 | ● | | | | | ● | | ○ | ○ | ○ | ○ | ○ | ○ |
| | 1 | 1 | 4.250 | 7.0 | ● | | | | | ● | | ● | | | | | ○ |

| | |
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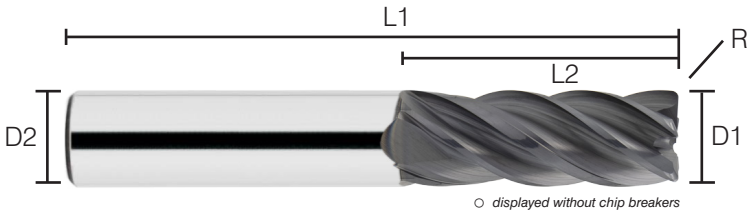
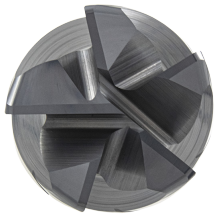
# XM 5 Flute

The **5 flute XM-5** is a true hybrid tool designed for maximum productivity in heavy roughing, slotting up to 2xD, dynamic milling and finishing applications. The unique geometry provides excellent tool stability for lightning fast, chatterless machining.




○ *displayed without chip breakers*



## Available Configurations

| | D1 Dia. | D2 Dia. (h6) | L1 LOC | L2 OAL | SQ | R 0.005 | R 0.010 | R 0.015 | R 0.020 | R 0.030 | R 0.040 | R 0.060 | R 0.090 | R 0.125 | R 0.190 | R 0.250 | BN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| in | 1/8 | 1/4 | 0.200 | 3.0 | ○ | ○ | ○ | | ○ | ○ | | | | | | | |
| | 1/8 | 1/8 | 0.250 | 2.0 | ○ | ○ | ○ | ○ | ○ | ○ | | | | | | | |
| | 1/8 | 1/8 | 0.375 | 2.0 | ● | ● | ● | | ● | ● | | | | | | | |
| | 1/8 | 1/8 | 0.500 | 2.0 | ● | ● | ● | ● | ● | ● | | | | | | | |
| | 1/8 | 1/8 | 0.750 | 2.5 | ● | ● | ● | | ● | ● | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | 3/16 | 5/16 | 0.320 | 3.0 | ○ | ○ | ○ | | ○ | ○ | | | | | | | |
| | 3/16 | 3/16 | 0.375 | 2.0 | ○ | ○ | ○ | | ○ | ○ | | | | | | | |
| | 3/16 | 3/16 | 0.562 | 2.5 | ● | ● | ● | | ● | ● | | | | | | | |
| | 3/16 | 3/16 | 0.750 | 2.5 | ● | ● | ● | | ● | ● | | | | | | | |
| | 3/16 | 3/16 | 1.000 | 3.0 | ● | ● | ● | | ● | ● | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | 1/4 | 1/4 | 0.440 | 4.0 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | | | | |
| | 1/4 | 1/4 | 0.500 | 2.5 | ● | | ● | | ● | ● | ● | ● | | | | | |
| | 1/4 | 1/4 | 0.750 | 2.5 | ● | ● | ● | ● | ● | ● | ● | ● | | | | | |
| | 1/4 | 1/4 | 1.000 | 3.0 | ● | ● | ● | | ● | ● | ● | ● | | | | | |
| | 1/4 | 1/4 | 1.250 | 3.0 | ● | ● | ● | ● | ● | ● | ● | ● | | | | | |
| | | | | | | | | | | | | | | | | | |
| | 5/16 | 5/16 | 0.500 | 2.0 | ○ | | | | ○ | ○ | | ○ | | | | | |
| | 5/16 | 5/16 | 0.750 | 2.5 | ○ | | | | ○ | ○ | | ○ | | | | | |
| | 5/16 | 5/16 | 1.000 | 3.0 | ● | | | | ● | ● | | ● | | | | | |
| | | | | | | | | | | | | | | | | | |
| | 3/8 | 3/8 | 0.500 | 2.0 | ○ | | ○ | | ○ | ○ | | ○ | ○ | | | | |
| | 3/8 | 3/8 | 0.625 | 6.0 | ○ | | ○ | | ○ | ○ | | ○ | ○ | | | | |
| | 3/8 | 3/8 | 0.750 | 2.5 | ● | | ● | | ● | ● | ● | ● | ● | | | | |
| | 3/8 | 3/8 | 1.000 | 3.0 | ● | | ● | | ● | ● | ● | ● | ● | | | | |
| | 3/8 | 3/8 | 1.250 | 3.0 | ● | | ● | | ● | ● | | ● | ● | | | | |
| | 3/8 | 3/8 | 1.550 | 3.5 | ● | | ● | | ● | ● | | ● | ● | | | | |
| | 3/8 | 3/8 | 2.000 | 4.0 | ● | | | | ● | ● | | ● | | | | | |

| | |
|---|---|
| ● | Available with or without chip breakers |
| ○ | Only available without chip breakers |
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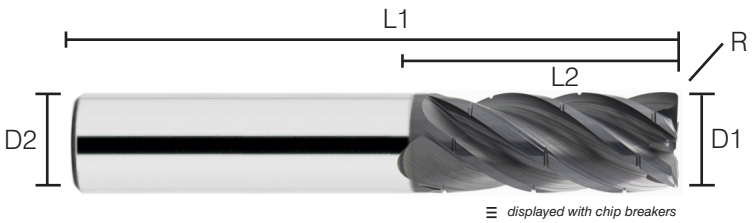
Metric tool sizes also available




≡ *displayed with chip breakers*

| | D1 Dia. | D2 Dia. (h6) | L1 LOC | L2 OAL | SQ | R 0.005 | R 0.010 | R 0.015 | R 0.020 | R 0.030 | R 0.040 | R 0.060 | R 0.090 | R 0.125 | R 0.190 | R 0.250 | BN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| in | 1/2 | 1/2 | 0.630 | 2.5 | ○ | | ○ | | ○ | ○ | | ○ | ○ | ○ | | | |
| | 1/2 | 1/2 | 0.750 | 6.0 | ○ | | ○ | | ○ | ○ | | ○ | | ○ | | | |
| | 1/2 | 1/2 | 1.000 | 3.0 | ● | | ● | | ● | ● | ● | ● | ● | ● | | | |
| | 1/2 | 1/2 | 1.250 | 3.0 | ● | | ● | | ● | ● | ● | ● | ● | ● | | | |
| | 1/2 | 1/2 | 1.250 | 4.0 | ● | | ● | | | ● | | ● | | | | | |
| | 1/2 | 1/2 | 1.630 | 3.5 | ● | | ● | | ● | ● | | ● | | ● | | | |
| | 1/2 | 1/2 | 2.130 | 4.0 | ● | | ● | | ● | ● | | ● | ● | ● | | | |
| | 1/2 | 1/2 | 2.630 | 5.0 | ● | | ● | | | ● | | ● | | | | | |
| | 1/2 | 1/2 | 3.130 | 6.0 | ● | | | | | ● | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | 5/8 | 5/8 | 0.750 | 3.0 | ○ | | | | | ○ | | ○ | | ○ | | | |
| | 5/8 | 5/8 | 0.750 | 6.0 | ○ | | | | | ○ | | | | | | | |
| | 5/8 | 5/8 | 1.250 | 3.5 | ○ | | ○ | | | ○ | | ○ | ○ | ○ | | | |
| | 5/8 | 5/8 | 1.750 | 4.0 | ● | | ● | | | ● | | ● | | ● | | | |
| | 5/8 | 5/8 | 2.250 | 5.0 | ● | | | | | ● | | ● | | ● | | | |
| | 5/8 | 5/8 | 2.750 | 5.0 | ● | | | | | ● | | ● | | ● | | | |
| | 5/8 | 5/8 | 3.250 | 6.0 | ● | | | | | ● | | ● | | ● | | | |
| | | | | | | | | | | | | | | | | | |
| | 3/4 | 3/4 | 1.000 | 6.0 | ○ | | | | | ○ | | ○ | | ○ | | ○ | |
| | 3/4 | 3/4 | 1.250 | 4.0 | ○ | | | | | ○ | | ○ | | ○ | | ○ | |
| | 3/4 | 3/4 | 1.750 | 4.0 | ● | | ● | | | ● | | ● | | ● | | | |
| | 3/4 | 3/4 | 2.250 | 5.0 | ● | | | | | ● | | ● | | ● | | | |
| | 3/4 | 3/4 | 2.630 | 5.0 | | | | | | ≡ | | | | | | | |
| | 3/4 | 3/4 | 2.750 | 5.0 | ● | | | | | ● | | ● | | ● | | | |
| | 3/4 | 3/4 | 3.250 | 6.0 | ● | | | | | ● | | ● | | ● | | | |
| | 3/4 | 3/4 | 4.250 | 7.0 | ● | | | | | ● | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | 1 | 1 | 1.250 | 6.0 | ○ | | | | | ○ | | ○ | | ○ | | ○ | |
| | 1 | 1 | 1.750 | 4.0 | ● | | | | | ● | | ● | ○ | ● | ○ | ● | |
| | 1 | 1 | 2.250 | 5.0 | ● | | | | | ● | | ● | ○ | ● | ○ | ● | |
| | 1 | 1 | 2.750 | 5.0 | ● | | | | | ● | | ● | | ● | | ● | |
| | 1 | 1 | 3.250 | 6.0 | ● | | | | | ● | | ● | | ● | | ● | |
| | 1 | 1 | 4.250 | 7.0 | ● | | | | | ● | | ● | | ● | | | |

| | |
|---|---|
| ● | Available with or without chip breakers |
| ○ | Only available without chip breakers |
| ≡ | Only available with chip breakers |

Scan QR to visit 5 flute XM listings on deboertool.com

Identify tools with user-friendly interface

Metric tool sizes also available

# Thread-mill

**Thread Mills** are the ultimate solution for high-performance threading in situations where tapping may not be viable. Engineered for versatility and cost-effectiveness, our Thread Mills are designed to tackle tough applications such as challenging workpiece materials, hardened steels, blind holes, large threading applications, and threads requiring exceptional precision.

Experience the advantages of **Thread Mills**:

Versatility: Cut full-length, left or right-hand threads longer than 2xD with ease, delivering accurate and high-quality threads. Comprehensive Thread Forms: Choose from a wide range of thread forms, including UN, Metric, and NPT, to suit your specific requirements.

**Key Features:**

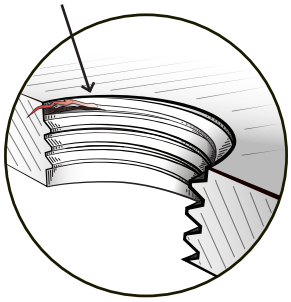
- Premium Submicron Carbide Grade for outstanding performance and longevity
- Precise Tolerances allows for exceptional thread accuracy
- Tough, Polished robust PVD Coating withstands the most demanding applications enhances tool life and durability
- Advanced Geometry is engineered for efficient cutting action, optimizing productivity

## Blunt Start Feature

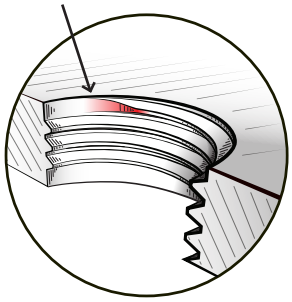
A Blunt Start (higbee) refers to the removal of a portion of the starting threads in a threaded hole. This process serves multiple purposes, including the elimination of start sliver burrs, prevention of deformation mounds in softer steels resulting from high tension on fasteners, prevention of thread breakage in hard steels under high tension, and the prevention of cross threading of fasteners.

In milling applications, achieving a Blunt Start can be done by utilizing thread mills equipped with integrated Blunt Start geometry at the end of the thread form. When the thread mill is inserted into the drilled hole at the correct depth, the Blunt Start and the threads are milled simultaneously, without requiring any additional cycle time.

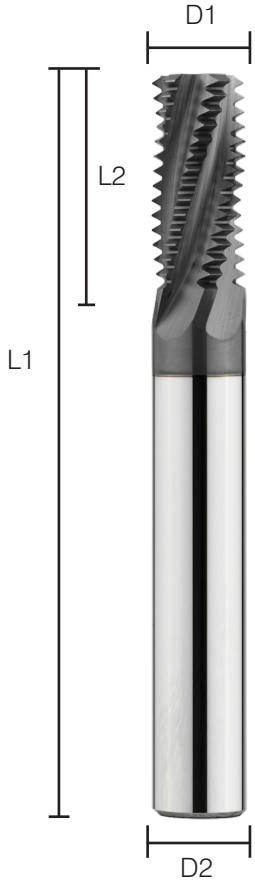
All of De Boer Tool's full form thread mills feature integrated Blunt Start geometry.



Regular Thread Mill Result



Blunt Start Thread Mill Result

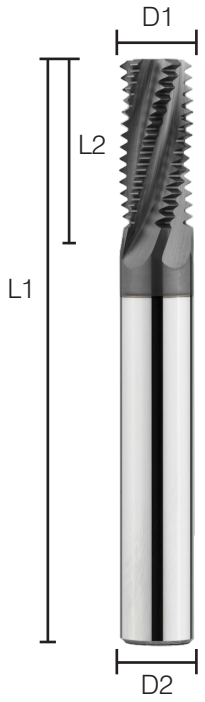



## UN Thread Mill

| | Thread Form | D1 Dia. (in) | D2 Dia. (mm h6) | L1 OAL (mm) | L2 LOC (in) | No. of Flutes | Coated Part # |
|---|---|---|---|---|---|---|---|
| mm | 10-24 | 0.142 | 4 | 45 | 0.396 | 3 | 705-.142-10-24P8 |
| | 10-32 | 0.142 | 4 | 45 | 0.359 | 3 | 705-.142-10-32P10 |
| | 1/4-20 | 0.180 | 6 | 65 | 0.475 | 3 | 705-.180-1/4-20P8 |
| | 1/4-28 | 0.180 | 6 | 65 | 0.482 | 3 | TMUG-1/4-28P12M |
| | 5/16-24 | 0.235 | 6 | 65 | 0.646 | 3 | TMUG-5/16-24P14M |
| | 5/16-18 | 0.240 | 8 | 65 | 0.583 | 3 | 705-.240-5/16-18P9 |
| | 3/8-16 | 0.285 | 8 | 65 | 0.719 | 3 | 705-.285-3/8-16P10 |
| | 3/8-24 | 0.285 | 8 | 65 | 0.730 | 3 | TMUG-3/8-24P16M |
| | 7/16-14 | 0.305 | 8 | 65 | 0.821 | 3 | 705-.305-7/16-14P10 |
| | 1/2-13 | 0.370 | 10 | 80 | 0.962 | 4 | 705-.370-1/2-13P11 |
| | 1/2-20 | 0.370 | 10 | 80 | 0.925 | 4 | 705-.370-1/2-20P17 |
| | 5/8-11 | 0.470 | 12 | 80 | 1.227 | 4 | 705-.470-5/8-11P12 |
| | 3/4-10 | 0.470 | 12 | 80 | 1.450 | 4 | 705-.470-3/4-10P13 |
| | 3/4-16 | 0.470 | 12 | 80 | 1.406 | 4 | 705-.470-3/4-16P21 |
| | 1-8 | 0.620 | 16 | 110 | 1.938 | 5 | 705-.620-1-8P14 |

## Metric Thread Mill

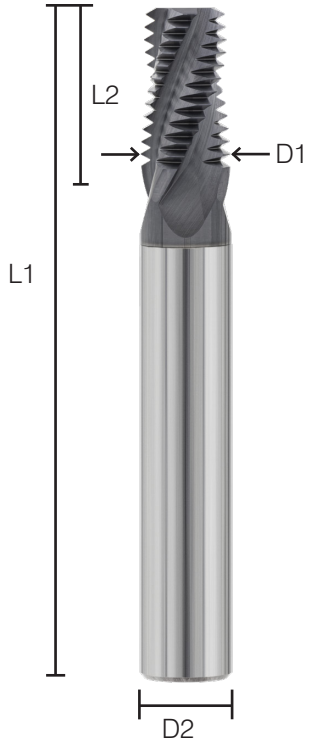
| | Thread Form | D1 Dia. (mm) | D2 Dia. (mm h6) | L1 OAL (mm) | L2 LOC (mm) | No. of Flutes | Coated Part # |
|---|---|---|---|---|---|---|---|
| mm | M4x0.7 | 3.00 | 4 | 50 | 8.05 | 3 | 710-3.00-M4.0-0.70P10 |
| | M5x0.8 | 3.95 | 4 | 55 | 9.20 | 3 | TMMG-5.0X.8P10 |
| | M6x0.75 | 4.50 | 6. | 65 | 11.63 | 3 | TMMG-6X.75P14 |
| | M6x1 | 4.60 | 6 | 65 | 11.50 | 3 | 710-4.60-M6.0-1.0P10 |
| | M8x1 | 5.30 | 6 | 65 | 15.50 | 3 | TMMG-8X1P14 |
| | M8x1.25 | 5.95 | 6 | 65 | 15.63 | 3 | 710-5.95-M8.0-1.25P11 |
| | M10x1.5 | 7.50 | 8 | 80 | 20.25 | 3 | 710-7.50-M10-1.5P12 |
| | 10X1.25 | 7.50 | 8 | 80 | 19.38 | 3 | TMMG-10X1.25P14 |
| | M12x1.75 | 8.50 | 10 | 80 | 23.63 | 4 | 710-8.50-M12-1.75P12 |
| | M14x1.5 | 9.95 | 10 | 80 | 29.25 | 4 | TMMG-14x1.5P18 |
| | M14x2 | 9.95 | 10 | 109 | 27.00 | 4 | 710-9.95-M14-2.0P12 |
| | M16x2 | 11.95 | 12 | 109 | 31.00 | 4 | 710-11.95-M16-2.0P14 |
| | M18x2.5 | 11.95 | 12 | 109 | 33.75 | 4 | 710-11.95-M18-2.5P12 |
| | M20x2.5 | 15.95 | 16 | 109 | 38.75 | 5 | 710-15.95-M20-2.5P14 |



## NPT Thread Mill - RHC / RHH (Right Hand Cut, Right Hand Helix)

Solid carbide NPT threadmills are optimized for milling internal and external National Pipe Taper (NPT) threads. High-quality submicron carbide provides durability, while the helical flute design enables smooth chip evacuation for improved productivity. The tough PVD coating adds extra protection against wear, extending the tool's lifespan.

| | Thread Form | D1 Dia. (in) | D2 Dia. (mm h6) | L1 OAL (mm) | L2 LOC (in) | No. of Flutes | Solid Carbide Part # | Coolant Through Central Part # |
|---|---|---|---|---|---|---|---|---|
| mm | 1/16-27 | 0.232 | 6.0 | 60.0 | 0.463 | 3 | 725-.232-1/16-27P12 | - |
| | 1/8-27 | 0.299 | 8.0 | 60.0 | 0.463 | 3 | 725-.299-1/8-27P12 | - |
| | 1/4, 3/8-18 | 0.394 | 10.0 | 80.0 | 0.695 | 4 | 725-.394-1/4&3/8-18P12 | - |
| | 1/2, 3/4-14 | 0.468 | 12.0 | 90.0 | 0.893 | 4 | 725-.468-1/2&3/4-14P12 | - |
| | 1-11.5 | 0.620 | 16.0 | 109.0 | 1.108 | 4 | 725-.620-1-11.5P12 | 726-.419-1/2&3/4-14P12 |



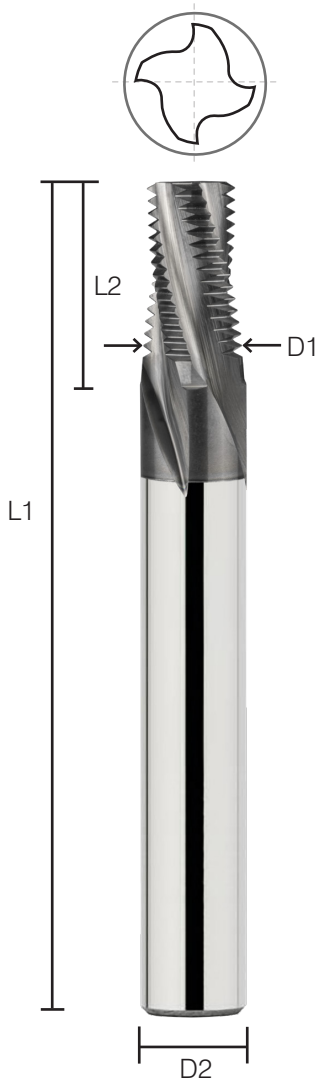

RHC / RHH Solid

## NPT Thread Mill - RHC / LHH (Right Hand Cut, Left Hand Helix)

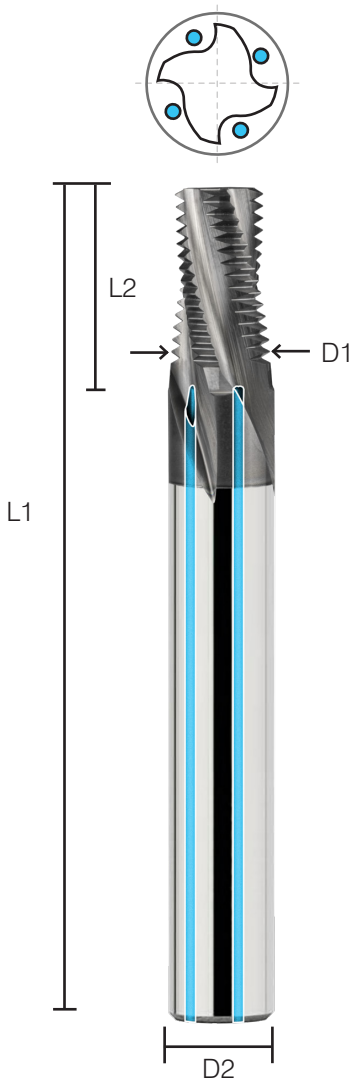
Our left hand helix NPT threadmills, provides excellent performance for NPT threading operations. While the threading process remains similar to standard threadmills, the left hand helix configuration offers a distinct advantage. By pushing the chips forward, away from the cut, it enhances rigidity and promotes smoother chip evacuation. This unique feature proves highly beneficial in applications such as mold making and manifold manufacturing.

Utilizing coolant through the flutes further enhances chip removal while delivering excellent coolant flow to the cut zone. This unique combination allows for remarkable feed rates, promoting exceptional process eliability. Particularly beneficial in applications like mold making and manifold manufacturing, our threadmills offer enhanced productivity and precise results.

| | Thread Form | D1 Dia. (in) | D2 Dia. (mm h6) | L1 OAL (mm) | L2 LOC (in) | No. of Flutes | Solid Carbide Part # | Coolant Through Flutes Part # |
|---|---|---|---|---|---|---|---|---|
| mm | 1/16-27 | 0.2323 | 8 | 76 | 0.462 | 3.0000 | TM-87722 | TM-8590F |
| | 1/8-27 | 0.3038 | 10 | 76 | 0.462 | 3.0000 | TM-DFFE4 | TM-3515C |
| | 1/4, 3/8-18 | 0.4013 | 12 | 90 | 0.692 | 4.0000 | TM-40BF4 | TM-377B8 |
| | 1/2, 3/4-14 | 0.5588 | 16 | 101 | 0.89 | 4.0000 | TM-10C07 | TM-B77C8 |
| | 1, 2-11.5 | 0.7549 | 20 | 120 | 1.085 | 4.0000 | TM-2B229 | TM-D988A |




RHC / LHH Solid




RHC / LHH Flute Coolant

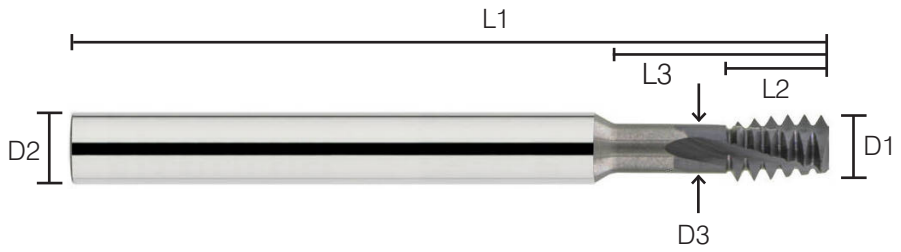
# 2xD Thread Mill

Quickly cut a full left or right hand thread to the bottom of 2xD holes and more when this tool is modified by extending the neck feature. Easily produce extended thread lengths without taper and extended tool life. In the rare case of a broken cutter, it can easily be extracted and the thread picked up with a new cutter.

They can also be used to cut external threads with the same cutter.

## 2xD UN Thread Mill

| | Thread Form | D1 Dia. (in) | L2 LOC (in) | D3 Neck Dia. (in) | L3 LOR (in) | D2 Dia. (mm h6) | L1 OAL (in) | Teeth | Flutes | Part # |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 10-24 | 0.134 | 0.213 | 0.086 | 0.43 | 4 | 50 | 4 | 3 | TM-A65E7 |
| | 1/4-20 | 0.180 | 0.256 | 0.124 | 0.57 | 6 | 65 | 5 | 3 | TM-3FDF0 |
| | 1/4-28 | 0.186 | 0.254 | 0.145 | 0.55 | 6 | 65 | 7 | 3 | TM-D288D |
| | 5/16-18 | 0.234 | 0.339 | 0.166 | 0.70 | 6 | 71 | 6 | 3 | TM-BB73B |
| | 5/16-24 | 0.234 | 0.335 | 0.181 | 0.68 | 6 | 71 | 6 | 3 | TM-C6BBE |
| | 3/8-16 | 0.285 | 0.381 | 0.208 | 0.83 | 8 | 80 | 6 | 3 | TM-32843 |
| | 7/16-14 | 0.305 | 0.508 | 0.220 | 0.97 | 8 | 91 | 6 | 3 | TM-9F753 |
| | 1/2-13 | 0.370 | 0.539 | 0.273 | 1.10 | 10 | 100 | 7 | 4 | TM-5A2DB |
| | 5/8-11 | 0.470 | 0.636 | 0.353 | 1.37 | 12 | 110 | 7 | 4 | TM-CB6F0 |
| | 3/4-10 | 0.550 | 0.800 | 0.429 | 1.63 | 16 | 125 | 8 | 4 | TM-FB73C |
| | 1-8 | 0.620 | 1.009 | 0.466 | 2.16 | 16 | 125 | 8 | 5 | TM-E452E |




## 2xD Metric Thread Mill

| | Thread Form | D1 Dia. (in) | L2 LOC (in) | D3 Neck Dia. (in) | L3 LOR (in) | D2 Dia. (mm h6) | L1 OAL (in) | Teeth | Flutes | Part # |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | M4x0.7 | 3.0 | 4.3 | 2.1 | 8.9 | 4 | 50 | 6 | 3 | TM-D61AC |
| | M5x0.8 | 3.7 | 5.7 | 2.7 | 11.0 | 4 | 65 | 6 | 3 | TM-B7F90 |
| | M6x1 | 4.4 | 6.1 | 3.2 | 13.3 | 6 | 65 | 6 | 3 | TM-C04A5 |
| | M8x1 | 6.0 | 9 | 4.7 | 17.3 | 6 | 71 | 8 | 3 | TM-607F4 |
| | M8x1.25 | 6.0 | 8.8 | 4.3 | 17.6 | 6 | 71 | 7 | 3 | TM-72D7F |
| | M10x1.5 | 7.5 | 10.5 | 5.6 | 21.9 | 8 | 80 | 7 | 3 | TM-84098 |
| | M12x1.75 | 8.9 | 12.3 | 6.8 | 26.3 | 10 | 91 | 7 | 4 | TM-84BCE |
| | M16x2 | 12.0 | 18 | 9.4 | 34.6 | 12 | 100 | 8 | 4 | TM-B638A |
| | M18x2.5 | 12.0 | 20 | 8.9 | 39.2 | 12 | 110 | 7 | 4 | TM-728DD |
| | M20x2.5 | 15.8 | 22.5 | 12.6 | 43.3 | 16 | 125 | 8 | 5 | TM-467CF |

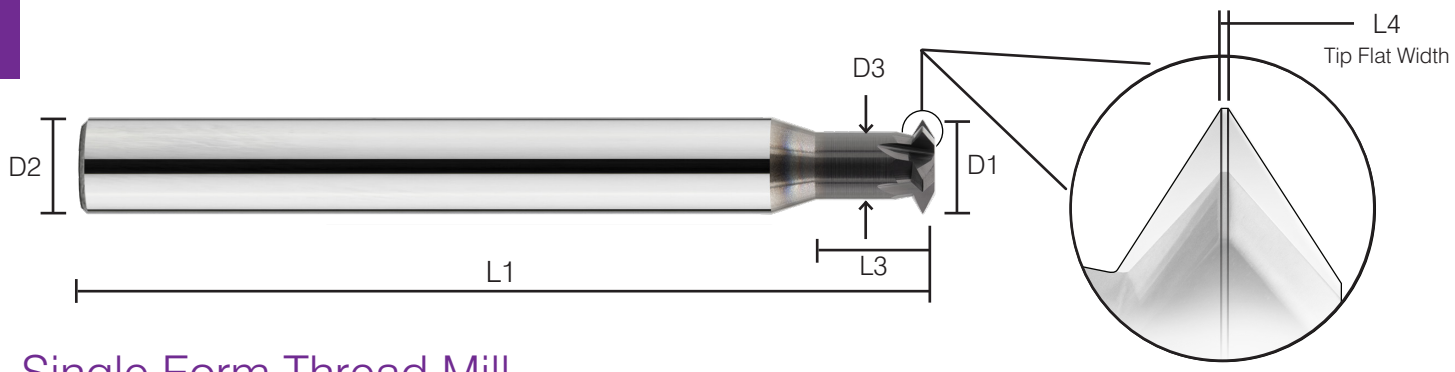
## Customization

Should you require different L3 or D3 specifications for your application, contact our sales team with your requirements and we can quickly modify these items to suit your needs.

# Single Form Thread Mill

Single form thread mills are designed to machine both internal and external threads, offering excellent flexibility and cost reduction by utilizing a single tool to create various diameters and pitches.

Cutting pressure is minimized as only a single point engages with the workpiece, ensuring greater stability in demanding threading applications. Our single form thread mills also provide exceptional versatility, as each tool is capable of cutting a variety of thread forms, and can be used with a wide range of workpiece materials.



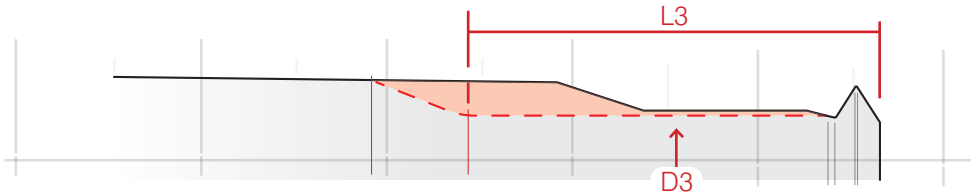

## Single Form Thread Mill

| | Series | Thread Range (TPI) | Pitch Range (mm) | D1 Dia. (in) | L4 Tip (in) | Flutes | D3 Neck Dia. (in) | L3 LOR (in) | D2 Dia. (mm h6) | L1 OAL (in) | Part # |
|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | #A | 90-101 | 0.25-0.29 | 0.031 | 0.0012 | 2 | 0.016 | 0.100 | 4 | 60 | TMS-D7-.100 |
| | #B | 80-84 | 0.30-0.32 | 0.038 | 0.0015 | 2 | 0.020 | 0.126 | 4 | 60 | TMS-39-.126 |
| | #C | 56-72 | 0.35-0.46 | 0.050 | 0.0017 | 3 | 0.026 | 0.180 | 4 | 60 | TMS-84-.180 |
| | #D | 40-56 | 0.45-0.64 | 0.068 | 0.0022 | 3 | 0.036 | 0.260 | 4 | 60 | TMS-AD-.260 |
| | #E | 32-42 | 0.60-0.80 | 0.093 | 0.0030 | 3 | 0.054 | 0.290 | 4 | 60 | TMS-94-.290 |
| | #F | 32-50 | 0.50-0.80 | 0.114 | 0.0025 | 3 | 0.071 | 0.365 | 6 | 71 | TMS-78-.365 |
| | #G | 24-50 | 0.50-1.06 | 0.129 | 0.0025 | 4 | 0.073 | 0.445 | 6 | 71 | TMS-C3-.445 |
| | #H | 20-50 | 0.50-1.27 | 0.172 | 0.0025 | 4 | 0.103 | 0.520 | 6 | 71 | TMS-45-.520 |
| | #I | 18-40 | 0.63-1.42 | 0.224 | 0.0031 | 4 | 0.150 | 0.650 | 8 | 80 | TMS-3F-.650 |
| | #J | 14-50 | 0.50-1.82 | 0.273 | 0.0025 | 4 | 0.174 | 0.890 | 10 | 100 | TMS-A2-.890 |
| | #K | 13-28 | 0.90-1.96 | 0.353 | 0.0045 | 4 | 0.249 | 1.025 | 10 | 100 | TMS-6D-1.025 |
| | #L | 12-32 | 0.79-2.12 | 0.413 | 0.0039 | 4 | 0.300 | 1.210 | 12 | 125 | TMS-56-1.210 |
| | #M | 9-25 | 1.00-2.83 | 0.460 | 0.0049 | 5 | 0.310 | 1.450 | 12 | 125 | TMS-F9-1.450 |
| | #N | 8-32 | 0.79-3.18 | 0.570 | 0.0039 | 6 | 0.397 | 1.780 | 16 | 150 | TMS-CF-1.780 |

** Visit the Single Form Thread Mill section of deboertool.com for more information on available tread forms for each tool*

## Customization

The listed tools are offered with a 2xD reach, though can be modified to suit your application requirements such as an increased L3 ( LOR ), or decreased D3 ( Neck Dia. ).




In cases where a customized cutter form is needed to replace an already in use tool, we can engineer a matching form that will substitute seamlessly into your operation.

Simply reach out to our sales team to discuss any customization or engineered solutions.

# High Velocity

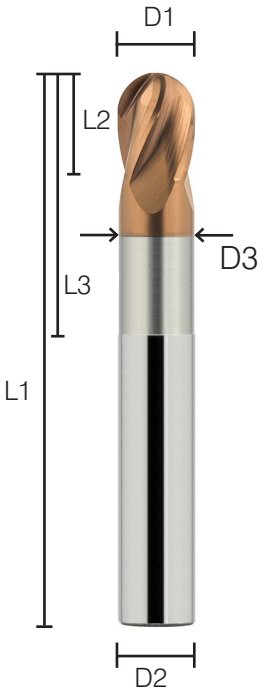
The **High Velocity** line features high-performance mould & die tools suitable for machining at extraordinary speeds and feeds. They are specifically designed for alloy steel, tool steel, and hardened steel found in the mould & die industries.

Choose from a diverse range of geometries, including ball, tapered ball, radius, tapered radius, radius extended reach, and flat bottom, to meet your precise machining needs.

**Key Features:**

- Crafted with premium nanograin carbide, ensuring exceptional wear resistance
- Large core for improved durability
- Optimized geometry for enhanced performance in hardened steels
- Cutting-edge edge preparation, reinforcing cutting strength and extending tool life
- Equipped with a heat-resistant nanocomposite PVD coating, maximizing the longevity of the tool

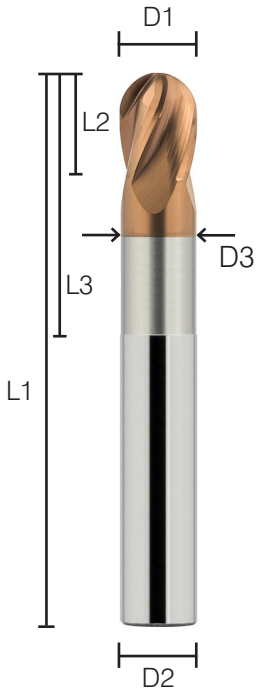
# HV Ball Nose 1/32 - 3/32



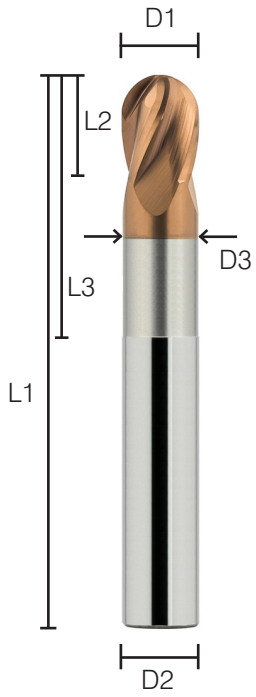

| in | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | D3 Neck Dia. | L3 LON | No. of Flutes | Part # |
|---|---|---|---|---|---|---|---|---|
| | 1/32 | 3/16 | 2.0 | 0.032 | 0.029 | 0.100 | 2 | 900-0031-2N.10 |
| | 1/32 | 3/16 | 2.0 | 0.032 | 0.029 | 0.130 | 2 | 900-0031-2N.13 |
| | 1/32 | 3/16 | 2.0 | 0.032 | 0.029 | 0.160 | 2 | 900-0031-2N.16 |
| | 1/32 | 3/16 | 2.0 | 0.032 | 0.029 | 0.190 | 2 | 900-0031-2N.19 |
| | 1/32 | 3/16 | 2.0 | 0.032 | 0.029 | 0.225 | 2 | 900-0031-2N.23 |
| | 1/32 | 3/16 | 2.0 | 0.032 | 0.029 | 0.255 | 2 | 900-0031-2N.25 |
| | 1/32 | 3/16 | 2.0 | 0.032 | 0.029 | 0.288 | 2 | 900-0031-2N.29 |
| | 1/32 | 3/16 | 2.0 | 0.032 | 0.029 | 0.320 | 2 | 900-0031-2N.32 |
| | | | | | | | | |
| | 1/16 | 3/16 | 2.0 | 0.062 | 0.059 | 0.200 | 2 | 900-0062-2N.20 |
| | 1/16 | 3/16 | 2.0 | 0.062 | 0.059 | 0.260 | 2 | 900-0062-2N.26 |
| | 1/16 | 3/16 | 2.0 | 0.062 | 0.059 | 0.320 | 2 | 900-0062-2N.32 |
| | 1/16 | 3/16 | 2.0 | 0.062 | 0.059 | 0.380 | 2 | 900-0062-2N.38 |
| | 1/16 | 3/16 | 2.0 | 0.062 | 0.059 | 0.440 | 2 | 900-0062-2N.44 |
| | 1/16 | 3/16 | 2.25 | 0.062 | 0.059 | 0.510 | 2 | 900-0062-2N.51 |
| | 1/16 | 3/16 | 2.38 | 0.062 | 0.059 | 0.630 | 2 | 900-0062-2N.63 |
| | | | | | | | | |
| | 3/32 | 3/16 | 2.0 | 0.093 | 0.089 | 0.300 | 2 | 900-0093-2N.30 |
| | 3/32 | 3/16 | 2.0 | 0.093 | 0.089 | 0.300 | 4 | 900-0093-4N.30 |
| | 3/32 | 3/16 | 2.0 | 0.093 | 0.089 | 0.390 | 2 | 900-0093-2N.39 |
| | 3/32 | 3/16 | 2.0 | 0.093 | 0.089 | 0.390 | 4 | 900-0093-4N.39 |
| | 3/32 | 3/16 | 2.0 | 0.093 | 0.089 | 0.480 | 2 | 900-0093-2N.48 |
| | 3/32 | 3/16 | 2.25 | 0.093 | 0.089 | 0.570 | 4 | 900-0093-4N.57 |
| | 3/32 | 3/16 | 2.38 | 0.093 | 0.089 | 0.670 | 2 | 900-0093-2N.67 |
| | 3/32 | 3/16 | 2.38 | 0.093 | 0.089 | 0.760 | 2 | 900-0093-2N.76 |
| | 3/32 | 3/16 | 2.38 | 0.093 | 0.089 | 0.860 | 2 | 900-0093-2N.86 |
| | 3/32 | 3/16 | 2.38 | 0.093 | 0.089 | 0.950 | 2 | 900-0093-2N.95 |
| | 3/32 | 3/16 | 2.38 | 0.093 | 0.089 | 0.950 | 4 | 900-0093-4N.95 |

# HV Ball Nose 1/8 - 3/16

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | D3 Neck Dia. | L3 LON | No. of Flutes | Part # |
|---|---|---|---|---|---|---|---|---|
| in | 1/8 | 1/4 | 2.0 | 0.125 | 0.121 | 0.270 | 2 | 900-0125-2N.27 |
| | 1/8 | 1/4 | 2.0 | 0.125 | 0.121 | 0.270 | 4 | 900-0125-4N.27 |
| | 1/8 | 1/4 | 2.25 | 0.125 | 0.121 | 0.400 | 2 | 900-0125-2N.40 |
| | 1/8 | 1/4 | 2.25 | 0.125 | 0.121 | 0.400 | 4 | 900-0125-4N.40 |
| | 1/8 | 1/4 | 2.25 | 0.125 | 0.121 | 0.520 | 2 | 900-0125-2N.52 |
| | 1/8 | 1/4 | 2.25 | 0.125 | 0.121 | 0.520 | 4 | 900-0125-4N.52 |
| | 1/8 | 1/4 | 2.5 | 0.125 | 0.121 | 0.650 | 2 | 900-0125-2N.65 |
| | 1/8 | 1/4 | 2.5 | 0.125 | 0.121 | 0.650 | 4 | 900-0125-4N.65 |
| | 1/8 | 1/4 | 2.5 | 0.125 | 0.121 | 0.770 | 2 | 900-0125-2N.77 |
| | 1/8 | 1/4 | 2.75 | 0.125 | 0.121 | 1.020 | 2 | 900-0125-2N1.02 |
| | 1/8 | 1/4 | 3.0 | 0.125 | 0.121 | 1.270 | 2 | 900-0125-2N1.27 |
| | 1/8 | 1/4 | 3.0 | 0.125 | 0.121 | 1.270 | 4 | 900-0125-4N1.27 |
| | | | | | | | | |
| | 3/16 | 1/4 | 2.0 | 0.187 | 0.184 | 0.420 | 2 | 900-0187-2N.42 |
| | 3/16 | 1/4 | 2.0 | 0.187 | 0.184 | 0.420 | 4 | 900-0187-4N.42 |
| | 3/16 | 1/4 | 2.25 | 0.187 | 0.184 | 0.610 | 2 | 900-0187-2N.61 |
| | 3/16 | 1/4 | 2.5 | 0.187 | 0.184 | 0.780 | 2 | 900-0187-2N.78 |
| | 3/16 | 1/4 | 2.75 | 0.187 | 0.184 | 0.970 | 2 | 900-0187-2N.97 |
| | 3/16 | 1/4 | 3.0 | 0.187 | 0.184 | 1.150 | 2 | 900-0187-2N1.15 |
| | 3/16 | 1/4 | 3.50 | 0.187 | 0.184 | 1.530 | 2 | 900-0187-2N1.53 |
| | 3/16 | 1/4 | 4.0 | 0.187 | 0.184 | 1.900 | 2 | 900-0187-20N1.90 |



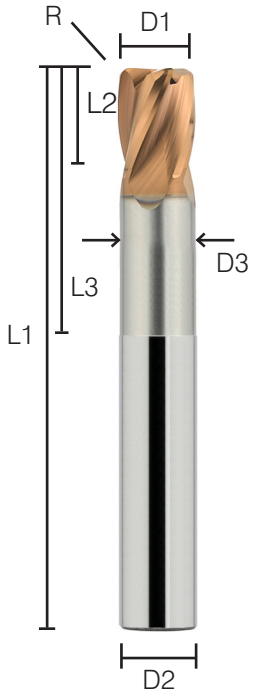
# HV Ball Nose 1/4 - 1/2



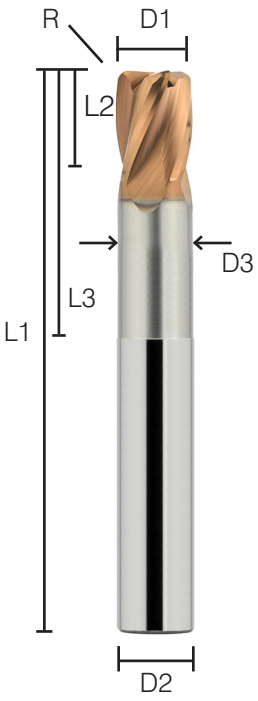

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | D3 Neck Dia. | L3 LON | No. of Flutes | Part # |
|---|---|---|---|---|---|---|---|---|
| in | 1/4 | 1/4 | 2.25 | 0.312 | 0.245 | 0.550 | 2 | 900-0250-2N.55 |
| | 1/4 | 1/4 | 2.25 | 0.312 | 0.245 | 0.550 | 4 | 900-0250-4N.55 |
| | 1/4 | 1/4 | 2.75 | 0.312 | 0.245 | 1.030 | 2 | 900-0250-2N1.03 |
| | 1/4 | 1/4 | 2.75 | 0.312 | 0.245 | 1.030 | 4 | 900-0250-4N1.03 |
| | 1/4 | 1/4 | 3.25 | 0.312 | 0.245 | 1.550 | 2 | 900-0250-2N1.55 |
| | 1/4 | 1/4 | 3.25 | 0.312 | 0.245 | 1.550 | 4 | 900-0250-4N1.55 |
| | 1/4 | 1/4 | 3.75 | 0.312 | 0.245 | 2.030 | 2 | 900-0250-2N2.03 |
| | 1/4 | 1/4 | 3.75 | 0.312 | 0.245 | 2.030 | 4 | 900-0250-4N2.03 |
| | 1/4 | 1/4 | 4.0 | 0.312 | 0.245 | 2.350 | 2 | 900-0250-2N2.35 |
| | 1/4 | 1/4 | 4.0 | 0.312 | 0.245 | 2.350 | 4 | 900-0250-4N2.35 |
| | | | | | | | | |
| | 5/16 | 5/16 | 3.0 | 0.4 | 0.305 | 1.100 | 2 | 900-0312-2N1.10 |
| | 5/16 | 5/16 | 3.0 | 0.4 | 0.305 | 1.100 | 4 | 900-0312-4N1.10 |
| | 5/16 | 5/16 | 3.5 | 0.4 | 0.305 | 1.600 | 2 | 900-0312-2N1.60 |
| | 5/16 | 5/16 | 3.5 | 0.4 | 0.305 | 1.600 | 4 | 900-0312-4N1.60 |
| | | | | | | | | |
| | 3/8 | 3/8 | 3.25 | 0.45 | 0.367 | 1.550 | 2 | 900-0375-2N1.60 |
| | 3/8 | 3/8 | 3.25 | 0.45 | 0.367 | 1.550 | 4 | 900-0375-4N1.60 |
| | 3/8 | 3/8 | 4.0 | 0.45 | 0.367 | 2.100 | 2 | 900-0375-2N2.10 |
| | 3/8 | 3/8 | 4.0 | 0.45 | 0.367 | 2.100 | 4 | 900-0375-4N2.10 |
| | | | | | | | | |
| | 1/2 | 1/2 | 3.5 | 0.625 | 0.490 | 1.600 | 2 | 900-0500-2N1.60 |
| | 1/2 | 1/2 | 3.5 | 0.625 | 0.490 | 1.600 | 4 | 900-0500-4N1.60 |
| | 1/2 | 1/2 | 4.25 | 0.625 | 0.490 | 2.100 | 2 | 900-0500-2N2.10 |
| | 1/2 | 1/2 | 4.25 | 0.625 | 0.490 | 2.100 | 4 | 900-0500-4N2.10 |
| | 1/2 | 1/2 | 6.0 | 0.625 | 0.490 | 3.100 | 2 | 900-0500-2N3.10 |
| | 1/2 | 1/2 | 6.0 | 0.625 | 0.490 | 3.100 | 4 | 900-0500-4N3.10 |

# HV Corner Radius 1/32 - 1/8

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | D3 Neck Dia. | L3 LON | R Radius | No. of Flutes | Part # |
|---|---|---|---|---|---|---|---|---|---|
| in | 1/32 | 3/16 | 2.0 | 0.032 | 0.029 | 0.130 | 0.005 | 2 | 9-0031-2R5N.13 |
| | 1/32 | 3/16 | 2.0 | 0.032 | 0.029 | 0.190 | 0.005 | 2 | 9-0031-2R5N.19 |
| | 1/32 | 3/16 | 2.0 | 0.032 | 0.029 | 0.130 | 0.010 | 2 | 9-0031-2R10N.13 |
| | 1/32 | 3/16 | 2.0 | 0.032 | 0.029 | 0.190 | 0.010 | 2 | 9-0031-2R10N.19 |
| | | | | | | | | | |
| | 1/16 | 3/16 | 2.0 | 0.062 | 0.059 | 0.250 | 0.005 | 2 | 9-0062-2R5N.25 |
| | 1/16 | 3/16 | 2.25 | 0.062 | 0.059 | 0.625 | 0.005 | 2 | 9-0062-2R5N.62 |
| | 1/16 | 3/16 | 2.0 | 0.062 | 0.059 | 0.250 | 0.010 | 2 | 9-0062-2R10N.25 |
| | 1/16 | 3/16 | 2.25 | 0.062 | 0.059 | 0.625 | 0.010 | 2 | 9-0062-2R10N.62 |
| | 1/16 | 3/16 | 2.0 | 0.062 | 0.059 | 0.250 | 0.020 | 2 | 9-0062-2R20N.25 |
| | 1/16 | 3/16 | 2.25 | 0.062 | 0.059 | 0.625 | 0.020 | 2 | 9-0062-2R20N.62 |
| | | | | | | | | | |
| | 3/32 | 3/16 | 2.0 | 0.093 | 0.089 | 0.470 | 0.010 | 4 | 9-0093-4R10N.47 |
| | 3/32 | 3/16 | 2.0 | 0.093 | 0.089 | 0.470 | 0.020 | 4 | 9-0093-4R20N.47 |
| | 3/32 | 3/16 | 2.25 | 0.093 | 0.089 | 0.700 | 0.010 | 4 | 9-0093-4R10N.70 |
| | 3/32 | 3/16 | 2.25 | 0.093 | 0.089 | 0.700 | 0.020 | 4 | 9-0093-4R20N.70 |
| | 3/32 | 3/16 | 2.5 | 0.093 | 0.089 | 0.940 | 0.010 | 4 | 9-0093-4R10N.94 |
| | 3/32 | 3/16 | 2.5 | 0.093 | 0.089 | 0.940 | 0.020 | 4 | 9-0093-4R20N.94 |
| | 3/32 | 3/16 | 2.75 | 0.093 | 0.089 | 1.170 | 0.010 | 4 | 9-0093-4R10N1.2 |
| | 3/32 | 3/16 | 2.75 | 0.093 | 0.089 | 1.170 | 0.020 | 4 | 9-0093-4R20N1.2 |
| | | | | | | | | | |
| | 1/8 | 1/4 | 2.25 | 0.125 | 0.121 | 0.375 | 0.010 | 4 | 9-0125-4R10N.37 |
| | 1/8 | 1/4 | 2.5 | 0.125 | 0.121 | 0.625 | 0.010 | 4 | 9-0125-4R10N.62 |
| | 1/8 | 1/4 | 3.0 | 0.125 | 0.121 | 1.270 | 0.010 | 4 | 9-0125-4R10N1.3 |
| | 1/8 | 1/4 | 2.25 | 0.125 | 0.121 | 0.375 | 0.020 | 4 | 9-0125-4R20N.37 |
| | 1/8 | 1/4 | 2.5 | 0.125 | 0.121 | 0.625 | 0.020 | 4 | 9-0125-4R20N.62 |
| | 1/8 | 1/4 | 3.0 | 0.125 | 0.121 | 1.270 | 0.020 | 4 | 9-0125-4R20N1.3 |
| | 1/8 | 1/4 | 2.25 | 0.125 | 0.121 | 0.375 | 0.030 | 4 | 9-0125-4R30N.37 |
| | 1/8 | 1/4 | 2.5 | 0.125 | 0.121 | 0.625 | 0.030 | 4 | 9-0125-4R30N.62 |
| | 1/8 | 1/4 | 3.0 | 0.125 | 0.121 | 1.270 | 0.030 | 4 | 9-0125-4R30N1.3 |



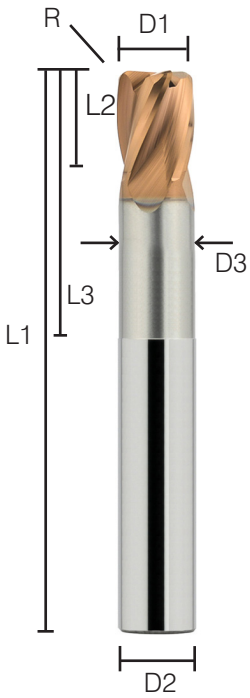
# HV Corner Radius 3/16 - 1/4



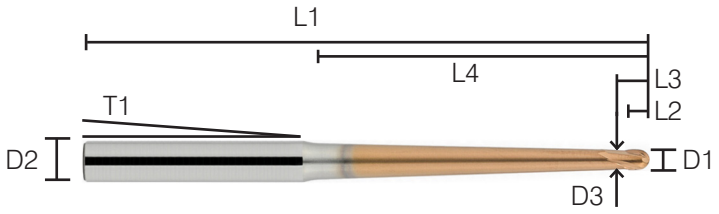

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | D3 Neck Dia. | L3 LON | R Radius | No. of Flutes | Part # |
|---|---|---|---|---|---|---|---|---|---|
| in | 3/16 | 1/4 | 2.5 | 0.187 | 0.184 | 0.562 | 0.020 | 4 | 9-0187-4R20N.56 |
| | 3/16 | 1/4 | 2.75 | 0.187 | 0.184 | 0.937 | 0.020 | 4 | 9-0187-4R20N.94 |
| | 3/16 | 1/4 | 3.0 | 0.187 | 0.184 | 1.300 | 0.020 | 4 | 9-0187-4R20N1.3 |
| | 3/16 | 1/4 | 2.5 | 0.187 | 0.184 | 0.562 | 0.030 | 4 | 9-0187-4R30N.56 |
| | 3/16 | 1/4 | 2.75 | 0.187 | 0.184 | 0.937 | 0.030 | 4 | 9-0187-4R30N.94 |
| | 3/16 | 1/4 | 3.0 | 0.187 | 0.184 | 1.300 | 0.030 | 4 | 9-0187-4R30N1.3 |
| | | | | | | | | | |
| | 1/4 | 1/4 | 2.5 | 0.312 | 0.245 | 0.750 | 0.020 | 4 | 9-0250-4R20N.75 |
| | 1/4 | 1/4 | 2.5 | 0.312 | 0.245 | 0.750 | 0.020 | 6 | 9-0250-6R20N.75 |
| | 1/4 | 1/4 | 3.0 | 0.312 | 0.245 | 1.250 | 0.015 | 4 | 9-0250-4R15N1.2 |
| | 1/4 | 1/4 | 3.0 | 0.312 | 0.245 | 1.250 | 0.020 | 2 | 9-0250-2R20N1.2 |
| | 1/4 | 1/4 | 3.0 | 0.312 | 0.245 | 1.250 | 0.020 | 4 | 9-0250-4R20N1.2 |
| | 1/4 | 1/4 | 3.5 | 0.312 | 0.245 | 1.750 | 0.020 | 4 | 9-0250-4R20N1.7 |
| | 1/4 | 1/4 | 2.5 | 0.312 | 0.245 | 0.750 | 0.030 | 4 | 9-0250-4R30N.75 |
| | 1/4 | 1/4 | 2.5 | 0.312 | 0.245 | 0.750 | 0.030 | 6 | 9-0250-6R30N.75 |
| | 1/4 | 1/4 | 3.0 | 0.312 | 0.245 | 1.250 | 0.030 | 4 | 9-0250-4R30N1.2 |
| | 1/4 | 1/4 | 3.5 | 0.312 | 0.245 | 1.750 | 0.030 | 4 | 9-0250-4R30N1.7 |
| | 1/4 | 1/4 | 2.5 | 0.312 | 0.245 | 0.750 | 0.060 | 4 | 9-0250-4R60N.75 |
| | 1/4 | 1/4 | 2.5 | 0.312 | 0.245 | 0.750 | 0.060 | 6 | 9-0250-6R60N.75 |
| | 1/4 | 1/4 | 3.0 | 0.312 | 0.245 | 1.250 | 0.060 | 4 | 9-0250-4R60N1.2 |
| | 1/4 | 1/4 | 3.5 | 0.312 | 0.245 | 1.750 | 0.060 | 4 | 9-0250-4R60N1.7 |

# HV Corner Radius 5/16 - 1/2

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | D3 Neck Dia. | L3 LON | R Radius | No. of Flutes | Part # |
|---|---|---|---|---|---|---|---|---|---|
| in | 5/16 | 5/16 | 3.0 | 0.400 | 0.305 | 0.937 | 0.030 | 4 | 9-0312-4R30N.94 |
| | 5/16 | 5/16 | 4.0 | 0.400 | 0.305 | 1.875 | 0.030 | 4 | 9-0312-4R30N1.9 |
| | 5/16 | 5/16 | 3.0 | 0.400 | 0.305 | 0.937 | 0.060 | 6 | 9-0312-6R60N.94 |
| | 5/16 | 5/16 | 4.0 | 0.400 | 0.305 | 1.875 | 0.060 | 4 | 9-0312-4R60N1.9 |
| | | | | | | | | | |
| | 3/8 | 3/8 | 3.0 | 0.450 | 0.367 | 1.125 | 0.030 | 4 | 9-0375-4R30N1.1 |
| | 3/8 | 3/8 | 3.0 | 0.450 | 0.367 | 1.125 | 0.030 | 6 | 9-0375-6R30N1.1 |
| | 3/8 | 3/8 | 4.0 | 0.450 | 0.367 | 1.875 | 0.030 | 4 | 9-0375-4R30N1.9 |
| | 3/8 | 3/8 | 3.0 | 0.450 | 0.367 | 1.125 | 0.060 | 4 | 9-0375-4R60N1.1 |
| | 3/8 | 3/8 | 3.0 | 0.450 | 0.367 | 1.125 | 0.060 | 6 | 9-0375-6R60N1.1 |
| | 3/8 | 3/8 | 4.0 | 0.450 | 0.367 | 1.875 | 0.015 | 4 | 9-0375-4R15N1.9 |
| | 3/8 | 3/8 | 4.0 | 0.450 | 0.367 | 1.875 | 0.060 | 4 | 9-0375-4R60N1.9 |
| | 3/8 | 3/8 | 3.0 | 0.450 | 0.367 | 1.125 | 0.120 | 4 | 9-0375-4R120N1 |
| | 3/8 | 3/8 | 3.0 | 0.450 | 0.367 | 1.125 | 0.120 | 6 | 9-0375-6R120N1 |
| | 3/8 | 3/8 | 4.0 | 0.450 | 0.367 | 1.875 | 0.120 | 4 | 9-0375-4R120N2 |
| | | | | | | | | | |
| | 1/2 | 1/2 | 4.0 | 0.625 | 0.490 | 2.100 | 0.015 | 4 | 9-0500-4R15N2.1 |
| | 1/2 | 1/2 | 4.0 | 0.625 | 0.490 | 2.100 | 0.030 | 4 | 9-0500-4R30N2.1 |
| | 1/2 | 1/2 | 4.0 | 0.625 | 0.490 | 2.100 | 0.030 | 6 | 9-0500-6R30N2.1 |
| | 1/2 | 1/2 | 4.0 | 0.625 | 0.490 | 2.100 | 0.060 | 4 | 9-0500-4R60N2.1 |
| | 1/2 | 1/2 | 4.0 | 0.625 | 0.490 | 2.100 | 0.060 | 6 | 9-0500-6R60N2.1 |
| | 1/2 | 1/2 | 4.0 | 0.625 | 0.490 | 2.100 | 0.120 | 4 | 9-0500-4R120N2 |
| | 1/2 | 1/2 | 4.0 | 0.625 | 0.490 | 2.100 | 0.120 | 6 | 9-0500-6R120N2 |
| | 1/2 | 1/2 | 4.0 | 0.625 | 0.490 | 3.100 | 0.030 | 4 | 9-0500-4R30N3.1 |
| | 1/2 | 1/2 | 4.0 | 0.625 | 0.490 | 3.100 | 0.030 | 6 | 9-0500-6R30N3.1 |
| | 1/2 | 1/2 | 4.0 | 0.625 | 0.490 | 3.100 | 0.060 | 4 | 9-0500-4R60N3.1 |
| | 1/2 | 1/2 | 4.0 | 0.625 | 0.490 | 3.100 | 0.060 | 6 | 9-0500-6R60N3.1 |
| | 1/2 | 1/2 | 4.0 | 0.625 | 0.490 | 3.100 | 0.120 | 4 | 9-0500-4R120N3 |
| | 1/2 | 1/2 | 4.0 | 0.625 | 0.490 | 3.100 | 0.120 | 6 | 9-0500-6R120N3 |

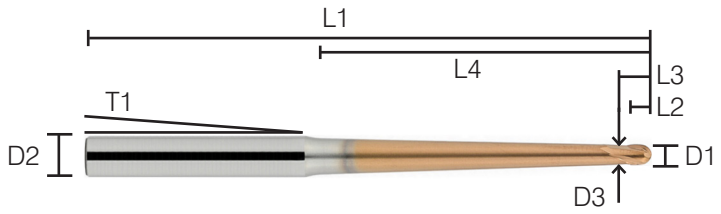


# Ball Nose Tapered Shank HV



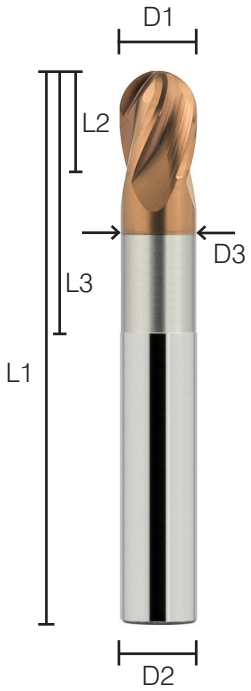

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | D3 Neck Dia. | L3 LON | T1 Taper Angle | L4 LOT | No. of Flutes | Part # |
|---|---|---|---|---|---|---|---|---|---|---|
| in | 1/32 | 1/4 | 2.25 | 0.032 | 0.029 | 0.062 | 1.5 | 0.630 | 2 | 915-0031-2N.63 |
| | 1/32 | 1/4 | 2.75 | 0.032 | 0.029 | 0.062 | 1.5 | 1.015 | 2 | 915-0031-2N1.01 |
| | 1/32 | 1/4 | 3.0 | 0.032 | 0.029 | 0.062 | 3.0 | 1.550 | 2 | 930-0031-2N1.55 |
| | 1/32 | 1/4 | 2.5 | 0.032 | 0.029 | 0.062 | 5.0 | 1.150 | 2 | 950-0031-2N1.15 |
| | | | | | | | | | | |
| | 1/16 | 1/4 | 2.25 | 0.062 | 0.059 | 0.125 | 1.5 | 0.630 | 2 | 915-0062-2N.63 |
| | 1/16 | 1/4 | 2.75 | 0.062 | 0.059 | 0.125 | 1.5 | 1.015 | 2 | 915-0062-2N1.0 |
| | 1/16 | 1/4 | 3.0 | 0.062 | 0.059 | 0.125 | 3.0 | 1.645 | 2 | 930-0062-2N1.64 |
| | 1/16 | 1/4 | 2.5 | 0.062 | 0.059 | 0.125 | 5.0 | 1.216 | 2 | 950-0062-2N1.21 |
| | | | | | | | | | | |
| | 3/32 | 1/4 | 2.25 | 0.093 | 0.089 | 0.160 | 1.5 | 0.591 | 2 | 915-0093-2N.59 |
| | 3/32 | 1/4 | 2.75 | 0.093 | 0.089 | 0.160 | 1.5 | 1.180 | 2 | 915-0093-2N1.18 |
| | 3/32 | 1/4 | 3.0 | 0.093 | 0.089 | 0.160 | 3.0 | 1.696 | 2 | 930-0093-2N1.69 |
| | 3/32 | 1/4 | 3.0 | 0.093 | 0.089 | 0.160 | 3.0 | 1.696 | 4 | 930-0093-4N1.69 |
| | 3/32 | 1/4 | 2.5 | 0.093 | 0.089 | 0.160 | 5.0 | 1.081 | 2 | 950-0093-2N1.08 |
| | 3/32 | 1/4 | 2.5 | 0.093 | 0.089 | 0.160 | 5.0 | 1.081 | 4 | 950-0093-4N1.08 |
| | | | | | | | | | | |
| | 1/8 | 1/4 | 2.75 | 0.125 | 0.121 | 0.200 | 1.5 | 1.180 | 2 | 915-0125-2N1.18 |
| | 1/8 | 1/4 | 3.0 | 0.125 | 0.121 | 0.200 | 1.5 | 1.575 | 2 | 915-0125-2N1.57 |
| | 1/8 | 1/4 | 3.5 | 0.125 | 0.121 | 0.200 | 1.5 | 2.020 | 2 | 915-0125-2N2.02 |
| | 1/8 | 1/4 | 3.0 | 0.125 | 0.121 | 0.200 | 3.0 | 1.425 | 2 | 930-0125-2N1.42 |
| | 1/8 | 1/4 | 3.0 | 0.125 | 0.121 | 0.200 | 3.0 | 1.425 | 4 | 930-0125-4N1.42 |
| | 1/8 | 1/4 | 2.5 | 0.125 | 0.121 | 0.200 | 5.0 | 0.937 | 2 | 950-0125-2N.93 |

# Ball Nose Tapered Shank HV




| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | D3 Neck Dia. | L3 LON | T1 Taper Angle | L4 LOT | No. of Flutes | Part # |
|---|---|---|---|---|---|---|---|---|---|---|
| in | 3/16 | 5/16 | 3.0 | 0.187 | 0.184 | 0.310 | 1.5 | 1.100 | 2 | 915-0187-2N1.10 |
| | 3/16 | 5/16 | 3.5 | 0.187 | 0.184 | 0.310 | 1.5 | 1.600 | 2 | 915-0187-2N1.60 |
| | 3/16 | 5/16 | 4.25 | 0.187 | 0.184 | 0.310 | 1.5 | 2.300 | 2 | 915-0187-2N2.30 |
| | 3/16 | 5/16 | 3.5 | 0.187 | 0.184 | 0.310 | 3.0 | 1.536 | 2 | 930-0187-2N1.53 |
| | 3/16 | 5/16 | 2.5 | 0.187 | 0.184 | 0.310 | 5.0 | 1.044 | 2 | 950-0187-2N1.04 |
| | | | | | | | | | | |
| | 1/4 | 3/8 | 4.0 | 0.312 | 0.245 | 0.437 | 1.5 | 2.047 | 2 | 915-0250-2N2.04 |
| | 1/4 | 3/8 | 4.0 | 0.312 | 0.245 | 0.437 | 1.5 | 2.047 | 4 | 915-0250-4N2.04 |
| | 1/4 | 3/8 | 5.0 | 0.312 | 0.245 | 0.437 | 1.5 | 2.550 | 2 | 915-0250-2N2.55 |
| | 1/4 | 3/8 | 3.5 | 0.312 | 0.245 | 0.437 | 3.0 | 1.677 | 2 | 930-0250-2N1.67 |
| | 1/4 | 3/8 | 3.0 | 0.312 | 0.245 | 0.437 | 5.0 | 1.186 | 2 | 950-0250-2N1.18 |
| | | | | | | | | | | |
| | 5/16 | 7/16 | 4.0 | 0.400 | 0.305 | 0.550 | 3.0 | 1.814 | 2 | 930-0312-2N1.81 |
| | | | | | | | | | | |
| | 3/8 | 1/2 | 5.0 | 0.450 | 0.367 | 0.625 | 1.5 | 2.965 | 2 | 915-0375-2N2.96 |
| | 3/8 | 1/2 | 5.0 | 0.450 | 0.367 | 0.625 | 1.5 | 2.965 | 4 | 915-0375-4N2.96 |
| | 3/8 | 1/2 | 4.5 | 0.450 | 0.367 | 0.625 | 3.0 | 1.894 | 2 | 930-0375-2N1.89 |
| | | | | | | | | | | |
| | 1/2 | 5/8 | 6.3 | 0.625 | 0.490 | 0.875 | 1.5 | 3.453 | 4 | 915-0500-4N3.45 |

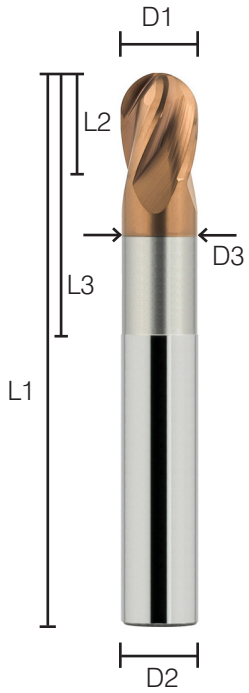
# HV Ball Nose 0.5 - 2.0 mm



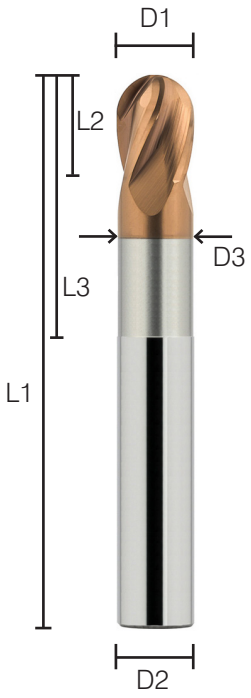

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | D3 Neck Dia. | L3 LON | No. of Flutes | Part # |
|---|---|---|---|---|---|---|---|---|
| mm | 0.5 | 4.0 | 50.0 | 0.5 | 0.47 | 2.0 | 2 | 900-005-202N2 |
| | 0.5 | 4.0 | 50.0 | 0.5 | 0.47 | 3.0 | 2 | 900-005-202N3 |
| | 0.5 | 4.0 | 50.0 | 0.5 | 0.47 | 4.0 | 2 | 900-005-202N4 |
| | 0.5 | 4.0 | 50.0 | 0.5 | 0.47 | 5.0 | 2 | 900-005-202N5 |
| | 0.5 | 4.0 | 50.0 | 0.5 | 0.47 | 6.0 | 2 | 900-005-202N6 |
| | 0.5 | 4.0 | 50.0 | 0.5 | 0.47 | 8.0 | 2 | 900-005-202N8 |
| | | | | | | | | |
| | 0.8 | 4.0 | 50.0 | 0.8 | 0.95 | 2.0 | 2 | 900-008-202N2 |
| | 0.8 | 4.0 | 50.0 | 0.8 | 0.95 | 4.0 | 2 | 900-008-202N4 |
| | | | | | | | | |
| | 1.0 | 4.0 | 50.0 | 1.0 | 0.95 | 3.0 | 2 | 900-010-202N3 |
| | 1.0 | 4.0 | 50.0 | 1.0 | 0.95 | 4.0 | 2 | 900-010-202N4 |
| | 1.0 | 4.0 | 50.0 | 1.0 | 0.95 | 6.0 | 2 | 900-010-202N6 |
| | 1.0 | 4.0 | 50.0 | 1.0 | 0.95 | 8.0 | 2 | 900-010-202N8 |
| | 1.0 | 4.0 | 50.0 | 1.0 | 0.95 | 10.0 | 2 | 900-010-202N10 |
| | 1.0 | 4.0 | 50.0 | 1.0 | 0.95 | 12.0 | 2 | 900-010-202N12 |
| | 1.0 | 4.0 | 60.0 | 1.0 | 0.95 | 14.0 | 2 | 900-010-202N14 |
| | 1.0 | 4.0 | 60.0 | 1.0 | 0.95 | 16.0 | 2 | 900-010-202N16 |
| | | | | | | | | |
| | 1.5 | 4.0 | 50.0 | 1.5 | 1.44 | 4.0 | 2 | 900-015-202N4 |
| | 1.5 | 4.0 | 50.0 | 1.5 | 1.44 | 6.0 | 2 | 900-015-202N6 |
| | 1.5 | 4.0 | 50.0 | 1.5 | 1.44 | 8.0 | 2 | 900-015-202N8 |
| | 1.5 | 4.0 | 50.0 | 1.5 | 1.44 | 10.0 | 2 | 900-015-202N10 |
| | 1.5 | 4.0 | 55.0 | 1.5 | 1.44 | 12.0 | 2 | 900-015-202N12 |
| | 1.5 | 4.0 | 55.0 | 1.5 | 1.44 | 14.0 | 2 | 900-015-202N14 |
| | 1.5 | 4.0 | 60.0 | 1.5 | 1.44 | 16.0 | 2 | 900-015-202N16 |
| | 1.5 | 4.0 | 60.0 | 1.5 | 1.44 | 20.0 | 2 | 900-015-202N20 |
| | | | | | | | | |
| | 2.0 | 4.0 | 50.0 | 2.0 | 1.95 | 6.0 | 2 | 900-020-202N6 |
| | 2.0 | 4.0 | 50.0 | 2.0 | 1.95 | 6.0 | 4 | 900-020-402N6 |
| | 2.0 | 4.0 | 50.0 | 2.0 | 1.95 | 8.0 | 2 | 900-020-202N8 |
| | 2.0 | 4.0 | 50.0 | 2.0 | 1.95 | 8.0 | 4 | 900-020-402N8 |
| | 2.0 | 4.0 | 50.0 | 2.0 | 1.95 | 10.0 | 2 | 900-020-202N10 |
| | 2.0 | 4.0 | 50.0 | 2.0 | 1.95 | 10.0 | 4 | 900-020-402N10 |
| | 2.0 | 4.0 | 50.0 | 2.0 | 1.95 | 12.0 | 2 | 900-020-202N12 |
| | 2.0 | 4.0 | 50.0 | 2.0 | 1.95 | 12.0 | 4 | 900-020-402N12 |
| | 2.0 | 4.0 | 55.0 | 2.0 | 1.95 | 14.0 | 2 | 900-020-202N14 |
| | 2.0 | 4.0 | 60.0 | 2.0 | 1.95 | 16.0 | 2 | 900-020-202N16 |
| | 2.0 | 4.0 | 60.0 | 2.0 | 1.95 | 18.0 | 2 | 900-020-202N18 |
| | 2.0 | 4.0 | 60.0 | 2.0 | 1.95 | 20.0 | 2 | 900-020-202N20 |

# HV Ball Nose 3.0 - 5.0 mm

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | D3 Neck Dia. | L3 LON | No. of Flutes | Part # |
|---|---|---|---|---|---|---|---|---|
| mm | 3.0 | 6.0 | 50.0 | 3.0 | 2.90 | 8.0 | 2 | 900-030-202N8 |
| | 3.0 | 6.0 | 50.0 | 3.0 | 2.90 | 8.0 | 4 | 900-030-402N8 |
| | 3.0 | 6.0 | 60.0 | 3.0 | 2.90 | 10.0 | 2 | 900-030-202N10 |
| | 3.0 | 6.0 | 60.0 | 3.0 | 2.90 | 10.0 | 4 | 900-030-402N10 |
| | 3.0 | 6.0 | 60.0 | 3.0 | 2.90 | 12.0 | 2 | 900-030-202N12 |
| | 3.0 | 6.0 | 60.0 | 3.0 | 2.90 | 12.0 | 4 | 900-030-402N12 |
| | 3.0 | 6.0 | 60.0 | 3.0 | 2.90 | 14.0 | 2 | 900-030-202N14 |
| | 3.0 | 6.0 | 60.0 | 3.0 | 2.90 | 14.0 | 4 | 900-030-402N14 |
| | 3.0 | 6.0 | 65.0 | 3.0 | 2.90 | 16.0 | 2 | 900-030-202N16 |
| | 3.0 | 6.0 | 65.0 | 3.0 | 2.90 | 18.0 | 2 | 900-030-202N18 |
| | 3.0 | 6.0 | 70.0 | 3.0 | 2.90 | 20.0 | 2 | 900-030-202N20 |
| | 3.0 | 6.0 | 70.0 | 3.0 | 2.90 | 25.0 | 2 | 900-030-202N25 |
| | 3.0 | 6.0 | 70.0 | 3.0 | 2.90 | 30.0 | 2 | 900-030-202N30 |
| | | | | | | | | |
| | 4.0 | 6.0 | 50.0 | 4.0 | 3.85 | 10.0 | 2 | 900-040-202N10 |
| | 4.0 | 6.0 | 50.0 | 4.0 | 3.85 | 10.0 | 4 | 900-040-402N10 |
| | 4.0 | 6.0 | 60.0 | 4.0 | 3.85 | 16.0 | 2 | 900-040-202N16 |
| | 4.0 | 6.0 | 60.0 | 4.0 | 3.85 | 16.0 | 4 | 900-040-402N16 |
| | 4.0 | 6.0 | 65.0 | 4.0 | 3.85 | 20.0 | 2 | 900-040-202N20 |
| | 4.0 | 6.0 | 65.0 | 4.0 | 3.85 | 20.0 | 4 | 900-040-402N20 |
| | 4.0 | 6.0 | 70.0 | 4.0 | 3.85 | 25.0 | 2 | 900-040-202N25 |
| | 4.0 | 6.0 | 70.0 | 4.0 | 3.85 | 25.0 | 4 | 900-040-402N25 |
| | 4.0 | 6.0 | 70.0 | 4.0 | 3.85 | 30.0 | 2 | 900-040-202N30 |
| | 4.0 | 6.0 | 80.0 | 4.0 | 3.85 | 35.0 | 2 | 900-040-202N35 |
| | 4.0 | 6.0 | 90.0 | 4.0 | 3.85 | 40.0 | 2 | 900-040-202N40 |
| | | | | | | | | |
| | 5.0 | 6.0 | 65.0 | 6.0 | 4.85 | 20.0 | 2 | 900-050-202N20 |
| | 5.0 | 6.0 | 65.0 | 6.0 | 4.85 | 20.0 | 4 | 900-050-402N20 |
| | 5.0 | 6.0 | 65.0 | 6.0 | 4.85 | 25.0 | 2 | 900-050-202N25 |
| | 5.0 | 6.0 | 65.0 | 6.0 | 4.85 | 25.0 | 4 | 900-050-402N25 |
| | 5.0 | 6.0 | 70.0 | 6.0 | 4.85 | 30.0 | 4 | 900-050-402N30 |
| | 5.0 | 6.0 | 80.0 | 6.0 | 4.85 | 35.0 | 2 | 900-050-202N35 |
| | 5.0 | 6.0 | 90.0 | 6.0 | 4.85 | 40.0 | 2 | 900-050-202N40 |
| | 5.0 | 6.0 | 65.0 | 6.0 | 4.85 | 25.0 | 2 | 900-050-2BN25L65 |
| | 5.0 | 6.0 | 70.0 | 6.0 | 4.85 | 30.0 | 2 | 900-050-2BN30L70 |
| | 5.0 | 6.0 | 80.0 | 6.0 | 4.85 | 35.0 | 2 | 900-050-2BN35L80 |
| | 5.0 | 6.0 | 90.0 | 6.0 | 4.85 | 40.0 | 2 | 900-050-2BN40L90 |
| | 5.0 | 6.0 | 90.0 | 6.0 | 4.85 | 45.0 | 2 | 900-050-2BN45L90 |
| | 5.0 | 6.0 | 100.0 | 6.0 | 4.85 | 50.0 | 2 | 900-050-2BN50L100 |



# HV Ball Nose 6.0 - 12.0 mm

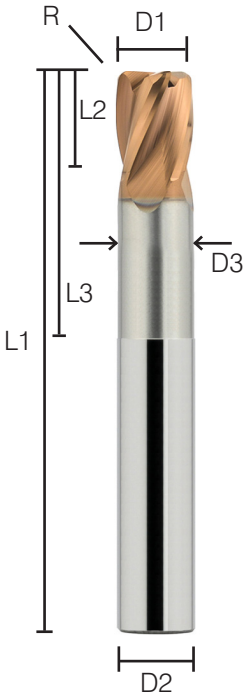



| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | D3 Neck Dia. | L3 LON | No. of Flutes | Part # |
|---|---|---|---|---|---|---|---|---|
| mm | 6.0 | 6.0 | 60.0 | 7.0 | 5.80 | 20.0 | 2 | 900-060-202N20 |
| | 6.0 | 6.0 | 60.0 | 7.0 | 5.80 | 20.0 | 4 | 900-060-402N20 |
| | 6.0 | 6.0 | 70.0 | 7.0 | 5.80 | 30.0 | 2 | 900-060-202N30 |
| | 6.0 | 6.0 | 70.0 | 7.0 | 5.80 | 30.0 | 4 | 900-060-402N30 |
| | 6.0 | 6.0 | 80.0 | 7.0 | 5.80 | 40.0 | 4 | 900-060-402N40 |
| | 6.0 | 6.0 | 90.0 | 7.0 | 5.80 | 50.0 | 2 | 900-060-202N50 |
| | 6.0 | 6.0 | 90.0 | 7.0 | 5.80 | 50.0 | 4 | 900-060-402N50 |
| | 6.0 | 6.0 | 100.0 | 7.0 | 5.80 | 60.0 | 2 | 900-060-202N60 |
| | | | | | | | | |
| | 8.0 | 8.0 | 60.0 | 9.0 | 7.80 | 25.0 | 2 | 900-080-202N20 |
| | 8.0 | 8.0 | 60.0 | 9.0 | 7.80 | 25.0 | 4 | 900-080-402N20 |
| | 8.0 | 8.0 | 80.0 | 9.0 | 7.80 | 40.0 | 2 | 900-080-202N40 |
| | 8.0 | 8.0 | 80.0 | 9.0 | 7.80 | 40.0 | 4 | 900-080-402N40 |
| | | | | | | | | |
| | 10.0 | 10.0 | 65.0 | 12.0 | 9.70 | 20.0 | 2 | 900-100-202N20 |
| | 10.0 | 10.0 | 80.0 | 12.0 | 9.70 | 25.0 | 2 | 900-100-202N25 |
| | 10.0 | 10.0 | 80.0 | 12.0 | 9.70 | 25.0 | 4 | 900-100-402N25 |
| | 10.0 | 10.0 | 110.0 | 12.0 | 9.70 | 50.0 | 2 | 900-100-202N50 |
| | 10.0 | 10.0 | 110.0 | 12.0 | 9.70 | 50.0 | 4 | 900-100-402N50 |
| | | | | | | | | |
| | 12.0 | 12.0 | 80.0 | 14.0 | 11.70 | 30.0 | 2 | 900-120-202N30 |
| | 12.0 | 12.0 | 80.0 | 14.0 | 11.70 | 30.0 | 4 | 900-120-402N30 |
| | 12.0 | 12.0 | 109.0 | 14.0 | 11.70 | 50.0 | 2 | 900-120-202N50 |
| | 12.0 | 12.0 | 109.0 | 14.0 | 11.70 | 50.0 | 4 | 900-120-402N50 |

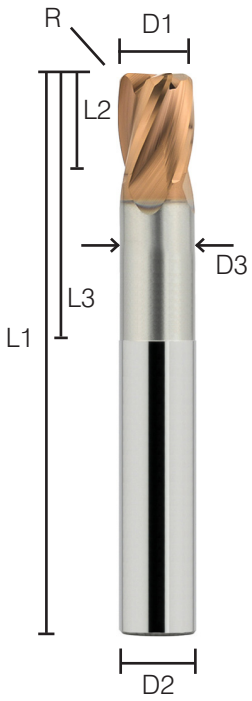
# HV Corner Radius 1.0 - 3.0 mm

mm

| D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | D3 Neck Dia. | L3 LON | R Radius | No. of Flutes | Part # |
|---|---|---|---|---|---|---|---|---|
| 1.0 | 4.0 | 50.0 | 1.0 | 0.95 | 4.0 | 0.1 | 2 | 900-010-2R.1N4 |
| 1.0 | 4.0 | 50.0 | 1.0 | 0.95 | 4.0 | 0.2 | 2 | 900-010-2R.2N4 |
| 1.0 | 4.0 | 50.0 | 1.0 | 0.95 | 4.0 | 0.3 | 2 | 900-010-2R.3N4 |
| 1.0 | 4.0 | 50.0 | 1.0 | 0.95 | 6.0 | 0.1 | 2 | 900-010-2R.1N6 |
| 1.0 | 4.0 | 50.0 | 1.0 | 0.95 | 6.0 | 0.2 | 2 | 900-010-2R.2N6 |
| 1.0 | 4.0 | 50.0 | 1.0 | 0.95 | 6.0 | 0.3 | 2 | 900-010-2R.3N6 |
| | | | | | | | | |
| 1.5 | 4.0 | 50.0 | 1.5 | 1.44 | 6.0 | 0.1 | 2 | 900-015-2R.1N6 |
| 1.5 | 4.0 | 50.0 | 1.5 | 1.44 | 6.0 | 0.2 | 2 | 900-015-2R.2N6 |
| 1.5 | 4.0 | 50.0 | 1.5 | 1.44 | 6.0 | 0.3 | 2 | 900-015-2R.3N6 |
| 1.5 | 4.0 | 50.0 | 1.5 | 1.44 | 10.0 | 0.1 | 2 | 900-015-2R.1N10 |
| 1.5 | 4.0 | 50.0 | 1.5 | 1.44 | 10.0 | 0.2 | 2 | 900-015-2R.2N10 |
| 1.5 | 4.0 | 50.0 | 1.5 | 1.44 | 10.0 | 0.3 | 2 | 900-015-2R.3N10 |
| 1.5 | 4.0 | 50.0 | 1.5 | 1.44 | 15.0 | 0.1 | 2 | 900-015-2R.1N15 |
| 1.5 | 4.0 | 50.0 | 1.5 | 1.44 | 15.0 | 0.2 | 2 | 900-015-2R.2N15 |
| 1.5 | 4.0 | 50.0 | 1.5 | 1.44 | 15.0 | 0.3 | 2 | 900-015-2R.3N15 |
| | | | | | | | | |
| 2.0 | 4.0 | 50.0 | 2.0 | 1.95 | 6.0 | 0.3 | 2 | 900-020-2R.3N6 |
| 2.0 | 4.0 | 50.0 | 2.0 | 1.95 | 6.0 | 0.5 | 2 | 900-020-2R.5N6 |
| 2.0 | 4.0 | 50.0 | 2.0 | 1.95 | 6.0 | 0.5 | 4 | 900-020-4R.5N6 |
| 2.0 | 4.0 | 50.0 | 2.0 | 1.95 | 8.0 | 0.5 | 2 | 900-020-2R.5N8 |
| 2.0 | 4.0 | 50.0 | 2.0 | 1.95 | 10.0 | 0.5 | 2 | 900-020-2R.5N10 |
| 2.0 | 4.0 | 60.0 | 2.0 | 1.95 | 10.0 | 0.5 | 4 | 900-020-4R.5N10 |
| 2.0 | 4.0 | 50.0 | 2.0 | 1.95 | 12.0 | 0.5 | 2 | 900-020-2R.5N12 |
| 2.0 | 4.0 | 50.0 | 2.0 | 1.95 | 15.0 | 0.5 | 2 | 900-020-2R.5N15 |
| 2.0 | 4.0 | 50.0 | 2.0 | 1.95 | 15.0 | 0.5 | 4 | 900-020-4R.5N15 |
| 2.0 | 4.0 | 60.0 | 2.0 | 1.95 | 20.0 | 0.5 | 4 | 900-020-4R.5N20 |
| 2.0 | 4.0 | 60.0 | 2.0 | 1.95 | 25.0 | 0.5 | 4 | 900-020-4R.5N25 |
| | | | | | | | | |
| 3.0 | 6.0 | 50.0 | 3.0 | 2.90 | 10.0 | 0.3 | 4 | 900-030-4R.3N10 |
| 3.0 | 6.0 | 60.0 | 3.0 | 2.90 | 15.0 | 0.3 | 4 | 900-030-4R.3N15 |
| 3.0 | 6.0 | 60.0 | 3.0 | 2.90 | 20.0 | 0.3 | 4 | 900-030-4R.3N20 |
| 3.0 | 6.0 | 65.0 | 3.0 | 2.90 | 25.0 | 0.3 | 4 | 900-030-4R.3N25 |
| 3.0 | 6.0 | 70.0 | 3.0 | 2.90 | 30.0 | 0.3 | 4 | 900-030-4R.3N30 |
| 3.0 | 6.0 | 50.0 | 3.0 | 2.90 | 8.0 | 0.5 | 2 | 900-030-2R.5N8 |
| 3.0 | 6.0 | 50.0 | 3.0 | 2.90 | 10.0 | 0.5 | 2 | 900-030-2R.5N10 |
| 3.0 | 6.0 | 50.0 | 3.0 | 2.90 | 10.0 | 0.5 | 4 | 900-030-4R.5N10 |
| 3.0 | 6.0 | 60.0 | 3.0 | 2.90 | 15.0 | 0.5 | 4 | 900-030-4R.5N15 |
| 3.0 | 6.0 | 60.0 | 3.0 | 2.90 | 12.0 | 0.5 | 2 | 900-030-2R.5N12 |
| 3.0 | 6.0 | 60.0 | 3.0 | 2.90 | 14.0 | 0.5 | 2 | 900-030-2R.5N14 |
| 3.0 | 6.0 | 60.0 | 3.0 | 2.90 | 16.0 | 0.5 | 2 | 900-030-2R.5N16 |
| 3.0 | 6.0 | 60.0 | 3.0 | 2.90 | 20.0 | 0.5 | 4 | 900-030-4R.5N20 |
| 3.0 | 6.0 | 65.0 | 3.0 | 2.90 | 25.0 | 0.5 | 4 | 900-030-4R.5N25 |
| 3.0 | 6.0 | 70.0 | 3.0 | 2.90 | 30.0 | 0.5 | 4 | 900-030-4R.5N30 |



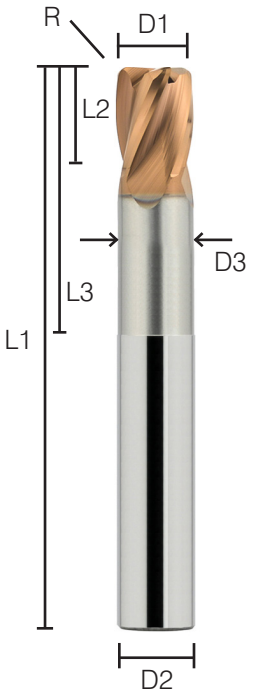
# HV Corner Radius 4.0 - 6.0 mm



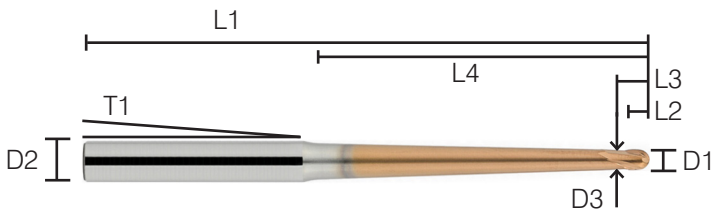

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | D3 Neck Dia. | L3 LON | R Radius | No. of Flutes | Part # |
|---|---|---|---|---|---|---|---|---|---|
| mm | 4.0 | 6.0 | 50.0 | 4.0 | 3.85 | 10 | 0.5 | 2 | 900-040-2R.5N10 |
| | 4.0 | 6.0 | 50.0 | 4.0 | 3.85 | 12 | 0.5 | 2 | 900-040-2R.5N12 |
| | 4.0 | 6.0 | 50.0 | 4.0 | 3.85 | 12 | 0.5 | 4 | 900-040-4R.5N12 |
| | 4.0 | 6.0 | 60.0 | 4.0 | 3.85 | 16 | 0.5 | 2 | 900-040-2R.5N16 |
| | 4.0 | 6.0 | 65.0 | 4.0 | 3.85 | 20 | 0.5 | 2 | 900-040-2R.5N20 |
| | 4.0 | 6.0 | 60.0 | 4.0 | 3.85 | 20 | 0.5 | 4 | 900-040-4R.5N20 |
| | 4.0 | 6.0 | 70.0 | 4.0 | 3.85 | 25 | 0.5 | 2 | 900-040-2R.5N25 |
| | 4.0 | 6.0 | 70.0 | 4.0 | 3.85 | 30 | 0.5 | 4 | 900-040-4R.5N30 |
| | 4.0 | 6.0 | 80.0 | 4.0 | 3.85 | 35 | 0.5 | 2 | 900-040-2R.5N35 |
| | 4.0 | 6.0 | 50.0 | 4.0 | 3.85 | 12 | 1.0 | 4 | 900-040-4R1N12 |
| | 4.0 | 6.0 | 65.0 | 4.0 | 3.85 | 20 | 1.0 | 4 | 900-040-4R1N20 |
| | 4.0 | 6.0 | 70.0 | 4.0 | 3.85 | 30 | 1.0 | 4 | 900-040-4R1N30 |
| | | | | | | | | | |
| | 5.0 | 6.0 | 60.0 | 6.0 | 4.85 | 15 | 0.5 | 4 | 900-050-4R.5N15 |
| | 5.0 | 6.0 | 65.0 | 6.0 | 4.85 | 20 | 0.5 | 4 | 900-050-4R.5N20 |
| | 5.0 | 6.0 | 70.0 | 6.0 | 4.85 | 30 | 0.5 | 4 | 900-050-4R.5N30 |
| | | | | | | | | | |
| | 6.0 | 6.0 | 60.0 | 7.0 | 5.80 | 18 | 0.5 | 2 | 900-060-2R.5N18 |
| | 6.0 | 6.0 | 60.0 | 7.0 | 5.80 | 18 | 0.5 | 4 | 900-060-4R.5N18 |
| | 6.0 | 6.0 | 60.0 | 7.0 | 5.80 | 18 | 0.5 | 6 | 900-060-6R.5N18 |
| | 6.0 | 6.0 | 70.0 | 7.0 | 5.80 | 30 | 0.5 | 4 | 900-060-4R.5N30 |
| | 6.0 | 6.0 | 80.0 | 7.0 | 5.80 | 40 | 0.5 | 2 | 900-060-2R.5N40 |
| | 6.0 | 6.0 | 80.0 | 7.0 | 5.80 | 40 | 0.5 | 4 | 900-060-4R.5N40 |
| | 6.0 | 6.0 | 90.0 | 7.0 | 5.80 | 50 | 0.5 | 4 | 900-060-4R.5N50 |
| | 6.0 | 6.0 | 60.0 | 7.0 | 5.80 | 18 | 1.0 | 2 | 900-060-2R1N18 |
| | 6.0 | 6.0 | 60.0 | 7.0 | 5.80 | 18 | 1.0 | 4 | 900-060-4R1N18 |
| | 6.0 | 6.0 | 60.0 | 7.0 | 5.80 | 18 | 1.0 | 6 | 900-060-6R1N18 |
| | 6.0 | 6.0 | 70.0 | 7.0 | 5.80 | 30 | 1.0 | 4 | 900-060-4R1N30 |
| | 6.0 | 6.0 | 80.0 | 7.0 | 5.80 | 40 | 1.0 | 4 | 900-060-4R1N40 |
| | 6.0 | 6.0 | 90.0 | 7.0 | 5.80 | 50 | 1.0 | 4 | 900-060-4R1N50 |
| | 6.0 | 6.0 | 70.0 | 7.0 | 5.80 | 30 | 2.0 | 2 | 900-060-2R2N30 |
| | 6.0 | 6.0 | 70.0 | 7.0 | 5.80 | 30 | 2.0 | 4 | 900-060-4R2N30 |

# HV Corner Radius 8.0 - 12.0 mm

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | D3 Neck Dia. | L3 LON | R Radius | No. of Flutes | Part # |
|---|---|---|---|---|---|---|---|---|---|
| mm | 8.0 | 8.0 | 80.0 | 9.0 | 7.80 | 25.0 | 0.5 | 2 | 900-080-2R.5N25 |
| | 8.0 | 8.0 | 80.0 | 9.0 | 7.80 | 25.0 | 0.5 | 4 | 900-080-4R.5N25 |
| | 8.0 | 8.0 | 80.0 | 9.0 | 7.80 | 25.0 | 0.5 | 6 | 900-080-6R.5N25 |
| | 8.0 | 8.0 | 100.0 | 9.0 | 7.80 | 50.0 | 0.5 | 4 | 900-080-4R.5N50 |
| | 8.0 | 8.0 | 80.0 | 9.0 | 7.80 | 25.0 | 1.0 | 4 | 900-080-4R1N25 |
| | 8.0 | 8.0 | 80.0 | 9.0 | 7.80 | 25.0 | 1.0 | 6 | 900-080-6R1N25 |
| | 8.0 | 8.0 | 100.0 | 9.0 | 7.80 | 50.0 | 1.0 | 4 | 900-080-4R1N50 |
| | 8.0 | 8.0 | 80.0 | 9.0 | 7.80 | 25.0 | 2.0 | 4 | 900-080-4R2N25 |
| | 8.0 | 8.0 | 80.0 | 9.0 | 7.80 | 25.0 | 2.0 | 6 | 900-080-6R2N25 |
| | 8.0 | 8.0 | 100.0 | 9.0 | 7.80 | 50.0 | 2.0 | 4 | 900-080-4R2N50 |
| | | | | | | | | | |
| | 10.0 | 10.0 | 80.0 | 12.0 | 9.70 | 30.0 | 0.5 | 4 | 900-100-4R.5N30 |
| | 10.0 | 10.0 | 80.0 | 12.0 | 9.70 | 30.0 | 0.5 | 6 | 900-100-6R.5N30 |
| | 10.0 | 10.0 | 110.0 | 12.0 | 9.70 | 50.0 | 0.5 | 2 | 900-100-2R.5N50 |
| | 10.0 | 10.0 | 110.0 | 12.0 | 9.70 | 50.0 | 0.5 | 4 | 900-100-4R.5N50 |
| | 10.0 | 10.0 | 80.0 | 12.0 | 9.70 | 30.0 | 1.0 | 4 | 900-100-4R1N30 |
| | 10.0 | 10.0 | 80.0 | 12.0 | 9.70 | 30.0 | 1.0 | 6 | 900-100-6R1N30 |
| | 10.0 | 10.0 | 110.0 | 12.0 | 9.70 | 50.0 | 1.0 | 4 | 900-100-4R1N50 |
| | 10.0 | 10.0 | 80.0 | 12.0 | 9.70 | 30.0 | 2.0 | 2 | 900-100-2R2N30 |
| | 10.0 | 10.0 | 80.0 | 12.0 | 9.70 | 30.0 | 2.0 | 4 | 900-100-4R2N30 |
| | 10.0 | 10.0 | 80.0 | 12.0 | 9.70 | 30.0 | 2.0 | 6 | 900-100-6R2N30 |
| | 10.0 | 10.0 | 110.0 | 12.0 | 9.70 | 50.0 | 2.0 | 4 | 900-100-4R2N50 |
| | 10.0 | 10.0 | 80.0 | 12.0 | 9.70 | 30.0 | 3.0 | 4 | 900-100-4R3N30 |
| | 10.0 | 10.0 | 80.0 | 12.0 | 9.70 | 30.0 | 3.0 | 6 | 900-100-6R3N30 |
| | 10.0 | 10.0 | 110.0 | 12.0 | 9.70 | 50.0 | 3.0 | 4 | 900-100-4R3N50 |
| | | | | | | | | | |
| | 12.0 | 12.0 | 110.0 | 14.0 | 11.70 | 50.0 | 0.5 | 2 | 900-120-2R.5N50 |
| | 12.0 | 12.0 | 110.0 | 14.0 | 11.70 | 50.0 | 0.5 | 4 | 900-120-4R.5N50 |
| | 12.0 | 12.0 | 110.0 | 14.0 | 11.70 | 50.0 | 0.5 | 6 | 900-120-6R.5N50 |
| | 12.0 | 12.0 | 110.0 | 26.0 | - | - | 1.0 | 2 | 900-120-2R1 |
| | 12.0 | 12.0 | 110.0 | 14.0 | 11.70 | 35.0 | 1.0 | 2 | 900-120-2R1N35 |
| | 12.0 | 12.0 | 110.0 | 14.0 | 11.70 | 50.0 | 1.0 | 2 | 900-120-2R1N50 |
| | 12.0 | 12.0 | 110.0 | 14.0 | 11.70 | 50.0 | 1.0 | 4 | 900-120-4R1N50 |
| | 12.0 | 12.0 | 110.0 | 14.0 | 11.70 | 50.0 | 1.0 | 6 | 900-120-6R1N50 |
| | 12.0 | 12.0 | 110.0 | 14.0 | 11.70 | 50.0 | 1.5 | 4 | 900-120-4R1.5N50 |
| | 12.0 | 12.0 | 110.0 | 14.0 | 11.70 | 50.0 | 2.0 | 2 | 900-120-2R2N50 |
| | 12.0 | 12.0 | 110.0 | 14.0 | 11.70 | 50.0 | 2.0 | 4 | 900-120-4R2N50 |
| | 12.0 | 12.0 | 110.0 | 14.0 | 11.70 | 50.0 | 2.0 | 6 | 900-120-6R2N50 |
| | 12.0 | 12.0 | 110.0 | 14.0 | 11.70 | 50.0 | 3.0 | 4 | 900-120-4R3N50 |
| | 12.0 | 12.0 | 110.0 | 14.0 | 11.70 | 50.0 | 3.0 | 6 | 900-120-6R3N50 |
| | 12.0 | 12.0 | 110.0 | 14.0 | 11.70 | 50.0 | 4.0 | 4 | 900-120-4R4N50 |
| | 12.0 | 12.0 | 110.0 | 14.0 | 11.70 | 50.0 | 4.0 | 6 | 900-120-6R4N50 |

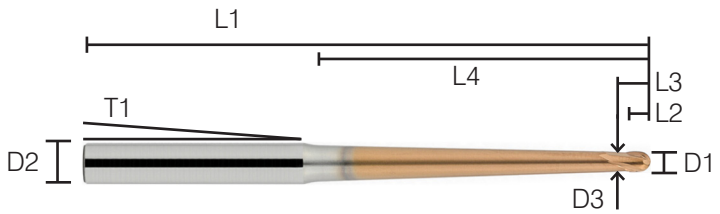


# HV Tapered Reach BN 1.0 - 4.0 mm




| mm | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | D3 Neck Dia. | L3 LON | T1 Taper Angle | L4 LOT | No. of Flutes | Part # |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.0 | 6.0 | 50.0 | 1.0 | 0.95 | 2.0 | 1.5 | 10.0 | 2 | 915-010-202N10 |
| | 1.0 | 6.0 | 60.0 | 1.0 | 0.95 | 2.0 | 1.5 | 15.0 | 2 | 915-010-202N15 |
| | 1.0 | 6.0 | 65.0 | 1.0 | 0.95 | 2.0 | 1.5 | 20.0 | 2 | 915-010-202N20 |
| | 1.0 | 6.0 | 70.0 | 1.0 | 0.95 | 2.0 | 1.5 | 25.0 | 2 | 915-010-202N25 |
| | 1.0 | 6.0 | 80.0 | 1.0 | 0.95 | 2.0 | 3.0 | 40.0 | 2 | 930-010-202N40 |
| | 1.0 | 6.0 | 65.0 | 1.0 | 0.95 | 2.0 | 5.0 | 30.8 | 2 | 950-010-202N31 |
| | | | | | | | | | | |
| | 1.5 | 6.0 | 60.0 | 1.5 | 1.44 | 3.0 | 1.5 | 10.0 | | 915-015-202N10 |
| | 1.5 | 6.0 | 60.0 | 1.5 | 1.44 | 3.0 | 1.5 | 15.0 | 2 | 915-015-202N15 |
| | 1.5 | 6.0 | 65.0 | 1.5 | 1.44 | 3.0 | 1.5 | 20.0 | 2 | 915-015-202N20 |
| | 1.5 | 6.0 | 70.0 | 1.5 | 1.44 | 3.0 | 1.5 | 25.0 | 2 | 915-015-202N25 |
| | 1.5 | 6.0 | 80.0 | 1.5 | 1.44 | 3.0 | 3.0 | 42.0 | 2 | 930-015-202N42 |
| | 1.5 | 6.0 | 65.0 | 1.5 | 1.44 | 3.0 | 5.0 | 29.0 | 2 | 950-015-202N29 |
| | | | | | | | | | | |
| | 2.0 | 6.0 | 60.0 | 2.0 | 1.95 | 4.0 | 1.5 | 15.0 | | 915-020-202N15 |
| | 2.0 | 6.0 | 65.0 | 2.0 | 1.95 | 4.0 | 1.5 | 20.0 | 2 | 915-020-202N20 |
| | 2.0 | 6.0 | 70.0 | 2.0 | 1.95 | 4.0 | 1.5 | 30.0 | 2 | 915-020-202N30 |
| | 2.0 | 6.0 | 80.0 | 2.0 | 1.95 | 4.0 | 1.5 | 40.0 | 2 | 915-020-202N40 |
| | 2.0 | 6.0 | 80.0 | 2.0 | 1.95 | 4.0 | 3.0 | 42.6 | 2 | 930-020-202N42 |
| | 2.0 | 6.0 | 80.0 | 2.0 | 1.95 | 4.0 | 3.0 | 42.6 | 2 | 930-020-402N42 |
| | 2.0 | 6.0 | 60.0 | 2.0 | 1.95 | 4.0 | 5.0 | 27.2 | 4 | 950-020-202N27 |
| | 2.0 | 6.0 | 60.0 | 2.0 | 1.95 | 4.0 | 5.0 | 27.2 | 2 | 950-020-402N27 |
| | 2.0 | 6.0 | 60.0 | 2.0 | 1.95 | 4.0 | 8.0 | 18.5 | 2 | 980-020-202N19 |
| | | | | | | | | | | |
| | 3.0 | 6.0 | 70.0 | 3.0 | 2.90 | 5.0 | 1.5 | 30.0 | 2 | 915-030-202N30 |
| | 3.0 | 6.0 | 80.0 | 3.0 | 2.90 | 5.0 | 1.5 | 40.0 | 2 | 915-030-202N40 |
| | 3.0 | 6.0 | 90.0 | 3.0 | 2.90 | 5.0 | 1.5 | 50.0 | 2 | 915-030-202N50 |
| | 3.0 | 6.0 | 70.0 | 3.0 | 2.90 | 5.0 | 3.0 | 34.5 | 2 | 930-030-202N35 |
| | 3.0 | 6.0 | 70.0 | 3.0 | 2.90 | 5.0 | 3.0 | 34.5 | 4 | 930-030-402N35 |
| | 3.0 | 6.0 | 60.0 | 3.0 | 2.90 | 5.0 | 5.0 | 22.7 | 2 | 950-030-202N23 |
| | 3.0 | 6.0 | 60.0 | 3.0 | 2.90 | 5.0 | 5.0 | 22.7 | 4 | 950-030-402N23 |
| | | | | | | | | | | |
| | 4.0 | 6.0 | 70.0 | 4.0 | 3.85 | 7.0 | 1.5 | 30.0 | 2 | 915-040-202N30 |
| | 4.0 | 6.0 | 80.0 | 4.0 | 3.85 | 7.0 | 1.5 | 40.0 | 2 | 915-040-202N40 |
| | 4.0 | 6.0 | 90.0 | 4.0 | 3.85 | 7.0 | 1.5 | 48.0 | 2 | 915-040-202N48 |
| | 4.0 | 6.0 | 70.0 | 4.0 | 3.85 | 7.0 | 3.0 | 27.5 | 2 | 930-040-202N28 |
| | 4.0 | 6.0 | 70.0 | 4.0 | 3.85 | 7.0 | 3.0 | 27.5 | 4 | 930-040-402N28 |
| | 4.0 | 6.0 | 60.0 | 4.0 | 3.85 | 7.0 | 5.0 | 19.3 | 2 | 950-040-202N19 |
| | 4.0 | 6.0 | 60.0 | 4.0 | 3.85 | 7.0 | 5.0 | 19.3 | 4 | 950-040-402N19 |

# HV Tapered Reach BN 5.0 - 12.0 mm

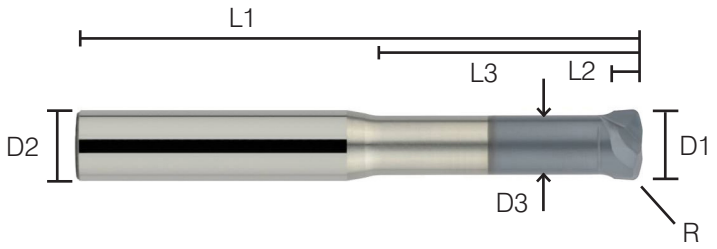



| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | D3 Neck Dia. | L3 LON | T1 Taper Angle | L4 LOT | No. of Flutes | Part # |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 5.0 | 8.0 | 90.0 | 6.0 | 4.85 | 9.0 | 1.5 | 40.0 | 2 | 915-050-202N40 |
| | 5.0 | 8.0 | 110.0 | 6.0 | 4.85 | 9.0 | 1.5 | 60.0 | 2 | 915-050-202N60 |
| | 5.0 | 8.0 | 90.0 | 6.0 | 4.85 | 9.0 | 3.0 | 39.0 | 2 | 930-050-202N39 |
| | 5.0 | 8.0 | 90.0 | 6.0 | 4.85 | 9.0 | 3.0 | 39.0 | 4 | 930-050-402N39 |
| | 5.0 | 8.0 | 70.0 | 6.0 | 4.85 | 9.0 | 5.0 | 27.0 | 2 | 950-050-202N27 |
| | 5.0 | 8.0 | 70.0 | 6.0 | 4.85 | 9.0 | 5.0 | 27.0 | 4 | 950-050-402N27 |
| | | | | | | | | | | |
| | 6.0 | 8.0 | 100.0 | 7.0 | 5.80 | 11.0 | 1.5 | 53.0 | 2 | 915-060-202N53 |
| | 6.0 | 8.0 | 100.0 | 7.0 | 5.80 | 11.0 | 1.5 | 53.0 | 4 | 915-060-402N53 |
| | 6.0 | 8.0 | 130.0 | 7.0 | 5.80 | 11.0 | 1.5 | 53.0 | 2 | 915-06A-202N53 |
| | 6.0 | 8.0 | 100.0 | 7.0 | 5.80 | 11.0 | 1.5 | 53.0 | 2 | 915-B60-202N53 |
| | 6.0 | 8.0 | 100.0 | 7.0 | 5.80 | 11.0 | 1.5 | 53.0 | 4 | 915-B60-402N53 |
| | 6.0 | 8.0 | 90.0 | 7.0 | 5.80 | 11.0 | 3.0 | 32.0 | 2 | 930-060-202N32 |
| | 6.0 | 8.0 | 90.0 | 7.0 | 5.80 | 11.0 | 3.0 | 32.0 | 4 | 930-060-402N32 |
| | 6.0 | 8.0 | 70.0 | 7.0 | 5.80 | 11.0 | 5.0 | 23.5 | 2 | 950-060-202N23 |
| | 6.0 | 8.0 | 70.0 | 7.0 | 5.80 | 11.0 | 5.0 | 23.5 | 4 | 950-060-402N23 |
| | | | | | | | | | | |
| | 8.0 | 10.0 | 120.0 | 9.0 | 7.80 | 14.0 | 1.5 | 56.0 | 2 | 915-080-202N56 |
| | 8.0 | 10.0 | 120.0 | 9.0 | 7.80 | 14.0 | 1.5 | 56.0 | 4 | 915-080-402N56 |
| | 8.0 | 10.0 | 100.0 | 9.0 | 7.80 | 14.0 | 3.0 | 35.0 | 2 | 930-080-202N35 |
| | 8.0 | 10.0 | 100.0 | 9.0 | 7.80 | 14.0 | 3.0 | 35.0 | 4 | 930-080-402N35 |
| | | | | | | | | | | |
| | 10.0 | 12.0 | 130.0 | 12.0 | 9.70 | 18.0 | 1.5 | 62.0 | 2 | 915-100-202N62 |
| | 10.0 | 12.0 | 130.0 | 12.0 | 9.70 | 18.0 | 1.5 | 62.0 | 4 | 915-100-402N62 |
| | 10.0 | 12.0 | 110.0 | 12.0 | 9.70 | 18.0 | 3.0 | 40.0 | 2 | 930-100-202N40 |
| | 10.0 | 12.0 | 110.0 | 12.0 | 9.70 | 18.0 | 3.0 | 40.0 | 4 | 930-100-402N40 |
| | | | | | | | | | | |
| | 12.0 | 16.0 | 160.0 | 14.0 | 11.70 | 22.0 | 1.5 | 99.9 | 2 | 915-120-202N99 |
| | 12.0 | 16.0 | 160.0 | 14.0 | 11.70 | 22.0 | 1.5 | 99.9 | 4 | 915-120-402N99 |
| | 12.0 | 16.0 | 140.0 | 14.0 | 11.70 | 22.0 | 3.0 | 63.0 | 2 | 930-120-202N63 |
| | 12.0 | 16.0 | 140.0 | 14.0 | 11.70 | 22.0 | 3.0 | 63.0 | 4 | 930-120-402N63 |

# Imperial HV Feed Mill

**High Feed Mill** series of cutters are specifically designed for high feed roughing. This series features geometry that takes advantage of the chip thinning process, resulting in reduced radial cutting forces and swift chip evacuation. The unique cutting motion enables the utilization of heavy chip loads, achieving extraordinary material removal rates in the correct application.

- 2 flute high feed end mill
- Ultrafine, wear resistant carbide
- Ideal for very high feed rates
- Suitable for a wide range of materials

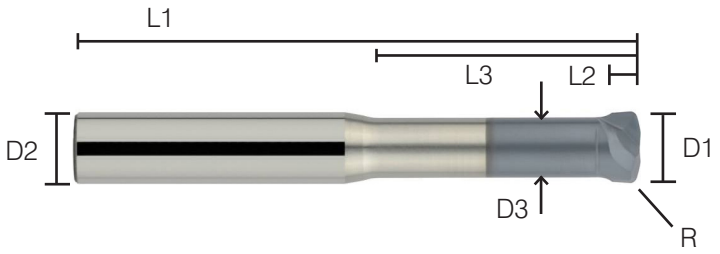



| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | D3 Dia. of Neck | L3 LOR | MAX DOC | R Radius | Coated Part # |
|---|---|---|---|---|---|---|---|---|---|
| in | 1/8 | 1/4 | 2.0 | 0.042 | 0.10 | 0.55 | 0.006 | 0.012 | 656-0125-2R12 |
| | 1/8 | 1/4 | 2.5 | 0.042 | 0.10 | 0.85 | 0.006 | 0.012 | 657-0125-2R12 |
| | | | | | | | | | |
| | 3/16 | 1/4 | 2.0 | 0.075 | 0.16 | 0.66 | 0.009 | 0.019 | 655-0187-2R19 |
| | 3/16 | 1/4 | 2.5 | 0.075 | 0.16 | 1.10 | 0.009 | 0.019 | 656-0187-2R19 |
| | 3/16 | 1/4 | 3.0 | 0.075 | 0.16 | 1.50 | 0.009 | 0.019 | 657-0187-2R19 |
| | | | | | | | | | |
| | 1/4 | 1/4 | 2.5 | 0.104 | 0.21 | 0.77 | 0.013 | 0.025 | 655-0250-2R25 |
| | 1/4 | 1/4 | 3.0 | 0.104 | 0.21 | 1.30 | 0.013 | 0.025 | 656-0250-2R25 |
| | 1/4 | 1/4 | 3.5 | 0.104 | 0.21 | 1.75 | 0.013 | 0.025 | 657-0250-2R25 |
| | | | | | | | | | |
| | 5/16 | 5/16 | 2.5 | 0.12 | 0.26 | 0.85 | 0.016 | 0.031 | 655-0312-2R31 |
| | 5/16 | 5/16 | 3.0 | 0.12 | 0.26 | 1.60 | 0.016 | 0.031 | 656-0312-2R31 |
| | 5/16 | 5/16 | 3.5 | 0.12 | 0.26 | 2.10 | 0.016 | 0.031 | 657-0312-2R31 |
| | | | | | | | | | |
| | 3/8 | 3/8 | 3.0 | 0.135 | 0.31 | 1.10 | 0.019 | 0.038 | 655-0375-2R38 |
| | 3/8 | 3/8 | 3.5 | 0.135 | 0.31 | 1.85 | 0.019 | 0.038 | 656-0375-2R38 |
| | 3/8 | 3/8 | 4.0 | 0.135 | 0.31 | 2.35 | 0.019 | 0.038 | 657-0375-2R38 |
| | | | | | | | | | |
| | 1/2 | 1/2 | 3.5 | 0.167 | 0.42 | 1.30 | 0.025 | 0.050 | 655-0500-2R50 |
| | 1/2 | 1/2 | 4.0 | 0.167 | 0.42 | 1.85 | 0.025 | 0.050 | 656-0500-2R50 |
| | 1/2 | 1/2 | 4.5 | 0.167 | 0.42 | 2.60 | 0.025 | 0.050 | 657-0500-2R50 |
| | | | | | | | | | |
| | 5/8 | 5/8 | 3.5 | 0.216 | 0.53 | 1.60 | 0.031 | 0.063 | 655-0625-2R63 |
| | 5/8 | 5/8 | 4.0 | 0.216 | 0.53 | 2.35 | 0.031 | 0.063 | 656-0625-2R63 |
| | 5/8 | 5/8 | 5.0 | 0.216 | 0.53 | 2.85 | 0.031 | 0.063 | 657-0625-2R63 |

# Metric HV Feed Mill

**High Feed Mill** series of cutters are specifically designed for high feed roughing. This series features geometry that takes advantage of the chip thinning process, resulting in reduced radial cutting forces and swift chip evacuation. The unique cutting motion enables the utilization of heavy chip loads, achieving extraordinary material removal rates in the correct application.

- 2 flute high feed end mill
- Ultrafine, wear resistant carbide
- Ideal for very high feed rates
- Suitable for a wide range of materials




| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | D3 Dia. of Neck | L3 LOR | MAX DOC | R Radius | Coated Part # |
|---|---|---|---|---|---|---|---|---|---|
| mm | 3.0 | 6.0 | 50.0 | 1.0 | 2.5 | 6.0 | 0.15 | 0.3 | 655-030-2R.3N6 |
| | 3.0 | 6.0 | 60.0 | 1.0 | 2.5 | 12.0 | 0.15 | 0.3 | 656-030-2R.3N12 |
| | | | | | | | | | |
| | 4.0 | 6.0 | 60.0 | 1.5 | 3.4 | 15.0 | 0.20 | 0.4 | 656-040-2R.4N15 |
| | 4.0 | 6.0 | 70.0 | 1.5 | 3.4 | 24.0 | 0.20 | 0.4 | 657-040-2R.4N24 |
| | 4.0 | 6.0 | 80.0 | 1.5 | 3.4 | 34.0 | 0.20 | 0.4 | 658-040-2R.4N34 |
| | | | | | | | | | |
| | 6.0 | 6.0 | 80.0 | 2.5 | 5.0 | 19.0 | 0.30 | 0.6 | 656-060-2R.6N19 |
| | 6.0 | 6.0 | 80.0 | 2.5 | 5.0 | 35.0 | 0.30 | 0.6 | 657-060-2R.6N35 |
| | 6.0 | 6.0 | 80.0 | 2.5 | 5.0 | 42.0 | 0.30 | 0.6 | 658-060-2R.6N42 |
| | | | | | | | | | |
| | 8.0 | 8.0 | 65.0 | 3.0 | 6.7 | 24.0 | 0.40 | 0.8 | 656-080-2R.8N24 |
| | 8.0 | 8.0 | 80.0 | 3.0 | 6.7 | 40.0 | 0.40 | 0.8 | 657-080-2R.8N40 |
| | 8.0 | 8.0 | 90.0 | 3.0 | 6.7 | 51.0 | 0.40 | 0.8 | 658-080-2R.8N51 |
| | | | | | | | | | |
| | 10.0 | 10.0 | 70.0 | 3.5 | 8.5 | 28.5 | 0.50 | 1.0 | 656-100-2R1N28 |
| | 10.0 | 10.0 | 90.0 | 3.5 | 8.5 | 45.0 | 0.50 | 1.0 | 657-100-2R1N45 |
| | 10.0 | 10.0 | 100.0 | 3.5 | 8.5 | 56.5 | 0.50 | 1.0 | 658-100-2R1N56 |
| | | | | | | | | | |
| | 12.0 | 12.0 | 80.0 | 4.0 | 10.0 | 34.0 | 0.60 | 1.2 | 656-120-2R12N34 |
| | 12.0 | 12.0 | 100.0 | 4.0 | 10.0 | 50.0 | 0.60 | 1.2 | 657-120-2R12N50 |
| | 12.0 | 12.0 | 110.0 | 4.0 | 10.0 | 61.0 | 0.60 | 1.2 | 658-120-2R12N61 |
| | | | | | | | | | |
| | 16.0 | 16.0 | 90.0 | 5.5 | 13.5 | 39.0 | 0.80 | 1.6 | 656-160-2R1.6N39 |
| | 16.0 | 16.0 | 110.0 | 5.5 | 13.5 | 58.0 | 0.80 | 1.6 | 657-160-2R1.6N58 |
| | 16.0 | 16.0 | 140.0 | 5.5 | 13.5 | 77.0 | 0.80 | 1.6 | 658-160-2R1.6N77 |

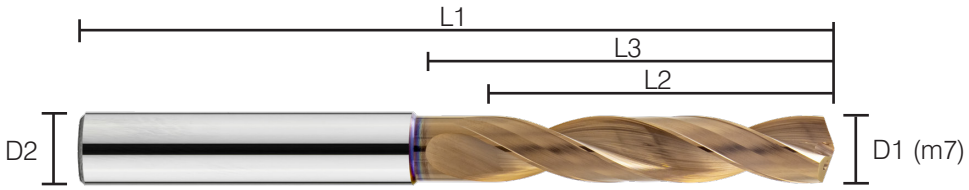
# ProDrill

The **ProDrill** is your ultimate solution for high-performance drilling across a wide range of workpiece materials. Designed to optimize productivity and process reliability, this exceptional tool is engineered to exceed expectations.

## Key Features:

- Innovative point geometry efficiently breaks chips, enabling high penetration rates and enhanced chip evacuation
- Point thinning grinds minimize cutting forces and improve self-centering
- Edge preparation protects the cutting edge, allowing for exceptional tool life
- Premium submicron carbide grade offers remarkable wear resistance
- Double margin design enhances drill stability, hole quality, and reduces friction
- NanoCoat PVD Coating, with its exceptional temperature resistance, lubricity, and wear resistance, guarantees prolonged tool life
- Polished PVD coating facilitates smooth cutting action, efficient chip evacuation, and reduced heat buildup
- Extended length 5xDL series offers additional flexibility to your drilling operation
- Currently unavailable sizes can quickly be created and stocked should you not find the tool you need

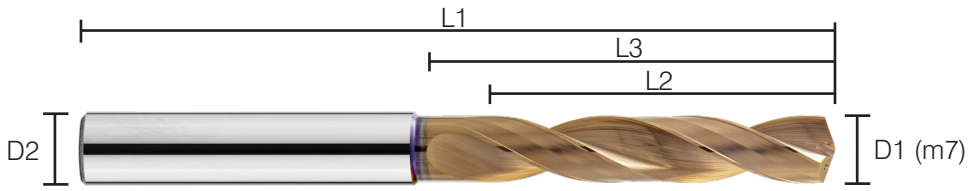
Visit deboertool.com for intuitive tools to search and find the drill you need




| | D1 Dia. (m7) | | D1 (in) Dia. (m7) | L2 Flute Len. | | L3 Rollout Len. | | D2 Dia. (h6) | L1 OAL | Part # |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 3 | | 0.1181 | 16.6 | 3xD | 20 | × | 6 | 62 | PD-1D4BB |
| | 3 | | 0.1181 | 16.6 | 3xD | 20 | • | 6 | 62 | PD-69097 |
| | 3 | | 0.1181 | 24.6 | 5xD | 28 | × | 6 | 66 | PD-21112 |
| | 3 | | 0.1181 | 24.6 | 5xD | 28 | • | 6 | 66 | PD-BB757 |
| | 3 | | 0.1181 | 24.6 | 5xDL | 28 | • | 6 | 125 | PD-C50B1 |
| | 3 | | 0.1181 | 30.6 | 8xD | 34 | • | 6 | 72 | PD-7CD0D |
| | 3 | | 0.1181 | 50.6 | 12xD | 54 | • | 6 | 92 | PD-58A08 |
| | | | | | | | | | | |
| | 3.175 | 1/8 | 0.125 | 16.6 | 3xD | 20 | × | 6 | 62 | PD-57B8E |
| | 3.175 | 1/8 | 0.125 | 16.6 | 3xD | 20 | • | 6 | 62 | PD-750DA |
| | 3.175 | 1/8 | 0.125 | 24.6 | 5xD | 28 | × | 6 | 66 | PD-5C79B |
| | 3.175 | 1/8 | 0.125 | 24.6 | 5xD | 28 | • | 6 | 66 | PD-6A4E3 |
| | 3.175 | 1/8 | 0.125 | 24.6 | 5xDL | 28 | • | 6 | 125 | PD-6F989 |
| | 3.175 | 1/8 | 0.125 | 30.6 | 8xD | 34 | • | 6 | 72 | PD-D64A4 |
| | 3.175 | 1/8 | 0.125 | 50.6 | 12xD | 54 | • | 6 | 92 | PD-A59CA |
| | | | | | | | | | | |
| | 3.3 | | 0.1299 | 16.5 | 3xD | 20 | × | 6 | 62 | PD-6F1B5 |
| | 3.3 | | 0.1299 | 16.5 | 3xD | 20 | • | 6 | 62 | PD-EE5B5 |
| | 3.3 | | 0.1299 | 24.5 | 5xD | 28 | × | 6 | 66 | PD-70746 |
| | 3.3 | | 0.1299 | 24.5 | 5xD | 28 | • | 6 | 66 | PD-45C2F |
| | 3.3 | | 0.1299 | 24.5 | 5xDL | 28 | • | 6 | 125 | PD-C46F0 |
| | 3.3 | | 0.1299 | 30.5 | 8xD | 34 | • | 6 | 72 | PD-EBB08 |
| | 3.3 | | 0.1299 | 50.5 | 12xD | 54 | • | 6 | 92 | PD-43584 |
| | | | | | | | | | | |
| | 3.4 | | 0.1339 | 16.5 | 3xD | 20 | × | 6 | 62 | PD-53A31 |
| | 3.4 | | 0.1339 | 16.5 | 3xD | 20 | • | 6 | 62 | PD-FC353 |
| | 3.4 | | 0.1339 | 24.5 | 5xD | 28 | × | 6 | 66 | PD-469EB |
| | 3.4 | | 0.1339 | 24.5 | 5xD | 28 | • | 6 | 66 | PD-184CF |
| | 3.4 | | 0.1339 | 24.5 | 5xDL | 28 | • | 6 | 125 | PD-A2B9F |
| | 3.4 | | 0.1339 | 30.5 | 8xD | 34 | • | 6 | 72 | PD-44957 |
| | 3.4 | | 0.1339 | 50.5 | 12xD | 54 | • | 6 | 92 | PD-E2BD6 |
| | | | | | | | | | | |
| | 3.5 | | 0.1378 | 16.5 | 3xD | 20 | × | 6 | 62 | PD-81064 |
| | 3.5 | | 0.1378 | 16.5 | 3xD | 20 | • | 6 | 62 | PD-4FC7C |
| | 3.5 | | 0.1378 | 24.5 | 5xD | 28 | × | 6 | 66 | PD-FB564 |
| | 3.5 | | 0.1378 | 24.5 | 5xD | 28 | • | 6 | 66 | PD-D8345 |
| | 3.5 | | 0.1378 | 24.5 | 5xDL | 28 | • | 6 | 125 | PD-95E99 |
| | 3.5 | | 0.1378 | 30.5 | 8xD | 34 | • | 6 | 72 | PD-CD681 |
| | 3.5 | | 0.1378 | 50.5 | 12xD | 54 | • | 6 | 92 | PD-A2BBF |

× Solid Carbide (Non-coolant)

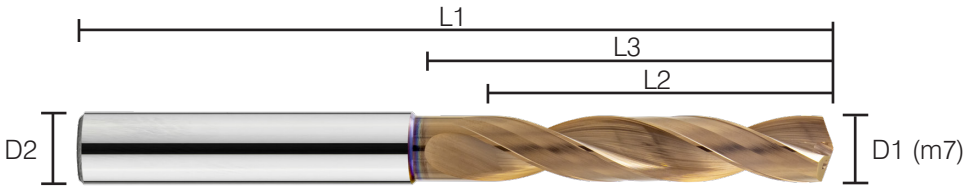
• Coolant Through Carbide




| | D1 Dia. (m7) | | D1 (in) Dia. (m7) | L2 Flute Len. | | L3 Rollout Len. | | D2 Dia. (h6) | L1 OAL | Part # |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 3.5719 | 9/64 | 0.1406 | 16.3 | 3xD | 20 | × | 6 | 62 | PD-1D43D |
| | 3.5719 | 9/64 | 0.1406 | 16.3 | 3xD | 20 | • | 6 | 62 | PD-5C814 |
| | 3.5719 | 9/64 | 0.1406 | 24.3 | 5xD | 28 | × | 6 | 66 | PD-EF401 |
| | 3.5719 | 9/64 | 0.1406 | 24.3 | 5xD | 28 | • | 6 | 66 | PD-EDA19 |
| | 3.5719 | 9/64 | 0.1406 | 24.3 | 5xDL | 28 | • | 6 | 125 | PD-27B2A |
| | 3.5719 | 9/64 | 0.1406 | 30.3 | 8xD | 34 | • | 6 | 72 | PD-92AA5 |
| | 3.5719 | 9/64 | 0.1406 | 50.3 | 12xD | 54 | • | 6 | 92 | PD-E9931 |
| | | | | | | | | | | |
| | 3.6 | | 0.1417 | 16.3 | 3xD | 20 | × | 6 | 62 | PD-7B224 |
| | 3.6 | | 0.1417 | 16.3 | 3xD | 20 | • | 6 | 62 | PD-FE12E |
| | 3.6 | | 0.1417 | 24.3 | 5xD | 28 | × | 6 | 66 | PD-8EDA9 |
| | 3.6 | | 0.1417 | 24.3 | 5xD | 28 | • | 6 | 66 | PD-A5DCF |
| | 3.6 | | 0.1417 | 24.3 | 5xDL | 28 | • | 6 | 125 | PD-204AD |
| | 3.6 | | 0.1417 | 30.3 | 8xD | 34 | • | 6 | 72 | PD-6018F |
| | 3.6 | | 0.1417 | 50.3 | 12xD | 54 | • | 6 | 92 | PD-75499 |
| | | | | | | | | | | |
| | 3.7 | | 0.1457 | 16.1 | 3xD | 20 | × | 6 | 62 | PD-5871D |
| | 3.7 | | 0.1457 | 16.1 | 3xD | 20 | • | 6 | 62 | PD-E3519 |
| | 3.7 | | 0.1457 | 24.1 | 5xD | 28 | × | 6 | 66 | PD-8F4ED |
| | 3.7 | | 0.1457 | 24.1 | 5xD | 28 | • | 6 | 66 | PD-F5C46 |
| | 3.7 | | 0.1457 | 24.1 | 5xDL | 28 | • | 6 | 125 | PD-1CC12 |
| | 3.7 | | 0.1457 | 39.1 | 8xD | 43 | • | 6 | 81 | PD-59B6C |
| | 3.7 | | 0.1457 | 50.1 | 12xD | 54 | • | 6 | 92 | PD-F0890 |
| | | | | | | | | | | |
| | 3.8 | | 0.1496 | 20.0 | 3xD | 24 | × | 6 | 66 | PD-4C045 |
| | 3.8 | | 0.1496 | 20.0 | 3xD | 24 | • | 6 | 66 | PD-C2665 |
| | 3.8 | | 0.1496 | 32.0 | 5xD | 36 | × | 6 | 74 | PD-8DA87 |
| | 3.8 | | 0.1496 | 32.0 | 5xD | 36 | • | 6 | 74 | PD-2B693 |
| | 3.8 | | 0.1496 | 32.0 | 5xDL | 36 | • | 6 | 125 | PD-892BC |
| | 3.8 | | 0.1496 | 39.0 | 8xD | 43 | • | 6 | 81 | PD-66E7B |
| | 3.8 | | 0.1496 | 60.0 | 12xD | 64 | • | 6 | 102 | PD-DC198 |
| | | | | | | | | | | |
| | 3.9 | | 0.1535 | 19.8 | 3xD | 24 | × | 6 | 66 | PD-D722F |
| | 3.9 | | 0.1535 | 19.8 | 3xD | 24 | • | 6 | 66 | PD-A33E4 |
| | 3.9 | | 0.1535 | 31.8 | 5xD | 36 | × | 6 | 74 | PD-187D7 |
| | 3.9 | | 0.1535 | 31.8 | 5xD | 36 | • | 6 | 74 | PD-B57B9 |
| | 3.9 | | 0.1535 | 31.8 | 5xDL | 36 | • | 6 | 125 | PD-38880 |
| | 3.9 | | 0.1535 | 38.8 | 8xD | 43 | • | 6 | 81 | PD-78B2C |
| | 3.9 | | 0.1535 | 59.8 | 12xD | 64 | • | 6 | 102 | PD-E531D |

× Solid Carbide (Non-coolant)

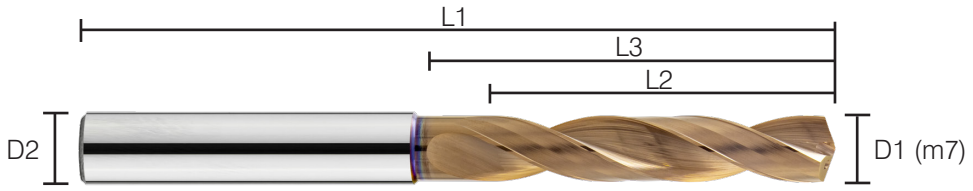
• Coolant Through Carbide




| | D1 Dia. (m7) | | D1 (in) Dia. (m7) | L2 Flute Len. | | L3 Rollout Len. | | D2 Dia. (h6) | L1 OAL | Part # |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 4 | | 0.1575 | 19.6 | 3xD | 24 | × | 6 | 66 | PD-23D8C |
| | 4 | | 0.1575 | 19.6 | 3xD | 24 | • | 6 | 66 | PD-29546 |
| | 4 | | 0.1575 | 31.6 | 5xD | 36 | × | 6 | 74 | PD-A5F6B |
| | 4 | | 0.1575 | 31.6 | 5xD | 36 | • | 6 | 74 | PD-B19E7 |
| | 4 | | 0.1575 | 31.6 | 5xDL | 36 | • | 6 | 164 | PD-3B868 |
| | 4 | | 0.1575 | 38.6 | 8xD | 43 | • | 6 | 81 | PD-9D6F6 |
| | 4 | | 0.1575 | 59.6 | 12xD | 64 | • | 6 | 102 | PD-2FE8A |
| | | | | | | | | | | |
| | 4.1 | | 0.1614 | 19.5 | 3xD | 24 | × | 6 | 66 | PD-8D56E |
| | 4.1 | | 0.1614 | 19.5 | 3xD | 24 | • | 6 | 66 | PD-3C55D |
| | 4.1 | | 0.1614 | 31.5 | 5xD | 36 | × | 6 | 74 | PD-8DBE4 |
| | 4.1 | | 0.1614 | 31.5 | 5xD | 36 | • | 6 | 74 | PD-4DEF4 |
| | 4.1 | | 0.1614 | 31.5 | 5xDL | 36 | • | 6 | 164 | PD-D595B |
| | 4.1 | | 0.1614 | 38.5 | 8xD | 43 | • | 6 | 81 | PD-10476 |
| | 4.1 | | 0.1614 | 59.5 | 12xD | 64 | • | 6 | 102 | PD-DD00B |
| | | | | | | | | | | |
| | 4.2 | | 0.1654 | 19.5 | 3xD | 24 | × | 6 | 66 | PD-50772 |
| | 4.2 | | 0.1654 | 19.5 | 3xD | 24 | • | 6 | 66 | PD-85835 |
| | 4.2 | | 0.1654 | 31.5 | 5xD | 36 | × | 6 | 74 | PD-4ED28 |
| | 4.2 | | 0.1654 | 31.5 | 5xD | 36 | • | 6 | 74 | PD-8FBB1 |
| | 4.2 | | 0.1654 | 31.5 | 5xDL | 36 | • | 6 | 164 | PD-FFA86 |
| | 4.2 | | 0.1654 | 38.5 | 8xD | 43 | • | 6 | 81 | PD-F014D |
| | 4.2 | | 0.1654 | 59.5 | 12xD | 64 | • | 6 | 102 | PD-38452 |
| | | | | | | | | | | |
| | 4.3 | | 0.1693 | 19.4 | 3xD | 24 | × | 6 | 66 | PD-DFFBA |
| | 4.3 | | 0.1693 | 19.4 | 3xD | 24 | • | 6 | 66 | PD-B73A5 |
| | 4.3 | | 0.1693 | 31.4 | 5xD | 36 | × | 6 | 74 | PD-D118D |
| | 4.3 | | 0.1693 | 31.4 | 5xD | 36 | • | 6 | 74 | PD-202A9 |
| | 4.3 | | 0.1693 | 31.4 | 5xDL | 36 | • | 6 | 164 | PD-863E0 |
| | 4.3 | | 0.1693 | 38.4 | 8xD | 43 | • | 6 | 81 | PD-8F4AC |
| | 4.3 | | 0.1693 | 59.4 | 12xD | 64 | • | 6 | 102 | PD-AAA0D |
| | | | | | | | | | | |
| | 4.3656 | 11/64 | 0.1719 | 19.4 | 3xD | 24 | × | 6 | 66 | PD-37A01 |
| | 4.3656 | 11/64 | 0.1719 | 19.4 | 3xD | 24 | • | 6 | 66 | PD-529C4 |
| | 4.3656 | 11/64 | 0.1719 | 31.4 | 5xD | 36 | × | 6 | 74 | PD-276BF |
| | 4.3656 | 11/64 | 0.1719 | 31.4 | 5xD | 36 | • | 6 | 74 | PD-EB51C |
| | 4.3656 | 11/64 | 0.1719 | 31.4 | 5xDL | 36 | • | 6 | 164 | PD-EF91E |
| | 4.3656 | 11/64 | 0.1719 | 38.4 | 8xD | 43 | • | 6 | 81 | PD-35F79 |
| | 4.3656 | 11/64 | 0.1719 | 59.4 | 12xD | 64 | • | 6 | 102 | PD-EF406 |

× Solid Carbide (Non-coolant)

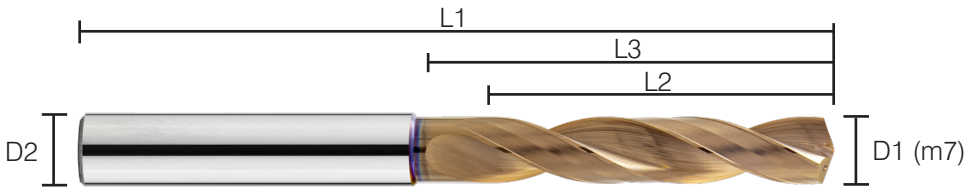
• Coolant Through Carbide




| | D1 Dia. (m7) | | D1 (in) Dia. (m7) | L2 Flute Len. | | L3 Rollout Len. | | D2 Dia. (h6) | L1 OAL | Part # |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 4.4 | | 0.1732 | 19.3 | 3xD | 24 | × | 6 | 66 | PD-F04A7 |
| | 4.4 | | 0.1732 | 19.3 | 3xD | 24 | • | 6 | 66 | PD-55654 |
| | 4.4 | | 0.1732 | 31.3 | 5xD | 36 | × | 6 | 74 | PD-6AA37 |
| | 4.4 | | 0.1732 | 31.3 | 5xD | 36 | • | 6 | 74 | PD-1A2DE |
| | 4.4 | | 0.1732 | 31.3 | 5xDL | 36 | • | 6 | 164 | PD-4C7AE |
| | 4.4 | | 0.1732 | 38.3 | 8xD | 43 | • | 6 | 81 | PD-56AC4 |
| | 4.4 | | 0.1732 | 59.3 | 12xD | 64 | • | 6 | 102 | PD-7B459 |
| | | | | | | | | | | |
| | 4.5 | | 0.1772 | 19.3 | 3xD | 24 | × | 6 | 66 | PD-E6B6B |
| | 4.5 | | 0.1772 | 19.3 | 3xD | 24 | • | 6 | 66 | PD-70FD0 |
| | 4.5 | | 0.1772 | 31.3 | 5xD | 36 | × | 6 | 74 | PD-5089D |
| | 4.5 | | 0.1772 | 31.3 | 5xD | 36 | • | 6 | 74 | PD-EF8A4 |
| | 4.5 | | 0.1772 | 31.3 | 5xDL | 36 | • | 6 | 164 | PD-E3B0C |
| | 4.5 | | 0.1772 | 38.3 | 8xD | 43 | • | 6 | 81 | PD-12E96 |
| | 4.5 | | 0.1772 | 59.3 | 12xD | 64 | • | 6 | 102 | PD-73F17 |
| | | | | | | | | | | |
| | 4.6 | | 0.1811 | 19.1 | 3xD | 24 | × | 6 | 66 | PD-B67E8 |
| | 4.6 | | 0.1811 | 19.1 | 3xD | 24 | • | 6 | 66 | PD-1B991 |
| | 4.6 | | 0.1811 | 31.1 | 5xD | 36 | × | 6 | 74 | PD-5493B |
| | 4.6 | | 0.1811 | 31.1 | 5xD | 36 | • | 6 | 74 | PD-F6820 |
| | 4.6 | | 0.1811 | 31.1 | 5xDL | 36 | • | 6 | 164 | PD-A2E4B |
| | 4.6 | | 0.1811 | 38.1 | 8xD | 43 | • | 6 | 81 | PD-3E4C1 |
| | 4.6 | | 0.1811 | 59.1 | 12xD | 64 | • | 6 | 102 | PD-9816C |
| | | | | | | | | | | |
| | 4.7625 | 3/16 | 0.1875 | 22.9 | 3xD | 28 | × | 6 | 66 | PD-BC652 |
| | 4.7625 | 3/16 | 0.1875 | 22.9 | 3xD | 28 | • | 6 | 66 | PD-737B5 |
| | 4.7625 | 3/16 | 0.1875 | 38.9 | 5xD | 44 | × | 6 | 82 | PD-6A026 |
| | 4.7625 | 3/16 | 0.1875 | 38.9 | 5xD | 44 | • | 6 | 82 | PD-2E34F |
| | 4.7625 | 3/16 | 0.1875 | 38.9 | 5xDL | 44 | • | 6 | 164 | PD-DF1EA |
| | 4.7625 | 3/16 | 0.1875 | 51.9 | 8xD | 57 | • | 6 | 95 | PD-60084 |
| | 4.7625 | 3/16 | 0.1875 | 72.9 | 12xD | 78 | • | 6 | 116 | PD-9F7E6 |
| | | | | | | | | | | |
| | 4.8 | | 0.189 | 22.8 | 3xD | 28 | × | 6 | 66 | PD-98302 |
| | 4.8 | | 0.189 | 22.8 | 3xD | 28 | • | 6 | 66 | PD-19D74 |
| | 4.8 | | 0.189 | 38.8 | 5xD | 44 | × | 6 | 82 | PD-4B034 |
| | 4.8 | | 0.189 | 38.8 | 5xD | 44 | • | 6 | 82 | PD-BB524 |
| | 4.8 | | 0.189 | 38.8 | 5xDL | 44 | • | 6 | 164 | PD-D60C3 |
| | 4.8 | | 0.189 | 51.8 | 8xD | 57 | • | 6 | 95 | PD-E9696 |
| | 4.8 | | 0.189 | 72.8 | 12xD | 78 | • | 6 | 116 | PD-85693 |

× Solid Carbide (Non-coolant)

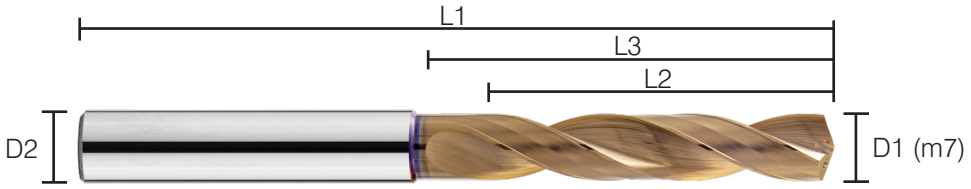
• Coolant Through Carbide




| | D1 Dia. (m7) | | D1 (in) Dia. (m7) | L2 Flute Len. | | L3 Rollout Len. | | D2 Dia. (h6) | L1 OAL | Part # |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 5 | | 0.1969 | 22.5 | 3xD | 28 | × | 6 | 66 | PD-B02BE |
| | 5 | | 0.1969 | 22.5 | 3xD | 28 | • | 6 | 66 | PD-33CC1 |
| | 5 | | 0.1969 | 38.5 | 5xD | 44 | × | 6 | 82 | PD-2397B |
| | 5 | | 0.1969 | 38.5 | 5xD | 44 | • | 6 | 82 | PD-12232 |
| | 5 | | 0.1969 | 38.5 | 5xDL | 44 | • | 6 | 164 | PD-25C50 |
| | 5 | | 0.1969 | 51.5 | 8xD | 57 | • | 6 | 95 | PD-BBBDB |
| | 5 | | 0.1969 | 72.5 | 12xD | 78 | • | 6 | 116 | PD-B105C |
| | | | | | | | | | | |
| | 5.1 | | 0.2008 | 22.5 | 3xD | 28 | × | 6 | 66 | PD-F1C77 |
| | 5.1 | | 0.2008 | 22.5 | 3xD | 28 | • | 6 | 66 | PD-11BAF |
| | 5.1 | | 0.2008 | 38.5 | 5xD | 44 | × | 6 | 82 | PD-763D6 |
| | 5.1 | | 0.2008 | 38.5 | 5xD | 44 | • | 6 | 82 | PD-F6E7B |
| | 5.1 | | 0.2008 | 38.5 | 5xDL | 44 | • | 6 | 164 | PD-625B7 |
| | 5.1 | | 0.2008 | 51.5 | 8xD | 57 | • | 6 | 95 | PD-5F06C |
| | 5.1 | | 0.2008 | 72.5 | 12xD | 78 | • | 6 | 116 | PD-1858D |
| | | | | | | | | | | |
| | 5.1594 | 13/64 | 0.2031 | 22.4 | 3xD | 28 | × | 6 | 66 | PD-7E6C2 |
| | 5.1594 | 13/64 | 0.2031 | 22.4 | 3xD | 28 | • | 6 | 66 | PD-5D23E |
| | 5.1594 | 13/64 | 0.2031 | 38.4 | 5xD | 44 | × | 6 | 82 | PD-E4866 |
| | 5.1594 | 13/64 | 0.2031 | 38.4 | 5xD | 44 | • | 6 | 82 | PD-3A290 |
| | 5.1594 | 13/64 | 0.2031 | 38.4 | 5xDL | 44 | • | 6 | 164 | PD-CFFC1 |
| | 5.1594 | 13/64 | 0.2031 | 51.4 | 8xD | 57 | • | 6 | 95 | PD-760F0 |
| | 5.1594 | 13/64 | 0.2031 | 72.4 | 12xD | 78 | • | 6 | 116 | PD-2DCE2 |
| | | | | | | | | | | |
| | 5.2 | | 0.2047 | 22.4 | 3xD | 28 | × | 6 | 66 | PD-3F19E |
| | 5.2 | | 0.2047 | 22.4 | 3xD | 28 | • | 6 | 66 | PD-B8CF7 |
| | 5.2 | | 0.2047 | 38.4 | 5xD | 44 | × | 6 | 82 | PD-FBF08 |
| | 5.2 | | 0.2047 | 38.4 | 5xD | 44 | • | 6 | 82 | PD-E00B4 |
| | 5.2 | | 0.2047 | 38.4 | 5xDL | 44 | • | 6 | 164 | PD-953A3 |
| | 5.2 | | 0.2047 | 51.4 | 8xD | 57 | • | 6 | 95 | PD-A7151 |
| | 5.2 | | 0.2047 | 72.4 | 12xD | 78 | • | 6 | 116 | PD-A65F9 |
| | | | | | | | | | | |
| | 5.3 | | 0.2087 | 22.3 | 3xD | 28 | × | 6 | 66 | PD-4C183 |
| | 5.3 | | 0.2087 | 22.3 | 3xD | 28 | • | 6 | 66 | PD-509D5 |
| | 5.3 | | 0.2087 | 38.3 | 5xD | 44 | × | 6 | 82 | PD-D9FA4 |
| | 5.3 | | 0.2087 | 38.3 | 5xD | 44 | • | 6 | 82 | PD-2D68E |
| | 5.3 | | 0.2087 | 38.3 | 5xDL | 44 | • | 6 | 164 | PD-4A424 |
| | 5.3 | | 0.2087 | 51.3 | 8xD | 57 | • | 6 | 95 | PD-93C16 |
| | 5.3 | | 0.2087 | 72.3 | 12xD | 78 | • | 6 | 116 | PD-6BC67 |

× Solid Carbide (Non-coolant)

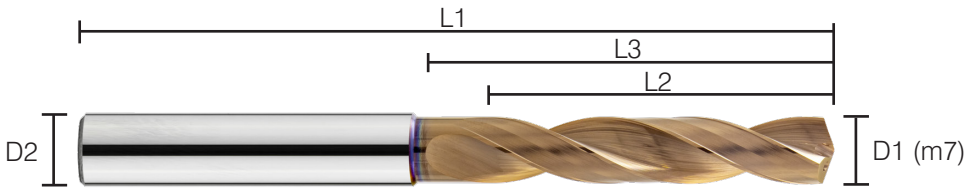
• Coolant Through Carbide




| | D1 Dia. (m7) | | D1 (in) Dia. (m7) | L2 Flute Len. | | L3 Rollout Len. | | D2 Dia. (h6) | L1 OAL | Part # |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 5.4 | | 0.2126 | 22.2 | 3xD | 28 | × | 6 | 66 | PD-C406A |
| | 5.4 | | 0.2126 | 22.2 | 3xD | 28 | • | 6 | 66 | PD-535AD |
| | 5.4 | | 0.2126 | 38.2 | 5xD | 44 | × | 6 | 82 | PD-D72A4 |
| | 5.4 | | 0.2126 | 38.2 | 5xD | 44 | • | 6 | 82 | PD-72CAA |
| | 5.4 | | 0.2126 | 38.2 | 5xDL | 44 | • | 6 | 164 | PD-51ED9 |
| | 5.4 | | 0.2126 | 51.2 | 8xD | 57 | • | 6 | 95 | PD-8CD53 |
| | 5.4 | | 0.2126 | 72.2 | 12xD | 78 | • | 6 | 116 | PD-40E3F |
| | | | | | | | | | | |
| | 5.5 | | 0.2165 | 22.1 | 3xD | 28 | × | 6 | 66 | PD-76FE5 |
| | 5.5 | | 0.2165 | 22.1 | 3xD | 28 | • | 6 | 66 | PD-7B898 |
| | 5.5 | | 0.2165 | 38.1 | 5xD | 44 | × | 6 | 82 | PD-33D4A |
| | 5.5 | | 0.2165 | 38.1 | 5xD | 44 | • | 6 | 82 | PD-F9C36 |
| | 5.5 | | 0.2165 | 38.1 | 5xDL | 44 | • | 6 | 164 | PD-D532E |
| | 5.5 | | 0.2165 | 51.1 | 8xD | 57 | • | 6 | 95 | PD-6047B |
| | 5.5 | | 0.2165 | 72.1 | 12xD | 78 | • | 6 | 116 | PD-74BBE |
| | | | | | | | | | | |
| | 5.5563 | 7/32 | 0.2188 | 22.1 | 3xD | 28 | × | 6 | 66 | PD-C8886 |
| | 5.5563 | 7/32 | 0.2188 | 22.1 | 3xD | 28 | • | 6 | 66 | PD-DAA39 |
| | 5.5563 | 7/32 | 0.2188 | 38.1 | 5xD | 44 | × | 6 | 82 | PD-65CB3 |
| | 5.5563 | 7/32 | 0.2188 | 38.1 | 5xD | 44 | • | 6 | 82 | PD-FBE5C |
| | 5.5563 | 7/32 | 0.2188 | 38.1 | 5xDL | 44 | • | 6 | 164 | PD-E2691 |
| | 5.5563 | 7/32 | 0.2188 | 51.1 | 8xD | 57 | • | 6 | 95 | PD-69520 |
| | 5.5563 | 7/32 | 0.2188 | 72.1 | 12xD | 78 | • | 6 | 116 | PD-13C68 |
| | | | | | | | | | | |
| | 5.7 | | 0.2244 | 22.0 | 3xD | 28 | × | 6 | 66 | PD-669F1 |
| | 5.7 | | 0.2244 | 22.0 | 3xD | 28 | • | 6 | 66 | PD-27D44 |
| | 5.7 | | 0.2244 | 38.0 | 5xD | 44 | × | 6 | 82 | PD-3EA58 |
| | 5.7 | | 0.2244 | 38.0 | 5xD | 44 | • | 6 | 82 | PD-8B02E |
| | 5.7 | | 0.2244 | 38.0 | 5xDL | 44 | • | 6 | 164 | PD-D26C4 |
| | 5.7 | | 0.2244 | 51.0 | 8xD | 57 | • | 6 | 95 | PD-C67D2 |
| | 5.7 | | 0.2244 | 72.0 | 12xD | 78 | • | 6 | 116 | PD-D8DB9 |
| | | | | | | | | | | |
| | 5.8 | | 0.2283 | 22.0 | 3xD | 28 | × | 6 | 66 | PD-CBD2C |
| | 5.8 | | 0.2283 | 22.0 | 3xD | 28 | • | 6 | 66 | PD-AF3A9 |
| | 5.8 | | 0.2283 | 38.0 | 5xD | 44 | × | 6 | 82 | PD-2EDC6 |
| | 5.8 | | 0.2283 | 38.0 | 5xD | 44 | • | 6 | 82 | PD-160C1 |
| | 5.8 | | 0.2283 | 38.0 | 5xDL | 44 | • | 6 | 164 | PD-2B292 |
| | 5.8 | | 0.2283 | 51.0 | 8xD | 57 | • | 6 | 95 | PD-F56F1 |
| | 5.8 | | 0.2283 | 72.0 | 12xD | 78 | • | 6 | 116 | PD-503F0 |

× Solid Carbide (Non-coolant)

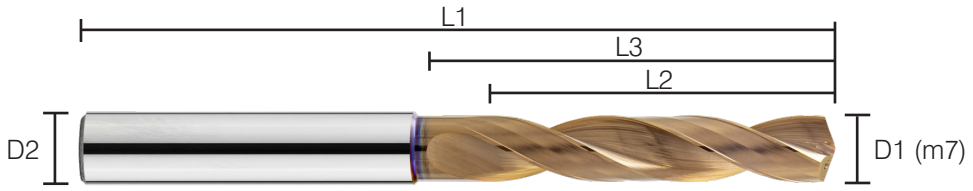
• Coolant Through Carbide




| | D1 Dia. (m7) | | D1 (in) Dia. (m7) | L2 Flute Len. | | L3 Rollout Len. | | D2 Dia. (h6) | L1 OAL | Part # |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 6 | | 0.2362 | 21.9 | 3xD | 28 | × | 8 | 69 | PD-B616E |
| | 6 | | 0.2362 | 21.9 | 3xD | 28 | • | 6 | 69 | PD-9C46E |
| | 6 | | 0.2362 | 37.9 | 5xD | 44 | × | 6 | 82 | PD-F9E0E |
| | 6 | | 0.2362 | 37.9 | 5xD | 44 | • | 8 | 91 | PD-D80D8 |
| | 6 | | 0.2362 | 37.9 | 5xDL | 44 | • | 6 | 164 | PD-21EB6 |
| | 6 | | 0.2362 | 50.9 | 8xD | 57 | • | 6 | 95 | PD-6B36D |
| | 6 | | 0.2362 | 71.9 | 12xD | 78 | • | 6 | 116 | PD-86CA0 |
| | 6.1 | | 0.2402 | 27.8 | 3xD | 34 | × | 8 | 79 | PD-401F3 |
| | 6.1 | | 0.2402 | 27.8 | 3xD | 34 | • | 8 | 79 | PD-C5699 |
| | 6.1 | | 0.2402 | 46.8 | 5xD | 53 | × | 8 | 91 | PD-648DC |
| | 6.1 | | 0.2402 | 46.8 | 5xD | 53 | • | 8 | 91 | PD-9D632 |
| | 6.1 | | 0.2402 | 46.8 | 5xDL | 53 | • | 8 | 164 | PD-CBDFC |
| | 6.1 | | 0.2402 | 69.8 | 8xD | 76 | • | 8 | 114 | PD-FF023 |
| | 6.1 | | 0.2402 | 101.8 | 12xD | 108 | • | 8 | 146 | PD-48A57 |
| | 6.2 | | 0.2441 | 27.8 | 3xD | 34 | × | 8 | 79 | PD-566B9 |
| | 6.2 | | 0.2441 | 27.8 | 3xD | 34 | • | 8 | 79 | PD-7411B |
| | 6.2 | | 0.2441 | 46.8 | 5xD | 53 | × | 8 | 91 | PD-69F04 |
| | 6.2 | | 0.2441 | 46.8 | 5xD | 53 | • | 8 | 91 | PD-2C5A3 |
| | 6.2 | | 0.2441 | 46.8 | 5xDL | 53 | • | 8 | 164 | PD-E574E |
| | 6.2 | | 0.2441 | 69.8 | 8xD | 76 | • | 8 | 114 | PD-43363 |
| | 6.2 | | 0.2441 | 101.8 | 12xD | 108 | • | 8 | 146 | PD-B9ACB |
| | 6.35 | 1/4 | 0.25 | 27.7 | 3xD | 34 | × | 8 | 79 | PD-A5AB1 |
| | 6.35 | 1/4 | 0.25 | 27.7 | 3xD | 34 | • | 8 | 79 | PD-5A98A |
| | 6.35 | 1/4 | 0.25 | 46.7 | 5xD | 53 | × | 8 | 91 | PD-DF655 |
| | 6.35 | 1/4 | 0.25 | 46.7 | 5xD | 53 | • | 8 | 91 | PD-F9862 |
| | 6.35 | 1/4 | 0.25 | 46.7 | 5xDL | 53 | • | 8 | 164 | PD-D1CB0 |
| | 6.35 | 1/4 | 0.25 | 69.7 | 8xD | 76 | • | 8 | 114 | PD-D354A |
| | 6.35 | 1/4 | 0.25 | 101.7 | 12xD | 108 | • | 8 | 146 | PD-FF65C |
| | 6.5 | | 0.2559 | 27.6 | 3xD | 34 | × | 8 | 79 | PD-CE784 |
| | 6.5 | | 0.2559 | 27.6 | 3xD | 34 | • | 8 | 79 | PD-32154 |
| | 6.5 | | 0.2559 | 46.6 | 5xD | 53 | × | 8 | 91 | PD-6A4CF |
| | 6.5 | | 0.2559 | 46.6 | 5xD | 53 | • | 8 | 91 | PD-18163 |
| | 6.5 | | 0.2559 | 69.6 | 8xD | 76 | • | 8 | 114 | PD-47D3A |
| | 6.5 | | 0.2559 | 101.6 | 12xD | 108 | • | 8 | 146 | PD-935C2 |

× Solid Carbide (Non-coolant)

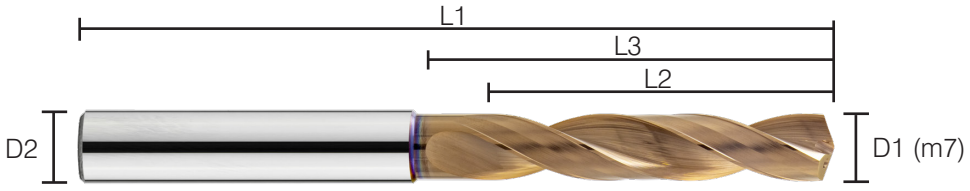
• Coolant Through Carbide




| | D1 Dia. (m7) | | D1 (in) Dia. (m7) | L2 Flute Len. | | L3 Rollout Len. | | D2 Dia. (h6) | L1 OAL | Part # |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 6.7 | | 0.2638 | 27.1 | 3xD | 34 | × | 8 | 79 | PD-9E306 |
| | 6.7 | | 0.2638 | 27.1 | 3xD | 34 | • | 8 | 79 | PD-E6331 |
| | 6.7 | | 0.2638 | 46.1 | 5xD | 53 | × | 8 | 91 | PD-E5AF1 |
| | 6.7 | | 0.2638 | 46.1 | 5xD | 53 | • | 8 | 91 | PD-FD4FE |
| | 6.7 | | 0.2638 | 69.1 | 8xD | 76 | • | 8 | 114 | PD-CDB63 |
| | 6.7 | | 0.2638 | 101.1 | 12xD | 108 | • | 8 | 146 | PD-6E995 |
| | | | | | | | | | | |
| | 6.7469 | 17/64 | 0.2656 | 27.0 | 3xD | 34 | × | 8 | 79 | PD-19195 |
| | 6.7469 | 17/64 | 0.2656 | 27.0 | 3xD | 34 | • | 8 | 79 | PD-D366B |
| | 6.7469 | 17/64 | 0.2656 | 46.0 | 5xD | 53 | × | 8 | 91 | PD-E9001 |
| | 6.7469 | 17/64 | 0.2656 | 46.0 | 5xD | 53 | • | 8 | 91 | PD-69420 |
| | 6.7469 | 17/64 | 0.2656 | 46.0 | 5xDL | 53 | • | 8 | 164 | PD-B93F7 |
| | 6.7469 | 17/64 | 0.2656 | 69.0 | 8xD | 76 | • | 8 | 114 | PD-258E9 |
| | 6.7469 | 17/64 | 0.2656 | 101.0 | 12xD | 108 | • | 8 | 146 | PD-6F971 |
| | | | | | | | | | | |
| | 6.8 | | 0.2677 | 26.8 | 3xD | 34 | × | 8 | 79 | PD-4D4A0 |
| | 6.8 | | 0.2677 | 26.8 | 3xD | 34 | • | 8 | 79 | PD-B062C |
| | 6.8 | | 0.2677 | 45.8 | 5xD | 53 | × | 8 | 91 | PD-F9C21 |
| | 6.8 | | 0.2677 | 45.8 | 5xD | 53 | • | 8 | 91 | PD-8AD0A |
| | 6.8 | | 0.2677 | 68.8 | 8xD | 76 | • | 8 | 114 | PD-56B77 |
| | 6.8 | | 0.2677 | 100.8 | 12xD | 108 | • | 8 | 146 | PD-CB27E |
| | | | | | | | | | | |
| | 6.9 | | 0.2717 | 26.6 | 3xD | 34 | × | 8 | 79 | PD-C2E25 |
| | 6.9 | | 0.2717 | 26.6 | 3xD | 34 | • | 8 | 79 | PD-BC04B |
| | 6.9 | | 0.2717 | 45.6 | 5xD | 53 | × | 8 | 91 | PD-DDDC2 |
| | 6.9 | | 0.2717 | 45.6 | 5xD | 53 | • | 8 | 91 | PD-A30C8 |
| | 6.9 | | 0.2717 | 68.6 | 8xD | 76 | • | 8 | 114 | PD-88C83 |
| | 6.9 | | 0.2717 | 100.6 | 12xD | 108 | • | 8 | 146 | PD-F161A |
| | | | | | | | | | | |
| | 7 | | 0.2756 | 26.3 | 3xD | 34 | × | 8 | 79 | PD-191EF |
| | 7 | | 0.2756 | 26.3 | 3xD | 34 | • | 8 | 79 | PD-4475C |
| | 7 | | 0.2756 | 45.3 | 5xD | 53 | × | 8 | 91 | PD-F2EA1 |
| | 7 | | 0.2756 | 45.3 | 5xD | 53 | • | 8 | 91 | PD-D0ECC |
| | 7 | | 0.2756 | 68.3 | 8xD | 76 | • | 8 | 114 | PD-33AFB |
| | 7 | | 0.2756 | 100.3 | 12xD | 108 | • | 8 | 146 | PD-45C45 |

× Solid Carbide (Non-coolant)

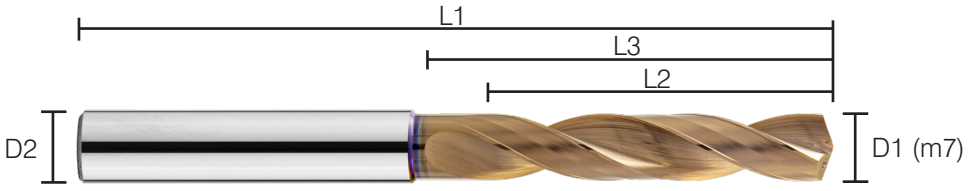
• Coolant Through Carbide




| | D1 Dia. (m7) | | D1 (in) Dia. (m7) | L2 Flute Len. | | L3 Rollout Len. | | D2 Dia. (h6) | L1 OAL | Part # |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 7.1438 | 9/32 | 0.2813 | 33.3 | 3xD | 41 | × | 8 | 79 | PD-3846C |
| | 7.1438 | 9/32 | 0.2813 | 33.3 | 3xD | 41 | • | 8 | 79 | PD-98E65 |
| | 7.1438 | 9/32 | 0.2813 | 45.3 | 5xD | 53 | × | 8 | 91 | PD-E3ACD |
| | 7.1438 | 9/32 | 0.2813 | 45.3 | 5xD | 53 | • | 8 | 91 | PD-12F7F |
| | 7.1438 | 9/32 | 0.2813 | 68.3 | 8xD | 76 | • | 8 | 114 | PD-8C816 |
| | 7.1438 | 9/32 | 0.2813 | 100.3 | 12xD | 108 | • | 8 | 146 | PD-E9EA2 |
| | | | | | | | | | | |
| | 7.2 | | 0.2835 | 33.3 | 3xD | 41 | × | 8 | 79 | PD-A42AA |
| | 7.2 | | 0.2835 | 33.3 | 3xD | 41 | • | 8 | 79 | PD-AC321 |
| | 7.2 | | 0.2835 | 45.3 | 5xD | 53 | × | 8 | 91 | PD-26FAE |
| | 7.2 | | 0.2835 | 45.3 | 5xD | 53 | • | 8 | 91 | PD-948AD |
| | 7.2 | | 0.2835 | 68.3 | 8xD | 76 | • | 8 | 114 | PD-7E418 |
| | 7.2 | | 0.2835 | 100.3 | 12xD | 108 | • | 8 | 146 | PD-27970 |
| | | | | | | | | | | |
| | 7.3 | | 0.2874 | 33.2 | 3xD | 41 | × | 8 | 79 | PD-61DE5 |
| | 7.3 | | 0.2874 | 33.2 | 3xD | 41 | • | 8 | 79 | PD-F2CD7 |
| | 7.3 | | 0.2874 | 45.2 | 5xD | 53 | × | 8 | 91 | PD-38373 |
| | 7.3 | | 0.2874 | 45.2 | 5xD | 53 | • | 8 | 91 | PD-2B502 |
| | 7.3 | | 0.2874 | 68.2 | 8xD | 76 | • | 8 | 114 | PD-DE7F9 |
| | 7.3 | | 0.2874 | 100.2 | 12xD | 108 | • | 8 | 146 | PD-4F7FF |
| | | | | | | | | | | |
| | 7.4 | | 0.2913 | 33.2 | 3xD | 41 | × | 8 | 79 | PD-9A5C5 |
| | 7.4 | | 0.2913 | 33.2 | 3xD | 41 | • | 8 | 79 | PD-FFFF4 |
| | 7.4 | | 0.2913 | 45.2 | 5xD | 53 | × | 8 | 91 | PD-58379 |
| | 7.4 | | 0.2913 | 45.2 | 5xD | 53 | • | 8 | 91 | PD-31A86 |
| | 7.4 | | 0.2913 | 68.2 | 8xD | 76 | • | 8 | 114 | PD-19643 |
| | 7.4 | | 0.2913 | 100.2 | 12xD | 108 | • | 8 | 146 | PD-F2FA4 |
| | | | | | | | | | | |
| | 7.5 | | 0.2953 | 33.2 | 3xD | 41 | × | 8 | 79 | PD-31EB8 |
| | 7.5 | | 0.2953 | 33.2 | 3xD | 41 | • | 8 | 79 | PD-96CB0 |
| | 7.5 | | 0.2953 | 45.2 | 5xD | 53 | × | 8 | 91 | PD-E407A |
| | 7.5 | | 0.2953 | 45.2 | 5xD | 53 | • | 8 | 91 | PD-E2F83 |
| | 7.5 | | 0.2953 | 68.2 | 8xD | 76 | • | 8 | 114 | PD-DA8AD |
| | 7.5 | | 0.2953 | 100.2 | 12xD | 108 | • | 8 | 146 | PD-687B3 |

× Solid Carbide (Non-coolant)

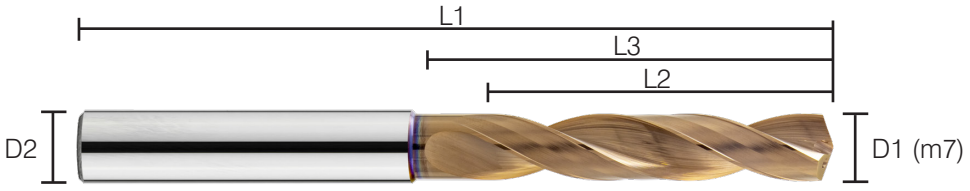
• Coolant Through Carbide




| | D1 Dia. (m7) | | D1 (in) Dia. (m7) | L2 Flute Len. | | L3 Rollout Len. | | D2 Dia. (h6) | L1 OAL | Part # |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 7.5406 | 19/64 | 0.2969 | 33.2 | 3xD | 41 | × | 8 | 79 | PD-3AD85 |
| | 7.5406 | 19/64 | 0.2969 | 33.2 | 3xD | 41 | • | 8 | 79 | PD-15DE0 |
| | 7.5406 | 19/64 | 0.2969 | 45.2 | 5xD | 53 | × | 8 | 91 | PD-F22E7 |
| | 7.5406 | 19/64 | 0.2969 | 45.2 | 5xD | 53 | • | 8 | 91 | PD-D4A07 |
| | 7.5406 | 19/64 | 0.2969 | 68.2 | 8xD | 76 | • | 8 | 114 | PD-2E329 |
| | 7.5406 | 19/64 | 0.2969 | 100.2 | 12xD | 108 | • | 8 | 146 | PD-FCCF9 |
| | | | | | | | | | | |
| | 7.7 | | 0.3031 | 33.1 | 3xD | 41 | × | 8 | 79 | PD-F64A5 |
| | 7.7 | | 0.3031 | 33.1 | 3xD | 41 | • | 8 | 79 | PD-F3598 |
| | 7.7 | | 0.3031 | 45.1 | 5xD | 53 | × | 8 | 91 | PD-59E02 |
| | 7.7 | | 0.3031 | 45.1 | 5xD | 53 | • | 8 | 91 | PD-F5FF9 |
| | 7.7 | | 0.3031 | 68.1 | 8xD | 76 | • | 8 | 114 | PD-28878 |
| | 7.7 | | 0.3031 | 100.1 | 12xD | 108 | • | 8 | 146 | PD-C3A2B |
| | | | | | | | | | | |
| | 7.8 | | 0.3071 | 33.1 | 3xD | 41 | × | 8 | 79 | PD-86D6A |
| | 7.8 | | 0.3071 | 33.1 | 3xD | 41 | • | 8 | 79 | PD-AAA66 |
| | 7.8 | | 0.3071 | 45.1 | 5xD | 53 | × | 8 | 91 | PD-CCAE2 |
| | 7.8 | | 0.3071 | 45.1 | 5xD | 53 | • | 8 | 91 | PD-27C81 |
| | 7.8 | | 0.3071 | 68.1 | 8xD | 76 | • | 8 | 114 | PD-9FE79 |
| | 7.8 | | 0.3071 | 100.1 | 12xD | 108 | • | 8 | 146 | PD-D4C75 |
| | | | | | | | | | | |
| | 7.9 | | 0.311 | 33.0 | 3xD | 41 | × | 8 | 79 | PD-8EB8E |
| | 7.9 | | 0.311 | 33.0 | 3xD | 41 | • | 8 | 79 | PD-9AB61 |
| | 7.9 | | 0.311 | 45.0 | 5xD | 53 | × | 8 | 91 | PD-74A99 |
| | 7.9 | | 0.311 | 45.0 | 5xD | 53 | • | 8 | 91 | PD-B37DA |
| | 7.9 | | 0.311 | 68.0 | 8xD | 76 | • | 8 | 114 | PD-B7EA0 |
| | 7.9 | | 0.311 | 100.0 | 12xD | 108 | • | 8 | 146 | PD-96529 |
| | | | | | | | | | | |
| | 7.9375 | 5/16 | 0.3125 | 33.0 | 3xD | 41 | × | 8 | 79 | PD-7AED5 |
| | 7.9375 | 5/16 | 0.3125 | 33.0 | 3xD | 41 | • | 8 | 79 | PD-56BD1 |
| | 7.9375 | 5/16 | 0.3125 | 45.0 | 5xD | 53 | × | 8 | 91 | PD-A1826 |
| | 7.9375 | 5/16 | 0.3125 | 45.0 | 5xD | 53 | • | 8 | 91 | PD-7412C |
| | 7.9375 | 5/16 | 0.3125 | 45.0 | 5xDL | 53 | • | 8 | 164 | PD-FA815 |
| | 7.9375 | 5/16 | 0.3125 | 68.0 | 8xD | 76 | • | 8 | 114 | PD-244E2 |
| | 7.9375 | 5/16 | 0.3125 | 100.0 | 12xD | 108 | • | 8 | 146 | PD-9F403 |

× Solid Carbide (Non-coolant)

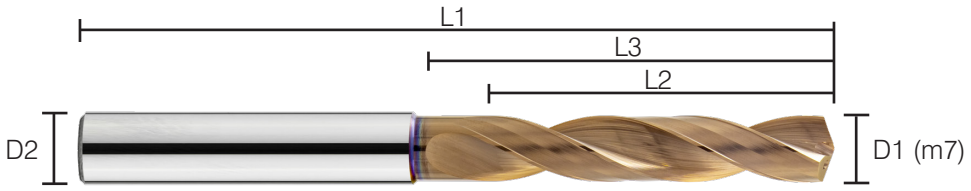
• Coolant Through Carbide




| | D1 Dia. (m7) | | D1 (in) Dia. (m7) | L2 Flute Len. | | L3 Rollout Len. | | D2 Dia. (h6) | L1 OAL | Part # |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 8 | | 0.315 | 33.0 | 3xD | 41 | × | 10 | 79 | PD-5AB21 |
| | 8 | | 0.315 | 33.0 | 3xD | 41 | • | 8 | 79 | PD-3D7C3 |
| | 8 | | 0.315 | 45.0 | 5xD | 53 | × | 10 | 91 | PD-D6C73 |
| | 8 | | 0.315 | 45.0 | 5xD | 53 | • | 8 | 91 | PD-308CD |
| | 8 | | 0.315 | 68.0 | 8xD | 76 | • | 8 | 114 | PD-16495 |
| | 8 | | 0.315 | 100.0 | 12xD | 108 | • | 8 | 146 | PD-37405 |
| | | | | | | | | | | |
| | 8.2 | | 0.3228 | 38.8 | 3xD | 47 | × | 10 | 89 | PD-1E049 |
| | 8.2 | | 0.3228 | 38.8 | 3xD | 47 | • | 10 | 89 | PD-F69B5 |
| | 8.2 | | 0.3228 | 52.8 | 5xD | 61 | × | 10 | 103 | PD-4EAD9 |
| | 8.2 | | 0.3228 | 52.8 | 5xD | 61 | • | 10 | 103 | PD-F07D6 |
| | 8.2 | | 0.3228 | 86.8 | 8xD | 95 | • | 10 | 142 | PD-D2689 |
| | 8.2 | | 0.3228 | 111.8 | 12xD | 120 | • | 10 | 162 | PD-E552C |
| | | | | | | | | | | |
| | 8.3344 | 21/64 | 0.3281 | 38.7 | 3xD | 47 | × | 10 | 89 | PD-8CD2A |
| | 8.3344 | 21/64 | 0.3281 | 38.7 | 3xD | 47 | • | 10 | 89 | PD-F8DBC |
| | 8.3344 | 21/64 | 0.3281 | 52.7 | 5xD | 61 | × | 10 | 103 | PD-7A3C9 |
| | 8.3344 | 21/64 | 0.3281 | 52.7 | 5xD | 61 | • | 10 | 103 | PD-94C2B |
| | 8.3344 | 21/64 | 0.3281 | 86.7 | 8xD | 95 | • | 10 | 142 | PD-6D180 |
| | 8.3344 | 21/64 | 0.3281 | 111.7 | 12xD | 120 | • | 10 | 162 | PD-5C04F |
| | | | | | | | | | | |
| | 8.5 | | 0.3346 | 38.6 | 3xD | 47 | × | 10 | 89 | PD-76A51 |
| | 8.5 | | 0.3346 | 38.6 | 3xD | 47 | • | 10 | 89 | PD-BB383 |
| | 8.5 | | 0.3346 | 52.6 | 5xD | 61 | × | 10 | 103 | PD-52015 |
| | 8.5 | | 0.3346 | 52.6 | 5xD | 61 | • | 10 | 103 | PD-9718F |
| | 8.5 | | 0.3346 | 86.6 | 8xD | 95 | • | 10 | 142 | PD-9D88C |
| | 8.5 | | 0.3346 | 111.6 | 12xD | 120 | • | 10 | 162 | PD-1F18F |
| | | | | | | | | | | |
| | 8.6 | | 0.3386 | 38.4 | 3xD | 47 | × | 10 | 89 | PD-8EB04 |
| | 8.6 | | 0.3386 | 38.4 | 3xD | 47 | • | 10 | 89 | PD-FDBA6 |
| | 8.6 | | 0.3386 | 52.4 | 5xD | 61 | × | 10 | 103 | PD-B1DDE |
| | 8.6 | | 0.3386 | 52.4 | 5xD | 61 | • | 10 | 103 | PD-D93F2 |
| | 8.6 | | 0.3386 | 86.4 | 8xD | 95 | • | 10 | 142 | PD-692F2 |
| | 8.6 | | 0.3386 | 111.4 | 12xD | 120 | • | 10 | 162 | PD-76C98 |

× Solid Carbide (Non-coolant)

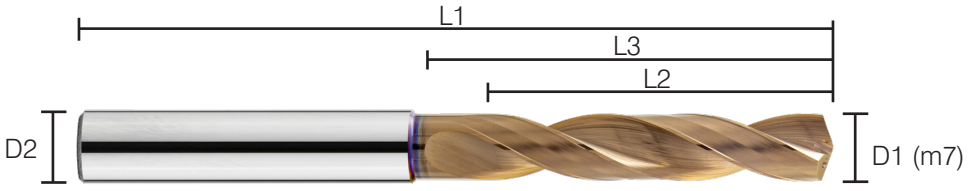
• Coolant Through Carbide




| | D1 Dia. (m7) | | D1 (in) Dia. (m7) | L2 Flute Len. | | L3 Rollout Len. | | D2 Dia. (h6) | L1 OAL | Part # |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 8.7 | | 0.3425 | 38.2 | 3xD | 47 | × | 10 | 89 | PD-49752 |
| | 8.7 | | 0.3425 | 38.2 | 3xD | 47 | • | 10 | 89 | PD-E621B |
| | 8.7 | | 0.3425 | 52.2 | 5xD | 61 | × | 10 | 103 | PD-90623 |
| | 8.7 | | 0.3425 | 52.2 | 5xD | 61 | • | 10 | 103 | PD-76FAF |
| | 8.7 | | 0.3425 | 86.2 | 8xD | 95 | • | 10 | 142 | PD-F300F |
| | 8.7 | | 0.3425 | 111.2 | 12xD | 120 | • | 10 | 162 | PD-F0398 |
| | | | | | | | | | | |
| | 8.7313 | 11/32 | 0.3438 | 38.1 | 3xD | 47 | × | 10 | 89 | PD-DEE47 |
| | 8.7313 | 11/32 | 0.3438 | 38.1 | 3xD | 47 | • | 10 | 89 | PD-38E1B |
| | 8.7313 | 11/32 | 0.3438 | 52.1 | 5xD | 61 | × | 10 | 103 | PD-D4710 |
| | 8.7313 | 11/32 | 0.3438 | 52.1 | 5xD | 61 | • | 10 | 103 | PD-A798E |
| | 8.7313 | 11/32 | 0.3438 | 86.1 | 8xD | 95 | • | 10 | 142 | PD-4165B |
| | 8.7313 | 11/32 | 0.3438 | 111.1 | 12xD | 120 | • | 10 | 162 | PD-CE3DC |
| | | | | | | | | | | |
| | 8.8 | | 0.3465 | 37.9 | 3xD | 47 | × | 10 | 89 | PD-3C54E |
| | 8.8 | | 0.3465 | 37.9 | 3xD | 47 | • | 10 | 89 | PD-A1A0F |
| | 8.8 | | 0.3465 | 51.9 | 5xD | 61 | × | 10 | 103 | PD-A0967 |
| | 8.8 | | 0.3465 | 51.9 | 5xD | 61 | • | 10 | 103 | PD-9B762 |
| | 8.8 | | 0.3465 | 85.9 | 8xD | 95 | • | 10 | 142 | PD-FE8F4 |
| | 8.8 | | 0.3465 | 110.9 | 12xD | 120 | • | 10 | 162 | PD-D99F3 |
| | | | | | | | | | | |
| | 9 | | 0.3543 | 37.5 | 3xD | 47 | × | 10 | 89 | PD-15104 |
| | 9 | | 0.3543 | 37.5 | 3xD | 47 | • | 10 | 89 | PD-51311 |
| | 9 | | 0.3543 | 51.5 | 5xD | 61 | × | 10 | 103 | PD-84C09 |
| | 9 | | 0.3543 | 51.5 | 5xD | 61 | • | 10 | 103 | PD-C2F0F |
| | 9 | | 0.3543 | 85.5 | 8xD | 95 | • | 10 | 142 | PD-82683 |
| | 9 | | 0.3543 | 110.5 | 12xD | 120 | • | 10 | 162 | PD-ED00B |
| | | | | | | | | | | |
| | 9.2 | | 0.3622 | 37.4 | 3xD | 47 | × | 10 | 89 | PD-DECA6 |
| | 9.2 | | 0.3622 | 37.4 | 3xD | 47 | • | 10 | 89 | PD-40DEB |
| | 9.2 | | 0.3622 | 51.4 | 5xD | 61 | × | 10 | 103 | PD-F085A |
| | 9.2 | | 0.3622 | 51.4 | 5xD | 61 | • | 10 | 103 | PD-9DCF4 |
| | 9.2 | | 0.3622 | 85.4 | 8xD | 95 | • | 10 | 142 | PD-B7D37 |
| | 9.2 | | 0.3622 | 110.4 | 12xD | 120 | • | 10 | 162 | PD-AAD4F |

× Solid Carbide (Non-coolant)

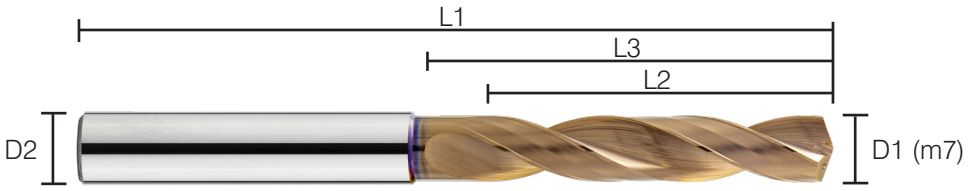
• Coolant Through Carbide




| | D1 Dia. (m7) | | D1 (in) Dia. (m7) | L2 Flute Len. | | L3 Rollout Len. | | D2 Dia. (h6) | L1 OAL | Part # |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 9.3 | | 0.3661 | 37.4 | 3xD | 47 | × | 10 | 89 | PD-60A1D |
| | 9.3 | | 0.3661 | 37.4 | 3xD | 47 | • | 10 | 89 | PD-385C5 |
| | 9.3 | | 0.3661 | 51.4 | 5xD | 61 | × | 10 | 103 | PD-1C98D |
| | 9.3 | | 0.3661 | 51.4 | 5xD | 61 | • | 10 | 103 | PD-2B6E7 |
| | 9.3 | | 0.3661 | 85.4 | 8xD | 95 | • | 10 | 142 | PD-A3F33 |
| | 9.3 | | 0.3661 | 110.4 | 12xD | 120 | • | 10 | 162 | PD-B26F6 |
| | | | | | | | | | | |
| | 9.4 | | 0.3701 | 37.4 | 3xD | 47 | × | 10 | 89 | PD-33F50 |
| | 9.4 | | 0.3701 | 37.4 | 3xD | 47 | • | 10 | 89 | PD-12FC1 |
| | 9.4 | | 0.3701 | 51.4 | 5xD | 61 | × | 10 | 103 | PD-B0B73 |
| | 9.4 | | 0.3701 | 51.4 | 5xD | 61 | • | 10 | 103 | PD-90195 |
| | 9.4 | | 0.3701 | 85.4 | 8xD | 95 | • | 10 | 142 | PD-C6E4F |
| | 9.4 | | 0.3701 | 110.4 | 12xD | 120 | • | 10 | 162 | PD-CB3E5 |
| | | | | | | | | | | |
| | 9.525 | 3/8 | 0.375 | 37.4 | 3xD | 47 | × | 10 | 89 | PD-A237F |
| | 9.525 | 3/8 | 0.375 | 37.4 | 3xD | 47 | • | 10 | 89 | PD-7B9B7 |
| | 9.525 | 3/8 | 0.375 | 51.4 | 5xD | 61 | × | 10 | 103 | PD-AADBD |
| | 9.525 | 3/8 | 0.375 | 51.4 | 5xD | 61 | • | 10 | 103 | PD-C34D6 |
| | 9.525 | 3/8 | 0.375 | 85.4 | 8xD | 95 | • | 10 | 142 | PD-DFA69 |
| | 9.525 | 3/8 | 0.375 | 110.4 | 12xD | 120 | • | 10 | 162 | PD-AC165 |
| | | | | | | | | | | |
| | 9.7 | | 0.3819 | 37.3 | 3xD | 47 | × | 10 | 89 | PD-BDF9E |
| | 9.7 | | 0.3819 | 37.3 | 3xD | 47 | • | 10 | 89 | PD-AE9A9 |
| | 9.7 | | 0.3819 | 51.3 | 5xD | 61 | × | 10 | 103 | PD-40E49 |
| | 9.7 | | 0.3819 | 51.3 | 5xD | 61 | • | 10 | 103 | PD-249DF |
| | 9.7 | | 0.3819 | 85.3 | 8xD | 95 | • | 10 | 142 | PD-12219 |
| | 9.7 | | 0.3819 | 110.3 | 12xD | 120 | • | 10 | 162 | PD-580F3 |
| | | | | | | | | | | |
| | 9.9219 | 25/64 | 0.3906 | 37.2 | 3xD | 47 | × | 10 | 89 | PD-D1F7A |
| | 9.9219 | 25/64 | 0.3906 | 37.2 | 3xD | 47 | • | 10 | 89 | PD-4F977 |
| | 9.9219 | 25/64 | 0.3906 | 51.2 | 5xD | 61 | × | 10 | 103 | PD-8E4B3 |
| | 9.9219 | 25/64 | 0.3906 | 51.2 | 5xD | 61 | • | 10 | 103 | PD-E74E7 |
| | 9.9219 | 25/64 | 0.3906 | 85.2 | 8xD | 95 | • | 10 | 142 | PD-C8AE4 |
| | 9.9219 | 25/64 | 0.3906 | 110.2 | 12xD | 120 | • | 10 | 162 | PD-A795A |

× Solid Carbide (Non-coolant)

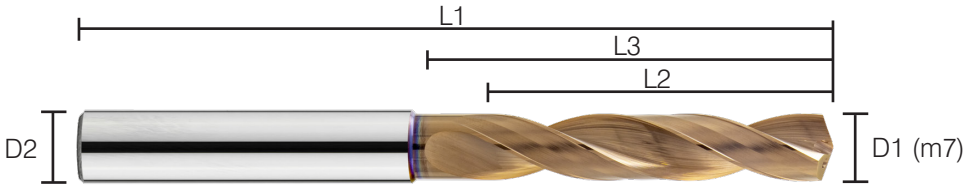
• Coolant Through Carbide




| | D1 Dia. (m7) | | D1 (in) Dia. (m7) | L2 Flute Len. | | L3 Rollout Len. | | D2 Dia. (h6) | L1 OAL | Part # |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 10 | | 0.3937 | 37.2 | 3xD | 47 | × | 12 | 94 | PD-387A1 |
| | 10 | | 0.3937 | 37.2 | 3xD | 47 | • | 10 | 94 | PD-A60C1 |
| | 10 | | 0.3937 | 51.2 | 5xD | 61 | × | 12 | 103 | PD-155AA |
| | 10 | | 0.3937 | 51.2 | 5xD | 61 | • | 10 | 103 | PD-A5495 |
| | 10 | | 0.3937 | 85.2 | 8xD | 95 | • | 10 | 142 | PD-4FE23 |
| | 10 | | 0.3937 | 110.2 | 12xD | 120 | • | 10 | 162 | PD-FA1DF |
| | | | | | | | | | | |
| | 10.2 | | 0.4016 | 44.9 | 3xD | 55 | × | 12 | 103 | PD-BD7A8 |
| | 10.2 | | 0.4016 | 44.9 | 3xD | 55 | • | 12 | 103 | PD-C3CAD |
| | 10.2 | | 0.4016 | 60.9 | 5xD | 71 | × | 12 | 118 | PD-C8971 |
| | 10.2 | | 0.4016 | 60.9 | 5xD | 71 | • | 12 | 118 | PD-C22E6 |
| | 10.2 | | 0.4016 | 103.9 | 8xD | 114 | • | 12 | 162 | PD-7D4ED |
| | 10.2 | | 0.4016 | 145.9 | 12xD | 156 | • | 12 | 204 | PD-4B0A0 |
| | | | | | | | | | | |
| | 10.3188 | 13/32 | 0.4063 | 44.8 | 3xD | 55 | × | 12 | 103 | PD-AD25E |
| | 10.3188 | 13/32 | 0.4063 | 44.8 | 3xD | 55 | • | 12 | 103 | PD-9B33C |
| | 10.3188 | 13/32 | 0.4063 | 60.8 | 5xD | 71 | × | 12 | 118 | PD-74E94 |
| | 10.3188 | 13/32 | 0.4063 | 60.8 | 5xD | 71 | • | 12 | 118 | PD-3F972 |
| | 10.3188 | 13/32 | 0.4063 | 103.8 | 8xD | 114 | • | 12 | 162 | PD-41341 |
| | 10.3188 | 13/32 | 0.4063 | 145.8 | 12xD | 156 | • | 12 | 204 | PD-3A87F |
| | | | | | | | | | | |
| | 10.4 | | 0.4094 | 44.7 | 3xD | 55 | × | 12 | 103 | PD-35750 |
| | 10.4 | | 0.4094 | 44.7 | 3xD | 55 | • | 12 | 103 | PD-64233 |
| | 10.4 | | 0.4094 | 60.7 | 5xD | 71 | × | 12 | 118 | PD-B08C8 |
| | 10.4 | | 0.4094 | 60.7 | 5xD | 71 | • | 12 | 118 | PD-44F6D |
| | 10.4 | | 0.4094 | 103.7 | 8xD | 114 | • | 12 | 162 | PD-7EB2C |
| | 10.4 | | 0.4094 | 145.7 | 12xD | 156 | • | 12 | 204 | PD-5FFE5 |
| | | | | | | | | | | |
| | 10.5 | | 0.4134 | 44.6 | 3xD | 55 | × | 12 | 103 | PD-1CFE7 |
| | 10.5 | | 0.4134 | 44.6 | 3xD | 55 | • | 12 | 103 | PD-B9553 |
| | 10.5 | | 0.4134 | 60.6 | 5xD | 71 | × | 12 | 118 | PD-77EFF |
| | 10.5 | | 0.4134 | 60.6 | 5xD | 71 | • | 12 | 118 | PD-31DE8 |
| | 10.5 | | 0.4134 | 103.6 | 8xD | 114 | • | 12 | 162 | PD-A519C |
| | 10.5 | | 0.4134 | 145.6 | 12xD | 156 | • | 12 | 204 | PD-DBB2B |

× Solid Carbide (Non-coolant)

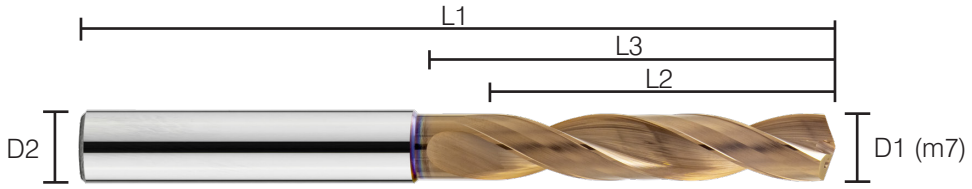
• Coolant Through Carbide




| | D1 Dia. (m7) | | D1 (in) Dia. (m7) | L2 Flute Len. | | L3 Rollout Len. | | D2 Dia. (h6) | L1 OAL | Part # |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 10.7156 | 27/64 | 0.4219 | 44.2 | 3xD | 55 | × | 12 | 103 | PD-F3C36 |
| | 10.7156 | 27/64 | 0.4219 | 44.2 | 3xD | 55 | • | 12 | 103 | PD-BB96F |
| | 10.7156 | 27/64 | 0.4219 | 60.2 | 5xD | 71 | × | 12 | 118 | PD-84266 |
| | 10.7156 | 27/64 | 0.4219 | 60.2 | 5xD | 71 | • | 12 | 118 | PD-934F9 |
| | 10.7156 | 27/64 | 0.4219 | 103.2 | 8xD | 114 | • | 12 | 162 | PD-CF0C5 |
| | 10.7156 | 27/64 | 0.4219 | 145.2 | 12xD | 156 | • | 12 | 204 | PD-26572 |
| | | | | | | | | | | |
| | 10.8 | | 0.4252 | 44.1 | 3xD | 55 | × | 12 | 103 | PD-262B9 |
| | 10.8 | | 0.4252 | 44.1 | 3xD | 55 | • | 12 | 103 | PD-F8AF4 |
| | 10.8 | | 0.4252 | 60.1 | 5xD | 71 | × | 12 | 118 | PD-88416 |
| | 10.8 | | 0.4252 | 60.1 | 5xD | 71 | • | 12 | 118 | PD-9887F |
| | 10.8 | | 0.4252 | 103.1 | 8xD | 114 | • | 12 | 162 | PD-434AE |
| | 10.8 | | 0.4252 | 145.1 | 12xD | 156 | • | 12 | 204 | PD-2C3E5 |
| | | | | | | | | | | |
| | 10.9 | | 0.4291 | 44.0 | 3xD | 55 | × | 12 | 103 | PD-3F607 |
| | 10.9 | | 0.4291 | 44.0 | 3xD | 55 | • | 12 | 103 | PD-F49BB |
| | 10.9 | | 0.4291 | 60.0 | 5xD | 71 | × | 12 | 118 | PD-FD2D1 |
| | 10.9 | | 0.4291 | 60.0 | 5xD | 71 | • | 12 | 118 | PD-A66E7 |
| | 10.9 | | 0.4291 | 103.0 | 8xD | 114 | • | 12 | 162 | PD-5D742 |
| | 10.9 | | 0.4291 | 145.0 | 12xD | 156 | • | 12 | 204 | PD-86758 |
| | | | | | | | | | | |
| | 11 | | 0.4331 | 43.8 | 3xD | 55 | × | 12 | 103 | PD-512C4 |
| | 11 | | 0.4331 | 43.8 | 3xD | 55 | • | 12 | 103 | PD-A0373 |
| | 11 | | 0.4331 | 59.8 | 5xD | 71 | × | 12 | 118 | PD-B306F |
| | 11 | | 0.4331 | 59.8 | 5xD | 71 | • | 12 | 118 | PD-257B5 |
| | 11 | | 0.4331 | 102.8 | 8xD | 114 | • | 12 | 162 | PD-127A0 |
| | 11 | | 0.4331 | 144.8 | 12xD | 156 | • | 12 | 204 | PD-78FA3 |
| | | | | | | | | | | |
| | 11.1125 | 7/16 | 0.4375 | 43.8 | 3xD | 55 | × | 12 | 103 | PD-F8BBF |
| | 11.1125 | 7/16 | 0.4375 | 43.8 | 3xD | 55 | • | 12 | 103 | PD-4C9B0 |
| | 11.1125 | 7/16 | 0.4375 | 59.8 | 5xD | 71 | × | 12 | 118 | PD-D29B9 |
| | 11.1125 | 7/16 | 0.4375 | 59.8 | 5xD | 71 | • | 12 | 118 | PD-256BA |
| | 11.1125 | 7/16 | 0.4375 | 102.8 | 8xD | 114 | • | 12 | 162 | PD-4122E |
| | 11.1125 | 7/16 | 0.4375 | 144.8 | 12xD | 156 | • | 12 | 204 | PD-2D76D |

× Solid Carbide (Non-coolant)

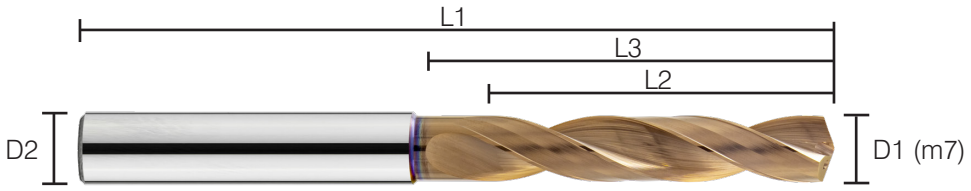
• Coolant Through Carbide




| | D1 Dia. (m7) | | D1 (in) Dia. (m7) | L2 Flute Len. | | L3 Rollout Len. | | D2 Dia. (h6) | L1 OAL | Part # |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 11.2 | | 0.4409 | 43.8 | 3xD | 55 | × | 12 | 103 | PD-656B3 |
| | 11.2 | | 0.4409 | 43.8 | 3xD | 55 | • | 12 | 103 | PD-8CCB2 |
| | 11.2 | | 0.4409 | 59.8 | 5xD | 71 | × | 12 | 118 | PD-EAF12 |
| | 11.2 | | 0.4409 | 59.8 | 5xD | 71 | • | 12 | 118 | PD-EB146 |
| | 11.2 | | 0.4409 | 102.8 | 8xD | 114 | • | 12 | 162 | PD-93CFD |
| | 11.2 | | 0.4409 | 144.8 | 12xD | 156 | • | 12 | 204 | PD-E0D35 |
| | | | | | | | | | | |
| | 11.5094 | 29/64 | 0.4531 | 43.7 | 3xD | 55 | × | 12 | 103 | PD-46B9C |
| | 11.5094 | 29/64 | 0.4531 | 43.7 | 3xD | 55 | • | 12 | 103 | PD-D15A7 |
| | 11.5094 | 29/64 | 0.4531 | 59.7 | 5xD | 71 | × | 12 | 118 | PD-6987F |
| | 11.5094 | 29/64 | 0.4531 | 59.7 | 5xD | 71 | • | 12 | 118 | PD-B7264 |
| | 11.5094 | 29/64 | 0.4531 | 102.7 | 8xD | 114 | • | 12 | 162 | PD-2B7B0 |
| | 11.5094 | 29/64 | 0.4531 | 144.7 | 12xD | 156 | • | 12 | 204 | PD-EED01 |
| | | | | | | | | | | |
| | 11.7 | | 0.4606 | 43.6 | 3xD | 55 | × | 12 | 103 | PD-62A1D |
| | 11.7 | | 0.4606 | 43.6 | 3xD | 55 | • | 12 | 103 | PD-B0463 |
| | 11.7 | | 0.4606 | 59.6 | 5xD | 71 | × | 12 | 118 | PD-2E576 |
| | 11.7 | | 0.4606 | 59.6 | 5xD | 71 | • | 12 | 118 | PD-34A3F |
| | 11.7 | | 0.4606 | 102.6 | 8xD | 114 | • | 12 | 162 | PD-E7FD3 |
| | 11.7 | | 0.4606 | 144.6 | 12xD | 156 | • | 12 | 204 | PD-F769F |
| | | | | | | | | | | |
| | 11.8 | | 0.4646 | 43.6 | 3xD | 55 | × | 12 | 103 | PD-E7D12 |
| | 11.8 | | 0.4646 | 43.6 | 3xD | 55 | • | 12 | 103 | PD-E9937 |
| | 11.8 | | 0.4646 | 59.6 | 5xD | 71 | × | 12 | 118 | PD-63333 |
| | 11.8 | | 0.4646 | 59.6 | 5xD | 71 | • | 12 | 118 | PD-846A6 |
| | 11.8 | | 0.4646 | 102.6 | 8xD | 114 | • | 12 | 162 | PD-FBD42 |
| | 11.8 | | 0.4646 | 144.6 | 12xD | 156 | • | 12 | 204 | PD-7DE72 |
| | | | | | | | | | | |
| | 11.9063 | 15/32 | 0.4688 | 43.5 | 3xD | 55 | × | 12 | 103 | PD-EA0D2 |
| | 11.9063 | 15/32 | 0.4688 | 43.5 | 3xD | 55 | • | 12 | 103 | PD-618A1 |
| | 11.9063 | 15/32 | 0.4688 | 59.5 | 5xD | 71 | × | 12 | 118 | PD-D9AE1 |
| | 11.9063 | 15/32 | 0.4688 | 59.5 | 5xD | 71 | • | 12 | 118 | PD-2FF5F |
| | 11.9063 | 15/32 | 0.4688 | 102.5 | 8xD | 114 | • | 12 | 162 | PD-8CEA4 |
| | 11.9063 | 15/32 | 0.4688 | 144.5 | 12xD | 156 | • | 12 | 204 | PD-C7CAB |

× Solid Carbide (Non-coolant)

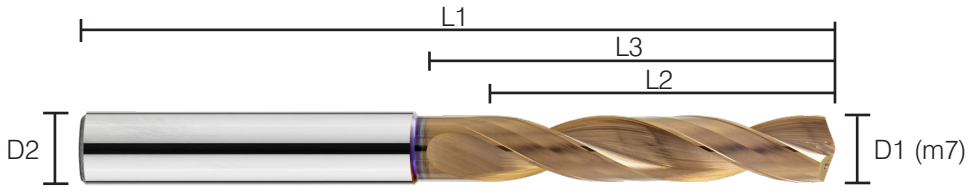
• Coolant Through Carbide




| | D1 Dia. (m7) | | D1 (in) Dia. (m7) | L2 Flute Len. | | L3 Rollout Len. | | D2 Dia. (h6) | L1 OAL | Part # |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 12 | | 0.4724 | 43.5 | 3xD | 55 | × | 14 | 107 | PD-3BE14 |
| | 12 | | 0.4724 | 43.5 | 3xD | 55 | • | 12 | 107 | PD-1180A |
| | 12 | | 0.4724 | 59.5 | 5xD | 71 | × | 14 | 125 | PD-52794 |
| | 12 | | 0.4724 | 59.5 | 5xD | 71 | • | 12 | 118 | PD-77F5F |
| | 12 | | 0.4724 | 102.5 | 8xD | 114 | • | 12 | 162 | PD-484F8 |
| | 12 | | 0.4724 | 144.5 | 12xD | 156 | • | 12 | 204 | PD-1039B |
| | | | | | | | | | | |
| | 12.3 | | 0.4843 | 47.8 | 3xD | 60 | × | 14 | 107 | PD-46473 |
| | 12.3 | | 0.4843 | 47.8 | 3xD | 60 | • | 14 | 107 | PD-C5F38 |
| | 12.3 | | 0.4843 | 64.8 | 5xD | 77 | × | 14 | 125 | PD-3C98A |
| | 12.3 | | 0.4843 | 64.8 | 5xD | 77 | • | 14 | 124 | PD-E7DE4 |
| | 12.3 | | 0.4843 | 118.8 | 8xD | 131 | • | 14 | 178 | PD-F3B92 |
| | 12.3 | | 0.4843 | 169.8 | 12xD | 182 | • | 14 | 230 | PD-F7784 |
| | | | | | | | | | | |
| | 12.4 | | 0.4882 | 47.6 | 3xD | 60 | × | 14 | 107 | PD-EDC22 |
| | 12.4 | | 0.4882 | 47.6 | 3xD | 60 | • | 14 | 107 | PD-AE709 |
| | 12.4 | | 0.4882 | 64.6 | 5xD | 77 | × | 14 | 125 | PD-134E6 |
| | 12.4 | | 0.4882 | 64.6 | 5xD | 77 | • | 14 | 124 | PD-183CC |
| | 12.4 | | 0.4882 | 118.6 | 8xD | 131 | • | 14 | 178 | PD-21F6E |
| | 12.4 | | 0.4882 | 153.6 | 12xD | 166 | • | 14 | 210 | PD-30158 |
| | | | | | | | | | | |
| | 12.5 | | 0.4921 | 47.4 | 3xD | 60 | × | 14 | 107 | PD-65A90 |
| | 12.5 | | 0.4921 | 47.4 | 3xD | 60 | • | 14 | 107 | PD-2D557 |
| | 12.5 | | 0.4921 | 64.4 | 5xD | 77 | × | 14 | 125 | PD-CBC3C |
| | 12.5 | | 0.4921 | 64.4 | 5xD | 77 | • | 14 | 124 | PD-7EE8B |
| | 12.5 | | 0.4921 | 118.4 | 8xD | 131 | • | 14 | 178 | PD-DECB2 |
| | | | | | | | | | | |
| | 12.7 | 1/2 | 0.5 | 47.3 | 3xD | 60 | × | 14 | 107 | PD-321E9 |
| | 12.7 | 1/2 | 0.5 | 47.3 | 3xD | 60 | • | 14 | 107 | PD-3569A |
| | 12.7 | 1/2 | 0.5 | 64.3 | 5xD | 77 | × | 14 | 125 | PD-125FA |
| | 12.7 | 1/2 | 0.5 | 64.3 | 5xD | 77 | • | 14 | 124 | PD-983D3 |
| | 12.7 | 1/2 | 0.5 | 118.3 | 8xD | 131 | • | 14 | 178 | PD-DD420 |
| | 12.7 | 1/2 | 0.5 | 169.3 | 12xD | 182 | • | 14 | 230 | PD-DCA28 |

× Solid Carbide (Non-coolant)

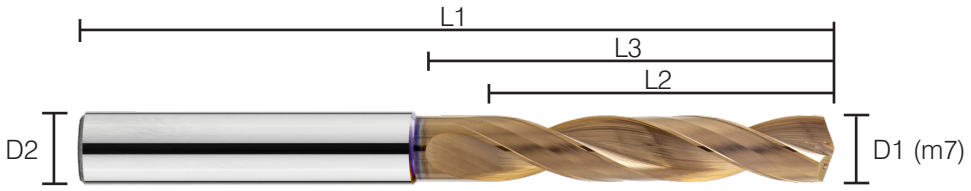
• Coolant Through Carbide




| | D1 Dia. (m7) | | D1 (in) Dia. (m7) | L2 Flute Len. | | L3 Rollout Len. | | D2 Dia. (h6) | L1 OAL | Part # |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 13 | | 0.5118 | 47.1 | 3xD | 60 | × | 14 | 107 | PD-24C7F |
| | 13 | | 0.5118 | 47.1 | 3xD | 60 | • | 14 | 107 | PD-E0B6F |
| | 13 | | 0.5118 | 64.1 | 5xD | 77 | × | 14 | 125 | PD-93003 |
| | 13 | | 0.5118 | 64.1 | 5xD | 77 | • | 14 | 124 | PD-98C5A |
| | 13 | | 0.5118 | 118.1 | 8xD | 131 | • | 14 | 178 | PD-FA867 |
| | | | | | | | | | | |
| | 13.1 | | 0.5157 | 47.1 | 3xD | 60 | × | 14 | 107 | PD-5408A |
| | 13.1 | | 0.5157 | 47.1 | 3xD | 60 | • | 14 | 107 | PD-155AE |
| | 13.1 | | 0.5157 | 64.1 | 5xD | 77 | × | 14 | 125 | PD-3DBCA |
| | 13.1 | | 0.5157 | 64.1 | 5xD | 77 | • | 14 | 124 | PD-D62F5 |
| | 13.1 | | 0.5157 | 118.1 | 8xD | 131 | • | 14 | 178 | PD-A43BC |
| | | | | | | | | | | |
| | 13.4938 | 17/32 | 0.5313 | 47.1 | 3xD | 60 | × | 14 | 107 | PD-27BF5 |
| | 13.4938 | 17/32 | 0.5313 | 47.1 | 3xD | 60 | • | 14 | 107 | PD-5B4C0 |
| | 13.4938 | 17/32 | 0.5313 | 64.1 | 5xD | 77 | × | 14 | 125 | PD-E0AC9 |
| | 13.4938 | 17/32 | 0.5313 | 64.1 | 5xD | 77 | • | 14 | 124 | PD-8ED8D |
| | 13.4938 | 17/32 | 0.5313 | 118.1 | 8xD | 131 | • | 14 | 178 | PD-796EA |
| | 13.4938 | 17/32 | 0.5313 | 169.1 | 12xD | 182 | • | 14 | 230 | PD-E0EF6 |
| | | | | | | | | | | |
| | 13.8 | | 0.5433 | 46.7 | 3xD | 60 | × | 14 | 107 | PD-53F44 |
| | 13.8 | | 0.5433 | 46.7 | 3xD | 60 | • | 14 | 115 | PD-D1E67 |
| | 13.8 | | 0.5433 | 63.7 | 5xD | 77 | × | 14 | 125 | PD-F51F1 |
| | 13.8 | | 0.5433 | 63.7 | 5xD | 77 | • | 14 | 124 | PD-D71DF |
| | 13.8 | | 0.5433 | 117.7 | 8xD | 131 | • | 14 | 178 | PD-4ECF0 |
| | | | | | | | | | | |
| | 14 | | 0.5512 | 46.5 | 3xD | 60 | × | 16 | 115 | PD-102C5 |
| | 14 | | 0.5512 | 46.5 | 3xD | 60 | • | 14 | 115 | PD-5E2E4 |
| | 14 | | 0.5512 | 63.5 | 5xD | 77 | × | 16 | 125 | PD-6D3BE |
| | 14 | | 0.5512 | 63.5 | 5xD | 77 | • | 14 | 124 | PD-195DC |
| | 14 | | 0.5512 | 117.5 | 8xD | 131 | • | 14 | 178 | PD-B1BA4 |
| | 14 | | 0.5512 | 168.5 | 12xD | 182 | • | 14 | 230 | PD-DC03E |

× Solid Carbide (Non-coolant)

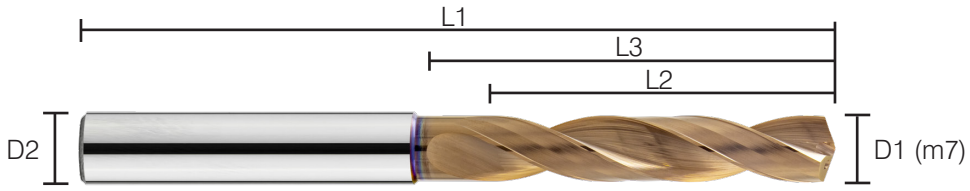
• Coolant Through Carbide




| | D1 Dia. (m7) | | D1 (in) Dia. (m7) | L2 Flute Len. | | L3 Rollout Len. | | D2 Dia. (h6) | L1 OAL | Part # |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 14.2875 | 9/16 | 0.5625 | 51.0 | 3xD | 65 | × | 16 | 115 | PD-8E564 |
| | 14.2875 | 9/16 | 0.5625 | 51.0 | 3xD | 65 | • | 16 | 115 | PD-C57A2 |
| | 14.2875 | 9/16 | 0.5625 | 69.0 | 5xD | 83 | × | 16 | 133 | PD-E3E8C |
| | 14.2875 | 9/16 | 0.5625 | 69.0 | 5xD | 83 | • | 16 | 133 | PD-6B54B |
| | 14.2875 | 9/16 | 0.5625 | 138.0 | 8xD | 152 | • | 16 | 203 | PD-9A10D |
| | 14.2875 | 9/16 | 0.5625 | 194.0 | 12xD | 208 | • | 16 | 260 | PD-2A51F |
| | | | | | | | | | | |
| | 14.5 | | 0.5709 | 50.6 | 3xD | 65 | × | 16 | 115 | PD-C193F |
| | 14.5 | | 0.5709 | 50.6 | 3xD | 65 | • | 16 | 115 | PD-54308 |
| | 14.5 | | 0.5709 | 68.6 | 5xD | 83 | × | 16 | 133 | PD-942D8 |
| | 14.5 | | 0.5709 | 68.6 | 5xD | 83 | • | 16 | 133 | PD-6A920 |
| | 14.5 | | 0.5709 | 137.6 | 8xD | 152 | • | 16 | 203 | PD-D5AF8 |
| | | | | | | | | | | |
| | 14.7 | | 0.5787 | 50.2 | 3xD | 65 | × | 16 | 115 | PD-8B2C1 |
| | 14.7 | | 0.5787 | 50.2 | 3xD | 65 | • | 16 | 115 | PD-CBC58 |
| | 14.7 | | 0.5787 | 68.2 | 5xD | 83 | × | 16 | 133 | PD-296FE |
| | 14.7 | | 0.5787 | 68.2 | 5xD | 83 | • | 16 | 133 | PD-9027F |
| | 14.7 | | 0.5787 | 137.2 | 8xD | 152 | • | 16 | 203 | PD-591CA |
| | | | | | | | | | | |
| | 15.0813 | 19/32 | 0.5938 | 50.2 | 3xD | 65 | × | 16 | 115 | PD-905BE |
| | 15.0813 | 19/32 | 0.5938 | 50.2 | 3xD | 65 | • | 16 | 115 | PD-92627 |
| | 15.0813 | 19/32 | 0.5938 | 68.2 | 5xD | 83 | × | 16 | 133 | PD-D7874 |
| | 15.0813 | 19/32 | 0.5938 | 68.2 | 5xD | 83 | • | 16 | 133 | PD-C8AAC |
| | 15.0813 | 19/32 | 0.5938 | 137.2 | 8xD | 152 | • | 16 | 203 | PD-671C6 |
| | 15.0813 | 19/32 | 0.5938 | 193.2 | 12xD | 208 | • | 16 | 260 | PD-715BE |
| | | | | | | | | | | |
| | 15.875 | 5/8 | 0.625 | 49.9 | 3xD | 65 | × | 16 | 115 | PD-42191 |
| | 15.875 | 5/8 | 0.625 | 49.9 | 3xD | 65 | • | 16 | 115 | PD-C4F99 |
| | 15.875 | 5/8 | 0.625 | 67.9 | 5xD | 83 | × | 16 | 133 | PD-F3D1F |
| | 15.875 | 5/8 | 0.625 | 67.9 | 5xD | 83 | • | 16 | 133 | PD-D3DB5 |
| | 15.875 | 5/8 | 0.625 | 136.9 | 8xD | 152 | • | 16 | 203 | PD-29579 |
| | 15.875 | 5/8 | 0.625 | 192.9 | 12xD | 208 | • | 16 | 260 | PD-7D86A |

× Solid Carbide (Non-coolant)

• Coolant Through Carbide




| | D1 Dia. (m7) | | D1 (in) Dia. (m7) | L2 Flute Len. | | L3 Rollout Len. | | D2 Dia. (h6) | L1 OAL | Part # |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 16 | | 0.6299 | 49.9 | 3xD | 65 | × | 16 | 115 | PD-67522 |
| | 16 | | 0.6299 | 49.9 | 3xD | 65 | • | 16 | 115 | PD-C26BE |
| | 16 | | 0.6299 | 67.9 | 5xD | 83 | × | 16 | 133 | PD-A71E5 |
| | 16 | | 0.6299 | 67.9 | 5xD | 83 | • | 16 | 133 | PD-31597 |
| | 16 | | 0.6299 | 136.9 | 8xD | 152 | • | 16 | 203 | PD-7DE60 |
| | | | | | | | | | | |
| | 17 | | 0.6693 | 84.0 | 5xD | 100 | × | 18 | 150 | PD-AB1AB |
| | 17 | | 0.6693 | 84.0 | 5xD | 100 | • | 18 | 156 | PD-F6D50 |
| | 17 | | 0.6693 | 155.0 | 8xD | 171 | • | 18 | 232 | PD-32092 |
| | 17 | | 0.6693 | 218.0 | 12xD | 234 | • | 18 | 296 | PD-32EE1 |
| | | | | | | | | | | |
| | 19.5 | 3/4 | 0.75 | 93.8 | 5xD | 112 | • | 20 | 164 | PD-8375B |
| | 19.5 | 3/4 | 0.75 | 171.8 | 8xD | 190 | • | 20 | 260 | PD-70D35 |

× Solid Carbide (Non-coolant)

• Coolant Through Carbide

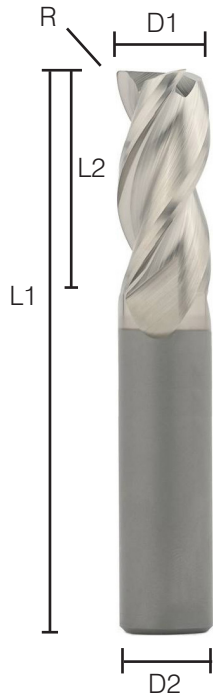
# A-Mill Rougher

The **A-Mill Rougher** is designed for aggressive roughing of non-ferrous workpiece materials. Roughing specific geometry combined with TiB2 PVD coating provides the strength and lubricity necessary for high material removal rates.

**Key Features:**

- Premium submicron carbide grade for durability and longevity
- Suitable for extremely high chip loads for aggressive material removal rates
- A polished double flute enhances chip evacuation
- Flat bottom, corner radius, and long reach options available
- High performance TiB2 PVD coating provides maximum lubricity and tool life

# A-Mill Rougher




## Square Corner

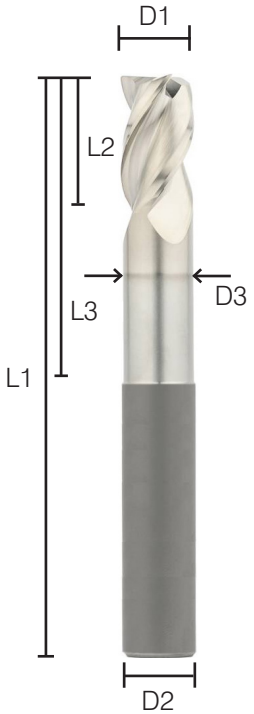
| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | No. of Flutes | Part # |
|---|---|---|---|---|---|---|
| in | 1/4 | 1/4 | 2.5 | 0.580 | 3 | 511-0250-301 |
| | 3/8 | 3/8 | 2.5 | 0.830 | 3 | 511-0375-301 |
| | 1/2 | 1/2 | 3.0 | 1.120 | 3 | 511-0500-301 |
| | 5/8 | 5/8 | 3.5 | 1.360 | 3 | 511-0625-301 |
| | 3/4 | 3/4 | 4.0 | 1.650 | 3 | 511-0750-301 |

## Corner Radius

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L1 OAL | R Radius | No. of Flutes | Part # |
|---|---|---|---|---|---|---|---|
| in | 1/4 | 1/4 | 2.5 | 0.580 | 0.010 | 3 | 511-0250-3R10 |
| | 3/8 | 3/8 | 2.5 | 0.830 | 0.020 | 3 | 511-0375-3R20 |
| | 1/2 | 1/2 | 3.0 | 1.100 | 0.020 | 3 | 511-0500-3R20 |
| | 5/8 | 5/8 | 3.5 | 1.300 | 0.030 | 3 | 511-0625-3R30 |
| | 3/4 | 3/4 | 4.0 | 1.650 | 0.030 | 3 | 511-0750-3R30 |

## Square Corner Long Reach

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | D3 Neck Dia. | L3 LOR | No. of Flutes | Part # |
|---|---|---|---|---|---|---|---|---|
| in | 1/4 | 1/4 | 3.0 | 0.35 | 0.240 | 1.350 | 2 | 517-0250-201 |
| | 3/8 | 3/8 | 4.0 | 0.55 | 0.360 | 2.100 | 2 | 517-0375-201 |
| | 1/2 | 1/2 | 5.0 | 0.85 | 0.480 | 2.850 | 2 | 518-0500-201 |
| | 5/8 | 5/8 | 6.0 | 0.90 | 0.600 | 3.150 | 2 | 518-0625-201 |
| | 3/4 | 3/4 | 6.0 | 1.15 | 0.720 | 3.150 | 2 | 518-0750-201 |




## Corner Radius Long Reach

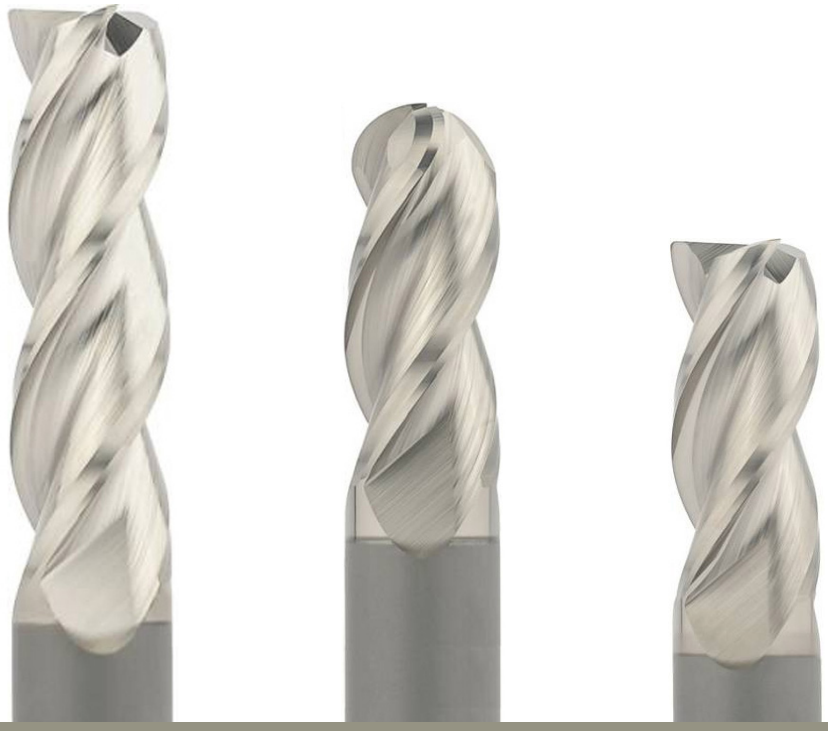
| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | D3 Neck Dia. | L3 LOR | R Radius | No. of Flutes | Part # |
|---|---|---|---|---|---|---|---|---|---|
| in | 1/4 | 1/4 | 3.0 | 0.35 | 0.240 | 1.350 | 0.010 | 2 | 517-0250-2R10 |
| | 3/8 | 3/8 | 4.0 | 0.55 | 0.360 | 2.100 | 0.020 | 2 | 517-0375-2R20 |
| | 1/2 | 1/2 | 5.0 | 0.85 | 0.480 | 2.850 | 0.020 | 2 | 518-0500-2R20 |
| | 5/8 | 5/8 | 6.0 | 0.90 | 0.600 | 3.150 | 0.030 | 2 | 518-0625-2R30 |
| | 3/4 | 3/4 | 6.0 | 1.15 | 0.720 | 3.150 | 0.030 | 2 | 518-0750-2R30 |

# A-Mill Semi-Finisher

The **A-Mill Semi-Finisher** combines roughing and finishing geometry into one tool, allowing for aggressive roughing while providing excellent surface finishes. The semi-finisher is ideal for machining centers with limited carousel capacity or where other limitations require using the same tool for roughing and finishing.

**Key Features:**

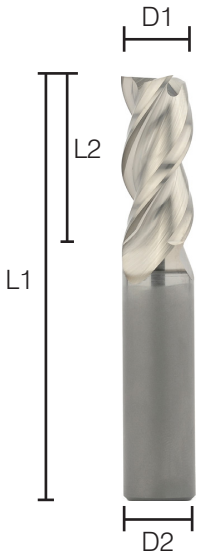
- Rough and finish with the same tool
- Premium submicron carbide grade for durability and longevity
- Polished cylindrical margin for chatter and vibration reduction
- Flat bottom, corner radius, ball nose, and long reach options available
- High performance TiB2 PVD coating provides maximum lubricity and tool life
- Polished flute face enhances chip evacuation

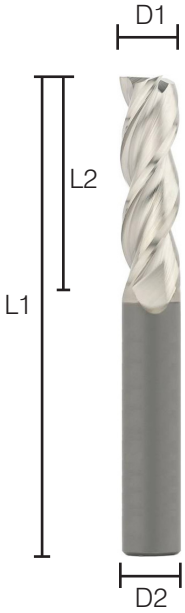


# A-Mill Semi-Finisher

## Square Corner

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | No. of Flutes | Part # |
|---|---|---|---|---|---|---|
| in | 1/8 | 1/8 | 2.0 | 0.300 | 3 | 521-0125-301 |
| | 3/16 | 3/16 | 2.0 | 0.420 | 3 | 521-0187-301 |
| | 1/4 | 1/4 | 2.5 | 0.580 | 3 | 521-0250-301 |
| | 3/8 | 3/8 | 2.5 | 0.830 | 3 | 521-0375-301 |
| | 1/2 | 1/2 | 3.0 | 1.120 | 3 | 521-0500-301 |
| | 5/8 | 5/8 | 3.5 | 1.360 | 3 | 521-0625-301 |
| | 3/4 | 3/4 | 4.0 | 1.650 | 3 | 521-0750-301 |
| | 1 | 1 | 4.0 | 1.650 | 3 | 521-1000-301 |



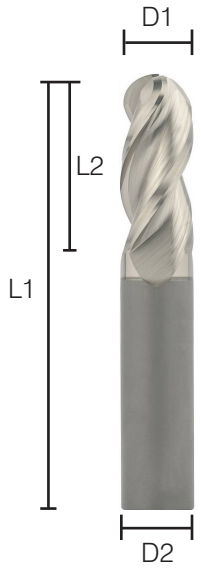




## Square Corner Long

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | No. of Flutes | Part # |
|---|---|---|---|---|---|---|
| in | 1/8 | 1/8 | 2.0 | 0.550 | 3 | 522-0125-301 |
| | 3/16 | 3/16 | 2.5 | 0.860 | 3 | 522-0187-301 |
| | 1/4 | 1/4 | 3.0 | 0.900 | 3 | 522-0250-301 |
| | 3/8 | 3/8 | 3.0 | 1.600 | 3 | 522-0375-301 |
| | 1/2 | 1/2 | 4.0 | 2.100 | 3 | 522-0500-301 |
| | 5/8 | 5/8 | 4.0 | 2.100 | 3 | 522-0625-301 |
| | 3/4 | 3/4 | 5.0 | 2.100 | 3 | 522-0750-301 |
| | 1 | 1 | 5.0 | 2.100 | 3 | 522-1000-301 |


## Square Corner X-Long

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | No. of Flutes | Part # |
|---|---|---|---|---|---|---|
| in | 1/8 | 1/8 | 2.0 | 0.750 | 3 | 523-0125-301 |
| | 3/16 | 3/16 | 3.0 | 1.100 | 3 | 523-0187-301 |
| | 1/4 | 1/4 | 3.0 | 1.600 | 3 | 523-0250-301 |
| | 3/8 | 3/8 | 4.0 | 2.100 | 3 | 523-0375-301 |
| | 1/2 | 1/2 | 6.0 | 3.100 | 3 | 523-0500-301 |
| | 5/8 | 5/8 | 6.0 | 3.100 | 3 | 523-0625-301 |
| | 3/4 | 3/4 | 6.0 | 3.100 | 3 | 523-0750-301 |
| | 1 | 1 | 6.0 | 3.100 | 3 | 523-1000-301 |

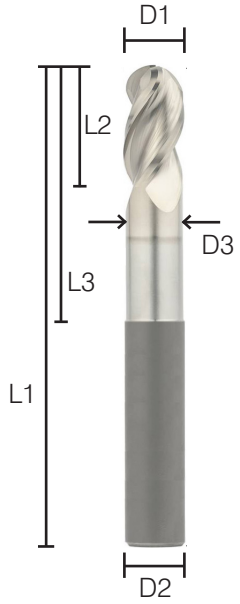



## Ball Nose

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | No. of Flutes | Part # |
|---|---|---|---|---|---|---|
| in | 1/8 | 1/8 | 2.0 | 0.300 | 3 | 521-0125-302 |
| | 3/16 | 3/16 | 2.0 | 0.420 | 3 | 521-0187-302 |
| | 1/4 | 1/4 | 2.5 | 0.580 | 3 | 521-0250-302 |
| | 3/8 | 3/8 | 2.5 | 0.830 | 3 | 521-0375-302 |
| | 1/2 | 1/2 | 3.0 | 1.100 | 3 | 521-0500-302 |
| | 5/8 | 5/8 | 3.5 | 1.300 | 3 | 521-0625-302 |
| | 3/4 | 3/4 | 4.0 | 1.600 | 3 | 521-0750-302 |
| | 1 | 1 | 4.0 | 2.100 | 3 | 521-1000-302 |

## Ball Nose Long Reach

| | D1 Dia. | D2 Dia. (h6) | L1 OAL. | L2 LOC | D3 Neck Dia. | L3 LOR | No. of Flutes | Part # |
|---|---|---|---|---|---|---|---|---|
| in | 1/4 | 1/4 | 3.0 | 0.350 | 0.240 | 0.830 | 3 | 526-0250-302 |
| | 3/8 | 3/8 | 3.0 | 0.550 | 0.360 | 1.600 | 3 | 526-0375-302 |
| | 1/2 | 1/2 | 4.0 | 0.850 | 0.480 | 2.100 | 3 | 527-0500-302 |
| | 5/8 | 5/8 | 5.0 | 0.900 | 0.600 | 2.150 | 3 | 527-0625-302 |
| | 3/4 | 3/4 | 5.0 | 1.150 | 0.720 | 2.150 | 3 | 527-0750-302 |
| | 1 | 1 | 6.0 | 1.650 | 0.960 | 3.150 | 3 | 528-1000-302 |

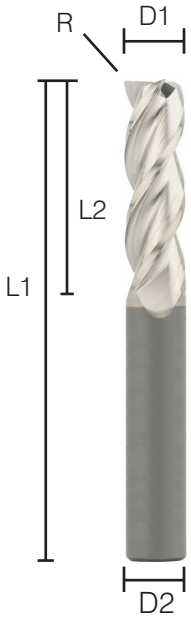



## Ball Nose X-Long Reach

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | D3 Neck Dia. | L3 LOR | No. of Flutes | Part # |
|---|---|---|---|---|---|---|---|---|
| in | 1/4 | 1/4 | 3.0 | 0.350 | 0.240 | 1.350 | 2 | 527-0250-202 |
| | 3/8 | 3/8 | 4.0 | 0.550 | 0.360 | 2.100 | 2 | 527-0375-202 |
| | 1/2 | 1/2 | 5.0 | 0.850 | 0.480 | 2.850 | 2 | 528-0500-202 |
| | 3/4 | 3/4 | 6.0 | 1.150 | 0.720 | 3.150 | 2 | 528-0750-202 |

## Corner Radius

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | R Radius | No. of Flutes | Part # |
|---|---|---|---|---|---|---|---|
| in | 1/8 | 1/8 | 2.0 | 0.300 | 0.010 | 3 | 521-0125-3R10 |
| | 3/16 | 3/16 | 2.0 | 0.420 | 0.010 | 3 | 521-0187-3R10 |
| | 1/4 | 1/4 | 2.5 | 0.580 | 0.010 | 3 | 521-0250-3R10 |
| | 3/8 | 3/8 | 2.5 | 0.830 | 0.020 | 3 | 521-0375-3R20 |
| | 1/2 | 1/2 | 3.0 | 1.120 | 0.020 | 3 | 521-0500-3R20 |
| | 5/8 | 5/8 | 3.5 | 1.360 | 0.030 | 3 | 521-0625-3R30 |
| | 3/4 | 3/4 | 4.0 | 1.650 | 0.030 | 3 | 521-0750-3R30 |
| | 1 | 1 | 4.0 | 1.650 | 0.030 | 3 | 521-1000-3R30 |


## Corner Radius Long

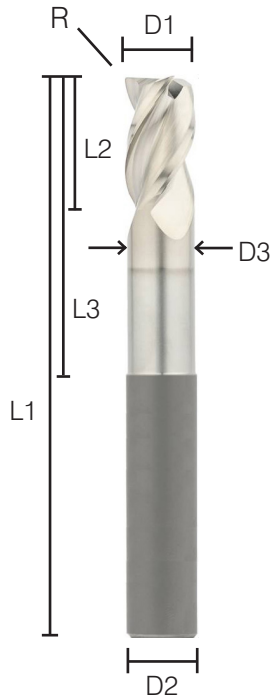
| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | R Radius | No. of Flutes | Part # |
|---|---|---|---|---|---|---|---|
| in | 1/8 | 1/8 | 2.0 | 0.550 | 0.010 | 3 | 522-0125-3R10 |
| | 1/4 | 1/4 | 3.0 | 0.900 | 0.010 | 3 | 522-0250-3R10 |
| | 3/8 | 3/8 | 3.0 | 1.600 | 0.015 | 3 | 522-0375-3R20 |
| | 1/2 | 1/2 | 4.0 | 2.100 | 0.020 | 3 | 522-0500-3R20 |
| | 5/8 | 5/8 | 4.0 | 2.100 | 0.020 | 3 | 522-0625-3R30 |
| | 3/4 | 3/4 | 5.0 | 2.100 | 0.020 | 3 | 522-0750-3R30 |
| | 1 | 1 | 5.0 | 2.100 | 0.020 | 3 | 522-1000-3R30 |


## Corner Radius X-Long

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | R Radius | No. of Flutes | Part # |
|---|---|---|---|---|---|---|---|
| in | 1/8 | 1/8 | 2.0 | 0.750 | 0.010 | 3 | 523-0125-3R10 |
| | 3/16 | 3/16 | 3.0 | 1.100 | 0.010 | 3 | 523-0187-3R10 |
| | 1/4 | 1/4 | 4.0 | 1.600 | 0.010 | 3 | 523-0250-3R10 |
| | 3/8 | 3/8 | 4.0 | 2.100 | 0.015 | 3 | 523-0375-3R20 |
| | 1/2 | 1/2 | 6.0 | 3.100 | 0.020 | 3 | 523-0500-3R20 |
| | 5/8 | 5/8 | 6.0 | 3.100 | 0.020 | 3 | 523-0625-3R30 |
| | 3/4 | 3/4 | 6.0 | 3.100 | 0.020 | 3 | 523-0750-3R30 |

## Corner Radius Long Reach

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | D3 Neck Dia. | L3 LOR | R Radius | No. of Flutes | Part # |
|---|---|---|---|---|---|---|---|---|---|
| in | 1/4 | 1/4 | 3.0 | 0.350 | 0.240 | .830 | 0.010 | 3 | 526-0250-3R10 |
| | 1/2 | 1/2 | 4.0 | 0.850 | 0.480 | 2.10 | 0.020 | 3 | 527-0500-3R20 |
| | 5/8 | 5/8 | 5.0 | 0.900 | 0.600 | 2.15 | 0.030 | 3 | 527-0625-3R30 |
| | 3/4 | 3/4 | 5.0 | 1.150 | 0.720 | 2.15 | 0.030 | 3 | 527-0750-3R30 |

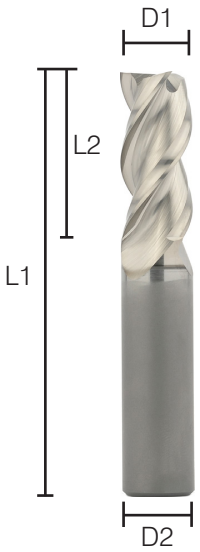


# A-Mill Finisher (Chatterless)

The **A-Mill Finisher (Chatterless)** is designed exclusively for finishing applications in aluminum and other non-ferrous workpiece materials. Finishing specific geometry allows for mirror-like surface finishes. A larger core also provides increased rigidity to fight deflection when finishing walls and deep pockets.

**Key Features:**

- Produces excellent finishes and minimizes deflection
- Premium submicron carbide grade for durability and longevity
- Polished cylindrical margin for chatter and vibration reduction
- Flat bottom, corner radius, ball nose, and long reach options available
- High performance TiB2 PVD coating provides maximum lubricity and tool life
- Polished flute face enhances chip evacuation
- Increased core percentage for added tool rigidity

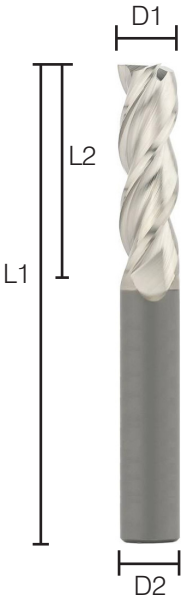



## Square Corner

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | No. of Flutes | Part # |
|---|---|---|---|---|---|---|
| in | 1/8 | 1/8 | 2.0 | 0.420 | 3 | 551-0125-301 |
| | 3/16 | 3/16 | 2.0 | 0.560 | 3 | 551-0187-301 |
| | 1/4 | 1/4 | 2.5 | 0.580 | 3 | 551-0250-301 |
| | 3/8 | 3/8 | 2.5 | 0.830 | 3 | 551-0375-301 |
| | 1/2 | 1/2 | 3.0 | 1.100 | 3 | 551-0500-301 |
| | 5/8 | 5/8 | 3.5 | 1.360 | 3 | 551-0625-301 |
| | 3/4 | 3/4 | 4.0 | 1.650 | 3 | 551-0750-301 |
| | 1 | 1 | 4.0 | 1.650 | 3 | 551-1000-301 |

## Square Corner Long

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | No. of Flutes | Part # |
|---|---|---|---|---|---|---|
| in | 1/8 | 1/8 | 2.0 | 0.550 | 3 | 552-0125-301 |
| | 3/16 | 3/16 | 2.5 | 0.860 | 3 | 552-0187-301 |
| | 1/4 | 1/4 | 3.0 | 1.100 | 3 | 552-0250-301 |
| | 3/8 | 3/8 | 4.0 | 1.600 | 3 | 552-0375-301 |
| | 1/2 | 1/2 | 4.0 | 2.100 | 3 | 552-0500-301 |
| | 5/8 | 5/8 | 5.0 | 2.100 | 3 | 552-0625-301 |
| | 3/4 | 3/4 | 5.0 | 2.100 | 3 | 552-0750-301 |
| | 1 | 1 | 5.0 | 2.100 | 3 | 552-1000-301 |





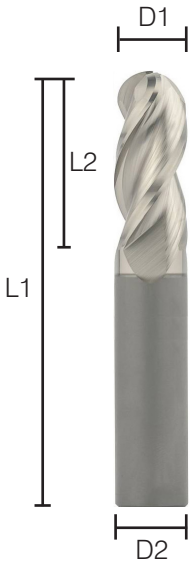
## Square Corner X-Long

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | No. of Flutes | Part # |
|---|---|---|---|---|---|---|
| in | 1/8 | 1/8 | 2.0 | 0.750 | 3 | 553-0125-301 |
| | 3/16 | 3/16 | 3.0 | 1.100 | 3 | 553-0187-301 |
| | 1/4 | 1/4 | 4.0 | 1.600 | 3 | 553-0250-301 |
| | 3/8 | 3/8 | 4.0 | 2.100 | 3 | 553-0375-301 |
| | 1/2 | 1/2 | 6.0 | 3.100 | 3 | 553-0500-301 |
| | 5/8 | 5/8 | 6.0 | 3.100 | 3 | 553-0625-301 |
| | 3/4 | 3/4 | 6.0 | 3.100 | 3 | 553-0750-301 |
| | 1 | 1 | 6.0 | 3.100 | 3 | 553-1000-301 |

# A-Mill Chatterless Finisher

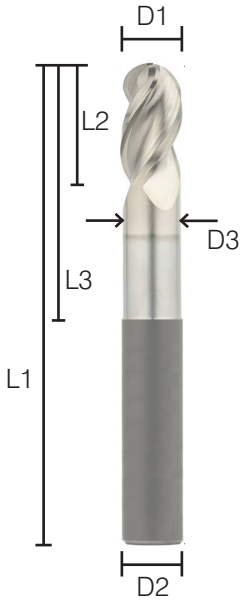
## Ball Nose

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | No. of Flutes | Part # |
|---|---|---|---|---|---|---|
| in | 1/8 | 1/8 | 2.0 | 0.420 | 3 | 551-0125-302 |
| | 3/16 | 3/16 | 2.0 | 0.560 | 3 | 551-0187-302 |
| | 1/4 | 1/4 | 2.5 | 0.580 | 3 | 551-0250-302 |
| | 3/8 | 3/8 | 2.5 | 0.830 | 3 | 551-0375-302 |
| | 1/2 | 1/2 | 3.0 | 1.100 | 3 | 551-0500-302 |
| | 5/8 | 5/8 | 3.5 | 1.360 | 3 | 551-0625-302 |
| | 3/4 | 3/4 | 4.0 | 1.650 | 3 | 551-0750-302 |
| | 1 | 1 | 4.0 | 1.650 | 3 | 551-1000-302 |




## Ball Nose Long Reach

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | D3 Neck Dia. | D3 LOR | No. of Flutes | Part # |
|---|---|---|---|---|---|---|---|---|
| in | 1/8 | 1/8 | 2.0 | 0.420 | 0.118 | 0.85 | 3 | 557-0125-302 |
| | 3/16 | 3/16 | 2.5 | 0.560 | 0.180 | 0.82 | 3 | 557-0187-302 |
| | 1/4 | 1/4 | 3.0 | 0.580 | 0.240 | 1.35 | 3 | 557-0250-302 |
| | 3/8 | 3/8 | 4.0 | 0.830 | 0.360 | 2.10 | 3 | 557-0375-302 |
| | 1/2 | 1/2 | 4.0 | 1.120 | 0.480 | 2.10 | 3 | 557-0500-302 |

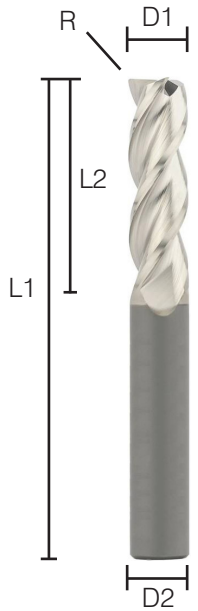


## Corner Radius

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | R Radius | No. of Flutes | Part # |
|---|---|---|---|---|---|---|---|
| in | 1/8 | 1/8 | 2.0 | 0.420 | 0.015 | 3 | 551-0125-3R15 |
| | 1/8 | 1/8 | 2.0 | 0.420 | 0.030 | 3 | 551-0125-3R30 |
| | 3/16 | 3/16 | 2.0 | 0.560 | 0.010 | 3 | 551-0187-3R15 |
| | 1/4 | 1/4 | 2.5 | 0.580 | 0.015 | 3 | 551-0250-3R15 |
| | 1/4 | 1/4 | 2.5 | 0.580 | 0.030 | 3 | 551-0250-3R30 |
| | 1/4 | 1/4 | 2.5 | 0.580 | 0.060 | 3 | 551-0250-3R60 |
| | 5/16 | 5/16 | 3.0 | 0.750 | 0.060 | 3 | 551-0312-3R15 |
| | 3/8 | 3/8 | 2.5 | 0.830 | 0.015 | 3 | 551-0375-3R15 |
| | 3/8 | 3/8 | 2.5 | 0.830 | 0.030 | 3 | 551-0375-3R30 |
| | 3/8 | 3/8 | 2.5 | 0.830 | 0.060 | 3 | 551-0375-3R60 |
| | 1/2 | 1/2 | 3.0 | 1.100 | 0.015 | 3 | 551-0500-3R15 |
| | 1/2 | 1/2 | 3.0 | 1.100 | 0.020 | 3 | 551-0500-3R20 |
| | 1/2 | 1/2 | 3.0 | 1.100 | 0.030 | 3 | 551-0500-3R30 |
| | 1/2 | 1/2 | 3.0 | 1.100 | 0.060 | 3 | 551-0500-3R60 |
| | 1/2 | 1/2 | 3.0 | 1.100 | 0.120 | 3 | 551-0500-3R120 |
| | 3/4 | 3/4 | 4.0 | 1.650 | 0.015 | 3 | 551-0750-3R15 |
| | 3/4 | 3/4 | 4.0 | 1.650 | 0.030 | 3 | 551-0750-3R30 |
| | 3/4 | 3/4 | 4.0 | 1.650 | 0.060 | 3 | 551-0750-3R60 |
| | 3/4 | 3/4 | 4.0 | 1.650 | 0.120 | 3 | 551-0750-3R120 |
| | 1 | 1 | 4.0 | 1.650 | 0.030 | 3 | 551-1000-3R30 |
| | 1 | 1 | 4.0 | 1.650 | 0.060 | 3 | 551-1000-3R60 |

## Corner Radius Long

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | R Radius | No. of Flutes | Part # |
|---|---|---|---|---|---|---|---|
| in | 1/8 | 1/8 | 2.0 | 0.550 | 0.015 | 3 | 552-0125-3R15 |
| | 1/8 | 1/8 | 2.0 | 0.550 | 0.030 | 3 | 552-0125-3R30 |
| | 3/16 | 3/16 | 2.5 | 0.860 | 0.010 | 3 | 552-0187-3R15 |
| | 3/16 | 3/16 | 2.5 | 0.860 | 0.030 | 3 | 552-0187-3R30 |
| | 1/4 | 1/4 | 3.0 | 1.100 | 0.015 | 3 | 552-0250-3R15 |
| | 1/4 | 1/4 | 3.0 | 1.100 | 0.030 | 3 | 552-0250-3R30 |
| | 1/4 | 1/4 | 3.0 | 1.100 | 0.060 | 3 | 552-0250-3R60 |
| | 3/8 | 3/8 | 4.0 | 1.600 | 0.015 | 3 | 552-0375-3R15 |
| | 3/8 | 3/8 | 4.0 | 1.600 | 0.030 | 3 | 552-0375-3R30 |
| | 3/8 | 3/8 | 4.0 | 1.600 | 0.060 | 3 | 552-0375-3R60 |
| | 1/2 | 1/2 | 4.0 | 2.100 | 0.015 | 3 | 552-0500-3R15 |
| | 1/2 | 1/2 | 4.0 | 2.100 | 0.030 | 3 | 552-0500-3R30 |
| | 1/2 | 1/2 | 4.0 | 2.100 | 0.060 | 3 | 552-0500-3R60 |
| | 1/2 | 1/2 | 4.0 | 2.100 | 0.120 | 3 | 552-0500-3R120 |
| | 5/8 | 5/8 | 5.0 | 2.100 | 0.015 | 3 | 552-0625-3R15 |
| | 5/8 | 5/8 | 5.0 | 2.100 | 0.030 | 3 | 552-0625-3R30 |
| | 5/8 | 5/8 | 5.0 | 2.100 | 0.060 | 3 | 552-0625-3R60 |
| | 5/8 | 5/8 | 5.0 | 2.100 | 0.120 | 3 | 552-0625-3R120 |
| | 5/8 | 5/8 | 5.0 | 2.100 | 0.190 | 3 | 552-0625-3R190 |
| | 3/4 | 3/4 | 5.0 | 2.100 | 0.015 | 3 | 552-0750-3R15 |
| | 3/4 | 3/4 | 5.0 | 2.100 | 0.030 | 3 | 552-0750-3R30 |
| | 3/4 | 3/4 | 5.0 | 2.100 | 0.060 | 3 | 552-0750-3R60 |
| | 3/4 | 3/4 | 5.0 | 2.100 | 0.120 | 3 | 552-0750-3R120 |
| | 3/4 | 3/4 | 5.0 | 2.100 | 0.190 | 3 | 552-0750-3R190 |
| | 1 | 1 | 5.0 | 2.100 | 0.030 | 3 | 552-1000-3R30 |
| | 1 | 1 | 5.0 | 2.100 | 0.060 | 3 | 552-1000-3R60 |

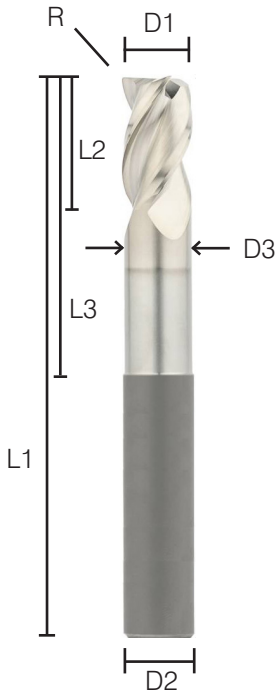


## Corner Radius X-Long

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | R Radius | No. of Flutes | Part # |
|---|---|---|---|---|---|---|---|
| in | 1/8 | 1/8 | 2.0 | 0.750 | 0.015 | 3 | 553-0125-3R15 |
| | 1/8 | 1/8 | 2.0 | 0.750 | 0.030 | 3 | 553-0125-3R30 |
| | 3/16 | 3/16 | 3.0 | 1.100 | 0.010 | 3 | 553-0187-3R15 |
| | 3/16 | 3/16 | 3.0 | 1.100 | 0.030 | 3 | 553-0187-3R30 |
| | 1/4 | 1/4 | 4.0 | 1.600 | 0.015 | 3 | 553-0250-3R15 |
| | 1/4 | 1/4 | 4.0 | 1.600 | 0.030 | 3 | 553-0250-3R30 |
| | 1/4 | 1/4 | 4.0 | 1.600 | 0.060 | 3 | 553-0250-3R60 |
| | 3/8 | 3/8 | 4.0 | 2.100 | 0.015 | 3 | 553-0375-3R15 |
| | 3/8 | 3/8 | 4.0 | 2.100 | 0.030 | 3 | 553-0375-3R30 |
| | 3/8 | 3/8 | 4.0 | 2.100 | 0.060 | 3 | 553-0375-3R60 |
| | 1/2 | 1/2 | 6.0 | 3.100 | 0.015 | 3 | 553-0500-3R15 |
| | 1/2 | 1/2 | 6.0 | 3.100 | 0.030 | 3 | 553-0500-3R30 |
| | 1/2 | 1/2 | 6.0 | 3.100 | 0.060 | 3 | 553-0500-3R60 |
| | 1/2 | 1/2 | 6.0 | 3.100 | 0.120 | 3 | 553-0500-3R120 |
| | 5/8 | 5/8 | 6.0 | 3.100 | 0.015 | 3 | 553-0625-3R15 |
| | 5/8 | 5/8 | 6.0 | 3.100 | 0.030 | 3 | 553-0625-3R30 |
| | 5/8 | 5/8 | 6.0 | 3.100 | 0.060 | 3 | 553-0625-3R60 |
| | 5/8 | 5/8 | 6.0 | 3.100 | 0.120 | 3 | 553-0625-3R120 |
| | 3/4 | 3/4 | 6.0 | 3.100 | 0.015 | 3 | 553-0750-3R15 |
| | 3/4 | 3/4 | 6.0 | 3.100 | 0.030 | 3 | 553-0750-3R30 |
| | 3/4 | 3/4 | 6.0 | 3.100 | 0.060 | 3 | 553-0750-3R60 |
| | 3/4 | 3/4 | 6.0 | 3.100 | 0.120 | 3 | 553-0750-3R120 |
| | 1 | 1 | 6.0 | 3.100 | 0.030 | 3 | 553-1000-3R30 |
| | 1 | 1 | 6.0 | 3.100 | 0.060 | 3 | 553-1000-3R60 |

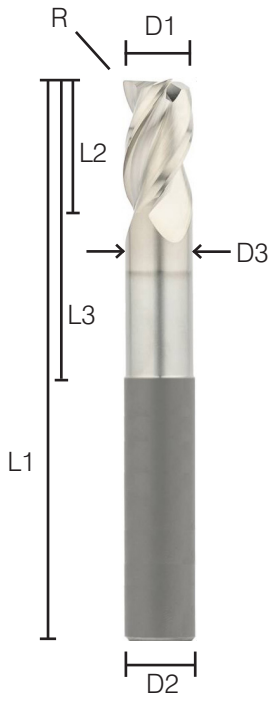
## Corner Radius Long Reach

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | D3 Neck Dia. | L3 LOR | R Radius | No. of Flutes | Part # |
|---|---|---|---|---|---|---|---|---|---|
| in | 1/8 | 1/8 | 2.0 | 0.420 | 0.118 | 0.85 | 0.010 | 3 | 557-0125-3R10 |
| | 1/8 | 1/8 | 2.0 | 0.420 | 0.118 | 0.85 | 0.020 | 3 | 557-0125-3R20 |
| | 1/8 | 1/8 | 2.0 | 0.420 | 0.118 | 0.85 | 0.030 | 3 | 557-0125-3R30 |
| | 3/16 | 3/16 | 2.5 | 0.560 | 0.180 | 0.82 | 0.010 | 3 | 557-0187-3R10 |
| | 3/16 | 3/16 | 2.5 | 0.560 | 0.180 | 0.82 | 0.020 | 3 | 557-0187-3R20 |
| | 3/16 | 3/16 | 2.5 | 0.560 | 0.180 | 0.82 | 0.030 | 3 | 557-0187-3R30 |
| | 1/4 | 1/4 | 3.0 | 0.580 | 0.240 | 0.83 | 0.020 | 3 | 556-0250-3R20 |
| | 1/4 | 1/4 | 3.0 | 0.580 | 0.240 | 0.83 | 0.030 | 3 | 556-0250-3R30 |
| | 1/4 | 1/4 | 3.0 | 0.580 | 0.240 | 0.83 | 0.060 | 3 | 556-0250-3R60 |
| | 1/4 | 1/4 | 3.0 | 0.580 | 0.240 | 1.35 | 0.020 | 3 | 557-0250-3R20 |
| | 1/4 | 1/4 | 3.0 | 0.580 | 0.240 | 1.35 | 0.030 | 3 | 557-0250-3R30 |
| | 1/4 | 1/4 | 3.0 | 0.580 | 0.240 | 1.35 | 0.060 | 3 | 557-0250-3R60 |
| | 5/16 | 5/16 | 3.0 | 0.700 | 0.300 | 1.10 | 0.020 | 3 | 556-0312-3R20 |
| | 5/16 | 5/16 | 3.0 | 0.700 | 0.300 | 1.10 | 0.030 | 3 | 556-0312-3R30 |
| | 5/16 | 5/16 | 3.0 | 0.700 | 0.300 | 1.10 | 0.060 | 3 | 556-0312-3R60 |
| | 5/16 | 5/16 | 4.0 | 0.700 | 0.300 | 1.60 | 0.020 | 3 | 557-0312-3R20 |
| | 5/16 | 5/16 | 4.0 | 0.700 | 0.300 | 1.60 | 0.030 | 3 | 557-0312-3R30 |
| | 5/16 | 5/16 | 4.0 | 0.700 | 0.300 | 1.60 | 0.060 | 3 | 557-0312-3R60 |
| | 3/8 | 3/8 | 3.0 | 0.830 | 0.360 | 1.60 | 0.020 | 3 | 556-0375-3R20 |
| | 3/8 | 3/8 | 3.0 | 0.830 | 0.360 | 1.60 | 0.030 | 3 | 556-0375-3R30 |
| | 3/8 | 3/8 | 3.0 | 0.830 | 0.360 | 1.60 | 0.060 | 3 | 556-0375-3R60 |
| | 3/8 | 3/8 | 4.0 | 0.830 | 0.360 | 2.10 | 0.020 | 3 | 557-0375-3R20 |
| | 3/8 | 3/8 | 4.0 | 0.830 | 0.360 | 2.10 | 0.030 | 3 | 557-0375-3R30 |
| | 3/8 | 3/8 | 4.0 | 0.830 | 0.360 | 2.10 | 0.060 | 3 | 557-0375-3R60 |



## Corner Radius Long Reach

| | D1 Dia. | D2 Dia. (h6) | L1 OAL | L2 LOC | D3 Neck Dia. | L3 LOR | R Radius | No. of Flutes | Part # |
|---|---|---|---|---|---|---|---|---|---|
| in | 1/2 | 1/2 | 4.0 | 1.120 | 0.480 | 2.10 | 0.030 | 3 | 557-0500-3R30 |
| | 1/2 | 1/2 | 4.0 | 1.120 | 0.480 | 2.10 | 0.060 | 3 | 557-0500-3R60 |
| | 1/2 | 1/2 | 4.0 | 1.120 | 0.480 | 2.10 | 0.120 | 3 | 557-0500-3R120 |
| | 1/2 | 1/2 | 5.0 | 1.120 | 0.480 | 2.85 | 0.030 | 3 | 558-0500-3R30 |
| | 1/2 | 1/2 | 5.0 | 1.120 | 0.480 | 2.85 | 0.060 | 3 | 558-0500-3R60 |
| | 1/2 | 1/2 | 5.0 | 1.120 | 0.480 | 2.85 | 0.120 | 3 | 558-0500-3R120 |
| | 5/8 | 5/8 | 5.0 | 1.360 | 0.600 | 2.15 | 0.030 | 3 | 557-0625-3R30 |
| | 5/8 | 5/8 | 5.0 | 1.360 | 0.600 | 2.15 | 0.060 | 3 | 557-0625-3R60 |
| | 5/8 | 5/8 | 5.0 | 1.360 | 0.600 | 2.15 | 0.120 | 3 | 557-0625-3R120 |
| | 5/8 | 5/8 | 6.0 | 1.360 | 0.600 | 3.15 | 0.030 | 3 | 558-0625-3R30 |
| | 5/8 | 5/8 | 6.0 | 1.360 | 0.600 | 3.15 | 0.060 | 3 | 558-0625-3R60 |
| | 5/8 | 5/8 | 6.0 | 1.360 | 0.600 | 3.15 | 0.120 | 3 | 558-0625-3R120 |
| | 3/4 | 3/4 | 5.0 | 1.650 | 0.720 | 2.15 | 0.030 | 3 | 557-0750-3R30 |
| | 3/4 | 3/4 | 5.0 | 1.650 | 0.720 | 2.15 | 0.060 | 3 | 557-0750-3R60 |
| | 3/4 | 3/4 | 5.0 | 1.650 | 0.720 | 2.15 | 0.120 | 3 | 557-0750-3R120 |
| | 3/4 | 3/4 | 6.0 | 1.650 | 0.720 | 3.15 | 0.030 | 3 | 558-0750-3R30 |
| | 3/4 | 3/4 | 6.0 | 1.650 | 0.720 | 3.15 | 0.060 | 3 | 558-0750-3R60 |
| | 3/4 | 3/4 | 6.0 | 1.650 | 0.720 | 3.15 | 0.120 | 3 | 558-0750-3R120 |
| | 1 | 1 | 6.0 | 2.200 | 0.960 | 3.15 | 0.030 | 3 | 557-1000-3R30 |
| | 1 | 1 | 6.0 | 2.200 | 0.960 | 3.15 | 0.060 | 3 | 557-1000-3R60 |
| | 1 | 1 | 6.0 | 2.200 | 0.960 | 3.15 | 0.120 | 3 | 557-1000-3R120 |



# AluMini

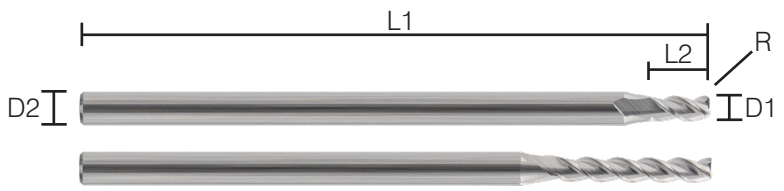
The AluMini is a 3-flute miniature end mill line designed specifically for machining non-ferrous workpiece materials. With its precision engineering, this line offers exceptional performance in a compact size.

- Made from wear resistant submicron carbide
- Available with 1xD, 2xD, 3xD, 4xD, and 6xD Length of Cut
- Sizes ranging from .031" to .093"
- Flat bottom and corner radius options

## AluMini 1/32 - 3/32

in

| D1 Dia. | D2 Dia. (h6) | R Radius | No. Flutes | L1 OAL | L2 LOC 1xD **591-*** | L2 LOC 2xD **592-*** | L2 LOC 3xD **593-*** | L2 LOC 4xD **594-*** | L1 OAL | L2 LOC 6xD **596-*** | Uncoated Part # |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1/32 | 1/8 | - | 3 | 2.0 | - | 0.062 | 0.093 | 0.125 | 3.0 | 0.187 | *-0031-301 |
| 3/64 | 1/8 | - | 3 | 2.0 | - | 0.093 | 0.14 | 0.187 | 3.0 | 0.281 | *-0046-301 |
| 1/16 | 1/8 | - | 3 | 2.0 | 0.062 | 0.125 | 0.187 | 0.25 | 3.0 | 0.375 | *-0062-301 |
| 5/64 | 1/8 | - | 3 | 2.0 | 0.078 | 0.156 | 0.234 | 0.312 | 3.0 | 0.468 | *-0078-301 |
| 3/32 | 1/8 | - | 3 | 2.0 | 0.093 | 0.187 | 0.281 | 0.375 | 3.0 | 0.562 | *-0093-301 |
| | | | | | | | | | | | |
| 1/32 | 1/8 | 0.004 | 3 | 2.0 | - | 0.062 | 0.093 | 0.125 | 3.0 | 0.187 | *-0031-3R004 |
| 3/64 | 1/8 | 0.004 | 3 | 2.0 | - | 0.093 | 0.14 | 0.187 | 3.0 | 0.281 | *-0046-3R004 |
| 1/16 | 1/8 | 0.004 | 3 | 2.0 | 0.062 | 0.125 | 0.187 | 0.25 | 3.0 | 0.375 | *-0062-3R004 |
| 5/64 | 1/8 | 0.004 | 3 | 2.0 | 0.078 | 0.156 | 0.234 | 0.312 | 3.0 | 0.468 | *-0078-3R004 |
| 3/32 | 1/8 | 0.004 | 3 | 2.0 | 0.093 | 0.187 | 0.281 | 0.375 | 3.0 | 0.562 | *-0093-3R004 |
| | | | | | | | | | | | |
| 3/64 | 1/8 | 0.010 | 3 | 2.0 | - | 0.093 | - | 0.187 | 3.0 | 0.281 | *-0046-3R010 |
| 1/16 | 1/8 | 0.010 | 3 | 2.0 | 0.062 | 0.125 | - | 0.25 | 3.0 | 0.375 | *-0062-3R010 |
| 5/64 | 1/8 | 0.010 | 3 | 2.0 | 0.078 | 0.156 | - | 0.312 | 3.0 | 0.468 | *-0078-3R010 |
| 3/32 | 1/8 | 0.010 | 3 | 2.0 | 0.093 | 0.187 | - | 0.375 | 3.0 | 0.562 | *-0093-3R010 |
| | | | | | | | | | | | |
| 1/16 | 1/8 | 0.015 | 3 | 2.0 | 0.062 | 0.125 | - | 0.25 | 3.0 | 0.375 | *-0062-3R015 |
| 5/64 | 1/8 | 0.015 | 3 | 2.0 | 0.078 | 0.156 | - | 0.312 | 3.0 | 0.468 | *-0078-3R015 |
| 3/32 | 1/8 | 0.015 | 3 | 2.0 | 0.093 | 0.187 | - | 0.375 | 3.0 | 0.562 | *-0093-3R015 |
| | | | | | | | | | | | |
| 3/32 | 1/8 | 0.03 | 3 | 2.0 | - | 0.187 | - | 0.375 | 3.0 | 0.562 | *-0093-3R030 |



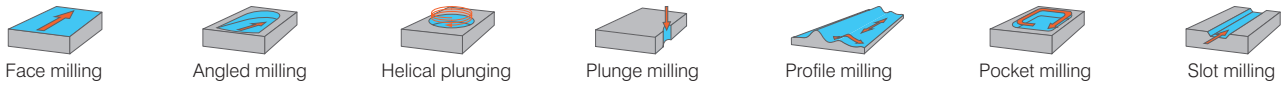
# Indexable Pro Feed

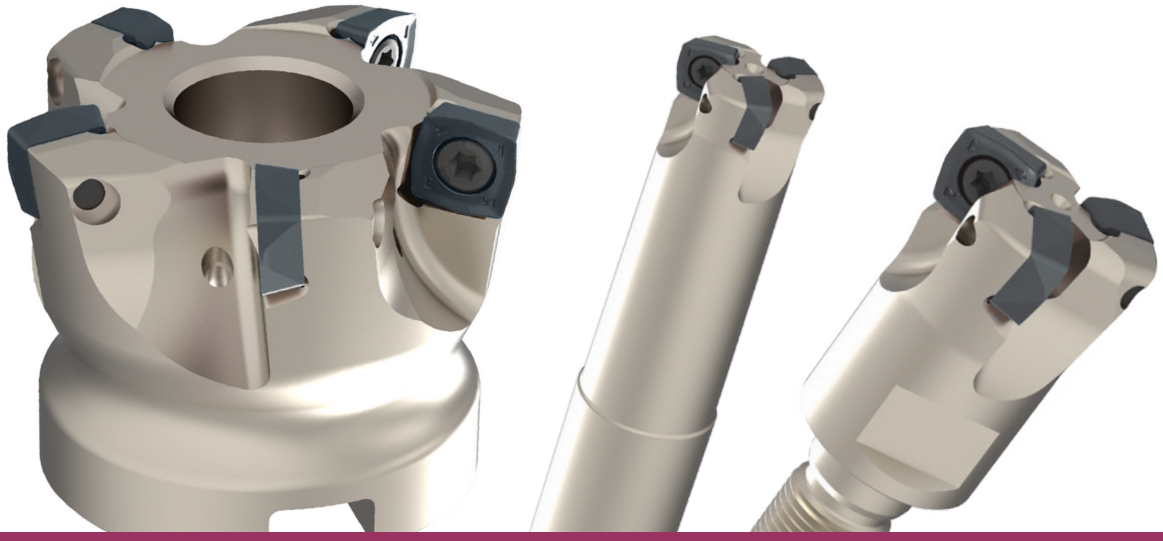
The **Pro Feed** line is a highly efficient indexable high feed tool line designed for optimal productivity and high feed rates. Engineered with precision, these cutters offer excellent performance, allowing you to optimize cutting processes and enhance overall productivity. With their strong geometry, insert edge preparation, and cutting edge coatings, Pro Feed tools excel in tackling demanding roughing applications

## Key Features:

- With feed rates up to 0.119 in / tooth and closely pitched tools, very high chip removal rates are achieved
- Maximal tool life thanks to HyperCoat coating
- Maximised economy thanks to 4 cutting edges
- Reduced machining noise and vibration, light cutting geometries
- Flexibility thanks to coolant holes with minimum quantity lubrication design

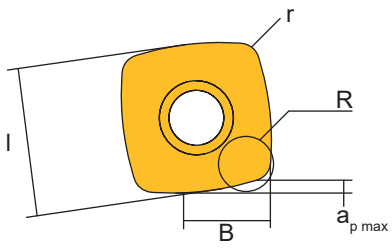
**Applications**



# Indexable Pro Feed - Inserts

## Dimensions




| | Insert | l | R | B | r | $a_{p\ max}$ |
|---|---|---|---|---|---|---|
| in | XPLT PF-07 | 0.281 | 0.047 | 0.169 | 0.020 | 0.031 |
| | XDLT PF-10 | 0.402 | 0.079 | 0.232 | 0.031 | 0.039 |
| | XDLX PFP-10 | 0.402 | 0.079 | 0.232 | 0.031 | 0.039 |
| | XOLT PF-13 | 0.531 | 0.118 | 0.335 | 0.039 | 0.079 |

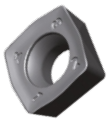
| | Insert | l | R | B | r | $a_{p\ max}$ |
|---|---|---|---|---|---|---|
| mm | XPLT PF-07 | 7.15 | 1.2 | 4.3 | 0.5 | 0.8 |
| | XDLT PF-10 | 10.20 | 2.0 | 5.9 | 0.8 | 1.0 |
| | XDLX PFP-10 | 10.20 | 2.0 | 5.9 | 0.8 | 1.0 |
| | XOLT PF-13 | 13.50 | 3.0 | 8.5 | 1.0 | 2.0 |

Recommended $f_z$

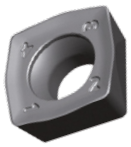
*> 0.0197 in / tooth*

*> 0.5 mm / tooth*

R = Programmed Radius



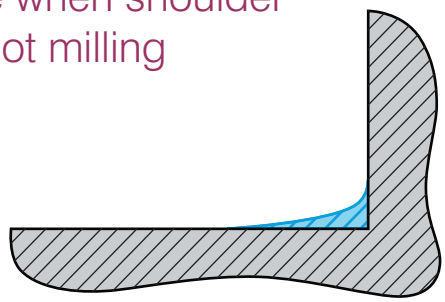
*PF-07*



*PF-10*
*PFP-10*

*PF-13*

## Profile when shoulder and slot milling



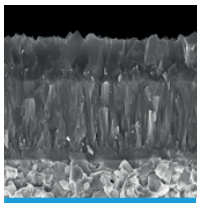
## 4 effective cutting edges

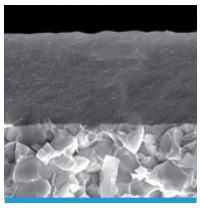
## Application specific chipbreakers

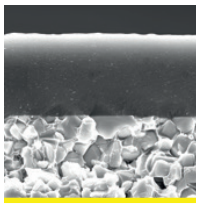
**GCR**
Strong cutting edge for general stainless steel applications and hard conditions milling

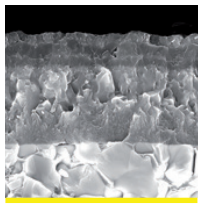
**SCR**
Sharp cutting edge for general stainless steel applications and for finishing in steels

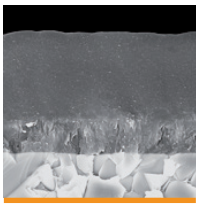
# Indexable Pro Feed - Grades


DBCP230


DBPP235


DBPM240


DBC5235


DBC5240

| Grade designation | | ISO | ANSI | Type of cutting material | 01 | 05 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | P Steel | M Stainless | K Cast Iron | N Non-ferrous metals | S Heat-resistant | H Hard materials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DBCP230 | | HC-P30 | C6 | C | | | | | | | | | | | | ● | | | | | |
| | | HC-K25 | C2 | C | | | | | | | | | | | | | | ● | | | |
| | | HC-M25 | - | C | | | | | | | | | | | | | ● | | | | |
| DBPP235 | | HC-P35 | C5 | P | | | | | | | | | | | | ● | | | | | |
| | | HC-M30 | - | P | | | | | | | | | | | | | ● | | | | |
| DBPM240 | | HC-M40 | - | P | | | | | | | | | | | | | ● | | | | |
| | | HC-P40 | C5 | P | | | | | | | | | | | | ● | | | | | |
| DBC5235 | | HC-S35 | - | C | | | | | | | | | | | | | | | | ● | |
| | | HC-M35 | - | C | | | | | | | | | | | | | ● | | | | |
| DBC5240 | | HC-S35 | - | C | | | | | | | | | | | | | | | | ● | |

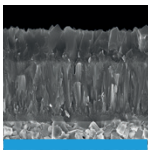
● Main application

○ Extended application

# Indexable Pro Feed - Grades

## DBCP230 HC-P30 | HC-K25 | HC-M25

● ○ ○

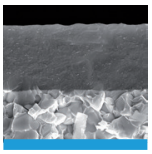


Specification:
Composition: Co 10.5 %; mixed carbides 2.0 %; WC balance | Grain size: 1-2 µm | Hardness: $HV_{30}$ 1400 |
Coating specification: CVD TiCN-$Al_2O_3$

Recommended application:
First choice for dry machining of steels at high cutting speeds.

## DBPP235 HC-P35 | HC-M30

● ○

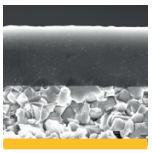


Specification:
Composition: Co 10.5 %; mixed carbide 2.0 %; WC balance | Grain size: 1-2 µm | Hardness: $HV_{30}$ 1400 |
Coating specification: PVD TiAlTaN

Recommended application:
Particularly suitable for the wet machining of steels.

## DBPM240 HC-M40 | HC-P40

● ○

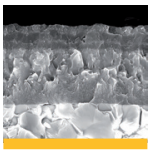


Specification:
Composition: Co 12.5 %; mixed carbides 2.0 %; WC balance | Grain size: 1 µm | Hardness: $HV_{30}$ 1380 |
Coating specification: PVD TiAlTaN

Recommended application:
The first choice for the machining of austenitic steels.

## DBC5235 HC-S35 | HC-M35

● ●

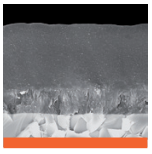


Specification:
Composition: 10.0 % binder; WC balance | Grain size: 2 µm | Hardness: $HV_{30}$ 1330 |
Coating specification: CVD TiCN-$Al_2O_3$ multi-layer

Recommended application:
Particularly suitable for the machining of heat-resistant steels and iron-based alloys.

## DBC5240 HC-S35

●



Specification:
Composition: Co 10.0 %; WC balance | Grain size: 2 µm | Hardness: HV 1330 |
Coating specification: CVD TiN +TiB2; 4 µm

Recommended application:
Recommended for the machining of titanium materials.

## PF-07 - XPLT - Inserts

| Designation | Chipbreaker | Part # |
|---|---|---|
| XPLT 070305SR-GCR DBCP230 | ...GCR | PF-678 |
| XPLT 070305SR-GCR DBPP235 | ...GCR | PF-FAF |
| XPLT 070305ER-SCR DBPM240 | ...SCR | PF-F75 |
| XPLT 070305ER-SCR DBC5235 | ...SCR | PF-474 |
| XPLT 070305ER-SCR DBC5240 | ...SCR | PF-2B6 |

## PF-07 - XPLT - Bodies

in

Imperial Body

| Designation | Ø Milling Cutter [in] | z | Part # |
|---|---|---|---|
| C-SSM-PF-07-0625.R.02-A0625-200-800-I | 0.625 | 2 | BC-9D4 |
| C-SSM-PF-07-075.R.03-A075-200-800-I | 0.750 | 3 | BC-3DF |
| C-SSM-PF-07-100.R.04-A100-200-800-I | 1.000 | 4 | BC-E18 |
| G-SSM-PF-07-0625.R.02-100-I | 0.625 | 2 | BG-B30 |
| G-SSM-PF-07-075.R.03-125-I | 0.750 | 3 | BG-E6C |
| G-SSM-PF-07-100.R.04-150-I | 1.000 | 4 | BG-AE4 |

mm

Metric Body

| Designation | Ø Milling Cutter [mm] | z | Part # |
|---|---|---|---|
| C-SSM-PF-07-16.R.02-A-50-200 | 16 | 2 | BC-C25 |
| C-SSM-PF-07-20.R.03-A-50-200 | 20 | 3 | BC-116 |
| C-SSM-PF-07-25.R.04-A-50-200 | 25 | 4 | BC-B78 |
| G-SSM-PF-07-16.R.02 | 16 | 2 | BG-CDC |
| G-SSM-PF-07-20.R.03 | 20 | 3 | BG-A6B |
| G-SSM-PF-07-25.R.04 | 25 | 4 | BG-8DF |

## PF-07 - XPLT - Spare Parts

| Designation | Screw Torque [lb-In] (Nm) | Part # |
|---|---|---|
| M2.5x5.0 – T08 | [ 11 ] ( 1.2 ) | SP-F8A |

## PF-10 - XDLT - Inserts

| Designation | Chipbreaker | Part # |
|---|---|---|
| XDLT 10T308SR-GCR DBCP230 | ...GCR | PF-141 |
| XDLT 10T308SR-GCR DBPP235 | ...GCR | PF-FCC |
| XDLT 10T308ER-SCR DBPM240 | ...SCR | PF-7C0 |
| XDLT 10T308ER-SCR DBC5235 | ...SCR | PF-44A |
| XDLT 10T308ER-SCR DBC5240 | ...SCR | PF-7B9 |

## PF-10 - XDLT - Bodies

in

Imperial Body

| Designation | Ø Milling Cutter [in] | z | Part # |
|---|---|---|---|
| C-SSM-PF-10-100.R.03-A100-200-900-I | 1.000 | 3 | BC-331 |
| A-SSM-PF-10-150.R.04-A050-150-I | 1.500 | 4 | BA-8F4 |
| A-SSM-PF-10-200.R.05-A075-150-I | 2.000 | 5 | BA-B9F |
| A-SSM-PF-10-250.R.06-A075-150-I | 2.500 | 6 | BA-F1E |

mm

Metric Body

| Designation | Ø Milling Cutter [mm] | z | Part # |
|---|---|---|---|
| C-SSM-PF-10-25.R.03-A-50-225 | 25 | 3 | BC-7CA |
| A-SSM-PF-10-40.R.04 | 40 | 4 | BA-3BD |
| A-SSM-PF-10-50.R.05 | 50 | 5 | BA-30D |
| A-SSM-PF-10-63.R.06 | 63 | 6 | BA-AF6 |

## PF-10 - XDLT - Spare Parts

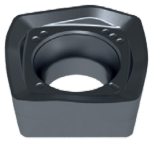
| Designation | Screw Torque [lb-In] (Nm) | Part # |
|---|---|---|
| M3.5 x 7.2 – T15 (only for C-) | [ 28 ] ( 3.2 ) | SP-5F9 |
| M3.5 x 8.6 – T15 (only for A-) | [ 28 ] ( 3.2 ) | SP-F73 |
| Power screw M8.0 x 30.0 (* for A-SSM-PF-10-40.R.04) | [ 132 ] ( 15 ) | SP-1A4 |

# Indexable Pro Feed - PFP-10 - XDLX

Advantages of PFP-10 - XDLX

- Reduced machining noise and vibration,
- light cutting geometry
- Maximized economy thanks to 4 cutting edges
- Same milling body as previous range
- Increased productivity
- Tool life increased

## PFP-10 - XDLX - Inserts



| Designation | Chipbreaker | Part # |
|---|---|---|
| XDLX 10T308SR-GCR DBCP230 | ...GCR | PF-23A |
| XDLX 10T308SR-GCR DBPP235 | ...GCR | PF-A70 |
| XDLX 10T308SR-SCR DBPM240 | ...SCR | PF-C48 |
| XDLX 10T308SR-SCR DBC5235 | ...SCR | PF-2FA |

## PFP-10 - XDLX - Bodies

in

Imperial Body

| Designation | Ø Milling Cutter [in] | z | Part # |
|---|---|---|---|
| C-SSM-PF-10-100.R.03-A100-200-900-I | 1.000 | 3 | BC-331 |
| A-SSM-PF-10-150.R.04-A050-150-I | 1.500 | 4 | BA-8F4 |
| A-SSM-PF-10-200.R.05-A075-150-I | 2.000 | 5 | BA-B9F |
| A-SSM-PF-10-250.R.06-A075-150-I | 2.500 | 6 | BA-F1E |

mm

Metric Body

| Designation | Ø Milling Cutter [mm] | z | Part # |
|---|---|---|---|
| C-SSM-PF-10-25.R.03-A-50-225 | 25 | 3 | BC-7CA |
| A-SSM-PF-10-40.R.04 | 40 | 4 | BA-3BD |
| A-SSM-PF-10-50.R.05 | 50 | 5 | BA-30D |
| A-SSM-PF-10-63.R.06 | 63 | 6 | BA-AF6 |

## PFP-10 - XDLX - Spare Parts

| Designation | Screw Torque [lb-In] (Nm) | Part # |
|---|---|---|
| M3.5 x 7.2 – T15 (only for C-) | [ 28 ] ( 3.2 ) | SP-5F9 |
| M3.5 x 8.6 – T15 (only for A-) | [ 28 ] ( 3.2 ) | SP-F73 |
| Power screw M8.0 x 30.0 (* for A-SSM-PF-10-40.R.04) | [ 132 ] ( 15 ) | SP-1A4 |

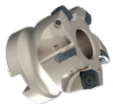
## PF-13 - XOLT - Inserts

| Designation | Chipbreaker | Part # |
|---|---|---|
| XOLT 130410SR-GCR DBCP230 | ...GCR | PF-256 |
| XOLT 130410SR-GCR DBPP235 | ...GCR | PF-928 |
| XOLT 130410ER-SCR DBPM240 | ...SCR | PF-114 |
| XOLT 130410ER-SCR DBC5235 | ...SCR | PF-18F |
| XOLT 130410ER-SCR DBC5240 | ...SCR | PF-8F1 |

## PF-13 - XOLT - Bodies

in

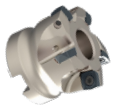
Imperial Body



| Designation | Ø Milling Cutter [in] | z | Part # |
|---|---|---|---|
| C-SSM-PF-13-150.R.03-A150-250-1000-I | 1.500 | 3 | BC-8AE |
| A-SSM-PF-13-200.R.04-A075-150-I | 2.000 | 4 | BA-6CF |
| A-SSM-PF-13-250.R.05-A075-150-I | 2.500 | 5 | BA-7C5 |
| A-SSM-PF-13-300.R.07-A100-200-I | 3.000 | 7 | BA-2D2 |
| A-SSM-PF-13-400.R.08-A125-200-I | 4.000 | 8 | BA-6BB |

mm

Metric Body

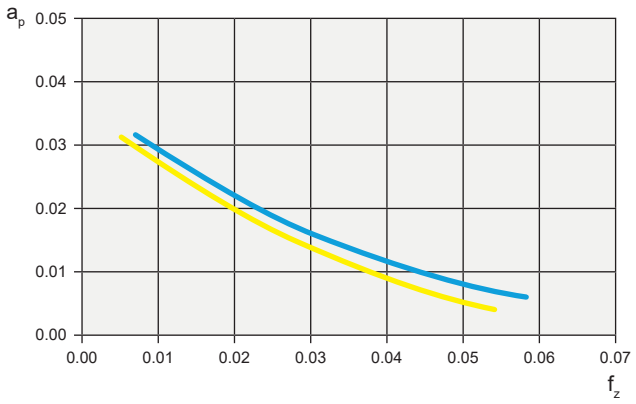


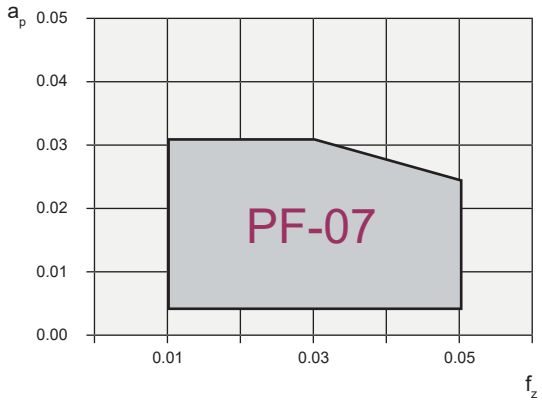
| Designation | Ø Milling Cutter [mm] | z | Part # |
|---|---|---|---|
| C-SSM-PF-13-35.R.03-A32-63-250 | 35 | 3 | BC-DAF |
| A-SSM-PF-13-50.R.04 | 50 | 4 | BA-309 |
| A-SSM-PF-13-63.R.05 | 63 | 5 | BA-F90 |
| A-SSM-PF-13-80.R.07 | 80 | 7 | BA-AB3 |

## PF-13 - XOLT - Spare Parts

| Designation | Screw Torque [lb-In] (Nm) | Part # |
|---|---|---|
| M4.5 x 10.5 – T20 | [ 44 ] ( 5 ) | SP-7D8 |

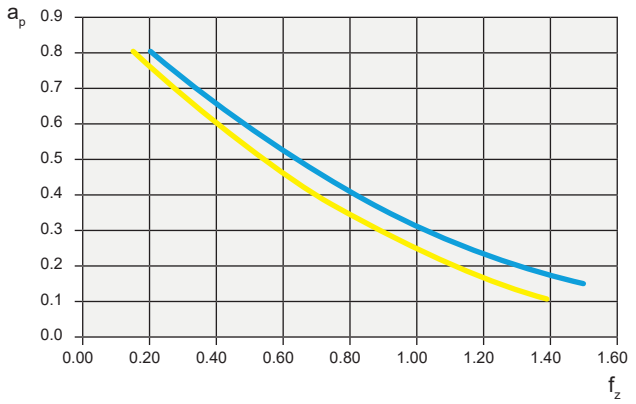
## PF-07 - XPLT - Imperial Starting Parameters

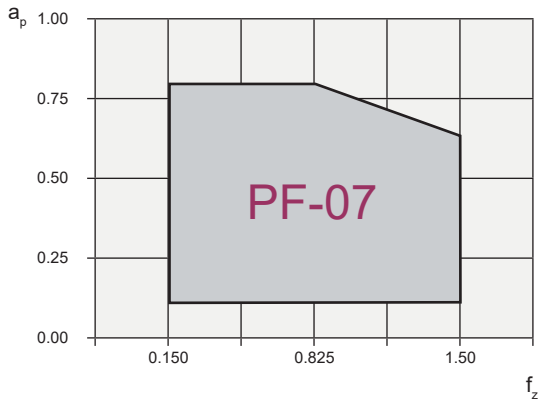



| | | Material Group | Chipbreaker | Grade | $v_c$ [sfm] | $f_z$ [ipt] | $a_p$ [inch] |
|---|---|---|---|---|---|---|---|
| in | P | Steel | GCR | DBCP230<br>DBPP235 | 720 - 200 | 0.008 - 0.059 | 0.032 - 0.006 |
| | M | Stainless steel | SCR | DBPM240<br>DBC5235<br>DBC5240 | 660 - 200 | 0.006 - 0.055 | 0.032 - 0.004 |

## PF-07 - XPLT - Metric Starting Parameters

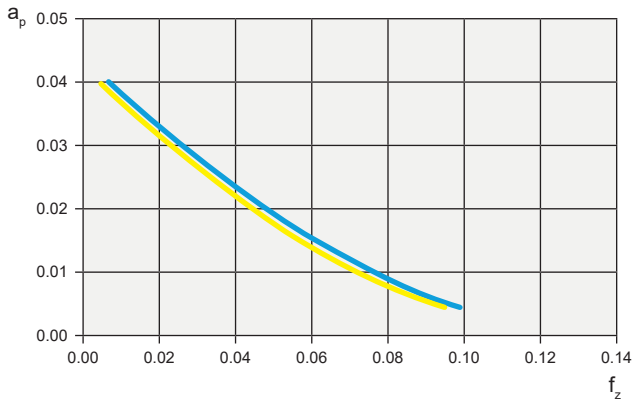


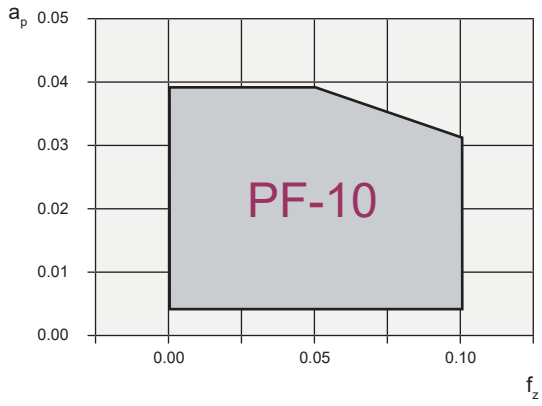




| | | Material Group | Chipbreaker | Grade | $v_c$ [m/min] | $f_z$ [mm] | $a_p$ [mm] |
|---|---|---|---|---|---|---|---|
| mm | P | Steel | GCR | DBCP230<br>DBPP235 | 220 - 60 | 0.20 - 1.50 | 0.80 - 0.15 |
| | M | Stainless steel | SCR | DBPM240<br>DBC5235<br>DBC5240 | 200 - 60 | 0.15 - 1.40 | 0.80 - 0.10 |

# PF-10 - XDLT Cutting Data

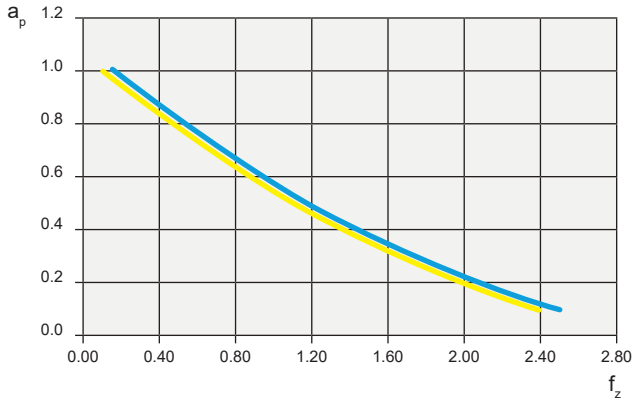
## PF-10 - XDLT - Imperial Starting Parameters

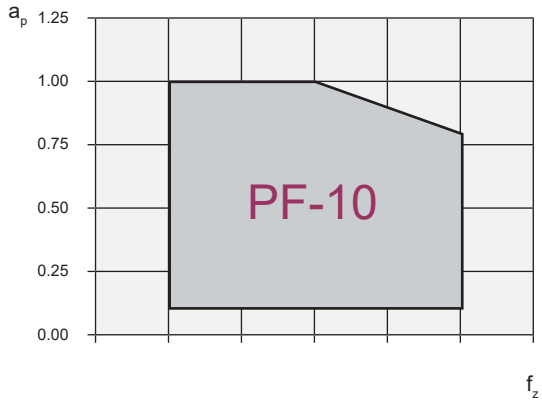



| | | Material Group | Chipbreaker | Grade | $v_c$ [sfm] | $f_z$ [ipt] | $a_p$ [inch] |
|---|---|---|---|---|---|---|---|
| in | P | Steel | GCR | DBCP230<br>DBPP235 | 720 - 200 | 0.006 - 0.098 | 0.039 - 0.004 |
| | M | Stainless steel | SCR | DBPM240<br>DBC5235<br>DBC5240 | 660 - 200 | 0.004 - 0.095 | 0.039 - 0.004 |

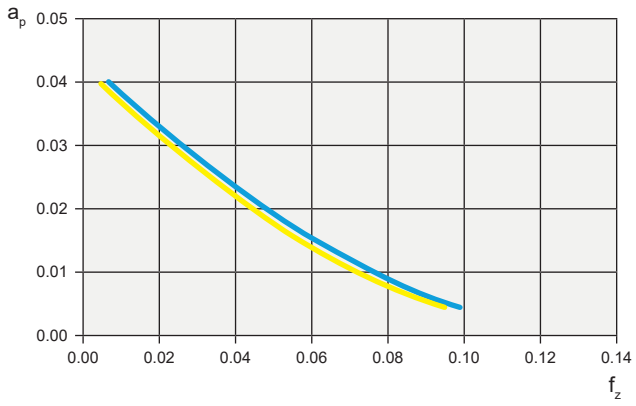
## PF-10 - XDLT - Metric Starting Parameters

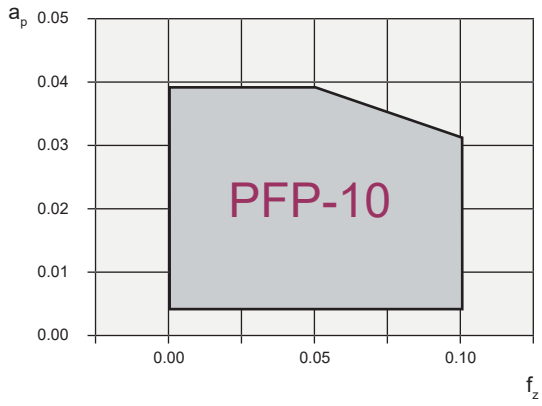



| | | Material Group | Chipbreaker | Grade | $v_c$ [m/min] | $f_z$ [mm] | $a_p$ [mm] |
|---|---|---|---|---|---|---|---|
| mm | P | Steel | GCR | DBCP230<br>DBPP235 | 220 - 60 | 0.15 - 2.50 | 1.0 - 0.1 |
| | M | Stainless steel | SCR | DBPM240<br>DBC5235<br>DBC5240 | 200 - 60 | 0.10 - 2.40 | 1.0 - 0.1 |

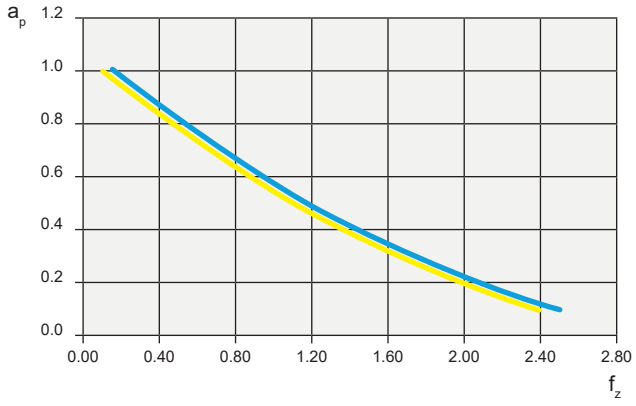
## PFP-10 - XDLX - Imperial Starting Parameters

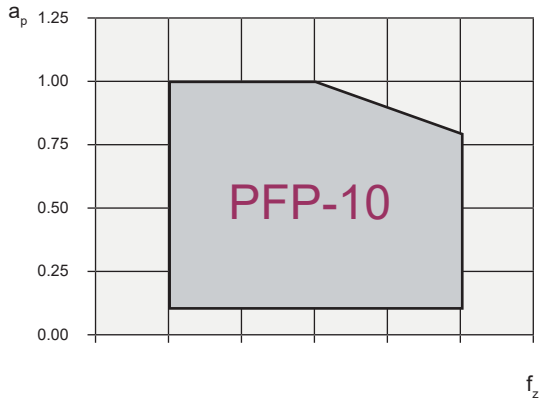



| | | Material Group | Chipbreaker | Grade | $v_c$ [sfm] | $f_z$ [ipt] | $a_p$ [inch] |
|---|---|---|---|---|---|---|---|
| in | P | Steel | GCR | DBCP230<br>DBPP235 | 720 - 200 | 0.006 - 0.098 | 0.039 - 0.004 |
| | M | Stainless steel | SCR | DBPM240<br>DBC5235<br>DBC5240 | 660 - 200 | 0.004 - 0.095 | 0.039 - 0.004 |

## PFP-10 - XDLX - Metric Starting Parameters

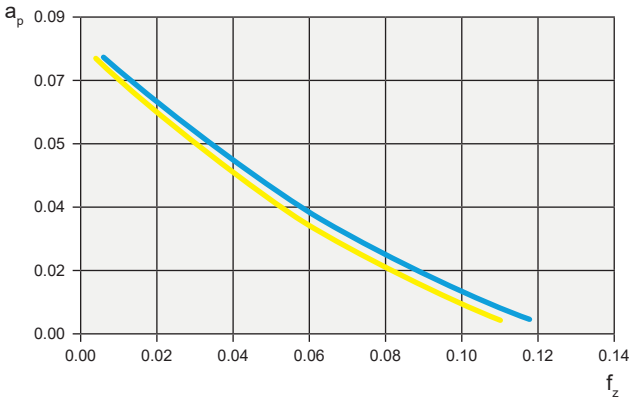


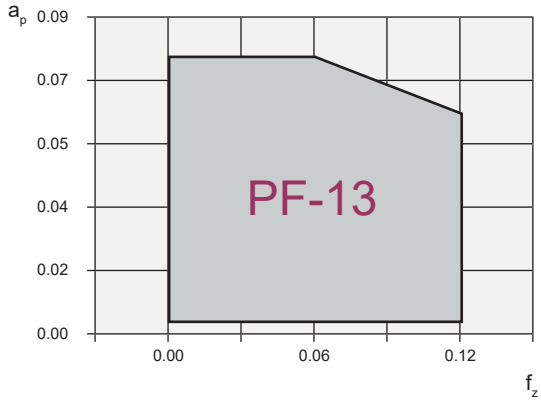




| | | Material Group | Chipbreaker | Grade | $v_c$ [m/min] | $f_z$ [mm] | $a_p$ [mm] |
|---|---|---|---|---|---|---|---|
| mm | P | Steel | GCR | DBCP230<br>DBPP235 | 220 - 60 | 0.15 - 2.50 | 1.0 - 0.1 |
| | M | Stainless steel | SCR | DBPM240<br>DBC5235<br>DBC5240 | 200 - 60 | 0.10 - 2.40 | 1.0 - 0.1 |

# PF-13 - XOLT Cutting Data

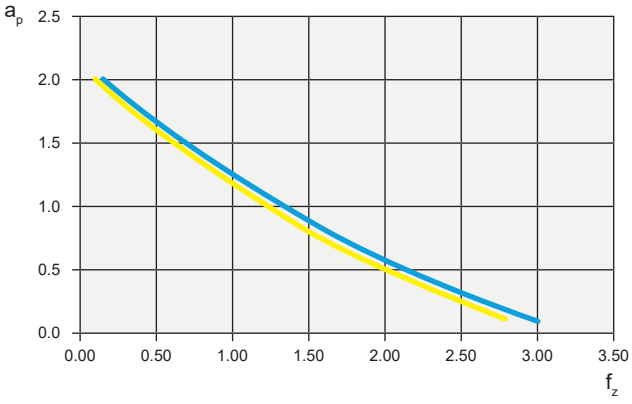
## PF-13 - XOLT - Imperial Starting Parameters

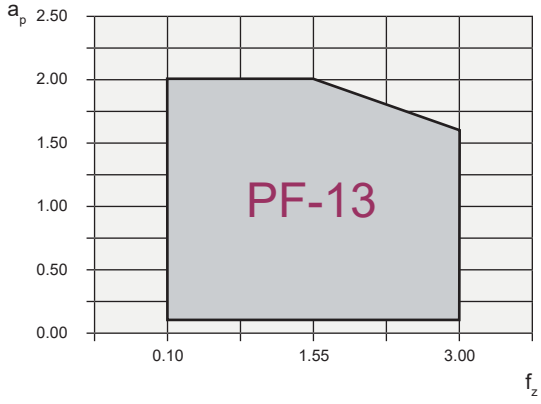



| | | Material Group | Chipbreaker | Grade | $v_c$ [sfm] | $f_z$ [ipt] | $a_p$ [inch] |
|---|---|---|---|---|---|---|---|
| in | P | Steel | GCR | DBCP230<br>DBPP235 | 720 - 200 | 0.006 - 0.118 | 0.079 - 0.004 |
| | M | Stainless steel | SCR | DBPM240<br>DBC5235<br>DBC5240 | 660 - 200 | 0.004 - 0.110 | 0.079 - 0.004 |

## PF-13 - XOLT - Metric Starting Parameters




| | | Material Group | Chipbreaker | Grade | $v_c$ [m/min] | $f_z$ [mm] | $a_p$ [mm] |
|---|---|---|---|---|---|---|---|
| mm | P | Steel | GCR | DBCP230<br>DBPP235 | 220 - 60 | 0.15 - 2.50 | 1.0 - 0.1 |
| | M | Stainless steel | SCR | DBPM240<br>DBC5235<br>DBC5240 | 200 - 60 | 0.10 - 2.40 | 1.0 - 0.1 |

# ProDrill

Speeds & Feeds available at deboertool.com/app/speeds/drills, or by scanning the QR code

## in Essential

| | Cutting Speed (SFM) | | Feed per tooth (IPT). For slotting reduce by 20% | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Min | Max | 1/8 0.125 | 3/16 0.1875 | 1/4 0.250 | 5/16 0.3125 | 3/8 0.375 | 7/16 0.4375 | 1/2 0.500 | 5/8 0.625 | 3/4 0.750 | 1 1.000 |
| Aluminum Alloys | 600 | 800 | 0.0011 | 0.0017 | 0.0022 | 0.0027 | 0.0032 | 0.0038 | 0.0042 | 0.0060 | 0.0085 | 0.0092 |
| Soft Steels (>35Rc) | 500 | 600 | 0.0006 | 0.0008 | 0.0010 | 0.0012 | 0.0016 | 0.0024 | 0.0030 | 0.0034 | 0.0036 | 0.004 |
| Alloy Steels < 35Rc (4140-4340) | 350 | 400 | 0.0006 | 0.0010 | 0.0016 | 0.0020 | 0.0025 | 0.0031 | 0.0036 | 0.0037 | 0.0039 | 0.0045 |
| Alloy Steels > 35Rc (4140-4340) | 250 | 350 | 0.0004 | 0.0009 | 0.0014 | 0.0019 | 0.0020 | 0.0028 | 0.0031 | 0.0032 | 0.0036 | 0.0042 |
| Tool Steels < 36Rc (A2, D2, S7) | 100 | 200 | 0.0004 | 0.0007 | 0.0014 | 0.0020 | 0.0020 | 0.0025 | 0.0033 | 0.0031 | 0.0035 | 0.0042 |
| Tool Steels > 36Rc (A2, D2, S7) | 250 | 350 | 0.0003 | 0.0009 | 0.0017 | 0.0020 | 0.0025 | 0.0029 | 0.0031 | 0.0037 | 0.004 | 0.005 |
| Die Steels (P20, H13) | 200 | 300 | 0.0005 | 0.0010 | 0.0017 | 0.0020 | 0.0023 | 0.0032 | 0.0033 | 0.0037 | 0.0037 | 0.004 |
| Easy to cut Stainless Steels (303) | 250 | 350 | 0.0006 | 0.0006 | 0.0008 | 0.0008 | 0.0014 | 0.0021 | 0.0026 | 0.0031 | 0.0038 | 0.0042 |
| Mod. Difficult to cut Stainless Steels | 225 | 275 | 0.0005 | 0.0005 | 0.0005 | 0.0007 | 0.0012 | 0.0020 | 0.0024 | 0.0028 | 0.0034 | 0.0041 |
| Difficult to cut Stainless Steels (316L) | 200 | 250 | 0.0003 | 0.0004 | 0.0006 | 0.0007 | 0.0013 | 0.0019 | 0.0023 | 0.0028 | 0.0031 | 0.0038 |
| Gray Cast Iron | 450 | 550 | 0.0006 | 0.0008 | 0.0010 | 0.0012 | 0.0016 | 0.0025 | 0.0030 | 0.0035 | 0.0045 | 0.0055 |
| High Temperature Alloys | 50 | 100 | 0.0003 | 0.0004 | 0.0005 | 0.0007 | 0.0008 | 0.0014 | 0.0016 | 0.0020 | 0.0023 | 0.0028 |

## in X-Mill

| | Cutting Speed (SFM) | | Feed per tooth (IPT) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Min | Max | 1/8 0.125 | 3/16 0.1875 | 1/4 0.250 | 5/16 0.3125 | 3/8 0.375 | 1/2 0.500 | 5/8 0.625 | 3/4 0.750 | 1 1.000 |
| Soft Steels (>35Rc) | 550 | 550 | 0.0006 | 0.0008 | 0.0010 | 0.0012 | 0.0016 | 0.0024 | 0.0024 | 0.0034 | 0.0029 |
| Alloy Steels < 35Rc (4140-4340) | 375 | 375 | 0.0006 | 0.0010 | 0.0016 | 0.0020 | 0.0025 | 0.0031 | 0.0036 | 0.0037 | 0.0039 |
| Alloy Steels > 35Rc (4140-4340) | 300 | 300 | 0.0004 | 0.0009 | 0.0014 | 0.0019 | 0.0020 | 0.0028 | 0.0031 | 0.0032 | 0.0036 |
| Tool Steels < 36Rc (A2, D2, S7) | 300 | 300 | 0.0004 | 0.0007 | 0.0014 | 0.0020 | 0.0020 | 0.0025 | 0.0033 | 0.0031 | 0.0035 |
| Tool Steels > 36Rc (A2, D2, S7) | 150 | 150 | 0.0003 | 0.0009 | 0.0017 | 0.0020 | 0.0025 | 0.0029 | 0.0031 | 0.0037 | 0.0040 |
| Die Steels (P20, H13) | 250 | 250 | 0.0005 | 0.0010 | 0.0017 | 0.0020 | 0.0023 | 0.0032 | 0.0033 | 0.0037 | 0.0037 |
| Easy to cut stainless steels (303) | 300 | 300 | 0.0006 | 0.0006 | 0.0008 | 0.0008 | 0.0014 | 0.0021 | 0.0026 | 0.0031 | 0.0038 |
| Mod. Difficult to cut stainless Steels | 255 | 255 | 0.0005 | 0.0005 | 0.0005 | 0.0007 | 0.0012 | 0.0020 | 0.0024 | 0.0028 | 0.0034 |
| Difficult to cut Stainless Steels (316L) | 220 | 220 | 0.0003 | 0.0004 | 0.0006 | 0.0007 | 0.0013 | 0.0019 | 0.0023 | 0.0028 | 0.0031 |
| Gray Cast Iron | 500 | 500 | 0.0006 | 0.0008 | 0.0010 | 0.0012 | 0.0016 | 0.0025 | 0.0029 | 0.0034 | 0.0045 |
| High Temperature alloys | 80 | 80 | 0.0003 | 0.0004 | 0.0005 | 0.0007 | 0.0008 | 0.0014 | 0.0016 | 0.0020 | 0.0023 |
| Titanium | 140 | 140 | 0.0004 | 0.0005 | 0.0007 | 0.0008 | 0.0013 | 0.0019 | 0.0024 | 0.0026 | 0.0037 |

**NOTE:**
Side milling applications - for longest reach (L3 LON) tools, reduce max step over by 30%
Slot milling applications - for longest reach (L3 LON) tools, reduce max slotting depth by 30%
Lower value of cutting speed (SFM) is used for high-stock removal applications or for higher hardness (machinability) within group
Higher value of cutting speed (SFM) is used for finishing applications or for lower hardness (machinability) within group
Above parameters are based on ideal conditions. For smaller taper machining centers, please adjust parameters accordingly

| | |
|---|---|
| RPM | (3.82 x SFM) / Dia. |
| IPR | IPM / RPM |
| SFM | (RPM x Dia.) / 3.82 |
| IPM | IPT (Chip Load) x No. of Teeth x RPM |
| IPT (Chip Load) | (Chip Load) = IPM / (No. of Teeth x RPM) |

# Speeds & Feeds

## XM
### 1xD Side Milling

** Factor in chip thinning for any cut under 40% of the tool's diameter for optimal results*

| in | | SFM | 1/8 0.125 | 3/16 0.1875 | 1/4 0.250 | 5/16 0.3125 | 3/8 0.375 | 1/2 0.500 | 5/8 0.625 | 3/4 0.750 | 1 1.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| P0 | Low Carbon Steels, Long Chipping | 575 | 0.00067 | 0.00139 | 0.00147 | 0.00181 | 0.00210 | 0.00253 | 0.00290 | 0.00320 | 0.00355 |
| P1 | Low Carbon Steels, Short Chipping | 575 | 0.00067 | 0.00139 | 0.00147 | 0.00181 | 0.00210 | 0.00253 | 0.00290 | 0.00320 | 0.00355 |
| P2 | Medium & High Carbon Steels | 550 | 0.00067 | 0.00139 | 0.00147 | 0.00181 | 0.00210 | 0.00253 | 0.00290 | 0.00320 | 0.00355 |
| P3 | Alloy Steels & Tool Steels | 475 | 0.00058 | 0.00118 | 0.00125 | 0.00154 | 0.00178 | 0.00217 | 0.00254 | 0.00285 | 0.00328 |
| P4 | Alloy Steels & Tool Steels | 400 | 0.00057 | 0.00110 | 0.00116 | 0.00142 | 0.00160 | 0.00195 | 0.00227 | 0.00251 | 0.00286 |
| P5 | Farritic, Martensitic & PH Stainless Steels | 275 | 0.00052 | 0.00099 | 0.00105 | 0.00128 | 0.00146 | 0.00179 | 0.00209 | 0.00233 | 0.00266 |
| P6 | High Strength Farritic, Martensitic & PH Stainless Steel | 215 | 0.00047 | 0.00088 | 0.00093 | 0.00112 | 0.00125 | 0.00152 | 0.00174 | 0.00199 | 0.00213 |
| K1 | Cast Iron | 450 | 0.00067 | 0.00139 | 0.00147 | 0.00181 | 0.00210 | 0.00253 | 0.00290 | 0.00320 | 0.00355 |

## XM
### 1xD Slotting

** It is strongly recommended to run flood coolant when slotting*

| in | | SFM | 1/8 0.125 | 3/16 0.1875 | 1/4 0.250 | 5/16 0.3125 | 3/8 0.375 | 1/2 0.500 | 5/8 0.625 | 3/4 0.750 | 1 1.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| P0 | Low Carbon Steels, Long Chipping | 575 | 0.00057 | 0.00115 | 0.00121 | 0.00149 | 0.00170 | 0.00206 | 0.00237 | 0.00260 | 0.00287 |
| P1 | Low Carbon Steels, Short Chipping | 575 | 0.00057 | 0.00115 | 0.00121 | 0.00149 | 0.00170 | 0.00206 | 0.00237 | 0.00260 | 0.00287 |
| P2 | Medium & High Carbon Steels | 550 | 0.00057 | 0.00115 | 0.00121 | 0.00149 | 0.00170 | 0.00206 | 0.00237 | 0.00260 | 0.00287 |
| P3 | Alloy Steels & Tool Steels | 475 | 0.00051 | 0.00099 | 0.00104 | 0.00128 | 0.00147 | 0.00178 | 0.00206 | 0.00232 | 0.00267 |
| P4 | Alloy Steels & Tool Steels | 400 | 0.00049 | 0.00092 | 0.00096 | 0.00117 | 0.00133 | 0.00160 | 0.00185 | 0.00200 | 0.00233 |
| P5 | Farritic, Martensitic & PH Stainless Steels | 275 | 0.00045 | 0.00084 | 0.00088 | 0.00107 | 0.00122 | 0.00147 | 0.00171 | 0.00190 | 0.00217 |
| P6 | High Strength Farritic, Martensitic & PH Stainless Steel | 215 | 0.00040 | 0.00074 | 0.00078 | 0.00094 | 0.00105 | 0.00127 | 0.00143 | 0.00156 | 0.00174 |
| K1 | Cast Iron | 450 | 0.00057 | 0.00115 | 0.00121 | 0.00149 | 0.00170 | 0.00206 | 0.00237 | 0.00260 | 0.00287 |

## XM
### Dynamic Milling

** All below speed & feeds are calculated with 10% radial step-over*

| in | | SFM | 1/8 0.125 | 3/16 0.1875 | 1/4 0.250 | 5/16 0.3125 | 3/8 0.375 | 1/2 0.500 | 5/8 0.625 | 3/4 0.750 | 1 1.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| P0 | Low Carbon Steels, Long Chipping | 700 - 1200 | 0.0012 | 0.0023 | 0.0025 | 0.0030 | 0.0035 | 0.0042 | 0.0048 | 0.0053 | 0.0060 |
| P1 | Low Carbon Steels, Short Chipping | 700 - 1200 | 0.0012 | 0.0023 | 0.0025 | 0.0030 | 0.0035 | 0.0042 | 0.0048 | 0.0053 | 0.0060 |
| P2 | Medium & High Carbon Steels | 650 - 1100 | 0.0012 | 0.0023 | 0.0025 | 0.0030 | 0.0035 | 0.0042 | 0.0048 | 0.0053 | 0.0060 |
| P3 | Alloy Steels & Tool Steels | 550 - 925 | 0.0010 | 0.0020 | 0.0022 | 0.0025 | 0.0030 | 0.0037 | 0.0042 | 0.0048 | 0.0055 |
| P4 | Alloy Steels & Tool Steels | 475 - 800 | 0.0010 | 0.0018 | 0.0020 | 0.0023 | 0.0027 | 0.0033 | 0.0038 | 0.0042 | 0.0048 |
| P5 | Farritic, Martensitic & PH Stainless Steels | 325 - 550 | 0.0008 | 0.0017 | 0.0018 | 0.0022 | 0.0025 | 0.0030 | 0.0035 | 0.0038 | 0.0045 |
| P6 | High Strength Farritic, Martensitic & PH Stainless Steel | 275 - 450 | 0.0008 | 0.0015 | 0.0015 | 0.0018 | 0.0022 | 0.0025 | 0.0028 | 0.0033 | 0.0035 |
| K1 | Cast Iron | 550 - 925 | 0.0012 | 0.0023 | 0.0025 | 0.0030 | 0.0035 | 0.0042 | 0.0048 | 0.0053 | 0.0060 |

| | |
|---|---|
| SFM | Surface Feet Per Minute |
| IPM | Inch Per Minute |
| IPT | Inch Per Tooth |
| Z | Number of Flutes |
| RPM | Revolutions Per Minute |
| DOC | Depth of Cut |
| WOC | Width of Cut |
| MRR | Metal Removal Rate |

| Calculations: | |
|---|---|
| RPM | 3.82 * SFM / D = RPM |
| IPM | IPT * Z * RPM = IPM |
| MRR | WOC * DOC * IPM = MRR |

## in T-Mill

| | Cutting Speed (SFM) | | Feed per tooth (IPT) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Min | Max | 1/8 0.125 | 3/16 0.1875 | 1/4 0.250 | 3/8 0.375 | 1/2 0.500 | 5/8 0.625 | 3/4 0.750 |
| Ferric, martensitic, and 15-5 PH stainless steels <35 Rc | 235 | 270 | 0.0007 | 0.0010 | 0.0014 | 0.0021 | 0.0026 | 0.0030 | 0.0035 |
| Ferric, martensitic, and 15-5 PH stainless steels >35 Rc | 195 | 230 | 0.0007 | 0.0010 | 0.0014 | 0.0021 | 0.0026 | 0.0030 | 0.0035 |
| Austenitic stainless steel (302, 303, 304) | 300 | 375 | 0.0008 | 0.0011 | 0.0018 | 0.0023 | 0.0029 | 0.0031 | 0.0034 |
| Austenitic stainless steel (316) | 195 | 270 | 0.0006 | 0.0009 | 0.0013 | 0.0018 | 0.0024 | 0.0025 | 0.0029 |
| Nickel based heat-resistant alloys | 90 | 140 | 0.0003 | 0.0004 | 0.0007 | 0.0011 | 0.0016 | 0.0020 | 0.0023 |
| Titanium Alloys (Ti6Al4V) | 170 | 220 | 0.0005 | 0.0008 | 0.0008 | 0.0015 | 0.0021 | 0.0028 | 0.0036 |

**NOTE:**
Side milling applications - for longest reach (L3 LON) tools, reduce max step over by 30%
Slot milling applications - for longest reach (L3 LON) tools, reduce max slotting depth by 30%
Lower value of cutting speed (SFM) is used for high-stock removal applications or for higher hardness (machinability) within group
Higher value of cutting speed (SFM) is used for finishing applications or for lower hardness (machinability) within group
Above parameters are based on ideal conditions. For smaller taper machining centers, please adjust parameters accordingly

## in Thread Mill

| | Cutting Speed (SFM) | | Feed per tooth (IPT)for nominal thread size | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Min | Max | < 1/8 0.125 | 1/8 - 3/16 0.1875 | 3/16 - 1/4 0.250 | 1/4 - 5/16 0.3125 | 5/16 - 3/8 0.375 | 3/8 - 1/2 0.500 | 1/2 - 5/8 0.625 | 5/8 - 3/4 0.750 |
| Copper / Brass / Bronze | 490 | 660 | 0.0004 | 0.0007 | 0.0010 | 0.0015 | 0.0018 | 0.0022 | 0.0030 | 0.0037 |
| Aluminum Alloys | 460 | 620 | 0.0004 | 0.0008 | 0.0012 | 0.0017 | 0.0021 | 0.0025 | 0.0035 | 0.0040 |
| Soft Steels (<35Rc) | 390 | 520 | 0.0003 | 0.0006 | 0.0010 | 0.0013 | 0.0017 | 0.0020 | 0.0027 | 0.0035 |
| Alloy Steels < 35Rc (4140-4340) | 460 | 620 | 0.0003 | 0.0006 | 0.0010 | 0.0012 | 0.0015 | 0.0018 | 0.0025 | 0.0032 |
| Alloy Steels > 35Rc (4140-4340) | 390 | 520 | 0.0002 | 0.0004 | 0.0007 | 0.0009 | 0.0012 | 0.0015 | 0.0020 | 0.0028 |
| Tool Steels < 36Rc (A2, D2, S7) | 300 | 490 | 0.0001 | 0.0003 | 0.0005 | 0.0007 | 0.0010 | 0.0012 | 0.0015 | 0.0018 |
| Tool Steels > 36Rc (A2, D2, S7) | 200 | 330 | 0.0001 | 0.0002 | 0.0004 | 0.0005 | 0.0007 | 0.0009 | 0.0012 | 0.0015 |
| Die Steels (P20, H13) | 160 | 250 | 0.0001 | 0.0003 | 0.0005 | 0.0007 | 0.0010 | 0.0012 | 0.0015 | 0.0018 |
| Difficult to cut Stainless Steels (316L) | 200 | 260 | 0.0003 | 0.0004 | 0.0006 | 0.0008 | 0.0011 | 0.0015 | 0.0020 | 0.0025 |
| Gray Cast Iron | 390 | 520 | 0.0005 | 0.0007 | 0.0010 | 0.0013 | 0.0017 | 0.0025 | 0.0032 | 0.0040 |
| High Temperature Alloys | 160 | 300 | 0.0003 | 0.0005 | 0.0007 | 0.0009 | 0.0012 | 0.0015 | 0.0021 | 0.0028 |
| Titanium | 260 | 460 | 0.0003 | 0.0005 | 0.0007 | 0.0009 | 0.0012 | 0.0015 | 0.0021 | 0.0028 |

**Due to the nature of thread milling, the thread mill will range from 140° tooth engagement for internal threads, to 60° engagement for external threads. Because of this, once you have calculated feed rate you must adjust it by the factors below

**NOTE:**
For internal thread - programmed Feed Rate = Feed Rate X (hole diameter - cutter diameter) / hole diameter
For external thread - programmed Feed Rate = Feed Rate X (hole diameter + cutter diameter) / hole diameter
Lower value of cutting speed (SFM) is used for high-stock removal applications or for higher hardness (machinability) within group
Higher value of cutting speed (SFM) is used for finishing applications or for lower hardness (machinability) within group
Above parameters are based on ideal conditions. For smaller taper machining centers, please adjust parameters accordingly

| | |
|---|---|
| RPM | (3.82 x SFM) / Dia. |
| IPR | IPM / RPM |
| SFM | (RPM x Dia.) / 3.82 |
| IPM | IPT (Chip Load) x No. of Teeth x RPM |
| IPT (Chip Load) | (Chip Load) = IPM / (No. of Teeth x RPM) |

# Speeds & Feeds

## in HV

| | Cutting Speed (SFM) | | Feed per tooth (IPT). For slotting reduce by 20% | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Min | Max | 1/32 0.03125 | 1/16 0.0625 | 3/32 0.9375 | 1/8 0.125 | 3/16 0.1875 | 1/4 0.250 | 5/16 0.3125 | 3/8 0.375 | 7/16 0.4375 | 1/2 0.500 |
| Soft Steels (<35Rc) | 490 | 660 | 0.0004 | 0.0005 | 0.0006 | 0.0008 | 0.0010 | 0.0012 | 0.0016 | 0.0024 | 0.0027 | 0.0033 |
| Alloy Steels < 35Rc (4140-4340) | 460 | 620 | 0.00035 | 0.0005 | 0.0006 | 0.0010 | 0.0016 | 0.0020 | 0.0025 | 0.0031 | 0.0032 | 0.0035 |
| Alloy Steels > 35Rc (4140-4340) | 390 | 520 | 0.0003 | 0.0004 | 0.0005 | 0.0009 | 0.0014 | 0.0019 | 0.0020 | 0.0028 | 0.0030 | 0.0033 |
| Tool Steels < 36Rc (A2, D2, S7) | 300 | 490 | 0.00025 | 0.0003 | 0.0004 | 0.0006 | 0.0009 | 0.0013 | 0.0016 | 0.0025 | 0.0027 | 0.0030 |
| Tool Steels > 36Rc (A2, D2, S7) | 200 | 330 | 0.0002 | 0.00025 | 0.0003 | 0.0009 | 0.0017 | 0.0020 | 0.0025 | 0.0029 | 0.0030 | 0.0033 |
| Die Steels (P20, H13) | 160 | 250 | 0.00025 | 0.0003 | 0.0005 | 0.0010 | 0.0017 | 0.0020 | 0.0023 | 0.0032 | 0.0035 | 0.0037 |
| Easy to cut Stainless Steels (303) | 260 | 330 | 0.0003 | 0.0004 | 0.0006 | 0.0006 | 0.0008 | 0.0008 | 0.0014 | 0.0021 | 0.0028 | 0.0033 |
| Mod. Difficult to cut Stainless Steels | 200 | 260 | 0.00025 | 0.00035 | 0.0005 | 0.0005 | 0.0005 | 0.0007 | 0.0012 | 0.0020 | 0.0025 | 0.0030 |
| Difficult to cut Stainless Steels (316L) | 200 | 260 | 0.00015 | 0.0002 | 0.0003 | 0.0004 | 0.0006 | 0.0007 | 0.0013 | 0.0019 | 0.0023 | 0.0025 |
| Gray Cast Iron | 390 | 520 | 0.0003 | 0.0004 | 0.0006 | 0.0008 | 0.0010 | 0.0012 | 0.0016 | 0.0025 | 0.0027 | 0.0035 |
| High Temperature Alloys | 160 | 300 | 0.00015 | 0.0025 | 0.0003 | 0.0004 | 0.0005 | 0.0007 | 0.0008 | 0.0014 | 0.0023 | 0.0029 |
| Titanium | 260 | 460 | 0.0002 | 0.0003 | 0.0004 | 0.0005 | 0.0007 | 0.0008 | 0.0013 | 0.0019 | 0.0020 | 0.0026 |

## in HV Feed Mill

| | Cutting Speed (SFM) | | Feed per tooth (IPT) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Min | Max | 1/8 0.125 | 3/16 0.1875 | 1/4 0.250 | 5/16 0.3125 | 3/8 0.375 | 1/2 0.500 | 5/8 0.625 |
| Alloy Steels < 35Rc (4140-4340) | 800 | 1000 | 0.0082 | 0.0113 | 0.0125 | 0.0156 | 0.0187 | 0.0197 | 0.0235 |
| Alloy Steels > 35Rc (4140-4340) | 800 | 990 | 0.0082 | 0.0113 | 0.0124 | 0.0153 | 0.0184 | 0.0193 | 0.0231 |
| Tool Steels < 36Rc (A2, D2, S7) | 720 | 790 | 0.0060 | 0.0076 | 0.0082 | 0.0097 | 0.0119 | 0.0126 | 0.0156 |
| Tool Steels > 36Rc (A2, D2, S7) | 590 | 720 | 0.0052 | 0.0062 | 0.0066 | 0.0078 | 0.0096 | 0.0102 | 0.0129 |
| Die Steels (P20, H13) | 490 | 590 | 0.0039 | 0.0039 | 0.0039 | 0.0038 | 0.0054 | 0.0059 | 0.0078 |
| Easy to cut Stainless Steels (303) | 700 | 800 | 0.0061 | 0.0077 | 0.0082 | 0.0097 | 0.0122 | 0.0130 | 0.0156 |
| Gray Cast Iron | 750 | 820 | 0.0064 | 0.0080 | 0.0087 | 0.0105 | 0.0130 | 0.0138 | 0.0164 |

## in A-Mill

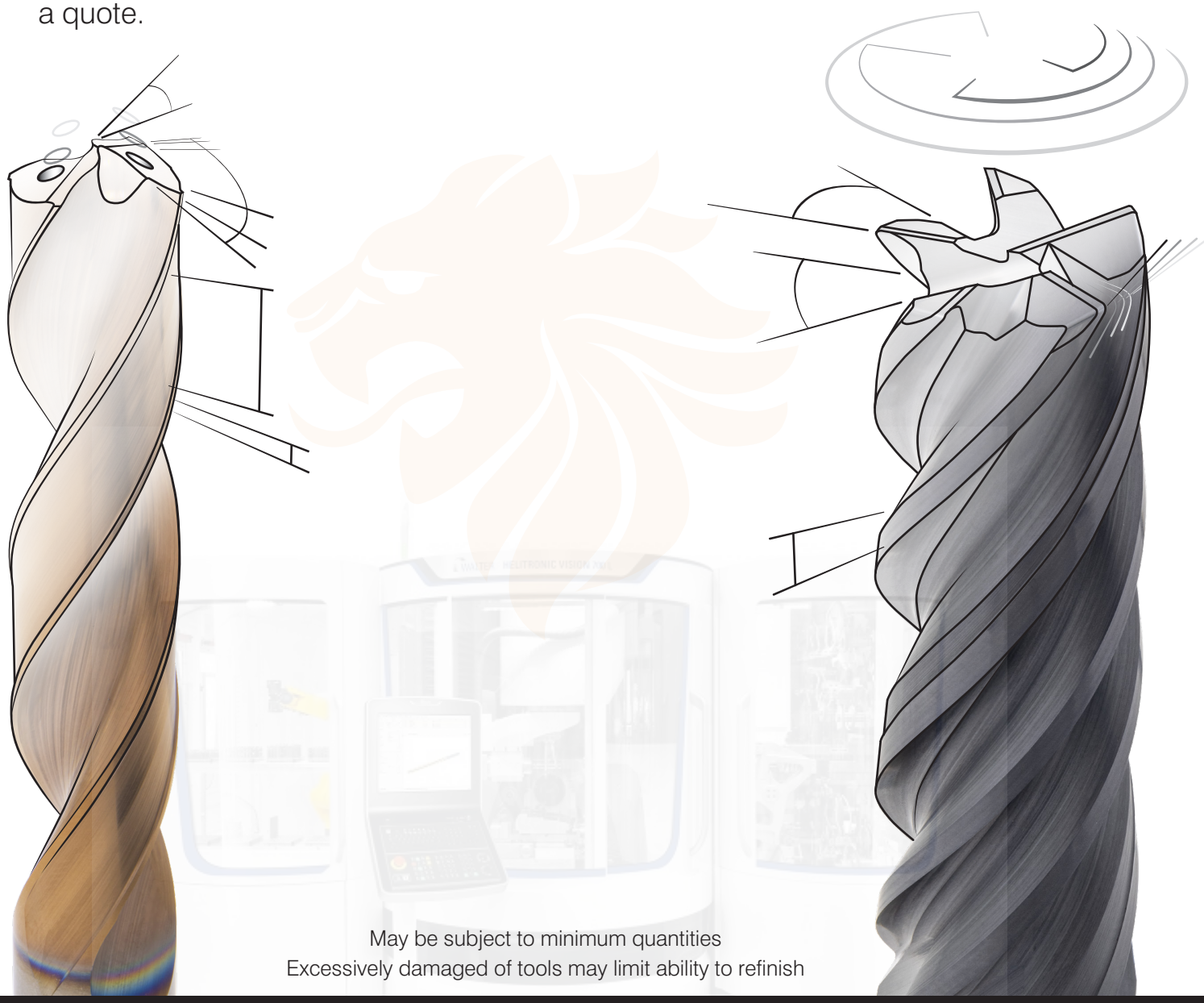
| | Cutting Speed (SFM) | | Feed per tooth (IPT) | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Min | Max | 1/4 0.250 | 3/8 0.375 | 1/2 0.500 | 5/8 0.625 | 3/4 0.750 | 1 1.000 |
| Rougher Series (510) | | | | | | | | |
| Aluminum Alloys | 1200 | 1600 | 0.0036 | 0.0057 | 0.008 | 0.0098 | 0.0119 | 0.016 |
| Aluminum Alloys 440, 356, 380, C61300 | 600 | 1000 | 0.0027 | 0.0043 | 0.006 | 0.0074 | 0.0089 | 0.012 |
| Semi-Finisher Series (520) | | | | | | | | |
| Aluminum Alloys | 1200 | 1600 | 0.0054 | 0.00855 | 0.012 | 0.0147 | 0.01785 | 0.024 |
| Aluminum Alloys 440, 356, 380, C61300 | 600 | 1000 | 0.00405 | 0.00645 | 0.009 | 0.0111 | 0.01335 | 0.018 |
| Finisher Series (550) | | | | | | | | |
| Aluminum Alloys | 1200 | 1600 | 0.00342 | 0.005415 | 0.0076 | 0.00931 | 0.011305 | 0.0152 |
| Aluminum Alloys 440, 356, 380, C61300 | 600 | 1000 | 0.002565 | 0.004085 | 0.0057 | 0.00703 | 0.008455 | 0.0114 |

**NOTE:**
Side milling applications - for longest reach (L3 LON) tools, reduce max step over by 30%
Slot milling applications - for longest reach (L3 LON) tools, reduce max slotting depth by 30%
Lower value of cutting speed (SFM) is used for high-stock removal applications or for higher hardness (machinability) within group
Higher value of cutting speed (SFM) is used for finishing applications or for lower hardness (machinability) within group
Above parameters are based on ideal conditions. For smaller taper machining centers, please adjust parameters accordingly

# Regrind Services

Having **De Boer Tool** regrind your solid carbide cutting tools can offer significant cost-saving without compromising on performance. We specialize in remanufacturing solid carbide cutting tools to deliver exceptional results. Applying original geometry, edge preparation, and coating to each remanufactured tool ensures performance is comparable to that of a new tool. By opting for regrinding services from **De Boer Tool**, you can achieve substantial cost savings while maintaining the high-quality performance you rely on.

Tools well suited for regrind processing include end mills, drills, step drills, custom tools, and more. Contact our sales team for more information or to get a quote.



May be subject to minimum quantities
Excessively damaged of tools may limit ability to refinish

# NOTES

# NOTES

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