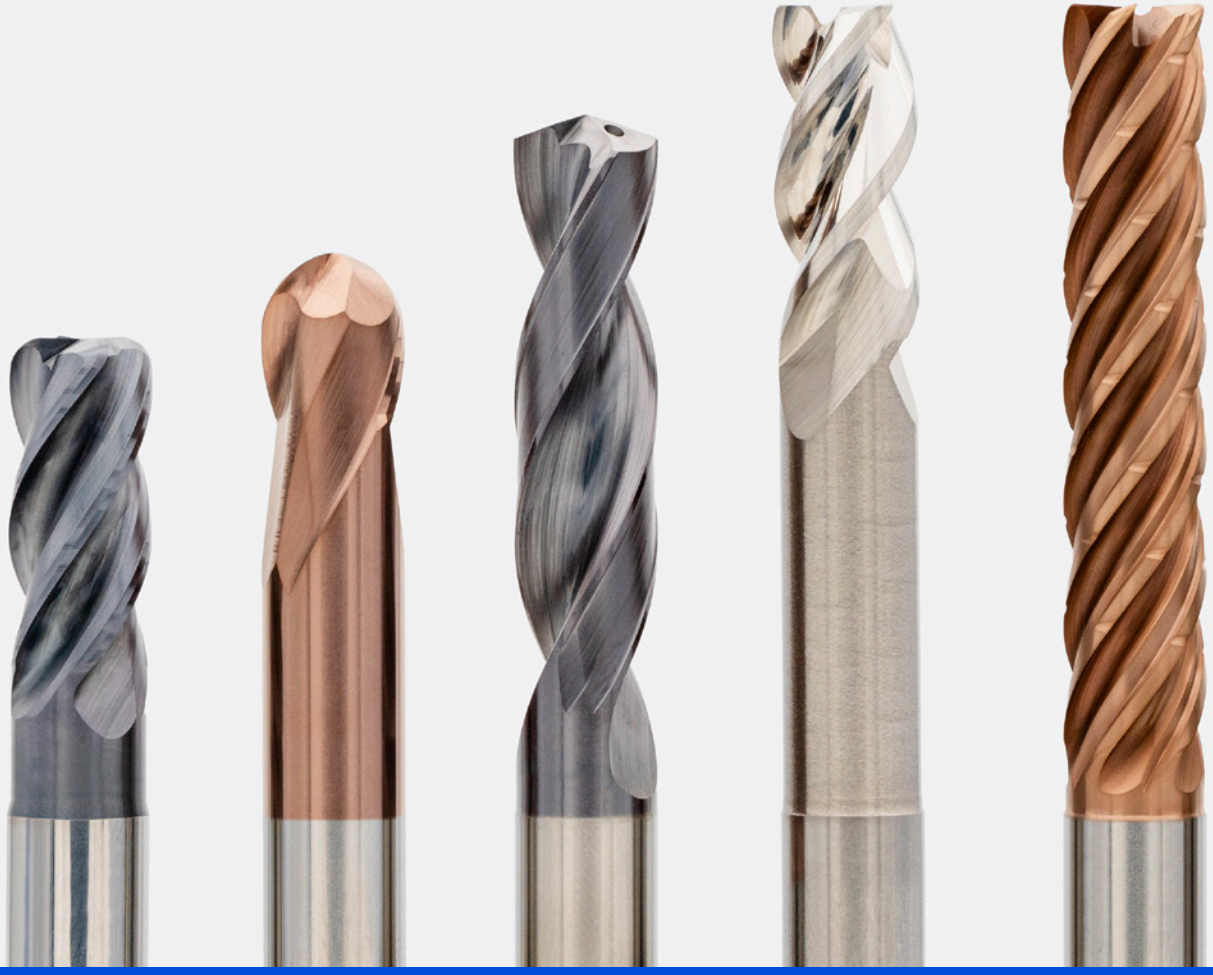
PFERD TOOLS



# Solid carbide tools

Performance. Productivity. Precision.

pferd.com

# Solid carbide tools
## Table of contents

# Solid carbide tools
## Highlights from the PFERD TOOLS range

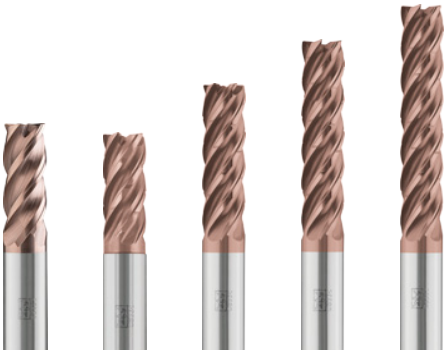
### Performance Hardened Steel Line for die and mold making

Delicate contours, perfect accuracy of fit, and materials that are difficult to machine: Die and mold making demands the very highest levels of precision and process reliability. The Performance Hardened Steel line of solid carbide end mills offer perfectly coordinated tool solutions for everything from roughing to fine finishing when machining high-strength materials. These high-performance tools offer outstanding precision when accurately machining complex components, and achieve a high surface quality—significantly increasing productivity by minimizing time-consuming manual reworking processes.

**Advantages:**
- Maximum precision when machining complex workpiece geometries.
- High surface quality minimizes manual reworking processes.
- Modern tool coating for a long tool life and optimum temperature control when working on materials that are difficult to machine.

### Performance Stainless Line

By combining a material-specific tool geometry and state-of-the-art coatings, the Performance Stainless solid carbide end mills are ideal for machining stainless steel and titanium alloys. These high-performance tools have been optimized for both conventional and dynamic milling to ensure a more reliable process and higher productivity when used on materials that are difficult to machine.



**Advantages:**
- Optimum temperature control when working on materials that are difficult to machine.
- Optimized helix angle for improved chip evacuation.
- Variable pitch and variable helix angle for low-vibration machining and smooth milling.

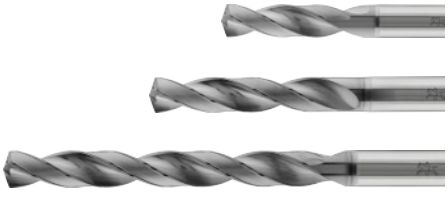
### Performance Aluminum Line

The material-specific geometry of our Performance Aluminum Line of solid carbide end mills has been optimized for use in the most demanding aluminum machining applications. These high-performance tools are designed for a variety of applications, from roughing to finishing. They can also be used for dynamic milling and in large overhangs and deep cavities, depending on the specific type.

**Advantages:**
- Large polished chip channels for optimum chip control.
- Increased process reliability at high cutting speeds.
- Variable pitch for low-vibration machining with smooth milling.

### Universal Drills

Solid carbide drills from the Universal Line are designed for the most common materials such as steel, stainless steel, cast iron and non-ferrous metals. To achieve the highest performance, the surface treatment is tailored to each specific drill.

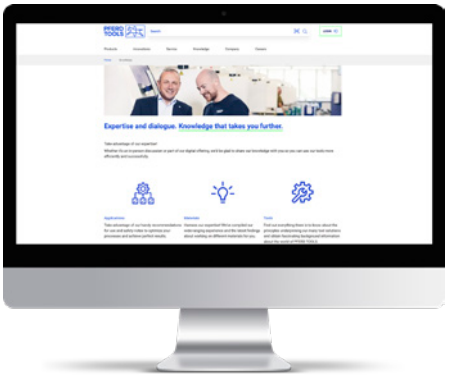


**Advantages:**
- Double margin flute for increased stability and high-quality bores.
- Internal coolant supply for increased tool life and controlled chip removal.
- State-of-the-art coatings.

# Solid carbide tools
## Highlights from the PFERD TOOLS range

### Find additional in-depth information online

Scan the QR code to find out a wide range of tool and application knowledge relating to PFERD TOOLS' high-quality tools and their huge variety of materials.



## General information

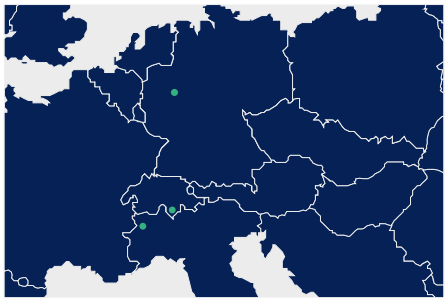
### PFERD TOOLS solid carbide tools

Our solid carbide tools combine the very best of our long-standing, comprehensive expertise in the development and manufacturing of milling and drilling tools with our ongoing specialization in the field of surface treatment and coatings. We provide the right solutions for tomorrow's manufacturing, today.

**All the benefits to you at a glance:**

- The highest production and quality standards due to precise micro and macro geometry together with tungsten carbide optimized for specific applications.
- High productivity due to optimum stock removal rate.

### Comprehensive expertise at all levels



#### Innovations made in Europe

In our innovative centres of expertise for surface treatment and coatings, located in Germany, Italy and Switzerland, we develop and manufacture solid carbide tools that make a real difference. Our equipment currently includes 93 state-of-the-art CNC tool grinding machines.


#### Premium quality without compromises

When it comes to the quality of our solid carbide tools, we don't leave anything to chance. We use state-of-the-art measuring equipment to ensure accurate tolerances down to the last micrometer, which enables us to meet and exceed the highest demands for process reliability, productivity and precision.

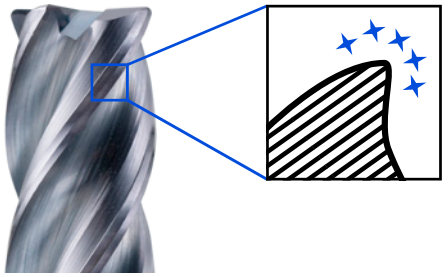
#### The right choice for every application

Whether it's common, universal machining applications or material-specific high-performance applications, our user-centric range has been tailored to your specific requirements. Depending on the specific tool and type, we can provide solid carbide tools with diameters ranging from 0.1 mm to 1".

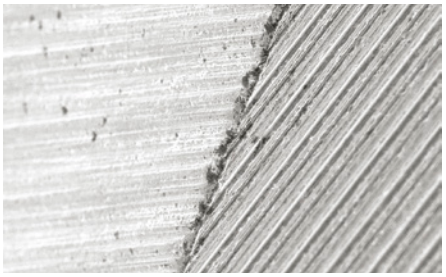
## Expertise in surface treatment and coatings

From tool preparation to the coating stage and the post-treatment of the layer, each individual process step is designed to provide the best possible tool solution for your machining processes.

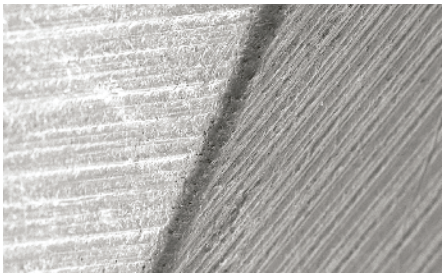
## Tool preparation



Creates a rounded cutting edge for improved coating adhesion, sturdier cutting edge, longer tool life, and higher productivity.



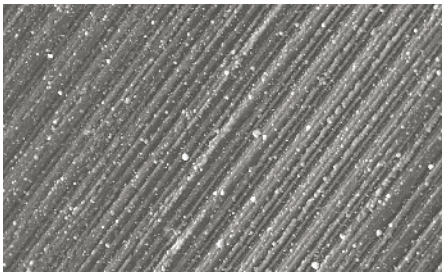
Non-rounded cutting edge.



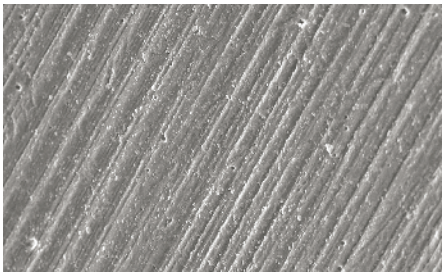
Rounded cutting edge.

## Smoothing

Smoothing rough areas using post-treatment processes (e.g. removing droplets after applying a coating) to reduce friction and extend the tool life.



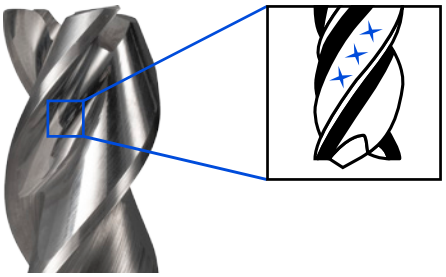
Tool surface with droplets.



Tool surface without droplets.

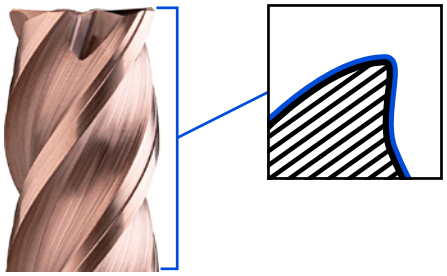
## Polishing

Chip channels have been optimized for specific materials, ensuring controlled chip evacuation and preventing chip build up when machining non-ferrous metals with a high volume of chips.

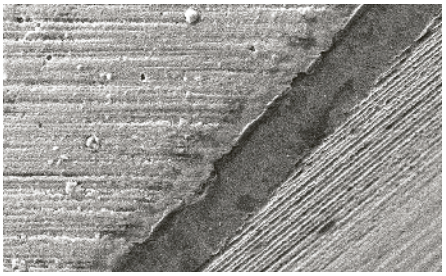


Polished chip channels for optimum chip control.

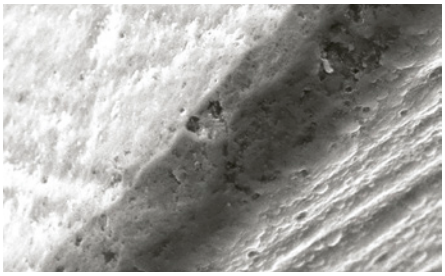
## Coatings



High-performance PVD coatings, optimized for use with different materials and applications, using state-of-the-art in-house coating technology.



Coating on an untreated tool surface.



Coating on a treated tool surface.

## Technical customer support

If you have any questions about optimizing your stock removal applications, our sales representatives and technical advisers will be happy to help or visit you. PFERD TOOLS works alongside you to provide application engineering solutions for working with diverse materials. Please do not hesitate to contact us for further information. You can find our worldwide sales office addresses at: **www.pferd.com**.

## Custom-made products

If you cannot find the solution for your particular application in our catalog range, we are happy to produce solid carbide milling and drilling tools to meet your wishes and requirements. Our sales representatives and technical advisers will be happy to assist you in analyzing your task.

**Find your ideal tool solution in just three steps:**

- **1. Process analysis**
  Make an appointment with our experienced sales representatives and technical advisers. You can find our worldwide sales office addresses by visiting **www.pferd.com**.
- **2. Production**
  Our production teams create a technical drawing for your made-to-order product.
- **3. Use**
  See the quality, performance and economic value of PFERD TOOLS products for yourself!

# Solid carbide tools
## Explanation of pictograms

PFERD TOOLS

### Geometry – Type

45° corner chamfer

Sharp

Radius

60° conical shape

90° conical shape


Ballnose

Ball nose with a grinding tolerance of +/- 0.005 mm

### Geometry – Number of flutes

Number of flutes

### Geometry – helix angle

Helix angle

Variable helix angle

### Regulatory

Company standard

DIN 6527 L

DIN 6527 K

### Shank type

Cylindrical shank (HA)

Weldon shank (HB)

### Tool type

Reduced neck, neck relief


Polished chip channels


Roughing


Chip breaker

### Feed direction


Feed xy


Feed xy(z)


Feed xyz

### Variable pitch

Variable cutting pitch

### Applications


Side milling


Slot cutting


Ramping


Drilling


Chamfering/deburring


Profile milling


Profile milling – use of shoulder


Profile milling – use of tip


Dynamic milling/trochoidal milling

# Solid carbide tools
## Cutting data formulas

$$n = \frac{v_c \times 1{,}000}{DC \times \pi} \ min^{-1}$$

$$n = \frac{v_c \times 12}{DC \times \pi} \ RPM$$

**Rotational speed**

$$v_c = \frac{DC \times \pi \times n}{1{,}000} \ m/min$$

$$v_c = \frac{DC \times \pi \times n}{12} \ ft./min$$

**Peripheral speed**

$$v_f = f_z \times ZEFP \times n \ \ mm/min$$

$$v_f = f_z \times ZEFP \times n \ \ inch/min$$

**Feeding speed**

### Abbreviations explanation

- $a_p$ = cutting depth
- $a_e$ = contact width
- DC = cutting diameter in [mm] or [inch]
- $f_z$ = feed per tooth in [mm/tooth] or [inch/tooth]
- n = spindle rotational speed in [rev/min] or [RPM]
- $v_c$ = cutting speed in [m/min] oder [ft./min]
- $v_f$ = feeding speed in [mm/min] or [inch/min]
- ZEFP = effective no. of flutes

## Cutting data calculator

The perfect cutting data is  a crucial success factor for productivity in your milling and boring processes. Our cutting data calculator's intuitive user interface allows you to quickly and easily calculate the required processing parameters for your use case and the material to be processed. Scan the QR code to access our cutting data calculator.

# Solid carbide tools
## Explanation of item designation

PFERD TOOLS

**SCM-UC4-M100C-M72HB AL40**
① ② ③ ④ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑭

**SCM-UC4-I3/8C-M2.5HA AL40**
① ② ③ ④ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑭

**① Tool group**
SCM = Solid carbide mill

**② Product line**
U = Universal Line
H = High Performance Line

**③ Shape**
B = Full radius end mill (ball nose)
D = Chamfering end mill (deburring/chamfering)
C = Cylindrical end mill with center cut
CR = Cylindrical end mill for roughing
CD = Cylindrical end mill with chip divider

**④ Number of cutting edges**

**⑤ Material group**
ISO groups P, M, K, N, S, H.
Blank, unless specified.

**⑥ Units**
I = Imperial
M = Metric

**⑦ Cutting diameter**
Imperial: Inches
Example: 3/8″ diameter

**⑧ Corner design**
A = Angled
Example: A90°
C = Chamfer
R = Radius with size
Example: R.030 for .030″
S = Sharp

**⑨ Cut length class**

| | |
|---|---|
| XS: | APMX <1 x DC |
| S: | APMX 1-2 x DC |
| M: | APMX 2-2.5 x DC |
| L: | APMX 2.5-3 x DC |
| XL: | APMX >3 x DC |
| XXL: | APMX >4 x DC |

**⑩ Total length**
Metric: overall length LF in mm.
Imperial: overall length LF in inches.
Not specified for chamfering end mills.

**⑪ Shank type**
HA = Cylindrical
HB = Weldon shank
Additional shank diameter for design with DC < 1/4″ and DCON = 1/4″

⑫ *

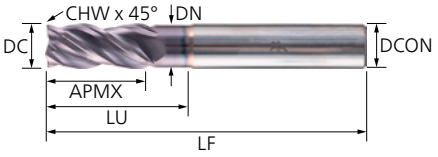
⑬ *

**⑭ Grade**

*Optional

### Explanation of short names in accordance with ISO 13399

| | |
|---|---|
| APMX | = Maximum cutting depth |
| CHW | = Chamfer width |
| DC | = Cutting diameter |
| DCON | = Shank diameter |
| DN | = Neck diameter |
| KAPR | = Helix angle |
| LF | = Overall length |
| LU | = Usable length |
| RE | = Corner radius |
| ZEFP | = No. of cutting edges |



# Universal Line
## Material suitability overview

PFERD TOOLS

### Universal

| Material group | | | Ball nose end mill (UB) | Deburring end mill (UD) | 2-flute (UC2) | 3-flute (UC3) | 4-flute (UC4) | 4-flute roughing (UCR4) | 5-flute (UC5) | 5-flute with chip breakers (UCD5) | 6-flute & 8-flute (UC6 & UC8) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| P | Steel | All types of steel and cast steel | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| M | Stainless steel | Ferritic and martensitic | ● | ● | ● | ● | ● | ○ | ● | ● | ● |
| | | Austenitic | ● | ● | ● | ● | ● | ○ | ● | ● | ● |
| | | High-temperature-resistant and ferritic-austenitic (duplex) | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| K | Cast iron | Cast iron with flake graphite (GJL, GG, grey cast iron) | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | | Cast iron with nodular graphite (GJS, GGG) | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| N | Non-ferrous metals | Aluminum | ○ | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | | Copper, brass, bronze and red brass | ● | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| S | Super and titanium alloys | Heat-resistant super alloys based on Fe, Ni and Co | | ○ | | ○ | ○ | | ○ | ○ | ● |
| | | Pure titanium | | ○ | | ○ | ○ | ○ | ○ | ○ | ● |
| | | Titanium alloys | | ○ | | ○ | ○ | ○ | ○ | ○ | ● |
| H | Hard steels and chilled castings | Heat-treated and hardened steels up to 50 HRC | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | | Hardened steels up to 58 HRC | ○ | | | | | | | | |
| | | Hardened steels over 58 HRC | | | | | | | | | |
| O | Other | Thermoplastics | ○ | ○ | ○ | ○ | ○ | | ○ | ○ | ○ |
| | | Duroplastics | | | | | | | | | |
| | | GRP/CRP reinforced plastics, graphite | | | | | | | | | |

● = highly recommended ○ = recommended

# Universal Line
## 2-flute (UC2)

PFERD TOOLS

### Recommended peripheral speeds [SFPM]

| Material group | | | Specification/ example material | Suitability | Full slot milling $a_p$ = 1 x DC; $a_e$ = 1 x DC  | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cutting speed $v_c$ | Tooth feed fz [mm/tooth] [in./tooth] for cutting diameter DC | | | | | | | | | | | | | |
| | | | | | | 1/8 Inch | 4 mm | 3/16 Inch | 5 mm | 6 mm | 1/4 Inch | 5/16 Inch | 8 mm | 10 mm | 3/8 Inch | 12 mm | 1/2 Inch | 16 mm | 20 mm |
| **P** | Steel | All types of steel and cast steel | up to 500 N/mm² (150 BHN) | ● | 90 m/min | | 0.035 | | 0.035 | 0.04 | | | 0.05 | 0.06 | | 0.08 | | 0.1 | 0.13 |
| | | | | | 295 ft./min | .0011 | | .0013 | | | .0017 | .0020 | | | .0023 | | .0033 | | |
| | | | 500 to 700 N/mm² (150 to 208 BHN) | ● | 85 m/min | | 0.035 | | 0.035 | 0.04 | | | 0.05 | 0.06 | | 0.08 | | 0.1 | 0.13 |
| | | | | | 279 ft./min | .0011 | | .0013 | | | .0017 | .0020 | | | .0023 | | .0033 | | |
| | | | 700 to 1,000 N/mm² (208 to 296 BHN) | ● | 80 m/min | | 0.02 | | 0.02 | 0.02 | | | 0.03 | 0.04 | | 0.045 | | 0.055 | 0.07 |
| | | | | | 262 ft./min | .0006 | | .0008 | | | .0008 | .0012 | | | .0015 | | .0019 | | |
| | | | 1,000 to 1,400 N/mm² (296 to 415 BHN) | ● | 70 m/min | | 0.02 | | 0.02 | 0.02 | | | 0.03 | 0.04 | | 0.045 | | 0.055 | 0.07 |
| | | | | | 230 ft./min | .0006 | | .0008 | | | .0008 | .0012 | | | .0015 | | .0019 | | |
| **M** | Stainless steel | Ferritic and martensitic | e.g. 1.4105, 1.4122 (AISI 410, 420, 430, 440, 440C) | ● | 55 m/min | | 0.035 | | 0.035 | 0.04 | | | 0.05 | 0.06 | | 0.08 | | 0.1 | 0.13 |
| | | | | | 180 ft./min | .0011 | | .0013 | | | .0017 | .0020 | | | .0023 | | .0033 | | |
| | | Austenitic | e.g. 1.4301, 1.4571 (AISI 303, 304, 316, 316L) | ● | 55 m/min | | 0.035 | | 0.035 | 0.04 | | | 0.05 | 0.06 | | 0.08 | | 0.1 | 0.13 |
| | | | | | 180 ft./min | .0011 | | .0013 | | | .0017 | .0020 | | | .0023 | | .0033 | | |
| | | High-temperature-resistant and ferritic-austenitic (duplex) | | ○ | 45 m/min | | 0.018 | | 0.018 | 0.02 | | | 0.025 | 0.03 | | 0.04 | | 0.05 | 0.065 |
| | | | | | 148 ft./min | .0005 | | .0007 | | | .0008 | .0010 | | | .0011 | | .0017 | | |
| **K** | Cast iron | Cast iron with flake graphite (GJL, GG, grey cast iron) | up to 180 BHN | ● | 80 m/min | | 0.035 | | 0.035 | 0.04 | | | 0.05 | 0.06 | | 0.08 | | 0.1 | 0.13 |
| | | | | | 262 ft./min | .0011 | | .0013 | | | .0017 | .0020 | | | .0023 | | .0033 | | |
| | | Cast iron with nodular graphite (GJS, GGG) | 160 to 260 BHN | ● | 65 m/min | | 0.035 | | 0.035 | 0.04 | | | 0.05 | 0.06 | | 0.08 | | 0.1 | 0.13 |
| | | | | | 213 ft./min | .0011 | | .0013 | | | .0017 | .0020 | | | .0023 | | .0033 | | |
| **N** | Non-ferrous metals | Aluminum | Alu up to 10% Si | ○ | 135 m/min | | 0.035 | | 0.035 | 0.04 | | | 0.05 | 0.06 | | 0.08 | | 0.1 | 0.13 |
| | | | | | 443 ft./min | .0011 | | .0013 | | | .0017 | .0020 | | | .0023 | | .0033 | | |
| | | | Alu over 10% Si | ○ | 110 m/min | | 0.035 | | 0.035 | 0.04 | | | 0.05 | 0.06 | | 0.08 | | 0.1 | 0.13 |
| | | | | | 361 ft./min | .0011 | | .0013 | | | .0017 | .0020 | | | .0023 | | .0033 | | |
| | | Copper, brass, bronze and red brass | | ○ | 90 m/min | | 0.035 | | 0.035 | 0.04 | | | 0.05 | 0.06 | | 0.08 | | 0.1 | 0.13 |
| | | | | | 295 ft./min | .0011 | | .0013 | | | .0017 | .0020 | | | .0023 | | .0033 | | |
| **S** | Super and titanium alloys | Heat-resistant super alloys | Based on Fe, Ni and Co | | | | | | | | | | | | | | | | |
| | | Pure titanium | | | | | | | | | | | | | | | | | |
| | | Titanium alloys | | | | | | | | | | | | | | | | | |
| **H** | Hard steels and chilled castings | Heat-treated and hardened steels | up to 50 HRC | ○ | 60 m/min | | 0.02 | | 0.02 | 0.02 | | | 0.03 | 0.04 | | 0.055 | | 0.06 | 0.07 |
| | | | | | 197 ft./min | .0006 | | .0008 | | | .0008 | .0012 | | | .0015 | | .0023 | | |
| | | | up to 58 HRC | | | | | | | | | | | | | | | | |
| | | | over 58 HRC | | | | | | | | | | | | | | | | |
| **O** | Other | Thermoplastics | | ○ | 90 m/min | | 0.035 | | 0.035 | 0.04 | | | 0.05 | 0.06 | | 0.08 | | 0.1 | 0.13 |
| | | | | | 295 ft./min | .0011 | | .0013 | | | .0017 | .0020 | | | .0023 | | .0033 | | |
| | | Duroplastics | | | | | | | | | | | | | | | | | |
| | | GRP/CRP reinforced plastics, graphite | | | | | | | | | | | | | | | | | |

● = highly recommended ○ = recommended

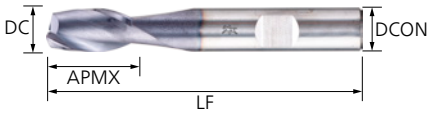
# Universal Line
## 2-flute (UC2)

PFERD TOOLS

### Recommended peripheral speeds [SFPM]

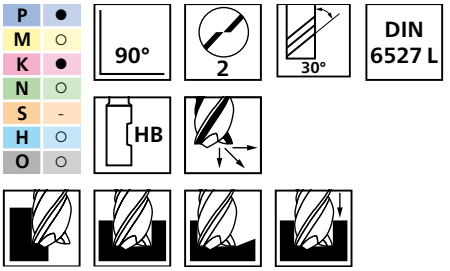
| Material group | | | Specification/ example material | Suitability | Side milling $a_p$ = 1 x DC; $a_e$ = 0,1 x DC | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cutting speed $v_c$ | Tooth feed fz [mm/tooth] [in./tooth] for cutting diameter DC | | | | | | | | | | | | | |
| | | | | | | 1/8 Inch | 4 mm | 3/16 Inch | 5 mm | 6 mm | 1/4 Inch | 5/16 Inch | 8 mm | 10 mm | 3/8 Inch | 12 mm | 1/2 Inch | 16 mm | 20 mm |
| P | Steel | All types of steel and cast steel | up to 500 N/mm² (150 BHN) | ● | 210 m/min | | 0.05 | | 0.05 | 0.065 | | | 0.075 | 0.09 | | 0.12 | | 0.16 | 0.2 |
| | | | | | 689 ft./min | .0016 | | .0019 | | | .0027 | .0029 | | | .0034 | | .0050 | | |
| | | | 500 to 700 N/mm² (150 to 208 BHN) | ● | 190 m/min | | 0.05 | | 0.05 | 0.065 | | | 0.075 | 0.09 | | 0.12 | | 0.16 | 0.2 |
| | | | | | 623 ft./min | .0016 | | .0019 | | | .0027 | .0029 | | | .0034 | | .0050 | | |
| | | | 700 to 1,000 N/mm² (208 to 296 BHN) | ● | 170 m/min | | 0.025 | | 0.025 | 0.035 | | | 0.045 | 0.06 | | 0.07 | | 0.08 | 0.1 |
| | | | | | 558 ft./min | .0008 | | .0009 | | | .0015 | .0018 | | | .0023 | | .0029 | | |
| | | | 1,000 to 1,400 N/mm² (296 to 415 BHN) | ● | 150 m/min | | 0.025 | | 0.025 | 0.035 | | | 0.045 | 0.06 | | 0.07 | | 0.08 | 0.1 |
| | | | | | 492 ft./min | .0008 | | .0009 | | | .0015 | .0018 | | | .0023 | | .0029 | | |
| M | Stainless steel | Ferritic and martensitic | e.g. 1.4105, 1.4122 (AISI 410, 420, 430, 440, 440C) | ● | 120 m/min | | 0.05 | | 0.05 | 0.065 | | | 0.075 | 0.09 | | 0.12 | | 0.16 | 0.2 |
| | | | | | 394 ft./min | .0016 | | .0019 | | | .0027 | .0029 | | | .0034 | | .0050 | | |
| | | Austenitic | e.g. 1.4301, 1.4571 (AISI 303, 304, 316, 316L) | ● | 120 m/min | | 0.05 | | 0.05 | 0.065 | | | 0.075 | 0.09 | | 0.12 | | 0.16 | 0.2 |
| | | | | | 394 ft./min | .0016 | | .0019 | | | .0027 | .0029 | | | .0034 | | .0050 | | |
| | | High-temperature-resistant and ferritic-austenitic (duplex) | | ○ | 90 m/min | | 0.025 | | 0.025 | 0.033 | | | 0.038 | 0.045 | | 0.06 | | 0.08 | 0.1 |
| | | | | | 295 ft./min | .0008 | | .0009 | | | .0014 | .0015 | | | .0017 | | .0025 | | |
| K | Cast iron | Cast iron with flake graphite (GJL, GG, grey cast iron) | up to 180 BHN | ● | 180 m/min | | 0.05 | | 0.05 | 0.065 | | | 0.075 | 0.09 | | 0.12 | | 0.16 | 0.2 |
| | | | | | 591 ft./min | .0016 | | .0019 | | | .0027 | .0029 | | | .0034 | | .0050 | | |
| | | Cast iron with nodular graphite (GJS, GGG) | 160 to 260 BHN | ● | 140 m/min | | 0.05 | | 0.05 | 0.065 | | | 0.075 | 0.09 | | 0.12 | | 0.16 | 0.2 |
| | | | | | 459 ft./min | .0016 | | .0019 | | | .0027 | .0029 | | | .0034 | | .0050 | | |
| N | Non-ferrous metals | Aluminum | Alu up to 10% Si | ○ | 250 m/min | | 0.05 | | 0.05 | 0.065 | | | 0.075 | 0.09 | | 0.12 | | 0.16 | 0.2 |
| | | | | | 820 ft./min | .0016 | | .0019 | | | .0027 | .0029 | | | .0034 | | .0050 | | |
| | | | Alu over 10% Si | ○ | 200 m/min | | 0.05 | | 0.05 | 0.065 | | | 0.075 | 0.09 | | 0.12 | | 0.16 | 0.2 |
| | | | | | 656 ft./min | .0016 | | .0019 | | | .0027 | .0029 | | | .0034 | | .0050 | | |
| | | Copper, brass, bronze and red brass | | ○ | 200 m/min | | 0.05 | | 0.05 | 0.065 | | | 0.075 | 0.09 | | 0.12 | | 0.16 | 0.2 |
| | | | | | 656 ft./min | .0016 | | .0019 | | | .0027 | .0029 | | | .0034 | | .0050 | | |
| S | Super and titanium alloys | Heat-resistant super alloys | Based on Fe, Ni and Co | | | | | | | | | | | | | | | | |
| | | Pure titanium | | | | | | | | | | | | | | | | | |
| | | Titanium alloys | | | | | | | | | | | | | | | | | |
| H | Hard steels and chilled castings | Heat-treated and hardened steels | up to 50 HRC | ○ | 75 m/min | | 0.025 | | 0.025 | 0.035 | | | 0.045 | 0.06 | | 0.07 | | 0.08 | 0.1 |
| | | | | | 246 ft./min | .0008 | | .0009 | | | .0015 | .0018 | | | .0023 | | .0029 | | |
| | | | up to 58 HRC | | | | | | | | | | | | | | | | |
| | | | over 58 HRC | | | | | | | | | | | | | | | | |
| O | Other | Thermoplastics | | ○ | 200 m/min | | 0.05 | | 0.05 | 0.065 | | | 0.075 | 0.09 | | 0.12 | | 0.16 | 0.2 |
| | | | | | 656 ft./min | .0016 | | .0019 | | | .0027 | .0029 | | | .0034 | | .0050 | | |
| | | Duroplastics | | | | | | | | | | | | | | | | | |
| | | GRP/CRP reinforced plastics, graphite | | | | | | | | | | | | | | | | | |

● = highly recommended ○ = recommended




## Sharp corner design – metric

End mills for slot milling, drilling and roughing with high contact widths. Engineered for universal machining applications on a variety of materials.

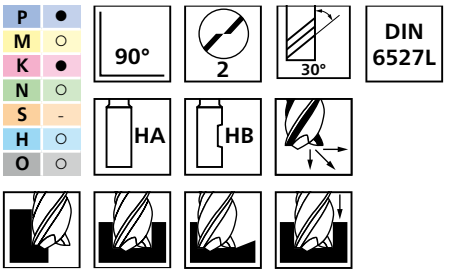



**Special features:**
- High productivity due to optimum stock removal rate.
- Long tool life due to modern tool coating.
- Good chip removal due to very large chip channel.

| DC [mm] | DCON [mm] | APMX [mm] | LF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|
| **Long HB** | | | HB | | | |
| 4 | 6 | 8 | 57 | 2 | 23000124 | SCM-UC2-M040S-S57HB6 AL40 |
| 5 | 6 | 10 | 57 | 2 | 23000125 | SCM-UC2-M050S-S57HB6 AL40 |
| 6 | 6 | 10 | 57 | 2 | 23000126 | SCM-UC2-M060S-S57HB AL40 |
| 8 | 8 | 16 | 63 | 2 | 23000127 | SCM-UC2-M080S-S63HB AL40 |
| 10 | 10 | 19 | 72 | 2 | 23000128 | SCM-UC2-M100S-S72HB AL40 |
| 12 | 12 | 22 | 83 | 2 | 23000129 | SCM-UC2-M120S-S83HB AL40 |
| 16 | 16 | 26 | 92 | 2 | 23000130 | SCM-UC2-M160S-S92HB AL40 |


## Sharp corner design – imperial

End mills for slot milling, drilling and roughing with high contact widths. Engineered for universal machining applications on a variety of materials.




**Special features:**
- High productivity due to optimum stock removal rate.
- Long tool life due to modern tool coating.
- Good chip removal due to very large chip channel.

| DC [Inch] | DCON [Inch] | APMX [Inch] | LF [Inch] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|
| **Long HA** | | | HA | | | |
| 1/8 | 1/8 | 1/4 | 1-1/2 | 2 | 23003024 | SCM-UC2-I1/8S-M1.5HA AL40 |
| 3/16 | 3/16 | 3/8 | 2-1/4 | 2 | 23003025 | SCM-UC2-I3/16S-M2.25HA AL40 |
| **Long HB** | | | HB | | | |
| 1/4 | 1/4 | 1/2 | 2-1/2 | 2 | 23003026 | SCM-UC2-I1/4S-M2.5HB AL40 |
| 5/16 | 5/16 | 5/8 | 2-1/2 | 2 | 23003027 | SCM-UC2-I5/16S-M2.5HB AL40 |
| 3/8 | 3/8 | 3/4 | 2-1/2 | 2 | 23003028 | SCM-UC2-I3/8S-M2.5HB AL40 |
| 1/2 | 1/2 | 1 | 3 | 2 | 23003029 | SCM-UC2-I1/2S-M3HB AL40 |

# Universal Line
3-flute (UC3)

PFERD TOOLS

## Recommended peripheral speeds [SFPM]

| Material group | | | Specification/ example material | Suitability | Full slot milling $a_p$ = 1 x DC; $a_e$ = 1 x DC  | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cutting speed $v_c$ | Tooth feed fz [mm/tooth] [in./tooth] for cutting diameter DC | | | | | | | | | | | | | | | | |
| | | | | | | 3 mm | 1/8 Inch | 4 mm | 3/16 Inch | 5 mm | 6 mm | 1/4 Inch | 5/16 Inch | 8 mm | 10 mm | 3/8 Inch | 12 mm | 1/2 Inch | 5/8 Inch | 16 mm | 20 mm |
| P | Steel | All types of steel and cast steel | up to 500 N/mm² (150 BHN) | ● | 130 m/min | 0.01 | | 0.016 | | 0.03 | 0.03 | | | 0.04 | 0.06 | | 0.06 | | | 0.085 | 0.1 |
| | | | | | 427 ft./min | | .0004 | | .0011 | | | .0013 | .0016 | | | .0023 | | .0025 | .0033 | | |
| | | | 500 to 700 N/mm² (150 to 208 BHN) | ● | 120 m/min | 0.01 | | 0.016 | | 0.03 | 0.03 | | | 0.04 | 0.06 | | 0.06 | | | 0.085 | 0.1 |
| | | | | | 394 ft./min | | .0004 | | .0011 | | | .0013 | .0016 | | | .0023 | | .0025 | .0033 | | |
| | | | 700 to 1,000 N/mm² (208 to 296 BHN) | ● | 100 m/min | 0.01 | | | | 0.02 | 0.02 | | | 0.03 | 0.045 | | 0.045 | | | 0.06 | 0.07 |
| | | | | | 328 ft./min | | .0004 | | .0008 | | | .0008 | .0012 | | | .0017 | | .0019 | .0023 | | |
| | | | 1,000 to 1,400 N/mm² (296 to 415 BHN) | ● | 80 m/min | 0.01 | | 0.016 | 0.012 | 0.02 | 0.02 | | | 0.03 | 0.045 | | 0.045 | | | 0.06 | 0.07 |
| | | | | | 262 ft./min | | .0004 | | .0008 | | | .0008 | .0012 | | | .0017 | | .0019 | .0023 | | |
| M | Stainless steel | Ferritic and martensitic | e.g. 1.4105, 1.4122 (AISI 410, 420, 430, 440, 440C) | ● | 45 m/min | 0.01 | | 0.012 | | 0.02 | 0.02 | | | 0.03 | 0.045 | | 0.045 | | | 0.06 | 0.07 |
| | | | | | 148 ft./min | | .0004 | | .0008 | | | .0008 | .0012 | | | .0017 | | .0019 | .0023 | | |
| | | Austenitic | e.g. 1.4301, 1.4571 (AISI 303, 304, 316, 316L) | ● | 50 m/min | 0.01 | | 0.012 | | 0.02 | 0.02 | | | 0.03 | 0.045 | | 0.045 | | | 0.06 | 0.07 |
| | | | | | 164 ft./min | | .0004 | | .0008 | | | .0008 | .0012 | | | .0017 | | .0019 | .0023 | | |
| | | High-temperature-resistant and ferritic-austenitic (duplex) | | ○ | 40 m/min | 0.01 | | 0.012 | | 0.02 | 0.02 | | | 0.03 | 0.045 | | 0.045 | | | 0.06 | 0.07 |
| | | | | | 131 ft./min | | .0004 | | .0008 | | | .0008 | .0012 | | | .0017 | | .0019 | .0023 | | |
| K | Cast iron | Cast iron with flake graphite (GJL, GG, grey cast iron) | up to 180 BHN | ● | 130 m/min | 0.01 | | 0.016 | | 0.03 | 0.03 | | | 0.04 | 0.06 | | 0.06 | | | 0.085 | 0.1 |
| | | | | | 427 ft./min | | .0004 | | .0011 | | | .0013 | .0016 | | | .0023 | | .0025 | .0033 | | |
| | | Cast iron with nodular graphite (GJS, GGG) | 160 to 260 BHN | ● | 100 m/min | 0.01 | | 0.016 | | 0.03 | 0.03 | | | 0.04 | 0.06 | | 0.06 | | | 0.085 | 0.1 |
| | | | | | 328 ft./min | | .0004 | | .0011 | | | .0013 | .0016 | | | .0023 | | .0025 | .0033 | | |
| N | Non-ferrous metals | Aluminum | Alu up to 10% Si | ○ | 200 m/min | 0.03 | | 0.035 | | 0.035 | 0.04 | | | 0.05 | 0.06 | | 0.08 | | | 0.1 | 0.13 |
| | | | | | 443 ft./min | | .0013 | | .0013 | | | .0017 | .0020 | | | .0023 | | .0033 | .0039 | | |
| | | | Alu over 10% Si | ○ | 180 m/min | 0.03 | | 0.035 | | 0.035 | 0.04 | | | 0.05 | 0.06 | | 0.08 | | | 0.1 | 0.13 |
| | | | | | 361 ft./min | | .0013 | | .0013 | | | .0017 | .0020 | | | .0023 | | .0033 | .0039 | | |
| | | Copper, brass, bronze and red brass | | ○ | 200 m/min | 0.03 | | 0.035 | | 0.035 | 0.04 | | | 0.05 | 0.06 | | 0.08 | | | 0.1 | 0.13 |
| | | | | | 295 ft./min | | .0013 | | .0013 | | | .0017 | .0020 | | | .0023 | | .0033 | .0039 | | |
| S | Super and titanium alloys | Heat-resistant super alloys | Based on Fe, Ni and Co | ○ | 35 m/min | 0.01 | | 0.012 | | 0.02 | 0.02 | | | 0.03 | 0.045 | | 0.045 | | | 0.06 | 0.07 |
| | | | | | 115 ft./min | | .0004 | | .0008 | | | .0008 | .0012 | | | .0017 | | .0019 | .0023 | | |
| | | Pure titanium | | ○ | 100 m/min | 0.01 | | 0.012 | | 0.02 | 0.02 | | | 0.03 | 0.045 | | 0.045 | | | 0.06 | 0.07 |
| | | | | | 328 ft./min | | .0004 | | .0008 | | | .0008 | .0012 | | | .0017 | | .0019 | .0023 | | |
| | | Titanium alloys | | ○ | 50 m/min | 0.01 | | 0.012 | | 0.02 | 0.02 | | | 0.03 | 0.045 | | 0.045 | | | 0.06 | 0.07 |
| | | | | | 164 ft./min | | .0004 | | .0008 | | | .0008 | .0012 | | | .0017 | | .0019 | .0023 | | |
| H | Hard steels and chilled castings | Heat-treated and hardened steels | up to 50 HRC | ○ | 60 m/min | 0.01 | | 0.012 | | 0.02 | 0.02 | | | 0.03 | 0.045 | | 0.045 | | | 0.06 | 0.07 |
| | | | | | 197 ft./min | | .0004 | | .0008 | | | .0008 | .0012 | | | .0017 | | .0019 | .0023 | | |
| | | | up to 58 HRC | | | | | | | | | | | | | | | | | | |
| | | | over 58 HRC | | | | | | | | | | | | | | | | | | |
| O | Other | Thermoplastics | | ○ | 110 m/min | 0.025 | | | 0.035 | | 0.035 | 0.04 | | 0.05 | 0.06 | | 0.08 | | | 0.1 | 0.13 |
| | | | | | 361 ft./min | | .0010 | | .0013 | | | .0017 | .0020 | | | .0023 | | .0033 | .0039 | | |
| | | Duroplastics | | | | | | | | | | | | | | | | | | | |
| | | GRP/CRP reinforced plastics, graphite | | | | | | | | | | | | | | | | | | | |

● = highly recommended ○ = recommended

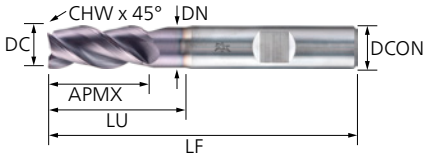
# Universal Line
3-flute (UC3)

PFERD TOOLS

## Recommended peripheral speeds [SFPM]

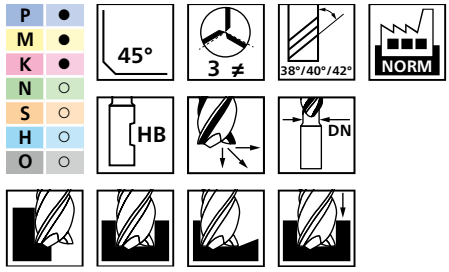
| Material group | | | Specification/ example material | Suitability | Side milling $a_p$ = 1 x DC; $a_e$ = 0,4 x DC | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cutting speed $v_c$ | Tooth feed fz [mm/tooth] [in./tooth] for cutting diameter DC | | | | | | | | | | | | | | | |
| | | | | | | 3 mm | 1/8 Inch | 4 mm | 3/16 Inch | 5 mm | 6 mm | 1/4 Inch | 5/16 Inch | 8 mm | 10 mm | 3/8 Inch | 12 mm | 1/2 Inch | 5/8 Inch | 16 mm | 20 mm |
| P | Steel | All types of steel and cast steel | up to 500 N/mm² (150 BHN) | ● | 180 m/min | 0.01 | | 0.016 | | 0.035 | 0.035 | | | 0.045 | 0.075 | | 0.075 | | | 0.1 | 0.12 |
| | | | | | 591 ft./min | | .0004 | | .0013 | | | .0015 | .0018 | | | .0028 | | .0031 | .0039 | | |
| | | | 500 to 700 N/mm² (150 to 208 BHN) | ● | 160 m/min | 0.01 | | 0.016 | | 0.035 | 0.035 | | | 0.045 | 0.075 | | 0.075 | | | 0.1 | 0.12 |
| | | | | | 525 ft./min | | .0004 | | .0013 | | | .0015 | .0018 | | | .0028 | | .0031 | .0039 | | |
| | | | 700 to 1,000 N/mm² (208 to 296 BHN) | ● | 150 m/min | 0.01 | | 0.016 | | 0.025 | 0.025 | | | 0.035 | 0.055 | | 0.055 | | | 0.07 | 0.085 |
| | | | | | 492 ft./min | | .0004 | | .0009 | | | .0010 | .0014 | | | .0021 | | .0023 | .0027 | | |
| | | | 1,000 to 1,400 N/mm² (296 to 415 BHN) | ● | 110 m/min | 0.01 | | 0.012 | | 0.025 | 0.025 | | | 0.035 | 0.055 | | 0.055 | | | 0.07 | 0.085 |
| | | | | | 361 ft./min | | .0004 | | .0009 | | | .0010 | .0014 | | | .0021 | | .0023 | .0027 | | |
| M | Stainless steel | Ferritic and martensitic | e.g. 1.4105, 1.4122 (AISI 410, 420, 430, 440, 440C) | ● | 70 m/min | 0.01 | | 0.012 | | 0.025 | 0.025 | | | 0.035 | 0.055 | | 0.055 | | | 0.07 | 0.085 |
| | | | | | 230 ft./min | | .0004 | | .0009 | | | .0010 | .0014 | | | .0021 | | .0023 | .0027 | | |
| | | Austenitic | e.g. 1.4301, 1.4571 (AISI 303, 304, 316, 316L) | ● | 75 m/min | 0.01 | | 0.012 | | 0.025 | 0.025 | | | 0.035 | 0.055 | | 0.055 | | | 0.07 | 0.085 |
| | | | | | 246 ft./min | | .0004 | | .0009 | | | .0010 | .0014 | | | .0021 | | .0023 | .0027 | | |
| | | High-temperature-resistant and ferritic-austenitic (duplex) | | ○ | 60 m/min | 0.01 | | 0.012 | | 0.025 | 0.025 | | | 0.035 | 0.055 | | 0.055 | | | 0.07 | 0.085 |
| | | | | | 197 ft./min | | .0004 | | .0009 | | | .0010 | .0014 | | | .0021 | | .0023 | .0027 | | |
| K | Cast iron | Cast iron with flake graphite (GJL, GG, grey cast iron) | up to 180 BHN | ● | 180 m/min | 0.01 | | 0.016 | | 0.035 | 0.035 | | | 0.045 | 0.075 | | 0.075 | | | 0.1 | 0.12 |
| | | | | | 591 ft./min | | .0004 | | .0013 | | | .0015 | .0018 | | | .0028 | | .0031 | .0039 | | |
| | | Cast iron with nodular graphite (GJS, GGG) | 160 to 260 BHN | ● | 140 m/min | 0.01 | | 0.016 | | 0.035 | 0.035 | | | 0.045 | 0.075 | | 0.075 | | | 0.1 | 0.12 |
| | | | | | 459 ft./min | | .0004 | | .0013 | | | .0015 | .0018 | | | .0028 | | .0031 | .0039 | | |
| N | Non-ferrous metals | Aluminum | Alu up to 10% Si | ○ | 250 m/min | 0.04 | | 0.05 | | 0.05 | 0.065 | | | 0.075 | 0.09 | | 0.12 | | | 0.16 | 0.2 |
| | | | | | 820 ft./min | | .0017 | | .0019 | | | .0027 | .0029 | | | .0034 | | .0050 | .0063 | | |
| | | | Alu over 10% Si | ○ | 200 m/min | 0.04 | | 0.05 | | 0.05 | 0.065 | | | 0.075 | 0.09 | | 0.12 | | | 0.16 | 0.2 |
| | | | | | 656 ft./min | | .0017 | | .0019 | | | .0027 | .0029 | | | .0034 | | .0050 | .0063 | | |
| | | Copper, brass, bronze and red brass | | ○ | 200 m/min | 0.04 | | 0.05 | | 0.05 | 0.065 | | | 0.075 | 0.09 | | 0.12 | | | 0.16 | 0.2 |
| | | | | | 656 ft./min | | .0017 | | .0019 | | | .0027 | .0029 | | | .0034 | | .0050 | .0063 | | |
| S | Super and titanium alloys | Heat-resistant super alloys | Based on Fe, Ni and Co | ○ | 45 m/min | 0.01 | | 0.012 | | 0.025 | 0.025 | | | 0.035 | 0.055 | | 0.055 | | | 0.07 | 0.085 |
| | | | | | 148 ft./min | | .0004 | | .0009 | | | .0010 | .0014 | | | .0021 | | .0023 | .0027 | | |
| | | Pure titanium | | ○ | 110 m/min | 0.01 | | 0.012 | | 0.025 | 0.025 | | | 0.035 | 0.055 | | 0.055 | | | 0.07 | 0.085 |
| | | | | | 361 ft./min | | .0004 | | .0009 | | | .0010 | .0014 | | | .0021 | | .0023 | .0027 | | |
| | | Titanium alloys | | ○ | 60 m/min | 0.01 | | 0.012 | | 0.025 | 0.025 | | | 0.035 | 0.055 | | 0.055 | | | 0.07 | 0.085 |
| | | | | | 197 ft./min | | .0004 | | .0009 | | | .0010 | .0014 | | | .0021 | | .0023 | .0027 | | |
| H | Hard steels and chilled castings | Heat-treated and hardened steels | up to 50 HRC | ○ | 75 m/min | 0.01 | | 0.012 | | 0.025 | 0.025 | | | 0.035 | 0.055 | | 0.055 | | | 0.07 | 0.085 |
| | | | | | 246 ft./min | | .0004 | | .0009 | | | .0010 | .0014 | | | .0021 | | .0023 | .0027 | | |
| | | | up to 58 HRC | | | | | | | | | | | | | | | | | | |
| | | | over 58 HRC | | | | | | | | | | | | | | | | | | |
| O | Other | Thermoplastics | | ○ | 200 m/min | 0.04 | | 0.05 | | 0.05 | 0.065 | | | 0.075 | 0.09 | | 0.12 | | | 0.16 | 0.2 |
| | | | | | 656 ft./min | | .0017 | | .0019 | | | .0027 | .0029 | | | .0034 | | .0050 | .0063 | | |
| | | Duroplastics | | | | | | | | | | | | | | | | | | | |
| | | GRP/CRP reinforced plastics, graphite | | | | | | | | | | | | | | | | | | | |

● = highly recommended ○ = recommended



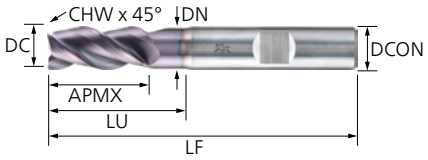

## Chamfer corner design – metric

End mills for slot milling, drilling and for a wide range of roughing tasks. Engineered for universal machining applications on a variety of materials.



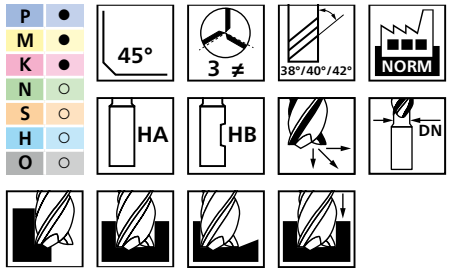

**Special features:**
- High productivity due to optimum stock removal rate.
- Long tool life due to modern tool coating.
- Neck chip channel.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | LU [mm] | CHW [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **Long HB** | | | | | **HB** | | | | |
| 3 | 6 | 2.8 | 8 | 57 | 11 | 0.1 | 3 | 23000131 | SCM-UC3-M030C-M57HB6 AL40 |
| 4 | 6 | 3.7 | 11 | 57 | 16 | 0.1 | 3 | 23000132 | SCM-UC3-M040C-M57HB6 AL40 |
| 5 | 6 | 4.7 | 13 | 57 | 18 | 0.15 | 3 | 23000133 | SCM-UC3-M050C-M57HB6 AL40 |
| 6 | 6 | 5.6 | 13 | 57 | 18 | 0.2 | 3 | 23000134 | SCM-UC3-M060C-M57HB AL40 |
| 8 | 8 | 7.5 | 19 | 63 | 26 | 0.2 | 3 | 23000135 | SCM-UC3-M080C-M63HB AL40 |
| 10 | 10 | 9.5 | 22 | 72 | 32 | 0.2 | 3 | 23000136 | SCM-UC3-M100C-M72HB AL40 |
| 12 | 12 | 11 | 26 | 83 | 36 | 0.3 | 3 | 23000137 | SCM-UC3-M120C-M83HB AL40 |
| 16 | 16 | 15 | 32 | 92 | 42 | 0.3 | 3 | 23000138 | SCM-UC3-M160C-M92HB AL40 |




## Chamfer corner design – imperial

End mills for slot milling, drilling and for a wide range of roughing tasks. Engineered for universal machining applications on a variety of materials.




**Special features:**
- High productivity due to optimum stock removal rate.
- Long tool life due to modern tool coating.
- Neck chip channel.

| DC [Inch] | DCON [Inch] | DN [Inch] | APMX [Inch] | LF [Inch] | LU [Inch] | CHW [Inch] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **Long HA** | | | | | **HA** | | | | |
| 1/8 | 1/8 | .118 | 1/4 | 1-1/2 | 3/8 | .015 | 3 | 23003030 | SCM-UC3-I1/8C-M1.5HA AL40 |
| 3/16 | 3/16 | .176 | 3/8 | 2-1/4 | 9/16 | .015 | 3 | 23003031 | SCM-UC3-I3/16C-M2.25HA AL40 |
| **Long HB** | | | | | **HB** | | | | |
| 1/4 | 1/4 | .235 | 1/2 | 2-1/2 | 3/4 | .015 | 3 | 23003032 | SCM-UC3-I1/4C-M2.5HB AL40 |
| 5/16 | 5/16 | .294 | 5/8 | 2-1/2 | 7/8 | .015 | 3 | 23003033 | SCM-UC3-I5/16C-M2.5HB AL40 |
| 3/8 | 3/8 | .353 | 3/4 | 2-1/2 | 1 | .020 | 3 | 23003034 | SCM-UC3-I3/8C-M2.5HB AL40 |
| 1/2 | 1/2 | .470 | 1 | 3 | 1-1/2 | .020 | 3 | 23003035 | SCM-UC3-I1/2C-M3HB AL40 |
| 5/8 | 5/8 | .588 | 1-1/4 | 3-1/2 | 1-3/4 | .020 | 3 | 23003036 | SCM-UC3-I5/8C-M3.5HB AL40 |

# Universal Line
4-flute (UC4)

PFERD TOOLS

## Recommended peripheral speeds [SFPM]

| Material group | | | Specification/ example material | Suitability | Full slot milling $a_p$ = 1 x DC; $a_e$ = 1 x DC  | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cutting speed $v_c$ | Tooth feed $f_z$ [mm/tooth] [in./tooth] for cutting diameter DC | | | | | | | | | | | | | | | | |
| | | | | | | 3 mm | 1/8 Inch | 5/32 Inch | 4 mm | 3/16 Inch | 5 mm | 6 mm | 1/4 Inch | 5/16 Inch | 8 mm | 10 mm | 3/8 Inch | 12 mm | 1/2 Inch | 5/8 Inch | 16 mm | 3/4 Inch | 20 mm |
| **P** | Steel | All types of steel and cast steel | up to 500 N/mm² (150 BHN) | ● | 135 m/min | 0.01 | | | 0.016 | | 0.03 | 0.03 | | | 0.04 | 0.06 | | 0.06 | | | 0.085 | | 0.1 |
| | | | | | 443 ft./min | | .0004 | .0006 | | .0011 | | | .0013 | .0016 | | | .0023 | | .0025 | .0033 | | .0038 | |
| | | | 500 to 700 N/mm² (150 to 208 BHN) | ● | 130 m/min | 0.01 | | | 0.016 | | 0.03 | 0.03 | | | 0.04 | 0.06 | | 0.06 | | | 0.085 | | 0.1 |
| | | | | | 427 ft./min | | .0004 | .0006 | | .0011 | | | .0013 | .0016 | | | .0023 | | .0025 | .0033 | | .0038 | |
| | | | 700 to 1,000 N/mm² (208 to 296 BHN) | ● | 110 m/min | 0.01 | | | 0.016 | | 0.02 | 0.02 | | | 0.03 | 0.045 | | 0.045 | | | 0.06 | | 0.07 |
| | | | | | 361 ft./min | | .0004 | .0006 | | .0008 | | | .0008 | .0016 | | | .0017 | | .0019 | .0023 | | .0026 | |
| | | | 1,000 to 1,400 N/mm² (296 to 415 BHN) | ● | 80 m/min | 0.01 | | | 0.012 | | 0.02 | 0.02 | | | 0.03 | 0.045 | | 0.045 | | | 0.06 | | 0.07 |
| | | | | | 262 ft./min | | .0004 | .0005 | | .0008 | | | .0008 | .0016 | | | .0017 | | .0019 | .0023 | | .0026 | |
| **M** | Stainless steel | Ferritic and martensitic | e.g. 1.4105, 1.4122 (AISI 410, 420, 430, 440, 440C) | ● | 70 m/min | 0.01 | | | 0.012 | | 0.02 | 0.02 | | | 0.03 | 0.045 | | 0.045 | | | 0.06 | | 0.07 |
| | | | | | 230 ft./min | | .0004 | .0005 | | .0008 | | | .0008 | .0016 | | | .0017 | | .0019 | .0023 | | .0026 | |
| | | Austenitic | e.g. 1.4301, 1.4571 (AISI 303, 304, 316, 316L) | ● | 60 m/min | 0.01 | | | 0.012 | | 0.02 | 0.02 | | | 0.03 | 0.045 | | 0.045 | | | 0.06 | | 0.07 |
| | | | | | 197 ft./min | | .0004 | .0005 | | .0008 | | | .0008 | .0016 | | | .0017 | | .0019 | .0023 | | .0026 | |
| | | High-temperature-resistant and ferritic-austenitic (duplex) | | ○ | 50 m/min | 0.01 | | | 0.012 | | 0.02 | 0.02 | | | 0.03 | 0.045 | | 0.045 | | | 0.06 | | 0.07 |
| | | | | | 164 ft./min | | .0004 | .0005 | | .0008 | | | .0008 | .0016 | | | .0017 | | .0019 | .0023 | | .0026 | |
| **K** | Cast iron | Cast iron with flake graphite (GJL, GG, grey cast iron) | up to 180 BHN | ● | 130 m/min | 0.01 | | | 0.016 | | 0.03 | 0.03 | | | 0.04 | 0.06 | | 0.06 | | | 0.085 | | 0.1 |
| | | | | | 427 ft./min | | .0004 | .0006 | | .0011 | | | .0013 | .0016 | | | .0023 | | .0025 | .0033 | | .0038 | |
| | | Cast iron with nodular graphite (GJS, GGG) | 160 to 260 BHN | ● | 100 m/min | 0.01 | | | 0.016 | | 0.03 | 0.03 | | | 0.04 | 0.06 | | 0.06 | | | 0.085 | | 0.1 |
| | | | | | 328 ft./min | | .0004 | .0006 | | .0011 | | | .0013 | .0016 | | | .0023 | | .0025 | .0033 | | .0038 | |
| **N** | Non-ferrous metals | Aluminum | Alu up to 10% Si | ○ | 200 m/min | 0.02 | | | 0.03 | | 0.04 | 0.05 | | | 0.06 | 0.07 | | 0.08 | | | 0.1 | | 0.11 |
| | | | | | 656 ft./min | | .0008 | .0012 | | .0015 | | | .0021 | .0016 | | | .0026 | | .0033 | .0039 | | .0041 | |
| | | | Alu over 10% Si | ○ | 180 m/min | 0.02 | | | 0.03 | | 0.04 | 0.05 | | | 0.06 | 0.07 | | 0.08 | | | 0.1 | | 0.11 |
| | | | | | 591 ft./min | | .0008 | .0012 | | .0015 | | | .0021 | .0016 | | | .0026 | | .0033 | .0039 | | .0041 | |
| | | Copper, brass, bronze and red brass | | ○ | 200 m/min | 0.02 | | | 0.03 | | 0.04 | 0.05 | | | 0.06 | 0.07 | | 0.08 | | | 0.1 | | 0.11 |
| | | | | | 656 ft./min | | .0008 | .0012 | | .0015 | | | .0021 | .0016 | | | .0026 | | .0033 | .0039 | | .0041 | |
| **S** | Super and titanium alloys | Heat-resistant super alloys | Based on Fe, Ni and Co | ○ | 35 m/min | 0.01 | | | 0.012 | | 0.02 | 0.02 | | | 0.03 | 0.045 | | 0.045 | | | 0.06 | | 0.07 |
| | | | | | 115 ft./min | | .0004 | .0005 | | .0008 | | | .0008 | .0016 | | | .0017 | | .0019 | .0023 | | .0026 | |
| | | Pure titanium | | ○ | 100 m/min | 0.01 | | | 0.012 | | 0.02 | 0.02 | | | 0.03 | 0.045 | | 0.045 | | | 0.06 | | 0.07 |
| | | | | | 328 ft./min | | .0004 | .0005 | | .0008 | | | .0008 | .0016 | | | .0017 | | .0019 | .0023 | | .0026 | |
| | | Titanium alloys | | ○ | 50 m/min | 0.01 | | | 0.012 | | 0.02 | 0.02 | | | 0.03 | 0.045 | | 0.045 | | | 0.06 | | 0.07 |
| | | | | | 164 ft./min | | .0004 | .0005 | | .0008 | | | .0008 | .0016 | | | .0017 | | .0019 | .0023 | | .0026 | |
| **H** | Hard steels and chilled castings | Heat-treated and hardened steels | up to 50 HRC | ○ | 60 m/min | 0.01 | | | 0.012 | | 0.02 | 0.02 | | | 0.03 | 0.045 | | 0.045 | | | 0.06 | | 0.07 |
| | | | | | 197 ft./min | | .0004 | .0005 | | .0008 | | | .0008 | .0016 | | | .0017 | | .0019 | .0023 | | .0026 | |
| | | | up to 58 HRC | | | | | | | | | | | | | | | | | | | | |
| | | | over 58 HRC | | | | | | | | | | | | | | | | | | | | |
| **O** | Other | Thermoplastics | | ○ | 180 m/min | 0.02 | | | 0.03 | | 0.04 | 0.05 | | | 0.06 | 0.07 | | 0.08 | | | 0.1 | | 0.11 |
| | | | | | 591 ft./min | | .0008 | .0012 | | .0015 | | | .0021 | .0016 | | | .0026 | | .0033 | .0039 | | .0041 | |
| | | Duroplastics | | | | | | | | | | | | | | | | | | | | | |
| | | GRP/CRP reinforced plastics, graphite | | | | | | | | | | | | | | | | | | | | | |

● = highly recommended ○ = recommended

# Universal Line
## 4-flute (UC4)

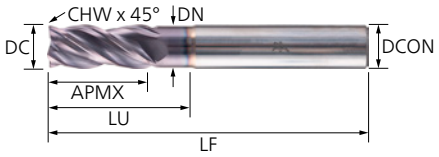
PFERD TOOLS

### Recommended peripheral speeds [SFPM]

| Material group | | | Specification/ example material | Suitability | Side milling $a_p$ = 2 x DC; $a_e$ = 0,4 x DC  | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cutting speed $v_c$ | Tooth feed $f_z$ [mm/tooth] [in./tooth] for cutting diameter DC | | | | | | | | | | | | | | | | |
| | | | | | | 3 mm | 1/8 Inch | 5/32 Inch | 4 mm | 3/16 Inch | 5 mm | 6 mm | 1/4 Inch | 5/16 Inch | 8 mm | 10 mm | 3/8 Inch | 12 mm | 1/2 Inch | 5/8 Inch | 16 mm | 3/4 Inch | 20 mm |
| **P** | Steel | All types of steel and cast steel | up to 500 N/mm² (150 BHN) | ● | 180 m/min | 0.01 | | | 0.016 | | 0.035 | 0.035 | | | 0.045 | 0.075 | | 0.075 | | | 0.1 | | 0.12 |
| | | | | | 591 ft./min | | .0004 | .0006 | | .0013 | | | .0015 | .0018 | | | .0028 | | .0031 | .0039 | | .0045 | |
| | | | 500 to 700 N/mm² (150 to 208 BHN) | ● | 160 m/min | 0.01 | | | 0.016 | | 0.035 | 0.035 | | | 0.045 | 0.075 | | 0.075 | | | 0.1 | | 0.12 |
| | | | | | 525 ft./min | | .0004 | .0006 | | .0013 | | | .0015 | .0018 | | | .0028 | | .0031 | .0039 | | .0045 | |
| | | | 700 to 1,000 N/mm² (208 to 296 BHN) | ● | 150 m/min | 0.01 | | | 0.016 | | 0.025 | 0.025 | | | 0.035 | 0.055 | | 0.055 | | | 0.07 | | 0.085 |
| | | | | | 492 ft./min | | .0004 | .0006 | | .0009 | | | .0010 | .0014 | | | .0021 | | .0023 | .0027 | | .0032 | |
| | | | 1,000 to 1,400 N/mm² (296 to 415 BHN) | ● | 110 m/min | 0.01 | | | 0.012 | | 0.025 | 0.025 | | | 0.035 | 0.055 | | 0.055 | | | 0.07 | | 0.085 |
| | | | | | 361 ft./min | | .0004 | .0005 | | .0009 | | | .0010 | .0014 | | | .0021 | | .0023 | .0027 | | .0032 | |
| **M** | Stainless steel | Ferritic and martensitic | e.g. 1.4105, 1.4122 (AISI 410, 420, 430, 440, 440C) | ● | 85 m/min | 0.01 | | | 0.012 | | 0.025 | 0.025 | | | 0.035 | 0.055 | | 0.055 | | | 0.07 | | 0.085 |
| | | | | | 279 ft./min | | .0004 | .0005 | | .0009 | | | .0010 | .0014 | | | .0021 | | .0023 | .0027 | | .0032 | |
| | | Austenitic | e.g. 1.4301, 1.4571 (AISI 303, 304, 316, 316L) | ● | 75 m/min | 0.01 | | | 0.012 | | 0.025 | 0.025 | | | 0.035 | 0.055 | | 0.055 | | | 0.07 | | 0.085 |
| | | | | | 246 ft./min | | .0004 | .0005 | | .0009 | | | .0010 | .0014 | | | .0021 | | .0023 | .0027 | | .0032 | |
| | | High-temperature-resistant and ferritic-austenitic (duplex) | | ○ | 65 m/min | 0.01 | | | 0.012 | | 0.025 | 0.025 | | | 0.035 | 0.055 | | 0.055 | | | 0.07 | | 0.085 |
| | | | | | 213 ft./min | | .0004 | .0005 | | .0009 | | | .0010 | .0014 | | | .0021 | | .0023 | .0027 | | .0032 | |
| **K** | Cast iron | Cast iron with flake graphite (GJL, GG, grey cast iron) | up to 180 BHN | ● | 180 m/min | 0.01 | | | 0.016 | | 0.035 | 0.035 | | | 0.045 | 0.075 | | 0.075 | | | 0.1 | | 0.12 |
| | | | | | 591 ft./min | | .0004 | .0006 | | .0013 | | | .0015 | .0018 | | | .0028 | | .0031 | .0039 | | .0045 | |
| | | Cast iron with nodular graphite (GJS, GGG) | 160 to 260 BHN | ● | 140 m/min | 0.01 | | | 0.016 | | 0.035 | 0.035 | | | 0.045 | 0.075 | | 0.075 | | | 0.1 | | 0.12 |
| | | | | | 459 ft./min | | .0004 | .0006 | | .0013 | | | .0015 | .0018 | | | .0028 | | .0031 | .0039 | | .0045 | |
| **N** | Non-ferrous metals | Aluminum | Alu up to 10% Si | ○ | 230 m/min | 0.03 | | | 0.035 | | 0.035 | 0.04 | | | 0.05 | 0.06 | | 0.08 | | | 0.1 | | 0.13 |
| | | | | | 755 ft./min | | .0013 | .0014 | | .0013 | | | .0017 | .0020 | | | .0023 | | .0033 | .0039 | | .0049 | |
| | | | Alu over 10% Si | ○ | 210 m/min | 0.03 | | | 0.035 | | 0.035 | 0.04 | | | 0.05 | 0.06 | | 0.08 | | | 0.1 | | 0.13 |
| | | | | | 689 ft./min | | .0013 | .0014 | | .0013 | | | .0017 | .0020 | | | .0023 | | .0033 | .0039 | | .0049 | |
| | | Copper, brass, bronze and red brass | | ○ | 230 m/min | 0.03 | | | 0.035 | | 0.035 | 0.04 | | | 0.05 | 0.06 | | 0.08 | | | 0.1 | | 0.13 |
| | | | | | 755 ft./min | | .0013 | .0014 | | .0013 | | | .0017 | .0020 | | | .0023 | | .0033 | .0039 | | .0049 | |
| **S** | Super and titanium alloys | Heat-resistant super alloys | Based on Fe, Ni and Co | ○ | 45 m/min | 0.01 | | | 0.012 | | 0.025 | 0.025 | | | 0.035 | 0.055 | | 0.055 | | | 0.07 | | 0.085 |
| | | | | | 148 ft./min | | .0004 | .0005 | | .0009 | | | .0010 | .0014 | | | .0021 | | .0023 | .0027 | | .0032 | |
| | | Pure titanium | | ○ | 120 m/min | 0.01 | | | 0.012 | | 0.025 | 0.025 | | | 0.035 | 0.055 | | 0.055 | | | 0.07 | | 0.085 |
| | | | | | 394 ft./min | | .0004 | .0005 | | .0009 | | | .0010 | .0014 | | | .0021 | | .0023 | .0027 | | .0032 | |
| | | Titanium alloys | | ○ | 70 m/min | 0.01 | | | 0.012 | | 0.025 | 0.025 | | | 0.035 | 0.055 | | 0.055 | | | 0.07 | | 0.085 |
| | | | | | 230 ft./min | | .0004 | .0005 | | .0009 | | | .0010 | .0014 | | | .0021 | | .0023 | .0027 | | .0032 | |
| **H** | Hard steels and chilled castings | Heat-treated and hardened steels | up to 50 HRC | ○ | 75 m/min | 0.01 | | | 0.012 | | 0.025 | 0.025 | | | 0.035 | 0.055 | | 0.055 | | | 0.07 | | 0.085 |
| | | | | | 246 ft./min | | .0004 | .0005 | | .0009 | | | .0010 | .0014 | | | .0021 | | .0023 | .0027 | | .0032 | |
| | | | up to 58 HRC | | | | | | | | | | | | | | | | | | | | |
| | | | over 58 HRC | | | | | | | | | | | | | | | | | | | | |
| **O** | Other | Thermoplastics | | ○ | 210 m/min | 0.04 | | | 0.04 | | 0.06 | 0.06 | | | 0.07 | 0.07 | | 0.085 | | | 0.1 | | 0.12 |
| | | | | | 689 ft./min | | .0017 | .0016 | | .0023 | | | .0025 | .0027 | | | .0026 | | .0035 | .0039 | | .0045 | |
| | | Duroplastics | | | | | | | | | | | | | | | | | | | | | |
| | | GRP/CRP reinforced plastics, graphite | | | | | | | | | | | | | | | | | | | | | |

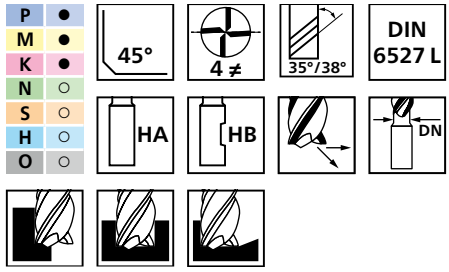
● = highly recommended ○ = recommended

# Universal Line
## 4-flute (UC4)




### Chamfer corner design – metric

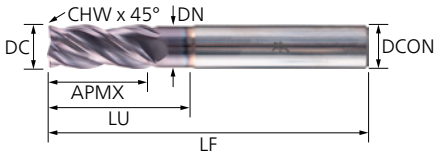
End mills for various applications, from roughing to finishing and ramping. Engineered for universal machining applications on a variety of materials.




**Special features:**
- High productivity due to optimum stock removal rate.
- Long tool life due to modern tool coating.
- Neck chip channel.

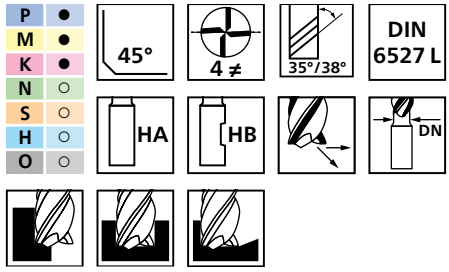
| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | LU [mm] | CHW [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **Long HA** | | | | | HA | | | | |
| 3 | 6 | 2.8 | 8 | 57 | 18 | 0.13 | 4 | 23000148 | SCM-UC4-M030C-M57HA6 AL40 |
| 4 | 6 | 3.6 | 11 | 57 | 21 | 0.13 | 4 | 23000149 | SCM-UC4-M040C-M57HA6 AL40 |
| 5 | 6 | 4.6 | 13 | 57 | 21 | 0.2 | 4 | 23000150 | SCM-UC4-M050C-M57HA6 AL40 |
| 6 | 6 | 5.5 | 13 | 57 | 21 | 0.2 | 4 | 23000151 | SCM-UC4-M060C-M57HA AL40 |
| 8 | 8 | 7.5 | 19 | 63 | 27 | 0.2 | 4 | 23000152 | SCM-UC4-M080C-M63HA AL40 |
| 10 | 10 | 9.5 | 22 | 72 | 32 | 0.2 | 4 | 23000153 | SCM-UC4-M100C-M72HA AL40 |
| 12 | 12 | 11.5 | 26 | 83 | 38 | 0.3 | 4 | 23000154 | SCM-UC4-M120C-M83HA AL40 |
| 16 | 16 | 15.5 | 32 | 92 | 44 | 0.3 | 4 | 23000155 | SCM-UC4-M160C-M92HA AL40 |
| 20 | 20 | 19.5 | 38 | 104 | 54 | 0.4 | 4 | 23000156 | SCM-UC4-M200C-M104HA AL40 |
| **Long HB** | | | | | HB | | | | |
| 3 | 6 | 2.8 | 8 | 57 | 18 | 0.13 | 4 | 23000139 | SCM-UC4-M030C-M57HB6 AL40 |
| 4 | 6 | 3.6 | 11 | 57 | 21 | 0.13 | 4 | 23000140 | SCM-UC4-M040C-M57HB6 AL40 |
| 5 | 6 | 4.6 | 13 | 57 | 21 | 0.2 | 4 | 23000141 | SCM-UC4-M050C-M57HB6 AL40 |
| 6 | 6 | 5.5 | 13 | 57 | 21 | 0.2 | 4 | 23000142 | SCM-UC4-M060C-M57HB AL40 |
| 8 | 8 | 7.5 | 19 | 63 | 27 | 0.2 | 4 | 23000143 | SCM-UC4-M080C-M63HB AL40 |
| 10 | 10 | 9.5 | 22 | 72 | 32 | 0.2 | 4 | 23000144 | SCM-UC4-M100C-M72HB AL40 |
| 12 | 12 | 11.5 | 26 | 83 | 38 | 0.3 | 4 | 23000145 | SCM-UC4-M120C-M83HB AL40 |
| 16 | 16 | 15.5 | 32 | 92 | 44 | 0.3 | 4 | 23000146 | SCM-UC4-M160C-M92HB AL40 |
| 20 | 20 | 19.5 | 38 | 104 | 54 | 0.4 | 4 | 23000147 | SCM-UC4-M200C-M104HB AL40 |

# Universal Line
## 4-flute (UC4)




### Chamfer corner design – imperial

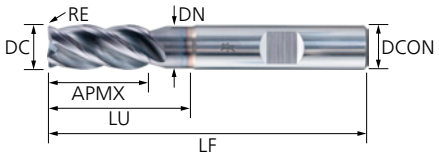
End mills for various applications, from roughing to finishing and ramping. Engineered for universal machining applications on a variety of materials.




**Special features:**
- High productivity due to optimum stock removal rate.
- Long tool life due to modern tool coating.
- Neck chip channel.

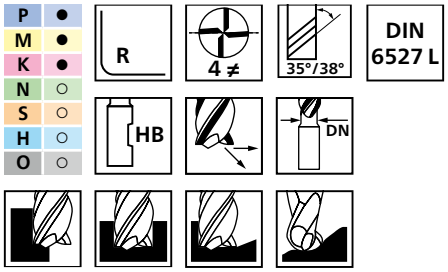
| DC [Inch] | DCON [Inch] | DN [Inch] | APMX [Inch] | LF [Inch] | LU [Inch] | CHW [Inch] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **Long HA**  **HA** | | | | | | | | | |
| 1/8 | 1/8 | .118 | 1/4 | 1-1/2 | 3/8 | .015 | 4 | 23003043 | SCM-UC4-I1/8C-M1.5HA AL40 |
| 5/32 | 5/32 | .147 | 5/16 | 2 | 7/16 | .015 | 4 | 23003044 | SCM-UC4-I5/32C-M2HA AL40 |
| 3/16 | 3/16 | .176 | 3/8 | 2-1/4 | 9/16 | .015 | 4 | 23003045 | SCM-UC4-I3/16C-M2.25HA AL40 |
| 1/4 | 1/4 | .235 | 1/2 | 2-1/2 | 3/4 | .015 | 4 | 23003046 | SCM-UC4-I1/4C-M2.5HA AL40 |
| 5/16 | 5/16 | .294 | 5/8 | 2-1/2 | 7/8 | .015 | 4 | 23003047 | SCM-UC4-I5/16C-M2.5HA AL40 |
| 3/8 | 3/8 | .353 | 3/4 | 2-1/2 | 1 | .020 | 4 | 23003048 | SCM-UC4-I3/8C-M2.5HA AL40 |
| 1/2 | 1/2 | .470 | 1 | 3 | 1-1/2 | .020 | 4 | 23003049 | SCM-UC4-I1/2C-M3HA AL40 |
| 5/8 | 5/8 | .588 | 1-1/4 | 3-1/2 | 1-3/4 | .020 | 4 | 23003050 | SCM-UC4-I5/8C-M3.5HA AL40 |
| 3/4 | 3/4 | .705 | 1-1/2 | 4 | 2-1/4 | .020 | 4 | 23003051 | SCM-UC4-I3/4C-M4HA AL40 |
| **Long HB**  **HB** | | | | | | | | | |
| 1/4 | 1/4 | .235 | 1/2 | 2-1/2 | 3/4 | .015 | 4 | 23003037 | SCM-UC4-I1/4C-M2.5HB AL40 |
| 5/16 | 5/16 | .294 | 5/8 | 2-1/2 | 7/8 | .015 | 4 | 23003038 | SCM-UC4-I5/16C-M2.5HB AL40 |
| 3/8 | 3/8 | .353 | 3/4 | 2-1/2 | 1 | .020 | 4 | 23003039 | SCM-UC4-I3/8C-M2.5HB AL40 |
| 1/2 | 1/2 | .470 | 1 | 3 | 1-1/2 | .020 | 4 | 23003040 | SCM-UC4-I1/2C-M3HB AL40 |
| 5/8 | 5/8 | .588 | 1-1/4 | 3-1/2 | 1-3/4 | .020 | 4 | 23003041 | SCM-UC4-I5/8C-M3.5HB AL40 |
| 3/4 | 3/4 | .705 | 1-1/2 | 4 | 2-1/4 | .020 | 4 | 23003042 | SCM-UC4-I3/4C-M4HB AL40 |

# Universal Line
## 4-flute (UC4)

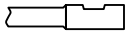



### Radius – metric

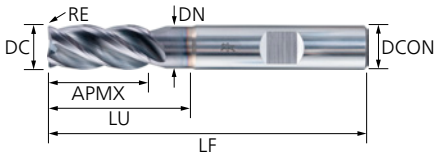
End mills for various applications, from roughing to finishing. The radius design is also suitable for free-form profile cutting. Engineered for universal machining applications on a variety of materials.




**Special features:**
- High productivity due to optimum stock removal rate.
- Long tool life due to modern tool coating.
- Neck chip channel.

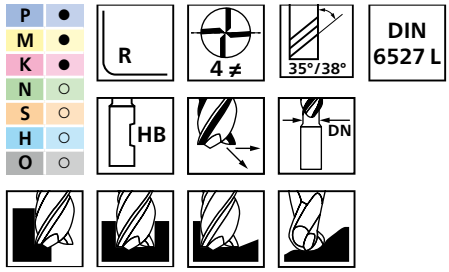
| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | LU [mm] | RE [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **Long HB** | | | |  **HB** | | | | | |
| 8 | 8 | 7.46 | 19 | 63 | 27 | 0.5 | 4 | 23000157 | SCM-UC4-M080R05-M63HB AL40 |
| | | | | | | 1 | 4 | 23000158 | SCM-UC4-M080R10-M63HB AL40 |
| | | | | | | 1.5 | 4 | 23000159 | SCM-UC4-M080R15-M63HB AL40 |
| | | | | | | 2 | 4 | 23000160 | SCM-UC4-M080R20-M63HB AL40 |
| 10 | 10 | 9.5 | 22 | 72 | 32 | 0.5 | 4 | 23000161 | SCM-UC4-M100R05-M72HB AL40 |
| | | | | | | 1 | 4 | 23000162 | SCM-UC4-M100R10-M72HB AL40 |
| | | | | | | 1.5 | 4 | 23000163 | SCM-UC4-M100R15-M72HB AL40 |
| | | | | | | 2 | 4 | 23000164 | SCM-UC4-M100R20-M72HB AL40 |
| 12 | 12 | 11.5 | 26 | 83 | 38 | 0.5 | 4 | 23000165 | SCM-UC4-M120R05-M83HB AL40 |
| | | | | | | 1 | 4 | 23000166 | SCM-UC4-M120R10-M83HB AL40 |
| | | | | | | 1.5 | 4 | 23000167 | SCM-UC4-M120R15-M83HB AL40 |
| | | | | | | 2 | 4 | 23000168 | SCM-UC4-M120R20-M83HB AL40 |
| 16 | 16 | 15.5 | 32 | 92 | 44 | 1 | 4 | 23000169 | SCM-UC4-M160R10-M92HB AL40 |
| | | | | | | 1.5 | 4 | 23000170 | SCM-UC4-M160R15-M92HB AL40 |
| | | | | | | 2 | 4 | 23000171 | SCM-UC4-M160R20-M92HB AL40 |
| 20 | 20 | 19.5 | 38 | 104 | 54 | 1 | 4 | 23000172 | SCM-UC4-M200R10-M104HB AL40 |
| | | | | | | 2 | 4 | 23000173 | SCM-UC4-M200R20-M104HB AL40 |

# Universal Line
## 4-flute (UC4)

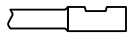



### Radius – imperial

End mills for various applications, from roughing to finishing. The radius design is also suitable for free-form profile cutting. Engineered for universal machining applications on a variety of materials.




**Special features:**
- High productivity due to optimum stock removal rate.
- Long tool life due to modern tool coating.
- Neck chip channel.

| DC [Inch] | DCON [Inch] | DN [Inch] | APMX [Inch] | LF [Inch] | LU [Inch] | RE [Inch] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **Long HB** | | | |  **HB** | | | | | |
| 5/16 | 5/16 | .294 | 5/8 | 2-1/2 | 7/8 | .015 | 4 | 23003052 | SCM-UC4-I5/16R0.015-M2.5HB AL40 |
| | | | | | | .03 | 4 | 23003053 | SCM-UC4-I5/16R0.03-M2.5HB AL40 |
| 3/8 | 3/8 | .353 | 3/4 | 2-1/2 | 1 | .03 | 4 | 23003054 | SCM-UC4-I3/8R0.03-M2.5HB AL40 |
| | | | | | | .06 | 4 | 23003055 | SCM-UC4-I3/8R0.06-M2.5HB AL40 |
| 1/2 | 1/2 | .470 | 1 | 3 | 1-1/2 | .06 | 4 | 23003056 | SCM-UC4-I1/2R0.06-M3HB AL40 |
| | | | | | | .09 | 4 | 23003057 | SCM-UC4-I1/2R0.09-M3HB AL40 |
| 5/8 | 5/8 | .588 | 1-1/4 | 3-1/2 | 1-3/4 | .09 | 4 | 23003058 | SCM-UC4-I5/8R0.09-M3.5HB AL40 |
| | | | | | | .125 | 4 | 23003059 | SCM-UC4-I5/8R0.125-M3.5HB AL40 |
| 3/4 | 3/4 | .705 | 1-1/2 | 4 | 2-1/4 | .125 | 4 | 23003060 | SCM-UC4-I3/4R0.125-M4HB AL40 |

# Universal Line
## 4-flute roughing (UCR4)

PFERD TOOLS

### Recommended peripheral speeds [SFPM]

| Material group | | | Specification/ example material | Suitability | Full slot milling $a_p$ = 1 x DC; $a_e$ = 1 x DC  | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cutting speed $v_c$ | Tooth feed $f_z$ [mm/tooth] [inch/tooth] for cutting diameter DC | | | | | | | | | | | | | | | | | |
| | | | | | | 3 mm | 1/8 Inch | 5/32 Inch | 4 mm | 3/16 Inch | 5 mm | 6 mm | 1/4 Inch | 5/16 Inch | 8 mm | 3/8 Inch | 10 mm | 12 mm | 1/2 Inch | 5/8 Inch | 16 mm | 3/4 Inch | 20 mm |
| P | Steel | All types of steel and cast steel | up to 500 N/mm² (150 HB) | ● | 140 m/min | 0.017 | | | 0.022 | | 0.028 | 0.030 | | | 0.040 | | 0.050 | 0.060 | | | 0.080 | | 0.100 |
| | | | | | 459 ft./min | | .0006 | .0009 | | .0011 | | | .0012 | .0016 | | .0020 | | | .0024 | .0031 | | .0039 | |
| | | | 500 to 700 N/mm² (150 to 208 HB) | ● | 120 m/min | 0.017 | | | 0.022 | | 0.028 | 0.030 | | | 0.040 | | 0.050 | 0.060 | | | 0.080 | | 0.100 |
| | | | | | 394 ft./min | | .0006 | .0009 | | .0011 | | | .0012 | .0016 | | .0020 | | | .0024 | .0031 | | .0039 | |
| | | | 700 to 1,000 N/mm² (208 to 296 HB) | ● | 100 m/min | 0.017 | | | 0.022 | | 0.028 | 0.030 | | | 0.040 | | 0.050 | 0.060 | | | 0.080 | | 0.100 |
| | | | | | 328 ft./min | | .0006 | .0009 | | .0011 | | | .0012 | .0016 | | .0020 | | | .0024 | .0031 | | .0039 | |
| | | | 1,000 to 1,400 N/mm² (296 to 415 HB) | ● | 70 m/min | 0.017 | | | 0.022 | | 0.028 | 0.030 | | | 0.040 | | 0.050 | 0.060 | | | 0.080 | | 0.100 |
| | | | | | 230 ft./min | | .0006 | .0009 | | .0011 | | | .0012 | .0016 | | .0020 | | | .0024 | .0031 | | .0039 | |
| M | Stainless steel | Ferritic and martensitic | e.g. 1.4105, 1.4122 (AISI 410, 420, 430, 440, 440C) | ○ | 50 m/min | 0.017 | | | 0.022 | | 0.028 | 0.030 | | | 0.040 | | 0.050 | 0.060 | | | 0.080 | | 0.100 |
| | | | | | 164 ft./min | | .0006 | .0009 | | .0011 | | | .0012 | .0016 | | .0020 | | | .0024 | .0031 | | .0039 | |
| | | Austenitic | e.g. 1.4301, 1.4571 (AISI 303, 304, 316, 316L) | ○ | 45 m/min | 0.017 | | | 0.022 | | 0.028 | 0.030 | | | 0.040 | | 0.050 | 0.060 | | | 0.080 | | 0.100 |
| | | | | | 148 ft./min | | .0006 | .0009 | | .0011 | | | .0012 | .0016 | | .0020 | | | .0024 | .0031 | | .0039 | |
| | | High-temperature-resistant and ferritic-austenitic (duplex) | | ○ | 35 m/min | 0.017 | | | 0.022 | | 0.028 | 0.030 | | | 0.040 | | 0.050 | 0.060 | | | 0.080 | | 0.100 |
| | | | | | 115 ft./min | | .0006 | .0009 | | .0011 | | | .0012 | .0016 | | .0020 | | | .0024 | .0031 | | .0039 | |
| K | Cast iron | Cast iron with flake graphite (GJL, GG, grey cast iron) | to 180 HB | ● | 120 m/min | 0.017 | | | 0.022 | | 0.028 | 0.030 | | | 0.040 | | 0.050 | 0.060 | | | 0.080 | | 0.100 |
| | | | | | 394 ft./min | | .0006 | .0009 | | .0011 | | | .0012 | .0016 | | .0020 | | | .0024 | .0031 | | .0039 | |
| | | Cast iron with nodular graphite (GJS, GGG) | 160 to 260 HB | | | | | | | | | | | | | | | | | | | | |
| N | Non-ferrous metals | Aluminum | Alu up to 10% Si | | | | | | | | | | | | | | | | | | | | |
| | | | Alu over 10% Si | | | | | | | | | | | | | | | | | | | | |
| | | Copper, brass, bronze and red brass | | | | | | | | | | | | | | | | | | | | | |
| S | Super and titanium alloys | Heat-resistant super alloys | Based on Fe, Ni and Co | | | | | | | | | | | | | | | | | | | | |
| | | Pure titanium | | ○ | 30 m/min | 0.017 | | | 0.022 | | 0.028 | 0.030 | | | 0.040 | | 0.050 | 0.060 | | | 0.080 | | 0.100 |
| | | | | | 98 ft./min | | .0006 | .0009 | | .0011 | | | .0012 | .0016 | | .0020 | | | .0024 | .0031 | | .0039 | |
| | | Titanium alloys | | ○ | 20 m/min | 0.017 | | | 0.022 | | 0.028 | 0.030 | | | 0.040 | | 0.050 | 0.060 | | | 0.080 | | 0.100 |
| | | | | | 66 ft./min | | .0006 | .0009 | | .0011 | | | .0012 | .0016 | | .0020 | | | .0024 | .0031 | | .0039 | |
| H | Hard steels and chilled castings | Heat-treated and hardened steels | up to 50 HRC | | | | | | | | | | | | | | | | | | | | |
| | | | up to 58 HRC | | | | | | | | | | | | | | | | | | | | |
| | | | over 58 HRC | | | | | | | | | | | | | | | | | | | | |
| O | Other | Thermoplastics | | | | | | | | | | | | | | | | | | | | | |
| | | Duroplastics | | | | | | | | | | | | | | | | | | | | | |
| | | GRP/CRP reinforced plastics, graphite | | | | | | | | | | | | | | | | | | | | | |

● = highly recommended ○ = recommended

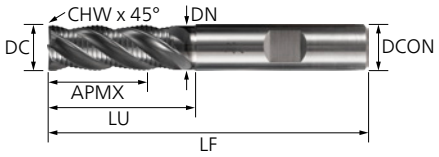
# Universal Line
## 4-flute roughing (UCR4)

PFERD TOOLS

### Recommended peripheral speeds [SFPM]

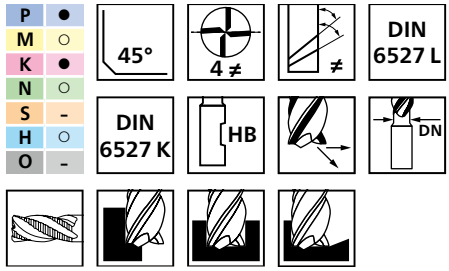
| Material group | | | Specification/ example material | Suitability | Side milling $a_p$ = max; $a_e$ = 0,4 x DC | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cutting speed $v_c$ | Tooth feed $f_z$ [mm/tooth] [inch/tooth] for cutting diameter DC | | | | | | | | | | | | | | | | | |
| | | | | | | 3 mm | 1/8 Inch | 5/32 Inch | 4 mm | 3/16 Inch | 5 mm | 6 mm | 1/4 Inch | 5/16 Inch | 8 mm | 3/8 Inch | 10 mm | 12 mm | 1/2 Inch | 5/8 Inch | 16 mm | 3/4 Inch | 20 mm |
| P | Steel | All types of steel and cast steel | up to 500 N/mm² (150 HB) | ● | 180 m/min | 0.020 | | | 0.026 | | 0.033 | 0.036 | | | 0.048 | | 0.060 | 0.072 | | | 0.096 | | 0.120 |
| | | | | | 591 ft./min | | .0008 | .0010 | | .0013 | | | 0.001 | .0019 | | .0024 | | | .0028 | .0038 | | .0047 | |
| | | | 500 to 700 N/mm² (150 to 208 HB) | ● | 160 m/min | 0.020 | | | 0.026 | | 0.033 | 0.036 | | | 0.048 | | 0.060 | 0.072 | | | 0.096 | | 0.120 |
| | | | | | 525 ft./min | | .0008 | .0010 | | .0013 | | | 0.001 | .0019 | | .0024 | | | .0028 | .0038 | | .0047 | |
| | | | 700 to 1,000 N/mm² (208 to 296 HB) | ● | 120 m/min | 0.020 | | | 0.026 | | 0.033 | 0.036 | | | 0.048 | | 0.060 | 0.072 | | | 0.096 | | 0.120 |
| | | | | | 394 ft./min | | .0008 | .0010 | | .0013 | | | 0.001 | .0019 | | .0024 | | | .0028 | .0038 | | .0047 | |
| | | | 1,000 to 1,400 N/mm² (296 to 415 HB) | ● | 95 m/min | 0.020 | | | 0.026 | | 0.033 | 0.036 | | | 0.048 | | 0.060 | 0.072 | | | 0.096 | | 0.120 |
| | | | | | 312 ft./min | | .0008 | .0010 | | .0013 | | | 0.001 | .0019 | | .0024 | | | .0028 | .0038 | | .0047 | |
| M | Stainless steel | Ferritic and martensitic | e.g. 1.4105, 1.4122 (AISI 410, 420, 430, 440, 440C) | ○ | 70 m/min | 0.020 | | | 0.026 | | 0.033 | 0.036 | | | 0.048 | | 0.060 | 0.072 | | | 0.096 | | 0.120 |
| | | | | | 230 ft./min | | .0008 | .0010 | | .0013 | | | 0.001 | .0019 | | .0024 | | | .0028 | .0038 | | .0047 | |
| | | Austenitic | e.g. 1.4301, 1.4571 (AISI 303, 304, 316, 316L) | ○ | 60 m/min | 0.020 | | | 0.026 | | 0.033 | 0.036 | | | 0.048 | | 0.060 | 0.072 | | | 0.096 | | 0.120 |
| | | | | | 197 ft./min | | .0008 | .0010 | | .0013 | | | 0.001 | .0019 | | .0024 | | | .0028 | .0038 | | .0047 | |
| | | High-temperature-resistant and ferritic-austenitic (duplex) | | ○ | 50 m/min | 0.020 | | | 0.026 | | 0.033 | 0.036 | | | 0.048 | | 0.060 | 0.072 | | | 0.096 | | 0.120 |
| | | | | | 164 ft./min | | .0008 | .0010 | | .0013 | | | 0.001 | .0019 | | .0024 | | | .0028 | .0038 | | .0047 | |
| K | Cast iron | Cast iron with flake graphite (GJL, GG, grey cast iron) | to 180 HB | ● | 160 m/min | 0.020 | | | 0.026 | | 0.033 | 0.036 | | | 0.048 | | 0.060 | 0.072 | | | 0.096 | | 0.120 |
| | | | | | 525 ft./min | | .0008 | .0010 | | .0013 | | | 0.001 | .0019 | | .0024 | | | .0028 | .0038 | | .0047 | |
| | | Cast iron with nodular graphite (GJS, GGG) | 160 to 260 HB | | | | | | | | | | | | | | | | | | | | |
| N | Non-ferrous metals | Aluminum | Alu up to 10% Si | | | | | | | | | | | | | | | | | | | | |
| | | | Alu over 10% Si | | | | | | | | | | | | | | | | | | | | |
| | | Copper, brass, bronze and red brass | | | | | | | | | | | | | | | | | | | | | |
| S | Super and titanium alloys | Heat-resistant super alloys | Based on Fe, Ni and Co | | | | | | | | | | | | | | | | | | | | |
| | | Pure titanium | | ○ | 40 m/min | 0.020 | | | 0.026 | | 0.033 | 0.036 | | | 0.048 | | 0.060 | 0.072 | | | 0.096 | | 0.120 |
| | | | | | 131 ft./min | | .0008 | .0010 | | .0013 | | | 0.001 | .0019 | | .0024 | | | .0028 | .0038 | | .0047 | |
| | | Titanium alloys | | ○ | 30 m/min | 0.020 | | | 0.026 | | 0.033 | 0.036 | | | 0.048 | | 0.060 | 0.072 | | | 0.096 | | 0.120 |
| | | | | | 98 ft./min | | .0008 | .0010 | | .0013 | | | 0.001 | .0019 | | .0024 | | | .0028 | .0038 | | .0047 | |
| H | Hard steels and chilled castings | Heat-treated and hardened steels | up to 50 HRC | | | | | | | | | | | | | | | | | | | | |
| | | | up to 58 HRC | | | | | | | | | | | | | | | | | | | | |
| | | | over 58 HRC | | | | | | | | | | | | | | | | | | | | |
| O | Other | Thermoplastics | | | | | | | | | | | | | | | | | | | | | |
| | | Duroplastics | | | | | | | | | | | | | | | | | | | | | |
| | | GRP/CRP reinforced plastics, graphite | | | | | | | | | | | | | | | | | | | | | |

● = highly recommended ○ = recommended

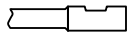
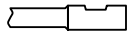


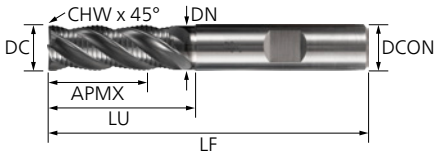

## Chamfer corner design for roughing – metric

Roughing end mills for various applications, from roughing to finishing and ramping. Engineered for universal machining applications on a variety of materials.



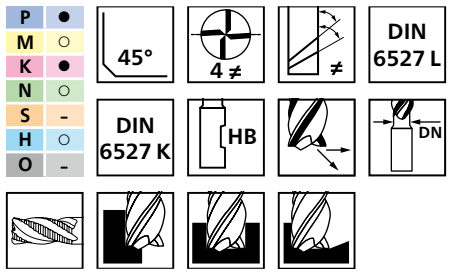

**Special features:**
- Neck chip channel.
- Optimum chip control due to roughing cut.
- Variable pitch and variable helix angle for low-vibration machining and smooth milling.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | LU [mm] | CHW [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **Short HB**  **HB** | | | | | | | | | |
| 6 | 6 | 5.4 | 10 | 54 | 18 | 0.15 | 4 | 23000356 | SCM-UCR4-M060C-S54HB AP40 |
| 8 | 8 | 7.4 | 12 | 58 | 22 | 0.2 | 4 | 23000357 | SCM-UCR4-M080C-S58HB AP40 |
| 10 | 10 | 9.4 | 15 | 66 | 26 | 0.3 | 4 | 23000358 | SCM-UCR4-M100C-S66HB AP40 |
| 12 | 12 | 11.2 | 18 | 73 | 28 | 0.4 | 4 | 23000359 | SCM-UCR4-M120C-S73HB AP40 |
| **Long HB**  **HB** | | | | | | | | | |
| 6 | 6 | 5.4 | 15 | 57 | 21 | 0.15 | 4 | 23000350 | SCM-UCR4-M060C-M57HB AP40 |
| 8 | 8 | 7.4 | 20 | 63 | 27 | 0.2 | 4 | 23000351 | SCM-UCR4-M080C-M63HB AP40 |
| 10 | 10 | 9.4 | 25 | 72 | 32 | 0.3 | 4 | 23000352 | SCM-UCR4-M100C-M72HB AP40 |
| 12 | 12 | 11.2 | 30 | 83 | 38 | 0.4 | 4 | 23000353 | SCM-UCR4-M120C-M83HB AP40 |
| 16 | 16 | 15.2 | 32 | 92 | 42 | 0.5 | 4 | 23000354 | SCM-UCR4-M160C-M92HB AP40 |
| 20 | 20 | 19.2 | 40 | 104 | 54 | 0.6 | 4 | 23000355 | SCM-UCR4-M200C-M104HB AP40 |




## Chamfer corner design for roughing – imperial

Roughing end mills for various applications, from roughing to finishing and ramping. Engineered for universal machining applications on a variety of materials.



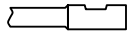

**Special features:**
- Neck chip channel.
- Optimum chip control due to roughing cut.
- Variable pitch and variable helix angle for low-vibration machining and smooth milling.

| DC [Inch] | DCON [Inch] | DN [Inch] | APMX [Inch] | LF [Inch] | LU [Inch] | CHW [Inch] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **Short HB**  **HB** | | | | | | | | | |
| 1/4 | 1/4 | 0.238 | 7/8 | 2-1/4 | 3/4 | .005 | 4 | 23001505 | SCM-UCR4-I1/4C-S2.25HB AE40 |
| 5/16 | 5/16 | 0.301 | 1/2 | 2-3/8 | 7/8 | .005 | 4 | 23001507 | SCM-UCR4-I5/16C-S2.375HB AE40 |
| 3/8 | 3/8 | 0.363 | 5/8 | 2-5/8 | 1 | .008 | 4 | 23001509 | SCM-UCR4-I3/8C-S2.625HB AE40 |
| 1/2 | 1/2 | 0.484 | 3/4 | 3 | 1-3/16 | .008 | 4 | 23001510 | SCM-UCR4-I1/2C-S3HB AE40 |

*Continued on next page*

# Universal Line
## 4-flute roughing (UCR4)

PFERD TOOLS

| DC [Inch] | DCON [Inch] | DN [Inch] | APMX [Inch] | LF [Inch] | LU [Inch] | CHW [Inch] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **Long HB** | | | |  **HB** | | | | | |
| 1/4 | 1/4 | 0.238 | 1/2 | 2-1/2 | 7/8 | .005 | 4 | 23001504 | SCM-UCR4-I1/4C-M2.5HB AE40 |
| 5/16 | 5/16 | 0.301 | 3/4 | 2-1/2 | 1 | .005 | 4 | 23001506 | SCM-UCR4-I5/16C-M2.5HB AE40 |
| 3/8 | 3/8 | 0.363 | 7/8 | 3 | 1-3/16 | .008 | 4 | 23001508 | SCM-UCR4-I3/8C-M3HB AE40 |
| 1/2 | 1/2 | 0.484 | 1 | 3-1/2 | 1-9/16 | .008 | 4 | 23001511 | SCM-UCR4-I1/2C-M3.5HB AE40 |
| 5/8 | 5/8 | 0.609 | 1-1/4 | 4 | 1-5/8 | .008 | 4 | 23001512 | SCM-UCR4-I5/8C-M4HB AE40 |
| 3/4 | 3/4 | 0.734 | 1-1/2 | 4 | 1-7/8 | .012 | 4 | 23001513 | SCM-UCR4-I3/4C-M4HB AE40 |

# Universal Line
5-flute (UC5)

PFERD TOOLS

## Recommended peripheral speeds [SFPM]

| Material group | | | Specification/ example material | Suitability | Full slot milling $a_p$ = 1 x DC; $a_e$ = 1 x DC | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cutting speed $v_c$ | Tooth feed $f_z$ [mm/tooth] [inch/tooth] for cutting diameter DC | | | | | | | | | | | | | |
| | | | | | | 6 mm | 1/4 Inch | 5/16 Inch | 8 mm | 3/8 Inch | 10 mm | 12 mm | 1/2 Inch | 5/8 Inch | 16 mm | 3/4 Inch | 20 mm | 25 mm | 1 Inch |
| P | Steel | All types of steel and cast steel | up to 500 N/mm² (150 HB) | ● | 140 m/min | 0,027 | | | 0,036 | | 0,045 | 0,054 | | | 0,072 | | 0,090 | 0,113 | |
| | | | | | 459 ft./min | | .0011 | .0014 | | .0018 | | | .0021 | .0028 | | .0035 | | | .0044 |
| | | | 500 to 700 N/mm² (150 to 208 HB) | ● | 120 m/min | 0,027 | | | 0,036 | | 0,045 | 0,054 | | | 0,072 | | 0,090 | 0,113 | |
| | | | | | 394 ft./min | | .0011 | .0014 | | .0018 | | | .0021 | .0028 | | .0035 | | | .0044 |
| | | | 700 to 1,000 N/mm² (208 to 296 HB) | ● | 90 m/min | 0,027 | | | 0,036 | | 0,045 | 0,054 | | | 0,072 | | 0,090 | 0,113 | |
| | | | | | 295 ft./min | | .0011 | .0014 | | .0018 | | | .0021 | .0028 | | .0035 | | | .0044 |
| | | | 1,000 to 1,400 N/mm² (296 to 415 HB) | ● | 70 m/min | 0,027 | | | 0,036 | | 0,045 | 0,054 | | | 0,072 | | 0,090 | 0,113 | |
| | | | | | 230 ft./min | | .0011 | .0014 | | .0018 | | | .0021 | .0028 | | .0035 | | | .0044 |
| M | Stainless steel | Ferritic and martensitic | e.g. 1.4105, 1.4122 (AISI 410, 420, 430, 440, 440C) | ○ | 70 m/min | 0,027 | | | 0,036 | | 0,045 | 0,054 | | | 0,072 | | 0,090 | 0,113 | |
| | | | | | 230 ft./min | | .0011 | .0014 | | .0018 | | | .0021 | .0028 | | .0035 | | | .0044 |
| | | Austenitic | e.g. 1.4301, 1.4571 (AISI 303, 304, 316, 316L) | ○ | 60 m/min | 0,027 | | | 0,036 | | 0,045 | 0,054 | | | 0,072 | | 0,090 | 0,113 | |
| | | | | | 197 ft./min | | .0011 | .0014 | | .0018 | | | .0021 | .0028 | | .0035 | | | .0044 |
| | | High-temperature-resistant and ferritic-austenitic (duplex) | | ○ | 50 m/min | 0,027 | | | 0,036 | | 0,045 | 0,054 | | | 0,072 | | 0,090 | 0,113 | |
| | | | | | 164 ft./min | | .0011 | .0014 | | .0018 | | | .0021 | .0028 | | .0035 | | | .0044 |
| K | Cast iron | Cast iron with flake graphite (GJL, GG, grey cast iron) | to 180 HB | ● | 120 m/min | 0,027 | | | 0,036 | | 0,045 | 0,054 | | | 0,072 | | 0,090 | 0,113 | |
| | | | | | 394 ft./min | | .0011 | .0014 | | .0018 | | | .0021 | .0028 | | .0035 | | | .0044 |
| | | Cast iron with nodular graphite (GJS, GGG) | 160 to 260 HB | ● | 80 m/min | 0,027 | | | 0,036 | | 0,045 | 0,054 | | | 0,072 | | 0,090 | 0,113 | |
| | | | | | 262 ft./min | | .0011 | .0014 | | .0018 | | | .0021 | .0028 | | .0035 | | | .0044 |
| N | Non-ferrous metals | Aluminum | Alu up to 10% Si | | | | | | | | | | | | | | | | |
| | | | Alu over 10% Si | | | | | | | | | | | | | | | | |
| | | Copper, brass, bronze and red brass | | | | | | | | | | | | | | | | | |
| S | Super and titanium alloys | Heat-resistant super alloys | Based on Fe, Ni and Co | | | | | | | | | | | | | | | | |
| | | Pure titanium | | ○ | 40 m/min | 0,027 | | | 0,036 | | 0,045 | 0,054 | | | 0,072 | | 0,090 | 0,113 | |
| | | | | | 131 ft./min | | .0011 | .0014 | | .0018 | | | .0021 | .0028 | | .0035 | | | .0044 |
| | | Titanium alloys | | ○ | 30 m/min | 0,027 | | | 0,036 | | 0,045 | 0,054 | | | 0,072 | | 0,090 | 0,113 | |
| | | | | | 98 ft./min | | .0011 | .0014 | | .0018 | | | .0021 | .0028 | | .0035 | | | .0044 |
| H | Hard steels and chilled castings | Heat-treated and hardened steels | up to 50 HRC | | | | | | | | | | | | | | | | |
| | | | up to 58 HRC | | | | | | | | | | | | | | | | |
| | | | over 58 HRC | | | | | | | | | | | | | | | | |
| O | Other | Thermoplastics | | | | | | | | | | | | | | | | | |
| | | Duroplastics | | | | | | | | | | | | | | | | | |
| | | GRP/CRP reinforced plastics, graphite | | | | | | | | | | | | | | | | | |

● = highly recommended ○ = recommended

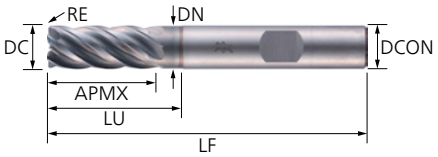
# Universal Line
5-flute (UC5)

PFERD TOOLS

## Recommended peripheral speeds [SFPM]

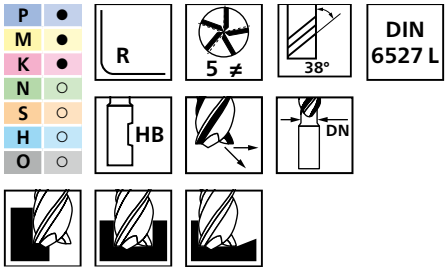
| Material group | | | Specification/ example material | Suitability | Side milling $a_p$ = 2 x DC; $a_e$ = 0.4 x D  | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cutting speed $v_c$ | Tooth feed $f_z$ [mm/tooth] [inch/tooth] for cutting diameter DC | | | | | | | | | | | | | |
| | | | | | | 6 mm | 1/4 Inch | 5/16 Inch | 8 mm | 3/8 Inch | 10 mm | 12 mm | 1/2 Inch | 5/8 Inch | 16 mm | 3/4 Inch | 20 mm | 25 mm | 1 Inch |
| P | Steel | All types of steel and cast steel | up to 500 N/mm² (150 HB) | ● | 180 m/min | 0.032 | | | 0.043 | | 0.054 | 0.065 | | | 0.086 | | 0.108 | 0.135 | |
| | | | | | 591 ft./min | | .0013 | .0017 | | .0021 | | | .0026 | .0034 | | .0043 | | | .0053 |
| | | | 500 to 700 N/mm² (150 to 208 HB) | ● | 160 m/min | 0.032 | | | 0.043 | | 0.054 | 0.065 | | | 0.086 | | 0.108 | 0.135 | |
| | | | | | 525 ft./min | | .0013 | .0017 | | .0021 | | | .0026 | .0034 | | .0043 | | | .0053 |
| | | | 700 to 1,000 N/mm² (208 to 296 HB) | ● | 120 m/min | 0.032 | | | 0.043 | | 0.054 | 0.065 | | | 0.086 | | 0.108 | 0.135 | |
| | | | | | 394 ft./min | | .0013 | .0017 | | .0021 | | | .0026 | .0034 | | .0043 | | | .0053 |
| | | | 1,000 to 1,400 N/mm² (296 to 415 HB) | ● | 95 m/min | 0.032 | | | 0.043 | | 0.054 | 0.065 | | | 0.086 | | 0.108 | 0.135 | |
| | | | | | 312 ft./min | | .0013 | .0017 | | .0021 | | | .0026 | .0034 | | .0043 | | | .0053 |
| M | Stainless steel | Ferritic and martensitic | e.g. 1.4105, 1.4122 (AISI 410, 420, 430, 440, 440C) | ○ | 80 m/min | 0.032 | | | 0.043 | | 0.054 | 0.065 | | | 0.086 | | 0.108 | 0.135 | |
| | | | | | 262 ft./min | | .0013 | .0017 | | .0021 | | | .0026 | .0034 | | .0043 | | | .0053 |
| | | Austenitic | e.g. 1.4301, 1.4571 (AISI 303, 304, 316, 316L) | ○ | 70 m/min | 0.032 | | | 0.043 | | 0.054 | 0.065 | | | 0.086 | | 0.108 | 0.135 | |
| | | | | | 230 ft./min | | .0013 | .0017 | | .0021 | | | .0026 | .0034 | | .0043 | | | .0053 |
| | | High-temperature-resistant and ferritic-austenitic (duplex) | | ○ | 60 m/min | 0.032 | | | 0.043 | | 0.054 | 0.065 | | | 0.086 | | 0.108 | 0.135 | |
| | | | | | 197 ft./min | | .0013 | .0017 | | .0021 | | | .0026 | .0034 | | .0043 | | | .0053 |
| K | Cast iron | Cast iron with flake graphite (GJL, GG, grey cast iron) | to 180 HB | ● | 160 m/min | 0.032 | | | 0.043 | | 0.054 | 0.065 | | | 0.086 | | 0.108 | 0.135 | |
| | | | | | 525 ft./min | | .0013 | .0017 | | .0021 | | | .0026 | .0034 | | .0043 | | | .0053 |
| | | Cast iron with nodular graphite (GJS, GGG) | 160 to 260 HB | ● | 120 m/min | 0.032 | | | 0.043 | | 0.054 | 0.065 | | | 0.086 | | 0.108 | 0.135 | |
| | | | | | 394 ft./min | | .0013 | .0017 | | .0021 | | | .0026 | .0034 | | .0043 | | | .0053 |
| N | Non-ferrous metals | Aluminum | Alu up to 10% Si | | | | | | | | | | | | | | | | |
| | | | Alu over 10% Si | | | | | | | | | | | | | | | | |
| | | Copper, brass, bronze and red brass | | | | | | | | | | | | | | | | | |
| S | Super and titanium alloys | Heat-resistant super alloys | Based on Fe, Ni and Co | | | | | | | | | | | | | | | | |
| | | Pure titanium | | ○ | 45 m/min | 0.032 | | | 0.043 | | 0.054 | 0.065 | | | 0.086 | | 0.108 | 0.135 | |
| | | | | | 148 ft./min | | .0013 | .0017 | | .0021 | | | .0026 | .0034 | | .0043 | | | .0053 |
| | | Titanium alloys | | ○ | 35 m/min | 0.032 | | | 0.043 | | 0.054 | 0.065 | | | 0.086 | | 0.108 | 0.135 | |
| | | | | | 115 ft./min | | .0013 | .0017 | | .0021 | | | .0026 | .0034 | | .0043 | | | .0053 |
| H | Hard steels and chilled castings | Heat-treated and hardened steels | up to 50 HRC | | | | | | | | | | | | | | | | |
| | | | up to 58 HRC | | | | | | | | | | | | | | | | |
| | | | over 58 HRC | | | | | | | | | | | | | | | | |
| O | Other | Thermoplastics | | | | | | | | | | | | | | | | | |
| | | Duroplastics | | | | | | | | | | | | | | | | | |
| | | GRP/CRP reinforced plastics, graphite | | | | | | | | | | | | | | | | | |

● = highly recommended ○ = recommended



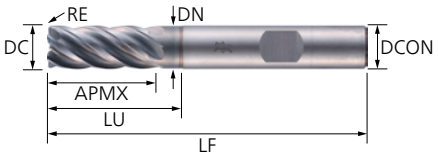

## Radius – metric

End mills for various applications, from roughing to finishing. Engineered for universal machining applications on a variety of materials.



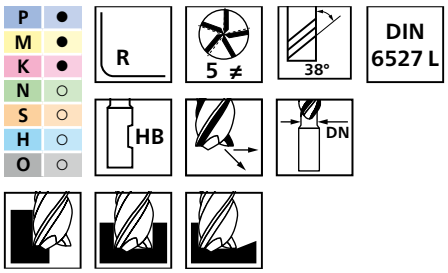

**Special features:**
- Variable pitch for low-vibration machining and smooth milling.
- Long tool life due to modern tool coating.
- Neck chip channel.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | LU [mm] | RE [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **Long HB** | | | | | HB | | | | |
| 6 | 6 | 5.7 | 13 | 57 | 20 | 0.5 | 5 | 23000845 | SCM-UC5-M060R05-M57HB AP40 |
| 8 | 8 | 7.7 | 19 | 63 | 25 | 0.5 | 5 | 23000846 | SCM-UC5-M080R05-M63HB AP40 |
| 10 | 10 | 9.7 | 22 | 72 | 30 | 0.5 | 5 | 23000847 | SCM-UC5-M100R05-M72HB AP40 |
| 12 | 12 | 11.6 | 26 | 83 | 36 | 0.5 | 5 | 23000848 | SCM-UC5-M120R05-M83HB AP40 |
| 16 | 16 | 15.6 | 32 | 92 | 42 | 1 | 5 | 23000849 | SCM-UC5-M160R10-M92HB AP40 |
| 20 | 20 | 19.6 | 38 | 104 | 52 | 1 | 5 | 23000850 | SCM-UC5-M200R10-M104HB AP40 |
| 25 | 25 | 24.5 | 45 | 124 | 65 | 1 | 5 | 23000851 | SCM-UC5-M250R10-M124HB AP40 |




## Radius – imperial

End mills for various applications, from roughing to finishing. Engineered for universal machining applications on a variety of materials.




**Special features:**
- Variable pitch for low-vibration machining and smooth milling.
- Long tool life due to modern tool coating.
- Neck chip channel.

| DC [Inch] | DCON [Inch] | DN [Inch] | APMX [Inch] | LF [Inch] | LU [Inch] | RE [Inch] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **Long HB** | | | | | HB | | | | |
| 1/4 | 1/4 | 0.238 | 1/2 | 2-1/2 | 1 | .015 | 5 | 23001563 | SCM-UC5-I1/4R0.015-M2.5HB AE40 |
| | | | | | | .01 | 5 | 23001562 | SCM-UC5-I1/4R0.01-M2.5HB AE40 |
| | | | | | | .03 | 5 | 23001564 | SCM-UC5-I1/4R0.03-M2.5HB AE40 |
| 5/16 | 5/16 | 0.301 | 3/4 | 2-1/2 | 1 | .015 | 5 | 23001565 | SCM-UC5-I5/16R0.015-M2.5HB AE40 |
| | | | | | | .02 | 5 | 23001566 | SCM-UC5-I5/16R0.02-M2.5HB AE40 |
| | | | | | | .03 | 5 | 23001567 | SCM-UC5-I5/16R0.03-M2.5HB AE40 |
| 3/8 | 3/8 | 0.363 | 7/8 | 3 | 1-3/16 | .015 | 5 | 23001568 | SCM-UC5-I3/8R0.015-M3HB AE40 |
| | | | | | | .02 | 5 | 23001569 | SCM-UC5-I3/8R0.02-M3HB AE40 |
| | | | | | | .03 | 5 | 23001570 | SCM-UC5-I3/8R0.03-M3HB AE40 |
| | | | | | | .06 | 5 | 23001571 | SCM-UC5-I3/8R0.06-M3HB AE40 |

*Continued on next page*

# Universal Line
## 5-flute (UC5)

| DC [Inch] | DCON [Inch] | DN [Inch] | APMX [Inch] | LF [Inch] | LU [Inch] | RE [Inch] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| 1/2 | 1/2 | 0.484 | 1 | 3-1/2 | 1-9/16 | .015 | 5 | 23001572 | SCM-UC5-I1/2R0.015-M3.5HB AE40 |
| | | | | | | .02 | 5 | 23001573 | SCM-UC5-I1/2R0.02-M3.5HB AE40 |
| | | | | | | .03 | 5 | 23001574 | SCM-UC5-I1/2R0.03-M3.5HB AE40 |
| | | | | | | .06 | 5 | 23001575 | SCM-UC5-I1/2R0.06-M3.5HB AE40 |
| | | | | | | .09 | 5 | 23001576 | SCM-UC5-I1/2R0.09-M3.5HB AE40 |
| 5/8 | 5/8 | 0.609 | 1-1/4 | 4 | 1-5/8 | .03 | 5 | 23001577 | SCM-UC5-I5/8R0.03-M4HB AE40 |
| | | | | | | .04 | 5 | 23001578 | SCM-UC5-I5/8R0.04-M4HB AE40 |
| | | | | | | .06 | 5 | 23001579 | SCM-UC5-I5/8R0.06-M4HB AE40 |
| | | | | | | .09 | 5 | 23001580 | SCM-UC5-I5/8R0.09-M4HB AE40 |
| | | | | | | .125 | 5 | 23001581 | SCM-UC5-I5/8R0.125-M4HB AE40 |
| 3/4 | 3/4 | 0.734 | 1-1/2 | 4-1/4 | 2 | .03 | 5 | 23001582 | SCM-UC5-I3/4R0.03-M4.25HB AE40 |
| | | | | | | .04 | 5 | 23001583 | SCM-UC5-I3/4R0.04-M4.25HB AE40 |
| | | | | | | .06 | 5 | 23001584 | SCM-UC5-I3/4R0.06-M4.25HB AE40 |
| | | | | | | .125 | 5 | 23001585 | SCM-UC5-I3/4R0.125-M4.25HB AE40 |
| 1 | 1 | 0.98 | 2-1/4 | 5 | 2-5/8 | .03 | 5 | 23001586 | SCM-UC5-I1R0.03-M5HB AE40 |
| | | | | | | .04 | 5 | 23001587 | SCM-UC5-I1R0.04-M5HB AE40 |
| | | | | | | .06 | 5 | 23001588 | SCM-UC5-I1R0.06-M5HB AE40 |

# Universal Line
## 5-flute with chip breakers (UCD5)

PFERD TOOLS

### Recommended cutting speeds [SFPM] – radius corner design with chip divider, 2xD

| Material group | | | Specification/ example material | Suitability | Full slot milling $a_p$ = 1 x DC; $a_e$ = 1 x DC | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cutting speed $v_c$ | Tooth feed $f_z$ [mm/tooth] [inch/tooth] for cutting diameter DC | | | | | | | | | | | | | |
| | | | | | | 6 mm | 1/4 Inch | 5/16 Inch | 8 mm | 3/8 Inch | 10 mm | 12 mm | 1/2 Inch | 5/8 Inch | 16 mm | 3/4 Inch | 20 mm | 25 mm | 1 Inch |
| P | Steel | All types of steel and cast steel | up to 500 N/mm² (150 HB) | ● | 140 m/min | 0,027 | | | 0,036 | | 0,045 | 0,054 | | | 0,072 | | 0,090 | 0,113 | |
| | | | | | 459 ft./min | | .0011 | .0014 | | .0018 | | | .0021 | .0028 | | .0035 | | | .0044 |
| | | | 500 to 700 N/mm² (150 to 208 HB) | ● | 120 m/min | 0,027 | | | 0,036 | | 0,045 | 0,054 | | | 0,072 | | 0,090 | 0,113 | |
| | | | | | 394 ft./min | | .0011 | .0014 | | .0018 | | | .0021 | .0028 | | .0035 | | | .0044 |
| | | | 700 to 1,000 N/mm² (208 to 296 HB) | ● | 90 m/min | 0,027 | | | 0,036 | | 0,045 | 0,054 | | | 0,072 | | 0,090 | 0,113 | |
| | | | | | 295 ft./min | | .0011 | .0014 | | .0018 | | | .0021 | .0028 | | .0035 | | | .0044 |
| | | | 1,000 to 1,400 N/mm² (296 to 415 HB) | ● | 70 m/min | 0,027 | | | 0,036 | | 0,045 | 0,054 | | | 0,072 | | 0,090 | 0,113 | |
| | | | | | 230 ft./min | | .0011 | .0014 | | .0018 | | | .0021 | .0028 | | .0035 | | | .0044 |
| M | Stainless steel | Ferritic and martensitic | e.g. 1.4105, 1.4122 (AISI 410, 420, 430, 440, 440C) | ○ | 70 m/min | 0,027 | | | 0,036 | | 0,045 | 0,054 | | | 0,072 | | 0,090 | 0,113 | |
| | | | | | 230 ft./min | | .0011 | .0014 | | .0018 | | | .0021 | .0028 | | .0035 | | | .0044 |
| | | Austenitic | e.g. 1.4301, 1.4571 (AISI 303, 304, 316, 316L) | ○ | 60 m/min | 0,027 | | | 0,036 | | 0,045 | 0,054 | | | 0,072 | | 0,090 | 0,113 | |
| | | | | | 197 ft./min | | .0011 | .0014 | | .0018 | | | .0021 | .0028 | | .0035 | | | .0044 |
| | | High-temperature-resistant and ferritic-austenitic (duplex) | | ○ | 50 m/min | 0,027 | | | 0,036 | | 0,045 | 0,054 | | | 0,072 | | 0,090 | 0,113 | |
| | | | | | 164 ft./min | | .0011 | .0014 | | .0018 | | | .0021 | .0028 | | .0035 | | | .0044 |
| K | Cast iron | Cast iron with flake graphite (GJL, GG, grey cast iron) | to 180 HB | ● | 120 m/min | 0,027 | | | 0,036 | | 0,045 | 0,054 | | | 0,072 | | 0,090 | 0,113 | |
| | | | | | 394 ft./min | | .0011 | .0014 | | .0018 | | | .0021 | .0028 | | .0035 | | | .0044 |
| | | Cast iron with nodular graphite (GJS, GGG) | 160 to 260 HB | ● | 80 m/min | 0,027 | | | 0,036 | | 0,045 | 0,054 | | | 0,072 | | 0,090 | 0,113 | |
| | | | | | 262 ft./min | | .0011 | .0014 | | .0018 | | | .0021 | .0028 | | .0035 | | | .0044 |
| N | Non-ferrous metals | Aluminum | Alu up to 10% Si | | | | | | | | | | | | | | | | |
| | | | Alu over 10% Si | | | | | | | | | | | | | | | | |
| | | Copper, brass, bronze and red brass | | | | | | | | | | | | | | | | | |
| S | Super and titanium alloys | Heat-resistant super alloys | Based on Fe, Ni and Co | | | | | | | | | | | | | | | | |
| | | Pure titanium | | ○ | 40 m/min | 0,027 | | | 0,036 | | 0,045 | 0,054 | | | 0,072 | | 0,090 | 0,113 | |
| | | | | | 131 ft./min | | .0011 | .0014 | | .0018 | | | .0021 | .0028 | | .0035 | | | .0044 |
| | | Titanium alloys | | ○ | 30 m/min | 0,027 | | | 0,036 | | 0,045 | 0,054 | | | 0,072 | | 0,090 | 0,113 | |
| | | | | | 98 ft./min | | .0011 | .0014 | | .0018 | | | .0021 | .0028 | | .0035 | | | .0044 |
| H | Hard steels and chilled castings | Heat-treated and hardened steels | up to 50 HRC | | | | | | | | | | | | | | | | |
| | | | up to 58 HRC | | | | | | | | | | | | | | | | |
| | | | over 58 HRC | | | | | | | | | | | | | | | | |
| O | Other | Thermoplastics | | | | | | | | | | | | | | | | | |
| | | Duroplastics | | | | | | | | | | | | | | | | | |
| | | GRP/CRP reinforced plastics, graphite | | | | | | | | | | | | | | | | | |

● = highly recommended ○ = recommended

# Universal Line
## 5-flute with chip breakers (UCD5)

PFERD TOOLS

### Recommended cutting speeds [SFPM] – radius corner design with chip divider, 2xD

| Material group | | | Specification/ example material | Suitability | Side milling $a_p$ = 2 x DC; $a_e$ = 0.4 x D  | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cutting speed $v_c$ | Tooth feed $f_z$ [mm/tooth] [inch/tooth] for cutting diameter DC | | | | | | | | | | | | | |
| | | | | | | 6 mm | 1/4 Inch | 5/16 Inch | 8 mm | 3/8 Inch | 10 mm | 12 mm | 1/2 Inch | 5/8 Inch | 16 mm | 3/4 Inch | 20 mm | 25 mm | 1 Inch |
| P | Steel | All types of steel and cast steel | up to 500 N/mm² (150 HB) | ● | 180 m/min | 0.032 | | | 0.043 | | 0.054 | 0.065 | | | 0.086 | | 0.108 | 0.135 | |
| | | | | | 591 ft./min | | .0013 | .0017 | | .0021 | | | .0026 | .0034 | | .0043 | | | .0053 |
| | | | 500 to 700 N/mm² (150 to 208 HB) | ● | 160 m/min | 0.032 | | | 0.043 | | 0.054 | 0.065 | | | 0.086 | | 0.108 | 0.135 | |
| | | | | | 525 ft./min | | .0013 | .0017 | | .0021 | | | .0026 | .0034 | | .0043 | | | .0053 |
| | | | 700 to 1,000 N/mm² (208 to 296 HB) | ● | 120 m/min | 0.032 | | | 0.043 | | 0.054 | 0.065 | | | 0.086 | | 0.108 | 0.135 | |
| | | | | | 394 ft./min | | .0013 | .0017 | | .0021 | | | .0026 | .0034 | | .0043 | | | .0053 |
| | | | 1,000 to 1,400 N/mm² (296 to 415 HB) | ● | 95 m/min | 0.032 | | | 0.043 | | 0.054 | 0.065 | | | 0.086 | | 0.108 | 0.135 | |
| | | | | | 312 ft./min | | .0013 | .0017 | | .0021 | | | .0026 | .0034 | | .0043 | | | .0053 |
| M | Stainless steel | Ferritic and martensitic | e.g. 1.4105, 1.4122 (AISI 410, 420, 430, 440, 440C) | ○ | 80 m/min | 0.032 | | | 0.043 | | 0.054 | 0.065 | | | 0.086 | | 0.108 | 0.135 | |
| | | | | | 262 ft./min | | .0013 | .0017 | | .0021 | | | .0026 | .0034 | | .0043 | | | .0053 |
| | | Austenitic | e.g. 1.4301, 1.4571 (AISI 303, 304, 316, 316L) | ○ | 70 m/min | 0.032 | | | 0.043 | | 0.054 | 0.065 | | | 0.086 | | 0.108 | 0.135 | |
| | | | | | 230 ft./min | | .0013 | .0017 | | .0021 | | | .0026 | .0034 | | .0043 | | | .0053 |
| | | High-temperature-resistant and ferritic-austenitic (duplex) | | ○ | 60 m/min | 0.032 | | | 0.043 | | 0.054 | 0.065 | | | 0.086 | | 0.108 | 0.135 | |
| | | | | | 197 ft./min | | .0013 | .0017 | | .0021 | | | .0026 | .0034 | | .0043 | | | .0053 |
| K | Cast iron | Cast iron with flake graphite (GJL, GG, grey cast iron) | to 180 HB | ● | 160 m/min | 0.032 | | | 0.043 | | 0.054 | 0.065 | | | 0.086 | | 0.108 | 0.135 | |
| | | | | | 525 ft./min | | .0013 | .0017 | | .0021 | | | .0026 | .0034 | | .0043 | | | .0053 |
| | | Cast iron with nodular graphite (GJS, GGG) | 160 to 260 HB | ● | 120 m/min | 0.032 | | | 0.043 | | 0.054 | 0.065 | | | 0.086 | | 0.108 | 0.135 | |
| | | | | | 394 ft./min | | .0013 | .0017 | | .0021 | | | .0026 | .0034 | | .0043 | | | .0053 |
| N | Non-ferrous metals | Aluminum | Alu up to 10% Si | | | | | | | | | | | | | | | | |
| | | | Alu over 10% Si | | | | | | | | | | | | | | | | |
| | | Copper, brass, bronze and red brass | | | | | | | | | | | | | | | | | |
| S | Super and titanium alloys | Heat-resistant super alloys | Based on Fe, Ni and Co | | | | | | | | | | | | | | | | |
| | | Pure titanium | | ○ | 45 m/min | 0.032 | | | 0.043 | | 0.054 | 0.065 | | | 0.086 | | 0.108 | 0.135 | |
| | | | | | 148 ft./min | | .0013 | .0017 | | .0021 | | | .0026 | .0034 | | .0043 | | | .0053 |
| | | Titanium alloys | | ○ | 35 m/min | 0.032 | | | 0.043 | | 0.054 | 0.065 | | | 0.086 | | 0.108 | 0.135 | |
| | | | | | 115 ft./min | | .0013 | .0017 | | .0021 | | | .0026 | .0034 | | .0043 | | | .0053 |
| H | Hard steels and chilled castings | Heat-treated and hardened steels | up to 50 HRC | | | | | | | | | | | | | | | | |
| | | | up to 58 HRC | | | | | | | | | | | | | | | | |
| | | | over 58 HRC | | | | | | | | | | | | | | | | |
| O | Other | Thermoplastics | | | | | | | | | | | | | | | | | |
| | | Duroplastics | | | | | | | | | | | | | | | | | |
| | | GRP/CRP reinforced plastics, graphite | | | | | | | | | | | | | | | | | |

● = highly recommended ○ = recommended

# Universal Line
## 5-flute with chip breakers (UCD5)

PFERD TOOLS

### Recommended cutting speeds [SFPM] – radius corner design with chip divider, 3xD

| Material group | | | Specification/ example material | Suitability | Dynamic milling $a_p$ = 3 x DC; $a_e$ = 0.08 | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cutting speed $v_c$ | Tooth feed $f_z$ [mm/tooth] [inch/tooth] for cutting diameter DC | | | | | | | | | | | | |
| | | | | | | 6 mm | 1/4 Inch | 5/16 Inch | 8 mm | 3/8 Inch | 10 mm | 12 mm | 1/2 Inch | 5/8 Inch | 16 mm | 3/4 Inch | 20 mm | 25 mm | 1 Inch |
| P | Steel | All types of steel and cast steel | up to 500 N/mm² (150 HB) | ● | 250 m/min | 0.068 | | | 0.091 | | 0.113 | 0.136 | | | 0.181 | | 0.227 | 0.284 | |
| | | | | | 820 ft./min | | .0027 | .0036 | | .0045 | | | .0054 | .0071 | | .0089 | | | .0112 |
| | | | 500 to 700 N/mm² (150 to 208 HB) | ● | 220 m/min | 0.068 | | | 0.091 | | 0.113 | 0.136 | | | 0.181 | | 0.227 | 0.284 | |
| | | | | | 722 ft./min | | .0027 | .0036 | | .0045 | | | .0054 | .0071 | | .0089 | | | .0112 |
| | | | 700 to 1,000 N/mm² (208 to 296 HB) | ● | 160 m/min | 0.068 | | | 0.091 | | 0.113 | 0.136 | | | 0.181 | | 0.227 | 0.284 | |
| | | | | | 525 ft./min | | .0027 | .0036 | | .0045 | | | .0054 | .0071 | | .0089 | | | .0112 |
| | | | 1,000 to 1,400 N/mm² (296 to 415 HB) | ● | 130 m/min | 0.068 | | | 0.091 | | 0.113 | 0.136 | | | 0.181 | | 0.227 | 0.284 | |
| | | | | | 427 ft./min | | .0027 | .0036 | | .0045 | | | .0054 | .0071 | | .0089 | | | .0112 |
| M | Stainless steel | Ferritic and martensitic | e.g. 1.4105, 1.4122 (AISI 410, 420, 430, 440, 440C) | ○ | 90 m/min | 0.068 | | | 0.091 | | 0.113 | 0.136 | | | 0.181 | | 0.227 | 0.284 | |
| | | | | | 295 ft./min | | .0027 | .0036 | | .0045 | | | .0054 | .0071 | | .0089 | | | .0112 |
| | | Austenitic | e.g. 1.4301, 1.4571 (AISI 303, 304, 316, 316L) | ○ | 80 m/min | 0.068 | | | 0.091 | | 0.113 | 0.136 | | | 0.181 | | 0.227 | 0.284 | |
| | | | | | 262 ft./min | | .0027 | .0036 | | .0045 | | | .0054 | .0071 | | .0089 | | | .0112 |
| | | High-temperature-resistant and ferritic-austenitic (duplex) | | ○ | 70 m/min | 0.068 | | | 0.091 | | 0.113 | 0.136 | | | 0.181 | | 0.227 | 0.284 | |
| | | | | | 230 ft./min | | .0027 | .0036 | | .0045 | | | .0054 | .0071 | | .0089 | | | .0112 |
| K | Cast iron | Cast iron with flake graphite (GJL, GG, grey cast iron) | to 180 HB | ● | 180 m/min | 0.068 | | | 0.091 | | 0.113 | 0.136 | | | 0.181 | | 0.227 | 0.284 | |
| | | | | | 591 ft./min | | .0027 | .0036 | | .0045 | | | .0054 | .0071 | | .0089 | | | .0112 |
| | | Cast iron with nodular graphite (GJS, GGG) | 160 to 260 HB | ● | 160 m/min | 0.068 | | | 0.091 | | 0.113 | 0.136 | | | 0.181 | | 0.227 | 0.284 | |
| | | | | | 525 ft./min | | .0027 | .0036 | | .0045 | | | .0054 | .0071 | | .0089 | | | .0112 |
| N | Non-ferrous metals | Aluminum | Alu up to 10% Si | | | | | | | | | | | | | | | | |
| | | | Alu over 10% Si | | | | | | | | | | | | | | | | |
| | | Copper, brass, bronze and red brass | | | | | | | | | | | | | | | | | |
| S | Super and titanium alloys | Heat-resistant super alloys | Based on Fe, Ni and Co | | | | | | | | | | | | | | | | |
| | | Pure titanium | | ○ | 70 m/min | 0.068 | | | 0.091 | | 0.113 | 0.136 | | | 0.181 | | 0.227 | 0.284 | |
| | | | | | 230 ft./min | | .0027 | .0036 | | .0045 | | | .0054 | .0071 | | .0089 | | | .0112 |
| | | Titanium alloys | | ○ | 50 m/min | 0.068 | | | 0.091 | | 0.113 | 0.136 | | | 0.181 | | 0.227 | 0.284 | |
| | | | | | 164 ft./min | | .0027 | .0036 | | .0045 | | | .0054 | .0071 | | .0089 | | | .0112 |
| H | Hard steels and chilled castings | Heat-treated and hardened steels | up to 50 HRC | | | | | | | | | | | | | | | | |
| | | | up to 58 HRC | | | | | | | | | | | | | | | | |
| | | | over 58 HRC | | | | | | | | | | | | | | | | |
| O | Other | Thermoplastics | | | | | | | | | | | | | | | | | |
| | | Duroplastics | | | | | | | | | | | | | | | | | |
| | | GRP/CRP reinforced plastics, graphite | | | | | | | | | | | | | | | | | |

● = highly recommended ○ = recommended

# Universal Line
## 5-flute with chip breakers (UCD5)

PFERD TOOLS

### Recommended cutting speeds [SFPM] – radius corner design with chip divider, 4xD

| Material group | | | Specification/ example material | Suitability | Dynamic milling $a_p$ = 4 x DC; $a_e$ = 0.06 | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cutting speed $v_c$ | Tooth feed $f_z$ [mm/tooth] [inch/tooth] for cutting diameter DC | | | | | | | | | | | | | |
| | | | | | | 6 mm | 1/4 Inch | 5/16 Inch | 8 mm | 3/8 Inch | 10 mm | 12 mm | 1/2 Inch | 5/8 Inch | 16 mm | 3/4 Inch | 20 mm | 25 mm | 1 Inch |
| P | Steel | All types of steel and cast steel | up to 500 N/mm² (150 HB) | ● | 250 m/min | 0.060 | | | 0.081 | | 0.101 | 0.121 | | | 0.161 | | 0.202 | 0.252 | |
| | | | | | 820 ft./min | | .0024 | .0032 | | .0040 | | | .0048 | .0063 | | .0079 | | | .0099 |
| | | | 500 to 700 N/mm² (150 to 208 HB) | ● | 220 m/min | 0.060 | | | 0.081 | | 0.101 | 0.121 | | | 0.161 | | 0.202 | 0.252 | |
| | | | | | 722 ft./min | | .0024 | .0032 | | .0040 | | | .0048 | .0063 | | .0079 | | | .0099 |
| | | | 700 to 1,000 N/mm² (208 to 296 HB) | ● | 160 m/min | 0.060 | | | 0.081 | | 0.101 | 0.121 | | | 0.161 | | 0.202 | 0.252 | |
| | | | | | 525 ft./min | | .0024 | .0032 | | .0040 | | | .0048 | .0063 | | .0079 | | | .0099 |
| | | | 1,000 to 1,400 N/mm² (296 to 415 HB) | ● | 130 m/min | 0.060 | | | 0.081 | | 0.101 | 0.121 | | | 0.161 | | 0.202 | 0.252 | |
| | | | | | 427 ft./min | | .0024 | .0032 | | .0040 | | | .0048 | .0063 | | .0079 | | | .0099 |
| M | Stainless steel | Ferritic and martensitic | e.g. 1.4105, 1.4122 (AISI 410, 420, 430, 440, 440C) | ○ | 90 m/min | 0.060 | | | 0.081 | | 0.101 | 0.121 | | | 0.161 | | 0.202 | 0.252 | |
| | | | | | 295 ft./min | | .0024 | .0032 | | .0040 | | | .0048 | .0063 | | .0079 | | | .0099 |
| | | Austenitic | e.g. 1.4301, 1.4571 (AISI 303, 304, 316, 316L) | ○ | 80 m/min | 0.060 | | | 0.081 | | 0.101 | 0.121 | | | 0.161 | | 0.202 | 0.252 | |
| | | | | | 262 ft./min | | .0024 | .0032 | | .0040 | | | .0048 | .0063 | | .0079 | | | .0099 |
| | | High-temperature-resistant and ferritic-austenitic (duplex) | | ○ | 70 m/min | 0.060 | | | 0.081 | | 0.101 | 0.121 | | | 0.161 | | 0.202 | 0.252 | |
| | | | | | 230 ft./min | | .0024 | .0032 | | .0040 | | | .0048 | .0063 | | .0079 | | | .0099 |
| K | Cast iron | Cast iron with flake graphite (GJL, GG, grey cast iron) | to 180 HB | ● | 180 m/min | 0.060 | | | 0.081 | | 0.101 | 0.121 | | | 0.161 | | 0.202 | 0.252 | |
| | | | | | 591 ft./min | | .0024 | .0032 | | .0040 | | | .0048 | .0063 | | .0079 | | | .0099 |
| | | Cast iron with nodular graphite (GJS, GGG) | 160 to 260 HB | ● | 160 m/min | 0.060 | | | 0.081 | | 0.101 | 0.121 | | | 0.161 | | 0.202 | 0.252 | |
| | | | | | 525 ft./min | | .0024 | .0032 | | .0040 | | | .0048 | .0063 | | .0079 | | | .0099 |
| N | Non-ferrous metals | Aluminum | Alu up to 10% Si | | | | | | | | | | | | | | | | |
| | | | Alu over 10% Si | | | | | | | | | | | | | | | | |
| | | Copper, brass, bronze and red brass | | | | | | | | | | | | | | | | | |
| S | Super and titanium alloys | Heat-resistant super alloys | Based on Fe, Ni and Co | | | | | | | | | | | | | | | | |
| | | Pure titanium | | ○ | 70 m/min | 0.060 | | | 0.081 | | 0.101 | 0.121 | | | 0.161 | | 0.202 | 0.252 | |
| | | | | | 230 ft./min | | .0024 | .0032 | | .0040 | | | .0048 | .0063 | | .0079 | | | .0099 |
| | | Titanium alloys | | ○ | 50 m/min | 0.060 | | | 0.081 | | 0.101 | 0.121 | | | 0.161 | | 0.202 | 0.252 | |
| | | | | | 164 ft./min | | .0024 | .0032 | | .0040 | | | .0048 | .0063 | | .0079 | | | .0099 |
| H | Hard steels and chilled castings | Heat-treated and hardened steels | up to 50 HRC | | | | | | | | | | | | | | | | |
| | | | up to 58 HRC | | | | | | | | | | | | | | | | |
| | | | over 58 HRC | | | | | | | | | | | | | | | | |
| O | Other | Thermoplastics | | | | | | | | | | | | | | | | | |
| | | Duroplastics | | | | | | | | | | | | | | | | | |
| | | GRP/CRP reinforced plastics, graphite | | | | | | | | | | | | | | | | | |

● = highly recommended ○ = recommended

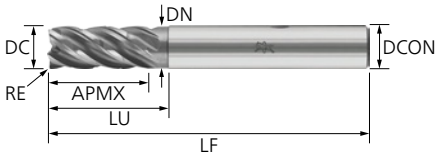
# Universal Line
## 5-flute with chip breakers (UCD5)

PFERD TOOLS

### Recommended cutting speeds [SFPM] – radius corner design with chip divider, 5xD

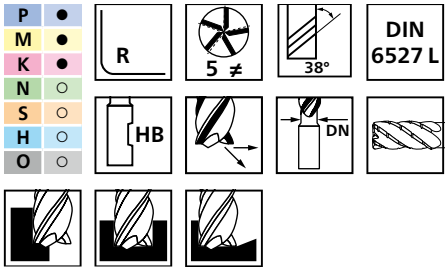
| Material group | | | Specification/ example material | Suitability | Dynamic milling $a_p$ = 5 x DC; $a_e$ = 0.06 | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cutting speed $v_c$ | Tooth feed $f_z$ [mm/tooth] [inch/tooth] for cutting diameter DC | | | | | | | | | | | | | |
| | | | | | | 6 mm | 1/4 Inch | 5/16 Inch | 8 mm | 3/8 Inch | 10 mm | 12 mm | 1/2 Inch | 5/8 Inch | 16 mm | 3/4 Inch | 20 mm | 25 mm | 1 Inch |
| P | Steel | All types of steel and cast steel | up to 500 N/mm² (150 HB) | ● | 250 m/min | 0.053 | | | 0.071 | | 0.088 | 0.106 | | | 0.141 | | 0.176 | 0.221 | |
| | | | | | 820 ft./min | | .0021 | .0028 | | .0035 | | | .0042 | .0056 | | .0069 | | | .0087 |
| | | | 500 to 700 N/mm² (150 to 208 HB) | ● | 220 m/min | 0.053 | | | 0.071 | | 0.088 | 0.106 | | | 0.141 | | 0.176 | 0.221 | |
| | | | | | 722 ft./min | | .0021 | .0028 | | .0035 | | | .0042 | .0056 | | .0069 | | | .0087 |
| | | | 700 to 1,000 N/mm² (208 to 296 HB) | ● | 160 m/min | 0.053 | | | 0.071 | | 0.088 | 0.106 | | | 0.141 | | 0.176 | 0.221 | |
| | | | | | 525 ft./min | | .0021 | .0028 | | .0035 | | | .0042 | .0056 | | .0069 | | | .0087 |
| | | | 1,000 to 1,400 N/mm² (296 to 415 HB) | ● | 130 m/min | 0.053 | | | 0.071 | | 0.088 | 0.106 | | | 0.141 | | 0.176 | 0.221 | |
| | | | | | 427 ft./min | | .0021 | .0028 | | .0035 | | | .0042 | .0056 | | .0069 | | | .0087 |
| M | Stainless steel | Ferritic and martensitic | e.g. 1.4105, 1.4122 (AISI 410, 420, 430, 440, 440C) | ○ | 90 m/min | 0.053 | | | 0.071 | | 0.088 | 0.106 | | | 0.141 | | 0.176 | 0.221 | |
| | | | | | 295 ft./min | | .0021 | .0028 | | .0035 | | | .0042 | .0056 | | .0069 | | | .0087 |
| | | Austenitic | e.g. 1.4301, 1.4571 (AISI 303, 304, 316, 316L) | ○ | 80 m/min | 0.053 | | | 0.071 | | 0.088 | 0.106 | | | 0.141 | | 0.176 | 0.221 | |
| | | | | | 262 ft./min | | .0021 | .0028 | | .0035 | | | .0042 | .0056 | | .0069 | | | .0087 |
| | | High-temperature-resistant and ferritic-austenitic (duplex) | | ○ | 70 m/min | 0.053 | | | 0.071 | | 0.088 | 0.106 | | | 0.141 | | 0.176 | 0.221 | |
| | | | | | 230 ft./min | | .0021 | .0028 | | .0035 | | | .0042 | .0056 | | .0069 | | | .0087 |
| K | Cast iron | Cast iron with flake graphite (GJL, GG, grey cast iron) | to 180 HB | ● | 180 m/min | 0.053 | | | 0.071 | | 0.088 | 0.106 | | | 0.141 | | 0.176 | 0.221 | |
| | | | | | 591 ft./min | | .0021 | .0028 | | .0035 | | | .0042 | .0056 | | .0069 | | | .0087 |
| | | Cast iron with nodular graphite (GJS, GGG) | 160 to 260 HB | ● | 160 m/min | 0.053 | | | 0.071 | | 0.088 | 0.106 | | | 0.141 | | 0.176 | 0.221 | |
| | | | | | 525 ft./min | | .0021 | .0028 | | .0035 | | | .0042 | .0056 | | .0069 | | | .0087 |
| N | Non-ferrous metals | Aluminum | Alu up to 10% Si | | | | | | | | | | | | | | | | |
| | | | Alu over 10% Si | | | | | | | | | | | | | | | | |
| | | Copper, brass, bronze and red brass | | | | | | | | | | | | | | | | | |
| S | Super and titanium alloys | Heat-resistant super alloys | Based on Fe, Ni and Co | | | | | | | | | | | | | | | | |
| | | Pure titanium | | ○ | 70 m/min | 0.053 | | | 0.071 | | 0.088 | 0.106 | | | 0.141 | | 0.176 | 0.221 | |
| | | | | | 230 ft./min | | .0021 | .0028 | | .0035 | | | .0042 | .0056 | | .0069 | | | .0087 |
| | | Titanium alloys | | ○ | 50 m/min | 0.053 | | | 0.071 | | 0.088 | 0.106 | | | 0.141 | | 0.176 | 0.221 | |
| | | | | | 164 ft./min | | .0021 | .0028 | | .0035 | | | .0042 | .0056 | | .0069 | | | .0087 |
| H | Hard steels and chilled castings | Heat-treated and hardened steels | up to 50 HRC | | | | | | | | | | | | | | | | |
| | | | up to 58 HRC | | | | | | | | | | | | | | | | |
| | | | over 58 HRC | | | | | | | | | | | | | | | | |
| O | Other | Thermoplastics | | | | | | | | | | | | | | | | | |
| | | Duroplastics | | | | | | | | | | | | | | | | | |
| | | GRP/CRP reinforced plastics, graphite | | | | | | | | | | | | | | | | | |

● = highly recommended ○ = recommended

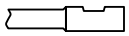


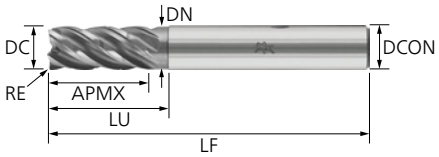

## Radius corner design with chip divider, 2xD – metric

End mills with chip divider for various applications, from roughing to finishing. Engineered for universal machining applications on a variety of materials.



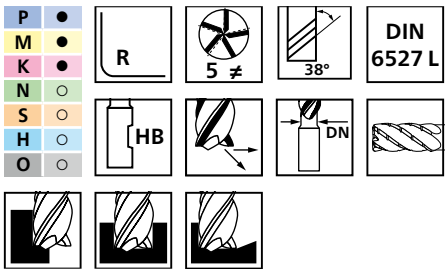

**Special features:**
- Optimum chip control due to chip divider.
- Variable pitch for low-vibration machining and smooth milling.
- Neck chip channel.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | LU [mm] | RE [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **Long HB**  **HB** | | | | | | | | | |
| 6 | 6 | 5.7 | 13 | 57 | 20 | 0.5 | 5 | 23000852 | SCM-UCD5-M060R05-M57HB AP40 |
| 8 | 8 | 7.7 | 19 | 63 | 25 | 0.5 | 5 | 23000853 | SCM-UCD5-M080R05-M63HB AP40 |
| 10 | 10 | 9.7 | 22 | 72 | 30 | 0.5 | 5 | 23000854 | SCM-UCD5-M100R05-M72HB AP40 |
| 12 | 12 | 11.6 | 26 | 83 | 36 | 0.5 | 5 | 23000855 | SCM-UCD5-M120R05-M83HB AP40 |
| 16 | 16 | 15.6 | 32 | 92 | 42 | 1 | 5 | 23000856 | SCM-UCD5-M160R10-M92HB AP40 |
| 20 | 20 | 19.6 | 38 | 104 | 52 | 1 | 5 | 23000857 | SCM-UCD5-M200R10-M104HB AP40 |
| 25 | 25 | 24.5 | 45 | 124 | 65 | 1 | 5 | 23000858 | SCM-UCD5-M250R10-M124HB AP40 |

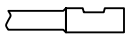



## Radius corner design with chip divider, 2xD – imperial

End mills with chip divider for various applications, from roughing to finishing. Engineered for universal machining applications on a variety of materials.



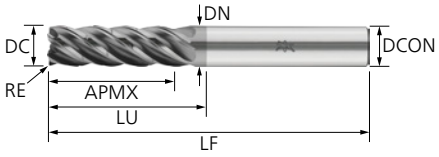

**Special features:**
- Optimum chip control due to chip divider.
- Variable pitch for low-vibration machining and smooth milling.
- Neck chip channel.

| DC [Inch] | DCON [Inch] | DN [Inch] | APMX [Inch] | LF [Inch] | LU [Inch] | RE [Inch] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **Long HB**  **HB** | | | | | | | | | |
| 1/4 | 1/4 | 0.238 | 1/2 | 2-1/2 | 1 | .015 | 5 | 23001590 | SCM-UCD5-I1/4R0.015-M2.5HB AE40 |
| | | | | | | .01 | 5 | 23001589 | SCM-UCD5-I1/4R0.01-M2.5HB AE40 |
| | | | | | | .03 | 5 | 23001591 | SCM-UCD5-I1/4R0.03-M2.5HB AE40 |
| 5/16 | 5/16 | 0.301 | 3/4 | 2-1/2 | 1 | .015 | 5 | 23001592 | SCM-UCD5-I5/16R0.015-M2.5HB AE40 |
| | | | | | | .02 | 5 | 23001593 | SCM-UCD5-I5/16R0.02-M2.5HB AE40 |
| | | | | | | .03 | 5 | 23001594 | SCM-UCD5-I5/16R0.03-M2.5HB AE40 |
| 3/8 | 3/8 | 0.363 | 7/8 | 3 | 1-3/16 | .015 | 5 | 23001595 | SCM-UCD5-I3/8R0.015-M3HB AE40 |
| | | | | | | .02 | 5 | 23001596 | SCM-UCD5-I3/8R0.02-M3HB AE40 |
| | | | | | | .03 | 5 | 23001597 | SCM-UCD5-I3/8R0.03-M3HB AE40 |
| | | | | | | .06 | 5 | 23001598 | SCM-UCD5-I3/8R0.06-M3HB AE40 |

*Continued on next page*

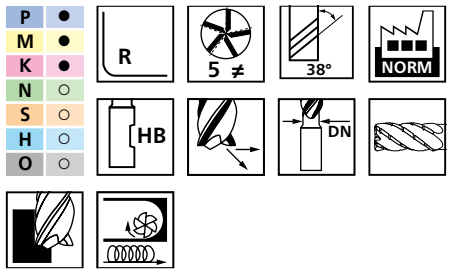
# Universal Line
## 5-flute with chip breakers (UCD5)

| DC [Inch] | DCON [Inch] | DN [Inch] | APMX [Inch] | LF [Inch] | LU [Inch] | RE [Inch] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| 1/2 | 1/2 | 0.484 | 1 | 3-1/2 | 1-9/16 | .015 | 5 | 23001599 | SCM-UCD5-I1/2R0.015-M3.5HB AE40 |
| | | | | | | .02 | 5 | 23001600 | SCM-UCD5-I1/2R0.02-M3.5HB AE40 |
| | | | | | | .03 | 5 | 23001601 | SCM-UCD5-I1/2R0.03-M3.5HB AE40 |
| | | | | | | .06 | 5 | 23001602 | SCM-UCD5-I1/2R0.06-M3.5HB AE40 |
| | | | | | | .09 | 5 | 23001603 | SCM-UCD5-I1/2R0.09-M3.5HB AE40 |
| 5/8 | 5/8 | 0.609 | 1-1/4 | 4 | 1-5/8 | .03 | 5 | 23001604 | SCM-UCD5-I5/8R0.03-M4HB AE40 |
| | | | | | | .04 | 5 | 23001605 | SCM-UCD5-I5/8R0.04-M4HB AE40 |
| | | | | | | .06 | 5 | 23001606 | SCM-UCD5-I5/8R0.06-M4HB AE40 |
| | | | | | | .09 | 5 | 23001607 | SCM-UCD5-I5/8R0.09-M4HB AE40 |
| | | | | | | .125 | 5 | 23001608 | SCM-UCD5-I5/8R0.125-M4HB AE40 |
| 3/4 | 3/4 | 0.734 | 1-1/2 | 4-1/4 | 2 | .03 | 5 | 23001609 | SCM-UCD5-I3/4R0.03-M4.25HB AE40 |
| | | | | | | .04 | 5 | 23001610 | SCM-UCD5-I3/4R0.04-M4.25HB AE40 |
| | | | | | | .06 | 5 | 23001611 | SCM-UCD5-I3/4R0.06-M4.25HB AE40 |
| | | | | | | .125 | 5 | 23001612 | SCM-UCD5-I3/4R0.125-M4.25HB AE40 |
| 1 | 1 | 0.98 | 2-1/4 | 5 | 2-5/8 | .03 | 5 | 23001613 | SCM-UCD5-I1R0.03-M5HB AE40 |
| | | | | | | .04 | 5 | 23001614 | SCM-UCD5-I1R0.04-M5HB AE40 |
| | | | | | | .06 | 5 | 23001615 | SCM-UCD5-I1R0.06-M5HB AE40 |

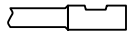



## Radius corner design with chip divider, 3xD – metric

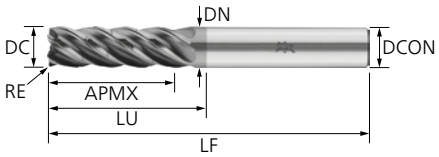
End mills with chip divider and long usable length for dynamic machining and trochoidal milling. Engineered for universal machining applications on a variety of materials.




**Special features:**
- Optimum chip control due to chip divider.
- Variable pitch for low-vibration machining and smooth milling.
- Neck chip channel.

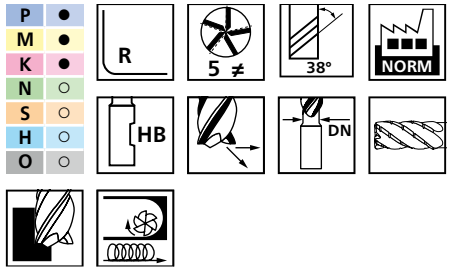
| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | LU [mm] | RE [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **3xD HB** | | | |  **HB** | | | | | |
| 6 | 6 | 5.7 | 19 | 66 | 23 | 0.5 | 5 | 23000859 | SCM-UCD5-M060R05-L66HB AP40 |
| 8 | 8 | 7.7 | 25 | 70 | 29 | 0.5 | 5 | 23000860 | SCM-UCD5-M080R05-L70HB AP40 |
| 10 | 10 | 9.7 | 31 | 78 | 35 | 0.5 | 5 | 23000861 | SCM-UCD5-M100R05-L78HB AP40 |
| 12 | 12 | 11.6 | 38 | 92 | 42 | 0.5 | 5 | 23000862 | SCM-UCD5-M120R05-L92HB AP40 |
| 16 | 16 | 15.6 | 50 | 110 | 56 | 1 | 5 | 23000863 | SCM-UCD5-M160R10-L110HB AP40 |
| 20 | 20 | 19.6 | 62 | 125 | 70 | 1 | 5 | 23000864 | SCM-UCD5-M200R10-L125HB AP40 |
| 25 | 25 | 24.5 | 78 | 150 | 88 | 1 | 5 | 23000865 | SCM-UCD5-M250R10-L150HB AP40 |

# Universal Line
## 5-flute with chip breakers (UCD5)

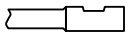


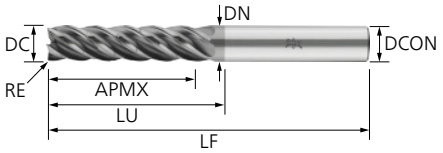

### Radius corner design with chip divider, 3xD – imperial

End mills with chip divider and long usable length for dynamic machining and trochoidal milling. Engineered for universal machining applications on a variety of materials.



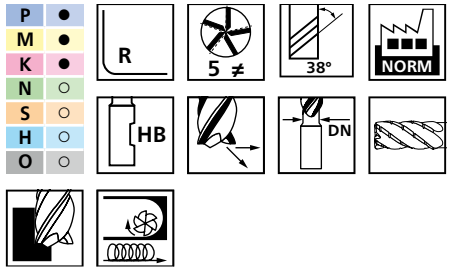

**Special features:**
- Optimum chip control due to chip divider.
- Variable pitch for low-vibration machining and smooth milling.
- Neck chip channel.

| DC [Inch] | DCON [Inch] | DN [Inch] | APMX [Inch] | LF [Inch] | LU [Inch] | RE [Inch] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **3xD HA** | | | |  **HA** | | | | | |
| 1/4 | 1/4 | 0.238 | 3/4 | 2-1/2 | 1 | .03 | 5 | 23001617 | SCM-UCD5-I1/4R0.03-L2.5HA AE40 |
| 5/16 | 5/16 | 0.301 | 15/16 | 3 | 1-5/32 | .03 | 5 | 23001619 | SCM-UCD5-I5/16R0.03-L3HA AE40 |
| 3/8 | 3/8 | 0.363 | 1-1/4 | 3-1/2 | 1-1/2 | .03 | 5 | 23001621 | SCM-UCD5-I3/8R0.03-L3.5HA AE40 |
| 1/2 | 1/2 | 0.484 | 1-5/8 | 4 | 1-13/16 | .03 | 5 | 23001623 | SCM-UCD5-I1/2R0.03-L4HA AE40 |
| 5/8 | 5/8 | 0.609 | 2-1/8 | 4-1/4 | 2-1/4 | .03 | 5 | 23001625 | SCM-UCD5-I5/8R0.03-L4.25HA AE40 |
| 3/4 | 3/4 | 0.734 | 2-1/2 | 5 | 2-3/4 | .03 | 5 | 23001627 | SCM-UCD5-I3/4R0.03-L5HA AE40 |
| 1 | 1 | 0.98 | 3-1/8 | 6 | 3-9/16 | .03 | 5 | 23001629 | SCM-UCD5-I1R0.03-L6HA AE40 |
| **3xD HB** | | | |  **HB** | | | | | |
| 1/4 | 1/4 | 0.238 | 3/4 | 2-1/2 | 1 | .03 | 5 | 23001616 | SCM-UCD5-I1/4R0.03-L2.5HB AE40 |
| 5/16 | 5/16 | 0.301 | 15/16 | 3 | 1-5/32 | .03 | 5 | 23001618 | SCM-UCD5-I5/16R0.03-L3HB AE40 |
| 3/8 | 3/8 | 0.363 | 1-1/4 | 3-1/2 | 1-1/2 | .03 | 5 | 23001620 | SCM-UCD5-I3/8R0.03-L3.5HB AE40 |
| 1/2 | 1/2 | 0.484 | 1-5/8 | 4 | 1-13/16 | .03 | 5 | 23001622 | SCM-UCD5-I1/2R0.03-L4HB AE40 |
| 5/8 | 5/8 | 0.609 | 2-1/8 | 4-1/4 | 2-1/4 | .03 | 5 | 23001624 | SCM-UCD5-I5/8R0.03-L4.25HB AE40 |
| 3/4 | 3/4 | 0.734 | 2-1/2 | 5 | 2-3/4 | .03 | 5 | 23001626 | SCM-UCD5-I3/4R0.03-L5HB AE40 |
| 1 | 1 | 0.98 | 3-1/8 | 6 | 3-9/16 | .03 | 5 | 23001628 | SCM-UCD5-I1R0.03-L6HB AE40 |

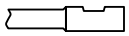


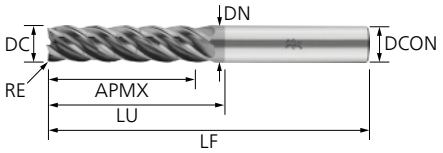

## Radius corner design with chip divider, 4xD – metric

End mills with chip divider and long usable length for dynamic machining and trochoidal milling. Engineered for universal machining applications on a variety of materials.



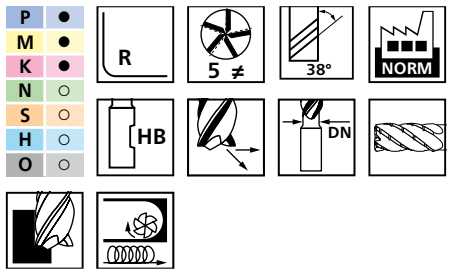

**Special features:**
- Optimum chip control due to chip divider.
- Variable pitch for low-vibration machining and smooth milling.
- Neck chip channel.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | LU [mm] | RE [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **4xD HB** | | | |  **HB** | | | | | |
| 6 | 6 | 5.7 | 24 | 66 | 29 | 0.5 | 5 | 23000866 | SCM-UCD5-M060R05-XL66HB AP40 |
| 8 | 8 | 7.7 | 32 | 74 | 37 | 0.5 | 5 | 23000867 | SCM-UCD5-M080R05-XL74HB AP40 |
| 10 | 10 | 9.7 | 40 | 88 | 45 | 0.5 | 5 | 23000868 | SCM-UCD5-M100R05-XL88HB AP40 |
| 12 | 12 | 11.6 | 48 | 105 | 54 | 0.5 | 5 | 23000869 | SCM-UCD5-M120R05-XL105HB AP40 |
| 16 | 16 | 15.6 | 64 | 124 | 72 | 1 | 5 | 23000870 | SCM-UCD5-M160R10-XL124HB AP40 |
| 20 | 20 | 19.6 | 80 | 148 | 90 | 1 | 5 | 23000871 | SCM-UCD5-M200R10-XL148HB AP40 |
| 25 | 25 | 24.5 | 100 | 182 | 115 | 1 | 5 | 23000872 | SCM-UCD5-M250R10-XL182HB AP40 |




## Radius corner design with chip divider, 4xD – imperial

End mills with chip divider and long usable length for dynamic machining and trochoidal milling. Engineered for universal machining applications on a variety of materials.




**Special features:**
- Optimum chip control due to chip divider.
- Variable pitch for low-vibration machining and smooth milling.
- Neck chip channel.

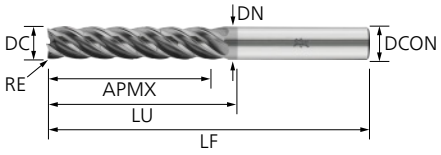
| DC [Inch] | DCON [Inch] | DN [Inch] | APMX [Inch] | LF [Inch] | LU [Inch] | RE [Inch] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **4xD HA** | | | |  **HA** | | | | | |
| 1/4 | 1/4 | 0.238 | 1 | 3 | 1-1/4 | .03 | 5 | 23001631 | SCM-UCD5-I1/4R0.03-XL3HA AE40 |
| 5/16 | 5/16 | 0.301 | 1-1/4 | 3 | 1-1/2 | .03 | 5 | 23001633 | SCM-UCD5-I5/16R0.03-XL3HA AE40 |
| 3/8 | 3/8 | 0.363 | 1-5/8 | 3-1/2 | 1-7/8 | .03 | 5 | 23001635 | SCM-UCD5-I3/8R0.03-XL3.5HA AE40 |
| 1/2 | 1/2 | 0.484 | 2-1/8 | 4-1/2 | 2-1/2 | .03 | 5 | 23001637 | SCM-UCD5-I1/2R0.03-XL4.5HA AE40 |
| 5/8 | 5/8 | 0.609 | 2-5/8 | 5 | 3 | .03 | 5 | 23001639 | SCM-UCD5-I5/8R0.03-XL5HA AE40 |
| 3/4 | 3/4 | 0.734 | 3-1/8 | 6 | 3-9/16 | .03 | 5 | 23001641 | SCM-UCD5-I3/4R0.03-XL6HA AE40 |
| 1 | 1 | 0.98 | 4 | 7 | 4-1/2 | .03 | 5 | 23001643 | SCM-UCD5-I1R0.03-XL7HA AE40 |

*Continued on next page*

# Universal Line
## 5-flute with chip breakers (UCD5)

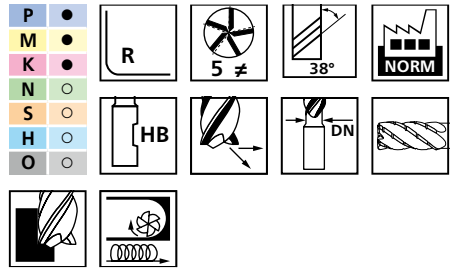
PFERD TOOLS

| DC [Inch] | DCON [Inch] | DN [Inch] | APMX [Inch] | LF [Inch] | LU [Inch] | RE [Inch] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **4xD HB** | | | | HB | | | | | |
| 1/4 | 1/4 | 0.238 | 1 | 3 | 1-1/4 | .03 | 5 | 23001630 | SCM-UCD5-I1/4R0.03-XL3HB AE40 |
| 5/16 | 5/16 | 0.301 | 1-1/4 | 3 | 1-1/2 | .03 | 5 | 23001632 | SCM-UCD5-I5/16R0.03-XL3HB AE40 |
| 3/8 | 3/8 | 0.363 | 1-5/8 | 3-1/2 | 1-7/8 | .03 | 5 | 23001634 | SCM-UCD5-I3/8R0.03-XL3.5HB AE40 |
| 1/2 | 1/2 | 0.484 | 2-1/8 | 4-1/2 | 2-1/2 | .03 | 5 | 23001636 | SCM-UCD5-I1/2R0.03-XL4.5HB AE40 |
| 5/8 | 5/8 | 0.609 | 2-5/8 | 5 | 3 | .03 | 5 | 23001638 | SCM-UCD5-I5/8R0.03-XL5HB AE40 |
| 3/4 | 3/4 | 0.734 | 3-1/8 | 6 | 3-9/16 | .03 | 5 | 23001640 | SCM-UCD5-I3/4R0.03-XL6HB AE40 |
| 1 | 1 | 0.98 | 4 | 7 | 4-1/2 | .03 | 5 | 23001642 | SCM-UCD5-I1R0.03-XL7HB AE40 |




### Radius corner design with chip divider, 5xD – metric

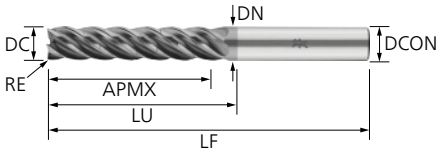
End mills with chip divider and long usable length for dynamic machining and trochoidal milling. Engineered for universal machining applications on a variety of materials.




**Special features:**
- Optimum chip control due to chip divider.
- Variable pitch for low-vibration machining and smooth milling.
- Neck chip channel.

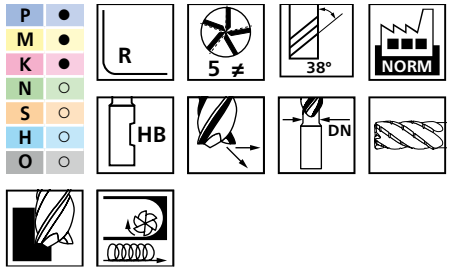
| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | LU [mm] | RE [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **5xD HB** | | | | HB | | | | | |
| 6 | 6 | 5.7 | 30 | 74 | 35 | 0.5 | 5 | 23000873 | SCM-UCD5-M060R05-XXL74HB AP40 |
| 8 | 8 | 7.7 | 40 | 84 | 45 | 0.5 | 5 | 23000874 | SCM-UCD5-M080R05-XXL84HB AP40 |
| 10 | 10 | 9.7 | 50 | 100 | 55 | 0.5 | 5 | 23000875 | SCM-UCD5-M100R05-XXL100HB AP40 |
| 12 | 12 | 11.6 | 60 | 115 | 66 | 0.5 | 5 | 23000876 | SCM-UCD5-M120R05-XXL115HB AP40 |
| 16 | 16 | 15.6 | 80 | 142 | 88 | 1 | 5 | 23000877 | SCM-UCD5-M160R10-XXL142HB AP40 |
| 20 | 20 | 19.6 | 100 | 165 | 110 | 1 | 5 | 23000878 | SCM-UCD5-M200R10-XXL165HB AP40 |
| 25 | 25 | 24.5 | 125 | 200 | 138 | 1 | 5 | 23000879 | SCM-UCD5-M250R10-XXL200HB AP40 |

# Universal Line
## 5-flute with chip breakers (UCD5)

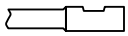



### Radius corner design with chip divider, 5xD – imperial

End mills with chip divider and long usable length for dynamic machining and trochoidal milling. Engineered for universal machining applications on a variety of materials.




**Special features:**
- Optimum chip control due to chip divider.
- Variable pitch for low-vibration machining and smooth milling.
- Neck chip channel.

| DC [Inch] | DCON [Inch] | DN [Inch] | APMX [Inch] | LF [Inch] | LU [Inch] | RE [Inch] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **5xD HA** | | | |  **HA** | | | | | |
| 1/4 | 1/4 | 0.238 | 1-1/4 | 3 | 1-1/2 | .03 | 5 | 23001645 | SCM-UCD5-I1/4R0.03-XXL3HA AE40 |
| 5/16 | 5/16 | 0.301 | 1-9/16 | 3-1/2 | 1-7/8 | .03 | 5 | 23001647 | SCM-UCD5-I5/16R0.03-XXL3.5HA AE40 |
| 3/8 | 3/8 | 0.363 | 1-7/8 | 4 | 2-1/8 | .03 | 5 | 23001649 | SCM-UCD5-I3/8R0.03-XXL4HA AE40 |
| 1/2 | 1/2 | 0.484 | 2-1/2 | 5 | 2-3/4 | .03 | 5 | 23001651 | SCM-UCD5-I1/2R0.03-XXL5HA AE40 |
| 5/8 | 5/8 | 0.609 | 3-1/8 | 6 | 3-9/16 | .03 | 5 | 23001653 | SCM-UCD5-I5/8R0.03-XXL6HA AE40 |
| 3/4 | 3/4 | 0.734 | 3-3/4 | 6-1/2 | 4-1/4 | .03 | 5 | 23001655 | SCM-UCD5-I3/4R0.03-XXL6.5HA AE40 |
| 1 | 1 | 0.98 | 5 | 8 | 5-1/2 | .03 | 5 | 23001657 | SCM-UCD5-I1R0.03-XXL8HA AE40 |
| **5xD HB** | | | |  **HB** | | | | | |
| 1/4 | 1/4 | 0.238 | 1-1/4 | 3 | 1-1/2 | .03 | 5 | 23001644 | SCM-UCD5-I1/4R0.03-XXL3HB AE40 |
| 5/16 | 5/16 | 0.301 | 1-9/16 | 3-1/2 | 1-7/8 | .03 | 5 | 23001646 | SCM-UCD5-I5/16R0.03-XXL3.5HB AE40 |
| 3/8 | 3/8 | 0.363 | 1-7/8 | 4 | 2-1/8 | .03 | 5 | 23001648 | SCM-UCD5-I3/8R0.03-XXL4HB AE40 |
| 1/2 | 1/2 | 0.484 | 2-1/2 | 5 | 2-3/4 | .03 | 5 | 23001650 | SCM-UCD5-I1/2R0.03-XXL5HB AE40 |
| 5/8 | 5/8 | 0.609 | 3-1/8 | 6 | 3-9/16 | .03 | 5 | 23001652 | SCM-UCD5-I5/8R0.03-XXL6HB AE40 |
| 3/4 | 3/4 | 0.734 | 3-3/4 | 6-1/2 | 4-1/4 | .03 | 5 | 23001654 | SCM-UCD5-I3/4R0.03-XXL6.5HB AE40 |
| 1 | 1 | 0.98 | 5 | 8 | 5-1/2 | .03 | 5 | 23001656 | SCM-UCD5-I1R0.03-XXL8HB AE40 |

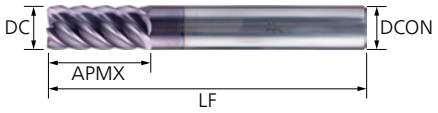
# Universal Line
## 6-flute & 8-flute (UC6 & UC8)

PFERD TOOLS

### Recommended peripheral speeds [SFPM]

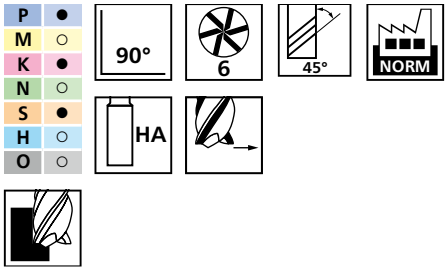
| Material group | | | Specification/ example material | Suitability | Side milling $a_p$ = 1,5 x DC; $a_e$ = 0,05 x DC | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cutting speed $v_c$ | Tooth feed $f_z$ [mm/tooth] [in./tooth] for cutting diameter DC | | | | | | | | | | |
| | | | | | | 6 mm | 1/4 Inch | 5/16 Inch | 8 mm | 10 mm | 3/8 Inch | 12 mm | 1/2 Inch | 5/8 Inch | 16 mm | 20 mm |
| P | Steel | All types of steel and cast steel | up to 500 N/mm² (150 BHN) | ● | 200 m/min | 0.035 | | | 0.04 | 0.055 | | 0.065 | | | 0.08 | 0.1 |
| | | | | | 656 ft./min | | .0015 | .0016 | | | .0021 | | .0027 | .0031 | | |
| | | | 500 to 700 N/mm² (150 to 208 BHN) | ● | 160 m/min | 0.035 | | | 0.04 | 0.055 | | 0.065 | | | 0.08 | 0.1 |
| | | | | | 525 ft./min | | .0015 | .0016 | | | .0021 | | .0027 | .0031 | | |
| | | | 700 to 1,000 N/mm² (208 to 296 BHN) | ● | 120 m/min | 0.035 | | | 0.04 | 0.055 | | 0.065 | | | 0.08 | 0.1 |
| | | | | | 394 ft./min | | .0015 | .0016 | | | .0021 | | .0027 | .0031 | | |
| | | | 1,000 to 1,400 N/mm² (296 to 415 BHN) | ● | 100 m/min | 0.025 | | | 0.03 | 0.04 | | 0.05 | | | 0.065 | 0.08 |
| | | | | | 328 ft./min | | .0010 | .0012 | | | .0015 | | .0021 | .0025 | | |
| M | Stainless steel | Ferritic and martensitic | e.g. 1.4105, 1.4122 (AISI 410, 420, 430, 440, 440C) | ● | 100 m/min | 0.025 | | | 0.025 | 0.04 | | 0.05 | | | 0.065 | 0.08 |
| | | | | | 262 ft./min | | .0010 | .0010 | | | .0015 | | .0021 | .0025 | | |
| | | Austenitic | e.g. 1.4301, 1.4571 (AISI 303, 304, 316, 316L) | ● | 80 m/min | 0.025 | | | 0.03 | 0.04 | | 0.05 | | | 0.065 | 0.08 |
| | | | | | 328 ft./min | | .0010 | .0012 | | | .0015 | | .0021 | .0025 | | |
| | | High-temperature-resistant and ferritic-austenitic (duplex) | | ○ | 65 m/min | 0.02 | | | 0.025 | 0.03 | | 0.04 | | | 0.05 | 0.065 |
| | | | | | 213 ft./min | | .0008 | .0010 | | | .0011 | | .0017 | .0020 | | |
| K | Cast iron | Cast iron with flake graphite (GJL, GG, grey cast iron) | up to 180 BHN | ● | 170 m/min | 0.03 | | | 0.04 | 0.055 | | 0.065 | | | 0.08 | 0.1 |
| | | | | | 558 ft./min | | .0013 | .0016 | | | .0021 | | .0027 | .0031 | | |
| | | Cast iron with nodular graphite (GJS, GGG) | 160 to 260 BHN | ● | 140 m/min | 0.03 | | | 0.04 | 0.055 | | 0.065 | | | 0.08 | 0.1 |
| | | | | | 459 ft./min | | .0013 | .0016 | | | .0021 | | .0027 | .0031 | | |
| N | Non-ferrous metals | Aluminum | Alu up to 10% Si | ○ | 340 m/min | 0.03 | | | 0.04 | 0.055 | | 0.065 | | | 0.08 | |
| | | | | | 1.115 ft./min | | .0013 | .0016 | | | .0021 | | .0027 | .0031 | | |
| | | | Alu over 10% Si | ○ | 300 m/min | 0.03 | | | 0.04 | 0.055 | | 0.065 | | | 0.08 | 0.1 |
| | | | | | 984 ft./min | | .0013 | .0016 | | | .0021 | | .0027 | .0031 | | |
| | | Copper, brass, bronze and red brass | | ○ | 340 m/min | 0.03 | | | 0.04 | 0.055 | | 0.065 | | | 0.08 | 0.1 |
| | | | | | 1.115 ft./min | | .0013 | .0016 | | | .0021 | | .0027 | .0031 | | |
| S | Super and titanium alloys | Heat-resistant super alloys | Based on Fe, Ni and Co | ● | 40 m/min | 0.02 | | | 0.025 | 0.03 | | 0.035 | | | 0.045 | 0.065 |
| | | | | | 131 ft./min | | .0008 | .0010 | | | .0011 | | .0015 | .0018 | | |
| | | Pure titanium | | ● | 80 m/min | 0.02 | | | 0.025 | 0.03 | | 0.035 | | | 0.045 | 0.065 |
| | | | | | 262 ft./min | | .0008 | .0010 | | | .0011 | | .0015 | .0018 | | |
| | | Titanium alloys | | ● | 70 m/min | 0.02 | | | 0.025 | 0.03 | | 0.035 | | | 0.045 | 0.065 |
| | | | | | 230 ft./min | | .0008 | .0010 | | | .0011 | | .0015 | .0018 | | |
| H | Hard steels and chilled castings | Heat-treated and hardened steels | up to 50 HRC | ○ | 60 m/min | 0.025 | | | 0.03 | 0.03 | | 0.035 | | | 0.045 | 0.065 |
| | | | | | 197 ft./min | | .0010 | .0012 | | | .0011 | | .0015 | .0018 | | |
| | | | up to 58 HRC | | | | | | | | | | | | | |
| | | | over 58 HRC | | | | | | | | | | | | | |
| O | Other | Thermoplastics | | ○ | 300 m/min | 0.03 | | | 0.04 | 0.055 | | 0.065 | | | 0.08 | 0.1 |
| | | Duroplastics | | | 984 ft./min | | .0013 | .0016 | | | .0021 | | .0027 | .0031 | | |
| | | GRP/CRP reinforced plastics, graphite | | | | | | | | | | | | | | |

● = highly recommended ○ = recommended



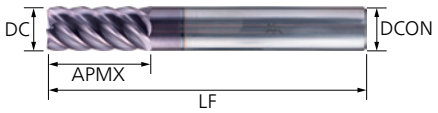

## Sharp corner design – metric

End mills for finishing and for trimming of workpiece contours. The low tool deflection allows very precise working. Engineered for universal machining applications on a variety of materials.



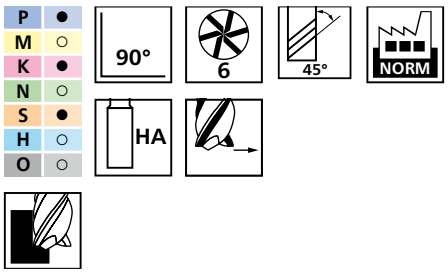

**Special features:**
- High surface quality.
- High productivity due to optimum stock removal rate.
- Long tool life due to modern tool coating.

| DC [mm] | DCON [mm] | APMX [mm] | LF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|
| **Long HA** | | | HA | | | |
| 6 | 6 | 13 | 57 | 6 | 23000174 | SCM-UC6-M060S-M57HA AL40 |
| 8 | 8 | 19 | 63 | 6 | 23000175 | SCM-UC6-M080S-M63HA AL40 |
| 10 | 10 | 22 | 72 | 6 | 23000176 | SCM-UC6-M100S-M72HA AL40 |
| 12 | 12 | 26 | 83 | 6 | 23000177 | SCM-UC6-M120S-M83HA AL40 |
| 16 | 16 | 32 | 92 | 6 | 23000178 | SCM-UC6-M160S-S92HA AL40 |
| 20 | 20 | 38 | 104 | 8 | 23000179 | SCM-UC8-M200S-S104HA AL40 |




## Sharp corner design – imperial

End mills for finishing and for trimming of workpiece contours. The low tool deflection allows very precise working. Engineered for universal machining applications on a variety of materials.




**Special features:**
- High surface quality.
- High productivity due to optimum stock removal rate.
- Long tool life due to modern tool coating.

| DC [Inch] | DCON [Inch] | APMX [Inch] | LF [Inch] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|
| **Long HA** | | | HA | | | |
| 1/4 | 1/4 | 1/2 | 2-1/2 | 6 | 23003061 | SCM-UC6-I1/4S-M2.5HA AL40 |
| 5/16 | 5/16 | 5/8 | 2-1/2 | 6 | 23003062 | SCM-UC6-I5/16S-M2.5HA AL40 |
| 3/8 | 3/8 | 3/4 | 2-1/2 | 6 | 23003063 | SCM-UC6-I3/8S-M2.5HA AL40 |
| 5/8 | 5/8 | 1-1/4 | 3-1/2 | 6 | 23003065 | SCM-UC6-I5/8S-M3.5HA AL40 |
| 1/2 | 1/2 | 1 | 3 | 6 | 23003064 | SCM-UC6-I1/2S-M3HA AL40 |

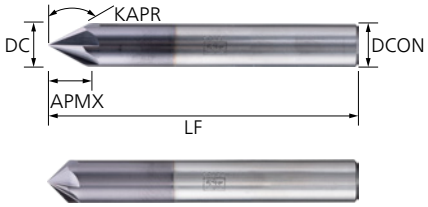
# Universal Line
## Deburring/chamfering (UD)

PFERD TOOLS

### Recommended peripheral speeds [SFPM]

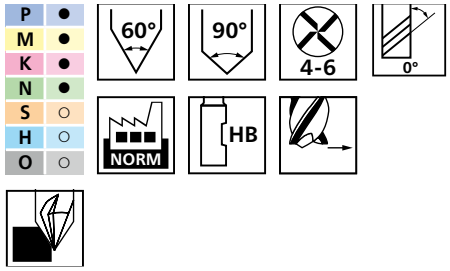
| Material group | | | Specification/ example material | Suitability | Chamfering/deburring $a_p$ = 0,2 x DC; $a_e$ = 0,1 x DC | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cutting speed $v_c$ | Tooth feed $f_z$ [mm/tooth] [in./tooth] for cutting diameter DC | | | | | | | |
| | | | | | | 1/8 Inch | 6 mm | 1/4 Inch | 8 mm | 10 mm | 3/8 Inch | 12 mm | 1/2 Inch |
| P | Steel | All types of steel and cast steel | up to 500 N/mm² (150 BHN) | ● | 180 m/min | | 0.045 | | 0.065 | 0.085 | | 0.14 | |
| | | | | | 591 ft./min | .0004 | | .0019 | | | .0032 | | .0058 |
| | | | 500 to 700 N/mm² (150 to 208 BHN) | ● | 160 m/min | | 0.045 | | 0.065 | 0.085 | | 0.14 | |
| | | | | | 525 ft./min | .0004 | | .0019 | | | .0032 | | .0058 |
| | | | 700 to 1,000 N/mm² (208 to 296 BHN) | ● | 140 m/min | | 0.025 | | 0.04 | 0.045 | | 0.075 | |
| | | | | | 459 ft./min | .0004 | | .0010 | | | .0017 | | .0031 |
| | | | 1,000 to 1,400 N/mm² (296 to 415 BHN) | ● | 120 m/min | | 0.025 | | 0.04 | 0.045 | | 0.075 | |
| | | | | | 394 ft./min | .0004 | | .0010 | | | .0017 | | .0031 |
| M | Stainless steel | Ferritic and martensitic | e.g. 1.4105, 1.4122 (AISI 410, 420, 430, 440, 440C) | ● | 100 m/min | | 0.025 | | 0.04 | 0.045 | | 0.075 | |
| | | | | | 246 ft./min | .0004 | | .0010 | | | .0017 | | .0031 |
| | | Austenitic | e.g. 1.4301, 1.4571 (AISI 303, 304, 316, 316L) | ● | 75 m/min | | 0.025 | | 0.04 | 0.045 | | 0.075 | |
| | | | | | 328 ft./min | .0004 | | .0010 | | | .0017 | | .0031 |
| | | High-temperature-resistant and ferritic-austenitic (duplex) | | ● | 60 m/min | | 0.025 | | 0.04 | 0.045 | | 0.075 | |
| | | | | | 197 ft./min | .0004 | | .0010 | | | .0017 | | .0031 |
| K | Cast iron | Cast iron with flake graphite (GJL, GG, grey cast iron) | up to 180 BHN | ● | 180 m/min | | 0.045 | | 0.065 | 0.085 | | 0.14 | |
| | | | | | 591 ft./min | .0008 | | .0019 | | | .0032 | | .0058 |
| | | Cast iron with nodular graphite (GJS, GGG) | 160 to 260 BHN | ● | 140 m/min | | 0.025 | | 0.04 | 0.045 | | 0.075 | |
| | | | | | 459 ft./min | .0004 | | .0010 | | | .0017 | | .0031 |
| N | Non-ferrous metals | Aluminum | Alu up to 10% Si | ● | 300 m/min | | 0.045 | | 0.065 | 0.085 | | 0.14 | |
| | | | | | 984 ft./min | .0008 | | .0019 | | | .0032 | | .0058 |
| | | | Alu over 10% Si | ● | 260 m/min | | 0.045 | | 0.065 | 0.085 | | 0.14 | |
| | | | | | 853 ft./min | .0008 | | .0019 | | | .0032 | | .0058 |
| | | Copper, brass, bronze and red brass | | ● | 300 m/min | | 0.045 | | 0.065 | 0.085 | | 0.14 | |
| | | | | | 984 ft./min | .0008 | | .0019 | | | .0032 | | .0058 |
| S | Super and titanium alloys | Heat-resistant super alloys | Based on Fe, Ni and Co | ○ | 50 m/min | | 0.025 | | 0.04 | 0.045 | | 0.075 | |
| | | | | | 164 ft./min | .0004 | | .0010 | | | .0017 | | .0031 |
| | | Pure titanium | | ○ | 140 m/min | | 0.025 | | 0.04 | 0.045 | | 0.075 | |
| | | | | | 459 ft./min | .0004 | | .0010 | | | .0017 | | .0031 |
| | | Titanium alloys | | ○ | 70 m/min | | 0.025 | | 0.04 | 0.045 | | 0.075 | |
| | | | | | 230 ft./min | .0004 | | .0010 | | | .0017 | | .0031 |
| H | Hard steels and chilled castings | Heat-treated and hardened steels | up to 50 HRC | ○ | 70 m/min | | 0.025 | | 0.04 | 0.045 | | 0.075 | |
| | | | | | 230 ft./min | .0004 | | .0010 | | | .0017 | | .0031 |
| | | | up to 58 HRC | | | | | | | | | | |
| | | | over 58 HRC | | | | | | | | | | |
| O | Other | Thermoplastics | | ○ | 300 m/min | | 0.045 | | 0.065 | 0.085 | | 0.14 | |
| | | | | | 984 ft./min | .0008 | | .0019 | | | .0032 | | .0058 |
| | | Duroplastics | | | | | | | | | | | |
| | | GRP/CRP reinforced plastics, graphite | | | | | | | | | | | |

● = highly recommended ○ = recommended



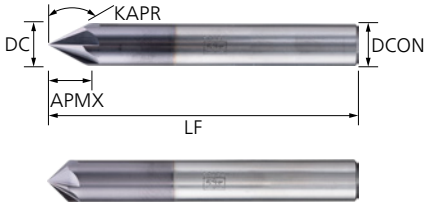

## Conical shape – metric

End mills for deburring and chamfering. Engineered for universal machining applications on a variety of materials.



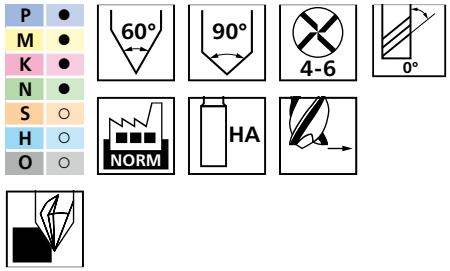

**Special features:**
- High productivity due to optimum stock removal rate.
- Long tool life due to modern tool coating.

| DC [mm] | DCON [mm] | APMX [mm] | LF [mm] | KAPR | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|
| **60° HB** | | | HB | | | | |
| 6 | 6 | 5.2 | 57 | 60 | 4 | 23000116 | SCM-UD4-M060A60°-HB AL40 |
| 8 | 8 | 6.9 | 63 | 60 | 5 | 23000117 | SCM-UD5-M080A60°-HB AL40 |
| 10 | 10 | 8.7 | 72 | 60 | 6 | 23000118 | SCM-UD6-M100A60°-HB AL40 |
| 12 | 12 | 10.4 | 83 | 60 | 6 | 23000119 | SCM-UD6-M120A60°-HB AL40 |
| **90° HB** | | | HB | | | | |
| 6 | 6 | 3 | 57 | 45 | 4 | 23000120 | SCM-UD4-M060A90°-HB AL40 |
| 8 | 8 | 4 | 63 | 45 | 5 | 23000121 | SCM-UD5-M080A90°-HB AL40 |
| 10 | 10 | 5 | 72 | 45 | 6 | 23000122 | SCM-UD6-M100A90°-HB AL40 |
| 12 | 12 | 6 | 83 | 45 | 6 | 23000123 | SCM-UD6-M120A90°-HB AL40 |




## Conical shape – imperial

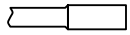
End mills for deburring and chamfering. Engineered for universal machining applications on a variety of materials.




**Special features:**
- High productivity due to optimum stock removal rate.
- Long tool life due to modern tool coating.

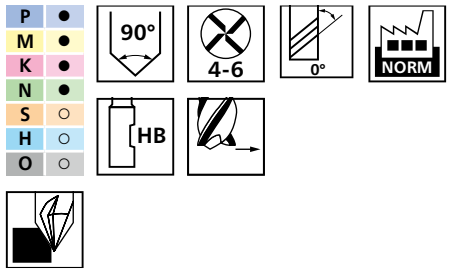
| DC [Inch] | DCON [Inch] | APMX [Inch] | LF [Inch] | KAPR | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|
| **60° HA** | | | HA | | | | |
| 1/8 | 1/8 | 7/64 | 1-1/2 | 60 | 4 | 23003016 | SCM-UD4-I1/8A60°-HA AL40 |
| 1/4 | 1/4 | 7/32 | 2-1/2 | 60 | 4 | 23003017 | SCM-UD4-I1/4A60°-HA AL40 |
| 3/8 | 3/8 | 21/64 | 2-1/2 | 60 | 6 | 23003018 | SCM-UD6-I3/8A60°-HA AL40 |
| 1/2 | 1/2 | 7/16 | 3 | 60 | 6 | 23003019 | SCM-UD6-I1/2A60°-HA AL40 |

*Continued on next page*

| DC [Inch] | DCON [Inch] | APMX [Inch] | LF [Inch] | KAPR | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|
| **90° HA** | | |  **HA** | | | | |
| 1/8 | 1/8 | 1/16 | 1-1/2 | 45 | 4 | 23003020 | SCM-UD4-I1/8A90°-HA AL40 |
| 1/4 | 1/4 | 1/8 | 2-1/2 | 45 | 4 | 23003021 | SCM-UD4-I1/4A90°-HA AL40 |
| 3/8 | 3/8 | 3/16 | 2-1/2 | 45 | 6 | 23003022 | SCM-UD6-I3/8A90°-HA AL40 |
| 1/2 | 1/2 | 1/4 | 3 | 45 | 6 | 23003023 | SCM-UD6-I1/2A90°-HA AL40 |

## Set SCM-UD-SET-M060/080/100 A90°HB AL40 3-piece

The set contains three solid carbide end mills for deburring and chamfering. The solid carbide end mills are engineered for universal use in a variety of materials.




**Contents:**
The set contains one each of the following: SCM-UD4-M060A90°-HB AL40, SCM-UD5-M080A90°-HB AL40 and SCM-UD6-M100A90°-HB AL40.

| Version | Contents [Piece] | Contents tool diameter | Item no. | Designation |
|---|---|---|---|---|
| 90° | 3 | 6, 8, 10 mm | 23000203 | SCM-UD-SET-M060/080/100 A90°HB AL40 3TLG |

# Universal Line
## Ball nose (UB)

PFERD TOOLS

### Recommended peripheral speeds [SFPM]

| Material group | | | Specification/ example material | Suitability | Profile milling – use of tip  | | | Tooth feed $f_z$ [mm/tooth] [in./tooth] for cutting diameter DC | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | $a_p$ | $a_e$ | Cutting speed $v_c$ | 3 mm | 1/8 Inch | 4 mm | 3/16 Inch | 5 mm | 6 mm | 1/4 Inch | 5/16 Inch | 8 mm | 10 mm | 3/8 Inch | 12 mm | 1/2 Inch | 5/8 Inch | 16 mm | 3/4 Inch |
| P | Steel | All types of steel and cast steel | up to 500 N/mm² (150 BHN) | ● | up to 0.1 x D | up to 0.3 x D | 900 m/min | 0.025 | | 0.04 | | 0.055 | 0.065 | | | 0.075 | 0.08 | | 0.09 | | | 0.12 | |
| | | | | | | | 2,953 ft./min | | .0010 | | .0021 | | | .0027 | .0029 | | | .0030 | | .0038 | .0047 | | .0056 |
| | | | 500 to 700 N/mm² (150 to 208 BHN) | ● | up to 0.1 x D | up to 0.3 x D | 700 m/min | 0.025 | | 0.04 | | 0.055 | 0.065 | | | 0.075 | 0.08 | | 0.09 | | | 0.12 | |
| | | | | | | | 2,297 ft./min | | .0010 | | .0021 | | | .0027 | .0029 | | | .0030 | | .0038 | .0047 | | .0056 |
| | | | 700 to 1,000 N/mm² (208 to 296 BHN) | ● | up to 0.1 x D | up to 0.3 x D | 550 m/min | 0.025 | | 0.04 | | 0.055 | 0.065 | | | 0.075 | 0.08 | | 0.09 | | | 0.12 | |
| | | | | | | | 1,804 ft./min | | .0010 | | .0021 | | | .0027 | .0029 | | | .0030 | | .0038 | .0047 | | .0056 |
| | | | 1,000 to 1,400 N/mm² (296 to 415 BHN) | ● | up to 0.1 x D | up to 0.3 x D | 400 m/min | 0.015 | | 0.025 | | 0.03 | 0.04 | | | 0.045 | 0.055 | | 0.065 | | | 0.08 | |
| | | | | | | | 1,312 ft./min | | .0006 | | .0011 | | | .0017 | .0018 | | | .0021 | | .0027 | .0031 | | .0038 |
| M | Stainless steel | Ferritic and martensitic | e.g. 1.4105, 1.4122 (AISI 410, 420, 430, 440, 440C) | ● | up to 0.1 x D | up to 0.3 x D | 180 m/min | 0.015 | | 0.025 | | 0.03 | 0.04 | | | 0.045 | 0.055 | | 0.065 | | | 0.08 | |
| | | | | | | | 591 ft./min | | .0006 | | .0011 | | | .0017 | .0018 | | | .0021 | | .0027 | .0031 | | .0038 |
| | | Austenitic | e.g. 1.4301, 1.4571 (AISI 303, 304, 316, 316L) | ● | up to 0.1 x D | up to 0.3 x D | 130 m/min | 0.015 | | 0.025 | | 0.03 | 0.04 | | | 0.045 | 0.055 | | 0.065 | | | 0.08 | |
| | | | | | | | 427 ft./min | | .0006 | | .0011 | | | .0017 | .0018 | | | .0021 | | .0027 | .0031 | | .0038 |
| | | High-temperature-resistant and ferritic-austenitic (duplex) | | ○ | up to 0.1 x D | up to 0.3 x D | 100 m/min | 0.01 | | 0.018 | | 0.02 | 0.03 | | | 0.04 | 0.05 | | 0.06 | | | 0.07 | |
| | | | | | | | 328 ft./min | | .0004 | | .0008 | | | .0013 | .0016 | | | .0019 | | .0025 | .0027 | | .0034 |
| K | Cast iron | Cast iron with flake graphite (GJL, GG, grey cast iron) | up to 180 BHN | ● | up to 0.1 x D | up to 0.3 x D | 800 m/min | 0.025 | | 0.04 | | 0.055 | 0.065 | | | 0.075 | 0.08 | | 0.09 | | | 0.12 | |
| | | | | | | | 2,625 ft./min | | .0010 | | .0021 | | | .0027 | .0029 | | | .0030 | | .0038 | .0047 | | .0056 |
| | | Cast iron with nodular graphite (GJS, GGG) | 160 to 260 BHN | ● | up to 0.1 x D | up to 0.3 x D | 750 m/min | 0.025 | | 0.04 | | 0.055 | 0.065 | | | 0.075 | 0.08 | | 0.09 | | | 0.12 | |
| | | | | | | | 2,461 ft./min | | .0010 | | .0021 | | | .0027 | .0029 | | | .0030 | | .0038 | .0047 | | .0056 |
| N | Non-ferrous metals | Aluminum | Alu up to 10% Si | ○ | up to 0.1 x D | up to 0.3 x D | 1,200 m/min | 0.025 | | 0.04 | | 0.055 | 0.065 | | | 0.075 | 0.08 | | 0.09 | | | 0.12 | |
| | | | | | | | 3,937 ft./min | | .0010 | | .0021 | | | .0027 | .0029 | | | .0030 | | .0038 | .0047 | | .0056 |
| | | | Alu over 10% Si | ● | up to 0.1 x D | up to 0.3 x D | 850 m/min | 0.025 | | 0.04 | | 0.055 | 0.065 | | | 0.075 | 0.08 | | 0.09 | | | 0.12 | |
| | | | | | | | 2,789 ft./min | | .0010 | | .0021 | | | .0027 | .0029 | | | .0030 | | .0038 | .0047 | | .0056 |
| | | Copper, brass, bronze and red brass | | ● | up to 0.1 x D | up to 0.3 x D | 1,100 m/min | 0.025 | | 0.04 | | 0.055 | 0.065 | | | 0.075 | 0.08 | | 0.09 | | | 0.12 | |
| | | | | | | | 3,609 ft./min | | .0010 | | .0021 | | | .0027 | .0029 | | | .0030 | | .0038 | .0047 | | .0056 |
| S | Super and titanium alloys | Heat-resistant super alloys | Based on Fe, Ni and Co | | | | | | | | | | | | | | | | | | | | |
| | | Pure titanium | | | | | | | | | | | | | | | | | | | | | |
| | | Titanium alloys | | | | | | | | | | | | | | | | | | | | | |
| H | Hard steels and chilled castings | Heat-treated and hardened steels | up to 50 HRC | ● | up to 0.1 x D | up to 0.3 x D | 200 m/min | 0.01 | | 0.018 | | 0.02 | 0.03 | | | 0.04 | 0.05 | | 0.06 | | | 0.07 | |
| | | | | | | | 656 ft./min | | .0004 | | .0008 | | | .0013 | .0016 | | | .0019 | | .0025 | .0027 | | .0034 |
| | | | up to 58 HRC | ○ | up to 0.1 x D | up to 0.3 x D | 150 m/min | 0.01 | | 0.018 | | 0.02 | 0.03 | | | 0.04 | 0.05 | | 0.06 | | | 0.07 | |
| | | | | | | | 492 ft./min | | .0004 | | .0008 | | | .0013 | .0016 | | | .0019 | | .0025 | .0027 | | .0034 |
| | | | over 58 HRC | | | | | | | | | | | | | | | | | | | | |
| O | Other | Thermoplastics | | ○ | up to 0.1 x D | up to 0.3 x D | 1,200 m/min | 0.025 | | 0.04 | | 0.055 | 0.065 | | | 0.075 | 0.08 | | 0.09 | | | 0.12 | |
| | | | | | | | 3,937 ft./min | | .0010 | | .0021 | | | .0027 | .0029 | | | .0030 | | .0038 | .0047 | | .0056 |
| | | Duroplastics | | | | | | | | | | | | | | | | | | | | | |
| | | GRP/CRP reinforced plastics, graphite | | | | | | | | | | | | | | | | | | | | | |

● = highly recommended ○ = recommended

# Universal Line
## Ball nose (UB)

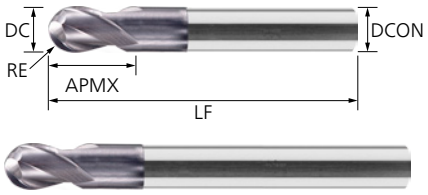
PFERD TOOLS

### Recommended peripheral speeds [SFPM]

| Material group | | | Specification/ example material | Suitability | Profile milling – use of shoulder | | | Tooth feed $f_z$ [mm/tooth] [in./tooth] for cutting diameter DC | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | $a_p$ | $a_e$ | Cutting speed $v_c$ | 3 mm | 1/8 Inch | 4 mm | 3/16 Inch | 5 mm | 6 mm | 1/4 Inch | 5/16 Inch | 8 mm | 10 mm | 3/8 Inch | 12 mm | 1/2 Inch | 5/8 Inch | 16 mm | 3/4 Inch |
| P | Steel | All types of steel and cast steel | up to 500 N/mm² (150 BHN) | • | up to 0.1 x D | up to 0.45 x D | 570 m/min | 0.04 | | 0.06 | | 0.08 | 0.1 | | | 0.11 | 0.12 | | 0.14 | | | 0.18 | |
| | | | | | | | 1,870 ft./min | | .0017 | | .0030 | | | .0042 | .0043 | | | .0045 | | .0058 | .0070 | | .0084 |
| | | | 500 to 700 N/mm² (150 to 208 BHN) | • | up to 0.1 x D | up to 0.45 x D | 450 m/min | 0.04 | | 0.06 | | 0.08 | 0.1 | | | 0.11 | 0.12 | | 0.14 | | | 0.18 | |
| | | | | | | | 1,476 ft./min | | .0017 | | .0030 | | | .0042 | .0043 | | | .0045 | | .0058 | .0070 | | .0084 |
| | | | 700 to 1,000 N/mm² (208 to 296 BHN) | • | up to 0.1 x D | up to 0.45 x D | 350 m/min | 0.04 | | 0.06 | | 0.08 | 0.1 | | | 0.11 | 0.12 | | 0.14 | | | 0.18 | |
| | | | | | | | 1,148 ft./min | | .0017 | | .0030 | | | .0042 | .0043 | | | .0045 | | .0058 | .0070 | | .0084 |
| | | | 1,000 to 1,400 N/mm² (296 to 415 BHN) | • | up to 0.1 x D | up to 0.45 x D | 250 m/min | 0.02 | | 0.04 | | 0.05 | 0.06 | | | 0.07 | 0.08 | | 0.1 | | | 0.12 | |
| | | | | | | | 820 ft./min | | .0008 | | .0019 | | | .0025 | .0027 | | | .0030 | | .0042 | .0047 | | .0056 |
| M | Stainless steel | Ferritic and martensitic | e.g. 1.4105, 1.4122 (AISI 410, 420, 430, 440, 440C) | • | up to 0.1 x D | up to 0.45 x D | 130 m/min | 0.02 | | 0.04 | | 0.05 | 0.06 | | | 0.07 | 0.08 | | 0.1 | | | 0.12 | |
| | | | | | | | 427 ft./min | | .0008 | | .0019 | | | .0025 | .0027 | | | .0030 | | .0042 | .0047 | | .0056 |
| | | Austenitic | e.g. 1.4301, 1.4571 (AISI 303, 304, 316, 316L) | • | up to 0.1 x D | up to 0.45 x D | 80 m/min | 0.02 | | 0.04 | | 0.05 | 0.06 | | | 0.07 | 0.08 | | 0.1 | | | 0.12 | |
| | | | | | | | 262 ft./min | | .0008 | | .0019 | | | .0025 | .0027 | | | .0030 | | .0042 | .0047 | | .0056 |
| | | High-temperature-resistant and ferritic-austenitic (duplex) | | ○ | up to 0.1 x D | up to 0.45 x D | 60 m/min | 0.015 | | 0.03 | | 0.04 | 0.05 | | | 0.06 | 0.07 | | 0.08 | | | 0.1 | |
| | | | | | | | 197 ft./min | | .0006 | | .0015 | | | .0021 | .0023 | | | .0026 | | .0033 | .0039 | | .0047 |
| K | Cast iron | Cast iron with flake graphite (GJL, GG, grey cast iron) | up to 180 BHN | • | up to 0.1 x D | up to 0.45 x D | 550 m/min | 0.04 | | 0.06 | | 0.08 | 0.1 | | | 0.11 | 0.12 | | 0.14 | | | 0.18 | |
| | | | | | | | 1,804 ft./min | | .0017 | | .0030 | | | .0042 | .0043 | | | .0045 | | .0058 | .0070 | | .0084 |
| | | Cast iron with nodular graphite (GJS, GGG) | 160 to 260 BHN | • | up to 0.1 x D | up to 0.45 x D | 500 m/min | 0.04 | | 0.06 | | 0.08 | 0.1 | | | 0.11 | 0.12 | | 0.14 | | | 0.18 | |
| | | | | | | | 1,640 ft./min | | .0017 | | .0030 | | | .0042 | .0043 | | | .0045 | | .0058 | .0070 | | .0084 |
| N | Non-ferrous metals | Aluminum | Alu up to 10% Si | ○ | up to 0.1 x D | up to 0.45 x D | 750 m/min | 0.04 | | 0.06 | | 0.08 | 0.1 | | | 0.11 | 0.12 | | 0.14 | | | 0.18 | |
| | | | | | | | 2,461 ft./min | | .0017 | | .0030 | | | .0042 | .0043 | | | .0045 | | .0058 | .0070 | | .0084 |
| | | | Alu over 10% Si | • | up to 0.1 x D | up to 0.45 x D | 600 m/min | 0.04 | | 0.06 | | 0.08 | 0.1 | | | 0.11 | 0.12 | | 0.14 | | | 0.18 | |
| | | | | | | | 1,969 ft./min | | .0017 | | .0030 | | | .0042 | .0043 | | | .0045 | | .0058 | .0070 | | .0084 |
| | | Copper, brass, bronze and red brass | | • | up to 0.1 x D | up to 0.45 x D | 700 m/min | 0.04 | | 0.06 | | 0.08 | 0.1 | | | 0.11 | 0.12 | | 0.14 | | | 0.18 | |
| | | | | | | | 2,297 ft./min | | .0017 | | .0030 | | | .0042 | .0043 | | | .0045 | | .0058 | .0070 | | .0084 |
| S | Super and titanium alloys | Heat-resistant super alloys | Based on Fe, Ni and Co | | | | | | | | | | | | | | | | | | | | |
| | | Pure titanium | | | | | | | | | | | | | | | | | | | | | |
| | | Titanium alloys | | | | | | | | | | | | | | | | | | | | | |
| H | Hard steels and chilled castings | Heat-treated and hardened steels | up to 50 HRC | • | up to 0.1 x D | up to 0.45 x D | 150 m/min | 0.02 | | 0.04 | | 0.05 | 0.06 | | | 0.07 | 0.08 | | 0.1 | | | 0.12 | |
| | | | | | | | 492 ft./min | | .0008 | | .0019 | | | .0025 | .0027 | | | .0030 | | .0042 | .0047 | | .0056 |
| | | | up to 58 HRC | ○ | up to 0.1 x D | up to 0.45 x D | 110 m/min | 0.02 | | 0.04 | | 0.05 | 0.06 | | | 0.07 | 0.08 | | 0.1 | | | 0.12 | |
| | | | | | | | 361 ft./min | | .0008 | | .0019 | | | .0025 | .0027 | | | .0030 | | .0042 | .0047 | | .0056 |
| | | | over 58 HRC | | | | | | | | | | | | | | | | | | | | |
| O | Other | Thermoplastics | | ○ | up to 0.1 x D | up to 0.45 x D | 750 m/min | 0.04 | | 0.06 | | 0.08 | 0.1 | | | 0.11 | 0.12 | | 0.14 | | | 0.18 | |
| | | | | | | | 2,461 ft./min | | .0017 | | .0030 | | | .0042 | .0043 | | | .0045 | | .0058 | .0070 | | .0084 |
| | | Duroplastics | | | | | | | | | | | | | | | | | | | | | |
| | | GRP/CRP reinforced plastics, graphite | | | | | | | | | | | | | | | | | | | | | |

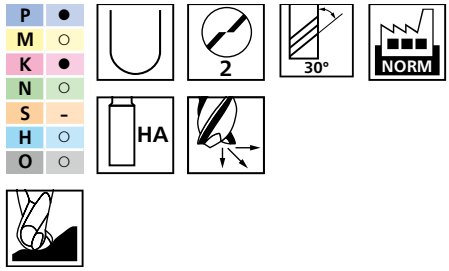
• = highly recommended ○ = recommended

# Universal Line
## Ball nose (UB)

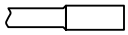



### Full radius – metric

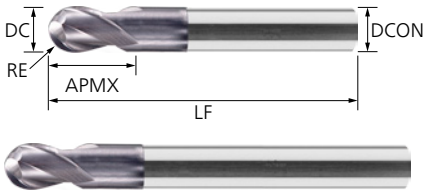
End mills for free-form profile cutting. The solid carbide end mills are engineered for universal use on a variety of materials.




**Special features:**
- High productivity due to optimum stock removal rate.
- Long tool life due to modern tool coating.

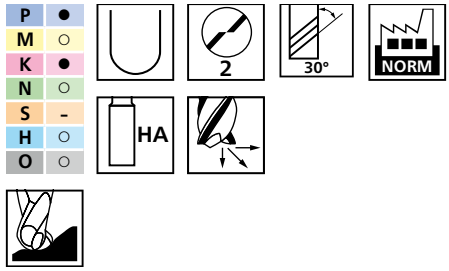
| $D_c$ [mm] | DCON [mm] | APMX [mm] | LF [mm] | RE [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|
| **Long HA**  **HA** | | | | | | | |
| 3 | 6 | 5 | 54 | 1.5 | 2 | 23000100 | SCM-UB2-M030R-S54HA6 AL40 |
| 4 | 6 | 8 | 54 | 2 | 2 | 23000101 | SCM-UB2-M040R-S54HA6 AL40 |
| 5 | 6 | 9 | 54 | 2.5 | 2 | 23000102 | SCM-UB2-M050R-S54HA6 AL40 |
| 6 | 6 | 10 | 54 | 3 | 2 | 23000103 | SCM-UB2-M060R-S54HA AL40 |
| 8 | 8 | 12 | 58 | 4 | 2 | 23000104 | SCM-UB2-M080R-S58HA AL40 |
| 10 | 10 | 14 | 66 | 5 | 2 | 23000105 | SCM-UB2-M100R-S66HA AL40 |
| 12 | 12 | 16 | 73 | 6 | 2 | 23000106 | SCM-UB2-M120R-S73HA AL40 |
| 16 | 16 | 22 | 82 | 8 | 2 | 23000107 | SCM-UB2-M160R-S82HA AL40 |
| **Extra long HA**  **HA** | | | | | | | |
| 3 | 6 | 5 | 80 | 1.5 | 2 | 23000108 | SCM-UB2-M030R-S80HA6 AL40 |
| 4 | 6 | 8 | 80 | 2 | 2 | 23000109 | SCM-UB2-M040R-S80HA6 AL40 |
| 5 | 6 | 9 | 100 | 2.5 | 2 | 23000110 | SCM-UB2-M050R-S100HA6 AL40 |
| 6 | 6 | 10 | 100 | 3 | 2 | 23000111 | SCM-UB2-M060R-S100HA AL40 |
| 8 | 8 | 12 | 100 | 4 | 2 | 23000112 | SCM-UB2-M080R-S100HA AL40 |
| 10 | 10 | 14 | 100 | 5 | 2 | 23000113 | SCM-UB2-M100R-S100HA AL40 |
| 12 | 12 | 16 | 100 | 6 | 2 | 23000114 | SCM-UB2-M120R-S100HA AL40 |
| 16 | 16 | 22 | 150 | 8 | 2 | 23000115 | SCM-UB2-M160R-S150HA AL40 |

# Universal Line
## Ball nose (UB)

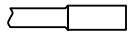



### Ballnose – imperial

End mills for free-form profile cutting. The solid carbide end mills are engineered for universal use on a variety of materials.




**Special features:**
- High productivity due to optimum stock removal rate.
- Long tool life due to modern tool coating.

| $D_c$ [Inch] | DCON [Inch] | APMX [Inch] | LF [Inch] | RE [Inch] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|
| **Long HA**  **HA** | | | | | | | |
| 1/8 | 1/8 | 1/4 | 2 | 1/16 | 2 | 23003000 | SCM-UB2-I1/8R-M2HA AL40 |
| 3/16 | 3/16 | 3/8 | 2 | 3/32 | 2 | 23003001 | SCM-UB2-I3/16R-M2HA AL40 |
| 1/4 | 1/4 | 1/2 | 2 | 1/8 | 2 | 23003002 | SCM-UB2-I1/4R-M2HA AL40 |
| 5/16 | 5/16 | 5/8 | 2-1/2 | 5/32 | 2 | 23003003 | SCM-UB2-I5/16R-M2.5HA AL40 |
| 3/8 | 3/8 | 3/4 | 2-1/2 | 3/16 | 2 | 23003004 | SCM-UB2-I3/8R-M2.5HA AL40 |
| 1/2 | 1/2 | 1 | 3 | 1/4 | 2 | 23003005 | SCM-UB2-I1/2R-M3HA AL40 |
| 5/8 | 5/8 | 1-1/4 | 3-1/2 | 5/16 | 2 | 23003006 | SCM-UB2-I5/8R-M3.5HA AL40 |
| 3/4 | 3/4 | 1-1/2 | 4 | 3/8 | 2 | 23003007 | SCM-UB2-I3/4R-M4HA AL40 |
| **Extra long HA**  **HA** | | | | | | | |
| 1/8 | 1/8 | 1/4 | 3 | 1/16 | 2 | 23003008 | SCM-UB2-I1/8R-M3HA AL40 |
| 3/16 | 3/16 | 3/8 | 3 | 3/32 | 2 | 23003009 | SCM-UB2-I3/16R-M3HA AL40 |
| 1/4 | 1/4 | 1/2 | 3-1/2 | 1/8 | 2 | 23003010 | SCM-UB2-I1/4R-M3.5HA AL40 |
| 5/16 | 5/16 | 5/8 | 4 | 5/32 | 2 | 23003011 | SCM-UB2-I5/16R-M4HA AL40 |
| 3/8 | 3/8 | 3/4 | 4 | 3/16 | 2 | 23003012 | SCM-UB2-I3/8R-M4HA AL40 |
| 1/2 | 1/2 | 1 | 4-1/2 | 1/4 | 2 | 23003013 | SCM-UB2-I1/2R-M4.5HA AL40 |
| 5/8 | 5/8 | 1-1/4 | 5 | 5/16 | 2 | 23003014 | SCM-UB2-I5/8R-M5HA AL40 |
| 3/4 | 3/4 | 1-1/2 | 6 | 3/8 | 2 | 23003015 | SCM-UB2-I3/4R-M6HA AL40 |

# Performance Stainless Line
## Material suitability overview

PFERD TOOLS

### Performance Stainless

| Material group | | | 4-flute (HC4M) | 5-flute with chip breakers (HCD5M) |
|---|---|---|---|---|
| **P** | Steel | All types of steel and cast steel | | |
| **M** | Stainless steel | Ferritic and martensitic | ● | ● |
| | | Austenitic | ● | ● |
| | | High-temperature-resistant and ferritic-austenitic (duplex) | ● | ● |
| **K** | Cast iron | Cast iron with flake graphite (GJL, GG, grey cast iron) | | |
| | | Cast iron with nodular graphite (GJS, GGG) | | |
| **N** | Non-ferrous metals | Aluminum | ○ | ○ |
| | | Copper, brass, bronze and red brass | ○ | ○ |
| **S** | Super and titanium alloys | Heat-resistant super alloys based on Fe, Ni and Co | | |
| | | Pure titanium | ● | ● |
| | | Titanium alloys | ● | ● |
| **H** | Hard steels and chilled castings | Heat-treated and hardened steels up to 50 HRC | | |
| | | Hardened steels up to 58 HRC | | |
| | | Hardened steels over 58 HRC | | |
| **O** | Other | Thermoplastics | | |
| | | Duroplastics | | |
| | | GRP/CRP reinforced plastics, graphite | | |

● = highly recommended ○ = recommended

# Performance Stainless Line
4-flute (HC4M)

PFERD TOOLS

## Recommended peripheral speeds [SFPM]

| Material group | | Specification/ example material | Suitability | Full slot milling $a_p$ = 1 x DC; $a_e$ = 1 x DC | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Cutting speed $v_c$ | Tooth feed $f_z$ [mm/tooth] [in./tooth] for cutting diameter DC | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | 1 mm | 1/16 Inch | 2 mm | 3/32 Inch | 3 mm | 1/8 Inch | 5/32 Inch | 4 mm | 3/16 Inch | 5 mm | 6 mm | 1/4 Inch | 5/16 Inch | 8 mm | 3/8 Inch | 10 mm | 12 mm | 1/2 Inch | 5/8 Inch | 16 mm | 3/4 Inch | 20 mm | 25 mm | 1 Inch |
| P | All types of steel and cast steel | up to 500 N/mm² (150 BHN) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 500 to 700 N/mm² (150 to 208 BHN) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 700 to 1,000 N/mm² (208 to 296 BHN) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 1,000 to 1,400 N/mm² (296 to 415 BHN) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M | Ferritic and martensitic | e.g. 1.4105, 1.4122 (AISI 410, 420, 430, 440, 440C) | ● | 100 m/min | 0.005 | | 0.01 | | 0.015 | | | 0.02 | | 0.025 | 0.03 | | | 0.04 | | 0.05 | 0.06 | | | 0.08 | | 0.1 | 0.125 | |
| | | | | 328 ft./min | | .0002 | | .0004 | | .0006 | .0008 | | .001 | | | .0012 | .0016 | | .002 | | | .0024 | .0031 | | .0039 | | | .0049 |
| | Austenitic | e.g. 1.4301, 1.4571 (AISI 303, 304, 316, 316L) | ● | 90 m/min | 0.005 | | 0.01 | | 0.015 | | | 0.02 | | 0.025 | 0.03 | | | 0.04 | | 0.05 | 0.06 | | | 0.08 | | 0.1 | 0.125 | |
| | | | | 295 ft./min | | .0002 | | .0004 | | .0006 | .0008 | | .001 | | | .0012 | .0016 | | .002 | | | .0024 | .0031 | | .0039 | | | .0049 |
| | High-temperature-resistant and ferritic-austenitic (duplex) | | ● | 70 m/min | 0.005 | | 0.01 | | 0.015 | | | 0.02 | | 0.025 | 0.03 | | | 0.04 | | 0.05 | 0.06 | | | 0.08 | | 0.1 | 0.125 | |
| | | | | 230 ft./min | | .0002 | | .0004 | | .0006 | .0008 | | .001 | | | .0012 | .0016 | | .002 | | | .0024 | .0031 | | .0039 | | | .0049 |
| K | Cast iron with flake graphite (GJL, GG, grey cast iron) | up to 180 HB | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Cast iron with nodular graphite (GJS, GGG) | 160 to 260 HB | | | | | | | | | | | | | | | | | | | | | | | | | | |
| N | Aluminum | Al up to 10% Si | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Al over 10% Si | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Copper, brass, bronze and red brass | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S | Heat-resistant super alloys | Based on Fe, Ni and Co | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Pure titanium | | ● | 50 m/min | 0.005 | | 0.01 | | 0.015 | | | 0.02 | | 0.025 | 0.03 | | | 0.04 | | 0.05 | 0.06 | | | 0.08 | | 0.1 | 0.125 | |
| | | | | 164 ft./min | | .0002 | | .0004 | | .0006 | .0008 | | .001 | | | .0012 | .0016 | | .002 | | | .0024 | .0031 | | .0039 | | | .0049 |
| | Titanium alloys | | ● | 40 m/min | 0.005 | | 0.01 | | 0.015 | | | 0.02 | | 0.025 | 0.03 | | | 0.04 | | 0.05 | 0.06 | | | 0.08 | | 0.1 | 0.125 | |
| | | | | 131 ft./min | | .0002 | | .0004 | | .0006 | .0008 | | .001 | | | .0012 | .0016 | | .002 | | | .0024 | .0031 | | .0039 | | | .0049 |
| H | Heat-treated and hardened steels | up to 50 HRC | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | up to 58 HRC | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | over 58 HRC | | | | | | | | | | | | | | | | | | | | | | | | | | |
| O | Thermoplastics | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Duroplastics | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | GRP/CRP reinforced plastics, graphite | | | | | | | | | | | | | | | | | | | | | | | | | | | |

● = highly recommended ○ = recommended

# Performance Stainless Line
4-flute (HC4M)

PFERD TOOLS

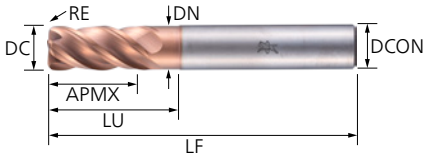
## Recommended peripheral speeds [SFPM]

| Material group | | Specification/ example material | Suitability | Side milling $a_p$ = 2 x DC; $a_e$ = 0.4 x DC  | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Cutting speed $v_c$ | Tooth feed $f_z$ [mm/tooth] [in./tooth] for cutting diameter DC | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | 1 mm | 1/16 Inch | 2 mm | 3/32 Inch | 3 mm | 1/8 Inch | 5/32 Inch | 4 mm | 3/16 Inch | 5 mm | 6 mm | 1/4 Inch | 5/16 Inch | 8 mm | 3/8 Inch | 10 mm | 12 mm | 1/2 Inch | 5/8 Inch | 16 mm | 3/4 Inch | 20 mm | 25 mm | 1 Inch |
| P | All types of steel and cast steel | up to 500 N/mm² (150 BHN) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 500 to 700 N/mm² (150 to 208 BHN) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 700 to 1,000 N/mm² (208 to 296 BHN) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 1,000 to 1,400 N/mm² (296 to 415 BHN) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M | Ferritic and martensitic | e.g. 1.4105, 1.4122 (AISI 410, 420, 430, 440, 440C) | ● | 110 m/min | 0.006 | | 0.012 | | 0.018 | | | 0.024 | | 0.03 | 0.036 | | | 0.048 | | 0.06 | 0.072 | | | 0.096 | | 0.12 | 0.15 | |
| | | | | 361 ft./min | | .0002 | | .0005 | | .0007 | .0009 | | .0012 | | | .0014 | .0019 | | .0024 | | | .0028 | .0038 | | .0047 | | | .0059 |
| | Austenitic | e.g. 1.4301, 1.4571 (AISI 303, 304, 316, 316L) | ● | 100 m/min | 0.006 | | 0.012 | | 0.018 | | | 0.024 | | 0.03 | 0.036 | | | 0.048 | | 0.06 | 0.072 | | | 0.096 | | 0.12 | 0.15 | |
| | | | | 328 ft./min | | .0002 | | .0005 | | .0007 | .0009 | | .0012 | | | .0014 | .0019 | | .0024 | | | .0028 | .0038 | | .0047 | | | .0059 |
| | High-temperature-resistant and ferritic-austenitic (duplex) | | ● | 80 m/min | 0.006 | | 0.012 | | 0.018 | | | 0.024 | | 0.03 | 0.036 | | | 0.048 | | 0.06 | 0.072 | | | 0.096 | | 0.12 | 0.15 | |
| | | | | 262 ft./min | | .0002 | | .0005 | | .0007 | .0009 | | .0012 | | | .0014 | .0019 | | .0024 | | | .0028 | .0038 | | .0047 | | | .0059 |
| K | Cast iron with flake graphite (GJL, GG, grey cast iron) | up to 180 HB | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Cast iron with nodular graphite (GJS, GGG) | 160 to 260 HB | | | | | | | | | | | | | | | | | | | | | | | | | | |
| N | Aluminum | Al up to 10% Si | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Al over 10% Si | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Copper, brass, bronze and red brass | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S | Heat-resistant super alloys | Based on Fe, Ni and Co | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Pure titanium | | ● | 50 m/min | 0.006 | | 0.012 | | 0.018 | | | 0.024 | | 0.03 | 0.036 | | | 0.048 | | 0.06 | 0.072 | | | 0.096 | | 0.12 | 0.15 | |
| | | | | 164 ft./min | | .0002 | | .0005 | | .0007 | .0009 | | .0012 | | | .0014 | .0019 | | .0024 | | | .0028 | .0038 | | .0047 | | | .0059 |
| | Titanium alloys | | ● | 40 m/min | 0.006 | | 0.012 | | 0.018 | | | 0.024 | | 0.03 | 0.036 | | | 0.048 | | 0.06 | 0.072 | | | 0.096 | | 0.12 | 0.15 | |
| | | | | 131 ft./min | | .0002 | | .0005 | | .0007 | .0009 | | .0012 | | | .0014 | .0019 | | .0024 | | | .0028 | .0038 | | .0047 | | | .0059 |
| H | Heat-treated and hardened steels | up to 50 HRC | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | up to 58 HRC | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | over 58 HRC | | | | | | | | | | | | | | | | | | | | | | | | | | |
| O | Thermoplastics | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Duroplastics | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | GRP/CRP reinforced plastics, graphite | | | | | | | | | | | | | | | | | | | | | | | | | | | |

● = highly recommended ○ = recommended

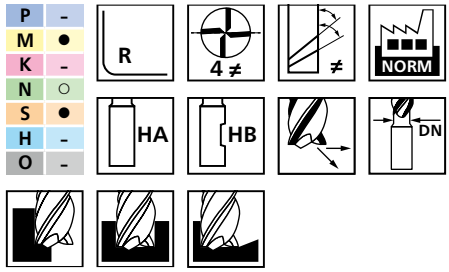
# Performance Stainless Line
## 4-flute (HC4M)

PFERD TOOLS

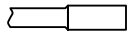
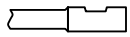



### Radius – metric

End mills with neck chip channel for various applications from roughing to finishing, as well as slot milling. Due to their material-specific geometry and coating, the end mills have been optimized for use in stainless materials.




**Special features:**
- Variable pitch and variable helix angle for low-vibration machining and smooth milling.
- Optimized helix angle for improved chip evacuation.
- Optimum temperature control when working on materials that are difficult to machine.

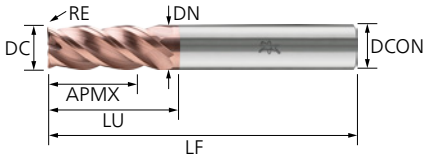
| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | LU [mm] | RE [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **Long HA**  **HA** | | | | | | | | | |
| 6 | 6 | 5.7 | 13 | 57 | 20 | 0.5 | 4 | 23000892 | SCM-HC4M-M060R05-M57HA TI40 |
| | | | | | | 1 | 4 | 23000893 | SCM-HC4M-M060R10-M57HA TI40 |
| 8 | 8 | 7 | 19 | 63 | 25 | 0.5 | 4 | 23000894 | SCM-HC4M-M080R05-M63HA TI40 |
| | | | | | | 1 | 4 | 23000895 | SCM-HC4M-M080R10-M63HA TI40 |
| | | | | | | 2 | 4 | 23000896 | SCM-HC4M-M080R20-M63HA TI40 |
| 10 | 10 | 9.7 | 22 | 72 | 30 | 0.5 | 4 | 23000897 | SCM-HC4M-M100R05-M72HA TI40 |
| | | | | | | 1 | 4 | 23000898 | SCM-HC4M-M100R10-M72HA TI40 |
| | | | | | | 2 | 4 | 23000899 | SCM-HC4M-M100R20-M72HA TI40 |
| 12 | 12 | 11.6 | 26 | 83 | 36 | 0.5 | 4 | 23000900 | SCM-HC4M-M120R05-M83HA TI40 |
| | | | | | | 1 | 4 | 23000901 | SCM-HC4M-M120R10-M83HA TI40 |
| | | | | | | 2 | 4 | 23000902 | SCM-HC4M-M120R20-M83HA TI40 |
| | | | | | | 3 | 4 | 23000903 | SCM-HC4M-M120R30-M83HA TI40 |
| 16 | 16 | 15.6 | 32 | 92 | 42 | 1 | 4 | 23000904 | SCM-HC4M-M160R10-M92HA TI40 |
| | | | | | | 2 | 4 | 23000905 | SCM-HC4M-M160R20-M92HA TI40 |
| | | | | | | 3 | 4 | 23000906 | SCM-HC4M-M160R30-M92HA TI40 |
| | | | | | | 4 | 4 | 23000907 | SCM-HC4M-M160R40-M92HA TI40 |
| 20 | 20 | 19.6 | 38 | 104 | 52 | 1 | 4 | 23000908 | SCM-HC4M-M200R10-M104HA TI40 |
| | | | | | | 2 | 4 | 23000909 | SCM-HC4M-M200R20-M104HA TI40 |
| | | | | | | 3 | 4 | 23000910 | SCM-HC4M-M200R30-M104HA TI40 |
| | | | | | | 4 | 4 | 23000911 | SCM-HC4M-M200R40-M104HA TI40 |
| 25 | 25 | 24.5 | 45 | 125 | 65 | 2 | 4 | 23000912 | SCM-HC4M-M250R20-M125HA TI40 |
| | | | | | | 3 | 4 | 23000913 | SCM-HC4M-M250R30-M125HA TI40 |
| | | | | | | 4 | 4 | 23000914 | SCM-HC4M-M250R40-M125HA TI40 |
| **Long HB**  **HB** | | | | | | | | | |
| 6 | 6 | 5.7 | 13 | 57 | 20 | 0.5 | 4 | 23000927 | SCM-HC4M-M060R05-M57HB TI40 |
| | | | | | | 1 | 4 | 23000928 | SCM-HC4M-M060R10-M57HB TI40 |
| 8 | 8 | 7 | 19 | 63 | 25 | 0.5 | 4 | 23000929 | SCM-HC4M-M080R05-M63HB TI40 |
| | | | | | | 1 | 4 | 23000930 | SCM-HC4M-M080R10-M63HB TI40 |
| | | | | | | 2 | 4 | 23000931 | SCM-HC4M-M080R20-M63HB TI40 |
| 10 | 10 | 9.7 | 22 | 72 | 30 | 0.5 | 4 | 23000932 | SCM-HC4M-M100R05-M72HB TI40 |
| | | | | | | 1 | 4 | 23000933 | SCM-HC4M-M100R10-M72HB TI40 |
| | | | | | | 2 | 4 | 23000934 | SCM-HC4M-M100R20-M72HB TI40 |
| 12 | 12 | 11.6 | 26 | 83 | 36 | 0.5 | 4 | 23000935 | SCM-HC4M-M120R05-M83HB TI40 |

*Continued on next page*

# Performance Stainless Line
## 4-flute (HC4M)

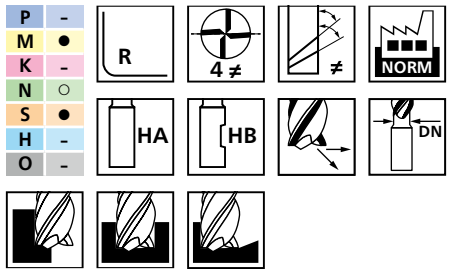
PFERD TOOLS

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | LU [mm] | RE [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| 12 | 12 | 11.6 | 26 | 83 | 36 | 1 | 4 | 23000936 | SCM-HC4M-M120R10-M83HB TI40 |
| | | | | | | 2 | 4 | 23000937 | SCM-HC4M-M120R20-M83HB TI40 |
| | | | | | | 3 | 4 | 23000938 | SCM-HC4M-M120R30-M83HB TI40 |
| 16 | 16 | 15.6 | 32 | 92 | 42 | 1 | 4 | 23000939 | SCM-HC4M-M160R10-M92HB TI40 |
| | | | | | | 2 | 4 | 23000940 | SCM-HC4M-M160R20-M92HB TI40 |
| | | | | | | 3 | 4 | 23000941 | SCM-HC4M-M160R30-M92HB TI40 |
| | | | | | | 4 | 4 | 23000942 | SCM-HC4M-M160R40-M92HB TI40 |
| 20 | 20 | 19.6 | 38 | 104 | 52 | 1 | 4 | 23000943 | SCM-HC4M-M200R10-M104HB TI40 |
| | | | | | | 2 | 4 | 23000944 | SCM-HC4M-M200R20-M104HB TI40 |
| | | | | | | 3 | 4 | 23000945 | SCM-HC4M-M200R30-M104HB TI40 |
| | | | | | | 4 | 4 | 23000946 | SCM-HC4M-M200R40-M104HB TI40 |
| 25 | 25 | 24.5 | 45 | 125 | 65 | 2 | 4 | 23000947 | SCM-HC4M-M250R20-M125HB TI40 |
| | | | | | | 3 | 4 | 23000948 | SCM-HC4M-M250R30-M125HB TI40 |
| | | | | | | 4 | 4 | 23000949 | SCM-HC4M-M250R40-M125HB TI40 |




## Radius – imperial

End mills with neck chip channel for various applications from roughing to finishing, as well as slot milling. Due to their material-specific geometry and coating, the end mills have been optimized for use in stainless materials.




**Special features:**
- Variable pitch and variable helix angle for low-vibration machining and smooth milling.
- Optimized helix angle for improved chip evacuation.
- Optimum temperature control when working on materials that are difficult to machine.

| DC [Inch] | DCON [Inch] | DN [Inch] | APMX [Inch] | LF [Inch] | LU [Inch] | RE [Inch] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **Long HA** | | | |  **HA** | | | | | |
| 1/4 | 1/4 | 0.238 | 1/2 | 2-1/2 | 3/4 | .015 | 4 | 23001671 | SCM-HC4M-I1/4R0.015-M2.5HA TI40 |
| | | | | | | .01 | 4 | 23001670 | SCM-HC4M-I1/4R0.01-M2.5HA TI40 |
| | | | | | | .03 | 4 | 23001672 | SCM-HC4M-I1/4R0.03-M2.5HA TI40 |
| 5/16 | 5/16 | 0.301 | 3/4 | 2-1/2 | 1 | .015 | 4 | 23001673 | SCM-HC4M-I5/16R0.015-M2.5HA TI40 |
| | | | | | | .02 | 4 | 23001674 | SCM-HC4M-I5/16R0.02-M2.5HA TI40 |
| | | | | | | .03 | 4 | 23001675 | SCM-HC4M-I5/16R0.03-M2.5HA TI40 |
| 3/8 | 3/8 | 0.363 | 7/8 | 3 | 1-3/16 | .015 | 4 | 23001676 | SCM-HC4M-I3/8R0.015-M3HA TI40 |
| | | | | | | .02 | 4 | 23001677 | SCM-HC4M-I3/8R0.02-M3HA TI40 |
| | | | | | | .03 | 4 | 23001678 | SCM-HC4M-I3/8R0.03-M3HA TI40 |
| | | | | | | .06 | 4 | 23001679 | SCM-HC4M-I3/8R0.06-M3HA TI40 |
| 1/2 | 1/2 | 0.488 | 1 | 3-1/2 | 1-9/16 | .015 | 4 | 23001680 | SCM-HC4M-I1/2R0.015-M3.5HA TI40 |
| | | | | | | .02 | 4 | 23001681 | SCM-HC4M-I1/2R0.02-M3.5HA TI40 |
| | | | | | | .03 | 4 | 23001682 | SCM-HC4M-I1/2R0.03-M3.5HA TI40 |
| | | | | | | .06 | 4 | 23001683 | SCM-HC4M-I1/2R0.06-M3.5HA TI40 |
| | | | | | | .09 | 4 | 23001684 | SCM-HC4M-I1/2R0.09-M3.5HA TI40 |
| 5/8 | 5/8 | 0.609 | 1-1/4 | 4 | 1-5/8 | .03 | 4 | 23001685 | SCM-HC4M-I5/8R0.03-M4HA TI40 |
| | | | | | | .04 | 4 | 23001686 | SCM-HC4M-I5/8R0.04-M4HA TI40 |

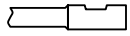
*Continued on next page*

# Performance Stainless Line
## 4-flute (HC4M)

PFERD TOOLS

| DC [Inch] | DCON [Inch] | DN [Inch] | APMX [Inch] | LF [Inch] | LU [Inch] | RE [Inch] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| 5/8 | 5/8 | 0.609 | 1-1/4 | 4 | 1-5/8 | .06 | 4 | 23001687 | SCM-HC4M-I5/8R0.06-M4HA TI40 |
| | | | | | | .09 | 4 | 23001688 | SCM-HC4M-I5/8R0.09-M4HA TI40 |
| | | | | | | .125 | 4 | 23001689 | SCM-HC4M-I5/8R0.125-M4HA TI40 |
| 3/4 | 3/4 | 0.734 | 1-1/2 | 4-1/4 | 2 | .03 | 4 | 23001690 | SCM-HC4M-I3/4R0.03-M4.25HA TI40 |
| | | | | | | .04 | 4 | 23001691 | SCM-HC4M-I3/4R0.04-M4.25HA TI40 |
| | | | | | | .06 | 4 | 23001692 | SCM-HC4M-I3/4R0.06-M4.25HA TI40 |
| | | | | | | .125 | 4 | 23001693 | SCM-HC4M-I3/4R0.125-M4.25HA TI40 |
| 1 | 1 | 0.98 | 2-1/4 | 5 | 2-5/8 | .03 | 4 | 23001694 | SCM-HC4M-I1R0.03-M5HA TI40 |
| | | | | | | .04 | 4 | 23001695 | SCM-HC4M-I1R0.04-M5HA TI40 |
| | | | | | | .06 | 4 | 23001696 | SCM-HC4M-I1R0.06-M5HA TI40 |

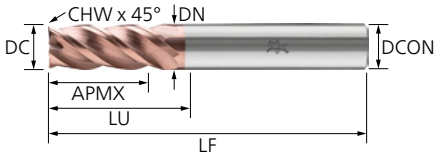
**Long HB**



**HB**

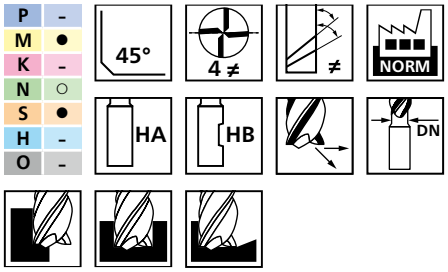
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1/4 | 1/4 | 0.238 | 1/2 | 2-1/2 | 3/4 | .015 | 4 | 23001705 | SCM-HC4M-I1/4R0.015-M2.5HB TI40 |
| | | | | | | .01 | 4 | 23001704 | SCM-HC4M-I1/4R0.01-M2.5HB TI40 |
| | | | | | | .03 | 4 | 23001706 | SCM-HC4M-I1/4R0.03-M2.5HB TI40 |
| 5/16 | 5/16 | 0.301 | 3/4 | 2-1/2 | 1 | .015 | 4 | 23001707 | SCM-HC4M-I5/16R0.015-M2.5HB TI40 |
| | | | | | | .02 | 4 | 23001708 | SCM-HC4M-I5/16R0.02-M2.5HB TI40 |
| | | | | | | .03 | 4 | 23001709 | SCM-HC4M-I5/16R0.03-M2.5HB TI40 |
| 3/8 | 3/8 | 0.363 | 7/8 | 3 | 1-3/16 | .015 | 4 | 23001710 | SCM-HC4M-I3/8R0.015-M3HB TI40 |
| | | | | | | .02 | 4 | 23001711 | SCM-HC4M-I3/8R0.02-M3HB TI40 |
| | | | | | | .03 | 4 | 23001712 | SCM-HC4M-I3/8R0.03-M3HB TI40 |
| | | | | | | .06 | 4 | 23001713 | SCM-HC4M-I3/8R0.06-M3HB TI40 |
| 1/2 | 1/2 | 0.488 | 1 | 3-1/2 | 1-9/16 | .015 | 4 | 23001714 | SCM-HC4M-I1/2R0.015-M3.5HB TI40 |
| | | | | | | .02 | 4 | 23001715 | SCM-HC4M-I1/2R0.02-M3.5HB TI40 |
| | | | | | | .03 | 4 | 23001716 | SCM-HC4M-I1/2R0.03-M3.5HB TI40 |
| | | | | | | .06 | 4 | 23001717 | SCM-HC4M-I1/2R0.06-M3.5HB TI40 |
| | | | | | | .09 | 4 | 23001718 | SCM-HC4M-I1/2R0.09-M3.5HB TI40 |
| 5/8 | 5/8 | 0.609 | 1-1/4 | 4 | 1-5/8 | .03 | 4 | 23001719 | SCM-HC4M-I5/8R0.03-M4HB TI40 |
| | | | | | | .04 | 4 | 23001720 | SCM-HC4M-I5/8R0.04-M4HB TI40 |
| | | | | | | .06 | 4 | 23001721 | SCM-HC4M-I5/8R0.06-M4HB TI40 |
| | | | | | | .09 | 4 | 23001722 | SCM-HC4M-I5/8R0.09-M4HB TI40 |
| | | | | | | .125 | 4 | 23001723 | SCM-HC4M-I5/8R0.125-M4HB TI40 |
| 3/4 | 3/4 | 0.734 | 1-1/2 | 4-1/4 | 2 | .03 | 4 | 23001724 | SCM-HC4M-I3/4R0.03-M4.25HB TI40 |
| | | | | | | .04 | 4 | 23001725 | SCM-HC4M-I3/4R0.04-M4.25HB TI40 |
| | | | | | | .06 | 4 | 23001726 | SCM-HC4M-I3/4R0.06-M4.25HB TI40 |
| | | | | | | .125 | 4 | 23001727 | SCM-HC4M-I3/4R0.125-M4.25HB TI40 |
| 1 | 1 | 0.98 | 2-1/4 | 5 | 2-5/8 | .03 | 4 | 23001728 | SCM-HC4M-I1R0.03-M5HB TI40 |
| | | | | | | .04 | 4 | 23001729 | SCM-HC4M-I1R0.04-M5HB TI40 |
| | | | | | | .06 | 4 | 23001730 | SCM-HC4M-I1R0.06-M5HB TI40 |

# Performance Stainless Line
## 4-flute (HC4M)



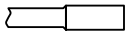
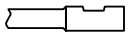

### Chamfer corner design – metric

End mills with neck chip channel for various applications from roughing to finishing, as well as slot milling. Due to their material-specific geometry and coating, the end mills have been optimized for use in stainless materials.

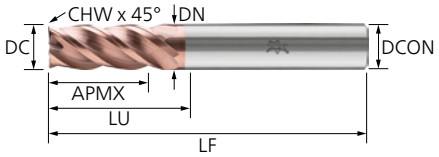



**Special features:**

- Variable pitch and variable helix angle for low-vibration machining and smooth milling.
- Optimized helix angle for improved chip evacuation.
- Optimum temperature control when working on materials that are difficult to machine.

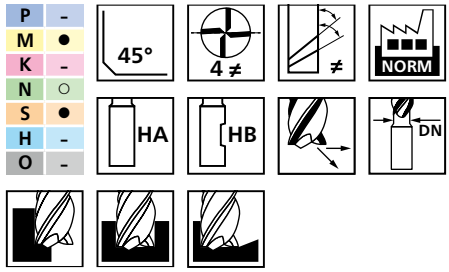
| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | LU [mm] | CHW [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **Long HA** | | | |  HA | | | | | |
| 1 | 6 | - | 2 | 50 | - | 0.05 | 4 | 23000880 | SCM-HC4M-M010C-M50HA6 HP40 |
| 2 | 6 | - | 4 | 50 | - | 0.05 | 4 | 23000881 | SCM-HC4M-M020C-M50HA6 HP40 |
| 3 | 6 | - | 6 | 57 | - | 0.1 | 4 | 23000882 | SCM-HC4M-M030C-M57HA6 HP40 |
| 4 | 6 | - | 9 | 57 | - | 0.1 | 4 | 23000883 | SCM-HC4M-M040C-M57HA6 HP40 |
| 5 | 6 | - | 13 | 57 | - | 0.1 | 4 | 23000884 | SCM-HC4M-M050C-M57HA6 HP40 |
| 6 | 6 | 5.7 | 13 | 57 | 20 | 0.15 | 4 | 23000885 | SCM-HC4M-M060C-M57HA TI40 |
| 8 | 8 | 7.7 | 19 | 63 | 25 | 0.2 | 4 | 23000886 | SCM-HC4M-M080C-M63HA TI40 |
| 10 | 10 | 9.7 | 22 | 72 | 30 | 0.2 | 4 | 23000887 | SCM-HC4M-M100C-M72HA TI40 |
| 12 | 12 | 11.6 | 26 | 83 | 36 | 0.25 | 4 | 23000888 | SCM-HC4M-M120C-M83HA TI40 |
| 16 | 16 | 15.6 | 32 | 92 | 42 | 0.3 | 4 | 23000889 | SCM-HC4M-M160C-M92HA TI40 |
| 20 | 20 | 19.6 | 38 | 104 | 52 | 0.3 | 4 | 23000890 | SCM-HC4M-M200C-M104HA TI40 |
| 25 | 25 | 24.5 | 45 | 125 | 65 | 0.3 | 4 | 23000891 | SCM-HC4M-M250C-M125HA TI40 |
| **Long HB** | | | |  HB | | | | | |
| 1 | 6 | - | 2 | 50 | - | 0.05 | 4 | 23000915 | SCM-HC4M-M010C-M50HB6 HP40 |
| 2 | 6 | - | 4 | 50 | - | 0.05 | 4 | 23000916 | SCM-HC4M-M020C-M50HB6 HP40 |
| 3 | 6 | - | 6 | 57 | - | 0.1 | 4 | 23000917 | SCM-HC4M-M030C-M57HB6 HP40 |
| 4 | 6 | - | 9 | 57 | - | 0.1 | 4 | 23000918 | SCM-HC4M-M040C-M57HB6 HP40 |
| 5 | 6 | - | 13 | 57 | - | 0.1 | 4 | 23000919 | SCM-HC4M-M050C-M57HB6 HP40 |
| 6 | 6 | 5.7 | 13 | 57 | 20 | 0.15 | 4 | 23000920 | SCM-HC4M-M060C-M57HB TI40 |
| 8 | 8 | 7.7 | 19 | 63 | 25 | 0.2 | 4 | 23000921 | SCM-HC4M-M080C-M63HB TI40 |
| 10 | 10 | 9.7 | 22 | 72 | 30 | 0.2 | 4 | 23000922 | SCM-HC4M-M100C-M72HB TI40 |
| 12 | 12 | 11.6 | 26 | 83 | 36 | 0.25 | 4 | 23000923 | SCM-HC4M-M120C-M83HB TI40 |
| 16 | 16 | 15.6 | 32 | 92 | 42 | 0.3 | 4 | 23000924 | SCM-HC4M-M160C-M92HB TI40 |
| 20 | 20 | 19.6 | 38 | 104 | 52 | 0.3 | 4 | 23000925 | SCM-HC4M-M200C-M104HB TI40 |
| 25 | 25 | 24.5 | 45 | 125 | 65 | 0.3 | 4 | 23000926 | SCM-HC4M-M250C-M125HB TI40 |

# Performance Stainless Line
## 4-flute (HC4M)



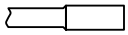
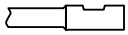

### Chamfer corner design – imperial

End mills with neck chip channel for various applications from roughing to finishing, as well as slot milling. Due to their material-specific geometry and coating, the end mills have been optimized for use in stainless materials.




**Special features:**

- Variable pitch and variable helix angle for low-vibration machining and smooth milling.
- Optimized helix angle for improved chip evacuation.
- Optimum temperature control when working on materials that are difficult to machine.

| DC [Inch] | DCON [Inch] | DN [Inch] | APMX [Inch] | LF [Inch] | LU [Inch] | CHW [Inch] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **Long HA**  **HA** | | | | | | | | | |
| 1/16 | 1/8 | - | 1/8 | 1-1/2 | - | .002 | 4 | 23001658 | SCM-HC4M-I1/16C-M1.5HA HP40 |
| 3/32 | 1/8 | - | 3/16 | 1-1/2 | - | .003 | 4 | 23001659 | SCM-HC4M-I3/32C-M1.5HA HP40 |
| 1/8 | 1/8 | - | 1/4 | 1-1/2 | - | .003 | 4 | 23001660 | SCM-HC4M-I1/8C-M1.5HA HP40 |
| 5/32 | 3/16 | - | 5/16 | 2 | - | .003 | 4 | 23001661 | SCM-HC4M-I5/32C-M2HA HP40 |
| 3/16 | 3/16 | - | 7/16 | 2-1/4 | - | .005 | 4 | 23001662 | SCM-HC4M-I3/16C-M2.25HA HP40 |
| 1/4 | 1/4 | 0.238 | 1/2 | 2-1/2 | 3/4 | .005 | 4 | 23001663 | SCM-HC4M-I1/4C-M2.5HA TI40 |
| 5/16 | 5/16 | 0.301 | 3/4 | 2-1/2 | 1 | .005 | 4 | 23001664 | SCM-HC4M-I5/16C-M2.5HA TI40 |
| 3/8 | 3/8 | 0.363 | 7/8 | 3 | 1-3/16 | .008 | 4 | 23001665 | SCM-HC4M-I3/8C-M3HA TI40 |
| 1/2 | 1/2 | 0.488 | 1 | 3-1/2 | 1-9/16 | .008 | 4 | 23001666 | SCM-HC4M-I1/2C-M3.5HA TI40 |
| 5/8 | 5/8 | 0.609 | 1-1/4 | 4 | 1-5/8 | .008 | 4 | 23001667 | SCM-HC4M-I5/8C-M4HA TI40 |
| 3/4 | 3/4 | 0.734 | 1-1/2 | 4-1/4 | 2 | .012 | 4 | 23001668 | SCM-HC4M-I3/4C-M4.25HA TI40 |
| 1 | 1 | 0.98 | 2 | 5 | 2-5/8 | .012 | 4 | 23001669 | SCM-HC4M-I1C-M5HA TI40 |
| **Long HB**  **HB** | | | | | | | | | |
| 1/4 | 1/4 | 0.238 | 1/2 | 2-1/2 | 3/4 | .005 | 4 | 23001697 | SCM-HC4M-I1/4C-M2.5HB TI40 |
| 5/16 | 5/16 | 0.301 | 3/4 | 2-1/2 | 1 | .005 | 4 | 23001698 | SCM-HC4M-I5/16C-M2.5HB TI40 |
| 3/8 | 3/8 | 0.363 | 7/8 | 3 | 1-3/16 | .008 | 4 | 23001699 | SCM-HC4M-I3/8C-M3HB TI40 |
| 1/2 | 1/2 | 0.488 | 1 | 3-1/2 | 1-9/16 | .008 | 4 | 23001700 | SCM-HC4M-I1/2C-M3.5HB TI40 |
| 5/8 | 5/8 | 0.609 | 1-1/4 | 4 | 1-5/8 | .008 | 4 | 23001701 | SCM-HC4M-I5/8C-M4HB TI40 |
| 3/4 | 3/4 | 0.734 | 1-1/2 | 4-1/4 | 2 | .012 | 4 | 23001702 | SCM-HC4M-I3/4C-M4.25HB TI40 |
| 1 | 1 | 0.98 | 2-1/4 | 5 | 2-5/8 | .012 | 4 | 23001703 | SCM-HC4M-I1C-M5HB TI40 |

# Performance Stainless Line
5-flute with chip breakers (HCD5M)

PFERD TOOLS

## Recommended cutting speeds [SFPM] – radius corner design with chip divider, 2xD

| Material group | | | Specification/ example material | Suitability | Dynamic milling $a_p$ = 2 x DC; $a_e$ = 0.08 | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cutting speed $v_c$ | Tooth feed $f_z$ [mm/tooth] [in./tooth] for cutting diameter DC | | | | | | | | | | | | | |
| | | | | | | 6 mm | 1/4 Inch | 5/16 Inch | 8 mm | 3/8 Inch | 10 mm | 12 mm | 1/2 Inch | 5/8 Inch | 16 mm | 3/4 Inch | 20 mm | 25 mm | 1 Inch |
| P | Steel | All types of steel and cast steel | up to 500 N/mm² (150 HB) | | | | | | | | | | | | | | | | |
| | | | 500 to 700 N/mm² (150 to 208 HB) | | | | | | | | | | | | | | | | |
| | | | 700 to 1,000 N/mm² (208 to 296 HB) | | | | | | | | | | | | | | | | |
| | | | 1,000 to 1,400 N/mm² (296 to 415 HB) | | | | | | | | | | | | | | | | |
| M | Stainless steel | Ferritic and martensitic | e.g. 1.4105, 1.4122 (AISI 410, 420, 430, 440, 440C) | ● | 140 m/min | 0.076 | | | 0.101 | | 0.126 | 0.151 | | | 0.202 | | 0.252 | 0.315 | |
| | | | | | 459 ft./min | | .0030 | .0040 | | .0050 | | | .0060 | .0079 | | .0099 | | | .0124 |
| | | Austenitic | e.g. 1.4301, 1.4571 (AISI 303, 304, 316, 316L) | ● | 130 m/min | 0.076 | | | 0.101 | | 0.126 | 0.151 | | | 0.202 | | 0.252 | 0.315 | |
| | | | | | 427 ft./min | | .0030 | .0040 | | .0050 | | | .0060 | .0079 | | .0099 | | | .0124 |
| | | High-temperature-resistant and ferritic-austenitic (duplex) | | ● | 100 m/min | 0.076 | | | 0.101 | | 0.126 | 0.151 | | | 0.202 | | 0.252 | 0.315 | |
| | | | | | 328 ft./min | | .0030 | .0040 | | .0050 | | | .0060 | .0079 | | .0099 | | | .0124 |
| K | Cast iron | Cast iron with flake graphite (GJL, GG, grey cast iron) | up to 180 HB | | | | | | | | | | | | | | | | |
| | | Cast iron with nodular graphite (GJS, GGG) | 160 to 260 HB | | | | | | | | | | | | | | | | |
| N | Non-ferrous metals | Aluminum | Alu up to 10% Si | | | | | | | | | | | | | | | | |
| | | | Alu over 10% Si | | | | | | | | | | | | | | | | |
| | | Copper, brass, bronze and red brass | | | | | | | | | | | | | | | | | |
| S | Super and titanium alloys | Heat-resistant super alloys | Based on Fe, Ni and Co | | | | | | | | | | | | | | | | |
| | | Pure titanium | | ● | 100 m/min | 0.076 | | | 0.101 | | 0.126 | 0.151 | | | 0.202 | | 0.252 | 0.315 | |
| | | | | | 328 ft./min | | .0030 | .0040 | | .0050 | | | .0060 | .0079 | | .0099 | | | .0124 |
| | | Titanium alloys | | ● | 100 m/min | 0.076 | | | 0.101 | | 0.126 | 0.151 | | | 0.202 | | 0.252 | 0.315 | |
| | | | | | 328 ft./min | | .0030 | .0040 | | .0050 | | | .0060 | .0079 | | .0099 | | | .0124 |
| H | Hard steels and chilled castings | Heat-treated and hardened steels | up to 50 HRC | | | | | | | | | | | | | | | | |
| | | | up to 58 HRC | | | | | | | | | | | | | | | | |
| | | | over 58 HRC | | | | | | | | | | | | | | | | |
| O | Other | Thermoplastics | | | | | | | | | | | | | | | | | |
| | | Duroplastics | | | | | | | | | | | | | | | | | |
| | | GRP/CRP reinforced plastics, graphite | | | | | | | | | | | | | | | | | |

● = highly recommended ○ = recommended

# Performance Stainless Line
## 5-flute with chip breakers (HCD5M)

PFERD TOOLS

### Recommended cutting speeds [SFPM] – radius corner design with chip divider, 3xD

| Material group | | | Specification/ example material | Suitability | Dynamic milling $a_p$ = 3 x DC; $a_e$ = 0.08 | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cutting speed $v_c$ | Tooth feed $f_z$ [mm/tooth] [in./tooth] for cutting diameter DC | | | | | | | | | | | | | |
| | | | | | | 6 mm | 1/4 Inch | 5/16 Inch | 8 mm | 3/8 Inch | 10 mm | 12 mm | 1/2 Inch | 5/8 Inch | 16 mm | 3/4 Inch | 20 mm | 25 mm | 1 Inch |
| P | Steel | All types of steel and cast steel | up to 500 N/mm² (150 HB) | | | | | | | | | | | | | | | | |
| | | | 500 to 700 N/mm² (150 to 208 HB) | | | | | | | | | | | | | | | | |
| | | | 700 to 1,000 N/mm² (208 to 296 HB) | | | | | | | | | | | | | | | | |
| | | | 1,000 to 1,400 N/mm² (296 to 415 HB) | | | | | | | | | | | | | | | | |
| M | Stainless steel | Ferritic and martensitic | e.g. 1.4105, 1.4122 (AISI 410, 420, 430, 440, 440C) | ● | 140 m/min | 0.068 | | | 0.091 | | 0.113 | 0.136 | | | 0.181 | | 0.227 | 0.284 | |
| | | | | | 459 ft./min | | .0027 | .0036 | | .0045 | | | .0054 | .0071 | | .0089 | | | .0112 |
| | | Austenitic | e.g. 1.4301, 1.4571 (AISI 303, 304, 316, 316L) | ● | 130 m/min | 0.068 | | | 0.091 | | 0.113 | 0.136 | | | 0.181 | | 0.227 | 0.284 | |
| | | | | | 427 ft./min | | .0027 | .0036 | | .0045 | | | .0054 | .0071 | | .0089 | | | .0112 |
| | | High-temperature-resistant and ferritic-austenitic (duplex) | | ● | 100 m/min | 0.068 | | | 0.091 | | 0.113 | 0.136 | | | 0.181 | | 0.227 | 0.284 | |
| | | | | | 328 ft./min | | .0027 | .0036 | | .0045 | | | .0054 | .0071 | | .0089 | | | .0112 |
| K | Cast iron | Cast iron with flake graphite (GJL, GG, grey cast iron) | up to 180 HB | | | | | | | | | | | | | | | | |
| | | Cast iron with nodular graphite (GJS, GGG) | 160 to 260 HB | | | | | | | | | | | | | | | | |
| N | Non-ferrous metals | Aluminum | Alu up to 10% Si | | | | | | | | | | | | | | | | |
| | | | Alu over 10% Si | | | | | | | | | | | | | | | | |
| | | Copper, brass, bronze and red brass | | | | | | | | | | | | | | | | | |
| S | Super and titanium alloys | Heat-resistant super alloys | Based on Fe, Ni and Co | | | | | | | | | | | | | | | | |
| | | Pure titanium | | ● | 100 m/min | 0.068 | | | 0.091 | | 0.113 | 0.136 | | | 0.181 | | 0.227 | 0.284 | |
| | | | | | 328 ft./min | | .0027 | .0036 | | .0045 | | | .0054 | .0071 | | .0089 | | | .0112 |
| | | Titanium alloys | | ● | 100 m/min | 0.068 | | | 0.091 | | 0.113 | 0.136 | | | 0.181 | | 0.227 | 0.284 | |
| | | | | | 328 ft./min | | .0027 | .0036 | | .0045 | | | .0054 | .0071 | | .0089 | | | .0112 |
| H | Hard steels and chilled castings | Heat-treated and hardened steels | up to 50 HRC | | | | | | | | | | | | | | | | |
| | | | up to 58 HRC | | | | | | | | | | | | | | | | |
| | | | over 58 HRC | | | | | | | | | | | | | | | | |
| O | Other | Thermoplastics | | | | | | | | | | | | | | | | | |
| | | Duroplastics | | | | | | | | | | | | | | | | | |
| | | GRP/CRP reinforced plastics, graphite | | | | | | | | | | | | | | | | | |

● = highly recommended ○ = recommended

# Performance Stainless Line
5-flute with chip breakers (HCD5M)

PFERD TOOLS

## Recommended cutting speeds [SFPM] – radius corner design with chip divider, 4xD

| Material group | | | Specification/ example material | Suitability | Dynamic milling $a_p$ = 4 x DC; $a_e$ = 0.06 | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cutting speed $v_c$ | Tooth feed $f_z$ [mm/tooth] [in./tooth] for cutting diameter DC | | | | | | | | | | | | | |
| | | | | | | 6 mm | 1/4 Inch | 5/16 Inch | 8 mm | 3/8 Inch | 10 mm | 12 mm | 1/2 Inch | 5/8 Inch | 16 mm | 3/4 Inch | 20 mm | 25 mm | 1 Inch |
| P | Steel | All types of steel and cast steel | up to 500 N/mm² (150 HB) | | | | | | | | | | | | | | | | |
| | | | 500 to 700 N/mm² (150 to 208 HB) | | | | | | | | | | | | | | | | |
| | | | 700 to 1,000 N/mm² (208 to 296 HB) | | | | | | | | | | | | | | | | |
| | | | 1,000 to 1,400 N/mm² (296 to 415 HB) | | | | | | | | | | | | | | | | |
| M | Stainless steel | Ferritic and martensitic | e.g. 1.4105, 1.4122 (AISI 410, 420, 430, 440, 440C) | ● | 140 m/min | 0.060 | | | 0.081 | | 0.101 | 0.121 | | | 0.161 | | 0.202 | 0.252 | |
| | | | | | 459 ft./min | | .0024 | .0032 | | .0040 | | | .0048 | .0063 | | .0079 | | | .0099 |
| | | Austenitic | e.g. 1.4301, 1.4571 (AISI 303, 304, 316, 316L) | ● | 130 m/min | 0.060 | | | 0.081 | | 0.101 | 0.121 | | | 0.161 | | 0.202 | 0.252 | |
| | | | | | 427 ft./min | | .0024 | .0032 | | .0040 | | | .0048 | .0063 | | .0079 | | | .0099 |
| | | High-temperature-resistant and ferritic-austenitic (duplex) | | ● | 100 m/min | 0.060 | | | 0.081 | | 0.101 | 0.121 | | | 0.161 | | 0.202 | 0.252 | |
| | | | | | 328 ft./min | | .0024 | .0032 | | .0040 | | | .0048 | .0063 | | .0079 | | | .0099 |
| K | Cast iron | Cast iron with flake graphite (GJL, GG, grey cast iron) | up to 180 HB | | | | | | | | | | | | | | | | |
| | | Cast iron with nodular graphite (GJS, GGG) | 160 to 260 HB | | | | | | | | | | | | | | | | |
| N | Non-ferrous metals | Aluminum | Alu up to 10% Si | | | | | | | | | | | | | | | | |
| | | | Alu over 10% Si | | | | | | | | | | | | | | | | |
| | | Copper, brass, bronze and red brass | | | | | | | | | | | | | | | | | |
| S | Super and titanium alloys | Heat-resistant super alloys | Based on Fe, Ni and Co | | | | | | | | | | | | | | | | |
| | | Pure titanium | | ● | 100 m/min | 0.060 | | | 0.081 | | 0.101 | 0.121 | | | 0.161 | | 0.202 | 0.252 | |
| | | | | | 328 ft./min | | .0024 | .0032 | | .0040 | | | .0048 | .0063 | | .0079 | | | .0099 |
| | | Titanium alloys | | ● | 100 m/min | 0.060 | | | 0.081 | | 0.101 | 0.121 | | | 0.161 | | 0.202 | 0.252 | |
| | | | | | 328 ft./min | | .0024 | .0032 | | .0040 | | | .0048 | .0063 | | .0079 | | | .0099 |
| H | Hard steels and chilled castings | Heat-treated and hardened steels | up to 50 HRC | | | | | | | | | | | | | | | | |
| | | | up to 58 HRC | | | | | | | | | | | | | | | | |
| | | | over 58 HRC | | | | | | | | | | | | | | | | |
| O | Other | Thermoplastics | | | | | | | | | | | | | | | | | |
| | | Duroplastics | | | | | | | | | | | | | | | | | |
| | | GRP/CRP reinforced plastics, graphite | | | | | | | | | | | | | | | | | |

● = highly recommended ○ = recommended

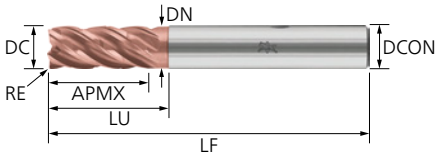
# Performance Stainless Line
5-flute with chip breakers (HCD5M)

PFERD TOOLS

## Recommended cutting speeds [SFPM] – radius corner design with chip divider, 5xD

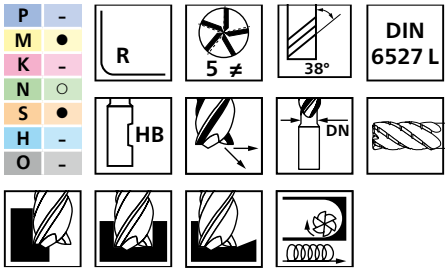
| Material group | | | Specification/ example material | Suitability | Dynamic milling $a_p$ = 5 x DC; $a_e$ = 0.06 | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cutting speed $v_c$ | Tooth feed $f_z$ [mm/tooth] [in./tooth] for cutting diameter DC | | | | | | | | | | | | | |
| | | | | | | 6 mm | 1/4 Inch | 5/16 Inch | 8 mm | 3/8 Inch | 10 mm | 12 mm | 1/2 Inch | 5/8 Inch | 16 mm | 3/4 Inch | 20 mm | 25 mm | 1 Inch |
| P | Steel | All types of steel and cast steel | up to 500 N/mm² (150 HB) | | | | | | | | | | | | | | | | |
| | | | 500 to 700 N/mm² (150 to 208 HB) | | | | | | | | | | | | | | | | |
| | | | 700 to 1,000 N/mm² (208 to 296 HB) | | | | | | | | | | | | | | | | |
| | | | 1,000 to 1,400 N/mm² (296 to 415 HB) | | | | | | | | | | | | | | | | |
| M | Stainless steel | Ferritic and martensitic | e.g. 1.4105, 1.4122 (AISI 410, 420, 430, 440, 440C) | ● | 140 m/min | 0.053 | | | 0.071 | | 0.088 | 0.106 | | | 0.141 | | 0.176 | 0.221 | |
| | | | | | 459 ft./min | | .0021 | .0028 | | .0035 | | | .0042 | .0056 | | .0069 | | | .0087 |
| | | Austenitic | e.g. 1.4301, 1.4571 (AISI 303, 304, 316, 316L) | ● | 130 m/min | 0.053 | | | 0.071 | | 0.088 | 0.106 | | | 0.141 | | 0.176 | 0.221 | |
| | | | | | 427 ft./min | | .0021 | .0028 | | .0035 | | | .0042 | .0056 | | .0069 | | | .0087 |
| | | High-temperature-resistant and ferritic-austenitic (duplex) | | ● | 100 m/min | 0.053 | | | 0.071 | | 0.088 | 0.106 | | | 0.141 | | 0.176 | 0.221 | |
| | | | | | 328 ft./min | | .0021 | .0028 | | .0035 | | | .0042 | .0056 | | .0069 | | | .0087 |
| K | Cast iron | Cast iron with flake graphite (GJL, GG, grey cast iron) | up to 180 HB | | | | | | | | | | | | | | | | |
| | | Cast iron with nodular graphite (GJS, GGG) | 160 to 260 HB | | | | | | | | | | | | | | | | |
| N | Non-ferrous metals | Aluminum | Alu up to 10% Si | | | | | | | | | | | | | | | | |
| | | | Alu over 10% Si | | | | | | | | | | | | | | | | |
| | | Copper, brass, bronze and red brass | | | | | | | | | | | | | | | | | |
| S | Super and titanium alloys | Heat-resistant super alloys | Based on Fe, Ni and Co | | | | | | | | | | | | | | | | |
| | | Pure titanium | | ● | 100 m/min | 0.053 | | | 0.071 | | 0.088 | 0.106 | | | 0.141 | | 0.176 | 0.221 | |
| | | | | | 328 ft./min | | .0021 | .0028 | | .0035 | | | .0042 | .0056 | | .0069 | | | .0087 |
| | | Titanium alloys | | ● | 100 m/min | 0.053 | | | 0.071 | | 0.088 | 0.106 | | | 0.141 | | 0.176 | 0.221 | |
| | | | | | 328 ft./min | | .0021 | .0028 | | .0035 | | | .0042 | .0056 | | .0069 | | | .0087 |
| H | Hard steels and chilled castings | Heat-treated and hardened steels | up to 50 HRC | | | | | | | | | | | | | | | | |
| | | | up to 58 HRC | | | | | | | | | | | | | | | | |
| | | | over 58 HRC | | | | | | | | | | | | | | | | |
| O | Other | Thermoplastics | | | | | | | | | | | | | | | | | |
| | | Duroplastics | | | | | | | | | | | | | | | | | |
| | | GRP/CRP reinforced plastics, graphite | | | | | | | | | | | | | | | | | |

● = highly recommended ○ = recommended

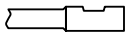


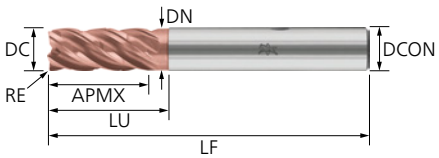

## Radius corner design with chip divider, 2xD – metric

End mills with chip divider and neck chip channel for dynamic machining and trochoidal milling. Due to their material-specific geometry and coating, the end mills have been optimized for use in stainless materials.



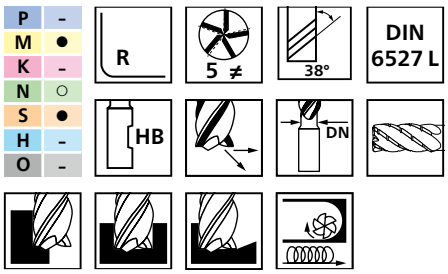

**Special features:**
- Variable pitch for low-vibration machining and smooth milling.
- Optimized helix angle for improved chip evacuation.
- Optimum temperature control when working on materials that are difficult to machine.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | LU [mm] | RE [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **Long HB** | | | | |  **HB** | | | | |
| 6 | 6 | 5.7 | 13 | 57 | 20 | 0.5 | 5 | 23000950 | SCM-HCD5M-M060R05-M57HB TI40 |
| 8 | 8 | 7.7 | 19 | 63 | 25 | 0.5 | 5 | 23000951 | SCM-HCD5M-M080R05-M63HB TI40 |
| 10 | 10 | 9.7 | 22 | 72 | 30 | 0.5 | 5 | 23000952 | SCM-HCD5M-M100R05-M72HB TI40 |
| 12 | 12 | 11.6 | 26 | 83 | 36 | 0.5 | 5 | 23000953 | SCM-HCD5M-M120R05-M83HB TI40 |
| 16 | 16 | 15.6 | 32 | 92 | 42 | 1 | 5 | 23000954 | SCM-HCD5M-M160R10-M92HB TI40 |
| 20 | 20 | 19.6 | 38 | 104 | 52 | 1 | 5 | 23000955 | SCM-HCD5M-M200R10-M104HB TI40 |
| 25 | 25 | 24.5 | 45 | 124 | 65 | 1 | 5 | 23000956 | SCM-HCD5M-M250R10-M124HB TI40 |




## Radius corner design with chip divider, 2xD – imperial

End mills with chip divider and neck chip channel for dynamic machining and trochoidal milling. Due to their material-specific geometry and coating, the end mills have been optimized for use in stainless materials.




**Special features:**
- Variable pitch for low-vibration machining and smooth milling.
- Optimized helix angle for improved chip evacuation.
- Optimum temperature control when working on materials that are difficult to machine.

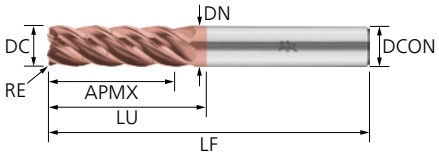
| DC [Inch] | DCON [Inch] | DN [Inch] | APMX [Inch] | LF [Inch] | LU [Inch] | RE [Inch] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **Long HB** | | | | |  **HB** | | | | |
| 1/4 | 1/4 | 0.238 | 1/2 | 2-1/2 | 1 | .015 | 5 | 23001732 | SCM-HCD5M-I1/4R0.015-M2.5HB TI40 |
| | | | | | | .01 | 5 | 23001731 | SCM-HCD5M-I1/4R0.01-M2.5HB TI40 |
| | | | | | | .03 | 5 | 23001733 | SCM-HCD5M-I1/4R0.03-M2.5HB TI40 |
| 5/16 | 5/16 | 0.301 | 3/4 | 2-1/2 | 1 | .015 | 5 | 23001734 | SCM-HCD5M-I5/16R0.015-M2.5HB TI40 |
| | | | | | | .02 | 5 | 23001735 | SCM-HCD5M-I5/16R0.02-M2.5HB TI40 |
| | | | | | | .03 | 5 | 23001736 | SCM-HCD5M-I5/16R0.03-M2.5HB TI40 |
| 3/8 | 3/8 | 0.363 | 7/8 | 3 | 1-3/16 | .015 | 5 | 23001737 | SCM-HCD5M-I3/8R0.015-M3HB TI40 |
| | | | | | | .02 | 5 | 23001738 | SCM-HCD5M-I3/8R0.02-M3HB TI40 |

*Continued on next page*

# Performance Stainless Line
## 5-flute with chip breakers (HCD5M)

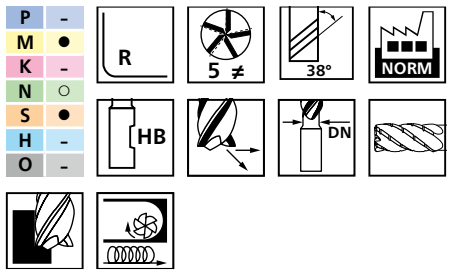
PFERD TOOLS

| DC [Inch] | DCON [Inch] | DN [Inch] | APMX [Inch] | LF [Inch] | LU [Inch] | RE [Inch] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| 3/8 | 3/8 | 0.363 | 7/8 | 3 | 1-3/16 | .03 | 5 | 23001739 | SCM-HCD5M-I3/8R0.03-M3HB TI40 |
| | | | | | | .06 | 5 | 23001740 | SCM-HCD5M-I3/8R0.06-M3HB TI40 |
| 1/2 | 1/2 | 0.484 | 1 | 3-1/2 | 1-9/16 | .015 | 5 | 23001741 | SCM-HCD5M-I1/2R0.015-M3.5HB TI40 |
| | | | | | | .02 | 5 | 23001742 | SCM-HCD5M-I1/2R0.02-M3.5HB TI40 |
| | | | | | | .03 | 5 | 23001743 | SCM-HCD5M-I1/2R0.03-M3.5HB TI40 |
| | | | | | | .06 | 5 | 23001744 | SCM-HCD5M-I1/2R0.06-M3.5HB TI40 |
| | | | | | | .09 | 5 | 23001745 | SCM-HCD5M-I1/2R0.09-M3.5HB TI40 |
| 5/8 | 5/8 | 0.609 | 1-1/4 | 4 | 1-5/8 | .03 | 5 | 23001746 | SCM-HCD5M-I5/8R0.03-M4HB TI40 |
| | | | | | | .04 | 5 | 23001747 | SCM-HCD5M-I5/8R0.04-M4HB TI40 |
| | | | | | | .06 | 5 | 23001748 | SCM-HCD5M-I5/8R0.06-M4HB TI40 |
| | | | | | | .09 | 5 | 23001749 | SCM-HCD5M-I5/8R0.09-M4HB TI40 |
| | | | | | | .125 | 5 | 23001750 | SCM-HCD5M-I5/8R0.125-M4HB TI40 |
| 3/4 | 3/4 | 0.734 | 1-1/2 | 4-1/4 | 2 | .03 | 5 | 23001751 | SCM-HCD5M-I3/4R0.03-M4.25HB TI40 |
| | | | | | | .04 | 5 | 23001752 | SCM-HCD5M-I3/4R0.04-M4.25HB TI40 |
| | | | | | | .06 | 5 | 23001753 | SCM-HCD5M-I3/4R0.06-M4.25HB TI40 |
| | | | | | | .125 | 5 | 23001754 | SCM-HCD5M-I3/4R0.125-M4.25HB TI40 |
| 1 | 1 | 0.98 | 2-1/4 | 5 | 2-5/8 | .03 | 5 | 23001755 | SCM-HCD5M-I1R0.03-M5HB TI40 |
| | | | | | | .04 | 5 | 23001756 | SCM-HCD5M-I1R0.04-M5HB TI40 |
| | | | | | | .06 | 5 | 23001757 | SCM-HCD5M-I1R0.06-M5HB TI40 |

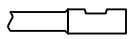



## Radius corner design with chip divider, 3xD – metric

End mills with chip divider and neck chip channel for dynamic machining and trochoidal milling. Due to their material-specific geometry and coating, the end mills have been optimized for use in stainless materials.

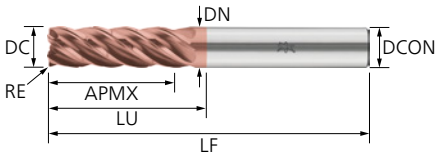



**Special features:**
- Variable pitch for low-vibration machining and smooth milling.
- Optimized helix angle for improved chip evacuation.
- Optimum temperature control when working on materials that are difficult to machine.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | LU [mm] | RE [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **3xD HB** | | | |  **HB** | | | | | |
| 6 | 6 | 5.7 | 19 | 66 | 23 | 0.5 | 5 | 23000957 | SCM-HCD5M-M060R05-L66HB TI40 |
| 8 | 8 | 7.7 | 25 | 70 | 29 | 0.5 | 5 | 23000958 | SCM-HCD5M-M080R05-L70HB TI40 |
| 10 | 10 | 9.7 | 31 | 78 | 35 | 0.5 | 5 | 23000959 | SCM-HCD5M-M100R05-L78HB TI40 |
| 12 | 12 | 11.6 | 38 | 92 | 42 | 0.5 | 5 | 23000960 | SCM-HCD5M-M120R05-L92HB TI40 |
| 16 | 16 | 15.6 | 50 | 110 | 56 | 1 | 5 | 23000961 | SCM-HCD5M-M160R10-L110HB TI40 |
| 20 | 20 | 19.6 | 62 | 125 | 70 | 1 | 5 | 23000962 | SCM-HCD5M-M200R10-L125HB TI40 |
| 25 | 25 | 24.5 | 78 | 150 | 88 | 1 | 5 | 23000963 | SCM-HCD5M-M250R10-L150HB TI40 |

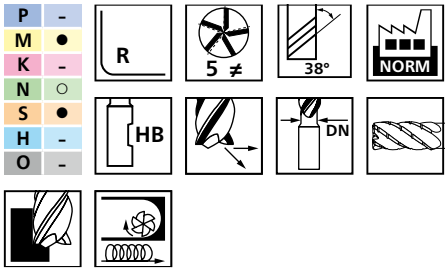
# Performance Stainless Line
## 5-flute with chip breakers (HCD5M)

PFERD TOOLS

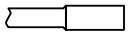
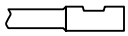


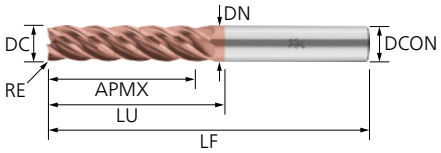

### Radius corner design with chip divider, 3xD – imperial

End mills with chip divider and neck chip channel for dynamic machining and trochoidal milling. Due to their material-specific geometry and coating, the end mills have been optimized for use in stainless materials.



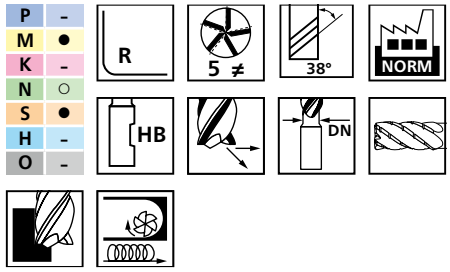

**Special features:**
- Variable pitch for low-vibration machining and smooth milling.
- Optimized helix angle for improved chip evacuation.
- Optimum temperature control when working on materials that are difficult to machine.

| DC [Inch] | DCON [Inch] | DN [Inch] | APMX [Inch] | LF [Inch] | LU [Inch] | RE [Inch] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **3xD HA** | | | |  **HA** | | | | | |
| 1/4 | 1/4 | 0.238 | 3/4 | 2-1/2 | 1 | .03 | 5 | 23001759 | SCM-HCD5M-I1/4R0.03-L2.5HA TI40 |
| 5/16 | 5/16 | 0.301 | 15/16 | 3 | 1-5/32 | .03 | 5 | 23001761 | SCM-HCD5M-I5/16R0.03-L3HA TI40 |
| 3/8 | 3/8 | 0.363 | 1-1/4 | 3-1/2 | 1-1/2 | .03 | 5 | 23001763 | SCM-HCD5M-I3/8R0.03-L3.5HA TI40 |
| 1/2 | 1/2 | 0.484 | 1-5/8 | 4 | 1-13/16 | .03 | 5 | 23001765 | SCM-HCD5M-I1/2R0.03-L4HA TI40 |
| 5/8 | 5/8 | 0.609 | 2-1/8 | 4-1/4 | 2-1/4 | .03 | 5 | 23001767 | SCM-HCD5M-I5/8R0.03-L4.25HA TI40 |
| 3/4 | 3/4 | 0.734 | 2-1/2 | 5 | 2-3/4 | .03 | 5 | 23001769 | SCM-HCD5M-I3/4R0.03-L5HA TI40 |
| 1 | 1 | 0.98 | 3-1/8 | 6 | 3-9/16 | .03 | 5 | 23001771 | SCM-HCD5M-I1R0.03-L6HA TI40 |
| **3xD HB** | | | |  **HB** | | | | | |
| 1/4 | 1/4 | 0.238 | 3/4 | 2-1/2 | 1 | .03 | 5 | 23001758 | SCM-HCD5M-I1/4R0.03-L2.5HB TI40 |
| 5/16 | 5/16 | 0.301 | 15/16 | 3 | 1-5/32 | .03 | 5 | 23001760 | SCM-HCD5M-I5/16R0.03-L3HB TI40 |
| 3/8 | 3/8 | 0.363 | 1-1/4 | 3-1/2 | 1-1/2 | .03 | 5 | 23001762 | SCM-HCD5M-I3/8R0.03-L3.5HB TI40 |
| 1/2 | 1/2 | 0.484 | 1-5/8 | 4 | 1-13/16 | .03 | 5 | 23001764 | SCM-HCD5M-I1/2R0.03-L4HB TI40 |
| 5/8 | 5/8 | 0.609 | 2-1/8 | 4-1/4 | 2-1/4 | .03 | 5 | 23001766 | SCM-HCD5M-I5/8R0.03-L4.25HB TI40 |
| 3/4 | 3/4 | 0.734 | 2-1/2 | 5 | 2-3/4 | .03 | 5 | 23001768 | SCM-HCD5M-I3/4R0.03-L5HB TI40 |
| 1 | 1 | 0.98 | 3-1/8 | 6 | 3-9/16 | .03 | 5 | 23001770 | SCM-HCD5M-I1R0.03-L6HB TI40 |

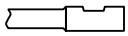


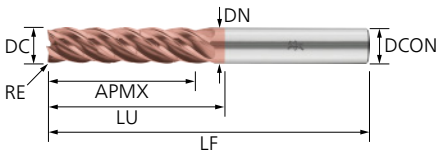

## Radius corner design with chip divider, 4xD – metric

End mills with chip divider and neck chip channel for dynamic machining and trochoidal milling. Due to their material-specific geometry and coating, the end mills have been optimized for use in stainless materials.



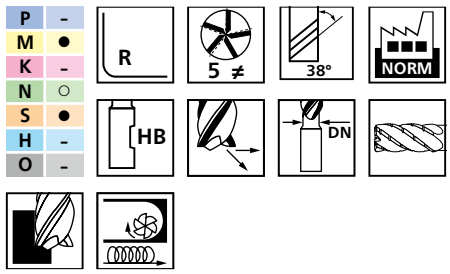

**Special features:**
- Variable pitch for low-vibration machining and smooth milling.
- Optimized helix angle for improved chip evacuation.
- Optimum temperature control when working on materials that are difficult to machine.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | LU [mm] | RE [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **4xD HB** | | | |  **HB** | | | | | |
| 6 | 6 | 5.7 | 24 | 66 | 29 | 0.5 | 5 | 23000964 | SCM-HCD5M-M060R05-XL66HB TI40 |
| 8 | 8 | 7.7 | 32 | 74 | 37 | 0.5 | 5 | 23000965 | SCM-HCD5M-M080R05-XL74HB TI40 |
| 10 | 10 | 9.7 | 40 | 88 | 45 | 0.5 | 5 | 23000966 | SCM-HCD5M-M100R05-XL88HB TI40 |
| 12 | 12 | 11.6 | 48 | 105 | 54 | 0.5 | 5 | 23000967 | SCM-HCD5M-M120R05-XL105HB TI40 |
| 16 | 16 | 15.6 | 64 | 124 | 72 | 1 | 5 | 23000968 | SCM-HCD5M-M160R10-XL124HB TI40 |
| 20 | 20 | 19.6 | 80 | 148 | 90 | 1 | 5 | 23000969 | SCM-HCD5M-M200R10-XL148HB TI40 |
| 25 | 25 | 24.5 | 100 | 182 | 115 | 1 | 5 | 23000970 | SCM-HCD5M-M250R10-XL182HB TI40 |




## Radius corner design with chip divider, 4xD – imperial

End mills with chip divider and neck chip channel for dynamic machining and trochoidal milling. Due to their material-specific geometry and coating, the end mills have been optimized for use in stainless materials.




**Special features:**
- Variable pitch for low-vibration machining and smooth milling.
- Optimized helix angle for improved chip evacuation.
- Optimum temperature control when working on materials that are difficult to machine.

| DC [Inch] | DCON [Inch] | DN [Inch] | APMX [Inch] | LF [Inch] | LU [Inch] | RE [Inch] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **4xD HA** | | | |  **HA** | | | | | |
| 1/4 | 1/4 | 0.238 | 1 | 3 | 1-1/4 | .03 | 5 | 23001773 | SCM-HCD5M-I1/4R0.03-XL3HA TI40 |
| 5/16 | 5/16 | 0.301 | 1-1/4 | 3 | 1-1/2 | .03 | 5 | 23001775 | SCM-HCD5M-I5/16R0.03-XL3HA TI40 |
| 3/8 | 3/8 | 0.363 | 1-5/8 | 3-1/2 | 1-7/8 | .03 | 5 | 23001777 | SCM-HCD5M-I3/8R0.03-XL3.5HA TI40 |
| 1/2 | 1/2 | 0.484 | 2-1/8 | 4-1/2 | 2-1/2 | .03 | 5 | 23001779 | SCM-HCD5M-I1/2R0.03-XL4.5HA TI40 |
| 5/8 | 5/8 | 0.609 | 2-5/8 | 5 | 3 | .03 | 5 | 23001781 | SCM-HCD5M-I5/8R0.03-XL5HA TI40 |
| 3/4 | 3/4 | 0.734 | 3-1/8 | 6 | 3-9/16 | .03 | 5 | 23001783 | SCM-HCD5M-I3/4R0.03-XL6HA TI40 |
| 1 | 1 | 0.98 | 4 | 7 | 4-1/2 | .03 | 5 | 23001785 | SCM-HCD5M-I1R0.03-XL7HA TI40 |

*Continued on next page*

# Performance Stainless Line
## 5-flute with chip breakers (HCD5M)

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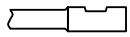
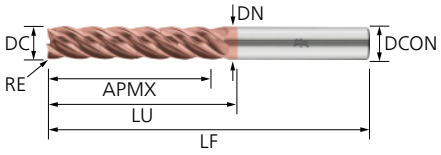
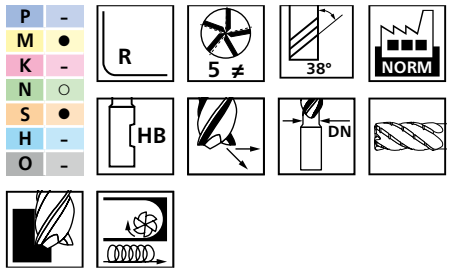
| DC [Inch] | DCON [Inch] | DN [Inch] | APMX [Inch] | LF [Inch] | LU [Inch] | RE [Inch] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **4xD HB** | | | |  **HB** | | | | | |
| 1/4 | 1/4 | 0.238 | 1 | 3 | 1-1/4 | .03 | 5 | 23001772 | SCM-HCD5M-I1/4R0.03-XL3HB TI40 |
| 5/16 | 5/16 | 0.301 | 1-1/4 | 3 | 1-1/2 | .03 | 5 | 23001774 | SCM-HCD5M-I5/16R0.03-XL3HB TI40 |
| 3/8 | 3/8 | 0.363 | 1-5/8 | 3-1/2 | 1-7/8 | .03 | 5 | 23001776 | SCM-HCD5M-I3/8R0.03-XL3.5HB TI40 |
| 1/2 | 1/2 | 0.484 | 2-1/8 | 4-1/2 | 2-1/2 | .03 | 5 | 23001778 | SCM-HCD5M-I1/2R0.03-XL4.5HB TI40 |
| 5/8 | 5/8 | 0.609 | 2-5/8 | 5 | 3 | .03 | 5 | 23001780 | SCM-HCD5M-I5/8R0.03-XL5HB TI40 |
| 3/4 | 3/4 | 0.734 | 3-1/8 | 6 | 3-9/16 | .03 | 5 | 23001782 | SCM-HCD5M-I3/4R0.03-XL6HB TI40 |
| 1 | 1 | 0.98 | 4 | 7 | 4-1/2 | .03 | 5 | 23001784 | SCM-HCD5M-I1R0.03-XL7HB TI40 |

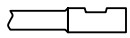



## Radius corner design with chip divider, 5xD – metric

End mills with chip divider and neck chip channel for dynamic machining and trochoidal milling. Due to their material-specific geometry and coating, the end mills have been optimized for use in stainless materials.




**Special features:**
- Variable pitch for low-vibration machining and smooth milling.
- Optimized helix angle for improved chip evacuation.
- Optimum temperature control when working on materials that are difficult to machine.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | LU [mm] | RE [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **5xD HB** | | | |  **HB** | | | | | |
| 6 | 6 | 5.7 | 30 | 74 | 35 | 0.5 | 5 | 23000971 | SCM-HCD5M-M060R05-XXL74HB TI40 |
| 8 | 8 | 7.7 | 40 | 84 | 45 | 0.5 | 5 | 23000972 | SCM-HCD5M-M080R05-XXL84HB TI40 |
| 10 | 10 | 9.7 | 50 | 100 | 55 | 0.5 | 5 | 23000973 | SCM-HCD5M-M100R05-XXL100HB TI40 |
| 12 | 12 | 11.6 | 60 | 115 | 66 | 0.5 | 5 | 23000974 | SCM-HCD5M-M120R05-XXL115HB TI40 |
| 16 | 16 | 15.6 | 80 | 142 | 88 | 1 | 5 | 23000975 | SCM-HCD5M-M160R10-XXL142HB TI40 |
| 20 | 20 | 19.6 | 100 | 165 | 110 | 1 | 5 | 23000976 | SCM-HCD5M-M200R10-XXL165HB TI40 |
| 25 | 25 | 24.5 | 125 | 200 | 138 | 1 | 5 | 23000977 | SCM-HCD5M-M250R10-XXL200HB TI40 |

# Performance Stainless Line
## 5-flute with chip breakers (HCD5M)

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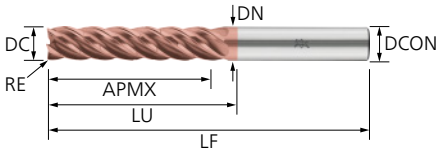
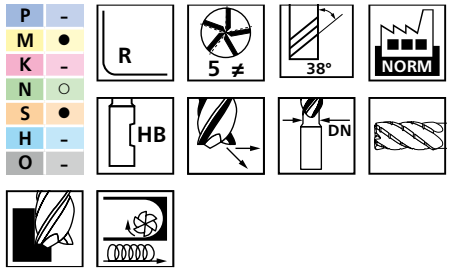
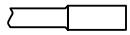
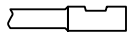



### Radius corner design with chip divider, 5xD – imperial

End mills with chip divider and neck chip channel for dynamic machining and trochoidal milling. Due to their material-specific geometry and coating, the end mills have been optimized for use in stainless materials.




**Special features:**
- Variable pitch for low-vibration machining and smooth milling.
- Optimized helix angle for improved chip evacuation.
- Optimum temperature control when working on materials that are difficult to machine.

| DC [Inch] | DCON [Inch] | DN [Inch] | APMX [Inch] | LF [Inch] | LU [Inch] | RE [Inch] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **5xD HA** | | | |  **HA** | | | | | |
| 1/4 | 1/4 | 0.238 | 1-1/4 | 3 | 1-1/2 | .03 | 5 | 23001787 | SCM-HCD5M-I1/4R0.03-XXL3HA TI40 |
| 5/16 | 5/16 | 0.301 | 1-9/16 | 3-1/2 | 1-7/8 | .03 | 5 | 23001789 | SCM-HCD5M-I5/16R0.03-XXL3.5HA TI40 |
| 3/8 | 3/8 | 0.363 | 1-7/8 | 4 | 2-1/8 | .03 | 5 | 23001791 | SCM-HCD5M-I3/8R0.03-XXL4HA TI40 |
| 1/2 | 1/2 | 0.484 | 2-1/2 | 5 | 2-3/4 | .03 | 5 | 23001793 | SCM-HCD5M-I1/2R0.03-XXL5HA TI40 |
| 5/8 | 5/8 | 0.609 | 3-1/8 | 6 | 3-9/16 | .03 | 5 | 23001795 | SCM-HCD5M-I5/8R0.03-XXL6HA TI40 |
| 3/4 | 3/4 | 0.734 | 3-3/4 | 6-1/2 | 4 | .03 | 5 | 23001797 | SCM-HCD5M-I3/4R0.03-XXL6.5HA TI40 |
| 1 | 1 | 0.98 | 5 | 8 | 5-1/2 | .03 | 5 | 23001799 | SCM-HCD5M-I1R0.03-XXL8HA TI40 |
| **5xD HB** | | | |  **HB** | | | | | |
| 1/4 | 1/4 | 0.238 | 1-1/4 | 3 | 1-1/2 | .03 | 5 | 23001786 | SCM-HCD5M-I1/4R0.03-XXL3HB TI40 |
| 5/16 | 5/16 | 0.301 | 1-9/16 | 3-1/2 | 1-7/8 | .03 | 5 | 23001788 | SCM-HCD5M-I5/16R0.03-XXL3.5HB TI40 |
| 3/8 | 3/8 | 0.363 | 1-7/8 | 4 | 2-1/8 | .03 | 5 | 23001790 | SCM-HCD5M-I3/8R0.03-XXL4HB TI40 |
| 1/2 | 1/2 | 0.484 | 2-1/2 | 5 | 2-3/4 | .03 | 5 | 23001792 | SCM-HCD5M-I1/2R0.03-XXL5HB TI40 |
| 5/8 | 5/8 | 0.609 | 3-1/8 | 6 | 3-9/16 | .03 | 5 | 23001794 | SCM-HCD5M-I5/8R0.03-XXL6HB TI40 |
| 3/4 | 3/4 | 0.734 | 3-3/4 | 6-1/2 | 4 | .03 | 5 | 23001796 | SCM-HCD5M-I3/4R0.03-XXL6.5HB TI40 |
| 1 | 1 | 0.98 | 5 | 8 | 5-1/2 | .03 | 5 | 23001798 | SCM-HCD5M-I1R0.03-XXL8HB TI40 |

# Performance Aluminum Line
Material suitability overview

PFERD TOOLS

## Performance Aluminum

| Material group | | | 3-flute (HC3N) |
|---|---|---|---|
| P | Steel | All types of steel and cast steel | |
| M | Stainless steel | Ferritic and martensitic | |
| | | Austenitic | |
| | | High-temperature-resistant and ferritic-austenitic (duplex) | |
| K | Cast iron | Cast iron with flake graphite (GJL, GG, grey cast iron) | |
| | | Cast iron with nodular graphite (GJS, GGG) | |
| N | Non-ferrous metals | Aluminum | ● |
| | | Copper, brass, bronze and red brass | ● |
| S | Super and titanium alloys | Heat-resistant super alloys based on Fe, Ni and Co | |
| | | Pure titanium | |
| | | Titanium alloys | |
| H | Hard steels and chilled castings | Heat-treated and hardened steels up to 50 HRC | |
| | | Hardened steels up to 58 HRC | |
| | | Hardened steels over 58 HRC | |
| O | Other | Thermoplastics | ● |
| | | Duroplastics | ● |
| | | GRP/CRP reinforced plastics, graphite | |

● = highly recommended ○ = recommended

# Performance Aluminum Line
3-flute (HC3N)

PFERD TOOLS

## Recommended cutting speeds [SFPM] – radius and chamfer corner designs

| Material group | | | Specification/ example material | Suitability | Full slot milling $a_p$ = 1 x DC; $a_e$ = 1 x DC | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cutting speed $v_c$ | Tooth feed $f_z$ [mm/tooth] [in./tooth] for cutting diameter DC | | | | | | | | | | | | | | | | |
| | | | | | | 3 mm | 1/8 Inch | 5/32 Inch | 4 mm | 3/16 Inch | 5 mm | 6 mm | 1/4 Inch | 5/16 Inch | 8 mm | 3/8 Inch | 10 mm | 12 mm | 1/2 Inch | 5/8 Inch | 16 mm | 3/4 Inch | 20 mm |
| P | Steel | All types of steel and cast steel | up to 500 N/mm² (150 BHN) | | | | | | | | | | | | | | | | | | | |
| | | | 500 to 700 N/mm² (150 to 208 BHN) | | | | | | | | | | | | | | | | | | | |
| | | | 700 to 1,000 N/mm² (208 to 296 BHN) | | | | | | | | | | | | | | | | | | | |
| | | | 1,000 to 1,400 N/mm² (296 to 415 BHN) | | | | | | | | | | | | | | | | | | | |
| M | Stainless steel | Ferritic and martensitic | e.g. 1.4105, 1.4122 (AISI 410, 420, 430, 440, 440C) | | | | | | | | | | | | | | | | | | | |
| | | Austenitic | e.g. 1.4301, 1.4571 (AISI 303, 304, 316, 316L) | | | | | | | | | | | | | | | | | | | |
| | | High-temperature-resistant and ferritic-austenitic (duplex) | | | | | | | | | | | | | | | | | | | | |
| K | Cast iron | Cast iron with flake graphite (GJL, GG, grey cast iron) | up to 180 HB | | | | | | | | | | | | | | | | | | | |
| | | Cast iron with nodular graphite (GJS, GGG) | 160 to 260 HB | | | | | | | | | | | | | | | | | | | |
| N | Non-ferrous metals | Aluminum | Alu up to 10% Si | ● | 450 m/min | 0.027 | | | 0.036 | | 0.045 | 0.055 | | | 0.073 | | 0.091 | 0.109 | | | 0.145 | | 0.182 |
| | | | | | 1,476 ft./min | | .001 | .001 | | .002 | | | .002 | .003 | | .004 | | | .004 | .006 | | .007 | |
| | | | Alu over 10% Si | ● | 420 m/min | 0.027 | | | 0.036 | | 0.045 | 0.055 | | | 0.073 | | 0.091 | 0.109 | | | 0.145 | | 0.182 |
| | | | | | 1,378 ft./min | | .001 | .001 | | .002 | | | .002 | .003 | | .004 | | | .004 | .006 | | .007 | |
| | | Copper, brass, bronze and red brass | | ● | 350 m/min | 0.027 | | | 0.036 | | 0.045 | 0.055 | | | 0.073 | | 0.091 | 0.109 | | | 0.145 | | 0.182 |
| | | | | | 1,148 ft./min | | .001 | .001 | | .002 | | | .002 | .003 | | .004 | | | .004 | .006 | | .007 | |
| S | Super and titanium alloys | Heat-resistant super alloys | Based on Fe, Ni and Co | | | | | | | | | | | | | | | | | | | |
| | | Pure titanium | | | | | | | | | | | | | | | | | | | | |
| | | Titanium alloys | | | | | | | | | | | | | | | | | | | | |
| H | Hard steels and chilled castings | Heat-treated and hardened steels | up to 50 HRC | | | | | | | | | | | | | | | | | | | |
| | | | up to 58 HRC | | | | | | | | | | | | | | | | | | | |
| | | | over 58 HRC | | | | | | | | | | | | | | | | | | | |
| O | Other | Thermoplastics | | ● | 400 m/min | 0.027 | | | 0.036 | | 0.045 | 0.055 | | | 0.073 | | 0.091 | 0.109 | | | 0.145 | | 0.182 |
| | | | | | 1,312 ft./min | | .001 | .001 | | .002 | | | .002 | .003 | | .004 | | | .004 | .006 | | .007 | |
| | | Duroplastics | | | | | | | | | | | | | | | | | | | | |
| | | GRP/CRP reinforced plastics, graphite | | | | | | | | | | | | | | | | | | | | |

● = highly recommended ○ = recommended

# Performance Aluminum Line
3-flute (HC3N)

PFERD TOOLS

## Recommended cutting speeds [SFPM] – radius and chamfer corner designs

| Material group | | | Specification/ example material | Suitability | Full slot milling $a_p$ = 1 x DC; $a_e$ = 1 x DC | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cutting speed $v_c$ | Tooth feed $f_z$ [mm/tooth] [in./tooth] for cutting diameter DC | | | | | | | | | | | | | | | | |
| | | | | | | 3 mm | 1/8 Inch | 5/32 Inch | 4 mm | 3/16 Inch | 5 mm | 6 mm | 1/4 Inch | 5/16 Inch | 8 mm | 3/8 Inch | 10 mm | 12 mm | 1/2 Inch | 5/8 Inch | 16 mm | 3/4 Inch | 20 mm |
| P | Steel | All types of steel and cast steel | up to 500 N/mm² (150 BHN) | | | | | | | | | | | | | | | | | | | |
| | | | 500 to 700 N/mm² (150 to 208 BHN) | | | | | | | | | | | | | | | | | | | |
| | | | 700 to 1,000 N/mm² (208 to 296 BHN) | | | | | | | | | | | | | | | | | | | |
| | | | 1,000 to 1,400 N/mm² (296 to 415 BHN) | | | | | | | | | | | | | | | | | | | |
| M | Stainless steel | Ferritic and martensitic | e.g. 1.4105, 1.4122 (AISI 410, 420, 430, 440, 440C) | | | | | | | | | | | | | | | | | | | |
| | | Austenitic | e.g. 1.4301, 1.4571 (AISI 303, 304, 316, 316L) | | | | | | | | | | | | | | | | | | | |
| | | High-temperature-resistant and ferritic-austenitic (duplex) | | | | | | | | | | | | | | | | | | | | |
| K | Cast iron | Cast iron with flake graphite (GJL, GG, grey cast iron) | up to 180 HB | | | | | | | | | | | | | | | | | | | |
| | | Cast iron with nodular graphite (GJS, GGG) | 160 to 260 HB | | | | | | | | | | | | | | | | | | | |
| N | Non-ferrous metals | Aluminum | Alu up to 10% Si | ● | 450 m/min | 0.027 | | | 0.036 | | 0.045 | 0.055 | | | 0.073 | | 0.091 | 0.109 | | | 0.145 | | 0.182 |
| | | | | | 1,476 ft./min | | .001 | .001 | | .002 | | | .002 | .003 | | .004 | | | .004 | .006 | | .007 | |
| | | | Alu over 10% Si | ● | 420 m/min | 0.027 | | | 0.036 | | 0.045 | 0.055 | | | 0.073 | | 0.091 | 0.109 | | | 0.145 | | 0.182 |
| | | | | | 1,378 ft./min | | .001 | .001 | | .002 | | | .002 | .003 | | .004 | | | .004 | .006 | | .007 | |
| | | Copper, brass, bronze and red brass | | ● | 350 m/min | 0.027 | | | 0.036 | | 0.045 | 0.055 | | | 0.073 | | 0.091 | 0.109 | | | 0.145 | | 0.182 |
| | | | | | 1,148 ft./min | | .001 | .001 | | .002 | | | .002 | .003 | | .004 | | | .004 | .006 | | .007 | |
| S | Super and titanium alloys | Heat-resistant super alloys | Based on Fe, Ni and Co | | | | | | | | | | | | | | | | | | | |
| | | Pure titanium | | | | | | | | | | | | | | | | | | | | |
| | | Titanium alloys | | | | | | | | | | | | | | | | | | | | |
| H | Hard steels and chilled castings | Heat-treated and hardened steels | up to 50 HRC | | | | | | | | | | | | | | | | | | | |
| | | | up to 58 HRC | | | | | | | | | | | | | | | | | | | |
| | | | over 58 HRC | | | | | | | | | | | | | | | | | | | |
| O | Other | Thermoplastics | | ● | 400 m/min | 0.027 | | | 0.036 | | 0.045 | 0.055 | | | 0.073 | | 0.091 | 0.109 | | | 0.145 | | 0.182 |
| | | | | | 1,312 ft./min | | .001 | .001 | | .002 | | | .002 | .003 | | .004 | | | .004 | .006 | | .007 | |
| | | Duroplastics | | | | | | | | | | | | | | | | | | | | |
| | | GRP/CRP reinforced plastics, graphite | | | | | | | | | | | | | | | | | | | | |

● = highly recommended ○ = recommended

# Performance Aluminum Line
3-flute (HC3N)

PFERD TOOLS

## Recommended cutting speeds [SFPM] – chamfer corner design, excessive length

| Material group | | | Specification/ example material | Suitability | Full slot milling $a_p$ = 1 x DC; $a_e$ = 1 x DC  | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cutting speed $v_c$ | Tooth feed $f_z$ [mm/tooth] [in./tooth] for cutting diameter DC | | | | | |
| | | | | | | 3/8 Inch | 10 mm | 12 mm | 1/2 Inch | 5/8 Inch | 16 mm |
| P | Steel | All types of steel and cast steel | up to 500 N/mm² (150 BHN) | | | | | | | | |
| | | | 500 to 700 N/mm² (150 to 208 BHN) | | | | | | | | |
| | | | 700 to 1,000 N/mm² (208 to 296 BHN) | | | | | | | | |
| | | | 1,000 to 1,400 N/mm² (296 to 415 BHN) | | | | | | | | |
| M | Stainless steel | Ferritic and martensitic | e.g. 1.4105, 1.4122 (AISI 410, 420, 430, 440, 440C) | | | | | | | | |
| | | Austenitic | e.g. 1.4301, 1.4571 (AISI 303, 304, 316, 316L) | | | | | | | | |
| | | High-temperature-resistant and ferritic-austenitic (duplex) | | | | | | | | | |
| K | Cast iron | Cast iron with flake graphite (GJL, GG, grey cast iron) | up to 180 HB | | | | | | | | |
| | | Cast iron with nodular graphite (GJS, GGG) | 160 to 260 HB | | | | | | | | |
| N | Non-ferrous metals | Aluminum | Alu up to 10% Si | ● | 430 m/min | | 0.080 | 0.100 | | | 0.120 |
| | | | | | 1,411 ft./min | .0031 | | | .0039 | .0047 | |
| | | | Alu over 10% Si | ● | 400 m/min | | 0.080 | 0.100 | | | 0.120 |
| | | | | | 1,312 ft./min | .0031 | | | .0039 | .0047 | |
| | | Copper, brass, bronze and red brass | | ● | 320 m/min | | 0.080 | 0.100 | | | 0.120 |
| | | | | | 1,050 ft./min | .0031 | | | .0039 | .0047 | |
| S | Super and titanium alloys | Heat-resistant super alloys | Based on Fe, Ni and Co | | | | | | | | |
| | | Pure titanium | | | | | | | | | |
| | | Titanium alloys | | | | | | | | | |
| H | Hard steels and chilled castings | Heat-treated and hardened steels | up to 50 HRC | | | | | | | | |
| | | | up to 58 HRC | | | | | | | | |
| | | | over 58 HRC | | | | | | | | |
| O | Other | Thermoplastics | | ● | 450 m/min | | 0.080 | 0.100 | | | 0.120 |
| | | | | | 1,476 ft./min | .0031 | | | .0039 | .0047 | |
| | | Duroplastics | | | | | | | | | |
| | | GRP/CRP reinforced plastics, graphite | | | | | | | | | |

● = highly recommended ○ = recommended

# Performance Aluminum Line
3-flute (HC3N)

PFERD TOOLS

## Recommended cutting speeds [SFPM] – chamfer corner design, excessive length

| Material group | | | Specification/ example material | Suitability | Side milling $a_p$ = max; $a_e$ = 0.4 x DC | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cutting speed $v_c$ | Tooth feed $f_z$ [mm/tooth] [in./tooth] for cutting diameter DC | | | | | |
| | | | | | | 3/8 Inch | 10 mm | 12 mm | 1/2 Inch | 5/8 Inch | 16 mm |
| P | Steel | All types of steel and cast steel | up to 500 N/mm² (150 BHN) | | | | | | | | |
| | | | 500 to 700 N/mm² (150 to 208 BHN) | | | | | | | | |
| | | | 700 to 1,000 N/mm² (208 to 296 BHN) | | | | | | | | |
| | | | 1,000 to 1,400 N/mm² (296 to 415 BHN) | | | | | | | | |
| M | Stainless steel | Ferritic and martensitic | e.g. 1.4105, 1.4122 (AISI 410, 420, 430, 440, 440C) | | | | | | | | |
| | | Austenitic | e.g. 1.4301, 1.4571 (AISI 303, 304, 316, 316L) | | | | | | | | |
| | | High-temperature-resistant and ferritic-austenitic (duplex) | | | | | | | | | |
| K | Cast iron | Cast iron with flake graphite (GJL, GG, grey cast iron) | up to 180 HB | | | | | | | | |
| | | Cast iron with nodular graphite (GJS, GGG) | 160 to 260 HB | | | | | | | | |
| N | Non-ferrous metals | Aluminum | Alu up to 10% Si | ● | 490 m/min | | 0.092 | 0.115 | | | 0.138 |
| | | | | | 1,608 ft./min | .0036 | | | .0045 | .0054 | |
| | | | Alu over 10% Si | ● | 450 m/min | | 0.092 | 0.115 | | | 0.138 |
| | | | | | 1,476 ft./min | .0036 | | | .0045 | .0054 | |
| | | Copper, brass, bronze and red brass | | ● | 360 m/min | | 0.092 | 0.115 | | | 0.138 |
| | | | | | 1,181 ft./min | .0036 | | | .0045 | .0054 | |
| S | Super and titanium alloys | Heat-resistant super alloys | Based on Fe, Ni and Co | | | | | | | | |
| | | Pure titanium | | | | | | | | | |
| | | Titanium alloys | | | | | | | | | |
| H | Hard steels and chilled castings | Heat-treated and hardened steels | up to 50 HRC | | | | | | | | |
| | | | up to 58 HRC | | | | | | | | |
| | | | over 58 HRC | | | | | | | | |
| O | Other | Thermoplastics | | ● | 450 m/min | | 0.092 | 0.115 | | | 0.138 |
| | | | | | 1,476 ft./min | .0036 | | | .0045 | .0054 | |
| | | Duroplastics | | | | | | | | | |
| | | GRP/CRP reinforced plastics, graphite | | | | | | | | | |

● = highly recommended ○ = recommended

# Performance Aluminum Line
3-flute (HC3N)

PFERD TOOLS

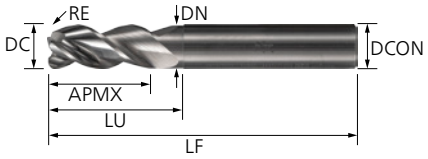
## Recommended cutting speeds [SFPM] – chamfer corner design, >4xD

| Material group | | | Specification/ example material | Suitability | Dynamic milling $a_p$ = max; $a_e$ = 0.10 | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cutting speed $v_c$ | Tooth feed $f_z$ [mm/tooth] [in./tooth] for cutting diameter DC | | | | | | | | | | | |
| | | | | | | 6 mm | 1/4 Inch | 5/16 Inch | 8 mm | 3/8 Inch | 10 mm | 12 mm | 1/2 Inch | 5/8 Inch | 16 mm | 3/4 Inch | 20 mm |
| P | Steel | All types of steel and cast steel | up to 500 N/mm² (150 BHN) | | | | | | | | | | | | | | |
| | | | 500 to 700 N/mm² (150 to 208 BHN) | | | | | | | | | | | | | | |
| | | | 700 to 1,000 N/mm² (208 to 296 BHN) | | | | | | | | | | | | | | |
| | | | 1,000 to 1,400 N/mm² (296 to 415 BHN) | | | | | | | | | | | | | | |
| M | Stainless steel | Ferritic and martensitic | e.g. 1.4105, 1.4122 (AISI 410, 420, 430, 440, 440C) | | | | | | | | | | | | | | |
| | | Austenitic | e.g. 1.4301, 1.4571 (AISI 303, 304, 316, 316L) | | | | | | | | | | | | | | |
| | | High-temperature-resistant and ferritic-austenitic (duplex) | | | | | | | | | | | | | | | |
| K | Cast iron | Cast iron with flake graphite (GJL, GG, grey cast iron) | up to 180 HB | | | | | | | | | | | | | | |
| | | Cast iron with nodular graphite (GJS, GGG) | 160 to 260 HB | | | | | | | | | | | | | | |
| N | Non-ferrous metals | Aluminum | Alu up to 10% Si | ● | 450 m/min | 0.067 | | | 0.090 | | 0.112 | 0.134 | | | 0.179 | | 0.224 |
| | | | | | 1,476 ft./min | | .0026 | .0035 | | .0044 | | | .0053 | .0071 | | .0088 | |
| | | | Alu over 10% Si | ● | 420 m/min | 0.067 | | | 0.090 | | 0.112 | 0.134 | | | 0.179 | | 0.224 |
| | | | | | 1,378 ft./min | | .0026 | .0035 | | .0044 | | | .0053 | .0071 | | .0088 | |
| | | Copper, brass, bronze and red brass | | ● | 350 m/min | 0.067 | | | 0.090 | | 0.112 | 0.134 | | | 0.179 | | 0.224 |
| | | | | | 1,148 ft./min | | .0026 | .0035 | | .0044 | | | .0053 | .0071 | | .0088 | |
| S | Super and titanium alloys | Heat-resistant super alloys | Based on Fe, Ni and Co | | | | | | | | | | | | | | |
| | | Pure titanium | | | | | | | | | | | | | | | |
| | | Titanium alloys | | | | | | | | | | | | | | | |
| H | Hard steels and chilled castings | Heat-treated and hardened steels | up to 50 HRC | | | | | | | | | | | | | | |
| | | | up to 58 HRC | | | | | | | | | | | | | | |
| | | | over 58 HRC | | | | | | | | | | | | | | |
| O | Other | Thermoplastics | | ● | 450 m/min | 0.067 | | | 0.090 | | 0.112 | 0.134 | | | 0.179 | | 0.224 |
| | | | | | 1,476 ft./min | | .0021 | .0029 | | .0036 | | | .0043 | .0057 | | .0072 | |
| | | Duroplastics | | | | | | | | | | | | | | | |
| | | GRP/CRP reinforced plastics, graphite | | | | | | | | | | | | | | | |

● = highly recommended ○ = recommended

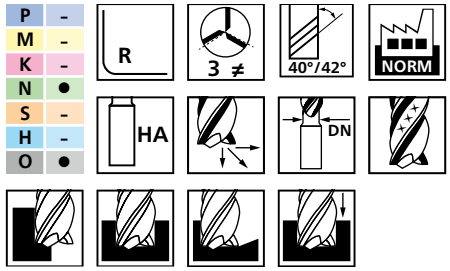
# Performance Aluminum Line
## 3-flute (HC3N)

PFERD TOOLS



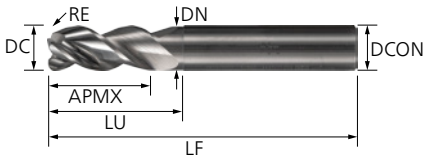

### Radius – metric

End mills for various applications, from roughing to finishing. Ideal for machining aluminum alloys, non-ferrous metals and plastics.



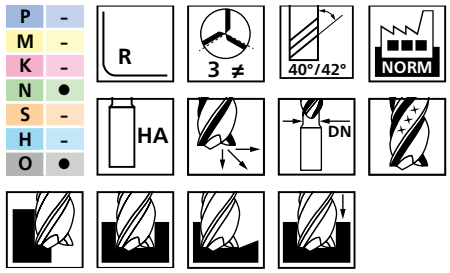

**Special features:**
- Large polished chip channels for optimum chip control.
- Increased process reliability at high cutting speeds.
- Variable pitch for low-vibration machining and smooth milling.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | LU [mm] | RE [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **Long HA** | | | | | HA | | | | |
| 6 | 6 | 5.7 | 13 | 57 | 20 | 0.5 | 3 | 23000428 | SCM-HC3N-M060R05-M57HA UC40 |
| 8 | 8 | 7.7 | 19 | 63 | 25 | 0.5 | 3 | 23000429 | SCM-HC3N-M080R05-M63HA UC40 |
| | | | | | | 1 | 3 | 23000430 | SCM-HC3N-M080R10-M63HA UC40 |
| 10 | 10 | 9.7 | 22 | 72 | 30 | 1 | 3 | 23000431 | SCM-HC3N-M100R10-M72HA UC40 |
| | | | | | | 1.5 | 3 | 23000432 | SCM-HC3N-M100R15-M72HA UC40 |
| | | | | | | 2 | 3 | 23000433 | SCM-HC3N-M100R20-M72HA UC40 |
| 12 | 12 | 11.6 | 26 | 83 | 36 | 1 | 3 | 23000434 | SCM-HC3N-M120R10-M83HA UC40 |
| | | | | | | 1.5 | 3 | 23000435 | SCM-HC3N-M120R15-M83HA UC40 |
| | | | | | | 2 | 3 | 23000436 | SCM-HC3N-M120R20-M83HA UC40 |
| 16 | 16 | 15.6 | 32 | 92 | 42 | 1 | 3 | 23000437 | SCM-HC3N-M160R10-M93HA UC40 |
| | | | | | | 2 | 3 | 23000438 | SCM-HC3N-M160R20-M93HA UC40 |
| | | | | | | 3 | 3 | 23000439 | SCM-HC3N-M160R30-M93HA UC40 |
| 20 | 20 | 19.6 | 38 | 104 | 52 | 2 | 3 | 23000440 | SCM-HC3N-M200R20-M104HA UC40 |
| | | | | | | 3 | 3 | 23000441 | SCM-HC3N-M200R30-M104HA UC40 |




### Radius – imperial

End mills for various applications, from roughing to finishing. Ideal for machining aluminum alloys, non-ferrous metals and plastics.




**Special features:**
- Large polished chip channels for optimum chip control.
- Increased process reliability at high cutting speeds.
- Variable pitch for low-vibration machining and smooth milling.

| DC [Inch] | DCON [Inch] | DN [Inch] | APMX [Inch] | LF [Inch] | LU [Inch] | RE [Inch] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **Long HA** | | | | | HA | | | | |
| 1/4 | 1/4 | 0.238 | 1/2 | 2-1/2 | 3/4 | .015 | 3 | 23001530 | SCM-HC3N-I1/4R0.015-M2.5HA UC40 |
| | | | | | | .01 | 3 | 23001529 | SCM-HC3N-I1/4R0.01-M2.5HA UC40 |
| | | | | | | .03 | 3 | 23001531 | SCM-HC3N-I1/4R0.03-M2.5HA UC40 |

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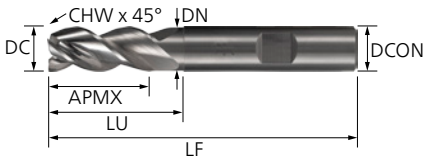
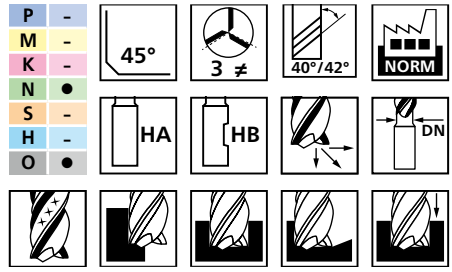
# Performance Aluminum Line
## 3-flute (HC3N)

| DC [Inch] | DCON [Inch] | DN [Inch] | APMX [Inch] | LF [Inch] | LU [Inch] | RE [Inch] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| 5/16 | 5/16 | 0.301 | 3/4 | 2-1/2 | 1 | .015 | 3 | 23001532 | SCM-HC3N-I5/16R0.015-M2.5HA UC40 |
| | | | | | | .02 | 3 | 23001533 | SCM-HC3N-I5/16R0.02-M2.5HA UC40 |
| | | | | | | .03 | 3 | 23001534 | SCM-HC3N-I5/16R0.03-M2.5HA UC40 |
| 3/8 | 3/8 | 0.363 | 7/8 | 3 | 1-3/16 | .015 | 3 | 23001535 | SCM-HC3N-I3/8R0.015-M3HA UC40 |
| | | | | | | .02 | 3 | 23001536 | SCM-HC3N-I3/8R0.02-M3HA UC40 |
| | | | | | | .03 | 3 | 23001537 | SCM-HC3N-I3/8R0.03-M3HA UC40 |
| | | | | | | .06 | 3 | 23001538 | SCM-HC3N-I3/8R0.06-M3HA UC40 |
| 1/2 | 1/2 | 0.484 | 1 | 3-1/2 | 1-9/16 | .015 | 3 | 23001539 | SCM-HC3N-I1/2R0.015-M3.5HA UC40 |
| | | | | | | .02 | 3 | 23001540 | SCM-HC3N-I1/2R0.02-M3.5HA UC40 |
| | | | | | | .03 | 3 | 23001541 | SCM-HC3N-I1/2R0.03-M3.5HA UC40 |
| | | | | | | .06 | 3 | 23001542 | SCM-HC3N-I1/2R0.06-M3.5HA UC40 |
| | | | | | | .09 | 3 | 23001543 | SCM-HC3N-I1/2R0.09-M3.5HA UC40 |
| 5/8 | 5/8 | 0.609 | 1-1/4 | 4 | 1-5/8 | .03 | 3 | 23001544 | SCM-HC3N-I5/8R0.03-M4HA UC40 |
| | | | | | | .04 | 3 | 23001545 | SCM-HC3N-I5/8R0.04-M4HA UC40 |
| | | | | | | .06 | 3 | 23001546 | SCM-HC3N-I5/8R0.06-M4HA UC40 |
| | | | | | | .09 | 3 | 23001547 | SCM-HC3N-I5/8R0.09-M4HA UC40 |
| | | | | | | .125 | 3 | 23001548 | SCM-HC3N-I5/8R0.125-M4HA UC40 |
| 3/4 | 3/4 | 0.734 | 1-1/2 | 4-1/4 | 2 | .03 | 3 | 23001549 | SCM-HC3N-I3/4R0.03-M4.25HA UC40 |
| | | | | | | .04 | 3 | 23001550 | SCM-HC3N-I3/4R0.04-M4.25HA UC40 |
| | | | | | | .06 | 3 | 23001551 | SCM-HC3N-I3/4R0.06-M4.25HA UC40 |
| | | | | | | .125 | 3 | 23001552 | SCM-HC3N-I3/4R0.125-M4.25HA UC40 |



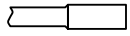

## Chamfer corner design – metric

End mills for various applications, from roughing to finishing. Ideal for machining aluminum alloys, non-ferrous metals and plastics.




**Special features:**

- Large polished chip channels for optimum chip control.
- Increased process reliability at high cutting speeds.
- Variable pitch for low-vibration machining and smooth milling.

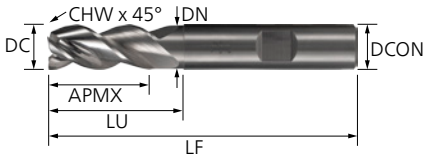
| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | LU [mm] | CHW [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **Long HA** | | | |  **HA** | | | | | |
| 3 | 6 | - | 8 | 57 | - | 0.05 | 3 | 23000410 | SCM-HC3N-M030C-M57HA6 UC40 |
| 4 | 6 | - | 11 | 57 | - | 0.05 | 3 | 23000411 | SCM-HC3N-M040C-M57HA6 UC40 |
| 5 | 6 | - | 13 | 57 | - | 0.1 | 3 | 23000412 | SCM-HC3N-M050C-M57HA6 UC40 |
| 6 | 6 | 5.7 | 13 | 57 | 20 | 0.1 | 3 | 23000413 | SCM-HC3N-M060C-M57HA UC40 |
| 8 | 8 | 7.7 | 19 | 63 | 25 | 0.15 | 3 | 23000414 | SCM-HC3N-M080C-M63HA UC40 |
| 10 | 10 | 9.7 | 22 | 72 | 30 | 0.2 | 3 | 23000415 | SCM-HC3N-M100C-M72HA UC40 |
| 12 | 12 | 11.7 | 26 | 83 | 36 | 0.25 | 3 | 23000416 | SCM-HC3N-M120C-M83HA UC40 |
| 16 | 16 | 15.6 | 32 | 92 | 42 | 0.3 | 3 | 23000417 | SCM-HC3N-M160C-M93HA UC40 |
| 20 | 20 | 19.6 | 38 | 104 | 52 | 0.35 | 3 | 23000418 | SCM-HC3N-M200C-M104HA UC40 |

*Continued on next page*

# Performance Aluminum Line
## 3-flute (HC3N)

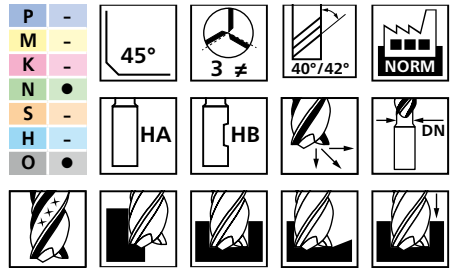
PFERD TOOLS

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | LU [mm] | CHW [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **Long HB** | | | | | HB | | | | |
| 3 | 6 | - | 8 | 57 | - | 0.05 | 3 | 23000419 | SCM-HC3N-M030C-M57HB6 UC40 |
| 4 | 6 | - | 11 | 57 | - | 0.05 | 3 | 23000420 | SCM-HC3N-M040C-M57HB6 UC40 |
| 5 | 6 | - | 13 | 57 | - | 0.05 | 3 | 23000421 | SCM-HC3N-M050C-M57HB6 UC40 |
| 6 | 6 | 5.7 | 13 | 57 | 20 | 0.1 | 3 | 23000422 | SCM-HC3N-M060C-M57HB UC40 |
| 8 | 8 | 7.7 | 19 | 63 | 25 | 0.15 | 3 | 23000423 | SCM-HC3N-M080C-M63HB UC40 |
| 10 | 10 | 9.7 | 22 | 72 | 30 | 0.2 | 3 | 23000424 | SCM-HC3N-M100C-M72HB UC40 |
| 12 | 12 | 11.7 | 26 | 83 | 36 | 0.25 | 3 | 23000425 | SCM-HC3N-M120C-M83HB UC40 |
| 16 | 16 | 15.6 | 32 | 92 | 42 | 0.3 | 3 | 23000426 | SCM-HC3N-M160C-M93HB UC40 |
| 20 | 20 | 19.6 | 38 | 104 | 52 | 0.35 | 3 | 23000427 | SCM-HC3N-M200C-M104HB UC40 |




## Chamfer corner design – imperial

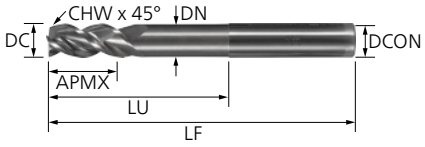
End mills for various applications, from roughing to finishing. Ideal for machining aluminum alloys, non-ferrous metals and plastics.




**Special features:**
- Large polished chip channels for optimum chip control.
- Increased process reliability at high cutting speeds.
- Variable pitch for low-vibration machining and smooth milling.

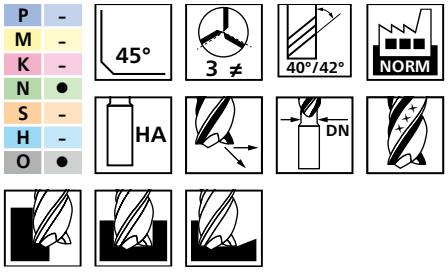
| DC [Inch] | DCON [Inch] | DN [Inch] | APMX [Inch] | LF [Inch] | LU [Inch] | CHW [Inch] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **Long HA** | | | | | HA | | | | |
| 1/8 | 1/8 | - | 1/4 | 1-1/2 | - | .003 | 3 | 23001514 | SCM-HC3N-I1/8C-M1.5HA UC40 |
| 5/32 | 3/16 | - | 5/16 | 2 | - | .003 | 3 | 23001515 | SCM-HC3N-I5/32C-M2HA UC40 |
| 3/16 | 3/16 | - | 7/16 | 2-1/4 | - | .005 | 3 | 23001516 | SCM-HC3N-I3/16C-M2.25HA UC40 |
| 1/4 | 1/4 | 0.238 | 1/2 | 2-1/2 | 3/4 | .005 | 3 | 23001517 | SCM-HC3N-I1/4C-M2.5HA UC40 |
| 5/16 | 5/16 | 0.301 | 3/4 | 2-1/2 | 1 | .005 | 3 | 23001518 | SCM-HC3N-I5/16C-M2.5HA UC40 |
| 3/8 | 3/8 | 0.363 | 7/8 | 3 | 1-3/16 | .008 | 3 | 23001519 | SCM-HC3N-I3/8C-M3HA UC40 |
| 1/2 | 1/2 | 0.484 | 1 | 3-1/2 | 1-9/16 | .008 | 3 | 23001520 | SCM-HC3N-I1/2C-M3.5HA UC40 |
| 5/8 | 5/8 | 0.609 | 1-1/4 | 4 | 1-5/8 | .008 | 3 | 23001521 | SCM-HC3N-I5/8C-M4HA UC40 |
| 3/4 | 3/4 | 0.734 | 1-1/2 | 4-1/4 | 2 | .012 | 3 | 23001522 | SCM-HC3N-I3/4C-M4.25HA UC40 |
| **Long HB** | | | | | HB | | | | |
| 1/4 | 1/4 | 0.238 | 1/2 | 2-1/2 | 3/4 | .005 | 3 | 23001523 | SCM-HC3N-I1/4C-M2.5HB UC40 |
| 5/16 | 5/16 | 0.301 | 3/4 | 2-1/2 | 1 | .005 | 3 | 23001524 | SCM-HC3N-I5/16C-M2.5HB UC40 |
| 3/8 | 3/8 | 0.363 | 7/8 | 3 | 1-3/16 | .008 | 3 | 23001525 | SCM-HC3N-I3/8C-M3HB UC40 |
| 1/2 | 1/2 | 0.484 | 1 | 3-1/2 | 1-9/16 | .008 | 3 | 23001526 | SCM-HC3N-I1/2C-M3.5HB UC40 |
| 5/8 | 5/8 | 0.609 | 1-1/4 | 4 | 1-5/8 | .008 | 3 | 23001527 | SCM-HC3N-I5/8C-M4HB UC40 |
| 3/4 | 3/4 | 0.734 | 1-1/2 | 4-1/4 | 2 | .012 | 3 | 23001528 | SCM-HC3N-I3/4C-M4.25HB UC40 |

# Performance Aluminum Line
## 3-flute (HC3N)



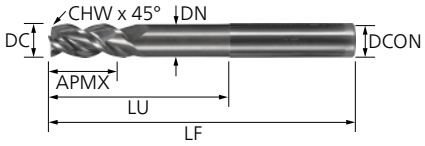

### Chamfer corner design, extra-long – metric

End mills with neck chip channel for use in large overhangs or deep cavities. Ideal for suited to machining aluminum alloys, non-ferrous metals and plastics.



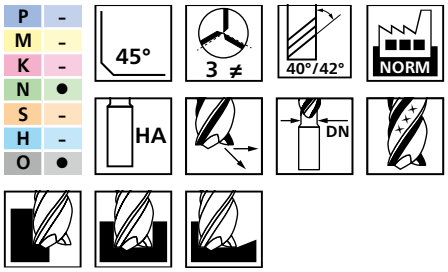

**Special features:**
- Large polished chip channels for optimum chip control.
- Increased process reliability at high cutting speeds.
- Variable pitch for low-vibration machining and smooth milling.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | LU [mm] | CHW [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **Extra long HA** | | | |  **HA** | | | | | |
| 10 | 10 | 9.7 | 22 | 104 | 55 | 0.2 | 3 | 23000448 | SCM-HC3N-M100C-M104HA UC40 |
| 12 | 12 | 11.6 | 26 | 110 | 64 | 0.25 | 3 | 23000449 | SCM-HC3N-M120C-M110HA UC40 |
| 16 | 16 | 15.6 | 32 | 130 | 75 | 0.3 | 3 | 23000450 | SCM-HC3N-M160C-M130HA UC40 |

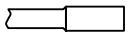



### Chamfer corner design, extra-long – imperial

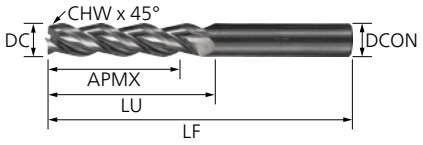
End mills with neck chip channel for use in large overhangs or deep cavities. Ideal for suited to machining aluminum alloys, non-ferrous metals and plastics.




**Special features:**
- Large polished chip channels for optimum chip control.
- Increased process reliability at high cutting speeds.
- Variable pitch for low-vibration machining and smooth milling.

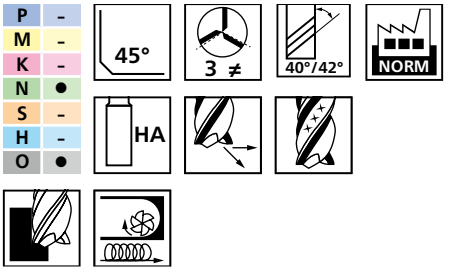
| DC [Inch] | DCON [Inch] | DN [Inch] | APMX [Inch] | LF [Inch] | LU [Inch] | CHW [Inch] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| **Extra long HA** | | | |  **HA** | | | | | |
| 3/8 | 3/8 | 0.363 | 7/8 | 4 | 2-3/16 | .008 | 3 | 23001559 | SCM-HC3N-I3/8C-M4HA UC40 |
| 1/2 | 1/2 | 0.484 | 1 | 4-1/2 | 2-9/16 | .008 | 3 | 23001560 | SCM-HC3N-I1/2C-M4.5HA UC40 |
| 5/8 | 5/8 | 0.609 | 1-1/4 | 5 | 3 | .008 | 3 | 23001561 | SCM-HC3N-I5/8C-M5HA UC40 |

# Performance Aluminum Line
3-flute (HC3N)

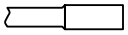


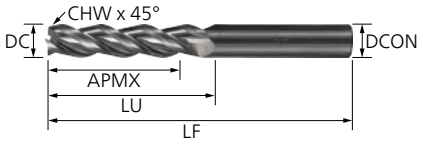

## Chamfer corner design, >4xD – metric

End mills with long usable length for dynamic machining and trochoidal milling. Ideal for suited to machining aluminum alloys, non-ferrous metals and plastics.



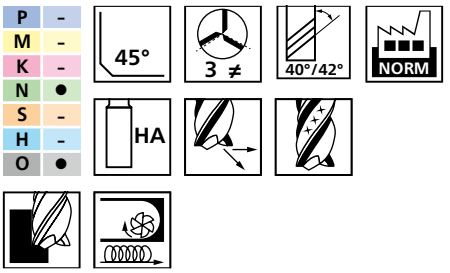

**Special features:**
- Large polished chip channels for optimum chip control.
- Increased process reliability at high cutting speeds.
- Variable pitch for low-vibration machining and smooth milling.

| DC [mm] | DCON [mm] | APMX [mm] | LF [mm] | CHW [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|
| **>4xD HA** | | |  **HA** | | | | |
| 6 | 6 | 26 | 75 | 0.1 | 3 | 23000442 | SCM-HC3N-M060C-XXL75HA UC40 |
| 8 | 8 | 36 | 78 | 0.15 | 3 | 23000443 | SCM-HC3N-M080C-XXL78HA UC40 |
| 10 | 10 | 45 | 104 | 0.2 | 3 | 23000444 | SCM-HC3N-M100C-XXL104HA UC40 |
| 12 | 12 | 53 | 110 | 0.25 | 3 | 23000445 | SCM-HC3N-M120C-XXL110HA UC40 |
| 16 | 16 | 63 | 130 | 0.3 | 3 | 23000446 | SCM-HC3N-M160C-XXL130HA UC40 |
| 20 | 20 | 75 | 150 | 0.35 | 3 | 23000447 | SCM-HC3N-M200C-XXL150HA UC40 |




## Chamfer corner design, >4xD – imperial

End mills with long usable length for dynamic machining and trochoidal milling. Ideal for suited to machining aluminum alloys, non-ferrous metals and plastics.




**Special features:**
- Large polished chip channels for optimum chip control.
- Increased process reliability at high cutting speeds.
- Variable pitch for low-vibration machining and smooth milling.

| DC [Inch] | DCON [Inch] | APMX [Inch] | LF [Inch] | CHW [Inch] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|
| **>4xD HA** | | |  **HA** | | | | |
| 1/4 | 1/4 | 1-1/8 | 3 | .005 | 3 | 23001553 | SCM-HC3N-I1/4C-XXL3HA UC40 |
| 5/16 | 5/16 | 1-2/5 | 3 | .005 | 3 | 23001554 | SCM-HC3N-I5/16C-XXL3HA UC40 |
| 3/8 | 3/8 | 1-2/3 | 4 | .008 | 3 | 23001555 | SCM-HC3N-I3/8C-XXL4HA UC40 |
| 1/2 | 1/2 | 2-1/4 | 4-1/2 | .008 | 3 | 23001556 | SCM-HC3N-I1/2C-XXL4.5HA UC40 |
| 5/8 | 5/8 | 2-4/5 | 5 | .008 | 3 | 23001557 | SCM-HC3N-I5/8C-XXL5HA UC40 |
| 3/4 | 3/4 | 3-3/8 | 6 | .012 | 3 | 23001558 | SCM-HC3N-I3/4C-XXL6HA UC40 |

# Performance Hardened Steel Line
## Material suitability overview

### Performance Hardened Steel

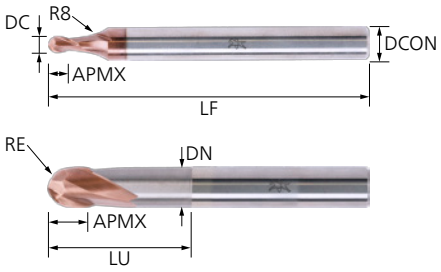
| Material group | | | 2-flute ball nose (HB2H) | 2-flute ball nose (HB2H) with reinforced shank | 2-flute Torus cutter (HC2H) | 4-flute Torus cutter (HC4H) |
|---|---|---|---|---|---|---|
| P | Steel | All types of steel and cast steel | ● | ● | ● | ● |
| M | Stainless steel | Ferritic and martensitic | ● | ● | ● | ● |
| | | Austenitic | ● | ● | ● | ● |
| | | High-temperature-resistant and ferritic-austenitic (duplex) | ○ | ○ | ○ | ○ |
| K | Cast iron | Cast iron with flake graphite (GJL, GG, grey cast iron) | ● | ● | ● | ● |
| | | Cast iron with nodular graphite (GJS, GGG) | ● | ● | ● | ● |
| N | Non-ferrous metals | Aluminum | ○ | ○ | ○ | ○ |
| | | Copper, brass, bronze and red brass | ● | ● | ● | ● |
| S | Super and titanium alloys | Heat-resistant super alloys based on Fe, Ni and Co | | | | |
| | | Pure titanium | | | | |
| | | Titanium alloys | | | | |
| H | Hard steels and chilled castings | Heat-treated and hardened steels up to 50 HRC | ● | ● | ● | ● |
| | | Hardened steels up to 58 HRC | ● | ● | ● | ● |
| | | Hardened steels over 58 HRC | | ● | ● | ● |
| O | Other | Thermoplastics | | | | |
| | | Duroplastics | | | | |
| | | GRP/CRP reinforced plastics, graphite | | | | |

● = highly recommended ○ = recommended

## Cutting data calculator

The perfect cutting data is a crucial success factor for productivity in your milling and boring processes. Our cutting data calculator's intuitive user interface allows you to quickly and easily calculate the required processing parameters for your use case and the material to be processed. Scan the QR code to access our cutting data calculator.

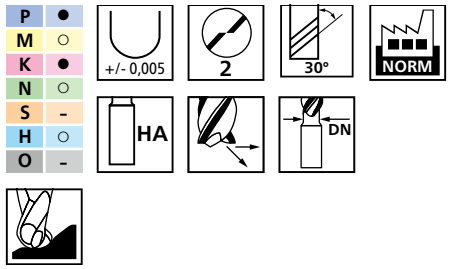
# Performance Hardened Steel Line
## 2-flute ball nose (HB2H)



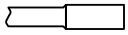
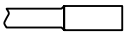

### Full radius – metric

End mills for free-form profile cutting as well as for semi-finishing and finishing in steels up to 55 HRC.

| | |
|---|---|
| P | ● |
| M | ○ |
| K | ● |
| N | ○ |
| S | - |
| H | ○ |
| O | - |




**Special features:**
- Maximum precision due to grinding tolerance of +/- 0.005 mm.
- Long tool life due to modern tool coating.

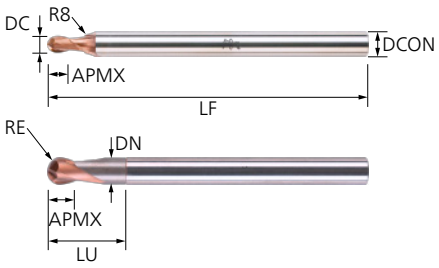
| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | RE [mm] | LU [mm] | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|
| **Long HA**  **HA** | | | | | | | | |
| 3 | 6 | - | 3 | 57 | 1.5 | - | 23000384 | SCM-HB2H-M030R-XS57HA6 HP40 |
| 4 | 6 | - | 4 | 57 | 2 | - | 23004039 | SCM-HB2H-M040R-XS57HA6 HP40 |
| 5 | 6 | - | 5 | 57 | 2.5 | - | 23004040 | SCM-HB2H-M050R-XS57HA6 HP40 |
| 6 | 6 | - | 6 | 57 | 3 | - | 23001117 | SCM-HB2H-M060R-XS57HA TI40 |
| 8 | 8 | - | 8 | 63 | 4 | - | 23004041 | SCM-HB2H-M080R-XS63HA TI40 |
| 10 | 10 | - | 10 | 50 | 5 | - | 23004042 | SCM-HB2H-M100R-XS50HA TI40 |
| | | | | 78 | 5 | - | 23004043 | SCM-HB2H-M100R-XS78HA TI40 |
| 12 | 12 | - | 12 | 63 | 6 | - | 23004044 | SCM-HB2H-M120R-XS63HA TI40 |
| | | | | 83 | 6 | - | 23004045 | SCM-HB2H-M120R-XS83HA TI40 |
| **Long length of cut, cylindrical shank (HA) with neck chip channel**  **HA** | | | | | | | | |
| 3 | 6 | 2.8 | 3 | 57 | 1.5 | 6 | 23004007 | SCM-HB2H-M030R-XS6-57HA6 HP40 |
| | | | | | | 10 | 23004008 | SCM-HB2H-M030R-XS10-57HA6 HP40 |
| | | | | | | 15 | 23004009 | SCM-HB2H-M030R-XS15-57HA6 HP40 |
| | | | | | | 20 | 23004010 | SCM-HB2H-M030R-XS20-57HA6 HP40 |
| 4 | 6 | 3.8 | 4 | 57 | 2 | 8 | 23004011 | SCM-HB2H-M040R-XS8-57HA6 HP40 |
| | | | | | | 15 | 23004012 | SCM-HB2H-M040R-XS15-57HA6 HP40 |
| | | | | | | 20 | 23001913 | SCM-HB2H-M040R-XS20-57HA6 HP40 |
| | | | | | | 25 | 23004013 | SCM-HB2H-M040R-XS25-57HA6 HP40 |
| 5 | 6 | 4.8 | 5 | 57 | 2.5 | 10 | 23004014 | SCM-HB2H-M050R-XS10-57HA6 HP40 |
| | | | | | | 15 | 23004015 | SCM-HB2H-M050R-XS15-57HA6 HP40 |
| | | | | | | 20 | 23004016 | SCM-HB2H-M050R-XS20-57HA6 HP40 |
| | | | | | | 25 | 23004017 | SCM-HB2H-M050R-XS25-57HA6 HP40 |
| | | | | 78 | 2.5 | 30 | 23004018 | SCM-HB2H-M050R-XS30-78HA6 HP40 |
| | | | | | | 35 | 23004019 | SCM-HB2H-M050R-XS35-78HA6 HP40 |
| | | | | | | 40 | 23004020 | SCM-HB2H-M050R-XS40-78HA6 HP40 |
| 6 | 6 | 5.7 | 6 | 57 | 3 | 15 | 23004021 | SCM-HB2H-M060R-XS15-57HA TI40 |
| | | | | | | 20 | 23004022 | SCM-HB2H-M060R-XS20-57HA TI40 |
| | | | | | | 25 | 23004023 | SCM-HB2H-M060R-XS25-57HA TI40 |
| | | | | 78 | 3 | 30 | 23004024 | SCM-HB2H-M060R-XS30-78HA TI40 |
| | | | | | | 35 | 23004025 | SCM-HB2H-M060R-XS35-78HA TI40 |
| | | | | | | 40 | 23004026 | SCM-HB2H-M060R-XS40-78HA TI40 |
| 8 | 8 | 7.7 | 8 | 63 | 4 | 20 | 23004027 | SCM-HB2H-M080R-XS20-63HA TI40 |
| | | | | | | 25 | 23004028 | SCM-HB2H-M080R-XS25-63HA TI40 |
| | | | | | | 30 | 23004029 | SCM-HB2H-M080R-XS30-63HA TI40 |

*Continued on next page*

# Performance Hardened Steel Line
## 2-flute ball nose (HB2H)

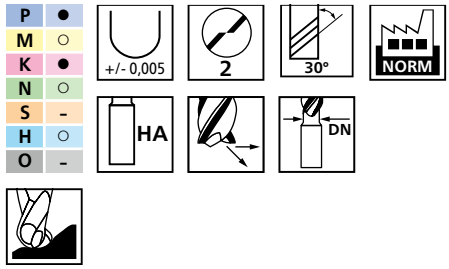
PFERD TOOLS

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | RE [mm] | LU [mm] | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|
| 8 | 8 | 7.7 | 8 | 63 | 4 | 35 | 23004030 | SCM-HB2H-M080R-XS35-63HA TI40 |
| | | | | | | 40 | 23004031 | SCM-HB2H-M080R-XS40-63HA TI40 |
| 10 | 10 | 9.7 | 10 | 78 | 5 | 25 | 23004032 | SCM-HB2H-M100R-XS25-78HA TI40 |
| | | | | | | 30 | 23004033 | SCM-HB2H-M100R-XS30-78HA TI40 |
| | | | | | | 35 | 23004034 | SCM-HB2H-M100R-XS35-78HA TI40 |
| | | | | | | 40 | 23004035 | SCM-HB2H-M100R-XS40-78HA TI40 |
| 12 | 12 | 11.6 | 12 | 83 | 6 | 30 | 23004036 | SCM-HB2H-M120R-XS30-83HA TI40 |
| | | | | | | 35 | 23004037 | SCM-HB2H-M120R-XS35-83HA TI40 |
| | | | | | | 40 | 23004038 | SCM-HB2H-M120R-XS40-83HA TI40 |

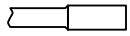



## Ball nose, long – metric

End mills for free-form profile cutting as well as for semi-finishing and finishing in steels up to 55 HRC. Excellent for use in large overhangs or deep cavities.




**Special features:**
- Maximum precision due to grinding tolerance of +/- 0.005 mm.
- Long tool life due to modern tool coating.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | RE [mm] | LU [mm] | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|
| **Extra long HA** | | | |  HA | | | | |
| 3 | 6 | - | 3 | 78 | 1.5 | - | 23004139 | SCM-HB2H-M030R-XS78HA6 HP40 |
| 4 | 6 | - | 4 | 78 | 2 | - | 23001490 | SCM-HB2H-M040R-XS78HA6 HP40 |
| 5 | 6 | - | 5 | 105 | 2.5 | - | 23004140 | SCM-HB2H-M050R-XS105HA6 HP40 |
| 6 | 6 | - | 6 | 105 | 3 | - | 23004141 | SCM-HB2H-M060R-XS105HA TI40 |
| 8 | 8 | - | 8 | 105 | 4 | - | 23001044 | SCM-HB2H-M080R-XS105HA TI40 |
| 10 | 10 | - | 10 | 120 | 5 | - | 23004142 | SCM-HB2H-M100R-XS120HA TI40 |
| | | | | 150 | 5 | - | 23004143 | SCM-HB2H-M100R-XS150HA TI40 |
| | | | | 105 | 5 | - | 23004144 | SCM-HB2H-M100R-XS105HA TI40 |
| 12 | 12 | - | 12 | 105 | 6 | - | 23004147 | SCM-HB2H-M120R-XS105HA TI40 |
| | | | | 120 | 6 | - | 23004145 | SCM-HB2H-M120R-XS120HA TI40 |
| | | | | 150 | 6 | - | 23004146 | SCM-HB2H-M120R-XS150HA TI40 |
| **Extra-long length of cut, cylindrical shank (HA) with neck chip channel** | | | | | |  HA | | |
| 3 | 6 | 2.8 | 3 | 78 | 1.5 | 6 | 23004046 | SCM-HB2H-M030R-XS6-78HA6 HP40 |
| | | | | | | 10 | 23004047 | SCM-HB2H-M030R-XS10-78HA6 HP40 |
| | | | | | | 15 | 23004048 | SCM-HB2H-M030R-XS15-78HA6 HP40 |
| | | | | | | 20 | 23004049 | SCM-HB2H-M030R-XS20-78HA6 HP40 |
| 4 | 6 | 3.8 | 4 | 78 | 2 | 8 | 23004050 | SCM-HB2H-M040R-XS8-78HA6 HP40 |
| | | | | | | 15 | 23004051 | SCM-HB2H-M040R-XS15-78HA6 HP40 |
| | | | | | | 20 | 23004052 | SCM-HB2H-M040R-XS20-78HA6 HP40 |
| | | | | | | 25 | 23001424 | SCM-HB2H-M040R-XS25-78HA6 HP40 |
| | | | | | | 30 | 23004053 | SCM-HB2H-M040R-XS30-78HA6 HP40 |

*Continued on next page*

# Performance Hardened Steel Line
## 2-flute ball nose (HB2H)

PFERD TOOLS

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | RE [mm] | LU [mm] | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|
| 4 | 6 | 3.8 | 4 | 78 | 2 | 35 | 23004054 | SCM-HB2H-M040R-XS35-78HA6 HP40 |
| | | | | | | 40 | 23004055 | SCM-HB2H-M040R-XS40-78HA6 HP40 |
| 5 | 6 | 4.8 | 5 | 105 | 2.5 | 15 | 23004056 | SCM-HB2H-M050R-XS15-105HA6 HP40 |
| | | | | | | 20 | 23004057 | SCM-HB2H-M050R-XS20-105HA6 HP40 |
| | | | | | | 25 | 23004058 | SCM-HB2H-M050R-XS25-105HA6 HP40 |
| | | | | | | 30 | 23004059 | SCM-HB2H-M050R-XS30-105HA6 HP40 |
| | | | | | | 35 | 23004060 | SCM-HB2H-M050R-XS35-105HA6 HP40 |
| | | | | | | 40 | 23004061 | SCM-HB2H-M050R-XS40-105HA6 HP40 |
| | | | | | | 45 | 23004062 | SCM-HB2H-M050R-XS45-105HA6 HP40 |
| | | | | | | 50 | 23004063 | SCM-HB2H-M050R-XS50-105HA6 HP40 |
| | | | | | | 55 | 23004064 | SCM-HB2H-M050R-XS55-105HA6 HP40 |
| | | | | | | 60 | 23004065 | SCM-HB2H-M050R-XS60-105HA6 HP40 |
| 6 | 6 | 5.7 | 6 | 105 | 3 | 15 | 23004066 | SCM-HB2H-M060R-XS15-105HA TI40 |
| | | | | | | 20 | 23004067 | SCM-HB2H-M060R-XS20-105HA TI40 |
| | | | | | | 25 | 23004068 | SCM-HB2H-M060R-XS25-105HA TI40 |
| | | | | | | 30 | 23004069 | SCM-HB2H-M060R-XS30-105HA TI40 |
| | | | | | | 35 | 23004070 | SCM-HB2H-M060R-XS35-105HA TI40 |
| | | | | | | 40 | 23004071 | SCM-HB2H-M060R-XS40-105HA TI40 |
| | | | | | | 45 | 23004072 | SCM-HB2H-M060R-XS45-105HA TI40 |
| | | | | | | 50 | 23004073 | SCM-HB2H-M060R-XS50-105HA TI40 |
| | | | | | | 55 | 23004074 | SCM-HB2H-M060R-XS55-105HA TI40 |
| | | | | | | 60 | 23004075 | SCM-HB2H-M060R-XS60-105HA TI40 |
| | | | | | | 65 | 23004076 | SCM-HB2H-M060R-XS65-105HA TI40 |
| | | | | | | 70 | 23004077 | SCM-HB2H-M060R-XS70-105HA TI40 |
| 8 | 8 | 7.7 | 8 | 105 | 4 | 20 | 23004078 | SCM-HB2H-M080R-XS20-105HA TI40 |
| | | | | | | 25 | 23004079 | SCM-HB2H-M080R-XS25-105HA TI40 |
| | | | | | | 30 | 23004080 | SCM-HB2H-M080R-XS30-105HA TI40 |
| | | | | | | 35 | 23004081 | SCM-HB2H-M080R-XS35-105HA TI40 |
| | | | | | | 40 | 23004082 | SCM-HB2H-M080R-XS40-105HA TI40 |
| | | | | | | 45 | 23004083 | SCM-HB2H-M080R-XS45-105HA TI40 |
| | | | | | | 50 | 23004084 | SCM-HB2H-M080R-XS50-105HA TI40 |
| | | | | | | 55 | 23004085 | SCM-HB2H-M080R-XS55-105HA TI40 |
| | | | | | | 60 | 23004086 | SCM-HB2H-M080R-XS60-105HA TI40 |
| | | | | | | 65 | 23004087 | SCM-HB2H-M080R-XS65-105HA TI40 |
| | | | | | | 70 | 23004088 | SCM-HB2H-M080R-XS70-105HA TI40 |
| 10 | 10 | 9.7 | 10 | 105 | 5 | 25 | 23004105 | SCM-HB2H-M100R-XS25-105HA TI40 |
| | | | | | | 30 | 23004106 | SCM-HB2H-M100R-XS30-105HA TI40 |
| | | | | | | 35 | 23004107 | SCM-HB2H-M100R-XS35-105HA TI40 |
| | | | | | | 40 | 23004108 | SCM-HB2H-M100R-XS40-105HA TI40 |
| | | | | | | 45 | 23004109 | SCM-HB2H-M100R-XS45-105HA TI40 |
| | | | | | | 50 | 23004110 | SCM-HB2H-M100R-XS50-105HA TI40 |
| | | | | | | 55 | 23004111 | SCM-HB2H-M100R-XS55-105HA TI40 |
| | | | | | | 60 | 23004112 | SCM-HB2H-M100R-XS60-105HA TI40 |
| | | | | | | 65 | 23004113 | SCM-HB2H-M100R-XS65-105HA TI40 |
| | | | | | | 70 | 23004114 | SCM-HB2H-M100R-XS70-105HA TI40 |
| | | | | 120 | 5 | 25 | 23004089 | SCM-HB2H-M100R-XS25-120HA TI40 |
| | | | | | | 30 | 23004090 | SCM-HB2H-M100R-XS30-120HA TI40 |
| | | | | | | 35 | 23004091 | SCM-HB2H-M100R-XS35-120HA TI40 |
| | | | | | | 40 | 23004092 | SCM-HB2H-M100R-XS40-120HA TI40 |

*Continued on next page*

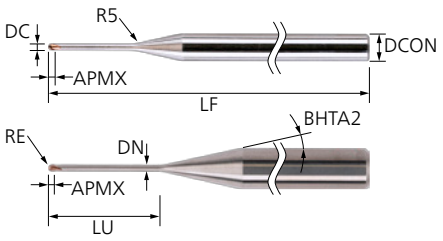
# Performance Hardened Steel Line
## 2-flute ball nose (HB2H)

PFERD TOOLS

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | RE [mm] | LU [mm] | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|
| 10 | 10 | 9.7 | 10 | 120 | 5 | 45 | 23004093 | SCM-HB2H-M100R-XS45-120HA TI40 |
| | | | | | | 50 | 23004094 | SCM-HB2H-M100R-XS50-120HA TI40 |
| | | | | | | 55 | 23004095 | SCM-HB2H-M100R-XS55-120HA TI40 |
| | | | | | | 60 | 23004096 | SCM-HB2H-M100R-XS60-120HA TI40 |
| | | | | | | 65 | 23004097 | SCM-HB2H-M100R-XS65-120HA TI40 |
| | | | | | | 70 | 23004098 | SCM-HB2H-M100R-XS70-120HA TI40 |
| | | | | | | 75 | 23004099 | SCM-HB2H-M100R-XS75-120HA TI40 |
| | | | | | | 80 | 23004100 | SCM-HB2H-M100R-XS80-120HA TI40 |
| | | | | 150 | 5 | 85 | 23004101 | SCM-HB2H-M100R-XS85-150HA TI40 |
| | | | | | | 90 | 23004102 | SCM-HB2H-M100R-XS90-150HA TI40 |
| | | | | | | 95 | 23004103 | SCM-HB2H-M100R-XS95-150HA TI40 |
| | | | | | | 100 | 23004104 | SCM-HB2H-M100R-XS100-150HA TI40 |
| 12 | 12 | 11.6 | 12 | 105 | 6 | 30 | 23004130 | SCM-HB2H-M120R-XS30-105HA TI40 |
| | | | | | | 35 | 23004131 | SCM-HB2H-M120R-XS35-105HA TI40 |
| | | | | | | 40 | 23004132 | SCM-HB2H-M120R-XS40-105HA TI40 |
| | | | | | | 45 | 23004133 | SCM-HB2H-M120R-XS45-105HA TI40 |
| | | | | | | 50 | 23004134 | SCM-HB2H-M120R-XS50-105HA TI40 |
| | | | | | | 55 | 23004135 | SCM-HB2H-M120R-XS55-105HA TI40 |
| | | | | | | 60 | 23004136 | SCM-HB2H-M120R-XS60-105HA TI40 |
| | | | | | | 65 | 23004137 | SCM-HB2H-M120R-XS65-105HA TI40 |
| | | | | | | 70 | 23004138 | SCM-HB2H-M120R-XS70-105HA TI40 |
| | | | | 120 | 6 | 30 | 23004115 | SCM-HB2H-M120R-XS30-120HA TI40 |
| | | | | | | 35 | 23004116 | SCM-HB2H-M120R-XS35-120HA TI40 |
| | | | | | | 40 | 23004117 | SCM-HB2H-M120R-XS40-120HA TI40 |
| | | | | | | 45 | 23004118 | SCM-HB2H-M120R-XS45-120HA TI40 |
| | | | | | | 50 | 23004119 | SCM-HB2H-M120R-XS50-120HA TI40 |
| | | | | | | 55 | 23004120 | SCM-HB2H-M120R-XS55-120HA TI40 |
| | | | | | | 60 | 23004121 | SCM-HB2H-M120R-XS60-120HA TI40 |
| | | | | | | 65 | 23004122 | SCM-HB2H-M120R-XS65-120HA TI40 |
| | | | | | | 70 | 23004123 | SCM-HB2H-M120R-XS70-120HA TI40 |
| | | | | | | 75 | 23004124 | SCM-HB2H-M120R-XS75-120HA TI40 |
| | | | | | | 80 | 23004125 | SCM-HB2H-M120R-XS80-120HA TI40 |
| | | | | 150 | 6 | 85 | 23004126 | SCM-HB2H-M120R-XS85-150HA TI40 |
| | | | | | | 90 | 23004127 | SCM-HB2H-M120R-XS90-150HA TI40 |
| | | | | | | 95 | 23004128 | SCM-HB2H-M120R-XS95-150HA TI40 |
| | | | | | | 100 | 23004129 | SCM-HB2H-M120R-XS100-150HA TI40 |

# Performance Hardened Steel Line
## 2-flute ball nose (HB2H)

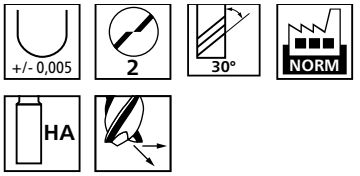
PFERD TOOLS




### Ball nose with reinforced shank – metric

End mill for finishing in hardened steels up to 60 HRC. Its special geometry makes it ideal for machining ribs and thin-walled contours.

| | |
|---|---|
| P | ● |
| M | ○ |
| K | ● |
| N | ○ |
| S | - |
| H | ● |
| O | - |




**Special features:**
- Maximum precision due to grinding tolerance of +/- 0.005 mm.
- High surface quality minimizes manual reworking processes.
- Modern tool coating and specially adapted carbide substrate for a long tool life and wear resistance when working on materials that are difficult to machine.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | RE [mm] | BHTA2 [°] | LU [mm] | ε 0.5° [mm] | ε 1.0° [mm] | ε 2.0° [mm] | ε 3.0° [mm] | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Extra long HA** | | | | | | | HA | | | | | | |
| 0.5 | 4 | 0.45 | 0.35 | 50 | 0.25 | 12 | 1 | 1.61 | 1.71 | 1.91 | 2.1 | 23000250 | SCM-HB2H-M005R-XS1-50HA4 HP30 |
| | | | | | | | 2 | 2.68 | 2.83 | 3.11 | 3.36 | 23000251 | SCM-HB2H-M005R-XS2-50HA4 HP30 |
| | | | | | | | 3 | 3.74 | 3.94 | 4.28 | 4.57 | 23000252 | SCM-HB2H-M005R-XS3-50HA4 HP30 |
| | | | | | | | 4 | 4.8 | 5.04 | 5.42 | 5.74 | 23000253 | SCM-HB2H-M005R-XS4-50HA4 HP30 |
| | | | | | | | 5 | 5.86 | 6.12 | 6.55 | 6.9 | 23000254 | SCM-HB2H-M005R-XS5-50HA4 HP30 |
| | | | | | | | 6 | 6.91 | 7.2 | 7.66 | 8.04 | 23000255 | SCM-HB2H-M005R-XS6-50HA4 HP30 |
| | | | | | | | 8 | 9 | 9.34 | 9.87 | 10.28 | 23000256 | SCM-HB2H-M005R-XS8-50HA4 HP30 |
| | | | | | | | 10 | 11.09 | 11.47 | 12.04 | 12.5 | 23000257 | SCM-HB2H-M005R-XS10-50HA4 HP30 |
| 0.6 | 4 | 0.55 | 0.4 | 50 | 0.3 | 12 | 2 | 2.67 | 2.83 | 3.1 | 3.35 | 23000258 | SCM-HB2H-M006R-XS2-50HA4 HP30 |
| | | | | | | | 3 | 3.74 | 3.94 | 4.27 | 4.56 | 23000262 | SCM-HB2H-M006R-XS3-50HA4 HP30 |
| | | | | | | | 4 | 4.8 | 5.03 | 5.41 | 5.73 | 23000259 | SCM-HB2H-M006R-XS4-50HA4 HP30 |
| | | | | | | | 5 | 5.85 | 6.12 | 6.54 | 6.89 | 23000263 | SCM-HB2H-M006R-XS5-50HA4 HP30 |
| | | | | | | | 6 | 6.91 | 7.2 | 7.66 | 8.03 | 23000260 | SCM-HB2H-M006R-XS6-50HA4 HP30 |
| | | | | | | | 8 | 9 | 9.34 | 9.86 | 10.28 | 23000261 | SCM-HB2H-M006R-XS8-50HA4 HP30 |
| | | | | | | | 10 | 11.08 | 11.47 | 12.04 | 12.49 | 23000264 | SCM-HB2H-M006R-XS10-50HA4 HP30 |
| 0.8 | 4 | 0.75 | 0.5 | 50 | 0.4 | 12 | 2 | 2.67 | 2.82 | 3.08 | 3.33 | 23000265 | SCM-HB2H-M008R-XS2-50HA4 HP30 |
| | | | | | | | 3 | 3.73 | 3.93 | 4.25 | 4.54 | 23000270 | SCM-HB2H-M008R-XS3-50HA4 HP30 |
| | | | | | | | 4 | 4.79 | 5.02 | 5.4 | 5.72 | 23000266 | SCM-HB2H-M008R-XS4-50HA4 HP30 |
| | | | | | | | 5 | 5.85 | 6.11 | 6.53 | 6.88 | 23000271 | SCM-HB2H-M008R-XS5-50HA4 HP30 |
| | | | | | | | 6 | 6.9 | 7.19 | 7.64 | 8.02 | 23000267 | SCM-HB2H-M008R-XS6-50HA4 HP30 |
| | | | | | | | 8 | 9 | 9.33 | 9.85 | 10.27 | 23000268 | SCM-HB2H-M008R-XS8-50HA4 HP30 |
| | | | | | | | 10 | 11.08 | 11.46 | 12.03 | 12.48 | 23000269 | SCM-HB2H-M008R-XS10-50HA4 HP30 |
| | | | | | | | 12 | 13.16 | 13.58 | 14.19 | 14.67 | 23000272 | SCM-HB2H-M008R-XS12-50HA4 HP30 |
| 1 | 4 | 0.95 | 0.8 | 50 | 0.5 | 12 | 2 | 2.66 | 2.81 | 3.07 | 3.3 | 23000273 | SCM-HB2H-M010R-XS2-50HA4 HP30 |
| | | | | | | | 4 | 4.79 | 5.01 | 5.39 | 5.7 | 23000325 | SCM-HB2H-M010R-XS4-50HA4 HP30 |
| | | | | | | | 5 | 5.84 | 6.1 | 6.52 | 6.86 | 23000279 | SCM-HB2H-M010R-XS5-50HA4 HP30 |
| | | | | | | | 6 | 6.9 | 7.18 | 7.63 | 8 | 23000326 | SCM-HB2H-M010R-XS6-50HA4 HP30 |
| | | | | | | | 8 | 8.99 | 9.33 | 9.84 | 10.25 | 23000327 | SCM-HB2H-M010R-XS8-50HA4 HP30 |
| | | | | | | | 10 | 11.08 | 11.45 | 12.02 | 12.47 | 23000328 | SCM-HB2H-M010R-XS10-50HA4 HP30 |
| | | | | 60 | 0.5 | 12 | 12 | 13.16 | 13.57 | 14.19 | 14.66 | 23000274 | SCM-HB2H-M010R-XS12-60HA4 HP30 |
| | | | | | | | 14 | 15.23 | 15.68 | 16.33 | 16.84 | 23000275 | SCM-HB2H-M010R-XS14-60HA4 HP30 |
| | | | | | | | 15 | 16.26 | 16.73 | 17.4 | 17.92 | 23000280 | SCM-HB2H-M010R-XS15-60HA4 HP30 |
| | | | | | | | 16 | 17.3 | 17.78 | 18.47 | 18.99 | 23000276 | SCM-HB2H-M010R-XS16-60HA4 HP30 |
| | | | | | | | 18 | 19.36 | 19.87 | 20.6 | 21.14 | 23000277 | SCM-HB2H-M010R-XS18-60HA4 HP30 |
| | | | | | | | 20 | 21.43 | 21.96 | 22.71 | 23.27 | 23000278 | SCM-HB2H-M010R-XS20-60HA4 HP30 |

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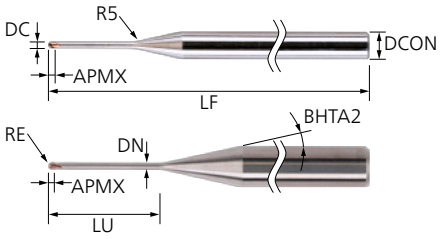
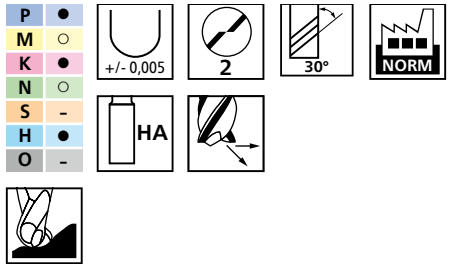
# Performance Hardened Steel Line
## 2-flute ball nose (HB2H)




### Ball nose with reinforced shank – metric

End mill for finishing in hardened steels up to 60 HRC. Its special geometry makes it ideal for machining ribs and thin-walled contours.

| | |
|---|---|
| P | ● |
| M | ○ |
| K | ● |
| N | ○ |
| S | - |
| H | ● |
| O | - |




**Special features:**
- Maximum precision due to grinding tolerance of +/- 0.005 mm.
- High surface quality minimizes manual reworking processes.
- Modern tool coating and specially adapted carbide substrate for a long tool life and wear resistance when working on materials that are difficult to machine.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | RE [mm] | BHTA2 [°] | LU [mm] | ε 0.5° [mm] | ε 1.0° [mm] | ε 2.0° [mm] | ε 3.0° [mm] | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.2 | 4 | 1.15 | 1 | 50 | 0.6 | 12 | 2.5 | 2.65 | 2.79 | 3.05 | 3.28 | 23000281 | SCM-HB2H-M012R-XS2.5-50HA4 HP30 |
| | | | | | | | 4 | 4.78 | 5 | 5.37 | 5.68 | 23000282 | SCM-HB2H-M012R-XS4-50HA4 HP30 |
| | | | | | | | 5 | 5.84 | 6.09 | 6.5 | 6.85 | 23000283 | SCM-HB2H-M012R-XS5-50HA4 HP30 |
| | | | | | | | 6 | 6.89 | 7.17 | 7.62 | 7.99 | 23000284 | SCM-HB2H-M012R-XS6-50HA4 HP30 |
| | | | | | | | 8 | 8.99 | 9.32 | 9.83 | 10.24 | 23000285 | SCM-HB2H-M012R-XS8-50HA4 HP30 |
| | | | | | | | 10 | 11.07 | 11.45 | 12.01 | 12.46 | 23000286 | SCM-HB2H-M012R-XS10-50HA4 HP30 |
| | | | | 60 | 0.6 | 12 | 12 | 13.15 | 13.57 | 14.18 | 14.65 | 23000287 | SCM-HB2H-M012R-XS12-60HA4 HP30 |
| | | | | | | | 14 | 15.23 | 15.67 | 16.33 | 16.83 | 23000288 | SCM-HB2H-M012R-XS14-60HA4 HP30 |
| | | | | | | | 15 | 16.26 | 16.72 | 17.4 | 17.91 | 23000289 | SCM-HB2H-M012R-XS15-60HA4 HP30 |
| | | | | | | | 16 | 17.3 | 17.77 | 18.46 | 18.99 | 23000290 | SCM-HB2H-M012R-XS16-60HA4 HP30 |
| | | | | | | | 18 | 19.36 | 19.87 | 20.59 | 21.13 | 23000291 | SCM-HB2H-M012R-XS18-60HA4 HP30 |
| | | | | | | | 20 | 21.42 | 21.95 | 22.71 | 23.27 | 23000292 | SCM-HB2H-M012R-XS20-60HA4 HP30 |
| 1.5 | 4 | 1.45 | 1.35 | 50 | 0.75 | 12 | 4 | 4.77 | 4.99 | 5.35 | 5.66 | 23000293 | SCM-HB2H-M015R-XS4-50HA4 HP30 |
| | | | | | | | 5 | 5.83 | 6.08 | 6.49 | 6.82 | 23000296 | SCM-HB2H-M015R-XS5-50HA4 HP30 |
| | | | | | | | 6 | 6.88 | 7.16 | 7.61 | 7.97 | 23000331 | SCM-HB2H-M015R-XS6-50HA4 HP30 |
| | | | | | | | 8 | 8.98 | 9.31 | 9.82 | 10.23 | 23000329 | SCM-HB2H-M015R-XS8-50HA4 HP30 |
| | | | | | | | 10 | 11.07 | 11.44 | 12 | 12.45 | 23000332 | SCM-HB2H-M015R-XS10-50HA4 HP30 |
| | | | | 60 | 0.75 | 12 | 12 | 13.15 | 13.56 | 14.17 | 14.64 | 23000330 | SCM-HB2H-M015R-XS12-60HA4 HP30 |
| | | | | | | | 14 | 15.22 | 15.67 | 16.32 | 16.82 | 23000297 | SCM-HB2H-M015R-XS14-60HA4 HP30 |
| | | | | | | | 15 | 16.26 | 16.72 | 17.39 | 17.9 | 23000294 | SCM-HB2H-M015R-XS15-60HA4 HP30 |
| | | | | | | | 16 | 17.29 | 17.77 | 18.45 | 18.97 | 23000298 | SCM-HB2H-M015R-XS16-60HA4 HP30 |
| | | | | | | | 18 | 19.36 | 19.86 | 20.58 | 21.12 | 23000299 | SCM-HB2H-M015R-XS18-60HA4 HP30 |
| | | | | | | | 20 | 21.42 | 21.95 | 22.7 | 23.26 | 23000295 | SCM-HB2H-M015R-XS20-60HA4 HP30 |
| | | | | | | | 22 | 23.48 | 24.03 | 24.81 | 25.38 | 23000300 | SCM-HB2H-M015R-XS22-60HA4 HP30 |
| | | | | | | | 24 | 25.53 | 26.11 | 26.92 | 27.5 | 23000301 | SCM-HB2H-M015R-XS24-60HA4 HP30 |
| | | | | | | | 25 | 26.56 | 27.15 | 27.97 | 28.55 | 23000302 | SCM-HB2H-M015R-XS25-60HA4 HP30 |
| 2 | 4 | 1.9 | 1.7 | 50 | 1 | 12 | 4 | 4.91 | 5.1 | 5.42 | 5.7 | 23000303 | SCM-HB2H-M020R-XS4-50HA4 HP30 |
| | | | | | | | 5 | 5.96 | 6.18 | 6.54 | 6.86 | 23000305 | SCM-HB2H-M020R-XS5-50HA4 HP30 |
| | | | | | | | 6 | 7.01 | 7.25 | 7.66 | 8 | 23000306 | SCM-HB2H-M020R-XS6-50HA4 HP30 |
| | | | | | | | 8 | 9.09 | 9.39 | 9.86 | 10.25 | 23000333 | SCM-HB2H-M020R-XS8-50HA4 HP30 |
| | | | | | | | 10 | 11.17 | 11.51 | 12.04 | 12.47 | 23000336 | SCM-HB2H-M020R-XS10-50HA4 HP30 |
| | | | | 60 | 1 | 12 | 12 | 13.24 | 13.62 | 14.2 | 14.66 | 23000334 | SCM-HB2H-M020R-XS12-60HA4 HP30 |
| | | | | | | | 14 | 15.31 | 15.73 | 16.35 | 16.83 | 23000307 | SCM-HB2H-M020R-XS14-60HA4 HP30 |
| | | | | | | | 15 | 16.34 | 16.77 | 17.42 | 17.92 | 23000308 | SCM-HB2H-M020R-XS15-60HA4 HP30 |
| | | | | | | | 16 | 17.38 | 17.82 | 18.48 | 18.99 | 23000335 | SCM-HB2H-M020R-XS16-60HA4 HP30 |
| | | | | | | | 18 | 19.44 | 19.91 | 20.61 | 21.14 | 23000309 | SCM-HB2H-M020R-XS18-60HA4 HP30 |
| | | | | | | | 20 | 21.5 | 22 | 22.73 | 23.27 | 23000304 | SCM-HB2H-M020R-XS20-60HA4 HP30 |

*Continued on next page*

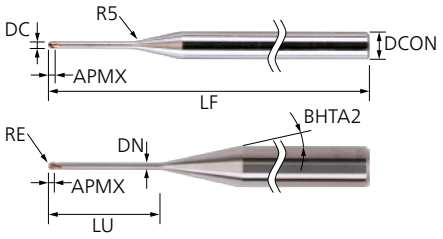
# Performance Hardened Steel Line
## 2-flute ball nose (HB2H)

PFERD TOOLS

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | RE [mm] | BHTA2 [°] | LU [mm] | ε 0.5° [mm] | ε 1.0° [mm] | ε 2.0° [mm] | ε 3.0° [mm] | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 4 | 1.9 | 1.7 | 60 | 1 | 12 | 22 | 23.55 | 24.08 | 24.84 | 25.4 | 23000310 | SCM-HB2H-M020R-XS22-60HA4 HP30 |
| | | | | | | | 24 | 25.61 | 26.16 | 26.94 | 27.51 | 23000311 | SCM-HB2H-M020R-XS24-60HA4 HP30 |
| | | | | | | | 25 | 26.63 | 27.19 | 27.99 | 28.57 | 23000312 | SCM-HB2H-M020R-XS25-60HA4 HP30 |
| 2.5 | 4 | 2.4 | 2.1 | 60 | 1.25 | 12 | 6 | 7 | 7.23 | 7.63 | 7.97 | 23000317 | SCM-HB2H-M025R-XS6-60HA4 HP30 |
| | | | | | | | 8 | 9.08 | 9.37 | 9.84 | 10.22 | 23000313 | SCM-HB2H-M025R-XS8-60HA4 HP30 |
| | | | | | | | 10 | 11.16 | 11.5 | 12.02 | 12.44 | 23000318 | SCM-HB2H-M025R-XS10-60HA4 HP30 |
| | | | | | | | 12 | 13.23 | 13.61 | 14.18 | 14.64 | 23000314 | SCM-HB2H-M025R-XS12-60HA4 HP30 |
| | | | | | | | 14 | 15.3 | 15.71 | 16.33 | 16.81 | 23000319 | SCM-HB2H-M025R-XS14-60HA4 HP30 |
| | | | | | | | 15 | 16.34 | 16.76 | 17.4 | 17.9 | 23000320 | SCM-HB2H-M025R-XS15-60HA4 HP30 |
| | | | | | | | 16 | 17.37 | 17.81 | 18.47 | 18.97 | 23000315 | SCM-HB2H-M025R-XS16-60HA4 HP30 |
| | | | | | | | 18 | 19.43 | 19.9 | 20.6 | 21.12 | 23000321 | SCM-HB2H-M025R-XS18-60HA4 HP30 |
| | | | | | | | 20 | 21.49 | 21.99 | 22.71 | 23.26 | 23000316 | SCM-HB2H-M025R-XS20-60HA4 HP30 |
| | | | | | | | 22 | 23.54 | 24.07 | 24.82 | 25.38 | 23000322 | SCM-HB2H-M025R-XS22-60HA4 HP30 |
| | | | | | | | 24 | 25.6 | 26.15 | 26.93 | 27.5 | 23000323 | SCM-HB2H-M025R-XS24-60HA4 HP30 |
| | | | | | | | 25 | 26.63 | 27.19 | 27.98 | 28.55 | 23000324 | SCM-HB2H-M025R-XS25-60HA4 HP30 |
| 0.5 | 6 | 0.45 | 0.35 | 50 | 0.25 | 12 | 1 | 1.61 | 1.71 | 1.91 | 2.1 | 23002124 | SCM-HB2H-M005R-XS1-50HA6 HP30 |
| | | | | | | | 2 | 2.68 | 2.83 | 3.11 | 3.36 | 23002785 | SCM-HB2H-M005R-XS2-50HA6 HP30 |
| | | | | | | | 3 | 3.74 | 3.94 | 4.28 | 4.57 | 23002786 | SCM-HB2H-M005R-XS3-50HA6 HP30 |
| | | | | | | | 4 | 4.8 | 5.04 | 5.42 | 5.74 | 23002787 | SCM-HB2H-M005R-XS4-50HA6 HP30 |
| | | | | | | | 5 | 5.86 | 6.12 | 6.55 | 6.9 | 23002788 | SCM-HB2H-M005R-XS5-50HA6 HP30 |
| | | | | | | | 6 | 6.91 | 7.2 | 7.66 | 8.04 | 23002789 | SCM-HB2H-M005R-XS6-50HA6 HP30 |
| | | | | | | 15 | 8 | 9 | 9.34 | 9.87 | 10.28 | 23002790 | SCM-HB2H-M005R-XS8-50HA6 HP30 |
| | | | | | | | 10 | 11.09 | 11.47 | 12.04 | 12.5 | 23002791 | SCM-HB2H-M005R-XS10-50HA6 HP30 |
| 0.6 | 6 | 0.55 | 0.4 | 50 | 0.3 | 12 | 2 | 2.67 | 2.83 | 3.1 | 3.35 | 23002792 | SCM-HB2H-M006R-XS2-50HA6 HP30 |
| | | | | | | | 3 | 3.74 | 3.94 | 4.27 | 4.56 | 23002793 | SCM-HB2H-M006R-XS3-50HA6 HP30 |
| | | | | | | | 4 | 4.8 | 5.03 | 5.41 | 5.73 | 23002794 | SCM-HB2H-M006R-XS4-50HA6 HP30 |
| | | | | | | | 5 | 5.85 | 6.12 | 6.54 | 6.89 | 23002795 | SCM-HB2H-M006R-XS5-50HA6 HP30 |
| | | | | | | | 6 | 6.91 | 7.2 | 7.66 | 8.03 | 23002796 | SCM-HB2H-M006R-XS6-50HA6 HP30 |
| | | | | | | 15 | 8 | 9 | 9.34 | 9.86 | 10.28 | 23002797 | SCM-HB2H-M006R-XS8-50HA6 HP30 |
| | | | | | | | 10 | 11.08 | 11.47 | 12.04 | 12.49 | 23002798 | SCM-HB2H-M006R-XS10-50HA6 HP30 |
| 0.8 | 6 | 0.75 | 0.5 | 50 | 0.4 | 12 | 2 | 2.67 | 2.82 | 3.08 | 3.33 | 23002799 | SCM-HB2H-M008R-XS2-50HA6 HP30 |
| | | | | | | | 3 | 3.73 | 3.93 | 4.25 | 4.54 | 23002800 | SCM-HB2H-M008R-XS3-50HA6 HP30 |
| | | | | | | | 4 | 4.79 | 5.02 | 5.4 | 5.72 | 23002801 | SCM-HB2H-M008R-XS4-50HA6 HP30 |
| | | | | | | | 5 | 5.85 | 6.11 | 6.53 | 6.88 | 23002802 | SCM-HB2H-M008R-XS5-50HA6 HP30 |
| | | | | | | | 6 | 6.9 | 7.19 | 7.64 | 8.02 | 23002803 | SCM-HB2H-M008R-XS6-50HA6 HP30 |
| | | | | | | | 8 | 9 | 9.33 | 9.85 | 10.27 | 23002804 | SCM-HB2H-M008R-XS8-50HA6 HP30 |
| | | | | | | 15 | 10 | 11.08 | 11.46 | 12.03 | 12.48 | 23002805 | SCM-HB2H-M008R-XS10-50HA6 HP30 |
| | | | | | | 20 | 12 | 13.16 | 13.58 | 14.19 | 14.67 | 23002806 | SCM-HB2H-M008R-XS12-50HA6 HP30 |
| 1 | 6 | 0.95 | 0.8 | 50 | 0.5 | 12 | 4 | 4.79 | 5.01 | 5.39 | 5.7 | 23002808 | SCM-HB2H-M010R-XS4-50HA6 HP30 |
| | | | | | | | 5 | 5.84 | 6.1 | 6.52 | 6.86 | 23002814 | SCM-HB2H-M010R-XS5-50HA6 HP30 |
| | | | | | | | 6 | 6.9 | 7.18 | 7.63 | 8 | 23002809 | SCM-HB2H-M010R-XS6-50HA6 HP30 |
| | | | | | | | 8 | 8.99 | 9.33 | 9.84 | 10.25 | 23002810 | SCM-HB2H-M010R-XS8-50HA6 HP30 |
| | | | | | | | 10 | 11.08 | 11.45 | 12.02 | 12.47 | 23001188 | SCM-HB2H-M010R-XS10-50HA6 HP30 |
| | | | | | | 15 | 2 | 2.66 | 2.81 | 3.07 | 3.3 | 23002807 | SCM-HB2H-M010R-XS2-50HA6 HP30 |
| | | | | 60 | 0.5 | 12 | 14 | 15.23 | 15.68 | 16.33 | 16.84 | 23002811 | SCM-HB2H-M010R-XS14-60HA6 HP30 |
| | | | | | | | 15 | 16.26 | 16.73 | 17.4 | 17.92 | 23002815 | SCM-HB2H-M010R-XS15-60HA6 HP30 |
| | | | | | | | 16 | 17.3 | 17.78 | 18.47 | 18.99 | 23002812 | SCM-HB2H-M010R-XS16-60HA6 HP30 |
| | | | | | | | 20 | 21.43 | 21.96 | 22.71 | 23.27 | 23002813 | SCM-HB2H-M010R-XS20-60HA6 HP30 |
| | | | | | | 15 | 12 | 13.16 | 13.57 | 14.19 | 14.66 | 23000360 | SCM-HB2H-M010R-XS12-60HA6 HP30 |

*Continued on next page*

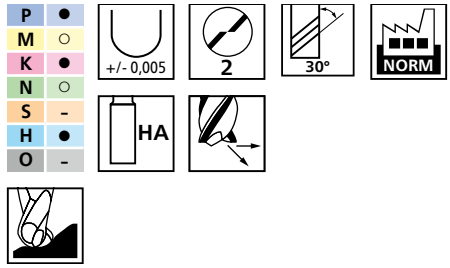
# Performance Hardened Steel Line
## 2-flute ball nose (HB2H)




### Ball nose with reinforced shank – metric

End mill for finishing in hardened steels up to 60 HRC. Its special geometry makes it ideal for machining ribs and thin-walled contours.

| | |
|---|---|
| P | ● |
| M | ○ |
| K | ● |
| N | ○ |
| S | - |
| H | ● |
| O | - |




**Special features:**
- Maximum precision due to grinding tolerance of +/- 0.005 mm.
- High surface quality minimizes manual reworking processes.
- Modern tool coating and specially adapted carbide substrate for a long tool life and wear resistance when working on materials that are difficult to machine.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | RE [mm] | BHTA2 [°] | LU [mm] | ε 0.5° [mm] | ε 1.0° [mm] | ε 2.0° [mm] | ε 3.0° [mm] | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.2 | 6 | 1.15 | 1 | 50 | 0.6 | 12 | 2 | 2.65 | 2.79 | 3.05 | 3.28 | 23002816 | SCM-HB2H-M012R-XS2-50HA6 HP30 |
| | | | | | | | 4 | 4.78 | 5 | 5.37 | 5.68 | 23002817 | SCM-HB2H-M012R-XS4-50HA6 HP30 |
| | | | | | | | 5 | 5.84 | 6.09 | 6.5 | 6.85 | 23002818 | SCM-HB2H-M012R-XS5-50HA6 HP30 |
| | | | | | | | 6 | 6.89 | 7.17 | 7.62 | 7.99 | 23002819 | SCM-HB2H-M012R-XS6-50HA6 HP30 |
| | | | | | | | 8 | 8.99 | 9.32 | 9.83 | 10.24 | 23002820 | SCM-HB2H-M012R-XS8-50HA6 HP30 |
| | | | | | | | 10 | 11.07 | 11.45 | 12.01 | 12.46 | 23002821 | SCM-HB2H-M012R-XS10-50HA6 HP30 |
| | | | | 60 | 0.6 | 12 | 12 | 13.15 | 13.57 | 14.18 | 14.65 | 23002822 | SCM-HB2H-M012R-XS12-60HA6 HP30 |
| | | | | | | | 14 | 15.23 | 15.67 | 16.33 | 16.83 | 23002823 | SCM-HB2H-M012R-XS14-60HA6 HP30 |
| | | | | | | | 15 | 16.26 | 16.72 | 17.4 | 17.91 | 23002824 | SCM-HB2H-M012R-XS15-60HA6 HP30 |
| | | | | | | | 16 | 17.3 | 17.77 | 18.46 | 18.99 | 23002825 | SCM-HB2H-M012R-XS16-60HA6 HP30 |
| | | | | | | | 18 | 19.36 | 19.87 | 20.59 | 21.13 | 23002826 | SCM-HB2H-M012R-XS18-60HA6 HP30 |
| | | | | | | | 20 | 21.42 | 21.95 | 22.71 | 23.27 | 23002827 | SCM-HB2H-M012R-XS20-60HA6 HP30 |
| 1.5 | 6 | 1.45 | 1.35 | 50 | 0.75 | 12 | 4 | 4.77 | 4.99 | 5.35 | 5.66 | 23001403 | SCM-HB2H-M015R-XS4-50HA6 HP30 |
| | | | | | | | 5 | 5.83 | 6.08 | 6.49 | 6.82 | 23002832 | SCM-HB2H-M015R-XS5-50HA6 HP30 |
| | | | | | | | 6 | 6.88 | 7.16 | 7.61 | 7.97 | 23002833 | SCM-HB2H-M015R-XS6-50HA6 HP30 |
| | | | | | | | 8 | 8.98 | 9.31 | 9.82 | 10.23 | 23002828 | SCM-HB2H-M015R-XS8-50HA6 HP30 |
| | | | | | | | 10 | 11.07 | 11.44 | 12 | 12.45 | 23002834 | SCM-HB2H-M015R-XS10-50HA6 HP30 |
| | | | | 60 | 0.75 | 12 | 12 | 13.15 | 13.56 | 14.17 | 14.64 | 23002829 | SCM-HB2H-M015R-XS12-60HA6 HP30 |
| | | | | | | | 14 | 15.22 | 15.67 | 16.32 | 16.82 | 23002835 | SCM-HB2H-M015R-XS14-60HA6 HP30 |
| | | | | | | | 15 | 16.26 | 16.72 | 17.39 | 17.9 | 23002830 | SCM-HB2H-M015R-XS15-60HA6 HP30 |
| | | | | | | | 16 | 17.29 | 17.77 | 18.45 | 18.97 | 23002836 | SCM-HB2H-M015R-XS16-60HA6 HP30 |
| | | | | | | | 18 | 19.36 | 19.86 | 20.58 | 21.12 | 23002837 | SCM-HB2H-M015R-XS18-60HA6 HP30 |
| | | | | | | 15 | 20 | 21.42 | 21.95 | 22.7 | 23.26 | 23002831 | SCM-HB2H-M015R-XS20-60HA6 HP30 |
| | | | | | | | 22 | 23.48 | 24.03 | 24.81 | 25.38 | 23002838 | SCM-HB2H-M015R-XS22-60HA6 HP30 |
| | | | | | | 20 | 24 | 25.53 | 26.11 | 26.92 | 27.5 | 23002839 | SCM-HB2H-M015R-XS24-60HA6 HP30 |
| | | | | | | | 25 | 26.56 | 27.15 | 27.97 | 28.55 | 23002840 | SCM-HB2H-M015R-XS25-60HA6 HP30 |
| 2 | 6 | 1.9 | 1.7 | 50 | 1 | 12 | 4 | 4.91 | 5.1 | 5.42 | 5.7 | 23002841 | SCM-HB2H-M020R-XS4-50HA6 HP30 |
| | | | | | | | 5 | 5.96 | 6.18 | 6.54 | 6.86 | 23002846 | SCM-HB2H-M020R-XS5-50HA6 HP30 |
| | | | | | | | 6 | 7.01 | 7.25 | 7.66 | 8 | 23002847 | SCM-HB2H-M020R-XS6-50HA6 HP30 |
| | | | | | | | 8 | 9.09 | 9.39 | 9.86 | 10.25 | 23002842 | SCM-HB2H-M020R-XS8-50HA6 HP30 |
| | | | | | | | 10 | 11.17 | 11.51 | 12.04 | 12.47 | 23002848 | SCM-HB2H-M020R-XS10-50HA6 HP30 |
| | | | | 60 | 1 | 12 | 12 | 13.24 | 13.62 | 14.2 | 14.66 | 23002843 | SCM-HB2H-M020R-XS12-60HA6 HP30 |
| | | | | | | | 14 | 15.31 | 15.73 | 16.35 | 16.83 | 23002849 | SCM-HB2H-M020R-XS14-60HA6 HP30 |
| | | | | | | | 15 | 16.34 | 16.77 | 17.42 | 17.92 | 23002850 | SCM-HB2H-M020R-XS15-60HA6 HP30 |
| | | | | | | | 16 | 17.38 | 17.82 | 18.48 | 18.99 | 23002844 | SCM-HB2H-M020R-XS16-60HA6 HP30 |
| | | | | | | | 18 | 19.44 | 19.91 | 20.61 | 21.14 | 23002851 | SCM-HB2H-M020R-XS18-60HA6 HP30 |
| | | | | | | | 20 | 21.5 | 22 | 22.73 | 23.27 | 23002845 | SCM-HB2H-M020R-XS20-60HA6 HP30 |

*Continued on next page*

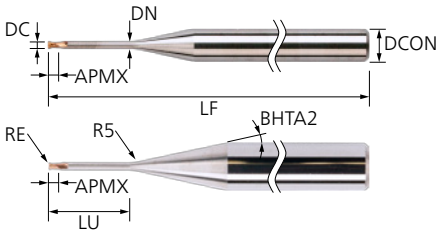
# Performance Hardened Steel Line
## 2-flute ball nose (HB2H)

PFERD TOOLS

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | RE [mm] | BHTA2 [°] | LU [mm] | ε 0.5° [mm] | ε 1.0° [mm] | ε 2.0° [mm] | ε 3.0° [mm] | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 6 | 1.9 | 1.7 | 60 | 1 | 15 | 22 | 23.55 | 24.08 | 24.84 | 25.4 | 23002852 | SCM-HB2H-M020R-XS22-60HA6 HP30 |
| | | | | | | 20 | 24 | 25.61 | 26.16 | 26.94 | 27.51 | 23002853 | SCM-HB2H-M020R-XS24-60HA6 HP30 |
| | | | | | | | 25 | 26.63 | 27.19 | 27.99 | 28.57 | 23002854 | SCM-HB2H-M020R-XS25-60HA6 HP30 |
| 2.5 | 6 | 2.4 | 2.1 | 60 | 1.25 | 12 | 6 | 7 | 7.23 | 7.63 | 7.97 | 23002859 | SCM-HB2H-M025R-XS6-60HA6 HP30 |
| | | | | | | | 8 | 9.08 | 9.37 | 9.84 | 10.22 | 23002855 | SCM-HB2H-M025R-XS8-60HA6 HP30 |
| | | | | | | | 10 | 11.16 | 11.5 | 12.02 | 12.44 | 23002860 | SCM-HB2H-M025R-XS10-60HA6 HP30 |
| | | | | | | | 12 | 13.23 | 13.61 | 14.18 | 14.64 | 23002856 | SCM-HB2H-M025R-XS12-60HA6 HP30 |
| | | | | | | | 14 | 15.3 | 15.71 | 16.33 | 16.81 | 23002861 | SCM-HB2H-M025R-XS14-60HA6 HP30 |
| | | | | | | | 15 | 16.34 | 16.76 | 17.4 | 17.9 | 23002862 | SCM-HB2H-M025R-XS15-60HA6 HP30 |
| | | | | | | | 16 | 17.37 | 17.81 | 18.47 | 18.97 | 23002857 | SCM-HB2H-M025R-XS16-60HA6 HP30 |
| | | | | | | | 18 | 19.43 | 19.9 | 20.6 | 21.12 | 23002863 | SCM-HB2H-M025R-XS18-60HA6 HP30 |
| | | | | | | | 20 | 21.49 | 21.99 | 22.71 | 23.26 | 23002858 | SCM-HB2H-M025R-XS20-60HA6 HP30 |
| | | | | | | 15 | 22 | 23.54 | 24.07 | 24.82 | 25.38 | 23002864 | SCM-HB2H-M025R-XS22-60HA6 HP30 |
| | | | | | | | 24 | 25.6 | 26.15 | 26.93 | 27.5 | 23002865 | SCM-HB2H-M025R-XS24-60HA6 HP30 |
| | | | | | | 20 | 25 | 26.63 | 27.19 | 27.98 | 28.55 | 23002866 | SCM-HB2H-M025R-XS25-60HA6 HP30 |
| 3 | 6 | 2.9 | 2.5 | 60 | 1.5 | 12 | 8 | 9.07 | 9.36 | 9.82 | 10.2 | 23000337 | SCM-HB2H-M030R-XS8-60HA6 HP30 |
| | | | | | | | 10 | 11.15 | 11.48 | 12 | 12.42 | 23000348 | SCM-HB2H-M030R-XS10-60HA6 HP30 |
| | | | | | | | 12 | 13.22 | 13.6 | 14.17 | 14.62 | 23000346 | SCM-HB2H-M030R-XS12-60HA6 HP30 |
| | | | | | | | 14 | 15.29 | 15.7 | 16.32 | 16.79 | 23000339 | SCM-HB2H-M030R-XS14-60HA6 HP30 |
| | | | | | | | 16 | 17.36 | 17.8 | 18.45 | 18.96 | 23000347 | SCM-HB2H-M030R-XS16-60HA6 HP30 |
| | | | | | | | 18 | 19.42 | 19.89 | 20.58 | 21.1 | 23000340 | SCM-HB2H-M030R-XS18-60HA6 HP30 |
| | | | | | | | 20 | 21.48 | 21.98 | 22.7 | 23.24 | 23000349 | SCM-HB2H-M030R-XS20-60HA6 HP30 |
| | | | | | | 15 | 22 | 23.54 | 24.06 | 24.81 | 25.37 | 23000341 | SCM-HB2H-M030R-XS22-60HA6 HP30 |
| | | | | | | | 25 | 26.62 | 27.18 | 27.97 | 28.54 | 23000342 | SCM-HB2H-M030R-XS25-60HA6 HP30 |
| | | | | 78 | 1.5 | 12 | 30 | 31.74 | 32.35 | 33.2 | 33.8 | 23000338 | SCM-HB2H-M030R-XS30-78HA6 HP30 |
| | | | | | | | 32 | 33.79 | 34.42 | 35.29 | 35.89 | 23000344 | SCM-HB2H-M030R-XS32-78HA6 HP30 |
| | | | | | | 15 | 28 | 29.7 | 30.29 | 31.11 | 31.7 | 23000343 | SCM-HB2H-M030R-XS28-78HA6 HP30 |
| | | | | | | | 35 | 36.86 | 37.52 | 38.41 | 39.01 | 23000345 | SCM-HB2H-M030R-XS35-78HA6 HP30 |

# Performance Hardened Steel Line
## 2-flute Torus cutter (HC2H)

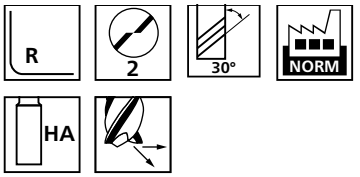
PFERD TOOLS




### Radius corner design with reinforced shank – metric

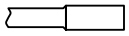
End mill for roughing and semi-finishing in hardened steels up to 60 HRC. Its special geometry makes it ideal for machining ribs and thin-walled contours.

| | |
|---|---|
| P | ● |
| M | ○ |
| K | ● |
| N | ○ |
| S | - |
| H | ● |
| O | - |




**Special features:**

- Modern tool coating and specially adapted carbide substrate for a long tool life and wear resistance when working on materials that are difficult to machine.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | RE [mm] | BHTA2 [°] | LU [mm] | ε 0.5° [mm] | ε 1.0° [mm] | ε 2.0° [mm] | ε 3.0° [mm] | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Extra long HA** | | | | |  HA | | | | | | | | |
| 0.5 | 4 | 0.45 | 0.75 | 50 | 0.05 | 12 | 1.2 | 1.61 | 1.71 | 1.91 | 2.1 | 23002126 | SCM-HC2H-M005R005-S1-50HA4 HP30 |
| | | | | | | | 2 | 2.68 | 2.83 | 3.11 | 3.36 | 23002874 | SCM-HC2H-M005R005-S2-50HA4 HP30 |
| | | | | | | | 3 | 3.74 | 3.94 | 4.28 | 4.57 | 23002875 | SCM-HC2H-M005R005-S3-50HA4 HP30 |
| | | | | | | | 4 | 4.8 | 5.04 | 5.42 | 5.74 | 23002876 | SCM-HC2H-M005R005-S4-50HA4 HP30 |
| | | | | | | | 5 | 5.86 | 6.12 | 6.55 | 6.9 | 23002877 | SCM-HC2H-M005R005-S5-50HA4 HP30 |
| | | | | | | | 6 | 6.91 | 7.2 | 7.66 | 8.04 | 23002878 | SCM-HC2H-M005R005-S6-50HA4 HP30 |
| | | | | | | | 8 | 9 | 9.34 | 9.87 | 10.28 | 23002879 | SCM-HC2H-M005R005-S8-50HA4 HP30 |
| | | | | | | | 10 | 11.09 | 11.47 | 12.04 | 12.5 | 23002880 | SCM-HC2H-M005R005-S10-50HA4 HP30 |
| | | | | | 0.1 | 12 | 1.2 | 1.61 | 1.71 | 1.91 | 2.1 | 23002125 | SCM-HC2H-M005R01-S1-50HA4 HP30 |
| | | | | | | | 2 | 2.68 | 2.83 | 3.11 | 3.36 | 23002867 | SCM-HC2H-M005R01-S2-50HA4 HP30 |
| | | | | | | | 3 | 3.74 | 3.94 | 4.28 | 4.57 | 23002868 | SCM-HC2H-M005R01-S3-50HA4 HP30 |
| | | | | | | | 4 | 4.8 | 5.04 | 5.42 | 5.74 | 23002869 | SCM-HC2H-M005R01-S4-50HA4 HP30 |
| | | | | | | | 5 | 5.86 | 6.12 | 6.55 | 6.9 | 23002870 | SCM-HC2H-M005R01-S5-50HA4 HP30 |
| | | | | | | | 6 | 6.91 | 7.2 | 7.66 | 8.04 | 23002871 | SCM-HC2H-M005R01-S6-50HA4 HP30 |
| | | | | | | | 8 | 9 | 9.34 | 9.87 | 10.28 | 23002872 | SCM-HC2H-M005R01-S8-50HA4 HP30 |
| | | | | | | | 10 | 11.09 | 11.47 | 12.04 | 12.5 | 23002873 | SCM-HC2H-M005R01-S10-50HA4 HP30 |
| 0.6 | 4 | 0.55 | 0.9 | 50 | 0.05 | 12 | 2 | 2.67 | 2.83 | 3.1 | 3.35 | 23002885 | SCM-HC2H-M006R005-S2-50HA4 HP30 |
| | | | | | | | 3 | 3.74 | 3.94 | 4.27 | 4.56 | 23002886 | SCM-HC2H-M006R005-S3-50HA4 HP30 |
| | | | | | | | 4 | 4.8 | 5.03 | 5.41 | 5.73 | 23002887 | SCM-HC2H-M006R005-S4-50HA4 HP30 |
| | | | | | | | 5 | 5.85 | 6.12 | 6.54 | 6.89 | 23002888 | SCM-HC2H-M006R005-S5-50HA4 HP30 |
| | | | | | | | 6 | 6.91 | 7.2 | 7.66 | 8.03 | 23002889 | SCM-HC2H-M006R005-S6-50HA4 HP30 |
| | | | | | | | 8 | 9 | 9.34 | 9.86 | 10.28 | 23002890 | SCM-HC2H-M006R005-S8-50HA4 HP30 |
| | | | | | | | 10 | 11.08 | 11.47 | 12.04 | 12.49 | 23002891 | SCM-HC2H-M006R005-S10-50HA4 HP30 |
| | | | | | 0.1 | 12 | 2 | 2.67 | 2.83 | 3.1 | 3.35 | 23002881 | SCM-HC2H-M006R01-S2-50HA4 HP30 |
| | | | | | | | 3 | 3.74 | 3.94 | 4.27 | 4.56 | 23002892 | SCM-HC2H-M006R01-S3-50HA4 HP30 |
| | | | | | | | 4 | 4.8 | 5.03 | 5.41 | 5.73 | 23002882 | SCM-HC2H-M006R01-S4-50HA4 HP30 |
| | | | | | | | 5 | 5.85 | 6.12 | 6.54 | 6.89 | 23002893 | SCM-HC2H-M006R01-S5-50HA4 HP30 |
| | | | | | | | 6 | 6.91 | 7.2 | 7.66 | 8.03 | 23002883 | SCM-HC2H-M006R01-S6-50HA4 HP30 |
| | | | | | | | 8 | 9 | 9.34 | 9.86 | 10.28 | 23002884 | SCM-HC2H-M006R01-S8-50HA4 HP30 |
| | | | | | | | 10 | 11.08 | 11.47 | 12.04 | 12.49 | 23002894 | SCM-HC2H-M006R01-S10-50HA4 HP30 |
| 0.8 | 4 | 0.75 | 1.2 | 50 | 0.05 | 12 | 2 | 2.67 | 2.82 | 3.08 | 3.33 | 23002128 | SCM-HC2H-M008R005-S2-50HA4 HP30 |
| | | | | | | | 3 | 3.73 | 3.93 | 4.25 | 4.54 | 23002899 | SCM-HC2H-M008R005-S3-50HA4 HP30 |
| | | | | | | | 4 | 4.79 | 5.02 | 5.4 | 5.72 | 23002900 | SCM-HC2H-M008R005-S4-50HA4 HP30 |
| | | | | | | | 5 | 5.85 | 6.11 | 6.53 | 6.88 | 23002901 | SCM-HC2H-M008R005-S5-50HA4 HP30 |
| | | | | | | | 6 | 6.9 | 7.19 | 7.64 | 8.02 | 23002902 | SCM-HC2H-M008R005-S6-50HA4 HP30 |

*Continued on next page*

# Performance Hardened Steel Line

## 2-flute Torus cutter (HC2H)

PFERD TOOLS

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | RE [mm] | BHTA2 [°] | LU [mm] | ε 0.5° [mm] | ε 1.0° [mm] | ε 2.0° [mm] | ε 3.0° [mm] | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.8 | 4 | 0.75 | 1.2 | 50 | 0.05 | 12 | 8 | 9 | 9.33 | 9.85 | 10.27 | 23002903 | SCM-HC2H-M008R005-S8-50HA4 HP30 |
| | | | | | | | 10 | 11.08 | 11.46 | 12.03 | 12.48 | 23002904 | SCM-HC2H-M008R005-S10-50HA4 HP30 |
| | | | | | | | 12 | 13.16 | 13.58 | 14.19 | 14.67 | 23002905 | SCM-HC2H-M008R005-S12-50HA4 HP30 |
| | | | | | 0.1 | 12 | 2 | 2.67 | 2.82 | 3.08 | 3.33 | 23002129 | SCM-HC2H-M008R01-S2-50HA4 HP30 |
| | | | | | | | 3 | 3.73 | 3.93 | 4.25 | 4.54 | 23002906 | SCM-HC2H-M008R01-S3-50HA4 HP30 |
| | | | | | | | 4 | 4.79 | 5.02 | 5.4 | 5.72 | 23002907 | SCM-HC2H-M008R01-S4-50HA4 HP30 |
| | | | | | | | 5 | 5.85 | 6.11 | 6.53 | 6.88 | 23002908 | SCM-HC2H-M008R01-S5-50HA4 HP30 |
| | | | | | | | 6 | 6.9 | 7.19 | 7.64 | 8.02 | 23002909 | SCM-HC2H-M008R01-S6-50HA4 HP30 |
| | | | | | | | 8 | 9 | 9.33 | 9.85 | 10.27 | 23002910 | SCM-HC2H-M008R01-S8-50HA4 HP30 |
| | | | | | | | 10 | 11.08 | 11.46 | 12.03 | 12.48 | 23002911 | SCM-HC2H-M008R01-S10-50HA4 HP30 |
| | | | | | | | 12 | 13.16 | 13.58 | 14.19 | 14.67 | 23002912 | SCM-HC2H-M008R01-S12-50HA4 HP30 |
| | | | | | 0.2 | 12 | 2 | 2.67 | 2.82 | 3.08 | 3.33 | 23002127 | SCM-HC2H-M008R02-S2-50HA4 HP30 |
| | | | | | | | 3 | 3.73 | 3.93 | 4.25 | 4.54 | 23002913 | SCM-HC2H-M008R02-S3-50HA4 HP30 |
| | | | | | | | 4 | 4.79 | 5.02 | 5.4 | 5.72 | 23002895 | SCM-HC2H-M008R02-S4-50HA4 HP30 |
| | | | | | | | 5 | 5.85 | 6.11 | 6.53 | 6.88 | 23002914 | SCM-HC2H-M008R02-S5-50HA4 HP30 |
| | | | | | | | 6 | 6.9 | 7.19 | 7.64 | 8.02 | 23002896 | SCM-HC2H-M008R02-S6-50HA4 HP30 |
| | | | | | | | 8 | 9 | 9.33 | 9.85 | 10.27 | 23002897 | SCM-HC2H-M008R02-S8-50HA4 HP30 |
| | | | | | | | 10 | 11.08 | 11.46 | 12.03 | 12.48 | 23002898 | SCM-HC2H-M008R02-S10-50HA4 HP30 |
| | | | | | | | 12 | 13.16 | 13.58 | 14.19 | 14.67 | 23002915 | SCM-HC2H-M008R02-S12-50HA4 HP30 |
| 1 | 4 | 0.95 | 1.5 | 50 | 0.1 | 12 | 2.5 | 2.66 | 2.81 | 3.07 | 3.3 | 23002131 | SCM-HC2H-M010R01-S2-50HA4 HP30 |
| | | | | | | | 4 | 4.79 | 5.01 | 5.39 | 5.7 | 23002925 | SCM-HC2H-M010R01-S4-50HA4 HP30 |
| | | | | | | | 5 | 5.84 | 6.1 | 6.52 | 6.86 | 23002926 | SCM-HC2H-M010R01-S5-50HA4 HP30 |
| | | | | | | | 6 | 6.9 | 7.18 | 7.63 | 8 | 23002927 | SCM-HC2H-M010R01-S6-50HA4 HP30 |
| | | | | | | | 8 | 8.99 | 9.33 | 9.84 | 10.25 | 23002928 | SCM-HC2H-M010R01-S8-50HA4 HP30 |
| | | | | | | | 10 | 11.08 | 11.45 | 12.02 | 12.47 | 23002929 | SCM-HC2H-M010R01-S10-50HA4 HP30 |
| | | | | 60 | 0.1 | 12 | 12 | 13.16 | 13.57 | 14.19 | 14.66 | 23002930 | SCM-HC2H-M010R01-S12-60HA4 HP30 |
| | | | | | | | 14 | 15.23 | 15.68 | 16.33 | 16.84 | 23002931 | SCM-HC2H-M010R01-S14-60HA4 HP30 |
| | | | | | | | 15 | 16.26 | 16.73 | 17.4 | 17.92 | 23002932 | SCM-HC2H-M010R01-S15-60HA4 HP30 |
| | | | | | | | 16 | 17.3 | 17.78 | 18.47 | 18.99 | 23002933 | SCM-HC2H-M010R01-S16-60HA4 HP30 |
| | | | | | | | 18 | 19.36 | 19.87 | 20.6 | 21.14 | 23002934 | SCM-HC2H-M010R01-S18-60HA4 HP30 |
| | | | | | | | 20 | 21.43 | 21.96 | 22.71 | 23.27 | 23002935 | SCM-HC2H-M010R01-S20-60HA4 HP30 |
| | | | | 50 | 0.2 | 12 | 2.5 | 2.66 | 2.81 | 3.07 | 3.3 | 23002130 | SCM-HC2H-M010R02-S2-50HA4 HP30 |
| | | | | | | | 4 | 4.79 | 5.01 | 5.39 | 5.7 | 23002916 | SCM-HC2H-M010R02-S4-50HA4 HP30 |
| | | | | | | | 5 | 5.84 | 6.1 | 6.52 | 6.86 | 23002936 | SCM-HC2H-M010R02-S5-50HA4 HP30 |
| | | | | | | | 6 | 6.9 | 7.18 | 7.63 | 8 | 23002917 | SCM-HC2H-M010R02-S6-50HA4 HP30 |
| | | | | | | | 8 | 8.99 | 9.33 | 9.84 | 10.25 | 23002918 | SCM-HC2H-M010R02-S8-50HA4 HP30 |
| | | | | | | | 10 | 11.08 | 11.45 | 12.02 | 12.47 | 23002919 | SCM-HC2H-M010R02-S10-50HA4 HP30 |
| | | | | 60 | 0.2 | 12 | 12 | 13.16 | 13.57 | 14.19 | 14.66 | 23002920 | SCM-HC2H-M010R02-S12-60HA4 HP30 |
| | | | | | | | 14 | 15.23 | 15.68 | 16.33 | 16.84 | 23002921 | SCM-HC2H-M010R02-S14-60HA4 HP30 |
| | | | | | | | 15 | 16.26 | 16.73 | 17.4 | 17.92 | 23002937 | SCM-HC2H-M010R02-S15-60HA4 HP30 |
| | | | | | | | 16 | 17.3 | 17.78 | 18.47 | 18.99 | 23002922 | SCM-HC2H-M010R02-S16-60HA4 HP30 |
| | | | | | | | 18 | 19.36 | 19.87 | 20.6 | 21.14 | 23002923 | SCM-HC2H-M010R02-S18-60HA4 HP30 |
| | | | | | | | 20 | 21.43 | 21.96 | 22.71 | 23.27 | 23002924 | SCM-HC2H-M010R02-S20-60HA4 HP30 |
| | | | | 50 | 0.3 | 12 | 2.5 | 2.66 | 2.81 | 3.07 | 3.3 | 23002938 | SCM-HC2H-M010R03-S2-50HA4 HP30 |
| | | | | | | | 4 | 4.79 | 5.01 | 5.39 | 5.7 | 23002939 | SCM-HC2H-M010R03-S4-50HA4 HP30 |
| | | | | | | | 5 | 5.84 | 6.1 | 6.52 | 6.86 | 23002940 | SCM-HC2H-M010R03-S5-50HA4 HP30 |
| | | | | | | | 6 | 6.9 | 7.18 | 7.63 | 8 | 23002941 | SCM-HC2H-M010R03-S6-50HA4 HP30 |
| | | | | | | | 8 | 8.99 | 9.33 | 9.84 | 10.25 | 23002942 | SCM-HC2H-M010R03-S8-50HA4 HP30 |
| | | | | | | | 10 | 11.08 | 11.45 | 12.02 | 12.47 | 23002943 | SCM-HC2H-M010R03-S10-50HA4 HP30 |

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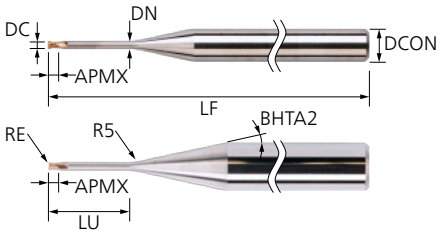
# Performance Hardened Steel Line
## 2-flute Torus cutter (HC2H)

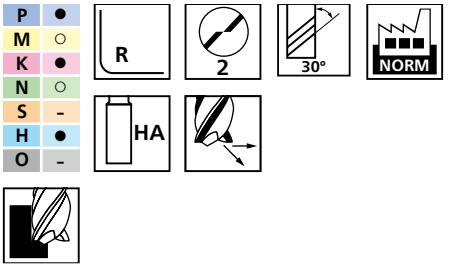
PFERD TOOLS




### Radius corner design with reinforced shank – metric

End mill for roughing and semi-finishing in hardened steels up to 60 HRC. Its special geometry makes it ideal for machining ribs and thin-walled contours.

| | |
|---|---|
| P | ● |
| M | ○ |
| K | ● |
| N | ○ |
| S | - |
| H | ● |
| O | - |




**Special features:**

- Modern tool coating and specially adapted carbide substrate for a long tool life and wear resistance when working on materials that are difficult to machine.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | RE [mm] | BHTA2 [°] | LU [mm] | ε 0.5° [mm] | ε 1.0° [mm] | ε 2.0° [mm] | ε 3.0° [mm] | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4 | 0.95 | 1.5 | 60 | 0.3 | 12 | 12 | 13.16 | 13.57 | 14.19 | 14.66 | 23002944 | SCM-HC2H-M010R03-S12-60HA4 HP30 |
| | | | | | | | 14 | 15.23 | 15.68 | 16.33 | 16.84 | 23002945 | SCM-HC2H-M010R03-S14-60HA4 HP30 |
| | | | | | | | 15 | 16.26 | 16.73 | 17.4 | 17.92 | 23002946 | SCM-HC2H-M010R03-S15-60HA4 HP30 |
| | | | | | | | 16 | 17.3 | 17.78 | 18.47 | 18.99 | 23002947 | SCM-HC2H-M010R03-S16-60HA4 HP30 |
| | | | | | | | 18 | 19.36 | 19.87 | 20.6 | 21.14 | 23002948 | SCM-HC2H-M010R03-S18-60HA4 HP30 |
| | | | | | | | 20 | 21.43 | 21.96 | 22.71 | 23.27 | 23002949 | SCM-HC2H-M010R03-S20-60HA4 HP30 |
| 1.2 | 4 | 1.15 | 1.8 | 50 | 0.1 | 12 | 4 | 4.78 | 5 | 5.37 | 5.68 | 23002132 | SCM-HC2H-M012R01-S4-50HA4 HP30 |
| | | | | | | | 5 | 5.84 | 6.09 | 6.5 | 6.85 | 23002133 | SCM-HC2H-M012R01-S5-50HA4 HP30 |
| | | | | | | | 6 | 6.89 | 7.17 | 7.62 | 7.99 | 23002134 | SCM-HC2H-M012R01-S6-50HA4 HP30 |
| | | | | | | | 8 | 8.99 | 9.32 | 9.83 | 10.24 | 23002135 | SCM-HC2H-M012R01-S8-50HA4 HP30 |
| | | | | | | | 10 | 11.07 | 11.45 | 12.01 | 12.46 | 23002136 | SCM-HC2H-M012R01-S10-50HA4 HP30 |
| | | | | 60 | 0.1 | 12 | 12 | 13.15 | 13.57 | 14.18 | 14.65 | 23002137 | SCM-HC2H-M012R01-S12-60HA4 HP30 |
| | | | | | | | 14 | 15.23 | 15.67 | 16.33 | 16.83 | 23002138 | SCM-HC2H-M012R01-S14-60HA4 HP30 |
| | | | | | | | 15 | 16.26 | 16.72 | 17.4 | 17.91 | 23002139 | SCM-HC2H-M012R01-S15-60HA4 HP30 |
| | | | | | | | 16 | 17.3 | 17.77 | 18.46 | 18.99 | 23002140 | SCM-HC2H-M012R01-S16-60HA4 HP30 |
| | | | | | | | 18 | 19.36 | 19.87 | 20.59 | 21.13 | 23002141 | SCM-HC2H-M012R01-S18-60HA4 HP30 |
| | | | | | | | 20 | 21.42 | 21.95 | 22.71 | 23.27 | 23002142 | SCM-HC2H-M012R01-S20-60HA4 HP30 |
| | | | | 50 | 0.2 | 12 | 4 | 4.78 | 5 | 5.37 | 5.68 | 23002950 | SCM-HC2H-M012R02-S4-50HA4 HP30 |
| | | | | | | | 5 | 5.84 | 6.09 | 6.5 | 6.85 | 23002955 | SCM-HC2H-M012R02-S5-50HA4 HP30 |
| | | | | | | | 6 | 6.89 | 7.17 | 7.62 | 7.99 | 23002956 | SCM-HC2H-M012R02-S6-50HA4 HP30 |
| | | | | | | | 8 | 8.99 | 9.32 | 9.83 | 10.24 | 23002951 | SCM-HC2H-M012R02-S8-50HA4 HP30 |
| | | | | | | | 10 | 11.07 | 11.45 | 12.01 | 12.46 | 23002957 | SCM-HC2H-M012R02-S10-50HA4 HP30 |
| | | | | 60 | 0.2 | 12 | 12 | 13.15 | 13.57 | 14.18 | 14.65 | 23002952 | SCM-HC2H-M012R02-S12-60HA4 HP30 |
| | | | | | | | 14 | 15.23 | 15.67 | 16.33 | 16.83 | 23002958 | SCM-HC2H-M012R02-S14-60HA4 HP30 |
| | | | | | | | 15 | 16.26 | 16.72 | 17.4 | 17.91 | 23002953 | SCM-HC2H-M012R02-S15-60HA4 HP30 |
| | | | | | | | 16 | 17.3 | 17.77 | 18.46 | 18.99 | 23002959 | SCM-HC2H-M012R02-S16-60HA4 HP30 |
| | | | | | | | 18 | 19.36 | 19.87 | 20.59 | 21.13 | 23002960 | SCM-HC2H-M012R02-S18-60HA4 HP30 |
| | | | | | | | 20 | 21.42 | 21.95 | 22.71 | 23.27 | 23002954 | SCM-HC2H-M012R02-S20-60HA4 HP30 |
| | | | | 50 | 0.3 | 12 | 4 | 4.78 | 5 | 5.37 | 5.68 | 23002961 | SCM-HC2H-M012R03-S4-50HA4 HP30 |
| | | | | | | | 5 | 5.84 | 6.09 | 6.5 | 6.85 | 23002962 | SCM-HC2H-M012R03-S5-50HA4 HP30 |
| | | | | | | | 6 | 6.89 | 7.17 | 7.62 | 7.99 | 23002963 | SCM-HC2H-M012R03-S6-50HA4 HP30 |
| | | | | | | | 8 | 8.99 | 9.32 | 9.83 | 10.24 | 23002964 | SCM-HC2H-M012R03-S8-50HA4 HP30 |
| | | | | | | | 10 | 11.07 | 11.45 | 12.01 | 12.46 | 23002965 | SCM-HC2H-M012R03-S10-50HA4 HP30 |
| | | | | 60 | 0.3 | 12 | 12 | 13.15 | 13.57 | 14.18 | 14.65 | 23002966 | SCM-HC2H-M012R03-S12-60HA4 HP30 |
| | | | | | | | 14 | 15.23 | 15.67 | 16.33 | 16.83 | 23002967 | SCM-HC2H-M012R03-S14-60HA4 HP30 |
| | | | | | | | 15 | 16.26 | 16.72 | 17.4 | 17.91 | 23002968 | SCM-HC2H-M012R03-S15-60HA4 HP30 |
| | | | | | | | 16 | 17.3 | 17.77 | 18.46 | 18.99 | 23002969 | SCM-HC2H-M012R03-S16-60HA4 HP30 |

*Continued on next page*

# Performance Hardened Steel Line

## 2-flute Torus cutter (HC2H)

PFERD TOOLS

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | RE [mm] | BHTA2 [°] | LU [mm] | ε 0.5° [mm] | ε 1.0° [mm] | ε 2.0° [mm] | ε 3.0° [mm] | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.2 | 4 | 1.15 | 1.8 | 60 | 0.3 | 12 | 18 | 19.36 | 19.87 | 20.59 | 21.13 | 23002970 | SCM-HC2H-M012R03-S18-60HA4 HP30 |
| | | | | | | | 20 | 21.42 | 21.95 | 22.71 | 23.27 | 23002971 | SCM-HC2H-M012R03-S20-60HA4 HP30 |
| 1.5 | 4 | 1.45 | 2.25 | 50 | 0.1 | 12 | 4 | 4.77 | 4.99 | 5.35 | 5.66 | 23002143 | SCM-HC2H-M015R01-S4-50HA4 HP30 |
| | | | | | | | 5 | 5.83 | 6.08 | 6.49 | 6.82 | 23002144 | SCM-HC2H-M015R01-S5-50HA4 HP30 |
| | | | | | | | 6 | 6.88 | 7.16 | 7.61 | 7.97 | 23002145 | SCM-HC2H-M015R01-S6-50HA4 HP30 |
| | | | | | | | 8 | 8.98 | 9.31 | 9.82 | 10.23 | 23002146 | SCM-HC2H-M015R01-S8-50HA4 HP30 |
| | | | | | | | 10 | 11.07 | 11.44 | 12 | 12.45 | 23002147 | SCM-HC2H-M015R01-S10-50HA4 HP30 |
| | | | | 60 | 0.1 | 12 | 12 | 13.15 | 13.56 | 14.17 | 14.64 | 23002148 | SCM-HC2H-M015R01-S12-60HA4 HP30 |
| | | | | | | | 14 | 15.22 | 15.67 | 16.32 | 16.82 | 23002149 | SCM-HC2H-M015R01-S14-60HA4 HP30 |
| | | | | | | | 15 | 16.26 | 16.72 | 17.39 | 17.9 | 23002150 | SCM-HC2H-M015R01-S15-60HA4 HP30 |
| | | | | | | | 16 | 17.29 | 17.77 | 18.45 | 18.97 | 23002151 | SCM-HC2H-M015R01-S16-60HA4 HP30 |
| | | | | | | | 18 | 19.36 | 19.86 | 20.58 | 21.12 | 23002152 | SCM-HC2H-M015R01-S18-60HA4 HP30 |
| | | | | | | | 20 | 21.42 | 21.95 | 22.7 | 23.26 | 23002153 | SCM-HC2H-M015R01-S20-60HA4 HP30 |
| | | | | | | | 22 | 23.48 | 24.03 | 24.81 | 25.38 | 23002154 | SCM-HC2H-M015R01-S22-60HA4 HP30 |
| | | | | | | | 24 | 25.53 | 26.11 | 26.92 | 27.5 | 23002155 | SCM-HC2H-M015R01-S24-60HA4 HP30 |
| | | | | | | | 25 | 26.56 | 27.15 | 27.97 | 28.55 | 23002156 | SCM-HC2H-M015R01-S25-60HA4 HP30 |
| | | | | 50 | 0.2 | 12 | 4 | 4.77 | 4.99 | 5.35 | 5.66 | 23002975 | SCM-HC2H-M015R02-S4-50HA4 HP30 |
| | | | | | | | 5 | 5.83 | 6.08 | 6.49 | 6.82 | 23002976 | SCM-HC2H-M015R02-S5-50HA4 HP30 |
| | | | | | | | 6 | 6.88 | 7.16 | 7.61 | 7.97 | 23002977 | SCM-HC2H-M015R02-S6-50HA4 HP30 |
| | | | | | | | 8 | 8.98 | 9.31 | 9.82 | 10.23 | 23002978 | SCM-HC2H-M015R02-S8-50HA4 HP30 |
| | | | | | | | 10 | 11.07 | 11.44 | 12 | 12.45 | 23002979 | SCM-HC2H-M015R02-S10-50HA4 HP30 |
| | | | | 60 | 0.2 | 12 | 12 | 13.15 | 13.56 | 14.17 | 14.64 | 23002972 | SCM-HC2H-M015R02-S12-60HA4 HP30 |
| | | | | | | | 14 | 15.22 | 15.67 | 16.32 | 16.82 | 23002980 | SCM-HC2H-M015R02-S14-60HA4 HP30 |
| | | | | | | | 15 | 16.26 | 16.72 | 17.39 | 17.9 | 23002973 | SCM-HC2H-M015R02-S15-60HA4 HP30 |
| | | | | | | | 16 | 17.29 | 17.77 | 18.45 | 18.97 | 23002981 | SCM-HC2H-M015R02-S16-60HA4 HP30 |
| | | | | | | | 18 | 19.36 | 19.86 | 20.58 | 21.12 | 23002982 | SCM-HC2H-M015R02-S18-60HA4 HP30 |
| | | | | | | | 20 | 21.42 | 21.95 | 22.7 | 23.26 | 23002974 | SCM-HC2H-M015R02-S20-60HA4 HP30 |
| | | | | | | | 22 | 23.48 | 24.03 | 24.81 | 25.38 | 23002983 | SCM-HC2H-M015R02-S22-60HA4 HP30 |
| | | | | | | | 24 | 25.53 | 26.11 | 26.92 | 27.5 | 23002984 | SCM-HC2H-M015R02-S24-60HA4 HP30 |
| | | | | | | | 25 | 26.56 | 27.15 | 27.97 | 28.55 | 23002985 | SCM-HC2H-M015R02-S25-60HA4 HP30 |
| | | | | 50 | 0.3 | 12 | 4 | 4.77 | 4.99 | 5.35 | 5.66 | 23002986 | SCM-HC2H-M015R03-S4-50HA4 HP30 |
| | | | | | | | 5 | 5.83 | 6.08 | 6.49 | 6.82 | 23002987 | SCM-HC2H-M015R03-S5-50HA4 HP30 |
| | | | | | | | 6 | 6.88 | 7.16 | 7.61 | 7.97 | 23002988 | SCM-HC2H-M015R03-S6-50HA4 HP30 |
| | | | | | | | 8 | 8.98 | 9.31 | 9.82 | 10.23 | 23002989 | SCM-HC2H-M015R03-S8-50HA4 HP30 |
| | | | | | | | 10 | 11.07 | 11.44 | 12 | 12.45 | 23002990 | SCM-HC2H-M015R03-S10-50HA4 HP30 |
| | | | | 60 | 0.3 | 12 | 12 | 13.15 | 13.56 | 14.17 | 14.64 | 23002991 | SCM-HC2H-M015R03-S12-60HA4 HP30 |
| | | | | | | | 14 | 15.22 | 15.67 | 16.32 | 16.82 | 23002992 | SCM-HC2H-M015R03-S14-60HA4 HP30 |
| | | | | | | | 15 | 16.26 | 16.72 | 17.39 | 17.9 | 23002993 | SCM-HC2H-M015R03-S15-60HA4 HP30 |
| | | | | | | | 16 | 17.29 | 17.77 | 18.45 | 18.97 | 23002994 | SCM-HC2H-M015R03-S16-60HA4 HP30 |
| | | | | | | | 18 | 19.36 | 19.86 | 20.58 | 21.12 | 23002995 | SCM-HC2H-M015R03-S18-60HA4 HP30 |
| | | | | | | | 20 | 21.42 | 21.95 | 22.7 | 23.26 | 23002996 | SCM-HC2H-M015R03-S20-60HA4 HP30 |
| | | | | | | | 22 | 23.48 | 24.03 | 24.81 | 25.38 | 23002997 | SCM-HC2H-M015R03-S22-60HA4 HP30 |
| | | | | | | | 24 | 25.53 | 26.11 | 26.92 | 27.5 | 23002998 | SCM-HC2H-M015R03-S24-60HA4 HP30 |
| | | | | | | | 25 | 26.56 | 27.15 | 27.97 | 28.55 | 23002999 | SCM-HC2H-M015R03-S25-60HA4 HP30 |
| | | | | 50 | 0.5 | 12 | 4 | 4.77 | 4.99 | 5.35 | 5.66 | 23003079 | SCM-HC2H-M015R05-S4-50HA4 HP30 |
| | | | | | | | 5 | 5.83 | 6.08 | 6.49 | 6.82 | 23003080 | SCM-HC2H-M015R05-S5-50HA4 HP30 |
| | | | | | | | 6 | 6.88 | 7.16 | 7.61 | 7.97 | 23003081 | SCM-HC2H-M015R05-S6-50HA4 HP30 |
| | | | | | | | 8 | 8.98 | 9.31 | 9.82 | 10.23 | 23003082 | SCM-HC2H-M015R05-S8-50HA4 HP30 |
| | | | | | | | 10 | 11.07 | 11.44 | 12 | 12.45 | 23003083 | SCM-HC2H-M015R05-S10-50HA4 HP30 |

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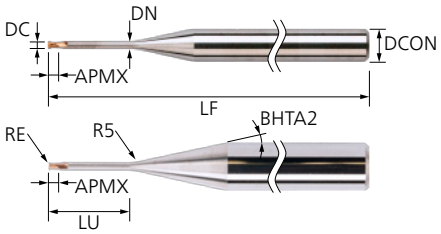
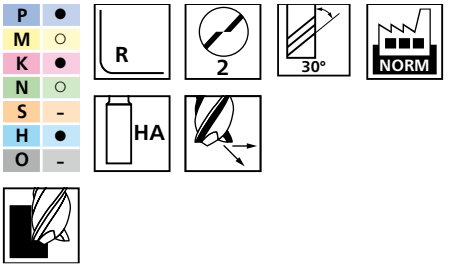
# Performance Hardened Steel Line
## 2-flute Torus cutter (HC2H)

PFERD TOOLS




### Radius corner design with reinforced shank – metric

End mill for roughing and semi-finishing in hardened steels up to 60 HRC. Its special geometry makes it ideal for machining ribs and thin-walled contours.




**Special features:**

- Modern tool coating and specially adapted carbide substrate for a long tool life and wear resistance when working on materials that are difficult to machine.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | RE [mm] | BHTA2 [°] | LU [mm] | ε 0.5° [mm] | ε 1.0° [mm] | ε 2.0° [mm] | ε 3.0° [mm] | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | 4 | 1.45 | 2.25 | 60 | 0.5 | 12 | 12 | 13.15 | 13.56 | 14.17 | 14.64 | 23003084 | SCM-HC2H-M015R05-S12-60HA4 HP30 |
| | | | | | | | 14 | 15.22 | 15.67 | 16.32 | 16.82 | 23003085 | SCM-HC2H-M015R05-S14-60HA4 HP30 |
| | | | | | | | 15 | 16.26 | 16.72 | 17.39 | 17.9 | 23003086 | SCM-HC2H-M015R05-S15-60HA4 HP30 |
| | | | | | | | 16 | 17.29 | 17.77 | 18.45 | 18.97 | 23003087 | SCM-HC2H-M015R05-S16-60HA4 HP30 |
| | | | | | | | 18 | 19.36 | 19.86 | 20.58 | 21.12 | 23003088 | SCM-HC2H-M015R05-S18-60HA4 HP30 |
| | | | | | | | 20 | 21.42 | 21.95 | 22.7 | 23.26 | 23003089 | SCM-HC2H-M015R05-S20-60HA4 HP30 |
| | | | | | | | 22 | 23.48 | 24.03 | 24.81 | 25.38 | 23003090 | SCM-HC2H-M015R05-S22-60HA4 HP30 |
| | | | | | | | 24 | 25.53 | 26.11 | 26.92 | 27.5 | 23003091 | SCM-HC2H-M015R05-S24-60HA4 HP30 |
| | | | | | | | 25 | 26.56 | 27.15 | 27.97 | 28.55 | 23003092 | SCM-HC2H-M015R05-S25-60HA4 HP30 |
| 2 | 4 | 1.9 | 3 | 50 | 0.1 | 12 | 4 | 4.91 | 5.1 | 5.42 | 5.7 | 23002158 | SCM-HC2H-M020R01-S4-50HA4 HP30 |
| | | | | | | | 5 | 5.96 | 6.18 | 6.54 | 6.86 | 23002159 | SCM-HC2H-M020R01-S5-50HA4 HP30 |
| | | | | | | | 6 | 7.01 | 7.25 | 7.66 | 8 | 23002160 | SCM-HC2H-M020R01-S6-50HA4 HP30 |
| | | | | | | | 8 | 9.09 | 9.39 | 9.86 | 10.25 | 23002161 | SCM-HC2H-M020R01-S8-50HA4 HP30 |
| | | | | | | | 10 | 11.17 | 11.51 | 12.04 | 12.47 | 23002162 | SCM-HC2H-M020R01-S10-50HA4 HP30 |
| | | | | 60 | 0.1 | 12 | 12 | 13.24 | 13.62 | 14.2 | 14.66 | 23002163 | SCM-HC2H-M020R01-S12-60HA4 HP30 |
| | | | | | | | 14 | 15.31 | 15.73 | 16.35 | 16.83 | 23002164 | SCM-HC2H-M020R01-S14-60HA4 HP30 |
| | | | | | | | 15 | 16.34 | 16.77 | 17.42 | 17.92 | 23002165 | SCM-HC2H-M020R01-S15-60HA4 HP30 |
| | | | | | | | 16 | 17.38 | 17.82 | 18.48 | 18.99 | 23002166 | SCM-HC2H-M020R01-S16-60HA4 HP30 |
| | | | | | | | 18 | 19.44 | 19.91 | 20.61 | 21.14 | 23002167 | SCM-HC2H-M020R01-S18-60HA4 HP30 |
| | | | | | | | 20 | 21.5 | 22 | 22.73 | 23.27 | 23002168 | SCM-HC2H-M020R01-S20-60HA4 HP30 |
| | | | | | | | 22 | 23.55 | 24.08 | 24.84 | 25.4 | 23002169 | SCM-HC2H-M020R01-S22-60HA4 HP30 |
| | | | | | | | 24 | 25.61 | 26.16 | 26.94 | 27.51 | 23002170 | SCM-HC2H-M020R01-S24-60HA4 HP30 |
| | | | | | | | 25 | 26.63 | 27.19 | 27.99 | 28.57 | 23002171 | SCM-HC2H-M020R01-S25-60HA4 HP30 |
| | | | | 50 | 0.2 | 12 | 4 | 4.91 | 5.1 | 5.42 | 5.7 | 23002157 | SCM-HC2H-M020R02-S4-50HA4 HP30 |
| | | | | | | | 5 | 5.96 | 6.18 | 6.54 | 6.86 | 23003102 | SCM-HC2H-M020R02-S5-50HA4 HP30 |
| | | | | | | | 6 | 7.01 | 7.25 | 7.66 | 8 | 23003103 | SCM-HC2H-M020R02-S6-50HA4 HP30 |
| | | | | | | | 8 | 9.09 | 9.39 | 9.86 | 10.25 | 23003094 | SCM-HC2H-M020R02-S8-50HA4 HP30 |
| | | | | | | | 10 | 11.17 | 11.51 | 12.04 | 12.47 | 23003104 | SCM-HC2H-M020R02-S10-50HA4 HP30 |
| | | | | 60 | 0.2 | 12 | 12 | 13.24 | 13.62 | 14.2 | 14.66 | 23003096 | SCM-HC2H-M020R02-S12-60HA4 HP30 |
| | | | | | | | 14 | 15.31 | 15.73 | 16.35 | 16.83 | 23003105 | SCM-HC2H-M020R02-S14-60HA4 HP30 |
| | | | | | | | 15 | 16.34 | 16.77 | 17.42 | 17.92 | 23003106 | SCM-HC2H-M020R02-S15-60HA4 HP30 |
| | | | | | | | 16 | 17.38 | 17.82 | 18.48 | 18.99 | 23003098 | SCM-HC2H-M020R02-S16-60HA4 HP30 |
| | | | | | | | 18 | 19.44 | 19.91 | 20.61 | 21.14 | 23003107 | SCM-HC2H-M020R02-S18-60HA4 HP30 |
| | | | | | | | 20 | 21.5 | 22 | 22.73 | 23.27 | 23003100 | SCM-HC2H-M020R02-S20-60HA4 HP30 |
| | | | | | | | 22 | 23.55 | 24.08 | 24.84 | 25.4 | 23003108 | SCM-HC2H-M020R02-S22-60HA4 HP30 |
| | | | | | | | 24 | 25.61 | 26.16 | 26.94 | 27.51 | 23003109 | SCM-HC2H-M020R02-S24-60HA4 HP30 |
| | | | | | | | 25 | 26.63 | 27.19 | 27.99 | 28.57 | 23003110 | SCM-HC2H-M020R02-S25-60HA4 HP30 |

*Continued on next page*

# Performance Hardened Steel Line

## 2-flute Torus cutter (HC2H)

PFERD TOOLS

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | RE [mm] | BHTA2 [°] | LU [mm] | ε 0.5° [mm] | ε 1.0° [mm] | ε 2.0° [mm] | ε 3.0° [mm] | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 4 | 1.9 | 3 | 50 | 0.3 | 12 | 4 | 4.91 | 5.1 | 5.42 | 5.7 | 23002172 | SCM-HC2H-M020R03-S4-50HA4 HP30 |
| | | | | | | | 5 | 5.96 | 6.18 | 6.54 | 6.86 | 23003111 | SCM-HC2H-M020R03-S5-50HA4 HP30 |
| | | | | | | | 6 | 7.01 | 7.25 | 7.66 | 8 | 23003112 | SCM-HC2H-M020R03-S6-50HA4 HP30 |
| | | | | | | | 8 | 9.09 | 9.39 | 9.86 | 10.25 | 23003113 | SCM-HC2H-M020R03-S8-50HA4 HP30 |
| | | | | | | | 10 | 11.17 | 11.51 | 12.04 | 12.47 | 23003114 | SCM-HC2H-M020R03-S10-50HA4 HP30 |
| | | | | 60 | 0.3 | 12 | 12 | 13.24 | 13.62 | 14.2 | 14.66 | 23003115 | SCM-HC2H-M020R03-S12-60HA4 HP30 |
| | | | | | | | 14 | 15.31 | 15.73 | 16.35 | 16.83 | 23003116 | SCM-HC2H-M020R03-S14-60HA4 HP30 |
| | | | | | | | 15 | 16.34 | 16.77 | 17.42 | 17.92 | 23003117 | SCM-HC2H-M020R03-S15-60HA4 HP30 |
| | | | | | | | 16 | 17.38 | 17.82 | 18.48 | 18.99 | 23003118 | SCM-HC2H-M020R03-S16-60HA4 HP30 |
| | | | | | | | 18 | 19.44 | 19.91 | 20.61 | 21.14 | 23003119 | SCM-HC2H-M020R03-S18-60HA4 HP30 |
| | | | | | | | 20 | 21.5 | 22 | 22.73 | 23.27 | 23003120 | SCM-HC2H-M020R03-S20-60HA4 HP30 |
| | | | | | | | 22 | 23.55 | 24.08 | 24.84 | 25.4 | 23003121 | SCM-HC2H-M020R03-S22-60HA4 HP30 |
| | | | | | | | 24 | 25.61 | 26.16 | 26.94 | 27.51 | 23003122 | SCM-HC2H-M020R03-S24-60HA4 HP30 |
| | | | | | | | 25 | 26.63 | 27.19 | 27.99 | 28.57 | 23003123 | SCM-HC2H-M020R03-S25-60HA4 HP30 |
| | | | | 50 | 0.5 | 12 | 4 | 4.91 | 5.1 | 5.42 | 5.7 | 23003093 | SCM-HC2H-M020R05-S4-50HA4 HP30 |
| | | | | | | | 5 | 5.96 | 6.18 | 6.54 | 6.86 | 23003124 | SCM-HC2H-M020R05-S5-50HA4 HP30 |
| | | | | | | | 6 | 7.01 | 7.25 | 7.66 | 8 | 23003125 | SCM-HC2H-M020R05-S6-50HA4 HP30 |
| | | | | | | | 8 | 9.09 | 9.39 | 9.86 | 10.25 | 23003095 | SCM-HC2H-M020R05-S8-50HA4 HP30 |
| | | | | | | | 10 | 11.17 | 11.51 | 12.04 | 12.47 | 23003126 | SCM-HC2H-M020R05-S10-50HA4 HP30 |
| | | | | 60 | 0.5 | 12 | 12 | 13.24 | 13.62 | 14.2 | 14.66 | 23003097 | SCM-HC2H-M020R05-S12-60HA4 HP30 |
| | | | | | | | 14 | 15.31 | 15.73 | 16.35 | 16.83 | 23003127 | SCM-HC2H-M020R05-S14-60HA4 HP30 |
| | | | | | | | 15 | 16.34 | 16.77 | 17.42 | 17.92 | 23003128 | SCM-HC2H-M020R05-S15-60HA4 HP30 |
| | | | | | | | 16 | 17.38 | 17.82 | 18.48 | 18.99 | 23003099 | SCM-HC2H-M020R05-S16-60HA4 HP30 |
| | | | | | | | 18 | 19.44 | 19.91 | 20.61 | 21.14 | 23003129 | SCM-HC2H-M020R05-S18-60HA4 HP30 |
| | | | | | | | 20 | 21.5 | 22 | 22.73 | 23.27 | 23003101 | SCM-HC2H-M020R05-S20-60HA4 HP30 |
| | | | | | | | 22 | 23.55 | 24.08 | 24.84 | 25.4 | 23003130 | SCM-HC2H-M020R05-S22-60HA4 HP30 |
| | | | | | | | 24 | 25.61 | 26.16 | 26.94 | 27.51 | 23003131 | SCM-HC2H-M020R05-S24-60HA4 HP30 |
| | | | | | | | 25 | 26.63 | 27.19 | 27.99 | 28.57 | 23003132 | SCM-HC2H-M020R05-S25-60HA4 HP30 |
| 2.5 | 4 | 2.4 | 3.75 | 60 | 0.1 | 12 | 6 | 7 | 7.23 | 7.63 | 7.97 | 23002177 | SCM-HC2H-M025R01-S6-60HA4 HP30 |
| | | | | | | | 8 | 9.08 | 9.37 | 9.84 | 10.22 | 23002178 | SCM-HC2H-M025R01-S8-60HA4 HP30 |
| | | | | | | | 10 | 11.16 | 11.5 | 12.02 | 12.44 | 23002179 | SCM-HC2H-M025R01-S10-60HA4 HP30 |
| | | | | | | | 12 | 13.23 | 13.61 | 14.18 | 14.64 | 23002180 | SCM-HC2H-M025R01-S12-60HA4 HP30 |
| | | | | | | | 14 | 15.3 | 15.71 | 16.33 | 16.81 | 23002181 | SCM-HC2H-M025R01-S14-60HA4 HP30 |
| | | | | | | | 15 | 16.34 | 16.76 | 17.4 | 17.9 | 23002182 | SCM-HC2H-M025R01-S15-60HA4 HP30 |
| | | | | | | | 16 | 17.37 | 17.81 | 18.47 | 18.97 | 23002183 | SCM-HC2H-M025R01-S16-60HA4 HP30 |
| | | | | | | | 18 | 19.43 | 19.9 | 20.6 | 21.12 | 23002184 | SCM-HC2H-M025R01-S18-60HA4 HP30 |
| | | | | | | | 20 | 21.49 | 21.99 | 22.71 | 23.26 | 23002185 | SCM-HC2H-M025R01-S20-60HA4 HP30 |
| | | | | | | | 22 | 23.54 | 24.07 | 24.82 | 25.38 | 23002186 | SCM-HC2H-M025R01-S22-60HA4 HP30 |
| | | | | | | | 24 | 25.6 | 26.15 | 26.93 | 27.5 | 23002187 | SCM-HC2H-M025R01-S24-60HA4 HP30 |
| | | | | | | | 25 | 26.63 | 27.19 | 27.98 | 28.55 | 23002188 | SCM-HC2H-M025R01-S25-60HA4 HP30 |
| | | | | | 0.2 | 12 | 6 | 7 | 7.23 | 7.63 | 7.97 | 23002189 | SCM-HC2H-M025R02-S6-60HA4 HP30 |
| | | | | | | | 8 | 9.08 | 9.37 | 9.84 | 10.22 | 23002173 | SCM-HC2H-M025R02-S8-60HA4 HP30 |
| | | | | | | | 10 | 11.16 | 11.5 | 12.02 | 12.44 | 23002190 | SCM-HC2H-M025R02-S10-60HA4 HP30 |
| | | | | | | | 12 | 13.23 | 13.61 | 14.18 | 14.64 | 23002174 | SCM-HC2H-M025R02-S12-60HA4 HP30 |
| | | | | | | | 14 | 15.3 | 15.71 | 16.33 | 16.81 | 23002191 | SCM-HC2H-M025R02-S14-60HA4 HP30 |
| | | | | | | | 15 | 16.34 | 16.76 | 17.4 | 17.9 | 23002192 | SCM-HC2H-M025R02-S15-60HA4 HP30 |
| | | | | | | | 16 | 17.37 | 17.81 | 18.47 | 18.97 | 23002175 | SCM-HC2H-M025R02-S16-60HA4 HP30 |
| | | | | | | | 18 | 19.43 | 19.9 | 20.6 | 21.12 | 23002193 | SCM-HC2H-M025R02-S18-60HA4 HP30 |
| | | | | | | | 20 | 21.49 | 21.99 | 22.71 | 23.26 | 23002176 | SCM-HC2H-M025R02-S20-60HA4 HP30 |

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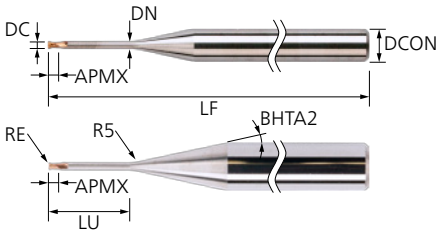
# Performance Hardened Steel Line
## 2-flute Torus cutter (HC2H)

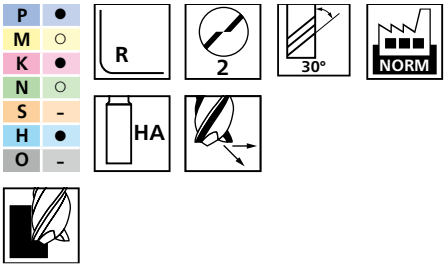
PFERD TOOLS




### Radius corner design with reinforced shank – metric

End mill for roughing and semi-finishing in hardened steels up to 60 HRC. Its special geometry makes it ideal for machining ribs and thin-walled contours.

| | |
|---|---|
| P | ● |
| M | ○ |
| K | ● |
| N | ○ |
| S | - |
| H | ● |
| O | - |




**Special features:**

- Modern tool coating and specially adapted carbide substrate for a long tool life and wear resistance when working on materials that are difficult to machine.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | RE [mm] | BHTA2 [°] | LU [mm] | ε 0.5° [mm] | ε 1.0° [mm] | ε 2.0° [mm] | ε 3.0° [mm] | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.5 | 4 | 2.4 | 3.75 | 60 | 0.2 | 12 | 22 | 23.54 | 24.07 | 24.82 | 25.38 | 23002194 | SCM-HC2H-M025R02-S22-60HA4 HP30 |
| | | | | | | | 24 | 25.6 | 26.15 | 26.93 | 27.5 | 23002195 | SCM-HC2H-M025R02-S24-60HA4 HP30 |
| | | | | | | | 25 | 26.63 | 27.19 | 27.98 | 28.55 | 23002196 | SCM-HC2H-M025R02-S25-60HA4 HP30 |
| | | | | | 0.3 | 12 | 6 | 7 | 7.23 | 7.63 | 7.97 | 23003137 | SCM-HC2H-M025R03-S6-60HA4 HP30 |
| | | | | | | | 8 | 9.08 | 9.37 | 9.84 | 10.22 | 23003138 | SCM-HC2H-M025R03-S8-60HA4 HP30 |
| | | | | | | | 10 | 11.16 | 11.5 | 12.02 | 12.44 | 23003139 | SCM-HC2H-M025R03-S10-60HA4 HP30 |
| | | | | | | | 12 | 13.23 | 13.61 | 14.18 | 14.64 | 23003140 | SCM-HC2H-M025R03-S12-60HA4 HP30 |
| | | | | | | | 14 | 15.3 | 15.71 | 16.33 | 16.81 | 23003141 | SCM-HC2H-M025R03-S14-60HA4 HP30 |
| | | | | | | | 15 | 16.34 | 16.76 | 17.4 | 17.9 | 23003142 | SCM-HC2H-M025R03-S15-60HA4 HP30 |
| | | | | | | | 16 | 17.37 | 17.81 | 18.47 | 18.97 | 23003143 | SCM-HC2H-M025R03-S16-60HA4 HP30 |
| | | | | | | | 18 | 19.43 | 19.9 | 20.6 | 21.12 | 23003144 | SCM-HC2H-M025R03-S18-60HA4 HP30 |
| | | | | | | | 20 | 21.49 | 21.99 | 22.71 | 23.26 | 23003145 | SCM-HC2H-M025R03-S20-60HA4 HP30 |
| | | | | | | | 22 | 23.54 | 24.07 | 24.82 | 25.38 | 23003146 | SCM-HC2H-M025R03-S22-60HA4 HP30 |
| | | | | | | | 24 | 25.6 | 26.15 | 26.93 | 27.5 | 23003147 | SCM-HC2H-M025R03-S24-60HA4 HP30 |
| | | | | | | | 25 | 26.63 | 27.19 | 27.98 | 28.55 | 23003148 | SCM-HC2H-M025R03-S25-60HA4 HP30 |
| | | | | | 0.5 | 12 | 6 | 7 | 7.23 | 7.63 | 7.97 | 23003149 | SCM-HC2H-M025R05-S6-60HA4 HP30 |
| | | | | | | | 8 | 9.08 | 9.37 | 9.84 | 10.22 | 23003133 | SCM-HC2H-M025R05-S8-60HA4 HP30 |
| | | | | | | | 10 | 11.16 | 11.5 | 12.02 | 12.44 | 23003150 | SCM-HC2H-M025R05-S10-60HA4 HP30 |
| | | | | | | | 12 | 13.23 | 13.61 | 14.18 | 14.64 | 23003134 | SCM-HC2H-M025R05-S12-60HA4 HP30 |
| | | | | | | | 14 | 15.3 | 15.71 | 16.33 | 16.81 | 23003151 | SCM-HC2H-M025R05-S14-60HA4 HP30 |
| | | | | | | | 15 | 16.34 | 16.76 | 17.4 | 17.9 | 23003152 | SCM-HC2H-M025R05-S15-60HA4 HP30 |
| | | | | | | | 16 | 17.37 | 17.81 | 18.47 | 18.97 | 23003135 | SCM-HC2H-M025R05-S16-60HA4 HP30 |
| | | | | | | | 18 | 19.43 | 19.9 | 20.6 | 21.12 | 23003153 | SCM-HC2H-M025R05-S18-60HA4 HP30 |
| | | | | | | | 20 | 21.49 | 21.99 | 22.71 | 23.26 | 23003136 | SCM-HC2H-M025R05-S20-60HA4 HP30 |
| | | | | | | | 22 | 23.54 | 24.07 | 24.82 | 25.38 | 23003154 | SCM-HC2H-M025R05-S22-60HA4 HP30 |
| | | | | | | | 24 | 25.6 | 26.15 | 26.93 | 27.5 | 23003155 | SCM-HC2H-M025R05-S24-60HA4 HP30 |
| | | | | | | | 25 | 26.63 | 27.19 | 27.98 | 28.55 | 23003156 | SCM-HC2H-M025R05-S25-60HA4 HP30 |
| | | | | | 1 | 12 | 6 | 7 | 7.23 | 7.63 | 7.97 | 23003157 | SCM-HC2H-M025R10-S6-60HA4 HP30 |
| | | | | | | | 8 | 9.08 | 9.37 | 9.84 | 10.22 | 23003158 | SCM-HC2H-M025R10-S8-60HA4 HP30 |
| | | | | | | | 10 | 11.16 | 11.5 | 12.02 | 12.44 | 23003159 | SCM-HC2H-M025R10-S10-60HA4 HP30 |
| | | | | | | | 12 | 13.23 | 13.61 | 14.18 | 14.64 | 23003160 | SCM-HC2H-M025R10-S12-60HA4 HP30 |
| | | | | | | | 14 | 15.3 | 15.71 | 16.33 | 16.81 | 23003161 | SCM-HC2H-M025R10-S14-60HA4 HP30 |
| | | | | | | | 15 | 16.34 | 16.76 | 17.4 | 17.9 | 23003162 | SCM-HC2H-M025R10-S15-60HA4 HP30 |
| | | | | | | | 16 | 17.37 | 17.81 | 18.47 | 18.97 | 23003163 | SCM-HC2H-M025R10-S16-60HA4 HP30 |
| | | | | | | | 18 | 19.43 | 19.9 | 20.6 | 21.12 | 23003164 | SCM-HC2H-M025R10-S18-60HA4 HP30 |
| | | | | | | | 20 | 21.49 | 21.99 | 22.71 | 23.26 | 23003165 | SCM-HC2H-M025R10-S20-60HA4 HP30 |
| | | | | | | | 22 | 23.54 | 24.07 | 24.82 | 25.38 | 23003166 | SCM-HC2H-M025R10-S22-60HA4 HP30 |

*Continued on next page*

# Performance Hardened Steel Line

## 2-flute Torus cutter (HC2H)

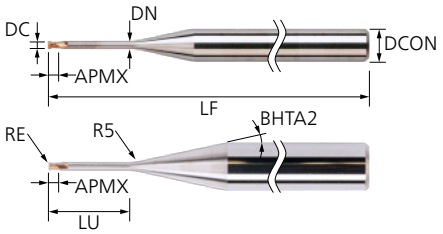
PFERD TOOLS

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | RE [mm] | BHTA2 [°] | LU [mm] | ε 0.5° [mm] | ε 1.0° [mm] | ε 2.0° [mm] | ε 3.0° [mm] | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.5 | 4 | 2.4 | 3.75 | 60 | 1 | 12 | 24 | 25.6 | 26.15 | 26.93 | 27.5 | 23003167 | SCM-HC2H-M025R10-S24-60HA4 HP30 |
| | | | | | | | 25 | 26.63 | 27.19 | 27.98 | 28.55 | 23003168 | SCM-HC2H-M025R10-S25-60HA4 HP30 |
| 0.5 | 6 | 0.45 | 0.75 | 50 | 0.05 | 12 | 1.2 | 1.61 | 1.71 | 1.91 | 2.1 | 23002011 | SCM-HC2H-M005R005-S1-50HA6 HP30 |
| | | | | | | | 2 | 2.68 | 2.83 | 3.11 | 3.36 | 23002562 | SCM-HC2H-M005R005-S2-50HA6 HP30 |
| | | | | | | | 3 | 3.74 | 3.94 | 4.28 | 4.57 | 23002563 | SCM-HC2H-M005R005-S3-50HA6 HP30 |
| | | | | | | | 4 | 4.8 | 5.04 | 5.42 | 5.74 | 23002564 | SCM-HC2H-M005R005-S4-50HA6 HP30 |
| | | | | | | | 5 | 5.86 | 6.12 | 6.55 | 6.9 | 23002565 | SCM-HC2H-M005R005-S5-50HA6 HP30 |
| | | | | | | | 6 | 6.91 | 7.2 | 7.66 | 8.04 | 23002566 | SCM-HC2H-M005R005-S6-50HA6 HP30 |
| | | | | | | 15 | 8 | 9 | 9.34 | 9.87 | 10.28 | 23002567 | SCM-HC2H-M005R005-S8-50HA6 HP30 |
| | | | | | | | 10 | 11.09 | 11.47 | 12.04 | 12.5 | 23002568 | SCM-HC2H-M005R005-S10-50HA6 HP30 |
| | | | | | 0.1 | 12 | 1.2 | 1.61 | 1.71 | 1.91 | 2.1 | 23002010 | SCM-HC2H-M005R01-S1-50HA6 HP30 |
| | | | | | | | 2 | 2.68 | 2.83 | 3.11 | 3.36 | 23002557 | SCM-HC2H-M005R01-S2-50HA6 HP30 |
| | | | | | | | 3 | 3.74 | 3.94 | 4.28 | 4.57 | 23002558 | SCM-HC2H-M005R01-S3-50HA6 HP30 |
| | | | | | | | 4 | 4.8 | 5.04 | 5.42 | 5.74 | 23002559 | SCM-HC2H-M005R01-S4-50HA6 HP30 |
| | | | | | | | 5 | 5.86 | 6.12 | 6.55 | 6.9 | 23002560 | SCM-HC2H-M005R01-S5-50HA6 HP30 |
| | | | | | | | 6 | 6.91 | 7.2 | 7.66 | 8.04 | 23002561 | SCM-HC2H-M005R01-S6-50HA6 HP30 |
| | | | | | | 15 | 8 | 9 | 9.34 | 9.87 | 10.28 | 23002569 | SCM-HC2H-M005R01-S8-50HA6 HP30 |
| | | | | | | | 10 | 11.09 | 11.47 | 12.04 | 12.5 | 23002570 | SCM-HC2H-M005R01-S10-50HA6 HP30 |
| 0.6 | 6 | 0.55 | 0.9 | 50 | 0.05 | 12 | 2 | 2.67 | 2.83 | 3.1 | 3.35 | 23002573 | SCM-HC2H-M006R005-S2-50HA6 HP30 |
| | | | | | | | 3 | 3.74 | 3.94 | 4.27 | 4.56 | 23002574 | SCM-HC2H-M006R005-S3-50HA6 HP30 |
| | | | | | | | 4 | 4.8 | 5.03 | 5.41 | 5.73 | 23002575 | SCM-HC2H-M006R005-S4-50HA6 HP30 |
| | | | | | | | 5 | 5.85 | 6.12 | 6.54 | 6.89 | 23002576 | SCM-HC2H-M006R005-S5-50HA6 HP30 |
| | | | | | | | 6 | 6.91 | 7.2 | 7.66 | 8.03 | 23002577 | SCM-HC2H-M006R005-S6-50HA6 HP30 |
| | | | | | | 15 | 8 | 9 | 9.34 | 9.86 | 10.28 | 23002578 | SCM-HC2H-M006R005-S8-50HA6 HP30 |
| | | | | | | | 10 | 11.08 | 11.47 | 12.04 | 12.49 | 23002579 | SCM-HC2H-M006R005-S10-50HA6 HP30 |
| | | | | | 0.1 | 12 | 2 | 2.67 | 2.83 | 3.1 | 3.35 | 23001473 | SCM-HC2H-M006R01-S2-50HA6 HP30 |
| | | | | | | | 3 | 3.74 | 3.94 | 4.27 | 4.56 | 23002580 | SCM-HC2H-M006R01-S3-50HA6 HP30 |
| | | | | | | | 4 | 4.8 | 5.03 | 5.41 | 5.73 | 23001395 | SCM-HC2H-M006R01-S4-50HA6 HP30 |
| | | | | | | | 5 | 5.85 | 6.12 | 6.54 | 6.89 | 23002581 | SCM-HC2H-M006R01-S5-50HA6 HP30 |
| | | | | | | | 6 | 6.91 | 7.2 | 7.66 | 8.03 | 23002571 | SCM-HC2H-M006R01-S6-50HA6 HP30 |
| | | | | | | 15 | 8 | 9 | 9.34 | 9.86 | 10.28 | 23002572 | SCM-HC2H-M006R01-S8-50HA6 HP30 |
| | | | | | | | 10 | 11.08 | 11.47 | 12.04 | 12.49 | 23002582 | SCM-HC2H-M006R01-S10-50HA6 HP30 |
| 0.8 | 6 | 0.75 | 1.2 | 50 | 0.05 | 12 | 2 | 2.67 | 2.82 | 3.08 | 3.33 | 23002013 | SCM-HC2H-M008R005-S2-50HA6 HP30 |
| | | | | | | | 3 | 3.73 | 3.93 | 4.25 | 4.54 | 23002587 | SCM-HC2H-M008R005-S3-50HA6 HP30 |
| | | | | | | | 4 | 4.79 | 5.02 | 5.4 | 5.72 | 23002588 | SCM-HC2H-M008R005-S4-50HA6 HP30 |
| | | | | | | | 5 | 5.85 | 6.11 | 6.53 | 6.88 | 23002589 | SCM-HC2H-M008R005-S5-50HA6 HP30 |
| | | | | | | | 6 | 6.9 | 7.19 | 7.64 | 8.02 | 23002590 | SCM-HC2H-M008R005-S6-50HA6 HP30 |
| | | | | | | 15 | 8 | 9 | 9.33 | 9.85 | 10.27 | 23002591 | SCM-HC2H-M008R005-S8-50HA6 HP30 |
| | | | | | | | 10 | 11.08 | 11.46 | 12.03 | 12.48 | 23002592 | SCM-HC2H-M008R005-S10-50HA6 HP30 |
| | | | | | | 20 | 12 | 13.16 | 13.58 | 14.19 | 14.67 | 23002593 | SCM-HC2H-M008R005-S12-50HA6 HP30 |
| | | | | | 0.1 | 12 | 2 | 2.67 | 2.82 | 3.08 | 3.33 | 23002014 | SCM-HC2H-M008R01-S2-50HA6 HP30 |
| | | | | | | | 3 | 3.73 | 3.93 | 4.25 | 4.54 | 23002594 | SCM-HC2H-M008R01-S3-50HA6 HP30 |
| | | | | | | | 4 | 4.79 | 5.02 | 5.4 | 5.72 | 23002595 | SCM-HC2H-M008R01-S4-50HA6 HP30 |
| | | | | | | | 5 | 5.85 | 6.11 | 6.53 | 6.88 | 23002596 | SCM-HC2H-M008R01-S5-50HA6 HP30 |
| | | | | | | | 6 | 6.9 | 7.19 | 7.64 | 8.02 | 23002597 | SCM-HC2H-M008R01-S6-50HA6 HP30 |
| | | | | | | 15 | 8 | 9 | 9.33 | 9.85 | 10.27 | 23002598 | SCM-HC2H-M008R01-S8-50HA6 HP30 |
| | | | | | | | 10 | 11.08 | 11.46 | 12.03 | 12.48 | 23002599 | SCM-HC2H-M008R01-S10-50HA6 HP30 |
| | | | | | | 20 | 12 | 13.16 | 13.58 | 14.19 | 14.67 | 23002600 | SCM-HC2H-M008R01-S12-50HA6 HP30 |
| | | | | | 0.2 | 12 | 2 | 2.67 | 2.82 | 3.08 | 3.33 | 23002012 | SCM-HC2H-M008R02-S2-50HA6 HP30 |

*Continued on next page*

# Performance Hardened Steel Line
## 2-flute Torus cutter (HC2H)

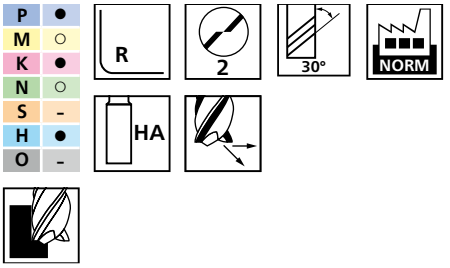
PFERD TOOLS




### Radius corner design with reinforced shank – metric

End mill for roughing and semi-finishing in hardened steels up to 60 HRC. Its special geometry makes it ideal for machining ribs and thin-walled contours.

| | |
|---|---|
| P | ● |
| M | ○ |
| K | ● |
| N | ○ |
| S | - |
| H | ● |
| O | - |




**Special features:**

- Modern tool coating and specially adapted carbide substrate for a long tool life and wear resistance when working on materials that are difficult to machine.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | RE [mm] | BHTA2 [°] | LU [mm] | ε 0.5° [mm] | ε 1.0° [mm] | ε 2.0° [mm] | ε 3.0° [mm] | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.8 | 6 | 0.75 | 1.2 | 50 | 0.2 | 12 | 3 | 3.73 | 3.93 | 4.25 | 4.54 | 23002601 | SCM-HC2H-M008R02-S3-50HA6 HP30 |
| | | | | | | | 4 | 4.79 | 5.02 | 5.4 | 5.72 | 23002583 | SCM-HC2H-M008R02-S4-50HA6 HP30 |
| | | | | | | | 5 | 5.85 | 6.11 | 6.53 | 6.88 | 23002602 | SCM-HC2H-M008R02-S5-50HA6 HP30 |
| | | | | | | | 6 | 6.9 | 7.19 | 7.64 | 8.02 | 23002584 | SCM-HC2H-M008R02-S6-50HA6 HP30 |
| | | | | | | 15 | 8 | 9 | 9.33 | 9.85 | 10.27 | 23002585 | SCM-HC2H-M008R02-S8-50HA6 HP30 |
| | | | | | | | 10 | 11.08 | 11.46 | 12.03 | 12.48 | 23002586 | SCM-HC2H-M008R02-S10-50HA6 HP30 |
| | | | | | | 20 | 12 | 13.16 | 13.58 | 14.19 | 14.67 | 23002603 | SCM-HC2H-M008R02-S12-50HA6 HP30 |
| 1 | 6 | 0.95 | 1.5 | 50 | 0.1 | 12 | 2.5 | 2.66 | 2.81 | 3.07 | 3.3 | 23002016 | SCM-HC2H-M010R01-S2-50HA6 HP30 |
| | | | | | | | 4 | 4.79 | 5.01 | 5.39 | 5.7 | 23002613 | SCM-HC2H-M010R01-S4-50HA6 HP30 |
| | | | | | | | 5 | 5.84 | 6.1 | 6.52 | 6.86 | 23002614 | SCM-HC2H-M010R01-S5-50HA6 HP30 |
| | | | | | | | 6 | 6.9 | 7.18 | 7.63 | 8 | 23002615 | SCM-HC2H-M010R01-S6-50HA6 HP30 |
| | | | | | | | 8 | 8.99 | 9.33 | 9.84 | 10.25 | 23002616 | SCM-HC2H-M010R01-S8-50HA6 HP30 |
| | | | | | | 15 | 10 | 11.08 | 11.45 | 12.02 | 12.47 | 23001186 | SCM-HC2H-M010R01-S10-50HA6 HP30 |
| | | | | 60 | 0.1 | 12 | 12 | 13.16 | 13.57 | 14.19 | 14.66 | 23001187 | SCM-HC2H-M010R01-S12-60HA6 HP30 |
| | | | | | | | 14 | 15.23 | 15.68 | 16.33 | 16.84 | 23002617 | SCM-HC2H-M010R01-S14-60HA6 HP30 |
| | | | | | | | 15 | 16.26 | 16.73 | 17.4 | 17.92 | 23002618 | SCM-HC2H-M010R01-S15-60HA6 HP30 |
| | | | | | | | 16 | 17.3 | 17.78 | 18.47 | 18.99 | 23002619 | SCM-HC2H-M010R01-S16-60HA6 HP30 |
| | | | | | | | 18 | 19.36 | 19.87 | 20.6 | 21.14 | 23002620 | SCM-HC2H-M010R01-S18-60HA6 HP30 |
| | | | | | | 15 | 20 | 21.43 | 21.96 | 22.71 | 23.27 | 23002621 | SCM-HC2H-M010R01-S20-60HA6 HP30 |
| | | | | 50 | 0.2 | 12 | 2.5 | 2.66 | 2.81 | 3.07 | 3.3 | 23002015 | SCM-HC2H-M010R02-S2-50HA6 HP30 |
| | | | | | | | 4 | 4.79 | 5.01 | 5.39 | 5.7 | 23002604 | SCM-HC2H-M010R02-S4-50HA6 HP30 |
| | | | | | | | 5 | 5.84 | 6.1 | 6.52 | 6.86 | 23002622 | SCM-HC2H-M010R02-S5-50HA6 HP30 |
| | | | | | | | 6 | 6.9 | 7.18 | 7.63 | 8 | 23002605 | SCM-HC2H-M010R02-S6-50HA6 HP30 |
| | | | | | | | 8 | 8.99 | 9.33 | 9.84 | 10.25 | 23002606 | SCM-HC2H-M010R02-S8-50HA6 HP30 |
| | | | | | | 15 | 10 | 11.08 | 11.45 | 12.02 | 12.47 | 23002607 | SCM-HC2H-M010R02-S10-50HA6 HP30 |
| | | | | 60 | 0.2 | 12 | 12 | 13.16 | 13.57 | 14.19 | 14.66 | 23002608 | SCM-HC2H-M010R02-S12-60HA6 HP30 |
| | | | | | | | 14 | 15.23 | 15.68 | 16.33 | 16.84 | 23002609 | SCM-HC2H-M010R02-S14-60HA6 HP30 |
| | | | | | | | 15 | 16.26 | 16.73 | 17.4 | 17.92 | 23002623 | SCM-HC2H-M010R02-S15-60HA6 HP30 |
| | | | | | | | 16 | 17.3 | 17.78 | 18.47 | 18.99 | 23002610 | SCM-HC2H-M010R02-S16-60HA6 HP30 |
| | | | | | | | 18 | 19.36 | 19.87 | 20.6 | 21.14 | 23002611 | SCM-HC2H-M010R02-S18-60HA6 HP30 |
| | | | | | | 15 | 20 | 21.43 | 21.96 | 22.71 | 23.27 | 23002612 | SCM-HC2H-M010R02-S20-60HA6 HP30 |
| | | | | 50 | 0.3 | 12 | 2.5 | 2.66 | 2.81 | 3.07 | 3.3 | 23002017 | SCM-HC2H-M010R03-S2-50HA6 HP30 |
| | | | | | | | 4 | 4.79 | 5.01 | 5.39 | 5.7 | 23002019 | SCM-HC2H-M010R03-S4-50HA6 HP30 |
| | | | | | | | 5 | 5.84 | 6.1 | 6.52 | 6.86 | 23002020 | SCM-HC2H-M010R03-S5-50HA6 HP30 |
| | | | | | | | 6 | 6.9 | 7.18 | 7.63 | 8 | 23002021 | SCM-HC2H-M010R03-S6-50HA6 HP30 |
| | | | | | | | 8 | 8.99 | 9.33 | 9.84 | 10.25 | 23002022 | SCM-HC2H-M010R03-S8-50HA6 HP30 |
| | | | | | | 15 | 10 | 11.08 | 11.45 | 12.02 | 12.47 | 23002023 | SCM-HC2H-M010R03-S10-50HA6 HP30 |

*Continued on next page*

# Performance Hardened Steel Line

## 2-flute Torus cutter (HC2H)

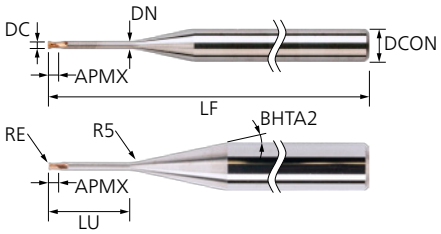
PFERD TOOLS

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | RE [mm] | BHTA2 [°] | LU [mm] | ε 0.5° [mm] | ε 1.0° [mm] | ε 2.0° [mm] | ε 3.0° [mm] | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6 | 0.95 | 1.5 | 60 | 0.3 | 12 | 12 | 13.16 | 13.57 | 14.19 | 14.66 | 23002024 | SCM-HC2H-M010R03-S12-60HA6 HP30 |
| | | | | | | | 14 | 15.23 | 15.68 | 16.33 | 16.84 | 23002025 | SCM-HC2H-M010R03-S14-60HA6 HP30 |
| | | | | | | | 15 | 16.26 | 16.73 | 17.4 | 17.92 | 23002026 | SCM-HC2H-M010R03-S15-60HA6 HP30 |
| | | | | | | | 16 | 17.3 | 17.78 | 18.47 | 18.99 | 23002027 | SCM-HC2H-M010R03-S16-60HA6 HP30 |
| | | | | | | | 18 | 19.36 | 19.87 | 20.6 | 21.14 | 23002028 | SCM-HC2H-M010R03-S18-60HA6 HP30 |
| | | | | | | 15 | 20 | 21.43 | 21.96 | 22.71 | 23.27 | 23002029 | SCM-HC2H-M010R03-S20-60HA6 HP30 |
| 1.2 | 6 | 1.15 | 1.8 | 50 | 0.1 | 12 | 4 | 4.78 | 5 | 5.37 | 5.68 | 23002030 | SCM-HC2H-M012R01-S4-50HA6 HP30 |
| | | | | | | | 5 | 5.84 | 6.09 | 6.5 | 6.85 | 23002031 | SCM-HC2H-M012R01-S5-50HA6 HP30 |
| | | | | | | | 6 | 6.89 | 7.17 | 7.62 | 7.99 | 23002032 | SCM-HC2H-M012R01-S6-50HA6 HP30 |
| | | | | | | | 8 | 8.99 | 9.32 | 9.83 | 10.24 | 23002033 | SCM-HC2H-M012R01-S8-50HA6 HP30 |
| | | | | | | 15 | 10 | 11.07 | 11.45 | 12.01 | 12.46 | 23002034 | SCM-HC2H-M012R01-S10-50HA6 HP30 |
| | | | | 60 | 0.1 | 12 | 12 | 13.15 | 13.57 | 14.18 | 14.65 | 23002035 | SCM-HC2H-M012R01-S12-60HA6 HP30 |
| | | | | | | | 14 | 15.23 | 15.67 | 16.33 | 16.83 | 23002036 | SCM-HC2H-M012R01-S14-60HA6 HP30 |
| | | | | | | | 15 | 16.26 | 16.72 | 17.4 | 17.91 | 23002037 | SCM-HC2H-M012R01-S15-60HA6 HP30 |
| | | | | | | | 16 | 17.3 | 17.77 | 18.46 | 18.99 | 23002038 | SCM-HC2H-M012R01-S16-60HA6 HP30 |
| | | | | | | | 18 | 19.36 | 19.87 | 20.59 | 21.13 | 23002039 | SCM-HC2H-M012R01-S18-60HA6 HP30 |
| | | | | | | 15 | 20 | 21.42 | 21.95 | 22.71 | 23.27 | 23002040 | SCM-HC2H-M012R01-S20-60HA6 HP30 |
| | | | | 50 | 0.2 | 12 | 4 | 4.78 | 5 | 5.37 | 5.68 | 23002624 | SCM-HC2H-M012R02-S4-50HA6 HP30 |
| | | | | | | | 5 | 5.84 | 6.09 | 6.5 | 6.85 | 23002629 | SCM-HC2H-M012R02-S5-50HA6 HP30 |
| | | | | | | | 6 | 6.89 | 7.17 | 7.62 | 7.99 | 23002630 | SCM-HC2H-M012R02-S6-50HA6 HP30 |
| | | | | | | | 8 | 8.99 | 9.32 | 9.83 | 10.24 | 23002625 | SCM-HC2H-M012R02-S8-50HA6 HP30 |
| | | | | | | 15 | 10 | 11.07 | 11.45 | 12.01 | 12.46 | 23002631 | SCM-HC2H-M012R02-S10-50HA6 HP30 |
| | | | | 60 | 0.2 | 12 | 12 | 13.15 | 13.57 | 14.18 | 14.65 | 23002626 | SCM-HC2H-M012R02-S12-60HA6 HP30 |
| | | | | | | | 14 | 15.23 | 15.67 | 16.33 | 16.83 | 23002632 | SCM-HC2H-M012R02-S14-60HA6 HP30 |
| | | | | | | | 15 | 16.26 | 16.72 | 17.4 | 17.91 | 23002627 | SCM-HC2H-M012R02-S15-60HA6 HP30 |
| | | | | | | | 16 | 17.3 | 17.77 | 18.46 | 18.99 | 23002633 | SCM-HC2H-M012R02-S16-60HA6 HP30 |
| | | | | | | | 18 | 19.36 | 19.87 | 20.59 | 21.13 | 23002634 | SCM-HC2H-M012R02-S18-60HA6 HP30 |
| | | | | | | 15 | 20 | 21.42 | 21.95 | 22.71 | 23.27 | 23002628 | SCM-HC2H-M012R02-S20-60HA6 HP30 |
| | | | | 50 | 0.3 | 12 | 4 | 4.78 | 5 | 5.37 | 5.68 | 23002635 | SCM-HC2H-M012R03-S4-50HA6 HP30 |
| | | | | | | | 5 | 5.84 | 6.09 | 6.5 | 6.85 | 23002636 | SCM-HC2H-M012R03-S5-50HA6 HP30 |
| | | | | | | | 6 | 6.89 | 7.17 | 7.62 | 7.99 | 23002637 | SCM-HC2H-M012R03-S6-50HA6 HP30 |
| | | | | | | | 8 | 8.99 | 9.32 | 9.83 | 10.24 | 23002638 | SCM-HC2H-M012R03-S8-50HA6 HP30 |
| | | | | | | 15 | 10 | 11.07 | 11.45 | 12.01 | 12.46 | 23002639 | SCM-HC2H-M012R03-S10-50HA6 HP30 |
| | | | | 60 | 0.3 | 12 | 12 | 13.15 | 13.57 | 14.18 | 14.65 | 23002640 | SCM-HC2H-M012R03-S12-60HA6 HP30 |
| | | | | | | | 14 | 15.23 | 15.67 | 16.33 | 16.83 | 23002641 | SCM-HC2H-M012R03-S14-60HA6 HP30 |
| | | | | | | | 15 | 16.26 | 16.72 | 17.4 | 17.91 | 23002642 | SCM-HC2H-M012R03-S15-60HA6 HP30 |
| | | | | | | | 16 | 17.3 | 17.77 | 18.46 | 18.99 | 23002643 | SCM-HC2H-M012R03-S16-60HA6 HP30 |
| | | | | | | | 18 | 19.36 | 19.87 | 20.59 | 21.13 | 23002644 | SCM-HC2H-M012R03-S18-60HA6 HP30 |
| | | | | | | 15 | 20 | 21.42 | 21.95 | 22.71 | 23.27 | 23002645 | SCM-HC2H-M012R03-S20-60HA6 HP30 |
| 1.5 | 6 | 1.45 | 2.25 | 50 | 0.1 | 12 | 4 | 4.77 | 4.99 | 5.35 | 5.66 | 23002041 | SCM-HC2H-M015R01-S4-50HA6 HP30 |
| | | | | | | | 5 | 5.83 | 6.08 | 6.49 | 6.82 | 23002042 | SCM-HC2H-M015R01-S5-50HA6 HP30 |
| | | | | | | | 6 | 6.88 | 7.16 | 7.61 | 7.97 | 23002043 | SCM-HC2H-M015R01-S6-50HA6 HP30 |
| | | | | | | | 8 | 8.98 | 9.31 | 9.82 | 10.23 | 23002044 | SCM-HC2H-M015R01-S8-50HA6 HP30 |
| | | | | | | 15 | 10 | 11.07 | 11.44 | 12 | 12.45 | 23002045 | SCM-HC2H-M015R01-S10-50HA6 HP30 |
| | | | | 60 | 0.1 | 12 | 12 | 13.15 | 13.56 | 14.17 | 14.64 | 23002046 | SCM-HC2H-M015R01-S12-60HA6 HP30 |
| | | | | | | | 14 | 15.22 | 15.67 | 16.32 | 16.82 | 23002047 | SCM-HC2H-M015R01-S14-60HA6 HP30 |
| | | | | | | | 15 | 16.26 | 16.72 | 17.39 | 17.9 | 23002048 | SCM-HC2H-M015R01-S15-60HA6 HP30 |
| | | | | | | | 16 | 17.29 | 17.77 | 18.45 | 18.97 | 23002049 | SCM-HC2H-M015R01-S16-60HA6 HP30 |
| | | | | | | | 18 | 19.36 | 19.86 | 20.58 | 21.12 | 23002050 | SCM-HC2H-M015R01-S18-60HA6 HP30 |

*Continued on next page*

# Performance Hardened Steel Line

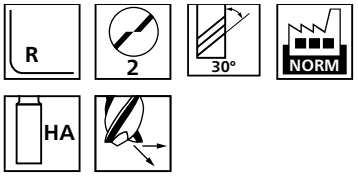
## 2-flute Torus cutter (HC2H)




### Radius corner design with reinforced shank – metric

End mill for roughing and semi-finishing in hardened steels up to 60 HRC. Its special geometry makes it ideal for machining ribs and thin-walled contours.

| | |
|---|---|
| P | ● |
| M | ○ |
| K | ● |
| N | ○ |
| S | - |
| H | ● |
| O | - |




**Special features:**

- Modern tool coating and specially adapted carbide substrate for a long tool life and wear resistance when working on materials that are difficult to machine.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | RE [mm] | BHTA2 [°] | LU [mm] | ε 0.5° [mm] | ε 1.0° [mm] | ε 2.0° [mm] | ε 3.0° [mm] | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | 6 | 1.45 | 2.25 | 60 | 0.1 | 15 | 20 | 21.42 | 21.95 | 22.7 | 23.26 | 23002051 | SCM-HC2H-M015R01-S20-60HA6 HP30 |
| | | | | | | 20 | 22 | 23.48 | 24.03 | 24.81 | 25.38 | 23002052 | SCM-HC2H-M015R01-S22-60HA6 HP30 |
| | | | | | | | 24 | 25.53 | 26.11 | 26.92 | 27.5 | 23002053 | SCM-HC2H-M015R01-S24-60HA6 HP30 |
| | | | | | | | 25 | 26.56 | 27.15 | 27.97 | 28.55 | 23002054 | SCM-HC2H-M015R01-S25-60HA6 HP30 |
| | | | | 50 | 0.2 | 12 | 4 | 4.77 | 4.99 | 5.35 | 5.66 | 23002646 | SCM-HC2H-M015R02-S4-50HA6 HP30 |
| | | | | | | | 5 | 5.83 | 6.08 | 6.49 | 6.82 | 23002651 | SCM-HC2H-M015R02-S5-50HA6 HP30 |
| | | | | | | | 6 | 6.88 | 7.16 | 7.61 | 7.97 | 23002652 | SCM-HC2H-M015R02-S6-50HA6 HP30 |
| | | | | | | | 8 | 8.98 | 9.31 | 9.82 | 10.23 | 23002647 | SCM-HC2H-M015R02-S8-50HA6 HP30 |
| | | | | | | | 10 | 11.07 | 11.44 | 12 | 12.45 | 23002653 | SCM-HC2H-M015R02-S10-50HA6 HP30 |
| | | | | 60 | 0.2 | 12 | 12 | 13.15 | 13.56 | 14.17 | 14.64 | 23002648 | SCM-HC2H-M015R02-S12-60HA6 HP30 |
| | | | | | | | 14 | 15.22 | 15.67 | 16.32 | 16.82 | 23002654 | SCM-HC2H-M015R02-S14-60HA6 HP30 |
| | | | | | | | 15 | 16.26 | 16.72 | 17.39 | 17.9 | 23002649 | SCM-HC2H-M015R02-S15-60HA6 HP30 |
| | | | | | | | 16 | 17.29 | 17.77 | 18.45 | 18.97 | 23002655 | SCM-HC2H-M015R02-S16-60HA6 HP30 |
| | | | | | | | 18 | 19.36 | 19.86 | 20.58 | 21.12 | 23002656 | SCM-HC2H-M015R02-S18-60HA6 HP30 |
| | | | | | | 15 | 20 | 21.42 | 21.95 | 22.7 | 23.26 | 23002650 | SCM-HC2H-M015R02-S20-60HA6 HP30 |
| | | | | | | 20 | 22 | 23.48 | 24.03 | 24.81 | 25.38 | 23002657 | SCM-HC2H-M015R02-S22-60HA6 HP30 |
| | | | | | | | 24 | 25.53 | 26.11 | 26.92 | 27.5 | 23002658 | SCM-HC2H-M015R02-S24-60HA6 HP30 |
| | | | | | | | 25 | 26.56 | 27.15 | 27.97 | 28.55 | 23002659 | SCM-HC2H-M015R02-S25-60HA6 HP30 |
| | | | | 50 | 0.3 | 12 | 4 | 4.77 | 4.99 | 5.35 | 5.66 | 23002660 | SCM-HC2H-M015R03-S4-50HA6 HP30 |
| | | | | | | | 5 | 5.83 | 6.08 | 6.49 | 6.82 | 23002661 | SCM-HC2H-M015R03-S5-50HA6 HP30 |
| | | | | | | | 6 | 6.88 | 7.16 | 7.61 | 7.97 | 23002662 | SCM-HC2H-M015R03-S6-50HA6 HP30 |
| | | | | | | | 8 | 8.98 | 9.31 | 9.82 | 10.23 | 23002663 | SCM-HC2H-M015R03-S8-50HA6 HP30 |
| | | | | | | 15 | 10 | 11.07 | 11.44 | 12 | 12.45 | 23002664 | SCM-HC2H-M015R03-S10-50HA6 HP30 |
| | | | | 60 | 0.3 | 12 | 12 | 13.15 | 13.56 | 14.17 | 14.64 | 23002665 | SCM-HC2H-M015R03-S12-60HA6 HP30 |
| | | | | | | | 14 | 15.22 | 15.67 | 16.32 | 16.82 | 23002666 | SCM-HC2H-M015R03-S14-60HA6 HP30 |
| | | | | | | | 15 | 16.26 | 16.72 | 17.39 | 17.9 | 23002667 | SCM-HC2H-M015R03-S15-60HA6 HP30 |
| | | | | | | | 16 | 17.29 | 17.77 | 18.45 | 18.97 | 23002668 | SCM-HC2H-M015R03-S16-60HA6 HP30 |
| | | | | | | | 18 | 19.36 | 19.86 | 20.58 | 21.12 | 23002669 | SCM-HC2H-M015R03-S18-60HA6 HP30 |
| | | | | | | 15 | 20 | 21.42 | 21.95 | 22.7 | 23.26 | 23002670 | SCM-HC2H-M015R03-S20-60HA6 HP30 |
| | | | | | | 20 | 22 | 23.48 | 24.03 | 24.81 | 25.38 | 23002671 | SCM-HC2H-M015R03-S22-60HA6 HP30 |
| | | | | | | | 24 | 25.53 | 26.11 | 26.92 | 27.5 | 23002672 | SCM-HC2H-M015R03-S24-60HA6 HP30 |
| | | | | | | | 25 | 26.56 | 27.15 | 27.97 | 28.55 | 23002673 | SCM-HC2H-M015R03-S25-60HA6 HP30 |
| | | | | 50 | 0.5 | 12 | 4 | 4.77 | 4.99 | 5.35 | 5.66 | 23002055 | SCM-HC2H-M015R05-S4-50HA6 HP30 |
| | | | | | | | 5 | 5.83 | 6.08 | 6.49 | 6.82 | 23002056 | SCM-HC2H-M015R05-S5-50HA6 HP30 |
| | | | | | | | 6 | 6.88 | 7.16 | 7.61 | 7.97 | 23002057 | SCM-HC2H-M015R05-S6-50HA6 HP30 |
| | | | | | | | 8 | 8.98 | 9.31 | 9.82 | 10.23 | 23002058 | SCM-HC2H-M015R05-S8-50HA6 HP30 |
| | | | | | | 15 | 10 | 11.07 | 11.44 | 12 | 12.45 | 23002059 | SCM-HC2H-M015R05-S10-50HA6 HP30 |

*Continued on next page*

# Performance Hardened Steel Line

## 2-flute Torus cutter (HC2H)

PFERD TOOLS

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | RE [mm] | BHTA2 [°] | LU [mm] | ε 0.5° [mm] | ε 1.0° [mm] | ε 2.0° [mm] | ε 3.0° [mm] | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.5 | 6 | 1.45 | 2.25 | 60 | 0.5 | 12 | 12 | 13.15 | 13.56 | 14.17 | 14.64 | 23002060 | SCM-HC2H-M015R05-S12-60HA6 HP30 |
| | | | | | | | 14 | 15.22 | 15.67 | 16.32 | 16.82 | 23002061 | SCM-HC2H-M015R05-S14-60HA6 HP30 |
| | | | | | | | 15 | 16.26 | 16.72 | 17.39 | 17.9 | 23002062 | SCM-HC2H-M015R05-S15-60HA6 HP30 |
| | | | | | | | 16 | 17.29 | 17.77 | 18.45 | 18.97 | 23002063 | SCM-HC2H-M015R05-S16-60HA6 HP30 |
| | | | | | | | 18 | 19.36 | 19.86 | 20.58 | 21.12 | 23002064 | SCM-HC2H-M015R05-S18-60HA6 HP30 |
| | | | | | | 15 | 20 | 21.42 | 21.95 | 22.7 | 23.26 | 23002065 | SCM-HC2H-M015R05-S20-60HA6 HP30 |
| | | | | | | 20 | 22 | 23.48 | 24.03 | 24.81 | 25.38 | 23002066 | SCM-HC2H-M015R05-S22-60HA6 HP30 |
| | | | | | | | 24 | 25.53 | 26.11 | 26.92 | 27.5 | 23002067 | SCM-HC2H-M015R05-S24-60HA6 HP30 |
| | | | | | | | 25 | 26.56 | 27.15 | 27.97 | 28.55 | 23002068 | SCM-HC2H-M015R05-S25-60HA6 HP30 |
| 2 | 6 | 1.9 | 3 | 50 | 0.1 | 12 | 4 | 4.91 | 5.1 | 5.42 | 5.7 | 23002071 | SCM-HC2H-M020R01-S4-50HA6 HP30 |
| | | | | | | | 5 | 5.96 | 6.18 | 6.54 | 6.86 | 23002072 | SCM-HC2H-M020R01-S5-50HA6 HP30 |
| | | | | | | | 6 | 7.01 | 7.25 | 7.66 | 8 | 23002073 | SCM-HC2H-M020R01-S6-50HA6 HP30 |
| | | | | | | | 8 | 9.09 | 9.39 | 9.86 | 10.25 | 23002074 | SCM-HC2H-M020R01-S8-50HA6 HP30 |
| | | | | | | | 10 | 11.17 | 11.51 | 12.04 | 12.47 | 23002075 | SCM-HC2H-M020R01-S10-50HA6 HP30 |
| | | | | 60 | 0.1 | 12 | 12 | 13.24 | 13.62 | 14.2 | 14.66 | 23002076 | SCM-HC2H-M020R01-S12-60HA6 HP30 |
| | | | | | | | 14 | 15.31 | 15.73 | 16.35 | 16.83 | 23002077 | SCM-HC2H-M020R01-S14-60HA6 HP30 |
| | | | | | | | 15 | 16.34 | 16.77 | 17.42 | 17.92 | 23002078 | SCM-HC2H-M020R01-S15-60HA6 HP30 |
| | | | | | | | 16 | 17.38 | 17.82 | 18.48 | 18.99 | 23002079 | SCM-HC2H-M020R01-S16-60HA6 HP30 |
| | | | | | | | 18 | 19.44 | 19.91 | 20.61 | 21.14 | 23002080 | SCM-HC2H-M020R01-S18-60HA6 HP30 |
| | | | | | | | 20 | 21.5 | 22 | 22.73 | 23.27 | 23002081 | SCM-HC2H-M020R01-S20-60HA6 HP30 |
| | | | | | | 15 | 22 | 23.55 | 24.08 | 24.84 | 25.4 | 23002082 | SCM-HC2H-M020R01-S22-60HA6 HP30 |
| | | | | | | 20 | 24 | 25.61 | 26.16 | 26.94 | 27.51 | 23002083 | SCM-HC2H-M020R01-S24-60HA6 HP30 |
| | | | | | | | 25 | 26.63 | 27.19 | 27.99 | 28.57 | 23002084 | SCM-HC2H-M020R01-S25-60HA6 HP30 |
| | | | | 50 | 0.2 | 12 | 4 | 4.91 | 5.1 | 5.42 | 5.7 | 23002069 | SCM-HC2H-M020R02-S4-50HA6 HP30 |
| | | | | | | | 5 | 5.96 | 6.18 | 6.54 | 6.86 | 23002681 | SCM-HC2H-M020R02-S5-50HA6 HP30 |
| | | | | | | | 6 | 7.01 | 7.25 | 7.66 | 8 | 23002682 | SCM-HC2H-M020R02-S6-50HA6 HP30 |
| | | | | | | | 8 | 9.09 | 9.39 | 9.86 | 10.25 | 23001347 | SCM-HC2H-M020R02-S8-50HA6 HP30 |
| | | | | | | | 10 | 11.17 | 11.51 | 12.04 | 12.47 | 23002683 | SCM-HC2H-M020R02-S10-50HA6 HP30 |
| | | | | 60 | 0.2 | 12 | 12 | 13.24 | 13.62 | 14.2 | 14.66 | 23002675 | SCM-HC2H-M020R02-S12-60HA6 HP30 |
| | | | | | | | 14 | 15.31 | 15.73 | 16.35 | 16.83 | 23002684 | SCM-HC2H-M020R02-S14-60HA6 HP30 |
| | | | | | | | 15 | 16.34 | 16.77 | 17.42 | 17.92 | 23001427 | SCM-HC2H-M020R02-S15-60HA6 HP30 |
| | | | | | | | 16 | 17.38 | 17.82 | 18.48 | 18.99 | 23002677 | SCM-HC2H-M020R02-S16-60HA6 HP30 |
| | | | | | | | 18 | 19.44 | 19.91 | 20.61 | 21.14 | 23002685 | SCM-HC2H-M020R02-S18-60HA6 HP30 |
| | | | | | | | 20 | 21.5 | 22 | 22.73 | 23.27 | 23002679 | SCM-HC2H-M020R02-S20-60HA6 HP30 |
| | | | | | | 15 | 22 | 23.55 | 24.08 | 24.84 | 25.4 | 23002686 | SCM-HC2H-M020R02-S22-60HA6 HP30 |
| | | | | | | 20 | 24 | 25.61 | 26.16 | 26.94 | 27.51 | 23002687 | SCM-HC2H-M020R02-S24-60HA6 HP30 |
| | | | | | | | 25 | 26.63 | 27.19 | 27.99 | 28.57 | 23002688 | SCM-HC2H-M020R02-S25-60HA6 HP30 |
| | | | | 50 | 0.3 | 12 | 4 | 4.91 | 5.1 | 5.42 | 5.7 | 23002085 | SCM-HC2H-M020R03-S4-50HA6 HP30 |
| | | | | | | | 5 | 5.96 | 6.18 | 6.54 | 6.86 | 23002689 | SCM-HC2H-M020R03-S5-50HA6 HP30 |
| | | | | | | | 6 | 7.01 | 7.25 | 7.66 | 8 | 23002690 | SCM-HC2H-M020R03-S6-50HA6 HP30 |
| | | | | | | | 8 | 9.09 | 9.39 | 9.86 | 10.25 | 23002691 | SCM-HC2H-M020R03-S8-50HA6 HP30 |
| | | | | | | | 10 | 11.17 | 11.51 | 12.04 | 12.47 | 23002692 | SCM-HC2H-M020R03-S10-50HA6 HP30 |
| | | | | 60 | 0.3 | 12 | 12 | 13.24 | 13.62 | 14.2 | 14.66 | 23002693 | SCM-HC2H-M020R03-S12-60HA6 HP30 |
| | | | | | | | 14 | 15.31 | 15.73 | 16.35 | 16.83 | 23002694 | SCM-HC2H-M020R03-S14-60HA6 HP30 |
| | | | | | | | 15 | 16.34 | 16.77 | 17.42 | 17.92 | 23002695 | SCM-HC2H-M020R03-S15-60HA6 HP30 |
| | | | | | | | 16 | 17.38 | 17.82 | 18.48 | 18.99 | 23002696 | SCM-HC2H-M020R03-S16-60HA6 HP30 |
| | | | | | | | 18 | 19.44 | 19.91 | 20.61 | 21.14 | 23002697 | SCM-HC2H-M020R03-S18-60HA6 HP30 |
| | | | | | | | 20 | 21.5 | 22 | 22.73 | 23.27 | 23002698 | SCM-HC2H-M020R03-S20-60HA6 HP30 |
| | | | | | | 15 | 22 | 23.55 | 24.08 | 24.84 | 25.4 | 23002699 | SCM-HC2H-M020R03-S22-60HA6 HP30 |

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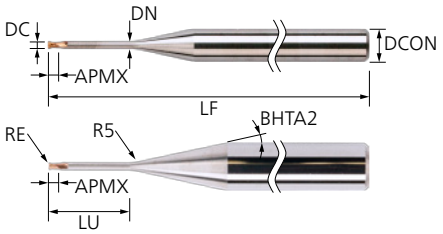
# Performance Hardened Steel Line

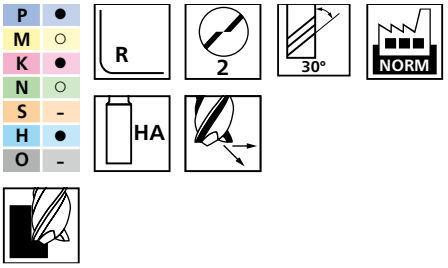
## 2-flute Torus cutter (HC2H)

PFERD TOOLS




### Radius corner design with reinforced shank – metric

End mill for roughing and semi-finishing in hardened steels up to 60 HRC. Its special geometry makes it ideal for machining ribs and thin-walled contours.




**Special features:**

- Modern tool coating and specially adapted carbide substrate for a long tool life and wear resistance when working on materials that are difficult to machine.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | RE [mm] | BHTA2 [°] | LU [mm] | ε 0.5° [mm] | ε 1.0° [mm] | ε 2.0° [mm] | ε 3.0° [mm] | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 6 | 1.9 | 3 | 60 | 0.3 | 20 | 24 | 25.61 | 26.16 | 26.94 | 27.51 | 23002700 | SCM-HC2H-M020R03-S24-60HA6 HP30 |
| | | | | | | | 25 | 26.63 | 27.19 | 27.99 | 28.57 | 23002701 | SCM-HC2H-M020R03-S25-60HA6 HP30 |
| | | | | 50 | 0.5 | 12 | 4 | 4.91 | 5.1 | 5.42 | 5.7 | 23002070 | SCM-HC2H-M020R05-S4-50HA6 HP30 |
| | | | | | | | 5 | 5.96 | 6.18 | 6.54 | 6.86 | 23002702 | SCM-HC2H-M020R05-S5-50HA6 HP30 |
| | | | | | | | 6 | 7.01 | 7.25 | 7.66 | 8 | 23002703 | SCM-HC2H-M020R05-S6-50HA6 HP30 |
| | | | | | | | 8 | 9.09 | 9.39 | 9.86 | 10.25 | 23002674 | SCM-HC2H-M020R05-S8-50HA6 HP30 |
| | | | | | | | 10 | 11.17 | 11.51 | 12.04 | 12.47 | 23002704 | SCM-HC2H-M020R05-S10-50HA6 HP30 |
| | | | | 60 | 0.5 | 12 | 12 | 13.24 | 13.62 | 14.2 | 14.66 | 23002676 | SCM-HC2H-M020R05-S12-60HA6 HP30 |
| | | | | | | | 14 | 15.31 | 15.73 | 16.35 | 16.83 | 23002705 | SCM-HC2H-M020R05-S14-60HA6 HP30 |
| | | | | | | | 15 | 16.34 | 16.77 | 17.42 | 17.92 | 23002706 | SCM-HC2H-M020R05-S15-60HA6 HP30 |
| | | | | | | | 16 | 17.38 | 17.82 | 18.48 | 18.99 | 23002678 | SCM-HC2H-M020R05-S16-60HA6 HP30 |
| | | | | | | | 18 | 19.44 | 19.91 | 20.61 | 21.14 | 23002707 | SCM-HC2H-M020R05-S18-60HA6 HP30 |
| | | | | | | | 20 | 21.5 | 22 | 22.73 | 23.27 | 23002680 | SCM-HC2H-M020R05-S20-60HA6 HP30 |
| | | | | | | 15 | 22 | 23.55 | 24.08 | 24.84 | 25.4 | 23002708 | SCM-HC2H-M020R05-S22-60HA6 HP30 |
| | | | | | | 20 | 24 | 25.61 | 26.16 | 26.94 | 27.51 | 23002709 | SCM-HC2H-M020R05-S24-60HA6 HP30 |
| | | | | | | | 25 | 26.63 | 27.19 | 27.99 | 28.57 | 23002710 | SCM-HC2H-M020R05-S25-60HA6 HP30 |
| 2.5 | 6 | 2.4 | 3.75 | 60 | 0.2 | 12 | 6 | 7 | 7.23 | 7.63 | 7.97 | 23002090 | SCM-HC2H-M025R02-S6-60HA6 HP30 |
| | | | | | | | 8 | 9.08 | 9.37 | 9.84 | 10.22 | 23002086 | SCM-HC2H-M025R02-S8-60HA6 HP30 |
| | | | | | | | 10 | 11.16 | 11.5 | 12.02 | 12.44 | 23002091 | SCM-HC2H-M025R02-S10-60HA6 HP30 |
| | | | | | | | 12 | 13.23 | 13.61 | 14.18 | 14.64 | 23002087 | SCM-HC2H-M025R02-S12-60HA6 HP30 |
| | | | | | | | 14 | 15.3 | 15.71 | 16.33 | 16.81 | 23002092 | SCM-HC2H-M025R02-S14-60HA6 HP30 |
| | | | | | | | 15 | 16.34 | 16.76 | 17.4 | 17.9 | 23002093 | SCM-HC2H-M025R02-S15-60HA6 HP30 |
| | | | | | | | 16 | 17.37 | 17.81 | 18.47 | 18.97 | 23002088 | SCM-HC2H-M025R02-S16-60HA6 HP30 |
| | | | | | | | 18 | 19.43 | 19.9 | 20.6 | 21.12 | 23002094 | SCM-HC2H-M025R02-S18-60HA6 HP30 |
| | | | | | | | 20 | 21.49 | 21.99 | 22.71 | 23.26 | 23002089 | SCM-HC2H-M025R02-S20-60HA6 HP30 |
| | | | | | | | 22 | 23.54 | 24.07 | 24.82 | 25.38 | 23002095 | SCM-HC2H-M025R02-S22-60HA6 HP30 |
| | | | | | | 20 | 24 | 25.6 | 26.15 | 26.93 | 27.5 | 23002096 | SCM-HC2H-M025R02-S24-60HA6 HP30 |
| | | | | | | | 25 | 26.63 | 27.19 | 27.98 | 28.55 | 23002097 | SCM-HC2H-M025R02-S25-60HA6 HP30 |
| | | | | | 0.3 | 12 | 6 | 7 | 7.23 | 7.63 | 7.97 | 23002715 | SCM-HC2H-M025R03-S6-60HA6 HP30 |
| | | | | | | | 8 | 9.08 | 9.37 | 9.84 | 10.22 | 23002716 | SCM-HC2H-M025R03-S8-60HA6 HP30 |
| | | | | | | | 10 | 11.16 | 11.5 | 12.02 | 12.44 | 23002717 | SCM-HC2H-M025R03-S10-60HA6 HP30 |
| | | | | | | | 12 | 13.23 | 13.61 | 14.18 | 14.64 | 23002718 | SCM-HC2H-M025R03-S12-60HA6 HP30 |
| | | | | | | | 14 | 15.3 | 15.71 | 16.33 | 16.81 | 23002719 | SCM-HC2H-M025R03-S14-60HA6 HP30 |
| | | | | | | | 15 | 16.34 | 16.76 | 17.4 | 17.9 | 23002720 | SCM-HC2H-M025R03-S15-60HA6 HP30 |
| | | | | | | | 16 | 17.37 | 17.81 | 18.47 | 18.97 | 23002721 | SCM-HC2H-M025R03-S16-60HA6 HP30 |
| | | | | | | | 18 | 19.43 | 19.9 | 20.6 | 21.12 | 23002722 | SCM-HC2H-M025R03-S18-60HA6 HP30 |
| | | | | | | | 20 | 21.49 | 21.99 | 22.71 | 23.26 | 23002723 | SCM-HC2H-M025R03-S20-60HA6 HP30 |

*Continued on next page*

# Performance Hardened Steel Line

## 2-flute Torus cutter (HC2H)

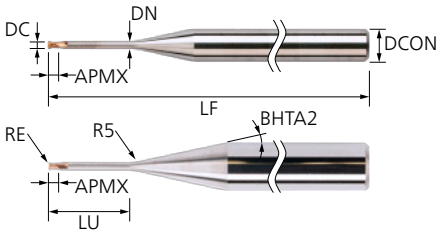
PFERD TOOLS

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | RE [mm] | BHTA2 [°] | LU [mm] | ε 0.5° [mm] | ε 1.0° [mm] | ε 2.0° [mm] | ε 3.0° [mm] | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.5 | 6 | 2.4 | 3.75 | 60 | 0.3 | 12 | 22 | 23.54 | 24.07 | 24.82 | 25.38 | 23002724 | SCM-HC2H-M025R03-S22-60HA6 HP30 |
| | | | | | | 20 | 24 | 25.6 | 26.15 | 26.93 | 27.5 | 23002725 | SCM-HC2H-M025R03-S24-60HA6 HP30 |
| | | | | | | | 25 | 26.63 | 27.19 | 27.98 | 28.55 | 23002726 | SCM-HC2H-M025R03-S25-60HA6 HP30 |
| | | | | | 0.5 | 12 | 6 | 7 | 7.23 | 7.63 | 7.97 | 23002727 | SCM-HC2H-M025R05-S6-60HA6 HP30 |
| | | | | | | | 8 | 9.08 | 9.37 | 9.84 | 10.22 | 23002711 | SCM-HC2H-M025R05-S8-60HA6 HP30 |
| | | | | | | | 10 | 11.16 | 11.5 | 12.02 | 12.44 | 23002728 | SCM-HC2H-M025R05-S10-60HA6 HP30 |
| | | | | | | | 12 | 13.23 | 13.61 | 14.18 | 14.64 | 23002712 | SCM-HC2H-M025R05-S12-60HA6 HP30 |
| | | | | | | | 14 | 15.3 | 15.71 | 16.33 | 16.81 | 23002729 | SCM-HC2H-M025R05-S14-60HA6 HP30 |
| | | | | | | | 15 | 16.34 | 16.76 | 17.4 | 17.9 | 23002730 | SCM-HC2H-M025R05-S15-60HA6 HP30 |
| | | | | | | | 16 | 17.37 | 17.81 | 18.47 | 18.97 | 23002713 | SCM-HC2H-M025R05-S16-60HA6 HP30 |
| | | | | | | | 18 | 19.43 | 19.9 | 20.6 | 21.12 | 23002731 | SCM-HC2H-M025R05-S18-60HA6 HP30 |
| | | | | | | | 20 | 21.49 | 21.99 | 22.71 | 23.26 | 23002714 | SCM-HC2H-M025R05-S20-60HA6 HP30 |
| | | | | | | | 22 | 23.54 | 24.07 | 24.82 | 25.38 | 23002732 | SCM-HC2H-M025R05-S22-60HA6 HP30 |
| | | | | | | 20 | 24 | 25.6 | 26.15 | 26.93 | 27.5 | 23002733 | SCM-HC2H-M025R05-S24-60HA6 HP30 |
| | | | | | | | 25 | 26.63 | 27.19 | 27.98 | 28.55 | 23002734 | SCM-HC2H-M025R05-S25-60HA6 HP30 |
| | | | | | 1 | 12 | 6 | 7 | 7.23 | 7.63 | 7.97 | 23002735 | SCM-HC2H-M025R10-S6-60HA6 HP30 |
| | | | | | | | 8 | 9.08 | 9.37 | 9.84 | 10.22 | 23002736 | SCM-HC2H-M025R10-S8-60HA6 HP30 |
| | | | | | | | 10 | 11.16 | 11.5 | 12.02 | 12.44 | 23002737 | SCM-HC2H-M025R10-S10-60HA6 HP30 |
| | | | | | | | 12 | 13.23 | 13.61 | 14.18 | 14.64 | 23002738 | SCM-HC2H-M025R10-S12-60HA6 HP30 |
| | | | | | | | 14 | 15.3 | 15.71 | 16.33 | 16.81 | 23002739 | SCM-HC2H-M025R10-S14-60HA6 HP30 |
| | | | | | | | 15 | 16.34 | 16.76 | 17.4 | 17.9 | 23002740 | SCM-HC2H-M025R10-S15-60HA6 HP30 |
| | | | | | | | 16 | 17.37 | 17.81 | 18.47 | 18.97 | 23002741 | SCM-HC2H-M025R10-S16-60HA6 HP30 |
| | | | | | | | 20 | 21.49 | 21.99 | 22.71 | 23.26 | 23002742 | SCM-HC2H-M025R10-S20-60HA6 HP30 |
| | | | | | | | 22 | 23.54 | 24.07 | 24.82 | 25.38 | 23002743 | SCM-HC2H-M025R10-S22-60HA6 HP30 |
| | | | | | | 20 | 24 | 25.6 | 26.15 | 26.93 | 27.5 | 23002744 | SCM-HC2H-M025R10-S24-60HA6 HP30 |
| | | | | | | | 25 | 26.63 | 27.19 | 27.98 | 28.55 | 23002745 | SCM-HC2H-M025R10-S25-60HA6 HP30 |
| 3 | 6 | 2.9 | 4.5 | 60 | 0.1 | 12 | 8 | 9.07 | 9.36 | 9.82 | 10.2 | 23002101 | SCM-HC2H-M030R01-S8-60HA6 HP30 |
| | | | | | | | 10 | 11.15 | 11.48 | 12 | 12.42 | 23002102 | SCM-HC2H-M030R01-S10-60HA6 HP30 |
| | | | | | | | 12 | 13.22 | 13.6 | 14.17 | 14.62 | 23002104 | SCM-HC2H-M030R01-S12-60HA6 HP30 |
| | | | | | | | 14 | 15.29 | 15.7 | 16.32 | 16.79 | 23002105 | SCM-HC2H-M030R01-S14-60HA6 HP30 |
| | | | | | | | 16 | 17.36 | 17.8 | 18.45 | 18.96 | 23002106 | SCM-HC2H-M030R01-S16-60HA6 HP30 |
| | | | | | | | 18 | 19.42 | 19.89 | 20.58 | 21.1 | 23002107 | SCM-HC2H-M030R01-S18-60HA6 HP30 |
| | | | | | | | 20 | 21.48 | 21.98 | 22.7 | 23.24 | 23002108 | SCM-HC2H-M030R01-S20-60HA6 HP30 |
| | | | | | | | 22 | 23.54 | 24.06 | 24.81 | 25.37 | 23002109 | SCM-HC2H-M030R01-S22-60HA6 HP30 |
| | | | | | | 20 | 25 | 26.62 | 27.18 | 27.97 | 28.54 | 23002110 | SCM-HC2H-M030R01-S25-60HA6 HP30 |
| | | | | 78 | 0.1 | 12 | 28 | 29.7 | 30.29 | 31.11 | 31.7 | 23002111 | SCM-HC2H-M030R01-S28-78HA6 HP30 |
| | | | | | | | 30 | 31.74 | 32.35 | 33.2 | 33.8 | 23002112 | SCM-HC2H-M030R01-S30-78HA6 HP30 |
| | | | | | | | 32 | 33.79 | 34.42 | 35.29 | 35.89 | 23002113 | SCM-HC2H-M030R01-S32-78HA6 HP30 |
| | | | | | | | 35 | 36.86 | 37.52 | 38.41 | 39.01 | 23002114 | SCM-HC2H-M030R01-S35-78HA6 HP30 |
| | | | | 60 | 0.2 | 12 | 8 | 9.07 | 9.36 | 9.82 | 10.2 | 23002098 | SCM-HC2H-M030R02-S8-60HA6 HP30 |
| | | | | | | | 10 | 11.15 | 11.48 | 12 | 12.42 | 23002115 | SCM-HC2H-M030R02-S10-60HA6 HP30 |
| | | | | | | | 12 | 13.22 | 13.6 | 14.17 | 14.62 | 23002099 | SCM-HC2H-M030R02-S12-60HA6 HP30 |
| | | | | | | | 14 | 15.29 | 15.7 | 16.32 | 16.79 | 23002116 | SCM-HC2H-M030R02-S14-60HA6 HP30 |
| | | | | | | | 16 | 17.36 | 17.8 | 18.45 | 18.96 | 23002100 | SCM-HC2H-M030R02-S16-60HA6 HP30 |
| | | | | | | | 18 | 19.42 | 19.89 | 20.58 | 21.1 | 23002117 | SCM-HC2H-M030R02-S18-60HA6 HP30 |
| | | | | | | | 20 | 21.48 | 21.98 | 22.7 | 23.24 | 23002118 | SCM-HC2H-M030R02-S20-60HA6 HP30 |
| | | | | | | | 22 | 23.54 | 24.06 | 24.81 | 25.37 | 23002119 | SCM-HC2H-M030R02-S22-60HA6 HP30 |
| | | | | | | 20 | 25 | 26.62 | 27.18 | 27.97 | 28.54 | 23002120 | SCM-HC2H-M030R02-S25-60HA6 HP30 |
| | | | | 78 | 0.2 | 12 | 28 | 29.7 | 30.29 | 31.11 | 31.7 | 23002121 | SCM-HC2H-M030R02-S28-78HA6 HP30 |

*Continued on next page*

# Performance Hardened Steel Line
## 2-flute Torus cutter (HC2H)

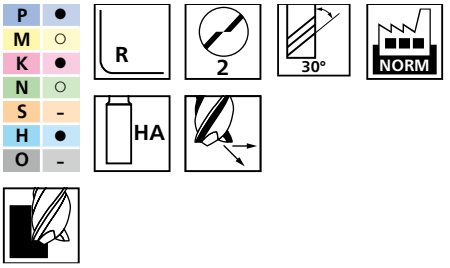
PFERD TOOLS




### Radius corner design with reinforced shank – metric

End mill for roughing and semi-finishing in hardened steels up to 60 HRC. Its special geometry makes it ideal for machining ribs and thin-walled contours.

| | |
|---|---|
| P | ● |
| M | ○ |
| K | ● |
| N | ○ |
| S | - |
| H | ● |
| O | - |




**Special features:**

- Modern tool coating and specially adapted carbide substrate for a long tool life and wear resistance when working on materials that are difficult to machine.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | RE [mm] | BHTA2 [°] | LU [mm] | ε 0.5° [mm] | ε 1.0° [mm] | ε 2.0° [mm] | ε 3.0° [mm] | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 6 | 2.9 | 4.5 | 78 | 0.2 | 12 | 30 | 31.74 | 32.35 | 33.2 | 33.8 | 23002103 | SCM-HC2H-M030R02-S30-78HA6 HP30 |
| | | | | | | | 32 | 33.79 | 34.42 | 35.29 | 35.89 | 23002122 | SCM-HC2H-M030R02-S32-78HA6 HP30 |
| | | | | | | | 35 | 36.86 | 37.52 | 38.41 | 39.01 | 23002123 | SCM-HC2H-M030R02-S35-78HA6 HP30 |
| | | | | 60 | 0.3 | 12 | 8 | 9.07 | 9.36 | 9.82 | 10.2 | 23002750 | SCM-HC2H-M030R03-S8-60HA6 HP30 |
| | | | | | | | 10 | 11.15 | 11.48 | 12 | 12.42 | 23002751 | SCM-HC2H-M030R03-S10-60HA6 HP30 |
| | | | | | | | 12 | 13.22 | 13.6 | 14.17 | 14.62 | 23002752 | SCM-HC2H-M030R03-S12-60HA6 HP30 |
| | | | | | | | 14 | 15.29 | 15.7 | 16.32 | 16.79 | 23002753 | SCM-HC2H-M030R03-S14-60HA6 HP30 |
| | | | | | | | 16 | 17.36 | 17.8 | 18.45 | 18.96 | 23002754 | SCM-HC2H-M030R03-S16-60HA6 HP30 |
| | | | | | | | 18 | 19.42 | 19.89 | 20.58 | 21.1 | 23002755 | SCM-HC2H-M030R03-S18-60HA6 HP30 |
| | | | | | | | 20 | 21.48 | 21.98 | 22.7 | 23.24 | 23002756 | SCM-HC2H-M030R03-S20-60HA6 HP30 |
| | | | | | | | 22 | 23.54 | 24.06 | 24.81 | 25.37 | 23002757 | SCM-HC2H-M030R03-S22-60HA6 HP30 |
| | | | | | | 20 | 25 | 26.62 | 27.18 | 27.97 | 28.54 | 23002758 | SCM-HC2H-M030R03-S25-60HA6 HP30 |
| | | | | 78 | 0.3 | 12 | 28 | 29.7 | 30.29 | 31.11 | 31.7 | 23002759 | SCM-HC2H-M030R03-S28-78HA6 HP30 |
| | | | | | | | 30 | 31.74 | 32.35 | 33.2 | 33.8 | 23002760 | SCM-HC2H-M030R03-S30-78HA6 HP30 |
| | | | | | | | 32 | 33.79 | 34.42 | 35.29 | 35.89 | 23002761 | SCM-HC2H-M030R03-S32-78HA6 HP30 |
| | | | | | | | 35 | 36.86 | 37.52 | 38.41 | 39.01 | 23002762 | SCM-HC2H-M030R03-S35-78HA6 HP30 |
| | | | | 60 | 0.5 | 12 | 8 | 9.07 | 9.36 | 9.82 | 10.2 | 23002746 | SCM-HC2H-M030R05-S8-60HA6 HP30 |
| | | | | | | | 10 | 11.15 | 11.48 | 12 | 12.42 | 23002763 | SCM-HC2H-M030R05-S10-60HA6 HP30 |
| | | | | | | | 12 | 13.22 | 13.6 | 14.17 | 14.62 | 23002747 | SCM-HC2H-M030R05-S12-60HA6 HP30 |
| | | | | | | | 14 | 15.29 | 15.7 | 16.32 | 16.79 | 23002764 | SCM-HC2H-M030R05-S14-60HA6 HP30 |
| | | | | | | | 16 | 17.36 | 17.8 | 18.45 | 18.96 | 23002748 | SCM-HC2H-M030R05-S16-60HA6 HP30 |
| | | | | | | | 18 | 19.42 | 19.89 | 20.58 | 21.1 | 23002765 | SCM-HC2H-M030R05-S18-60HA6 HP30 |
| | | | | | | | 20 | 21.48 | 21.98 | 22.7 | 23.24 | 23002766 | SCM-HC2H-M030R05-S20-60HA6 HP30 |
| | | | | | | | 22 | 23.54 | 24.06 | 24.81 | 25.37 | 23002767 | SCM-HC2H-M030R05-S22-60HA6 HP30 |
| | | | | | | 20 | 25 | 26.62 | 27.18 | 27.97 | 28.54 | 23002768 | SCM-HC2H-M030R05-S25-60HA6 HP30 |
| | | | | 78 | 0.5 | 12 | 28 | 29.7 | 30.29 | 31.11 | 31.7 | 23002769 | SCM-HC2H-M030R05-S28-78HA6 HP30 |
| | | | | | | | 30 | 31.74 | 32.35 | 33.2 | 33.8 | 23002749 | SCM-HC2H-M030R05-S30-78HA6 HP30 |
| | | | | | | | 32 | 33.79 | 34.42 | 35.29 | 35.89 | 23002770 | SCM-HC2H-M030R05-S32-78HA6 HP30 |
| | | | | | | | 35 | 36.86 | 37.52 | 38.41 | 39.01 | 23002771 | SCM-HC2H-M030R05-S35-78HA6 HP30 |
| | | | | 60 | 1 | 12 | 8 | 9.07 | 9.36 | 9.82 | 10.2 | 23002772 | SCM-HC2H-M030R10-S8-60HA6 HP30 |
| | | | | | | | 10 | 11.15 | 11.48 | 12 | 12.42 | 23002773 | SCM-HC2H-M030R10-S10-60HA6 HP30 |
| | | | | | | | 12 | 13.22 | 13.6 | 14.17 | 14.62 | 23002774 | SCM-HC2H-M030R10-S12-60HA6 HP30 |
| | | | | | | | 14 | 15.29 | 15.7 | 16.32 | 16.79 | 23002775 | SCM-HC2H-M030R10-S14-60HA6 HP30 |
| | | | | | | | 16 | 17.36 | 17.8 | 18.45 | 18.96 | 23002776 | SCM-HC2H-M030R10-S16-60HA6 HP30 |
| | | | | | | | 18 | 19.42 | 19.89 | 20.58 | 21.1 | 23002777 | SCM-HC2H-M030R10-S18-60HA6 HP30 |
| | | | | | | | 20 | 21.48 | 21.98 | 22.7 | 23.24 | 23002778 | SCM-HC2H-M030R10-S20-60HA6 HP30 |
| | | | | | | | 22 | 23.54 | 24.06 | 24.81 | 25.37 | 23002779 | SCM-HC2H-M030R10-S22-60HA6 HP30 |

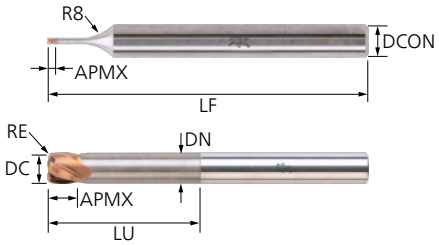
*Continued on next page*

# Performance Hardened Steel Line

## 2-flute Torus cutter (HC2H)

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | LF [mm] | RE [mm] | BHTA2 [°] | LU [mm] | ε 0.5° [mm] | ε 1.0° [mm] | ε 2.0° [mm] | ε 3.0° [mm] | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 6 | 2.9 | 4.5 | 60 | 1 | 20 | 25 | 26.62 | 27.18 | 27.97 | 28.54 | 23002780 | SCM-HC2H-M030R10-S25-60HA6 HP30 |
| | | | | 78 | 1 | 12 | 28 | 29.7 | 30.29 | 31.11 | 31.7 | 23002781 | SCM-HC2H-M030R10-S28-78HA6 HP30 |
| | | | | | | | 30 | 31.74 | 32.35 | 33.2 | 33.8 | 23002782 | SCM-HC2H-M030R10-S30-78HA6 HP30 |
| | | | | | | | 32 | 33.79 | 34.42 | 35.29 | 35.89 | 23002783 | SCM-HC2H-M030R10-S32-78HA6 HP30 |
| | | | | | | | 35 | 36.86 | 37.52 | 38.41 | 39.01 | 23002784 | SCM-HC2H-M030R10-S35-78HA6 HP30 |

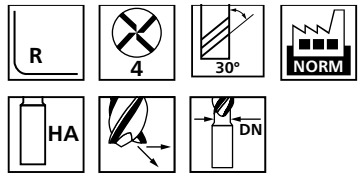
## 4-flute Torus cutter (HC4H)




### Radius – metric

End mill for roughing and semi-finishing in hardened steels up to 60 HRC.

| | |
|---|---|
| P | ● |
| M | ○ |
| K | ● |
| N | ○ |
| S | - |
| H | ● |
| O | - |




**Special features:**

- Modern tool coating for a long tool life and optimum temperature control when working on materials that are difficult to machine.
- Neck chip channel.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | RE [mm] | LU [mm] | LF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 6 | 0.95 | 1.5 | 0.1 | 2 | 57 | 4 | 23000481 | SCM-HC4H-M010R01-S2-57HA6 HP40 |
| | 4 | 0.95 | 1.5 | 0.1 | 2 | 50 | 4 | 23003188 | SCM-HC4H-M010R01-S2-50HA4 HP40 |
| | 6 | 0.95 | 1.5 | 0.1 | 4 | 57 | 4 | 23003169 | SCM-HC4H-M010R01-S4-57HA6 HP40 |
| | 4 | 0.95 | 1.5 | 0.1 | 4 | 50 | 4 | 23003189 | SCM-HC4H-M010R01-S4-50HA4 HP40 |
| | 6 | 0.95 | 1.5 | 0.1 | 6 | 57 | 4 | 23003170 | SCM-HC4H-M010R01-S6-57HA6 HP40 |
| | 4 | 0.95 | 1.5 | 0.1 | 6 | 50 | 4 | 23003190 | SCM-HC4H-M010R01-S6-50HA4 HP40 |
| | 6 | 0.95 | 1.5 | 0.1 | 8 | 57 | 4 | 23003171 | SCM-HC4H-M010R01-S8-57HA6 HP40 |
| | 4 | 0.95 | 1.5 | 0.1 | 8 | 50 | 4 | 23003191 | SCM-HC4H-M010R01-S8-50HA4 HP40 |
| | 6 | 0.95 | 1.5 | 0.1 | 10 | 57 | 4 | 23003172 | SCM-HC4H-M010R01-S10-57HA6 HP40 |
| | 4 | 0.95 | 1.5 | 0.1 | 10 | 50 | 4 | 23003192 | SCM-HC4H-M010R01-S10-50HA4 HP40 |
| | 6 | 0.95 | 1.5 | 0.1 | 12 | 57 | 4 | 23003173 | SCM-HC4H-M010R01-S12-57HA6 HP40 |
| | 4 | 0.95 | 1.5 | 0.1 | 12 | 50 | 4 | 23003193 | SCM-HC4H-M010R01-S12-50HA4 HP40 |
| | 6 | 0.95 | 1.5 | 0.1 | 14 | 57 | 4 | 23003174 | SCM-HC4H-M010R01-S14-57HA6 HP40 |
| | 4 | 0.95 | 1.5 | 0.1 | 14 | 50 | 4 | 23003194 | SCM-HC4H-M010R01-S14-50HA4 HP40 |
| | 6 | 0.95 | 1.5 | 0.1 | 16 | 57 | 4 | 23003175 | SCM-HC4H-M010R01-S16-57HA6 HP40 |
| | 4 | 0.95 | 1.5 | 0.1 | 16 | 50 | 4 | 23003195 | SCM-HC4H-M010R01-S16-50HA4 HP40 |
| | 6 | 0.95 | 1.5 | 0.1 | 18 | 57 | 4 | 23003176 | SCM-HC4H-M010R01-S18-57HA6 HP40 |
| | 4 | 0.95 | 1.5 | 0.1 | 18 | 50 | 4 | 23003196 | SCM-HC4H-M010R01-S18-50HA4 HP40 |
| | 6 | 0.95 | 1.5 | 0.1 | 20 | 57 | 4 | 23003177 | SCM-HC4H-M010R01-S20-57HA6 HP40 |
| | 4 | 0.95 | 1.5 | 0.1 | 20 | 50 | 4 | 23003197 | SCM-HC4H-M010R01-S20-50HA4 HP40 |
| | 6 | 0.95 | 1.5 | 0.2 | 2 | 57 | 4 | 23003178 | SCM-HC4H-M010R02-S2-57HA6 HP40 |
| | 4 | 0.95 | 1.5 | 0.2 | 2 | 50 | 4 | 23003198 | SCM-HC4H-M010R02-S2-50HA4 HP40 |
| | 6 | 0.95 | 1.5 | 0.2 | 4 | 57 | 4 | 23003179 | SCM-HC4H-M010R02-S4-57HA6 HP40 |
| | 4 | 0.95 | 1.5 | 0.2 | 4 | 50 | 4 | 23003199 | SCM-HC4H-M010R02-S4-50HA4 HP40 |
| | 6 | 0.95 | 1.5 | 0.2 | 6 | 57 | 4 | 23003180 | SCM-HC4H-M010R02-S6-57HA6 HP40 |
| | 4 | 0.95 | 1.5 | 0.2 | 6 | 50 | 4 | 23003200 | SCM-HC4H-M010R02-S6-50HA4 HP40 |
| | 6 | 0.95 | 1.5 | 0.2 | 8 | 57 | 4 | 23003181 | SCM-HC4H-M010R02-S8-57HA6 HP40 |

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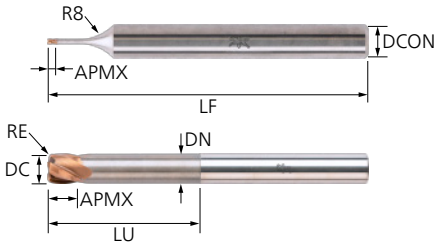
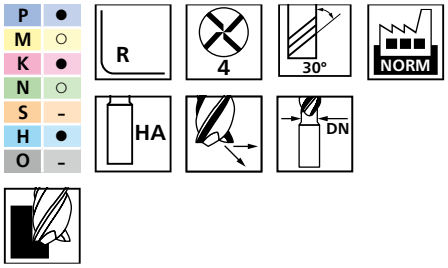
# Performance Hardened Steel Line
## 4-flute Torus cutter (HC4H)

PFERD TOOLS




### Radius – metric

End mill for roughing and semi-finishing in hardened steels up to 60 HRC.




**Special features:**

- Modern tool coating for a long tool life and optimum temperature control when working on materials that are difficult to machine.
- Neck chip channel.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | RE [mm] | LU [mm] | LF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 4 | 0.95 | 1.5 | 0.2 | 8 | 50 | 4 | 23003201 | SCM-HC4H-M010R02-S8-50HA4 HP40 |
| | 6 | 0.95 | 1.5 | 0.2 | 10 | 57 | 4 | 23003182 | SCM-HC4H-M010R02-S10-57HA6 HP40 |
| | 4 | 0.95 | 1.5 | 0.2 | 10 | 50 | 4 | 23003202 | SCM-HC4H-M010R02-S10-50HA4 HP40 |
| | 6 | 0.95 | 1.5 | 0.2 | 12 | 57 | 4 | 23003183 | SCM-HC4H-M010R02-S12-57HA6 HP40 |
| | 4 | 0.95 | 1.5 | 0.2 | 12 | 50 | 4 | 23003203 | SCM-HC4H-M010R02-S12-50HA4 HP40 |
| | 6 | 0.95 | 1.5 | 0.2 | 14 | 57 | 4 | 23003184 | SCM-HC4H-M010R02-S14-57HA6 HP40 |
| | 4 | 0.95 | 1.5 | 0.2 | 14 | 50 | 4 | 23003204 | SCM-HC4H-M010R02-S14-50HA4 HP40 |
| | 6 | 0.95 | 1.5 | 0.2 | 16 | 57 | 4 | 23003185 | SCM-HC4H-M010R02-S16-57HA6 HP40 |
| | 4 | 0.95 | 1.5 | 0.2 | 16 | 50 | 4 | 23003205 | SCM-HC4H-M010R02-S16-50HA4 HP40 |
| | 6 | 0.95 | 1.5 | 0.2 | 18 | 57 | 4 | 23003186 | SCM-HC4H-M010R02-S18-57HA6 HP40 |
| | 4 | 0.95 | 1.5 | 0.2 | 18 | 50 | 4 | 23003206 | SCM-HC4H-M010R02-S18-50HA4 HP40 |
| | 6 | 0.95 | 1.5 | 0.2 | 20 | 57 | 4 | 23003187 | SCM-HC4H-M010R02-S20-57HA6 HP40 |
| | 4 | 0.95 | 1.5 | 0.2 | 20 | 50 | 4 | 23003207 | SCM-HC4H-M010R02-S20-50HA4 HP40 |
| | 6 | 0.95 | 1.5 | 0.3 | 2 | 57 | 4 | 23002197 | SCM-HC4H-M010R03-S2-57HA6 HP40 |
| | 4 | 0.95 | 1.5 | 0.3 | 2 | 50 | 4 | 23002207 | SCM-HC4H-M010R03-S2-50HA4 HP40 |
| | 6 | 0.95 | 1.5 | 0.3 | 4 | 57 | 4 | 23002198 | SCM-HC4H-M010R03-S4-57HA6 HP40 |
| | 4 | 0.95 | 1.5 | 0.3 | 4 | 50 | 4 | 23002208 | SCM-HC4H-M010R03-S4-50HA4 HP40 |
| | 6 | 0.95 | 1.5 | 0.3 | 6 | 57 | 4 | 23002199 | SCM-HC4H-M010R03-S6-57HA6 HP40 |
| | 4 | 0.95 | 1.5 | 0.3 | 6 | 50 | 4 | 23002209 | SCM-HC4H-M010R03-S6-50HA4 HP40 |
| | 6 | 0.95 | 1.5 | 0.3 | 8 | 57 | 4 | 23002200 | SCM-HC4H-M010R03-S8-57HA6 HP40 |
| | 4 | 0.95 | 1.5 | 0.3 | 8 | 50 | 4 | 23002210 | SCM-HC4H-M010R03-S8-50HA4 HP40 |
| | 6 | 0.95 | 1.5 | 0.3 | 10 | 57 | 4 | 23002201 | SCM-HC4H-M010R03-S10-57HA6 HP40 |
| | 4 | 0.95 | 1.5 | 0.3 | 10 | 50 | 4 | 23002211 | SCM-HC4H-M010R03-S10-50HA4 HP40 |
| | 6 | 0.95 | 1.5 | 0.3 | 12 | 57 | 4 | 23002202 | SCM-HC4H-M010R03-S12-57HA6 HP40 |
| | 4 | 0.95 | 1.5 | 0.3 | 12 | 50 | 4 | 23002212 | SCM-HC4H-M010R03-S12-50HA4 HP40 |
| | 6 | 0.95 | 1.5 | 0.3 | 14 | 57 | 4 | 23002203 | SCM-HC4H-M010R03-S14-57HA6 HP40 |
| | 4 | 0.95 | 1.5 | 0.3 | 14 | 50 | 4 | 23002213 | SCM-HC4H-M010R03-S14-50HA4 HP40 |
| | 6 | 0.95 | 1.5 | 0.3 | 16 | 57 | 4 | 23002204 | SCM-HC4H-M010R03-S16-57HA6 HP40 |
| | 4 | 0.95 | 1.5 | 0.3 | 16 | 50 | 4 | 23002214 | SCM-HC4H-M010R03-S16-50HA4 HP40 |
| | 6 | 0.95 | 1.5 | 0.3 | 18 | 57 | 4 | 23002205 | SCM-HC4H-M010R03-S18-57HA6 HP40 |
| | 4 | 0.95 | 1.5 | 0.3 | 18 | 50 | 4 | 23002215 | SCM-HC4H-M010R03-S18-50HA4 HP40 |
| | 6 | 0.95 | 1.5 | 0.3 | 20 | 57 | 4 | 23002206 | SCM-HC4H-M010R03-S20-57HA6 HP40 |
| | 4 | 0.95 | 1.5 | 0.3 | 20 | 50 | 4 | 23002216 | SCM-HC4H-M010R03-S20-50HA4 HP40 |
| 1.5 | 6 | 1.45 | 2 | 0.1 | 4 | 57 | 4 | 23002217 | SCM-HC4H-M015R01-S4-57HA6 HP40 |
| | 4 | 1.45 | 2 | 0.1 | 4 | 50 | 4 | 23002235 | SCM-HC4H-M015R01-S4-50HA4 HP40 |
| | 6 | 1.45 | 2 | 0.1 | 6 | 57 | 4 | 23002218 | SCM-HC4H-M015R01-S6-57HA6 HP40 |
| | 4 | 1.45 | 2 | 0.1 | 6 | 50 | 4 | 23002236 | SCM-HC4H-M015R01-S6-50HA4 HP40 |

*Continued on next page*

# Performance Hardened Steel Line
## 4-flute Torus cutter (HC4H)

PFERD TOOLS

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | RE [mm] | LU [mm] | LF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| 1.5 | 6 | 1.45 | 2 | 0.1 | 8 | 57 | 4 | 23002219 | SCM-HC4H-M015R01-S8-57HA6 HP40 |
| | 4 | 1.45 | 2 | 0.1 | 8 | 50 | 4 | 23002237 | SCM-HC4H-M015R01-S8-50HA4 HP40 |
| | 6 | 1.45 | 2 | 0.1 | 10 | 57 | 4 | 23002220 | SCM-HC4H-M015R01-S10-57HA6 HP40 |
| | 4 | 1.45 | 2 | 0.1 | 10 | 50 | 4 | 23002238 | SCM-HC4H-M015R01-S10-50HA4 HP40 |
| | 6 | 1.45 | 2 | 0.1 | 12 | 57 | 4 | 23002221 | SCM-HC4H-M015R01-S12-57HA6 HP40 |
| | 4 | 1.45 | 2 | 0.1 | 12 | 50 | 4 | 23002239 | SCM-HC4H-M015R01-S12-50HA4 HP40 |
| | 6 | 1.45 | 2 | 0.1 | 14 | 57 | 4 | 23002222 | SCM-HC4H-M015R01-S14-57HA6 HP40 |
| | 4 | 1.45 | 2 | 0.1 | 14 | 50 | 4 | 23002240 | SCM-HC4H-M015R01-S14-50HA4 HP40 |
| | 6 | 1.45 | 2 | 0.1 | 16 | 57 | 4 | 23002223 | SCM-HC4H-M015R01-S16-57HA6 HP40 |
| | 4 | 1.45 | 2 | 0.1 | 16 | 50 | 4 | 23002241 | SCM-HC4H-M015R01-S16-50HA4 HP40 |
| | 6 | 1.45 | 2 | 0.1 | 18 | 57 | 4 | 23002224 | SCM-HC4H-M015R01-S18-57HA6 HP40 |
| | 4 | 1.45 | 2 | 0.1 | 18 | 50 | 4 | 23002242 | SCM-HC4H-M015R01-S18-50HA4 HP40 |
| | 6 | 1.45 | 2 | 0.1 | 20 | 57 | 4 | 23002225 | SCM-HC4H-M015R01-S20-57HA6 HP40 |
| | 4 | 1.45 | 2 | 0.1 | 20 | 50 | 4 | 23002243 | SCM-HC4H-M015R01-S20-50HA4 HP40 |
| | 6 | 1.45 | 2 | 0.2 | 4 | 57 | 4 | 23003208 | SCM-HC4H-M015R02-S4-57HA6 HP40 |
| | 4 | 1.45 | 2 | 0.2 | 4 | 50 | 4 | 23003225 | SCM-HC4H-M015R02-S4-50HA4 HP40 |
| | 6 | 1.45 | 2 | 0.2 | 6 | 57 | 4 | 23003209 | SCM-HC4H-M015R02-S6-57HA6 HP40 |
| | 4 | 1.45 | 2 | 0.2 | 6 | 50 | 4 | 23003226 | SCM-HC4H-M015R02-S6-50HA4 HP40 |
| | 6 | 1.45 | 2 | 0.2 | 8 | 57 | 4 | 23003210 | SCM-HC4H-M015R02-S8-57HA6 HP40 |
| | 4 | 1.45 | 2 | 0.2 | 8 | 50 | 4 | 23003227 | SCM-HC4H-M015R02-S8-50HA4 HP40 |
| | 6 | 1.45 | 2 | 0.2 | 10 | 57 | 4 | 23003211 | SCM-HC4H-M015R02-S10-57HA6 HP40 |
| | 4 | 1.45 | 2 | 0.2 | 10 | 50 | 4 | 23003228 | SCM-HC4H-M015R02-S10-50HA4 HP40 |
| | 6 | 1.45 | 2 | 0.2 | 12 | 57 | 4 | 23003212 | SCM-HC4H-M015R02-S12-57HA6 HP40 |
| | 4 | 1.45 | 2 | 0.2 | 12 | 50 | 4 | 23003229 | SCM-HC4H-M015R02-S12-50HA4 HP40 |
| | 6 | 1.45 | 2 | 0.2 | 14 | 57 | 4 | 23003213 | SCM-HC4H-M015R02-S14-57HA6 HP40 |
| | 4 | 1.45 | 2 | 0.2 | 14 | 50 | 4 | 23003230 | SCM-HC4H-M015R02-S14-50HA4 HP40 |
| | 6 | 1.45 | 2 | 0.2 | 16 | 57 | 4 | 23003214 | SCM-HC4H-M015R02-S16-57HA6 HP40 |
| | 4 | 1.45 | 2 | 0.2 | 16 | 50 | 4 | 23003231 | SCM-HC4H-M015R02-S16-50HA4 HP40 |
| | 6 | 1.45 | 2 | 0.2 | 18 | 57 | 4 | 23003215 | SCM-HC4H-M015R02-S18-57HA6 HP40 |
| | 4 | 1.45 | 2 | 0.2 | 18 | 50 | 4 | 23003232 | SCM-HC4H-M015R02-S18-50HA4 HP40 |
| | 6 | 1.45 | 2 | 0.2 | 20 | 57 | 4 | 23003216 | SCM-HC4H-M015R02-S20-57HA6 HP40 |
| | 4 | 1.45 | 2 | 0.2 | 20 | 50 | 4 | 23003233 | SCM-HC4H-M015R02-S20-50HA4 HP40 |
| | 6 | 1.45 | 2 | 0.3 | 4 | 57 | 4 | 23001392 | SCM-HC4H-M015R03-S4-57HA6 HP40 |
| | 4 | 1.45 | 2 | 0.3 | 4 | 50 | 4 | 23003234 | SCM-HC4H-M015R03-S4-50HA4 HP40 |
| | 6 | 1.45 | 2 | 0.3 | 6 | 57 | 4 | 23003217 | SCM-HC4H-M015R03-S6-57HA6 HP40 |
| | 4 | 1.45 | 2 | 0.3 | 6 | 50 | 4 | 23003235 | SCM-HC4H-M015R03-S6-50HA4 HP40 |
| | 6 | 1.45 | 2 | 0.3 | 8 | 57 | 4 | 23003218 | SCM-HC4H-M015R03-S8-57HA6 HP40 |
| | 4 | 1.45 | 2 | 0.3 | 8 | 50 | 4 | 23003236 | SCM-HC4H-M015R03-S8-50HA4 HP40 |
| | 6 | 1.45 | 2 | 0.3 | 10 | 57 | 4 | 23003219 | SCM-HC4H-M015R03-S10-57HA6 HP40 |
| | 4 | 1.45 | 2 | 0.3 | 10 | 50 | 4 | 23003237 | SCM-HC4H-M015R03-S10-50HA4 HP40 |
| | 6 | 1.45 | 2 | 0.3 | 12 | 57 | 4 | 23003220 | SCM-HC4H-M015R03-S12-57HA6 HP40 |
| | 4 | 1.45 | 2 | 0.3 | 12 | 50 | 4 | 23003238 | SCM-HC4H-M015R03-S12-50HA4 HP40 |
| | 6 | 1.45 | 2 | 0.3 | 14 | 57 | 4 | 23003221 | SCM-HC4H-M015R03-S14-57HA6 HP40 |
| | 4 | 1.45 | 2 | 0.3 | 14 | 50 | 4 | 23003239 | SCM-HC4H-M015R03-S14-50HA4 HP40 |
| | 6 | 1.45 | 2 | 0.3 | 16 | 57 | 4 | 23003222 | SCM-HC4H-M015R03-S16-57HA6 HP40 |
| | 4 | 1.45 | 2 | 0.3 | 16 | 50 | 4 | 23003240 | SCM-HC4H-M015R03-S16-50HA4 HP40 |
| | 6 | 1.45 | 2 | 0.3 | 18 | 57 | 4 | 23003223 | SCM-HC4H-M015R03-S18-57HA6 HP40 |
| | 4 | 1.45 | 2 | 0.3 | 18 | 50 | 4 | 23003241 | SCM-HC4H-M015R03-S18-50HA4 HP40 |
| | 6 | 1.45 | 2 | 0.3 | 20 | 57 | 4 | 23003224 | SCM-HC4H-M015R03-S20-57HA6 HP40 |

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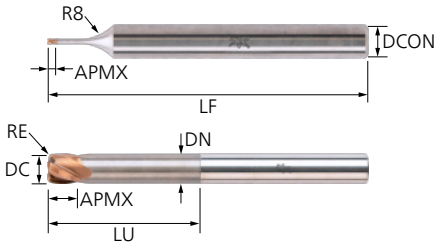
# Performance Hardened Steel Line
## 4-flute Torus cutter (HC4H)

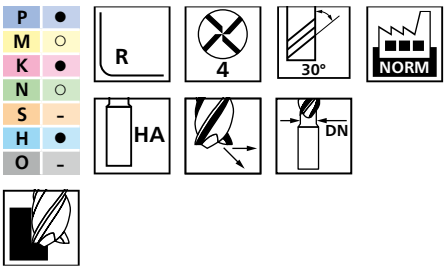
PFERD TOOLS




### Radius – metric

End mill for roughing and semi-finishing in hardened steels up to 60 HRC.

| | |
|---|---|
| P | ● |
| M | ○ |
| K | ● |
| N | ○ |
| S | - |
| H | ● |
| O | - |




**Special features:**
- Modern tool coating for a long tool life and optimum temperature control when working on materials that are difficult to machine.
- Neck chip channel.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | RE [mm] | LU [mm] | LF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| 1.5 | 4 | 1.45 | 2 | 0.3 | 20 | 50 | 4 | 23003242 | SCM-HC4H-M015R03-S20-50HA4 HP40 |
| | 6 | 1.45 | 2 | 0.5 | 4 | 57 | 4 | 23002226 | SCM-HC4H-M015R05-S4-57HA6 HP40 |
| | 4 | 1.45 | 2 | 0.5 | 4 | 50 | 4 | 23002244 | SCM-HC4H-M015R05-S4-50HA4 HP40 |
| | 6 | 1.45 | 2 | 0.5 | 6 | 57 | 4 | 23002227 | SCM-HC4H-M015R05-S6-57HA6 HP40 |
| | 4 | 1.45 | 2 | 0.5 | 6 | 50 | 4 | 23002245 | SCM-HC4H-M015R05-S6-50HA4 HP40 |
| | 6 | 1.45 | 2 | 0.5 | 8 | 57 | 4 | 23002228 | SCM-HC4H-M015R05-S8-57HA6 HP40 |
| | 4 | 1.45 | 2 | 0.5 | 8 | 50 | 4 | 23002246 | SCM-HC4H-M015R05-S8-50HA4 HP40 |
| | 6 | 1.45 | 2 | 0.5 | 10 | 57 | 4 | 23002229 | SCM-HC4H-M015R05-S10-57HA6 HP40 |
| | 4 | 1.45 | 2 | 0.5 | 10 | 50 | 4 | 23002247 | SCM-HC4H-M015R05-S10-50HA4 HP40 |
| | 6 | 1.45 | 2 | 0.5 | 12 | 57 | 4 | 23002230 | SCM-HC4H-M015R05-S12-57HA6 HP40 |
| | 4 | 1.45 | 2 | 0.5 | 12 | 50 | 4 | 23002248 | SCM-HC4H-M015R05-S12-50HA4 HP40 |
| | 6 | 1.45 | 2 | 0.5 | 14 | 57 | 4 | 23002231 | SCM-HC4H-M015R05-S14-57HA6 HP40 |
| | 4 | 1.45 | 2 | 0.5 | 14 | 50 | 4 | 23002249 | SCM-HC4H-M015R05-S14-50HA4 HP40 |
| | 6 | 1.45 | 2 | 0.5 | 16 | 57 | 4 | 23002232 | SCM-HC4H-M015R05-S16-57HA6 HP40 |
| | 4 | 1.45 | 2 | 0.5 | 16 | 50 | 4 | 23002250 | SCM-HC4H-M015R05-S16-50HA4 HP40 |
| | 6 | 1.45 | 2 | 0.5 | 18 | 57 | 4 | 23002233 | SCM-HC4H-M015R05-S18-57HA6 HP40 |
| | 4 | 1.45 | 2 | 0.5 | 18 | 50 | 4 | 23002251 | SCM-HC4H-M015R05-S18-50HA4 HP40 |
| | 6 | 1.45 | 2 | 0.5 | 20 | 57 | 4 | 23002234 | SCM-HC4H-M015R05-S20-57HA6 HP40 |
| | 4 | 1.45 | 2 | 0.5 | 20 | 50 | 4 | 23002252 | SCM-HC4H-M015R05-S20-50HA4 HP40 |
| 2 | 6 | 1.9 | 3 | 0.1 | 4 | 57 | 4 | 23002253 | SCM-HC4H-M020R01-S4-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.1 | 4 | 50 | 4 | 23002264 | SCM-HC4H-M020R01-S4-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.1 | 6 | 57 | 4 | 23002254 | SCM-HC4H-M020R01-S6-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.1 | 6 | 50 | 4 | 23002265 | SCM-HC4H-M020R01-S6-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.1 | 8 | 57 | 4 | 23002255 | SCM-HC4H-M020R01-S8-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.1 | 8 | 50 | 4 | 23002266 | SCM-HC4H-M020R01-S8-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.1 | 10 | 57 | 4 | 23002256 | SCM-HC4H-M020R01-S10-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.1 | 10 | 50 | 4 | 23002267 | SCM-HC4H-M020R01-S10-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.1 | 12 | 57 | 4 | 23002257 | SCM-HC4H-M020R01-S12-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.1 | 12 | 50 | 4 | 23002268 | SCM-HC4H-M020R01-S12-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.1 | 14 | 57 | 4 | 23002258 | SCM-HC4H-M020R01-S14-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.1 | 14 | 50 | 4 | 23002269 | SCM-HC4H-M020R01-S14-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.1 | 16 | 57 | 4 | 23002259 | SCM-HC4H-M020R01-S16-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.1 | 16 | 50 | 4 | 23002270 | SCM-HC4H-M020R01-S16-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.1 | 18 | 57 | 4 | 23002260 | SCM-HC4H-M020R01-S18-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.1 | 18 | 50 | 4 | 23002271 | SCM-HC4H-M020R01-S18-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.1 | 20 | 57 | 4 | 23002261 | SCM-HC4H-M020R01-S20-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.1 | 20 | 50 | 4 | 23002272 | SCM-HC4H-M020R01-S20-50HA4 HP40 |

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# Performance Hardened Steel Line
## 4-flute Torus cutter (HC4H)

PFERD TOOLS

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | RE [mm] | LU [mm] | LF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 6 | 1.9 | 3 | 0.1 | 22 | 57 | 4 | 23002262 | SCM-HC4H-M020R01-S22-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.1 | 22 | 50 | 4 | 23002273 | SCM-HC4H-M020R01-S22-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.1 | 25 | 57 | 4 | 23002263 | SCM-HC4H-M020R01-S25-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.1 | 25 | 50 | 4 | 23002274 | SCM-HC4H-M020R01-S25-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.2 | 4 | 57 | 4 | 23003243 | SCM-HC4H-M020R02-S4-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.2 | 4 | 50 | 4 | 23003275 | SCM-HC4H-M020R02-S4-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.2 | 6 | 57 | 4 | 23003244 | SCM-HC4H-M020R02-S6-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.2 | 6 | 50 | 4 | 23003276 | SCM-HC4H-M020R02-S6-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.2 | 8 | 57 | 4 | 23003245 | SCM-HC4H-M020R02-S8-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.2 | 8 | 50 | 4 | 23003277 | SCM-HC4H-M020R02-S8-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.2 | 10 | 57 | 4 | 23003246 | SCM-HC4H-M020R02-S10-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.2 | 10 | 50 | 4 | 23003278 | SCM-HC4H-M020R02-S10-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.2 | 12 | 57 | 4 | 23003247 | SCM-HC4H-M020R02-S12-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.2 | 12 | 50 | 4 | 23003279 | SCM-HC4H-M020R02-S12-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.2 | 14 | 57 | 4 | 23003248 | SCM-HC4H-M020R02-S14-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.2 | 14 | 50 | 4 | 23003280 | SCM-HC4H-M020R02-S14-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.2 | 16 | 57 | 4 | 23003249 | SCM-HC4H-M020R02-S16-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.2 | 16 | 50 | 4 | 23003281 | SCM-HC4H-M020R02-S16-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.2 | 18 | 57 | 4 | 23003250 | SCM-HC4H-M020R02-S18-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.2 | 18 | 50 | 4 | 23003282 | SCM-HC4H-M020R02-S18-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.2 | 20 | 57 | 4 | 23003251 | SCM-HC4H-M020R02-S20-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.2 | 20 | 50 | 4 | 23003283 | SCM-HC4H-M020R02-S20-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.2 | 22 | 57 | 4 | 23003252 | SCM-HC4H-M020R02-S22-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.2 | 22 | 50 | 4 | 23003284 | SCM-HC4H-M020R02-S22-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.2 | 25 | 57 | 4 | 23003253 | SCM-HC4H-M020R02-S25-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.2 | 25 | 50 | 4 | 23003285 | SCM-HC4H-M020R02-S25-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.3 | 4 | 57 | 4 | 23003254 | SCM-HC4H-M020R03-S4-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.3 | 4 | 50 | 4 | 23003286 | SCM-HC4H-M020R03-S4-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.3 | 6 | 57 | 4 | 23003255 | SCM-HC4H-M020R03-S6-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.3 | 6 | 50 | 4 | 23003287 | SCM-HC4H-M020R03-S6-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.3 | 8 | 57 | 4 | 23003256 | SCM-HC4H-M020R03-S8-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.3 | 8 | 50 | 4 | 23003288 | SCM-HC4H-M020R03-S8-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.3 | 10 | 57 | 4 | 23003257 | SCM-HC4H-M020R03-S10-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.3 | 10 | 50 | 4 | 23003289 | SCM-HC4H-M020R03-S10-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.3 | 12 | 57 | 4 | 23003258 | SCM-HC4H-M020R03-S12-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.3 | 12 | 50 | 4 | 23003290 | SCM-HC4H-M020R03-S12-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.3 | 14 | 57 | 4 | 23003259 | SCM-HC4H-M020R03-S14-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.3 | 14 | 50 | 4 | 23003291 | SCM-HC4H-M020R03-S14-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.3 | 16 | 57 | 4 | 23003260 | SCM-HC4H-M020R03-S16-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.3 | 16 | 50 | 4 | 23003292 | SCM-HC4H-M020R03-S16-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.3 | 18 | 57 | 4 | 23003261 | SCM-HC4H-M020R03-S18-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.3 | 18 | 50 | 4 | 23003293 | SCM-HC4H-M020R03-S18-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.3 | 20 | 57 | 4 | 23003262 | SCM-HC4H-M020R03-S20-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.3 | 20 | 50 | 4 | 23003294 | SCM-HC4H-M020R03-S20-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.3 | 22 | 57 | 4 | 23003263 | SCM-HC4H-M020R03-S22-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.3 | 22 | 50 | 4 | 23003295 | SCM-HC4H-M020R03-S22-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.3 | 25 | 57 | 4 | 23003264 | SCM-HC4H-M020R03-S25-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.3 | 25 | 50 | 4 | 23003296 | SCM-HC4H-M020R03-S25-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.5 | 4 | 57 | 4 | 23001394 | SCM-HC4H-M020R05-S4-57HA6 HP40 |

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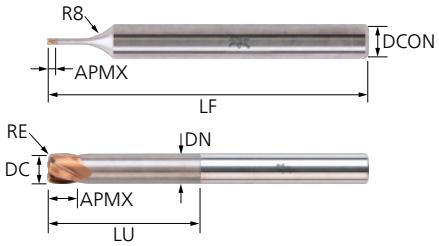
# Performance Hardened Steel Line
## 4-flute Torus cutter (HC4H)

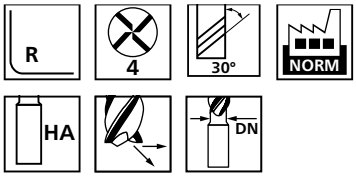
PFERD TOOLS




### Radius – metric

End mill for roughing and semi-finishing in hardened steels up to 60 HRC.

| | |
|---|---|
| P | ● |
| M | ○ |
| K | ● |
| N | ○ |
| S | - |
| H | ● |
| O | - |




**Special features:**
- Modern tool coating for a long tool life and optimum temperature control when working on materials that are difficult to machine.
- Neck chip channel.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | RE [mm] | LU [mm] | LF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 4 | 1.9 | 3 | 0.5 | 4 | 50 | 4 | 23003297 | SCM-HC4H-M020R05-S4-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.5 | 6 | 57 | 4 | 23003265 | SCM-HC4H-M020R05-S6-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.5 | 6 | 50 | 4 | 23003298 | SCM-HC4H-M020R05-S6-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.5 | 8 | 57 | 4 | 23003266 | SCM-HC4H-M020R05-S8-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.5 | 8 | 50 | 4 | 23003299 | SCM-HC4H-M020R05-S8-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.5 | 10 | 57 | 4 | 23003267 | SCM-HC4H-M020R05-S10-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.5 | 10 | 50 | 4 | 23003300 | SCM-HC4H-M020R05-S10-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.5 | 12 | 57 | 4 | 23003268 | SCM-HC4H-M020R05-S12-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.5 | 12 | 50 | 4 | 23003301 | SCM-HC4H-M020R05-S12-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.5 | 14 | 57 | 4 | 23003269 | SCM-HC4H-M020R05-S14-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.5 | 14 | 50 | 4 | 23003302 | SCM-HC4H-M020R05-S14-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.5 | 16 | 57 | 4 | 23003270 | SCM-HC4H-M020R05-S16-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.5 | 16 | 50 | 4 | 23003303 | SCM-HC4H-M020R05-S16-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.5 | 18 | 57 | 4 | 23003271 | SCM-HC4H-M020R05-S18-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.5 | 18 | 50 | 4 | 23003304 | SCM-HC4H-M020R05-S18-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.5 | 20 | 57 | 4 | 23003272 | SCM-HC4H-M020R05-S20-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.5 | 20 | 50 | 4 | 23003305 | SCM-HC4H-M020R05-S20-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.5 | 22 | 57 | 4 | 23003273 | SCM-HC4H-M020R05-S22-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.5 | 22 | 50 | 4 | 23003306 | SCM-HC4H-M020R05-S22-50HA4 HP40 |
| | 6 | 1.9 | 3 | 0.5 | 25 | 57 | 4 | 23003274 | SCM-HC4H-M020R05-S25-57HA6 HP40 |
| | 4 | 1.9 | 3 | 0.5 | 25 | 50 | 4 | 23003307 | SCM-HC4H-M020R05-S25-50HA4 HP40 |
| 2.5 | 6 | 2.4 | 3.5 | 0.1 | 4 | 57 | 4 | 23002275 | SCM-HC4H-M025R01-S4-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.1 | 4 | 50 | 4 | 23002286 | SCM-HC4H-M025R01-S4-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.1 | 6 | 57 | 4 | 23002276 | SCM-HC4H-M025R01-S6-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.1 | 6 | 50 | 4 | 23002287 | SCM-HC4H-M025R01-S6-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.1 | 8 | 57 | 4 | 23002277 | SCM-HC4H-M025R01-S8-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.1 | 8 | 50 | 4 | 23002288 | SCM-HC4H-M025R01-S8-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.1 | 10 | 57 | 4 | 23002278 | SCM-HC4H-M025R01-S10-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.1 | 10 | 50 | 4 | 23002289 | SCM-HC4H-M025R01-S10-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.1 | 12 | 57 | 4 | 23002279 | SCM-HC4H-M025R01-S12-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.1 | 12 | 50 | 4 | 23002290 | SCM-HC4H-M025R01-S12-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.1 | 14 | 57 | 4 | 23002280 | SCM-HC4H-M025R01-S14-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.1 | 14 | 50 | 4 | 23002291 | SCM-HC4H-M025R01-S14-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.1 | 16 | 57 | 4 | 23002281 | SCM-HC4H-M025R01-S16-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.1 | 16 | 50 | 4 | 23002292 | SCM-HC4H-M025R01-S16-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.1 | 18 | 57 | 4 | 23002282 | SCM-HC4H-M025R01-S18-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.1 | 18 | 50 | 4 | 23002293 | SCM-HC4H-M025R01-S18-50HA4 HP40 |

*Continued on next page*

# Performance Hardened Steel Line
## 4-flute Torus cutter (HC4H)

PFERD TOOLS

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | RE [mm] | LU [mm] | LF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| 2.5 | 6 | 2.4 | 3.5 | 0.1 | 20 | 57 | 4 | 23002283 | SCM-HC4H-M025R01-S20-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.1 | 20 | 50 | 4 | 23002294 | SCM-HC4H-M025R01-S20-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.1 | 22 | 57 | 4 | 23002284 | SCM-HC4H-M025R01-S22-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.1 | 22 | 50 | 4 | 23002295 | SCM-HC4H-M025R01-S22-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.1 | 25 | 57 | 4 | 23002285 | SCM-HC4H-M025R01-S25-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.1 | 25 | 50 | 4 | 23002296 | SCM-HC4H-M025R01-S25-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.2 | 4 | 57 | 4 | 23003308 | SCM-HC4H-M025R02-S4-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.2 | 4 | 50 | 4 | 23003352 | SCM-HC4H-M025R02-S4-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.2 | 6 | 57 | 4 | 23003309 | SCM-HC4H-M025R02-S6-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.2 | 6 | 50 | 4 | 23003353 | SCM-HC4H-M025R02-S6-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.2 | 8 | 57 | 4 | 23003310 | SCM-HC4H-M025R02-S8-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.2 | 8 | 50 | 4 | 23003354 | SCM-HC4H-M025R02-S8-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.2 | 10 | 57 | 4 | 23003311 | SCM-HC4H-M025R02-S10-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.2 | 10 | 50 | 4 | 23003355 | SCM-HC4H-M025R02-S10-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.2 | 12 | 57 | 4 | 23003312 | SCM-HC4H-M025R02-S12-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.2 | 12 | 50 | 4 | 23003356 | SCM-HC4H-M025R02-S12-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.2 | 14 | 57 | 4 | 23003313 | SCM-HC4H-M025R02-S14-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.2 | 14 | 50 | 4 | 23003357 | SCM-HC4H-M025R02-S14-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.2 | 16 | 57 | 4 | 23003314 | SCM-HC4H-M025R02-S16-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.2 | 16 | 50 | 4 | 23003358 | SCM-HC4H-M025R02-S16-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.2 | 18 | 57 | 4 | 23003315 | SCM-HC4H-M025R02-S18-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.2 | 18 | 50 | 4 | 23003359 | SCM-HC4H-M025R02-S18-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.2 | 20 | 57 | 4 | 23003316 | SCM-HC4H-M025R02-S20-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.2 | 20 | 50 | 4 | 23003360 | SCM-HC4H-M025R02-S20-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.2 | 22 | 57 | 4 | 23003317 | SCM-HC4H-M025R02-S22-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.2 | 22 | 50 | 4 | 23003361 | SCM-HC4H-M025R02-S22-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.2 | 25 | 57 | 4 | 23003318 | SCM-HC4H-M025R02-S25-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.2 | 25 | 50 | 4 | 23003362 | SCM-HC4H-M025R02-S25-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.3 | 4 | 57 | 4 | 23003319 | SCM-HC4H-M025R03-S4-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.3 | 4 | 50 | 4 | 23003363 | SCM-HC4H-M025R03-S4-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.3 | 6 | 57 | 4 | 23003320 | SCM-HC4H-M025R03-S6-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.3 | 6 | 50 | 4 | 23003364 | SCM-HC4H-M025R03-S6-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.3 | 8 | 57 | 4 | 23003321 | SCM-HC4H-M025R03-S8-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.3 | 8 | 50 | 4 | 23003365 | SCM-HC4H-M025R03-S8-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.3 | 10 | 57 | 4 | 23003322 | SCM-HC4H-M025R03-S10-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.3 | 10 | 50 | 4 | 23003366 | SCM-HC4H-M025R03-S10-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.3 | 12 | 57 | 4 | 23003323 | SCM-HC4H-M025R03-S12-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.3 | 12 | 50 | 4 | 23003367 | SCM-HC4H-M025R03-S12-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.3 | 14 | 57 | 4 | 23003324 | SCM-HC4H-M025R03-S14-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.3 | 14 | 50 | 4 | 23003368 | SCM-HC4H-M025R03-S14-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.3 | 16 | 57 | 4 | 23003325 | SCM-HC4H-M025R03-S16-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.3 | 16 | 50 | 4 | 23003369 | SCM-HC4H-M025R03-S16-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.3 | 18 | 57 | 4 | 23003326 | SCM-HC4H-M025R03-S18-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.3 | 18 | 50 | 4 | 23003370 | SCM-HC4H-M025R03-S18-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.3 | 20 | 57 | 4 | 23003327 | SCM-HC4H-M025R03-S20-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.3 | 20 | 50 | 4 | 23003371 | SCM-HC4H-M025R03-S20-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.3 | 22 | 57 | 4 | 23003328 | SCM-HC4H-M025R03-S22-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.3 | 22 | 50 | 4 | 23003372 | SCM-HC4H-M025R03-S22-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.3 | 25 | 57 | 4 | 23003329 | SCM-HC4H-M025R03-S25-57HA6 HP40 |

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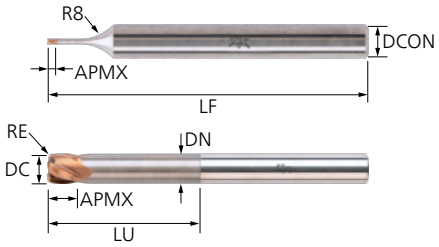
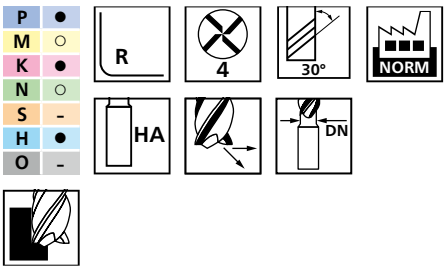
# Performance Hardened Steel Line
## 4-flute Torus cutter (HC4H)




### Radius – metric

End mill for roughing and semi-finishing in hardened steels up to 60 HRC.

| | |
|---|---|
| P | ● |
| M | ○ |
| K | ● |
| N | ○ |
| S | - |
| H | ● |
| O | - |




**Special features:**
- Modern tool coating for a long tool life and optimum temperature control when working on materials that are difficult to machine.
- Neck chip channel.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | RE [mm] | LU [mm] | LF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| 2.5 | 4 | 2.4 | 3.5 | 0.3 | 25 | 50 | 4 | 23003373 | SCM-HC4H-M025R03-S25-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.5 | 4 | 57 | 4 | 23003330 | SCM-HC4H-M025R05-S4-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.5 | 4 | 50 | 4 | 23003374 | SCM-HC4H-M025R05-S4-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.5 | 6 | 57 | 4 | 23003331 | SCM-HC4H-M025R05-S6-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.5 | 6 | 50 | 4 | 23003375 | SCM-HC4H-M025R05-S6-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.5 | 8 | 57 | 4 | 23003332 | SCM-HC4H-M025R05-S8-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.5 | 8 | 50 | 4 | 23003376 | SCM-HC4H-M025R05-S8-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.5 | 10 | 57 | 4 | 23003333 | SCM-HC4H-M025R05-S10-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.5 | 10 | 50 | 4 | 23003377 | SCM-HC4H-M025R05-S10-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.5 | 12 | 57 | 4 | 23003334 | SCM-HC4H-M025R05-S12-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.5 | 12 | 50 | 4 | 23003378 | SCM-HC4H-M025R05-S12-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.5 | 14 | 57 | 4 | 23003335 | SCM-HC4H-M025R05-S14-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.5 | 14 | 50 | 4 | 23003379 | SCM-HC4H-M025R05-S14-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.5 | 16 | 57 | 4 | 23003336 | SCM-HC4H-M025R05-S16-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.5 | 16 | 50 | 4 | 23003380 | SCM-HC4H-M025R05-S16-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.5 | 18 | 57 | 4 | 23003337 | SCM-HC4H-M025R05-S18-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.5 | 18 | 50 | 4 | 23003381 | SCM-HC4H-M025R05-S18-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.5 | 20 | 57 | 4 | 23003338 | SCM-HC4H-M025R05-S20-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.5 | 20 | 50 | 4 | 23003382 | SCM-HC4H-M025R05-S20-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.5 | 22 | 57 | 4 | 23003339 | SCM-HC4H-M025R05-S22-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.5 | 22 | 50 | 4 | 23003383 | SCM-HC4H-M025R05-S22-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 0.5 | 25 | 57 | 4 | 23003340 | SCM-HC4H-M025R05-S25-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 0.5 | 25 | 50 | 4 | 23003384 | SCM-HC4H-M025R05-S25-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 1 | 4 | 57 | 4 | 23003341 | SCM-HC4H-M025R10-S4-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 1 | 4 | 50 | 4 | 23003385 | SCM-HC4H-M025R10-S4-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 1 | 6 | 57 | 4 | 23003342 | SCM-HC4H-M025R10-S6-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 1 | 6 | 50 | 4 | 23003386 | SCM-HC4H-M025R10-S6-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 1 | 8 | 57 | 4 | 23003343 | SCM-HC4H-M025R10-S8-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 1 | 8 | 50 | 4 | 23003387 | SCM-HC4H-M025R10-S8-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 1 | 10 | 57 | 4 | 23003344 | SCM-HC4H-M025R10-S10-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 1 | 10 | 50 | 4 | 23003388 | SCM-HC4H-M025R10-S10-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 1 | 12 | 57 | 4 | 23003345 | SCM-HC4H-M025R10-S12-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 1 | 12 | 50 | 4 | 23003389 | SCM-HC4H-M025R10-S12-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 1 | 14 | 57 | 4 | 23003346 | SCM-HC4H-M025R10-S14-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 1 | 14 | 50 | 4 | 23003390 | SCM-HC4H-M025R10-S14-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 1 | 16 | 57 | 4 | 23003347 | SCM-HC4H-M025R10-S16-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 1 | 16 | 50 | 4 | 23003391 | SCM-HC4H-M025R10-S16-50HA4 HP40 |

*Continued on next page*

# Performance Hardened Steel Line
## 4-flute Torus cutter (HC4H)

PFERD TOOLS

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | RE [mm] | LU [mm] | LF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| 2.5 | 6 | 2.4 | 3.5 | 1 | 18 | 57 | 4 | 23003348 | SCM-HC4H-M025R10-S18-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 1 | 18 | 50 | 4 | 23003392 | SCM-HC4H-M025R10-S18-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 1 | 20 | 57 | 4 | 23003349 | SCM-HC4H-M025R10-S20-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 1 | 20 | 50 | 4 | 23003393 | SCM-HC4H-M025R10-S20-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 1 | 22 | 57 | 4 | 23003350 | SCM-HC4H-M025R10-S22-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 1 | 22 | 50 | 4 | 23003394 | SCM-HC4H-M025R10-S22-50HA4 HP40 |
| | 6 | 2.4 | 3.5 | 1 | 25 | 57 | 4 | 23003351 | SCM-HC4H-M025R10-S25-57HA6 HP40 |
| | 4 | 2.4 | 3.5 | 1 | 25 | 50 | 4 | 23003395 | SCM-HC4H-M025R10-S25-50HA4 HP40 |
| 3 | 6 | 2.9 | 3.5 | 0.1 | 8 | 57 | 4 | 23002297 | SCM-HC4H-M030R01-S8-57HA6 HP40 |
| | | | | | 10 | 57 | 4 | 23002298 | SCM-HC4H-M030R01-S10-57HA6 HP40 |
| | | | | | 12 | 57 | 4 | 23002299 | SCM-HC4H-M030R01-S12-57HA6 HP40 |
| | | | | | 14 | 57 | 4 | 23002300 | SCM-HC4H-M030R01-S14-57HA6 HP40 |
| | | | | | 16 | 57 | 4 | 23002301 | SCM-HC4H-M030R01-S16-57HA6 HP40 |
| | | | | | 18 | 57 | 4 | 23002302 | SCM-HC4H-M030R01-S18-57HA6 HP40 |
| | | | | | 20 | 57 | 4 | 23002303 | SCM-HC4H-M030R01-S20-57HA6 HP40 |
| | | | | | 22 | 57 | 4 | 23002304 | SCM-HC4H-M030R01-S22-57HA6 HP40 |
| | | | | | 25 | 57 | 4 | 23002305 | SCM-HC4H-M030R01-S25-57HA6 HP40 |
| | | | | | 28 | 57 | 4 | 23002306 | SCM-HC4H-M030R01-S28-57HA6 HP40 |
| | | | | | 30 | 78 | 4 | 23002307 | SCM-HC4H-M030R01-S30-78HA6 HP40 |
| | | | | | 32 | 78 | 4 | 23002308 | SCM-HC4H-M030R01-S32-78HA6 HP40 |
| | | | | | 35 | 78 | 4 | 23002309 | SCM-HC4H-M030R01-S35-78HA6 HP40 |
| | | | | 0.2 | 8 | 57 | 4 | 23002310 | SCM-HC4H-M030R02-S8-57HA6 HP40 |
| | | | | | 10 | 57 | 4 | 23002311 | SCM-HC4H-M030R02-S10-57HA6 HP40 |
| | | | | | 12 | 57 | 4 | 23002312 | SCM-HC4H-M030R02-S12-57HA6 HP40 |
| | | | | | 14 | 57 | 4 | 23002313 | SCM-HC4H-M030R02-S14-57HA6 HP40 |
| | | | | | 16 | 57 | 4 | 23002314 | SCM-HC4H-M030R02-S16-57HA6 HP40 |
| | | | | | 18 | 57 | 4 | 23002315 | SCM-HC4H-M030R02-S18-57HA6 HP40 |
| | | | | | 20 | 57 | 4 | 23002316 | SCM-HC4H-M030R02-S20-57HA6 HP40 |
| | | | | | 22 | 57 | 4 | 23002317 | SCM-HC4H-M030R02-S22-57HA6 HP40 |
| | | | | | 25 | 57 | 4 | 23002318 | SCM-HC4H-M030R02-S25-57HA6 HP40 |
| | | | | | 28 | 57 | 4 | 23002319 | SCM-HC4H-M030R02-S28-57HA6 HP40 |
| | | | | | 30 | 78 | 4 | 23002320 | SCM-HC4H-M030R02-S30-78HA6 HP40 |
| | | | | | 32 | 78 | 4 | 23002321 | SCM-HC4H-M030R02-S32-78HA6 HP40 |
| | | | | | 35 | 78 | 4 | 23002322 | SCM-HC4H-M030R02-S35-78HA6 HP40 |
| | | | | 0.3 | 8 | 57 | 4 | 23003396 | SCM-HC4H-M030R03-S8-57HA6 HP40 |
| | | | | | 10 | 57 | 4 | 23003397 | SCM-HC4H-M030R03-S10-57HA6 HP40 |
| | | | | | 12 | 57 | 4 | 23003398 | SCM-HC4H-M030R03-S12-57HA6 HP40 |
| | | | | | 14 | 57 | 4 | 23003399 | SCM-HC4H-M030R03-S14-57HA6 HP40 |
| | | | | | 16 | 57 | 4 | 23003400 | SCM-HC4H-M030R03-S16-57HA6 HP40 |
| | | | | | 18 | 57 | 4 | 23003401 | SCM-HC4H-M030R03-S18-57HA6 HP40 |
| | | | | | 20 | 57 | 4 | 23003402 | SCM-HC4H-M030R03-S20-57HA6 HP40 |
| | | | | | 22 | 57 | 4 | 23003403 | SCM-HC4H-M030R03-S22-57HA6 HP40 |
| | | | | | 25 | 57 | 4 | 23003404 | SCM-HC4H-M030R03-S25-57HA6 HP40 |
| | | | | | 28 | 57 | 4 | 23003405 | SCM-HC4H-M030R03-S28-57HA6 HP40 |
| | | | | | 30 | 78 | 4 | 23003406 | SCM-HC4H-M030R03-S30-78HA6 HP40 |
| | | | | | 32 | 78 | 4 | 23003407 | SCM-HC4H-M030R03-S32-78HA6 HP40 |
| | | | | | 35 | 78 | 4 | 23003408 | SCM-HC4H-M030R03-S35-78HA6 HP40 |
| | | | | 0.5 | 8 | 57 | 4 | 23001393 | SCM-HC4H-M030R05-S8-57HA6 HP40 |
| | | | | | 10 | 57 | 4 | 23003409 | SCM-HC4H-M030R05-S10-57HA6 HP40 |

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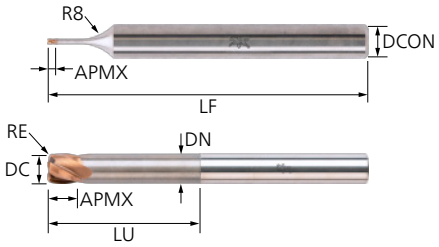
# Performance Hardened Steel Line
## 4-flute Torus cutter (HC4H)

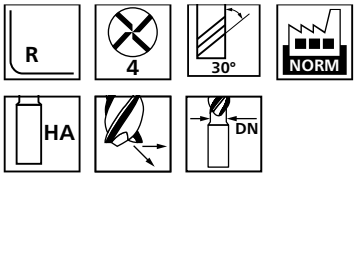
PFERD TOOLS




### Radius – metric

End mill for roughing and semi-finishing in hardened steels up to 60 HRC.

| | |
|---|---|
| P | ● |
| M | ○ |
| K | ● |
| N | ○ |
| S | - |
| H | ● |
| O | - |




**Special features:**
- Modern tool coating for a long tool life and optimum temperature control when working on materials that are difficult to machine.
- Neck chip channel.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | RE [mm] | LU [mm] | LF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| 3 | 6 | 2.9 | 3.5 | 0.5 | 12 | 57 | 4 | 23003410 | SCM-HC4H-M030R05-S12-57HA6 HP40 |
| | | | | | 14 | 57 | 4 | 23003411 | SCM-HC4H-M030R05-S14-57HA6 HP40 |
| | | | | | 16 | 57 | 4 | 23003412 | SCM-HC4H-M030R05-S16-57HA6 HP40 |
| | | | | | 18 | 57 | 4 | 23003413 | SCM-HC4H-M030R05-S18-57HA6 HP40 |
| | | | | | 20 | 57 | 4 | 23003414 | SCM-HC4H-M030R05-S20-57HA6 HP40 |
| | | | | | 22 | 57 | 4 | 23003415 | SCM-HC4H-M030R05-S22-57HA6 HP40 |
| | | | | | 25 | 57 | 4 | 23003416 | SCM-HC4H-M030R05-S25-57HA6 HP40 |
| | | | | | 28 | 57 | 4 | 23003417 | SCM-HC4H-M030R05-S28-57HA6 HP40 |
| | | | | | 30 | 78 | 4 | 23003418 | SCM-HC4H-M030R05-S30-78HA6 HP40 |
| | | | | | 32 | 78 | 4 | 23003419 | SCM-HC4H-M030R05-S32-78HA6 HP40 |
| | | | | | 35 | 78 | 4 | 23003420 | SCM-HC4H-M030R05-S35-78HA6 HP40 |
| | | | | 1 | 8 | 57 | 4 | 23003421 | SCM-HC4H-M030R10-S8-57HA6 HP40 |
| | | | | | 10 | 57 | 4 | 23003422 | SCM-HC4H-M030R10-S10-57HA6 HP40 |
| | | | | | 12 | 57 | 4 | 23003423 | SCM-HC4H-M030R10-S12-57HA6 HP40 |
| | | | | | 14 | 57 | 4 | 23003424 | SCM-HC4H-M030R10-S14-57HA6 HP40 |
| | | | | | 16 | 57 | 4 | 23003425 | SCM-HC4H-M030R10-S16-57HA6 HP40 |
| | | | | | 18 | 57 | 4 | 23003426 | SCM-HC4H-M030R10-S18-57HA6 HP40 |
| | | | | | 20 | 57 | 4 | 23003427 | SCM-HC4H-M030R10-S20-57HA6 HP40 |
| | | | | | 22 | 57 | 4 | 23003428 | SCM-HC4H-M030R10-S22-57HA6 HP40 |
| | | | | | 25 | 57 | 4 | 23003429 | SCM-HC4H-M030R10-S25-57HA6 HP40 |
| | | | | | 28 | 57 | 4 | 23003430 | SCM-HC4H-M030R10-S28-57HA6 HP40 |
| | | | | | 30 | 78 | 4 | 23003431 | SCM-HC4H-M030R10-S30-78HA6 HP40 |
| | | | | | 32 | 78 | 4 | 23003432 | SCM-HC4H-M030R10-S32-78HA6 HP40 |
| | | | | | 35 | 78 | 4 | 23003433 | SCM-HC4H-M030R10-S35-78HA6 HP40 |
| 4 | 6 | 3.9 | 5 | 0.1 | 8 | 57 | 4 | 23002323 | SCM-HC4H-M040R01-S8-57HA6 HP40 |
| | | | | | 10 | 57 | 4 | 23002324 | SCM-HC4H-M040R01-S10-57HA6 HP40 |
| | | | | | 12 | 57 | 4 | 23002325 | SCM-HC4H-M040R01-S12-57HA6 HP40 |
| | | | | | 14 | 57 | 4 | 23002326 | SCM-HC4H-M040R01-S14-57HA6 HP40 |
| | | | | | 16 | 57 | 4 | 23002327 | SCM-HC4H-M040R01-S16-57HA6 HP40 |
| | | | | | 18 | 57 | 4 | 23002328 | SCM-HC4H-M040R01-S18-57HA6 HP40 |
| | | | | | 20 | 57 | 4 | 23002329 | SCM-HC4H-M040R01-S20-57HA6 HP40 |
| | | | | | 22 | 57 | 4 | 23002330 | SCM-HC4H-M040R01-S22-57HA6 HP40 |
| | | | | | 25 | 57 | 4 | 23002331 | SCM-HC4H-M040R01-S25-57HA6 HP40 |
| | | | | | 28 | 57 | 4 | 23002332 | SCM-HC4H-M040R01-S28-57HA6 HP40 |
| | | | | | 30 | 78 | 4 | 23002333 | SCM-HC4H-M040R01-S30-78HA6 HP40 |
| | | | | | 32 | 78 | 4 | 23002334 | SCM-HC4H-M040R01-S32-78HA6 HP40 |
| | | | | | 35 | 78 | 4 | 23002335 | SCM-HC4H-M040R01-S35-78HA6 HP40 |

*Continued on next page*

# Performance Hardened Steel Line

## 4-flute Torus cutter (HC4H)

PFERD TOOLS

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | RE [mm] | LU [mm] | LF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| 4 | 6 | 3.9 | 5 | 0.2 | 8 | 57 | 4 | 23002336 | SCM-HC4H-M040R02-S8-57HA6 HP40 |
| | | | | | 10 | 57 | 4 | 23002337 | SCM-HC4H-M040R02-S10-57HA6 HP40 |
| | | | | | 12 | 57 | 4 | 23002338 | SCM-HC4H-M040R02-S12-57HA6 HP40 |
| | | | | | 14 | 57 | 4 | 23002339 | SCM-HC4H-M040R02-S14-57HA6 HP40 |
| | | | | | 16 | 57 | 4 | 23002340 | SCM-HC4H-M040R02-S16-57HA6 HP40 |
| | | | | | 18 | 57 | 4 | 23002341 | SCM-HC4H-M040R02-S18-57HA6 HP40 |
| | | | | | 20 | 57 | 4 | 23002342 | SCM-HC4H-M040R02-S20-57HA6 HP40 |
| | | | | | 22 | 57 | 4 | 23002343 | SCM-HC4H-M040R02-S22-57HA6 HP40 |
| | | | | | 25 | 57 | 4 | 23002344 | SCM-HC4H-M040R02-S25-57HA6 HP40 |
| | | | | | 28 | 57 | 4 | 23002345 | SCM-HC4H-M040R02-S28-57HA6 HP40 |
| | | | | | 30 | 78 | 4 | 23002346 | SCM-HC4H-M040R02-S30-78HA6 HP40 |
| | | | | | 32 | 78 | 4 | 23002347 | SCM-HC4H-M040R02-S32-78HA6 HP40 |
| | | | | | 35 | 78 | 4 | 23002348 | SCM-HC4H-M040R02-S35-78HA6 HP40 |
| | | | | 0.3 | 8 | 57 | 4 | 23003434 | SCM-HC4H-M040R03-S8-57HA6 HP40 |
| | | | | | 10 | 57 | 4 | 23003435 | SCM-HC4H-M040R03-S10-57HA6 HP40 |
| | | | | | 12 | 57 | 4 | 23003436 | SCM-HC4H-M040R03-S12-57HA6 HP40 |
| | | | | | 14 | 57 | 4 | 23003437 | SCM-HC4H-M040R03-S14-57HA6 HP40 |
| | | | | | 16 | 57 | 4 | 23003438 | SCM-HC4H-M040R03-S16-57HA6 HP40 |
| | | | | | 18 | 57 | 4 | 23003439 | SCM-HC4H-M040R03-S18-57HA6 HP40 |
| | | | | | 20 | 57 | 4 | 23003440 | SCM-HC4H-M040R03-S20-57HA6 HP40 |
| | | | | | 22 | 57 | 4 | 23003441 | SCM-HC4H-M040R03-S22-57HA6 HP40 |
| | | | | | 25 | 57 | 4 | 23003442 | SCM-HC4H-M040R03-S25-57HA6 HP40 |
| | | | | | 28 | 57 | 4 | 23003443 | SCM-HC4H-M040R03-S28-57HA6 HP40 |
| | | | | | 30 | 78 | 4 | 23003444 | SCM-HC4H-M040R03-S30-78HA6 HP40 |
| | | | | | 32 | 78 | 4 | 23003445 | SCM-HC4H-M040R03-S32-78HA6 HP40 |
| | | | | | 35 | 78 | 4 | 23003446 | SCM-HC4H-M040R03-S35-78HA6 HP40 |
| | | | | 0.5 | 8 | 57 | 4 | 23003447 | SCM-HC4H-M040R05-S8-57HA6 HP40 |
| | | | | | 10 | 57 | 4 | 23003448 | SCM-HC4H-M040R05-S10-57HA6 HP40 |
| | | | | | 12 | 57 | 4 | 23003449 | SCM-HC4H-M040R05-S12-57HA6 HP40 |
| | | | | | 14 | 57 | 4 | 23003450 | SCM-HC4H-M040R05-S14-57HA6 HP40 |
| | | | | | 16 | 57 | 4 | 23003451 | SCM-HC4H-M040R05-S16-57HA6 HP40 |
| | | | | | 18 | 57 | 4 | 23003452 | SCM-HC4H-M040R05-S18-57HA6 HP40 |
| | | | | | 20 | 57 | 4 | 23003453 | SCM-HC4H-M040R05-S20-57HA6 HP40 |
| | | | | | 22 | 57 | 4 | 23003454 | SCM-HC4H-M040R05-S22-57HA6 HP40 |
| | | | | | 25 | 57 | 4 | 23003455 | SCM-HC4H-M040R05-S25-57HA6 HP40 |
| | | | | | 28 | 57 | 4 | 23003456 | SCM-HC4H-M040R05-S28-57HA6 HP40 |
| | | | | | 30 | 78 | 4 | 23003457 | SCM-HC4H-M040R05-S30-78HA6 HP40 |
| | | | | | 32 | 78 | 4 | 23003458 | SCM-HC4H-M040R05-S32-78HA6 HP40 |
| | | | | | 35 | 78 | 4 | 23003459 | SCM-HC4H-M040R05-S35-78HA6 HP40 |
| | | | | 1 | 8 | 57 | 4 | 23003460 | SCM-HC4H-M040R10-S8-57HA6 HP40 |
| | | | | | 10 | 57 | 4 | 23003461 | SCM-HC4H-M040R10-S10-57HA6 HP40 |
| | | | | | 12 | 57 | 4 | 23003462 | SCM-HC4H-M040R10-S12-57HA6 HP40 |
| | | | | | 14 | 57 | 4 | 23003463 | SCM-HC4H-M040R10-S14-57HA6 HP40 |
| | | | | | 16 | 57 | 4 | 23003464 | SCM-HC4H-M040R10-S16-57HA6 HP40 |
| | | | | | 18 | 57 | 4 | 23003465 | SCM-HC4H-M040R10-S18-57HA6 HP40 |
| | | | | | 20 | 57 | 4 | 23003466 | SCM-HC4H-M040R10-S20-57HA6 HP40 |
| | | | | | 22 | 57 | 4 | 23003467 | SCM-HC4H-M040R10-S22-57HA6 HP40 |
| | | | | | 25 | 57 | 4 | 23003468 | SCM-HC4H-M040R10-S25-57HA6 HP40 |
| | | | | | 28 | 57 | 4 | 23003469 | SCM-HC4H-M040R10-S28-57HA6 HP40 |

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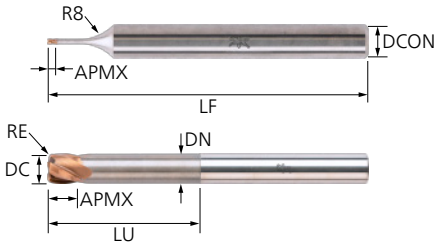
# Performance Hardened Steel Line
## 4-flute Torus cutter (HC4H)

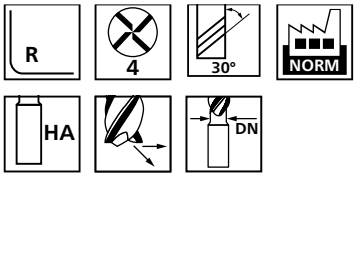
PFERD TOOLS




### Radius – metric

End mill for roughing and semi-finishing in hardened steels up to 60 HRC.

| | |
|---|---|
| P | ● |
| M | ○ |
| K | ● |
| N | ○ |
| S | - |
| H | ● |
| O | - |




**Special features:**
- Modern tool coating for a long tool life and optimum temperature control when working on materials that are difficult to machine.
- Neck chip channel.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | RE [mm] | LU [mm] | LF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| 4 | 6 | 3.9 | 5 | 1 | 30 | 78 | 4 | 23003470 | SCM-HC4H-M040R10-S30-78HA6 HP40 |
| | | | | | 32 | 78 | 4 | 23003471 | SCM-HC4H-M040R10-S32-78HA6 HP40 |
| | | | | | 35 | 78 | 4 | 23003472 | SCM-HC4H-M040R10-S35-78HA6 HP40 |
| 5 | 6 | 4.9 | 6 | 0.1 | 10 | 57 | 4 | 23002349 | SCM-HC4H-M050R01-S10-57HA6 HP40 |
| | | | | | 15 | 57 | 4 | 23002350 | SCM-HC4H-M050R01-S15-57HA6 HP40 |
| | | | | | 20 | 57 | 4 | 23002351 | SCM-HC4H-M050R01-S20-57HA6 HP40 |
| | | | | | 25 | 57 | 4 | 23002352 | SCM-HC4H-M050R01-S25-57HA6 HP40 |
| | | | | | 30 | 78 | 4 | 23002353 | SCM-HC4H-M050R01-S30-78HA6 HP40 |
| | | | | | 32 | 78 | 4 | 23002354 | SCM-HC4H-M050R01-S32-78HA6 HP40 |
| | | | | | 35 | 78 | 4 | 23002355 | SCM-HC4H-M050R01-S35-78HA6 HP40 |
| | | | | | 40 | 78 | 4 | 23002356 | SCM-HC4H-M050R01-S40-78HA6 HP40 |
| | | | | | 45 | 78 | 4 | 23002357 | SCM-HC4H-M050R01-S45-78HA6 HP40 |
| | | | | 0.2 | 10 | 57 | 4 | 23002358 | SCM-HC4H-M050R02-S10-57HA6 HP40 |
| | | | | | 15 | 57 | 4 | 23002359 | SCM-HC4H-M050R02-S15-57HA6 HP40 |
| | | | | | 20 | 57 | 4 | 23002360 | SCM-HC4H-M050R02-S20-57HA6 HP40 |
| | | | | | 25 | 57 | 4 | 23002361 | SCM-HC4H-M050R02-S25-57HA6 HP40 |
| | | | | | 30 | 78 | 4 | 23002362 | SCM-HC4H-M050R02-S30-78HA6 HP40 |
| | | | | | 32 | 78 | 4 | 23002363 | SCM-HC4H-M050R02-S32-78HA6 HP40 |
| | | | | | 35 | 78 | 4 | 23002364 | SCM-HC4H-M050R02-S35-78HA6 HP40 |
| | | | | | 40 | 78 | 4 | 23002365 | SCM-HC4H-M050R02-S40-78HA6 HP40 |
| | | | | | 45 | 78 | 4 | 23002366 | SCM-HC4H-M050R02-S45-78HA6 HP40 |
| | | | | 0.3 | 10 | 57 | 4 | 23003473 | SCM-HC4H-M050R03-S10-57HA6 HP40 |
| | | | | | 15 | 57 | 4 | 23003474 | SCM-HC4H-M050R03-S15-57HA6 HP40 |
| | | | | | 20 | 57 | 4 | 23003475 | SCM-HC4H-M050R03-S20-57HA6 HP40 |
| | | | | | 25 | 57 | 4 | 23003476 | SCM-HC4H-M050R03-S25-57HA6 HP40 |
| | | | | | 30 | 78 | 4 | 23003477 | SCM-HC4H-M050R03-S30-78HA6 HP40 |
| | | | | | 32 | 78 | 4 | 23003478 | SCM-HC4H-M050R03-S32-78HA6 HP40 |
| | | | | | 35 | 78 | 4 | 23003479 | SCM-HC4H-M050R03-S35-78HA6 HP40 |
| | | | | | 40 | 78 | 4 | 23003480 | SCM-HC4H-M050R03-S40-78HA6 HP40 |
| | | | | | 45 | 78 | 4 | 23003481 | SCM-HC4H-M050R03-S45-78HA6 HP40 |
| | | | | 0.5 | 10 | 57 | 4 | 23003482 | SCM-HC4H-M050R05-S10-57HA6 HP40 |
| | | | | | 15 | 57 | 4 | 23003483 | SCM-HC4H-M050R05-S15-57HA6 HP40 |
| | | | | | 20 | 57 | 4 | 23003484 | SCM-HC4H-M050R05-S20-57HA6 HP40 |
| | | | | | 25 | 57 | 4 | 23003485 | SCM-HC4H-M050R05-S25-57HA6 HP40 |
| | | | | | 30 | 78 | 4 | 23003486 | SCM-HC4H-M050R05-S30-78HA6 HP40 |
| | | | | | 32 | 78 | 4 | 23003487 | SCM-HC4H-M050R05-S32-78HA6 HP40 |
| | | | | | 35 | 78 | 4 | 23003488 | SCM-HC4H-M050R05-S35-78HA6 HP40 |

*Continued on next page*

# Performance Hardened Steel Line
## 4-flute Torus cutter (HC4H)

PFERD TOOLS

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | RE [mm] | LU [mm] | LF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| 5 | 6 | 4.9 | 6 | 0.5 | 40 | 78 | 4 | 23003489 | SCM-HC4H-M050R05-S40-78HA6 HP40 |
| | | | | | 45 | 78 | 4 | 23003490 | SCM-HC4H-M050R05-S45-78HA6 HP40 |
| | | | | 1 | 10 | 57 | 4 | 23003491 | SCM-HC4H-M050R10-S10-57HA6 HP40 |
| | | | | | 15 | 57 | 4 | 23003492 | SCM-HC4H-M050R10-S15-57HA6 HP40 |
| | | | | | 20 | 57 | 4 | 23003493 | SCM-HC4H-M050R10-S20-57HA6 HP40 |
| | | | | | 25 | 57 | 4 | 23003494 | SCM-HC4H-M050R10-S25-57HA6 HP40 |
| | | | | | 30 | 78 | 4 | 23003495 | SCM-HC4H-M050R10-S30-78HA6 HP40 |
| | | | | | 32 | 78 | 4 | 23003496 | SCM-HC4H-M050R10-S32-78HA6 HP40 |
| | | | | | 35 | 78 | 4 | 23003497 | SCM-HC4H-M050R10-S35-78HA6 HP40 |
| | | | | | 40 | 78 | 4 | 23003498 | SCM-HC4H-M050R10-S40-78HA6 HP40 |
| | | | | | 45 | 78 | 4 | 23003499 | SCM-HC4H-M050R10-S45-78HA6 HP40 |
| 6 | 6 | 5.7 | 7 | 0.1 | 15 | 57 | 4 | 23002367 | SCM-HC4H-M060R01-S15-57HA TI40 |
| | | | | | 20 | 57 | 4 | 23002368 | SCM-HC4H-M060R01-S20-57HA TI40 |
| | | | | | | 78 | 4 | 23002369 | SCM-HC4H-M060R01-S20-78HA TI40 |
| | | | | | 25 | 57 | 4 | 23002370 | SCM-HC4H-M060R01-S25-57HA TI40 |
| | | | | | | 78 | 4 | 23002371 | SCM-HC4H-M060R01-S25-78HA TI40 |
| | | | | | 30 | 78 | 4 | 23002372 | SCM-HC4H-M060R01-S30-78HA TI40 |
| | | | | | | 106 | 4 | 23002373 | SCM-HC4H-M060R01-S30-106HA TI40 |
| | | | | | 35 | 78 | 4 | 23002374 | SCM-HC4H-M060R01-S35-78HA TI40 |
| | | | | | | 106 | 4 | 23002375 | SCM-HC4H-M060R01-S35-106HA TI40 |
| | | | | | 40 | 78 | 4 | 23002376 | SCM-HC4H-M060R01-S40-78HA TI40 |
| | | | | | | 106 | 4 | 23002377 | SCM-HC4H-M060R01-S40-106HA TI40 |
| | | | | | 45 | 78 | 4 | 23002378 | SCM-HC4H-M060R01-S45-78HA TI40 |
| | | | | | | 106 | 4 | 23002379 | SCM-HC4H-M060R01-S45-106HA TI40 |
| | | | | | 50 | 106 | 4 | 23002380 | SCM-HC4H-M060R01-S50-106HA TI40 |
| | | | | | 60 | 106 | 4 | 23002381 | SCM-HC4H-M060R01-S60-106HA TI40 |
| | | | | 0.2 | 15 | 57 | 4 | 23001102 | SCM-HC4H-M060R02-S15-57HA TI40 |
| | | | | | 20 | 57 | 4 | 23002382 | SCM-HC4H-M060R02-S20-57HA TI40 |
| | | | | | | 78 | 4 | 23002383 | SCM-HC4H-M060R02-S20-78HA TI40 |
| | | | | | 25 | 57 | 4 | 23002384 | SCM-HC4H-M060R02-S25-57HA TI40 |
| | | | | | | 78 | 4 | 23002385 | SCM-HC4H-M060R02-S25-78HA TI40 |
| | | | | | 30 | 78 | 4 | 23002386 | SCM-HC4H-M060R02-S30-78HA TI40 |
| | | | | | | 106 | 4 | 23002387 | SCM-HC4H-M060R02-S30-106HA TI40 |
| | | | | | 35 | 78 | 4 | 23002388 | SCM-HC4H-M060R02-S35-78HA TI40 |
| | | | | | | 106 | 4 | 23002389 | SCM-HC4H-M060R02-S35-106HA TI40 |
| | | | | | 40 | 78 | 4 | 23002390 | SCM-HC4H-M060R02-S40-78HA TI40 |
| | | | | | | 106 | 4 | 23002391 | SCM-HC4H-M060R02-S40-106HA TI40 |
| | | | | | 45 | 78 | 4 | 23002392 | SCM-HC4H-M060R02-S45-78HA TI40 |
| | | | | | | 106 | 4 | 23002393 | SCM-HC4H-M060R02-S45-106HA TI40 |
| | | | | | 50 | 106 | 4 | 23002394 | SCM-HC4H-M060R02-S50-106HA TI40 |
| | | | | | 60 | 106 | 4 | 23002395 | SCM-HC4H-M060R02-S60-106HA TI40 |
| | | | | 0.3 | 15 | 57 | 4 | 23003500 | SCM-HC4H-M060R03-S15-57HA TI40 |
| | | | | | 20 | 57 | 4 | 23003501 | SCM-HC4H-M060R03-S20-57HA TI40 |
| | | | | | | 78 | 4 | 23003502 | SCM-HC4H-M060R03-S20-78HA TI40 |
| | | | | | 25 | 57 | 4 | 23003503 | SCM-HC4H-M060R03-S25-57HA TI40 |
| | | | | | | 78 | 4 | 23003504 | SCM-HC4H-M060R03-S25-78HA TI40 |
| | | | | | 30 | 78 | 4 | 23003505 | SCM-HC4H-M060R03-S30-78HA TI40 |
| | | | | | | 106 | 4 | 23003506 | SCM-HC4H-M060R03-S30-106HA TI40 |
| | | | | | 35 | 78 | 4 | 23003507 | SCM-HC4H-M060R03-S35-78HA TI40 |

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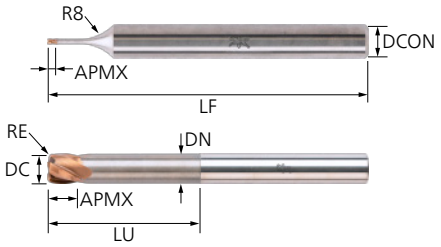
# Performance Hardened Steel Line
## 4-flute Torus cutter (HC4H)

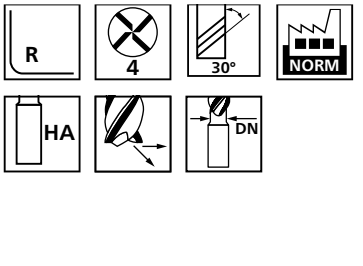
PFERD TOOLS




### Radius – metric

End mill for roughing and semi-finishing in hardened steels up to 60 HRC.

| | |
|---|---|
| P | ● |
| M | ○ |
| K | ● |
| N | ○ |
| S | - |
| H | ● |
| O | - |




**Special features:**
- Modern tool coating for a long tool life and optimum temperature control when working on materials that are difficult to machine.
- Neck chip channel.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | RE [mm] | LU [mm] | LF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| 6 | 6 | 5.7 | 7 | 0.3 | 35 | 106 | 4 | 23003508 | SCM-HC4H-M060R03-S35-106HA TI40 |
| | | | | | 40 | 78 | 4 | 23003509 | SCM-HC4H-M060R03-S40-78HA TI40 |
| | | | | | | 106 | 4 | 23003510 | SCM-HC4H-M060R03-S40-106HA TI40 |
| | | | | | 45 | 78 | 4 | 23003511 | SCM-HC4H-M060R03-S45-78HA TI40 |
| | | | | | | 106 | 4 | 23003512 | SCM-HC4H-M060R03-S45-106HA TI40 |
| | | | | | 50 | 106 | 4 | 23003513 | SCM-HC4H-M060R03-S50-106HA TI40 |
| | | | | | 60 | 106 | 4 | 23003514 | SCM-HC4H-M060R03-S60-106HA TI40 |
| | | | | 0.5 | 15 | 57 | 4 | 23003515 | SCM-HC4H-M060R05-S15-57HA TI40 |
| | | | | | 20 | 57 | 4 | 23003516 | SCM-HC4H-M060R05-S20-57HA TI40 |
| | | | | | | 78 | 4 | 23003517 | SCM-HC4H-M060R05-S20-78HA TI40 |
| | | | | | 25 | 57 | 4 | 23003518 | SCM-HC4H-M060R05-S25-57HA TI40 |
| | | | | | | 78 | 4 | 23003519 | SCM-HC4H-M060R05-S25-78HA TI40 |
| | | | | | 30 | 78 | 4 | 23003520 | SCM-HC4H-M060R05-S30-78HA TI40 |
| | | | | | | 106 | 4 | 23003521 | SCM-HC4H-M060R05-S30-106HA TI40 |
| | | | | | 35 | 78 | 4 | 23003522 | SCM-HC4H-M060R05-S35-78HA TI40 |
| | | | | | | 106 | 4 | 23003523 | SCM-HC4H-M060R05-S35-106HA TI40 |
| | | | | | 40 | 78 | 4 | 23003524 | SCM-HC4H-M060R05-S40-78HA TI40 |
| | | | | | | 106 | 4 | 23003525 | SCM-HC4H-M060R05-S40-106HA TI40 |
| | | | | | 45 | 78 | 4 | 23003526 | SCM-HC4H-M060R05-S45-78HA TI40 |
| | | | | | | 106 | 4 | 23003527 | SCM-HC4H-M060R05-S45-106HA TI40 |
| | | | | | 50 | 106 | 4 | 23003528 | SCM-HC4H-M060R05-S50-106HA TI40 |
| | | | | | 60 | 106 | 4 | 23003529 | SCM-HC4H-M060R05-S60-106HA TI40 |
| | | | | 1 | 15 | 57 | 4 | 23003530 | SCM-HC4H-M060R10-S15-57HA TI40 |
| | | | | | 20 | 57 | 4 | 23003531 | SCM-HC4H-M060R10-S20-57HA TI40 |
| | | | | | | 78 | 4 | 23003532 | SCM-HC4H-M060R10-S20-78HA TI40 |
| | | | | | 25 | 57 | 4 | 23003533 | SCM-HC4H-M060R10-S25-57HA TI40 |
| | | | | | | 78 | 4 | 23003534 | SCM-HC4H-M060R10-S25-78HA TI40 |
| | | | | | 30 | 78 | 4 | 23003535 | SCM-HC4H-M060R10-S30-78HA TI40 |
| | | | | | | 106 | 4 | 23003536 | SCM-HC4H-M060R10-S30-106HA TI40 |
| | | | | | 35 | 78 | 4 | 23003537 | SCM-HC4H-M060R10-S35-78HA TI40 |
| | | | | | | 106 | 4 | 23003538 | SCM-HC4H-M060R10-S35-106HA TI40 |
| | | | | | 40 | 78 | 4 | 23003539 | SCM-HC4H-M060R10-S40-78HA TI40 |
| | | | | | | 106 | 4 | 23003540 | SCM-HC4H-M060R10-S40-106HA TI40 |
| | | | | | 45 | 78 | 4 | 23003541 | SCM-HC4H-M060R10-S45-78HA TI40 |
| | | | | | | 106 | 4 | 23003542 | SCM-HC4H-M060R10-S45-106HA TI40 |
| | | | | | 50 | 106 | 4 | 23003543 | SCM-HC4H-M060R10-S50-106HA TI40 |
| | | | | | 60 | 106 | 4 | 23003544 | SCM-HC4H-M060R10-S60-106HA TI40 |

*Continued on next page*

# Performance Hardened Steel Line
## 4-flute Torus cutter (HC4H)

PFERD TOOLS

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | RE [mm] | LU [mm] | LF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| 6 | 6 | 5.7 | 7 | 1.5 | 15 | 57 | 4 | 23003545 | SCM-HC4H-M060R15-S15-57HA TI40 |
| | | | | | 20 | 57 | 4 | 23003546 | SCM-HC4H-M060R15-S20-57HA TI40 |
| | | | | | | 78 | 4 | 23003547 | SCM-HC4H-M060R15-S20-78HA TI40 |
| | | | | | 25 | 57 | 4 | 23003548 | SCM-HC4H-M060R15-S25-57HA TI40 |
| | | | | | | 78 | 4 | 23003549 | SCM-HC4H-M060R15-S25-78HA TI40 |
| | | | | | 30 | 78 | 4 | 23003550 | SCM-HC4H-M060R15-S30-78HA TI40 |
| | | | | | | 106 | 4 | 23003551 | SCM-HC4H-M060R15-S30-106HA TI40 |
| | | | | | 35 | 78 | 4 | 23003552 | SCM-HC4H-M060R15-S35-78HA TI40 |
| | | | | | | 106 | 4 | 23003553 | SCM-HC4H-M060R15-S35-106HA TI40 |
| | | | | | 40 | 78 | 4 | 23003554 | SCM-HC4H-M060R15-S40-78HA TI40 |
| | | | | | | 106 | 4 | 23003555 | SCM-HC4H-M060R15-S40-106HA TI40 |
| | | | | | 45 | 78 | 4 | 23003556 | SCM-HC4H-M060R15-S45-78HA TI40 |
| | | | | | | 106 | 4 | 23003557 | SCM-HC4H-M060R15-S45-106HA TI40 |
| | | | | | 50 | 106 | 4 | 23003558 | SCM-HC4H-M060R15-S50-106HA TI40 |
| | | | | | 60 | 106 | 4 | 23003559 | SCM-HC4H-M060R15-S60-106HA TI40 |
| 8 | 8 | 7.7 | 9 | 0.2 | 20 | 63 | 4 | 23002396 | SCM-HC4H-M080R02-S20-63HA TI40 |
| | | | | | | 78 | 4 | 23002397 | SCM-HC4H-M080R02-S20-78HA TI40 |
| | | | | | 25 | 63 | 4 | 23002398 | SCM-HC4H-M080R02-S25-63HA TI40 |
| | | | | | | 78 | 4 | 23002399 | SCM-HC4H-M080R02-S25-78HA TI40 |
| | | | | | 30 | 78 | 4 | 23002400 | SCM-HC4H-M080R02-S30-78HA TI40 |
| | | | | | | 105 | 4 | 23002401 | SCM-HC4H-M080R02-S30-105HA TI40 |
| | | | | | 35 | 78 | 4 | 23002402 | SCM-HC4H-M080R02-S35-78HA TI40 |
| | | | | | | 105 | 4 | 23002403 | SCM-HC4H-M080R02-S35-105HA TI40 |
| | | | | | 40 | 78 | 4 | 23002404 | SCM-HC4H-M080R02-S40-78HA TI40 |
| | | | | | | 105 | 4 | 23002405 | SCM-HC4H-M080R02-S40-105HA TI40 |
| | | | | | 45 | 78 | 4 | 23002406 | SCM-HC4H-M080R02-S45-78HA TI40 |
| | | | | | | 105 | 4 | 23002407 | SCM-HC4H-M080R02-S45-105HA TI40 |
| | | | | | 50 | 105 | 4 | 23002408 | SCM-HC4H-M080R02-S50-105HA TI40 |
| | | | | | 60 | 105 | 4 | 23002409 | SCM-HC4H-M080R02-S60-105HA TI40 |
| | | | | 0.3 | 20 | 63 | 4 | 23003560 | SCM-HC4H-M080R03-S20-63HA TI40 |
| | | | | | | 78 | 4 | 23003561 | SCM-HC4H-M080R03-S20-78HA TI40 |
| | | | | | 25 | 63 | 4 | 23003562 | SCM-HC4H-M080R03-S25-63HA TI40 |
| | | | | | | 78 | 4 | 23003563 | SCM-HC4H-M080R03-S25-78HA TI40 |
| | | | | | 30 | 78 | 4 | 23003564 | SCM-HC4H-M080R03-S30-78HA TI40 |
| | | | | | | 105 | 4 | 23003565 | SCM-HC4H-M080R03-S30-105HA TI40 |
| | | | | | 35 | 78 | 4 | 23003566 | SCM-HC4H-M080R03-S35-78HA TI40 |
| | | | | | | 105 | 4 | 23003567 | SCM-HC4H-M080R03-S35-105HA TI40 |
| | | | | | 40 | 78 | 4 | 23003568 | SCM-HC4H-M080R03-S40-78HA TI40 |
| | | | | | | 105 | 4 | 23003569 | SCM-HC4H-M080R03-S40-105HA TI40 |
| | | | | | 45 | 78 | 4 | 23003570 | SCM-HC4H-M080R03-S45-78HA TI40 |
| | | | | | | 105 | 4 | 23003571 | SCM-HC4H-M080R03-S45-105HA TI40 |
| | | | | | 50 | 105 | 4 | 23003572 | SCM-HC4H-M080R03-S50-105HA TI40 |
| | | | | | 60 | 105 | 4 | 23003573 | SCM-HC4H-M080R03-S60-105HA TI40 |
| | | | | 0.5 | 20 | 63 | 4 | 23003574 | SCM-HC4H-M080R05-S20-63HA TI40 |
| | | | | | | 78 | 4 | 23003575 | SCM-HC4H-M080R05-S20-78HA TI40 |
| | | | | | 25 | 63 | 4 | 23003576 | SCM-HC4H-M080R05-S25-63HA TI40 |
| | | | | | | 78 | 4 | 23003577 | SCM-HC4H-M080R05-S25-78HA TI40 |
| | | | | | 30 | 78 | 4 | 23003578 | SCM-HC4H-M080R05-S30-78HA TI40 |
| | | | | | | 105 | 4 | 23003579 | SCM-HC4H-M080R05-S30-105HA TI40 |

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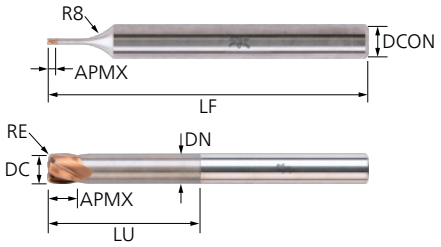
# Performance Hardened Steel Line
## 4-flute Torus cutter (HC4H)

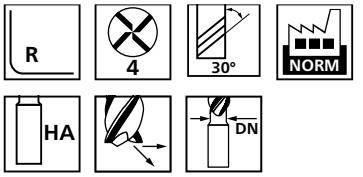
PFERD TOOLS




### Radius – metric

End mill for roughing and semi-finishing in hardened steels up to 60 HRC.

| | |
|---|---|
| P | ● |
| M | ○ |
| K | ● |
| N | ○ |
| S | - |
| H | ● |
| O | - |




**Special features:**
- Modern tool coating for a long tool life and optimum temperature control when working on materials that are difficult to machine.
- Neck chip channel.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | RE [mm] | LU [mm] | LF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| 8 | 8 | 7.7 | 9 | 0.5 | 35 | 78 | 4 | 23003580 | SCM-HC4H-M080R05-S35-78HA TI40 |
| | | | | | | 105 | 4 | 23003581 | SCM-HC4H-M080R05-S35-105HA TI40 |
| | | | | | 40 | 78 | 4 | 23003582 | SCM-HC4H-M080R05-S40-78HA TI40 |
| | | | | | | 105 | 4 | 23003583 | SCM-HC4H-M080R05-S40-105HA TI40 |
| | | | | | 45 | 78 | 4 | 23003584 | SCM-HC4H-M080R05-S45-78HA TI40 |
| | | | | | | 105 | 4 | 23003585 | SCM-HC4H-M080R05-S45-105HA TI40 |
| | | | | | 50 | 105 | 4 | 23003586 | SCM-HC4H-M080R05-S50-105HA TI40 |
| | | | | | 60 | 105 | 4 | 23003587 | SCM-HC4H-M080R05-S60-105HA TI40 |
| | | | | 1 | 20 | 63 | 4 | 23003588 | SCM-HC4H-M080R10-S20-63HA TI40 |
| | | | | | | 78 | 4 | 23003589 | SCM-HC4H-M080R10-S20-78HA TI40 |
| | | | | | 25 | 63 | 4 | 23003590 | SCM-HC4H-M080R10-S25-63HA TI40 |
| | | | | | | 78 | 4 | 23003591 | SCM-HC4H-M080R10-S25-78HA TI40 |
| | | | | | 30 | 78 | 4 | 23003592 | SCM-HC4H-M080R10-S30-78HA TI40 |
| | | | | | | 105 | 4 | 23003593 | SCM-HC4H-M080R10-S30-105HA TI40 |
| | | | | | 35 | 78 | 4 | 23003594 | SCM-HC4H-M080R10-S35-78HA TI40 |
| | | | | | | 105 | 4 | 23003595 | SCM-HC4H-M080R10-S35-105HA TI40 |
| | | | | | 40 | 78 | 4 | 23003596 | SCM-HC4H-M080R10-S40-78HA TI40 |
| | | | | | | 105 | 4 | 23003597 | SCM-HC4H-M080R10-S40-105HA TI40 |
| | | | | | 45 | 78 | 4 | 23003598 | SCM-HC4H-M080R10-S45-78HA TI40 |
| | | | | | | 105 | 4 | 23003599 | SCM-HC4H-M080R10-S45-105HA TI40 |
| | | | | | 50 | 105 | 4 | 23003600 | SCM-HC4H-M080R10-S50-105HA TI40 |
| | | | | | 60 | 105 | 4 | 23003601 | SCM-HC4H-M080R10-S60-105HA TI40 |
| | | | | 1.5 | 20 | 63 | 4 | 23003602 | SCM-HC4H-M080R15-S20-63HA TI40 |
| | | | | | | 78 | 4 | 23003603 | SCM-HC4H-M080R15-S20-78HA TI40 |
| | | | | | 25 | 63 | 4 | 23003604 | SCM-HC4H-M080R15-S25-63HA TI40 |
| | | | | | | 78 | 4 | 23003605 | SCM-HC4H-M080R15-S25-78HA TI40 |
| | | | | | 30 | 78 | 4 | 23003606 | SCM-HC4H-M080R15-S30-78HA TI40 |
| | | | | | | 105 | 4 | 23003607 | SCM-HC4H-M080R15-S30-105HA TI40 |
| | | | | | 35 | 78 | 4 | 23003608 | SCM-HC4H-M080R15-S35-78HA TI40 |
| | | | | | | 105 | 4 | 23003609 | SCM-HC4H-M080R15-S35-105HA TI40 |
| | | | | | 40 | 78 | 4 | 23003610 | SCM-HC4H-M080R15-S40-78HA TI40 |
| | | | | | | 105 | 4 | 23003611 | SCM-HC4H-M080R15-S40-105HA TI40 |
| | | | | | 45 | 78 | 4 | 23003612 | SCM-HC4H-M080R15-S45-78HA TI40 |
| | | | | | | 105 | 4 | 23003613 | SCM-HC4H-M080R15-S45-105HA TI40 |
| | | | | | 50 | 105 | 4 | 23003614 | SCM-HC4H-M080R15-S50-105HA TI40 |
| | | | | | 60 | 105 | 4 | 23003615 | SCM-HC4H-M080R15-S60-105HA TI40 |
| | | | | 2 | 20 | 63 | 4 | 23003616 | SCM-HC4H-M080R20-S20-63HA TI40 |

*Continued on next page*

# Performance Hardened Steel Line
## 4-flute Torus cutter (HC4H)

PFERD TOOLS

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | RE [mm] | LU [mm] | LF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| 8 | 8 | 7.7 | 9 | 2 | 20 | 78 | 4 | 23003617 | SCM-HC4H-M080R20-S20-78HA TI40 |
| | | | | | 25 | 63 | 4 | 23001205 | SCM-HC4H-M080R20-S25-63HA TI40 |
| | | | | | | 78 | 4 | 23003618 | SCM-HC4H-M080R20-S25-78HA TI40 |
| | | | | | 30 | 78 | 4 | 23003619 | SCM-HC4H-M080R20-S30-78HA TI40 |
| | | | | | | 105 | 4 | 23003620 | SCM-HC4H-M080R20-S30-105HA TI40 |
| | | | | | 35 | 78 | 4 | 23003621 | SCM-HC4H-M080R20-S35-78HA TI40 |
| | | | | | | 105 | 4 | 23003622 | SCM-HC4H-M080R20-S35-105HA TI40 |
| | | | | | 40 | 105 | 4 | 23001204 | SCM-HC4H-M080R20-S40-105HA TI40 |
| | | | | | | 78 | 4 | 23003623 | SCM-HC4H-M080R20-S40-78HA TI40 |
| | | | | | 45 | 78 | 4 | 23003624 | SCM-HC4H-M080R20-S45-78HA TI40 |
| | | | | | | 105 | 4 | 23003625 | SCM-HC4H-M080R20-S45-105HA TI40 |
| | | | | | 50 | 105 | 4 | 23003626 | SCM-HC4H-M080R20-S50-105HA TI40 |
| | | | | | 60 | 105 | 4 | 23003627 | SCM-HC4H-M080R20-S60-105HA TI40 |
| 10 | 10 | 9.7 | 11 | 0.2 | 30 | 78 | 4 | 23002410 | SCM-HC4H-M100R02-S30-78HA TI40 |
| | | | | | | 105 | 4 | 23002411 | SCM-HC4H-M100R02-S30-105HA TI40 |
| | | | | | | 120 | 4 | 23002412 | SCM-HC4H-M100R02-S30-120HA TI40 |
| | | | | | 35 | 78 | 4 | 23002413 | SCM-HC4H-M100R02-S35-78HA TI40 |
| | | | | | | 105 | 4 | 23002414 | SCM-HC4H-M100R02-S35-105HA TI40 |
| | | | | | | 120 | 4 | 23002415 | SCM-HC4H-M100R02-S35-120HA TI40 |
| | | | | | 40 | 78 | 4 | 23002416 | SCM-HC4H-M100R02-S40-78HA TI40 |
| | | | | | | 105 | 4 | 23002417 | SCM-HC4H-M100R02-S40-105HA TI40 |
| | | | | | | 120 | 4 | 23002418 | SCM-HC4H-M100R02-S40-120HA TI40 |
| | | | | | 45 | 78 | 4 | 23002419 | SCM-HC4H-M100R02-S45-78HA TI40 |
| | | | | | | 105 | 4 | 23002420 | SCM-HC4H-M100R02-S45-105HA TI40 |
| | | | | | | 120 | 4 | 23002421 | SCM-HC4H-M100R02-S45-120HA TI40 |
| | | | | | 50 | 105 | 4 | 23001478 | SCM-HC4H-M100R02-S50-105HA TI40 |
| | | | | | | 120 | 4 | 23002422 | SCM-HC4H-M100R02-S50-120HA TI40 |
| | | | | | 60 | 105 | 4 | 23002423 | SCM-HC4H-M100R02-S60-105HA TI40 |
| | | | | | | 120 | 4 | 23002424 | SCM-HC4H-M100R02-S60-120HA TI40 |
| | | | | | 65 | 105 | 4 | 23002425 | SCM-HC4H-M100R02-S65-105HA TI40 |
| | | | | | | 120 | 4 | 23002426 | SCM-HC4H-M100R02-S65-120HA TI40 |
| | | | | | 70 | 105 | 4 | 23002427 | SCM-HC4H-M100R02-S70-105HA TI40 |
| | | | | | | 120 | 4 | 23002428 | SCM-HC4H-M100R02-S70-120HA TI40 |
| | | | | | 75 | 120 | 4 | 23002429 | SCM-HC4H-M100R02-S75-120HA TI40 |
| | | | | | 80 | 120 | 4 | 23002430 | SCM-HC4H-M100R02-S80-120HA TI40 |
| | | | | | 85 | 120 | 4 | 23002431 | SCM-HC4H-M100R02-S85-120HA TI40 |
| | | | | 0.3 | 30 | 78 | 4 | 23003628 | SCM-HC4H-M100R03-S30-78HA TI40 |
| | | | | | | 105 | 4 | 23003629 | SCM-HC4H-M100R03-S30-105HA TI40 |
| | | | | | | 120 | 4 | 23003630 | SCM-HC4H-M100R03-S30-120HA TI40 |
| | | | | | 35 | 78 | 4 | 23003631 | SCM-HC4H-M100R03-S35-78HA TI40 |
| | | | | | | 105 | 4 | 23003632 | SCM-HC4H-M100R03-S35-105HA TI40 |
| | | | | | | 120 | 4 | 23003633 | SCM-HC4H-M100R03-S35-120HA TI40 |
| | | | | | 40 | 78 | 4 | 23003634 | SCM-HC4H-M100R03-S40-78HA TI40 |
| | | | | | | 105 | 4 | 23003635 | SCM-HC4H-M100R03-S40-105HA TI40 |
| | | | | | | 120 | 4 | 23003636 | SCM-HC4H-M100R03-S40-120HA TI40 |
| | | | | | 45 | 78 | 4 | 23003637 | SCM-HC4H-M100R03-S45-78HA TI40 |
| | | | | | | 105 | 4 | 23003638 | SCM-HC4H-M100R03-S45-105HA TI40 |
| | | | | | | 120 | 4 | 23003639 | SCM-HC4H-M100R03-S45-120HA TI40 |
| | | | | | 50 | 105 | 4 | 23003640 | SCM-HC4H-M100R03-S50-105HA TI40 |

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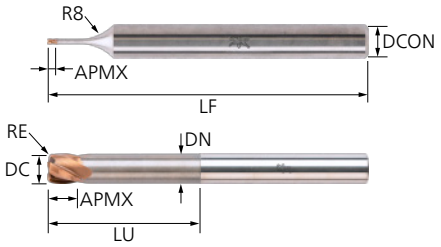
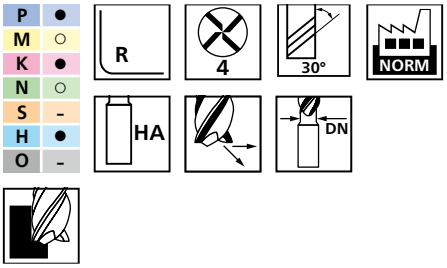
# Performance Hardened Steel Line
## 4-flute Torus cutter (HC4H)

PFERD TOOLS




### Radius – metric

End mill for roughing and semi-finishing in hardened steels up to 60 HRC.




**Special features:**
- Modern tool coating for a long tool life and optimum temperature control when working on materials that are difficult to machine.
- Neck chip channel.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | RE [mm] | LU [mm] | LF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| 10 | 10 | 9.7 | 11 | 0.3 | 50 | 120 | 4 | 23003641 | SCM-HC4H-M100R03-S50-120HA TI40 |
| | | | | | 60 | 105 | 4 | 23003642 | SCM-HC4H-M100R03-S60-105HA TI40 |
| | | | | | | 120 | 4 | 23003643 | SCM-HC4H-M100R03-S60-120HA TI40 |
| | | | | | 65 | 105 | 4 | 23003644 | SCM-HC4H-M100R03-S65-105HA TI40 |
| | | | | | | 120 | 4 | 23003645 | SCM-HC4H-M100R03-S65-120HA TI40 |
| | | | | | 70 | 105 | 4 | 23003646 | SCM-HC4H-M100R03-S70-105HA TI40 |
| | | | | | | 120 | 4 | 23003647 | SCM-HC4H-M100R03-S70-120HA TI40 |
| | | | | | 75 | 120 | 4 | 23003648 | SCM-HC4H-M100R03-S75-120HA TI40 |
| | | | | | 80 | 120 | 4 | 23003649 | SCM-HC4H-M100R03-S80-120HA TI40 |
| | | | | | 85 | 120 | 4 | 23003650 | SCM-HC4H-M100R03-S85-120HA TI40 |
| | | | | 0.5 | 30 | 78 | 4 | 23001027 | SCM-HC4H-M100R05-S30-78HA TI40 |
| | | | | | | 105 | 4 | 23003651 | SCM-HC4H-M100R05-S30-105HA TI40 |
| | | | | | | 120 | 4 | 23003652 | SCM-HC4H-M100R05-S30-120HA TI40 |
| | | | | | 35 | 78 | 4 | 23003653 | SCM-HC4H-M100R05-S35-78HA TI40 |
| | | | | | | 105 | 4 | 23003654 | SCM-HC4H-M100R05-S35-105HA TI40 |
| | | | | | | 120 | 4 | 23003655 | SCM-HC4H-M100R05-S35-120HA TI40 |
| | | | | | 40 | 78 | 4 | 23003656 | SCM-HC4H-M100R05-S40-78HA TI40 |
| | | | | | | 105 | 4 | 23003657 | SCM-HC4H-M100R05-S40-105HA TI40 |
| | | | | | | 120 | 4 | 23003658 | SCM-HC4H-M100R05-S40-120HA TI40 |
| | | | | | 45 | 78 | 4 | 23003659 | SCM-HC4H-M100R05-S45-78HA TI40 |
| | | | | | | 105 | 4 | 23003660 | SCM-HC4H-M100R05-S45-105HA TI40 |
| | | | | | | 120 | 4 | 23003661 | SCM-HC4H-M100R05-S45-120HA TI40 |
| | | | | | 50 | 105 | 4 | 23003662 | SCM-HC4H-M100R05-S50-105HA TI40 |
| | | | | | | 120 | 4 | 23003663 | SCM-HC4H-M100R05-S50-120HA TI40 |
| | | | | | 60 | 105 | 4 | 23003664 | SCM-HC4H-M100R05-S60-105HA TI40 |
| | | | | | | 120 | 4 | 23003665 | SCM-HC4H-M100R05-S60-120HA TI40 |
| | | | | | 65 | 105 | 4 | 23003666 | SCM-HC4H-M100R05-S65-105HA TI40 |
| | | | | | | 120 | 4 | 23003667 | SCM-HC4H-M100R05-S65-120HA TI40 |
| | | | | | 70 | 105 | 4 | 23003668 | SCM-HC4H-M100R05-S70-105HA TI40 |
| | | | | | | 120 | 4 | 23003669 | SCM-HC4H-M100R05-S70-120HA TI40 |
| | | | | | 75 | 120 | 4 | 23003670 | SCM-HC4H-M100R05-S75-120HA TI40 |
| | | | | | 80 | 120 | 4 | 23003671 | SCM-HC4H-M100R05-S80-120HA TI40 |
| | | | | | 85 | 120 | 4 | 23003672 | SCM-HC4H-M100R05-S85-120HA TI40 |
| | | | | 1 | 30 | 78 | 4 | 23003673 | SCM-HC4H-M100R10-S30-78HA TI40 |
| | | | | | | 105 | 4 | 23003674 | SCM-HC4H-M100R10-S30-105HA TI40 |
| | | | | | | 120 | 4 | 23003675 | SCM-HC4H-M100R10-S30-120HA TI40 |
| | | | | | 35 | 78 | 4 | 23003676 | SCM-HC4H-M100R10-S35-78HA TI40 |

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# Performance Hardened Steel Line
## 4-flute Torus cutter (HC4H)

PFERD TOOLS

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | RE [mm] | LU [mm] | LF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| 10 | 10 | 9.7 | 11 | 1 | 35 | 105 | 4 | 23003677 | SCM-HC4H-M100R10-S35-105HA TI40 |
| | | | | | | 120 | 4 | 23003678 | SCM-HC4H-M100R10-S35-120HA TI40 |
| | | | | | 40 | 78 | 4 | 23003679 | SCM-HC4H-M100R10-S40-78HA TI40 |
| | | | | | | 105 | 4 | 23003680 | SCM-HC4H-M100R10-S40-105HA TI40 |
| | | | | | | 120 | 4 | 23003681 | SCM-HC4H-M100R10-S40-120HA TI40 |
| | | | | | 45 | 78 | 4 | 23003682 | SCM-HC4H-M100R10-S45-78HA TI40 |
| | | | | | | 105 | 4 | 23003683 | SCM-HC4H-M100R10-S45-105HA TI40 |
| | | | | | | 120 | 4 | 23003684 | SCM-HC4H-M100R10-S45-120HA TI40 |
| | | | | | 50 | 105 | 4 | 23003685 | SCM-HC4H-M100R10-S50-105HA TI40 |
| | | | | | | 120 | 4 | 23003686 | SCM-HC4H-M100R10-S50-120HA TI40 |
| | | | | | 60 | 105 | 4 | 23003687 | SCM-HC4H-M100R10-S60-105HA TI40 |
| | | | | | | 120 | 4 | 23003688 | SCM-HC4H-M100R10-S60-120HA TI40 |
| | | | | | 65 | 105 | 4 | 23003689 | SCM-HC4H-M100R10-S65-105HA TI40 |
| | | | | | | 120 | 4 | 23003690 | SCM-HC4H-M100R10-S65-120HA TI40 |
| | | | | | 70 | 105 | 4 | 23003691 | SCM-HC4H-M100R10-S70-105HA TI40 |
| | | | | | | 120 | 4 | 23003692 | SCM-HC4H-M100R10-S70-120HA TI40 |
| | | | | | 75 | 120 | 4 | 23003693 | SCM-HC4H-M100R10-S75-120HA TI40 |
| | | | | | 80 | 120 | 4 | 23003694 | SCM-HC4H-M100R10-S80-120HA TI40 |
| | | | | | 85 | 120 | 4 | 23003695 | SCM-HC4H-M100R10-S85-120HA TI40 |
| | | | | 1.5 | 30 | 78 | 4 | 23003696 | SCM-HC4H-M100R15-S30-78HA TI40 |
| | | | | | | 105 | 4 | 23003697 | SCM-HC4H-M100R15-S30-105HA TI40 |
| | | | | | | 120 | 4 | 23003698 | SCM-HC4H-M100R15-S30-120HA TI40 |
| | | | | | 35 | 78 | 4 | 23003699 | SCM-HC4H-M100R15-S35-78HA TI40 |
| | | | | | | 105 | 4 | 23003700 | SCM-HC4H-M100R15-S35-105HA TI40 |
| | | | | | | 120 | 4 | 23003701 | SCM-HC4H-M100R15-S35-120HA TI40 |
| | | | | | 40 | 78 | 4 | 23003702 | SCM-HC4H-M100R15-S40-78HA TI40 |
| | | | | | | 105 | 4 | 23003703 | SCM-HC4H-M100R15-S40-105HA TI40 |
| | | | | | | 120 | 4 | 23003704 | SCM-HC4H-M100R15-S40-120HA TI40 |
| | | | | | 45 | 78 | 4 | 23003705 | SCM-HC4H-M100R15-S45-78HA TI40 |
| | | | | | | 105 | 4 | 23003706 | SCM-HC4H-M100R15-S45-105HA TI40 |
| | | | | | | 120 | 4 | 23003707 | SCM-HC4H-M100R15-S45-120HA TI40 |
| | | | | | 50 | 105 | 4 | 23003708 | SCM-HC4H-M100R15-S50-105HA TI40 |
| | | | | | | 120 | 4 | 23003709 | SCM-HC4H-M100R15-S50-120HA TI40 |
| | | | | | 60 | 105 | 4 | 23003710 | SCM-HC4H-M100R15-S60-105HA TI40 |
| | | | | | | 120 | 4 | 23003711 | SCM-HC4H-M100R15-S60-120HA TI40 |
| | | | | | 65 | 105 | 4 | 23003712 | SCM-HC4H-M100R15-S65-105HA TI40 |
| | | | | | | 120 | 4 | 23003713 | SCM-HC4H-M100R15-S65-120HA TI40 |
| | | | | | 70 | 105 | 4 | 23003714 | SCM-HC4H-M100R15-S70-105HA TI40 |
| | | | | | | 120 | 4 | 23003715 | SCM-HC4H-M100R15-S70-120HA TI40 |
| | | | | | 75 | 120 | 4 | 23003716 | SCM-HC4H-M100R15-S75-120HA TI40 |
| | | | | | 80 | 120 | 4 | 23003717 | SCM-HC4H-M100R15-S80-120HA TI40 |
| | | | | | 85 | 120 | 4 | 23003718 | SCM-HC4H-M100R15-S85-120HA TI40 |
| | | | | 2 | 30 | 78 | 4 | 23003719 | SCM-HC4H-M100R20-S30-78HA TI40 |
| | | | | | | 105 | 4 | 23003720 | SCM-HC4H-M100R20-S30-105HA TI40 |
| | | | | | | 120 | 4 | 23003721 | SCM-HC4H-M100R20-S30-120HA TI40 |
| | | | | | 35 | 78 | 4 | 23003722 | SCM-HC4H-M100R20-S35-78HA TI40 |
| | | | | | | 105 | 4 | 23003723 | SCM-HC4H-M100R20-S35-105HA TI40 |
| | | | | | | 120 | 4 | 23003724 | SCM-HC4H-M100R20-S35-120HA TI40 |
| | | | | | 40 | 78 | 4 | 23003725 | SCM-HC4H-M100R20-S40-78HA TI40 |

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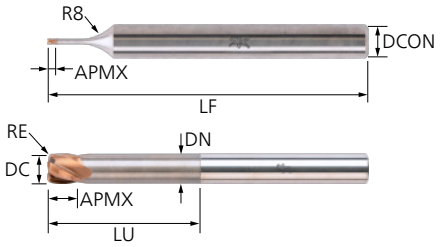
# Performance Hardened Steel Line
## 4-flute Torus cutter (HC4H)

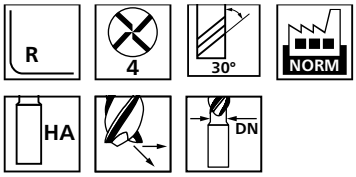
PFERD TOOLS




### Radius – metric

End mill for roughing and semi-finishing in hardened steels up to 60 HRC.

| | |
|---|---|
| P | ● |
| M | ○ |
| K | ● |
| N | ○ |
| S | - |
| H | ● |
| O | - |




**Special features:**
- Modern tool coating for a long tool life and optimum temperature control when working on materials that are difficult to machine.
- Neck chip channel.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | RE [mm] | LU [mm] | LF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| 10 | 10 | 9.7 | 11 | 2 | 40 | 105 | 4 | 23003726 | SCM-HC4H-M100R20-S40-105HA TI40 |
| | | | | | | 120 | 4 | 23003727 | SCM-HC4H-M100R20-S40-120HA TI40 |
| | | | | | 45 | 78 | 4 | 23003728 | SCM-HC4H-M100R20-S45-78HA TI40 |
| | | | | | | 105 | 4 | 23003729 | SCM-HC4H-M100R20-S45-105HA TI40 |
| | | | | | | 120 | 4 | 23003730 | SCM-HC4H-M100R20-S45-120HA TI40 |
| | | | | | 50 | 105 | 4 | 23003731 | SCM-HC4H-M100R20-S50-105HA TI40 |
| | | | | | | 120 | 4 | 23003732 | SCM-HC4H-M100R20-S50-120HA TI40 |
| | | | | | 60 | 105 | 4 | 23003733 | SCM-HC4H-M100R20-S60-105HA TI40 |
| | | | | | | 120 | 4 | 23003734 | SCM-HC4H-M100R20-S60-120HA TI40 |
| | | | | | 65 | 105 | 4 | 23003735 | SCM-HC4H-M100R20-S65-105HA TI40 |
| | | | | | | 120 | 4 | 23003736 | SCM-HC4H-M100R20-S65-120HA TI40 |
| | | | | | 70 | 105 | 4 | 23003737 | SCM-HC4H-M100R20-S70-105HA TI40 |
| | | | | | | 120 | 4 | 23003738 | SCM-HC4H-M100R20-S70-120HA TI40 |
| | | | | | 75 | 120 | 4 | 23003739 | SCM-HC4H-M100R20-S75-120HA TI40 |
| | | | | | 80 | 120 | 4 | 23003740 | SCM-HC4H-M100R20-S80-120HA TI40 |
| | | | | | 85 | 120 | 4 | 23003741 | SCM-HC4H-M100R20-S85-120HA TI40 |
| | | | | 2.5 | 30 | 78 | 4 | 23003742 | SCM-HC4H-M100R25-S30-78HA TI40 |
| | | | | | | 105 | 4 | 23003743 | SCM-HC4H-M100R25-S30-105HA TI40 |
| | | | | | | 120 | 4 | 23003744 | SCM-HC4H-M100R25-S30-120HA TI40 |
| | | | | | 35 | 78 | 4 | 23003745 | SCM-HC4H-M100R25-S35-78HA TI40 |
| | | | | | | 105 | 4 | 23003746 | SCM-HC4H-M100R25-S35-105HA TI40 |
| | | | | | | 120 | 4 | 23003747 | SCM-HC4H-M100R25-S35-120HA TI40 |
| | | | | | 40 | 78 | 4 | 23003748 | SCM-HC4H-M100R25-S40-78HA TI40 |
| | | | | | | 105 | 4 | 23003749 | SCM-HC4H-M100R25-S40-105HA TI40 |
| | | | | | | 120 | 4 | 23003750 | SCM-HC4H-M100R25-S40-120HA TI40 |
| | | | | | 45 | 78 | 4 | 23003751 | SCM-HC4H-M100R25-S45-78HA TI40 |
| | | | | | | 105 | 4 | 23003752 | SCM-HC4H-M100R25-S45-105HA TI40 |
| | | | | | | 120 | 4 | 23003753 | SCM-HC4H-M100R25-S45-120HA TI40 |
| | | | | | 50 | 105 | 4 | 23003754 | SCM-HC4H-M100R25-S50-105HA TI40 |
| | | | | | | 120 | 4 | 23003755 | SCM-HC4H-M100R25-S50-120HA TI40 |
| | | | | | 60 | 105 | 4 | 23003756 | SCM-HC4H-M100R25-S60-105HA TI40 |
| | | | | | | 120 | 4 | 23003757 | SCM-HC4H-M100R25-S60-120HA TI40 |
| | | | | | 65 | 105 | 4 | 23003758 | SCM-HC4H-M100R25-S65-105HA TI40 |
| | | | | | | 120 | 4 | 23003759 | SCM-HC4H-M100R25-S65-120HA TI40 |
| | | | | | 70 | 105 | 4 | 23003760 | SCM-HC4H-M100R25-S70-105HA TI40 |
| | | | | | | 120 | 4 | 23003761 | SCM-HC4H-M100R25-S70-120HA TI40 |
| | | | | | 75 | 120 | 4 | 23003762 | SCM-HC4H-M100R25-S75-120HA TI40 |

*Continued on next page*

# Performance Hardened Steel Line

## 4-flute Torus cutter (HC4H)

PFERD TOOLS

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | RE [mm] | LU [mm] | LF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| 10 | 10 | 9.7 | 11 | 2.5 | 80 | 120 | 4 | 23003763 | SCM-HC4H-M100R25-S80-120HA TI40 |
| | | | | | 85 | 120 | 4 | 23003764 | SCM-HC4H-M100R25-S85-120HA TI40 |
| 12 | 12 | 11.6 | 12 | 0.2 | 30 | 83 | 4 | 23002432 | SCM-HC4H-M120R02-XS30-83HA TI40 |
| | | | | | | 105 | 4 | 23002433 | SCM-HC4H-M120R02-XS30-105HA TI40 |
| | | | | | 35 | 83 | 4 | 23002434 | SCM-HC4H-M120R02-XS35-83HA TI40 |
| | | | | | | 105 | 4 | 23002435 | SCM-HC4H-M120R02-XS35-105HA TI40 |
| | | | | | 40 | 83 | 4 | 23002436 | SCM-HC4H-M120R02-XS40-83HA TI40 |
| | | | | | | 105 | 4 | 23002437 | SCM-HC4H-M120R02-XS40-105HA TI40 |
| | | | | | | 120 | 4 | 23002438 | SCM-HC4H-M120R02-XS40-120HA TI40 |
| | | | | | | 150 | 4 | 23002439 | SCM-HC4H-M120R02-XS40-150HA TI40 |
| | | | | | 45 | 83 | 4 | 23002440 | SCM-HC4H-M120R02-XS45-83HA TI40 |
| | | | | | | 105 | 4 | 23002441 | SCM-HC4H-M120R02-XS45-105HA TI40 |
| | | | | | | 120 | 4 | 23002442 | SCM-HC4H-M120R02-XS45-120HA TI40 |
| | | | | | | 150 | 4 | 23002443 | SCM-HC4H-M120R02-XS45-150HA TI40 |
| | | | | | 50 | 105 | 4 | 23002444 | SCM-HC4H-M120R02-XS50-105HA TI40 |
| | | | | | | 120 | 4 | 23002445 | SCM-HC4H-M120R02-XS50-120HA TI40 |
| | | | | | | 150 | 4 | 23002446 | SCM-HC4H-M120R02-XS50-150HA TI40 |
| | | | | | 60 | 105 | 4 | 23002447 | SCM-HC4H-M120R02-XS60-105HA TI40 |
| | | | | | | 120 | 4 | 23002448 | SCM-HC4H-M120R02-XS60-120HA TI40 |
| | | | | | | 150 | 4 | 23002449 | SCM-HC4H-M120R02-XS60-150HA TI40 |
| | | | | | 65 | 105 | 4 | 23002450 | SCM-HC4H-M120R02-XS65-105HA TI40 |
| | | | | | | 120 | 4 | 23002451 | SCM-HC4H-M120R02-XS65-120HA TI40 |
| | | | | | | 150 | 4 | 23002452 | SCM-HC4H-M120R02-XS65-150HA TI40 |
| | | | | | 70 | 105 | 4 | 23002453 | SCM-HC4H-M120R02-XS70-105HA TI40 |
| | | | | | | 120 | 4 | 23002454 | SCM-HC4H-M120R02-XS70-120HA TI40 |
| | | | | | | 150 | 4 | 23002455 | SCM-HC4H-M120R02-XS70-150HA TI40 |
| | | | | | 75 | 120 | 4 | 23002456 | SCM-HC4H-M120R02-XS75-120HA TI40 |
| | | | | | | 150 | 4 | 23002457 | SCM-HC4H-M120R02-XS75-150HA TI40 |
| | | | | | 80 | 120 | 4 | 23002458 | SCM-HC4H-M120R02-XS80-120HA TI40 |
| | | | | | | 150 | 4 | 23002459 | SCM-HC4H-M120R02-XS80-150HA TI40 |
| | | | | | 85 | 120 | 4 | 23002460 | SCM-HC4H-M120R02-XS85-120HA TI40 |
| | | | | | | 150 | 4 | 23002461 | SCM-HC4H-M120R02-XS85-150HA TI40 |
| | | | | | 90 | 150 | 4 | 23002462 | SCM-HC4H-M120R02-XS90-150HA TI40 |
| | | | | | 100 | 150 | 4 | 23002463 | SCM-HC4H-M120R02-XS100-150HA TI40 |
| | | | | 0.3 | 30 | 83 | 4 | 23003765 | SCM-HC4H-M120R03-XS30-83HA TI40 |
| | | | | | | 105 | 4 | 23003766 | SCM-HC4H-M120R03-XS30-105HA TI40 |
| | | | | | 35 | 83 | 4 | 23003767 | SCM-HC4H-M120R03-XS35-83HA TI40 |
| | | | | | | 105 | 4 | 23003768 | SCM-HC4H-M120R03-XS35-105HA TI40 |
| | | | | | 40 | 83 | 4 | 23003769 | SCM-HC4H-M120R03-XS40-83HA TI40 |
| | | | | | | 105 | 4 | 23003770 | SCM-HC4H-M120R03-XS40-105HA TI40 |
| | | | | | | 120 | 4 | 23003771 | SCM-HC4H-M120R03-XS40-120HA TI40 |
| | | | | | | 150 | 4 | 23003772 | SCM-HC4H-M120R03-XS40-150HA TI40 |
| | | | | | 45 | 83 | 4 | 23003773 | SCM-HC4H-M120R03-XS45-83HA TI40 |
| | | | | | | 105 | 4 | 23003774 | SCM-HC4H-M120R03-XS45-105HA TI40 |
| | | | | | | 120 | 4 | 23003775 | SCM-HC4H-M120R03-XS45-120HA TI40 |
| | | | | | | 150 | 4 | 23003776 | SCM-HC4H-M120R03-XS45-150HA TI40 |
| | | | | | 50 | 105 | 4 | 23003777 | SCM-HC4H-M120R03-XS50-105HA TI40 |
| | | | | | | 120 | 4 | 23003778 | SCM-HC4H-M120R03-XS50-120HA TI40 |
| | | | | | | 150 | 4 | 23003779 | SCM-HC4H-M120R03-XS50-150HA TI40 |

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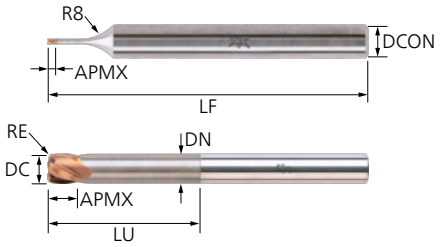
# Performance Hardened Steel Line
## 4-flute Torus cutter (HC4H)

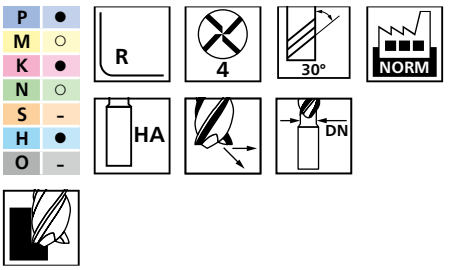
PFERD TOOLS




### Radius – metric

End mill for roughing and semi-finishing in hardened steels up to 60 HRC.

| | |
|---|---|
| P | ● |
| M | ○ |
| K | ● |
| N | ○ |
| S | - |
| H | ● |
| O | - |




**Special features:**
- Modern tool coating for a long tool life and optimum temperature control when working on materials that are difficult to machine.
- Neck chip channel.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | RE [mm] | LU [mm] | LF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| 12 | 12 | 11.6 | 12 | 0.3 | 60 | 105 | 4 | 23001479 | SCM-HC4H-M120R03-XS60-105HA TI40 |
| | | | | | | 120 | 4 | 23003780 | SCM-HC4H-M120R03-XS60-120HA TI40 |
| | | | | | | 150 | 4 | 23003781 | SCM-HC4H-M120R03-XS60-150HA TI40 |
| | | | | | 65 | 105 | 4 | 23003782 | SCM-HC4H-M120R03-XS65-105HA TI40 |
| | | | | | | 120 | 4 | 23003783 | SCM-HC4H-M120R03-XS65-120HA TI40 |
| | | | | | | 150 | 4 | 23003784 | SCM-HC4H-M120R03-XS65-150HA TI40 |
| | | | | | 70 | 105 | 4 | 23003785 | SCM-HC4H-M120R03-XS70-105HA TI40 |
| | | | | | | 120 | 4 | 23003786 | SCM-HC4H-M120R03-XS70-120HA TI40 |
| | | | | | | 150 | 4 | 23003787 | SCM-HC4H-M120R03-XS70-150HA TI40 |
| | | | | | 75 | 120 | 4 | 23003788 | SCM-HC4H-M120R03-XS75-120HA TI40 |
| | | | | | | 150 | 4 | 23003789 | SCM-HC4H-M120R03-XS75-150HA TI40 |
| | | | | | 80 | 120 | 4 | 23003790 | SCM-HC4H-M120R03-XS80-120HA TI40 |
| | | | | | | 150 | 4 | 23003791 | SCM-HC4H-M120R03-XS80-150HA TI40 |
| | | | | | 85 | 120 | 4 | 23003792 | SCM-HC4H-M120R03-XS85-120HA TI40 |
| | | | | | | 150 | 4 | 23003793 | SCM-HC4H-M120R03-XS85-150HA TI40 |
| | | | | | 90 | 150 | 4 | 23003794 | SCM-HC4H-M120R03-XS90-150HA TI40 |
| | | | | | 100 | 150 | 4 | 23003795 | SCM-HC4H-M120R03-XS100-150HA TI40 |
| | | | | 0.5 | 30 | 83 | 4 | 23003796 | SCM-HC4H-M120R05-XS30-83HA TI40 |
| | | | | | | 105 | 4 | 23003797 | SCM-HC4H-M120R05-XS30-105HA TI40 |
| | | | | | 35 | 83 | 4 | 23003798 | SCM-HC4H-M120R05-XS35-83HA TI40 |
| | | | | | | 105 | 4 | 23003799 | SCM-HC4H-M120R05-XS35-105HA TI40 |
| | | | | | 40 | 83 | 4 | 23003800 | SCM-HC4H-M120R05-XS40-83HA TI40 |
| | | | | | | 105 | 4 | 23003801 | SCM-HC4H-M120R05-XS40-105HA TI40 |
| | | | | | | 120 | 4 | 23003802 | SCM-HC4H-M120R05-XS40-120HA TI40 |
| | | | | | | 150 | 4 | 23003803 | SCM-HC4H-M120R05-XS40-150HA TI40 |
| | | | | | 45 | 83 | 4 | 23003804 | SCM-HC4H-M120R05-XS45-83HA TI40 |
| | | | | | | 105 | 4 | 23003805 | SCM-HC4H-M120R05-XS45-105HA TI40 |
| | | | | | | 120 | 4 | 23003806 | SCM-HC4H-M120R05-XS45-120HA TI40 |
| | | | | | | 150 | 4 | 23003807 | SCM-HC4H-M120R05-XS45-150HA TI40 |
| | | | | | 50 | 105 | 4 | 23003808 | SCM-HC4H-M120R05-XS50-105HA TI40 |
| | | | | | | 120 | 4 | 23003809 | SCM-HC4H-M120R05-XS50-120HA TI40 |
| | | | | | | 150 | 4 | 23003810 | SCM-HC4H-M120R05-XS50-150HA TI40 |
| | | | | | 60 | 105 | 4 | 23003811 | SCM-HC4H-M120R05-XS60-105HA TI40 |
| | | | | | | 120 | 4 | 23003812 | SCM-HC4H-M120R05-XS60-120HA TI40 |
| | | | | | | 150 | 4 | 23003813 | SCM-HC4H-M120R05-XS60-150HA TI40 |
| | | | | | 65 | 105 | 4 | 23003814 | SCM-HC4H-M120R05-XS65-105HA TI40 |
| | | | | | | 120 | 4 | 23003815 | SCM-HC4H-M120R05-XS65-120HA TI40 |

*Continued on next page*

# Performance Hardened Steel Line

## 4-flute Torus cutter (HC4H)

PFERD TOOLS

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | RE [mm] | LU [mm] | LF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| 12 | 12 | 11.6 | 12 | 0.5 | 65 | 150 | 4 | 23003816 | SCM-HC4H-M120R05-XS65-150HA TI40 |
| | | | | | 70 | 105 | 4 | 23003817 | SCM-HC4H-M120R05-XS70-105HA TI40 |
| | | | | | | 120 | 4 | 23003818 | SCM-HC4H-M120R05-XS70-120HA TI40 |
| | | | | | | 150 | 4 | 23003819 | SCM-HC4H-M120R05-XS70-150HA TI40 |
| | | | | | 75 | 120 | 4 | 23003820 | SCM-HC4H-M120R05-XS75-120HA TI40 |
| | | | | | | 150 | 4 | 23003821 | SCM-HC4H-M120R05-XS75-150HA TI40 |
| | | | | | 80 | 120 | 4 | 23003822 | SCM-HC4H-M120R05-XS80-120HA TI40 |
| | | | | | | 150 | 4 | 23003823 | SCM-HC4H-M120R05-XS80-150HA TI40 |
| | | | | | 85 | 120 | 4 | 23003824 | SCM-HC4H-M120R05-XS85-120HA TI40 |
| | | | | | | 150 | 4 | 23003825 | SCM-HC4H-M120R05-XS85-150HA TI40 |
| | | | | | 90 | 150 | 4 | 23003826 | SCM-HC4H-M120R05-XS90-150HA TI40 |
| | | | | | 100 | 150 | 4 | 23003827 | SCM-HC4H-M120R05-XS100-150HA TI40 |
| | | | | 1 | 30 | 83 | 4 | 23003828 | SCM-HC4H-M120R10-XS30-83HA TI40 |
| | | | | | | 105 | 4 | 23003829 | SCM-HC4H-M120R10-XS30-105HA TI40 |
| | | | | | 35 | 83 | 4 | 23003830 | SCM-HC4H-M120R10-XS35-83HA TI40 |
| | | | | | | 105 | 4 | 23003831 | SCM-HC4H-M120R10-XS35-105HA TI40 |
| | | | | | 40 | 83 | 4 | 23003832 | SCM-HC4H-M120R10-XS40-83HA TI40 |
| | | | | | | 105 | 4 | 23003833 | SCM-HC4H-M120R10-XS40-105HA TI40 |
| | | | | | | 120 | 4 | 23003834 | SCM-HC4H-M120R10-XS40-120HA TI40 |
| | | | | | | 150 | 4 | 23003835 | SCM-HC4H-M120R10-XS40-150HA TI40 |
| | | | | | 45 | 83 | 4 | 23003836 | SCM-HC4H-M120R10-XS45-83HA TI40 |
| | | | | | | 105 | 4 | 23003837 | SCM-HC4H-M120R10-XS45-105HA TI40 |
| | | | | | | 120 | 4 | 23003838 | SCM-HC4H-M120R10-XS45-120HA TI40 |
| | | | | | | 150 | 4 | 23003839 | SCM-HC4H-M120R10-XS45-150HA TI40 |
| | | | | | 50 | 105 | 4 | 23003840 | SCM-HC4H-M120R10-XS50-105HA TI40 |
| | | | | | | 120 | 4 | 23003841 | SCM-HC4H-M120R10-XS50-120HA TI40 |
| | | | | | | 150 | 4 | 23003842 | SCM-HC4H-M120R10-XS50-150HA TI40 |
| | | | | | 60 | 105 | 4 | 23003843 | SCM-HC4H-M120R10-XS60-105HA TI40 |
| | | | | | | 120 | 4 | 23003844 | SCM-HC4H-M120R10-XS60-120HA TI40 |
| | | | | | | 150 | 4 | 23003845 | SCM-HC4H-M120R10-XS60-150HA TI40 |
| | | | | | 65 | 105 | 4 | 23003846 | SCM-HC4H-M120R10-XS65-105HA TI40 |
| | | | | | | 120 | 4 | 23003847 | SCM-HC4H-M120R10-XS65-120HA TI40 |
| | | | | | | 150 | 4 | 23003848 | SCM-HC4H-M120R10-XS65-150HA TI40 |
| | | | | | 70 | 105 | 4 | 23003849 | SCM-HC4H-M120R10-XS70-105HA TI40 |
| | | | | | | 120 | 4 | 23003850 | SCM-HC4H-M120R10-XS70-120HA TI40 |
| | | | | | | 150 | 4 | 23003851 | SCM-HC4H-M120R10-XS70-150HA TI40 |
| | | | | | 75 | 120 | 4 | 23003852 | SCM-HC4H-M120R10-XS75-120HA TI40 |
| | | | | | | 150 | 4 | 23003853 | SCM-HC4H-M120R10-XS75-150HA TI40 |
| | | | | | 80 | 120 | 4 | 23003854 | SCM-HC4H-M120R10-XS80-120HA TI40 |
| | | | | | | 150 | 4 | 23003855 | SCM-HC4H-M120R10-XS80-150HA TI40 |
| | | | | | 85 | 120 | 4 | 23003856 | SCM-HC4H-M120R10-XS85-120HA TI40 |
| | | | | | | 150 | 4 | 23003857 | SCM-HC4H-M120R10-XS85-150HA TI40 |
| | | | | | 90 | 150 | 4 | 23003858 | SCM-HC4H-M120R10-XS90-150HA TI40 |
| | | | | | 100 | 150 | 4 | 23003859 | SCM-HC4H-M120R10-XS100-150HA TI40 |
| | | | | 1.5 | 30 | 83 | 4 | 23002464 | SCM-HC4H-M120R15-XS30-83HA TI40 |
| | | | | | | 105 | 4 | 23002465 | SCM-HC4H-M120R15-XS30-105HA TI40 |
| | | | | | 35 | 83 | 4 | 23002466 | SCM-HC4H-M120R15-XS35-83HA TI40 |
| | | | | | | 105 | 4 | 23002467 | SCM-HC4H-M120R15-XS35-105HA TI40 |
| | | | | | 40 | 83 | 4 | 23002468 | SCM-HC4H-M120R15-XS40-83HA TI40 |

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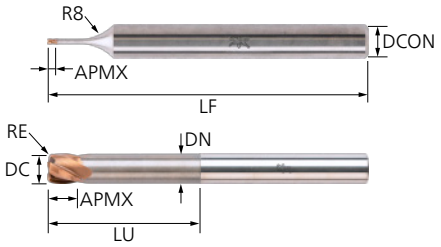
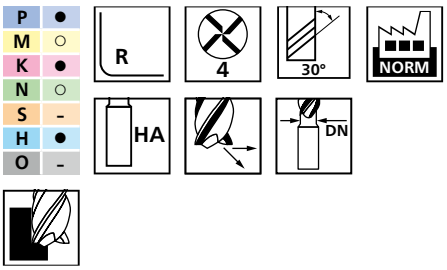
# Performance Hardened Steel Line
## 4-flute Torus cutter (HC4H)




### Radius – metric

End mill for roughing and semi-finishing in hardened steels up to 60 HRC.

| | |
|---|---|
| P | ● |
| M | ○ |
| K | ● |
| N | ○ |
| S | - |
| H | ● |
| O | - |




**Special features:**
- Modern tool coating for a long tool life and optimum temperature control when working on materials that are difficult to machine.
- Neck chip channel.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | RE [mm] | LU [mm] | LF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| 12 | 12 | 11.6 | 12 | 1.5 | 40 | 105 | 4 | 23002469 | SCM-HC4H-M120R15-XS40-105HA TI40 |
| | | | | | | 120 | 4 | 23002470 | SCM-HC4H-M120R15-XS40-120HA TI40 |
| | | | | | | 150 | 4 | 23002471 | SCM-HC4H-M120R15-XS40-150HA TI40 |
| | | | | | 45 | 83 | 4 | 23002472 | SCM-HC4H-M120R15-XS45-83HA TI40 |
| | | | | | | 105 | 4 | 23002473 | SCM-HC4H-M120R15-XS45-105HA TI40 |
| | | | | | | 120 | 4 | 23002474 | SCM-HC4H-M120R15-XS45-120HA TI40 |
| | | | | | | 150 | 4 | 23002475 | SCM-HC4H-M120R15-XS45-150HA TI40 |
| | | | | | 50 | 105 | 4 | 23002476 | SCM-HC4H-M120R15-XS50-105HA TI40 |
| | | | | | | 120 | 4 | 23002477 | SCM-HC4H-M120R15-XS50-120HA TI40 |
| | | | | | | 150 | 4 | 23002478 | SCM-HC4H-M120R15-XS50-150HA TI40 |
| | | | | | 60 | 105 | 4 | 23002479 | SCM-HC4H-M120R15-XS60-105HA TI40 |
| | | | | | | 120 | 4 | 23002480 | SCM-HC4H-M120R15-XS60-120HA TI40 |
| | | | | | | 150 | 4 | 23002481 | SCM-HC4H-M120R15-XS60-150HA TI40 |
| | | | | | 65 | 105 | 4 | 23002482 | SCM-HC4H-M120R15-XS65-105HA TI40 |
| | | | | | | 120 | 4 | 23002483 | SCM-HC4H-M120R15-XS65-120HA TI40 |
| | | | | | | 150 | 4 | 23002484 | SCM-HC4H-M120R15-XS65-150HA TI40 |
| | | | | | 70 | 105 | 4 | 23002485 | SCM-HC4H-M120R15-XS70-105HA TI40 |
| | | | | | | 120 | 4 | 23002486 | SCM-HC4H-M120R15-XS70-120HA TI40 |
| | | | | | | 150 | 4 | 23002487 | SCM-HC4H-M120R15-XS70-150HA TI40 |
| | | | | | 75 | 120 | 4 | 23002488 | SCM-HC4H-M120R15-XS75-120HA TI40 |
| | | | | | | 150 | 4 | 23002489 | SCM-HC4H-M120R15-XS75-150HA TI40 |
| | | | | | 80 | 120 | 4 | 23002490 | SCM-HC4H-M120R15-XS80-120HA TI40 |
| | | | | | | 150 | 4 | 23002491 | SCM-HC4H-M120R15-XS80-150HA TI40 |
| | | | | | 85 | 120 | 4 | 23002492 | SCM-HC4H-M120R15-XS85-120HA TI40 |
| | | | | | | 150 | 4 | 23002493 | SCM-HC4H-M120R15-XS85-150HA TI40 |
| | | | | | 90 | 150 | 4 | 23002494 | SCM-HC4H-M120R15-XS90-150HA TI40 |
| | | | | | 100 | 150 | 4 | 23002495 | SCM-HC4H-M120R15-XS100-150HA TI40 |
| | | | | 2 | 30 | 83 | 4 | 23003860 | SCM-HC4H-M120R20-XS30-83HA TI40 |
| | | | | | | 105 | 4 | 23003861 | SCM-HC4H-M120R20-XS30-105HA TI40 |
| | | | | | 35 | 83 | 4 | 23003862 | SCM-HC4H-M120R20-XS35-83HA TI40 |
| | | | | | | 105 | 4 | 23003863 | SCM-HC4H-M120R20-XS35-105HA TI40 |
| | | | | | 40 | 83 | 4 | 23003864 | SCM-HC4H-M120R20-XS40-83HA TI40 |
| | | | | | | 105 | 4 | 23003865 | SCM-HC4H-M120R20-XS40-105HA TI40 |
| | | | | | | 120 | 4 | 23003866 | SCM-HC4H-M120R20-XS40-120HA TI40 |
| | | | | | | 150 | 4 | 23003867 | SCM-HC4H-M120R20-XS40-150HA TI40 |
| | | | | | 45 | 83 | 4 | 23003868 | SCM-HC4H-M120R20-XS45-83HA TI40 |
| | | | | | | 105 | 4 | 23003869 | SCM-HC4H-M120R20-XS45-105HA TI40 |

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# Performance Hardened Steel Line

## 4-flute Torus cutter (HC4H)

PFERD TOOLS

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | RE [mm] | LU [mm] | LF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| 12 | 12 | 11.6 | 12 | 2 | 45 | 120 | 4 | 23003870 | SCM-HC4H-M120R20-XS45-120HA TI40 |
| | | | | | | 150 | 4 | 23003871 | SCM-HC4H-M120R20-XS45-150HA TI40 |
| | | | | | 50 | 105 | 4 | 23003872 | SCM-HC4H-M120R20-XS50-105HA TI40 |
| | | | | | | 120 | 4 | 23003873 | SCM-HC4H-M120R20-XS50-120HA TI40 |
| | | | | | | 150 | 4 | 23003874 | SCM-HC4H-M120R20-XS50-150HA TI40 |
| | | | | | 60 | 105 | 4 | 23003875 | SCM-HC4H-M120R20-XS60-105HA TI40 |
| | | | | | | 120 | 4 | 23003876 | SCM-HC4H-M120R20-XS60-120HA TI40 |
| | | | | | | 150 | 4 | 23003877 | SCM-HC4H-M120R20-XS60-150HA TI40 |
| | | | | | 65 | 105 | 4 | 23003878 | SCM-HC4H-M120R20-XS65-105HA TI40 |
| | | | | | | 120 | 4 | 23003879 | SCM-HC4H-M120R20-XS65-120HA TI40 |
| | | | | | | 150 | 4 | 23003880 | SCM-HC4H-M120R20-XS65-150HA TI40 |
| | | | | | 70 | 105 | 4 | 23003881 | SCM-HC4H-M120R20-XS70-105HA TI40 |
| | | | | | | 120 | 4 | 23003882 | SCM-HC4H-M120R20-XS70-120HA TI40 |
| | | | | | | 150 | 4 | 23003883 | SCM-HC4H-M120R20-XS70-150HA TI40 |
| | | | | | 75 | 120 | 4 | 23003884 | SCM-HC4H-M120R20-XS75-120HA TI40 |
| | | | | | | 150 | 4 | 23003885 | SCM-HC4H-M120R20-XS75-150HA TI40 |
| | | | | | 80 | 120 | 4 | 23003886 | SCM-HC4H-M120R20-XS80-120HA TI40 |
| | | | | | | 150 | 4 | 23003887 | SCM-HC4H-M120R20-XS80-150HA TI40 |
| | | | | | 85 | 120 | 4 | 23003888 | SCM-HC4H-M120R20-XS85-120HA TI40 |
| | | | | | | 150 | 4 | 23003889 | SCM-HC4H-M120R20-XS85-150HA TI40 |
| | | | | | 90 | 150 | 4 | 23003890 | SCM-HC4H-M120R20-XS90-150HA TI40 |
| | | | | | 100 | 150 | 4 | 23003891 | SCM-HC4H-M120R20-XS100-150HA TI40 |
| | | | | 2.5 | 30 | 83 | 4 | 23003892 | SCM-HC4H-M120R25-XS30-83HA TI40 |
| | | | | | | 105 | 4 | 23003893 | SCM-HC4H-M120R25-XS30-105HA TI40 |
| | | | | | 35 | 83 | 4 | 23003894 | SCM-HC4H-M120R25-XS35-83HA TI40 |
| | | | | | | 105 | 4 | 23003895 | SCM-HC4H-M120R25-XS35-105HA TI40 |
| | | | | | 40 | 83 | 4 | 23003896 | SCM-HC4H-M120R25-XS40-83HA TI40 |
| | | | | | | 105 | 4 | 23003897 | SCM-HC4H-M120R25-XS40-105HA TI40 |
| | | | | | | 120 | 4 | 23003898 | SCM-HC4H-M120R25-XS40-120HA TI40 |
| | | | | | | 150 | 4 | 23003899 | SCM-HC4H-M120R25-XS40-150HA TI40 |
| | | | | | 45 | 83 | 4 | 23003900 | SCM-HC4H-M120R25-XS45-83HA TI40 |
| | | | | | | 105 | 4 | 23003901 | SCM-HC4H-M120R25-XS45-105HA TI40 |
| | | | | | | 120 | 4 | 23003902 | SCM-HC4H-M120R25-XS45-120HA TI40 |
| | | | | | | 150 | 4 | 23003903 | SCM-HC4H-M120R25-XS45-150HA TI40 |
| | | | | | 50 | 105 | 4 | 23003904 | SCM-HC4H-M120R25-XS50-105HA TI40 |
| | | | | | | 120 | 4 | 23003905 | SCM-HC4H-M120R25-XS50-120HA TI40 |
| | | | | | | 150 | 4 | 23003906 | SCM-HC4H-M120R25-XS50-150HA TI40 |
| | | | | | 60 | 105 | 4 | 23003907 | SCM-HC4H-M120R25-XS60-105HA TI40 |
| | | | | | | 120 | 4 | 23003908 | SCM-HC4H-M120R25-XS60-120HA TI40 |
| | | | | | | 150 | 4 | 23003909 | SCM-HC4H-M120R25-XS60-150HA TI40 |
| | | | | | 65 | 105 | 4 | 23003910 | SCM-HC4H-M120R25-XS65-105HA TI40 |
| | | | | | | 120 | 4 | 23003911 | SCM-HC4H-M120R25-XS65-120HA TI40 |
| | | | | | | 150 | 4 | 23003912 | SCM-HC4H-M120R25-XS65-150HA TI40 |
| | | | | | 70 | 105 | 4 | 23003913 | SCM-HC4H-M120R25-XS70-105HA TI40 |
| | | | | | | 120 | 4 | 23003914 | SCM-HC4H-M120R25-XS70-120HA TI40 |
| | | | | | | 150 | 4 | 23003915 | SCM-HC4H-M120R25-XS70-150HA TI40 |
| | | | | | 75 | 120 | 4 | 23003916 | SCM-HC4H-M120R25-XS75-120HA TI40 |
| | | | | | | 150 | 4 | 23003917 | SCM-HC4H-M120R25-XS75-150HA TI40 |
| | | | | | 80 | 120 | 4 | 23003918 | SCM-HC4H-M120R25-XS80-120HA TI40 |

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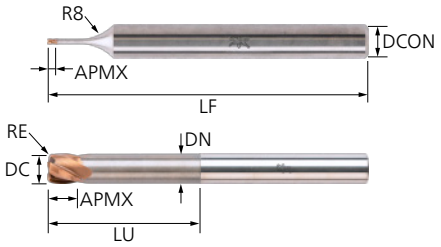
# Performance Hardened Steel Line
## 4-flute Torus cutter (HC4H)

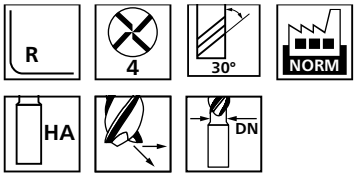
PFERD TOOLS




### Radius – metric

End mill for roughing and semi-finishing in hardened steels up to 60 HRC.

| | |
|---|---|
| P | ● |
| M | ○ |
| K | ● |
| N | ○ |
| S | - |
| H | ● |
| O | - |




**Special features:**
- Modern tool coating for a long tool life and optimum temperature control when working on materials that are difficult to machine.
- Neck chip channel.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | RE [mm] | LU [mm] | LF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| 12 | 12 | 11.6 | 12 | 2.5 | 80 | 150 | 4 | 23003919 | SCM-HC4H-M120R25-XS80-150HA TI40 |
| | | | | | 85 | 120 | 4 | 23003920 | SCM-HC4H-M120R25-XS85-120HA TI40 |
| | | | | | | 150 | 4 | 23003921 | SCM-HC4H-M120R25-XS85-150HA TI40 |
| | | | | | 90 | 150 | 4 | 23003922 | SCM-HC4H-M120R25-XS90-150HA TI40 |
| | | | | | 100 | 150 | 4 | 23003923 | SCM-HC4H-M120R25-XS100-150HA TI40 |
| | | | | 3 | 30 | 83 | 4 | 23003924 | SCM-HC4H-M120R30-XS30-83HA TI40 |
| | | | | | | 105 | 4 | 23003925 | SCM-HC4H-M120R30-XS30-105HA TI40 |
| | | | | | 35 | 83 | 4 | 23003926 | SCM-HC4H-M120R30-XS35-83HA TI40 |
| | | | | | | 105 | 4 | 23003927 | SCM-HC4H-M120R30-XS35-105HA TI40 |
| | | | | | 40 | 83 | 4 | 23003928 | SCM-HC4H-M120R30-XS40-83HA TI40 |
| | | | | | | 105 | 4 | 23003929 | SCM-HC4H-M120R30-XS40-105HA TI40 |
| | | | | | | 120 | 4 | 23003930 | SCM-HC4H-M120R30-XS40-120HA TI40 |
| | | | | | | 150 | 4 | 23003931 | SCM-HC4H-M120R30-XS40-150HA TI40 |
| | | | | | 45 | 83 | 4 | 23003932 | SCM-HC4H-M120R30-XS45-83HA TI40 |
| | | | | | | 105 | 4 | 23003933 | SCM-HC4H-M120R30-XS45-105HA TI40 |
| | | | | | | 120 | 4 | 23003934 | SCM-HC4H-M120R30-XS45-120HA TI40 |
| | | | | | | 150 | 4 | 23003935 | SCM-HC4H-M120R30-XS45-150HA TI40 |
| | | | | | 50 | 105 | 4 | 23003936 | SCM-HC4H-M120R30-XS50-105HA TI40 |
| | | | | | | 120 | 4 | 23003937 | SCM-HC4H-M120R30-XS50-120HA TI40 |
| | | | | | | 150 | 4 | 23003938 | SCM-HC4H-M120R30-XS50-150HA TI40 |
| | | | | | 60 | 105 | 4 | 23003939 | SCM-HC4H-M120R30-XS60-105HA TI40 |
| | | | | | | 120 | 4 | 23003940 | SCM-HC4H-M120R30-XS60-120HA TI40 |
| | | | | | | 150 | 4 | 23003941 | SCM-HC4H-M120R30-XS60-150HA TI40 |
| | | | | | 65 | 105 | 4 | 23003942 | SCM-HC4H-M120R30-XS65-105HA TI40 |
| | | | | | | 120 | 4 | 23003943 | SCM-HC4H-M120R30-XS65-120HA TI40 |
| | | | | | | 150 | 4 | 23003944 | SCM-HC4H-M120R30-XS65-150HA TI40 |
| | | | | | 70 | 105 | 4 | 23003945 | SCM-HC4H-M120R30-XS70-105HA TI40 |
| | | | | | | 120 | 4 | 23003946 | SCM-HC4H-M120R30-XS70-120HA TI40 |
| | | | | | | 150 | 4 | 23003947 | SCM-HC4H-M120R30-XS70-150HA TI40 |
| | | | | | 75 | 120 | 4 | 23003948 | SCM-HC4H-M120R30-XS75-120HA TI40 |
| | | | | | | 150 | 4 | 23003949 | SCM-HC4H-M120R30-XS75-150HA TI40 |
| | | | | | 80 | 120 | 4 | 23003950 | SCM-HC4H-M120R30-XS80-120HA TI40 |
| | | | | | | 150 | 4 | 23003951 | SCM-HC4H-M120R30-XS80-150HA TI40 |
| | | | | | 85 | 120 | 4 | 23003952 | SCM-HC4H-M120R30-XS85-120HA TI40 |
| | | | | | | 150 | 4 | 23003953 | SCM-HC4H-M120R30-XS85-150HA TI40 |
| | | | | | 90 | 150 | 4 | 23003954 | SCM-HC4H-M120R30-XS90-150HA TI40 |
| | | | | | 100 | 150 | 4 | 23003955 | SCM-HC4H-M120R30-XS100-150HA TI40 |

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# Performance Hardened Steel Line
## 4-flute Torus cutter (HC4H)

PFERD TOOLS

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | RE [mm] | LU [mm] | LF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| 12 | 12 | 11.6 | 12 | 3.5 | 30 | 83 | 4 | 23002496 | SCM-HC4H-M120R35-XS30-83HA TI40 |
| | | | | | | 105 | 4 | 23002497 | SCM-HC4H-M120R35-XS30-105HA TI40 |
| | | | | | 35 | 83 | 4 | 23002498 | SCM-HC4H-M120R35-XS35-83HA TI40 |
| | | | | | | 105 | 4 | 23002499 | SCM-HC4H-M120R35-XS35-105HA TI40 |
| | | | | | 40 | 83 | 4 | 23002500 | SCM-HC4H-M120R35-XS40-83HA TI40 |
| | | | | | | 105 | 4 | 23002501 | SCM-HC4H-M120R35-XS40-105HA TI40 |
| | | | | | | 120 | 4 | 23002502 | SCM-HC4H-M120R35-XS40-120HA TI40 |
| | | | | | | 150 | 4 | 23002503 | SCM-HC4H-M120R35-XS40-150HA TI40 |
| | | | | | 45 | 83 | 4 | 23002504 | SCM-HC4H-M120R35-XS45-83HA TI40 |
| | | | | | | 105 | 4 | 23002505 | SCM-HC4H-M120R35-XS45-105HA TI40 |
| | | | | | | 120 | 4 | 23002506 | SCM-HC4H-M120R35-XS45-120HA TI40 |
| | | | | | | 150 | 4 | 23002507 | SCM-HC4H-M120R35-XS45-150HA TI40 |
| | | | | | 50 | 105 | 4 | 23002508 | SCM-HC4H-M120R35-XS50-105HA TI40 |
| | | | | | | 120 | 4 | 23002509 | SCM-HC4H-M120R35-XS50-120HA TI40 |
| | | | | | | 150 | 4 | 23002510 | SCM-HC4H-M120R35-XS50-150HA TI40 |
| | | | | | 60 | 105 | 4 | 23002511 | SCM-HC4H-M120R35-XS60-105HA TI40 |
| | | | | | | 120 | 4 | 23002512 | SCM-HC4H-M120R35-XS60-120HA TI40 |
| | | | | | | 150 | 4 | 23002513 | SCM-HC4H-M120R35-XS60-150HA TI40 |
| | | | | | 65 | 105 | 4 | 23002514 | SCM-HC4H-M120R35-XS65-105HA TI40 |
| | | | | | | 120 | 4 | 23002515 | SCM-HC4H-M120R35-XS65-120HA TI40 |
| | | | | | | 150 | 4 | 23002516 | SCM-HC4H-M120R35-XS65-150HA TI40 |
| | | | | | 70 | 105 | 4 | 23002517 | SCM-HC4H-M120R35-XS70-105HA TI40 |
| | | | | | | 120 | 4 | 23002518 | SCM-HC4H-M120R35-XS70-120HA TI40 |
| | | | | | | 150 | 4 | 23002519 | SCM-HC4H-M120R35-XS70-150HA TI40 |
| | | | | | 75 | 120 | 4 | 23002520 | SCM-HC4H-M120R35-XS75-120HA TI40 |
| | | | | | | 150 | 4 | 23002521 | SCM-HC4H-M120R35-XS75-150HA TI40 |
| | | | | | 80 | 120 | 4 | 23002522 | SCM-HC4H-M120R35-XS80-120HA TI40 |
| | | | | | | 150 | 4 | 23002523 | SCM-HC4H-M120R35-XS80-150HA TI40 |
| | | | | | 85 | 120 | 4 | 23002524 | SCM-HC4H-M120R35-XS85-120HA TI40 |
| | | | | | | 150 | 4 | 23002525 | SCM-HC4H-M120R35-XS85-150HA TI40 |
| | | | | | 90 | 150 | 4 | 23002526 | SCM-HC4H-M120R35-XS90-150HA TI40 |
| | | | | | 100 | 150 | 4 | 23002527 | SCM-HC4H-M120R35-XS100-150HA TI40 |
| 16 | 16 | 15.6 | 16 | 0.5 | 50 | 130 | 4 | 23003956 | SCM-HC4H-M160R05-XS50-130HA TI40 |
| | | | | | 55 | 130 | 4 | 23003957 | SCM-HC4H-M160R05-XS55-130HA TI40 |
| | | | | | 60 | 130 | 4 | 23003958 | SCM-HC4H-M160R05-XS60-130HA TI40 |
| | | | | | 65 | 130 | 4 | 23003959 | SCM-HC4H-M160R05-XS65-130HA TI40 |
| | | | | | 70 | 130 | 4 | 23003960 | SCM-HC4H-M160R05-XS70-130HA TI40 |
| | | | | | 75 | 130 | 4 | 23003961 | SCM-HC4H-M160R05-XS75-130HA TI40 |
| | | | | | 80 | 130 | 4 | 23003962 | SCM-HC4H-M160R05-XS80-130HA TI40 |
| | | | | | 85 | 130 | 4 | 23003963 | SCM-HC4H-M160R05-XS85-130HA TI40 |
| | | | | | 90 | 150 | 4 | 23003964 | SCM-HC4H-M160R05-XS90-150HA TI40 |
| | | | | | 100 | 150 | 4 | 23003965 | SCM-HC4H-M160R05-XS100-150HA TI40 |
| | | | | 1 | 50 | 130 | 4 | 23003966 | SCM-HC4H-M160R10-XS50-130HA TI40 |
| | | | | | 55 | 130 | 4 | 23003967 | SCM-HC4H-M160R10-XS55-130HA TI40 |
| | | | | | 60 | 130 | 4 | 23003968 | SCM-HC4H-M160R10-XS60-130HA TI40 |
| | | | | | 65 | 130 | 4 | 23003969 | SCM-HC4H-M160R10-XS65-130HA TI40 |
| | | | | | 70 | 130 | 4 | 23003970 | SCM-HC4H-M160R10-XS70-130HA TI40 |
| | | | | | 75 | 130 | 4 | 23003971 | SCM-HC4H-M160R10-XS75-130HA TI40 |
| | | | | | 80 | 130 | 4 | 23003972 | SCM-HC4H-M160R10-XS80-130HA TI40 |

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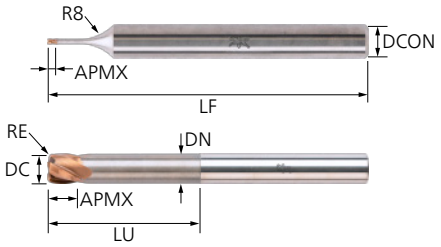
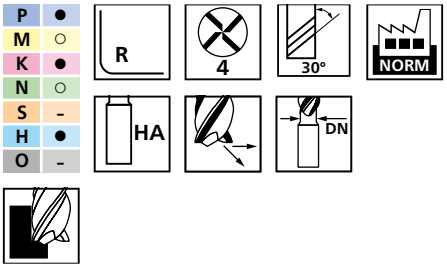
# Performance Hardened Steel Line
## 4-flute Torus cutter (HC4H)

PFERD TOOLS




### Radius – metric

End mill for roughing and semi-finishing in hardened steels up to 60 HRC.




**Special features:**
- Modern tool coating for a long tool life and optimum temperature control when working on materials that are difficult to machine.
- Neck chip channel.

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | RE [mm] | LU [mm] | LF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| 16 | 16 | 15.6 | 16 | 1 | 85 | 130 | 4 | 23003973 | SCM-HC4H-M160R10-XS85-130HA TI40 |
| | | | | | 90 | 150 | 4 | 23003974 | SCM-HC4H-M160R10-XS90-150HA TI40 |
| | | | | | 100 | 150 | 4 | 23003975 | SCM-HC4H-M160R10-XS100-150HA TI40 |
| | | | | 1.5 | 50 | 130 | 4 | 23002528 | SCM-HC4H-M160R15-XS50-130HA TI40 |
| | | | | | 55 | 130 | 4 | 23002529 | SCM-HC4H-M160R15-XS55-130HA TI40 |
| | | | | | 60 | 130 | 4 | 23002530 | SCM-HC4H-M160R15-XS60-130HA TI40 |
| | | | | | 65 | 130 | 4 | 23002531 | SCM-HC4H-M160R15-XS65-130HA TI40 |
| | | | | | 70 | 130 | 4 | 23002532 | SCM-HC4H-M160R15-XS70-130HA TI40 |
| | | | | | 75 | 130 | 4 | 23002533 | SCM-HC4H-M160R15-XS75-130HA TI40 |
| | | | | | 80 | 130 | 4 | 23002534 | SCM-HC4H-M160R15-XS80-130HA TI40 |
| | | | | | 85 | 130 | 4 | 23002535 | SCM-HC4H-M160R15-XS85-130HA TI40 |
| | | | | | 90 | 150 | 4 | 23002536 | SCM-HC4H-M160R15-XS90-150HA TI40 |
| | | | | | 100 | 150 | 4 | 23002537 | SCM-HC4H-M160R15-XS100-150HA TI40 |
| | | | | 2 | 50 | 130 | 4 | 23003976 | SCM-HC4H-M160R20-XS50-130HA TI40 |
| | | | | | 55 | 130 | 4 | 23003977 | SCM-HC4H-M160R20-XS55-130HA TI40 |
| | | | | | 60 | 130 | 4 | 23003978 | SCM-HC4H-M160R20-XS60-130HA TI40 |
| | | | | | 65 | 130 | 4 | 23003979 | SCM-HC4H-M160R20-XS65-130HA TI40 |
| | | | | | 70 | 130 | 4 | 23003980 | SCM-HC4H-M160R20-XS70-130HA TI40 |
| | | | | | 75 | 130 | 4 | 23003981 | SCM-HC4H-M160R20-XS75-130HA TI40 |
| | | | | | 80 | 130 | 4 | 23003982 | SCM-HC4H-M160R20-XS80-130HA TI40 |
| | | | | | 85 | 130 | 4 | 23003983 | SCM-HC4H-M160R20-XS85-130HA TI40 |
| | | | | | 90 | 150 | 4 | 23003984 | SCM-HC4H-M160R20-XS90-150HA TI40 |
| | | | | | 100 | 150 | 4 | 23003985 | SCM-HC4H-M160R20-XS100-150HA TI40 |
| | | | | 2.5 | 50 | 130 | 4 | 23003986 | SCM-HC4H-M160R25-XS50-130HA TI40 |
| | | | | | 55 | 130 | 4 | 23002538 | SCM-HC4H-M160R25-XS55-130HA TI40 |
| | | | | | 60 | 130 | 4 | 23002539 | SCM-HC4H-M160R25-XS60-130HA TI40 |
| | | | | | 65 | 130 | 4 | 23002540 | SCM-HC4H-M160R25-XS65-130HA TI40 |
| | | | | | 70 | 130 | 4 | 23002541 | SCM-HC4H-M160R25-XS70-130HA TI40 |
| | | | | | 75 | 130 | 4 | 23002542 | SCM-HC4H-M160R25-XS75-130HA TI40 |
| | | | | | 80 | 130 | 4 | 23002543 | SCM-HC4H-M160R25-XS80-130HA TI40 |
| | | | | | 85 | 130 | 4 | 23002544 | SCM-HC4H-M160R25-XS85-130HA TI40 |
| | | | | | 90 | 150 | 4 | 23002545 | SCM-HC4H-M160R25-XS90-150HA TI40 |
| | | | | | 100 | 150 | 4 | 23002546 | SCM-HC4H-M160R25-XS100-150HA TI40 |
| | | | | 3 | 50 | 130 | 4 | 23003987 | SCM-HC4H-M160R30-XS50-130HA TI40 |
| | | | | | 55 | 130 | 4 | 23003988 | SCM-HC4H-M160R30-XS55-130HA TI40 |
| | | | | | 60 | 130 | 4 | 23003989 | SCM-HC4H-M160R30-XS60-130HA TI40 |
| | | | | | 65 | 130 | 4 | 23003990 | SCM-HC4H-M160R30-XS65-130HA TI40 |

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# Performance Hardened Steel Line

## 4-flute Torus cutter (HC4H)

PFERD TOOLS

| DC [mm] | DCON [mm] | DN [mm] | APMX [mm] | RE [mm] | LU [mm] | LF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|---|
| 16 | 16 | 15.6 | 16 | 3 | 70 | 130 | 4 | 23003991 | SCM-HC4H-M160R30-XS70-130HA TI40 |
| | | | | | 75 | 130 | 4 | 23003992 | SCM-HC4H-M160R30-XS75-130HA TI40 |
| | | | | | 80 | 130 | 4 | 23003993 | SCM-HC4H-M160R30-XS80-130HA TI40 |
| | | | | | 85 | 130 | 4 | 23003994 | SCM-HC4H-M160R30-XS85-130HA TI40 |
| | | | | | 90 | 150 | 4 | 23003995 | SCM-HC4H-M160R30-XS90-150HA TI40 |
| | | | | | 100 | 150 | 4 | 23003996 | SCM-HC4H-M160R30-XS100-150HA TI40 |
| | | | | 3.5 | 50 | 130 | 4 | 23003997 | SCM-HC4H-M160R35-XS50-130HA TI40 |
| | | | | | 55 | 130 | 4 | 23003998 | SCM-HC4H-M160R35-XS55-130HA TI40 |
| | | | | | 60 | 130 | 4 | 23003999 | SCM-HC4H-M160R35-XS60-130HA TI40 |
| | | | | | 65 | 130 | 4 | 23004000 | SCM-HC4H-M160R35-XS65-130HA TI40 |
| | | | | | 70 | 130 | 4 | 23004001 | SCM-HC4H-M160R35-XS70-130HA TI40 |
| | | | | | 75 | 130 | 4 | 23004002 | SCM-HC4H-M160R35-XS75-130HA TI40 |
| | | | | | 80 | 130 | 4 | 23004003 | SCM-HC4H-M160R35-XS80-130HA TI40 |
| | | | | | 85 | 130 | 4 | 23004004 | SCM-HC4H-M160R35-XS85-130HA TI40 |
| | | | | | 90 | 150 | 4 | 23004005 | SCM-HC4H-M160R35-XS90-150HA TI40 |
| | | | | | 100 | 150 | 4 | 23004006 | SCM-HC4H-M160R35-XS100-150HA TI40 |
| | | | | 4 | 50 | 130 | 4 | 23002547 | SCM-HC4H-M160R40-XS50-130HA TI40 |
| | | | | | 55 | 130 | 4 | 23002548 | SCM-HC4H-M160R40-XS55-130HA TI40 |
| | | | | | 60 | 130 | 4 | 23002549 | SCM-HC4H-M160R40-XS60-130HA TI40 |
| | | | | | 65 | 130 | 4 | 23002550 | SCM-HC4H-M160R40-XS65-130HA TI40 |
| | | | | | 70 | 130 | 4 | 23002551 | SCM-HC4H-M160R40-XS70-130HA TI40 |
| | | | | | 75 | 130 | 4 | 23002552 | SCM-HC4H-M160R40-XS75-130HA TI40 |
| | | | | | 80 | 130 | 4 | 23002553 | SCM-HC4H-M160R40-XS80-130HA TI40 |
| | | | | | 85 | 130 | 4 | 23002554 | SCM-HC4H-M160R40-XS85-130HA TI40 |
| | | | | | 90 | 150 | 4 | 23002555 | SCM-HC4H-M160R40-XS90-150HA TI40 |
| | | | | | 100 | 150 | 4 | 23002556 | SCM-HC4H-M160R40-XS100-150HA TI40 |

# Universal Drills
## Material suitability overview

| Material group | | | Universal (U) |
|---|---|---|---|
| P | Steel | All types of steel and cast steel | ● |
| M | Stainless steel | Ferritic and martensitic | ● |
| | | Austenitic | ● |
| | | High-temperature-resistant and ferritic-austenitic (duplex) | ○ |
| K | Cast iron | Cast iron with flake graphite (GJL, GG, grey cast iron) | ● |
| | | Cast iron with nodular graphite (GJS, GGG) | ● |
| N | Non-ferrous metals | Aluminum | ○ |
| | | Copper, brass, bronze and red brass | ○ |
| S | Super and titanium alloys | Heat-resistant super alloys based on Fe, Ni and Co | ○ |
| | | Pure titanium | ○ |
| | | Titanium alloys | ○ |
| H | Hard steels and chilled castings | Heat-treated and hardened steels up to 50 HRC | ● |
| | | Hardened steels up to 58 HRC | ○ |
| | | Hardened steels over 58 HRC | ○ |
| O | Other | Thermoplastics | ○ |
| | | Duroplastics | ○ |
| | | GRP/CRP reinforced plastics, graphite | |

● = highly recommended ○ = recommended

## Explanation of pictograms

**Geometry – Type**


140° point angle

**Geometry – Number of flutes**


Number of flutes

**Geometry – helix angle**


Helix angle

**Regulatory**


Company standard


DIN 6537 K


DIN 6537 L

**Shank type**


Cylindrical shank (HA)

**Tool type**

Internal coolant

**Feed direction**

Feed z

**Applications**

Drilling

# Universal Drills
## Cutting data formulas

PFERD TOOLS

$$n = \frac{v_c \times 1{,}000}{DC \times \pi} \ min^{-1}$$

$$n = \frac{v_c \times 12}{DC \times \pi} \ RPM$$

**Rotational speed**

$$v_c = \frac{DC \times \pi \times n}{1{,}000} \ m/min$$

$$v_c = \frac{DC \times \pi \times n}{12} \ ft./min$$

**Peripheral speed**

$$v_f = f_n \times n \quad mm/min$$

$$v_f = f_n \times n \quad inch/min$$

**Feeding speed**

### Abbreviations explanation

- DC = cutting diameter in [mm] or [inch]
- $f_n$ = feed per revolution
- n = spindle rotational speed in [rev/min] or [RPM]
- $v_c$ = cutting speed in [m/min] oder [ft./min]
- $v_f$ = feeding speed in [mm/min] or [inch/min]

## Explanation of item designation

**SCD-U-5D-M12.500-60IC LA40**
① ② ⑤ ⑥ ⑦ ⑨ ⑪ ⑬

**SCD-U-5D-I3/8-49IC LA40**
① ② ⑤ ⑥ ⑦ ⑨ ⑪ ⑬

① **Tool group**
SCD = Solid Carbide Drill

② **Product line**
U = Universal

③ **Shape**
Omitted if a standard drill.

④ **Material group**
ISO groups P, M, K, N, S, H, O.
Combinations
Example: MS
Omitted unless specified.

⑤ **Working length in the ratio L/D**
3D ~ 3xD
5D ~ 5xD
8D ~ 8xD

⑥ **Units**
M = Metric
I = Imperial

⑦ **Cutting diameter**
Metric: mm x 1000
Example: D 10.5 mm = 10.500
Example: D 8.5 mm = 08.500

⑧ **Type**

⑨ **Working length**
Metric: Working length LU in mm
Imperial: Working length LU in inches

⑩ **Shank type**
Blank if a cylindrical shank (HA)

⑪ **Internal coolant supply**
Blank if no IC
IC = Inner Coolant

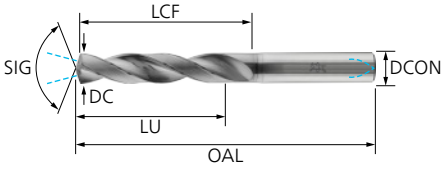
⑫ *

⑬ **Grade**

*Optional

### Explanation of short names in accordance with ISO 13399

| | |
|---|---|
| LU | = working length |
| DC | = cutting diameter |
| DCON | = shank diameter |
| OAL | = overall length |
| SIG | = point angle |
| LCF | = flute length |



## Recommended cutting speeds [SFPM] – version 3xD / 5xD

| Material group | | | Specification/ example material | Suitability | Drilling (3-5xD with IC) | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cutting speed $v_c$ | Feed $f_n$ [mm/revolution] [in./revolution] for cutting diameter DC | | | | | | | | | | | | | | |
| | | | | | | 3 mm | 1/8 Inch | 5/32 Inch | 4 mm | 3/16 Inch | 5 mm | 6 mm | 1/4 Inch | 5/16 Inch | 8 mm | 3/8 Inch | 10 mm | 12 mm | 1/2 Inch | 5/8 Inch | 16 mm |
| P | Steel | All types of steel and cast steel | up to 500 N/mm² (150 BHN) | ● | 110 m/min | 0.110 | | | 0.132 | | 0.165 | 0.176 | | | 0.231 | | 0.242 | 0.286 | | | 0.341 |
| | | | | | 361 ft./min | | .0043 | .0052 | | .0065 | | | .0069 | .0091 | | .0095 | | | .0113 | .0134 | |
| | | | 500 to 700 N/mm² (150 to 208 BHN) | ● | 90 m/min | 0.100 | | | 0.120 | | 0.150 | 0.160 | | | 0.210 | | 0.220 | 0.260 | | | 0.310 |
| | | | | | 295 ft./min | | .0039 | .0047 | | .0059 | | | .0063 | .0083 | | .0087 | | | .0102 | .0122 | |
| | | | 700 to 1,000 N/mm² (208 to 296 BHN) | ● | 75 m/min | 0.085 | | | 0.102 | | 0.128 | 0.136 | | | 0.179 | | 0.187 | 0.221 | | | 0.264 |
| | | | | | 246 ft./min | | .0033 | .0040 | | .0050 | | | .0054 | .0070 | | .0074 | | | .0087 | .0104 | |
| | | | 1,000 to 1,400 N/mm² (296 to 415 BHN) | ● | 60 m/min | 0.064 | | | 0.077 | | 0.096 | 0.102 | | | 0.134 | | 0.140 | 0.166 | | | 0.198 |
| | | | | | 197 ft./min | | .0025 | .0030 | | .0038 | | | .0040 | .0053 | | .0055 | | | .0065 | .0078 | |
| M | Stainless steel | Ferritic and martensitic | e.g. 1.4105, 1.4122 (AISI 410, 420, 430, 440, 440C) | ● | 60 m/min | 0.085 | | | 0.102 | | 0.128 | 0.136 | | | 0.179 | | 0.187 | 0.221 | | | 0.264 |
| | | | | | 197 ft./min | | .0033 | .0040 | | .0050 | | | .0054 | .0070 | | .0074 | | | .0087 | .0104 | |
| | | Austenitic | e.g. 1.4301, 1.4571 (AISI 303, 304, 316, 316L) | ● | 50 m/min | 0.050 | | | 0.075 | | 0.088 | 0.100 | | | 0.110 | | 0.130 | 0.140 | | | 0.170 |
| | | | | | 164 ft./min | | .0020 | .0030 | | .0034 | | | .0039 | .0043 | | .0051 | | | .0055 | .0067 | |
| | | High-temperature-resistant and ferritic-austenitic (duplex) | | ○ | 35 m/min | 0.038 | | | 0.056 | | 0.066 | 0.075 | | | 0.083 | | 0.098 | 0.105 | | | 0.128 |
| | | | | | 115 ft./min | | .0015 | .0022 | | .0026 | | | .0030 | .0032 | | .0038 | | | .0041 | .0050 | |
| K | Cast iron | Cast iron with flake graphite (GJL, GG, grey cast iron) | up to 180 BHN | ● | 110 m/min | 0.150 | | | 0.185 | | 0.233 | 0.280 | | | 0.300 | | 0.335 | 0.375 | | | 0.450 |
| | | | | | 361 ft./min | | .0059 | .0073 | | .0092 | | | .0110 | .0118 | | .0132 | | | .0148 | .0177 | |
| | | Cast iron with nodular graphite (GJS, GGG) | 160 to 260 BHN | ● | 80 m/min | 0.135 | | | 0.167 | | 0.209 | 0.252 | | | 0.270 | | 0.302 | 0.338 | | | 0.405 |
| | | | | | 262 ft./min | | .0053 | .0066 | | .0082 | | | .0099 | .0106 | | .0119 | | | .0133 | .0159 | |
| N | Non-ferrous metals | Aluminum | Al up to 10% Si | ○ | 250 m/min | 0.150 | | | 0.185 | | 0.233 | 0.280 | | | 0.300 | | 0.335 | 0.375 | | | 0.450 |
| | | | | | 820 ft./min | | .0059 | .0073 | | .0092 | | | .0110 | .0118 | | .0132 | | | .0148 | .0177 | |
| | | | Al over 10% Si | ○ | 220 m/min | 0.135 | | | 0.167 | | 0.209 | 0.252 | | | 0.270 | | 0.302 | 0.338 | | | 0.405 |
| | | | | | 722 ft./min | | .0053 | .0066 | | .0082 | | | .0099 | .0106 | | .0119 | | | .0133 | .0159 | |
| | | Copper, brass, bronze and red brass | | ○ | 160 m/min | 0.100 | | | 0.120 | | 0.150 | 0.160 | | | 0.210 | | 0.220 | 0.260 | | | 0.310 |
| | | | | | 525 ft./min | | .0039 | .0047 | | .0059 | | | .0063 | .0083 | | .0087 | | | .0102 | .0122 | |
| S | Super and titanium alloys | Heat-resistant super alloys | Based on Fe, Ni and Co | ○ | 25 m/min | 0.034 | | | 0.047 | | 0.051 | 0.055 | | | 0.068 | | 0.085 | 0.102 | | | 0.119 |
| | | | | | 82 ft./min | | .0013 | .0018 | | .0020 | | | .0022 | .0027 | | .0033 | | | .0040 | .0047 | |
| | | Pure titanium | | ○ | 40 m/min | 0.040 | | | 0.055 | | 0.060 | 0.065 | | | 0.080 | | 0.100 | 0.120 | | | 0.140 |
| | | | | | 131 ft./min | | .0016 | .0022 | | .0024 | | | .0026 | .0031 | | .0039 | | | .0047 | .0055 | |
| | | Titanium alloys | | ○ | 30 m/min | 0.034 | | | 0.047 | | 0.051 | 0.055 | | | 0.068 | | 0.085 | 0.102 | | | 0.119 |
| | | | | | 98 ft./min | | .0013 | .0018 | | .0020 | | | .0022 | .0027 | | .0033 | | | .0040 | .0047 | |
| H | Hard steels and chilled castings | Heat-treated and hardened steels | up to 50 HRC | ○ | 30 m/min | 0.026 | | | 0.035 | | 0.038 | 0.041 | | | 0.051 | | 0.064 | 0.077 | | | 0.089 |
| | | | | | 98 ft./min | | .0010 | .0014 | | .0015 | | | .0016 | .0020 | | .0025 | | | .0030 | .0035 | |
| | | | up to 58 HRC | | | | | | | | | | | | | | | | | | |
| | | | over 58 HRC | | | | | | | | | | | | | | | | | | |
| O | Other | Thermoplastics | | | | | | | | | | | | | | | | | | | |
| | | Duroplastics | | | | | | | | | | | | | | | | | | | |
| | | GRP/CRP reinforced plastics, graphite | | | | | | | | | | | | | | | | | | | |

● = highly recommended ○ = recommended

# Universal Drills
Universal (U)

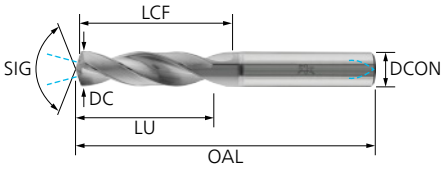
PFERD TOOLS

## Recommended cutting speeds [SFPM] – version 8xD

| Material group | | | Specification/ example material | Suitability | Drilling (8xD with IC) | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Cutting speed $v_c$ | Feed $f_n$ [mm/revolution] [in./revolution] for cutting diameter DC | | | | | | | | | | | | | | | |
| | | | | | | 3 mm | 1/8 Inch | 5/32 Inch | 4 mm | 3/16 Inch | 5 mm | 6 mm | 1/4 Inch | 5/16 Inch | 8 mm | 3/8 Inch | 10 mm | 12 mm | 1/2 Inch | 5/8 Inch | 16 mm |
| P | Steel | All types of steel and cast steel | up to 500 N/mm² (150 BHN) | ● | 102 m/min | 0.102 | | | 0.123 | | 0.153 | 0.164 | | | 0.215 | | 0.225 | 0.266 | | | 0.317 |
| | | | | | 336 ft./min | | .0040 | .0048 | | .0060 | | | .0064 | .0085 | | .0089 | | | .0105 | .0125 | |
| | | | 500 to 700 N/mm² (150 to 208 BHN) | ● | 84 m/min | 0.093 | | | 0.112 | | 0.140 | 0.149 | | | 0.195 | | 0.205 | 0.242 | | | 0.288 |
| | | | | | 275 ft./min | | .0037 | .0044 | | .0055 | | | .0059 | .0077 | | .0081 | | | .0095 | .0114 | |
| | | | 700 to 1,000 N/mm² (208 to 296 BHN) | ● | 70 m/min | 0.079 | | | 0.095 | | 0.119 | 0.126 | | | 0.166 | | 0.174 | 0.206 | | | 0.245 |
| | | | | | 229 ft./min | | .0031 | .0037 | | .0047 | | | .0050 | .0065 | | .0068 | | | .0081 | .0096 | |
| | | | 1,000 to 1,400 N/mm² (296 to 415 BHN) | ● | 56 m/min | 0.059 | | | 0.071 | | 0.089 | 0.095 | | | 0.125 | | 0.130 | 0.154 | | | 0.184 |
| | | | | | 183 ft./min | | .0023 | .0028 | | .0035 | | | .0037 | .0049 | | .0051 | | | .0061 | .0072 | |
| M | Stainless steel | Ferritic and martensitic | e.g. 1.4105, 1.4122 (AISI 410, 420, 430, 440, 440C) | ● | 56 m/min | 0.079 | | | 0.095 | | 0.119 | 0.126 | | | 0.166 | | 0.174 | 0.206 | | | 0.245 |
| | | | | | 183 ft./min | | .0031 | .0037 | | .0047 | | | .0050 | .0065 | | .0068 | | | .0081 | .0096 | |
| | | Austenitic | e.g. 1.4301, 1.4571 (AISI 303, 304, 316, 316L) | ● | 47 m/min | 0.047 | | | 0.070 | | 0.081 | 0.093 | | | 0.102 | | 0.121 | 0.130 | | | 0.158 |
| | | | | | 153 ft./min | | .0018 | .0027 | | .0032 | | | .0037 | .0040 | | .0048 | | | .0051 | .0062 | |
| | | High-temperature-resistant and ferritic-austenitic (duplex) | | ○ | 33 m/min | 0.035 | | | 0.052 | | 0.061 | 0.070 | | | 0.077 | | 0.091 | 0.098 | | | 0.119 |
| | | | | | 107 ft./min | | .0014 | .0021 | | .0024 | | | .0027 | .0030 | | .0036 | | | .0038 | .0047 | |
| K | Cast iron | Cast iron with flake graphite (GJL, GG, grey cast iron) | up to 180 HB | ● | 102 m/min | 0.140 | | | 0.172 | | 0.216 | 0.260 | | | 0.279 | | 0.312 | 0.349 | | | 0.419 |
| | | | | | 336 ft./min | | .0055 | .0068 | | .0085 | | | .0103 | .0110 | | .0123 | | | .0137 | .0165 | |
| | | Cast iron with nodular graphite (GJS, GGG) | 160 to 260 HB | ● | 74 m/min | 0.126 | | | 0.155 | | 0.195 | 0.234 | | | 0.251 | | 0.280 | 0.314 | | | 0.377 |
| | | | | | 244 ft./min | | .0049 | .0061 | | .0077 | | | .0092 | .0099 | | .0110 | | | .0124 | .0148 | |
| N | Non-ferrous metals | Aluminum | Al up to 10% Si | ○ | 233 m/min | 0.140 | | | 0.172 | | 0.216 | 0.260 | | | 0.279 | | 0.312 | 0.349 | | | 0.419 |
| | | | | | 763 ft./min | | .0055 | .0068 | | .0085 | | | .0103 | .0110 | | .0123 | | | .0137 | .0165 | |
| | | | Al over 10% Si | ○ | 205 m/min | 0.126 | | | 0.155 | | 0.195 | 0.234 | | | 0.251 | | 0.280 | 0.314 | | | 0.377 |
| | | | | | 671 ft./min | | .0049 | .0061 | | .0077 | | | .0092 | .0099 | | .0110 | | | .0124 | .0148 | |
| | | Copper, brass, bronze and red brass | | ○ | 149 m/min | 0.093 | | | 0.112 | | 0.140 | 0.149 | | | 0.195 | | 0.205 | 0.242 | | | 0.288 |
| | | | | | 488 ft./min | | .0037 | .0044 | | .0055 | | | .0059 | .0077 | | .0081 | | | .0095 | .0114 | |
| S | Super and titanium alloys | Heat-resistant super alloys | Based on Fe, Ni and Co | ○ | 23 m/min | 0.032 | | | 0.043 | | 0.047 | 0.051 | | | 0.063 | | 0.079 | 0.095 | | | 0.111 |
| | | | | | 76 ft./min | | .0012 | .0017 | | .0002 | | | .0020 | .0025 | | .0031 | | | .0037 | .0044 | |
| | | Pure titanium | | ○ | 37 m/min | 0.037 | | | 0.051 | | 0.056 | 0.060 | | | 0.074 | | 0.093 | 0.112 | | | 0.130 |
| | | | | | 122 ft./min | | .0015 | .0020 | | .0022 | | | .0024 | .0029 | | .0037 | | | .0044 | .0051 | |
| | | Titanium alloys | | ○ | 28 m/min | 0.032 | | | 0.043 | | 0.047 | 0.051 | | | 0.063 | | 0.079 | 0.095 | | | 0.111 |
| | | | | | 92 ft./min | | .0012 | .0017 | | .0019 | | | .0020 | .0025 | | .0031 | | | .0037 | .0044 | |
| H | Hard steels and chilled castings | Heat-treated and hardened steels | up to 50 HRC | | | | | | | | | | | | | | | | | | |
| | | | up to 58 HRC | | | | | | | | | | | | | | | | | | |
| | | | over 58 HRC | | | | | | | | | | | | | | | | | | |
| O | Other | Thermoplastics | | | | | | | | | | | | | | | | | | | |
| | | Duroplastics | | | | | | | | | | | | | | | | | | | |
| | | GRP/CRP reinforced plastics, graphite | | | | | | | | | | | | | | | | | | | |

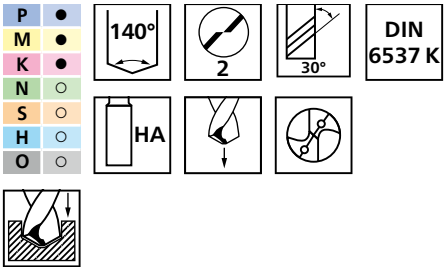
● = highly recommended ○ = recommended

# Universal Drills
## Universal (U)




### 3xD type – metric

Solid carbide drills with internal coolant supply and state-of-the-art coating for universal use on a variety of materials.




**Special features:**
- Double margin flute for increased stability and high-quality bores.
- Internal coolant supply for increased tool life and controlled chip removal.
- Optimised surface finishing for high performance.

| DC [mm] | DCON [mm] | OAL [mm] | LU [mm] | LCF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|
| **HA with IC** | | |  **HA** | | | | |
| 3 | 6 | 62 | 14 | 20 | 2 | 23000494 | SCD-U-3D-M03.000-14IC LA40 |
| 3.1 | 6 | 62 | 14 | 20 | 2 | 23000495 | SCD-U-3D-M03.100-14IC LA40 |
| 3.2 | 6 | 62 | 14 | 20 | 2 | 23000496 | SCD-U-3D-M03.200-14IC LA40 |
| 3.3 | 6 | 62 | 14 | 20 | 2 | 23000497 | SCD-U-3D-M03.300-14IC LA40 |
| 3.4 | 6 | 62 | 14 | 20 | 2 | 23000498 | SCD-U-3D-M03.400-14IC LA40 |
| 3.5 | 6 | 62 | 14 | 20 | 2 | 23000499 | SCD-U-3D-M03.500-14IC LA40 |
| 3.6 | 6 | 62 | 14 | 20 | 2 | 23000500 | SCD-U-3D-M03.600-14IC LA40 |
| 3.7 | 6 | 62 | 14 | 20 | 2 | 23000501 | SCD-U-3D-M03.700-14IC LA40 |
| 3.8 | 6 | 66 | 17 | 24 | 2 | 23000502 | SCD-U-3D-M03.800-17IC LA40 |
| 3.9 | 6 | 66 | 17 | 24 | 2 | 23000503 | SCD-U-3D-M03.900-17IC LA40 |
| 4 | 6 | 66 | 17 | 24 | 2 | 23000504 | SCD-U-3D-M04.000-17IC LA40 |
| 4.1 | 6 | 66 | 17 | 24 | 2 | 23000505 | SCD-U-3D-M04.100-17IC LA40 |
| 4.2 | 6 | 66 | 17 | 24 | 2 | 23000506 | SCD-U-3D-M04.200-17IC LA40 |
| 4.3 | 6 | 66 | 17 | 24 | 2 | 23000507 | SCD-U-3D-M04.300-17IC LA40 |
| 4.4 | 6 | 66 | 17 | 24 | 2 | 23000508 | SCD-U-3D-M04.400-17IC LA40 |
| 4.5 | 6 | 66 | 17 | 24 | 2 | 23000509 | SCD-U-3D-M04.500-17IC LA40 |
| 4.6 | 6 | 66 | 17 | 24 | 2 | 23000510 | SCD-U-3D-M04.600-17IC LA40 |
| 4.7 | 6 | 66 | 17 | 24 | 2 | 23000511 | SCD-U-3D-M04.700-17IC LA40 |
| 4.8 | 6 | 66 | 20 | 28 | 2 | 23000512 | SCD-U-3D-M04.800-20IC LA40 |
| 4.9 | 6 | 66 | 20 | 28 | 2 | 23000513 | SCD-U-3D-M04.900-20IC LA40 |
| 5 | 6 | 66 | 20 | 28 | 2 | 23000514 | SCD-U-3D-M05.000-20IC LA40 |
| 5.1 | 6 | 66 | 20 | 28 | 2 | 23000515 | SCD-U-3D-M05.100-20IC LA40 |
| 5.2 | 6 | 66 | 20 | 28 | 2 | 23000516 | SCD-U-3D-M05.200-20IC LA40 |
| 5.3 | 6 | 66 | 20 | 28 | 2 | 23000517 | SCD-U-3D-M05.300-20IC LA40 |
| 5.4 | 6 | 66 | 20 | 28 | 2 | 23000518 | SCD-U-3D-M05.400-20IC LA40 |
| 5.5 | 6 | 66 | 20 | 28 | 2 | 23000519 | SCD-U-3D-M05.500-20IC LA40 |
| 5.6 | 6 | 66 | 20 | 28 | 2 | 23000520 | SCD-U-3D-M05.600-20IC LA40 |
| 5.7 | 6 | 66 | 20 | 28 | 2 | 23000521 | SCD-U-3D-M05.700-20IC LA40 |
| 5.8 | 6 | 66 | 20 | 28 | 2 | 23000522 | SCD-U-3D-M05.800-20IC LA40 |
| 5.9 | 6 | 66 | 20 | 28 | 2 | 23000523 | SCD-U-3D-M05.900-20IC LA40 |
| 6 | 6 | 66 | 20 | 28 | 2 | 23000524 | SCD-U-3D-M06.000-20IC LA40 |
| 6.2 | 8 | 79 | 24 | 34 | 2 | 23000525 | SCD-U-3D-M06.200-24IC LA40 |
| 6.3 | 8 | 79 | 24 | 34 | 2 | 23000526 | SCD-U-3D-M06.300-24IC LA40 |
| 6.4 | 8 | 79 | 24 | 34 | 2 | 23000527 | SCD-U-3D-M06.400-24IC LA40 |
| 6.5 | 8 | 79 | 24 | 34 | 2 | 23000528 | SCD-U-3D-M06.500-24IC LA40 |

*Continued on next page*

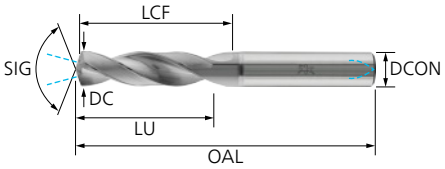
# Universal Drills
## Universal (U)

PFERD TOOLS

| DC [mm] | DCON [mm] | OAL [mm] | LU [mm] | LCF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|
| 6.6 | 8 | 79 | 24 | 34 | 2 | 23000529 | SCD-U-3D-M06.600-24IC LA40 |
| 6.7 | 8 | 79 | 24 | 34 | 2 | 23000530 | SCD-U-3D-M06.700-24IC LA40 |
| 6.8 | 8 | 79 | 24 | 34 | 2 | 23000531 | SCD-U-3D-M06.800-24IC LA40 |
| 6.9 | 8 | 79 | 24 | 34 | 2 | 23000532 | SCD-U-3D-M06.900-24IC LA40 |
| 7 | 8 | 79 | 24 | 34 | 2 | 23000533 | SCD-U-3D-M07.000-24IC LA40 |
| 7.2 | 8 | 79 | 29 | 41 | 2 | 23000534 | SCD-U-3D-M07.200-29IC LA40 |
| 7.3 | 8 | 79 | 29 | 41 | 2 | 23000535 | SCD-U-3D-M07.300-29IC LA40 |
| 7.4 | 8 | 79 | 29 | 41 | 2 | 23000536 | SCD-U-3D-M07.400-29IC LA40 |
| 7.5 | 8 | 79 | 29 | 41 | 2 | 23000537 | SCD-U-3D-M07.500-29IC LA40 |
| 7.6 | 8 | 79 | 29 | 41 | 2 | 23000538 | SCD-U-3D-M07.600-29IC LA40 |
| 7.7 | 8 | 79 | 29 | 41 | 2 | 23000539 | SCD-U-3D-M07.700-29IC LA40 |
| 7.8 | 8 | 79 | 29 | 41 | 2 | 23000540 | SCD-U-3D-M07.800-29IC LA40 |
| 7.9 | 8 | 79 | 29 | 41 | 2 | 23000541 | SCD-U-3D-M07.900-29IC LA40 |
| 8 | 8 | 79 | 29 | 41 | 2 | 23000542 | SCD-U-3D-M08.000-29IC LA40 |
| 8.1 | 10 | 89 | 35 | 47 | 2 | 23000543 | SCD-U-3D-M08.100-35IC LA40 |
| 8.2 | 10 | 89 | 35 | 47 | 2 | 23000544 | SCD-U-3D-M08.200-35IC LA40 |
| 8.3 | 10 | 89 | 35 | 47 | 2 | 23000545 | SCD-U-3D-M08.300-35IC LA40 |
| 8.4 | 10 | 89 | 35 | 47 | 2 | 23000546 | SCD-U-3D-M08.400-35IC LA40 |
| 8.5 | 10 | 89 | 35 | 47 | 2 | 23000547 | SCD-U-3D-M08.500-35IC LA40 |
| 8.6 | 10 | 89 | 35 | 47 | 2 | 23000548 | SCD-U-3D-M08.600-35IC LA40 |
| 8.7 | 10 | 89 | 35 | 47 | 2 | 23000549 | SCD-U-3D-M08.700-35IC LA40 |
| 8.8 | 10 | 89 | 35 | 47 | 2 | 23000550 | SCD-U-3D-M08.800-35IC LA40 |
| 9 | 10 | 89 | 35 | 47 | 2 | 23000551 | SCD-U-3D-M09.000-35IC LA40 |
| 9.2 | 10 | 89 | 35 | 47 | 2 | 23000552 | SCD-U-3D-M09.200-35IC LA40 |
| 9.3 | 10 | 89 | 35 | 47 | 2 | 23000553 | SCD-U-3D-M09.300-35IC LA40 |
| 9.4 | 10 | 89 | 35 | 47 | 2 | 23000554 | SCD-U-3D-M09.400-35IC LA40 |
| 9.5 | 10 | 89 | 35 | 47 | 2 | 23000555 | SCD-U-3D-M09.500-35IC LA40 |
| 9.6 | 10 | 89 | 35 | 47 | 2 | 23000556 | SCD-U-3D-M09.600-35IC LA40 |
| 9.8 | 10 | 89 | 35 | 47 | 2 | 23000557 | SCD-U-3D-M09.800-35IC LA40 |
| 9.9 | 10 | 89 | 35 | 47 | 2 | 23000558 | SCD-U-3D-M09.900-35IC LA40 |
| 10 | 10 | 89 | 35 | 47 | 2 | 23000559 | SCD-U-3D-M10.000-35IC LA40 |
| 10.1 | 12 | 102 | 40 | 55 | 2 | 23000560 | SCD-U-3D-M10.100-40IC LA40 |
| 10.2 | 12 | 102 | 40 | 55 | 2 | 23000561 | SCD-U-3D-M10.200-40IC LA40 |
| 10.3 | 12 | 102 | 40 | 55 | 2 | 23000562 | SCD-U-3D-M10.300-40IC LA40 |
| 10.4 | 12 | 102 | 40 | 55 | 2 | 23000563 | SCD-U-3D-M10.400-40IC LA40 |
| 10.5 | 12 | 102 | 40 | 55 | 2 | 23000564 | SCD-U-3D-M10.500-40IC LA40 |
| 10.8 | 12 | 102 | 40 | 55 | 2 | 23000565 | SCD-U-3D-M10.800-40IC LA40 |
| 11 | 12 | 102 | 40 | 55 | 2 | 23000566 | SCD-U-3D-M11.000-40IC LA40 |
| 11.2 | 12 | 102 | 40 | 55 | 2 | 23000567 | SCD-U-3D-M11.200-40IC LA40 |
| 11.3 | 12 | 102 | 40 | 55 | 2 | 23000568 | SCD-U-3D-M11.300-40IC LA40 |
| 11.5 | 12 | 102 | 40 | 55 | 2 | 23000569 | SCD-U-3D-M11.500-40IC LA40 |
| 11.6 | 12 | 102 | 40 | 55 | 2 | 23000570 | SCD-U-3D-M11.600-40IC LA40 |
| 11.8 | 12 | 102 | 40 | 55 | 2 | 23000571 | SCD-U-3D-M11.800-40IC LA40 |
| 12 | 12 | 102 | 40 | 55 | 2 | 23000572 | SCD-U-3D-M12.000-40IC LA40 |
| 12.1 | 14 | 107 | 43 | 60 | 2 | 23000573 | SCD-U-3D-M12.100-43IC LA40 |
| 12.2 | 14 | 107 | 43 | 60 | 2 | 23000574 | SCD-U-3D-M12.200-43IC LA40 |
| 12.5 | 14 | 107 | 43 | 60 | 2 | 23000575 | SCD-U-3D-M12.500-43IC LA40 |
| 12.7 | 14 | 107 | 43 | 60 | 2 | 23000576 | SCD-U-3D-M12.700-43IC LA40 |
| 12.9 | 14 | 107 | 43 | 60 | 2 | 23000577 | SCD-U-3D-M12.900-43IC LA40 |

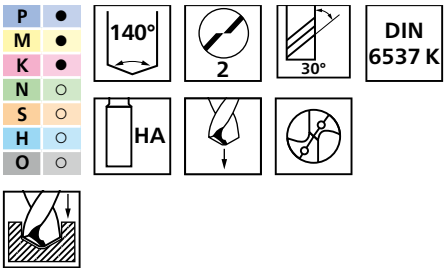
*Continued on next page*

| DC [mm] | DCON [mm] | OAL [mm] | LU [mm] | LCF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|
| 13 | 14 | 107 | 43 | 60 | 2 | 23000578 | SCD-U-3D-M13.000-43IC LA40 |
| 13.1 | 14 | 107 | 43 | 60 | 2 | 23000579 | SCD-U-3D-M13.100-43IC LA40 |
| 13.5 | 14 | 107 | 43 | 60 | 2 | 23000580 | SCD-U-3D-M13.500-43IC LA40 |
| 14 | 14 | 107 | 43 | 60 | 2 | 23000581 | SCD-U-3D-M14.000-43IC LA40 |
| 14.1 | 16 | 115 | 45 | 65 | 2 | 23000582 | SCD-U-3D-M14.100-45IC LA40 |
| 14.2 | 16 | 115 | 45 | 65 | 2 | 23000583 | SCD-U-3D-M14.200-45IC LA40 |
| 14.5 | 16 | 115 | 45 | 65 | 2 | 23000584 | SCD-U-3D-M14.500-45IC LA40 |
| 14.7 | 16 | 115 | 45 | 65 | 2 | 23000585 | SCD-U-3D-M14.700-45IC LA40 |
| 15 | 16 | 115 | 45 | 65 | 2 | 23000586 | SCD-U-3D-M15.000-45IC LA40 |
| 15.1 | 16 | 115 | 45 | 65 | 2 | 23000587 | SCD-U-3D-M15.100-45IC LA40 |
| 15.2 | 16 | 115 | 45 | 65 | 2 | 23000588 | SCD-U-3D-M15.200-45IC LA40 |
| 15.5 | 16 | 115 | 45 | 65 | 2 | 23000589 | SCD-U-3D-M15.500-45IC LA40 |
| 15.8 | 16 | 115 | 45 | 65 | 2 | 23000590 | SCD-U-3D-M15.800-45IC LA40 |
| 16 | 16 | 115 | 45 | 65 | 2 | 23000591 | SCD-U-3D-M16.000-45IC LA40 |



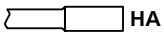

## 3xD type – imperial

Solid carbide drills with internal coolant supply and state-of-the-art coating for universal use on a variety of materials.




**Special features:**

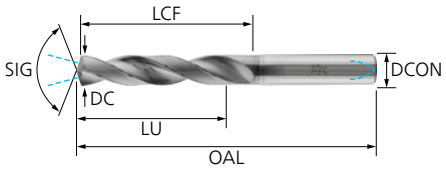
- Double margin flute for increased stability and high-quality bores.
- Internal coolant supply for increased tool life and controlled chip removal.
- Optimised surface finishing for high performance.

| DC [Inch] | DC [mm] | DCON [mm] | OAL [mm] | LU [mm] | LCF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|
| **HA with IC** | | |  **HA** | | | | | |
| 1/8 | 3.175 | 6 | 62 | 14 | 20 | 2 | 23001800 | SCD-U-3D-I1/8-14IC LA40 |
| 9/64 | 3.572 | 6 | 62 | 14 | 20 | 2 | 23001801 | SCD-U-3D-I9/64-14IC LA40 |
| 5/32 | 3.969 | 6 | 66 | 17 | 24 | 2 | 23001802 | SCD-U-3D-I5/32-17IC LA40 |
| 11/64 | 4.366 | 6 | 66 | 17 | 24 | 2 | 23001803 | SCD-U-3D-I11/64-17IC LA40 |
| 3/16 | 4.763 | 6 | 66 | 20 | 28 | 2 | 23001804 | SCD-U-3D-I3/16-20IC LA40 |
| 13/64 | 5.159 | 6 | 66 | 20 | 28 | 2 | 23001805 | SCD-U-3D-I13/64-20IC LA40 |
| 7/32 | 5.556 | 6 | 66 | 20 | 28 | 2 | 23001806 | SCD-U-3D-I7/32-20IC LA40 |
| 15/64 | 5.953 | 6 | 66 | 20 | 28 | 2 | 23001807 | SCD-U-3D-I15/64-20IC LA40 |
| 1/4 | 6.35 | 8 | 79 | 24 | 34 | 2 | 23001808 | SCD-U-3D-I1/4-24IC LA40 |
| 17/64 | 6.747 | 8 | 79 | 24 | 34 | 2 | 23001809 | SCD-U-3D-I17/64-24IC LA40 |
| 9/32 | 7.144 | 8 | 79 | 29 | 41 | 2 | 23001810 | SCD-U-3D-I9/32-29IC LA40 |
| 19/64 | 7.541 | 8 | 79 | 29 | 41 | 2 | 23001811 | SCD-U-3D-I19/64-29IC LA40 |
| 5/16 | 7.938 | 8 | 79 | 29 | 41 | 2 | 23001812 | SCD-U-3D-I5/16-29IC LA40 |
| 21/64 | 8.334 | 10 | 89 | 35 | 47 | 2 | 23001813 | SCD-U-3D-I21/64-35IC LA40 |
| 11/32 | 8.731 | 10 | 89 | 35 | 47 | 2 | 23001814 | SCD-U-3D-I11/32-35IC LA40 |
| 23/64 | 9.128 | 10 | 89 | 35 | 47 | 2 | 23001815 | SCD-U-3D-I23/64-35IC LA40 |
| 3/8 | 9.525 | 10 | 89 | 35 | 47 | 2 | 23001816 | SCD-U-3D-I3/8-35IC LA40 |
| 25/64 | 9.922 | 10 | 89 | 35 | 47 | 2 | 23001817 | SCD-U-3D-I25/64-35IC LA40 |

*Continued on next page*

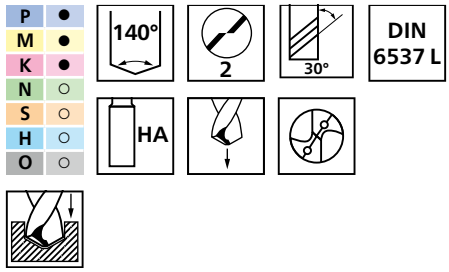
# Universal Drills
## Universal (U)

| DC [Inch] | DC [mm] | DCON [mm] | OAL [mm] | LU [mm] | LCF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|
| 13/32 | 10.319 | 12 | 102 | 40 | 55 | 2 | 23001818 | SCD-U-3D-I13/32-40IC LA40 |
| 27/64 | 10.716 | 12 | 102 | 40 | 55 | 2 | 23001819 | SCD-U-3D-I27/64-40IC LA40 |
| 7/16 | 11.113 | 12 | 102 | 40 | 55 | 2 | 23001820 | SCD-U-3D-I7/16-40IC LA40 |
| 29/64 | 11.509 | 12 | 102 | 40 | 55 | 2 | 23001821 | SCD-U-3D-I29/64-40IC LA40 |
| 15/32 | 11.906 | 12 | 102 | 40 | 55 | 2 | 23001822 | SCD-U-3D-I15/32-40IC LA40 |
| 31/64 | 12.303 | 14 | 107 | 43 | 60 | 2 | 23001823 | SCD-U-3D-I31/64-43IC LA40 |
| 17/32 | 13.494 | 14 | 107 | 43 | 60 | 2 | 23001824 | SCD-U-3D-I17/32-43IC LA40 |
| 9/16 | 14.288 | 16 | 115 | 45 | 65 | 2 | 23001825 | SCD-U-3D-I9/16-45IC LA40 |
| 5/8 | 15.875 | 16 | 115 | 45 | 65 | 2 | 23001826 | SCD-U-3D-I5/8-45IC LA40 |

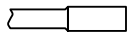



### 5xD type – metric

Solid carbide drills with internal coolant supply and state-of-the-art coating for universal use on a variety of materials.




**Special features:**
- Double margin flute for increased stability and high-quality bores.
- Internal coolant supply for increased tool life and controlled chip removal.
- Optimised surface finishing for high performance.

| DC [mm] | DCON [mm] | OAL [mm] | LU [mm] | LCF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|
| **HA with IC** | | |  **HA** | | | | |
| 3 | 6 | 66 | 23 | 27 | 2 | 23000592 | SCD-U-5D-M03.000-23IC LA40 |
| 3.1 | 6 | 66 | 23 | 27 | 2 | 23000593 | SCD-U-5D-M03.100-23IC LA40 |
| 3.2 | 6 | 66 | 23 | 27 | 2 | 23000594 | SCD-U-5D-M03.200-23IC LA40 |
| 3.3 | 6 | 66 | 23 | 27 | 2 | 23000595 | SCD-U-5D-M03.300-23IC LA40 |
| 3.4 | 6 | 66 | 23 | 27 | 2 | 23000596 | SCD-U-5D-M03.400-23IC LA40 |
| 3.5 | 6 | 66 | 23 | 27 | 2 | 23000597 | SCD-U-5D-M03.500-23IC LA40 |
| 3.6 | 6 | 66 | 23 | 27 | 2 | 23000598 | SCD-U-5D-M03.600-23IC LA40 |
| 3.7 | 6 | 66 | 23 | 27 | 2 | 23000599 | SCD-U-5D-M03.700-23IC LA40 |
| 3.8 | 6 | 74 | 29 | 36 | 2 | 23000600 | SCD-U-5D-M03.800-29IC LA40 |
| 3.9 | 6 | 74 | 29 | 36 | 2 | 23000601 | SCD-U-5D-M03.900-29IC LA40 |
| 4 | 6 | 74 | 29 | 36 | 2 | 23000602 | SCD-U-5D-M04.000-29IC LA40 |
| 4.1 | 6 | 74 | 29 | 36 | 2 | 23000603 | SCD-U-5D-M04.100-29IC LA40 |
| 4.2 | 6 | 74 | 29 | 36 | 2 | 23000604 | SCD-U-5D-M04.200-29IC LA40 |
| 4.3 | 6 | 74 | 29 | 36 | 2 | 23000605 | SCD-U-5D-M04.300-29IC LA40 |
| 4.4 | 6 | 74 | 29 | 36 | 2 | 23000606 | SCD-U-5D-M04.400-29IC LA40 |
| 4.5 | 6 | 74 | 29 | 36 | 2 | 23000607 | SCD-U-5D-M04.500-29IC LA40 |
| 4.6 | 6 | 74 | 29 | 36 | 2 | 23000608 | SCD-U-5D-M04.600-29IC LA40 |
| 4.7 | 6 | 74 | 29 | 36 | 2 | 23000609 | SCD-U-5D-M04.700-29IC LA40 |
| 4.8 | 6 | 82 | 35 | 44 | 2 | 23000610 | SCD-U-5D-M04.800-35IC LA40 |
| 4.9 | 6 | 82 | 35 | 44 | 2 | 23000611 | SCD-U-5D-M04.900-35IC LA40 |
| 5 | 6 | 82 | 35 | 44 | 2 | 23000612 | SCD-U-5D-M05.000-35IC LA40 |
| 5.1 | 6 | 82 | 35 | 44 | 2 | 23000613 | SCD-U-5D-M05.100-35IC LA40 |
| 5.2 | 6 | 82 | 35 | 44 | 2 | 23000614 | SCD-U-5D-M05.200-35IC LA40 |

*Continued on next page*

# Universal Drills
## Universal (U)

PFERD TOOLS

| DC [mm] | DCON [mm] | OAL [mm] | LU [mm] | LCF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|
| 5.3 | 6 | 82 | 35 | 44 | 2 | 23000615 | SCD-U-5D-M05.300-35IC LA40 |
| 5.4 | 6 | 82 | 35 | 44 | 2 | 23000616 | SCD-U-5D-M05.400-35IC LA40 |
| 5.5 | 6 | 82 | 35 | 44 | 2 | 23000617 | SCD-U-5D-M05.500-35IC LA40 |
| 5.6 | 6 | 82 | 35 | 44 | 2 | 23000618 | SCD-U-5D-M05.600-35IC LA40 |
| 5.7 | 6 | 82 | 35 | 44 | 2 | 23000619 | SCD-U-5D-M05.700-35IC LA40 |
| 5.8 | 6 | 82 | 35 | 44 | 2 | 23000620 | SCD-U-5D-M05.800-35IC LA40 |
| 5.9 | 6 | 82 | 35 | 44 | 2 | 23000621 | SCD-U-5D-M05.900-35IC LA40 |
| 6 | 6 | 82 | 35 | 44 | 2 | 23000622 | SCD-U-5D-M06.000-35IC LA40 |
| 6.1 | 8 | 91 | 43 | 53 | 2 | 23000623 | SCD-U-5D-M06.100-43IC LA40 |
| 6.2 | 8 | 91 | 43 | 53 | 2 | 23000624 | SCD-U-5D-M06.200-43IC LA40 |
| 6.3 | 8 | 91 | 43 | 53 | 2 | 23000625 | SCD-U-5D-M06.300-43IC LA40 |
| 6.4 | 8 | 91 | 43 | 53 | 2 | 23000626 | SCD-U-5D-M06.400-43IC LA40 |
| 6.5 | 8 | 91 | 43 | 53 | 2 | 23000627 | SCD-U-5D-M06.500-43IC LA40 |
| 6.6 | 8 | 91 | 43 | 53 | 2 | 23000628 | SCD-U-5D-M06.600-43IC LA40 |
| 6.7 | 8 | 91 | 43 | 53 | 2 | 23000629 | SCD-U-5D-M06.700-43IC LA40 |
| 6.8 | 8 | 91 | 43 | 53 | 2 | 23000630 | SCD-U-5D-M06.800-43IC LA40 |
| 6.9 | 8 | 91 | 43 | 53 | 2 | 23000631 | SCD-U-5D-M06.900-43IC LA40 |
| 7 | 8 | 91 | 43 | 53 | 2 | 23000632 | SCD-U-5D-M07.000-43IC LA40 |
| 7.2 | 8 | 91 | 43 | 53 | 2 | 23000633 | SCD-U-5D-M07.200-43IC LA40 |
| 7.3 | 8 | 91 | 43 | 53 | 2 | 23000634 | SCD-U-5D-M07.300-43IC LA40 |
| 7.4 | 8 | 91 | 43 | 53 | 2 | 23000635 | SCD-U-5D-M07.400-43IC LA40 |
| 7.5 | 8 | 91 | 43 | 53 | 2 | 23000636 | SCD-U-5D-M07.500-43IC LA40 |
| 7.6 | 8 | 91 | 43 | 53 | 2 | 23000637 | SCD-U-5D-M07.600-43IC LA40 |
| 7.7 | 8 | 91 | 43 | 53 | 2 | 23000638 | SCD-U-5D-M07.700-43IC LA40 |
| 7.8 | 8 | 91 | 43 | 53 | 2 | 23000639 | SCD-U-5D-M07.800-43IC LA40 |
| 7.9 | 8 | 91 | 43 | 53 | 2 | 23000640 | SCD-U-5D-M07.900-43IC LA40 |
| 8 | 8 | 91 | 43 | 53 | 2 | 23000641 | SCD-U-5D-M08.000-43IC LA40 |
| 8.1 | 10 | 103 | 49 | 61 | 2 | 23000642 | SCD-U-5D-M08.100-49IC LA40 |
| 8.2 | 10 | 103 | 49 | 61 | 2 | 23000643 | SCD-U-5D-M08.200-49IC LA40 |
| 8.3 | 10 | 103 | 49 | 61 | 2 | 23000644 | SCD-U-5D-M08.300-49IC LA40 |
| 8.4 | 10 | 103 | 49 | 61 | 2 | 23000645 | SCD-U-5D-M08.400-49IC LA40 |
| 8.5 | 10 | 103 | 49 | 61 | 2 | 23000646 | SCD-U-5D-M08.500-49IC LA40 |
| 8.6 | 10 | 103 | 49 | 61 | 2 | 23000647 | SCD-U-5D-M08.600-49IC LA40 |
| 8.7 | 10 | 103 | 49 | 61 | 2 | 23000648 | SCD-U-5D-M08.700-49IC LA40 |
| 8.8 | 10 | 103 | 49 | 61 | 2 | 23000649 | SCD-U-5D-M08.800-49IC LA40 |
| 9 | 10 | 103 | 49 | 61 | 2 | 23000650 | SCD-U-5D-M09.000-49IC LA40 |
| 9.2 | 10 | 103 | 49 | 61 | 2 | 23000651 | SCD-U-5D-M09.200-49IC LA40 |
| 9.3 | 10 | 103 | 49 | 61 | 2 | 23000652 | SCD-U-5D-M09.300-49IC LA40 |
| 9.4 | 10 | 103 | 49 | 61 | 2 | 23000653 | SCD-U-5D-M09.400-49IC LA40 |
| 9.5 | 10 | 103 | 49 | 61 | 2 | 23000654 | SCD-U-5D-M09.500-49IC LA40 |
| 9.6 | 10 | 103 | 49 | 61 | 2 | 23000655 | SCD-U-5D-M09.600-49IC LA40 |
| 9.8 | 10 | 103 | 49 | 61 | 2 | 23000656 | SCD-U-5D-M09.800-49IC LA40 |
| 9.9 | 10 | 103 | 49 | 61 | 2 | 23000657 | SCD-U-5D-M09.900-49IC LA40 |
| 10 | 10 | 103 | 49 | 61 | 2 | 23000658 | SCD-U-5D-M10.000-49IC LA40 |
| 10.1 | 12 | 118 | 56 | 71 | 2 | 23000659 | SCD-U-5D-M10.100-56IC LA40 |
| 10.2 | 12 | 118 | 56 | 71 | 2 | 23000660 | SCD-U-5D-M10.200-56IC LA40 |
| 10.3 | 12 | 118 | 56 | 71 | 2 | 23000661 | SCD-U-5D-M10.300-56IC LA40 |
| 10.4 | 12 | 118 | 56 | 71 | 2 | 23000662 | SCD-U-5D-M10.400-56IC LA40 |
| 10.5 | 12 | 118 | 56 | 71 | 2 | 23000663 | SCD-U-5D-M10.500-56IC LA40 |

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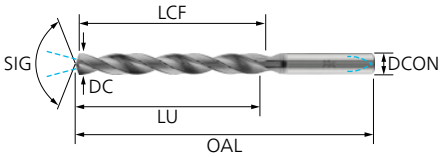
# Universal Drills
## Universal (U)

PFERD TOOLS

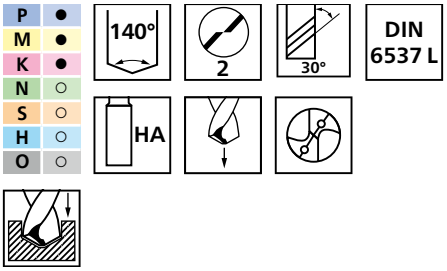
| DC [mm] | DCON [mm] | OAL [mm] | LU [mm] | LCF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|
| 10.8 | 12 | 118 | 56 | 71 | 2 | 23000664 | SCD-U-5D-M10.800-56IC LA40 |
| 11 | 12 | 118 | 56 | 71 | 2 | 23000665 | SCD-U-5D-M11.000-56IC LA40 |
| 11.2 | 12 | 118 | 56 | 71 | 2 | 23000666 | SCD-U-5D-M11.200-56IC LA40 |
| 11.3 | 12 | 118 | 56 | 71 | 2 | 23000667 | SCD-U-5D-M11.300-56IC LA40 |
| 11.5 | 12 | 118 | 56 | 71 | 2 | 23000668 | SCD-U-5D-M11.500-56IC LA40 |
| 11.6 | 12 | 118 | 56 | 71 | 2 | 23000669 | SCD-U-5D-M11.600-56IC LA40 |
| 11.8 | 12 | 118 | 56 | 71 | 2 | 23000670 | SCD-U-5D-M11.800-56IC LA40 |
| 12 | 12 | 118 | 56 | 71 | 2 | 23000671 | SCD-U-5D-M12.000-56IC LA40 |
| 12.1 | 14 | 124 | 60 | 77 | 2 | 23000672 | SCD-U-5D-M12.100-60IC LA40 |
| 12.2 | 14 | 124 | 60 | 77 | 2 | 23000673 | SCD-U-5D-M12.200-60IC LA40 |
| 12.5 | 14 | 124 | 60 | 77 | 2 | 23000674 | SCD-U-5D-M12.500-60IC LA40 |
| 12.7 | 14 | 124 | 60 | 77 | 2 | 23000675 | SCD-U-5D-M12.700-60IC LA40 |
| 12.9 | 14 | 124 | 60 | 77 | 2 | 23000676 | SCD-U-5D-M12.900-60IC LA40 |
| 13 | 14 | 124 | 60 | 77 | 2 | 23000677 | SCD-U-5D-M13.000-60IC LA40 |
| 13.1 | 14 | 124 | 60 | 77 | 2 | 23000678 | SCD-U-5D-M13.100-60IC LA40 |
| 13.3 | 14 | 124 | 60 | 77 | 2 | 23000679 | SCD-U-5D-M13.300-60IC LA40 |
| 13.5 | 14 | 124 | 60 | 77 | 2 | 23000680 | SCD-U-5D-M13.500-60IC LA40 |
| 13.8 | 14 | 124 | 60 | 77 | 2 | 23000681 | SCD-U-5D-M13.800-60IC LA40 |
| 14 | 14 | 124 | 60 | 77 | 2 | 23000682 | SCD-U-5D-M14.000-60IC LA40 |
| 14.1 | 16 | 133 | 63 | 83 | 2 | 23000683 | SCD-U-5D-M14.100-63IC LA40 |
| 14.2 | 16 | 133 | 63 | 83 | 2 | 23000684 | SCD-U-5D-M14.200-63IC LA40 |
| 14.5 | 16 | 133 | 63 | 83 | 2 | 23000685 | SCD-U-5D-M14.500-63IC LA40 |
| 14.7 | 16 | 133 | 63 | 83 | 2 | 23000686 | SCD-U-5D-M14.700-63IC LA40 |
| 14.8 | 16 | 133 | 63 | 83 | 2 | 23000687 | SCD-U-5D-M14.800-63IC LA40 |
| 15 | 16 | 133 | 63 | 83 | 2 | 23000688 | SCD-U-5D-M15.000-63IC LA40 |
| 15.1 | 16 | 133 | 63 | 83 | 2 | 23000689 | SCD-U-5D-M15.100-63IC LA40 |
| 15.2 | 16 | 133 | 63 | 83 | 2 | 23000690 | SCD-U-5D-M15.200-63IC LA40 |
| 15.5 | 16 | 133 | 63 | 83 | 2 | 23000691 | SCD-U-5D-M15.500-63IC LA40 |
| 15.8 | 16 | 133 | 63 | 83 | 2 | 23000692 | SCD-U-5D-M15.800-63IC LA40 |
| 16 | 16 | 133 | 63 | 83 | 2 | 23000693 | SCD-U-5D-M16.000-63IC LA40 |

# Universal Drills
## Universal (U)




### 5xD type – imperial

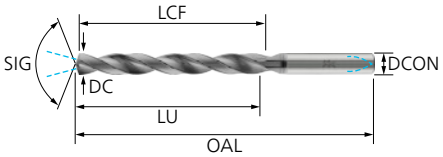
Solid carbide drills with internal coolant supply and state-of-the-art coating for universal use on a variety of materials.




**Special features:**
- Double margin flute for increased stability and high-quality bores.
- Internal coolant supply for increased tool life and controlled chip removal.
- Optimised surface finishing for high performance.

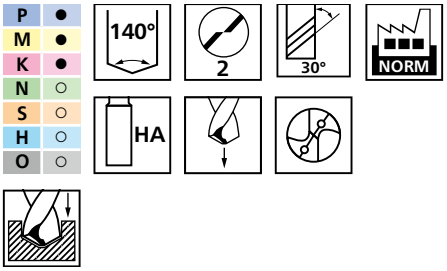
| DC [Inch] | DC [mm] | DCON [mm] | OAL [mm] | LU [mm] | LCF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|
| **HA with IC** | | |  **HA** | | | | | |
| 1/8 | 3.175 | 6 | 66 | 23 | 28 | 2 | 23001827 | SCD-U-5D-I1/8-23IC LA40 |
| 9/64 | 3.572 | 6 | 66 | 23 | 28 | 2 | 23001828 | SCD-U-5D-I9/64-23IC LA40 |
| 5/32 | 3.969 | 6 | 74 | 29 | 36 | 2 | 23001829 | SCD-U-5D-I5/32-29IC LA40 |
| 11/64 | 4.366 | 6 | 74 | 29 | 36 | 2 | 23001830 | SCD-U-5D-I11/64-29IC LA40 |
| 3/16 | 4.763 | 6 | 82 | 35 | 44 | 2 | 23001831 | SCD-U-5D-I3/16-35IC LA40 |
| 13/64 | 5.159 | 6 | 82 | 35 | 44 | 2 | 23001832 | SCD-U-5D-I13/64-35IC LA40 |
| 7/32 | 5.556 | 6 | 82 | 35 | 44 | 2 | 23001833 | SCD-U-5D-I7/32-35IC LA40 |
| 15/64 | 5.953 | 6 | 82 | 35 | 44 | 2 | 23001834 | SCD-U-5D-I15/64-35IC LA40 |
| 1/4 | 6.35 | 8 | 91 | 43 | 53 | 2 | 23001835 | SCD-U-5D-I1/4-43IC LA40 |
| 17/64 | 6.747 | 8 | 91 | 43 | 53 | 2 | 23001836 | SCD-U-5D-I17/64-43IC LA40 |
| 9/32 | 7.144 | 8 | 91 | 43 | 53 | 2 | 23001837 | SCD-U-5D-I9/32-43IC LA40 |
| 19/64 | 7.541 | 8 | 91 | 43 | 53 | 2 | 23001838 | SCD-U-5D-I19/64-43IC LA40 |
| 5/16 | 7.938 | 8 | 91 | 43 | 53 | 2 | 23001839 | SCD-U-5D-I5/16-43IC LA40 |
| 21/64 | 8.334 | 10 | 103 | 49 | 61 | 2 | 23001840 | SCD-U-5D-I21/64-49IC LA40 |
| 11/32 | 8.731 | 10 | 103 | 49 | 61 | 2 | 23001841 | SCD-U-5D-I11/32-49IC LA40 |
| 23/64 | 9.128 | 10 | 103 | 49 | 61 | 2 | 23001842 | SCD-U-5D-I23/64-49IC LA40 |
| 3/8 | 9.525 | 10 | 103 | 49 | 61 | 2 | 23001843 | SCD-U-5D-I3/8-49IC LA40 |
| 25/64 | 9.922 | 10 | 103 | 49 | 61 | 2 | 23001844 | SCD-U-5D-I25/64-49IC LA40 |
| 13/32 | 10.319 | 12 | 118 | 56 | 71 | 2 | 23001845 | SCD-U-5D-I13/32-56IC LA40 |
| 27/64 | 10.716 | 12 | 118 | 56 | 71 | 2 | 23001846 | SCD-U-5D-I27/64-56IC LA40 |
| 7/16 | 11.113 | 12 | 118 | 56 | 71 | 2 | 23001847 | SCD-U-5D-I7/16-56IC LA40 |
| 29/64 | 11.509 | 12 | 118 | 56 | 71 | 2 | 23001848 | SCD-U-5D-I29/64-56IC LA40 |
| 15/32 | 11.906 | 12 | 118 | 56 | 71 | 2 | 23001849 | SCD-U-5D-I15/32-56IC LA40 |
| 31/64 | 12.303 | 14 | 124 | 60 | 77 | 2 | 23001850 | SCD-U-5D-I31/64-60IC LA40 |
| 17/32 | 13.494 | 14 | 124 | 60 | 77 | 2 | 23001851 | SCD-U-5D-I17/32-60IC LA40 |
| 9/16 | 14.288 | 16 | 133 | 63 | 83 | 2 | 23001852 | SCD-U-5D-I9/16-63IC LA40 |
| 5/8 | 15.875 | 16 | 133 | 63 | 83 | 2 | 23001853 | SCD-U-5D-I5/8-63IC LA40 |

# Universal Drills
## Universal (U)




### 8xD type – metric

Solid carbide drills with internal coolant supply and state-of-the-art coating for universal use on a variety of materials.

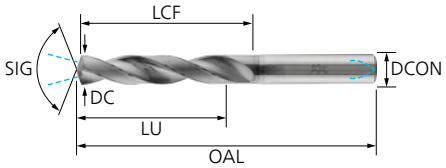



**Special features:**
- Double margin flute for increased stability and high-quality bores.
- Internal coolant supply for increased tool life and controlled chip removal.
- Optimised surface finishing for high performance.

| DC [mm] | DCON [mm] | OAL [mm] | LU [mm] | LCF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|
| **HA with IC** | | |  **HA** | | | | |
| 3 | 6 | 74 | 29 | 35 | 2 | 23000694 | SCD-U-8D-M03.000-29IC LA40 |
| 3.2 | 6 | 74 | 30 | 35 | 2 | 23000695 | SCD-U-8D-M03.200-30IC LA40 |
| 3.3 | 6 | 74 | 30 | 35 | 2 | 23000696 | SCD-U-8D-M03.300-30IC LA40 |
| 3.4 | 6 | 74 | 30 | 35 | 2 | 23000697 | SCD-U-8D-M03.400-30IC LA40 |
| 3.5 | 6 | 74 | 30 | 35 | 2 | 23000698 | SCD-U-8D-M03.500-30IC LA40 |
| 3.6 | 6 | 74 | 30 | 35 | 2 | 23000699 | SCD-U-8D-M03.600-30IC LA40 |
| 3.7 | 6 | 74 | 30 | 35 | 2 | 23000700 | SCD-U-8D-M03.700-30IC LA40 |
| 3.8 | 6 | 82 | 37 | 44 | 2 | 23000701 | SCD-U-8D-M03.800-37IC LA40 |
| 3.9 | 6 | 82 | 37 | 44 | 2 | 23000702 | SCD-U-8D-M03.900-37IC LA40 |
| 4 | 6 | 82 | 37 | 44 | 2 | 23000703 | SCD-U-8D-M04.000-37IC LA40 |
| 4.1 | 6 | 82 | 37 | 44 | 2 | 23000704 | SCD-U-8D-M04.100-37IC LA40 |
| 4.2 | 6 | 82 | 37 | 44 | 2 | 23000705 | SCD-U-8D-M04.200-37IC LA40 |
| 4.3 | 6 | 82 | 37 | 44 | 2 | 23000706 | SCD-U-8D-M04.300-37IC LA40 |
| 4.5 | 6 | 82 | 37 | 44 | 2 | 23000707 | SCD-U-8D-M04.500-37IC LA40 |
| 5 | 6 | 95 | 48 | 57 | 2 | 23000708 | SCD-U-8D-M05.000-48IC LA40 |
| 5.1 | 6 | 95 | 48 | 57 | 2 | 23000709 | SCD-U-8D-M05.100-48IC LA40 |
| 5.2 | 6 | 95 | 48 | 57 | 2 | 23000710 | SCD-U-8D-M05.200-48IC LA40 |
| 5.3 | 6 | 95 | 48 | 57 | 2 | 23000711 | SCD-U-8D-M05.300-48IC LA40 |
| 5.5 | 6 | 95 | 48 | 57 | 2 | 23000712 | SCD-U-8D-M05.500-48IC LA40 |
| 5.6 | 6 | 95 | 48 | 57 | 2 | 23000713 | SCD-U-8D-M05.600-48IC LA40 |
| 5.8 | 6 | 95 | 48 | 57 | 2 | 23000714 | SCD-U-8D-M05.800-48IC LA40 |
| 6 | 6 | 95 | 48 | 57 | 2 | 23000715 | SCD-U-8D-M06.000-48IC LA40 |
| 6.2 | 8 | 114 | 66 | 76 | 2 | 23000716 | SCD-U-8D-M06.200-66IC LA40 |
| 6.5 | 8 | 114 | 66 | 76 | 2 | 23000717 | SCD-U-8D-M06.500-66IC LA40 |
| 6.6 | 8 | 114 | 66 | 76 | 2 | 23000718 | SCD-U-8D-M06.600-66IC LA40 |
| 6.8 | 8 | 114 | 66 | 76 | 2 | 23000719 | SCD-U-8D-M06.800-66IC LA40 |
| 6.9 | 8 | 114 | 66 | 76 | 2 | 23000720 | SCD-U-8D-M06.900-66IC LA40 |
| 7 | 8 | 114 | 66 | 76 | 2 | 23000721 | SCD-U-8D-M07.000-66IC LA40 |
| 7.4 | 8 | 114 | 66 | 76 | 2 | 23000722 | SCD-U-8D-M07.400-66IC LA40 |
| 7.5 | 8 | 114 | 66 | 76 | 2 | 23000723 | SCD-U-8D-M07.500-66IC LA40 |
| 7.8 | 8 | 114 | 66 | 76 | 2 | 23000724 | SCD-U-8D-M07.800-66IC LA40 |
| 8 | 8 | 114 | 66 | 76 | 2 | 23000725 | SCD-U-8D-M08.000-66IC LA40 |
| 8.1 | 10 | 138 | 84 | 96 | 2 | 23000726 | SCD-U-8D-M08.100-84IC LA40 |
| 8.2 | 10 | 138 | 84 | 96 | 2 | 23000727 | SCD-U-8D-M08.200-84IC LA40 |
| 8.5 | 10 | 138 | 84 | 96 | 2 | 23000728 | SCD-U-8D-M08.500-84IC LA40 |

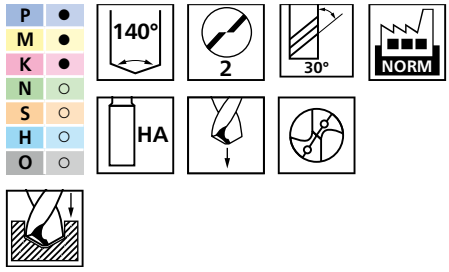
*Continued on next page*

| DC [mm] | DCON [mm] | OAL [mm] | LU [mm] | LCF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|
| 8.6 | 10 | 138 | 84 | 96 | 2 | 23000729 | SCD-U-8D-M08.600-84IC LA40 |
| 8.7 | 10 | 138 | 84 | 96 | 2 | 23000730 | SCD-U-8D-M08.700-84IC LA40 |
| 8.8 | 10 | 138 | 84 | 96 | 2 | 23000731 | SCD-U-8D-M08.800-84IC LA40 |
| 9 | 10 | 138 | 84 | 96 | 2 | 23000732 | SCD-U-8D-M09.000-84IC LA40 |
| 9.5 | 10 | 138 | 84 | 96 | 2 | 23000733 | SCD-U-8D-M09.500-84IC LA40 |
| 9.6 | 10 | 138 | 84 | 96 | 2 | 23000734 | SCD-U-8D-M09.600-84IC LA40 |
| 9.8 | 10 | 138 | 84 | 96 | 2 | 23000735 | SCD-U-8D-M09.800-84IC LA40 |
| 9.9 | 10 | 138 | 84 | 96 | 2 | 23000736 | SCD-U-8D-M09.900-84IC LA40 |
| 10 | 10 | 138 | 84 | 96 | 2 | 23000737 | SCD-U-8D-M10.000-84IC LA40 |
| 10.2 | 12 | 162 | 100 | 115 | 2 | 23000738 | SCD-U-8D-M10.200-100IC LA40 |
| 10.3 | 12 | 162 | 100 | 115 | 2 | 23000739 | SCD-U-8D-M10.300-100IC LA40 |
| 10.5 | 12 | 162 | 100 | 115 | 2 | 23000740 | SCD-U-8D-M10.500-100IC LA40 |
| 11 | 12 | 162 | 100 | 115 | 2 | 23000741 | SCD-U-8D-M11.000-100IC LA40 |
| 11.2 | 12 | 162 | 100 | 115 | 2 | 23000742 | SCD-U-8D-M11.200-100IC LA40 |
| 11.5 | 12 | 162 | 100 | 115 | 2 | 23000743 | SCD-U-8D-M11.500-100IC LA40 |
| 11.8 | 12 | 162 | 100 | 115 | 2 | 23000744 | SCD-U-8D-M11.800-100IC LA40 |
| 12 | 12 | 162 | 100 | 115 | 2 | 23000745 | SCD-U-8D-M12.000-100IC LA40 |
| 12.5 | 14 | 181 | 117 | 134 | 2 | 23000746 | SCD-U-8D-M12.500-117IC LA40 |
| 12.7 | 14 | 181 | 117 | 134 | 2 | 23001881 | SCD-U-8D-M12.700-117IC LA40 |
| 13 | 14 | 181 | 117 | 134 | 2 | 23000747 | SCD-U-8D-M13.000-117IC LA40 |
| 13.1 | 14 | 181 | 117 | 134 | 2 | 23000748 | SCD-U-8D-M13.100-117IC LA40 |
| 13.5 | 14 | 181 | 117 | 134 | 2 | 23000749 | SCD-U-8D-M13.500-117IC LA40 |
| 14 | 14 | 181 | 117 | 134 | 2 | 23000750 | SCD-U-8D-M14.000-117IC LA40 |
| 14.5 | 16 | 203 | 133 | 153 | 2 | 23000751 | SCD-U-8D-M14.500-133IC LA40 |
| 15 | 16 | 203 | 133 | 153 | 2 | 23000752 | SCD-U-8D-M15.000-133IC LA40 |
| 15.5 | 16 | 203 | 133 | 153 | 2 | 23000753 | SCD-U-8D-M15.500-133IC LA40 |
| 16 | 16 | 203 | 133 | 153 | 2 | 23000774 | SCD-U-8D-M16.000-133IC LA40 |




## 8xD type – imperial

Solid carbide drills with internal coolant supply and state-of-the-art coating for universal use on a variety of materials.




**Special features:**

- Double margin flute for increased stability and high-quality bores.
- Internal coolant supply for increased tool life and controlled chip removal.
- Optimised surface finishing for high performance.

| DC [Inch] | DC [mm] | DCON [mm] | OAL [mm] | LU [mm] | LCF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|
| **HA with IC** | | |  **HA** | | | | | |
| 1/8 | 3.175 | 6 | 74 | 29 | 35 | 2 | 23001854 | SCD-U-8D-I1/8-29IC LA40 |
| 9/64 | 3.572 | 6 | 74 | 30 | 35 | 2 | 23001855 | SCD-U-8D-I9/64-30IC LA40 |
| 5/32 | 3.969 | 6 | 82 | 37 | 44 | 2 | 23001856 | SCD-U-8D-I5/32-37IC LA40 |
| 11/64 | 4.366 | 6 | 82 | 37 | 44 | 2 | 23001857 | SCD-U-8D-I11/64-37IC LA40 |
| 3/16 | 4.763 | 6 | 95 | 48 | 57 | 2 | 23001858 | SCD-U-8D-I3/16-48IC LA40 |

*Continued on next page*

# Universal Drills
## Universal (U)

PFERD TOOLS

| DC [Inch] | DC [mm] | DCON [mm] | OAL [mm] | LU [mm] | LCF [mm] | ZEFP | Item no. | Designation |
|---|---|---|---|---|---|---|---|---|
| 13/64 | 5.159 | 6 | 95 | 48 | 57 | 2 | 23001859 | SCD-U-8D-I13/64-48IC LA40 |
| 7/32 | 5.556 | 6 | 95 | 48 | 57 | 2 | 23001860 | SCD-U-8D-I7/32-48IC LA40 |
| 15/64 | 5.953 | 6 | 95 | 48 | 57 | 2 | 23001861 | SCD-U-8D-I15/64-48IC LA40 |
| 1/4 | 6.35 | 8 | 114 | 66 | 76 | 2 | 23001862 | SCD-U-8D-I1/4-66IC LA40 |
| 17/64 | 6.747 | 8 | 114 | 66 | 76 | 2 | 23001863 | SCD-U-8D-I17/64-66IC LA40 |
| 9/32 | 7.144 | 8 | 114 | 66 | 76 | 2 | 23001864 | SCD-U-8D-I9/32-66IC LA40 |
| 19/64 | 7.541 | 8 | 114 | 66 | 76 | 2 | 23001865 | SCD-U-8D-I19/64-66IC LA40 |
| 5/16 | 7.938 | 8 | 114 | 66 | 76 | 2 | 23001866 | SCD-U-8D-I5/16-66IC LA40 |
| 21/64 | 8.334 | 10 | 138 | 84 | 96 | 2 | 23001867 | SCD-U-8D-I21/64-84IC LA40 |
| 11/32 | 8.731 | 10 | 138 | 84 | 96 | 2 | 23001868 | SCD-U-8D-I11/32-84IC LA40 |
| 23/64 | 9.128 | 10 | 138 | 84 | 96 | 2 | 23001869 | SCD-U-8D-I23/64-84IC LA40 |
| 3/8 | 9.525 | 10 | 138 | 84 | 96 | 2 | 23001870 | SCD-U-8D-I3/8-84IC LA40 |
| 25/64 | 9.922 | 10 | 138 | 84 | 96 | 2 | 23001871 | SCD-U-8D-I25/64-84IC LA40 |
| 13/32 | 10.319 | 12 | 162 | 100 | 115 | 2 | 23001872 | SCD-U-8D-I13/32-100IC LA40 |
| 27/64 | 10.716 | 12 | 162 | 100 | 115 | 2 | 23001873 | SCD-U-8D-I27/64-100IC LA40 |
| 7/16 | 11.113 | 12 | 162 | 100 | 115 | 2 | 23001874 | SCD-U-8D-I7/16-100IC LA40 |
| 29/64 | 11.509 | 12 | 162 | 100 | 115 | 2 | 23001875 | SCD-U-8D-I29/64-100IC LA40 |
| 15/32 | 11.906 | 12 | 162 | 100 | 115 | 2 | 23001876 | SCD-U-8D-I15/32-100IC LA40 |
| 31/64 | 12.303 | 14 | 181 | 117 | 134 | 2 | 23001877 | SCD-U-8D-I31/64-117IC LA40 |
| 17/32 | 13.494 | 14 | 181 | 117 | 134 | 2 | 23001878 | SCD-U-8D-I17/32-117IC LA40 |
| 9/16 | 14.288 | 16 | 203 | 133 | 153 | 2 | 23001879 | SCD-U-8D-I9/16-133IC LA40 |
| 5/8 | 15.875 | 16 | 203 | 133 | 153 | 2 | 23001880 | SCD-U-8D-I5/8-133IC LA40 |

# PFERD TOOLS

4 007220 566190
831 809
06/2026



PFERD TOOLS quality is certified according to ISO 9001.

pferd.com