



## **PCD Non-standard Tools for Auto Parts**

**北京沃尔德金刚石工具股份有限公司**  
BEIJING WORLDIA DIAMOND TOOLS CO.,LTD.





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# Worldia Non-standard Cutters Introduction

## Products category:

- 1、Round tools: High-precision PCD/PCBN reamers, drill reamers, boring tools, end mills, profile cutters and etc.
- 2、Interchangeable: Welding/Integrated boring inserts, profile milling inserts, thread Inserts, roller inserts, planer tool;
- 3、Turning: Profile turning tools, internal/external groove cutters, thread turning tools;
- 4、Wear-resistant: high-precision PCD support, wear-resistant coupling, grinding wheel dresser.

## Applications:

- 1、Processing of related parts and components in the automotive industry such as engines, hubs, and brake disc;
- 2、Processing of key components in 3C industry, such as mobile phones, notebooks and pad computers;
- 3、Processing of cast aluminum/cast iron such as air conditioner compressor housings and drive motors;
- 4、Processing of composite materials;
- 5、Processing of non-ferrous products such as resins, rubber, plastics, and semiconductors;
- 6、Processing of couplings, wear parts and etc. used in the oil drilling industry;
- 7、Processing of furniture, crafts and other woodworking industry.





# Production Equipment

DMG



FANUC



## Equipment for Non-standard cutters:

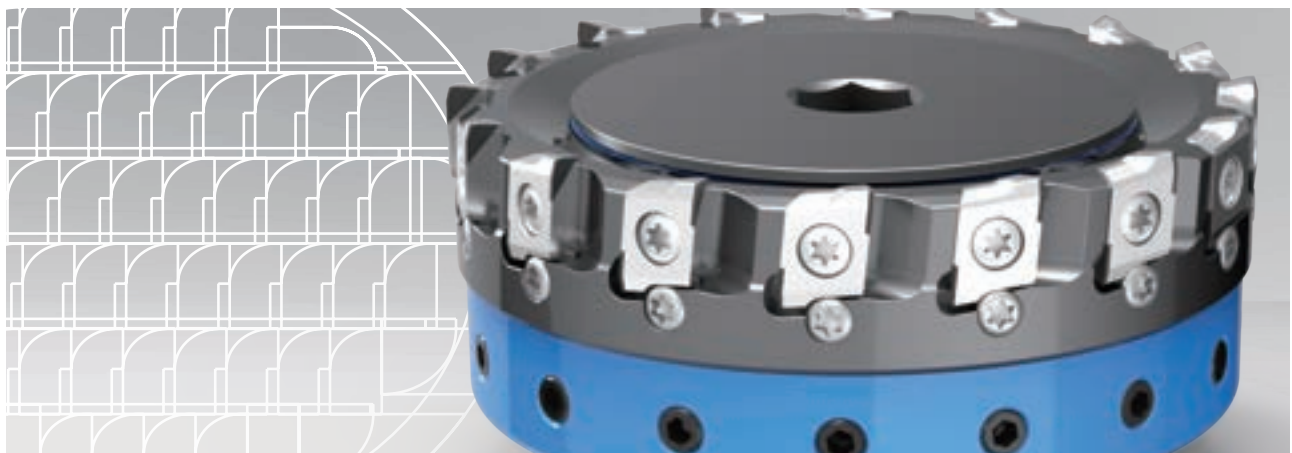
FANUC six-axis high-precision WEDM mainly undertakes the machining of non-standard tools such as PCD/PCBN reamers, milling cutters, and contour cutters. With the stable performance and reliable accuracy, the machine can keep higher edge and surface quality.

DMG high-precision laser cutting machine mainly undertakes the processing of non-standard tools such as PCD/PCBN/CVD, which can ensure high processing precision and good appearance, especially in processing of PCD reamer chip breaker.

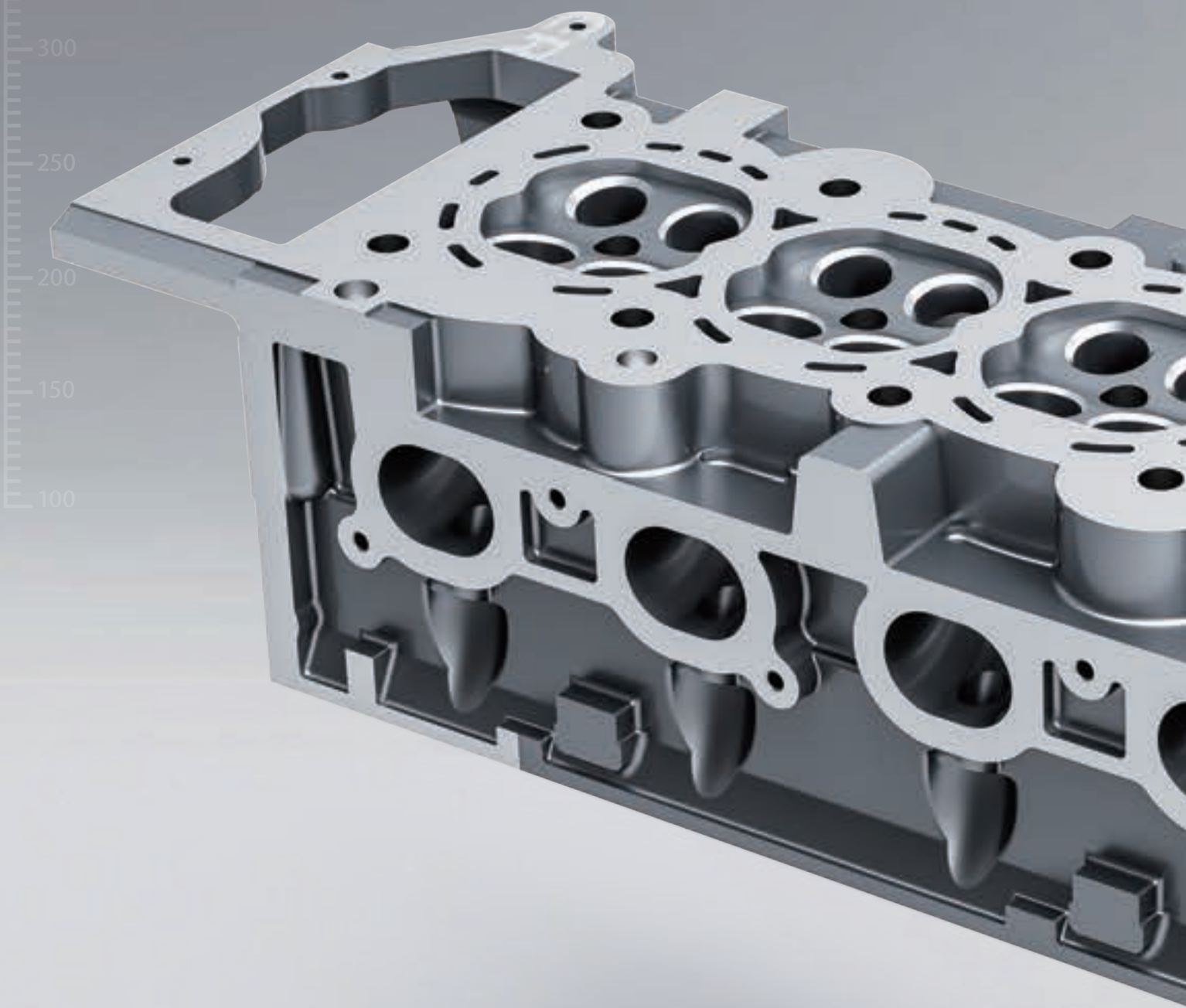
The Zoller pre-setting tools can pre-adjust, measure and manage all kinds of cutting tools conveniently and quickly. The equipment is equipped with HEIDENHAIN grating scales. The measurement data is accurate, repeatable and stable in reproducibility.

Z-MIKE laser diameter measuring instrument can collect measurement data automatically, process scientifically, calculate fast with stable measurement accuracy and high efficient measurement.

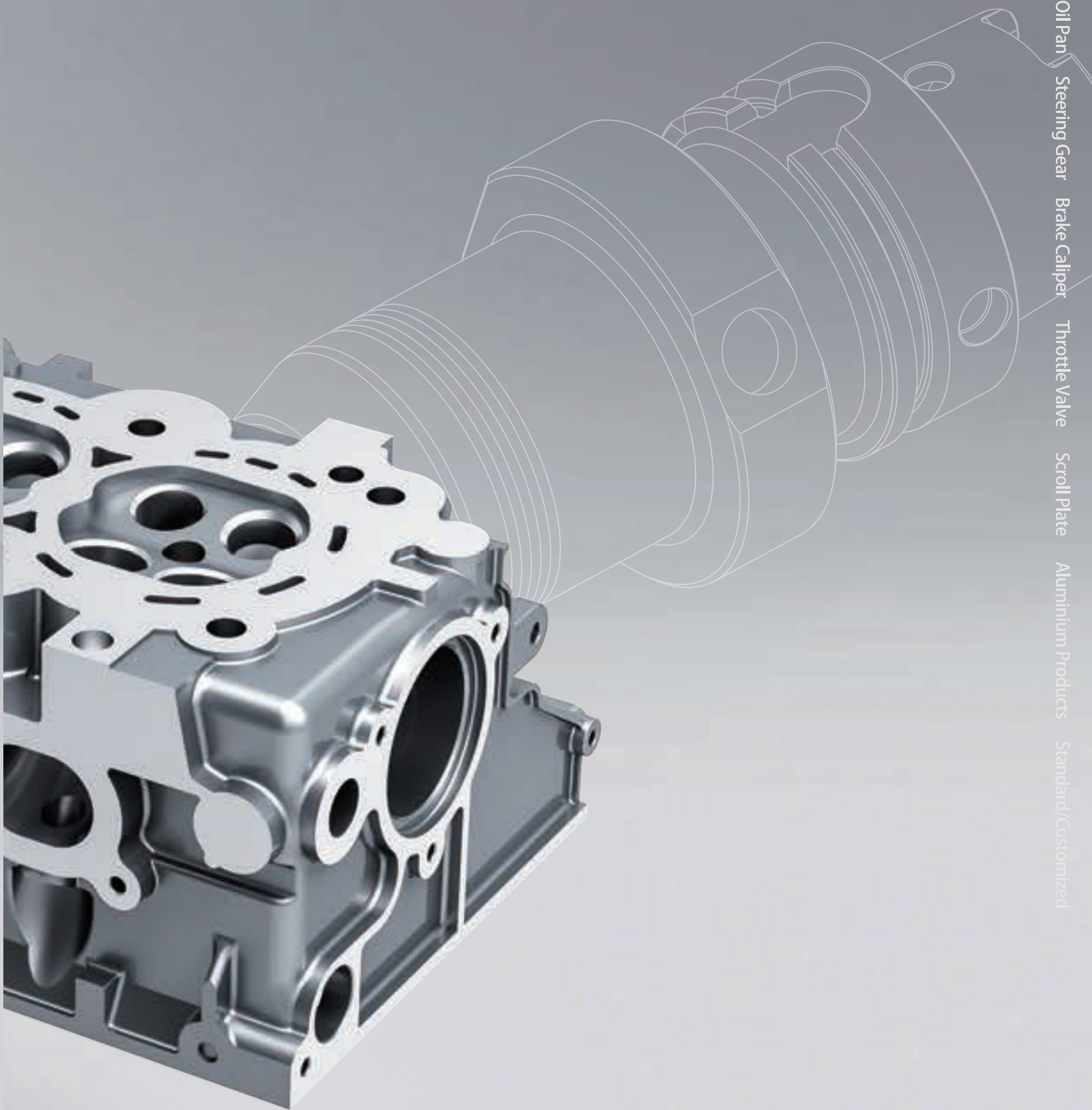
Haimer balance instrument can carry out single-side and double-side dynamic balance correction on the tool holder. It can achieve the accuracy of micron-level clamping by using laser marking and automatic positioning. The minimum measuring accuracy can be 0.5mm, the calculation is accurate, and the operation is easy and quick.



# Cylinder H



# ead



Cylinder Head

Gear-box

Oil Pan

Steering Gear

Brake Caliper

Throttle Valve

Scroll Plate

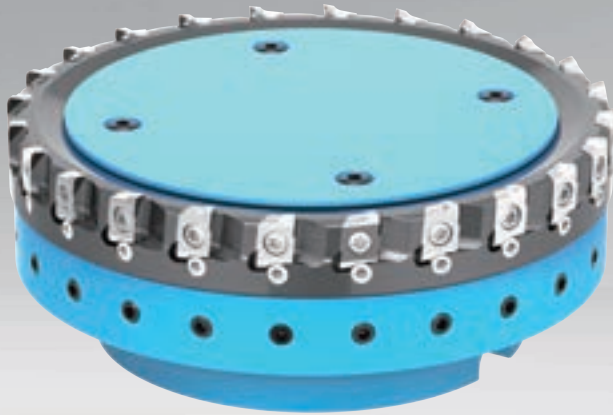
Aluminium Products

Standard/Customized



# Face Milling Cutter

$n=12000\text{r/min}$   
 $fz=0.05\text{mm/z}$



# Step Drilling Reamer

$n=4000\text{r/min}$   
 $fz=0.04\text{mm/z}$



# Step Reamer

$n=5500\text{r/min}$   
 $fz=0.05\text{mm/z}$



# Side and face milling

$n=6000\text{r/min}$   
 $fz=0.03\text{mm/z}$



# End milling reamer

$n=4000\text{r/min}$   
 $fz=0.03\text{mm/z}$



# Step Reamer

$n=3500\text{r/min}$   
 $fz=0.02\text{mm/z}$



# Gear-box Oil Pan

Cylinder Head

Gear-box

Oil Pan

Steering Gear

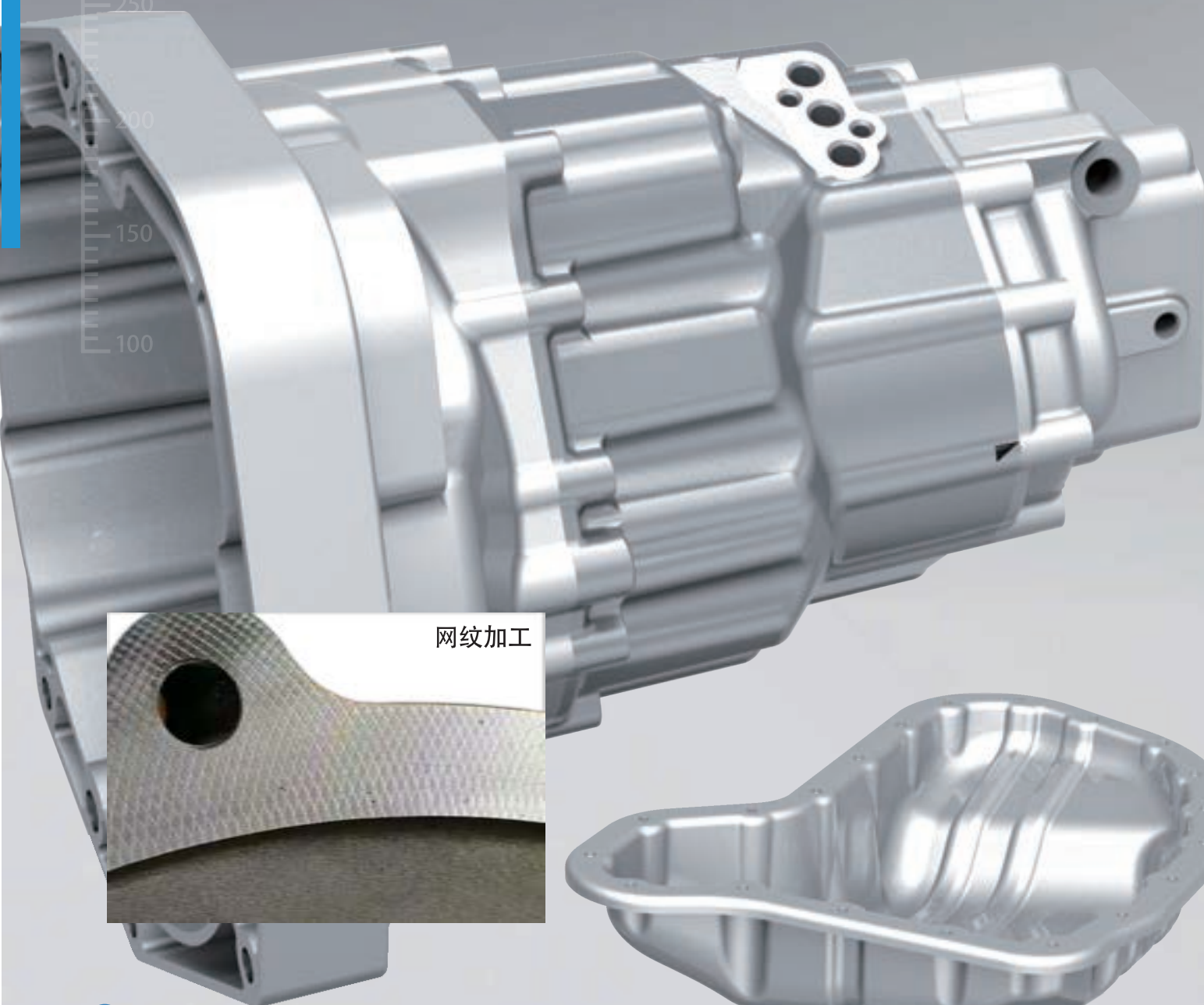
Brake Caliper

Throttle Valve

Scroll Plate

Aluminium Products

Standard/Customized



网纹加工



# Face Milling Cutter

$n=6000\text{r/min}$   
 $fz=0.03\text{mm/z}$



# Shell milling reamers

$n=3500\text{r/min}$   
 $fz=0.02\text{mm/z}$



# Step reamer

$n=12000\text{r/min}$   
 $fz=0.05\text{mm/z}$



# Step reamer

$n=4000\text{r/min}$   
 $fz=0.04\text{mm/z}$



# Multi-Edge End Mill

$n=5500\text{r/min}$   
 $fz=0.05\text{mm/z}$



# Steering Gear





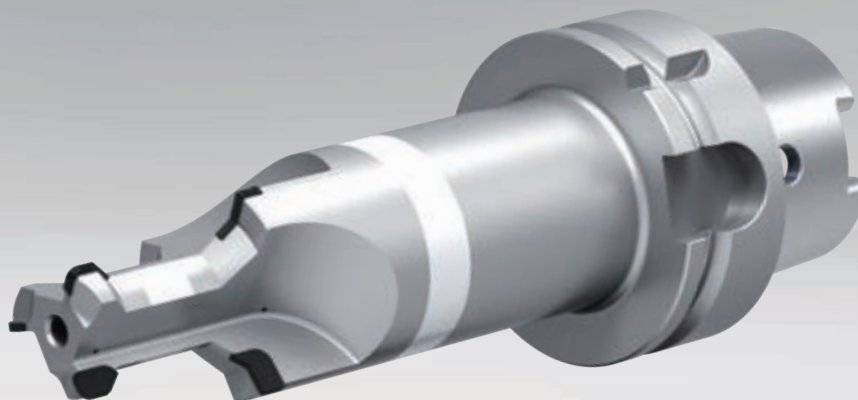
# Step Drilling Reamer

$n=4500\text{r/min}$   
 $fz=0.03\text{mm/z}$



# Reverse chamfering milling cutter

$n=3500\text{r/min}$   
 $fz=0.06\text{mm/z}$



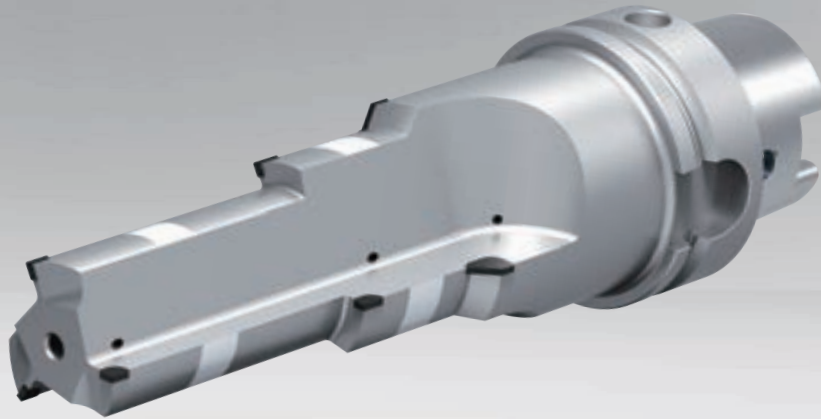
# One step reamer

$n=3500\text{r/min}$   
 $fz=0.1\text{mm/z}$



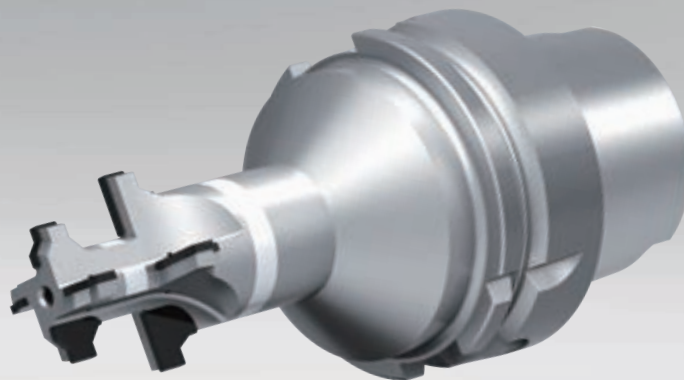
# Multi step reamer

$n=4000\text{r/min}$   
 $fz=0.08\text{mm/z}$



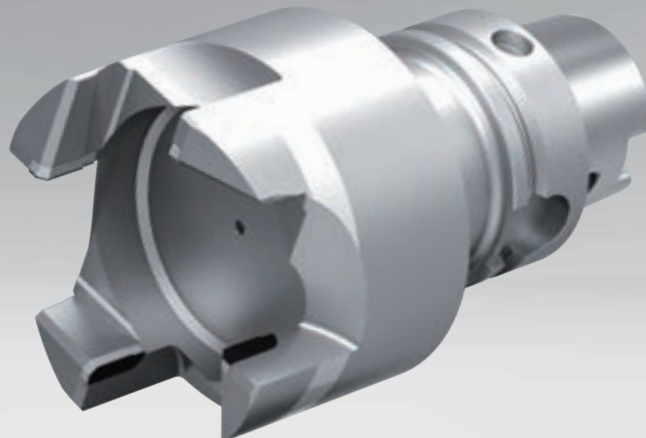
# Multi step grooving milling cutter

$n=3500\text{r/min}$   
 $fz=0.03\text{mm/z}$

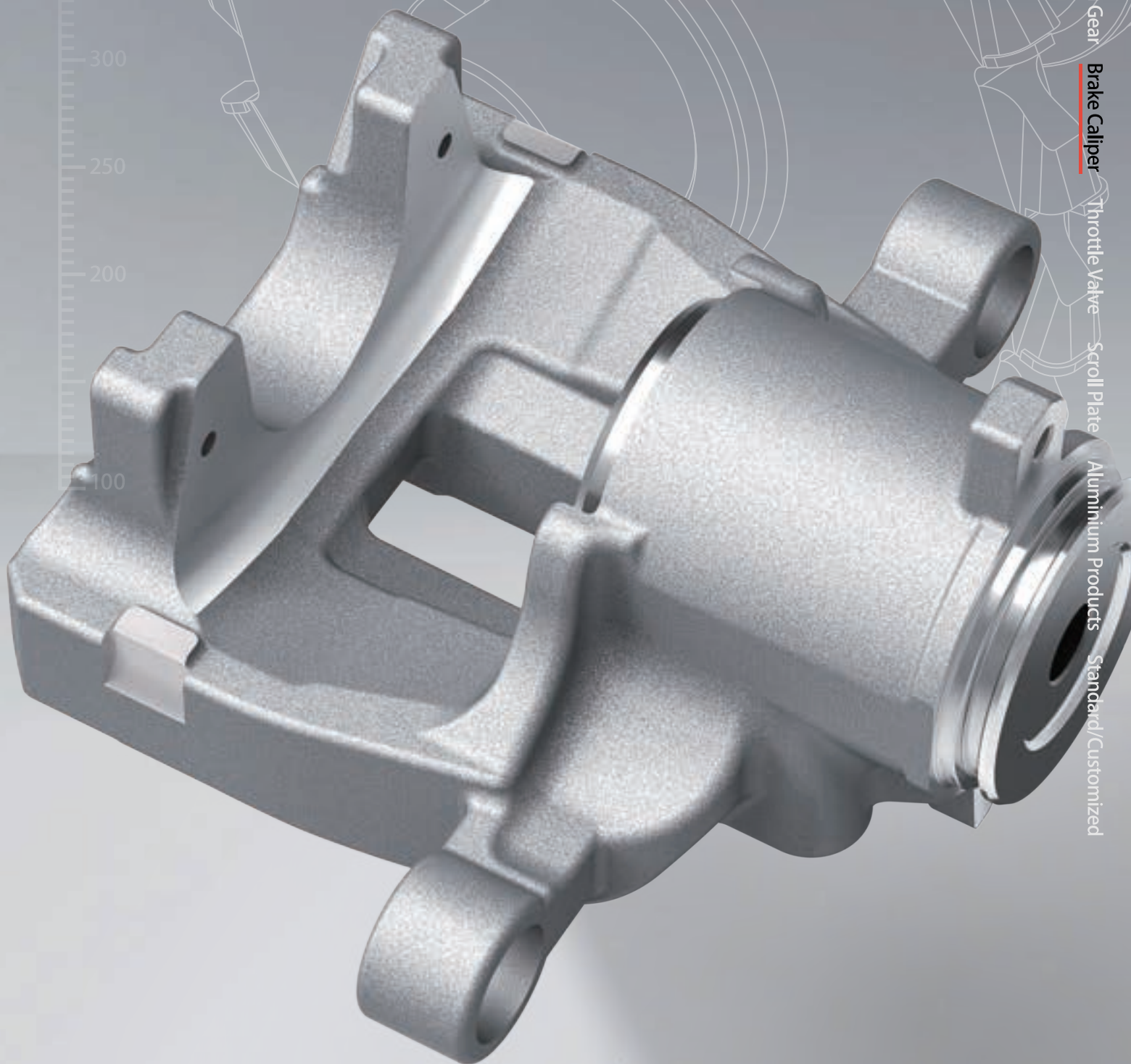


# Shell Milling Cutter

$n=3500\text{r/min}$   
 $fz=0.055\text{mm/z}$



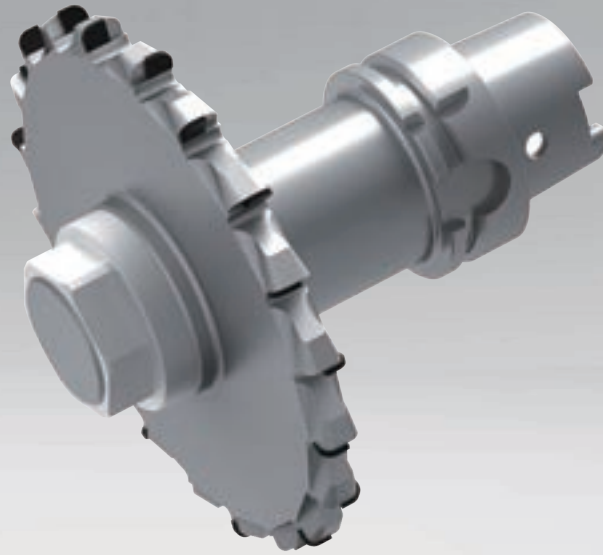
# Brake Caliper



Cylinder Head Gear-box Oil Pan Steering Gear Brake Caliper Throttle Valve Scroll Plate Aluminium Products Standard/Customized

# Side and face milling cutter

$n=4500\text{r/min}$   
 $fz=0.035\text{mm/z}$



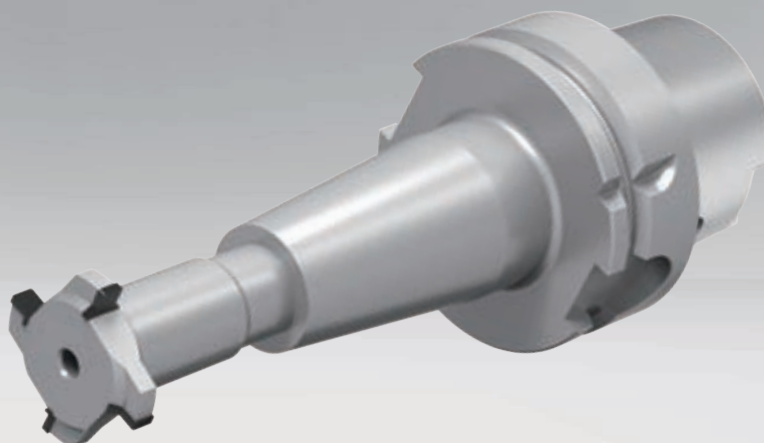
# Shell milling grooving cutter

$n=6000\text{r/min}$   
 $fz=0.05\text{mm/z}$



# Grooving cutter

$n=6500\text{r/min}$   
 $fz=0.045\text{mm/z}$



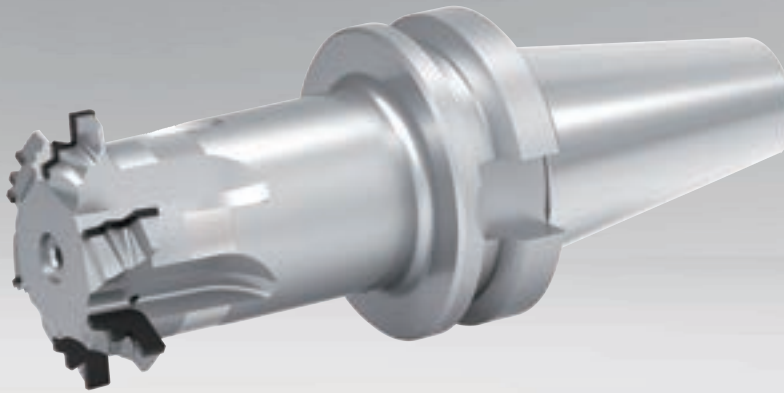


# Throttle Valve



# Profiling milling cutter

$n=3500\text{r/min}$   
 $fz=0.045\text{mm/z}$



# Side milling cutter

$n=4000\text{r/min}$   
 $fz=0.055\text{mm/z}$



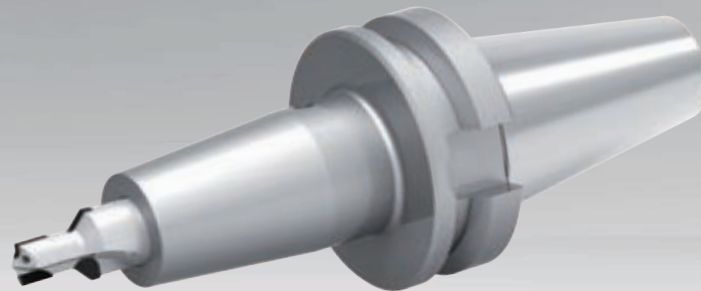
# Step Reamer

$n=4200\text{r/min}$   
 $fz=0.015\text{mm/z}$



# Step Drilling Reamer

$n=3600\text{r/min}$   
 $fz=0.015\text{mm/z}$



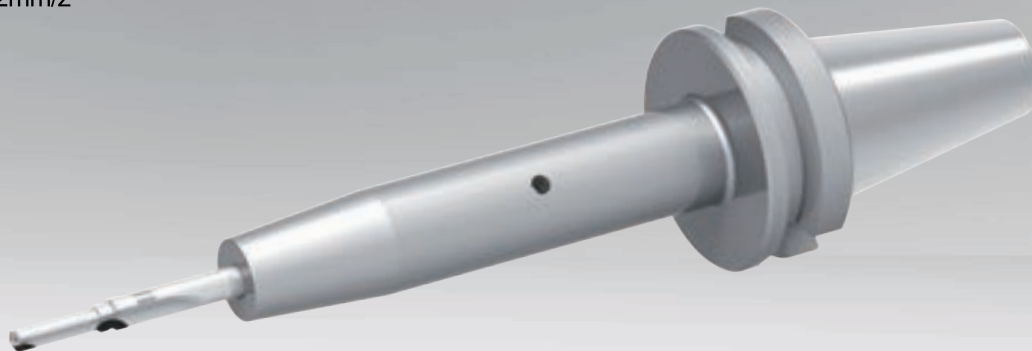
# Step Drilling Reamer

$n=3750\text{r/min}$   
 $fz=0.025\text{mm/z}$



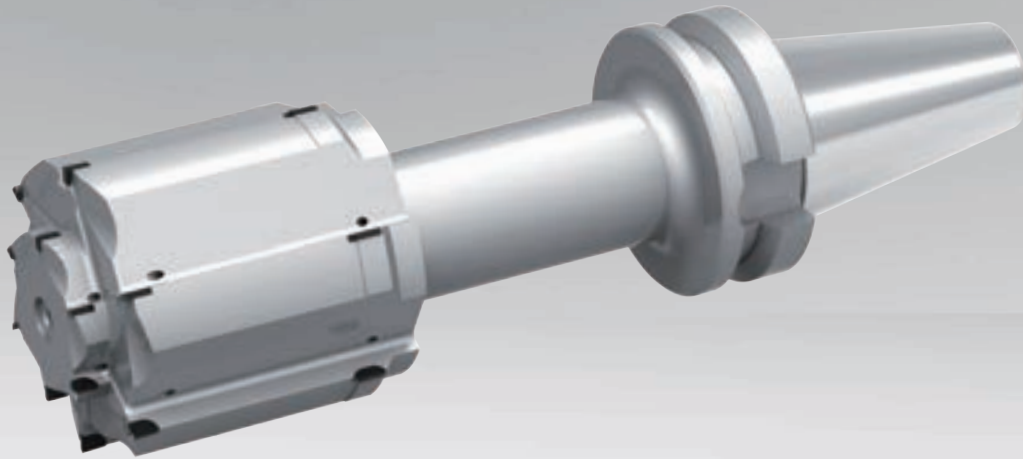
# Deep-hole drilling reamer

$n=3500\text{r/min}$   
 $fz=0.012\text{mm/z}$



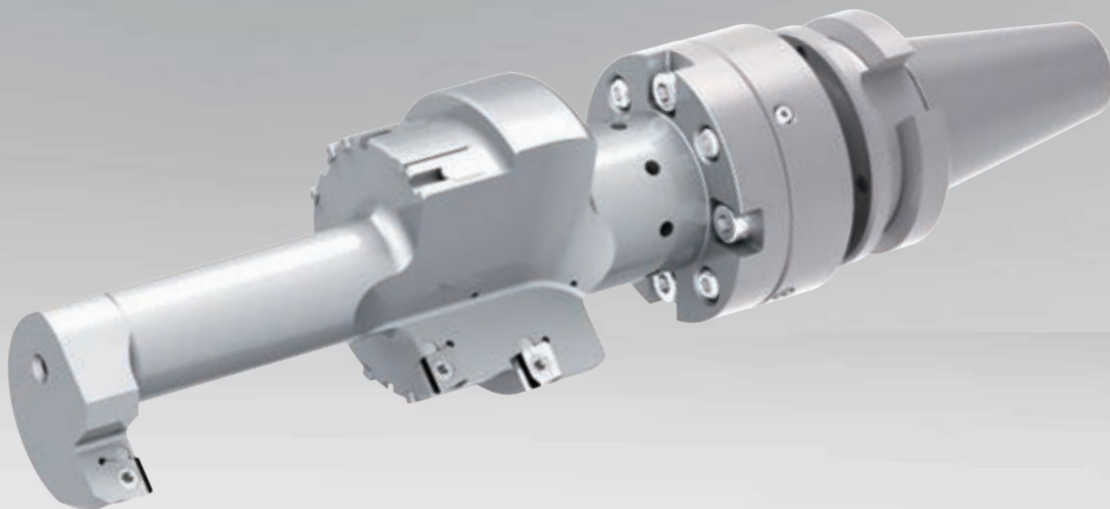
# Dense-tooth multi step reamer

$n=8000\text{r/min}$   
 $fz=0.05\text{mm/z}$



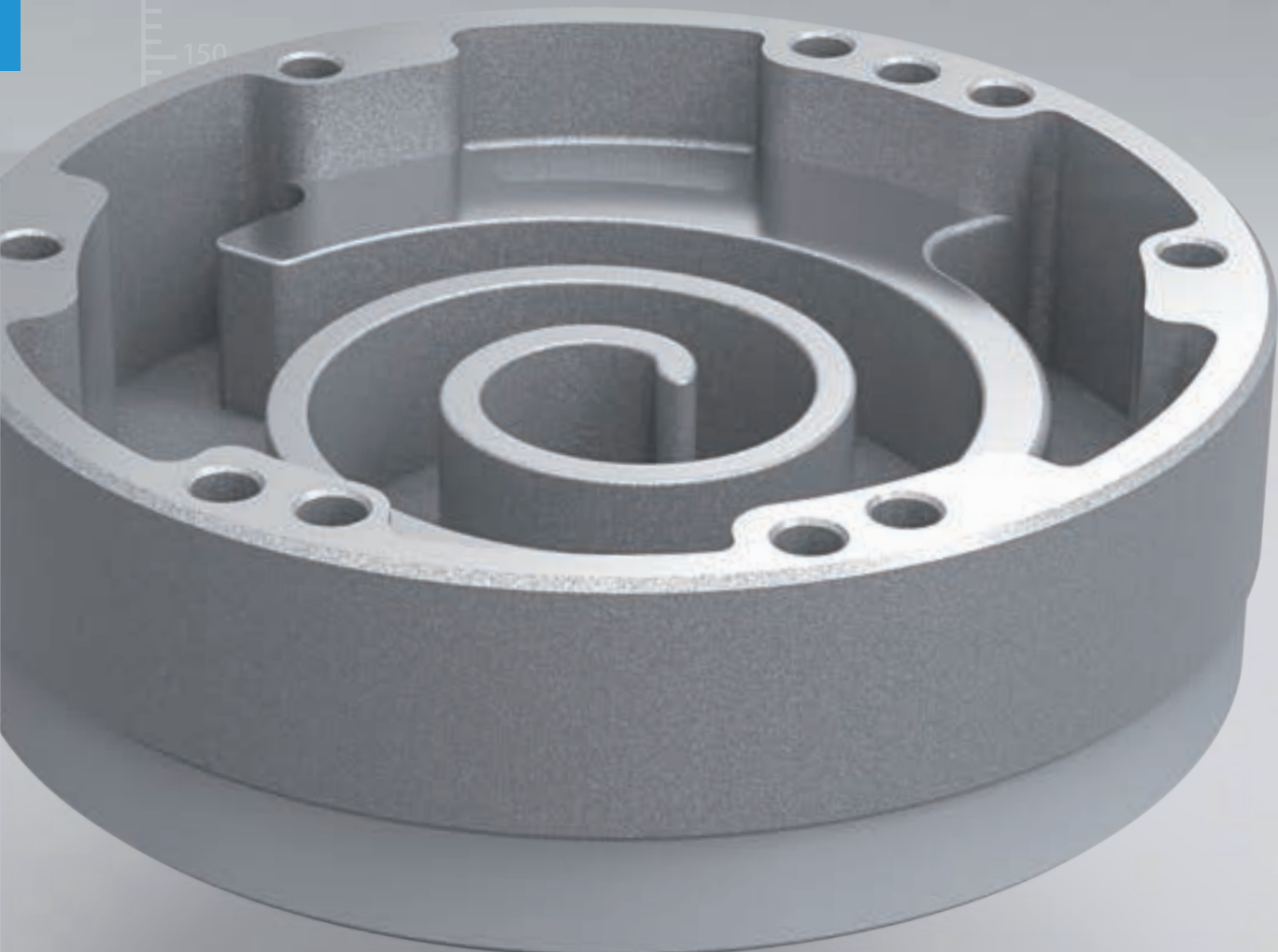
# Adjustable precision boring cutter

$n=5500\text{r/min}$   
 $fz=0.05\text{mm/z}$



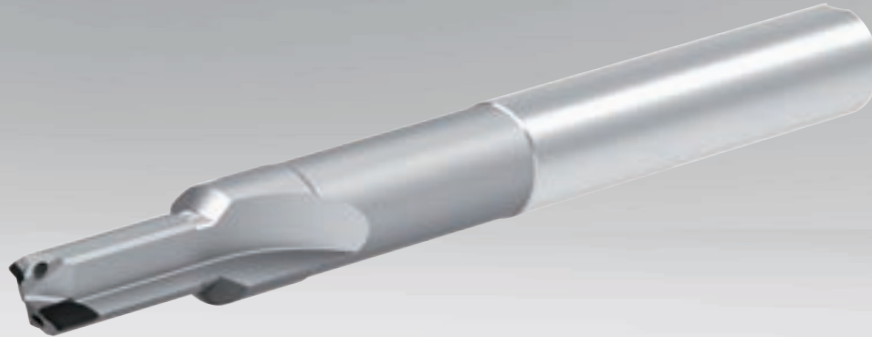


# Scroll Plate



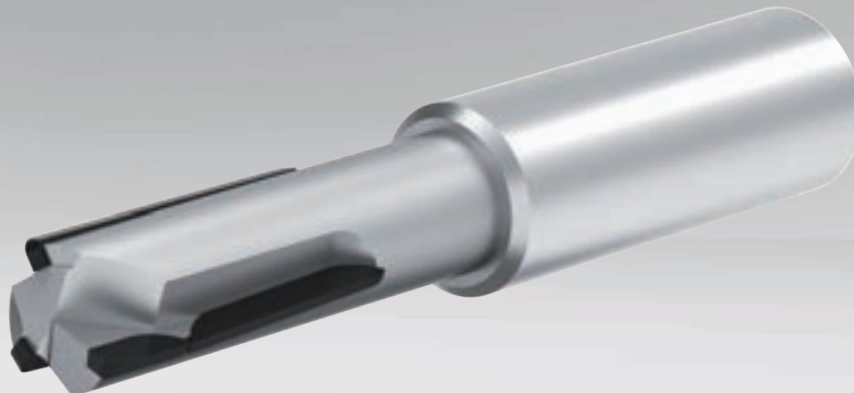
# Drilling Reamer

$n=4500\text{r/min}$   
 $fz=0.05\text{mm/z}$



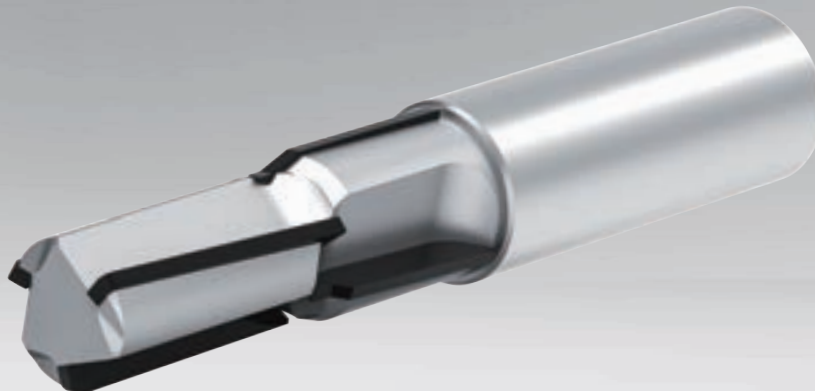
# Side milling cutter

$n=39800\text{r/min}$   
 $fz=0.10\text{mm/z}$

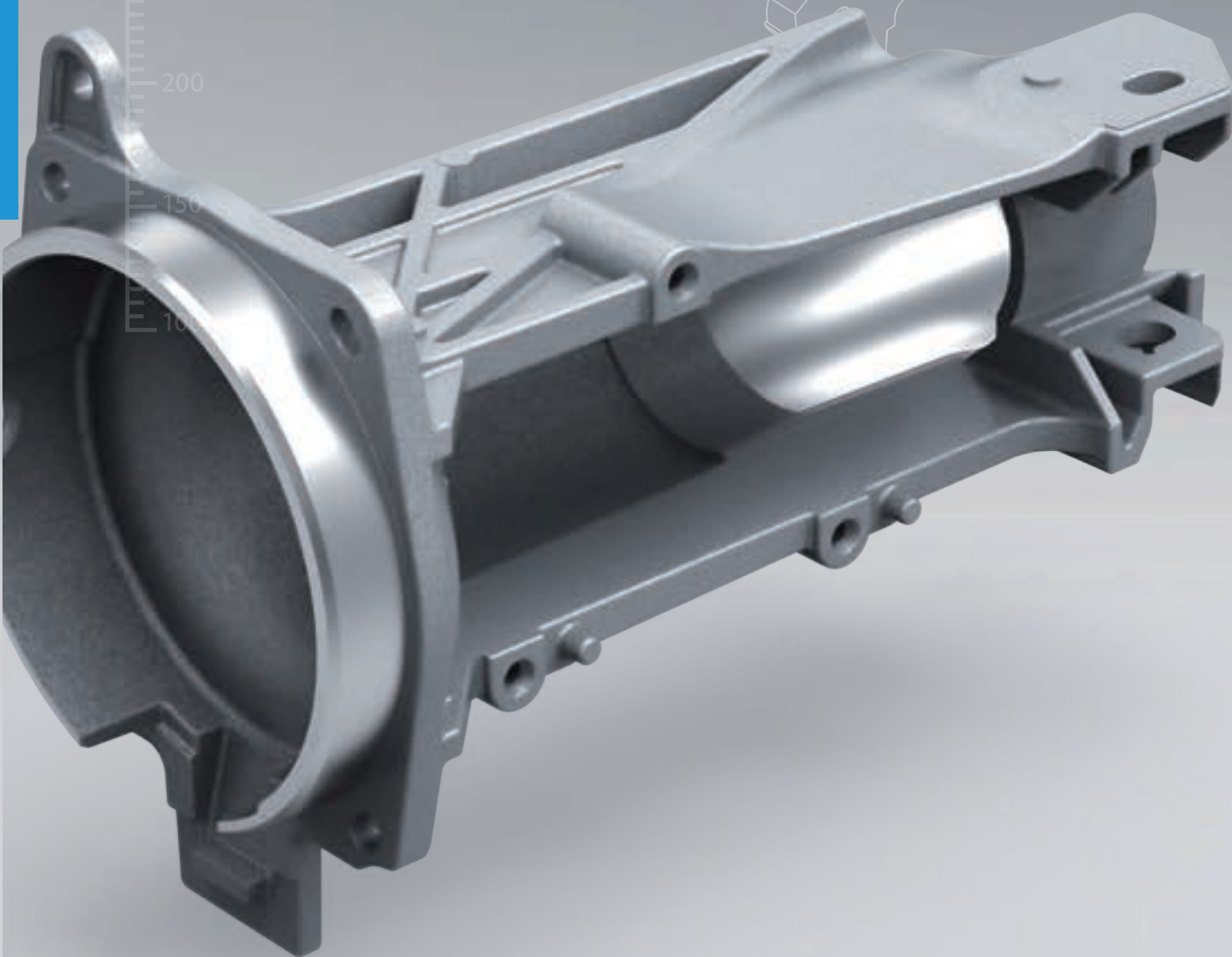


# Helical milling cutter

$n=39800\text{r/min}$   
 $fz=0.05\text{mm/z}$

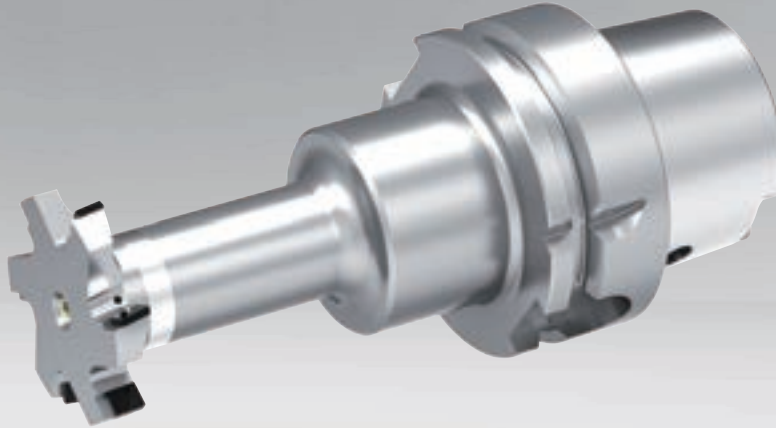


# Aluminium Products



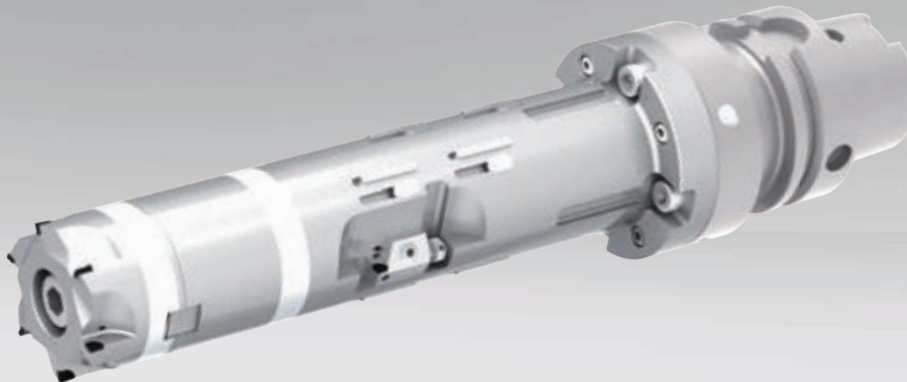
# Reverse milling cutter

$n=8000\text{r/min}$   
 $fz=0.05\text{mm/z}$



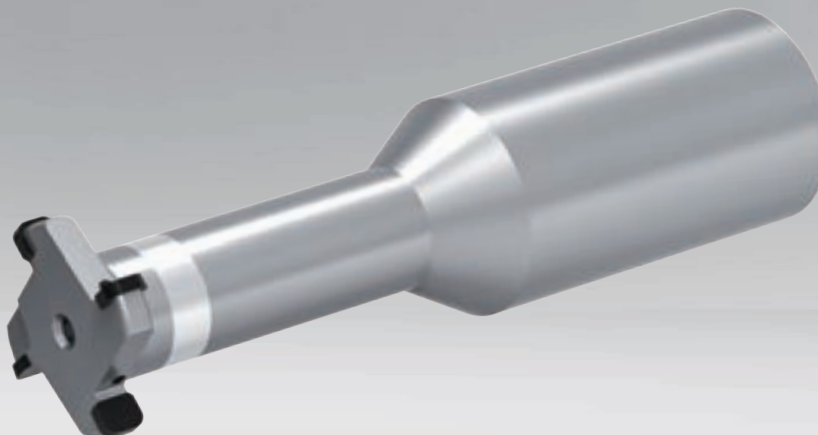
# Adjustable precision boring cutter

$n=8000\text{r/min}$   
 $fz=0.035\text{mm/z}$



# Side and face milling cutter

$n=8000\text{r/min}$   
 $fz=0.065\text{mm/z}$

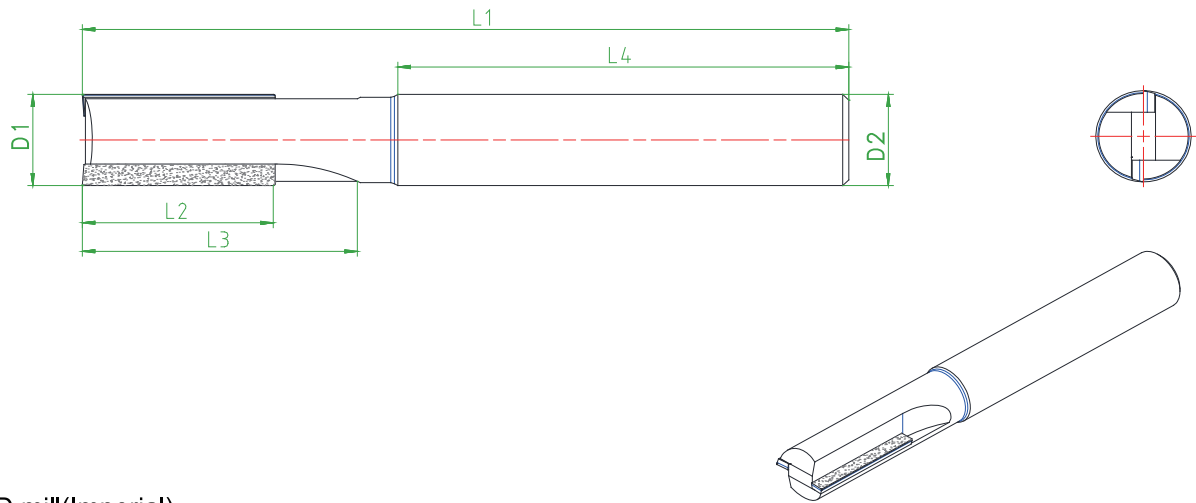




# Standard & Customized

Cylinder Head Gear-box Oil Pan Steering Gear Brake Caliper Throttle Valve Scroll Plate Aluminium Products

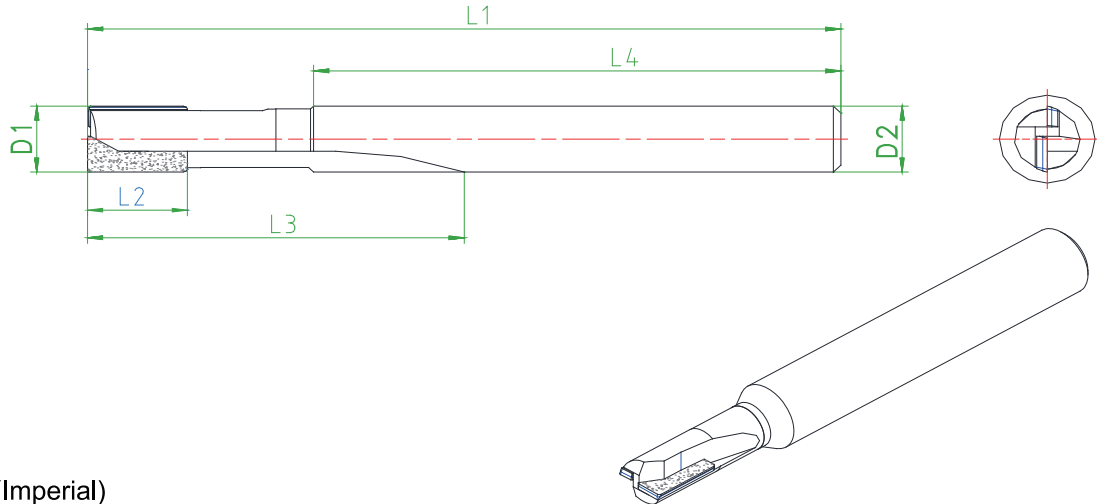
Standard/Customized



### PCD mill(Imperial)

| Type           | Specification               | Diameter of Cutting edge (D1) | Diameter of Shank (D2) | Total Length (L1) | Tip Length (L2) | Flute Length (L3) | Shank Length (L4) | Axial angle | Tip | Material |
|----------------|-----------------------------|-------------------------------|------------------------|-------------------|-----------------|-------------------|-------------------|-------------|-----|----------|
| RE1CR0000-122R | D4.76*6.35*52*D4.76*35      | 4.76                          | 4.76                   | 52                | 6.35            | 25                | 35                | 0°          | 2   | PCD      |
| RE1CR0000-122R | D6.35*12.7*63.5*D6.35*37    | 6.35                          | 6.35                   | 63.5              | 12.7            | 20                | 37                | 0°          | 2   | PCD      |
| RE1CR0000-122R | D9.525*25.4*101.6*D9.525*61 | 9.525                         | 9.525                  | 101.6             | 19.05           | 38.1              | 61                | 0°          | 2   | PCD      |
| RE1CR0000-122R | D12.7*25.4*102*D12.7*60     | 12.7                          | 12.7                   | 102               | 25.4            | 37                | 60                | 0°          | 2   | PCD      |
| RE1CR0000-122R | D19.05*25.4*102*D19.05*61   | 19.05                         | 19.05                  | 102               | 25.4            | 38.1              | 61                | 0°          | 2   | PCD      |

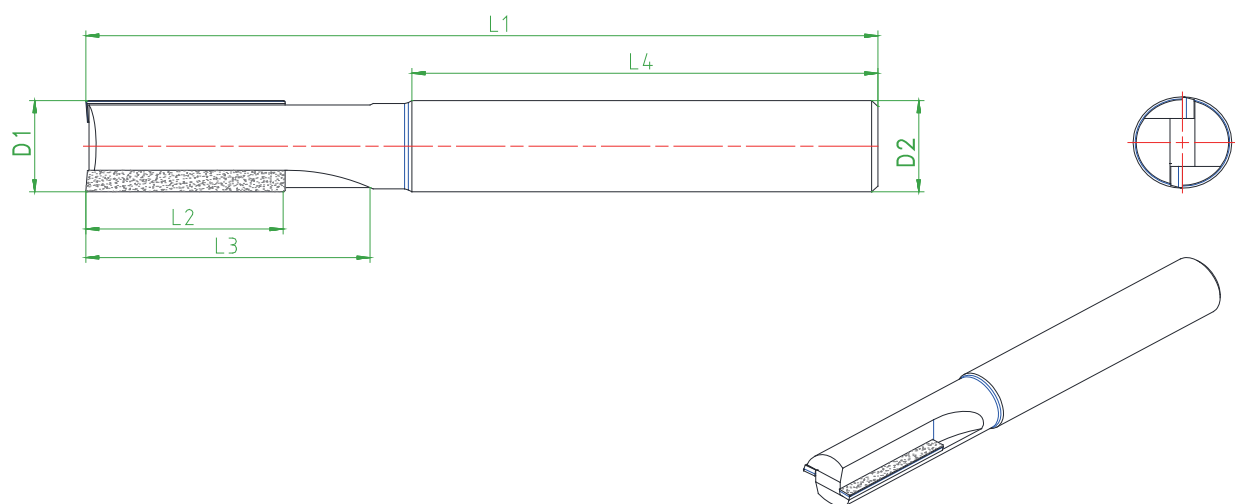
Customized size



### PCD mill(Imperial)

| Type           | Specification               | Diameter of Cutting edge (D1) | Diameter of Shank (D2) | Total Length (L1) | Tip Length (L2) | Flute Length (L3) | Shank Length (L4) | Axial angle | Tip | Material |
|----------------|-----------------------------|-------------------------------|------------------------|-------------------|-----------------|-------------------|-------------------|-------------|-----|----------|
| RE1CR00CC-122R | D4.76*6.35*52*D4.76*35      | 4.76                          | 4.76                   | 52                | 6.35            | 25                | 35                | 0°          | 2   | PCD      |
| RE1CR00CC-122R | D6.35*12.7*63.5*D6.35*37    | 6.35                          | 6.35                   | 63.5              | 12.7            | 20                | 37                | 0°          | 2   | PCD      |
| RE1CR00CC-122R | D9.525*25.4*101.6*D9.525*61 | 9.525                         | 9.525                  | 101.6             | 19.05           | 38.1              | 61                | 0°          | 2   | PCD      |
| RE1CR00CC-122R | D12.7*25.4*102*D12.7*60     | 12.7                          | 12.7                   | 102               | 25.4            | 37                | 60                | 0°          | 2   | PCD      |
| RE1CR00CC-122R | D19.05*25.4*102*D19.05*61   | 19.05                         | 19.05                  | 102               | 25.4            | 38.1              | 61                | 0°          | 2   | PCD      |

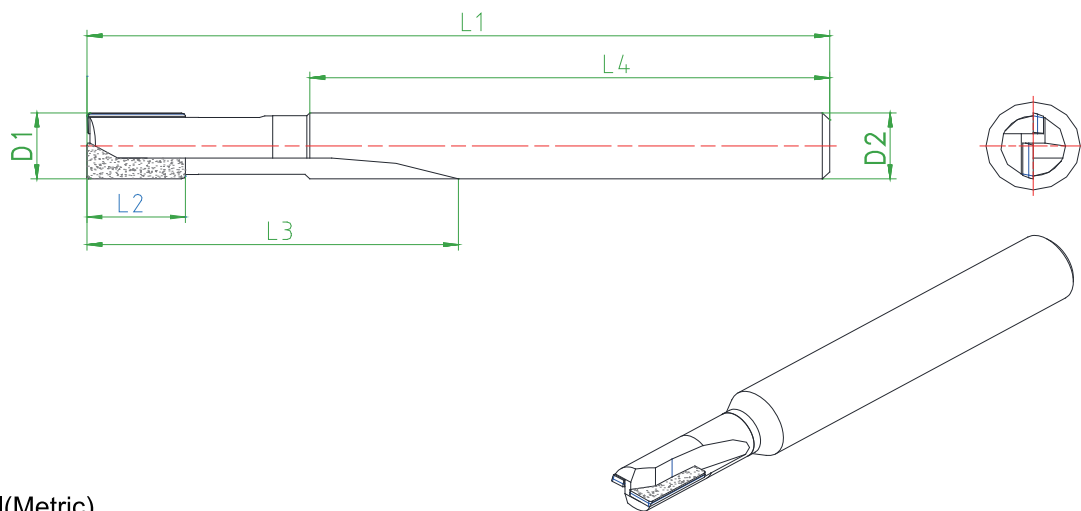
Customized size



### PCD mill(Metric)

| Type           | Specification     | Diameter of Cutting edge (D1) | Diameter of Shank (D2) | Total Length (L1) | Tip Length (L2) | Flute Length (L3) | Shank Length (L4) | Axial angle | Tip | Material |
|----------------|-------------------|-------------------------------|------------------------|-------------------|-----------------|-------------------|-------------------|-------------|-----|----------|
| RE1CR0000-122R | D6*6*50*D6*30     | 6                             | 6                      | 50                | 4/11            | 20                | 30                | 0°          | 2   | PCD      |
| RE1CR0000-122R | D8*8*60*D8*30     | 8                             | 8                      | 60                | 4/11            | 30                | 30                | 0°          | 2   | PCD      |
| RE1CR0000-122R | D10*10*80*D10*45  | 10                            | 10                     | 80                | 4/11            | 30                | 45                | 0°          | 2   | PCD      |
| RE1CR0000-122R | D12*12*100*D12*45 | 12                            | 12                     | 100               | 4/11            | 40                | 45                | 0°          | 2   | PCD      |
| RE1CR0000-122R | D16*15*120*D16*55 | 16                            | 16                     | 120               | 4/11            | 50                | 55                | 0°          | 2   | PCD      |

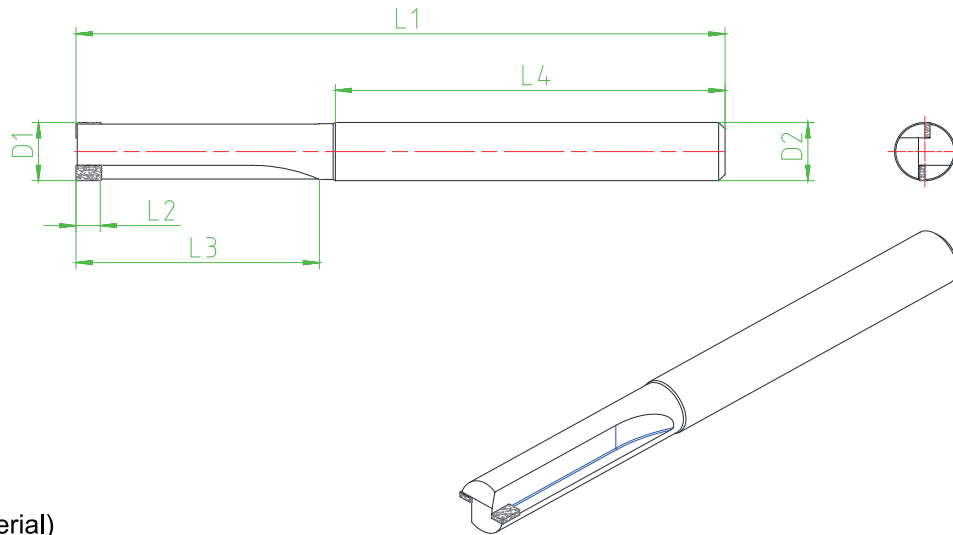
Customized size



### PCD mill(Metric)

| Type           | Specification     | Diameter of Cutting edge (D1) | Diameter of Shank (D2) | Total Length (L1) | Tip Length (L2) | Flute Length (L3) | Shank Length (L4) | Axial angle | Tip | Material |
|----------------|-------------------|-------------------------------|------------------------|-------------------|-----------------|-------------------|-------------------|-------------|-----|----------|
| RE1CR00CC-122R | D6*6*50*D6*30     | 6                             | 6                      | 50                | 4/11            | 20                | 30                | 0°          | 2   | PCD      |
| RE1CR00CC-122R | D8*8*60*D8*30     | 8                             | 8                      | 60                | 4/11            | 30                | 30                | 0°          | 2   | PCD      |
| RE1CR00CC-122R | D10*10*80*D10*45  | 10                            | 10                     | 80                | 4/11            | 30                | 45                | 0°          | 2   | PCD      |
| RE1CR00CC-122R | D12*12*100*D12*45 | 12                            | 12                     | 100               | 4/11            | 40                | 45                | 0°          | 2   | PCD      |
| RE1CR00CC-122R | D16*15*120*D16*55 | 16                            | 16                     | 120               | 4/11            | 50                | 55                | 0°          | 2   | PCD      |

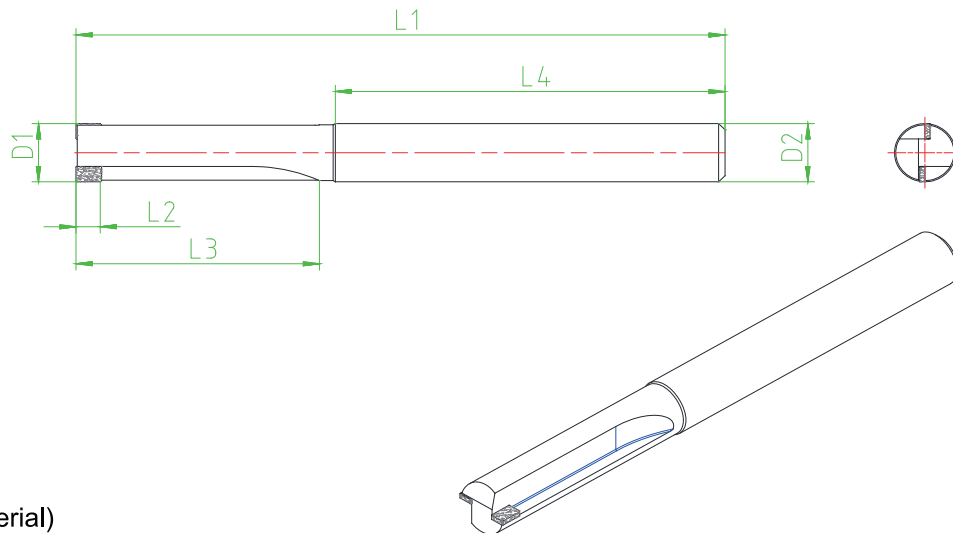
Customized size



### CVDD mill(Imperial)

| Type           | Specification            | Diameter of Cutting edge (D1) | Diameter of Shank (D2) | Total Length (L1) | Tip Length (L2) | Flute Length (L3) | Shank Length (L4) | Axial angle | Tip | Material |
|----------------|--------------------------|-------------------------------|------------------------|-------------------|-----------------|-------------------|-------------------|-------------|-----|----------|
| RE1CR0000-122R | D4.76*6*52*D4.76*35      | 4.76                          | 4.76                   | 52                | 4               | 25                | 35                | 0°          | 2   | CVDD     |
| RE1CR0000-122R | D6.35*6*63.5*D6.35*37    | 6.35                          | 6.35                   | 63.5              | 4               | 20                | 37                | 0°          | 2   | CVDD     |
| RE1CR0000-122R | D9.525*6*101.6*D9.525*61 | 9.525                         | 9.525                  | 101.6             | 4               | 38.1              | 61                | 0°          | 2   | CVDD     |
| RE1CR0000-122R | D12.7*8*102*D12.7*60     | 12.7                          | 12.7                   | 102               | 4               | 37                | 60                | 0°          | 2   | CVDD     |
| RE1CR0000-122R | D19.05*8*102*D19.05*61   | 19.05                         | 19.05                  | 102               | 4               | 38.1              | 61                | 0°          | 2   | CVDD     |

Customized size

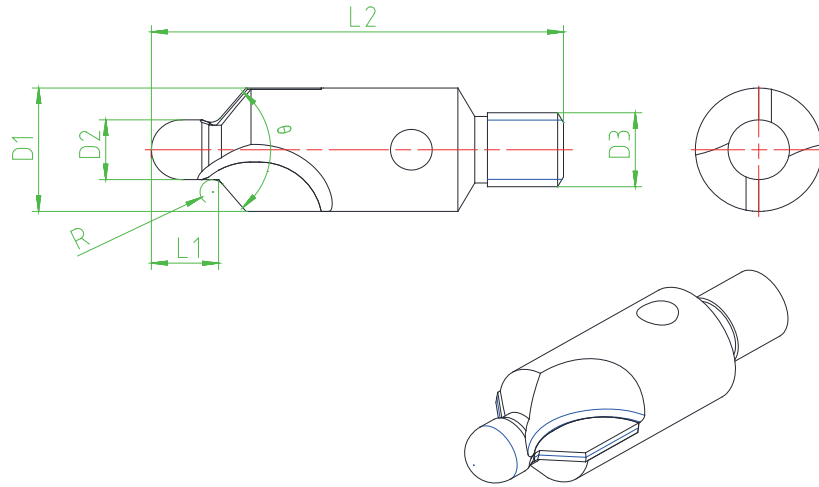


### CVDD mill(Imperial)

| Type           | Specification    | Diameter of Cutting edge (D1) | Diameter of Shank (D2) | Total Length (L1) | Tip Length (L2) | Flute Length (L3) | Shank Length (L4) | Axial angle | Tip | Material |
|----------------|------------------|-------------------------------|------------------------|-------------------|-----------------|-------------------|-------------------|-------------|-----|----------|
| RE1CR0000-122R | D6*6*50*D6*30    | 6                             | 6                      | 50                | 4               | 20                | 30                | 0°          | 2   | CVDD     |
| RE1CR0000-122R | D8*6*60*D8*30    | 8                             | 8                      | 60                | 4               | 30                | 30                | 0°          | 2   | CVDD     |
| RE1CR0000-122R | D10*6*80*D10*45  | 10                            | 10                     | 80                | 4               | 30                | 45                | 0°          | 2   | CVDD     |
| RE1CR0000-122R | D12*8*100*D12*45 | 12                            | 12                     | 100               | 4               | 40                | 45                | 0°          | 2   | CVDD     |
| RE1CR0000-122R | D16*8*120*D16*55 | 16                            | 16                     | 120               | 4               | 50                | 55                | 0°          | 2   | CVDD     |

Customized size

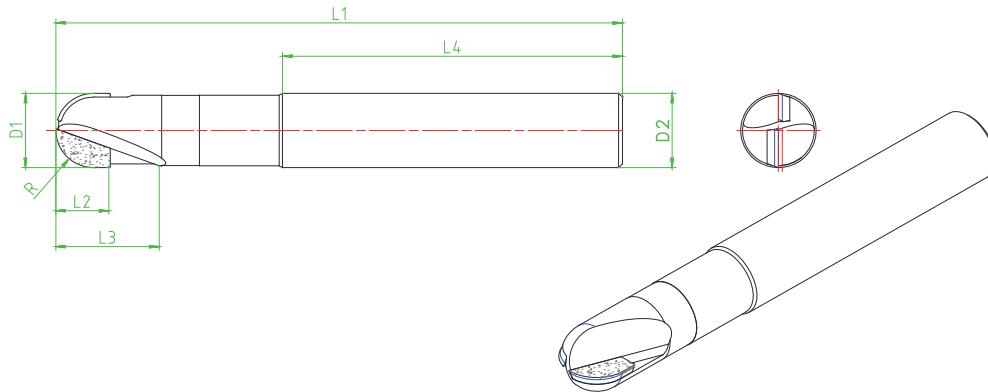




### PCD chamfer tool(Imperial)

| Type           | Specification                  | Diameter of Cutting edge (D1) | Diameter of Shank (D2) | Joint thread (D3) | L1    | L2   | Radius | Degree | Tip | Material |
|----------------|--------------------------------|-------------------------------|------------------------|-------------------|-------|------|--------|--------|-----|----------|
| RP1TRRSPC-122R | D5.1*25.4*D12.7-A100*32.5      | 12.7                          | 5.1                    | 1/4--28           | 25.4  | 38.1 | 1      | 100    | 2   | PCD      |
| RP1TRRSPC-122R | D5.05*7.62*D9.525-A130*25.4    | 9.525                         | 5.05                   | 1/4--28           | 7.62  | 25.4 | 1      | 130    | 2   | PCD      |
| RP1TRRSPC-122R | D4.165*7.62*D9.525-A130*25.4   | 9.525                         | 4.165                  | 1/4--28           | 7.62  | 25.4 | 0.762  | 130    | 2   | PCD      |
| RP1TRRSPC-122R | D7.899*15.24*D15.875-A100*38.1 | 15.875                        | 7.899                  | 1/4--28           | 15.24 | 38.1 | 1.27   | 100    | 2   | PCD      |
| RP1TRRSPC-122R | D6.578*7.62*D13.97-A130*25.4   | 13.97                         | 6.578                  | 1/4--28           | 7.62  | 25.4 | 1      | 130    | 2   | PCD      |
| RP1TRRSPC-133R | D9.525*7.62*D22.225-A130*38.1  | 22.225                        | 9.525                  | 3/8--24           | 7.62  | 38.1 | 1      | 130    | 2   | PCD      |
| RP1TRRSPC-133R | D7.925*7.62*D22.225-A100*38.1  | 22.225                        | 7.925                  | 3/8--24           | 7.62  | 38.1 | 1      | 100    | 2   | PCD      |

#### Customized size



### PCD ball nose mill(Imperial)

| Type           | Specification            | Diameter of Cutting edge (D1) | Diameter of Shank (D2) | Total Length (L1) | Cutting edge Length (L2) | Flute Length (L3) | Shank Length (L4) | Axial angle | Tip | Material |
|----------------|--------------------------|-------------------------------|------------------------|-------------------|--------------------------|-------------------|-------------------|-------------|-----|----------|
| RE1CR00CC-122R | D4.76*6.35*50*D6.35*30   | 4.76                          | 4.76                   | 52                | 6.35                     | 15                | 30                | 0°          | 2   | PCD      |
| RE1CR00CC-122R | D6.35*9.525*60*D6.35*35  | 6.35                          | 6.35                   | 63.5              | 9.525                    | 20                | 35                | 0°          | 2   | PCD      |
| RE1CR00CC-122R | D9.525*12.7*70*D9.525*40 | 9.525                         | 9.525                  | 101.6             | 12.7                     | 25                | 40                | 0°          | 2   | PCD      |
| RE1CR00CC-122R | D12.7*14.7*80*D12.7*45   | 12.7                          | 12.7                   | 102               | 14.7                     | 30                | 45                | 0°          | 2   | PCD      |
| RE1CR00CC-122R | D19.05*20.4*91*D19.05*45 | 19.05                         | 19.05                  | 102               | 20.4                     | 35                | 45                | 0°          | 2   | PCD      |

#### Customized size



## Business Scope:

- 1、 Design and produce PCD/PCBN reamers, milling cutters and other non-standard tools according to customer drawing requirements;
  - 2、 According to customer requirements, provide design, produce and technical services for complete tools solution;
  - 3、 Supply customer optimize existing tools solution service in order to increase tool life and reduce production cost;
  - 4、 Supply PCD/PCBN non-standard tools resharping and retipping service.
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## Customer Service

### Pre-sales service

Provide pre-sales services for non-standard tools, conduct technical investigations on the working conditions like workpiece materials, fixtures, production cycles, machine parameters and other processing parameters at the customer site, and provide feasible solutions for the optimization and upgrading of existing products.

### After-sales Service

Provide after-sales technical services for non-standard tool and technical tracking services for the product used by customer, and meet the customer's processing requirements with higher dimensional accuracy, better processing results, longer service life and faster production cycles.



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