

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

INNOVATION TOOLS





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# Innovation tools 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:

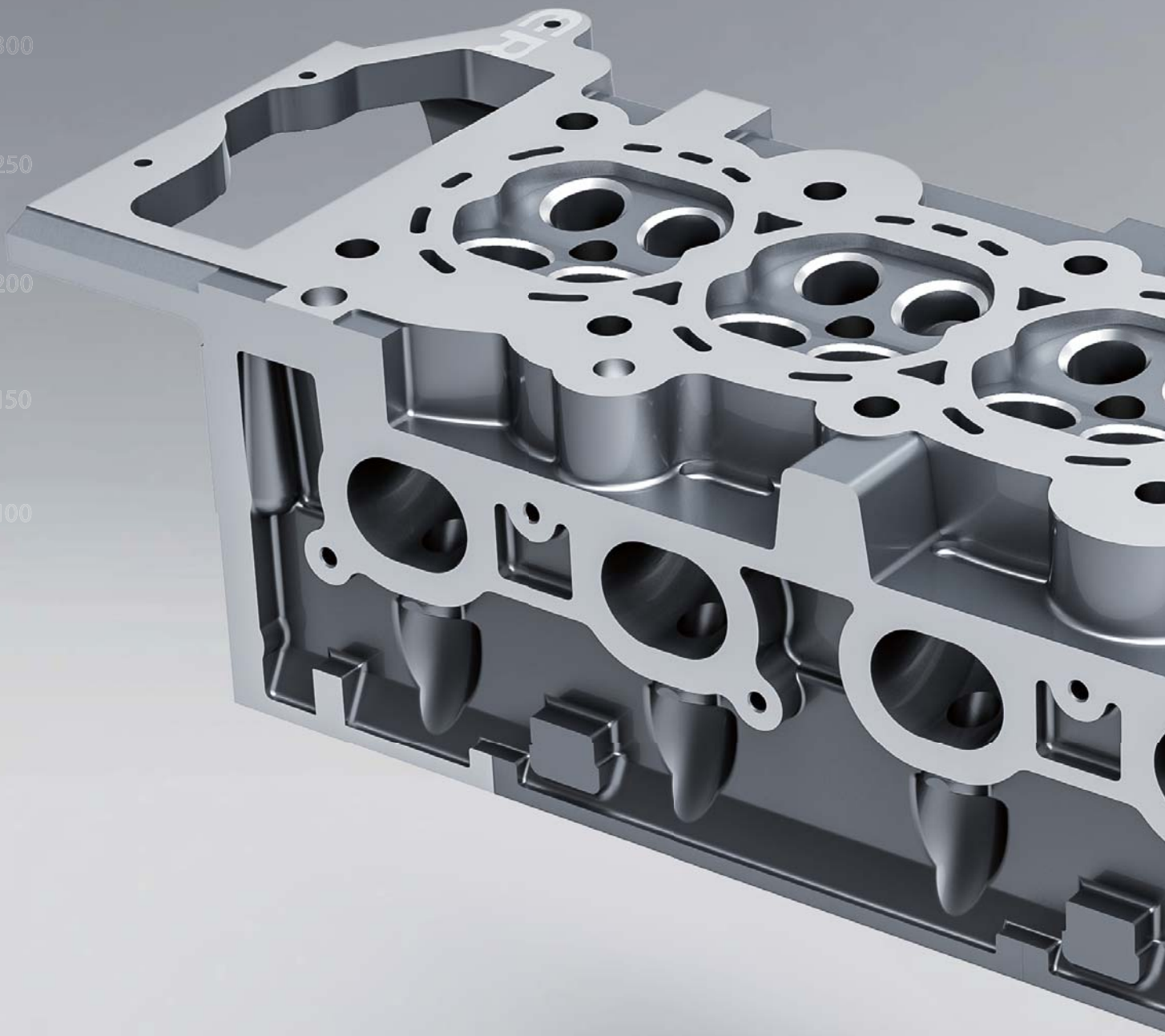
FANUC six-axis high-precision WEDM mainly undertakes the machining of non-standard tools such as PCD/PCBN reamers, milling cutters, and contour cutters. With the stable performance and reliable accuracy, the machine can keep higher edge and surface quality.

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.

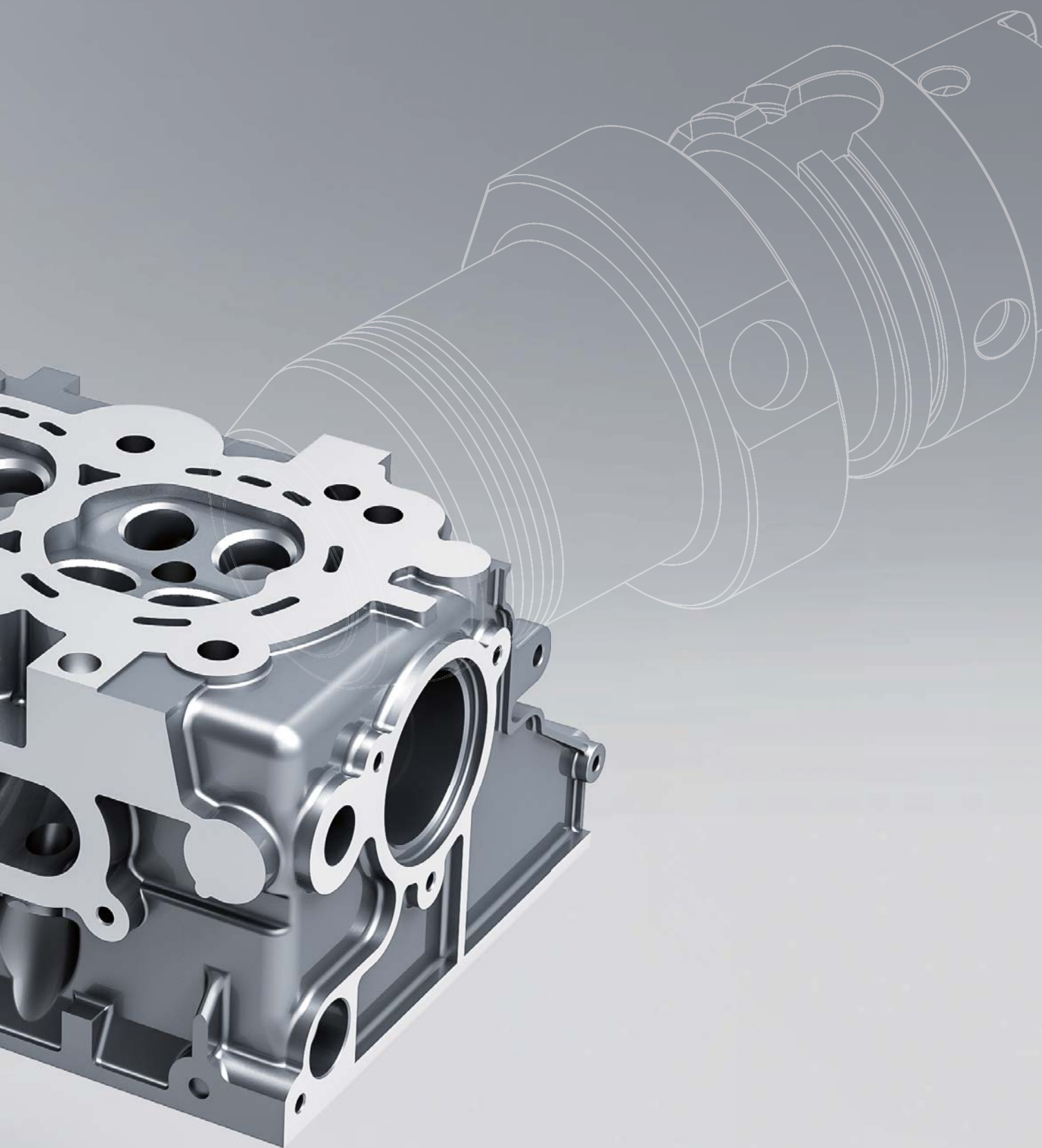
Haimer balance instrument can carry out single-side and double-side dynamic balance correction on the tool holder. It can achieve the accuracy of micron-level clamping by using laser marking and automatic positioning. The minimum measuring accuracy can be 0.5mm, the calculation is accurate, and the operation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



# Cylinder H



# ead



Cylinder Head

Gear-box

Oil Pan

Steering Gear

Brake Caliper

Throttle Valve

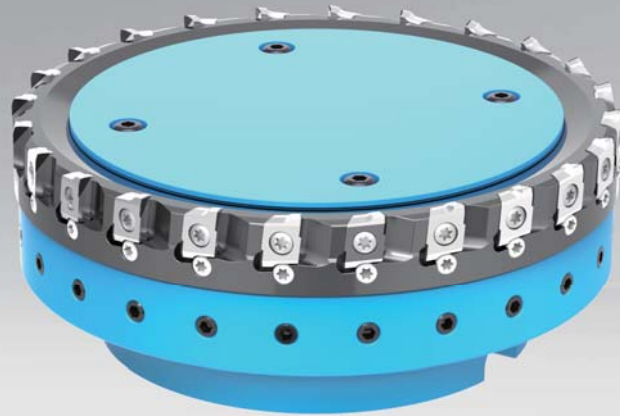
scroll Plate

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

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

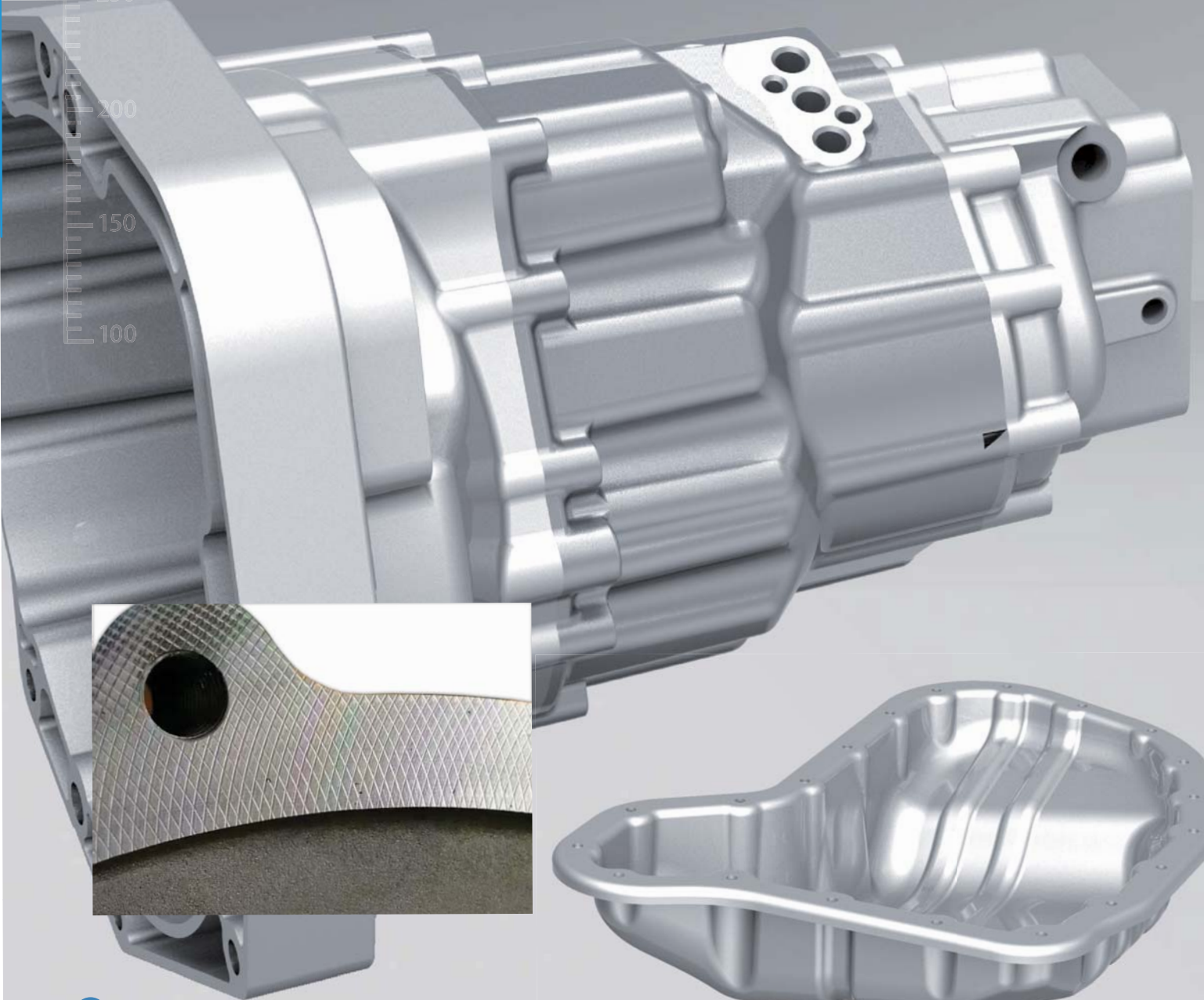


## Step Reamer

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



# Gear-box Oil Pan



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

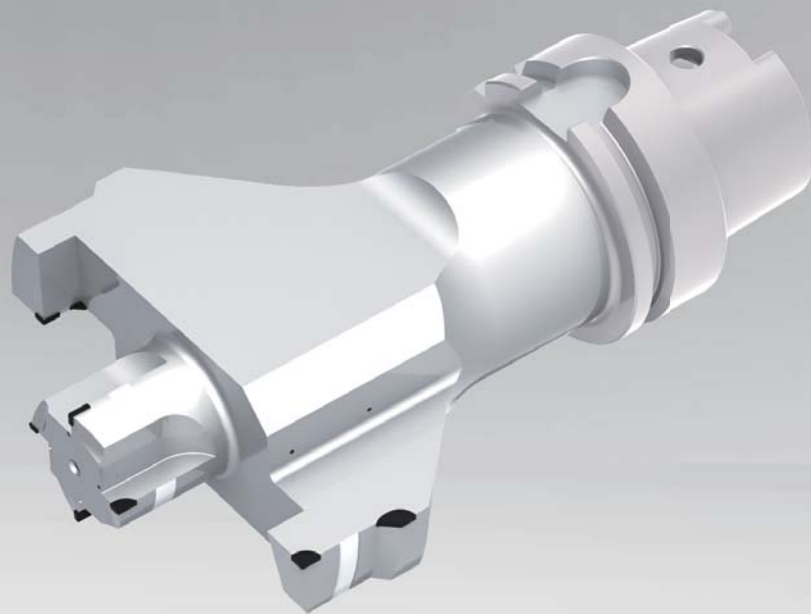
# Face Milling Cutter

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



# 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



Cylinder Head

Gear-box

Oil Pan

**Steering Gear**

Brake Caliper

Throttle Valve

Scroll Plate

Aluminium Products

standard/Customized

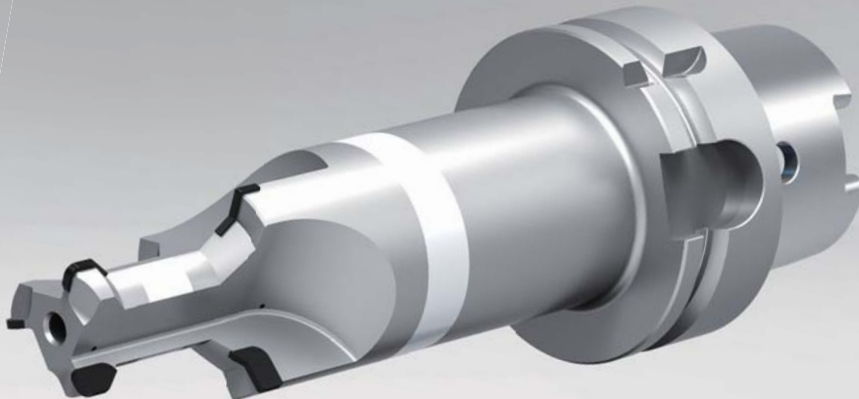
## Step Drilling Reamer

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



## Reverse chamfering milling cutter

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



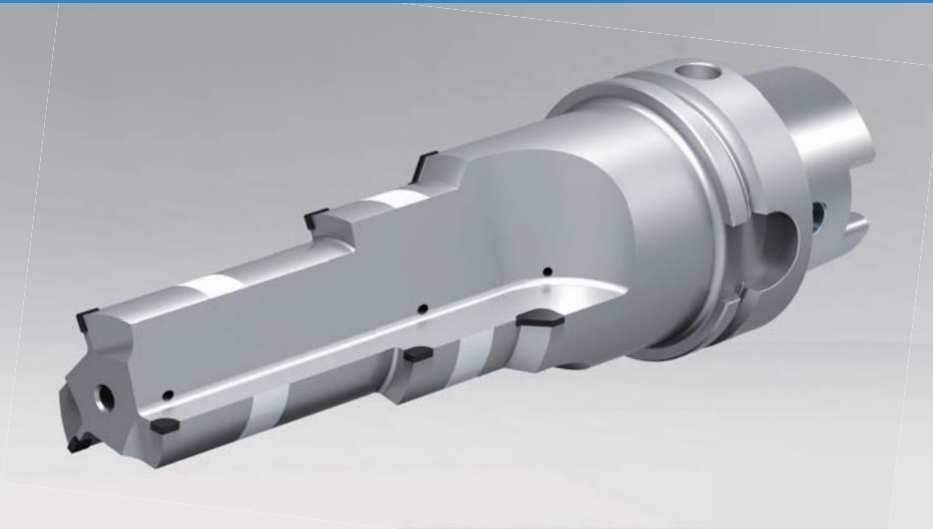
## One step reamer

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



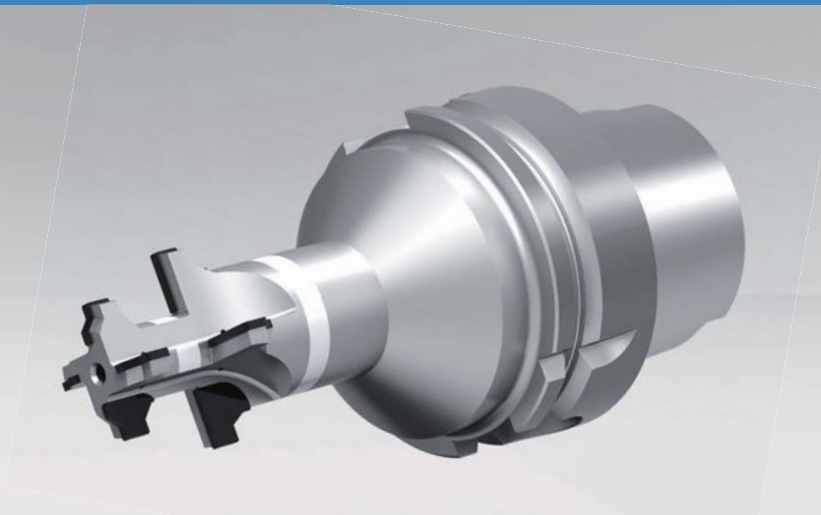
## Multi step reamer

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



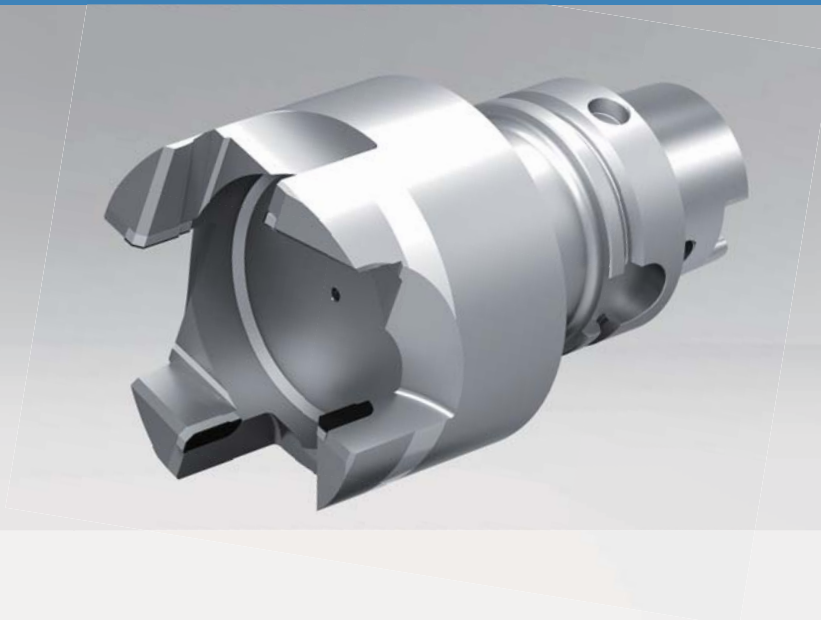
## Multi step grooving milling cutter

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

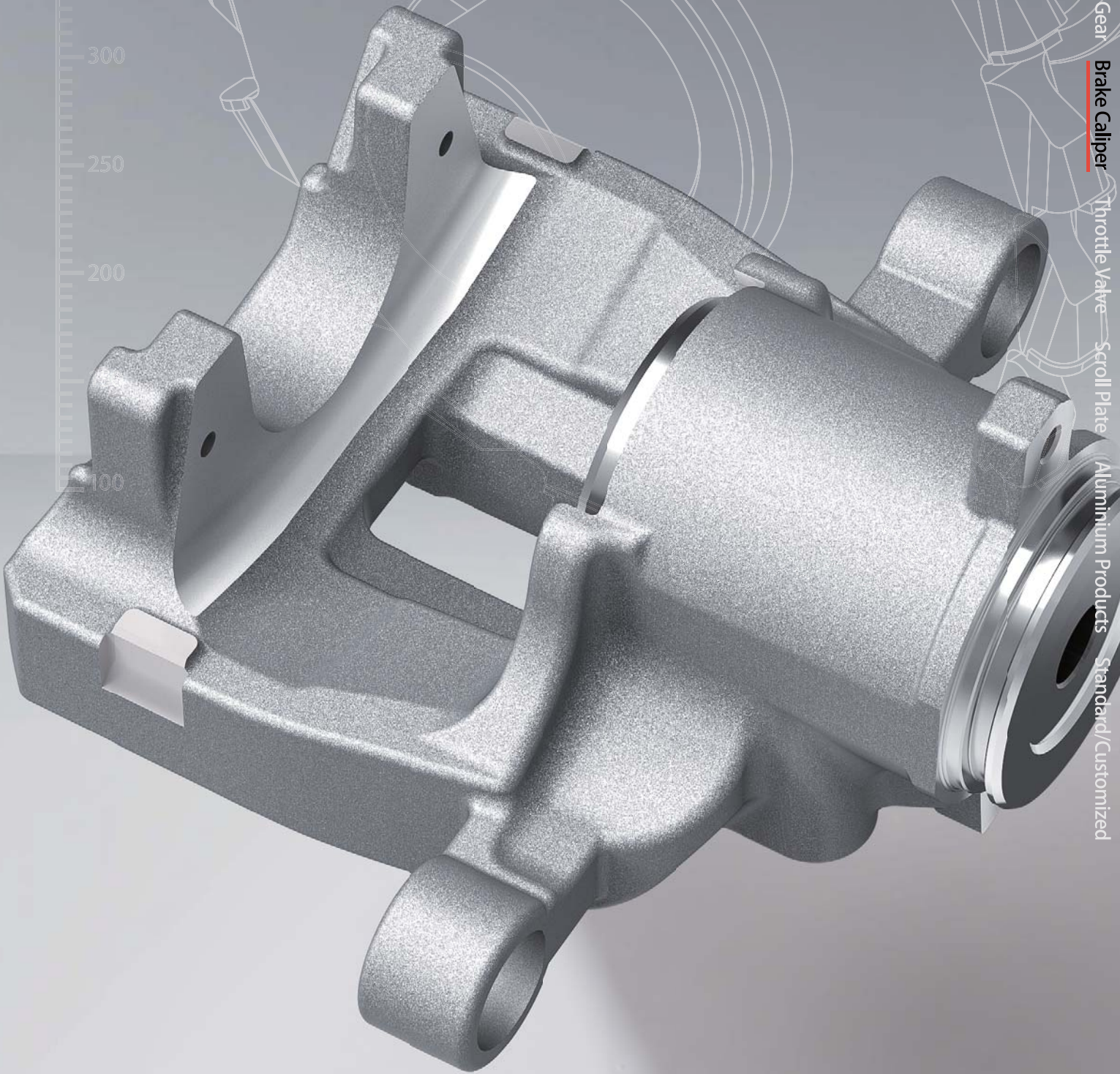


## Shell Milling Cutter

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



# Brake Caliper



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

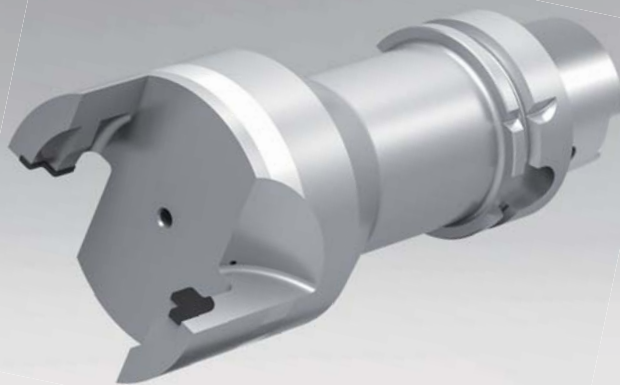
## Side and face milling cutter

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



## Shell milling grooving cutter

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

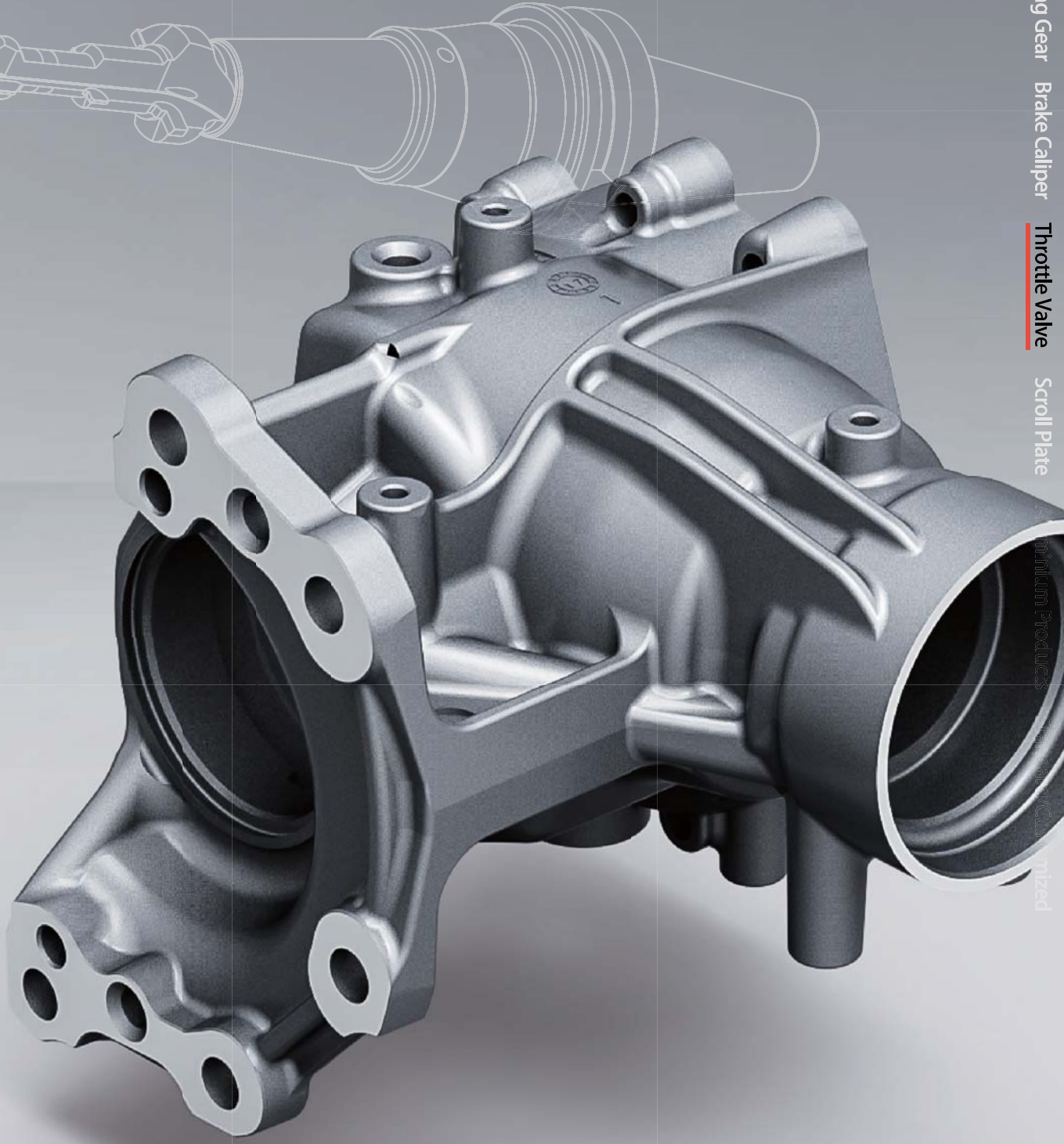


## Grooving cutter

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

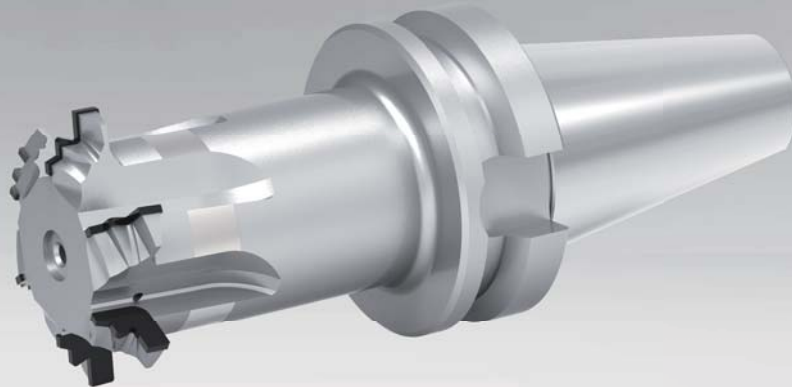


# Throttle Valve



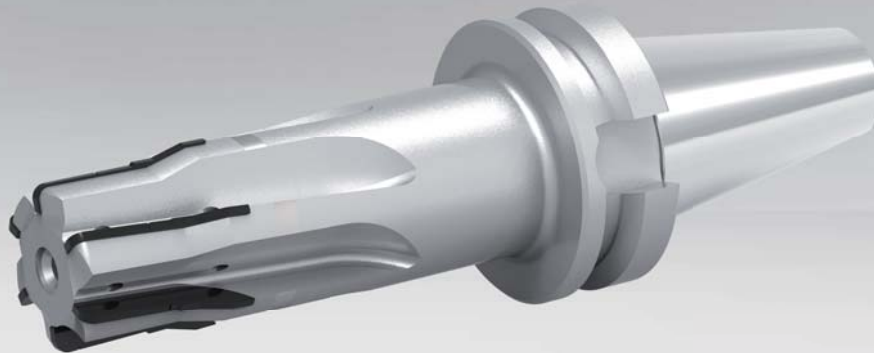
## Profiling milling cutter

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



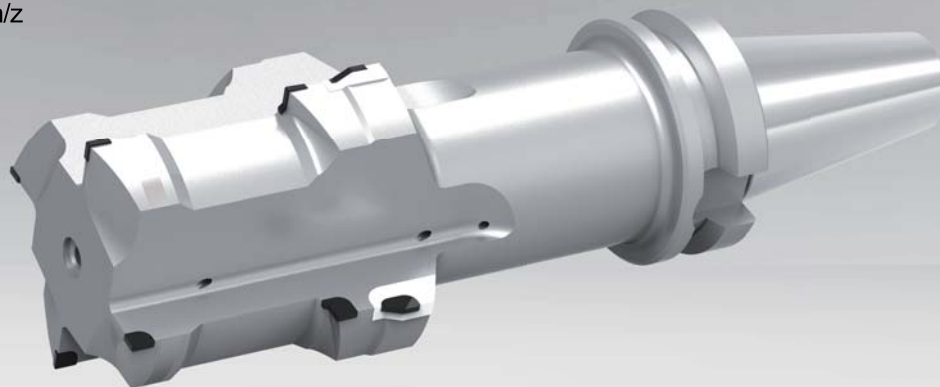
## Side milling cutter

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



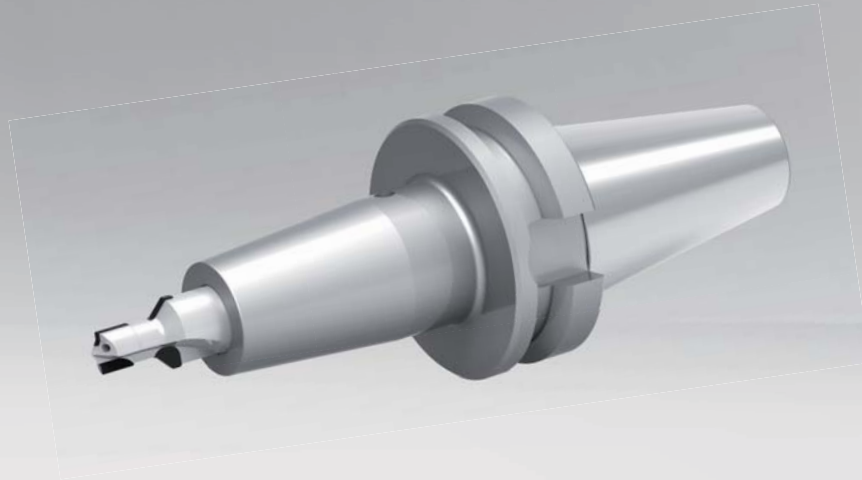
## Step Reamer

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



# Step Drilling Reamer

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



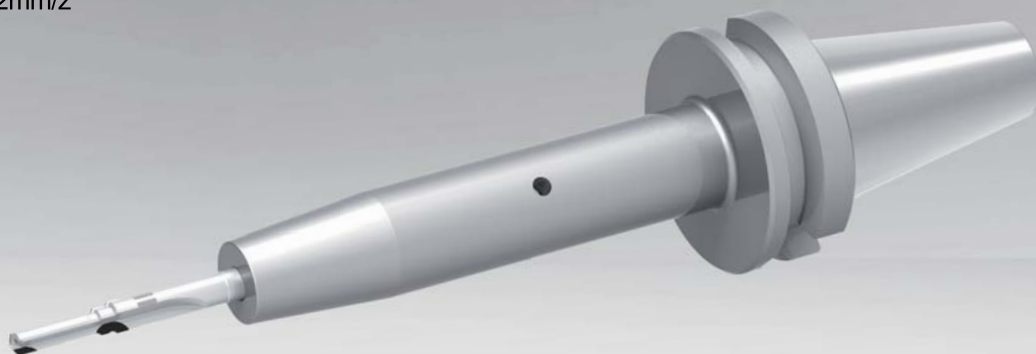
# Step Drilling Reamer

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



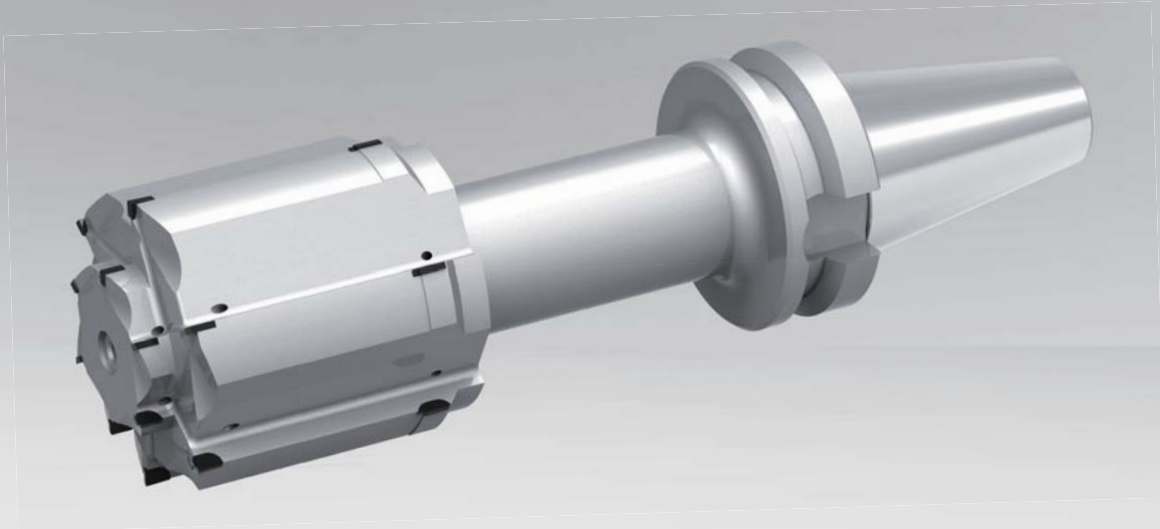
# Deep-hole drilling reamer

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



# Dense-tooth multi step reamer

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

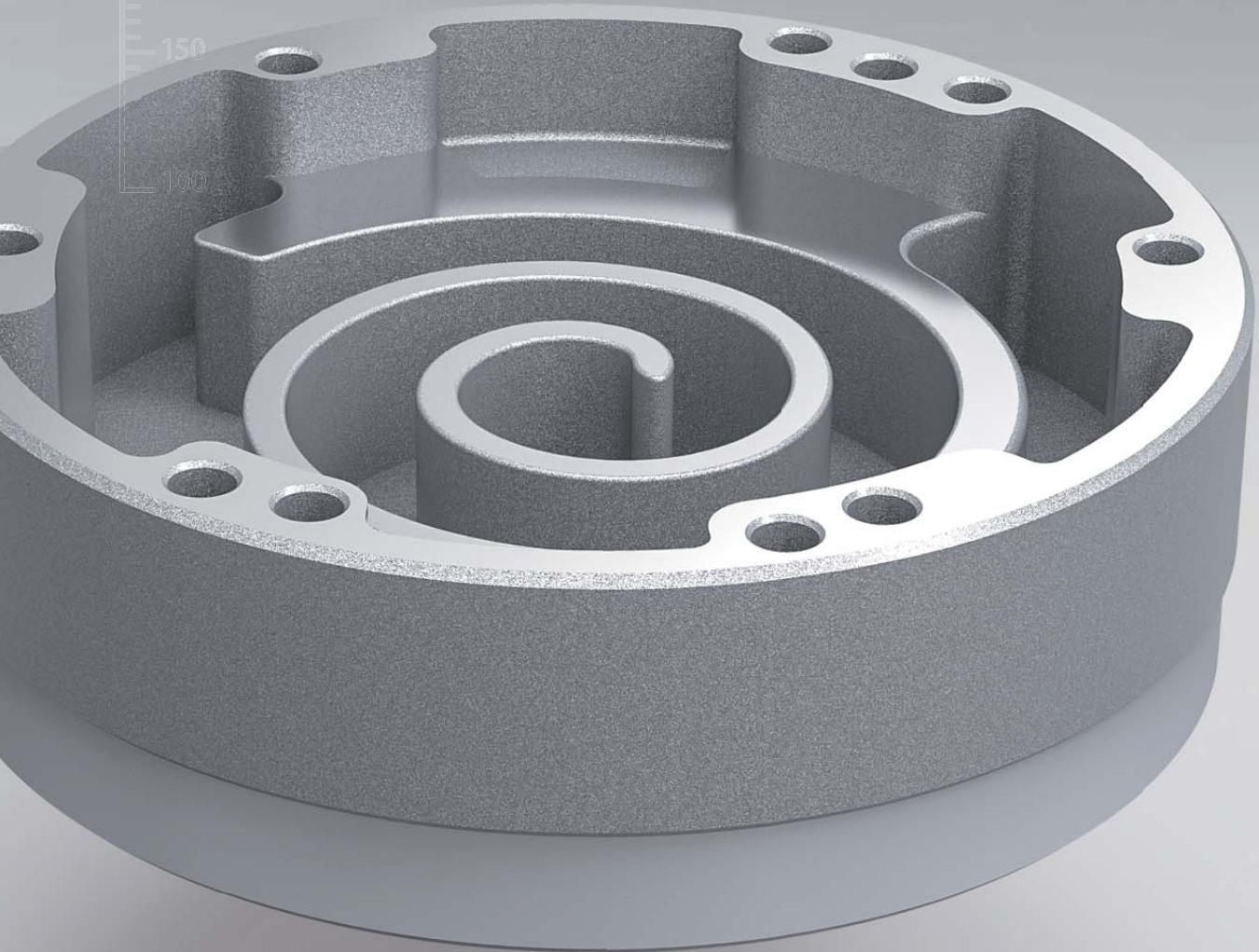


# Adjustable precision boring cutter

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

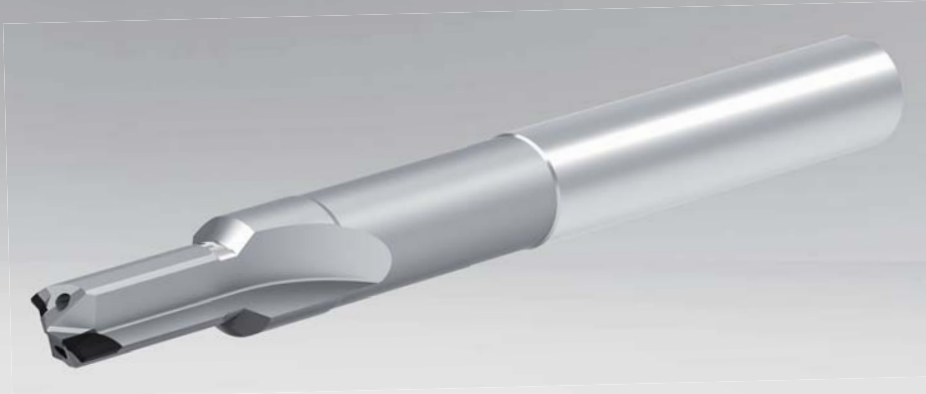


# Scroll Plate



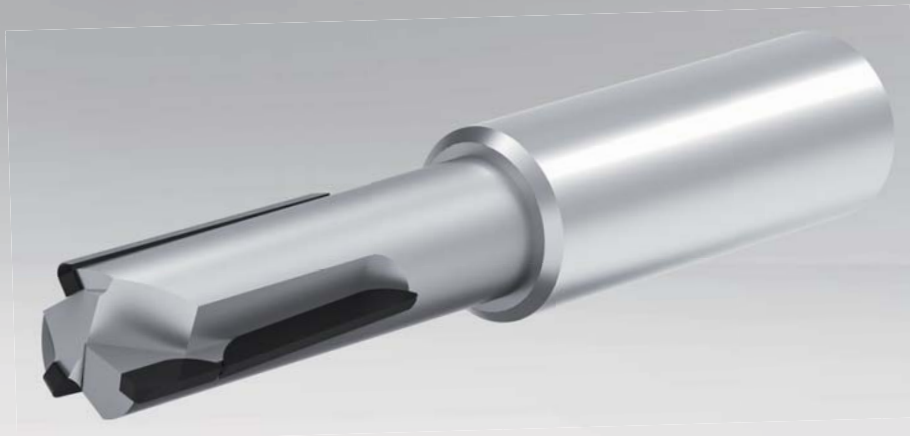
# Drilling Reamer

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



# Side milling cutter

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

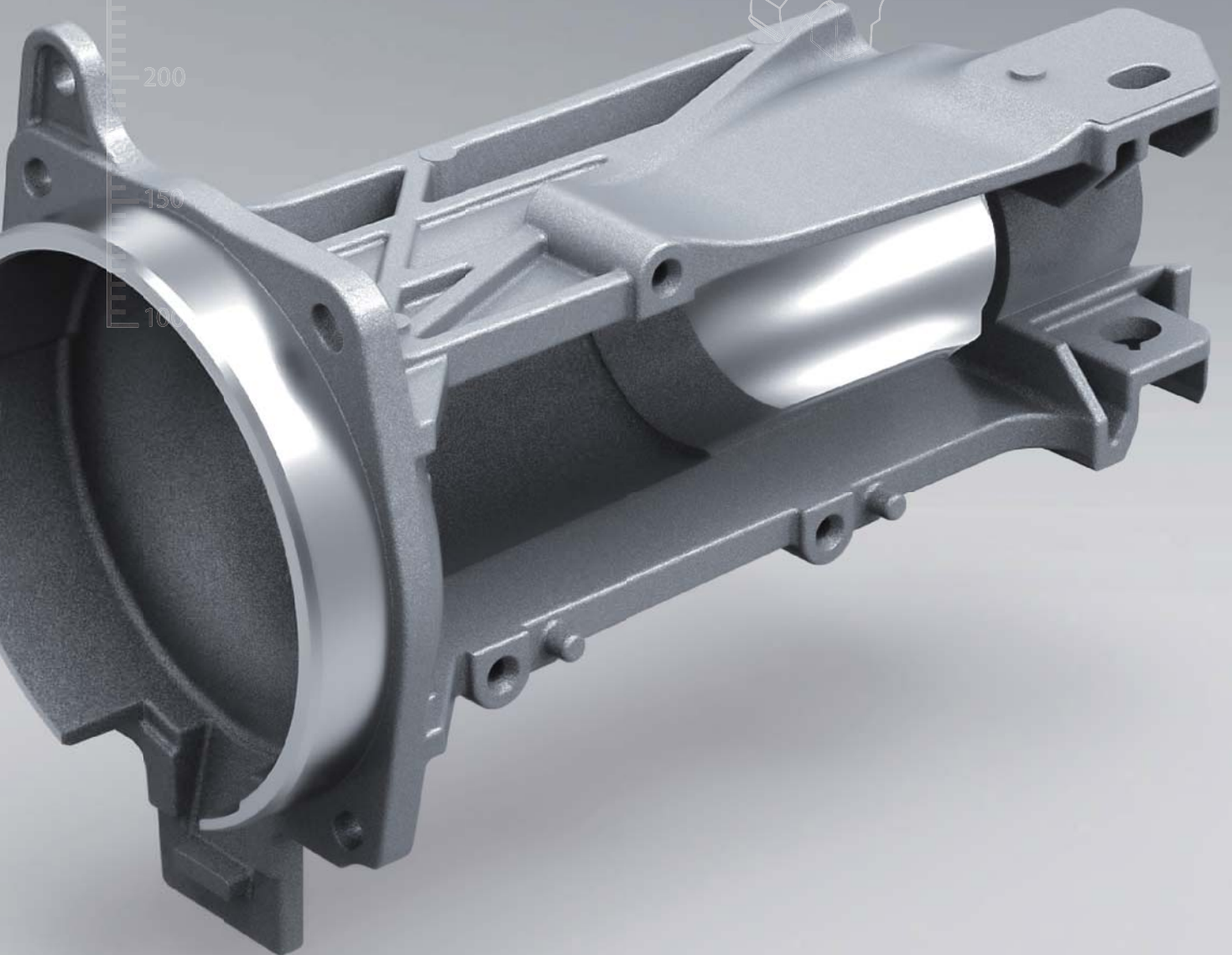


# Helical milling cutter

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

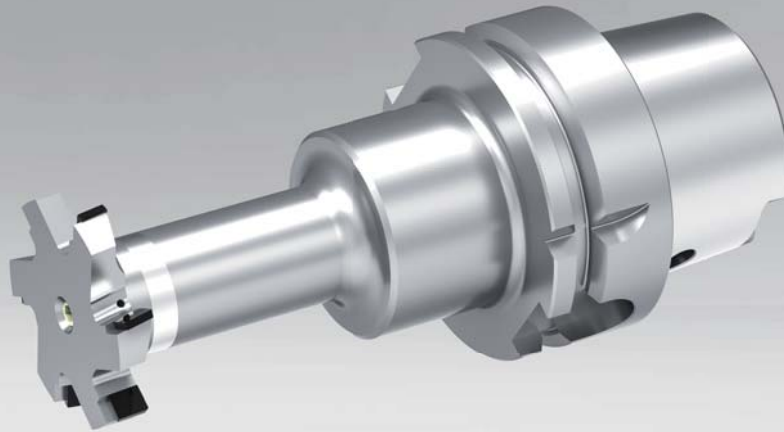


# Aluminium Products



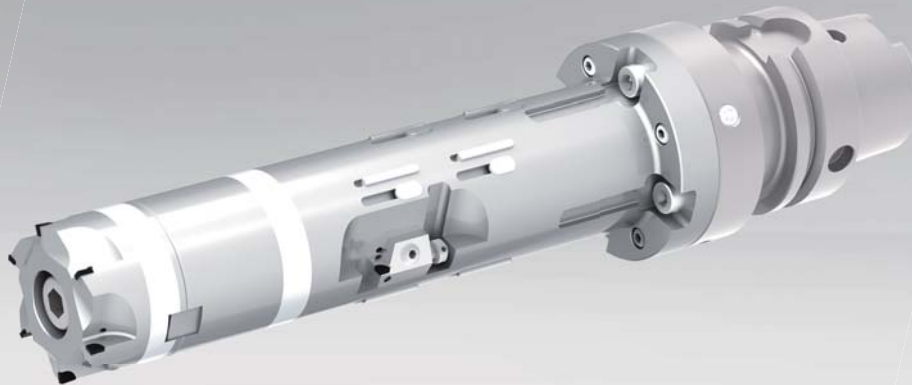
## Reverse milling cutter

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



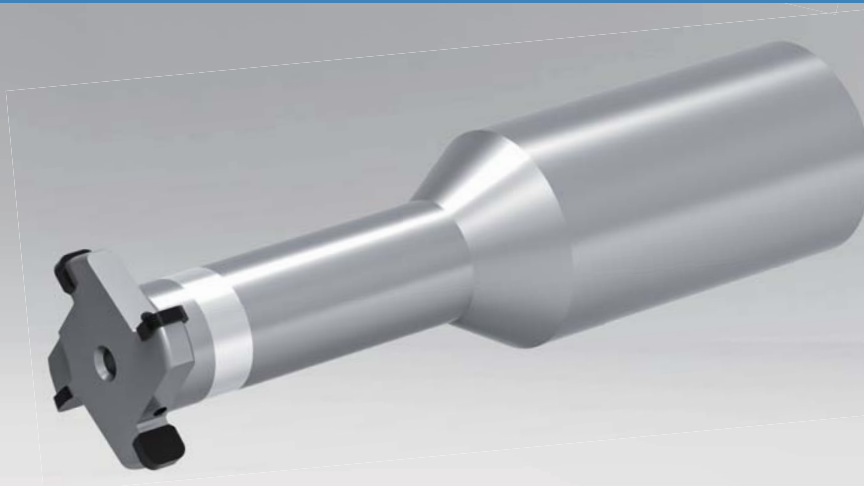
## Adjustable precision boring cutter

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



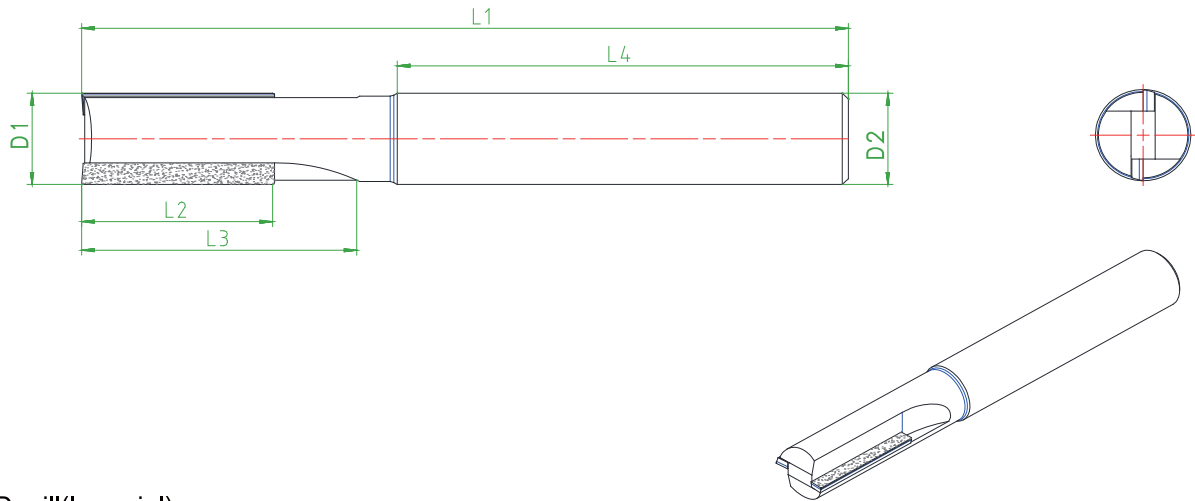
## Side and face milling cutter

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



# Standard & Customized

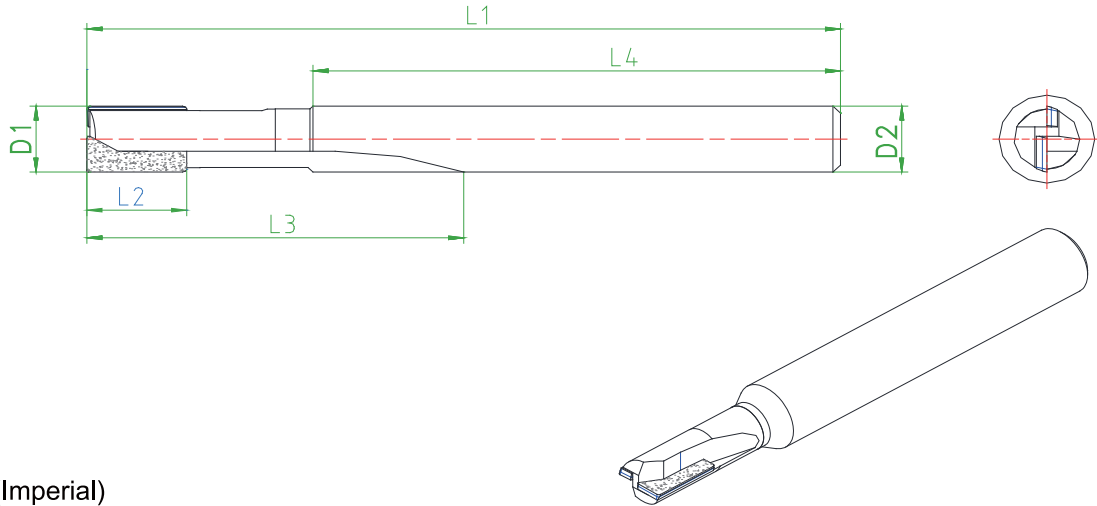




### PCD mill(Imperial)

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

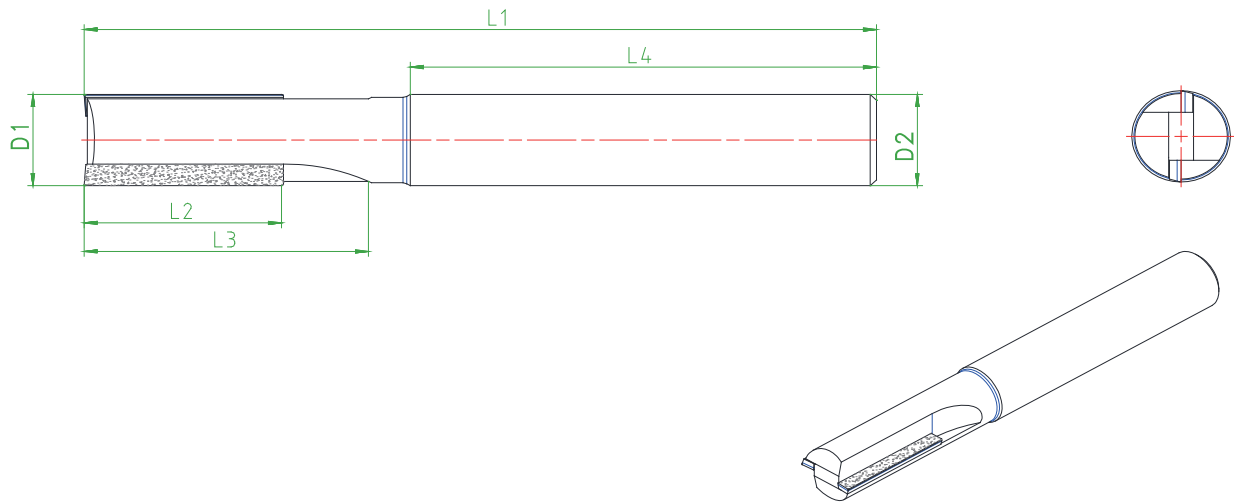
Customized size



### 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

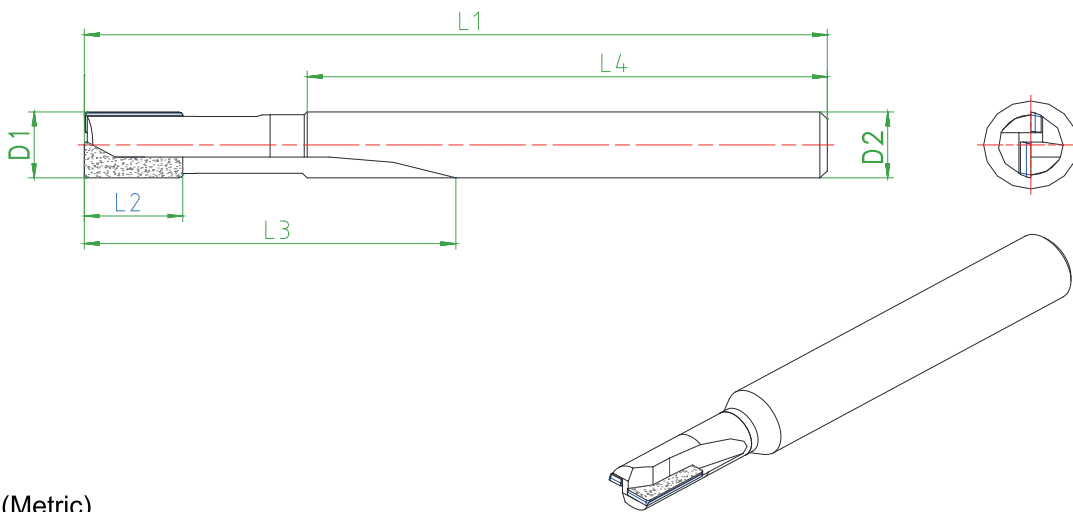
Customized size



### 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

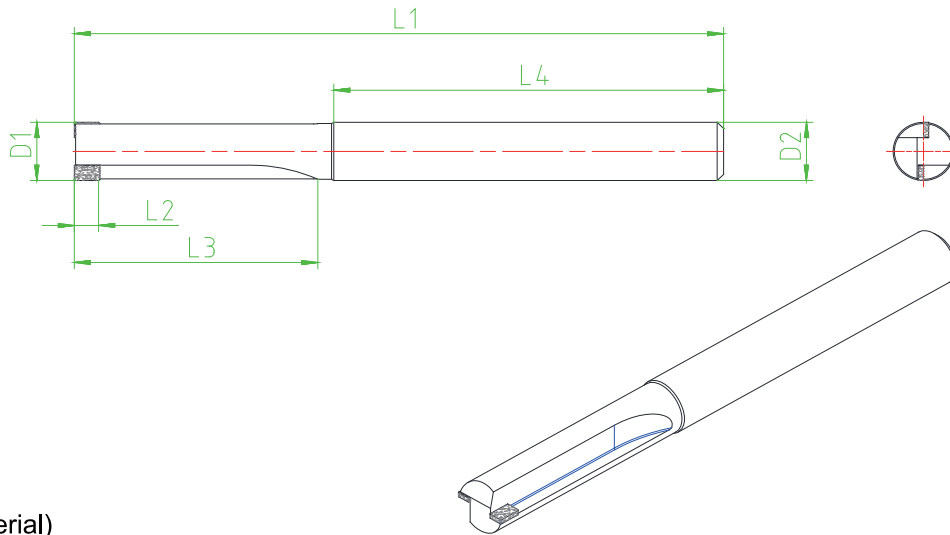
### Customized size



### 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

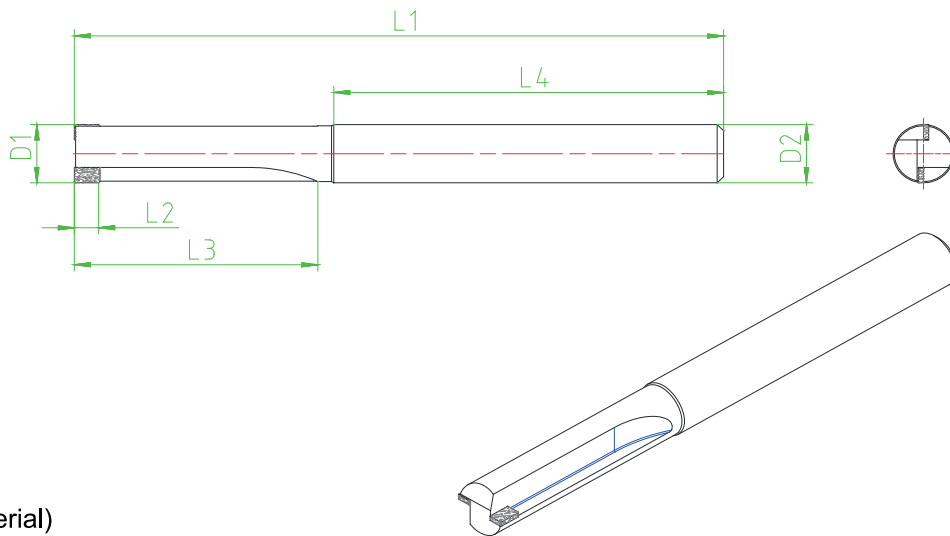
### Customized size



### 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

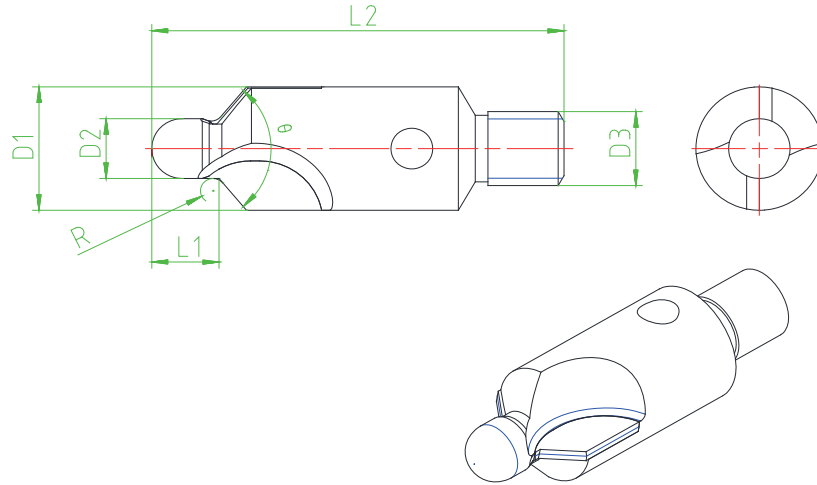
### Customized size



### 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

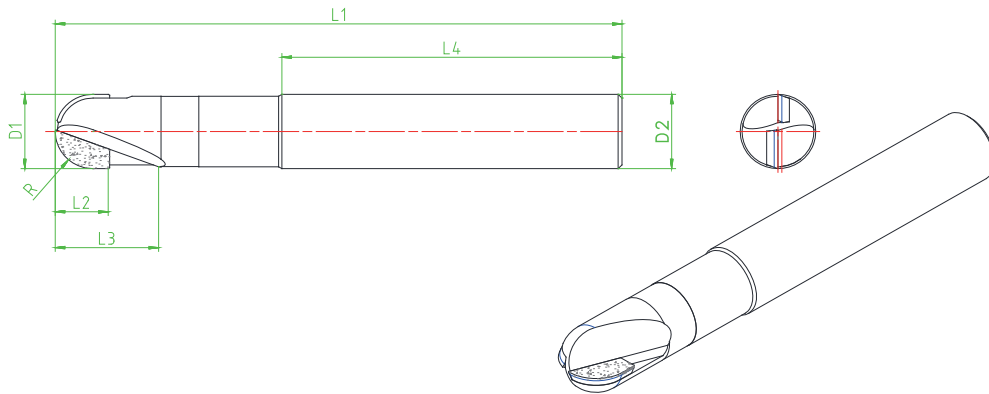
### Customized size



### 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 sharpening and retipping service.
- 

## 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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INNOVATION TOOL