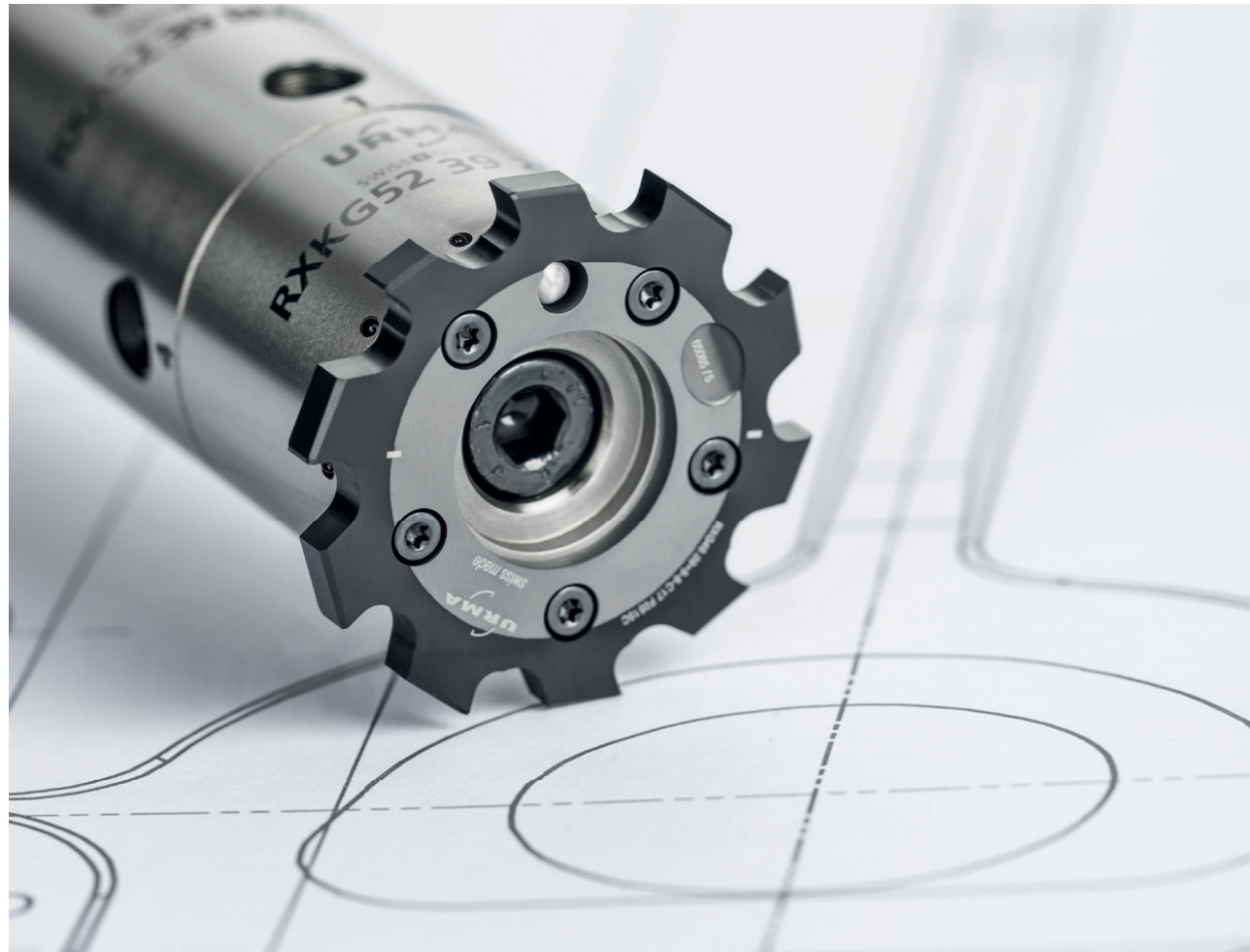


**Innovation  
Is Our Tool**

SWISS  QUALITY

**URMA** CircoTec RX



独创设计的最新铰削技术  
为最高生产效率而研发

Latest Reaming Technology  
through Unique Design  
Developed for Highest  
Productivity

# CircoTec RX small



# CircoTec RX



Ø 7.600 - 13.100 mm	CircoTec RX small
Ø 11.900 - 140.600 mm	CircoTec RX

## 优点 Your Advantages

可换刀片式铰削系统  
全球独创模块化铰刀，直径范围从7.6毫米到140.6毫米

易操作  
更换刀片快速简单

最高定位精度  
更换刀片时重复定位精度最高

最优化的铰刀  
刀片根据客户的需求设计、制造

刀片材质及涂层  
最新的刀片材质及涂层带来最佳的性能及刀具寿命

高灵活性  
刀片和刀杆系统拥有很高的灵活性

单件成本低  
效率提升及没有重磨物流费用的可换刀片式铰削系统带来较低的单件成本

### Replaceable Insert Reaming System

Worldwide unique modular reaming tool with diameter range from 7.600 mm to 140.600 mm

### Simple Handling

Fast and simple insert change

### Highest Positioning Accuracy

Highest repeatability on each insert change

### Optimized Reamers

Inserts are designed and manufactured to customer requirements

### Cutting Materials and Coatings

Latest cutting materials and coatings for best performance and tool life

### High Flexibility

Insert and shank system provide a high level of flexibility

### Low Costs per Part

Low tool costs, improvement of productivity and no logistic expenses through replaceable insert reaming system

Ø 7.600 - 140.600 mm

## 创新 The Innovation



- 最小的可换刀片式铰刀
- 革命性的连接系统
- 灵活和先进的刀片夹持概念
- 多种材质及槽型可选
- 获得专利授权(CircoTec RX)  
或者专利申请中(CircoTec RX small)

- Replaceable cutters reduced to a minimum
- A revolutionary connecting system
- Flexible and modern insert holding concept
- Wide variety of grades and geometries
- Patented (CircoTec RX) and  
patent pending (CircoTec RX small)

## 性能 The Performance



- 高进给率及最佳切削速度
- 更换刀片与更换车铣刀片一样简单快速
- 由于无需对刀及再次调整跳动停机时间降至最低
- 最新的刀片材质及涂层可选

- High feed rates and optimal cutting speed
- Changing cutting edges as simple and fast as changing an indexable insert
- Machine down time reduced to a minimum thanks to no additional presetting or run-out adjustment necessary
- Latest cutting materials and coating technologies available

Ø 7.600 - 140.600 mm

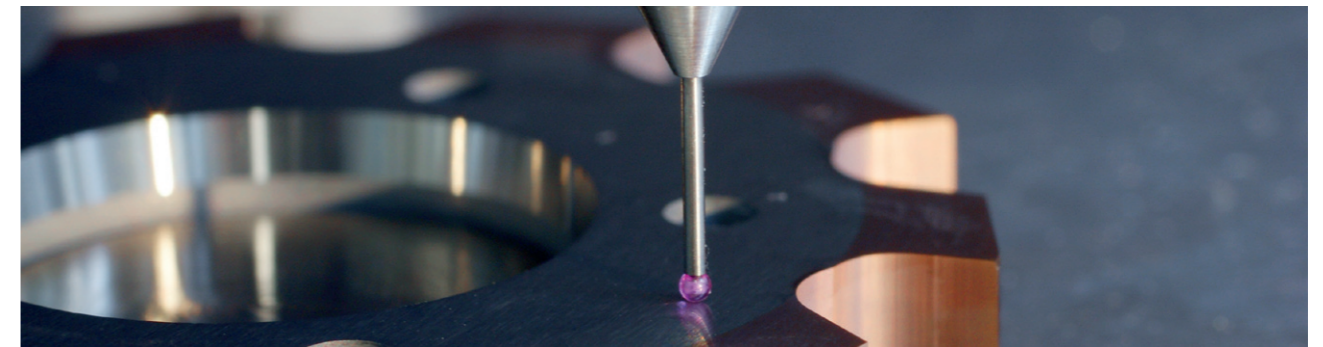
## 范围 The Range



- 直径范围最大的模块化系统
- 标准和非标槽型适用于整个系统范围
- 可定制尺寸及公差无需任何额外费用
- 灵活及可定制的刀长

- Largest available modular system diameter range
- Standard and special geometries available for all system sizes
- Intermediate sizes and special diameters without any surcharge
- Flexible and customizable tool lengths

## 可靠性 The Reliability



- 最高重复定位精度及制造公差确保稳定的加工精度
- 更换刀片简单，避免任何失误
- 更换刀片简单，避免失误
- 在整个刀具寿命周期内稳定的表面质量及孔径公差
- 交货快速
- 全球应用支持及工艺保障

- Constant precision through maximum positioning accuracy and manufacturing tolerances
- Simple handling when changing inserts, eliminating of error
- Recurrent long tool life and process reliability
- Constant surface quality and tolerance throughout the entire tool life
- Short delivery periods
- Worldwide application support and process guarantee

## 汽车工业 Automotive Industry



### 要求

- 精度
- 工艺可靠性
- 低成本
- 效率
- 易用性

### 案例

- 连杆
- 行星轮支架
- 万向节
- 凸轮轴及曲轴孔
- 缸孔

### "行星轮支架"案例

材料: 钢及薄钢板双金属

### Requirements

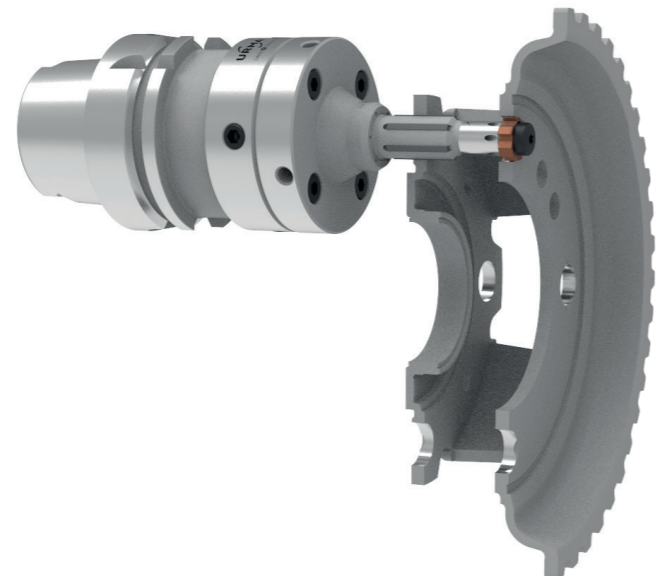
- Precision
- Process reliability
- Low costs
- Productivity
- Simple handling

### Sample Field Reports

- Con-rod
- Planetary carrier (automatic transmission)
- Cardan joints
- Liner bores for cam and crank shaft
- Cylinder bores

### Sample of "Planet Carrier" Application

Material: Steel and sheet steel



### Application Data

vc	144 m/min
fz	0.05 mm
z	6
vf	1019 mm/min
ap	0.125 mm
Ø	13.5 mm
L	2x5 mm

## 液压行业 Hydraulic Industry



### 要求

- 精度
- 深孔
- 工艺可靠性
- 低成本
- 效率

### 案例

- 阀芯孔 (控制块)
- 轴向和径向柱塞泵
- 通用给水泵
- 液压缸
- 活塞孔

### "阀块"案例

材料: GGG40

### Requirements

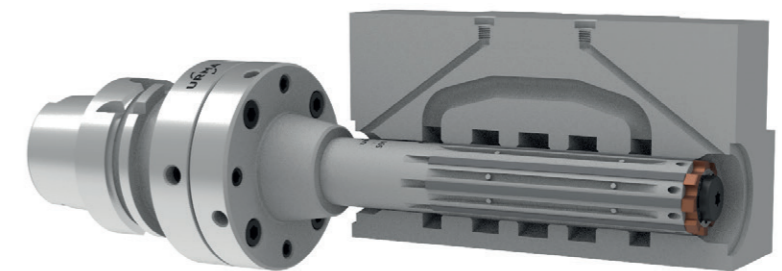
- Precision
- Long projection length
- Process reliability
- Low costs
- Productivity

### Sample Field Reports

- Valve bores (control block)
- Axial and radial piston pumps
- General feed pumps
- Hydraulic cylinder
- Piston bores

### Sample of "Valve Block" Application

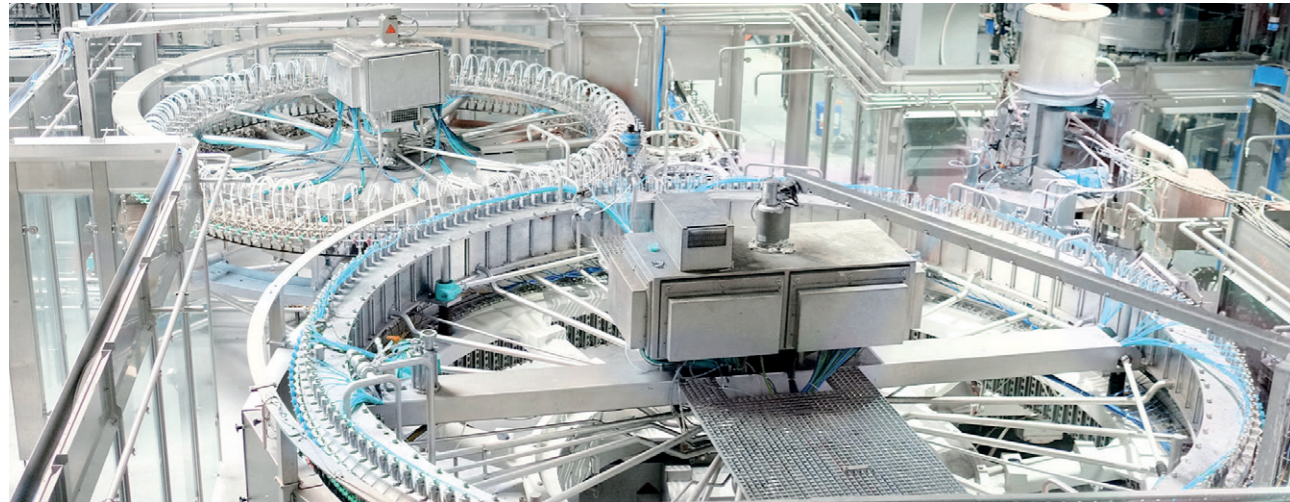
Material: GGG40



### Application Data

vc	150 m/min
fz	0.10 mm
z	8
vf	1006 mm/min
ap	0.15 mm
Ø	37.970 mm
L	180 mm
Ra	1.6 µm
⊙	0.006 mm
—	0.006 mm
⊕	0.008 mm

# 机床行业 Machine Building Industry



**要求**

- 精度
- 高灵活性
- 工艺可靠性
- 低成本
- 易用性

**案例**

- 机床零件
- 注塑机零件
- 纺织机械零件
- 包装机械零件
- 通用机床零件

"机床壳体"案例  
材料: GG30

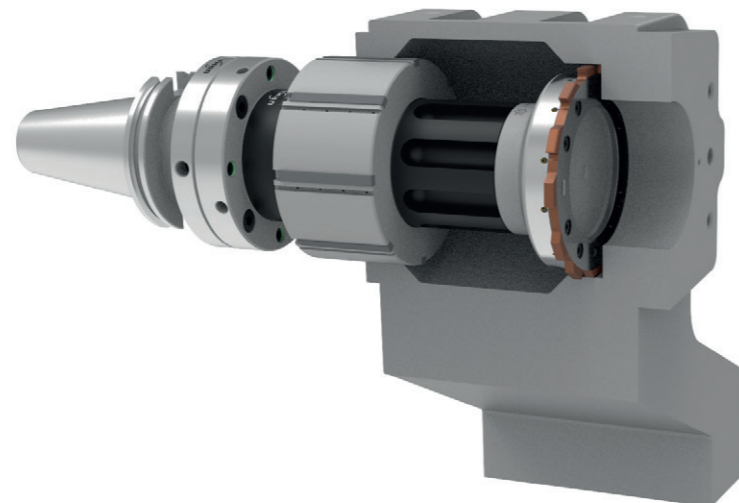
**Requirements**

- Precision
- High flexibility
- Process reliability
- Low costs
- Simple handling

**Sample Field Reports**

- Parts of machine tools
- Parts of injection mold machines
- Parts of textile machines
- Parts of packing machines
- Parts of general machine building industry

**Sample of "Machine Housing" Application**  
Material: GG30



**Application Data**

vc	120 m/min
fz	0.18 mm
z	12
vf	680 mm/min
ap	0.15 mm
Ø	121.539 mm
L	180 mm
Ra	1.2 µm

# 航空航天工业 Aerospace Industry



**要求**

- 工艺可靠性
- 精度
- 可行性
- 灵活性
- 易用性

**案例**

- 起落架部件
- 涡轮部件
- 模制件 (框架附件)
- 鳍片 (机体部件)
- 通用航空部件

"涡轮部件"案例  
材料: 钛

**Requirements**

- Process reliability
- Precision
- Feasibility
- Flexibility
- Simple handling

**Sample Field Reports**

- Landing gear parts
- Turbine parts
- Moulded part (attachment to sash)
- Fins (parts of airplane body)
- Parts of general aerospace industry

**Sample of "Turbine Part" Application**  
Material: Titanium



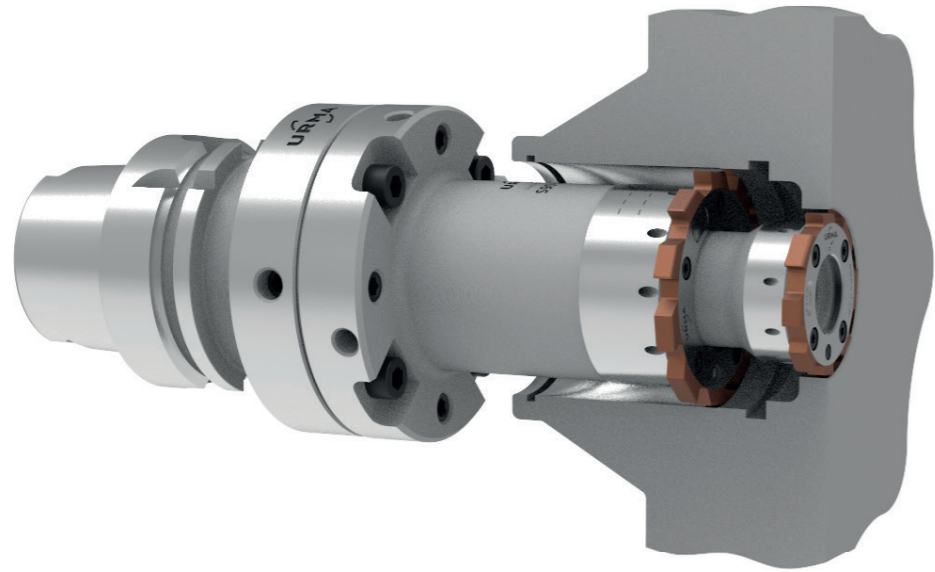
**Application Data**

vc	15 m/min
fz	0.1 mm
z	10
vf	108 mm/min
ap	0.08 mm
Ø	44.442 mm
L	80 mm
Ra	0.8 µm

# 非标刀具 Special Tools

众多机械加工工厂得益于铎马工程部门全球性的经验。我们提供工艺保障。这包括考虑到各种技术及商务因素的非标设计以及将其在生产流程中实现。

Many metal cutting companies are counting on URMA engineering know-how, worldwide. We always guarantee the process. This includes the design of specials, considering all technical and commercial aspects, and the implementation into the production process.



Ø 6.800 - 12.900 mm	CircoTec TX small
Ø > 12.900 mm	CircoTec TX

## CircoTec TX small CircoTec TX



通用型钻头是理想的CircoTec RX  
铰刀预加工刀具  
The All-Rounder Drill to Pre-Machine Your  
CircoTec RX Application

# URMA Tools

## Drilling, Boring & Reaming







#### **URMA AG WERKZEUGFABRIK**

Obermatt 3  
CH-5102 Ruppertswil  
Switzerland  
T +41 62 889 20 20  
F +41 62 889 20 28  
info@urma.ch  
www.urma.ch

#### **Subsidiaries**

URMA GmbH  
Eisenbahnstraße 37  
D-77815 Bühl  
+49 7223 911 170  
info@urma-gmbh.de

URMA Trading (Shanghai) Co. Ltd.  
Room 511, Hua Nan Mansion  
1988 Dongfang Road  
Pudong New District  
CN-200125 Shanghai  
+86 (21) 6109 6216  
info@urmachina.com

Iraupen URMA  
Poligono Belartza  
ES-20018 Donostia-San Sebastian  
Spain  
+34 943 667 036  
info@iraupen.es

#### **License Manufacturer**

Command Tooling Systems, LLC  
13931 Sunfish Lake Blvd.  
Ramsey MN, 55303 USA  
+1 800 328 2197  
support@commandtool.com

Paul Horn GmbH  
Unter dem Holz 33-35  
D-72072 Tübingen  
+49 (0) 7071 7004 0  
info@phorn.de

Sumitomo Electric Ind., Ltd.  
1-1-1, Koyakita,  
Itami-shi, Hyogo 664-0016  
Japan  
+81 72 772 4535  
info@sumitomotool.com