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SWISS  QUALITY

URMA CircoTec RX small

BRAND-NEW



BRAND-NEW

全球最小的模块化可
换刀片式铰削系统*

Worldwide Smallest Modular
Replaceable Insert Reaming
System*

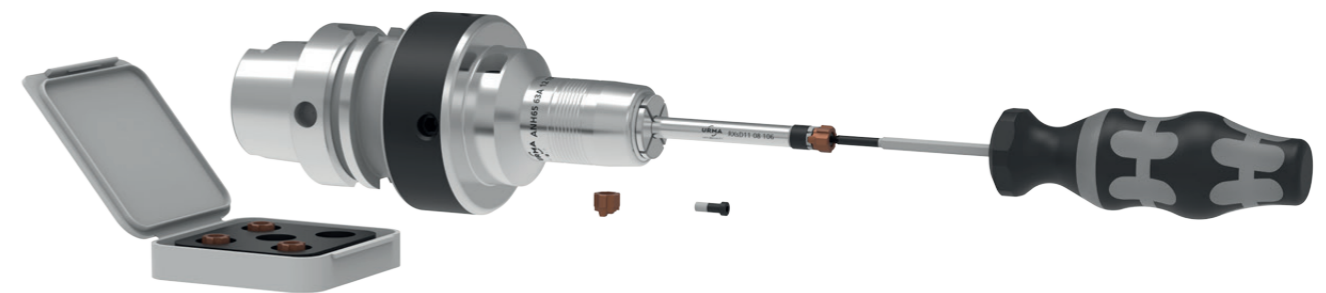
* 专利申请中
patent pending

Ø 7.600 - 13.100 mm

BRAND-NEW

CircoTec RX small的优点

Advantages of Using CircoTec RX small



可换刀片式铰削系统
全球最小的模块化可换刀片式铰刀直
径范围从7.600mm到13.100mm

操作简单
更换刀片快速简单

最高定位精度
更换刀片重复定位精度极高

最大的标准产品线
客户无需为定制直径额外付费

高度灵活性
材质、刀片、刀柄系统具有高度灵活性

单件成本低
可换刀片式铰削系统通过提高生产效率和减少
物流成本来降低客户的单件生产成本

Replaceable Insert Reaming System

Worldwide smallest modular reaming tool with
diameter from 7.600 mm to 13.100 mm

Simple Handling

Fast and simple insert change

Highest Precision in Positioning Accuracy

Highest repeatability on each insert change

Largest Standard Product Line

Customer-specific diameter without any surcharge

High Flexibility

Cutting materials, insert and shank system provide
a high level of flexibility

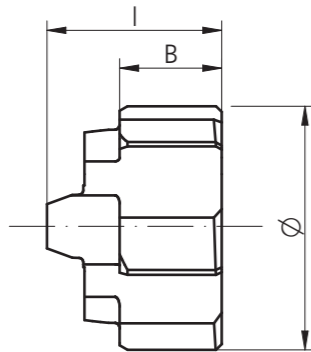
Low Costs per Part

A replaceable insert reaming system allows for low tool costs,
increased productivity and the elimination of logistics costs

Ø 7.600 - 13.100 mm

刀片

Inserts



直槽刀片

Straight Fluted Inserts

RX small System Size	Ø - Range mm	B	l	z	MB	VE	Order Number	Index
RXs 08	7.600 - 8.100	4.5	7.1	4	3	5	RXsG...	○
RXs 10	8.101 - 9.600	4.5	7.5	6	3	5	Order example	○
RXs 11	9.601 - 11.100	4.5	7.7	6	3	5	page 13	○
RXs 13	11.101 - 13.100	4.5	7.7	6	3	5		○

左旋槽刀片

Left Helical Fluted Inserts

RX small System Size	Ø - Range mm	B	l	z	MB	VE	Order Number	Index
RXs 08	7.600 - 8.100	4.5	7.1	4	3	5	RXsL...	○
RXs 10	8.101 - 9.600	4.5	7.5	6	3	5	Order example	○
RXs 11	9.601 - 11.100	4.5	7.7	6	3	5	page 13	○
RXs 13	11.101 - 13.100	4.5	7.7	6	3	5		○

B 长度(槽)

l 总长

z 齿数

MB 最小订货量

VE 包装数量

B Length (flutes)

l Total length

z Number of teeth

MB Minimum order

VE Packaging quantity

备注

● 标准库存品
Stock standard

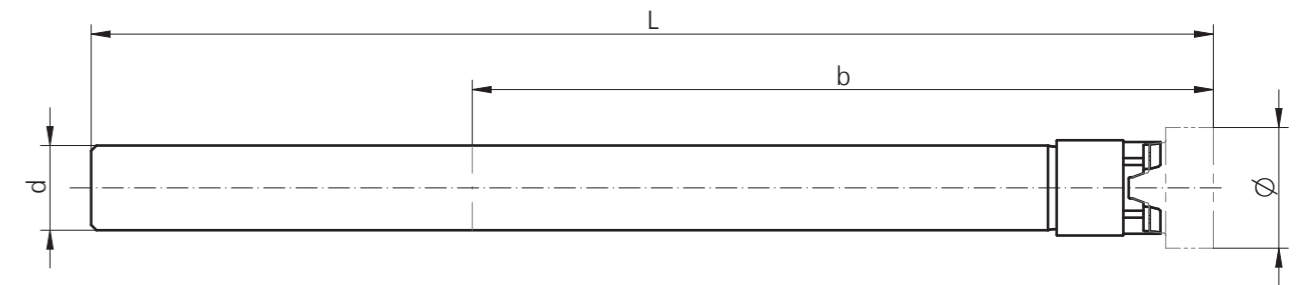
○ 半成品

Short-term availability from semi-finished product stock

Ø 7.600 - 13.100 mm

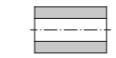
铰刀杆

Insert Holders



短式(钢)

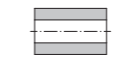
Short Version (Steel)



RX small System Size	Ø - Range mm	L	b	d / h6	Order Number «D»	Order Number «B»	Index
RXs 08	7.600 - 8.100	86	50	6	RXsD08 06 086*	RXsB08 06 086*	●
RXs 10	8.101 - 9.600	96	60	6	RXsD10 06 096*	RXsB10 06 096*	●
RXs 11	9.601 - 11.100	106	70	8	RXsD11 08 106*	RXsB11 08 106*	●
RXs 13	11.101 - 13.100	120	84	8	RXsD13 08 120*	RXsB13 08 120*	●

长式(硬质合金)

Long Version (Carbide)



RX small System Size	Ø - Range mm	L	b	d / h6	Order Number «D»	Order Number «B»	Index
RXs 08	7.600 - 8.100	102	66	6	RXsD08 06 102HM*	RXsB08 06 102HM*	●
RXs 10	8.101 - 9.600	116	80	6	RXsD10 06 116HM*	RXsB10 06 116HM*	●
RXs 11	9.601 - 11.100	126	90	8	RXsD11 08 126HM*	RXsB11 08 126HM*	●
RXs 13	11.101 - 13.100	150	114	8	RXsD13 08 150HM*	RXsB13 08 150HM*	●

L 总长

b 有效长度

d 直径

D 通孔

B 盲孔

L Total length

b Effective length

d Diameter

D Through bore

B Blind hole

* 长度可以根据要求缩短(需额外付费)
can be shortened to the optimal length upon request

SPARE PARTS

RX small System Size	Spare Parts «D»	Spare Parts «B»
RXs 08	C00 90 51	C00 90 51
RXs 10	C00 90 52	C00 90 52
RXs 11	C00 90 53	C00 90 53B
RXs 13	C00 90 54	C00 90 54B

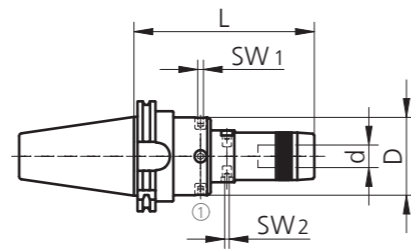
附件
Accessories



跳动补偿式液压刀柄
Hydraulic Compensating Chuck

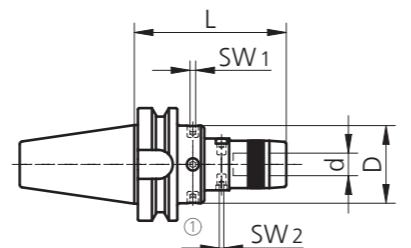
DIN 69871 AD/B

	D	d	L	SW ₁	SW ₂	Order Number	Index
40	76	12	135	5	4	AND65 40A 12 135	●
50	76	12	160	5	4	AND65 50A 12 160	●



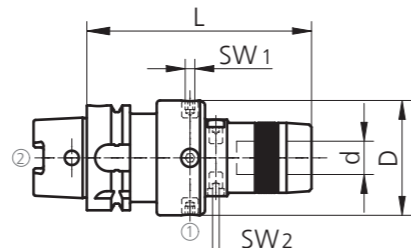
MAS-BT-A

	D	d	L	SW ₁	SW ₂	Order Number	Index
40	76	12	135	5	4	ANT65 40A 12 135	●
50	76	12	135	5	4	ANT65 50A 12 135	●



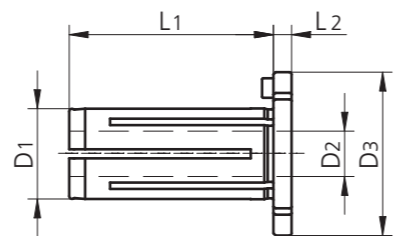
DIN 69893-HSK-A

	D	d	L	SW ₁	SW ₂	Order Number	Index
63	76	12	135	5	4	ANH65 63A 12 135	●



跳动补偿式液压刀柄用夹套
Reducers for Hydraulic Compensating Chuck

D1	D2	D3	L1	L2	Order Number	Index
12	6	26	49	4	67 12 06	●
12	8	26	49	4	67 12 08	●

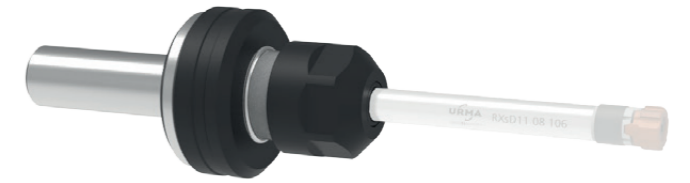


SPARE PARTS

d	Order Number	Index
12	C00 03 44	●
20	C00 03 44	●
32	C00 03 45	●

COOLANT TUBE

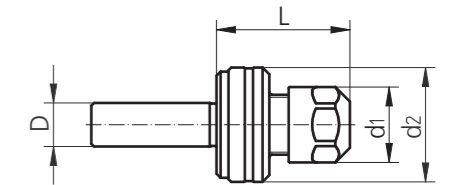
	Order Number	Index
63	H00 63 01	●
100	H00 100 01	●



浮动刀柄
Floating Chuck

Cylindrical Shaft DIN 1835-A

Adaptors	Size	Range	D	d ₁	d ₂	L	Oscillation	Order Number	Index
ZS 16	ER16	1.0 - 10.0	16	28	42	44	±1	PZ60 16 16 044	○
ZS 20	ER16	1.0 - 10.0	20	28	42	44	±1	PZ60 16 20 044	●

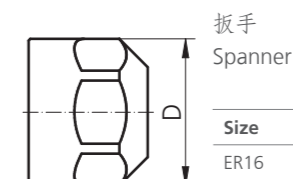


发货范围：包括用于内冷密封盘的螺帽
Scope of delivery: collet nut for seal disk included

ZS 圆柱直柄
Cylindrical shank

可装配密封盘的压紧螺帽
Collet Nut for Seal Disk

Size	D	Thread	Order Number	Index
ER16 P	28	M22 x 1.5	20.107.210	●

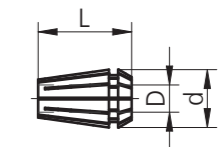


扳手
Spanner

标准配件
Included in delivery

弹簧夹套
Collets

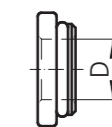
Size	D	d	L	Order Number	Index
ER16	17	3.0 - 10.0	27.5	62 16 XX	●



XX = ø d Example: d = 10 = 62 16 10

内冷密封盘
Seal Disk for Collet Nut

Size	D	Order Number	Index
ER16	3.0 - 10.0	20.107.21 XXX	●

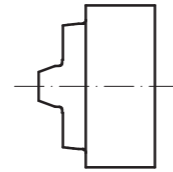


XXX = d Example: d = 9.0 = 20.107.21 090



跳动检测头
Run-Out Indicating Insert

RX small System Size	Order Number	Index
RXs 08	RXsC08 06 02	●
RXs 10	RXsC10 06 02	●
RXs 11	RXsC11 06 03	●
RXs 13	RXsC13 06 03	●



Torx-扭矩扳手
Torx-Torque Wrench

RX small System Size	Clamping Torque	Torque Size	Order Number	Index
RXs 08	0.6 Nm	T6	G00 40 15	●
RXs 10	0.9 Nm	T7	G00 40 14	●
RXs 11	1.4 Nm	T9	G00 40 16	●
RXs 13	2.0 Nm	T10	G00 40 17	●

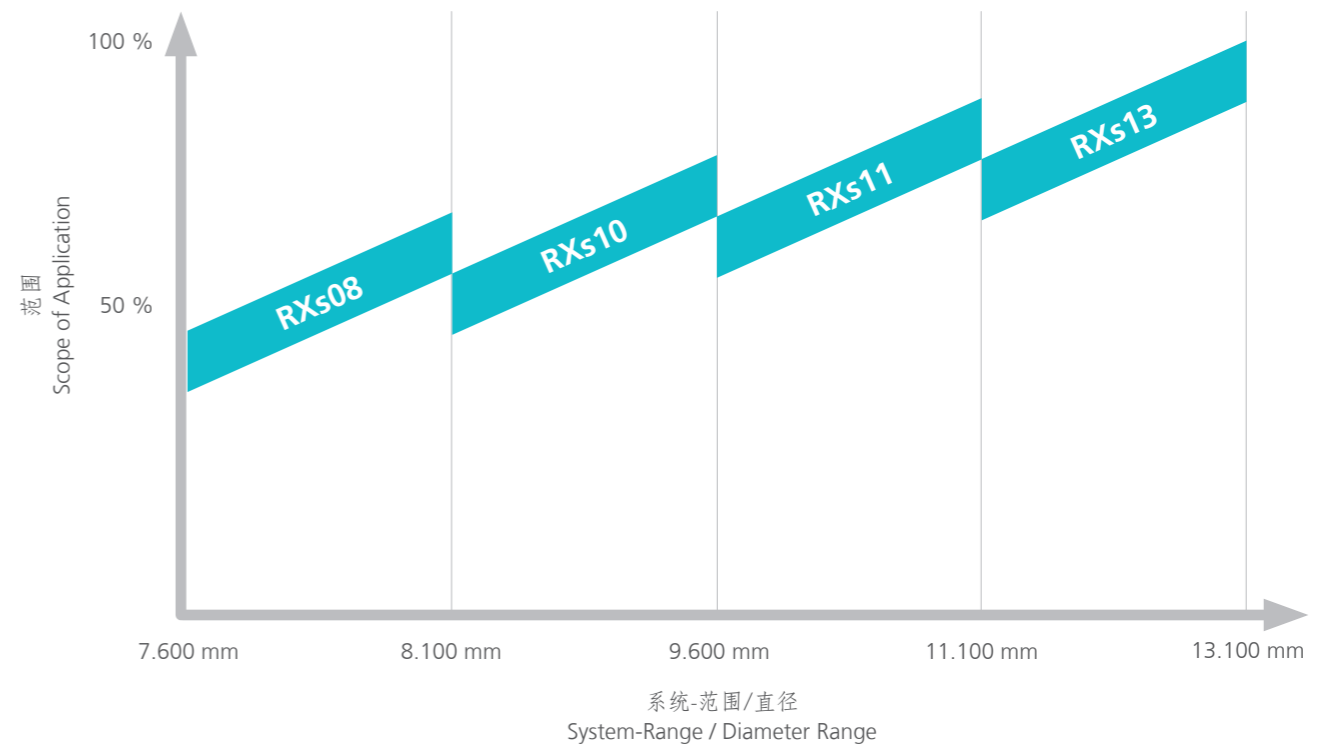


备注 ● 标准库存品 Stock standard ○ 非标准库存品 Short-term availability

Ø 7.600 - 13.100 mm

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CircoTec RX small的应用范围
Scope of CircoTec RX small Application



应用范围取决于:

- 材料
材料抗拉强度及加工性能
- 系统尺寸
系统尺寸越大, 扭矩传递越好
- 孔径
直径越大 (在同一系统范围内), 容屑空间越大
- 冷却液
供应方式及压力
- 余量
孔径及预加工孔径管理

The scope of application is dependent on:

- **Material**
Tensile strength and machinability
- **System Size**
The bigger the system size, the better the torque transmission
- **Bore Diameter**
The larger the diameter (within the system size), the more space for chips
- **Coolant**
Supply and pressure
- **Stock Removal (ap)**
Size and monitoring of pre-machining

刀片尺寸说明

Explanation of Insert Size

在铇马标准铰刀范围内的定制铰刀，根据公差带不同，最终刀片直径在65%到80%总公差范围内。

标准刀片代码示例

RXsG8H7-A01 F0512R1

刀片磨至Ø8.011 mm

RXsG8+20-10-A01 F0512R1

刀片磨至Ø8.015 mm

Q刀片代码是按指定尺寸定制刀片的一种方式。相对于标准刀片代码而言，Q刀片代码指定的是所需刀片尺寸及公差，而标准刀片代码指定的是孔的尺寸及公差。Q刀片代码用于标准刀片代码不适用的情况下。

Q刀片代码示例

RXsG8.020Q+3-3-A01 F0512R1

刀片磨至Ø8.020 mm

For orders with specifications of bore tolerance, the diameter is defined by URMA standard. Depending on tolerance range, the final diameter will be within 65% to 80% of the total tolerance.

Examples Standard Insert Designation

RXsG8H7-A01 F0512R1

insert ground to Ø 8.011 mm

RXsG8+20-10-A01 F0512R1

insert ground to Ø 8.015 mm

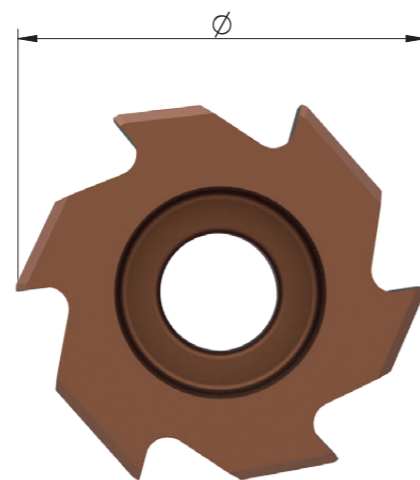
A Q-insert designation is to be selected for any specific insert dimension. Opposed to standard inserts where all tolerances refer to the bore tolerance, Q-inserts indicate the required insert diameter (target size).

Q-inserts are recommended for special applications where standard tolerance ranges are not applicable.

Example Q-Insert Designation

RXsG8.020Q+3-3-A01 F0512R1

insert ground to Ø 8.020 mm



订单示例

Order Example

ISO公差的订单示例

Order Example in Accordance with ISO Tolerances

订货号

Order Number:

RXsG8.3H7-A01M2 F0512R1

特定公差 (Q) 的订单示例

Order Example with Target Size (Q-Insert)

订货号

Order Number:

RXsG8.304Q+3-3-A01M2 F0512R1

RXs	RX small系统代码 RX small system designation
G	排屑槽型代码 (G=直槽; L=左旋槽) Flute form (G = straight; L = left-hand helix)
8.3	直径,以mm为单位 Diameter in mm
H7	公差,以ISO形式标注或者+/-µm Tolerance in ISO standard or µm +/-
A01	切削角度代码 Cutting geometry
M2	刃口处理代码 Nano finishing (edge preparation)
F05	刀片材质代码 Cutting material
12R	涂层代码 Coating
1	1=薄涂层; 2=厚涂层 1 = thin coating; 2 = thick coating

RXs	RX small系统代码 RX small system designation
G	排屑槽型代码 (G=直槽; L=左旋槽) Flute form (G = straight; L = left-hand helix)
8.304	定制直径,以mm为单位 Target size/diameter in mm
Q	定制直径刀片代码 Code for target size insert
+3-3	制造公差+/-,以µm为单位 Manufacturing tolerance +/-
A01	切削角度代码 Cutting geometry
M2	刃口处理代码 Nano finishing (edge preparation)
F05	刀片材质代码 Cutting material
12R	涂层代码 Coating
1	1=薄涂层; 2=厚涂层 1 = thin coating; 2 = thick coating

Ø 7.600 - 13.100 mm

RX small操作指南

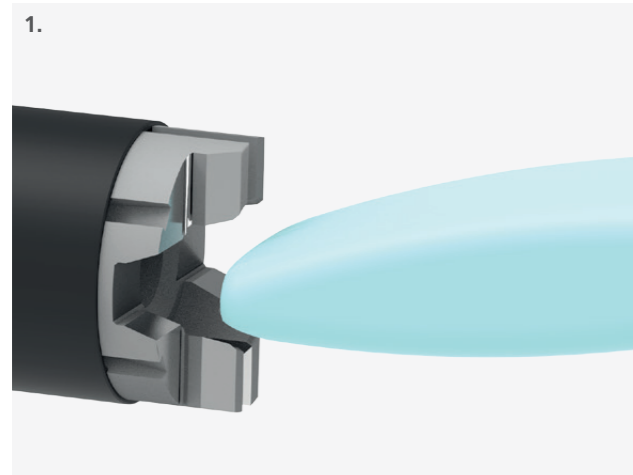
Handling Instructions RX small

刀片更换

Insert Change

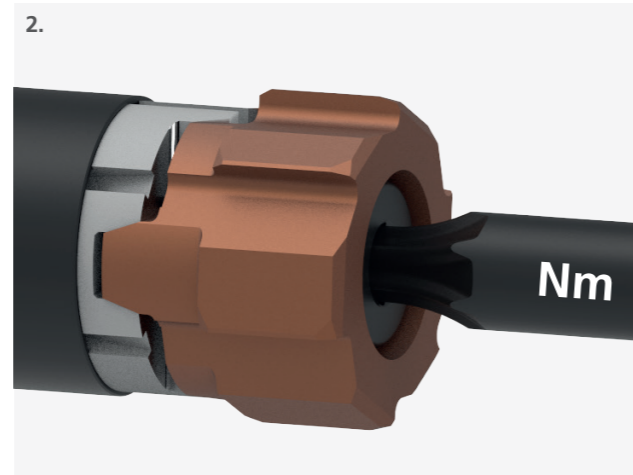
为确保性能，清洁刀片定位面及使用特定扭矩锁紧非常重要。

For optimal performance, proper cleaning of the interface as well as using the pre-defined tightening torque are imperative.



1. 清洁定位面
刀片定位面可用清洁黏土快速清洁。

2. 刀片更换
将刀片放在清洁过的定位面上并用特定扭矩锁紧。



1. **Cleaning of the Interface**
The interface can be cleaned most effectively with the modeling clay enclosed in the insert packaging.
2. **Insert Change**
The insert is placed on the previously cleaned interface and tightened through the predetermined tightening torque.

Torx-扭矩扳手

Torx-Torque Wrench

RX small System Size	Clamping Torque	Torque Size	Order Number
RXs 08	0.6 Nm	T6	G00 40 15
RXs 10	0.9 Nm	T7	G00 40 14
RXs 11	1.4 Nm	T9	G00 40 16
RXs 13	2.0 Nm	T10	G00 40 17

Ø 7.600 - 13.100 mm

RX small操作指南

Handling Instructions RX small

跳动调整

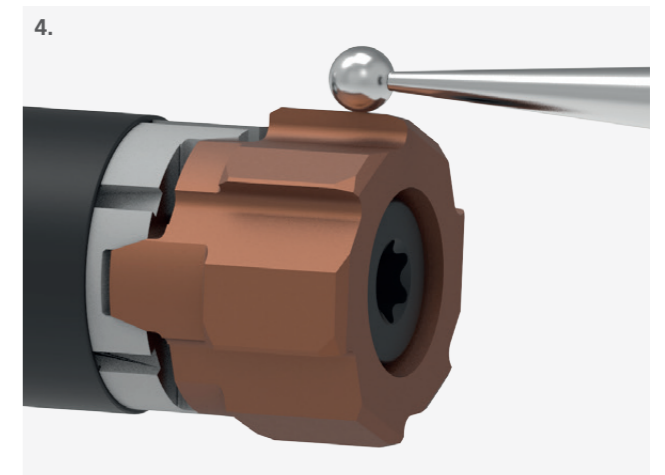
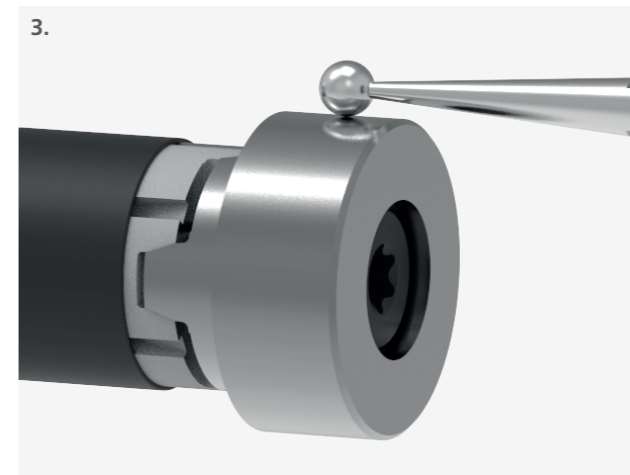
Run-Out Adjustment

为达到最佳铰削效果，刀具跳动越小越好。为了补偿机床主轴以及刀杆等引起的任何跳动误差，我们推荐使用跳动补偿刀柄或者浮动刀柄。CircoTec RX small铰刀的跳动有以下测量方法：

In order to achieve the best reaming results possible, a tool with zero run-out is desirable. So as to compensate for any errors due to run-out from the tool holders or the machine spindle, we recommend using a compensation holder or floating chuck. The run-out of CircoTec RX small reamers can be measured with different methods:

3. 通过跳动检测头检测
可以通过跳动检测头很容易地检测和调整铰刀跳动。
4. 通过刀片外径检测
可以通过检测CircoTec RX small刀片的刃带检测和调整铰刀跳动，但难度会更大一些。

3. **Measurement Through Run-Out Indicating Insert**
The run-out can be easily set up and precisely checked by means of an indicating insert.
4. **Measurement on the External Diameter of the Insert**
The CircoTec RX small inserts can also be set up via on the small margin. Its handling is, however, more difficult.





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

钨马CircoTec RX铰刀家族

URMA CircoTec RX Reamer Portfolio

CircoTec RX铰刀优势

- 单件成本低
- 多种材质及槽型可选
- 调整简单

工艺可靠性

- 精度稳定
- 刀具寿命长

可换式铰刀片

- 操作简单
- 重复定位精度高

CircoTec RX Facts

- Lower costs per part
- Wide variety of grades and geometries
- Low adjustment efforts

Process Reliability

- Constant precision
- Long tool life

Changing Reaming Inserts

- Easy handling
- Maximum positioning accuracy

钨马刀具 铰刀及镗刀





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