



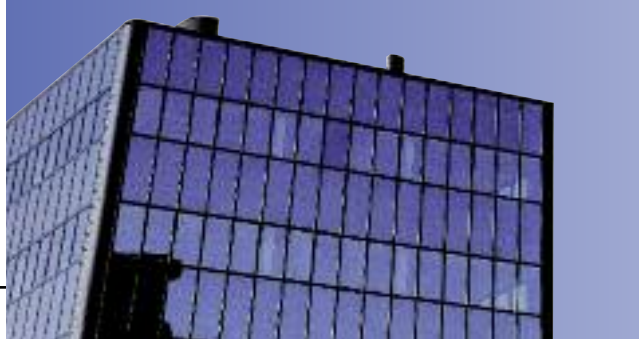
PRECISION BEARINGS 
FOR MACHINE TOOLS

机床精密轴承 



Unitec Authorized Distributor in China
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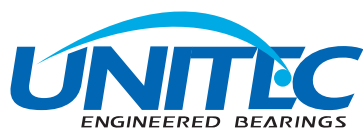
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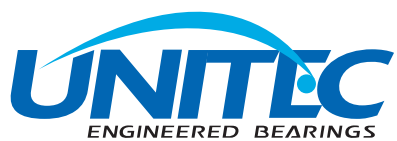
Advanced technology to meet your customers requirements.

*Our engineers will assist you in selecting the most suitable **UNITEC** bearing and mounting arrangement for your applications.*



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high productivity

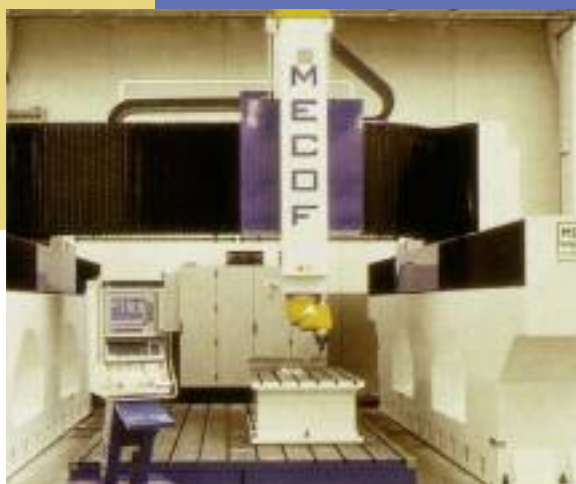


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UNITEC precision bearing is the heart of your machine.

您的客户需要高精密且可靠的机床来保证高生产率。

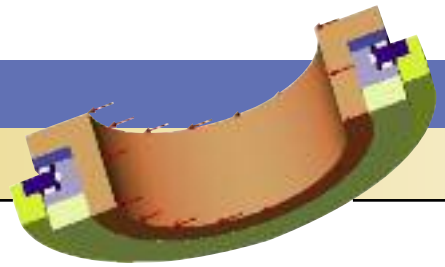
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PRECISION BEARINGS

高生产力



RTB

Combined axial-radial roller bearing for indexing tables
应用于分度盘的组合三排滚子轴承

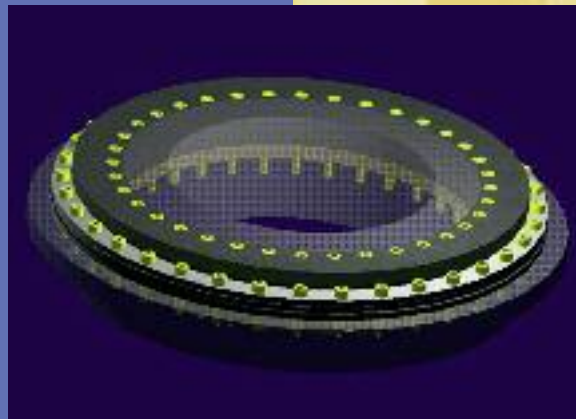
high rigidity together with high accuracy



Axial-radial precision bearings for indexing tables.

Due to their high axial stiffness and their capacity to bear high tilting moments, UNITEC bearings RTB series are particularly recommended for rotating, positioning and indexing tables and milling heads.

精密
高精度
高刚度



应用于分度盘的轴、径向精密轴承

由于UNITEC的RTB轴承具有高轴向刚度及优良的抗倾覆性能，所以特别适用于旋转支撑、定位、分度盘以及铣刀头。





Technical specification

1. Description
2. Stiffness
3. Mounting instructions
4. Preload
5. Friction
6. Operating speed

1. Description

RTB bearings consist of a moulded inner ring (L section) – completed with a washer -, an outer ring, two roller thrust bearings and a cylindrical roller bearing, full complement.

The axial and radial load-carrying capacity have been calculated according to UNI ISO 76 and UNI ISO 281 standard, by using factors suitable for the high quality steels and the specific heat treatments connected with these bearing series.

As for the life calculation, also refer to the a.m. standard. RTB bearings are available in two different designs:

• RTB - without lubrication

The bearing is wrapped in oil-paper, completely covered with a protective oil film. Customer must provide for an adequate oil or grease lubrication. For this purpose, bearings have radial holes on the inner and outer rings.

• RTB_G – with grease lubrication

The bearing is pre-lubricated with (lithium based grease, EP, NLGI 2, 150cst at 40 Celsius deg) – approx. 50% filling.

If a different grease is requested, we suggest to ask for a non lubricated design and then to fill with the requested grease through the lubrication hole.

2. Stiffness

High stiffness, considerable load-carrying capacity, high rotational accuracy are the essential features of the combined UNITEC RTB bearings. The axial cages with a big number of rolling elements with linear contact as well as the very high precision of the machining permit a precise and rigid movement.

The size of the axial and radial rollers as well as of the inner and outer rings are carefully measured in order to obtain the requested preloads by tightening the cap screws. The manufacture tolerances of the preload value are particularly restricted, so that a constant and uniform quality of the supplies can be granted over the years. Thanks to the preload and the linear contact of the rolling elements, the axial, radial and tilting stiffness of the RTB bearings can be considered, at a rough estimate, a linear magnitude (almost linear trend of the stiffness curves), so that the relevant values K_a , K_r and K_{mr} can be assumed as a constant and stated as such in the concerning dimensional table (Tab. 1).

The a.m. values have been obtained by means of FEM calculations, by modelling the different sizes of the combined bearing according to the two different assembly layouts (see Pics 1 and 2). In Pics 3 and 4 you can see a typical induced stress in the RTB bearings, according to the two different assembly layouts.

技术规格

1. 说明
2. 刚性
3. 安装说明
4. 预负荷
5. 摩擦
6. 运行速度

1. 说明

RTB轴承由一个模铸内圈(L部分)及一个垫圈、一个外圈、两列推力滚子轴承和一系列圆柱滚子轴承所组成。

轴向及径向承载能力是根据UNI ISO76和UNI ISO 281标准,并参照适用于优质钢材和特殊热处理的对应参数计算获得。

至于轴承寿命的计算,同样参考了a.m.标准。

RTB轴承有两种不同的设计。

• RTB - 不带润滑脂

这种轴承以油纸包裹,并被防锈油完全覆盖。客户必须自行添加充足的油或油脂进行润滑。鉴于此,轴承在内圈和外圈上有径向的润滑孔。

• RTB_G - 带润滑脂

这种轴承出厂时填充大约50%润滑剂(锂基润滑脂,EP,NLGI2,摄氏40度时150cst)。

如果客户需要后续自己加入不同油脂,

我们建议选用不带脂(无_G)设计,然后对润滑孔注入需要的润滑脂。

2. 刚性

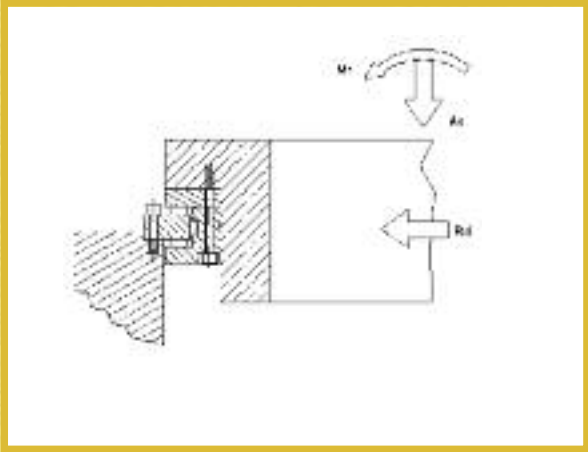
UNITEC的RTB轴承具有高承载能力和高旋转精度的特性。轴向保持架内众多的滚动体与滚道线性接触,以及高精度加工工艺,确保轴承精密和刚性的旋转性能。

轴向和径向滚子及内外圈的尺寸都经过仔细测量,并通过锁紧螺母的预紧得到精确的轴承预载。

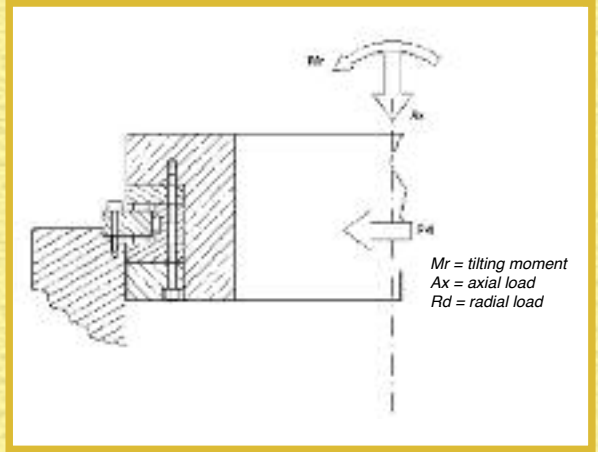
预负荷及轴承的制造公差进行严格的控制,保证了多年以来的我们的品质稳定性。得益于预负荷和滚动体的线性接触,RTB轴承的轴向、径向以及抗倾覆刚性可近似呈线性(几乎对刚性曲线呈现线性关系)。这样,参数 K_a , K_r 和 K_{mr} 可以被假设为一个常数,具体请参看相关的参数表(表1)。a.m.值我们采用FEM计算获得,即按照两种不同的装配方式(见图1和图2),模拟不同尺寸的组合轴承。在图3和图4中,我们可看到在两种不同的装配方式中,RTB轴承的典型内应力分布。



RTB

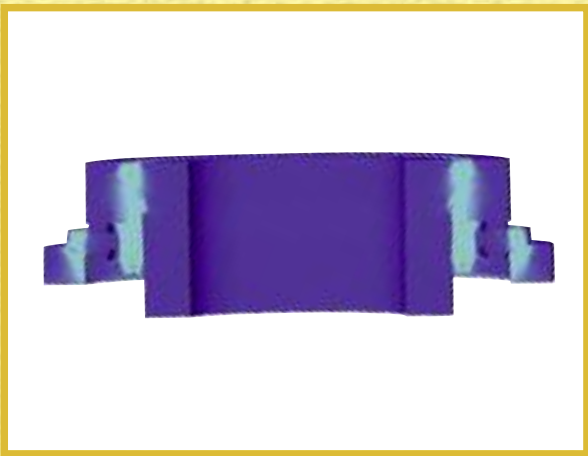


1
Assembly layout without thrust washer
无推力垫圈的装配方式



*Mr = tilting moment
Ax = axial load
Rd = radial load*

2
Assembly layout with thrust washer
有推力垫圈的装配方式



3
Static nodal stress without thrust washer
无推力垫圈的静态节点应力



4
Static nodal stress with thrust washer
有推力垫圈的静态节点应力



Tab. 1 (°)

STIFFNESS VALUE 刚性值						
Bore diameter 孔径 (mm)	Designation 型号	With thrust washer 有推力垫圈		(**)	Without thrust washer 无推力垫圈	
		Axial stiffness 轴向刚性	Tilting stiffness 抗倾覆刚性	Radial stiffness 径向刚性	Axial stiffness 轴向刚性	Tilting stiffness 抗倾覆刚性
		K_{Ax} (kN/ μ m)	K_{MR} (kNm/mrad)	K_{RD} (kN/ μ m)	K_{Ax} (kN/ μ m)	K_{MR} (kNm/mrad)
80	RTB 80	1,9	1,7	2,4	1,8	1,6
100	RTB 100	2,4	3,7	2,0	2,3	3,3
120	RTB 120	3,2	7,6	2,6	3,0	6,5
150	RTB 150	4,0	12,5	3,3	3,7	10,9
180	RTB 180	4,9	20	2,9	4,3	17,1
200	RTB 200	5,5	27,6	2,9	4,9	24,3
260	RTB 260	8,3	51,5	5,7	8,1	48,4
325	RTB 325	9,5	88,5	6,0	9,2	81,3
395	RTB 395	13,1	158,1	5,9	11,5	148,5
460	RTB 460	16,0	218,5	6,3	13,6	209,1

(°) A. m. stiffness values consider the deformation of all components of the bearing (assembled with cap screws). Deviations from the actual values are possible, according to the approximation of the model with respect to the real system.

A.m. 刚性值考虑了轴承所有部件的变形情况（以螺栓组装）。依据实际参数建模得到数值与实际值的可能有一定偏差。

两种装配方式的径向刚性值差异不显著。

(**) As for the radial stiffness values, the differences between the two assembly schemes are insignificant.

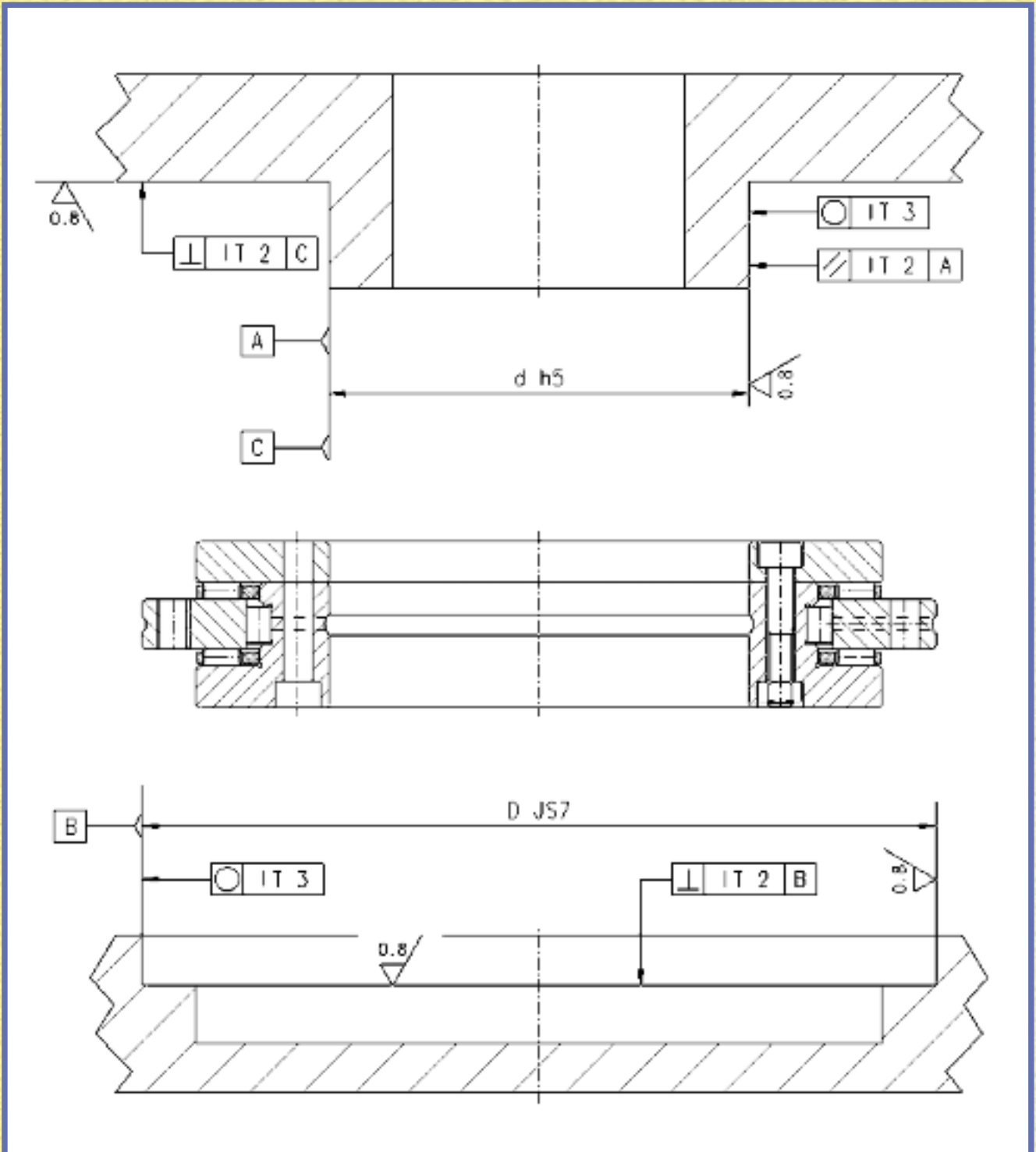
RTB

3. Mounting instructions

For mounting instructions we recommend to follow specifications reported in Pic 5.

3. 安装说明

我们建议遵循图5所示的要求进行安装。



5 Mounting instructions

Note: outer diameter of the washer and inner ring (dimensional table on page 18) are turned.

5 安装说明

注释：内径及垫圈的外径（见18页的参数表）是精车的。



4. Preload

The preload of the bearings increases the stiffness and the rotational accuracy. In presence of a load from the outside, the preload of the bearing eliminates or avoids the backlash corresponding to the elastic yielding due to the load itself. In this case, for a given range of loads, the elastic deformations caused by the load are smaller than in a non-preloaded bearing. Assuming the stiffness is linear (rollers in contact with tracks), at the same axial load the axial deflection is smaller in a preloaded bearings system than in a non-preloaded system (see Pic 6, load F_x).

In Pic 6 the two different situations are represented. Line no. 1 represents the elastic yielding of a non-preloaded system (for instance of two similar axial bearings A) and B), put through the outside load F_x . Line no. 2 refers to the same system assembled with preload equal to value F_o .

As for the preloaded system (line no. 2), the outside axial load F_x charges bearing A and discharges bearing B with a value corresponding to $F_x/2$. As for the non-preloaded system (line no. 1), the outside axial load F_x is fully borne by bearing A with loss of contact of bearing B.

To sum up, the axial stiffness of a preloaded system is twice as much. As for the RTB bearings, to increase the preload value doesn't increase the stiffness but simply shifts the disconnection point to higher force values F_x . In other words, if the axial force from the outside exceeds a value equal to twice the preload value ($F_x > 2F_o$), the bearing B is fully discharged and the axial stiffness of the system is entirely determined by bearing A (as for non-preloaded bearings) but the axial deflection in case (2), as for the last situation, is shorter than in case (1) (see Pic 6).

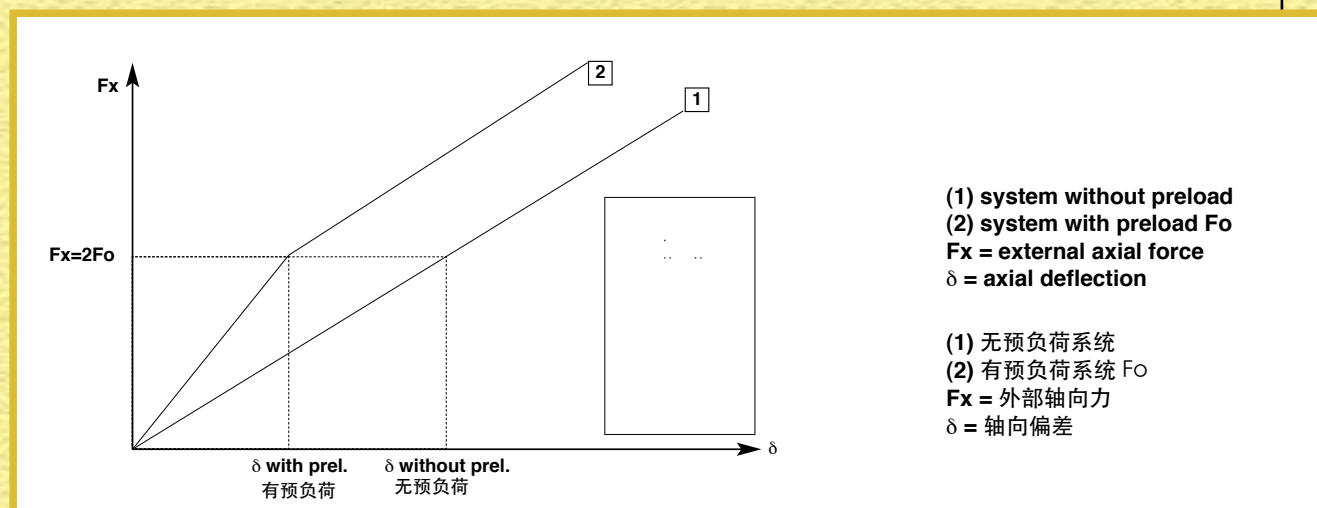
4. 预负荷

轴承预负荷增强了轴承的刚性及旋转精度。在外加负载的情况下，轴承预负荷消除或预防了由载荷引起的弹性屈服所产生的变形。这种情况下，对于一个给定的载荷，对有预载的轴承，其由载荷引起的弹性变形要比无预载的要小。

如果轴承刚性变化呈线性趋势（滚子与轨道接触），在相同的轴向载荷中，加预负荷的轴向变形要比无预负荷的小。（见图6）

图6展示了两种不同的情形。线1表示的是受外部载荷 F_x 的影响下的无预负荷轴承的弹性变形（例如两个相似的轴向轴承A和B）。线2表示是以同一预负荷值 F_o 装配系统。

对于预负荷系统（线2），承受外部轴向载荷 F_x 时，对于负载端轴承A和自由端轴承B负荷均为 $F_x/2$ 。对于无预负荷系统（线1），承受外部轴向载荷 F_x 时，由负载端轴承A承受全部载荷 F_x ，自由端轴承B无接触而不承担载荷。总的来说，加预负荷的轴向刚性是无预负荷系统轴向刚性的两倍。对于RTB轴承，增加预负荷值并不会增加刚性，而只是简单地将分离点载荷值提高 F_x 。换句话说，只有来自外部的轴向力超过了两倍预负荷值的力（ $F_x > 2F_o$ ），那么轴承B才会完全卸载，而轴向刚性单独由轴承A来决定（就像非预负荷轴承），然而，即使后一种情形下在线2的轴向变形也要比线1小（见图6）。



RTB

5. Friction

As for the bearings, the friction depends on many factors, the most important of which are:

- preload
- viscosity and amount of the lubricant
- applied load
- bearing size
- rpm

That is:

- A bigger preload turns out in a bigger rolling friction torque.
- As for the RTB bearings, we suggest to respect following tightening torque values (which are the max values for bolt class 8.8):

M5	M6	M8
6,1 Nm	10,4 Nm	25 Nm

We remind you that as for the **RTB** bearings (standard types), the fixing of the inner ring screws involves the annulment of the dimensional or inner axial backlash as well as the elastic compression of the inner ring.

- Newly greased bearings have higher friction torques.
- A good grease distribution or an ideal oil lubrication is decisive to obtain a lower friction torque.

The friction torque values of the various RTB bearing designs (see Tab. 2) are obtained in the following test conditions:

- 1. Assembly with thrust washer** (see Pic 2).
Failing the thrust ring, in the smaller sizes, it is possible to obtain lower rolling resistance moments.
- 2. Grease lubrication**
Lithium based grease, EP, NLGI 2, 150cst at 40 Celsius deg.
- 3. Operating speed:** 5 rpm
A.m. value includes the starting frictional torque (as a rule the starting torque is lower than 10% of the even value).
- 4. Test temperature:** 30°-40°C

5. 摩擦力

对于轴承来说，摩擦力取决于很多因素，其中最主要的有：

- 预负荷
- 润滑剂的粘度和用量
- 施加的负荷
- 轴承尺寸
- 转速

即：

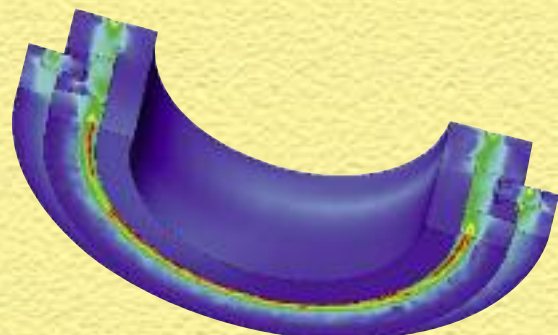
- 预负荷越大，滚动摩擦转矩越大
- 对于RTB轴承，我们建议遵循以下的拧紧扭矩值（等于8.8级螺栓的最大值）

对于RTB轴承（标准型），需要提醒您的是，内圈螺钉固定不当，将产生轴承尺寸或轴向游隙变化，以及产生内圈细微弹性变形。

- 新加脂的轴承具有较高的摩擦转矩
- 良好的油脂分布或者理想的油润滑有利较低的摩擦转矩。

RTB 轴承（见表2）的摩擦转矩值是通过以下测试条件获得的：

- 1. 添加轴向推力垫圈**（见图2）
在没有推力圈的情况下，尺寸越小，就有可能获得较低的滚动抵抗阻力。
- 2. 油脂润滑**
锂基润滑脂，EP, NLGI 2, 摄氏 40度时粘度150cst
- 3. 转速 5 rpm**
A.m. 值包括启动摩擦转矩（设定启动转矩低于10%平均值转矩）
- 4. 测试温度：** 30°-40°C

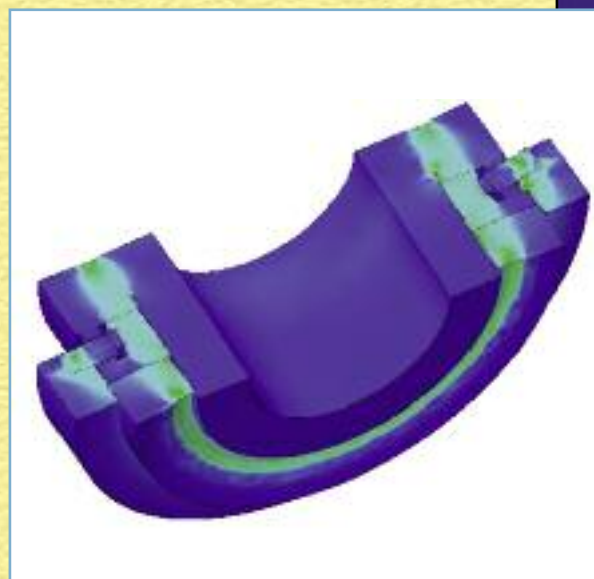




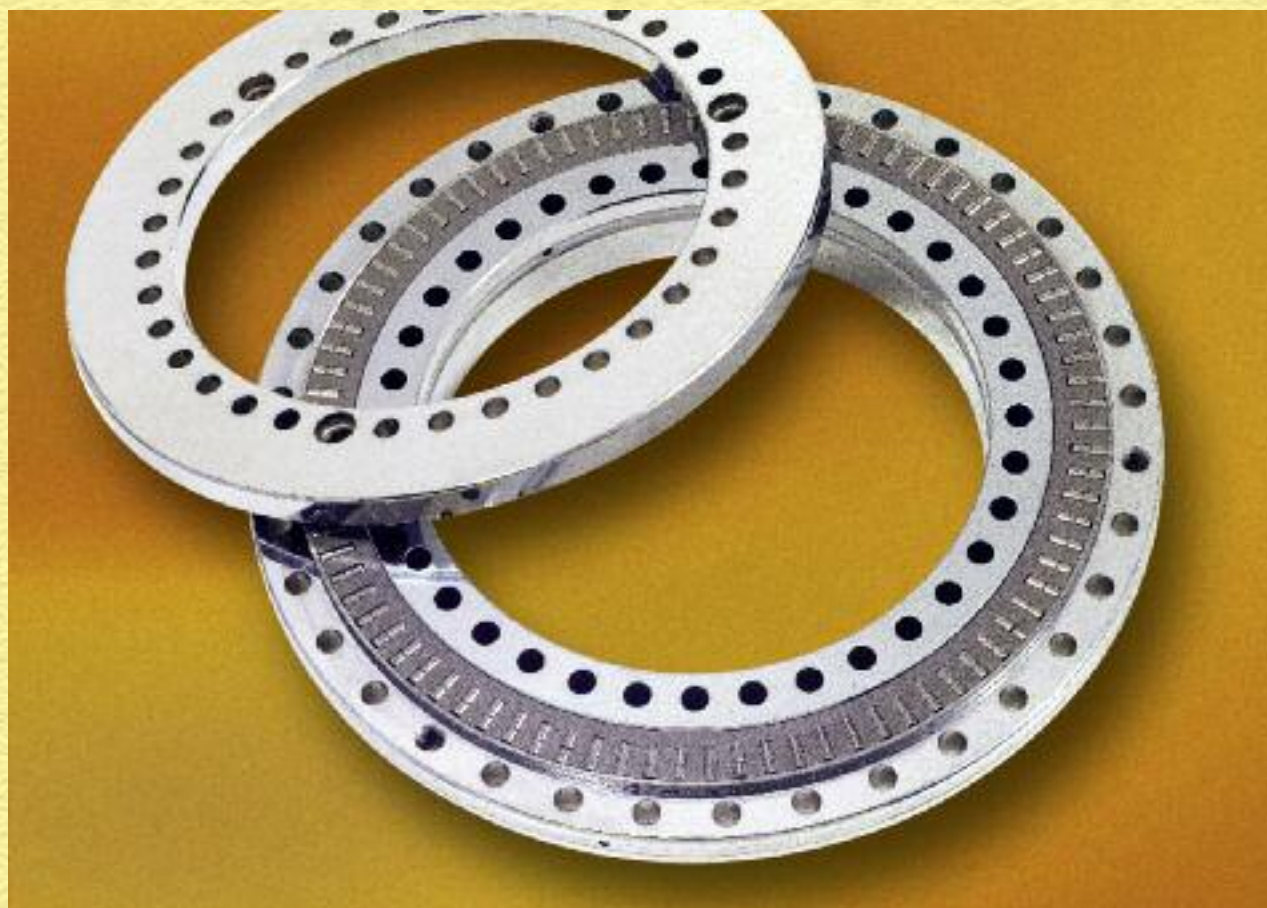
Tab. 2 (°)

ROLLING TORQUE 转矩

Bore diameter 孔直径 (mm)	Designation 型号	Rolling torque 转矩 CRL(Nm)
80	RTB 80	2
100	RTB 100	2
120	RTB 120	8
150	RTB 150	10
180	RTB 180	13
200	RTB 200	15
260	RTB 260	19
325	RTB 325	21
395	RTB 395	25
460	RTB 460	30

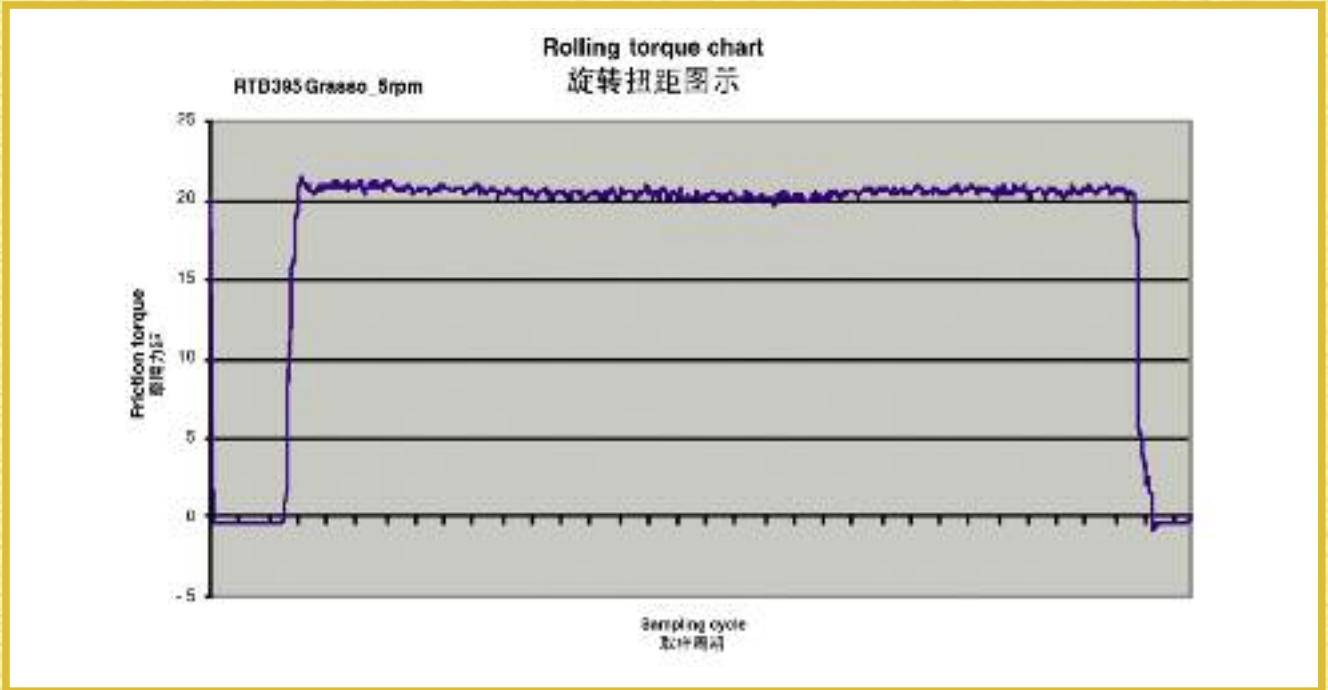


(°) The a.m. values are to be intended as statistical
A.m. 值均采用统计值



RTB

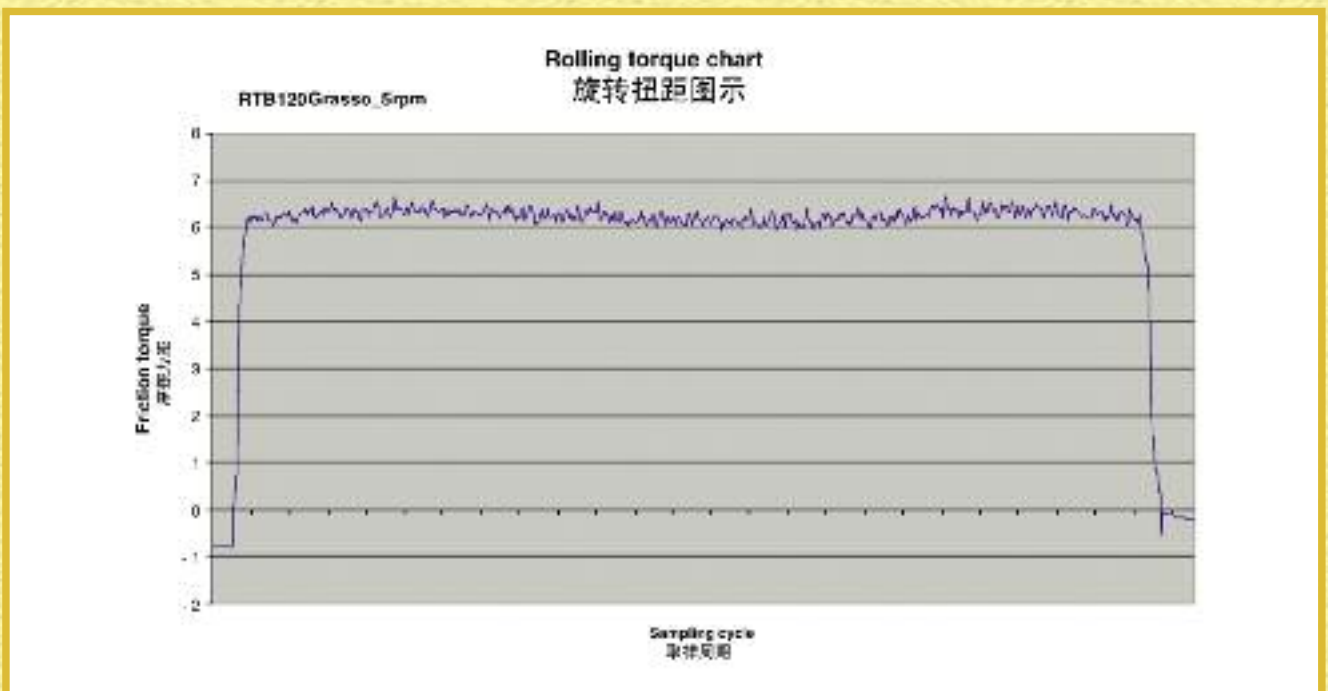
Negligible torque peak.
转距峰值可忽略



7

Pic 7 and Pic 8 report the rolling torque charts at 5 rpm of the RTB 395 and RTB 120. Note that the starting torque peak is negligible.

图7和图8显示了RTB 395 与RTB 120 在5rpm转速下的转矩。请注意，启动转矩峰值可以忽略不计。



8



Tab. 3

OPERATING SPEED (rpm) 转速 (rpm)										
Lubrication 润滑剂类型	RTB 80	RTB 100	RTB 120	RTB 150	RTB 180	RTB 200	RTB 260	RTB 325	RTB 395	RTB 460
Grease 脂	420	330	270	250	230	200	160	130	110	100
Oil 油	870	700	570	520	470	420	320	270	220	200

The a.m. operating speeds shall be considered as limiting speeds in case of continuous working or as average speeds in case of intermittent working with peak speeds exceeding additional 40%. We remind that the lubricant minimum viscosity is decisive to calculate the life remedial factor according to ISO.

A.m 转速可视为在不间断工作和转速峰值情况下运转时间超过40%情况下的极限转速。需要提醒的是，根据ISO标准，润滑剂的最小粘度对轴承寿命系数起决定性作用。

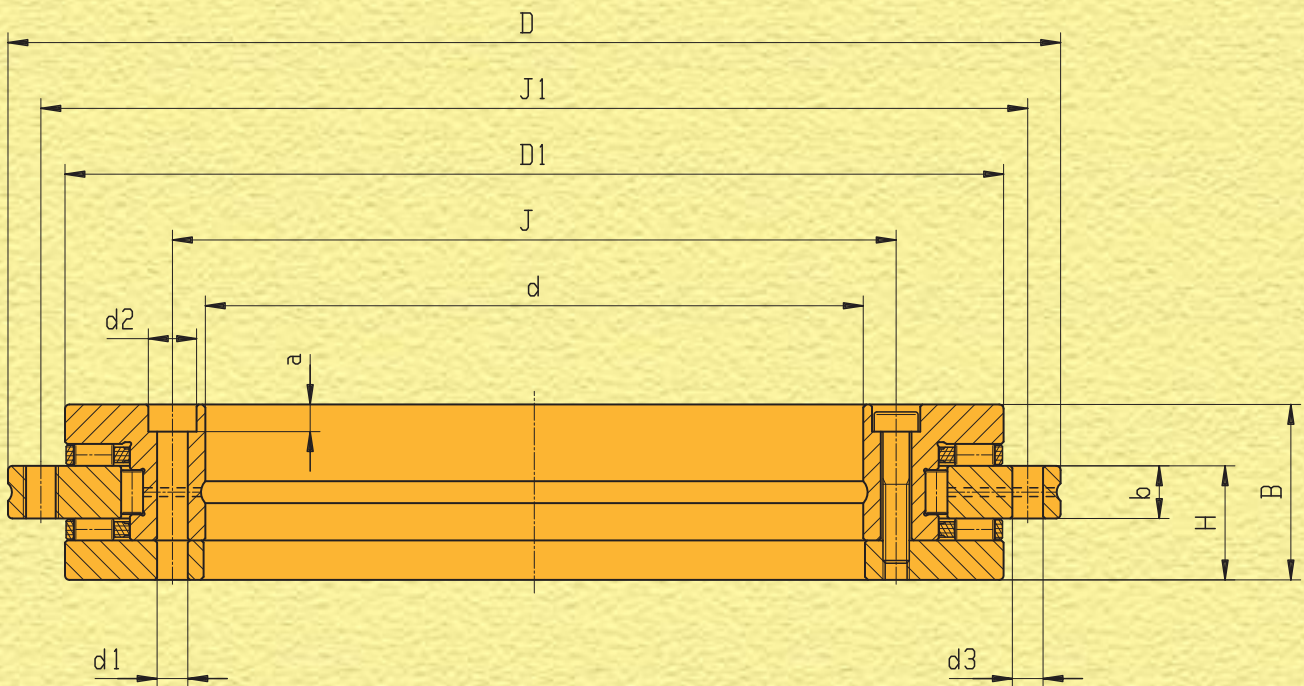
Tab. 4

DIMENSIONAL TOLERANCES 尺寸公差								
RTB	d mm	tol. mm	D mm	tol. mm	B mm	tol. mm	H mm	tol. mm
80	80	0 -0.007	146	0 -0.009	35	0 -0.150	23.35	±0.150
100	100	0 -0.008	185	0 -0.011	38	0 -0.200	25	±0.175
120	120	0 -0.008	210	0 -0.011	40	0 -0.200	26	±0.175
150	150	0 -0.010	240	0 -0.011	40	+0.035 -0.250	26	±0.175
180	180	0 -0.010	280	0 -0.013	43	0 -0.250	29	±0.175
200	200	0 -0.012	300	0 -0.013	45	0 -0.300	30	±0.175
260	260	0 -0.018	385	0 -0.020	55	0 -0.350	36.5	±0.200
325	325	0 -0.023	450	0 -0.023	60	0 -0.400	40	±0.200
395	395	0 -0.023	525	0 -0.028	65	0 -0.400	42.5	±0.200
460	460	0 -0.023	600	0 -0.028	70	0 -0.450	46	±0.225

RTB

COMBINED AXIAL/RADIAL ROLLER BEARING FOR INDEXING TABLES

应用于分度盘的组合三排滚子轴承



DIMENSIONAL TABLE 尺寸表

Part Number oil lub. 型号 油润滑	Part Number grease lub. 型号 脂润滑	Suitable table Ø 适用转台	d mm	D mm	B mm	H mm	b mm	D1 mm	J mm	J1 mm	d1 mm	d2 mm	a mm	Fixing holes n° 固定孔
RTB 80 ⁽¹⁾	RTB 80 G	200	80	146	35	23,35	12	130	92	138	5,6	10	4	9
RTB 100	RTB 100 G	260	100	185	38	25	12	160	112	170	5,6	10	5,4	16
RTB 120 ⁽¹⁾	RTB 120 G	315	120	210	40	26	12	184	135	195	7	11	6,2	22
RTB 150 ⁽¹⁾	RTB 150 G	350	150	240	40	26	12	214	165	225	7	11	6,2	34
RTB 180	RTB 180 G	400	180	280	43	29	15	244	194	260	7	11	6,2	46
RTB 200 ⁽¹⁾	RTB 200 G	500	200	300	45	30	15	274	215	285	7	11	6,2	46
RTB 260	RTB 260 G	630	260	385	55	36,5	18	345	280	365	9,3	15	8,2	34
RTB 325	RTB 325 G	700	325	450	60	40	20	415	342	430	9,3	15 ⁽²⁾	8,2	34
RTB 395	RTB 395 G	800	395	525	65	42,5	20	486	415	505	9,3	15	8,2	46
RTB 460	RTB 460 G	1000	460	600	70	46	22	560	482	580	9,3	15	8,2	46
RTB 580	RTB 580 G	1200	580	750	90	60	30	700	610	720	11,4	18	11	46

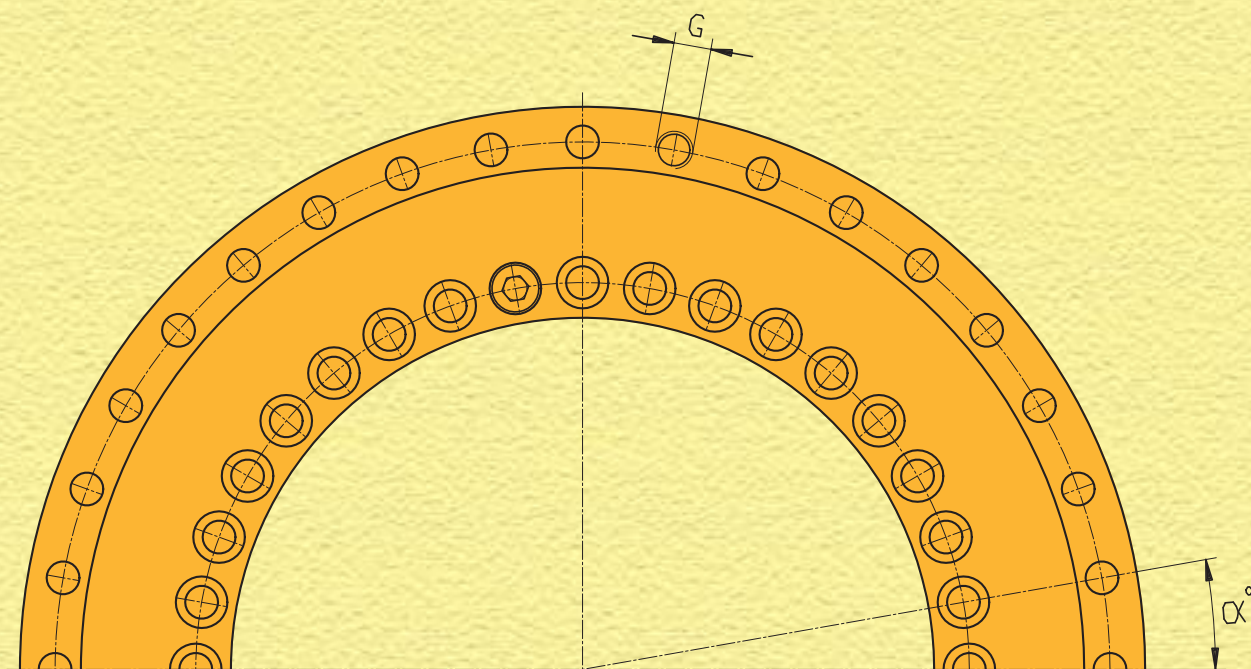
(1) RTB size with axial cages in poliamid PA 66.

(2) Milled slots open towards bearing bore.



FOR THE DIMENSIONAL TOLERANCES, SEE TAB. 4

尺寸公差 (见表4)



精密轴承

PRECISION BEARINGS

Part Number oil lub. 型号 油润滑	Part Number grease lub. 型号 脂润滑	d3 mm	n°d3	Assembly screws n. 组装螺钉	G	n°G	n° × α°	Axial and radial runout 轴向及径 向跳动量 μ	Load ratings according to ISO ISO额定载荷			
									RADIAL 径向		AXIAL 轴向	
									dyn. C kN	stat. Co kN	dyn. Ca kN	stat. Coa kN
RTB 80 ⁽¹⁾	RTB 80 G	4,6	12	3	/	/	12x30°	3	45,3	106,8	55,4	269,4
RTB 100	RTB 100 G	5,6	15	2	M5	3	18x20°	3	56,4	128,5	97,8	509,8
RTB 120 ⁽¹⁾	RTB 120 G	7	21	2	M8	3	24x15°	3	71,9	174,5	108,5	614,9
RTB 150 ⁽¹⁾	RTB 150 G	7	33	2	M8	3	36x10°	3	83,3	210,8	109,7	664,1
RTB 180	RTB 180 G	7	45	2	M8	3	48x7,5°	4	88,5	274,2	125,7	826,4
RTB 200 ⁽¹⁾	RTB 200 G	7	45	2	M8	3	48x7,5°	4	135,4	297,2	103,6	668
RTB 260	RTB 260 G	9,3	33	2	M12	3	36x10°	6	137,9	480,3	125,9	935,9
RTB 325	RTB 325 G	9,3	33	2	M12	3	36x10°	6	151,1	581,4	216,9	1768,9
RTB 395	RTB 395 G	9,3	45	2	M12	3	48x7,5°	6	173,6	699,5	235,6	2085,8
RTB 460	RTB 460 G	9,3	45	2	M12	3	48x7,5°	6	210,1	807,9	260,2	2467
RTB 580	RTB 580 G	11,4	42	2	M12	6	48x7,5°	10	282,0	1177	402	3877

(1) 带轴向保持架 (聚酰胺66 材质) 的RTB 尺寸

(2) 铣槽开口朝向轴承内孔

RTB AMS

Combined axial-radial roller bearings, with integrated inductive encoder

集成感应传感器的组合三排滚子轴承

Technical specification

IDEAL FOR DIRECT DRIVES

UNITEC RTB AMS bearings series, with integrated angle measuring system are bidirectional axial-radial combined, designed for rotary tables and spindle heads for machine tools.

To improve performances of applications where RTB bearings series are installed, UNITEC developed new version RTB AMS, integrating AMOSIN precision inductive measuring system.

The manufacturing precision (in reference at the table 4), low resistant torque, high load capacity and stiffness are positioning this bearings range at the top of the market, qualifying them as the most suitable solution for direct drive installations.

技术规格

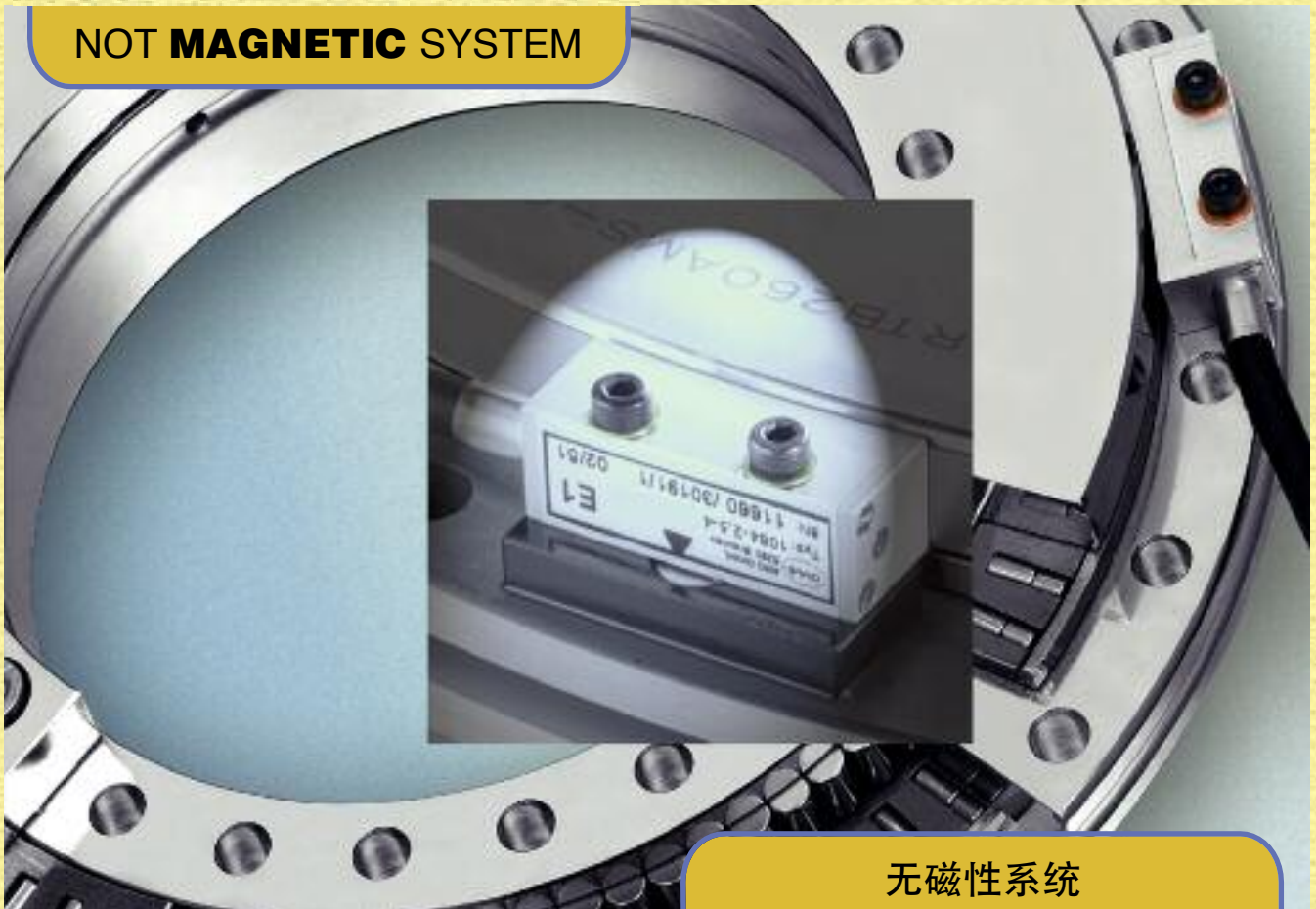
直接驱动的理想选择

UNITEC RTB AMS 轴承，具有轴向-径向组合承载并集成双向角度测量系统，专为机床的旋转工作台和主轴支撑设计的。

对于那些已使用RTB轴承的应用，为了提高其定位性能，UNITEC 引入AMOSIN精密感应测量系统，开发了RTB AMS 轴承。

高制造精度（参考表4），低阻力矩，高负载能力以及高刚性，使这款轴承成为直接驱动设计的最理想解决方案。

NOT MAGNETIC SYSTEM



无磁性系统



UNITEC RTB AMS BEARINGS FEATURES

- *INDUCTIVE MEASURING SYSTEM (NON MAGNETIC)*
- *INSENSITIVITY TO MAGNETIC FIELDS*
- *REAL TIME OUTPUT SIGNALS (IDEAL FOR DIRECT DRIVES)*
- *HIGH ROTATION SPEED*
- *HIGH MEASURING RESOLUTION AND ACCURACY*

Moreover:

- *The most compact solution.*
- *Insensitivity to external agents (IP 67 protected sensors)*
- *Simple installation.*
- *Quickest setting.*
- *Stable and reliable functioning.*
- ***No setting software needed.***

UNITEC RTB AMS轴承性能

- 感应测量系统(不带磁性)
- 对磁场不敏感
- 实时输出信号(最适用于直接驱动)
- 高转速
- 高测量分辨率及高精度

以及:

- 最紧凑的设计
- 自身防护等级高(传感器IP 67防护)
- 安装操作简单
- 设置便捷
- 运行稳定可靠
- 无需软件调试

The system is available in custom configurations, with different precision and resolution level

本系统可提供参数定制，满足不同精度及分辨率需求。

RTB AMS

INDUCTIVE ANGLE MEASURING SYSTEM FEATURES

- Measuring scale available in precision class: $\pm 5 \mu\text{m}$
- Reference marks (zero). Standard version: one reference mark on 360° . Optional reference: several distance-coded reference marks on 360° upon request.
- Output signals 1 Vpp (for term. resistance 120Ω) - optional TTL square wave upon request
- Several interpolation factors in order to adjust the resolution of the system as needed (check Tab. 5)
- Total accuracy of the system up to $\pm 3''$ of arc (max bearing size)

感应角度测量系统的特性

- 测量精度： ± 5 微米
- 标记位置 (0)，普通标准型为： 360° 上有一参考标记。备选类型：根据要求可在 360° 范围内设置多处等间隔基准。
- 输出信号1 Vpp (电阻为 120Ω) - 根据要求可选TTL方波。
- 可通过改变插入因子设置，调节系统码盘分辨率 (见表5)。
- 该系统精度高达 ± 3 角度秒 (最大轴承尺寸)

Tab. 5

RESOLUTION VALUES 分辨率			
Bore dia. 孔径 (mm)	P/N 型号	N° of basic periods 每周的基本周期数 (T/rev)	N° of basic periods with factor 1/32 周期因子原来的1/32 (T/rev)
150	RTB 150 AMS	672	21504
180	RTB 180 AMS	768	24576
200	RTB 200 AMS	864	27618
260	RTB 260 AMS	1088	34816
325	RTB 325 AMS	1296	41472
395	RTB 395 AMS	1512	48384
460	RTB 460 AMS	1752	56064

T = Sinewave period T=正弦波周期

Thanks to the modularity of the system, we can tailor the proposal in order to fulfil customer specific requirements:

• HIGH RESOLUTION CONFIGURATION

(precision scale $\pm 5 \mu\text{m}$, 1 measuring head, interpolation factor 1/32) when requirements are not for extremely high accuracy.

• HIGH RESOLUTION AND HIGH PRECISION CONFIGURATION

(precision scale $\pm 5 \mu\text{m}$, 2 measuring heads, interpolation factor 1/32) for maximum performances in accuracy and resolution.

得益于系统的模块化，我们可以通过方案定制满足客户的特定需要：

• 高分辨率组合

在不需要特别高精度时：测量精度等级 ± 5 微米，分辨率为一个测量头，以1/32为周期因子。

• 高分辨率及高精度配置

在需要最高精度和分辨率时：测量精度等级 ± 5 微米，配上两个测量头，以1/32为周期因子。

For further, possible configurations of the system, please contact us.

如有更高配置要求，请联系我们。

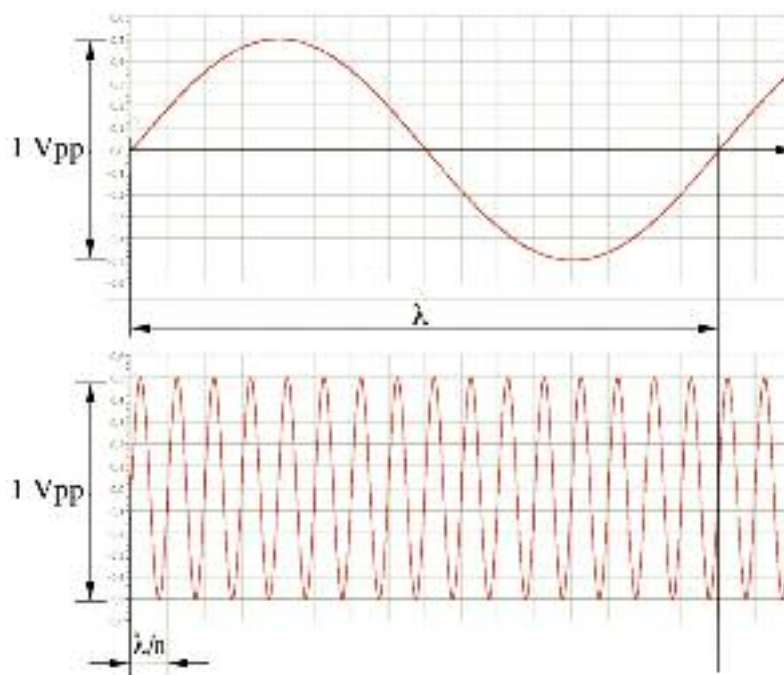


AMOSIN measuring system:

- ▶ is purely inductive.
- ▶ achieves degrees of accuracy up to the optoelectronic systems. High quality of the output signal with sinusoidal accuracy deviations lower than 0.1%.
- ▶ is extremely protected from environmental pollution such as solid particles, grease, oil etc.
- ▶ is extremely high shock and vibration resistant.
- ▶ basic period of 1000 μm related to the precision scale and referred to an arc length of the flange's circumference.
- ▶ is provided with interpolation factor 1/32, which allow to reduce the period length down to approx. 30 μm , with low noise/signal ratio.

AMOSIN 测量系统

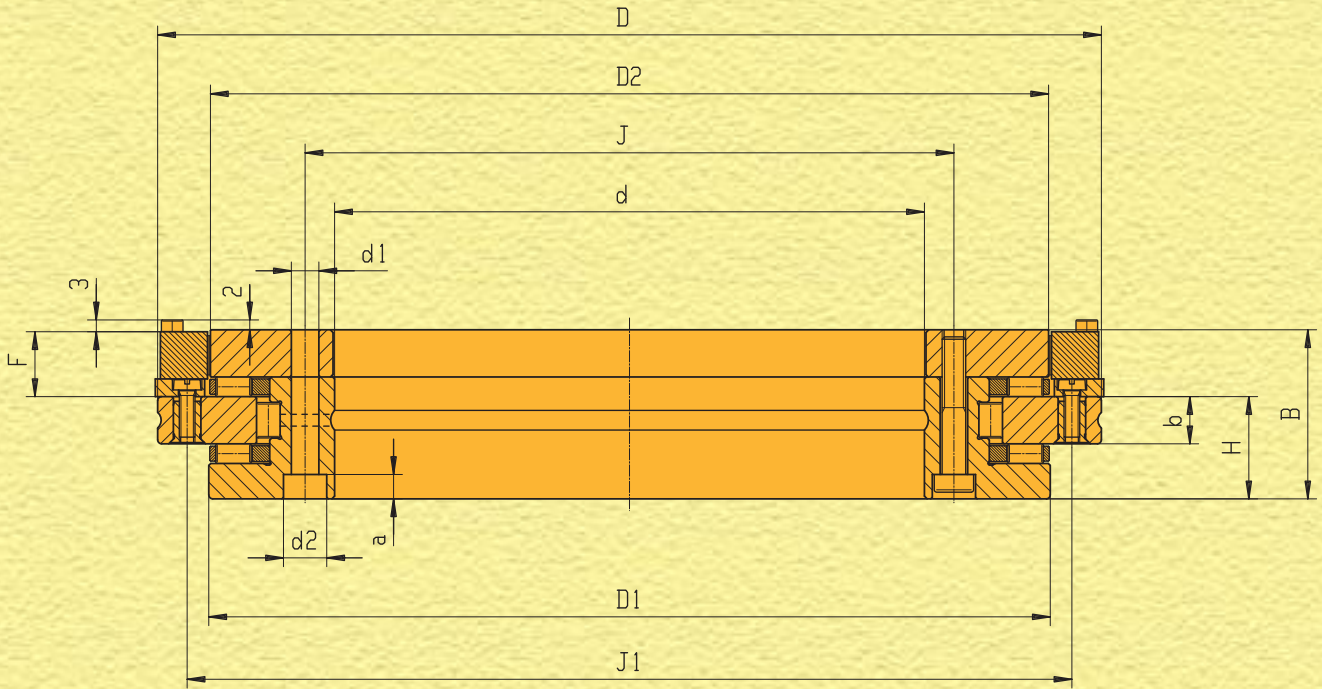
- ▶ 纯粹电感应。
- ▶ 精确度可与光电等同。高质量的输出信号，正弦波形误差率低于0.1%。
- ▶ 不受固体颗粒、油脂及油等污染物干扰。
- ▶ 可承受极大的冲击与振动。
- ▶ 每1000微米表示的基本周期与精度有关，代表轴承法兰圆周上的弧长
- ▶ 周期因子为1/32时，使波长降为约30微米，从而低信噪比大大降低。
- ▶ 周期因子为1/32时，使波长降为约30微米，从而使信噪比大大降低。



部分波长为1mm的正弦波

RTB AMS

COMBINED AXIAL-RADIAL ROLLER BEARINGS, WITH INTEGRATED INDUCTIVE ENCODER
集成感应传感器的组合三排滚子轴承



Extremely compact design

The dimensions indicated in the table below refer to the sensor heads integration. Sizes marked with * differ from relative standard RTB bearings, because of the increased flange thickness.

Attention: we recommend to proceed with the tightening of the scanning heads only after the mounting of the bearing. Furthermore, the fixing screw's head of the outer ring must be reduced (about 1 mm on the diameter), since they could interfere with the graduating scale.

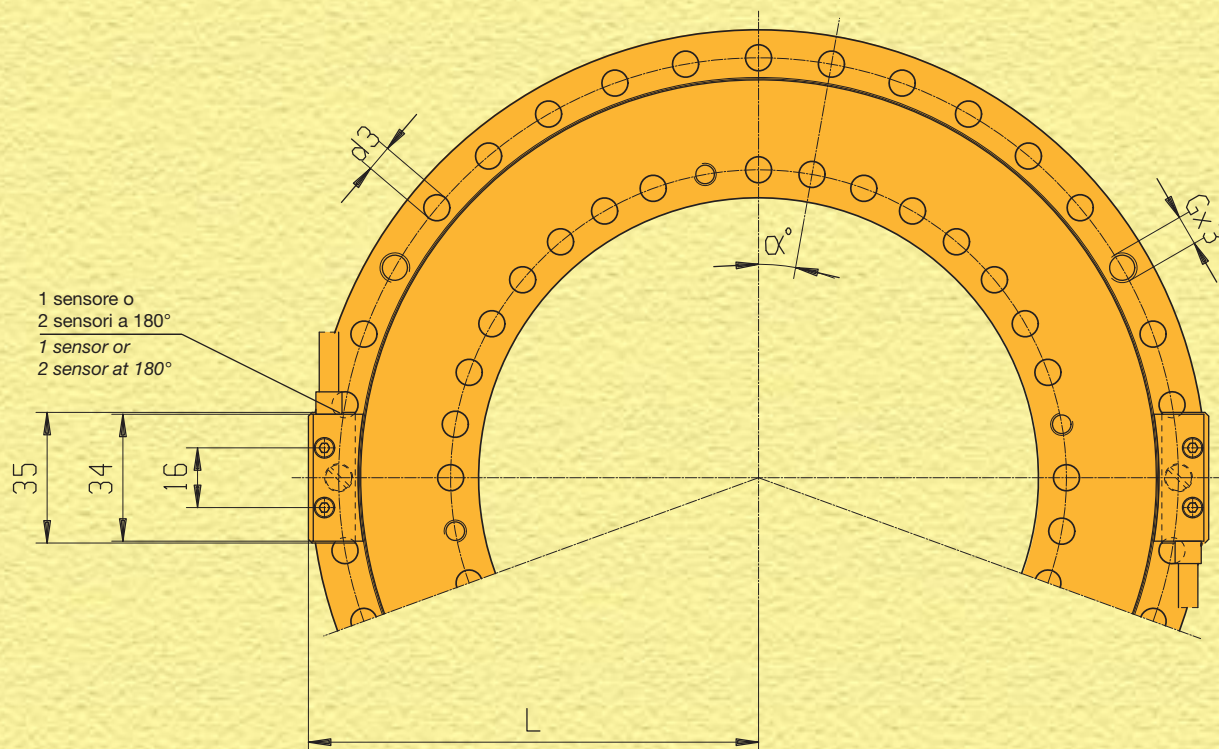
超级紧凑的设计

下表中表示的是和测量探头一起的总尺寸。由于增加的凸缘厚度，表中有*号表示的尺寸与标准RTB轴承厚度有所不同。

注意：我们建议在安装轴承之后再安装测量探头。此外，外圈上的紧固螺钉头直径必须缩小（不能突出外圈直径面上超1 mm），以避免干扰刻度盘。

DIMENSIONAL TABLE 径向滚针与轴向推力圆柱组合轴承

Bore diam. 内径 mm	Bearing P/N 型号	Suitable table ϕ 适用转台	D mm	B mm	H mm	b mm	D1 mm	D2 mm	J mm	J1 mm	F mm	L mm	d1 mm	d2 mm
150 ⁽¹⁾	RTB 150 AMS	350	240	43*	26	12	214	215	165	225	16,5	121	7	11
180	RTB 180 AMS	400	280	46*	29	15	244	245	194	260	16,5	140	7	11
200 ⁽¹⁾	RTB 200 AMS	500	300	47*	30	15	274	276	215	285	16,5	152	7	11
260	RTB 260 AMS	630	385	55	36.5	18	345	345,5	280	365	17,5	192,5	9.3	15
325	RTB 325 AMS	700	450	60	40	20	415	415,5	342	430	18,5	225	9.3	15 ⁽²⁾
395	RTB 395 AMS	800	525	65	42.5	20	486	486,5	415	505	18,5	262,5	9.3	15
460	RTB 460 AMS	1000	600	70	46	22	560	560,5	482	580	18,5	300	9.3	15



AMOSIN measuring system

Precision	High
Rotation speed	High
Sensitivity to grease, oil, dust	Resistant
Sensitivity to steel and magnetic grains	Resistant
Sensitivity to magnetic interference fields	Resistant
Resistance to shock and vibrations	Resistant
Sensitivity to temperature variation	Low

AMOSIN 测量系统

精度	高
转速	高
油脂,油,粉尘敏感性	抗干扰
对铁屑及磁粒的敏感度	抗干扰
对磁场的敏感度	抗干扰
抗冲击和振动	抗干扰
对温度变化的敏感度低	低

a mm	Fixing holes n° 装配孔	d3 mm	Nr. d3 mm	Assembly screws n° 装配螺栓	G	Nr. G	α°	Axial and radial runout 轴向及径向跳动 μm	Load ratings according to ISO ISO 额定载荷				Max speed oil 极限转速 油润滑 rpm	Max speed grease 极限转速 脂润滑 rpm
									RADIAL 径向		AXIAL 轴向			
								Din kN C	Stat. kN Co	Din kN Ca	Stat. kN Cao			
6.2	32	7	33	4	M8	3	$36 \times 10^\circ$	3	83,3	210,8	109,7	664,1	520	250
6.2	44	7	45	4	M8	3	$48 \times 7.5^\circ$	4	88,5	274,2	125,7	826,4	470	230
6.2	44	7	45	4	M8	3	$48 \times 7.5^\circ$	4	135,4	297,2	103,6	668	420	200
8.2	32	9.3	33	4	M12	3	$36 \times 10^\circ$	6	137,9	480,3	125,9	935,9	320	160
8.2	32	9.3	33	4	M12	3	$36 \times 10^\circ$	6	151,1	581,4	216,9	1768,9	270	130
8.2	44	9.3	45	4	M12	3	$48 \times 7.5^\circ$	6	173,6	699,5	235,6	2085,8	220	110
8.2	44	9.3	45	4	M12	3	$48 \times 7.5^\circ$	6	210,1	807,9	260,2	2467	200	100

SRB

Needle and roller bearings for screw drives
丝杠支撑轴承

technology evolution

Advanced technology allows to reach very high cutting speeds while securing the precision level requested for each application. UNITEC SRB combined bearings enhance static and dynamic stiffness of your ballscrews.

先进的科技的采用，使机床加工速度可达到极高水平，同时又确保产品满足不同应用的各种精度等级的要求。

UNITEC的SRB组合轴承可以提高您的丝杠动态及静态刚度。

技术发展



Description and specifications

SRB series bearings consist of a needle roller radial bearing with solid outer ring and an extended inner ring. The side surfaces of the outer ring act as tracks for the two axial cages. The two axial cages are centered on the inner ring.

Thanks to this design it is possible to realize a precision journal, having little overall dimensions and high stiffness.

All SRB bearing designs have been developed in order to be a radial/axial support for precision ball screws of machine tools. In order to obtain max stiffness, these bearings are preloaded by means of a locknut. (See Tab. 6 locknuts selection page 39)



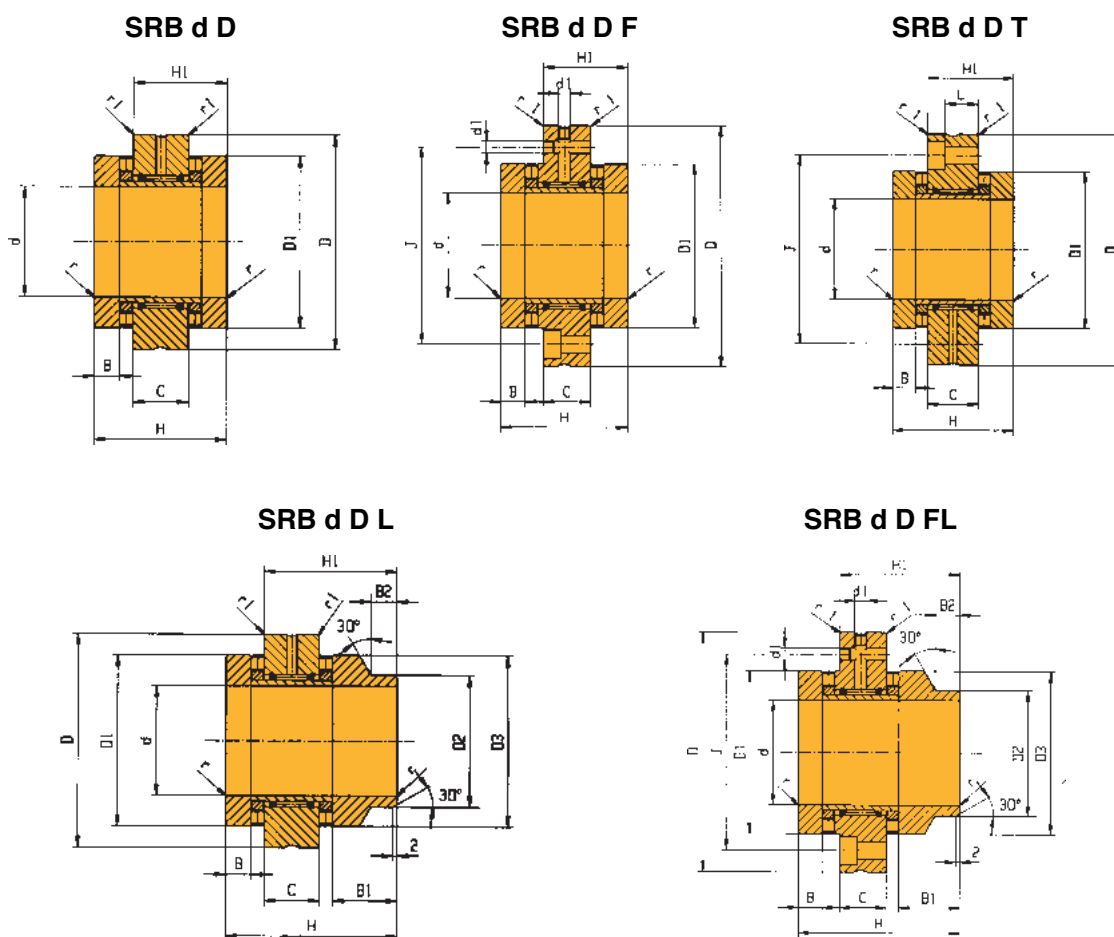
规格说明

SRB轴承是由一个有坚固外圈和一个加长内圈所组成的径向滚针轴承。外圈两侧面作为两个轴向止推轴承（保持架/滚子）的滚道。这两个轴向止推轴承中心跟滚针轴承的内圈中心重合。SRB这种设计，可以提高丝杠轴的精度，同时减小整体尺寸并提高刚性。

为了满足机床精密丝杠的轴向、径向支撑的需求，所有SRB轴承的设计取得很大的改进和提高。为了获得最大的刚性，这些轴承将由锁紧螺母进行预紧（见39页表6—锁紧螺母的选型）。

SRB bearings P/N designation

SRB 轴承类型

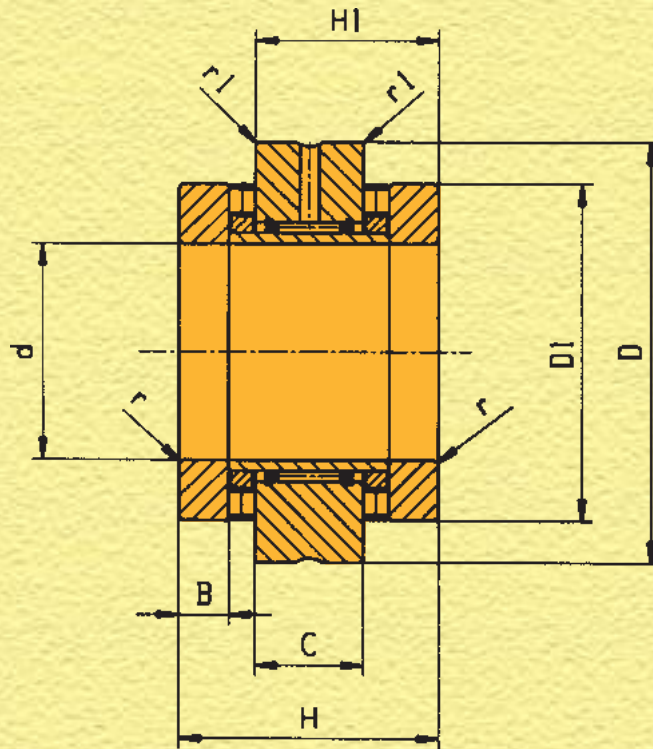


D = outer diameter

D = 外径

SRB

RADIAL NEEDLE ROLLER COMBINED WITH AXIAL CYLINDRICAL ROLLER
径向滚针与轴向推力圆柱组合轴承



DIMENSIONAL TABLE 径向滚针与轴向推力圆柱组合轴承

d mm	Part Number 型号	D mm	H mm	H1 mm	C mm	D1 mm	B mm	r mm	r1 mm	Weight 重量
15	SRB 1545	45	40	28	16	35	7	0,5	1	0.3
20	SRB 2052	52	46	31	16	42	10	0,5	1	0.4
20	SRB 2062	62	60	40	20	52	12,5	0,5	1	0.9
25	SRB 2557	57	50	35	20	47	10	0,5	1	0.5
25	SRB 2572	72	60	40	20	62	12,5	0,5	1	1.2
30	SRB 3062	62	50	35	20	52	10	0,5	1	0.6
30	SRB 3080	80	66	43	20	68	14	0,5	1	1.5
35	SRB 3570	70	54	37	20	60	11	0,7	1	0.8
35	SRB 3585	85	66	43	20	73	14	0,7	1	1.6
40	SRB 4075	75	54	37	20	65	11	0,7	1	0.9
40	SRB 4090	90	75	50	25	78	16	0,7	1	2.1
45	SRB 4580	80	60	42,5	25	70	11,5	0,7	1	1.15
45	SRB 45105	105	82	53,5	25	90	17,5	0,7	1	3.05
50	SRB 5090	90	60	42,5	25	78	11,5	0,7	1	1.45
50	SRB 50110	110	82	53,5	25	95	17,5	0,7	1	3.3
55	SRB 55115	115	82	53,5	25	100	17,5	0,7	1	3.5
60	SRB 60120	120	82	53,5	25	105	17,5	1	1	3.8
65	SRB 65125	125	82	53,5	25	110	17,5	1	1	4
70	SRB 70130	130	82	53,5	25	115	17,5	1	1	4.2
75	SRB 75155	155	100	65	30	135	21	1	1,5	7.9
90	SRB 90180	180	110	72,5	35	160	22,5	1	1,5	11.8



GEOMETRICAL AND ROTATIONAL ACCURACY ACCORDING TO TOLERANCE CLASS P4

符合P4精度等级的尺寸精度及旋转精度

DIMENSIONAL TOLERANCES 尺寸公差

d inner ring d 内圈	according to tolerance class P6 reduced 符合公差P6级及以上	
d washer d 垫圈	H5 reduced H5 及以上	
D	according to tolerance class P6 reduced 符合公差P6级及以上	
H	according to tolerance class P6 符合P6级公差	
H1	from d = 15 to d = 50:	+10 μ m -80 μ m
	from d = 55 to d = 80:	+10 μ m -100 μ m
	d = 90:	+10 μ m -120 μ m
D1	h 7	

RADIAL CLEARANCE:
径向游隙 C2

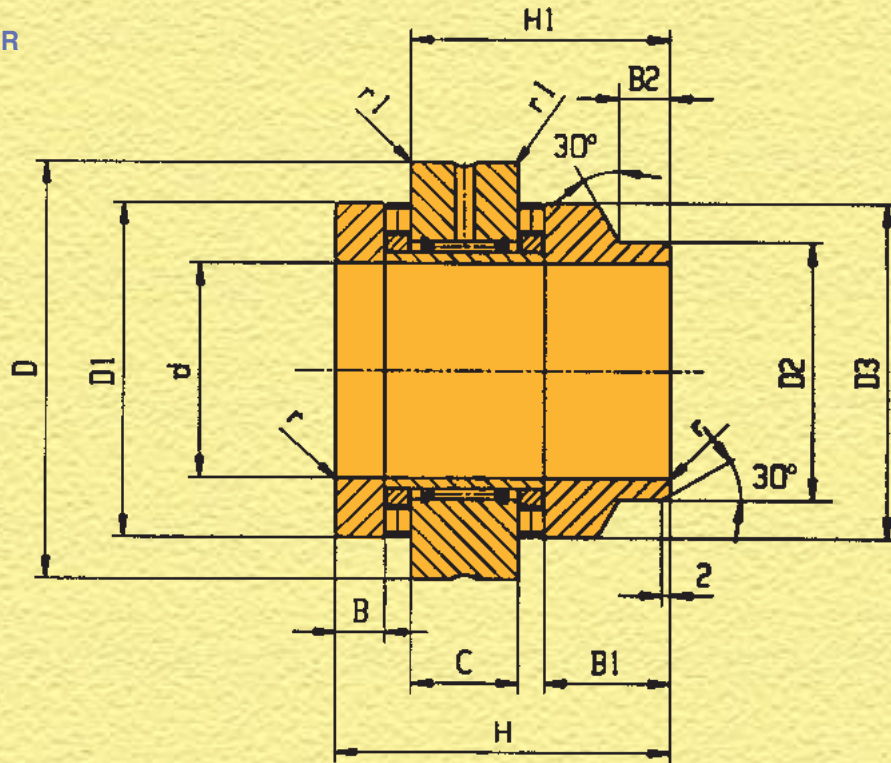
AXIAL CLEARANCE:
轴向游隙 -1 μ m +1 μ m

Part Number 型号	Load ratings according to ISO ISO额定载荷				Axial stiffness K _{AX} 轴向刚度 (kN/ μ m)	Friction torque C _{RL} 摩擦转矩 (Nm)	Max speed oil 极限转速 油润滑 rpm	Max speed grease 极限转速 脂润滑 rpm
	AXIAL 轴向		RADIAL 径向					
	dyn. Ca kN	stat. Coa kN	dyn. C kN	stat. Co kN				
SRB 1545	25	41,2	8,4	11,1	1,3	0,2	8500	2200
SRB 2052	32,7	64,8	9,6	14,6	2,0	0,3	7000	2000
SRB 2062	58,8	105,9	14,6	22,3	2,2	0,7	6000	1500
SRB 2557	34,8	75,2	13,4	24,5	1,3	0,4	6000	1900
SRB 2572	74,5	160,2	16,2	27,2	4,7	0,8	4900	1400
SRB 3062	35,3	81,1	16,2	27,2	2,4	0,4	5500	1800
SRB 3080	90,4	181,5	17,6	32,5	3,1	1,4	4400	1300
SRB 3570	50,7	117,5	17,6	32,5	2,8	0,7	4800	1700
SRB 3585	98,7	212,7	18,4	35,1	3,6	1,6	4000	1250
SRB 4075	55,7	138,7	18,4	35,1	3,3	0,9	4400	1600
SRB 4090	101,8	229,9	25,5	55	3,8	1,8	3700	1200
SRB 4580	56,6	146,7	25,5	55	3,5	1,0	4000	1500
SRB 45105	151,3	344	31,8	54,2	4,7	3,1	3300	1150
SRB 5090	84,3	255,9	31,8	66,3	4,4	1,2	3600	1200
SRB 50110	163,1	391,2	35,6	64,5	5,3	3,6	3100	1100
SRB 55115	160,8	394,8	26,4	55,1	5,2	3,7	2900	1000
SRB 60120	171,6	442,6	36,1	84,7	5,8	4,3	2700	950
SRB 65125	175,9	468	54	104	6,1	4,6	2600	900
SRB 70130	180,1	493,4	65	131	6,3	5,0	2400	800
SRB 75155	257,9	678,6	79,5	147	6,7	8,1	2100	700
SRB 90180	309,8	876,1	103	220	8,3	11,3	1800	700

SRB-L

RADIAL NEEDLE ROLLER COMBINED WITH AXIAL CYLINDRICAL ROLLER
径向滚针与轴向推力圆柱组合轴承

WITH EXTENDED WASHER
有延伸垫圈



DIMENSIONAL TABLE 尺寸表

d mm	Part Number 型号	D mm	H mm	H1 mm	C mm	D1 mm	D2 mm	D3 mm	B mm	B1 mm	B2 mm	r mm	r1 mm	Weight 重量
15	SRB 1545 L	45	53	41	16	35	24	34,8	7	20	11	0,5	1	0.37
20	SRB 2052 L	52	60	45	16	42	30	40	10	24	11	0,5	1	0.46
20	SRB 2062 L	62	75	55	20	52	40	50	12,5	27,5	11	0,5	1	0.98
25	SRB 2557 L	57	65	50	20	47	36	45	10	25	11	0,5	1	0.6
25	SRB 2572 L	72	75	55	20	62	48	60	12,5	27,5	11	0,5	1	1.32
30	SRB 3062 L	62	65	50	20	52	40	50	10	25	11	0,5	1	0.7
30	SRB 3080 L	80	82	59	20	68	52	66	14	30	12	0,5	1	1.7
35	SRB 3570 L	70	70	53	20	60	45	58	11	27	12	0,7	1	0.9
35	SRB 3585 L	85	82	59	20	73	60	73	14	30	12	0,7	1	1.8
40	SRB 4075 L	75	70	53	20	65	50	63	11	27	12	0,7	1	1
40	SRB 4090 L	90	93	68	25	78	60	78	16	34	12	0,7	1	2.4
45	SRB 4580 L	80	75	57,5	25	70	56	68	11,5	26,5	12	0,7	1	1.27
45	SRB 45105 L	105	103	74,5	25	90	70	88	17,5	38,5	14	0,7	1	3.42
50	SRB 5090 L	90	78	60,5	25	78	60	78	11,5	29,5	12	0,7	1	1.8
50	SRB 50110 L	110	103	74,5	25	95	75	93	17,5	38,5	14	0,7	1	3.8
55	SRB 55115 L	115	103	74,5	25	100	80	98	17,5	38,5	14	0,7	1	4
60	SRB 60120 L	120	103	74,5	25	105	90	105	17,5	38,5	16	1	1	4.85
65	SRB 65125 L	125	103	74,5	25	110	90	108	17,5	38,5	16	1	1	4.6
70	SRB 70130 L	130	103	74,5	25	115	100	115	17,5	38,5	16	1	1	4.85
75	SRB 75155 L	155	125	90	30	135	115	135	21	46	16	1	1,5	9.1
90	SRB 90180 L	180	135	97,5	35	160	130	158	22,5	47,5	16	1	1,5	13.2



GEOMETRICAL AND ROTATIONAL ACCURACY ACCORDING TO TOLERANCE CLASS P4

符合P4精度等级的尺寸精度及旋转精度

DIMENSIONAL TOLERANCES 尺寸公差

d	inner ring	according to tolerance class P6 reduced
d	内圈	符合公差P6级及以上
d	washer	H5 reduced
d	垫圈	H5 及以上
D		according to tolerance class P6 reduced 符合公差P6级及以上
H		according to tolerance class P6 符合P6级公差
H1	from d = 15 to d = 50:	+10 μ m -80 μ m
	from d = 55 to d = 80:	+10 μ m -100 μ m
	d = 90:	+10 μ m -100 μ m
D1	h 7	

RADIAL CLEARANCE: C2
径向游隙

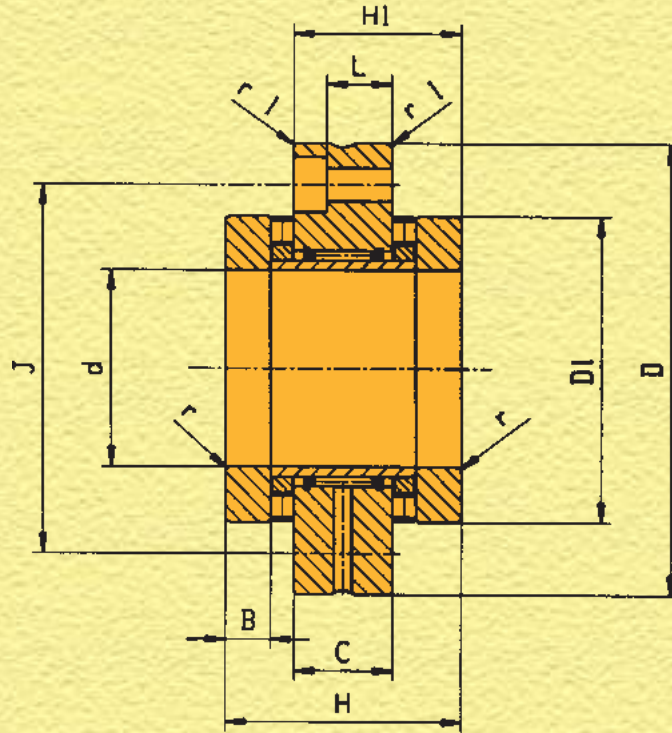
AXIAL CLEARANCE: -1 μ m +1 μ m
轴向游隙

Part Number 型号	Load ratings according to ISO ISO额定载荷				Axial stiffness K _{AX} 轴向刚度 (kN/ μ m)	Friction torque C _{RL} 摩擦转矩 (Nm)	Max speed oil 极限转速 油润滑 rpm	Max speed grease 极限转速 脂润滑 rpm
	AXIAL 轴向		RADIAL 径向					
	dyn. Ca kN	stat. Coa kN	dyn. C kN	stat. Co kN				
SRB 1545 L	25	41,2	8,4	11,1	1,3	0,2	8500	2200
SRB 2052 L	32,7	64,8	9,6	14,6	2,0	0,3	7000	2000
SRB 2062 L	58,8	105,9	14,6	22,3	2,2	0,7	6000	1500
SRB 2557 L	34,8	75,2	13,4	24,5	1,3	0,4	6000	1900
SRB 2572 L	74,5	160,2	16,2	27,2	4,7	0,8	4900	1400
SRB 3062 L	35,3	81,1	16,2	27,2	2,4	0,4	5500	1800
SRB 3080 L	90,4	181,5	17,6	32,5	3,1	1,4	4400	1300
SRB 3570 L	50,7	117,5	17,6	32,5	2,8	0,7	4800	1700
SRB 3585 L	98,7	212,7	18,4	35,1	3,6	1,6	4000	1250
SRB 4075 L	55,7	138,7	18,4	35,1	3,3	0,9	4400	1600
SRB 4090 L	101,8	229,9	25,5	55	3,8	1,8	3700	1200
SRB 4580 L	56,6	146,7	25,5	55	3,5	1,0	4000	1500
SRB 45105 L	151,3	344	31,8	54,2	4,7	3,1	3300	1150
SRB 5090 L	84,3	255,9	31,8	66,3	4,4	1,2	3600	1200
SRB 50110 L	163,1	391,2	35,6	64,5	5,3	3,6	3100	1100
SRB 55115 L	160,8	394,8	26,4	55,1	5,2	3,7	2900	1000
SRB 55115 L	171,6	442,6	36,1	84,7	5,8	4,3	2700	950
SRB 65125 L	175,9	468	54	104	6,1	4,6	2600	900
SRB 70130 L	180,1	493,4	65	131	6,3	5,0	2400	800
SRB 75155 L	257,9	678,6	79,5	147	6,7	8,1	2100	700
SRB 90180 L	308,9	876,1	103	220	8,3	11,3	1800	700

SRB-T

RADIAL NEEDLE ROLLER COMBINED WITH AXIAL CYLINDRICAL ROLLER
径向滚针与轴向推力圆柱组合轴承

WITH FIXING HOLES
有定位孔



DIMENSIONAL TABLE 尺寸表

d mm	Part Number 型号	D mm	H mm	H1 mm	C mm	D1 mm	B mm	r mm	r1 mm	L mm	J mm	Fixing screws 固定螺栓		Weight 重量
												Type	no.	
15	SRB 1560 T	60	46	31	16	35	10	0,5	1	9	46	M 6	6	0.43
20	SRB 2068 T	68	46	31	16	42	10	0,5	1	9	53	M 6	8	0.55
20	SRB 2080 T	80	60	40	20	52	12,5	0,5	1	13	63	M 6	12	1.09
25	SRB 2575 T	75	50	35	20	47	10	0,5	1	13	58	M 6	8	0.77
25	SRB 2590 T	90	60	40	20	62	12,5	0,5	1	13	73	M 6	12	1.4
30	SRB 3080 T	80	50	35	20	53,4	10	0,5	1	13	63	M 6	12	0.85
30	SRB 30105 T	105	66	43	20	68	14	0,5	1	11	85	M 8	12	1.9
35	SRB 3590 T	90	54	37	20	60,4	11	0,7	1	13	73	M 6	12	1.1
35	SRB 35110 T	110	66	43	20	73	14	0,7	1	11	88	M 8	12	2.1
40	SRB 40100 T	100	54	37	20	65,4	11	0,7	1	11	80	M 8	8	1.3
40	SRB 40115 T	115	75	50	25	78	16	0,7	1	16	94	M 8	12	2.75
45	SRB 45105 T	105	60	42,5	25	70,4	11,5	0,7	1	16	85	M 8	8	1.7
45	SRB 45130 T	130	82	53,5	25	90	17,5	0,7	1	16	105	M 8	12	3.7
50	SRB 50115 T	115	60	42,5	25	78,4	11,5	0,7	1	16	94	M 8	12	2
50	SRB 50140 T	140	82	53,5	25	95	17,5	0,7	1	14	113	M 10	12	4.2
55	SRB 55145 T	145	82	53,5	25	100	17,5	0,7	1	14	118	M 10	12	4.4
60	SRB 60150 T	150	82	53,5	25	105	17,5	1	1	14	123	M 10	12	4.6
65	SRB 65155 T	155	82	53,5	25	110	17,5	1	1	14	128	M 10	12	4.9
70	SRB 70160 T	160	82	53,5	25	115	17,5	1	1	14	133	M 10	12	5.1
75	SRB 75185 T	185	100	65	30	135	21	1	1,5	17	155	M 12	12	8.9
90	SRB 90210 T	210	110	72,5	35	160	22,5	1	1,5	22	180	M 12	16	13.2



GEOMETRICAL AND ROTATIONAL ACCURACY ACCORDING TO TOLERANCE CLASS P4

符合P4精度等级的尺寸精度及旋转精度

DIMENSIONAL TOLERANCES 尺寸公差

d	inner ring	according to tolerance class P6 reduced
d	内圈	符合公差P6级及以上
d	washer	H5 reduced
d	垫圈	H5 及以上
D		according to tolerance class P6 reduced 符合公差P6级及以上
H		according to tolerance class P6 符合P6级公差
H1	from d = 15 to d = 50:	+10 μ m -80 μ m
	from d = 55 to d = 80:	+10 μ m -100 μ m
	d = 90:	+10 μ m -120 μ m
D1	h 7	

RADIAL CLEARANCE: C2
径向游隙

AXIAL CLEARANCE: -1 μ m +1 μ m
轴向游隙

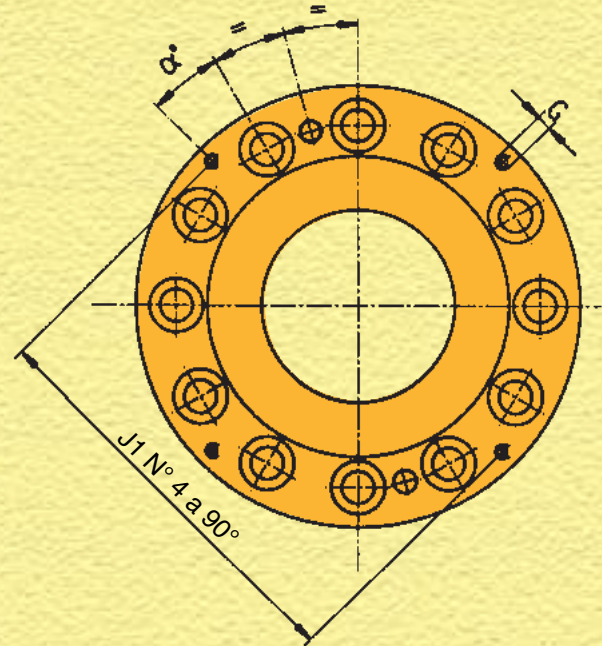
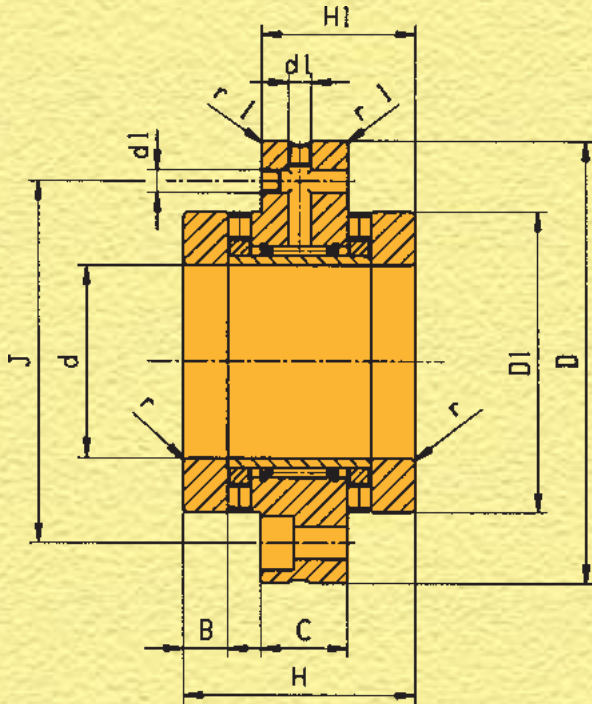
Part Number 型号	Load ratings according to ISO ISO额定载荷				Axial stiffness K _{AX} 轴向刚度 (kN/ μ m)	Friction torque C _{RL} 摩擦转矩 (Nm)	Max speed oil 极限转速 油润滑 rpm	Max speed grease 极限转速 脂润滑 rpm
	AXIAL 轴向		RADIAL 径向					
	dyn. Ca kN	stat. Coa kN	dyn. C kN	stat. Co kN				
SRB 1560 T	25	41,2	8,4	11,1	1,3	0,2	8500	2200
SRB 2068 T	32,7	64,8	9,6	14,6	2,0	0,3	7000	2000
SRB 2080 T	58,8	105,9	14,6	22,3	2,2	0,7	6000	1500
SRB 2575 T	34,8	75,2	13,4	24,5	1,3	0,4	6000	1900
SRB 2590 T	74,5	160,2	16,2	27,2	4,7	0,8	4900	1400
SRB 3080 T	35,3	81,1	16,2	27,2	2,4	0,4	5500	1800
SRB 30105 T	90,4	181,5	17,6	32,5	3,1	1,4	4400	1300
SRB 3590 T	50,7	117,5	17,6	32,5	2,8	0,7	4800	1700
SRB 35110 T	98,7	212,7	18,4	35,1	3,6	1,6	4000	1250
SRB 40100 T	55,7	138,7	18,4	35,1	3,3	0,9	4400	1600
SRB 40115 T	101,8	229,9	25,5	55	3,8	1,8	3700	1200
SRB 45105 T	56,6	146,7	25,5	55	3,5	1,0	4000	1500
SRB 45130 T	151,3	344	31,8	54,2	4,7	3,1	3300	1150
SRB 50115 T	84,3	255,9	31,8	66,3	4,4	1,2	3600	1200
SRB 50140 T	163,1	391,2	35,6	64,5	5,3	3,6	3100	1100
SRB 55145 T	160,8	394,8	26,4	55,1	5,2	3,7	2900	1000
SRB 60150 T	171,6	442,6	36,1	84,7	5,8	4,3	2700	950
SRB 65155 T	175,9	468	54	104	6,1	4,6	2600	900
SRB 70160 T	180,1	493,4	65	131	6,3	5,0	2400	800
SRB 75185 T	257,9	678,6	79,5	147	6,7	8,1	2100	700
SRB 90210 T	309,8	876,1	103	220	8,3	11,3	1800	700

SRB-F

RADIAL NEEDLE ROLLER COMBINED WITH AXIAL CYLINDRICAL ROLLER
径向滚针与轴向推力圆柱组合轴承

WITH FIXING FLANGE

有固定凸缘



DIMENSIONAL TABLE 尺寸表

d mm	Part Number 型号	D mm	H mm	H1 mm	C mm	D1 mm	B mm	r mm	r1 mm	d1 mm	J mm	Fixing screws 固定螺栓		Weight 重量
												Type	no.	
15	SRB 1560 F	60	40	26	14	35	7	0,5	1	3,2	46	M 6	6	0.42
20	SRB 2068 F	68	46	29	14	42	10	0,5	1	3,2	53	M 6	8	0.55
20	SRB 2080 F	80	60	38	18	52	12,5	0,5	1	3,2	63	M 6	12	1.1
25	SRB 2575 F	75	50	33	18	47	10	0,5	1	3,2	58	M 6	8	0.75
25	SRB 2590 F	90	60	38	18	62	12,5	0,5	1	3,2	73	M 6	12	1.6
30	SRB 3080 F	80	50	33	18	52	10	0,5	1	3,2	63	M 6	12	0.8
30	SRB 30105 F	105	66	41	18	68	14	0,5	1	3,2	85	M 8	12	1.95
35	SRB 3590 F	90	54	35	18	60	11	0,7	1	3,2	73	M 6	12	1.12
35	SRB 35110 F	110	66	41	18	73	14	0,7	1	3,2	88	M 8	12	1.6
40	SRB 40100 F	100	54	35	18	65	11	0,7	1	3,2	80	M 8	8	1.25
40	SRB 40115 F	115	75	47,5	22,5	78	16	0,7	1	6	94	M 8	12	2.7
45	SRB 45105 F	105	60	40	22,5	70	11,5	0,7	1	6	85	M 8	8	1.8
45	SRB 45130 F	130	82	51	22,5	90	17,5	0,7	1	6	105	M 8	12	3.7
50	SRB 50115 F	115	60	40	22,5	78	11,5	0,7	1	6	94	M 8	12	2.1
50	SRB 50140 F	140	82	51	22,5	95	17,5	0,7	1	6	113	M 10	12	4.2
55	SRB 55145 F	145	82	51	22,5	100	17,5	0,7	1	6	118	M 10	12	4.5
60	SRB 60150 F	150	82	51	22,5	105	17,5	1	1	6	123	M 10	12	4.6
65	SRB 65155 F	155	82	51	22,5	110	17,5	1	1	6	128	M 10	12	5.1
70	SRB 70160 F	160	82	51	22,5	115	17,5	1	1	6	133	M 10	12	5.2
75	SRB 75185 F	185	100	62	27	135	21	1	1,5	6	155	M 12	12	8.8
90	SRB 90210 F	210	110	69,5	32	160	22,5	1	1,5	8	180	M 12	16	13.7



GEOMETRICAL AND ROTATIONAL ACCURACY ACCORDING TO TOLERANCE CLASS P4

符合P4精度等级的尺寸精度及旋转精度

DIMENSIONAL TOLERANCES 尺寸公差

d	inner ring	according to tolerance class P6 reduced
d	内圈	符合公差P6级及以上
d	washer	H5 reduced
d	垫圈	H5 及以上
D		according to tolerance class P6 reduced 符合公差P6级及以上
H		according to tolerance class P6 符合P6级公差
H1	from d = 15 to d = 50:	+10 μ m -80 μ m
	from d = 55 to d = 80:	+10 μ m -100 μ m
	d = 90:	+10 μ m -120 μ m
D1	h 7	

RADIAL CLEARANCE:
径向游隙 C2

AXIAL CLEARANCE:
轴向游隙 -1 μ m +1 μ m

Part Number 型号	J1 mm	G	α°	Load ratings according to ISO ISO额定载荷				Axial stiffness K _{AX} 轴向刚度 (kN/ μ m)	Friction torque C _{RL} 摩擦转矩 (Nm)	Max speed oil 极限转速 油润滑 rpm	Max speed grease 极限转速 脂润滑 rpm
				AXIAL 轴向		RADIAL 径向					
				dyn. Ca kN	stat. Coa kN	dyn. C kN	stat. Co kN				
SRB 1560 F	52,4	M 3	20	25	41,2	8,4	11,1	1,3	0,2	8500	2200
SRB 2068 F	60,4	M 3	22,5	32,7	64,8	9,6	14,6	2,0	0,3	7000	2000
SRB 2080 F	73,4	M 3	15	58,8	105,9	14,6	22,3	2,2	0,7	6000	1500
SRB 2575 F	67,4	M 3	22,5	34,8	75,2	13,4	24,5	1,3	0,4	6000	1900
SRB 2590 F	81	M 3	15	74,5	160,2	16,2	27,2	4,7	0,8	4900	1400
SRB 3080 F	73,4	M 3	15	35,3	81,1	16,2	27,2	2,4	0,4	5500	1800
SRB 30105 F	95	M 4	15	90,4	181,5	17,6	32,5	3,1	1,4	4400	1300
SRB 3590 F	80	M 4	15	50,7	117,5	17,6	32,5	2,8	0,7	4800	1700
SRB 35110 F	101	M 3	15	98,7	212,7	18,4	35,1	3,6	1,6	4000	1250
SRB 40100 F	90	M 4	22,5	55,7	138,7	18,4	35,1	3,3	0,9	4400	1600
SRB 40115 F	106	M 3	15	101,8	229,9	25,5	55	3,8	1,8	3700	1200
SRB 40105 F	95	M 4	22,5	56,6	146,7	25,5	55	3,5	1,0	4000	1500
SRB 45130 F	120	M 4	15	151,3	344	31,8	54,2	4,7	3,1	3300	1150
SRB 50115 F	106	M 3	15	84,3	255,9	31,8	66,3	4,4	1,2	3600	1200
SRB 50140 F	127,5	M 5	15	163,1	391,2	35,6	64,5	5,3	3,6	3100	1100
SRB 55145 F	132,5	M 5	15	160,8	394,8	26,4	55,1	5,2	3,7	2900	1000
SRB 60150 F	137,5	M 5	15	171,6	442,6	36,1	84,7	5,8	4,3	2700	950
SRB 65155 F	142,5	M 5	15	175,9	468	54	104	6,1	4,6	2600	900
SRB 70160 F	147,5	M 5	15	180,1	493,4	65	131	6,3	5,0	2400	800
SRB 75185 F	172,5	M 5	15	257,9	678,6	79,5	147	6,7	8,1	2100	700
SRB 90210 F	194	M 5	11,25	309,8	876,1	103	220	8,3	11,3	1800	700

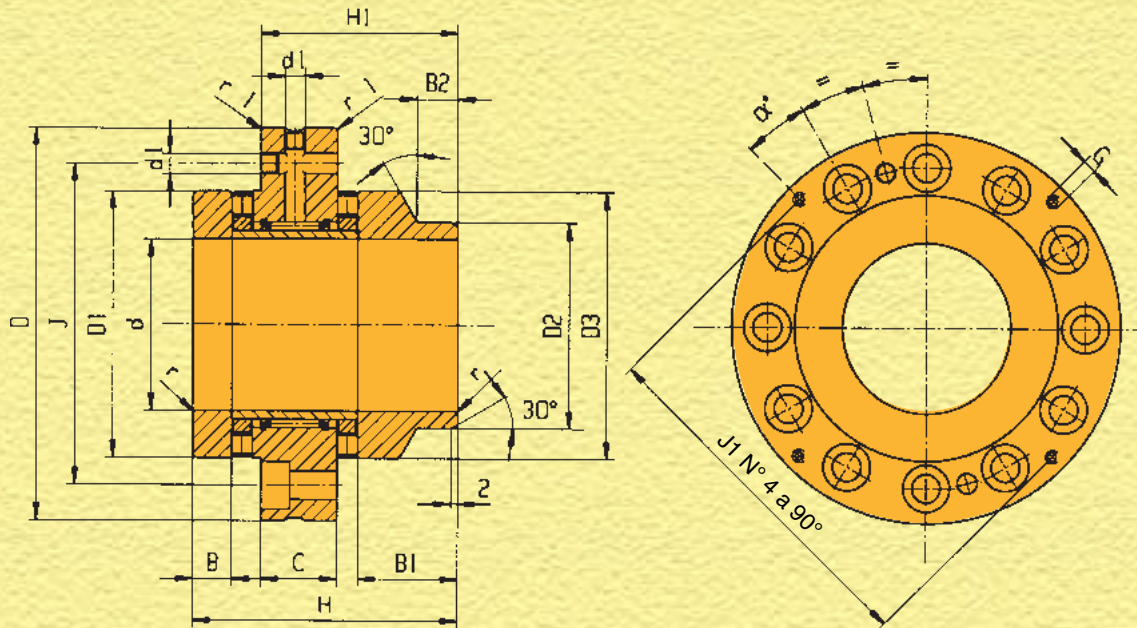
精密轴承

PRECISION BEARINGS

SRB-FL

RADIAL NEEDLE ROLLER COMBINED WITH AXIAL CYLINDRICAL ROLLER
径向滚针与轴向推力圆柱组合轴承

WITH FIXING FLANGE AND EXTENDED WASHER
有固定凸缘和延伸垫圈



DIMENSIONAL TABLE 尺寸表

d mm	Part Number 型号	D mm	H mm	H1 mm	C mm	D1 mm	D2 mm	D3 mm	B mm	B1 mm	B2 mm	r mm	r1 mm	d1 mm	J mm	Fixing screws 固定螺栓		Weight 重量
																Type	no.	
15	SRB 1560 FL	60	53	39	14	35	24	34,8	7	20	11	0,5	1	3,2	46	M6	6	0.45
20	SRB 2068 FL	68	60	43	14	42	30	40	10	24	11	0,5	1	3,2	53	M6	8	0.58
20	SRB 2080 FL	80	75	53	18	52	40	50	12,5	27,5	11	0,5	1	3,2	63	M6	12	1.22
25	SRB 2575 FL	75	65	48	18	47	36	45	10	25	11	0,5	1	3,2	58	M6	8	0.85
25	SRB 2590 FL	90	75	53	18	62	48	60	12,5	27,5	11	0,5	1	3,2	73	M6	12	1.75
30	SRB 3080 FL	80	65	48	18	52	40	50	10	25	11	0,5	1	3,2	63	M6	12	0.9
30	SRB 30105 FL	105	82	57	18	68	52	66	14	30	12	0,5	1	3,2	85	M8	12	2.2
35	SRB 3590 FL	90	70	51	18	60	45	58	11	27	12	0,7	1	3,2	73	M6	12	1.25
35	SRB 35110 FL	110	82	57	18	73	60	73	14	30	12	0,7	1	3,2	88	M8	12	2.3
40	SRB 40100 FL	100	70	51	18	65	50	63	11	27	12	0,7	1	3,2	80	M8	8	1.4
40	SRB 40115 FL	115	93	65,5	22,5	78	60	78	16	34	12	0,7	1	6	94	M8	12	3
45	SRB 45105 FL	105	75	55	22,5	70	56	68	11,5	26,5	12	0,7	1	6	85	M8	8	1.75
45	SRB 45130 FL	130	103	72	22,5	90	70	88	17,5	38,5	14	0,7	1	6	105	M8	12	4.1
50	SRB 50115 FL	115	78	58	22,5	78	60	78	11,5	29,5	12	0,7	1	6	94	M8	12	2.45
50	SRB 50140 FL	140	103	72	22,5	95	75	93	17,5	38,5	14	0,7	1	6	113	M10	12	4.5
55	SRB 55145 FL	145	103	72	22,5	100	80	98	17,5	38,5	14	0,7	1	6	118	M10	12	5
60	SRB 60150 FL	150	103	72	22,5	105	90	105	17,5	38,5	16	1	1	6	123	M10	12	5.35
65	SRB 65155 FL	155	103	72	22,5	110	90	108	17,5	38,5	16	1	1	6	128	M10	12	5.4
70	SRB 70160 FL	160	103	72	22,5	115	100	115	17,5	38,5	16	1	1	6	133	M10	12	5.95
75	SRB 75185 FL	185	125	87	27	135	115	135	21	46	16	1	1,5	6	155	M12	12	10.6
90	SRB 90210 FL	210	135	94,5	32	160	130	158	22,5	47,5	16	1	1,5	8	180	M12	16	15.1



GEOMETRICAL AND ROTATIONAL ACCURACY ACCORDING TO TOLERANCE CLASS P4

符合P4精度等级的尺寸精度及旋转精度

DIMENSIONAL TOLERANCES 尺寸公差

d inner ring d 内圈	according to tolerance class P6 reduced 符合公差P6级及以上
d washer d 垫圈	H5 reduced H5 及以上
D	according to tolerance class P6 reduced 符合公差P6级及以上
H	according to tolerance class P6 符合P6级公差
H1	from d = 15 to d = 50: +10µm -80µm
	from d = 55 to d = 80: +10µm -100µm
	d = 90: +10µm -120µm
D1 h 7	

RADIAL CLEARANCE: C2
径向游隙

AXIAL CLEARANCE: -1µm +1µm
轴向游隙

Part Number 型号	J1 mm	G	α°	Load ratings according to ISO ISO额定载荷				Axial stiffness K _{AX} 轴向刚度 (kN/µm)	Friction torque C _{RL} 摩擦转矩 (Nm)	Max speed oil 极限转速 油润滑 rpm	Max speed grease 极限转速 脂润滑 rpm
				AXIAL 轴向		RADIAL 径向					
				din. Ca dyn. Ca kN	stat. Coa stat. Coa kN	din. C dyn. C kN	stat. Co stat. Co kN				
SRB 1560 FL	52,4	M 3	20	25	41,2	8,4	11,1	1,3	0,2	8500	2200
SRB 2068 FL	60,4	M 3	22,5	32,7	64,8	9,6	14,6	2,0	0,3	7000	2000
SRB 2080 FL	73,4	M 3	15	58,8	105,9	14,6	22,3	2,2	0,7	6000	1500
SRB 2575 FL	67,4	M 3	22,5	34,8	75,2	13,4	24,5	1,3	0,4	6000	1900
SRB 2590 FL	81	M 3	15	74,5	160,2	16,2	27,2	4,7	0,8	4900	1400
SRB 3080 FL	73,4	M 3	15	35,3	81,1	16,2	27,2	2,4	0,4	5500	1800
SRB 30105 FL	95	M 4	15	90,4	181,5	17,6	32,5	3,1	1,4	4400	1300
SRB 3590 FL	80	M 4	15	50,7	117,5	17,6	32,5	2,8	0,7	4800	1700
SRB 35110 FL	101	M 3	15	98,7	212,7	18,4	35,1	3,6	1,6	4000	1250
SRB 40100 FL	90	M 4	22,5	55,7	138,7	18,4	35,1	3,3	0,9	4400	1600
SRB 40115 FL	106	M 3	15	101,8	229,9	25,5	55	3,8	1,8	3700	1200
SRB 45105 FL	95	M 4	22,5	56,6	146,7	25,5	55	3,5	1,0	4000	1500
SRB 45130 FL	120	M 4	15	151,3	344	31,8	54,2	4,7	3,1	3300	1150
SRB 50115 FL	106	M 3	15	84,3	255,9	31,8	66,3	4,4	1,2	3600	1200
SRB 50140 FL	127,5	M 5	15	163,1	391,2	35,6	64,5	5,3	3,6	3100	1100
SRB 55145 FL	132,5	M 5	15	160,8	394,8	26,4	55,1	5,2	3,7	2900	1000
SRB 60150 FL	137,5	M 5	15	171,6	442,6	36,1	84,7	5,8	4,3	2700	950
SRB 65155 FL	142,5	M 5	15	175,9	468	54	104	6,1	4,6	2600	900
SRB 70160 FL	147,5	M 5	15	180,1	493,4	65	131	6,3	5,0	2400	800
SRB 75185 FL	172,5	M 5	15	257,9	678,6	79,5	147	6,7	8,1	2100	700
SRB 90210 FL	194	M 5	11,25	309,8	876,1	103	220	8,3	11,3	1800	700

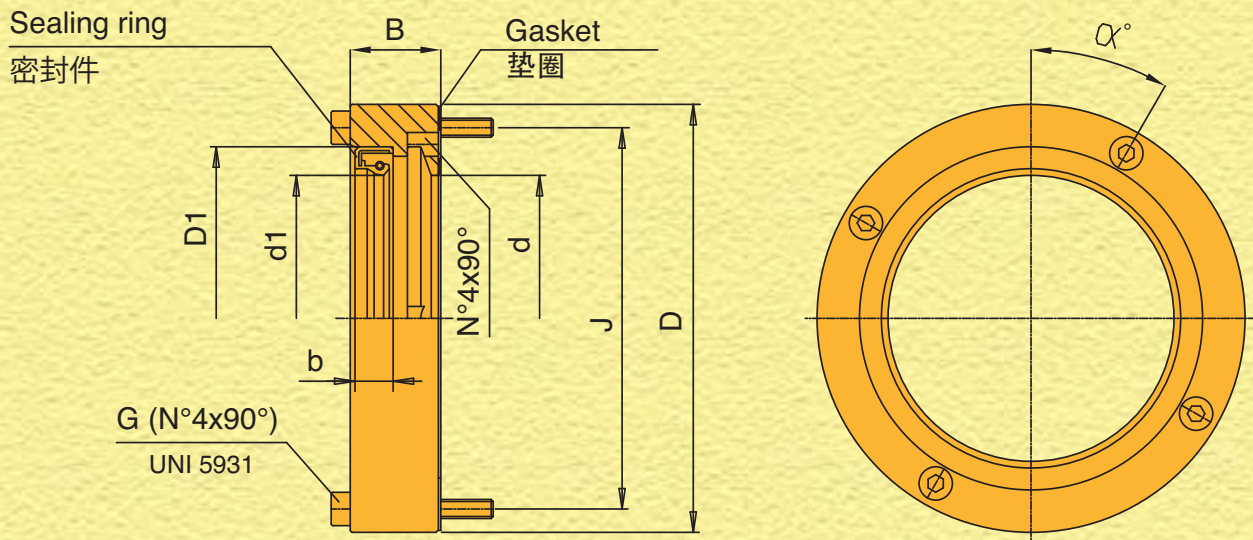
精密轴承

PRECISION BEARINGS

SH SEAL CARRIER
密封件

SH seal carrier, designed to be installed onto SRB F/FL bearings, are the simplest and cheapest solution for the majority of the sealing problems in grease lubrication applications. The seal carrier is supplied complete of rotary shaft seal, hexagonal socket cap screws for mounting onto the SRB F/FL outer ring and a gasket to be used between SH and the bearing.

对于使用油脂润滑的SRB F/FL轴承来说，SH是专为其设计的最简便且最廉价的密封解决方案。SH密封提供完整的旋转轴封组件，密封件和轴承之间的放上一个垫圈后，借助一组六角形螺母，SH油封被固定在SRB F/FL 轴承的外垫圈上。





SH SEAL CARRIER FOR SRB F/FL

SRB F/FL专用的SH 密封件

Type 类型	Seal holder dimensions 密封座尺寸			Seal dimensions 密封尺寸			J	SRB bearing SRB 轴承	α°	Fixing screw 固定螺栓 G
	d	D	B	d ₁	D ₁	b				
SH1560	35	60	14	35	45	6	52,4	SRB1560F/FL	*	M3x20
SH2068	42	68	17	42	55	8	60,4	SRB2068F/FL	22,5	M3x25
SH2080	52	80	22	52	68	8	73,4	SRB2080F/FL	15	M3x30
SH2575	47	75	17	47	62	6	67,4	SRB2575F/FL	22,5	M3x25
SH2590	62	90	22	62	75	10	81	SRB2590F/FL	15	M3x30
SH3080	52	80	17	52	68	8	73,4	SRB3080F/FL	15	M3x25
SH30105	68	105	25	68	85	10	95	SRB30105F/FL	15	M4x35
SH3590	60	90	19	60	72	8	80	SRB3590F/FL	15	M4x30
SH35110	73	110	25	73	95	10	101	SRB35110F/FL	15	M3x30
SH40100	65	100	19	65	80	8	90	SRB40100F/FL	22,5	M4x30
SH40115	78	115	27,5	78	100	10	106	SRB40115F/FL	15	M3x35
SH45105	70	105	20	70	85	8	95	SRB45105F/FL	22,5	M4x30
SH45130	90	130	31	90	110	12	120	SRB45130F/FL	15	M4x40
SH50115	78	115	20	78	100	10	106	SRB50115F/FL	15	M3x30
SH50140	95	140	30	95	115	13	127,5	SRB50140F/FL	15	M5x40
SH55145	100	145	30	100	120	12	132,5	SRB55145F/FL	15	M5x40
SH60150	105	150	30	105	125	12	137,5	SRB60150F/FL	15	M5x40
SH65155	110	155	30	110	130	12	142,5	SRB65155F/FL	15	M5x40
SH70160	115	160	30	115	135	13	147,5	SRB70160F/FL	15	M5x40
SH75185	135	185	36	135	160	15	172,5	SRB75185F/FL	15	M5x50
SH90120	160	210	38	160	180	15	194	SRB90120F/FL	11,25	M5x50

* Special design. Please contact FirstBridge Technical Department
如有特殊设计需求，请联系驿桥技术部门



MONDIAL precision locknuts

When using conventional locknuts to fasten bearings on screw drives, precision and duration problems of the adjoining machines may arise due to the limited precision of the thread or because of the undue runout of the contact surface.

UNITEC precision locknuts are manufactured by machining internal thread and contact surface in the same production stage, so that they can meet the highest precision requirements.

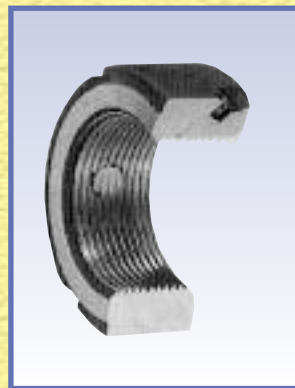
MONDIAL 精密锁紧螺母

当使用传统锁紧螺母来固定丝杠上的轴承时，由于锁紧螺母螺纹精度不足或是因为接触面公差问题，可能导致设备出现精度及耐久性的问题。

UNITEC 精密锁紧螺母的内螺纹和接触面加工都在同一生产工序进行，这样的工艺保证高精度的要求。

HIF *Side locking*

- 3 locking points
- anti-overturning safety to reduce redundant torque
- locknut material: SCM 440, hardened
- screw drive material: phosphor-bronze
- hardness: HRC 28-32
- thread tolerance: ISO H6
- lateral surface squareness = 0,005 mm
- **precision series** - suffix: **P**
squareness = 0,002 mm



HIF 侧面锁紧

- 三个锁紧点
- 抗过紧设置以减少额外扭矩
- 锁紧螺母材质：SCM 440，硬化处理
- 螺纹止动销材质：磷青铜
- 硬度：HRC 28-32
- 螺纹公差：ISO H6
- 侧面垂直度：0,005 mm
- 精密系列-后缀**P**
垂直度= 0,002 mm

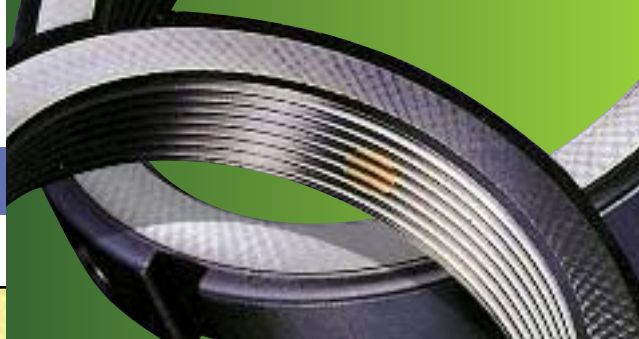
HIA *Axial locking*

- 2 locking points (for smaller sizes) or 3 locking points (for larger sizes)
- same thickness as for HIF series
- axial locking is particularly suited if there are operational constraints
- locknut material: SCM 440, hardened
- screw drive material: phosphor-bronze
- hardness: HRC 28-32
- thread tolerance: ISO H6
- lateral surface squareness = 0,005 mm
- **precision series** - suffix: **P**
squareness = 0,002 mm



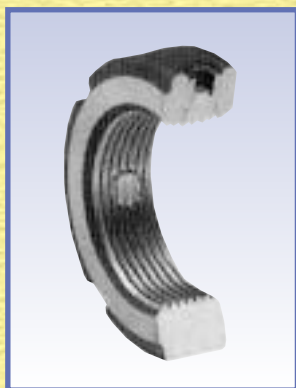
HIA 轴向锁紧

- 两个锁紧点（用于较小尺寸）或者三个锁紧点（用于较大尺寸）
- 与HIF相同的厚度
- 轴向锁紧尤其适用于有运行限制的情况
- 锁紧螺母材质：SCM 440，硬化处理
- 螺纹止动销材质：磷青铜
- 硬度：HRC 28-32
- 螺纹公差：ISO H6
- 侧面垂直度：0,005 mm
- 精密系列-后缀**P**
垂直度= 0,002 mm



HIR Radial locking

- 2 locking points (for smaller sizes) or 3 locking points (for larger sizes)
- thickness lower than HIF and HIA series
- locknut material: SCM 440, hardened
- screw drive material: phosphor-bronze
- hardness: HRC 28-32
- thread tolerance: ISO H6
- lateral surface squareness = 0,005 mm
- **precision series** - suffix: **P**
squareness = 0,002 mm

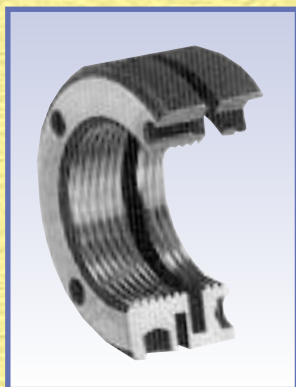


HIR 径向锁紧

- 两个锁紧点（用于较小尺寸）或者三个锁紧点（用于较大尺寸）
- 厚度较HIF及HIA低
- 锁紧螺母材质：SCM 440，硬化处理
- 螺纹止动销材质：磷青铜
- 硬度：HRC 28-32
- 螺纹公差：ISO H6
- 侧面垂直度：0,005 mm
- 精密系列-后缀 **P**
垂直度 = 0,002 mm

HIK Axial locking with notch

- 4 locking points (for smaller sizes) or 6 (for larger sizes)
- locking three times more than the one of the other types
- locknut material: SCM 440, hardened
- screw drive material: phosphor-bronze
- hardness: HRC 28-32
- thread tolerance: ISO 6H
- **squareness = 0,01 mm**



HIK 带凹槽的轴向锁紧

- 四个锁紧点（用于较小尺寸）或者六个锁紧点（用于较大尺寸）
- 锁紧力高于其他类型的三倍
- 锁紧螺母材质：SCM440，硬化处理
- 螺纹止动销材质：磷青铜
- 硬度：HRC 28-32
- 螺纹公差：ISO 6H
- 垂直度：0,01 mm



Tab. 6

UNITEC PRECISION LOCKNUTS SELECTION

UNITEC 精密锁紧螺母的选型

Bore diam. 孔径 (mm)	SRB bearings SRB轴承		Recommended UNITEC locknuts 推荐的UNITEC 锁紧螺母	
	Basis design and L design 基本型及L型	F/ FL/ T design F/FL/T 型	Designation 型号	Tightening torque Ms 拧紧力矩 (Nm)
15	SRB 1545/ L	SRB 1560 F/ FL/ T	HIR M15 x 1	6,3
20	SRB 2052/ L	SRB 2068 F/ FL/ T	HIF/ HIA/ HIR/ HIK M20 x 1	12,6
20	SRB 2062/ L	SRB 2080 F/ FL/ T	HIF/ HIA/ HIR/ HIK M20 x 1	29,6
25	SRB 2557/ L	SRB 2575 F/ FL/ T	HIF/ HIA/ HIR/ HIK M25 x 1,5	27,3
25	SRB 2572/ L	SRB 2590 F/ FL/ T	HIF/ HIA/ HIR/ HIK M25 x 1,5	23,7
30	SRB 3062/ L	SRB 3080 F/ FL/ T	HIF/ HIA/ HIR/ HIK M30 x 1,5	23,5
30	SRB 3080/ L	SRB 30105 F/ FL/ T	HIF/ HIA/ HIR/ HIK M30 x 1,5	75,4
35	SRB 3570/ L	SRB 3590 F/ FL/ T	HIF/ HIA/ HIR/ HIK M35 x 1,5	37,7
35	SRB 3585/ L	SRB 35110 F/ FL/ T	HIF/ HIA/ HIR/ HIK M35 x 1,5	95,2
40	SRB 4075/ L	SRB 40110 F/ FL/ T	HIF/ HIA/ HIR/ HIK M40 x 1,5	46,0
40	SRB 4090/ L	SRB 40115 F/ FL/ T	HIF/ HIA/ HIR/ HIK M40 x 1,5	104,7
45	SRB 4580/ L	SRB 45105 F/ FL/ T	HIF/ HIA/ HIR/ HIK M45 x 1,5	48,5
45	SRB 45105/ L	SRB 45130 F/ FL/ T	HIF/ HIA/ HIR/ HIK M45 x 1,5	152,1
50	SRB 5090/ L	SRB 50115 F/ FL/ T	HIF/ HIA/ HIR/ HIK M50 x 1,5	56,9
50	SRB 50110/ L	SRB 50140 F/ FL/ T	HIF/ HIA/ HIR/ HIK M50 x 1,5	178,5
55	SRB 55115/ L	SRB 55145 F/ FL/ T	HIF/ HIA/ HIR/ HIK M55 x 2	189,2
60	SRB 60120/ L	SRB 60150 F/ FL/ T	HIF/ HIA/ HIR/ HIK M60 x 2	235,8
65	SRB 65125/ L	SRB 65155 F/ FL/ T	HIF/ HIA/ HIR/ HIK M65 x 2	265,4
70	SRB 70130/ L	SRB 70160 F/ FL/ T	HIF/ HIA/ HIR/ HIK M70 x 2	299,0
75	SRB 75155/ L	SRB 75185 F/ FL/ T	HIF/ HIA/ HIR/ HIK M75 x 2	549,4
90	SRB 90180/ L	SRB 90210 F/ FL/ T	HIF/ HIA/ HIR/ HIK M90 x 2	887,2



Tightening torque

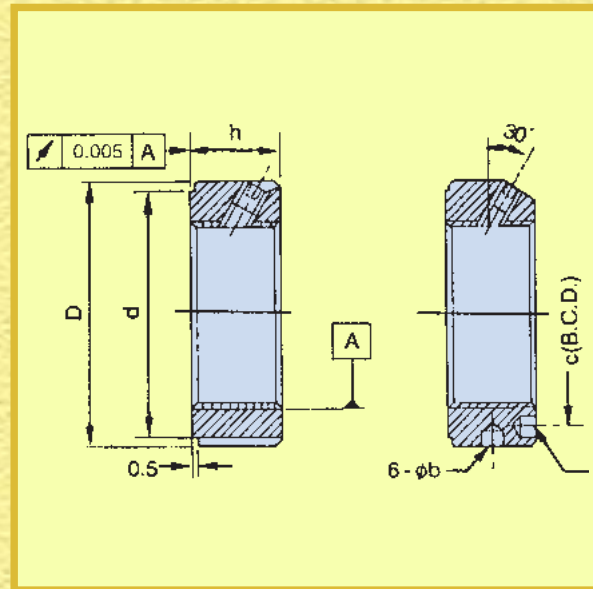
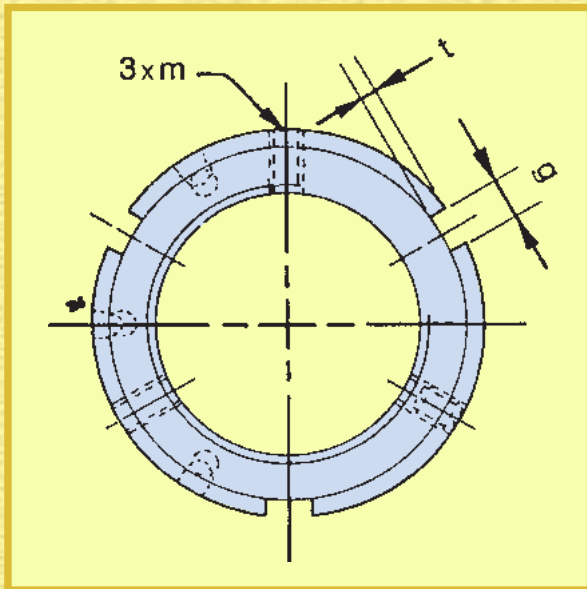
As for the preload notion, please refer to the paragraph regarding bearings of RTB series. The preload value can be calculated for each application according to the axial forces which burden the bearing. Tab. 6 refers to the tightening torques necessary to obtain an axial preload value equivalent to 5% of the dynamic load-carrying capacity of the bearing, by using the MONDIAL precision locknuts with ground surfaces and thread. This table also states the values of the friction torques according to an operating speed between 0 and 5 rpm. Both values (tightening torques as well as friction torques) are statistical and therefore subject to variations.



拧紧力矩

预负荷的详情请参见RTB轴承有关内容。预负荷大小需根据轴承承受的轴向力来计算。表6表示：使用端面和螺纹经过精密研磨的UNITEC精密锁紧螺母，为获得相当于5%轴承动载的轴向预负荷值，所需施加的拧紧力矩。该数值同样近似等于转速介于0-5 rpm时所对应的摩擦力矩值。这两个值（拧紧力矩和摩擦转矩）皆为统计量，所以与实际值存在一定的差别。

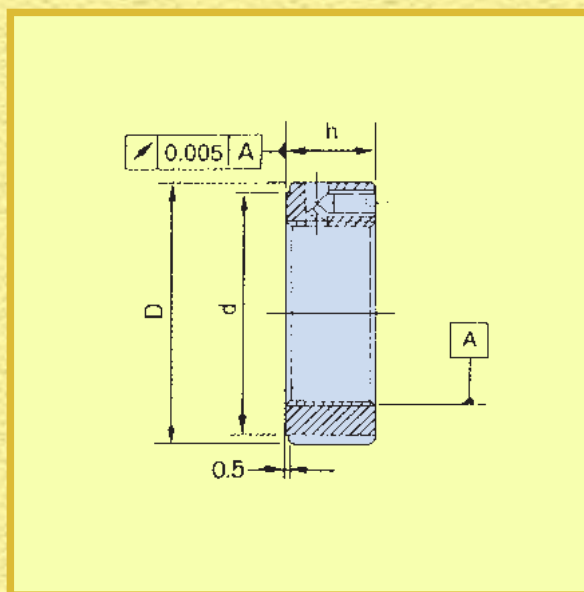
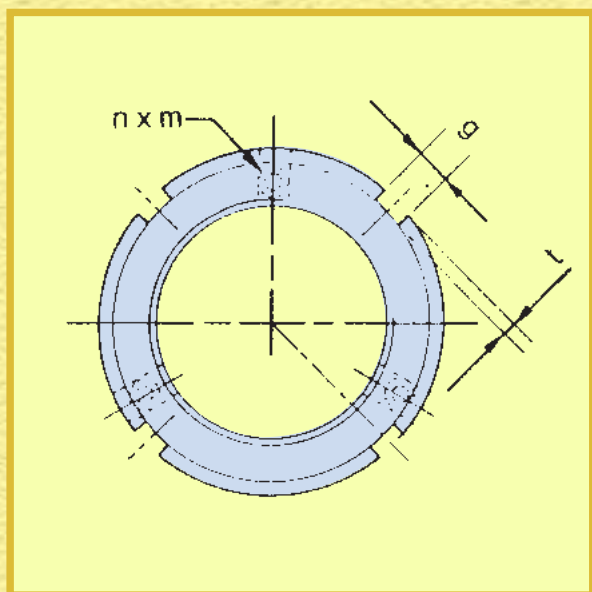
HIF Side locking / HIF 侧面锁紧



Type 类型	D	h	d	g	b	t	c	m	Setscrews tightening torque 紧固螺钉拧紧力矩 (Nm)
HIF M20x1	38	16	27	4		2	—	M5	4.5
HIF M20x1.5	38	16	27	4		2	—	M6	8.0
HIF M25x1.5	38	18	33	5		2	—	M6	8.0
HIF M30x1.5	45	18	40	5		2	—	M6	8.0
HIF M35x1.5	52	18	47	5		2	—	M8	18.0
HIF M40x1.5	58	20	52	6		2.5	—	M8	18.0
HIF M45x1.5	65	20	59	6		2.5	—	M8	18.0
HIF M50x1.5	70	20	64	6		2.5	—	M8	18.0
HIF M55x2	75	22	68	6	∅ 6	2.5	65	M8	18.0
HIF M60x2	80	22	73	6	∅ 6	2.5	70	M8	18.0
HIF M65x2	85	22	78	6	∅ 6	2.5	75	M8	18.0
HIF M70x2	92	24	84	7	∅ 7	3	81	M8	18.0
HIF M75x2	98	24	90	7	∅ 7	3	87	M8	18.0
HIF M90x2	120	26	108	7	∅ 7	3	105	M8	18.0

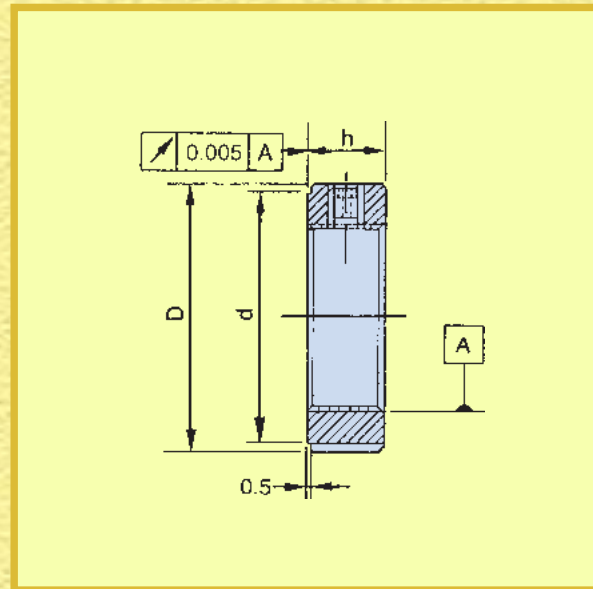
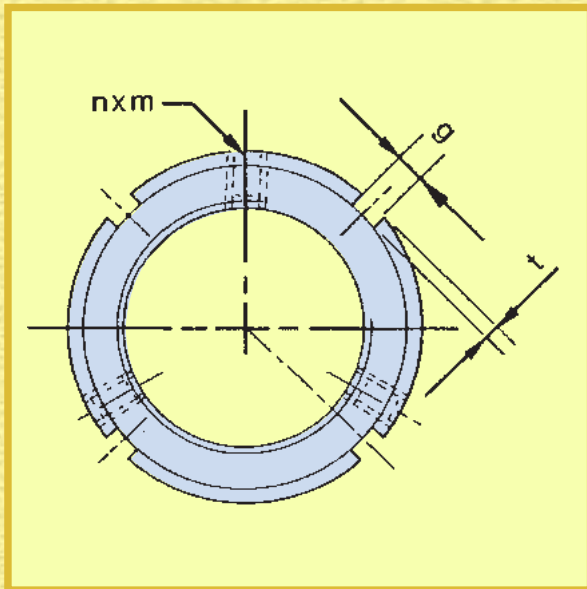


HIA Axial locking / HIA 轴向锁紧



Type 类型	D	h	g	t	d	nxm	Setscrews tightening torque 紧固螺钉拧紧力矩 (Nm)
HIA M20x1	38	16	4	2	27	2xM5	4.5
HIA M20x1.5	38	16	4	2	27	2xM5	4.5
HIA M25x1.5	38	18	5	2	33	2xM6	8.0
HIA M30x1.5	45	18	5	2	40	2xM6	8.0
HIA M35x1.5	52	18	5	2	47	2xM6	8.0
HIA M40x1.5	58	20	6	2.5	52	3xM6	8.0
HIA M45x1.5	65	20	6	2.5	59	3xM6	8.0
HIA M50x1.5	70	20	6	2.5	64	3xM6	8.0
HIA M55x2	75	22	7	3	68	3xM6	8.0
HIA M60x2	80	22	7	3	73	3xM6	8.0
HIA M65x2	85	22	7	3	78	3xM6	8.0
HIA M70x2	92	24	8	3.5	84	3xM8	18.0
HIA M75x2	98	24	8	3.5	90	3xM8	18.0
HIA M90x2	120	26	10	4	108	3xM8	18.0

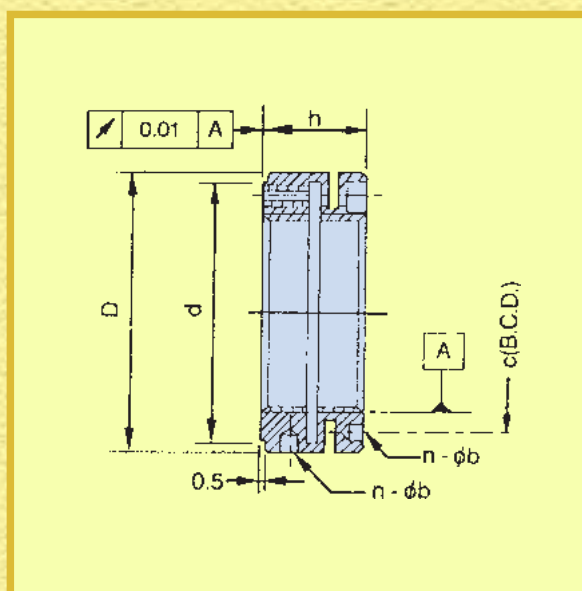
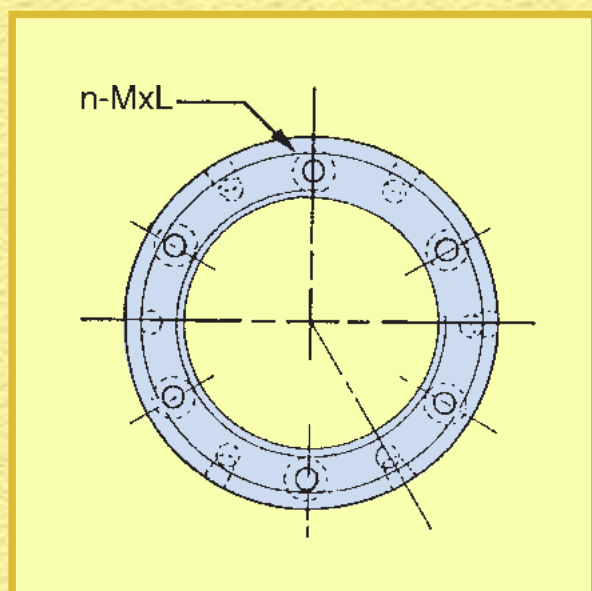
HIR Radial locking / HIR 径向锁紧



Type 类型	D	h	g	t	d	nxm	Setscrews tightening torque 紧固螺钉拧紧力矩 (Nm)
HIR M15x1	25	8	3	2	21	2xM4	3.5
HIR M20x1	32	10	4	2	32	2xM5	8.0
HIR M20x1.5	32	10	4	2	32	2xM5	8.0
HIR M25x1.5	38	12	5	2	33	3xM6	8.0
HIR M30x1.5	45	12	5	2	40	3xM6	8.0
HIR M35x1.5	52	12	5	2	47	3xM6	8.0
HIR M40x1.5	58	14	6	2.5	52	3xM6	8.0
HIR M45x1.5	65	14	6	2.5	59	3xM6	8.0
HIR M50x1.5	70	14	6	2.5	64	3xM6	8.0
HIR M55x2	75	16	7	3	68	3xM6	8.0
HIR M60x2	80	16	7	3	73	3xM6	8.0
HIR M65x2	85	16	7	3	78	3xM6	8.0
HIR M70x2	92	18	8	3.5	84	3xM8	18.0
HIR M75x2	98	18	8	3.5	90	3xM8	18.0
HIR M90x2	120	20	10	4	108	3xM8	18.0



HIK Axial locking with notch / HIK 帶凹槽的轴向锁紧



Type 类型	D	h	d	n - m x L (Screws not included in the delivery) 发货不含紧固螺钉	n x Øb	c
HIK M20x1.0	40	18	35	4xM4-12	4x Ø 4	30
HIK M20x1.5	40	18	35	4xM4-12	4x Ø 4	30
HIK M25x1.5	45	20	40	4xM4-14	4x Ø 5	35
HIK M30x1.5	48	20	45	4xM4-14	4x Ø 5	39
HIK M35x1.5	53	22	50	4xM4-16	4x Ø 5	44
HIK M40x1.5	58	22	55	4xM4-16	4x Ø 5	49
HIK M45x1.5	68	22	63	6xM4-16	6x Ø 6	57
HIK M50x1.5	70	25	66	6xM4-18	6x Ø 6	60
HIK M55x2.0	75	25	71	6xM4-18	6x Ø 6	65
HIK M60x2.0	84	26	79	6xM5-20	6x Ø 6	72
HIK M65x2.0	88	28	84	6xM5-20	6x Ø 6	77
HIK M70x2.0	95	28	89	6xM5-20	6x Ø 7	82
HIK M75x2.0	100	28	94	6xM5-20	6x Ø 7	87
HIK M90x2.0	120	32	113	6xM6-22	6x Ø 8	105

XRB Customized crossed roller bearings 定制交叉滚子轴承

Compact design, capacity to carry high axial loads in both directions combined with radial loads and high tilting moments.

UNITEC crossed roller bearings XRB series are the ideal solution where space is limited or lower center of gravity of the rotating masses is requested.

The main applications for UNITEC crossed roller bearings are indexing tables, rotating tables, spindles with horizontal and vertical axis and robot arms.

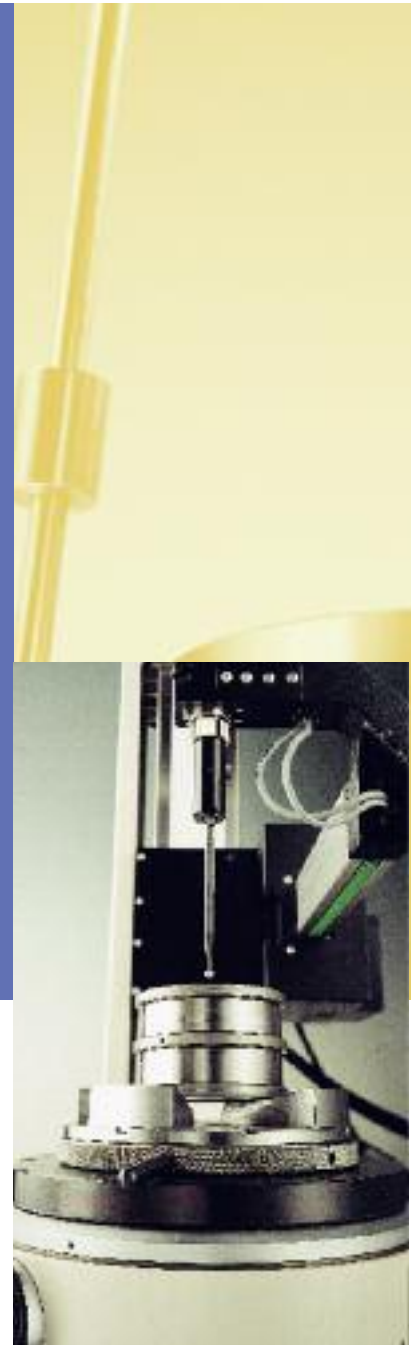
All UNITEC XRB cross roller bearings are designed and manufactured, only according to customer requirements.

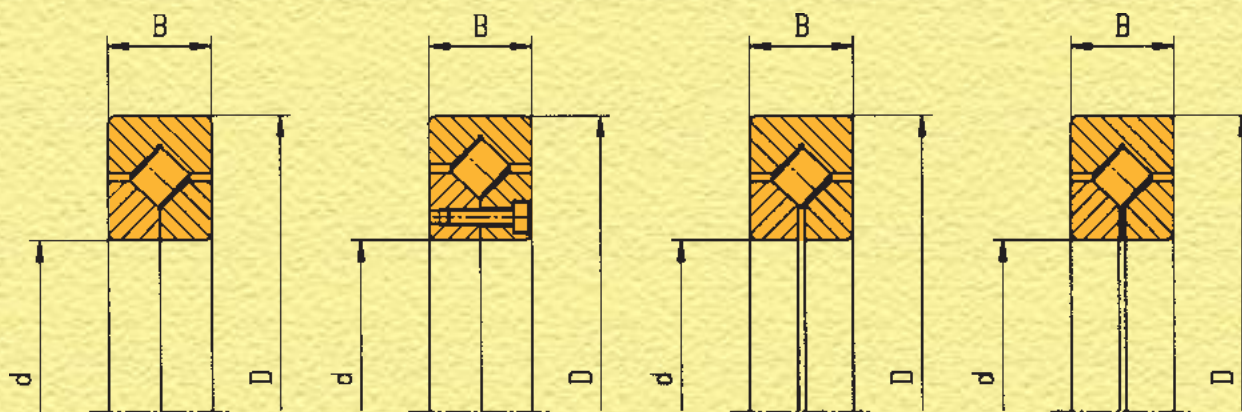
紧凑的设计，可承受高轴向及高径向载荷，以及高倾覆力矩。

当设计空间有限或需要降低转台重心时，UNITEC交叉滚子轴承 XRB是您理想的选择。

UNITEC交叉滚子轴承的主要应用是：分度盘、回转台、横主轴或者竖主轴以及机械手臂。

所有UNITEC的XRB交叉滚子轴承只根据客户订单需求进行定制。



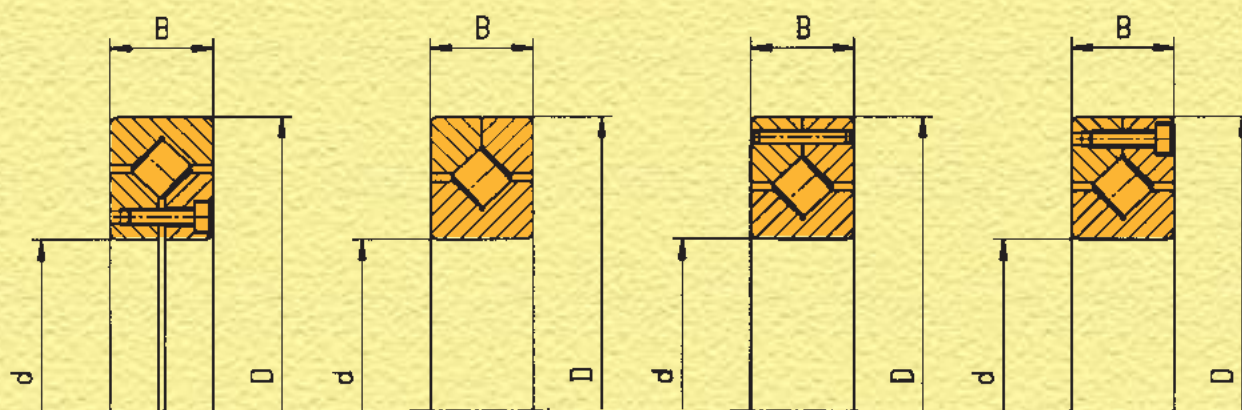


Version 1
结构类型 1

Version 2
结构类型 2

Version 3
结构类型 3

Version 4
结构类型 4



Version 5
结构类型 5

Version 6
结构类型 6

Version 7
结构类型 7

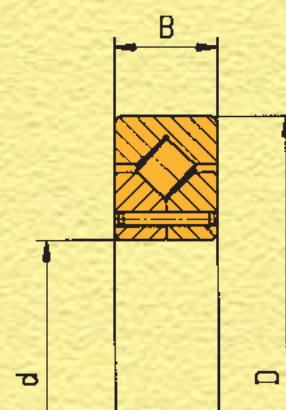
Version 8
结构类型 8

UNITEC XRB cross roller bearings can be provided with

- other dimensions on demand;
- precision class P0, P6, P5, P4 or according to different specifications;
- clearance or preload to be adjusted during assembly;
- pre-adjusted clearance or preload.

UNITEC XRB 交叉滚子轴承可提供:

- 特定需求的不同尺寸;
- 提供精度等级P0, P6, P5, P4产品, 或根据顾客需求设计;
- 可在装配中调节游隙或预负荷
- 可预先调节好间隙或预负荷



Version 9
结构类型 9

XRB

Some manufactured XRB bearings examples.
Custom solutions available upon request.
XRB 轴承定制实例。可根据需求进行量身定制。

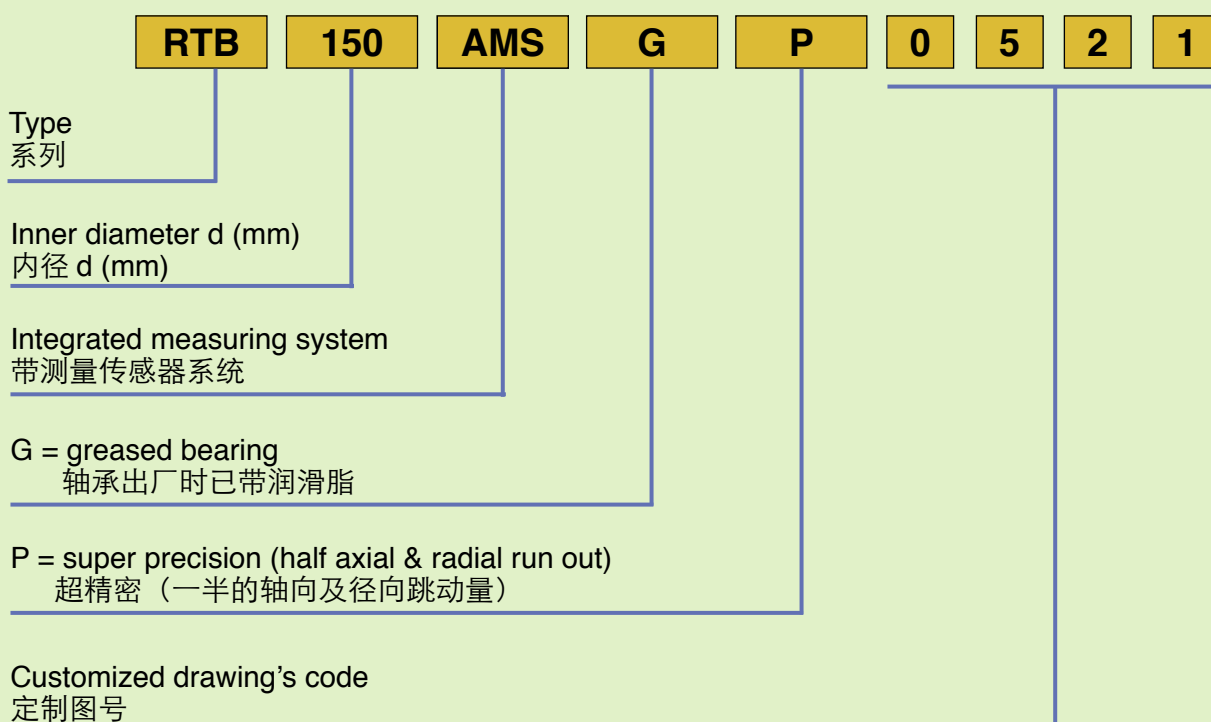
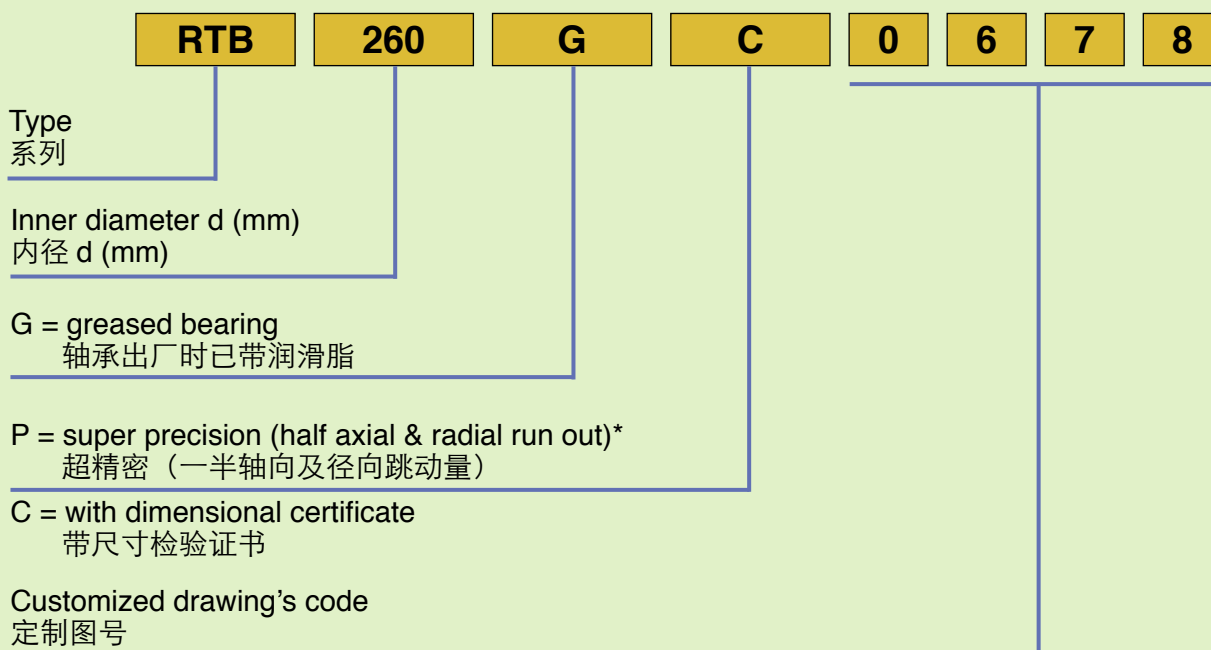
Tab. 7

Part number 型号	d mm	D mm	B mm	Axial and radial runout 轴向及径向跳动量		Load ratings according to ISO ISO 额定载荷				Version 结构类型
				Inner ring 内圈 μm	Outer ring 外圈 μm	RADIAL 径向		AXIAL 轴向		
						dyn. Ca kN	stat. Co kN	dyn. C kN	stat. Co kN	
XRB50-6-0945	50	80	16	4	4	18,5	21,8	22,6	49,7	6
XRB60-7-0946	60	90	13	10	17	19,7	28,1	22,7	64,1	7
XRB70-7-0947	70	100	13	10	17	21,3	32,5	24,8	74,5	7
XRB80-6-0742	80	110	16	4	4	23	30	25	70	6
XRB90-8-0948	90	130	16	12	20	31,3	51,5	40,6	136	8
XRB100-7-0949	100	125	13	12	20	21,8	39,7	25,4	91,4	7
XRB110-7-0950	110	145	15	12	20	30,6	56	35,6	129	7
XRB120-9-1000	120	155	18	5	5	23,3	40,4	24,7	94,2	9
XRB120-2-0971	120	180	25	13	23	63	97	73	227	2
XRB120-1-0951	120	180	28	5	5	81	118	99	259	1
XRB130-1-0712	130	165	18	4	4	38,9	64	47	148	1
XRB140-7-0953	140	175	18	15	22	34,5	70,5	40,1	163	7
XRB140-6-0725	140	190	24	5	5	73,9	122	89	280	6
XRB140-8-0952	140	200	25	15	25	82,1	141	95,2	322	8
XRB144-2-0863	144	207	28,5	4	4	87	136	105	312	2
XRB150-1-0298	150	207	28,5	4	4	87	136	105	312	1
XRB150-6-0293	150	207	28,5	4	4	87	136	105	312	6
XRB150-8-0942	150	210	25	8	11	69	108	80,5	253	8
XRB150-1-0690	150	230	30	5	5	100	159	121	364	1
XRB150-2-0966	150	230	30	8	8	100	159	121	364	2
XRB160-6-0743	160	220	28	5	5	79,5	132	96	303	6
XRB175-6-0294	175	240	32,5	5	5	107	180	130	412	6
XRB175-3-0982	175	240	32,5	5	5	107	180	130	412	3
XRB180-8-0958	180	225	22	15	25	60,3	127,6	70,4	297	8
XRB180-8-0984	180	225	22	6	15	60,3	127,6	70,4	297	8
XRB180-6-0723	180	250	33	5	5	120	199	145	455	6
XRB200-1-0300	200	280	38	5	5	122	212	148	486	1
XRB225-6-0296	225	320	47,5	7	7	232	381	281	869	6
XRB240-1-0954	240	300	28	7	7	108	209	130	481	1
XRB250-6-0297	250	360	47,5	7	7	249	435	302	994	6
XRB260-1-0955	260	360	46	7	7	210	377	254	864	1
XRB280-1-0956	280	380	46	7	7	216	399	261	916	1
XRB300-6-0957	300	380	38	7	7	186	376	225	866	6
XRB300-2-0980	300	395	35	50	70	153	323	172	823	2
XRB310-5-0864	310	425	45	7	7	252	457	270	1067	5



Bearings designation RTB / RTB-AMS

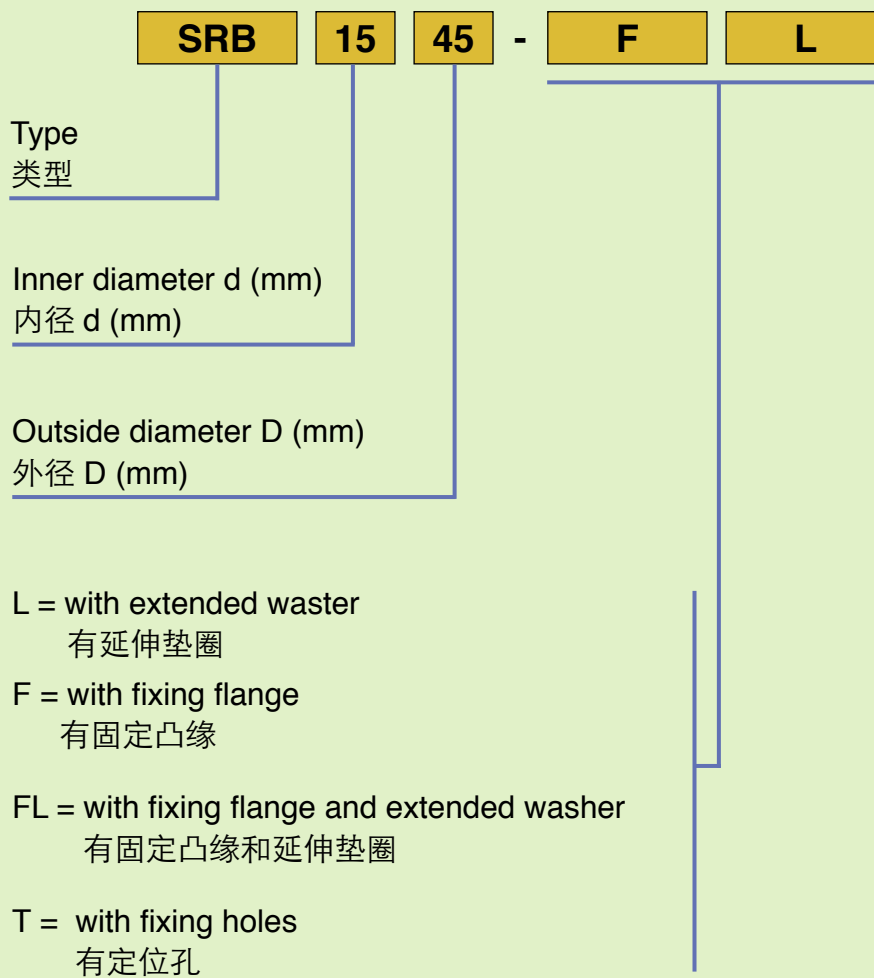
轴承类型：RTB / RTB-AMS



* With dimensional certificate
有尺寸检验证书

Note: the type RTB AMS, are always supplied with dimensional certificate.
注释：RTB-AMS全部提供尺寸检验证书

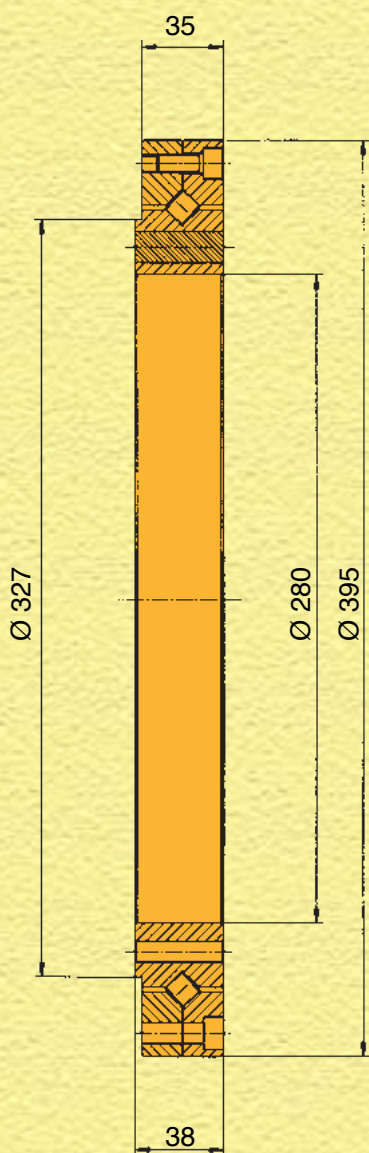
Bearings designation SRB 轴承类型：SRB



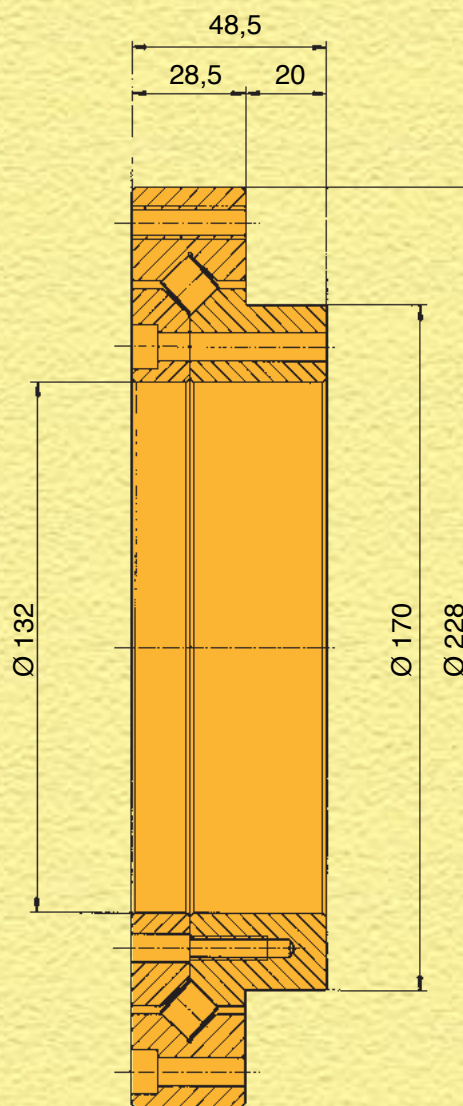


Custom special drawings 定制设计图例

Custom solutions, specifically designed for your application, are available upon request.
如有需要，可专根据您的应用需求进行量身定制。

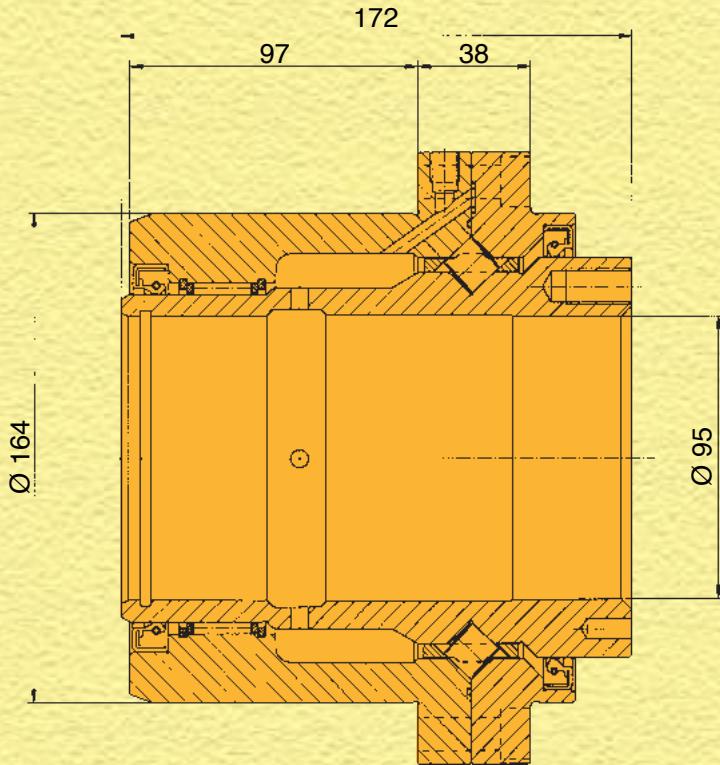


Maximum radial and axial run out 0.007 mm
最大径向及轴向跳动量 0.007mm

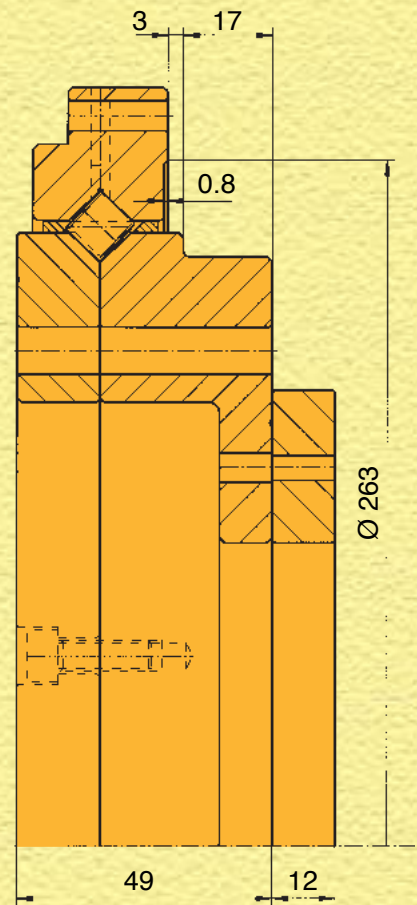
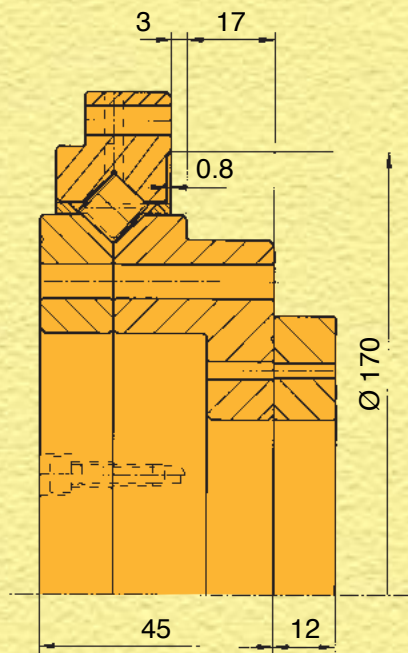


Maximum radial and axial run out 0.005 mm
最大径向及轴向跳动量 0.005mm

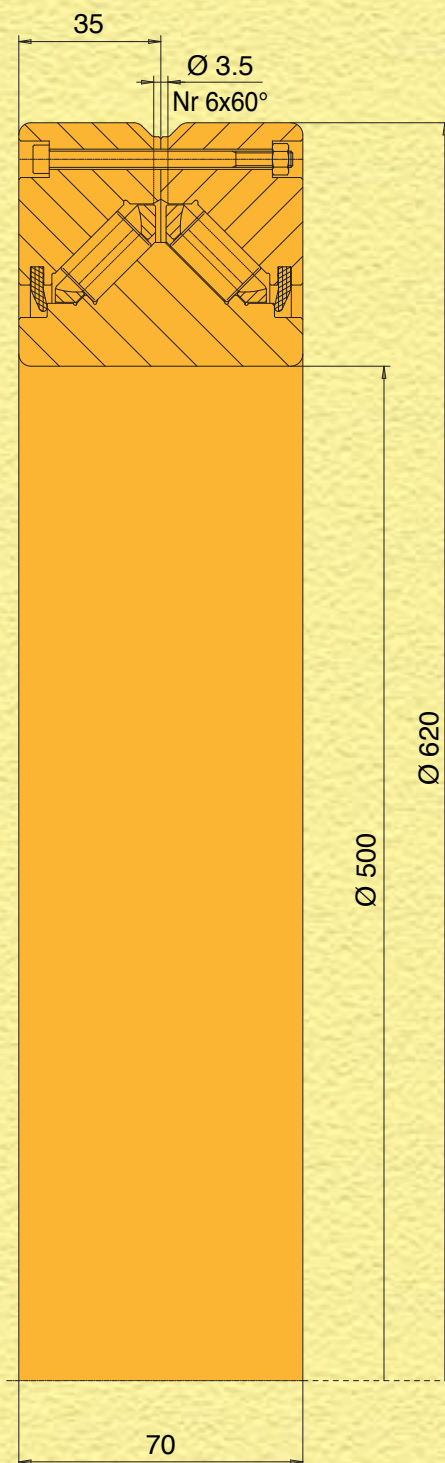
Custom XRB for indexing table. 应用于分度盘的定制XRB轴承



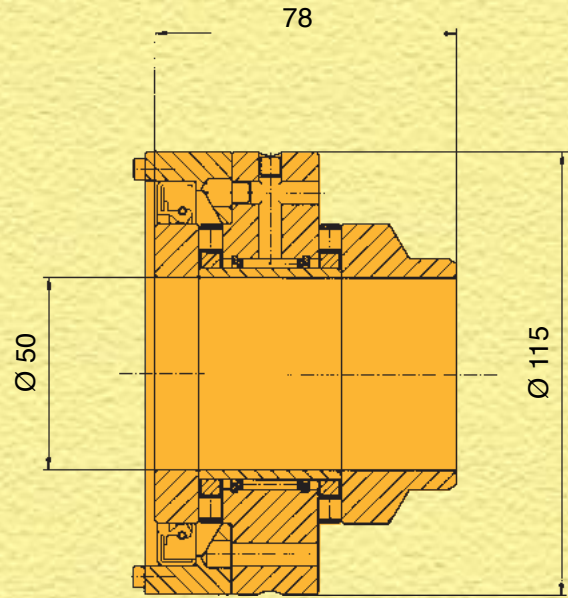
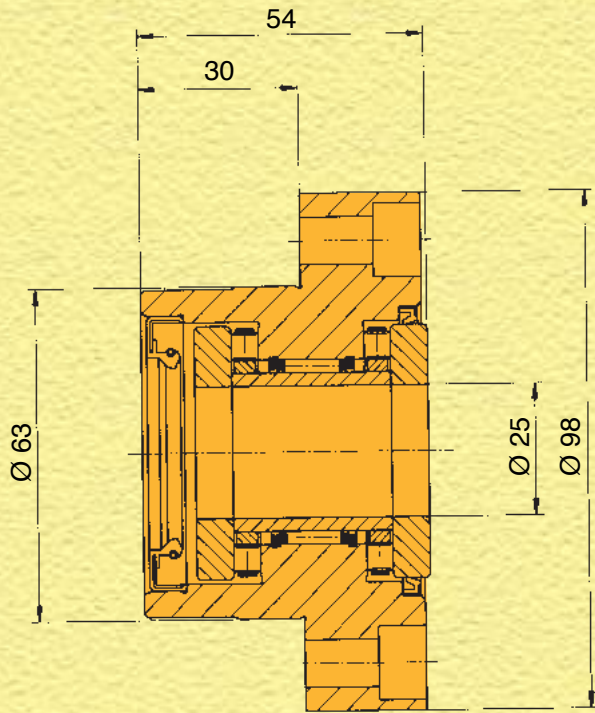
Special bearings for rotating nut support.
用于旋转螺母支撑的特殊轴承



Custom XRB for direct drive rotary table, with flange for encoder precision scale mounting
为直驱式回转工作台所设计的定制XRB轴承，带有可安装精密测量传感器的凸缘。

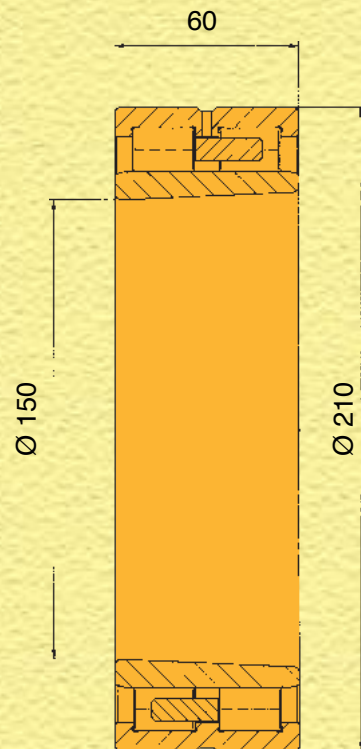
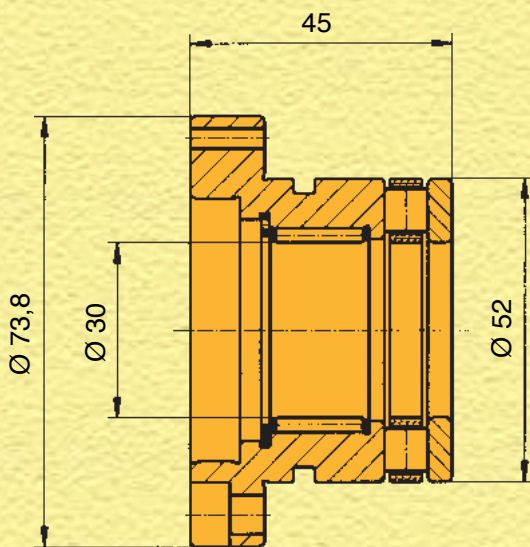


Custom cross roller bearing for milling head application
用于铣刀头的定制交叉滚子轴承



Precision class P4
精度级P4级

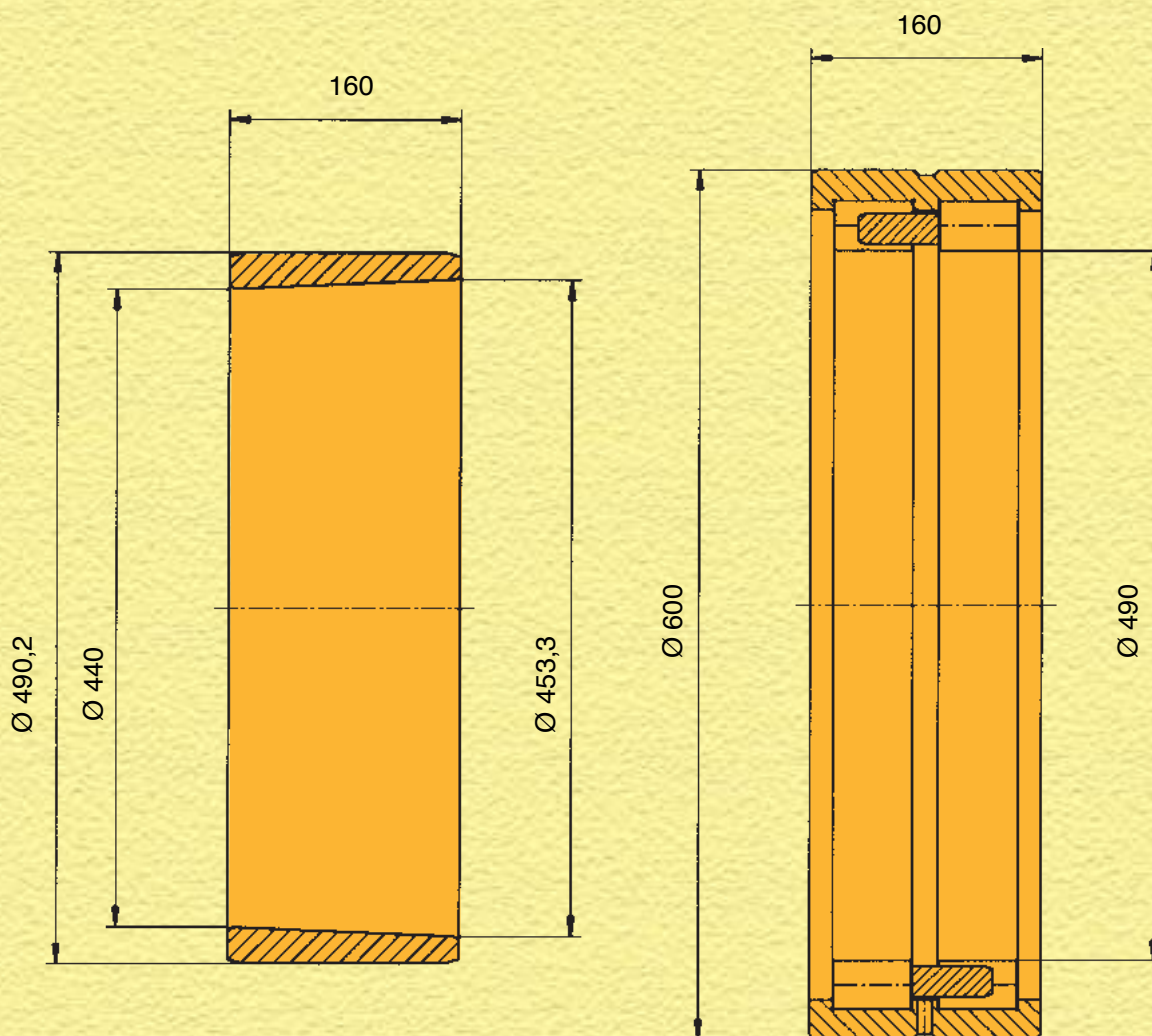
Special combined bearings. 特殊组合轴承



Precision class UP
精度级UP级

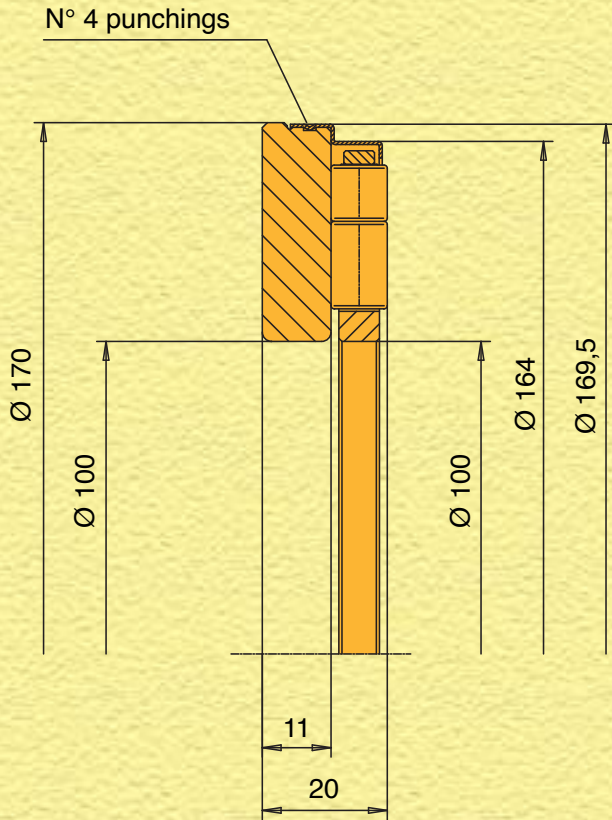
Worm drive bearing 蜗杆支撑轴承

Spindle support bearings - tapered bore
主轴支撑轴承 - 内锥孔

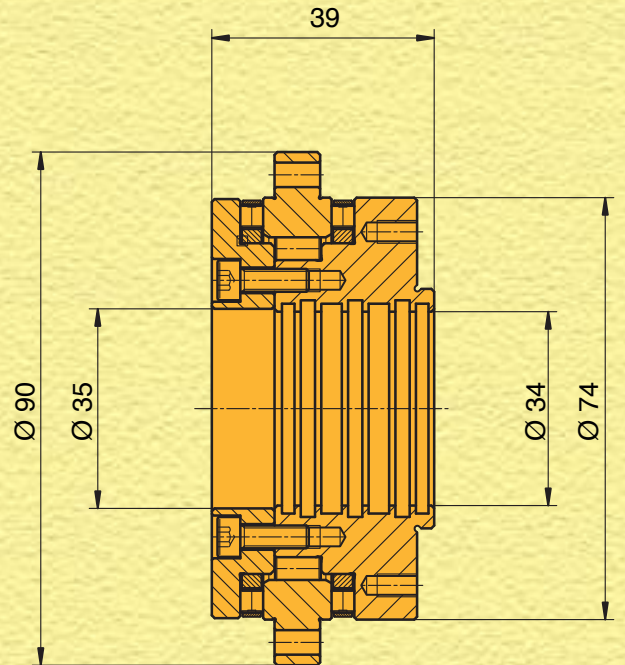


Precision class P5 / SP
精度等级P5/SP

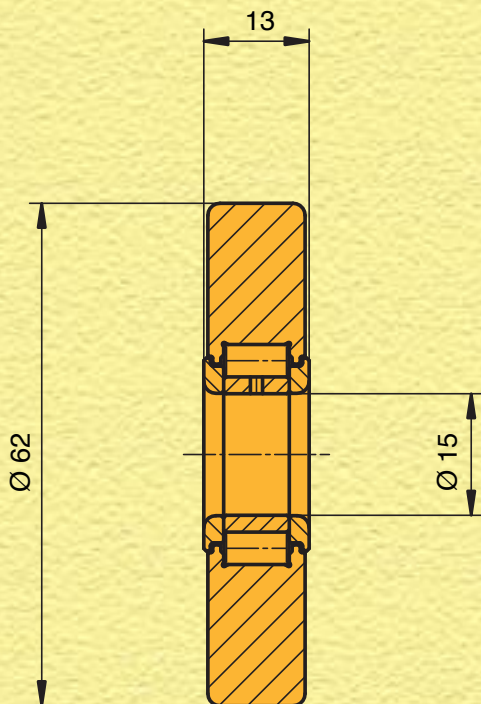
Spindle support bearings - tapered bore
主轴支承轴承 - 内锥孔



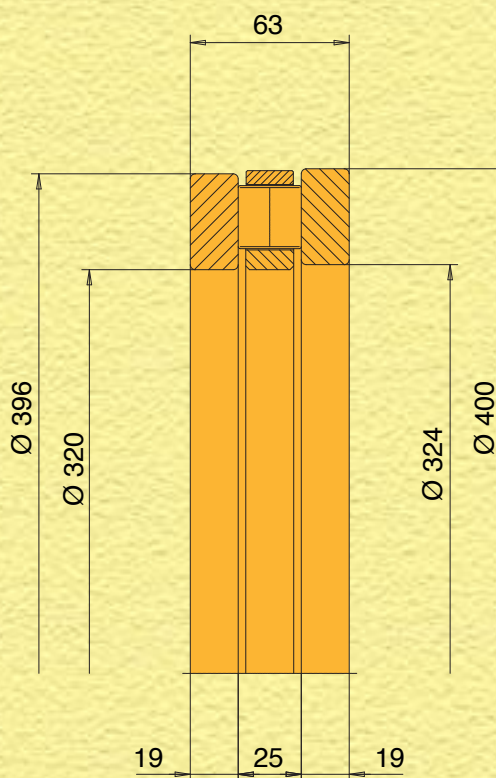
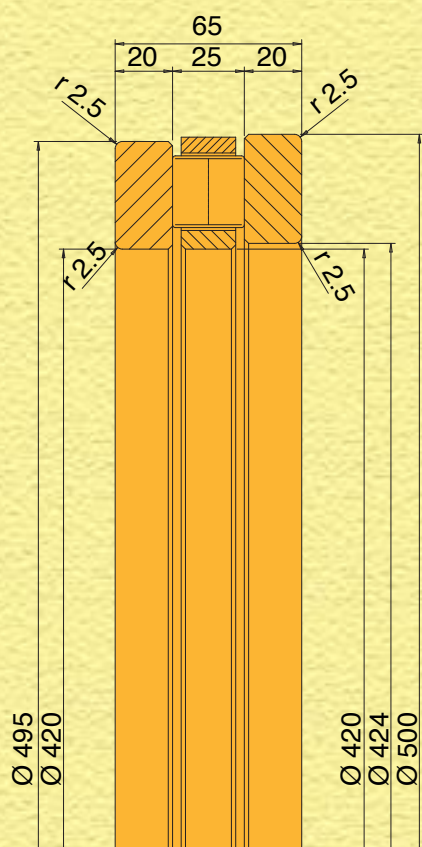
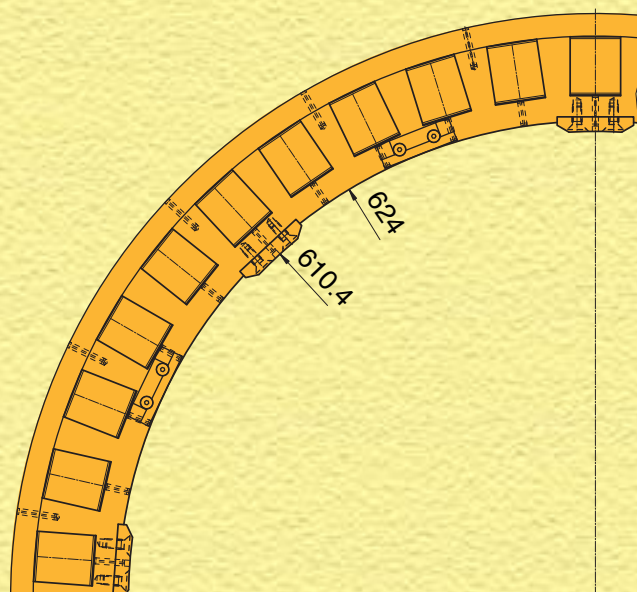
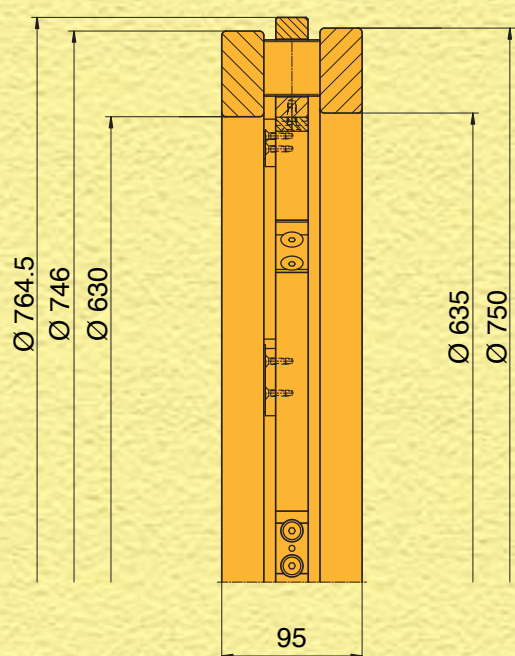
Special custom axial bearing
特殊定制止推轴承



Special combined bearing for tilting table -
spark erosion machine
为回转台定制的特殊组合轴承—
电火花腐蚀加工机床

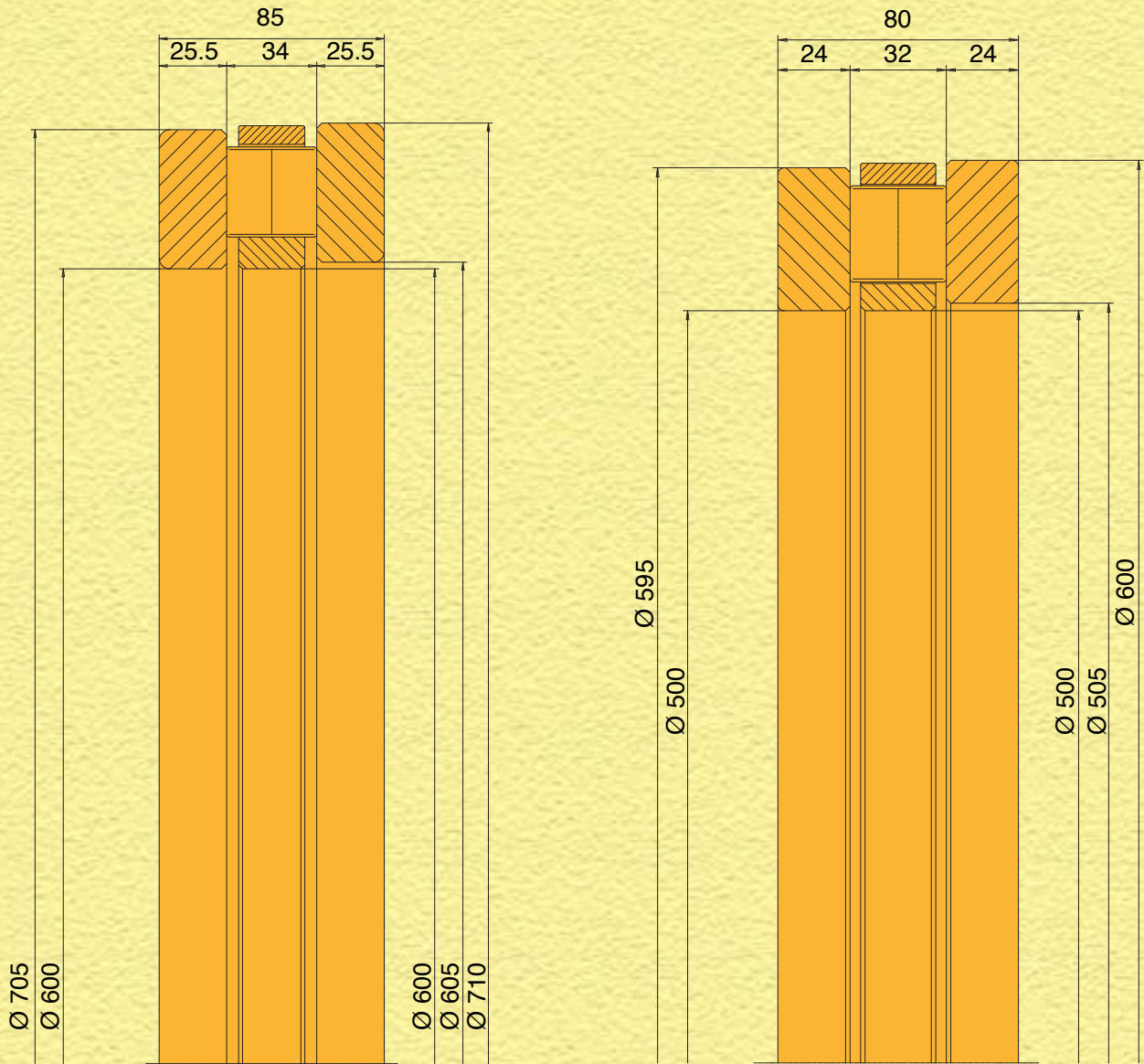


Roller for steady rest
用于稳定架使用的滚子轴承



Thrust bearings for vertical lathe
供立式车床使用的推力轴承

PRECISION BEARINGS 精密轴承



Thrust bearings for vertical lathe
供立式车床使用的推力轴承

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