MONTON®

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精 密 轴 承
Precision Bearing

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www.montonbearings.com

洛阳盟拓轴承科技有限公司(MONTON)主要从事精密角接触球轴承，精密交叉滚子轴承，截面薄壁球轴承，石油螺杆钻锯轴承，圆柱滚子轴承，球面滚子轴承，推力滚子和滚珠轴承以及客户制造的非标轴承的生产。我们的产品有广泛应用于机床主轴，矿山，冶金，港口机械，医疗，水泥，石油钻井，纺织机械，工业机器人，造纸机械，混凝土搅拌车，减速机，轧钢机和国防工业等领域。

我们诚挚地邀请您与我们合作，利用我们丰富的产品知识和丰富的轴承知识，为您提供的轴承。

盟拓完善的服务可以赢得客户的信任，并确保客户与我们开展业务是没有风险的。在下订单之前，我们确保客户了解有关质量、价格、交货的详细信息，并且我们将严格遵守合同协议。客户收到我们优质的轴承后，如果对轴承质量不满意，我们接受退货。

我们诚挚地邀请您与我们合作，利用我们丰富的产品专业知识和广泛的轴承知识为您提供最优质的轴承。在众多与您合作的公司中，我们相信我们也可以成为您的最可靠的中国轴承供应商。

Monton bearing is mainly engaged in the production of the angular contactball bearing, precision crossd roller bearing,the section ball bearing,cylindrical roller bearing,spherical roller bearing,thrust roller ball bearings and harmonic drives and the customer made non-standard bearings.
Our products have been widely used for machine tools,weapon,mining,metallurgy,port machinery, medical treatment,cement,oil drilling,textile,industrial robots,papermaking machinery,concrete mixer truck,rolling mill and the national defense industry field.

Monton bearing has its own factory,we can supply the high quality products with reasonable price, and the bearing buyer can gained the high quality bearings with the less cost who purchase from the bearing manufacturer directly, of course our quality bearings can help their machine to work more steadily and more efficiently.

Monton's perfect service can earn customers' trust and make sure the customers have no risk to do business with us. Before place an order, we make sure the customer know the details about the quality, the price, the delivery, and also we will be work strictly according to our agreement, after the customers received our quality bearings, we accepted return back the bearing goods if the customers was not pleased the bearing quality.

We sincerely invite you to cooperate with us to make use of our substantial product know-how as well as our extensive bearing knowledge to supply the best bearing for you.As many companies have done before you, we trust that we can also become your most RELIABLE bearing supplier in China.




目录 Contents

精密交叉圆柱滚子轴承
PRECISION CROSS-ROLLER BEARING

精密交叉滚子轴承的主要特点
Precision Cross-roller Bearing structure and Features

高刚性、旋转灵活且高的定位精度
High rigidity Flexible rotation Accurate location

交叉滚子轴承内部滚动体采用圆柱滚子呈90°相互垂直交叉排列， 滚动体与滚道线性接触，轴承受力时套圈与滚动体弹性变形小，故轴承工作时运转刚性高；滚子之间可装有保持器或者隔离块，防止滚子的倾斜或滚子之间相互摩擦，提高旋转灵活性和工作转速。

With the cross-roller bearing, cylingdrical rollers are arranged with each roller perpendicular to the adjacent roller ,in a 90°V groove, rollers and goove are linear contact, rings and rollers have small elastic deformation when the bearing achieve loads, thus, it have high rigidity. Separated from each other by a spacer or retainer to prevent rollers from skewing and the friction between rollers, improving flexible rotation and working speed.

操作安装简化
Simple operation and Install

轴承两半外圈型、两半内圈型或整体结构带装滚子孔结构，在装入滚子后被固定在一起，安装时操作非常简单。

With the types of two-piece outer rings、inner rings type、integrated structure with roller putting holes type, which is very easy operation and install.

可承受较大的轴向和径向负荷同时可以承载倾覆力
Achieve loads in axial,radial and tilting moment

滚子在呈90°的V型滚道滚动面上通过间隔保持器被相互垂直排列，这种设计使交叉滚子轴承就可以承受较大的径向负荷、轴向负荷及倾覆力等所有方向的负荷。

With the structure of 90°V groove, cylingdrical rollers are arranged with each roller perpendicular to the adjacent roller, this design allows just one bearing to receive loads in all direction including radial,axial and moment loads.

节省安装空间
Save installation space

交叉滚子轴承的内外圈尺寸被最小限度的小型化，特别是超薄结构是接近极限的外形尺寸，并且具有高刚性，适合于工业机器人的关节部位或者旋转部位、机械加工中心的旋转工作台、机械手旋转部位、精密旋转工作台、医疗仪器、计量器具、IC制造装置等广泛用途。

Since the Cross-roller Ring achieves high rigidity despite the minimum possible dimensions of the inner and outer rings, it is optimal for applications such as joints and swiveling units of industrial robots, swiveling tables of machining centers, rotary units of manipulators, precision rotary tables, medical equipment, measuring instruments and IC manufacture machines.

■精密交叉滚子轴承的结构型式
Types of precision cross-roller bearing

RB型（外圈两半，内圈整体型）

Model RB (Separable Outer Ring Type for Inner Ring Rotation)

RB系列（THK对应为RB系列，IKO对应为CRB系列，NSK 对应为NRXT系列）为交叉圆柱滚子轴承的基本型，内、外圈尺寸被最小限度地小型化，其结构为外圈是两半型，并通过螺栓或特殊铆钉进行固定，内圈是一体设计，适合于要求内圈旋转精度高的部位，例如机床分度工作台的旋转部位。

RB series(THK corresponding to RB series,IKO corresponding to CRB series),NSK corresponding to NRXT series). Cross-roller beaing basic type, the dimension of inner ring and outering are minimum limited. with a separable outer ring which fixed together by bolt or special rivet, The inner ring is integrated. It is used in locations where the rotational accuracy of the inner ring is required. For example, the swivel portions of index tables of machine tools.

SX型（外圈两半，内圈整体型）

Model SX (Separable Outer Ring Type for Inner Ring Rotation)

SX系列型号（INA对应为SX系列），为交叉圆柱滚子轴承的基本型，内、外圈尺寸被最小限度地小型化，其结构为外圈是两半型，并通过径向联接圈将两外圈进行固定，内圈是一体设计，适合于要求内圈旋转精度高的部位，例如机床分度工作台的旋转部位。

SX series(INA corresponding to SX series), Cross-roller bearing basic type, the dimension of inner ring and outering are minimum limited. with a separable outer ring which fixed together by a radial joint ring, The inner ring is integrated. It is used in locations where the rotational accuracy of the inner ring is required. For example, the swivel portions of index tables of machine tools.

CSF型（外圈两半，内圈整体，内外圈带安装孔型）

Model CSF (Separable outer ring type for outer ring rotation with mounting holes)

CSF系列型号交叉圆柱滚子轴承，其构造是外圈是分割型，内圈是一体设计，适合于要求内圈旋转精度高的部位。由于内外圈已进行了安装孔的加工，就不需要固定法兰和支撑座。更加有利于安装。主要应用于机器人谐波减速机。

CSF series cross-roller bearing with a sparate outer ring, and an inner ring integrated with the main body. It is used in locations where the rotational accuracy of the inner ring is required. Since holes are drilled for mounting, the need for a presser flange and a housing is eliminated, more easier to install. It is used, For example, Output end of the robot harmonic reducer.

■精密交叉滚子轴承的结构型式
Types of precision cross-roller bearing

RE型（内圈两半，外圈整体型）
Model RE(Two-piece Inner Ring Type for Outer Ring Rotation)

RE系列型号（THK对应系列为RE系列）是由RB型的设计理念产生的新型式，主要尺寸与RB型相同。其构造是内圈是两半型，外圈是一体设计，适合于要求外圈旋转精度高的部位。

RE series(THK corresponding to RE series), It is the new structure from RB design.Main dimensions are the same as model RB. With two-piece inner ring, and a outer ring integrated. It is used in locations where the rotational accuracy of the outer ring is required.

XV型（内圈两半，外圈整体型并具安装孔型）
Model XV(Two-piece Inner Ring Type for Outer Ring Rotation with mounting holes)

XV系列型号（INA对应为XV系列），其外圈是一体设计，并具有安装孔，内圈是两半型结构，并在内圈和外圈具有金属防尘固定圈，既有防尘又可以保证外圈与内圈结合成为一体。安装方便，适合于要求外圈旋转精度高的部位。

XV series(INA corresponding to XV series), Integrated outer ring with mounting holes, Two-piece inner ring, Metal anti-rust fixed ring on both inner and outer rings.This design not only prevent dust but also ensure the outer ring and inner ring integrated. Easy handle, It is used in locations where the rotational accuracy of the outer ring is required.

CRBH型（内、外圈整体高刚性型）
Model CRBH (High rigidity type,Both inner ring and outer ring are integrated)

CRBH系列（IKO对应系列为CRBH系列）型号轴承内圈和外圈都为一体化设计，整体套圈滚道，外圈具有装滚子孔型结构。高刚性和高的旋转精度，同时由于高质量的滚道和隔离块的配置保证了轴承的回转灵活性。

CRBH series(IKO corresponding to CRBH series), With the structure of both inner ring and outer ring are integrated, integrated raceway, with putting roller hole on outer ring. High rigidity and accuracy rotation.Since the high quality raceway and spacer placed to ensure the flexible rotation.

■精密交叉滚子轴承的结构型式
Types of precision cross-roller bearing

CRBS型（内、外圈整体超薄壁型）

Model CRBS(Ultra-thin wall type, Integrated inner/outer ring)

CRBS系列（THK对应为RA系列，IKO对应为CRBS系列）轴承内圈和外圈都为一体化设计，整体套圈滚道，外圈具有装滚子孔型结构。套圈厚度薄至极限，有效减轻机构重量。容易安装且极薄的型式，所以最适合于要求内外圈高刚性，高精度的场合。

CRBS series(THK corresponding to RA series, IKO corresponding to CRBS series), With the structure of both inner ring and outer ring are integrated, integrated raceway, with putting roller hole on outer ring.Thinnest possible inner and outer rings, Effective to deduct structure weight, An easy install and ultra-thin wall type. It is used in locations where high rigidity and high precision of both inner and outer ring are required

CRBC型（外圈两半，内圈整体超薄壁型）

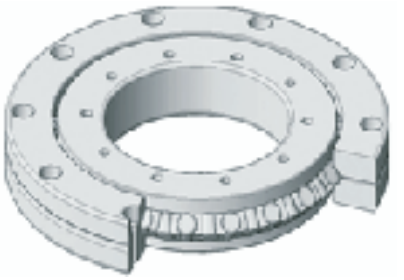
Model CRBC (Ultra-thin wall type,Separable outer ring, integrated inner ring)

CRBC系列型号（THK对应为RA-C系列），其外圈是两半，内圈是一体型设计，套圈厚度薄至极限，有效减轻机构重量。轴承座或侧面压紧法兰都可以轻量化，最合适机器人手部旋转关节部分。

CRBC series(THK corresponding to RA-C series), With the structure of separable outer ring and integrated inner ring, thinnest possible inner and outer rings. Effective to deduct structure weight. Both bearing housing and presser flange can be light weight.It is optimal for application such as the joints and swivel portions of robots

RU型（内、外圈整体高刚性并具安装孔型）

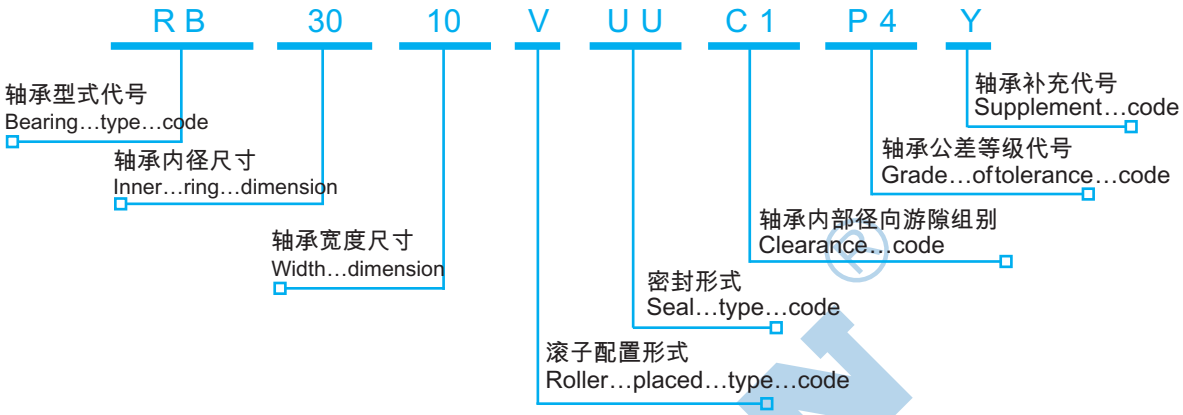
Model RU(Integrated Inner/Outer Ring Type, with high rigidity and mounting holes)



RU系列，（THK对应为RU系列，内外圈一体型设计，由于内外圈已进行了安装孔的加工，就不需要固定法兰和支撑座。另外，由于采用带座的一体化内外圈环结构，安装对性能几乎没有影响，因此能够获得稳定的旋转精度和扭矩。外圈和内圈旋转机构都可适用。

RU series(THK corresponding to RU series, Integrated Inner/Outer ring design).Since holes are drilled for mounting, the need for a presser flange and a housing is eliminated. Also, owing to the integrated Inner/outer ring type structure with washer, there is almost no effect from installation on performance, allowing stable rotational accuracy and torque to be obtained.Can be used for both outer and inner ring rotaion.

precision cross-roller bearing code
精密交叉滚子轴承代号方法：
Standard bearing code
标准轴承形式的代号方法



标准型产品代号表示含义如下：
Signification of standard bearing code

1．轴承型式代号，RB,RE,CRBH,CRBS,CRBC分别参照前面轴承结构形式说明。
Bearing type code, RB,RE, CRBH,CRBS,CRBC Please reference bearing types in front table.

2．轴承内径实际尺寸，由一位、两位或三位阿拉伯数字表示。
Inner ring dimension, showed by single/two/triple digital.

3．轴承宽度实际尺寸，一般由两位阿拉伯数字表示。
Width dimension,showed by two digital.

4．滚子配置形式代号
Roller placed type code
标准配置为隔离块型，滚子与隔离块间隔排列，代号不用标示。
Standard type with the structure of roller and spacer spaced arrange .No code.
满装配置为滚子与滚子交叉排列，代号为英文字母 V。
Full complement type with the structure of roller and roller crossed placed , Code is V.
特殊型式，包括带保持架型等结构，代号为英文字母 C
Special type, including the structure with cage, code is C

5．密封形式代号
Seal type code
标准双侧橡胶密封型式，代号为英文字母 UU
Standard double rubber seal, code is UU

变型单侧橡胶密封型式，代号为英文字母 U
Deformation single rubber seal, code is U
双侧金属防尘圈型式，代号为英文字母 LL
Anti-rust metal double seal, code is LL
单侧金属防尘圈型式，代号为英文字母 L
Anti-rust metal single seal, code is L
其他型式密封，代号为英文字母 R
Other seal type, code is R

6．轴承内部游隙代号
Clearance code
根据轴承内部游隙大小，进行标识，具体由一位或两位英文字母和一位阿拉伯数字标识，参照交叉滚子轴承游隙表。
Clearance code showed by single /two English letter and a single digital, Please refer to the table of cross-roller bearing clearance value.

7．轴承公差等级代号
Grade of tolerance code
根据轴承的尺寸公差和精度进行标识，主要分为P2，P4，P5，P6及P0等精度等级，对于标准级精度代号中可以不进行标识。
According to bearing dimension tolerance and precision, code mainly are P2，P4，P5，P6 and P0, The standard precision not show the code.

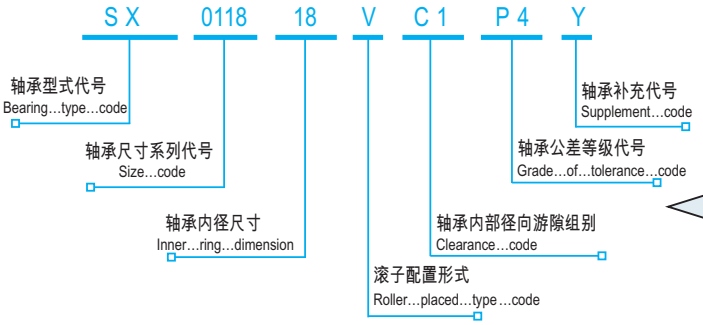
8．轴承补充代号
Supplement code
对于轴承有除以上要求以外的特殊结构变形等技术要求变化，则用轴承补充代号进行标识，补充代号为一位英文字母和一位阿拉伯数字组合而成。
Y1,Y2,Y3….等。
For the additional malformation besides above mentioned, use supplement code, showed by an English letter and a single digital. Y1,Y2,Y3….etc.

示例：30 10 V UU C1 P4
For example RB 30 10 V UU C1 P4 ---

表示轴承形式为RB型，内径尺寸30mm,轴承宽度10mm,滚子满装型配置，两侧带橡胶密封，C1组径向游隙，P4级尺寸精度。
Means the bearing is RB type, inner ring dimension is 30mm, bearing width 10mm, full complement roller placed, double rubber seal, C1 clearance, P4 dimensional precision.

※特殊轴承形式的代号
Special bearing type code

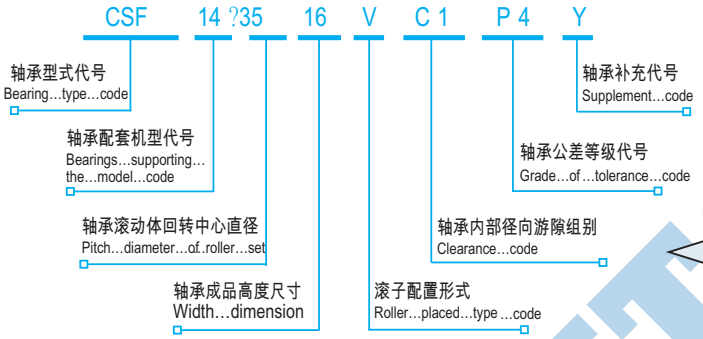
1．SX型 （Model SX）



SX型代号补充说明
SX code supplementary instruction

轴承内径尺寸代号，一般由两位阿拉伯数字表示，实际内径尺寸为代号数值×5。
Inner ring code normally showed by two digital, inner dimension code is ×5.

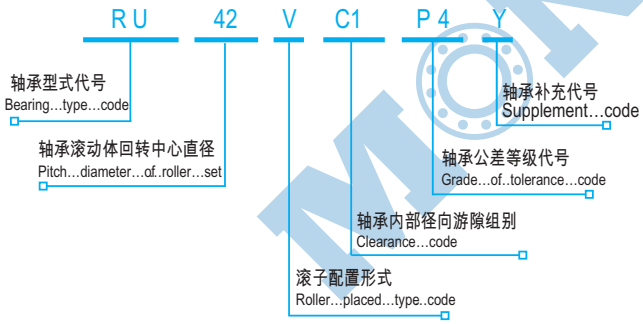
2．CSF型 （Model CSF）



CSF型代号补充说明
CSF code supplementary instruction

标准精度等级为P5级，标准游隙组别为CC0组，可不标识，标准密封型式为单侧骨架式密封，如有不同于标准的要求，则在补充代号前进行标识。
Standard precision is P5, Standard clearance is CC0 which not need a code, Standard seal type is single rubber seal with spring rim, If there are different from standard, supplementary code will be needed.

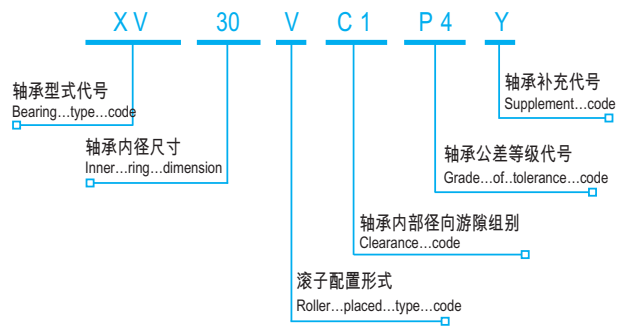
3．RU型 （Model RU）



RU型代号补充说明
RU code supplementary instruction

标准精度等级为P5级，标准游隙组别为C0组，可不标识，标准密封型式参照数据表，如有不同于标准的要求，则在补充代号前进行标识。
Standard precision is P5, Standard clearance is C0, which not need a code, Standard seal type refer to table, If there are different from standard, supplementary code will be needed.

4．XV型 （Model XV）



XV型代号补充说明
XV code supplementary instruction

标准精度等级参照精度表，标准游隙组别为C0组，可不标识，标准密封型式两侧带金属防尘圈，如有不同于标准的要求，则在补充代号前进行标识。
Standard precision refer to table, Standard clearance is C0, which not need a code, Standard seal type with anti-rust metal ring on both sides, If there are different from standard, supplementary code will be need.

精密交叉滚子轴承精度等级
precision cross-roller bearing accuracy grade

精密交叉滚子轴承的旋转精度要求参见以下表列数据：

presion cross-roller bearing running accuracy refer to below table

RB/CRBH型内圈的旋转精度　　Running accuracy of the inner ring　　单位Unit：μm

轴承内径(d)的公称尺寸（mm）Bearing inner diameter		径向跳动 Radial runout tolerance					轴向跳动 Axial runout tolerance				
超过	以下	0级	P6级	P5级	P4级	P2级	0级	P6级	P5级	P4级	P2级
18	30	13	8	4	3	2.5	13	8	4	3	2.5
30	50	15	10	5	4	2.5	15	10	5	4	2.5
50	80	20	10	5	4	2.5	20	10	5	4	2.5
80	120	25	13	6	5	2.5	25	13	6	5	2.5
120	150	30	18	8	6	2.5	30	18	8	6	2.5
150	180	30	18	8	6	5	30	18	8	6	5
180	250	40	20	10	8	5	40	20	10	8	5
250	315	50	25	13	10	-	50	25	13	10	-
315	400	60	30	15	12	-	60	30	15	12	-
400	500	65	35	18	14	-	65	35	18	14	-
500	630	70	40	20	16	-	70	40	20	16	-
630	800	80	-	-	-	-	80	-	-	-	-
800	1000	90	-	-	-	-	90	-	-	-	-
1000	1250	100	-	-	-	-	100	-	-	-	-

RE/CRBH型外圈的旋转精度　　Running accuracy of the outer ring　　单位Unit：μm

轴承外径(D)的公称尺寸(mm) bearing outer diameter		径向跳动Radial runout tolerance					轴向跳动axial runout tolerance				
超过	以下	0级	P6级	P5级	P4级	P2级	0级	P6级	P5级	P4级	P2级
30	50	20	10	7	5	2.5	20	10	7	5	2.5
50	80	25	13	8	5	4	25	13	8	5	4
80	120	35	18	10	6	5	35	18	10	6	5
120	150	40	20	11	7	5	40	20	11	7	5
150	180	45	23	13	8	5	45	23	13	8	5
180	250	50	25	15	10	7	50	25	15	10	7
250	315	60	30	18	11	7	60	30	18	11	7
315	400	70	35	20	13	8	70	35	20	13	8
400	500	80	40	23	15	-	80	40	23	15	-
500	630	100	50	25	16	-	100	50	25	16	-
630	800	120	60	30	20	-	120	60	30	20	-
800	1000	120	75	-	-	-	120	75	-	-	-
1000	1250	120	-	-	-	-	120	-	-	-	-
1250	1600	120	-	-	-	-	120	-	-	-	-

RU型内圈/外圈的旋转精度　Running accuracy of the inner ring/outer ring

单位Unit：μm

型号 Designation	内圈径向/轴向跳动 Radial runout tolerance/axial runout tolerance or inner ring			外圈径向/轴向跳动 Radial runout tolerance/axial runout tolerance or ou riter ring		
	P5级	P4级	P2级	P5级	P4级	P2级
RU42	4	3	2.5	8	5	4
RU66	5	4	2.5	10	6	5
RU85	5	4	2.5	10	6	5
RU124(G)	5	4	2.5	13	8	5
RU124X	5	4	2.5	13	8	5
RU148(G)	6	5	2.5	15	10	7
RU148X	6	5	2.5	15	10	7
RU178(G)	6	5	2.5	15	10	7
RU178X	6	5	2.5	15	10	7
RU228(G)	8	6	5	18	11	7
RU228X	8	6	5	18	11	7
RU297(G)	10	8	5	20	13	8
RU297X	10	8	5	20	13	8
RU445(G)	15	12	7	25	16	10
RU445X	15	12	7	25	16	10

SX型的内圈/外圈旋转精度
Running accuracy of the inner ring/outer ring

单位Unit：μm

型号 Designation	径向跳动 Radial runout tolerance	轴向跳动 axial runout tolerance
SX011814	10	10
SX011818	10	10
SX011820	10	10
SX011824	10	10
SX011828	15	10
SX011832	15	10
SX011836	15	10
SX011840	15	10
SX011848	20	10
SX011860	20	10
SX011868	25	10
SX011880	30	10
SX0118/500	40	10

注：因外圈为两半型结构，外圈跳动值为未分离前数值。如需精度高于表列数值，请向我公司咨询。

Note:...Since the structure of separable.outer ring, runout value o outer ring is measured before separated Any higher precision required which exceed aboveablevalue,please consult our company.

XV型的内圈/外圈旋转精度
Running accuracy of the inner ring/outer ring

单位Unit：μm

型号 Designation	径向跳动 Radial runout tolerance	轴向跳动 axial runout tolerance
XV30	10	10
XV40	10	10
XV50	10	10
XV60	10	10
XV70	10	10
XV80	10	10
XV90	10	10
XV100	10	10
XV110	10	10

注：如需精度高于表列数值，请向我公司咨询

Note: Any higher precision required which exceed above table value, please consult our company.

CRBS/CRBC型内圈的旋转精度
Running accuracy of the inner ring

单位Unit：μm

轴承内径的公称尺寸 Bearing inner diameter (d) (mm)		径向跳动/轴向跳动 Radial runout/ axial runout tolerance
超过 above	以下 Or less	容许值
40	65	13
65	80	15
80	100	15
100	120	20
120	140	25
140	180	25
180	200	30

CRBS型外圈的旋转精度
Running accuracy of the outer ring

单位Unit：μm

轴承外径的公称尺寸 Bearing inner diameter (d) (mm)		径向跳动/轴向跳动 Radial runout/ axial runout tolerance
超过 above	以下 Or less	容许值
65	80	13
80	100	15
100	120	15
120	140	20
140	180	25
180	200	25
200	250	30

注：当要求CRBS/CRBC…型的内圈旋转精度比表列的精度高时，请向我公司咨询。
Note: Any higher precision required which exceed above table value,please consult our company.

CSF型【谐波减速器专用】内圈的旋转精度　Running accuracy of the inner ring

单位Unit：μm

型　号 Designation	内圈径向/轴向跳动容许值 Radial runout tolerance/axial runout tolerance or inner ring		
	P5级	P4级	P2级
CSF14-3516	4	3	2.5
CSF17-4216	4	3	2.5
CSF20-5016	4	3	2.5
CSF25-6218	5	4	2.5
CSF32-8022	5	4	2.5
CSF40-9524	5	4	2.5
CSF50-12031	5	4	2.5
CSF65-16039	6	5	2.5

※精密交叉滚子轴承的尺寸公差要求参见以下表列数据：

precision cross-roller bearing dimensional tolerance refer to below table:

RB/RE/CRBH型的内径尺寸公差　Dimensional Tolerance of the bearing inner Diameter　单位Unit：μm

轴承内径的公称尺寸 Bearing inner diameter (d) (mm)		dm的公差 Tolerance							
		0级		P6级		P5级		P4级、P2级	
超过above	以下or less	上Upper	下Lower	上Upper	下Lower	上Upper	下Lower	上Upper	下Lower
18	30	0	-10	0	-8	0	-6	0	-5
30	50	0	-12	0	-10	0	-8	0	-6
50	80	0	-15	0	-12	0	-9	0	-7
80	120	0	-20	0	-15	0	-10	0	-8
120	150	0	-25	0	-18	0	-13	0	-10
150	180	0	-25	0	-18	0	-13	0	-10
180	250	0	-30	0	-22	0	-15	0	-12
250	315	0	-35	0	-25	0	-18	-	-
315	400	0	-40	0	-30	0	-23	-	-
400	500	0	-45	0	-35	-	-	-	-
500	630	0	-50	0	-40	-	-	-	-
630	800	0	-75	-	-	-	-	-	-
800	1000	0	-100	-	-	-	-	-	-
1000	1250	0	-125	-	-	-	-	-	-

注：CRBS/CRBC/RU的内径公差为0级，如果需要高等级的要求，请向我公司咨询。
Note: CRBS/CRBC/RU inner diameter tolerance is 0,Any higher precision required please consult with our company.

RB/RE/CRBH型的外径尺寸公差　Dimensional Tolerance of the bearing outer Diameter　单位Unit：μm

轴承外径的公称尺寸 Bearing outer diameter (D) (mm)		dm的公差 Tolerance							
		0级		P6级		P5级		P4级、P2级	
超过above	以下or less	上Upper	下Lower	上Upper	下Lower	上Upper	下Lower	上Upper	下Lower
30	50	0	-11	0	-9	0	-7	0	-6
50	80	0	-13	0	-11	0	-9	0	-7
80	120	0	-15	0	-13	0	-10	0	-8
120	150	0	-18	0	-15	0	-11	0	-9
150	180	0	-25	0	-18	0	-13	0	-10
180	250	0	-30	0	-20	0	-15	0	-11
250	315	0	-35	0	-25	0	-18	0	-13
315	400	0	-40	0	-28	0	-20	0	-15
400	500	0	-45	0	-33	0	-23	-	-
500	630	0	-50	0	-38	0	-28	-	-
630	800	0	-75	0	-45	0	-35	-	-
800	1000	0	-100	-	-	-	-	-	-
1000	1250	0	-125	-	-	-	-	-	-
1250	1600	0	-160	-	-	-	-	-	-

注：CRBS/CRBC/RU的外径公差为0级，如果需要高等级的要求，请向我公司咨询。
Note:CRBS/CRBC/RU outerdiameter tolerance is 0,Any higher precision required please consult with our company.

SX型的内径和外径尺寸公差　Dimensional Tolerance of the bearing inner and Diameter bearing outer Diamete　单位Unit：μm

型　号 Designation	dm的公差Tolerance		Dm的公差Tolerance	
	上Upper	下Lower	上Upper	下Lower
SX011814	+4	-15	0	-22
SX011818	+4	-18	0	-22
SX011820	+4	-18	0	-25
SX011824	+4	-18	0	-25
SX011828	+4	-21	0	-25
SX011832	+4	-21	0	-29
SX011836	+4	-21	0	-29
SX011840	+4	-24	0	-29
SX011848	+5	-24	0	-32
SX011860	+5	-27	0	-36
SX011868	+7	-29	0	-40
SX011880	+7	-29	0	-40
SX0118/500	+8	-32	0	-40

注：如需精度高于表列数值，请向我公司咨询
Note:Any higher precision required which exceed above table value, please consult with our company.

XV型的内径和外径尺寸公差　Dimensional Tolerance of the bearing inner and Diameter bearing outer Diamete　单位Unit：μm

型　号 Designation	dm的公差　Tolerance		Dm的公差　Tolerance	
	上Upper	下Lower	上Upper	下Lower
XV30	+8	-5	0	-19
XV40	+10	-6	0	-22
XV50	+10	-6	0	-22
XV60	+13	-6	0	-22
XV70	+13	-6	0	-22
XV80	+13	-6	0	-25
XV90	+16	-6	0	-25
XV100	+16	-6	0	-25
XV110	+16	-6	0	-25

注：如需精度高于表列数值，请向我公司咨询
Note: Any higher precision required which exceed above table value, please consult with our company.

RB/RE/CRBH型的内外圈宽度公差　Tolerance in the width of the inner and outer rings　单位Unit：μm

轴承内径(d)的公称尺寸 Bearing inner diameter (mm)		B的公差 Tolerance		B1的公差 Tolerance	
		适用于RB型的内圈、RE型的外圈 Applied to the inner ring of RB and the outer ring of RE		适用于RB型的外圈、RE型的内圈 Applied to the outer ring of RB and the inner ring of RE	
超过above	以下 or less	上Upper	下Lower	上Upper	下Lower
18	30	0	-75	0	-100
30	50	0	-75	0	-100
50	80	0	-75	0	-100
80	120	0	-75	0	-100
120	150	0	-100	0	-120
150	180	0	-100	0	-120
180	250	0	-100	0	-120
250	315	0	-120	0	-150
315	400	0	-150	0	-200
400	500	0	-150	0	-200
500	630	0	-150	0	-200
630	800	0	-150	0	-200
800	1000	0	-300	0	-400
1000	1250	0	-300	0	-400

注：CRBS及CRBC的宽度公差均为-0.120~0mm，如果需要高等级的要求，请向我公司咨询。
Note: CRBS and CRBC width tolerance are -0.120~0mm, Any higher precision required please consult with our company.

SX型的宽度公差　Tolerance in the width of the inner and outer rings　单位Unit：μm

型 号 Designation	B		C	
	上Upper	下Lower	上Upper	下Lower
SX011814	0	-10	+100	-100
SX011818	0	-10	+120	-120
SX011820	0	-10	+120	-120
SX011824	0	-10	+120	-120
SX011828	0	-10	+120	-120
SX011832	0	-25	+130	-130
SX011836	0	-25	+130	-130
SX011840	0	-25	+130	-130
SX011848	0	-25	+130	-130
SX011860	0	-50	+140	-140
SX011868	0	-50	+140	-140
SX011880	0	-50	+150	-150
SX0118/500	0	-50	+160	-160

注：如需精度高于表列数值，请向我公司咨询
Note: Any higher precision required which exceed above table value, please consult with our company.

XV型的宽度公差 Tolerance in the width of the inner and outer rings

单位Unit：μm

型 号 Designation	C		B	
	上Upper	下Lower	上Upper	下Lower
XV30	0	-100	0	-75
XV40	0	-100	0	-75
XV50	0	-100	0	-75
XV60	0	-100	0	-75
XV70	0	-100	0	-75
XV80	0	-100	0	-75
XV90	0	-100	0	-75
XV100	0	-100	0	-75
XV110	0	-100	0	-75

注：如需精度高于表列数值，请向我公司咨询
Note: Any higher precision required which exceed above table value, please consult with our company.

RU型的内外圈宽度公差 Tolerance in the width of the inner and outer rings

单位Unit：μm

型 号 Designation	B/C	
	上 Upper	下 Lower
RU42	0	-75
RU66	0	-75
RU85	0	-75
RU124(G)	0	-75
RU124X	0	-75
RU148(G)	0	-75
RU148X	0	-75
RU178(G)	0	-100
RU178X	0	-100
RU228(G)	0	-100
RU228X	0	-100
RU297(G)	0	-100
RU297X	0	-100
RU445(G)	0	-100
RU445X	0	-100

注：如需精度高于表列数值，请向我公司咨询
Note: Any higher precision required which exceed above table value, please consult with our company.

※CRBF型尺寸公差请向我公司咨询
CRBF dimensional tolerance please consult with our company.

※精密交叉滚子轴承的径向游隙要求参见以下表列数据：
precision cross-roller bearing Radial clearance to below table:

RB/RE/CRBH/XV型轴承的内部径向游隙 Radial clearance 单位Unit：μm

轴承内径(d)的公称尺寸mm Bearing inner diameter (d)		CC0		C0		C1	
超过 above	以下 or less	最小 Min	最大 Max	最小 Min	最大 Max	最小 Min	最大 Max
-	30	-10	0	0	10	10	20
30	40	-10	0	0	10	10	20
40	50	-10	0	0	10	10	25
50	65	-10	0	0	10	10	25
65	80	-10	0	0	15	15	30
80	100	-10	0	0	15	15	35
100	120	-15	0	0	15	15	35
120	140	-15	0	0	20	20	45
140	160	-15	0	0	20	20	50
160	200	-15	0	0	20	20	50
200	250	-20	0	0	25	25	60
250	315	-20	0	0	25	25	60
315	400	-25	0	0	30	30	70
400	500	-30	0	0	40	40	85
500	630	-30	0	0	50	50	100
630	710	-30	0	0	60	60	120
710	800	-40	0	0	70	70	140

CRBS/CRBC型轴承的内部径向游隙 Radial clearance 单位Unit：μm

轴承内径(d)的公称尺寸mm Bearing inner diameter	CC0		C0		C1	
	最小 Min	最大 Max	最小 Min	最大 Max	最小 Min	最大 Max
50	-8	0	0	15	30	56
60	-8	0	0	15	30	56
70	-8	0	0	15	30	56
80	-8	0	0	15	41	66
90	-8	0	0	15	41	66
100	-8	0	0	15	41	66
110	-8	0	0	15	41	66
120	-8	0	0	15	51	76
130	-8	0	0	15	51	76
140	-8	0	0	15	51	76
150	-8	0	0	15	51	76
160	-10	0	0	20	51	76
170	-10	0	0	20	51	76
180	-10	0	0	20	61	86
190	-10	0	0	20	61	86
200	-10	0	0	20	61	86

RU型轴承的内部径向游隙　Radial clearance　　单位Unit：μm

型　号 Designation	CC0		C0	
	最小 Min	最大 Max	最小 Min	最大 Max
RU42	-10	0	0	25
RU66	-10	0	0	30
RU85	-10	0	0	40
RU124(G/X)	-10	0	0	40
RU148(G/X)	-15	0	0	40
RU178(G/X)	-15	0	0	50
RU228(G/X)	-15	0	0	60
RU297(G/X)	-20	0	0	70
RU445(G/X)	-25	0	0	100

SX型轴承的内部径向游隙　Radial clearance　　单位Unit：μm

型号 Designation	CC0		C0		C1	
	最小 Min	最大 Max	最小 Min	最大 Max	最小 Min	最大 Max
SX011814	-15	-3	-6	3	0	10
SX011818	-15	-3	-6	3	0	10
SX011820	-20	-5	-8	4	0	20
SX011824	-20	-5	-8	4	0	20
SX011828	-20	-5	-8	4	0	20
SX011832	-20	-5	-8	4	0	20
SX011836	-25	-5	-10	5	0	25
SX011840	-25	-5	-10	5	0	25
SX011848	-25	-5	-10	5	10	30
SX011860	-25	-5	-10	5	10	40
SX011868	-25	-5	-10	5	10	40
SX011880	-25	-5	-10	5	10	50
SX0118/500	-30	-5	-12	6	10	60

CSF型【谐波减速器专用】轴承的内部径向游隙　Radial clearance　　单位Unit：μm

型号 Designation	CC0		C0	
	最小 Min	最大 Max	最小 Min	最大 Max
CSF14-3516	-10	0	0	20
CSF17-4216	-10	0	0	25
CSF20-5016	-10	0	0	25
CSF25-6218	-10	0	0	30
CSF32-8022	-10	0	0	35
CSF40-9524	-10	0	0	40
CSF50-12031	-10	0	0	40
CSF65-16039	-15	0	0	50

■精密交叉滚子轴承选型

precision cross-roller bearing selection

精密交叉滚子轴承相比普通角接触球轴承刚性提高三到四倍。采用精密交叉圆柱滚子轴承，不需要和薄壁角接触球轴承一样配对安装，一套交叉滚子轴承就可以承受所有方向的受力，同时提高轴承的刚性三到四倍。

Precision crossed-roller bearing have increased rigidity, 3-4 times greater than the conventional type Unlike the thin angular ball bearings installed in double rows, the cross array of roller allows a sigle cross-placed cylindrical roller bearings to receive loads in all directions, increasing the rididity to 3-4 times greater than the conventional type.

※ 精密交叉滚子轴承选型时，必须明确以下要求：

Precision cross-roller bearing selection must confrm below requirement.

1. 确定轴承的工况

Confirm working condition

内圈或外圈旋转方式及旋转速度

Rotation by inner ring or outer ring and the rotation speed

机构允许的尺寸范围

Dimension range which the structure allows.

2. 选择合适的结构

Choose proper structure

根据轴承需要的寿命周期---选择合适的轴承尺寸

According to required service life--Choose proper bearing dimension

运转刚性---确定轴承的游隙、刚性和安装位置需要

Rigidity—Confirm the bearing clearance, rigidity, and install location.

回转精度---确定轴承精度等级

Rotation precision—Confirm bearing precision grade.

3．回转力矩的需求

Rotation torque requirement

4. 注油和润滑方式

Lubrication and the method.

如在选型过程中有不确定的内容，请联系SA公司技术部门。

Any uncertain requirement in selection please contact SA

■精密交叉滚子轴承基本额定动负荷与寿命：

Precision cross-roller bearing basic rated dynamic load and lifetime

※额定寿命L

Rated lifetime L

交叉滚子轴承的基本额定动负荷（C）就是，让一批相同的交叉滚子轴承进行逐个运行时，它们的额定寿命为 $L = 10^6$ 转时的大小和方向都不变的径向方向负荷。基本额定动负荷（C）的参数可参考尺寸表。

The basic dynamic load rating （C）of the Cross-Roller bearing shows the radial load with interlocked direction and magnitude,under which the rated life $L = 10^6$ revolutions when a group of identical cross-roller bearing units independently operate under the same conditions. The basic dynamic load rating（C）is indicated in the specification tables.

交叉滚子轴承的寿命按下式进行计算。

The service life of Cross-Roller Bearing is obtained from the following equation.

$$L=\left(\frac{f_T \cdot C}{f_W \cdot P_C}\right)^{\frac{10}{3}}$$

L：额定寿命（10^6 转）

Rated life(10^6rotation)

（让一批相同的交叉滚子轴承在相同条件下逐个进行运行，其中的90%不产生由于滚动疲劳所引起的表面剥落时，所能旋转的总旋转数）

(The total number of revolutions that 90% of a group of identical cross-roller bearing units independently operating under the same conditions can achieve without showing flaking from rolling fatigue)

C：基本额定动负荷(kN)

Basic dynamic load rating

Pc：等效动径向负荷(kN)

Dynamic equivalent radial load

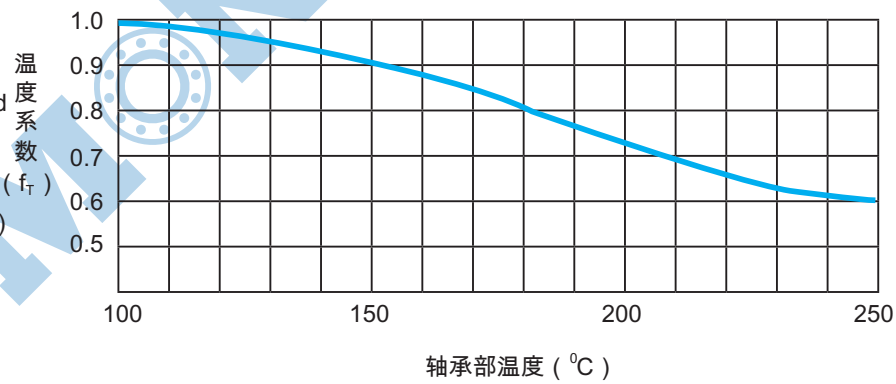
f_T: 温度系数（参照图1）

Temperature factor (see Fig.1)

fw：负荷系数（参照表1）

Load factor (see Table 1)

【图1 温度系数图 Fig.1 Temperature factor】



通常的使用温度为80°C 以下。当使用温度超过80°C 时，请与我公司进行沟通。

The normal service temperature is 80°C or below, If the product is to be used at a higher temperature, Please contact us.

【表1 负荷系数（f_W） Table 1 Load Factor (f_W)】

使用条件Service condition	f_W
没有冲击的平稳运动的情况Smooth motion without impact	1 ~1.2
普通运动的情况Normal motion	1.2 ~1.5
有激烈冲击的情况Motion with severe impact	1.5 ~3

※ 等效径向动负荷：Pc
Dynamic equivalent radial load: Pc

交叉滚子轴承的等效径向动负荷按下式计算

The dynamic equivalent radial load of the cross-roller bearing is obtained from the following equation.

$$PC=X\cdot(Fr+\frac{2M}{dp})+Y\cdot F_a$$

Pc : 等效径向动负荷(kN)
Dynamic equivalent radial load

Fr : 径向负荷(kN)
Radial load

Fa : 轴向负荷(kN)
Axial load

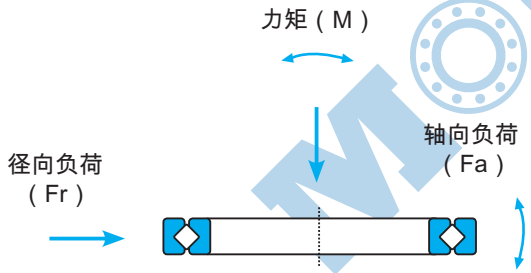
M : 力矩(kN．mm)
Moment

X : 动径向系数（参照表2）
Dynamic radial factor(see Table 2)

Y : 动轴向系数（参照表2）
Dynamic axial factor (see Table 2)

dp : 滚子的节圆直径(mm)
Roller pitch circle diameter (mm)

【图2 轴承动态受力情况图示 Fig.2 Bearing dynamic loads】



【表2 动径向系数与动轴向系数 Table 2 Dynamic radial factor and Dynamic axial factor】

分类Classification	X	Y
$\frac{Fa}{Fr+2M/dp} \le 1.5$	1	0.45
$\frac{Fa}{Fr+2M/dp} > 1.5$	0.67	0.67

当Fr = 0kN ， M = 0kN.mm 时，请按X = 0.67 ， Y = 0.67 进行计算。

If Fr = 0kN and M = 0kN.mm , Perform calculation while assuming that X = 0.67 and Y = 0.67

■精密交叉滚子轴承基本额定静负荷与静安全系数
Precision cross-roller bearing basic static load rating & staticsafety factor

基本额定静负荷C_0就是，在承受最大应力的接触部位，滚子的永久变形量和滚动面的永久变形量之和达到滚子直径的0.0001倍时，方向和大小都一定的静止负荷。如果永久变形量之和超过滚子直径的0.0001倍，运转时就会出现故障。这个基本额定静负荷C_0的参数可参考尺寸表。对于静的或动的负荷，有必要考虑以下的静的安全系数。

The basic static load rating C_0 refer to the static load with constant direction and magnitude, under which the calculated permanent deformation between the roller and the raceway achieve to 0.0001 times than the diameter of roller. If the permanent deformation exceeds this level, it will affect the rotation.This value is indicated as C_0 in the specification tables. When a load is statically or dynamically applied, it is necessary to consider the static safety factor as shown below.

$$\frac{C_0}{P_0} = fs$$

fs : 静的安全系数 (参照表3)
Static safety factor (see table 3)

C_0: 基本额定静负荷(kN)
Basic static load rating (kN)

P_0: 等效径向静负荷(kN)
Static equivalent radial load (kN)

【表3 静的安全系数（f_s） Table 3 Static safety factor （f_s）】

负荷条件Load condition	f_s的下限Lower limit of f_s
普通负荷Normal load	1～2
冲击负荷Impact load	2～3

等效径向静负荷：P0 Static Equivalent Radial Load: P0
交叉滚子轴承的等效径向静负荷按下式计算
The static equivalent radial load of the Cross-roller bearing is obtained from the following equation.

$$Pc = X \cdot (Fr + \frac{2M}{dp}) + Y_0 \cdot F_a$$

P_0: 等效径向静负荷(kN)
Static equivalent radial load

Fr : 径向负荷(kN)
Radial load

Fa : 轴向负荷(kN)
Axial load

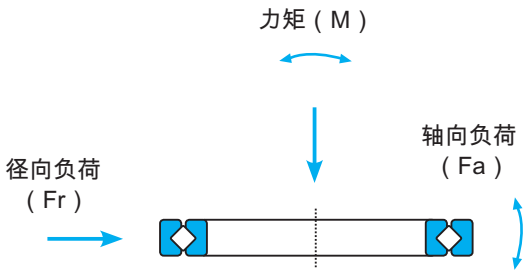
M : 力矩(kN．mm)
Moment

X_0: 静径向系数(X_0 = 1)
Static radial factor

Y_0: 静轴向系数(Y_0 = 0.44)
Static axial factor

dp : 滚子的节圆直径(mm)
Roller pitch circle diameter

【图3 轴承静态受力情况图示 Dig 3 Bearing load condition】



容许力矩：M_0 Permissible Moment
交叉滚子轴承的容许力矩按下式计算。
The permissible moment of the Cross-roller bearing is obtained from following equation.

$$MO=C_O \cdot d_p/2$$

M_0: 容许力矩(kN．mm)
Permissible moment

C_0: 基本额定静负荷(kN)
Basic static load rating

dp : 滚子的节圆直径(mm)
Roller pitch circle diameter

容许轴向负荷：
Fa_0 Permissible Axial load
交叉滚子轴承的容许轴向负荷按下式计算。
The permissible axial load of the Cross-roller bearing is obtained from following equation.

$$Fa_O=C_O/Y_O$$

Fa_0: 容许轴向负荷(kN)
Permissible axial load

Yo : 静轴向系数(Y0 = 0.44)
Static axial factor

■精密交叉滚子轴承相配合部位的设计
Precision Cross-roller bearing designing the match parts

由于交叉滚子轴承的紧凑结构和薄壁原因，在设计其配合机构和压紧法兰时应特别注意：
对于双外圈或双内圈结构，轴承座孔的刚度不够，法兰或压紧螺栓会导致轴承运转不畅甚至内圈或外圈卡死；同时当机构承受负荷会造成轴承变形,严重影响轴承性能及寿命。

Since the Cross-roller bearing is a compact, thin device, special consideration must be given to the rigidity of the housing and the presser flange.
With the types having a separable outer ring, insufficiency in the strength of the housing, pressure flange or the presser bolt will result in the inability to evenly hold the inner or outer ring, or the deformation of the bearing when a moment load is applied. Consequently, the contact area of the rollers will become uneven, causing the bearing's performance to significantly deteriorate.

※推荐的结构配置
Recommended structure

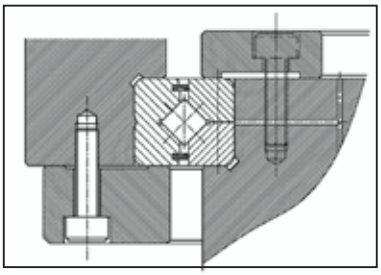


图4…外圈旋转推荐结构形式
Outer ring rotation

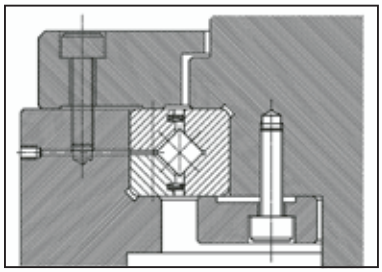


图5…内圈旋转推荐结构形式
Inner ring rotation

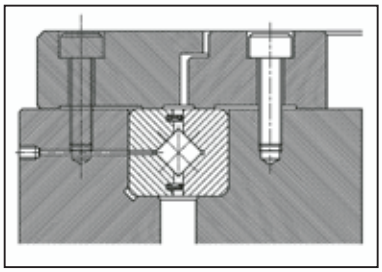


图6…内、外圈都旋转同方向固定形式
Both inner/outer ring rotation in same direction

轴承相配合结构件要求

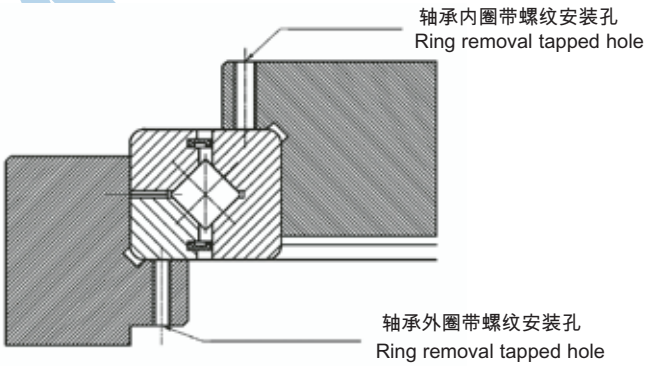


图7（Fig7）

对于精密交叉滚子轴承对相关配合结构件的要求必须保证具有足够的刚度。如上图所示的普通型交叉滚子轴承对外圈支承座的壁厚T的要求必须保证：

The match parts of Cross-roller bearing must make sure it have enough rigidity, Refer to above Fig7 shows the normal cross-roller bearing housing thickness T must make sure:

T≥ (D-d)/2×0.6
D — 轴承的外径名义尺寸
Outer diamenter of the outer ring
d — 轴承的内径名义尺寸
Inner diamenter of the inner ring

如果轴承的内圈或者外圈均有安装孔，则轴承自身刚性要优于普通型交叉滚子轴承，此结构不会导致轴承变形或其他影响。如果外圈转动，不要内圈受力；反之亦然。
If both inner/outer ring have mounting holes, the bearing rigidity will be better than normal cross-roller bearing, this structure will not effect bearing deformation. When removing the outer ring, do not press the inner ring, or vise versa.

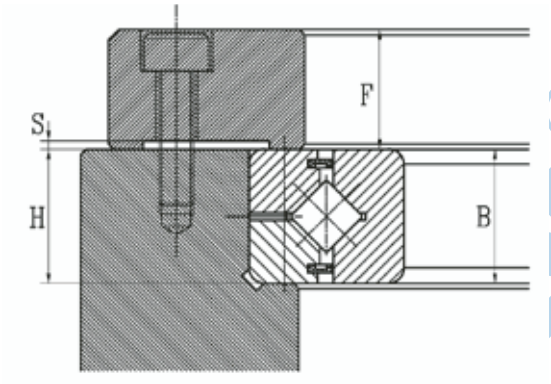


图8…（Fig8）

对轴承端面上、下固定法兰的要求如上图所示，其中
Bearing upper and lower presser flange as show on Fig8

F=B×0.5～B×1.2 法兰的厚度
Flange thickness
H=B 0 -0.1 支承座的高度
Housing height
S=0.5mm 法兰压面与轴承和支承座端面分别压紧预留间隙
Clearance of the flange and housing

设计压紧法兰的厚度(F)和法兰与配合面的间隙（S）按照以上的公式计算；螺栓的数量，原则是螺栓越多机构越稳固。 通常情况下按照后节所说明的螺栓数均布。

轴承座和轴的材料是轻质的铝，我们推荐钢制的法兰。

只有保证轴承相配合部件足够的刚度，而且其中压紧法兰面与支承座和轴承端面的接触面之间必须分隔，留有一定的间隙S,这样才可以保证轴承端面压紧后不会因为部件结构刚性不足而造成相应的变形影响轴承的旋转精度和灵活性。
The presser thickness F and the clearance of flange and housing S are obtained from above equation;As for the number of presser bolts,the greater the number of the bolts,the more stable the system becomes.As a guide,however,it is normally appropriate to use the number of bolts indicated in following instruction.
Even if the bearing housing and the shaft are made of light alloy, it is recommendable to select a steel-based material for the presser flange.
Make sure the bearing match parts have enough rigidity,and also must have a clearance S between presser flange and bearing housing ,it is to make sure the bearing will not deformation caused by the less-rigidity of match parts,which will not effect the bearing rotation precision and flexibility.

■精密交叉滚子轴承配合公差：
Precision cross-roller bearing tolerance

对于带安装孔系列的交叉滚子轴承的配合尺寸没有非常严格的要求，安装的配合精度达到h7孔H7座即可。

Fitting for the cross-roller bearing have mounting holes is basically not required. However, for fitting requiring positioning accuracy,h7 and H7 are recommended.

※对于普通系列交叉滚子轴承，配合公差请参照表4参数。

For the normal series cross-roller bearing, refer to table 4

【表4　普通系列轴承径向游隙表　Normal series bearing radial clearance table

游隙 Clearance	应用场合 Service condition		配合公差 Tolerance	
			轴 shaft	座孔 Housing
C0	内圈旋转负荷 Inner ring rotation load	正常负荷 Normal load	h5	H7
		大冲击及承受倾覆力矩 Large impact and moment	h5	H7
	外圈旋转负荷 Outer ring rotation load	正常负荷 Normal load	g5	Js7
		大冲击及承受倾覆力矩 impact and moment	g5	Js7
C1	内圈旋转负荷 Inner ring rotation load	正常负荷 Normal load	j5	H7
		大冲击及承受倾覆力矩 Large impact and moment	k5	Js7
	外圈旋转负荷 Outer ring rotation load	正常负荷 Normal load	g6	Js7
		大冲击及承受倾覆力矩 Large impact and moment	h5	K7

注意：对于CC0游隙的配合，请注意避免重复预载，所以对于CC0组游隙的机器人关节或回转机构，请使用 g5 和 H7 公差。

Note:For the fitting for clearance CC0, avoid interference because it will cause an excessive preload. As for the fitting when you have selected clearance CC0 for the joints or swiveling unit of a robot,the combination of g5 and H7 is recommended.

轴承在安装时推荐使用的螺栓数量及其要求的预紧负荷，参考表5。

The number of bolts and preload requirement in assembly please refer to table5

同时，即使轴或轴承座的材料是轻合金时，侧面压紧法兰盘的材料还是建议采用铁质材料。

拧紧压紧螺栓时请用扭矩扳手将螺栓结实地拧紧。

Meanwhile,even the material of shaft or bearing housing are made of light alloy, it is recommendable to select a steel-based material for the presser flange.

When tightening the presser bolt,firmly secure them using a torque wrench or the like so that they will not loosen.

【表5 轴承紧固推荐的螺栓数量及螺栓尺寸 Table5 Number of presser bolts and bolt sizes】

轴承外径（mm） Outer diameter of the outer ring mm		推荐螺栓数量 No.of bolts(reference value)	推荐螺栓直径 Bolt size(reference value)
超过 above	到 or less		
--	100	≥8	M3～M5
100	200	≥12	M4～M8
200	500	≥16	M5～M12
500	--	≥24	M12～

轴承座或侧面压紧法兰盘如果是用一般的中硬度钢材时，拧紧扭矩如表6所示。

Table 6 shows tightening torques for…the…housing and presser flanges made of typical steel materials with medium hardness.

【表6 轴承紧固推荐的预紧负荷 Table 6 Bolt tightening torque】

螺栓直径 Screw model No.	扭紧力矩 Tightening torque Nm	螺栓直径 Screw model No.	扭紧力矩 Tightening torque Nm
M3	2	M10	70
M4	4	M12	120
M5	9	M16	200
M6	14	M20	390
M8	30	M22	530

■精密交叉滚子轴承的安装：
Precision cross-roller bearing assembly

安装交叉滚子轴承时请按以下程序进行。

When assembling the cross-roller bearing,follow the steps below.

1. 安装前零部件的检查

Inspecting the parts before assembling them

将轴承座或其它的安装零部件进行洗净，消除污垢，并确认各零部件的毛刺是否已被除去。

Throughly clean the housing and other parts to b assembled,and check if there is no burr or knots.

2. 往轴承座或轴里装入

Installing the cross-roller bearing into the housing onto the shaft.

由于是薄壁轴承，装入时易发生倾斜，请用塑料锤等一边找平，一边在圆周方向均匀地敲打，一点一点地装入，直到能通过声音确认与接触面完全地靠紧时为止。

Since the cross-roller bearing is a thin bearing, it te to tilt as it is installed. To prevent it, gradually drive cross-roller bearing into the housing or onto the sha gently hitting it with a plastic hammer while keepin horizontal.Be sure to keep hammering it with much until you hear it fully contact the reference surface.

图9 螺栓在紧固时参考以上顺序用2-3个循环交叉拧紧螺栓

Fig 9 Tighening sequence by 2 or 3 repeat

3. 侧面压紧法兰盘的安装

Attaching the presser flange

1）将侧面压紧法兰盘放置到位后，将其在圆周方向来回摇动几次，以调整安装螺栓的位置。

Placing the presser flange onto the cross-roller bearing.Rock the flange several times to match the bolt holes.

2）安装压紧螺栓。用手拧螺栓时，确认没有因螺栓孔偏离引起螺栓难以拧入。

Insert the presser bolts into the holes.Manually turn the bolts and make sure they do not show skewing caused by misalignment of the bolts.

3）压紧螺栓的拧紧由暂时拧紧到正式拧紧要分为3-4 个阶段，按对角线的顺序反复拧紧。

在拧紧被分成两半分割的内圈或外圈的压紧螺栓时，拧紧过程中经常将一体型的外圈或内圈稍微转动一下，就能使两半分割部分的偏离得到修正。

Fasten the presser bolts in three to four steps from temporary to full fastening by repeatedly securing the bolts in the diagonal order, as shown in Fig9. When tightening the separable inner or outer ring, slightly turning the integral outer or inner ring will correct the dislocation between the ring and the body.

■精密交叉滚子轴承润滑：
Precision cross-roller bearing lubrication

在交叉滚子轴承中，因已全部装入了优质的2号锂基润滑脂，所以到货后就可直接使用。但是，与一般的滚子轴承相比，内部空间容积少，并且充分的润滑剂对于该种结构滚子与滚道面比较紧密接触的结构来说是至关重要，故必需定期补充润滑脂。

补充润滑脂是通过设在内外圈上的，与油沟相连接的润滑油孔来进行的。补充间隔通常要求是，即使旋转频率少时，也为每6个月到12个月。补充润滑脂时，请用同种的润滑脂补充到轴承内部的每个地方。对于高频率旋转的场合，根据使用要求，更要缩短再润滑周期。

同时，润滑脂被装满后，由于润滑脂的阻力，轴承初期旋转时扭矩会短时间地增大，等多余的润滑脂由密封部位溢出后，就会回到正常的扭矩值。另外，在超薄型的轴承中，没有设置油沟，请在与轴承配合部位设置相应油沟，以便于及时补充润滑油脂。

Since each Cross-roller bearing unit contains high-quality lithium soap group grease No.2, you can start using the product without replenishing grease.However, the product requires regular lubrication since it has a smaller internal space than ordinary roller bearings and because the rollers need frequent lubrication due to their rolling contact structure.
To replenish grease, it is necessary to secure greasing holes that lead to the oil grooves formed on the inner and outer rings. As for the lubrication interval, normally replenish grease of the same group so that it is distributed throughout the interior of the bearing at least every six to 12 months. In locations of high frequency rotation,it must shorten the lubrication interval.
When the bearing is filled up with grease, the initial rotational torque temporarily increases. However, surplus grease will run off of the seals and the torque will return to the normal level in a short period. The thin type does not have an oil groove. Secure an oil groove inside of the housing for lubrication.

■精密交叉滚子轴承使用时注意事项：
Precision cross-roller bearing Note on use

被分成两半的内圈或外圈是用特殊的铆钉或螺栓、螺母固定后不可分开的。直接装入轴承座中使用。同时，如果间隔保持器的再装配出错，对轴承的旋转性能会有很大的影响。所以请用户不要随便将轴承拆开。

1）内圈或外圈的接合处有时会多少有些偏离，在装入轴承座之前，请将固定内圈或外圈的螺栓松动，用塑料锤进行修正后再安装。（固定铆钉会随着轴承座而产生变形。）

2）安装或拆卸时，请不要给固定铆钉或螺栓施加外力。

3）请注意安装零部件的尺寸公差，使侧面压紧法兰盘能从侧面将内圈或外圈结实地压紧。

The separable inner or outer ring is fastened in place using special rivets,bolts or nuts when delivered.When installing it to the system, do not disassemble it.Also, erroneously installing the spacer or retainer will significantly affect the rotational performance of the system.So,Please do not disassemble the bearing.

1) The matching mark of the inner or outer ring may be slightly misaligned when delivered. In that case, loosen the bolts that secure the inner or outer ring,and correct the alignment using a plastic hammer or the like, before installing it to the housing.(Let the securing rivets follow the housing)

2) When installing or removing the Cross-roller bearing, do not apply force to the fixing rivets or the bolts.

3) When mounting the presser flange, take into account the dimensional tolerances of the parts so that the flange firmly holds the inner and outer ring from the side.

精密交叉滚子轴承
PRECISION CROSS-ROLLER BEARING

交叉圆柱滚子轴承是在内圈和外圈之间1:1配置相应的滚子而组成。结构紧凑，滚动面为线接触，因此轴承受力时套圈与滚动体弹性变形小，同时承载径向、轴向负荷及力矩负荷等联合负荷。此类轴承被广泛用于需要高刚性和高旋转精度而又对轴承尺寸要求较小的场合，比如工业机器人、机床及医疗设备等的回转位置。

交叉圆柱滚子轴承内滚动体之间有保持架、隔离块及满滚子型等多种结构，根据使用场合进行选用，带隔离块适合于回转力矩较小、转速较高的场合，满装滚子型结构适合于低转速较重负荷的场合。

交叉圆柱滚子轴承具有密封型结构，是在轴承两侧装有特殊橡胶的密封圈，对防尘和润滑脂漏泄具有良好的密封效果。

我公司现生产可替代IKO、THK、INA等公司轴承产品的RB、SX、RE、RA、XV、CRBH、CRBS、CRBC、RU、CRBF等系列，根据使用要求可选择带安装孔、带保持架、带隔离块或满滚子及双面密封等多种结构，精度等级最高可以达到P2级。

Cross-roller bearing with the compact structure of cylindrical roller are arranged 1:1 placed between inner ring and outer ring. Rollers and groove are linear contact. Rings and rollers have small elastic deformation when the bearing achieve loads, Meanwhile, It can achieve radial load, axial load, tilting moment and other combined loads.The Cross-roller bearings are widely used in locations where need high rigidity and high rotation speed but also required minimum size, Such as joints and swiveling units of industrial robots, the swiveling center of machine tools and medical equipment etc.

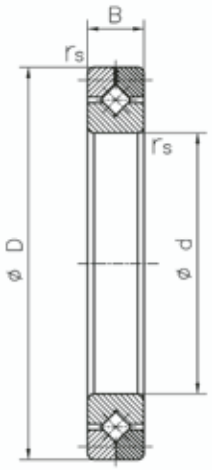
Cross-roller bearing have variety types such as cage or spacer between rollers, full complement cylindrical rollers. Selection is depend on working conditions. The structure with spacer type is optimal for application with small turning moment, high rotation. Full complement types is optimal for application with lower rotation speed and heavier loads.

Cross-roller bearing have seal types, which have special rubber seal on both sides, it have good sealing effect for anti-dust and grease leak.

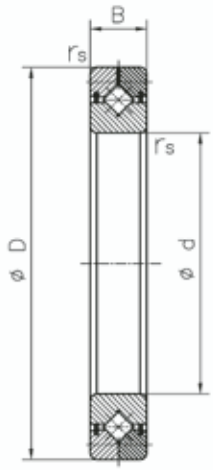
SA can produce and replace the bearings of IKO,THK INA, types are RB、SX、RE、RA、XV、CRBH、CRBS、CRBC、RU、CRBF etc. According to the operating requirements to select different types, such as mounting hole type, cage type, spacer type, full complement cylindrical roller type, double seal type etc, the precision can reach to P2.

※RB型（外圈两半，内圈整体型）

Model RB (Separable Outer Ring Type for Inner Ring Rotation)



RB...



RB...UU

轴承型号 Designation	外形尺寸 Dimensions(mm)				额定负荷 Basic Load ratings(KN)		重量 Weight
	d	D	B	rsmin	Cr	Cor	kg
RB2008	20	36	8	0.5	3.23	3.1	0.04
RB2508	25	41	8	0.5	3.63	3.83	0.05
RB3010	30	55	10	0.6	7.35	8.36	0.12
RB3510	35	60	10	0.6	7.64	9.12	0.13
RB4010	40	65	10	0.6	8.33	10.6	0.15
RB4510	45	70	10	0.6	8.62	11.3	0.17
RB5013	50	80	13	0.6	16.7	20.9	0.29
RB6013	60	90	13	0.6	18	24.3	0.33
RB7013	70	100	13	0.6	19.4	27.7	0.38
RB8016	80	120	16	0.6	30.1	42.1	0.74
RB9016	90	130	16	1	31.4	45.3	0.81
RB10016	100	140	16	1	31.7	48.6	0.83
RB10020	100	150	20	1	33.1	50.9	1.45
RB11012	110	135	12	0.6	12.5	24.1	0.4
RB11015	110	145	15	0.6	23.7	41.5	0.75
RB11020	110	160	20	1	34	54	1.56
RB12016	120	150	16	0.6	24.2	43.2	0.72
RB12025	120	180	25	1.5	66.9	100	2.62
RB13015	130	160	15	0.6	25	46.7	0.72
RB13025	130	190	25	1.5	69.5	107	2.82
RB14016	140	175	16	1	25.9	50.1	1
RB14025	140	200	25	1.5	74.8	121	2.96

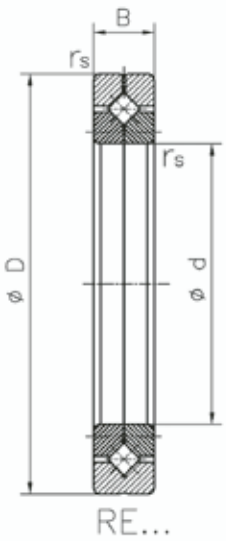
※RB型（外圈两半，内圈整体型）

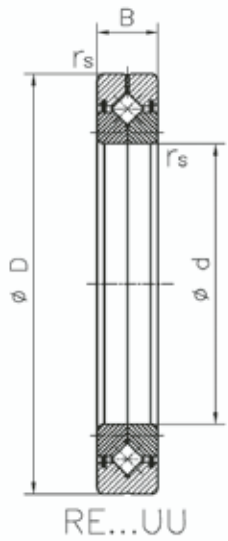
Model RB (Separable Outer Ring Type for Inner Ring Rotation)

轴承型号 Designation	外形尺寸 Dimensions(mm)				额定负荷 Basic Load ratings(KN)		重量 Weight
	d	D	B	rsmin	Cr	Cor	kg
RB15013	150	180	13	0.6	27	53.5	0.68
RB15025	150	210	25	1.5	76.8	128	3.16
RB15030	150	230	30	1.5	100	156	5.3
RB16025	160	220	25	1.5	81.7	135	3.14
RB17020	170	220	20	1.5	29	62.1	2.21
RB18025	180	240	25	1.5	84	143	3.44
RB19025	190	240	25	1	41.7	82.9	2.99
RB20025	200	260	25	2	84.2	157	4
RB20030	200	280	30	2	114	200	6.7
RB20035	200	295	35	2	151	252	9.58
RB22025	220	280	25	2	92.3	171	4.1
RB24025	240	300	25	2.5	68.3	145	4.5
RB25025	250	310	25	2.5	69.3	150	4.97
RB25030	250	330	30	2.5	126	244	8.1
RB25040	250	355	40	2.5	195	348	14.8
RB30025	300	360	25	2.5	76.3	178	5.88
RB30035	300	395	35	2.5	183	367	13.4
RB30040	300	405	40	2.5	212	409	17.2
RB35020	350	400	20	2.5	54.1	143	3.9
RB40035	400	480	35	2.5	156	370	14.5
RB40040	400	510	40	2.5	241	531	23.5
RB40070	400	580	70	2.5	470	811	72.4
RB45025	450	500	25	1	61.7	182	6.6
RB50025	500	550	25	1	65.5	201	7.3
RB50040	500	600	40	2.5	239	607	26
RB50050	500	625	50	2.5	267	653	41.7
RB50070	500	680	70	2.5	536	1020	86.1
RB60040	600	700	40	3	264	721	30.6
RB60070	600	780	70	3	591	1230	102
RB600120	600	870	120	3	1250	2270	274
RB70045	700	815	45	3	281	836	46.5
RB70070	700	880	70	3	630	1390	115
RB700150	700	1020	150	3	1660	3010	478
RB80070	800	950	70	4	468	1330	109
RB800100	800	1030	100	4	936	2040	247
RB90070	900	1050	70	4	494	1490	120
RB1000110	1000	1250	110	5	1220	3220	360
RB1250110	1250	1500	110	5	1350	3970	440

※RE型（内圈两半，外圈整体型）

Model RE(Two-piece Inner Ring Type for Outer Ring Rotation)





轴承型号 Designation	外形尺寸 Dimensions(mm)				额定负荷 Basic Load ratings(KN)		重量 Weight
	d	D	B	rsmin	Cr	Cor	kg
RE2008	20	36	8	0.5	3.23	3.1	0.04
RE2508	25	41	8	0.5	3.63	3.83	0.05
RE3010	30	55	10	0.6	7.35	8.36	0.12
RE3510	35	60	10	0.6	7.64	9.12	0.13
RE4010	40	65	10	0.6	8.33	10.6	0.15
RE4510	45	70	10	0.6	8.62	11.3	0.17
RE5013	50	80	13	0.6	16.7	20.9	0.29
RE6013	60	90	13	0.6	18	24.3	0.33
RE7013	70	100	13	0.6	19.4	27.7	0.38
RE8016	80	120	16	0.6	30.1	42.1	0.74

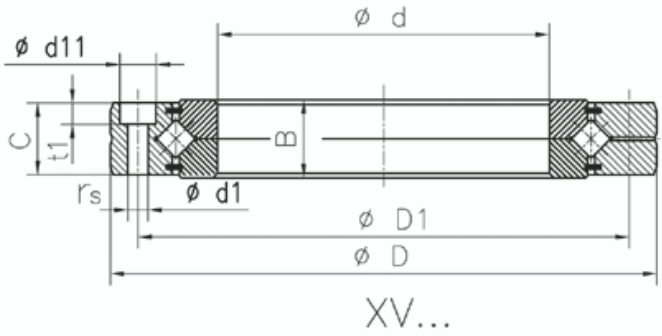
※RE型（内圈两半，外圈整体型）

Model RE(Two-piece Inner Ring Type for Outer Ring Rotation)

轴承型号 Designation	外形尺寸 Dimensions(mm)				额定负荷 Basic Load ratings(KN)		重量 Weight
	d	D	B	rsmin	Cr	Cor	kg
RE9016	90	130	16	1	31.4	45.3	0.81
RE10016	100	140	16	1	31.7	48.6	0.83
RE10020	100	150	20	1	33.1	50.9	1.45
RE11012	110	135	12	0.6	12.5	24.1	0.4
RE11015	110	145	15	0.6	23.7	41.5	0.75
RE11020	110	160	20	1	34	54	1.56
RE12016	120	150	16	0.6	24.2	43.2	0.72
RE12025	120	180	25	1.5	66.9	100	2.62
RE13015	130	160	15	0.6	25	46.7	0.72
RE13025	130	190	25	1.5	69.5	107	2.82
RE14016	140	175	16	1	25.9	50.1	1
RE14025	140	200	25	1.5	74.8	121	2.96
RE15013	150	180	13	0.6	27	53.5	0.68
RE15025	150	210	25	1.5	76.8	128	3.16
RE15030	150	230	30	1.5	100	156	5.3
RE16025	160	220	25	1.5	81.7	135	3.14
RE17020	170	220	20	1.5	29	62.1	2.21
RE18025	180	240	25	1.5	84	143	3.44
RE19025	190	240	25	1	41.7	82.9	2.99
RE20025	200	260	25	2	84.2	157	4
RE20030	200	280	30	2	114	200	6.7
RE20035	200	295	35	2	151	252	9.58
RE22025	220	280	25	2	92.3	171	4.1
RE24025	240	300	25	2.5	68.3	145	4.5
RE25025	250	310	25	2.5	69.3	150	4.97
RE25030	250	330	30	2.5	126	244	8.1
RE25040	250	355	40	2.5	195	348	14.8
RE30025	300	360	25	2.5	76.3	178	5.88
RE30035	300	395	35	2.5	183	367	13.4
RE30040	300	405	40	2.5	212	409	17.2
RE35020	350	400	20	2.5	54.1	143	3.9
RE40035	400	480	35	2.5	156	370	14.5
RE40040	400	510	40	2.5	241	531	23.5
RE45025	450	500	25	1	61.7	182	6.6
RE50025	500	550	25	1	65.5	201	7.3
RE50040	500	600	40	2.5	239	607	26
RE50050	500	625	50	2.5	267	653	41.7
RE60040	600	700	40	3	264	721	30.6

※XV型（内圈两半，外圈整体型并具安装孔型）

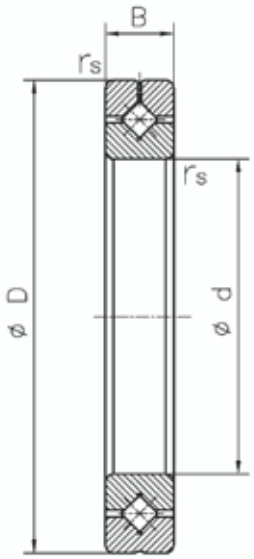
Model XV（Two-piece Inner Ring Type for Outer Ring Rotation with mounting holes）



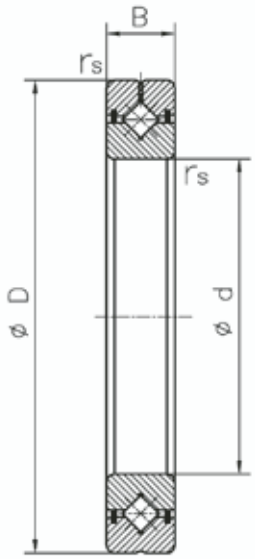
轴承型号 Designation	外形尺寸 Dimensions(mm)										额定负荷 Basic Load ratings(KN)		重量 Weight
	d	D	B	C	D1	n1	d1	d11	t1	rs	Cr	Cor	kg
XV30	30	75	15	14	60	12	4.6	8	4.6	2×20°	7.4	10.4	0.37
XV40	40	85	15	14	70	12	4.6	8	4.6	2×20°	8.7	13.8	0.44
XV50	50	100	17	16	85	12	5.6	10	5.4	2×20°	13.1	21.5	0.67
XV60	60	110	17	16	95	16	5.6	10	5.4	2×20°	14.4	25.5	0.75
XV70	70	120	17	16	105	16	5.6	10	5.4	2×20°	15.1	28	0.84
XV80	80	135	19	18	120	16	6.6	11	6.4	2×20°	21.4	40.5	1.18
XV90	90	145	19	18	130	16	6.6	11	6.4	2×20°	22.3	44.5	1.29
XV100	100	170	23	22	150	16	9	15	8.5	2×20°	34.4	65	2.31
XV110	110	180	23	22	160	16	9	15	8.5	2×20°	36.2	72	2.48

※CRBH型（内、外圈整体高刚性型）

Model CRBH（High rigidity type,Both inner ring and outer ring are integrated）



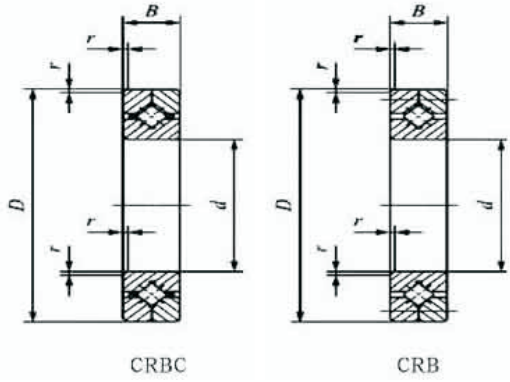
CRBH...



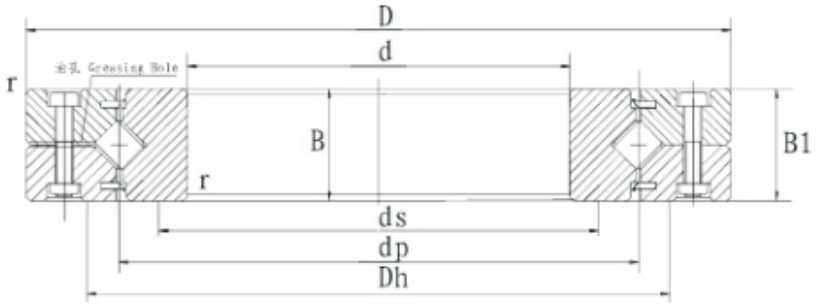
CRBH...UU

轴承型号 Designation	外形尺寸 Dimensions(mm)				额定负荷 Basic Load ratings(KN)		重量 Weight
	d	D	B	rsmin	Cr	Cor	kg
CRBH2008	20	36	8	0.3	3.23	3.1	0.04
CRBH2508	25	41	8	0.3	3.63	3.83	0.05
CRBH3010	30	55	10	0.3	7.35	8.36	0.12
CRBH3510	35	60	10	0.3	7.64	9.12	0.13
CRBH4010	40	65	10	0.3	8.33	10.6	0.15
CRBH4510	45	70	10	0.3	8.62	11.3	0.16
CRBH5013	50	80	13	0.6	16.7	20.9	0.29
CRBH6013	60	90	13	0.6	18	24.3	0.33
CRBH7013	70	100	13	0.6	19.4	27.7	0.38
CRBH8016	80	120	16	0.6	30.1	42.1	0.74
CRBH9016	90	130	16	0.6	31.4	45.3	0.81
CRBH10020	100	150	20	0.6	33.1	50.9	1.45
CRBH11020	110	160	20	0.6	34	54	1.56
CRBH12025	120	180	25	1	66.9	100	2.62
CRBH13025	130	190	25	1	69.5	107	2.82
CRBH14025	140	200	25	1	74.8	121	2.96
CRBH15025	150	210	25	1	76.8	128	3.16
CRBH20025	200	260	25	1	84.2	157	4
CRBH25025	250	310	25	1.5	69.3	150	4.97

※CRBS型（内、外圈整体超薄壁型）
Model CRBS(Ultra-thin wall type, Integrated inner/outer ring)

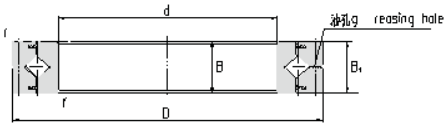


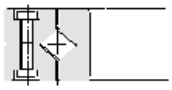
※CRBC型（外圈两半，内圈整体超薄壁型）
Model CRBC（ Ultra-thin wall type,Separable outer ring, integrated inner ring）



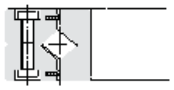
轴承型号 Designation		外形尺寸 Dimensions(mm)				额定负荷 Basic Load ratings(KN)		重量 Weight
		d	D	B	rsmin	Cr	Cor	kg
CRBS 5008	CRBC 5008	50	66	8	0.4	4.9	6.17	0.084
CRBS 6008	CRBC 6008	60	76	8	0.4	5.35	7.31	0.094
CRBS 7008	CRBC 7008	70	86	8	0.4	5.74	8.44	0.108
CRBS 8008	CRBC 8008	80	96	8	0.4	6.13	9.59	0.122
CRBS 9008	CRBC 9008	90	106	8	0.4	6.49	10.7	0.135
CRBS 1008	CRBC 1008	100	116	8	0.4	6.85	11.9	0.152
CRBS 1108	CRBC 1108	110	126	8	0.4	7.16	13	0.163
CRBS 1208	CRBC 1208	120	136	8	0.4	7.53	14.1	0.184
CRBS 1308	CRBC 1308	130	146	8	0.4	7.86	15.3	0.199
CRBS 1408	CRBC 1408	140	156	8	0.4	8.06	16.4	0.205
CRBS 1508	CRBC 1508	150	166	8	0.4	8.35	17.5	0.22
CRBS 16013	CRBC 16013	160	186	13	0.6	20.3	39.9	0.62
CRBS 17013	CRBC 17013	170	196	13	0.6	20.9	42.2	0.675
CRBS 18013	CRBC 18013	180	206	13	0.6	21.5	44.6	0.71
CRBS 19013	CRBC 19013	190	216	13	0.6	22.1	46.9	0.74
CRBS 20013	CRBC 20013	200	226	13	0.6	22.5	49.3	0.78

RA型外环分割型 RA series





RA型

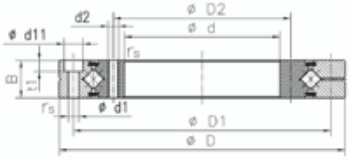


RA ··· UU型

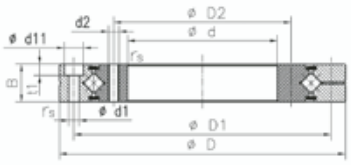
轴径 shaft diameter (mm)	型号 Identification number	主要尺寸 Main dimensions						靠肩尺寸 Shoulder height		基本的额定负荷(径向) Basic load rating (radial)		重量 weight
		内径 inner ring d (mm)	外径 outer ring D (mm)	滚子节圆直径 Roller pitch circle diameter dp (mm)	宽度 width B B1 (mm)	油孔 Greasing hole φ	倒角 Chamfer r(min)	ds	Dh	C kN	C0 kN	Kg
100	RA10008	100	116	107	8	1	0.5	103.5	110.5	7.15	13.9	0.14
110	RA11008	110	126	117	8	1	0.5	113.5	120.5	7.45	15	0.15
120	RA12008	120	136	127	8	1	0.5	123.5	130.5	7.84	16.5	0.17
130	RA13008	130	146	137	8	1	0.5	133.5	140.5	7.94	17.6	0.18
140	RA14008	140	156	147	8	1	0.5	143.5	150.5	8.33	19.1	0.19
150	RA15008	150	166	157	8	1	0.5	153.5	160.5	8.82	20.6	0.2
160	RA16013	160	186	172	13	1	0.5	165	179	23.3	44.9	0.59
170	RA17013	170	196	182	13	2	0.8	175	189	23.5	46.5	0.64
180	RA18013	180	206	192	13	2	0.8	185	199	24.5	49.8	0.68
190	RA19013	190	216	202	13	2	0.8	195	209	24.9	51.5	0.69
200	RA20013	200	226	212	13	2	0.8	205	219	25.8	54.7	0.71

※RU型（内、外圈整体高刚性并具安装孔型）

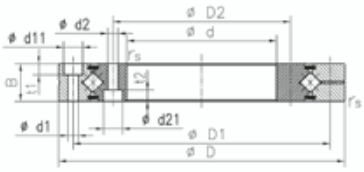
Model RU(Integrated Inner/Outer Ring Type, with high rigidity and mounting holes)



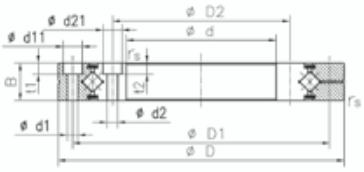
RU42 TO RU85



RU124X TO RU445X

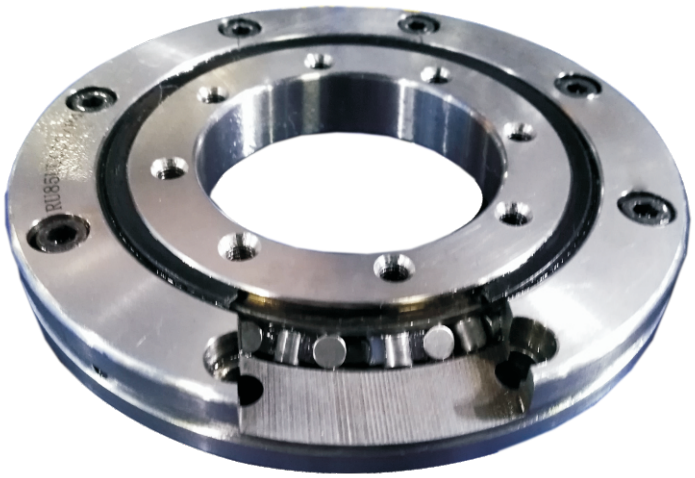


RU124 TO RU445



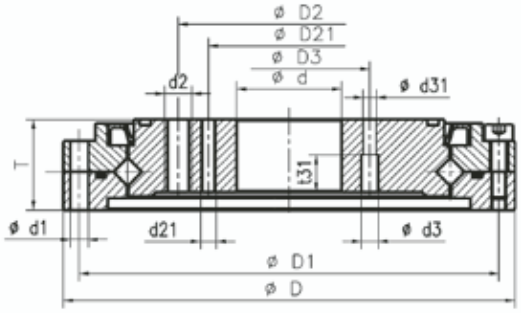
RU124G TO RU445G

轴承型号 Designation	外形尺寸 Dimensions(mm)														额定负荷 Basic Load ratings(KN)		重量 Weight
	d	D	B	D1	D2	n1	n2	d1	d11	t1	d2	d21	t2	rsmin	Cr	Cor	kg
RU42	20	70	12	57	28	6	6	3.4	6.5	3.3	M3	---	---	0.6	7.35	8.35	0.29
RU66	35	95	15	83	45	8	8	4.5	8	4.4	M4	---	---	0.6	17.5	22.3	0.62
RU85	55	120	15	105	65	8	8	5.5	9.5	5.4	M5	---	---	0.6	20.3	29.5	1
RU124(G)	80	165	22	148	97	10	10	5.5	9.5	5.4	5.5	9.5	5.4	1	33.1	50.9	2.6
RU124X	80	165	22	148	97	10	10	5.5	9.5	5.4	M5	---	---	1	33.1	50.9	2.6
RU148(G)	90	210	25	187	112	12	12	9	14	8.6	9	14	8.6	1.5	49.1	76.8	4.9
RU148X	90	210	25	187	112	12	12	9	14	8.6	M8	---	---	1.5	49.1	76.8	4.9
RU178(G)	115	240	28	217	139	12	12	9	14	8.6	9	14	8.6	1.5	80.3	135	6.8
RU178X	115	240	28	217	139	12	12	9	14	8.6	M8	---	---	1.5	80.3	135	6.8
RU228(G)	160	295	35	270	184	12	12	11	17.5	10.8	11	17.5	10.8	2	104	173	11.4
RU228X	160	295	35	270	184	12	12	11	17.5	10.8	M10	---	---	2	104	173	11.4
RU297(G)	210	380	40	350	240	16	16	14	20	13	14	20	13	2.5	156	281	21.3
RU297X	210	380	40	350	240	16	16	14	20	13	M12	---	---	2.5	156	281	21.3
RU445(G)	350	540	45	505	385	24	24	14	20	13	14	20	13	2.5	222	473	35.4
RU445X	350	540	45	505	385	24	24	14	20	13	M12	---	---	2.5	222	473	35.4

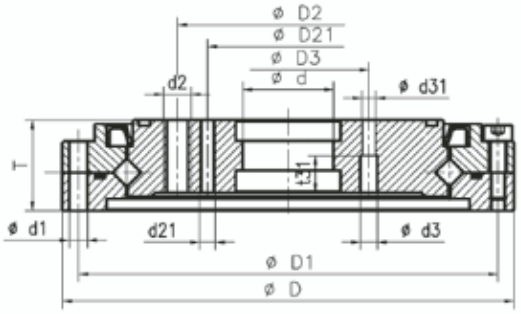


※CSF型【谐波减速器专用】（外圈两半，内圈整体，内外圈带安装孔型）

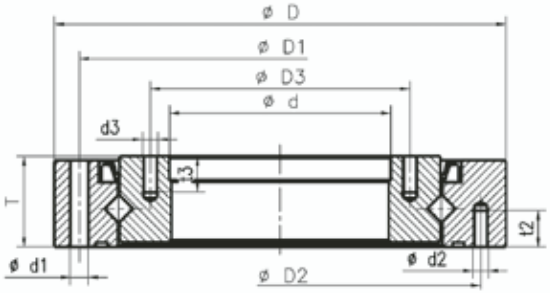
Model CSF (Separable outer ring type for outer ring rotation,both outer ring and inner ring with mounting holes)



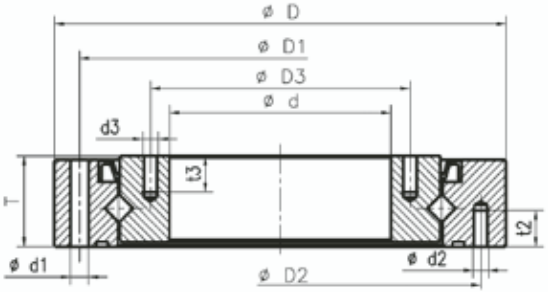
CSF14-3516　CSF17-4216
CSF20-5016　CSF25-6218
CSF32-8022



CSF40-9524　CSF50-12031
CSF65-16039



SHF14-4915A　SHF17-5917A
SHF25-8321A　SHF32-11024A
SHF40-13230A



SHF20-6918A　SHF50-16836A

※CSF型【谐波减速器专用】（外圈两半，内圈整体，内外圈带安装孔型）

Model CSF（Separable outer ring type for outer ring rotation,both outer ring and inner ring with mounting holes）

轴承型号 Designation	外形尺寸 Dimensions(mm)														额定负荷 Basic Load ratings(KN)		重量 Weight
	d	D	T	D1	D2	D21	D3	n1-d1	n2-d2	n21-d21	n3-d3	d31	t31	rsmin	Cr	Cor	kg
CSF14-3516	9	55	16.5	49	23	14.5	15.5	8-φ3.5	6-M4	6-M3	2-φ3	---	---	0.3x45°	4.6	5.1	0.25
CSF17-4216	10	62	16.5	56	27	17.5	17.5	10-φ3.5	6-M5	6-M4	2-φ3	---	---	0.3x45°	5.2	6.4	0.27
CSF20-5016	14	70	16.5	64	32	24	19	12-φ3.5	8-M6	8-M5	4-φ3	4-φ2.8	7	0.3x45°	6.1	8.4	0.36
CSF25-6218	20	85	18.5	79	42	30	26	16-φ3.5	8-M8	8-M6	4-φ3	4-φ2.8	7	0.5x45°	11.2	16	0.65
CSF32-8022	26	112	22.5	104	55	40	34	16-φ4.5	8-M10	8-M8	4-φ5	4-φ4.7	10	0.5x45°	18.5	28.3	1.1
CSF40-9524	24	126	24	117	68	50	42	20-φ5	8-M10	8-M8	4-φ5	---	---	0.5x45°	18.9	30.7	1.6
CSF50-12031	32	157	31	147	84	60	50	16-φ5.5	8-M14	8-M14	4-φ5	---	---	0.5x45°	42.8	67.7	3.6
CSF65-16039	44	210	39	198	110	80	64	20-φ6.5	8-M16	8-M16	4-φ6	---	---	0.5x45°	67.7	114.9	7.8
CSF14-3516	9	55	16.5	49	23	14.5	15.5	8-φ3.5	6-M4	6-M3	2-φ3	---	---	0.3x45°	4.6	5.1	0.25
CSF17-4216	10	62	16.5	56	27	17.5	17.5	10-φ3.5	6-M5	6-M4	2-φ3	---	---	0.3x45°	5.2	6.4	0.27
CSF20-5016	14	70	16.5	64	32	24	19	12-φ3.5	8-M6	8-M5	4-φ3	4-φ2.8	7	0.3x45°	6.1	8.4	0.36
CSF25-6218	20	85	18.5	79	42	30	26	16-φ3.5	8-M8	8-M6	4-φ3	4-φ2.8	7	0.5x45°	11.2	16	0.65
CSF32-8022	26	112	22.5	104	55	40	34	16-φ4.5	8-M10	8-M8	4-φ5	4-φ4.7	10	0.5x45°	18.5	28.3	1.1
CSF40-9524	24	126	24	117	68	50	42	20-φ5	8-M10	8-M8	4-φ5	---	---	0.5x45°	18.9	30.7	1.6
CSF50-12031	32	157	31	147	84	60	50	16-φ5.5	8-M14	8-M14	4-φ5	---	---	0.5x45°	42.8	67.7	3.6
CSF65-16039	44	210	39	198	110	80	64	20-φ6.5	8-M16	8-M16	4-φ6	---	---	0.5x45°	67.7	114.9	7.8
SHF14-3516A	38	70	15.1	64	64	---	44	8-φ3.5	2-M3	---	12-M3	---	5	0.5x45°	5.4	7.1	0.28
SHF17-4216A	47	80	17	74	74	---	54	12-φ3.5	4-M3	---	20-M3	---	5	0.5x45°	10.4	14.2	0.39
SHF20-5016A	54	90	18.5	84	84	---	62	12-φ3.5	4-M3	---	(16+4)-M3	---	6	0.5x45°	16.1	22.4	0.5
SHF25-6218A	68	110	20.7	102	102	---	77	12-φ4.5	4-M3	---	(16-M4)+(4-M3)	---	6/8	0.5x45°	17.8	27.4	0.81
SHF32-8022A	88	142	24.4	132	132	---	100	12-φ5.5	4-M4	---	(16-M5)+(4-M4)	---	8	0.5x45°	25.6	42	1.7
SHF40-9524A	108	170	30	158	158	---	122	12-φ6.6	6-M4	---	(16-M6)+(4-M5)	---	8/10	0.5x45°	42.1	68.4	2.79
SHF50-12031A	135	214	36	200	200	---	154	12-φ9	6-M5	---	(16-M8)+(8-M5)	---	10/12	0.5x45°	69.8	121.6	5.19

注：后缀"A"里为带装滚子孔结构…(Note:"A"type…with…putting…roller…hole)

MONTON®

柔性轴承
Flexible Bearing

谐波减速机用柔性轴承
Flexible bearings for harmonic reducer

柔性轴承 Flexible Bearings

柔性滚动轴承是利用柔性元件可控的弹性变形来传递运动和动力的，其特点是，传动比大并且适用范围广、精度高、空回小、承载能力大、效率高、体积小、重量轻、传动平稳、噪声小、可向密封空间传递运动。

谐波减速机用柔性轴承主要用于谐波减速机，谐波传动变速器包括三个基本构件：波发生器、柔轮、刚轮及柔性轴承。其中柔性轴承是核心部件，变速器通过轴承的弹性变形达到高减速比的性能要求。

柔性轴承在工作中，内圈安装在椭圆形的凸轮上，工作中承受循环应力载荷， 外圈安装在柔轮上，工作中随凸轮的转动而发生弹性变形，不仅承受循环应力载荷，而且承受交变应力载荷。

这些点对轴承内圈和外圈以及保持架的设计和制造提出了高的要求，外也仅有日本、美等少数家可以生产。河北精密柔性轴承有限公司谐波传动变速器用柔性轴承的设计制造水平，已完达到际先进水平。柔性轴承的设计已形成套完整的理论体系，产品的制造工艺日趋完善、成熟，产品质量日趋稳定。3E系列谐波传动减速器用柔性轴承质量可靠性能稳定，已成功应用于“神舟”、系列飞船的谐波传动驱动装置中，为我的载人航天事业作出了贡献。

由于柔性滚动轴承的内圈与波发生器的刚性凸轮紧套在起。故可视为刚性的椭圆环；滚动体(般为球)则为通过弹簧与内外圈相连接的具有集中质量的质点；而外圈为弹性薄壁环，其原始曲线为柔轮原始曲线的内等距曲线。

齿轮系统的动力学行为包括轮齿动态啮合力和动载系数，以及齿轮系统的振动和噪声性等。随着齿轮传动日益向高速重载的方向发展，齿轮传动的动态性研究已成为当前齿轮研究的主要课题，人们对系统动力学分析有了更高的要求， 提出了柔性多体动力学问题，即同时考虑结构本身的弹性变形与系统的宏观刚体运动。

Flexible bearings（ harmonic drive strain wave gear bearing）

Flexible bearings for harmonic reducer are mainly used in harmonic reducer. Harmonic transmission includes three basic components: wave generator, flexible wheel, rigid wheel and flexible bearing. Flexible bearings are the core components, and the transmission meets the performance requirements of high deceleration ratio through the elastic deformation of bearings.

In the work of flexible bearing, the inner ring is installed on the elliptical cam, the outer ring is installed on the flexible wheel, and the elastic deformation occurs with the rotation of the cam,which not only bears the cyclic stress load, but also bears the alternating stress load.

These points put forward high requirements for the design and manufacture of bearing inner ring and outer ring and cage, and only a few enterprises such as Japan and the United States can produce it.

Luoyang Monton Flexible Bearing has reached the advanced level of design and manufacture of flexible bearings for harmonic transmission. The design of flexible bearing has formed a complete theoretical system, the manufacturing technology of the product is becoming more and more perfect, mature, and the product quality is becoming more and more stable. The 3E series harmonic drive reducer flexible bearing has been successfully applied to the harmonic drive device of "Shenzhou" and series spaceship, which has contributed to my manned spaceflight industry.

Because the inner ring of the flexible rolling bearing is tightly sheathed with the rigid cam of the wave generator. Therefore, it can be regarded as a rigid elliptical ring, the rolling body (generally a ball) is a particle with concentrated mass connected with the inner and outer rings through the spring, and the outer ring is an elastic thin-wall ring, and its original curve is the inner isometric curve of the original curve of the flexible wheel.

Harmonic drive transmission consists of three basic components: wave generator, flex spline, Circular Spline and flexible bearing. Among them, the flexible bearing is the core component, and the transmission achieves the performance requirement of high deceleration ratio through the elastic deformation of the bearing.

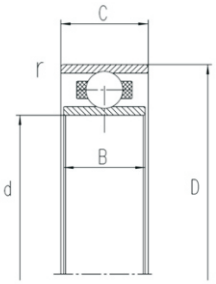
When the flexible bearing is in operation, the inner ring is mounted/installed on the elliptical cam, which bears the cyclic stress load during the work; while the outer ring is mounted/installed on the flexible wheel, and elastically deforms with the rotation of the cam during the work, which not only bears the cyclic stress load, but also withstands the alternating stress load.

Flexible rolling bearing utilizes controllable elastic deformation of the flexible components to transmit motion and power. It has characteristics of large transmission ratio, wide application range, high precision, small air return, large carrying capacity, high efficiency, small volume/size, light weight, smooth transmission, low noise, and can transfer motion to sealed space.

Robot bearing/harmonic drive bearing is a special kind which easily deforms in a reversible way.

It has a very thin outer ring which varies from round shape to oval interatively during its working time. easily double sealed bearing designed primarily for application of radial load—deep ball grooves also permit application of thrust load in either direction, often used in conjunction with another bearing.

柔性轴承
Flexible Bearings



轴承型号 Model List	内径 Inner ring	外圈 Outer ring	厚度 Width	额定动负荷 Dynamic load rating	额定静负荷 Static load rating	最大径向变形 Radial Deformation	输入转速 Input rotate speed	输出力矩 Output torque
	ID	OD	B	Cr	Cor	Max. mm	r/min	N.m
3E904KAT2	18.8	25	4	3.75	3.12	0.2	3000	2
3E905KAT2	24	32	5	4.74	3.75	0.2	3000	6
3E806KAT2	30	40	6	7.12	5.83	0.3	3000	16
3E907KAT2	37	50	8	12.63	12	0.3	3000	30
3E809KAT2	45	60	9	12.89	11.55	0.4	3000	50
3E911KAT$_2$	57	75	12	14.76	13.18	0.5	3000	7.5
3E812KAT$_2$	60	80	13	15.51	14.44	0.5	3000	12
3E814KAT$_2$	70	95	15	22.38	21.57	0.6	3000	20
3E815KAT$_2$	75	100	15	26.4	25.67	0.6	3000	25
3E818KAT$_2$	90	120	18	34.7	34.94	1	3000	45
3E822KAT$_2$	110	150	24	43.55	45.63	1	1500	80
3E824KAT$_2$	120	160	24	57.02	57.75	1	1500	120
3E826KAT$_2$	130	175	30	81.59	86.1	1	1500	170
3E830KAT$_2$	150	200	30	91.6	102.67	1	1500	200
3E832KAT$_2$	160	220	35	115.66	127.59	1.25	1500	220
3E836KAT$_2$	180	240	35	130.04	146.47	1.5	1500	250
3E838KAT$_2$	190	250	40	139.96	160.42	1.5	1500	350
3E842KAT$_2$	210	280	45	173.15	210.91	1.5	1500	400
3E844KAT$_2$	220	300	45	181.72	231	1.5	1500	500
1000907AKIT2	35.8	48.2	8	9.93	8.36	0.3	3000	30
1000809AKIT2	45.7	61.8	9.5	12.89	11.55	0.4	3000	50
10008810AKT2	48	63	9.7	12.89	11.55	0.4	3000	50
1000912AKT2	60	80	12	27.19	28.18	0.5	3000	120
F14	25.07	33.896	6.095	4.74	3.75	0.2	3000	8
F17	30.3	41.722	6.16	7.12	5.83	0.3	3000	16
F20	35.56	49.073	7.24	9.93	8.36	0.3	3000	30
F25	45.212	61.341	9.015	12.89	11.55	0.4	3000	50
F32	58.928	79.756	11.81	22.28	20.91	0.5	3000	120
M14	25.07	33.896	6.095	5.53	4.73	0.2	3000	12
M17	30.3	41.722	6.16	8.31	7.35	0.3	3000	24
M20	35.56	49.073	7.24	12.63	12	0.3	3000	45
M25	45.212	61.341	9.015	16.4	16.58	0.4	3000	75
M32	58.928	79.756	11.81	27.19	28.18	0.5	3000	180

规格 Bearing Model	外形尺寸Dimension mm			备注 Remark
	外径 Inner	内径 Outer	宽度 Width	
	D	d	B Outer /Inner	
φ20	20	14.5	4	
φ26.11	26.11	19.9	4	
φ26.54	26.54	20.2	4	
φ27.5	27.5	20.4	4.5	
φ30	30	22	6	
φ33.87	33.87	25	6.1/6.4	
φ33.896	33.896	25.07	6.095/6.35	14 Series
φ34	34	25.5	5	
φ34.52	34.52	26.2	5	
φ34.7	34.7	26.2	5	
φ35.5	35.5	26.5	6	
φ38.6	38.6	28.4	6	
φ40.1	40.1	30.1	6	
φ41.7	41.7	30.24	6.2/6.7	
φ41.72	41.72	30.295	6.16/6.67	
φ41.722	41.722	30.3	5.16/6.68	17 series
φ42	42	33	8	
φ48	48	35.5	8	
φ48.2	48.2	35.5	8	
φ48.3	48.3	35.9	8	
φ49.03	49.03	35.5	7.2/8.1	
φ49.06	49.06	35.55	7.2/8.1	
φ49.07	49.07	35.56	7.23/8.1	
φ49.073	49.073	35.56	7.24/8.13	20 Series
φ49.08	49.08			
φ49.1	49.1	35.55	7.2/8.1	
φ49.4	49.4	36.6	8	
φ54	54	42.52	8.1	
φ56	56	43	9	
φ61.34	61.34	45.212	9/6.3	
φ61.341	61.341	45.212	9.015/8.6	
φ61.35	61.35	45	9/6.3	
φ61.7	61.7	46.3	9	
φ63	63	48	9.5	
φ72	72	55	10	
φ77.2	77.2	57	12	
φ79.74	79.74	58.96	11.5	
φ79.756	79.756	58.928	11.81/8.64	32 Series
φ92.5	92.5	68	15	
φ95	95	71	15	
φ96.5	96.5	72	15	
φ98	98	73	15	
816	110	80	16	
φ123	123	92.5	18	
φ125	125	94	18.5	
919	130.434	96.954	25	
φ156	156	118	24	
φ192	192	144	30	

※交叉滚子轴承XSU 型（内外环一体型）
※XSU series Cross roller bearing

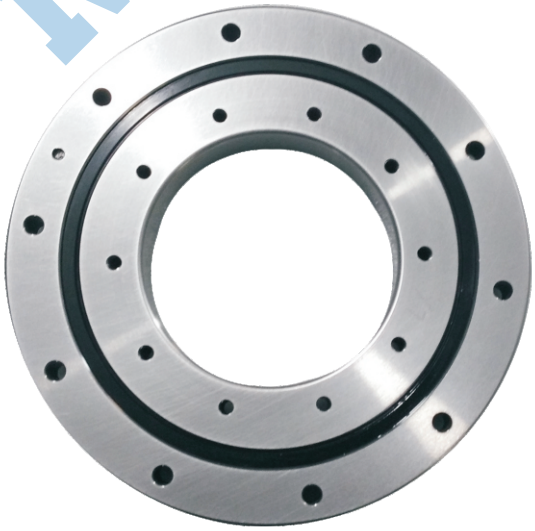
XSU型交叉滚子轴承（内、外环一体型）此系列型号由于已进行了安装孔的加工，就不需要固定法兰和支撑座。另外，由于采用带座的的一体化内外环结构，安装对性能几乎没有影响，因此能够获得稳定的旋转精度和扭矩。能用于外环和内环旋转。
结构特点：交叉滚子轴承，是圆柱滚子在呈90度的V形沟槽滚动面上通过隔离块被相互垂直地排列，所以交叉滚子轴承可承受径向负荷、轴向负荷及力矩负荷等多方向的负荷。内外圈的尺寸被小型化，极薄形式更是接近于极限的小型尺寸，并且具有高钢性，且精度可达到P5、P4、P2级。因此适合于工业机器人的关节部和旋转部、机械加工中心的旋转台，精密旋转工作台、医疗机器、计算器、军工、IC制造装置等设备。

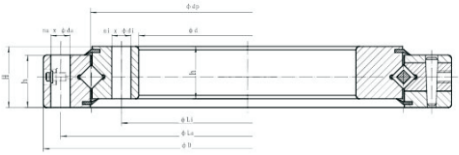
XSUCrossed roller bearings are lightweight, compact bearings with thinnest possible inner and outer rings with high rigidity, because of its vertical arrangement of cylindrical rollers with a 90°V groove through the separate spacers in the deep groove rolling surface. This special design allows just one bearing to carry loads in all directions including radial, axial and moment loads.

※XU系列交叉滚子轴承
※XU series Crossed roller bearing|Precison

交叉滚子轴承是两列圆柱滚子在呈90度的V形滚道上通过尼龙隔离块被相互垂直交叉排列，所以交叉滚子轴承可承受径向负荷、轴向负荷及力矩负荷等多方向的负荷。内外圈的尺寸被小型化，极薄形式更是接近于极限的小型尺寸，并且具有高刚性，XU交叉滚子轴承精度可达到P2级。因此适合于工业机器人的关节旋转部、机械加工中心的旋转台、精密旋转工作台、医疗机器、计算器、IC制造装置等设备。

XU Crossed roller bearings are lightweight, compact bearings with thinnest possible inner and outer rings with high rigidity, because of its vertical arrangement of cylindrical rollers with a 90°V groove through the separate spacers in the deep groove rolling surface. This special design allows just one bearing to carry loads in all directions including radial, axial and moment loads.

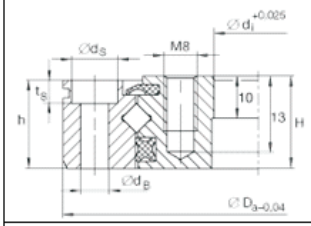




XU系列 XUSeries

型号 Identification number	主要尺寸 Main dimensions								基本的额定负荷(轴向) Basic load rating (axial)		基本的额定负荷(径向) Basic load rating (radial)		重量 weight
	内径 inner ring d (mm)	外径 outer ring D (mm)	滚子节圆直径 Roller pitch circle diameter dp (mm)	宽度 width B (mm)	外圈孔中心距 ΦLa	安装孔 na	内圈孔中心距 ΦLi	安装孔 ni	Ca KN	COa KN	Cr KN	Cor KN	Kg
XU050077	40	112	77	22	97	6-φ6.6	56	6-M8	22.4	29	14.3	14.2	1.4
XU060094	57	140	94	26	120	6-φ9	70	6-M8	32.5	37.5	20.7	18.4	2.4
XU060111	76.2	145.79	111	15.87	133.1	8-φ6.9	88.9	8-φ6.9	36	44.5	22.8	21.5	1.2
XU080120	69	170	120	30	148	6-φ9	90	6-M8	56	53	35.5	26	4
XU080149	101.6	196.85	149.6	22.22	177.8	16-φ6.9	115.8	16-φ6.9	63	66	40	32.5	3.6
XU120179	124.5	234	179	35	214	12-φ11	144.5	12-φ11	118	179	75	88	7
XU120222	140	300	222	36	270	12-M16	170	12-φ18	133	275	85	131	12
XU160260	191	329	260	46	305	20-φ14	215	20-φ14	212	350	135	173	16
XU080264	215.9	311	264	25.4	295.3	12-φ8.7	231.8	12-φ8.7	85	117	54	57	6.9
XU160405	336	474	405	46	450	30-φ14	360	30-φ14	270	550	172	270	25
XU080430	380	480	430	26	462	20-φ9	398	20-M10	110	280	70	138	12
XU300515	384	646	515	86	598	18-φ26	432	18-φ26	720	1370	455	670	115

XU050077



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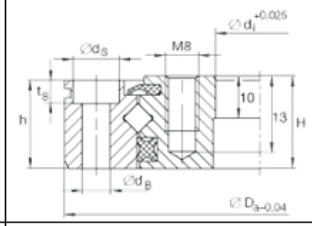

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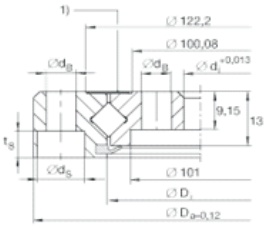

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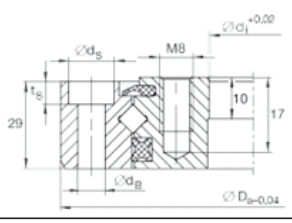

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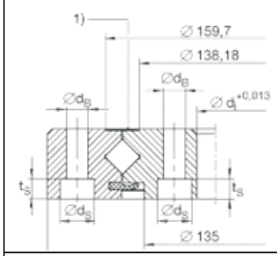

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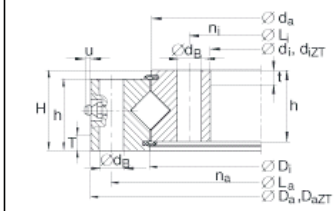

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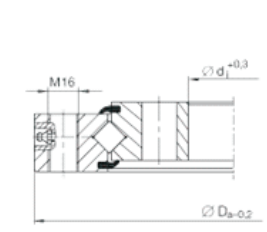

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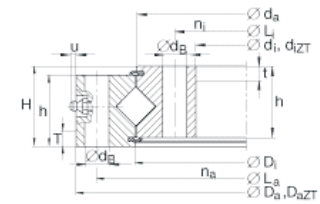


XU080264

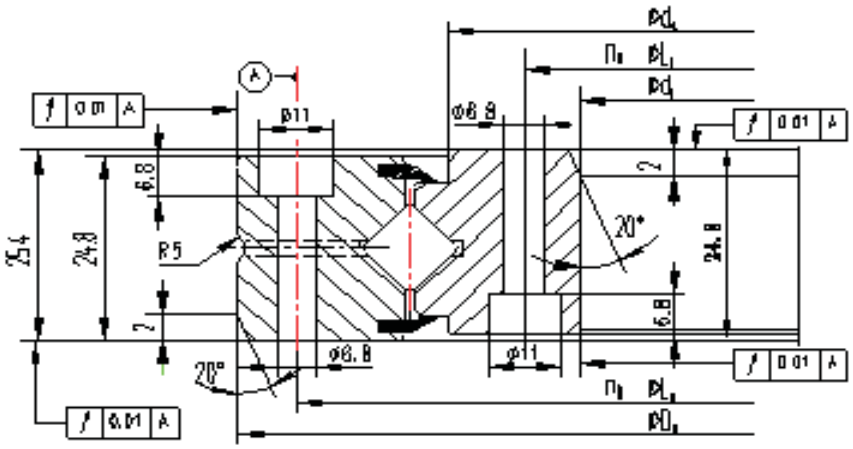
XU160405

XU080430

XU300515

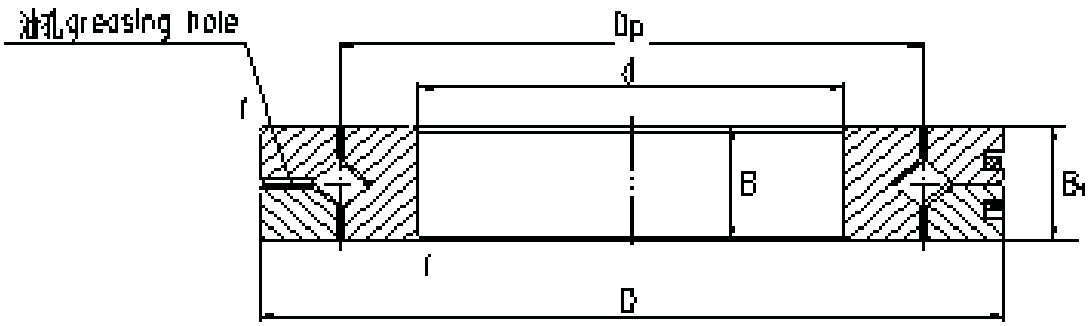
XSU型 XSU series

型号 Identification number	主要尺寸 Main dimensions							基本的额定负荷(轴向) Basic load rating (axial)		基本的额定负荷(径向) Basic load rating (radial)	
	内径 inner ring d (mm)	外径 outer ring D (mm)	宽度 width B (mm)	安装孔 nB	倒角 Chamfer r(min)	φLa	φLi	Ca KN	C0a KN	Cr KN	Cor KN
XSU080168	130	205	25.4	12	1.1	190	145	66	240	42	96
XSU080188	150	225	25.4	16	1.1	210	165	71	275	46	110
XSU080218	180	255	25.4	20	1.1	240	195	77	315	49	127
XSU080258	220	295	25.4	24	1.5	280	235	84	375	54	151
XSU080318	280	355	25.4	28	1.5	340	295	93	465	59	185
XSU080398	360	435	25.4	36	2	420	375	106	590	68	236
XSU140414	344	484	56	24	2	460	368	229	520	146	250
XSU140544	474	614	56	32	2.5	590	498	270	680	170	330
XSU140644	574	714	56	36	2.5	690	598	290	800	185	395
XSU140744	674	814	56	40	3	790	698	315	930	200	455
XSU140844	744	914	56	40	3	890	798	340	1050	215	510
XSU140944	874	1014	56	44	3	990	898	360	1170	227	580
XSU141094	1024	1164	56	48	4	1140	1048	390	1360	246	670



SX系列 SX series

型号 Identification number	主要尺寸 Main dimensions						靠肩尺寸 shoulder height		基本的额定负荷(轴向) Basic load rating(axial)		基本的额定负荷(径向) Basic load rating(radial)		重量 weight
	内径 inner ring d (mm)	外径 outer ring D (mm)	滚子节圆直径 Roller pitch circle diameter dp (mm)	宽度 width B B1 (mm)	油孔 Greasing hole φ	倒角 Chamfer r （min）	de	Di	Ca KN	Coa KN	Cr KN	Cor KN	Kg
SX011814	70	90	80	10	1.2	0.6	79.5	80.5	15.4	51	11	20	0.3
SX011818	90	115	102	13	1.2	1	101.5	102.5	26	91	18	37	0.4
SX011820	100	125	112	13	1.2	1	111.5	112.5	28	102	19	41	0.5
SX011824	120	150	135	16	1.5	1	134.4	135.6	41	146	27	59	0.8
SX011828	140	175	157	18	1.5	1.1	156.3	157.7	64	240	45	96	1.1
SX011832	160	200	180	20	1.5	1.1	179.2	180.8	69	275	49	111	1.7
SX011836	180	225	202	22	2	1.1	201.2	202.8	96	381	69	153	2.3
SX011840	200	250	225	24	2	1.5	224.2	225.8	102	425	72	170	3.1
SX011848	240	300	270	28	2	2	269.2	270.8	148	640	105	255	5.3
SX011860	300	380	340	38	2.5	2.1	339.2	340.8	243	1070	173	425	12
SX011868	340	420	380	38	2.5	2.1	379.2	380.8	260	1220	185	485	13.5
SX011880	400	500	450	46	2.5	2.5	449	451	385	1800	275	720	24
SX0118/500	500	620	560	56	2.5	3	558.8	561.2	560	2750	395	1100	44



※ 轴向/径向轴承YRT
YRT bearings (rotary table bearings)

YRT转台轴承由一个推力/向心座圈，一个推力/向心轴圈，一个推力垫圈，两个滚针保持架组件和一组向心圆柱滚子组成。座圈和轴圈有均布的安装用螺钉孔。该型轴承具有高轴向和径向承载能力。高倾斜刚度和极高的精度。适用于回转工作台，卡盘和铁刀头以及测量和实验中的轴承配置。该型轴承对与之相配的设备零件的要求也较高。

YRT bearings (rotary table bearings) are axial and radial combined cylindrical roller bearings, including two thrust needle roller bearings and a radial cylindrical roller bearing with the combination of axial and radial p reload,For the convenience of transportation and fixing, two or three symmetrical screws are fastened to the two rings in order to prevent rollers and rings generating collisions which influence bearing accuracy.

※YRTS高速转台轴承系列
Axial/radial bearings YRTS series rotary table bearings

YRTS高速转台轴承（简称YRTS转台轴承）系列外形结构尺寸与YRT系列相同，但内部结构异于YRT系列，这就决定了YRTS转台轴承系列极限转速较YRT转台轴承系列更高一些，摩擦力矩较YRT转台轴承系列低并且均匀，因此，对于需要相对较低摩擦但相对高速的场合，可选用该系列，例如由直驱电机所驱动的轴使用的轴承。

轴承特点：

1、高精度：精度可达到P4、P2级；
2、高刚性：该系列轴承均带有预载荷；
3、高承载：可承受轴向载荷、径向载荷、倾覆载荷。
4、高转速：YRTS系列轴承可应用于转速较高的工作场合。

Axial/radial bearings YRTS series rotary table bearings:Due to their high limiting speeds and very low,
uniform frictional torque across the whole speed range, these bearings are particularly suitable for combination with torque motors.

Advantage:

1, high precision: the precision can reach P4 and P2 level.
2, high rigidity: this series of bearings have pre load.
3, high bearing capacity: can bear axial load, radial load, overturning load.
4, high speed: YRTS series bearings can be used in high speed working situation.

※ YRTM系列转台轴承带钢栅测量系统
YRTM with a dimensional scale and a electronic measuring system.

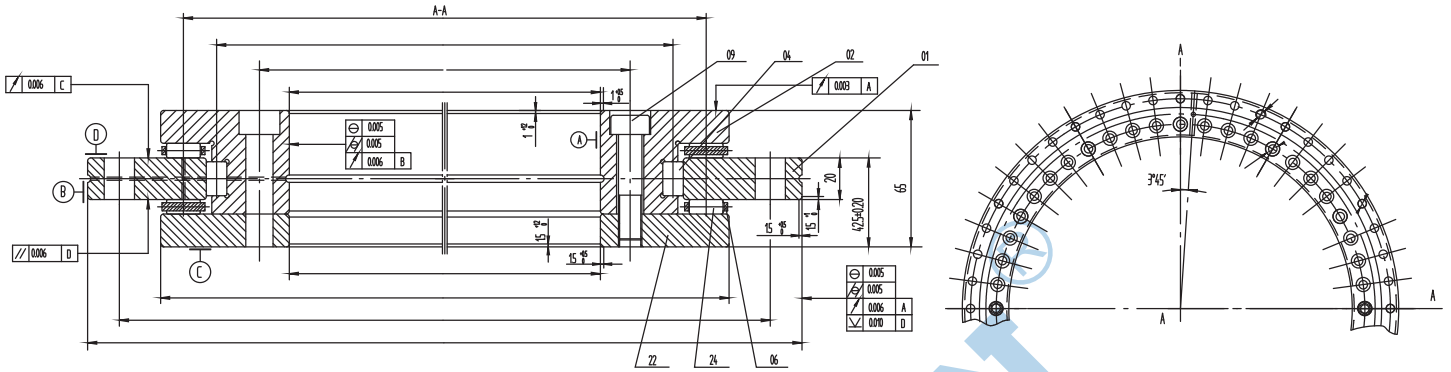
YRTM是一种加装钢栅尺的双向推力圆柱滚子YRT组合轴承，实现实时监控和调整双向推力圆柱滚子组合轴承的旋转精度，以保证机器高精度运转。带集成角度测量系统的转台轴承角位移的测量在现代工业加有着十分重要的作用，特别在机床行业中，往往对加工件的旋转角度有很高要求，这就需要对角伴移进行精确的测量和控制。目前对于角位移的测量，较常用的方法有光栅编码器、磁栅编码器等，有着精度高（最高角度分辨率小于等于2角秒）、耐污染，不受电磁影响、环境适应性强等优点。同时，由于是加装在YRT转台轴承上，该组合轴承有极高的旋转精度，又能同时承受轴向载荷、径向载荷和倾覆力矩，非常适用于机床行业中的高精密数控转台、分度头以及科研实验和测量等要求较高的领域。实时输出信号，是直接驱动的理想解决方案.
结构介绍:整个钢栅系统包括钢栅尺、读数头、电子评估器三部分。钢栅尺是一个封闭的钢制圆环，上面有均匀分布的栅格，安装在轴承的内圈上。读数头安装在轴承外圈上，与钢栅尺靠近但并不接触，两者之间有0.1~0.2间隙。工作时轴承旋转，钢栅尺和读数头做非接触式相对运动，通过感应采集来的数据经电缆传给电子评估器。电子评估器再将数据转换为方波或正弦波信号。这些信号输入到机床的数控系统中，就能实现对角位移的测量和控制。

YRTM with a dimensional scale and a electronic measuring system.,The electronic measuring system contains two measuring heads, a set of shims and an electronic evaluation system.
Bearings of series YRTM correspond in mechanical terms to axial/radial bearings YRT but are additionally fitted with a magnetic dimensional scale.
The measuring system can measure angles to an accuracy of a few angular seconds by non-contact, magneto-resistive means.
Advantages of the angular measuring system.
1.operates by non-contact means and is therefore not subject to wear
2.carries out measurement irrespective of tilting and position
3.has an automatically self-adjusting electronic system
4.has a self-centring function
5.is unaffected by lubricants
6.is easy to fit and the measuring heads are easily adjusted
7.there is no need for alignment of the bearing and a separate measuring system
8.requires no additional parts
– the dimensional scale and measuring heads are integrated in the bearing and adjacent construction respectively
– the resulting space saved can be used for the machining area of the machine
9.does not give any problems relating to supply cables. The cables can be laid within the adjacent construction directly through the large bearing bore
10.ives savings on design envelope size and costs due to the compact, integrated design requiring fewer components.

※ZKLDF系列转台轴承
ZKLDFseries rotary tabl e bearings

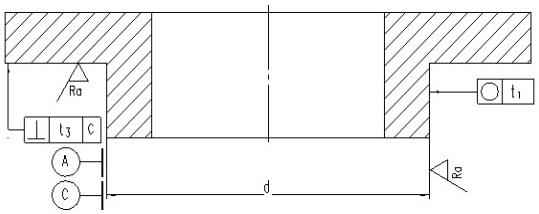
ZKLDF具有低摩擦，高旋转精度，高极限转速等特点，可以承受较高的轴向、径向载荷并具备较高的倾斜刚度。这种轴承尤其适合应用于复合载荷和精密方面的领域，被广泛的应用于机床回转台、磨头和多种测试装备上。

ZKLDF are lowfriction, high accuracy for very high speeds, high axial and radial loads and high demands on tilting rigidity. These bearings are particularly suitable for precision applications involving combined loads. Their preferred areas of use are bearing arrangements in rotary tables and honing heads as well as measurement and testing equipment.



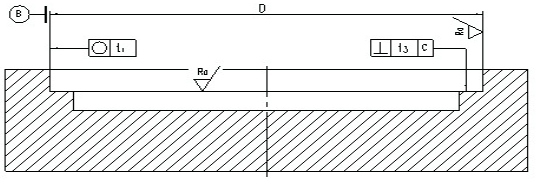
YRT转台轴承 YRT Series

轴承代号 bearing type	外形尺寸boundary dimensions								固定孔 fixing holes						固定螺钉数量 Number of retaining screws	螺纹拔取孔 Extraction thread hole		节距 1)Number of pitches X angle of pitches	螺钉拧紧力矩Screw tightening torque	基本额定载荷Basic load rating				极限转速 Limiting speed	轴承摩擦力矩 3)Bearing frictional torque	重量 weight
									内圈inner ring				外圈outer ring							轴向axial		径向radial				
	d	D	H	H1	C	D1	J	J1	d1	d2	a	数量 quantity	d3	数量 quantity		G	数量 quantity	数量×t quantity	MA2)	动dynamic load Ca	静static load Coa	动dynamic load Cr	静static load Cor	脂grease		
	单位unit： mm								mm				mm						Nm	KN				r/min	Nm	Kg
YRT50	50	126	30	20	10	105	63	116	5.6	—	—	10	5.6	12	2	—	—	12×30°	8.5	38	158	28.5	49.5	440	2.5	1.6
YRT80	80	146	35	23.35	12	130	92	138	5.6	10	4	10	4.6	12	2	—	—	12×30°	8.5	56	255	42.5	100	530	3	2.4
YRT100	100	185	38	25	12	160	112	170	5.6	10	5.4	16	5.6	15	2	M5	3	18×20°	8.5	76.5	415	47.5	120	430	3	4.1
YRT120	120	210	40	26	12	184	135	195	7	11	6.2	22	7	21	2	M8	3	24×15°	14	102	540	52	143	340	7	5.3
YRT150	150	240	40	26	12	214	165	225	7	11	6.2	34	7	33	2	M8	3	36×10°	14	112	630	56	170	320	10	6.2
YRT180	180	280	43	29	15	244	194	260	7	11	6.2	46	7	45	2	M8	3	48×7.5°	14	118	710	69.5	200	280	12	7.7
YRT200	200	300	45	30	15	274	215	285	7	11	6.2	46	7	45	2	M8	3	48×7.5°	14	120	765	81.5	220	260	14	9.7
YRT260	260	385	55	36.5	18	345	280	365	9.3	15	8.2	34	9.3	33	2	M12	3	36×10°	34	160	1060	93	290	200	20	18.3
YRT325	325	450	60	40	20	415	342	430	9.3	15	8.2	34	9.3	33	2	M12	3	36×10°	34	275	1930	120	345	170	40	25
YRT395	395	525	65	42.5	20	486	415	505	9.3	15	8.2	46	9.3	45	2	M12	3	48×7.5°	34	300	2280	186	655	140	55	33
YRT460	460	600	70	46	22	560	482	580	9.3	15	8.2	46	9.3	45	2	M12	3	48×7.5°	34	355	2800	200	765	120	70	45
YRT580	580	750	90	60	30	700	610	720	11.4	18	11	46	11	42	2	M12	6	48×7.5°	68	490	4250	228	965	80	140	89
YRT650	650	870	122	78	34	800	680	830	14	20	13	46	14	42	2	M12	6	48×7.5°	116	1040	8000	490	1800	65	200	170
YRT850	850	1095	124	80.5	37	1018	890	1055	18	26	17	58	18	54	2	M16	6	60×6°	284	1000	8650	455	1730	50	300	253
YRT950	950	1200	132	86	40	1130	990	1160	18	26	17	58	18	54	2	M16	6	60×6°	284	1290	11400	530	2040	40	600	312
YRT1030	1030	1300	145	92.5	40	1215	1075	1255	18	26	17	60	18	66	12	M16	6	72×5°	284	1380	12000	620	2650	35	800	375



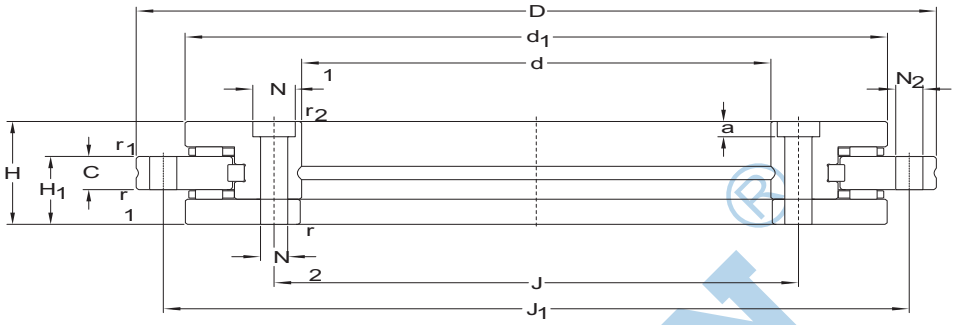
转台轴承配合轴的公差machining tolerances for shafts

轴承代号 type	配合轴颈（mm）shaft diameter			圆度（○） roundness	垂直度（⊥） perpendicul arity	平行度（//） parallelism	表面粗糙度 Ra roughness
	公称尺寸 Nominal dimension	上偏差upper	下偏差lower	t1（μm）	t3（μm）	t4（μm）	Ra（μm）
YRT50	50	0	-0.011	4	3	3	0.4
YRT80	80	0	-0.013	5	3	3	0.4
YRT100	100	0	-0.015	6	4	4	0.4
YRT120	120	0	-0.015	6	4	4	0.4
YRT150	150	0	-0.018	8	5	5	0.8
YRT180	180	0	-0.018	8	5	5	0.8
YRT200	200	0	-0.02	10	7	7	0.8
YRT260	260	0	-0.023	12	8	8	0.8
YRT325	325	0	-0.025	13	9	9	0.8
YRT395	395	0	-0.025	13	9	9	0.8
YRT460	460	0	-0.027	15	10	10	0.8
YRT580	580	0	-0.028	16	11	11	1.6
YRT650	650	0	-0.032	18	12	12	1.6
YRT850	850	0	-0.036	20	14	14	1.6
YRT950	950	0	-0.036	20	14	14	1.6
YRT1030	1030	0	-0.045	25	16	16	1.6



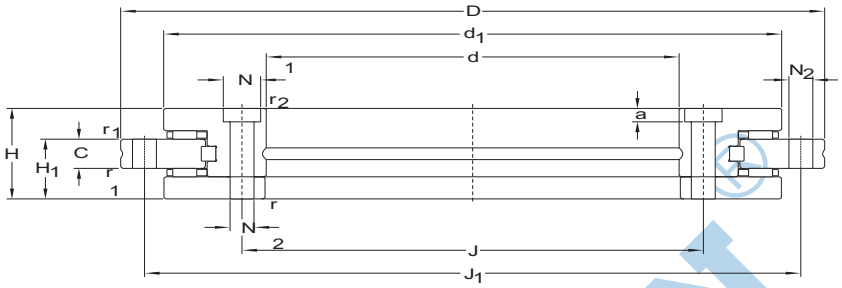
转台轴承配合座的公差machining tolerances for housings

轴承代号 type	配合座孔（mm）housing diameter			圆度（○） roundness	垂直度（⊥） perpendicul arity	平行度（//） parallelism	表面粗糙度 Ra roughness
	公称尺寸 Nominal dimension	上偏差upper	下偏差lower	t1（μm）	t3（μm）	t4（μm）	Ra（μm）
YRT50	126	+0.018	-0.007	8	5	5	0.8
YRT80	146	+0.018	-0.007	8	5	5	0.8
YRT100	185	+0.022	-0.007	10	7	7	0.8
YRT120	210	+0.022	-0.007	10	7	7	0.8
YRT150	240	+0.022	-0.007	10	7	7	0.8
YRT180	280	+0.025	-0.007	12	8	8	0.8
YRT200	300	+0.025	-0.007	12	8	8	0.8
YRT260	385	+0.029	-0.007	13	9	9	0.8
YRT325	450	+0.033	-0.007	15	10	10	0.8
YRT395	525	+0.034	-0.01	16	11	11	1.6
YRT460	600	+0.034	-0.01	16	11	11	1.6
YRT580	750	+0.038	-0.012	18	12	12	1.6
YRT650	870	+0.044	-0.012	20	14	14	1.6
YRT850	1095	+0.052	-0.014	24	16	16	1.6
YRT950	1200	+0.052	-0.014	24	16	16	1.6
YRT1030	1300	+0.060	-0.016	27	18	18	1.6



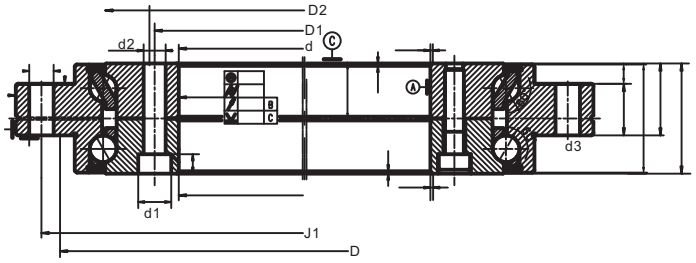
YRTM系列 YRTM series

轴承代号 Bearing type	外形尺寸boundary dimensions										固定孔 fixing holes						联结螺栓数量 number of connecting bolts	螺纹拔取孔 Extraction thread hole		节距 Number of pitchesX angle of pitches	螺钉拧紧力矩 MA2)Screw tightening torque	基本额定载荷basic load rating						轴承摩擦力矩 3)	重量 weight Kg
																						轴向axial		径向 radial		倾斜刚性 rigidity			
																						动载 dynamic load Ca	静载static load Coa	动载 dynamic load Cr	静载static load Cor	CkL	CkL1	Bearing frictional torque	
	d	D	H	H1	HM	C	DM	D1	J	J1	内圈 inner ring				外圈 outer ring			G	数量	数量×t	N m								
	单位unit： mm										mm				mm				quantity	quantity		KN				kNm/mrad		Nm	
YRTM150	150	240	41	27	10	12	214	214	165	225	7	11	6.2	34	7	33	2	M8	3	36×10°	14	112	630	56	170	83	14	10	6.2
YRTM180	180	280	44	30	10	15	244.5	244	194	260	7	11	6.2	46	7	45	2	M8	3	48×7.5°	14	118	710	69.5	200	125	21	12	7.7
YRTM200	200	300	45	30	10	15	271.2	274	215	285	7	11	6.2	46	7	45	2	M8	3	48×7.5°	14	120	765	81.5	220	160	27	14	9.7
YRTM260	260	385	55	36.5	13.5	18	343.8	345	280	365	9.3	15	8.2	34	9.3	33	2	M12	3	36×10°	34	160	1060	93	290	320	53	20	18.3
YRTM325	325	450	60	40	15	20	412.6	415	342	430	9.3	15	8.2	34	9.3	33	2	M12	3	36×10°	34	275	1930	120	345	630	105	40	25
YRTM395	395	525	65	42.5	17.5	20	485.5	486	415	505	9.3	15	8.2	46	9.3	45	2	M12	3	48×7.5°	34	300	2280	186	655	1100	185	55	33
YRTM460	460	600	70	46	19	22	557.7	560	482	580	9.3	15	8.2	46	9.3	45	2	M12	3	48×7.5°	34	355	2800	200	765	1700	285	70	45



YRTS转台轴承 YRTS rotary table bearing

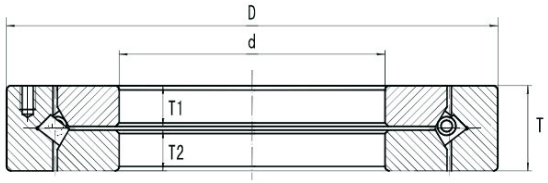
轴承代号 bearing type	外形尺寸boundary dimensions								固定孔 fixing holes						固定螺钉数量 Number of retaining screws	螺纹拔取孔 Extraction thread hole		节距1） Number of pitches X angle of pitches	螺钉拧紧力矩Screw tightening torqueMA2)	基本额定载荷Basic load rating				极限转速 Limiting speed	重量 weight
									内圈inner ring				外圈outer ring							轴向axial		径向radial			
	d	D	T	H	C	d1	dn	dm	d0	ds	TS	数量	dL	数量		G	数量	数量×t		动dynamic load	静static load	动dynamic load	静static load		
	单位unit： mm								mm			quantity	mm	quantity			quantity	quantity	N m	C a	Coa	Cr	Cor	脂grease	
																				KN				r/min	Kg
YRTS200	200	300	45	30	15	274	215	285	7	11	6.2	46	7	45	2	M8	3	48×7.5°	14	155	840	94	226	1160	9.7
YRTS260	260	385	55	36.5	18	345	280	365	9.3	15	8.2	34	9.3	33	2	M12	3	36×10°	34	173	1050	110	305	910	18.3
YRTS325	325	450	60	40	20	415	342	430	9.3	15	8.2	34	9.3	33	2	M12	3	36×10°	34	191	1260	109	320	760	25
YRTS395	395	525	65	42.5	20	486	415	505	9.3	15	8.2	46	9.3	45	2	M12	3	48×7.5°	34	214	1540	121	390	650	33
YRTS460	460	600	70	46	22	560	482	580	9.3	15	8.2	46	9.3	45	2	M12	3	48×7.5°	34	221	1690	168	570	560	45



ZKLDF系列 ZKLDF Series

轴承代号 bearing type	外形尺寸boundary dimensions								固定孔 fixing holes						固定螺钉数量Number of retaining screws	螺纹拔取孔 Extraction thread hole		节距Number of pitches X angle of pitches	螺钉拧紧力矩Screw tightening torque	基本额定载荷Basic load rating		极限转速 Limiting speed	轴承摩擦力矩Bearing frictional torque	重量weight
	d		H	H1	D1	D2	J	J1	内圈inner ring			外圈outer ring								轴向axial				
	单位unit：mm								d1	d2	a	数量quantity	d3	数量quantity		G	数量quantity	数量Xt quantity	MA	动dynamic load Ca	静static load Coa	脂grease		
									mm				mm						Nm	KN		r/min	Nm	Kg
ZKLDF100	100	185	38	25	160	136	112	170	5.6	10	5.4	16	5.6	15	2	M5	3	18×20°	8.5	67	251	2800	1.6	4.5
ZKLDF120	120	210	40	26	184	159	135	195	7	11	6.2	22	7	21	2	M8	3	24×15°	14	72	315	2400	2	6
ZKLDF150	150	240	40	26	214	188	165	225	7	11	6.2	34	7	33	2	M8	3	36×10°	14	76	365	2000	3	7.5
ZKLDF200	200	300	45	30	274	243	215	285	7	11	6.2	46	7	45	2	M8	3	48×7.5°	14	112	550	1600	4.5	11
ZKLDF260	260	385	55	36.5	345	313	280	365	9.3	15	8.2	34	9.3	33	2	M12	3	36×10°	34	155	920	1200	7.5	22
ZKLDF325	325	450	60	40	415	380	342	430	9.3	15	8.2	34	9.3	33	2	M12	3	36×10°	34	165	1110	1000	11	28
ZKLDF395	395	525	65	42.5	486	450	415	505	9.3	15	8.2	46	9.3	45	2	M12	3	48×7.5°	34	214	1470	800	16	39
ZKLDF460	460	600	70	46	560	520	482	580	9.3	15	8.2	46	9.3	45	2	M12	3	48×7.5°	34	255	1860	700	21	50

交叉圆锥滚子轴承系列/Tapered Crossed Roller Bearings
XR、JXR系列/XR、JXR series



型号Model	尺寸 Main dimension(mm)				基本额定载荷 Basic dynamic load rating		极限转速	Weight (kg)	互换型号 Exchange model			
	内径Inner diameter	外径Outer diameter	高度Width	倒角 Chamfer r(min)	轴向 Radial Cr(KN)	径向 Axial Ca(KN)	Lim it speed (oil r/m)		SKF	NACHI	URB	PSL
XR490651	203.2	279.4	31.75	1.5	51.2	61.4	800	6.5	616093A	-	-	-
XR678052	330.2	457.2	63.5	3	100	123	620	35	615661A	300XRN50	-	PSL912-309A
XR766051	457.2	609.6	63.5	3	141	178	520	51	615894A	0457XRN060	XD.10.0457P5	PSL912-308A
XR820060	580	760	80	5	215	234	300	100	615662A	580XRN76	XD.10.0580P5	PSL912-304A
XR855053	685.8	914.4	79.375	3	270	343	260	150	615659A	0685XRN091	XD.10.0686P5	PSL912-305A
XR882055	901.7	1117.6	82.55	3	300	395	200	185	615895A	0901XRN112	XD.10.0902P5	PSL912-306A
XR897051	1549.4	1828.8	101.6	3	516	698	80	500	615898A	-	XD.10.1549P5	-
JXR637050	300	400	37	1.5	63	80.1	720	13	-	-	-	-
JXR652050	310	425	45	2.5	82.2	102	640	20	-	-	-	-
JXR699050	370	495	50	3	93.6	119	600	30	-	-	-	-