EFANT

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- **Precision cross roller bearings, rotary table bearings and various non-standard bearings**

A manufacturer specializing in R&D and producing precision bearings

EFANT **Luoyang E-find Precision Bearing Manufacturing Co.,Ltd**

ADDRESS • EMAIL • TELEPHONE

Add.: No. 9 Jingjin North Rd, Luoxin Development Zone, Xin'an County, Luoyang City, Henan Province 471003, China

E-mail: administrator@efindbearing.com

Tel.: 0086 379 80887690 Mob.: 008615036387078

www.efindbearing.com

Luoyang E-find Precision Bearing Manufacturing Co.,Ltd

EFANT

OPENNESS, PROFESSIONALISM AND RESPONSIBILITY

Contents

+Company Profiles »

Luoyang EFANT Precision Bearing Manufacturing Co., Ltd. is located in China's bearing manufacturing base---Luoyang. Our company specializes in R&D and manufacturing of precision cross roller bearings, rotary table bearings and various non-standard bearings. The machining accuracy is P5, P4 and P2.

Benefits from Luoyang's unique bearing industry foundation, our company has established a complete quality management system and has an excellent technical team. At the same time, sophisticated production process equipment and perfect test equipment are necessary conditions for the production of precision bearings, and the high precision,high reliability of products are guaranteed. All kinds of bearings produced by our company are widely used in the automation industry, CNC machine tool industry and robot industry.

The company adheres to the concept of "openness, professionalism and responsibility", actively participate in competition and cooperation, strives to become a professional bearing application service provider, and shoulders its due social responsibilities.

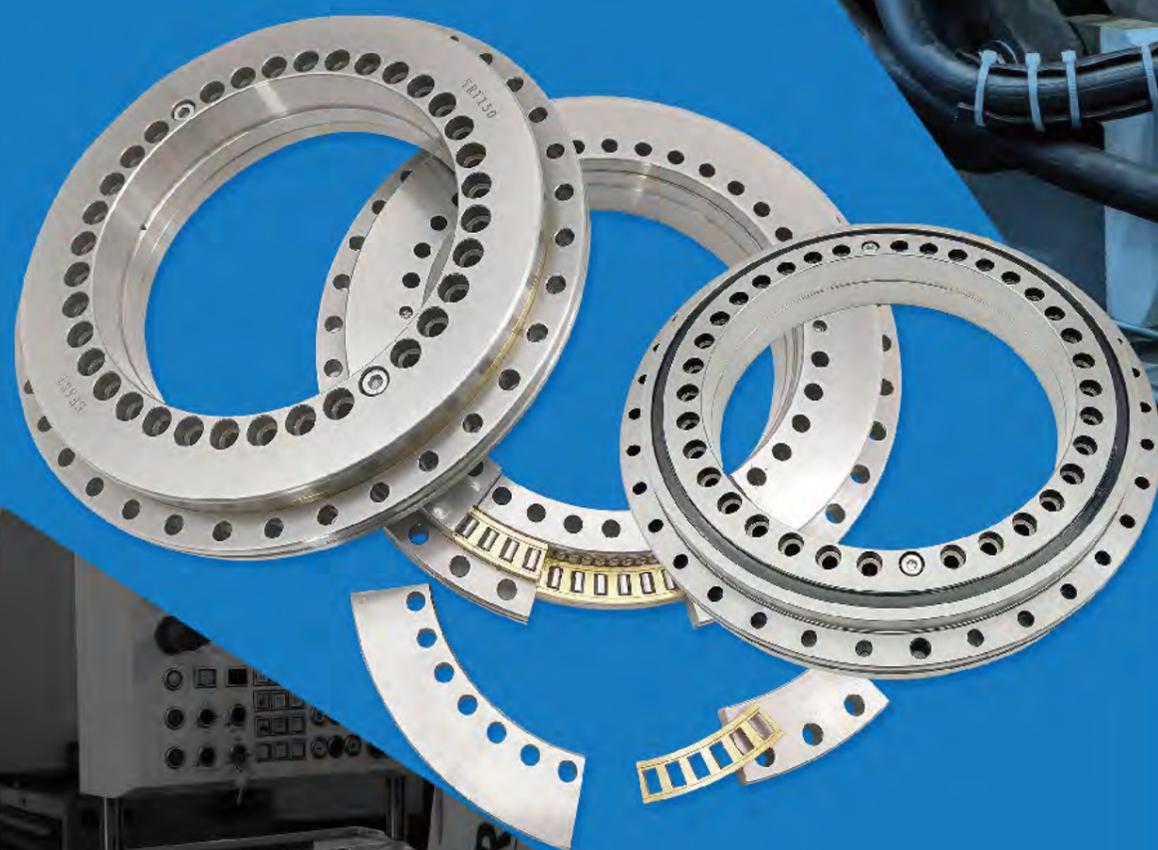Research and development   Manufacturing

+Service concept »

Create value for customers

24
7*24 hours

Professional team, quick response, pre-sale consultation, sales support, and after-sales service full process guarantee

Rotary table bearing

In the rotary table bearing, the radial raceway of a thrust/centripetal L-shaped inner ring, the radial raceway of a thrust/centripetal seat ring and a set of radial cylindrical rollers form the radial part of the rotary table bearing. The axial raceway of the thrust/centripetal L-shaped inner ring, the two axial raceways of the thrust/centripetal seat ring, and two sets of thrust cylindrical rollers and their retainers form the axial part of the rotary table bearing. The radial and axial combined structure of this series enable it to withstand radial load, bidirectional axial load and overturning moment. This series of bearings can be preloaded and can achieve high rotation accuracy, so it is particularly suitable for CNC rotation workbenches, swing-angle milling heads, gear grinding machine workbenches and other workplaces that require high precision.

The inner ring and outer ring of this series of bearings are designed with screw mounting holes, which makes the installation and fixing very simple; at the same time, the bearing preload is adjusted according to the working conditions at the factory, so there is no need to adjust the installation preload during installation.

The inner ring and outer ring of the bearing are designed with lubricating oil holes, through which lubricating grease can be conveniently added and replenishing the inside of the bearing.
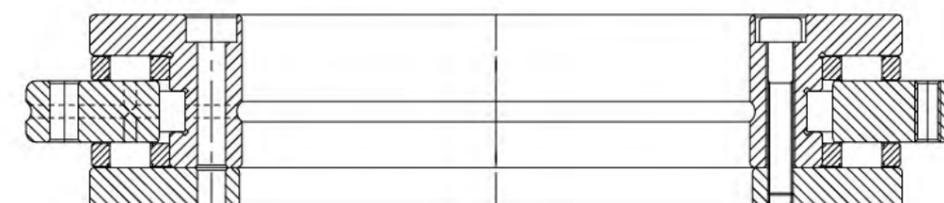
Product category

This series of bearings are divided into the standard type (EFRT) and the high-speed type (ERTS). The high-speed type is different from the standard type: the radial part of the high-speed type is separated by a radial cage between the cylindrical rollers, while the standard type is radial part of the cylindrical rollers are not separated by a retainer and are in a fully loaded state; therefore, the high-speed type has a higher movement speed than the standard type, which is more suitable for workplaces that require higher accuracy and speed. The standard model is more used in the workplace with higher load, higher rigidity and lower speed.

EFRT standard type
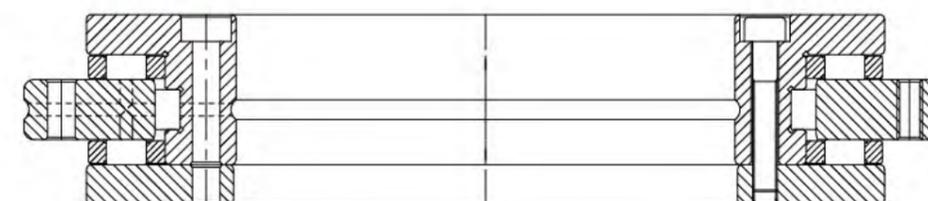
ERTS high-speed type
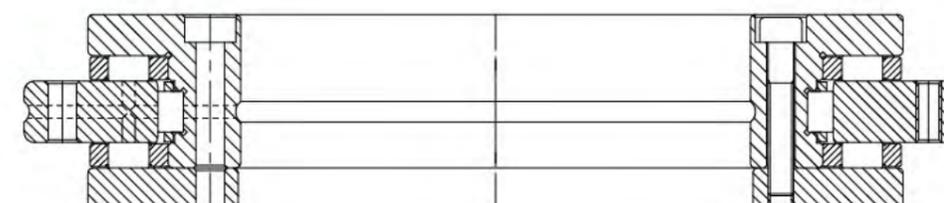
Model name rules

Model	the inside diameter of	Retainer material	Highly tight tolerance	Installation requirements or clearance	Runout accuracy grade
EFRT	100	M/TV	H1/H1H2	VSP/RLO	P4/P2
ERTS	200	M/TV	H1/H1H2	RLO	P4/P2

Comment：

1. Retainer material: M brass retainer, TV nylon retainer

2. Strict height tolerance: H1 only means that the height tolerance of H1 is implemented according to strict standards, H1H2 means that the height tolerances of H1 and H2 are strictly implemented, and blank means that the height tolerance of H1 and H2 is implemented according to ordinary standards.

3. Installation requirements or clearance: VSP bearing installation structure has a strengthening ring, RLO bearing is in a relatively small preload state, and blank means that the bearing clearance is implemented in accordance with common standards when leaving the factory.

Special note: The radial clearance of this series of bearings is in the preload condition. The VSP, RLO or common standards mentioned above only refer to the axial clearance of the bearing.

4. Runout accuracy grade: P4 and P2 are limited to the runout accuracy of the bearing (Kea Sea Kia Sia).

5. All bearing dimensional tolerance grades are implemented in accordance with P5.

For products that are not in the range of standard models, please consult our company. When conditions permit, our company can customize non-standard bearings.

Bearing selection

1. Determine the conditions of use and fill in the application condition table;   2. Determine the bearing model category;

3. Select the bearing size according to life calculation and determine bearing model;

4. Determine the bearing runout accuracy and clearance according to the used accuracy and rigidity requirements;

5. Combined with structural design, determine special conditions such as lubrication method and starting torque.

Life calculation

Bearing rated life

Bearing rating life refers to the total number of revolutions that a batch of bearings of the same model can operate under the same conditions, 90% of the bearings do not peel off the raceway surface due to rolling fatigue. It is often expressed in L, and the unit is the revolution. Calculated as follows:

$L=(C/P)^{10/3} \times 10^6$

C The rated dynamic load of the bearing

P Equivalent dynamic load under working conditions

Static safety factor

The static load rating of a bearing refers to a static load with a certain direction and size. At this time, the maximum contact stress at the center point of the contact area between the cylindrical roller and the raceway surface reaches the limit value of the contact stress of the material itself, and the bearing can move slowly (approximately Static state) without failure. Therefore, when the bearing is subjected to external loads in a static manner, the static safety factor must be considered. The static safety factor of the bearing is represented by S0, and its calculation formula is as follows:
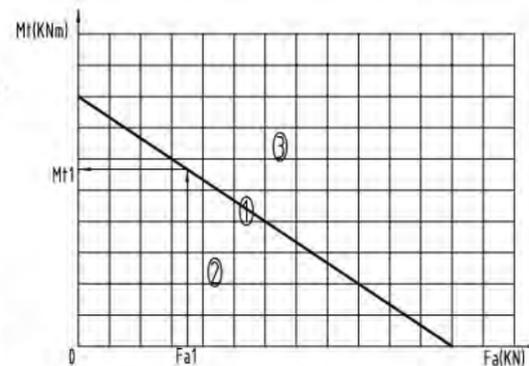
$S_0 = C_0/P_0$

C_0 Bearing static load rating

P_0 Equivalent static load under working conditions

For precision equipment such as machine tools or similar application conditions, it is recommended that the static safety factor be at least 4 times.

For turntable bearings, the static safety factor must consider not only the influence of static radial load, but also the influence of static axial load and static overturning moment.

Operating temperature

The operating temperature range of turntable bearings is −30° C to +120° C, but when used in precision equipment such as machine tools or similar application conditions, it is recommended that the working environment temperature be −20° C to +80° C.

Limit speed

The limit speed listed in the size specification table is achieved by the bearing under ideal working conditions. These conditions include the bearing's operating temperature, structure, accuracy, installation conditions, actual load, lubrication conditions, etc., therefore, the actual selection should be combined with the working condition table to determine.

Bearing friction torque

Most of the rotary table bearings of this series are in a preloaded state when they leave the factory, which will have a certain influence on the selection of driving force during structural design. Therefore, pay special attention to the bearing friction torque when selecting the bearing. The friction torque of this series of bearings is in the size specification table Listed.

The friction torque listed in the size specification table is a static friction torque. The measurement condition is about 20° C at room temperature, and the relative movement speed between the inner and outer rings is 5r/s; after the actual installation, due to the influence of factors such as installation coordination and speed changes, The actual frictional torque will become 2 to 2.5 times larger than the original. This is only true for standard models, and high-speed models will also become larger about 1.5 times.

Matching

Since this series of bearings are already in a preloaded state at the factory, it is recommended that the matching relationship between the shaft and the bearing seat of this series of bearings is a transition fit. The inappropriate matching relationship will change the internal clearance of the bearing and the running accuracy after installation and the rigidity of the shaft system, which will ultimately reduce the service life of the bearing.

The dimensional tolerance of the shaft is recommended to h5. Specifically, when the shafting accuracy requirements are high, the gap between the shaft and the inner diameter of the bearing should be as close to zero as possible; for the shaft system with higher speed and longer cycle operation, it is recommended that the inner diameter of the shaft and the bearing should not exceed 0.01 A clearance of mm is appropriate; for high-speed bearings, a clearance of no more than 0.005 mm between the shaft and the inner diameter of the bearing is recommended.

The dimensional tolerance of the bearing seat is recommended to J6. Specifically, when the shafting operation accuracy is high, the gap between the bearing outer diameter and the bearing seat diameter should be as zero as possible; for the shaft system with higher speed and longer cycle operation, it is recommended that the bearing outer diameter and bearing seat The gap is not less than 0.02mm.
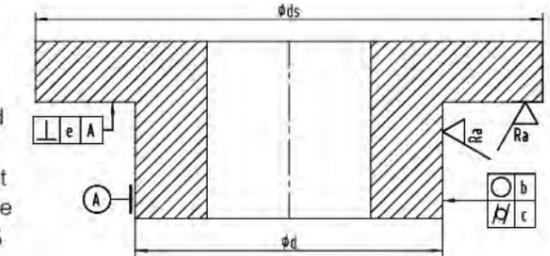
Model	Nominal size of the recommended shaft d (mm)	Recommended shaft tolerance Δd(mm)	Roundness b(μm)	Cylindricity c(μm)	Verticality d(μm)	Surface roughness Ra(μm)
EFRT50	50	0/−0.011	3	3	3	0.4
EFRT80	80	0/−0.013	3	3	3	0.4
EFRT100	100	0/−0.015	4	4	4	0.4
EFRT120	120	0/−0.015	4	4	4	0.4
EFRT150	150	0/−0.018	5	5	5	0.8
EFRT180	180	0/−0.018	5	5	5	0.8
EFRT200	200	0/−0.020	7	7	7	0.8
EFRT260	260	0/−0.023	8	8	8	0.8
EFRT325	325	0/−0.025	9	9	9	0.8
EFRT395	395	0/−0.025	9	9	9	0.8
EFRT460	460	0/−0.027	10	10	10	0.8
EFRT580	580	0/−0.028	11	11	11	1.6
EFRT650	650	0/−0.032	12	12	12	1.6
EFRT850	850	0/−0.036	14	14	14	1.6
EFRT950	950	0/−0.036	14	14	14	1.6
EFRT1030	1030	0/−0.045	16	16	16	1.6
EFRT1200	1200	0/−0.054	18	18	18	1.6

Shaft design
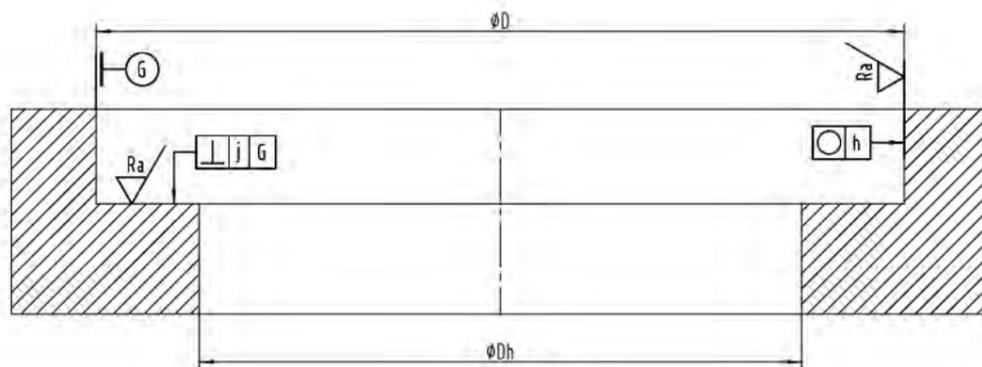
Model	Recommended Nominal Size of Holes	Recommended hole tolerance	Roundness	Verticality	Surface roughness
	D (mm)	δ D(mm)	h(μm)	j(μm)	Ra(μm)
EFRT50	126	0.018/-0.007	5	5	0.8
EFRT80	146	0.018/-0.007	5	5	0.8
EFRT100	185	0.022/-0.007	7	7	0.8
EFRT120	210	0.022/-0.007	7	7	0.8
EFRT150	240	0.022/-0.007	7	7	0.8
EFRT180	280	0.025/-0.007	8	8	0.8
EFRT200	300	0.025/-0.007	8	8	0.8
EFRT260	385	0.029/-0.007	9	9	0.8
EFRT325	450	0.033/-0.007	10	10	0.8
EFRT395	525	0.034/-0.010	11	11	1.6
EFRT460	600	0.034/-0.010	11	11	1.6
EFRT580	750	0.038/-0.012	12	12	1.6
EFRT650	870	0.044/-0.012	14	14	1.6
EFRT850	1095	0.052/-0.014	16	16	1.6
EFRT950	1200	0.052/-0.014	16	16	1.6
EFRT1030	1300	0.060/-0.016	18	18	1.6
EFRT1200	1490	0.068/-0.020	20	20	1.6

Installation (typical installation structure)

H1, H2 strict tolerance standards

As shown in the figure below, the worm gear and worm are transmitted and the worm gear with the bearing are directly connected. At this time, in order to ensure the alignment of the worm gear and the worm，and reduce the height (axial) adjustment, the tolerance of bearing H2 is suitable for strict tolerance standards; in addition, to ensure The height of the turntable is within a suitable tolerance range, and the tolerance of the bearing H1 is suitable for strict tolerance standards. If there are similar application requirements, strict tolerance standards can be required for H1 and H2.
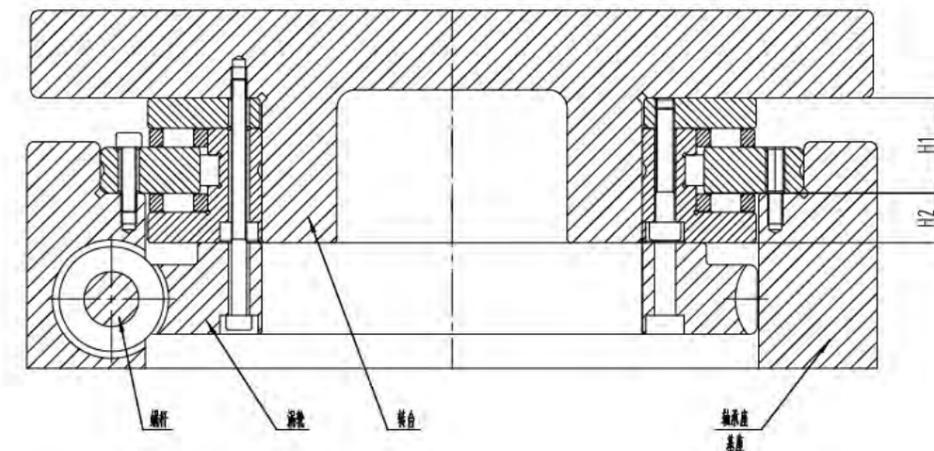
VSP structure with reinforcement ring

In applications where high rigidity of the rotary table is required (at this time, the effect of preload on the rigidity of the shaft system has reached its limit), a reinforcing ring can be installed on the end of the bearing inner ring, which can effectively reduce the deformation of the bearing and further improve the rigidity of the bearing.
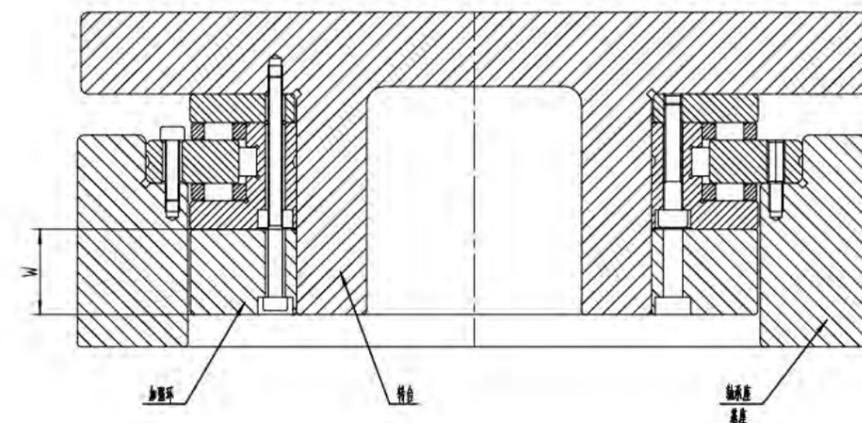
The thickness of the strengthening ring is W=(1.5~2)*C, the inner diameter of the strengthening ring and the bearing inner diameter have the same dimensional tolerance, and the matching relationship with the shaft is also the same.

Installation process

1. Prepare installation tools, including brush, cleaning cloth, cleaning fluid, vernier caliper, feeler gauge, heater or installation tool, torque wrench, magnetic gauge holder, dial indicator, etc.

2. Use brushes, cleaning cloths, and cleaning fluid to clean the installation parts and tools used.

3. Use heaters or installation tools to install the bearings on the shaft, and then install the bearings into the bearing housing. The installation sequence can also be determined according to the specific structural design.

4. It is strictly forbidden to force the rolling elements during the installation process, and it is strictly prohibited to knock the outer ring when installing the inner ring, and it is also strictly prohibited to knock the inner ring when installing the outer ring.

5. Use vernier calipers and feeler gauges to inspect the size of the installation and matching positions, focusing on ensuring the correct depth of the shaft shoulder.

6. The tightening method of the inner ring end screw and outer ring end screw: use a torque wrench to tighten the fixing screw three times, each time according to the screw standard torque of 40%, 70%, 100% and the "cross method" step by step tightening screw.

7. After the inner ring and the shaft are installed or the outer ring and the bearing seat are installed, check the installation accuracy with a magnetic meter seat and a dial indicator. Once a problem is found, it needs to be removed and reinstalled.

For the installation structure designed with lubricating oil holes, pay special attention to the corresponding installation of the lubricating oil hole positions.
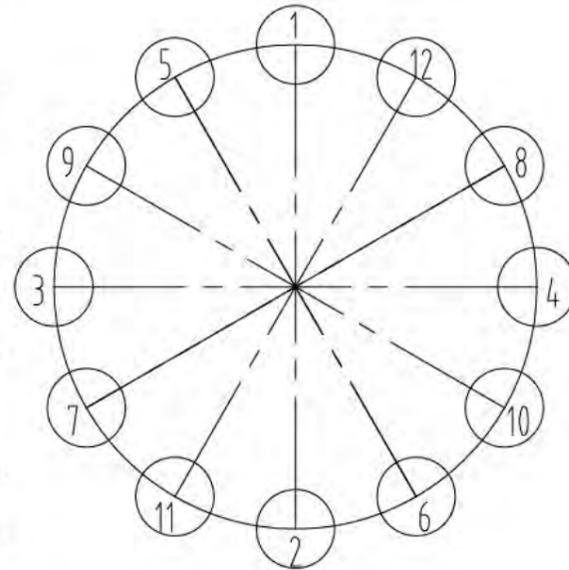
Lubrication

This series of bearings has been filled with grease when leaving the factory without special requirements; if the customer has special requirements for grease, please indicate in the working condition table; if the customer uses oil lubricating, please also indicate in the working condition, the bearing is not filled with grease when leaving the factory, and only a small amount of anti-rust oil is reserved.

The grease filled in the bearing has been run and used before leaving the factory. If the customer uses it after storage for a long time, please run and run for a period of time before use. Depending on the size of the bearing, we recommend running 20 to 50 laps.

Lubricating greases of different grades must not be mixed to prevent the reaction from causing grease failure. Please pay attention to this requirement.

After the bearing has been running for a long time, the grease will volatilize and part of the aging. In order to ensure that the bearing is in good lubrication protection, please replenish the same brand of grease in time; according to the actual application conditions, we recommend a replenishment cycle of six months to twelve months.
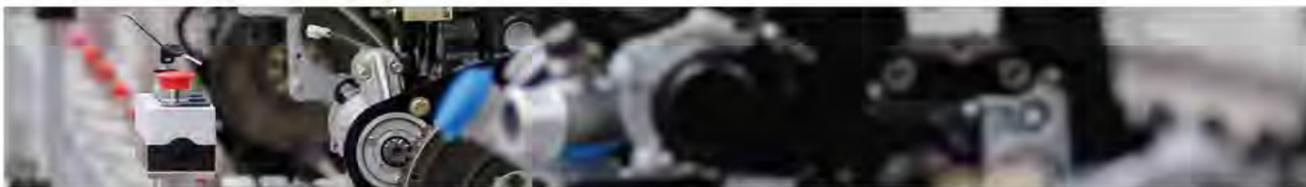
Size specification table

EFRT standard model
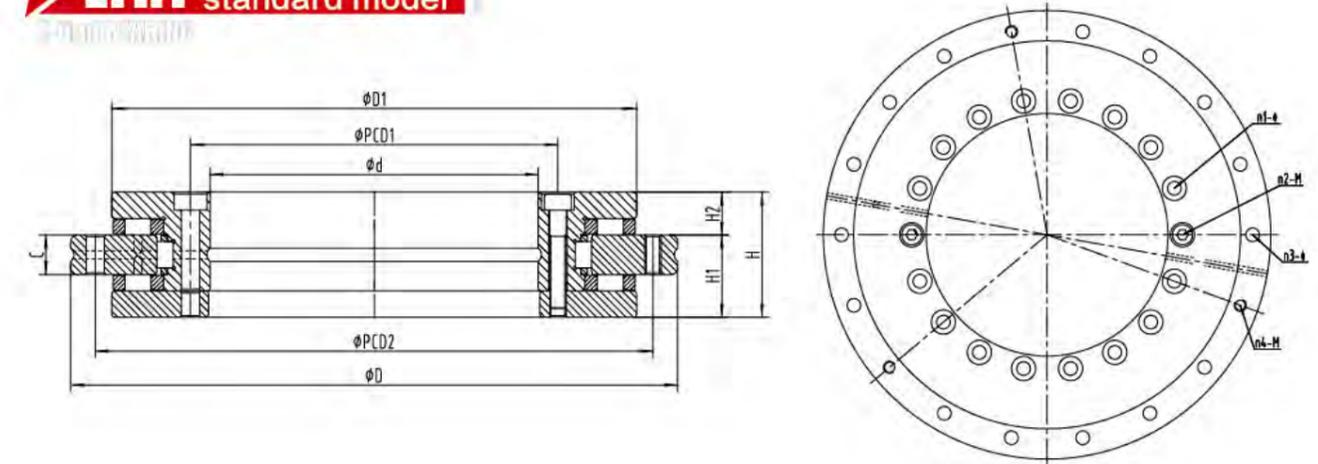
Model	ID	Tolerance	OD	Tolerance	Bearing height	Tolerance	Height 1	General tolerance	Tight tolerance	Height 2	Tight tolerance
	d (mm)	δd (mm)	D (mm)	δD (mm)	H (mm)	δH (mm)	H1 (mm)	δH1 (mm)	δH1 (mm)	H2 (mm)	δH2 (mm)
EFRT50	50	0/-0.008	126	0/-0.011	30	±0.250	20	±0.125	±0.025	10	±0.020
EFRT80	80	0/-0.009	146	0/-0.011	35	±0.300	23.35	±0.150	±0.025	11.65	±0.020
EFRT100	100	0/-0.010	185	0/-0.015	38	±0.350	25	±0.175	±0.025	13	±0.020
EFRT120	120	0/-0.010	210	0/-0.015	40	±0.350	26	±0.175	±0.025	14	±0.020
EFRT150	150	0/-0.013	240	0/-0.015	40	±0.350	26	±0.175	±0.030	14	±0.020
EFRT180	180	0/-0.013	280	0/-0.018	43	±0.350	29	±0.175	±0.030	14	±0.025
EFRT200	200	0/-0.015	300	0/-0.018	45	±0.350	30	±0.175	±0.030	15	±0.025
EFRT260	260	0/-0.018	385	0/-0.020	55	±0.400	36.5	±0.200	±0.040	18.5	±0.025
EFRT325	325	0/-0.023	450	0/-0.023	60	±0.400	40	±0.200	±0.050	20	±0.025
EFRT395	395	0/-0.023	525	0/-0.028	65	±0.400	42.5	±0.200	±0.050	22.5	±0.025
EFRT460	460	0/-0.023	600	0/-0.028	70	±0.450	46	±0.225	±0.060	24	±0.030
EFRT580	580	0/-0.025	750	0/-0.035	90	±0.500	60	±0.250	±0.075	30	±0.030
EFRT650	650	0/-0.038	870	0/-0.050	122	±0.500	78	±0.250	±0.100	44	±0.030
EFRT850	850	0/-0.050	1095	0/-0.063	124	±0.600	80.5	±0.300	±0.120	43.5	±0.030
EFRT950	950	0/-0.050	1200	0/-0.063	132	±0.600	86	±0.300	±0.120	46	±0.030
EFRT1030	1030	0/-0.063	1300	0/-0.080	145	±0.600	92.5	±0.300	±0.150	52.5	±0.030
EFRT1200	1200	0/-0.075	1490	0/-0.085	164	±0.600	108	±0.300	±0.150	52.5	±0.050

Model	Outer diameter of inner ring	Height of outer ring	Shoulder of inne ring	Shoulder of outer ring	Mounting holes of inner ring		Connection screw	Positional relationship	Mounting holes of outer ring		Lifting hole	Positional relationship
	D1 (mm)	C (mm)	ds (mm)	Dh (mm)	PCD1 (mm)	n1-φ	n2-M	n1+n2	PCD2 (mm)	n3-φ	n4-M	n3+n4
EFRT50	105	10	103	107	63	10-φ5.6.φ9.5.4	2-M4	12*30°	116	12-φ5.6		12*30°
EFRT80	130	12	128	132	92	10-φ5.6.φ10.4	2-M4	12*30°	138	12-φ4.6		12*30°
EFRT100	160	12	158	162	112	16-φ5.6.φ10.5.4	2-M5	18*20°	170	15-φ5.6	3-M5	18*20°
EFRT120	184	12	182	186	135	22-φ7.φ11.6.2	2-M6	24*15°	195	21-φ7	3-M8	24*15°
EFRT150	214	12	212	216	165	34-φ7.φ11.6.2	2-M6	36*10°	225	33-φ7	3-M8	36*10°
EFRT180	244	15	242	246	194	46-φ7.φ11.6.2	2-M6	48*7.5°	260	45-φ7	3-M8	48*7.5°
EFRT200	274	15	272	276	215	46-φ7.φ11.6.2	2-M6	48*7.5°	285	45-φ7	3-M8	48*7.5°
EFRT260	345	18	343	347	280	34-φ9.3.φ15.8.2	2-M8	36*10°	365	33-φ9.3	3-M12	36*10°
EFRT325	415	20	413	417	342	34-φ9.3.φ15.8.2	2-M8	36*10°	430	33-φ9.3	3-M12	36*10°
EFRT395	486	20	484	488	415	46-φ9.3.φ15.8.2	2-M8	48*7.5°	505	45-φ9.3	3-M12	48*7.5°
EFRT460	560	22	558	562	482	46-φ10..φ15.8.2	2-M8	48*7.5°	580	45-φ9.3	3-M10	48*7.5°
EFRT580	700	30	698	702	610	46-φ11.4.φ18.11	2-M10	48*7.5°	720	42-φ11.4	6-M12	48*7.5°
EFRT650	800	34	798	802	680	46-φ14.φ20.13	2-M12	48*7.5°	830	42-φ14	6-M12	48*7.5°
EFRT850	1018	37	1016	1020	890	57-φ18.5.φ26.17	3-M16	60*6°	1055	54-φ18.5	6-M16	60*6°
EFRT950	1130	40	1128	1132	990	57-φ18.5.φ26.17	3-M16	60*6°	1160	54-φ18.5	6-M16	60*6°
EFRT1030	1215	40	1213	1217	1075	66-φ18.5.φ26.17	6-M16	72*5°	1255	66-φ18.5	6-M16	72*5°
EFRT1200	1410	52	1408	1412	1240	66-φ18.5.φ26.17	6-M16	72*5°	1445	66-φ18.5	6-M16	72*5°

Model	Fixing screw	Tightening torque	Axial loading		Radial loading		Friction torque	Limit speed	Runout P4	Runout P2	Weight
	M	M0 (Nm)	Coa (KN)	Ca (KN)	Cor (KN)	Cr (KN)	M (Nm)	nG (rpm)	Kia、Sia、Kea、Sea (mm)	Kia、Sia、Kea、Sea (mm)	m (Kg)
EFRT50	M4	8.5	280	56	49.5	28.5	2.5	440	0.002	0.001	1.6
EFRT80	M4	8.5	158	38	98	44	3	350	0.003	0.0015	2.4
EFRT100	M5	8.5	445	102	88	50	3	960	0.003	0.0015	3.65
EFRT120	M6	14	520	112	124	69	7	720	0.003	0.0015	4.61
EFRT150	M6	14	650	128	146	74	10	640	0.003	0.0015	5.4
EFRT180	M6	14	730	134	200	100	12	480	0.004	0.002	7.2
EFRT200	M6	14	850	147	275	123	14	360	0.004	0.002	9.2
EFRT260	M8	34	1090	168	355	140	20	240	0.006	0.003	17.8
EFRT325	M8	34	1900	248	530	183	40	160	0.006	0.003	24.7
EFRT395	M8	34	2190	265	640	200	55	160	0.006	0.003	32.5
EFRT460	M8	34	2550	290	880	265	70	120	0.006	0.003	45.2
EFRT580	M10	68	4450	580	730	235	140	65	0.010	0.005	89
EFRT650	M12	116	6800	960	1300	455	200	55	0.010	0.005	170
EFRT850	M16	284	8500	1020	1690	520	300	40	0.012	0.006	253
EFRT950	M16	284	11400	1290	2040	530	600	32	0.012	0.006	312
EFRT1030	M16	284	10300	1140	2050	580	800	32	0.012	0.006	375
EFRT1200	M16	284	12850	1435	2800	745	1000	20	0.015	0.008	450

ERTS High-speed model
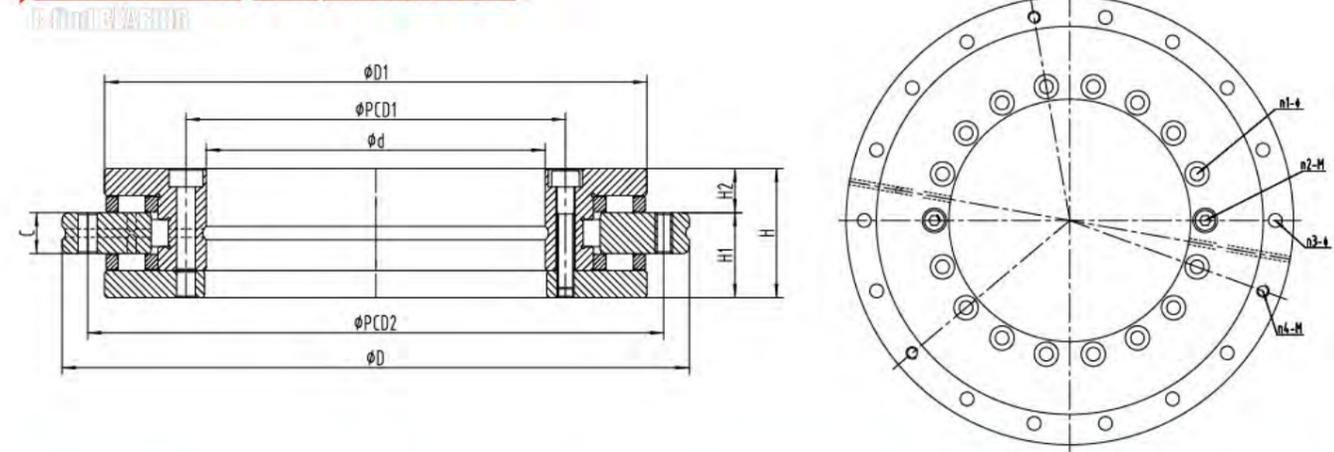
Model	ID	Tolerance	OD	Tolerance	Bearing height	Tolerance	Height 1	General tolerance	Tight tolerance	Height 2	Tight tolerance
	σ (mm)	δd (mm)	D (mm)	δD (mm)	H (mm)	δH (mm)	H1 (mm)	δH1 (mm)	δH1 (mm)	H2 (mm)	δH2 (mm)
ERTS200	200	0/-0.015	300	0/-0.018	45	±0.35	30	±0.175	±0.060	15	±0.175
ERTS260	260	0/-0.018	385	0/-0.020	55	±0.4	36.5	0.050/-0.070	±0.070	18.5	±0.025
ERTS325	325	0/-0.023	450	0/-0.023	60	±0.4	40	0.060/-0.070	±0.070	20	±0.025
ERTS395	395	0/-0.023	525	0/-0.028	65	±0.4	42.5	0.060/-0.070	±0.070	22.5	±0.025
ERTS460	460	0/-0.023	600	0/-0.028	70	±0.45	46	±0.225	±0.080	24	±0.030

Model	Outer diameter of inner ring	Height of outer ring	Shoulder of inne ring	Shoulder of outer ring	Mounting holes of inner ring		Connection screw	Positional relationship	Mounting holes of outer ring		Lifting hole	Positional relationship
	D1 (mm)	C (mm)	ds (mm)	Dh (mm)	PCD1 (mm)	n1-φ	n2-M	n1+n2	PCD2 (mm)	n3-φ	n4-M	n3+n4
ERTS200	274	15	272	276	215	46-φ7.φ11.6.2	2-M6	48*7.5°	285	45-φ7	3-M8	48*7.5°
ERTS260	345	18	343	347	280	34-φ9.3.φ15.8.2	2-M8	36*10°	365	33-φ9.3	3-M12	36*10°
ERTS325	415	20	413	417	342	34-φ9.3.φ15.8.2	2-M8	36*10°	430	33-φ9.3	3-M12	36*10°
ERTS395	486	20	484	488	415	46-φ9.3.φ15.8.2	2-M8	48*7.5°	505	45-φ9.3	3-M12	48*7.5°
ERTS460	560	22	558	562	482	46-φ10.φ15.8.2	2-M8	48*7.5°	580	45-φ10	3-M10	48*7.5°

Model	Fixing screw	Tightening torque	Axial loading		Radial loading		Friction torque	Limit speed	Runout P4	Runout P2	Weight
	M	M0 (Nm)	Coa (KN)	Ca (KN)	Cor (KN)	Cr (KN)	M (Nm)	nG (rpm)	Kia、Sia Kea、Sea (μm)	Kia、Sia Kea、Sea (μm)	m (Kg)
ERTS200	M6	14	840	155	226	94	5	1150	0.004	0.002	9.7
ERTS260	M8	34	1050	173	305	110	8	900	0.006	0.003	18.3
ERTS325	M8	34	1260	191	320	109	12	750	0.006	0.003	25
ERTS395	M8	34	1540	214	390	121	18	650	0.006	0.003	33
ERTS460	M8	34	1690	221	570	168	24	550	0.006	0.003	45

EKLDF 高速型号

细軸承装系规化和定位直径
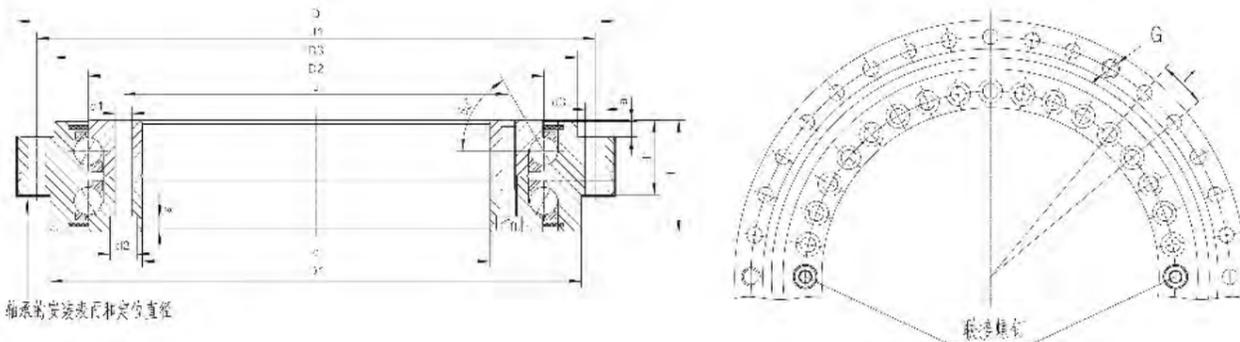
Model	Dimensions										Fixing Hole				
	d (mm)	D (mm)	H (mm)	H1 (mm)	D1 (mm)	D2 (mm)	D3 (mm)	J (mm)	J1 (mm)	a (mm)	Inner ring			Outer ring	
											d1(mm)	d2(mm)	QTY 3)	d3(mm)	QTY 3)
EKLDF100	100	185	38	25	160	136	158	112	170	5.4	5.6	10	16	5.6	15
EKLDF120	120	210	40	26	184	159	181	135	195	6.2	7	11	22	7	21
EKLDF150	150	240	40	26	214	188	211	165	225	6.2	7	11	34	7	33
EKLDF180	180	280	43	29	244	221	241	194	260	6.2	7	11	46	7	45
EKLDF200	200	300	45	30	274	243	271	215	285	6.2	7	11	46	7	45
EKLDF260	260	385	55	36.5	345	313	348	280	365	8.2	9.3	15	34	9.3	33
EKLDF325	325	450	60	40	415	380	413	342	430	8.2	9.3	15	34	9.3	33
EKLDF395	395	525	65	42.5	486	450	488	415	505	8.2	9.3	15	46	9.3	45
EKLDF460	460	600	70	46	560	520	563	482	580	8.2	9.3	15	46	9.3	45
EKLDF580	580	750	90	60	702	656	700	610	720	11	11.4	18	45	11.4	42
EKLDF650	650	870	122	78	800	739	802	680	830	13	14	20	45	14	42

Model	Joint screw QTY	Lifting hole		Pitch1) t	Screw tightening torque	Basic load rating		Limiting speed4)	Bearing friction torque	Weright
		G	Qty	Qty*t	MA2) Nm	Axial		Grease (r/min)	Nm	≈Kg
						Dynamic (Ca)	Static (Coa)			
EKLDF100	2	M5	3	18*20°	8.5	67	251	2800	1.6	4.5
EKLDF120	2	M8	3	24*15°	14	72	315	2400	2	6
EKLDF150	2	M8	3	36*10°	14	76	365	2000	3	7.5
EKLDF180	2	M8	3	48*7.5°	14	85	440	1700	3	8
EKLDF200	2	M8	3	48*7.5°	14	112	550	1600	4.5	11
EKLDF260	2	M12	3	36*10°	34	155	920	1200	7.5	22
EKLDF325	2	M12	3	36*10°	34	165	110	1000	11	28
EKLDF395	2	M12	3	48*7.5°	34	214	1470	800	16	39
EKLDF460	2	M12	3	48*7.5°	34	255	1860	700	21	50
EKLDF580	3	M12	6	48*7.5°	68	395	3180	500	40	82
EKLDF650	3	M12	6	48*7.5°	116	388	2350	440	63	168

Harmonic Reducer Bearing

Harmonic reducer is mainly composed of harmonic generator, flexible wheel, rigid wheel three basic components, in addition to rigid bearing (cross roller bearing) and flexible bearing (thin wall deep groove ball bearing).

The inner hole of the flexible bearing is matched with the elliptical cam outer ring. The outer ring is elastically deformed by the ball to match the inner diameter of the opening of the flexspline. The gear on the outer periphery of the opening of the flexspline meshes with the teeth of the rigid gear. The number of teeth of the rigid wheel is more than that of the flexible wheel. The flexible wheel and the rigid wheel are meshed on the long axis and separated on the short axis. The bottom of the flexible wheel is fixed at the output end, and the rigid bearing is installed at the output end of the reducer to connect with the outside.

Harmonic reducer is usually used in robotics, machine tools, aerospace and other industries. Accuracy, rigidity and bearing capacity and other requirements are very high. So the processing accuracy and installation accuracy of each part of the harmonic reducer are very high, the same requirements for bearings are also very high.

The most important things for a rigid bearing are its rigidity, reliability and precision of rotation.Before the rigid bearing delivering to customer, the bearing will be adjusted to a certain preload to ensure that the bearing is sufficiently rigid;The most important thing for flexible bearings is the maximum radial deformation of the bearing.

Type of Harmonic Reducer Bearing Structure

The harmonic reducer bearing includes rigid bearing and flexible bearing.Rigid bearing includes four series: CSG (CSF) series, CSD series, SHG(SHF) series, SHD series. Naming with reducer models;The flexible bearing is named HYR.

Rigid Harmonic Reducer Bearing

The rigid harmonic reducer bearing is a cross cylindrical roller structure, which can be divided into two categories according to its application: separate outer ring, integrate inner ring and integrate both outer ring & inner ring. The rollings are cylindrical rollers, arranged vertically in the V-shaped raceway at 90° from each other. The bearings of this structure can bear axial load, radial load and overturning moment at the same time in all directions and have high precision, high rigidity and composite loading capacity characters.

CSG(CSF)
Separate Outer Ring, Integrate Inner Ring

The outer ring is divided into two pieces, and the inner ring is a whole structure. Flange and bearing pedestal are not needed during installation. It is mainly used in output parts of various reducer of CSG and CSF series.
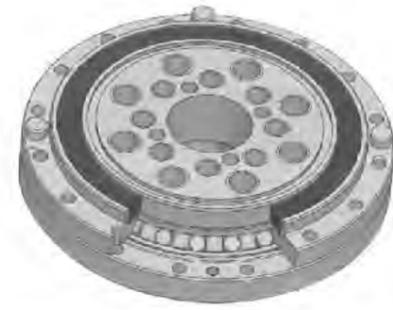
SHG(SHF)
Integrate Both Outer Ring & Inner Ring

The outer ring and inner ring are integral structure, which have almost no influence on the performance during installation, and can obtain stable rotation accuracy and torque, which are mainly used in the output parts of various reducer of SHG and SHF series.

CSG (CSF)

SHG (SHF)

Working Condition Requirement Sheet

I Contact Info.				
1.Name：	2.Position：	3.Tel.：	4.E-mail：	
5.Company：			6.Industry：	
II Application conditions				
1.Equipment type： ①Machining center ②grinding machine non-standard equipment ④testing equipment ⑤other equipment				
2.application site： ①NC rotary table ②Angular milling head ③Direct drive motor ④Others				
3.Precision and material of parts to be machined： ①Cast iron, semi-finishing ②Steel, precision processing ③Aluminum alloy, precision machining ④Handling,positioning				
4.Mode of power transmission： ①manual ②Motor direct drive ③Motor, worm gear drive ④Motor, gear reducer ⑤Motor, belt ⑥Hydraulic transmission ⑦Other				
5.Loading conditions： Fa= KN, Fr= KN, F1= KN, L1= mm。				

6.Bearing rotating speed and working hours： Limit speed= RPM, Working speed= RPM, Working hours： ①Intermittent ②continuous。

7.Working environment & temperature conditions： ①Indoor, 10℃--60℃ ②Outdoor, -20℃--50℃ ③Other
III **Primary selection of bearing model**
1.Dimension： ID mm, OD mm, H mm。
2.Precision： ①P5 ②P4 ③P2
IV **Special requirements**
Note: Above information will be protected by our company as confidential secret of both parties. Please rest assured when filling in the information.

Customized according to the size range of the sample book, such as internal teeth, external teeth, additional flanges, surface heat treatment, and bearing housings and shafts that match the bearings can be customized and processed, and the drawings agreed and confirmed by both parties shall prevail.

Customization process:

1. The customer informs the working condition or the sample drawing   2. Technical personnel of both parties communicate technical details   3. We will issue confirmation drawings for customers to confirm   4. Both parties confirm the drawings and sign a technical agreement (the technical agreement and the contract have the same legal effect)

Model comparison table

EFANT	THK	IKO	EFANT	THK	IKO
ERBC	RB	CRB	ERBC	RB	CRB
ERBC2008	RB2008	CRBC208	ERBC30025	RB30025	CRBC30025
ERBC2508	RB2508	CRBC258	ERBC30035	RB30035	CRBC30035
ERBC3010	RB3010	CRBC3010	ERBC30040	RB30040	CRBC30040
ERBC3510	RB3510	CRBC3510	ERBC35020	RB35020	CRBC35020
ERBC4010	RB4010	CRBC4010	ERBC40035	RB40035	CRBC40035
ERBC4510	RB4510	CRBC4510	ERBC40040	RB40040	CRBC40040
ERBC5013	RB5013	CRBC5013	ERBC45025	RB45025	CRBC45025
ERBC6013	RB6013	CRBC6013	ERBC50025	RB50025	CRBC50025
ERBC7013	RB7013	CRBC7013	ERBC50040	RB50040	CRBC50040
ERBC8016	RB8016	CRBC8016	ERBC50050	RB50050	CRBC50050
ERBC9016	RB9016	CRBC9016	ERBC60040	RB60040	CRBC60040
ERBC10016	RB10016	CRBC10016	ERBC70045	RB70045	CRBC70045
ERBC10020	RB10020	CRBC10020	ERBC80070	RB80070	CRBC80070
ERBC11012	RB11012	CRBC11012	ERBC90070	RB90070	
ERBC11015	RB11015	CRBC11015	ERBC1000110	RB1000110	
ERBC11020	RB11020	CRBC11020	ERBC1250110	RB1250110	
ERBC12016	RB12016	CRBC12016			
ERBC12025	RB12025	CRBC12025			
ERBC13015	RB13015	CRBC13015	EFANT	THK	IKO
ERBC13025	RB13025	CRBC13025	ERBS	RA	CRBS
ERBC14016	RB14016	CRBC14016	ERBS5008	RA5008	CRBS508A
ERBC14025	RB14025	CRBC14025	ERBS6008	RA6008	CRBS608A
ERBC15013	RB15013	CRBC15013	ERBS7008	RA7008	CRBS708A
ERBC15025	RB15025	CRBC15025	ERBS8008	RA8008	CRBS808A
ERBC15030	RB15030	CRBC15030	ERBS9008	RA9008	CRBS908A
ERBC16025	RB16025	CRBC16025	ERBS10008	RA10008	CRBS1008A
ERBC17020	RB17020	CRBC17020	ERBS11008	RA11008	CRBS1108A
ERBC18025	RB18025	CRBC18025	ERBS12008	RA12008	CRBS1208A
ERBC19025	RB19025	CRBC19025	ERBS13008	RA13008	CRBS1308A
ERBC20025	RB20025	CRBC20025	ERBS14008	RA14008	CRBS1408A
ERBC20030	RB20030	CRBC20030	ERBS15008	RA15008	CRBS1508A
ERBC20035	RB20035	CRBC20035	ERBS16013	RA16013	CRBS16013A
ERBC22025	RB22025	CRBC22025	ERBS17013	RA17013	CRBS17013A
ERBC24025	RB24025	CRBC24025	ERBS18013	RA18013	CRBS18013A
ERBC25025	RB25025	CRBC25025	ERBS19013	RA19013	CRBS19013A
ERBC25030	RB25030	CRBC25030	ERBS20013	RA20013	CRBS20013A
ERBC25040	RB25040	CRBC25040			

EFANT	IKO
ERBH	CRBH
ERBH2008	CRBHV208A
ERBH2508	CRBHV258A
ERBH3010	CRBHV3010A
ERBH3510	CRBHV3510A
ERBH4010	CRBHV4010A
ERBH4510	CRBHV4510A
ERBH5013	CRBHV5013A
ERBH6013	CRBHV6013A
ERBH7013	CRBHV7013A
ERBH8016	CRBHV8016A
ERBH9016	CRBHV9016A
ERBH10020	CRBHV10020A
ERBH11020	CRBHV11020A
ERBH12025	CRBHV12025A
ERBH13025	CRBHV13025A
ERBH14025	CRBHV14025A
ERBH15025	CRBHV15025A
ERBH20025	CRBHV20025A
ERBH25025	CRBHV25025A

EFANT	THK	IKO
ERBF	RU	CRBF
ERBF1008	RU28	CRBFV1008AT
ERBF2012	RU42	CRBFV2012AT
ERBF3515	RU66	CRBFV3515AT
ERBF5515	RU85	CRBFV5515AT
ERBF8022(G)	RU124(G)	CRBFV8022A(AD)
ERBF8022X	RU124X	CRBFV8022AT
ERBF9025(G)	RU148(G)	CRBFV9025A(AD)
ERBF9025X	RU148X	CRBFV9025AT
ERBF11528(G)	RU178(G)	CRBFV11528A(AD)
ERBF11528X	RU178X	CRBFV11528AT
ERBF16035(G)	RU228(G)	
ERBF16035X	RU228X	
ERBF21040(G)	RU297(G)	
ERBF21040X	RU297X	
ERBF35045(G)	RU445(G)	
ERBF35045X	RU445X	

EFANT	THK
RW	RW
EDRX10020(G)	RW145
EDRX12030(G)	RW164
EDRX15030(G)	RW195
EDRX18040(G)	RW230
EDRX20040(G)	RW250
EDRX26050(G)	RW323
EDRX32550(G)	RW388
EDRX39550(G)	RW463
EDRX46050(G)	RW530
EDRX58060(G)	RW665
EDRX65060(G)	RW760

EFANT	INA
EFSX	SX
EFSX7010	SX011814
EFSX9013	SX011818
EFSX10013	SX011820
EFSX12016	SX011824
EFSX14018	SX011828
EFSX16020	SX011832
EFSX18022	SX011836
EFSX20024	SX011840
EFSX24028	SX011848
EFSX30038	SX011860
EFSX34038	SX011868
EFSX40046	SX011880
EFSX50056	SX0118/500

EFANT	INA
EFXU	XU
EFXU4022	XU050077
EFXU5726	XU060094
EFXU7616	XU060111
EFXU6930	XU080120
EFXU10222	XU080149
EFXU12535	XU120179
EFXU12535ZT	XU120179
EFXU14036	XU120222
EFXU19146	XU160260
EFXU19146ZT	XU160260ZT
EFXU21626	XU080264
EFXU33646	XU160405
EFXU33646ZT	XU160405ZT
EFXU38026	XU080430
EFXU38486	XU300515
EFXU38486ZT	XU300515ZT

EFANT	INA
EXSU	XSU
EXSU13025	XSU080168
EXSU15025	XSU080188
EXSU18025	XSU080218
EXSU22025	XSU080258
EXSU28025	XSU080318
EXSU36025	XSU080398
EXSU34456	XSU140414
EXSU47456	XSU140544
EXSU57456	XSU140644
EXSU67456	XSU140744
EXSU77456	XSU140844
EXSU87456	XSU140944
EXSU102456	XSU141094

EFANT	INA
EFRT	YRT
EFRT50	YRTC50
EFRT80	YRTC80
EFRT100	YRTC100
EFRT120	YRTC120
EFRT150	YRTC150
EFRT180	YRTC180
EFRT200	YRTC200
EFRT260	YRTC260
EFRT325	YRTC325
EFRT395	YRTC395
EFRT460	YRTC460
EFRT580	YRTC580
EFRT650	YRTC650
EFRT850	YRTC850
EFRT950	YRTC950
EFRT1030	YRTC1030
EFRT1200	YRTC1200

EFANT	INA
ERTS	YRTS
ERTS200	YRTS200
ERTS260	YRTS260
ERTS325	YRTS325
ERTS395	YRTS395
ERTS460	YRTS460

EFANT	INA
EKLDF100	ZKLDF100
EKLDF120	ZKLDF120
EKLDF150	ZKLDF150
EKLDF180	ZKLDF180
EKLDF200	ZKLDF200
EKLDF260	ZKLDF260
EKLDF325	ZKLDF325
EKLDF395	ZKLDF395
EKLDF460	ZKLDF460
EKLDF580	ZKLDF580
EKLDF650	ZKLDF650