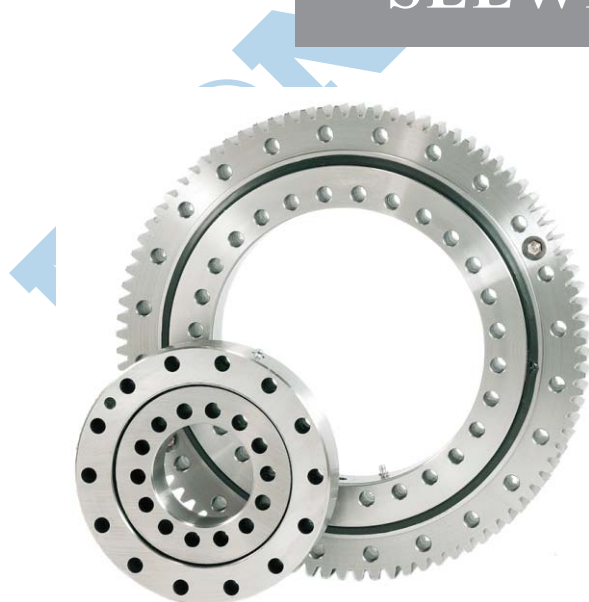


MONTON[®]

SLEWING BEARINGS



**LUOYANG MONTON BEARING
SCIENCE & TECHNOLOGY CO.,LTD.**
Luoyang • China

About us

Luoyang Monton Bearing Science & Technology Co., Ltd. is mainly engaged in the production of the angular contact ball bearing, precision cross roller bearing, the section ball bearing, cylindrical roller bearing, spherical roller bearing, thrust roller and ball bearings 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.

Bearing Quality

Depending on the complete testing technology and advanced equipment, Monton can guarantee the quality and precision of the products. Our technical department can efficiently complete the design of quality bearing according to customers' demand. Customers requiring large bearings can also enjoy customized service and also requirements from demanding customers for non-standard products can also be met here. Our quality system routinely monitors the various production facilities and compliance with the stringent quality demands. All the material certificates and the certification reports are kept on file and are made available on request. So we have confidence that we can give the best solution to our customers all over the world.

Service

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.

Main Market

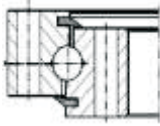
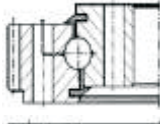
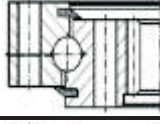
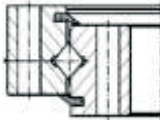
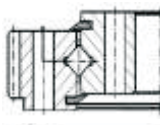
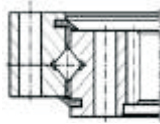
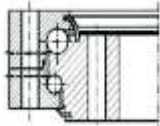
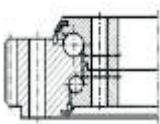
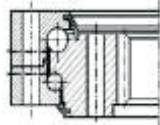
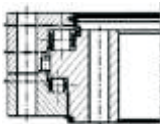
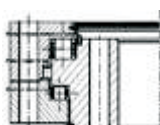
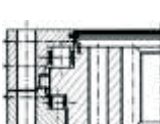
Most of our export market is based on Germany, Italy, Spain, UK, Japan and the USA. We are innovative and have the drive and courage to give the necessary solutions to our customers and our management and staff are ready to provide the professional and individual service to our customers.

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.

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4. 4Product Catalogue Structural Parameter

	010 —Single Row Four-Point Contact Slewing Bearing Without Gear	-----76/78
	011 012 —Single Row Four-Point Contact Slewing Bearing With External Gear	-----80/82
	013 014 —Single Row Four-Point Contact Slewing Bearing With Internal Gear	-----86/90
	110 —Single Row Crossed Roller Series Without gear	-----92
	111 112 —Single Row Crossed Roller Series With External Gear	-----93
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	020 —Double-Row Ball Series Without Gear	-----97
	021 022 —Double-Row Ball Series With External Gear	-----98
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	130 —Tri-Row Roller Series Without Gear	-----102
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1. Product Application and Introduction



1.1 Product Application

1.2 Product Introduction

1.2.1 Basic Structure

1.2.2 Material

1.2.3 Rolling Element

1.2.4 Heat Treatment

1.2.5 Temperature, Speed, Environment, Impact, and Vibration

1.1 Product application

The slewing bearing is a basic mechanical component for engineering machinery, mining machinery, construction machinery and other machineries that require relative rotary motions of two parts. The slewing bearing serves to transmit movement, bears load, and connect. However, different from bearing applications, the slewing bearing is generally suitable for low speed and heavy load.

The slewing bearing has a wide range of applications including engineering machinery, e.g. truck crane, excavator, and tower crane; mining machinery, e.g. bucket wheel machine; metallurgical industry, e.g. clay gun, ladle turret, furnace cover slewing mechanism, etc. It is also used for port machinery, welding machinery, wind power generating equipment, medical equipment, e.g. CT machine, etc.

		
Tower crane	Truck crane	Excavator
		
Crawler crane	Concrete pump truck	Port crane
		
Manned elevator	Lorry-mounted crane	Trailer
		
Rotary conveying device	Robot	Solar power generator

Tower Crane



Demand characteristics: The slewing bearing for tower crane is generally required to have more flexible rotation without abnormal noise.

Commonly-used slewing bearing models for tower crane

Product model	Mainframe reference	Product model	Mainframe reference
012.30.1000	QTZ31.5		
011.40.1120	QTZ40		
011.40.1220	QTZ50		
011.45.1250	QTZ63		
011.45.1400	QTZ80		
012.45.1600	QTZ160		
011.50.1600	QTZ250		
011.50.1800	QTZ250		
011.50.2000	QTZ315		

If the above models can't meet your demand, please contact us. You also can further determine the load and working condition and collectively write down the same in the Slewing Bearing Type Selection Technical Parameter Table. Our design and development department will recommend the most suitable product.

Truck Crane



Demand characteristics: The slewing bearing for truck crane is generally required to have more flexible rotation, more stable, and smaller gap.

Commonly-used slewing bearing models for Truck crane

Product model	Mainframe reference	Product model	Mainframe reference
013.40.0900	8T	131.36.2600	500T
013.40.1000	12T		
013.40.1120	16T		
011.45.1250	20T		
013.45.1400	25T		
011.45.1435	30T		
013.45.1600	50T		
011.50.1800	70T		
021.35.1800	100T		
131.25.2000	150T		
131.25.2240	200T		
131.30.2240	300T		

If the above models can't meet your demand, please contact us. You also can further determine the load and working condition and collectively write down the same in the Slewing Bearing Type Selection Technical Parameter Table. Our design and development department will recommend the most suitable product.

Excavator



Demand characteristics: The slewing bearing for excavator is generally required to be impact to resistance, high intensity, sealability higher precision, more stable and without noise.

Commonly-used slewing bearing models for excavator

Product model	Mainframe reference	Product model	Mainframe reference
013.22.0730	6T		
013.25.0800	8T		
013.30.1000	13T		
013.32.1201	20T		
013.35.1250	23T		
013.35.1405	36T		

If the above models can't meet your demand, please contact us. You also can further determine the load and working condition and collectively write down the same in the Slewing Bearing Type Selection Technical Parameter Table. Our design and development department will recommend the most suitable product.

CrawlerCrane



Demand characteristics: The slewing bearing for crawler cranes is generally required for high bearing capacity.

Commonly-used slewing bearing models for excavator

Product model	Mainframe reference	Product model	Mainframe reference
013.60.1465	50T		
013.50.1600	70T		
012.50.1600	80T		
013.60.1600	80T		
013.60.1800	90T		
131.25.2000	100T		
131.45.2000	160T		
131.45.2240	220T		
131.45.2500	300T		

If the above models can't meet your demand, please contact us. You also can further determine the load and working condition and collectively write down the same in the Slewing Bearing Type Selection Technical Parameter Table. Our design and development department will recommend the most suitable product.

Concrete Pump Truck



Demand characteristics: The slewing bearing for concrete pump truck is generally required for high bearing capacity.

Commonly-used slewing bearing models for concrete pump truck

Product model	Mainframe reference	Product model	Mainframe reference
011.40.1064	37m		
011.35.1116	37m		
011.40.1124	40m		
011.50.1251	44m		
011.50.1390	45m		
071.35.1464	48m		
011.50.1595	52m		

If the above models can't meet your demand, please contact us. You also can further determine the load and working condition and collectively write down the same in the Slewing Bearing Type Selection Technical Parameter Table. Our design and development department will recommend the most suitable product.

Port Crane



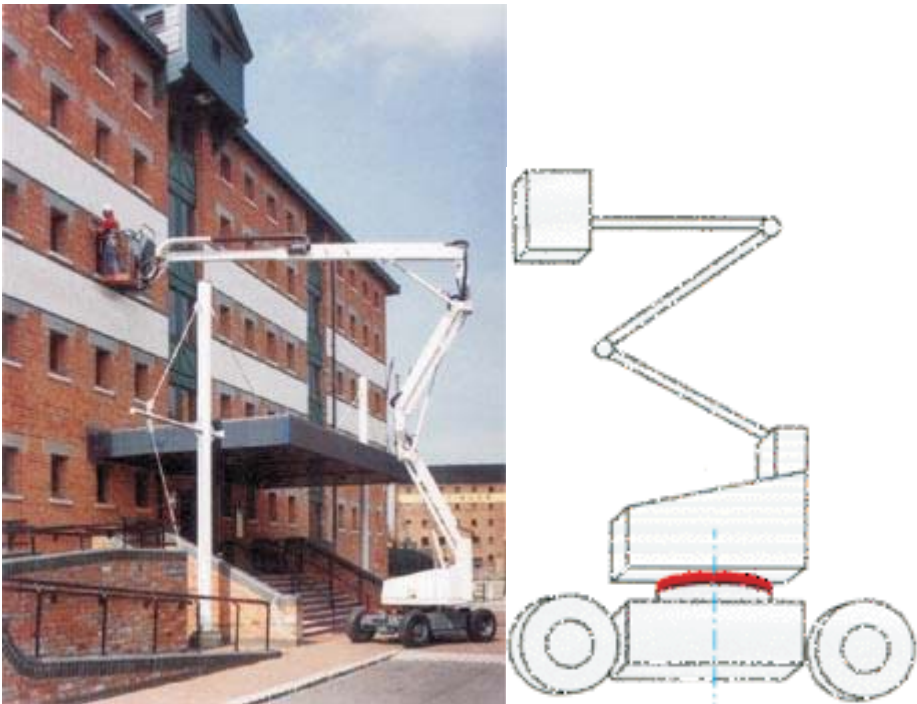
Demand characteristics: The slewing bearing for crawler crane is generally required for high load, heavy work, high fatigue strength

Commonly-used slewing bearing models for Port crane

Product model	Mainframe reference	Product model	Mainframe reference
010.30.0500			
010.30.0630			
010.30.0710			
071.25.1117			
132.45.2800			
132.50.3150			

If the above models can't meet your demand, please contact us. You also can further determine the load and working condition and collectively write down the same in the Slewing Bearing Type Selection Technical Parameter Table. Our design and development department will recommend the most suitable product.

Manned Elevator



Demand characteristics: The slewing bearing for manned elevator is generally required for flexible turn, stable, reliable, bearing less load.

Commonly-used slewing bearing models for manned elevator

Product model	Mainframe reference	Product model	Mainframe reference
011.25.0400			
011.20.0500			
011.30.0630			
012.30.0710			
011.40.0800			

If the above models can't meet your demand, please contact us. You also can further determine the load and working condition and collectively write down the same in the Slewing Bearing Type Selection Technical Parameter Table. Our design and development department will recommend the most suitable product.

Lorry -mounted Crane



Demand characteristics: The slewing bearing for Lorry-mounted crane is generally required for flexible turn, stable, reliable, bearing less load.

Commonly-used slewing bearing models for Lorry-mounted crane

Product model	Mainframe reference	Product model	Mainframe reference
011.20.0315	2T		
011.25.0337	4T		
012.28.0425	5T		
012.32.0500	6T		
011.32.0630	8T		
011.32.0710	10T		
013.40.0750	12T		
013.40.0800	14T		
013.40.0900	16T		
013.40.1000			

If the above models can't meet your demand, please contact us. You also can further determine the load and working condition and collectively write down the same in the Slewing Bearing Type Selection Technical Parameter Table. Our design and development department will recommend the most suitable product.

Trailer



Demand characteristics: The slewing bearing for trailer is generally required for flexible turn, less load bearing in light weight.

Commonly-used slewing bearing models for trailer

Product model	Mainframe reference	Product model	Mainframe reference
010.20.0544			
010.20.0644			
010.20.0744			
010.20.0844			
010.20.0944			
010.20.1094			

If the above models can't meet your demand, please contact us. You also can further determine the load and working condition and collectively write down the same in the Slewing Bearing Type Selection Technical Parameter Table. Our design and development department will recommend the most suitable product.

Rotary Conveying Device, Wrapping Machine, Filling Machine



Demand characteristics: The slewing bearing for Rotary conveying device, Wrapping machine, filling machine is generally required for high rotate speed, 24-hour continuous running, high gear precision, less load bearing.

Commonly-used slewing bearing models for Rotary conveying device, Wrapping machine, filling machine.

Product model	Mainframe reference	Product model	Mainframe reference
010.25.0355		013.40.1000	
010.20.0410		010.40.1120	
012.25.0560		013.45.1400	
010.30.0630			
012.25.0710			
010.20.0800			

If the above models can't meet your demand, please contact us. You also can further determine the load and working condition and collectively write down the same in the Slewing Bearing Type Selection Technical Parameter Table. Our design and development department will recommend the most suitable product.

Robot, Welding Machine



Demand characteristics: The slewing bearing for robot, welding machine is generally required for high rigidity, low but constant torque, high accuracy of gear.

Commonly-used slewing bearing models for robot, welding machine

Product model	Mainframe reference	Product model	Mainframe reference
011.25.0336			
011.30.0500			
011.30.0630			
013.30.0630			
010.30.0800			
011.35.1400			

If the above models can't meet your demand, please contact us. You also can further determine the load and working condition and collectively write down the same in the Slewing Bearing Type Selection Technical Parameter Table. Our design and development department will recommend the most suitable product.

Solar PowerGenerator



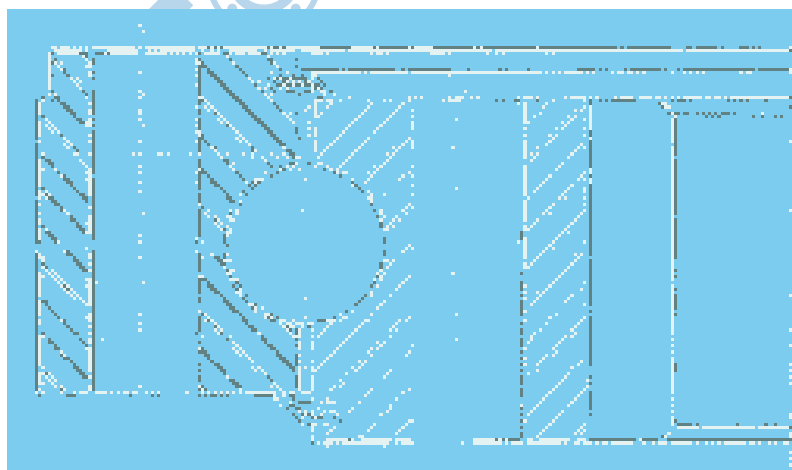
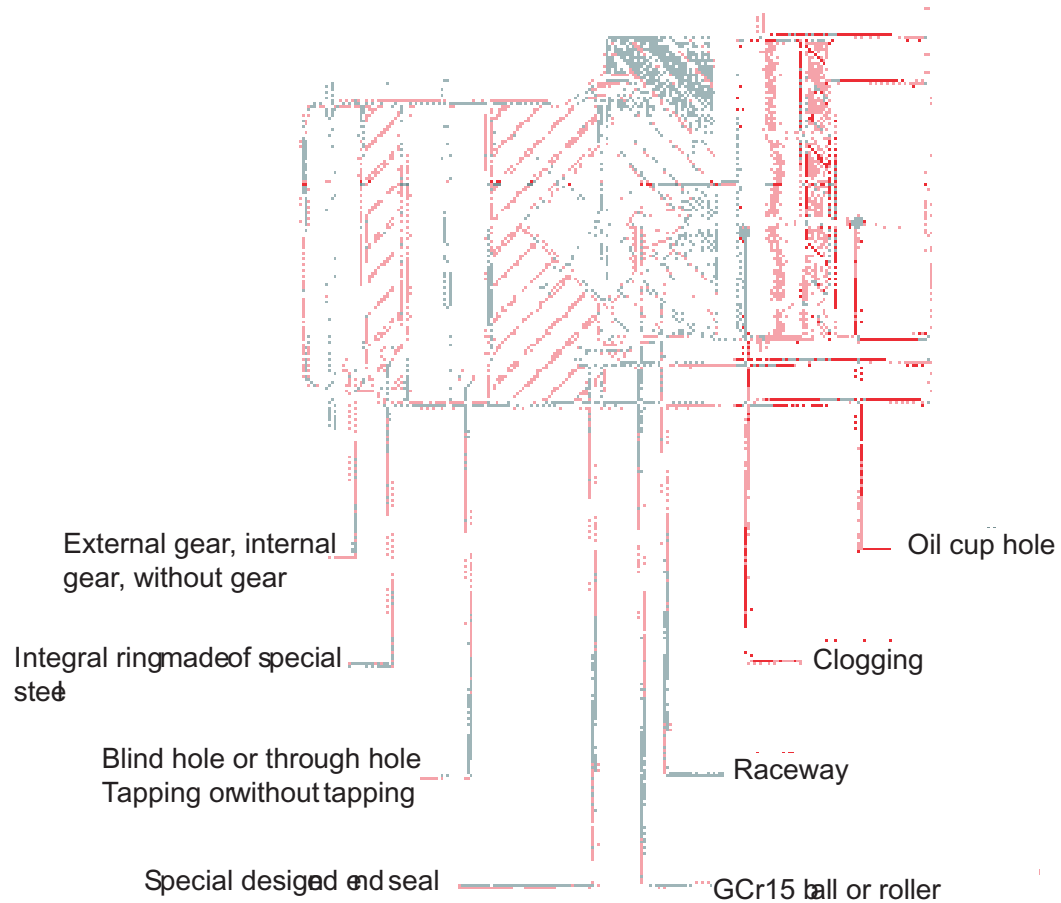
Demand characteristics: The slewing bearing for solar power generator is generally required for high flexibility, long working life.

Commonly-used slewing bearing models for solar .

Product model	Mainframe reference	Product model	Mainframe reference
015.22.0223			
015.22.0310			
015.22.0343			
015.22.0422			
015.28.0525			
015.25.0620			

If the above models can't meet your demand, please contact us. You also can further determine the load and working condition and collectively write down the same in the Slewing Bearing Type Selection Technical Parameter Table. Our design and development department will recommend the most suitable product.

1.2.1 Basic structure

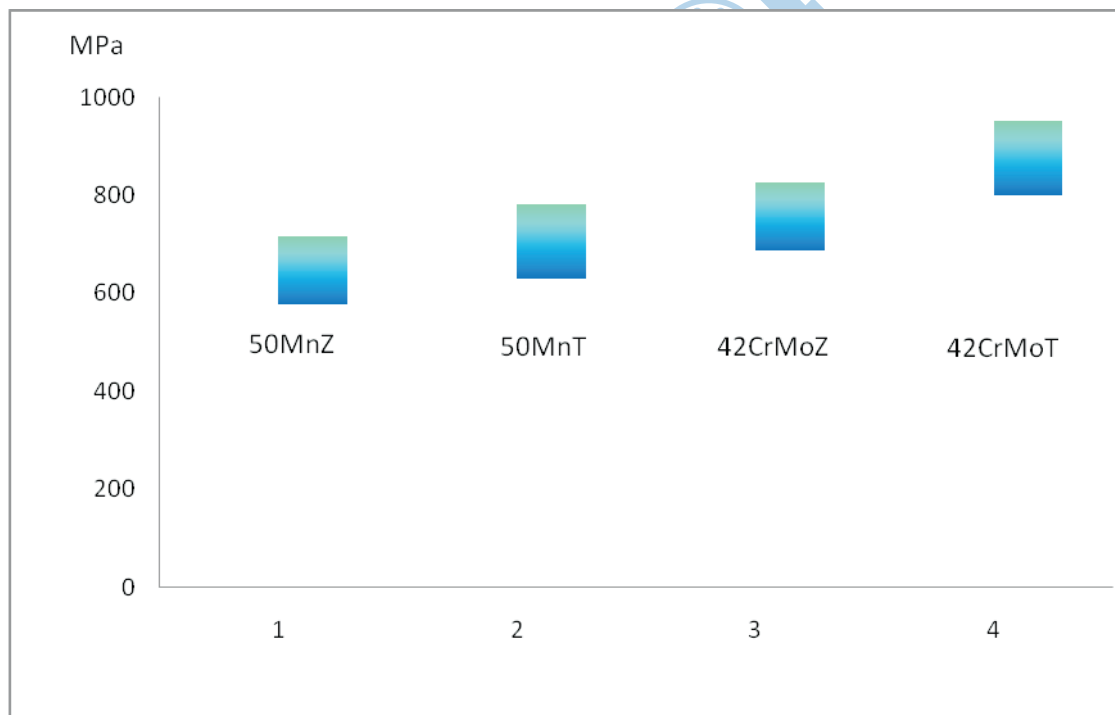


1.2.2 Material

The Company selects the most suitable materials to manufacture slewing bearings to adapt to foreseeable purposes. These materials are manufactured by a recognized steel plant. To ensure product quality, every step in the process is inspected. Tempering heat treatment is needed when the product is subject to high stress.

Customers can select materials from the following tables. Composition of two materials and two heat treatment states: 50MnZ, 50MnT, 42CrMoZ, 42CrMoT, with mechanical performance ranking from low to high. Customers can also specify other materials designations according to their needs.

Standard grade	As-normalized condition	As quenched condition
50Mn	Code Z	Code T
42CrMo	Code Z	Code T



1.2.2Material (continued)

The following table shows our standard steel material designations and equivalent steel material designations in other countries.

Country	Standard	50Mn code Z/T	42CrMo code Z/T
China	GB	50Mn	42CrMo
Germany	DIN	CK50	42CrMo4
G.B.	B.S.	030A52	708M40
America	AISI	1053	4140,4142
Italy	UNI		42CrMo4
Japan	JIS	S48C,SWRCH50K	SNB7
Spain	UNE		42CrMo4 (F8232)
Sweden	SSSTAHL		2244
Australia	ASA AS		AS 1444-4140
Intern.	ISO	C50E4	42CrMo4

Other materials

Special factors or functional requirements of certain applications will lead to the use of the following materials:

Stainless steel, aluminum based light alloy, quenched structural steel or alloy, titanium alloy, special steel quenched in protective atmosphere, low temperature special steel, cemented steel or nitride steel, and plastic composite material.

1.2.3 Rolling Element

The material designation of our rolling element (pin roller and steel ball) is Gr15. The table of comparison with designations in other countries is as follows:

Country	Standard	Rolling element material
China	GB	Gr15
Germany	DIN	100Cr6
America	AISI	E52100
Japan	JIS	SUJ2

The steel ball is generally as per the provisions of GB/T308 (ISO3290, NEQ) and its grade of tolerance is compliant with requirements of the following table:

Steel ball diameter	Dw/mm	Steel ball tolerance grade
≤ 30		G40
>30~50		G60
>50		G100

The pin roller (cylindrical roller) shall be as per provisions of GB/T4661 and its grade of tolerance shall be III.

Note: Any movement of dismantling any bearing or replacing any rolling element shall be absolutely prohibited, otherwise, we will cancel the warranty.

1.2.4 Heat Treatment

The slewing bearing transmits the load of a mechanism from the rotating part to the fixed part. The stress which the rolling element bears on the raceway is calculated according to the hertz law and the modern plasticity standard.

The Company conducts partial induction quenching to attain necessary rigidity and sufficient depth. These requirements can be met both in terms of surface pressure and internal surface fatigue.

According to our product specifications, systemic inspection is conducted during production so that we can ensure quality and workmanship reliability of our slewing bearings.

We select necessary treatment modes according to the calculation model and we also use other methods for partial hardening purpose, e.g. carburizing, nitriding, etc.



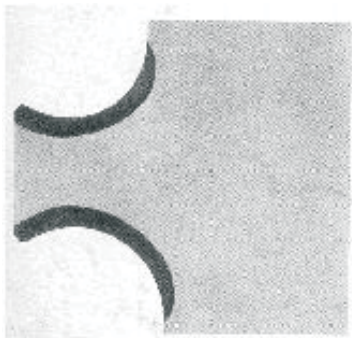
Sketch of raceway nest quenching



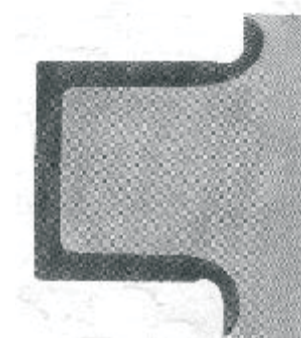
Raceway of single row four-point contacted ball bearing



Raceway of single row cross roller



Raceway of double row ball series

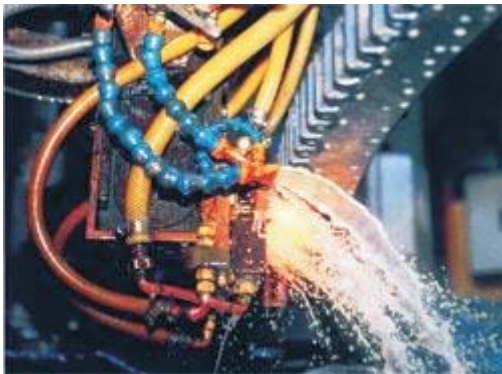


Raceway of three row roller series

1.2.4 Heat Treatment (Gear Quenching)

Due to the need of transmission force or torque, the slewing bearing generally has teeth on one of its rings. In different application occasions, the gear can go through full teeth quenching or single teeth induction quenching, which comes into teeth face & root quenching and teeth face quenching.

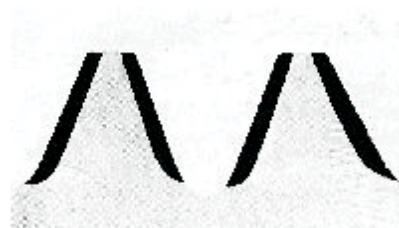
Raceway quenching heat shape diagram



Full teeth quenched



Teeth face & root quenched



Teeth face quenched

1.2.5 Temperature, Speed, Environment, Impact, Vibration

Temperature

The slewing bearing works normally under the temperature ranging between -25°C and $+75^{\circ}\text{C}$. Lower or higher temperature is allowed, but it's necessary to make a special design by our design and development department.

Environment

The following working environments are very corrosive: marine environment and environments with dust or abrasive materials (sand, coal dust, etc.)

In such environments, it's necessary to take special protective devices, e.g. seal ring, protective cover and oil pool. Preventive maintenance must be enhanced to ensure normal work.

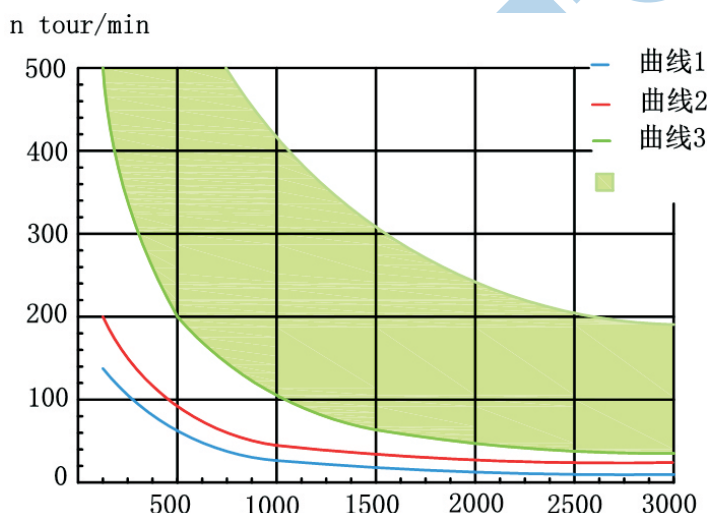
Impact and vibration

The user should make a clear description of the detailed use condition to the design and development department of the Company and consult with the latter in this regard.

Speed

The slewing bearing can make swinging or continuous rotation movements. It's necessary to check whether the circular raceway's peripheral speed is kept within the allowed capacity of the relevant bearing.

Revolving speed



Bearing type	Lubrication type	Limit speed (n.Dm)	
Cross roller raceway	Standard grease	24000 to 35000	Curve 1
Steel ball raceway	Standard grease	40000 to 65000	Curve 2
Steel ball type with retainer	Grease or oil	70000 to 130000	Curve 3

For example: 011.40.1000 slewing bearing, the center diameter D of its raceway is 1000mm, it uses standard grease, limit speed: $n.Dm=65000$, limit revolving speed: $n=65000/1000/3.14=20.7$ (tours/min). If the rotate speed is too high, the slewing bearing might have a shortened service life or be damaged. If you want a slewing bearing with higher rotate speed, please contact us. Our engineers and technicians will make a special design for you.

2 Slewing Bearing Selection

2.1 Slewing Bearing Load Computation (Static and Dynamic Loads)

——Bearing Capacity

2.2 Bolt Bearing Capacity Computation

——Fastening Capacity

2.3 Gear Selection

——Turning Capacity

2.4 Precision - Tolerance

2.5 Turning Moment

2.6 Seal Ring

2.7 Surface Protection

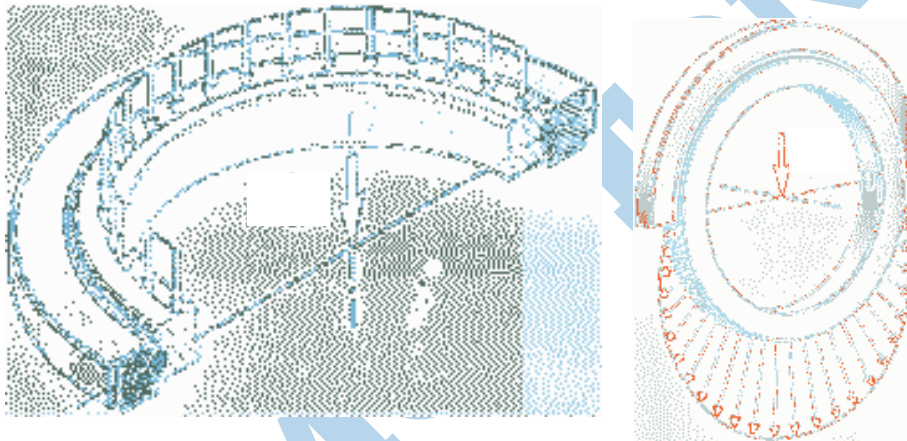
2.1 Slewing Bearing Load Computation (Static and Dynamic Loads)

2.1.1 Slewing bearing under load

As a connecting part between a moving part and a fixed base, the slewing bearing must be able to transmit the stress of the moving part to the base. To select a slewing bearing with sufficient capability, all stresses borne, including effects generated by weight, load and structure, should be determined precisely. The effect caused by static load and that caused by dynamic load must be differentiated from each other, because the latter constitute the “fatigue” stress. It’s necessary to accurately determine the direction of a force applied to the slewing bearing, because only by doing so, can we determine the effective overturning moment.

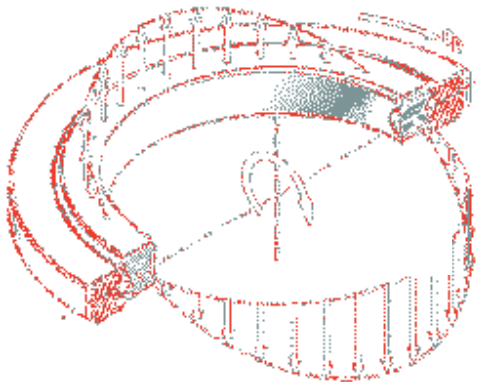
Slewing bearing under load:

- Axial loads: Their direction is parallel to the spindle of the slewing bearing. The resultant force of these axial loads is called F_a .
- Radial loads: Within the plane of the vertical spindle, the resultant force of these axial loads is called F_r .



- Overturning moment (bend)

Within the plane parallel to the spindle, the moment generated within the plane in which the spindle exists is called M .



- Turning moment

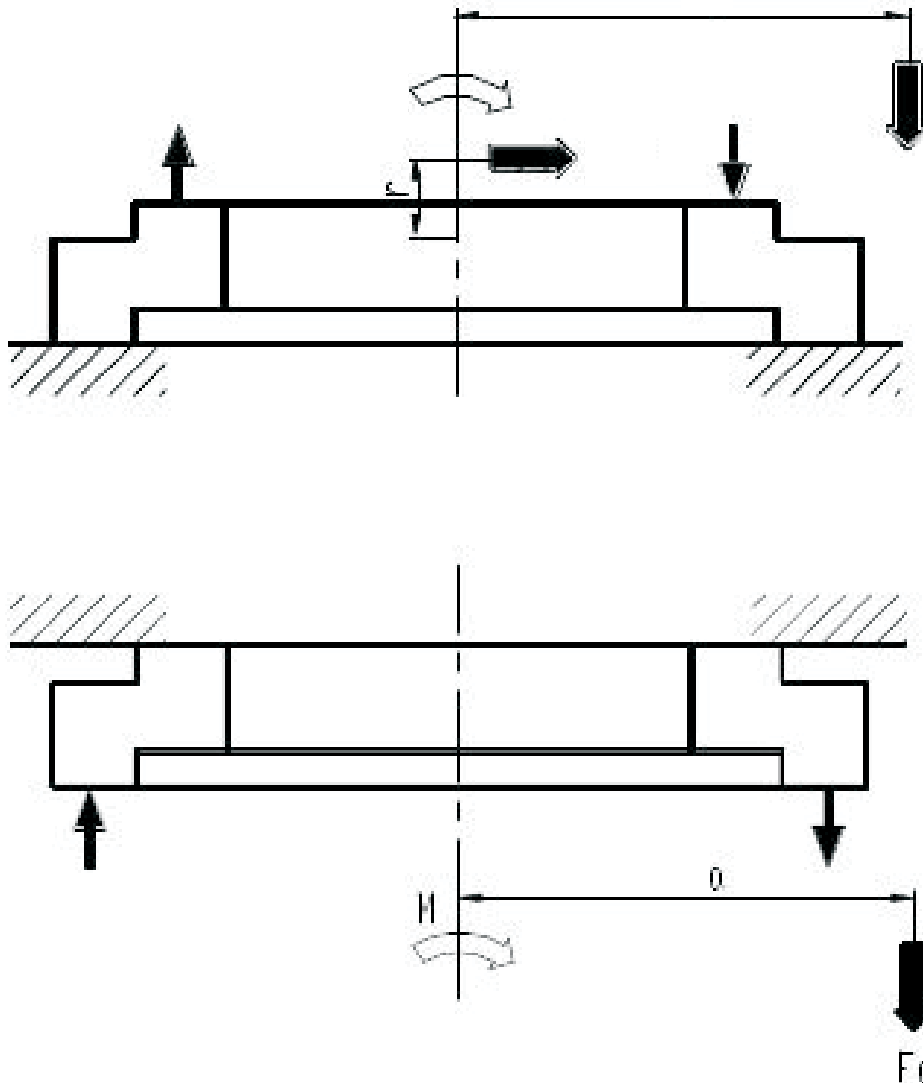
The moment which controls the rotation of the slewing bearing is called C_D .

2.1 Slewing Bearing Load Computation (Static and Dynamic Loads)

2.1.2 Load-bearing in different installation styles

When being used, the slewing bearing generally bears the combined action of axial force F_a , radial force F_r and overturning moment M . In different application occasions, as the main machine has different working modes and structures, the combined actions of the abovementioned loads are different. Sometimes, there is the combined action of two loads, and sometimes, there is the sole action of only one load.

Generally, the slewing bearing is installed in two ways as follows: seat type and suspension type. The following is a diagram showing the load carried by the bearing in two installation types:



2.1 Slewing Bearing Load Computation (Static and Dynamic Loads)

2.1.3 Technical parameters needed for slewing bearing type selection

The following parameters are needed for slewing bearing type selection calculation:

Load carried by the slewing bearing

Percentage of each load and that of its operating time

Revolving speed or number of revolutions of the slewing bearing under the action of each load

Peripheral force applied on gear

Installation dimensions of the slewing bearing

Other operating conditions: environment, working temperature, vibration, impact load, storage temperature, etc.

The main machine plant can make a preliminary selection of slewing bearings as per the slewing bearing type selection calculation method based on the information provided by the product samples by using the static bearing capacity curve chart (see section 2.1.6 for detail) and confirm the selection together with the design and development department of the Company. It may also provide us with relevant slewing bearing information for us to conduct design and type selection.

If design and type selection is conducted by us, please fill out the Slewing Bearing Type Selection Technical Parameter Table (including Appendix A and Appendix B in the parameter table, see section 5.2 of this sample), so that we can submit an accurate, economical and practical slewing bearing type selection proposal to you as soon as possible.

2.1 Slewing Bearing Load Computation (Static and Dynamic Loads)

2.1.4 Slewing bearing load correction

Load transmitted from one raceway to another one varies with the nature of the load carried. To calculate the dimensions of the raceway, we define that the load equals to all external acting forces within the maximum stress area. According to the situation of application and use, the following factors are adopted to correct these loads:

Static safety factor f_s

It is a factor taking into account application characteristics related to slewing bearing elements. This factor is acquired through our experience and it is set out in the "Application Factor" table.

In principle, the maximum load applied on the bearing must be regarded as the static computation value, where the load must include additional load and test load. For application occasions not listed in the table, selection may be made by referring to the similar working conditions and applications in the table.

Dynamic safety factor f_L

The dynamic safety factor must be used in combination with the dynamic curve bearing (which is not included in this sample). It is sourced from experience and test and is a reference value under maximum working load. If it's necessary to select a slewing bearing by service life, please contact with our design and development department.

2.1 Slewing Bearing Load Computat n (Static and Dynamic Loads)

2.1.4 Slewing bearing load correction

Safety factory table

Application occasions			fs	fL	Rated life (n)	Remarks		
Floating crane (cargo load) Truck crane (cargo load) Marine deck crane (grab bucket) Welding equipment Working table (continuous operation)			1.1	1	30,000	*Upper rotation tower crane Mf = Reverse overturning moment when idle M = Overturning moment in greatest range		
Tower crane	* Upper rotation	Mf ≤ 0.5M	1.25	1	30,000			
		0.5M ≤ Mf ≤ 0.8M		1.15	45,000			
		Mf ≤ 0.8M		1.25	60,000			
		Lower rotation		1	30,000			
Slewing crane (cargo load) Shipyard's crane Rotary crane trolley Marine unloading machine			1.15	1.15	45,000	**For application occasions where static safety factor fs is 1.45, because of high average load and onerous working condition, multirow raceway type slewing bearing should be selected first In these application occasions, the working condition changes greatly. For example, the slewing bearing which is used without frequent rotation only needs static check, while the slewing bearing which is used with continuous and intermittent rotations should go through dynamic service life computation.		
Metallurgical crane							1.5	100,000
Truck crane (grab bucket type or handling onerous tasks) Slewing crane (grab bucket or sucker) Rotary crane trolley (grab bucket or sucker) Bridge crane (grab bucket or sucker) Floating crane (grab bucket or sucker)							1.45**	1.7
Bucket wheel excavator Stacker-reclaimer Cantilever conveyor			2.15	300,000				
Offshore crane					As per special standard			
Railway crane Deck crane (cargo load)			1					
Stacker Delivery wagon			1.1					
Rope type excavator/dragline			1.25					
1.5m3 or less hydraulic excavator			1.45					
1.5m3 or greater hydraulic excavator			As per special s tandar d					
Ladle turret			1.75					

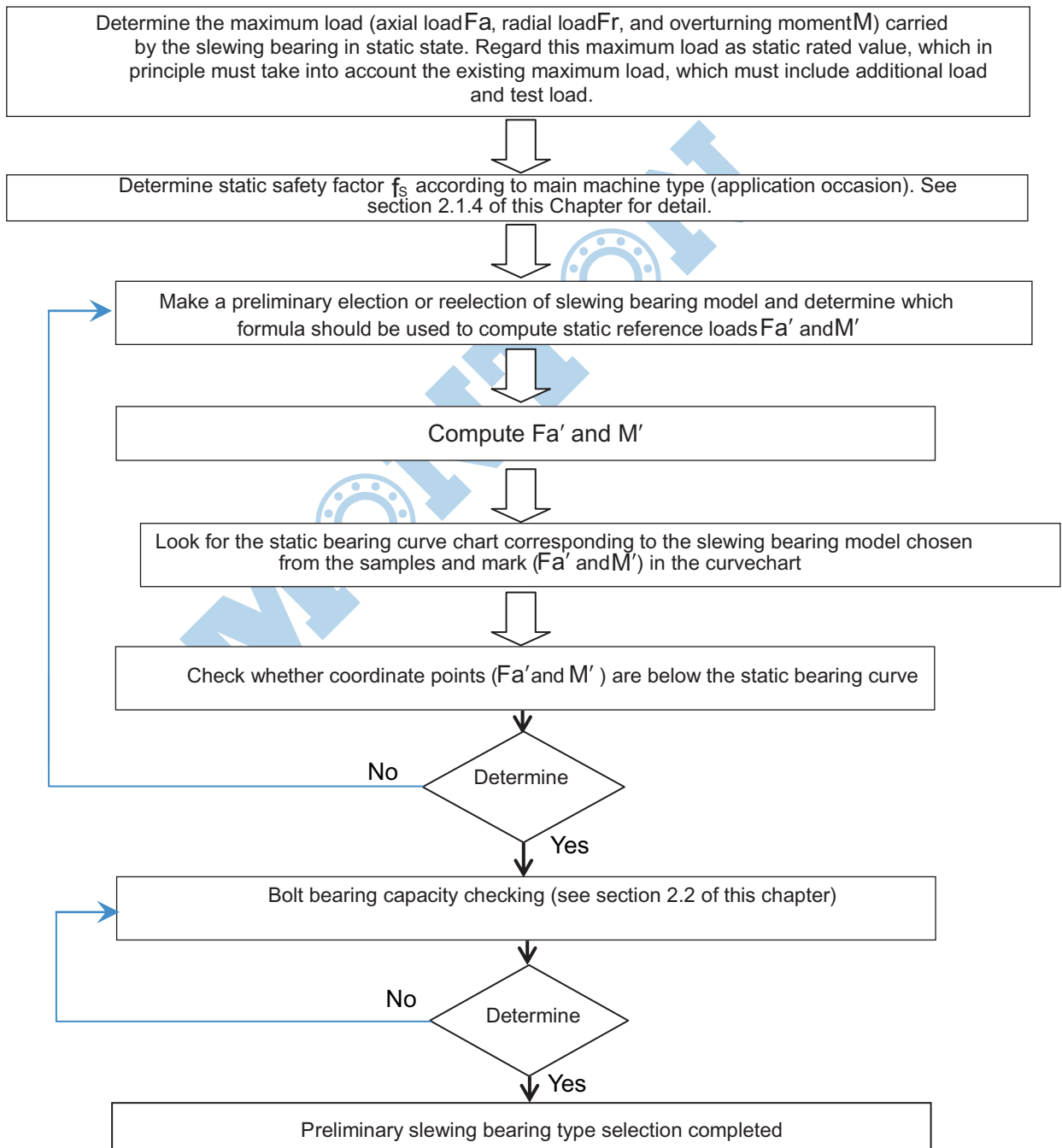
These factors are all got through a great deal of observations and statistics in applications of each model. The rated life conditions are as follows:

Working under normal climate condition Normal application (not special)

2.1 Slewing Bearing Load Computation (Static and Dynamic Loads)

2.1.5 Static type selection of slewing bearing preliminary static type selection computation process chart

You can make a preliminary selection of suitable slewing bearing product as per the following flow chart, where the key point is to get the static reference loads F_a' and M' to contrast the slewing bearing's bearing capacity curve chart provided by this sample.



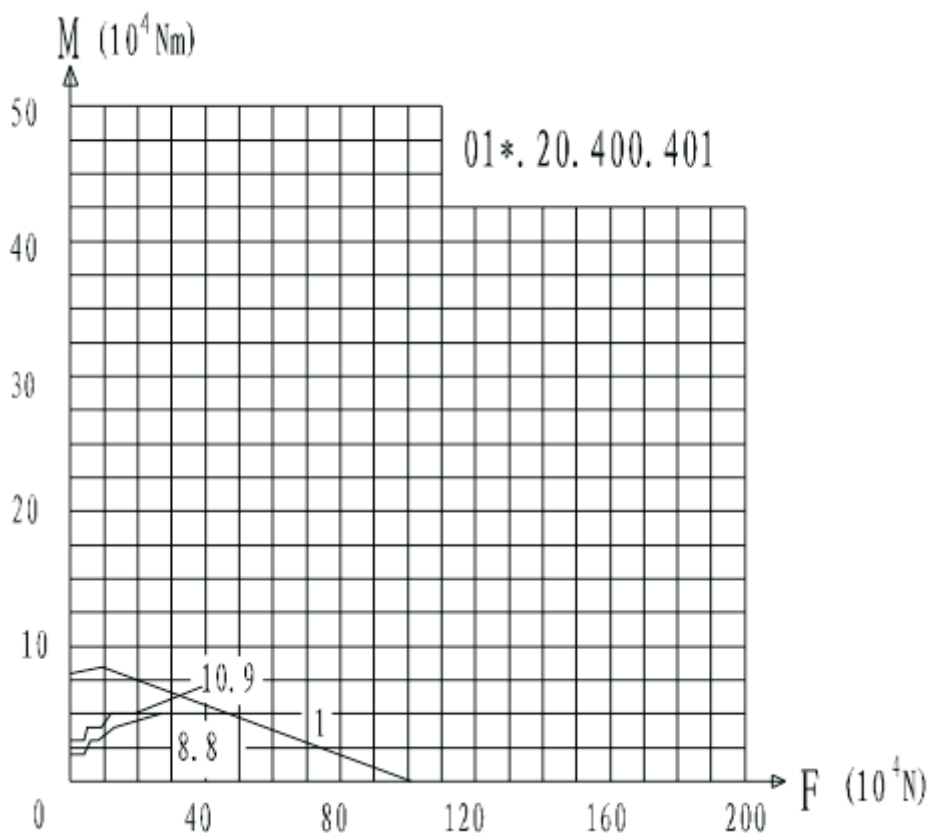
2.1 Slewing Bearing Load Computation

(Static and Dynamic Loads)

2.1.6 Static type selection of slewing bearing- slewing bearing's bearing capacity curve chart

To make type selection more convenient for customers, every slewing bearing model among the product samples corresponds to a bearing capacity curve, which helps the user to make a preliminary selection of slewing bearing.

There are two type curves in the curve chart, as shown in the following figure:



One is static bearing curve (line 1 in the chart), which means the maximum load borne by the slewing bearing in static state.

The other is slewing bearing bolt limit load curve (lines 8.8 and 10.9 in the chart), which is determined when the bolt's clamping length is five times of its nominal diameter and its pre-tightening force is 70% of bolt material's yield limit

You can judge whether a slewing bearing model meets the load requirement by checking whether the coordinate points F_a' and M' are below the static bearing curve by using the static reference loads F_a' and M' got through computation (see section 2.1.7 next page for computing method).

2.1 Slewing Bearing Load Computation (Static and Dynamic Loads)

2.1.7 Slewing bearing static type selection Computing method for static reference loads F_a' and M'

To make computation and chart checking more convenient, it's necessary to transform resultant force of radial load into radial load of equivalent value by the following formula. The computing method for static reference loads F_a' and M' is shown as follows:

- Single row four-point contact ball type

Type selection computation for single row four point contact ball type slewing bearing is conducted in two cases of bearing angle, i.e. 45° and 60°

I, $\alpha=45^\circ$ II, $\alpha=60^\circ$

$$F_a' = (1.225 \cdot F_a + 2.676 \cdot F_r) \cdot f_s \quad F_a' = (F_a + 5.046 \cdot F_r) \cdot f_s$$

$$M' = 1.225 \cdot M \cdot f_s$$

$$M' = M \cdot f_s$$

Then find out the above two points on the curve chart, where one of them may be below the curve, and the one below determines the pressure angle. We can see from the formula that the 45° pressure angle can bear greater axial pressure, but it bears less overturning moment than the 60° pressure angle.

- Single-row cross pin roller type

$$F_a' = (F_a + 2.05 \cdot F_r) \cdot f_s$$

$$M' = M \cdot f_s$$

- Double-row different diameter ball type

$$F_a' = F_a \cdot f_s$$

$$M' = M \cdot f_s$$

In case of type selection computation for double row different diameter ball slewing bearing, when $F_r \leq 10\% F_a$, F_r may be ignored; when $F_r > 10\% F_a$, change of pressure angle in raceway must be considered. Please contact with us for its computation.

- Three-row pin roller type

$$F_a' = F_a \cdot f_s$$

$$M' = M \cdot f_s$$

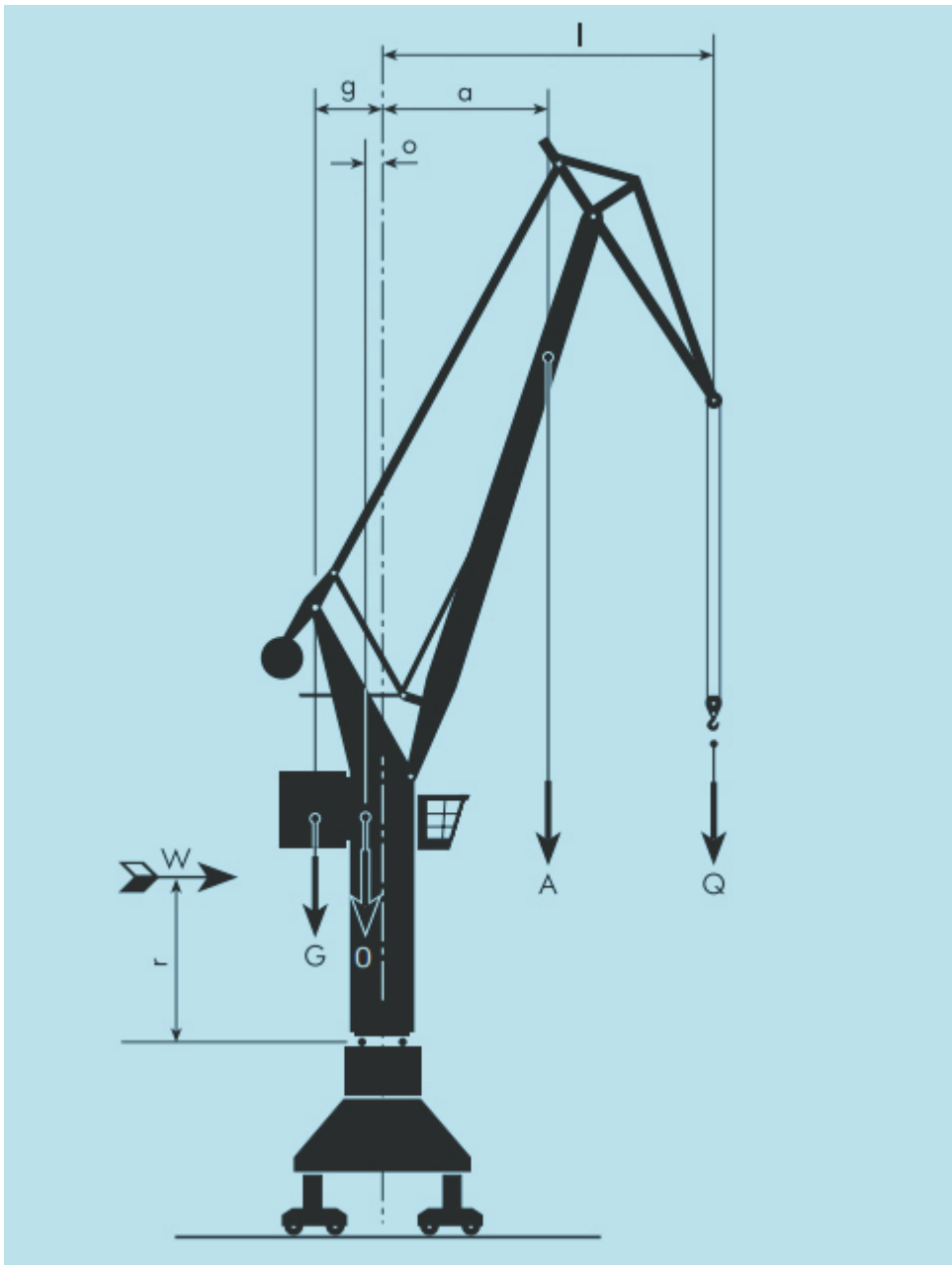
For type selection of three row pin roller slewing bearing, you only need to compute the function of radial raceway load and overturning moment.

Note: For the slewing bearing to be installed in suspension mode, the radial force should be multiplied by factor 1.2 when F_a' is computed.

2.1 Slewing Bearing Load Computation (Static and Dynamic Loads)

2.1.8 Static type selection computation examples —Gantry crane (grab bucket)

When bearing capacity curve is adopted for type selection purpose, the maximum load computing method is recommended as follows:



Gantry crane diagram

2.1.8 Static type selection computation examples —Gantry crane (grab bucket)

Before selecting the slewing bearing, the first to do is to determine the static safety factor f_s which should be considered for the main machine. This factor can be found in the safety factor table in section 2.1.4: Gantry crane (grab bucket): $f_s=1.45$. When the known maximum static load is at the maximum amplitude, the load is computed as follow:

1) Maximum working load with Grade VIII wind force

$$\text{Axial force: } F_a = Q + A + O + G$$

$$\text{Overturning moment: } M = Q \cdot l_{\max} + A \cdot a_{\max} + W \cdot r - O \cdot o - G \cdot g$$

2) Load in case of 25% test load, disregarding wind force

$$\text{Axial force: } F_a = 1.25Q + A + O + G$$

$$\text{Overturning moment: } M = 1.25Q \cdot l_{\max} + A \cdot a_{\max} - O \cdot o - G \cdot g$$

Example: Working load and amplitude of a grab bucket type port crane at amplitude peak are known to be:

$Q=260\text{KN}$	$l_{\max}=23\text{m}$
$A=75\text{KN}$	$a_{\max}=11\text{m}$
$O=450\text{KN}$	$o=0.75\text{m}$
$G=900\text{KN}$	$g=3\text{m}$
$W=271\text{KN}$	$r=6.5\text{m}$

3) Maximum working load with Grade VIII wind force

$$F_a = Q + A + O + G$$

$$= 260 + 75 + 450 + 900$$

$$= 1685 \text{ kN}$$

$$M = Q \cdot l_{\max} + A \cdot a_{\max} + W \cdot r - O \cdot o - G \cdot g$$

$$= 260 \times 23 + 75 \times 11 + 27 \times 6.5 - 450 \times 0.75 - 900 \times 3$$

$$= 3943 \text{ kNm}$$

4) Maximum working load in case of 25% test load, disregarding wind force

$$F_a = 1.25Q + A + O + G$$

$$= 325 + 75 + 450 + 900$$

$$= 1750 \text{ kN}$$

$$M = 1.25Q \cdot l_{\max} + A \cdot a_{\max} - O \cdot o - G \cdot g$$

$$= 325 \times 23 + 75 \times 11 - 45 \times 0.75 - 900 \times 3$$

$$= 5566.3 \text{ kNm}$$

5) Maximum working load, disregarding wind force

$$F_a = 1685 \text{ kN}$$

$$M = Q \cdot l_{\max} + A \cdot a_{\max} - O \cdot o - G \cdot g$$

$$= 260 \times 23 + 75 \times 11 - 450 \times 0.75 - 900 \times 3$$

$$= 3767.5 \text{ kNm}$$

2.1.8 Static type selection computation examples—Gantry crane (grab bucket)

The maximum load exerted on the bearing must serve as the static computed value, thus to select load case 2 as the working load for static computation. As required in the safety factor table in section 2.1.4, the gantry crane (grab bucket) should adopt three-row pin roller slewing bearing. Therefore, the static reference load of the slewing bearing should be as follows:

$$Fa' = 1750 \text{ kN} \times 1.45 = 2537.5 \text{ kN}$$

$$M' = 5566.3 \text{ kNm} \times 1.45 = 8071.1 \text{ kNm}$$

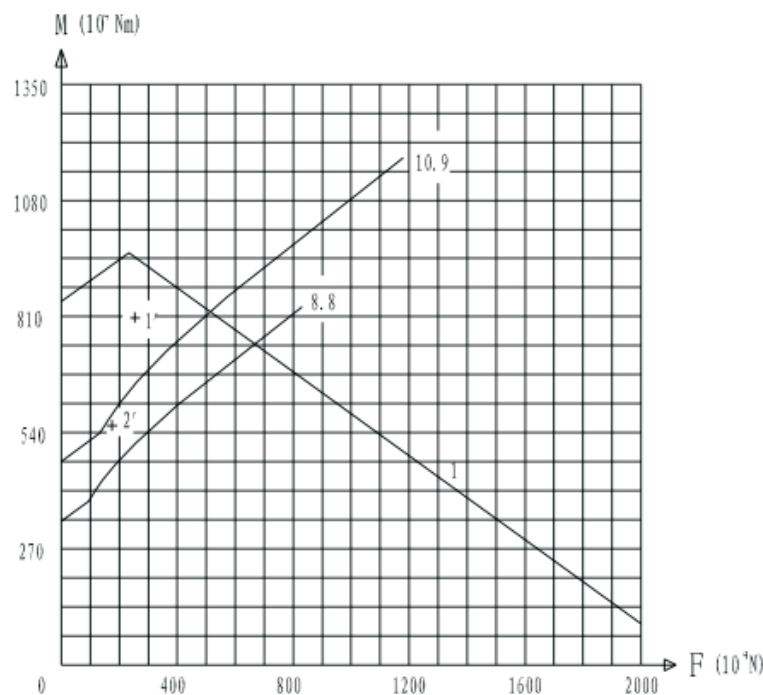
The bolt's computed load should be:

$$Fa = 1750 \text{ kN}$$

$$M = 5566.3 \text{ kNm}$$

Note: The load used in the bolt check table is not the static reference load of the slewing bearing!

According to the above result of computation, you can choose from the bearing capacity curves and determine to select the 13*.45.2000.002.



Line 1 is static bearing capacity curve

8.8 and 10.9 are bolt's bearing curves

1' is static load point

2' is bolt load point

Point 1' is below the raceway static bearing curve 1, so it meets the requirement.

Point 2' is below grade-10.9 bolt bearing curve, so selecting the grade-10.9 bolt can meet the requirement.

2.1 Slewing Bearing Load Computation (Static and Dynamic Loads)

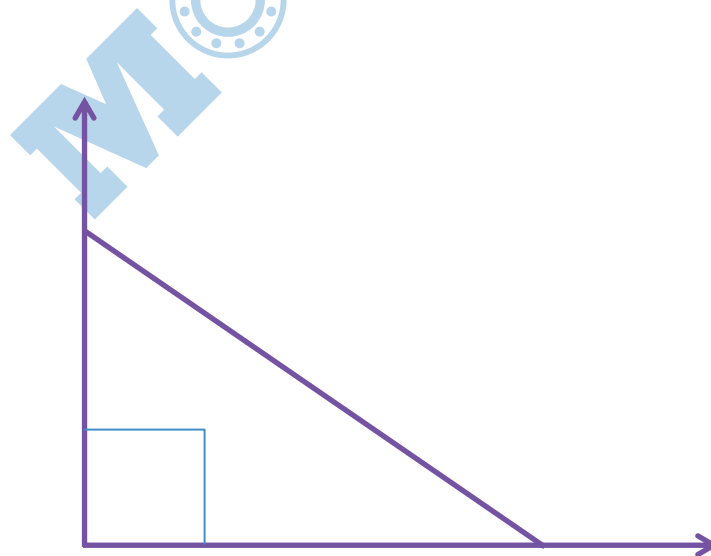
2.1.9 Slewing bearing static type selection and service life estimation

For continuous operation, high speed rotation and other application occasions with specific requirements for “slewing bearing’s life” (e.g. slewing bearings used in rotary conveying device, packer, and filling machine), please contact with our design and development department.

The slewing bearing’s bearing capacity depends on:

- External dimensions
- Characteristics of circular material
- Heat treatment
- Characteristics, quantity and size of rolling component
- Contact parameter of rolling element and raceway

As previously mentioned (2.1.6 and 2.1.7), in the bearing capacity curve chart, Axis X represents equivalent axial load, while Axis Y represents heeling moment. To make things easier, a straight line called “limit curve” represents capacity curve. By drawing the point representing relevant load on the chart, you can determine the size of the slewing bearing, where the point is called “application point”. The application point P should be kept below the limit curve.



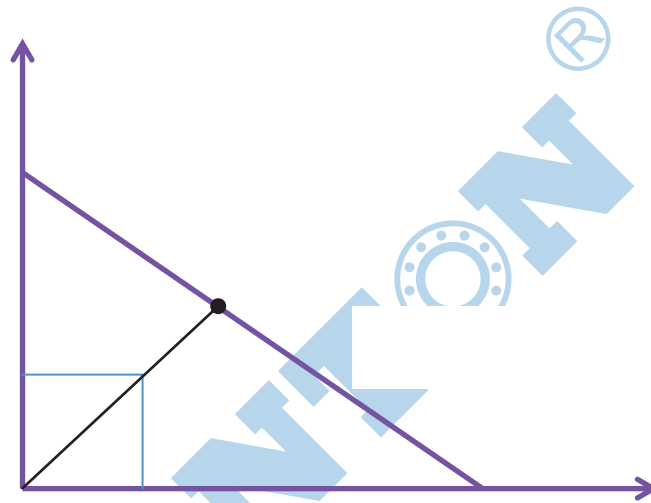
2.1.9 Slewing bearing static type selection and service life estimation

Many external factors pose great effect on service life of bearing:

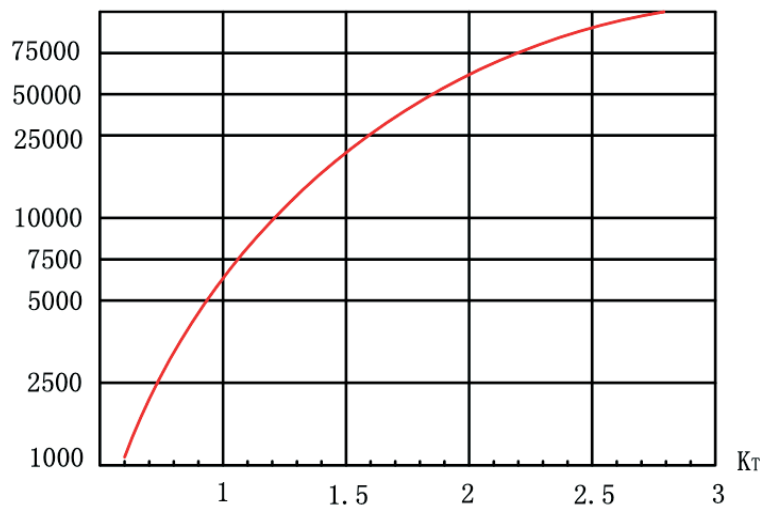
- Geometric accuracy of support
- Structural distortion under load
- Climate condition and environment
- Quality of maintenance work
- Working condition

Use with impact, vibration or violent or intermittent motions for long time will obviously lead to shortened service life.

Comparing the application point with the limit curve to get the service life's estimation value ratio: $K_T = OL/OP$



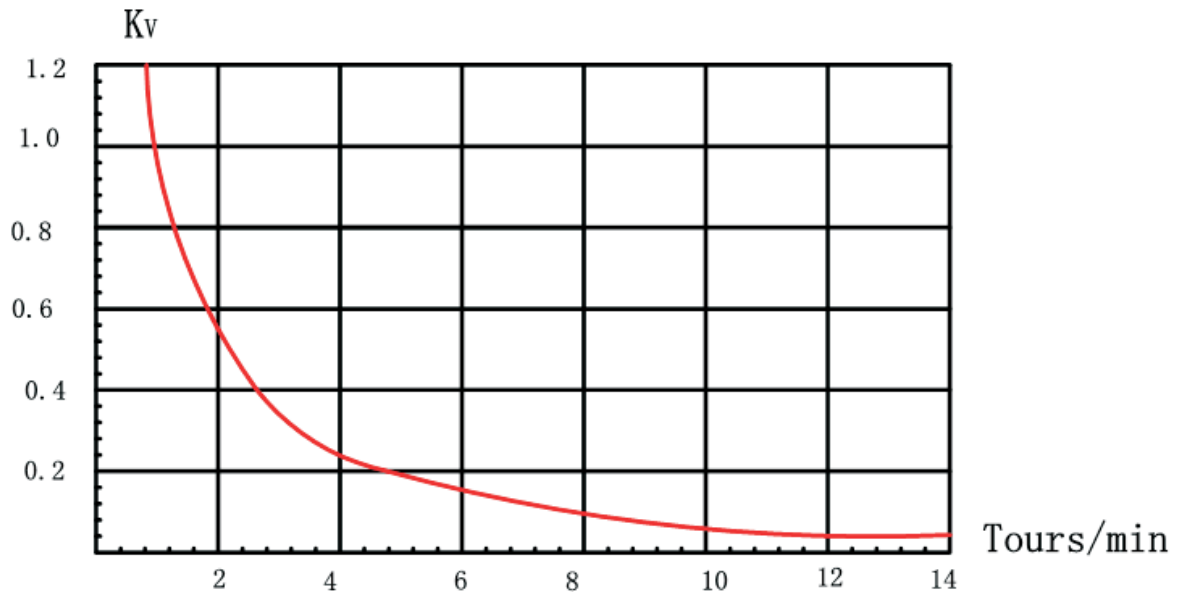
The estimation value D of service life can be got by using the following figure: according to the value K_T on the horizontal axis, you can see the estimation value of service life (hours) directly from the curve. As previously mentioned in 2.1.4, in general cases, when $K_T = 1$, service life is 6000h.



2.1.9 Slewing bearing static type selection and service life estimation

Correction of service life by revolving speed

Only in case of low revolving speed: 1RPM (1 revolution per minute), is the service life estimation value D as shown in the figure effective. This value must be multiplied with speed factor K_v shown in the right figure according to different speeds.



Service life estimation: $D(n) = K_v \times L$

In case of swinging revolution, the following formula may be used to compute average revolving speed: $n_{\text{average}} = 0.60 \times n_{\text{actual}}$

2.2 Bolt's Bearing Capacity Computation

2.2.1 Quality requirements of bolt, nut, and washer

To transmit a certain load, the bearing must be mechanically fastened on the connected rack, so that the slewing bearing is rigidly linked to its support. There are many feasible fastening modes, among which the most effective way is connection with bolt and nut. Welding is absolutely prohibited. Selecting suitable bolts and fastening mode in installation are important preconditions for normal function and application safety of the slewing bearing.

Bolt dimensions for the slewing bearing shall accord with provisions of the GB/T5782 and GB/T5783 standards. We recommend Grade 10.9 high-strength bolts manufactured as per GB/T 3098.1, and Grade-8.8 and 12.9 bolts for special cases. If possible, use outside hexagon-headed bolt instead of cylindrical-headed bolt (hexagon socket bolt). Bolt surface treatment should not lead to brittle rupture. Bolt clamping length $L_k \geq 5d$ (d-bolt diameter).

Minimum requirement of bolt's mechanical properties

Grade	Tensile strength (Mpa)	Yield strength (Mpa)	Fatigue strength (Mpa)	
8.8	800	640	40	special
10.9	1040	940	40	recommend
12.9	1220	1100	40	special

Nut dimensions should accord with provisions of GB/T6170 and GB/T6175 standards, and nut's mechanical properties should accord with provisions of GB/T 3098.2 standard. Nut must be of the same or higher grade of the corresponding bolt. If the bolt's diameter is d, the recommended nut height is $1X_d$.

The washer dimensions should accord with the requirements of GB/T97.1 and GB/T97.2 standards and the washer should go through thermal refining. No spring washer may be used. The minimum washer requirements are as follows:

Yield strength: Greater than or equal to 600 Mpa

Diameter: $DR=2d$

Thickness: $h \geq 0.3d$

Company recommendation: Bolt and nut should have mechanical properties compatible with each other and should be pre-lubricated, thus to get the known stable bolt/nut friction factor.

2.2 Bolt's Bearing Capacity Computation

2.2.2 Bolt connection computation assumption

The support load is pressure

Bolts are equally spaced and uniformly distributed on pitch circle

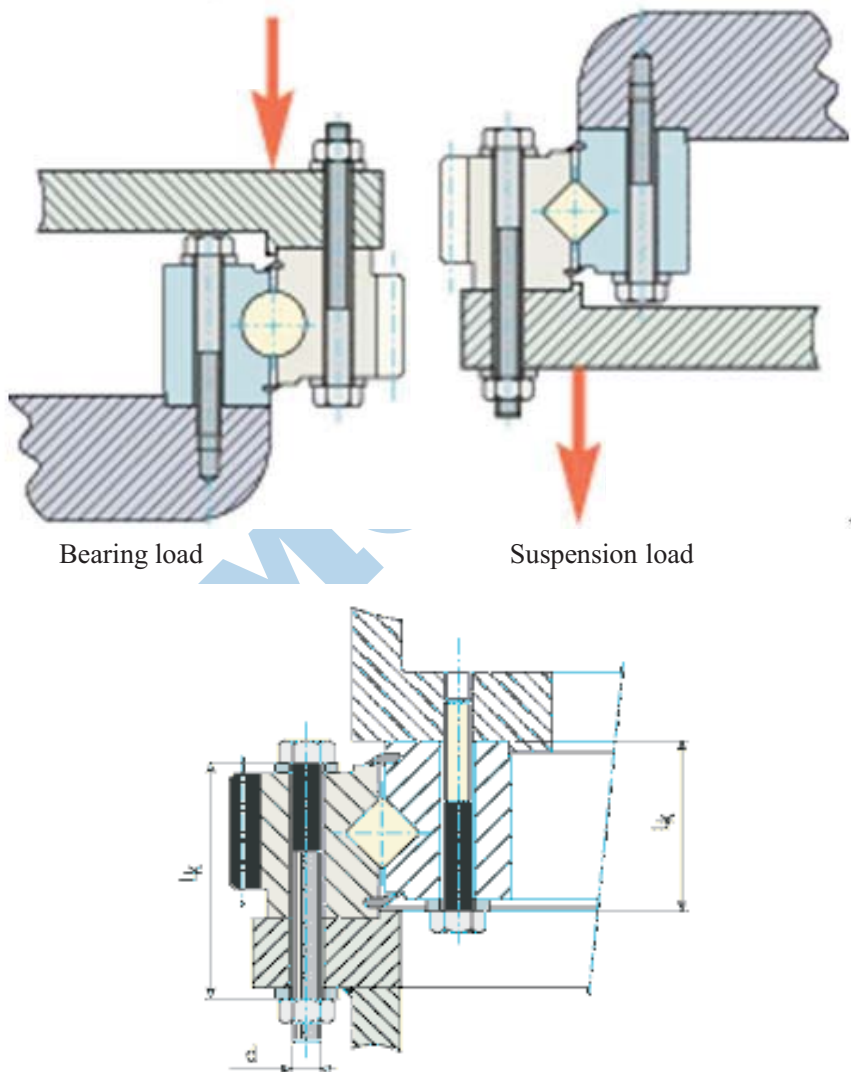
Steel slewing bearing and rack

Thickness, rigidity and surface flatness of rack compliant with the requirements (refer to "Structure")

Slewing bearing is directly secured with bolt to rack

In case of radial heavy load, it's recommended to use centering hole or adhesive bonding to free bolt from shear stress

Clamping strength should be at least 5 times of bolt diameter: $L_k \geq 5 \cdot d$



In case of suspended load, please consult our technical department.

2.2 Bolt's Bearing Capacity Computation

2.2.3 Quantity of bolt computation

After the slewing bearing is selected according to use and bearing capacity, the relevant fixing bolt should be determined. Starting from the worst load circumstance, the minimum quantity of fixing bolts should be computed by using the following formula. In summary, sufficient quantity of bolts should be kept to ensure effective connection between slewing bearing and rack to avoid turntable distortion.

$$N = \frac{1.6 \cdot F_k (4 \cdot M + F_a \cdot D_f)}{D_f (T_s - F_{pc})}$$

Where:

N= Number of bolts required in theory

1.6=Fastening factor (assembly error factor)

F_k = Bolt drawing coefficient, see the bolt drawing coefficient diagram below

M= Total overturning moment kNm carried by slewing bearing

F_a = Axial load kN

D_f = Fixed round diameter m

T_s = Pre-tightening force

d = Bolt diameter mm

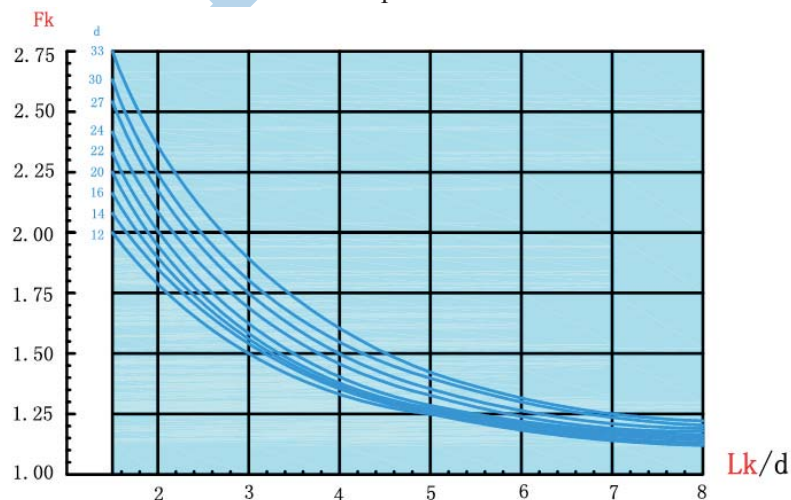
$\varnothing m$ = Raceway nominal diameter m

F_{pc} = Pre-tightening force loss kN due to creep, see the pretightening loss diagram below

L_k = Clamping length mm

Bolt drawing coefficient F_k

This coefficient takes into account geometric dimensions of assembly and is based on bolt diameter and ratio of clamping length to diameter. The optimal fastening is to make a through hole on the slewing bearing and the rack: use bolt and nut, with long fastening length, with sufficient bolt rigidity, and least pre-tightening force loss. If the bolt is fixed at the tapped bearing hole, the hole should be no less than 1.25d in depth.



Bolt drawing coefficient diagram

2.2.3 Quantity of bolt computation

Pre-tightening force: T_s

The pre-tightening force to fix the bolt should be sufficient to ensure firm connection to prevent assembly fatigue.

Minimum pre-tightening force computation:

The standard pre-tightening force for diameter of bolt chosen must be checked to see whether it meets the dynamic stress generated in movement.

$$T_s > \left(\frac{2,25}{N} \right) \left[\left(\frac{4 \times M}{\phi_m} \right) - F_a + 80 N \times d \times 10^{-3} \right]$$

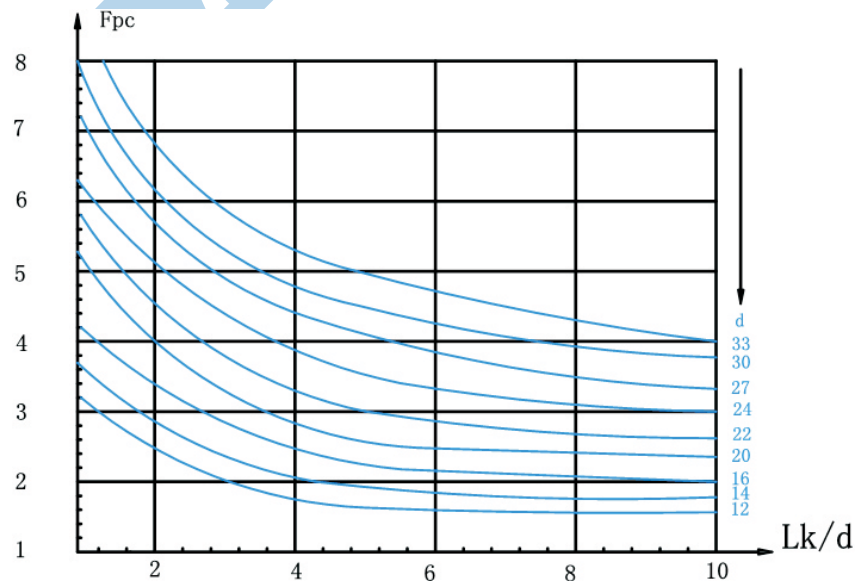
According to the selected bolt diameter: Standard pre-tightening force for connection grade 10.9 is shown in the following table in case of R.80%

Diameter (mm)	12	14	16	20	22	24	27	30	33
Tension (kN)	56	77	106	166	208	239	315	385	480

Pre-tightening force loss: F_{pc}

Under the effect of fastening and external load, the surface roughness of the two contact parts will reduce bolt pre-drawing to generate pre-tightening force loss, which reduces pre-tightening force in assembly.

Such pre-tightening force loss is shown in the following pre-tightening force loss diagram and it depends on bolt diameter d and ratio L_k/d .



Pre-tightening force loss diagram

2.2 Bolt's Bearing Capacity Computation

2.2.4 Nut contact pressure computation

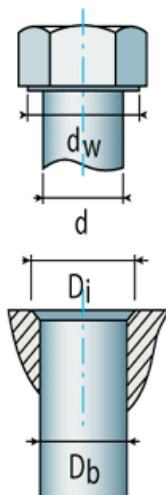
Generally, such computation would be unnecessary, if thermaltreated flat washer is used. Computation (Chc) is needed, if capped bolt is used. The following must be achieved:

$$\frac{F_B \max}{A_c} < P \text{ permit}$$

$$F_B \max = T_s + 0.13 \times F_E$$

$$F_E = \left(\frac{1}{N} \right) \left[\frac{4 \times M}{\varnothing m} - F_a \right]$$

$$A_c = \frac{\pi}{4} (d_w^2 - D_i^2)$$



Allowable pressure:

Normalizing material: 400 MPa

Tempering material: 620 MPa

Note: Any spring washer of any model is absolutely prohibited. Otherwise, all warranty will be cancelled.

2.3 Gear Selection

All slewing bearings of the Company have a driving mechanism to control revolution of moving parts. This function can be acquired through different means:

- 1 Gear transmission (in common use)
- 2 Belt transmission
- 3 Chain transmission
- 4 Direct transmission

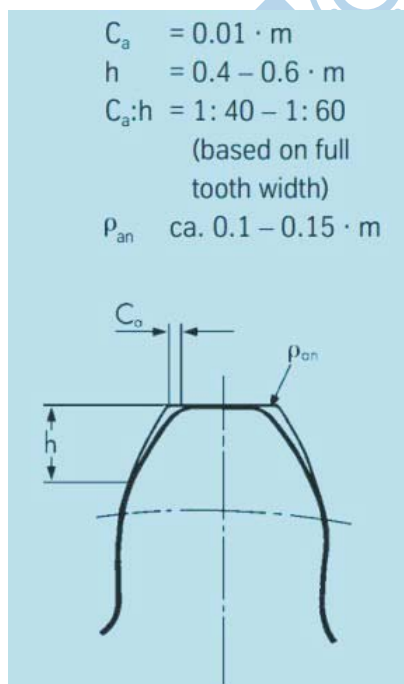
Gear transmission

Cut directly on outer ring into involute teeth, straight teeth or helical teeth, while inner ring may only be straight teeth.

Tooth profile

Most bearings of the Company are toothed and have gone through positive tooth height correction, which can greatly reduce pressure and prevent pinion gear root interference by reducing tooth height. Likewise, it's necessary to make pinion's tooth height corrected to prevent geometrical interference when number of teeth is less than 18. As transmission stress will make axle bent and gear distorted, which harms good engagement, it's recommended that in order to avoid such defect, the pinion's teeth profile should be corrected: e.g. crowned teeth, teeth crest trimming, etc.

Teeth crest trimming: For a pinion under limit load, tip edge radius should be 0.1-0.15 times of modulus, as shown in the following figure:



2.3 Gear Selection

Gear strength

T represents the maximum allowable tangential force of fatigue (peripheral force of gear). Constant operating capacity can be got by using a suitable loading factor.

$$T=2 C_D/D_{ref}$$

—— C_D = Gear moment

—— D_{ref} = Pitch diameter

The Company can also conduct surface quenching to significantly improve teeth root bending strength and compression strength. In case of heavy load, the Company makes teeth and ring upper teeth totally quenched. If you need better abrasion resistance, surface quenching should be done teeth flank.

Teeth precision

If not stated separately, the Company manufactures gears of the slewing bearing as per standards GB and DIN, e.g. gears with GB9GK, 10GK and 11FH precision. If you need gears of higher precision, e.g. grade 7 or grade 6, teeth surface grinding is necessary (consult our technical department).

The US	ANSI					4	3	2	1				
The US	AGMA		16	15	14	13	12	11	10	9	8	7	6
JAPAN	JIS				0	1	2	3	4	5	6	7	8
INTERN.	ISO	1	2	3	4	5	6	7	8	9	10	11	12
CHINA	GB			3	4	5	6	7	8	9			
GERMANY	DIN	1	2	3	4	5	6	7	8	9	10	11	12
G.B.	BS					A1	A2	B	C	D			
FRANCE	FN				A	B	C	D	E				

Table of Comparison of Gear Grades in Different Countries

Solemn Statement:

In the opinion of the Company, all characteristic parameters of gears of different precision grades defined by GB, DIN or ISO should be met. If a customer only requires one or several particular parameters, the Company can ensure higher precision.

2.4 Precision-Tolerance

Standard for geometrical shape selection as follows:

■ Ordinary diameters, without indicated dimensional tolerance (tolerance of hole or axle without match requirement):

≤ 315	≤ 1000	≤ 2000	≤ 4000
± 6	± 2.0	± 3.0	± 4.0

■ Hole with match requirement: H9~H10

■ Hole with match requirement: h9~h10

■ Assembly height:

Height dimension range (mm)	Assembly height (mm)	Single-ring height (mm)
~ 100	± 1	0 -1.0
> 0	± 5	0 -1.5

Installation precision

Location tolerance of bolt hole (including through hole and threaded hole) and diameter tolerance of its pitch circle

Bolt hole pitch circle	~ 1250	$> 1250 \sim 2500$	$> 2500 \sim 3550$
Hole position accuracy	$\Phi 0.6$	$\Phi 0.65$	$\Phi 0.8$
Hole pitch diameter deviation in boring	± 0.6	± 0.65	± 0.8

For applications on high precision levels such as robots and radars, higher grades can be adopted. The tolerance value will be indicated on the slewing bearing. For a slewing bearing with large diameter and small sectional area, as its inferior radial rigidity, it's installed on the support, the effect of the tolerance value should be considered to ensure roundness of the raceway.

Gear precision

The total gear deviation is indicated in the title bar of the drawing provided by the Company. The size, which includes effect on gear backlash, and tolerance of gear K are also indicated in the drawing.

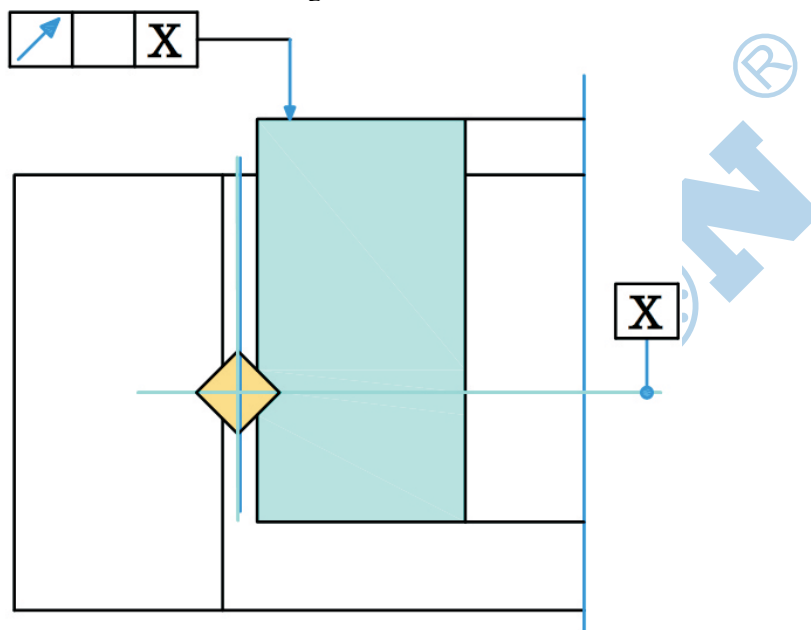
2.4 Precision - Tolerance

Precision of finished slewing bearing

Axial and radial run-out detection method: Put the magnetic base of the dial gage on the fixed ring, make the measuring head contacted with the surface under detection, and turn the ring for a cycle to get the total indication.

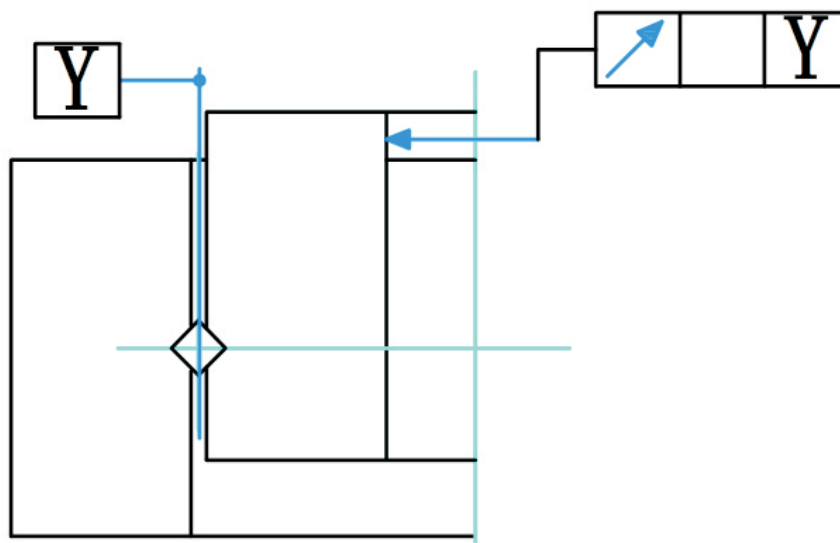
In case of axial run -out measurement of slewing bearing, the ring must be turned for at least one cycle.

Axial run -out detection diagram



Diameter run-out with radial installation match requirements should also be measured by turning for at least one cycle.

Radial run -out detection diagram

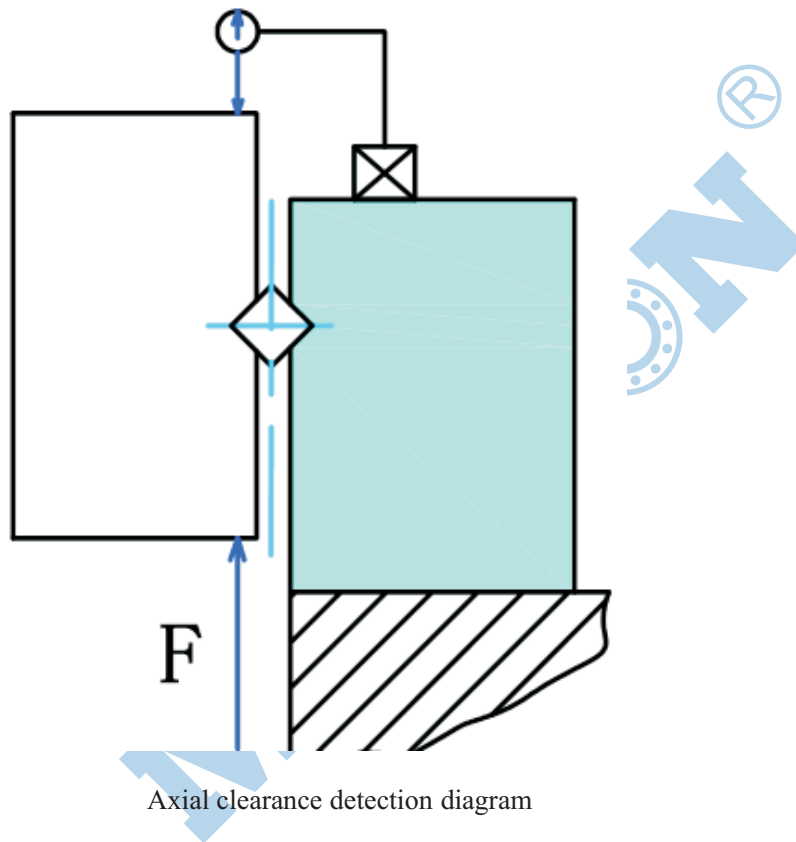


2.4 Precision -Tolerance

Precision of finished slewing bearing

Axial clearance is measured as follows:

Make one ring of the slewing bearing fixed onto the rigid working table and apply pressure onto one point of another ring near raceway. At this moment, axial clearance is shown by a dial gage whose base is fixed onto the ring. The axial clearance of every slewing bearing is measured and recorded at the time of delivery from factory.



2.5 Turning Moment

Turning of slewing bearing is required to be flexible and stable, without clamping stagnation and abnormal sound. Generally, there is no requirement for value of turning moment. However, in special application occasions, e.g. cases where slewing bearing's clearance is negative, the requirement for value of turning moment can be put forward.

To ensure necessary moment computation, the following should be considered:

Load borne by machine

Turning quality

Distance from these objects to spindle

Speed and acceleration

Moment of resistance (dependant on bearing flatness and lubrication)

Two kinds of moments should be distinguished:

Starting moment: $C_d = C_{rv} + C_{rc}$

Accelerating moment: $C_g = C_{rv} + C_{rc} + C_a$

C_{rv} = No-load slewing bearing friction moment

C_{rc} = Bearing turning moment

C_a = Accelerating moment

C_d = Starting moment

Unit of all moments: kNm

C_{rc} : Turning moment under load

The required starting moment takes into account the load on bearing and the friction among parts.

Ball type slewing bearing:

$$C_{rc} = [(13,11 M / \varnothing m) + 3 F_a + 11,34 F_r] \varnothing m \cdot 10^{-3}$$

Cross roller slewing bearing

$$C_{rc} = [(15,3 M T / \varnothing m) + 3,75 F_a + 8,19 F_r] \varnothing m \cdot 10^{-3}$$

M =Total moment KNm

$\varnothing m$ =Raceway center diameter, measured in the unit of m

F_a =Axial load kN

F_r =Radial load KN

2.5 Turning Moment

Ca: Accelerating moment

The necessary moment which makes the load run from initial speed to final speed within time (t) should be determined by using the following formula:

$$Ca = [(\pi \cdot n \cdot l) / 30 \cdot t] \cdot 10^{-3}$$

- t = Acceleration time in the unit of second
- n = Speed change RPM (final speed-initial speed)
- l = Machine's inertia torque kg.m²

$$l = l_1 + l_2 + l_3 + \dots + l_n$$

Where, l_1 to l_n = Inertia moment of motion load relative to spindle Kg. m².

Generally:

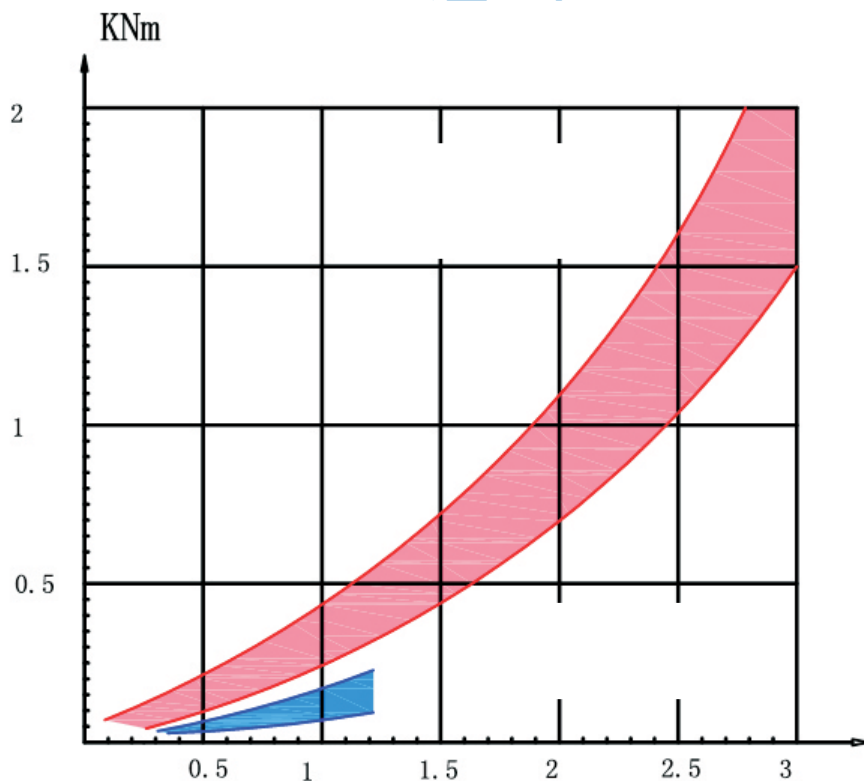
$$z \quad l_1 = G_1 \times r_1^2$$

$$z \quad l_n = G_n \times r_n^2$$

9 G_1 to G_n = Weight of all rotating parts, in the unit of Kg.

9 r_1 to r_n = Distance from center of all objects to spindle, in the unit of m

Idle friction moment of slewing bearing Crv is determined as in the following chart. The Company can provide slewing bearings with greater or less friction moment according to customer's needs.

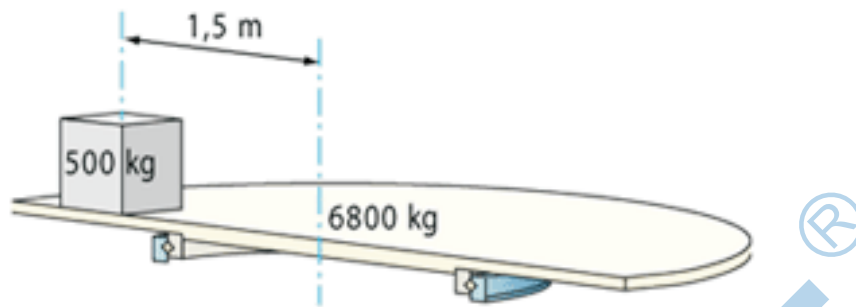


Idle friction moment chart

2.5 Turning Moment

Turning moment application example

Exemple d'application



Platform diameter: 4 m

Platform mass: 6800Kg

Cube mass: 500Kg

Raceway center diameter of steel ball type slewing bearing: 2 m

Distance from cube to spindle: 1.5 m

Initial speed: 2 tours/min

Final speed: 6 tours/min

Accelerating time: 20s

Load borne by slewing bearing

Axial force F_a : $68 \text{ kN} + 5 \text{ kN} = 73 \text{ kN}$

Radial force F_r : 0.29 kN, negligible

Torque M : $5 \text{ kN} \times 1.5 \text{ m} = 7.5 \text{ kNm}$

Turning moment:

Raceway center diameter=2m

Crv: As per idle friction moment chart: 1kNm

$Crc = [(13.11 \times 7.5 / 2) + (73 \times 3) + (11.34 \times 0)] \times 10^{-3} = 0.536 \text{ kNm}$

Starting turning moment: $Cd = 1 + 0.536 = 1.536 \text{ kNm}$

Total inertia moment: $13600 + 1125 = 14725 \text{ Kg.m}^2$

Accelerating moment: $n = 6 - 2 = 4 \text{ RPM}$

Accelerating time: 20s

$Ca = (14725 \times \pi \times 4) / (20 \times 30) \times 10^{-3} = 0.3084 \text{ kNm}$

Turning moment in acceleration

$Cg = 1 + 0.536 + 0.3084 = 1.845 \text{ kNm}$

2.6 Seal Ring

Slewing bearings of the Company generally have a seal ring at both sides of raceway. The seal ring has the following functions:

- Protect raceway against intrusion of tiny impurities
- Keep lubrication in raceway

If necessary, the Company can design the corresponding protective device separately, e.g.:

- Standard and special sing ring
- Lip-type seal ring
- Combination of two or more seal rings for use

Seal ring washer

Under very abominable working conditions, in order to avoid intrusion of the following objects:

- Metal chip · Steel grit · Weld particle · Mud · Sand · Water · Cutting coolant
- The Company strongly recommends installing an effective shield—seal ring washer

Seal ring category table

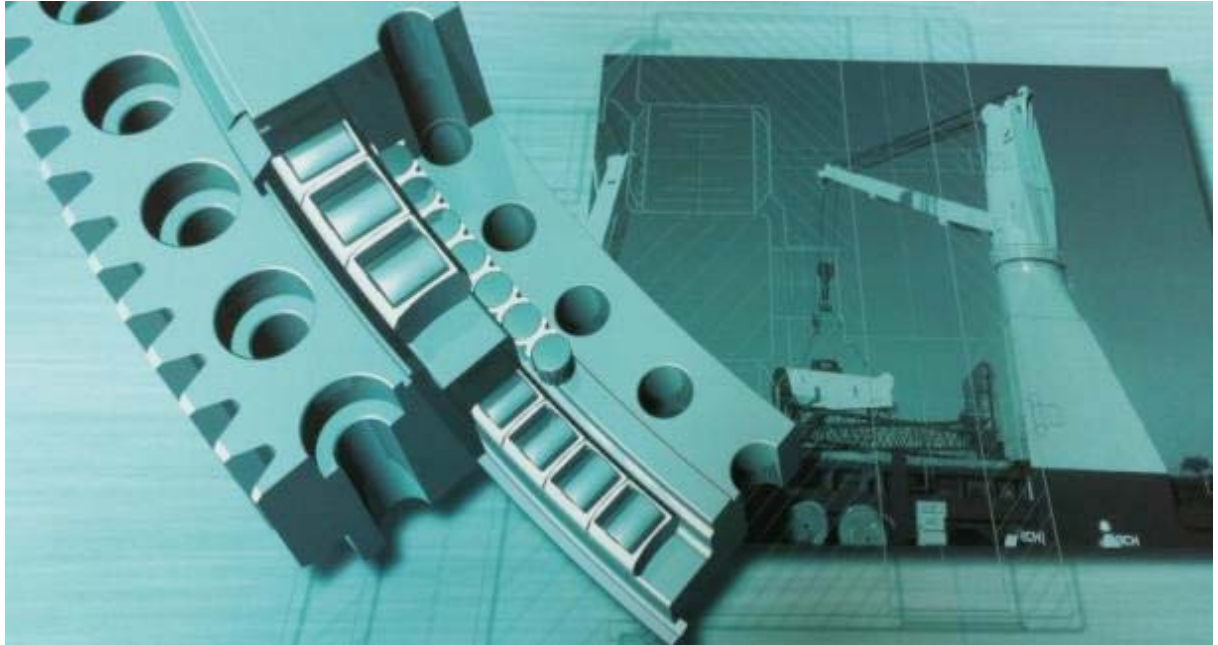
Working condition	Category
Normal” -30℃ ≤ +70℃	Nitrile rubber
“Extreme” $\theta < -30^{\circ}\text{C}$; $70^{\circ}\text{C} < \theta < 200^{\circ}\text{C}$	Fluoro rubber
“Special”: Erosion by multiple physical or chemical objects	Improved nitrile rubber or others

2.7 Surface Protection

For special applications (e.g. marine application), the Company recommends protective surface treatment:

- ① Galvanizing (zinc chromate film)
- ② Nickel-plating
- ③ Painting
- ④ Other treatment: e.g. chroming, metal spraying, anodizing, etc. Please contact with our technical department for detail.

3 Installation & Maintenance



- 3.1 Erection support Design
- 3.2 Transport, Storage, Unpacking
- 3.3 Installation
- 3.4 Postinstallation Commissioning and Detection
- 3.5 Labeling and Signage
- 3.6 Operation & Maintenance
- 3.7 Removal of Common Faults

3.1 Erection support Design

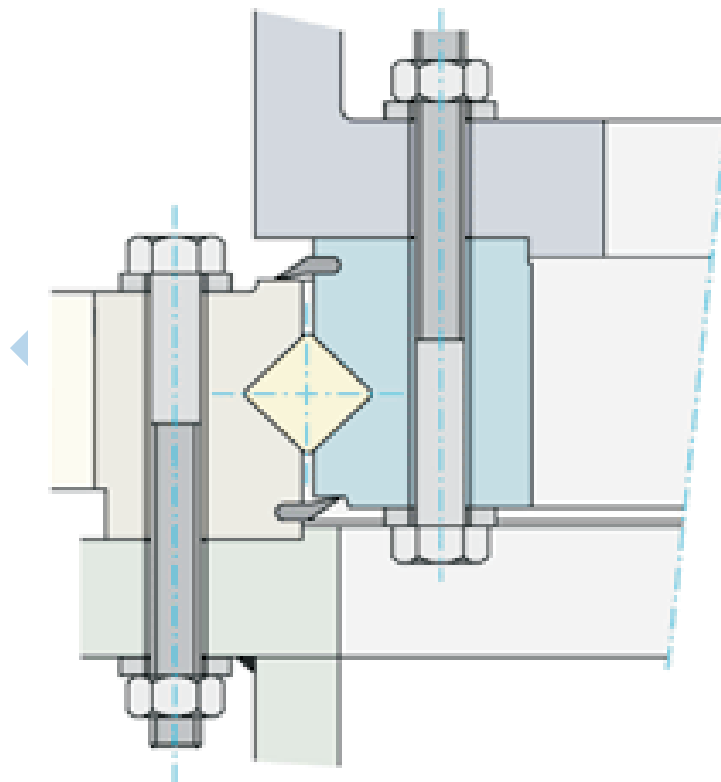
Support thicknesses and structure reinforcement

The slewing bearing has suitable axial rigidity: As its diameter is much larger than its sectional dimension, it must be installed onto a machined bearing support, so that there will be sufficient rigidity for the load transmitted. In this way, it will be sure that the stress will be distributed uniformly, avoiding distortion generated in operation unfavorable to work of slewing bearing.

Therefore, the pedestal thickness should be no less than the minimum value listed in the following table, and the width of support surface should be no less than the corresponding width of the slewing bearing.

Raceway center dia. (mm)	500	750	1000	1250	1500	2000	2500	3000
Minimum thickness (mm)	25	30	35	40	50	60	70	80

Cylindrical structure is usually adopted for installation of bearing support. The cylinder wall is aligned to the center of raceway. To make load uniform, thick round base is better than thin base with reinforce, as shown in the following figure:



Slewing Bearing Installation Diagram

3.1 Erection support Design

Support flatness

To prevent slewing bearing from partial overload and ensure that it will operate flexibly, the installation rack should, after all welding sequences, be treated with internal stress removal, and installation surface machining. The flatness (including angular deviation of plane) should be controlled within a certain range.

Uneven support will lead to raceway deformation, which lead to accidental shutdown or lockout, shortening service life of slewing bearing. The support flatness (including angular deviation of plane) should be controlled within the range as shown in the following table:

Raceway center circle diameter	Erection support planar deviation P (mm)		
DL(mm)	Single-row four-point contact ball bearing	Double-row ball bearing	Pin roller bearing
~500	0.1	0.15	0.1
>500 ~ 750	0.12	0.17	0.1
>750 ~ 1000	0.15	0.2	0.12
>1000 ~ 1500	0.19	0.25	0.12
>1500 ~ 2000	0.22	0.3	0.15
>2000 ~ 2500	0.25	0.35	0.17
>2500 ~ 3000	0.3	0.4	0.2

Allowable flatness including angular deviation of plane

Support rigidity

The erection support should also have good rigidity. Under maximum allowable load, deflection deformation should be controlled within the range as shown in the following table:

Average track diameter (mm)	500	750	1000	1250	1500	2000	2500	3000
Maximum flexural deformation (mm)	0.25	0.3	0.35	0.45	0.55	0.65	0.8	1

Deflection deformation under maximum allowable load

Plastic binder

If the above-mentioned tolerance can't be met, epoxy resin may be used to replace surface finishing. According to dimensions and unevenness to be compensated for installation purpose, there are many kinds of plastic binders for option.

3.2 Transport, Storage, Unpacking

Transport

All of our slewing bearings are packed well to avoid damage during transport. The product should be kept in horizontal position during transport and storage. If the slewing bearing is not kept in horizontal position during transport, special measures should be taken.

Like any other precise mechanical device, the slewing bearing should be handled with care. Hoisting of the slewing bearing should be done horizontally with lifting bolts. During the process of hoisting, collision, radial collision in particular, must be avoided. Relevant device which can bear weight of the slewing bearing should be used to carry the slewing bearing. Weight of the slewing bearing is indicated in the label.

Storage

A packed slewing bearing has been finished with anti-rust and oil seal surface treatment. Under normal storage condition, the slewing bearing will not rust within 12 months after delivery from plant. For users, if a slewing bearing in stock is still within the abovementioned period, the slewing bearing can be stored for long time, as long as the original packing is intact. Any slewing bearing which is outside its rust-proof life should be cleaned and oil-sealed again and need replaced packing, if it is still kept in storage.

Any slewing bearing should be filled with oil once every 18 months of storage. (Refer to section 3.6 "Operation & Maintenance")

Unpacking

When unpacking the slewing bearing before installation, the following precautions should be taken:

- When removing the packing material, be careful to avoid cutting into the real ring.
- When cutting the packing material, it's better to cut on the external diameter instead of the two ends.

When removing the rust-proof oil at the surface:

- Standard industrial solvent should be used and chlorinated solvent is absolutely prohibited

- Be careful to prevent solvent from flowing into seal ring or raceway

- Before installing the oil cup or connecting the oil tube, the plastic plug or screw plug should be taken off from the oil cup hole.

3.3 Installation

Erection support confirmation

Be sure that the erection support structure accords with the technical requirements (refer to “3.1 Erection support Design”)

Check whether there is any metal chip, weld grain, rust stain, paint or other impurities, which all should be removed.

Centering

When the load is mainly radial, and in particular, when the bearing is installed vertically, forced centering is necessary. Using structural bonding type LOCTITE 586 is the effective way to limit relative displacement between the slewing bearing and its support.

Positioning

The quenching soft belt mark (external mark “S” or at stopped hole) must be set at a non-loaded zone or a non-frequently-loaded zone, i.e. a location which forms a 90degree angle with the main loaded axle or the loaded arm.

Fit check

After the slewing bearing is hoisted into place, the flatness of the bonded plane is checked with a filler gauge. If there is any gap, machining should be done again, or the gap should be filled plastic or partial gasket, in order to prevent the bearing from distorting after the bolt is tightened. Distortion will affect the performance and service life of the slewing bearing.

Gear backlash check

Before the mounting bolt is tightened, gear backlash should be adjusted according to the highest point of gear pitch circle radial run-out (three teeth marked with green paint), and after the bolt is tightened, gear backlash check should be done all over the gear ring.

When a pinion is installed:

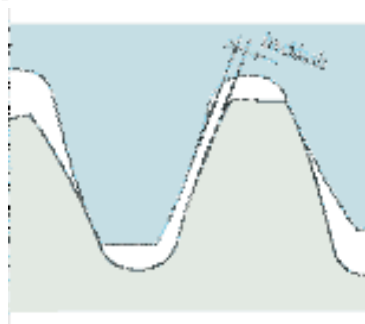
Make the drive gear adjusted to the maximum eccentric point of gear ring and mark it with a blue line.

At this moment, backlash must be limited within the calculated value or $0.05 \times \text{least value of modulus}$.

When several pinions are used, each of them should be adjusted to the same condition.

In testing, be sure the pinion is well aligned to the gear ring, so that the gear engagement is well contacted.

Before startup, gear ring and teeth of pinion should be lubricated. (refer to section 3.6 “Operation & Maintenance”)



Check gear backlash

3.3 Installation

Check fasteners

Whether up to the recommended grade, e.g. marked with 10.9 at the top

Whether screw thread is lubricated.

Bolt's clamping length $L_k \geq 5d$ (d-bolt diameter)

Tempered flat gasket should meet the following requirements:

Yield strength must be equal to or greater than 600Mpa

Diameter $DR=2xd$

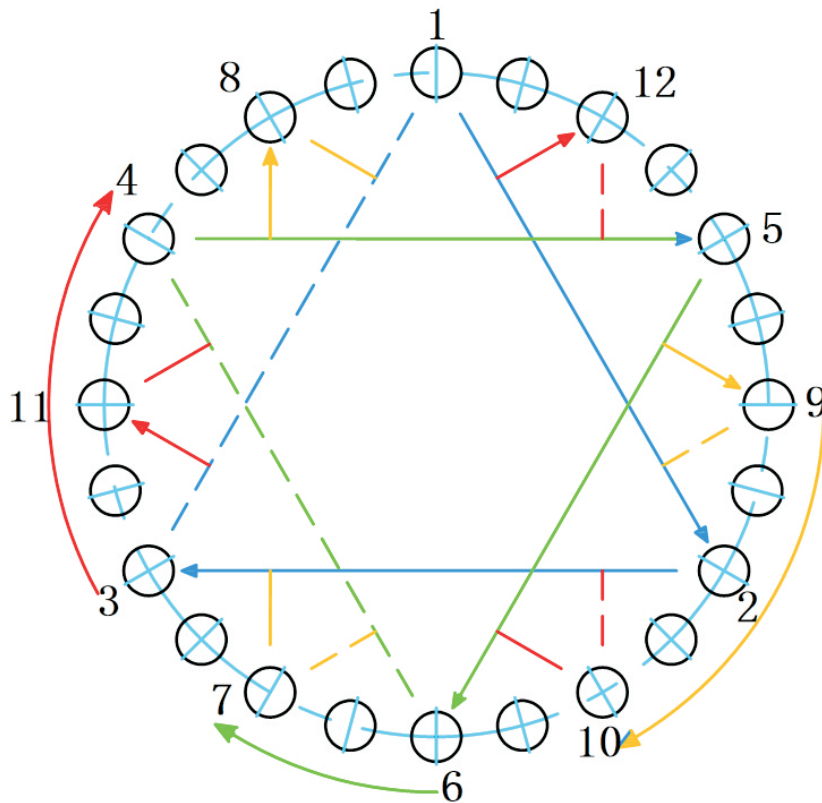
Thickness $h \geq 0.3xd$

Any spring washer or any other type of washer is absolutely prohibited. Otherwise, warranty will be cancelled.

Tightening mode

Install fasteners and tighten them gently. Then further tighten each fastener to the set value. Suitable fixed value torque wrench or hydraulic tool may be used for this purpose.

Tightening in the "star"-chart style can acquire uniform tightening effect all over the periphery. A bolt should be tightened in 180° directions symmetrically. After the final attempt, be sure the bolt on the periphery has the same pre-tightening force.



Star-chart method

3.3 Installation

Pre-tightening torque and pre-tightening force

As regards the way of bolt tightening, according to main machine design provisions, certain pre-tightening force should be ensured. Unless otherwise provided, pre-tightening force should generally be 0.7 times of bolt's yield limit. See the following table for pretightening torque or pre-tightening force.

Bolt specification (GB/T5782 GB/T5783)	Mounting hole dia. (mm)	Bolt strength grade (GB/T3098.1)	
		8.8	10.9
		Bolt material yield strength limit $\sigma_{min}(N/mm^2)$	
		640	900
		Pre-tightening torsion	MA(Nm)
M10	11	44	62
M12	13.5	77.5	110
M14	15.5	120	170
M16	18	190	265
M18	20	260	365
M20	22	370	520
M22	24	500	700
M24	26	640	900
M27	30	950	1350
M30	33	1300	1800
		Pre-tightening force FA(10^3N)	
M33	36	293	412
M36	39	344	484
M39	42	414	581
M42	45	473	665
M45	48	553	777
M48	52	623	876
M52	56	749	1054
M56	62	863	1214
M60	66	1008	1418

Note: (1) When bolt dimensions are not in conformity with GB/T5782 or GB/T5783, the values in the table should be calculated separately.

(2) Total friction factor between bolt head and clamped surface $\mu=0.14$, with screw thread slightly coated with light oil

3.4 Post-installation Commissioning and Detection

After all fasteners are tightened:

Turn the ring for at least three rounds

Check the gear engagement backlash value on the whole periphery.

Measure the total axial clearance under standard load mark the check point.

All these data are recorded in the equipment maintenance manual. See “Section 5.1 Acceptance Documents” for detail.

Axial clearance detection procedure

Put the dial gage in between the two rings, near the raceway of main loaded axle as most as possible

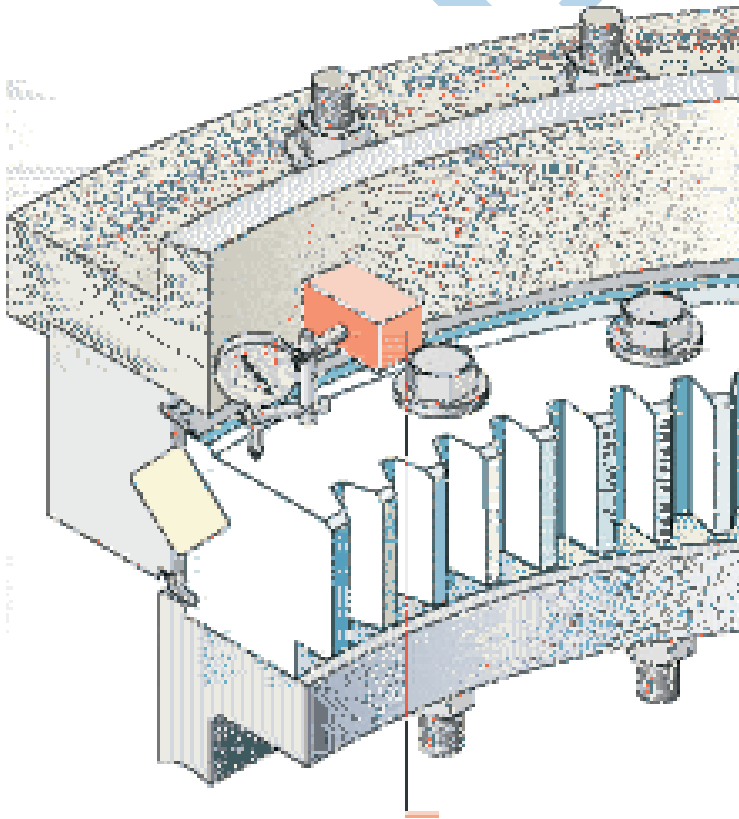
Calibrate it to zero under known load

Apply measured load

Read out the oscillating quantity value at the point

Conduct measurement again at each marked point

Consider distortion of bearing base and stretch of fastener relative to instrument location.



3.5 Labeling and Signage

Labeling

Every slewing bearing has its own metal nameplate, which is riveted to the area near clogging of the toothless ring.

Description on nameplate:

Slewing bearing model

Finished product number

Weight (kg)



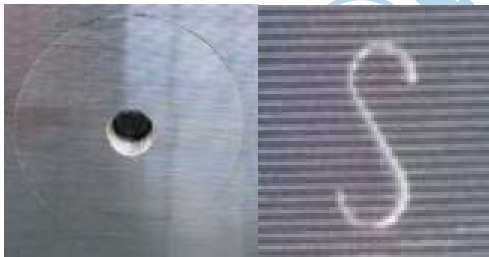
Installation signage

For the purpose of installing the bearing correctly, the Company attaches the following signs to the slewing bearing:

Quenching soft belt sign

Clogging of toothless ring (ball charge opening)

A red circle drawn on toothed ring and marked with "Steel S"



The soft belt should be set at non-loaded zone or non-frequently-loaded zone, if possible.

□ Gear run -out

Maximum run-out point of gear is also marked: three green lines drawn on corresponding tooth root

Backlash of driving gear at that area should be adjusted.



3.6 Operation & Maintenance

Suitable lubrication is necessary for durability of raceway and gear. Lubricating grease improves capability and service life of slewing bearing, while working condition, e.g. load, temperature, speed, and vibration, determines lubricant selection.

Characteristics of recommended lubricant for slewing bearing:

Lithium base grease

Minimum viscosity of base oil: 150 mm²/S

NLGI consistency grade: 2

Anti-friction and extreme pressure additive

Working temperature: -300 Ca+1200 C

Four-ball test: Clinkering load STMD 2596 (NT24)>300

Maximum NDM value (revolving speed x raceway center diameter)

9 For ball slewing bearing=60000

9 For pin roller slewing bearing=30000

Lubricating grease compatibility table

According to our experience, the lubricating greases listed in the following table are compatible with each other and with all parts of slewing bearing. Any other grease which is deemed compatible with any of the lubricating greases recommended by the Company is usable. However, molybdenum-containing disulphide MOS₂ is strictly prohibited

Grease for raceway of
slewing bearing

Lubricating grease

Grease for gear

Aralub HLP2	ARAL	Aralub LFZ1
Rhus L 474/2	MOTUL/bECHEM	Berulit GA 400
Energrease LS-EP2	BP	EnergolwRL/GR 154 GS
Grease LMX	CASTROL	
Epexa2/Epexelf2	ELF	Cardrexa DC1
Beacon EP2	ESSO	Surret Fluid NX
Mobilux EP2	MOBIL	Mobilgear OGL 007
Retina EP2-Alvania EPLF2	SHELL	Malleus GL 205
Multis EP2-Lical EP2	TOTAL FINA ELF	Ceran AD

This table is subject to update by manufacturer.

3.6 Operation & Maintenance

Slewing bearing upon delivery from plant:

When the slewing bearing is delivered from plant, a small amount of No.2 extreme pressure lithium base grease (GB7324). When the slewing bearing is started, the user should refill new lubricating grease according to its working condition.

The surface of gear and bearing is coated with rust-proof oil for anti-oxidation protection.

Slewing bearing in use:

Raceway of the slewing bearing should be lubricated periodically. The lubrication cycle depends on the operation condition and environment. We recommend:

- 9 Lubrication should be conducted once every 150 hours generally
- 9 Lubrication should be conducted once every 50 hours, if the operation requirements are strict, and the operation environment is humid with much dust.
- 9 Sufficient grease should be refilled before and after long-term disuse.
- 9 Lubrication should be conducted once every 6 months during long-term disuse.

Because there are many comprehensive job factors, users can choose their best grease at will according to specific needs. For example, Mobilux EP 2 and Shell Alvania EP(LF) 2 lubricating grease can be adopted for raceway.

When filling lubricating grease, turn the slewing bearing slowly to make the grease filled uniformly. In every time of lubrication, the slewing bearing should be turned slowly for at least two rounds until the grease is oozed out of the seal. Every lubricating hole should be lubricated with grease.

Quantity of lubricating grease may be calculated specifically by our technical department. The practical formula for determining the necessary minimum "Q" (cm³) is shown as follows:

$$Q = 0.005/3 \times D \times H$$

D = Slewing bearing's raceway center diameter mm

H = Slewing bearing's total height mm

In summary, trace of small amount of oozed new grease should be seen at the lip of the seal ring.

The gear face should be cleaned frequently to remove all impurities and lubricated with relevant grease. Whether by spraying or by brushing, the lubricating grease should completely cover pinion and gear face with gear ring.

In use, it's prohibited to flush the slewing bearing directly with water, which may lead to entry of water into raceway. Hard impurities are strictly prevented from approaching or entering gear engagement area.

In use, attention should be paid to operation of the slewing bearing. If noise, impact or power increases suddenly, the machine should be stopped immediately for checkup and troubleshooting. Overhauling should be done, if necessary.

Special application:

Our design and development department can provide lubricating methods for special working conditions in respect of temperature and speed according to user's requirements.

3.6 Operation & Maintenance

Preventive maintenance

Leak tightness check

Judge whether the seal ring is intact by visual inspection:

- a) No excessive stretch or damage
- b) Positioned correctly
- c) Rub the wear beside the lip

Please replace the sealing element, if necessary. After re-lubricating, wipe out the old grease and check whether there is any pollutant such as sand, coal dust or metal particle.

Fastener check

It is very important that as the fastener of a slewing bearing will necessarily be trouble with work fatigue, the bolts should be checked to see whether they still maintain the required pre-tightening force.

It is our recommendation that after two to four months of use (100 working hours), every bolt should be re-tightened and should be checked at least once every year (500 working hours) thereafter. If any bolt is found loose, further check must be done and then necessary preventive measure must be taken. Some regulations require that a fastener must be replaced once every seven years or 14,000 working hours.

□ Gear check

When conducting cleanup before re-lubricating the gear:

- a) Check the tooth root, ring and pinion carefully for any impurity
- b) Check the load exerted by pinion on full tooth width of gear to see whether it is uniformly distributed, and rectify the skewed axle, if necessary
- c) Check gear backlash

Limit of serviceability

All slewing bearings provided by the Company have pre-tightening force to ensure normal work and safety in use. When the slewing bearing is in use, due to decrease of pre-tightening force, the axial clearance of the slewing bearing under load would increase significantly. When the clearance increases to the extent that the machine can't work normally and the material used can't meet the safety conditions, the slewing bearing should be replaced.

To quantify the coefficient of wear, it's necessary to know the change in axial clearance of the slewing bearing under load.

Being brand new: J0

Being checked: J1

These data are got through measurement under conditions which are same as the initial conditions after checking the condition of fasteners (see "3.4 Post-Installation Commissioning & Detection of Slewing Bearing"). The measured data should be included in the corresponding machine maintenance manual.

Abrasion loss: $u = J1 - J0$.

When $u \geq J0$, bearing should be checked more frequently

When $u \geq 1.5 J0$, bearing replacement should be considered

When $u \geq 2J0$, bearing replacement must be done.

3.7 Removal of Common Faults

Difficult turning of slewing bearing _1

Every slewing bearing goes through strict inspection and test run before being released from plant, so all of them are acceptable products. As the slewing bearing has pretightening force on its sealing face and frictional force of the sealing face should be overcome for turning, it's normal that certain starting moment is needed when it is turned.

In case of clamping stagnation in turning, the following method should be taken to remove the trouble:

Case	Cause analysis	Troubleshooting methods
Inflexible idling of new product	The slewing bearing has been stored for long time (e.g. over a half year) or the ambient temperature is low, which results in less liquidity of the grease inside, leading to inflexible operation. This case is prominent in cold regions and in winter.	After force is exerted, if it works well without any abnormal sound, it can serve for normal serve, but new grease should be filled until it is oozed from the seal. If operation is accompanied with any abnormal sound, check whether there is any damage caused during transport or storage and feedback the information to our after-sale service department for a solution.
Inflexible operation after installation	The mounting surface of the main machine does not match well with that of the slewing bearing, resulting in that after installation, axial clearance of the slewing bearing can't compensate for deformation of the slewing bearing, raceway of the slewing bearing is distorted, and the roller moves with difficulty in raceway (sometimes with abnormal sound).	Rework mounting surface of the main machine to make it in compliance with the requirements; or treat the surface by filling in plastic or partial washer. If flatness is still unacceptable after completion of surface treatment, try to exchange for a slewing bearing with larger clearance.
	Bad gear engagement is caused by failure to adjust gear backlash according to radial top point of gear pitch circle (three teeth marked with green paint). Deformation is caused by compressing the slewing bearing at the top point, resulting in difficult turning or abnormal sound.	Adjust gear and pinion engagement and gear backlash again as required.
	Impurities are jammed in the gear and pinion.	Check and be sure that gear and pinion engagement is free of impurities.

3.7 Removal of Common Faults

Difficult turning of slewing bearing _2

Case	Cause analysis	Troubleshooting methods
Inflexible operation in use	The sealing strip is broken, resulting in entry of impurities into raceway.	Replace sealing strip or take effective sealing protection measures, e.g. installing guard plates.
	Failure to lubricate it with sufficient grease periodically according to the maintenance requirement, resulting in abnormal wear and tear of raceway.	Lubricate it with sufficient grease until grease is oozed out from the sealing strip. It's noted that every oil cup should be oiled, and operation should be kept in oiling, if possible. If wear and tear is serious, the slewing bearing should be replaced. If you continue using it in short time, lubricate it with more amount of grease until grease overflows, so that the scrap iron is discharged as most as possible
	Abnormal engagement between gear and pinion, with impurities or broken teeth	Remove impurities (if any); replace the slewing bearing, if there is any broken tooth.

3.7 Removal of Common Faults

Abnormal sound_1

A slewing bearing just released from plant would make uniform sounds of a rolling steel ball when idling, which is normal. It is not normal if the uniform normal sounds are accompanied with abnormal and loud sounds. Abnormal sounds in use are generally extended phenomena of difficult turning—abnormal sound would be generated if a slewing bearing which rotates with difficulty are turned by force. There are similarities between the causes for the two.

Case	Cause analysis	Troubleshooting methods
Abnormal sound of new product	Slight abnormal sound of new product when being idle. Such abnormal sound would disappear naturally after the product rotates for dozens of rounds. If it does not disappear, it's possible that the slewing bearing is a little deformed during transport or storage. However, if it operates flexibly, just install it and put it into normal use at ease, and the abnormal sound will disappear naturally after the run-in period.	 If the abnormal sounds are loud or still remain after a certain period (3 months), please contact with our after-sale service department.
Abnormal sound after installation	The mounting surface of the main machine does not match well with that of the slewing bearing, resulting in that after installation, axial clearance of the slewing bearing can't compensate for deformation of the slewing bearing, raceway of the slewing bearing is distorted, and the roller moves with difficulty in raceway, even produces abnormal sound, when it is serious.	Rework mounting surface of the main machine to make it in compliance with the requirements; or treat the surface by filling in plastic or partial washer. If flatness is still unacceptable after completion of surface treatment, try to exchange for a slewing bearing with larger clearance.
	Bad gear engagement is caused by failure to adjust gear backlash according to radial top point of gear pitch circle (three teeth marked with green paint). Deformation is caused by compressing the slewing bearing at the top point, resulting in difficult turning or abnormal sound.	Adjust gear and pinion engagement and gear backlash again as required.
	Impurities are jammed in gear and pinion.	Check and be sure that gear and pinion engagement is free of impurities.

3.7 Removal of Common Faults

Abnormal sound _2

Case	Cause analysis	Troubleshooting methods
Abnormal sound in use	If any abnormal sound is produced during use, the first to do is to determine whether it is produced by the slewing bearing. Some sound generated by steel structure or other structural element is often mistaken for sound produced by slewing bearing.	Judge the source of sound by stopping rotation of the slewing bearing (e.g. make the reducer come away) and making other parts run.
	Failure to lubricate it with sufficient grease periodically, resulting in abnormal wear and tear of raceway.	Lubricate it with sufficient grease until grease is oozed out from the sealing strip. It's noted that every oil cup should be oiled, and operation should be kept in oiling, if possible. If wear and tear is serious, the slewing bearing should be replaced. If you continue using it in short time, lubricate it with more amount of grease until grease overflows, so that the scrap iron is discharged as most as possible.
	Damage of sealing, leading to entry of impurities such as sand or scrap iron into raceway	Replace sealing strip or take effective sealing protection measures, e.g. installing guard plates
	Failure to check bolt's pre-tightening force periodically according to the maintenance requirements. The mounting bolt is loose, resulting in deformation of the slewing bearing, which leads to distortion of raceway. The roller moves with difficulty in raceway and produces abnormal sounds, if it is serious.	Tighten bolts again and check pre-tightening force strictly as scheduled.

3.7 Removal of Common Faults

Too much rocking (clearance)

After a new slewing bearing is installed, the axial clearance (rocking quantity) after installation should be measured. Clearance after loading is about 3-5 times that when being idle upon delivery from plant. Any value within this range is normal. If the value is outside this range, the following approach should be taken to get rid of the trouble:

Case	Cause analysis	Troubleshooting methods
Too much rocking after installation	Insufficient pre-tightening force of mounting bolt	Make the bolt tightened in place with the required value of bolt's pre-tightening force
	Insufficient structural rigidity of erection support, resulting in overall rocking.	Make the support structure more flexible according to design requirement of the erection support
Too much rocking in use	Increase of clearance under load within serviceability limits is normal wear.	When clearance increases to 3 times of initial clearance under load, i.e. 9-15 times of idle clearance when delivered from plant, the slewing bearing should be replaced.
	Overloaded operation which leads to crushing of raceway, which is accompanied by large amount of scrap iron contained in grease oozed out as a result of over-oiling.	The slewing bearing should be replaced. If it is still in service for short time, large amount of grease should be filled until it is oozed out, so that the worn scrap iron can be discharged as most as possible.

3.7 Removal of Common Faults

Broken tooth

If the slewing bearing is troubled with broken tooth or breakage, please preserve the scene and immediately contact with our after-sale service department for analysis and treatment of the case.

Case	Cause analysis	Preventive methods
Broken tooth	In installation, axis of gear is not parallel to that of pinion, resulting in uneven stress on engagement of gear and pinion, so broken tooth is caused if the case is serious	Put soft material (e.g. fuse wire) on the gear engagement area to check evenness of upper and lower part of the engagement. If there is significant difference between upper and lower deformation of the soft material, it means the installation axes are not parallel to each other, and readjustment is needed.
	Bad gear engagement is caused by failure to adjust gear backlash according to radial top point of gear pitch circle (three teeth marked with green paint). The slewing bearing is compressed at the top point, resulting in broken teeth, if the case is serious.	Rotate for one round, then observe and detect gear backlash with a feeler gauge. If compression appears, gear backlash should be readjusted as if the compression point is the top point.
	Mounting bolt for slewing bearing is not tightened enough. Abnormal engagement between gear and pinion is caused by rocking and deformation of bearing. Broken teeth or breakage of slewing bearing is caused, if the case is serious.	Check bolt's pre-tightening force strictly as scheduled.
	Operation against rules: Overload and high-speed revolution; main machine collides with (sweeps) an obstacle, etc.	Strictly observe the main machine operation rules.
	Accidental impact collision (e.g. being impacted by collapsing objects lifted during hoisting) occurs, resulting in broken teeth or even breakage of slewing bearing, if the case is serious.	Sufficient observation and preparation should be made before operation to prevent accidental events from happening.
	Impurities are jammed in the area of engagement between slewing bearing and pinion.	Check it constantly and be sure gear and pinion engagement free of any impurity.

4 Product catalogue



4.1 Slewing Bearing Numbering Method

4.2 Main Types of Slewing Bearings

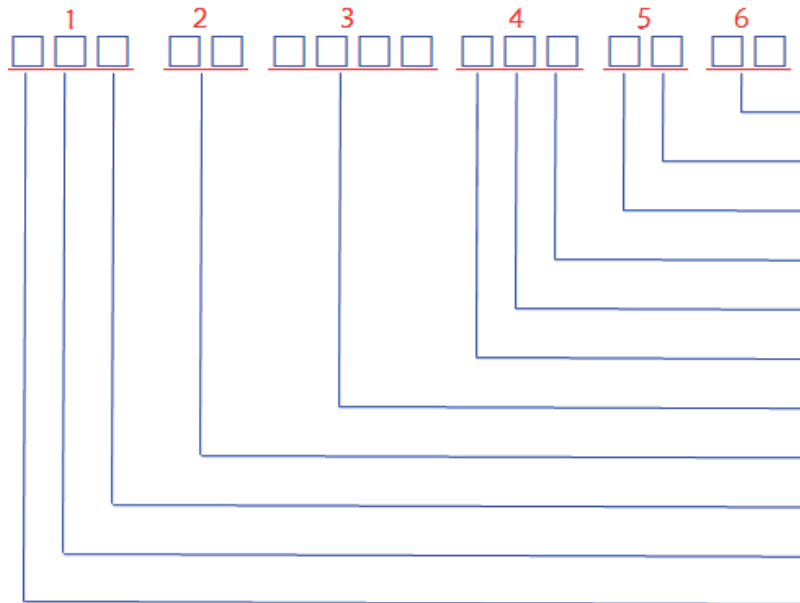
4.3 Names and Symbols of All Parts of Slewing Bearing

4.4 Product Catalogue_Structural Parameter

4.5 Slewing Bearing_Bearing Capacity Curve

4.1 Slewing Bearing Numbering Method

The Company's slewing bearing numbering accords with the requirements of the JB/T 2300 standard. Meaning of numbering is described as follows:



1	Roller type	Raceway structure type	Raceway gear engagement type
	0—Roll ball 1—Pin roller	1—Single-row four-point contact ball or cross pin roller type 2—Double-row different diameter ball type 3—Three-row pin roller type	1—External teeth with lesser modulus 2—External teeth with larger modulus 3—Internal teeth with lesser modulus 4—Internal teeth with larger modulus
4	Sealing type	Mounting hole type	Configuration
	0—No seal 1—Single seal 2—Double seal	0—Through hole 1—Threaded hole 2—Inner ring with threaded hole and outer ring with plain hole 3—Inner ring with plain hole and outer ring with threaded hole	0—Without tang 1—With tang 3—Gear ring without tang
5	Configuration	Gear heat treatment code	
	4—Standard accuracy grade 3—High accuracy grade 2—Precision grade	0—Non-quenched 1—Tooth face quenched 2—Tooth face/root quenching 3—Totally quenched	
6	Bearing material	Example: 011.35.1000.101.04.11 Meaning of numbering: Single -row four -point contact ball type, external teeth with lesser modulus, roller diameter 35mm, raceway center circle diameter 1000mm, with tang, through mounting hole, single seal, non-quenched teeth, standard accuracy grade, material: 50MnT	
	03—42CrMoT 04—42CrMoZ 11—50MnT 12—50MnZ 15—S48C		

4.2 Main Types of Slewing Bearing

The Company provides four main types of slewing bearings, as shown in the following figure:



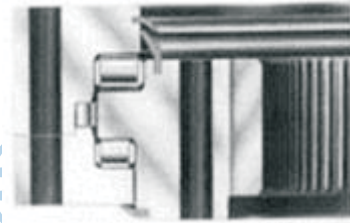
Single-row four-point contact ball series 01



Single-row crossed roller series 11



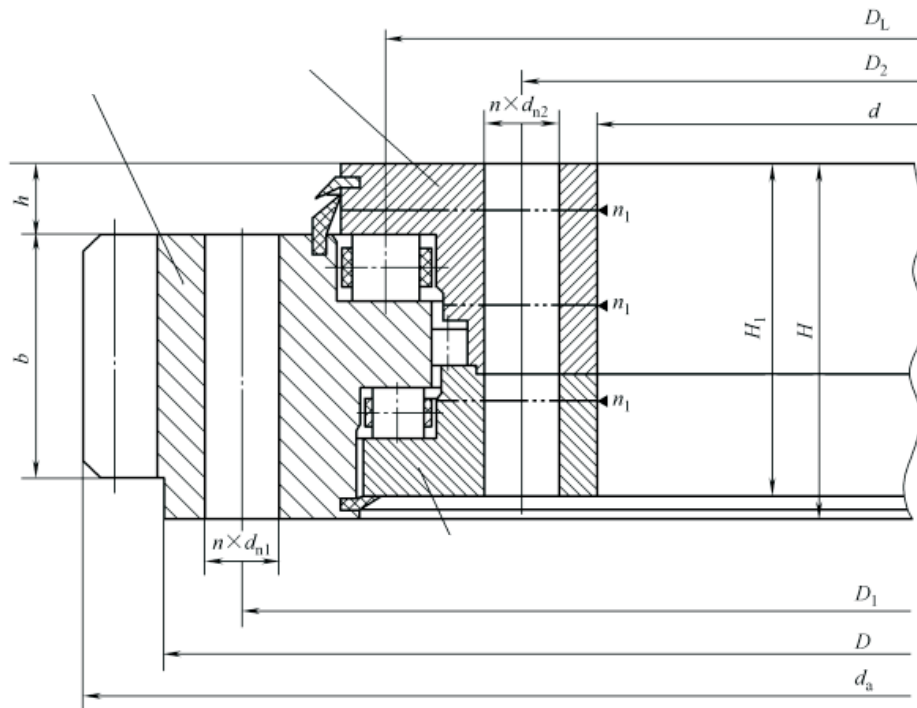
Double-row ball series 02



Tri-row pin roller series 13

The Company can also design and manufacture other types of slewing bearings according to user's needs, e.g. double-row ball slewing bearing, ball-pin combined slewing bearing, and light-weighted slewing bearing, etc.

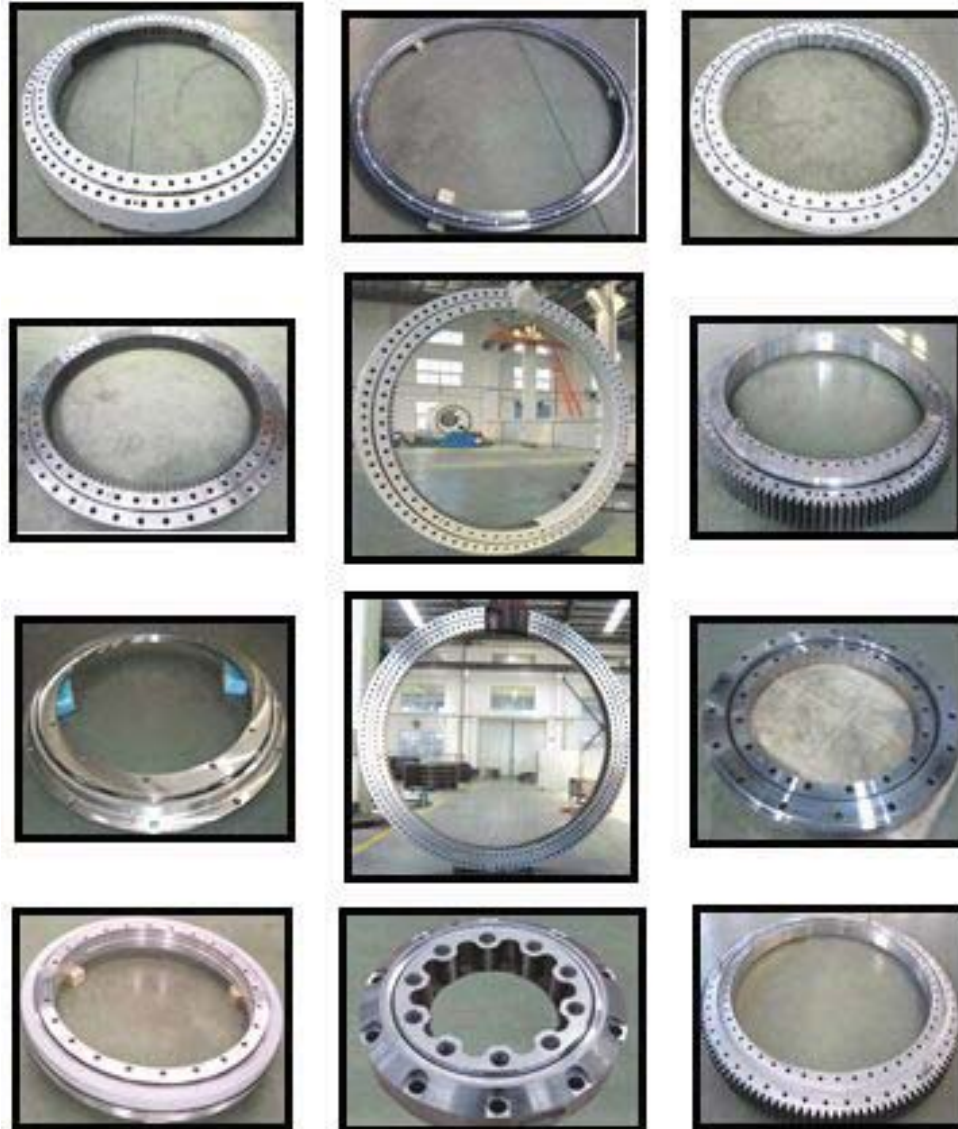
4.3 Name and Symbol of All Parts of Slewing Bearing



(External teeth type threerow pin roller slewing bearing as example)

Symbol	Name	Symbol	Name
D_L	(Upper row) raceway center diameter	n	Number of mounting holes
D_W	(Upper row) roller diameter	n_1	Number of oil holes
D_1	Outer circle mounting hole distribution diameter	d_{n1}	Outer ring mounting hole diameter
D_2	Inner circle mounting hole distribution diameter	d_{n2}	Inner ring mounting hole diameter
D	Nominal outer diameter	d_{m1}	Outer ring mounting threaded hole diameter
d	Nominal inner diameter	d_{m2}	Inner ring mounting threaded hole diameter
d_1	Outer ring inner diameter	L	Mounting hole thread length
D_3	Inner ring outer diameter	D_a	Tip diameter
H	Total height	m	Modulus
H_1	Inner/outer ring height	x	Gear addendum modification coefficient
h	Height difference between end faces of inner and outer ring	z	Number of teeth
DS	Effective case depth	b	Tooth width

Product Images



Wind turbine slewing rings

1. Blade bearing/pitch bearing
2. Yaw bearing
3. Main shaft bearing

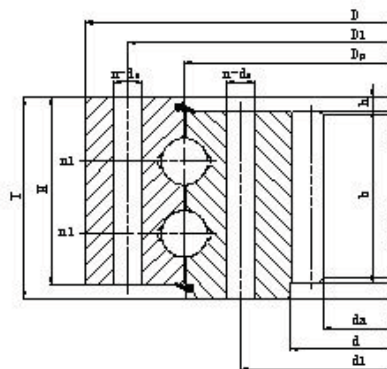
General slewing bearings

1. Single row four point contact ball slewing bearing
2. Single row cross roller slewing bearing
3. Double row different ball diameter slewing bearing
4. Double row four point contact ball slewing bearing
5. Three row roller slewing bearing
6. Ball and roller combined slewing bearing

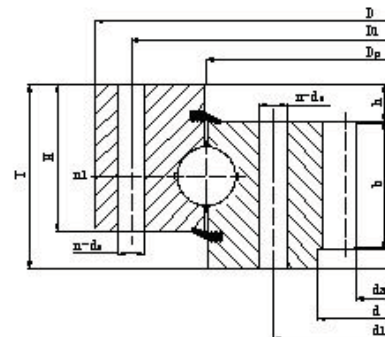
Wire race bearings

1. Wire race ball bearing
2. Wire race roller bearing

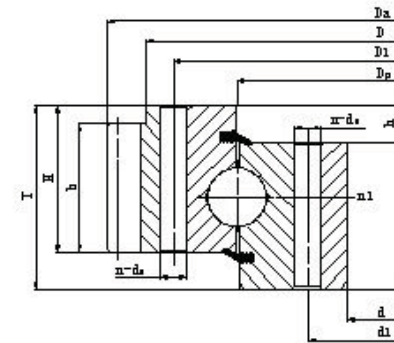
Wind Turbine Slewing Rings——JB/T10705-2007



blade bearing (internal tooth)



yaw bearing(internal tooth)

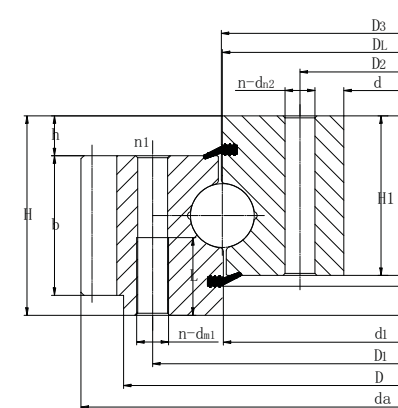
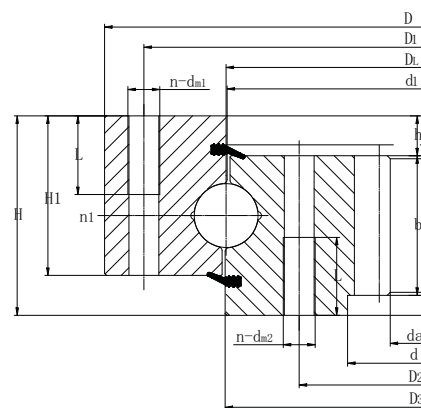
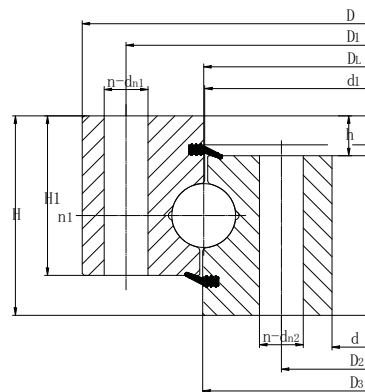


yaw bearing(external tooth)

Bearing type	Bearing number	Dimensions			Gear data					Weight Kg
		D	d	H	m	da	z	b	x	
1.5MW blade bearing	033.35.1900.03K2	2080	1718	144	12	1657.3	139	135	+0.5	1184
1.5MW yaw bearing	013.40.2718.03K1	2908	2553	137	18	2469.6	138	120		1240
2.0MW blade bearing	033.45.2221.03K1	2410	2010	178	12	1946	163	120		1600
2.0MW yaw bearing	012.45.2849.03K1	—	2657	140	20	3136	154	125		1600
3.0MW blade bearing	033.51.2410.03K1	2620	2225	195	16	2147	135	135		1930
3.0MW yaw bearing	013.55.3040.03K1	3250	2845	135	18	2757	154	126		1940
5.0MW blade bearing	033.65.3350.03K1	3620	3060	264	20	2964	149	160		5400

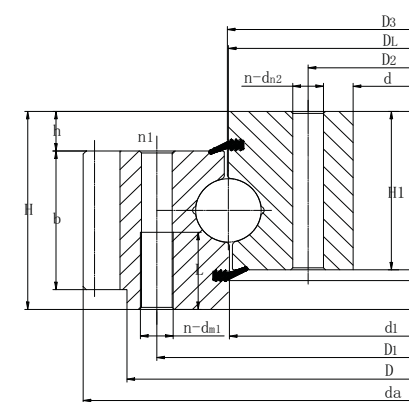
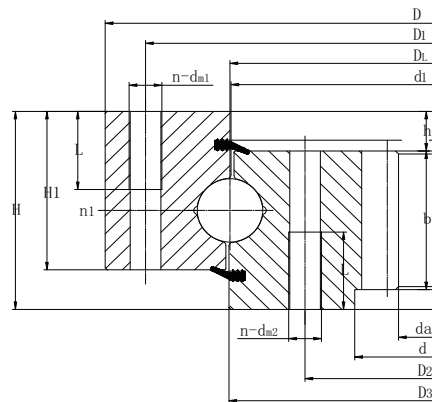
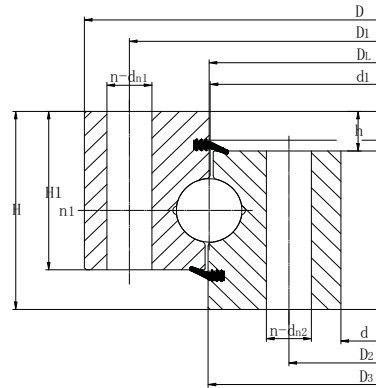
General Slewing Bearings——JB/T2300-1999

Single row four contact ball slewing bearings



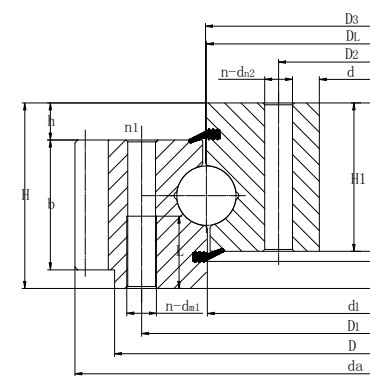
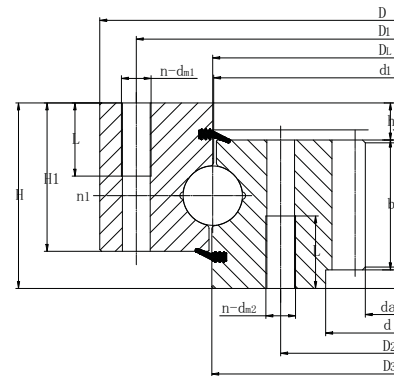
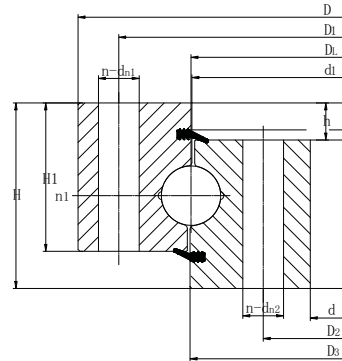
Bearing number			Boundary dimensions			Mounting dimensions						Structure dimensions					Gear data		External gear data		Internal gear data	
Non-gear	External gear	Internal gear	D	d	H	D ₁	D ₂	d _{n1} d _{n2}	d _{m1} d _{m2}	L	n	n ₁	D ₃	d ₁	H ₁	h	b	m	d _a	Z	d _a	Z
			mm									mm									mm	
010.20.200	011.20.200	—	280	120	60	248	152	16	M14	28	12	2	201	199	50	10	40	3	300	98	—	—
010.20.224	011.20.224	—	304	144		272	176				225		223	321					105	—	—	
010.20.250	011.20.250	—	330	170		298	202				18		251	249				4	352	86	—	—
010.20.280	011.20.280	—	360	200		328	232						281	279					384	94	—	—
010.25.315	011.25.315	013.25.315	408	222	70	372	258	18	M16	32	20		316	314	60		50	5	435	85	190	40

Single row four contact ball slewing bearings



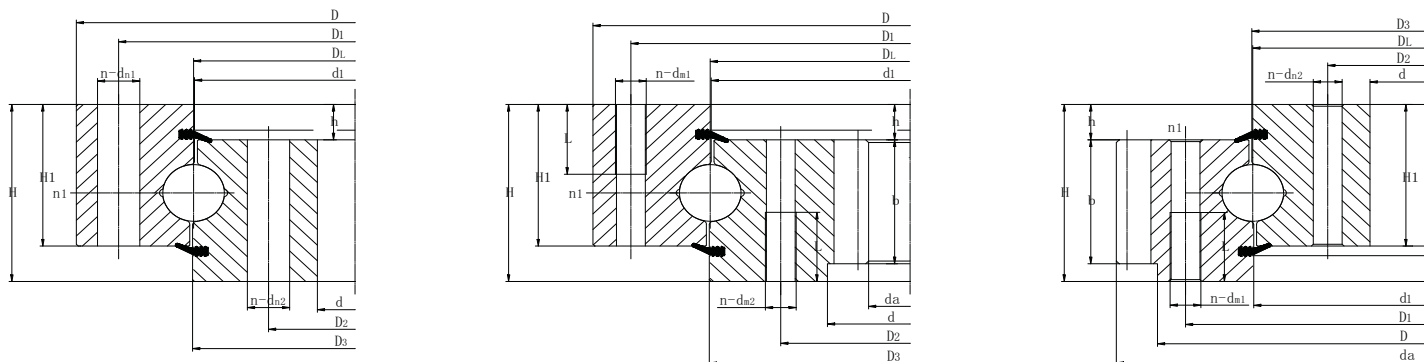
Bearing number			Boundary dimensions			Mounting dimensions						Structure dimensions						Gear data		External gear data		Internal gear data	
Non-gear	External gear	Internal gear	D	d	H	D ₁	D ₂	d _{n1} d _{n2}	d _{m1} d _{m2}	L	n	n ₁	D ₃	d _i	H ₁	h	b	m	d _a	Z	d _a	Z	
			mm									mm							mm				
010.25.355	011.25.355	013.25.355	448	262	70	412	298	18	M16	32	20	2	356	354	60	10	50	5	475	93	235	49	
010.25.400	011.25.400	013.25.400	493	307		457	343				24		401	399				6	528	86	276	48	
010.25.450	011.25.450	013.25.450	543	357		507	393						451	449					576	94	324	56	
010.30.500	011.30.500	013.30.500	602	398	80	566	434	18	M16	32	20	4	501	498	70	10	60	5	629	123	367	74	
	012.30.500	014.30.500																6	628.8	102	368.4	62	
010.25.500	011.25.500	013.25.500																5	629	123	367	74	
	012.25.500	014.25.500																6	628.8	102	368.4	62	

Single row four contact ball slewing bearings



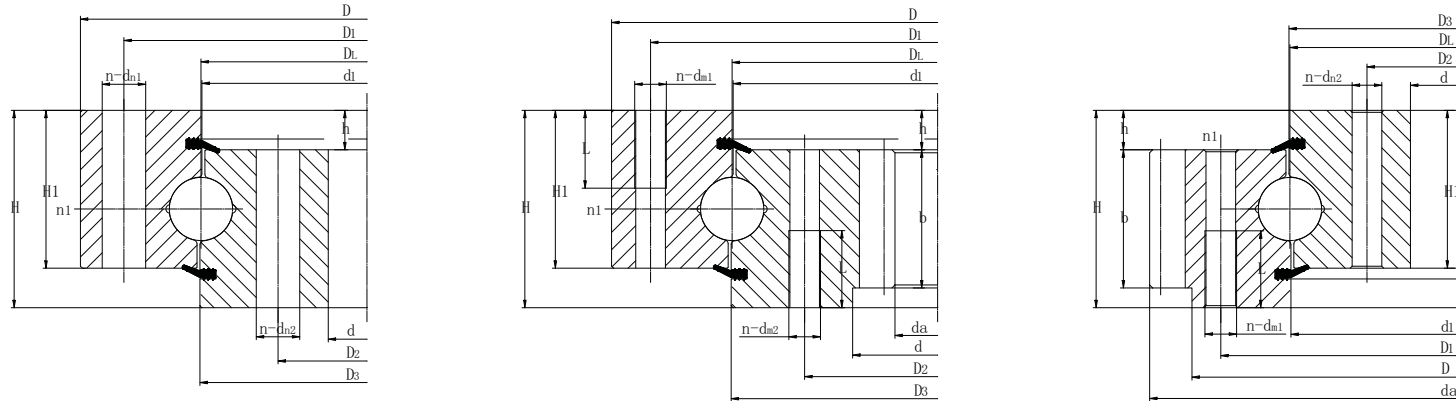
Bearing number			Boundary dimensions			Mounting dimensions						Structure dimensions					Gear data		External gear data		Internal gear data	
Non-gear	External gear	Internal gear	D	d	H	D ₁	D ₂	d _{n1} d _{n2}	d _{m1} d _{m2}	L	n	n ₁	D ₃	d ₁	H ₁	h	b	m	d _a	Z	d _a	Z
			mm									mm									mm	
010.30.560	011.30.560	013.30.560	662	458	80	626	494	18	M16	32	20	4	561	558	70	10	60	5	689	135	427	86
	012.30.560	014.30.560												6				688.8	112	428.4	72	
010.25.560	011.25.560	013.25.560				5	689						135	427				86				
	012.25.560	014.25.560				6	688.8						112	428.4				72				
010.30.630	011.30.630	013.30.630	732	528		696	564				24	631	628	708	8	772.8		126	494.4	83		
	012.30.630	014.30.630											629			8		774.4	94	491.2	62	
010.25.630	011.25.630	013.25.630				6	772.8					126	494.4			83						
	012.25.630	014.25.630				8	774.4					94	491.2			62						
010.30.710	011.30.710	013.30.710	812	608	776	644	4	711	708	8		850.8	139	572.4	96							
	012.30.710	014.30.710										8	854.4	104	571.2	72						

Single row four contact ball slewing bearings



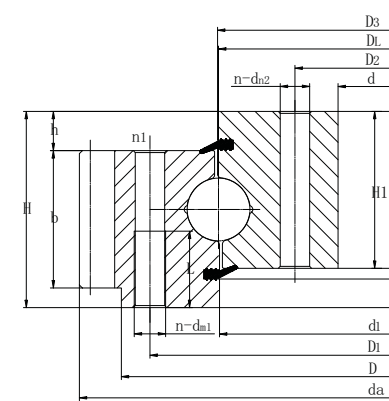
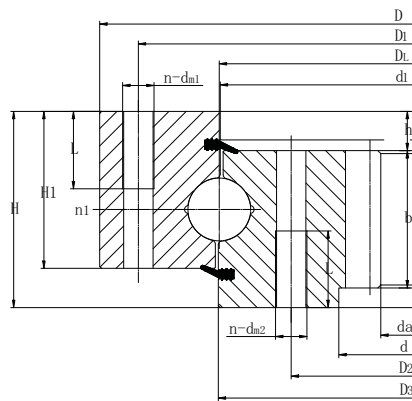
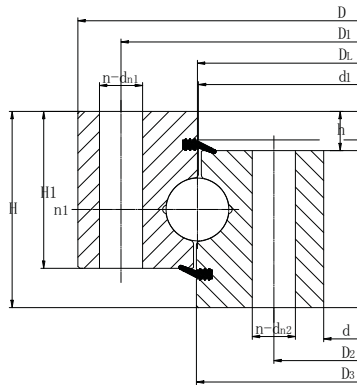
Bearing number			Boundary dimensions			Mounting dimensions						Structure dimensions						Gear data		External gear data		Internal gear data	
Non-gear	External gear	Internal gear	D	d	H	D ₁	D ₂	d _{n1} d _{n2}	d _{m1} d _{m2}	L	n	n ₁	D ₃	d ₁	H ₁	h	b	m	d _a	Z	d _a	Z	
			mm										mm									mm	
010.25.710	011.25.710	013.25.710	812	608	80	776	644	18	M16	32	24	4	711	709	70		60	6	850.8	139	572.4	96	
	012.25.710	014.25.710																	854.4	104	571.2	72	
010.40.800	011.40.800	013.40.800	922	678	100	878	722	22	M20	40	30	6	801	798	90	10	80	8	966.4	118	635.2	80	
	012.40.800	014.40.800																	966.4	94	634	64	
010.30.800	011.30.800	013.30.800	1022	778	100	978	822	22	M20	40	30	6	901	898	90	10	80	8	966.4	118	635.2	80	
	012.30.800	014.30.800																	968	94	634	64	
010.40.900	011.40.900	013.40.900	1022	778	100	978	822	22	M20	40	30	6	901	898	90	10	80	8	1062.4	130	739.2	93	
	012.40.900	014.40.900																	1068	104	734	74	
010.30.900	011.30.900	013.30.900	1022	778	100	978	822	22	M20	40	30	6	901	898	90	10	80	8	1062.4	130	739.2	93	
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Single row four contact ball slewing bearings



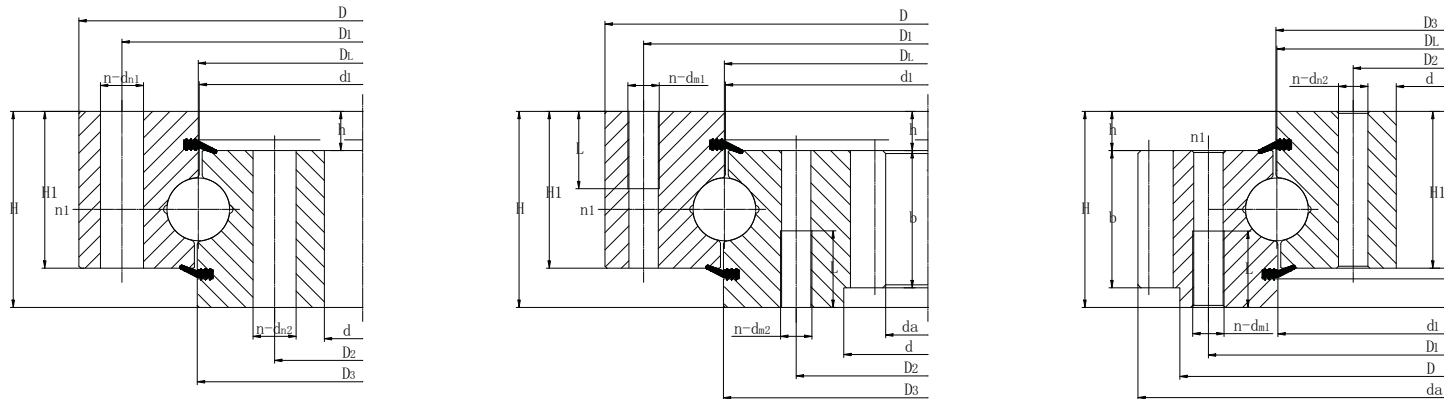
Bearing number			Boundary dimensions			Mounting dimensions						Structure dimensions						Gear data		External gear data		Internal gear data								
Non-gear	External gear	Internal gear	D	d	H	D ₁	D ₂	d _{n1}	d _{m1}	L	n	n ₁	D ₃	d ₁	H ₁	h	b	m	d _a	Z	d _a	Z								
			mm									mm									mm									
010.40.1000	011.40.1000	013.40.1000	1122	878	100	1078	922	22	M20	40	36	6	1001	998	90	10	80	10	1188	116	824	83								
	012.40.1000	014.40.1000																12	1185.6	96	820.8	69								
010.30.1000	011.30.1000	013.30.1000				1078	922						22	M20				40	36	6	1001	998	90	10	80	10	1188	116	824	83
	012.30.1000	014.30.1000																								12	1185.6	96	820.8	69
010.40.1120	011.40.1120	013.40.1120	1242	998	100	1198	1042	22	M20	40	36	6			1121	1118	90				10	80				10	1298	127	944	95
	012.40.1120	014.40.1120																								12	1305.6	106	940.8	79
010.30.1120	011.30.1120	013.30.1120				1198	1042						22	M20	40	36		6	1121	1118			90	10	80	10	1298	127	944	95
	012.30.1120	014.30.1120																								12	1305.6	106	940.8	79
010.45.1250	011.45.1250	013.45.1250	1390	1110	110	1337	1163	26	M24	48	40	5					1252		1248	100	10	90				12	1449.6	118	1048.8	88
	012.45.1250	014.45.1250																								14	1453.2	101	1041.6	75

Single row four contact ball slewing bearings



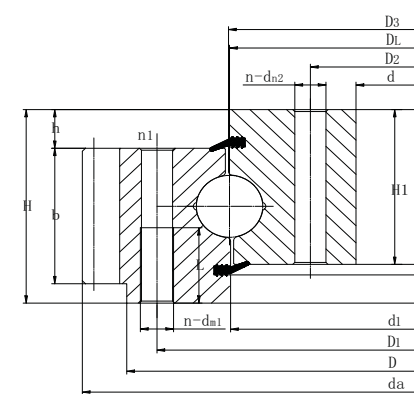
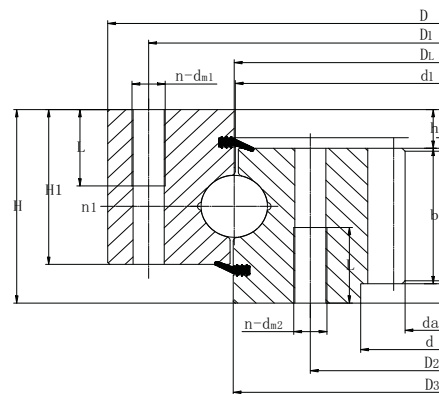
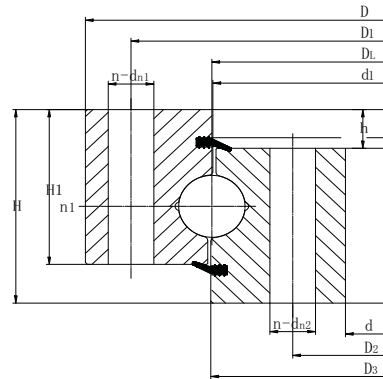
Bearing number			Boundary dimensions			Mounting dimensions						Structure dimensions					Gear data		External gear data		Internal gear data	
Non-gear	External gear	Internal gear	D	d	H	D ₁	D ₂	d _{n1}	d _{m1}	L	n	n ₁	D ₃	d ₁	H ₁	h	b	m	d _a	Z	d _a	Z
			mm									mm									mm	
010.35.1250	011.35.1250	013.35.1250	1390	1110		1337	1163						1251	1248				12	1449.6	118	1048.8	88
	012.35.1250	014.35.1250																				
010.45.1400	011.45.1400	013.45.1400	1540	1260	110	1487	1313	26	M24	48	40		1402	1398	100	10	90	12	1605.6	131	1192.8	100
	012.45.1400	014.45.1400																				
010.35.1400	011.35.1400	013.35.1400										5	1401					12	1605.6	131	1192.8	100
	012.35.1400	014.35.1400																				
010.45.1600	011.45.1600	013.45.1600	1740	1460		1687	1513				45		1602	1598				14	1817.2	127	1391.6	100
	012.45.1600	014.45.1600																				
010.35.1600	011.35.1600	013.35.1600											1601					14	1817.2	127	1391.6	100
	012.35.1600	014.35.1600																				

Single row four contact ball slewing bearings



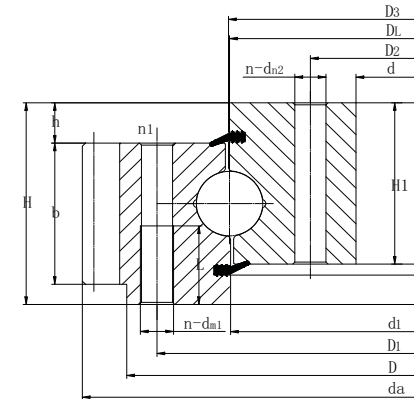
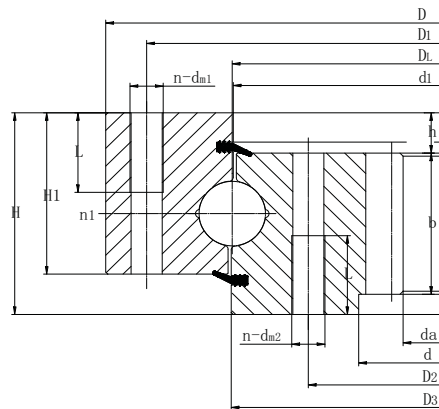
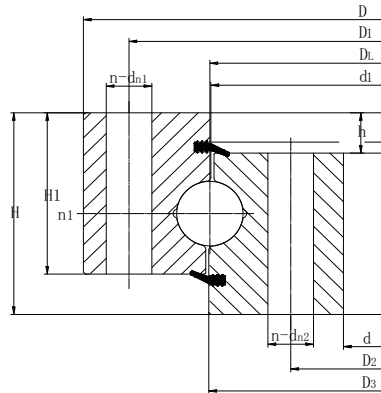
Bearing number			Boundary dimensions			Mounting dimensions						Structure dimensions						Gear data		External gear data		Internal gear data	
Non-gear	External gear	Internal gear	D	d	H	D ₁	D ₂	d _{n1} d _{n2}	d _{m1} d _{m2}	L	n	n ₁	D ₃	d ₁	H ₁	h	b	m	d _a	Z	d _a	Z	
			mm										mm										mm
010.45.1800	011.45.1800	013.45.1800	1940	1660	110	1887	1713	26	M24	48	45	5	1802	1798	100	10	90	14	2013.2	141	1573.6	113	
	012.45.1800	014.45.1800											16					2012.8	123	1574.4	99		
010.35.1800	011.35.1800	013.35.1800										8	2002	1998	132	12	120	14	2013.2	141	1573.6	113	
	012.35.1800	014.35.1800																16	2012.8	123	1574.4	99	
010.60.2000	011.60.2000	013.60.2000	2178	1825	144	2110	1891	33	M30	60	48	8	2002	1998	132	12	120	18	2264.4	123	1735.2	97	
	012.60.2000	014.60.2000											16					2268.8	139	1734.4	109		
010.40.2000	011.40.2000	013.40.2000										8	2001	1998	132	12	120	16	2268.8	139	1734.4	109	
	012.40.2000	014.40.2000																18	2264.4	123	1735.2	97	
010.60.2240	011.60.2240	013.60.2240	2418	2065		2350	2131					2242	2238				16	2492.8	153	1990.4	125		
	012.60.2240	014.60.2240															18	2498.4	136	1987.2	111		

Single row four contact ball slewing bearings



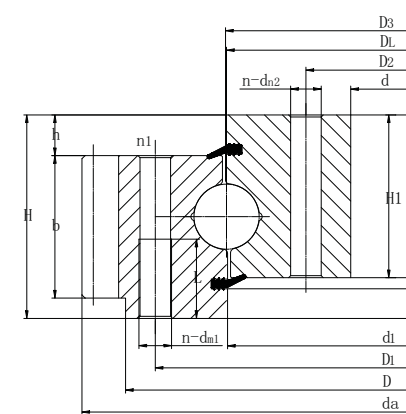
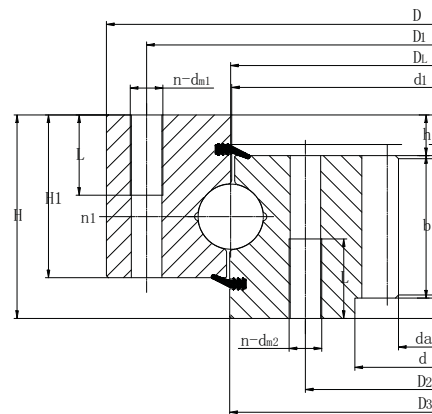
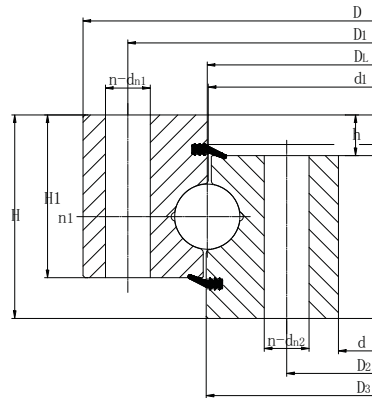
Bearing number			Boundary dimensions			Mounting dimensions						Structure dimensions					Gear data		External gear data		Internal gear data	
Non-gear	External gear	Internal gear	D	d	H	D ₁	D ₂	d _{n1} d _{n2}	d _{m1} d _{m2}	L	n	n ₁	D ₃	d ₁	H ₁	h	b	m	d _a	Z	d _a	Z
			mm										mm									
010.40.2240	011.40.2240	013.40.2240	2418	2065	144	2350	2131	33	M30	60	48	8	2241	2238	132	12	120	16	2492.8	153	1990.4	125
	012.40.2240	014.40.2240																18	2498.4	136	1987.2	111
010.60.2500	011.60.2500	013.60.2500	2678	2325		2610	2391				56		2502	2498				20	2768.4	151	2239.2	125
	012.60.2500	014.60.2500																18	2776	136	2228	112
010.40.2500	011.40.2500	013.40.2500	2678	2325		2610	2391				56		2501	2498				18	2768.4	151	2239.2	125
	012.40.2500	014.40.2500																20	2776	136	2228	112
010.60.2800	011.60.2800	013.60.2800	2978	2625		2910	2691				56		2802	2798				18	3074.4	168	2527.2	141
	012.60.2800	014.60.2800																20	3076	151	2528	127
010.40.2800	011.40.2800	013.40.2800	2978	2625		2910	2691				56		2801	2798				18	3074.4	168	2527.2	141
	012.40.2800	014.40.2800																20	3076	151	2528	127

Single row four contact ball slewing bearings



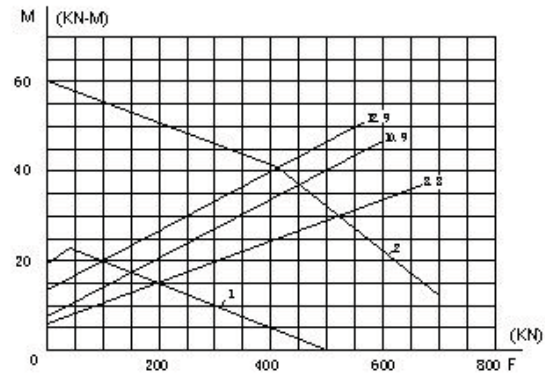
Bearing number			Boundary dimensions			Mounting dimensions						Structure dimensions						Gear data		External gear data		Internal gear data	
Non-gear	External gear	Internal gear	D	d	H	D ₁	D ₂	d _{n1} d _{n2}	d _{m1} d _{m2}	L	n	n ₁	D ₃	d ₁	H ₁	h	b	m	d _a	Z	d _a	Z	
			mm									mm									mm		
010.75.3150	011.75.3150	013.75.3150	3376	2922	174	328 6	3014	45	M42	84	56	8	3152	3147	162	12	150	20	3476	171	2828	142	
	012.75.3150	014.75.3150												22				3471.6	155	2824.8	129		
010.50.3150	011.50.3150	013.50.3150				368 6	3414						3547	20				3476	171	2828	142		
	012.50.3150	014.50.3150												22				3471.6	155	2824.8	129		
010.75.3550	011.75.3550	013.75.3550	3776	3322	174	368 6	3414	45	M42	84	56	8	3552	3547	162	12	150	20	3876	191	3228	162	
	012.75.3550	014.75.3550												22				3889.6	174	3220.8	147		
010.50.3350	011.50.3550	013.50.3550				413 6	3864						3548	20				3876	191	3228	162		
	012.50.3550	014.50.3550												22				3889.6	174	3220.8	147		
010.75.4000	011.75.4000	013.75.4000	4226	3772	174	413 6	3864	45	M42	84	60	10	4002	3997	162	12	150	22	4329.6	194	3660.8	167	
	012.75.4000	014.75.4000												25				4345	171	3660	147		

Single row four contact ball slewing bearings

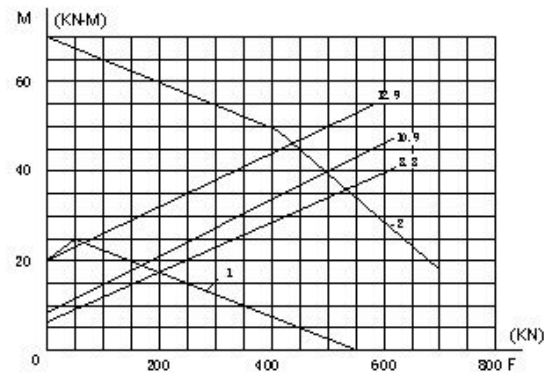


Bearing number			Boundary dimensions			Mounting dimensions						Structure dimensions						Gear data		External gear data		Internal gear data	
Non-gear	External gear	Internal gear	D	d	H	D ₁	D ₂	d _{n1} d _{n2}	d _{m1} d _{m2}	L	n	n ₁	D ₃	d ₁	H ₁	h	b	m	d _a	Z	d _a	Z	
			mm									mm										mm	
010.50.4000	011.50.4000	013.50.4000	4226	3772		4136	3864						4002	3998				22	4329.6	194	3660.8	167	
	012.50.4000	014.50.4000												25				4345	171	3660	147		
010.75.4500	011.75.4500	013.75.4500	4726	4272	174	4636	4364	45	M42	84	60	10	4502	4497	162	12	150	22	4835.6	217	4166.8	190	
	012.75.4500	014.75.4500																	25	4845	191	4160	167
010.50.4500	011.50.4500	013.50.4500	4726	4272		4636	4364						4502	4498				22	4835.6	217	4166.8	190	
	012.50.4500	014.50.4500																	25	4845	191	4160	167

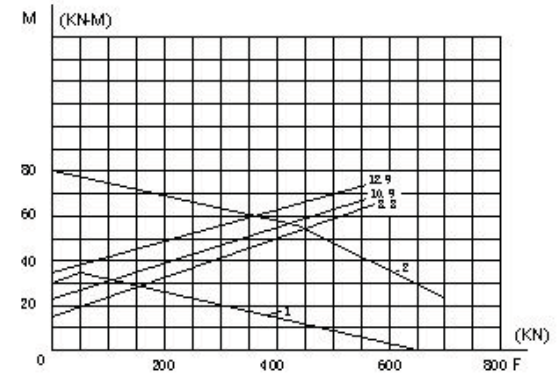
Single row four contact ball slewing bearings load curve



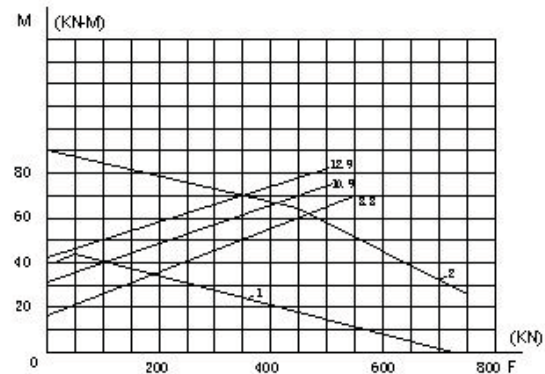
图A01 01x.20.200.xx 转盘轴承承载曲线



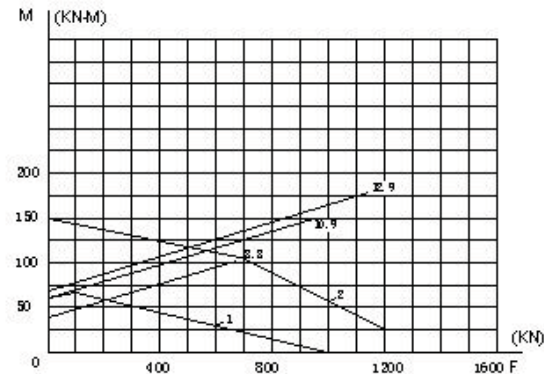
图A02 01x.20.224.xx 转盘轴承承载曲线



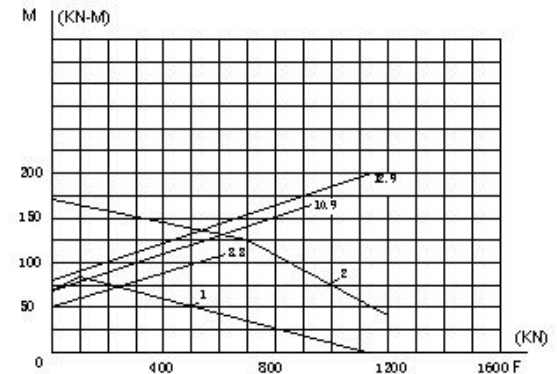
图A03 01x.20.250.xx 转盘轴承承载曲线



图A04 01x.20.280.xx 转盘轴承承载曲线

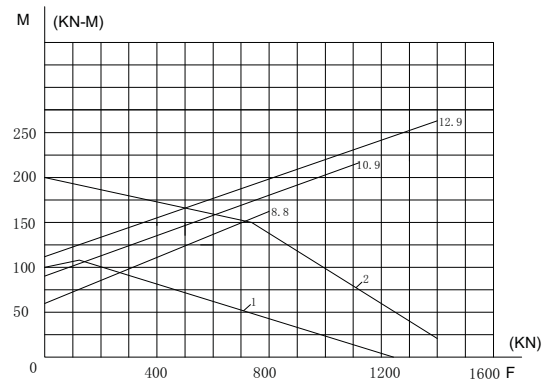


图A05 01x.25.315.xx 转盘轴承承载曲线

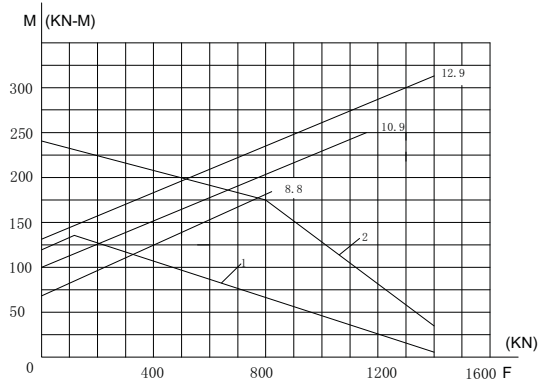


图A06 01x.25.355.xx 转盘轴承承载曲线

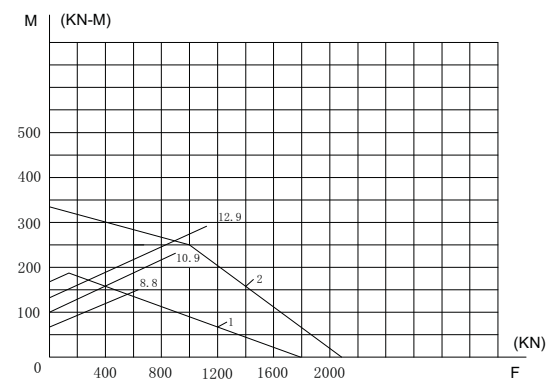
Single row four contact ball slewing bearings load curve



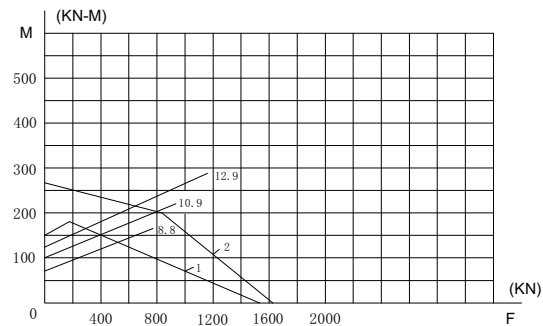
图A07 01x.25.400.xx 转盘轴承承载曲线



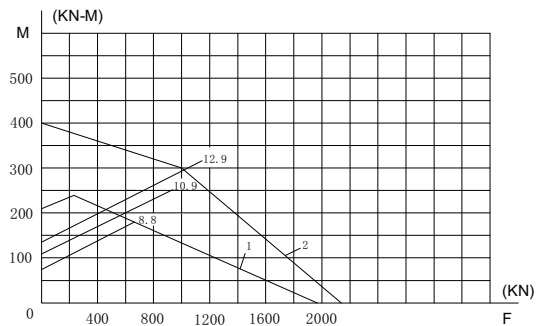
图A08 01x.25.450.xx 转盘轴承承载曲线



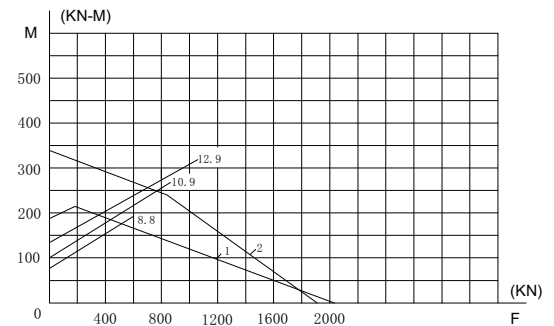
图A09 01x.30.500.xx 转盘轴承承载曲线



图A10 01x.25.500.xx 转盘轴承承载曲线

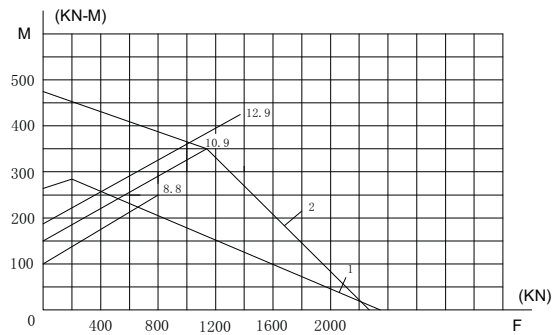


图A11 01x.30.560.xx 转盘轴承承载曲线

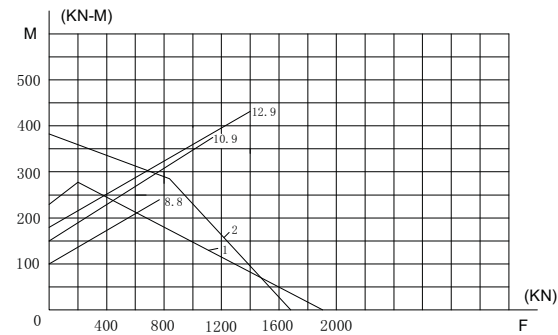


图A12 01x.25.560.xx 转盘轴承承载曲线

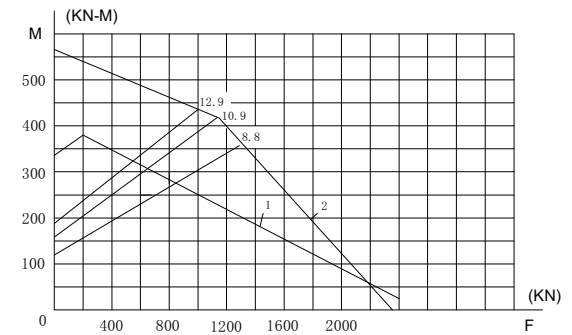
Single row four contact ball slewing bearings load curve



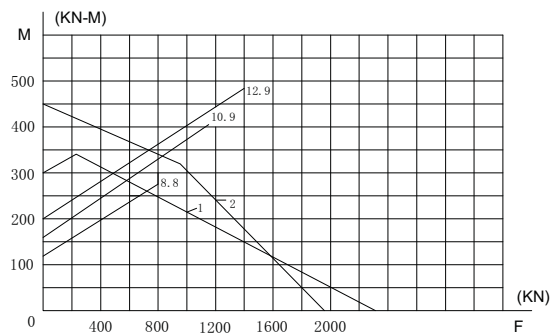
图A13 01x.30.630.xx 转盘轴承承载曲线



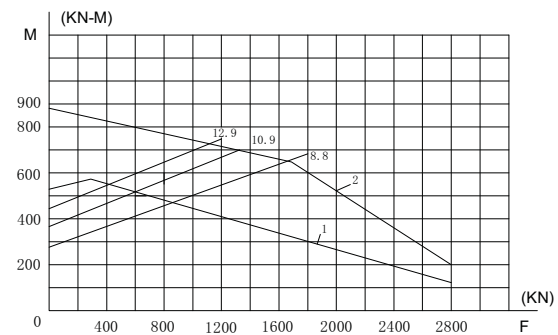
图A14 01x.25.630.xx 转盘轴承承载曲线



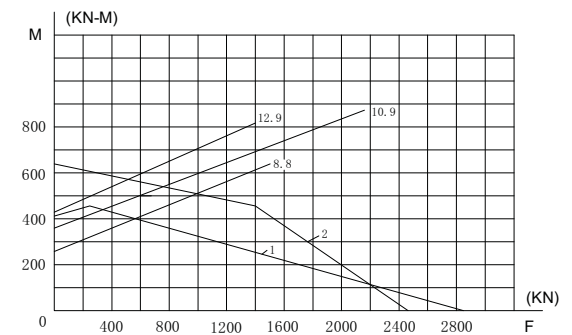
图A15 01x.30.710.xx 转盘轴承承载曲线



图A16 01x.25.710.xx 转盘轴承承载曲线

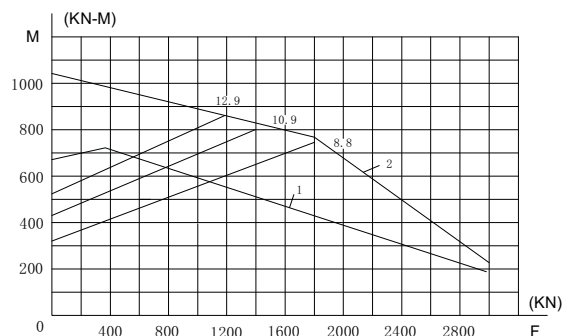


图A17 01x.40.800.xx 转盘轴承承载曲线

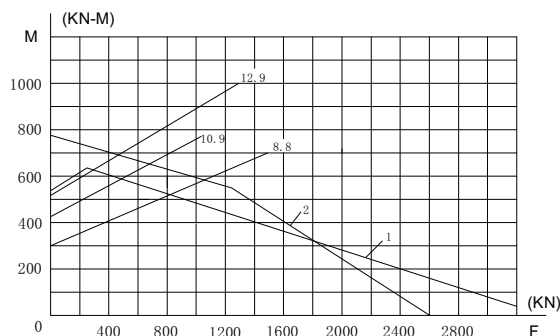


图A18 01x.30.800.xx 转盘轴承承载曲线

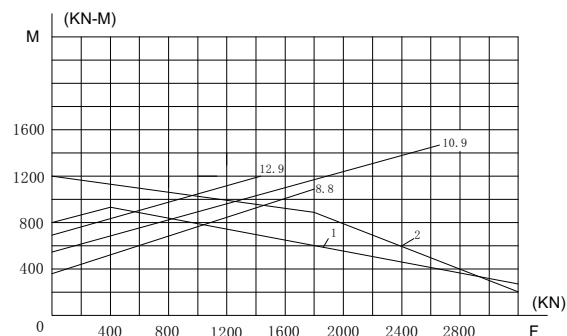
Single row four contact ball slewing bearings load curve



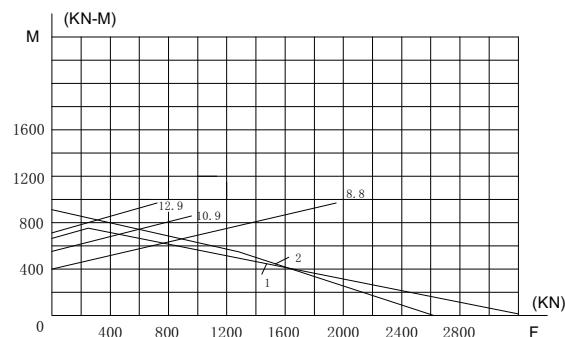
图A19 01x.40.900.xx 转盘轴承承载曲线



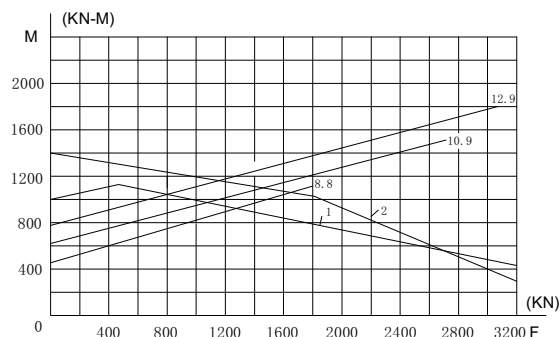
图A20 01x.30.900.xx 转盘轴承承载曲线



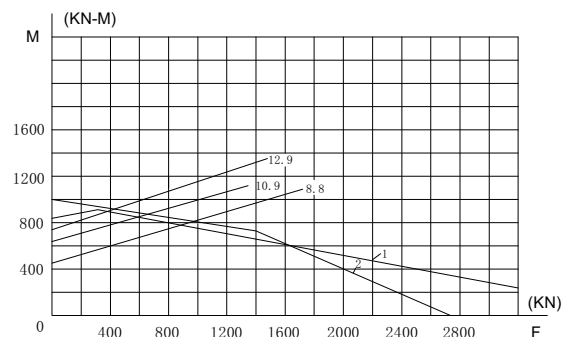
图A21 01x.40.1000.xx 转盘轴承承载曲线



图A22 01x.30.1000.xx 转盘轴承承载曲线

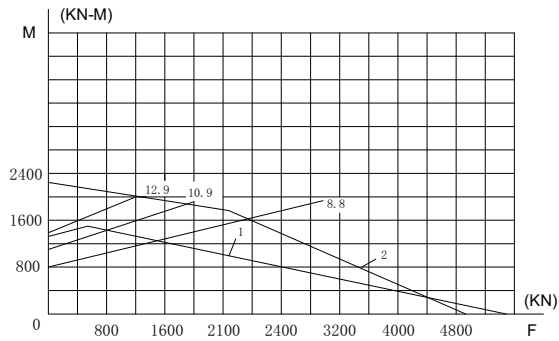


图A23 01x.40.1120.xx 转盘轴承承载曲线

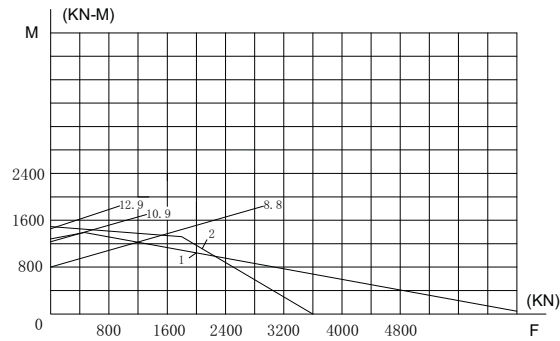


图A24 01x.30.1120.xx 转盘轴承承载曲线

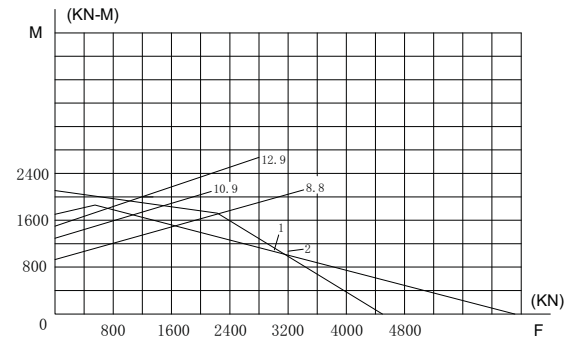
Single row four contact ball slewing bearings load curve



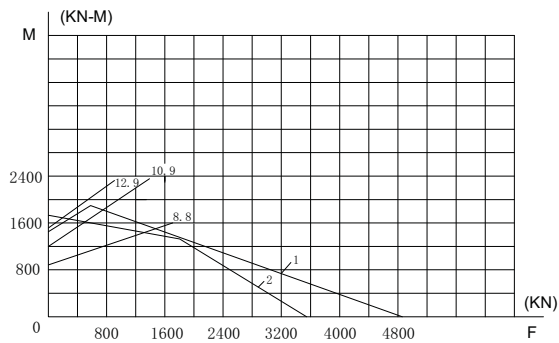
图A25 01x.45.1250.xx 转盘轴承承载曲线



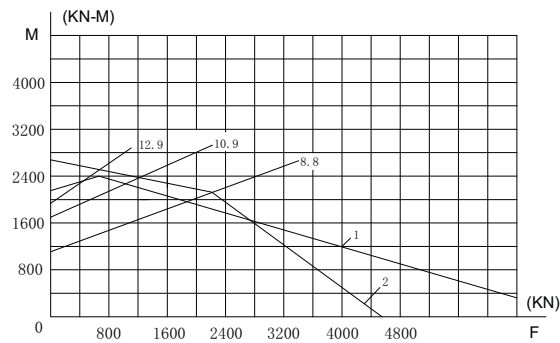
图A26 01x.35.1250.xx 转盘轴承承载曲线



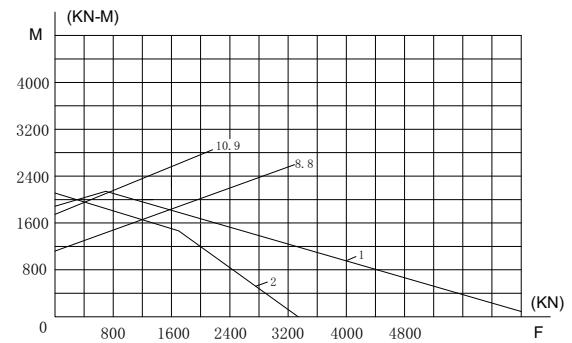
图A27 01x.45.1400.xx 转盘轴承承载曲线



图A28 01x.35.1400.xx 转盘轴承承载曲线

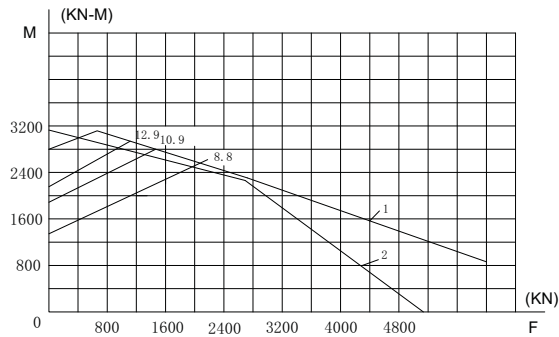


图A29 01x.45.1600.xx 转盘轴承承载曲线

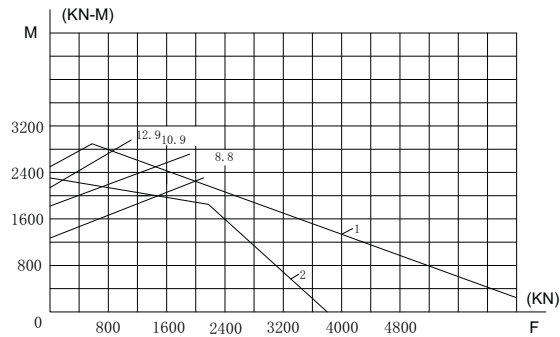


图A30 01x.35.1600.xx 转盘轴承承载曲线

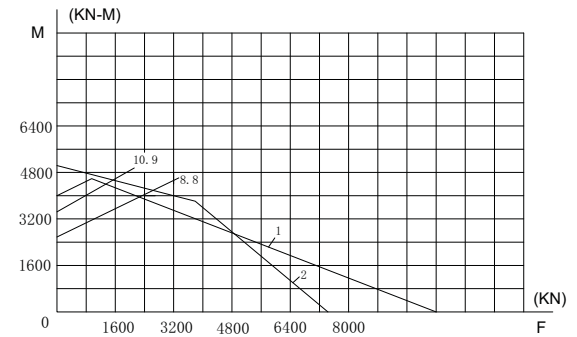
Single row four contact ball slewing bearings load curve



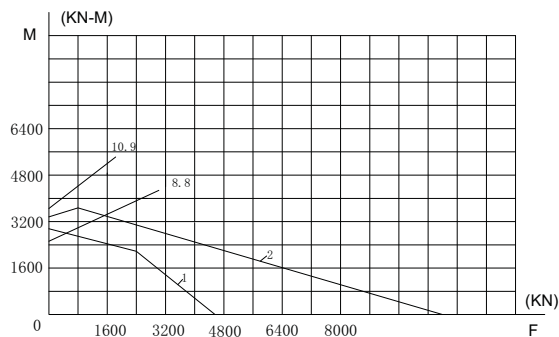
图A31 01x.45.1800.xx 转盘轴承承载曲线



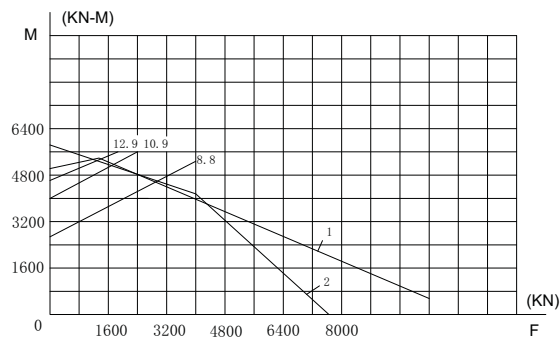
图A32 01x.35.1800.xx 转盘轴承承载曲线



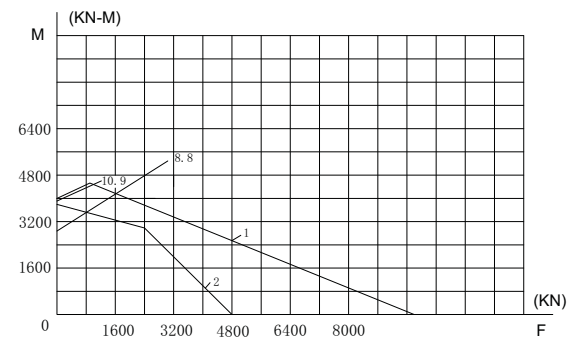
图A33 01x.60.2000.xx 转盘轴承承载曲线



图A34 01x.40.2000.xx 转盘轴承承载曲线

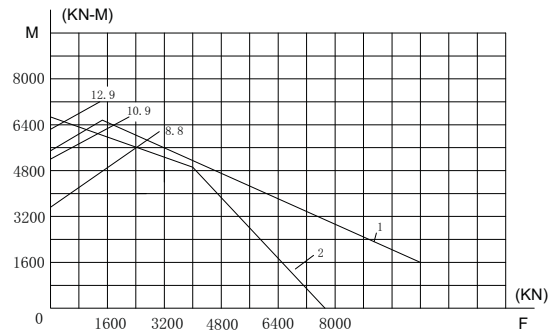


图A35 01x.60.2240.xx 转盘轴承承载曲线

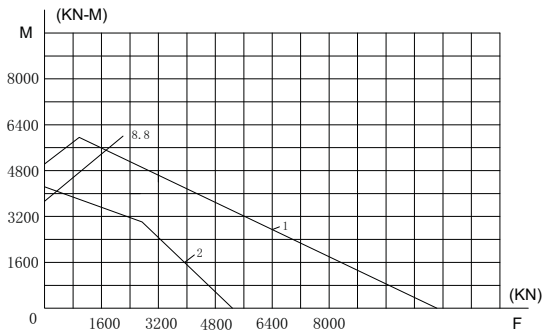


图A36 01x.40.2240.xx 转盘轴承承载曲线

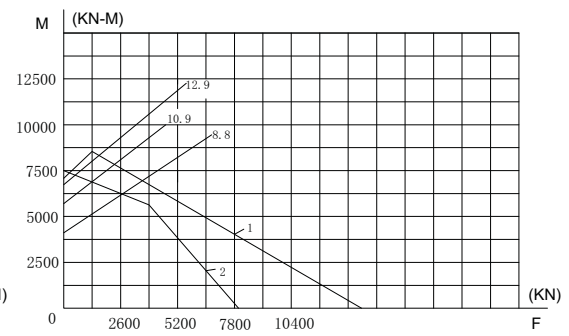
Single row four contact ball slewing bearings load curve



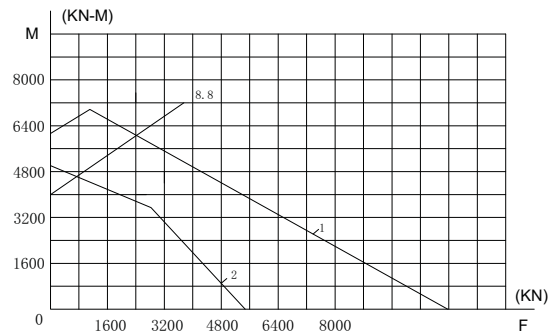
图A37 01x.60.2500.xx 转盘轴承承载曲线



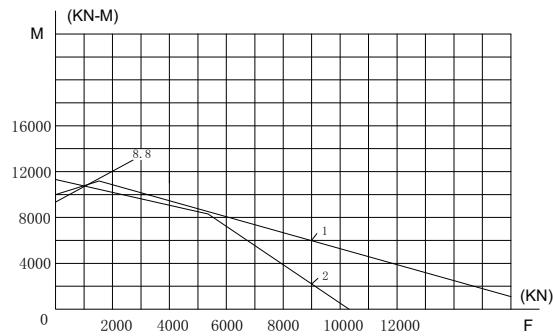
图A38 01x.40.2500.xx 转盘轴承承载曲线



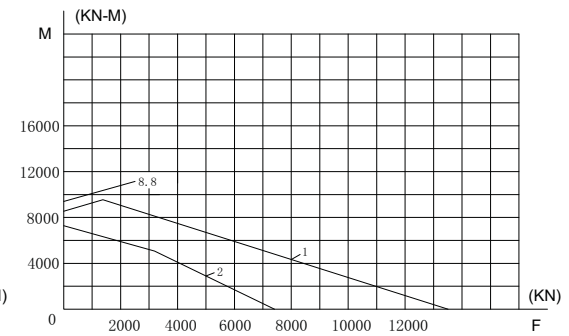
图A39 01x.60.2800.xx 转盘轴承承载曲线



图A40 01x.40.2800.xx 转盘轴承承载曲线

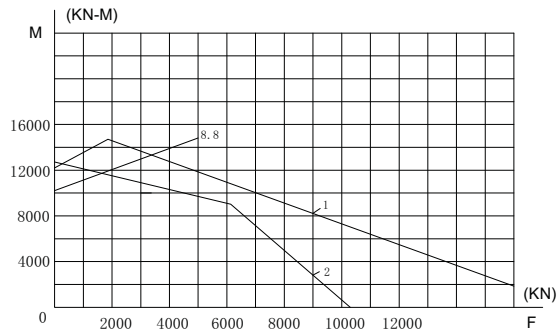


图A41 01x.75.3150.xx 转盘轴承承载曲线

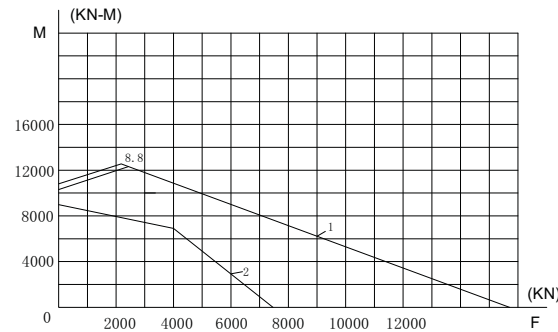


图A42 01x.50.3150.xx 转盘轴承承载曲线

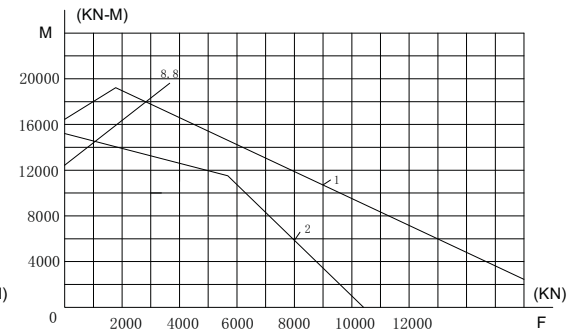
Single row four contact ball slewing bearings load curve



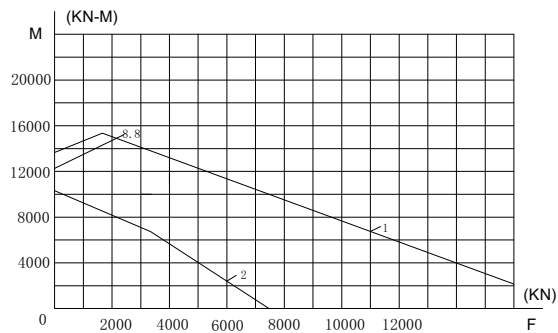
图A43 01x.75.3550.xx 转盘轴承承载曲线



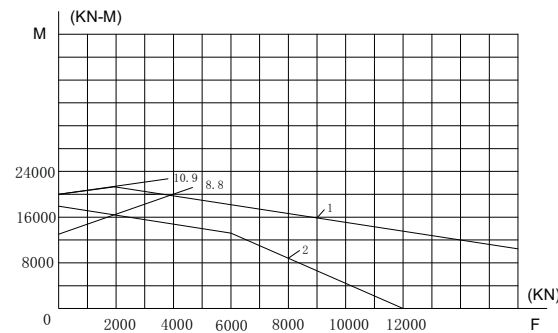
图A44 01x.50.3550.xx 转盘轴承承载曲线



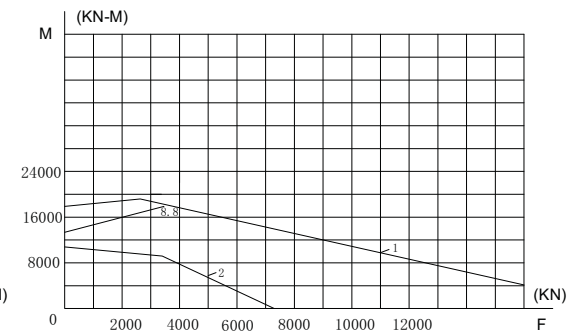
图A45 01x.75.4000.xx 转盘轴承承载曲线



图A46 01x.50.4000.xx 转盘轴承承载曲线

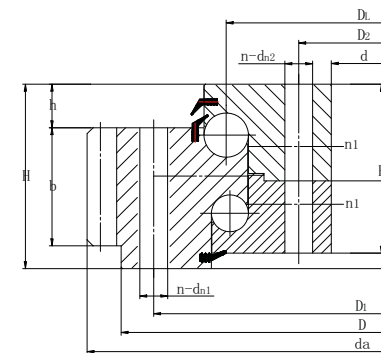
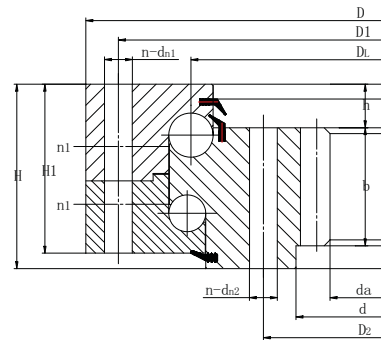
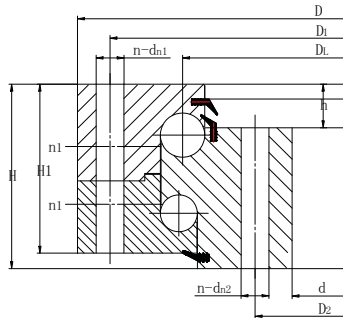


图A47 01x.75.4500.xx 转盘轴承承载曲线



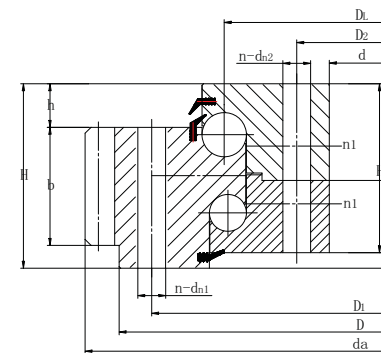
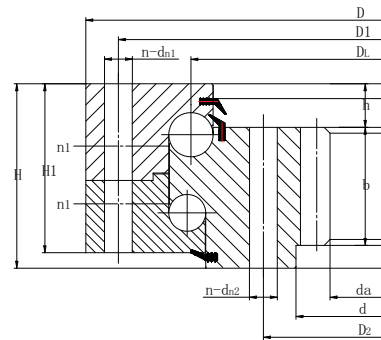
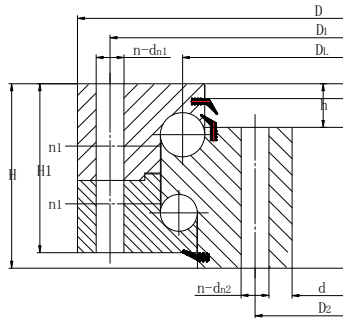
图A48 01x.50.4500.xx 转盘轴承承载曲线

Double row different diameter ball slewing bearings



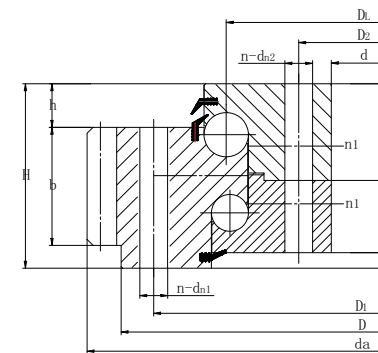
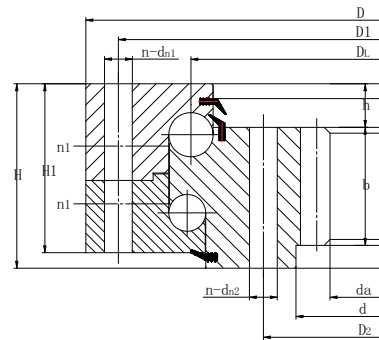
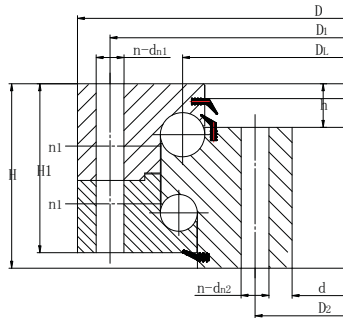
Bearing number			Boundary dimensions			Mounting dimensions						Structure dimensions			Gear data		External gear data		Internal gear data									
Non-gear	External gear	Internal gear	D	d	H	D ₁	D ₂	d _{n1}	d _{m1}	L	n	n ₁	H ₁	h	b	m	d _a	Z	d _a	Z								
			mm									mm							mm									
020.25.500	021.25.500	023.25.500	616	384	106	580	420	18	M16	32	20	4	96	26	60	5	644	126	357	72								
	022.25.500	024.25.500														6	646.8	105	350.4	59								
020.25.560	021.25.560	023.25.560	676	444		640	480									24	5	704	138	417	84							
	022.25.560	024.25.560															6	706.8	115	410.4	69							
020.25.630	021.25.630	023.25.630	746	514		710	550				790.8						129	482.4	81									
	022.25.630	024.25.630									8						790.4	96	475.2	60								
020.25.710	021.25.710	023.25.710	826	594		790	630				24					6	862.8	141	560.4	94								
	022.25.710	024.25.710														8	862.4	105	555.2	70								
020.30.800	021.30.800	023.30.800	942	658		124	898									702	22	M20	40	30	6	114	29	80	982.4	120	619.2	78
	022.30.800	024.30.800																							10	988	96	614

Double row different diameter ball slewing bearings



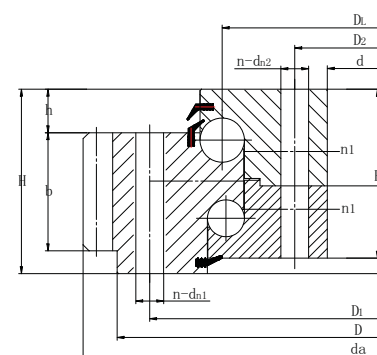
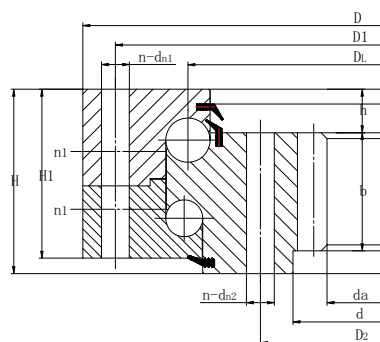
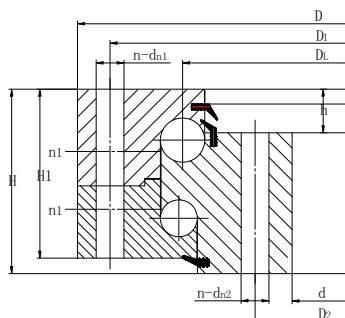
Bearing number			Boundary dimensions			Mounting dimensions						Structure dimensions			Gear data		External gear data		Internal gear data	
Non-gear	External gear	Internal gear	D	d	H	D ₁	D ₂	d _{n1} d _{n2}	d _{m1} d _{m2}	L	n	n ₁	H ₁	h	b	m	d _a	Z	d _a	Z
			mm									mm							mm	
020.30.900	021.30.900	023.30.900	1042	758	124	998	802	22	M20	40	30	6	114	29	80	8	1086.4	133	715.2	90
	022.30.900	024.30.900				10	1088				106					714	72			
020.30.1000	021.30.1000	023.30.1000	1142	858			1098				902					36	12	1198	117	814
	022.30.1000	024.30.1000				12	1197.6				97							796.8	67	
020.30.1120	021.30.1120	023.30.1120	1262	978	1218	1022	12	1318	129	924	93									
	022.30.1120	024.30.1120			1426	1074		160	1374	1126	26	M24	48	40	5			150	39	90
020.40.1250	021.40.1250	023.40.1250	1497.6	122					1012.8	85										
	022.40.1250	024.40.1250	14	1495.2	104	1013.6			73											
020.40.1400	021.40.1400	023.40.1400	1576	1224	1524	1276	12		1641.6	134						1156.8	97			
	022.40.1400	024.40.1400			14	1649.2	115	1153.6	83											

Double row different diameter ball slewing bearings



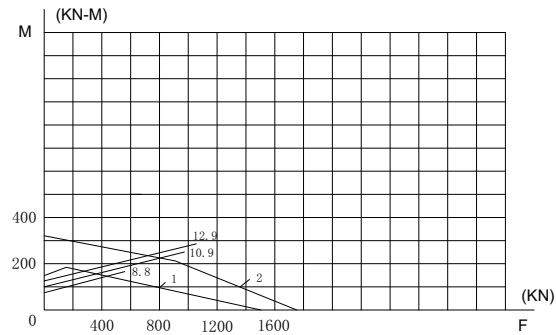
Bearing number			Boundary dimensions			Mounting dimensions						Structure dimensions			Gear data		External gear data		Internal gear data	
Non-gear	External gear	Internal gear	D	d	H	D ₁	D ₂	d _{n1}	d _{m1}	L	n	n ₁	H ₁	h	b	m	d _a	Z	d _a	Z
			mm									mm							mm	
020.40.1600	021.40.1600	023.40.1600	1776	1424	160	1724	1476	26	M24	48	45	5	150	39	90	14	1845.2	129	1349.6	97
	022.40.1600	024.40.1600														16	1852.8	113	1350.4	85
020.40.1800	021.40.1800	023.40.1800	1976	1624	190	1924	1676	33	M30	60	48	8	178	47	120	14	2055.2	144	1545.6	111
	022.40.1800	024.40.1800														16	2060.8	126	1542.4	97
020.50.2000	021.50.2000	023.50.2000	2215	1785	190	2149	1851	33	M30	60	48	8	178	47	120	18	2300.8	141	1702.4	107
	022.50.2000	024.50.2000														16	2300.4	125	1699.2	95
020.50.2240	021.50.2240	023.50.2240	2455	2025	190	2389	2091	33	M30	60	48	8	178	47	120	16	2540.8	156	1942.4	122
	022.50.2240	024.50.2240														18	2552.4	139	1933.2	108
020.50.2500	021.50.2500	023.50.2500	2715	2285	190	2649	2351	33	M30	60	56	8	178	47	120	18	2804.4	153	2203.2	123
	022.50.2500	024.50.2500														20	2816	138	2188	110

Double row different diameter ball slewing bearings

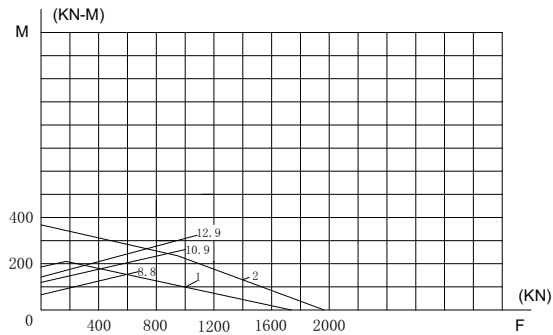


Bearing number			Boundary dimensions			Mounting dimensions					Structure dimensions				Gear data		External gear data		Internal gear data					
Non-gear	External gear	Internal gear	D	d	H	D ₁	D ₂	d _{n1} d _{n2}	d _{m1} d _{m2}	L	n	n ₁	H ₁	h	b	m	d _a	Z	d _a	Z				
			mm									mm							mm					
020.50.2800	021.50.2800	023.50.2800	3015	2585	190	2949	2651	33	M30	60	56	8	178	47	120	18	3110.4	170	2491.2	139				
	022.50.2800	024.50.2800														20	3116	153	2488	125				
020.60.3150	021.60.3150	023.60.3150	3428	2872	226	3338	2962	45	M42	84						214	56	150	22	3537.6	158	2758.8	126	
	022.60.3150	024.60.3150																	20	3936	194	3168	159	
020.60.3550	021.60.3550	023.60.3550	3828	3272		3738	3362					60	10	214	56				150	22	3933.6	176	3176.8	145
	022.60.3550	024.60.3550																		22	4395.6	197	3616.8	165
020.60.4000	021.60.4000	023.60.4000	4278	3722		4188	3812			60	10					214	56	150		25	4395	173	3610	145
	022.60.4000	024.60.4000																		22	4879.6	219	4122.8	188
020.60.4500	021.60.4500	023.60.4500	4778	4222		4688	4312	60	10			214	56	150	25				4895	193	4110	165		
	022.60.4500	024.60.4500																						

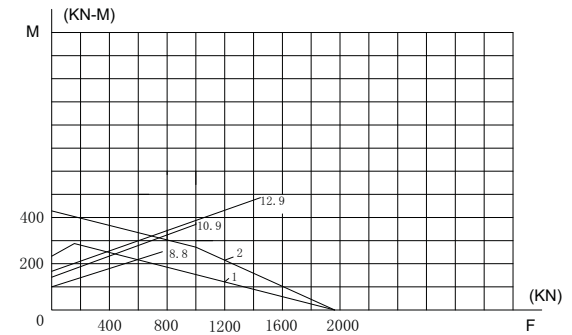
Double row different diameter ball slewing bearings load curve



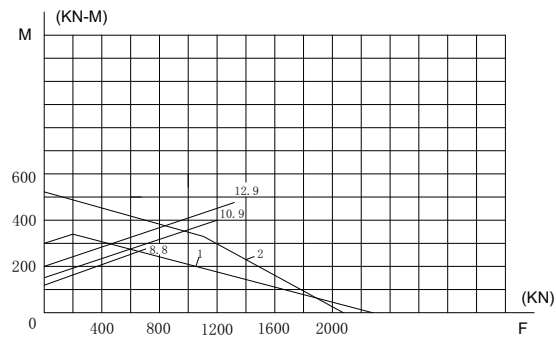
图A49 02x.25.500.xx 转盘轴承承载曲线



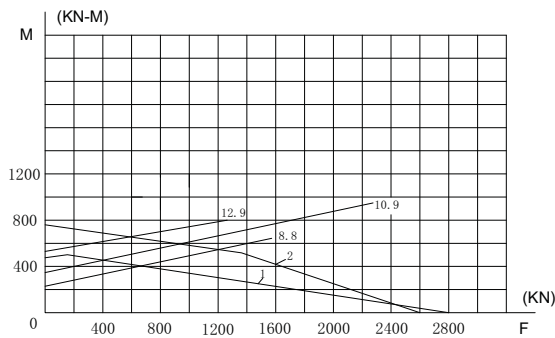
图A50 02x.25.560.xx 转盘轴承承载曲线



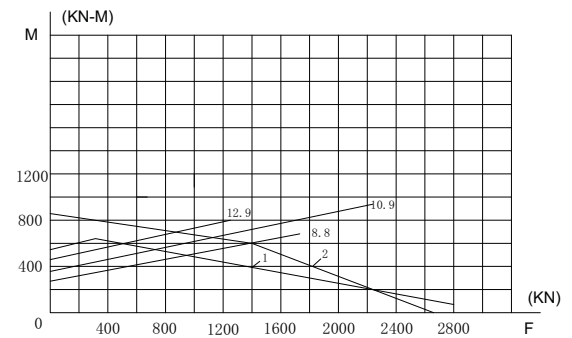
图A51 02x.25.630.xx 转盘轴承承载曲线



图A52 02x.25.710.xx 转盘轴承承载曲线

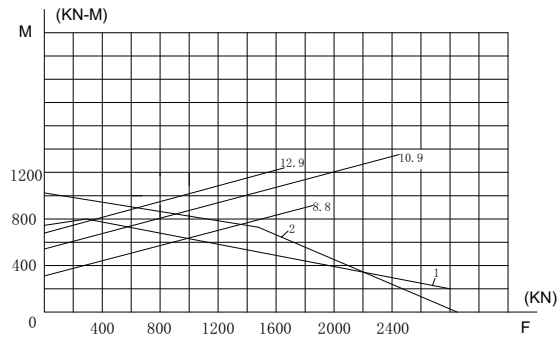


图A53 02x.30.800.xx 转盘轴承承载曲线

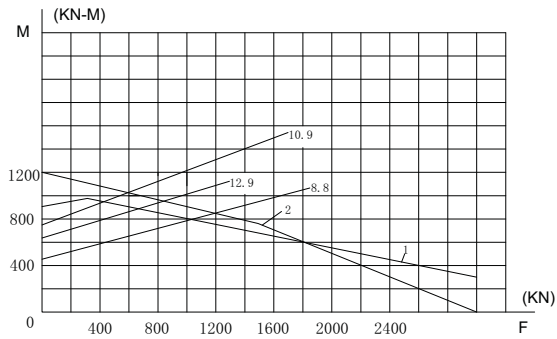


图A54 02x.30.900.xx 转盘轴承承载曲线

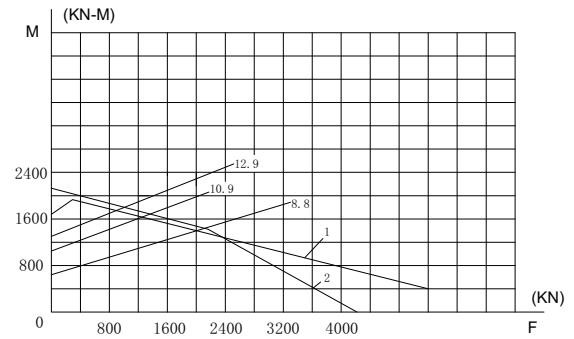
Double row different diameter ball slewing bearings load curve



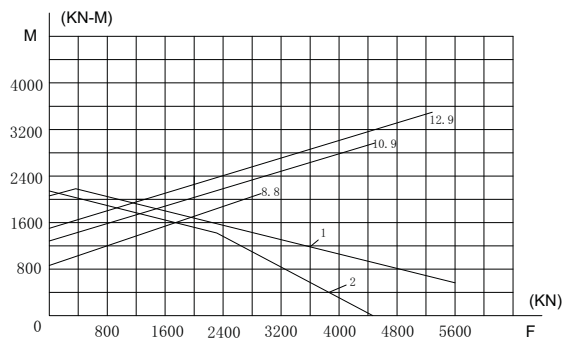
图A55 02x.30.1000.xx 转盘轴承承载曲线



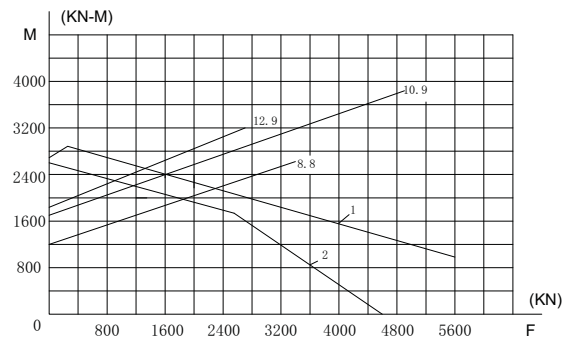
图A56 02x.30.1120.xx 转盘轴承承载曲线



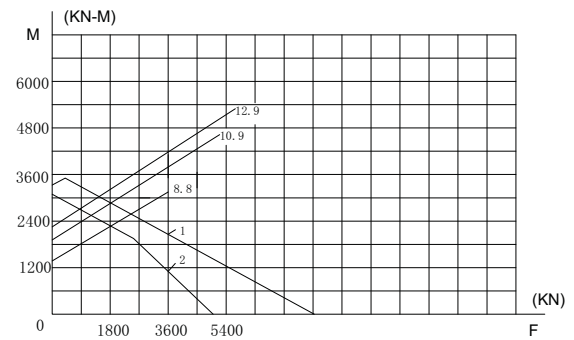
图A57 02x.40.1250.xx 转盘轴承承载曲线



图A58 02x.40.1400.xx 转盘轴承承载曲线

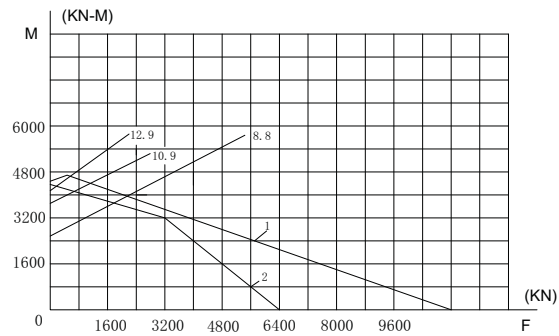


图A59 02x.40.1600.xx 转盘轴承承载曲线

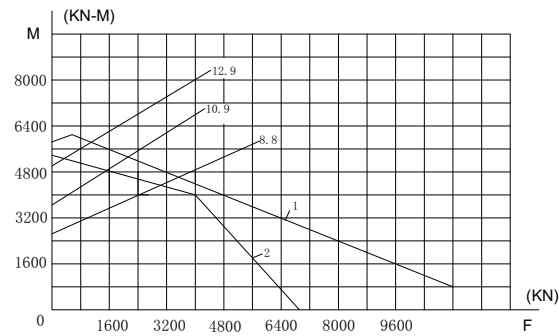


图A60 02x.40.1800.xx 转盘轴承承载曲线

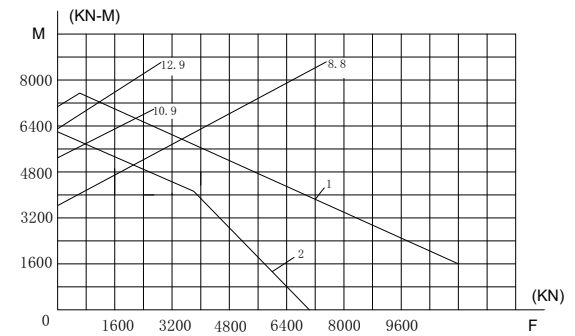
Double row different diameter ball slewing bearings load curve



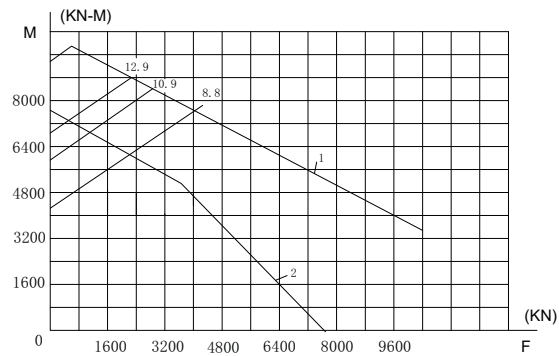
图A61 02x.50.2000.xx 转盘轴承承载曲线



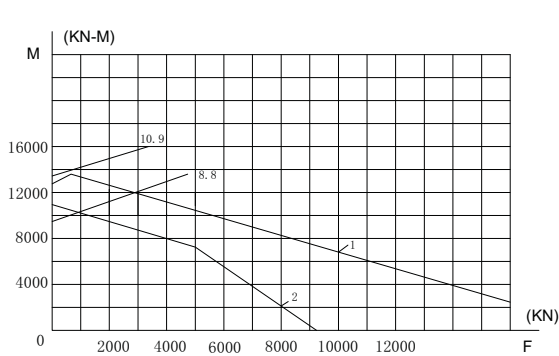
图A62 02x.50.2240.xx 转盘轴承承载曲线



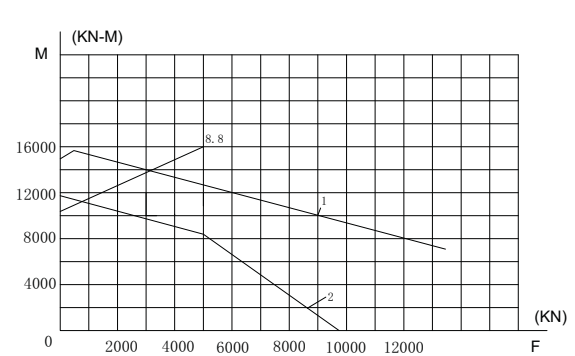
图A63 02x.50.2500.xx 转盘轴承承载曲线



图A64 02x.50.2800.xx 转盘轴承承载曲线

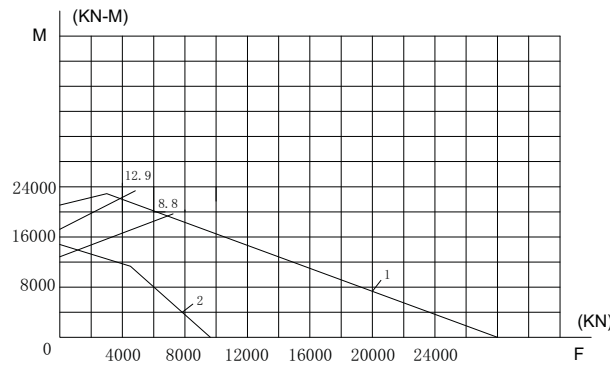


图A65 02x.60.3150.xx 转盘轴承承载曲线

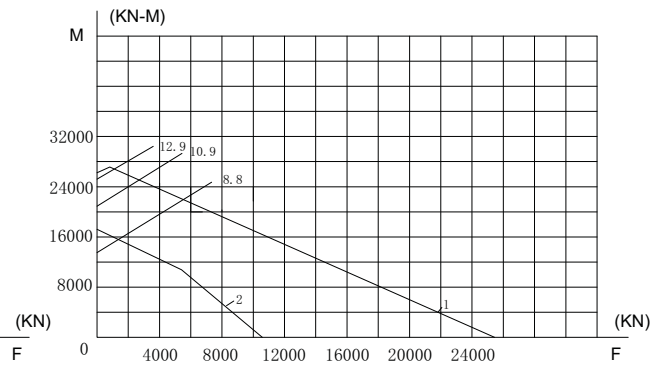


图A66 02x.60.3550.xx 转盘轴承承载曲线

Double row different diameter ball slewing bearings load curve

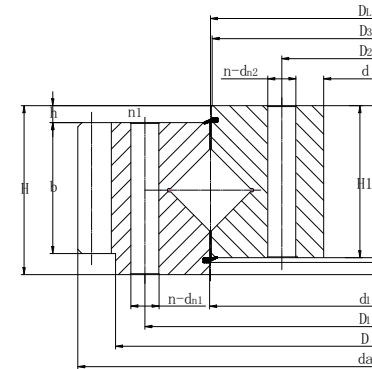
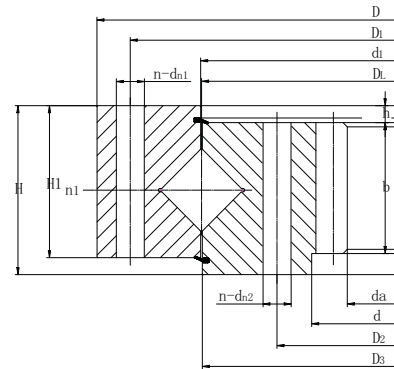
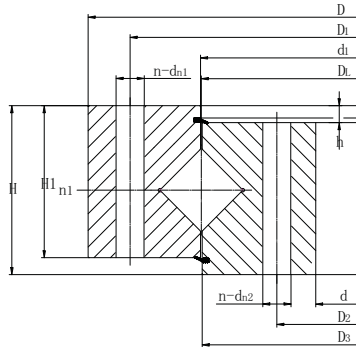


图A67 02x.60.4000.xx 转盘轴承承载曲线



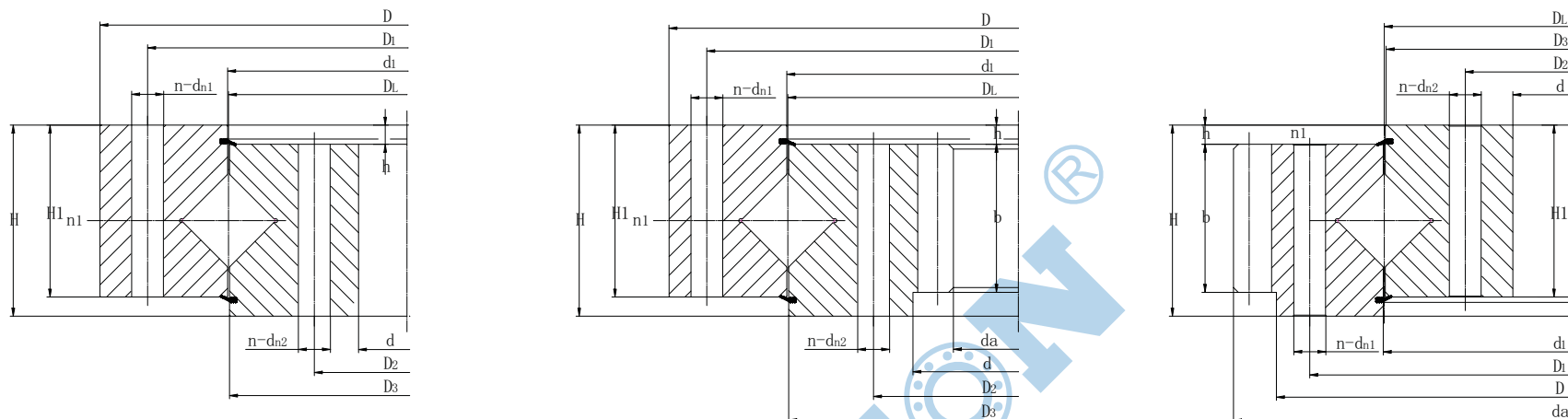
图A68 02x.60.4500.xx 转盘轴承承载曲线

Single row cross roller slewing bearings



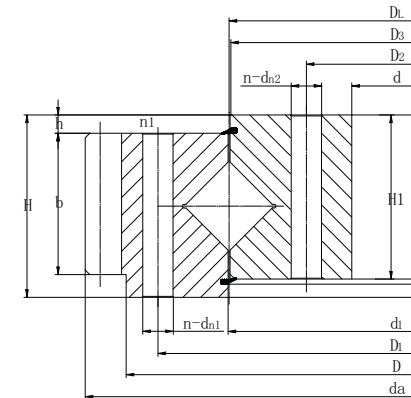
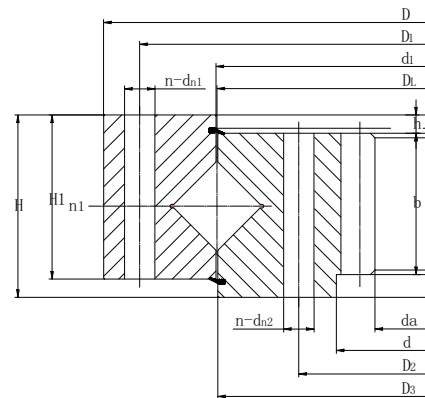
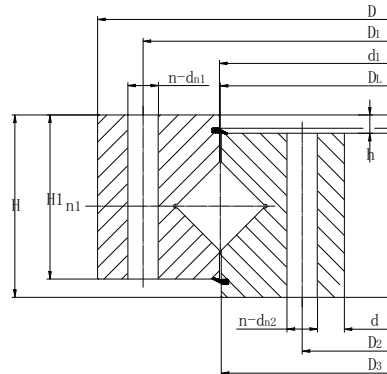
Bearing number			Boundary dimensions			Mounting dimensions						Structure dimensions					Gear data		External gear data		Internal gear data			
Non-gear	External gear	Internal gear	D	d	H	D ₁	D ₂	d _{n1} d _{n2}	d _{m1} d _{m2}	L	n	n ₁	D ₃	d ₁	H ₁	h	b	m	d _a	Z	d _a	Z		
			mm								mm								mm					
110.25.500	111.25.500	113.25.500	602	398	75	566	434	18	M16	32	20	4	498	502	65	10	60	5	629	123	367	74		
	112.25.500	114.25.500																6	628.8	102	368.4	62		
110.25.560	111.25.560	113.25.560	662	458		626	494						24	558				562	6	5	689	135	427	86
	112.25.560	114.25.560																		6	688.8	112	428.4	72
110.25.630	111.25.630	113.25.630	732	528		696	564				628			632				6	772.8	126	494.4	83		
	112.25.630	114.25.630																	8	774.4	94	491.2	62	
110.25.710	111.25.710	113.25.710	812	608		776	644				708		712	8				850.8	139	572.4	96			
	112.25.710	114.25.710																8	854.4	104	571.2	72		
110.28.800	111.28.800	113.28.800	922	678		82	878	722	22	M20	40	30	6	798	802	72		65	966.4	118	635.2	80		
	112.28.800	114.28.800																	10	968	94	634	64	

Single row cross roller slewing bearings



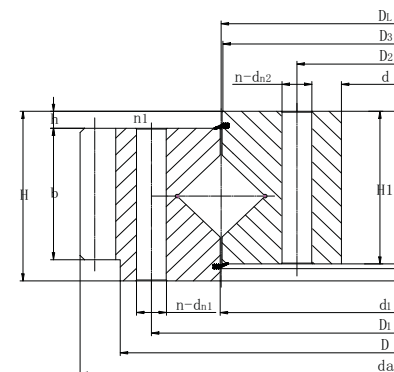
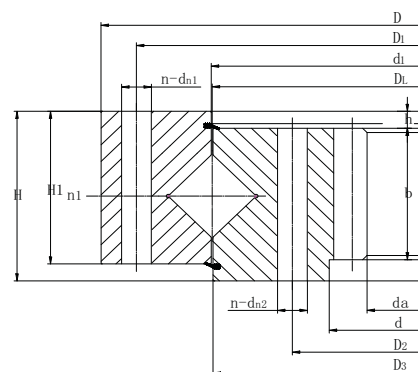
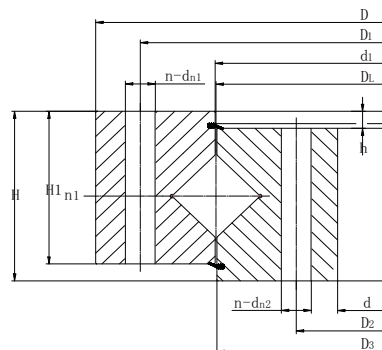
Bearing number			Boundary dimensions			Mounting dimensions						Structure dimensions					Gear data		External gear data		Internal gear data	
Non-gear	External gear	Internal gear	D	d	H	D ₁	D ₂	d _{n1} d _{n2}	d _{m1} d _{m2}	L	n	n ₁	D ₃	d ₁	H ₁	h	b	m	d _a	Z	d _a	Z
			mm										mm									
110.28.900	111.28.900	113.28.900	1022	778	82	978	822	22	M20	40	30	6	898	902	72	10	65	8	1062.4	130	739.2	93
	112.28.900	114.28.900									10		1068	104				734	74			
110.28.1000	111.28.1000	113.28.1000	1122	878	82	1078	922	22	M20	40	36	6	998	1002	72	10	65	12	1185.6	96	820.8	69
	112.28.1000	114.28.1000											10	1188				116	824	83		
110.28.1120	111.28.1120	113.28.1120	1242	998	82	1198	1042	22	M20	40	36	6	1118	1122	72	10	65	10	1298	127	944	95
	112.28.1120	114.28.1120											12	1305.6				106	940.8	79		
110.32.1250	111.32.1250	113.32.1250	1390	1110	91	1337	1163	26	M24	48	40	5	1248	1252	81	10	75	12	1449.6	118	1048.8	88
	112.32.1250	114.32.1250											14	1453.2				101	1041.6	75		
110.32.1400	111.32.1400	113.32.1400	1540	1260	91	1487	1313	26	M24	48	40	5	1398	1402	81	10	75	12	1605.6	131	1192.8	100
	112.32.1400	114.32.1400											14	1607.2				112	1195.6	86		

Single row cross roller slewing bearings



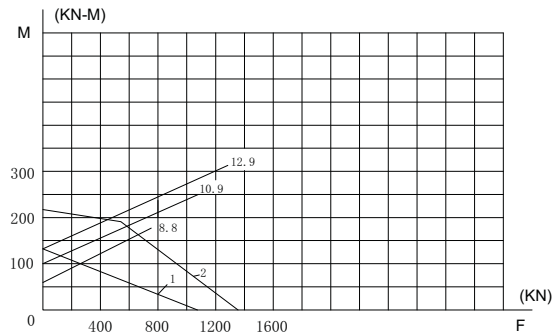
Bearing number			Boundary dimensions			Mounting dimensions						Structure dimensions						Gear data		External gear data		Internal gear data	
Non-gear	External gear	Internal gear	D	d	H	D ₁	D ₂	d _{n1} d _{n2}	d _{m1} d _{m2}	L	n	n ₁	D ₃	d _i	H ₁	h	b	m	d _a	Z	d _a	Z	
			mm									mm										mm	
110.32.1600	111.32.1600	113.32.1600	1740	1460	91	1687	1513	26	M24	48	45	5	1598	1602	81	10	75	14	1817.2	127	1391.6	100	
	112.32.1600	114.32.1600																16	1820.8	111	1382.4	87	
110.32.1800	111.32.1800	113.32.1800	1940	1660		1887	1713						1798	1802				14	2013.2	141	1573.6	113	
	112.32.1800	114.32.1800																16	2012.8	123	1574.4	99	
110.40.2000	111.40.2000	113.40.2000	2178	1825	112	2110	1891						1997	2003				18	2268.8	139	1734.4	109	
	112.40.2000	114.40.2000																18	2264.4	123	1735.2	97	
110.40.2240	111.40.2240	113.40.2240	2418	2065		2350	2131	33	M30	60	48	8	2237	2243	100	12	90	16	2492.8	153	1990.4	125	
	112.40.2240	114.40.2240																18	2498.4	136	1987.2	111	
110.40.2500	111.40.2500	113.40.2500	2678	2325		2610	2391				56		2497	2503				20	2768.4	151	2239.2	125	
	112.40.2500	114.40.2500																20	2776	136	2228	112	

Single row cross roller slewing bearings

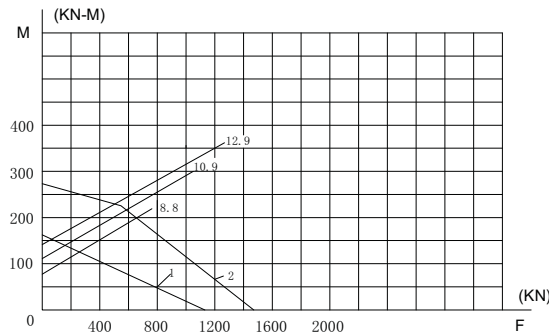


Bearing number			Boundary dimensions			Mounting dimensions						Structure dimensions						Gear data		External gear data		Internal gear data	
Non-gear	External gear	Internal gear	D	d	H	D ₁	D ₂	d _{n1}	d _{m1}	L	n	n ₁	D ₃	d ₁	H ₁	h	b	m	d _a	Z	d _a	Z	
			mm									mm									mm		
110.40.2800	111.40.2800	113.40.2800	2978	2625	112	2910	2691	33	M30	60	56	8	2797	2803	100	12	90	18	3074.4	168	2527.2	141	
	112.40.2800	114.40.2800																20	3076	151	2528	127	
110.50.3150	111.50.3150	113.50.3150	3376	2922	134	3286	3014	45	M42	84	60	10	3147	3153	122	110	22	3476	171	2828	142		
	112.50.3150	114.50.3150															22	3471.6	155	2824.8	129		
110.50.3550	111.50.3550	113.50.3550	3776	3322	134	3686	3414	45	M42	84	60	10	3547	3553	122	110	20	3876	191	3228	162		
	112.50.3550	114.50.3550															22	3889.6	174	3220.8	147		
110.50.4000	111.50.4000	113.50.4000	4226	3772	134	4136	3864	45	M42	84	60	10	3997	4003	122	110	22	4329.6	194	3660.8	167		
	112.50.4000	114.50.4000															25	4345	171	3660	147		
110.50.4500	111.50.4500	113.50.4500	4726	4272	134	4636	4364	45	M42	84	60	10	4497	4503	122	110	22	4835.6	217	4166.8	190		
	112.50.4500	114.50.4500															25	4845	191	4160	167		

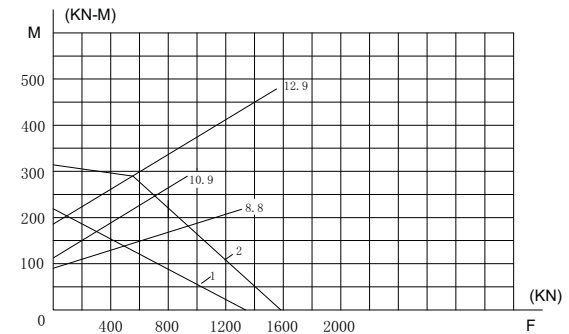
Single row cross roller slewing bearings load curve



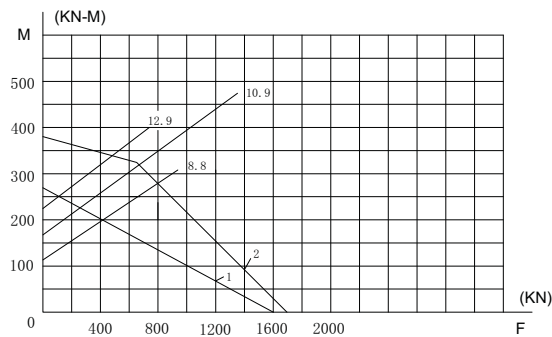
图A69 11x.25.500.xx 转盘轴承承载曲线



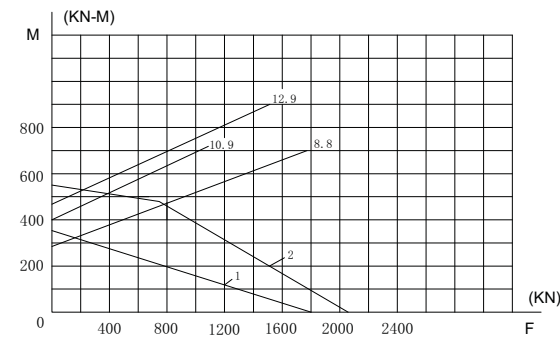
图A70 11x.25.560.xx 转盘轴承承载曲线



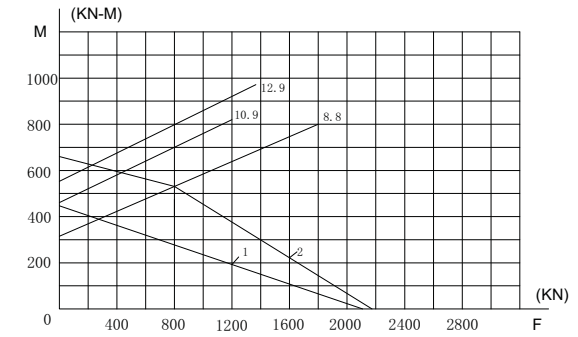
图A71 11x.25.630.xx 转盘轴承承载曲线



图A72 11x.25.710.xx 转盘轴承承载曲线

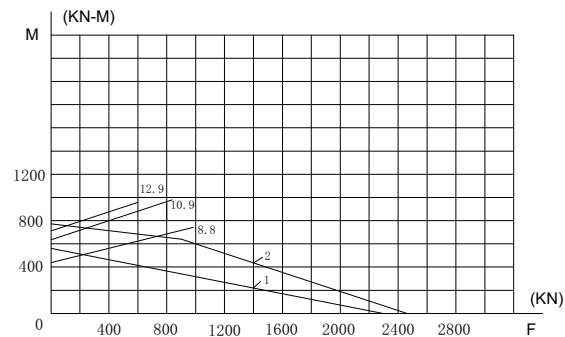


图A73 11x.28.800.xx 转盘轴承承载曲线

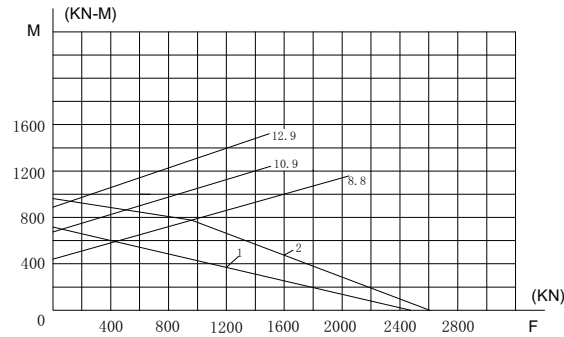


图A74 11x.28.900.xx 转盘轴承承载曲线

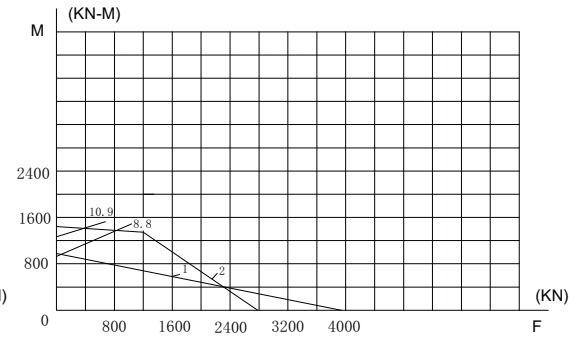
Single row cross roller slewing bearings load curve



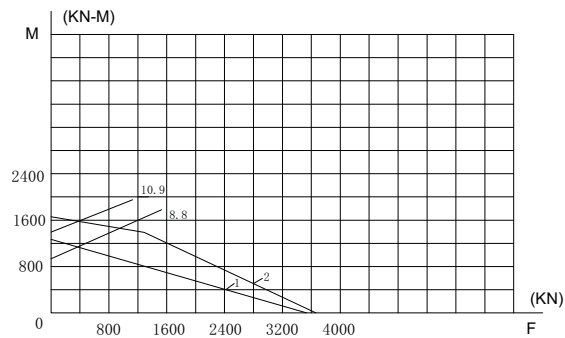
图A75 11x.28.1000.xx 转盘轴承承载曲线



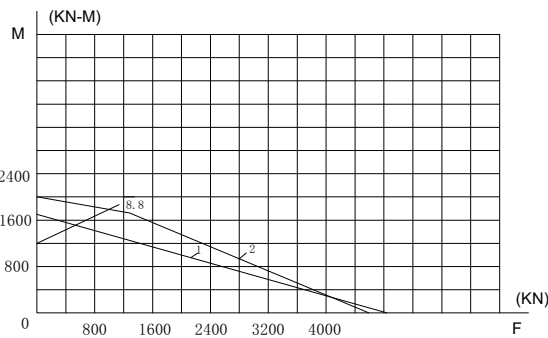
图A76 11x.28.1120.xx 转盘轴承承载曲线



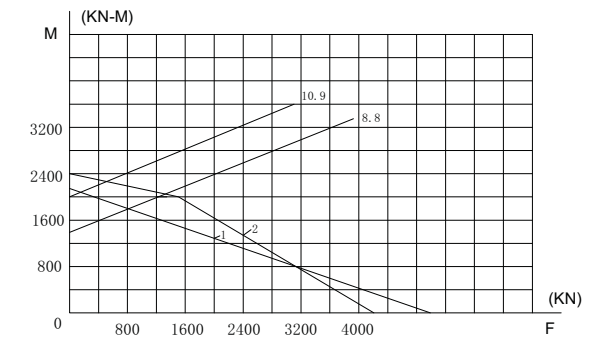
图A77 11x.32.1250.xx 转盘轴承承载曲线



图A78 11x.32.1400.xx 转盘轴承承载曲线

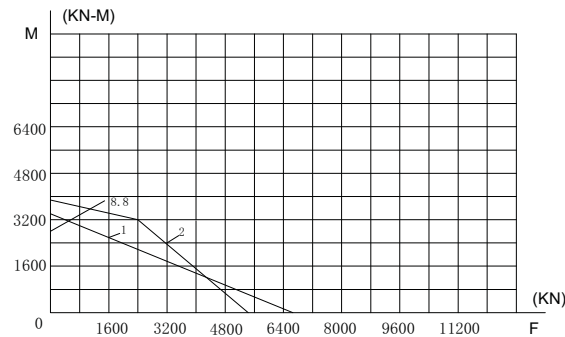


图A79 11x.32.1600.xx 转盘轴承承载曲线

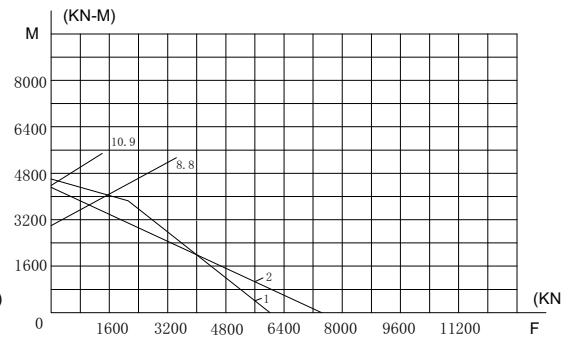


图A80 11x.32.1800.xx 转盘轴承承载曲线

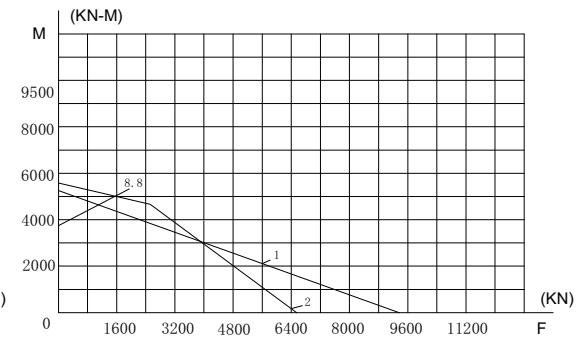
Single row cross roller slewing bearings load curve



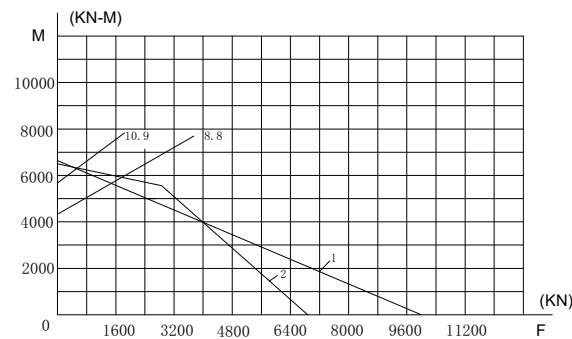
图A81 11x.40.2000.xx 转盘轴承承载曲线



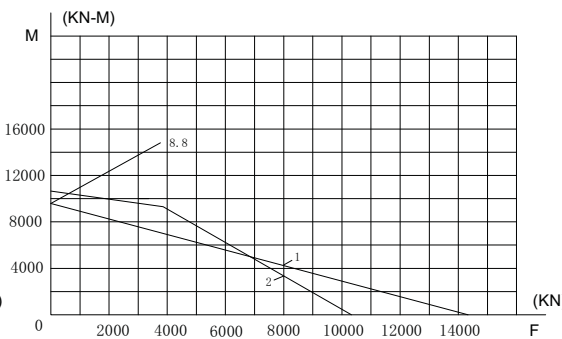
图A82 11x.40.2240.xx 转盘轴承承载曲线



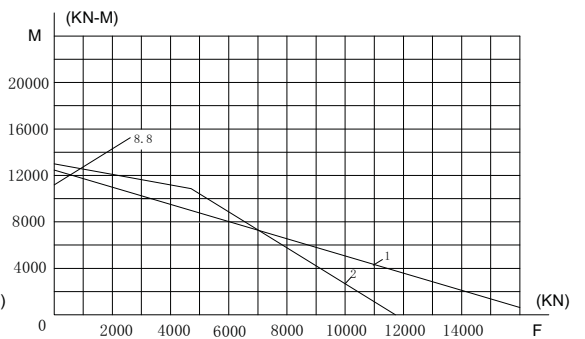
图A83 11x.40.2500.xx 转盘轴承承载曲线



图A84 11x.40.2800.xx 转盘轴承承载曲线

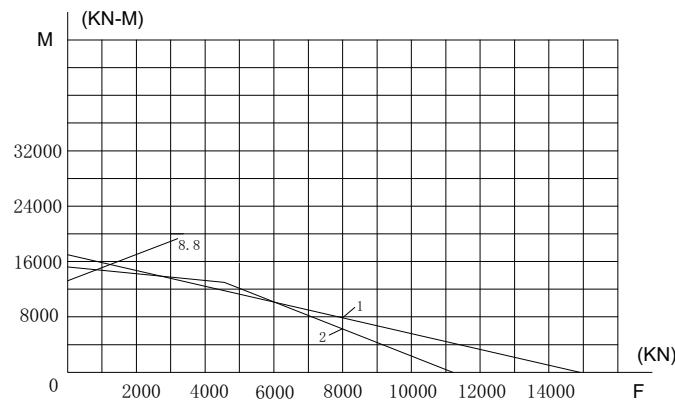


图A85 11x.50.3150.xx 转盘轴承承载曲线

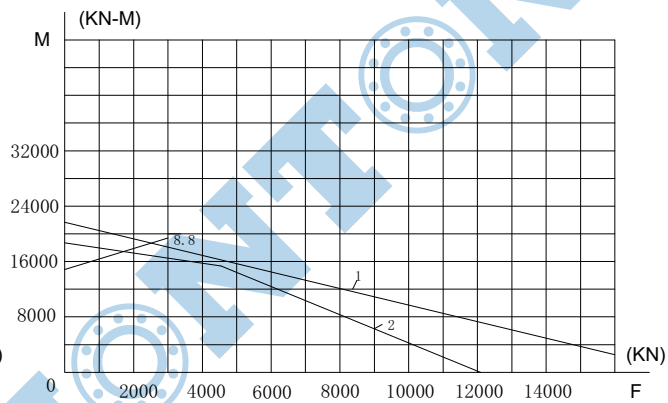


图A86 11x.50.3550.xx 转盘轴承承载曲线

Single row cross roller slewing bearings load curve

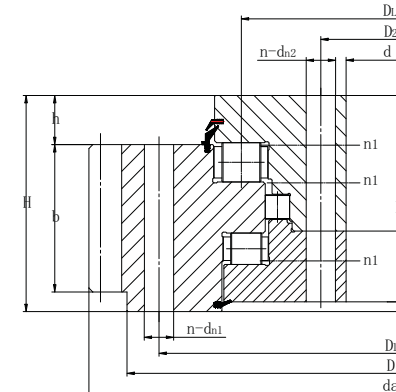
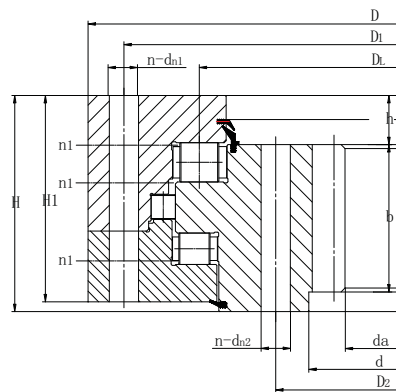
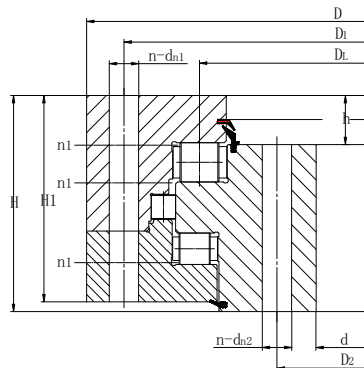


图A87 11x.50.4000.xx 转盘轴承承载曲线



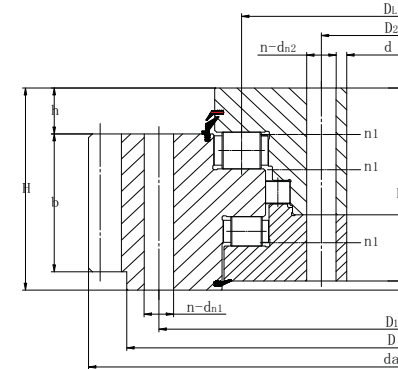
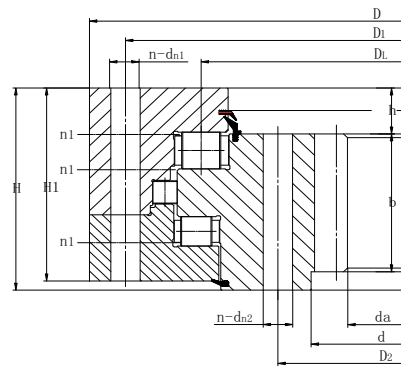
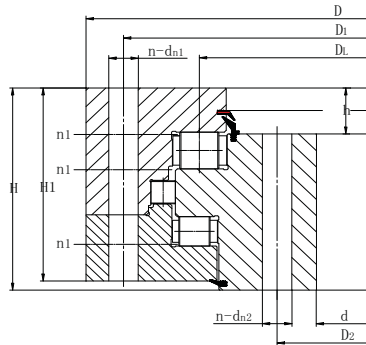
图A88 11x.50.4500.xx 转盘轴承承载曲线

Three row roller slewing bearings



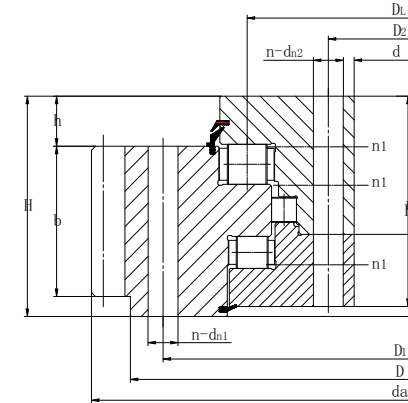
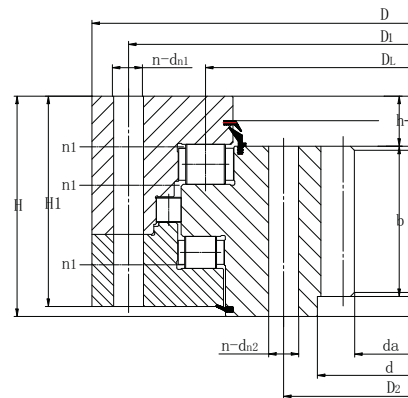
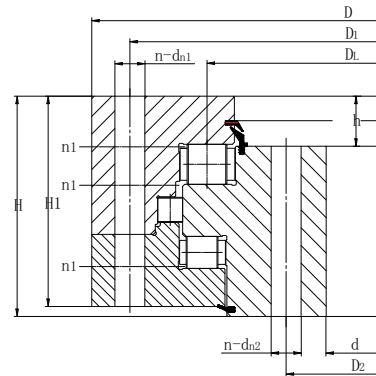
Bearing number			Boundary dimensions			Mounting dimensions						Structure dimensions			Gear data		External gear data		Internal gear data	
Non-gear	External gear	Internal gear	D	d	H	D ₁	D ₂	d _{n1} d _{n2}	d _{m1} d _{m2}	L	n	n ₁	H ₁	h	b	m	d _a	Z	d _a	Z
			mm									mm						mm		
130.25.500	131.25.500	133.25.500	634	366	148	598	402	18	M16	32	24	4	138	32	80	5	664	130	337	68
	132.25.500	134.25.500														6	664.8	108	338.4	57
130.25.560	131.25.560	133.25.560	694	426		658	462				28					5	724	142	397	80
	132.25.560	134.25.560														6	724.8	118	398.4	67
130.25.630	131.25.630	133.25.630	764	496		728	532				28					8	806.4	98	459.2	58
	132.25.630	134.25.630														6	808.8	132	458.4	77
130.25.710	131.25.710	133.25.710	844	576		808	612				28					6	886.8	145	536.4	90
	132.25.710	134.25.710														8	886.4	108	539.2	68
130.32.800	131.32.800	133.32.800	964	636	182	920	680	22	M20	40	36		172	40	120	8	1006.4	123	595.2	75
	132.32.800	134.32.800														10	1008	98	594	60

Three row roller slewing bearings



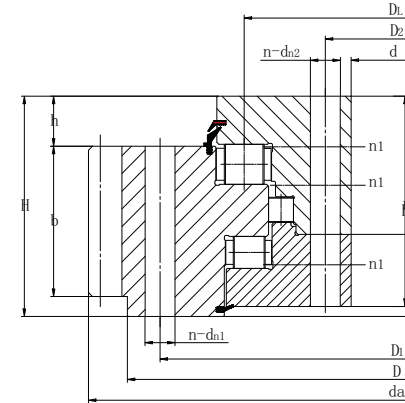
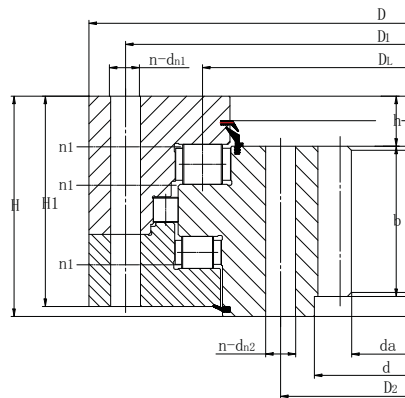
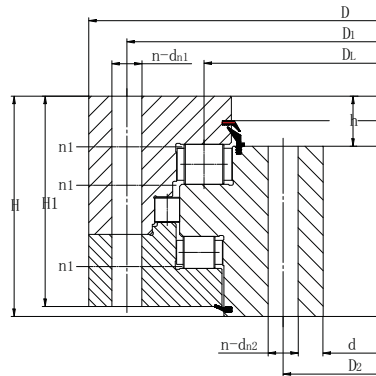
Bearing number			Boundary dimensions			Mounting dimensions						Structure dimensions			Gear data		External gear data		Internal gear data				
Non-gear	External gear	Internal gear	D	d	H	D ₁	D ₂	d _{n1}	d _{m1}	L	n	n ₁	H ₁	h	b	m	d _a	Z	d _a	Z			
			mm									mm							mm				
130.32.900	131.32.900	133.32.900	1064	736	182	1020	780	22	M20	40	36	4	172	40	120	8	1102.4	135	691.2	87			
	132.32.900	134.32.900				10	1108				108					694	70						
130.32.1000	131.32.1000	133.32.1000	1164	836		1120	880				40	5				210	50	150	12	1221.6	99	784.8	66
	132.32.1000	134.32.1000				10	1338												131	904	91		
130.32.1120	131.32.1120	133.32.1120	1284	956	1240	1000	12	1341.6	109	904.8			76										
	132.32.1120	134.32.1120			14	1509.6	123	988.8	83														
130.40.1250	131.40.1250	133.40.1250	1445	1055	220	1393	1107	26	M24	48	45	210	50	150	14	1509.2	105	985.6	71				
	132.40.1250	134.40.1250				12	1665.6								136	1144.8	96						
130.40.1400	131.40.1400	133.40.1400	1595	1205		1543	1257								14	1663.2	116	1139.6	82				
	132.40.1400	134.40.1400																					

Three row roller slewing bearings



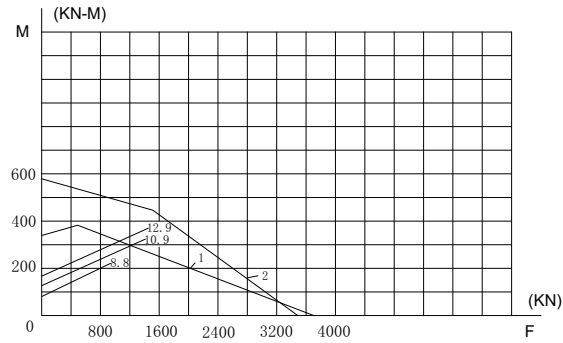
Bearing number			Boundary dimensions			Mounting dimensions						Structure dimensions			Gear data		External gear data		Internal gear data				
Non-gear	External gear	Internal gear	D	d	H	D ₁	D ₂	d _{n1}	d _{m1}	L	n	n ₁	H ₁	h	b	m	d _a	Z	d _a	Z			
			mm									mm							mm				
130.40.1600	131.40.1600	133.40.1600	1795	1405	220	1743	1457	26	M24	48	48	6	210	50	150	14	1873.2	131	1335.6	96			
	132.40.1600	134.40.1600				16	1868.8									114	1334.4	84					
130.40.1800	131.40.1800	133.40.1800	1995	1605	220	1943	1657	26	M24	48	48					210	50	150	14	2069.2	145	1531.6	110
	132.40.1800	134.40.1800				16	2076.8												127	1526.4	96		
130.45.2000	131.45.2000	133.45.2000	2221	1779	231	2155	1845	33	M30	60	60		219	54	160				16	2300.8	141	1702.4	107
	132.45.2000	134.45.2000				18	2300.4												125	1699.2	95		
130.45.2240	131.45.2240	133.45.2240	2461	2019	231	2395	2085	33	M30	60	60					219	54	160	16	2556.8	157	1926.4	121
	132.45.2240	134.45.2240				18	2552.4												139	1933.2	108		
130.45.2500	131.45.2500	133.45.2500	2721	2279	231	2655	2345	33	M30	60	72	8	219	54	160				18	2822.4	154	2185.2	122
	132.45.2500	134.45.2500				20	2816												138	2188	110		

Three row roller slewing bearings

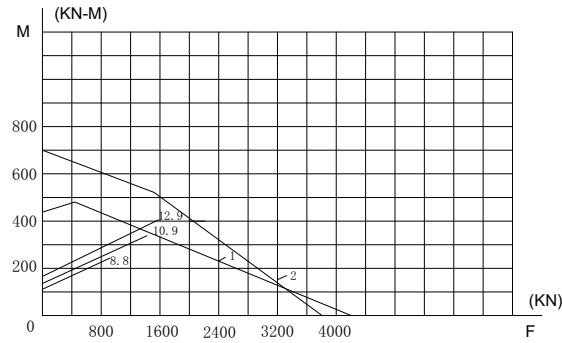


Bearing number			Boundary dimensions			Mounting dimensions					Structure dimensions			Gear data		External gear data		Internal gear data																						
Non-gear	External gear	Internal gear	D	d	H	D ₁	D ₂	d _{n1}	d _{m1}	L	n	n ₁	H ₁	h	b	m	d _a	Z	d _a	Z																				
			mm									mm						Z	mm																					
130.45.2800	131.45.2800	133.45.2800	3021	2579	231	2955	2645	33	M30	60	72	8	219	54	160	18	3110.4	170	2491.2	139																				
	132.45.2800	134.45.2800														20	3116	153	2488	125																				
130.50.3150	131.50.3150	133.50.3150	3432	2868	270	3342	2958	45	M42	84						80	258	65	180	22	3536	174	2768	139																
	132.50.3150	134.50.3150																		22	3537.6	158	2758.8	126																
130.50.3550	131.50.3550	133.50.3550	3832	3268		3742	3358													4192	3808	4692	4308	25	4395	173	3610	20	3936	194	3168	159								
	132.50.3550	134.50.3550																										22	3933.6	176	3154.8	144								
130.50.4000	131.50.4000	133.50.4000	4282	3718		4192	3808													4692	4308	4782	4218					25	4895	193	4110	22	3933.6	176	3154.8	144				
	132.50.4000	134.50.4000																														22	4395.6	197	3616.8	165				
130.50.4500	131.50.4500	133.50.4500	4782	4218		4692	4308													4782	4218	4782	4218									25	4895	193	4110	25	4395	173	3610	145
	132.50.4500	134.50.4500																																		22	4901.6	220	4122.8	188
130.50.4500	131.50.4500	133.50.4500	4782	4218	4692	4308	4782	4218	4782	4218	25	4895	193	4110	25					4895	193	4110	165																	
	132.50.4500	134.50.4500													25					4895	193	4110	165																	

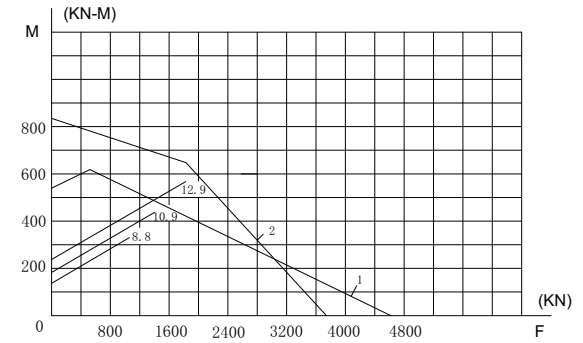
Three row roller slewing bearings load curve



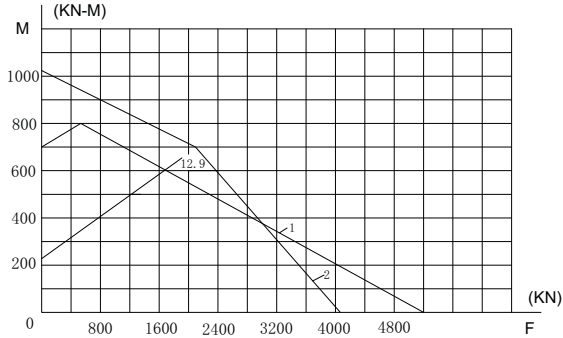
图A89 13x.25.500.xx 转盘轴承承载曲线



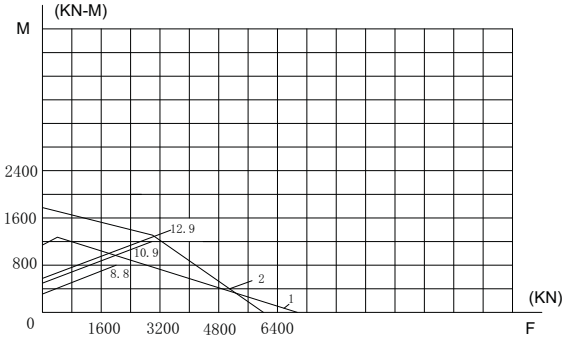
图A90 13x.25.560.xx 转盘轴承承载曲线



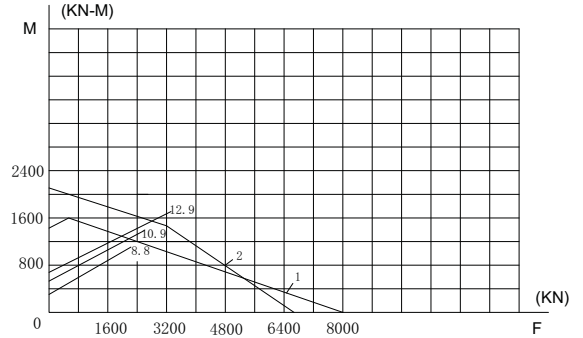
图A91 13x.25.630.xx 转盘轴承承载曲线



图A92 13x.25.710.xx 转盘轴承承载曲线

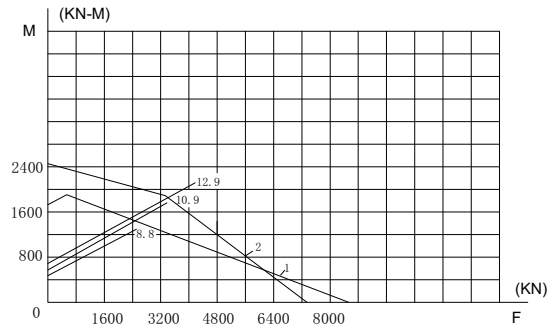


图A93 13x.32.800.xx 转盘轴承承载曲线

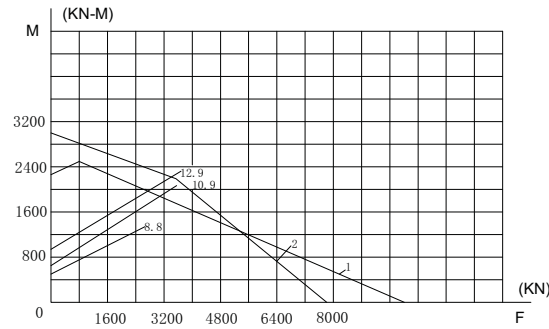


图A94 13x.32.900.xx 转盘轴承承载曲线

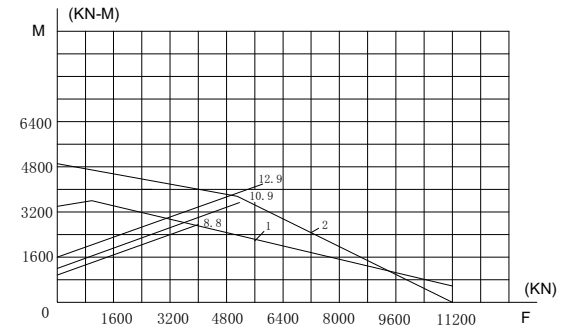
Three row roller slewing bearings load curve



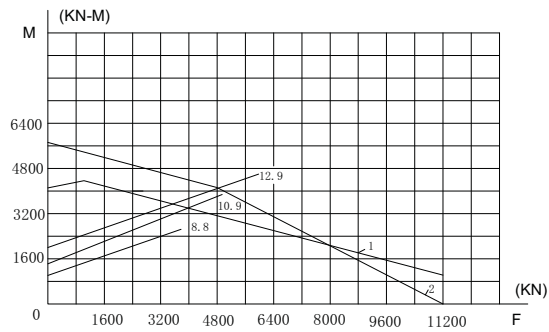
图A95 13x.32.1000.xx 转盘轴承承载曲线



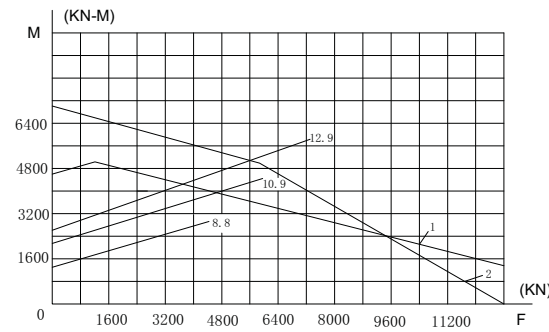
图A96 13x.32.1120.xx 转盘轴承承载曲线



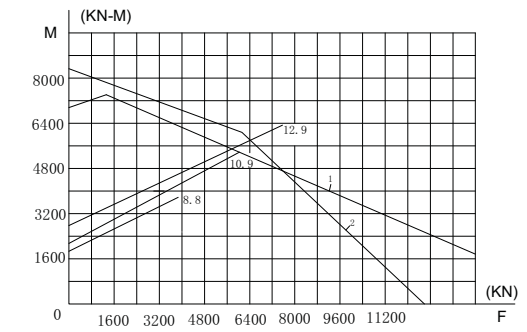
图A97 13x.40.1250.xx 转盘轴承承载曲线



图A98 13x.40.1400.xx 转盘轴承承载曲线

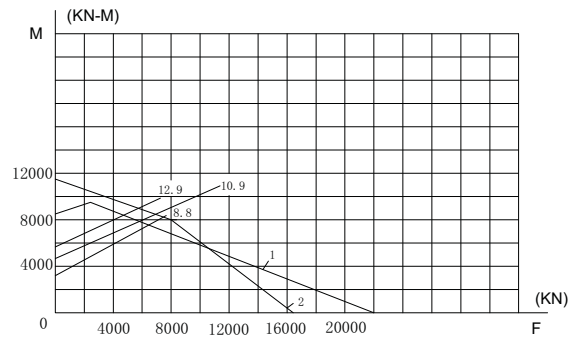


图A99 13x.40.1600.xx 转盘轴承承载曲线

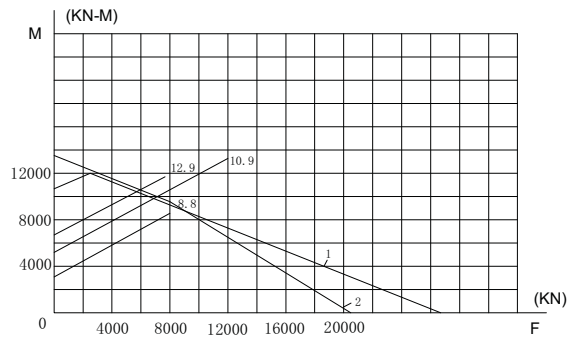


图A100 13x.40.1800.xx 转盘轴承承载曲线

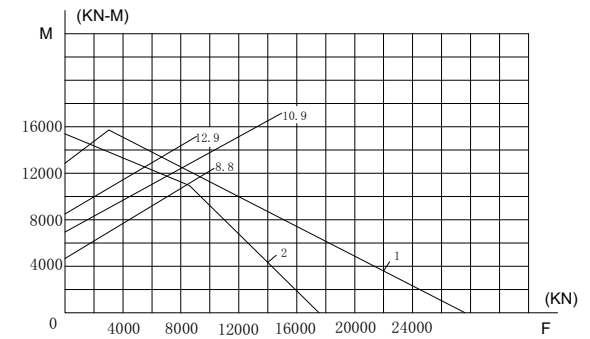
Three row roller slewing bearings load curve



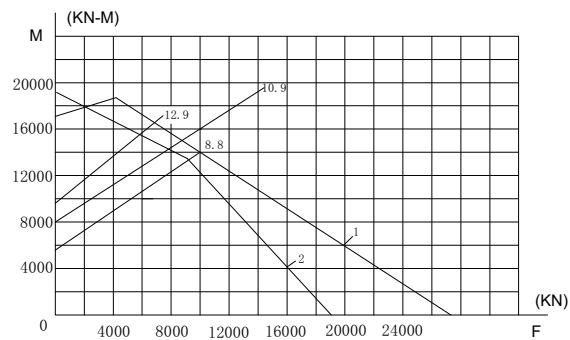
图A101 13x.45.2000.xx 转盘轴承承载曲线



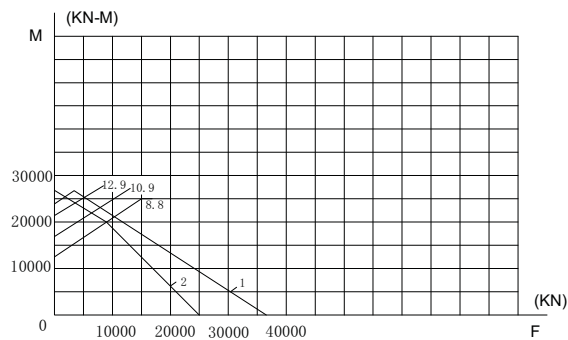
图A102 13x.45.2240.xx 转盘轴承承载曲线



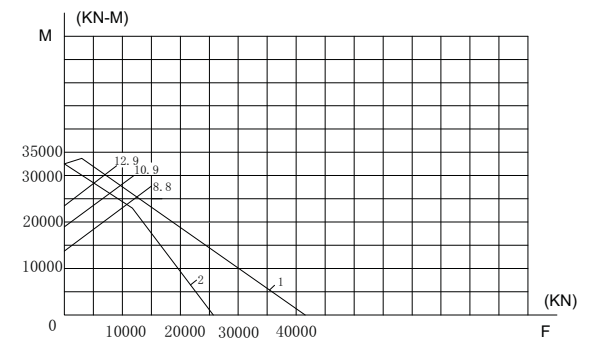
图A103 13x.45.2500.xx 转盘轴承承载曲线



图A104 13x.45.2800.xx 转盘轴承承载曲线

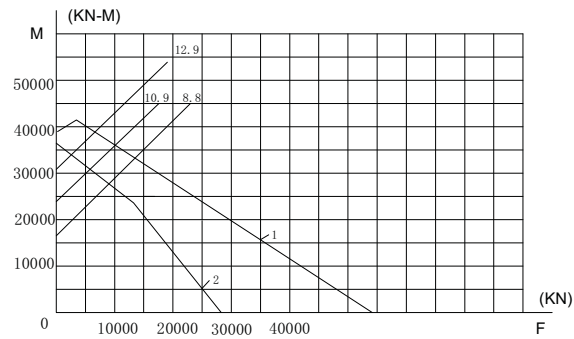


图A105 13x.50.3150.xx 转盘轴承承载曲线

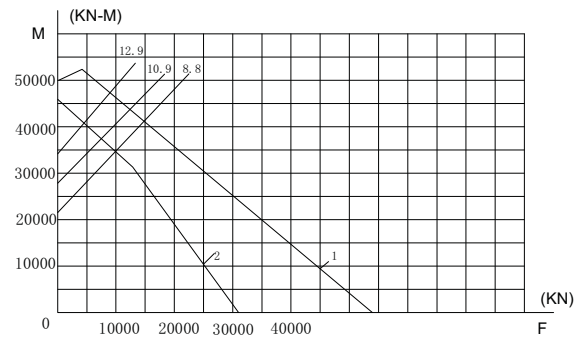


图A106 13x.50.3550.xx 转盘轴承承载曲线

Three row roller slewing bearings load curve



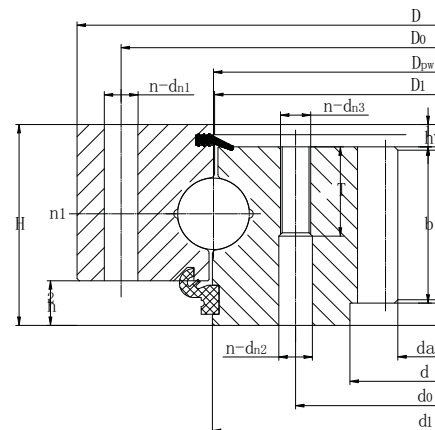
图A107 13x.50.4000.xx 转盘轴承承载曲线



图A108 13x.50.4500.xx 转盘轴承承载曲线

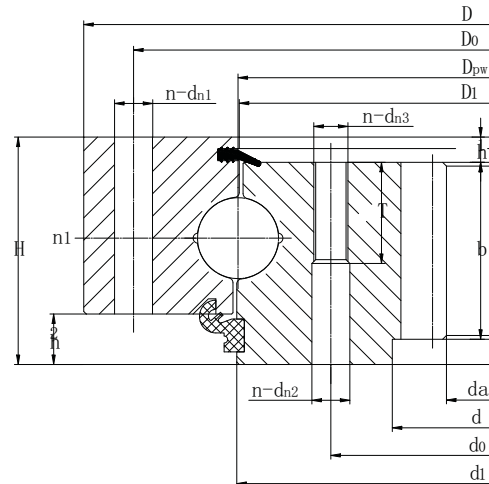
Ship & Marine Industry Slewing Bearings——CB/T3669-1999

Single row four point contact ball slewing bearings(internal gear)



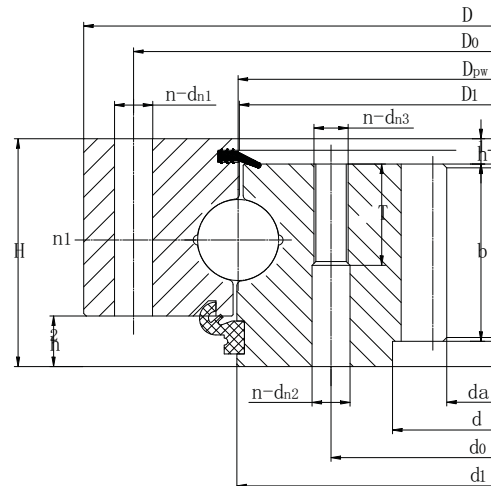
Bearing number	Boundary&structure dimensions								Mounting dimensions							Gear data					weight
	D	d	H	D ₁	d ₁	h ₁	h ₂	n ₁	D ₀	d ₀	n	d _{n1}	d _{n2}	d _{n3}	T	x	b ²⁾	m	Z	d _a	kg
C.013.25.800	920	692	85	799	801	10	20	6	876	736	36	22	22	M20	40	+0.5	65	8	82	648	137
C.013.25.900	1020	792	85	899	901			6	976	836	36	22	22	M20	40		65	8	94	744	157
C.013.25.1000	1120	892	85	999	1001			6	1076	936	42	22	22	M20	40		65	10	85	840	175
C.013.25.1120	1240	1012	85	1119	1121			6	1196	1056	42	22	22	M20	40		65	10	97	960	206
C.013.30.1250	1378	1128	95	1248	1251			8	1330	1176	48	24	24	M22	44		75	12	90	1068	283

Single row four point contact ball slewing bearings(internal gear)



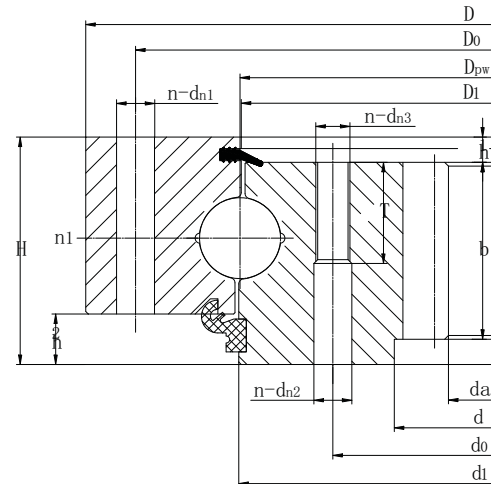
Bearing number	Boundary&structure dimensions								Mounting dimensions							Gear data					weight
	D	d	H	D ₁	d ₁	h ₁	h ₂	n ₁	D ₀	d ₀	n	d _{n1}	d _{n2}	d _{n3}	T	x	b ²⁾	m	Z	d _a	kg
C.013.30.1300	1428	1178	95	1298	1301	10	20	8	1380	1226	48	24	24	M22	44	+0.5	75	12	94	1116	297
C.013.30.1400	1528	1278	95	1398	1401			8	1480	1326	48	24	24	M22	44		75	12	102	1212	324
C.013.30.1600	1728	1478	95	1598	1601			8	1680	1528	56	24	24	M22	44		75	14	101	1400	383
C.013.30.1700	1828	1578	95	1698	1701			8	1780	1628	56	24	24	M22	44		75	14	108	1498	411
C.013.30.1800	1928	1678	95	1798	1801			8	1880	1728	56	24	24	M22	44		75	14	115	1596	439

Single row four point contact ball slewing bearings(internal gear)



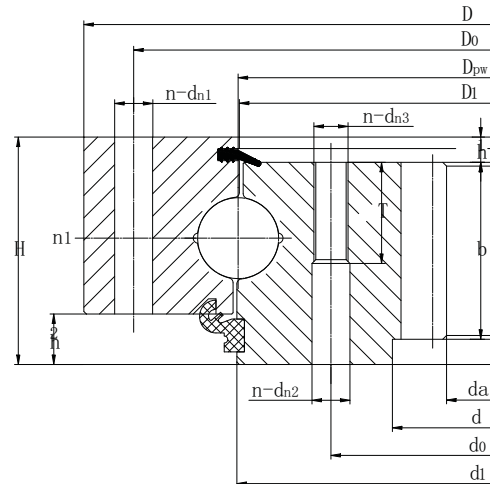
Bearing number	Boundary&structure dimensions								Mounting dimensions							Gear data					weight
	D	d	H	D ₁	d ₁	h ₁	h ₂	n ₁	D ₀	d ₀	n	d _{n1}	d _{n2}	d _{n3}	T	x	b ²⁾	m	Z	d _a	kg
C.013.40.1700	1840	1560	115	1698	1701	10	20	10	1785	1615	60	26	26	M24	48	+0.5	95	16	93	1472	574
C.013.40.1800	1940	1660	115	1798	1801			10	1885	1715	60	26	26	M24	48		95	16	99	1568	617
C.013.40.1900	2040	1760	115	1898	1901			10	1985	1815	60	26	26	M24	48		95	16	105	1664	661
C.013.40.2000	2140	1860	117	1998	2001	12	20	8	2085	1915	64	26	26	M24	48		95	18	99	1764	753
C.013.40.2120	2260	1980	117	2118	2121			8	2205	2035	64	26	26	M24	48		95	18	105	1872	766

Single row four point contact ball slewing bearings(internal gear)



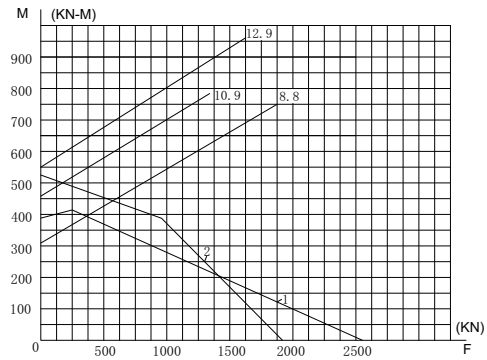
Bearing number	Boundary&structure dimensions									Mounting dimensions						Gear data					weight
	D	d	H	D ₁	d ₁	h ₁	h ₂	n ₁	D ₀	d ₀	n	d _{n1}	d _{n2}	d _{n3}	T	x	b ²⁾	m	Z	d _a	kg
C.013.40.2240	2380	2100	117	2238	2241	12	20	8	2325	2155	64	26	26	M24	48	+0.5	95	18	112	1998	840
C.013.50.2000	2170	1830	137	1998	2002			8	2100	1900	64	30	30	M27	54		115	20	87	1720	998
C.013.50.2120	2290	1950	137	2118	2122			8	2220	2020	64	30	30	M27	54		115	20	93	1840	1060
C.013.50.2240	2410	2070	137	2238	2242			8	2340	2140	72	30	30	M27	54		115	20	99	1960	1121
C.013.50.2500	2670	2330	137	2498	2502			10	2600	2400	72	30	30	M27	54		115	22	101	2200	1380

Single row four point contact ball slewing bearings(internal gear)

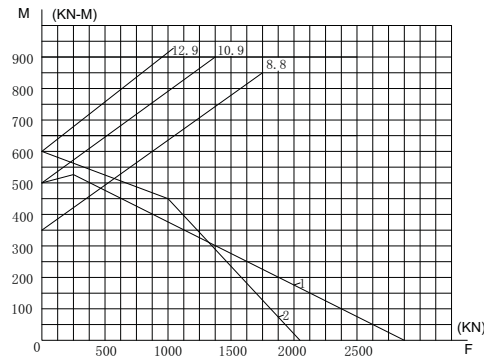


Bearing number	Boundary&structure dimensions								Mounting dimensions							Gear data					weight
	D	d	H	D ₁	d ₁	h ₁	h ₂	n ₁	D ₀	d ₀	n	d _{n1}	d _{n2}	d _{n3}	T	x	b ²⁾	m	Z	d _a	kg
C.013.50.2800	2970	2630	137	2798	2802	12	20	10	2900	2700	72	30	30	M27	54	+0.5	115	22	115	2508	1437
C.013.50.3150	3320	2980	137	3148	3152			10	3250	3050	80	30	30	M27	54		115	22	130	2838	1800
C.013.60.2800	2978	2622	157	2798	2832			10	2910	2690	80	33	33	M30	60		135	25	100	2475	1913
C.013.60.3150	3328	2972	157	3148	3152			10	3260	3040	80	33	33	M30	72		135	25	114	2825	2003
C.013.60.3550	3728	3372	157	3548	3552			10	3660	3440	90	33	33	M30	72		135	25	130	3225	2263
C.013.60.4000	4178	3822	157	4998	4002			10	4110	3890	90	33	33	M30	72		135	25	148	3675	2570

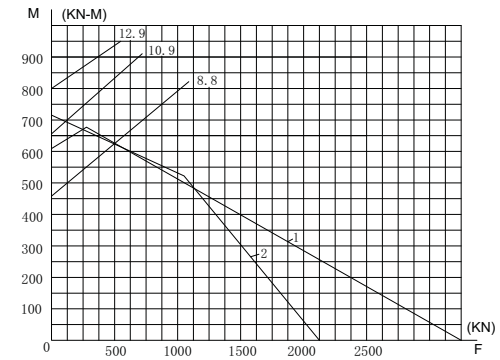
Single row four point contact ball slewing bearings load curve (internal gear)



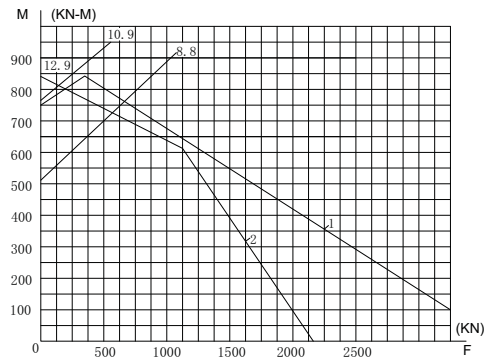
图B01 C.013. 25 .800 承载曲线



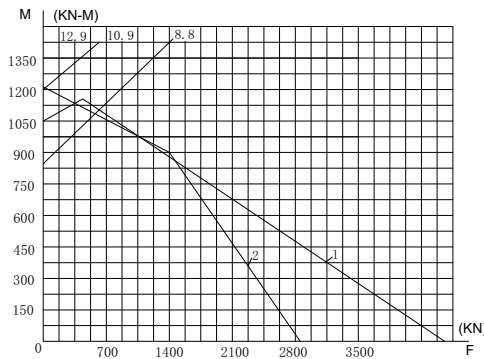
图B02 C.013. 25 .900 承载曲线



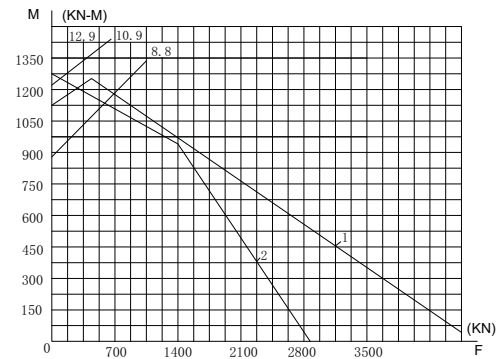
图B03 C.013. 25 .1000 承载曲线



图B04 C.013. 25 .1120 承载曲线

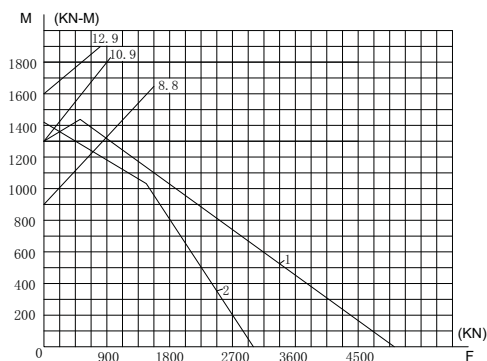


图B05 C.013. 30 .1250 承载曲线

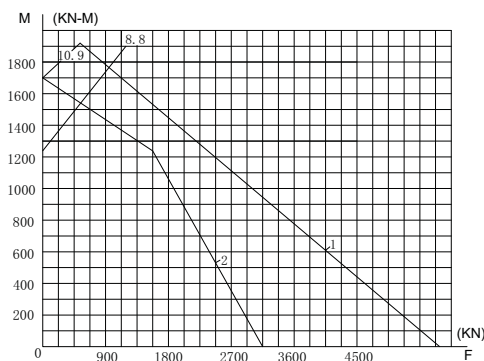


图B06 C.013. 30 .1300 承载曲线

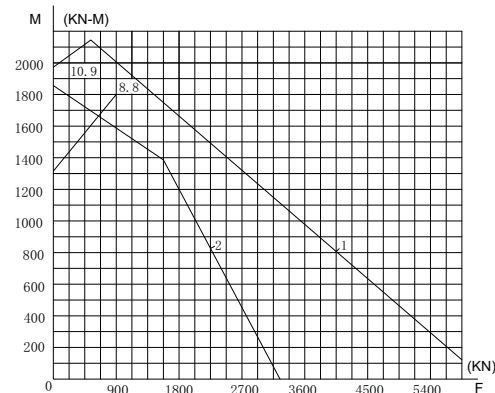
Single row four point contact ball slewing bearings load curve (internal gear)



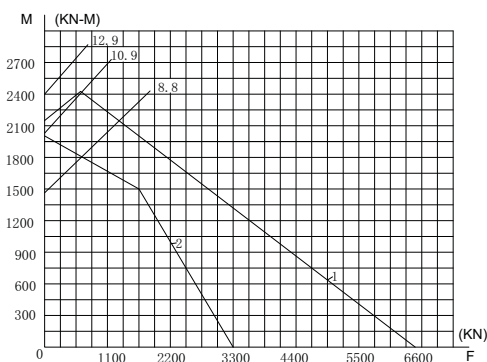
图B07 C.013. 30 .1400 承载曲线



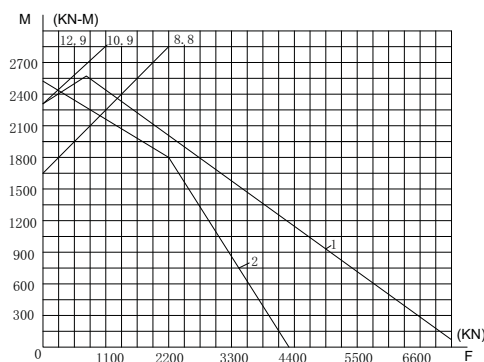
图B08 C.013. 30 .1600 承载曲线



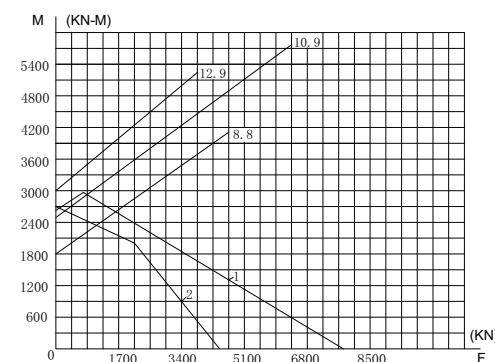
图B09 C.013. 30 .1700 承载曲线



图B010 C.013. 30 .1800 承载曲线

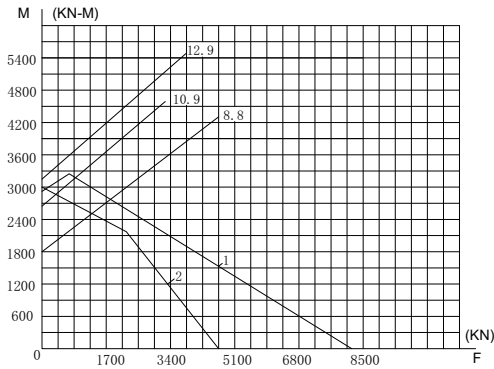


图B11 C.013. 40 .1700 承载曲线

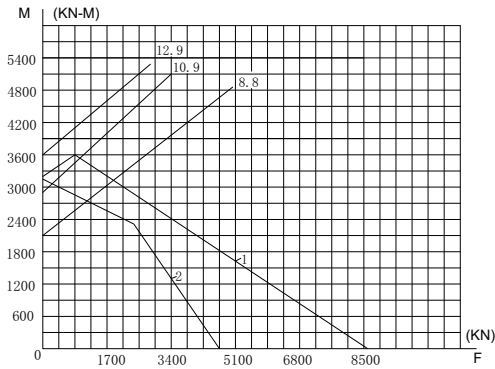


图B12 C.013. 40 .1800 承载曲线

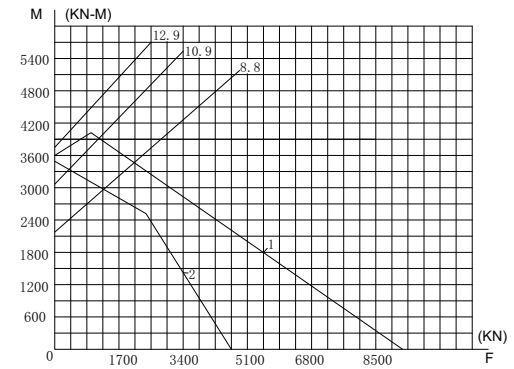
Single row four point contact ball slewing bearings load curve (internal gear)



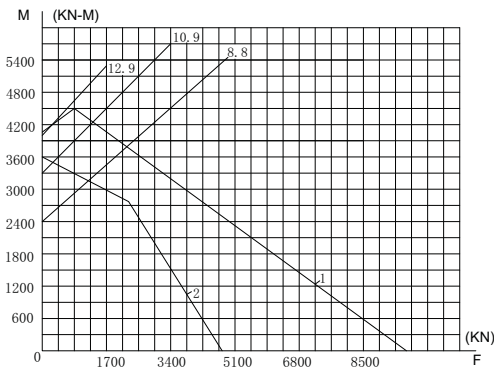
图B13 C.013. 40 .1900 承载曲线



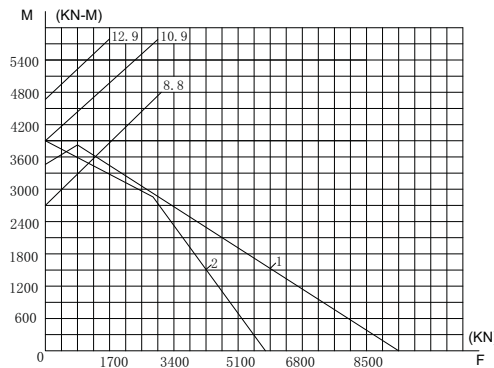
图B14 C.013. 40 .2000 承载曲线



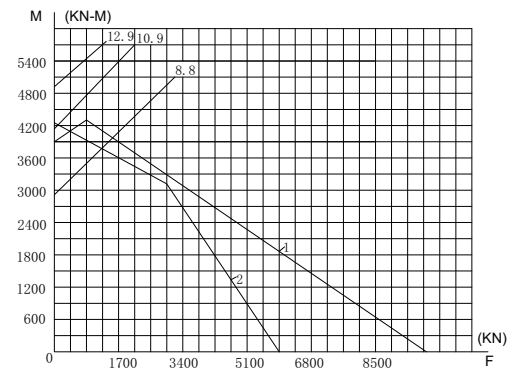
图B15 C.013. 40 .2120 承载曲线



图B16 C.013. 40 .2240 承载曲线

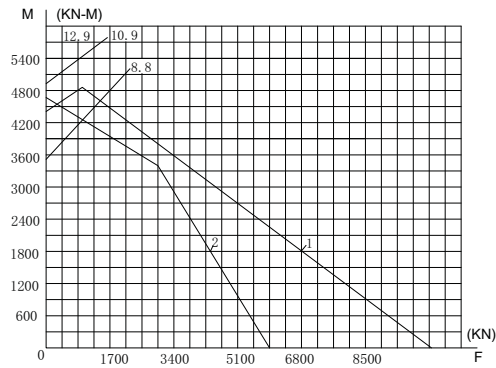


图B17 C.013. 50 .2000 承载曲线

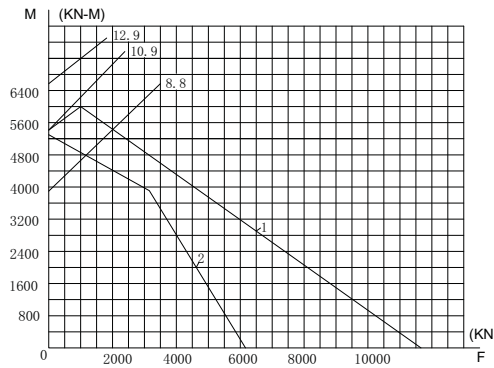


图B18 C.013. 50 .2120 承载曲线

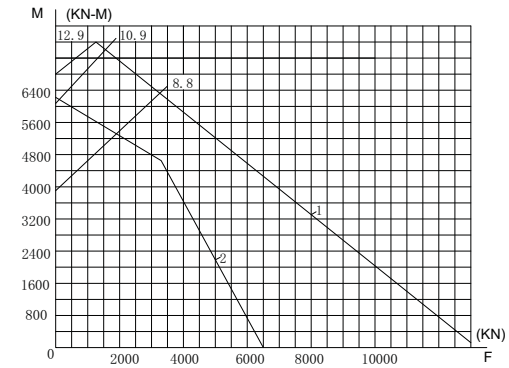
Single row four point contact ball slewing bearings load curve (internal gear)



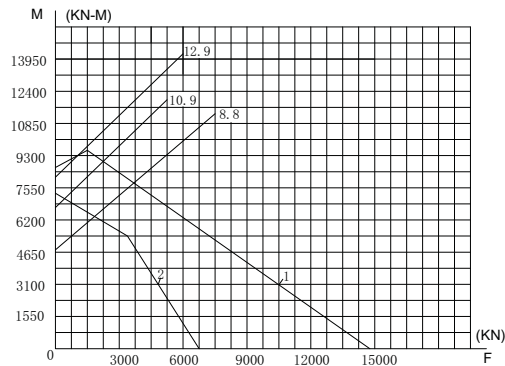
图B19 C.013. 50 .2240 承载曲线



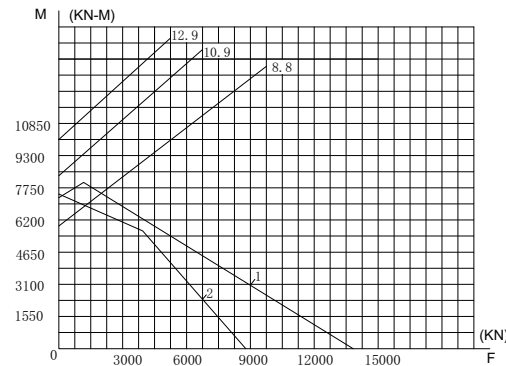
图B20 C.013. 50 .2500 承载曲线



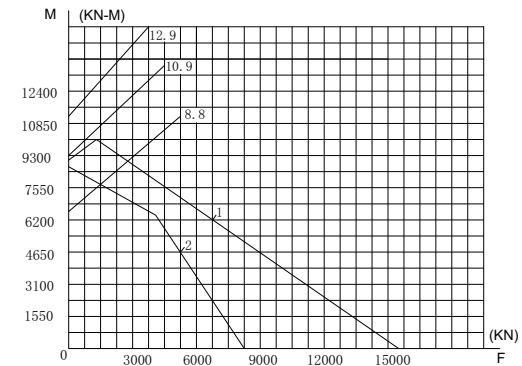
图B21 C.013. 50 .2800 承载曲线



图B22 C.013. 50 .3150 承载曲线

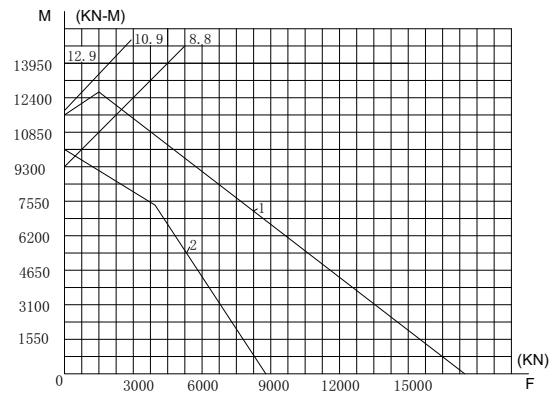


图B23 C.013. 60 .2800 承载曲线

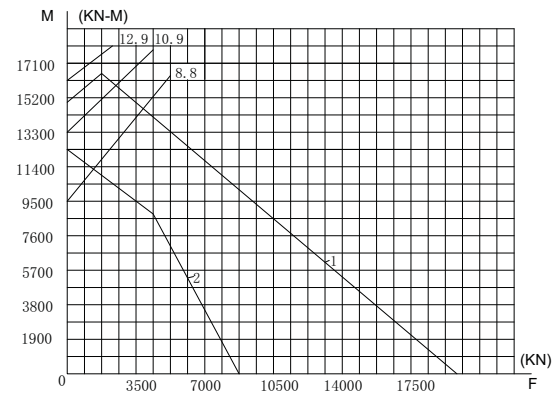


图B24 C.013. 60 .3150 承载曲线

Single row four point contact ball slewing bearings load curve (internal gear)

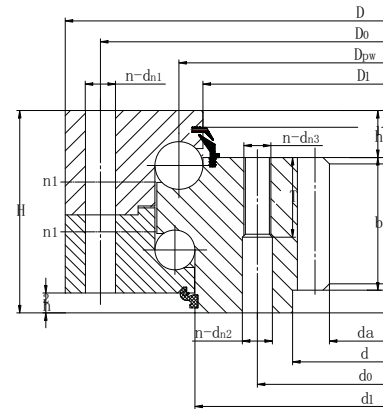


图B25 C.013. 60 .3550 承载曲线



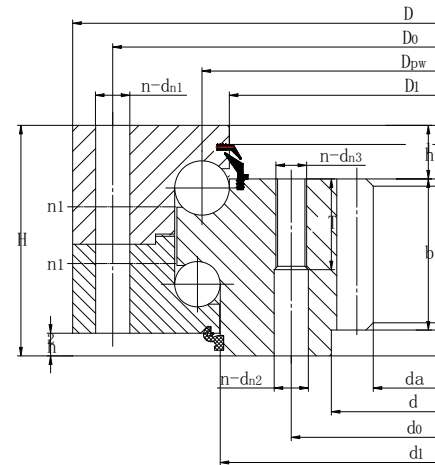
图B26 C.013. 60 .4000 承载曲线

Double row different diameter ball slewing bearings



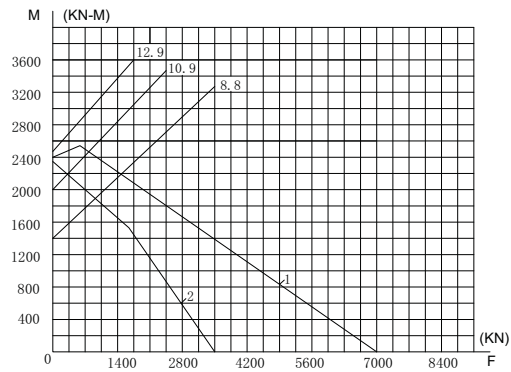
Bearing number	Boundary&structure dimensions								Mounting dimensions							Gear data					Weight
	D	d	H	D ₁	d ₁	h ₁	h ₂	n ₁	D ₀	d ₀	n	d _{n1}	d _{n2}	d _{n3}	T	x	b ²⁾	m	Z	d _a	kg
C.023.30.1800	1940	1650	134	1771	1777	29	20	8	1880	1710	48	26	26	M24	48	+0.5	100	16	99	1568	768
C.023.30.1900	2040	1750	134	1871	1877	29		8	1980	1810	48	26	26	M24	48		100	16	105	1664	822
C.023.40.2000	2155	1832	170	1964	1965	39		8	2095	1892	56	30	30	M27	52		120	18	97	1728	1320
C.023.40.2300	2455	2132	170	2264	2265	39		8	2395	2192	56	30	30	M27	52		120	18	114	2034	1417
C.023.40.2500	2655	2332	170	2464	2465	39		10	2595	2392	60	30	30	M27	52		120	18	125	2232	1550
C.023.50.2500	2676	2312	198	2462	2465	47		10	2610	2378	60	33	33	M30	60		140	20	111	2200	2035

Double row different diameter ball slewing bearings(internal gear)

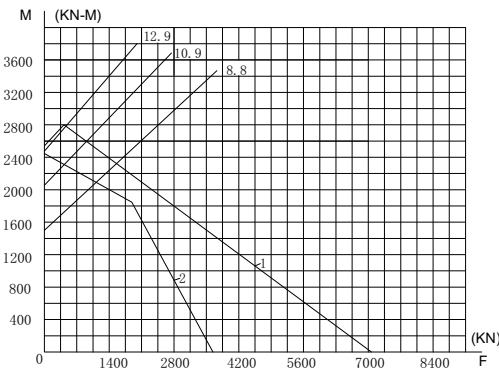


Bearing number	Boundary&structure dimensions								Mounting dimensions							Gear data					Weight
	D	d	H	D ₁	d ₁	h ₁	h ₂	n ₁	D ₀	d ₀	n	d _{n1}	d _{n2}	d _{n3}	T	x	b ²⁾	m	Z	d _a	kg
C.023.50.2800	2976	2612	198	2762	2765	47	20	8	2910	2678	72	33	33	M30	60	+0.5	140	20	126	2500	2272
C.023.50.3000	3176	2812	198	2962	2965	47		8	3110	2878	72	33	33	M30	60		140	22	123	2684	2368
C.023.50.3150	3326	2962	198	3112	3115	47		10	3260	3028	90	33	33	M30	60		140	22	130	2838	2582
C.023.60.3000	3218	2784	234	2952	2954	56		10	3140	2862	90	33	33	M30	60		165	25	107	2650	3470
C.023.60.3150	3368	2934	234	3012	3104	56		10	3290	3022	100	33	33	M30	60		165	25	113	2800	3964
C.023.60.3550	3768	3334	234	3502	3504	56		10	3690	3412	100	33	33	M30	60		165	25	129	3200	4130

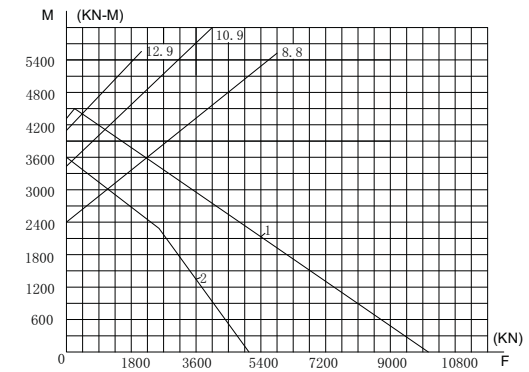
Double row different diameter ball slewing bearings load curve(internal gear)



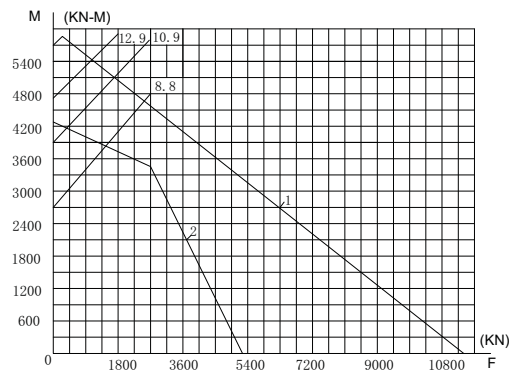
图B27 C.023.30.1800 承载曲线



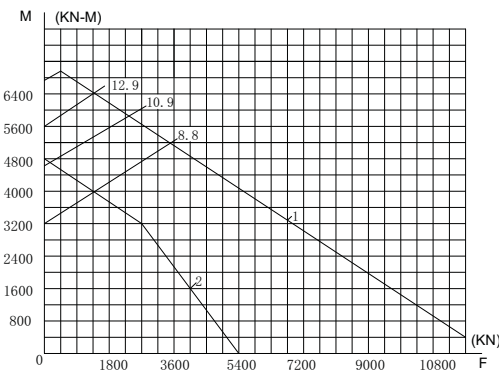
图B28 C.023.30.1900 承载曲线



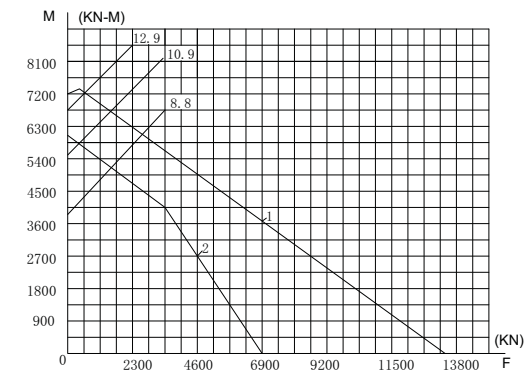
图B29 C.023.40.2000 承载曲线



图B30 C.023.40.2300 承载曲线

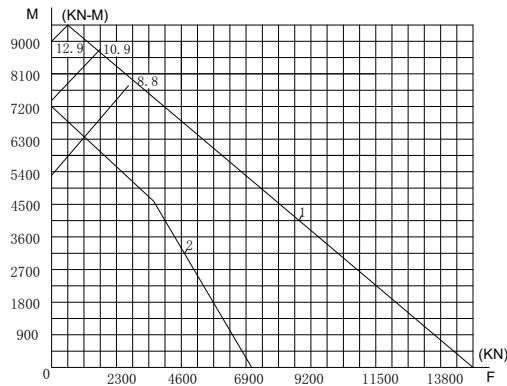


图B31 C.023.40.2500 承载曲线

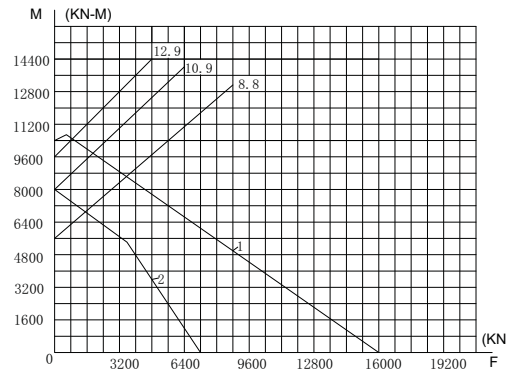


图B32 C.023.50.2500 承载曲线

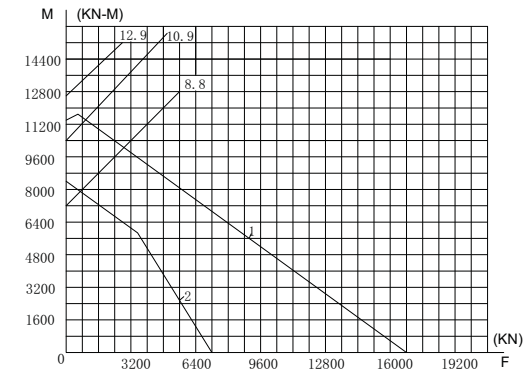
Double row different diameter ball slewing bearings load curve(internal gear)



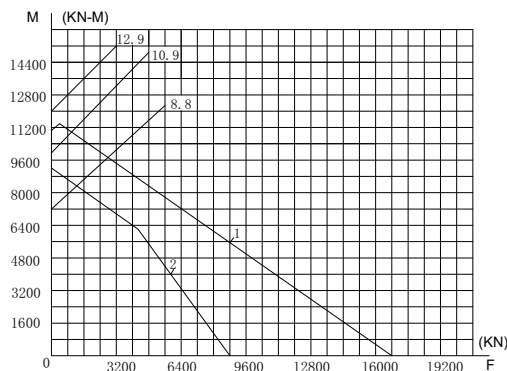
图B33 C.023. 50 .2800 承载曲线



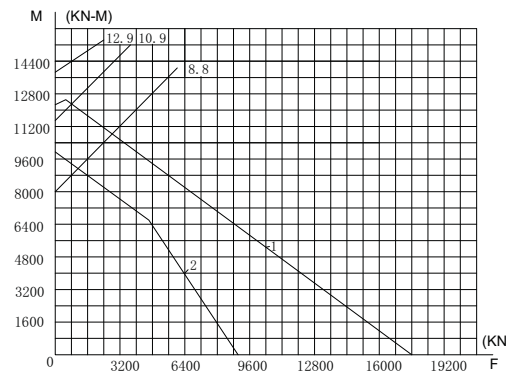
图B34 C.023. 50 .3000 承载曲线



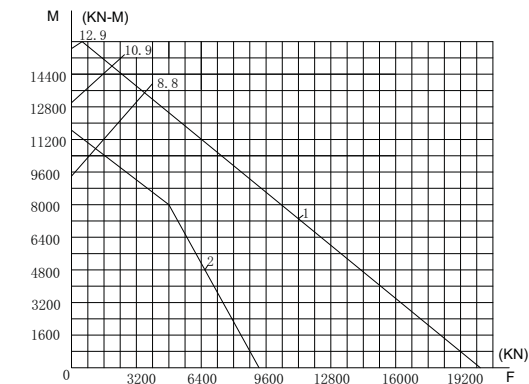
图B35 C.023. 50 .3150 承载曲线



图B36 C.023. 60 .3000 承载曲线

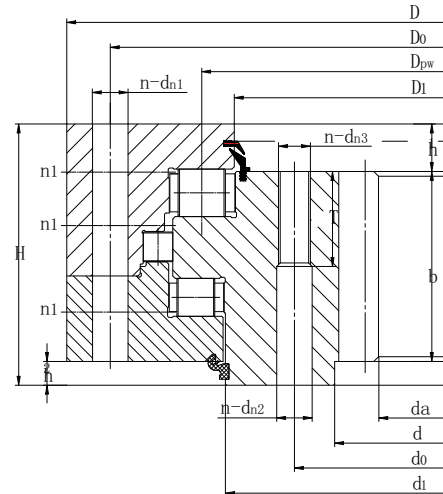


图B37 C.023. 60 .3150 承载曲线



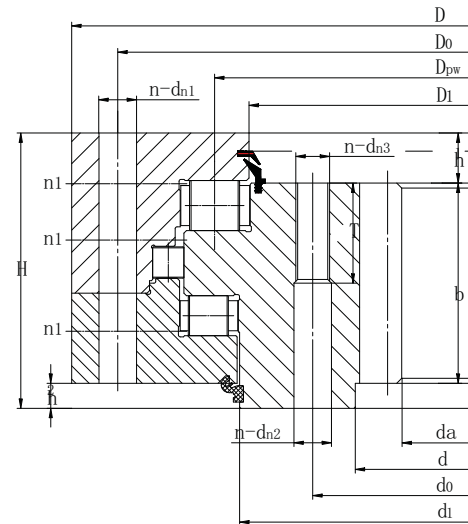
图B38 C.023. 60 .3550 承载曲线

Three row roller slewing bearings(internal gear)

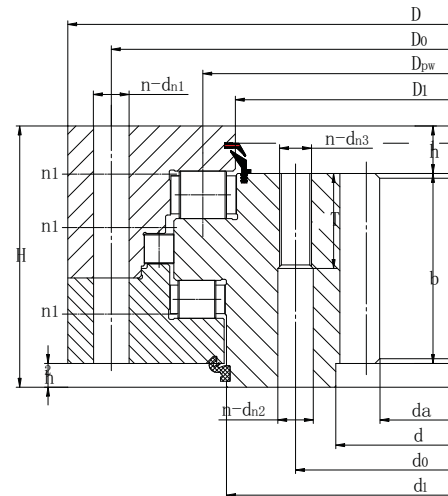


Bearing number	Boundary&structure dimensions								Mounting dimensions							Gear data					Weight
	D	d	H	D_1	d_1	h_1	h_2	n_1	D_0	d_0	n	d_{n1}	d_{n2}	d_{n3}	T	x	$b^{2)}$	m	Z	d_a	kg
C.133.25.1800	1970	1640	158	1763	1774	30	20	8	1910	1700	56	30	30	M27	54	+0.5	115	16	98	1552	1045
C.133.25.1900	2070	1740	158	1863	1874	30		8	2010	1800	56	30	30	M27	54		115	16	104	1648	1120
C.133.25.2000	2170	1840	158	1963	1974	30		10	2110	1900	60	30	30	M27	54		115	18	97	1728	1170
C.133.25.2500	2670	2340	158	2463	2474	30		10	2610	2400	60	30	30	M27	54		115	18	125	2232	1540
C.133.32.2500	2697	2318	192	2459	2470	42		8	2631	2384	72	33	33	M30	60		140	20	111	2200	1880

Three row roller slewing bearings(internal gear)

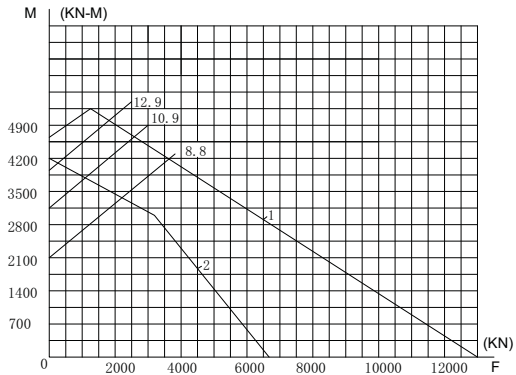


Bearing number	Boundary&structure dimensions								Mounting dimensions							Gear data					Weight
	D	d	H	D ₁	d ₁	h ₁	h ₂	n ₁	D ₀	d ₀	n	d _{n1}	d _{n2}	d _{n3}	T	x	b ²⁾	m	Z	d _a	kg
C.133.32.2800	2997	2618	192	2759	2770	42	20	8	2931	2684	72	33	33	M30	60	+0.5	140	20	126	2500	2362
C.133.32.3000	3197	2818	192	2959	2970	42		10	3131	2884	90	33	33	M30	60		140	20	136	2700	2505
C.133.32.3150	3347	2968	192	3109	3120	42		10	3281	3034	90	33	33	M30	60		140	20	144	2860	2588
C.133.40.3150	3384	2942	230	3100	3113	50		10	3306	3020	100	39	39	M36	72		170	22	129	2816	3593
C.133.40.3550	3784	3342	230	3500	3513	50		10	3706	3420	100	39	39	M36	72		170	22	147	3212	4127

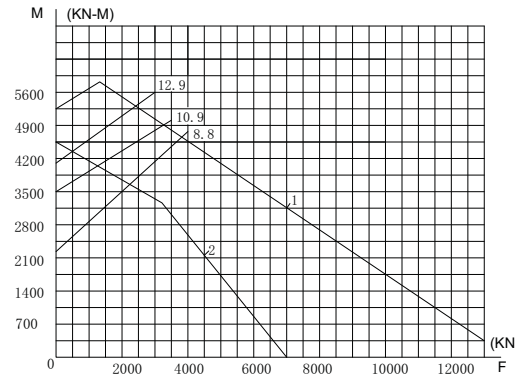
Three row roller slewing bearings(internal gear)


Bearing number	Boundary&structure dimensions								Mounting dimensions							Gear data					Weight
	D	d	H	D ₁	d ₁	h ₁	h ₂	n ₁	D ₀	d ₀	n	d _{n1}	d _{n2}	d _{n3}	T	x	b ²⁾	m	Z	d _a	kg
C.133.40.4000	4234	3792	230	3950	3963	50	20	12	4156	3870	120	39	39	M36	72	+0.5	170	22	168	3674	4528
C.133.50.4000	4262	3752	278	3940	3954	65		12	4172	3842	120	45	45	M42	84		200	25	145	3600	6359
C.133.50.4250	4512	4002	278	4190	4204	65		12	4422	4092	144	45	45	M42	84		200	25	155	3850	6636
C.133.50.4500	4752	4252	278	4440	4454	65		12	4662	4342	144	45	45	M42	84		200	25	165	4100	6957

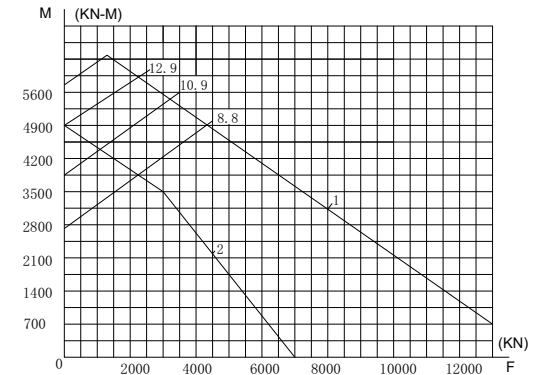
Three row roller slewing bearings load curve(internal gear)



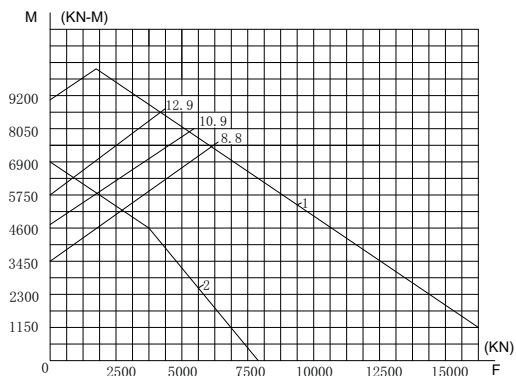
图B39 C.133. 25 .1800 承载曲线



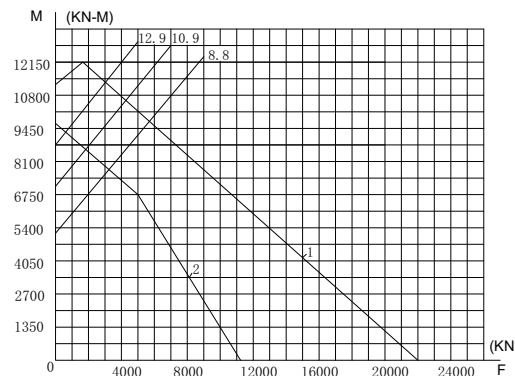
图B40 C.133. 25 .1900 承载曲线



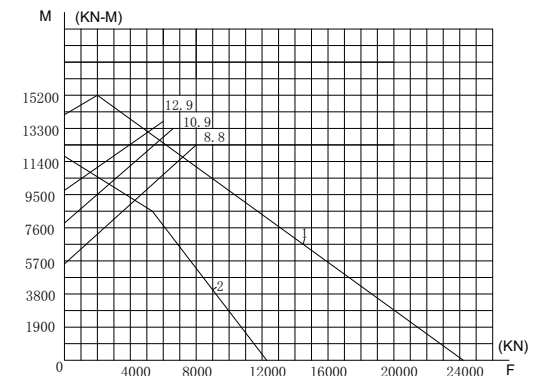
图B41 C.133. 25 .2000 承载曲线



图B42 C.133. 25 .2500 承载曲线

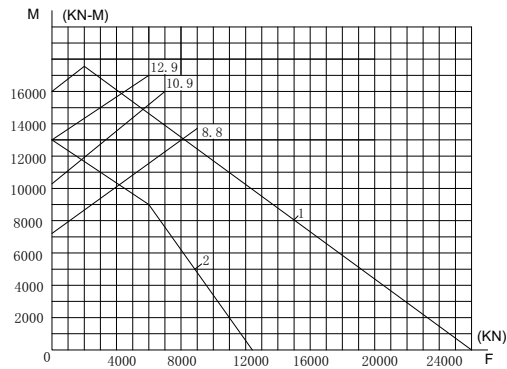


图B43 C.133. 32 .2500 承载曲线

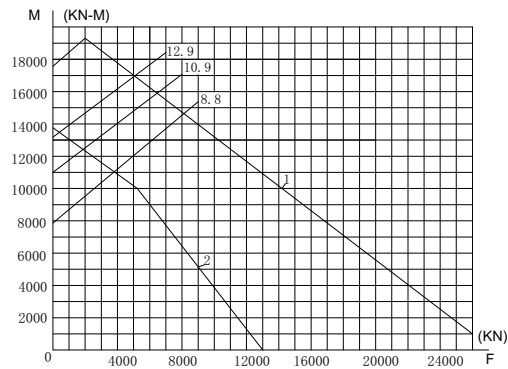


图B44 C.133. 32 .2800 承载曲线

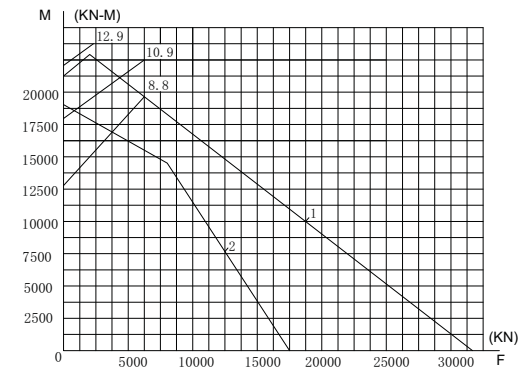
Three row roller slewing bearings load curve(internal gear)



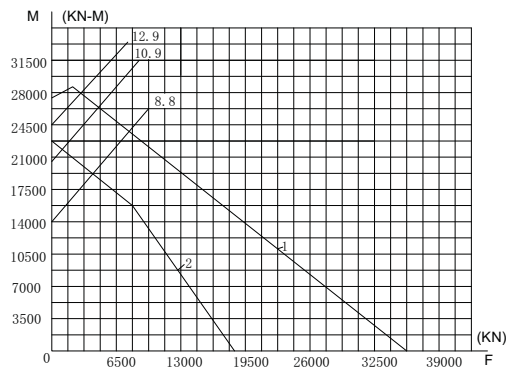
图B45 C.133. 32 .3000 承载曲线



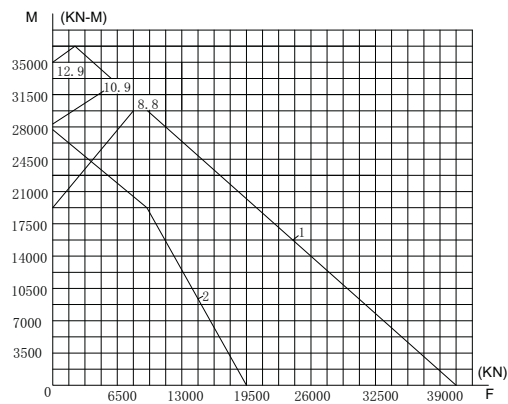
图B46 C.133. 32 .3150 承载曲线



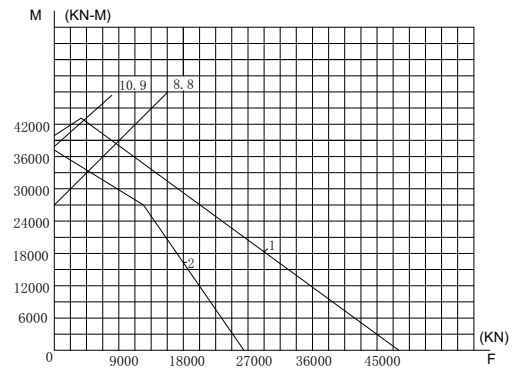
图B47 C.133. 40 .3150 承载曲线



图B48 C.133. 40 .3550 承载曲线

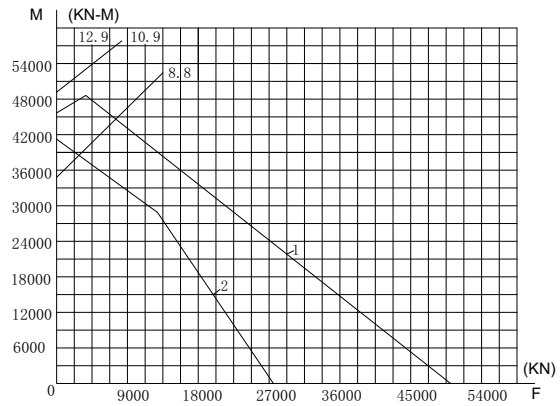


图B49 C.133. 40 .4000 承载曲线

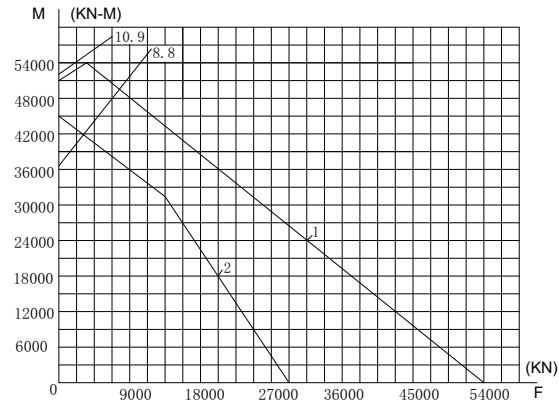


图B50 C.133. 50 .4000 承载曲线

Three row roller slewing bearings load curve(internal gear)



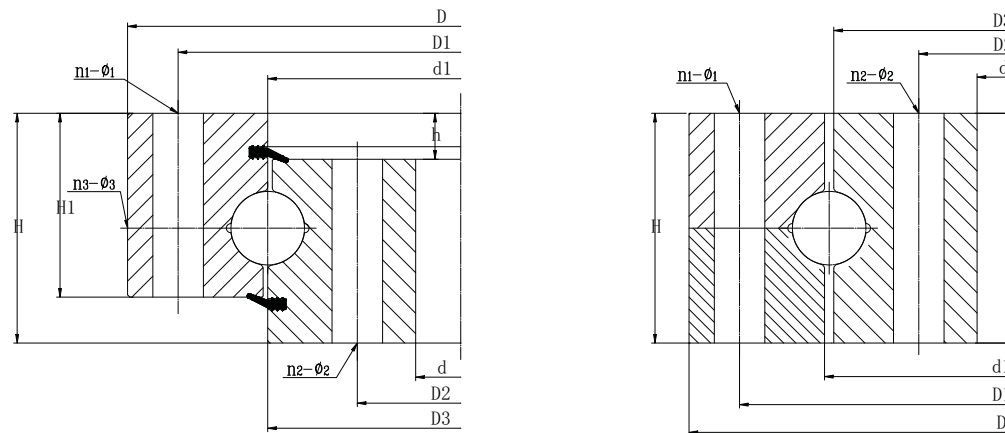
图B51 C.133. 50 .4250 承载曲线



图B52 C.133. 50 .4500 承载曲线

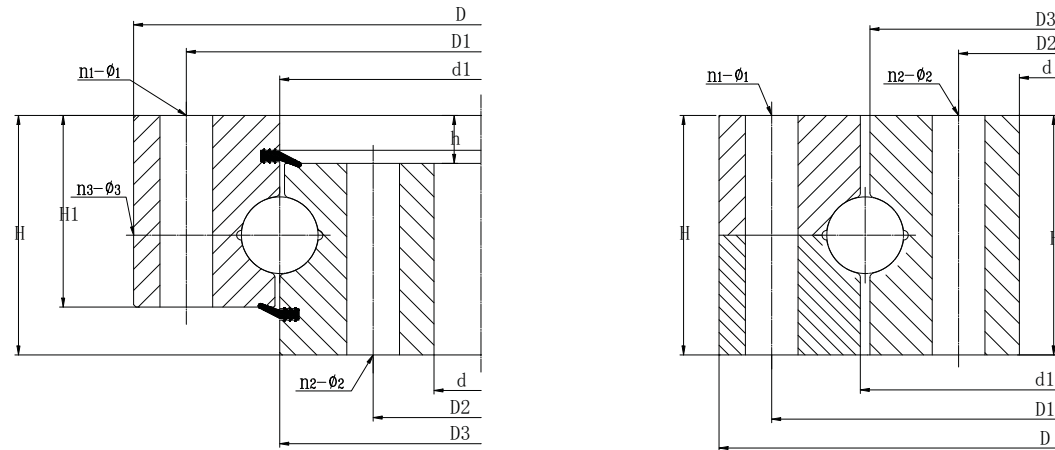
Other Series Slewing Bearings

Four point contact ball slewing bearings(non-gear)



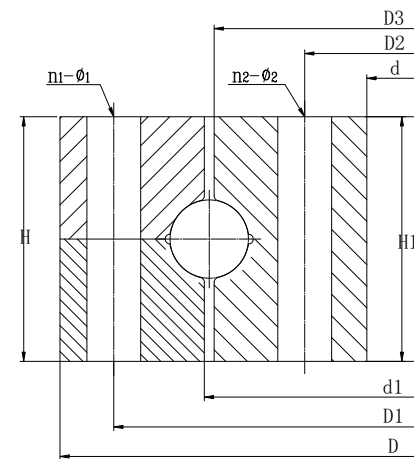
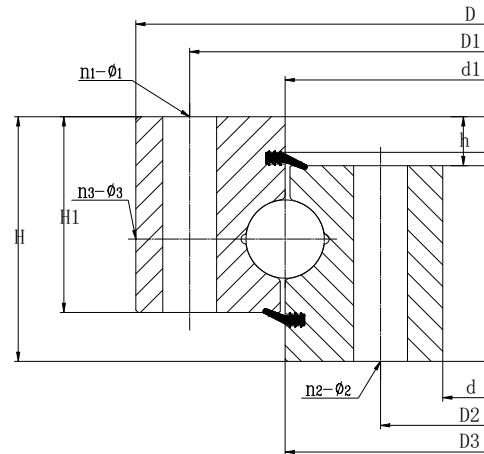
Bearing number	Boundary dimensions			Mounting hole dimensions						Structure dimensions						Gear data	Basic load 10 ⁴ N
	D	d	H	D ₁	D ₂	n ₁	n ₂	φ ₁	φ ₂	D ₃	d ₁	H ₁	h	n ₃	φ ₃		
116752	480	260	60	444	296	16	16	14	14	360	380	60	-	-	-	75.4	55
116752K	480	260	60	-	-	-	-	-	-	360	380	60	-	-	-	75.4	58.6
176792	590	460	45	570	488	8	12	M10	10	518	542	45	-	-	-	62.6	35.9
176792K	590	460	45	570	488	12	12	10	10	518	542	45	-	-	-	62.6	36
176792K2M	590	460	45	570	488	12	8	10	10	526	534	45	-	-	-	94.4	30.8

Four point contact ball slewing bearings(non-gear)



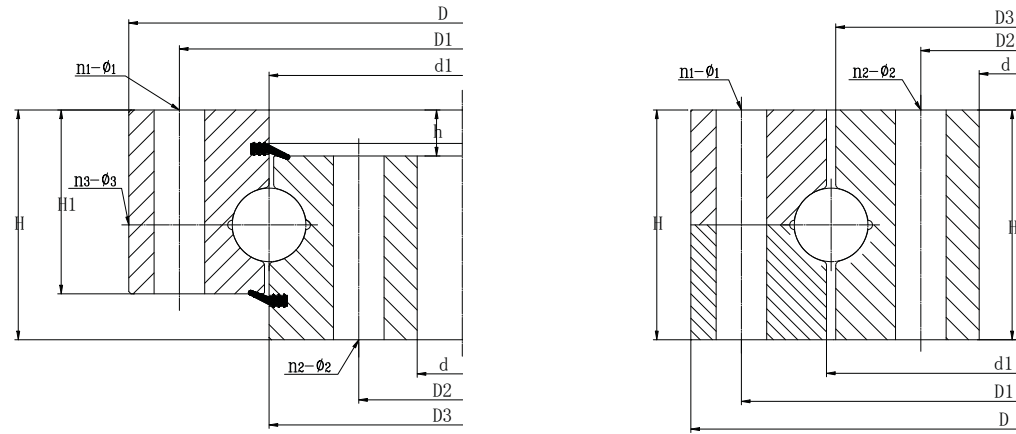
Bearing number	Boundary dimensions			Mounting hole dimensions						Structure dimensions						Gear data	Basic load 10 ⁴ N
	D	d	H	D ₁	D ₂	n ₁	n ₂	φ ₁	φ ₂	D ₃	d ₁	H ₁	h	n ₃	φ ₃		
1167/530	780	530	60	740	560	20	20	17	13	645	665	35	-	-	-	112	103
1167/560	720	560	36	690	590	12	12	14	12	638.5	641.5	33	3	-	-	70.8	40.3
1167/560K	720	560	36	690	590	12	32	M12	16	634	646	36	3	-	-	70.8	39.2
1167/560M	720	560	36	690	590	12	12	14	12	638.5	641.5	36	3	-	-	70.8	38.1
1168/560	780	560	60	-	-	-	-	-	-	645	668	60	3	-	-	224	103

Four point contact ball slewing bearings(non-gear)

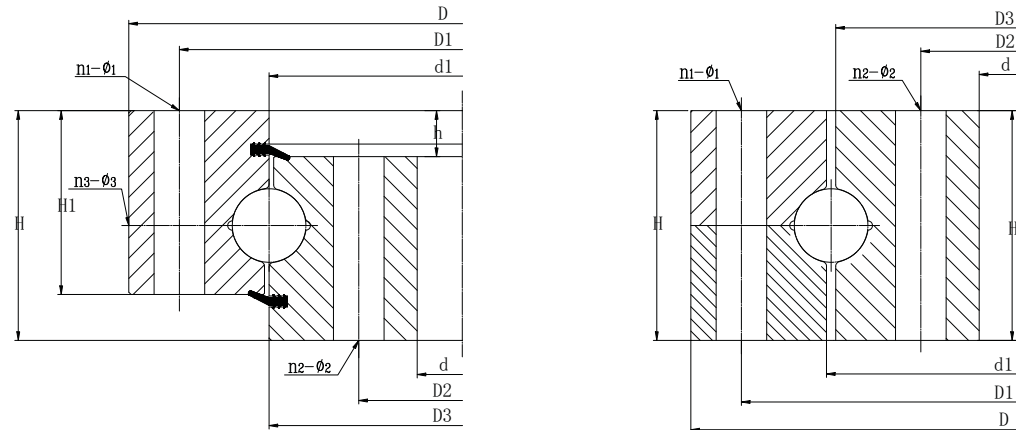


Bearing number	Boundary dimensions			Mounting hole dimensions						Structure dimensions						Gear data	Basic load 10 ⁴ N
	D	d	H	D ₁	D ₂	n ₁	n ₂	φ1	φ2	D ₃	d ₁	H ₁	h	n ₃	φ3		
11768/630	780	630	69	-	-	-	-	-	-	718	722	69	-	-	-	111	79.4
1167/700	900	700	36	860	740	12	12	M16	17	796	804	36	3	-	-	179	60
E787/760G2	950	760	80	915	795	24	24	18	M16	853.5	856.5	71	9	4	M10×1	203	138
787/800G	1050	800	90	1012	838	30	30	20	20	923	927	76	16	3	M10×1	215	192
71769/850Y	1120	850	85	1074	924	12	12	M20	22	995	1010	85	-	-	-	151	248

Four point contact ball slewing bearings(non-gear)

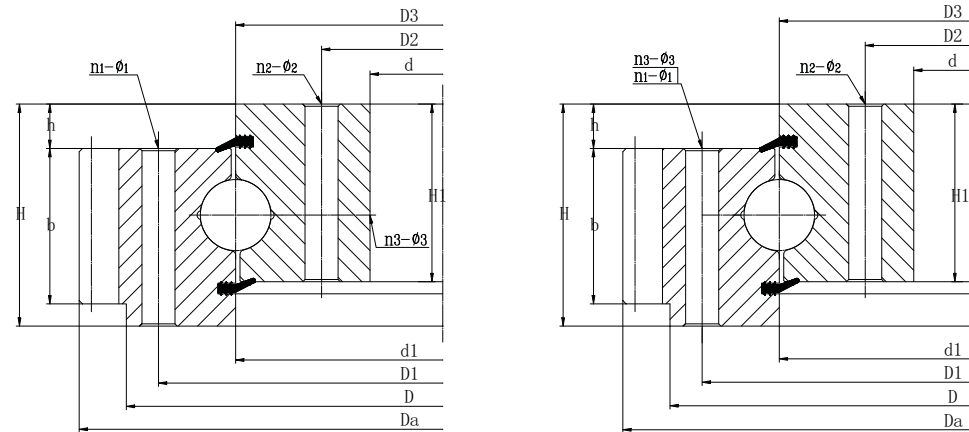


Bearing number	Boundary dimensions			Mounting hole dimensions						Structure dimensions						Gear data	Basic load 10 ⁴ N
	D	d	H	D ₁	D ₂	n ₁	n ₂	φ1	φ2	D ₃	d ₁	H ₁	h	n ₃	φ3		
71769/850G2 K	1120	850	85	1074	924	12	12	17	22	999	1003	85	-	-	-	210	257
787/932G2	1200	932	120	1148	984	40	40	26	M24	1064	1068	100	20	4	G1/4in	349	328
787/960G2	1165	960	90	1135	1040	36	36	18	M16	1073	1077	78	14	6	M10×1	249	202
787/1000G2	1250	1000	100	1206	1044	12	12	18	M16	1123	1127	90	10	3	M10×1	540	283
787/1260G2	1509	1260	90	1465	1315	36	36	22	M20	1386	1389	70	14	2	ZG1/8in	378	274

Four point contact ball slewing bearings(non-gear)


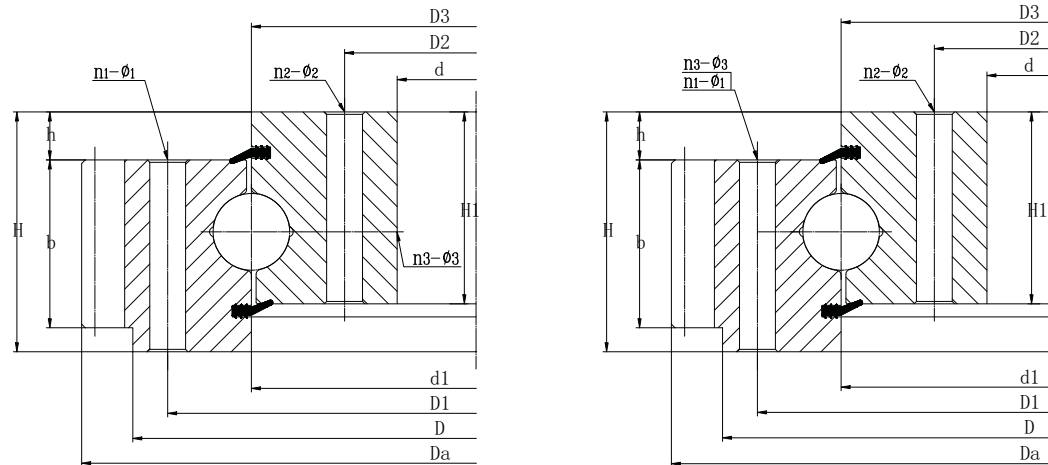
Bearing number	Boundary dimensions			Mounting hole dimensions						Structure dimensions						Gear data	Basic load 10 ⁴ N
	D	d	H	D ₁	D ₂	n ₁	n ₂	φ ₁	φ ₂	D ₃	d ₁	H ₁	h	n ₃	φ ₃		
71169/1400Y	1820	1400	136	1750	1470	24	24	35	35	1608	1612	136	-	4	M10×1	611	1114
71169/1400Y1	1820	1400	136	1750	1470	24	24	35	35	1608	1612	136	-	4	M10×1	1070	1120
787/1440G2	1780	1440	100	1730	1494	48	48	22	M20	1618	1622	85	15	4	M12×1.25	503	533
787/1628G2	1927	1628	130	1875	1680	36	36	26	M24	1774	1778	115	15	6	G1/4in	692	732
787/1700KM	2000	1700	150	1950	1750	24	24	21	21	1842	1858	130	20	4	M10×1	684	826

Four point contact ball slewing bearings(external gear)



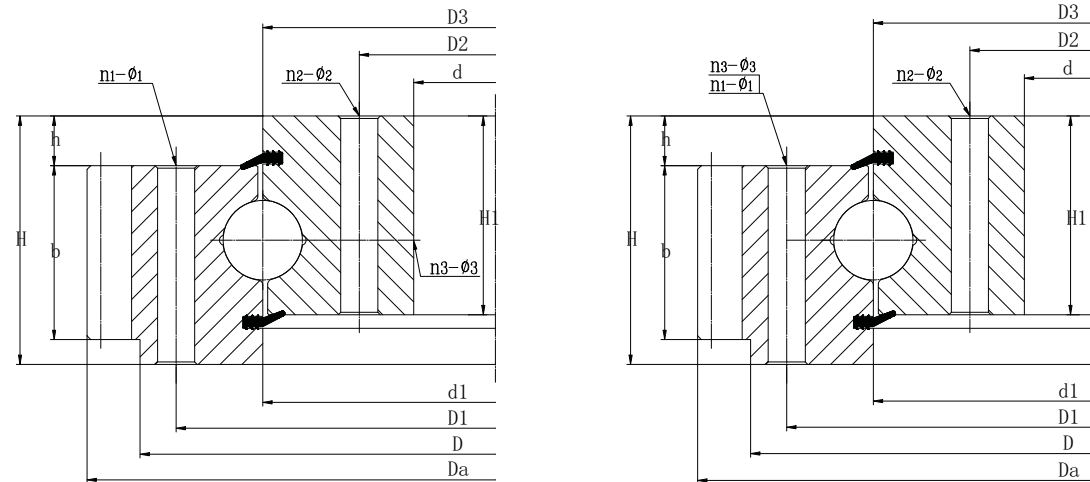
Bearing number	Boundary dimensions			Mounting hole dimensions						Structure dimensions						Gear data					Basic load 10 ⁴ N	Weight Kg
	D	d	H	D ₁	D ₂	n ₁	n ₂	φ ₁	φ ₂	D ₃	d ₁	H ₁	h	n ₃	φ ₃	m	Da	z	b	x		
D178794	694	470	77	630	500	18	18	M16	18	567.5	564.5	64	13	6	M10×1	6	696	114	60	0	157	93.1
1787/600G	786	600	72	740	636	20	24	M18×2.5	19	689	691	60	7	4	ZG1/8in	6	798	131	50	0	107	94.1
1787/674G2	853	674	70	825	709	34	23	20	M20	764	768	59	10	2	ZG1/8in	7	889	125	50	0	183	89
1787/674G2K	853	674	70	825	709	34	24	18	18	764	768	59	10	2	ZG1/8in	7	889	125	50	0	183	88.6
1787/710G2	894	710	67	845	744	8	8	M10	M10	798	806	58	9	3	M10×1	6	924	152	55	0	179	107
1787/710G2K	894	710	67	875	760	8	12	M10	M12	798	806	58	9	3	M10×1	6	924	152	55	0	179	107

Four point contact ball slewing bearings(external gear)

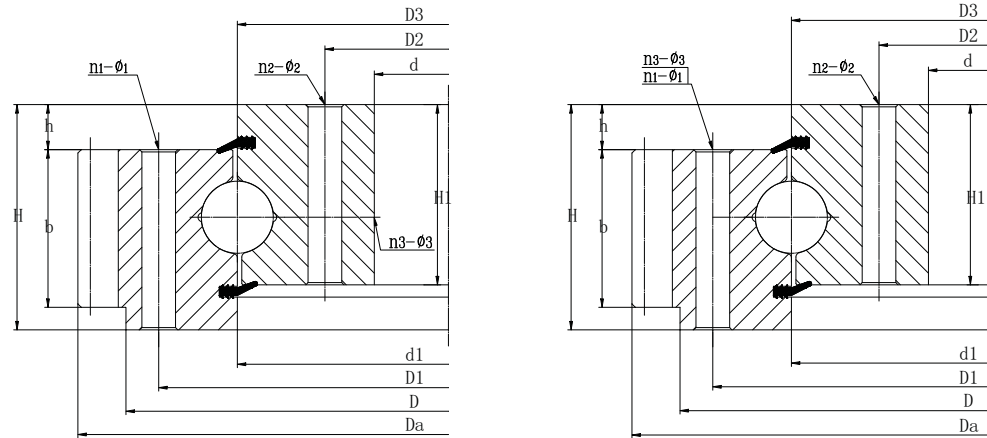


Bearing number	Boundary dimensions			Mounting hole dimensions						Structure dimensions						Gear data					Basic load 10 ⁴ N	Weight Kg
	D	d	H	D ₁	D ₂	n ₁	n ₂	φ1	φ2	D ₃	d ₁	H ₁	h	n ₃	φ3	m	Da	z	b	x		
1787/710G2K1	894	710	67	865	744	20	20	13	13	798	806	58	9	4	M10×1	6	924	152	55	0	179	107
1787/800G	1050	800	90	1012	838	30	30	20	20	923	927	76	16	3	M10×1	6	1092	180	60	0	215	217
1787/800GK	1050	800	90	1012	838	30	30	20	20	923	927	76	16	3	M10×1	6	1092	180	60	0	215	217
1788/1040G2	-	1040	80	1220	1080	30	30	M16	17.5	1153	1157	70	10	-	-	10	1270	125	70	0	297	251
1787/1060G	1335	1060	109	1295	1105	24	24	M20	22	1198	1202	100	9	4	M8×1	10	1388	138	80	-0.6	501	407

Four point contact ball slewing bearings(external gear)

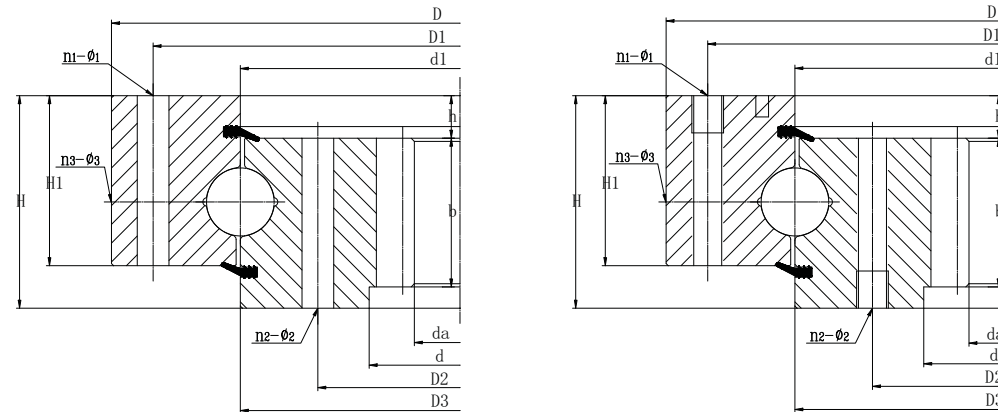


Bearing number	Boundary dimensions			Mounting hole dimensions						Structure dimensions						Gear data					Basic load 10 ⁴ N	Weight Kg
	D	d	H	D ₁	D ₂	n ₁	n ₂	φ ₁	φ ₂	D ₃	d ₁	H ₁	h	n ₃	φ ₃	m	Da	z	b	x		
1787/1075	1365	1075	120	1310	1130	36	36	26	26	1218	1222	105	15	4	M8×1	8	1424	176	90	0	463	463
1787/1075K	1365	1075	130	1310	1130	36	36	24	24	1218	1222	105	10	-	-	10	1420	140	120	0	463	550
1787/1075G2	1365	1075	120	1310	1130	36	36	24	24	1218	1222	105	15	4	M10×1	10	1428	138	90	+1.4	463	463
1787/1075G2K	1365	1075	120	1310	1130	36	36	M24	26	1218	1222	105	15	4	M8×1	8	1424	176	90	0	463	463
1787/1330G2	1475	1330	82.4	1510	1362	24	24	18.5	18.5	1439	1445	70	12.4	6	M10×1	9	1584	174	70	0	353	280

Four point contact ball slewing bearings(external gear)


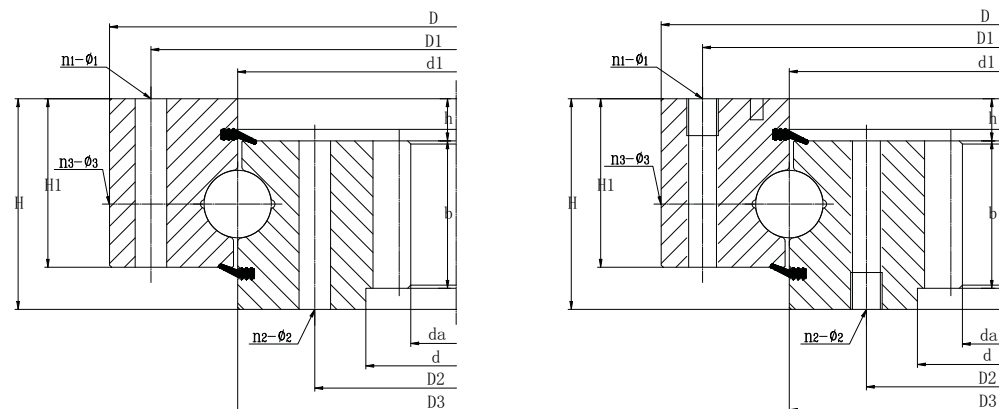
Bearing number	Boundary dimensions			Mounting hole dimensions						Structure dimensions						Gear data					Basic load 10 ⁴ N	Weight Kg
	D	d	H	D ₁	D ₂	n ₁	n ₂	φ ₁	φ ₂	D ₃	d ₁	H ₁	h	n ₃	φ ₃	m	Da	z	b	x		
1788/1410G2	-	1410	85	1590	1454	36	36	M16	17.5	1524.6	1528.6	70	15	-	-	10	1620	160	70	0	395	312
1787/1640G	2050	1640	160	1990	1710	30	30	28	28	1844	1856	140	20	2	M14×1.5	10	2108	210	105	-0.6	1118	1264
1787/1700	1945	1700	120	1900	1750	24	24	M18	21	1825	1845	110	10	4	M10×1	5	1970	392	35	0	405	516
1789/1700GM	2052	1700	100	1980	1780	24	24	20	M18	1878	1882	90	10	4	M14×1.5	5	2080	414	50	0	551	678
1787/2650G2	2885	2650	100	2850	2700	48	48	M20	M20	2777	2781	80	10	6	ZG1/4in	12	2949.6	244	80	0	913	751

Four point contact ball slewing bearings(internal gear)



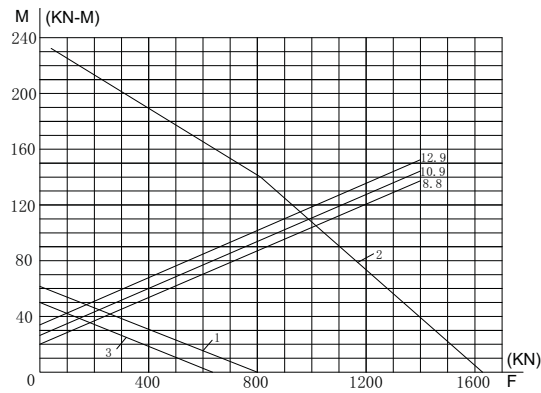
Bearing number	Boundary dimensions			Mounting hole dimensions						Structure dimensions						Gear data					Basic load 10 ⁴ N	Weight Kg
	D	d	H	D ₁	D ₂	n ₁	n ₂	φ ₁	φ ₂	D ₃	d ₁	H ₁	h	n ₃	φ ₃	m	Da	z	b	x		
2782/1000GK	1270	1000	100	1220	1050	24/2*2	24/2*2	17/M12	17/M12	1133	1137	85	15	2	M10×1	6	972	164	70	0	384	322
2787/1210G2	1530	1210	122	1480	1260	40	40	26	26	1368	1372	108	12	4	M10×1	10	1164	118	80	0	713	540
2787/1400GK	1715	1400	110	1660	1460	24	24	M20	M20	1558	1562	95	15	2	M12×1.25	6	1364.5	230	77	-0.35	365	545
2787/1400GK1	1715	1400	110	1660	1460	24	24	23	23	1558	1562	95	15	2	M10×1	6	1364.5	230	77	-0.35	365	545
2787/1440	1780	1440	100	1730	1494	48	48	22	M20	1618	1622	85	10	4	M12×1.25	8	1400	177	50	0	503	554
2787/1440G	1780	1440	100	1730	1494	48	48	22	M20	1618	1622	85	10	4	M12×1.25	8	1400	177	50	0	578	554

Four point contact ball slewing bearings(internal gear)

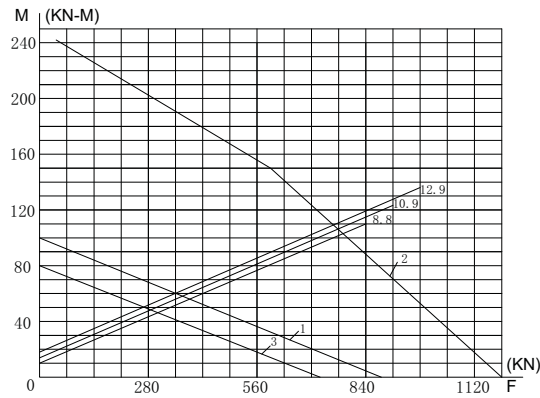


Bearing number	Boundary dimensions			Mounting hole dimensions						Structure dimensions						Gear data					Basic load 10 ⁴ N	Weight Kg
	D	d	H	D ₁	D ₂	n ₁	n ₂	φ ₁	φ ₂	D ₃	d ₁	H ₁	h	n ₃	φ ₃	m	Da	z	b	x		
2768/1440G	1780	1440	104	1730	1494	48	48	22	M20	1613	1627	87	10	6	M12×1.25	8	1400	177	52	0	578	555
2787/1525G2	1875	1525	140	1815	1585	42	42	29	29	1698	1702	122	17	4	M12×1.25	16	1451.2	92	110	+0.35	873	1019
2788/1712	2050	1790	112	2006	1847	36	72	22	22	1925	1926	92	12	18	M10×1	16	1712	108	100	+0.5	604	663
2789/2230	2488	2230	160	2445	2275	48	48	M20	M22	2337.5	2342.5	135	5	8	ZG1/4in	18	2144.25	121	145	0	1247	1114
2789/2240G2	2500	2240	140	2454	2280	56	56	M24	M24	2357.5	2362.5	115	5	8	M14×1.5	18	2145.6	121	125	0	856	1161
2789/2735	2990	2735	160	2954	2770	48	48	M20	M24	2835	2845	135	5	8	ZG1/4in	22	2624.6	121	144	0	1559	1457

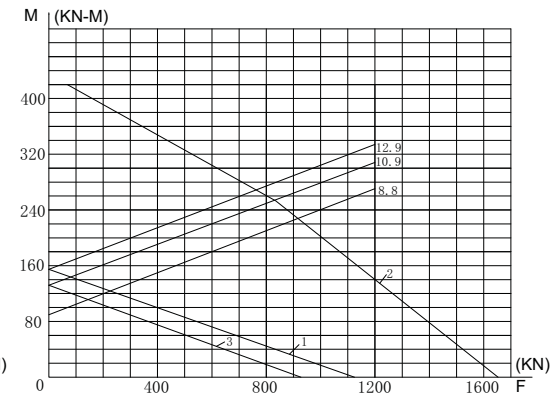
Four point contact ball slewing bearings load curve(internal gear)



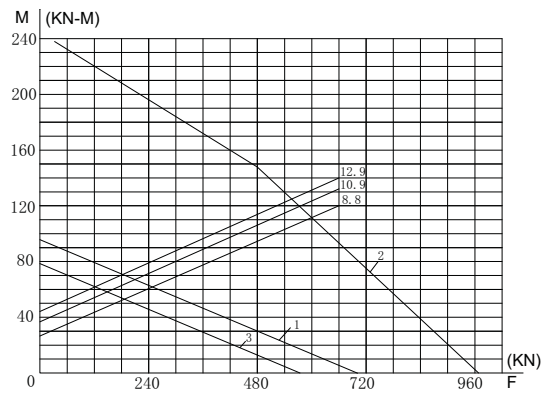
图C01 116752 转盘轴承承载曲线



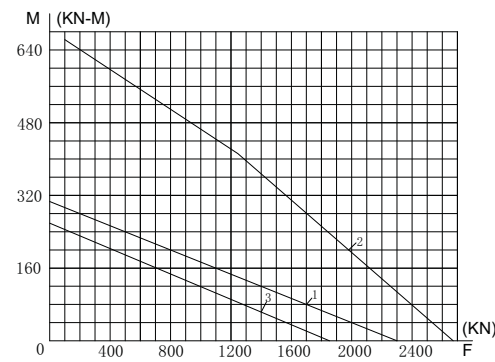
图C02 176792 转盘轴承承载曲线



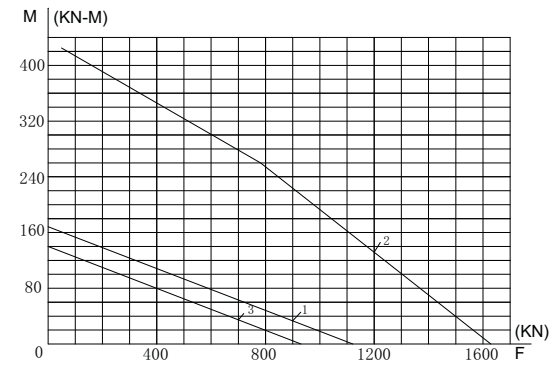
图C03 1167/530 转盘轴承承载曲线



图C04 1167/560 转盘轴承承载曲线

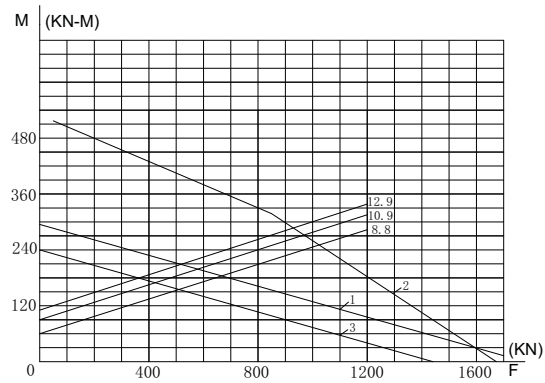


图C05 1168/560 转盘轴承承载曲线

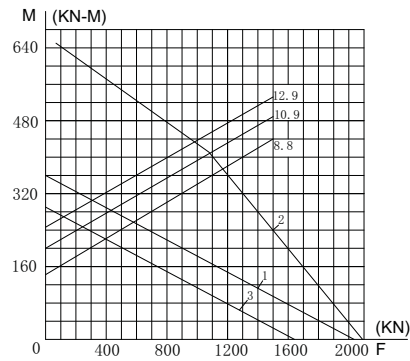


图C06 11768/630 转盘轴承承载曲线

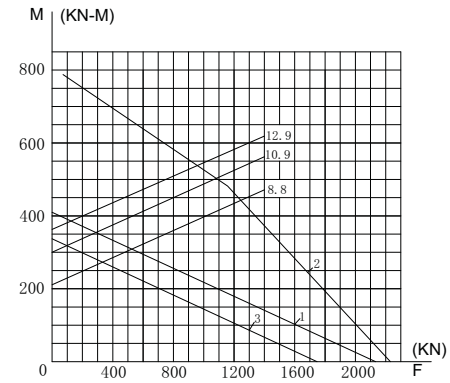
Four point contact ball slewing bearings load curve(internal gear)



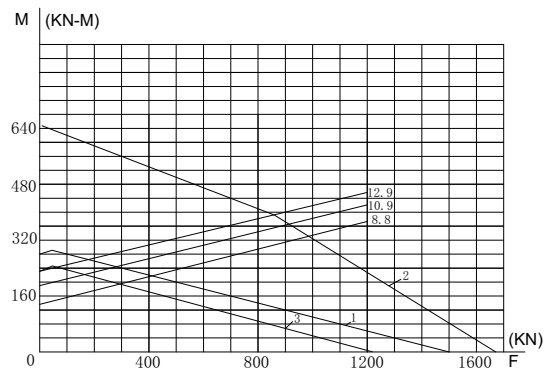
图C07 1167/700 转盘轴承承载曲线



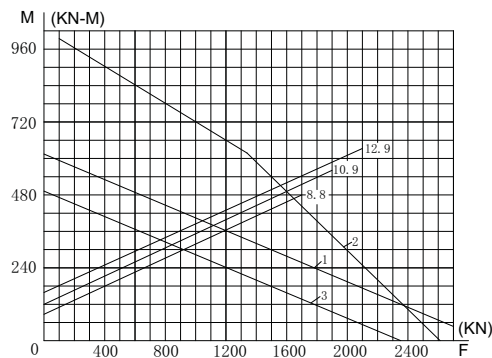
图C08 E787/760 转盘轴承承载曲线



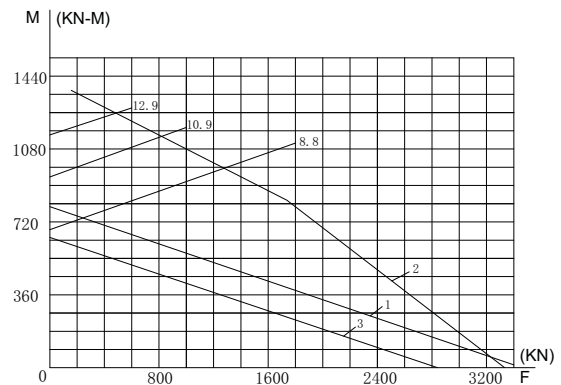
图C09 787/800 转盘轴承承载曲线



图C10 71769/850V 转盘轴承承载曲线

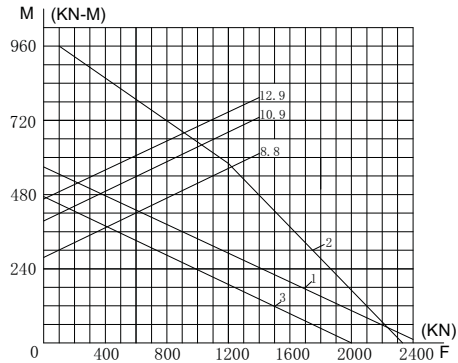


图C11 71769/850K 转盘轴承承载曲线

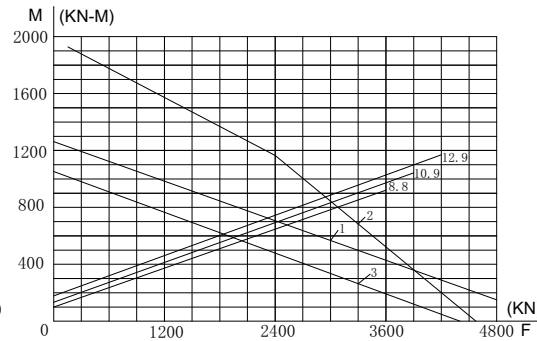


图C12 787/932 转盘轴承承载曲线

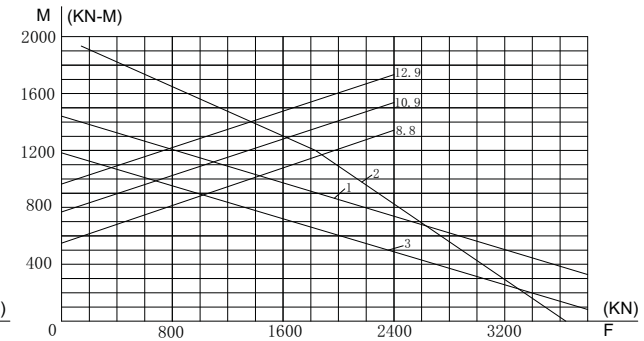
Four point contact ball slewing bearings load curve



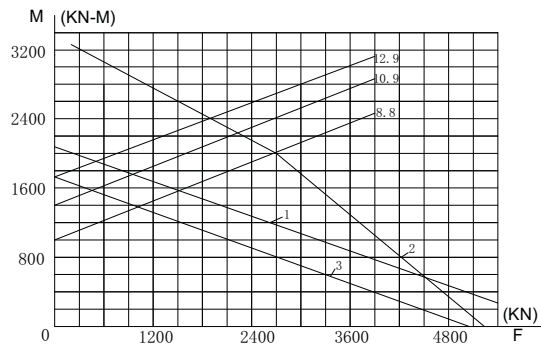
图C13 787/960 转盘轴承承载曲线



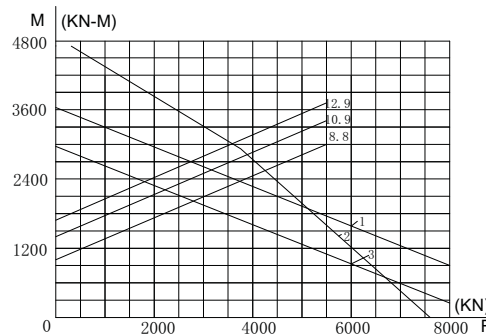
图C14 787/1000 转盘轴承承载曲线



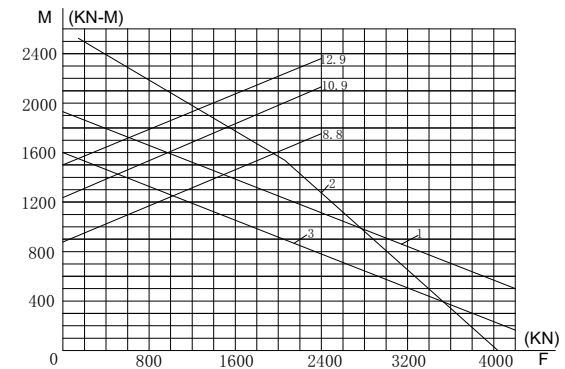
图C15 787/1260 转盘轴承承载曲线



图C16 71169/1400Y 转盘轴承承载曲线

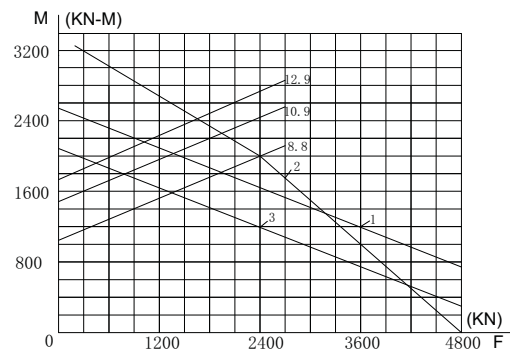


图C17 71169/1400Y1 转盘轴承承载曲线

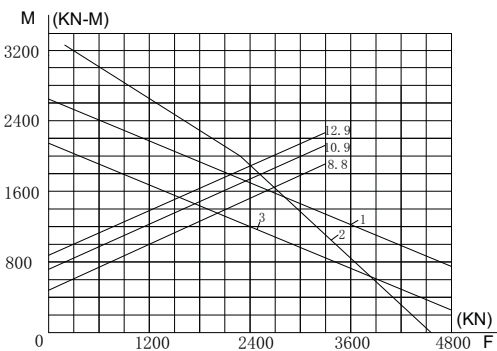


图C18 787/1440 转盘轴承承载曲线

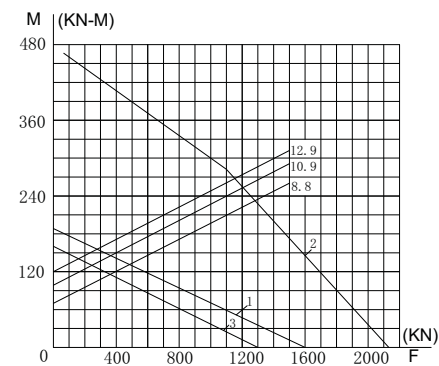
Four point contact ball slewing bearings load curve



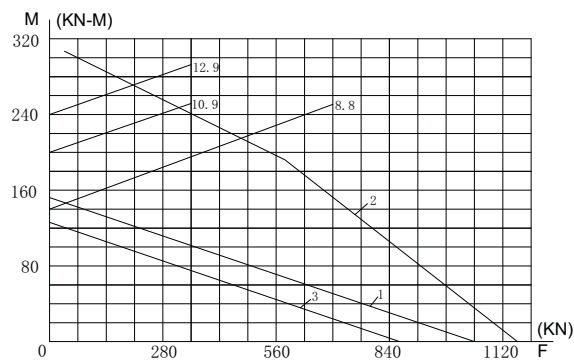
图C19 787/1628 转盘轴承承载曲线



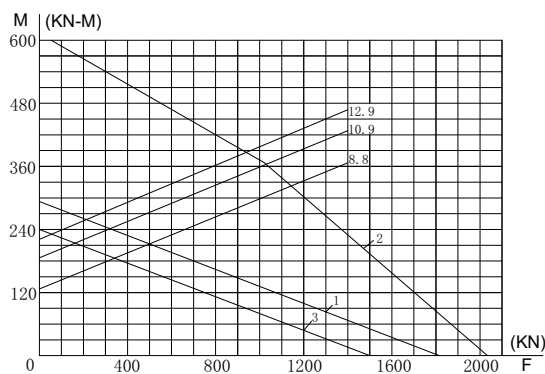
图C20 787/1700KM 转盘轴承承载曲线



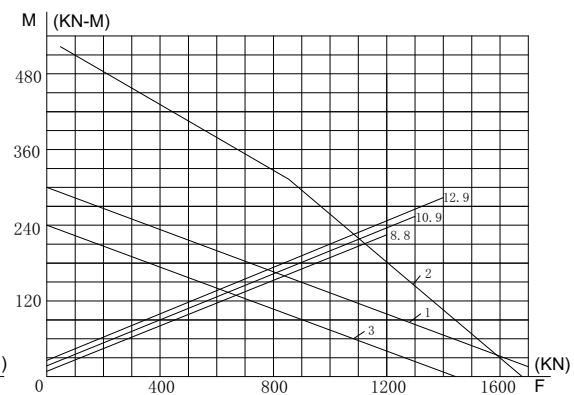
图C21 D178794 转盘轴承承载曲线



图C22 1787/600 转盘轴承承载曲线

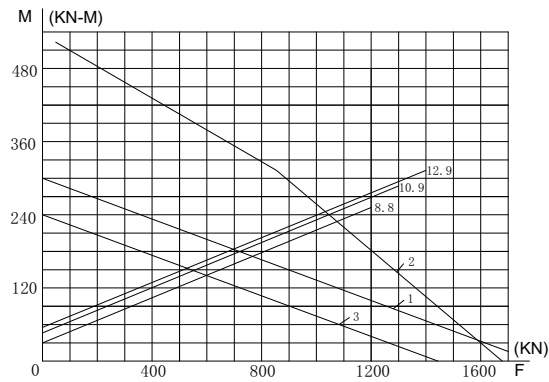


图C23 1787/674K 转盘轴承承载曲线

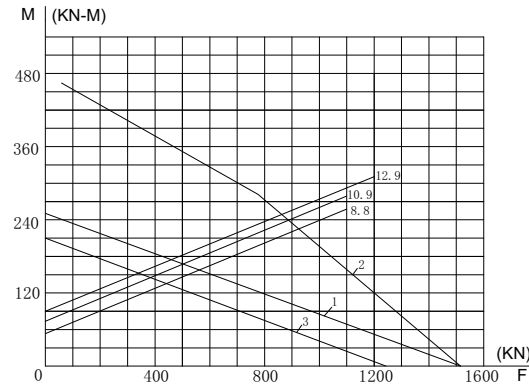


图C24 1787/710 转盘轴承承载曲线

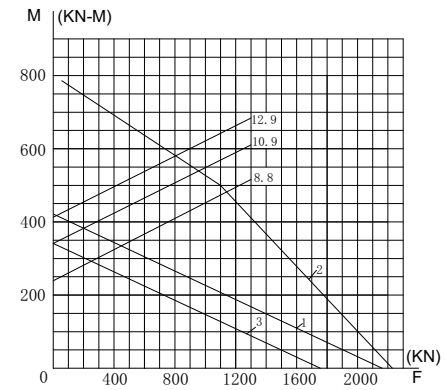
Four point contact ball slewing bearings load curve



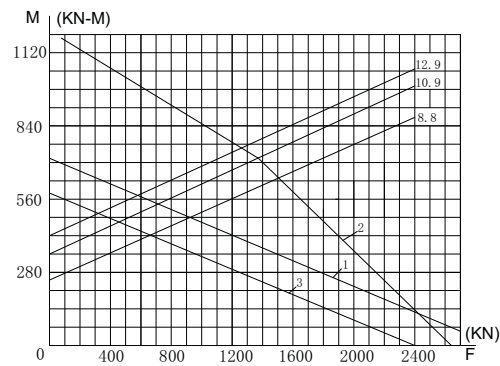
图C25 1787/710K 转盘轴承承载曲线



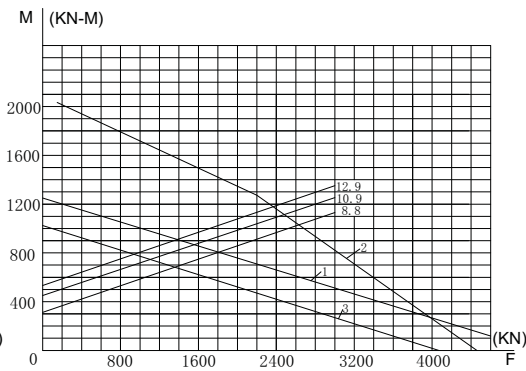
图C26 1787/710K1 转盘轴承承载曲线



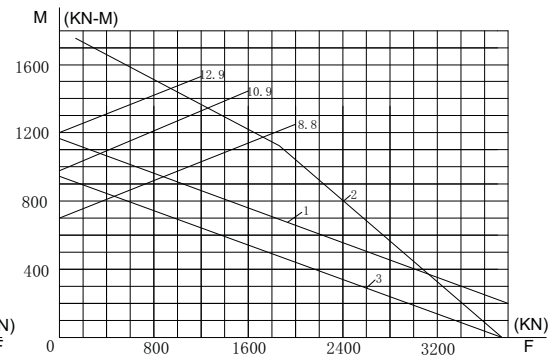
图C27 1787/800 转盘轴承承载曲线



图C28 1788/1040 转盘轴承承载曲线

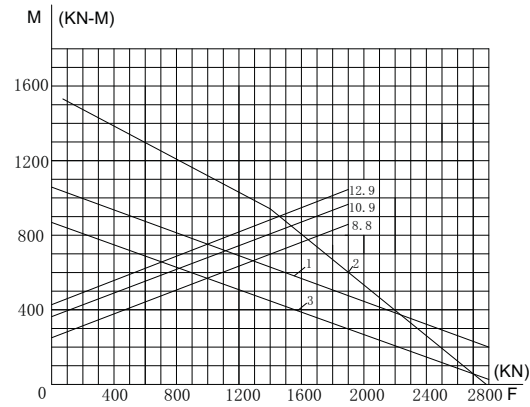


图C29 1787/1060 转盘轴承承载曲线

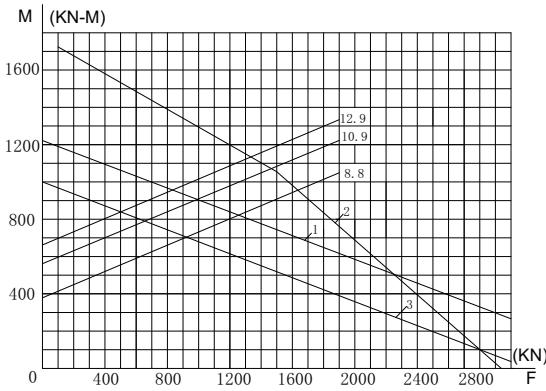


图C30 D1787/1075 转盘轴承承载曲线

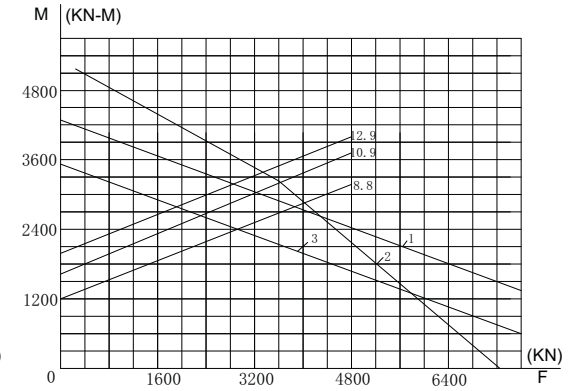
Four point contact ball slewing bearings load curve



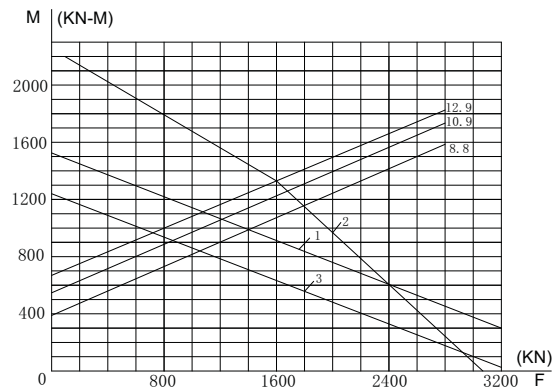
图C31 1787/1330 转盘轴承承载曲线



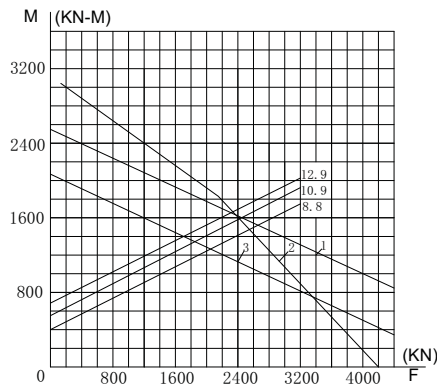
图C32 1788/1410 转盘轴承承载曲线



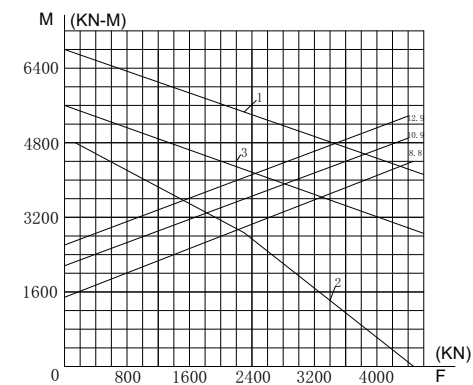
图C33 1787/1640 转盘轴承承载曲线



图C34 1787/1700 转盘轴承承载曲线

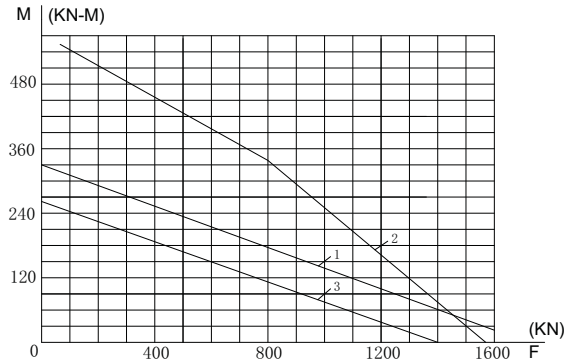


图C35 1789/1700M 转盘轴承承载曲线

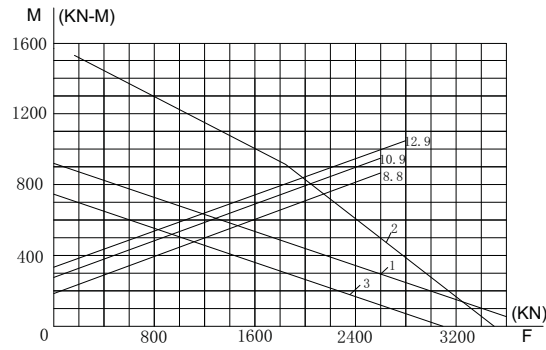


图C36 1787/2650 转盘轴承承载曲线

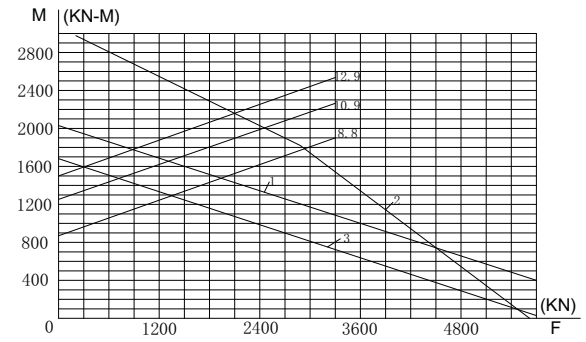
Four point contact ball slewing bearings load curve



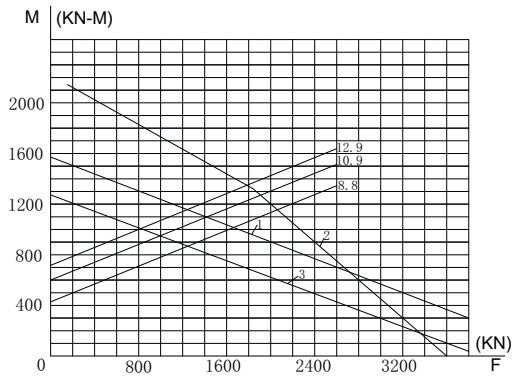
图C37 2788/850K 转盘轴承承载曲线



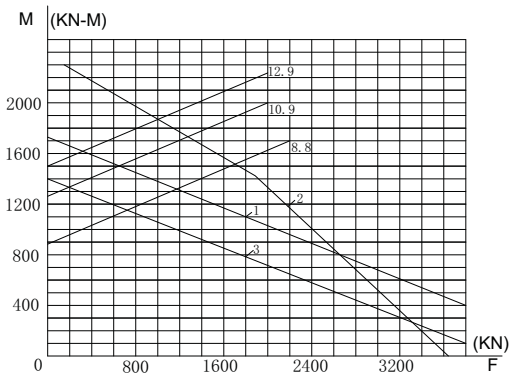
图C38 2782/1000K 转盘轴承承载曲线



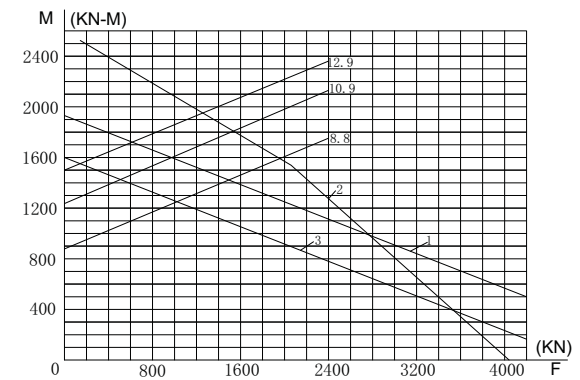
图C39 2787/1210 转盘轴承承载曲线



图C40 2787/1400K 转盘轴承承载曲线

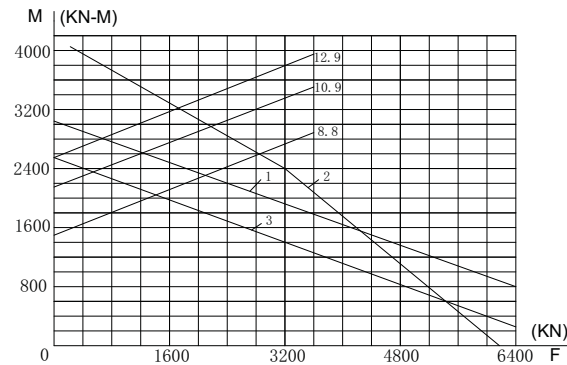


图C41 2787/1440 转盘轴承承载曲线

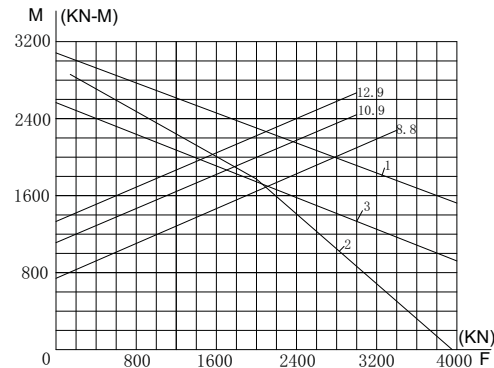


图C42 2768/1440 转盘轴承承载曲线

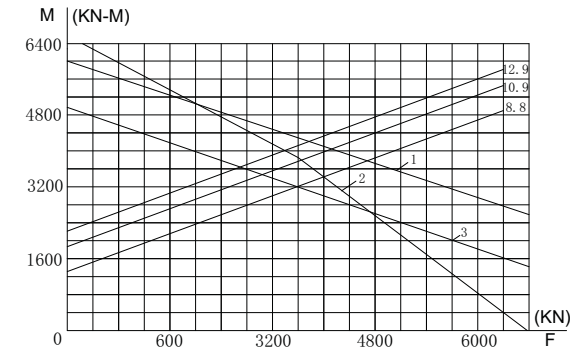
Four point contact ball slewing bearings load curve



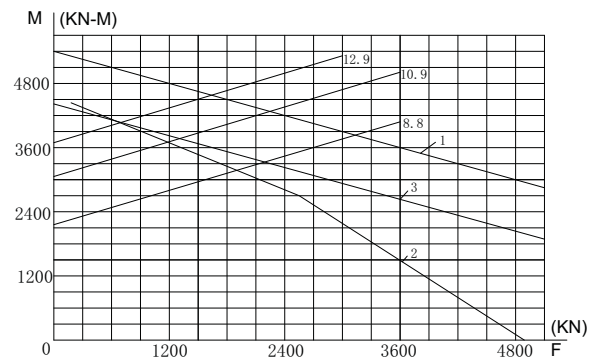
图C43 2787/1525 转盘轴承承载曲线



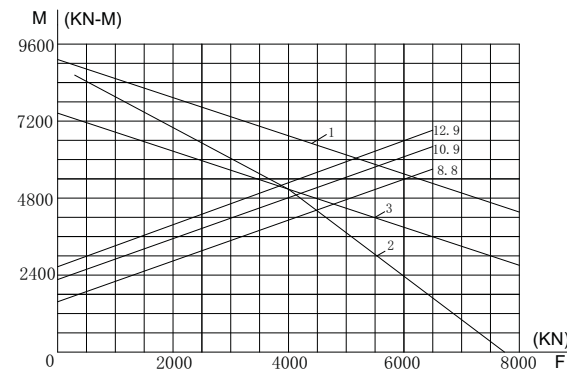
图C44 2788/1712 转盘轴承承载曲线



图C45 2789/2230 转盘轴承承载曲线

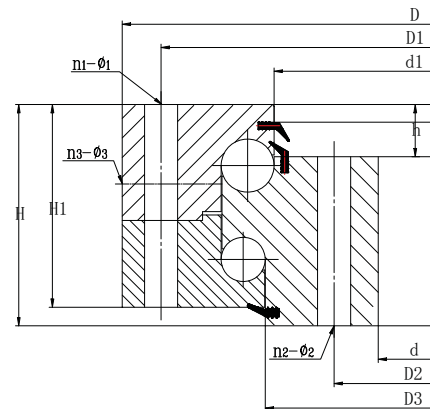


图C46 2789/2240 转盘轴承承载曲线



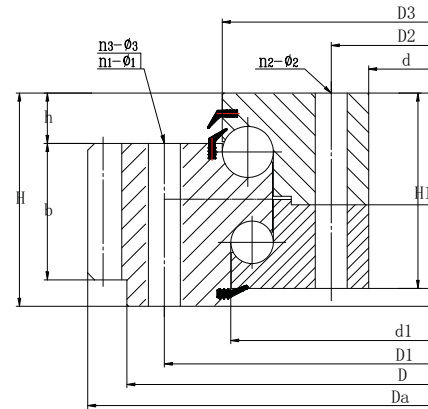
图C47 2789/2735 转盘轴承承载曲线

Double row different diameter ball slewing bearings(non-gear)



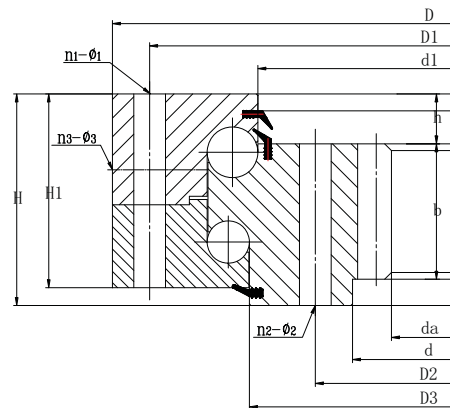
Bearing number	Boundary dimensions			Mounting hole dimensions						Structure dimensions						Gear data	Basic load 10^4N
	D	d	H	D_1	D_2	n_1	n_2	ϕ_1	ϕ_2	D_3	d_1	H_1	h	n_3	ϕ_3		
5787/1916G2	2320	1916	150	2245	1980	42	42	34	34	2146	2150	135	20	12	M12	1096	1251

Double row different diameter ball slewing bearings(external gear)



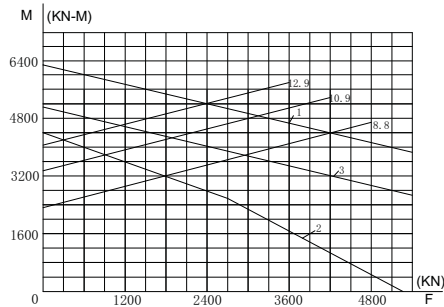
Bearing number	Boundary dimensions			Mounting hole dimensions						Structure dimensions						Gear data					Basic load 10 ⁴ N	Weight Kg
	D	d	H	D ₁	D ₂	n ₁	n ₂	φ ₁	φ ₂	D ₃	d ₁	H ₁	h	n ₃	φ ₃	m	Da	z	b	x		
6787/820G	1150	820	125	1100	880	14/4	8	25/22	32	1020	1040	130	5	2×2	M10×1	12	1206	99	75	-0.25	297	508
6787/1600G	2000	1600	175	1920	1675	10	20	38	38	1840	1865	190	15	4×2	M10×1	14	2066.4	146	120	-0.2	705	1531
6788/1600G	2000	1600	175	1920	1675	24	24	32	32	1840	1865	190	15	4×2	M10×1	6	2154.6	358	140	-0.45	705	1576
6789/3405G	3638	3405	185	3700	3465	48	48	35	35	3638	3630	185	45	12	M12×1.25	18	3852	212	120	0	1860	2632

Double row different diameter ball slewing bearings(internal gear)

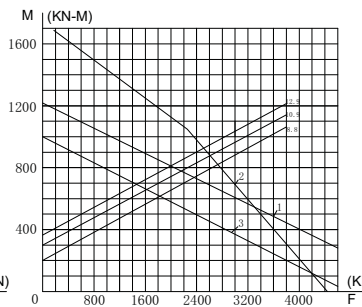


Bearing number	Boundary dimensions			Mounting hole dimensions						Structure dimensions						Gear data					Basic load 10 ⁴ N	Weight Kg
	D	d	H	D ₁	D ₂	n ₁	n ₂	φ1	φ2	D ₃	d ₁	H ₁	h	n ₃	φ3	m	Da	z	b	x		
7787/1310G	1600	1310	135	1550	1365	32	32	26	26	1414	1436	140	5	4	M10×1	16	1214.4	77	100	+0.25	433	691
7787/2728K	3100	2728	210	3040	2780	36	36	25	26	2874	2880	200	42	4	M14×1.5	10	2652	266	105	+0.6	814	2537

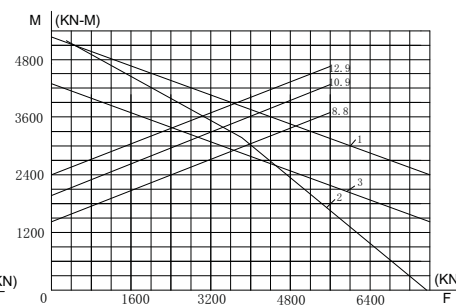
Double row different diameter ball slewing bearings load curve



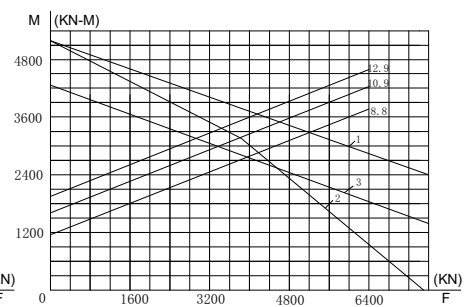
图C48 5787/1916 转盘轴承承载曲线



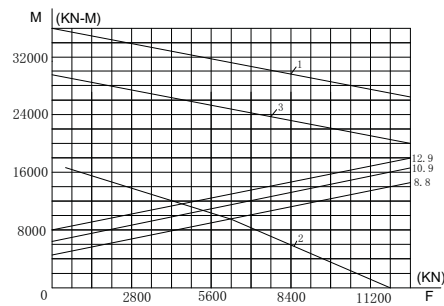
图C49 6787/820 转盘轴承承载曲线



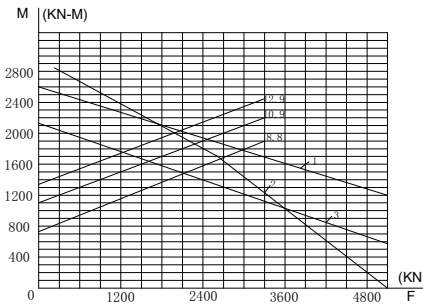
图C50 6787/1600 转盘轴承承载曲线



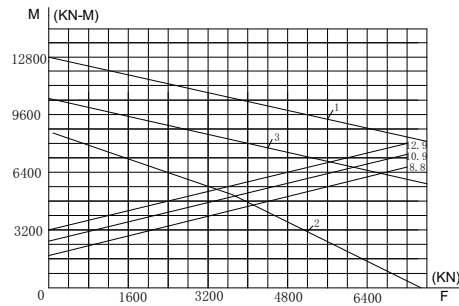
图C51 6788/1600 转盘轴承承载曲线



图C52 6789/3405 转盘轴承承载曲线

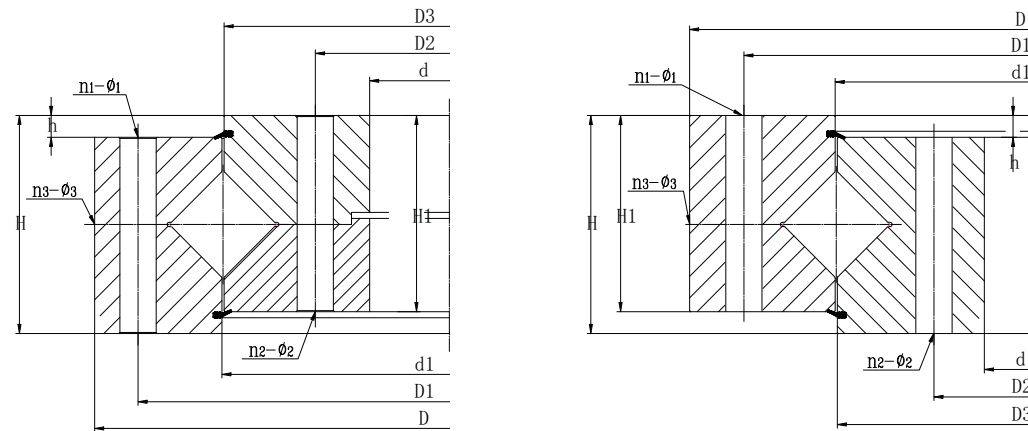


图C53 7787/1310 转盘轴承承载曲线



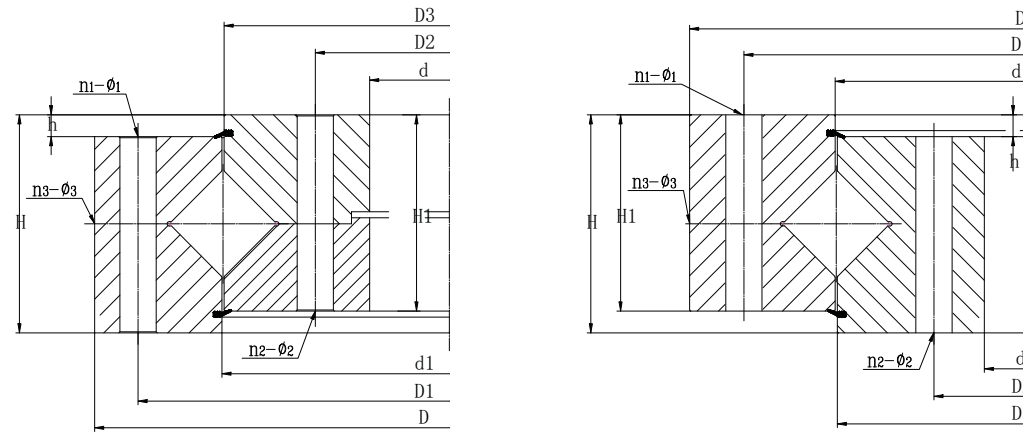
图C54 7787/2728K 转盘轴承承载曲线

Cross roller slewing bearings (non-gear)



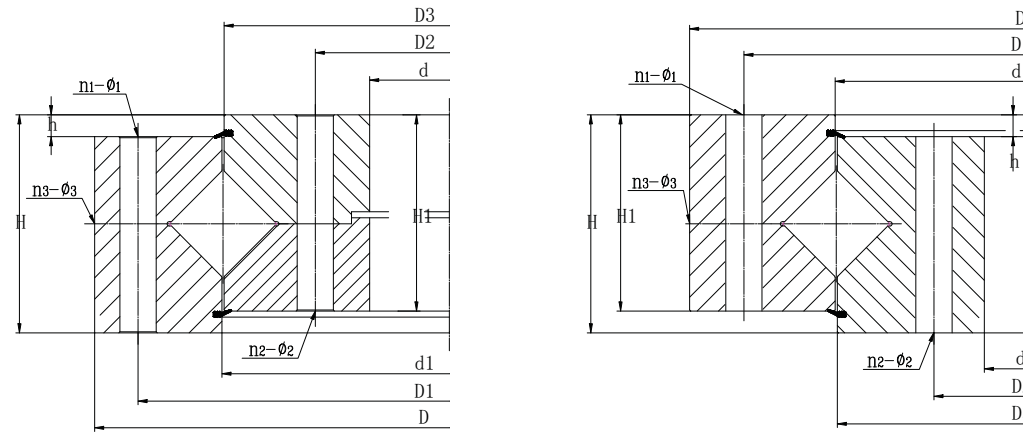
Bearing number	Boundary dimensions			Mounting hole dimensions						Structure dimensions						Gear data	Basic load 10 ⁴ N
	D	d	H	D ₁	D ₂	n ₁	n ₂	φ1	φ2	D ₃	d ₁	H ₁	h	n ₃	φ3		
79764	550	320	85	515	365	12	8	17	18	438	442	75	10	-	-	88.2	85.6
797/600G	900	600	125	848	690	30	29	26	M24	750	754	105	15	3	M10×1	280	246
797/670	907	670	85	870	730	12	8	M16	18	808	812	75	10	-	-	165	170
797/700G	1000	700	140	940	770	24	24	M20	22	879	882	130	20	4	M10×1	254	370
797/845G2	1150	845	130	1100	895	24	24	22	22	1024	1030	105	10	6	M6	401	393

Cross roller slewing bearings (non-gear)



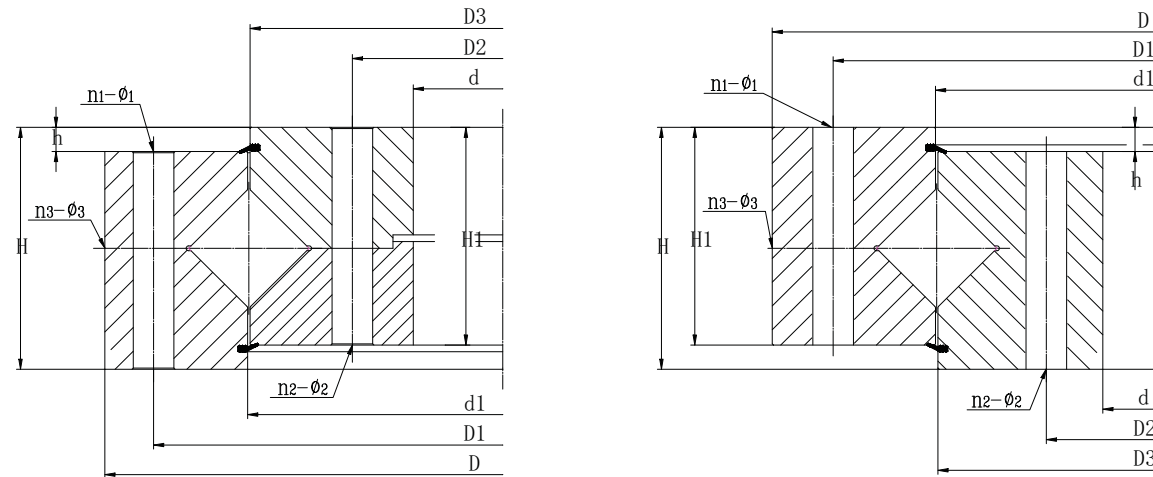
Bearing number	Boundary dimensions			Mounting hole dimensions						Structure dimensions						Gear data	Basic load 10 ⁴ N
	D	d	H	D ₁	D ₂	n ₁	n ₂	φ ₁	φ ₂	D ₃	d ₁	H ₁	h	n ₃	φ ₃		
797/870G	1180	870	115	1125	920	18	18	28	28	1023	1027	100	15	2	M8×1	292	355
797/870K	1180	870	115	1125	920	18	18	28	28	1023	1027	100	15	2	M10×1	232	355
797/870G2K1	1180	870	115	1125	920	18	18	28	28	1023	1027	100	15	2	M10×1	320	356
797/962G2	1200	962	90	-	-	-	-	-	-	1088	1092	76	10	-	-	254	224
792/1000G2	1270	1000	100	1220	1050	36	36	19	19	1132	1138	85	15	4	M10×1	333	303

Cross roller slewing bearings (non-gear)



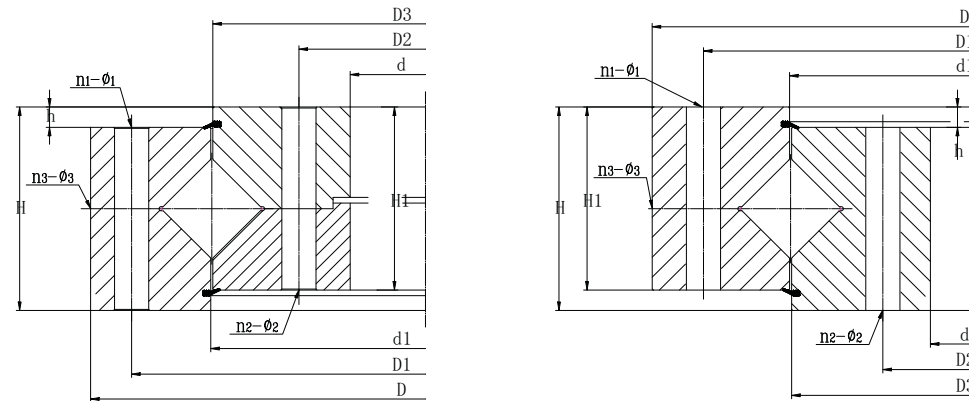
Bearing number	Boundary dimensions			Mounting hole dimensions						Structure dimensions						Gear data	Basic load 10 ⁴ N
	D	d	H	D ₁	D ₂	n ₁	n ₂	φ ₁	φ ₂	D ₃	d ₁	H ₁	h	n ₃	φ ₃		
792/1000G2K	1270	1000	100	1220	1050	36	36	19	19	1132	1138	85	15	3	9	333	303
792/1000G2K1	1270	1000	100	1220	1050	36	36	19	19	1132	1138	85	15	-	-	333	303
792/1000G2K2	1270	1000	100	1220	1050	36	36	19	19	1132	1138	85	15	-	-	333	303
797/1060G2	1400	1060	120	-	-	-	-	-	-	1248	1252	120	-	-	-	429	596
797/1200G2	1520	1200	90	-	-	-	-	-	-	1356	1364	90	-	-	-	409	504

Cross roller slewing bearings (non-gear)



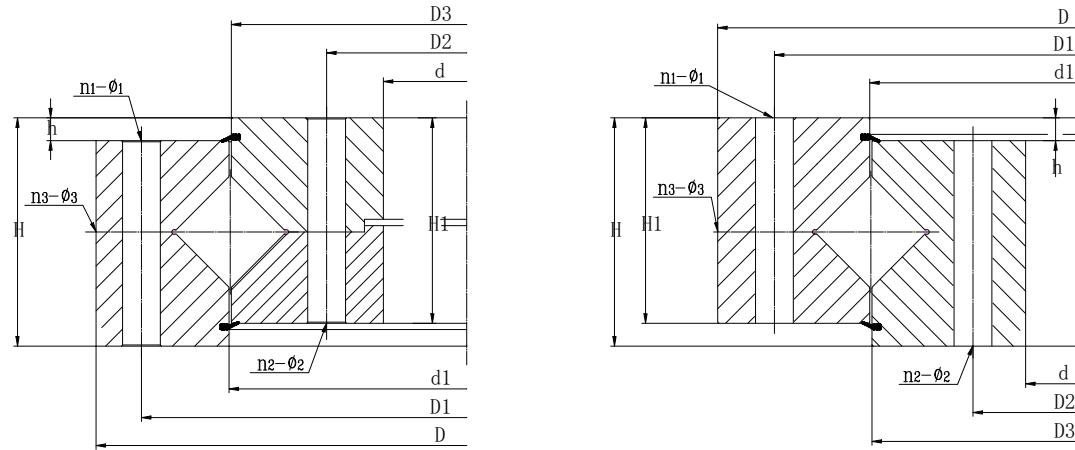
Bearing number	Boundary dimensions			Mounting hole dimensions						Structure dimensions						Gear data	Basic load 10 ⁴ N
	D	d	H	D ₁	D ₂	n ₁	n ₂	φ ₁	φ ₂	D ₃	d ₁	H ₁	h	n ₃	φ ₃		
792/1250G2	1700	1250	155	1650	1330	24	24	26	26	1446	1450	140	10	6	M10×1	602	1103
797/1250G2	1608	1250	148	1512	1297	16	16	25	25	1403	1407	128	26	4	M10×1	595	743
797/1250G2K	1608	1250	148	1512	1297	16	16	25	25	1403	1407	128	26	4	M10×1	595	717
797/1278G2K	1660	1278	120	1535	1335	18	18	26	26	1428	1432	105	15	4	M10×1	427	589
797/1320G2	1715	1320	134	-	-	-	-	-	-	1503	1509	-	-	-	-	607	958

Cross roller slewing bearings (non-gear)



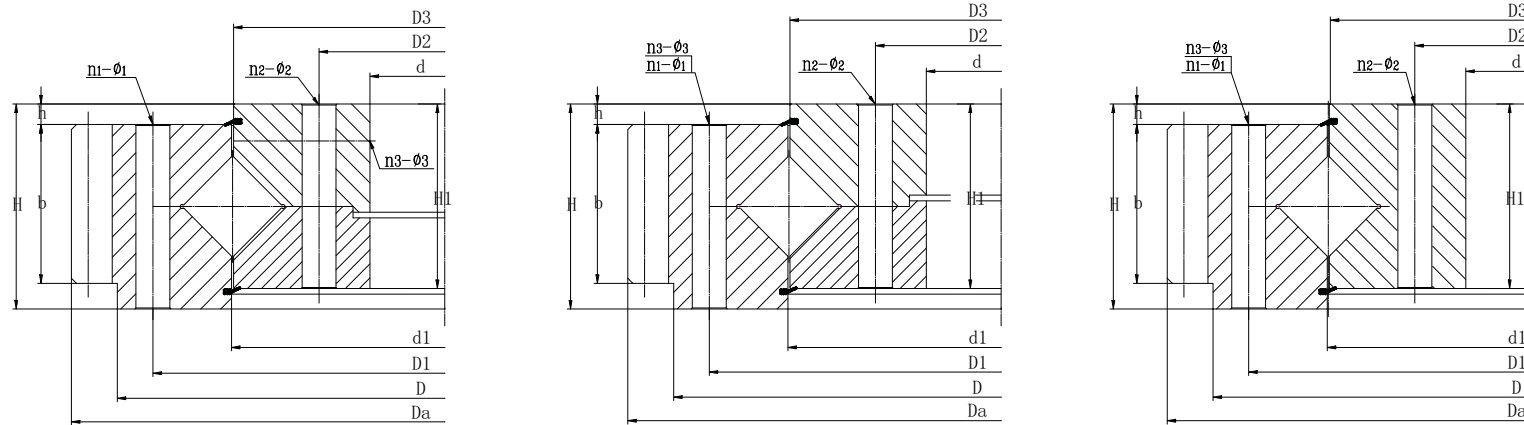
Bearing number	Boundary dimensions			Mounting hole dimensions						Structure dimensions						Gear data	Basic load 10 ⁴ N
	D	d	H	D ₁	D ₂	n ₁	n ₂	φ ₁	φ ₂	D ₃	d ₁	H ₁	h	n ₃	φ ₃		
797/1370G	1840	1370	160	1770	1430	30	24	28	28	1598	1602	140	10	4	M10×1	997	1213
797/1380G2	1700	1380	145	1650	1440	24	24	27	27	1568	1574	140	5	6	M10×1	461	746
797/1600G	2140	1600	145	1940	1710	48	48	26	26	1828	1832	135	10	4	M10×1	896	1357
797/1776G2	2210	1776	150	2105	1840	36	36	26	26	1968	1972	135	15	4	M10×1	1113	1244
797/1860G2	2320	1860	151	2245	1980	42	42	33	33	2113	2117	150	10	6	M10×1	890	1772

Cross roller slewing bearings (non-gear)



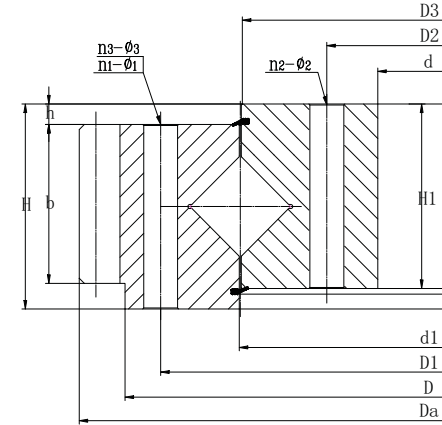
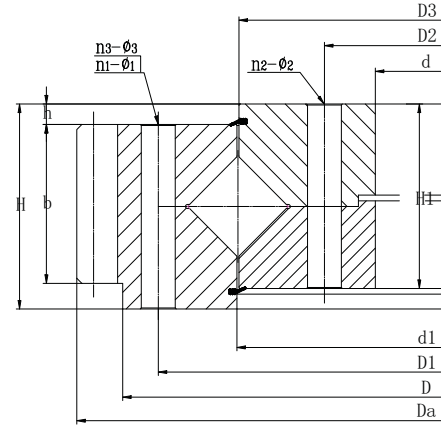
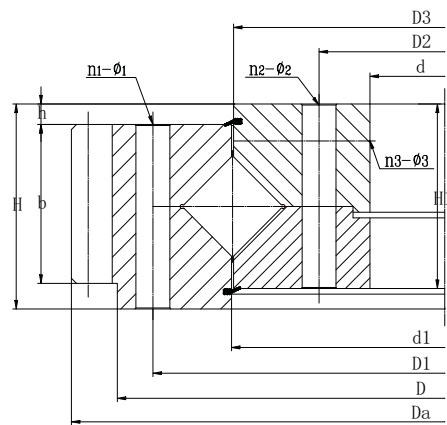
Bearing number	Boundary dimensions			Mounting hole dimensions						Structure dimensions						Gear data	Basic load 10 ⁴ N
	D	d	H	D ₁	D ₂	n ₁	n ₂	φ ₁	φ ₂	D ₃	d ₁	H ₁	h	n ₃	φ ₃		
797/1916G2	2320	1916	150	2245	1980	42	42	34	34	2113	2117	130	20	3	M10×1	1195	1214
797/2190G	2860	2190	300	2800	2270	36	36	32	32	2530	2550	260	40	12	8	3035	4797
797/2500G2	2980	2500	180	2910	2590	48	48	33	33	2739	2743	170	10	6	M16×1.5	1760	2913
792/2800G	3310	2800	190	3220	2890	60	60	39	39	3050	3060	165	25	2	M10×1	2117	2864

Cross roller slewing bearings (external gear)



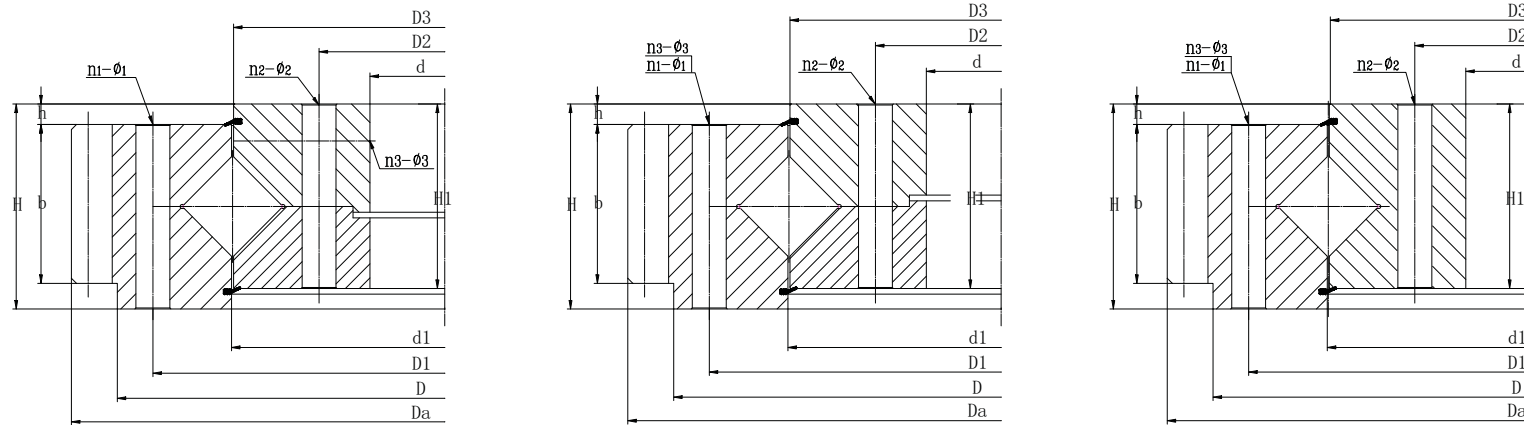
Bearing number	Boundary dimensions			Mounting hole dimensions						Structure dimensions						Gear data					Basic load 10 ⁴ N	Weight Kg
	D	d	H	D ₁	D ₂	n ₁	n ₂	φ ₁	φ ₂	D ₃	d ₁	H ₁	h	n ₃	φ ₃	m	Da	z	b	X		
1792/885	1056	885	83	1032	925	16	16	M16	17.5	986	988	75	12.5	-	-	8	1096	135	62.5	0	176	172
E1792/885	1056	885	83	1032	925	16	16	M16	17.5	986	988	75	12.5	-	-	8	1096	135	62.5	0	176	172
E1792/885K	1056	885	83	1032	925	16	16	M16	17.5	986	988	75	12.5	3	M10×1	8	1096	135	62.5	0	176	172
1797/885G	1150	885	115	1115	935	16	16	18	18	1023	1027	100	15	4	M8×1	5	1180	234	80	0	292	330
1797/1100G	1415	1100	115	1345	1160	24	18	21	21	1253	1255	100	15	4	M12×1.25	6	1452	240	84	0	270	497

Cross roller slewing bearings (external gear)



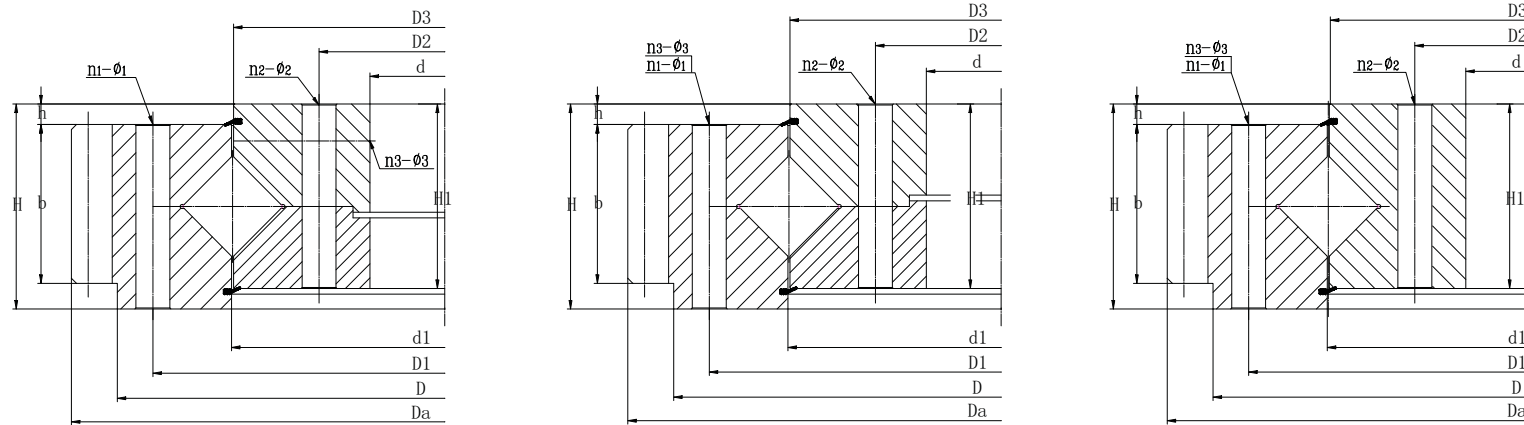
Bearing number	Boundary dimensions			Mounting hole dimensions						Structure dimensions						Gear data					Basic load 10 ⁴ N	Weight Kg
	D	d	H	D ₁	D ₂	n ₁	n ₂	φ ₁	φ ₂	D ₃	d ₁	H ₁	h	n ₃	φ ₃	m	Da	z	b	X		
1798/1100G2	1400	1100	140	1352	1160	26	26	24	26	1260	1264	126	21	4	M10×1	14	1477.28	104	90	-0.24	430	642
1798/1100G2K	1400	1100	145	1352	1160	26	26	24	26	1260	1264	131	26	4	M10×1	14	1477.28	104	90	-0.24	430	644
1797/1250G2	1548	1250	148	1512	1297	16	16	25	25	1403	1407	122	20	4	M10×1	12	1608	132	100	0	539	661
1797/1278G2	1595	1278	120	1535	1335	36	36	26	26	1428	1432	105	15	4	M10×1	12	1655.6	134	90	+1.15	485	597
1797/1300G2	1705	1300	165	1644	1360	24	24	32	32	1504	1508	134	31	4	M10×1	14	1783.6	126	85	-0.3	578	1023

Cross roller slewing bearings (external gear)



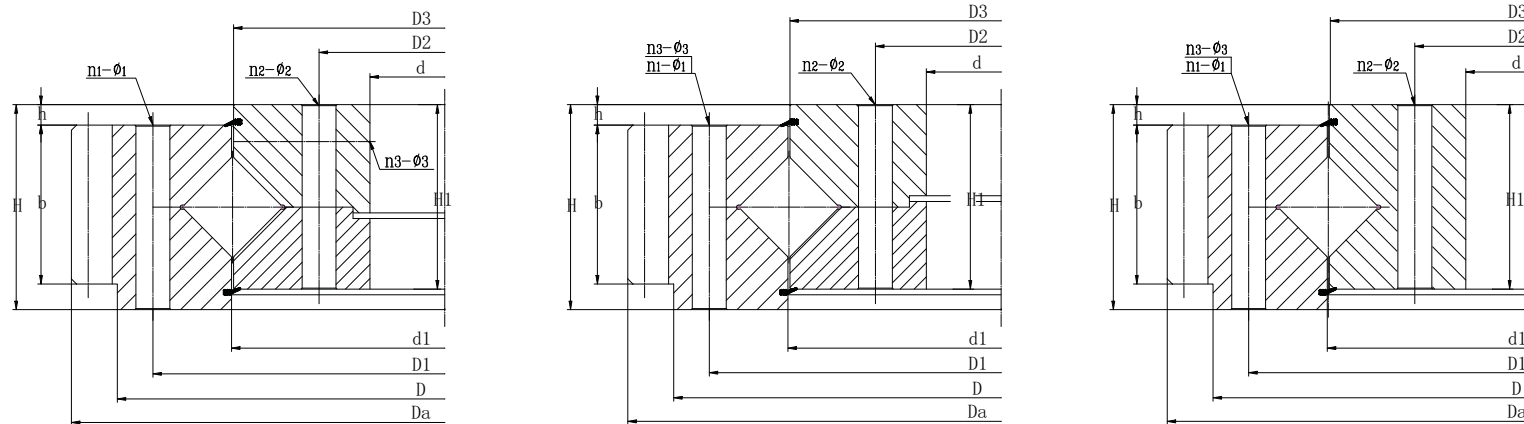
Bearing number	Boundary dimensions			Mounting hole dimensions						Structure dimensions						Gear data					Basic load 10 ⁴ N	Weight Kg
	D	d	H	D ₁	D ₂	n ₁	n ₂	φ ₁	φ ₂	D ₃	d ₁	H ₁	h	n ₃	φ ₃	m	Da	z	b	X		
1792/1400G	1715	1400	110	1660	1460	42	42	26	26	1558	1562	95	17	4	M12×1.25	12	1780.8	147	78	-0.3	597	579
1792/1400G2	1715	1400	110	1660	1460	42	42	26	26	1558	1562	95	17	4	M12×1.25	12	1780.8	147	78	-0.3	597	579
1792/1400G2K	1715	1400	110	1660	1460	42	42	26	26	1558	1562	95	15	4	M12×1.25	12	1780.8	147	78	-0.3	597	579
1797/1460G2	1800	1460	125	1735	1525	32	36	26	26	1633	1637	110	10	4	M10×1	14	1881.6	133	95	-0.3	627	828
1797/1460G2K	-	1460	125	1735	1525	32	36	26	26	1633	1637	110	10	4	M10×1	10	1880	186	115	0	627	845

Cross roller slewing bearings (external gear)



Bearing number	Boundary dimensions			Mounting hole dimensions						Structure dimensions						Gear data					Basic load 10 ⁴ N	Weight Kg
	D	d	H	D ₁	D ₂	n ₁	n ₂	φ ₁	φ ₂	D ₃	d ₁	H ₁	h	n ₃	φ ₃	m	Da	z	b	X		
1797/1916G2	-	1916	150	2245	1980	42	42	34	34	2113	2117	130	15	3	M10×1	18	2415.6	133	135	-0.4	1150	1597
1797/2100G2	2600	2100	180	2540	2200	48	48	32	32	2368	2372	158	22	8	M10×1	18	2700	148	130	0	1100	2395
1797/2100G2K	2600	2100	180	2540	2200	48	48	32	32	2368	2372	158	22	8	M10×1	18	2700	148	130	0	1100	2392
1797/2460G2	-	2460	220	2930	2560	30	30	33	34	2745	2747	185	20	30	M12×1.25	14	3108	220	200	0	1386	4091
1797/2460G2U	-	2460	220	2930	2560	30	30	33	34	2745	2747	185	20	30	M12×1.25	14	3108	220	200	0	1386	4091

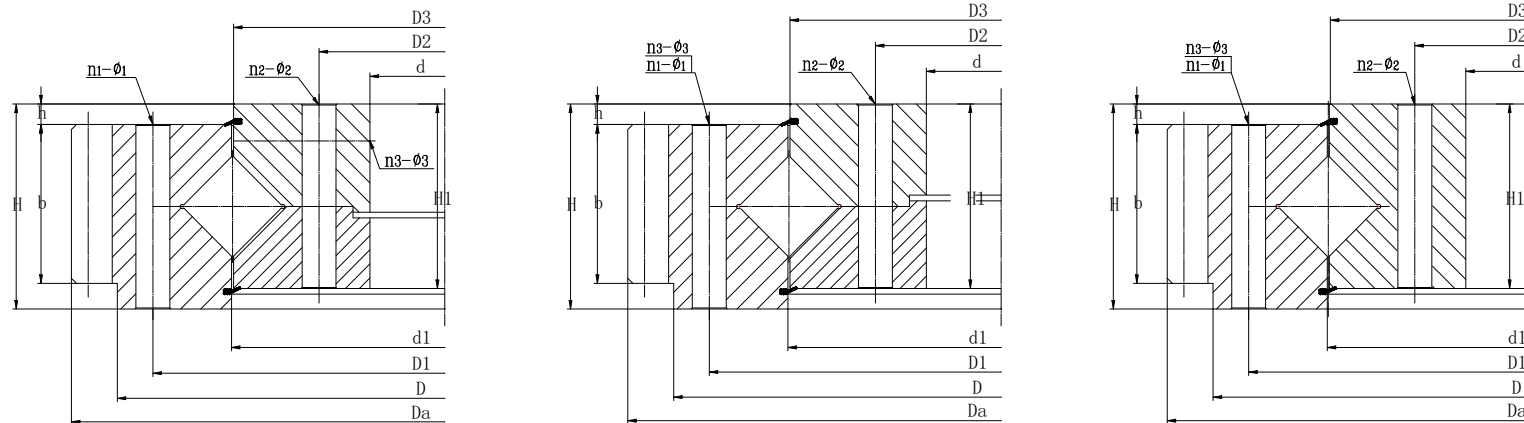
Cross roller slewing bearings (external gear)



单位: mm

Bearing number	Boundary dimensions			Mounting hole dimensions						Structure dimensions						Gear data					Basic load 10 ⁴ N	Weight Kg
	D	d	H	D ₁	D ₂	n ₁	n ₂	φ1	φ2	D ₃	d ₁	H ₁	h	n ₃	φ3	m	Da	z	b	X		
1797/2460G2K	3108	2460	220	2930	2560	30	30	33	34	2745	2747	200	35	15	ZG1/4in	14	3108	220	200	0	1386	4091
1797/2460G2K1	3108	2460	220	2930	2560	30	30	33	34	2745	2747	200	35	30	ZG1/4in	14	3108	220	200	0	1386	4091
1797/2500G2	-	2500	210	2990	2630	36	36	37	37	2818	2822	200	10	12	M14×1.5	25	3250	128	200	0	1996	4597
1797/2500K	2920	2500	260	3060	2622	36	36	40	40	2949	2916	240	60	36	ZG1/4in	18	3258	179	190	0	1996	5407
1797/2500G2K1	2920	2500	260	3060	2622	36	36	40	40	2949	2916	240	60	36	ZG1/4in	18	3258	179	190	0	1996	5407

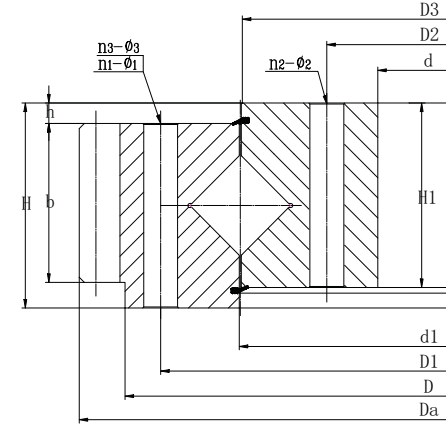
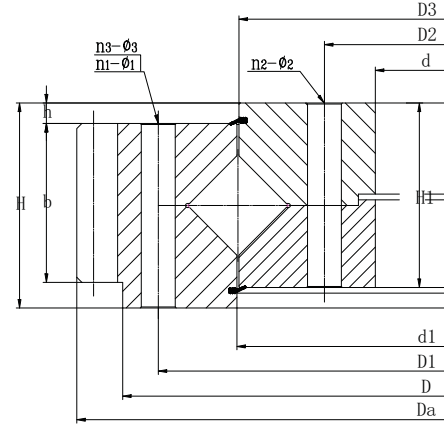
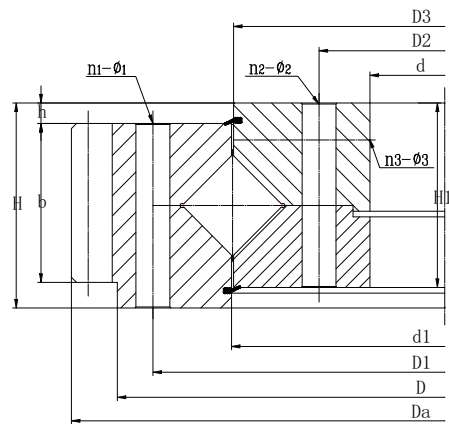
Cross roller slewing bearings (external gear)



单位: mm

Bearing number	Boundary dimensions			Mounting hole dimensions						Structure dimensions						Gear data					Basic load 10 ⁴ N	Weight Kg
	D	d	H	D ₁	D ₂	n ₁	n ₂	φ1	φ2	D ₃	d ₁	H ₁	h	n ₃	φ3	m	Da	z	b	X		
1797/2600G	-	2600	200	3050	2700	60	60	35	35	2868	2872	180	20	6	M12×1.25	20	3232.8	160	180	-0.18	2030	3936
1797/2600G2	-	2600	200	3050	2700	60	60	35	35	2868	2872	180	20	18	ZG1/4in	20	3232.8	160	180	-0.18	2030	3936
1797/2600G2K	-	2600	200	3050	2700	60	60	35	35	2868	2872	180	20	4	14	20	3232.8	160	180	-0.18	2030	3936
1797/2600G2K1	-	2600	200	3050	2700	60	60	35	35	2868	2872	180	20	8	M10×1	20	3232.8	160	180	-0.18	2320	3558
1797/2635G	3332	2635	270	3240	2755	36	36	42	42	2998	3002	240	45	6	M12×1.25	20	3440	170	200	0	2950	5973

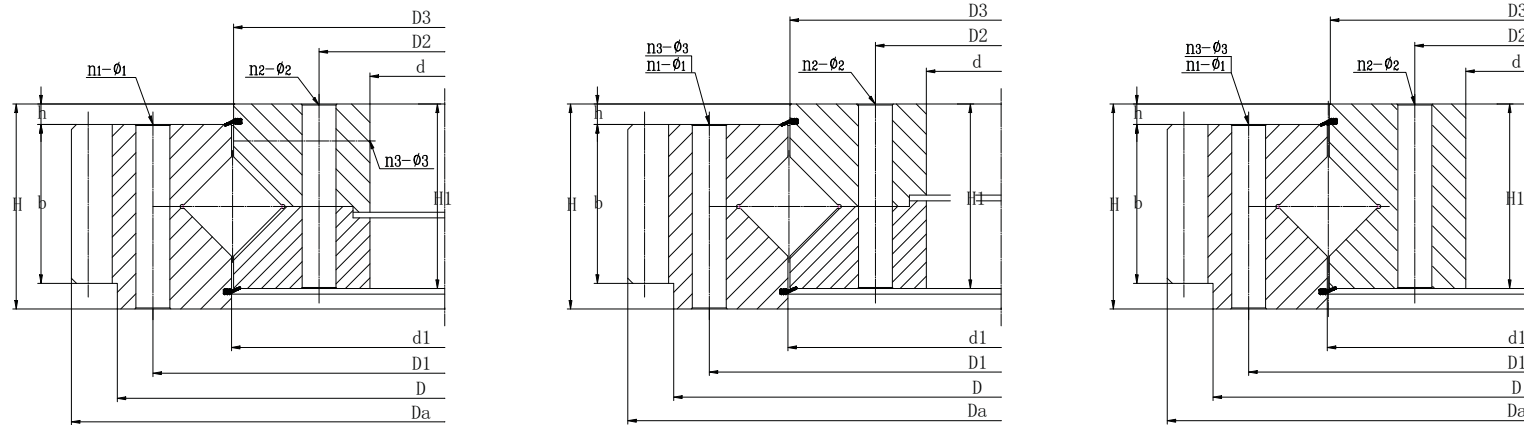
Cross roller slewing bearings (external gear)



单位: mm

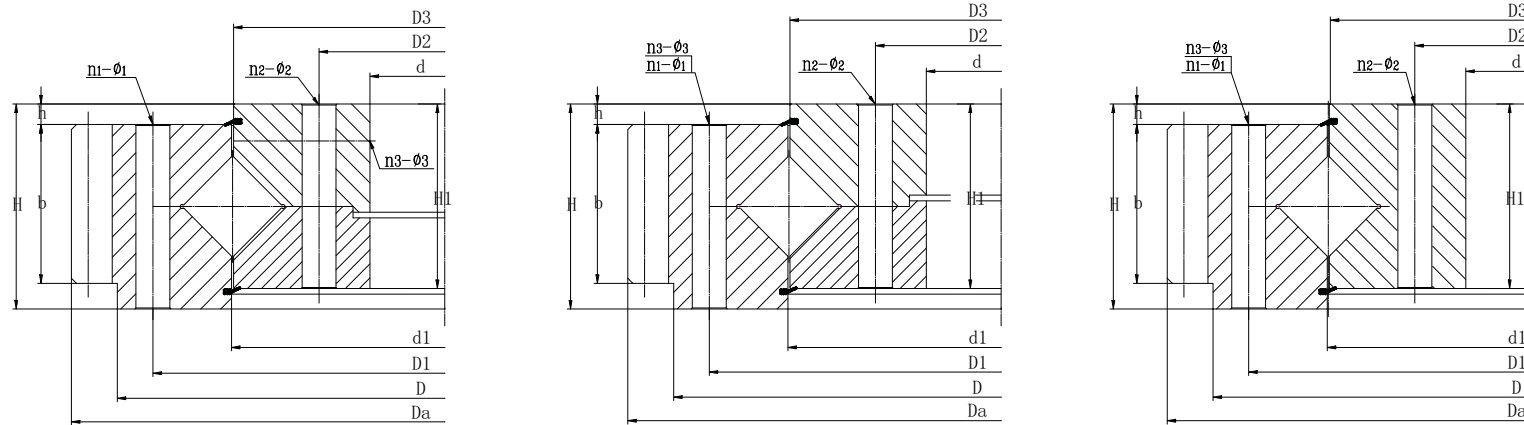
Bearing number	Boundary dimensions			Mounting hole dimensions						Structure dimensions						Gear data					Basic load 10 ⁴ N	Weight Kg
	D	d	H	D ₁	D ₂	n ₁	n ₂	φ1	φ2	D ₃	d ₁	H ₁	h	n ₃	φ3	m	Da	z	b	X		
1797/2635G2	3332	2635	270	3240	2755	36	36	42	42	2998	3002	225	30	12	ZG1/4in	20	3440	170	200	0	2950	5973
1797/3230G	3970	3230	240	3820	3350	52	54	37	37	3578	3582	220	20	9	M12×1.25	25	4100	162	200	0	3520	7612
1797/3230GY	3970	3230	240	3820	3380	52	36	37	37	3578	3582	220	20	4	M12×1.25	25	4100	162	200	0	3520	7612
1797/3230G2	3970	3230	240	3820	3350	52	54	37	37	3578	3582	220	20	9	M12×1.25	25	4100	162	200	0	3520	7613
1797/3230G2K	3970	3230	240	3820	3380	52	54	37	37	3578	3582	220	20	8	14	25	4100	162	200	0	3520	7613

Cross roller slewing bearings (external gear)



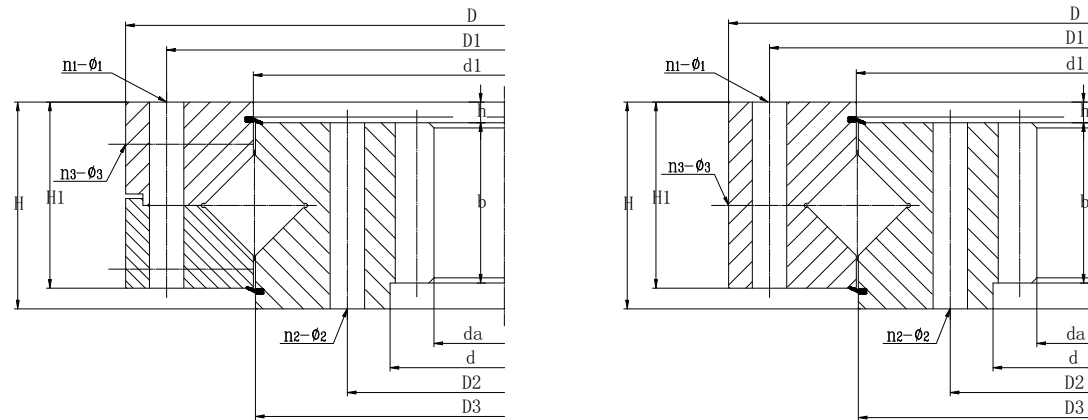
Bearing number	Boundary dimensions			Mounting hole dimensions						Structure dimensions						Gear data					Basic load 10 ⁴ N	Weight Kg
	D	d	H	D ₁	D ₂	n ₁	n ₂	φ ₁	φ ₂	D ₃	d ₁	H ₁	h	n ₃	φ ₃	m	Da	z	b	X		
1797/3230G2K2	3970	3230	240	3820	3350	52	54	37	37	3578	3582	220	20	18	M12×1.25	22	4092	184	200	0	3520	7804
1797/3230G2K3	3940	3230	240	3820	3350	52	54	37	37	3578	3582	220	20	9	M12×1.25	20	4080	202	200	0	3593	7302
1797/3230G2Y	3970	3230	240	3820	3380	52	36	37	37	3578	3582	220	20	4	M12×1.25	25	4100	162	200	0	3593	7613
1797/3230G2Y2	3970	3230	240	3820	3380	52	36	37	37	3578	3582	220	20	4	M12×1.25	25	4100	162	200	0	3593	7613
1797/3230G2Y3	-	3230	240	3820	3380	52	36	37	37	3578	3582	220	20	4	M14×1.5	25	4100	162	220	0	3520	7686

Cross roller slewing bearings (external gear)



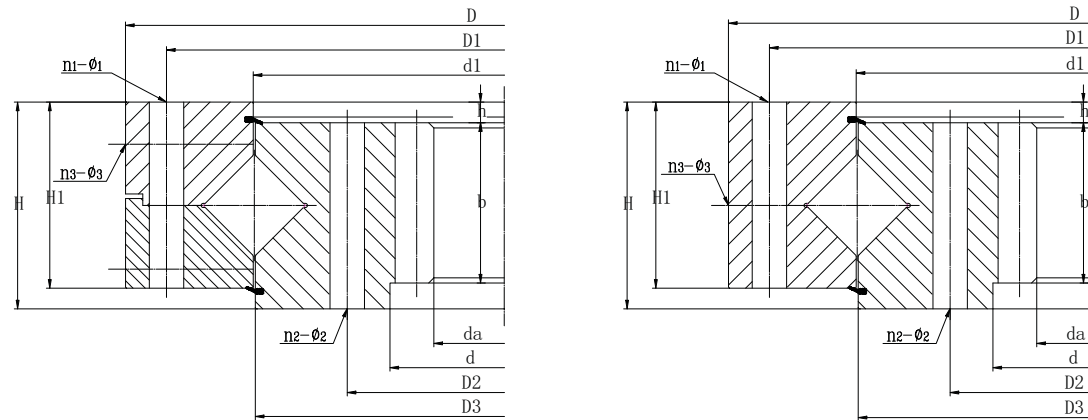
Bearing number	Boundary dimensions			Mounting hole dimensions						Structure dimensions						Gear data					Basic load 10 ⁴ N	Weight Kg
	D	d	H	D ₁	D ₂	n ₁	n ₂	φ ₁	φ ₂	D ₃	d ₁	H ₁	h	n ₃	φ ₃	m	Da	z	b	X		
1797/3230GK4	3970	3230	240	3820	3380	52	68	37	37	3578	3582	220	20	18	M14×1.5	25	4100	162	200	0	3520	7613
1797/3230GK5	3970	3230	240	3820	3350	52	54	37	37	3578	3582	220	20	4	M12×1.25	25	4100	162	200	0	3520	7613
1797/3230G2Y3K	-	3230	240	3820	3380	52	36	37	37	3578	3582	220	20	4	M12×1.25	25	4100	162	220	0	3520	7686
1797/3760G	4220	3760	240	4160	3840	48	48	32	32	3996	4004	210	55	4	M14×1.5	14	4326	307	135	0	3210	4396
1797/4250G	4940	4250	250	4840	4350	72	72	48	48	4598	4602	225	25	9	M16×1.5	30	5082	168	200	-0.3	4520	8954

Cross roller slewing bearings (internal gear)



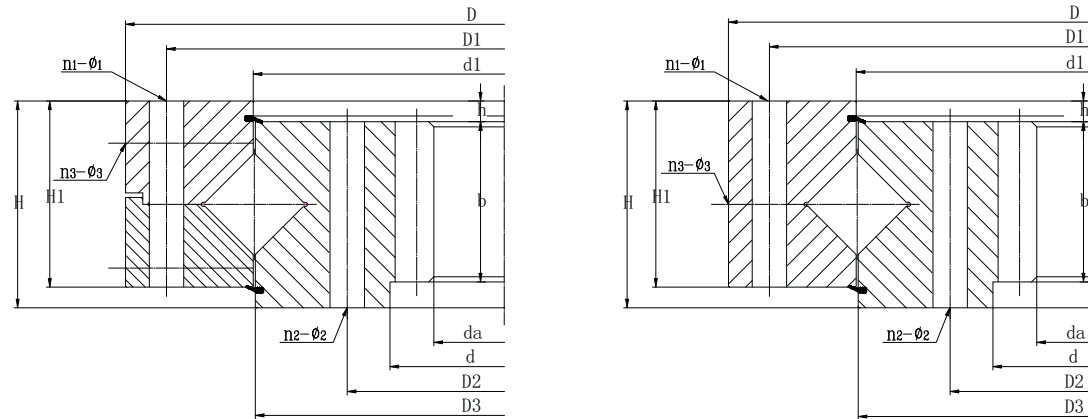
Bearing number	Boundary dimensions			Mounting hole dimensions						Structure dimensions						Gear data					Basic load 10^4N	Weight Kg
	D	d	H	D_1	D_2	n_1	n_2	ϕ_1	ϕ_2	D_3	d_1	H_1	h	n_3	ϕ_3	m	Da	z	b	X		
2797/695G2	920	695	90	870	735	30	30	18	18	800	804	76	4	3	10	7	658	96	65	0	161	175
2797/760G2	1000	760	95	956	800	24	24	20	20	878	882	82	15	4	M10×1	8	718.8	91	70	0.35	237	206
2797/870G2	1180	870	115	1125	920	18	18	26	26	1023	1027	100	15	2	M8×1	8	828.8	105	90	0.3	292	374
2797/875G2	1170	875	95	1120	930	24	24	22	22	1018	1022	82	15	4	M10×1	8	830.1	105	70	0.35	276	297
2797/955G	1200	955	90	1160	1000	36	18	18	18	1088	1092	76	10	4	M8×1	8	908.8	115	72	0.3	254	245

Cross roller slewing bearings (internal gear)



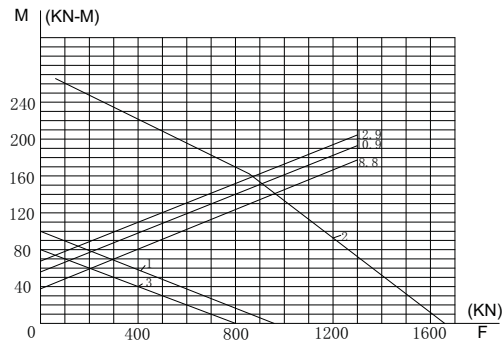
Bearing number	Boundary dimensions			Mounting hole dimensions						Structure dimensions						Gear data					Basic load 10 ⁴ N	Weight Kg
	D	d	H	D ₁	D ₂	n ₁	n ₂	φ ₁	φ ₂	D ₃	d ₁	H ₁	h	n ₃	φ ₃	m	Da	z	b	X		
2797/955G2	1200	955	90	1160	1000	36	18	18	18	1088	1092	76	10	4	M8×1	8	908.8	115	72	+0.3	254	245
2797/1010G2	1200	1010	90	1160	1041	36	20	22	M20	1088	1092	76	10	2	M8×1	10	962	97	72	+0.6	254	199
2797/1010GK	1200	1010	90	1160	1041	36	20	22	M20	1088	1092	76	10	2	M8×1	10	962	97	72	+0.6	254	199
2797/1278G2	1595	1278	120	1535	1335	36	36	26	26	1428	1432	106	14	6	M10×1	12	1221.4	103	90	+0.32	398	585
2792/1400G2K	1715	1400	110	1660	1460	40	40	26	M24	1558	1562	95	15	4	M10×1	10	1330	135	90	0	597	587

Cross roller slewing bearing(internal gear)

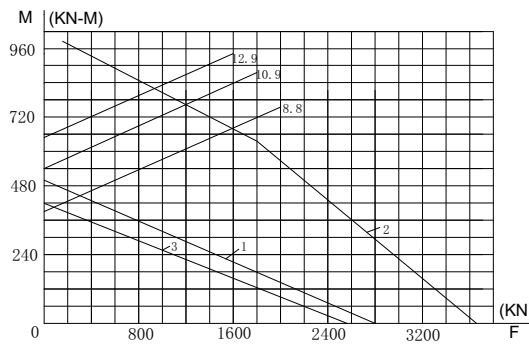


Bearing number	Boundary dimensions			Mounting hole dimensions						Structure dimensions						Gear data					Basic load 10 ⁴ N	Weight Kg
	D	d	H	D ₁	D ₂	n ₁	n ₂	φ ₁	φ ₂	D ₃	d ₁	H ₁	h	n ₃	φ ₃	m	Da	z	b	X		
2792/2000G2	2420	2000	160	2350	2070	48	48	33	M30	2207	2213	140	20	6	M10×1	14	1913.5	138	120	+0.3	1084	1607
2792/2240G	2670	2240	160	2600	2320	54	54	35	M36	2457	2463	140	20	6	M12×1.25	16	2154.5	136	120	+0.3	1441	1798
2797/2680G	3325	2680	300	3242	2754	32	32	33	33	2996	3000	270	30	4	M16×1.5	16	2592	164	180	0	3587	6320
2797/2680GY	3325	2680	300	3242	2754	48	48	33	33	2996	3000	270	30	4	M16×1.5	16	2592	164	180	0	3587	6320
2797/2680GK	3325	2680	300	3242	2754	32	32	33	33	2996	3000	270	30	4	M16×1.5	16	2592	164	180	0	3035	6641

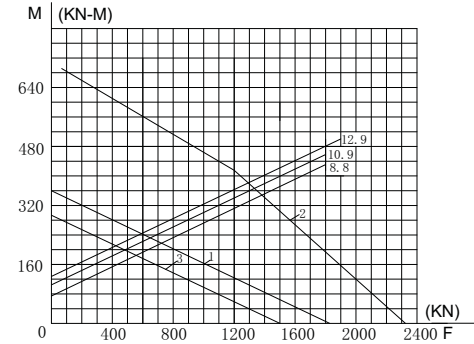
Cross roller slewing bearing load curve



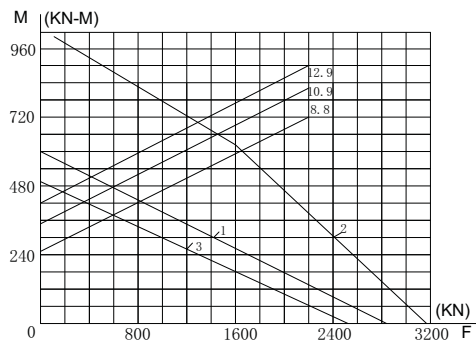
图C55 79764 转盘轴承承载曲线



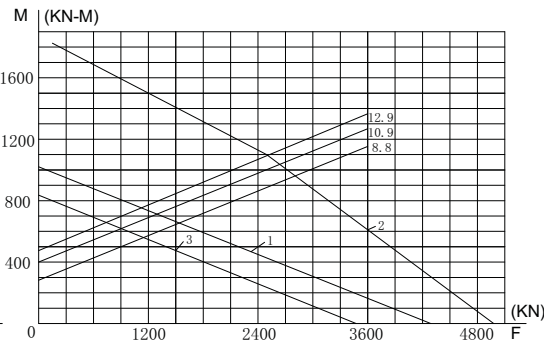
图C56 797/600 转盘轴承承载曲线



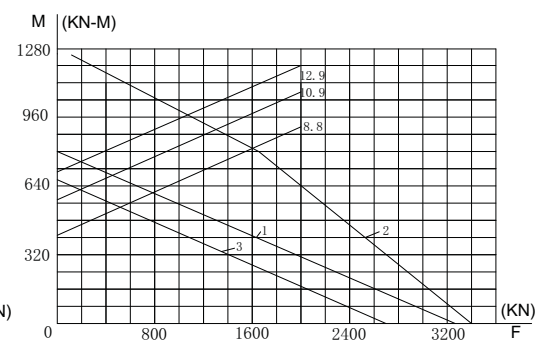
图C57 797/670 转盘轴承承载曲线



图C58 797/700 转盘轴承承载曲线

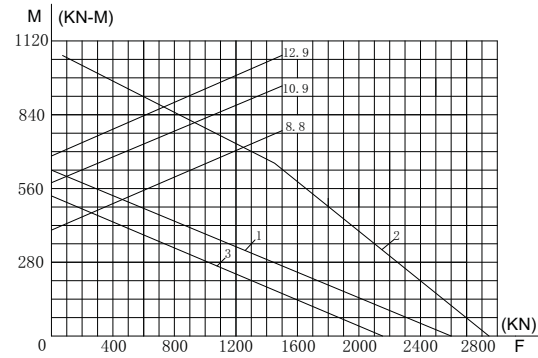


图C59 797/845 转盘轴承承载曲线

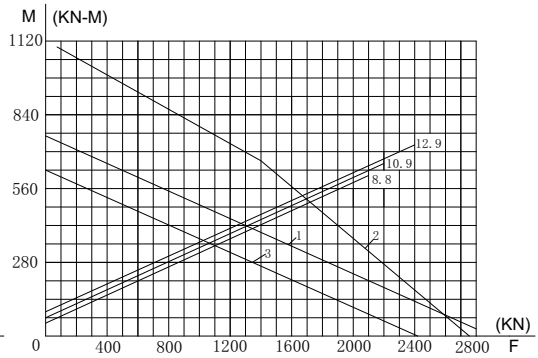


图C60 797/870 转盘轴承承载曲线

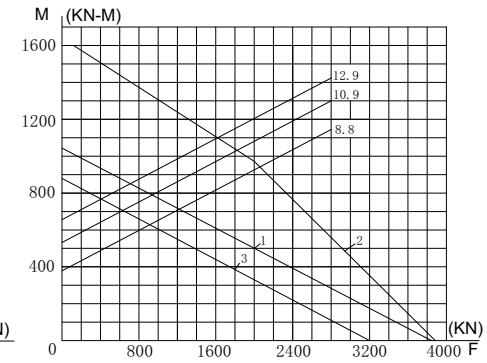
Cross roller slewing bearing load curve



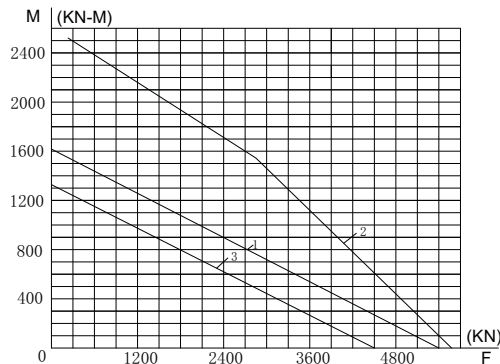
图C61 797/870K 转盘轴承承载曲线



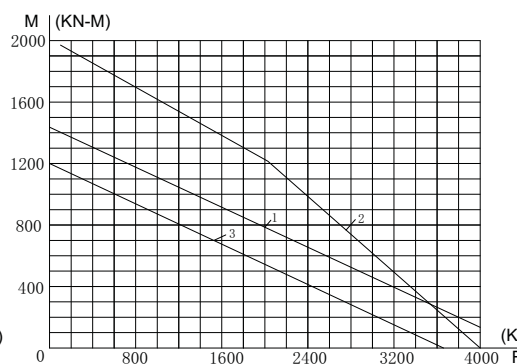
图C62 797/962 转盘轴承承载曲线



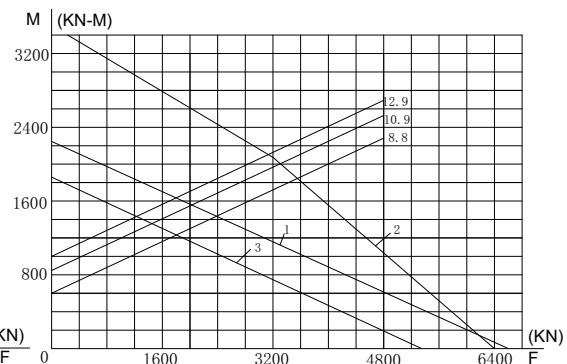
图C63 792/1000 转盘轴承承载曲线



图C64 797/1060 转盘轴承承载曲线

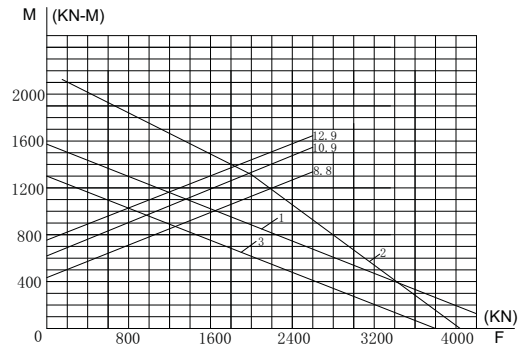


图C65 797/1200 转盘轴承承载曲线

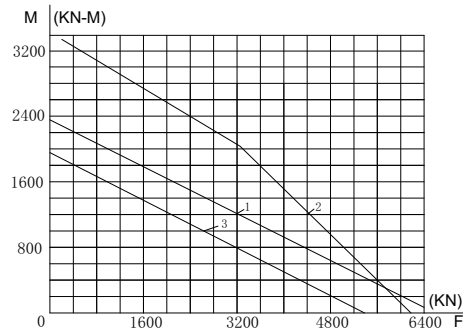


图C66 792/1250 转盘轴承承载曲线

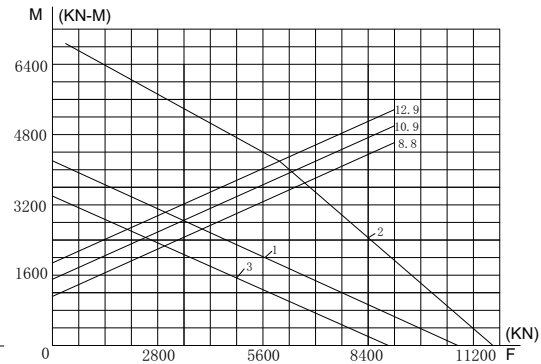
Cross roller slewing bearing load curve



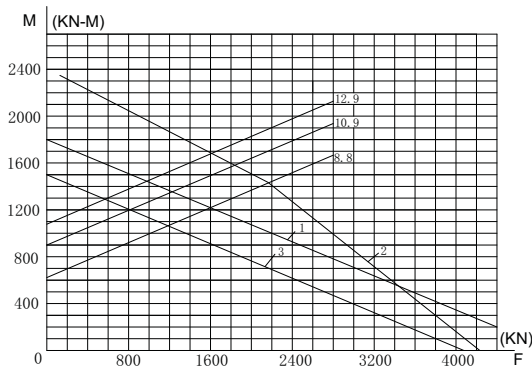
图C67 797/1278K 转盘轴承承载曲线



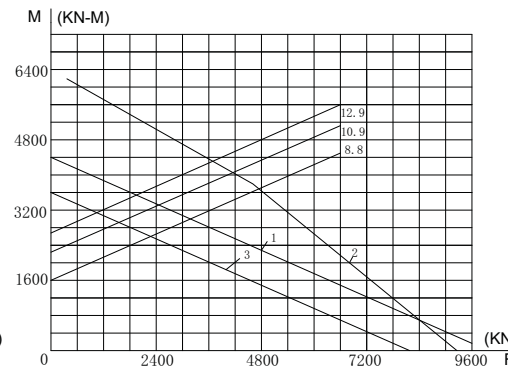
图C68 797/1320 转盘轴承承载曲线



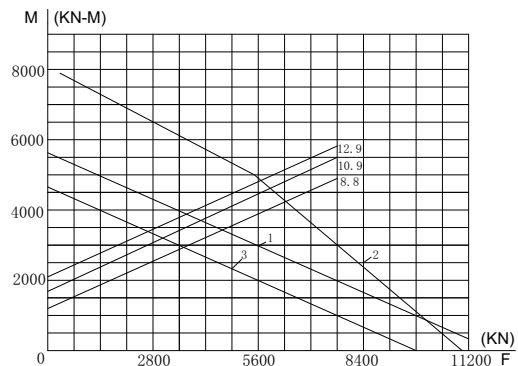
图C69 797/1370 转盘轴承承载曲线



图C70 797/1380 转盘轴承承载曲线

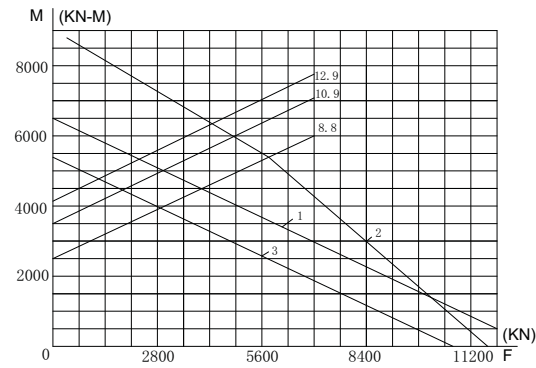


图C71 797/1600 转盘轴承承载曲线

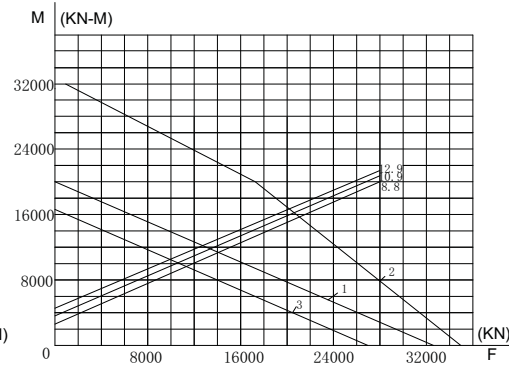


图C72 797/1776 转盘轴承承载曲线

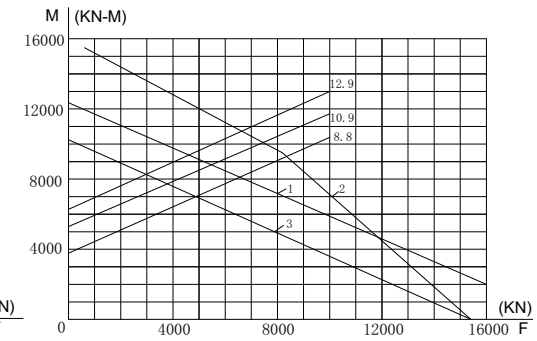
Cross roller slewing bearing load curve



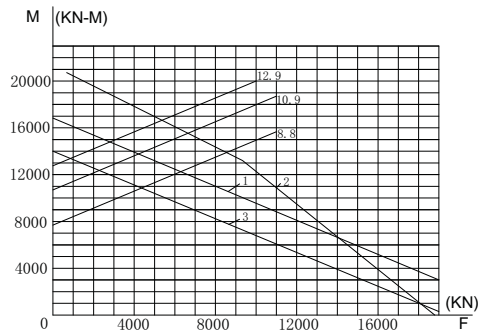
图C73 797/1916 转盘轴承承载曲线



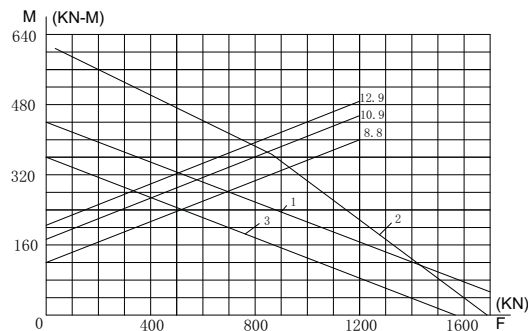
图C74 797/2190 转盘轴承承载曲线



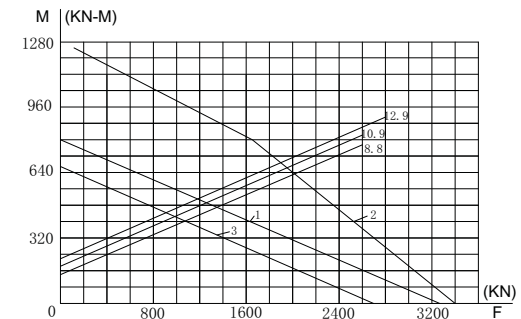
图C75 797/2500 转盘轴承承载曲线



图C76 792/2800 转盘轴承承载曲线

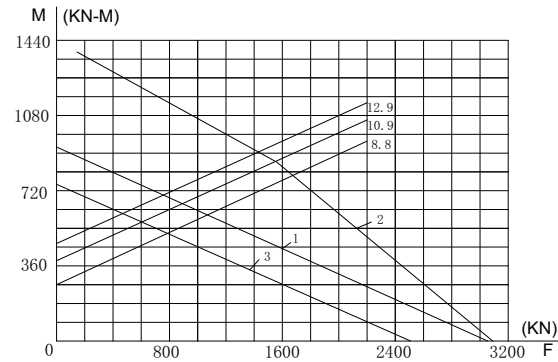


图C77 1792/885 转盘轴承承载曲线

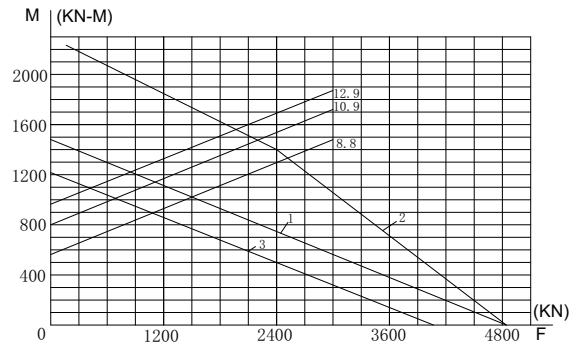


图C78 1797/885 转盘轴承承载曲线

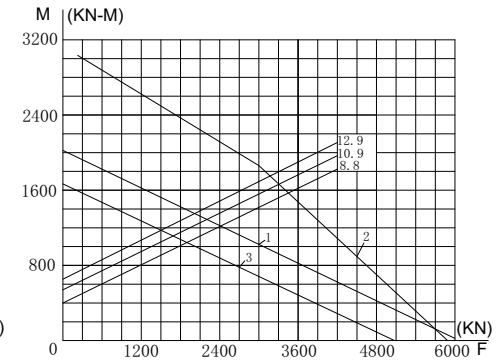
Cross roller slewing bearing load curve



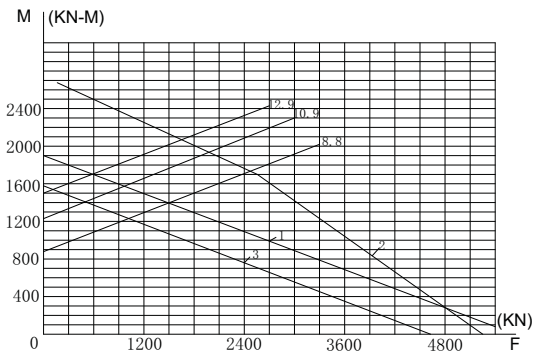
图C79 1797/1100 转盘轴承承载曲线



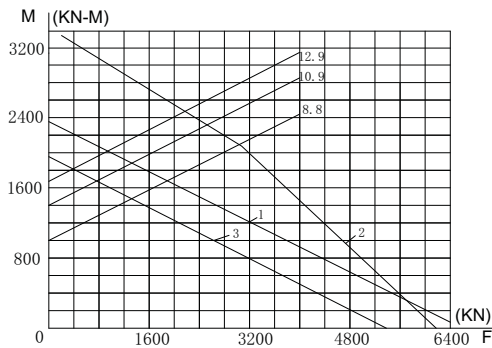
图C80 1798/1100 转盘轴承承载曲线



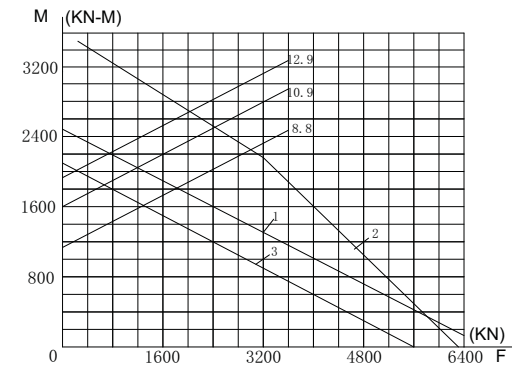
图C81 1797/1250 转盘轴承承载曲线



图C82 1797/1278 转盘轴承承载曲线

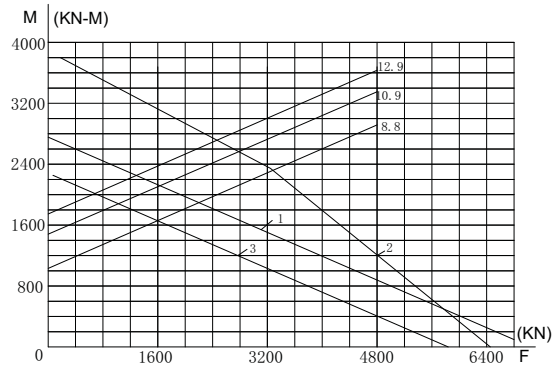


图C83 1797/1300 转盘轴承承载曲线

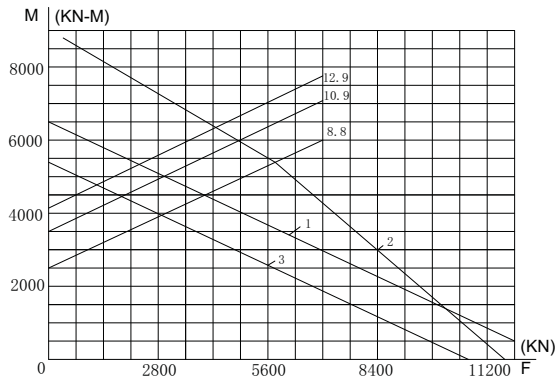


图C84 1792/1400 转盘轴承承载曲线

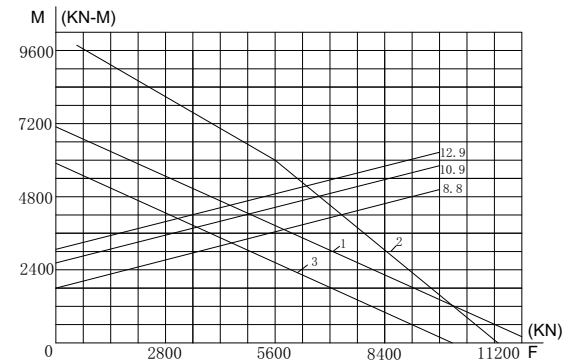
Cross roller slewing bearing load curve



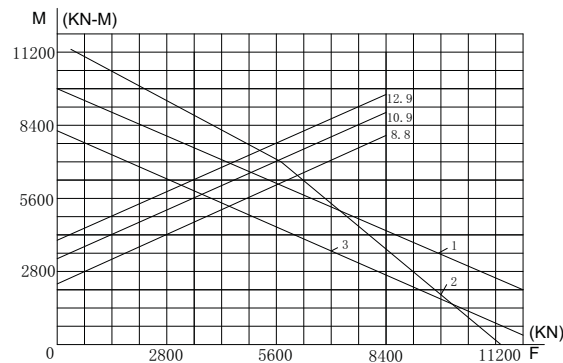
图C85 1797/1460 转盘轴承承载曲线



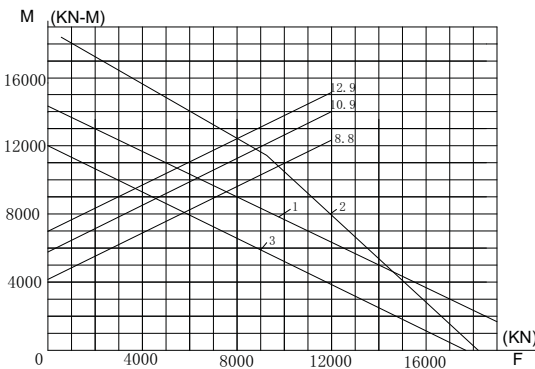
图C86 1797/1916 转盘轴承承载曲线



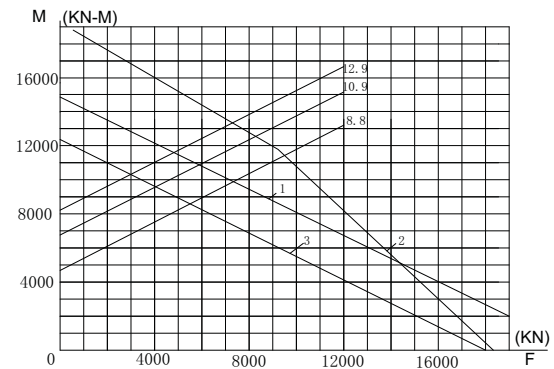
图C87 1797/2100 转盘轴承承载曲线



图C88 1797/2460 转盘轴承承载曲线

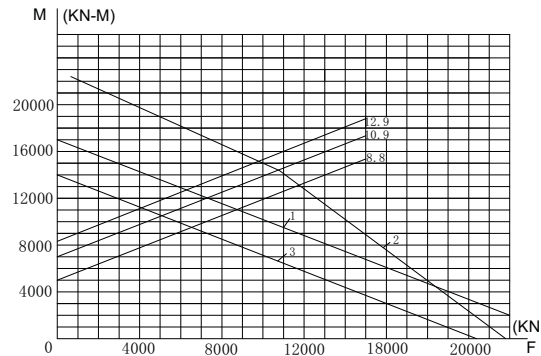


图C89 1797/2500 转盘轴承承载曲线

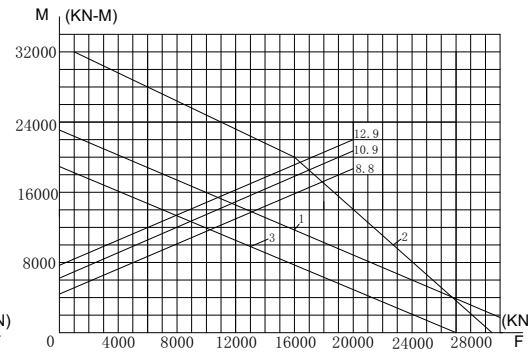


图C90 1797/2600 转盘轴承承载曲线

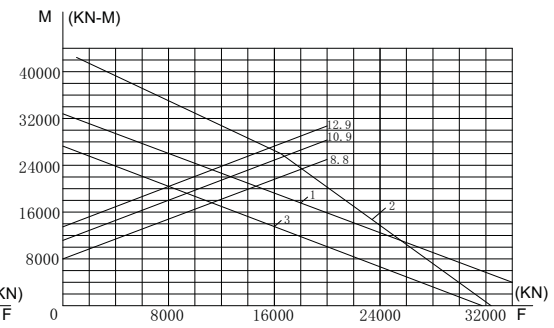
Cross roller slewing bearing load curve



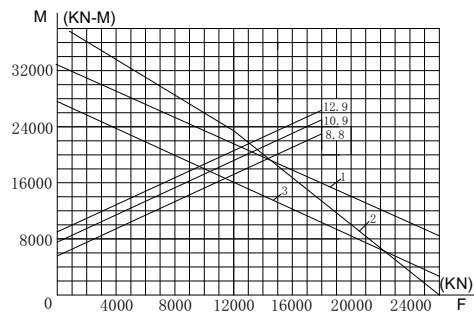
图C91 1797/2600K1 转盘轴承承载曲线



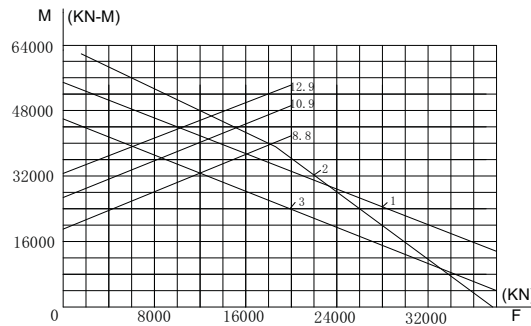
图C92 1797/2635 转盘轴承承载曲线



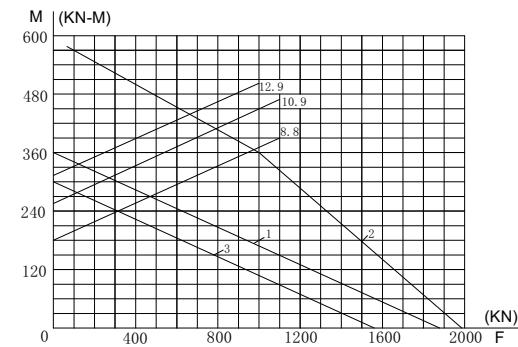
图C93 1797/3230 转盘轴承承载曲线



图C94 1797/3760 转盘轴承承载曲线

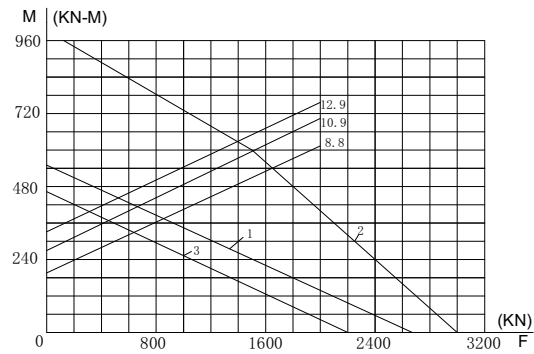


图C95 1792/4250 转盘轴承承载曲线

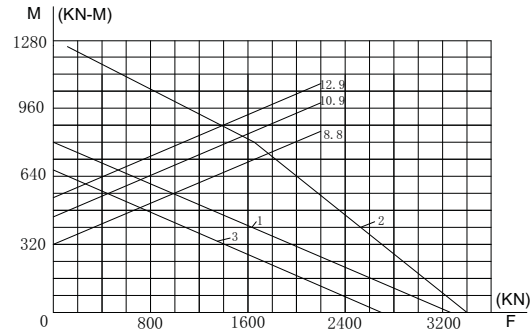


图C96 2797/695 转盘轴承承载曲线

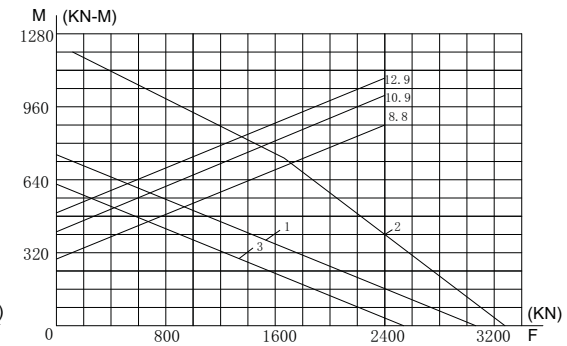
Cross roller slewing bearing load curve



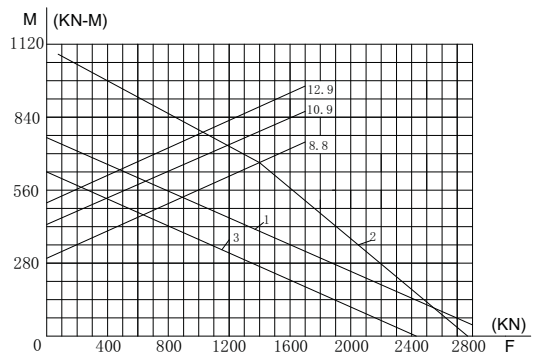
图C97 2797/760 转盘轴承承载曲线



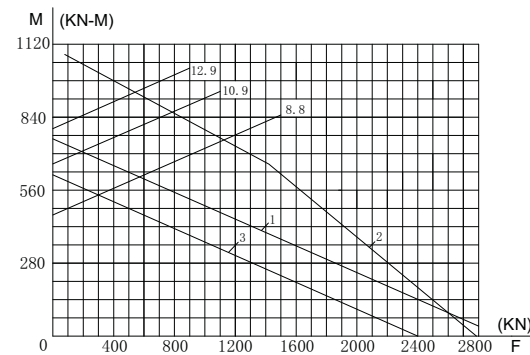
图C98 2797/870 转盘轴承承载曲线



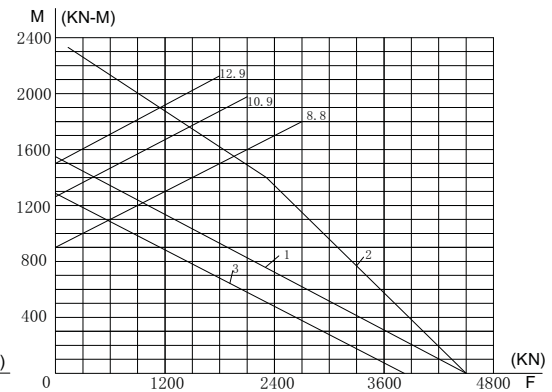
图C99 2797/875 转盘轴承承载曲线



图C100 2797/955 转盘轴承承载曲线

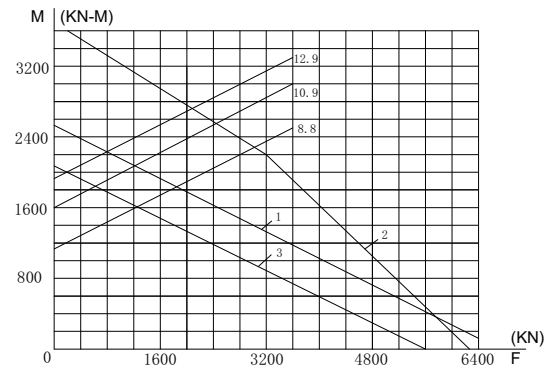


图C101 2797/1010 转盘轴承承载曲线

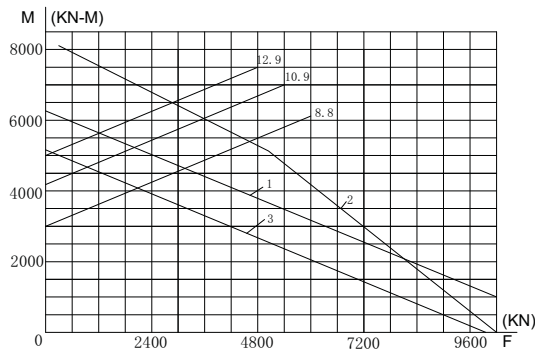


图C102 2797/1278 转盘轴承承载曲线

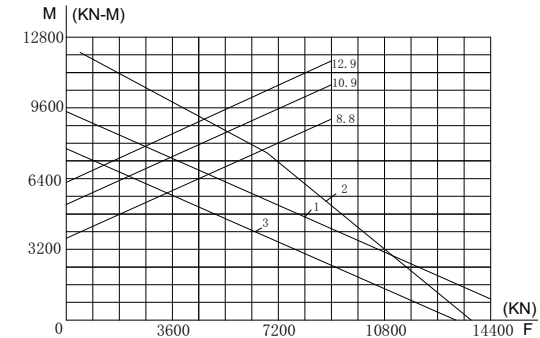
Cross roller slewing bearing load curve



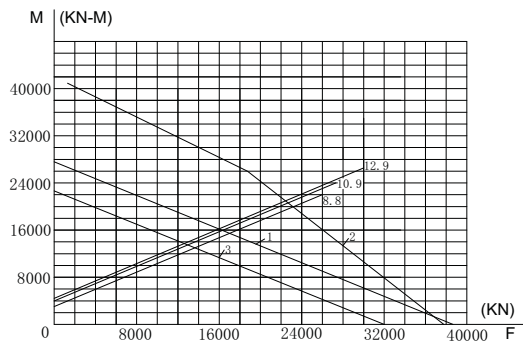
图C103 2792/1400K 转盘轴承承载曲线



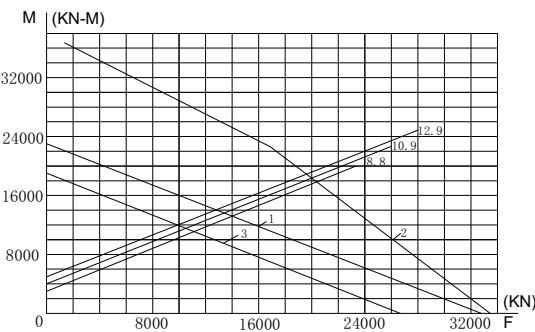
图C104 2792/2000 转盘轴承承载曲线



图C105 2792/2240 转盘轴承承载曲线

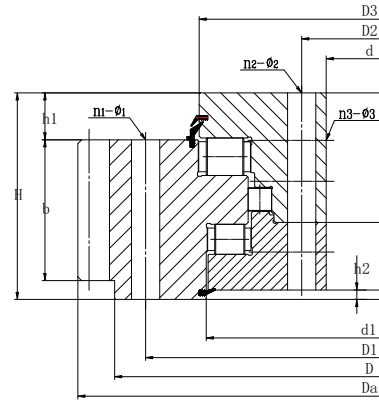


图C106 2797/2680 转盘轴承承载曲线



图C107 2797/2680K 转盘轴承承载曲线

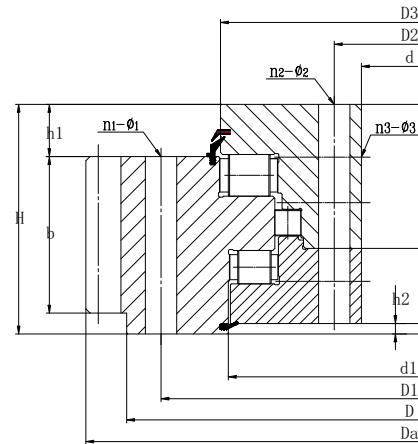
Three row roller slewing bearing(external gear)



单位: mm

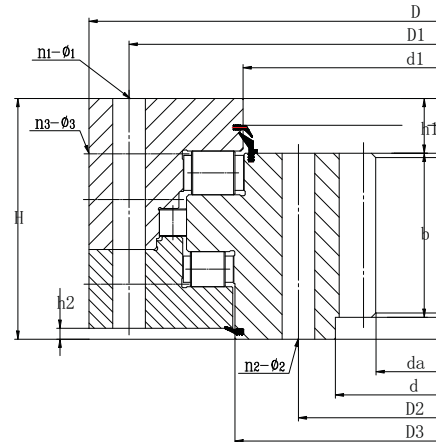
Bearing number	Boundary dimensions			Mounting hole dimensions						Structure dimensions						Gear data					Basic load 10 ⁴ N		Weight Kg
	D	d	H	D ₁	D ₂	n ₁	n ₂	φ ₁	φ ₂	D ₃	d ₁	h ₁	h ₂	n ₃	φ ₃	m	da	z	b	x	Coa	Co r	
6397/1605G2K	1984	1605	250	1932	1657	36	48	26	26	1850	1856	50	33	6×3	M14×1.5	16	2064	127	170	0	1525	208	1800
6397/2590	3006	2590	200	2930	2670	60	60	39	39	2845	2860	21	20	10×3	M10×1	16	3086	190	95	+0.4375	2192	316	2780
6397/2590K	3006	2590	314	2930	2670	60	60	39	39	2860	2864	19	24	10×3	M10×1	16	3085	190	134	+0.4375	2700	316	4209
6397/2800G	3260	2800	220	3190	2870	60	60	39	39	3082	3068	30	18	6×3	M14×1.5	20	3360	166	160	0	2700	330	3288
6397/2800GK	3255	2800	240	3185	2870	48	64	39	39	3082	3068	30	38	8×3	M14×1.5	18	3348	184	160	0	2700	330	3419

Three row roller slewing bearing(external gear)



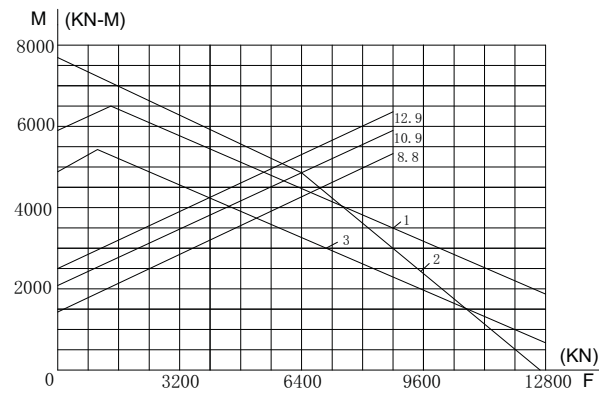
Bearing number	Boundary dimensions			Mounting hole dimensions						Structure dimensions						Gear data					Basic load 10^4N		Weight Kg
	D	d	H	D_1	D_2	n_1	n_2	ϕ_1	ϕ_2	D_3	d_1	h_1	h_2	n_3	ϕ_3	m	d_a	z	b	x	Coa	Cor	
6397/2800GK1	3255	2800	240	3185	2870	64	64	39	M36	3082	3068	30	38	8×3	M14×1.5	18	3348	184	180	0	2700	330	3429
6397/2800GK2	3255	2800	240	3185	2870	48	64	39	M36×3	3082	3068	30	32	8×3	M14×1.5	18	3348	184	160	0	2700	330	3424
6392/2910G	3400	2910	220	3315	2990	56	56	39	39	3200	3187	50	10	8×2	M14×1.5	22	3520	158	160	0	2670	458	3736
6397/3340	3888	3340	212	3735	3441	108	108	33	33	3642	3612	42	22	24	M14×1.5	24	3936	161	170	+0.5	3900	410	3684

Three row roller slewing bearing(internal gear)

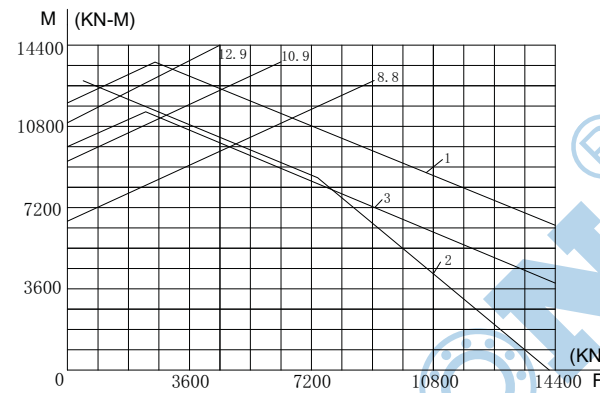


Bearing number	Boundary dimensions			Mounting hole dimensions						Structure dimensions						Gear data					Basic load 10 ⁴ N		Weight Kg
	D	d	H	D ₁	D ₂	n ₁	n ₂	φ ₁	φ ₂	D ₃	d ₁	h ₁	h ₂	n ₃	φ ₃	m	da	z	b	x	Coa	Cor	
7397/2210K	2650	2216	220	2590	2276	56	40	M30	33	2380	2392	27	23	8×3	M10×1	16	2130	135	140	0	2050	302	2418
7397/2700G2	3150	2700	255	3070	2750	40	70	32	32	2556	2852	40	30	4×2	M14×1.5	20	2609	132	180	0	2920	423	3536
7397/2700G2K	3150	2700	255	3070	2750	72	72	32	32	2856	2852	40	30	6×2	ZG1/4in	20	2604	132	180	0	2920	423	3542
7397/2700GK1	3150	2700	255	3070	2755	76	80	38	38	2856	2852	40	30	4×2	M14×1.5	20	2609	132	180	0	2920	423	3393
7397/2700G2K2	3150	2700	255	3070	2750	72	72	33	33	2862	2852	40	30	6×2	ZG1/4in	20	2604	132	180	0	2920	423	3542
7397/2700G2K3	3150	2700	255	3070	2750	8	2	32	M30	2856	2852	40	30	4×2	M14×1.5	20	2609	132	180	0	2920	423	3699

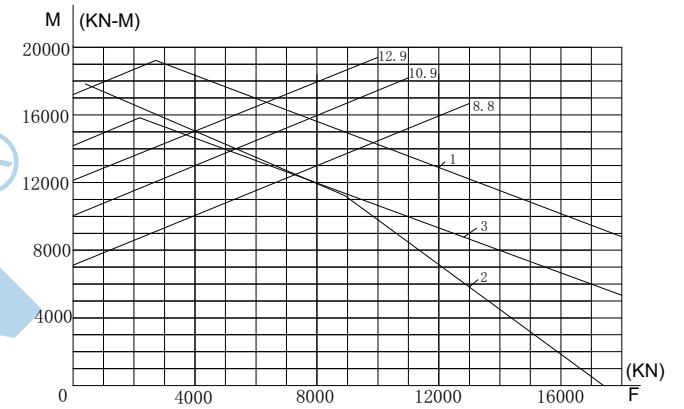
Three row roller slewing bearing load curve



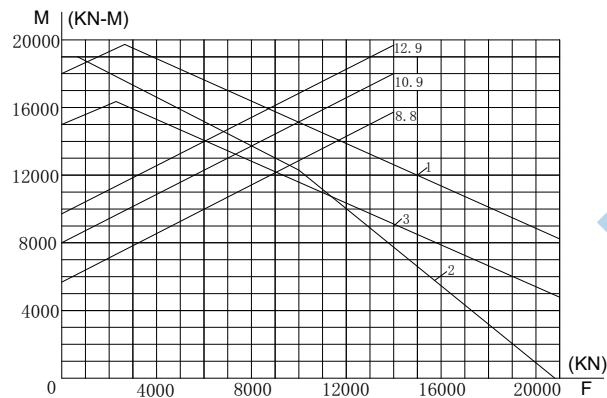
图C108 6397/1605K 转盘轴承承载曲线



图C109 6397/2590 转盘轴承承载曲线



图C110 6397/2800 转盘轴承承载曲线



图C111 7397/2700K 转盘轴承承载曲线

5 Appendices



5.1 Acceptance Documents

5.2 Slewing Bearing Type Selection Technical Parameter Table

5.3 Quality Warranty Commitment —After -sale Service

5.1 Acceptance Documents

Now you have got the slewing bearing manufactured by us. We hereby extend our congratulations to you for the correct choice you have made.

This slewing bearing is a high-tech product through accurate parameter selection. It accords with the ISO 9000 Standard in terms of both design and manufacture and it is supplied according to the information provided in the Slewing Bearing Type Selection Technical Parameter Table. This product serves for fault-free work, if the working conditions accord with what recommended by us.

If you are the designer, installer or seller, it is your responsibility to check: whether yours or your user's working conditions completely accord with what specified in the Slewing Bearing Type Selection Technical Parameter Table, and whether installation requirements and maintenance conditions are strictly followed.

We recommend that you read this sample "3 Installation & Maintenance" fully and carefully first, so that you can get full understanding of your responsibility. Please send this text to the user, if necessary.

To facilitate your work, we have enclosed herewith the check list, which, although not all-embracing, includes necessary checks to be made under all circumstances. In addition, you are also supposed to know our warranty conditions and restrictions in this regard.

Slewing bearing selection

When selecting a slewing bearing, you should consider:

- Rated load.....☐
- Overload due to:
 - ▢ Wind.....☐
 - ▢ Snow.....☐
 - ▢ Working conditions.....☐
- Dynamic load.....☐
- Peak load.....☐
- Commissioning overload.....☐

Confirmation of load includes:

- Raceway.....☐
- Gear.....☐
- Bolt.....☐
- Maximum speed of use.....☐

Upon receipt

Confirm that the slewing bearing received is of the type that you have ordered

Storage conditions

- During storage, Whether external protective measure is taken for the product.....☐
- If storage period exceeds 18 months, Whether slewing bearing is re-lubricated before installation☐

Before installation

Confirm that the product is not impacted and no change in any of its properties (unrecoverable deformation) is caused

- Seal ring is correctly positioned.....☐
- Seal ring is not damaged (broken)☐
- Whether your carrying equipment is suitable for the product
 - ▢ Precision.....☐
 - ▢ Dimensions.....☐
 - ▢ Weight.....☐

In installation

Check

- Flatness of supporting base.....□
- Structure size.....□
- Oil nipple location.....□
- Relative location of maximum load zone and slewing bearing's quenching soft belt.....□

In assembly

Check

- Grade of bolt and nut.....□
- Number of bolts.....□
- Specified tightening moment.....□
- Whether to obtain tightening moment with properly lubricated screw thread.....□
- Open fan or spring washer not in use.....□
- Tempered flat washer may be used, if necessary.....□

Installation of driving pinion (with gear engagement)

Check

- Match between pinion and slewing bearing gear.....□
- No danger of interference danger.....□
- Keep minimum backlash.....□
- Determine value of the following points:
 - Maximum eccentricity of external gear.....□
 - Maximum eccentricity of internal gear.....□
- Center distance between slewing bearing and pinion can't be changed□
- Pinion is uniform in the contact area of gear ring tooth fa.....□

Before installation

Be sure

- Maximum speed of slewing bearing no greater than calculated value.....□
- No obstacle which may prevent slewing bearing from running.....□
- No article which may damage sealing element.....□
- Slewing bearing and its driving pinion will not cause any danger
 - To any material□
 - To any person.....□
- Protection location compliant with relevant standard.....□

Check

- Slewing bearing's axial clearance under maximum check load, and record the result.....□
- No abnormal noise or clamping stagnation in revolution.....□

After installation

Be sure

- Operation of device will not be affected by deformation.....□
- Service life will not be shortened due to deformation.....□

In working

Be sure that the user is familiar with the lubrication rules, particularly:

- Grease type□
- Lubrication cycle.....□
- Re-lubricating method.....□

Familiar with lubrication rules in respect of:

- Raceway□
- Gear.....□
- Will monitor the use condition of seal ring....□
- Know Cycles of the following work is known:
 - Bolt tightness check.....□
 - Bolt replacement.....□
- Know maximum axial clearance of product before disassembly.....□
- Or know allowable maximum axial clearance in design.....□

For your reference: Product installation & operation manual is available by our business department on demand.

5.2 Slewing Bearing Type Selection

Technical Parameter Table

Slewing Bearing Type Selection Technical Data Sheet				
company : Name : Tel :		Department: E- mail : Fax :		
Application occasion(main machine type,name):	Rotation axis: H ☐ V ☐		Bracket mounting way Seat-type installation Suspension installation	
Gear type : Ex . ☐ Any ☐ Int. ☐ No ☐ Appendix B ☐	Application properties: only locationing ☐ interval rotation ☐ continuous rotation ☐		RPM (revolutions per minute) : Normal: Max:	
Load Data				
Load Status load position	A	B	C	Unit
	Max working load	Max test load ie 25% overload	Catastrophic load (Power off)	
Axial load parallel to rotation axis				KN
Radial load n ormal to rotation axis (no gear engagement)				KN
Moment from Axial load				KNm
Moment from Radial load				KNm
Total Moment				KNm
(KNm) Drive torque what bearing support :			Number of drive pinion	
Normal : Max :			Postion: space degree	

Requirements for slewing bearing type and boundary dimension : slewing bearing model number (if list possible): slewing bearing series: 01* ☐ ; 02* ☐ ; 11* ☐ ; 13* ☐ ; other ☐ Boundary dimension: outer diameter: mm or no limit ☐ ; inner diameter: mm or no limit ☐ ; assembling height: mm or no limit ☐	
As to the load and life of the continuous rotating slewing bearing, please fill in Form A Pay respect to filled Form A ☐	
other requirements : Slewing bearing accuracy class : G3 ☐ G4 ☐ other basis material test report : no ☐ V2.2 ☐ V3.1 ☐ other Lubrication : Centralization Lub ☐ Manual operation ☐ bolt type : ream bolt ☐ no ream bolt ☐ test or approve : no ☐ CCS ☐ DNV ☐ BV ☐ GL ☐ other ambient temperature : -30°C~+40°C ☐ other air quality : fair ☐ dirty ☐ salinity high ☐ High humidity ☐ other match up measurement and precision : no ☐ other special working condition and other specification:	
Please fill in the form to recommend and provide you with the right and economic slewing bearing.	
Please contact us for any requests. Tel: Fax : E-mail:	
Signature: Date:	

Slewing Bearing Type Selection Technical Data Sheet

Appendix A

working condition	Axial Load (10^4N)	Radial Load (10^4N)	Overturning Movement (10^4Nm)	Rotate Speed (rpm)	Work Time (%)
1)					
2)					
3)					
4)					
5)					
6)					
7)					
8)					
9)					
10)					
Max 10 load combination					100%
Continous Duty Work Condition(L_{10}) life: rpm- Average Rotate Speed, Minimum hrs					
intermittent operation work Condition life needed : in the angle +/- degree, Minimum rotation					

Appendix B		
external gear ☐ ;	internal gear ☐ ;	involute gear ☐ ;
Gear Parameter		
	Pinion	Large Gear
Module m		
Number of teeth z		
Pressure angle α		
helix angle β		
Displacement coefficient x		
Addendum coefficient ha^*		
Radial Clearance c^*		
Tooth width b		
Accuracy class		
Gear Centre distance adjust	adjustable ☐ ; unadjustable ☐	
provide the pinion drawing if possible, please		
other requests :		
Signature: Date:		

Signature:

Date:

You can ask for electronic document of Slewing Bearing Type Selection Technical Parameter Table from our technical department. The electronic data U-disk provided by us to you includes this document and instructions for filling out the table.

5.3 Quantity Warranty Commitment — After-sale Service

Warranties

The slewing bearing produced by the Company provides warranty over normal operation within normal use range compliant with the following provisions:

- Use condition of a standard product shall accord with the application conditions and with the technical specifications in this sample and the installation & operation instructions.
- Use condition of all products shall accord with the conditions set out by the customer in the completed Slewing Bearing Type Selection Technical Parameter Table .

Warranty period

- Warranty for this product shall be effective for one year after installation or for a maximum of 18 months after delivery. This warranty period shall only be limited to the estimated service life of the product, as relevant calculation or the service life set out in other documents of the Company.

Exceptions to warranty

Warranty for any slewing bearing product shall become invalid under any of the following circumstances:

- ① Failure to fill out, reply and send back the Slewing Bearing Type Selection Technical Parameter Table of the Company

The slewing bearing is a high-tech product that can meet special requirements. Provision of a suitable product fully depends on the Company's accurate understanding of the customer's working conditions and expected use condition.

The Slewing Bearing Type Selection Technical Parameter Table is table containing numerous technical data and characteristic requirements. This table should be filled out systematically before ordering by customer.

Provision of a product just as needed by a customer depends on the customer's accurate and sufficient answer to the Slewing Bearing Type Selection Technical Parameter Table . Therefore, if the customer answers the Slewing Bearing Type Selection Technical Parameter Table incorrectly, the Company may refuse to assume the responsibility of warranty.

- ② Not following the Company's recommendations

Handling, use, installation and maintenance are not in compliance with the recommendations set out in the installation & operation manual for the product sold, particularly:

Carriage

- Handling equipment unfit for quality and weight requirements of the product
- Product use not in compliance with the technical specifications and product application conditions

Installation

- Bearing structure size is incorrect. The size is less than the specified minimum requirements and the flatness is too big.
- The location of slewing bearing's quenching soft belt does not avoid the main load area.

Fastening

- Pre-tightening force of bolts and nuts is not in compliance with our recommendations and requirements

•Any slot, fan-shaped, spring or tempered washer of any unknown designation whatever are used

Lubrication

•Lubricating grease model and re-lubrication cycle are not as recommended by us

Storage

• Failure to update external protective material after storage for 6 months

• Failure to re-lubricate the slewing bearing after storage for 18 months

③ Modify, dismantle or repair the product without prior consent of the Company

④ Damage caused by overuse

⑤ Damage caused by normal wear of material

Increase of clearance under effect of load within limit of serviceability is normal wear

No warranty is provided for quick-wear parts such as seal ring. Strictly speaking, we provide no warranty for dysfunction caused directly or indirectly by customer's negligence.

Performance of warranty

To obtain warranty for normal operation of the slewing bearing product, you are supposed to complete the following matters:

•The customer shall file the letter of fault declaration before the specified deadline (warranty period).

•The Company's findings on the fault.

•Review technical specifications of corresponding product, the Company's recommendations and other conditions for use and warranty.

Don't return the product without prior consent of the Company.

Warranty

If the declared fault has been investigated and inspected, the Company will:

•Repair the slewing bearing and replace damaged parts as necessary

•Replace the slewing bearing free of charge

• Refund the payment for the purchased slewing bearing

In summary, the Company shall have the right to choose the most suitable solution for any problem found.

The Company has strict restrictions on warranty over repair, replacement or return of product, so it will make no compensation for any consequence related to any fault: shutdown of machine, other material damage, profit loss.....

If any fault of the slewing bearing is caused by negligence of the customer, particularly due to non-compliance of the Company's recommendations, cost and expenses for investigation on the damage parts including all travel expenses for transport and technical service personnel to the site of use.

Attention

All data and materials included in the present sample are already calculated and checked. We assume no responsibility for any error or omission herein and we reserve the right to improve or rectify any of the experiments, formulas and graphs technically without prior notice.

All previous versions shall become invalid as of the date on which this sample is released.



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