专业回转解决方案供应商

Professional slewing solution provider

回 转 支 承 产 品 册

Slewing Bearing catalogue

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企业简介

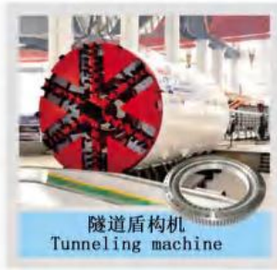
徐州龙威回转支承有限公司开始于2004年，是集设计、研发、制造为一体的回转支承和回转驱动制造型的国家级高新技术企业，工厂占地118亩，建筑面积6万平方米，公司注册资金200万元 员工300余人。

公司建立了完善的管理体系，取得了IS09001：2015质量管理体系、IS04001环境管理体系、IS045001职业健康安全管理体系、中国船级社CCS型式认可证书、知识产权管理体系等认证。公司坚持以“精益求精、塑造精品、持续改进、顾客满意”为质量方针，持续改善，提升顾客满意度。

公司产品精度高、寿命长，广泛应用于各类行业领域：如挖掘机、盾构机、矿山设备、汽车吊、随车吊、高空作业车、环保机械、轻工机械、医疗设备等，产品畅销全国，远销美国、加拿大、德国、英国等50多个国家．受到国内外客户高度赞誉。

应用领域 Application areas


高空作业车
Aerial work platform


隧道盾构机
Tunneling machine


泵车
Pump truck


塔吊
Tower cranes

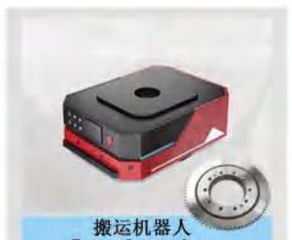

挖掘机
Excavator


随车起重机
Truck crane


深海远洋起重机
Deep-sea Pelagic crane


堆取料机
Stacker reclaimer


风力发电
Wind energy


搬运机器人
Transfer robot


灌装机
Filling machine


雾炮车
Mist cannon truck

生产检测流程 Production inspection process

3. 认识回转支承
Selection calculation of slewing bearing

3.1 回转支承的基本结构
Basic structure of slewing bearing

回转支承的形式很多，但其结构组成大同小异，图1是回转支承的基本结构

Many types of slewing bearing with very similar structure

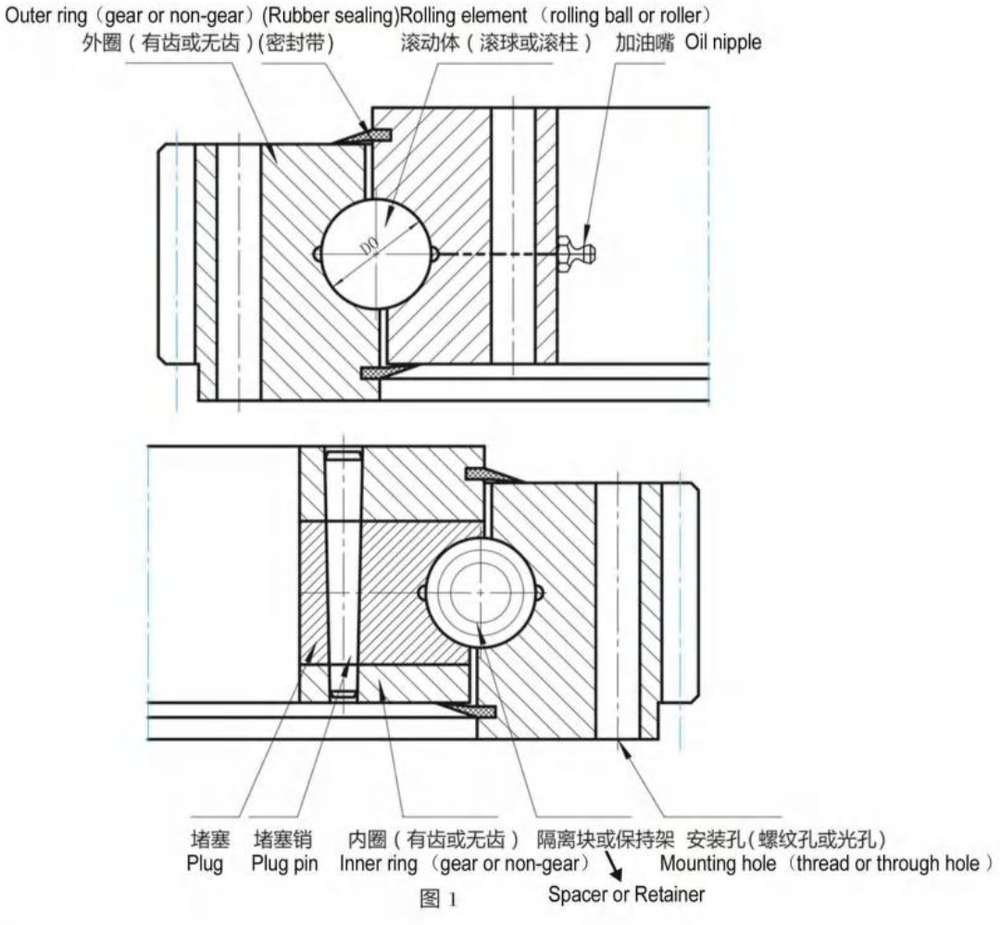


图 1

单排四点接触球式 Single row four contact ball structure

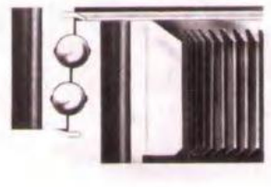
单排交叉滚柱式 Single row cross roller structure

双排异径球式 Double row different ball structure

三排滚柱式 Three row roller structure

球柱联合式 Ball & roller combination

双列球式 Double row ball structure



3.2 回转支承的安装方式
Mounting method of slewing bearing

回转支承的安装方式有以下几种：座式安装、悬挂式安装和垂直安装。垂直安装的回转支承内外圈必须有定位止口，以保证回转支承的精确定位。各种安装方式见图2

The mounting methods of slewing bearing as follows: seat style mounting, suspension mounting and vertical mounting. The inner and outer ring of the vertical mounting slewing bearing must have a Positioning pilot, thus will ensure the precise positioning of the slewing bearing. See Figure 2 for different mounting methods

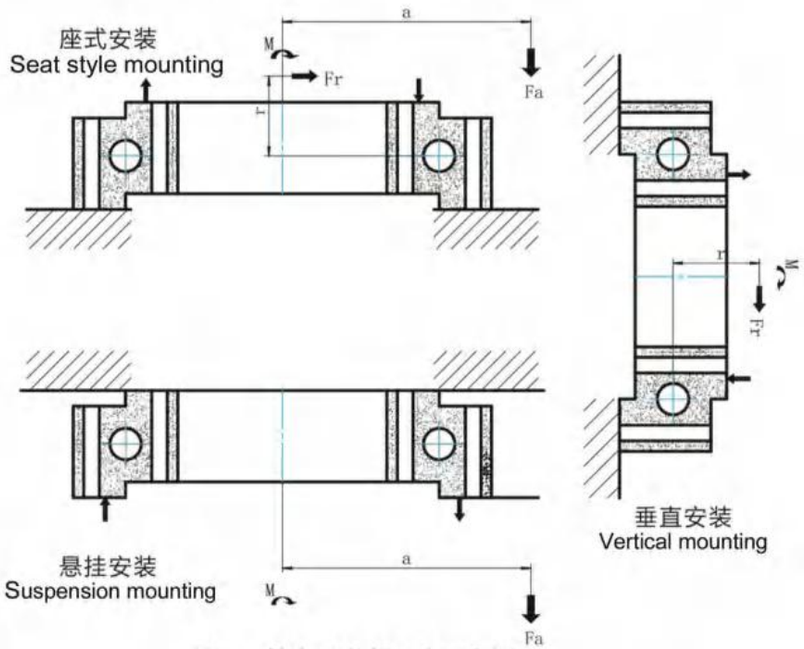


图2 回转支承安装形式示意图
Figure 2 Mounting sketch of slewing bearing

3.3 回转支承的材料
The material of slewing bearing

我公司生产回转支承滚圈所用材料，一般为高合金结构钢，如50Mn、42CrMo、不锈钢以及其它各种特殊用途的材料。滚圈毛坯是经过滚压或锻打而成，并经过正火或调质处理，能充分保证材料的机械性能。用户可根据需要选择合适的材料。

The material of slewing bearing produced in our company generally is high alloy-structural steel, such as 50Mn、42CrMo、 stainless steel and other special purpose materials. Rolling ring workblank is maded by Rolling or forging, and treated with a normalizing or hardening and tempering , the mechanical properties of the material can be fully guaranteed.

回转支承所选用的滚动体材料为GCr15，全部选择国内质量最好的供应商。滚动体的尺寸精度很高，用户自行拆开回转支承或更换滚动体都是不允许的，必须由我公司负责。

The rolling body material of slewing bearing is GCr15 chosen from the best suppliers of quality. The dimensional accuracy of rolling body is very high, It is not allowed for users to disassemble the slewing bearing or replace the rolling body, It must be up to our company.

3.4 回转支承轨道及齿轮热处理
Slewing bearing raceway and gear heat treatment

我公司拥有先进的表面感应淬火机床，回转支承的滚道都是经过表面感应淬火处理的，并且淬火硬度确保在HRC55～62，能达到足够的淬硬层深度。

Our company has advanced surface induction quenching machine, The raceway of the slewing bearing is treated with the surface induction quenching, and the hardening hardness is ensured in HRC55～62, which can reach enough depth of the hardened layer.

单排四点接触球式滚道
Raceway of single row 4 point contact slewing bearing

双排异径球式压圈滚道
Combined raceway of double row different diameter steel ball slewing bearing

单排交叉滚柱式滚道
Raceway of single row cross roller slewing bearing

双排异径球式鼻圈滚道
Combined raceway of double row different diameter steel ball slewing bearing

三排滚柱式鼻圈滚道
Combinced raceway of three cross roller slewing bearing

由于传递力的需要，回转支承其中一个套圈上通常制有齿。齿轮的热处理状态一般为正火或调质状态。齿表面也可按照用户的要求淬火处理，淬火硬度在HRC50～60，并且能够保证足够的深度。根据应用场合的不同，齿轮淬火可分为全齿淬火和单齿感应淬火。单齿感应淬火又可分为齿面齿根淬火和齿面淬火。

Because of the need of the transfer force, it is usually made with teeth on one of the rings. The heat treatment of gears is generally normalizing or hardening and tempering. The surface of the tooth can be quenched according to the user's requirement. The hardness of the tooth is in HRC50～60 , and can ensure sufficient depth. According to the application situation, the gear quenching can be divided into the whole tooth quenching and the single tooth induction quenching. Single tooth induction quenching can be divided into tooth surface root quenching and tooth surface quenching.

全齿淬火
Comprehensive tooth quenching

齿面齿根淬火
Tooth surface and root quenching

齿面淬火
Tooth surface quenching

3.5 回转支承所适应的温度和工作环境
The suitable temperature and working environment for slewing bearing

我公司所生产的回转支承能够在-30℃～+70℃正常工作，用户若需适应更低或更高温度的支承，我公司工程技术人员可为您特殊设计。回转支承若在特别恶劣的环境里使用，如海洋性气候、粉尘或研磨颗粒（沙尘、水泥、煤粉）等。必须选用特殊的密封圈、防护装置、以及合适的油道。因此为使您的支承能正常作用，希望做好日常的保养与维护工作。

The slewing bearing produced by our company can work normally at -30C°～+70C°. If users need to adapt to lower or higher temperature support, our engineering technicians can design for you. If the slewing bearing are used in particularly hostile environment, such as Marine climate, dust or abrasive particles (dust, cement, coal powder) etc. Special sealing rings, protective devices, and proper oil paths must be selected. Therefore, we hope users to do the daily maintenance work to make your slewing bearing function normally.

3.6 回转支承的转动速度要求 Rotation speed requirements for slewing bearings

我公司提供的回转支承可以作间歇旋转或连续旋转运动，您选择回转支承时一定要计算一下回转支承的圆周速度是否在回转支承转速允许的范围内，各种回转支承在正常情况下的极限速度如下：

回转支承类型 Type of slewing bearing	润滑类型 Lubrication	极限速度（ n.Dm ） Limit velocity
交叉滚柱式 Cross roller	标准润滑脂 Standard grease	24000 — 35000
滚球式 Steel ball	标准润滑脂 Standard grease	40000 — 65000
滚球带保持架 Rolling ball with cage	润滑脂或油 Grease or oil	70000 —130000

例如：011.40.1000的回转支承，其滚道中心直径D为1000mm，其使用标准润滑脂，极限速度为n. Dm=65000，极限转速为n=65000/1000=65（转/分）。若转速太高可能导致支承的使用寿命降低或破坏。如果您需要更高转速的回转支承，可向我们垂询，由我们的工程技术人员为您特殊设计。如果回转支承在超出额定转速的情况下运行，可造成其寿命降低或致命的破坏。

3.7 回转支承额定使用寿命 Rated service life of slewing bearing

回转支承的使用寿命与使用的环境、载荷、转速、润滑、座架的精度、维护的好坏有关。在常规的使用情况下，我们提供的回转支承额定使用寿命在60000小时～100000小时。

4. 回转支承的安装及维护保养 Installation and maintenance of slewing bearing

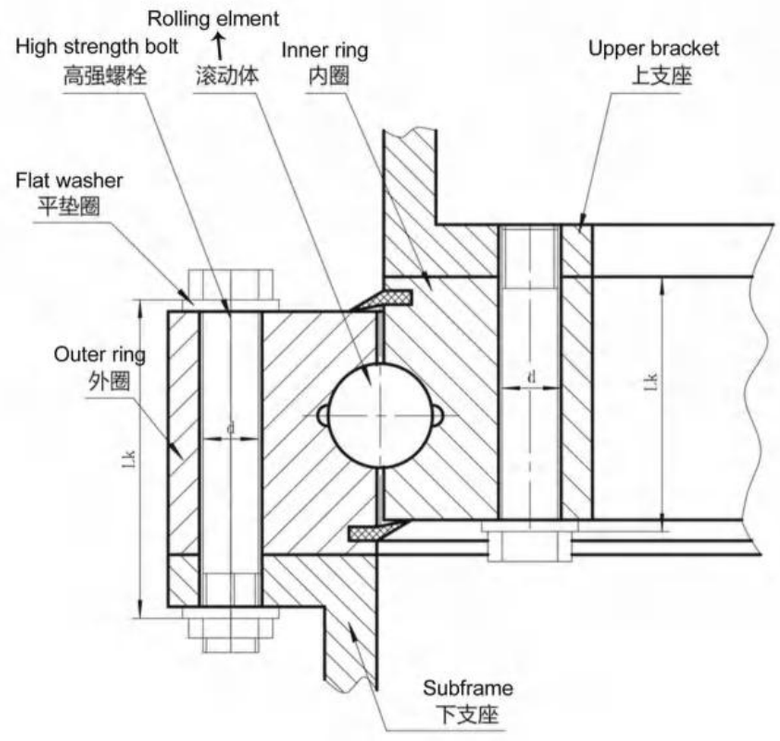
4.1 装卸与贮运 Handling and transportation

- ◆回转支承必须小心装卸。
- ◆运输和贮存以水平放置为宜，贮存必须放在干燥的室内。
- ◆吊装宜用吊环螺钉，以水平方式进行，切勿碰撞，特别是径向方向的碰撞。
- ◆回转支承外表涂有防锈剂，其防锈期一般为六个月，对于超过六个月贮存期的（如作配件）应重新进行防锈包装或采取其它贮存措施。
- The slewing bearing must be handled carefully.
- Transportion and storage of slewing bearing should be held horizontally and stored in a dry room.
- For hoisting lift bolt is suitable and please move it horizontally , do not hit anything, especially the direction collision.
- The slewing bearing surface is covered with antitrust agent, whose rust proof life is usually six months. For those whose storage life of more than six months (such as accessories) should take the antitrust package or other storage measures again.

4.2 安装支架的要求 Installing support requirements

安装配合支架一般采用筒形结构，筒壁与滚道中心对齐为好。

Generally, install matching support adopts tubular structure , the cylinder's wall should be better aligned at the center of the raceway.



安装示意图
Installation schematic

为了防止回转支承局部过载，保证其灵活运转，安装支架应在焊接工序后进行消除应力处理，并对安装平面进行机械加工，其平面度（包括水平面的角偏差）应控制在一定范围内。见表2：

In order to prevent slewing bearing partly overload, ensure its flexible operation, installation of the support should be removed its inner stress after the welding operations have finished , and installation surface must be processed , flatness (including its angular deviation) should be controlled within limits. See table 2:

表1 包含角偏差在内的平面度许可值
Table 1 The flatness' allowed value include angular deviation

滚道中心圆直径 Raceway center diameter	安装支架平面偏差 P（mm） Plane deviation of mounting bracket P(mm)		
DL(mm)	单排四点接触球式支承	双排球式支承	滚柱式支承
~ 1000	0.15	0.20	0.10
>1000 ~ 1500	0.19	0.25	0.12
>1500 ~ 2000	0.22	0.30	0.15
>2000 ~ 2500	0.25	0.35	0.17
>2500 ~ 4000	0.30	0.40	0.20
>4000 ~ 6000	0.40	0.50	0.30
>6000 ~ 8000	0.50	0.60	0.40

注：表1中的数值为最大值，在1800的扇形区内允许有一处波峰达到该值，并在00～900～1800区域内平稳上升或下降。不允许忽升忽降，以避免峰值负荷。
Note: the value in table 1 is the maximum, among the 1800 fan section, it allows only one crest to reach the value and rise or drop steadily in the area of 00～900～1800. It is not allowed to up and down rapidly to avoid peak load.

安装支架还应具有良好的刚性。在最大允许负荷下，挠曲变形量应控制在表2规定的范围内。
The installation support should also have highly rigidity. Under the maximum load, flexure deflection deformation should be controlled within the range given by Table 2.

表2：最大允许负荷下的挠曲变形量
Table 2:The flexure deflection deformation under maximum allowed load

滚道中心圆直径 DL(mm) Raceway center diameter DL(mm)	~ 1000	>1000 ~ 1500	>1500 ~ 2000	>2000 ~ 2500	>2500 ~ 3000	>3000 ~ 3500	>3500 ~ 4000	>4000 ~ 4500	>4500 ~ 5000	>5000 ~ 5500	>5500 ~ 6000	>6000 ~ 7000	>7000 ~ 8000
支架平面最大挠度 (mm) Maximum deflection of mounting bracket	0.6	0.8	1.0	1.3	1.6	2.0	2.5	3.0	3.6	4.2	4.8	5.8	7.0

安装支架的螺栓孔按GB/T5277-1985中级精度加工,并与回转支承安装孔对齐。
The bolt hole of installation support should be intermediate accuracy processed by GB/T5277-1985 .

4.3 安装螺栓
The installation of bolt vice

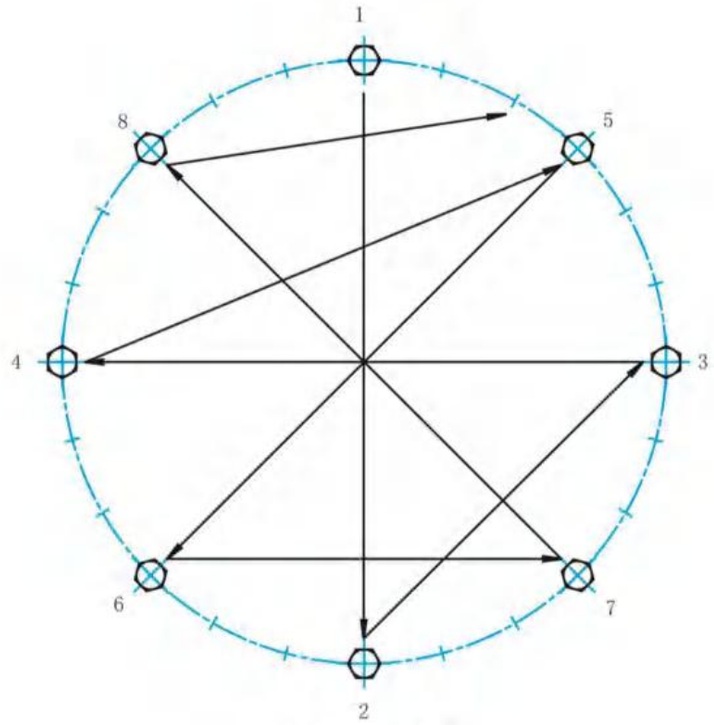
- ◆回转支承所用螺栓尺寸应符合GB/T5782-2000和GB/T5783-2000的规定，其强度等级不低于GB/T3098.1-2000规定的8.8级，并根据支承受力情况选择合适的强度等级。
- ◆螺母尺寸应符合GB/T6170-2000和GB/T6175-2000规定，其机械性能应符合GB3098.2-2000规定。
- ◆垫圈尺寸应符合GB/T97.1-1985和GB/T97.2-1985，需调质处理。不得使用弹簧垫圈。
- ◆螺栓拧紧方式按主机设计规定，应保证一定的预紧力，除非特殊规定，一般预紧力应为螺栓屈服极限的0.7倍。拧紧时允许在螺纹处少许涂油。预紧扭矩或预力见表3。
- ◆螺栓夹紧长度Lk≥5d（d—螺栓直径）。

- The bolt's size of the slewing bearing should conform to the regulation of GB/T5782-2000 and GB/T5783-2000, its strength grade should not be lower than grade 8.8 specified in GB/T3098.1-2000, and the appropriate strength grade should be selected according to the stress condition of slewing bearing.
- The nut size shall be in accordance with GB/T6170-2000 and GB/T6175-2000, and its mechanical property shall conform to the requirements of GB3098.2-2000
- The washer size should be in accordance with GB/T97.1-1985 and GB/T97.2-1985, and it needs hardening and tempering. The spring washer is not allowed.
- The bolt tightening mode shall be according to the main engine design, and shall guarantee a certain preload. Unless special regulation, the general preload shall be the 0.7 times the bolt's yield limit. Allow a little oil on the thread when tightening. Preload torque or preload is shown in Table 3.
- The bolt clamped length Lk≥5d (d – bolt's diameter).

螺栓规格 Bolt specification GB/T5782-2000 GB/T5783-2000	安装孔直径 (mm) Mounting hole diameter	螺栓强度等级 (GB/T398.1-2000) Bolt strength grade	
		8.8	10.9
		螺栓材料的屈服强度极限σ smin(N/mm^2) Yield strength limit of bolt material	
		640	900
		预紧扭矩 Pretightening moment 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
		预紧力 Pretightening 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

注：1.当螺栓尺寸不符合GB/T782-2000或GB/T5782-2000时，表值需另行计算。
2.螺栓头部与被夹紧之间的总摩擦系数μ=.14，螺纹少许涂以轻油。

Note: 1. When the bolt size does not conform to GB/T782-2000 or GB/T5782-2000, the table value should be recounted.
2. The total friction coefficient between the head of the bolt and the clamped μ=14, and the thread is slightly coated with light oil.



螺栓紧固顺序
Bolt tightening sequence

4.5 润滑与使用维护
Lubrication and maintenance

- 回转支承出厂时滚道内加入少量的2号极压锂基脂（GB7324-1994），启用时用户应根据不同的工作条件，重新充满新的润滑脂。
- 回转支承滚道应定期加注润滑脂。一般球类回转支承每运转100小时加油一次，滚柱类回转支承每运转50小时加油一次，特殊工作环境，如高温、湿度大、灰尘多、温度变化大以及连续工作时，应缩短润滑周期。机械长期停止运转前后也必须加足新的润滑脂。每次润滑必须将滚道内注满润滑脂，直至从密封处渗出为止。注润滑脂时，要慢慢转动回转支承，使润滑脂填充均匀。
- 齿面应经常清除杂物，并及时涂抹相应的润滑脂。
- 因为综合工作因素较多，用户也可根据具体要求自行选择最佳润滑脂。
- 回转支承首次运转100小时后，需检查螺栓的预紧力，以后每运转500小时，必须保持螺栓足够的预紧力。
- 使用中注意回转支承的运转情况，如发现噪音异响、冲击、功率突然增大，应立即停机检查，排除故障，必要时需拆开检查。
- 使用中最好采取保护措施，避免风尘、雨淋、水浸及高温等造成不良影响，严防较硬的异物接近或进入齿啮合区。
- 经常查看密封完好情况，如果发现密封带破损应及时更换，如发现密封脱落应及时复位。

- Please add a little of the Extreme pressure lithium-based grease No 2 (GB7324-1994) in the raceway of slewing bearing, and refill the new grease according to different working conditions when start using.
- Slewing bearing raceway should be added grease regularly. General ball slewing bearing should be refueled every 100 hours, roller type slewing bearing should be refueled every 50 hours, it should shorten the cycle of the lubrication if in special working conditions, such as high temperature, high humidity, dust, great temperature variation and the continuous work. It must be added new grease when the long-time halt machine running before and after. Please rotate the slewing bearing slowly when infusing lubricating grease to balance fill.
- It should always cleared the sundry on the tooth surface, and daubed appropriate grease timely.
- Because there are more the comprehensive work factors, the user can also choose the best grease according to specific requirement.
- After the first 100 hours operation of slewing bearing, check the pre-tightening force of the bolt. In the future, it must check in sufficient pre-tightening force on operation every 500 hours.
- Attention the operation of slewing bearing in using. If find the noise, impact and power increased suddenly, it must be stopped to inspect immediately, troubleshooting, and it should be opened to inspect if necessary.
- It is better to take protective measures in using to avoid the adverse effects of dust, rain, flooding and high temperature, and prevent the hard foreign matter strictly from approaching or entering the teeth meshing zone.
- Check the sealing condition constantly. Change in time if the sealing belt is found to be damaged, and reset in time if the seal fall off.

5. 回转支承选型计算
Selection calculation of slewing bearing

5.1 回转支承承载能力曲线
The bearing capacity curve of the slewing bearing

产品样本中每个型号的回转支承都对应一个承载能力曲线图，曲线图可以帮助用户初步地选择回转支承。

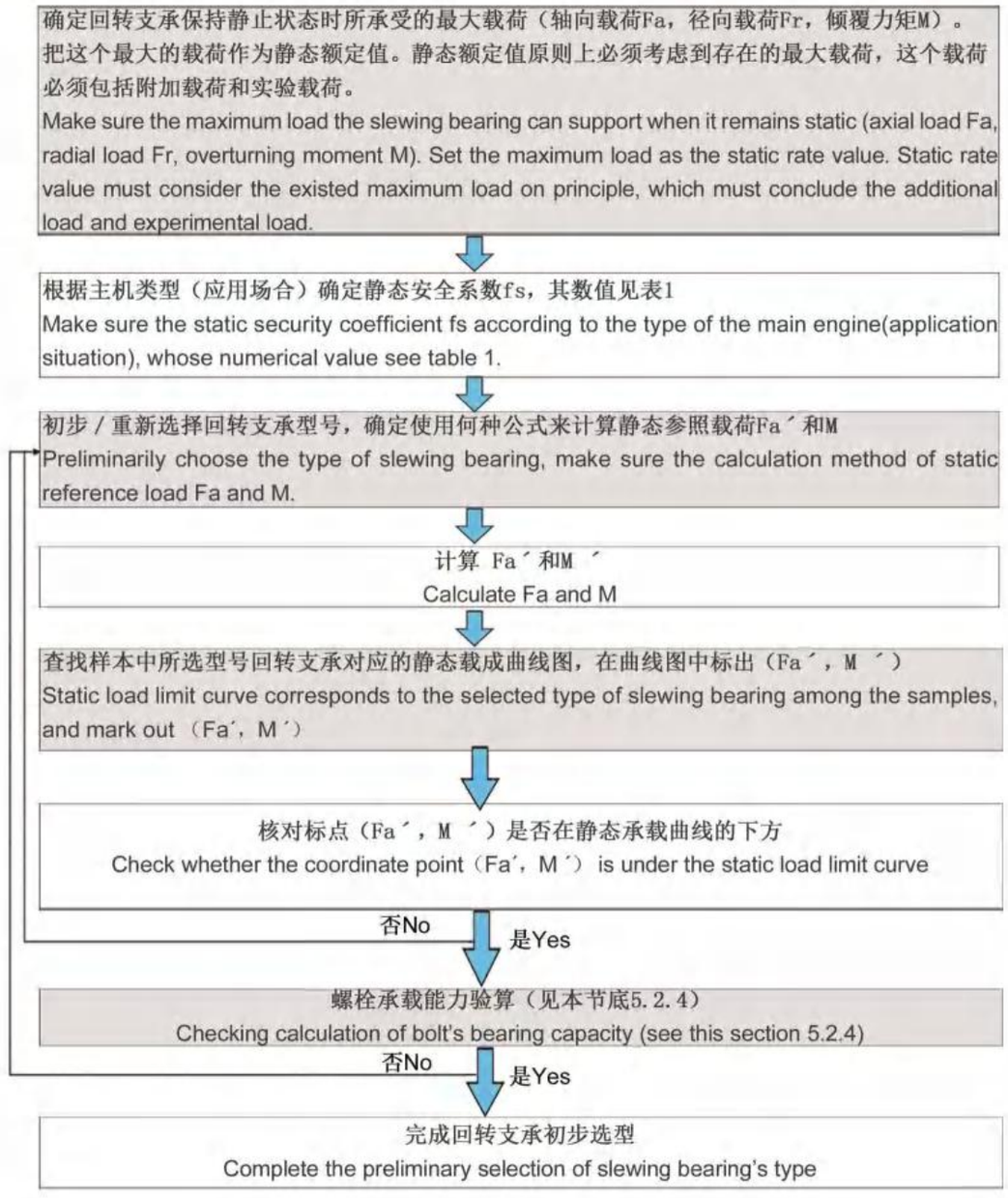
Each type of slewing bearing of product samples has a corresponding load-carrying capacity curve, and the graph can help the user to select the slewing bearing preliminarily.

曲线图中有两种类型的曲线，一类为静态曲线（①线），表示回转支承保持静止状态时所能承受的最大负荷。另一类为回转支承螺栓负荷曲线（8.8、10.9、12.9），它是在螺栓夹持长度为螺栓公称直径的5倍，预紧力为螺栓材料屈服极限的70%时确定的。

There are two types of curve, one is the static curve (①line), the maximum load that slewing bearing can bear when it keeps static. The other one is bolt load limit curve (8.8, 10.9, 12.9), it is decided when the bolt's fixture length is 5 times as the bolt's nominal diameter, and the preload is 70% of the bolt material's yield limit.

5.2 回转支承选型计算方法
Calculation method of slewing bearing's selection

5.2.1 选型计算流程
The selection process



5. 2. 2 静态选型 Type selection in static

静态参照载荷Fa′ 和M ′ 的计算方法：

Calculation method of static reference load Fa 'and M'

单排四点接触球式回转支承的选型计算分别按承载角45° 和60° 两种情况进行。

The selection calculation of the single-row four point contact ball slewing bearing process by load support angle 45° and 60° respectively .

方法I (a=60°)

Methods I (a = 60 °)

Fa'=（Fa+5.046×Fr）×fs

M ′=M×fs

方法II（a=45° ）

Method II（a=45°）

Fa'=（1.225×Fa+2.676×Fr）×fs

M ′=1.225×M×fs

式中：Fa′ -回转支承当量中心轴向力（10^4 N ）

In the formula: Fa '-slewing bearing equivalent center axial force （10^4 N ）

M′ -回转支承当量倾翻力矩（10^4 N .m）

M '- slewing bearing equivalent overturning moment (10^4N. m)

fs— 回转支承静态工况下安全系数（见表1）

fs— safety factor in the static working conditions of slewing support (see table 1)

然后在曲线图上找出以上两点，其中一点在曲线以下即可。

Then find the above two points on the curve, one of them is below the curve.

单排交叉滚柱式 Single-row crossed roller type

Fa'=（Fa+2.05×Fr）×fs

M'=M×fs

双排异径球式 Double-row ball type

对于双排异径球式回转支承选型计算，但Fr≤10%Fa时，Fr忽略不计。当Fr≥10%Fa时，必须考虑轨道内侧压力角的变化，其计算请与我们联系。

The selection calculation of the double-row different diameter ball slewing bearing ,when Fr<=10%Fa,the change of the pressure angle inside raceway must be accounted,please contact us about its calculation.

Fa'= Fa×fs

M ′=M×fs

三排式滚柱式 Three row roller type

三排式滚柱式回转支承选型时，仅对轴向轨道负荷和倾覆力矩的作用进行计算。

When select the triple-row roller slewing bearing , only calculate the interaction of the axial raceway load and overturning moment.

Fa'= Fa×fs

M ′=M×fs

5. 2. 3动态选型 Dynamic selection

对于连续运转、高速回转和其它对回转支承的寿命有具体要求的应用场合，请与我公司技术部联系。

Please contact our technical department for the application of continuous operation, high speed rotation and other applications for the service life of rotary support.

5. 2. 4安装螺栓承载力验算 Checking calculation of the bolt's bearing capacity

把回转支承所承受的最大载荷（没有乘静态安全系数fs）作为选择螺栓的载荷。

查对载荷是否在所需等级螺栓极限负荷曲线以下；

The maximum load (no static safety factor fs) is used to load the rotary support.

Check whether the load is below the limit load curve of required grade bolts;

若螺栓承载能力不够，可重新选择回转支承，或与我们公司技术部联系。

If the bolt bearing capacity is not sufficient, we may choose slewing bearing again or contact our technology department.

主机厂可根据产品样本所提供的信息，利用静承载能力曲线图，按回转支承选型计算方法初步选择回转支承，然后与我公司技术部共同确认。也可向我公司提供回转支承相关信息，由我公司进行设计选型时，请索取《回转支承选型技术参数表》（包括参数表中的附录A 及附录B），并详细填写，以便我们能尽快向您提交准确经济实用的回转支承选型方案。

The factory can provide information according to the product sample, using the static bearing capacity curve, according to the rotary bearing type selection calculation method of preliminary selection slewing bearing, and technology with my company to confirm. Can also provide information on rotary bearing to our company, when carrying on the design selection by my company , please ask for the 《rotary bearing selection of technology parameter table 》(including the annex A and annex B in the parameter table), and fill in, so that we can submit to you as soon as possible accurate rotary bearing selection plan of economic and practical.

附表： 各种应用场合回转支承的安全系数

Table: Safety factor of rotary support for various applications

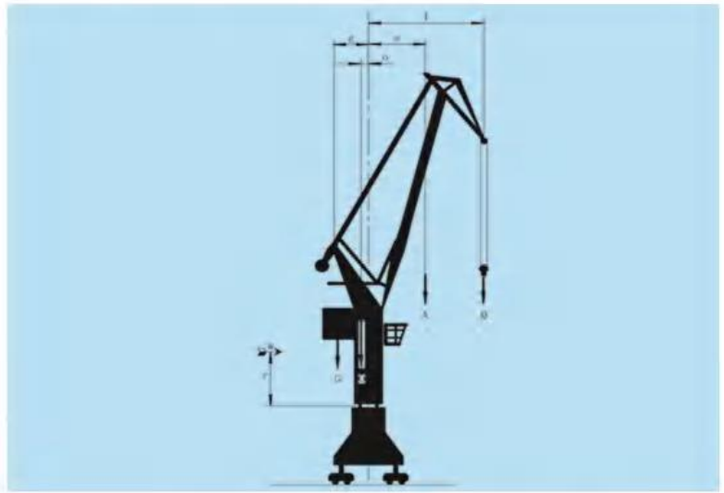
应用场合 Application situation			fs	fL	
浮式起重机（货物负载）Floating crane (cargo)					原则上，必须以作用在支承上的最大载荷做为静态计算值，这个载荷必须包括附加载荷和试验载荷。 没有被列入表中的应用场合，可以参照表中与其相似的工作条件和应用，选取静态安全系数fs。 *）上回转式塔机 Mf=空载时的反向倾覆力矩 M=幅度最大时的倾覆力矩 对于静态安全系数fs取1.45的应用场合，因平均负载较高和繁重的工作条件，应优先选择多排滚道式回转支承。 On principle, the static maximum load that the slewing bearing support must be used as a computation value, which must include additional load and test load. Not included in the application in the table, the static safety factor fs can be selected by reference to the similar working conditions and applications in the table. Rotation upward crane Mf=Reverse overturning moment on empty load M= The overturning moment of maximum amplitude is used for the application static safety coefficient fs to take 1.45, because of the high average load and heavy working conditions, it is preferable to choose the multi-row rolling slewing bearing.
汽车起重机（货物负载）Mobile crane (cargo)					
船用甲板起重机（抓斗）Marine deck crane			1.10	1.0	
焊接设备 welding equipment					
工作台（连续运转）Table (continuous operation)					
塔式起重机 Tower crane	上回转* Rotation at top	Mf≤0.5M		1.0	
		0.5M≤Mf≤0.8M		1.15	
		Mf≥0.8M	1.25	1.25	
	下回转 rotation at base			1.0	
回转式起重机（货物负载）Rotation crane (cargo load)					
造船厂起重机Shipping crane				1.15	
装船机/卸船机 Ship Loader/unloader					
冶金超重机 Metallurgical Overweight machine				1.5	
汽车起重机（抓斗式或处理繁重工作）Mobile crane (grab or handle heavy work)					
回转式起重机（抓斗或吸盘）Rotation crane (grab or sucker)			1.45**	1.7	
桥式起重机（抓斗或吸盘）Bridge crane (grab or sucker)					
浮式起重机（抓斗或吸盘）Floating crane (grab or sucker)					
斗轮挖掘机 Bucket- wheel excavator					
堆取料机 Stacker-reclaimer				2.15	
悬臂输送机 Cantilevered conveyor					
近海超重机 Offshore overweight machine			根据特殊的标准 Special standard		在这些应用场合，工作条件变化相当大，比如对于不经常回转的情况下使用的回转支承，只要求静态校核。对于连续回转和间歇式回转情况下使用的回转支承，将需要进行动态寿命计算。 In these applications, the working conditions vary considerably, such as the rotary support used for the non-regular rotation, only the static check. For the rotary support used in continuous rotation and intermittent rotation, dynamic life calculation is required.
铁路起重机 Railway crane machine					
甲板起重机（货物负载）Deck crane (cargo load)			1.00		
堆料机 Stacker load)					
输送车 Delivery wagon			1.10		
绳索式挖掘机/索斗 Rope excavator/cable bucket			1.25		
小于等于1.5m³液压挖掘机 Less than or equal to 1.5 m³ hydraulic excavator			1.45		
大于1.5m³液压挖掘机 More than 1.5 m³ hydraulic excavator			根据特殊的标准 Special standard		
钢包回转台 Ladle turret			1.75		

右边说明 The right instrd uction

注： fL 为动态安全系数，它必须结合动态承载曲线使用。它来源于经验和实验。是基于最大工作载荷情况下的一个参照值。

Note: fL is the dynamic safety factor. It must be used in combination with dynamic load curve. It comes from experience and experimentation. It is a reference value based on maximum working load.

门座式起重机示意图 The portal crane diagram



采用承载能力曲线选型时，最大负荷的计算方法推荐如下(The calculation method of maximum load is recommended as follows):

在选择回转支承之前，首先确定对该主机应考虑的静安全系数fs，可由附表1查得。

门座式起重机（抓斗）：fs=1.45

Before choosing the rotary support, the static safety factor fs that should be considered for the host should be determined, which can be found in schedule

已知最大静载荷出现在幅度最大时，其载荷计算公式如下(When the maximum static load is known, the calculation formula of its load is as follows):

1)计八级风力时的最大工作载荷 The maximum working load of an eight-level wind force

轴向力 axial force Fa = Q + A + O + G

倾覆力矩 overturning moment M = Q × lmax + A × amax + W × r - O × o - G × g

2)不计风力，考虑25%试验负荷的载荷 Regardless of wind force, consider the load of 25% test load

轴向力 Axial force Fa = 1.25 × Q + A + O + G

倾覆力矩 Overturning moment M = 1.25 × Q × lmax + A × amax - O × o - G × g

例：已知一抓斗式港口吊最大幅度时的工作负荷和幅值为：

Example: The working load and amplitude of a clamshell port are known as follows:

Q = 260 kN 1max=23m

A = 75 kN amax=11m

O = 450 kN o=0.75m

G = 900 kN g=3m

W = 27 kN r=6.5m

1)八级风力时的最大工作载荷 Maximum working load of wind power at level 8

Fa = Q + A + O + G

=260 + 75 + 450 + 900

=1685 kN

M = Q×lmax + A×amax + W×r - O × o - G× g

=260 × 23 + 75 × 11 + 27 ×6.5×450 ×0.75×900 × 3

= 3943 kNm

2）不计风力，考虑25%试验负载时的最大工作载荷

Regardless of wind force, consider the maximum working load of 25% test load

Fa = 1.25×Q + A + O + G

=325 +75 +450 +900

= 1750kN

M = 1.25×Q×lmax + A×amax - O×o - G×g

= 325 × 23 + 75 × 11×45 × 0.75×900 × 3

= 5566.3 kNm

3）不计风力时最大工作载荷 Maximum working load regardless of wind force

Fa = 1685 kN

M = Q×lmax + A×amax - O×o - G×g

= 260 × 23 + 75 × 11×450 × 0.75×900 × 3

= 3767.5 kNm

选用负荷情况2作为静态计算的工作载荷

Load condition 2 is used as the working load of static calculation

按附表1要求，门座式起重机（抓斗）应采用三排滚柱式回转支承(According to schedule 1, the portal crane (grab bucket) should be supported by three rows of roller-type rotary support):

回转支承静态参照载荷为(The static reference load of rotary support is):

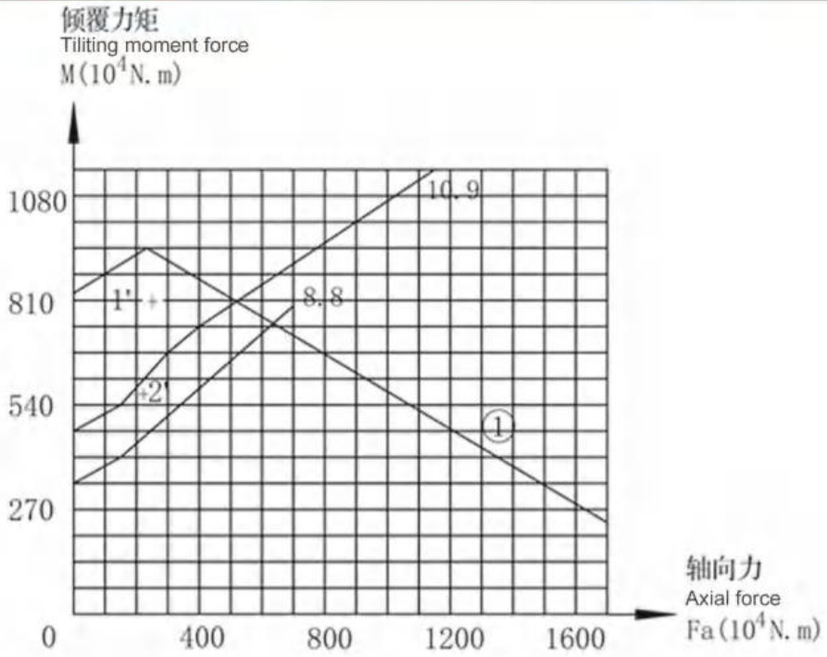
Fa′ = 1750 kN × 1.45 = 2537.5 kN M′ = 5566.3 kNm × 1.45 = 8071.1 kNm

而螺栓的计算载荷为(The calculation load of bolt is):

Fa = 1750 kN M = 5566.3 kNm

按上述计算结果，在承载能力曲线中选择，可确定选用13*.45.2000.002回转支承。

According to the above calculation results, the selection of the bearing capacity curve can be determined to select the rotary support of 13*.45.2000.002.



① 线为静态承载能力曲线 ①is the static bearing capacity curve

8.8、10.9为螺栓承载能力曲线 8.8 and 10.9 are bolt bearing curves

1'-静态载荷点 1'- static load point

2'-螺栓载荷点 2'- bolt load point

1' 点在滚道静态承载曲线1下方，因此满足要求

1' point is below the raceway's static load curve 1, thus meeting the requirements.

2' 点在10.9级螺栓承载曲线下方，因此选择10.9级螺栓可以满足要求

2' point is below the 10.9 grade bolt bearing curve, so 10.9 grade bolts can be selected,as it meets the requirements.

后续章节图表符号注释

1. n1为润滑油孔数。油杯M10×1JB/T7940.1～JB/T7940.2。根据应用情况用户可指定油孔位置。

2. n-可改为螺纹孔，螺纹直径M，螺纹深度2M。

3. 表内齿轮圆周力为最大圆周力，额定圆周力取其1/2。

4. “k”为削顶系数。

1.n1 is the number of lubrication holes oil cup M*1JB/T740.1-JB/7940.2.users can appoint the oil hole's position according to application circumstances.

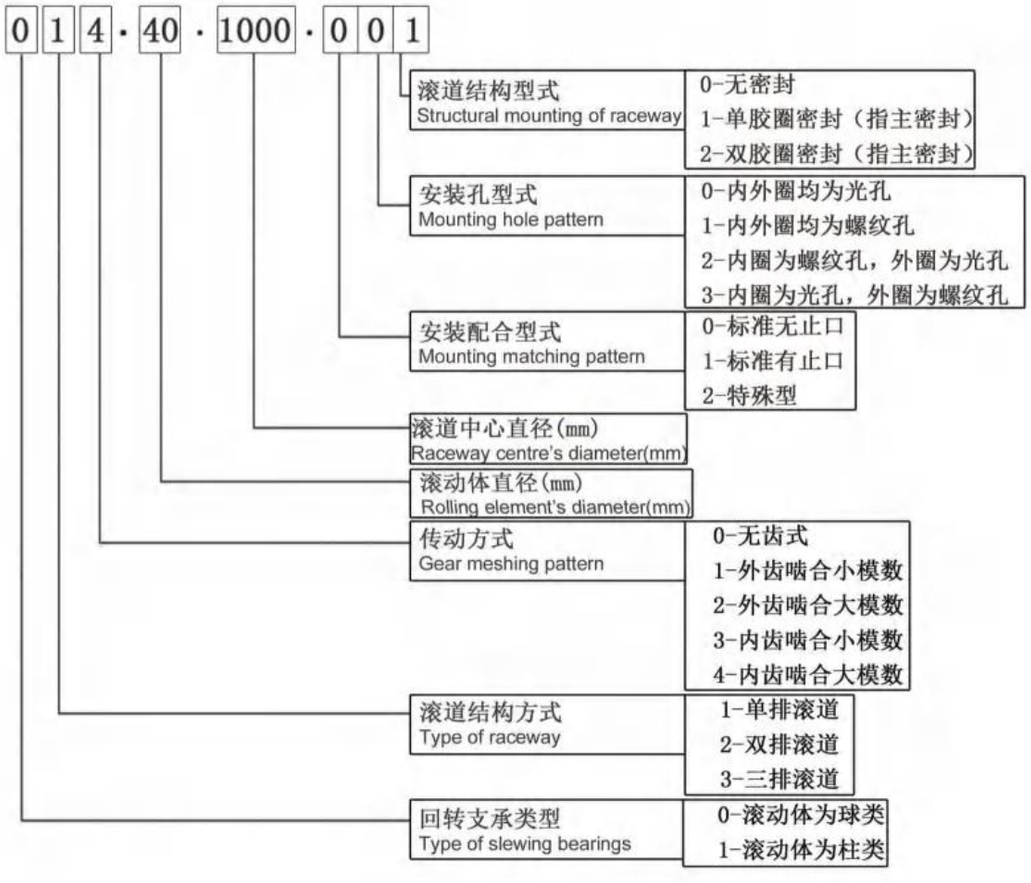
2.n-Φ can be replaced by threaded hole,the diameter is M,the depth is 2M.

3.The tooth gear's peripheral force in the form is the maximum peripheral force,the rated peripheral rorce is halr of it.

4.'k'is indicates cut-top coefficient.

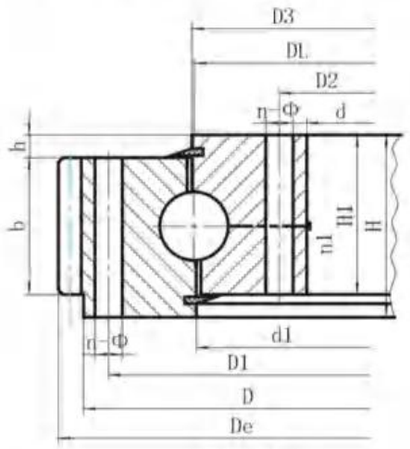
6. 机械行业回转支承（JB/T2300-2011）
The slewing bearing of machinery industry（JB/T2300-2011）

6.1 机械行业回转支承编号方法
The numbering of the slewing bearings in machinery industry



6.2 单排四点接触球式回转支承结构参数及承载曲线（01系列）
Single-row four-point contact ball slewing bearing structural parameters (01 Series)

6.2.1 单排四点接触球式回转支承结构参数-外齿式
Single-row four-point contact ball slewing bearings structural parameters—external gear



011.012

序号 NO.	外齿式 External Gear DL mm	外型尺寸 Dimensions D mm	d mm	H mm	D1 mm	D2 mm
1	011.20.200	280	120	60	248	152
2	011.20.224	304	144	60	272	176
3	011.20.250	330	170	60	298	202
4	011.20.280	360	200	60	328	232
5	011.25.315	408	222	70	372	258
6	011.25.355	448	262	70	412	298
7	011.25.400	493	307	70	457	343
8	011.25.450	543	357	70	507	393
9	011.30.500	602	398	80	566	434
	012.30.500	597				
9'	011.25.500	602	398	80	566	434
	012.25.500	597				
10	011.30.560	662	458	80	626	494
	012.30.560	659				
10'	011.25.560	662	458	80	626	494
	012.25.560	659				
11	011.30.630	732	528	80	696	564
	012.30.630					
11'	011.25.630	732	528	80	696	564
	012.25.630					
12	011.30.710	812	608	80	776	644
	012.30.710					
12'	011.25.710	812	608	80	776	644
	012.25.710					
13	011.40.800	922	678	100	878	722
	012.40.800					
13'	011.30.800	922	678	100	878	722
	012.30.800					
14	011.40.900	1022	778	100	978	822
	012.40.900					
14'	011.30.900	1022	778	100	978	822
	012.30.900					
15	011.40.1000	1122	878	100	1078	922
	012.40.1000					
15'	011.30.1000	1122	878	100	1078	922
	012.30.1000					
16	011.40.1120	1242	998	100	1198	1042
	012.40.1120					
16'	011.30.1120	1242	998	100	1198	1042
	012.30.1120					
17	011.45.1250	1390	1110	110	1337	1163
	012.45.1250					
17'	011.35.1250	1390	1110	110	1337	1163
	012.35.1250					

结构特点、性能、适用范围
Design feature/Function/Application scope

单排四点接触球式回转支承由两个座圈组成，结结构紧凑、重量轻、钢球与圆弧滚道四点接触，能同时承受轴向力、径向力和倾翻力矩。回转式输送机、焊接操作机、中小型起重机和挖掘机等工程机械均可选用。

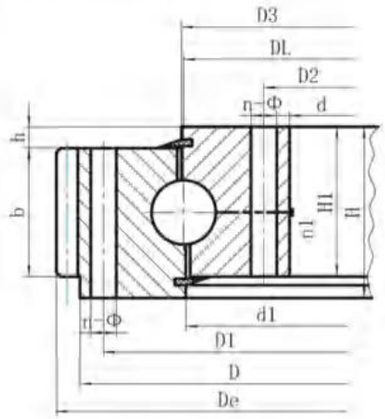
Single row four point contact ball slewing rings are composed of two seat rings, which design in compact structure and light weight, steel ball contact with the circular raceway at four points.

The single row ball slewing ring has been widely used in many applications:

1. Slewing conveyor
2. Welding manipulator
3. Light and medium duty cranes (truck mounted crane, dec crane, aerial platform truck etc.)
4. Different excavators

安装尺寸 Installation Size n	ø mm	dm mm	L mm	结构尺寸 Structure Size n1	D3 mm	d1 mm	H1 mm	h mm	齿轮参数 Gear Data b mm	x	M mm	De mm	z	齿轮圆周力 Tooth Force 正火 Z 10^4N	调质 T 10^4N	参考重量 kg
12	16	M14	28	2	201	199	50	10	40	0	3	300	98	1.5	2.1	24
12	16	M14	28	2	225	223	50	10	40	0	3	321	105	1.5	2.1	25
18	16	M14	28	2	251	249	50	10	40	0	4	352	86	2.1	2.8	30
18	16	M14	28	2	281	279	50	10	40	0	4	384	94	1.5	2.8	34
20	18	M16	32	2	316	314	60	10	50	0	5	435	85	2.9	4.4	52
20	18	M16	32	2	356	354	60	10	50	0	5	475	93	2.9	4.4	59
20	18	M16	32	2	401	399	60	10	50	0	6	528	86	3.5	5.3	69
20	18	M16	32	2	451	449	60	10	50	0	6	576	94	3.5	5.3	76
20	18	M16	32	4	501	498	70	10	60	0.5	5	629	123	3.7	5.2	85
											6	628.8	102	4.5	6.2	
20	18	M16	32	4	501	499	70	10	60	0.5	5	629	123	3.7	5.2	85
											6	628.8	102	4.5	6.2	
20	18	M16	32	4	561	558	70	10	60	0.5	5	689	135	3.7	5.2	95
											6	688.8	112	4.5	6.2	
20	18	M16	32	4	561	559	70	10	60	0.5	5	689	135	3.7	5.2	95
											6	688.8	112	4.5	6.2	
24	18	M16	32	4	631	628	70	10	60	0.5	6	772.8	126	4.5	6.2	110
											8	774.4	94	6	8.3	
24	18	M16	32	4	631	629	70	10	60	0.5	6	772.8	126	4.5	6.2	110
											8	774.4	94	6	8.2	
24	18	M16	32	4	711	708	70	10	60	0.5	6	850.8	139	4.5	6.2	120
											8	854.4	104	6	8.3	
24	18	M16	32	4	711	709	70	10	60	0.5	6	850.8	139	4.5	6.2	120
											8	854.4	104	6	8.9	
30	22	M20	40	6	801	798	90	10	80	0.5	8	966.4	118	8	11.1	220
											10	968	94	10	14	
30	22	M20	40	6	801	798	90	10	80	0.5	8	966.4	118	8	11.1	220
											10	968	94	10	14.1	
30	22	M20	40	6	901	898	90	10	80	0.5	8	1062.4	130	8	11.1	240
											10	1068	104	10	14	
30	22	M20	40	6	901	898	90	10	80	0.5	8	1062.4	130	8	11.1	240
											10	1068	104	10	14	
36	22	M20	40	6	1001	998	90	10	80	0.5	10	1188	116	10	14	270
											12	1185.6	96	12	16.7	
36	22	M20	40	6	1001	998	90	10	80	0.5	10	1188	116	10	14	270
											12	1185.6	96	12	16.7	
36	22	M20	40	6	1121	1118	90	10	80	0.5	10	1298	127	10	14	300
											12	1305.6	106	12	16.7	
36	22	M20	40	6	1121	1118	90	10	80	0.5	10	1298	127	10	14	300
											12	1305.6	106	12	16.7	
40	26	M24	48	5	1252	1248	100	10	90	0.5	12	1449.6	118	13.5	18.8	420
											14	1453.2	101	15.8	21.9	
40	26	M24	48	5	1251	1248	100	10	90	0.5	12	1449.6	118	13.5	18.8	420
											14	1453.2	101	15.8	21.9	

6.2.1 单排四点接触球式回转支承结构参数-外齿式
Single-row four-point contact ball slewing bearings structural parameters



011. 012

结构特点、性能、适用范围
Design feature, Function,Application scope

单排四点接触球式回转支承由两个座圈组成，结结构紧凑、重量轻、钢球与圆弧滚道四点接触，能同时承受轴向力、径向力和倾翻力矩。回转式输送机、焊接操作机、中小型起重机和挖掘机等工程机械均可选用。

Single row four point contact ball slewing rings are composed of two seat rings, which design in compact structure and light weight, steel ball contact with the circular raceway at four points.

The single row ball slewing ring has been widely used in many applications:

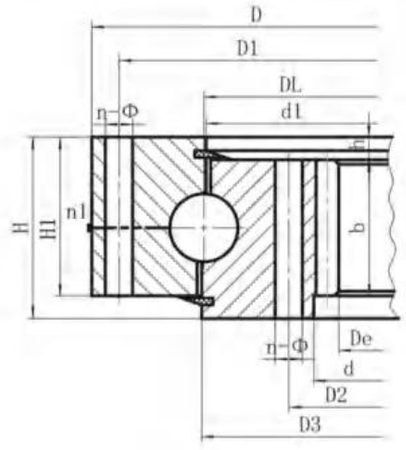
1. Slewing conveyor
2. Welding manipulator
3. Light and medium duty cranes (truck mounted crane, dec crane, aerial platform truck etc.)
4. Different excavators

序号 NO.	外齿式 External Gear DL mm	外型尺寸 Dimensions D mm	d mm	H mm	D1 mm	D2 mm
18	011.45.1400	1540	1260	110	1487	1313
	012.45.1400					
18'	011.35.1400	1540	1260	110	1487	1313
	012.35.1400					
19	011.45.1600	1740	1460	110	1687	1513
	012.45.1600					
19'	011.35.1600	1740	1460	110	1687	1513
	012.35.1600					
20	011.45.1800	1940	1660	110	1887	1713
	012.45.1800					
20'	011.35.1800	1940	1660	110	1887	1713
	012.35.1800					
21	011.60.2000	2178	1825	144	2110	1891
	012.60.2000					
21'	011.40.2000	2178	1825	144	2110	1891
	012.40.2000					
22	011.60.2240	2418	2065	144	2350	2131
	012.60.2240					
22'	011.40.2240	2418	2065	144	2350	2131
	012.40.2240					
23	011.60.2500	2678	2325	144	2610	2391
	012.60.2500					
23'	011.40.2500	2678	2325	144	2610	2391
	012.40.2500					
24	011.60.2800	2978	2625	144	2910	2691
	012.60.2800					
24'	011.40.2800	2978	2625	144	2910	2691
	012.40.2800					
25	011.75.3150	3376	2922	174	3286	3014
	012.75.3150					
25'	011.50.3150	3376	2922	174	3286	3014
	012.50.3150					
26	011.75.3550	3776	3322	174	3686	3414
	012.75.3550					
26'	011.50.3550	3776	3322	174	3686	3414
	012.50.3550					
27	011.75.4000	4226	3772	174	4136	3864
	012.75.4000					
27'	011.50.4000	4226	3772	174	4136	3864
	012.50.4000					
28	011.75.4500	4726	4272	174	4636	4364
	012.75.4500					
28'	011.50.4500	4726	4272	174	4636	4364
	012.50.4500					

安装尺寸 Installation Size n	U mm	dm mm	L mm	结构尺寸 Structure Size n1	D3 mm	d1 mm	H1 mm	h mm	齿轮参数 Gear Data b mm	x	M mm	De mm	z	齿轮圆周力 Tooth Force 正火 Z 10^4N	调质 T 10^4N	参考重量 kg
40	26	M24	48	5	1402	1398	100	10	90	0.5	12	1605.6	131	13.5	18.8	480
											14	1607.2	112	15.5	21.9	
40	26	M24	48	5	1401	1398	100	10	90	0.5	12	1605.6	131	13.5	18.8	480
											14	1607.2	112	15.8	21.9	
45	26	M24	48	5	1602	1598	100	10	90	0.5	14	1817.2	127	15.8	21.9	550
											16	1820.8	111	18.1	25	
45	26	M24	48	5	1601	1598	100	10	90	0.5	14	1817.2	127	15.8	21.9	550
											16	1820.8	111	18.1	25	
45	26	M24	48	5	1802	1798	100	10	90	0.5	14	2013.2	141	15.8	21.9	610
											16	2012.8	123	18.1	25	
45	26	M24	48	5	1801	1798	100	10	90	0.5	14	2013.2	141	15.8	21.9	610
											16	2012.8	123	18.1	25	
48	33	M30	60	8	2002	1998	132	12	120	0.5	16	2268.8	139	24.1	33.3	1100
											18	2264.4	123	27.1	37.5	
48	33	M30	60	8	2001	1998	132	12	120	0.5	16	2268.8	139	24.1	33.3	1100
											18	2264.4	123	27.1	37.5	
48	33	M30	60	8	2242	2238	132	12	120	0.5	16	2492.8	153	24.1	33.3	1250
											18	2498.4	136	27.1	37.5	
48	33	M30	60	8	2241	2238	132	12	120	0.5	16	2492.8	153	24.1	33.3	1250
											18	2498.4	136	27.1	37.5	
56	33	M30	60	8	2502	2498	132	12	120	0.5	18	2768.4	151	27.1	37.5	1400
											20	2776	136	30.1	41.8	
56	33	M30	60	8	2501	2498	132	12	120	0.5	18	2768.4	151	27.1	37.5	1400
											20	2776	136	30.1	41.8	
56	33	M30	60	8	2802	2798	132	12	120	0.5	18	3074.4	168	27.1	37.5	1600
											20	3076	151	30.1	41.8	
56	33	M30	60	8	2802	2798	132	12	120	0.5	18	3074.4	168	27.1	37.5	1600
											20	3076	151	30.1	41.8	
56	45	M42	84	8	3152	3147	162	12	150	0.5	20	3476	171	37.7	52.2	2800
											22	3471.6	155	41.5	57.4	
56	45	M42	84	8	3152	3147	162	12	150	0.5	20	3476	171	37.7	52.2	2800
											22	3471.6	155	41.5	57.4	
56	45	M42	84	8	3552	3547	162	12	150	0.5	20	3876	191	37.7	51.7	3500
											22	3889.6	174	41.5	57	
56	45	M42	84	10	3552	3548	162	12	150	0.5	20	3876	191	37.7	51.7	3500
											22	3889.6	174	41.5	57	
60	45	M42	84	10	4002	3997	162	12	150	0.5	22	4329.6	194	41.5	57	4200
											25	4345	171	47.1	64.6	
60	45	M42	84	10	4002	3998	162	12	150	0.5	22	4329.6	194	41.5	57	4200
											25	4345	171	47.1	64.6	
60	45	M42	84	10	4502	4497	162	12	150	0.5	22	4835.6	217	41.5	57	5100
											25	4845	191	47.1	64.6	
60	45	M42	84	10	4502	4498	162	12	150	0.5	22	4835.6	217	41.5	57	5100
											25	4845	191	47.1	64.6	

6.2.2 单排四点接触球式回转支承结构参数-内齿式

Single-row four-point contact ball slewing bearings structural parameters—internal gear



013.014

序号 NO.	内齿式 Internal Gear DL mm	外型尺寸 Dimensions D mm	d mm	H mm	D1 mm	D2 mm
1	013.25.315	408	222	70	372	258
2	013.25.355	448	262	70	412	298
3	013.25.400	493	307	70	457	343
4	013.25.450	543	357	70	507	393
5	013.30.500 014.30.500	602	398	80	566	434
5'	013.25.500 014.25.500	602	398	80	566	434
6	013.30.560 014.30.560	662	458	80	626	494
6'	013.25.560 014.25.560	662	458	80	626	494
7	013.30.630 014.30.630	732	528	80	696	564
7'	013.25.630 014.25.630	732	528	80	696	564
8	013.30.710 014.30.710	812	608	80	776	644
8'	013.25.710 014.25.710	812	608	80	776	644
9	013.40.800 014.40.800	922	678	100	878	722
9'	013.30.800 014.30.800	922	678	100	878	722
10	013.40.900 014.40.900	1022	778	100	978	822
10'	013.30.900 014.30.900	1022	778	100	978	822
11	013.40.1000 014.40.1000	1122	878	100	1078	922
11'	013.30.1000 014.30.1000	1122	878	100	1078	922
12	013.40.1120 014.40.1120	1242	998	100	1198	1042
12'	013.30.1120 014.30.1120	1242	998	100	1198	1042
13	013.45.1250 014.45.1250	1390	1110	110	1337	1163
13'	013.35.1250 014.35.1250	1390	1110	110	1337	1163

结构特点、性能、适用范围
Design feature/Function/Application scope

单排四点接触球式回转支承由两个座圈组成，结结构紧凑、重量轻、钢球与圆弧滚道四点接触，能同时承受轴向力、径向力和倾翻力矩。回转式输送机、焊接操作机、中小型起重机和挖掘机等工程机械均可选用。

Single row four point contact ball slewing rings are composed of two seat rings, which design in compact structure and light weight, steel ball contact with the circular raceway at four points.

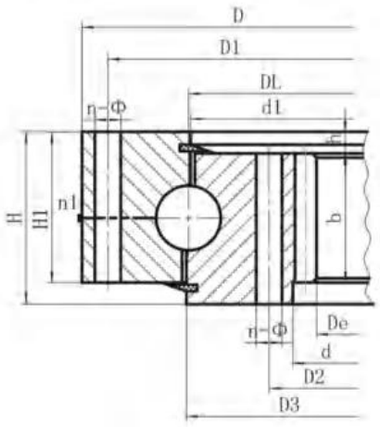
The single row ball slewing ring has been widely used in many applications:

1. Slewing conveyor
2. Welding manipulator
3. Light and medium duty cranes (truck mounted crane, dec crane, aerial platform truck etc.)
4. Different excavators

安装尺寸 Installation Size				结构尺寸 Structure Size					齿轮参数 Gear Data					齿轮圆周力 Tooth Force		参考重量 kg
n	0 mm	dm mm	L mm	n1	D3 mm	d1 mm	H1 mm	h mm	b mm	x	M mm	De mm	z	正火 Z 10^4N	调质 T 10^4N	
20	18	M16	32	2	316	314	60	10	50	0	5	190	40	2.9	4.4	49
20	18	M16	32	2	356	354	60	10	50	0	5	235	49	2.9	4.4	54
20	18	M16	32	2	401	399	60	10	50	0	6	276	48	3.5	5.3	62
20	18	M16	32	2	451	449	60	10	50	0	6	324	56	3.5	5.3	71
20	18	M16	32	4	501	498	70	10	60	0.5	5	367	74	3.7	5.2	85
											6	368.4	62	4.5	6.2	
20	18	M16	32	4	501	499	70	10	60	0.5	5	367	74	3.7	5.2	85
											6	368.4	62	4.5	6.2	
20	18	M16	32	4	561	558	70	10	60	0.5	5	427	86	3.7	5.2	95
											6	428.4	72	4.5	6.2	
20	18	M16	32	4	561	559	70	10	60	0.5	5	427	86	3.7	5.2	95
											6	428.4	72	4.5	6.2	
24	18	M16	32	4	631	628	70	10	60	0.5	6	494.4	83	4.5	6.2	110
											8	491.2	62	6	8.3	
24	18	M16	32	4	631	629	70	10	60	0.5	6	494.4	83	4.5	6.2	110
											8	491.2	62	6	8.2	
24	18	M16	32	4	711	708	70	10	60	0.5	6	572.4	96	4.5	6.2	120
											8	571.2	72	6	8.3	
24	18	M16	32	4	711	709	70	10	60	0.5	6	572.4	96	4.5	6.2	120
											8	571.2	72	6	8.9	
30	22	M20	40	6	801	798	90	10	80	0.5	8	635.2	80	8	11.1	220
											10	634	64	10	14	
30	22	M20	40	6	801	798	90	10	80	0.5	8	635.2	80	8	11.1	220
											10	634	64	10	14.1	
30	22	M20	40	6	901	898	90	10	80	0.5	8	739.2	93	8	11.1	240
											10	734	74	10	14	
30	22	M20	40	6	901	898	90	10	80	0.5	8	739.2	93	8	11.1	240
											10	734	74	10	14	
36	22	M20	40	6	1001	998	90	10	80	0.5	10	824	83	10	14	270
											12	820.8	69	12	16.7	
36	22	M20	40	6	1001	998	90	10	80	0.5	10	824	83	10	14	270
											12	820.8	69	12	16.7	
36	22	M20	40	6	1121	1118	90	10	80	0.5	10	944	95	10	14	300
											12	940.8	79	12	16.7	
36	22	M20	40	6	1121	1118	90	10	80	0.5	10	944	95	10	14	300
											12	940.8	79	12	16.7	
40	26	M24	48	5	1252	1248	100	10	90	0.5	12	1048.8	88	13.5	18.8	420
											14	1041.6	75	15.8	21.9	
40	26	M24	48	5	1251	1248	100	10	90	0.5	12	1048.8	88	13.5	18.8	420
											14	1041.6	75	15.8	21.9	

6.2.2 单排四点接触球式回转支承结构参数-内齿式

Single-row four-point contact ball slewing bearings structural parameters—internal gear



013.014

结构特点、性能、适用范围
Design feature/Function/Application scope

单排四点接触球式回转支承由两个座圈组成，结结构紧凑、重量轻、钢球与圆弧滚道四点接触，能同时承受轴向力、径向力和倾翻力矩。回转式输送机、焊接操作机、中小型起重机和挖掘机等工程机械均可选用。

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The single row ball slewing ring has been widely used in many applications:

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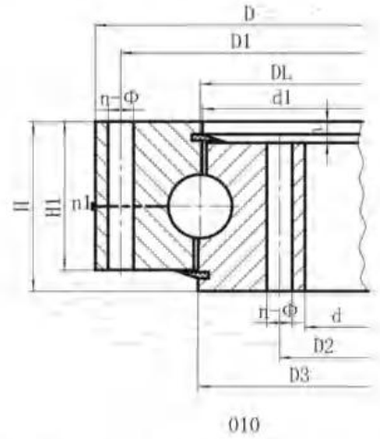
2. Welding manipulator
3. Light and medium duty cranes (truck mounted crane, dec crane, aerial platform truck etc.)
4. Different excavators

序号 NO.	内齿式 Internal Gear DL mm	外型尺寸 Dimensions D mm	d mm	H mm	D1 mm	D2 mm
14	013.45.1400	1540	1260	110	1487	1313
	014.45.1400					
14'	013.35.1400	1540	1260	110	1487	1313
	014.35.1400					
15	013.45.1600	1740	1460	110	1687	1513
	014.45.1600					
15'	013.35.1600	1740	1460	110	1687	1513
	014.35.1600					
16	013.45.1800	1940	1660	110	1887	1713
	014.45.1800					
16'	013.35.1800	1940	1660	110	1887	1713
	014.35.1800					
17	013.60.2000	2178	1825	144	2110	1891
	014.60.2000					
17'	013.40.2000	2178	1825	144	2110	1891
	014.40.2000					
18	013.60.2240	2418	2065	144	2350	2131
	014.60.2240					
18'	013.40.2240	2418	2065	144	2350	2131
	014.40.2240					
19	013.60.2500	2678	2325	144	2610	2391
	014.60.2500					
19'	013.40.2500	2678	2325	144	2610	2391
	014.40.2500					
20	013.60.2800	2978	2625	144	2910	2691
	014.60.2800					
20'	013.40.2800	2978	2625	144	2910	2691
	014.40.2800					
21	013.75.3150	3376	2922	174	3286	3014
	014.75.3150					
21'	013.50.3150	3376	2922	174	3286	3014
	014.50.3150					
22	013.75.3550	3776	3322	174	3686	3414
	014.75.3550					
22'	013.50.3550	3776	3322	174	3686	3414
	014.50.3550					
23	013.75.4000	4226	3772	174	4136	3864
	014.75.4000					
23'	013.50.4000	4226	3772	174	4136	3864
	014.50.4000					
24	013.75.4500	4726	4272	174	4636	4364
	014.75.4500					
24'	013.50.4500	4726	4272	174	4636	4364
	014.50.4500					

安装尺寸 Installation Size n	ϕ mm	dm mm	L mm	结构尺寸 Structure Size n1	D3 mm	d1 mm	H1 mm	h mm	齿轮参数 Gear Data b mm	x	M mm	De mm	z	齿轮圆周力 Tooth Force 正火 Z 10^3N	调质 T 10^3N	参考重量 kg
40	26	M24	48	5	1402	1398	100	10	90	0.5	12	1192.8	100	13.5	18.8	480
											14	1195.6	86	15.5	21.9	
40	26	M24	48	5	1401	1398	100	10	90	0.5	12	1192.8	100	13.5	18.8	480
											14	1195.6	86	15.8	21.9	
45	26	M24	48	5	1602	1598	100	10	90	0.5	14	1391.6	100	15.8	21.9	550
											16	1382.4	87	18.1	25	
45	26	M24	48	5	1601	1598	100	10	90	0.5	14	1391.6	100	15.8	21.9	550
											16	1382.4	87	18.1	25	
45	26	M24	48	5	1802	1798	100	10	90	0.5	14	1573.6	113	15.8	21.9	610
											16	1574.4	99	18.1	25	
45	26	M24	48	5	1801	1798	100	10	90	0.5	14	1573.6	113	15.8	21.9	610
											16	1574.4	99	18.1	25	
48	33	M30	60	8	2002	1998	132	12	120	0.5	16	1734.4	109	24.1	33.3	1100
											18	1735.2	97	27.1	37.5	
48	33	M30	60	8	2001	1998	132	12	120	0.5	16	1734.4	109	24.1	33.3	1100
											18	1735.2	97	27.1	37.5	
48	33	M30	60	8	2242	2238	132	12	120	0.5	16	1990.4	125	24.1	33.3	1250
											18	1987.2	111	27.1	37.5	
48	33	M30	60	8	2241	2238	132	12	120	0.5	16	1990.4	125	24.1	33.3	1250
											18	1987.2	111	27.1	37.5	
56	33	M30	60	8	2502	2498	132	12	120	0.5	18	2239.2	125	27.1	37.5	1400
											20	2228	112	30.1	41.8	
56	33	M30	60	8	2501	2498	132	12	120	0.5	18	2239.2	125	27.1	37.5	1400
											20	2228	112	30.1	41.8	
56	33	M30	60	8	2802	2798	132	12	120	0.5	18	25272	141	27.1	37.5	1600
											20	2528	127	30.1	41.8	
56	33	M30	60	8	2802	2798	132	12	120	0.5	18	25272	141	27.1	37.5	1600
											20	2528	127	30.1	41.8	
56	45	M42	84	8	3152	3147	162	12	150	0.5	20	2828	142	37.7	52.2	2800
											22	2824.8	129	41.5	57.4	
56	45	M42	84	8	3152	3147	162	12	150	0.5	20	2828	142	37.7	52.2	2800
											22	2824.8	129	41.5	57.4	
56	45	M42	84	8	3552	3547	162	12	150	0.5	20	3228	162	37.7	51.7	3500
											22	3220.8	147	41.5	57	
56	45	M42	84	10	3552	3548	162	12	150	0.5	20	3228	162	37.7	51.7	3500
											22	3220.8	147	41.5	57	
60	45	M42	84	10	4002	3997	162	12	150	0.5	22	3660.8	167	41.5	57	4200
											25	3660	147	47.1	64.6	
60	45	M42	84	10	4002	3998	162	12	150	0.5	22	3660.8	167	41.5	57	4200
											25	3660	147	47.1	64.6	
60	45	M42	84	10	4502	4497	162	12	150	0.5	22	4166.8	190	41.5	57	5100
											25	4160	167	47.1	64.6	
60	45	M42	84	10	4502	4498	162	12	150	0.5	22	4166.8	190	41.5	57	5100
											25	4160	167	47.1	64.6	

6.2.3 单排四点接触球式回转支承结构参数-无齿式

Single-row four-point contact ball slewing bearings structural parameters—non gear



010

结构特点、性能、适用范围

Design feature/Function/Application scope

单排四点接触球式回转支承由两个座圈组成，结结构紧凑，重量轻，钢球与圆弧滚道四点接触，能同时承受轴向力、径向力和倾翻力矩。回转式输送机、焊接操作机、中小型起重机和挖掘机等工程机械均可选用。

Single row four point contact ball slewing rings are composed of two seat rings, which design in compact structure and light weight, steel ball contact with the circular raceway at four points.

The single row ball slewing ring has been widely used in many applications:

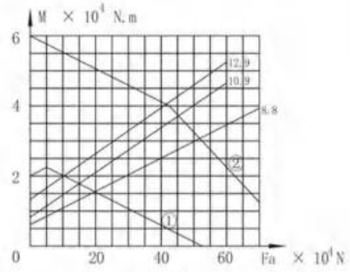
1. Slewing conveyor
2. Welding manipulator
3. Light and medium duty cranes (truck mounted crane, dec crane, aerial platform truck etc.)
4. Different excavators

序号 NO.	无齿式 Non Gear DL mm	外型尺寸 Dimensions D mm	d mm	H mm	D1 mm	D2 mm
1	010.20.200	280	120	60	248	152
2	010.20.224	304	144	60	272	176
3	010.20.250	330	170	60	298	202
4	010.20.280	360	200	60	328	232
5	010.25.315	408	222	70	372	258
6	010.25.355	448	262	70	412	298
7	010.25.400	493	307	70	457	343
8	010.25.450	543	357	70	507	393
9	010.30.500	602	398	80	566	434
9'	010.25.500	602	398	80	566	434
10	010.30.560	662	458	80	626	494
10'	010.25.560	662	458	80	626	494
11	010.30.630	732	528	80	696	564
11'	010.25.630	732	528	80	696	564
12	010.30.710	812	608	80	776	644
12'	010.25.710	812	608	80	776	644
13	010.40.800	922	678	100	878	722
13'	010.30.800	922	678	100	878	722
14	010.40.900	1022	778	100	978	822
14'	010.30.900	1022	778	100	978	822
15	010.40.1000	1122	878	100	1078	922
15'	010.30.1000	1122	878	100	1078	922
16	010.40.1120	1242	998	100	1198	1042
16'	010.30.1120	1242	998	100	1198	1042
17	010.45.1250	1390	1110	110	1337	1163
17'	010.35.1250	1390	1110	110	1337	1163
18	010.45.1400	1540	1260	110	1487	1313
18'	010.35.1400	1540	1260	110	1487	1313
19	010.45.1600	1740	1460	110	1687	1513
19'	010.35.1600	1740	1460	110	1687	1513
20	010.45.1800	1940	1660	110	1887	1713
20'	010.35.1800	1940	1660	110	1887	1713
21	010.60.2000	2178	1825	144	2110	1891
21'	010.40.2000	2178	1825	144	2110	1891
22	010.60.2240	2418	2065	144	2350	2131
22'	010.40.2240	2418	2065	144	2350	2131
23	010.60.2500	2678	2325	144	2610	2391
23'	010.40.2500	2678	2325	144	2610	2391
24	010.60.2800	2978	2625	144	2910	2691
24'	010.40.2800	2978	2625	144	2910	2691
25	010.75.3150	3376	2922	174	3286	3014
25'	010.50.3150	3376	2922	174	3286	3014
26	010.75.3550	3776	3322	174	3686	3414
26'	010.50.3550	3776	3322	174	3686	3414
27	010.75.4000	4226	3772	174	4136	3864
27'	010.50.4000	4226	3772	174	4136	3864

安装尺寸 Installation Size n	θ mm	dm mm	L mm	结构尺寸 Structure Size n1	D3 mm	d1 mm	H1 mm	h mm	齿轮参数 Gear Data b mm	x	M mm	De mm	z	齿轮圆周力 Tooth Force 正火 Z 10^3N	调质 T 10^3N	参考重量 kg
12	16	M14	28	2	201	199	50	10								20
12	16	M14	28	2	225	223	50	10								22
18	16	M14	28	2	251	249	50	10								25
18	16	M14	28	2	281	279	50	10								28
20	18	M16	32	2	316	314	60	10								44
20	18	M16	32	2	356	354	60	10								49
20	18	M16	32	2	401	399	60	10								56
20	18	M16	32	2	451	449	60	10								62
20	18	M16	32	4	501	498	70	10								85
20	18	M16	32	4	501	499	70	10								85
20	18	M16	32	4	561	558	70	10								95
20	18	M16	32	4	561	559	70	10								95
24	18	M16	32	4	631	628	70	10								110
24	18	M16	32	4	631	629	70	10								110
24	18	M16	32	4	711	708	70	10								120
24	18	M16	32	4	711	709	70	10								120
30	22	M20	40	6	801	798	90	10								220
30	22	M20	40	6	801	798	90	10								220
30	22	M20	40	6	901	898	90	10								240
30	22	M20	40	6	901	898	90	10								240
36	22	M20	40	6	1001	998	90	10								270
36	22	M20	40	6	1001	998	90	10								270
36	22	M20	40	6	1121	1118	90	10								300
36	22	M20	40	6	1121	1118	90	10								300
40	26	M24	48	5	1252	1248	100	10								420
40	26	M24	48	5	1251	1248	100	10								420
40	26	M24	48	5	1402	1398	100	10								480
40	26	M24	48	5	1401	1398	100	10								480
45	26	M24	48	5	1602	1598	100	10								550
45	26	M24	48	5	1601	1598	100	10								550
45	26	M24	48	5	1802	1798	100	10								610
45	26	M24	48	5	1801	1798	100	10								610
48	33	M30	60	8	2002	1998	132	12								1100
48	33	M30	60	8	2001	1998	132	12								1100
48	33	M30	60	8	2242	2238	132	12								1250
48	33	M30	60	8	2241	2238	132	12								1250
56	33	M30	60	8	2502	2498	132	12								1400
56	33	M30	60	8	2501	2498	132	12								1400
56	33	M30	60	8	2802	2798	132	12								1600
56	33	M30	60	8	2802	2798	132	12								1600
56	45	M42	84	8	3152	3147	162	12								2800
56	45	M42	84	8	3152	3147	162	12								2800
56	45	M42	84	8	3552	3547	162	12								3500
56	45	M42	84	10	3552	3548	162	12								3500
60	45	M42	84	10	4002	3997	162	12								4200
60	45	M42	84	10	4002	3998	162	12								4200

6.2.3 单排四点接触球式回转支承承载曲线

Single row four point contact ball bearing curve



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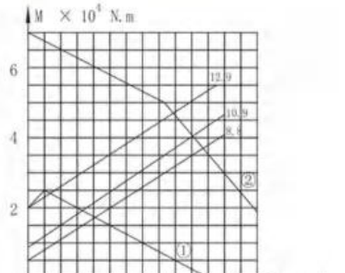

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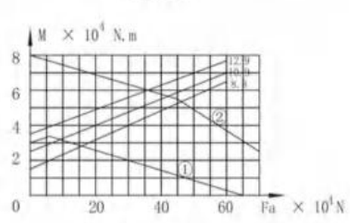

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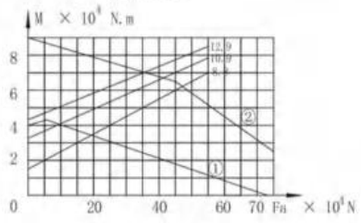

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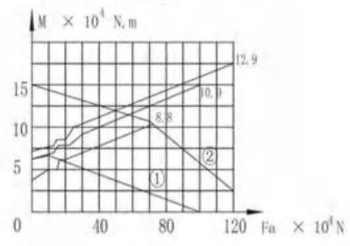

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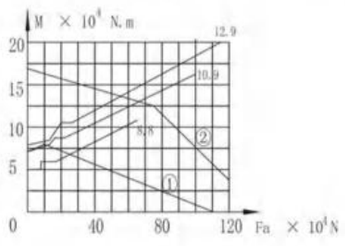

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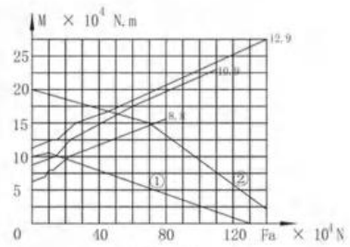

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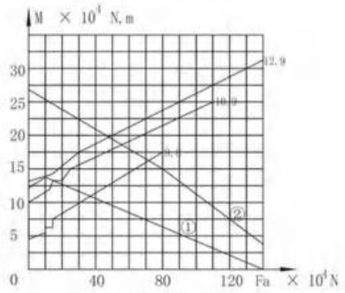

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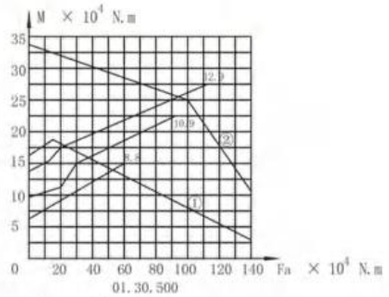

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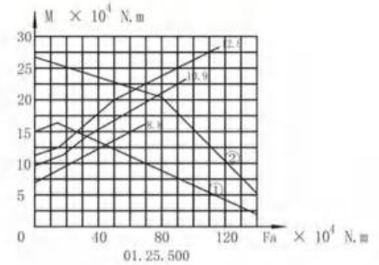

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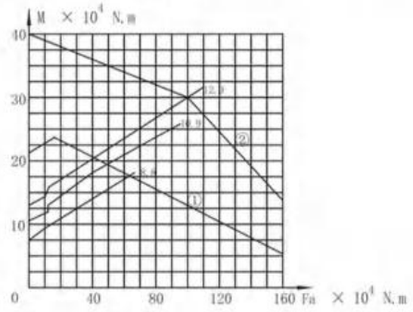

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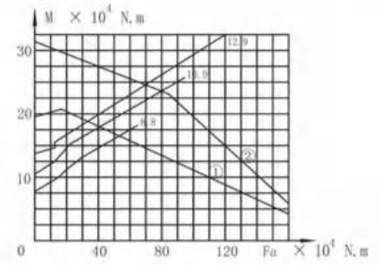

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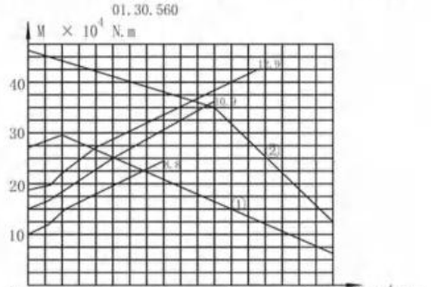

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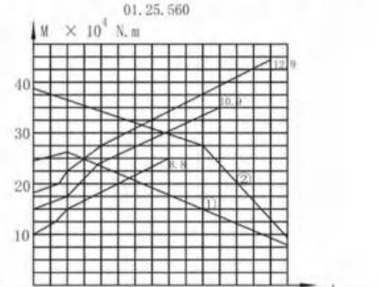

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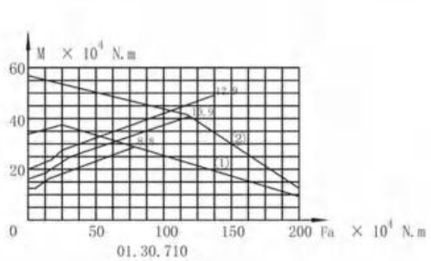

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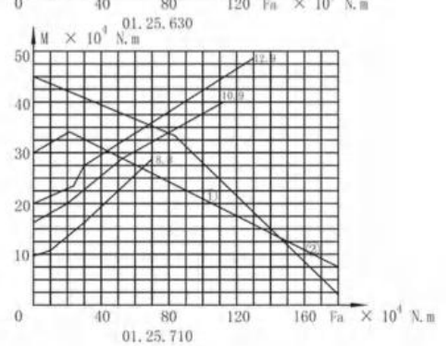

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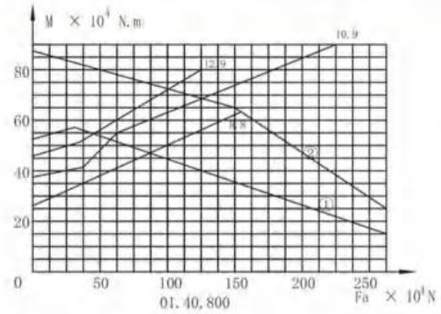
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Fa × 10⁴N
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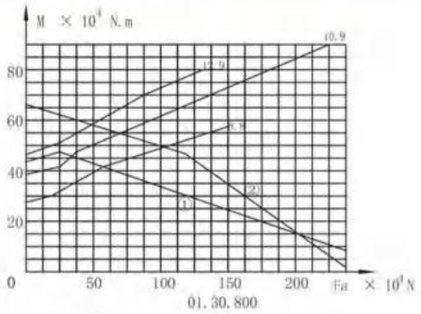
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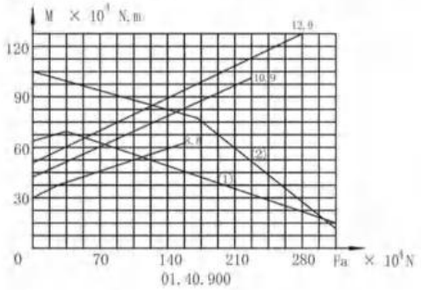
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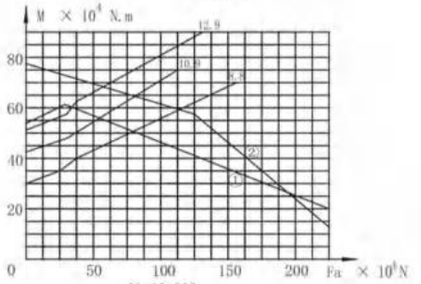
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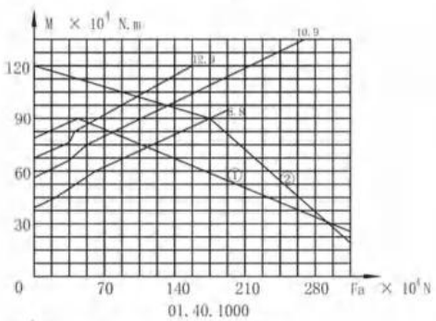
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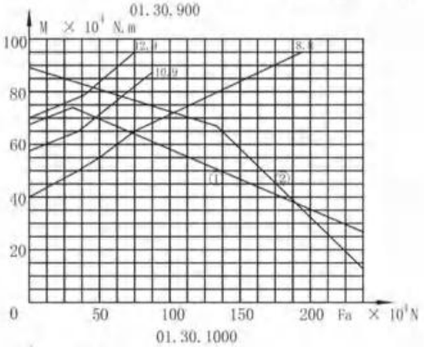
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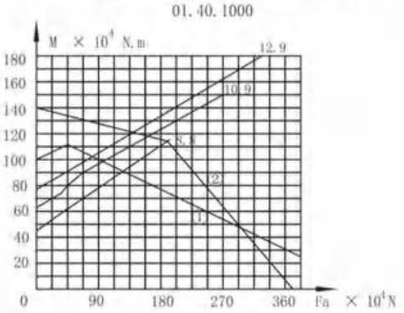
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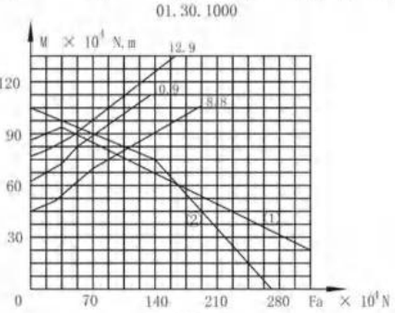
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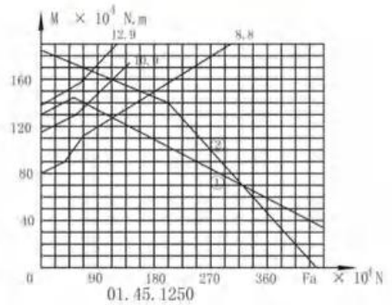
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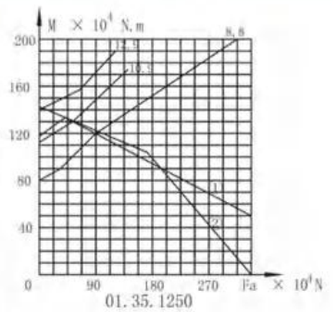
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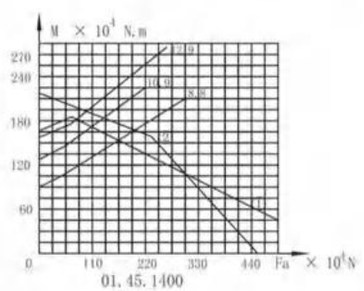
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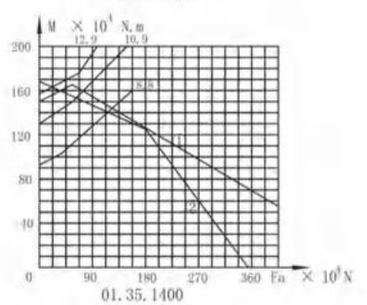
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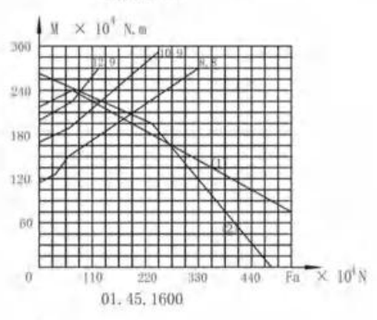
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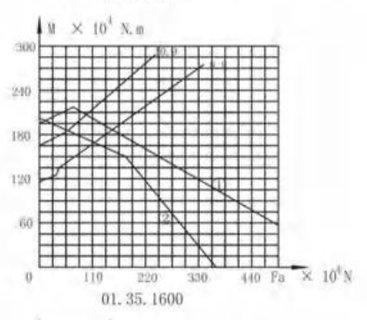
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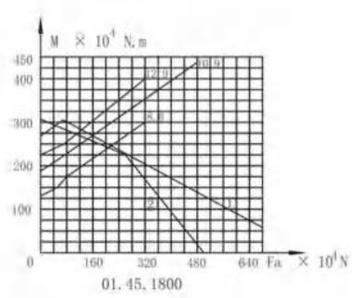
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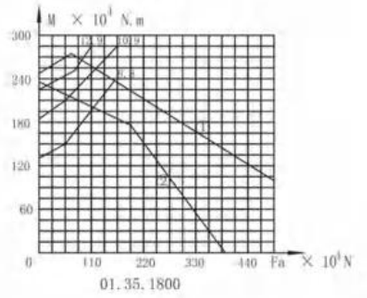
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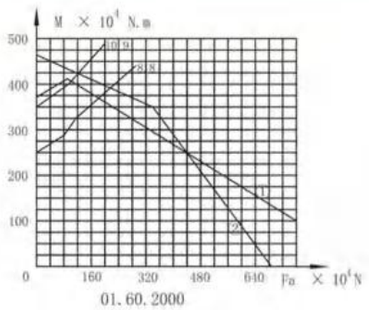

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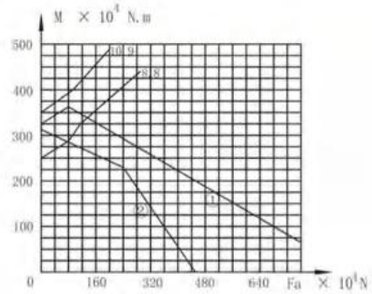

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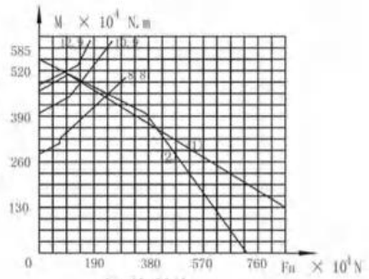

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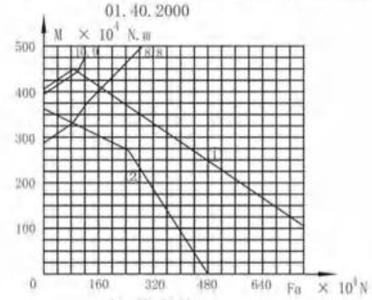

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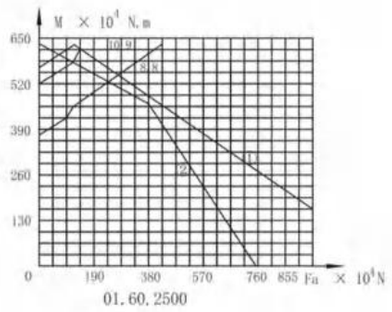

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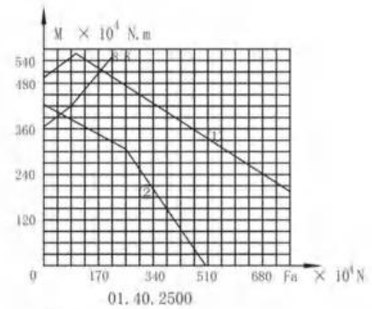

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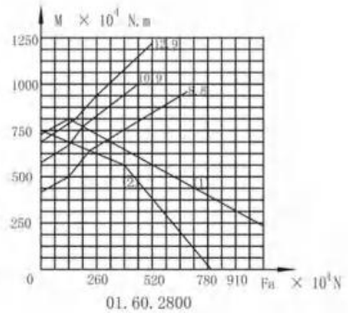

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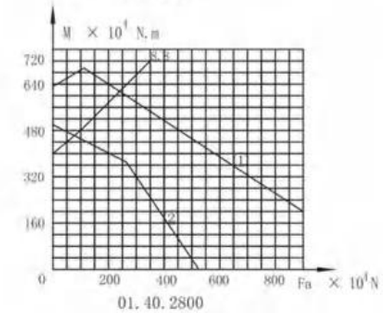

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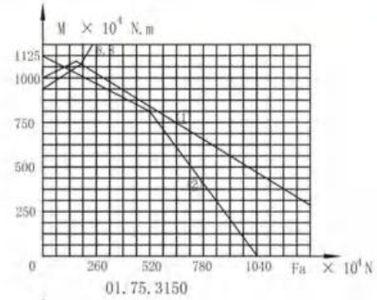
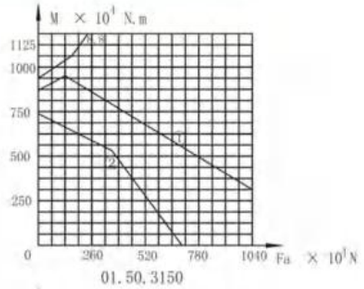


01.75.3150



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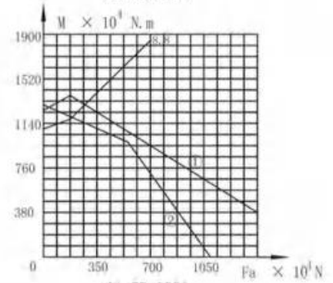

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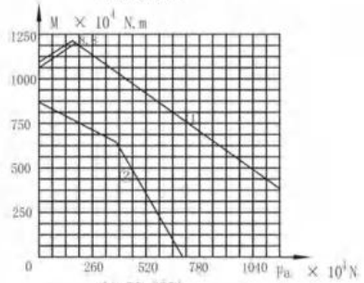

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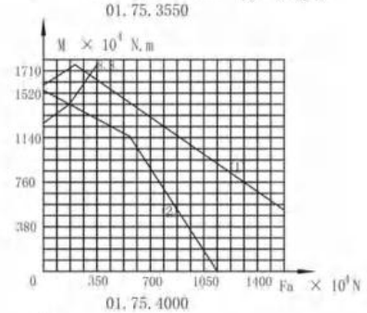
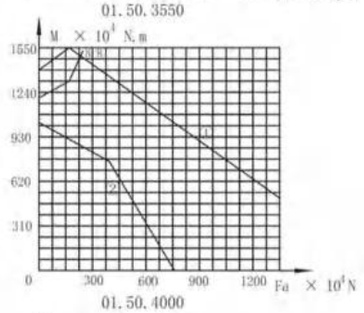


01.75.4000



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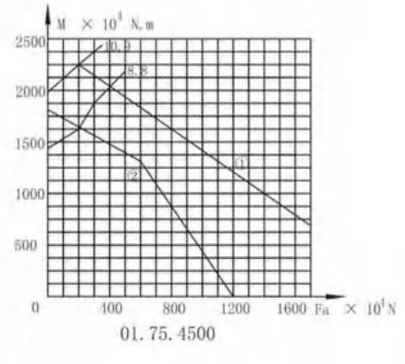

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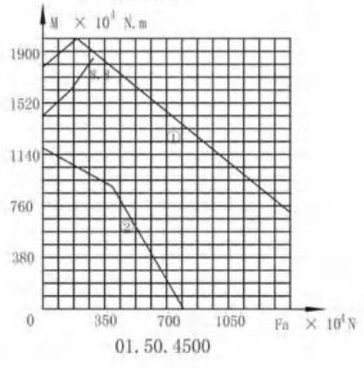
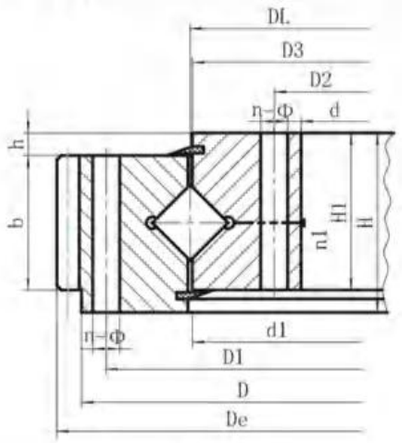


01.50.4500

6.3 单排交叉滚柱式结构参数及承载曲线（11系列）
Single row cross roller structural parameters and bearing curves (11 Series)

6.3.1 单排交叉滚柱式结构参数-外齿式
Single row cross roller structural parameter —external gear



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结构特点、性能、适用范围
Design feature/Function/Application scope

单排交叉滚柱式回转支承，由两个座圈组成，结构紧凑、重量轻、制造精度高，装配间隙小，对安装精度要求高，滚柱为1:1交叉排列，能同时承受轴向力、倾翻力矩和较大的径向力，被广泛地用于起重运输，工程机械和军工产品上。

The single row crossed roller bearing is composed of two seat rings, which design in compact structure and light weight.As the rollers are 1:1cross arranged, it is suitable for high precision mounting and capable to bear axial force, resultant moment and considerable large radial force.

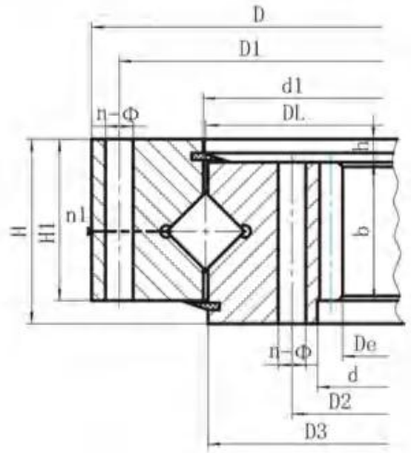
The single row crossed roller bearing has been widely used in many applications:

1. Lifting transportation
2. construction machinery
3. military products

序号 NO.	外齿式 External Gear DL mm	外型尺寸 Dimensions D mm	d mm	H mm	D1 mm	D2 mm
1	111.25.500	602	398	75	566	434
	112.25.500	597				
2	111.25.560	662	458	75	626	494
	112.25.560	659				
3	111.25.630	732	528	75	696	564
	112.25.630					
4	111.25.710	812	608	75	776	644
	112.25.710					
5	111.28.800	922	678	82	878	722
	112.28.800					
6	111.28.900	1022	778	82	978	822
	112.28.900					
7	111.28.1000	1122	878	82	1078	922
	112.28.1000					
8	111.28.1120	1242	998	82	1198	1042
	112.28.1120					
9	111.32.1250	1390	1110	91	1337	1163
	112.32.1250					
10	111.32.1400	1540	1260	91	1487	1313
	112.32.1400					
11	111.32.1600	1740	1460	91	1687	1513
	112.32.1600					
12	111.32.1800	1940	1660	91	1887	1713
	112.32.1800					
13	111.40.2000	2178	1825	112	2110	1891
	112.40.2000					
14	111.40.2240	2418	2065	112	2350	2131
	112.40.2240					
15	111.40.2500	2678	2325	112	2610	2391
	112.40.2500					
16	111.40.2800	2978	2625	112	2910	2691
	112.40.2800					
17	111.50.3150	3376	2922	134	3286	3014
	112.50.3150					
18	111.50.3550	3776	3322	134	3686	3414
	112.50.3550					
19	111.50.4000	4226	3772	134	4136	3864
	112.50.4000					
20	111.50.4500	4726	4272	134	4636	4364
	112.50.4500					

安装尺寸 Installation Size n	Ø mm	dm mm	L mm	结构尺寸 Structure Size n1 mm	D3 mm	d1 mm	H1 mm	h mm	齿轮参数 Gear Data b mm	x	m mm	De mm	z	齿轮圆周力 Tooth Force 正火 Z 10^4N	调质 T 10^4N	参考重量 kg
20	18	M16	32	4	498	502	65	10	60	0.5	5	629	123	3.7	5.2	80
											6	628.8	102	4.5	6.2	
20	18	M16	32	4	558	562	65	10	60	0.5	5	689	135	3.7	5.2	90
											6	688.8	112	4.5	6.2	
24	18	M16	32	4	628	632	65	10	60	0.5	6	772.8	126	4.5	6.2	100
											8	774.4	94	6	8.3	
24	18	M16	32	4	708	712	65	10	60	0.5	6	850.8	139	4.5	6.2	110
											8	854.4	104	6	8.3	
30	22	M20	40	6	798	802	72	10	65	0.5	8	966.4	118	6.5	9.1	170
											10	968	94	8.1	11.4	
30	22	M20	40	6	898	902	72	10	65	0.5	8	1062.4	130	6.5	9.1	190
											10	1068	104	8.1	11.4	
36	22	M20	40	6	998	1002	72	10	65	0.5	10	1188	116	8.1	11.4	210
											12	1185.6	96	9.7	13.6	
36	22	M20	40	6	1118	1122	72	10	65	0.5	10	1298	127	8.1	11.4	230
											12	1305.6	106	9.7	13.6	
40	26	M24	48	5	1248	1252	81	10	75	0.5	12	1449.6	118	11.3	15.7	350
											14	1453.2	101	13.2	18.2	
40	26	M24	48	5	1398	1402	81	10	75	0.5	12	1605.6	131	11.3	15.7	400
											14	1607.2	112	13.2	18.2	
45	26	M24	48	5	1598	1602	81	10	75	0.5	14	1817.2	127	13.2	18.2	440
											16	1820.8	111	15.1	22.4	
45	26	M24	48	5	1798	1802	81	10	75	0.5	14	2013.2	141	13.2	18.2	500
											16	2012.8	123	15.1	22.4	
48	33	M30	60	8	1997	2003	100	12	90	0.5	16	2268.8	139	18.1	25	900
											18	2264.4	123	20.3	28.1	
48	33	M30	60	8	2237	2243	100	12	90	0.5	16	2492.8	153	18.1	25	1000
											18	2498.4	136	20.3	28.1	
56	33	M30	60	8	2497	2503	100	12	90	0.5	18	2768.4	151	20.3	28.1	1100
											20	2776	136	22.6	31.3	
56	33	M30	60	8	2797	2803	100	12	90	0.5	18	3074.4	168	20.3	28.1	1250
											20	3076	151	22.6	31.3	
56	45	M42	84	8	3147	3153	122	12	110	0.5	20	3476	171	27.6	38.3	2150
											22	3471.6	155	30.4	42.1	
56	45	M42	84	8	3547	3553	122	12	110	0.5	20	3876	191	30.4	38.3	2470
											22	3889.6	174	30.4	42.1	
60	45	M42	84	10	3997	4003	122	12	110	0.5	22	4329.6	194	30.4	42.1	2800
											25	4345	171	34.5	47.8	
60	45	M42	84	10	4497	4503	122	12	110	0.5	22	4835.6	217	30.4	42.1	3100
											25	4845	191	34.5	47.8	

6.3.2 单排交叉滚柱式结构参数-内齿式
Single row cross roller structural parameter
—internal gear



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结构特点、性能、适用范围
Design feature/Function/Application scope

单排交叉滚柱式回转支承，由两个座圈组成，结构紧凑、重量轻、制造精度高，装配间隙小，对安装精度要求高，滚柱为1:1交叉排列，能同时承受轴向力、倾翻力矩和较大的径向力，被广泛地用于起重运输，工程机械和军工产品上。

The single row crossed roller bearing is composed of two seat rings, which design in compact structure and light weight.As the rollers are 1:1cross arranged, it is suitable for high precision mounting and capable to bear axial force, resultant moment and considerable large radial force.

The single row crossed roller bearing has been widely used in many applications:

1. Lifting transportation
2. construction machinery
3. military products

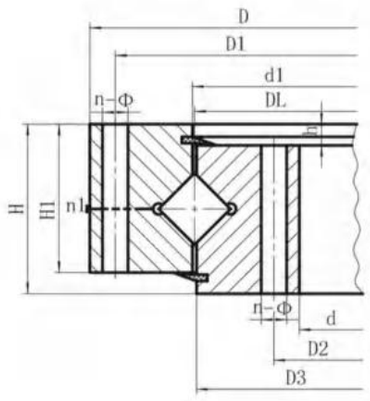
序号 NO.	内齿式 Internal Gear DL mm	外型尺寸 Dimensions D mm	d mm	H mm	D1 mm	D2 mm
1	113.25.500	602	398	75	566	434
	114.25.500					
2	113.25.560	662	458	75	626	494
	114.25.560					
3	113.25.630	732	528	75	696	564
	114.25.630					
4	113.25.710	812	608	75	776	644
	114.25.710					
5	113.28.800	922	678	82	878	722
	114.28.800					
6	113.28.900	1022	778	82	978	822
	114.28.900					
7	113.28.1000	1122	878	82	1078	922
	114.28.1000					
8	113.28.1120	1242	998	82	1198	1042
	114.28.1120					
9	113.32.1250	1390	1110	91	1337	1163
	114.32.1250					
10	113.32.1400	1540	1260	91	1487	1313
	114.32.1400					
11	113.32.1600	1740	1460	91	1687	1513
	114.32.1600					
12	113.32.1800	1940	1660	91	1887	1713
	114.32.1800					
13	113.40.2000	2178	1825	112	2110	1891
	114.40.2000					
14	113.40.2240	2418	2065	112	2350	2131
	114.40.2240					
15	113.40.2500	2678	2325	112	2610	2391
	114.40.2500					
16	113.40.2800	2978	2625	112	2910	2691
	114.40.2800					
17	113.50.3150	3376	2922	134	3286	3014
	114.50.3150					
18	113.50.3550	3776	3322	134	3686	3414
	114.50.3550					
19	113.50.4000	4226	3772	134	4136	3864
	114.50.4000					
20	113.50.4500	4726	4272	134	4636	4364
	114.50.4500					

安装尺寸 Installation Size n	Ø mm	dm mm	L mm	结构尺寸 Structure Size n1 mm	D3 mm	d1 mm	H1 mm	h mm	齿轮参数 Gear Data b mm	x	m mm	De mm	z	齿轮圆周力 Tooth Force 正火 Z 10^4N	调质 T 10^4N	参考重量 kg
20	18	M16	32	4	498	502	65	10	60	0.5	5	367	74	3.7	5.2	80
											6	368.4	62	4.5	6.2	
20	18	M16	32	4	558	562	65	10	60	0.5	5	427	86	3.7	5.2	90
											6	428.4	72	4.5	6.2	
24	18	M16	32	4	628	632	65	10	60	0.5	6	494.4	83	4.5	6.2	100
											8	491.2	62	6	8.3	
24	18	M16	32	4	708	712	65	10	60	0.5	6	572.4	96	4.5	6.2	110
											8	571.2	72	6	8.3	
30	22	M20	40	6	798	802	72	10	65	0.5	8	635.2	80	6.5	9.1	170
											10	634	64	8.1	11.4	
30	22	M20	40	6	898	902	72	10	65	0.5	8	739.2	93	6.5	9.1	190
											10	734	74	8.1	11.4	
36	22	M20	40	6	998	1002	72	10	65	0.5	10	824	83	8.1	11.4	210
											12	820.8	69	9.7	13.6	
36	22	M20	40	6	1118	1122	72	10	65	0.5	10	944	95	8.1	11.4	230
											12	940.8	79	9.7	13.6	
40	26	M24	48	5	1248	1252	81	10	75	0.5	12	1048.8	88	11.3	15.7	350
											14	1041.6	75	13.2	18.2	
40	26	M24	48	5	1398	1402	81	10	75	0.5	12	1192.8	100	11.3	15.7	400
											14	1195.6	86	13.2	18.2	
45	26	M24	48	5	1598	1602	81	10	75	0.5	14	1391.6	100	13.2	18.2	440
											16	1382.4	87	15.1	22.4	
45	26	M24	48	5	1798	1802	81	10	75	0.5	14	1573.6	113	13.2	18.2	500
											16	1574.4	99	15.1	22.4	
48	33	M30	60	8	1997	2003	100	12	90	0.5	16	1734.4	109	18.1	25	900
											18	1735.2	97	20.3	28.1	
48	33	M30	60	8	2237	2243	100	12	90	0.5	16	1990.4	125	18.1	25	1000
											18	1987.2	111	20.3	28.1	
56	33	M30	60	8	2497	2503	100	12	90	0.5	18	2239.2	125	20.3	28.1	1100
											20	2228	112	22.6	31.3	
56	33	M30	60	8	2797	2803	100	12	90	0.5	18	2527.2	141	20.3	28.1	1250
											20	2528	127	22.6	31.3	
56	45	M42	84	8	3147	3153	122	12	110	0.5	20	2828	142	27.6	38.3	2150
											22	2824.8	129	30.4	42.1	
56	45	M42	84	8	3547	3553	122	12	110	0.5	20	3228	162	30.4	38.3	2470
											22	3220.8	147	30.4	42.1	
60	45	M42	84	10	3997	4003	122	12	110	0.5	22	3660.8	167	30.4	42.1	2800
											25	3660	147	34.5	47.8	
60	45	M42	84	10	4497	4503	122	12	110	0.5	22	4166.8	190	30.4	42.1	3100
											25	4160	167	34.5	47.8	

6.3.3 单排交叉滚柱式结构参数-无齿式
Single row cross roller structural parameter—non gear

结构特点、性能、适用范围

单排交叉滚柱式回转支承，由两个座圈组成，结构紧凑、重量轻、制造精度高，装配间隙小，对安装精度要求高，滚柱为1:1交叉排列，能同时承受轴向力、倾翻力矩和较大的径向力，被广泛地用于起重运输，工程机械和军工产品上。



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序号 NO.	无齿式 Non Gear DL mm	外型尺寸 Dimensions D mm	d mm	H mm	D1 mm	D2 mm
1	110.25.500	602	398	75	566	434
2	110.25.560	662	458	75	626	494
3	110.25.630	732	528	75	696	564
4	110.25.710	812	608	75	776	644
5	110.28.800	922	678	82	878	722
6	110.28.900	1022	778	82	978	822
7	110.28.1000	1122	878	82	1078	922
8	110.28.1120	1242	998	82	1198	1042
9	110.32.1250	1390	1110	91	1337	1163
10	110.32.1400	1540	1260	91	1487	1313
11	110.32.1600	1740	1460	91	1687	1513
12	110.32.1800	1940	1660	91	1887	1713
13	110.40.2000	2178	1825	112	2110	1891
14	110.40.2240	2418	2065	112	2350	2131
15	110.40.2500	2678	2325	112	2610	2391
16	110.40.2800	2978	2625	112	2910	2691
17	110.50.3150	3376	2922	134	3286	3014
18	110.50.3550	3776	3322	134	3686	3414
19	110.50.4000	4226	3772	134	4136	3864
20	110.50.4500	4726	4272	134	4636	4364

Design feature/Function/Application scope

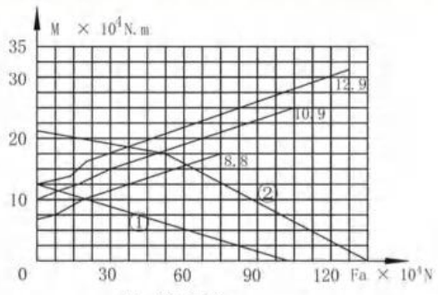
The single row crossed roller bearing is composed of two seat rings, which design in compact structure and light weight.As the rollers are 1:1cross arranged, it is suitable for high precision mounting and capable to bear axial force, resultant moment and considerable large radial force.

The single row crossed roller bearing has been widely used in many applications:

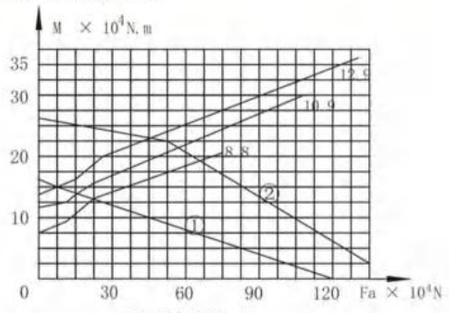
1. Lifting transportation 2. construction machinery 3. military products

安装尺寸 Installation Size n	Ø mm	dm mm	L mm	结构尺寸 Structure Size n1 mm	D3 mm	d1 mm	H1 mm	h mm	齿轮参数 Gear Data b mm	x	m mm	De mm	z	齿轮圆周力 Tooth Force 正火 Z 10^4N	调质 T 10^4N	参考重量 kg
20	18	M16	32	4	498	502	65	10								80
20	18	M16	32	4	558	562	65	10								90
24	18	M16	32	4	628	632	65	10								100
24	18	M16	32	4	708	712	65	10								110
30	22	M20	40	6	798	802	72	10								170
30	22	M20	40	6	898	902	72	10								190
36	22	M20	40	6	998	1002	72	10								210
36	22	M20	40	6	1118	1122	72	10								230
40	26	M24	48	5	1248	1252	81	10								350
40	26	M24	48	5	1398	1402	81	10								400
45	26	M24	48	5	1598	1602	81	10								440
45	26	M24	48	5	1798	1802	81	10								500
48	33	M30	60	8	1997	2003	100	12								900
48	33	M30	60	8	2237	2243	100	12								1000
56	33	M30	60	8	2497	2503	100	12								1100
56	33	M30	60	8	2797	2803	100	12								1250
56	45	M42	84	8	3147	3153	122	12								2150
56	45	M42	84	8	3547	3553	122	12								2470
60	45	M42	84	10	3997	4003	122	12								2800
60	45	M42	84	10	4497	4503	122	12								3100

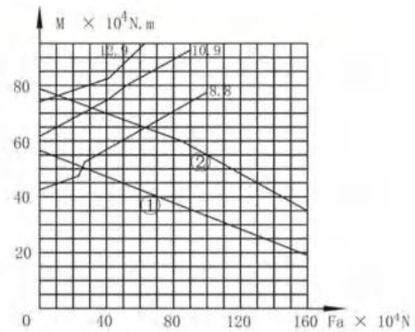
6.3.4 单排交叉滚柱式承载曲线 Single row cross roller bearing curve



11.25.500



11.25.560



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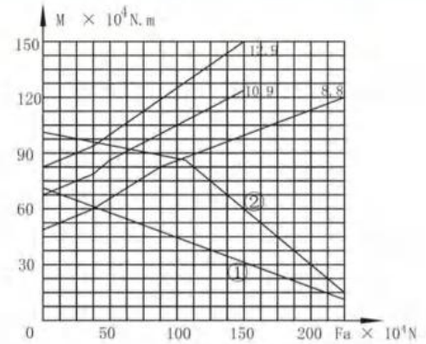

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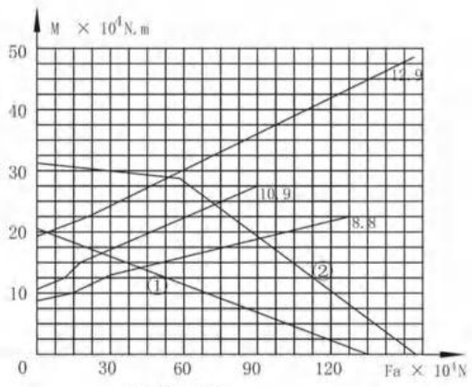

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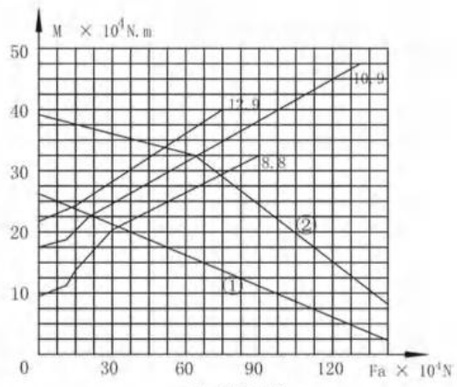

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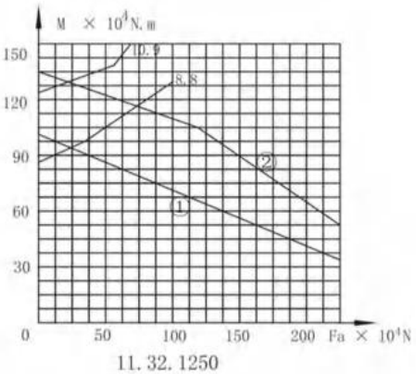

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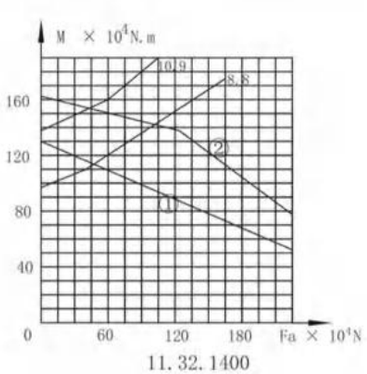
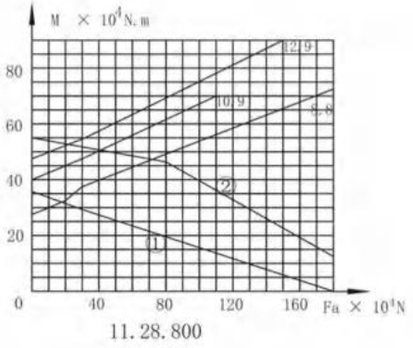
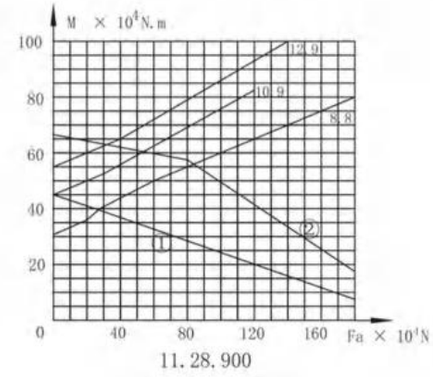


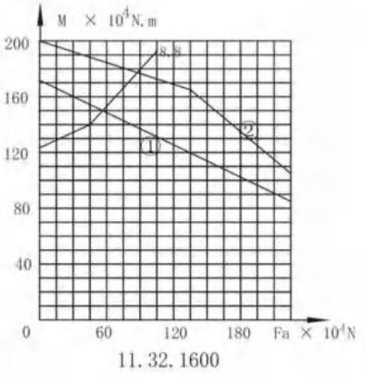
11.32.1400



11.28.800



11.28.900



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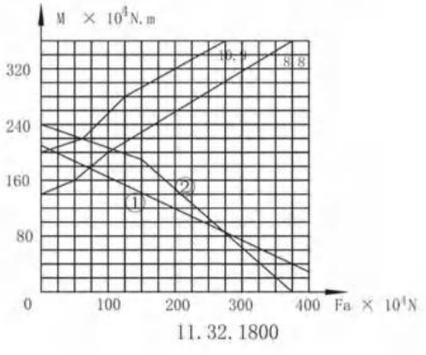
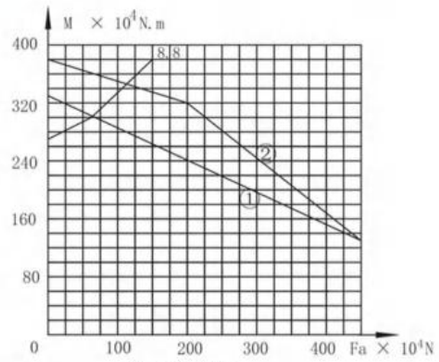
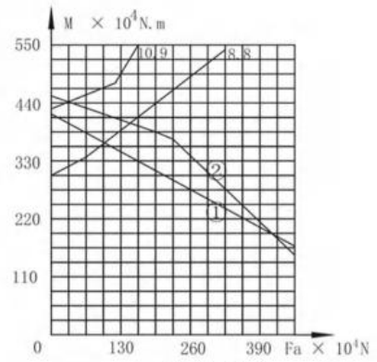


11.32.1800



11.40.2000



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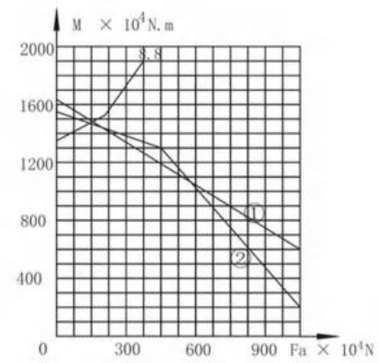
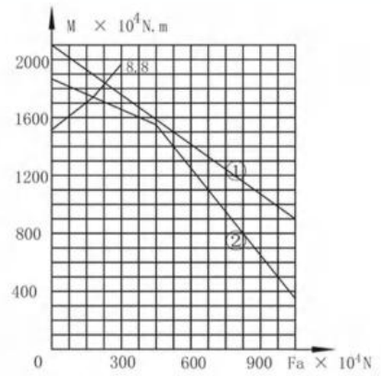
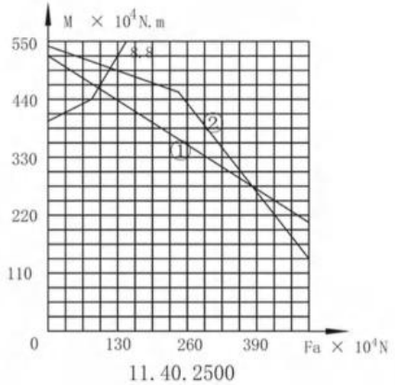


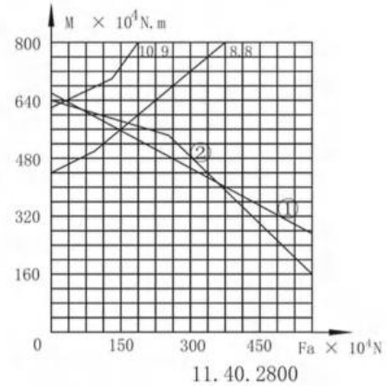
11.50.4000



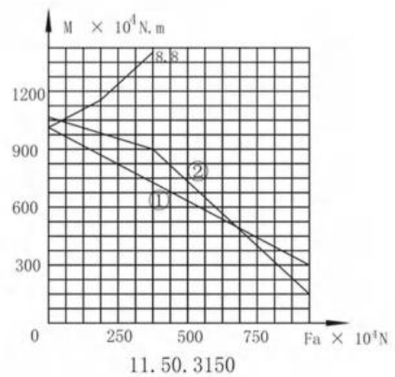
11.50.4500



11.40.2500



11.40.2800



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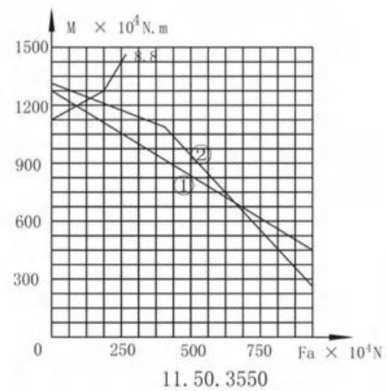
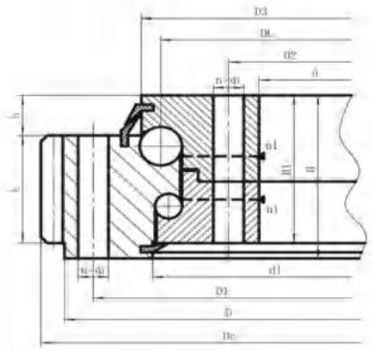


11.50.3550

6.4 双排异径球式结构参数及承载曲线（02系列）
Double row different diameter ball stuctural parameters and bearing curves (02 Series)

6.4.1 双排异径球式结构参数—外齿式
Double row different diameter ball structural parameter—external gear



021.022

结构特点、性能、适用范围
Design feature/Function/Application scope

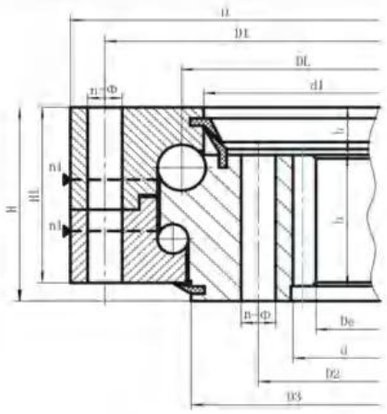
双排球式回转支承有三个座圈，钢球和隔离块可直接排入上下滚道，根据受力状况，安排了上下两排直径不同的钢球。这种开式装配非常方便，上下圆弧滚道的承载角都为90°，能承受很大的轴向力和倾翻力矩。当径向力大于0.1倍的轴向力时，滚道须特殊设计。双排异径球式回转支承的轴向、径向尺寸都比较大，结构紧固。特别适用于要求中等以上直径的塔式起重机，汽车起重机等装卸机械上。

Double row ball slewing ring has three seat rings, the steel ball and the spacing block can be directly arranged into the upper and lower races, two rows of upper and lower steel balls with differently diameter are fitted according to the stress condition. Double row different ball slewing bearing ring's axial and radial size are relatively large and solid in structure, so it is usually used in diameter tower cranes, truck mounted cranes etc.

序号 NO.	外齿式 External Gear DL mm	外型尺寸 Dimensions D mm	d mm	H mm	D1 mm
1	021.25.500	616	384	106	580
	022.25.500				
2	021.25.560	676	444	106	640
	022.25.560				
3	021.25.630	746	514	106	710
	022.25.630				
4	021.25.710	826	594	106	790
	022.25.710				
5	021.30.800	942	658	124	898
	022.30.800				
6	021.30.900	1042	758	124	998
	022.30.900				
7	021.30.1000	1142	858	124	1098
	022.30.1000				
8	021.30.1120	1262	978	124	1218
	022.30.1120				
9	021.40.1250	1426	1074	160	1374
	022.40.1250				
10	021.40.1400	1576	1224	160	1524
	022.40.1400				
11	021.40.1600	1776	1424	160	1724
	022.40.1600				
12	021.40.1800	1976	1624	160	1924
	022.40.1800				
13	021.50.2000	2215	1785	190	2149
	022.50.2000				
14	021.50.2240	2455	2025	190	2389
	022.50.2240				
15	021.50.2500	2715	2285	190	2649
	022.50.2500				
16	021.50.2800	3015	2585	190	2949
	022.50.2800				
17	021.60.3150	3428	2872	226	3338
	022.60.3150				
18	021.60.3550	3828	3272	226	3738
	022.60.3550				
19	021.60.4000	4278	3722	226	4188
	022.60.4000				
20	021.60.4500	4778	4222	226	4688
	022.60.4500				

安装尺寸 Installation Size D2 mm	n	j mm	结构尺寸 Structure Size D3 mm	d1 mm	n1 mm	H1 mm	h mm	齿轮参数 Gear Data b mm	x	m mm	De mm	z	齿轮圆周力 Tooth Force Z 10^4N	T 10^4N	参考重量 kg
420	20	18	523	518	4	96	26	60	0.5	5	644	126	3.7	5.2	100
										6	646.8	105	4.5	6.2	
480	20	18	583	578	4	96	26	60	0.5	5	704	138	3.7	5.2	115
										6	706.8	115	4.5	6.2	
550	24	18	653	648	4	96	26	60	0.5	6	790.8	129	4.5	6.2	130
										8	790.4	96	6	8.3	
630	24	18	733	728	4	96	26	60	0.5	6	862.8	141	4.5	6.2	140
										8	862.4	105	6	8.3	
702	30	22	829	823	6	114	29	80	0.5	8	982.4	120	8	11.1	200
										10	988	96	10	14	
802	30	22	929	923	6	114	29	80	0.5	8	1086.4	133	8	11.1	250
										10	1088	106	10	14	
902	36	22	1029	1023	6	114	29	80	0.5	10	1198	117	10	14	300
										12	1197.6	97	12	16.7	
1022	36	22	1148	1143	6	114	29	80	0.5	10	1318	129	10	14	340
										12	1317.6	107	12	16.7	
1126	40	26	1286	1282	5	150	39	90	0.5	12	1497.6	122	13.5	18.8	580
										14	1495.2	104	15.8	21.9	
1272	40	26	1436	1432	5	150	39	90	0.5	12	1641.6	134	13.5	18.8	650
										14	1649.2	115	15.8	21.9	
1476	45	26	1636	1635	5	150	39	90	0.5	14	1845.2	129	15.8	21.9	750
										16	1852.8	113	18.1	25	
1676	45	26	1836	1835	5	150	39	90	0.5	14	2055.2	144	15.8	21.9	820
										16	2060.8	126	18.1	25	
1851	48	33	2038	2035	8	178	47	120	0.5	16	2300.8	141	24.1	33.3	1150
										18	2300.4	125	27.1	37.5	
2091	48	33	2278	2275	8	178	47	120	0.5	16	2540.8	156	24.1	33.3	1500
										18	2552.4	139	27.1	37.5	
2351	56	33	2538	2532	8	178	47	120	0.5	18	2804.4	153	27.1	37.5	1700
										20	2816	138	30.1	41.8	
2651	56	33	2838	2832	8	178	47	120	0.5	18	3110.4	170	27.1	37.5	1900
										20	3116	153	30.1	41.8	
2962	56	45	3198	3196	8	214	56	150	0.5	20	3536	174	37.7	52.2	3300
										22	3537.6	158	41.5	57.4	
3362	56	45	3598	3596	8	214	56	150	0.5	20	3936	194	37.7	52.2	3700
										22	3933.6	176	41.5	57.4	
3812	60	45	4048	4046	10	214	56	150	0.5	22	4395.6	197	41.5	57.4	4200
										25	4395	173	47.1	65.2	
4312	60	45	4548	4546	10	214	56	150	0.5	22	4879.6	219	41.5	57.4	4700
										25	4895	193	47.1	65.2	

6.4.2 双排异径球式结构参数-内齿式
Double row different diameter ball structural parameter—internal gear



023.024

结构特点、性能、适用范围
Design feature/Function/Application scope

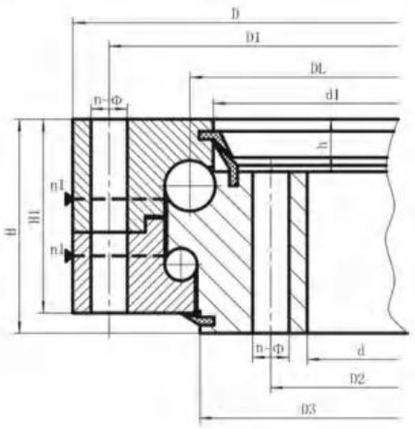
双排球式回转支承有三个座圈，钢球和隔离块可直接排入上下滚道，根据受力状况，安排了上下两排直径不同的钢球。这种开式装配非常方便，上下圆弧滚道的承载角都为90°，能承受很大的轴向力和倾翻力矩。当径向力大于0.1倍的轴向力时，滚道须特殊设计。双排异径球式回转支承的轴向、径向尺寸都比较大，结构紧固。特别适用于要求中等以上直径的塔式起重机，汽车起重机等装卸机械上。

Double row ball slewing ring has three seat rings, the steel ball and the spacing block can be directly arranged into the upper and lower races, two rows of upper and lower steel balls with differently diameter are fitted according to the stress condition. Double row different ball slewing bearing ring's axial and radial size are relatively large and solid in structure, so it is usually used in diameter tower cranes, truck mounted cranes etc.

序号 NO.	内齿式 Internal Gear DL mm	外型尺寸 Dimensions D mm	d mm	H mm	D1 mm
1	023.25.500	616	384	106	580
	024.25.500				
2	023.25.560	676	444	106	640
	024.25.560				
3	023.25.630	746	514	106	710
	024.25.630				
4	023.25.710	826	594	106	790
	024.25.710				
5	023.30.800	942	658	124	898
	024.30.800				
6	023.30.900	1042	758	124	998
	024.30.900				
7	023.30.1000	1142	858	124	1098
	024.30.1000				
8	023.30.1120	1262	978	124	1218
	024.30.1120				
9	023.40.1250	1426	1074	160	1374
	024.40.1250				
10	023.40.1400	1576	1224	160	1524
	024.40.1400				
11	023.40.1600	1776	1424	160	1724
	024.40.1600				
12	023.40.1800	1976	1624	160	1924
	024.40.1800				
13	023.50.2000	2215	1785	190	2149
	024.50.2000				
14	023.50.2240	2455	2025	190	2389
	024.50.2240				
15	023.50.2500	2715	2285	190	2649
	024.50.2500				
16	023.50.2800	3015	2585	190	2949
	024.50.2800				
17	023.60.3150	3428	2872	226	3338
	024.60.3150				
18	023.60.3550	3828	3272	226	3738
	024.60.3550				
19	023.60.4000	4278	3722	226	4188
	024.60.4000				
20	023.60.4500	4778	4222	226	4688
	024.60.4500				

安装尺寸 Installation Size D2 mm	n	j mm	结构尺寸 Structure Size D3 mm	d1 mm	n1 mm	H1 mm	h mm	齿轮参数 Gear Data b mm	x	m mm	De mm	z	齿轮圆周力 Tooth Force Z 10^4N	T 10^4N	参考重量 kg
420	20	18	482	477	4	96	26	60	0.5	5	257	72	3.7	5.2	100
										6	350.4	59	4.5	6.2	
480	20	18	542	537	4	96	26	60	0.5	5	417	84	3.7	5.2	115
										6	410.4	69	4.5	6.2	
550	24	18	612	607	4	96	26	60	0.5	6	482.4	81	4.5	6.2	130
										8	475.2	60	6	8.3	
630	24	18	692	687	4	96	26	60	0.5	6	560.4	94	4.5	6.2	140
										8	555.2	70	6	8.3	
702	30	22	777	771	6	114	29	80	0.5	8	619.2	78	8	11.1	200
										10	614	62	10	14	
802	30	22	877	871	6	114	29	80	0.5	8	715.2	90	8	11.1	250
										10	714	72	10	14	
902	36	22	977	971	6	114	29	80	0.5	10	814	82	10	14	300
										12	796.8	67	12	16.7	
1022	36	22	1097	1091	6	114	29	80	0.5	10	924	93	10	14	340
										12	916.8	77	12	16.7	
1126	40	26	1215	1214	5	150	39	90	0.5	12	1012.8	85	13.5	18.8	580
										14	1013.6	73	15.8	21.9	
1272	40	26	1365	1364	5	150	39	90	0.5	12	1156.8	97	13.5	18.8	650
										14	1153.6	83	15.8	21.9	
1476	45	26	1565	1564	5	150	39	90	0.5	14	1349.6	97	15.8	21.9	750
										16	1350.4	85	18.1	25	
1676	45	26	1765	1764	5	150	39	90	0.5	14	1545.6	111	15.8	21.9	820
										16	1542.4	97	18.1	25	
1851	48	33	1965	1962	8	178	47	120	0.5	16	1702.4	107	24.1	33.3	1150
										18	1699.2	95	27.1	37.5	
2091	48	33	2206	2202	8	178	47	120	0.5	16	1942.4	122	24.1	33.3	1500
										18	1933.2	108	27.1	37.5	
2351	56	33	2465	2462	8	178	47	120	0.5	18	2203.2	123	27.1	37.5	1700
										20	2188	110	30.1	41.8	
2651	56	33	2765	2762	8	178	47	120	0.5	18	2491.2	139	27.1	37.5	1900
										20	2488	125	30.1	41.8	
2962	56	45	3104	3102	8	214	56	150	0.5	20	2768	139	37.7	52.2	3300
										22	2758.8	126	41.5	57.4	
3362	56	45	3504	3502	8	214	56	150	0.5	20	3168	159	37.7	52.2	3700
										22	3176.8	145	41.5	57.4	
3812	60	45	3954	3952	10	214	56	150	0.5	22	3616.8	165	41.5	57.4	4200
										25	3610	145	47.1	65.2	
4312	60	45	4454	4452	10	214	56	150	0.5	22	4122.8	188	41.5	57.4	4700
										25	4110	165	47.1	65.2	

6.4.3 双排异径球式结构参数-无齿式
Double row different diameter ball structural parameter—non gear



020

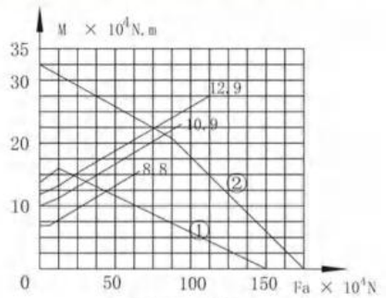
结构特点、性能、适用范围
Design feature/Function/Application scope

双排球式回转支承有三个座圈，钢球和隔离块可直接排入上下滚道，根据受力状况，安排了上下两排直径不同的钢球。这种开式装配非常方便，上下圆弧滚道的承载角都为90°，能承受很大的轴向力和倾翻力矩。当径向力大于0.1倍的轴向力时，滚道须特殊设计。双排异径球式回转支承的轴向、径向尺寸都比较大，结构紧固。特别适用于要求中等以上直径的塔式起重机，汽车起重机等装卸机械上。

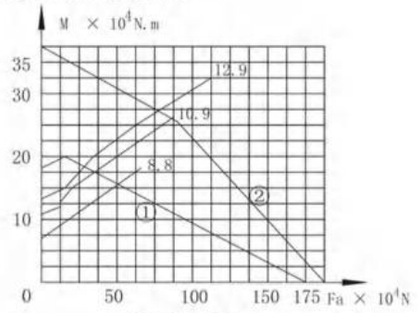
Double row ball slewing ring has three seat rings, the steel ball and the spacing block can be directly arranged into the upper and lower races, two rows of upper and lower steel balls with differently diameter are fitted according to the stress condition. Double row different ball slewing bearing ring's axial and radial size are relatively large and solid in structure, so it is usually used in diameter tower cranes, truck mounted cranes etc.

序号 NO.	无齿式 Non Gear DL mm	外型尺寸 Dimensions				安装尺寸 Installation Size				结构尺寸 Structure Size				齿轮参数 Gear Data					齿轮圆周力 Tooth Force		参考重量 kg
		D mm	d mm	H mm	D1 mm	D2 mm	n	Ø mm	D3 mm	d1 mm	n1 mm	H1 mm	h mm	b mm	x	m mm	De mm	z	Z 10^4N	T 10^4N	
1	020.25.500	616	384	106	580	420	20	18	482	477	4	96	26								100
2	020.25.560	676	444	106	640	480	20	18	542	537	4	96	26								115
3	020.25.630	746	514	106	710	550	24	18	612	607	4	96	26								130
4	020.25.710	826	594	106	790	630	24	18	692	687	4	96	26								140
5	020.30.800	942	658	124	898	702	30	22	777	771	6	114	29								200
6	020.30.900	1042	758	124	998	802	30	22	877	871	6	114	29								250
7	020.30.1000	1142	858	124	1098	902	36	22	977	971	6	114	29								300
8	020.30.1120	1262	978	124	1218	1022	36	22	1097	1091	6	114	29								340
9	020.40.1250	1426	1074	160	1374	1126	40	26	1215	1214	5	150	39								580
10	020.40.1400	1576	1224	160	1524	1272	40	26	1365	1364	5	150	39								650
11	020.40.1600	1776	1424	160	1724	1476	45	26	1565	1564	5	150	39								750
12	020.40.1800	1976	1624	160	1924	1676	45	26	1765	1764	5	150	39								820
13	020.50.2000	2215	1785	190	2149	1851	48	33	1965	1962	8	178	47								1150
14	020.50.2240	2455	2025	190	2389	2091	48	33	2206	2202	8	178	47								1500
15	020.50.2500	2715	2285	190	2649	2351	56	33	2465	2462	8	178	47								1700
16	020.50.2800	3015	2585	190	2949	2651	56	33	2765	2762	8	178	47								1900
17	020.60.3150	3428	2872	226	3338	2962	56	45	3104	3102	8	214	56								3300
18	020.60.3550	3828	3272	226	3738	3362	56	45	3504	3502	8	214	56								3700
19	020.60.4000	4278	3722	226	4188	3812	60	45	3954	3952	10	214	56								4200
20	020.60.4500	4778	4222	226	4688	4312	60	45	4454	4452	10	214	56								4700

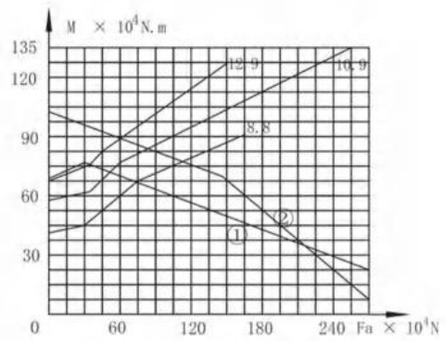
6.4.4 双排异径球式承载曲线 Double row different diameter ball curve



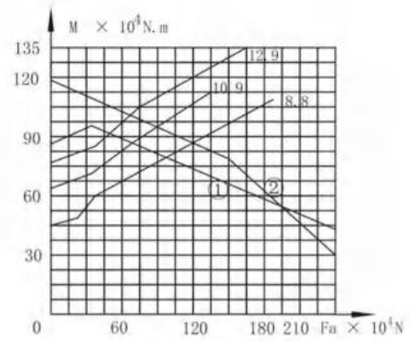
02.25.500



02.25.560



02.30.1000



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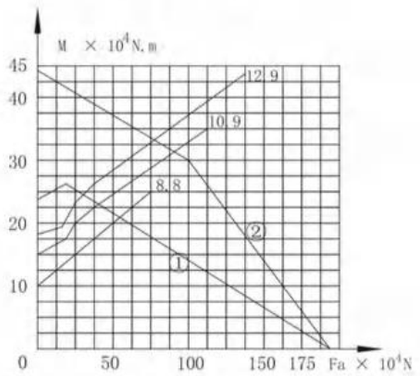

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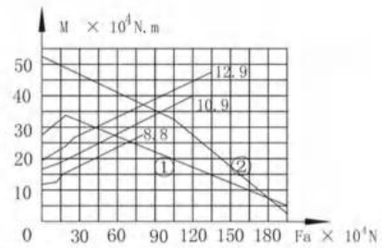

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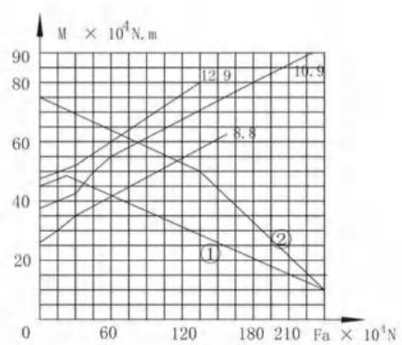

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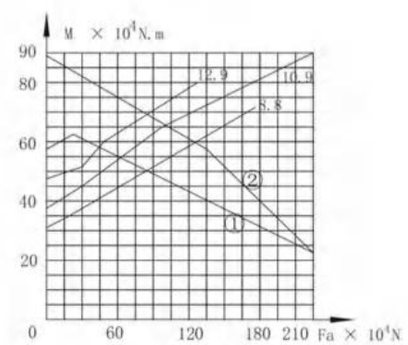

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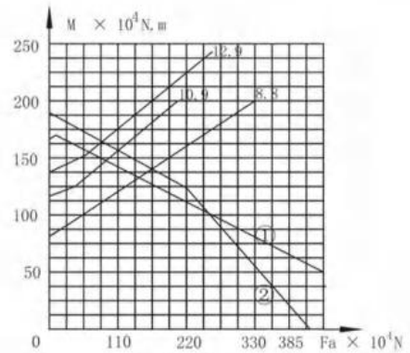

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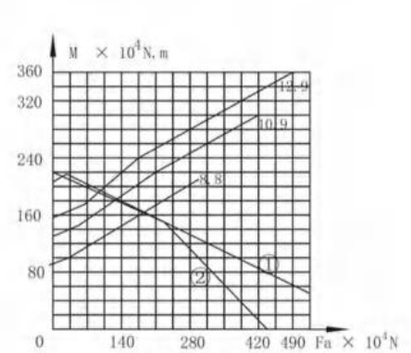

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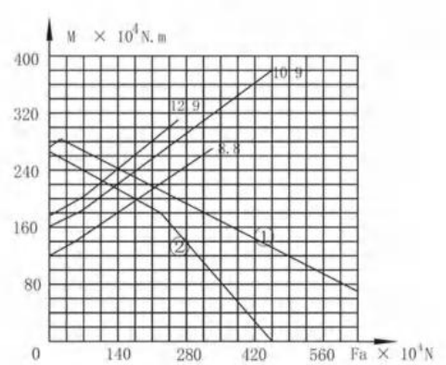
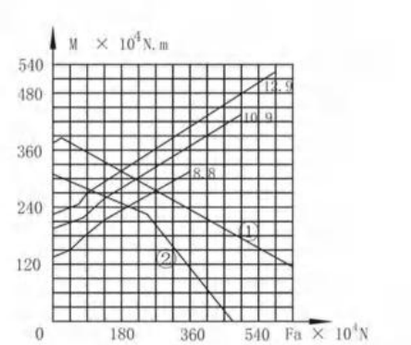
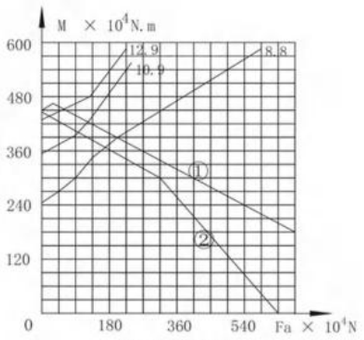


02.40.1600



02.40.1800



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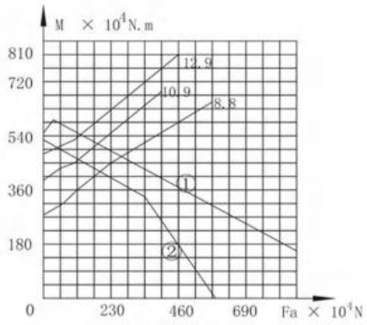

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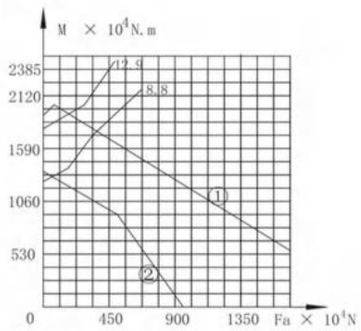
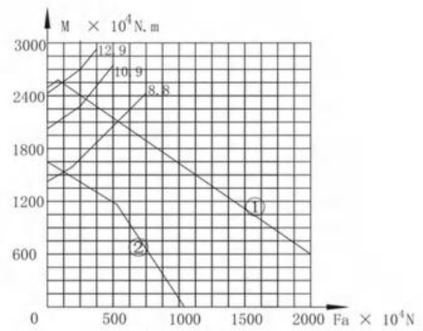


02.60.4000



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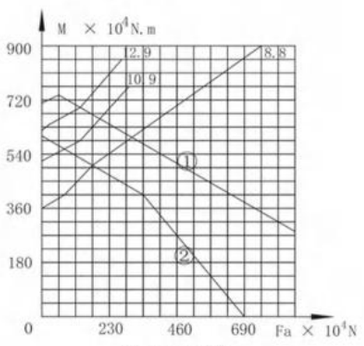

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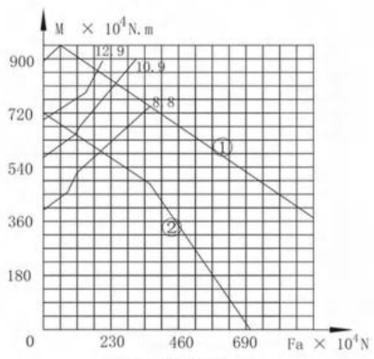

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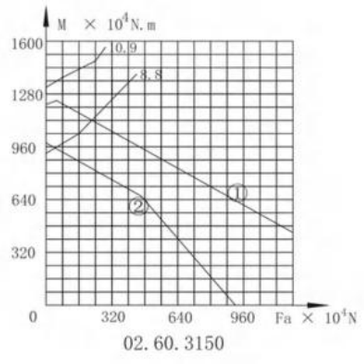
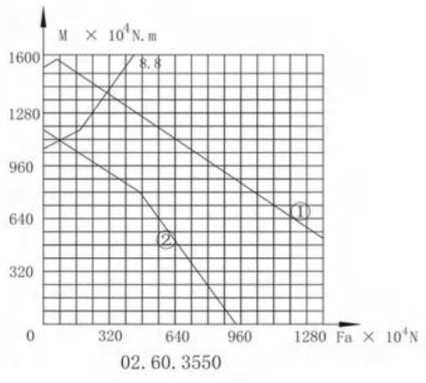


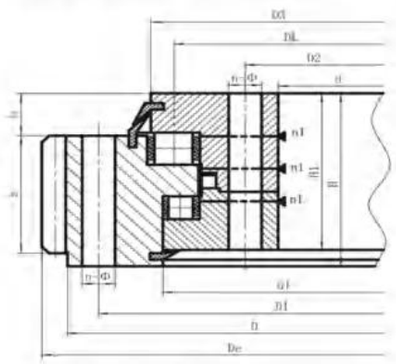
02.60.3150



02.60.3550

6.5 三排滚柱式结构参数及承载曲线（13系列）
Three row roller type structural parameters and bearing curves (13 Series)

6.5.1 三排滚柱式结构参数-外齿式
Three row roller type structural parameter —external gear



131.132

结构特点、性能、适用范围
Design feature/Function/Application scope

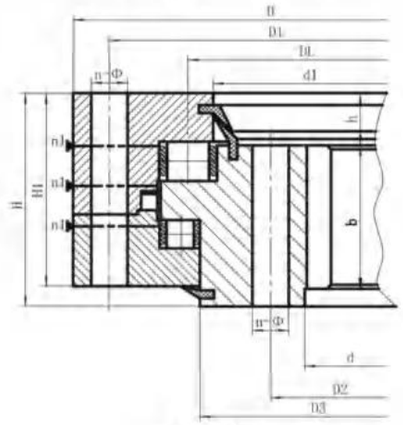
三排滚柱式回转支承有三个座圈，上下及径向滚道各自分开，使得每一排滚柱的负载都能确切地加以确定。能够同时承受各种载荷，是四种产品中承载能力最大的一种，轴、径径向尺寸都较大，结构牢固，特别适用于要求较大直径的重型机械，如斗轮式挖掘机、轮式起重机，船用起重机、港口起重机，钢水运转台及大吨位汽车起重机等机械上。

Three-Row Roller Slewing Ring is equipped with seat-rings, upper orbit. Neither orbit and radial orbit is separated individually, it makes the load of each row of the rollers can be confirmed, making it can undertake all kinds of different load simultaneously. Three row roller slewing bearing's carrying capacity is the biggest among four models and the axial and radial size are rather large to some extent, the structure of the three row roller slewing bearing ring is very firm.

序号 NO.	外齿式 External Gear DL mm	外型尺寸 Dimensions D mm	d mm	H mm	D1 mm	D2 mm
1	131.25.500	634	366	148	598	402
	132.25.500					
2	131.25.560	694	426	148	658	462
	132.25.560					
3	131.25.630	764	496	148	728	532
	132.25.630					
4	131.25.710	844	576	148	808	612
	132.25.710					
5	131.32.800	964	636	182	920	680
	132.32.800					
6	131.32.900	1064	736	182	1020	780
	132.32.900					
7	131.32.1000	1164	836	182	1120	880
	132.32.1000					
8	131.32.1120	1284	956	182	1240	1000
	132.32.1120					
9	131.40.1250	1445	1055	220	1393	1107
	132.40.1250					
10	131.40.1400	1595	1205	220	1543	1257
	132.40.1400					
11	131.40.1600	1795	1405	220	1743	1457
	132.40.1600					
12	131.40.1800	1995	1605	220	1943	1657
	132.40.1800					
13	131.45.2000	2221	1779	231	2155	1845
	132.45.2000					
14	131.45.2240	2461	2019	231	2395	2085
	132.45.2240					
15	131.45.2500	2721	2279	231	2655	2345
	132.45.2500					
16	131.45.2800	3021	2579	231	2955	2645
	132.45.2800					
17	131.50.3150	3432	2868	270	3342	2958
	132.50.3150					
18	131.50.3550	3832	3268	270	3742	3358
	132.50.3550					
19	131.50.4000	4282	3718	270	4192	3808
	132.50.4000					
20	131.50.4500	4782	4218	270	4692	4308
	132.50.4500					

安装尺寸 Installation Size n	l mm	dm mm	L mm	结构尺寸 Structure Size D3 mm	d1 mm	n1	H1 mm	h mm	齿轮参数 Gear Data b mm	x	m mm	De mm	z	齿轮圆周力 Tooth Force 正火 Z 10^3N	调质 T 10^3N	参考重量 Weight kg
24	18	M16	32	537	526	4	138	32	80	0.5	5	664	130	5	6.7	224
											6	664.8	108	6	8	
24	18	M16	32	597	586	4	138	32	80	0.5	5	724	142	5	6.7	240
											6	724.8	118	6	8	
28	18	M16	32	667	656	4	138	32	80	0.5	6	808.8	132	6	8	270
											8	806.4	98	8	11	
28	18	M16	32	747	736	4	138	32	80	0.5	6	886.8	145	6	8	300
											8	886.4	108	8	11	
36	22	M20	40	841	830	4	172	40	120	0.5	8	1006.4	123	12.1	16.7	500
											10	1008	98	15.1	20.9	
36	22	M20	40	941	930	4	172	40	120	0.5	8	1102.4	135	12.1	16.7	600
											10	1108	108	15.1	20.9	
40	22	M20	40	1041	1030	5	172	40	120	0.5	10	1218	119	15.1	20.9	680
											12	1221.6	99	18.1	25.1	
40	22	M20	40	1161	1150	5	172	40	120	0.5	10	1338	131	15.1	20.9	820
											12	1341.6	109	18.1	25.1	
45	26	M24	48	1300	1287	5	210	50	150	0.5	12	1509.6	123	22.9	31.4	1200
											14	1509.2	105	26.3	36.6	
45	26	M24	48	1450	1437	5	210	50	150	0.5	12	1665.6	136	22.9	31.4	1300
											14	1663.2	116	26.3	36.6	
48	26	M24	48	1650	1637	6	210	50	150	0.5	14	1873.2	131	26.3	36.6	1520
											16	1868.8	114	30.2	41.7	
48	26	M24	48	1850	1837	6	210	50	150	0.5	14	2069.2	145	26.3	36.6	1750
											16	2076.8	127	30.2	41.7	
60	33	M30	60	2055	2033	6	219	54	160	0.5	16	2300.8	141	32.2	44.5	2400
											18	2300.4	125	36.2	50.1	
60	33	M30	60	2295	2273	6	219	54	160	0.5	16	2556.8	157	32.2	44.5	2700
											18	2552.4	139	36.2	50.1	
72	33	M30	60	2555	2533	8	219	54	160	0.5	18	2822.4	154	36.2	50.1	3000
											20	2816	138	40.2	55.6	
72	33	M30	60	2855	2833	8	219	54	160	0.5	18	3110.4	170	36.2	50.1	3400
											20	3116	153	40.2	55.6	
72	45	M42	84	3213	3196	8	258	65	180	0.5	20	3536	174	45.2	62.6	5000
											22	3537.6	158	49.8	68.9	
72	45	M42	84	3613	3596	8	258	65	180	0.5	20	3936	194	45.2	62.6	5680
											22	3933.6	176	49.8	68.9	
80	45	M42	84	4063	4046	8	258	65	180	0.5	22	4395.6	197	49.8	68.9	6470
											25	4395	173	56.5	78.3	
80	45	M42	84	4563	4546	8	258	65	180	0.5	22	4901.6	220	49.8	68.9	7320
											25	4895	193	56.5	78.3	

6.5.2 三排滚柱式结构参数-内齿式
Three row roller type structural parameter
—internal gear



133. 134

结构特点、性能、适用范围
Design feature/Function/Application scope

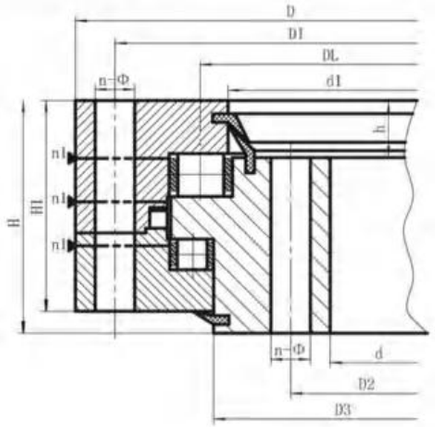
三排滚柱式回转支承有三个座圈，上下及径向滚道各自分开，使得每一排滚柱的负载都能确切地加以确定。能够同时承受各种载荷，是四种产品中承载能力最大的一种，轴、径径向尺寸都较大，结构牢固，特别适用于要求较大直径的重型机械，如斗轮式挖掘机、轮式起重机，船用起重机、港口起重机，钢水运转台及大吨位汽车起重机等机械上。

Three-Row Roller Slewing Ring is equipped with seat-rings, upper orbit. Neither orbit and radial orbit is separated individually, it makes the load of each row of the rollers can be confirmed, making it can undertake all kinds of different load simultaneously. Three row roller slewing bearing's carrying capacity is the biggest among four models and the axial and radial size are rather large to some extent, the structure of the three row roller slewing bearing ring is very firm.

序号 NO.	内齿式 Internal Gear DL mm	外型尺寸 Dimensions D mm	d mm	H mm	D1 mm	D2 mm
1	133.25.500	634	366	148	598	402
	134.25.500					
2	133.25.560	694	426	148	658	462
	134.25.560					
3	133.25.630	764	496	148	728	532
	134.25.630					
4	133.25.710	844	576	148	808	612
	134.25.710					
5	133.32.800	964	636	182	920	680
	134.32.800					
6	133.32.900	1064	736	182	1020	780
	134.32.900					
7	133.32.1000	1164	836	182	1120	880
	134.32.1000					
8	133.32.1120	1284	956	182	1240	1000
	134.32.1120					
9	133.40.1250	1445	1055	220	1393	1107
	134.40.1250					
10	133.40.1400	1595	1205	220	1543	1257
	134.40.1400					
11	133.40.1600	1795	1405	220	1743	1457
	134.40.1600					
12	133.40.1800	1995	1605	220	1943	1657
	134.40.1800					
13	133.45.2000	2221	1779	231	2155	1845
	134.45.2000					
14	133.45.2240	2461	2019	231	2395	2085
	134.45.2240					
15	133.45.2500	2721	2279	231	2655	2345
	134.45.2500					
16	133.45.2800	3021	2579	231	2955	2645
	134.45.2800					
17	133.50.3150	3432	2868	270	3342	2958
	134.50.3150					
18	133.50.3550	3832	3268	270	3742	3358
	134.50.3550					
19	133.50.4000	4282	3718	270	4192	3808
	134.50.4000					
20	133.50.4500	4782	4218	270	4692	4308
	134.50.4500					

安装尺寸 Installation Size n	Ø mm	dm mm	L mm	结构尺寸 Structure Size D3 mm	d1 mm	n1	H1 mm	h mm	齿轮参数 Gear Data b mm	x	m mm	De mm	z	齿轮圆周力 Tooth Force 正火 Z 10^4N	调质 T 10^4N	参考重量 kg
24	18	M16	32	474	463	4	138	32	80	0.5	5	337	68	5	6.7	224
											6	338.4	57	6	8	
24	18	M16	32	534	523	4	138	32	80	0.5	5	397	80	5	6.7	240
											6	398.4	67	6	8	
28	18	M16	32	604	593	4	138	32	80	0.5	6	458.4	77	6	8	270
											8	459.2	58	8	11	
28	18	M16	32	684	673	4	138	32	80	0.5	6	536.4	90	6	8	300
											8	539.2	68	8	11	
36	22	M20	40	770	759	4	172	40	120	0.5	8	595.2	75	12.1	16.7	500
											10	594	60	15.1	20.9	
36	22	M20	40	870	859	4	172	40	120	0.5	8	691.2	87	12.1	16.7	600
											10	694	70	15.1	20.9	
40	22	M20	40	970	959	5	172	40	120	0.5	10	784	79	15.1	20.9	680
											12	784.8	66	18.1	25.1	
40	22	M20	40	1090	1079	5	172	40	120	0.5	10	904	91	15.1	20.9	820
											12	904.8	76	18.1	25.1	
45	26	M24	48	1213	1200	5	210	50	150	0.5	12	988.8	83	22.9	31.4	1200
											14	985.6	71	26.3	36.6	
45	26	M24	48	1363	1350	5	210	50	150	0.5	12	1144.8	96	22.9	31.4	1300
											14	1139.6	82	26.3	36.6	
48	26	M24	48	1563	1550	6	210	50	150	0.5	14	1335.6	96	26.3	36.6	1520
											16	1334.4	84	30.2	41.7	
48	26	M24	48	1763	1750	6	210	50	150	0.5	14	1531.6	110	26.3	36.6	1750
											16	1526.4	96	30.2	41.7	
60	33	M30	60	1967	1945	6	219	54	160	0.5	16	1702.4	107	32.2	44.5	2400
											18	1699.2	95	36.2	50.1	
60	33	M30	60	2207	2185	6	219	54	160	0.5	16	1926.4	121	32.2	44.5	2700
											18	1933.2	108	36.2	50.1	
72	33	M30	60	2467	2445	8	219	54	160	0.5	18	2185.2	122	36.2	50.1	3000
											20	2188	110	40.2	55.6	
72	33	M30	60	2767	2745	8	219	54	160	0.5	18	2491.2	139	36.2	50.1	3400
											20	2488	125	40.2	55.6	
72	45	M42	84	3104	3090	8	258	65	180	0.5	20	2768	139	45.2	62.6	5000
											22	2758.8	126	49.8	68.9	
72	45	M42	84	3504	3490	8	258	65	180	0.5	20	3168	159	45.2	62.6	5680
											22	3154.8	144	49.8	68.9	
80	45	M42	84	3954	3940	8	258	65	180	0.5	22	3116.8	165	49.8	68.9	6470
											25	3610	145	56.5	78.3	
80	45	M42	84	4454	4440	8	258	65	180	0.5	22	4122.8	188	49.8	68.9	7320
											25	4110	165	56.5	78.3	

6.5.3 三排滚柱式结构参数-无齿式
Three row roller type structural parameter —non gear



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结构特点、性能、适用范围
Design feature/Function/Application scope

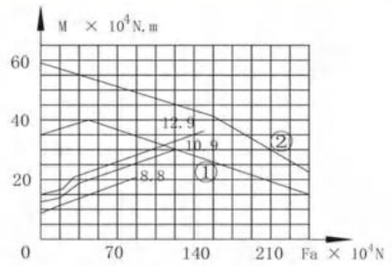
三排滚柱式回转支承有三个座圈，上下及径向滚道各自分开，使得每一排滚柱的负载都能确切地加以确定。能够同时承受各种载荷，是四种产品中承载能力最大的一种，轴、径径向尺寸都较大，结构牢固，特别适用于要求较大直径的重型机械，如斗轮式挖掘机、轮式起重机，船用起重机、港口起重机，钢水运转台及大吨位汽车起重机等机械上。

Three-Row Roller Slewing Ring is equipped with seat-rings, upper orbit. Neither orbit and radial orbit is separated individually, it makes the load of each row of the rollers can be confirmed, making it can undertake all kinds of different load simultaneously. Three row roller slewing bearing's carrying capacity is the biggest among four models and the axial and radial size are rather large to some extent, the structure of the three row roller slewing bearing ring is very firm.

序号 NO.	无齿式 Non Gear DL mm	外型尺寸 Dimensions				
		D mm	d mm	H mm	D1 mm	D2 mm
1	130.25.500	634	366	148	598	402
2	130.25.560	694	426	148	658	462
3	130.25.630	764	496	148	728	532
4	130.25.710	844	576	148	808	612
5	130.32.800	964	636	182	920	680
6	130.32.900	1064	736	182	1020	780
7	130.32.1000	1164	836	182	1120	880
8	130.32.1120	1284	956	182	1240	1000
9	130.40.1250	1445	1055	220	1393	1107
10	130.40.1400	1595	1205	220	1543	1257
11	130.40.1600	1795	1405	220	1743	1457
12	130.40.1800	1995	1605	220	1943	1657
13	130.45.2000	2221	1779	231	2155	1845
14	130.45.2240	2461	2019	231	2395	2085
15	130.45.2500	2721	2279	231	2655	2345
16	130.45.2800	3021	2579	231	2955	2645
17	130.50.3150	3432	2868	270	3342	2958
18	130.50.3550	3832	3268	270	3742	3358
19	130.50.4000	4282	3718	270	4192	3808
20	130.50.4500	4782	4218	270	4692	4308

安装尺寸 Installation Size				结构尺寸 Structure Size					齿轮参数 Gear Data			内齿参数		齿轮圆周力 Tooth Force		参考重量 kg
n	ϕ mm	dm mm	L mm	D3 mm	d1 mm	n1	H1 mm	h mm	b mm	x	m mm	De mm	z	正火 Z 10^4N	调质 T 10^4N	
24	18	M16	32	474	463	4	138	32								224
24	18	M16	32	534	523	4	138	32								240
28	18	M16	32	604	593	4	138	32								270
28	18	M16	32	684	673	4	138	32								300
36	22	M20	40	770	759	4	172	40								500
36	22	M20	40	870	859	4	172	40								600
40	22	M20	40	970	959	5	172	40								680
40	22	M20	40	1090	1079	5	172	40								820
45	26	M24	48	1213	1200	5	210	50								1200
45	26	M24	48	1363	1350	5	210	50								1300
48	26	M24	48	1563	1550	6	210	50								1520
48	26	M24	48	1763	1750	6	210	50								1750
60	33	M30	60	1967	1945	6	219	54								2400
60	33	M30	60	2207	2185	6	219	54								2700
72	33	M30	60	2467	2445	8	219	54								3000
72	33	M30	60	2767	2745	8	219	54								3400
72	45	M42	84	3104	3090	8	258	65								5000
72	45	M42	84	3504	3490	8	258	65								5680
80	45	M42	84	3954	3940	8	258	65								6470
80	45	M42	84	4454	4440	8	258	65								7320

6.5.3 三排滚柱式承载曲线 Three row roller type curve



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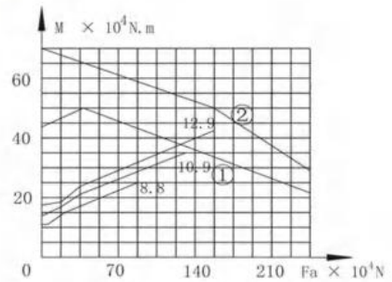

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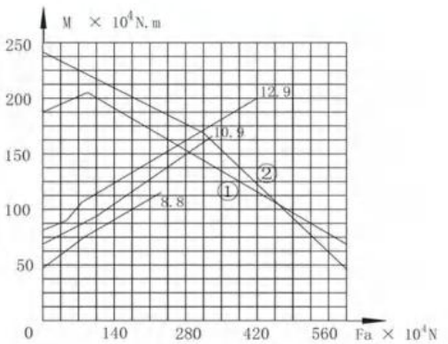

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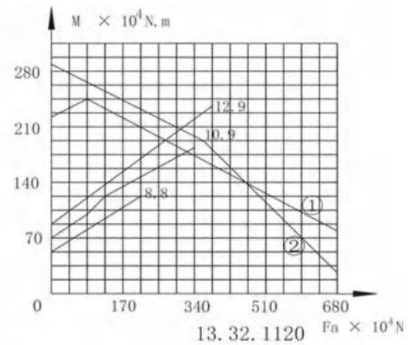

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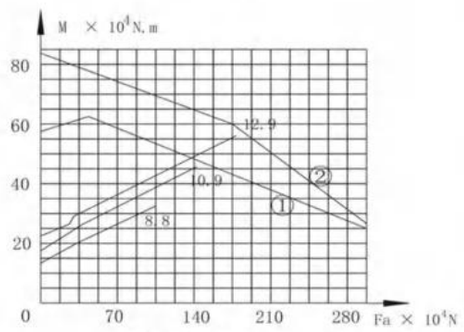

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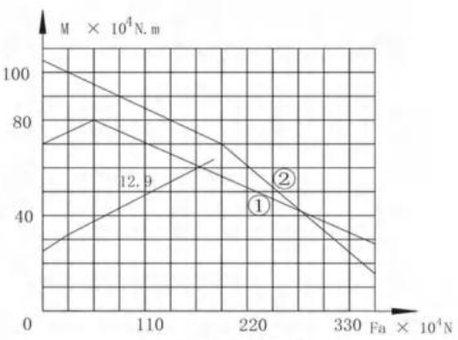

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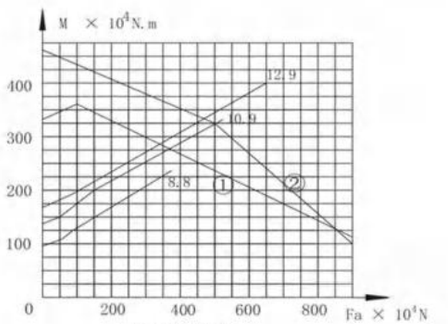

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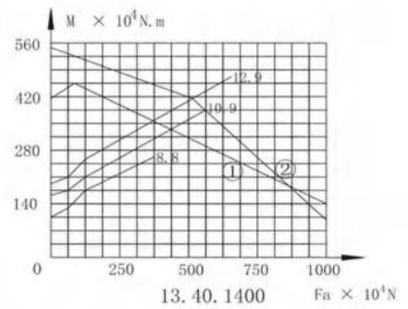

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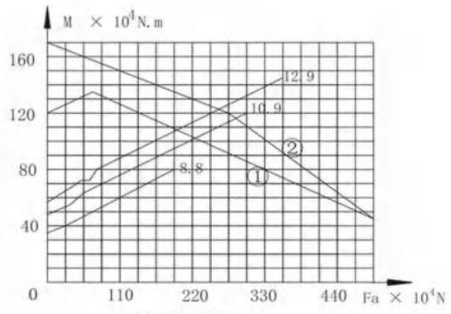

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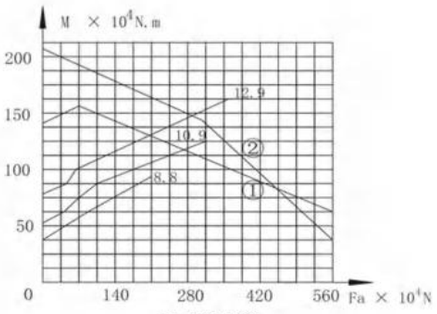

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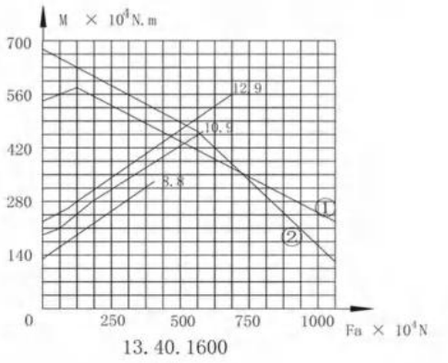

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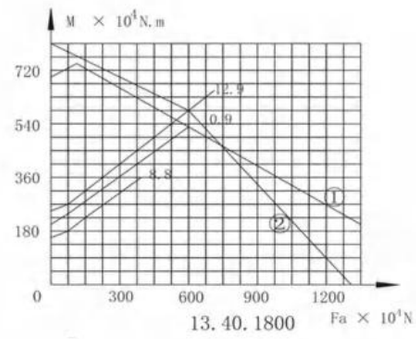

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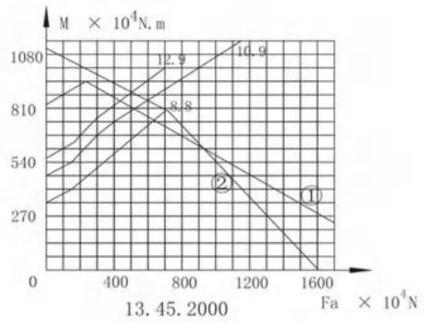

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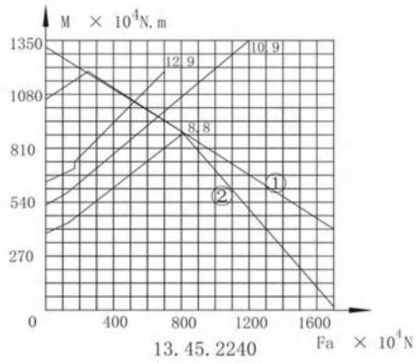

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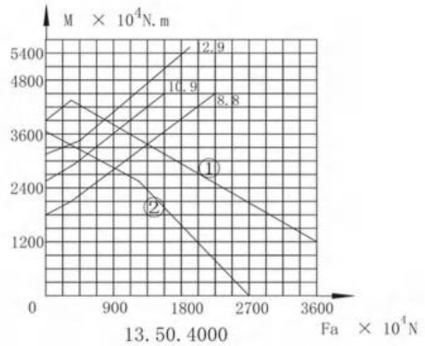

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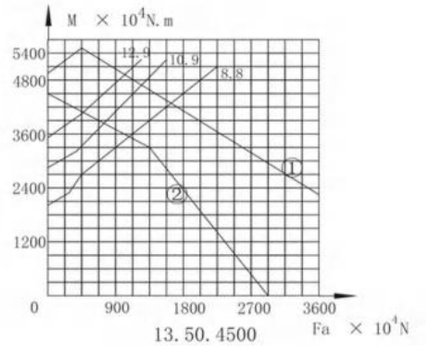

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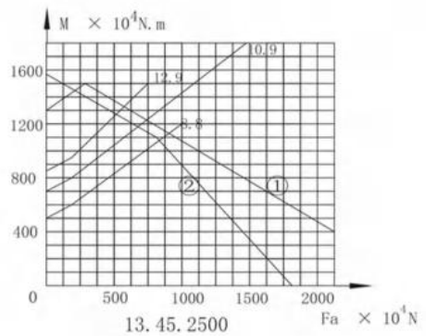

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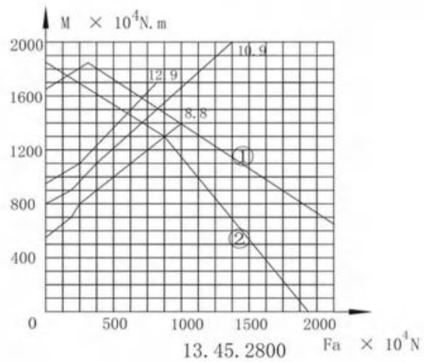

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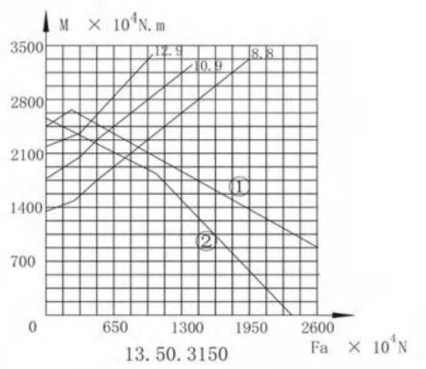

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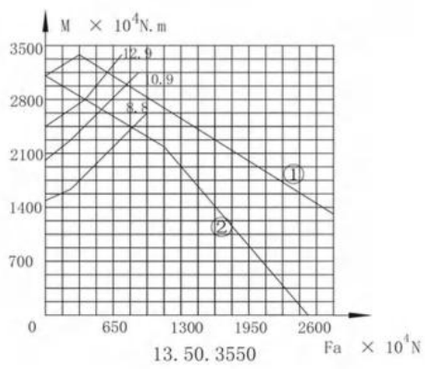

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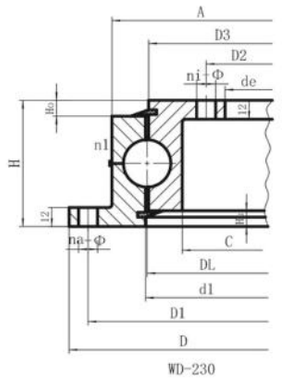
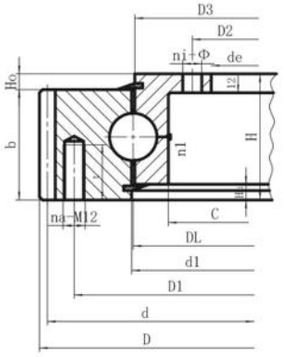


WD-230



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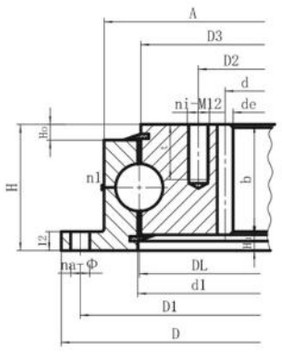


WD-232

7、轻型回转支承结构参数

7.1 轻型回转支承 I 结构参数

结构特点、性能、适用范围

轻型回转支承具有与普通回转支承相同的结构形式，重量轻，转动灵活。广泛应用于食品机械、灌装机械、环保机械等领域

无齿式薄形回转支承 Toothless thin slewing bearing

型号 Moddle	重量 Weight	外型尺寸 Dimensions			安装尺寸 Installation Size		
		D	de	H	D1	D2	na
-230.20.0414	23.0	518	304	56	490	332	16
-230.20.0544	30.4	648	434	56	620	462	20
-230.20.0644	35.8	748	534	56	720	562	24
-230.20.0744	42.2	848	634	56	820	662	24
-230.20.0844	47.1	948	734	56	920	762	28
-230.20.0944	52.3	1048	834	56	1020	862	32
-230.20.1094	61.1	1198	984	56	1170	1012	32

外齿式薄形回转支承 External teeth thin slewing bearing

-231.20.0414	29.0	504	304	56	455	332	10
-231.20.0544	39.2	640.8	434	56	585	462	14
-231.20.0644	47.2	742.8	534	56	685	562	16
-231.20.0744	53.1	838.8	634	56	785	662	18
-231.20.0844	64.7	950.4	734	56	885	762	18
-231.20.0944	69.1	1046.4	834	56	985	862	20
-231.20.1094	82.5	1198.4	984	56	1135	1012	22

内齿式薄形回转支承 Inner teeth thin slewing bearing

-232.20.0414	26.9	518	326.5	56	490	375	16
-232.20.0544	36.7	648	445.5	56	620	505	20
-232.20.0644	43.4	748	547.5	56	720	605	24
-232.20.0744	50.8	848	649.2	56	820	705	24
-232.20.0844	61.3	948	737.6	56	920	805	28
-232.20.0944	65.4	1048	841.6	56	1020	905	32
-232.20.1094	80.3	1198	985.6	56	1170	1055	32

7. Light type slewing bearing parameters

7.1 Light type slewing bearing parameters I

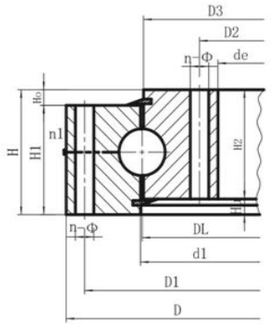
Design feature/Function/Application scope

The light slewing bearing has the same structure with four point contact ball slewing bearing, but the weight is light and could be used for some light type machinery applications.

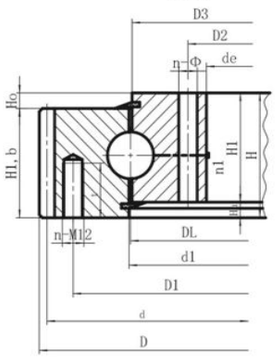
The light slewing bearing ring has been widely used in many applications:

1. Food machinery 2. Canning machinery 3. Environmental machinery

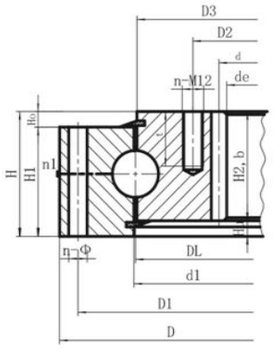
				结构尺寸 Structure Size							齿轮参数 Gear Data					允许圆周力	最大允许圆周力	轴承轴向间隙	轴承径向间隙
Φ/M	ni	Φ/M	t	n1	D3	d1	A	C	Hu	Ho	d	m	z	b	k.m				
18	24	18	20	4	412.5	415.5	453	375	10.5	10.5								≤ 0.5	≤ 0.5
18	28	18	20	4	542.5	545.5	583	505	10.5	10.5								≤ 0.5	≤ 0.5
18	32	18	20	4	642.5	645.5	683	605	10.5	10.5								≤ 0.5	≤ 0.5
18	32	18	20	4	742.5	745.5	783	705	10.5	10.5								≤ 0.5	≤ 0.5
18	36	18	20	4	842.5	845.5	883	805	10.5	10.5								≤ 0.5	≤ 0.5
18	40	18	20	4	942.5	945.5	983	905	10.5	10.5								≤ 0.5	≤ 0.5
18	40	18	20	4	1092.5	1095.5	1133	1055	10.5	10.5								≤ 0.5	≤ 0.5
M12	24	18	20	4	412.5	415.5		375	10.5	10.5	495	5	99	45.5	- 0.5	11.75	23.50	≤ 0.5	≤ 0.5
M12	28	18	20	4	542.5	545.5		505	10.5	10.5	630	6	105	45.5	- 0.5	14.2	28.40	≤ 0.5	≤ 0.5
M12	32	18	20	4	642.5	645.5		605	10.5	10.5	732	6	122	45.5	- 0.6	14.2	28.40	≤ 0.5	≤ 0.5
M12	32	18	20	4	742.5	745.5		705	10.5	10.5	828	6	138	45.5	- 0.6	14.2	28.40	≤ 0.5	≤ 0.5
M12	36	18	20	4	842.5	845.5		805	10.5	10.5	936	8	117	45.5	- 0.8	18.93	37.86	≤ 0.5	≤ 0.5
M12	40	18	20	4	942.5	945.5		905	10.5	10.5	1032	8	129	45.5	- 0.8	18.93	37.86	≤ 0.5	≤ 0.5
M12	40	18	20	4	1092.5	1095.5		1055	10.5	10.5	1184	8	148	45.5	- 0.8	18.93	37.86	≤ 0.5	≤ 0.5
18	12	M12	20	4	412.5	415.5	453		10.5	10.5	335	5	67	45.5	- 0.8	13.54	27.08	≤ 0.5	≤ 0.5
18	16	M12	20	4	542.5	545.5	583		10.5	10.5	456	6	76	45.5	- 0.6	16.00	32.00	≤ 0.5	≤ 0.5
18	18	M12	20	4	642.5	645.5	683		10.5	10.5	558	6	93	45.5	- 0.6	15.62	31.24	≤ 0.5	≤ 0.5
18	20	M12	20	4	742.5	745.5	783		10.5	10.5	660	6	110	45.5	- 0.6	15.32	30.64	≤ 0.5	≤ 0.5
18	20	M12	20	4	842.5	845.5	883		10.5	10.5	752	8	94	45.5	- 0.8	20.8	41.60	≤ 0.5	≤ 0.5
18	22	M12	20	4	942.5	945.5	983		10.5	10.5	856	8	107	45.5	- 0.8	20.49	40.98	≤ 0.5	≤ 0.5
18	24	M12	20	4	1092.5	1095.5	1133		10.5	10.5	1000	8	125	45.5	- 0.8	20.16	40.32	≤ 0.5	≤ 0.5



WD-060



WD-061



WD-062

7.2 轻型回转支承 II 结构参数

结构特点、性能、适用范围

轻型回转支承具有与普通回转支承相同的结构形式，重量轻，转动灵活。广泛应用于食品机械、灌装机械、环保机械等领域

无齿式薄型回转支承 Toothless thin slewing bearing

型号 Moddle	重量 Weight	外型尺寸 Dimensions			安装尺寸 Installation Size		
		D	de	H	D1	D2	na
DL	kg	mm					
-060.20.0414	29	486	342	56	460	368	24
-060.20.0544	37	616	472	56	590	498	32
-060.20.0644	44	716	572	56	690	598	36
-060.20.0744	52	816	672	56	790	698	40
060.20.0844	60	916	772	56	890	798	40
-060.20.0944	67	1016	872	56	990	898	44
060.20.1094	77	1166	1022	56	1140	1048	48

外齿式薄型回转支承 External teeth thin slewing bearing

-061.20.0414	31	504	342	56	455	368	20/24
-061.20.0544	43	640.8	472	56	585	498	28/32
-061.20.0644	52	742.8	572	56	685	598	32/36
-061.20.0744	59	838.8	672	56	785	698	36/40
-061.20.0844	71	950.4	772	56	885	798	36/40
-061.20.0944	77	1046.4	872	56	985	898	40/44
-061.20.1094	91	1198.4	1022	56	1135	1048	44/48

内齿式薄型回转支承 Inner teeth thin slewing bearing

-062.20.0414	31	486	326.5	56	460	375	24
062.20.0544	42	616	445.2	56	590	505	32
-062.20.0644	50	716	547.2	56	690	605	36
062.20.0744	58	816	649.2	56	790	705	40
062.20.0844	69	916	737.6	56	890	805	40
062.20.0944	76	1016	841.6	56	990	905	44
-062.20.1094	91	1166	985.6	56	1140	1055	48

7.2 Light type slewing bearing parameters II

Design feature/Function/Application scope

The light slewing bearing has the same structure with four point contact ball slewing bearing, but the weight is light and could be used for some light type machinery applications.

The light slewing bearing ring has been widely used in many applications:

1. Food machinery 2. Canning machinery 3. Environmental machinery

			结构尺寸 Structure Size						齿轮参数 Gear Data					齿轮圆周力 Tooth Force		轴承轴向间隙	轴承径向间隙
Φ	M	t	D3	d1	H1	H2	Hu	Ho	d	m	z	k.m	b	允许圆周力	最大允许圆周力		
mm			mm									mm		KN	KN	mm	
13.5	12	20	412.5	415.5	45.5	45.5	10.5	10.5								≤ 0.28	≤ 0.24
13.5	12	20	542.5	545.5	45.5	45.5	10.5	10.5								≤ 0.30	≤ 0.26
13.5	12	20	642.5	645.5	45.5	45.5	10.5	10.5								≤ 0.30	≤ 0.26
13.5	12	20	742.5	745.5	45.5	45.5	10.5	10.5								≤ 0.30	≤ 0.26
13.5	12	20	842.5	845.5	45.5	45.5	10.5	10.5								≤ 0.30	≤ 0.26
13.5	12	20	942.5	945.5	45.5	45.5	10.5	10.5								≤ 0.30	≤ 0.26
13.5	12	20	1092.5	1095.5	45.5	45.5	10.5	10.5								≤ 0.30	≤ 0.26
13.5	12	20	412.5	415.5	45.5	45.5	10.5	10.5	495	5	99	- 0.5	45.5	11.75	23.5	≤ 0.28	≤ 0.24
13.5	12	20	542.5	545.5	45.5	45.5	10.5	10.5	630	6	105	- 0.6	45.5	14.2	28.4	≤ 0.30	≤ 0.26
13.5	12	20	642.5	645.5	45.5	45.5	10.5	10.5	732	6	122	- 0.6	45.5	14.2	28.4	≤ 0.30	≤ 0.26
13.5	12	20	742.5	745.5	45.5	45.5	10.5	10.5	828	6	138	- 0.6	45.5	14.2	28.4	≤ 0.30	≤ 0.26
13.5	12	20	842.5	845.5	45.5	45.5	10.5	10.5	936	8	117	- 0.8	45.5	18.93	37.86	≤ 0.30	≤ 0.26
13.5	12	20	942.5	945.5	45.5	45.5	10.5	10.5	1032	8	129	- 0.8	45.5	18.93	37.86	≤ 0.30	≤ 0.26
13.5	12	20	1092.5	1095.5	45.5	45.5	10.5	10.5	1184	8	148	- 0.8	45.5	18.93	37.86	≤ 0.30	≤ 0.26
13.5	12	20	412.5	415.5	45.5	45.5	10.5	10.5	335	5	67	- 0.8	45.5	13.54	27.08	≤ 0.28	≤ 0.24
13.5	12	20	542.5	545.5	45.5	45.5	10.5	10.5	456	6	76	- 0.6	45.5	16.00	32.00	≤ 0.30	≤ 0.26
13.5	12	20	642.5	645.5	45.5	45.5	10.5	10.5	558	6	93	- 0.6	45.5	15.62	31.24	≤ 0.30	≤ 0.26
13.5	12	20	742.5	745.5	45.5	45.5	10.5	10.5	660	6	110	- 0.6	45.5	15.32	30.64	≤ 0.30	≤ 0.26
13.5	12	20	842.5	845.5	45.5	45.5	10.5	10.5	752	8	94	- 0.8	45.5	20.8	41.60	≤ 0.30	≤ 0.26
13.5	12	20	942.5	945.5	45.5	45.5	10.5	10.5	856	8	107	- 0.8	45.5	20.49	40.98	≤ 0.30	≤ 0.26
13.5	12	20	1092.5	1095.5	45.5	45.5	10.5	10.5	1000	8	125	- 0.8	45.5	20.16	40.32	≤ 0.30	≤ 0.26

7.3 轻型回转支承 I 承载曲线 Light type slewing bearing curve I

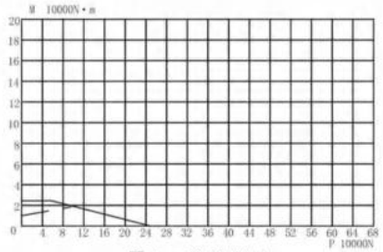


图 1 23.20.0414

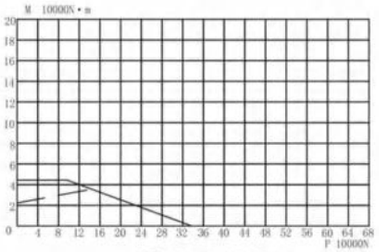


图 2 23.20.0544

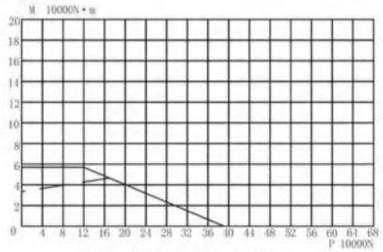


图 3 23.20.0644

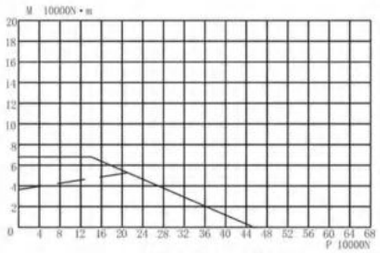


图 4 23.20.0744

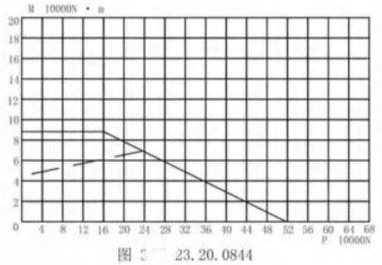


图 5 23.20.0844

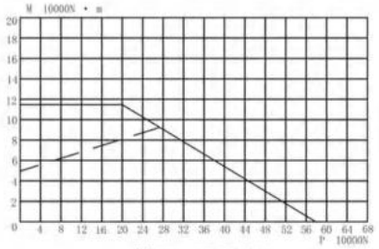


图 6 23.20.0944

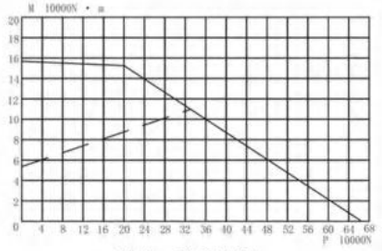


图 7 23.20.1094

7.4 轻型回转支承 II 承载曲线 Light type slewing bearing curve II

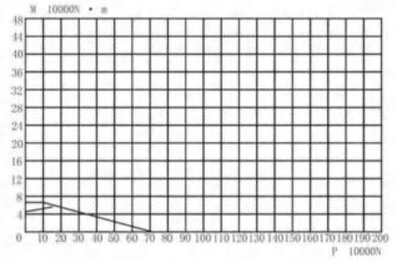


图 1 06.20.0414

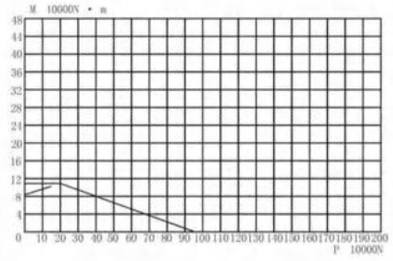


图 2 06.20.0544

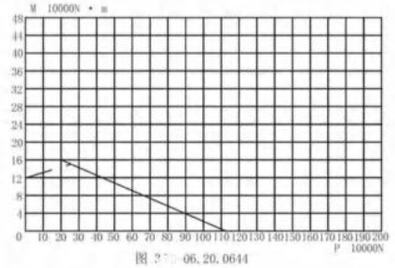


图 3 06.20.0644

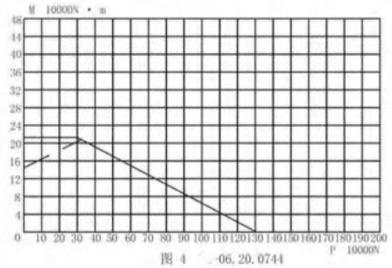


图 4 06.20.0744

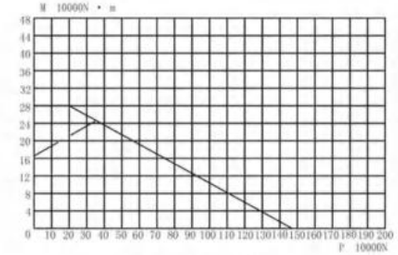


图 5 06.20.0844

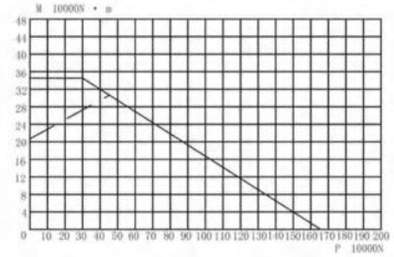


图 6 06.20.0944

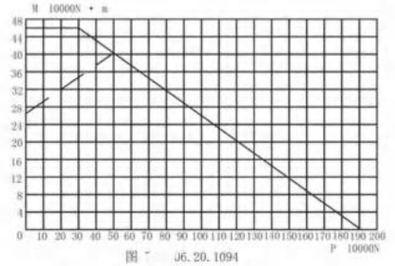


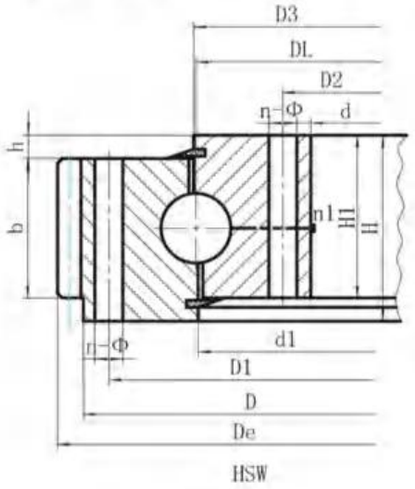
图 7 06.20.1094

8. 单排四点接触球式回转支承 JB2300-78A结构参数（HS系列）

Single row four point contact ball slewing bearing JB2300-78A structural parameters (HS Series)

8.1 单排四点接触球式回转支承结构参数-外齿式

Single row four point contact ball slewing bearing structural parameter—external gear



HSW

序号 NO.	外齿式 External Gear DL mm	外型尺寸 Dimensions D mm	d mm	H mm
1	HSW.25.625	725	525	80
	HSW.25.625A			
2	HSW.25.720	820	620	80
	HSW.25.720A			
3	HSW.30.820	940	705	95
	HSW.30.820A			
4	HSW.30.880	1000	760	95
	HSW.30.880A			
5	HSW.30.1020	1170	875	95
	HSW.30.1020A			
6	HSW.30.1220	1365	1075	120
	HSW.30.1220A			
7	HSW.35.1250	1400	1090	120
	HSW.35.1250A			
8	HSW.35.1435	1595	1278	120
	HSW.35.1435A			
9	HSW.35.1540	1720	1360	140
	HSW.35.1540A			
10	HSW.35.1700	1875	1525	140
	HSW.35.1700A			
11	HSW.40.1880	2100	1665	160
	HSW.40.1880A			
12	HSW.40.2115	2325	1900	160
	HSW.40.2115A			
13	HSW.40.2370	2600	2146	180
	HSW.40.2370A			
14	HSW.40.2600	2835	2365	180
	HSW.40.2600A			
15	HSW.50.2820	3085	2555	200
	HSW.50.2820A			
16	HSW.50.3120	3400	2840	200
	HSW.50.3120A			
17	HSW.50.3580	3920	3240	240
	HSW.50.3580A			
18	HSW.50.4030	4370	3690	240
	HSW.50.4030A			
19	HSW.50.4540	4860	4210	240
	HSW.50.4540A			

安装尺寸 Installation Size				结构尺寸 Structure Size					齿轮参数 Gear Data					齿轮圆周力 Tooth Force	参考重量
D1 mm	D2 mm	n	Ø mm	n1	D3 mm	d1 mm	H1 mm	h mm	b mm	x	m mm	De mm	z	调质 T 10^3N	kg
685	565	18	18	3	626	624	68	12	60	1.4	5	751.9	146	5.2	100
										1.15	6	755.5	122	6.2	
780	660	18	18	3	721	719	68	12	60	1.4	6	860.3	139	6.2	120
										1	8	861.1	104	8.3	
893	749	24	20	4	821	818	83	12	70	1.4	6	980.6	159	7.2	210
										1	10	986.2	95	12.2	
956	800	24	20	4	881	878	83	12	70	1.15	8	1047.5	127	9.7	230
										1	10	1046.3	101	12.2	
1120	930	24	22	4	1021	1018	80	15	70	1.4	8	1219.3	148	9.7	300
										1.15	10	1219.2	118	12.2	
1310	1130	36	24	6	1221	1218	105	15	90	1.4	10	1424.9	138	15.7	450
										1	12	1435.9	116	18.8	
1350	1150	36	26	6	1251	1248	105	15	90	-0.35	10	1443	143	15.7	520
										1	12	1449.6	117	18.8	
1535	1335	36	26	6	1436	1433	105	15	90	1.15	12	1655.5	134	18.8	610
										1	14	1661.2	115	21.9	
1660	1420	42	26	6	1541	1538	122	18	110	1.4	12	1780.8	144	23	732
										1.15	14	1791.1	124	26.8	
1815	1585	42	29	6	1701	1698	122	18	110	1.15	14	1945.4	135	26.8	844
										1.15	16	1950.8	118	30.5	
2030	1740	48	32	6	1881	1878	140	20	115	1.4	14	2189.8	152	27.8	1400
										1.15	18	2194.6	118	35.8	
2245	1980	48	32	6	2116	2113	140	20	115	1.4	16	2406.5	146	31.9	1600
										1.15	20	2418.4	117	40	
2520	2220	48	32	6	2371	2368	158	22	130	1.4	18	2707.3	146	40.7	2100
										1.15	22	2704.4	119	49.7	
2750	2450	54	36	6	2601	2598	158	22	130	1.4	18	2941.7	159	37.6	2400
										1.15	22	2946.9	130	45.9	
3000	2640	54	36	6	2822	2818	178	22	150	1.4	20	3188.4	155	52.2	3400
										1.15	25	3198.4	124	65.3	
3310	2930	54	36	6	3122	3118	178	22	150	1.4	22	3507.2	155	57.4	4000
										1.4	25	3509.6	136	65.3	
3820	3340	60	40	6	3582	3578	218	22	190	1.4	22	4036.1	179	72.7	6700
										1.4	25	4035.6	157	82.6	
4270	3790	66	40	6	4032	4028	218	22	190	1.4	22	4520.6	201	53.6	7700
										1.4	28	4522.4	157	68.2	
4760	4310	72	40	6	4542	4538	218	22	190	1.4	22	4983.1	222	72.1	8760
										1.4	30	4992.9	162	99.1	

结构特点、性能、适用范围

Design feature/Function/Application scope

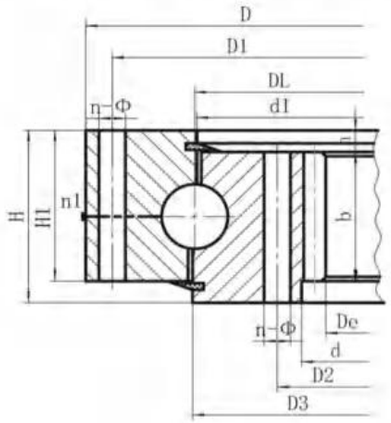
单排四点接触球式回转支承由两个座圈组成，结构紧凑、钢球与圆弧滚道四点接触。主要用于汽车起重机、塔式起重机、挖掘机、打桩机、工程作业车、雷达扫描设备等承受倾翻力矩、垂直轴向力、水平倾向力作用的机械上。

Single row four point contact ball slewing rings are composed of two seat rings, which design in compact structure and light weight, steel ball contact with the circular raceway at four points.

The single row ball slewing ring has been widely used in many applications:

1. Slewing conveyor　　2. Welding manipulator
3. Different excavators　　4. Light and medium duty cranes (truck mounted crane, dec crane, aerial platform truck etc.)

8.2 单排四点接触球式回转支承结构参数-内齿式
Single row four point contact ball slewing bearing structural parameter—internal gear



HSN

结构特点、性能、适用范围
Design feature/Function/Application scope

单排四点接触球式回转支承由两个座圈组成，结构紧凑、钢球与圆弧滚道四点接触。主要用于汽车起重机、塔式起重机、挖掘机、打桩机、工程作业车、雷达扫描设备等承受倾翻力矩、垂直轴向力、水平倾向力作用的机械上。

Single row four point contact ball slewing rings are composed of two seat rings, which design in compact structure and light weight, steel ball contact with the circular raceway at four points.

The single row ball slewing ring has been widely used in many applications:

1. Slewing conveyor　　2. Welding manipulator
3. Different excavators　　4. Light and medium duty cranes (truck mounted crane, dec crane, aerial platform truck etc.)

序号 NO.	内齿式 Internal Gear DL mm	外型尺寸 Dimensions D mm	d mm	H mm
1	HSN.25.625	725	525	80
	HSN.25.625A			
2	HSN.25.720	820	620	80
	HSN.25.720A			
3	HSN.30.820	940	705	95
	HSN.30.820A			
4	HSN.30.880	1000	760	95
	HSN.30.880A			
5	HSN.30.1020	1170	875	95
	HSN.30.1020A			
6	HSN.30.1220	1365	1075	120
	HSN.30.1220A			
7	HSN.35.1250	1400	1090	120
	HSN.35.1250A			
8	HSN.35.1435	1595	1278	120
	HSN.35.1435A			
9	HSN.35.1540	1720	1360	140
	HSN.35.1540A			
10	HSN.35.1700	1875	1525	140
	HSN.35.1700A			
11	HSN.40.1880	2100	1665	160
	HSN.40.1880A			
12	HSN.40.2115	2325	1900	160
	HSN.40.2115A			
13	HSN.40.2370	2600	2146	180
	HSN.40.2370A			
14	HSN.40.2600	2835	2365	180
	HSN.40.2600A			
15	HSN.50.2820	3085	2555	200
	HSN.50.2820A			
16	HSN.50.3120	3400	2840	200
	HSN.50.3120A			
17	HSN.50.3580	3920	3240	240
	HSN.50.3580A			
18	HSN.50.4030	4370	3690	240
	HSN.50.4030A			
19	HSN.50.4540	4860	4210	240
	HSN.50.4540A			

安装尺寸 Installation Size D1 mm	D2 mm	n	θ mm	结构尺寸 Structure Size n1	D3 mm	d1 mm	H1 mm	h mm	齿轮参数 Gear Data b mm	x	m mm	De mm	z	齿轮圆周力 Tooth Force 调质 T 10^4N	参考重量 kg
685	565	18	18	3	626	624	68	12	60	0.35	5	498.8	101	5.2	100
										0.35	6	496.7	84	6.2	
780	660	18	18	3	721	719	68	12	60	0.35	6	586.6	99	6.2	120
										0.35	8	582.3	74	8.3	
893	749	24	20	4	821	818	83	12	70	0.35	6	664.5	112	7.2	210
										0.35	10	658	67	12.2	
956	800	24	20	4	881	878	83	12	70	0.35	8	718.2	91	9.7	230
										0.35	10	707.9	72	12.2	
1120	930	24	22	4	1021	1018	80	15	70	0.35	8	830.1	105	9.7	300
										0.35	10	827.8	84	12.2	
1310	1130	36	24	6	1221	1218	105	15	90	0.35	10	1027.8	104	15.7	450
										0.35	12	1017.3	86	18.8	
1350	1150	36	26	6	1251	1248	105	15	90	0.35	10	1037	105	15.7	520
										0.35	12	1028.8	87	18.8	
1535	1335	36	26	6	1436	1433	105	15	90	0.35	12	1221.2	103	18.8	610
										0.35	14	1214.8	88	21.9	
1660	1420	42	26	6	1541	1538	122	18	110	0.35	12	1293.1	109	23	732
										0.35	14	1284.8	93	26.8	
1815	1585	42	29	6	1701	1698	122	18	110	0.35	14	1452.7	105	26.8	844
										0.35	16	1452.3	92	30.5	
2030	1740	48	32	6	1881	1878	140	20	115	0.35	14	1592.6	115	27.8	1400
										0.35	18	1579.9	89	35.8	
2245	1980	48	32	6	2116	2113	140	20	115	0.35	16	1804.1	114	31.9	1600
										0.35	20	1795.4	91	40	
2520	2220	48	32	6	2371	2368	158	22	130	0.35	18	2065.6	116	40.7	2100
										0.35	22	2040.9	94	49.7	
2750	2450	54	36	6	2601	2598	158	22	130	0.35	18	2263.5	127	37.6	2400
										0.35	22	2260.8	104	45.9	
3000	2640	54	36	6	2822	2818	178	22	150	0.35	20	2455	124	52.2	3400
										0.35	25	2444.1	99	65.3	
3310	2930	54	36	6	3122	3118	178	22	150	0.35	22	2722.5	125	57.4	4000
										0.35	25	2719	110	65.3	
3820	3340	60	40	6	3582	3578	218	22	190	0.35	22	3118.4	143	72.7	6700
										0.35	25	3118.8	126	82.6	
4270	3790	66	40	6	4032	4028	218	22	190	0.35	22	3558.3	163	53.6	7700
										0.35	28	3549	128	68.2	
4760	4310	72	40	6	4542	4538	218	22	190	0.35	22	4042.2	185	72.1	8760
										0.35	30	4042.4	136	99.1	

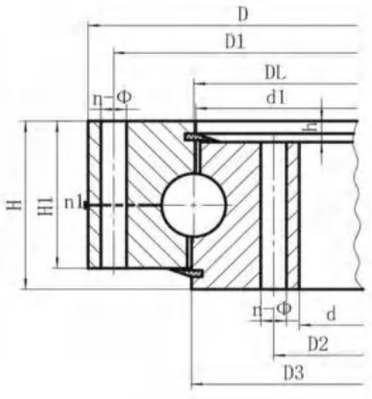
8.3 单排四点接触球式回转支承结构参数-无齿式
Single row four point contact ball slewing bearing structural parameter—non gear

结构特点、性能、适用范围

单排四点接触球式回转支承由两个座圈组成，结构紧凑、钢球与圆弧滚道四点接触。主要用于汽车起重机、塔式起重机、挖掘机、打桩机、工程作业车、雷达扫描设备等承受倾翻力矩、垂直轴向力、水平倾向力作用的机械上。

Design feature/Function/Application scope

Single row four point contact ball slewing rings are composed of two seat rings, which design in compact structure and light weight, steel ball contact with the circular raceway at four points.
The single row ball slewing ring has been widely used in many applications:
1. Slewing conveyor 2. Welding manipulator
3. Different excavators 4. Light and medium duty cranes (truck mounted crane, dec crane, aerial platform truck etc.)



HSB

序号 NO.	无齿式 Non Gear DL mm	外型尺寸 Dimensions D mm	d mm	H mm	D1 mm
1	HSB.20.625	725	525	80	685
2	HSB.20.720	820	620	80	780
3	HSB.30.820	940	705	95	893
4	HSB.30.880	1000	760	95	956
5	HSB.30.1020	1170	875	95	1120
6	HSB.36.1220	1365	1075	120	1310
7	HSB.36.1250	1400	1090	120	1350
8	HSB.36.1435	1595	1278	120	1535
9	HSB.45.1540	1720	1360	140	1660
10	HSB.45.1700	1875	1525	140	1815
11	HSB.45.1880	2100	1665	160	2030
12	HSB.45.2115	2325	1900	160	2245
13	HSB.45.2370	2600	2146	180	2520
14	HSB.45.2600	2835	2365	180	2750
15	HSB.50.2820	3085	2555	200	3000
16	HSB.50.3120	3400	2840	200	3310
17	HSB.50.3580	3920	3240	240	3820
18	HSB.50.4030	4370	3690	240	4270
19	HSB.50.4540	4860	4210	240	4760

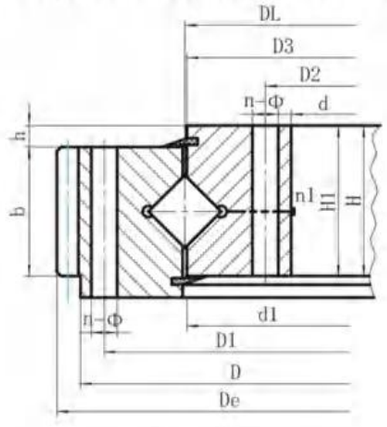
安装尺寸 Installation Size			结构尺寸 Structure Size					齿轮参数 Gear Data					齿轮圆周力 Tooth Force	参考重量
D2 mm	n	Ø mm	n1	D3 mm	d1 mm	H1 mm	h mm	b mm	x	m mm	De mm	z	调质 $T\ 10^4N$	kg
565	18	18	3	623	627	68	12							100
660	18	18	3	718	722	68	12							120
749	24	20	4	818	822	83	12							210
800	24	20	4	878	882	83	12							230
930	24	22	4	1018	1022	80	15							300
1130	36	24	6	1218	1222	105	15							450
1150	36	26	6	1248	1252	105	15							520
1335	36	26	6	1433	1437	105	15							610
1420	42	26	6	1537	1543	122	18							732
1585	42	29	6	1697	1703	122	18							844
1740	48	32	6	1876	1883	140	20							1400
1980	48	32	6	2112	2118	140	20							1600
2220	48	32	6	2367	2373	158	22							2100
2450	54	36	6	2597	2603	158	22							2400
2640	54	36	6	2817	2823	178	22							3400
2930	54	36	6	3117	3123	178	22							4000
3340	60	40	6	3577	3583	218	22							6700
3790	66	40	6	4027	4033	218	22							7700
4310	72	40	6	4537	4543	218	22							8760

9. 单排交叉滚柱式回转支承 JB2300-78A结构参数（HJ系列）

Single row cross roller slewing bearing JB2300 -78A structural parameters (HJ Series)

9.1 单排交叉滚柱式回转支承结构参数-外齿式

Single row Single row cross roller slewing bearing structural parameter—external gear



HJW

序号 NO.	外齿式 External Gear DL mm	外型尺寸 Dimensions D mm	d mm	H mm	D1 mm
1	HJW.20.625	725	525	80	685
	HJW.20.625A				
2	HJW.20.720	820	620	80	780
	HJW.20.720A				
3	HJW.30.820	940	705	95	893
	HJW.30.820A				
4	HJW.30.880	1000	760	95	956
	HJW.30.880A				
5	HJW.30.1020	1170	875	95	1120
	HJW.30.1020A				
6	HJW.36.1220	1365	1075	120	1310
	HJW.36.1220A				
7	HJW.36.1250	1400	1090	120	1350
	HJW.36.1250A				
8	HJW.36.1435	1595	1278	120	1535
	HJW.36.1435A				
9	HJW.45.1540	1720	1360	140	1660
	HJW.45.1540A				
10	HJW.45.1700	1875	1525	140	1815
	HJW.45.1700A				
11	HJW.45.1880	2100	1665	160	2030
	HJW.45.1880A				
12	HJW.45.2115	2325	1900	160	2245
	HJW.45.2115A				
13	HJW.45.2370	2600	2146	180	2520
	HJW.45.2370A				
14	HJW.45.2600	2835	2365	180	2750
	HJW.45.2600A				
15	HJW.50.2820	3085	2555	200	3000
	HJW.50.2820A				
16	HJW.50.3120	3400	2840	200	3310
	HJW.50.3120A				
17	HJW.50.3580	3920	3240	240	3820
	HJW.50.3580A				
18	HJW.50.4030	4370	3690	240	4270
	HJW.50.4030A				
19	HJW.50.4540	4860	4210	240	4760
	HJW.50.4540A				

安装尺寸 Installation Size D2 mm	n	(l) mm	结构尺寸 Structure Size n1	D3 mm	d1 mm	H1 mm	h mm	齿轮参数 Gear Data b mm	x	m mm	De mm	z	齿轮圆周力 Tooth Force 调质 T 10^3N	参考重量 kg
565	18	18	3	623	627	68	12	60	1.4	5	751.9	146	5.2	100
									1.15	6	755.5	122	6.2	
660	18	18	3	718	722	68	12	60	1.4	6	860.3	139	6.2	120
									1	8	861.1	104	8.3	
749	24	20	4	818	822	83	12	70	1.4	6	980.6	159	7.2	210
									1	10	986.2	95	12.2	
800	24	20	4	878	882	83	12	70	1.15	8	1047.5	127	9.7	230
									1	10	1046.3	101	12.2	
930	24	22	4	1018	1022	80	15	70	1.4	8	1219.3	148	9.7	300
									1.15	10	1219.2	118	12.2	
1130	36	24	6	1218	1222	105	15	90	1.4	10	1424.9	138	15.7	450
									1	12	1435.9	116	18.8	
1150	36	26	6	1248	1252	105	15	90	-0.35	10	1443	143	15.7	520
									1	12	1449.6	117	18.8	
1335	36	26	6	1433	1437	105	15	90	1.15	12	1655.5	134	18.8	610
									1	14	1661.2	115	21.9	
1420	42	26	6	1537	1543	122	18	110	1.4	12	1780.8	144	23	732
									1.15	14	1791.1	124	26.8	
1585	42	29	6	1697	1703	122	18	110	1.15	14	1945.4	135	26.8	844
									1.15	16	1950.8	118	30.5	
1740	48	32	6	1876	1883	140	20	115	1.4	14	2189.8	152	27.8	1400
									1.15	18	2194.6	118	35.8	
1980	48	32	6	2112	2118	140	20	115	1.4	16	2406.5	146	31.9	1600
									1.15	20	2418.4	117	40	
2220	48	32	6	2367	2373	158	22	130	1.4	18	2707.3	146	40.7	2100
									1.15	22	2704.4	119	49.7	
2450	54	36	6	2597	2603	158	22	130	1.4	18	2941.7	159	37.6	2400
									1.15	22	2946.9	130	45.9	
2640	54	36	6	2817	2823	178	22	150	1.4	20	3188.4	155	52.2	3400
									1.15	25	3198.4	124	65.3	
2930	54	36	6	3117	3123	178	22	150	1.4	22	3507.2	155	57.4	4000
									1.4	25	3509.6	136	65.3	
3340	60	40	6	3577	3583	218	22	190	1.4	22	4036.1	179	72.7	6700
									1.4	25	4035.6	157	82.6	
3790	66	40	6	4027	4033	218	22	190	1.4	22	4520.6	201	53.6	7700
									1.4	28	4522.4	157	68.2	
4310	72	40	6	4537	4543	218	22	190	1.4	22	4983.1	222	72.1	8760
									1.4	30	4992.9	162	99.1	

结构特点、性能、适用范围

Design feature/Function/Application scope

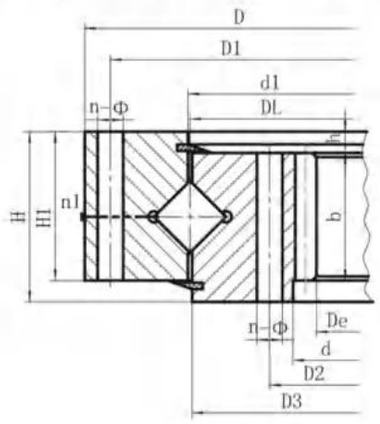
单排交叉滚柱式回转支承，由两个座圈组成，结构紧凑、重量轻、制造精度高，装配间隙小，对安装精度要求高，滚柱为1:1交叉排列，能同时承受轴向力、倾翻力矩和较大的径向力，被广泛地用于起重运输，工程机械和军工产品上

The single row crossed roller bearing is composed of two seat rings, which design in compact structure and light weight.As the rollers are 1:1 cross arranged, it is suitable for high precision mounting and capable to bear axial force, resultant moment and considerable large radial force.

The single row crossed roller bearing has been widely used in many applications:

1. Lifting transportation 2. construction machinery
3. military products

9.2 单排交叉滚柱式回转支承结构参数-内齿式
Single row Single row cross roller slewing bearing structural parameter—internal gear



HJN

序号 NO.	内齿式 Internal Gear DL mm	外型尺寸 Dimensions D mm	d mm	H mm	D1 mm
1	HJN.20.625	725	525	80	685
	HJN.20.625A				
2	HJN.20.720	820	620	80	780
	HJN.20.720A				
3	HJN.30.820	940	705	95	893
	HJN.30.820A				
4	HJN.30.880	1000	760	95	956
	HJN.30.880A				
5	HJN.30.1020	1170	875	95	1120
	HJN.30.1020A				
6	HJN.36.1220	1365	1075	120	1310
	HJN.36.1220A				
7	HJN.36.1250	1400	1090	120	1350
	HJN.36.1250A				
8	HJN.36.1435	1595	1278	120	1535
	HJN.36.1435A				
9	HJN.45.1540	1720	1360	140	1660
	HJN.45.1540A				
10	HJN.45.1700	1875	1525	140	1815
	HJN.45.1700A				
11	HJN.45.1880	2100	1665	160	2030
	HJN.45.1880A				
12	HJN.45.2115	2325	1900	160	2245
	HJN.45.2115A				
13	HJN.45.2370	2600	2146	180	2520
	HJN.45.2370A				
14	HJN.45.2600	2835	2365	180	2750
	HJN.45.2600A				
15	HJN.50.2820	3085	2555	200	3000
	HJN.50.2820A				
16	HJN.50.3120	3400	2840	200	3310
	HJN.50.3120A				
17	HJN.50.3580	3920	3240	240	3820
	HJN.50.3580A				
18	HJN.50.4030	4370	3690	240	4270
	HJN.50.4030A				
19	HJN.50.4540	4860	4210	240	4760
	HJN.50.4540A				

安装尺寸 Installation Size D2 mm	n	() mm	结构尺寸 Structure Size n1	D3 mm	d1 mm	H1 mm	h mm	齿轮参数 Gear Data b mm	x	m mm	De mm	z	齿轮圆周力 Tooth Force 调质 T 10^4N	参考重量 kg
565	18	18	3	623	627	68	12	60	0.35	5	498.8	101	5.2	100
									0.35	6	496.7	84	6.2	
660	18	18	3	718	722	68	12	60	0.35	6	586.6	99	6.2	120
									0.35	8	582.3	74	8.3	
749	24	20	4	818	822	83	12	70	0.35	6	664.5	112	7.2	210
									0.35	10	658	67	12.2	
800	24	20	4	878	882	83	12	70	0.35	8	718.2	91	9.7	230
									0.35	10	707.9	72	12.2	
930	24	22	4	1018	1022	80	15	70	0.35	8	830.1	105	9.7	300
									0.35	10	827.8	84	12.2	
1130	36	24	6	1218	1222	105	15	90	0.35	10	1027.8	104	15.7	450
									0.35	12	1017.3	86	18.8	
1150	36	26	6	1248	1252	105	15	90	0.35	10	1037	105	15.7	520
									0.35	12	1028.8	87	18.8	
1335	36	26	6	1433	1437	105	15	90	0.35	12	1221.2	103	18.8	610
									0.35	14	1214.8	88	21.9	
1420	42	26	6	1537	1543	122	18	110	0.35	12	1293.1	109	23	732
									0.35	14	1284.8	93	26.8	
1585	42	29	6	1697	1703	122	18	110	0.35	14	1452.7	105	26.8	844
									0.35	16	1452.3	92	30.5	
1740	48	32	6	1876	1883	140	20	115	0.35	14	1592.6	115	27.8	1400
									0.35	18	1579.9	89	35.8	
1980	48	32	6	2112	2118	140	20	115	0.35	16	1804.1	114	31.9	1600
									0.35	20	1795.4	91	40	
2220	48	32	6	2367	2373	158	22	130	0.35	18	2065.6	116	40.7	2100
									0.35	22	2040.9	94	49.7	
2450	54	36	6	2597	2603	158	22	130	0.35	18	2263.5	127	37.6	2400
									0.35	22	2260.8	104	45.9	
2640	54	36	6	2817	2823	178	22	150	0.35	20	2455	124	52.2	3400
									0.35	25	2444.1	99	65.3	
2930	54	36	6	3117	3123	178	22	150	0.35	22	2722.5	125	57.4	4000
									0.35	25	2719	110	65.3	
3340	60	40	6	3577	3583	218	22	190	0.35	22	3118.4	143	72.7	6700
									0.35	25	3118.8	126	82.6	
3790	66	40	6	4027	4033	218	22	190	0.35	22	3558.3	163	53.6	7700
									0.35	28	3549	128	68.2	
4310	72	40	6	4537	4543	218	22	190	0.35	22	4042.2	185	72.1	8760
									0.35	30	4042.4	136	99.1	

结构特点、性能、适用范围
Design feature/Function/Application scope

单排交叉滚柱式回转支承，由两个座圈组成，结构紧凑、重量轻、制造精度高，装配间隙小，对安装精度要求高，滚柱为1:1交叉排列，能同时承受轴向力、倾翻力矩和较大的径向力，被广泛地用于起重运输，工程机械和军工产品上

The single row crossed roller bearing is composed of two seat rings, which design in compact structure and light weight.As the rollers are 1:1 cross arranged, it is suitable for high precision mounting and capable to bear axial force, resultant moment and considerable large radial force.

The single row crossed roller bearing has been widely used in many applications:

1. Lifting transportation
2. construction machinery
3. military products

9.3 单排交叉滚柱式回转支承结构参数-无齿式
Single row Single row cross roller slewing bearing structural parameter—non gear

结构特点、性能、适用范围

单排交叉滚柱式回转支承，由两个座圈组成，结构紧凑、重量轻、制造精度高，装配间隙小，对安装精度要求高，滚柱为1:1交叉排列，能同时承受轴向力、倾翻力矩和较大的径向力，被广泛地用于起重运输，工程机械和军工产品上

Design feature/Function/Application scope

The single row crossed roller bearing is composed of two seat rings, which design in compact structure and light weight.As the rollers are 1:1 cross arranged, it is suitable for high precision mounting and capable to bear axial force, resultant moment and considerable large radial force.

The single row crossed roller bearing has been widely used in many applications:

1. Lifting transportation 2. construction machinery 3. military products

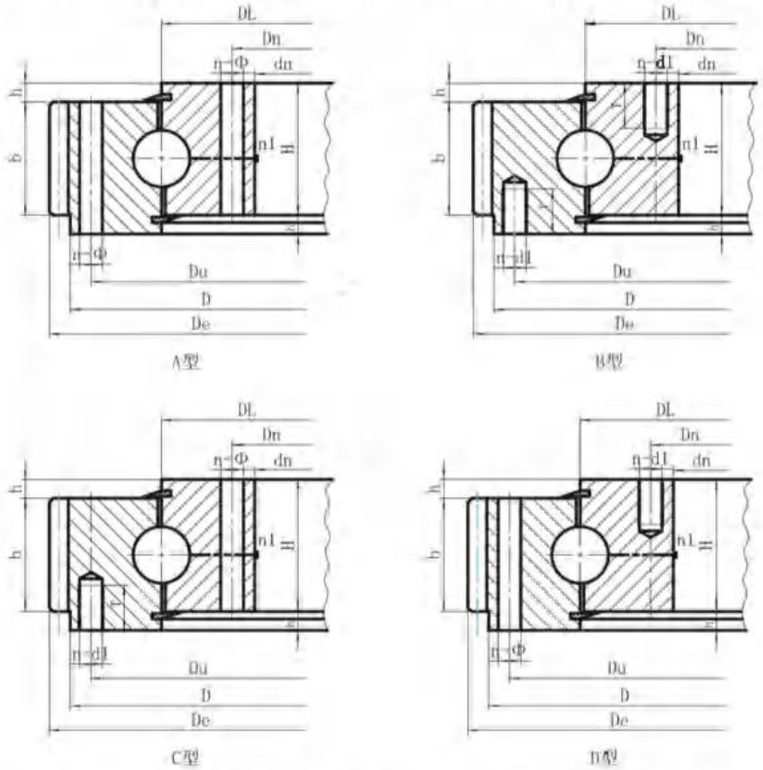
HJB

序号 NO.	无齿式 Non Gear DL mm	外型尺寸 Dimensions			
		D mm	d mm	H mm	D1 mm
1	HJB.20.625	725	525	80	685
2	HJB.20.720	820	620	80	780
3	HJB.30.820	940	705	95	893
4	HJB.30.880	1000	760	95	956
5	HJB.30.1020	1170	875	95	1120
6	HJB.36.1220	1365	1075	120	1310
7	HJB.36.1250	1400	1090	120	1350
8	HJB.36.1435	1595	1278	120	1535
9	HJB.45.1540	1720	1360	140	1660
10	HJB.45.1700	1875	1525	140	1815
11	HJB.45.1880	2100	1665	160	2030
12	HJB.45.2115	2325	1900	160	2245
13	HJB.45.2370	2600	2146	180	2520
14	HJB.45.2600	2835	2365	180	2750
15	HJB.50.2820	3085	2555	200	3000
16	HJB.50.3120	3400	2840	200	3310
17	HJB.50.3580	3920	3240	240	3820
18	HJB.50.4030	4370	3690	240	4270
19	HJB.50.4540	4860	4210	240	4760

安装尺寸 Installation Size			结构尺寸 Structure Size					齿轮参数 Gear Data					齿轮圆周力 Tooth Force	参考重量
D2 mm	n	Ø mm	n1	D3 mm	d1 mm	H1 mm	h mm	b mm	x	m mm	De mm	z	调质 $T\ 10^4N$	kg
565	18	18	3	623	627	68	12							100
660	18	18	3	718	722	68	12							120
749	24	20	4	818	822	83	12							210
800	24	20	4	878	882	83	12							230
930	24	22	4	1018	1022	80	15							300
1130	36	24	6	1218	1222	105	15							450
1150	36	26	6	1248	1252	105	15							520
1335	36	26	6	1433	1437	105	15							610
1420	42	26	6	1537	1543	122	18							732
1585	42	29	6	1697	1703	122	18							844
1740	48	32	6	1876	1883	140	20							1400
1980	48	32	6	2112	2118	140	20							1600
2220	48	32	6	2367	2373	158	22							2100
2450	54	36	6	2597	2603	158	22							2400
2640	54	36	6	2817	2823	178	22							3400
2930	54	36	6	3117	3123	178	22							4000
3340	60	40	6	3577	3583	218	22							6700
3790	66	40	6	4027	4033	218	22							7700
4310	72	40	6	4537	4543	218	22							8760

10. 单排四点接触球式回转支承JG36-99结构参数(Q系列)
Single row four point contact ball slewing bearing JG36-99(Q Series)

10.1 单排四点接触球式结构参数-外齿式
Paramerter of single row four point contact ball slewingbearing -external gear



结构特点、性能、适用范围 Design feature/Function/Application scope

单排四点接触球式回转支承由两个座圈组成，结构紧凑，重量轻，钢球与圆弧滚道四点接触，能同时承受轴向力，径向力和倾翻力矩，回转式传送机，焊接操作机，中小型起重机和挖掘机。

Single row four point contact ball slewing rings are composed of two seat rings, which design in compact structure and light weight, steel ball contact with the circular raceway at four points.

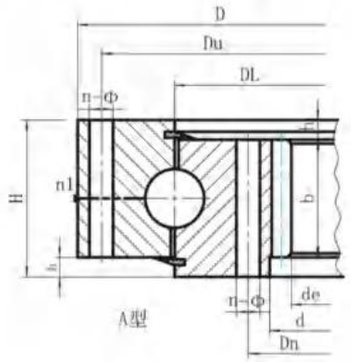
The single row ball slewing ring has been widely used in many applications:

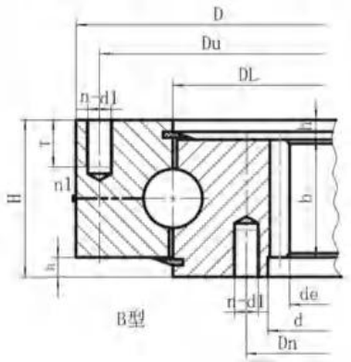
1. Slewing conveyor　　2. Welding manipulator　　3. Different excavators

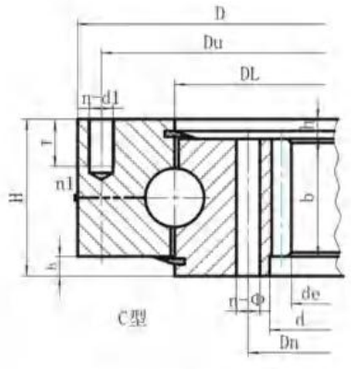
4. Light and medium duty cranes (truck mounted crane, dec crane, aerial platform truck etc.)

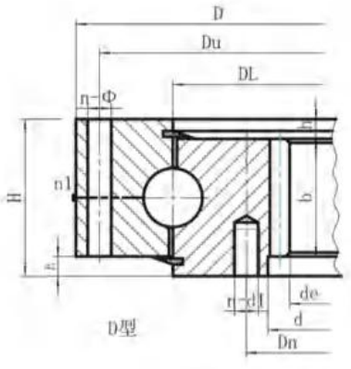
序号 NO.	型号 Model	外型尺寸 Dimensions			安装孔尺寸 Installation Size						结构尺寸 Structure Size		齿轮参数 Gear Data				参考重量
		外齿式 External Gear		H	Du	Dn	n	通孔A	螺孔B/C/D		n1 油杯数量	h	b	m	外齿式x=-0.5		
		D	d					d	d1	T					de	齿数 z	
		mm						mm			mm			mm			kg
1	QW.315.20	406	222	60	370	260	10	18	M16	24	2	10	40	3	423	140	35
	QW.315.20A													4	428	106	36
2	QW.355.20	446	262	60	410	300	10	18	M16	24	2	10	40	3	462	153	40
	QW.355.20A													4	468	116	41
3	QW.400.20	490	307	60	455	345	12	18	M16	24	2	10	40	4	512	127	45
	QW.400.20A													5	520	103	47
4	QW.450.20	540	357	60	505	395	12	18	M16	24	2	10	40	4	564	140	51
	QW.450.20A													5	570	113	53
5	QW.500.20	590	407	60	555	445	14	18	M16	24	2	10	40	5	615	122	56
	QW.500.20A													6	624	103	58
6	QW.560.20	654	464	70	618	502	14	18	M16	30	2	10	50	4	680	169	78
	QW.560.20A													5	685	136	79
7	QW.630.20	724	534	70	688	572	16	18	M16	30	2	10	50	4	748	186	86
	QW.630.20A													5	755	150	88
8	QW.710.20	804	614	70	768	652	18	18	M16	30	2	10	50	5	835	166	99
	QW.710.20A													6	840	139	101
9	QW.800.20	894	704	70	858	742	20	18	M16	30	2	10	50	6	930	154	114
	QW.800.20A													8	936	116	114
10	QW.800.25	904	692	78	864	736	18	22	M20	36	2	10	58	6	942	156	143
	QW.800.25A													8	952	118	147
11	QW.900.25	1004	792	78	964	836	20	22	M20	36	2	10	58	8	1048	130	162
	QW.900.25A													10	1060	105	168
12	QW.1000.25	1104	892	78	1064	936	24	22	M20	36	2	10	58	8	1152	143	182
	QW.1000.25A													10	1160	115	185
13	QW.1000.32	1120	876	90	1074	926	24	24	M22	40	2	10	70	8	1160	144	227
	QW.1000.32A													10	1170	116	232
14	QW.1120.32	1240	996	90	1194	1046	28	24	M22	40	4	10	70	10	1300	129	272
	QW.1120.32A													12	1308	108	275
15	QW.1250.32	1370	1126	90	1324	1176	32	24	M22	40	4	10	70	10	1430	142	302
	QW.1250.32A													12	1440	119	309
16	QW.1400.32	1520	1276	90	1474	1326	36	24	M22	40	4	10	70	12	1584	131	337
	QW.1400.32A													14	1596	113	347
17	QW.1250.40	1390	1108	102	1336	1164	32	26	M24	45	4	12	80	10	1450	144	396
	QW.1250.40A													12	1452	120	392
18	QW.1400.40	1540	1258	102	1486	1314	36	26	M24	45	4	12	80	12	1608	133	448
	QW.1400.40A													14	1610	114	443
19	QW.1600.40	1740	1458	102	1686	1514	40	26	M24	45	4	12	80	12	1812	150	528
	QW.1600.40A													14	1820	129	534
20	QW.1800.40	1940	1658	102	1886	1714	44	26	M24	45	4	12	80	14	2016	143	583
	QW.1800.40A													16	2032	126	607
21	QW.1600.50	1762	1434	124	1704	1496	40	30	M27	50	4	12	100	12	1824	151	714
	QW.1600.50A													14	1834	130	727
22	QW.1800.50	1964	1634	124	1904	1696	44	30	M27	50	4	12	100	14	2044	145	845
	QW.1800.50A													16	2048	127	843
23	QW.2000.50	2162	1834	124	2104	1896	48	30	M27	50	6	12	100	16	2240	139	912
	QW.2000.50A													18	2250	124	927
24	QW.2240.50	2402	2074	124	2344	2136	54	30	M27	50	6	12	100	16	2480	154	1020
	QW.2240.50A													18	2502	138	1078
25	QW.2500.50	2662	2334	124	2604	2396	60	30	M27	50	6	12	100	18	2754	152	1171
	QW.2500.50A													20	2760	137	1175
26	QW.2500.60	2696	2304	150	2626	2374	60	33	M30	56	6	14	122	18	2790	154	1677
	QW.2500.60A													20	2800	139	1701

10.2 单排四点接触球式结构参数-内齿式
Paramerter of single row four point contact ball slewingbearing -internal gear









结构特点、性能、适用范围 Design feature/Function/Application scope

单排四点接触球式回转支承由两个座圈组成，结构紧凑，重量轻，钢球与圆弧滚道四点接触，能同时承受轴向力，径向力和倾翻力矩，回转式传送机，焊接操作机，中小型起重机和挖掘机。

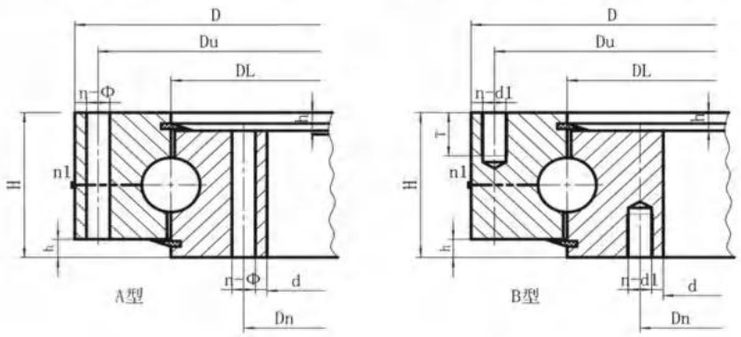
Single row four point contact ball slewing rings are composed of two seat rings, which design in compact structure and light weight, steel ball contact with the circular raceway at four points.

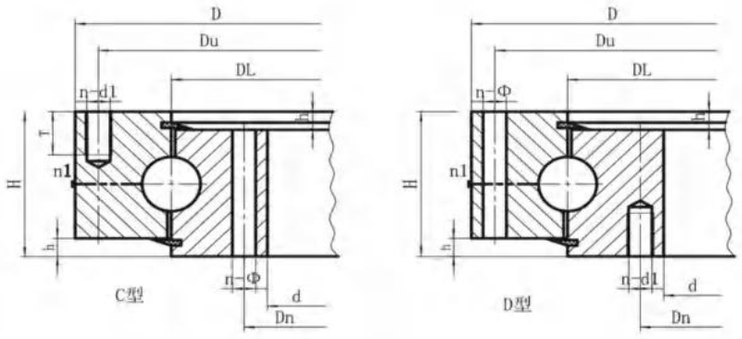
The single row ball slewing ring has been widely used in many applications:

1. Slewing conveyor　　2. Welding manipulator　　3. Different excavators
4. Light and medium duty cranes (truck mounted crane, dec crane, aerial platform truck etc.)

序号 NO.	型号 Model	外型尺寸 Dimensions 内齿式 Internal Gear D	d	H	安装孔尺寸 Installation Size Du	Dn	n	通孔A Φ	螺孔B/C/D d1	T	结构尺寸 Structure Size n1 油杯数量	h	齿轮参数 Gear Data b	m	内齿式 x=+0.5 de	齿数 z	参考重量
		mm						mm				mm	mm		mm		kg
1	QN.315.20	408	224	60	370	260	10	18	M16	24	2	10	40	3	207	70	34
	QN.315.20A													4	200	51	35
2	QN.355.20	448	264	60	410	300	10	18	M16	24	2	10	40	3	249	84	39
	QN.355.20A													4	240	61	40
3	QN.400.20	493	310	60	455	345	12	18	M16	24	2	10	40	4	288	73	44
	QN.400.20A													5	280	57	46
4	QN.450.20	543	360	60	505	395	12	18	M16	24	2	10	40	4	336	85	50
	QN.450.20A													5	330	67	52
5	QN.500.20	593	410	60	555	445	14	18	M16	24	2	10	40	5	385	78	55
	QN.500.20A													6	378	64	57
6	QN.560.20	656	468	70	618	502	14	18	M16	30	2	10	50	4	440	111	76
	QN.560.20A													5	435	88	77
7	QN.630.20	726	538	70	688	572	16	18	M16	30	2	10	50	4	512	129	84
	QN.630.20A													5	505	102	86
8	QN.710.20	806	618	70	768	652	18	18	M16	30	2	10	50	5	585	118	97
	QN.710.20A													6	582	98	97
9	QN.800.20	896	708	70	858	742	20	18	M16	30	2	10	50	6	672	113	110
	QN.800.20A													8	664	84	111
10	QN.800.25	908	694	78	864	736	18	22	M20	36	2	10	58	6	654	110	142
	QN.800.25A													8	648	82	142
11	QN.900.25	1008	794	78	964	836	20	22	M20	36	2	10	58	8	744	94	163
	QN.900.25A													10	740	75	162
12	QN.1000.25	1108	894	78	1064	936	24	22	M20	36	2	10	58	8	848	107	178
	QN.1000.25A													10	840	85	179
13	QN.1000.32	1124	880	90	1074	926	24	24	M22	40	2	10	70	8	832	105	230
	QN.1000.32A													10	830	84	227
14	QN.1120.32	1244	1000	90	1194	1046	28	24	M22	40	4	10	70	10	940	95	263
	QN.1120.32A													12	936	79	262
15	QN.1250.32	1374	1130	90	1324	1176	32	24	M22	40	4	10	70	10	1070	108	294
	QN.1250.32A													12	1068	90	290
16	QN.1400.32	1524	1280	90	1474	1326	36	24	M22	40	4	10	70	12	1212	102	333
	QN.1400.32A													14	1204	87	336
17	QN.1250.40	1394	1110	102	1336	1164	32	26	M24	45	4	12	80	10	1050	106	388
	QN.1250.40A													12	1044	88	388
18	QN.1400.40	1544	1260	102	1486	1314	36	26	M24	45	4	12	80	12	1188	100	444
	QN.1400.40A													14	1190	86	434
19	QN.1600.40	1744	1460	102	1686	1514	40	26	M24	45	4	12	80	12	1392	117	509
	QN.1600.40A													14	1386	100	511
20	QN.1800.40	1944	1660	102	1886	1714	44	26	M24	45	4	12	80	14	1582	114	576
	QN.1800.40A													16	1568	99	591
21	QN.1600.50	1766	1438	124	1704	1496	40	30	M27	50	4	12	100	12	1368	115	714
	QN.1600.50A													14	1358	98	723
22	QN.1800.50	1966	1638	124	1904	1696	44	30	M27	50	4	12	100	14	1568	113	794
	QN.1800.50A													16	1552	98	818
23	QN.2000.50	2166	1842	124	2104	1896	48	30	M27	50	6	12	100	16	1760	111	891
	QN.2000.50A													18	1746	98	913
24	QN.2240.50	2406	2078	124	2344	2136	54	30	M27	50	6	12	100	16	1984	125	1044
	QN.2240.50A													18	1980	111	1041
25	QN.2500.50	2666	2342	124	2604	2396	60	30	M27	50	6	12	100	18	2250	126	1132
	QN.2500.50A													20	2240	113	1148
26	QN.2500.60	2696	2308	150	2626	2374	60	33	M30	56	6	14	122	18	2214	124	1621
	QN.2500.60A													20	2200	111	1654

10.3 单排四点接触球式结构参数-无齿式
Paramerter of single row four point contact ball slewingbearing -non gear





结构特点、性能、适用范围 Design feature/Function/Application scope

单排四点接触球式回转支承由两个座圈组成，结构紧凑，重量轻，钢球与圆弧滚道四点接触，能同时承受轴向力，径向力和倾翻力矩，回转式传送机，焊接操作机，中小型起重机和挖掘机。

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The single row ball slewing ring has been widely used in many applications:

1. Slewing conveyor 2. Welding manipulator 3. Different excavators
4. Light and medium duty cranes (truck mounted crane, dec crane, aerial platform truck etc.)

序号 NO.	型号 Model	外型尺寸 Dimensions 无齿式 Non Gear D	d	H	安装孔尺寸 Installation Size Du	Dn	n	通孔A Φ	螺孔B/C/D d1	T	结构尺寸 Structure Size n1 油杯数量	h	齿轮参数 Gear Data b	m	de	齿数 z	参考重量 Weight
		mm						mm				mm	mm		mm		kg
1	QU.315.20	408	222	60	370	260	10	18	M16	24	2	10					34
2	QU.355.20	448	262	60	410	300	10	18	M16	24	2	10					39
3	QU.400.20	493	307	60	455	345	12	18	M16	24	2	10					44
4	QU.450.20	543	357	60	505	395	12	18	M16	24	2	10					50
5	QU.500.20	593	407	60	555	445	14	18	M16	24	2	10					55
6	QU.560.20	656	464	70	618	502	14	18	M16	30	2	10					76
7	QU.630.20	726	534	70	688	572	16	18	M16	30	2	10					84
8	QU.710.20	806	614	70	768	652	18	18	M16	30	2	10					97
9	QU.800.20	896	704	70	858	742	20	18	M16	30	2	10					110
10	QU.800.25	908	692	78	864	736	18	22	M20	36	2	10					142
11	QU.900.25	1008	792	78	964	836	20	22	M20	36	2	10					163
12	QU.1000.25	1108	892	78	1064	936	24	22	M20	36	2	10					178
13	QU.1000.32	1124	876	90	1074	926	24	24	M22	40	2	10					230
14	QU.1120.32	1244	996	90	1194	1046	28	24	M22	40	4	10					263
15	QU.1250.32	1374	1126	90	1324	1176	32	24	M22	40	4	10					294
16	QU.1400.32	1524	1276	90	1474	1326	36	24	M22	40	4	10					333
17	QU.1250.40	1394	1108	102	1336	1164	32	26	M24	45	4	12					388
18	QU.1400.40	1544	1258	102	1486	1314	36	26	M24	45	4	12					444
19	QU.1600.40	1744	1458	102	1686	1514	40	26	M24	45	4	12					509
20	QU.1800.40	1944	1658	102	1886	1714	44	26	M24	45	4	12					576
21	QU.1600.50	1766	1434	124	1704	1496	40	30	M27	50	4	12					714
22	QU.1800.50	1966	1634	124	1904	1696	44	30	M27	50	4	12					794
23	QU.2000.50	2166	1834	124	2104	1896	48	30	M27	50	6	12					891
24	QU.2240.50	2406	2074	124	2344	2136	54	30	M27	50	6	12					1044
25	QU.2500.50	2666	2334	124	2604	2396	60	30	M27	50	6	12					1132
26	QU.2500.60	2696	2304	150	2626	2374	60	33	M30	56	6	14					1621

11、船舶行业回转支承

(CB/T3669–1995 标准) 结构参数

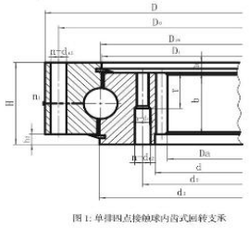


图 1: 单排四点接触球内齿式回转支承

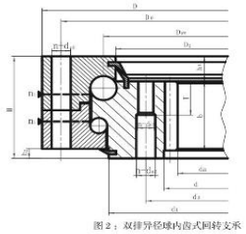


图 2： 双排异径球内齿式回转支承

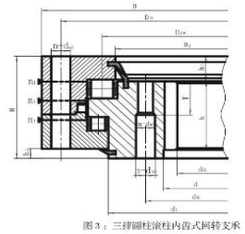


图 3： 三排圆柱滚柱内齿式回转支承

表 1： 单排四点接触球内齿式回转支承基本参数

型号	外型结构及尺寸								安装尺寸							齿轮参数					参考重量
	D	d	H	D1	d1	h1	h2	n1	Do	do	n	d_{n1}	d_{n2}	d_{n3}	T	x	b	m	Z	da	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	10	20	6	976	836	36	22	22	M20	40	+0.5	65	8	94	744	157
C.013.25.1000	1120	892	85	999	1001	10	20	6	1076	936	42	22	22	M20	40	+0.5	65	10	85	840	177
C.013.25.1120	1240	1012	85	1119	1121	10	20	6	1196	1056	42	22	22	M20	40	+0.5	65	10	97	960	206
C.013.30.1250	1378	1128	95	1248	1251	10	20	8	1330	1176	48	24	24	M22	44	+0.5	75	12	90	1068	283
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	10	20	8	1480	1326	48	24	24	M22	44	+0.5	75	12	102	1212	324
C.013.30.1600	1728	1478	95	1598	1601	10	20	8	1680	1528	56	24	24	M22	44	+0.5	75	14	101	1400	383
C.013.30.1700	1828	1578	95	1698	1701	10	20	8	1780	1628	56	24	24	M22	44	+0.5	75	14	108	1498	411
C.013.30.1800	1928	1678	95	1798	1801	10	20	8	1880	1728	56	24	24	M22	44	+0.5	75	14	115	1596	439
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	20	10	1885	1715	60	26	26	M24	48	+0.5	95	16	99	1568	617

表 2： 双排异径球内齿式回转支承基本参数

型号	外型结构及尺寸								安装尺寸							齿轮参数					参考重量
	D	d	H	D1	d1	h1	h2	n2	Do	do	n	d_{n1}	d_{n2}	d_{n3}	T	x	b	m	Z	da	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	20	8	1980	1810	48	26	26	M24	48	+0.5	100	16	105	1664	822
C.023.40.2000	2155	1832	170	1964	1965	39	20	8	2095	1892	56	30	30	M27	52	+0.5	120	18	97	1728	1320
C.023.40.2300	2455	2132	170	2264	2265	39	20	8	2395	2192	56	30	30	M27	52	+0.5	120	18	114	2034	1417
C.023.40.2500	2655	2332	170	2464	2465	39	20	10	2595	2392	60	30	30	M27	52	+0.5	120	18	125	2232	1550
C.023.50.2500	2676	2312	198	2462	2465	47	20	10	2610	2378	60	33	33	M30	60	+0.5	140	20	111	2200	2035
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

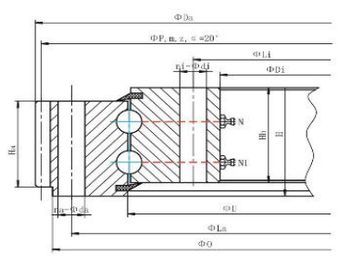
表 3： 三排圆柱滚子内齿式回转支承基本参数

型号	外型结构及尺寸								安装尺寸							齿轮参数					参考重量
	D	d	H	D1	d1	h1	h2	n2	Do	do	n	d_{n1}	d_{n2}	d_{n3}	T	x	b	m	Z	da	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	20	8	2010	1800	56	30	30	M27	54	+0.5	115	16	104	1648	1120
C.133.25.2000	2170	1840	158	1963	1974	30	20	10	2110	1900	60	30	30	M27	54	+0.5	115	18	97	1728	1170
C.133.25.2500	2670	2340	158	2463	2474	30	20	10	2610	2400	60	30	30	M27	54	+0.5	115	18	125	2232	1540
C.133.32.2500	2697	2318	192	2459	2470	42	20	8	2631	2384	72	33	33	M30	60	+0.5	140	20	111	2200	1880
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

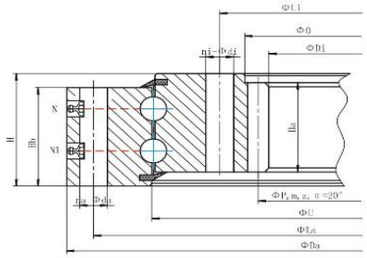
12、双列球式回转支承

结构特点、性能、适用范围

双列球式回转支承为两排滚动体，能同时承受较大的轴向载荷、径向载荷和倾覆力矩，安全系数更高。可与各种起重机、矿山设备、挖掘机等机械设备配套。



WD-071



WD-073

型号	外型尺寸							安装尺寸						齿轮参数			圆周力		重量
	Da mm	O mm	U mm	Di mm	Ha mm	Hb mm	H mm	La mm	na n	da mm	Li mm	ni n	di mm	P mm	m	z	允许 kn	最大 kn	kg
-071.22.372	504	466	374	278	75	87	95	430	16	18	314	16	18	488	8	61	31	62	80
071.22.476	608	570	478	382	75	87	95	534	24	18	418	24	18	592	8	74	31	62	100
-071.22.580	712	674	582	486	76	88	98	638	24	18	522	24	18	696	8	87	32	64	126
-071.22.948	1080	1042	950	854	76	88	98	1006	30	18	890	30	18	1064	8	133	32	64	208
-071.22.1064	1200	1162	1066	966	78	88	98	1124	36	20	1004	36	20	1184	8	148	33	66	240

型号	外型尺寸							安装尺寸						齿轮参数			圆周力		重量
	Da mm	O mm	U mm	Di mm	Ha mm	Hb mm	H mm	La mm	na n	da mm	Li mm	ni n	di mm	P mm	m	z	允许 kn	最大 kn	kg
-073.22.0916	1010	822	918	786	80	88	98	974	36	18	858	36	18	800	8	100	36.2	72.4	194
-073.25.1105	1202	1008	1107	962	88	98	110	1166	36	18	1044	36	18	980	10	98	45	90	297
-073.30.1220	1332	1108	1222	1062	98	110	120	1290	48	22	1150	48	22	1080	10	108	68.9	137.8	387
-073.30.1593	1713	1473	1595	14184	98	110	120	1667	48	26	1519	48	26	1440	12	120	92	184	549