

MONTON



转盘轴承
SLEWING BEARING



洛阳盟拓轴承科技有限公司

Luoyang Monton Bearing Science & Technology Co.,ltd.

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Application and type for slewing bearing

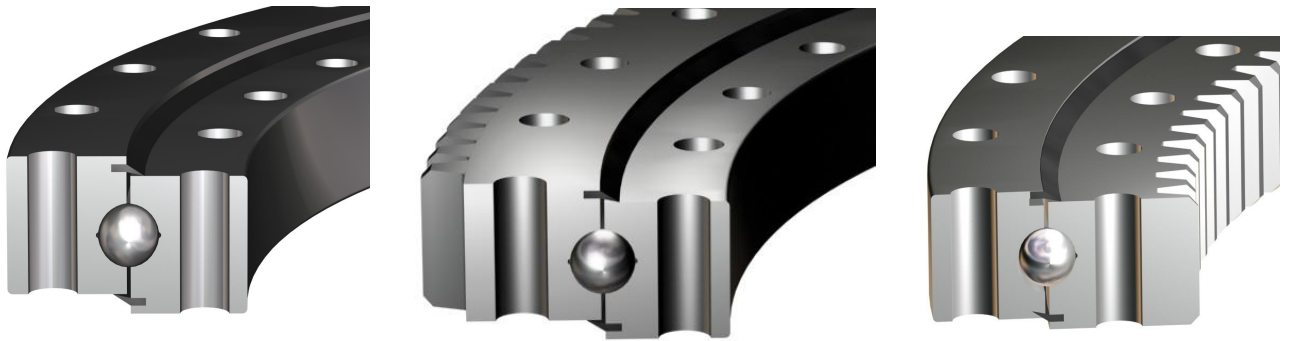
Slewing bearing can simultaneously support larger combined load including axial load, radial load and tilting moment etc. General slewing bearing all has mounting holes, oil holes and sealing apparatus, can meet categories of main machine operating under various different conditions. In addition, slewing bearing possess the characteristics of compact structure, guiding rotation convenient, easy installation and easy to maintenance, and widely applied to large size slewing equipment in the industries of engineering, mining, metallurgy, wind power generation, vessel, seaport, petroleum, chemical industry, light industry, medical appliance, foodstuff, vehicle, robot, aerospace, radar and war industry etc.

According to different structural style, slewing bearing can be divided into four point contact ball slewing bearing, cross cylindrical (taper) roller slewing bearing, double row four point ball slewing bearing, double row different diameter ball slewing bearing, ball and roller combined slewing bearing and tri-row cylindrical roller combined slewing bearing etc. Above mentioned slewing bearings can also be divided into different structures of no gear type, external gear type and internal gear type as per if exist gear and gear teeth distributing position.

According to different structural feature, slewing bearing can respectively meet main machine requirements under various load conditions. Among them, four point contact ball slewing bearing has higher dynamic load capacity, cross cylindrical roller slewing bearing has higher static load capacity. Tri-row cylindrical roller combined slewing bearing is a kind of high carrying capacity slewing bearing, due to leading raised carrying capacity to direction of bearing height, various loads can be respectively supported by different raceways and roller sets, so raceway diameter greatly decrease under the same stress condition, it has the character of making main machine more compact.

With advanced ideas in the aspect of slewing bearing design and manufacture, MONTON has accumulated rich experiences and has established fine co-operation with domestic and foreign famous enterprises. The 50% of MONTON slewing bearings are exported to foreign countries.

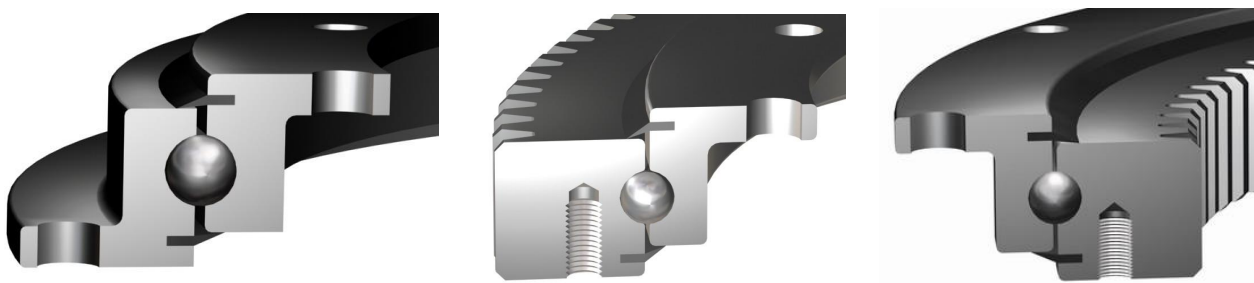
Four point contact ball slewing bearing



Cross cylindrical roller slewing bearing



Four point contact ball slewing bearing (with flange)



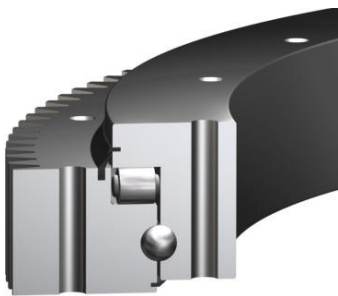
Same diameter double-row ball four point contact slewing bearing



Triple-row cylindrical roller combined slewing bearing



Ball-roller combined slewing bearing

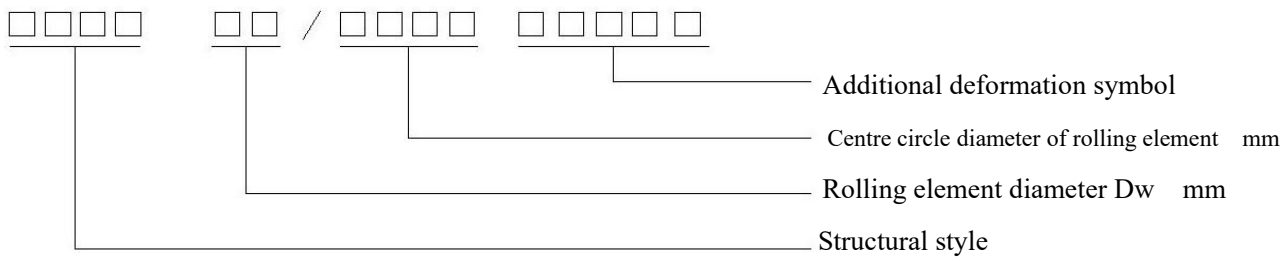


Double-row different diameter ball slewing bearing



MONTON Slewing Bearing Model Establishment Method

MONTON model representation: represent by letters and Arabic number divide into four parts, part four is additional requirement, not to mark generally, the meaning of each part representing is:



Part one: structural style, represent by two letters to four letters

- SR: single row four point contact ball slewing bearing (no gear type)
- SIR: single row four point contact ball slewing bearing (internal gear type)
- SOR: single row four point contact ball slewing bearing (external gear type)
- SLR: single row four point contact ball slewing bearing (inner and outer ring have flange and no gear type)
- SLIR: single row four point contact ball slewing bearing (outer ring has flange and internal gear type)
- SLOR: single row four point contact ball slewing bearing (inner ring has flange and external gear type)

- SDR: double-row four point contact ball slewing bearing (no gear type)
- SDIR: double-row four point contact ball slewing bearing (internal gear type)
- SDOR: double-row four point contact ball slewing bearing (external gear type)
- SNR: double-row different diameter ball slewing bearing (no gear type)
- SNIR: double-row different diameter ball slewing bearing (internal gear type)
- SNOR: double-row different diameter ball slewing bearing (external gear type)

- XU: single row cross cylindrical roller slewing bearing (no gear type)
- XIU: single row cross cylindrical roller slewing bearing (internal gear type)
- XOU: single row cross cylindrical roller slewing bearing (external gear type)
- XZ: cross tapered roller slewing bearing (no gear type)
- XOZ: cross tapered roller slewing bearing (external gear type)
- XIZ: cross tapered roller slewing bearing (internal gear type)

- RX: ball-roller combined slewing bearing (no gear type)
- RIX: ball-roller combined slewing bearing (internal gear type)
- ROX: ball-roller combined slewing bearing (external gear type)
- HU: tri-row cylindrical roller combined slewing bearing (no gear type)
- HIU: tri-row cylindrical roller combined slewing bearing (internal gear type)
- HOU: tri-row cylindrical roller combined slewing bearing (external gear type)

Part two: rolling element diameter, represent by double digits.

Rolling element diameter symbol: To make number as per dimension of rolling element diameter. If rolling element diameter is not more than 50, take 5 as carry, divide into 10, 15, 20, 25, 30, 35, 40, 45, 50, number according to dimension nearest value. If rolling element diameter is more than 50, take 10 as carry, i.e. 50, 60, 70 increasing, number according to the rounding of actual rolling element dimension.

Part three: center circle diameter of rolling element, represent by triple digits or four digits.

To make number as per actual dimension of rolling element center circle diameter of slewing bearing (round if dimension contain decimal)

Part four: additional symbol and special requirements.

Additional symbol and special requirements represent by four digits (other deformation add “Y” following the four digits)

General structure represent: slewing bearing basal body (including teeth surface) quenching and tempering, mounting holes of inner and outer ring are all through-hole, inner and outer diameter without locating structure, it can be omitted without other special requirement, i.e. (0000).

Postpositive symbol divide into several parts:

1. Material and heat treatment condition type:

50Mn quenching and tempering : 0

42CrMo quenching and tempering: 1

42CrMo4 quenching and tempering: 2

45 quenching and tempering : 3

50Mn normalizing : 4

42CrMo normalizing : 5

45steel normalizing : 6

Other: 7

2. Teeth heat treatment requirement:

quenching and tempering for basal body: 0

quenching for teeth surface : 1

quenching for whole teeth : 2

painting for teeth surface: 3

other 4

3. Mounting hole form:

through hole of inner and outer ring: 0

outer ring threaded hole: 1

inner ring threaded hole: 2

equal threaded hole of inner and outer ring: 3

outer ring blind threaded hole: 4

inner ring blind threaded hole: 5

other: 6

4. locating form:

inner and outer diameter without locating: 0

outer diameter with locating surface: 1

inner diameter with locating surface: 2

inner and outer diameter all with locating surface: 3

other: 4

5. Other structural deformation:

Postposition Y, represent other structural deformation or special requirements.

Y1: cage with full assembling rolling element; Y2: taper teeth ; Y3: painting for bearing mounting surface ; Y4: zinc plating or cadmium plating for bearing mounting surface; Y5: painting for teeth surface ; Y6: fluorine rubber sealing ring; Y7: possess no hardening raceway Yn.

example:

SOR 20/440—1102Y3: represent four point contact ball slewing bearing, with external gear, rolling element diameter is about 20mm, rolling element center circle diameter 440mm, material 42CrMo quenching and tempering, teeth surface quenching, mounting holes are through-hole, inner diameter has locating surface, painting for bearing mounting surface.

slewing bearing material

Precise design and proper selection of bearing manufacturing material is the important guarantee for ensuring MONTON slewing bearing with high technical performance and high reliability.

Material of ring and rolling element

As a rule, rolling element of MONTON slewing bearing adopt full hardening carbon chromium bearing steel which steel grade is GCr15 or GCr15SiMn to manufacture, bearing rings adopt surface quenched steel 42CrMo or 50Mn. If any special requirements for main machine, may adopt 42CrMo、45# and other grade surface quench steel to make.

Cage material

The cage forms of MONTON slewing bearing include integral type cage, sectional type cage and spacing block type cage etc. Among them, integral type cage or sectional type cage adopt brass, carbon steel cast aluminum and nylon to make. Spacing block type cage adopt polyamide resin, nylon, cast aluminum and aluminum bronze to make.

Sealing ring material

The sealing ring material of MONTON slewing bearing adopt oil-resistant NBR to make, for higher temperature range occasions, may adopt fluorine rubber.

Slewing bearing clearance

Slewing bearing clearance is mainly used to compensate manufacturing error and installation error between bearing supporting part and main machine assembling position and ensure bearing normal usage. According to structural style/tolerance grade and rolling element center circle diameter, the clearance value or pre-interference of slewing bearing are listed in table 1 to table 3.

Table 1 Four point contact ball slewing bearing axial clearance μm

Dpw mm		tolerance grade					
		0		6		5	
		axial clearance					
Over	Up to	Min	Max	Min	Max	Min	Max
250	450	70	170	50	130	30	90
450	710	100	220	70	170	40	120
710	1120	120	280	100	220	50	150
1120	1800	150	350	100	260	60	180
1800	2800	200	440	150	350	80	240
2800	4500	260	540	200	440	100	300

Table 2 Cross cylindrical roller slewing bearing axial clearance μm

Dpw mm		tolerance grade					
		0		6		5	
		axial clearance					
Over	Up to	Min	Max	Min	Max	Min	Max
250	450	50	130	30	90	25	70
450	710	70	170	40	120	30	90
710	1120	100	220	50	150	40	120
1120	1800	100	260	60	180	40	140
1800	2800	150	350	80	240	60	180
2800	4500	200	440	100	300	80	240

Table 3 Tri-row cylindrical roller combined slewing bearing clearance μm

Dpw mm		tolerance grade											
		0				6				5			
		Axial clearance		Radial clearance		Axial clearance		Radial clearance		Axial clearance		Radial clearance	
Over	Up to	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
250	450	30	90	50	130	25	70	30	90	10	50	25	70
450	710	40	120	70	170	30	90	40	120	15	65	30	90
710	1120	50	150	100	220	40	120	50	150	20	80	40	120
1120	1800	60	180	100	260	40	140	60	180	20	100	40	140
1800	2800	80	240	150	350	60	180	80	240	30	130	60	180
2800	4500	100	300	200	440	80	240	100	300	40	160	80	240

Slewing bearing installation and maintenance

Loading and unloading & storage and transportation

- 1 Slewing bearing must be loaded or unloaded carefully.
- 2 Slewing bearing should be placed on level while storage and transportation and must be stored in dry room.
- 3 It is suitable to use eye bolt and keep bearing horizontal while lifting, never collision, especially radial collision.
- 4 External surface of slewing bearing should be coated with anti-rust oil, the period of anti-rust is normal six months, if storage period exceed six months (such as use for fittings), bearing should be prevented rust and packaged again or adopt other measures of storage & transportation.

Slewing bearing installation

1、 Requirements of mounting bracket

Mounting combination bracket normally adopt barrel type structure, tunnel wall must be in alignment with raceway center.

For avoid slewing bearing partial overload, ensure operating flexible, mounting bracket should be relieved internal stress after all welding sequence, and process mounting plane, the planeness (include plane angular deviation) should be controlled within a certain range, see table 4:

Table 4 planeness allowable value including angular deviation

Raceway center circle diameter Dw(mm)	P(mm)mounting bracket plane deviation		
	Single row four point contact ball slewing bearing bracket	Double row four point contact ball slewing bearing bracket	Cylindrical roller slewing bearing bracket
~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

Note: the numerical value in table 5 is maximum value, permit one wave crest to achieve this value in sector region of degree 180, and steadily rise or decline in the region of 0°~90°~180°, not permit sharp increase or sharp decline, so as to avoid peak load.

Mounting bracket should possess well rigidity. Under max permissible load, deflection deformation should be controlled within specified range of table 5.

Table 5: deflection deformation under max permissible load

raceway center circle diameterD w(mm)	~1000	>100	>150	>200	>200	>250	>300	>350	>400	>500	>550
		0	0	0	0	0	0	0	0	0	0
		~	~	~	~	~	~	~	~	~	~
		1500	2000	2500	2500	3000	3500	4000	4500	5500	6000
racket plane max deflection Amax(mm)	0.6	0.8	1.0	1.3	1.6	2.0	2.5	3.0	3.6	4.2	4.8

Bolt holes of mounting bracket should be processed as per middle level accuracy of standard GB/T5277-1985, and must be in alignment with support mounting hole of slewing bearing.

2. Necessary inspection should be done for matched main machine mounting plane before each set MONTON slewing bearing installation, except require the part of supporting bearing enough rigidity, the connecting surface need machining and clear surface sundries, burr, paint and other foreign matter.

3. Soft zone symbol “S” was marked on ring side surface of MONTON slewing bearing supplied for customer, or the position of fitting and filling plug hole is soft zone, soft zone should be placed in non-load area or non-regular load area while mounting.

4. Slewing bearing has been lifted at position when mounting, use feeler gauge to inspect flatness of abutted plane. If the clearance is too large, need to re-machine, if really unable to process, may fill plastics or fill up with washers in local region, so as to avoid bearing deformation after bolt was tightened and affect slewing bearing performance.

5. After slewing bearing radial location, tighten mounting bolt in star-junction mode, inspect bearing slewing status. To ensure bearing stable transmission, gear backlash should be inspected and adjusted before mounting bolt not being tightened completely. Pre-tightening force must be enough while tightening bolt, the pre-tightening force should be 70% yield limit of bolt material. Mounting bolt should be used together with quenching flat washer, but using spring washer is strictly prohibited.

6. When mounting slewing bearing, tighten bolt must achieve required pre-tightening load. All kinds of pre-tightening load with different bolt diameter are all as per requirement of table 6.

Table 6

Bolt strength grade ISO898			8.8			10.9			12.9		
Yield limit N/mm ²			M≤16 640 M>16 660			940			1100		
Bolt diameter	Thread stress area mm ²	Thread sectional area mm ²	Bolt mount pre-tightening force FMN	Theory tightening moment MANm	Torque Nm M=0.9 MA	Bolt mount pre-tightening force FMN	Theory tightening moment MANm	Torque Nm M=0.9MA	Bolt mount pre-tightening force FMN	Theory tightening moment MANm	Torque Nm M=0.9 MA
M5	14.2	12.7	6400	6.1	5.5	9300	8.9	8.0	10900	10.4	9.3
M6	20.1	17.9	9000	10.4	9.3	13200	15.5	13.9	15400	18	16.2
M8	36.6	32.8	16500	25	22.5	24200	37	33	28500	43	38
M10	58	52.3	26000	51	45	38500	75	67	45000	87	78
M12	84.3	76.2	38500	87	78	56000	120	117	66000	150	135
M14	115	105	53000	140	126	77000	205	184	90000	240	216
M16	157	144	72000	215	193	106000	310	279	124000	370	333
M18	193	175	91000	300	270	129000	430	387	151000	510	459
M20	245	225	117000	430	387	166000	620	558	194000	720	648
M22	303	282	146000	580	522	208000	830	747	243000	970	873
M24	353	324	168000	740	666	239000	1060	954	280000	1240	1116
M27	459	427	221000	1100	990	315000	1550	1395	370000	1850	1665
M30	561	519	270000	1500	1350	385000	2100	1890	450000	2500	2250
M33	694	647	335000			480000			560000		
M36	817	759	395000			560000			660000		
M39	976	913	475000			670000			790000		
M42	1120	1045	542000	Need to adopt bolt liquid		772000	Need to adopt bolt liquid		904000	Need to adopt bolt liquid	
M45	1300	1224	635000	Compression and tension apparatus		905000	Compression and tension apparatus		1059000	Compression and tension apparatus	
M48	1470	1377	714000			1018000			1191000		
M52	1760	1652	857000			1221000			1429000		
M56	2030	1905	989000			1408000			1648000		
M60	2360	2227	1156000			1647000			1927000		

Lubrication and maintenance

1. Small quantity of No.2 or No.3 lithium base grease should be coated into raceway when slewing bearing leaving factory, customer should refill new grease according to different working conditions in using.
2. Slewing bearing should be filled grease at regular intervals during use. In general, ball slewing bearing fill oil once per 100 hours, roller slewing bearing fill oil once per 50 hours. In special working environment, such as high temperature, high humidity, dusty, great temperature change and continuous working, need to shorten lubrication interval. And it must be fully stuffed with new grease before and after long term stop running. Every time lubricate, it must be fully filled with grease in raceway, until exuding grease trace from the edge of sealing ring. When fill grease, rotate slewing bearing slowly, make grease filling uniform.
3. For slewing bearing with internal or external gear, need to clear sundries frequently and coat the corresponding grease.
4. According to different working conditions, customer may adopt different grease to meet requirements with optimum performance, such as extreme pressure lubricant Mobilux EP2、Shell Alvania EP (LF)2 etc.
5. After slewing bearing first time operating for 100 hours, need to check bolt pre-tightening force, later operate every 500 hours to check it once, must keep enough pre-tightening force.
6. Pay attention to slewing bearing operating situation in use, if discover abnormal situation such as noise, impact, power suddenly increase etc, must stop the machine immediately to check and remove the faults, if necessary need strip inspection.
7. In use, it is prohibited for slewing bearing to washing with water directly, so as to prevent water entering raceway and strictly prevent harder foreign matter near or entering teeth meshing area.
8. To check seal in good condition, replace sealing ring immediately if it becomes damaged, reset immediately if it fell off.

Type Selection and Calculation for Slewing Bearing

Because different working conditions, most slewing bearings are all operating under eccentric load, except supporting axial load and radial load, bearing also has to overcome tilting moment. So using load-moment diagram as slewing bearing selection method is the way which the present customers adopt generally while selecting type and calculating.

1. Necessary technical data
 - 1) Load what bearing supported
 - 2) Each load and percentage share of operating time
 - 3) Rotating speed or number of revolutions under each load.
 - 4) Circumferential force on gear
 - 5) Bearing dimension
 - 6) Other operating conditions

According to the information in catalog, using static and dynamic load curve, customers can preliminary select slewing bearing as per the method of type selection and calculation, then communicate with our technical department and confirm it. Also the corresponding information of slewing bearing could be supplied to our company and type selection and calculation would be done by us. If you want us to design and select type, please ask type selection technical parameter sheet and fill it carefully. So we can submit not only exact but also economical and practical slewing bearing type selection solution to you as soon as possible.

Table 7 MONTON slewing bearing type selection technical data sheet



Company			Address			
Name			Department			
Telephone			Fax			
Application occasion: (main machine type、 name)	Rotation axis	Bracket mounting way	RPM (revolutions per minute)	Load stability	Ambient temperature	
	horizontal <input type="checkbox"/> vertical <input type="checkbox"/>	Seat-type installation <input type="checkbox"/> Suspension installation <input type="checkbox"/>	Normal : Max :	Equably and steady <input type="checkbox"/> Impact vibration <input type="checkbox"/>		
Application property	Only location <input type="checkbox"/> interval rotation <input type="checkbox"/> continuous rotation <input type="checkbox"/>					
	load data					
	Nominal working load		Max working load	Test load		
Axial load parallel to rotation axis					KN	
Radial load normal to rotation axis					KN	
Moment from axial load					KNM	
Moment from radial load					KNM	
Total moment					KNM	
Drive torque what bearing support (KNM)			Number of drive pinion			
Normal	Max		Position	Space	degree	
Requirements for slewing bearing type and boundary dimension						
Slewing bearing model number (if list possible):						
Type of rolling element	Single row <input type="checkbox"/> roller <input type="checkbox"/> tri-row roller combined <input type="checkbox"/> double-row ball <input type="checkbox"/> other					
Boundary dimension	Outer diameter:		inner diameter:	assembling height:		
Mounting hole parameter	Mounting hole center circle of inner ring :			mounting hole diameter:		
	number of mounting hole:					
	Mounting hole center circle of outer ring:			mounting hole diameter:		
	number of mounting hole:					
Gear parameter:	Internal gear <input type="checkbox"/>		external gear <input type="checkbox"/>	no gear <input type="checkbox"/>		
	Large gear	Pinion		Large gear	Pinion	
Module m			Displacement coefficient x			

Number of teeth z			Tip clearance coefficient c*		
Pressure angle α			Tooth width b		
Addendum coefficient ha*			Accuracy class		
Working conditions description for continuous load and variable load					
	Axial load KN	Radial load KN	Tilting moment KNM	Rotating speed r/min	Working hours %
1					
2					
3					
4					
5					
6					
7					
8					

MONTON slewing bearing type selection technical data sheet

(appendix) **MONTON**

Life	Continuous running working condition: life at speed of r/min min hours
	Interval running working condition: at degree of \pm °, least cycle
Other requirements	Special working condition, accuracy required, fit dimension and accuracy, inspection or certificate, material test

Signature :

Date:

Any questions please contact MONTON technical department.

1. Slewing bearing load curve

Slewing bearing load curve 1 listed in this catalogue shows that bearing adopt steel 42CrMo to manufacture, it is allowable static load curve under conditions of ball bearing allowable contact stress 3600Mpa and roller bearing allowable contact stress 2460MPa. Bolt ultimate load curve is confirmed when connecting length is five times of bolt nominal diameter and pre-stress is 70% of bolt material yield limit.

Slewing bearing load curve figures listed in this catalogue are only part of MONTON products in catalogue, if product selected has no load curve or not listed in MONTON catalogue, please contact with MONTON related department. Product load curves are shown in this catalogue, parts of product bolt curves only meet original main machines application requirement. When selecting, if bolt curve can not meet load requirement, may properly increase bolt diameter and quantity, and contact with MONTON related department.

2. slewing bearing load calculation

To calculate slewing bearing load as per different structure, the specific type selection methods are listed in table 8

Table 8

Calculating method slewing bearing structural style	Equivalent static load for type selection under static working condition	Equivalent dynamic load for estimate life under dynamic working condition
Four point contact ball slewing bearing ($\alpha=45^\circ$)	While $Fr \leq 0.44Fa$ $Fa' = (Fa + 2.3Fr) \cdot fs$ While $Fr > 0.44Fa$, regarding the calculating method of Fa' , please contact MONTON technical department $M' = M \cdot fs$	While $Fr \geq 0.8Fa$ $Fa' = (0.59Fa + 1.18Fr) \cdot f1$ While $Fr < 0.8Fa$, $Fa' = (Fa + 0.66Fr) \cdot f1$ $M' = M \cdot f1$
Cross cylindrical roller slewing bearing ($\alpha=45^\circ$)	While $Fr \leq 0.44Fa$ $Fa' = (Fa + 2.3Fr) \cdot fs$ While $Fr > 0.44Fa$, regarding the calculating method of Fa' , please contact MONTON technical department $M' = M \cdot fs$	While $Fr \geq 0.67Fa$ $Fa' = (0.67Fa + 1.5Fr) \cdot f1$ While $Fr < 0.67Fa$ $Fa' = (Fa + Fr) \cdot f1$ $M' = M \cdot f1$
Tri-row cylindrical roller combined slewing bearing	$Fa' = Fa \cdot fs$ $M' = M \cdot fs$	$Fa' = Fa \cdot f1$ $M' = M \cdot f1$
	Radial load Fr is supported by one row roller which support radial load	

In formula:

- Fa — total axial load what bearing support (KN)
- Fr — total radial load what bearing support on moment acting plane (KN)
- M — total tilting moment what bearing support (KN-M)
- Fa' — equivalent center axial load of bearing (KN)
- M' — equivalent tilting moment of bearing (KN-M)
- fs — static load safety factor
- f1 — load coefficient of estimate life

3. Selection of bearing load coefficient and bearing service life

Bearing static load safety coefficient, load coefficient of estimate life and recommended bearing service life are listed in table 9 according to main machine usage conditions.

Table 9

Equipment			Static load safety factor f_s	Life load coefficient f_l	Service life under full load slewing L_f (revolutions)
Marine floating crane, automobile crane, grab type deck crane, rotating table (require continuous rotation during usage)			1.10	1.0	30000
Building tower crane	Bearing is mounted on tower	$M_f \leq 0.5M$	1.25	1.0	30000
		$0.5M < M_f < 0.8M$		1.15	45000
		$M_f \geq 0.8M$		1.25	60000
	Bearing is mounted at foundation	1.0		30000	
Port gantry crane, marine crane				1.15	45000
Metallurgical plant crane				1.5	100000
Auto crane (grab type or heavy-duty manual operation type) Slewing crane (grab type or sucked type) Wheel crane (grab type or sucked type) Bridge crane (grab type or sucked type) Floating crane (grab type or sucked type)			1.45	1.7	150000
Rope type excavator Stacker reclaimer Line type cargo conveyor				2.15	300000
Railway crane			1.0	Please contact MONTON relevant department while type selection Note : M_f is no load tilting moment under least working amplitude.	
Small-size cargo conveyor			1.1		
Pull-shovel type spading machine			1.25		
Hydraulic entry driving machine adopt four point contact ball slewing bearing			1.25		
Adopt other type slewing bearing Dipper capacity $< 1.5M^3$			1.45		
Dipper capacity $\geq 1.5M^3$			1.75		
Buggy ladle			1.75		

4. Calculating method for slewing bearing estimate service life

Adopt load curve to predict slewing bearing service life and load coefficient relevant with bearing life, use the formula below to calculate estimate service life according to load curve.

$$L_f = (f_1)^\varepsilon \cdot 30000 \quad \text{in formula:}$$

L_f — service life of slewing bearing full load rotary type

ε —life index

ball bearing $\varepsilon = 3$

roller bearing $\varepsilon = 10/3$

$$f_1 = F_{ac} / F_a' = M_c / M'$$

in formula: F_{ac} —axial load of intersection point on load curve

which cross with the connecting line from origin point to load point

M_c —tilting moment of intersection point on load curve

which cross with the connecting line from origin point to load point KN-m

If slewing bearing working under several variable loads and certain working time scale, the calculating method of average equivalent center axial load and average equivalent tilting moment is as following:

$$F_a' = (n_1 \cdot F_{a_1}^\varepsilon + n_2 \cdot F_{a_2}^\varepsilon + n_3 \cdot F_{a_3}^\varepsilon + \dots + n_n \cdot F_{a_n}^\varepsilon)^{1/\varepsilon}$$

$$M' = (n_1 \cdot M_1^\varepsilon + n_2 \cdot M_2^\varepsilon + n_3 \cdot M_3^\varepsilon + \dots + n_n \cdot M_n^\varepsilon)^{1/\varepsilon}$$

In formula:

$n_1; n_2; n_3; \dots; n_n$ —working time percentage

$F_{a_1}; F_{a_2}; F_{a_3}; \dots; F_{a_n}$ —axial dynamic load within working time percentage $n_1; n_2; n_3; \dots; n_n$

KN

$M_1; M_2; M_3; \dots; M_n$ — tilting moment within working time percentage $n_1; n_2; n_3; \dots; n_n$

KN-M

Average life: $L_f = 1 / (n_1/L_1 + n_2/L_2 + n_3/L_3 + \dots + n_n/L_n)$

In formula: $L_1; L_2; L_3; L_n$ — bearing life within working time percentage $n_1; n_2; n_3; \dots; n_n$

(revolutions)

5. type selection and example

Example 1 see figure 1: There is a port hoisting equipment, require bearing rotation center about 2.5m, the loads what bearing support is as follows:

$$Q = 190.2 \text{KN} \quad L_{\max} = 23 \text{m}$$

$$A = 65 \text{KN} \quad a_{\max} = 11 \text{m}$$

$$O = 425 \text{KN} \quad o = 0.72 \text{m}$$

$$G = 890 \text{KN} \quad g = 3 \text{m}$$

$$W = 26 \text{KN} \quad r = 6.5 \text{m}$$

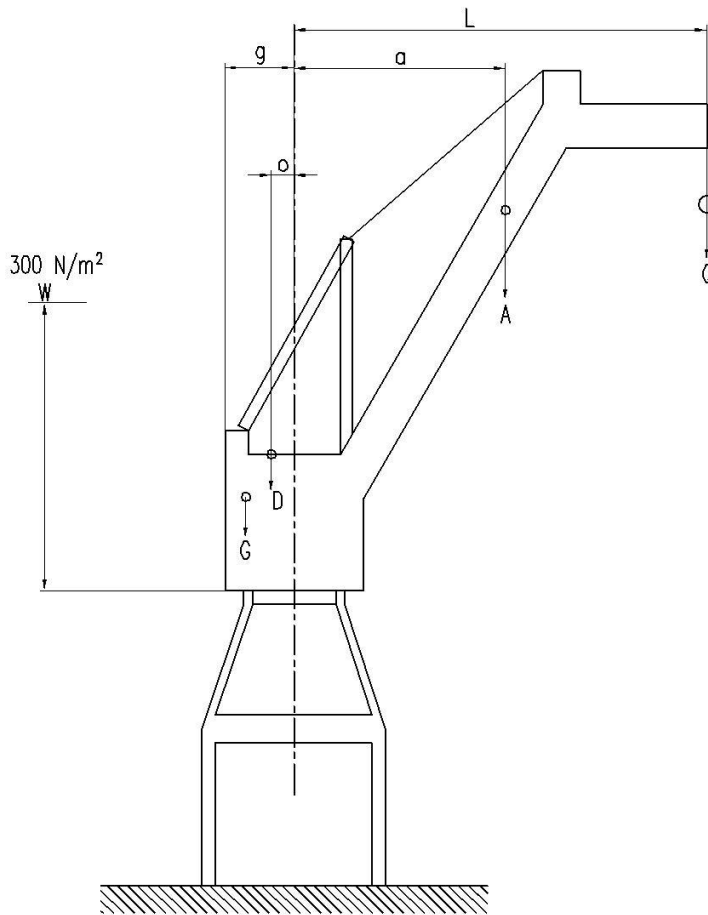


Figure 1

- (1) If crane is still able to work under wind power, and there may be 25% overload, the calculation of static load is as follows:

$$\begin{aligned}
 Fa' &= (Q \times 1.25 + A + 0 + G + 2.3W) \times fs \\
 &= (190.2 \times 1.25 + 65 + 425 + 890 + 2.3 \times 26) \times 1.25 \\
 &= 2096.9 \text{ KN}
 \end{aligned}$$

$$\begin{aligned}
 M' &= (Q \times 1.25 \times L_{\max} + A \times a_{\max} + W \times r - 0 \times o - G \times g) \times 1.25 \\
 &= (190.2 \times 1.25 \times 23 + 65 \times 11 - 425 \times 0.72 - 890 \times 3) \times 1.25 \\
 &= 4009.1 \text{ KN-m}
 \end{aligned}$$

- (2) While working, if bearing gear circumferential force is $F_t = 370 \text{ KN}$, the calculation of dynamic load is

$$\begin{aligned}
 Fa' &= Q + A + 0 + G + 0.66F_t \times \tan 20^\circ \\
 &= 190.2 + 65 + 425 + 890 + 0.66 \times 370 \tan 20^\circ \\
 &= 1659 \text{ KN}
 \end{aligned}$$

$$\begin{aligned}
 M' &= Q \times L_{\max} + A \times a_{\max} - 0 \times o - G \times g \\
 &= 190.2 \times 23 + 65 \times 11 - 425 \times 0.72 - 890 \times 3 \\
 &= 2113.6 \text{ KN-m}
 \end{aligned}$$

Based on calculated result, may select external gear type four point contact ball slewing bearing SIR45/2280, the load points are shown in figure 2 and all under curve 1 and curve 2, bearing meet load requirement.

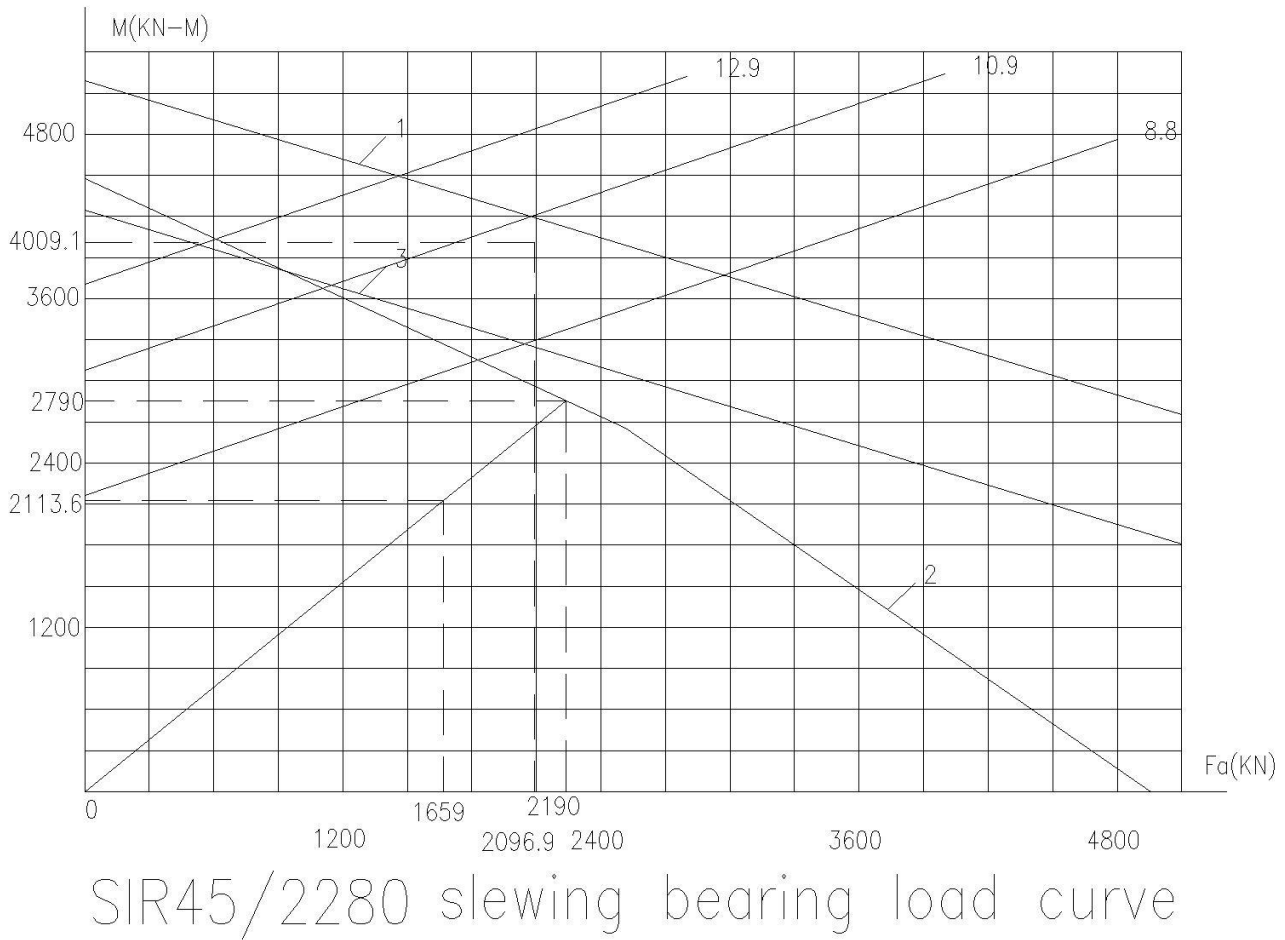


Figure 2

The axial load of intersection point on load curve 2 which cross with the connecting line from load curve origin point to dynamic load point is $F_{ac}=2190\text{KN}$; tilting moment is $M_c=2790\text{KN}\cdot\text{m}$, in this case, bearing estimate life calculation is:

$$f_1 = F_{ac}/F_{a'} = 2190/1659 = 1.32$$

$$f_1 = M_c/M' = 2790/2113.6 = 1.32$$

$$L_f = (1.32)^3 \times 30000 = 69000 \text{ (revolutions)} \quad \text{meet requirements of table}$$

Example 2: There is a set of MONTON four point contact ball slewing bearing SR40/1105, the load curve is shown in figure 3, load condition refer to table 10

Load point	Working time %	Load what bearing support		Load on load curve	
		Fa' (KN)	M' (KN.M)	Fac (KN)	Mc (KN.M)
1	20	1233	175	3098	439
2	0.9	1341	236	2949	519
3	79	372	82	2770	611
4	0.1	245	89.9	2320	851

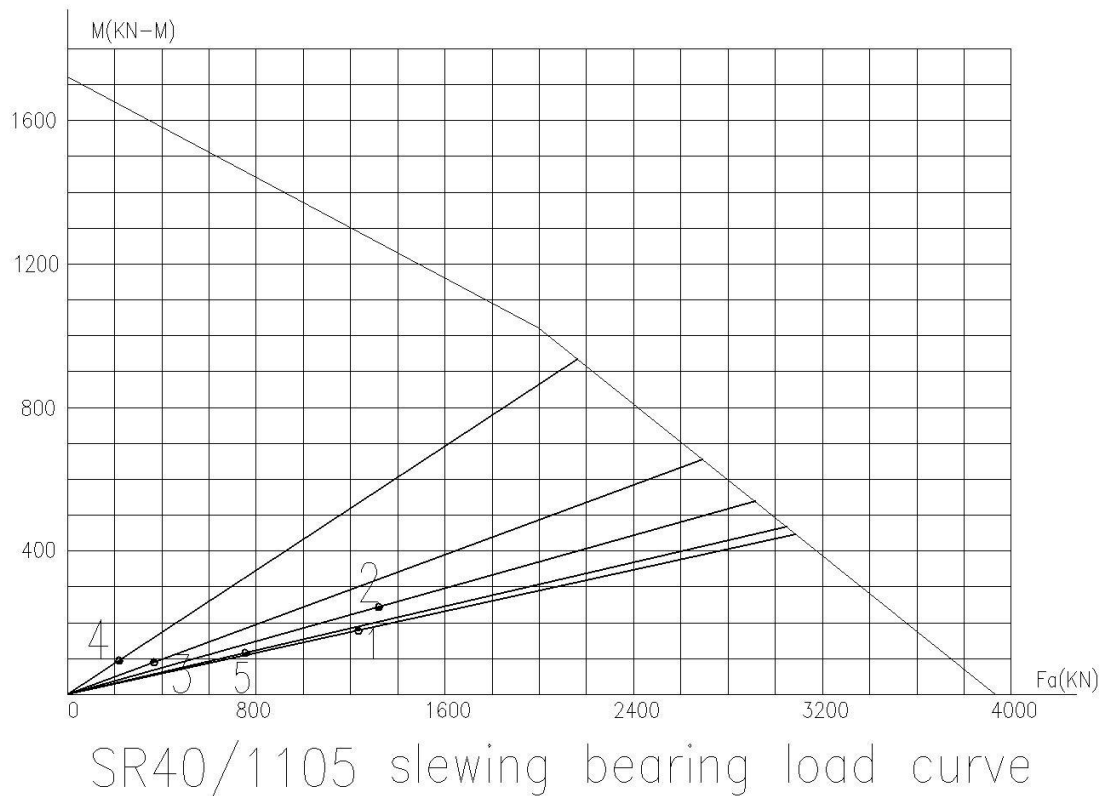


Figure 3

The first calculating method:

According to formula $L_f = 1 / (n_1/L_1 + n_2/L_2 + n_3/L_3 + \dots + n_n/L_n)$

Bearing life under each working condition is:

Working time 20%

$$f_{11} = F_{ac1} / F_{a'1} = 3098 / 1233 = 2.512$$

$$f_{11} = M_{c1} / M'_{1} = 439 / 175 = 2.508 \quad \text{take minimum value}$$

$$L_1 = (2.508)^3 \times 30000 \cong 473000 \quad \text{revolutions}$$

Working time 0.9%

$$f_{12} = F_{ac2} / F_{a'2} = 2949 / 1341 = 2.199$$

$$f_{12} = M_{c2} / M'_{2} = 519 / 236 = 2.199 \quad \text{take minimum value}$$

$$L_2 = (2.199)^3 \times 30000 \cong 319000 \quad \text{revolutions}$$

Working time 79%

$$f_{13} = F_{ac3} / F_{a'3} = 2770 / 372 = 7.446$$

$$f_{13} = M_{c3} / M'_{3} = 611 / 82 = 7.451 \quad \text{take minimum value}$$

$$L_3 = (7.446)^3 \times 30000 \cong 12384800 \text{ revolutions}$$

Working time 0.1%

$$f_{14} = \text{Fac}_4 / \text{Fa}'_4 = 2320 / 245 = 9.469$$

$$f_{14} = \text{Mc}_4 / \text{M}'_4 = 851 / 89.9 = 9.466 \quad \text{take minimum value}$$

$$L_4 = (9.466)^3 \times 30000 \cong 25446000 \text{ revolutions}$$

Bearing service life

$$L_f = 1 / (0.2 / 473000 + 0.009 / 319000 + 0.79 / 12384800 + 0.001 / 25446000) = 1942000 \text{ revolutions}$$

The second calculating method:

$$\text{Fa}' = (n_1 \cdot \text{Fa}_1^\epsilon + n_2 \cdot \text{Fa}_2^\epsilon + n_3 \cdot \text{Fa}_3^\epsilon + \dots + n_n \cdot \text{Fa}_n^\epsilon)^{1/\epsilon}$$

$$\text{M}' = (n_1 \cdot \text{M}_1^\epsilon + n_2 \cdot \text{M}_2^\epsilon + n_3 \cdot \text{M}_3^\epsilon + \dots + n_n \cdot \text{M}_n^\epsilon)^{1/\epsilon}$$

then:

$$\text{Fa}' = (0.2 \times 1233^3 + 0.009 \times 1341^3 + 0.79 \times 372^3 + 0.001 \times 245^3)^{1/3}$$

$$= 759 \text{ KN}$$

$$\text{M}' = (0.2 \times 175^3 + 0.009 \times 236^3 + 0.79 \times 82^3 + 0.001 \times 89.9^3)^{1/3}$$

$$= 117.6 \text{ KN}$$

From the result above, get load point 5 in figure 3, link origin point and cross with load curve, the load of intersection point is $\text{Fac} = 3047 \text{ KN}$;

$$\text{Mc} = 472 \text{ KN-m}$$

$$f_1 = \text{Fac} / \text{Fa}' = 3047 / 759 = 4.014$$

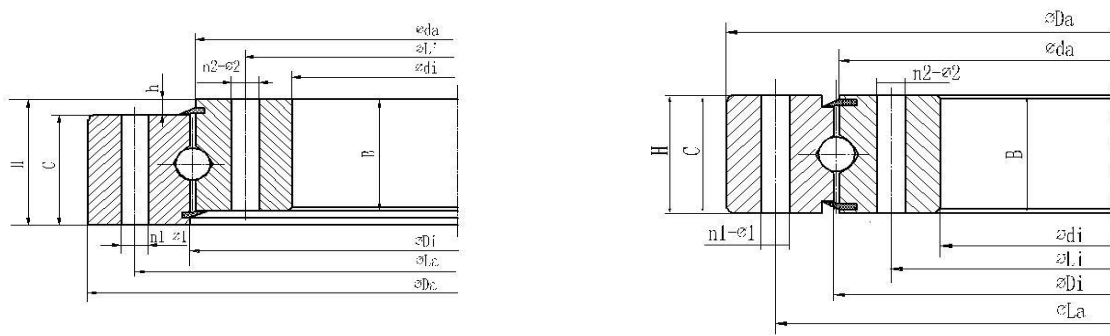
$$f_2 = \text{Mc} / \text{M}' = 472 / 117.6 = 4.014$$

Estimate bearing service life is

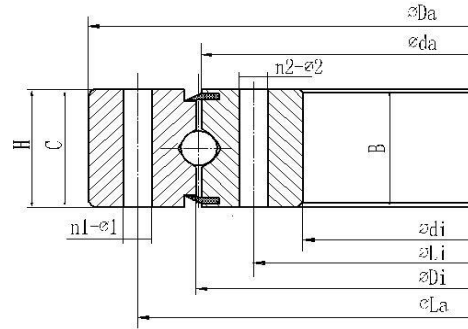
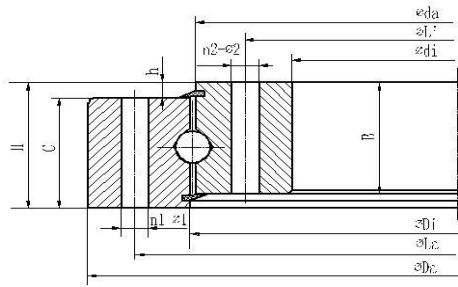
$$L_f = (4.014)^3 \times 30000 \cong 1940000 \text{ (revolutions)}$$

Both the results are very approximate

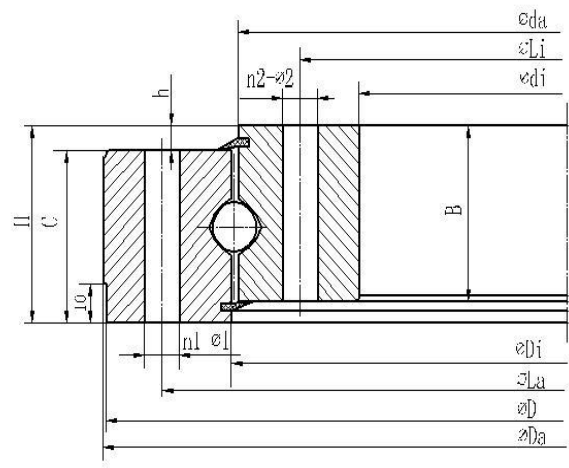
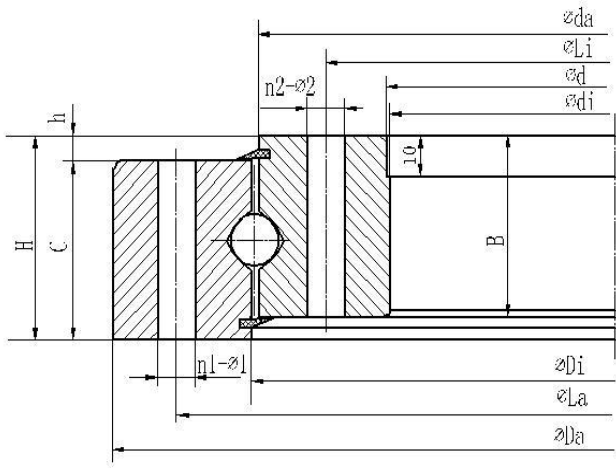
Four point contact ball slewing bearing (no gear type)



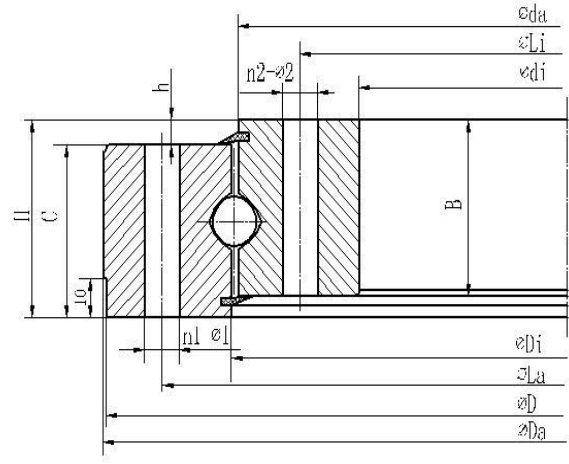
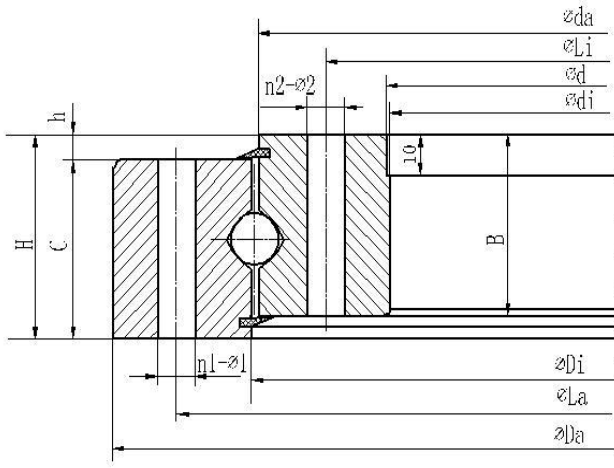
New model	Old model	Boundary dimensions (mm)			Bolt hole diameter (mm)					
		Da	di	H	La	Li	n1	n2	Φ1	Φ2
SR15/120	SR11/170	170	70	40	148	90	6	6	9	M8
SR10/179		234	124.5	35	214	144.5	24	20	11	11
SR10/179Y		234	124.5	25	214	144.5	24	20	11	11
SR10/250		300	200	35	280	220	16	16	M10	M10
SR20/222	SR20/312	312	145.14	50	270	175	14	16	M15.88	M15.88
SR20/260	SR20/326	326	191	46	305	215	20	20	14	14
SR20/260Y		329	190	45	305	215	16	16	14	14
SR15/340	SR17/402	402	278	44	383	298	12	12	9	M8
SR20/308		403.5	235	55	358	259	14	12	13	13
SR20/405	SR20/474	474	336	46	450	360	30	30	14	14
SR20/380	SR25/485	485	275	55	453	307	8	8	18	18
SR20/414		486	344	50	460	368	8	8	M12	13
SR20/414Y		486	342	56	460	368	24	24	14	14
SR25/412	SR25/501	501	324	55	469	356	18	18	18	18
SR10/444		500	389	35	480	409	16	16	13	13
SR25/433	SR25/522	522	344	55	490	376	20	20	M16	18
SR30/462	SR32/568	568	356	64	524	396	18	18	22	22
SR20/582	SR20/675	675	490	62	640	525	8	8	22	22
SR30/574	SR32/680	680	468	68	640	508	20	20	22	22
SR30/630	SR25/732	732	528	80	696	564	12	12	18	18
SR35/680	SR36/795	795	565	79	755	605	30	30	22	22
SR35/823	SR36/933	933	713	79	893	753	36	36	22	22
SR35/980	SR36/1090	1090	870	79	1050	910	44	44	22	22
SR25/1072		1200	976	65	1170	1012	44	44	13	M12



New model	Old model	Boundary dimensions (mm)			Bolt hole diameter (mm)					
		Da	di	H	La	Li	n1	n2	Φ 1	Φ 2
SR20/1220	SR20/1290	1290	1150	56	1266	1176	40	40	14	14
SR40/1117	SR45/1238	1238	995	101	1198	1035	40	40	M20	M20
SR25/1122		1252	950	150	1200	1010	30	30	M24	M24
SR45/1106		1261	950	158	1201	1010	30	40	M27	30
SR40/1105		1266	944	118	1200	1010	42	42	33	33
SR40/1213	SR40/1330	1330	1095	92	1290	1135	56	56	22	22
SR50/1472	SR50/1600	1600	1340	110	1560	1384	52	52	22	22
SR35/1350	SR36/1462	1462	1238	85	1422	1278	56	56	22	22
SR45/1578	SR45/1725	1725	1431	101	1671	1485	40	40	30	30
SR45/1600		1740	1460	110	1687	1513	45	45	26	26
SR25/1932	SR25/2032	2032	1832	65	1992	1872	52	52	22	22
SR40/2000	SR40/2116	2116	1884	100	2076	1924	92	92	22	22
SR70/2160	SR70/2385	2385	1855	175	2305	1985	30	48	39	36
SR25/2300	SR25/4000	2400	2200	73	2360	2240	60	60	22	22
SR30/2900	SR30/3005	3005	2795	82	2965	2835	100	100	22	22



Structure dimensions (mm)							Basic load ratings Coa (KN)	Weight (Kg)
D	d	C	B	h	Di	da		
		35	35	5	121.5	118.5	125	4.37
		30	30	5	180.5	177.5	190	5.8
		25	25	0	180	178	165	5.4
		30	30	5	251	249	230	7.1
		44	44	6	220.86	224.15	425	18.55
		41	41	5	261	259	375	15.1
328	192	44	44	1	261.5	258.5	490	15.8
		38	38	6	342	338	440	17.3
380		47	45	8	310.5	306.5	600	26.6
		41	41	5	407	403	575	23
		50	50	5	382	378	640	45
484	346	44.5	44.5	5.5	415.5	412.5	700	29.6
		44.5	44.5	11.5	415.5	412.5	700	29.4
		50	50	5	414	410	800	40
		30	30	5	446	443	450	16.6
		50	50	5	434	432	980	40.5
		59	59	5	464	460	1100	63
		52	52	10	584	580	1050	63.8
		61	61	7	576	572	1350	82.3
		70	70	10	632	628	1550	106
		72	72	7	682	678	2050	115
		72	72	7	825	821	2450	140
		72	72	7	982	978	2800	165
		55	55	10	1074	1070	2100	150



Structure dimensions
(mm)

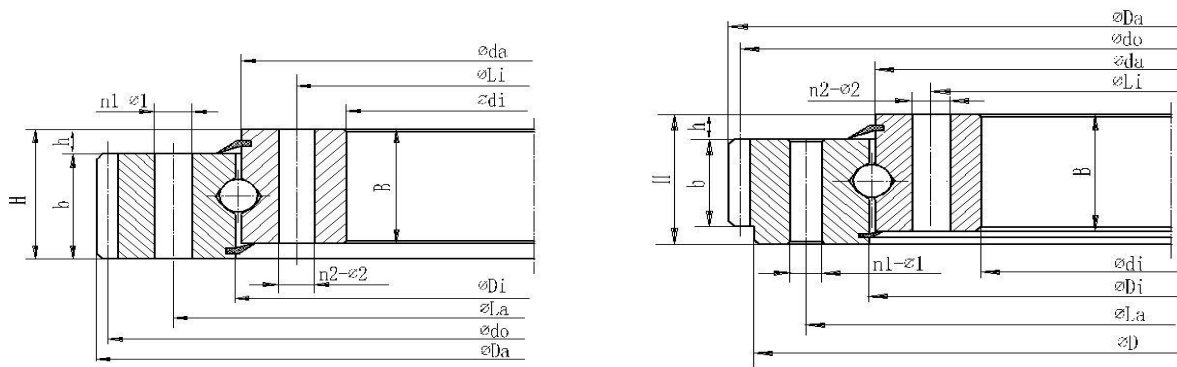
Basic load ratings
Coa
(KN)

Weight
(Kg)

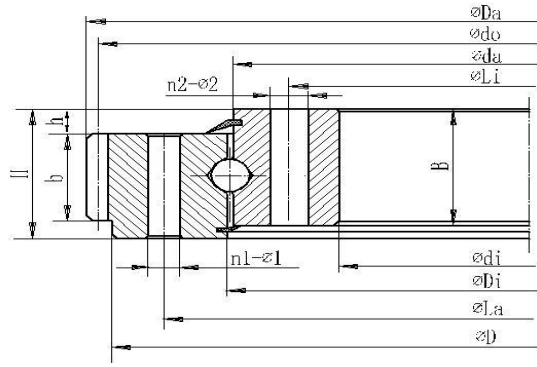
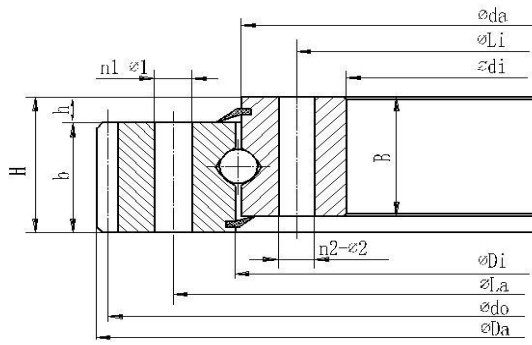
D	d	C	B	h	Di	da	Coa (KN)	Weight (Kg)
		46	46	10	1222	1218	2650	81.1
		91	91	10	1119	1115	3600	270
		78	132	72	1124	1120	2550	379
		123	137	35	1108	1103	4380	504
		100	100	18	1107	1103	3650	363
		82	82	10	1215	1211	3700	255
		100	100	10	1474	1470	6000	420
		75	75	10	1352	1348	4000	235
		91	91	10	1580	1576	5600	460
		100	100	10	1602	1598	5800	523
		55	55	10	1934	1930	5200	235
		86	86	14	2002	1998	6600	430
		165	165	10	2165	2155	13500	2000
		59	59	14	2302	2298	6100	300
		68	68	14	2902	2898	9600	460

Remark: Load is for material 42CrMo

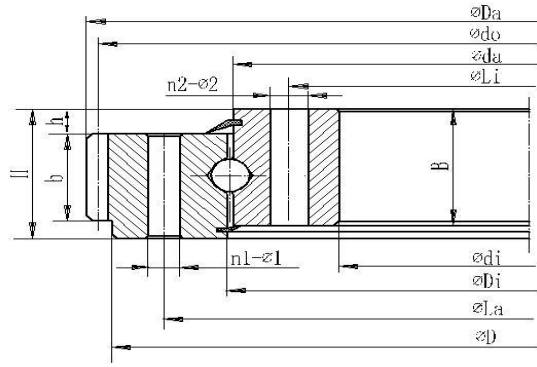
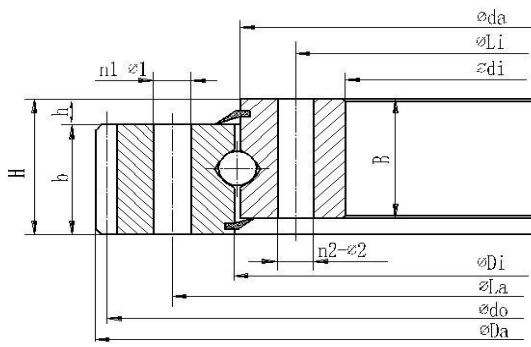
Four point contact ball slewing bearing (external gear type)



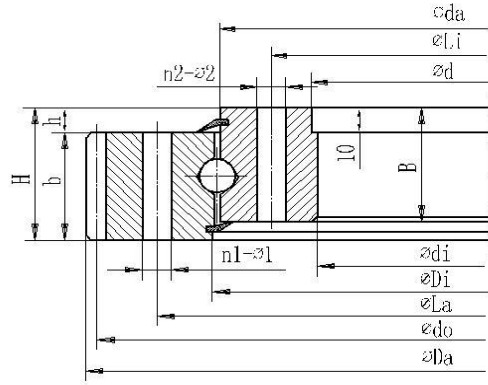
new model	Old model	Boundary dimensions (mm)			Bolt hole diameter (mm)					
		Da	di	H	La	Li	n1	n2	Φ1	Φ2
SOR10/181	SOR10/244	244	125	25	214	144.5	24	20	11	11
SOR20/222		313.5	145	50	270	175	16	16	M12	13.5
SOR15/237	SOR16/318	318.6	171	40	275	195	12	12	M12	M12
SOR20/252		360	170	58	300	204	8	16	M16	17
SOR20/260	SOR18/368	368	161	46	305	215	8	8	14	14
SOR20/311		403.5	235	55	358	259	24	28	13	13
SOR25/309		408.4	235	60	359	259	24	24	13	13
SOR25/310		415	225	65	360	260	10	14	M16	M16
SOR20/344		433.3	265	50	390	295	24	24	13.5	13.5
SOR30/344		468	240	86	405	280	14	20	19	19
SOR20/364	SOR20/470	470	292	50	412	316	24	24	13	13
SOR20/405	SOR22/503	503.3	335	50	455	359	30	30	13	13
SOR25/423		520.34	324.358	60.3	479.425	365.125	20	20	17.5	17.5
SOR25/458		570	370	65	510	406	24	24	M16	M16
SOR25/474		589.5	383	75	540	410	36	36	16	16
SOR25/475		595	382	65	540	410	18	18	17	17
SOR25/475Y		598.2	382	65	540	410	36	36	16	16
SOR20/543		640	471	56	585	498	40	40	M12	14
SOR20/540	SOR20/640	640.3	471	48	585	495	24	24	13	13
SOR25/564		683.26	469.9	60.3	622.3	508	18	24	20.65	20.65
SOR35/560	SOR40/708	708	464	87	628	492	56	56	16	16
SOR20/600		710	510	55	650	542	12	12	M12	18
SOR20/596	SOR20/712	712.3	510	55	650	542	24	24	18	18
SOR20/644		744	572	56	685	598	32	36	M12	13.5
SOR30/685	SOR30/829	829.9	577	68	753	617	24	24	22	22
SOR20/744		838.1	672	56	785	698	36	40	M12	14
SOR25/721	SOR25/844	844.1	630	59	780	662	30	30	18	18



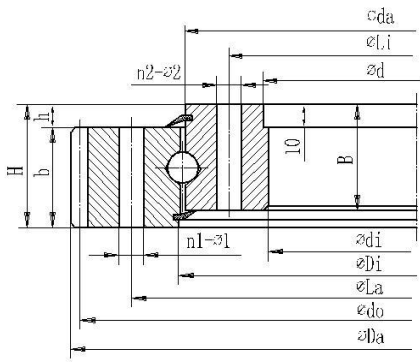
New model	Old model	Boundary dimensions (mm)			Bolt hole diameter (mm)					
		Da	di	H	La	Li	n1	n2	Φ1	Φ2
SOR20/753	SOR20/862	862.1	674	50	800	706	28	28	18	18
SOR20/818	SOR25/940	940.1	728	60	875	760	36	36	M16	17.5
SOR35/845	SOR40/1008	1008	730	87	920	770	40	40	22	22
SOR30/895	SOR30/1038	1038.1	790	68	960	830	32	32	22	22
SOR20/968	SOR20/1086	1086.1	890	60	1015	922	36	36	18	18
SOR30/978	SOR30/1110	1110.1	883	68	1040	915	52	52	18	18
SOR35/995	SOR36/1158	1158	882	80	1068	922	40	40	22	22
SOR20/1094		1198	1020	56	1135	1048	8	8	M12	13.5
SOR25/1072		1200	976	65	1135	1012	44	44	13	M12
SOR45/1116	SOR45/1293	1293.6	995	100	1198	1035	60	60	22	22
SOR20/1269		1366.8	1200	56	1313	1226	28	28	13.5	M12
SOR40/1212	SOR40/1389	1389.6	1095	92	1290	1135	56	56	22	22
SOR25/1255		1398	1155	80	1316	1195	42	42	M20	22
SOR20/1311	SOR20/1454	1454.4	1210	65	1372	1250	40	40	M16	18
SOR30/1310		1470	1190	84	1380	1235	48	48	M24	26
SOR35/1320	SOR36/1485	1485.6	1210	85	1390	1250	52	52	22	22
SOR50/1455	SOR50/1653	1653.6	1317	110	1545	1365	56	56	26	26
SOR20/1519	SOR20/1662	1662.4	1418	65	1580	1458	40	40	18	M16
SOR45/1461		1724.4	1319	126	1576	1371	56	56	26	26
SOR20/1652		1791	1548	65	1716	1588	48	48	M16	18
SOR40/1600	SOR40/1803	1804	1470	92	1682	1518	52	52	26	M24
SOR25/1843		1966.4	1745	68	1900	1785	36	36	M16	M16
SOR50/1765	SOR50/1971	1971.5	1622	110	1860	1670	68	68	26	26
SOR60/1790	SOR70/2027	2027.5	1621	146	1905	1675	76	76	30	30
SOR20/1892	MONTON-296	2031	1788	65	1956	1828	52	52	M16	18
SOR50/1832	SOR50/2041	2041.5	1687	110	1930	1735	72	72	26	26
SOR20/1935		2080	1830	65	1998	1870	45	45	18	M16
SOR30/1936	SOR30/2118	2118	1800	85	2010	1860	45	45	22	M20



new model	Old model	Boundary dimensions (mm)			Bolt hole diameter (mm)					
		Da	di	H	La	Li	n1	n2	Φ1	Φ2
SOR60/1985	SOR60/2229	2229.1	1826	128	2089	1880	72	72	30	30
SOR45/2006	SOR45/2262	2262.4	1820	130	2125	1895	30	30	33	33
SOR30/2100	MONTON-307	2277.6	1965	110	2174	2025	60	60	22	M20
SOR50/2130	SOR50/2381	2381.4	1965	118	2235	2025	52	52	33	33
SOR50/2252	SOR50/2457	2457.6	2112	118	2345	2160	88	88	26	26
SOR25/2304	SOR25/2493	2493.6	2190	110	2378	2230	72	72	22	M20
SOR50/2240		2570	1960	144	2400	2080	48	48	27	27
SOR50/2355	SOR50/2605	2605.1	2190	118	2460	2250	60	60	33	33
SOR50/2638	SOR50/2861	2861.1	2492	118	2735	2540	104	104	26	26
SOR60/2815	SOR60/3096	3096.8	2640	136	2930	2700	84	84	33	33
SOR60/2935	SOR60/3216	3216.8	2760	136	3050	2820	84	84	33	33
SOR70/3005	SOR70/3272	3272.8	2820	154	3130	2880	104	104	33	33
SOR45/3130		3359	2980	129	3220	3040	80	80	26	26
SOR60/3170	SOR70/3436	3436.8	2995	136	3285	3055	92	92	33	33
SOR70/3365	SOR70/3633	3633.1	3180	154	3490	3240	116	116	33	33
SOR70/3585	SOR70/3867	3867.1	3400	154	3710	3460	124	124	33	33
SOR70/3765	SOR70/4047	4047.5	3580	154	3890	3640	128	128	33	33
SOR70/4158	SOR70/4436	4436.8	3970	154	4285	4030	144	144	33	33

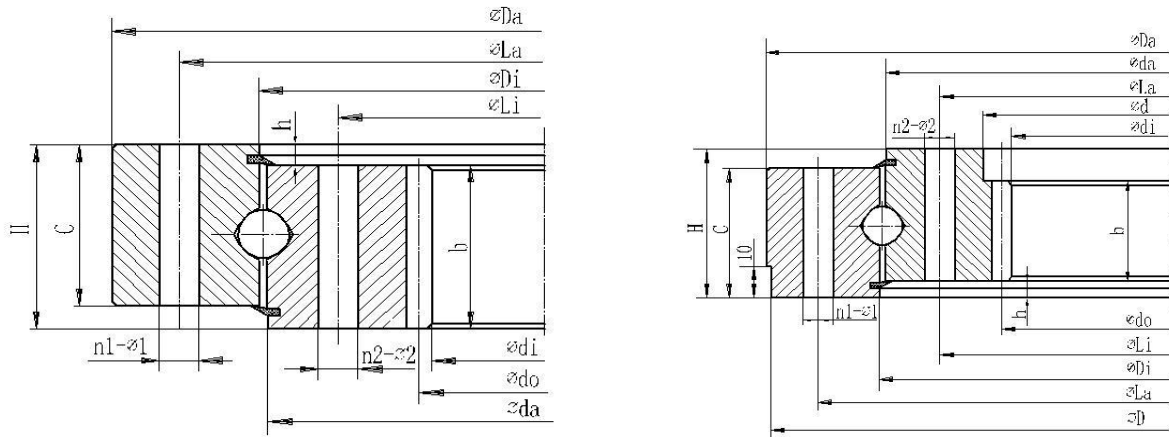


Structure dimensions (mm)							Gear parameters (mm)				Basic load ratings Coa (KN)	Weight (Kg)
D	d	b	B	h	Di	da	m	z	do	x		
234		20	25	0	182	180	2	120	240	0	165	5
		44	44	6	223	221	4.5	68	306	0	380	17.3
		35	35	5	238	236	4	78	312	0	275	13
330		45	46	8	252	252	5	70	350	0	480	24.9
326		35	41	5	261	259	4	90	360	0	370	23
380		41	47	8	312	309	4.5	88	396	0	600	24.9
	237	52.5	52.5	7.5	310	308	5	80	400	0	680	29.7
		55	50	10	312	308	5	81	405	0	680	35.3
		43	43	7	345.5	342.5	5	85	425	0	580	24.4
		70	70	16	344	344	6	76	456	0	950	59
		45	45	5	365.5	362.5	5	92	460	0	520	30.3
		45	45	5	406	404	5	99	495	0	575	33
		52.4	52.4	7.9	425	421	5.08	101	513.08	0	950	47
545		40	55	10	459	457	5	112	560	0	980	47
565	384	50	63	15	474	474	4.5	129	580.5	0	1000	62.3
565		50	55	10	477	473	5	117	585	0	1000	55
		60	60	5	477	473	6	98	588	0	1000	64
	472	46	46	10	545	541	6	105	630	0	900	42.6
		41	41	7	541.5	538.5	6	105	630	0	900	39
		52.4	52.4	7.9	566	562	6.35	106	673.1	0	1250	69
		80	80	7	562	558	10	69	690	0	1700	110
680		38	48	7	602	598	5	140	700	0	1000	59.4
		48	48	7	597	595	6	117	702	0	1000	63
		45.5	45.5	10.5	645.5	642.5	6	122	732	0	1080	53.8
		61	61	7	686	684	8	102	816	0	1600	115
	674	44.5	44.5	11.5	745.5	742.5	6	138	828	0	1250	58
		52	52	7	722	720	6	139	834	0	1500	87

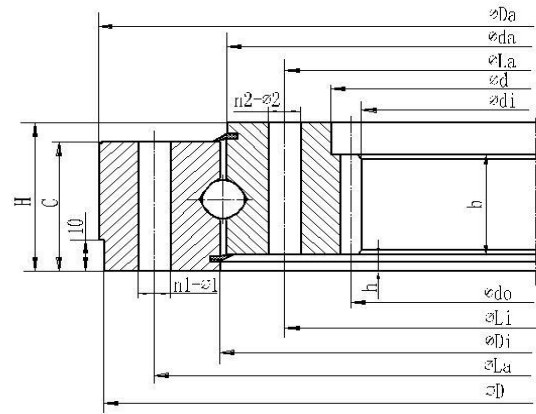
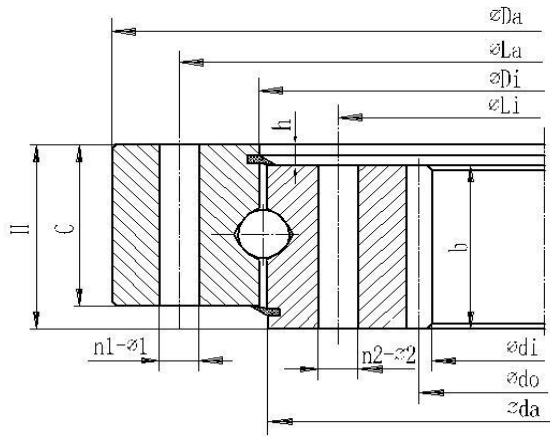


Structure dimensions (mm)							Gear parameters (mm)				Basic load ratings Coa (KN)	Weight (Kg)
D	d	b	B	h	Di	da	m	z	do	x		
		43	43	7	754	752	6	142	852	0	1070	65
		53	53	7	820	816	6	155	930	0	1480	303
		80	80	7	847	843	10	99	990	0	2300	200
		61	61	7	897	893	8	128	1024	0	2000	145
		53	53	7	970	966	8	134	1072	0	1760	105
		61	61	7	980	976	8	137	1096	0	2260	140
		73	73	7	997	993	10	114	1140	0	2900	210
		45.5	45.5	10.5	1095.5	1092.5	8	148	1184	0	2350	100
1162		50	55	10	1074	1070	8	148	1184	0	2200	135.8
		90	90	10	1118	1114	12	106	1272	0	4000	310
1338		44.5	45.5	10.5	1270	1268	6	226	1356	0	2520	99.4
		82	82	10	1213	1211	12	114	1368	0	3500	300
	1157	71	54	9	1253	1257	10	138	1380	0	2580	196
		55	55	10	1313	1309	8	180	1440	0	2620	186
		75	69	9	1308	1311	10	145	1450	0	3300	274
		75	75	10	1322	1318	12	122	1464	0	3900	285
		100	100	10	1456	1454	12	136	1632	0	6000	510
		55	55	10	1521	1517	8	206	1648	0	3300	219
		98	116	28	1459	1463	18	93	1674	+0.5	5300	696
		55	55	10	1654	1650	8	222	1776	0	3450	228
		82	82	10	1602	1598	14	127	1778	0	5350	465
		59	59	9	1842	1844	8	244	1952	0	4900	259
		100	100	10	1767	1763	14	139	1946	0	7200	640
		136	136	10	1792	1788	14	143	2002	0	8700	1020
		55	55	10	1894	1890	8	252	2016	0	3980	248
		100	100	10	1834	1830	14	144	2016	0	7500	680
		60	60	5	1937	1933	8	258	2064	0	4500	295
		75	75	10	1938	1934	10	210	2100	0	5800	502

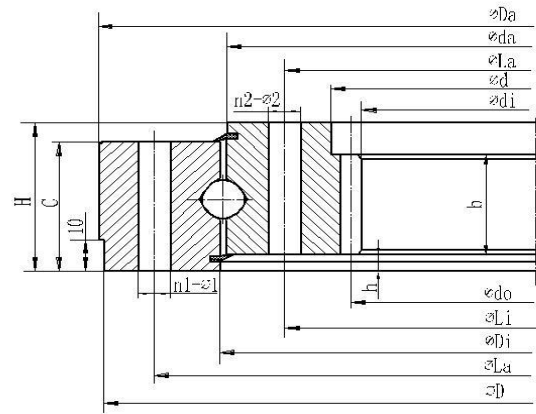
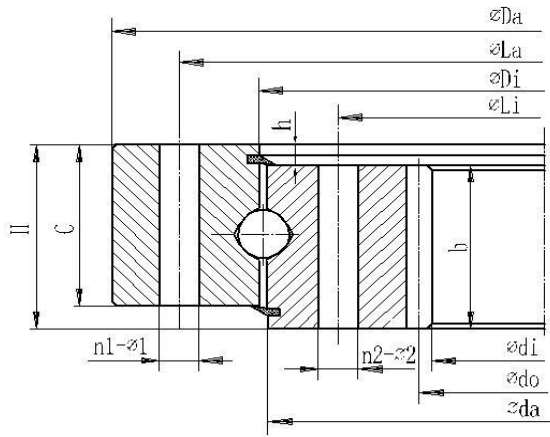
Four point contact ball slewing bearing (internal gear type)



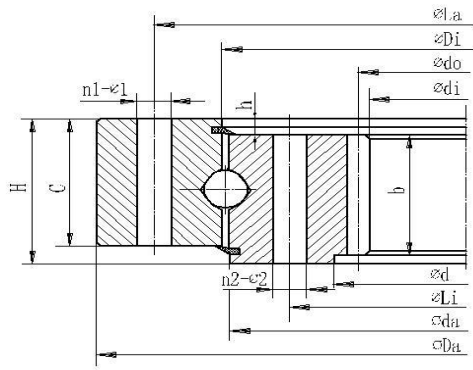
new model	Old model	Boundary dimensions (mm)			Bolt hole diameter (mm)					
		Da	di	H	La	Li	n1	n2	Φ 1	Φ 2
SIR15/288	SIR16/340	340	216	39	324	252	20	20	9	9
SIR10/348	SIR10/388	388	294	35	372	326	6	6	8.5	M8
SIR20/308		403	216	55	358	259	24	28	13	13
SIR20/344	SIR20/418	417.9	256.95	50	390	295	18	24	M15.88	M15.88
SIR20/385		445	306	46	425	345	16	16	13	13
SIR20/414		486	325	56	460	375	24	24	14	M12
SIR20/489	SIR25/562	562	384	55	538	440	40	40	14	14
SIR20/544		616	444	56	590	505	32	32	14	M12
SIR20/568		640	472	50	615	520	16	16	13	13
SIR20/575	SIR20/657	657	462	55	625	525	16	16	M16	M16
SIR20/644		716	547.2	56	690	605	36	36	13.5	M12
SIR20/644Y		716	546	56	690	605	36	36	14	M12
SIR25/635	SIR25/722	722	504	59	690	580	24	24	18	18
SIR20/684	SIR20/733	773	586.8	65	742	638	24	24	18	M16
SIR20/744		814.5	649.2	56	790	705	40	40	13.5	M12
SIR20/744Y		816	648	56	790	705	40	40	14	M12
SIR35/713	SIR40/817	817	560	86	785	640	52	52	18	18
SIR25/720	SIR30/812	812	584	68	780	660	40	40	18	18
SIR20/844		916	736	56	890	805	40	40	14	M12
SIR25/865	SIR25/952	952	736	60	920	810	20	20	18	18
SIR20/897	SIR20/976	976	776	60	944	850	32	32	18	18
SIR25/892		980	784	84	944	850	36	36	18	M16
SIR20/944		1016	840	56	990	905	44	44	14	M12
SIR20/1094	SIR20/1166	1166	984	56	1140	1055	48	48	M12	M12
SIR20/1094Y		1164.5	985.6	56	1140	1055	48	48	13.5	M12



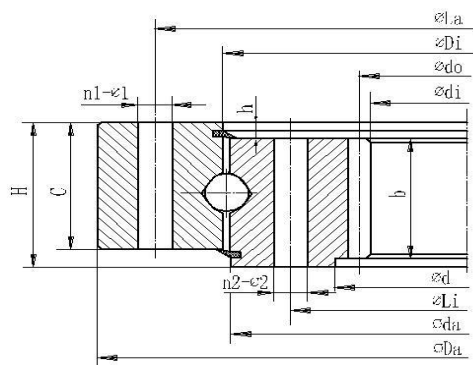
new model	Old model	Boundary dimensions (mm)			Bolt hole diameter (mm)					
		Da	di	H	La	Li	n1	n2	$\Phi 1$	$\Phi 2$
SIR30/1077		1175	961	90	1134	1040	36	36	M16	M16
SIR25/1100	SIR25/1200	1200	950	84	1160	1040	30	30	22	22
SIR30/1120	SIR30/1228	1228	960	79	1188	1052	40	40	22	22
SIR40/1120	SIR40/1258	1258	936	104	1210	1045	36	36	26	26
SIR30/1150	SIR30/1255	1255	984	73	1215	1085	40	40	22	22
SIR40/1187		1300	1020	105	1260	1110	33	36	26	26
SIR40/1185		1300	1014	105	1260	1110	26	34	26	26
SIR35/1220	SIR36/1330	1330	1060	85	1290	1150	48	48	22	22
SIR30/1290		1400	1130	75	1360	1220	36	36	24	24
SIR30/1280		1408	1110	80	1360	1200	48	44	26	26
SIR40/1282		1410	1100	96	1365	1200	36	36	25.4	25.4
SIR35/1300		1415	1144	95	1370	1230	48	48	24	24
SIR30/1302		1415	1142	95	1370	1230	36	36	24	24
SIR40/1304	SIR40/1416	1416	1140	92	1380	1228	76	76	20	20
SIR40/1348	SIR40/1465	1465	1180	92	1425	1270	48	48	22	22
SIR40/1387		1521	1214.9	129	1469	1315	56	48	26	M24
SIR50/1385	SIR50/1528	1528	1176	110	1480	1290	48	48	26	26
SIR25/1455	SIR25/1553	1553	1320	70	1515	1394	48	48	M16	17.5
SIR40/1500	SIR40/1630	1630	1308	92	1582	1418	48	48	26	26
SIR50/1615	SIR50/1753	1753	1416	110	1705	1525	64	64	26	26
SIR40/1700	SIR40/1830	1830	1498	92	1782	1618	56	56	26	26
SIR50/1785	SIR50/1923	1923	1568	110	1875	1695	72	72	26	26
SIR30/1905	SIR30/2010	2010	1740	82	1970	1840	48	48	22	22
SIR60/1865	SIR60/2024	2024	1616	128	1970	1760	68	68	30	30
SIR50/1945	SIR50/2088	2088	1722	110	2040	1850	48	48	26	26
SIR60/2025	SIR60/2184	2184	1764	136	2130	1921	72	72	30	30
SIR60/2180	SIR60/2355	2355	1920	136	2295	2065	64	64	33	33



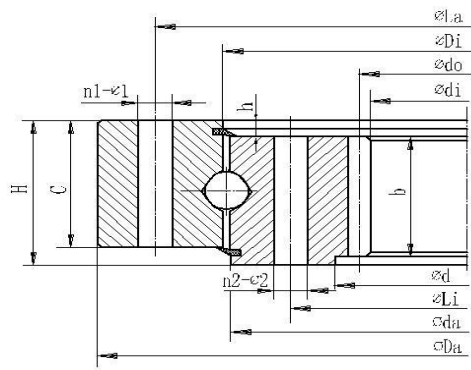
new model	Old model	Boundary dimensions (mm)			Bolt hole diameter (mm)					
		Da	di	H	La	Li	n1	n2	$\Phi 1$	$\Phi 2$
SIR45/2280	SIR45/2413	2143	2072	110	2365	2195	84	84	26	26
SIR50/2540	SIR50/2700	2700	2286	118	2640	2440	64	64	33	33
SIR60/2600	SIR60/2775	2775	2336	136	2715	2485	76	76	33	33
SIR35/2687	SIR36/2800	2800	2480	114	2760	2615	108	108	22	22
SIR50/2877	SIR50/3040	3040	2628	118	2980	2775	72	72	33	33
SIR45/2980	SIR45/3100	3100	2796	109	3060	2900	160	160	22	22
SIR60/3280	SIR60/3455	3455	3006	136	3395	3165	96	96	33	33
SIR50/3350		3519	3104	119	3453	3247	72	36	33	39
SIR45/3402	SIR45/3560	3560	3168	110	3500	3305	80	80	33	33
SIR70/3382	SIR70/3565	3565	3100	154	3505	3260	116	116	33	33
SIR80/3500	SIR80/3690	3690	3200	172	3630	3370	124	124	33	33
SIR80/3720	SIR80/3910	3910	3420	172	3850	3590	132	132	33	33
SIR80/3820	SIR80/4010	4010	3520	172	3950	3690	136	136	33	33
SIR80/4035	SIR80/4234	4234	3720	172	4174	3896	144	144	33	33



Structure dimensions (mm)							Gear parameters (mm)				Basic load ratings Coa (KN)	Weight (Kg)
D	d	C	b	h	Di	da	m	z	do	x		
		34	34	5	289	287	4	56	224	0	300	12
		30	30	5	349	347	3	100	300	0	245	9.9
380	235	43	42	8	310	306	4	56	224	0	530	27.5
		44	44	6	344.48	344.42	5.08	52	264.16	0	650	24.7
	323	38	35	8	385	385	3	104	312	0	605	20.5
		44.5	44.5	11.5	415.5	412.5	5	67	335	0	600	29.6
		50	50	5	490	488	6	66	396	0	835	43
		44.5	44.5	11.5	545.5	542.5	6	76	456	0	770	45.6
	496	40	44.5	5	569	567	5	96	480	0	1000	40
		43	48	7	577	573	6	79	474	0	960	55
		45.5	45.5	10.5	645.5	642.5	6	93	558	0	1080	50
		44.5	44.5	11.5	645.5	642.5	6	93	558	0	900	53.4
	616	52	52	7	636	634	8	65	520	0	1300	70
	616	52	50	8	680.2	688.6	6	99	594	+0.4	1240	73.2
		45.5	45.5	10.5	745.5	742.5	6	110	660	0	1150	58
		44.5	44.5	11.5	745.5	742.5	6	110	660	0	1050	57.7
		79	79	7	715	711	10	58	580	0	2150	140
		61	61	7	722	718	8	75	600	0	1500	100
		44.5	44.5	11.5	845.5	842.5	8	94	752	0	1180	73.4
		53	53	7	867	863	8	94	752	0	1900	100
		43	53	7	898	896	8	99	792	0	1600	90
975	824	66	72	10	892	892	8	100	800	0	1820	119.9
		44.5	44.5	11.5	945.5	942.5	8	107	856	0	1720	79
		44.5	44.5	11.5	1095.5	1092.5	8	125	1000	0	2460	92
		45.5	45.5	10.5	1095.5	1092.5	8	125	1000	0	2460	90.8



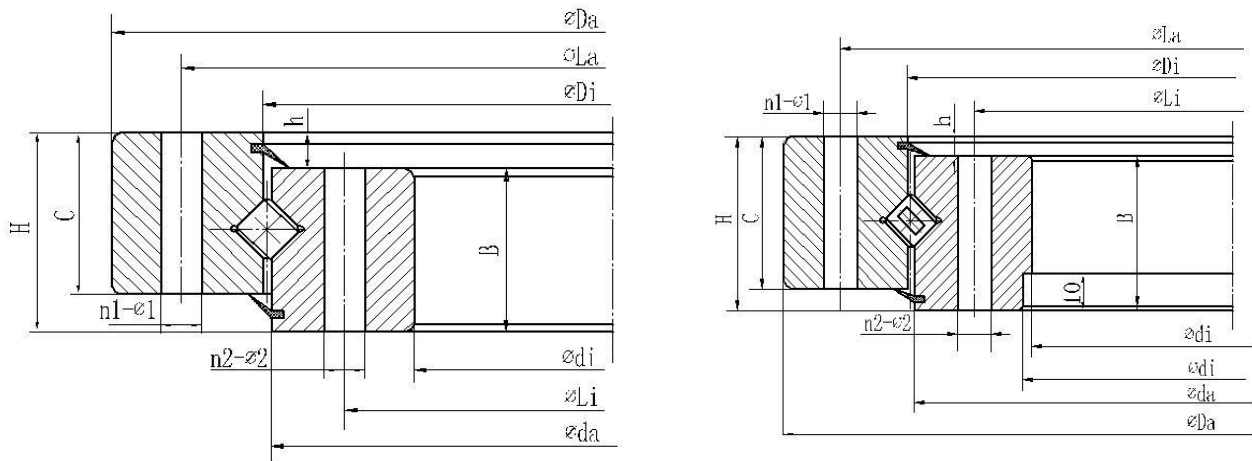
Structure dimensions (mm)							Gear parameters (mm)				Basic load ratings Coa (KN)	Weight t (Kg)
D	d	C	b	h	Di	da	m	z	do	x		
1165	1010	75	62	18	1076	1079	10	98	980	0	2460	164
		54	75		1102	1098	10	97	970	0	2250	180
		64	70		1122	1118	10	98	980	0	2600	205
		81	95		1122	1118	12	80	960	0	3750	320
		64	64	9	1152	1148	12	84	1008	0	2800	200
		90	90	15	1189	1185	8	129	1032	0	3700	295
	1070	90	80	15	1183	1187	10	103	1030	0	3700	306.7
		75	75	10	1222	1218	10	108	1080	0	3600	250
	1180	65	60	10	1292	1288	10	115	1150	0	3140	310
		70	70	10	1278	1282	10	113	1130	0	3280	259
	1156	86	70	10	1280	1284	10	112	1120	0	4100	351
	1190	78	60	23	1298	1302	10	116	1160	0	3500	260
	1194	78	60	23	1300	1304	10	116	1160	0	3350	272
		82	82	10	1306	1302	10	116	1160	0	4000	295
		82	82	10	1350	1346	10	120	1200	0	4180	331
	1272	104	103	9	1385	1388	12	101	1212	+1.02	4800	491
		100	100	10	1387	1383	12	100	1200	0	5700	490
		54	61	9	1459	1451	5	266	1330	0	3880	203
		82	82	10	1502	1498	12	111	1332	0	4600	400
		100	100	10	1617	1613	12	120	1440	0	6600	550
		82	82	10	1702	1698	14	109	1526	0	5200	460
		100	100	10	1787	1783	14	114	1596	0	7350	630
		64	72	10	1907	1903	12	147	1764	0	6380	360
		118	118	10	1867	1863	16	103	1648	0	9200	890
		100	100	10	1947	1943	14	125	1750	0	7900	740
		122	122	14	2027	2023	18	100	1800	0	9850	1030
		122	122	14	2182	2178	16	122	1952	0	10600	1170



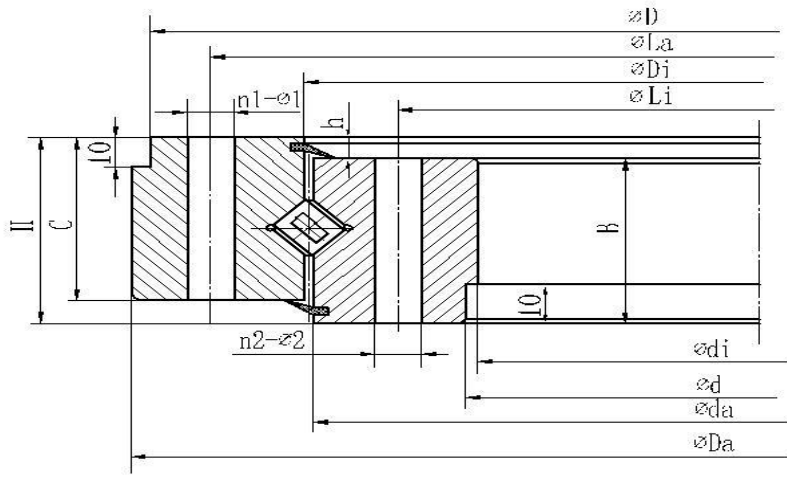
Structure dimensions (mm)							Gear parameters (mm)				Basic load ratings Coa (KN)	Weigh t (Kg)
D	d	C	b	h	Di	da	m	z	do	x		
		96	96	14	2282	2278	14	150	2100	0	10600	780
		104	104	14	2542	2538	18	129	2322	0	10300	1100
		122	122	14	2602	2598	16	148	2368	0	12500	1420
		80	100	14	2689	2685	20	126	2520	0	10300	750
		104	104	14	2879	2875	18	148	2664	0	15300	1260
		95	95	14	2982	2978	12	235	2820	0	13800	860
		122	122	14	3282	3278	18	169	3042	0	20500	1820
		104	110	15	3348	3352	16	195	3120	+0.5	17850	1452
		96	96	14	3404	3400	16	200	3200	0	15900	1300
		140	140	14	3384	3380	20	157	3140	0	19000	2290
		158	158	14	3502	3498	20	162	3240	0	22400	2720
		158	158	14	3722	3718	20	173	3460	0	23900	2890
		158	158	14	3822	3818	20	178	3560	0	24500	2990
		158	158	14	4037	4033	20	188	3760	0	25900	3330

Remark: Load is for material 42CrMo

Cross roller slewing bearing(external gear type)



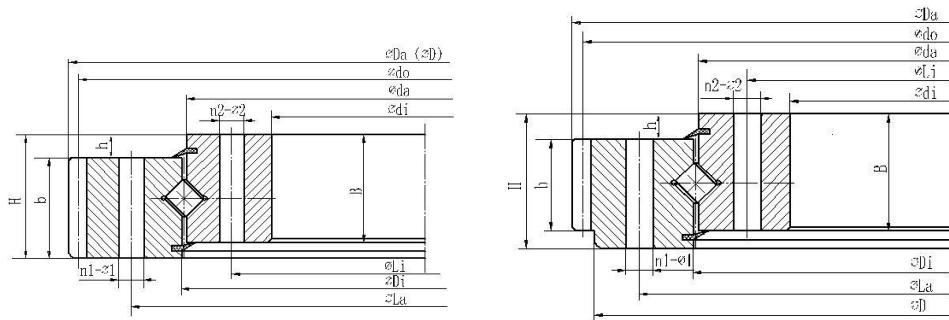
Designations	Boundary dimensions			Bolt hole diameter (mm)					
	Da	di	H	La	Li	n1	n2	$\Phi 1$	$\Phi 2$
XU10/219	300	140	36	270	170	12	12	M16	18
XU25/440	550	320	85	515	365	12	8	17	18
XU20/475	589.5	378	75	540	410	18	18	18	18
XU40/752	900	600	125	848	690	30	29	26	M24
XU25/810	907	670	85	870	730	12	8	M16	18
XU25/823	979	717	100	893	753	36	36	22	22
XU40/880	1000	700	140	940	770	24	24	M20	22
XU40/1005	1150	845	130	1100	895	24	24	22	22
XU30/1025	1180	870	115	1125	920	18	18	28	28
XU30/1135	1270	1000	100	1220	1050	36	36	19	19
XU45/1405	1608	1250	148	1512	1297	16	16	25	25
XU40/1430	1660	1278	120	1535	1335	18	18	26	26
XU50/1546	1680	1412	170	1630	1460	24	24	18	18
XU45/1448	1700	1250	155	1650	1330	24	24	26	26
XU45/1830	2140	1600	145	1940	1710	48	48	26	26
XU45/1970	2210	1776	150	2105	1840	36	36	26	26
XU45/2115	2320	1916	150	2245	1980	42	42	34	34
XU40/2500	2678	2325	132	2610	2391	44	44	33	33
XU90/2540	2860	2190	300	2800	2270	36	36	32	32
XU50/2741	2980	2500	180	2910	2590	48	48	33	33
XU60/3055	3310	2800	190	3220	2890	60	60	39	39



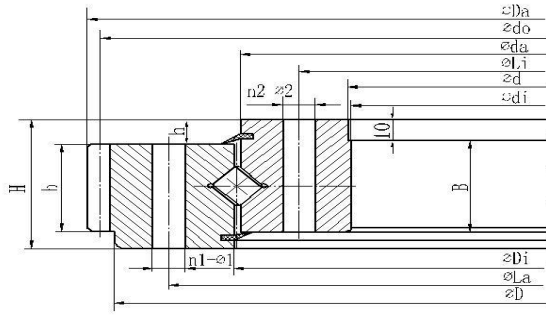
Structure dimensions (mm)							Basic load ratings Coa (KN)	Weight (Kg)
D	d	C	B	h	Di	da		
		30	30	6	220	218	236	10.8
		75	75	10	442	438	1200	85.6
	384	60	58	17	476.5	473.5	1160	71.8
		105	105	20	754	750	3580	246
		75	75	10	812	808	2250	170
932	718	79	82	18	825	821	2300	202
		130	120	20	882	879	4150	370
		105	120	10	1006.5	1003.5	4720	398
		100	100	15	1027	1023	3720	355
		85	85	15	1138	1132	3600	303
		128	122	26	1407	1403	6600	717
		105	105	15	1432	1428	7100	589
		120	145	25	1548	1544	8750	725
		140	145	10	1450	1446	6100	1103
		135	135	10	1832	1828	9300	1357
		135	135	15	1972	1968	10000	1244
		130	130	20	2117	2113	10800	1214
		120	120	12	2502	2498	11400	128
		260	260	40	2550	2530	21300	4797
		170	170	10	2743	2739	15600	2913
		165	165	25	3060	3050	21000	2864

Remark: Load is for material 42CrMo

Cross roller slewing bearing(external gear type)

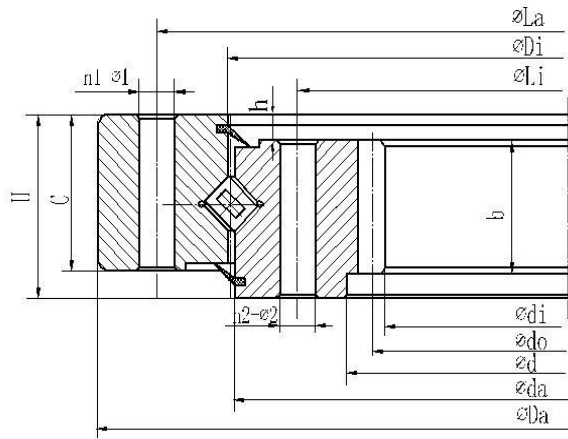
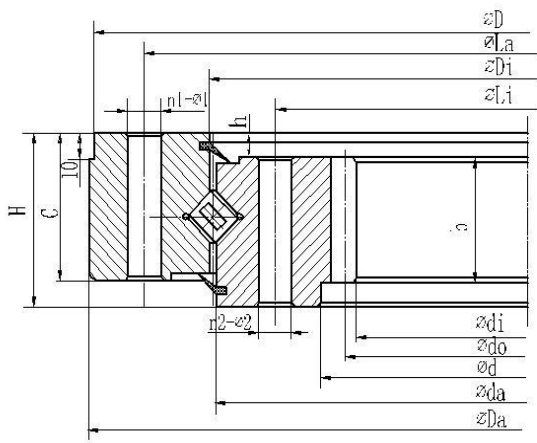


Designations	Boundary dimensions			Bolt hole diameter (mm)					
	Da	di	H	La	Li	n1	n2	Φ 1	Φ 2
XOU25/400	535	305	75	466	336	18	18	20	20
XOU20/475	588	383	75	540	410	36	36	16	16
XOU25/478	595	382	85	540	410	36	36	17	17
XOU25/508	654	390	85	582	432	30	30	22	22
XOU25/574	708	470	83	640	508	36	36	17	17
XOU15/644	742.3	574	56	685	598	32	36	M12	14
XOU15/744	838.1	674	56	785	698	36	40	M12	14
XOU15/844	950.1	774	56	885	798	36	40	M12	14
XOU15/860	974	780	55	910	810	36	36	14	14
XOU25/823	979	717	100	893	753	36	36	22	22
XOU20/979	1096	885	83	1032	925	16	16	16	17.5
XOU35/1025	1180	885	115	1115	935	16	16	18	18
XOU35/1254	1452	1100	115	1345	1160	24	18	21	21
XOU40/1250	1476	1084	110	1350	1150	40	40	26	26
XOU40/1262	1477.28	1100	140	1352	1160	26	26	24	26
XOU45/1405	1608	1250	148	1512	1297	16	16	25	25
XOU35/1430	1655.46	1278	120	1535	1335	36	36	26	26
XOU35/1560	1780.8	1400	110	1660	1460	42	42	26	26
XOU50/1506	1783.6	1300	165	1644	1360	24	24	32	32
XOU40/1635	1881.6	1460	125	1735	1525	32	36	26	26
XOU50/2370	2700	2100	180	2540	2200	48	48	32	32
XOU50/2510	2781	2315	140	2640	2380	48	48	34	34
XOU70/2746	3108	2460	220	2930	2560	30	30	33	34
XOU80/3000	3440	2635	270	3240	2755	36	36	42	42
XOU70/3580	4100	3230	240	3820	3380	52	36	37	37
XOU70/4000	4326	3760	240	4160	3840	48	48	32	32
XOU80/4600	5082	4250	250	4840	4350	72	72	48	48



Structure dimensions (mm)							Basic load ratings Coa (KN)				Weight (Kg)	Struct ure dimen sions (mm)
D	d	b	B	h	Di	da	m	z	do	x		
495	306	55	63	12	402	398	8	65	520	0	1060	58.1
565	384	50	63	15	476.5	473.5	5	116	580	0	1100	64.4
565	-	60	70	15	480	476	5	117	585	0	1300	70.2
610	392	60	73	12	510	506	8	80	640	0	1560	98
	471	70	70	13	577	572	10	69	690	+0.03	1700	103
		44.5	44.5	11.5	647	643	6	122	732	0	1070	52
		44.5	44.5	11.5	747	743	6	138	828	0	1250	59
		44.5	44.5	11.5	847	843	8	117	936	0	1400	71
	781	47	43	8	861.5	858.5	8	120	960	0	1450	78
932	718	65	82	21	825	821	10	94	940	+1.1	2300	188
1056		62.5	75	8	980	978	8	135	1080	0	1960	162
1150		80	100	15	1027	1023	5	234	1170	0	4150	330
1415		84	100	15	1255	1253	6	240	1440	0	5100	497
1415	1085	77	100	19	1252	1248	10	144	1440	+0.86	5600	482.2
1400		90	126	21	1264	1260	14	104	1456	-0.24	6000	642
1548		100	122	20	1407	1403	12	132	1584	0	7100	661
1595		90	105	15	1432	1428	12	134	1608	+1.15	6000	597
1715		78	95	17	1562	1558	12	147	1764	-0.3	6400	579
1705		85	134	31	1508	1504	14	126	1764	-0.3	8400	1023
1800		95	110	10	1637	1633	14	133	1862	-0.3	7700	828
2600		130	158	22	2372	2368	18	148	2664	0	9500	2395
	2325	131	126	9	2512	2508	16	172	2752	0	14200	1563
		185	200	35	2747	2745	14	220	3080	0	22000	4091
3332		200	225	30	3002	2998	20	170	3400	0	27000	5973
3970		200	220	20	3582	3578	25	162	4050	0	28700	7612
4220		135	210	55	4004	3996	14	307	4298	0	32000	4396
4940		200	225	25	4602	4598	30	168	5040	-0.3	42000	8954

Remark: Load is for material 42CrMo



Structure dimensions (mm)							Gear parameters (mm)				Basic load ratings Coa (KN)	Weight (Kg)
D	d	C	b	h	Di	da	m	z	do	x		
	350	44.5	40	11.5	415	411	5	67	335	0	375	31
560	418	50	43	10	491	487	6	66	396	0	1060	42.7
		44.5	44.5	11.5	545	541	6	76	456	0	880	43
		44.5	44.5	11.5	645	641	6	93	558	0	1070	50
		44.5	44.5	11.5	745	741	6	110	660	0	1240	58
870	670	60	55	10	772	768	8	80	640	+0.5	2080	107
		44.5	44.5	11.5	845	841	8	94	752	0	1400	58
	695	76	65	4	804	800	7	96	672	0	2690	175
970	820	61	60	14	899	895	8	100	800	0	1600	110
		44.5	44.5	11.5	945	941	8	107	856	0	1580	76
		44.5	44.5	11.5	1095	1091	8	125	1000	0	1840	91
	875	82	70	15	1022	1018	8	105	840	+0.35	3400	297
1165	1010	75	62	18	1078	1075	10	98	980	0	2430	183.5
	870	100	90	15	1027	1023	8	105	840	+0.3	4060	374
	955	76	72	10	1082	1078	8	115	920	+0.3	3880	278
	1278	106	90	14	1432	1428	12	103	1236	+0.35	6450	585
	1400	95	90	15	1562	1558	10	135	1350	0	6400	587
	2000	140	120	20	2213	2207	14	138	1932	+0.3	12600	1607
	2240	140	120	20	2463	2457	16	136	2176	+0.3	14000	1798
	2300	180	175	18	2545	2535	20	110	2200	0	17200	2756
2840	2610	140	147	10	2812	2808	22	114	2508	+0.6	16050	2240
	2680	270	180	30	3000	2996	16	164	2624	0	30400	6320
	3322	180	158	20	3572	3568	22	147	3234	0.35	24600	4520

Remark: Load is for material 42CrMo

Four point contact ball slewing bearing(with flange)

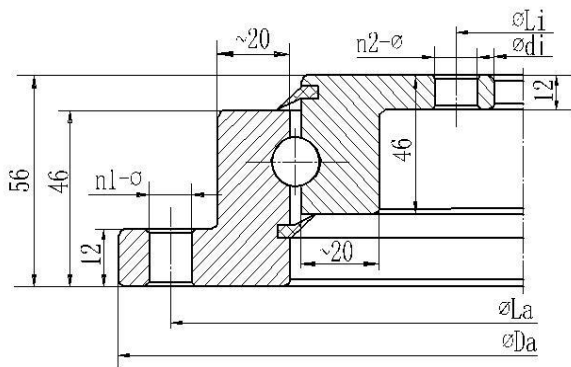


图 1

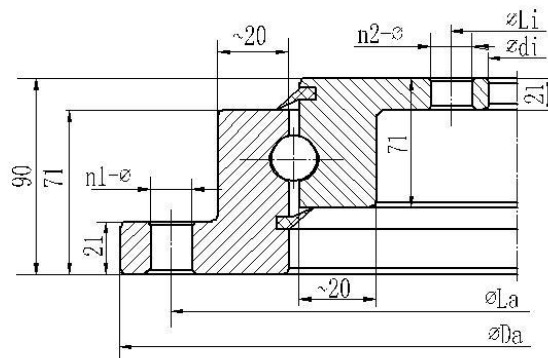


图 2

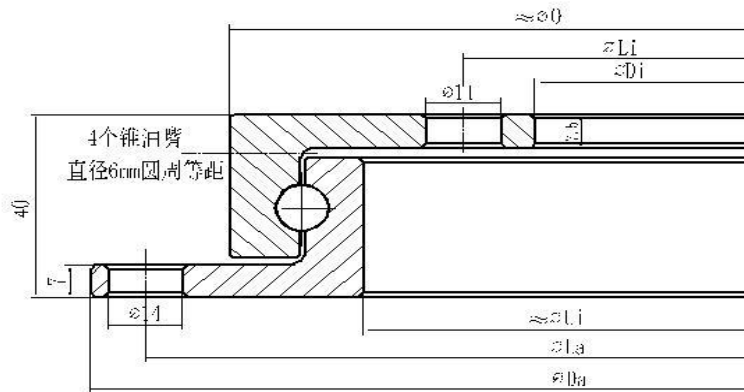
Designations	Boundary dimensions							Basic load ratings (KN)	Weight (kg)
	Da	di	La	n1	Li	n2	ϕ		
SLR20/414①	518	304	490	8	332	12	18	510	24.3
SLR20/544①	648	434	620	10	462	14	18	670	32
SLR20/644①	748	534	720	12	562	16	18	810	38
SLR20/644Y①	746	536	720	12	562	16	18	810	38
SLR20/744①	848	634	820	12	662	16	18	910	43.9
SLR20/844①	948	734	920	14	762	18	18	1050	50
SLR20/844Y①	946	736	920	14	762	18	18	1050	50
SLR20/944①	1048	834	1020	16	862	20	18	1500	55.6
SLR20/1094①	1198	984	1170	16	1012	20	18	1760	62.7
SLR30/955②	1100	805	1060	30	845	30	22	1980	131
SLR30/1055②	1200	905	1160	30	945	30	22	2150	145
SLR30/1155②	1300	1005	1260	36	1045	36	22	2350	159
SLR30/1255②	1400	1105	1360	42	1145	42	22	2550	172
SLR30/1355②	1500	1205	1460	42	1245	42	22	2750	186
SLR30/1455②	1600	1305	1560	48	1345	48	22	3800	200

Remark: 1) Load is for material 42CrMo

2) ①--figure is drawing1;

②--figure is drawing2

Four-point contact ball slewing ring(with flange)



ROTEK	MONTON	Raceway	Da	La	Ui	0	Li	Di	Weight
Type			(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(kg)
250.14.0300. 01313/400	MONTON-2501	Unhardened	401	380	298	348	260	233	10.8
250.14.0400. 01313/500	MONTON-2502		501	480	396	446	360	333	13.1
250.14.0399. 01313/400	MONTON-2501YB	Hardened	401	380	298	348	260	233	9.6
250.14.0499. 01313/500	MONTON-2502YB4		501	480	396	446	360	333	13.1

Bolt hole diameter				Gear parameters				Basic load ratings (KN)	Weight kg
La	n ₁	Li	n ₂	d _o	m	z	x		
585	14	462	14	630	6	105	0	670	41.5
685	16	562	16	732	6	122	0	810	48.5
785	18	662	16	828	6	138	0	910	54.5
885	18	762	18	936	8	117	0	1050	65.5
985	20	862	20	1032	8	129	0	1500	71.5
1135	22	1012	20	1184	8	148	0	1760	83.5
455	10	332	12	495	5	99	0	510	33
585	14	462	14	630	6	105	0	670	46
685	16	562	16	732	6	122	0	810	55
785	18	662	16	828	6	138	0	910	59
885	18	762	18	936	8	117	0	1050	72
985	20	862	20	1032	8	129	0	1500	82
1135	22	1012	20	1184	8	148	0	1760	99

Four-point contact ball slewing bearing (with outer flange and internal gear type)

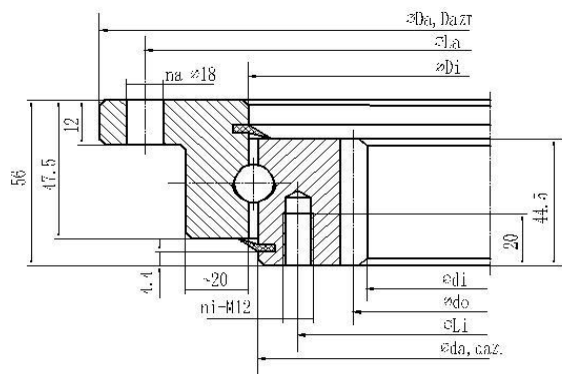


图 1

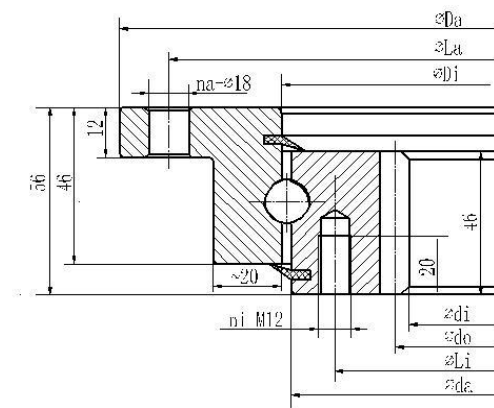


图 2

Designations	Boundary dimensions					
	Da	Da _{ZT} -IT8	di	Di	da	da _{ZT} +IT8
SLIR20/544①	648 ^{-0.5}	646	444	545.5 ^{+0.5}	542.5 ^{-0.5}	541
SLIR20/644①	748 ^{-0.6}	746	546	645.5 ^{+0.6}	642.5 ^{-0.6}	641
SLIR20/744①	848 ^{-0.6}	846	648	745.5 ^{+0.6}	742.5 ^{-0.6}	741
SLIR20/844①	948 ^{-0.6}	946	736	845.5 ^{+0.6}	842.5 ^{-0.6}	841
SLIR20/944①	1048 ^{-0.7}	1046	840	945.5 ^{+0.7}	942.5 ^{-0.7}	941
SLIR20/1094①	1198 ^{-0.7}	1196	984	1095.5 ^{+0.7}	1092.5 ^{-0.7}	1091
SLIR20/414②	518	-	326.5	415.5	412.5	-
SLIR20/544Y②	648	-	445.2	545.5	542.5	-
SLIR20/644Y②	748	-	547.2	645.5	642.5	-
SLIR20/744Y②	848	-	649.2	745.5	742.5	-
SLIR20/844Y②	948	-	737.6	845.5	842.5	-
SLIR20/944Y②	1048	-	841.6	945.5	942.5	-
SLIR20/1094Y②	1198	-	985.6	1095.5	1092.5	-

Remark: Remark: Load is for material 42CrMo;

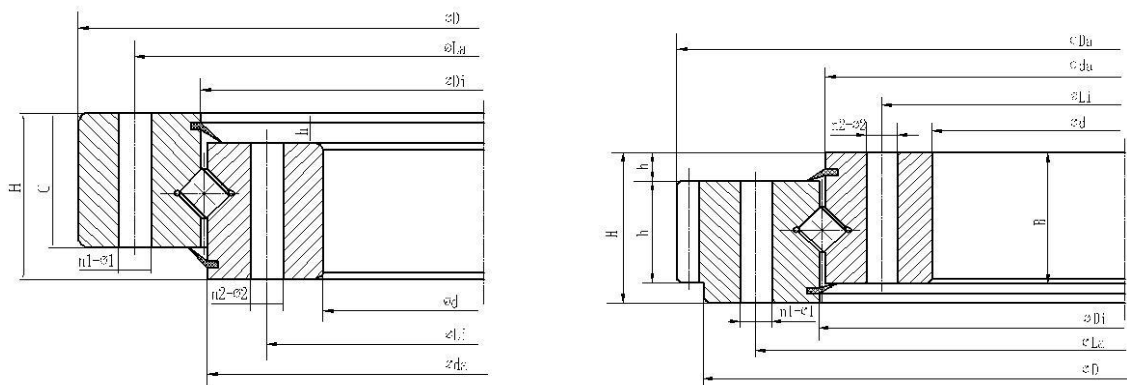
Bearing with centring (suff ZT), for centring lengths see dimension drawing;

①--figure is drawing①;

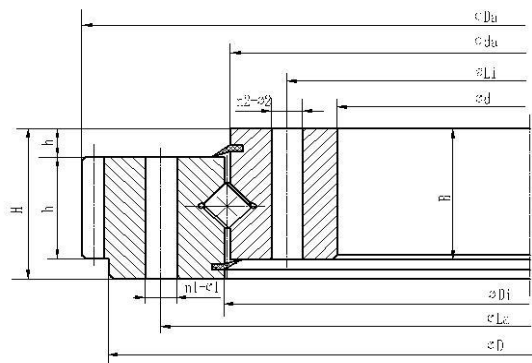
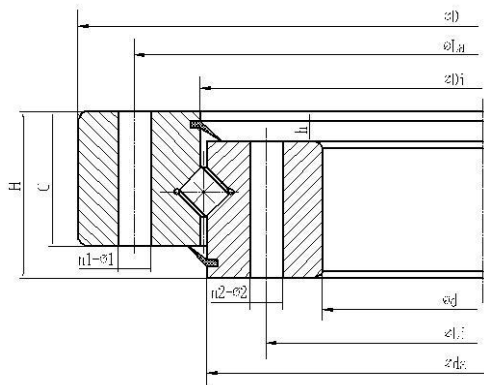
②--figure is drawing②

Bolt hole diameter				Gear parameters				Basic load ratings (KN)	Weight kg
La	n1	Li	n ₂	d _o	m	z	x		
620	10	505	16	456	6	76	0	670	38
720	12	605	18	558	6	93	0	810	45
820	12	705	20	660	6	110	0	910	51.5
920	14	805	20	752	8	94	0	1050	61.5
1020	16	905	22	856	8	107	0	1500	67.5
1170	16	1055	24	1000	8	125	0	1760	81.5
490	8	375	12	335	5	67	0	510	35.4
620	10	505	16	456	6	76	0	670	46.8
720	12	605	18	558	6	93	0	810	53.2
820	12	705	20	660	6	110	0	910	63.1
920	14	805	20	752	8	94	0	1050	76.6
1020	16	905	22	856	8	107	0	1500	79.8
1170	16	1055	24	1000	8	125	0	1760	101

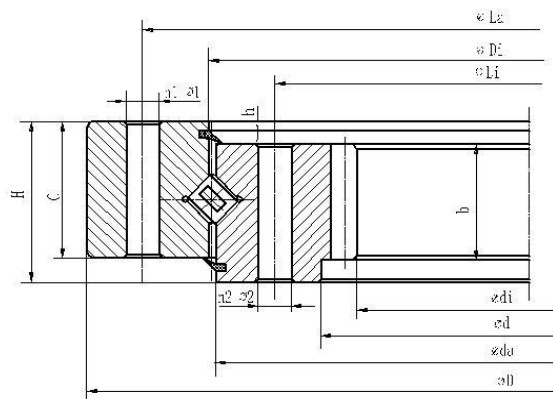
Crossed roller slewing bearing (no gear type and external gear type)



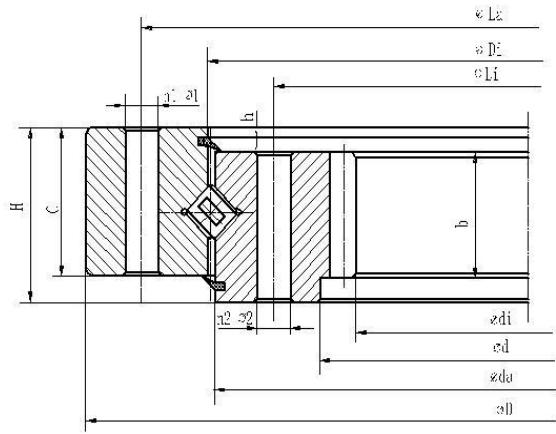
Designations			Boundary dimensions (mm)			Bolt hole diameter (mm)			
No gear type	External gear type	Internal gear type	D	d	H	La	Li	n1/n2	$\Phi 1$ $\Phi 2$
XU25/500	XOU25/500	XIU25/500	602	398	75	566	434	20	18
	XOU25/500Y	XIU25/500Y	602	398	75	566	434	20	18
XU25/560	XOU25/560	XIU25/560	662	458	75	626	494	20	18
	XOU25/560Y	XIU25/560Y	662	458	75	626	494	20	18
XU25/630	XOU25/630	XIU25/630	732	528	75	696	564	24	18
	XOU25/630Y	XIU25/630Y	732	528	75	696	564	24	18
XU25/710	XOU25/710	XIU25/710	812	608	75	776	644	24	18
	XOU25/710Y	XIU25/710Y	812	608	75	776	644	24	18
XU30/800	XOU30/800	XIU30/800	922	678	82	878	722	30	22
	XOU30/800Y	XIU30/800Y	922	678	82	878	722	30	22
XU30/900	XOU30/900	XIU30/900	1022	778	82	978	822	30	22
	XOU30/900Y	XIU30/900Y	1022	778	82	978	822	30	22
XU30/1000	XOU30/1000	XIU30/1000	1122	878	82	1078	922	36	22
	XOU30/100Y	XIU30/1000Y	1122	878	82	1078	922	36	22
XU30/1120	XOU30/1120	XIU30/1120	1242	998	82	1198	1042	36	22
	XOU30/1120Y	XIU30/1120Y	1242	998	82	1198	1042	36	22
XU30/1250	XOU30/1250	XIU30/1250	1390	1110	91	1337	1163	40	26
	XOU30/1250Y	XIU30/1250Y	1390	1110	91	1337	1163	40	26
XU30/1400	XOU30/1400	XIU30/1400	1540	1260	91	1487	1313	40	26
	XOU30/1400Y	XIU30/1400Y	1540	1260	91	1487	1313	40	26
XU30/1600	XOU30/1600	XIU30/1600	1740	1460	91	1687	1513	45	26
	XOU30/1600Y	XIU30/1600Y	1740	1460	91	1687	1513	45	26
XU30/1800	XOU30/1800	XIU30/1800	1940	1660	91	1887	1713	45	26
	XOU30/1800Y	XIU30/1800Y	1940	1660	91	1887	1713	45	26
		XIU45/1830	2002	1665	156	1940	1720	54	30



Designations			Boundary dimensions (mm)			Bolt hole diameter (mm)			
No gear type	external gear type	internal gear type	D	d	H	La	Li	n1/n2	$\Phi 1$ $\Phi 2$
XU40/2000	XOU40/2000	XIU40/2000	2178	1825	112	2110	1891	48	33
	XOU40/2000Y	XIU40/2000Y	2178	1825	112	2110	1891	48	33
XU40/2000Y			2178	1825	112	2110	1891	48	33
XU40/2240	XOU40/2240	XIU40/2240	2418	2065	112	2350	2131	48	33
	XOU40/2240Y	XIU40/2240Y	2418	2065	112	2350	2131	48	33
XU40/2500	XOU40/2500	XIU40/2500	2678	2325	112	2610	2391	56	33
	XOU40/2500Y	XIU40/2500Y	2678	2325	112	2610	2391	56	33
	XOU40/2500Y1		2678	2325	112	2610	2391	56	33
XU40/2800	XOU40/2800	XIU40/2800	2978	2625	112	2910	2691	56	33
	XOU40/2800Y	XIU40/2800Y	2978	2625	112	2910	2691	56	33
XU50/3150	XOU50/3150	XIU50/3150	3376	2922	134	3286	3014	56	45
	XOU50/3150Y	XIU50/3150Y	3376	2922	134	3286	3014	56	45
XU50/3550	XOU50/3550	XIU50/3550	3776	3322	134	3686	3414	56	45
	XOU50/3550Y	XIU50/3550Y	3776	3322	134	3686	3414	56	45
	XOU50/3550Y1		3776	3322	134	3686	3414	56	45
XU50/4000	XOU50/4000	XIU50/4000	4226	3772	134	4136	3864	60	45
	XOU50/4000Y	XIU50/4000Y	4226	3772	134	4136	3864	60	45
XU50/4500	XOU50/4500	XIU50/4500	4726	4272	134	4636	4364	60	45
	XOU50/4500Y	XIU50/4500Y	4726	4272	134	4636	4364	60	45

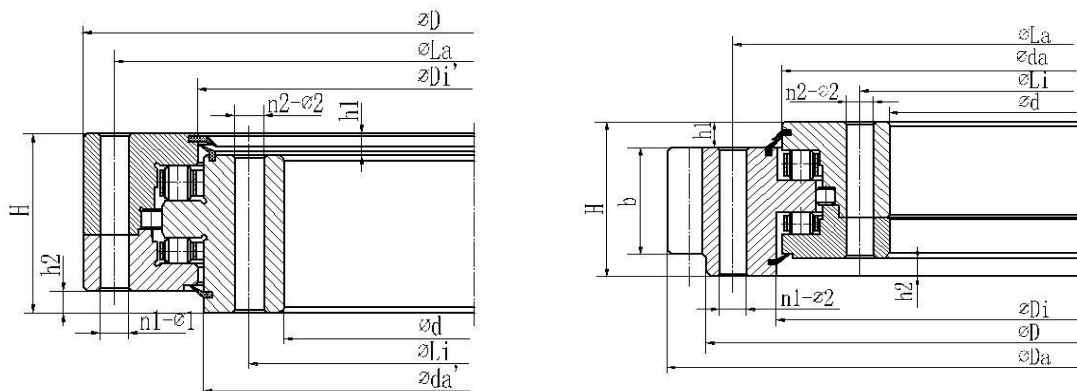


Structure dimensions (mm)				Gear parameters (mm)							Basic load ratings Coa (KN)	Weight (Kg)
da	Di	C/B	h	m	Da	Z	di	Z	b	x		
499	501	65	10	5	630	123	365	74	60	0.5	1040	80
499	501	65	10	6	630	120	360	62	60	0.5	1040	80
558.5	561.5	65	10	5	690	135	425	86	60	0.5	1160	90
558.5	561.5	65	10	6	690	112	426	112	60	0.5	1160	90
628.5	631.5	65	10	6	774	126	492	83	60	0.5	1300	100
628.5	631.5	65	10	8	776	94	488	62	60	0.5	1300	100
708.5	711.5	65	10	6	852	139	570	96	60	0.5	1490	110
708.5	711.5	65	10	8	856	104	568	72	60	0.5	1490	110
798.5	801.5	72	10	8	968	118	632	80	65	0.5	1850	170
798.5	801.5	72	10	10	970	94	630	64	65	0.5	1850	170
898.5	901.5	72	10	8	1064	130	736	93	65	0.5	2090	190
898.5	901.5	72	10	10	1070	104	730	74	65	0.5	2090	190
998.5	1001.5	72	10	10	1190	116	820	83	65	0.5	2330	210
998.5	1001.5	72	10	12	1188	96	816	69	65	0.5	2330	210
1118	1122	72	10	10	1300	127	940	95	65	0.5	2620	230
1118	1122	72	10	12	1308	106	936	79	65	0.5	2620	230
1248	1252	81	10	12	1452	118	1044	88	75	0.5	3210	350
1248	1252	81	10	14	1456	101	1036	75	75	0.5	3210	350
1398	1402	81	10	12	1608	131	1188	100	75	0.5	3580	400
1398	1402	81	10	14	1610	112	1190	86	75	0.5	3580	400
1598	1602	81	10	14	1820	127	1386	100	75	0.5	4120	440
1598	1602	81	10	16	1824	111	1376	87	75	0.5	4120	440
1798	1802	81	10	14	2016	141	1568	113	75	0.5	4600	500
1798	1802	81	10	16	2016	123	1568	99	75	0.5	4600	500
1827	1833	128	28	12			1610	135	100	0.5	5710	912



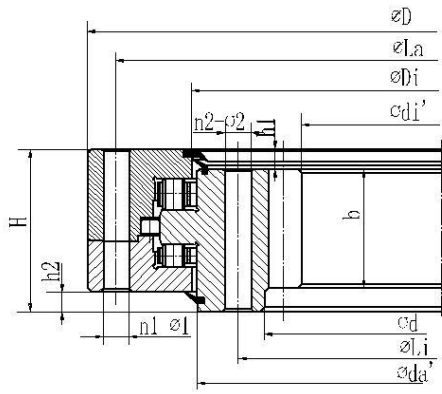
Structure dimensions (mm)				Gear parameters (mm)							Basic load ratings Coa (KN)	Weight (Kg)
da	Di	C/B	h	m	Da	Z	di	Z	b	x		
1998	2002	100	12	16	2272	139	1728	109	90	0.5	6860	900
1998	2002	100	12	18	2268	123	1728	97	90	0.5	6860	900
1991	1995	100	12								6350	767
2237.5	2242.5	100	12	16	2496	153	1984	125	90	0.5	7640	1000
2237.5	2242.5	100	12	18	2502	136	1980	111	90	0.5	7640	1000
2497.5	2502.5	100	12	18	2772	151	2232	125	90	0.5	7970	876
2497.5	2502.5	100	12	20	2780	136	2220	112	90	0.5	7970	876
2498.5	2501.5	100	12								10000	876
2797.5	2802.5	100	12	18	3078	168	2520	141	90	0.5	9600	1250
2797.5	2802.5	100	12	20	3080	151	2520	127	90	0.5	9600	1250
3147.5	3152.5	122	12	20	3480	171	2820	142	110	0.5	13800	2150
3147.5	3152.5	122	12	22	3476	155	2816	129	110	0.5	13800	2150
3547.5	3552.5	122	12	20	3880	191	3220	162	110	0.5	15700	2470
3547.5	3552.5	122	12	22	3894	174	3212	147	110	0.5	15700	2470
3548	3552	122	12	20	3880	191	--	--	110	0.5	14750	2464
3997.5	4002.5	122	12	22	4334	194	3652	167	110	0.5	17600	2800
3997.5	4002.5	122	12	25	4350	171	3650	147	110	0.5	17600	2800
4497.5	4502.5	122	12	22	4940	217	4158	190	110	0.5	19800	3100
4497.5	4502.5	122	12	25	4850	191	4150	167	110	0.5	19800	3100

Tri-row cylindrical roller combined slewing bearing (no gear type and external gear type)



Designations			Boundary dimensions (mm)			Bolt hole diameter (mm)			
non-gear type	External gear type	Internal gear type	D	d	H	La	Li	n1/n2	Φ 1 Φ 2
HU25/500	HOU25/500	HIU25/500	634	366	148	598	402	24	18
	HOU25/500Y	HIU25/500Y	634	366	148	598	402	24	18
HU25/560	HOU25/560	HIU25/560	694	426	148	658	462	24	18
	HOU25/560Y	HIU25/560Y	694	426	148	658	462	24	18
HU25/630	HOU25/630	HIU25/630	764	496	148	728	532	28	18
	HOU25/630Y	HIU25/630Y	764	496	148	728	532	28	18
HU25/710	HOU25/710	HIU25/710	844	576	148	808	612	28	18
	HOU25/710Y	HIU25/710Y	844	576	148	808	612	28	18
HU30/800	HOU30/800	HIU30/800	964	636	182	920	680	36	22
	HOU30/800Y	HIU30/800Y	964	636	182	920	680	36	22
HU30/900	HOU30/900	HIU30/900	1064	736	182	1020	780	36	22
	HOU30/900Y	HIU30/900Y	1064	736	182	1020	780	36	22
HU30/1000	HOU30/1000	HIU30/1000	1164	836	182	1120	880	40	22
	HOU30/1000Y	HIU30/1000Y	1164	836	182	1120	880	40	22
HU30/1120	HOU30/1120	HIU30/1120	1284	956	182	1240	1000	40	22
	HOU30/1120Y	HIU30/1120Y	1284	956	182	1240	1000	40	22
HU40/1250	HOU40/1250	HIU40/1250	1445	1055	220	1393	1107	45	26
	HOU40/1250Y	HIU40/1250Y	1445	1055	220	1393	1107	45	26
HU40/1400	HOU40/1400	HIU40/1400	1595	1205	220	1543	1257	45	26
	HOU40/1400Y	HIU40/1400Y	1595	1205	220	1543	1257	45	26
HU40/1600	HOU40/1600	HIU40/1600	1795	1405	220	1743	1457	48	26
	HOU40/1600Y	HIU40/1600Y	1795	1405	220	1743	1457	48	26
HU40/1800	HOU40/1800	HIU40/1800	1995	1605	220	1943	1657	48	26
	HOU40/1800	HIU40/1800Y	1995	1605	220	1943	1657	48	26

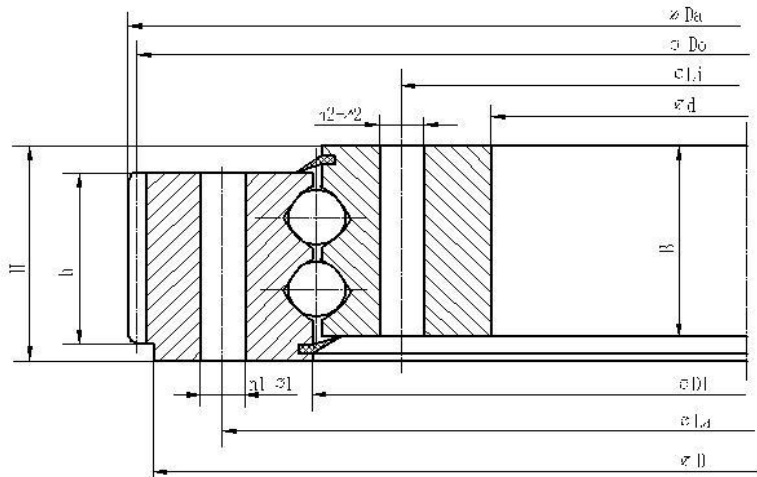
Designations			Boundary dimensions(mm)			Bolt hole diameter (mm)			
no-gear type	External gear type	Internal gear type	D	d	H	La	Li	n1/n2	Φ1 Φ2
HU45/2000	HOU25/2000		2195	1816	150	2127	1885	60	33
	HOU45/2000		2221	1779	231	2155	1845	60	33
	HOU45/2000Y	HIU45/2000	2221	1779	231	2155	1845	60	33
	HOU45/2000Y1	HIU45/2000Y	2221	1779	231	2155	1845	60	33
HU45/2240	HOU45/2240	HIU45/2240	2461	2019	231	2395	2085	60	33
	HOU45/2240Y	HIU45/2240Y	2461	2019	231	2395	2085	60	33
	HOU45/2500		2721	2279	231	2655	2345	72	33
HU45/2500	HOU45/2500Y	HIU45/2500	2721	2279	231	2655	2345	72	33
	HOU45/2500Y1	HIU45/2500Y	2721	2279	231	2655	2345	72	33
HU45/2800	HOU45/2800	HIU45/2800	3021	2579	231	2955	2645	72	33
	HOU45/2800Y	HIU45/2800Y	3021	2579	231	2955	2645	72	33
	HOU45/2800Y1		3021	2579	231	2955	2645	72	33
	HOU45/2800Y2		3021	2579	231	2955	2645	72	33
HU50/3150	HOU50/3150	HIU50/3150	3432	2868	270	3342	2958	72	45
	HOU50/3150Y	HIU50/3150Y	3432	2868	270	3342	2958	72	45
HU50/3150Y			3432	2868	270	3342	2958	72	45
	HOU30/3150		3376	2922	182	3286	3014	56	45
	HOU50/3150Y1		3432	2868	270	3342	2958	72	45
	HOU50/3150Y2		3432	2868	270	3342	2958	72	45
	HOU50/3150Y3		3432	2868	270	3342	2958	72	45
		HIU50/3150Y1	3432	2868	270	3342	2958	60	39
		HIU50/3150Y2	3432	2868	270	3342	2958	60	39
		HIU50/3150Y3	3432	2868	270	3342	2958	60	39
		HIU50/3150Y4	3432	2868	270	3342	2958	72	45
HU50/3550	HOU50/3550	HIU50/3550	3832	3268	270	3742	3358	72	45
	HOU50/3550Y	HIU50/3550Y	3832	3268	270	3742	3358	72	45
	HOU50/3550Y1		3832	3268	270	3742	3358	72	45
	HOU50/3550Y2		3832	3268	270	3742	3358	72	45
HU50/4000	HOU50/4000	HIU50/4000	4282	3718	270	4192	3908	80	45
	HOU50/4000Y	HIU50/4000Y	4282	3718	270	4192	3908	80	45
	HOU50/4000Y1		4282	3718	270	4192	3808	80	45
	HOU50/4000Y2		4282	3718	270	4192	3908	80	45
HU50/4500	HOU50/4500	HIU50/4500	4782	4218	270	4692	4308	80	45
	HOU50/4500Y	HIU50/4500Y	4782	4218	270	4692	4308	80	45
	HOU50/4500Y2		4782	4218	270	4692	4308	80	45
	HOU50/4500Y3		4782	4218	270	4692	4308	80	45
	HOU60/4500		5320	4670	320	5220	4766	100	45



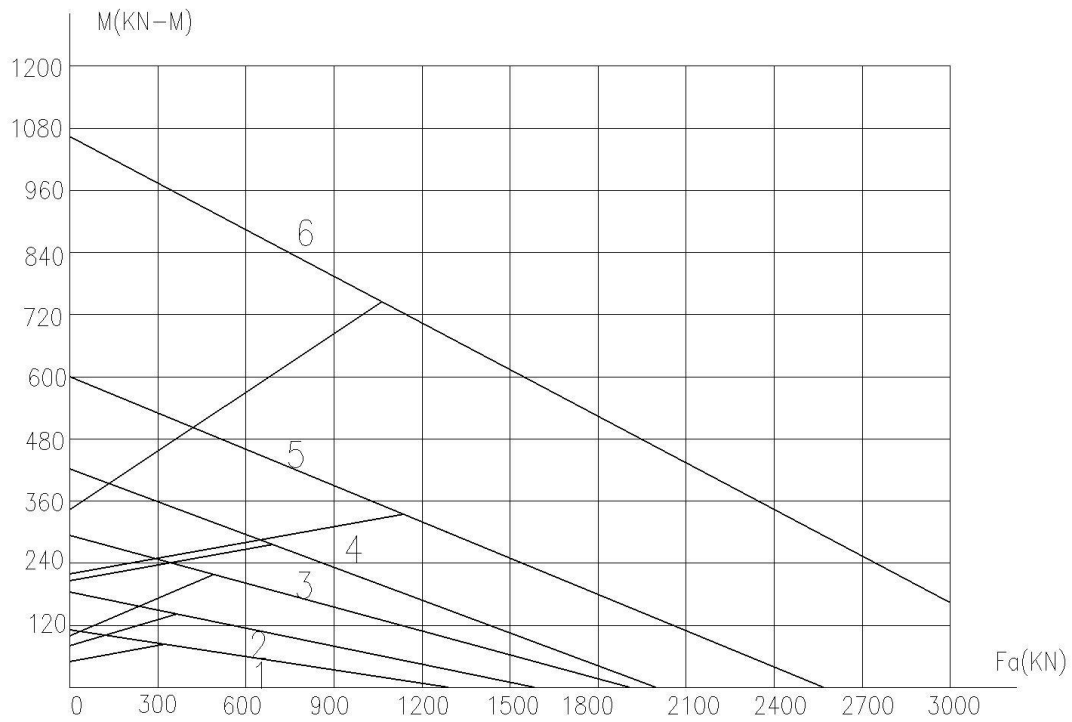
Structure dimensions (mm)				Gear parameters (mm)							Basic load ratings (KN)		Weight kg
Di(Di')	da(da')	h1	h2	m	Da	Z	di	Z	b	x	Coa	Cor	
526	537	32	10	5	665	130	335	68	80	+0.5	2750	355	224
463	474	32	10	6	666	108	336	57	80	+0.5	2750	355	224
586	597	32	10	5	725	142	395	80	80	+0.5	3080	399	240
523	534	32	10	6	726	118	396	67	80	+0.5	3080	399	240
656	667	32	10	6	810	132	456	77	80	+0.5	3450	451	270
(593)	(604)	32	10	8	808	98	456	58	60	+0.5	3450	451	270
736	747	32	10	6	888	145	534	90	80	+0.5	3880	517	300
(673)	(684)	32	10	8	888	108	536	68	80	+0.5	3880	517	300
830	841	40	10	8	1008	123	592	75	120	+0.5	5490	712	500
759	(770)	40	10	10	1010	98	590	60	120	+0.5	5490	712	500
930	941	40	10	8	1104	135	688	87	120	+0.5	6190	808	600
(859)	(870)	40	10	10	1110	108	690	70	120	+0.5	6190	808	600
1030	1041	40	10	10	1220	119	780	79	120	+0.5	6890	903	680
(959)	(970)	40	10	12	1224	99	780	66	120	+0.5	6890	903	680
1150	1161	40	10	10	1340	131	900	91	120	+0.5	7680	1020	820
(1079)	(1090)	40	10	12	1344	109	900	76	120	+0.5	7680	1020	820
1290	1300	50	10	12	1512	123	984	83	150	+0.5	11100	1460	1200
(1200)	(1210)	50	10	14	1512	105	980	71	150	+0.5	11100	1460	1200
1440	1450	50	10	12	1668	136	1140	96	150	+0.5	12400	1650	1300
(1350)	(1360)	50	10	14	1666	116	1134	80	150	+0.5	12400	1650	1300
1640	1650	50	10	14	1876	131	1330	96	150	+0.5	14200	1900	1520
(1550)	(1560)	50	10	16	1872	114	1328	84	150	+0.5	14200	1900	1520
1840	1850	50	10	14	2072	145	1526	110	150	+0.5	15900	2150	1750
(1750)	(1760)	50	10	16	2080	127	1520	96	150	+0.5	15900	2150	1750

Structure dimensions (mm)				Gear parameters (mm)							Basic load ratings (KN)		Weight kg
Di(Di')	da(da')	h1	h2	m	Da	Z	di	Z	b	x	Coa	Cor	
2041		33	13	16	2267	138			105	+0.9	16900	663	1120
2055	2059	54	12	16	2304	141	1696	107	160	+0.5	20500	2390	2230
2033	2055	54	12	16	2304	141	1696	107	160	+0.5	20500	2390	2400
(1945)	(1967)	54	12	18	2304	125	1692	95	160	+0.5	20500	2390	2400
2273	2295	54	12	16	2560	157	1920	121	160	+0.5	23100	2680	2700
(2185)	(2207)	54	12	18	2556	139	1926	108	160	+0.5	23100	2680	2700
2561	2555	54	12	18	2826	154			160	+0.5	25800	3020	2834
2533	2555	54	12	18	2826	154	2178	122	160	+0.5	25800	3020	3000
(2445)	(2467)	54	12	20	2820	138	2180	110	160	+0.5	25800	3020	3000
2833	2855	54	12	18	3114	170	2484	139	160	+0.5	28800	3390	3400
(2745)	(2767)	54	12	20	3120	153	2480	125	160	+0.5	28800	3390	3400
2833	2855	54	12	20	3120	153			160	+0.5	28960	3230	3031
2833	2855	54	12	18	3114	170			160	+0.5	28960	3230	3010
3196	3213	65	12	20	3540	174	2760	139	180	+0.5	35900	3810	5000
(3087)	(3104)	65	12	22	3542	158	2750	126	180	+0.5	35900	3810	5000
3086	3103	50	12								37350	5020	4900
3180	3190	40	10	20	3476	171			120	+0.5	20500	2020	2308
3197	3214	50	12	20	3540	174			180	+0.5	37350	4740	5404
3197	3214	50	12	22	3542	158			180	+0.5	37350	4740	5409
3197	3214	50	12	20	3536	174			195	+0.5	37350	4740	5385
3086	3103	50	12	20			2761	139	180	+0.5	35750	5010	5174
3086	3103	50	12	20			2761	139	180	+0.5	35750	5010	5174
3086	3103	50	12	18			2754	154	180	+0.5	35750	5010	5174
3086	3103	50	12	22			2759	126	180	+0.5	35750	5010	5104
3596	3613	65	12	20	3940	194	3160	159	180	+0.5	40400	4310	5600
(3487)	(3504)	65	12	22	3938	176	3146	144	180	+0.5	40400	4310	5600
3596	3613	65	12	22	3934	176			180	+0.5	41050	4010	4960
3596	3613	65	12	22	3938	176			180	+0.5	41050	4010	5318
4046	4063	65	12	22	4400	197	3608	165	180	+0.5	45600	4870	6400
3937	3954	65	12	25	4400	173	3600	145	180	+0.5	45600	4870	6400
4046	4063	65	12	22	4400	197			180	+0.5	45020	4500	6377
4046	4063	65	12	25	4400	173			180	+0.5	45020	4500	6377
4546	4563	65	12	22	4906	220	4114	188	185	+0.5	54450	5800	6942
(4437)	(4454)	65	12	25	4906	193	4100	165	185	+0.5	54450	5800	
4546	4565	60	12	20	4880	242			185	+0.5	49000	5070	7250
4546	4565	60	12	25	4895	193			185	+0.5	49000	5060	7333
5062	5082	65	18	20	5440	270			220	+0.5	68340	9550	11752

Double-row ball four-point contact slewing bearing(external gear type)

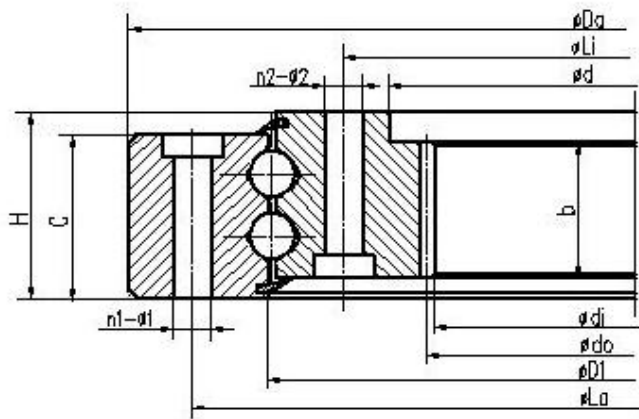


Designations	Boundary dimensions (mm)						
	Da	D	Di	d	b	B	H
SDOR25/383①	504	466	385	300	75	87	95
SDOR25/475②	608	570	477	382	75	87	95
SDOR25/574③	712	670	577	470	75	88	98
SDOR20/968④	1079	-	972	893	70	80	90
SDOR20/968Y⑤	1080	1042	970	893	76	83	92
SDOR25/1073⑥	1200	1163	1079	976	77	88	98



Bolt hole diameter (mm)						Gear parameters (mm)			Gear basic load ratings (KN)		Weight (Kg)
La	n1	$\phi 1$	Li	n1	$\phi 2$	Do	m	z	Coa	Cor	
436	16	17	330	16	17	488	8	61	31	62	65
540	24	17	410	24	17	592	8	74	40	80	84
640	24	17	508	24	17	696	8	87	41	82	103
1015	30	M16	922	30	18	1048	8	131	42	84	140
1015	30	17	922	30	17	1064	8	133	32	64	150
1135	36	19	1012	36	19	1184	8	148	32	64	210

Double-row ball four-point contact slewing bearing(internal gear type)



Designations	Boundary dimensions (mm)						
	Da	Di	d	di	b	C	H
SDIR20/897①	973	899	820	786	80	88	97
SDIR20/1087②	1165	1090	1010	962	80	88	97
SDIR25/1100③	1200	1102	1010	963.5	88	96	110
SDIR30/1220④	1345	1225	1115	1061.6	88	98	108
SDIR30/1615⑤	1750	1616	1470	1418.4	98	110	120



Bolt hole diameter (mm)						Gear parameters (mm)			Gear basic load ratings (KN)		Weight (Kg)
La	n1	$\phi 1$	Li	n1	$\phi 2$	do	m	z	Coa	Cor	
944	36	17	850	36	17	800	8	100	36.2	72.4	141
1134	36	17	1040	36	17	980	10	98	45	90	187
1160	36	21	1040	36	21	980	10	98	50	100	230
1290	48	21	1150	48	21	1080	10	108	68.9	137.8	326
1705	48	25	1525	48	25	1440	12	120	92	184	564



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