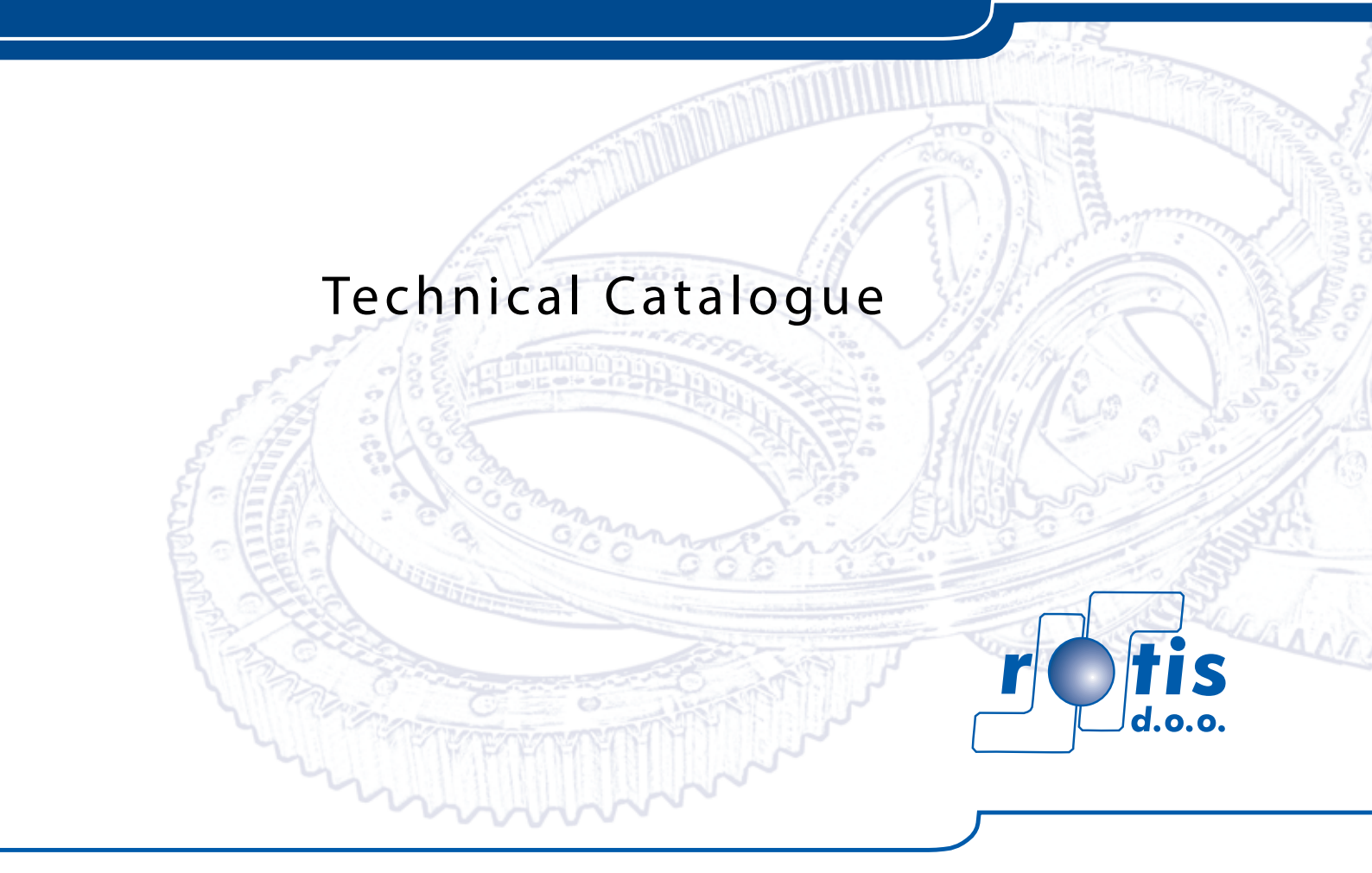


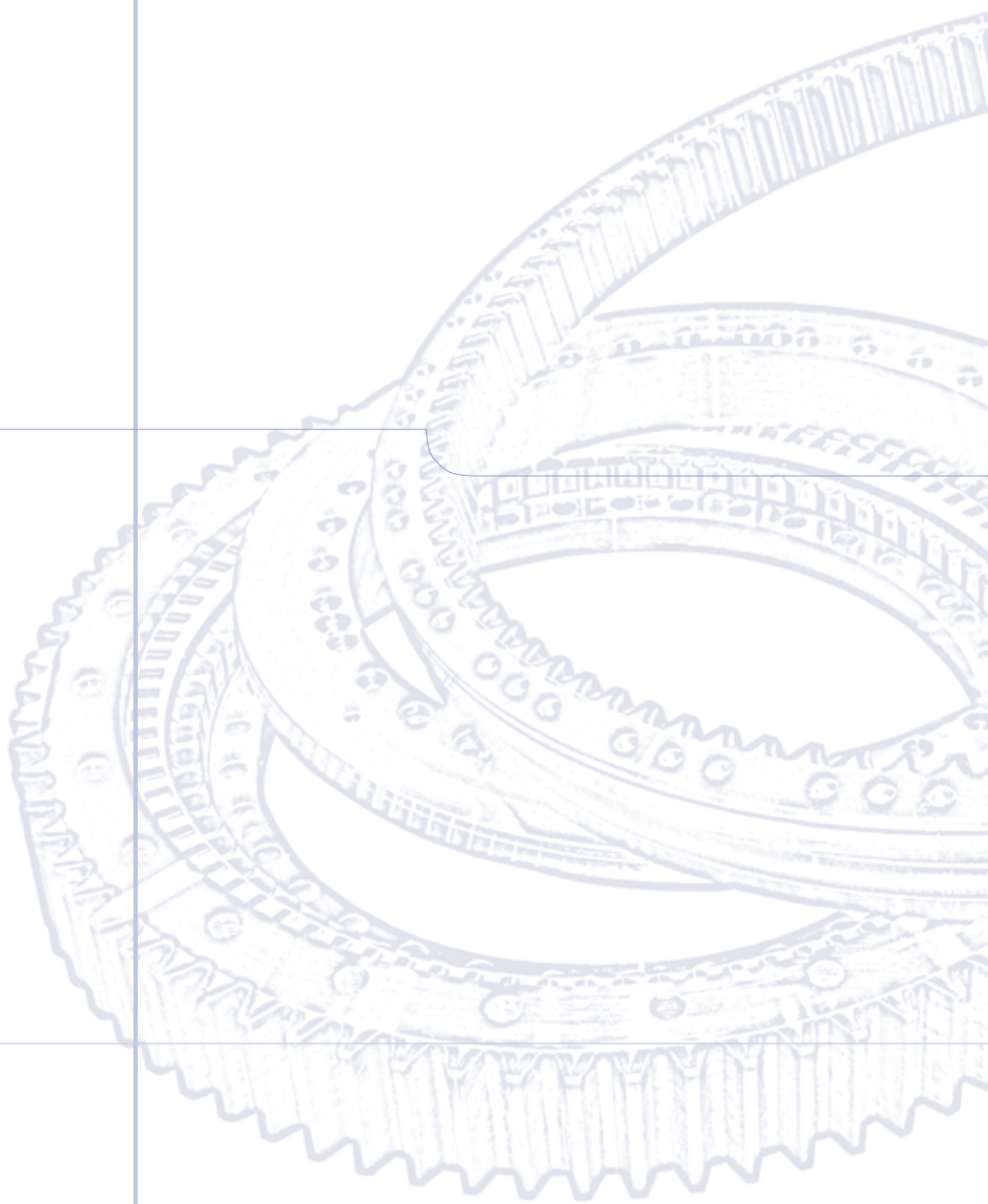


Slewing Rings



Technical Catalogue





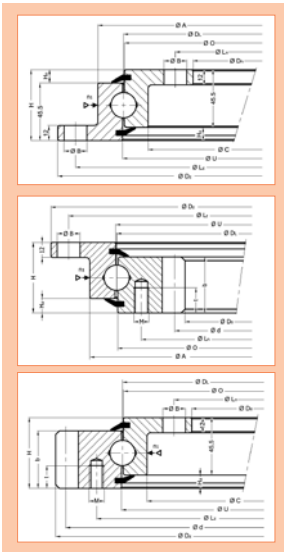
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PRODUCT OVERVIEW

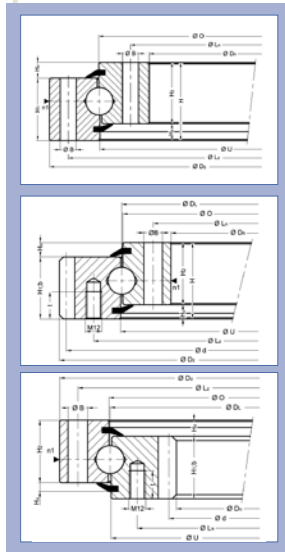
Model Typ 2000

Single-row ball bearing slewing rings



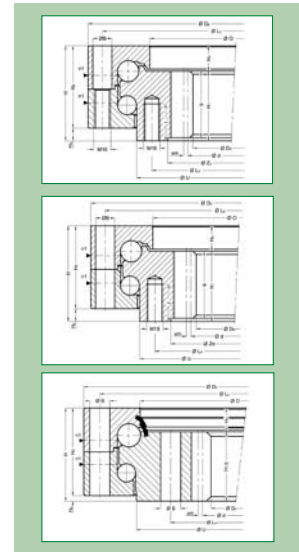
Model Typ 3000

Single-row ball bearing slewing rings bearings



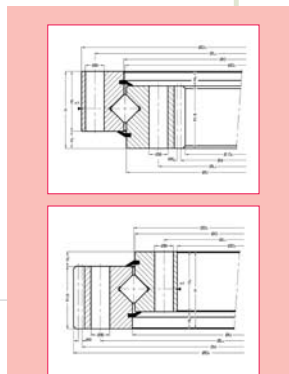
Model Typ 4000

Double-row ball bearing slewing rings



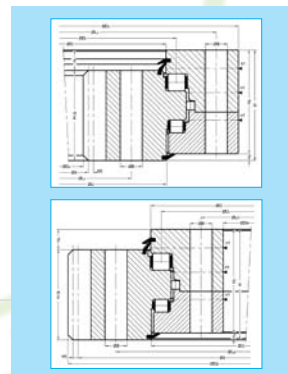
Model Typ 5000

Single-row roller bearing slewing rings



Model Typ 7000

Three-row roller bearing slewing rings



EXAMPLES OF APPLICATION



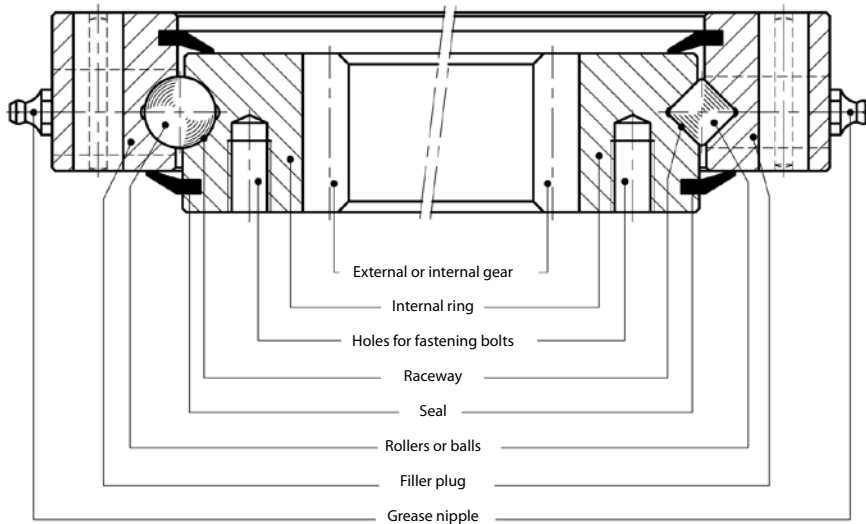
Examples of application:

Slewing rings connections are used in different revolving constructions with the most frequent areas of their application comprising:

- Production of revolving construction cranes
- Shipyard cranes
- Airport cranes
- Cranes mounted on vehicles
- Workshop cranes; Earthwork machines Excavators
- Shovel loaders
- Stone-crushing machines, Excavators with shovel-shaped wheels (antennas)
- Telescopes and periscopes; industrial and welding robots Switchover technologies
- Naval technologies
- Road and track vehicles, Navigation systems for vehicles, Recycling machines
- Armoured vehicles and tanks
- Artillery

ASSEMBLY

COMPONENTS



MATERIALS

Rotis uses a variety of steel whose differing structural conditions (normalised or tempered) allow them to be used for the most varied of applications whereby tempered steel is far better suited for the manufacture of both bearings and gears subjected to higher load conditions than is normalised steel.

For the manufacture of slewing rings ROTIS defines the materials best suited for their intended application in its product concepts catalogue. These materials are then manufactured from type-tested steel.



ASSEMBLY

Each step of production undergoes controls ensuring the quality of the products. In the majority of cases, fine steel with carbon additives and alloys are selected best suited to functional requirements.

The tempering method through quench hardening or artificial ageing is then selected when the forces which the work pieces are subjected to make this necessary.

MATERIALS

COMPARISON OF STANDARDS IN DIFFERENT COUNTRIES:

The table below displays our steel standards in comparison with standards and material designations of other countries. The listed comparative materials are those most similar to our materials.

ADDITIONAL MATERIALS:

For specific applications or special functional requirements the use of special materials is recommended:

- stainless steel,
- hardened steel or alloys
- special tempered steel in controlled atmospheres,
- steel subjected to carburisation or nitration
- special steel for extremely low temperatures
- light alloys on an aluminium basis.

LAND	NORM		
GERMANY	DIN	Ck 45	42CrMo4
ITALY	UNI	C45	42CrMo4
SPAIN	UNE	C45K (F1140)	42CrMo4 (F8232)
JAPAN	JIS	S45C	SNB7
SWEDEN	SSSTAHL	1672	2244
U.S.A.	AISI	16B45	4142

HEAT TREATMENT

A slewing ring conveys the force of a bearing part to a stationary part of a mechanism. The resulting load arising from contact of the rolling element on the raceway of the bearing is calculated according to Hertz' theories and modern criteria of plasticity.

ROTIS carries out local tempering in order to fulfil requirements both in the area of surface compression and those regarding fatigue under the surface. Through induction hardening the required hardness as well as an adequate depth hardness is achieved.

Through systematic manufacturing controls, quality and equability during heat treatment of the slewing rings and conformity with ROTIS specifications is guaranteed.

This type of local tempering can also be carried out on teeth when the corresponding forces require this and when the geometry of the part allows for this.

Additional methods of surface hardening such as carburisation, nitration, etc. can also be carried out.



ATTRIBUTES

TEMPERATURE

The temperature range for normal operation of slewing rings lies between -25°C and $+70^{\circ}\text{C}$. Slewing rings for use at lower or higher temperatures can likewise be manufactured whereby a special construction by our manufacturing department is required.

ENVIRONMENT

In cases with especially aggressive environmental conditions such as:

- sea-air
 - sand/coal (dusty and abrasive air),
- the appropriate additional protection measures must be taken such as for example:
- affixation of labyrinth seals,
 - installation of a housing,
 - application of an oil lubrication.

These measures of protective maintenance are fortified in order to ensure normal operational conditions.

IMPACTS, VIBRATIONS

When slewing rings are subjected to constant impacts or vibrations, this fact must be stated in the product specification book to ensure that the manufacturing department takes this into account with regard to the construction.

ROTATIONAL SPEED

The reliable circumferential speed for four point bearings to 4 m/s,
short-term up to 5.5 m/s
and
at Typ 2000 2 m/s,
short-term 2.8 m/s.

The reliable circumferential speed for roller bearings to 2 m/s,
short-term 2.8 m/s.

QUALITY

CARE FOR PRODUCT QUALITY

Product quality is systematic and complex with the objective of best fulfilling the requirements of customers in all areas of the manufacturing process.

Pre-manufacturing procedure:

- Service comprising expert client consultation prior to sale
- Marketing – Incorporation of marketing needs and developmental trends

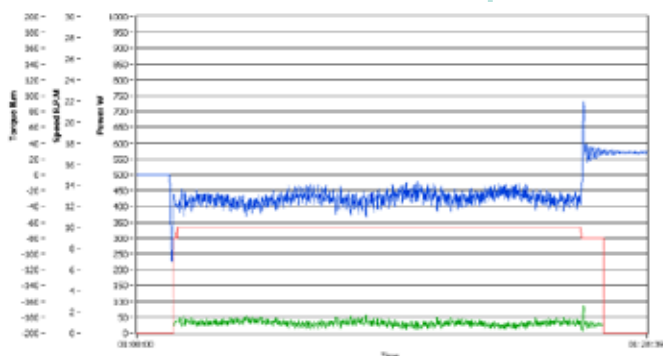
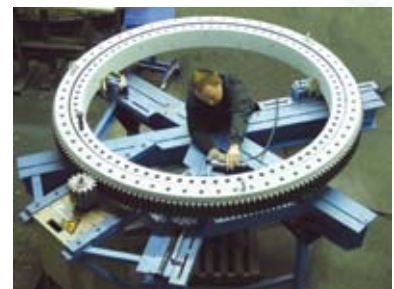
Manufacturing:

- modern manufacturing methods,
- techniques and tools,
- new materials and heat treatment methods,
- constant innovation of control methods and means,
- inspection of products at testing stations,
- constant improvement according to TQM principles.



Post-manufacturing:

- quality control of products in operation with regard to improving their use attributes
- after sales service – support in the use of our products.



Torque
Speed RPM
Power



FUNCTIONING OF A SLEWING RING

DETERMINING LOAD

The slewing ring which allows a connection between a moving and a stationary part must possess the required capacity to transfer force from the moving part onto the stationary part. The corresponding definition for this capacity requires a precise knowledge of the forces arising and their subsequent effect on the slewing ring including forces arising due to the mass and the inertia of the payload and substructure.

One must in this case differentiate between fixed loads, variable loads and forces due to dynamic loads whereby the two latter pose fatigue loads.

The knowledge of the direction of forces with regard to the axis of the ball bearing is necessary. One thus distinguishes between:

- **The AXIS FORCES F_a** , whose direction is parallel to the axis of rotation of the slewing ring. The resultants from these forces are called F axial forces.

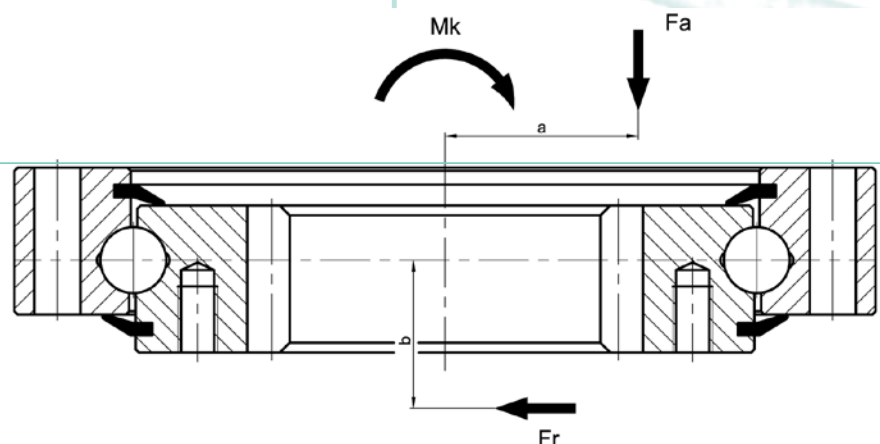
- **The RADIAL FORCES F_r** , which run perpendicular to the axis of rotation. The resultant forces are called F radial forces.

TILTING MOMENT M_k

- On the level parallel to the axis of rotation. The resulting moment is called M_T and relates to the level on which the axis of rotation lies.

ROTATIONAL MOMENT M_d

- Creates a shift in position of the movable ring.



FUNCTIONING OF A SLEWING RING

QUESTIONNAIRE

Client:									
Applications:									
Loads:		Operating load normal maximum		Test load					
F axial	kN								
F radial	kN								
Mk of 1	kNm								
Mk of 2	kNm								
Mgk (3+4)	kNm								
Axial load:		overlying		Position of rotational axis:		horizontal			
		suspended				vertical			
Rotational speed:		maximal				variable		from	
		normal						to	
Operating and environmental temperatures:				Environment:		☐ special seal ☐ against /if yes: ☐ strong impacts or vibrations			
		minimal							
		maximal							
Desired dimensions:									
Outer diameter	Dz	Borehole	Lz		m:				
Inner diameter	Dn		na		z2:				
Height	H	Borehole	Ln		x2:				
Teeth	☐ inner ☐ outer		nn		k2:				
Pinion teeth:		Number of pinions:							
m:		Design of pinions:		normalized					
z1:				tempered					
x1:				hardened					
k1:				smooth					
Tooth load:		Fz/Md1/Md2		incl. impact factor		Operating hours/year:			
normal						Operation time/day:			
maximum						Desired lifetime:			
Client:				Processor:			Date:		

FUNCTIONING OF A SLEWING RING

FIXATION FUNCTION

In order to transfer the aforementioned forces an adequately dimensioned mechanical fixation of the slewing ring onto the corresponding framework must be defined so that the slewing ring remains permanently and firmly affixed to the substructure.

A number of fixation methods are possible with the most reliable being the connection with screws and nuts. Welding methods are absolutely unreliable. The correct definition of the screwing connection and its expert execution determine the correct functioning of the slewing ring ensuring safety of operations.

QUALITY OF THE SCREW CONNECTION

The standard ISO 898-1 defines the quality classes of screw connections for the assembly of constructions such as slewing rings. ROTIS recommends the quality class 10.9. In exceptional

situations, the quality classes 8.8 or 12.9 can be used.

The nuts must correspond or be higher than the quality of screws used. For screws with a diameter of d , nuts with a length of $1 \times d$ are recommended.

Hexagonal screws are recommended over cylinder screws whenever possible. ROTIS recommends using paired and pre-lubricated screw sets (screw + nut) with guaranteed mechanical characteristics so a more constant and confessed coefficient of friction is present. The surface stress should not lead to embrittlement through the screwing.

Minimal mechanical characteristics

CLASS	TENSILE STRENGTH (Mpa)	YIELD POINT (Mpa)	RESISTANCE TO WEAR (Mpa)	
8.8	800	640	40	exception
10.9	1040	940	40	recommended
12.9	1220	1100	40	exception

FUNCTIONING OF A SLEWING RING

FIXATION FUNCTION

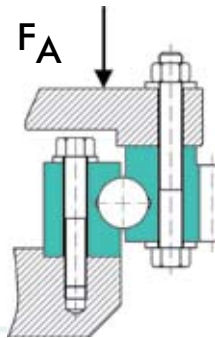
CALCULATING THE FIXATION

The rules of calculation have been designed by ROTIS so that all valid standards and rules as well as numerous results from research and testing are taken into consideration. These calculations are especially based on the VDI - Guideline 2230 (1988).

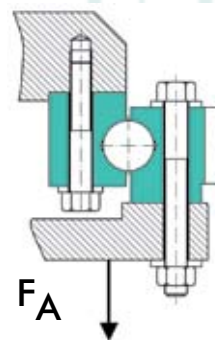
One must distinguish between overlying and suspended loads. ROTIS should be consulted regarding suspended loads. Normal bases of calculation are:

- Overlying loads act as compressive forces.
- Screws should be placed evenly over the circumference of the pitch circle.
- Slew rings and connecting structures made of steel.

SUPPORTED AXIAL LOAD

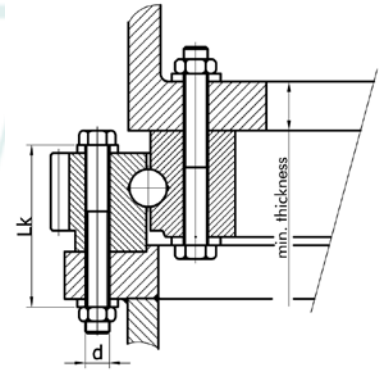


SUSPENDED AXIAL LOAD



FUNCTIONING OF A SLEWING RING

- Slew rings according to our rules: thickness, stiffness, parallel (see the chapter on additional constructions on page 20).
- Use of centring to avoid shearing power on the screw connection when large radial forces are present.
- Splicing of the slew ring is also advised when large radial forces are present.
- The length of the screw connection should be at least equal to five times the diameter: $LK \geq 5 \times d$.



Track diameter (in mm)	500	750	1000	1250	1500	2000	2500	3000
Minimum thickness (in mm)	25	30	35	40	45	55	65	80

OTHER ATTRIBUTES

PRECISION – TOLERANCES

The general tolerances of standard slewing rings are defined in the standards ISO 286- 1 and -2. For use entailing higher precision requirements such as for industrial robots, radar systems, etc. a higher degree of quality can be achieved. The tolerance values are evaluated according to the design of the slewing ring. For slewing rings with larger diameters and smaller cross sections as well as for weaker radial stiffness, these values must be considered upon mounting on the connecting structure in order to guarantee radial run-out.

GEOMETRY

The following criteria must be adhered to:

- All diameters: Js 13
- All external centring: f9
- All internal centring: H9
- Total height: ± 1 mm

FIXATION

The pitch circle diameters must fall within class Js10 and have a minimum tolerance of $\pm 0,2$ mm.

TOOTH SYSTEM

The maximum radial run out error is given in the diagram. The degree of deviance for K teeth with the corresponding tolerance is also defined in the drawing. This number also includes a proportion for tooth engagement play.

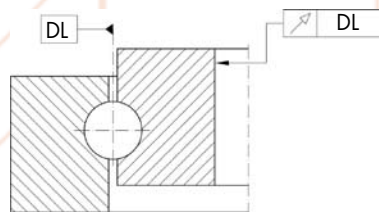
TABLE OF GENERAL TOLERANCES (in compliance with ISO 286-2)

Diameter (in mm)	from to	180 to 250	250 to 315	315 to 400	400 to 500	500 to 630	630 to 800	800 to 1000	1000 to 1250	1250 to 1600	1600 to 2000	2000 to 2500	2500 to 3150
Inner centring H9 (in μm)		+115	+130	+140	+155	+175	+200	+230	+260	+310	+370	+440	+540
Outer centring f9 (in μm)		-50 -165	-56 -185	-62 -202	-68 -223	-76 -251	-80 -280	-86 -316	-98 -358	-110 -420	-120 -490	-130 -570	-145 -685
Diameter Js10 (in μm)		± 92	± 105	± 115	± 125	± 140	± 160	± 180	± 210	± 250	± 300	± 350	± 430
Diameter Js13 (in μm)		$\pm 0,36$	$\pm 0,405$	$\pm 0,445$	$\pm 0,485$	$\pm 0,55$	$\pm 0,625$	$\pm 0,70$	$\pm 0,825$	$\pm 0,975$	$\pm 1,15$	$\pm 1,4$	$\pm 1,65$

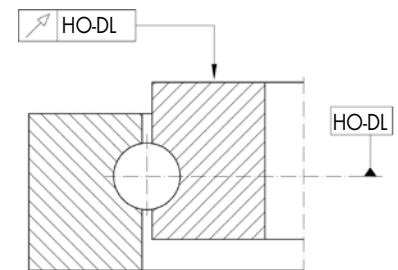
OTHER ATTRIBUTES

RACEWAY AND RINGS

- The **PLANNED RUN-OUT ERROR** of the bearing surface is measured with the aide of a dial gauge. The slewing ring is rotated 360 degrees. The reference level is shown in the diagram on the right.
- The **RADIAL ECCENTRICITY** of the centrigs is also measured during the rotation (see the diagram below). These measurements are carried out by placing the magnet base of the dial gauge on the fixed ring whereby the test prod touches the element to be measured. The values are measured during the rotation of the rotating ring.



- The **TILTING PLAY** under load conditions is measured using the following method: a normal force of F is placed on a point on one of the two rings right next to the bearing race while the other ring remains fixed on the rigid substructure. A dial gauge with a rigid base is placed on the other ring. In this way the screw values under a force of F can be read. This tilting play under load conditions is measured for each slewing ring in the work piece. These values are then compared to permitted threshold values and recorded.



OTHER ATTRIBUTES

SEALS

ROTIS slewing rings all have protective seals on both sides of the bearing raceway. The protective seals functions as:

- Protection of the bearing raceway against foreign particles from the outside,
- Preservation of the lubricant inside the bearing raceway.

CASING (METAL HOUSING)

For very difficult conditions of use and in order to limit risks posed by the following foreign bodies:

- filings,
- frictional splinters,
- welding grains,
- splinters.
- dirt,
- sand,
- sea water,
- cutting fluids ...,

ROTIS strongly recommends the application of effective protection. Also when cleaning with solvents or when using high pressure cleaners, it is recommended to avoid their application to the protective seals.

INSPECTION

If an excessive loss of lubricant is observed upon subsequent lubrication, the following should be checked:

- Whether the protective seal is still in place,
- Whether the seal is damaged (cuts, tears, wearing),
- Whether it warrants the due functioning of the slewing ring.

This seal can be reinserted or replaced.

CORROSION PROTECTION

For special types of use, ROTIS can apply a corrosion protector on the surfaces, e.g.:

1. Galvanisation or galvanisation/bi-chrome treatment
 2. Phosphate coating
 3. Chemical nickel plating
 4. Paint coating
 5. through 9. various treatments such as chromisation, high temperature galvanising, anodic oxidation, etc.
- Please consult with the technical department.

MOUNTING

INSPECTION – CONTROLS

Following the final tightening of all fixation screws:

- rotate the slewing ring at least three times.
- examine the value of the tooth play over the complete perimeter once more.
- determine the tilting play with a known load with regard to the measuring points.

Methods:

- Place the measuring instrument between the two rings closest to the bearing raceway on the main axle of the load using a measuring accuracy of at least 0.1 mm.
- Set the calibration with the calibrated load to zero.
- Place the load on the measurement fixture.
- Read the tilting play at the measuring point.
- A number of measurements must be taken at various previously marked points during continuous operation.
- The unevenness of the substructure and the tension force loss of the screws depending on the position of the measuring instrument must be taken into consideration.

TRANSPORT

Because of the unstable construction of the rings, large anti-friction bearings measuring 300 to 3500 mm in various shapes must be especially carefully transported.

Special boreholes have been provided for the conveyance of larger bearings for retaining screws by which the bearings can be clamped and thus transported.

The bearings may only be transported and stored horizontally on an even supporting area. Impacts on the bearing especially radially should be avoided. For longer storage periods, it is recommended that bearings be stored in dry and dust-free rooms with a room temperature of between -20° und 50° C. All bearings are protected against corrosion for a period of approximately 12 months and the raceway system has been greased with the prescribed quality grease. The tooth system is not greased and must thus be greased immediately upon its mounting.

MOUNTING

ASSEMBLY

A large anti-friction bearing must be installed in the connecting structure very carefully and only by knowledgeable workers – fitters. The instructions of the manufacturer and general valid requirements for the assembly of exacting machine elements must be observed.

It is extremely important to ensure that the connecting structure remain level and that assembly is performed with a minimum of plan variance (the permitted plan variances are defined in Tables 1 and 2).

The connecting structure and the bearing should be cleaned of all impurities. Paint dabs, oil rests and preservatives must be removed while paying attention that the seals are not damaged during cleaning and do not come into contact with aggressive media.

Regarding the maximum resultant moment on the bearing, the bearing must be installed so that the red marker points on the bearing lie within the area of minimum resultant moment.

Table 1

Run diameter (DL) mm	Reliable planned run-out error of each support surface	
	Double-row ball bearing supported slewing ring	Single-row ball bearing supported slewing ring
900	0,16	0,12
up to 1300	0,20	0,16
up to 2000	0,30	0,20
up to 3000	0,35	0,25

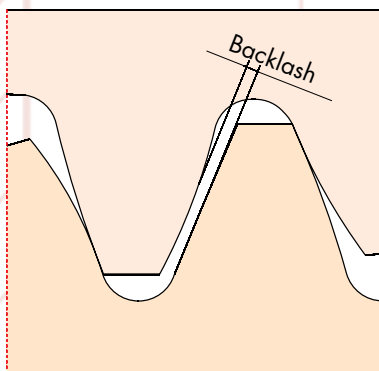
Table 2

Run diameter (mm)	Maximal bend (mm)
900	0,5
up to 1300	0,7
up to 2000	0,9
up to 3000	1,5

Maximum allowed axial deflection of the supporting surface at maximum operational load.

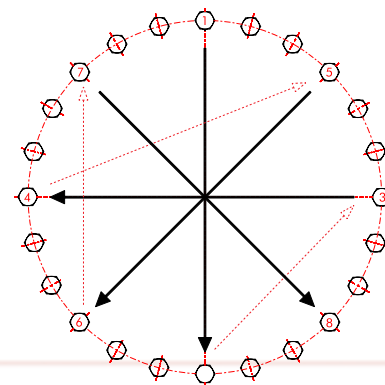
MOUNTING

The point at which the largest deviation of the partial arc of the circle on the gear wheel is marked in a green colour. The bearing and as the case may be, the gear wheel must be installed so that the lateral play amounts to approximately 0.03 modules.



Extremely important during assembly is the expert fixation of the bearing onto the connecting structure. When selecting screws, nuts and washers, the recommendation of the manufacturer must be observed. The required fixation of the screws and nuts are apparent from the technical calculation supplied with each offer and rendered based on data of the requirements and loads supplied to us by the buyer. When the buyer fails to supply data on the loads the bearing will bear, the manufacturer can not warrant for the correct choice of bearing. All screws must be gradually and cross-wise tightened using the prescribed tightening torque.

The screws, nuts and washers should be greased and only lightly oiled prior



to being tightened. Strongly lubricated screws, nuts and washers have a lower friction coefficient leading to a larger resilience of the screws with the same tightening torque.

In this case, the screws should be tightened below the limiting value of the prescribed tightening torque (Table 3).

The screws are tightened using the appropriate torque wrench. The tightening torque value is listed in Table 3 together with the MA value.

For the tightening of screws with threads exceeding M 30, we recommend a special hydraulic tightening device which can be ordered together with the bearing.

MOUNTING

Table 3

	μm 0,14	A1 (mm ²)	As (mm ²)	A3 (mm ²)	DI (mm)	DK (mm)	Fsp (N)	Msp (N)	MA (Nm)
M12	8,8	113,1	84,3	76,2	13,5	19	38500	89	79
	10,9						54100	124	112
M14	8,8	153,9	115,4	104,7	15,5	22	52800	141	126
	10,9						74300	198	178
M16	8,8	201,1	156,7	144,	17,5	24	72700	216	194
	10,9						102300	303	273
M18	8,8	254,5	192,5	175,1	20	27	88400	298	268
	10,9						124300	419	377
M20	8,8	314,2	224,8	225,2	22	30	113600	422	379
	10,9						159800	593	533
M22	8,8	380,1	303,4	281,5	24	32	142000	570	513
	10,9						199700	802	721
M24	8,8	452,4	352,5	324,3	26	36	163600	727	653
	10,9						230100	1022	919
M27	8,8	572,6	459,4	427,1	30	41	215500	1077	969
	10,9						303000	1515	1363
M30	8,8	706,9	560,6	519,0	33	46	261800	1460	1314
	10,9						368200	2053	1847

DK (mm) – Outer diameter of the head surface area or respectively nut surface area (wrench size)

DI (mm) – Inner diameter of the head or respectively nut service area (bore diameter)

A1 (mm²) – nominal cross-section of the screw

A3 (mm²) – the core of the cross section of the screw

As (mm²) – the cross tension of the screw thread

FSp (N) – bolt force at the minimum limit value

MSp (Nm) – theoretical torque tightening

MA (Nm) – torque tightening value for the torque wrench ($MA = 0,9 * MSp$)

MOUNTING

OBSERVATION

Since the fixation of the large anti-friction ring onto the connecting structure with mounting screws is an extremely important task, we would once again like to emphasise that this task only be carried out by expert and trained fitters. The quality of the screws and nuts as well as the torque tension prescribed by the manufacturer should be strictly observed!

A retightening of the screws is required after 100 hours of operation and should be subsequently checked every 3 months.

BEARING MAINTENANCE

Once installed the bearing should be greased on all grease points with the prescribed lubricant until a fat collar made of fresh grease builds up on the entire circumference of the opening of the bearing or respectively on the seals. After inspecting the run systems (correct lateral tooth play), the tooth system should also be greased.

Our slewing rings are normally filled with the grease of type KP2N-20 (DIN 51825). We use one of the below mentioned grease, depends on the application of the slewing rings or requirements of our customers. Of course there can be used any other type of grease, if requested so.

Lubricants can be used from lubricant manufacturers recommended for specific operating conditions.

We recommend the following lubricants:

The bearing should be correspondingly greased according to defined greasing periods. When regreasing turn the bearing. In general, regrease the bearing after every 100 hours of operation. In more humid conditions, strong temperature variations and constant rotation, regreasing should be repeated in shorter time intervals.

The manufacture of large anti-friction bearings warrants a long life under normal operating conditions and regular maintenance. Operational safety is affected when bearing play during a longer operational period increases. Please consult with the manufacturer regarding more details on maximum reliable bearing play.

We ask you to consult with the manufacturer regarding all special wishes. We are available for consultation and help at all times.

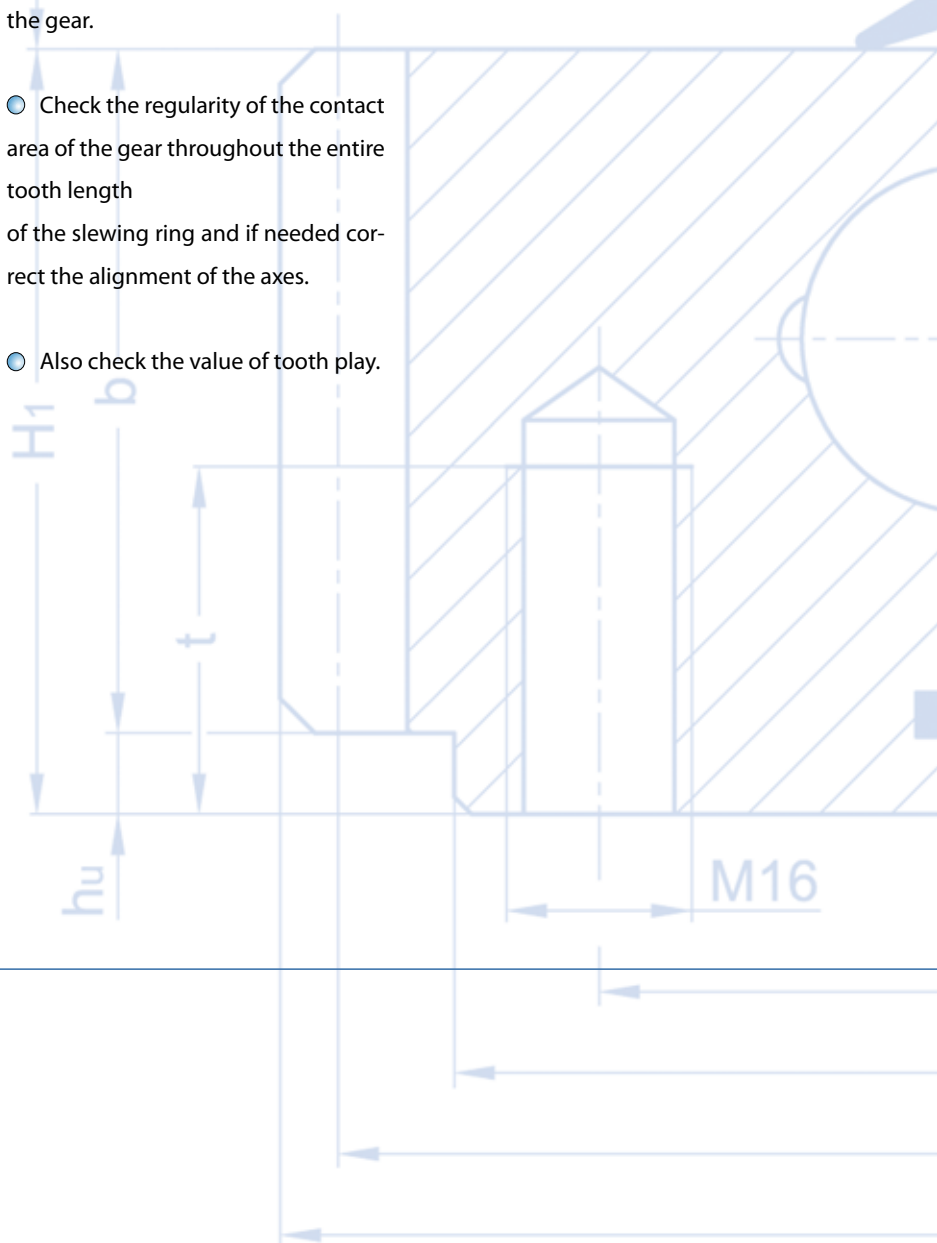
BEARING RACEWAY	MANUFACTURER
SPHEEROL EPL2	CASTROL
ALVANIA EP2	SHELL
MOBILITH 460 SHC (for low temperatures)	MOBIL

M MAINTENANCE

INSPECTION OF THE POWER UNIT

When cleaning prior to relubrication of the tooth system:

- Ensure that no foreign particles are in the tooth depth, slewing ring or on the gear.
- Check the regularity of the contact area of the gear throughout the entire tooth length of the slewing ring and if needed correct the alignment of the axes.
- Also check the value of tooth play.



MARKINGS

DESIGNATION

Each slewing ring is labelled with:

- serial number,
- drawing No.

LUBRICATION QUANTITY

Bearing raceway:

The lubrication quantity is determined by the manufacturing department when designing the slewing ring. For a fixed slewing ring, a practical formula for determining the required minimum amount M_m in cm^3 is:

$$M_m = 0,0045/3 \times D \times H$$

D = central diameter of the slewing ring in mm.

H = height of the slewing ring in mm.

In all cases, the new lubricant must leak out from under the seal lips.

Tooth system:

The lubricant must be sprayed or applied with a paint brush onto all sides of the gear and slewing ring.

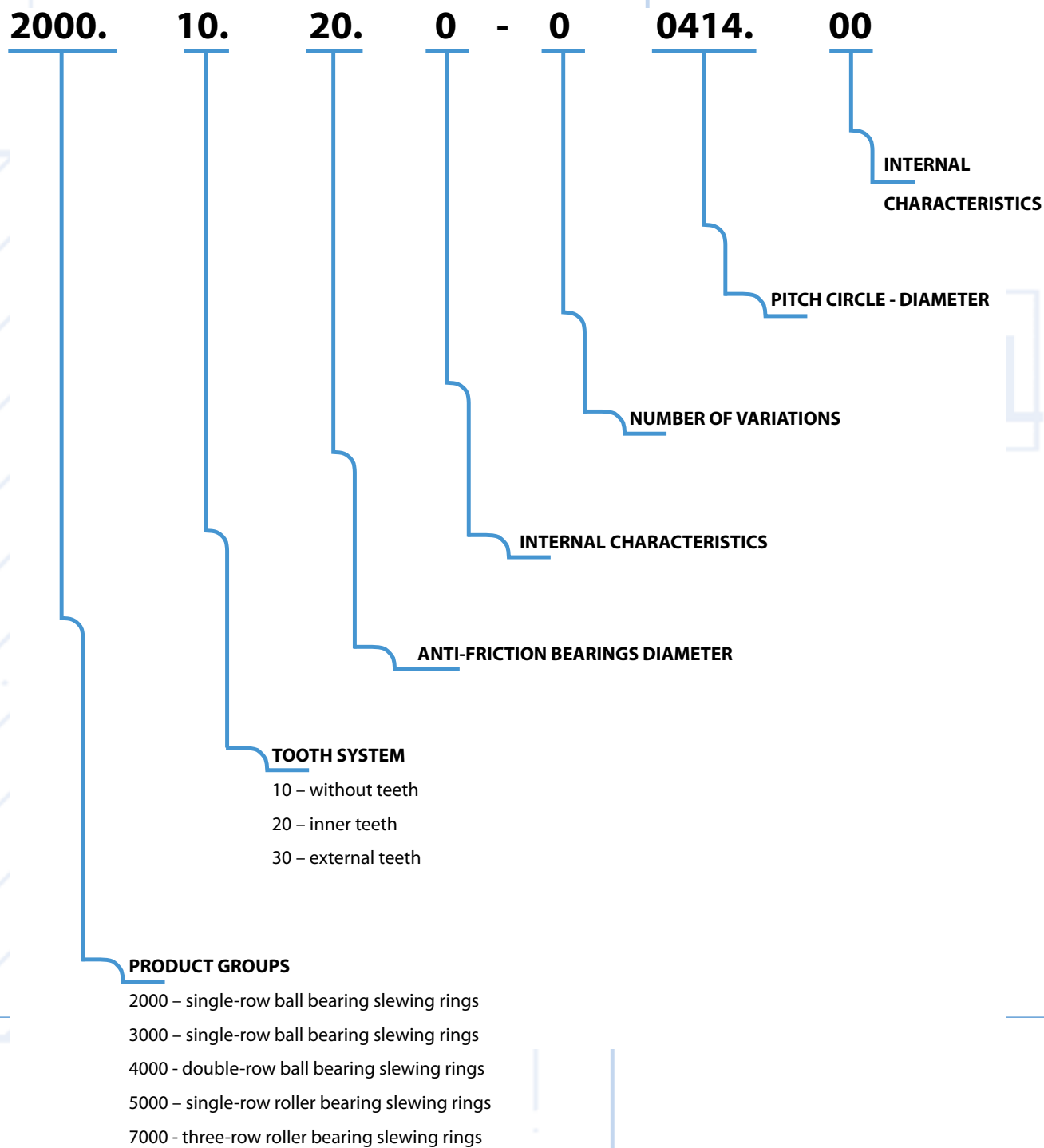
MARKINGS

Description of terms used in the measurement tables

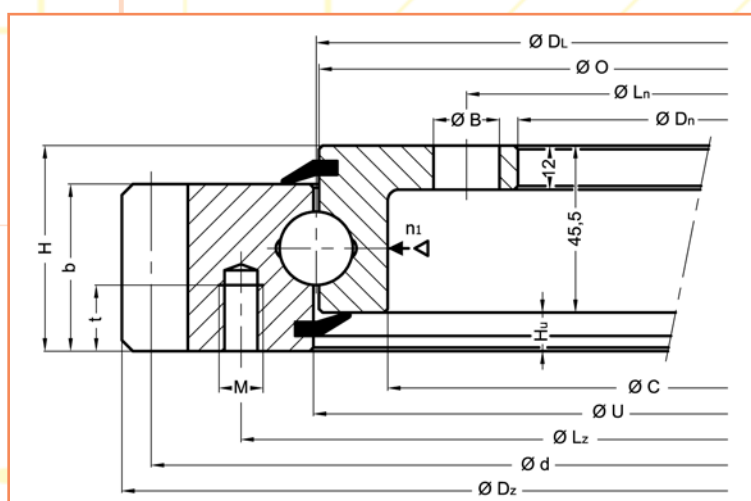
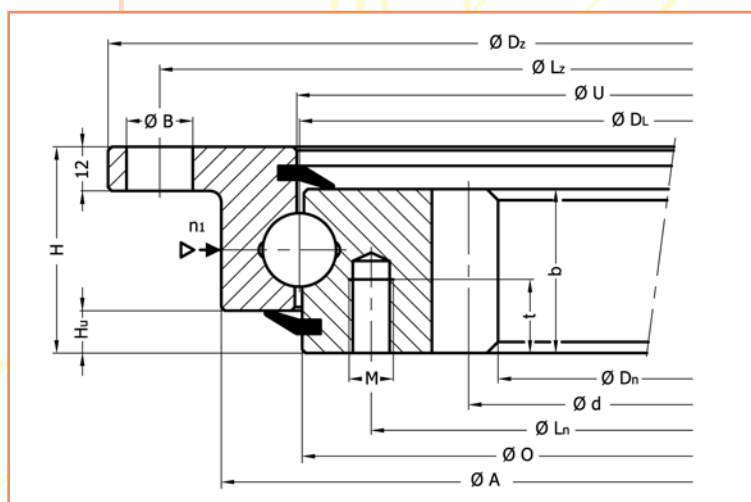
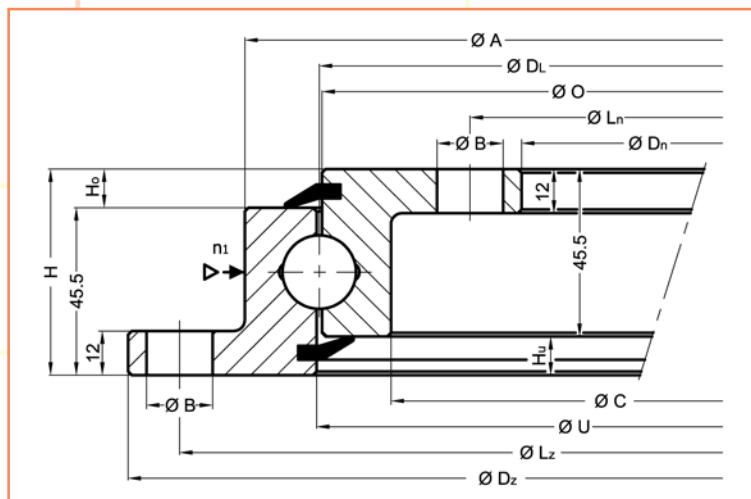
	Drawing No.
Dz	Outer diameter
Dn	Inner diameter
H	Overall height
Lz	External bolt circle diameter
Ln	Internal bolt circle diameter
n	Number of bolt holes per hole circle
B	Bolt hole diameter
M	Bolt size
O	Diameter
U	Diameter
H1	Ring height
H2	Ring height
Hu	Distance at bottom Outer ring / inner ring
Ho	Distance at top Outer ring / inner ring
d	Gear P. C. D.
m	Module
z	Number of teeth
x.m	Addendum modification sign per DIN 3960 October, 1976
b	Tooth width
T	weight
t	thread depth
Zu	Diameter
hu	tooth height

D

DRAWING NUMBER COMPOSITION



MODEL 2000



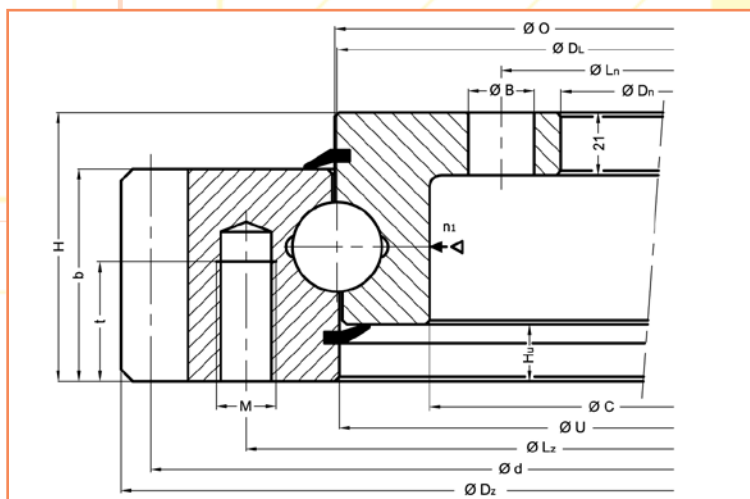
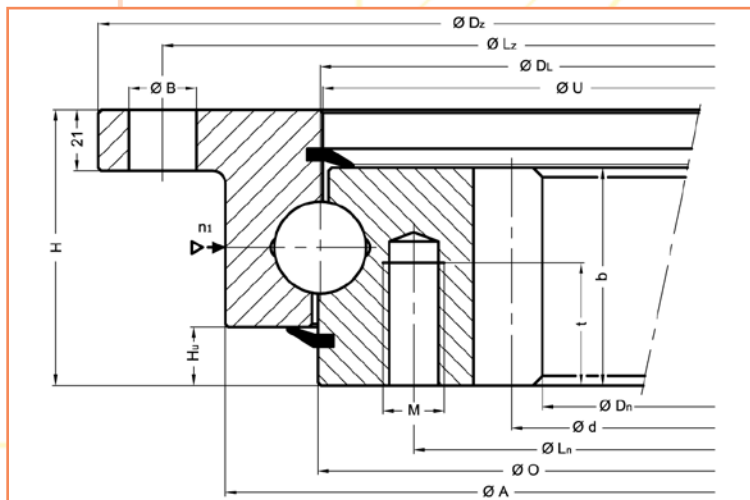
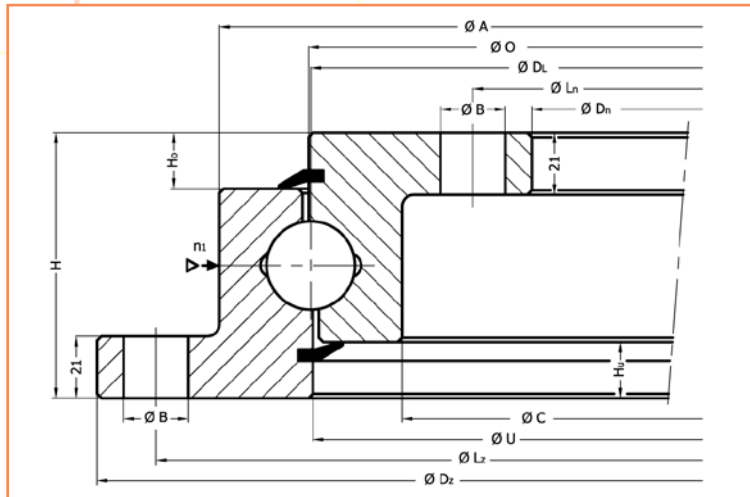
Drawing Nr.	DL (mm)	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	nz	B/M (mm)	nn	B/M (mm)	t (mm)	O (mm)	U (mm)	A (mm)	C (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z (mm)	b (mm)	T (kg)
2000.10.20.0-0.0414.00	414	518	304	56	490	332	8	18	12	18	-	412,5	415,5	453	375	10,5	10,5	-	-	-	-	23,4
2002.10.20.0-0.0544.00	544	684	434	56	620	462	10	18	14	18	-	542,5	545,5	583	505	10,5	10,5	-	-	-	-	31,0
2004.10.20.0-0.0644.00	644	748	534	56	720	562	12	18	16	18	-	642,5	645,5	683	605	10,5	10,5	-	-	-	-	36,4
2006.10.20.0-0.0744.00	744	848	634	56	820	662	12	18	16	18	-	742,5	745,5	783	705	10,5	10,5	-	-	-	-	42,8
2008.10.20.0-0.0844.00	844	948	734	56	920	762	14	18	18	18	-	842,5	845,5	883	805	10,5	10,5	-	-	-	-	47,8
2010.10.20.0-0.0944.00	944	1048	834	56	1020	862	16	18	20	18	-	942,5	945,5	983	905	10,5	10,5	-	-	-	-	53,1
2012.10.20.0-0.1094.00	1094	1198	984	56	1170	1012	16	18	20	18	-	1092,5	1095,5	1133	1055	10,5	10,5	-	-	-	-	61,9

Drawing Nr.	DL (mm)	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	nz	B/M (mm)	nn	B/M (mm)	t (mm)	O (mm)	U (mm)	A (mm)	C (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z (mm)	b (mm)	T (kg)
2028.20.20.0-0.0414.00	414	518	326,5	56	490	375	8	18	12	M 12	20	412,5	415,5	453	-	10,5	-	335	5	67	45,5	27,1
2030.20.20.0-0.0544.00	544	648	445,2	56	620	505	10	18	16	M 12	20	542,5	545,5	583	-	10,5	-	456	6	76	45,5	36,9
2032.20.20.0-0.0644.00	644	748	547,2	56	720	605	12	18	18	M 12	20	642,5	645,5	683	-	10,5	-	558	6	93	45,5	43,7
2034.20.20.0-0.0744.00	744	848	649,2	56	820	705	12	18	20	M 12	20	742,5	745,5	783	-	10,5	-	660	6	110	45,5	51,1
2036.20.20.0-0.0844.00	844	948	737,6	56	920	805	14	18	20	M 12	20	842,5	845,5	883	-	10,5	-	752	8	94	45,5	61,6
2038.20.20.0-0.0944.00	944	1048	841,6	56	1020	905	16	18	22	M 12	20	942,5	945,5	983	-	10,5	-	856	8	107	45,5	65,8
2040.20.20.0-0.1094.00	1094	1198	985,6	56	1170	1055	16	18	24	M 12	20	1092,5	1095,5	1133	-	10,5	-	1000	8	125	45,5	80,7

Drawing Nr.	DL (mm)	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	nz	B/M (mm)	nn	B/M (mm)	t (mm)	O (mm)	U (mm)	A (mm)	C (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z (mm)	b (mm)	T (kg)
2014.30.20.0-0.0414.00	414	505	304	56	455	322	10	M 12	12	18	20	412,5	415,5	-	375	10,5	-	495	5	99	45,5	29,3
2016.30.20.0-0.0544.00	544	642	434	56	585	462	14	M 12	14	18	20	542,5	545,5	-	505	10,5	-	630	6	105	45,5	39,5
2018.30.20.0-0.0644.00	644	744	534	56	685	652	16	M 12	16	18	20	642,5	645,5	-	605	10,5	-	732	6	122	45,5	47,6
2020.30.20.0-0.0744.00	744	840	634	56	785	662	18	M 12	16	18	20	742,5	745,5	-	705	10,5	-	828	6	138	45,5	53,5
2022.30.20.0-0.0844.00	844	952	734	56	885	762	18	M 12	18	18	20	842,5	845,5	-	805	10,5	-	936	8	117	45,5	65,1
2024.30.20.0-0.0944.00	944	1048	834	56	985	862	20	M 12	20	18	20	942,5	945,5	-	905	10,5	-	1032	8	129	45,5	69,6
2026.30.20.0-0.1094.00	1094	1200	984	56	1135	1012	22	M 12	20	18	20	1092,5	1095,5	-	1055	10,5	-	1184	8	148	45,5	83,0

M

MODEL 2000



Ø A

Ø O

Ø DL

Ø Ln

Ø B

Ø Dn

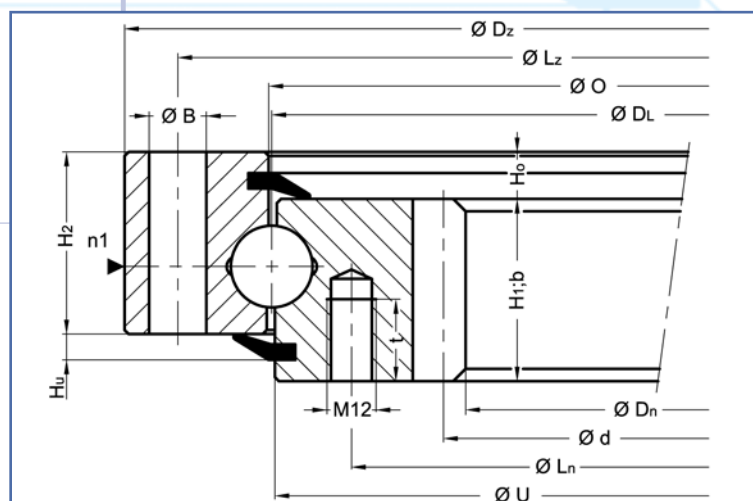
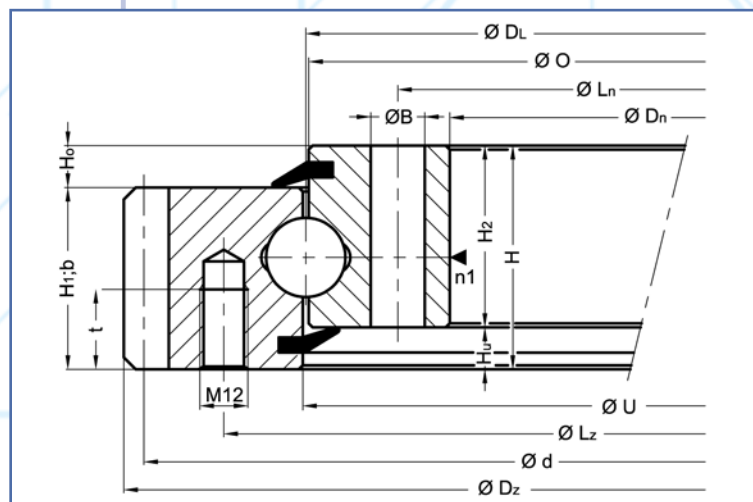
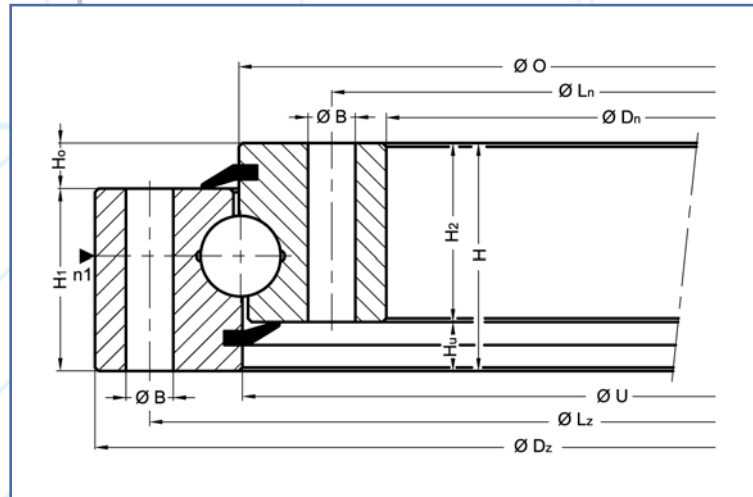
Drawing Nr.	DL	Dz	Dn	H	Lz	Ln	nz	B/M	nn	B/M	t	O	U	A	C	Hu	Ho	d	m	z	b	T
	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)		(mm)		(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)		(mm)	(kg)
2042.10.30.0-0.0955.00	955	1100	805	90	1060	845	30	22	30	22	-	956,5	953,5	1017	893	19	19	-	-	-	-	131
2044.10.30.0-0.1055.00	1055	1200	905	90	1160	945	30	22	30	22	-	1056,5	1053,5	1117	993	19	19	-	-	-	-	145
2046.10.30.0-0.1155.00	1155	1300	1005	90	1260	1045	36	22	36	22	-	1156,5	1153,5	1217	1093	19	19	-	-	-	-	159
2048.10.30.0-0.1255.00	1255	1400	1105	90	1360	1145	42	22	42	22	-	1256,5	1253,5	1317	1193	19	19	-	-	-	-	172
2050.10.30.0-0.1355.00	1355	1500	1205	90	1460	1245	42	22	42	22	-	1356,5	1353,5	1417	1293	19	19	-	-	-	-	186
2052.10.30.0-0.1455.00	1455	1600	1305	90	1560	1345	48	22	48	22	-	1456,5	1453,5	1517	1393	19	19	-	-	-	-	200

Drawing Nr.	DL	Dz	Dn	H	Lz	Ln	nz	B/M	nn	B/M	t	O	U	A	C	Hu	Ho	d	m	z	b	T
	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)		(mm)		(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)		(mm)	(kg)
2066.20.30.0-0.0955.00	955	1100	812	90	1060	894	30	22	30	M 20	40	956,5	953,5	1017	-	19	-	830	10	83	71	156
2068.20.30.0-0.1055.00	1055	1200	912	90	1160	994	30	22	30	M 20	40	1056,5	1053,5	1117	-	19	-	930	10	93	71	176
2070.20.30.0-0.1155.00	1155	1300	1012	90	1260	1094	36	22	36	M 20	40	1156,5	1153,5	1217	-	19	-	1030	10	103	71	192
2072.20.30.0-0.1255.00	1255	1400	1112	90	1360	1194	42	22	42	M 20	40	1256,5	1253,5	1317	-	19	-	1130	10	113	71	208
2074.20.30.0-0.1355.00	1355	1500	1212	90	1460	1294	42	22	42	M 20	40	1356,5	1353,5	1417	-	19	-	1230	10	123	71	226
2076.20.30.0-0.1455.00	1455	1600	1312	90	1560	1394	48	22	48	M 20	40	1456,5	1453,5	1517	-	19	-	1330	10	133	71	243

Drawing Nr.	DL	Dz	Dn	H	Lz	Ln	nz	B/M	nn	B/M	t	O	U	A	C	Hu	Ho	d	m	z	b	T
	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)		(mm)		(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)		(mm)	(kg)
2054.30.30.0-0.0955.00	955	1098	805	90	1016	845	30	M 20	30	22	40	956,5	953,5	-	893	19	-	1080	9	120	71	165
2056.30.30.0-0.1055.00	1055	1200	905	90	1116	945	30	M 20	30	22	40	1056,5	1053,5	-	993	19	-	1180	10	118	71	183
2058.30.30.0-0.1155.00	1155	1300	1005	90	1216	1045	36	M 20	30	22	40	1156,5	1153,5	-	1093	19	-	1280	10	128	71	200
2060.30.30.0-0.1255.00	1255	1400	1105	90	1316	1145	42	M 20	30	22	40	1256,5	1253,5	-	1193	19	-	1380	10	138	71	216
2062.30.30.0-0.1355.00	1355	1500	1205	90	1416	1245	42	M 20	30	22	40	1356,5	1353,5	-	1293	19	-	1480	10	148	71	234
2064.30.30.0-0.1455.00	1455	1600	1305	90	1516	1345	48	M 20	30	22	40	1456,5	1453,5	-	1393	19	-	1580	10	158	71	250

M

MODEL 3000



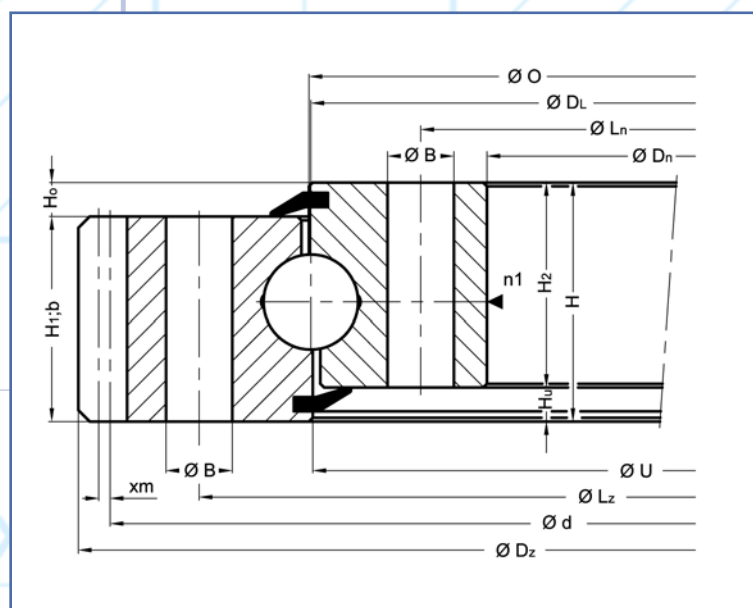
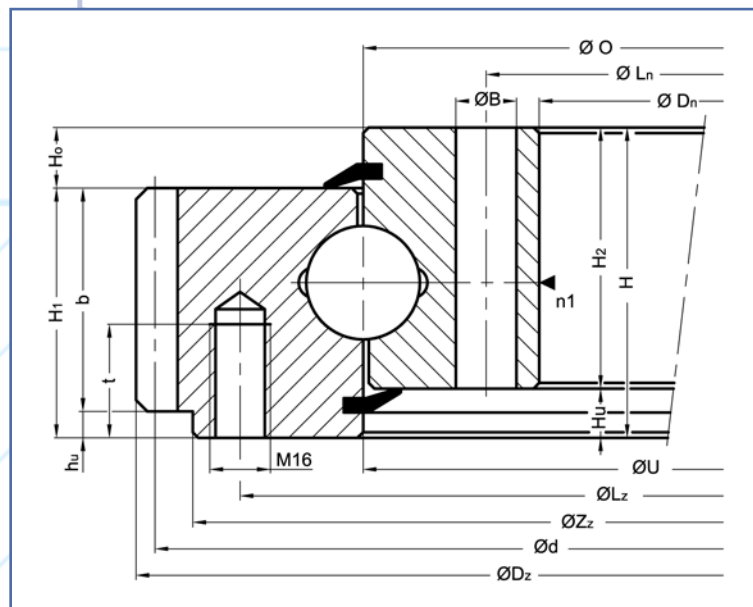
Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	t (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
3018.10.20.0-0.0414.00	486	342	56	460	368	24	13,5	12	-	412,5	415,5	45,5	45,5	10,5	10,5	-	-	-	-	-	29
3020.10.20.0-0.0544.00	616	472	56	590	498	32	13,5	12	-	542,5	545,5	45,5	45,5	10,5	10,5	-	-	-	-	-	37
3022.10.20.0-0.0644.00	716	572	56	690	598	36	13,5	12	-	642,5	645,5	45,5	45,5	10,5	10,5	-	-	-	-	-	44
3024.10.20.0-0.0744.00	816	672	56	790	698	40	13,5	12	-	742,5	745,5	45,5	45,5	10,5	10,5	-	-	-	-	-	52
3026.10.20.0-0.0844.00	916	772	56	890	798	40	13,5	12	-	842,5	845,5	45,5	45,5	10,5	10,5	-	-	-	-	-	60
3028.10.20.0-0.0944.00	1016	872	56	990	898	44	13,5	12	-	942,5	945,5	45,5	45,5	10,5	10,5	-	-	-	-	-	67
3030.10.20.0-0.1094.00	1166	1022	56	1140	1048	48	13,5	12	-	1092,5	1095,5	45,5	45,5	10,5	10,5	-	-	-	-	-	77

Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	t (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
3032.30.20.0-0.0414.00	505	342	56	455	368	20/24	13,5	12	20	412,5	415,5	45,5	45,5	10,5	10,5	495	5	99	-	45,5	31
3034.30.20.0-0.0544.00	642	472	56	585	498	28/32	13,5	12	20	542,5	545,5	45,5	45,5	10,5	10,5	630	6	105	-	45,5	43
3036.30.20.0-0.0644.00	744	572	56	685	598	32/36	13,5	12	20	642,5	645,5	45,5	45,5	10,5	10,5	732	6	122	-	45,5	52
3038.30.20.0-0.0744.00	840	672	56	785	698	36/40	13,5	12	20	742,5	745,5	45,5	45,5	10,5	10,5	828	6	138	-	45,5	59
3040.30.20.0-0.0844.00	952	772	56	885	798	36/40	13,5	12	20	842,5	845,5	45,5	45,5	10,5	10,5	936	8	117	-	45,5	71
3042.30.20.0-0.0944.00	1048	872	56	985	898	40/44	13,5	12	20	942,5	945,5	45,5	45,5	10,5	10,5	1032	8	129	-	45,5	77
3044.30.20.0-0.1094.00	1200	1022	56	1135	1048	44/48	13,5	12	20	1092,5	1095,5	45,5	45,5	10,5	10,5	1184	8	148	-	45,5	91

Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	t (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
3046.20.20.0-0.0414.00	486	326,5	56	460	375	24	13,5	12	20	412,5	415,5	45,5	45,5	10,5	10,5	335	5	67	-	45,5	31
3048.20.20.0-0.0544.00	616	445,2	56	590	505	32	13,5	12	20	542,5	545,5	45,5	45,5	10,5	10,5	456	6	76	-	45,5	42
3050.20.20.0-0.0644.00	716	547,2	56	690	605	36	13,5	12	20	642,5	645,5	45,5	45,5	10,5	10,5	558	6	93	-	45,5	50
3052.20.20.0-0.0744.00	816	649,2	56	790	705	40	13,5	12	20	742,5	745,5	45,5	45,5	10,5	10,5	660	6	110	-	45,5	58
3054.20.20.0-0.0844.00	946	737,6	56	890	805	40	13,5	12	20	842,5	845,5	45,5	45,5	10,5	10,5	752	8	94	-	45,5	69
3056.20.20.0-0.0944.00	1016	841,6	56	990	905	44	13,5	12	20	942,5	945,5	45,5	45,5	10,5	10,5	856	8	107	-	45,5	76
3058.20.20.0-0.1094.00	1166	985,6	56	1140	1055	48	13,5	12	20	1092,5	1095,5	45,5	45,5	10,5	10,5	1000	8	125	-	45,5	91

M

MODEL 3000



Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z (mm)	x.m (mm)	b (mm)	T (kg)	t (mm)	Zu (mm)	hu (mm)
3060.30.25.0-0.0764.00	862,8	670	82	800	706	24	17,5	16	765	763	65	61	21	17	852	6	142	+0	56	98	24	833	9
3062.30.25.0-0.0980.00	1078,4	886	79	1015	922	30	17,5	16	981	979	67	58	21	12	1064	8	133	+0	62	123	24	1024	5

Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z (mm)	x.m (mm)	b (mm)	T (kg)
3064.30.20.0-0.0400.00	499	325	55	448	352	16	13,5	12	401	399	46	46	9	9	485	5	97	+2,5	46	35
3066.30.20.0-0.0450.00	554	369	55	500	400	16	15,5	14	451	449	46	46	9	9	540	5	108	+2,5	46	39
3068.30.20.0-0.0560.00	670,8	479	55	610	510	20	15,5	14	564	559	46	46	9	9	654	6	109	+3,0	46	53
3070.30.20.0-0.0630.00	742,8	543	55	682	578	20	17,5	16	631	629	46	46	9	9	726	6	121	+3,0	46	61
3072.30.20.0-0.0710.00	820,8	623	55	762	658	24	17,5	16	711	709	46	46	9	9	804	6	134	+3,0	46	67

Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z (mm)	x.m (mm)	b (mm)	T (kg)
3074.30.25.0-0.0764.00	886,8	671	63	823	706	24	17,5	16	765	763	54	54	9	9	870	6	145	+3,0	54	95
3076.30.25.0-0.0980.00	1110,4	887	63	1039	922	30	17,5	16	981	979	54	54	9	9	1088	8	136	+4,0	54	124
3078.30.25.0-0.1120.00	1278	1013	79	1183	1057	30	22	16	1121	1119	70	54	25	9	1250	10	125	+5,0	70	182
3080.30.25.0-0.1250.00	1408	1143	79	1313	1187	36	22	16	1251	1249	70	54	25	9	1380	10	138	+5,0	70	221

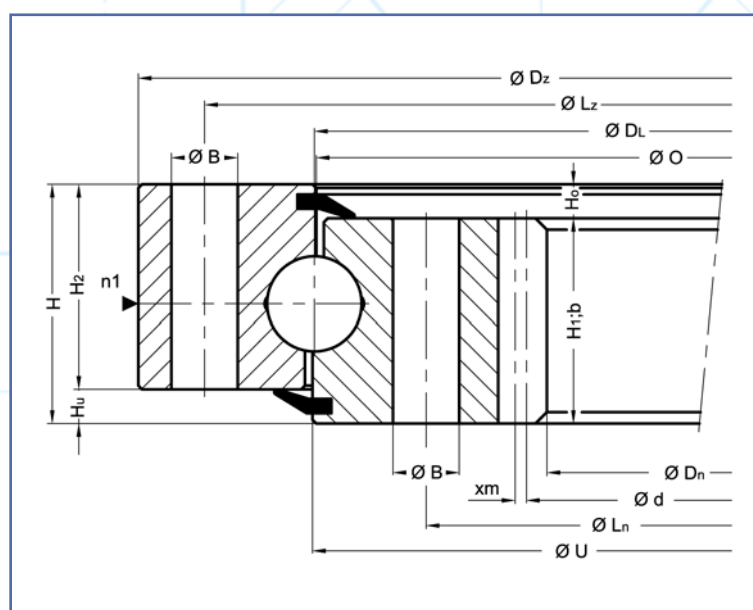
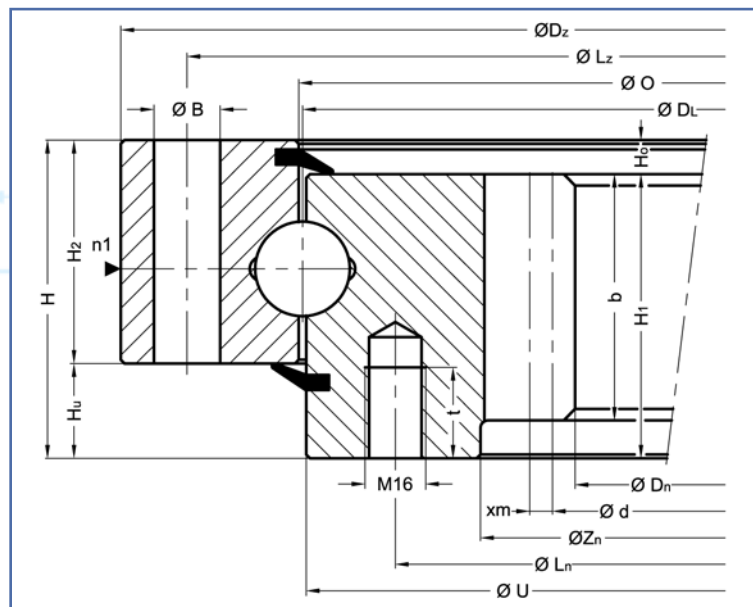
Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z (mm)	x.m (mm)	b (mm)	T (kg)
3082.30.30.0-0.1180.00	1338	1068	76	1248	1112	36	22	20	1181	1178	70	63	16	9	1310	10	131	+5,0	70	227
3084.30.30.0-0.1320.00	1497,6	1208	89	1388	1252	42	22	20	1321	1318	80	63	26	9	1464	12	122	+6,0	80	298
3086.30.30.0-0.1500.00	1677,6	1388	89	1568	1432	48	22	20	1501	1498	80	63	26	9	1644	12	137	+6,0	80	338

Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z (mm)	x.m (mm)	b (mm)	T (kg)
3088.30.40.0-0.1400.00	1593,6	1266	94	1482	1318	36	26	24	1401	1398	85	81	13	9	1560	12	130	+6,0	85	404
3090.30.40.0-0.1600.00	1803,2	1466	94	1682	1518	40	26	24	1601	1598	85	81	13	9	1764	14	126	+7,0	85	479
3092.30.40.0-0.1800.00	1999,2	1666	94	1882	1718	44	26	24	1801	1798	85	81	13	9	1960	14	140	+7,0	85	531

Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z (mm)	x.m (mm)	b (mm)	T (kg)
3094.30.50.0-0.1900.00	2139,2	1729	109	2005	1795	36	33	30	1902	1898	100	99	10	9	2100	14	150	+7,0	100	820
3096.30.50.0-0.2130.00	2380,8	1959	109	2235	2025	48	33	30	2132	2128	100	99	10	9	2336	16	146	+8,0	100	931
3098.30.50.0-0.2355.00	2604,8	2184	109	2460	2250	54	33	30	2357	2353	100	99	10	9	2560	16	160	+8,0	100	1024
3100.30.50.0-0.2645.00	2892,8	2474	109	2750	2540	60	33	30	2647	2643	100	99	10	9	2848	16	178	+8,0	100	1142

M

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Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)	t (mm)	Zu (mm)	hu (mm)
3102.20.25.0-0.0886.00	980	784	77	944	850	36	17,5	16	885	887	67	56	21	10	800	8	100	-0	62	109	24	820	5
3104.20.25.0-0.1077.00	1170	960	84	1134	1040	36	17,5	16	1076	1078	66	64	20	18	980	10	98	-0	61	148	24	1010	5

Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
3106.20.20.0-0.0400.00	475	300	55	448	352	16	13,5	12	399	401	46	46	9	9	305	5	61	-2,5	46	33
3108.20.20.0-0.0450.00	531	345	55	500	400	16	15,5	14	449	451	46	46	9	9	350	5	70	-2,5	46	38
3110.20.20.0-0.0560.00	641	450	55	610	510	20	15,5	14	559	561	46	46	9	9	456	6	76	-3,0	46	51
3112.20.20.0-0.0630.00	717	516	55	682	578	20	17,5	16	629	631	46	46	9	9	522	6	87	-3,0	46	59
3114.20.20.0-0.0710.00	797	594	55	762	658	24	17,5	16	709	711	46	46	9	9	600	6	100	-3,0	46	68

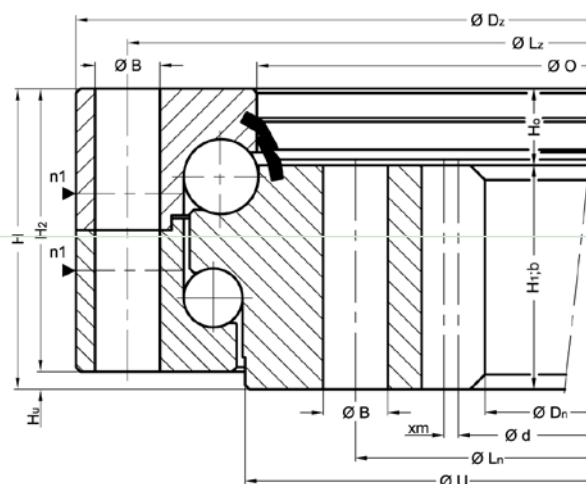
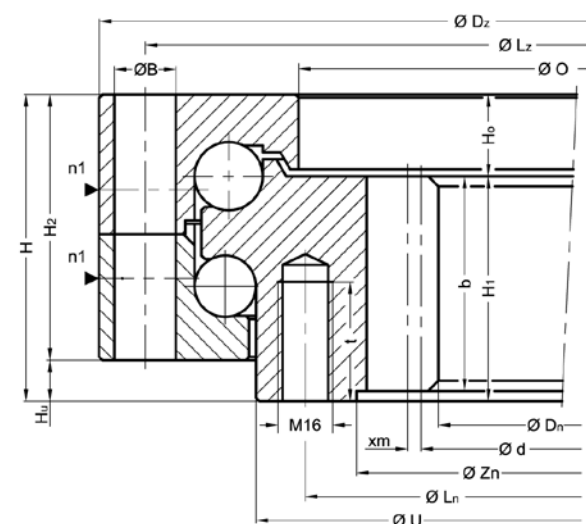
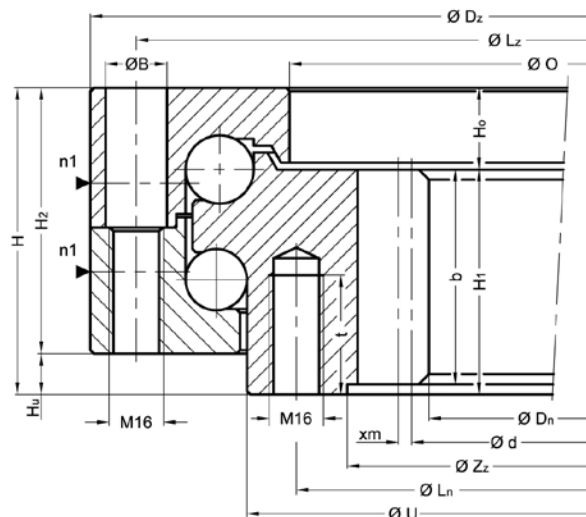
Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
3116.20.25.0-0.0886.00	980	752	63	944	827	36	17,5	16	885	887	54	54	9	9	760	8	95	-4,0	54	111
3118.20.25.0-0.1077.00	1169	930	63	1134	1017	36	17,5	16	1076	1078	54	54	9	9	940	10	94	-5,0	54	140
3120.20.25.0-0.1180.00	1287	1020	63	1243	1117	36	22	20	1179	1181	60	54	15	9	1030	10	103	-5,0	54	185

Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
3130.20.40.0-0.1500.00	1634	1308	94	1582	1418	40	26	24	1498	1501	85	81	13	9	1320	12	110	-6,0	85	410
3132.20.40.0-0.1700.00	1834	1498	94	1782	1618	44	26	24	1698	1701	85	81	13	9	1512	14	108	-7,0	85	475

Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
3134.20.50.0-0.1800.00	1971	1554	109	1905	1695	36	33	30	1798	1802	100	99	10	9	1568	14	112	-7,0	100	762
3136.20.50.0-0.2000.00	2171	1764	109	2105	1895	40	33	30	1998	2002	100	99	10	9	1778	14	127	-7,0	100	827
3138.20.50.0-0.2240.00	2411	1984	109	2345	2135	48	33	30	2238	2242	100	99	10	9	2000	16	125	-8,0	100	961
3140.20.50.0-0.2490.00	2661	2240	109	2595	2385	54	33	30	2488	2492	100	99	10	9	2256	16	141	-8,0	100	1053
3142.20.50.0-0.2800.00	2971	2544	109	2905	2695	60	33	30	2798	2802	100	99	10	9	2560	16	160	-8,0	100	1205

Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
3122.20.30.0-0.1120.00	1232	960	79	1188	1052	36	22	20	1118	1121	70	63	16	9	970	10	97	-5,0	70	206
3124.20.30.0-0.1250.00	1362	1090	79	1318	1182	40	22	20	1248	1251	70	63	16	9	1100	10	110	-5,0	70	231
3126.20.30.0-0.1400.00	1512	1224	89	1468	1332	44	22	20	1398	1401	80	63	26	9	1236	12	103	-5,0	80	296
3128.20.30.0-0.1600.00	1712	1428	89	1668	1532	48	22	20	1598	1601	80	63	26	9	1440	12	120	-5,0	80	334

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Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)	t (mm)	Zn (mm)	hu (mm)
4000.20.18.0-0.0748.00	823	648	77	798	705	24	17,5	16	710	734	54	74	3	23	660	6	110	-0,0	45	90	30	678	9
4002.20.20.0-0.0895.00	971	784	82	944	850	30	17,5	16	854	879	58	78	4	24	800	8	100	-0,0	50	118	35	820	8
4004.20.20.0-0.1085.00	1161	960	90	1134	1040	36	17,5	16	1044	1069	66	78	12	24	980	10	98	-0,0	55	154	35	1010	11
4006.20.20.0-0.1360.00	1440	1210	82	1410	1300	54	17,5	16	1319	1342	58	78	4	24	1220	10	122	-5,0	58	213	35	-	-

Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
4050.20.25.0-0.1360.00	1460	1180	102	1425	1270	36	22	20	1337	1342	76	96	6	26	1190	10	119	-5,0	76	336
4052.20.25.0-0.1600.00	1700	1404	102	1665	1510	42	22	20	1577	1582	76	96	6	26	1416	12	118	-6,0	76	405

Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
4054.20.30.0-0.1381.00	1500	1164	120	1455	1275	36	26	24	1352	1358	91	114	6	29	1176	12	98	-6,0	91	474
4056.20.30.0-0.1630.00	1750	1416	120	1705	1525	40	26	24	1602	1610	91	114	6	29	1428	12	119	-6,0	91	558
4058.20.30.0-0.1800.00	1920	1568	120	1875	1695	48	26	24	1771	1777	91	114	6	29	1582	14	113	-7,0	91	643
4060.20.30.0-0.1995.00	2115	1764	120	2070	1890	48	26	24	1966	1972	91	114	6	29	1778	14	127	-7,0	91	716
4062.20.30.0-0.2330.00	2450	2100	120	2405	2225	54	26	24	2301	2307	91	114	6	29	2114	14	151	-7,0	91	839
4064.20.30.0-0.2538.00	2660	2228	120	2615	2430	60	26	24	2509	2515	91	114	6	29	2304	16	144	-8,0	91	963

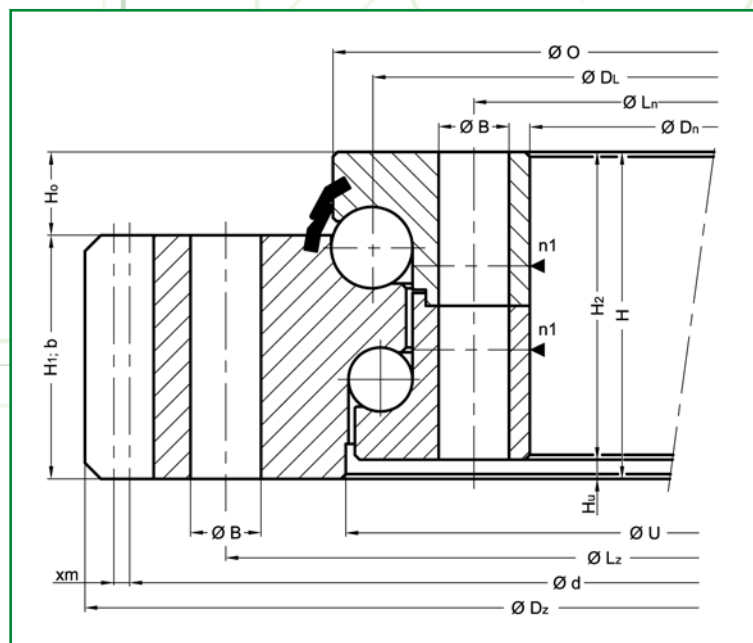
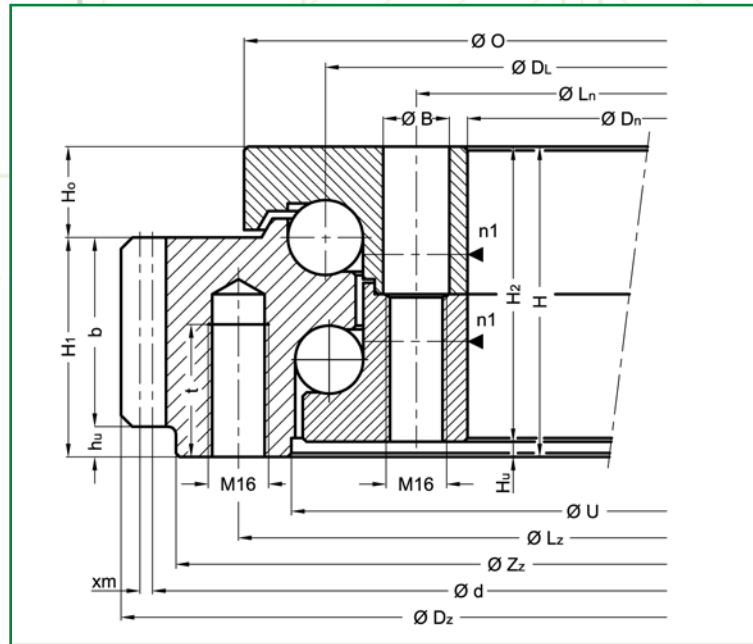
Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
4066.20.35.0-0.1960.00	2090	1722	138	2045	1850	52	26	24	1926	1931	104	132	6	34	1736	14	124	-7,0	104	851
4068.20.35.0-0.2500.00	2630	2254	138	2585	2385	66	26	24	2466	2471	104	132	6	34	2268	14	162	-7,0	104	1112
4070.20.35.0-0.2690.00	2820	2432	138	2775	2580	72	26	24	2656	2661	104	132	6	34	2448	16	153	-8,0	104	1225

Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
4072.20.40.0-0.2199.00	2350	1920	156	2295	2065	52	33	30	2168	2164	117	150	6	39	1936	16	121	-8,0	117	1238
4074.20.40.0-0.2622.00	2770	2336	156	2715	2485	60	33	30	2590	2587	117	150	6	39	2352	16	147	-8,0	117	1495
4076.20.40.0-0.2950.00	3100	2646	156	3045	2815	60	33	30	2918	2915	117	150	6	39	2664	18	148	-9,0	117	1764
4078.20.40.0-0.3300.00	3450	3006	156	3395	3165	66	33	30	3268	3265	117	150	6	39	3024	18	168	-9,0	117	1935

Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	N	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
4080.20.45.0-0.2940.00	3100	2656	175	3045	2800	66	33	30	2903	2900	132	168	7	43	2672	16	167	-8,0	132	1950
4088.20.45.0-0.3400.00	3560	3080	175	3505	3260	72	33	30	3363	3358	132	168	7	43	3100	20	155	-10,0	132	2435

Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	N	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
4082.20.50.0-0.2559.00	2725	2250	185	2670	2410	60	33	30	2522	2524	138	178	7	47	2268	18	126	-9,0	138	1892
4084.20.50.0-0.3520.00	3685	3200	185	3630	3370	78	33	30	3482	3485	138	178	7	47	3220	20	161	-10,0	138	2657
4086.20.50.0-0.3739.00	3905	3420	185	3850	3590	84	33	30	3701	3704	138	178	7	47	3440	20	172	-10,0	138	2823
4090.20.50.0-0.3839.00	4005	3520	185	395	3690	84	33	30	3801	3804	138	178	7	47	3540	20	177	-10,0	138	2905

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Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)	t (mm)	Zz (mm)	Hu (mm)
4008.30.20.0-0.0755.00	862,8	679	82	800	706	24	17,5	16	797	771	58	78	4	24	852	6	142	+0,0	50	101	35	833	8
4010.30.20.0-0.0971.00	1078,4	895	82	1015	922	30	17,5	16	1012	987	58	78	4	24	1064	8	133	+0,0	50	128	35	1024	8
4012.30.20.0-0.1220.00	1342,4	1140	82	1270	1170	48	17,5	16	1261	1238	58	78	4	24	1320	8	165	+4,0	58	178	35	-	-
4014.30.20.0-0.1385.00	1502,4	1305	82	1435	1335	54	17,5	16	1426	1403	58	78	4	24	1480	8	185	+4,0	58	201	35	-	-

Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
4016.30.25.0-0.1200.00	1378	1100	102	1290	1135	36	22	20	1223	1215	76	96	6	26	1350	10	135	+5,0	76	301
4018.30.25.0-0.1461.00	1648	1360	102	1555	1395	40	22	20	1484	1479	76	96	6	26	1620	10	162	+5,0	76	381
4020.30.25.0-0.1800.00	2001,6	1700	102	1890	1735	48	22	20	1823	1818	76	96	6	26	1968	12	164	+6,0	76	488

Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	N	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
4022.30.30.0-0.1440.00	1653,6	1320	120	1545	1365	36	26	24	1469	1460	91	114	6	29	1620	12	135	+6,0	91	520
4024.30.30.0-0.1734.00	1953,6	1615	120	1845	1660	44	26	24	1763	1757	91	114	6	29	1920	12	160	+6,0	91	636
4026.30.30.0-0.2031.00	2253,6	1910	120	2140	1955	48	26	24	2060	2054	91	114	6	29	2220	12	185	+6,0	91	755
4028.30.30.0-0.2235.00	2457,6	2115	120	2345	2160	52	26	24	2264	2258	91	114	6	29	2424	12	202	+6,0	91	827

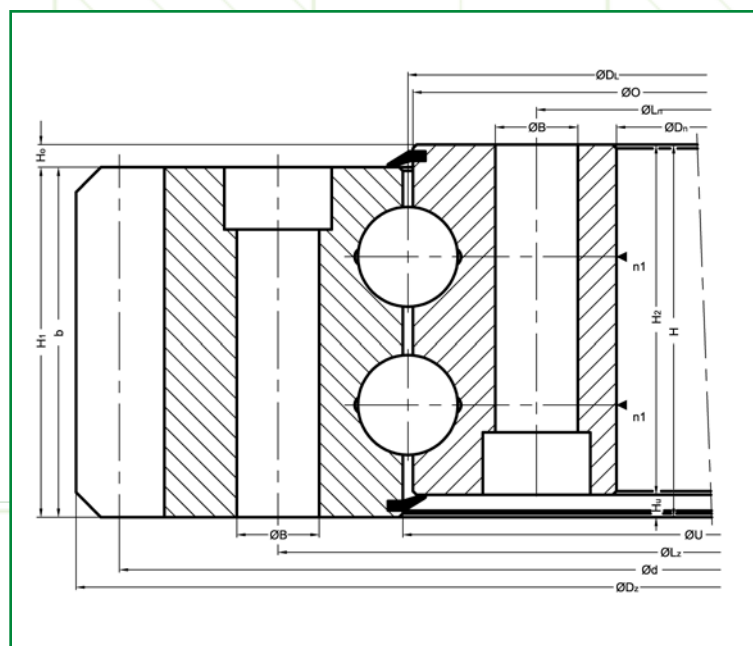
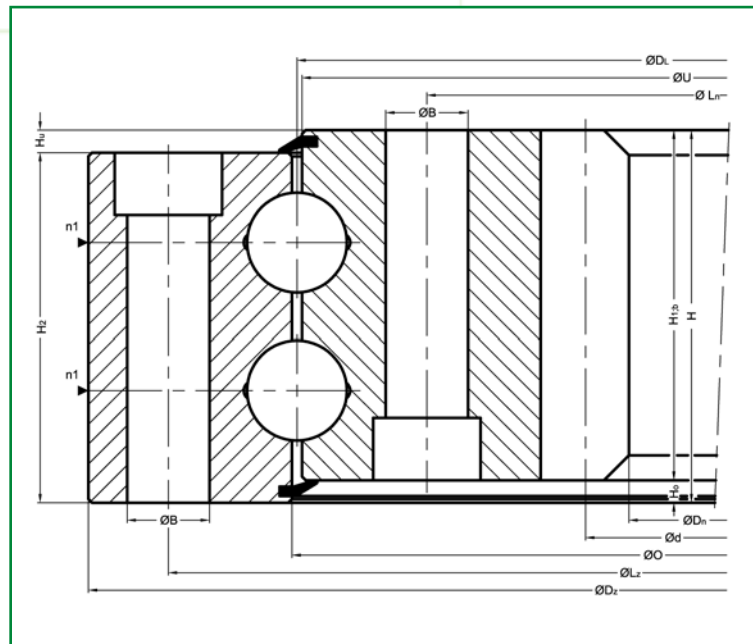
Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	N	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
4030.30.35.0-0.1750.00	1985,2	1620	138	1860	1670	44	26	24	1784	1779	104	132	6	34	1946	14	139	+7,0	104	789
4032.30.35.0-0.1220.00	2461,2	2090	138	2335	2135	60	26	24	2254	2249	104	132	6	34	2422	14	173	+7,0	104	1019
4034.30.35.0-0.2620.00	2876,8	2490	138	2735	2540	60	26	24	2654	2649	104	132	6	34	2832	16	177	+8,0	104	1244

Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	N	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
4036.30.40.0-0.2240.00	2524,8	2090	156	2375	2145	48	33	30	2272	2275	117	150	6	39	2480	16	155	+8	117	1316
4038.30.40.0-0.2619.00	2912,4	2465	156	2755	2520	52	33	30	2651	2654	117	150	6	39	2862	18	159	+9	117	1615
4040.30.40.0-0.2795.00	3096,0	2645	156	2930	2700	54	33	30	2827	2830	117	150	6	39	3040	20	152	+10	117	1723
4042.30.40.0-0.2915.00	3216,0	2765	156	3050	2820	60	33	30	2947	2950	117	150	6	39	3160	20	158	+10	117	1790
4044.30.40.0-0.3150.00	3456,0	3000	156	3285	3055	60	33	30	3182	3185	117	150	6	39	3400	20	170	+10	117	1969

Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	N	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
4046.30.50.0-0.2987.00	3290,4	2820	185	3130	2880	66	33	30	3025	3022	138	178	7	47	3240	18	180	+9	138	2288
4048.30.50.0-0.3167.00	3470,4	3000	185	3310	3060	66	33	30	3205	3202	138	178	7	47	3420	18	190	+9	138	2431
4102.30.50.0-0.3347.00	3650,4	3180	185	3490	3240	72	33	30	3385	3382	138	178	7	47	3600	18	200	+9	138	2566
4104.30.50.0-0.3567.00	3866,4	3400	185	3710	3460	78	33	30	3605	3602	138	178	7	47	3816	18	212	+9	138	2702
4106.30.50.0-0.3747.00	4046,4	3580	185	3890	3640	84	33	30	3785	3782	138	178	7	47	3996	18	222	+9	138	2837
4108.30.50.0-0.4140.00	4456,0	3970	187	4285	4030	90	33	30	4178	4175	140	178	9	47	4400	20	220	+10	140	3282

M

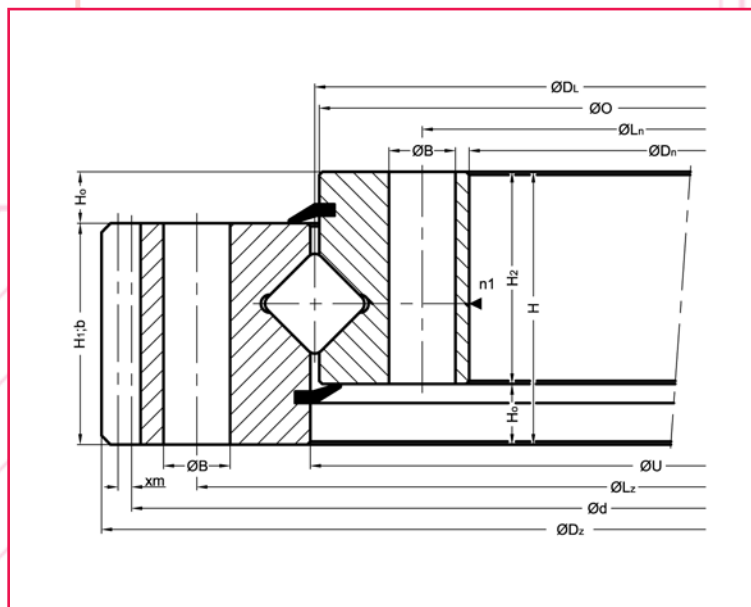
MODEL 4000



Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
4802.20.22.0-0.0625.00	705	504	92	675	575	32	18	16	627	623	83	83	9	9	520	8	65	0	83	95
4804.20.22.0-0.0897.00	973	786	97	944	850	36	18	16	899	895	88	88	9	9	800	8	100	0	88	141
4806.20.22.0-0.1087.00	1172	962	97	1134	1040	36	18	16	1089	1085	88	88	9	9	980	10	98	0	88	193
4808.20.25.0-0.1100.00	1200	963,5	110	1160	1040	36	22	20	1102	1098	96	96	14	14	980	10	98	0	96	239
4810.20.30.0-0.1220.00	1345	1061,6	108	1290	1150	40	22	20	1222	1218	98	98	10	10	1080	10	108	0	98	331
4812.20.30.0-0.1347.00	1470	1183	108	1425	1270	40	22	22	1350	1344	98	98	10	10	1200	10	120	0	98	371
4814.20.30.0-0.1385.00	1530	1186	144	1480	1290	48	26	24	1388	1382	134	134	10	10	1200	10	120	0	134	612
4816.20.30.0-0.1615.00	1750	1418,4	120	1705	1525	40	26	24	1618	1612	110	105	10	15	1200	12	120	0	110	572
4818.20.30.0-0.2003.00	2178	1776	144	2108	1898	72	30	27	2005	2000	134	134	10	10	1800	12	150	0	134	1062

Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
4850.30.25.0-0.0383.00	504	300	92	436	330	16	18	16	381	384	83	83	9	9	488	8	61	0	83	64
4852.30.22.0-0.0475.00	595	382	98	540	410	24	18	16	473	477	88	88	10	10	585	5	117	0	88	85
4854.30.25.0-0.0574.00	712	470	98	640	508	24	18	16	572	576	88	88	10	10	696	8	87	0	88	123
4856.30.20.0-0.0753.00	864	678	92	800	706	36	18	16	751	755	83	83	9	9	852	6	142	0	83	114
4858.30.30.0-0.0823.00	979	718	102	893	753	36	22	20	821	825	92	92	10	10	940	10	94	0	92	197
4860.30.20.0-0.0968.00	1080	893	92	1015	922	30	18	16	966	970	83	83	9	9	1064	8	133	0	83	148
4862.30.25.0-0.1074.00	1200	976	98	1135	1012	36	20	18	1072	1076	88	88	10	10	1184	8	148	0	88	210
4864.30.30.0-0.1117.00	1289,5	985	108	1198	1035	40	22	20	1114	1120	98	98	10	10	1250	10	125	0	98	332
4866.30.30.0-0.1213.00	1380	1095	108	1290	1135	48	24	22	1210	1216	98	98	10	10	1360	10	136	0	98	325
4868.30.40.0-0.1390.00	1634	1208	148	1500	1280	48	33	30	1387	1393	138	134	10	14	1582	14	113	0	138	797

MODEL 5000



Drawing Nr.	Dz	Dn	H	Lz	Ln	n	B	M	O	U	H1	H2	Hu	Ho	d	m	z	x.m	b	T
	(mm)	(mm)	(mm)	(mm)	(mm)		(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)		(mm)	(mm)	(kg)
5000.30.16.0-1.0400.00	495,5	325	55	448	352	16	13,5	12	398	402	46	46	9	9	484	4	121	+2,0	46	33
5002.30.16.0-1.0450.00	554	369	55	500	400	16	15,5	14	448	452	46	46	9	9	540	5	108	+2,5	46	41
5004.30.16.0-1.0560.00	664	479	55	610	510	20	15,5	14	558	562	46	46	9	9	650	5	130	+2,5	46	50
5006.30.16.0-1.0630.00	742,8	543	55	682	578	20	17,5	16	628	632	46	46	9	9	726	6	121	+3,0	46	61

Drawing Nr.	Dz	Dn	H	Lz	Ln	n	B	M	O	U	H1	H2	Hu	Ho	d	m	z	x.m	b	T
	(mm)	(mm)	(mm)	(mm)	(mm)		(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)		(mm)	(mm)	(kg)
5016.30.20.0-1.0450.00	562,8	364	62	505	395	16	15,5	14	448	452	53	53	9	9	546	6	91	+3,0	53	49
5018.30.20.0-1.0560.00	676,8	474	62	615	505	20	15,5	14	558	562	53	53	9	9	660	6	110	+3,0	53	62
5020.30.20.0-1.0630.00	758,4	538	62	687	573	20	17,5	16	628	632	53	53	9	9	736	8	92	+4,0	53	76
5022.30.20.0-1.0710.00	838,4	618	62	767	653	24	17,5	16	708	712	53	53	9	9	816	8	102	+4,0	53	85

Drawing Nr.	Dz	Dn	H	Lz	Ln	n	B	M	O	U	H1	H2	Hu	Ho	d	m	z	x.m	b	T
	(mm)	(mm)	(mm)	(mm)	(mm)		(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)		(mm)	(mm)	(kg)
5032.30.25.0-1.0764.00	892,8	662	73	830	698	24	17,5	16	762	766	64	64	9	9	876	6	146	+3,0	64	116
5034.30.25.0-1.0886.00	1030,4	784	73	952	820	30	17,5	16	884	888	64	64	9	9	1008	8	126	+4,0	64	144
5036.30.25.0-1.0980.00	1118,4	878	73	1046	914	30	17,5	16	978	982	64	64	9	9	1096	8	137	+4,0	64	155
5038.30.25.0-1.1077.00	1228	975	73	1143	1011	36	17,5	16	1075	1079	64	64	9	9	1200	10	120	+5,0	64	178

ØDz

Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
5048.30.25.0-1.1120.00	1278	1008	73	1188	1052	36	22	20	1118	1122	64	64	9	9	1250	10	125	+5,0	64	195
5050.30.25.0-1.1180.00	1338	1068	73	1248	1112	36	22	20	1178	1182	64	64	9	9	1310	10	131	+5,0	64	206
5052.30.25.0-1.1250.00	1408	1138	73	1318	1182	40	22	20	1248	1252	64	64	9	9	1380	10	138	+5,0	64	216
5054.30.25.0-1.1320.00	1497,6	1208	73	1388	1252	42	22	20	1318	1322	64	64	9	9	1464	12	122	+6,0	64	247

Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
5064.30.28.0-1.1400.00	1593,6	1266	80	1482	1318	36	26	24	1398	1402	71	71	9	9	1560	12	130	+6,0	71	332
5066.30.28.0-1.1500.00	1689,6	1366	80	1582	1418	40	26	24	1498	1502	71	71	9	9	1656	12	138	+6,0	71	349
5068.30.28.0-1.1600.00	1803,2	1466	80	1682	1518	40	26	24	1598	1602	71	71	9	9	1764	14	126	+7,0	71	388
5070.30.28.0-1.1700.00	1915,2	1566	80	1782	1618	44	26	24	1698	1702	71	71	9	9	1876	14	134	+7,0	71	431

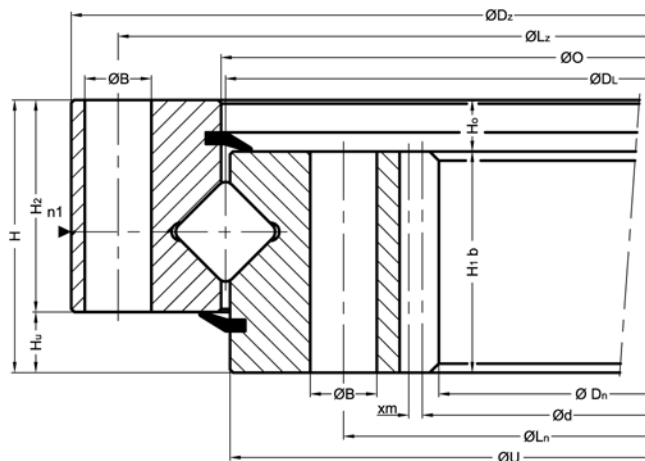
Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
5080.30.36.0-1.1700.00	1943,2	1529	100	1805	1595	32	33	30	1698	1702	90	90	10	10	1904	14	136	+7,0	90	653
5082.30.36.0-1.1800.00	2041,2	1629	100	1905	1695	36	33	30	1798	1802	90	90	10	10	2002	14	143	+7,0	90	685
5084.30.36.0-1.1900.00	2139,2	1729	100	2005	1795	36	33	30	1898	1902	90	90	10	10	2100	14	150	+7,0	90	721
5086.30.36.0-1.2000.00	2237,2	1829	100	2105	1895	40	33	30	1998	2002	90	90	10	10	2198	14	157	+7,0	90	749

Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
5096.30.40.0-1.2000.00	2252,8	1824	108	2110	1890	42	33	30	1997	2003	98	98	10	10	2208	16	138	+8,0	98	848
5098.30.40.0-1.2128.00	2380,8	1952	108	2238	2018	48	33	30	2125	2131	98	98	10	10	2336	16	146	+8,0	98	896
5100.30.40.0-1.2240.00	2492,8	2064	108	2350	2130	48	33	30	2237	2243	98	98	10	10	2448	16	153	+8,0	98	946
5102.30.40.0-1.2368.00	2620,8	2192	108	2478	2258	56	33	30	2365	2371	98	98	10	10	2576	16	161	+8,0	98	993

Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
5112.30.45.0-1.2240.00	2516,4	2057	119	2357	2123	48	33	30	2237	2243	109	109	10	10	2466	18	137	+9,0	109	1122
5114.30.45.0-1.2366.00	2642,4	2183	119	2483	2249	52	33	30	2363	2369	109	109	10	10	2592	18	144	+9,0	109	1182
5116.30.45.0-1.2510.00	2786,4	2327	119	2627	2393	56	33	30	2507	2513	109	109	10	10	2736	18	152	+9,0	109	1258
5118.30.45.0-1.2654.00	2930,4	2471	119	2771	2537	60	33	30	2651	2657	109	109	10	10	2880	18	160	+9,0	109	1329

Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
5128.30.50.0-1.2500.00	2796	2309	130	2625	2375	60	33	30	2497	2503	120	120	10	10	2740	20	137	+10,0	120	1453
5130.30.50.0-1.2660.00	2956	2469	130	2785	2535	64	33	30	2657	2663	120	120	10	10	2900	20	145	+10,0	120	1544
5132.30.50.0-1.2800.00	3096	2609	130	2925	2675	72	33	30	2797	2803	120	120	10	10	3040	20	152	+10,0	120	1616
5134.30.50.0-1.3000.00	3296	2809	130	3125	2875	76	33	30	2997	3003	120	120	10	10	3240	20	162	+10,0	120	1733

MODEL 5000



Drawing Nr.	Dz	Dn	H	Lz	Ln	n	B	M	O	U	H1	H2	Hu	Ho	d	m	z	x.m	b	T
	(mm)	(mm)	(mm)	(mm)	(mm)		(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)		(mm)	(mm)	(kg)
5008.20.16.0-1.0400.00	475	304	55	448	352	16	13,5	12	402	398	46	46	9	9	308	4	77	-2,0	46	31
5010.20.16.0-1.0450.00	531	345	55	500	400	16	15,5	14	452	448	46	46	9	9	350	5	70	-2,5	46	40
5012.20.16.0-1.0560.00	641	455	55	610	510	20	15,5	14	562	558	46	46	9	9	460	5	92	-2,5	46	49
5014.20.16.0-1.0630.00	717	516	55	682	578	20	17,5	16	632	628	46	46	9	9	522	6	87	-3,0	46	59

Drawing Nr.	Dz	Dn	H	Lz	Ln	n	B	M	O	U	H1	H2	Hu	Ho	d	m	z	x.m	b	T
	(mm)	(mm)	(mm)	(mm)	(mm)		(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)		(mm)	(mm)	(kg)
5024.20.20.0-1.0450.00	536	336	62	505	395	16	15,5	14	452	448	53	53	9	9	342	6	57	-3,0	53	48
5026.20.20.0-1.0560.00	646	444	62	615	505	20	15,5	14	562	558	53	53	9	9	450	6	75	-3,0	53	60
5028.20.20.0-1.0630.00	722	496	62	687	573	20	17,5	16	632	628	53	53	9	9	504	8	63	-4,0	53	75
5030.20.20.0-1.0710.00	802	576	62	767	653	24	17,5	16	712	708	53	53	9	9	584	8	73	-4,0	53	84

Drawing Nr.	Dz	Dn	H	Lz	Ln	n	B	M	O	U	H1	H2	Hu	Ho	d	m	z	x.m	b	T
	(mm)	(mm)	(mm)	(mm)	(mm)		(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)		(mm)	(mm)	(kg)
5040.20.25.0-1.0764.00	866	636	73	830	698	24	17,5	16	766	762	64	64	9	9	642	6	107	-3,0	64	113
5042.20.25.0-1.0886.00	988	744	73	952	820	30	17,5	16	888	884	64	64	9	9	752	8	94	-4,0	64	138
5044.20.25.0-1.0980.00	1082	840	73	1046	914	30	17,5	16	982	978	64	64	9	9	848	8	106	-4,0	64	152
5046.20.25.0-1.1077.00	1179	920	73	1143	1011	36	17,5	16	1079	1075	64	64	9	9	930	10	93	-5,0	64	177

Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
5056.20.25.0-1.1120.00	1232	960	73	1188	1052	36	22	20	1122	1118	64	64	9	9	970	10	97	-5,0	64	192
5058.20.25.0-1.1180.00	1292	1020	73	1248	1112	36	22	20	1182	1178	64	64	9	9	1030	10	103	-5,0	64	202
5060.20.25.0-1.1250.00	1362	1090	73	1318	1182	40	22	20	1252	1248	64	64	9	9	1100	10	110	-5,0	64	213
5062.20.25.0-1.1320.00	1432	1140	73	1388	1252	40	22	20	1322	1318	64	64	9	9	1152	12	96	-6,0	64	240

Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
5072.20.28.0-1.1400.00	1534	1200	80	1482	1318	36	26	24	1402	1398	71	71	9	9	1212	12	101	-6,0	71	330
5074.20.28.0-1.1500.00	1634	1308	80	1582	1418	40	26	24	1502	1498	71	71	9	9	1320	12	110	-6,0	71	343
5076.20.28.0-1.1600.00	1734	1386	80	1682	1518	40	26	24	1602	1598	71	71	9	9	1400	14	100	-7,0	71	391
5078.20.28.0-1.1700.00	1834	1498	80	1782	1618	44	26	24	1702	1698	71	71	9	9	1512	14	108	-7,0	71	398

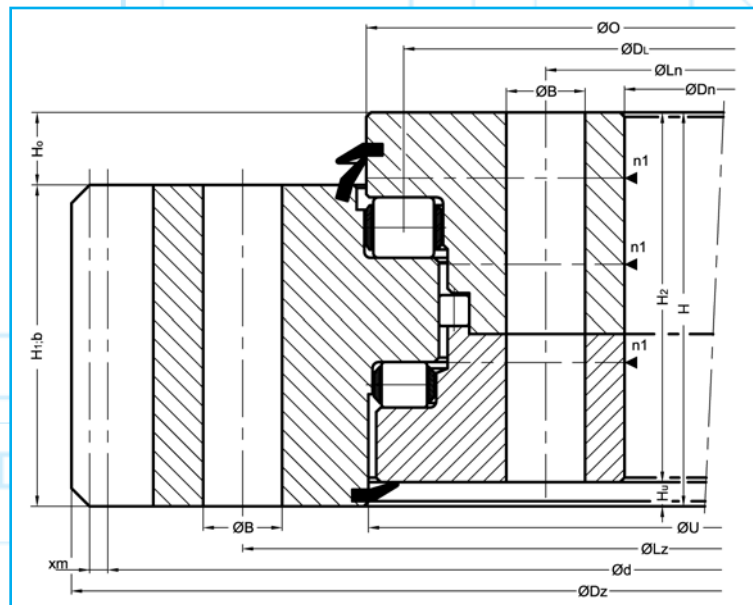
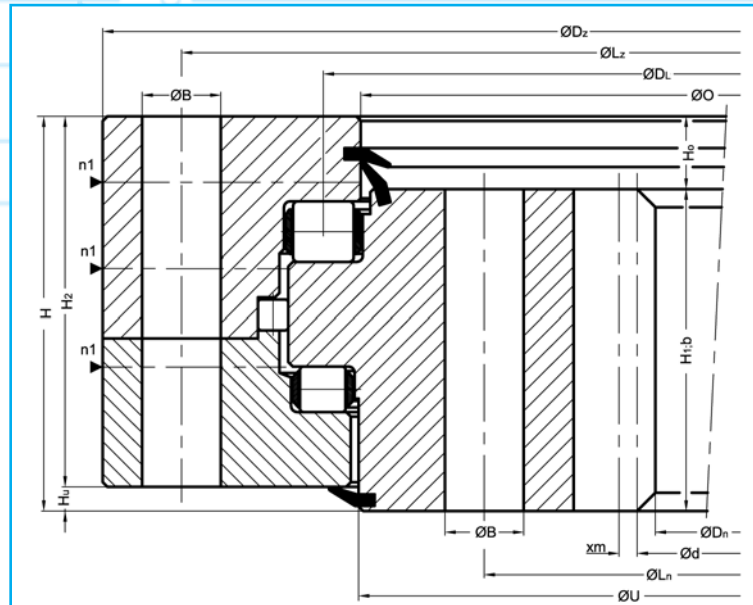
Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
5088.20.36.0-1.1700.00	1871	1456	100	1805	1595	32	33	30	1702	1698	90	90	10	10	1470	14	105	-7,0	90	636
5090.20.36.0-1.1800.00	1971	1554	100	1905	1695	36	33	30	1802	1798	90	90	10	10	1568	14	112	-7,0	90	675
5092.20.36.0-1.1900.00	2071	1652	100	2005	1795	36	33	30	1902	1898	90	90	10	10	1666	14	119	-7,0	90	720
5094.20.36.0-1.2000.00	2171	1764	100	2105	1895	40	33	30	2002	1998	90	90	10	10	1778	14	127	-7,0	90	731

Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
5104.20.40.0-1.2000.00	2176	1744	108	2110	1890	42	33	30	2003	1997	98	98	10	10	1760	16	110	-8,0	98	832
5106.20.40.0-1.2128.00	2304	1872	108	2238	2018	48	33	30	2113	2125	98	98	10	10	1888	16	118	-8,0	98	882
5108.20.40.0-1.2240.00	2416	1984	108	2350	2130	48	33	30	2243	2237	98	98	10	10	2000	16	125	-8,0	98	932
5110.20.40.0-1.2368.00	2544	2112	108	2478	2258	56	33	30	2371	2365	98	98	10	10	2128	16	133	-8,0	98	980

Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
5120.20.45.0-1.2240.00	2423	1962	119	2357	2123	48	33	30	2243	2237	109	109	10	10	1980	18	110	-9,0	109	1100
5122.20.45.0-1.2366.00	2549	2088	119	2483	2249	52	33	30	2369	2363	109	109	10	10	2106	18	117	-9,0	109	1160
5124.20.45.0-1.2510.00	2693	2232	119	2627	2393	56	33	30	2513	2507	109	109	10	10	2250	18	125	-9,0	109	1231
5126.20.45.0-1.2645.00	2837	2376	119	2771	2537	60	33	30	2657	2651	109	109	10	10	2394	18	133	-9,0	109	1302

Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
5136.20.50.0-1.2500.00	2691	2200	130	2625	2375	60	33	30	2503	2497	120	120	10	10	2220	20	111	-10,0	120	1423
5138.20.50.0-1.2660.00	2851	2360	130	2785	2535	64	33	30	2663	2657	120	120	10	10	2380	20	119	-10,0	120	1515
5140.20.50.0-1.2800.00	2691	2500	130	2925	2675	72	33	30	2803	2797	120	120	10	10	2520	20	126	-10,0	120	1588
5142.20.50.0-1.3000.00	3191	2700	130	3125	2875	76	33	30	3003	2997	120	120	10	10	2720	20	136	-10,0	120	1706

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Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
7010.20.20.0-1.1250.00	1397	1032	132	1345	1145	36	26	24	1219	1218	106	123	9	26	1044	12	87	-6	106	539
7012.20.20.0-1.1400.00	1547	1162	132	1495	1295	36	26	24	1369	1368	106	123	9	26	1176	14	84	-7	106	630
7014.20.20.0-1.1600.00	1747	1372	132	1695	1495	40	26	24	1569	1568	106	123	9	26	1386	14	99	-7	106	705
7016.20.20.0-1.1800.00	1947	1552	132	1895	1695	46	26	24	1769	1768	106	123	9	26	1568	16	98	-8	106	829
7018.20.20.0-1.2000.00	2147	1760	132	2095	1895	54	26	24	1969	1968	106	123	9	26	1776	16	111	-8	106	902

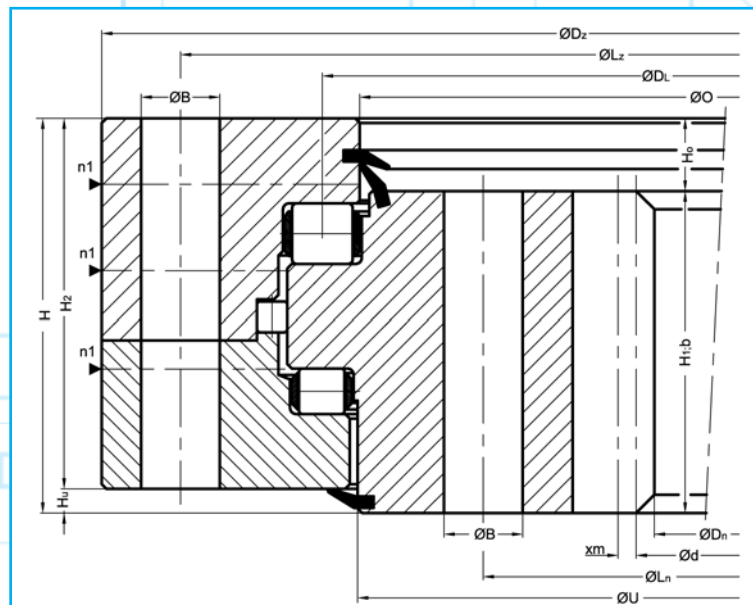
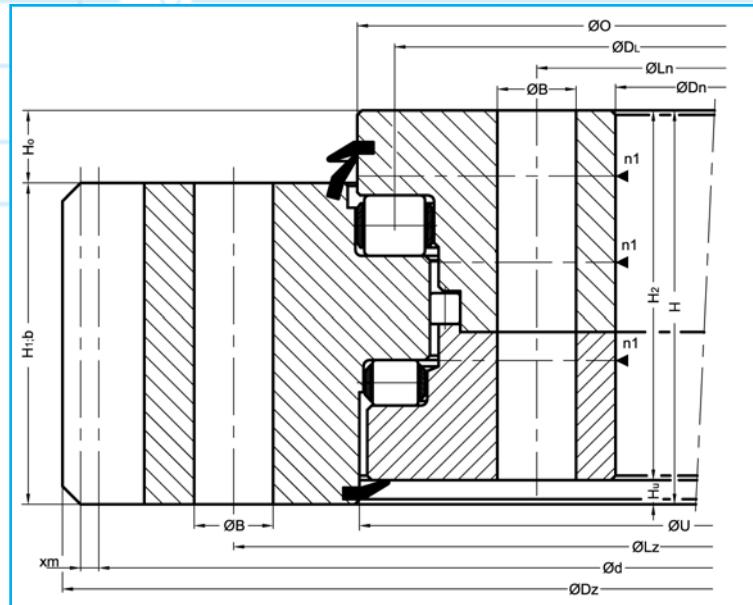
Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
7030.20.25.0-1.1800.00	1981	1520	147	1915	1675	36	33	30	1763	1774	117	138	9	30	1536	16	96	-8	117	1101
7032.20.25.0-1.2000.00	2181	1728	147	2115	1875	44	33	30	1963	1974	117	138	9	30	1744	16	109	-8	117	1202
7034.20.25.0-1.2240.00	2421	1944	147	2355	2115	48	33	30	2203	2214	117	138	9	30	1962	18	109	-9	117	1406
7036.20.25.0-1.2500.00	2681	2214	147	2615	2375	54	33	30	2463	2474	117	138	9	30	2232	18	124	-9	117	1545
7038.20.25.0-1.2800.00	2981	2500	147	2915	2675	60	33	30	2763	2774	117	138	9	30	2520	20	126	-10	117	1767

Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
7050.20.32.0-1.2240.00	2458	1908	181	2380	2085	40	39	36	2199	2210	139	172	9	42	1926	18	107	-9	139	2010
7052.20.32.0-1.2500.00	2718	2178	181	2640	2345	44	39	36	2459	2470	139	172	9	42	2196	18	122	-9	139	2210
7054.20.32.0-1.2800.00	3018	2460	181	2940	2645	48	39	36	2759	2770	139	172	9	42	2480	20	124	-10	139	2542
7056.20.32.0-1.3150.00	3368	2820	181	3290	2995	56	39	36	3109	3120	139	172	9	42	2840	20	142	-10	139	2807
7058.20.40.0-1.2800.00	3038	2460	220	2960	2635	48	39	36	2750	2763	170	210	10	50	2480	20	124	-40	170	3213
7060.20.40.0-1.3150.00	3388	2794	220	3310	2985	56	39	36	3100	3113	170	210	10	50	2816	22	128	-11	170	3683
7062.20.40.0-1.3550.00	3788	3190	220	3710	3385	66	39	36	3500	3513	170	210	10	50	3212	22	146	-11	170	4171
7064.20.40.0-1.4000.00	4238	3624	220	4160	3835	72	39	36	3950	3963	170	210	10	50	3648	24	152	-12	170	4810
7066.20.40.0-1.4500.00	4738	4128	220	4660	4335	84	39	36	4450	4463	170	210	10	50	4152	24	173	-12	170	5367

Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
7000.30.20.0-1.1250.00	1461,6	1103	132	1355	1155	36	26	24	1280	1282	106	123	9	26	1428	12	119	+6	106	542
7002.30.20.0-1.1400.00	1635,2	1253	132	1505	1305	36	26	24	1430	1432	106	123	9	26	1596	14	114	+7	106	646
7004.30.20.0-1.1600.00	1831,2	1453	132	1705	1505	40	26	24	1630	1632	106	123	9	26	1792	14	128	+7	106	731
7006.30.20.0-1.1800.00	2044,8	1653	132	1905	1705	46	26	24	1830	1832	106	123	9	26	2000	16	125	+8	106	844
7008.30.20.0-1.2000.00	2236,8	1853	132	2105	1905	54	26	24	2030	2032	106	123	9	26	2192	16	137	+8	106	912

Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
7020.30.25.0-1.1800.00	2076,8	1619	147	1925	1685	36	33	30	1836	1826	117	138	9	30	2032	16	127	+8	117	1126
7022.30.25.0-1.2000.00	2268,8	1819	147	2125	1885	44	33	30	2036	2026	117	138	9	30	2224	16	139	+8	117	1216
7024.30.25.0-1.2240.00	2516,4	2059	147	2366	2125	48	33	30	2276	2266	117	138	9	30	2466	18	137	+9	117	1378
7026.30.25.0-1.2500.00	2786,4	2319	147	2625	2385	54	33	30	2536	2526	117	138	9	30	2736	18	152	+9	117	1567
7028.30.25.0-1.2800.00	3096	2619	147	2925	2685	60	33	30	2836	2826	117	138	9	30	3040	20	152	+10	117	1785

MODEL 7000



Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
7040.30.32.0-1.2240.00	2552,4	2022	181	2395	2100	40	39	36	2281	2270	139	172	9	42	2502	18	139	+9	139	1975
7042.30.32.0-1.2500.00	2822,4	2282	181	2655	2360	44	39	36	2541	2530	139	172	9	42	2772	18	154	+9	139	2260
7044.30.32.0-1.2800.00	3136	2582	181	2955	2660	48	39	36	2841	2830	139	172	9	42	3080	20	154	+10	139	2576
7046.30.32.0-1.3150.00	3476	2932	181	3305	3010	56	39	36	3191	3180	139	172	9	42	3420	20	171	+10	139	2828
7048.30.40.0-1.2800.00	3136	2562	220	2965	2640	48	39	36	2850	2837	170	210	10	50	3080	20	154	+10	170	3267
7070.30.40.0-1.3150.00	3515,6	2912	220	3315	2990	56	39	36	3200	3187	170	210	10	50	3454	22	157	+11	170	3812
7072.30.40.0-1.3550.00	3911,6	3312	220	3715	3390	66	39	36	3600	3587	170	210	10	50	3850	22	175	+11	170	4255
7074.30.40.0-1.4000.00	4363,2	3762	220	4165	3840	72	39	36	4050	4037	170	210	10	50	4296	24	179	+12	170	4805
7076.30.40.0-1.4500.00	4867,2	4262	220	4665	4340	84	39	36	4550	4537	170	210	10	50	4800	24	200	+12	170	5410

Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
7080.30.50.0-1.3150.00	3571,2	2885	268	3350	2975	48	45	42	3210	3196	203	258	10	65	3504	24	146	+12	203	5298
7082.30.50.0-1.3550.00	3955,2	3285	268	3750	3375	54	45	42	3610	3596	203	258	10	65	3888	24	162	+12	203	5830
7084.30.50.0-1.4000.00	4411,2	3735	268	4200	3825	60	45	42	4060	4046	203	258	10	65	4344	24	181	+12	203	6578
7086.30.50.0-1.4500.00	4915,2	4235	268	4700	4325	68	45	42	4560	4546	203	258	10	65	4848	24	202	+12	203	7456

Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
7010.20.20.0-1.1250.00	1397	1032	132	1345	1145	36	26	24	1219	1218	106	123	9	26	1044	12	87	-6	106	539
7012.20.20.0-1.1400.00	1547	1162	132	1495	1295	36	26	24	1369	1368	106	123	9	26	1176	14	84	-7	106	630
7014.20.20.0-1.1600.00	1747	1372	132	1695	1495	40	26	24	1569	1568	106	123	9	26	1386	14	99	-7	106	705
7016.20.20.0-1.1800.00	1947	1552	132	1895	1695	46	26	24	1769	1768	106	123	9	26	1568	16	98	-8	106	829
7018.20.20.0-1.2000.00	2147	1760	132	2095	1895	54	26	24	1969	1968	106	123	9	26	1776	16	111	-8	106	902

Drawing Nr.	Dz (mm)	Dn (mm)	H (mm)	Lz (mm)	Ln (mm)	n	B (mm)	M (mm)	O (mm)	U (mm)	H1 (mm)	H2 (mm)	Hu (mm)	Ho (mm)	d (mm)	m (mm)	z	x.m (mm)	b (mm)	T (kg)
7090.20.50.0-1.3150.00	3415	2736	268	3325	2950	48	45	42	3090	3104	203	258	10	65	2760	24	115	-12	203	5128
7092.20.50.0-1.3550.00	3815	3120	268	3725	3350	54	45	42	3490	3504	203	258	10	65	3144	24	131	-12	203	5916
7094.20.50.0-1.4000.00	4265	3576	268	4275	3800	60	45	42	3940	3954	203	258	10	65	3600	24	150	-12	203	6623
7096.20.50.0-1.4500.00	4765	4080	268	4775	4300	68	45	42	4440	4454	203	258	10	65	4104	24	171	-12	203	7427

CARE FOR PRODUCT QUALITY

CARE FOR PRODUCT QUALITY

The quality of the products is one of the main goals of our company. Our care for the quality begins at the very start of the production process which is the design of the product and it continues through all the stages of production until the final shipment to the customer. Our company offers full technical support to our clients. We make sure that our products fulfil all the customer's expectations and requirements.

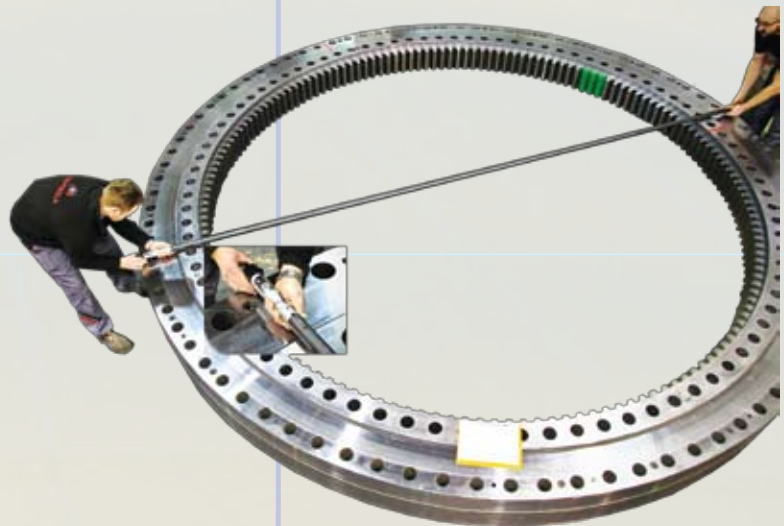
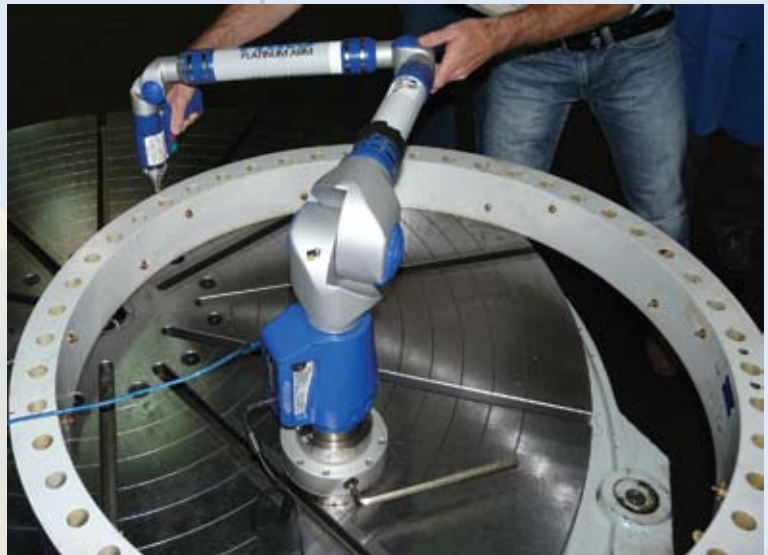


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CARE FOR PRODUCT QUALITY

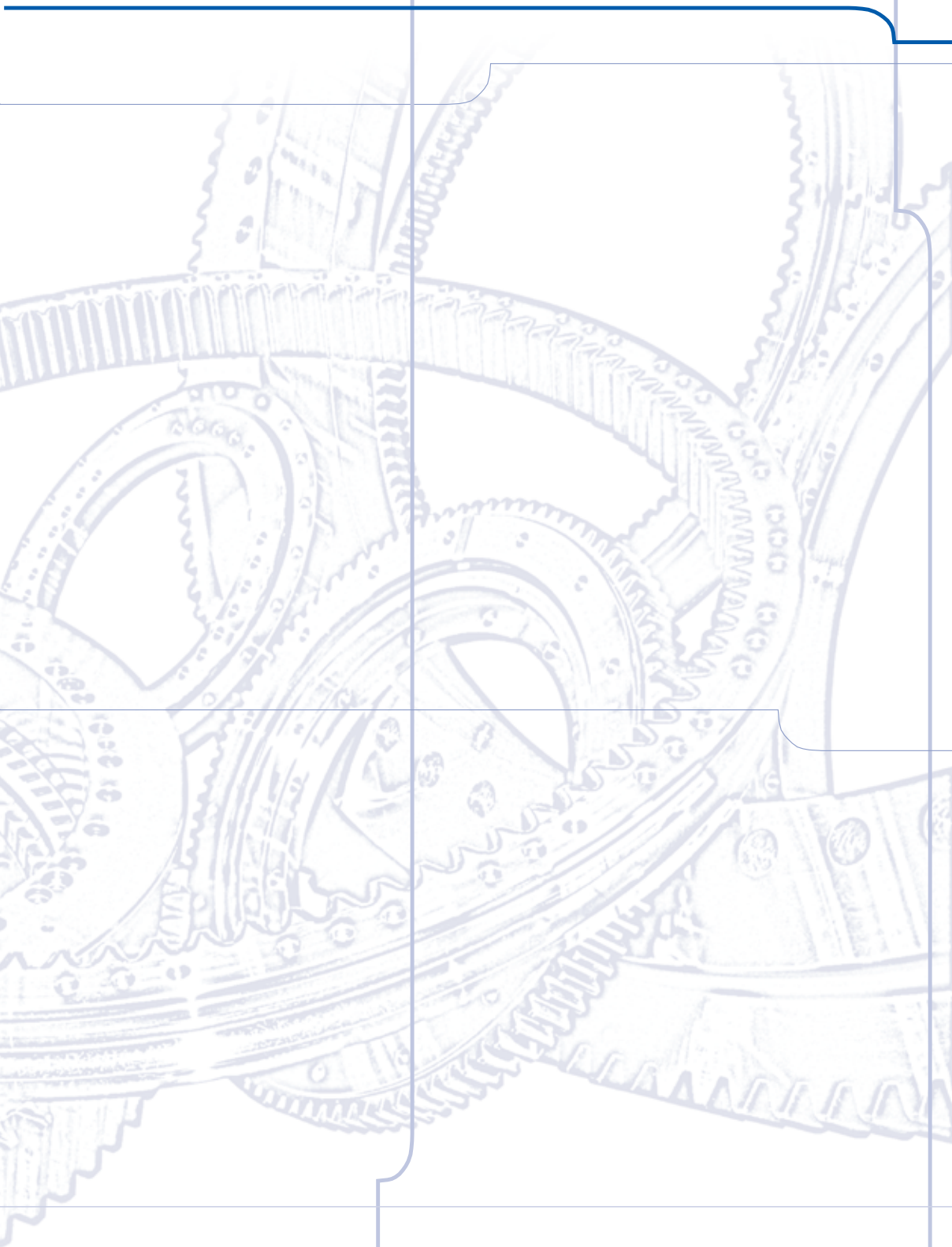
Organising the production process by using the bar code system ensures tracking of each individual technological operation through the whole process and guarantees a 100% product traceability, from the primary source which is the raw material all the way to the final delivery of the product.



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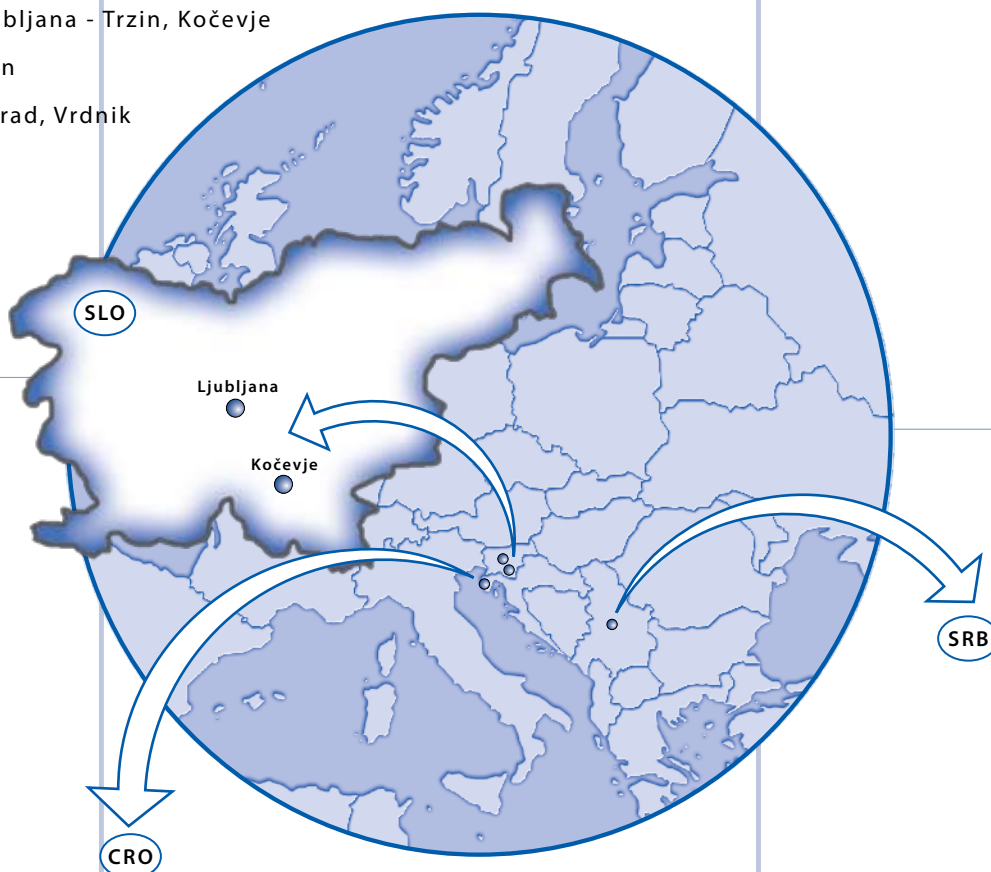
August 2012



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