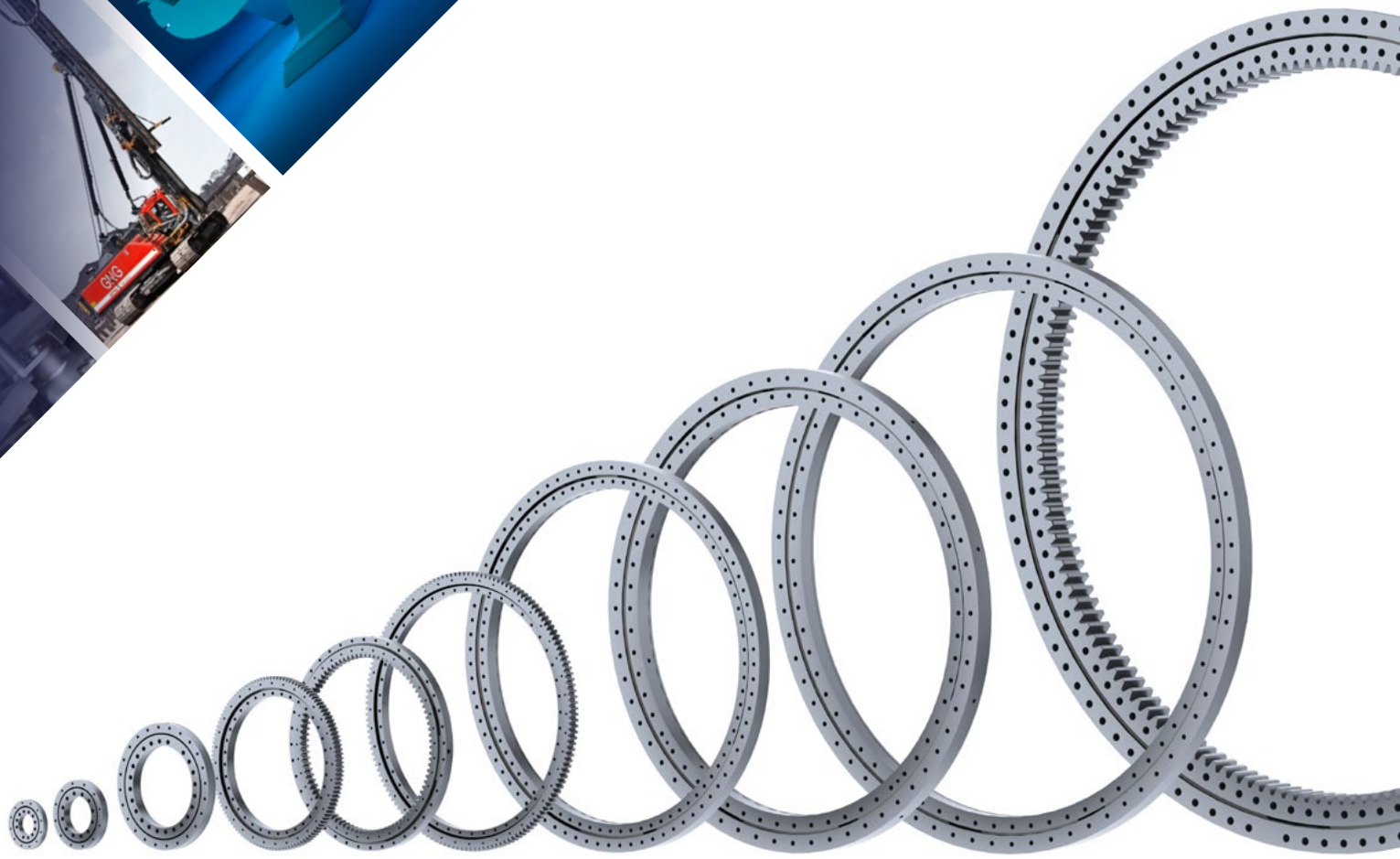
CATALOGUE

SLEWING RINGS



ROLLIX®

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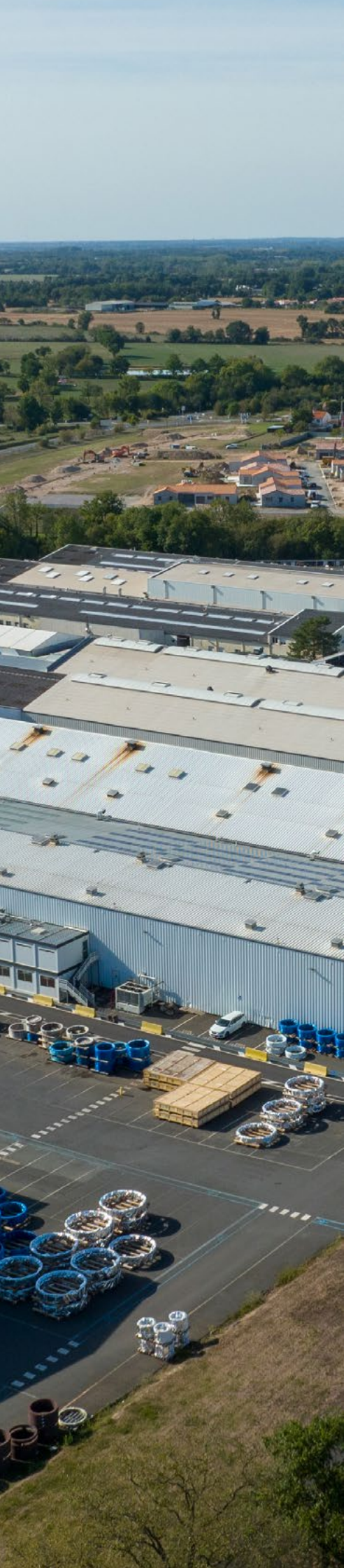

1

INTRODUCTION

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1. Introduction

1.1. Our company

Defontaine Group was founded in 1946 around the unique technology of flash-butt welding. The group designs and manufactures complex mechanical parts and sub-assemblies. With three production sites (France, China and Tunisia), Defontaine Group is renowned for the quality of its products and its services, as well as for its loyalty and proximity to its customers and partners.

The Rollix brand was created in 1969 to design and manufacture slewing rings and special bearings with outside diameters ranging from 100 mm to 6 m, with or without gear. Since its inception, Rollix has manufactured and sold more than one million slewing rings for machine tool, transport, marine, medical and wind turbine applications. The vast majority of Rollix's production is exported.

Every day, Defontaine Group takes action to help its customers meet their sustainable development needs. We implement tangible measures to reduce our environmental impact throughout the lifespan of our parts. Our certifications guarantee that our products are designed and manufactured to the highest standards:

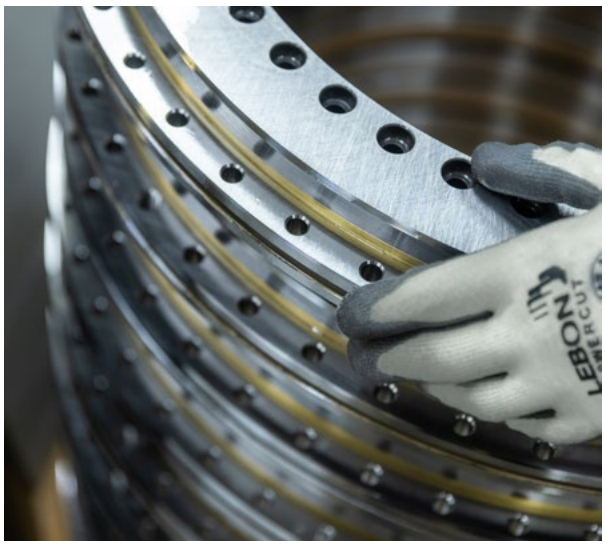
ISO 9001: 2015, ISO 45001: 2018, ISO 14001 et ISO 50001.

For more information on the Rollix brand and Defontaine Group, visit our website:

https://www.defontaine.com/

To buy online, visit our e-shop:

b2b.defontaine.com



1.2. Advantages of the slewing ring

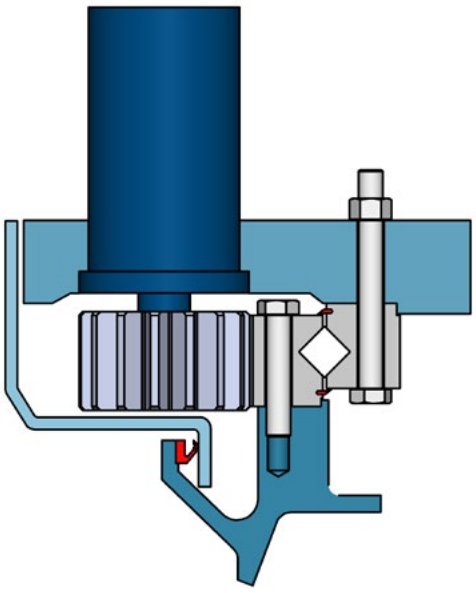
The slewing ring offers a number of advantages over a conventional bearing assembly and is increasingly being used as a standard mechanical component.

These include:

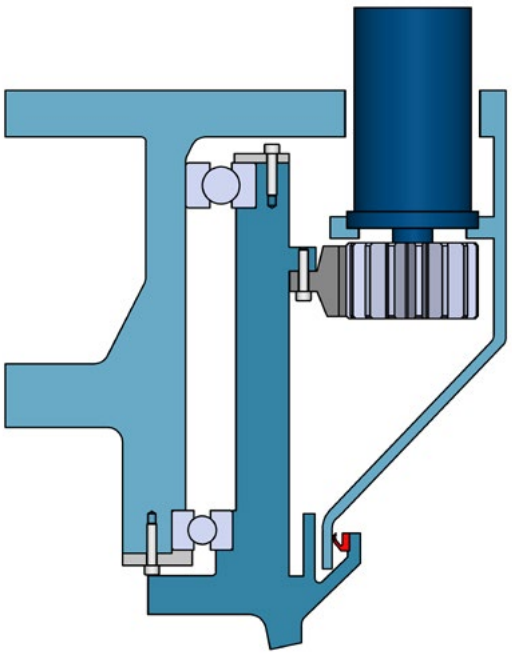
- Reduced number of parts
- Simplified machining
- Quick and easy to assemble
- Reduced space requirement
- Decrease in total weight...

Example:

System with a slewing ring

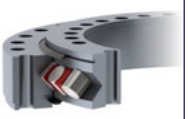
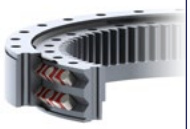
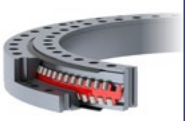


System without a slewing ring



1.3. A range of possible applications

In order to meet the needs of as many applications as possible, Rollix has developed a wide range of standard products.

		EXTERNAL GEAR	INTERNAL GEAR	WITHOUT GEAR
STANDARD BALL SLEWING RINGS	Single row			
	Single row "thin sections"			
	Double row			
LIGHT SERIES BALL SLEWING RINGS	L-shaped profiles			
	Square sections			
STANDARD CROSSED ROLLERS SLEWING RINGS	Single row			
	Double row			
PRECISION SLEWING RINGS	Compact			
	Compact Light			
	RT "Rotary Table"			
SPECIFIC SLEWING RINGS	HD-R "Heavy Duty - Radial"			
	DR-S "Double Row - Speed"			

Construction

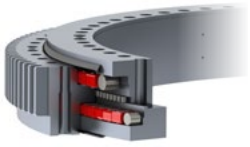
- Construction cranes
- Grapple cranes
- Hydraulic excavators
- Trenchers
- Cold milling machines
- Concrete mixers
- Drilling equipment

High preload and stiffness
Large diameter slewing rings in stock
Specific design for extreme applications

Packaging and bottling

- Blowing machines
- Bottle rinsers
- Filling machines
- Bottle capping machines
- Packaging machinery
- Labelling machines

High-speed capability
Optimised sections
Gear quality and specific designs
Easy maintenance



Wind turbines

- Onshore and offshore blade bearings
- Yaw bearings
- Rotor bearings

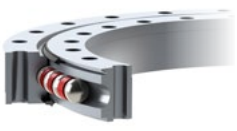
Finite Element Analysis (FEA) validation

Full-scale test benches

Largest global market share

Widest range of spare parts on the market

Service capabilities for your slewing rings



Forestry & Farming

- Harvesters
- Harvester felling heads
- Forest forwarders
- Skidders
- Debarkers
- Harvesting machinery

Designed for rough operating conditions (+ very high rotation speed for debarkers)

Controlled preload and torque:

- To limit clearance increase
- To ensure smooth operation of harvesters, tracked carriers, and skidders
- To extend service life and guarantee productivity

Machine tools & Robotics

- Robots
- Machine tools
- Indexing tables & welding positioners
- CNC tables
- Milling heads

Grinding of raceway
Systematic pairing & slewing rings preloaded
Reliability & precision validated on test benches
High speeds
Dedicated precision range

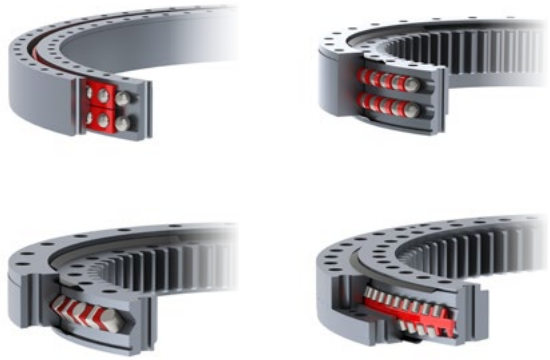
Handling & Mining

- Aerial work platforms on carriers
- Self-propelled aerial work platforms
- Maintenance cranes for high-rises
- Platforms
- Automated production lines (turntables)
- Underground mining vehicles
- Stacker recovery systems
- Thickeners / Clarifiers
- Dumper trucks

Unique sealing solutions
Designed for rough operating conditions
Preloaded slewing rings

Marine

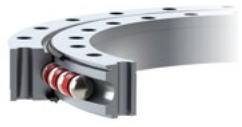
- Wind propulsion
- Azimuth thrusters
- Walkways for wind turbine maintenance
- Cranes for wind turbine maintenance
- Winches for fishing or oceanographic research
- Offshore cranes
- Mooring systems for floating wind turbines



Central lubrication system
Unique sealing solutions
Offshore-specific surface treatments
Marine certifications

Medical

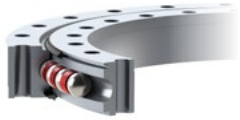
- Radiology
- Scanners
- Diagnostic tables
- Pharmaceutical production line



Reduced noise in rotation (tested in our anechoic chamber)
High-precision slewing rings
Compact solutions
Very low rotating torque

Transportation

- Metros, trams, tram-trains, light automatic vehicles
- Self-propelled modular trailers
- Airport mobile equipment



50 years of railway expertise
Lasting lubrication and central lubrication system
Finite Element Analysis (FEA)
Slewing rings designed for railway applications

Special applications

- Radar for civil and military applications

High-precision guidance
High stiffness
Harsh environmental conditions
Optimised ring weight through specific materials and designs

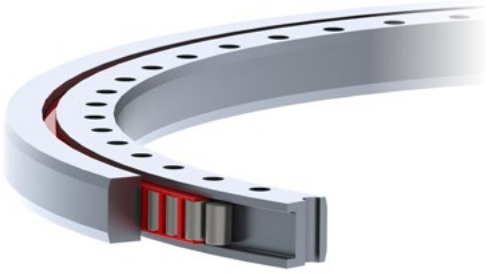
1.4. Rollix specific designs

To meet the most specific requirements, Rollix can design custom slewing rings on request.

Very thin section (with or without fastening holes)

An alternative between a bearing and a slewing ring. Hybrid assembly, limited space requirement, reduced cost.

Radial bearing (with or without fastening holes)

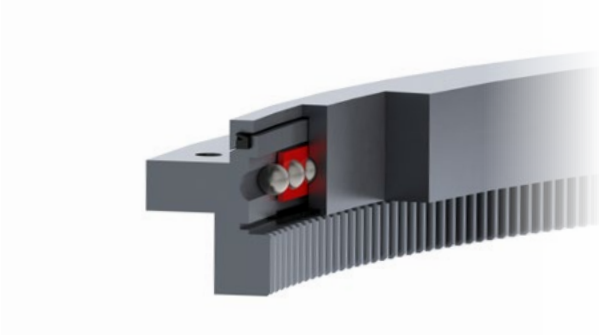


An alternative between a bearing and a slewing ring. Hybrid assembly, limited space requirement, reduced cost.

Triple-ring and dual rotation slewing ring

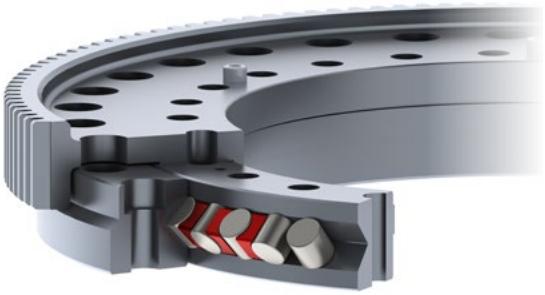
A compact solution with dual rotation.

Slewing ring with internal gear on external ring



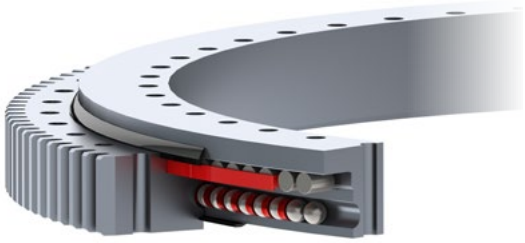
A compact, weight-saving solution.

Slewing ring with add-on gear



With add-on gear and reduced overall dimensions.

Combined roller and ball slewing ring



A cost-effective solution for applications with predominantly axial loads.

1.5. Rollix specific solutions

1.5.1 Supply of full modules

Rollix can offer a turnkey solution tailored to your specific needs:

- Supply of pinions
- Supply of geared motors (with Rollix partners)
- Supply of motor support
- Supply of cylinder mounting brackets
- Integration of sensors
- Lubrication solutions
- Full assembly and testing to specification.

Please contact the Rollix design office with your specifications.

1.5.2 Permanently lubricated slewing rings

If your application meets the requirements, Rollix can supply its lifetime lubricated version (-EV).

- Technology: Rollix sealing
- Unique finish quality due to raceway grinding
- Technology validated on our test benches.

This range allows you to:

- Reduce lifespan maintenance costs by 50%.
- Have an eco-friendly product: no used lubricants to dispose of
- Reduce maintenance time
- No lubricant stock management.

Please contact our technical services to determine the eligibility of your application.

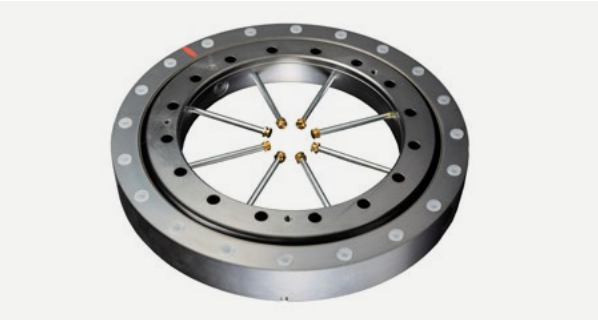
1.5.3 Automatic lubrication systems

In order to adopt the best possible lubrication option for your system, Rollix can offer the following solutions:

- Lubricators fitted on the slewing rings

If the installation allows it, the lubrication systems can be connected directly to the lubrication holes screwed into the slewing ring holes.

- Remote lubrication to the centre of the slewing ring

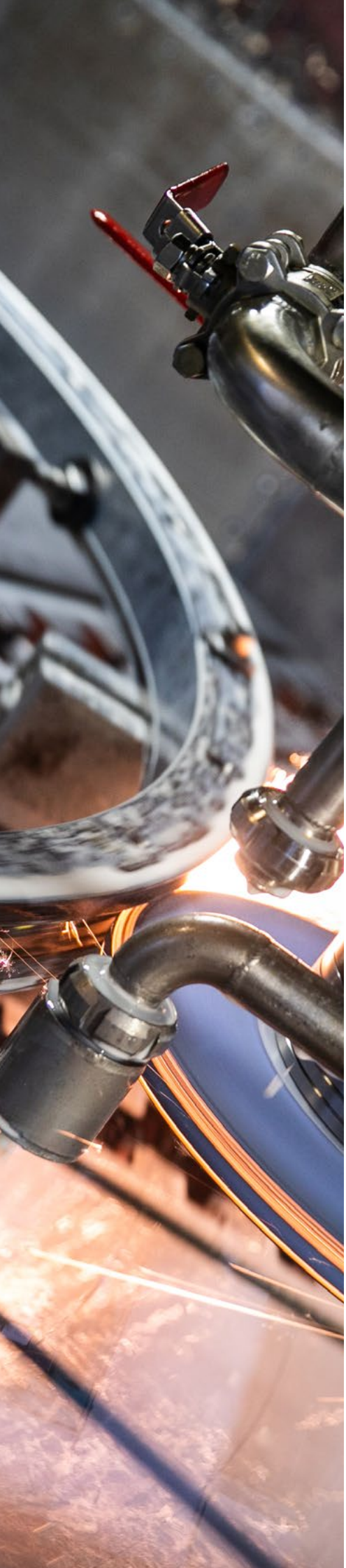


Extensions can be added if the environment prevents direct access to the slewing ring lubrication holes.

- Centralised lubrication with distribution

If there is only one lubrication hole, using a centralised distributor will ensure that the lubrication is evenly spread across all the lubrication ports.

Other solutions, such as lubricating pinions, can also be implemented.



2

ROLLIX KNOW-HOW

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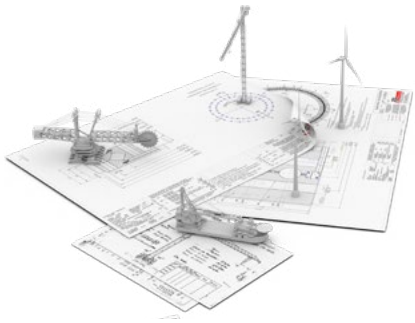
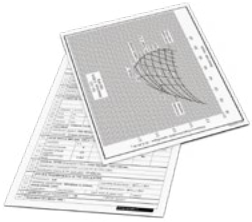
2.1. Rollix expertise

The Rollix design office creates unique, customised solutions to fulfill the most specific needs. The design office uses its own application to design according to customer requirements while adhering to international standards and regulations:

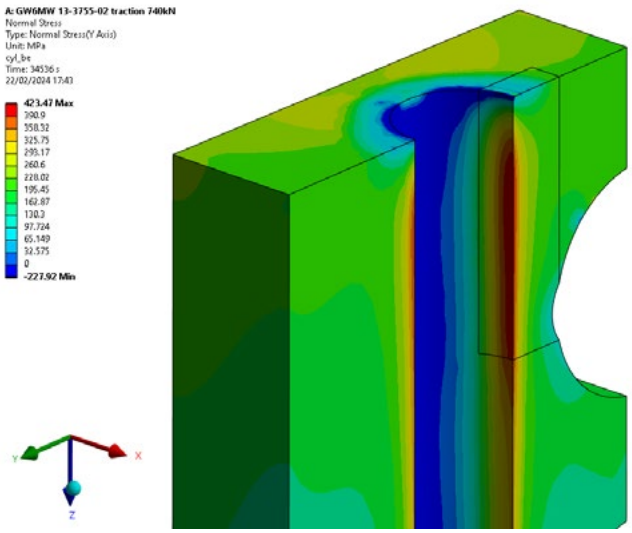
- Validation of service life in accordance with ISO TS 16281
- Validation of the bolts in accordance with VDI 2230
- Validation of gears in accordance with ISO 6336.

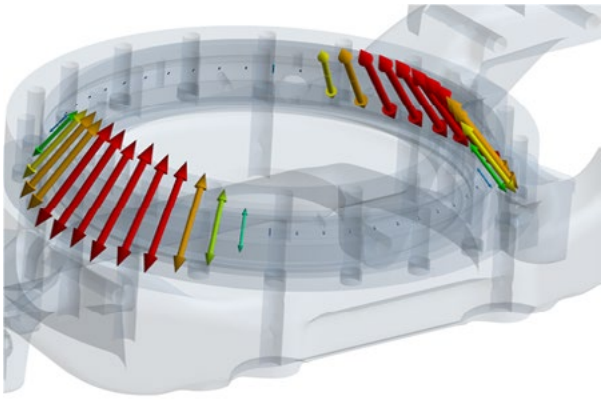




Depending on the application, Finite Element Analysis (FEA) can be carried out to assess:

- Load distribution in rolling elements
- Deformations and stresses in the overall model
- Stress levels on the rings and interfaces.





Rollix has a number of test benches to test the various designs and components of our slewing rings and to validate our calculation models:

- Test benches focusing on raceway testing (static capacity and service life)
- Test benches dedicated to testing rolling elements (balls, rollers)
- Test benches focusing on lubricants (FEB performance)
- Specific 1:1 scale test bench for slewing rings up to Ø4 m
- Other test benches (parameters/components tested: noise, sealing, torque, stiffness, speed, lubrication system, separator, new bearing technologies, etc.).

2.2. Certifications

Where applications require it, several levels of certification are possible:

- Design certification
- Materials certification
- Slewing ring manufacturing certification.

Rollix works with various certification bodies on a regular basis:

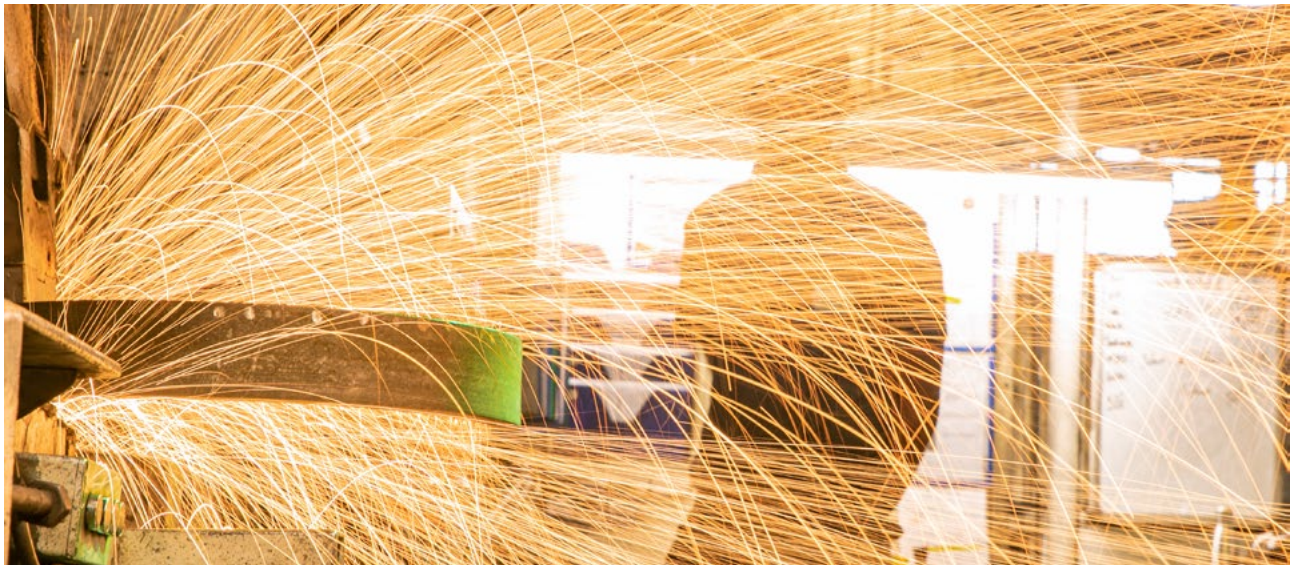
2.3. Different processes

2.3.1 Raw material processing: flash-butt welding

Defontaine Group is renowned for the quality of its raw materials, produced in-house thanks to its long-standing expertise in flash-butt welding.

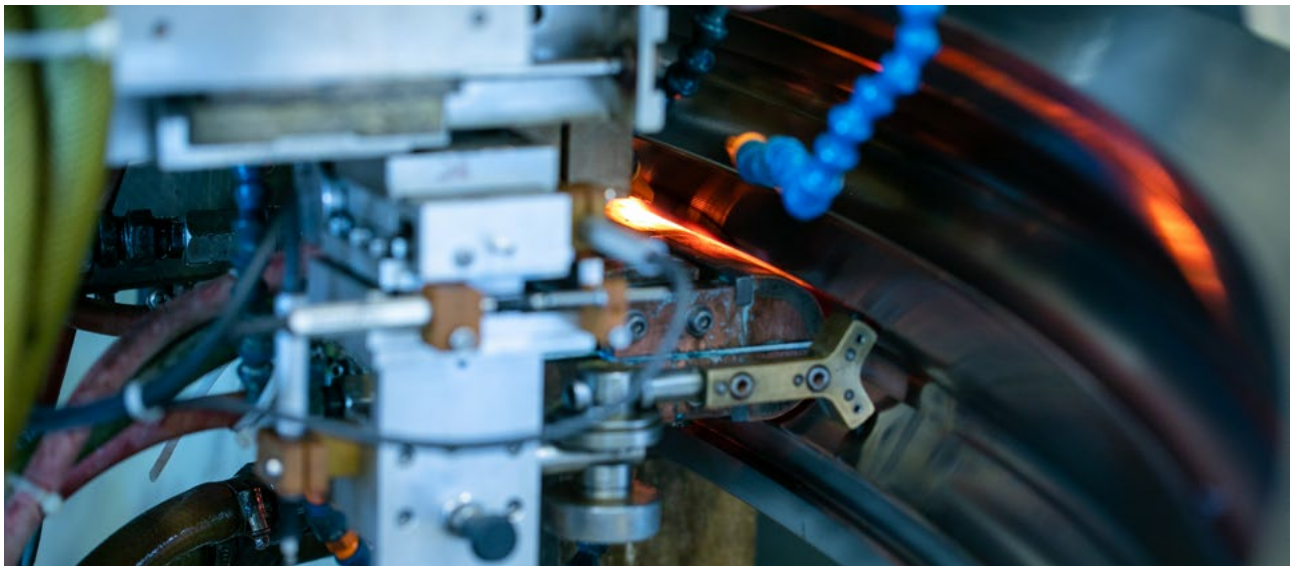
This process guarantees the best possible lead times and a reduction in material costs for our customers.

Starting with a long product (bars), Rollix uses this know-how to produce the blanks for its slewing rings. A low-voltage, high-intensity current is passed through the previously bent bar, bringing both ends to melting temperature and creating lively sparks. The two ends are then forged together, with the excess metal being ejected outwards. Powerful, reliable and cost-effective, this butt welding process allows bars and profiles to be welded without the addition of metal, reducing material costs and machining times.



2.3.2 Heat treatment of raceways and gears

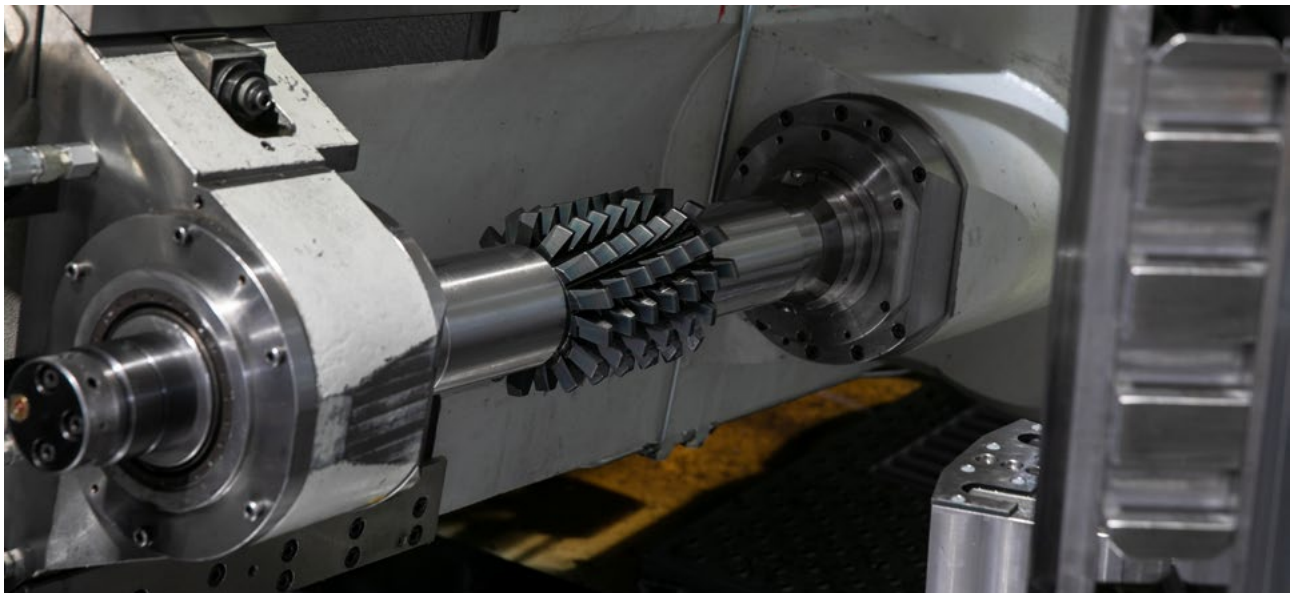
Induction heat treatment or induction hardening is a non-contact system for heating metals by passing an electric current through them, followed by cooling with the spraying of a mixture of water and polymer. This treatment increases surface hardness to provide better resistance to wear and loads. All Rollix slewing rings raceways are induction-treated. Internal or external gears can also be hardened if required.



2.3.3 Gear cutting

Internal or external, straight or helical gears (for external gears only) can be cut using 3 different processes:

- Gear cutting, tooth by tooth, using a milling cutter with disc inserts
- Generation with skiving cutters (or pinion tools)
- Generation with hob cutters (for external gears only).



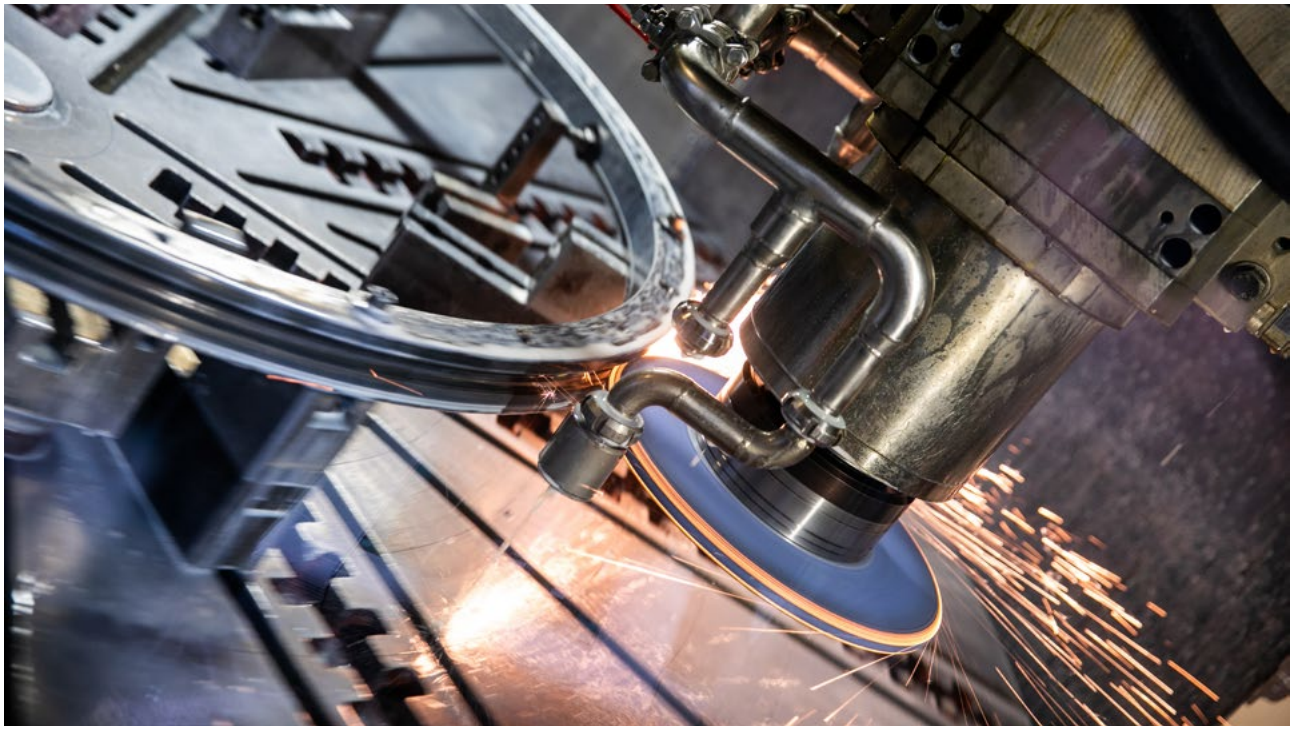
2.3.4 Grinding

Rollix offers the best reliability and precision for your application throughout its lifetime.

Surface or cylindrical grinding is a finishing process that is designed to produce high quality metal parts with a high degree of precision in the micron range.

By grinding the raceways of Rollix slewing rings, we can guarantee the profile quality and control the preload of the slewing ring.

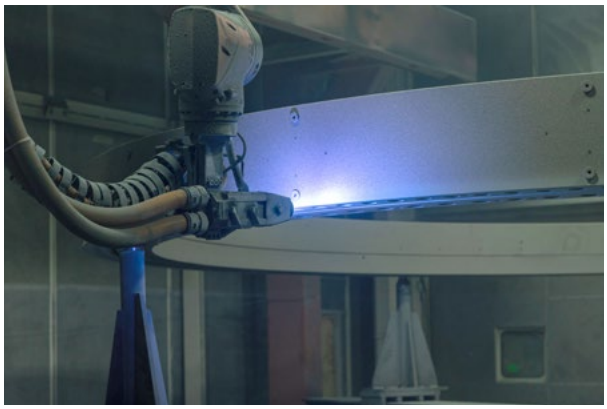
Front and diameter grinding is also possible to reduce run-out tolerances for high-precision parts.



2.3.5 Surface treatments

Rollix has a range of corrosion protection solutions to offer:

- Zinc spray coating only (salt spray resistance > 2500 hours in compliance with ISO 9227)
- Paint only (salt spray resistance > 1000 hours in compliance with ISO 9227)
- Zinc spray coating + painting (up to CX in compliance with ISO 12944)
- Electrolytic zinc plating (salt spray resistance up to 1000 hours red rust appearance)
- Anodising
- Chemical nickel plating
- Stainless steel passivation
- ASO (Anodic Sulphur Oxidation) on titanium
- Phosphating
- Others (please contact us).



2.4. Quality control

2.4.1 Dimensional control

Rollix has all the control equipment needed to validate the slewing rings:

- Control with a coordinate-measuring machine (CMM)
- Control of raceway profiles
- Gear control in compliance with ISO 1328
- Roughness control
- Diameter control with control bars and dial indicator.

2.4.2 Functional control

Rollix has specific resources at its disposal to validate the correct operation of the assembled slewing ring:

- Control of out-of-round gear
- Rotating torque control
- Deflection control under load
- Sealing control (leak rate, pressure resistance)
- Rotation noise level control.

2.4.3 Non-destructive control

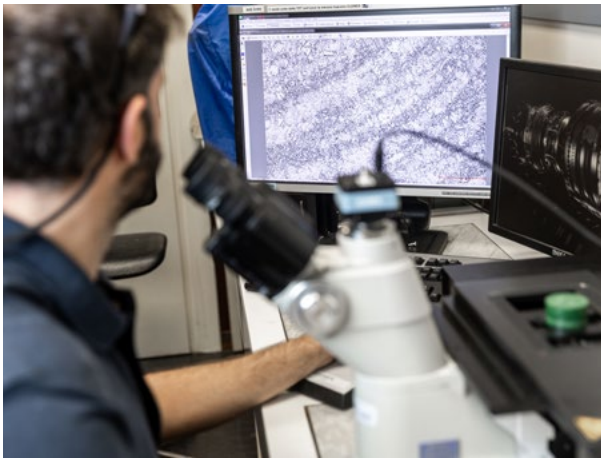
Rollix is equipped with non-destructive testing equipment used to guarantee product conformity:

- Ultrasonic material testing (UT) for absence of indications
- Magnetic particle inspection (MPI)
- Checking the depth of the treated layer after induction hardening
- Checking surface hardness after induction hardening
- Checking surface treatment thicknesses using a permascope.

2.4.4 In-house laboratory

Rollix has an in-house laboratory for carrying out various destructive tests on metallic materials (bars, rings, rolling elements), thermoplastics (spacers) or elastomers (seals):

- Mechanical tests (tensile, creep, hardness)
- Metallographic tests (macroscopic and micrographic examinations)
- Heat treatment tests
- Salt spray tests
- Viscosity tests.



2.5. Services

The After-Sales Service offers a range of services to support you before and after your purchase. In particular, it gives you access to an unrivalled range of expertise and measurement tools.

Our qualified technicians are able to work in a wide range of specific environments (working at height, offshore, GWO (Global Wind Organisation), etc.).

You can also watch our video tutorials:

You can benefit from the Rollix experience through our various services:

2.5.1 Installation of the slewing ring on site

Support geometrical validation

In order to achieve optimum service life for a slewing ring, it is essential to use supports of the same quality as the rings themselves (see section 5.1).

For this reason, we offer our customers a flatness check on their purchased or manufactured supports. Our measuring equipment enables us to produce an accurate mapping so that you can be sure that a slewing ring is installed under the correct conditions.

Assembly supervision

In order to validate all assembly stages carried out by you or your subcontractors, Rollix offers a first level of support.

Mounting assistance

The assembly of a slewing ring requires very specific technical resources to ensure a long service life. Rollix can offer a range of services for both new and reconditioned machines:

- Validation of supports flatness
- Reworking of surfaces by machining or application of plastic cement if necessary
- Installation of the slewing ring
- Start-up test.

Bolt tightening

Due to the sometimes imposing dimensions of the bolts, the environment close to the slewing ring and the level of tightening required, Rollix offers tightening with a hydraulic tensioner or wrench.

Validation of the assembly process

To ensure that your application runs smoothly, Rollix can check the assembly process for its slewing rings. Rollix will work with your teams to assemble one or more slewing rings in order to validate, point by point, all the steps required to ensure a long slewing ring service life.

2.5.2 On-site customer services after commissioning

Replacing components

The slewing rings are fitted with integral seals that require special attention throughout the life of the bearing. In fact, they are the only part of the slewing ring that wears out and ensures that the quality of lubrication is maintained. It is therefore sometimes necessary to replace them.

Lubrication analysis

This analysis shows if the grease is contaminated.

- It is carried out periodically (assessment of the wear rate of the slewing ring).

or

- Punctually for pollution analysis.

In both cases, the analysis provides a diagnosis of the slewing ring's general condition and its components.

Slewing ring inspection

Depending on environmental constraints, an on-site inspection of the slewing ring may be required.

Videoscopy

According to slewing ring's configuration,, we can offer videoscopy surveys to visualise the condition of the raceway (rolling elements, cage and raceway).

The video head is inserted through the lubrication hole.

2.5.3 In-house Rollix inspection

When slewing rings arrive at our workshops, Rollix offers a thorough inspection to determine the level of wear and to assess the possibility of retrofitting.

Functional check

Carrying out all the functional checks (deflection under load, torque, run-out), which are then compared with those carried out at the plant before delivery.

Visual check

Disassembling of the slewing rings.

Assessing of rolling elements and raceway condition.

Expert report

After each inspection, you will receive an illustrated report. Depending on the initial request, this report can be used as a basis to set up a quotation for the reconditioning of the surveyed slewing ring, thus enabling its extended use.

Initial visual and functional checks are repeated after each analysis.

3

COMPOSITION OF A SLEWING RING

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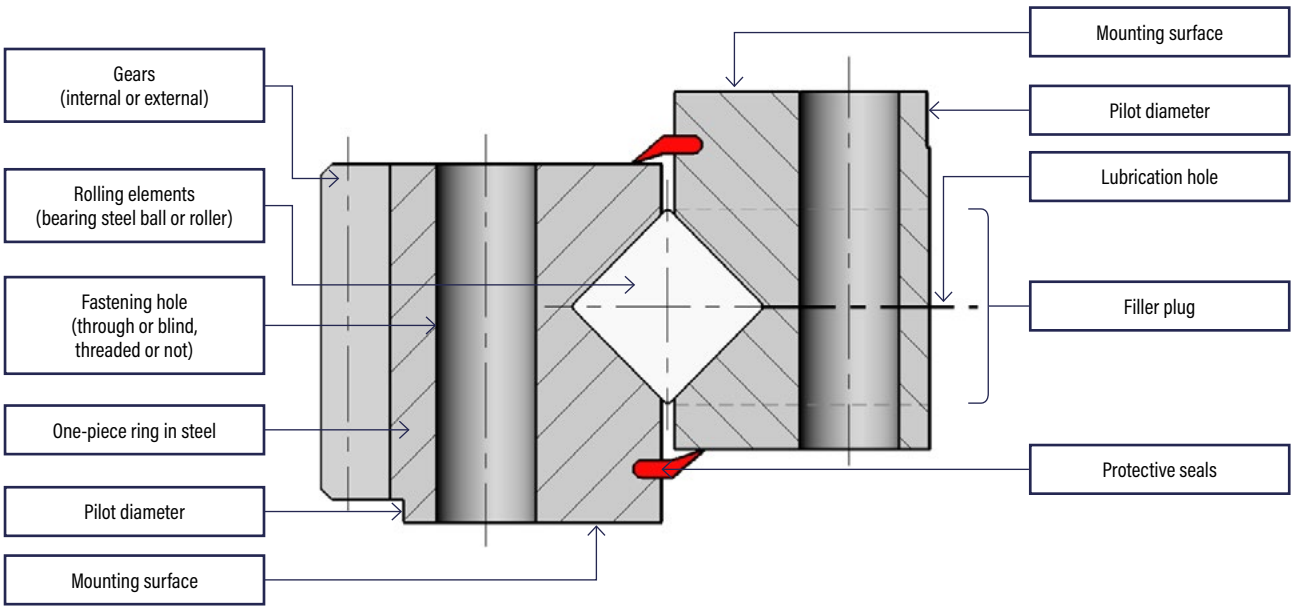
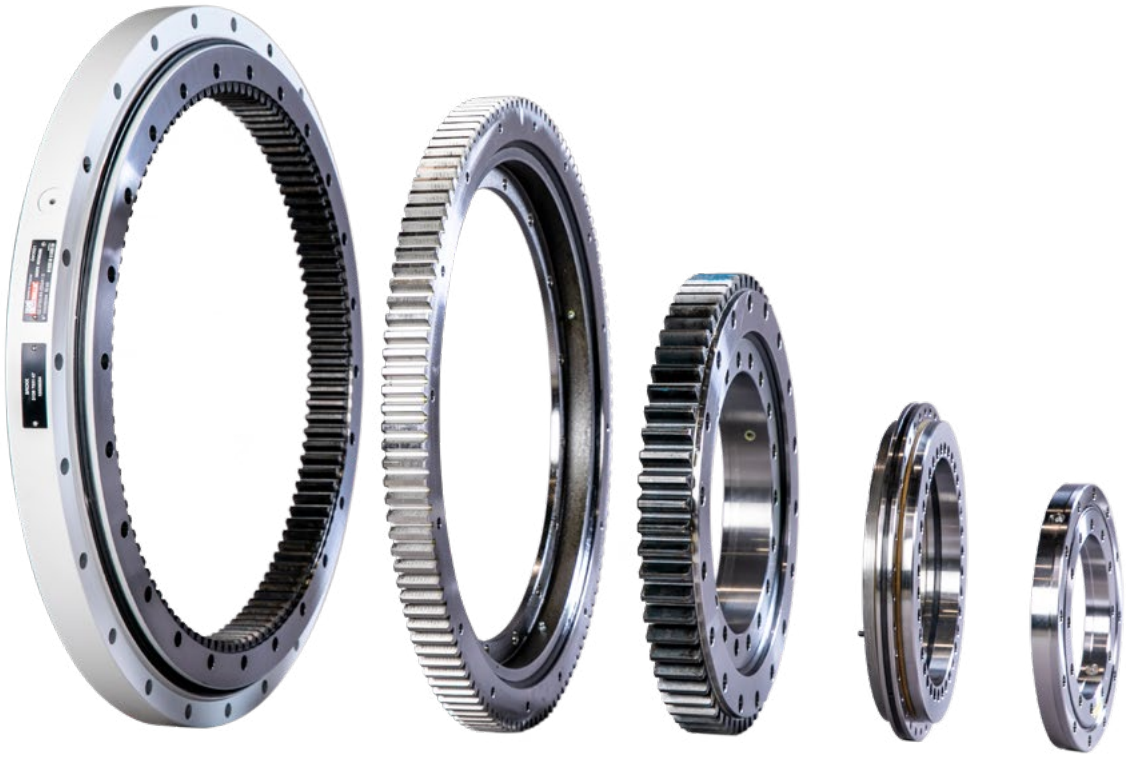
3.1. Component parts

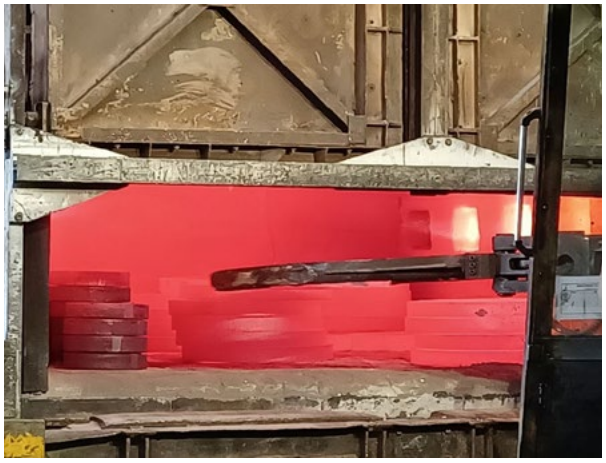




3.2. Ring materials

Rollix defines the specifications for the most suitable materials for slewing rings. These materials are produced by approved steel mills. They are delivered to Rollix either in the form of round rolled steel or in the form of rolled and flash-butt welded steel bars (flat or billet).

Controls are carried out at every significant stage of the manufacturing process to guarantee product quality. Rollix usually selects fine carbon steel grades featuring alloying elements to meet functional requirements (42CrMo4 or XC45).



Other ring materials

The specific nature of certain applications or particular functional requirements may mean the use of materials such as:

- Stainless steel
- Bearing steel
- Special steel for extremely low temperatures
- Aluminium-based alloys
- Titanium alloys
- Other specific designs.

3.3. Sealing solutions

Rollix slewing rings are fitted with protective seals on both sides of the raceway. The purpose of these seals is to:

- Protect the raceways from external contamination.
- Keep the lubricant in the raceway enclosure when the slewing ring is in operation.

Depending on the application, different solutions are available:

- **Standard sealing:** the seals allow used grease to escape during regreasing.
- **Strengthened sealing:** the seals retain the grease. A solution for removing used grease must be adopted when new grease is introduced.
- **Mixed sealing:** it is possible to install a standard seal on one side of the raceway and a reinforced seal on the other.
- **Specific sealing:** for marine or wind turbine applications, it is possible to superimpose several seals or to use spring-loaded seals for continuous rotation at different speeds.

Thanks to its R&D department, Rollix has developed specific profiles to meet your requirements. These different solutions are validated on our test benches.

It is important to note that seals are wearing parts. They may therefore need to be replaced during the life of the slewing ring.

If significant lubrication leaks are observed during operation, the following checks should be carried out:

- Ensure that the protective seal is still correctly in place.
- Check that it is not damaged (cut, torn, worn).
- Ensure that the slewing ring still functions properly.

Depending on the situation, the seals can either be refitted or replaced.

OPERATING CONDITIONS	VARIATIONS
Normal : -30°C to 70°C Punctual : -40°C to 90°C	Nitrile rubber NBR
Extreme: Θ < -30°C ; 70°C < Θ < 180°C	Specific
Specific (various physical and chemical aggressions)	Specific

3.4. Rolling elements

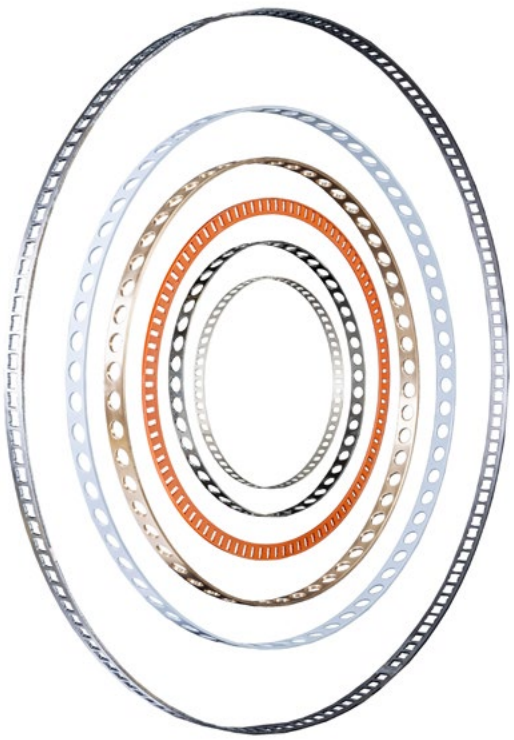
Rollix's rolling elements (balls or rollers) are supplied according to precise specifications.

Suppliers are approved after our in-house laboratory validates their metallurgical and dimensional capabilities, as well as their performance on our test benches.

3.5. Cages and spacers

In order to best meet customer requirements, Rollix designs cages and spacers for balls and rollers.

Different types of materials or coatings are used depending on the operating conditions (speed, noise, torque resistance, wear resistance, etc.).



4

SLEWING RING CHARACTERISTICS

CONTENTS

4.1. Estimating loads

The slewing ring connects a moving part to a fixed base. It must be able to transmit forces from the moving part to the fixed one. In order to define the appropriate capacity, it is necessary to have a precise knowledge of the actual forces acting on the slewing ring. This includes the effects of the masses and inertias of the loads and structures.

It is important to distinguish between fixed and variable loads, as well as the effects of dynamic loads, these last creating "fatigue" load conditions.

It is necessary to know the direction of the forces relative to the slewing ring axis in order to determine the active torsor.

It is therefore essential to specify the resulting torsor applied to the centre of the slewing ring, i.e.:

Resulting torsor:

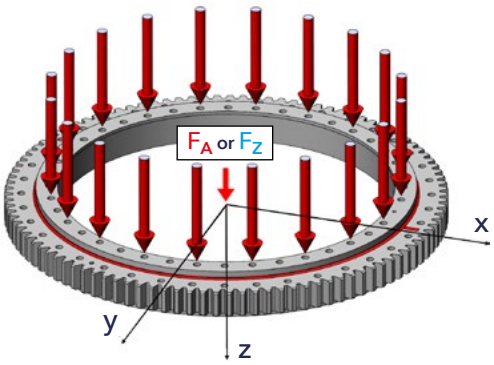
$$\tau = \begin{Bmatrix} F_x & M_x \\ F_y & M_y \\ F_z & M_z \end{Bmatrix}$$

OR

Axial and radial forces, tilting moments and torques (F_A, F_R, M_T, C_D).

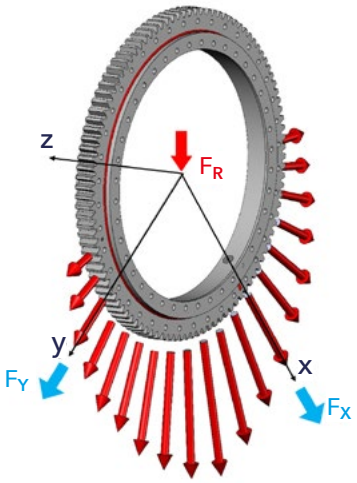
Axial loads

The direction is parallel to the rotation axis of the slewing ring. The result of these loads will be referred to as F_A or F_Z.



Radial loads

They are contained in planes perpendicular to the rotation axis. The result of these loads will be referred to as F_R, or the projected components F_X and F_Y.

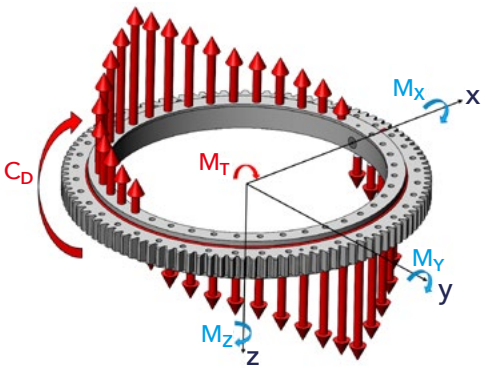


Tilting moment

"Tilting" in planes parallel to the rotation axis. The moment resulting from M_X M_Y, relative to the plane containing the rotation axis, will be referred to as M_T.

Rotating torque C_D, M_z

It rotates the slewing ring.



Correspondence chart for results in an orthonormal coordinate system:

F_A	F_z
F_R	$\sqrt{(F_z^2 + F_y^2)}$
M_T	$\sqrt{(M_x^2 + M_y^2)}$
C_D	M_z

Determining the equivalent load

For a pre-dimensioning calculation, the result of the F_R radial loads is transposed into an equivalent axial load using a K_R factor as follows:

- For standard slewing rings:
  - If $\frac{F_R}{F_A} < 0.25$ $K_R = 0.5$
  - If $0.25 < \frac{F_R}{F_A} < 1$ $K_R = 1.5$
  - If $\frac{F_R}{F_A} > 1$ $K_R = 2.4$
- For light series and square sections:

  $K_R = 3.225$

The **F_{eq} equivalent load** to be used for the calculation is given by the formula:

- For slewing rings in a horizontal position (vertical rotation axis): $F_{eq} = F_A + K_R . F_R$
- For slewing rings in a vertical position (horizontal rotation axis): $F_{eq} = F_A + 1,2 . K_R . F_R$

4.2. Defining application criteria

Knowing the loads and conditions of use: type of movement, speed, acceleration, temperature, ambient environment, etc. enables the slewing ring's "bearing" function to be designed and sized.

The **applied forces** are transmitted from one ring to the other via the raceway in different ways depending on their nature.

To size the raceway, we determine the equivalent load based on all external forces. These forces are allocated coefficients based on their application, the manner in which they are exerted, etc.

It includes:

- The utilisation factor K_U
- The safety factor K_S
- The application factor K_A.

The utilisation factor K_U

It is defined according to specific operating modes: vibrations, shocks, occasional or accidental overloads. A factor of 1 is applied by default.

The safety factor K_S

It is defined on the basis of standard or regulatory criteria: FEM, LLOYDS, API, etc. for applications with this type of requirements. It is generally set to 1 because the mechanism designer must take into account the regulatory parameters when calculating the loads applied to the slewing ring.

The application factor K_A

This coefficient takes into account the specific nature of the application in relation to the slewing ring element. This factor is based on Rollix experience. It is defined in the following lists:

NB: The application factor **K_A** is only to be used for independent pre-dimensioning. It is not necessary to apply it to the loads that you have submitted to the Rollix design office.

CONSTRUCTION	K_A
Cranes	
High rotation tower crane	1.65
Low rotation tower crane	1.80
Telescopic mobile crane	1.65
Mobile cable crane	1.50
Harbour crane: tipper	1.80
Harbour crane: hook	1.65
Clamshell crane	1.65
Grapple crane / magnetic	1.80
Lorry crane	1.50
Railway crane	1.50
Others	1.65
Excavators and similar equipments	
Hydraulic excavator	2.00
Cable excavator	1.65
Dragline excavator	1.60
Concrete pump	1.65
Coal / bulk / silo loader	1.65
Others	1.50
Civil engineering	
Compactor	2.00
Vibratory compactor	2.20
Concrete mixer lorry	2.40
Drilling rig: orientation	1.65
Drilling rig: drill bit rotation	2.00
Drilling rig: auger	1.90
Concrete mixer	2.40
Others	2.00

PACKAGING AND BOTTLING	K_A
Filling machine	1.35
Blowing machine	1.35
Bottle capping machine	1.35
Others	1.35

FORESTRY AND FARMING	K_A
Forestry crane	1.80
Harvester felling head	2.00
Shredding machine	1.60
Grapple skidder	1.80
Skidder	1.80
Debarker	1.50
Bogie	1.90
Trailer coupling	1.65
Silo unloading screw	1.60
Others	1.35

MACHINE TOOL AND ROBOTICS	K_A
Machine tool	1.35
Tool changer	1.35
Machining turntable	1.35
Loading turntable	1.35
Robotics - any axis	1.65
Milling head	1.35
Indexing table	1.35
Welding positioner	1.35
Others	1.35

HANDLING AND MINING	K_A
Forklift truck: fork rotation	1.35
Forklift truck: wheel	1.50
Turntable	1.35
Turnstile	1.50
Conveyor system	1.35
Rotary distributor	1.35
Vibratory feeder	1.50
Platform with base rotation	1.50
Nacelle with top rotation	1.35
All-terrain platform	1.50
Mining/quarrying machinery	2.00
Others	1.35

MARINE	K_A
Tow winch	1.50
Furling winch	1.65
Net winch	1.65
Cable winch	1.65
Orientation winch	1.40
Capstan winch	1.35
Gangway	1.70
Mast for wind propulsion	1.80
Thruster	1.80
Shipboard crane: easement	1.35
Shipboard crane: loading	1.65
Launching trolley	1.50
Launching system	1.50
Offshore crane	1.80
Straddle carrier	1.50
Others	1.40

MEDICAL	K_A
Radiology	1.35
Scanner	1.60
Diagnostic table	1.35
Others	1.35

TRANSPORTATION	K_A
Bogie	1.90
Trailer coupling	1.70
Aircraft towing equipment	1.60
Others	1.35

SPECIFIC APPLICATIONS	K_A
Slow radar	1.35
Rapid radar	2.40
Weaponry	1.50
Water treatment	1.35
Fairground ride	2.60
Others	1.35

4.3. Selecting the slewing ring according to the static capacity of the raceway

The load capacity of a slewing ring is calculated according to its performance according to:

- Its geometric envelope,
- The type of materials used to manufacture the rings,
- The heat treatments carried out,
- The nature, number and size of the rolling elements,
- The contact parameters of the rolling elements.

The maximum permissible capacity curve is plotted on a graph where the Ox axis carries the equivalent axial load and the Oy axis the tilting moment. This is known as the "limit curve".

The slewing ring is sized by comparing the point representing the loads with this curve. This point, called P "application point", has the following coordinates:

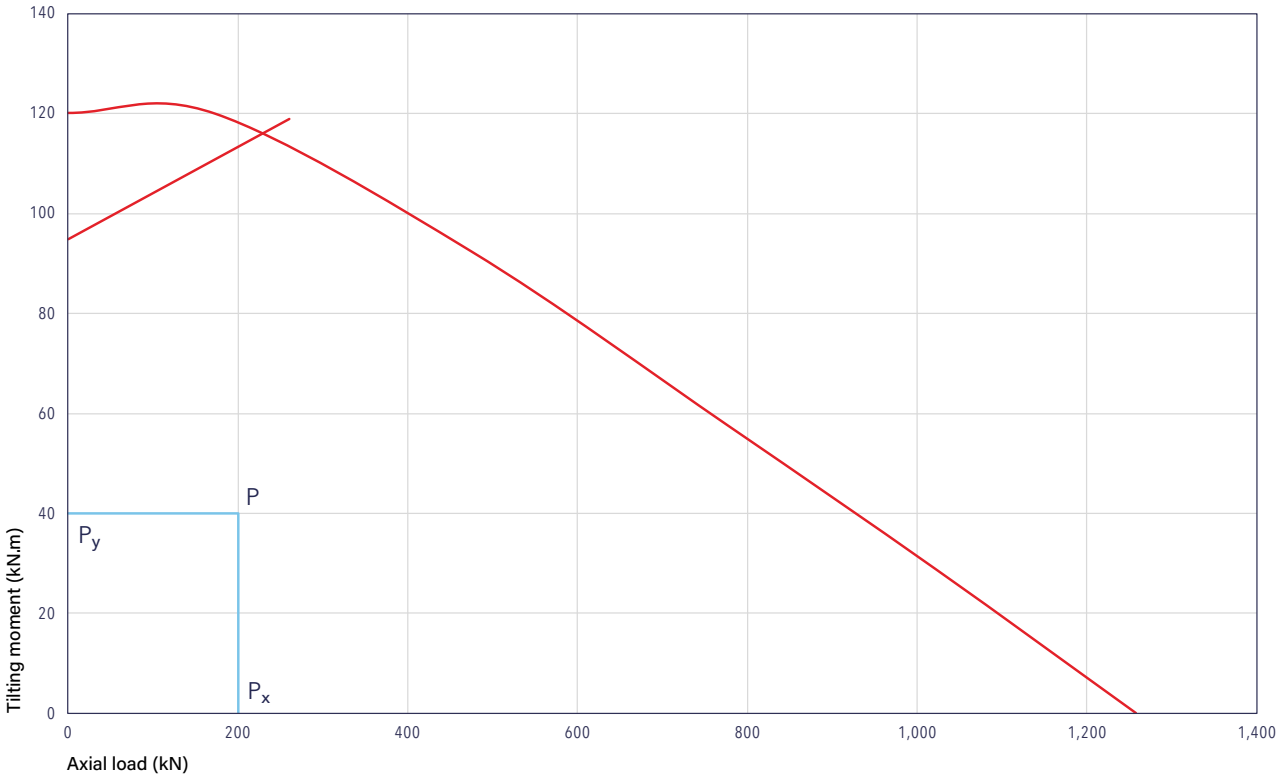
- On the horizontal axis:

$$P_x = F_{eq} \cdot K_A \cdot K_U \cdot K_S$$

- On the vertical axis:

$$P_y = M_T \cdot K_A \cdot K_U \cdot K_S$$

In all cases, the application point P must be below the limit curve.



4.4. Service life

Regardless of whether slewing rings are used for continuous or partial rotation, their service life must be regularly checked. The life of the gear may also be subject to verification. Please contact the Rollix design office for more information.

4.5. Fastening

In order to transmit the forces, the slewing ring must be mechanically fastened to the associated chassis so that the slewing ring is fully secured to its supports.

Several fastening methods are possible, the most effective being the bolting connection. Welding operations should be avoided altogether.

The correct definition of the fastening bolts and their installation in accordance with good engineering practice will determine the correct operation of the slewing ring and the safety of the application.

Bolt quality

ISO 898-1 defines the quality classes of bolts suitable for the assembly of structures such as slewing rings.

- Rollix recommends the use of high strength rolled thread bolts after heat treatment to class 10.9, and exceptionally class 8.8 or 12.9.
- Nuts must be of a class equal to or greater than that of the associated bolt. Rollix recommends a nut height equal to the bolt diameter (d).

For Z or N normalised steel slewing rings, heat-treated flat washers must be used. They must have:

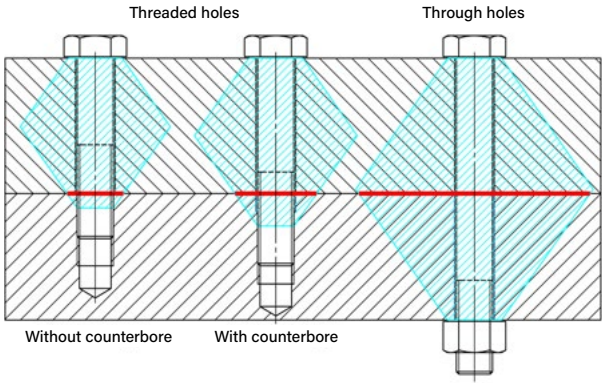
- an elastic limit greater than or equal to 600 MPa,
- a diameter Dr = 2 d.

Hexagon-head bolts are preferred to cylinder-head bolts wherever possible. Rollix recommends supplying bolts: bolt + nut, with guaranteed mechanical characteristics, matched and pre-lubricated to obtain a constant and reliable bolt/nut friction coefficient.

The surface treatments carried out on the bolts must not have any weakening effect.

Counterbore benefits

To ensure good force transmission, the slewing ring's quality of assembly on its supports must not be neglected. Depending on the type of loads, sliding may occur at the interfaces. This depends on the friction coefficients and the contact surfaces. Assembly using through holes is the best way to avoid sliding. This is also the preferred assembly method to benefit from the bolt tension. If this is not possible, we recommend at least a counterbore to widen the compression cone.



Minimum mechanical characteristics (ISO Standard)

CLASS	BREAK (MPa)	ELASTICITY (MPa)	STRESS (MPa)	APPLICATION
8.8	800	640	Range +/-40	Exceptional
10.9	1,040	940	Range +/-40	Recommended
12.9	1,220	1,100	Range +/-40	Exceptional

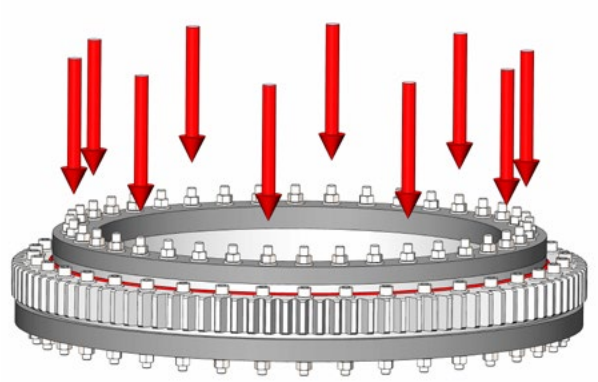
Fixing calculation

The Rollix calculation rules have been developed taking into account the standards and regulations in force and numerous research and experimental studies. In particular, these calculations are based on AFNOR FD E 25.030, VDI recommendation 2230 (2015) and API standard 2C (2021).

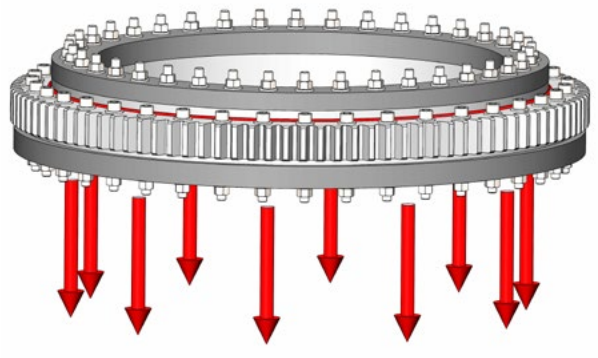
A distinction must be made between supported and hanging loads.

For hanging loads, please consult Rollix.

Supported loads



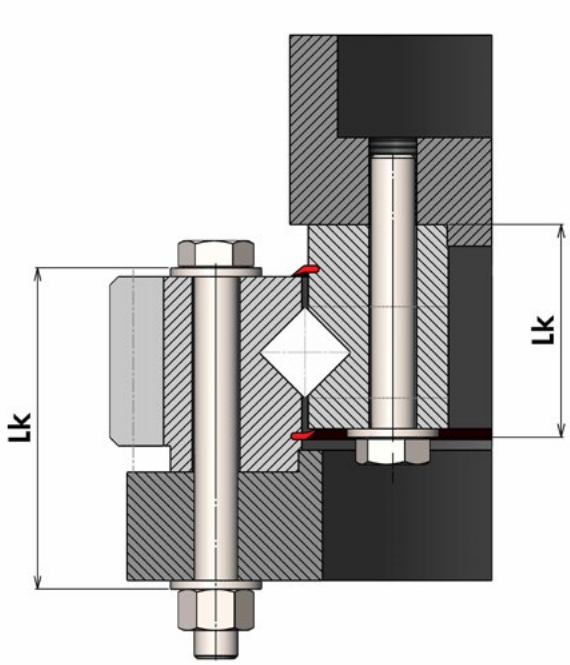
Hanging loads



Standard calculation assumptions

- Supported loads acting in compression.
- Equidistant bolts: evenly distributed over the fastening circles.
- Steel rings and supports.
- Supports that meet our specifications: thickness, stiffness, flatness (see section 5.1 Supports recommendations)
- Slewing rings placed directly on supports.
- In the case of significant radial loads, we recommend centering or gluing, as the bolts must not shear.
- Interfaces friction coefficient > 0.2 (consult Rollix for lower values).

The length of the clamp is at least equal to five times the diameter: $L_K > 5.d$



4.6. Slewing function

Rollix slewing rings generally incorporate a "slewing" function to control the rotation of the moving part. This function can be performed in different ways:

- gear drive (most common case)
- belt drive
- chain drive
- direct drive
- cylinder drive.

Gear control

The gear, which is generally cylindrical (straight or helical), is cut from the outer or inner ring. The cut is made with an involute gear profile.

Geometry

Most Rollix slewing rings have improved gear, with a positive offset to reduce pressure and a truncation to avoid interference at the root of the pinion teeth.

It is also essential to have an addendum modification factor on the pinion to avoid the geometric interference that occurs when the number of teeth is low.

On the other hand, drive forces cause bending of shafts and gear, which is detrimental to good meshing. To compensate, we recommend correcting the profile of the pinions: crowning and tip relief.

Resistance

Our graphs show the maximum fatigue fracture resistance (T) according to the gear material and treatment.

$T = 2\ C_D\ /\ D_{ref}$ (C_D = torque on gearing, D_{ref} = Reference diameter)

Rollix is able to carry out heat treatments to improve:

- resistance to bending at the root of the gear (hardening of the flanks and base)
- resistance to surface pressure and wear (sidewall hardening only).

Gear cutting quality

Unless customer's requirements, Rollix manufactures the gear of its slewing rings in accordance with ISO 1328 quality criteria:

Quality classifications	ISO 1328
Standard gear cutting	11
Specific gear cutting	7-8-9-10
Gear cutting + Grinding	5-6

Important: For a requested quality class, Rollix considers that all parameters defined in the ISO 1328 standard must be fulfilled. In the event that customer requirements are not imposed on all parameters, Rollix can guarantee a higher level of quality.

4.7. Rotating torque

The calculation of the torque required to ensure rotation of the slewing ring takes into account:

- the masses to be driven
- the distances of these masses from the rotation axis
- the loads on the machine
- the frictional torques
- speeds and accelerations.

There are two types of torques:

- Starting torque:
  Cd = Crv + Crc
- Rotating torque with acceleration:
  Cg = Crv + Crc + Ca

Crv = Unloaded bearing frictional torque

Crc = Rotating torque due to loads

Ca = Acceleration torque

All torques are expressed in kN.m.

Crv = Unloaded bearing frictional torque
(see range characteristics - chapters 7 to 11).

The frictional torque is dependent on the flatness of the supports and on the type of lubrication used.

Crc = Rotating torque due to loads

The torque required to start rotation takes into account the loads on the slewing ring and component friction.

- **Standard ball slewing rings:**

$$Crc = \left[\frac{13{,}11 M_T}{Øm} + 3F_A + 11{,}34F_R\right] Øm.10^{-3}$$

- **Standard roller slewing rings:**

$$Crc = \left[\frac{15{,}3 M_T}{Øm} + 3{,}75F_A + 8{,}19F_R\right] Øm.10^{-3}$$

M_T = Resulting torque in kN.m
Øm = Ø average of the slewing ring in metres m
F_A = Axial load in kN
F_R = Radial load in kN

Ca = Acceleration torque

The torque required to shift loads from initial speed to final speed during time (t) is defined by:

$$Ca = \frac{\pi.n.I}{30.t}.10^{-3} = \omega'.I.10^{-3}$$

t = acceleration time in seconds
n = speed variation in rpm
(final speed - initial speed)
I = machine moment of inertia kg.m²

$$I = I_1 + I_2 + I_3 + \ldots I_n$$

ω' = acceleration in rd/s²

Where I_1 to I_n = masses in motion's moments of inertia relative to the rotation axis expressed in kg.m².

In general rule, we have:

$$I_1 = G_1 \times r_1^2$$

$$I_n = G_n \times r_n^2$$

G_1 to G_n = Masses of the various rotating elements expressed in kg.
r_1 to r_n = Distances between the masses' centre of gravity and rotation axis of the slewing ring expressed in metres.

The frictional torque depends on the supports flatness and on the type of lubrication used.

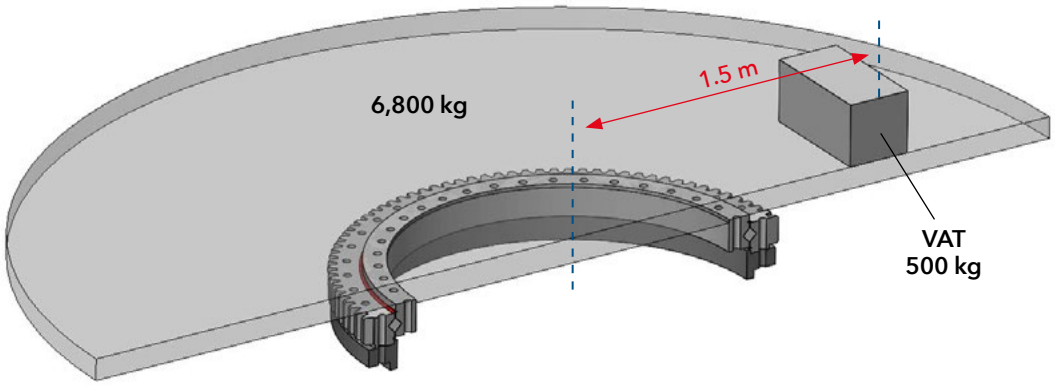
Rotating torque

The torque of standard slewing rings is defined by product ranges (see range characteristics - chapters 7 to 11).

Rollix can produce slewing rings with lower or higher frictional torque on request.

Application example:

This is a Ø4 m diameter plate weighing 6,800 kg with a 500 kg vat located 1.5 m from the rotation axis of the plate. The initial speed is 2 rpm and the acceleration time is 20 seconds to reach the final speed of 6 rpm. The slewing ring selected has an average diameter of 2 m.



Calculating loads on the slewing ring

- Axial F_A = 68 kN + 5 kN = 73 kN
- Radial F_R = 0.29 kN, (negligible)
- M_T Moment = 5 kN x 1.5 m = 7.5 kN.m

Starting torque : Cd

- Crv : frictional torque due to unloaded bearing, value to be taken from chapter 9 "Standard crossed rollers slewing rings", for a single-row roller slewing ring: 1.16 kN.m
- Crc = [(15.3 x7.5) / 2 + (3.75 x 73) + 8.19 x 0.29] x 2 x 10^{-3} = 0.669 kN.m
- Starting torque:
  Cd = Crv + Crc = 1.829 kN.m

Rotating torque with acceleration: Cg

- Calculating the acceleration torque: Ca:
- Moment of inertia of the plate:
  $mr^2/2 = 6,800 \times 2^2/2 = 13,600$ Kg.m²
- Moment of inertia of the vat:
  $mr^2 = 500 \times 1.5^2 = 1,125$ Kg.m²
- Total moment of inertia = 13,600 + 1,125 = 14,725 Kg.m²
- Speed variation: N = 6-2 = 4 rpm
- Acceleration time = 20 sec
- Ca = 14,725 x π x 4 x 10^{-3} / (30 x 20) = 0.3084 kN.m
- Rotating torque with acceleration :
  Cg = Crv + Crc + Ca = 1.160 + 0.669 + 0.3084 = 2.138 kN.m

4.8. Capacities

Temperature

The normal operating temperature range for slewing rings is - 25°C to + 70°C. Lower or higher temperatures can be achieved.

A specific design approach defined by our design office is then required.

Environment

If the operating environment is particularly aggressive (marine environment, dusty or abrasive environment, sand, coal, etc.), the mechanism design must include specific protection devices such as labyrinths, crankcases and oil baths.

Preventive maintenance operations will be stepped up to ensure normal operating conditions.

Shocks and vibrations

If the slewing rings are subject to continuous shocks or vibrations, this must be indicated in the specification so that the design office can take it into account in the design.

Speed

Slewing rings can operate in either alternating or continuous rotation. It is necessary to check that the circumferential speed at the raceway remains within the permissible limits for the bearing technology used.

To do so, calculate the parameter "$N.D_M$" = Speed of rotation (rpm) x Average Diameter D_M (mm).

Rollix has established a suitable range for each slewing ring range (see chapter 6 Product ranges).

Lubrication

Slewing rings are supplied pre-lubricated (with standard Mobilux EP2 grease or specific oil or grease).

Depending on the constraints of the environment and/or application, a specific lubricant can be adapted:

- Environment (marine, food, nuclear)
- Temperature
- Speed
- Noise
- Rotating torque.

5

INSTALLATION OF A SLEWING RING

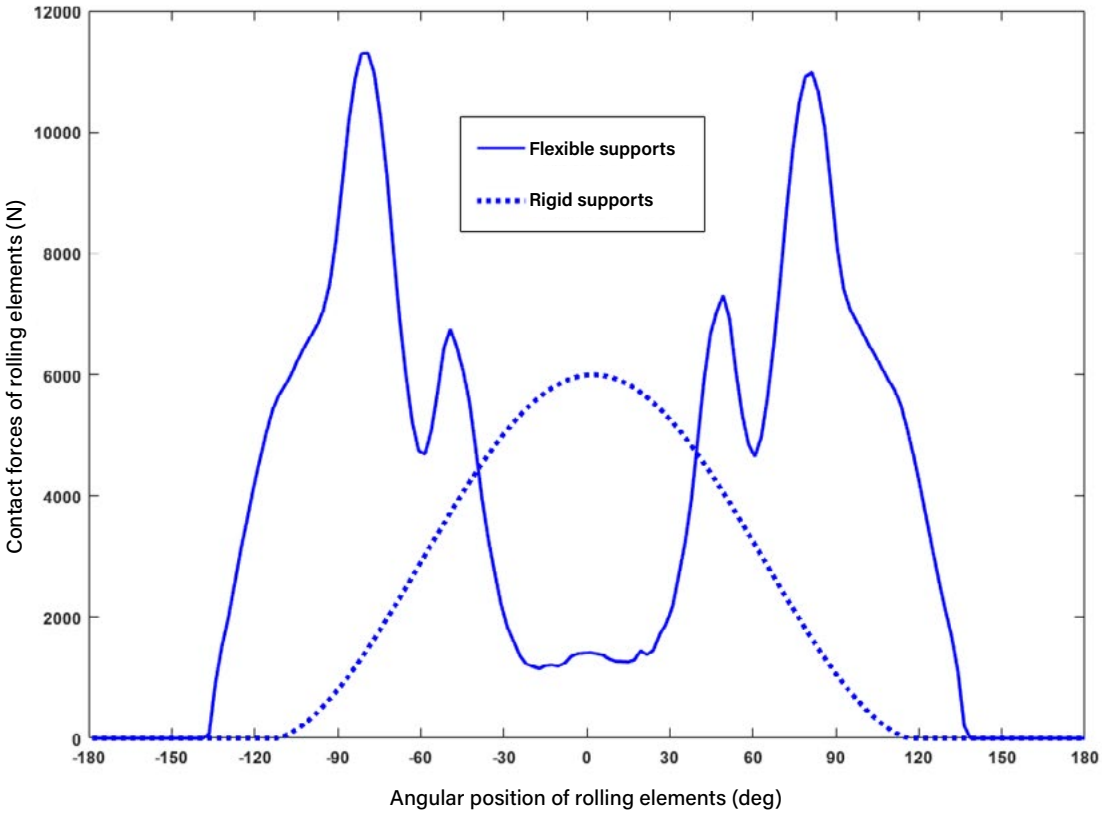
CONTENTS

5.1. Recommendations on supports

5.1.1 Chassis design

The slewing ring has moderate axial stiffness: the diameter is large compared to the section. It must be mounted on machined supports which guarantee sufficient stiffness in relation to the transmitted constraints. This ensures that the pressures are evenly distributed and that any deformation during operation is prevented, which would be detrimental to the correct functioning of the slewing ring.

A lack of stiffness in the supports can lead to increased forces on the bearings and thus have a significant impact on the service life of the slewing ring.

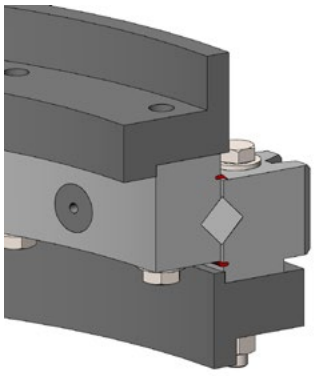


It is therefore necessary to use supports whose minimum thickness should not be less than the values in the table below:

Average diameter D_M (mm)	125 - 374	375 - 624	625 - 874	875 - 1,124	1,125 - 1,374	1,375 - 1,749	1,750 - 2,249	2,250 - 2,749	2,750 - 3,249	3,250 - 3,749	3,750 - 4,249	4,250 - 4,749	4,750 - 5,249	5,250 - 5,749	5,750 - 6,249
Support thickness min (mm)	20	25	30	35	40	50	60	70	80	95	105	115	125	140	150

The width of the mounting surfaces must be at least equal to the one of the slewing ring.

We recommend structural reinforcements in the form of circular rings that are vertically aligned with the raceway. For better load uniformity, thick rings are preferred to thin reinforcements with ribs.



5.1.2 Shape tolerances

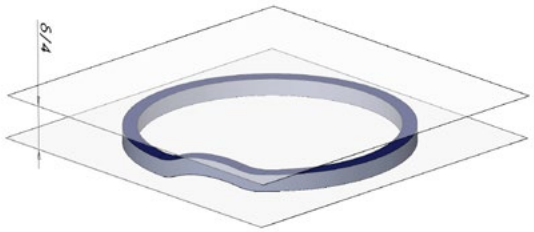
Defects in the shape of the supports lead to deformations in the raceway, causing hard spots or blockages, which can affect the service life of the bearing. The maximum flatness defects must not exceed the values in the table below:

Average diameter D_M (mm)		125 - 374	375 - 624	625 - 874	875 - 1,124	1,125 - 1,374	1,375 - 1,749	1,750 - 2,249	2,250 - 2,749	2,750 - 3,249	3,250 - 3,749	3,750 - 4,249	4,250 - 4,749	4,750 - 5,249	5,250 - 5,749	5,750 - 6,249
Max. short defects (mm)	BALLS	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.10	0.11	0.12	0.13	0.13	0.14	0.14	0.14
	ROLLERS	0.01	0.02	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.09	0.09	0.10	0.10	0.11	0.11
Max. long defects (mm)	BALLS	0.08	0.12	0.17	0.21	0.25	0.28	0.33	0.38	0.42	0.46	0.50	0.53	0.55	0.56	0.57
	ROLLERS	0.07	0.10	0.12	0.15	0.18	0.20	0.25	0.29	0.32	0.35	0.37	0.39	0.41	0.43	0.44
Max. taper defect (mm)		0.01	0.03	0.04	0.05	0.06	0.08	0.10	0.13	0.15	0.18	0.20	0.23	0.25	0.28	0.30

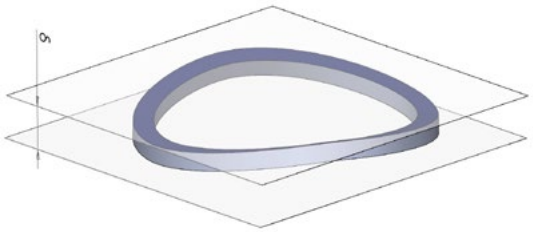
The shape tolerance applies to all ranges except for the precision range.

For precision slewing rings or specific slewing rings with reduced axial run-out, the shape tolerances of the supports must be smaller than the tolerances of the mounting surfaces indicated on the slewing ring drawings (for Rollix RT, see IT-ETR-244).

Example of a "short" defect



Example of a "long" defect



5.1.3 Stiffness tolerances

The stiffness of the slewing ring support unit must be such that under maximum loads the deflections do not exceed those shown in the table below:

Average diameter D_M (mm)	125 - 374	375 - 624	625 - 874	875 - 1,124	1,125 - 1,374	1,375 - 1,749	1,750 - 2,249	2,250 - 2,749	2,750 - 3,249	3,250 - 3,749	3,750 - 4,249	4,250 - 4,749	4,750 - 5,249	5,250 - 5,749	5,750 - 6,249
Max. deflection under load (mm)	0.20	0.25	0.30	0.35	0.45	0.55	0.65	0.80	1.00	1.15	1.30	1.45	1.60	1.75	1.90

5.1.4 Plastic cements

In cases where the above tolerances cannot be achieved under good conditions, epoxy-type resins can be used to level the contact surfaces. Several products are available depending on the size and type of defects to be corrected. Please contact our sales department for further details.

5.2. Transport / storage

5.2.1 Transport

Our slewing rings are carefully packaged to prevent damage during transport. There are three types of packaging:

1. On pallets

2. In crates

3. Customised (stillage, tarpaulin for inclined transport, vacuum aluminium tarpaulin)

Transport and storage are carried out in a horizontal position. For large diameter slewing rings (Ø>2.4 m), they can be transported on a stillage or tilted trailer to reduce the dimensions of the exceptional transport.

Rollix offers specific packaging for long term storage, sea transport or outdoor storage. Please contact us for more information.

Slewing rings must be handled with care and shocks must be avoided. They should be handled using accessories appropriate to the weight of the part, as indicated on the identification label.

5.2.2 Storage

Except in specific cases, packaged slewing rings have been given a temporary anti-corrosion surface protection that allows them to be stored for 6 months in a covered, tempered room (Rollix recommends a humidity < 85% and a temperature > 12°C). Specific packaging is required for long term storage, sea transport or outdoor storage. Please contact us for more information.

Lubrication is required every 18 months (see section 5.4.1 for maintenance and lubrication).

5.3. Mounting

5.3.1 Retrieval and preparation

Watch our video tutorials:

In accordance with the IT-ETR-941 maintenance manual:

When unpacking the slewing ring:

1. Take care not to cut the protective seals when removing the wrapping paper.
2. Cut the packaging, preferably on the outside diameter, not on the sides.

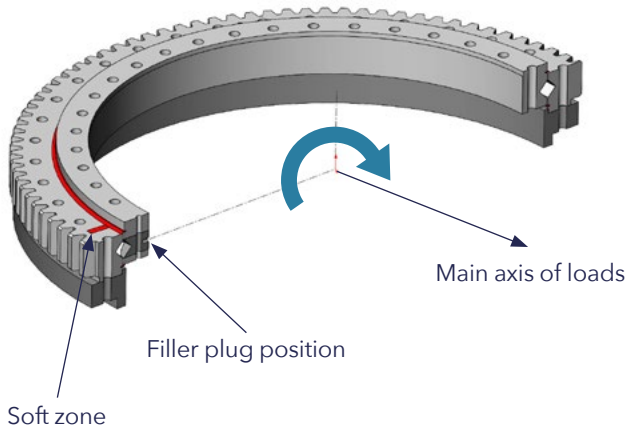
When degreasing the slewing ring:

1. Use a standard commercial thinner; thinners containing **chlorinated solvents should be avoided**.
2. Take care not to spill any thinner under the seals or in the raceways.
3. Before installing greasing ports or connecting pipes, remove the plastic plugs or Hc bolts from the lubrication holes.

The use of a structural adhesive such as Loctite 586 is a good way of limiting relative movement between the slewing ring and the supports. See our technical leaflet IT-ETR-521, available on request.

Positioning

The soft zone, marked by a red line on the geared ring, or the filler plug, visible on the other ring, must be positioned **at 90° to the main axis of the loads** or the arm supporting the load (see diagram below), except for Rollix RT series slewing rings, which have no filler plug or soft zone.



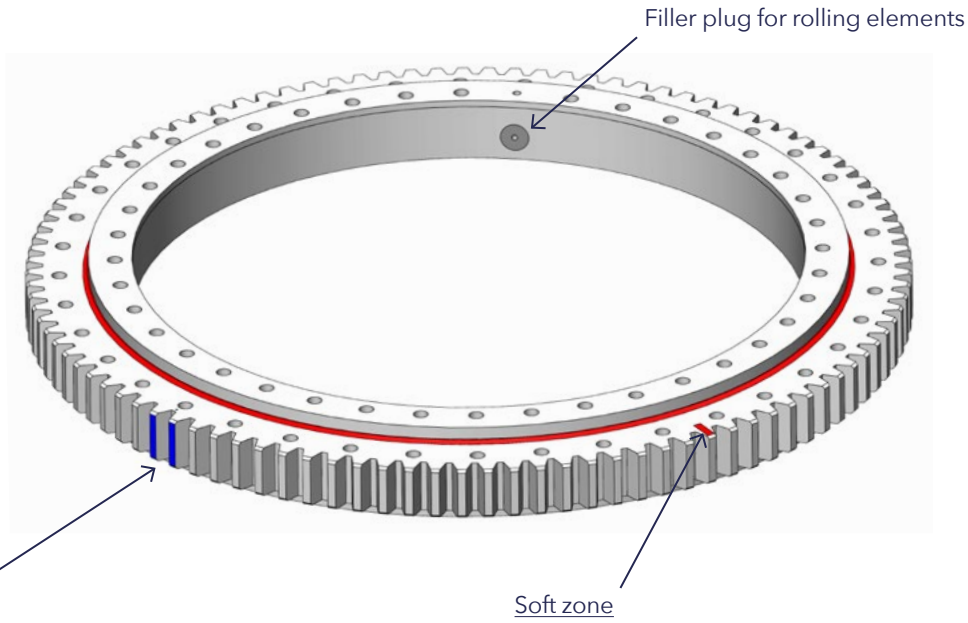
5.3.2 Identification and installation markers

Each slewing ring is individually identified by a metal label riveted close to the filler plug on the non-geared ring.

Installation markers

To ensure correct installation of the slewing ring, Rollix applies the following markings to its slewing rings, with the exception of ranges 21 to 39 (light series and light series square sections):

1. Gear run-out: the maximum point (furthest from the centre of the slewing ring for external gear and closest to the centre for internal gear).
2. Soft zone: non-hardened area of the raceway.



Gear run-out

The maximum gear run-out point is marked by:

1. Two **blue** lines at the top of the corresponding gear,
2. By an iron-stamped O on the side opposite the support.

The run-out of the drive pinion must be adjusted at this point.

Soft zone

1. For the non-geared ring, it is located near the rolling elements' filler plug.
2. For the geared ring, it is marked by a **red** line on the front or by the number stamped on the front.

If possible, these zones should be placed in the neutral axis of the loads: at 90° to the main axis of the loads.

5.3.3 Installing the slewing ring

Structure

1. Ensure that your structure is suitable with our recommendations (flatness & stiffness). See chapter 5.1.
2. Check that there are no chips, weld spatter, traces of corrosion, etc.
3. Check that the slewing ring is correctly fitted to the support parts.

Pilot diameter

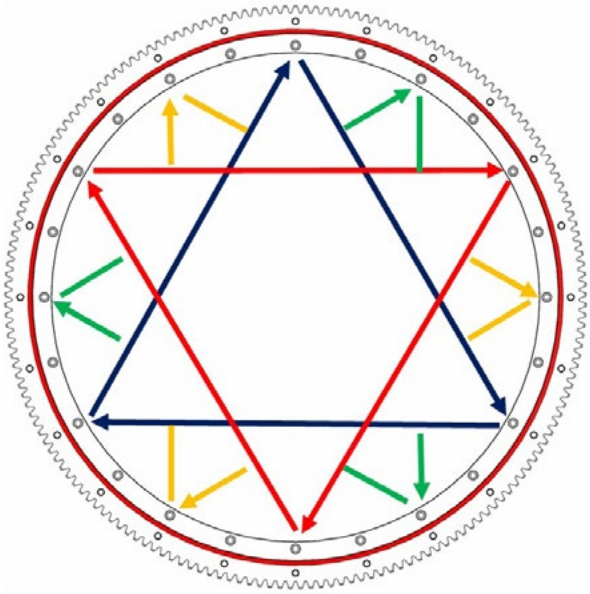
Where radial forces are significant, particularly if the slewing ring is placed vertically, it is necessary to use the pilot diameter for this purpose.

5.3.4 Bolt tightening

1. Check that the fixing bolts are of the specified quality (marked 10.9 on the head) and that the threads are correctly lubricated.
2. For normalised steel type Z or N slewing rings, it is necessary to use treated flat washers so that:
   - The elastic limit is greater than or equal to 600 MPa.
   - And diameter $D_R = 2d$.

Elastic washers such as Belleville, Grower or others of any type or model are absolutely prohibited and will invalidate any warranty. Nord-Lock type ramp washers may be used:

1. Fit all the bolts and tighten lightly.
2. Then tighten the bolts using a properly calibrated tool. Hydraulic devices are recommended.
3. Using the "star" method ensures even tightening all the way round.



Tightening torque

Rollix recommends tightening the bolts to the tension indicated in the table below (corresponding to 73% of the elastic limit R_e).

For guidance, Rollix indicates the appropriate torque value assuming a coefficient of friction under the bolt head of 0.12 and a coefficient of friction in the thread of 0.14. For values with different coefficients of friction, contact the design office for the appropriate tightening torque.

Several tightening methods can be used to control the recommended tension:

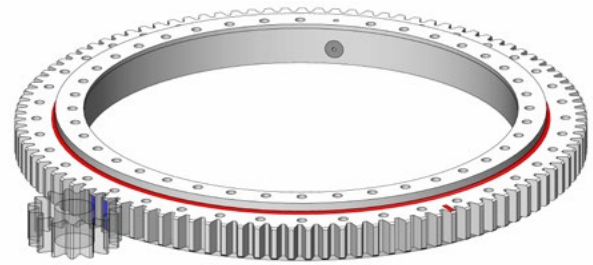
- Tightening with a hydraulic tensioner (recommended in order to limit uncertainty about tightening tension)
- Torque tightening with controlled coefficients of friction

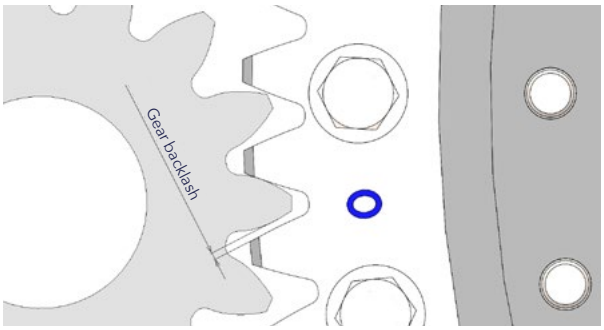
Diameter (mm)	6	8	10	12	14	16	18	20	22	24	27	30	33	36	39	42	45	48	52	56
Tension (N)	14	25	40	58	79	108	132	168	208	242	315	385	476	561	670	769	896	1,011	1,206	1,393
Torque* (N.m)	15	35	70	120	191	293	408	573	778	987	1,440	1,964	2,646	3,409	4,396	5,454	6,771	8,202	10,496	13,086

*Coefficient of friction under the bolt head of 0.12, coefficient of friction in the thread of 0.14

5.3.5 Installation of the pinion

1. The pinion must be positioned approximately 90°C from the main axis of the loads.
2. Adjust the pinion to the point of maximum gear run-out of the slewing ring, marked with a blue line.
3. At this point, the gear backlash adjusted with a set of standard gauge blocks must be within the calculated values or at least 0.05 x module.
4. When several pinions are used, each pinion must be adjusted under the same conditions.
5. During testing, make sure that the pinion and slewing ring axes are correctly aligned to ensure permanent contact between pinion and slewing ring accross the entire gear width.
6. Lubricate the gears of the slewing ring and pinion before starting up (see section 5.4 Maintenance).





5.3.6 Controls after installation

Once all the fixings have been tightened:

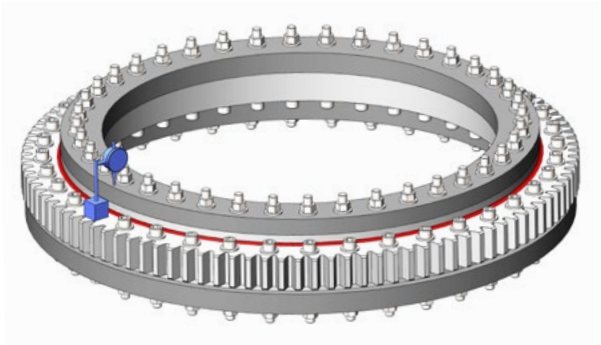
1. Turn the slewing ring at least three times and check that there are no hard spots to verify that the rotating torque is even.
2. Double check the gear run-out value over one complete revolution.
3. Measure the total deflection under a known load by marking the measurement points.

These values are usefully recorded in the machine's inspection booklet, see our "delivery form", *ref. IT-DTR-19.005*.

Methodology

1. Place a measuring instrument between the two rings as close as possible to the raceway in the main load axis: accuracy class 0.1 mm minimum.
2. Calibrate to zero with no load.
3. Apply known load.
4. Read the deflection value at the point being considered.
5. Carry out several surveys at different points that have been permanently marked out in advance.
6. Please note that the deflection of the chassis and the elongation of the support could have an impact on the measurement.

Checking deflection under load of mounted slewing ring



5.4. Maintenance

5.4.1 Relubrication

Proper lubrication is essential for the longevity of raceways and gears. In fact, lubrication is an integral part of the slewing ring and enhances its performance. Operating conditions such as loads, temperatures, speeds, vibrations, etc. determine the choice of lubricant.

Raceway

Unless otherwise specified, slewing rings are supplied lubricated with MOBILUX EP2 grease.

In our experience, the lubricants listed in the table below are compatible with each other and with the components of our slewing rings.

MANUFACTURER	RACEWAY LUBRICATION	GEAR LUBRICATION
BECHEM	High Lub L474	Berulit GA 400
CASTROL	Spheerol EPL 2 Tribol GR-100-2 PD	Molub-Alloy 936 SF Heavy
MOBIL	MOBILUX EP2	Mobilgear Series
MOTUL	IRIX L130-2	IRIX EVO LCX 920-000
SHELL	Gadus S2 V220 2	Shell naturelle S2 Grease A600P
TOTAL	Lical EP2 Copal EP2 Bio Multis EP2	Céran range (AD+, XS320,...) Multis Complex SHD

Other lubricants may be used, provided they are miscible with the Rollix standard recommendations.

Recommended characteristics for regreasing:

1. Lithium soap-based grease
2. Minimum base oil viscosity 150 mm²/sec
3. Grade NLGI 2
4. Anti-wear and extreme pressure additives

Greases containing molybdenum disulphide M_OS_2 are not recommended.

Gear

A temporary protection against oxidation is applied on delivery. The gear must be permanently covered with grease.

Depending on the environmental conditions, the gear can be protected by a casing to limit the risks of grease contamination.

Lubrication holes

Radial or facial, these holes are generally tapped M10 or M8 at 1.00 pitch and sealed with Hc screw or plastic plugs. These plugs should be removed when the slewing ring is fitted with lubrication ports or connected to a centralised lubrication system.

The filler plug for rolling elements has a threaded hole. This is not a lubrication hole.

Lubrication method

Lubrication must be carried out during rotation at low speed, over a minimum of two revolutions, through all the lubrication holes.

Lubrication frequency of the raceway

Lubrication frequency varies according to use and environment. Refer to the table below:

OPERATING CONDITIONS	REGREASING INTERVALS
Dry, clean manufacturing halls (turntables, robots, etc.)	Every 150 hours of operation, but at least every 6 months
Harsh outdoor conditions (cranes / excavators, etc.) Harsh climatic conditions Marine / desert / arctic environment Very dirty environment More than 70 hours of operation per week	Every 50 hours of operation, but at least every 2 months
Extreme conditions (tunnel boring machines / steelworks, wind turbines)	Continuous lubrication (by centralised lubrication or cartridge lubrication)

Regreasing is necessary before and after long periods of downtime. During periods of prolonged shutdown, it is necessary to regrease in rotation every six months.

These frequencies are given for information only. Depending on the conditions in which the slewing ring is used, Rollix may recommend a specific regreasing frequency.

Amount of regreasing

Raceway:

The quantity of grease is defined by the design office when specifying the slewing ring. In all cases, a slight bead of new grease should appear on the outer edges of the protective seals.

In the case of a perfectly sealed slewing ring, ensure that the volume of used lubrication is equivalent to the volume of new lubrication. Systems for recovering used grease are available. Please contact us for more details.

Gear:

Whether sprayed or applied by brush, the grease must cover the pinion and slewing ring flanks completely and permanently.

Specific applications

On request, the Rollix design office can provide solutions (such as oil bath lubrication) for extreme applications: temperature, speed…

5.4.2 Preventive control

Seal monitoring

A visual inspection will ensure that the protective seals are intact:

1. No excessive tension or tears
2. Correct positioning
3. Wear rate of the friction lip.

If necessary, replace the seals. After regreasing, remove any wasted grease and check that there is no contamination such as sand, carbon, metal particles, etc.

Fastening monitoring

Since the bolts that secure the slewing rings are subject to fatigue, it is particularly important to check that the required pretension is always maintained in the bolts. Rollix recommends checking the bolts within the first 100/150 hours of operation on 20% of the bolts spread over 360°:

1. If a bolt is loose, the adjacent bolts must be checked.
2. If 10% of the bolts are loose then 100% re-tightening is required.

This can be repeated every six months.

Slewing monitoring

During cleaning prior to the gear regreasing:

1. Check that there are no foreign bodies between the pinion and the slewing ring's teeth that could cause gearing issues.
2. Check the evenness of the longitudinal bearing of the pinion over the entire width of the slewing ring gear and correct the alignment of the axes if necessary.
3. Check the gear backlash value (see diagram in section 5.3.5 Installation of the pinion).

5.4.3 Limitations of use

Deflection monitoring

Rollix supplies its slewing rings with a built-in preload to ensure correct operation and optimum safety. During the service life of the product, the preload decreases and its evolution results in a significant increase of the deflection under load. When this deflection is no longer compatible with correct operation and the safety conditions required for the type of equipment used, the slewing ring must be replaced.

In order to quantify the rate of wear, it is necessary to know the deflection under load:

1. When new: J_0
2. At time of monitoring: J_1

These measurements are carried out under the same conditions after checking the fastening bolts. The values measured are recorded in the machine's inspection booklet.

Wear and tear is the difference: $u = J_1 - J_0$

Deflection monitoring interval under load

WEAR RATE	MONITORING INTERVAL
$u \leq J_0$	Annual
$J_0 < u < 1.5\ J_0$	6 months
$1.5\ J_0 < u < 2\ J_0$	3 months - Consider replacing the slewing ring
$u > 2\ J_0$	Mandatory replacement

In all cases, refer to the regulations in force depending on the application.

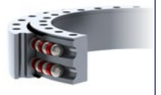
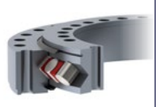
6

SLEWING RING RANGES

CONTENTS

6.1. Standard product ranges

The first 2 digits of our references represent the slewing ring range, for example: 06.0307.00.ZZ00 is a standard, single row, roller slewing ring with external gear and an average diameter of 307 mm.

		EXTERNAL GEAR		INTERNAL GEAR		WITHOUT GEAR		MATERIAL	AVERAGE DIAMETERS MIN/MAX	MAX SPEED (N RPM) X AVERAGE DIAMETER D_M (MM)	PRELOAD	GEAR	RUN-OUTS
STANDARD BALL SLEWING RINGS	Single row	01		02		03		XC45 or 42CrMo4	Ø181 Ø5500	60 000 (up to 100,000 on request)	Preload	Hardened or un-hardened	Standard
	Single row "thin sections"								Ø1295 Ø3031		Low preload		
	Double row	11		12		13			Ø1050 Ø3000 (Ø5500 on request)		Preload		
LIGHT SERIES BALL SLEWING RINGS	L-shaped Profile	21 24 27		22 25 28		23 26 29		XC45	Ø411 Ø1091	40 000	21-22-23 et 31-32-33 : normal play 24-25-26 et 34-35-36 : Average play 27-28-29 et 37-38-39 : Low play	Unhardened	-
	Square sections	31 34 37		32 35 38		33 36 39				50 000			
STANDARD CROSSED ROLLERS SLEWING RINGS	Single row	06		07		08		XC45 or 42CrMo4	Ø220 Ø5500	40 000 (up to 100,000 on request)	Preload	Hardened or un-hardened	Standard
	Double row	16		17		18			Ø1050 Ø3000 (Ø5500 on request)				
PRECISION SLEWING RINGS	Compact					88		42CrMo4	Ø148 Ø2455	40 000 (up to 100,000 on request)	Preload	-	Very low
	Compact Light	46		47		48		XC45	Ø414 Ø1094			Unhardened (quality 9)	Low
	RT " Rotary Table "					88		100Cr6	Ø255 Ø1030	50 000 (up to 100,000 on request)	Preload	-	Very low
SPECIFIC SLEWING RINGS	HD-R " Heavy Duty - Radial "			74		75		42CrMo4	Ø750 Ø3000 (Ø5500 on request)	up to 300 000 on request	Clearance	Hardened or un-hardened	Standard
	DR-S " Double Row - Speed "			12		13		42CrMo4	Ø500 Ø2000 (Ø5500 on request)	up to 400 000 on request	Clearance	Hardened or un-hardened	Standard

6.2. Codification

Rollix slewing rings are identified by numbers and a letter code, as shown below:

Geometry		Metallurgy		Options			Index
07	1830	10	D D	1 5	R 1	C 1	A

07 1830 10 D D 1 5 R 1 C 1 A — **Range**

07 **1830** 10 D D 1 5 R 1 C 1 A — **Average bearing diameter**

07 1830 **10** D D 1 5 R 1 C 1 A — **Derivative number in a range**

07 1830 10 **D** D 1 5 R 1 C 1 A — **Material code for non-geared ring**

07 1830 10 D **D** 1 5 R 1 C 1 A — **Material code for geared ring:**

Z	Improved XC45 (or equivalent)	M	42NiCrMo6 with press quenching
N	42CrMo4 normalised	K	Aluminium alloys
D	42CrMo4 Quenched and Tempered	J	Other (stainless steel , titanium, bearing steel)

07 1830 10 D D **1** 5 R 1 C 1 A — **Gear treatment:**

0	Gear without heat treatment
1	Hardened gear for tooth flanks and roots
2	Hardened gear, tooth flanks only

07 1830 10 D D 1 **5** R 1 C 1 A — **Surface treatment:**

0	Oil storage protection	4	Painting
1	Zinc plating	5	Metallisation with or without paint
2	Phosphating	6 - 9	Other treatments
3	Chemical nickel plating		

Optional

07 1830 10 D D 1 5 **R** 1 C 1 A — **Certification type**

07 1830 10 D D 1 5 R **1** C 1 A — **Increment relating to the certifying body**

07 1830 10 D D 1 5 R 1 **C 1** A — **Colour increment of a painted slewing ring**

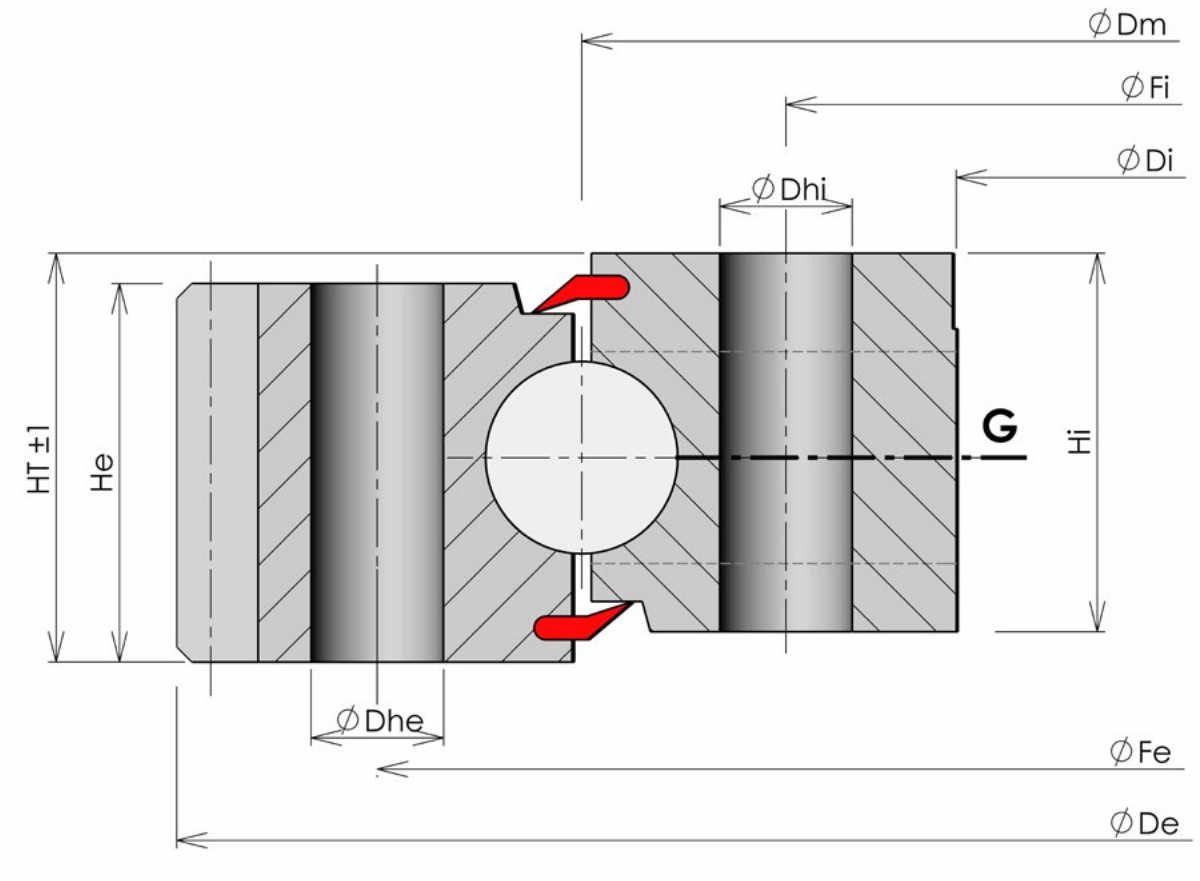
07 1830 10 D D 1 5 R 1 C 1 **A** — **Drawing index**

6.3. Slewing ring drawing

Each slewing ring is identified by its drawing reference, e.g.: **01 1116 00.**

The drawing identifies the interfaces and specifies the functional dimensions: pilot diameter, holes, total thickness, gear reference diameter.

The data for each slewing ring is displayed in a table.



Overall dimensions

The average diameter D_M is given for information only.

Fastening

The drawing shows the Ø of hole placements (ØFe and ØFi) and the diameter of the holes (ØDhe or ØDhi) for each ring.

Lubrication

The "G" symbol indicates the arrangement of the lubrication holes (axial or facial).

Gear

The table shows the main characteristics of the gear: modulus, tooth width W, number of teeth Z and maximum fatigue strength as a function of material and gear treatment (0 or 1).

Pilot diameter

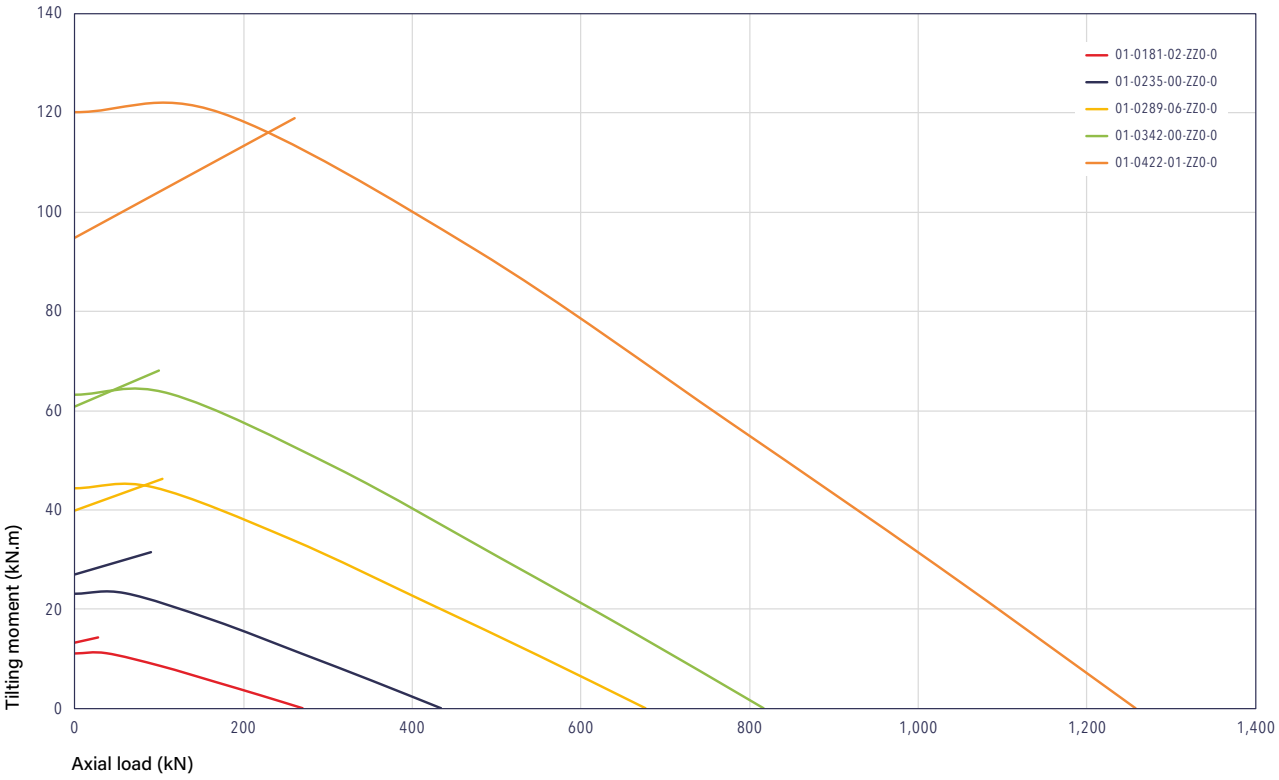
The centering diameter can be used as a reference for mounting.

Inner ring external diameter and outer ring internal diameter cannot be used as centering diameters unless they are toleranced.

6.4. Capacity curves

The capacity curves of several references in the same diameter range are grouped together in a graph.

Range 01 from 0 to Ø500 mm



For each reference, a distinction is made between:

- An ascending line which indicates the fastening limit for an applied load using class 10.9 bolting.
- A curve representing the maximum static capacity of the raceway.

The value of the operating point must take into account application criteria and must always be below the 2 curves (check section 4.2).

For hanging loads (tensile stress on the bolts), please consult the Rollix design office.

6.5. Precision / tolerances

The general tolerances of standard slewing rings are defined in accordance with ISO 286-1 and 2.

For applications requiring greater precision, a higher quality can be produced. The tolerance values are then indicated on the slewing ring drawing. For large-diameter slewing rings with a thin section and low radial stiffness, these values must be taken into account after mounting, which must ensure roundness.

Fastening

- Fastening diameters are produced within the **Js10** tolerance with a minimum of **± 0.2 mm**.
- The angle between the holes is 5' with a minimum of ± 0.2 mm on rope.
- Hole diameter: through holes, counterbores Js14 tolerance
- Threads:
  - Quality 6H (NF.E 03.053) for the metric system
  - Quality 2B (ANSI B 1.1) for imperial system
- 0/+2 For counterbore and thread depths

Geometry

Tolerances apply up to Ø 3,150 mm. For larger diameters, refer to the tolerances shown on the drawings.

The criteria are as follows:

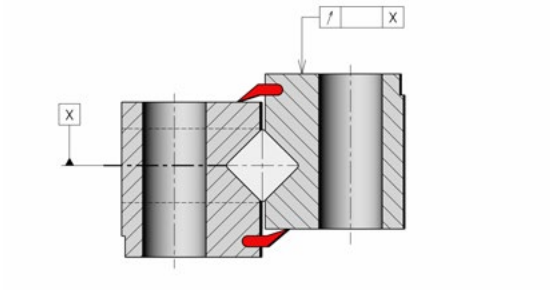
- For diameters: **Js13**
- For pilot diameter (unless specifically required on the drawings for the precision slewing ring range)
- Bores: **H9**
- Shafts: **f9**
- For total height: **± 1 mm**
- For individual ring height: **± 0,5 mm**
- For the height of the centering diameter: **± 1 mm**

Gear

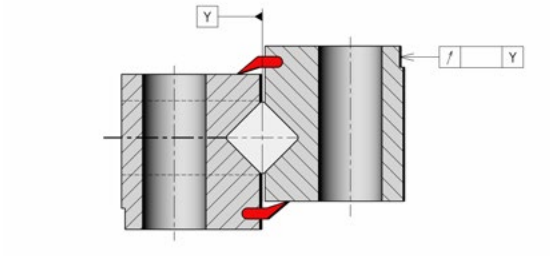
The total gear run-out value is shown in the technical drawing. The gear span measurement over K teeth, with its tolerance, is shown on the drawing.

Bearing

The AXIAL RUN-OUT of the mounting surfaces is measured using a dial gauge over one revolution of the slewing ring.



The RADIAL RUN-OUT of the centering diameters is also measured over one revolution.



The maximum permissible values are indicated for each range.

6.6. A process for selecting a slewing ring in 6 steps

1 Estimating loads

- Loads on the slewing ring: M_T, F_{eq}
- Loads on the gear: T
- Application factors K_U K_S K_A
- Rotation speed: N (rpm) x D_M (mm)

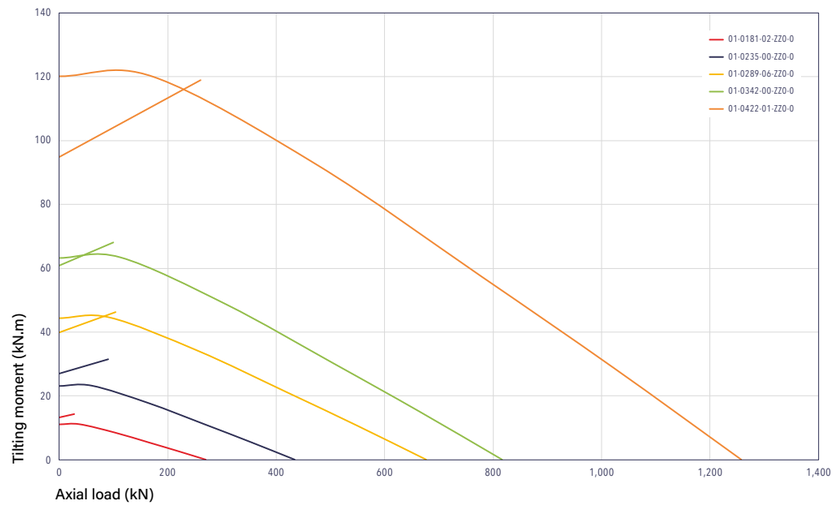
2 Pre-selection of the slewing ring range according to the determining criteria

		STANDARD BALL SLEWING RINGS		LIGHT SERIES BALL SLEWING RINGS		STANDARD CROSSED ROLLERS SLEWING RINGS		PRECISION ROLLER SLEWING RINGS			SPECIFIC SLEWING RINGS	
												
		01 to 03	11 to 13	21 to 29	31 to 39	06 to 08	16 to 18	88	46 to 48	88	12 to 13	74 to 75
LOAD	Mainly axial	+	++	-	-	=	+	-	-	--	--	--
	Mainly radial	=	+	--	-	=	+	=	=	--	=	++
	Tilting moment	+	++	--	-	=	+	=	=	--	-	-
BEARING FUNCTION	Service life	=	+	--	-	+	++	+	+	++	=	++
	Rotation speed	=	-	--	-	-	--	-	-	+	++	+
	Vibration resistance	++	++	--	--	=	=	=	=	=	-	-
OTHER CRITERIA	Precision	-	-	--	--	=	=	++	+	++	-	=
	Stiffness	=	+	--	--	=	+	+	+	++	-	+
	Cost	+	=	++	++	+	=	-	=	--	-	--

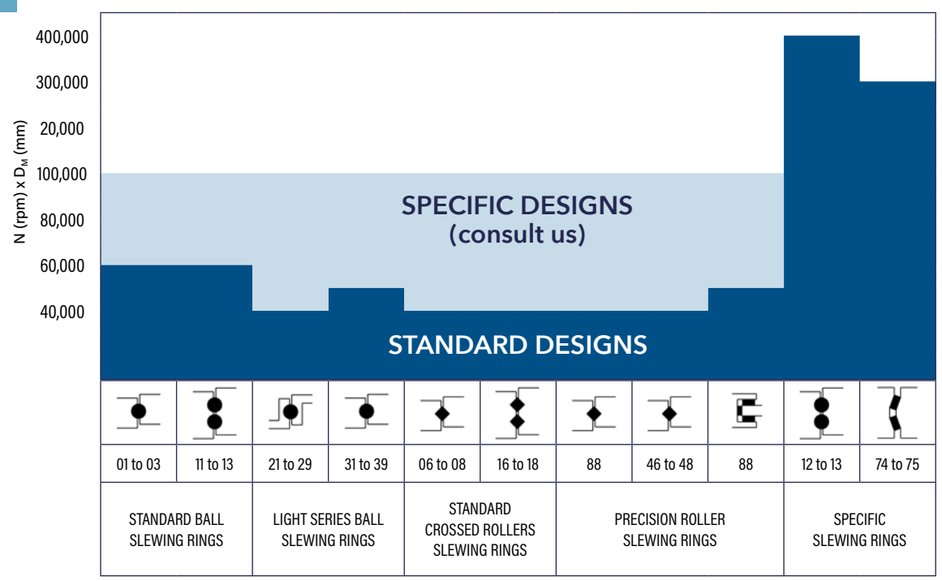
++ : perfectly suited + : suited = : suitable - : not suitable -- : to avoid

3 Verification of the raceway's static capacity and of the fasteners according to slewing ring range

Range 01 from 0 to Ø500 mm



4 Checking rotation speed



5 Checking forces on the gear

Selecting the gear type (hardened or unhardened)

6 Validation of the slewing ring's dimensional characteristics

(depending on your operating environment)

If you need to estimate the service life, contact the Rollix design office by submitting a duly completed IT-ETR-910 (see Appendices).

7

STANDARD BALL SLEWING RINGS

CONTENTS

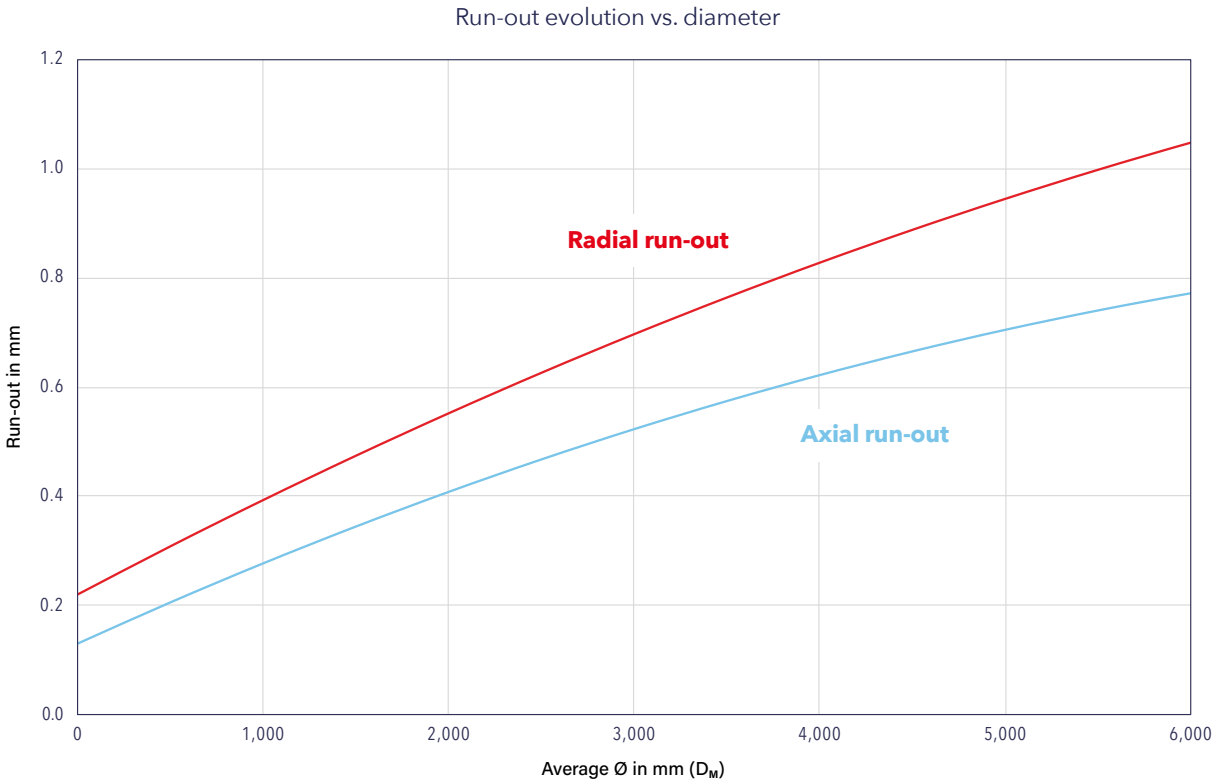
Standard ball slewing rings

This range includes all single and double row ball slewing rings.

We distinguish between thin sections and standard series. Thin sections have a lower preload. They are considered thin because the ratio of cross-section to diameter is low.

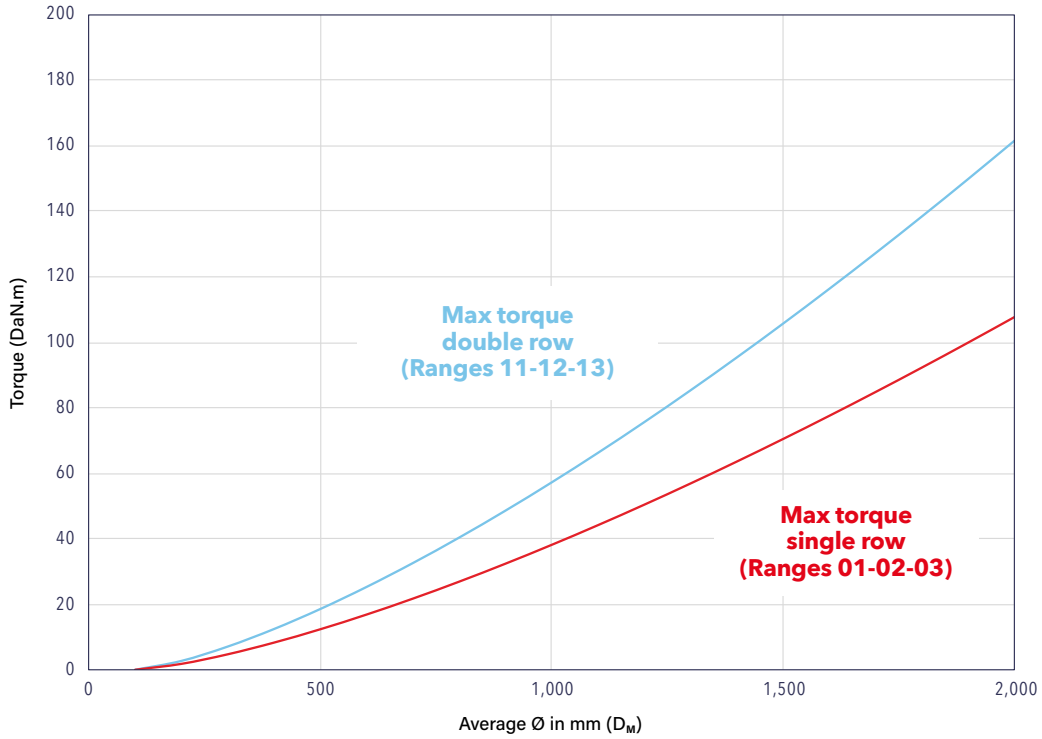
The graphs below show the maximum values for run-outs and torques.

Axial and radial run-outs

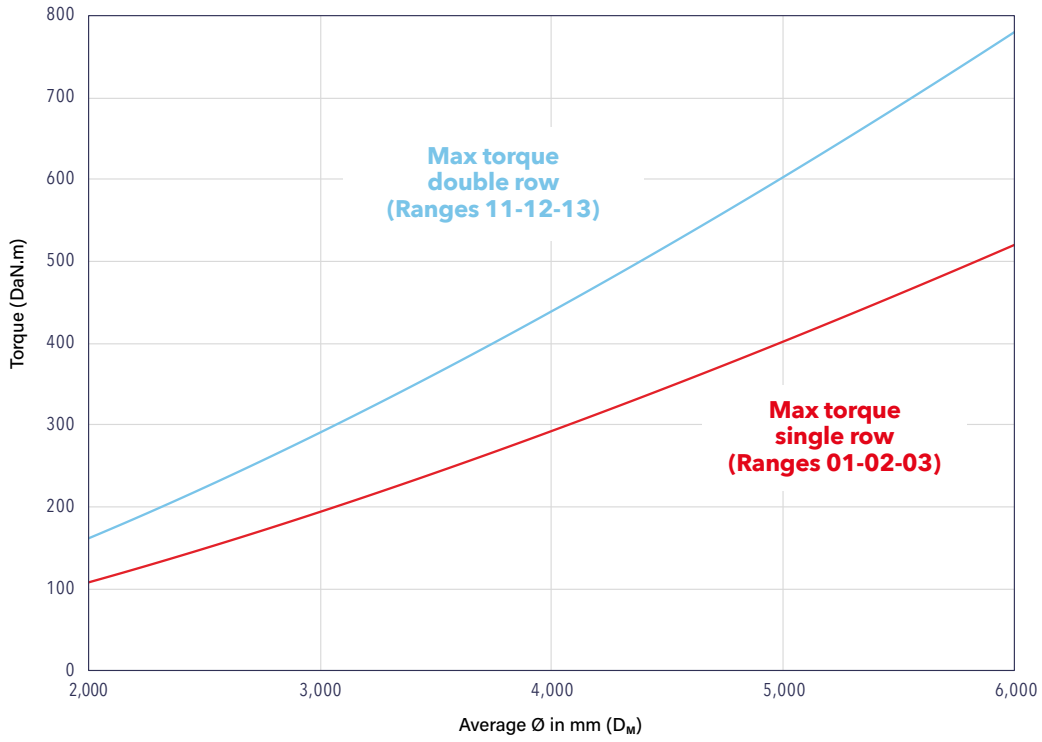


Rotating torques

Rotating torque vs. diameter (bearing unloaded) $D_M < 2{,}000$

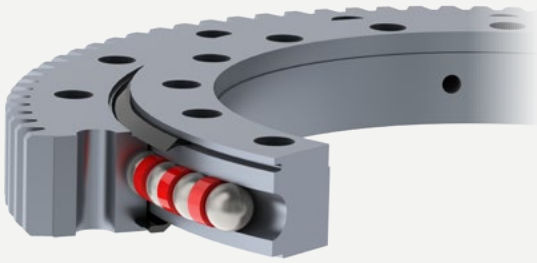


Rotating torque vs. diameter (bearing unloaded) $D_M > 2{,}000$



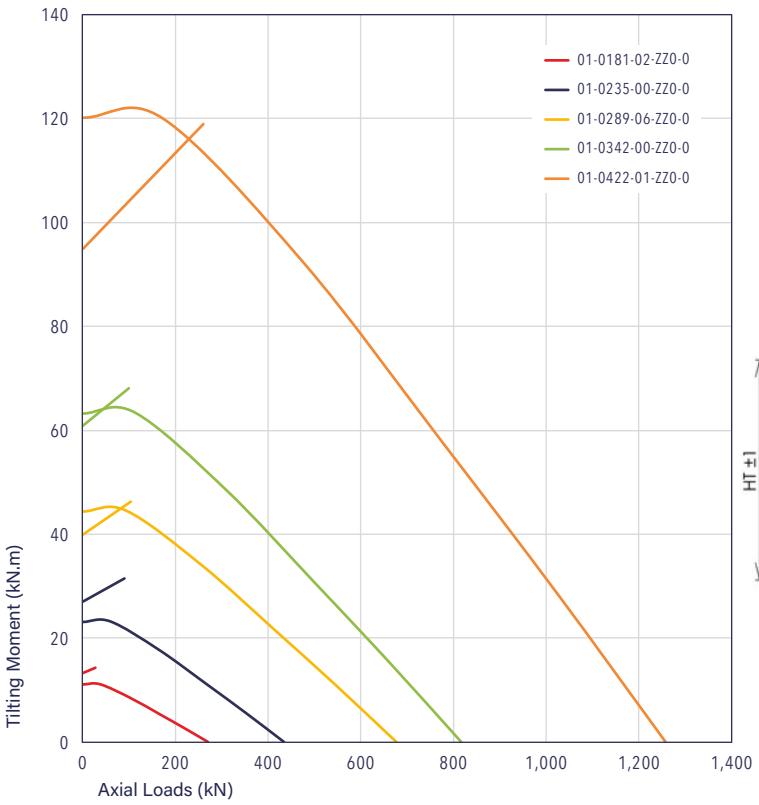
STANDARD BALL SLEWING RINGS

Range 01
Ball bearing with external gear
From 0 to 500 mm



		REFERENCES				
SPECIFICATIONS		01-0181-02	01-0235-00	01-0289-06	01-0342-00	01-0422-01
MAIN DIMENSIONS	HT [mm]	25	45	45	50	54
	ØDe [mm]	244	318	379	440	529
	He [mm]	25	37	40	44	50
	ØDi [mm]	125	169	210	265	323
	Hi [mm]	25	34	40	44	50
	ØCe [mm]	N/A	240	N/A	N/A	N/A
	ØCi [mm]	N/A	170	212	267	324
	Weight [kg]	6	12	19	27	44
GEAR	Module [mm]	2	3	4	4.5	5
	Z	120	104	92	95	103
	W [mm]	20	30	40	44	50
	Gear capacity unhardened [kN]	6	13	23	29	37
	Gear capacity hardened [kN]	8	18	31	39	49
FASTENING HOLES	External ring hole type	Th	Th	Th	Th	Th
	ØFe [mm]	214	275	335	390	476
	Ne	24	20	24	16	20
	Dhe [mm]	11	13	13	17.5	17.5
	Inner ring hole type	Th	Ta	Th	Th	Th
	ØFi [mm]	144	195	240	295	368
	Ni	20	20	24	16	20
	Dhi [mm]	11	M12	13	17.5	17
GREASING	Ring with greasing holes	I	E+I	I	I	I
	Greasing hole type	R	F+R	R	R	R

Static capacity curves

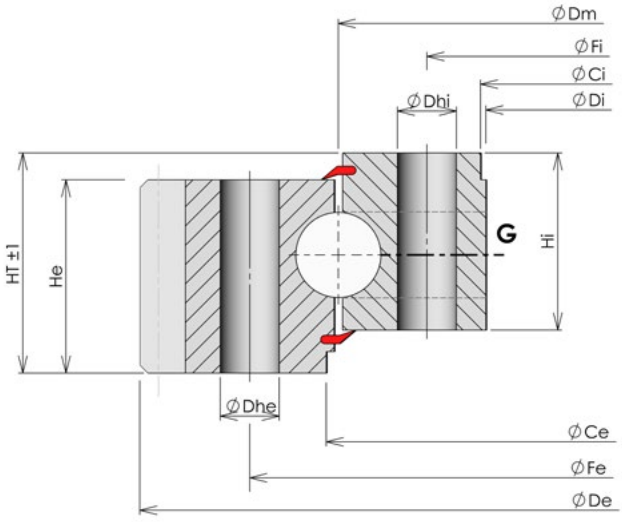


Greasing holes options with M10 x 1.00 thread, (except for references 01-0181-02 & 01-0235-00 → M6 x 1,00):

E: on External ring
I: on Internal ring
F: Facial
R: Radial

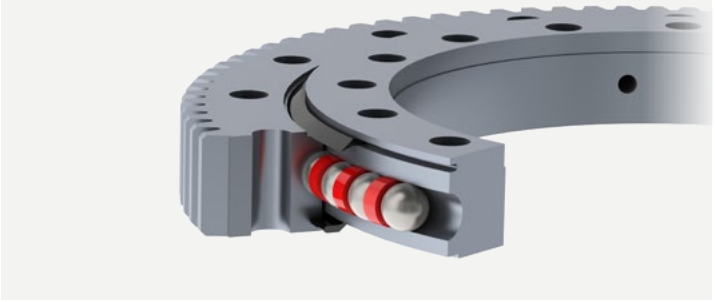
Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



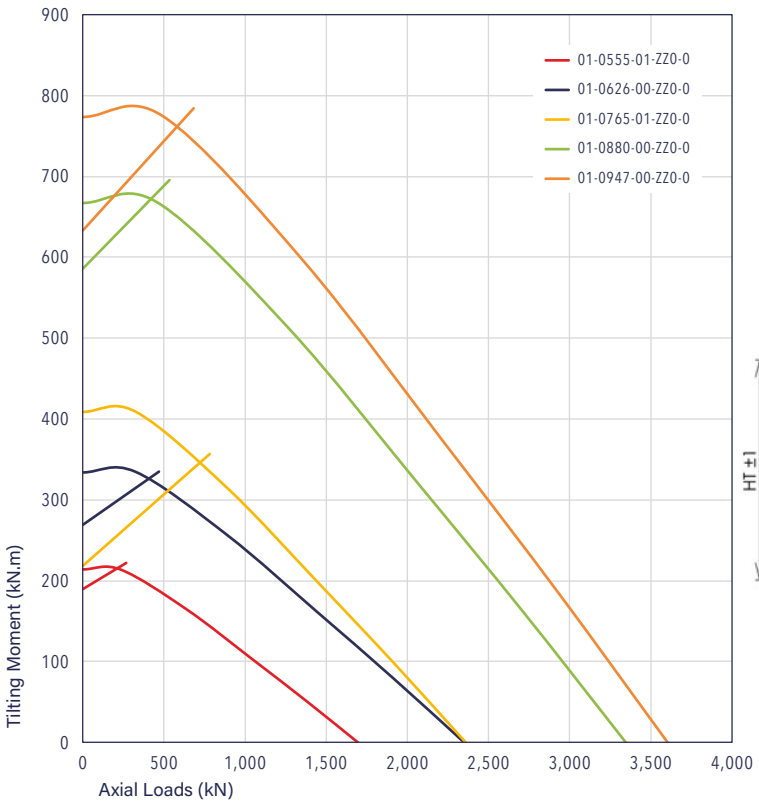
STANDARD BALL SLEWING RINGS

Range 01
Ball bearing with external gear
From 500 to 1,000 mm



		REFERENCES				
SPECIFICATIONS		01-0555-01	01-0626-00	01-0765-01	01-0880-00	01-0947-00
MAIN DIMENSIONS	HT [mm]	74	82	82	82	82
	ØDe [mm]	689	774	863	1,022	1,094
	He [mm]	64	72	68	72	72
	ØDi [mm]	455	516	679	770	833
	Hi [mm]	64	66	65	66	66
	ØCe [mm]	N/A	635	771.5	885	955
	ØCi [mm]	460	520	680	775	835
	Weight [kg]	87	117	98	157	177
GEAR	Module [mm]	6	8	6	8	8
	Z	112	94	142	125	134
	W [mm]	60	72	60	72	72
	Gear capacity unhardened [kN]	53	84	54	86	86
	Gear capacity hardened [kN]	71	112	72	115	115
FASTENING HOLES	External ring hole type	Th	Th	Bd	Th	Th
	ØFe [mm]	620	692	800	945	1,015
	Ne	30	24	24	36	36
	Dhe [mm]	17.5	22	M16	22	22
	Inner ring hole type	Th	Th	C	Th	Th
	ØFi [mm]	490	560	706	815	880
	Ni	30	24	24	36	36
	Dhi [mm]	17	22	M16	22	22
GREASING	Ring with greasing holes	I	I	I	I	I
	Greasing hole type	R	R	R	R	R

Static capacity curves

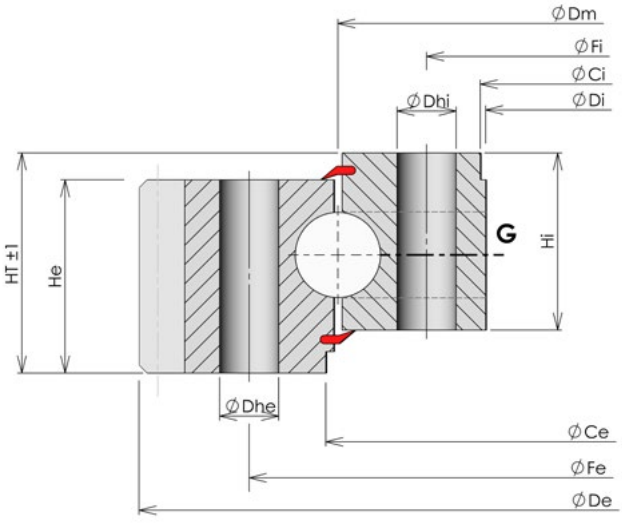


Greasing holes options with M10 x 1.00 thread

E: on External ring
I: on Internal ring
F: Facial
R: Radial

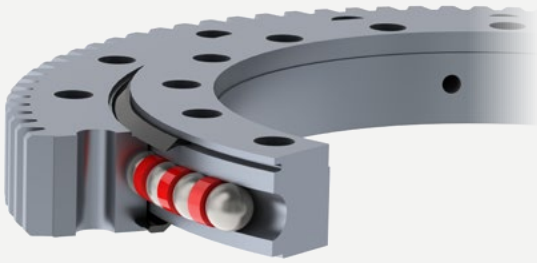
Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



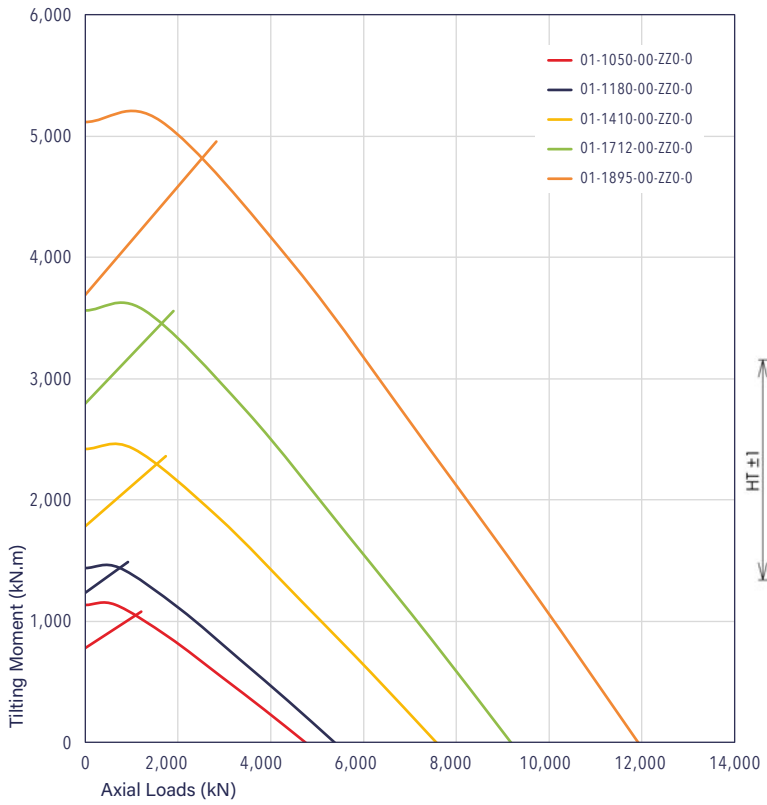
STANDARD BALL SLEWING RINGS

Range 01
Ball bearing with external gear
From 1,000 to 2,000 mm



		REFERENCES				
SPECIFICATIONS		01-1050-00	01-1180-00	01-1410-00	01-1712-00	01-1895-00
MAIN DIMENSIONS	HT [mm]	98	98	110	110	130
	ØDe [mm]	1,218	1,358	1,605	1,929	2,140
	He [mm]	88	88	100	100	120
	ØDi [mm]	930	1,045	1,270	1,565	1,720
	Hi [mm]	80	80	90	90	110
	ØCe [mm]	1,060	1,185	1,420	1,720	1,905
	ØCi [mm]	935	1,050	1,275	1,570	1,725
	Weight [kg]	264	322	463	611	942
GEAR	Module [mm]	10	10	12	14	16
	Z	119	133	131	135	131
	W [mm]	88	88	100	100	120
	Gear capacity unhardened [kN]	131	132	180	210	288
	Gear capacity hardened [kN]	175	176	240	280	383
FASTENING HOLES	External ring hole type	Th	Th	Th	Th	Th
	ØFe [mm]	1,125	1,260	1,495	1,800	1,996
	Ne	40	40	48	48	48
	Dhe [mm]	22	26	26	30	33
	Inner ring hole type	Th	Th	Th	Th	Th
	ØFi [mm]	975	1,100	1,325	1,625	1,794
	Ni	40	40	48	48	48
	Dhi [mm]	22	26	26	30	33
GREASING	Ring with greasing holes	I	I	I	I	I
	Greasing hole type	R	R	R	R	R

Static capacity curves

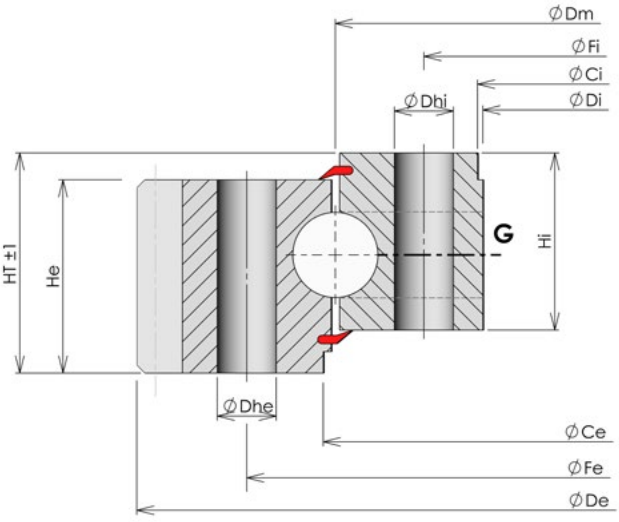


Greasing holes options with M10 x 1.00 thread

E: on External ring
I: on Internal ring
F: Facial
R: Radial

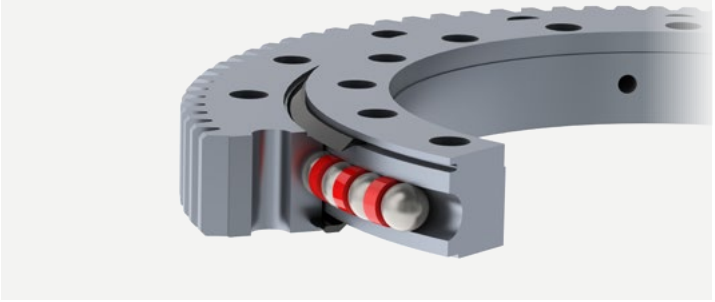
Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



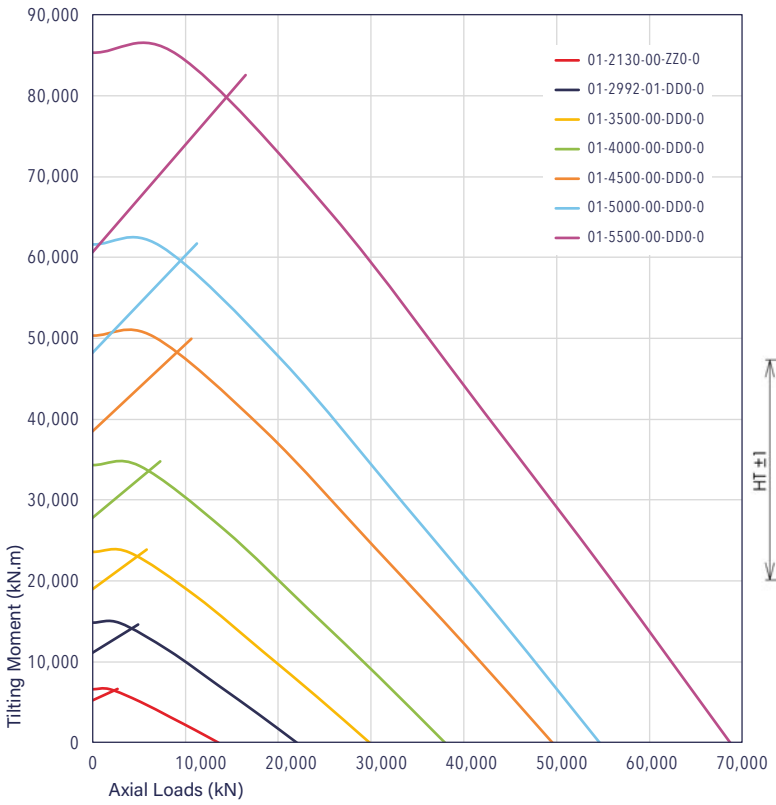
STANDARD BALL SLEWING RINGS

Range 01
Ball bearing with external gear
From 2,000 to 6,000 mm



		REFERENCES						
SPECIFICATIONS		01-2130-00	01-2992-01	01-3500-00	01-4000-00	01-4500-00	01-5000-00	01-5500-00
MAIN DIMENSIONS	HT [mm]	130	150	170	195	205	215	225
	ØDe [mm]	2,390	3,254	3,816	4,316	4,858	5,364	5,899
	He [mm]	120	135	155	180	190	200	210
	ØDi [mm]	1,950	2,810	3,296	3,766	4,238	4,724	5,196
	Hi [mm]	110	125	145	165	175	185	195
	ØCe [mm]	2,140	3,000	3,510	4,010	4,510	5,012	5,511
	ØCi [mm]	1,955	2,812	3,300	3,770	4,242	4,728	5,200
	Weight [kg]	1,100	1,755	2,780	3,821	5,151	6,244	7,979
GEAR	Module [mm]	18	18	20	20	22	22	24
	Z	130	178	188	213	218	241	243
	W [mm]	120	135	155	180	190	200	210
	Gear capacity unhardened [kN]	421	482	616	718	835	882	1,011
	Gear capacity hardened [kN]	490	560	716	835	971	1,026	1,175
FASTENING HOLES	External ring hole type	Th	Th	Th	Th	Th	Th	Th
	ØFe [mm]	2,235	3,104	3,626	4,140	4,658	5,166	5,684
	Ne	60	90	108	120	126	126	126
	Dhe [mm]	33	33	36	39	42	45	48
	Inner ring hole type	Th	Th	Th	Th	Th	Th	Th
	ØFi [mm]	2,025	2,880	3,374	3,860	4,342	4,834	5,316
	Ni	60	90	108	120	126	126	126
	Dhi [mm]	33	33	36	39	42	45	48
GREASING	Ring with greasing holes	I	I	I	I	I	I	I
	Greasing hole type	R	R	R	R	R	R	R

Static capacity curves

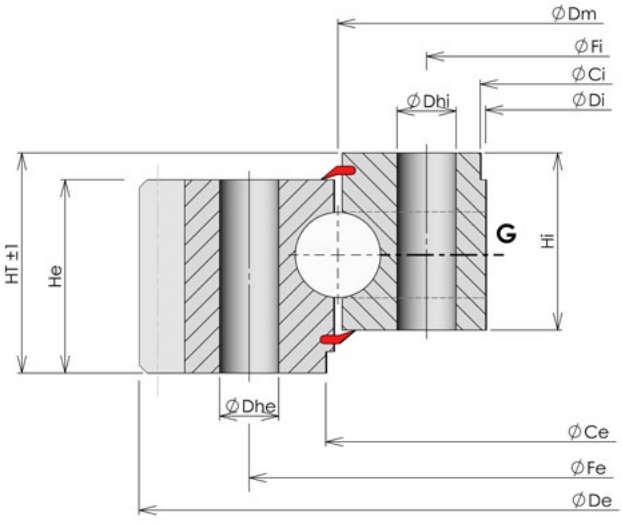


Greasing holes options with M10 x 1.00 thread

E: on External ring
I: on Internal ring
F: Facial
R: Radial

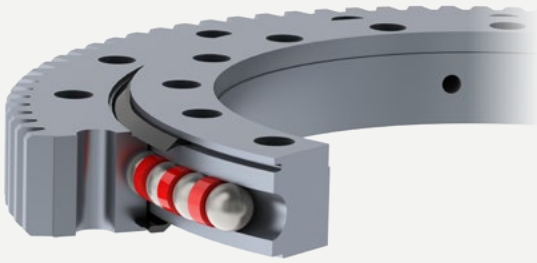
Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



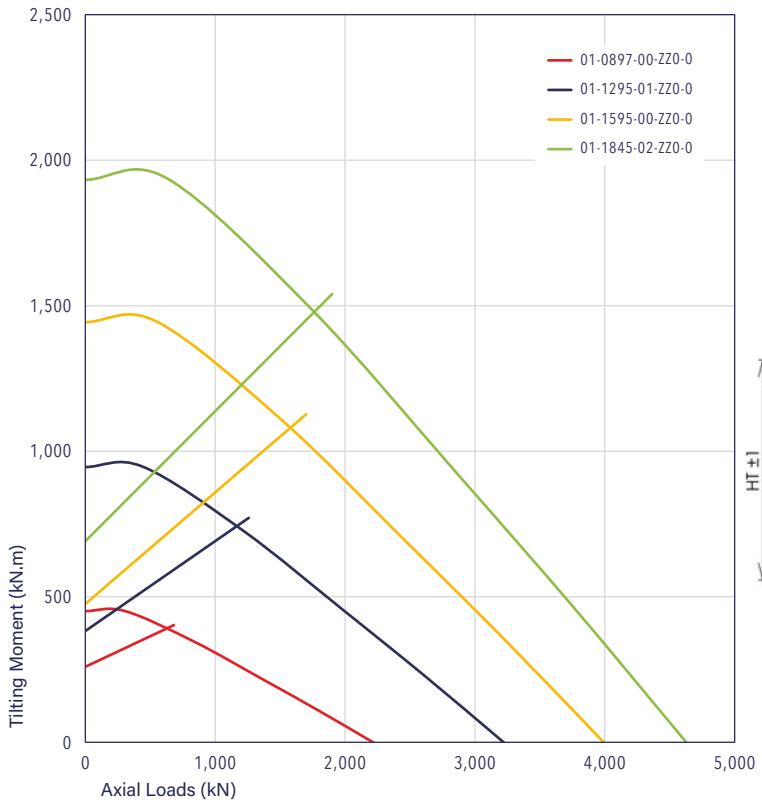
STANDARD BALL SLEWING RINGS

Range 01 - Thin sections
Ball bearing with external gear
From 0 to 2,000 mm



		REFERENCES			
SPECIFICATIONS		01-0897-00	01-1295-01	01-1595-00	01-1845-02
MAIN DIMENSIONS	HT [mm]	56	63	63	63
	ØDe [mm]	1,013	1,431	1,727	1,975
	He [mm]	46	54	54	54
	ØDi [mm]	805	1,200	1,500	1,750
	Hi [mm]	46	54	54	54
	ØCe [mm]	N/A	N/A	N/A	1,848
	ØCi [mm]	806	1,202	1,502	1,752
	Weight [kg]	93	177	214	244
GEAR	Module [mm]	6	8	8	8
	Z	166	177	214	245
	W [mm]	46	54	54	54
	Gear capacity unhardened [kN]	42	66	66	66
	Gear capacity hardened [kN]	56	88	88	89
FASTENING HOLES	External ring hole type	Th	Th	Th	Th
	ØFe [mm]	952	1,354	1,654	1,904
	Ne	24	24	24	30
	Dhe [mm]	17.5	17.5	17.5	17.5
	Inner ring hole type	Th	Th	Th	Th
	ØFi [mm]	842	1,236	1,536	1,786
	Ni	24	24	24	30
	Dhi [mm]	17.5	17.5	17.5	17.5
GREASING	Ring with greasing holes	I	I	I	I
	Greasing hole type	R	R	F	R

Static capacity curves

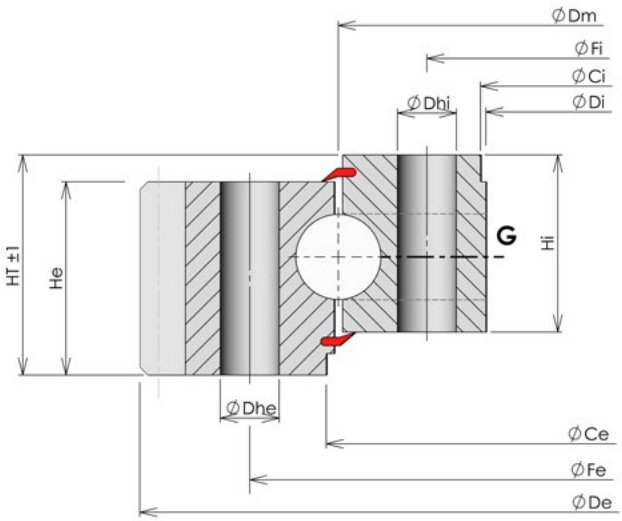


Greasing holes options with M10 x 1.00 thread

E: on External ring
I: on Internal ring
F: Facial
R: Radial

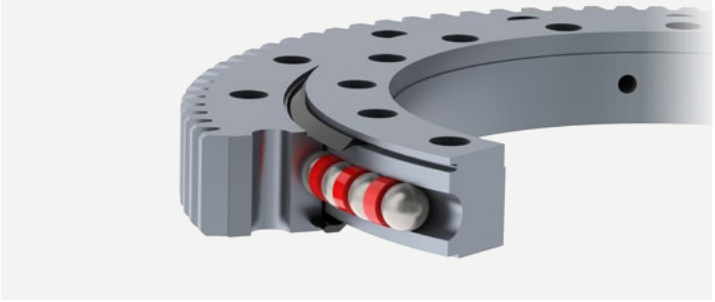
Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



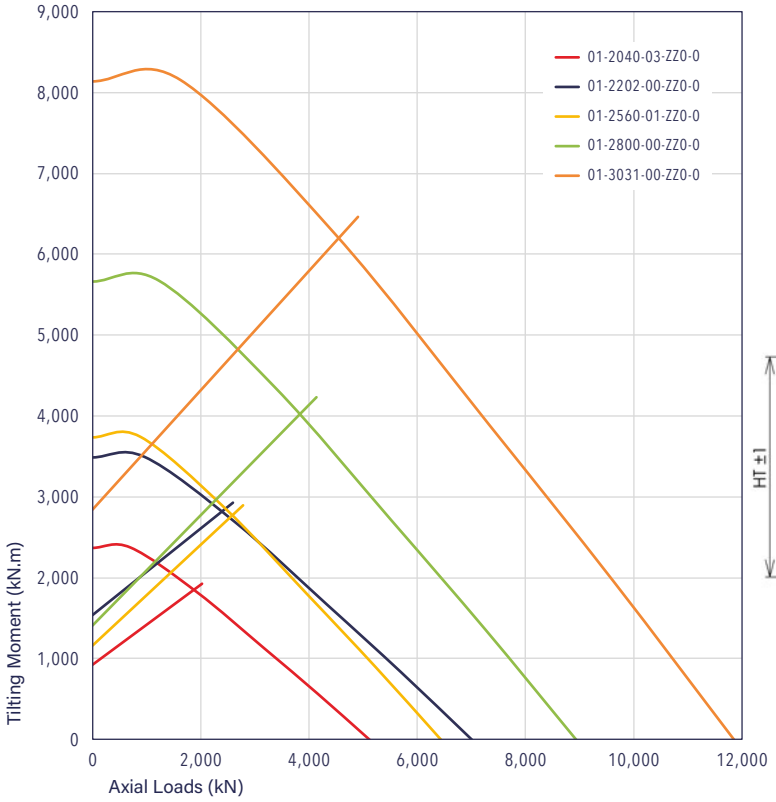
STANDARD BALL SLEWING RINGS

Range 01 - Thin sections
Ball bearing with external gear
From 2,000 to 3,100 mm



		REFERENCES				
SPECIFICATIONS		01-2040-03	01-2202-00	01-2560-01	01-2800-00	01-3031-00
MAIN DIMENSIONS	HT [mm]	68	70	63	73	90
	ØDe [mm]	2,165	2,342	2,695	2,968	3,198
	He [mm]	59	62	54	64	77
	ØDi [mm]	1,950	2,091	2,425	2,690	2,914
	Hi [mm]	59	62	54	64	77
	ØCe [mm]	N/A	N/A	N/A	N/A	3,029
	ØCi [mm]	1,955	2,100	2,427	2,695	3,032
	Weight [kg]	276	370	415	549	719
GEAR	Module [mm]	8	8	8	10	10
	Z	269	290	335	294	318
	W [mm]	55	62	54	64	77
	Gear capacity unhardened [kN]	68	77	67	99	120
	Gear capacity hardened [kN]	91	103	89	132	159
FASTENING HOLES	External ring hole type	Th	Th	Th	Th	Th
	ØFe [mm]	2,090	2,262	2,620	2,870	3,104
	Ne	36	36	36	40	48
	Dhe [mm]	17	22	17	17	22
	Inner ring hole type	Th	Th	Th	Th	Th
	ØFi [mm]	1,985	2,142	2,500	2,730	2,958
	Ni	36	36	36	40	48
	Dhi [mm]	17	22	17	17	22
GREASING	Ring with greasing holes	I	I	I	I	I
	Greasing hole type	R	R	R	R	R

Static capacity curves

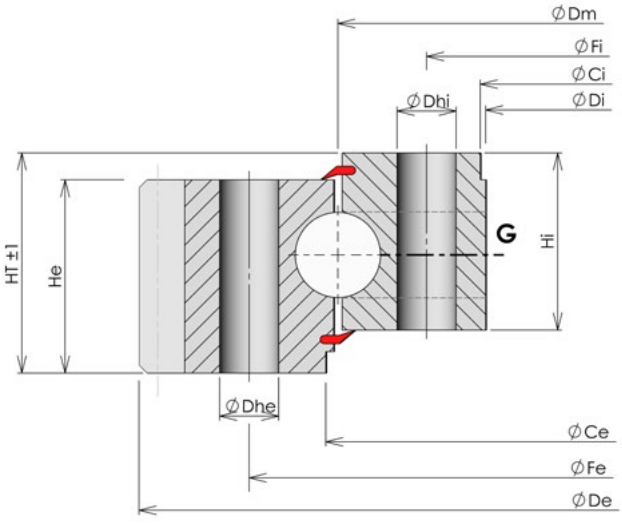


Greasing holes options with M10 x 1.00 thread

E: on External ring
I: on Internal ring
F: Facial
R: Radial

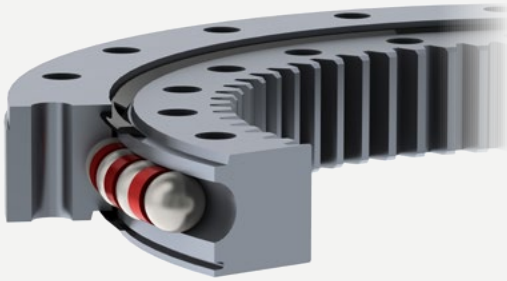
Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



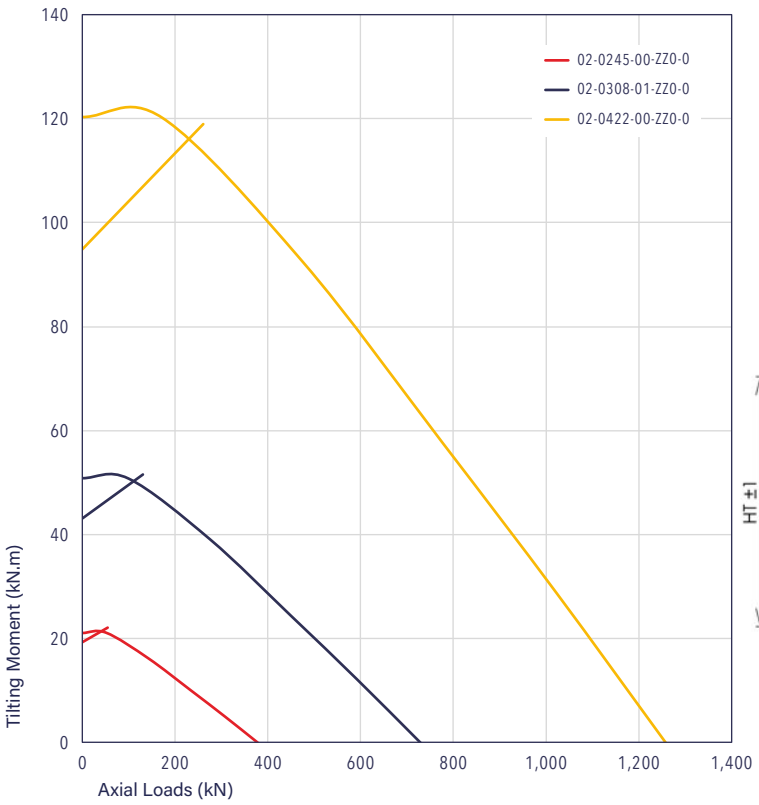
STANDARD BALL SLEWING RINGS

Range 02
Ball bearing with internal gear
From 0 to 500 mm



		REFERENCES		
SPECIFICATIONS		02-0245-00	02-0308-01	02-0422-00
MAIN DIMENSIONS	HT [mm]	40	55	54
	ØDe [mm]	300	385	515
	He [mm]	32	45	50
	ØDi [mm]	174.5	217	316
	Hi [mm]	32	45	50
	ØCe [mm]	298	380	512
	ØCi [mm]	N/A	N/A	N/A
	Weight [kg]	9	23	42
GEAR	Module [mm]	3	4	5
	Z	60	56	64
	W [mm]	32	40	50
	Gear capacity unhardened [kN]	12	22	35
	Gear capacity hardened [kN]	17	29	47
FASTENING HOLES	External ring hole type	Th	Th	Th
	ØFe [mm]	280	358	476
	Ne	20	24	20
	Dhe [mm]	11	13.5	17.5
	Inner ring hole type	Th	Th	Th
	ØFi [mm]	210	259	368
	Ni	20	24	20
	Dhi [mm]	11	13.5	17.5
GREASING	Ring with greasing holes	E	E	E
	Greasing hole type	R	R	R

Static capacity curves

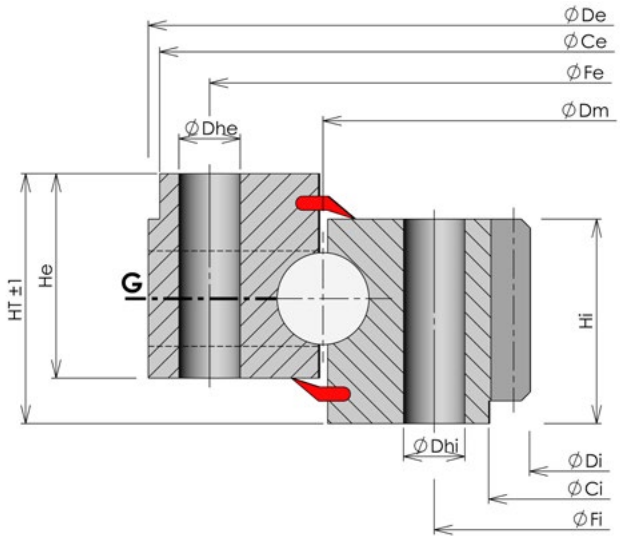


Greasing holes options with M10 x 1.00 thread (sauf pour les références 02-0245-00 → M6 x 1,00):

E: on External ring
I: on Internal ring
F: Facial
R: Radial

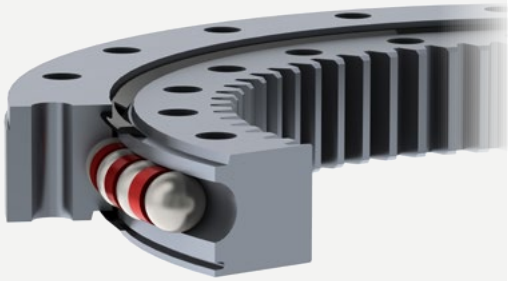
Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



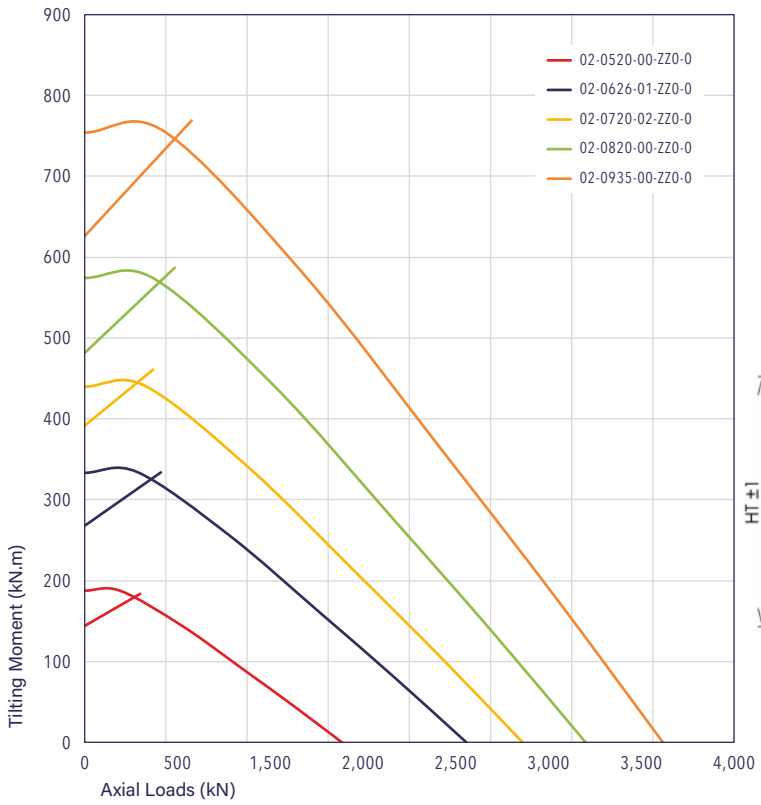
STANDARD BALL SLEWING RINGS

Range 02
Ball bearing with internal gear
From 500 to 1,000 mm



		REFERENCES				
SPECIFICATIONS		02-0520-00	02-0626-01	02-0720-02	02-0820-00	02-0935-00
MAIN DIMENSIONS	HT [mm]	68	76	82	82	82
	ØDe [mm]	610	740	835	935	1,050
	He [mm]	54	66	66	66	66
	ØDi [mm]	403	493	578	674	794
	Hi [mm]	60	66	72	72	72
	ØCe [mm]	608	735	830	930	1,045
	ØCi [mm]	512	N/A	712	812	930
	Weight [kg]	61	102	127	148	166
GEAR	Module [mm]	6	6	8	8	8
	Z	68	83	73	85	100
	W [mm]	60	60	72	72	72
	Gear capacity unhardened [kN]	51	52	82	83	85
	Gear capacity hardened [kN]	68	69	109	111	113
FASTENING HOLES	External ring hole type	Th	Th	Th	Th	Th
	ØFe [mm]	574	692	786	886	1,000
	Ne	24	24	30	32	36
	Dhe [mm]	17.5	22	22	22	22
	Inner ring hole type	Th	Th	Th	Th	Th
	ØFi [mm]	466	560	654	754	870
	Ni	24	24	30	32	36
	Dhi [mm]	17.5	22	22	22	22
GREASING	Ring with greasing holes	E	E	E	E	E
	Greasing hole type	R	R	R	R	R

Static capacity curves

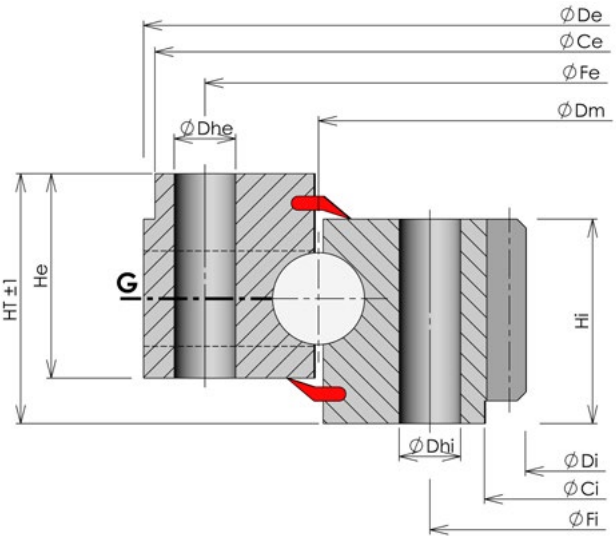


Greasing holes options with M10 x 1.00 thread

E: on External ring
I: on Internal ring
F: Facial
R: Radial

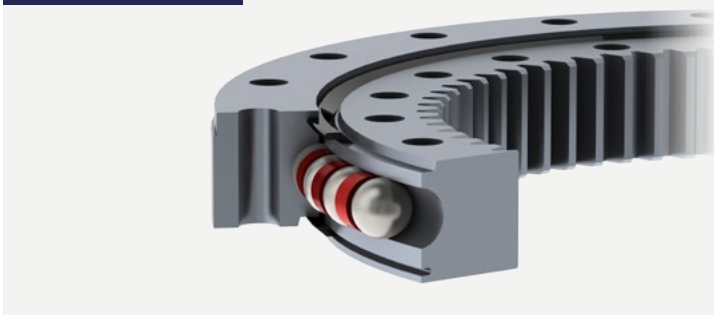
Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



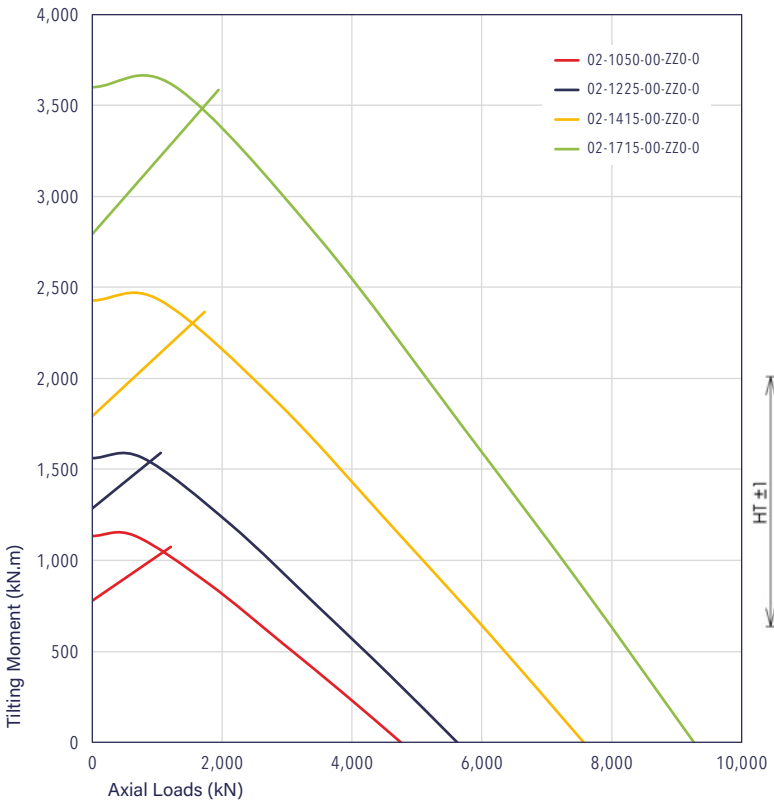
STANDARD BALL SLEWING RINGS

Range 02
Ball bearing with internal gear
From 1,000 to 2,000 mm



		REFERENCES			
SPECIFICATIONS		02-1050-00	02-1225-00	02-1415-00	02-1715-00
MAIN DIMENSIONS	HT [mm]	98	98	110	110
	ØDe [mm]	1,170	1,360	1,560	1,870
	He [mm]	80	80	90	90
	ØDi [mm]	882	1,052	1,215	1,501
	Hi [mm]	88	88	100	100
	ØCe [mm]	1,165	1,355	1,555	1,865
	ØCi [mm]	1,040	1,220	1,405	1,710
	Weight [kg]	254	319	465	602
GEAR	Module [mm]	10	10	12	14
	Z	89	106	102	108
	W [mm]	88	88	100	100
	Gear capacity unhardened [kN]	128	130	177	207
	Gear capacity hardened [kN]	171	173	236	276
FASTENING HOLES	External ring hole type	Th	Th	Th	Th
	ØFe [mm]	1,125	1,303	1,500	1,804
	Ne	40	40	48	48
	Dhe [mm]	22	26	26	30
	Inner ring hole type	Th	Th	Th	Th
	ØFi [mm]	975	1,147	1,330	1,626
	Ni	40	40	48	48
	Dhi [mm]	22	26	26	30
GREASING	Ring with greasing holes	E	E	E	E
	Greasing hole type	R	R	R	R

Static capacity curves

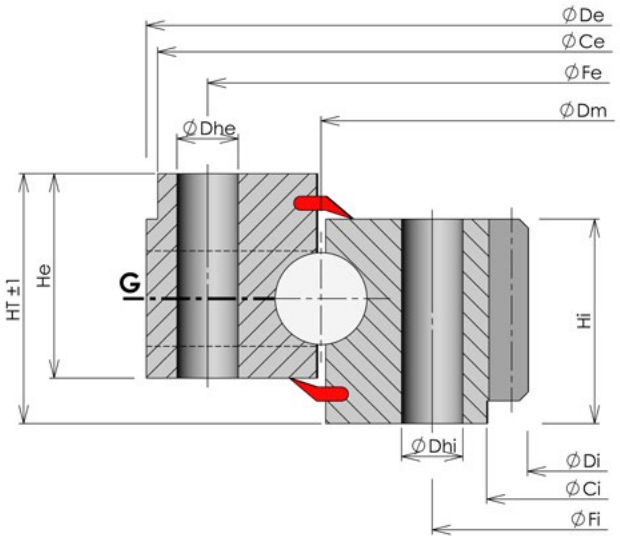


Greasing holes options with M10 x 1.00 thread

E: on External ring
I: on Internal ring
F: Facial
R: Radial

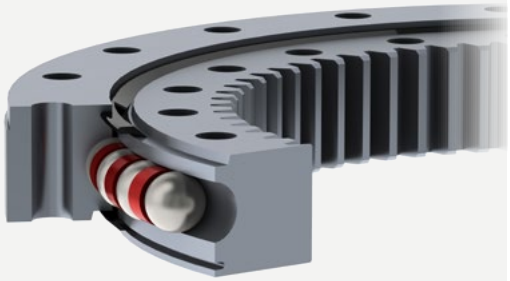
Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



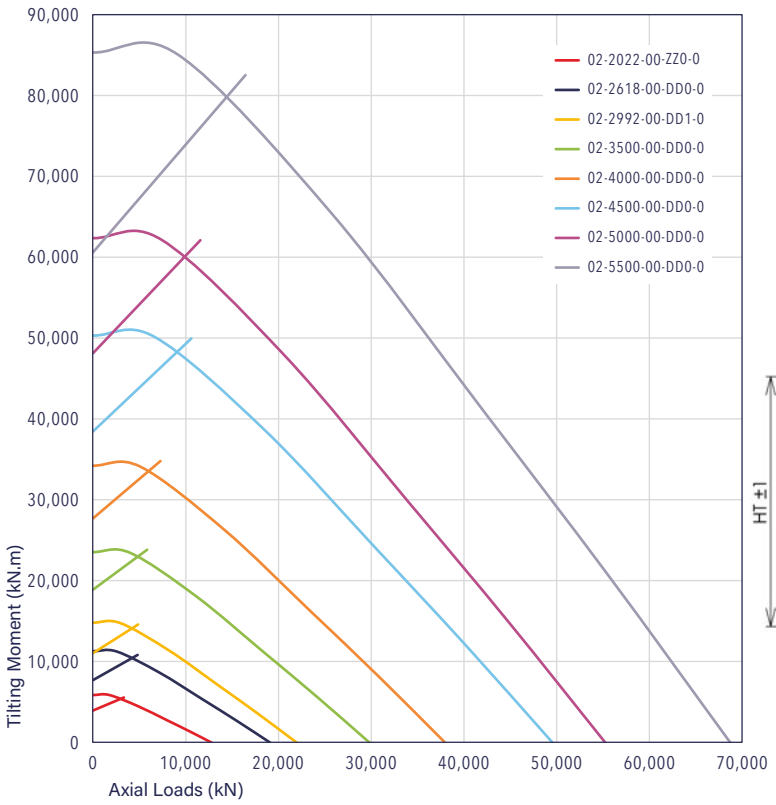
STANDARD BALL SLEWING RINGS

Range 02
Ball bearing with internal gear
From 2,000 to 6,000 mm



		REFERENCES							
SPECIFICATIONS		02-2022-00	02-2618-00	02-2992-00	02-3500-00	02-4000-00	02-4500-00	02-5000-00	02-5500-00
MAIN DIMENSIONS	HT [mm]	130	130	150	170	195	205	215	225
	ØDe [mm]	2,195	2,785	3,180	3,720	4,242	4,772	5,276	5,810
	He [mm]	110	110	125	145	165	175	185	195
	ØDi [mm]	1,780	2,362	2,722	3,204	3,684	4,140	4,624	5,093
	Hi [mm]	120	120	135	155	180	190	200	210
	ØCe [mm]	2,190	2,780	3,178	3,716	4,238	4,768	5,272	5,806
	ØCi [mm]	2,010	2,610	2,984	3,490	3,990	4,490	4,988	5,489
	Weight [kg]	967	1,255	1,784	2,687	3,827	5,184	6,292	8,062
GEAR	Module [mm]	16	18	18	20	20	22	22	24
	Z	112	132	152	161	185	189	211	213
	W [mm]	120	120	135	155	180	190	200	210
	Gear capacity unhardened [kN]	371	422	480	613	715	830	878	1,006
	Gear capacity hardened [kN]	431	491	558	719	831	966	1,020	1,169
FASTENING HOLES	External ring hole type	Th	Th	Th	Th	Th	Th	Th	Th
	ØFe [mm]	2,123	2,720	3,104	3,626	4,140	4,658	5,166	5,684
	Ne	48	72	90	108	120	126	126	126
	Dhe [mm]	33	33	33	36	39	42	45	48
	Inner ring hole type	Th	Th	Th	Th	Th	Th	Th	Th
	ØFi [mm]	1,921	2,517	2,880	3,374	3,860	4,342	4,834	5,316
	Ni	48	72	90	108	120	126	126	126
	Dhi [mm]	33	33	33	36	39	42	45	48
GREASING	Ring with greasing holes	E	E	E	E	E	E	E	E
	Greasing hole type	R	R	R	R	R	R	R	R

Static capacity curves

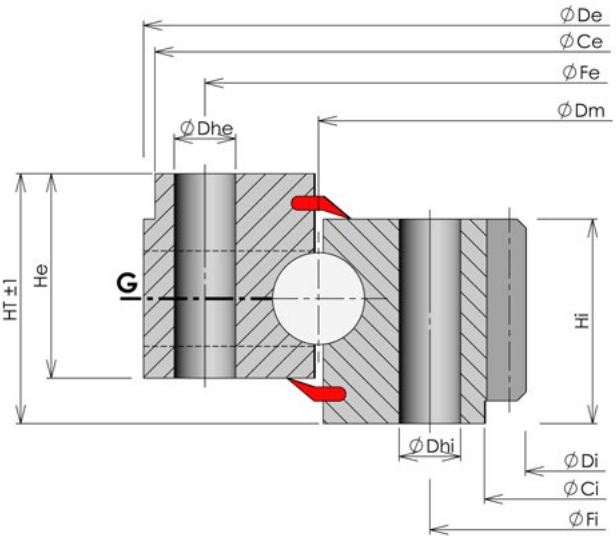


Greasing holes options with M10 x 1.00 thread

E: on External ring
I: on Internal ring
F: Facial
R: Radial

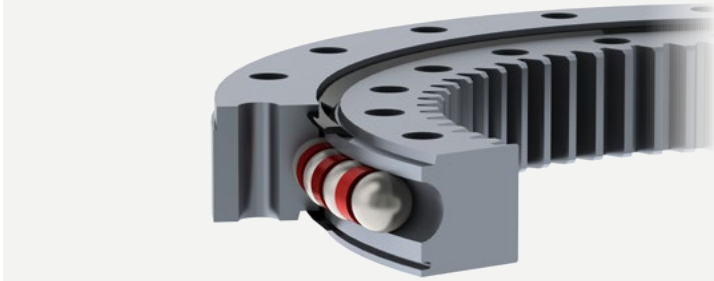
Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



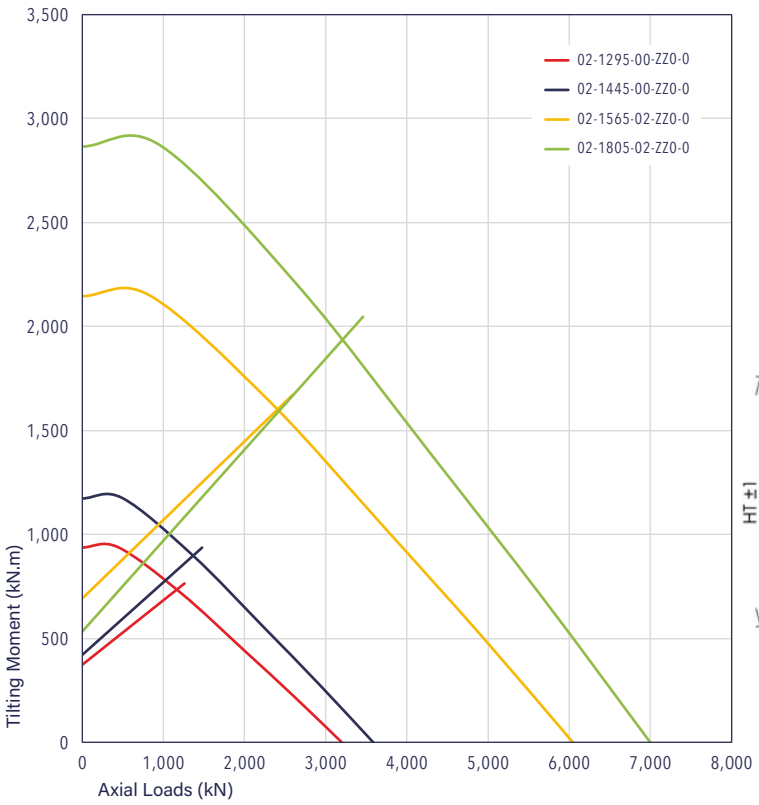
STANDARD BALL SLEWING RINGS

Range 02 - Thin sections
Ball bearing with internal gear
From 0 to 2,000 mm



		REFERENCES			
SPECIFICATIONS		02-1295-00	02-1445-00	02-1565-02	02-1805-02
MAIN DIMENSIONS	HT [mm]	63	63	78	78
	ØDe [mm]	1,390	1,546	1,676	1,916
	He [mm]	54	54	62	62
	ØDi [mm]	1,162	1,306	1,422	1,662
	Hi [mm]	54	54	70	70
	ØCe [mm]	1,385	1,540	1,674	1,916
	ØCi [mm]	N/A	N/A	1,561	1,800
	Weight [kg]	171	203	275	323
GEAR	Module [mm]	8	8	10	10
	Z	146	164	144	168
	W [mm]	54	54	70	70
	Gear capacity unhardened [kN]	65	65	106	106
	Gear capacity hardened [kN]	87	87	141	142
FASTENING HOLES	External ring hole type	Th	Th	Th	Th
	ØFe [mm]	1,354	1,504	1,636	1,876
	Ne	24	24	36	24
	Dhe [mm]	17.5	17.5	17.5	17.5
	Inner ring hole type	Th	Th	Th	Th
	ØFi [mm]	1,236	1,386	1,506	1,746
	Ni	24	24	36	24
	Dhi [mm]	17.5	17.5	17.5	17.5
GREASING	Ring with greasing holes	E	E	E	E
	Greasing hole type	R	R	R	R

Static capacity curves

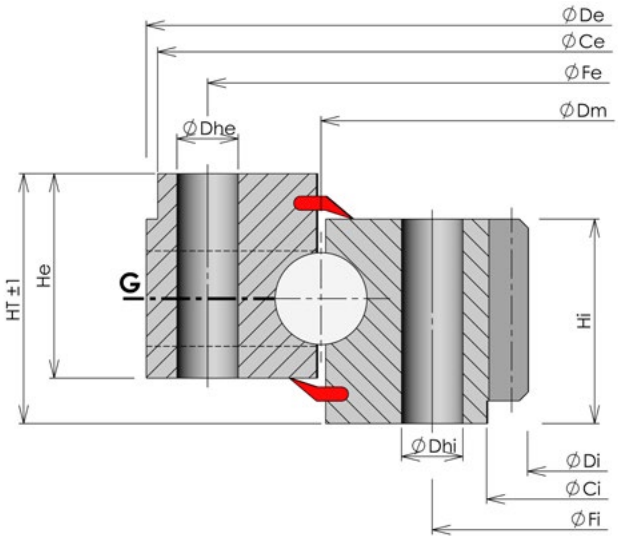


Greasing holes options with M10 x 1.00 thread

E: on External ring
I: on Internal ring
F: Facial
R: Radial

Fastening holes type options:

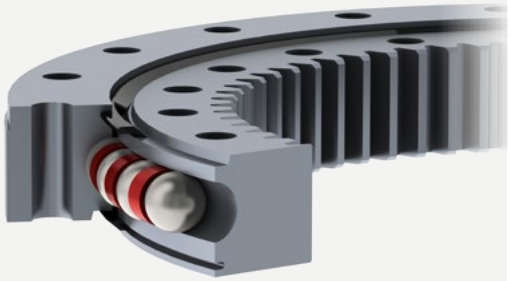
Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



SINGLE ROW

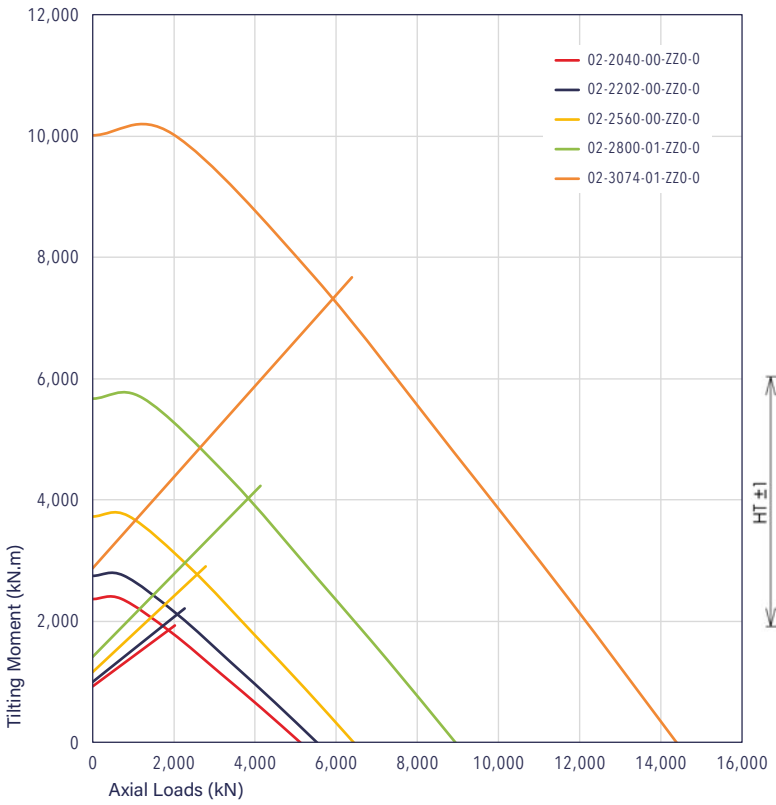
STANDARD BALL SLEWING RINGS

Range 02 - Thin sections
Ball bearing with internal gear
From 2,000 to 3,100 mm



		REFERENCES				
SPECIFICATIONS		02-2040-00	02-2202-00	02-2560-00	02-2800-01	02-3074-01
MAIN DIMENSIONS	HT [mm]	68	70	63	73	90
	ØDe [mm]	2,130	2,298	2,695	2,910	3,190
	He [mm]	59	62	54	64	80
	ØDi [mm]	1,906	2,066	2,426	2,632	2,914
	Hi [mm]	59	62	54	64	80
	ØCe [mm]	2,125	2,290	2,690	2,905	3,188
	ØCi [mm]	N/A	N/A	N/A	N/A	N/A
	Weight [kg]	290	343	416	540	725
GEAR	Module [mm]	8	8	8	10	8
	Z	239	259	304	264	366
	W [mm]	59	62	54	64	80
	Gear capacity unhardened [kN]	73	76	67	99	99
	Gear capacity hardened [kN]	97	102	89	132	133
FASTENING HOLES	External ring hole type	Th	Th	Th	Th	Th
	ØFe [mm]	2,090	2,262	2,620	2,870	3,150
	Ne	36	36	36	40	48
	Dhe [mm]	17.5	17.5	17.5	17.5	22
	Inner ring hole type	Th	Th	Th	Th	Th
	ØFi [mm]	1,985	2,142	2,500	2,730	2,998
	Ni	36	36	36	40	48
	Dhi [mm]	17.5	17.5	17.5	17.5	22
GREASING	Ring with greasing holes	E	E	E	E	E
	Greasing hole type	R	R	R	R	R

Static capacity curves

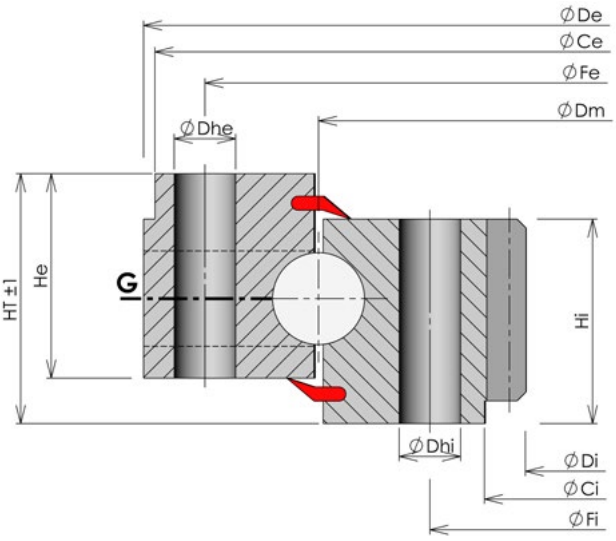


Greasing holes options with M10 x 1.00 thread

E: on External ring
I: on Internal ring
F: Facial
R: Radial

Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind

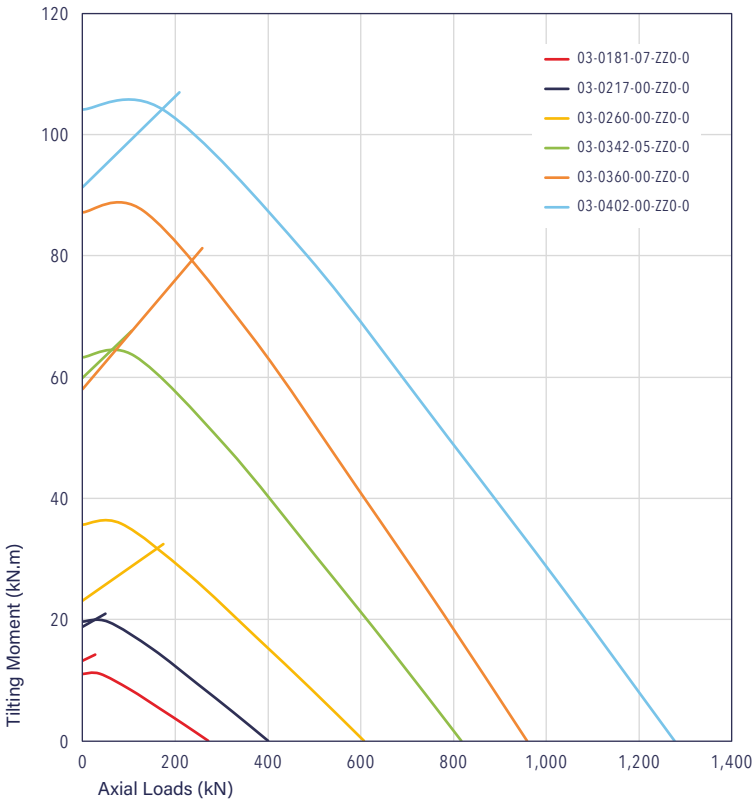


STANDARD BALL SLEWING RINGS

Range 03
Ball bearing without gear
From 0 to 500 mm

		REFERENCES					
SPECIFICATIONS		03-0181-07	03-0217-00	03-0260-00	03-0342-05	03-0360-00	03-0402-00
MAIN DIMENSIONS	HT [mm]	25	41	45	50	71	45
	ØDe [mm]	234	290	329	440	455	475
	He [mm]	25	41	44	44	63	44
	ØDi [mm]	125	150	190	265	265	335
	Hi [mm]	25	40	44	44	63	44
	ØCe [mm]	N/A	241	328	438	450	474
	ØCi [mm]	N/A	N/A	192	267	270	336
	Weight [kg]	4	12	16	29	43	26
FASTENING HOLES	External ring hole type	Th	Th	Th	Th	Th	Th
	ØFe [mm]	214	265	305	390	420	450
	Ne	24	16	16	16	24	24
	Dhe [mm]	11	14	14	17.5	17.5	14
	Inner ring hole type	Th	Ta	Th	Th	Th	Th
	ØFi [mm]	144.5	175	215	295	300	360
	Ni	20	16	16	16	24	24
	Dhi [mm]	11	M12	14	17.5	17.5	14
GREASING	Ring with greasing holes	E	E	E	I	E	E
	Greasing hole type	R	R	R	R	R	R

Static capacity curves

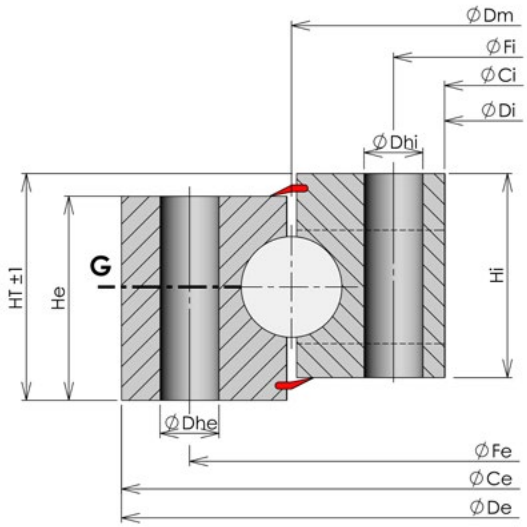


Greasing holes options with M10 x 1.00 thread

E: on External ring
I: on Internal ring
F: Facial
R: Radial

Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind

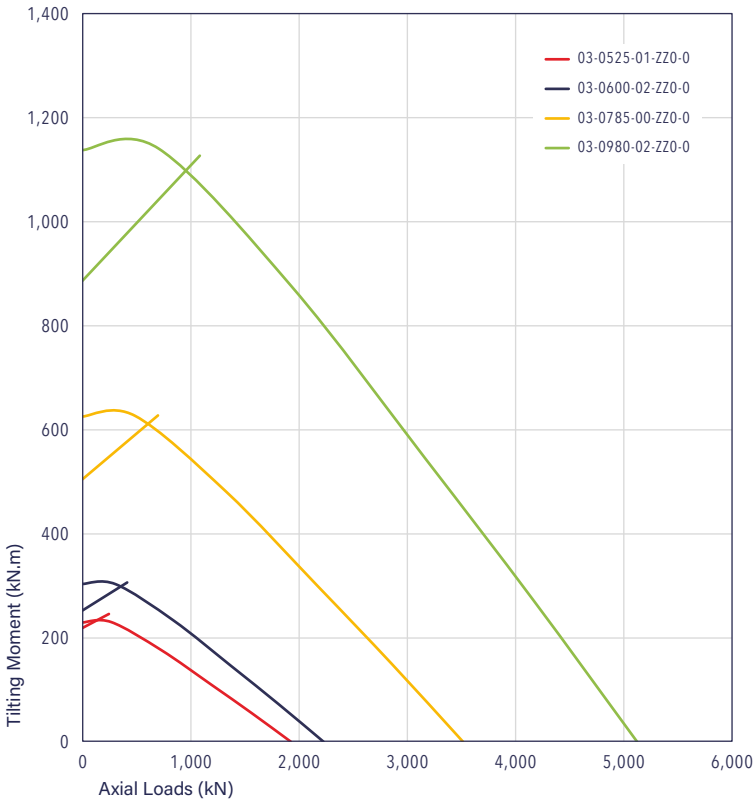


STANDARD BALL SLEWING RINGS

Range 03
Ball bearing without gear
From 500 to 1,000 mm

		REFERENCES			
SPECIFICATIONS		03-0525-01	03-0600-02	03-0785-00	03-0980-02
MAIN DIMENSIONS	HT [mm]	72	72	86	100
	ØDe [mm]	626	712	900	1,130
	He [mm]	63	63	77	90
	ØDi [mm]	424	487	670	845
	Hi [mm]	63	63	77	90
	ØCe [mm]	625	710	898	1,130
	ØCi [mm]	425	490	672	845
	Weight [kg]	68	89	144	267
FASTENING HOLES	External ring hole type	Th	Th	Th	Th
	ØFe [mm]	590	668	860	1,070
	Ne	24	24	36	36
	Dhe [mm]	22	22	22	26
	Inner ring hole type	Th	Th	Th	Th
	ØFi [mm]	460	531	710	890
	Ni	24	24	36	36
	Dhi [mm]	22	22	22	26
GREASING	Ring with greasing holes	E	E	E	E
	Greasing hole type	R	R	R	R

Static capacity curves

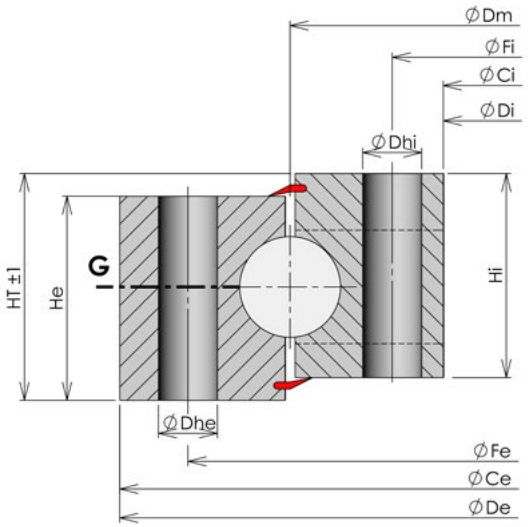


Greasing holes options with M10 x 1.00 thread

E: on External ring
I: on Internal ring
F: Facial
R: Radial

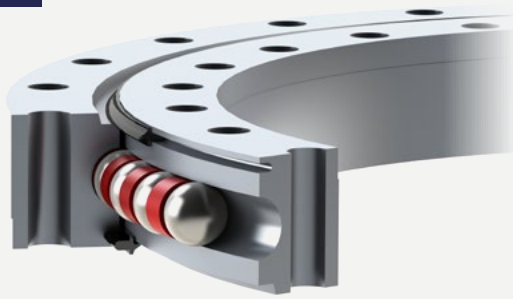
Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



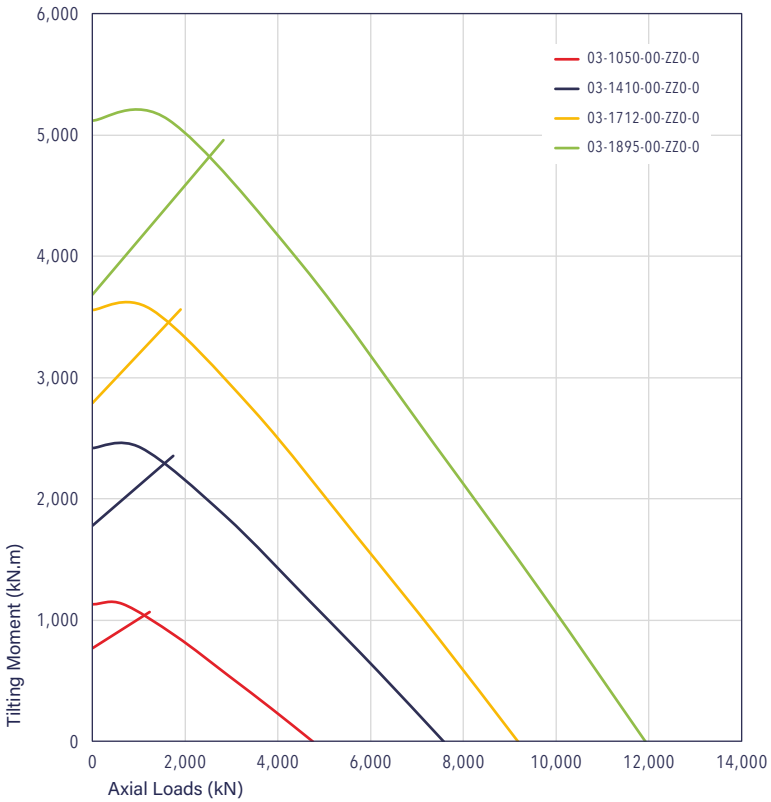
STANDARD BALL SLEWING RINGS

Range 03
Ball bearing without gear
From 1,000 to 2,000 mm



		REFERENCES			
SPECIFICATIONS		03-1050-00	03-1410-00	03-1712-00	03-1895-00
MAIN DIMENSIONS	HT [mm]	98	110	110	130
	ØDe [mm]	1,218	1,550	1,860	2,080
	He [mm]	88	100	100	120
	ØDi [mm]	930	1,270	1,565	1,720
	Hi [mm]	80	90	90	110
	ØCe [mm]	1,060	1,420	1,720	1,905
	ØCi [mm]	935	1,275	1,570	1,725
	Weight [kg]	288	397	509	843
FASTENING HOLES	External ring hole type	Th	Th	Th	Th
	ØFe [mm]	1,125	1,495	1,800	1,996
	Ne	40	48	48	48
	Dhe [mm]	22	26	30	33
	Inner ring hole type	Th	Th	Th	Th
	ØFi [mm]	975	1,325	1,625	1,794
	Ni	40	48	48	48
	Dhi [mm]	22	26	30	33
GREASING	Ring with greasing holes	I	I	I	I
	Greasing hole type	R	R	R	R

Static capacity curves

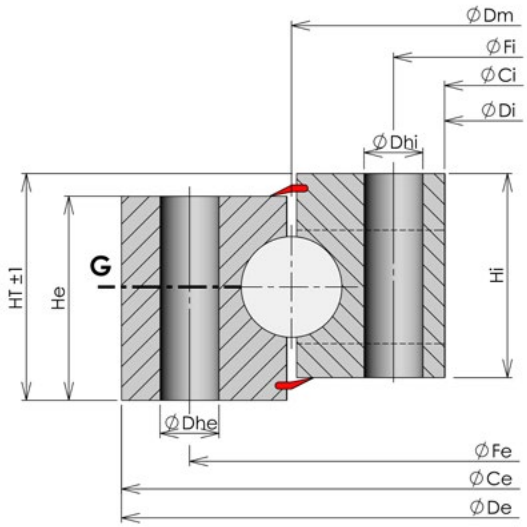


Greasing holes options with M10 x 1.00 thread

E: on External ring
I: on Internal ring
F: Facial
R: Radial

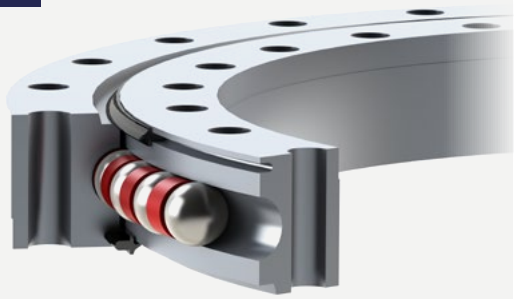
Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



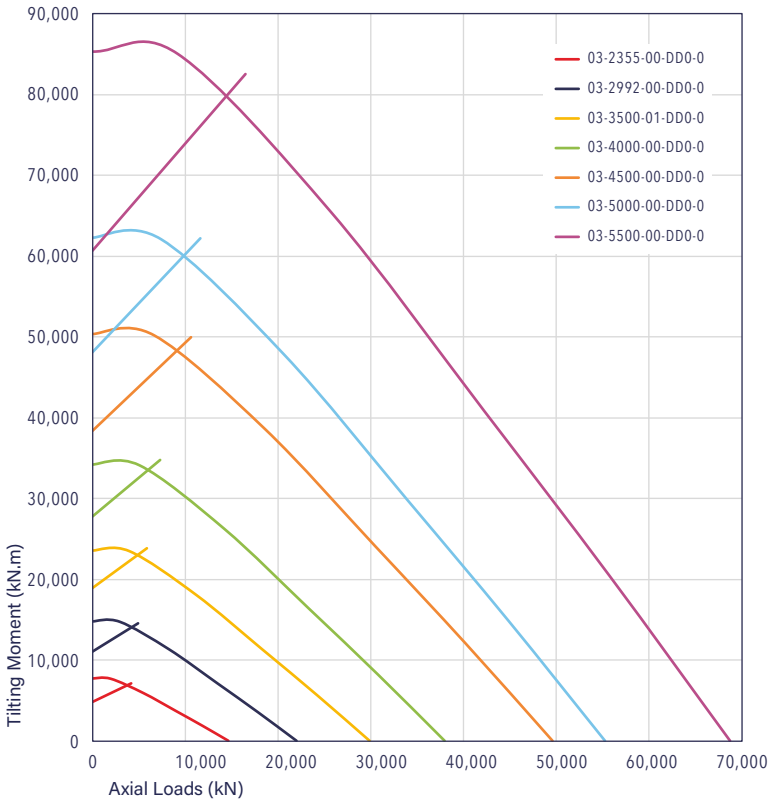
STANDARD BALL SLEWING RINGS

Range 03
Ball bearing without gear
From 2,000 to 6,000 mm



		REFERENCES						
SPECIFICATIONS		03-2355-00	03-2992-00	03-3500-01	03-4000-00	03-4500-00	03-5000-00	03-5500-00
MAIN DIMENSIONS	HT [mm]	110	140	160	180	190	200	210
	ØDe [mm]	2,525	3,180	3,720	4,242	4,772	5,276	5,810
	He [mm]	98	125	145	165	175	185	195
	ØDi [mm]	2,184	2,810	3,296	3,766	4,238	4,724	5,196
	Hi [mm]	98	125	145	165	175	185	195
	ØCe [mm]	2,522	3,178	3,716	4,238	4,768	5,272	5,806
	ØCi [mm]	2,186	2,812	3,300	3,770	4,242	4,728	5,200
	Weight [kg]	859	1,468	2,263	3,298	4,426	5,381	6,990
FASTENING HOLES	External ring hole type	Th	Th	Th	Th	Th	Th	Th
	ØFe [mm]	2,460	3,104	3,626	4,140	4,658	5,166	5,684
	Ne	60	90	108	120	126	126	126
	Dhe [mm]	30	33	36	39	42	45	48
	Inner ring hole type	Th	Th	Th	Th	Th	Th	Th
	ØFi [mm]	2,250	2,880	3,374	3,860	4,342	4,834	5,316
	Ni	60	90	108	120	126	126	126
	Dhi [mm]	30	33	36	39	42	45	48
GREASING	Ring with greasing holes	I	E	E	E	E	E	I
	Greasing hole type	R	R	R	R	R	R	R

Static capacity curves

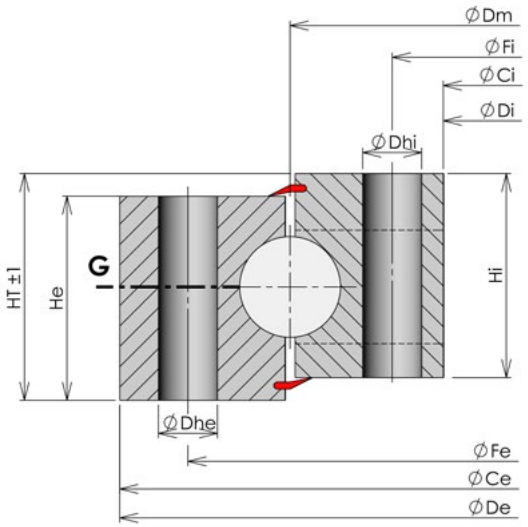


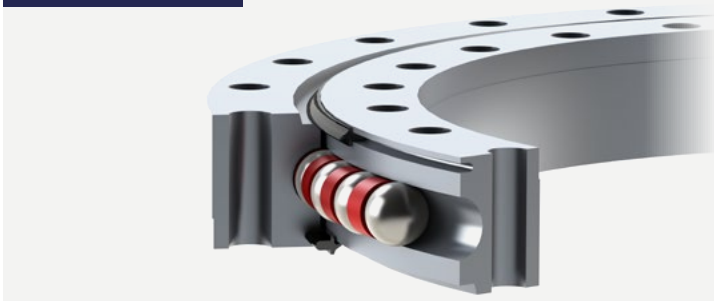
Greasing holes options with M10 x 1.00 thread

E: on External ring
I: on Internal ring
F: Facial
R: Radial

Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



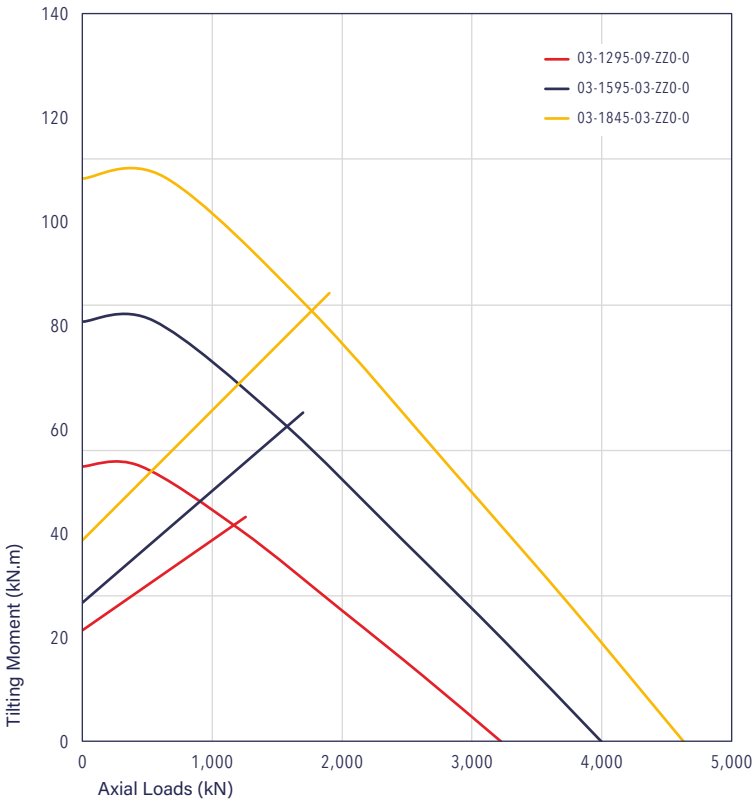


STANDARD BALL SLEWING RINGS

Range 03 - Thin sections
Ball bearing without gear
From 0 to 2,000 mm

		REFERENCES		
SPECIFICATIONS		03-1295-09	03-1595-03	03-1845-03
MAIN DIMENSIONS	HT [mm]	63	63	63
	ØDe [mm]	1,390	1,690	1,975
	He [mm]	54	54	54
	ØDi [mm]	1,200	1,500	1,750
	Hi [mm]	54	54	54
	ØCe [mm]	1,385	1,688	1,965
	ØCi [mm]	1,202	1,502	1,752
	Weight [kg]	152	189	264
FASTENING HOLES	External ring hole type	Th	Th	Th
	ØFe [mm]	1,354	1,654	1,904
	Ne	24	24	30
	Dhe [mm]	17.5	17.5	17.5
	Inner ring hole type	Th	Th	Th
	ØFi [mm]	1,236	1,536	1,786
	Ni	24	24	30
	Dhi [mm]	17.5	17.5	17.5
GREASING	Ring with greasing holes	I	I	I
	Greasing hole type	R	F	R

Static capacity curves

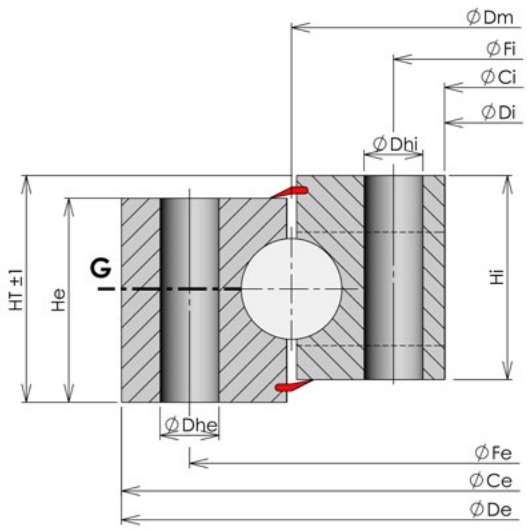


Greasing holes options with M10 x 1.00 thread

E: on External ring
I: on Internal ring
F: Facial
R: Radial

Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind

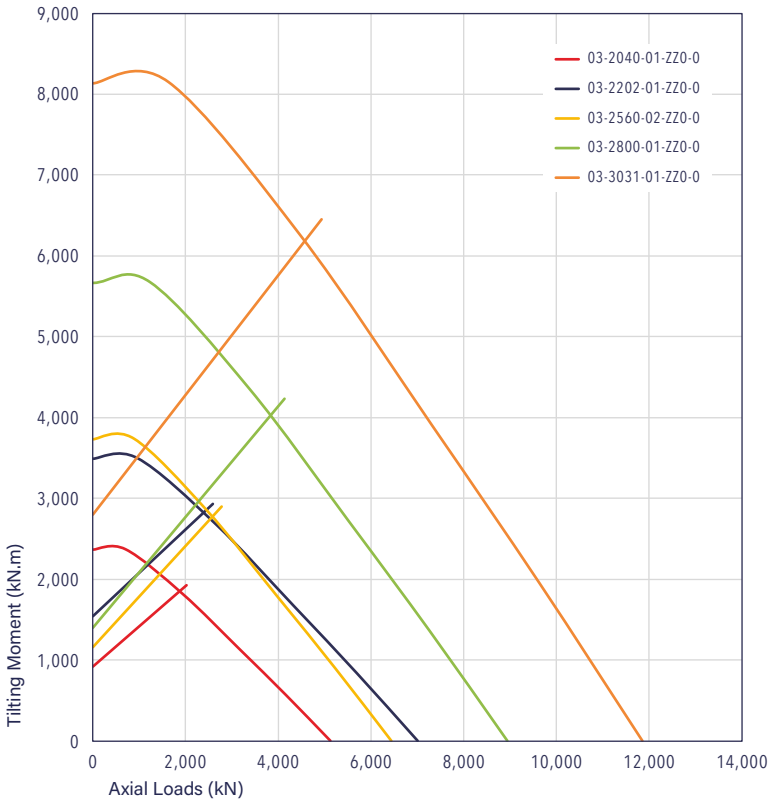


STANDARD BALL SLEWING RINGS

Range 03 - Thin sections
Ball bearing without gear
From 2,000 to 3,100 mm

		REFERENCES				
SPECIFICATIONS		03-2040-01	03-2202-01	03-2560-02	03-2800-01	03-3031-01
MAIN DIMENSIONS	HT [mm]	68	70	63	73	90
	ØDe [mm]	2,130	2,342	2,695	2,910	3,198
	He [mm]	59	62	54	64	77
	ØDi [mm]	1,950	2,091	2,425	2,690	2,914
	Hi [mm]	59	62	54	64	77
	ØCe [mm]	2,125	N/A	2,690	2,905	3,029
	ØCi [mm]	1,955	2,100	2,427	2,695	3,032
	Weight [kg]	247	395	440	454	774
FASTENING HOLES	External ring hole type	Th	Th	Th	Th	Th
	ØFe [mm]	2,090	2,262	2,620	2,870	3,104
	Ne	36	36	36	40	48
	Dhe [mm]	17.5	22	17.5	17.5	22
	Inner ring hole type	Th	Th	Th	Th	Th
	ØFi [mm]	1,985	2,142	2,500	2,730	2,958
	Ni	36	36	36	40	48
	Dhi [mm]	17.5	22	17.5	17.5	22
GREASING	Ring with greasing holes	E	I	I	I	I
	Greasing hole type	R	F	R	R	R

Static capacity curves

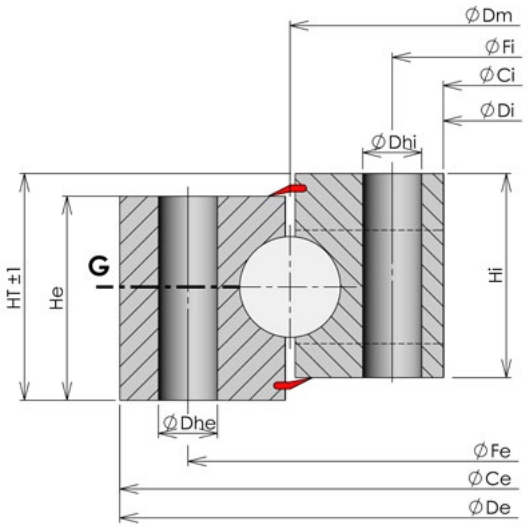


Greasing holes options with M10 x 1.00 thread

E: on External ring
I: on Internal ring
F: Facial
R: Radial

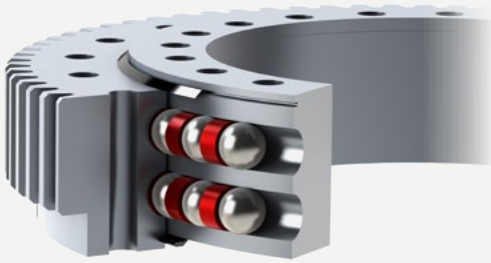
Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



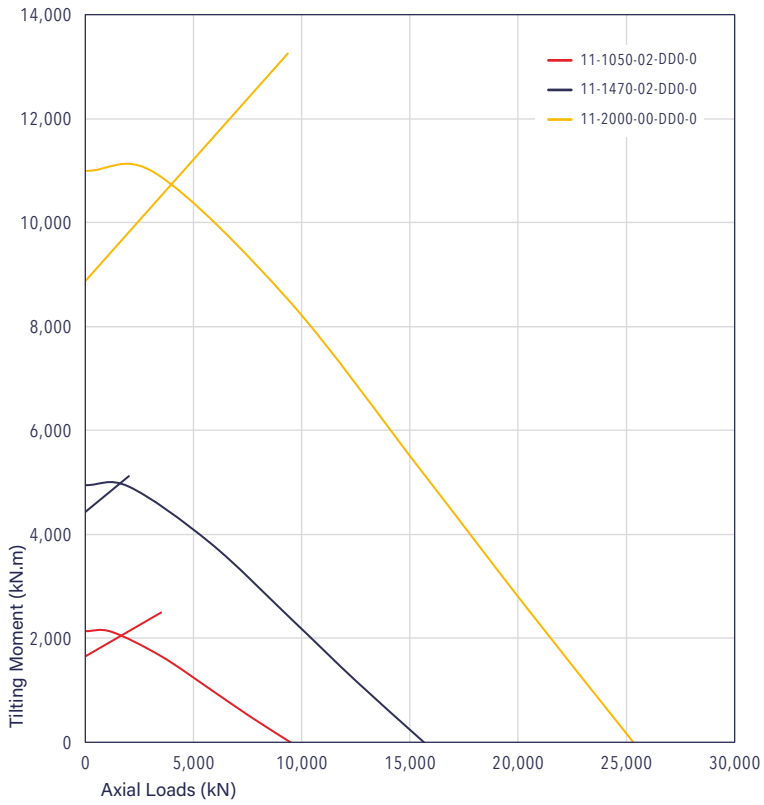
STANDARD BALL SLEWING RINGS

Range 11
Ball bearing with external gear
From 1,000 to 2,000 mm



		REFERENCES		
SPECIFICATIONS		11-1050-02	11-1470-02	11-2000-00
MAIN DIMENSIONS	HT [mm]	139	168	200
	ØDe [mm]	1,246	1,725	2,300
	He [mm]	129	157	185
	ØDi [mm]	905	1,286	1,780
	Hi [mm]	129	157	185
	ØCe [mm]	1,190	1,650	2,218
	ØCi [mm]	907	1,288	1,782
	Weight [kg]	457	1,014	1,926
GEAR	Module [mm]	12	16	18
	Z	101	105	125
	W [mm]	100	147	150
	Gear capacity unhardened [kN]	230	452	525
	Gear capacity hardened [kN]	268	526	611
FASTENING HOLES	External ring hole type	Th	Th	Th
	ØFe [mm]	1,133	1,570	2,130
	Ne	48	54	60
	Dhe [mm]	30	39	45
	Inner ring hole type	Th	Th	Th
	ØFi [mm]	967	1,370	1,870
	Ni	48	54	60
	Dhi [mm]	30	39	45
GREASING	Ring with greasing holes	I	I	I
	Greasing hole type	R	R	R

Static capacity curves

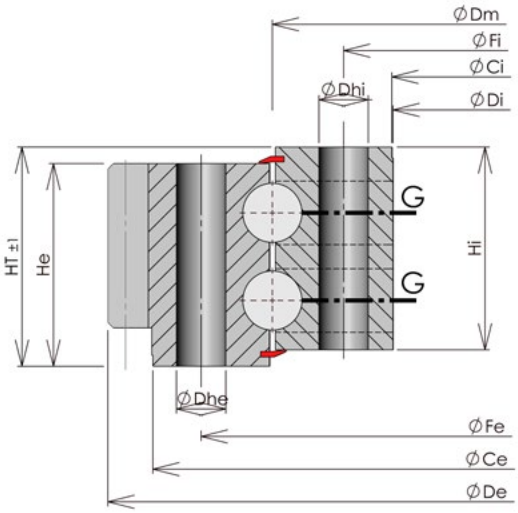


Greasing holes options with M10 x 1.00 thread

E: on External ring
I: on Internal ring
F: Facial
R: Radial

Fastening holes type options:

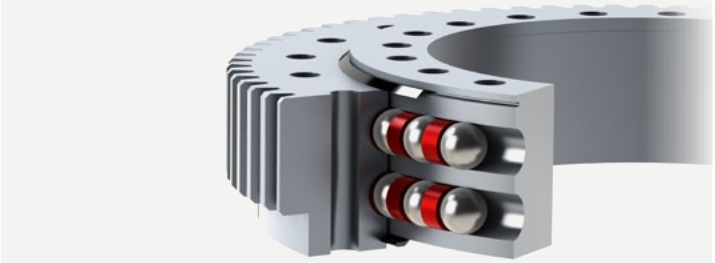
Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



DOUBLE ROW

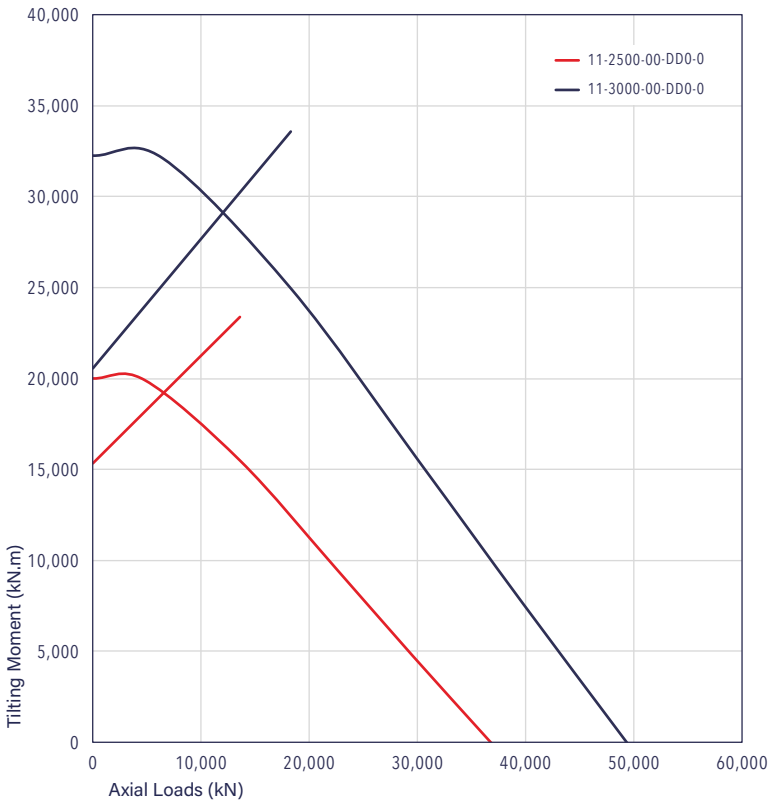
STANDARD BALL SLEWING RINGS

Range 11
Ball bearing with external gear
From 2,000 to 3,000 mm



SPECIFICATIONS		REFERENCES 11-2500-00	11-3000-00
MAIN DIMENSIONS	HT [mm]	235	242
	ØDe [mm]	2,856	3,356
	He [mm]	220	230
	ØDi [mm]	2,255	2,743
	Hi [mm]	220	230
	ØCe [mm]	2,765	3,252
	ØCi [mm]	2,260	2,745
	Weight [kg]	3,359	4,298
GEAR	Module [mm]	20	20
	Z	140	165
	W [mm]	180	190
	Gear capacity unhardened [kN]	706	752
	Gear capacity hardened [kN]	821	874
FASTENING HOLES	External ring hole type	Th	Th
	ØFe [mm]	2,645	3,150
	Ne	72	72
	Dhe [mm]	48	52
	Inner ring hole type	Th	Th
	ØFi [mm]	2,355	2,850
	Ni	72	72
	Dhi [mm]	48	52
GREASING	Ring with greasing holes	I	I
	Greasing hole type	R	R

Static capacity curves

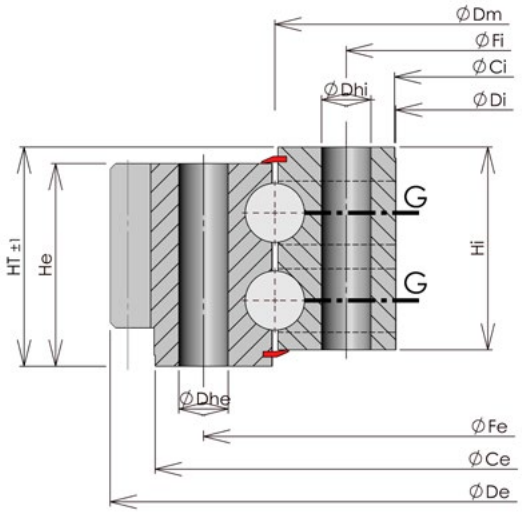


Greasing holes options with M10 x 1.00 thread

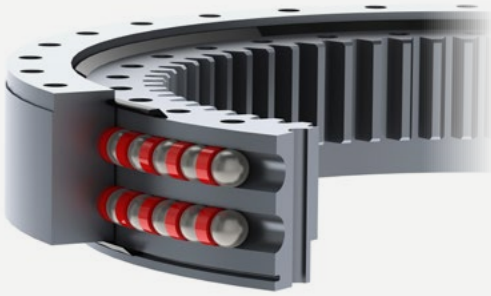
E: on External ring
I: on Internal ring
F: Facial
R: Radial

Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



DOUBLE ROW

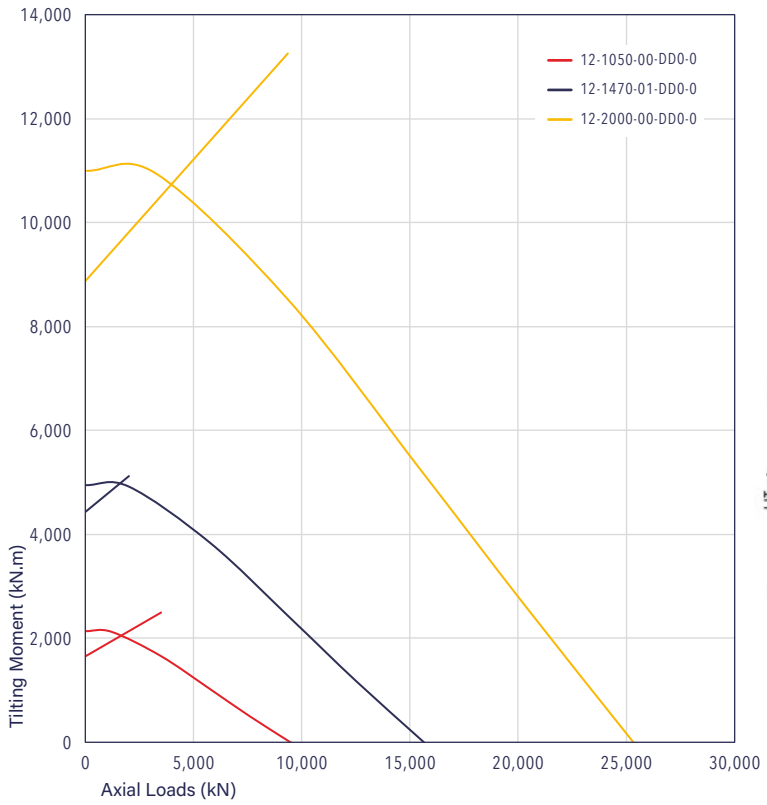


STANDARD BALL SLEWING RINGS

Range 12
Ball bearing with internal gear
From 1,000 to 2,000 mm

		REFERENCES		
SPECIFICATIONS		12-1050-00	12-1470-01	12-2000-00
MAIN DIMENSIONS	HT [mm]	139	168	200
	ØDe [mm]	1,193	1,650	2,220
	He [mm]	129	157	185
	ØDi [mm]	862	1,221	1,715
	Hi [mm]	129	157	185
	ØCe [mm]	1,190	1,648	2,218
	ØCi [mm]	912	1,286	1,790
	Weight [kg]	437	949	1,831
GEAR	Module [mm]	10	14	16
	Z	87	88	108
	W [mm]	100	130	140
	Gear capacity unhardened [kN]	189	344	431
	Gear capacity hardened [kN]	220	401	502
FASTENING HOLES	External ring hole type	Th	Th	Th
	ØFe [mm]	1,133	1,570	2,130
	Ne	48	54	60
	Dhe [mm]	30	39	45
	Inner ring hole type	Th	Th	Th
	ØFi [mm]	967	1,370	1,870
	Ni	48	54	60
	Dhi [mm]	30	39	45
GREASING	Ring with greasing holes	E	E	E
	Greasing hole type	R	R	R

Static capacity curves

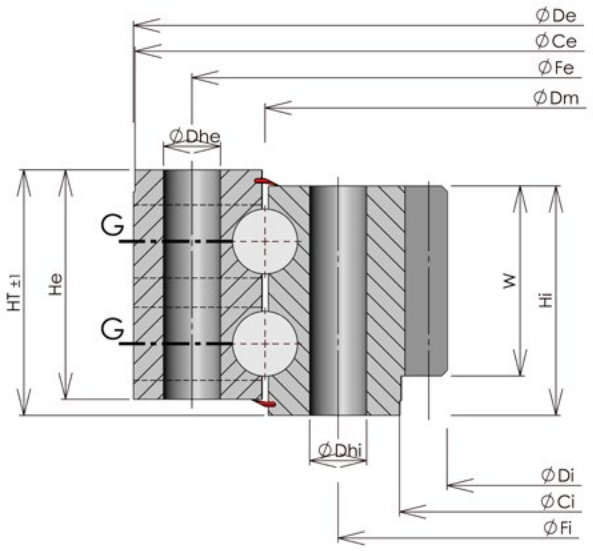


Greasing holes options with M10 x 1.00 thread

E: on External ring
I: on Internal ring
F: Facial
R: Radial

Fastening holes type options:

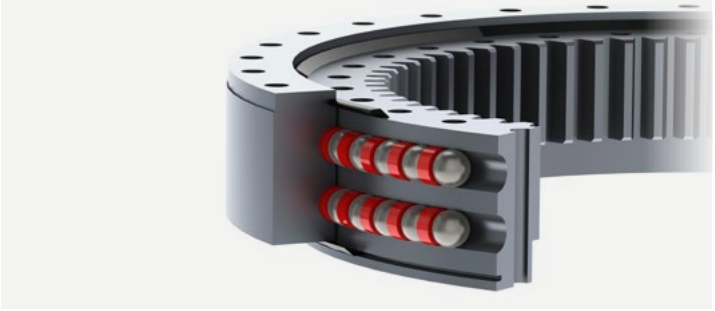
Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



DOUBLE ROW

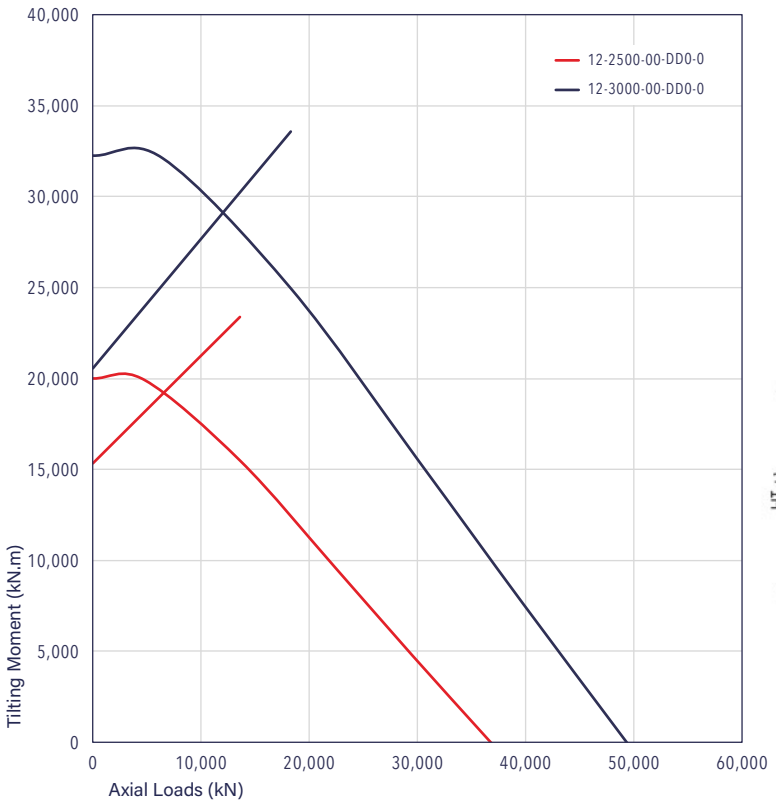
STANDARD BALL SLEWING RINGS

Range 12
Ball bearing with internal gear
From 2,000 to 3,000 mm



		REFERENCES	
SPECIFICATIONS		12-2500-00	12-3000-00
MAIN DIMENSIONS	HT [mm]	235	242
	ØDe [mm]	2,750	3,255
	He [mm]	220	230
	ØDi [mm]	2,181	2,644
	Hi [mm]	220	230
	ØCe [mm]	2,748	3,252
	ØCi [mm]	2,265	2,733
	Weight [kg]	3,097	4,208
GEAR	Module [mm]	18	20
	Z	122	133
	W [mm]	180	190
	Gear capacity unhardened [kN]	629.3	742.75
	Gear capacity hardened [kN]	731.79	863.7
FASTENING HOLES	External ring hole type	Th	Th
	ØFe [mm]	2,645	3,150
	Ne	72	72
	Dhe [mm]	48	52
	Inner ring hole type	Th	Th
	ØFi [mm]	2,355	2,850
	Ni	72	72
	Dhi [mm]	48	52
GREASING	Ring with greasing holes	E	E
	Greasing hole type	R	R

Static capacity curves

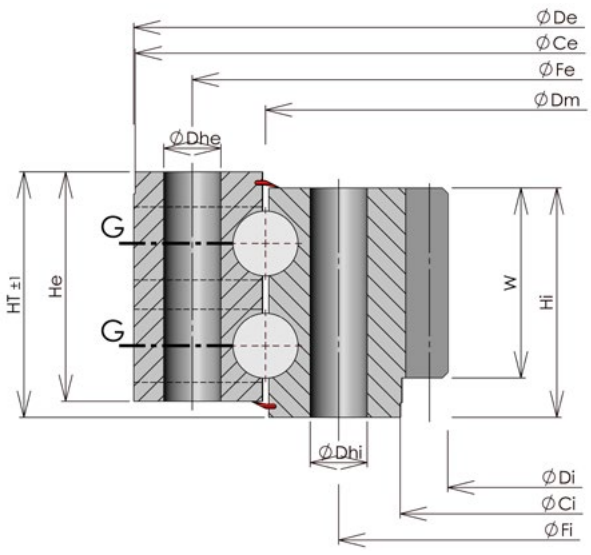


Greasing holes options with M10 x 1.00 thread

E: on External ring
I: on Internal ring
F: Facial
R: Radial

Fastening holes type options:

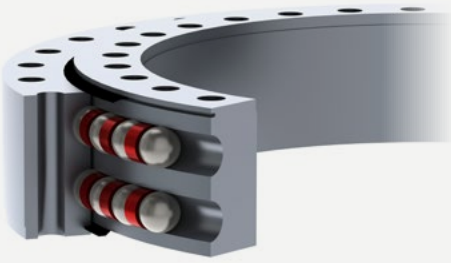
Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



DOUBLE ROW

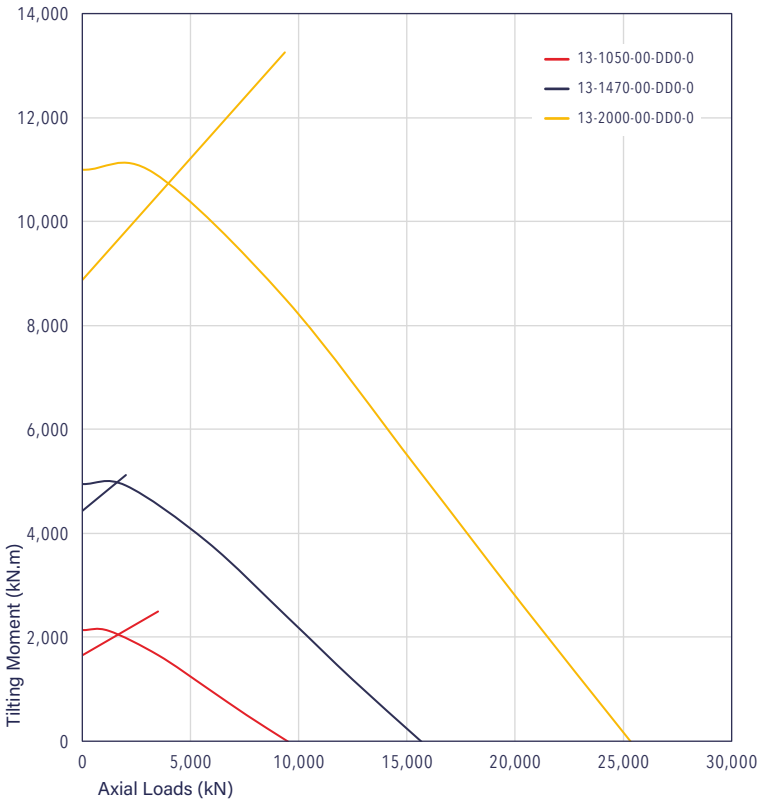
STANDARD BALL SLEWING RINGS

Range 13
Ball bearing without gear
From 1,000 to 2,000 mm



		REFERENCES		
SPECIFICATIONS		13-1050-00	13-1470-00	13-2000-00
MAIN DIMENSIONS	HT [mm]	139	167	200
	ØDe [mm]	1,193	1,650	2,220
	He [mm]	129	157	185
	ØDi [mm]	905	1,286	1,780
	Hi [mm]	129	157	185
	ØCe [mm]	1,190	1,648	2,218
	ØCi [mm]	907	1,288	1,782
	Weight [kg]	411	874	1,727
FASTENING HOLES	External ring hole type	Th	Th	Th
	ØFe [mm]	1,133	1,570	2,130
	Ne	48	54	60
	Dhe [mm]	30	39	45
	Inner ring hole type	Th	Th	Th
	ØFi [mm]	967	1,370	1,870
	Ni	48	54	60
	Dhi [mm]	30	39	45
GREASING	Ring with greasing holes	I	I	I
	Greasing hole type	R	R	R

Static capacity curves

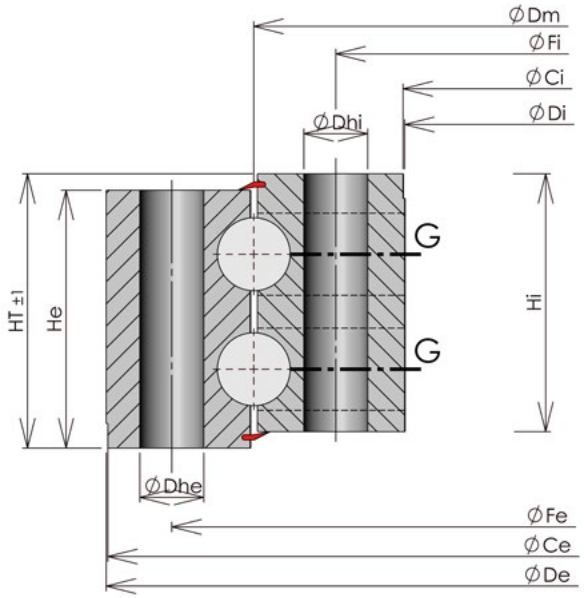


Greasing holes options with M10 x 1.00 thread

E: on External ring
I: on Internal ring
F: Facial
R: Radial

Fastening holes type options:

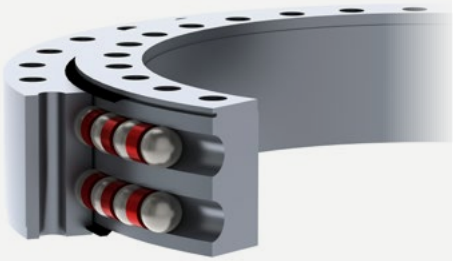
Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



DOUBLE ROW

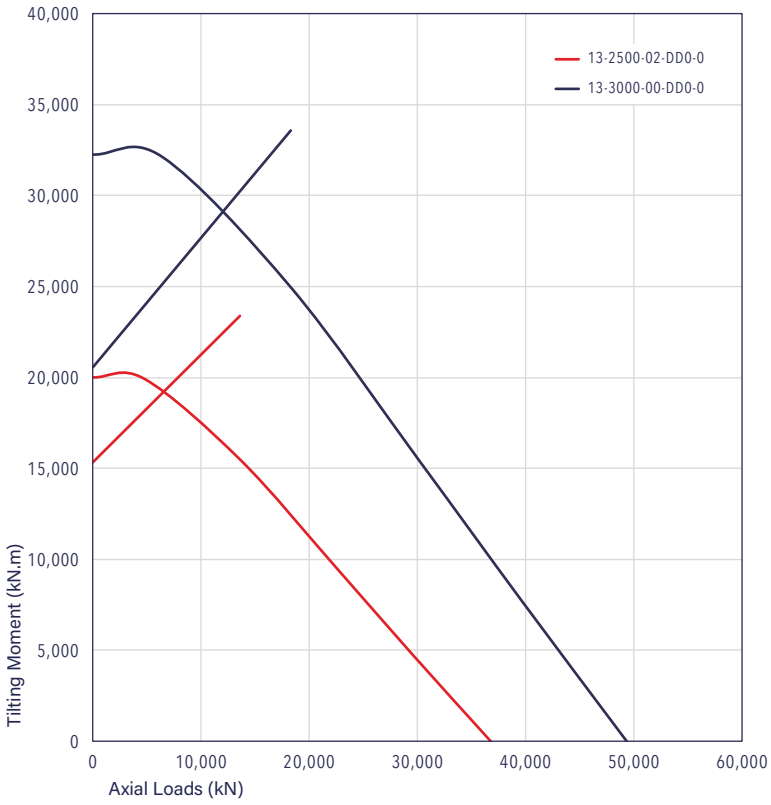
STANDARD BALL SLEWING RINGS

Range 13
Ball bearing without gear
From 2,000 to 3,000 mm



		REFERENCES	
SPECIFICATIONS		13-2500-02	13-3000-00
MAIN DIMENSIONS	HT [mm]	235	242
	ØDe [mm]	2,750	3,255
	He [mm]	220	230
	ØDi [mm]	2,255	2,743
	Hi [mm]	220	230
	ØCe [mm]	2,748	3,252
	ØCi [mm]	2,265	2,745
	Weight [kg]	2,898	3,797
FASTENING HOLES	External ring hole type	Th	Th
	ØFe [mm]	2,645	3,150
	Ne	72	72
	Dhe [mm]	48	52
	Inner ring hole type	Th	Th
	ØFi [mm]	2,355	2,850
	Ni	72	72
	Dhi [mm]	48	52
GREASING	Ring with greasing holes	I	I
	Greasing hole type	R	R

Static capacity curves

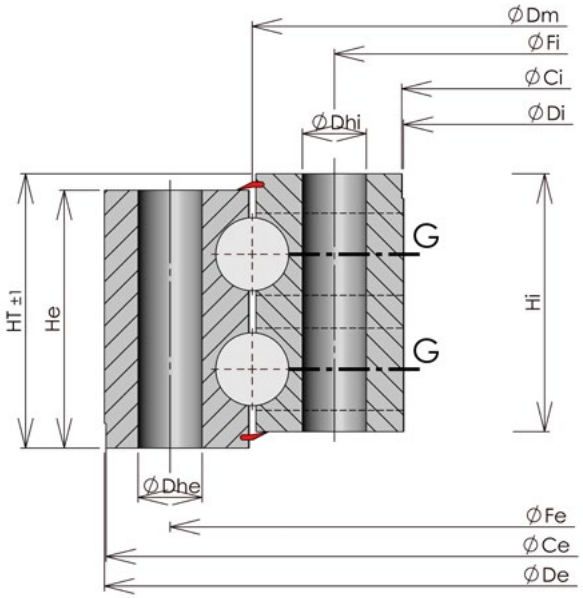


Greasing holes options with M10 x 1.00 thread

E: on External ring
I: on Internal ring
F: Facial
R: Radial

Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



8

LIGHT SERIES BALL SLEWING RINGS

CONTENTS

Light series ball slewing rings

The characteristics of the classes in these ranges are shown in the table below.

To choose the right class for your application, please contact us.

Ranges 21: class I, 24: class III and 27: class V have the same geometry.

Ranges 22: class I, 25: class III and 28: class V have the same geometry.

Ranges 23: class I, 26: class III and 29: class V have the same geometry.

Ranges 31: class I, 34: class III and 37: class V have the same geometry.

Ranges 32: class I, 35: class III and 38: class V have the same geometry.

Ranges 33: class I, 36: class III and 39: class V have the same geometry.

These slewing rings are not recommended for hanging loads. Vertical use must be limited due to clearance.

These slewing rings are also available without drilled holes, with identical reference numbers, but differentiated by the last two characters:

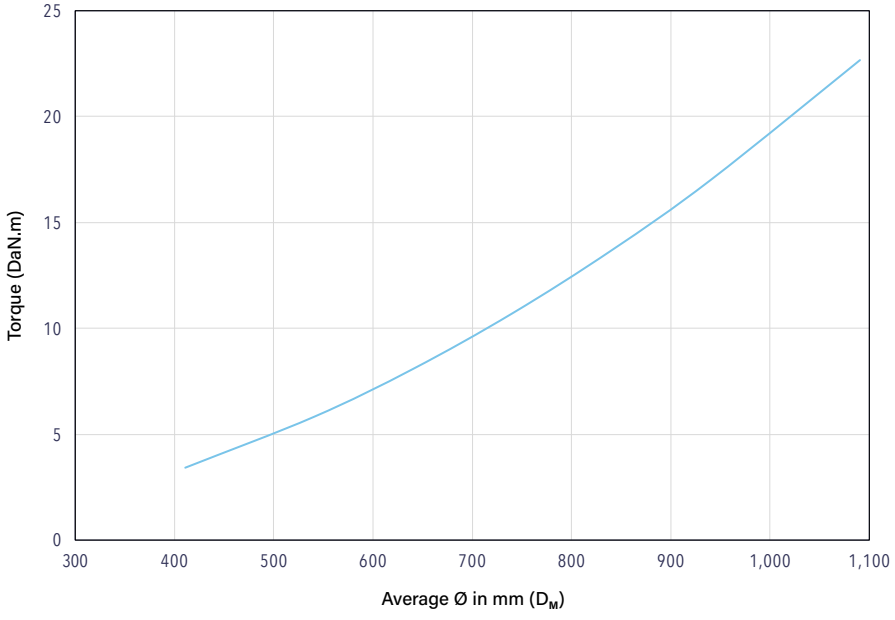
00: without fastening holes

01: standard hole

L-shaped profile slewing rings (ranges 21 to 29) have rough surfaces except for the mounting surfaces.

		VALUES IN MM					
AVERAGE DIAMETER D_M IN MM	REFERENCE FORCE IN N	MAXIMUM DEFLECTION (3-POINT AVERAGE)			1-POINT MAXIMUM VALUE		
		Class I	Class III	Class V	Class I	Class III	Class V
411	200	0.30	0.15	0.05	0.40	0.20	0.08
541	200	0.30	0.15	0.05	0.40	0.20	0.08
641	250	0.35	0.18	0.05	0.45	0.23	0.08
741	300	0.35	0.18	0.06	0.45	0.23	0.09
841	300	0.40	0.20	0.06	0.50	0.25	0.09
941	400	0.45	0.22	0.07	0.55	0.27	0.10
1091	400	0.50	0.25	0.07	0.60	0.30	0.10

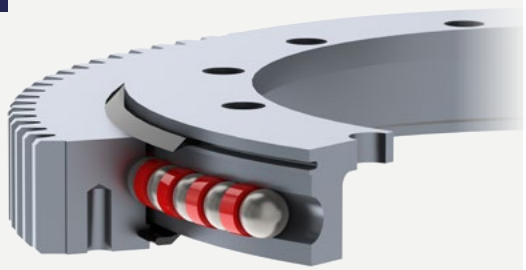
Rotating torque vs. diameter (bearing unloaded)



L-SHAPED

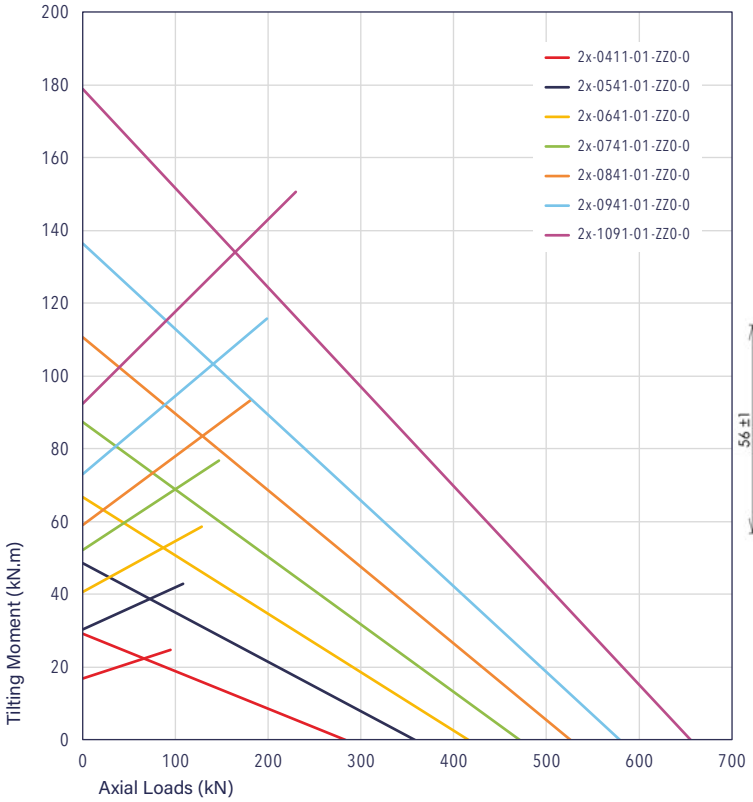
LIGHT SERIES BALL SLEWING RINGS

Ranges 21 - 24 - 27
External gear



SPECIFICATIONS		REFERENCES						
		21-0411-01	21-0541-01	21-0641-01	21-0741-01	21-0841-01	21-0941-01	21-1091-01
		24-0411-01	24-0541-01	24-0641-01	24-0741-01	24-0841-01	24-0941-01	24-1091-01
		27-0411-01	27-0541-01	27-0641-01	27-0741-01	27-0841-01	27-0941-01	27-1091-01
MAIN DIMENSIONS	HT [mm]	56	56	56	56	56	56	56
	ØDe [mm]	505	640	742	840	950	1,046	1,198
	He [mm]	46	46	46	46	46	46	46
	ØDi [mm]	304	434	534	634	734	834	984
	Hi [mm]	46	46	46	46	46	46	46
	Weight [kg]	31	43	51	59	71	77	88
GEAR	Module [mm]	5	6	6	6	8	8	8
	Z	99	105	122	138	117	129	148
	W [mm]	46	46	46	46	46	46	46
	Gear capacity unhardened [kN]	34	41	41	41	55	55	55
FASTENING HOLES	External ring hole type	Bd	Bd	Bd	Bd	Bd	Bd	Bd
	ØFe [mm]	455	585	685	785	885	985	1,135
	Ne	10	14	16	18	18	20	22
	Dhe [mm]	M12	M12	M12	M12	M12	M12	M12
	Inner ring hole type	Th	Th	Th	Th	Th	Th	Th
	ØFi [mm]	332	462	562	662	762	862	1,012
	Ni	12	14	16	16	18	20	20
	Dhi [mm]	18	18	18	18	18	18	18
GREASING	Ring with greasing holes	I	I	I	I	I	I	I
	Greasing hole type	R	R	R	R	R	R	R

Static capacity curves

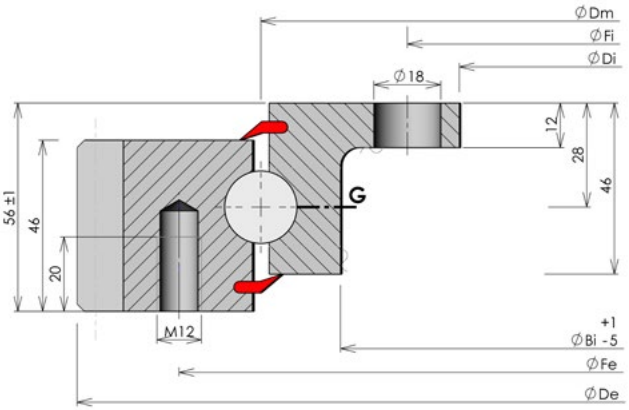


Greasing holes options with M8 x 1.00 thread

E: on External ring
I: on Internal ring
F: Facial
R: Radial

Fastening holes type options:

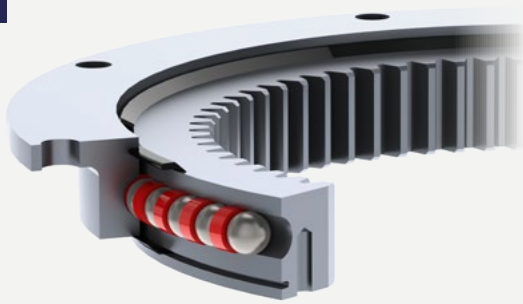
Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



L-SHAPED

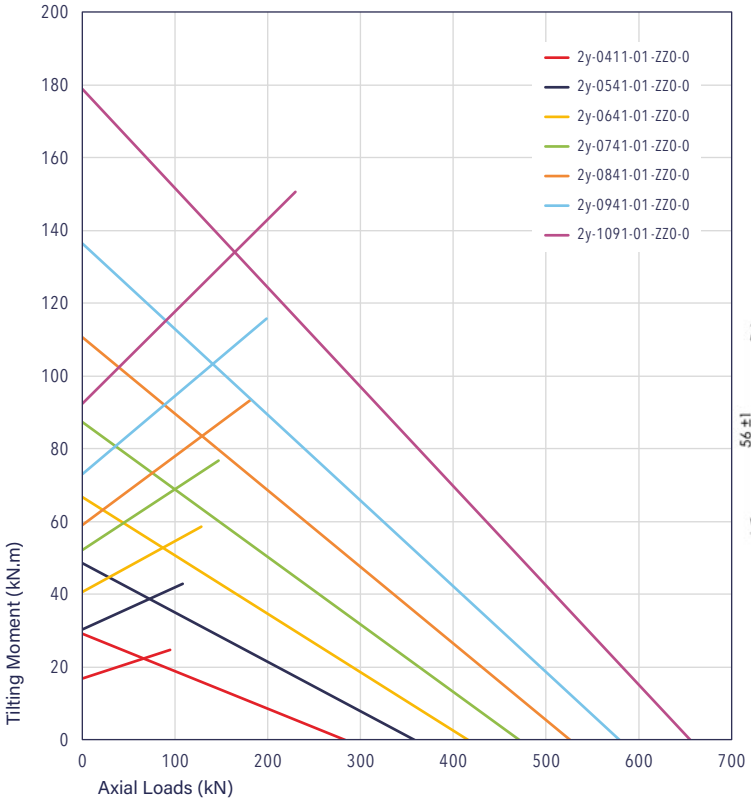
LIGHT SERIES BALL SLEWING RINGS

Ranges 22 - 25 - 28
Internal gear



SPECIFICATIONS		REFERENCES						
		22-0411-01	22-0541-01	22-0641-01	22-0741-01	22-0841-01	22-0941-01	22-1091-01
		25-0411-01	25-0541-01	25-0641-01	25-0741-01	25-0841-01	25-0941-01	25-1091-01
		28-0411-01	28-0541-01	28-0641-01	28-0741-01	28-0841-01	28-0941-01	28-1091-01
MAIN DIMENSIONS	HT [mm]	56	56	56	56	56	56	56
	ØDe [mm]	518	648	748	848	948	1,048	1,198
	He [mm]	46	46	46	46	46	46	46
	ØDi [mm]	325	445	546	649	736	840	986
	Hi [mm]	46	46	46	46	46	46	46
	Weight [kg]	28	40	47	53	64	70	85
GEAR	Module [mm]	5	6	6	6	8	8	8
	Z	67	76	93	110	94	107	125
	W [mm]	46	46	46	46	46	46	46
	Gear capacity unhardened [kN]	32	40	40	40	54	54	54
FASTENING HOLES	External ring hole type	Th	Th	Th	Th	Th	Th	Th
	ØFe [mm]	490	620	720	820	920	1,020	1,170
	Ne	8	10	12	12	14	16	16
	Dhe [mm]	18	18	18	18	18	18	18
	Inner ring hole type	Bd	Bd	Bd	Bd	Bd	Bd	Bd
	ØFi [mm]	375	505	605	705	805	905	1,055
	Ni	12	16	18	20	20	22	24
	Dhi [mm]	M12	M12	M12	M12	M12	M12	M12
GREASING	Ring with greasing holes	E	E	E	E	E	E	E
	Greasing hole type	R	R	R	R	R	R	R

Static capacity curves

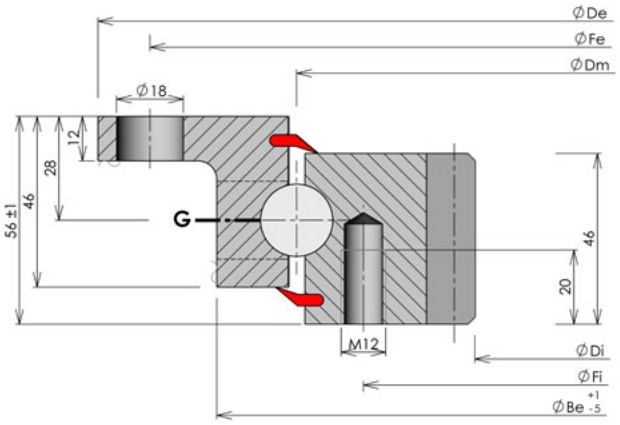


Greasing holes options with M8 x 1.00 thread

E: on External ring
I: on Internal ring
F: Facial
R: Radial

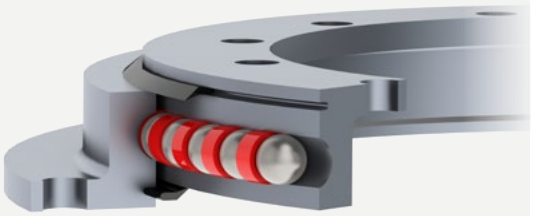
Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



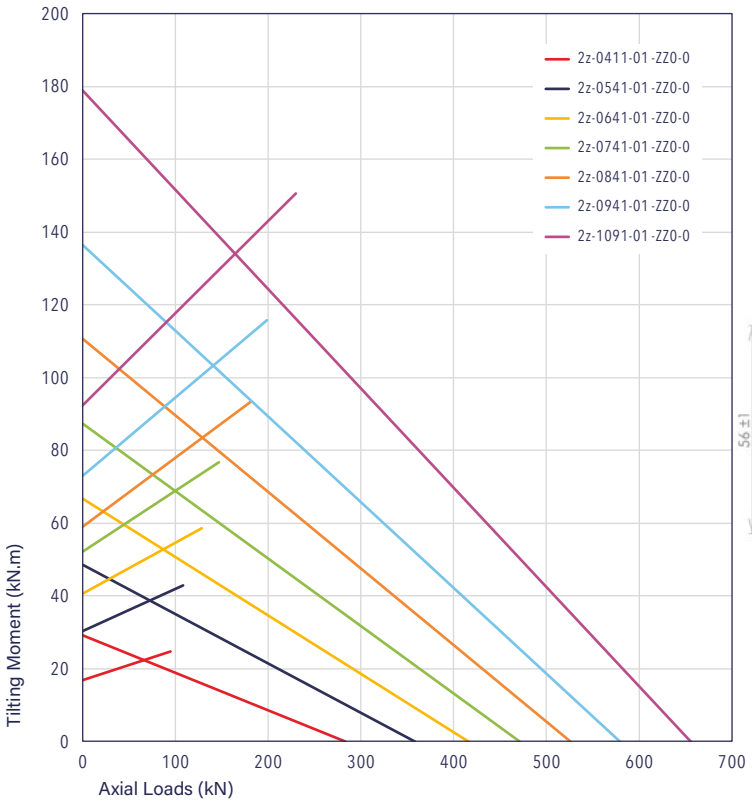
LIGHT SERIES BALL SLEWING RINGS

Ranges 23 - 26 - 29
Without gear



SPECIFICATIONS		REFERENCES						
		23-0411-01	23-0541-01	23-0641-01	23-0741-01	23-0841-01	23-0941-01	23-1091-01
		26-0411-01	26-0541-01	26-0641-01	26-0741-01	26-0841-01	26-0941-01	26-1091-01
		29-0411-01	29-0541-01	29-0641-01	29-0741-01	29-0841-01	29-0941-01	29-1091-01
MAIN DIMENSIONS	HT [mm]	56	56	56	56	56	56	56
	ØDe [mm]	518	648	748	848	948	1,048	1,198
	He [mm]	46	46	46	46	46	46	46
	ØDi [mm]	304	434	534	634	734	834	984
	Hi [mm]	46	46	46	46	46	46	46
	Weight [kg]	25	34	39	45	51	59	67
FASTENING HOLES	External ring hole type	Th	Th	Th	Th	Th	Th	Th
	ØFe [mm]	490	620	720	820	920	1,020	1,170
	Ne	8	10	12	12	14	16	16
	Dhe [mm]	18	18	18	18	18	18	18
	Inner ring hole type	Th	Th	Th	Th	Th	Th	Th
	ØFi [mm]	332	462	562	662	762	862	1,012
	Ni	12	14	16	16	18	20	20
	Dhi [mm]	18	18	18	18	18	18	18
GREASING	Ring with greasing holes	E+I	E+I	E+I	E+I	E+I	E+I	E+I
	Greasing hole type	R	R	R	R	R	R	R

Static capacity curves

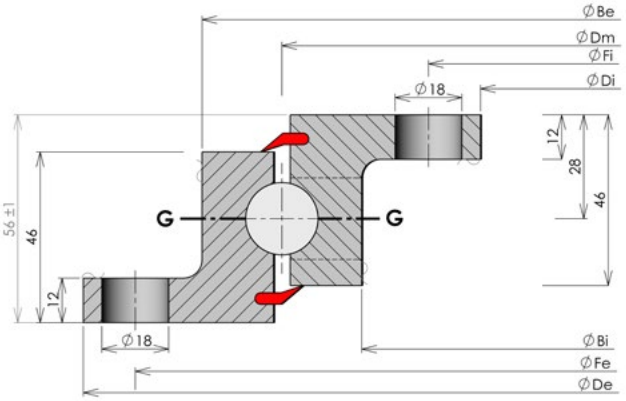


Greasing holes options with M8 x 1.00 thread

E: on External ring
I: on Internal ring
F: Facial
R: Radial

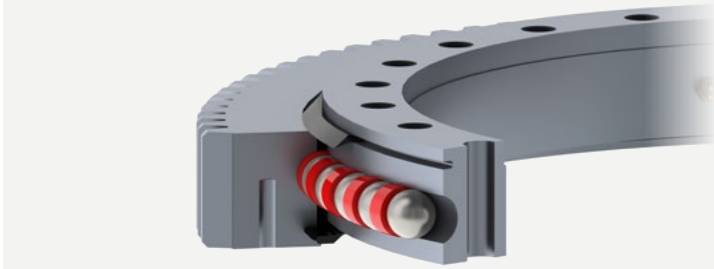
Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



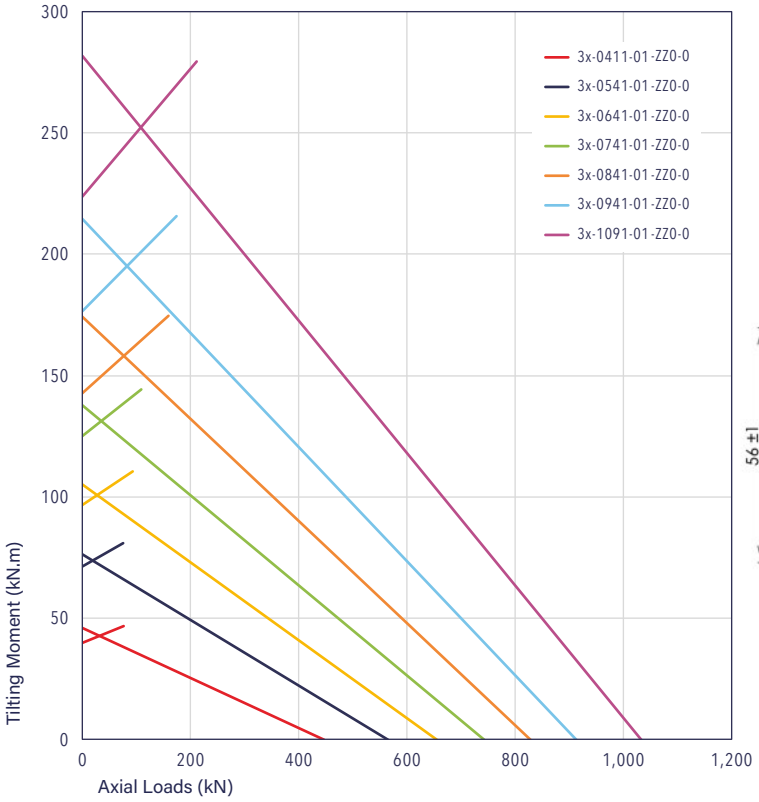
LIGHT SERIES BALL SLEWING RINGS

Ranges 31 - 34 - 37
External gear



SPECIFICATIONS		REFERENCES						
		31-0411-01	31-0541-01	31-0641-01	31-0741-01	31-0841-01	31-0941-01	31-1091-01
		34-0411-01	34-0541-01	34-0641-01	34-0741-01	34-0841-01	34-0941-01	34-1091-01
		37-0411-01	37-0541-01	37-0641-01	37-0741-01	37-0841-01	37-0941-01	37-1091-01
MAIN DIMENSIONS	HT [mm]	56	56	56	56	56	56	56
	ØDe [mm]	505	640	742	840	950	1,046	1,198
	He [mm]	46	46	46	46	46	46	46
	ØDi [mm]	342	472	572	672	772	872	1,022
	Hi [mm]	46	46	46	46	46	46	46
	ØCe [mm]	412.2	542.5	642	743	842	943	1,094
	ØCi [mm]	344	474	574	674	774	874	1,024
	Weight [kg]	32	44	52	59	73	79	93
GEAR	Module [mm]	5	6	6	6	8	8	8
	Z	99	105	122	138	117	129	148
	W [mm]	46	46	46	46	46	46	46
	Gear capacity unhardened [kN]	34	41	41	41	55	55	55
FASTENING HOLES	External ring hole type	Bd	Bd	Bd	Bd	Bd	Bd	Bd
	ØFe [mm]	455	585	685	785	885	985	1,135
	Ne	20	28	32	36	36	40	44
	Dhe [mm]	M12	M12	M12	M12	M12	M12	M12
	Inner ring hole type	Th	Th	Th	Th	Th	Th	Th
	ØFi [mm]	368	498	598	698	798	898	1,048
	Ni	24	32	36	40	40	44	48
	Dhi [mm]	14	14	14	14	14	14	14
GREASING	Ring with greasing holes	I	I	I	I	I	I	I
	Greasing hole type	R	R	R	R	R	R	R

Static capacity curves

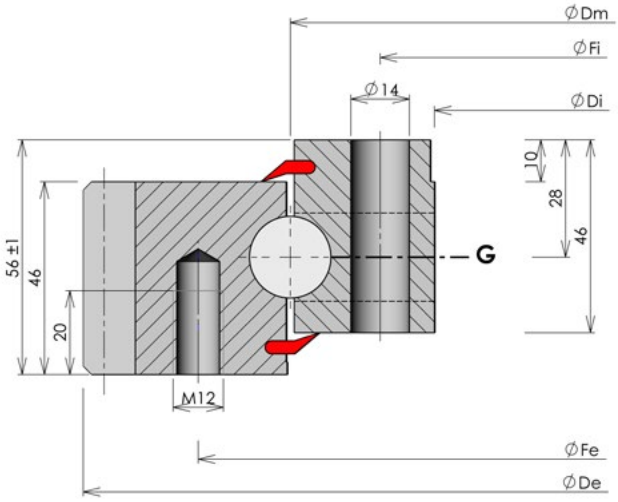


Greasing holes options with M8 x 1.00 thread

E: on External ring
I: on Internal ring
F: Facial
R: Radial

Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind

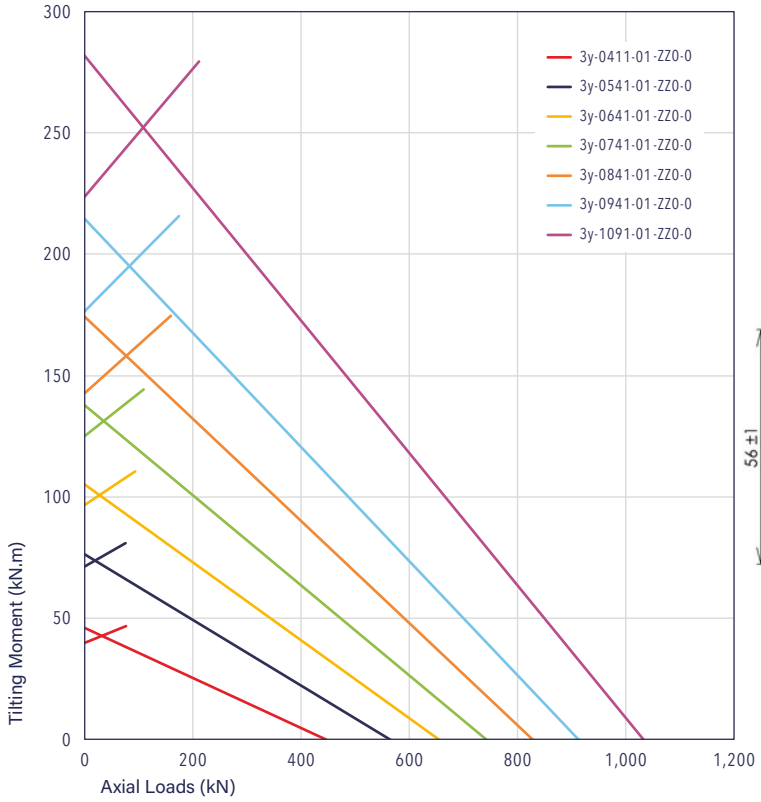


LIGHT SERIES BALL SLEWING RINGS

Ranges 32 - 35 - 38
Internal gear

SPECIFICATIONS		REFERENCES						
		32-0411-01	32-0541-01	32-0641-01	32-0741-01	32-0841-01	32-0941-01	32-1091-01
		35-0411-01	35-0541-01	35-0641-01	35-0741-01	35-0841-01	35-0941-01	35-1091-01
		38-0411-01	38-0541-01	38-0641-01	38-0741-01	38-0841-01	38-0941-01	38-1091-01
MAIN DIMENSIONS	HT [mm]	56	56	56	56	56	56	56
	ØDe [mm]	486	616	716	816	916	1,016	1,166
	He [mm]	46	46	46	46	46	46	46
	ØDi [mm]	325	445	546	649	736	840	986
	Hi [mm]	46	46	46	46	46	46	46
	ØCe [mm]	484	614	714	814	914	1,014	1,164
	ØCi [mm]	409.5	539.5	639	739.7	840	939	1,089
	Weight [kg]	31	43	50	59	70	76	91
GEAR	Module [mm]	5	6	6	6	8	8	8
	Z	67	76	93	110	94	107	125
	W [mm]	46	46	46	46	46	46	46
	Gear capacity unhardened [kN]	32	40	40	40	54	54	54
FASTENING HOLES	External ring hole type	Th	Th	Th	Th	Th	Th	Th
	ØFe [mm]	460	590	690	790	890	990	1,140
	Ne	24	32	36	40	40	44	48
	Dhe [mm]	14	14	14	14	14	14	14
	Inner ring hole type	Bd	Bd	Bd	Bd	Bd	Bd	Bd
	ØFi [mm]	375	505	605	705	805	905	1,055
	Ni	24	32	36	40	40	44	48
	Dhi [mm]	M12	M12	M12	M12	M12	M12	M12
GREASING	Ring with greasing holes	E	E	E	E	E	E	E
	Greasing hole type	R	R	R	R	R	R	R

Static capacity curves

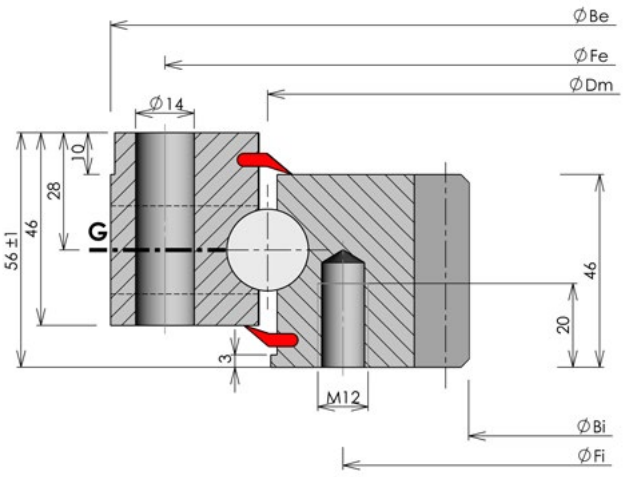


Greasing holes options with M8 x 1.00 thread

E: on External ring
I: on Internal ring
F: Facial
R: Radial

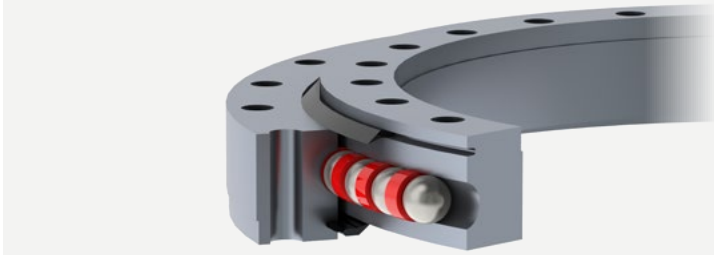
Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



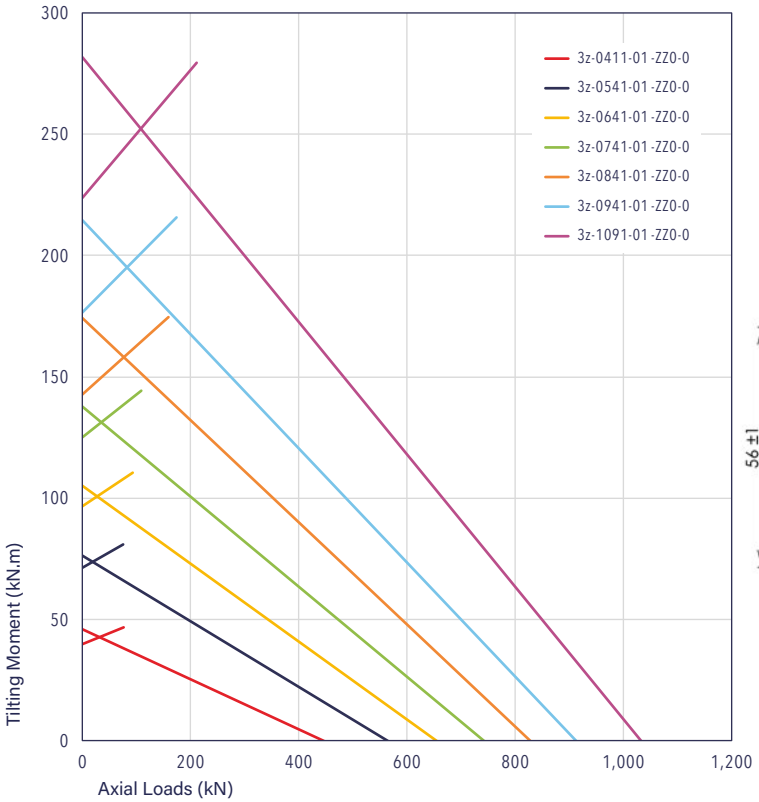
LIGHT SERIES BALL SLEWING RINGS

Ranges 33 - 36 - 39
Without gear



SPECIFICATIONS		REFERENCES						
		33-0411-01	33-0541-01	33-0641-01	33-0741-01	33-0841-01	33-0941-01	33-1091-01
		36-0411-01	36-0541-01	36-0641-01	36-0741-01	36-0841-01	36-0941-01	36-1091-01
		39-0411-01	39-0541-01	39-0641-01	39-0741-01	39-0841-01	39-0941-01	39-1091-01
MAIN DIMENSIONS	HT [mm]	56	56	56	56	56	56	56
	ØDe [mm]	486	616	716	816	916	1,016	1,166
	He [mm]	46	46	46	46	46	46	46
	ØDi [mm]	342	472	572	672	772	872	1,022
	Hi [mm]	46	46	46	46	46	46	46
	ØCe [mm]	484	614	714	814	914	1,014	1,164
	ØCi [mm]	344	474	574	674	774	874	1,024
	Weight [kg]	28	37	45	52	61	66	77
FASTENING HOLES	External ring hole type	Th	Th	Th	Th	Th	Th	Th
	ØFe [mm]	460	590	690	790	890	990	1,140
	Ne	24	32	36	40	40	44	48
	Dhe [mm]	14	14	14	14	14	14	14
	Inner ring hole type	Th	Th	Th	Th	Th	Th	Th
	ØFi [mm]	368	498	598	698	798	898	1,048
	Ni	24	32	36	40	40	44	48
	Dhi [mm]	14	14	14	14	14	14	14
GREASING	Ring with greasing holes	E	E	E	E	E	E	E
	Greasing hole type	R	R	R	R	R	R	R

Static capacity curves

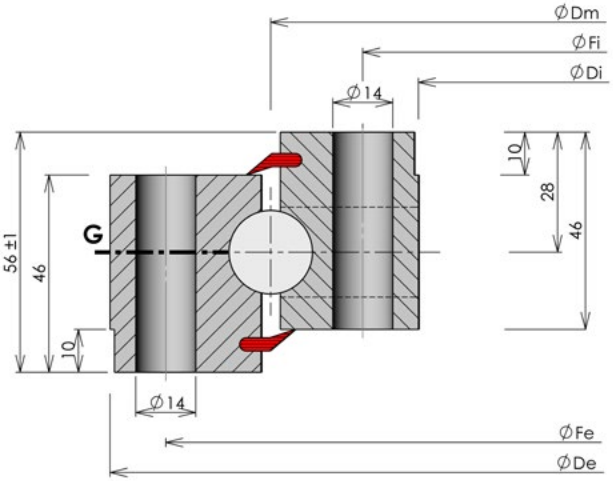


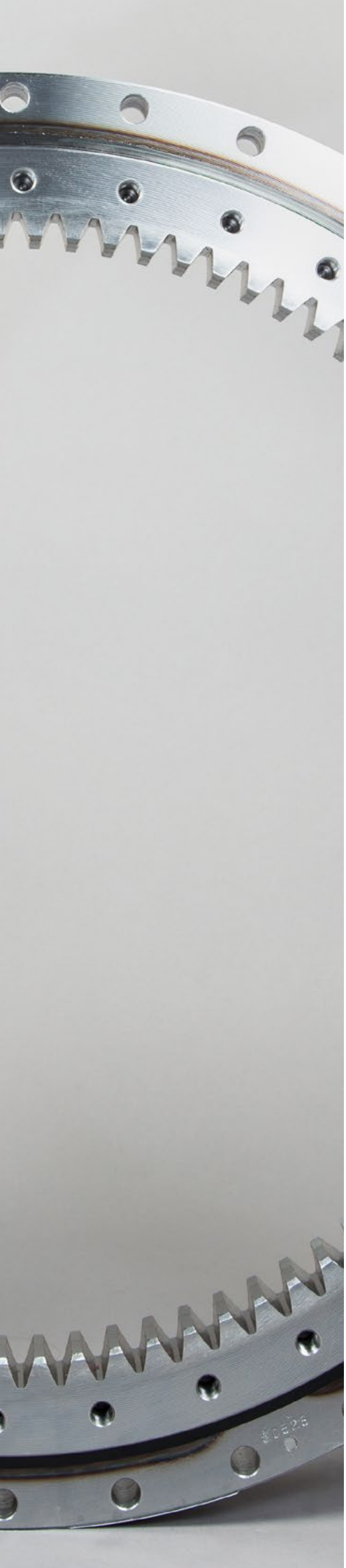
Greasing holes options with M8 x 1.00 thread

E: on External ring
I: on Internal ring
F: Facial
R: Radial

Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind





9

STANDARD CROSSED ROLLERS SLEWING RINGS

CONTENTS

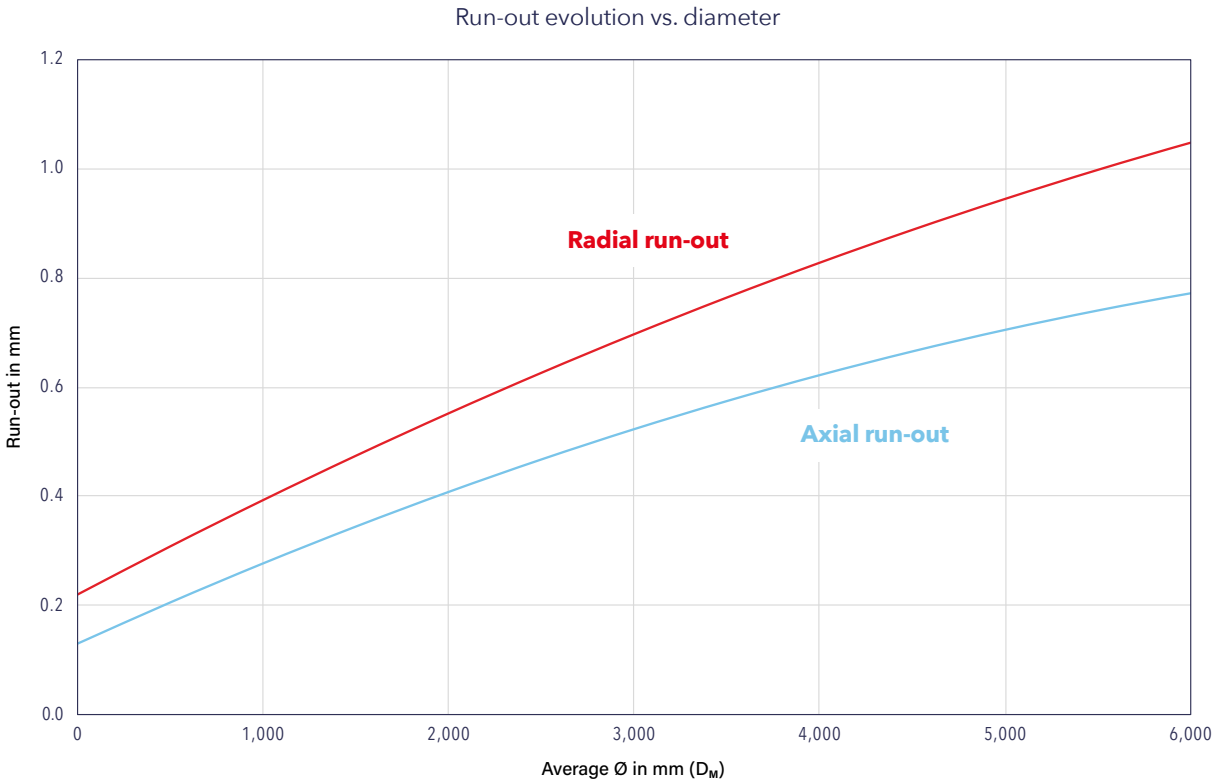
Standard crossed rollers slewing rings

This range includes all single and double row, crossed rollers slewing rings.

All slewing rings are preloaded.

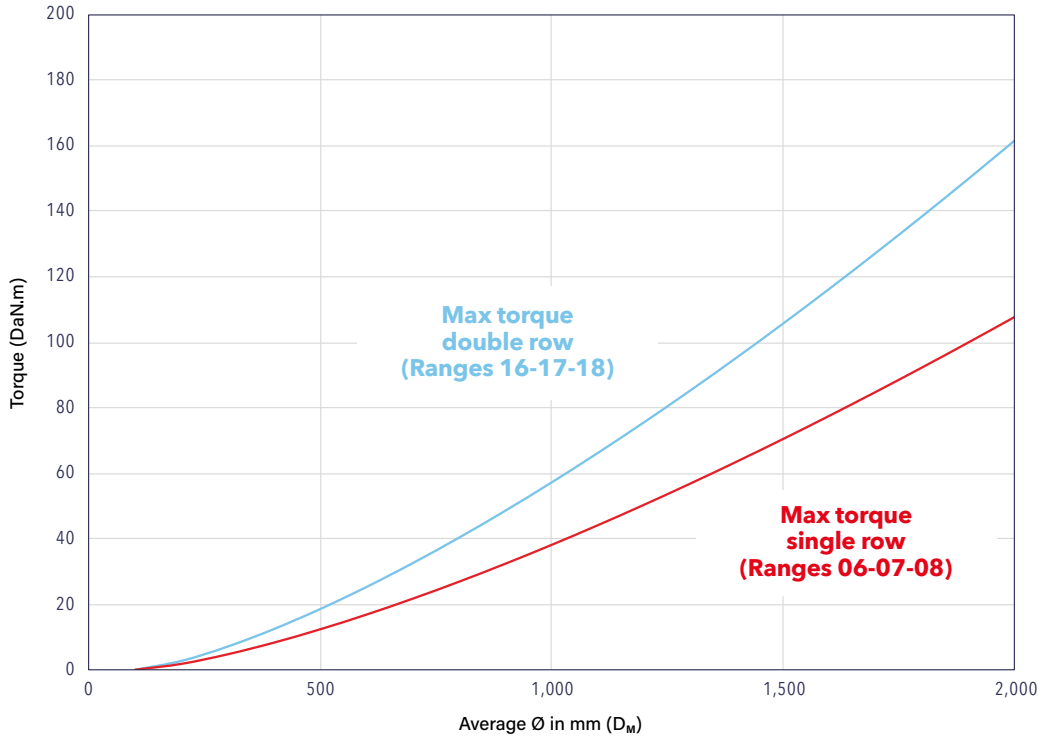
The graphs below show the maximum values for run-outs and torques.

Axial and radial run-outs

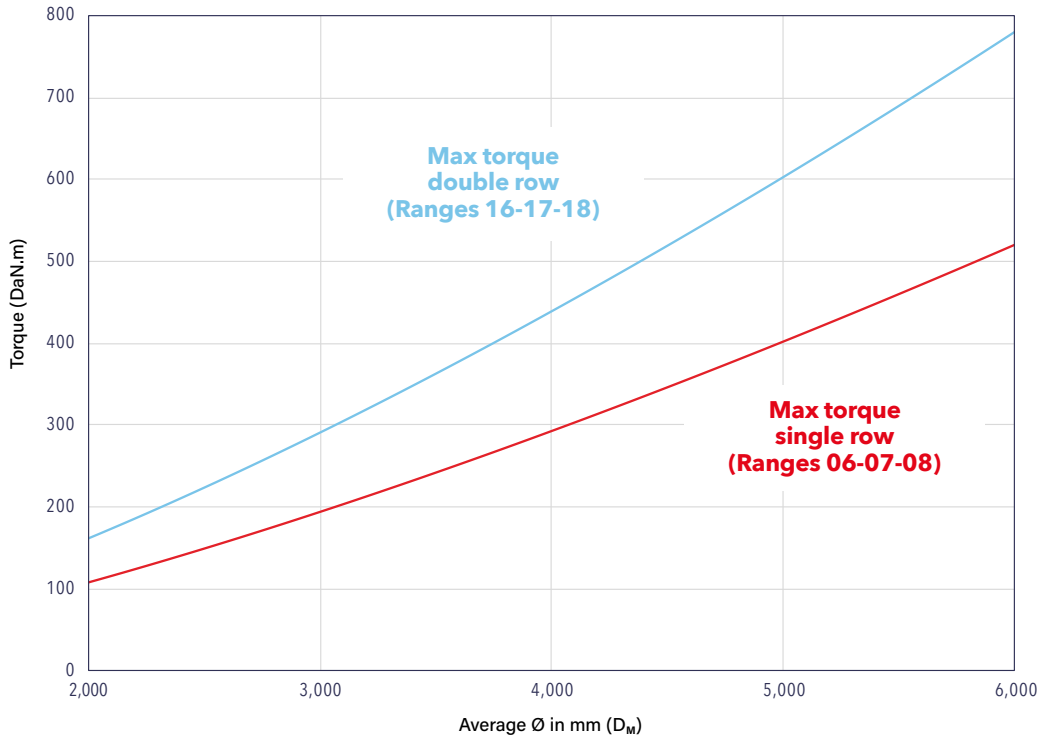


Rotating torques

Rotating torque vs. diameter (bearing unloaded) $D_M < 2{,}000$



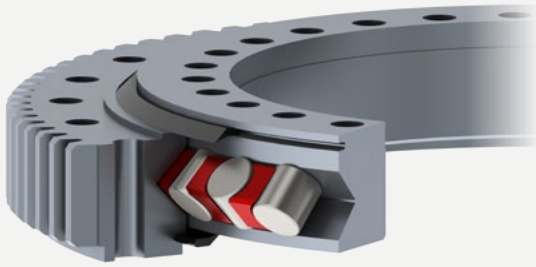
Rotating torque vs. diameter (bearing unloaded) $D_M > 2{,}000$



SINGLE ROW

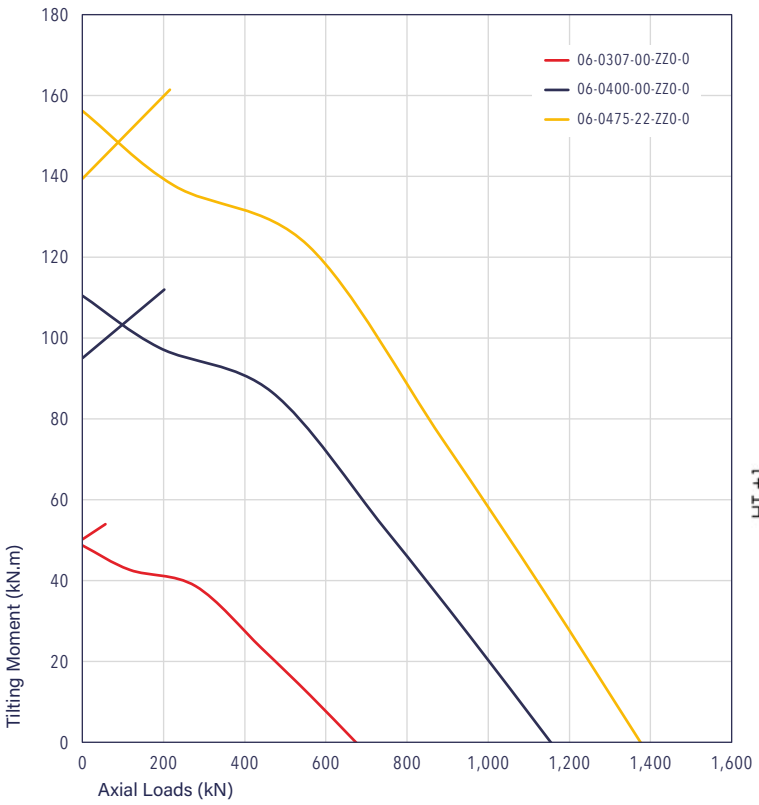
STANDARD CROSSED ROLLERS SLEWING RINGS

Range 06
Roller bearing with external gear
From 0 to 500 mm



		REFERENCES		
SPECIFICATIONS		06-0307-00	06-0400-00	06-0475-22
MAIN DIMENSIONS	HT [mm]	55	75	75
	ØDe [mm]	403.5	535	589
	He [mm]	47	63	60
	ØDi [mm]	234	305	383
	Hi [mm]	45	63	63
	ØCe [mm]	380	495	565
	ØCi [mm]	235	306	384
	Weight [kg]	24	59	60
GEAR	Module [mm]	4.5	8	5
	Z	88	65	116
	W [mm]	39	55	50
	Gear capacity unhardened [kN]	25	62	37
	Gear capacity hardened [kN]	34	82	49
FASTENING HOLES	External ring hole type	Th	Th	Th
	ØFe [mm]	358	466	540
	Ne	24	18	36
	Dhe [mm]	13	20	16
	Inner ring hole type	Th	Th	Th
	ØFi [mm]	259	336	410
	Ni	28	18	36
	Dhi [mm]	13	20	16
GREASING	Ring with greasing holes	E	I	E
	Greasing hole type	F	R	F

Static capacity curves

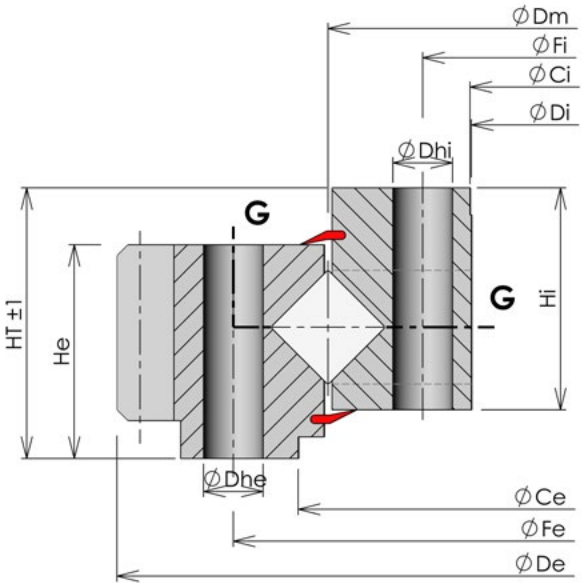


Greasing holes options with M10 x 1.00 thread

E: on External ring
I: on Internal ring
F: Facial
R: Radial

Fastening holes type options:

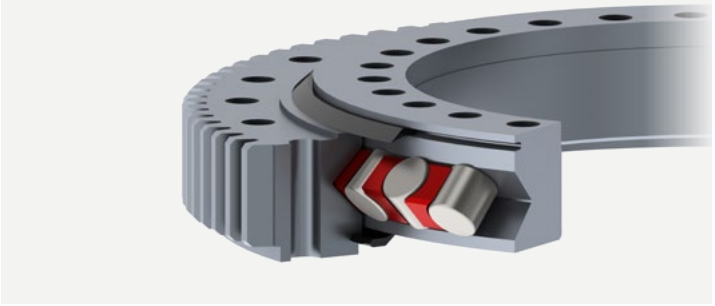
Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



SINGLE ROW

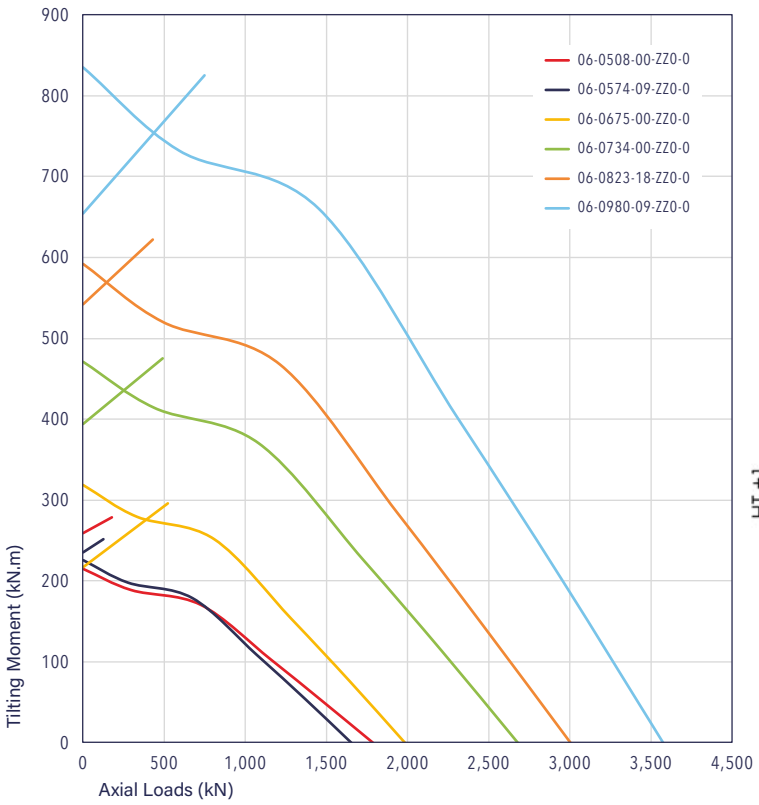
STANDARD CROSSED ROLLERS SLEWING RINGS

Range 06
Roller bearing with external gear
From 500 to 1,000 mm



		REFERENCES					
SPECIFICATIONS		06-0508-00	06-0574-09	06-0675-00	06-0734-00	06-0823-18	06-0980-09
MAIN DIMENSIONS	HT [mm]	85	77	90	85	100	100
	ØDe [mm]	654	700	816	886	979	1,144
	He [mm]	73	64	73	75	79	79
	ØDi [mm]	390	479	573	610	717	869
	Hi [mm]	73	64	70	70	82	84
	ØCe [mm]	610	N/A	682	740	845	993
	ØCi [mm]	392	480	574	615	718	870
	Weight [kg]	95	83	127	154	172	222
GEAR	Module [mm]	8	6	6	8	10	10
	Z	80	114	132	108	94	111
	W [mm]	60	60	65	75	65	67
	Gear capacity unhardened [kN]	69	53	54	89	95	99
	Gear capacity hardened [kN]	92	71	72	118	127	132
FASTENING HOLES	External ring hole type	Th	Th	Th	Th	Th	Th
	ØFe [mm]	582	640	753	810	893	1,050
	Ne	30	36	18	30	36	36
	Dhe [mm]	22	18	22	22	22	22
	Inner ring hole type	Th	Th	Th	Th	Th	Th
	ØFi [mm]	432	508	604	658	753	910
	Ni	30	36	18	30	36	36
	Dhi [mm]	22	18	22	22	22	22
GREASING	Ring with greasing holes	I	I	E+I	I	E+I	E+I
	Greasing hole type	R	R	F+R	R	F+R	F+R

Static capacity curves

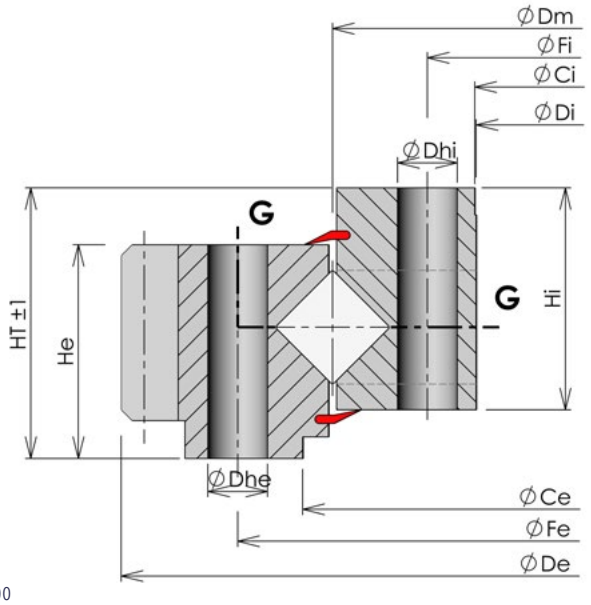


Greasing holes options with M10 x 1.00 thread

E: on External ring
I: on Internal ring
F: Facial
R: Radial

Fastening holes type options:

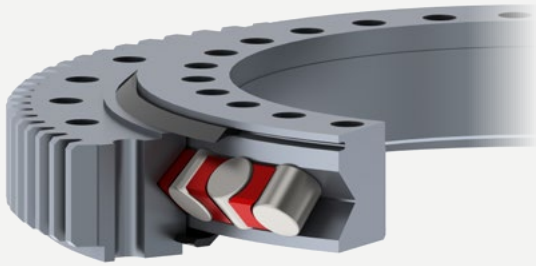
Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



SINGLE ROW

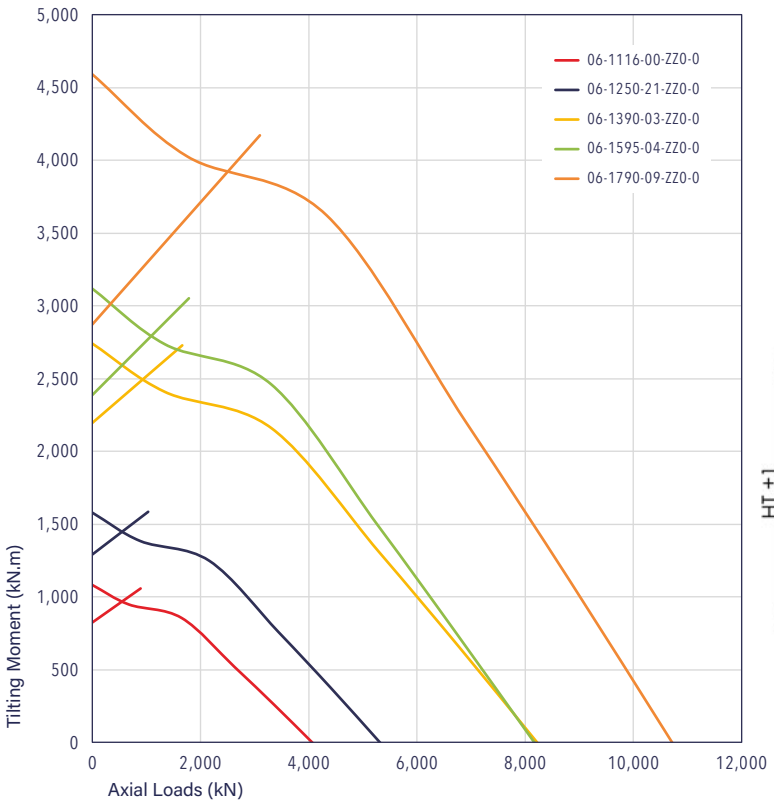
STANDARD CROSSED ROLLERS SLEWING RINGS

Range 06
Roller bearing with external gear
From 1,000 to 2,000 mm



		REFERENCES				
SPECIFICATIONS		06-1116-00	06-1250-21	06-1390-03	06-1595-04	06-1790-09
MAIN DIMENSIONS	HT [mm]	114	110	130	135	150
	ØDe [mm]	1,289.5	1,476	1,604	1,836	2,027
	He [mm]	90	91	112	120	130
	ØDi [mm]	984	1,084	1,206	1,433	1,615
	Hi [mm]	94	100	116	115	128
	ØCe [mm]	1,240	1,415	1,551	1,608	1,808
	ØCi [mm]	985	1,085	1,208	1,437	1,617
	Weight [kg]	327	492	630	796	1,007
GEAR	Module [mm]	10	10	10	16	14
	Z	125	144	157	112	142
	W [mm]	78	77	85	120	130
	Gear capacity unhardened [kN]	116	116	129	284	274
	Gear capacity hardened [kN]	155	155	172	379	366
FASTENING HOLES	External ring hole type	Th	Th	Th	Th	Th
	ØFe [mm]	1,198	1,350	1,500	1,700	1,905
	Ne	40	40	48	45	48
	Dhe [mm]	22	26	30	30	30
	Inner ring hole type	Th	Th	Th	Th	Th
	ØFi [mm]	1,035	1,150	1,280	1,485	1,675
	Ni	40	40	48	45	48
	Dhi [mm]	22	26	30	30	30
GREASING	Ring with greasing holes	E+I	I	E+I	I	I
	Greasing hole type	F+R	R	F+R	R	R

Static capacity curves

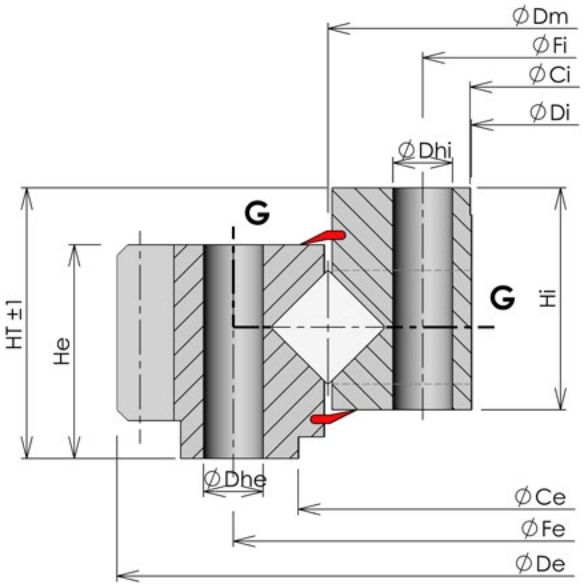


Greasing holes options with M10 x 1.00 thread

E: on External ring
I: on Internal ring
F: Facial
R: Radial

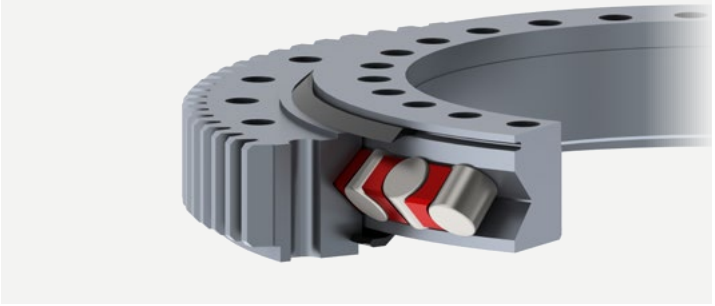
Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



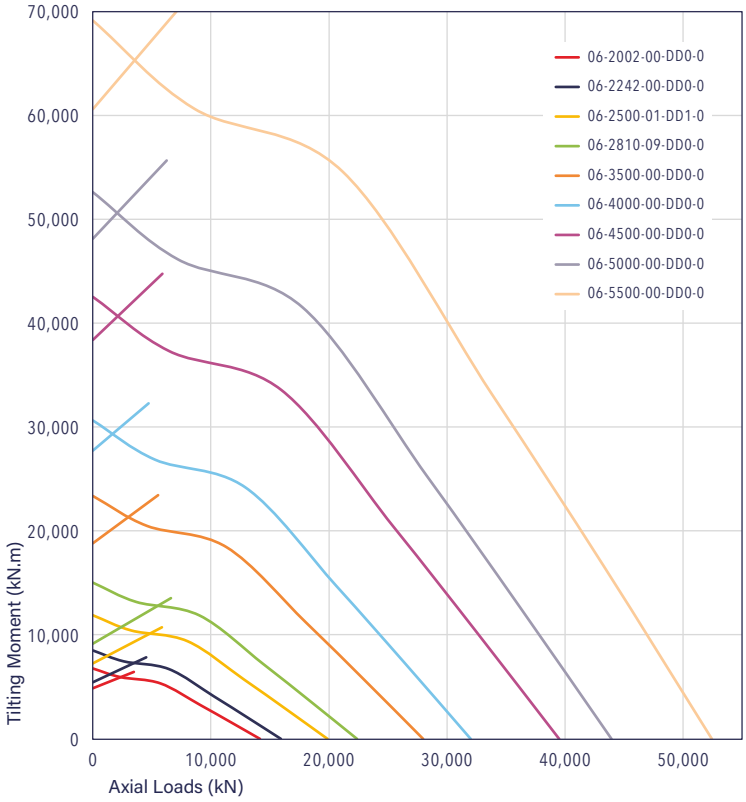
STANDARD CROSSED ROLLERS SLEWING RINGS

Range 06
Roller bearing with external gear
From 2,000 to 6,000 mm



		REFERENCES								
SPECIFICATIONS		06-2002-00	06-2242-00	06-2500-01	06-2810-09	06-3500-00	06-4000-00	06-4500-00	06-5000-00	06-5500-00
MAIN DIMENSIONS	HT [mm]	140	144	164	164	170	195	205	215	225
	ØDe [mm]	2,268	2,534	2,790	3,116	3,816	4,316	4,858	5,364	5,899
	He [mm]	129	132	148	148	155	180	190	200	210
	ØDi [mm]	1,815	2,042	2,290	2,600	3,276	3,766	4,238	4,724	5,196
	Hi [mm]	119	122	142	142	145	165	175	185	195
	ØCe [mm]	2,013	2,260	2,508	2,818	3,510	4,140	4,510	5,012	5,511
	ØCi [mm]	1,822	2,049	2,297	2,607	3,280	3,770	4,242	4,728	5,200
	Weight [kg]	1,178	1,488	1,904	2,208	2,943	3,902	5,272	6,383	8,184
GEAR	Module [mm]	16	18	18	20	20	20	22	22	24
	Z	139	138	151	152	188	213	218	241	243
	W [mm]	129	132	148	148	155	180	190	200	210
	Gear capacity unhardened [kN]	405	466	526	584	616	718	835	882	1,011
	Gear capacity hardened [kN]	471	541	611	679	716	835	971	1,026	1,175
FASTENING HOLES	External ring hole type	Th	Th	Th	Th	Th	Th	Th	Th	Th
	ØFe [mm]	2,124	2,373	2,640	2,950	3,640	4,140	4,658	5,166	5,684
	Ne	72	60	72	80	108	120	126	126	126
	Dhe [mm]	30	33	33	33	36	39	42	45	48
	Inner ring hole type	Th	Th	Th	Th	Th	Th	Th	Th	Th
	ØFi [mm]	1,880	2,112	2,360	2,670	3,360	3,860	4,342	4,834	5,316
	Ni	72	60	72	80	108	120	126	126	126
	Dhi [mm]	30	33	33	33	36	39	42	45	48
GREASING	Ring with greasing holes	I	I	I	I	I	I	I	I	I
	Greasing hole type	R	R	R	R	R	R	R	R	R

Static capacity curves

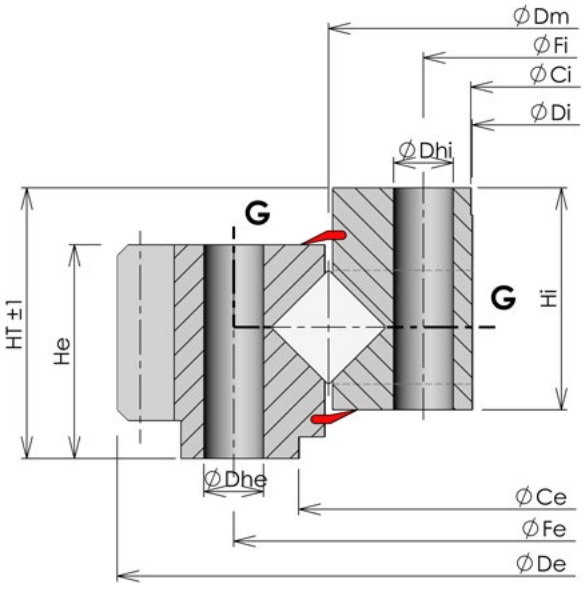


Greasing holes options with M10 x 1.00 thread

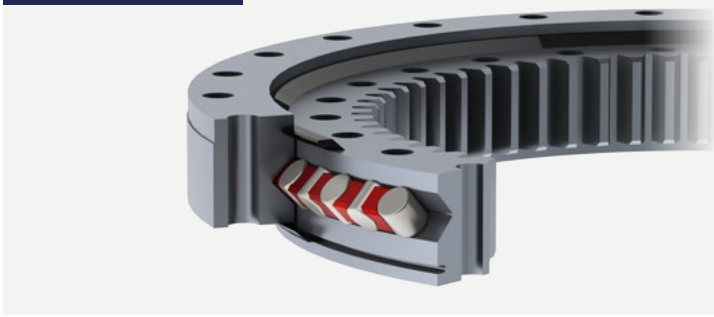
E: on External ring
I: on Internal ring
F: Facial
R: Radial

Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



SINGLE ROW

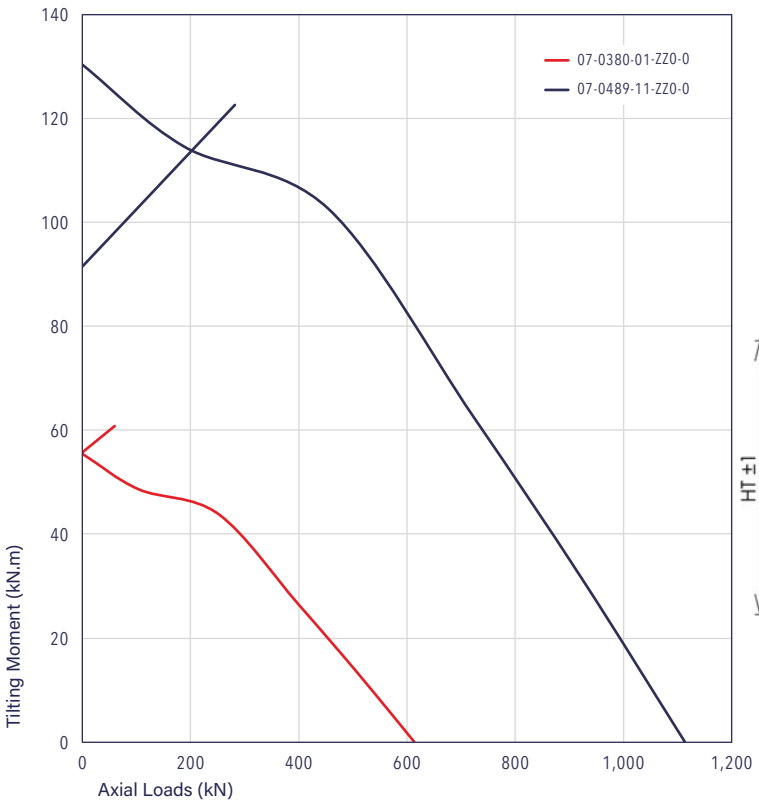


STANDARD CROSSED ROLLERS SLEWING RINGS

Range 07
Roller bearing with internal gear
From 0 to 500 mm

		REFERENCES	
SPECIFICATIONS		07-0380-01	07-0489-11
MAIN DIMENSIONS	HT [mm]	55	60
	ØDe [mm]	451	562
	He [mm]	45	50
	ØDi [mm]	291	385
	Hi [mm]	45	50
	ØCe [mm]	450	560
	ØCi [mm]	313	418
	Weight [kg]	27	42
GEAR	Module [mm]	5	6
	Z	60	66
	W [mm]	40	43
	Gear capacity unhardened [kN]	28	36
	Gear capacity hardened [kN]	37	48
FASTENING HOLES	External ring hole type	Th	Th
	ØFe [mm]	425	538
	Ne	24	30
	Dhe [mm]	13	13
	Inner ring hole type	Th	Th
	ØFi [mm]	335	440
	Ni	24	30
	Dhi [mm]	13	13
GREASING	Ring with greasing holes	E	E
	Greasing hole type	R	R

Static capacity curves

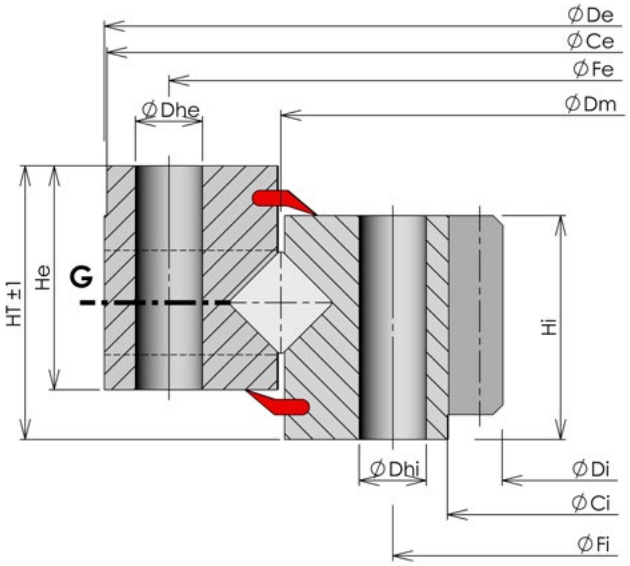


Greasing holes options with M10 x 1.00 thread

E: on External ring
I: on Internal ring
F: Facial
R: Radial

Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind

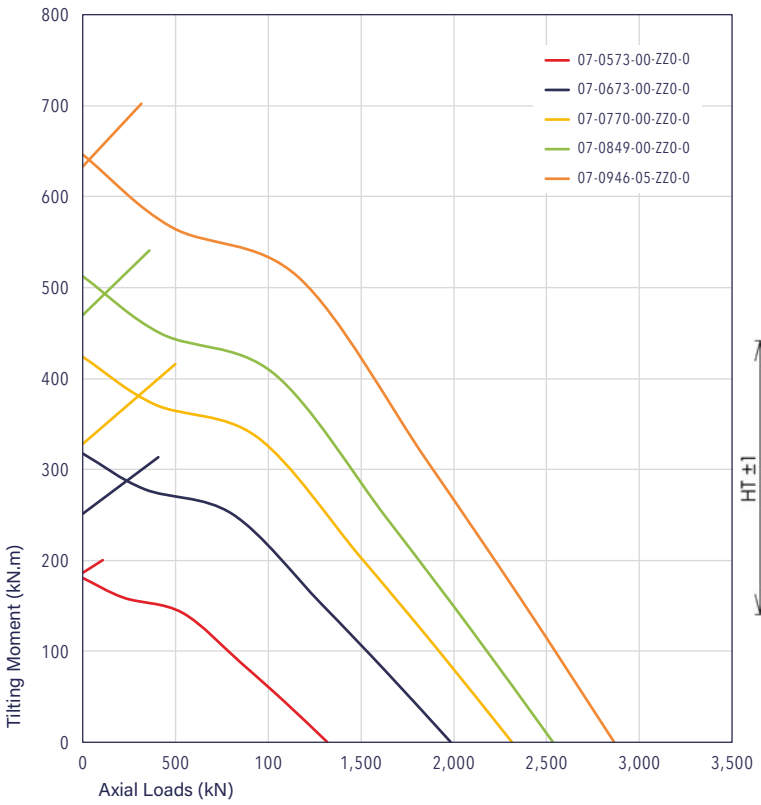


STANDARD CROSSED ROLLERS SLEWING RINGS

Range 07
Roller bearing with internal gear
From 500 to 1,000 mm

		REFERENCES				
SPECIFICATIONS		07-0573-00	07-0673-00	07-0770-00	07-0849-00	07-0946-05
MAIN DIMENSIONS	HT [mm]	60	70	70	75	85
	ØDe [mm]	665	771	871	960	1,066
	He [mm]	50	60	60	65	65
	ØDi [mm]	457	541	634	706	785
	Hi [mm]	50	60	60	65	75
	ØCe [mm]	660	770	870	958	1,065
	ØCi [mm]	485	575	670	742	945
	Weight [kg]	60	95	111	143	191
GEAR	Module [mm]	6	6	8	8	10
	Z	77	91	80	89	79
	W [mm]	45	55	55	60	75
	Gear capacity unhardened [kN]	39	48	63	70	108
	Gear capacity hardened [kN]	52	64	84	93	144
FASTENING HOLES	External ring hole type	Th	Th	Th	Th	Th
	ØFe [mm]	630	736	833	914	1,015
	Ne	28	32	36	30	36
	Dhe [mm]	17.5	17.5	17.5	22	22
	Inner ring hole type	Th	Th	Th	Th	Th
	ØFi [mm]	517	610	707	784	880
	Ni	28	32	36	30	36
	Dhi [mm]	17.5	17.5	17.5	22	22
GREASING	Ring with greasing holes	E	E	E	E	E
	Greasing hole type	R	R	R	R	R

Static capacity curves

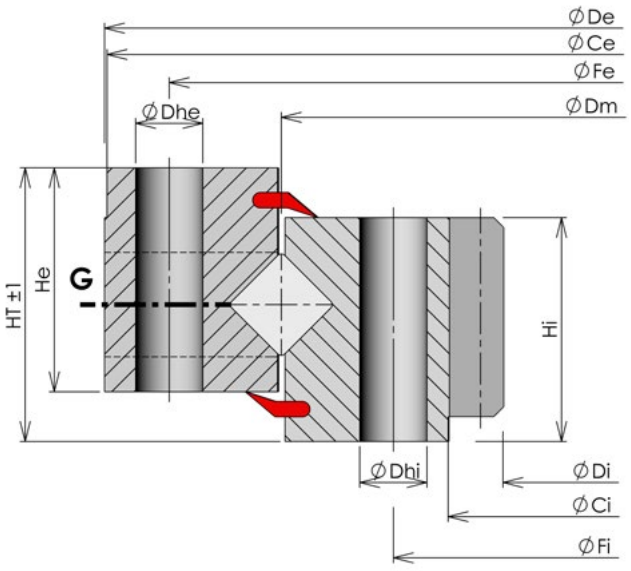


Greasing holes options with M10 x 1.00 thread

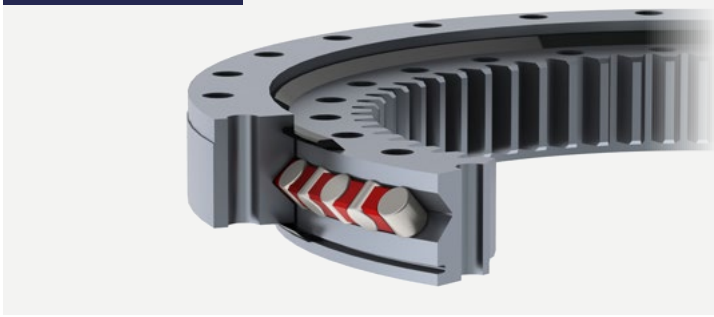
E: on External ring
I: on Internal ring
F: Facial
R: Radial

Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



SINGLE ROW

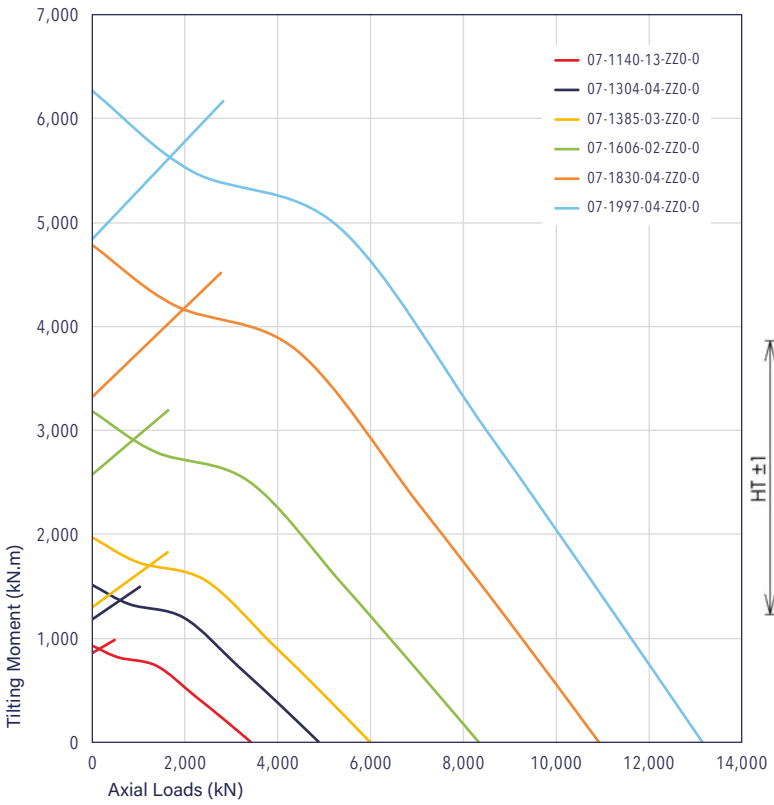


STANDARD CROSSED ROLLERS SLEWING RINGS

Range 07
Roller bearing with internal gear
From 1,000 to 2,000 mm

		REFERENCES					
SPECIFICATIONS		07-1140-13	07-1304-04	07-1385-03	07-1606-02	07-1830-04	07-1997-04
MAIN DIMENSIONS	HT [mm]	91	97	130	150	150	144
	ØDe [mm]	1,251	1,431	1,530	1,770	2,002	2,190
	He [mm]	75	82	107	125	125	125
	ØDi [mm]	979	1,143	1,178	1,375	1,595	1,731
	Hi [mm]	75	85	107	125	125	132
	ØCe [mm]	1,250	1,430	1,410	1,760	2,000	2,188
	ØCi [mm]	1,135	1,298	1,360	1,580	1,665	1,990
	Weight [kg]	238	324	532	793	946	1,198
GEAR	Module [mm]	10	10	12	14	14	16
	Z	99	115	100	100	115	109
	W [mm]	75	85	100	110	115	132
	Gear capacity unhardened [kN]	110	126	177	227	239	312
	Gear capacity hardened [kN]	147	168	235	302	319	417
FASTENING HOLES	External ring hole type	Th	Th	Th	Th	Th	Th
	ØFe [mm]	1,212	1,380	1,480	1,710	1,940	2,130
	Ne	40	48	36	48	54	72
	Dhe [mm]	22	22	26	30	30	30
	Inner ring hole type	Th	Th	Th	Th	Th	Th
	ØFi [mm]	1,068	1,228	1,290	1,500	1,720	1,880
	Ni	40	48	36	48	54	72
	Dhi [mm]	22	22	26	30	30	30
GREASING	Ring with greasing holes	E	E	E	E	E	E
	Greasing hole type	R	R	R	R	R	R

Static capacity curves

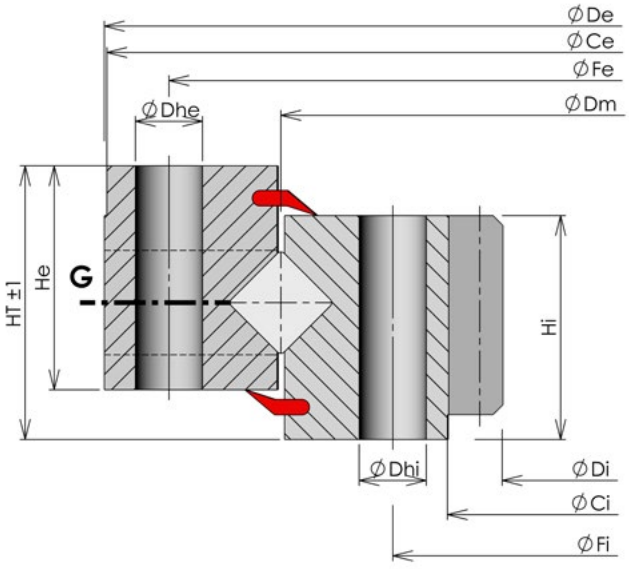


Greasing holes options with M10 x 1.00 thread

E: on External ring
I: on Internal ring
F: Facial
R: Radial

Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind

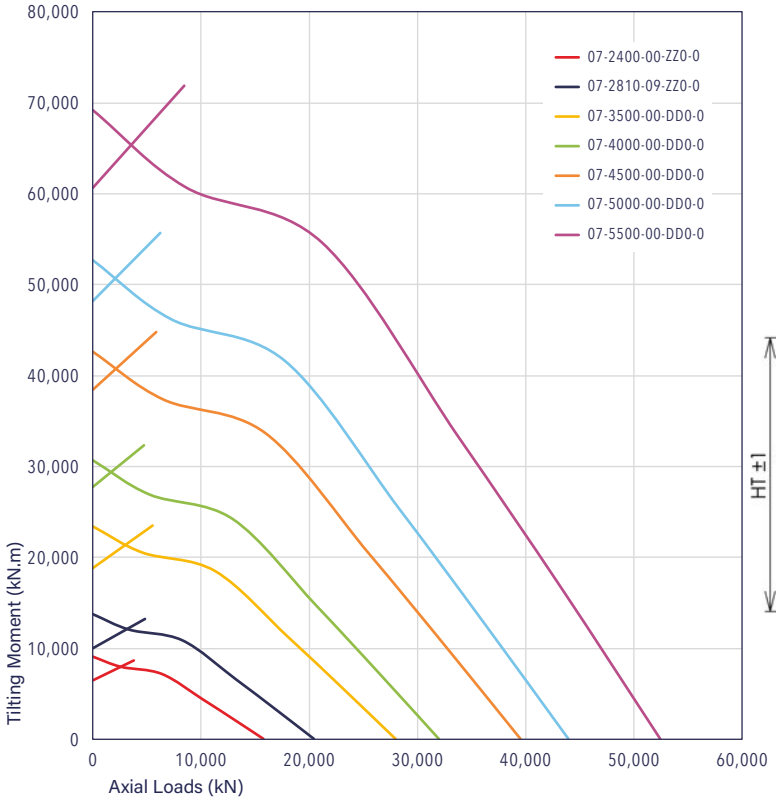


STANDARD CROSSED ROLLERS SLEWING RINGS

Range 07
Roller bearing with internal gear
From 2,000 to 6,000 mm

		REFERENCES						
SPECIFICATIONS		07-2400-00	07-2810-09	07-3500-00	07-4000-00	07-4500-00	07-5000-00	07-5500-00
MAIN DIMENSIONS	HT [mm]	160	158	170	195	205	215	225
	ØDe [mm]	2,590	3,020	3,730	4,242	4,772	5,276	5,810
	He [mm]	135	140	145	165	175	185	195
	ØDi [mm]	2,110	2,495	3,184	3,684	4,140	4,624	5,093
	Hi [mm]	145	148	155	180	190	200	210
	ØCe [mm]	2,586	3,016	3,726	4,238	4,768	5,272	5,806
	ØCi [mm]	2,392	2,800	3,490	3,990	4,490	4,988	5,489
	Weight [kg]	1,651	2,165	2,923	3,908	5,305	6,436	8,268
GEAR	Module [mm]	18	20	20	20	22	22	24
	Z	118	126	160	185	189	211	213
	W [mm]	145	148	155	180	190	200	210
	Gear capacity unhardened [kN]	506	576	613	715	831	878	1,006
	Gear capacity hardened [kN]	588	670	713	831	966	1,020	1,169
FASTENING HOLES	External ring hole type	Th	Th	Th	Th	Th	Th	Th
	ØFe [mm]	2,520	2,950	3,640	4,140	4,658	5,166	5,684
	Ne	80	72	108	120	126	126	126
	Dhe [mm]	30	36	36	39	42	45	48
	Inner ring hole type	Th	Th	Th	Th	Th	Th	Th
	ØFi [mm]	2,280	2,670	3,360	3,860	4,342	4,834	5,316
	Ni	80	72	108	120	126	126	126
	Dhi [mm]	30	36	36	39	42	45	48
GREASING	Ring with greasing holes	E	E	E	E	E	E	E
	Greasing hole type	R	R	R	R	R	R	R

Static capacity curves

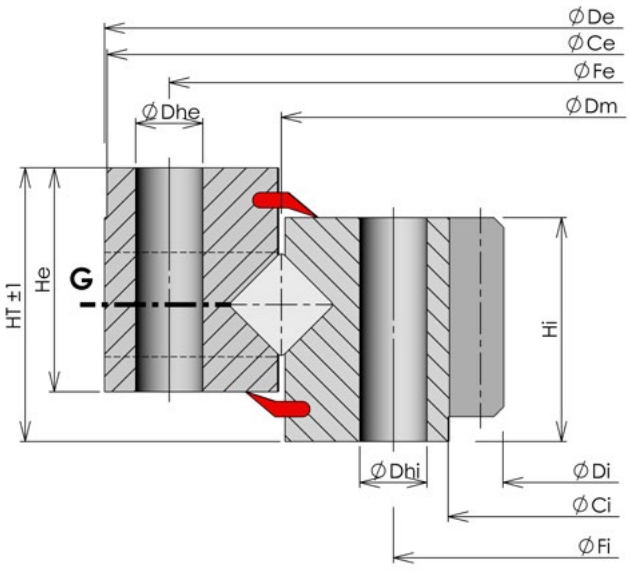


Greasing holes options with M10 x 1.00 thread

E: on External ring
I: on Internal ring
F: Facial
R: Radial

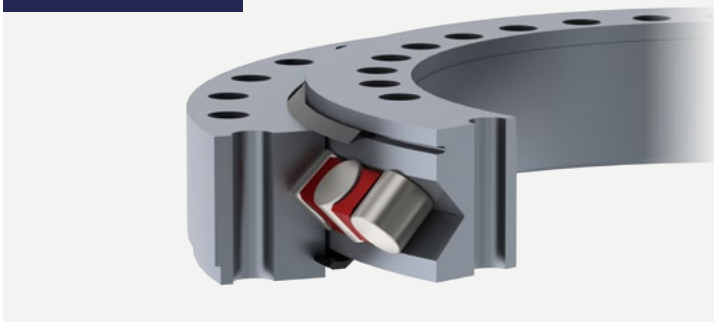
Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



STANDARD CROSSED ROLLERS SLEWING RINGS

Range 08
Without gear
From 0 to 500 mm



		REFERENCES						
SPECIFICATIONS		08-0220-05	08-0270-04	08-0307-00	08-0340-04	08-0400-00	08-0405-05	08-0475-08
MAIN DIMENSIONS	HT [mm]	52	52	55	60	75	46	75
	ØDe [mm]	300	350	403.5	440	500	474	589
	He [mm]	44	44	47	53	63	41	60
	ØDi [mm]	140	190	234	240	305	336	383
	Hi [mm]	44	44	45	53	63	41	63
	ØCe [mm]	298	348	312	N/A	495	474	565
	ØCi [mm]	142	192	235	N/A	306	336	384
	Weight [kg]	16	19	26	37	50	24	65
FASTENING HOLES	External ring hole type	Th	Th	Th	Th	Th	Th	Th
	ØFe [mm]	270	320	358	400	466	450	540
	Ne	12	16	24	18	30	30	36
	Dhe [mm]	18	18	13	22	18	14	16
	Inner ring hole type	Th	Th	Th	Th	Th	Th	Th
	ØFi [mm]	170	220	259	280	336	360	410
	Ni	12	16	28	18	30	30	36
	Dhi [mm]	18	18	13	22	18	14	16
GREASING	Ring with greasing holes	E	E	E	E	I	E	E
	Greasing hole type	R	R	F	R	R	R	F

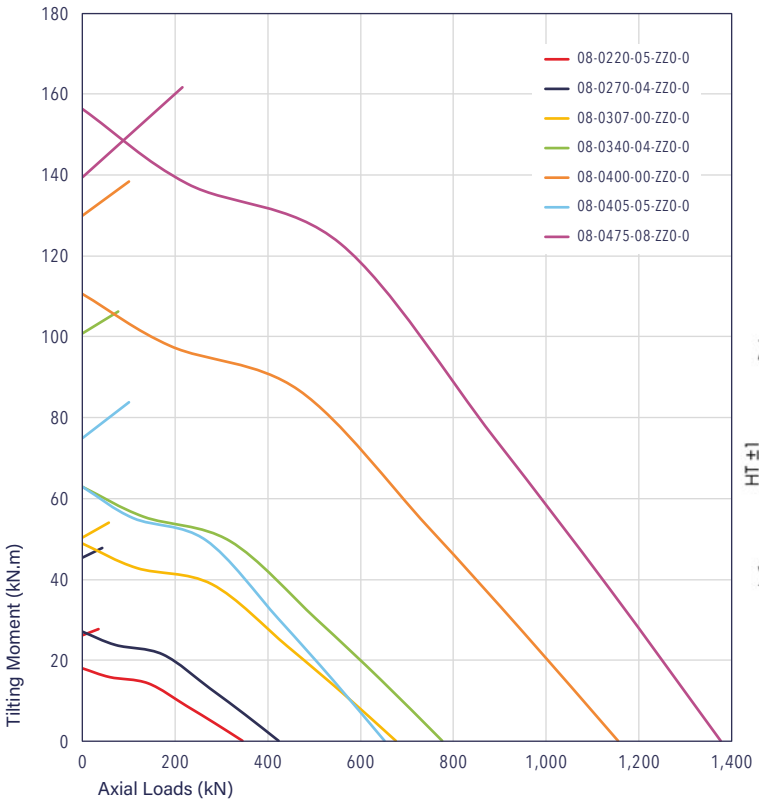
Greasing holes options with M10 x 1.00 thread

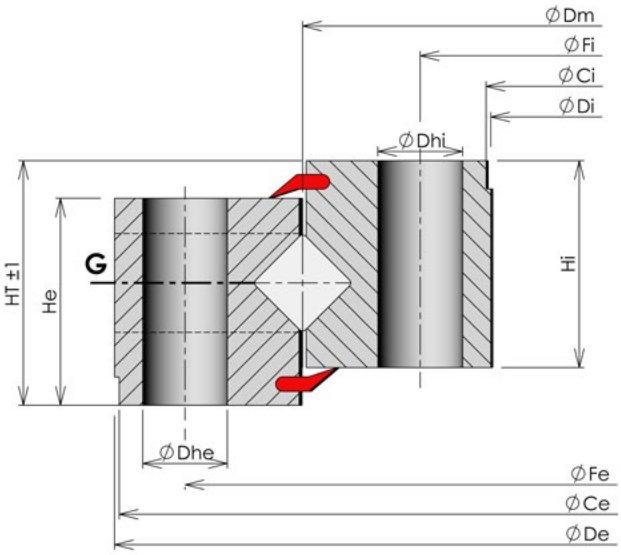
E: on External ring
I: on Internal ring
F: Facial
R: Radial

Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind

Static capacity curves





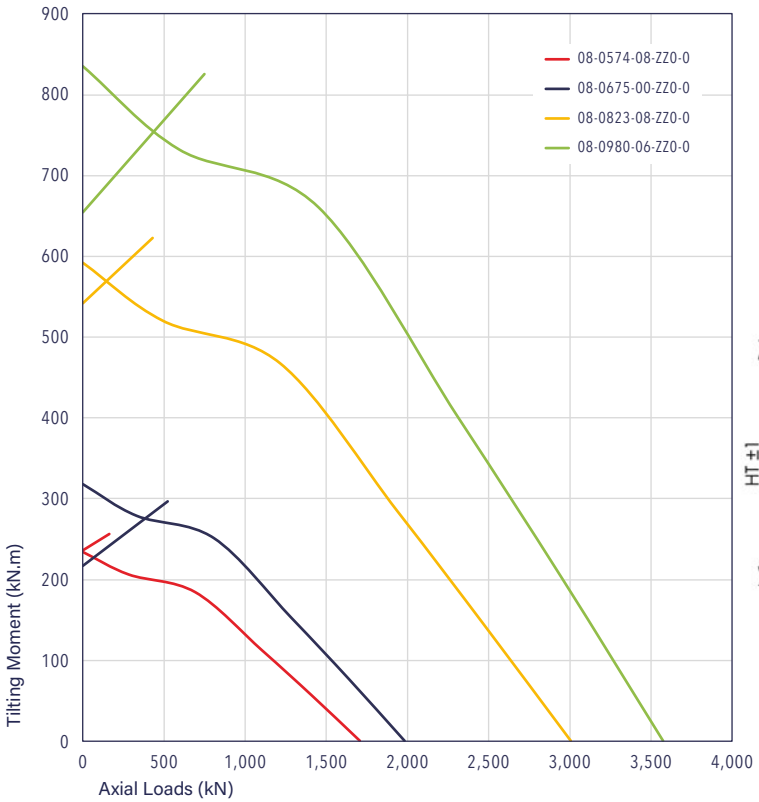
SINGLE ROW

STANDARD CROSSED ROLLERS SLEWING RINGS

Range 08
Without gear
From 500 to 1,000 mm

		REFERENCES			
SPECIFICATIONS		08-0574-08	08-0675-00	08-0823-08	08-0980-06
MAIN DIMENSIONS	HT [mm]	77	90	100	100
	ØDe [mm]	700	816	979	1,144
	He [mm]	64	73	79	79
	ØDi [mm]	479	573	717	869
	Hi [mm]	64	70	82	84
	ØCe [mm]	N/A	682	845	993
	ØCi [mm]	480	574	718	870
	Weight [kg]	89	137	193	248
FASTENING HOLES	External ring hole type	Th	Th	Th	Th
	ØFe [mm]	640	753	893	1,050
	Ne	36	18	36	36
	Dhe [mm]	18	22	22	22
	Inner ring hole type	Th	Th	Th	Th
	ØFi [mm]	508	604	753	910
	Ni	36	18	36	36
	Dhi [mm]	18	22	22	22
GREASING	Ring with greasing holes	I	E+I	E+I	E+I
	Greasing hole type	R	F+R	F+R	F+R

Static capacity curves

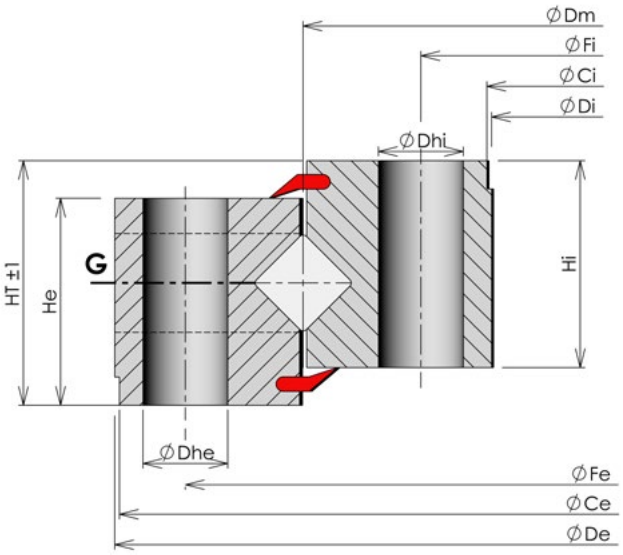


Greasing holes options with M10 x 1.00 thread

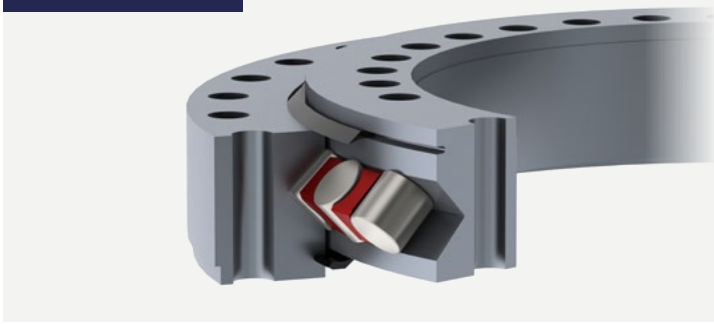
E: on External ring
I: on Internal ring
F: Facial
R: Radial

Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



SINGLE ROW

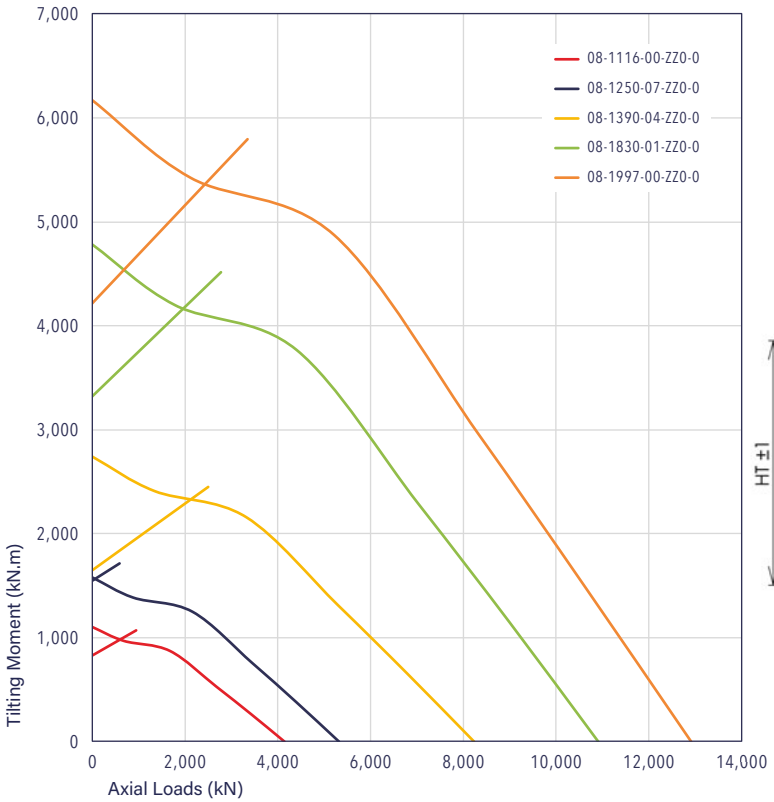


STANDARD CROSSED ROLLERS SLEWING RINGS

Range 08
Without gear
From 1,000 to 2,000 mm

		REFERENCES				
SPECIFICATIONS		08-1116-00	08-1250-07	08-1390-04	08-1830-01	08-1997-00
MAIN DIMENSIONS	HT [mm]	114	110	130	150	144
	ØDe [mm]	1,289.5	1,416	1,604	2,002	2,190
	He [mm]	90	91	112	125	127
	ØDi [mm]	984	1,084	1,206	1,650	1,747
	Hi [mm]	94	100	116	125	132
	ØCe [mm]	1,240	1,415	1,394	2,000	2,188
	ØCi [mm]	985	1,085	1,208	1,665	1,749
	Weight [kg]	359	429	697	876	1,253
FASTENING HOLES	External ring hole type	Th	Th	Th	Th	Th
	ØFe [mm]	1,198	1,350	1,500	1,940	2,130
	Ne	40	48	36	54	80
	Dhe [mm]	22	26	30	30	27
	Inner ring hole type	Th	Th	Th	Th	Th
	ØFi [mm]	1,035	1,150	1,280	1,720	1,880
	Ni	40	48	36	54	80
	Dhi [mm]	22	26	30	30	27
GREASING	Ring with greasing holes	E+I	I	E	E	E
	Greasing hole type	F+R	R	R	R	R

Static capacity curves

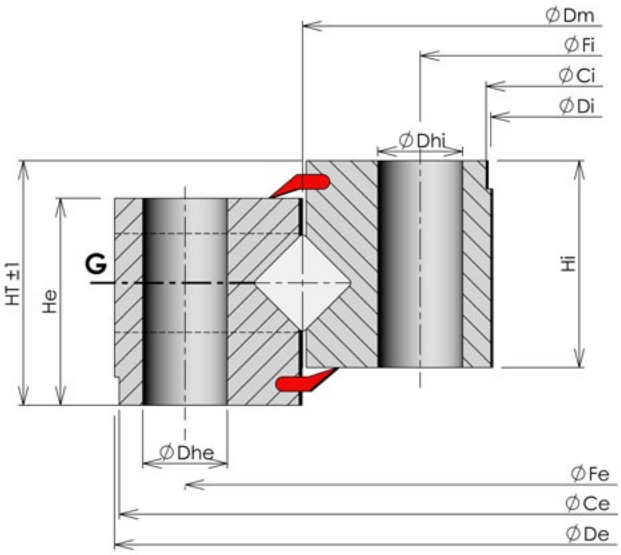


Greasing holes options with M10 x 1.00 thread

E: on External ring
I: on Internal ring
F: Facial
R: Radial

Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind

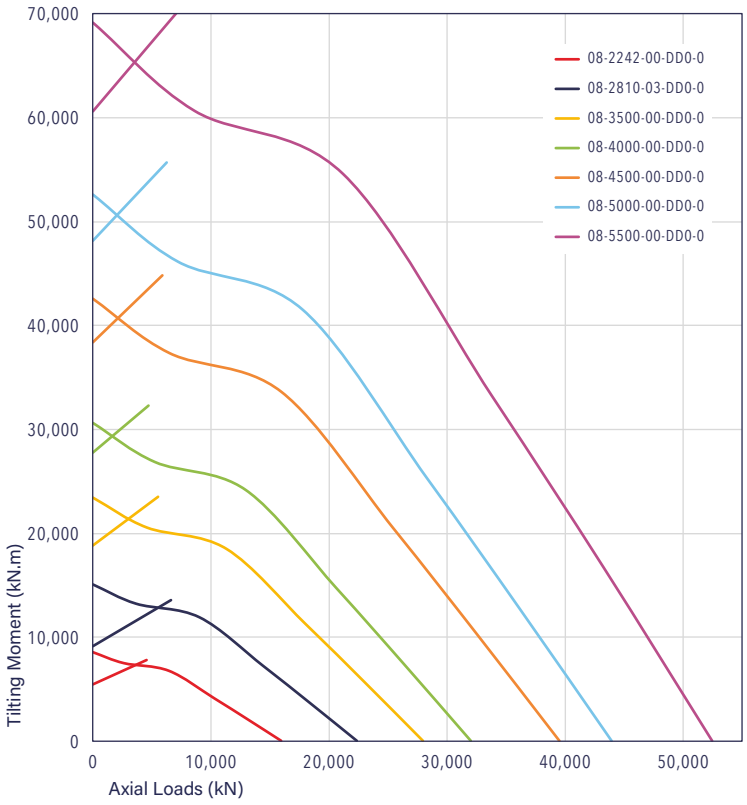


STANDARD CROSSED ROLLERS SLEWING RINGS

Range 08
Without gear
From 2,000 to 6,000 mm

		REFERENCES						
SPECIFICATIONS		08-2242-00	08-2810-03	08-3500-00	08-4000-00	08-4500-00	08-5000-00	08-5500-00
MAIN DIMENSIONS	HT [mm]	144	164	170	195	205	215	225
	ØDe [mm]	2,458	3,030	3,730	4,230	4,762	5,268	5,796
	He [mm]	132	148	155	180	190	200	210
	ØDi [mm]	2,042	2,600	3,276	3,766	4,238	4,724	5,196
	Hi [mm]	122	142	145	165	175	185	195
	ØCe [mm]	2,260	2,818	3,510	4,010	4,510	5,012	5,511
	ØCi [mm]	2,049	2,607	3,280	3,770	4,242	4,728	5,200
	Weight [kg]	1,311	1,930	2,584	3,430	4,643	5,652	7,279
FASTENING HOLES	External ring hole type	Th	Th	Th	Th	Th	Th	Th
	ØFe [mm]	2,373	2,950	3,640	4,140	4,658	5,166	5,684
	Ne	60	80	108	120	126	126	126
	Dhe [mm]	33	33	36	39	42	45	48
	Inner ring hole type	Th	Th	Th	Th	Th	Th	Th
	ØFi [mm]	2,112	2,670	3,360	3,860	4,342	4,834	5,316
	Ni	60	80	108	120	126	126	126
	Dhi [mm]	33	33	36	39	42	45	48
GREASING	Ring with greasing holes	I	I	I	I	I	I	I
	Greasing hole type	R	R	R	R	R	R	R

Static capacity curves

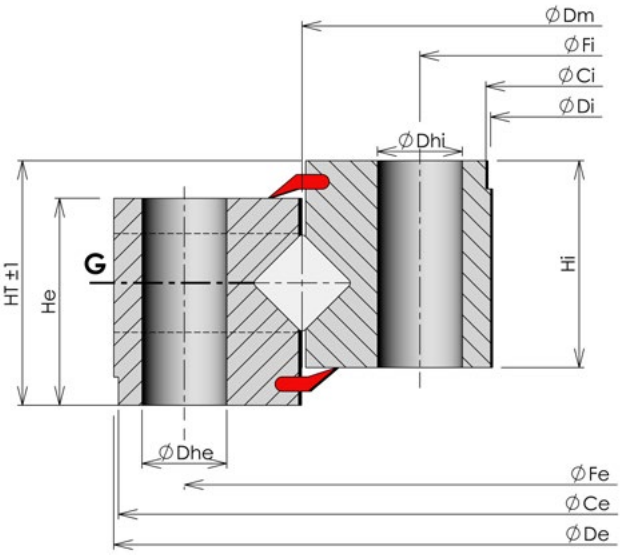


Greasing holes options with M10 x 1.00 thread

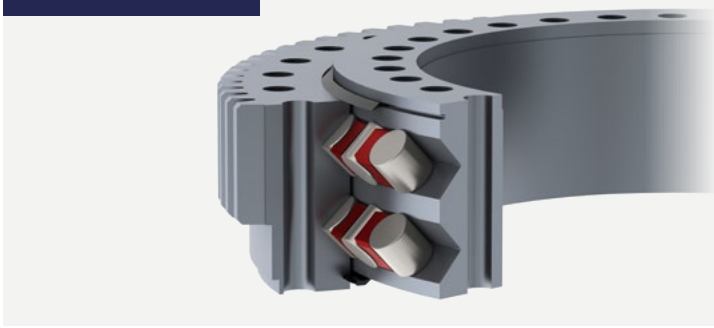
E: on External ring
I: on Internal ring
F: Facial
R: Radial

Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



DOUBLE ROW

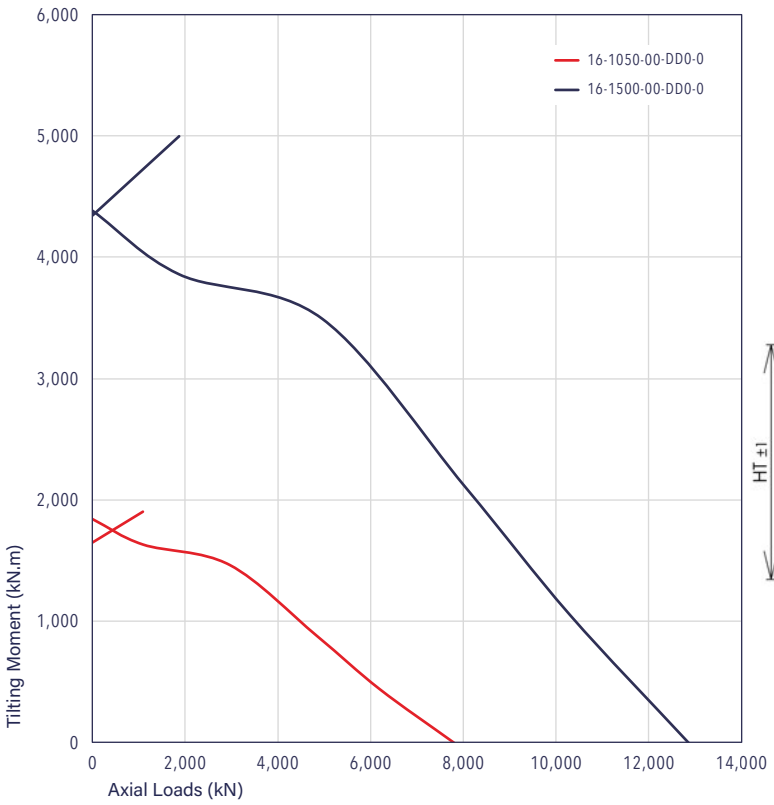


STANDARD CROSSED ROLLERS SLEWING RINGS

Range 16
Roller bearing with external gear
From 1,000 to 2,000 mm

		REFERENCES	
SPECIFICATIONS		16-1050-00	16-1500-00
MAIN DIMENSIONS	HT [mm]	139	150
	ØDe [mm]	1,258	1,747
	He [mm]	129	140
	ØDi [mm]	897	1,317
	Hi [mm]	129	140
	ØCe [mm]	1,200	1,685
	ØCi [mm]	900	1,320
	Weight [kg]	492	929
GEAR	Module [mm]	12	14
	Z	102	122
	W [mm]	100	130
	Gear capacity unhardened [kN]	230	353
	Gear capacity hardened [kN]	268	411
FASTENING HOLES	External ring hole type	Th	Th
	ØFe [mm]	1,141	1,606
	Ne	48	60
	Dhe [mm]	30	36
	Inner ring hole type	Th	Th
	ØFi [mm]	959	1,394
	Ni	48	60
	Dhi [mm]	30	36
GREASING	Ring with greasing holes	I	I
	Greasing hole type	R	R

Static capacity curves

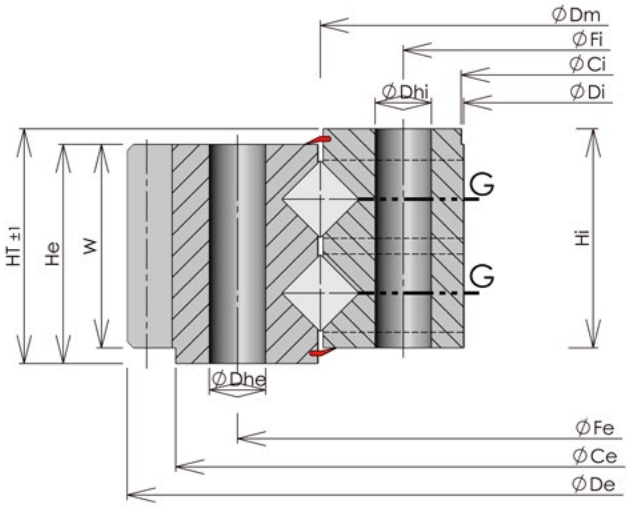


Greasing holes options with M10 x 1.00 thread

E: on External ring
I: on Internal ring
F: Facial
R: Radial

Fastening holes type options:

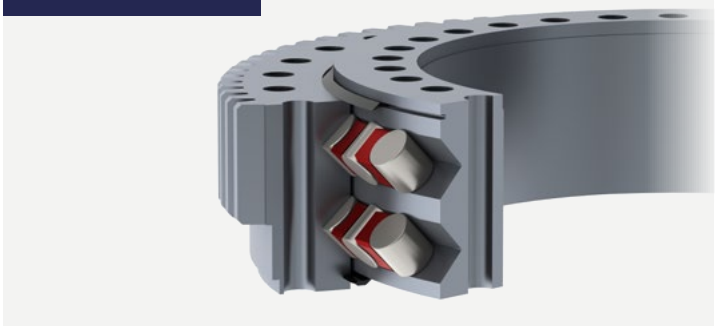
Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



DOUBLE ROW

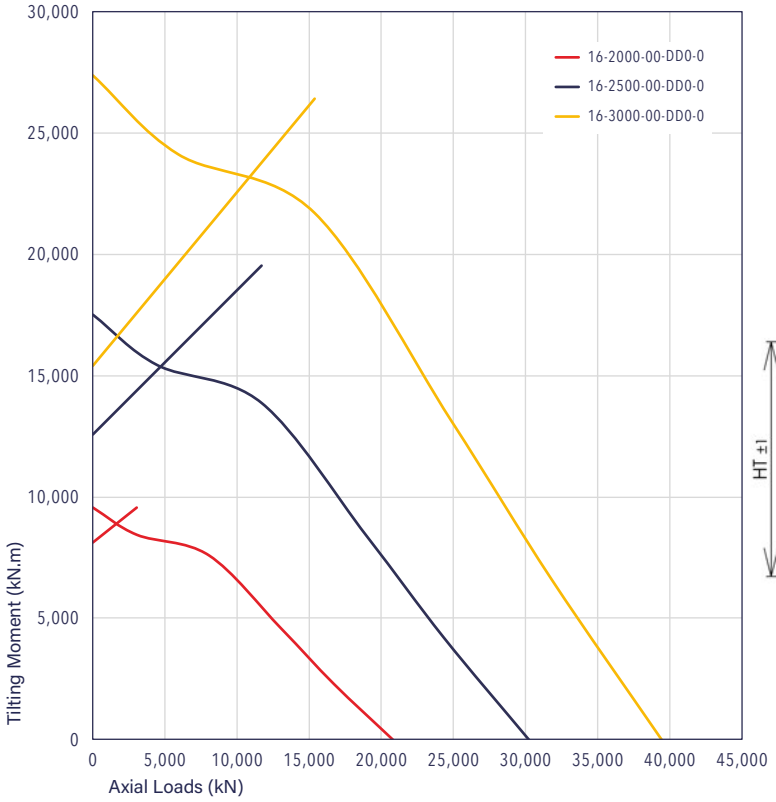
STANDARD CROSSED ROLLERS SLEWING RINGS

Range 16
Roller bearing with external gear
From 2,000 to 3,000 mm



		REFERENCES		
SPECIFICATIONS		16-2000-00	16-2500-00	16-3000-00
MAIN DIMENSIONS	HT [mm]	170	200	215
	ØDe [mm]	2,269	2,786	3,316
	He [mm]	160	185	200
	ØDi [mm]	1,800	2,290	2,775
	Hi [mm]	160	185	200
	ØCe [mm]	2,195	2,708	3,225
	ØCi [mm]	1,805	2,292	2,778
	Weight [kg]	1,511	2,366	3,419
GEAR	Module [mm]	16	18	20
	Z	139	152	163
	W [mm]	130	165	175
	Gear capacity unhardened [kN]	439	586	692
	Gear capacity hardened [kN]	511	682	805
FASTENING HOLES	External ring hole type	Th	Th	Th
	ØFe [mm]	2,120	2,625	3,140
	Ne	72	102	90
	Dhe [mm]	39	36	39
	Inner ring hole type	Th	Th	Th
	ØFi [mm]	1,880	2,375	2,860
	Ni	72	102	90
	Dhi [mm]	39	36	39
GREASING	Ring with greasing holes	I	I	I
	Greasing hole type	R	R	R

Static capacity curves

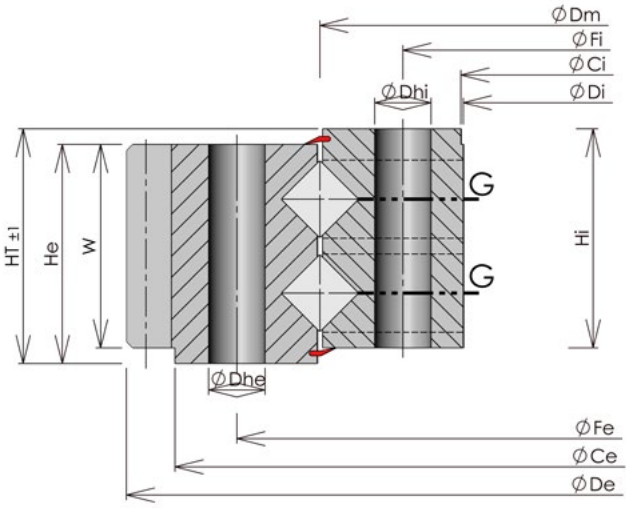


Greasing holes options with M10 x 1.00 thread

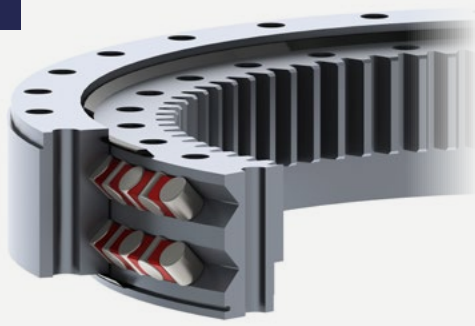
E: on External ring
I: on Internal ring
F: Facial
R: Radial

Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



DOUBLE ROW

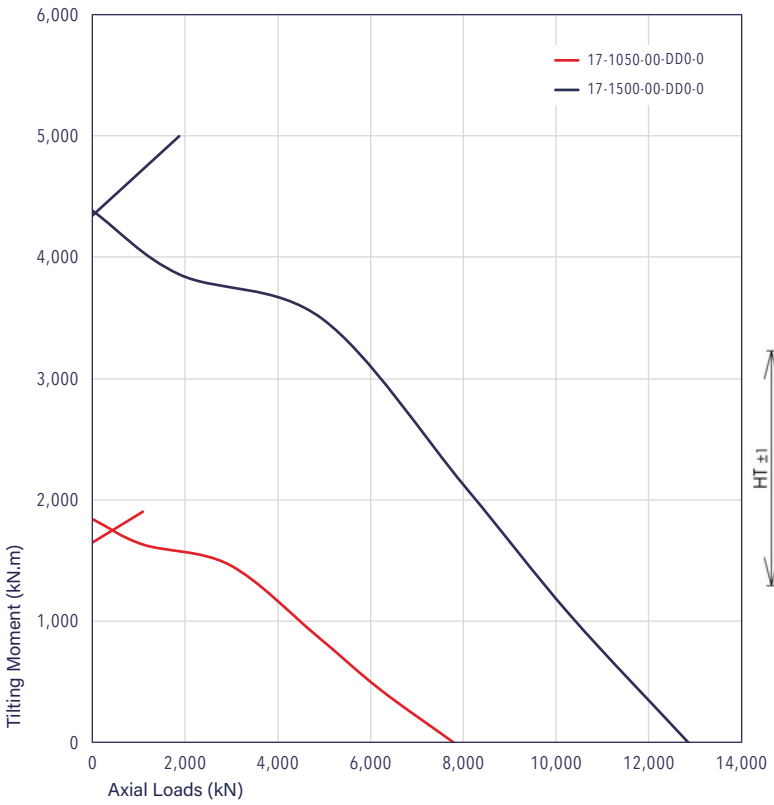


STANDARD CROSSED ROLLERS SLEWING RINGS

Range 17
Roller bearing with internal gear
From 1,000 to 2,000 mm

		REFERENCES	
SPECIFICATIONS		17-1050-00	17-1500-00
MAIN DIMENSIONS	HT [mm]	139	150
	ØDe [mm]	1,204	1,688
	He [mm]	129	140
	ØDi [mm]	852	1,249
	Hi [mm]	129	140
	ØCe [mm]	1,200	1,685
	ØCi [mm]	895	1,315
	Weight [kg]	477	925
GEAR	Module [mm]	10	14
	Z	86	90
	W [mm]	100	130
	Gear capacity unhardened [kN]	189	345
	Gear capacity hardened [kN]	220	401
FASTENING HOLES	External ring hole type	Th	Th
	ØFe [mm]	1,141	1,606
	Ne	48	60
	Dhe [mm]	30	36
	Inner ring hole type	Th	Th
	ØFi [mm]	959	1,394
	Ni	48	60
	Dhi [mm]	30	36
GREASING	Ring with greasing holes	E	E
	Greasing hole type	R	R

Static capacity curves

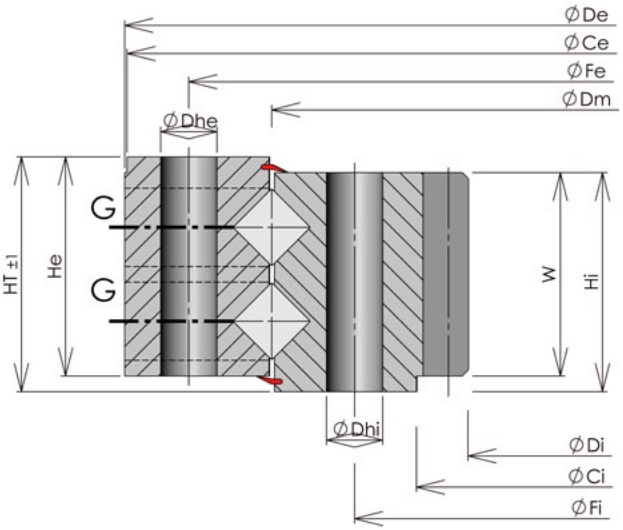


Greasing holes options with M10 x 1.00 thread

E: on External ring
I: on Internal ring
F: Facial
R: Radial

Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



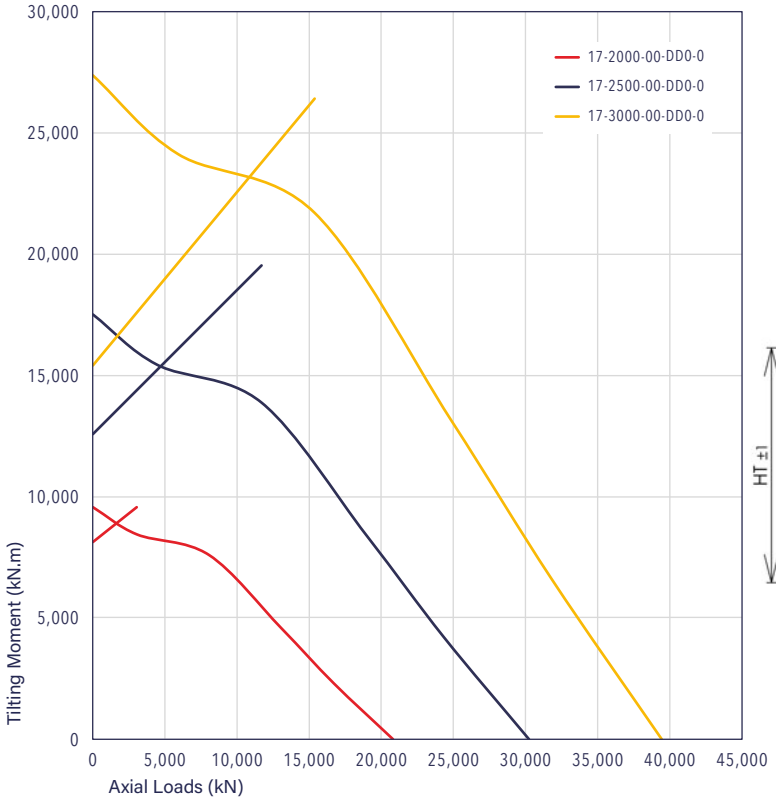
DOUBLE ROW

STANDARD CROSSED ROLLERS SLEWING RINGS

Range 17
Roller bearing with internal gear
From 2,000 to 3,000 mm

		REFERENCES		
SPECIFICATIONS		17-2000-00	17-2500-00	17-3000-00
MAIN DIMENSIONS	HT [mm]	170	200	215
	ØDe [mm]	2,200	2,710	3,230
	He [mm]	160	185	200
	ØDi [mm]	1,731	2,199	2,686
	Hi [mm]	160	185	200
	ØCe [mm]	2,195	2,708	3,225
	ØCi [mm]	1,802	2,282	2,770
	Weight [kg]	1,505	2,365	3,413
GEAR	Module [mm]	16	18	18
	Z	109	123	150
	W [mm]	135	150	170
	Gear capacity unhardened [kN]	416	525	604
	Gear capacity hardened [kN]	484	610	702
FASTENING HOLES	External ring hole type	Th	Th	Th
	ØFe [mm]	2,120	2,625	3,140
	Ne	72	102	90
	Dhe [mm]	39	36	39
	Inner ring hole type	Th	Th	Th
	ØFi [mm]	1,880	2,375	2,860
	Ni	72	102	90
	Dhi [mm]	39	36	39
GREASING	Ring with greasing holes	E	E	E
	Greasing hole type	R	R	R

Static capacity curves

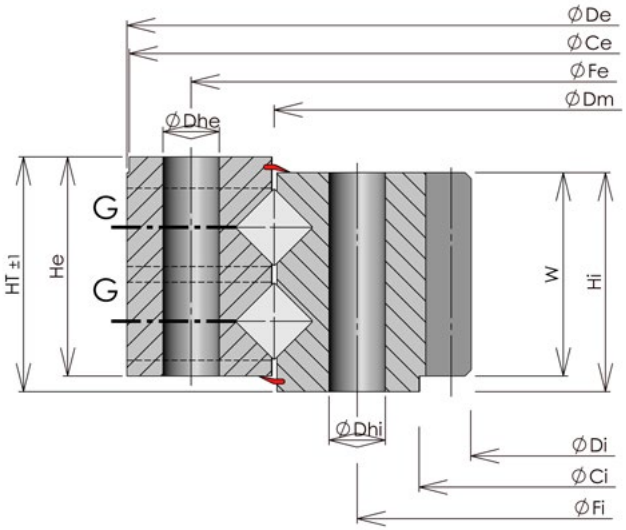


Greasing holes options with M10 x 1.00 thread

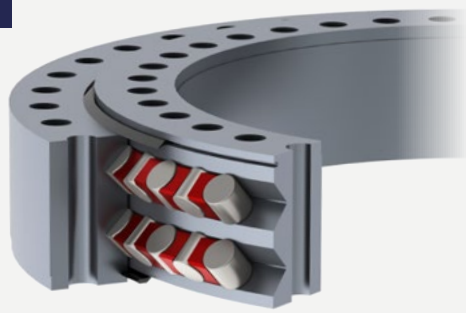
E: on External ring
I: on Internal ring
F: Facial
R: Radial

Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



DOUBLE ROW

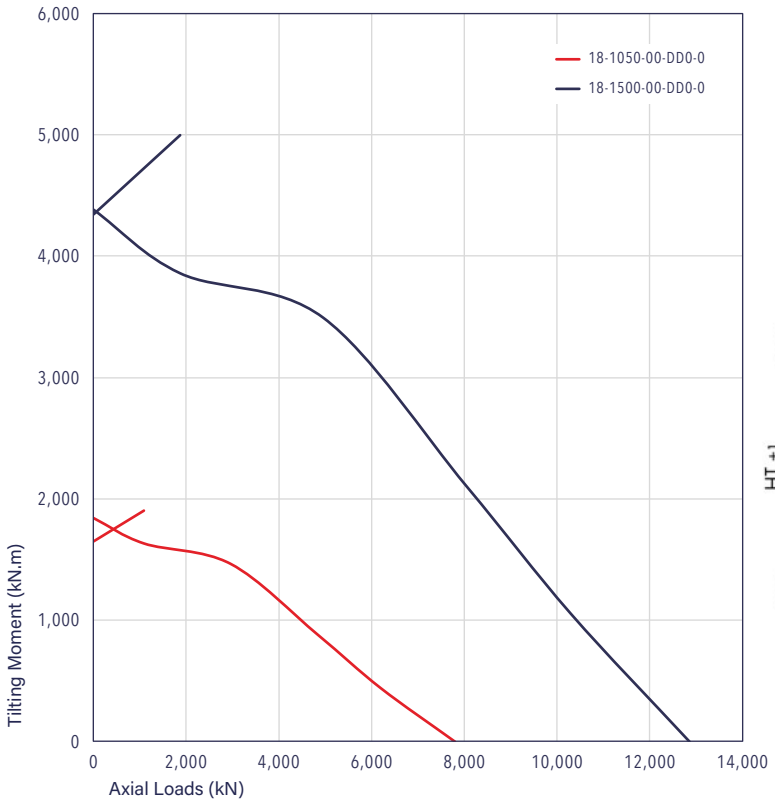


STANDARD CROSSED ROLLERS SLEWING RINGS

Range 18
Roller bearing without gear
From 1,000 to 2,000 mm

		REFERENCES	
SPECIFICATIONS		18-1050-00	18-1500-00
MAIN DIMENSIONS	HT [mm]	139	150
	ØDe [mm]	1,204	1,688
	He [mm]	129	140
	ØDi [mm]	897	1,317
	Hi [mm]	129	140
	ØCe [mm]	1,200	1,685
	ØCi [mm]	900	1,320
	Weight [kg]	447	841
FASTENING HOLES	External ring hole type	Th	Th
	ØFe [mm]	1,141	1,606
	Ne	48	60
	Dhe [mm]	30	36
	Inner ring hole type	Th	Th
	ØFi [mm]	959	1,394
	Ni	48	60
	Dhi [mm]	30	36
GREASING	Ring with greasing holes	I	I
	Greasing hole type	R	R

Static capacity curves

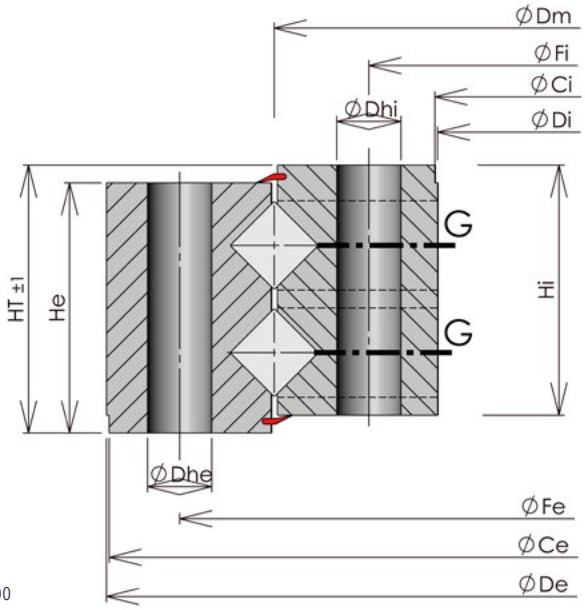


Greasing holes options with M10 x 1.00 thread

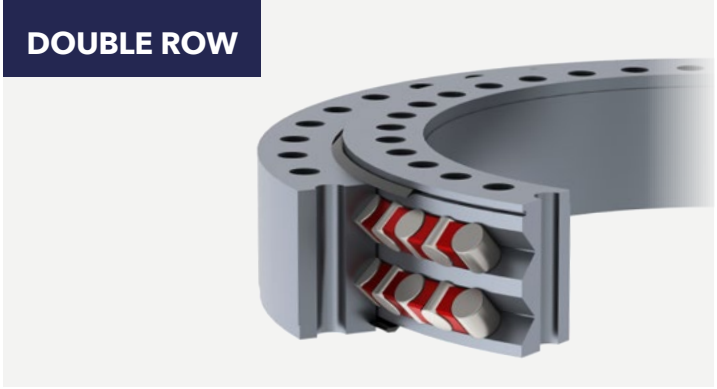
E: on External ring
I: on Internal ring
F: Facial
R: Radial

Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



DOUBLE ROW

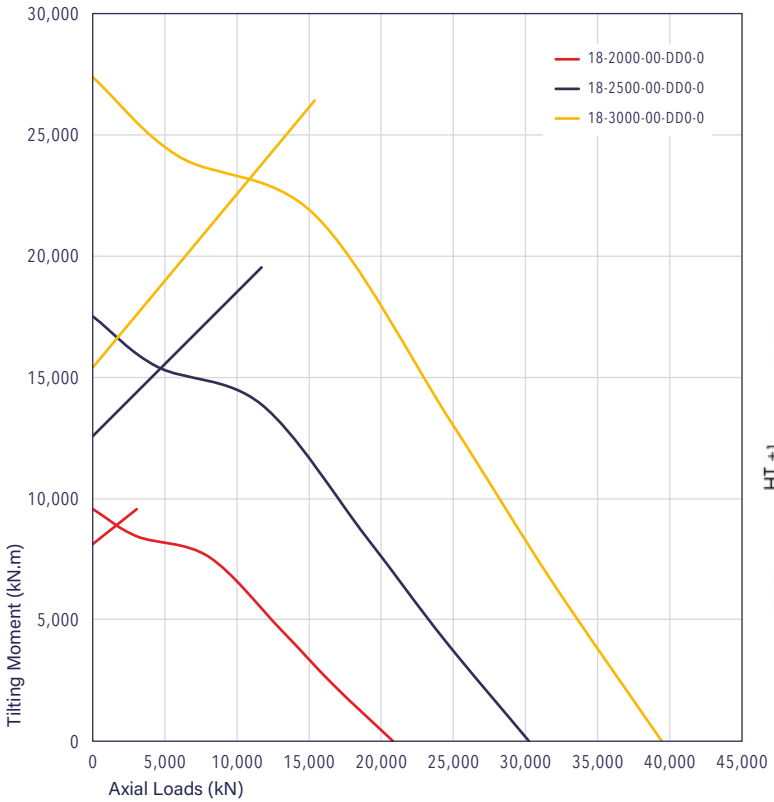


STANDARD CROSSED ROLLERS SLEWING RINGS

Range 18
Roller bearing without gear
From 2,000 to 3,000 mm

		REFERENCES		
SPECIFICATIONS		18-2000-00	18-2500-00	18-3000-00
MAIN DIMENSIONS	HT [mm]	170	200	215
	ØDe [mm]	2,200	2,710	3,230
	He [mm]	160	185	200
	ØDi [mm]	1,800	2,290	2,775
	Hi [mm]	160	185	200
	ØCe [mm]	2,195	2,708	3,225
	ØCi [mm]	1,805	2,292	2,778
	Weight [kg]	1,377	2,121	3,440
FASTENING HOLES	External ring hole type	Th	Th	Th
	ØFe [mm]	2,120	2,625	3,140
	Ne	72	102	90
	Dhe [mm]	39	36	39
	Inner ring hole type	Th	Th	Th
	ØFi [mm]	1,880	2,375	2,860
	Ni	72	102	90
	Dhi [mm]	39	36	39
GREASING	Ring with greasing holes	I	I	I
	Greasing hole type	R	R	R

Static capacity curves

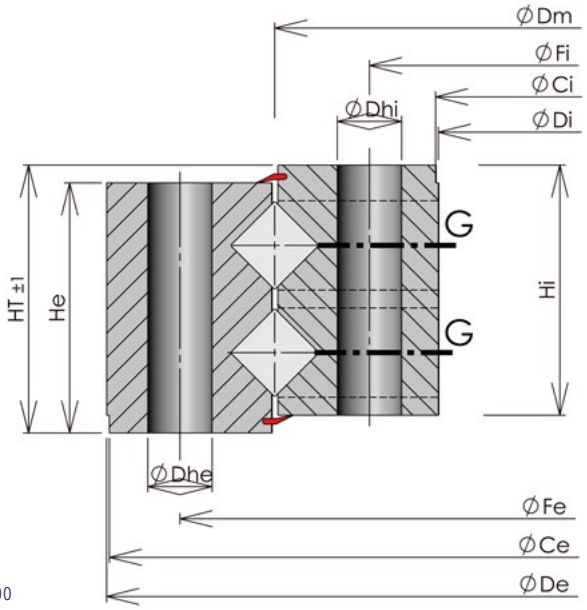


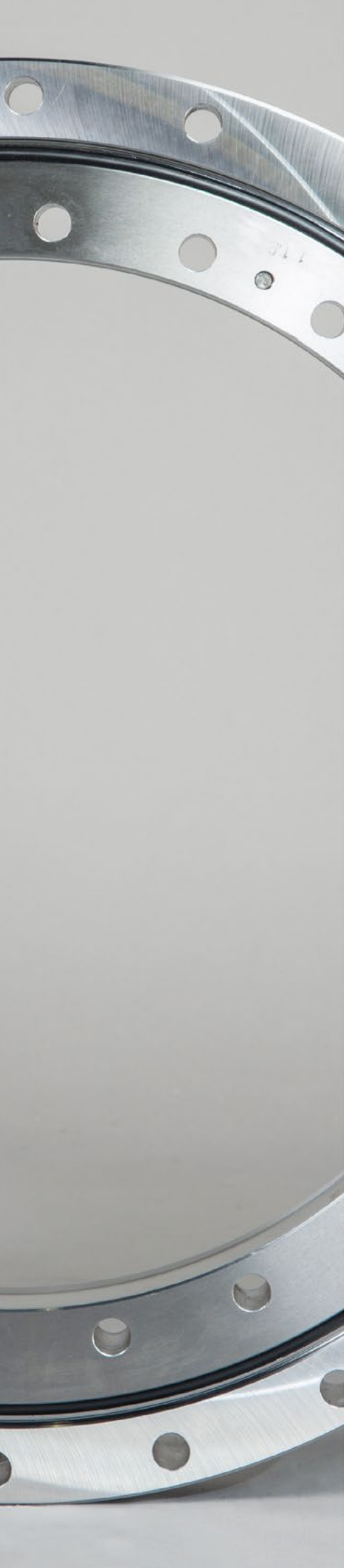
Greasing holes options with M10 x 1.00 thread

E: on External ring
I: on Internal ring
F: Facial
R: Radial

Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind





10

PRECISION ROLLER SLEWING RINGS

CONTENTS

Precision roller slewing rings

This range includes all the precision roller slewing rings.

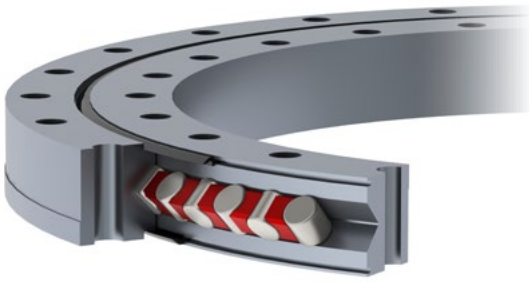
The Rollix precision range is designed to meet the specific requirements of its customers. This range has been developed to provide high positioning accuracy and stiffness, which is a great advantage for robots, indexing tables, positioners, machine tools and rotary tables.

All slewing rings in the precision range are preloaded.

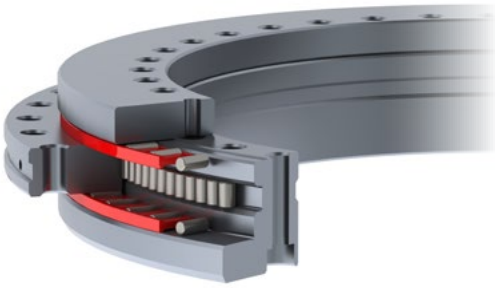
Precision roller slewing rings are available in several ranges:

Compact Light
Slewing rings in XC45 material with or without gear.

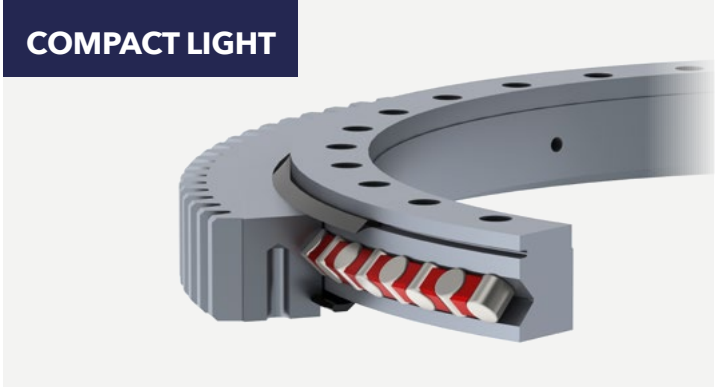
Compact
Slewing rings in 42CrMo4 material without gear, available in different versions: high precision and precision.



Rollix RT
High stiffness bearings in 100Cr6 material without soft zone.



Further detailed information on the precision range is available in IT-ETR-244.

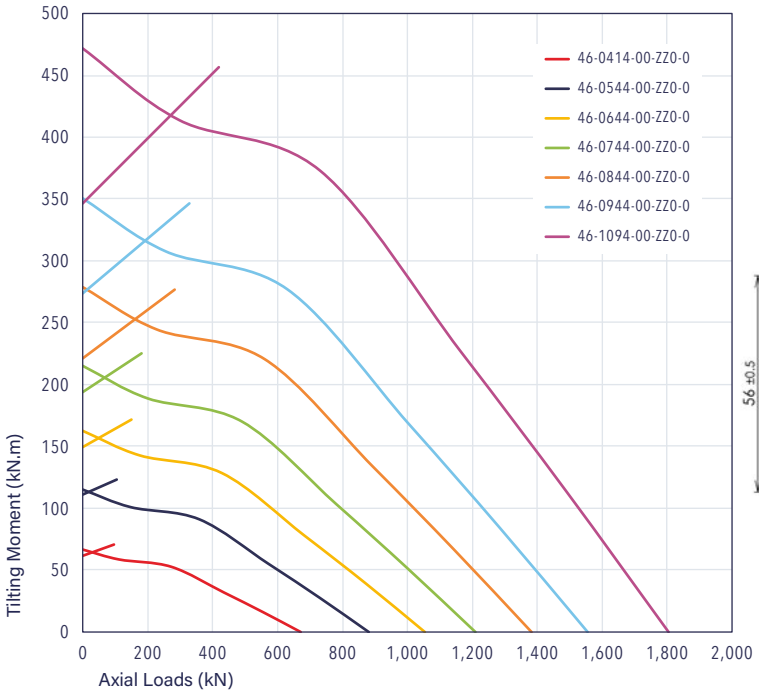


PRECISION ROLLER SLEWING RINGS

Range 46
External gear
COMPACT LIGHT LEG

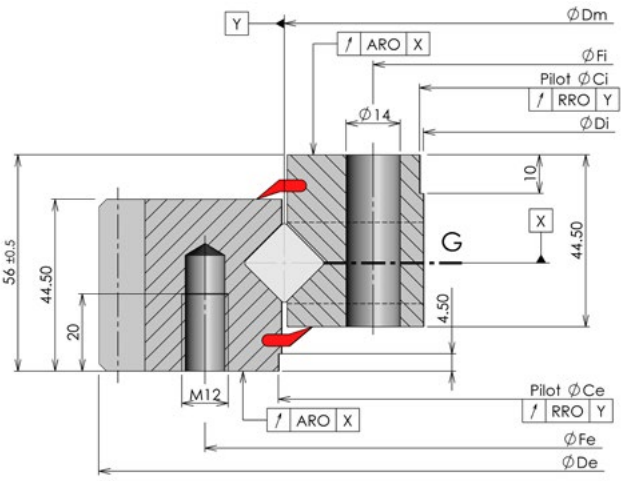
		REFERENCES						
SPECIFICATIONS		46-0414-00	46-0544-00	46-0644-00	46-0744-00	46-0844-00	46-0944-00	46-1094-00
MAIN DIMENSIONS	ØDe [mm]	504	640	742	838	950	1,046	1,198
	ØDi [mm]	342	472	572	672	772	872	1,022
	ØCe [mm]	417	547	647	747	847	947	1,097
	ØCi [mm]	344	474	574	674	774	874	1,024
	HT [mm]	56	56	56	56	56	56	56
	He [mm]	44	44	44	44	44	44	44
	Hce [mm]	10	10	10	10	10	10	10
	Hi [mm]	44	44	44	44	44	44	44
	Weight [kg]	32	43	52	59	71	77	91
FASTENING HOLES	Hci [mm]	10	10	10	10	10	10	10
	Fe [mm]	455	585	685	785	885	985	1,135
	Ne* [mm]	20	28	32	36	36	40	44
	Fi [mm]	368	498	598	698	798	898	1,048
	Ni* [mm]	24	32	36	40	40	44	48
AXIAL RUN-OUT (ARO)	BE [µm]	40	40	50	50	50	60	70
	BI [µm]	40	40	50	50	50	60	70
RADIAL RUN-OUT (RRO)	BE [µm]	60	70	80	80	90	90	110
	BI [µm]	60	60	70	80	80	90	110
MAXIMUM STARTING TORQUE (UNLOADED)	[Nm]	45	65	80	100	120	140	170
MAXIMUM ALLOWABLE ROTATION SPEED	[rpm]	85	64	54	47	41	37	32
GEAR QUALITY 9 ACCORDING TO ISO 1328	Module [mm]	5	6	6	6	8	8	8
	Number of teeth	99	105	122	138	117	129	148
	Run-out [mm]	0.11	0.12	0.12	0.12	0.14	0.16	0.16
	Static Gear Resistance [kN]	33	39	40	40	53	53	54

Static capacity curves



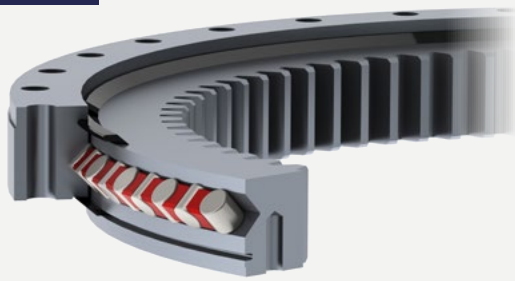
Fastening:

*Ni: Number of holes on Inner Ring
*Ne: Number of holes on Outer Ring



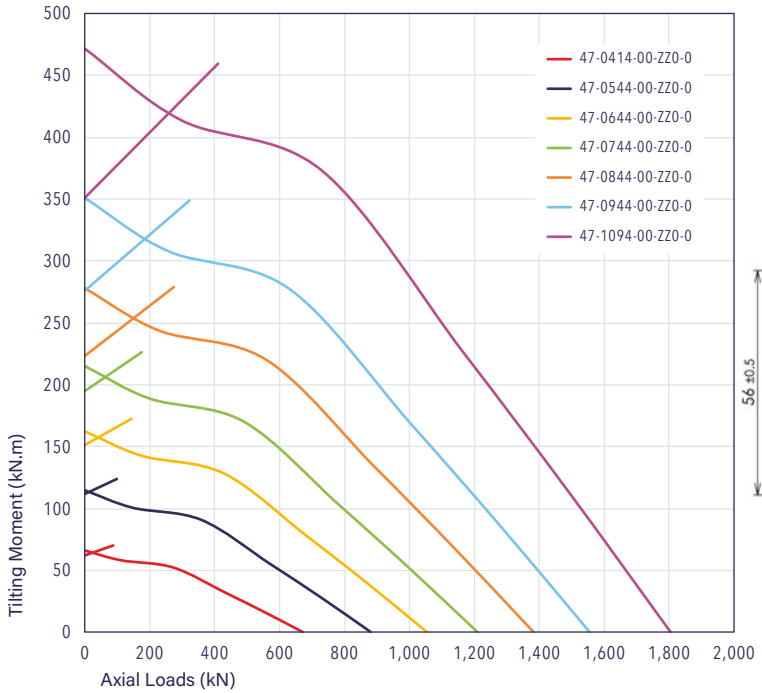
PRECISION ROLLER SLEWING RINGS

Range 47
Internal gear
COMPACT LIGHT LIG



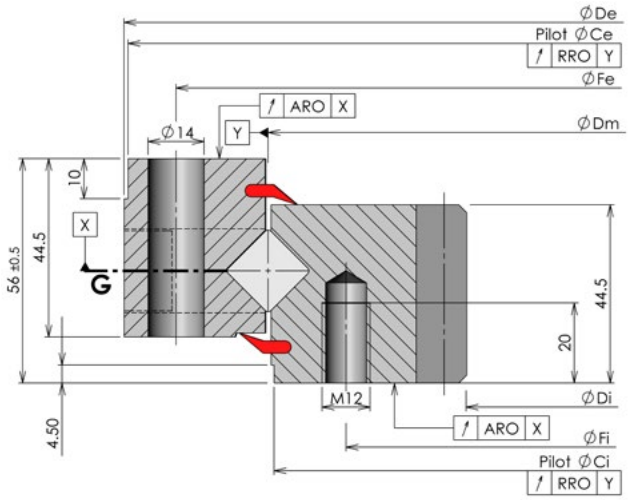
		REFERENCES						
SPECIFICATIONS		47-0414-00	47-0544-00	47-0644-00	47-0744-00	47-0844-00	47-0944-00	47-1094-00
MAIN DIMENSIONS	ØDe [mm]	486	616	716	816	916	1,016	1,166
	ØDi [mm]	326	445	547	649	738	842	986
	ØCe [mm]	484	614	714	814	914	1,014	1,164
	ØCi [mm]	411	541	641	741	841	941	1,091
	HT [mm]	56	56	56	56	56	56	56
	He [mm]	44	44	44	44	44	44	44
	Hce [mm]	10	10	10	10	10	10	10
	Hi [mm]	44	44	44	44	44	44	44
	Weight [kg]	30	43	50	57	69	76	91
FASTENING HOLES	Hci [mm]	10	10	10	10	10	10	10
	Fe [mm]	460	590	690	790	890	990	1,140
	Ne* [mm]	24	32	36	40	40	44	48
	Fi [mm]	375	505	605	705	805	905	1,055
	Ni* [mm]	24	32	36	40	40	44	48
AXIAL RUN-OUT (ARO)	BE [µm]	40	40	50	50	50	60	70
	BI [µm]	40	40	50	50	50	60	70
RADIAL RUN-OUT (RRO)	BE [µm]	60	70	80	80	90	90	110
	BI [µm]	60	70	70	80	80	90	110
MAXIMUM STARTING TORQUE (UNLOADED)	[Nm]	45	65	80	100	120	140	170
MAXIMUM ALLOWABLE ROTATION SPEED	[rpm]	85	64	54	47	41	37	32
GEAR QUALITY 9 ACCORDING TO ISO 1328	Module [mm]	5	6	6	6	8	8	8
	Number of teeth	67	76	93	110	94	107	125
	Run-out [mm]	0.11	0.11	0.11	0.12	0.14	0.14	0.14
	Static Gear Resistance [kN]	31	38	39	40	52	53	53

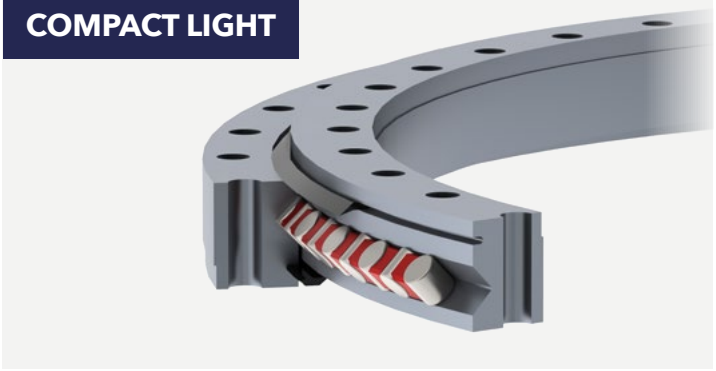
Static capacity curves



Fastening:

*Ni: Number of holes on Inner Ring
*Ne: Number of holes on Outer Ring



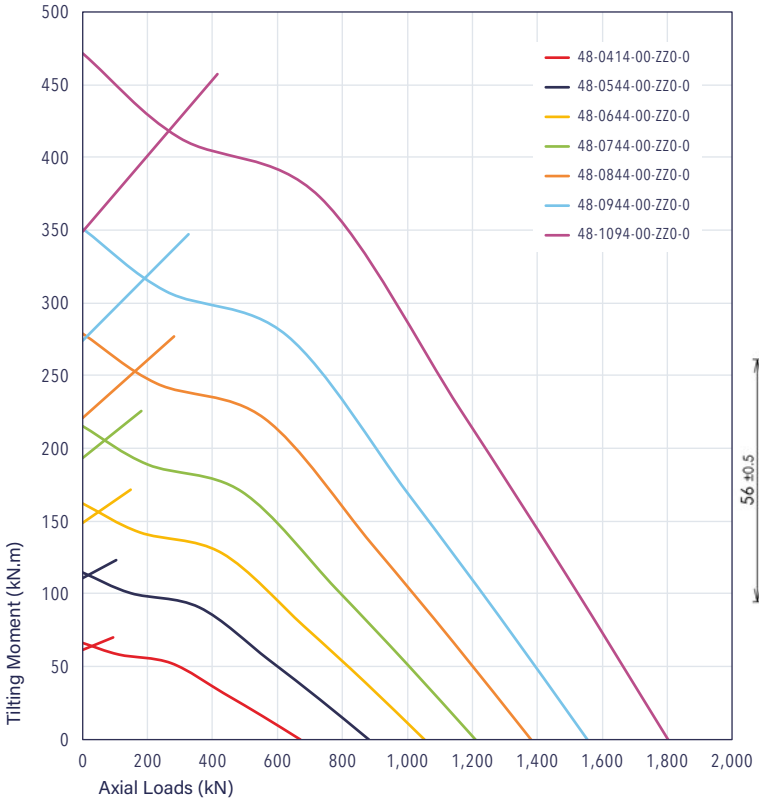


PRECISION ROLLER SLEWING RINGS

Range 48
Without gear
COMPACT LIGHT LUG

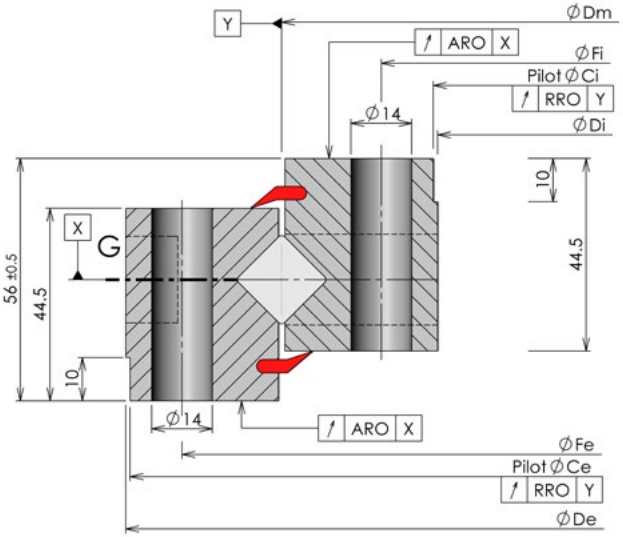
SPECIFICATIONS		REFERENCES						
		48-0414-00	48-0544-00	48-0644-00	48-0744-00	48-0844-00	48-0944-00	48-1094-00
MAIN DIMENSIONS	ØDe [mm]	486	616	716	816	916	1,016	1,166
	ØDi [mm]	342	472	572	672	772	872	1,022
	ØCe [mm]	484	614	714	814	914	1,014	1,164
	ØCi [mm]	344	474	574	674	774	874	1,024
	HT [mm]	56	56	56	56	56	56	56
	He [mm]	44	44	44	44	44	44	44
	Hce [mm]	10	10	10	10	10	10	10
	Hi [mm]	44	44	44	44	44	44	44
	Weight [kg]	28	37	45	52	59	66	77
FASTENING HOLES	Hci [mm]	10	10	10	10	10	10	10
	Fe [mm]	460	590	690	790	890	990	1,140
	Ne* [mm]	24	32	36	40	40	44	48
	Fi [mm]	368	498	598	698	798	898	1,048
	Ni* [mm]	24	32	36	40	40	44	48
AXIAL RUN-OUT (ARO)	BE [µm]	40	40	50	50	50	60	70
	BI [µm]	40	40	50	50	50	60	70
RADIAL RUN-OUT (RRO)	BE [µm]	60	70	80	80	90	90	110
	BI [µm]	60	70	70	80	80	90	110
MAXIMUM STARTING TORQUE (UNLOADED)	[Nm]	45	65	80	100	120	140	170
MAXIMUM ALLOWABLE ROTATION SPEED	[rpm]	85	64	54	47	41	37	32

Static capacity curves



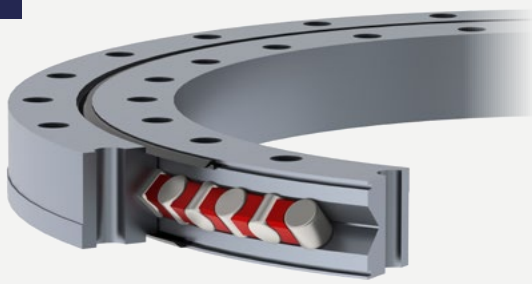
Fastening:

*Ni: Number of holes on Inner Ring
*Ne: Number of holes on Outer Ring



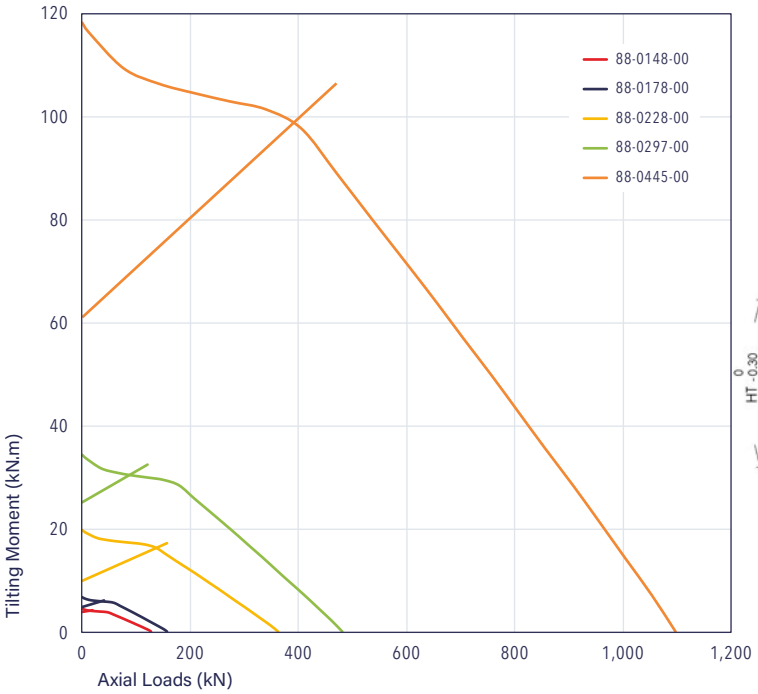
PRECISION ROLLER SLEWING RINGS

Range 88
Without gear
COMPACT CB



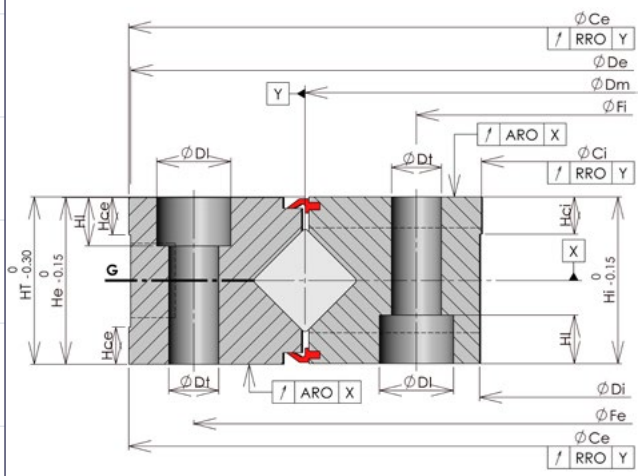
		REFERENCES				
SPECIFICATIONS		88-0148-00	88-0178-00	88-0228-00	88-0297-00	88-0445-00
MAIN DIMENSIONS	ØDe [mm]	208	239	294	379	539
	ØDi [mm]	91	116	161	211	351
	ØCe [mm]	210	240	295	380	540
	ØCi [mm]	90	115	160	210	350
	HT [mm]	25	28	35	40	45
	He [mm]	25	28	35	40	45
	Hce [mm]	6	8	10	10	10
	Hi [mm]	25	28	35	40	45
	Weight [kg]	4	6	11	21	41
FASTENING HOLES	Hci [mm]	10	8	10	10	10
	Dt [mm]	9	9	11	13	13
	Dl [mm]	14	14	17	20	20
	Hl [mm]	9	9	11	13	13
	Fe [mm]	187	217	270	350	505
	Ne* [mm]	12	12	12	16	24
	Fi [mm]	112	139	184	240	385
	Ni* [mm]	12	12	12	16	24
AXIAL RUN-OUT (ARO)	BE [µm]	4	5	6	8	12
	BI [µm]	4	5	6	8	12
RADIAL RUN-OUT (RRO)	BE [µm]	4	5	6	8	12
	BI [µm]	4	5	6	8	12
MAXIMUM STARTING TORQUE (UNLOADED)	[Nm]	10	15	20	35	55
MAXIMUM ALLOWABLE ROTATION SPEED	[rpm]	235	195	150	115	75

Static capacity curves



Fastening:

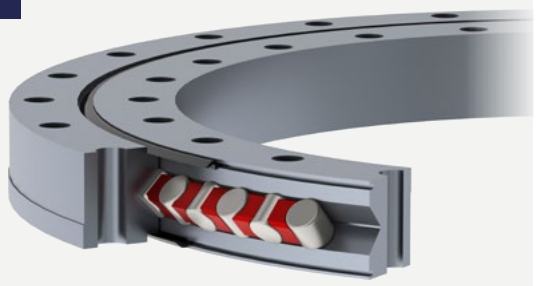
*Ni: Number of holes on Inner Ring
*Ne: Number of holes on Outer Ring



COMPACT

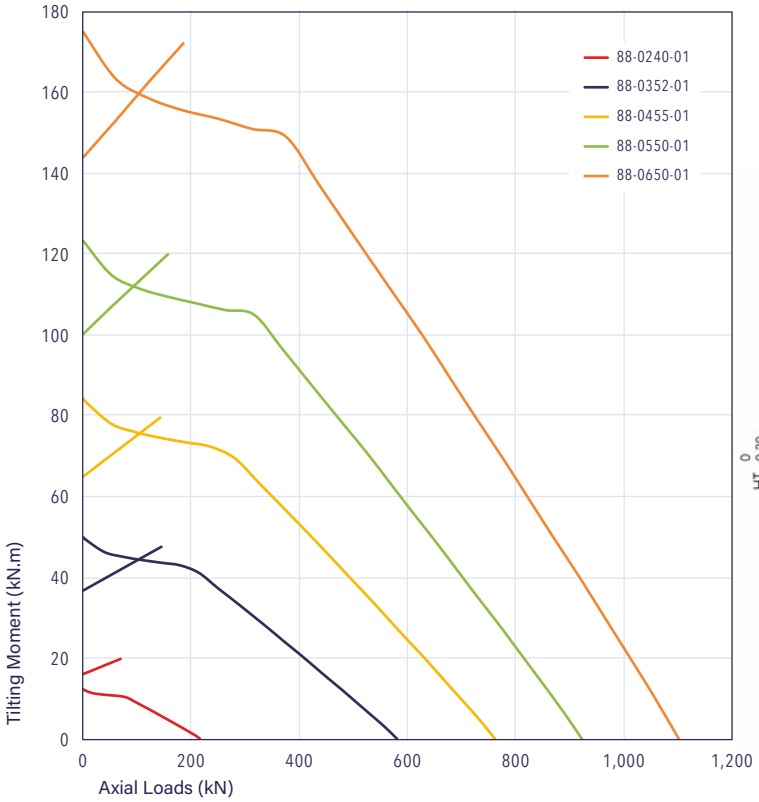
PRECISION ROLLER SLEWING RINGS

Range 88
Without gear
COMPACT HP



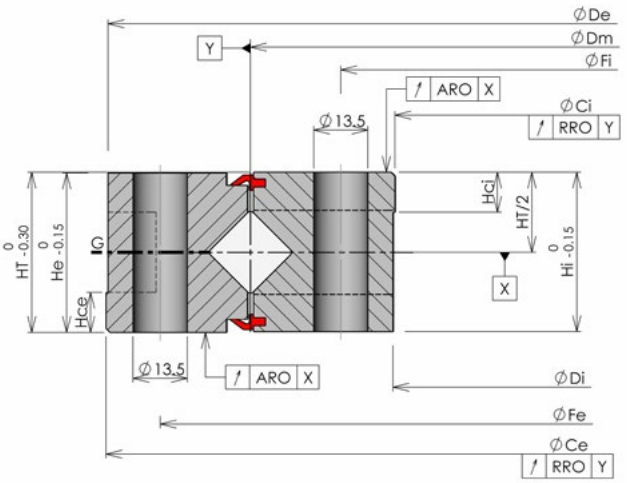
		REFERENCES				
SPECIFICATIONS		88-0240-01	88-0352-01	88-0455-01	88-0550-01	88-0650-01
MAIN DIMENSIONS	ØDe [mm]	296	423	526	621	721
	ØDi [mm]	184	281	384	479	579
	ØCe [mm]	297	424	527	622	722
	ØCi [mm]	183	280	383	478	578
	HT [mm]	30	40	40	40	40
	He [mm]	30	40	40	40	40
	Hce [mm]	8	10	10	10	10
	Hi [mm]	30	40	40	40	40
	Weight [kg]	9	23	30	36	42
FASTENING HOLES	Hci [mm]	10	10	10	10	10
	Fe [mm]	275	396	500	595	695
	Ne* [mm]	12	18	24	30	36
	Fi [mm]	205	308	410	505	605
	Ni* [mm]	12	18	24	30	36
AXIAL RUN-OUT (ARO)	BE [µm]	4	6	7	8	10
	BI [µm]	4	6	7	8	10
RADIAL RUN-OUT (RRO)	BE [µm]	4	6	7	8	10
	BI [µm]	4	6	7	8	10
MAXIMUM STARTING TORQUE (UNLOADED)	[Nm]	25	40	50	65	80
MAXIMUM ALLOWABLE ROTATION SPEED	[rpm]	160	110	85	70	60

Static capacity curves



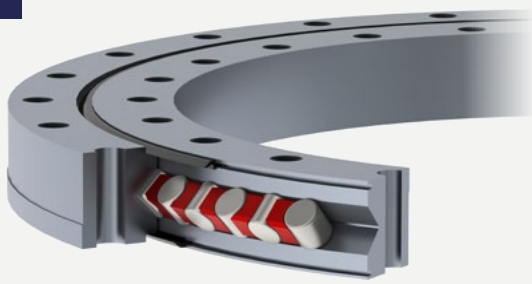
Fastening:

*Ni: Number of holes on Inner Ring
*Ne: Number of holes on Outer Ring



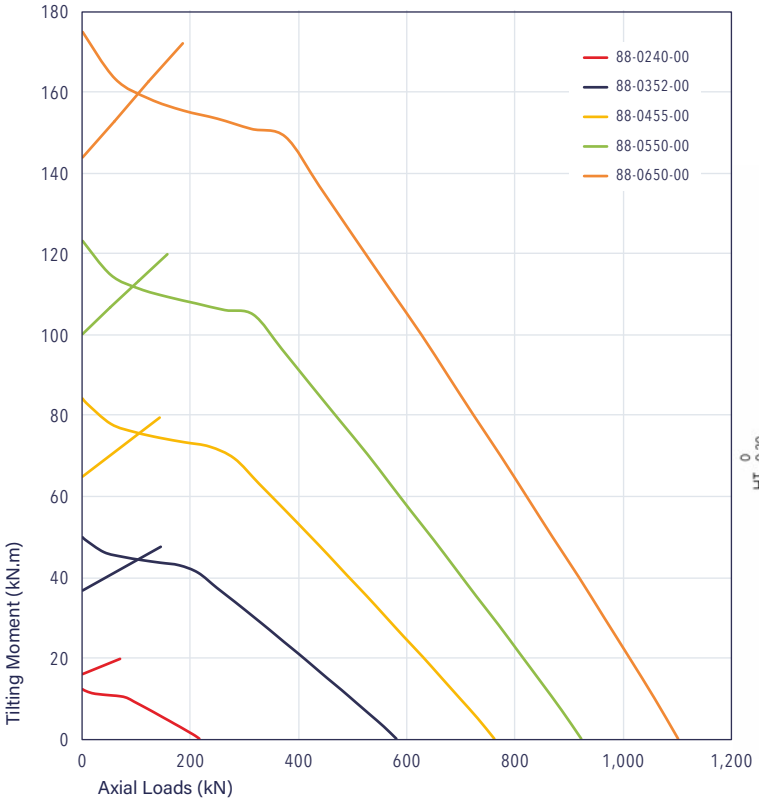
PRECISION ROLLER SLEWING RINGS

Range 88
Without gear
COMPACT P



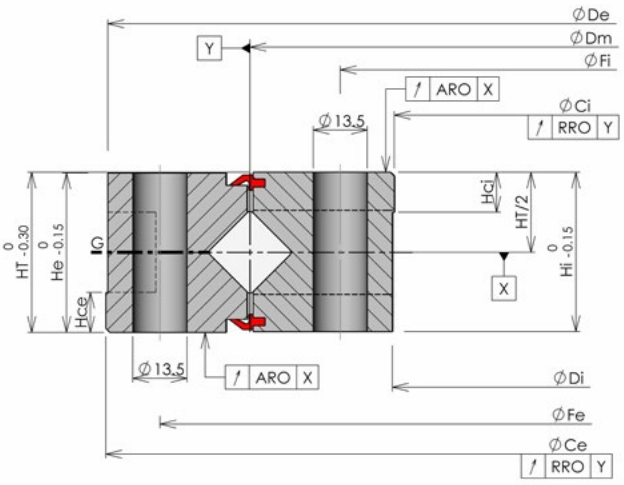
SPECIFICATIONS		REFERENCES				
		88-0240-00	88-0352-00	88-0455-00	88-0550-00	88-0650-00
MAIN DIMENSIONS	ØDe [mm]	296	423	526	621	721
	ØDi [mm]	184	281	384	479	579
	ØCe [mm]	297	424	527	622	722
	ØCi [mm]	183	280	383	478	578
	HT [mm]	30	40	40	40	40
	He [mm]	30	40	40	40	40
	Hce [mm]	8	10	10	10	10
	Hi [mm]	30	40	40	40	40
	Weight [kg]	9	23	30	36	42
FASTENING HOLES	Hci [mm]	10	10	10	10	10
	Fe [mm]	275	396	500	595	695
	Ne* [mm]	12	18	24	30	36
	Fi [mm]	205	308	410	505	605
	Ni* [mm]	12	18	24	30	36
AXIAL RUN-OUT (ARO)	BE [µm]	10	15	15	20	20
	BI [µm]	10	15	15	20	20
RADIAL RUN-OUT (RRO)	BE [µm]	10	15	15	20	20
	BI [µm]	10	15	15	20	20
MAXIMUM STARTING TORQUE (UNLOADED)	[Nm]	25	40	50	65	80
MAXIMUM ALLOWABLE ROTATION SPEED	[rpm]	160	110	85	70	60

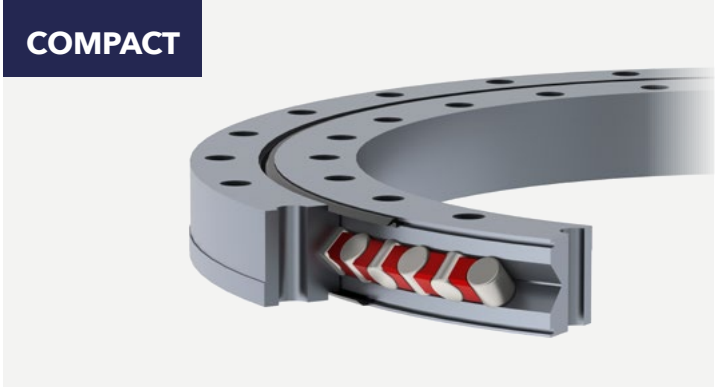
Static capacity curves



Fastening:

*Ni: Number of holes on Inner Ring
*Ne: Number of holes on Outer Ring



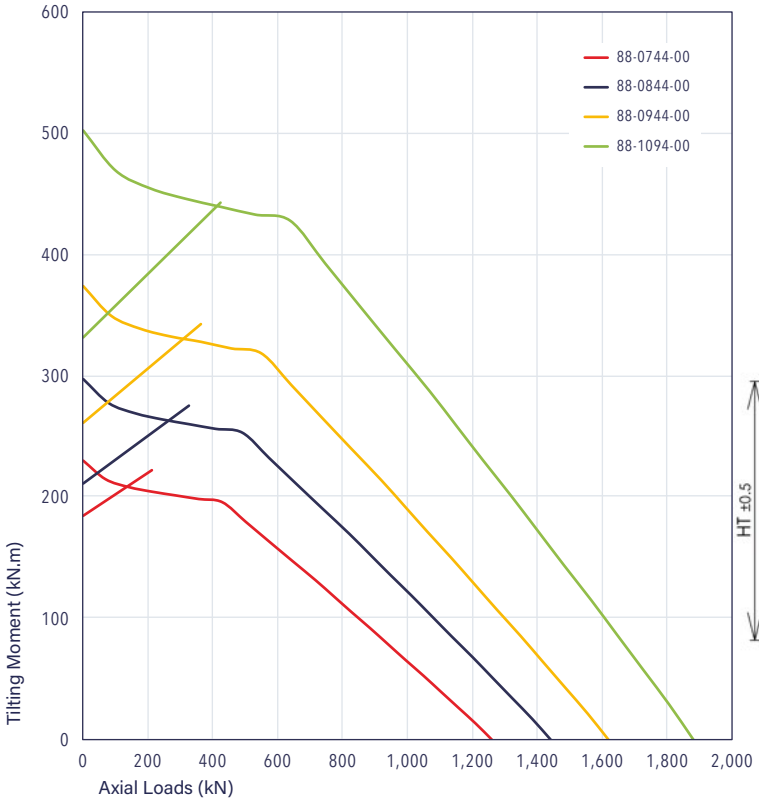


PRECISION ROLLER SLEWING RINGS

Range 88
Without gear
COMPACT XL
From 700 to 1,200 mm

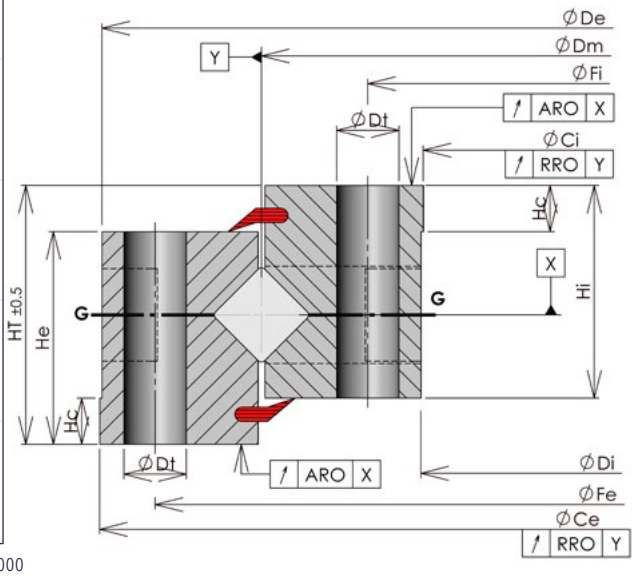
SPECIFICATIONS		REFERENCES			
		88-0744-00	88-0844-00	88-0944-00	88-1094-00
MAIN DIMENSIONS	ØDe [mm]	813	913	1,013	1,163
	ØDi [mm]	675	775	875	1,025
	ØCe [mm]	814	914	1,014	1,164
	ØCi [mm]	674	774	874	1,024
	HT [mm]	56	56	56	56
	He [mm]	46	46	46	46
	Hi [mm]	46	46	46	46
	Hc [mm]	10	10	10	10
	Weight [kg]	54	62	69	81
FASTENING HOLES	Dt [mm]	13	13	13	13
	Fe [mm]	790	890	990	1,140
	Ne* [mm]	40	40	44	48
	Fi [mm]	698	798	898	1,048
	Ni* [mm]	40	40	44	48
AXIAL RUN-OUT (ARO)	BE [µm]	20	25	30	30
	BI [µm]	20	25	30	30
RADIAL RUN-OUT (RRO)	BE [µm]	20	25	30	30
	BI [µm]	20	25	30	30
MAXIMUM STARTING TORQUE (UNLOADED)	[Nm]	150	180	200	250
MAXIMUM ALLOWABLE ROTATION SPEED	[rpm]	53	47	42	36

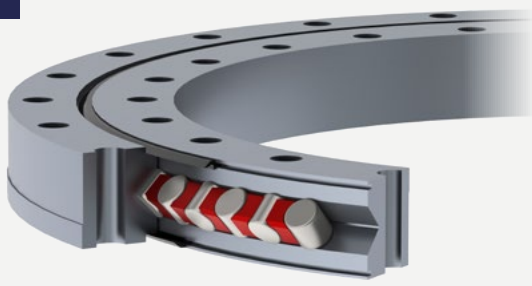
Static capacity curves



Fastening:

*Ni: Number of holes on Inner Ring
*Ne: Number of holes on Outer Ring



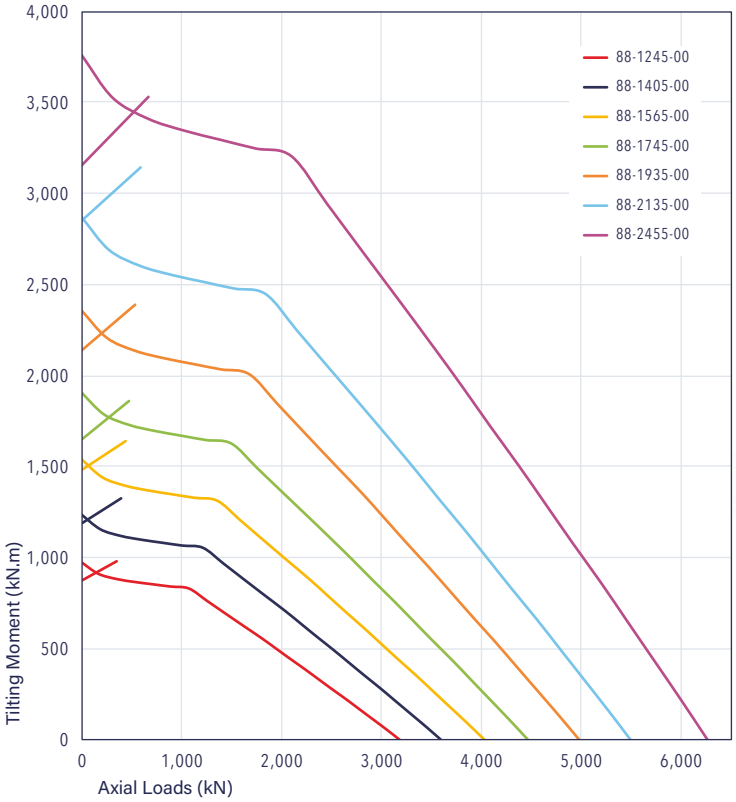


PRECISION ROLLER SLEWING RINGS

Range 88
Without gear
COMPACT XL
From 1,200 to 2,500 mm

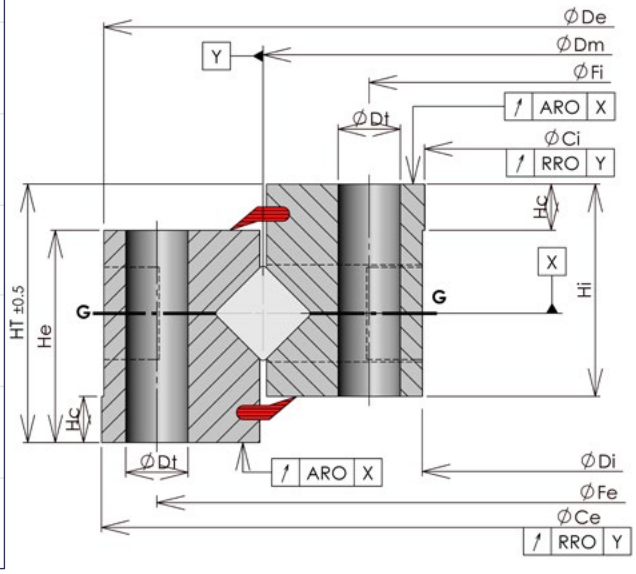
SPECIFICATIONS		REFERENCES						
		88-1245-00	88-1405-00	88-1565-00	88-1745-00	88-1935-00	88-2135-00	88-2455-00
MAIN DIMENSIONS	ØDe [mm]	1,355	1,515	1,685	1,870	2,095	2,295	2,615
	ØDi [mm]	1,135	1,295	1,445	1,620	1,775	1,975	2,295
	ØCe [mm]	1,356	1,516	1,687	1,872	2,097	2,297	2,617
	ØCi [mm]	1,134	1,294	1,443	1,618	1,773	1,973	2,293
	HT [mm]	75	75	80	80	100	100	100
	He [mm]	65	65	70	70	90	90	90
	Hi [mm]	65	65	70	70	90	90	90
	Hc [mm]	10	10	10	10	15	15	15
	Weight [kg]	199	224	296	348	645	709	819
FASTENING HOLES	Dt [mm]	17	17	17	17	22	22	22
	Fe [mm]	1,305	1,465	1,625	1,805	2,010	2,210	2,530
	Ne* [mm]	60	72	80	80	60	72	72
	Fi [mm]	1,185	1,345	1,505	1,685	1,860	2,060	2,380
	Ni* [mm]	60	72	80	80	60	72	72
AXIAL RUN-OUT (ARO)	BE [µm]	30	30	40	50	50	60	60
	BI [µm]	30	30	40	50	50	60	60
RADIAL RUN-OUT (RRO)	BE [µm]	30	30	40	50	50	60	60
	BI [µm]	30	30	40	50	50	60	60
MAXIMUM STARTING TORQUE (UNLOADED)	[Nm]	275	300	350	500	600	700	900
MAXIMUM ALLOWABLE ROTATION SPEED	[rpm]	32	28	25	22	20	18	16

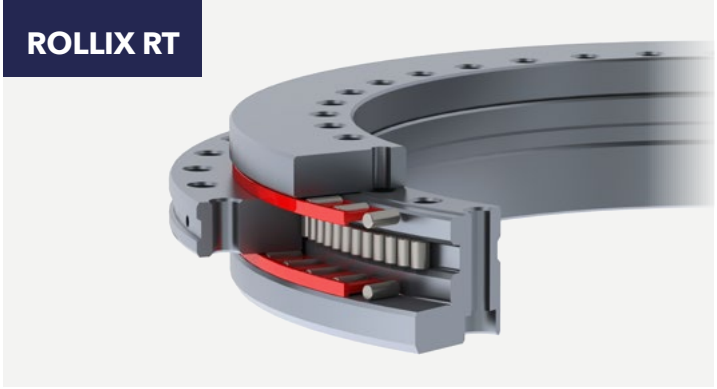
Static capacity curves



Fastening:

*Ni: Number of holes on Inner Ring
*Ne: Number of holes on Outer Ring



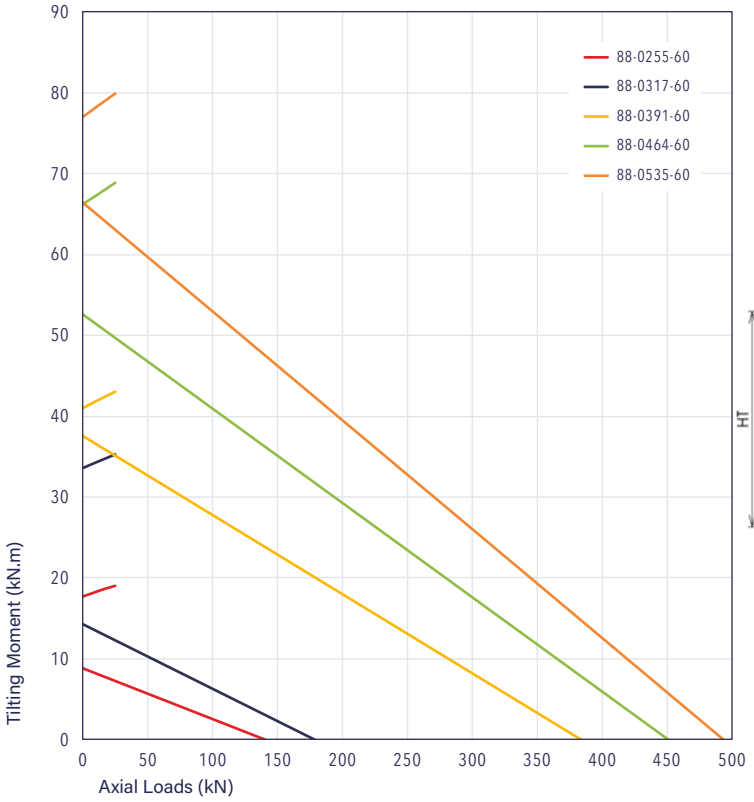


PRECISION ROLLER SLEWING RINGS

Range 88
Without gear
RT "Rotary Table"
From 0 to 600 mm

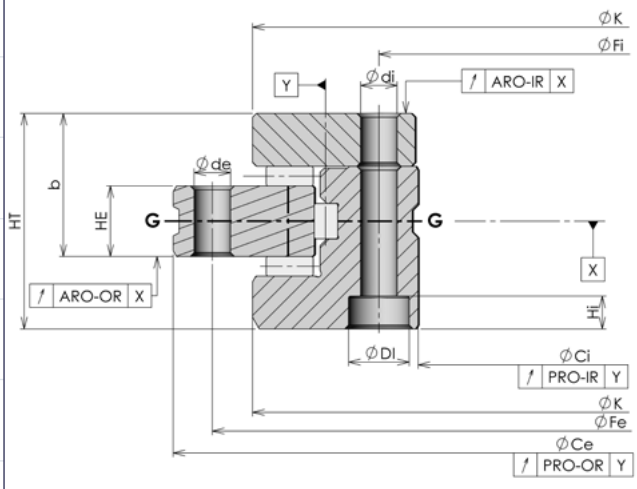
SPECIFICATIONS		REFERENCES				
		88-0255-60	88-0317-60	88-0391-60	88-0464-60	88-0535-60
MAIN DIMENSIONS	ØDm [mm]	255	317	391	464	535
	ØCe [mm]	300	385	450	525	600
	ØCi [mm]	200	260	325	395	460
	K [mm]	274	345	415	486	560
	HT [mm]	45	55	60	65	70
	He [mm]	15	18	20	20	22
	b [mm]	30	36	40	42	46
	Weight [kg]	10	19	25	33	45
FASTENING HOLES	Fe [mm]	285	365	430	505	580
	de [mm]	7	9	9	9	9
	Ne* [mm]	45	33	33	45	45
	Fi [mm]	215	280	342	415	482
	Di [mm]	11	15	15	15	15
	di [mm]	7	9	9	9	9
	Ni* [mm]	46	34	34	46	46
AXIAL RUN-OUT (ARO)	BE [µm]	4	6	6	6	6
	BI [µm]	4	6	6	6	6
RADIAL RUN-OUT (RRO)	BE [µm]	4	6	6	6	6
	BI [µm]	4	6	6	6	6
MAXIMUM STARTING TORQUE (UNLOADED)	[Nm]	15	25	48	55	70
MAXIMUM ALLOWABLE ROTATION SPEED	[rpm]	196	158	128	108	93

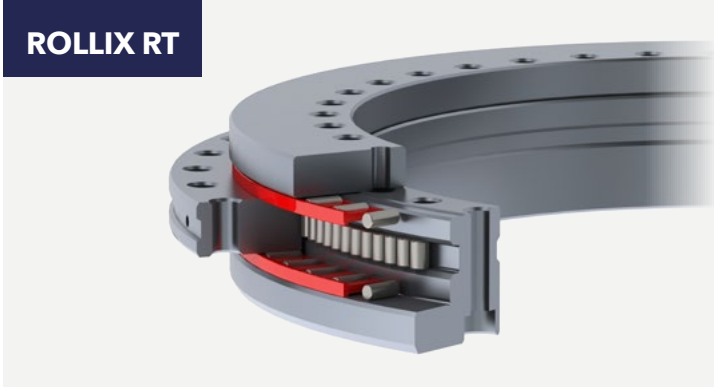
Static capacity curves



Fastening:

*Ni: Number of holes on Inner Ring
*Ne: Number of holes on Outer Ring



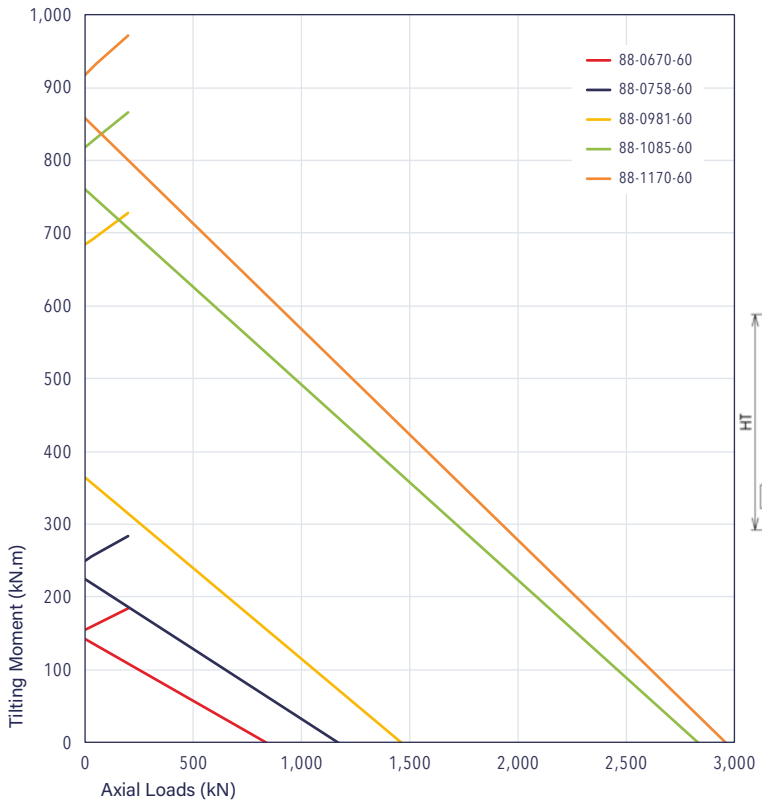


PRECISION ROLLER SLEWING RINGS

Range 88
Without gear
RT "Rotary Table"
From 600 to 1,200 mm

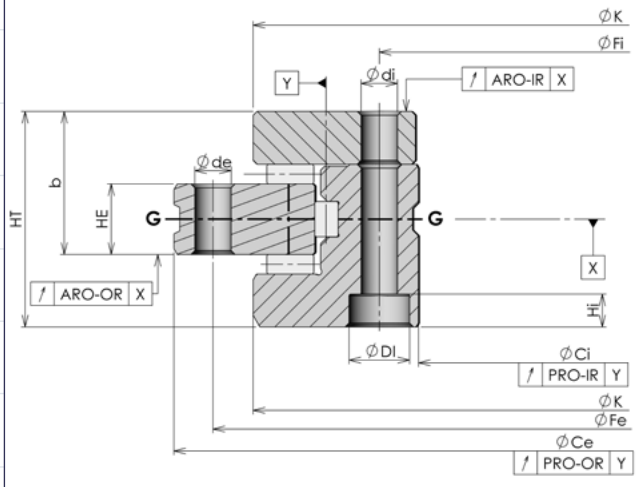
		REFERENCES				
SPECIFICATIONS		88-0670-60	88-0758-60	88-0981-60	88-1085-60	88-1170-60
MAIN DIMENSIONS	ØDm [mm]	670	758	981	1,085	1,170
	ØCe [mm]	750	870	1,095	1,200	1,300
	ØCi [mm]	580	650	850	950	1,030
	K [mm]	700	800	1,018	1,130	1,215
	HT [mm]	90	122	124	132	145
	He [mm]	30	34	37	40	40
	b [mm]	60	78	80	86	92
	Weight [kg]	90	170	255	312	375
FASTENING HOLES	Fe [mm]	720	830	1,055	1,160	1,255
	de [mm]	11	14	18	18	18
	Ne* [mm]	42	42	54	54	66
	Fi [mm]	610	680	890	990	1,075
	Di [mm]	18	20	26	26	26
	di [mm]	11	14	18	18	18
	Ni* [mm]	46	46	58	58	60
AXIAL RUN-OUT (ARO)	BE [µm]	10	10	12	12	12
	BI [µm]	10	10	12	12	12
RADIAL RUN-OUT (RRO)	BE [µm]	10	10	12	12	12
	BI [µm]	10	10	12	12	12
MAXIMUM STARTING TORQUE (UNLOADED)	[Nm]	140	200	300	600	800
MAXIMUM ALLOWABLE ROTATION SPEED	[rpm]	75	66	51	46	43

Static capacity curves



Fastening:

*Ni: Number of holes on Inner Ring
*Ne: Number of holes on Outer Ring



11

SPECIFIC SLEWING RINGS

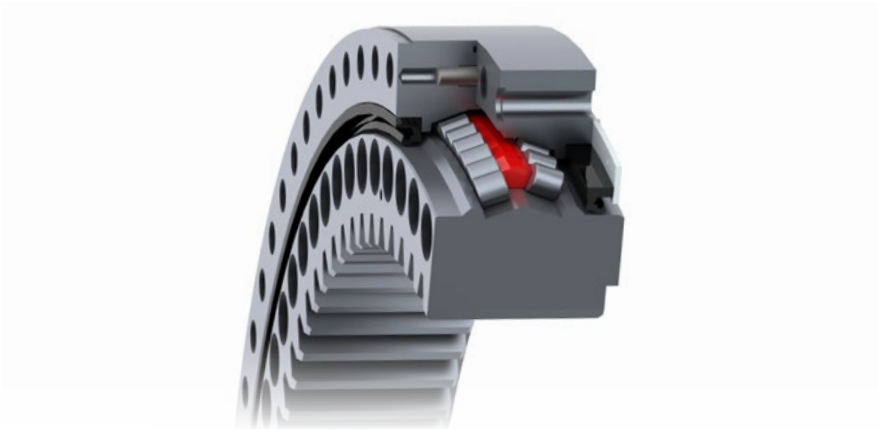
CONTENTS

Specific slewing rings

This section groups 2 ranges of slewing rings for applications where the load is mainly radial.

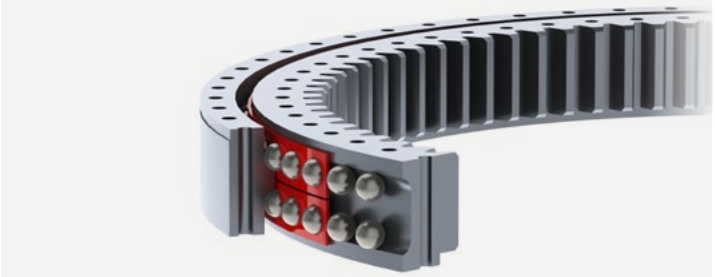
DR-S range:
(Double Row - Speed), double row, angular contact, ball slewing rings with internal gear or without gear: for high-speed rotation applications.

HD-R range:
(Heavy Duty - Radial), double row, roller slewing rings with internal gear or without gear, for very high load applications.



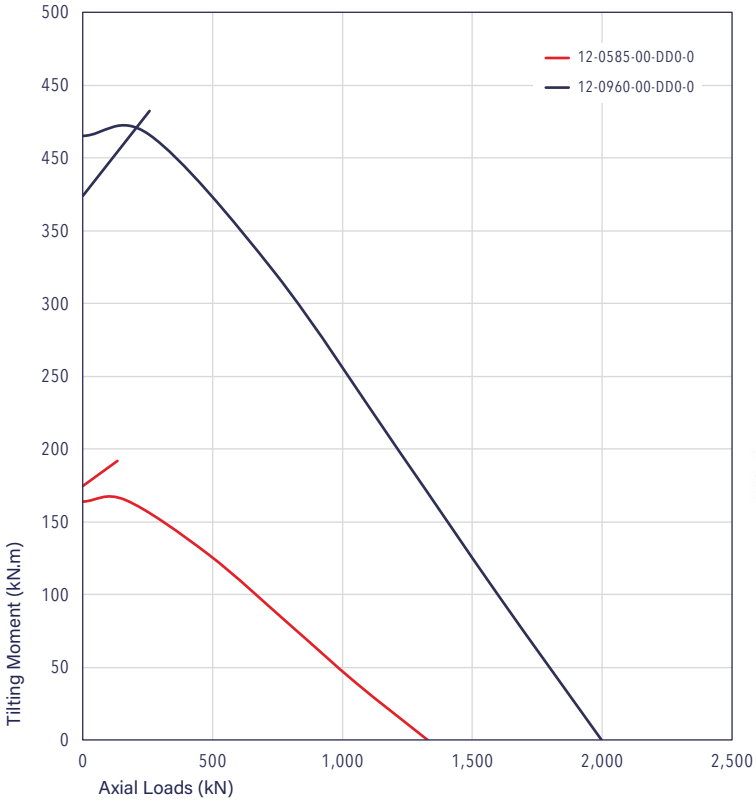
SPECIFIC SLEWING RINGS

Range 12
DR-S with internal gear
From 0 to 1,000 mm



		REFERENCES	
SPECIFICATIONS		12-0585-00	12-0960-00
MAIN DIMENSIONS	HT [mm]	95	95
	ØDe [mm]	680	1,050
	He [mm]	95	95
	ØDi [mm]	458	822
	Hi [mm]	95	95
	Weight [kg]	124	211
GEAR	Module [mm]	8	10
	Z	58	83
	W [mm]	80	85
	Gear capacity unhardened [kN]	115	160
	Gear capacity hardened [kN]	134	186
FASTENING HOLES	External ring hole type	Th	Th
	ØFe [mm]	645	1,020
	Ne	48	60
	Dhe [mm]	13	13
	Inner ring hole type	Th	Th
	ØFi [mm]	525	900
	Ni	48	60
	Dhi [mm]	13	13
GREASING	Ring with greasing holes	E	E
	Greasing hole type	R	R

Static capacity curves

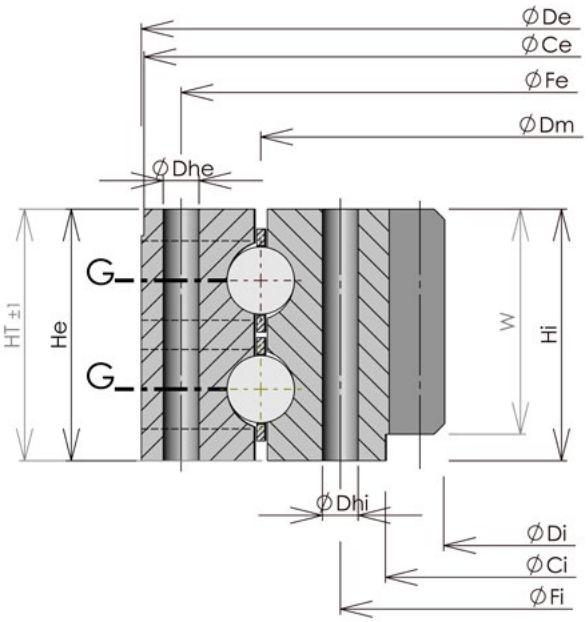


Greasing holes options

E: on External ring
I: on Internal ring
F: Facial
R: Radial

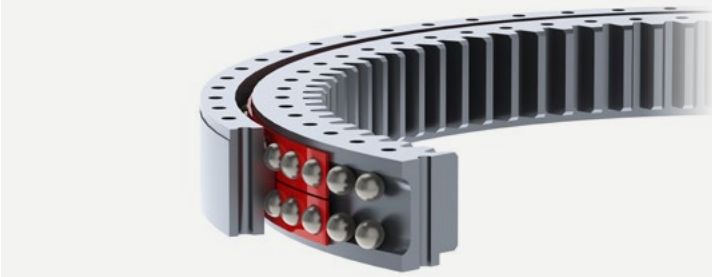
Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



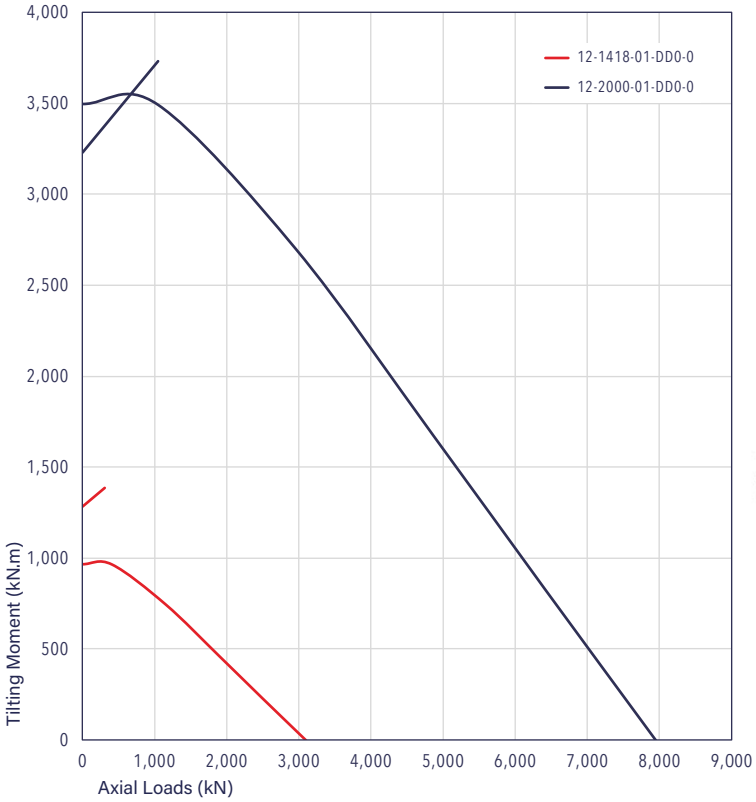
SPECIFIC SLEWING RINGS

Range 12
DR-S with internal gear
From 1,000 to 2,000 mm



		REFERENCES	
SPECIFICATIONS		12-1418-01	12-2000-01
MAIN DIMENSIONS	HT [mm]	95	123
	ØDe [mm]	1,550	2,135
	He [mm]	95	123
	ØDi [mm]	1,214	1,779
	Hi [mm]	95	123
	Weight [kg]	474	886
GEAR	Module [mm]	12	16
	Z	102	112
	W [mm]	85	113
	Gear capacity unhardened [kN]	196	349
	Gear capacity hardened [kN]	228	406
FASTENING HOLES	External ring hole type	Th	Th
	ØFe [mm]	1,500	2,080
	Ne	48	60
	Dhe [mm]	22	27
	Inner ring hole type	Th	Th
	ØFi [mm]	1,336	1,920
	Ni	48	60
	Dhi [mm]	22	27
GREASING	Ring with greasing holes	E	E
	Greasing hole type	R	R

Static capacity curves

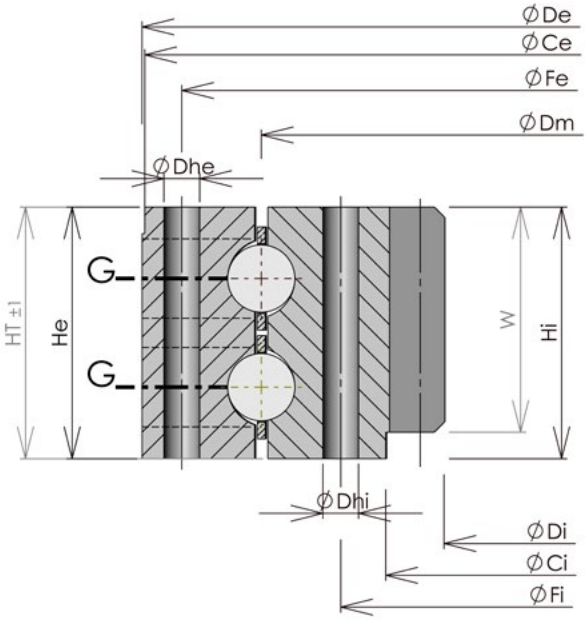


Greasing holes options

E: on External ring
I: on Internal ring
F: Facial
R: Radial

Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind

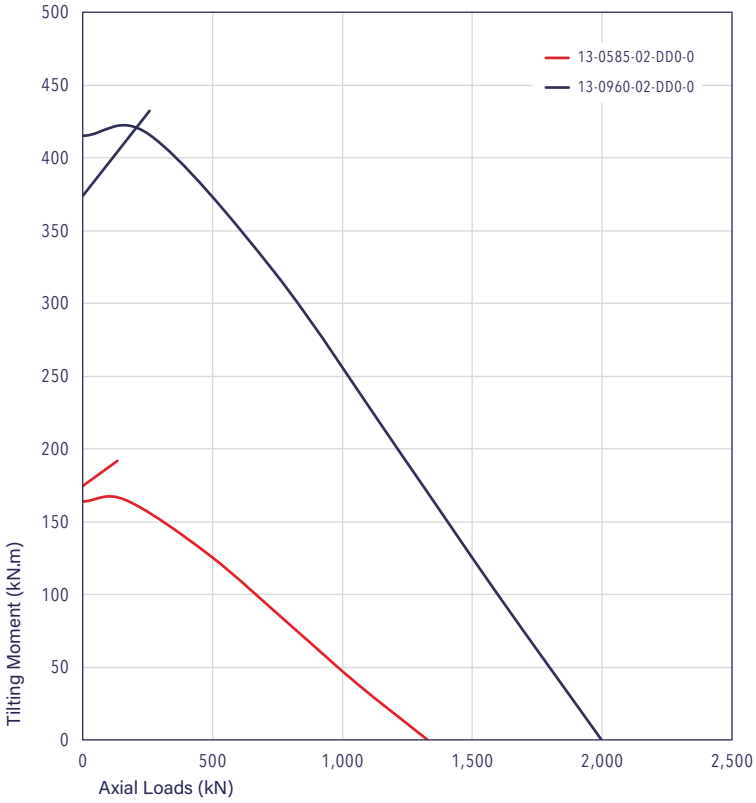


SPECIFIC SLEWING RINGS

Range 13
DR-S without gear
From 0 to 1,000 mm

		REFERENCES	
SPECIFICATIONS		13-0585-02	13-0960-02
MAIN DIMENSIONS	HT [mm]	95	95
	ØDe [mm]	680	1,050
	He [mm]	95	95
	ØDi [mm]	500	870
	Hi [mm]	95	95
	Weight [kg]	110	173
FASTENING HOLES	External ring hole type	Th	Th
	ØFe [mm]	645	1,020
	Ne	48	60
	Dhe [mm]	13	13
	Inner ring hole type	Th	Th
	ØFi [mm]	530	900
	Ni	48	60
	Dhi [mm]	13	13
GREASING	Ring with greasing holes	E	E
	Greasing hole type	R	R

Static capacity curves

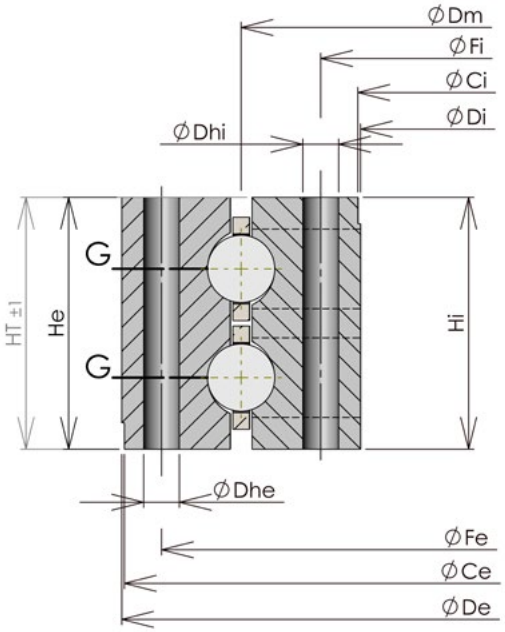


Greasing holes options

E: on External ring
I: on Internal ring
F: Facial
R: Radial

Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind

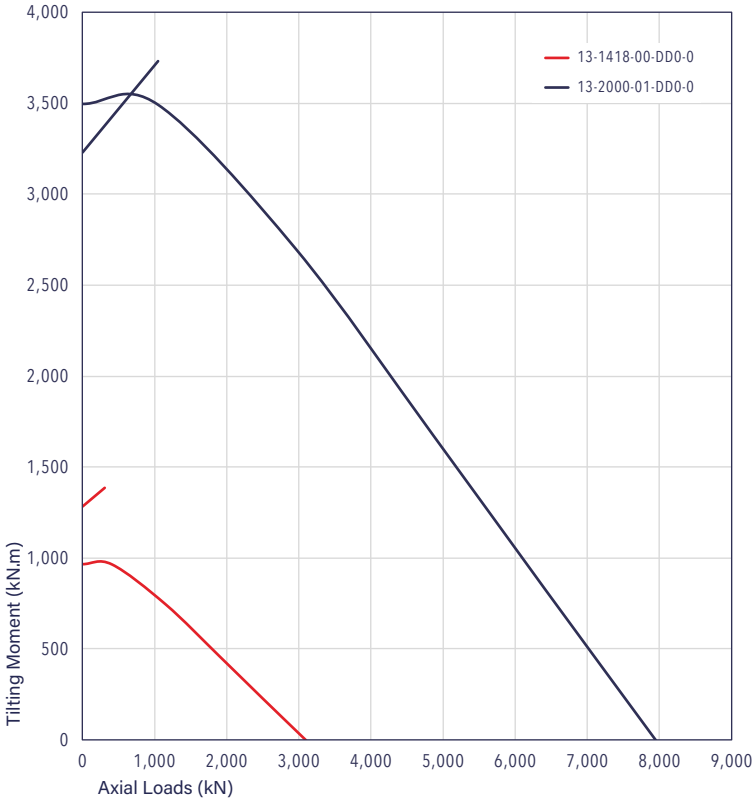


SPECIFIC SLEWING RINGS

Range 13
DR-S without gear
from 1,000 to 2,000 mm

		REFERENCES	
SPECIFICATIONS		13-1418-00	13-2000-01
MAIN DIMENSIONS	HT [mm]	95	123
	ØDe [mm]	1,550	2,135
	He [mm]	95	123
	ØDi [mm]	1,285	1,865
	Hi [mm]	95	123
	Weight [kg]	392	727
FASTENING HOLES	External ring hole type	Th	Th
	ØFe [mm]	1,500	2,080
	Ne	90	60
	Dhe [mm]	22	27
	Inner ring hole type	Th	Th
	ØFi [mm]	1,336	1,920
	Ni	90	60
	Dhi [mm]	22	27
GREASING	Ring with greasing holes	E	E
	Greasing hole type	R	R

Static capacity curves

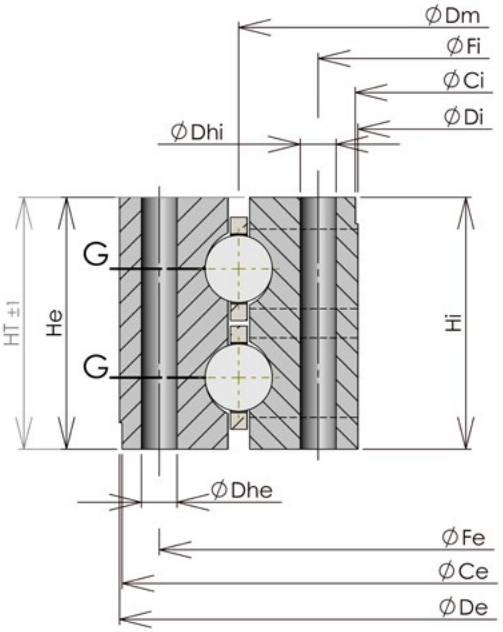


Greasing holes options

E: on External ring
I: on Internal ring
F: Facial
R: Radial

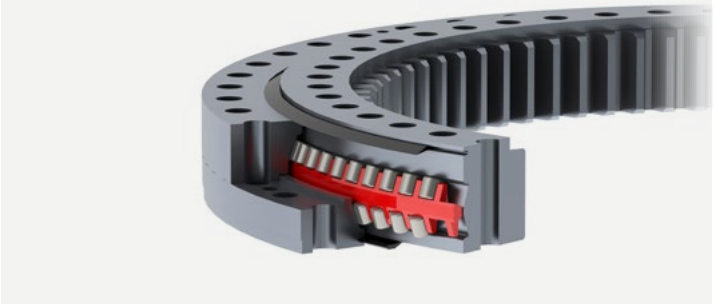
Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



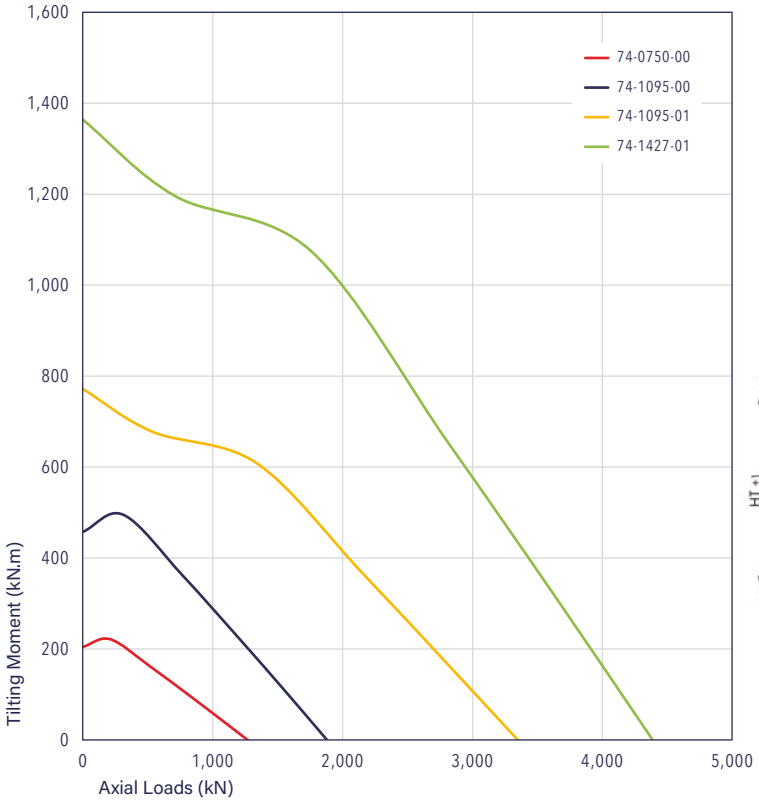
SPECIFIC SLEWING RINGS

Range 74
HD-R with internal gear
From 500 to 2,000 mm



		REFERENCES			
SPECIFICATIONS		74-0750-00	74-1095-00	74-1095-01	74-1427-01
MAIN DIMENSIONS	HT [mm]	83	131	83	131
	ØDe [mm]	858	1,247	1,216	1,579
	He [mm]	75	119	75	119
	ØDi [mm]	601	891	942	1,207
	Hi [mm]	75	119	75	119
	Weight [kg]	136	422	211	572
GEAR	Module [mm]	8	12	10	14
	Z	76	75	95	87
	W [mm]	65	109	65	107
	Gear capacity unhardened [kN]	97	244	124	283
	Gear capacity hardened [kN]	113	284	144	329
FASTENING HOLES	External ring hole type	Th	Th	Th	Th
	ØFe [mm]	818	1,187	1,168	1,519
	Ne	48	54	66	72
	Dhe [mm]	20	30	22	30
	Inner ring hole type	Th	Th	Th	Th
	ØFi [mm]	684	1,002	1,032	1,344
	Ni	48	54	66	72
	Dhi [mm]	20	30	22	30
GREASING	Ring with greasing holes	E	E	E	E
	Greasing hole type	R	R	R	R

Static capacity curves

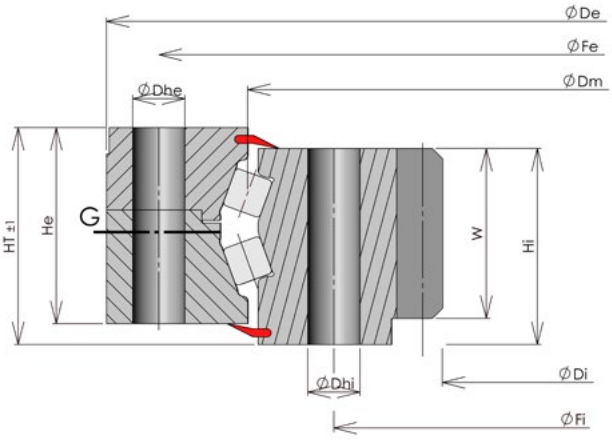


Greasing holes options

E: on External ring
I: on Internal ring
F: Facial
R: Radial

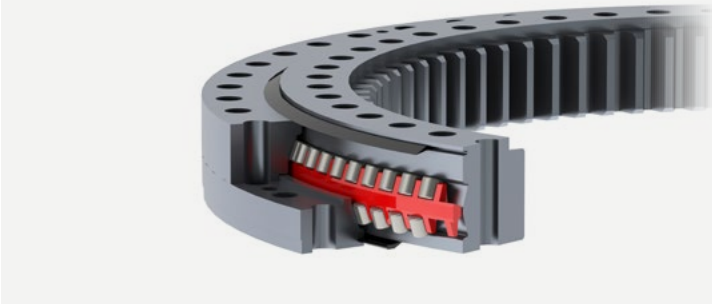
Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



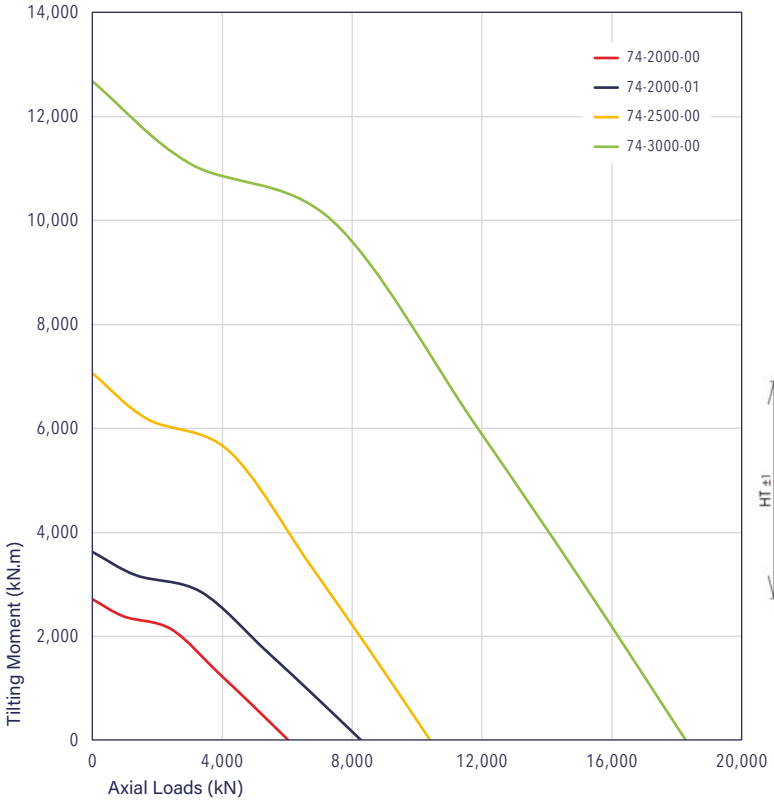
SPECIFIC SLEWING RINGS

Range 74
HD-R with internal gear
From 2,000 to 3,000 mm



		REFERENCES			
SPECIFICATIONS		74-2000-00	74-2000-01	74-2500-00	74-3000-00
MAIN DIMENSIONS	HT [mm]	131	158	158	182
	ØDe [mm]	2,152	2,202	2,687	3,196
	He [mm]	119	146	146	170
	ØDi [mm]	1,763	1,763	2,236	2,704
	Hi [mm]	119	146	146	170
	Weight [kg]	850	1,161	1,507	2,307
GEAR	Module [mm]	16	16	18	20
	Z	111	110	125	136
	W [mm]	109	136	136	160
	Gear capacity unhardened [kN]	337	420	476	626
	Gear capacity hardened [kN]	391	488	554	728
FASTENING HOLES	External ring hole type	Th	Th	Th	Th
	ØFe [mm]	2,092	2,130	2,615	3,118
	Ne	90	84	96	108
	Dhe [mm]	30	36	36	39
	Inner ring hole type	Th	Th	Th	Th
	ØFi [mm]	1,907	1,908	2,393	2,887
	Ni	90	84	96	108
	Dhi [mm]	30	36	36	39
GREASING	Ring with greasing holes	E	E	E	E
	Greasing hole type	R	R	R	R

Static capacity curves

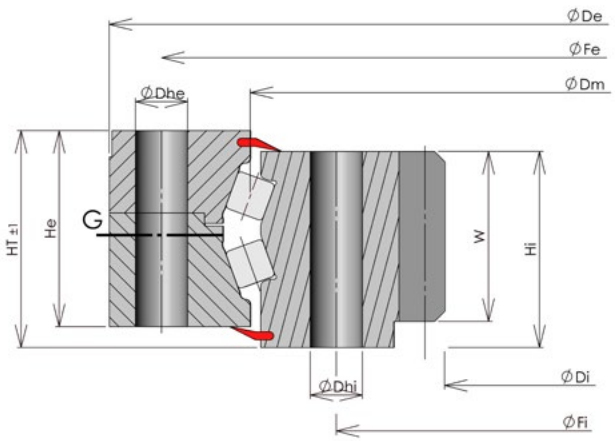


Greasing holes options

E: on External ring
I: on Internal ring
F: Facial
R: Radial

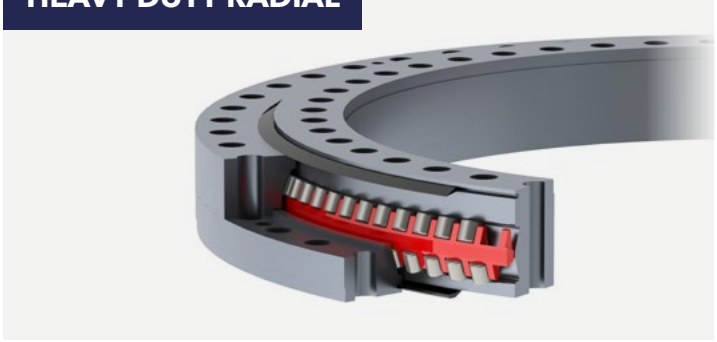
Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



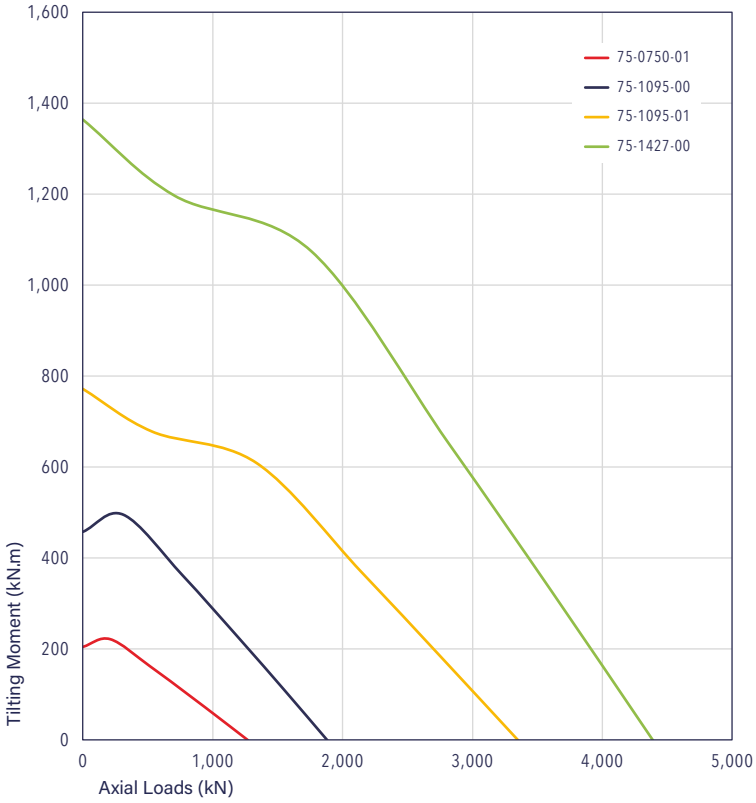
SPECIFIC SLEWING RINGS

Range 75
HD-R without gear
From 500 to 2,000 mm



		REFERENCES			
SPECIFICATIONS		75-0750-01	75-1095-00	75-1095-01	75-1427-00
MAIN DIMENSIONS	HT [mm]	83	131	83	131
	ØDe [mm]	858	1,247	1,216	1,579
	He [mm]	75	119	75	119
	ØDi [mm]	638	940	985	1,268
	Hi [mm]	75	119	75	119
	Weight [kg]	125	389	192	515
FASTENING HOLES	External ring hole type	Th	Th	Th	Th
	ØFe [mm]	818	1,187	1,168	1,519
	Ne	48	54	66	72
	Dhe [mm]	20	30	22	30
	Inner ring hole type	Th	Th	Th	Th
	ØFi [mm]	684	1,002	1,032	1,344
	Ni	48	54	66	72
	Dhi [mm]	20	30	22	30
GREASING	Ring with greasing holes	E	E	E	E
	Greasing hole type	R	R	R	R

Static capacity curves

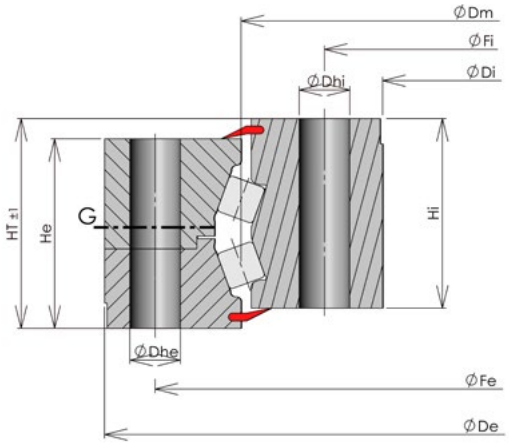


Greasing holes options

E: on External ring
I: on Internal ring
F: Facial
R: Radial

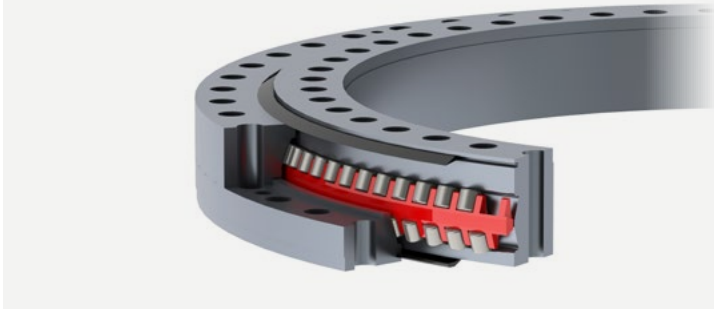
Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



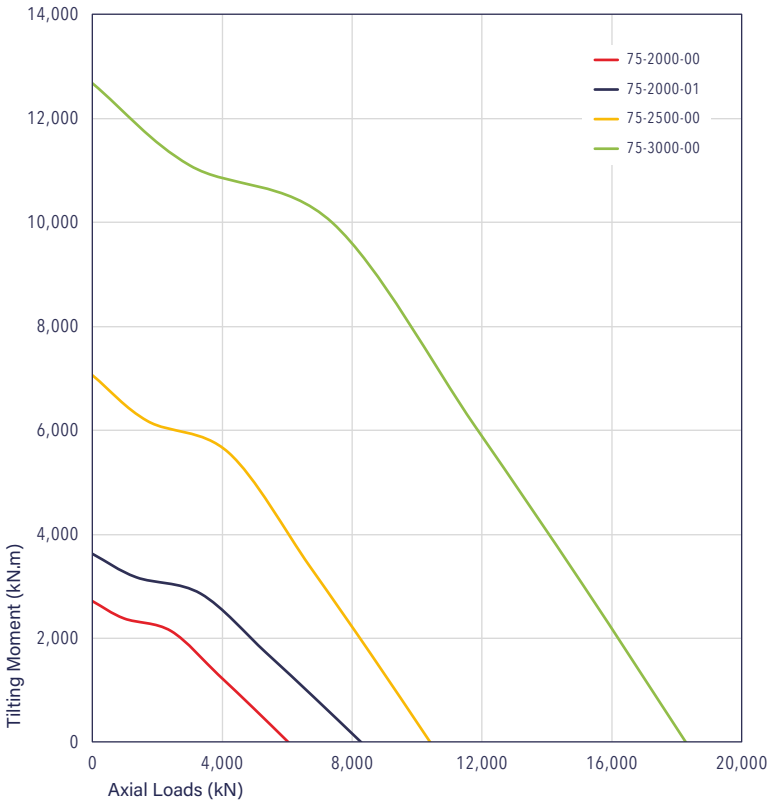
SPECIFIC SLEWING RINGS

Range 75
HD-R without gear
From 2,000 to 3,000 mm



		REFERENCES			
SPECIFICATIONS		75-2000-00	75-2000-01	75-2500-00	75-3000-00
MAIN DIMENSIONS	HT [mm]	131	158	158	182
	ØDe [mm]	2,152	2,202	2,687	3,196
	He [mm]	119	146	146	170
	ØDi [mm]	1,830	1,830	2,310	2,786
	Hi [mm]	119	146	146	170
	Weight [kg]	765	1,053	1,356	2,072
FASTENING HOLES	External ring hole type	Th	Th	Th	Th
	ØFe [mm]	2,092	2,130	2,615	3,118
	Ne	90	84	96	108
	Dhe [mm]	30	36	36	39
	Inner ring hole type	Th	Th	Th	Th
	ØFi [mm]	1,907	1,908	2,393	2,887
	Ni	90	84	96	108
	Dhi [mm]	30	36	36	39
GREASING	Ring with greasing holes	E	E	E	E
	Greasing hole type	R	R	R	R

Static capacity curves

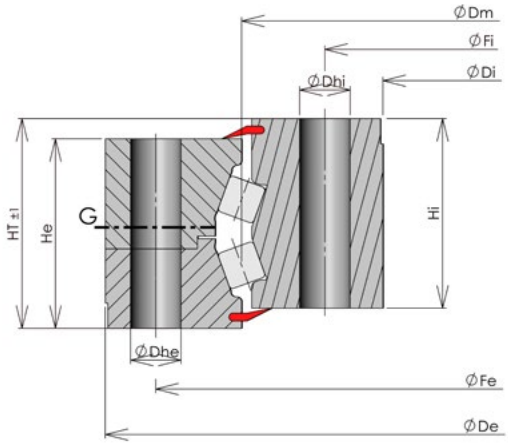


Greasing holes options

E: on External ring
I: on Internal ring
F: Facial
R: Radial

Fastening holes type options:

Th: Through
Ta: Tapped
C: Counterbored
Bd: Blind



APPENDICES

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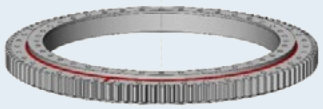
SALES@ROLLIX.COM

CONTACT NAME

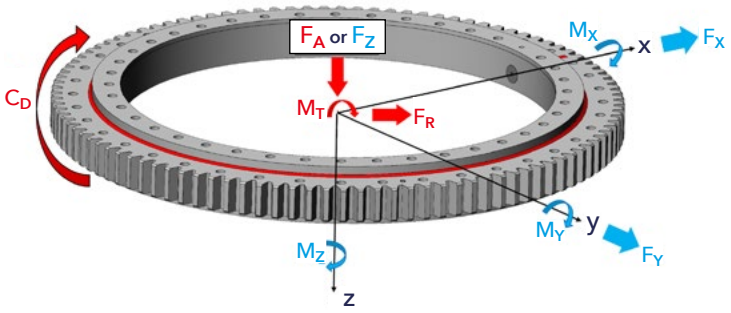
COMPANY

SLEWING RINGS DESIGN DATA SHEET

APPLICATION DESCRIPTION (PLEASE ADD A SKETCH):

IS YOUR PROJECT NEW?	YES ☐	NO ☐ EXISTING REFERENCE:	
SLEWING RING POSITION	HORIZONTAL ☐ 	VERTICAL ☐ 	ALTERNATING ☐
USE	CONTINUE ☐ / INTERMITTENT ☐ / OTHER ☐		

LOADS ON THE SLEWING RING



	NUMBER OF LOADCASES	CASE 1	CASE 2	CASE 3	CASE 4	CASE 5	...
	ROTATION? (YES / NO)						
	LOADS DISTRIBUTION (TOTAL MUST BE 100%)	%	%	%	%	%	%
F_A	F_Z - AXIAL FORCE (kN)						
F_R	F_X - RADIAL FORCE (kN)						
	F_Y - RADIAL FORCE (kN)						
M_T	M_X - TILTING MOMENT (kN.m)						
	M_Y - TILTING MOMENT (kN.m)						
	SPEED ROTATION (RPM)						

LOADED RING?	EXT ☐	INT ☐	LOADS FACTORS APPLIED	EXCLUDED ☐	INCLUDED ☐
ROTATING RING?	EXT ☐	INT ☐			VALUE(S):

REQUIRED LIFETIME (REVOLUTIONS):

GEAR	WITHOUT ☐	EXTERNAL ☐		INTERNAL ☐	
		SLEWING RING	PINION(S)	NUMBER OF PINION(S):	
	REQUIRED MODULE:			C_D - TOTAL SLEWING RING TORQUE (kN.m) :	
	NUMBER OF TEETH REQUIRED:				
	ADDENDUM MODIFICATION FACTOR:				
ACCELERATION:		DECELERATION:		INTERTIA MOMENT/ROTATION AXIS:	

CRITICAL ITEMS	DIMENSIONS:	OTHERS:

CERTIFYING AUTHORITY: FEM ☐ LLYODS ☐ API2C ☐ BV ☐ DNV ☐ OTHERS ☐

SPECIFICATION RELATIVE TO THE APPLICATION:

SPECIFIC REQUIREMENTS OF THE APPLICATION

ENVIRONMENT:	OPERATING TEMPERATURE:
VIBRATION, SHOCKS LOADS:	STORING TEMPERATURE:

QUANTITY	YEARLY REQUIREMENTS:	QTY PER DELIVERY:

REQUIRED LEADTIME:

WARRANTY - AFTER-SALES SERVICE

Purpose of the warranty

The Rollix Defontaine "slewing ring" product is guaranteed to work correctly under normal use, which is:

- On the one hand, for standard products, its conditions of application and technical specifications as set out in the IT-ETR-920 catalogue and the IT-ETR-941 implementation and maintenance booklet.
- On the other hand and in all cases, the information provided by the customer in answer to the questionnaire referenced as IT-ETR-911.

Warranty period

The warranty period for slewing rings is 2 years from delivery and 5 years from delivery for material, manufacturing and factory assembly defects.

However, in the case of geometric defects, the warranty period remains fixed at 1 year after commissioning, up to a maximum of 2 years following delivery.

In all cases, the warranty period is limited to the estimated service life of the product, as indicated in our calculation sheets or any other Rollix document.

Exclusions - Warranty conditions

The warranty for the application of the "slewing ring" product will not apply in the following cases:

1. Failure to answer the IT-ETR-911 questionnaire.

The "slewing ring" is a highly technical product designed to meet **specific needs.**

In order to deliver the right product, Rollix needs to understand the customer's application conditions and expected use.

A specific questionnaire, referenced IT-ETR-910, which constitutes the application specification, is systematically provided to the customer before the order is placed.

In order to supply a product tailored to the customer's needs, the customer must provide precise and complete answers to the questionnaire.

For these reasons, failure by the customer to complete the IT-ETR-911 questionnaire will constitute a case of exclusion from the Rollix warranty in respect of its application.

2. Failure to comply with Rollix recommendations.

Handling, use, mounting or maintenance that does not comply with the recommendations set out in the maintenance manual for the product sold, and in particular:

- Handling
  - Handling equipment not suited to the quality and weight of the parts.
- Application
  - Application that does not comply with the technical specifications and conditions of use of the product sold.
- Mounting
  - Incorrect dimensioning of supporting structures, non-compliance with rigidity and flatness tolerances.
  - Incorrect positioning of the plug in relation to the moment axis.
- Fastening
  - Bolts and pretensioning not in accordance with our recommendations.
  - Use of split washers, fan washers, elastic washers or untreated washers of any make and model.
- Lubrication
  - Failure to use the recommended type of lubrication and the frequency of regreasing.
- Storage
  - Failure to renew external protection after 6 months' storage.
  - No regreasing of the rotating slewing ring after 18 months' storage.

3. Modification, disassembly or repair of the product without the prior approval of Rollix.

4. Damage caused by normal wear and tear.

Increased deflection under load within the limits of use constitutes normal wear and tear. In particular, the warranty will not apply to wearing parts such as seals.

In general, the warranty does not cover malfunctions caused directly or indirectly by the fault or negligence of the customer.

Implementation of the warranty

The "slewing ring" warranty for correct operation applies after:

- Notification of the malfunction by the customer within the above-mentioned period (warranty period).
- Detection of the malfunction by Rollix.
- Verification of compliance with product technical specifications, Rollix recommendations and other warranty conditions.

Warranty

In the event of a declared malfunction, and after the usual checks have been carried out, Rollix will proceed at its discretion:

- **Either with a reworking of the slewing ring, with the replacement of any parts deemed defective,**
- **Or the replacement of the slewing ring, free of charge,**
- **Or the refund of the cost of the slewing ring.**

In all cases, Rollix retains control of the solution best suited to the problem identified.

The Rollix warranty is strictly limited to the repair, replacement or reimbursement of the part deemed defective and cannot under any circumstances be extended to other consequences likely to be linked to the malfunction: equipment downtime, damage to items other than the subject of the contract, loss of profit, etc.

In the event of malfunction of a "slewing ring" product due to negligence or fault on the part of the customer, and in particular due to failure to follow Rollix recommendations, the costs of expert examination of the defective part and transport of the product will be borne by the customer.

Warning

All the technical data and recommendations in this catalogue have had all our attention. However, we cannot be held responsible for any errors or omissions. The same applies to any misinterpretation of the catalogue information or misuse of our products.

We reserve the right to make improvements or changes to texts, formulas and drawings without prior notice.

OUR VISION

CREATING SUSTAINABLE VALUE

Defontaine Group and Rollix build lasting partnerships with their customers. Our approach is based on 3 guiding principles:

- Sustainable development
- New technologies
- Commitment to people

ROLLIX A RELIABLE PARTNER

Rollix has established a commercial and technical presence across the five continents. Our representatives provide ongoing services and form an invaluable partnership with your company's managers.

AT THE HEART OF YOUR PROJECT

We provide you with our advice and experience from the moment you express your requirements. Our technical involvement optimises project management, guarantees quality of results and makes the design more cost effective.

EXCELLENCE

Rollix has been developing its expertise in slewing rings for over 50 years, applying it to a wide range of industries. We strive for excellence, and our solutions are trusted by some of the world's leading companies.

ROLLIX®

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