rothe erde®
Turntables
Built for the road.
Uncompromising quality, made in Germany.
Each turntable consists of two steel rings designed for flange mounting. The raceways are machined in order to ensure that the loads are properly transferred between the profiled rings and the rolling elements. The turntables are delivered with both a surface preservation and the raceway filled with grease.

rothe erde® Slewing bearings
Our product range comprises ball-bearing and roller-bearing slewing rings, turntables and seamless rolled rings. We at thyssenkrupp bearings put quality first. All of our activities from application engineering to design and production, including comprehensive customer service, are based on the following international quality standards:

• Quality assurance system acc. to DIN EN ISO 9001
• Environmental protection acc. to DIN EN ISO 14 001
• Industrial safety acc. to OHSAS 18 001

rothe erde® turntables – Products of proven quality have been developed for use in transport vehicles. Their purpose is to safely transmit the loads during operation of the vehicle. The standard series turntables shown here are the result of many years’ design and manufacturing experience in the field of trailer steering systems for road truck trailers, positively steered semi-trailers, fifth wheel couplings, heavy goods vehicles and special vehicles. rothe erde® turntables are produced to exacting standards and are designed to meet high performance requirements.

Technology made-to-measure
### Types 16 L – 16 – 80 – 80 S

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<th>Drawing No.</th>
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### Bearing configurations and bearing tables

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<tr>
<th>Bearing configuration</th>
<th>Bearing type</th>
<th>Load capacity</th>
<th>Permissible axis load*</th>
<th>Maximum bearing load</th>
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* For other axle combinations or other users, please contact us
** Type 80 S /80 A: Permissible load valid for fifth wheel couplings
Types 90 – 90 WA – 90 S

- Raceway system protected by seals at upper and lower bearing gap.
- Type 90 WA: Low-maintenance version.
- Low-maintenance for a minimum of 5 years or a mileage of 300,000 km under normal operating conditions. Should the turntable be exposed to unusual operating conditions or should the turntable be directly cleaned with a high-pressure equipment, it is necessary to re-grease the turntable immediately.
- Take care that the companion lubricating nipples are the same as the standard loads, weights, and drilling plans.
- Re-greasing and inspection is necessary after the low-maintenance operating period has elapsed.
- Frictional torque: Due to the seals at upper and lower bearing gap, higher frictional torque may exist as compared to the standard version.

Bearing configurations and bearing tables

- For other axle combinations or other uses, please ask us.
- Operation is not impaired by this when used in vehicle trailers.
- Mounting dimensions, permissible loads, weights, and drilling plans are the same as the standard design type 90.

Typ 90 for two and three-axle trailers

Typ 90 WA for two and three-axle trailers

Typ 90 S for two and three-axle trailers

Type 90 WA: Low-maintenance version

- Raceway system protected by seals at upper and lower bearing gap.
- Low-maintenance for a minimum of 5 years or a mileage of 300,000 km under normal operating conditions. Should the turntable be exposed to unusual operating conditions or should the turntable be directly cleaned with a high-pressure equipment, it is necessary to re-grease the turntable immediately.
- Take care that the companion lubricating nipples are the same as the standard loads, weights, and drilling plans.
- Re-greasing and inspection is necessary after the low-maintenance operating period has elapsed.
- Frictional torque: Due to the seals at upper and lower bearing gap, higher frictional torque may exist as compared to the standard version.
- Operation is not impaired by this when used in vehicle trailers.
- Mounting dimensions, permissible loads, weights, and drilling plans are the same as the standard design type 90.
The turntables are supplied as standard type being filled with lithium-saponified grease of penetration grade 2 or as a low-maintenance type being filled with Gleitmo 585 K. The turntables are supplied with a surface preservation. This preservation is only a temporary protection against corrosion which can be overpainted with any commercial finishing paints (such as acrylic resins, one component and two-component acrylic varnishes, two-component PU varnishes, two-component epoxy varnishes) and with bituminous paint. (Attention: Do not overpaint the seals.)

The user should check in each individual case if overpainting is possibly by applying a trialcoat and conducting an adherence test. Any coating older than 3 months must be sanded down prior to further surface treatment. Without adequate surface preparation – sandblasting for example – the applied protective painting does not provide improved protection against corrosion. Storage of the turntables is possible for periods of up to 6 months in roofed storage areas. Storage of up to 12 months is possible, provided that the turntables are kept in a climate controlled environment.
Mounting holes

Turntables can be delivered either drilled or undrilled. If the customer elects to drill the holes themselves, they must allow for positioning of the nameplate / filler plug lateral to the direction of travel outside the main load-carrying area. It is also necessary to drill one mounting hole approximately 70mm right or left off the nameplate.

This nameplate is fixed at the upper ring (inner diameter) of bearing type 90 S and 90 WA. When using undrilled types take care to prevent any chips from entering the raceway system and that the turntable, as well as the seals (90 WA types), are not damaged when drilling the mounting holes. Holes adjacent to the nameplate are not permitted.
Turntables must be mounted on a flat and torsion-resistant frame structure. It is essential that at least 50% of the peripheral surface of the flanges are supported load-bearing zones that are roughly equally spaced in the direction of travel and at right angles to this.

The essential factor here is to support the profiled rings of the turntable thus ensuring that the forces are directly transmitted into the raceways. Total out-of-flatness 1.5mm, permissible are for example 0.6mm up and 0.95mm down. Larger out-of-flatnesses have to be compensated by suitable measures (machining of the contact surfaces or use of captive shims in the respective contact area).

The turntable must be mounted to the companion structures so that the horizontal forces from acceleration and deceleration are transmitted and the bolts are relieved in radial direction. To prevent distortion from occurring, turntables must never be attached to the companion structure by welding.

The size and distribution of the bolts must be calculated based on the load. The bolt locking system must comply with the TÜV’s (German Technical Control Board’s) requirements or with the prevailing approval regulations.

To secure drilled versions of the turntable, high-strength bolts of quality grade 10.9 as well as high tensile washers must be used in all the mounting holes. On undrilled versions we recommend using at least 8 high-strength bolts of quality grade 10.9 as well as high tensile washers for optimal load transfer. Care should be taken in order to prevent any chips from entering the raceway system and that the turntable, as well as the seals (WA types), are not damaged when drilling the mounting holes.

The load details and bolt connections are only valid for operation on paved roads and under transport conditions as usual in Western Europe.

Under special operating conditions, e.g. forestry work, the companion structure has to protect the turntable in a way that it can not be damaged by branches or other foreign objects.

The nameplate / filler plug has to be positioned 90 degrees to the direction of travel, i.e. outside the main load-carrying area.

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<th>Type</th>
<th>Flange thickness D_a</th>
<th>D_b</th>
<th>D_out</th>
<th>D_i</th>
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Lubrication and maintenance
Other conditions of use
Warranty

For applications with extreme environmental conditions, specific maintenance instructions have to be established for each individual case. The turntables are equipped with grease fittings. Once the low-maintenance operating period has elapsed, it is necessary to re-grease through all grease fittings. Re-greasing should be carried out while turning or slewing the turntable through at least ±30° in order to guarantee a uniform distribution of the grease. It must be warranted that a sufficient amount of bolt preload is maintained throughout the complete life time of the turntable. Practical experience has shown that it is necessary to re-tighten the bolts with the required tightening torque in order to compensate the settling phenomenon. We recommend that axial movement measurements are undertaken in conjunction with acceptance procedures by the German TÜV or other accredited testing agencies. If the measurement shows an axial or radial clearance in excess of 3mm, the turntable will have to be replaced.

Brief description of how to measure the axial movement measurement:
• Check the bolt connections.
• Position the dial gauge with integrated magnets between the superstructure and the undercarriage in axial direction close to the raceway and a bolted area.
• Set the dial gauge to zero.
• Lift the superstructure by a forklift or lifting tackle until the undercarriage is freely suspended.
• Read the dial gauge to observe the axial movement.
• Position the dial gauge on the other side and repeat the above sequence of steps.

Other conditions of use
• Should turntables be applied in vehicles with less accelerations or decelerations than indicated, the permissible axial load can be increased.
• Rothe Erde® turntables are suitable only for turning movements of ±180°.

For other fields of application and load scenarios please contact thyssenkrupp Rothe Erde GmbH for further evaluation.

Warranty
thyssenkrupp Rothe Erde GmbH warrants that the products and material characteristics will be free from defects for a period of 12 months as from commissioning or, as applicable, a maximum period of 18 months as from delivery. This depends on proper installation, observance of the applicable maintenance instructions as well as on the suitability of the product for the selected application. Our General Terms of Sale are generally applicable. The warranty claims cover rework or substitute delivery. CONSEQUENTIAL DAMAGES DUE TO DEFECTS ARE EXCLUDED. Damage resulting from product modifications or improper cleaning is not covered by this warranty.

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