Equipped for tomorrow’s mission

Maximum solution expertise for extreme requirements: Individually designed rothe erde® wire-race bearings and rollers set global standards in matters of reliability, load-carrying capacity and economic efficiency.

Wire-race bearings from thyssenkrupp rothe erde are used in all kinds of equipment and under the most extreme conditions all over the world. They are as individual as the customer-specific requirements. For each application, we offer tailor-made, application-oriented and innovative solutions. Our products are characterized by maximum safety, precision and robustness. At any time, they demonstrate their outstanding application capability and reliability.

The latest design methods
All of our products are designed and built with regard to the particular requirements of the customer. For this purpose we use tried, tested and reliable calculation methods, design guidelines and production processes as well as tried-and-tested components. Economic efficiency is always a primary concern.

Our processes are compliant with the strict requirements of an integrated management system according to the standards DIN/ISO 9001 for quality management, DIN/ISO 14001 for environmental protection and OHSAS 18001 for occupational safety.
The three-wire race roller bearing represents the latest state of the art in bearing technology for turret bearings. Unlike any other bearing, it transfers the considerable axial and radial forces as well as tilting moments when rotating and slewing movements are carried out simultaneously. This raceway system is characterized in particular by its smooth rotation resistance – even if there is torsion in the connecting structure and when exposed to low temperatures.
The rothe erde® wire-race bearing is a design comprising bearing races (serrated and non-serrated), running wires and anti-friction bodies. In contrast to conventional bearing types, the rolling procedure in the rothe erde® wire-race bearing does not take place directly between the anti-friction bodies and the hardened bearing races, but rather between the anti-friction bodies and running wires inserted in the bearing races. Moreover, a sealing system is used which not only protects against spraying, standing and surge water from outside but also withstands the positive internal pressure of the NBC protection system inside the vehicle. Additional seals can be integrated on request. The described structure means that there is no need for additional sealing housings and gear unit components, as the bearing is supplied ready for installation - only requiring bolting onto the connecting structure.

Wire-race bearings are the optimum solution in all types of weapons as well as for optical equipment and radar systems when it comes to tackling a large number of different applications such as turret and weapon mount bearings, elevation bearings as well as bearings for periscopes and ammunition feed systems.

On land, on the water and in the air
Choice of different materials
Each bearing is designed individually. Its dimensions are selected with regard to the specific application the bearing shall be used in. Consequently, our wire-race bearing system offers a wide variety of designs and material combinations. Predominantly, aluminum is used as the race material. Moreover, tempered steel, stainless steel and non-ferrous metals are available.

Maintenance and service
rothe erde® wire-race bearings are particularly easy to maintain because of their fill-for-life lubrication: The regreasing interval can be up to five years. Simple and inexpensive repair is possible by renewing individual components.

The advantages of rothe erde® wire-race bearings at a glance:
- Low weight
- Corrosion resistance
- Low and smooth rotation resistance values
- Largely no maintenance required and inexpensive repair
- Absence of play in the raceway system
- Diameters from 80 to more than 4,000 mm
Special designs for special applications

For special applications, thyssenkrupp rothe erde offers wire-race bearings in special designs and delivers an application-oriented solution for almost every requirement.

Examples of such special designs of rothe erde® wire-race bearings are axial ball bearings, axial roller bearings, radial roller bearings, inclined roller bearings, interchangeable bearings, crossed roller bearings, axial/radial roller bearings or double-inclined roller bearings. A variant with a slip ring is also available to permit electrical current to be transferred.

We offer application-oriented bearing solutions for particular applications:

- In combination with various materials
- With integrated slip ring pathways
- Surface-hardened bearings
- Bearing segments
- Serrated rings/segments
- With integrated drive
- Non-magnetic materials
- We can also supply corresponding bearings for applications which do not involve the usual exacting requirements.
Steel rollers: Lightweights for the toughest task

In tracked vehicles, our rollers achieve maximum operating times with minimum wear. The successful concept: the rollers are made of steel – but offer all the advantages of aluminum rollers.

After all, rollers made of highly tempered steel developed using modern methods do not necessarily have to be heavy nowadays, they weigh a similar amount to rollers made of aluminum although they offer the benefits of outstanding stability – thanks to an innovative profiling method combined with greater operational strength values and low maintenance costs.

Costs cut by a third

For example, the particularly high wear resistance means that it is possible to dispense with renewing the wearing ring (as would otherwise be necessary). All in all, this amounts to about 35 % lower service life costs – as verified by more than 12,000 operational kilometers covered by a 63 tonne vehicle and a 70 tonne Leopard 2 main battle tank. Rollers from thyssenkrupp rothe erde offer other significant advantages as well: They are impervious to small caliber weapons and due to their low heat signature, they are difficult to detect using infrared systems.

Patented production process

Steel rollers for track laying vehicles

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<tr>
<th>Stock numbers granted, after proven and tested by the Technical Administrative Office of the Bundeswehr of the Federal Republic of Germany</th>
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<tbody>
<tr>
<td>Leopard 2 road wheel</td>
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<td>Leopard 2 idler wheel</td>
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The advantages of our rollers at a glance:

- High mileage
- No need to renew the chain sprocket running surface during repair
- Low wear
- Comparable weight to light-alloy rollers
- Impervious to small caliber weapons
- Minimum heat signature so difficult to detect using infrared systems
- High resistance to ageing
- Patented production process