



FHD WireRace and inserted raceway bearings for weightsavings and consistent friction torque



Benefits

Customizable and corrosion

FHD Wire Race bearings are custom manufactured to fit each design and application, in shape and material combinations that aren't possible with conventional designs. Modular designs are highly configurable and based on standard capacity.

With stainless steel wire and rolling elements, FHD Wire Race bearings are very corrosion-resistant. A variety of materials can be used for the rings, including conventional steels, anodized aluminum, special steels of various kinds, lightweight alloys, and composites.

Easy to maintain

FHD Wire Race bearings are virtually maintenance-free. Operating on a light film of lubricant, they require only periodic lubrication, depending on the environment and operating conditions.

In the event of damage, the inserted wire raceways, rolling elements, and separating elements can be economically replaced. Reconditioned bearings work as well as new bearings.

Wire Race benefits

- Accurate position control and reliability under extreme conditions and temperatures
- Low and uniform friction torque
- Low weight and space saving designs
- Tolerant of non-rigid or out-of-flat mounting structures
- Accommodate extended platform range and airborne conditions
- High elasticity in case of shock and sudden loads
- Capable of rapid acceleration and high speed
- Differential expansion capabilities
- Efficient sealing arrangement according to application

Materials and structure

Bearing (housing) ring material

- Anodized aluminum
- Composites
- Lightweight alloys
- Steel

Bearing (housing) ring coatings

- Anodized
- Electroless nickel
- Paint
- Phosphate
- Zinc

Rolling elements material

- Bearing steel
- Ceramic
- Polymer
- Stainless steel

Bearing raceway material

- Inserted thin section: bearing steel, stainless steel, Endurakote® plated
- Wires: hardened stainless steel

Separator material

- Polymer
- Reinforced polymer

Seal material

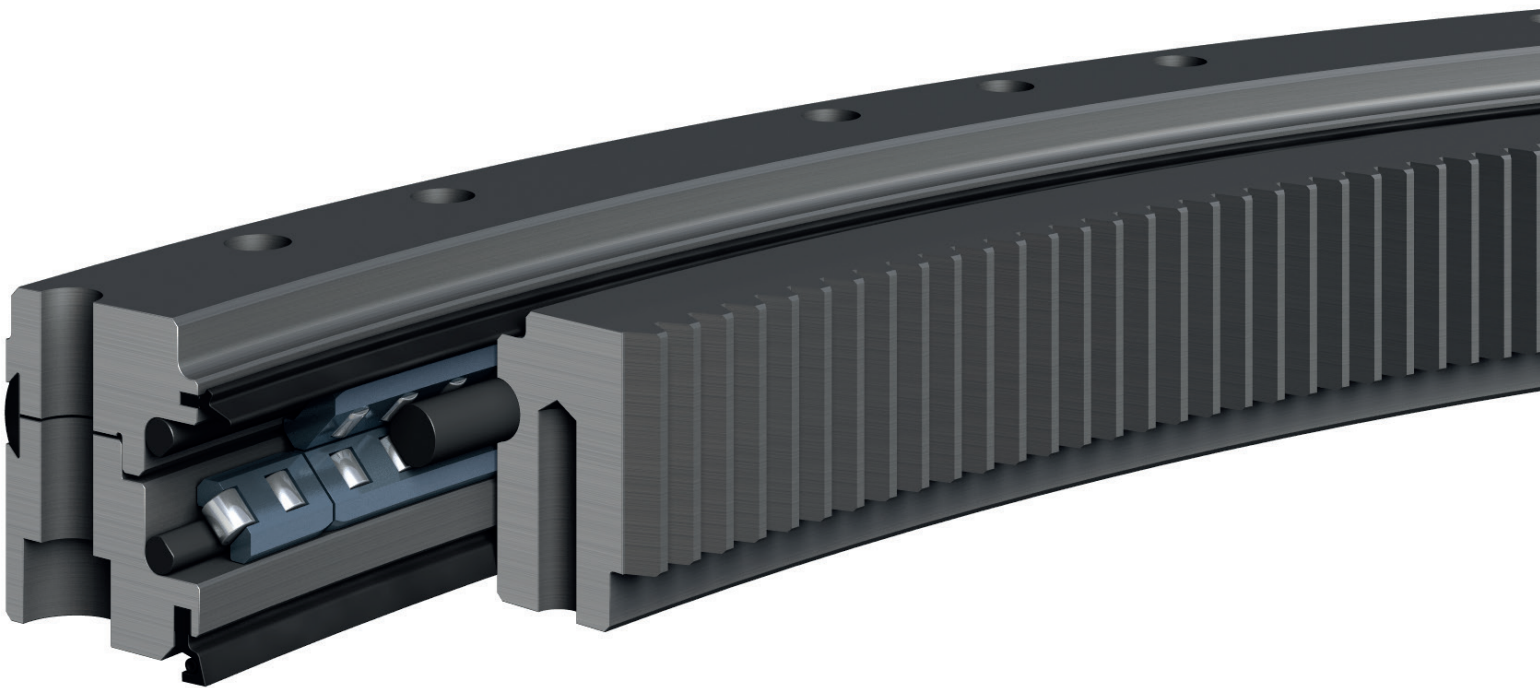
- EPDM
- Fluorocarbon
- Neoprene
- Nitrile
- Silicon

Seal style

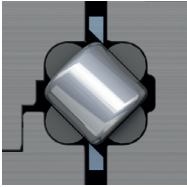
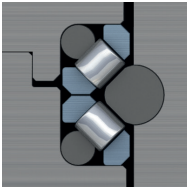
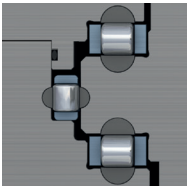

- Face-riding
- Spring energized dynamic

Grease and oil lubrication

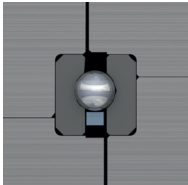

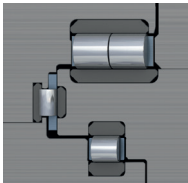
- Mineral-based
- Synthetic



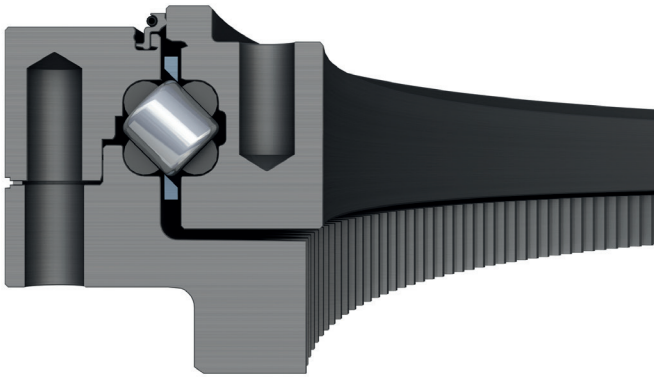
Configurations

Configuration	Description	Size range	Design benefit
Wire race cross roller 	Inserted race cross-roller with four wires forming the raceway. Available in one-to-one or two-to-one configurations for high thrust loads.	200mm to 4200mm	<ul style="list-style-type: none"> • Pre-loaded bearing design keeps low and uniform friction torque under severe operating conditions • The most compact design option
Wire race double row roller 	Inserted race two-row bearing with three wires forming the raceway	600mm to 4200mm	<ul style="list-style-type: none"> • Pre-loaded bearing design keeps low and uniform friction torque under severe operating conditions • High capacity
Wire race triple row roller 	Inserted race three-row bearing with two axial rows and one radial row of rollers	500mm to 4200mm	<ul style="list-style-type: none"> • High static and dynamic capacities • Withstands high shock on relatively small bearing size
Wire race single row ball 	Inserted race one-row bearing	100mm to 1900mm	<ul style="list-style-type: none"> • Low friction torque under light or medium loads • Adaptable for many applications • Slim design and high speed capability with high precision

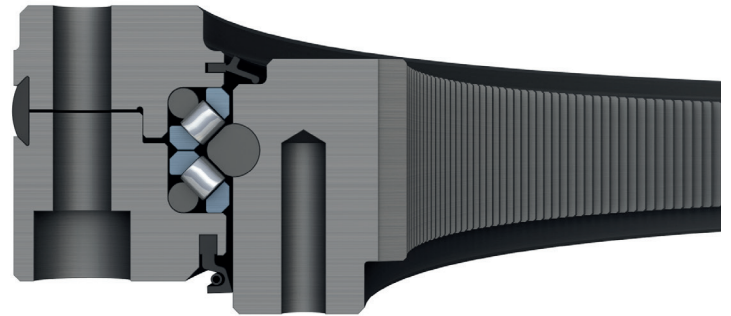
Configurations continued

Configuration	Description	Size range	Design benefit
<p>Thin section</p> 	Inserted thin section ball bearing	50mm to 1000mm	<ul style="list-style-type: none">• Catalog range allows scale/volume benefits
<p>Single row radial roller</p> 	Inserted race one-row roller bearing	500mm to 4200mm	<ul style="list-style-type: none">• For radial loads only• Generally used in conjunction with other bearing handling axial loads• Simplified thermal expansion management
<p>Segmented bearings with inserts</p> 	Inserted race segmented three-row roller bearing	Up to 14000mm	<ul style="list-style-type: none">• Very large size capability• For applications where traditional bearing designs cannot fit due to limited access or large structure size

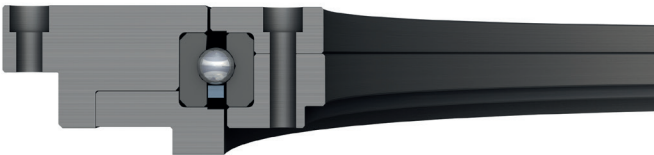
Design examples



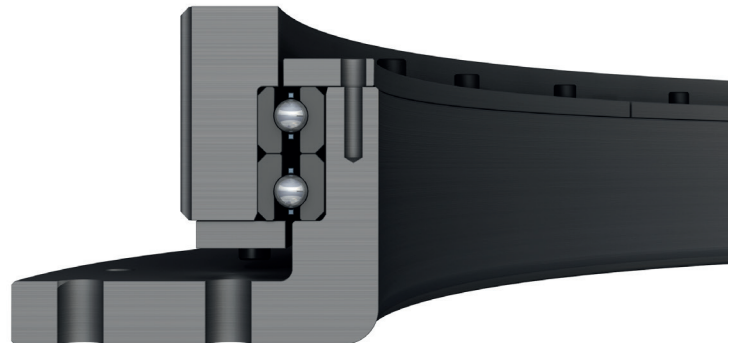
Wire race crossed roller bearing with internal gear



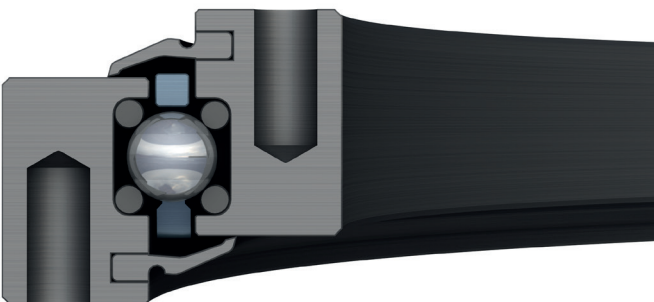
Wire race double row roller bearing with internal gear



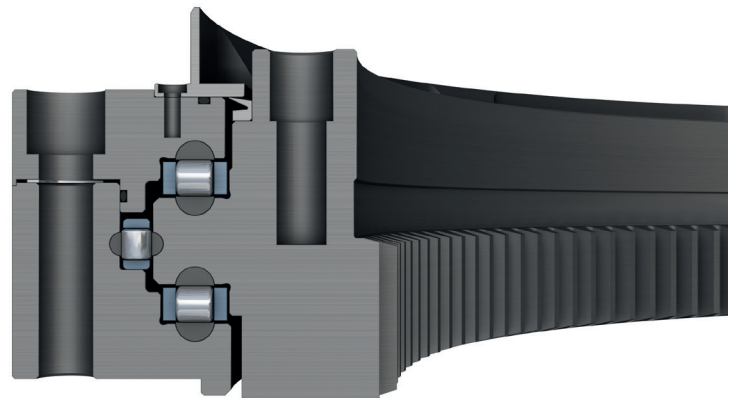
Inserted single row thin section



Inserted thin section double row



Wire race ball bearing without gear



Wire race triple row roller bearing with internal gear

Applications

FHD Wire Race bearings have been proven reliable in a wide range of applications around the globe:

- Camera mounts
- Gimbals
- Index and rotary tables
- Luggage security scanners
- Medical, tomography, X-ray
- Navigation, target acquisition pods
- Oil and gas
- Optical telescope
- Patient beds
- Radars (fixed and mobile)
- Robotics

