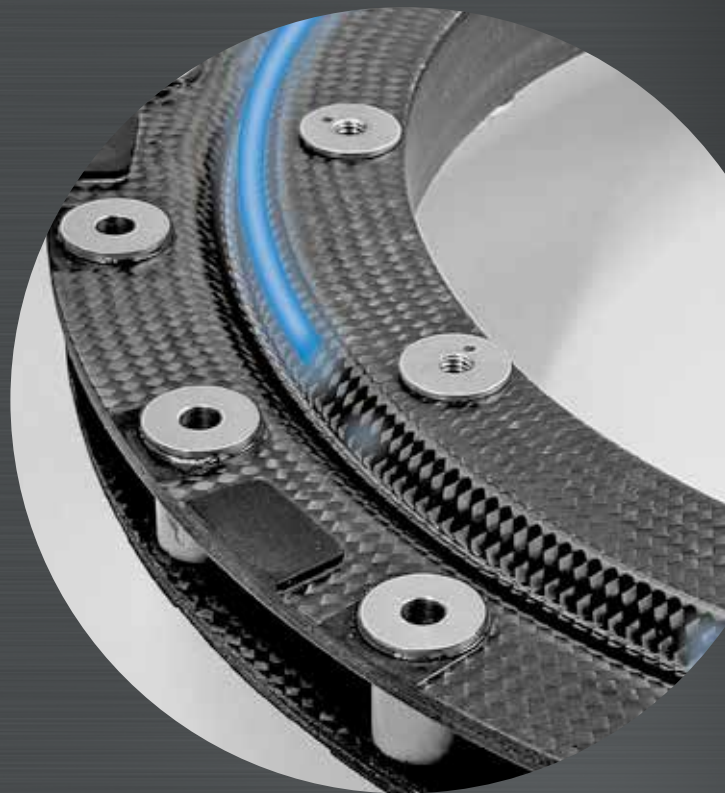


Light Bearings for Innovation



## Franke **Special Bearings**

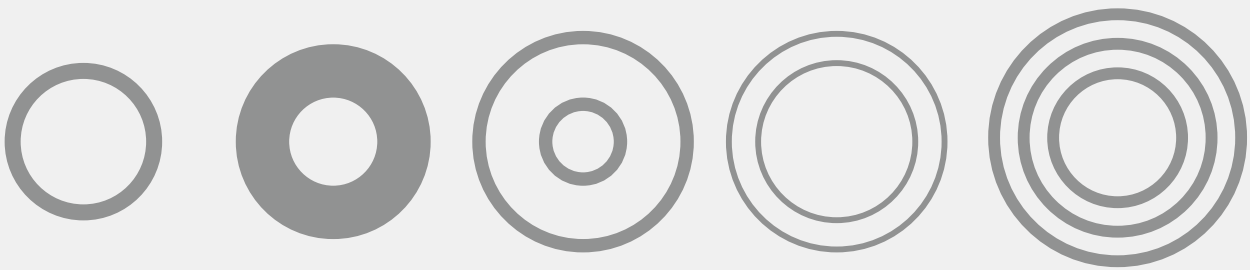




$\pi$

Constants, we can not change ...





... the corresponding variables  
we can.

We adapt them to your needs.

**Constant variable.**

Minimum mounting space

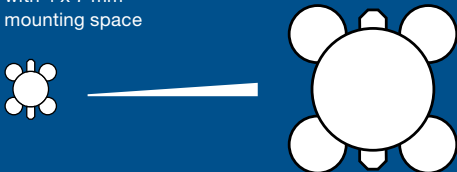
Unlimited material selection

Unlimited selection of geometry

## Franke Special Bearings – suitable for any construction



Smallest  
bearing element  
with 4 x 7 mm  
mounting space



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### Minimum mounting space

Franke Wire Race Bearings offer you a broad range of options to construct special bearings customized to suit your individual application. Franke Wire Race Bearings are manufactured using hardened steel. To adapt the wire race bearings to the requirements of your application, our designers have numerous possibilities with regard to wire profile, material and material treatment. For special applications wire race bearings are also available from non-magnetic steel or stainless steel. You may select among various different profiles to be integrated directly into your mating structure. Our smallest bearing element requires a mere 4 x 7 mm mounting space.

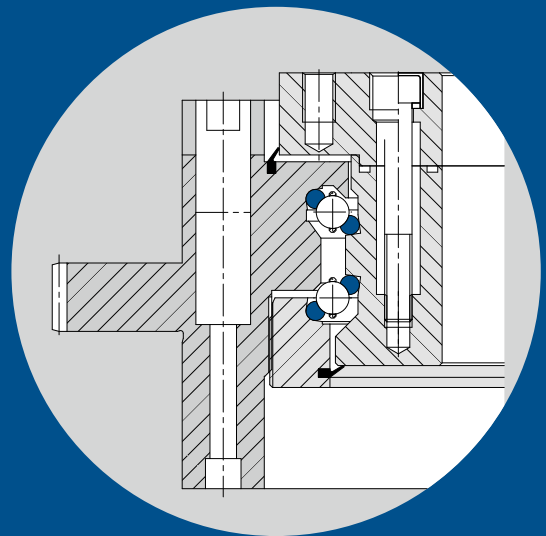


## Unlimited material selection

Franke Wire Race Bearings deliver the requisite rigidity and accuracy of the bearing in almost any mating structure. They carry the principal load. Alternative materials for the mating structure are:

- Steel
- Aluminum
- Cast
- Bronze
- Plastic
- Carbon
- Non-corrosive steel

Depending on the material used the weight savings compared with standard steel bearings can be up to 80 %.



## Unlimited selection of geometry

Design your bearings individually. The housing components are not directly exposed to load from the rolling elements and can be constructed with extremely thin walls. This produces compact and lightweight components in conjunction with the small mounting space the Wire Race Bearings require. Due to the unlimited design of the mating structure it is often possible to reduce the number of components and replace complete modules by a customized bearing.









## Franke Special Bearings – perfect performance in any situation

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Environmental influences can play a crucial role in the bearing selection. Franke Special Bearings can be adapted to all conditions. Race rings, balls, cages and lubricants can be combined in numerous variants.

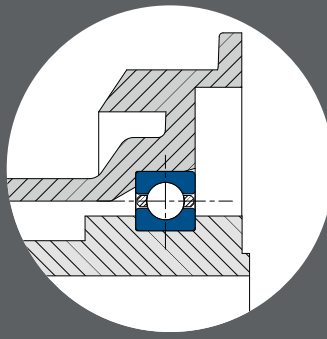
Certified lubricants are being used for applications in the **food industry**. Thanks to the use of ceramic balls our **hybrid bearings** can be used without lubricants. This is also suitable for applications in the **clean room** or in a **high vacuum**, for example where heat can not be cooled by the ambient air and emission-free-cages are used. Along with **stainless steel** raceways compact bearing solutions can be designed for particularly sensitive conditions, such as in printed circuit board manufacturing or in medical technology.

Franke Special Bearings – constant  
variable and unique



Franke Special Bearings for Woodworking Satellite communications Aerial cameras Hubless wheels  
Antennas Aircraft infrared transmitter Ship propulsion Robots Solar tracker Medical technique  
Cleanroom Food packaging





## Franke Slim Bearings – mobility at its best

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Modern lightweight robots are utilized as service and assistance robots. The net mass of the robot might be just 10 kg, with a nominal load of 3 kg. They often consist of lightweight carbon fiber materials having sufficient rigidity and low mass. For the axes of motion the main requirements for the bearings are **high stiffness**, **low weight** and **minimal mounting space**.

Franke Slim Bearings only need a minimal mounting space and are directly integrated into the design of the robot. The material of the mating structure can be chosen unlimited. High load capacity of the bearing from all directions is ensured by the 4-point arrangement of the tracks.





### Human-Robot-Collaboration

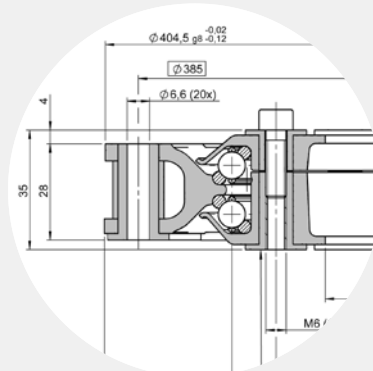
Highly mobile service robots working “hand in hand” with human counterparts. For example they can be used in the production and relieve employees from ergonomically unfavorable manual steps. Other fields are maintenance for vehicles or working in hazardous environment up to assistance in care of people.



## Franke Bearing Assemblies made of carbon – especially light and innovativ

Franke Bearing Assemblies with housing rings from laminated CFRP (carbon) are the lightest slewing rings ready for installation available with Franke technology. They are suitable for the construction of ultra-lightweight machinery, aircraft and vehicles. The integrated wire-race bearing in the form of a double row angular contact ball bearing takes loads from all directions.

The specific gravity of carbon fiber is only about 60 % of aluminium. The tremendous variety of processing capabilities of carbon fibers to complex materials of highest capacity is another reason for the popularity of CFRP lightweight. The carbon housing is provided for attachment to the mating structure with sleeves made of aluminium. Load capacities, rigidity and temperature characteristics correspond to equivalent slewing rings made of aluminium. Franke wire race bearings can be used in any mating structure made from CFRP, enabling the design of extremely compact and ultra-lightweight bearing solutions.



**Bearing assembly  
in carbon design**

Ball pitch diameter:

**330 mm**

Material:

**CFRP (carbon)**

Temperature:

**-50°C up to +100°C**

Circumferential speed:

**max. 20 m/s**

Weight:

**1.800 g**



QR-Code for  
PDF-Download



**Aluminium bearing (Dispal)**

Set for temperatures up to 70°C with a uniform rotational resistance over the entire temperature range.

Provides 18 start/stop movements per second and 120 million revolutions within five years.

The direct drive is flanged directly to the bearing and moves the entire unit in a highly rigid aluminium housing.



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YouTube video



## Franke Bearing Assemblies with direct drive – dynamic variety

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Lightweight components are more popular than ever in the era of energy efficiency and high performance. With integrated **direct drives** wire race bearings are complete powertrain components. They are the first choice wherever small mounting space meets dynamic agility. Franke Special Bearings with direct drive can be found in machines and devices, medical equipment and automotive. In modern **CT scanners**, for example Franke Special Bearings with direct drive rotate at speeds of more than 300 rpm and provide high definition pictures due to their high precision and speed. Running noise **below 60 dB (A)** ensures that the investigation can proceed without stress for the patients.

In vehicles Franke Special Bearings with direct drive ensure the **positioning** of drive and braking systems in the center of the wheel due to the huge center-free design of the bearings. Manufacturers of bottling machines and LCD screens also rely on Franke Special Bearings with direct drive. In many cases we supply complete drive systems from a single source.



## Franke research and development – innovative for the benefit of our customers

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Research and development are essential parts of our daily efforts to offer the best possible solution for your application. We start development projects either with our customers to develop specific solutions or on our own initiative to optimize our product portfolio. In our **laboratories** in Aalen we have extensive equipment to carry out any kind of testing and analysis. Various **run-in and test facilities** are used to investigate the running behavior and rotational resistance or noise. **Shaker** help in analyzing the rigidity of bearings. **Climate chambers** simulate operating conditions like the heat of the desert or the cold of outer space.

Our engineers use **microscopes** to study raceways just as experienced as using the software for the **FEM analysis** of the stress conditions of an application. Material characteristics and machining processes are also under examination as well as new types and profiles of Franke Wire Race Bearings and Aluminium Linear Systems.

Certification to DIN ISO 9001 and 14001, internal quality circles and regular audits of suppliers and partners secure a high quality level.









## Franke Wire Race Bearing production – manufactory and high-tech-machinery

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We produce our wire race bearings and slewing rings in own production facilities. Our machinery is designed for bearings in the diameter range of 70 to 2000 mm. For this reason, we have developed several special machines in-house for wire processing. Modern machining centers dominate the production of bearing rings enclosing both individual pieces as well as large series.

Our production management is focused on efficiently and cost effectively producing orders for orders as small as **one single part**. Larger quantities and **series production orders** are processed in structured processes.

All devices and machines are only as good as the people who use them. Our employees in work preparation and production can look back on a wealth of experience and bring their knowledge in an appropriate place. Especially with complicated individual items and special bearings create our fitters hand to provide the highest precision.





## Franke Services – your partner, right from the start



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### Product presentations

Our experts hold training courses to teach you everything you need to know about Wire Race Bearings and Linear Systems. They are glad to show you ways of increasing the efficiency of your machines and systems. The training courses are held either in our customer and training center in Aalen, or directly at your premises. We are pleased to arrange individual appointments.

We would be pleased to send a staff member from the office responsible for your location, ready to provide assistance even before initial planning of sample parts, or to organize an in-house demonstration of Franke products.

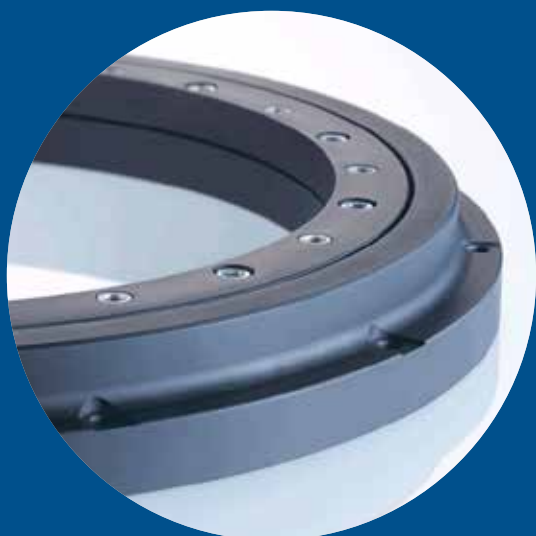
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### Development partnership

Delivering comprehensive services is a pivotal element in our corporate philosophy. This is why we accompany you even before an order is placed. We remain as a partner at your side from the brainchild to the design of your application. Furthermore we provide support in the production of samples and prototypes and also during assembly and maintenance of the finished products. Benefit from the knowledge of our experts.



QR-Code for  
contact in your  
country



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## Sample parts /prototypes

Sample parts and prototypes allow you to conduct exhaustive tests to acquire the solutions you need and enable optimization of the finished product. When dealing with customized solutions, we complete extensive testing based precisely on your specifications of the bearings and Linear Systems that are designed specifically for your application. On request, we will provide you with comprehensive test logs and documentation of each product, in which we guarantee adherence to the respective specification.



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## Franke worldwide

Franke Wire Race Bearings are available around the world. More than twenty representations around the globe ensure that Franke customers in all major world markets will receive excellent service. The company produces all Franke products at its main plant in Germany. We have a cooperative effort in the USA and China to produce special bearings for their local market. Powerful partners with the appropriate machines are present to serve the customers quickly and reliably.





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[www.franke-gmbh.com](http://www.franke-gmbh.com)



You Tube

XING

Franke GmbH  
Obere Bahnstraße 64  
73431 Aalen, Germany  
Tel. +49 7361 920-0  
Fax +49 7361 920-120  
[info@franke-gmbh.de](mailto:info@franke-gmbh.de)