

Franke Innovativ

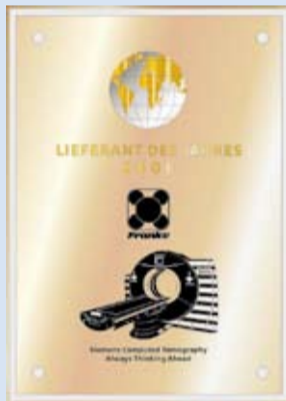
In Focus:
The customer-
specific Antifriction
Bearing LDH Drive

SPECIAL ISSUE 10/2009

Dear Customer,


60 YEARS
FRANKE PRINCIPLE

Franke has stood for customer-specific Antifriction Bearings and Linear Systems for 60 years. Our flexibility and quality impress our customers. It makes us proud when this satisfaction is reflected in special awards. We were awarded the title of "Supplier of the Year 2008" by Siemens Medical Solutions in the Mechanics sector. We have scored for the second time in a row with our main customer for CT bearings with high quality products and top class service.



We received the award for impressive services in the areas of:

- Logistics
- Delivery reliability
- Product quality

Other well-known CT producers from all over the world have also been placing their trust in our company for many years. Franke supplies the main bearings for computer tomographs. This patented Franke **Flüsterlager**® has played a decisive role in the development of precise x-rays in high resolution. Franke Flüsterlager run quietly and with little vibration even at high speeds.




Yours,
Daniel Groz Sascha Eberhard
Managing Director Managing Director

Quiet and Powerful

LDH Drive, the new Franke special bearing, impresses with its quiet operation, speed and energy efficiency

Customer-specific Antifriction Bearings are our speciality. You tell us your requirements – we do everything to satisfy them. With the LDH Drive Franke has developed a bearing that meets customers' demands for low noise development at high speed.

Most quiet operation at high speed is especially important for CT bearings in medical technology. Franke has been working on continual improvements to this criterion for years. The

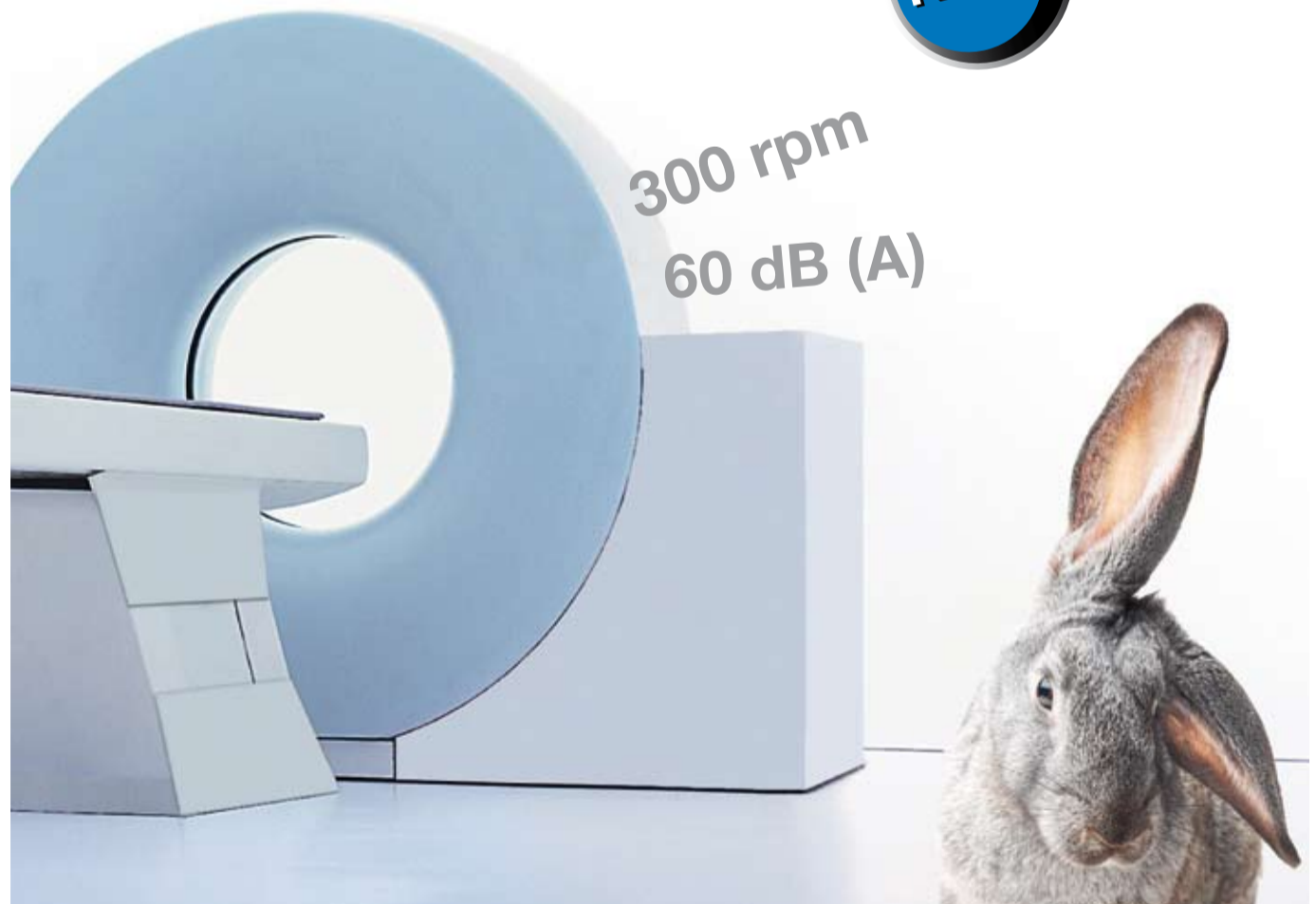
development of the LDH Drive is a further step in this direction.

The bearing is capable of speeds up to 300 rpm. The noise emission is less than 60 dB (A) at that speed.

We have also integrated a direct drive inside the double-row bearing – a system solution that benefits our customers in many different ways. Firstly, they get a complete system of bearing and drive, so they do not have to purchase a drive or have one

manufactured at great expense. Additionally, this variant is also extremely energy-saving, which lowers costs and also protects the environment.

Customer requirements determine the end product for all Franke special bearings. Customised solutions are our speciality.

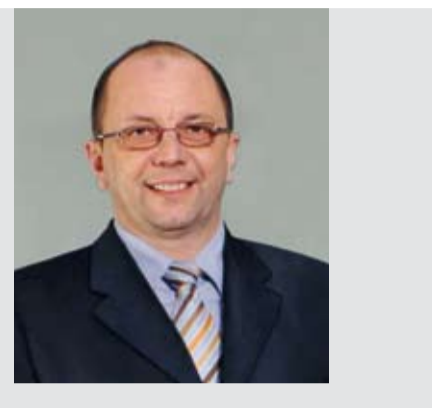
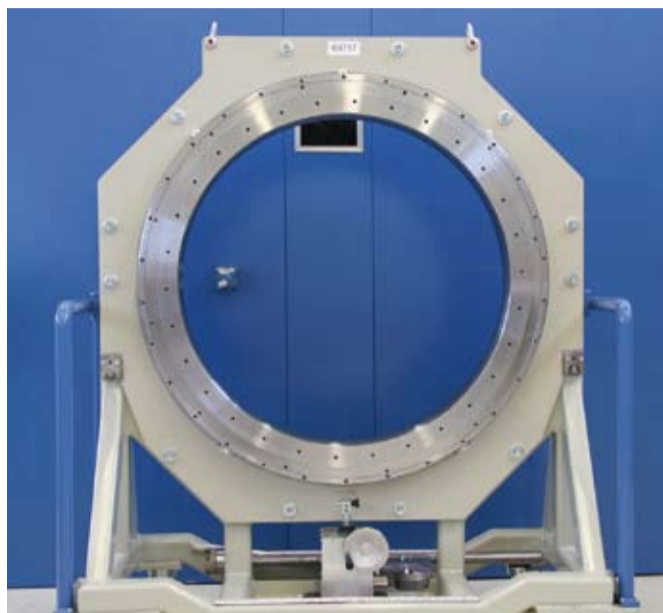


The advantages of the LDH Drive:

- Up to 300 rpm
- Noise emission < 60 dB (A)
- Low rotational resistance < 20 Nm
- Adjustable preload
- Integrated direct drive
- System solution from one place, so extremely cost-effective

The LDH Drive being tested

Interview with Jörg Egelhaaf on the development of the new Antifriction Bearing



> **Your personal contact:**
 Jörg Egelhaaf
 Tel. +49 7361 920-115
 j.egelhaaf@franke-gmbh.de

Mr Egelhaaf, what is your role at Franke?

Egelhaaf: Together with my colleagues I am responsible for research, development and design. We find the best technical solutions for our customers. We also tackle new development and re-development of products and machines and submit patent applications. As a member of management I take a part in the company's strategic orientation.

Why was the new LDH developed?

With our CT bearings we are leaders in the medical technology sector for many years. We developed the LCD Drive so that we were in a position to meet future requirements.

What makes the LDH Drive so special?

The bearing impresses due to its low noise level even at high speeds: at 300 rpm with a noise level of less than 60 dB (A) the LDH Drive sets a new standard. Its integrated direct drive with transmitter system and compact design are also impressive.

How did you manage this project in your company?

We have been involved in the construction of antifriction bearings for 60 years and use our engineers' experience for selective new developments. Additionally, we conducted a simulation in close cooperation with universities whose results were integrated 1:1 into our test runs. We

were able to get the best from the Franke system thanks to these theoretical foundations.

Is the LDH Drive only suitable for computer tomographs?

In the form shown here the LDH Drive is specially designed for computer tomographs. The know-how that has gone into the system, however, could be used for other applications which require high speeds and/or low noise development. The direct drive can also be used for other customer-specific projects.

Are you currently working on other projects?

Most of our developments are customer-driven. This means that

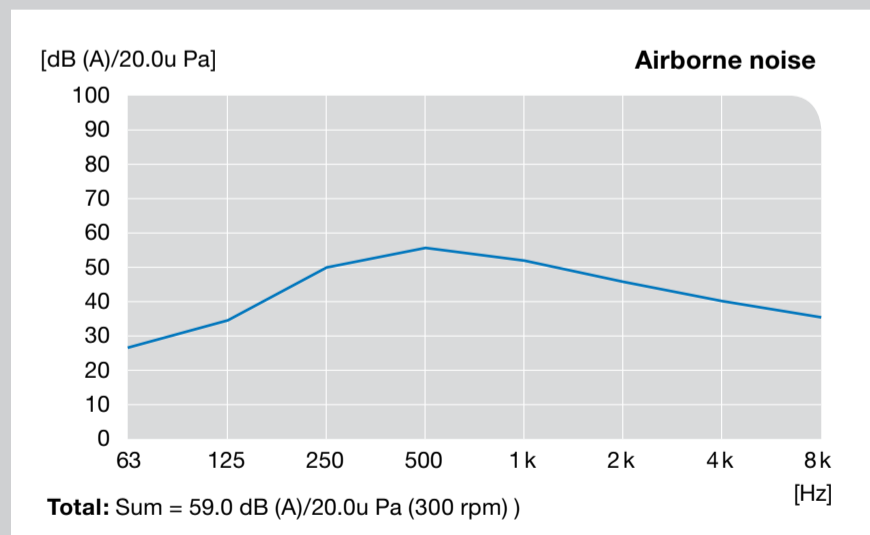
our customers come to us with specific requirements and we develop the right product. A whole array of projects are currently in development.

What sort of customer-specific requirements do you mean?

It depends on the individual application. Franke Antifriction Bearings can be individually designed in terms of material and geometry. Whether aluminium or lubricant-free, extremely compact or with individual gear – everything is possible. Franke Antifriction Bearings have even been made from carbon fibre or for applications in space.

Thank you for talking to us.

Airborne noise less than 60 dB (A)



Even at a speed of 300 rpm the LDH Drive is below a level of 60 dB (A) in airborne noise measurement. Specific improvements to the geometry, raceways and the rolling elements have led to this result.

CT bearings are fully tested at our test facilities. All bearings get a test certificate with detailed data on performance.



Direct drive with positioning encoder

No tooth belt or pinion gear, no other mechanics or gear connection: the new LDH Drive achieves its top speed of 300 rpm using direct drive. Rotor and stator are housed in the bearing profile, a positioning encoder controls acceleration and speed.



Quality to Order

Special bearings for special requests: Franke produces individually

Special requests are our speciality. Each customer requirement – and they may still be very unusual – is a challenge for us that we work on with know-how, ambition and satisfaction.

Franke Antifriction Bearings can be adjusted to customer requirements in all dimensions. Parameters such as load rating, stiffness, preload and rotational resistance are just as variable as height, width, bore shape or the different materials. Whether steel, aluminium, non-corrosive, plastic or brass – the customer can decide. Customers can also choose between different gear, seals, diameters and bearing profiles. This also applies to the rolling elements, ball cages and race rings. The result is a customised product.

The advantages of customer-specific special bearings at a glance:

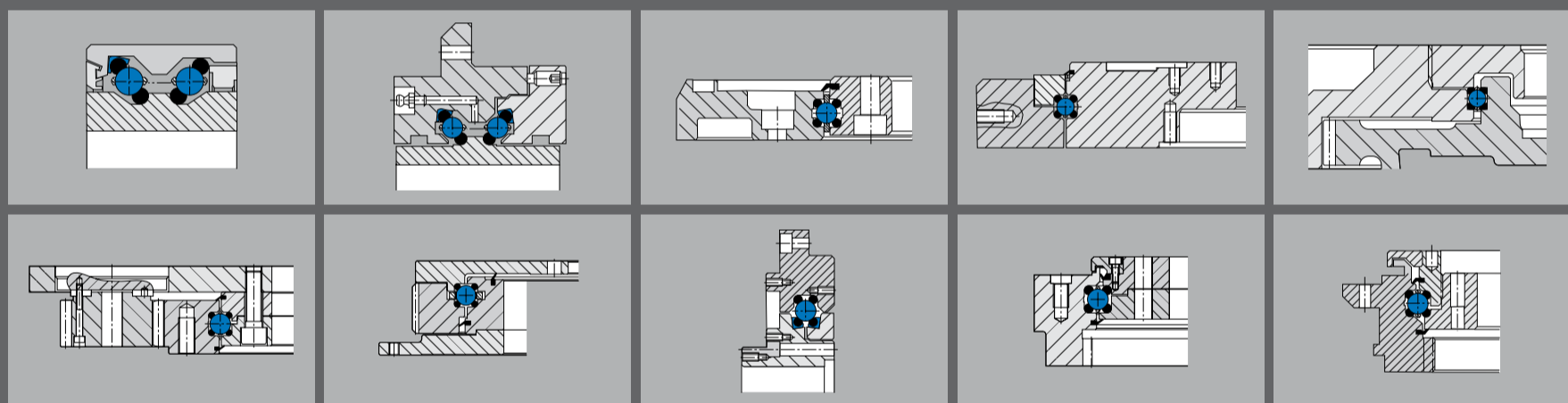
- Free choice of material, aluminium version 65 % lighter than steel design
- Individually adjusted geometry and special bore shapes for direct attachment to the connecting construction
- Integrated Franke Bearing Element for loads from all directions, high performance and precision
- High dynamic, maximum circumferential speed up to 20 m/s



Products with Countless Design Possibilities

The Franke principle produces an extremely compact bearing, which also suits very small spaces and offers the most diverse design possibilities. Four race rings fit their raceway thanks to a specially developed grinding

procedure – exactly adjusted to the ball diameter. Therefore, the rolling process does not occur directly between the rolling elements and mating structure, but rather smoothly on the four open race rings.



Flexible Use

Franke special bearings are at home in many industries

Producers of computer tomographs rely in particular on the low-vibration, smooth running of the Franke **Flüsterlager**®. The high load capacity and good centre freedom of the Bearing Assemblies are in demand in machine building. Precise guidance of the needles is the focus for circular knitting machines. The choice of materials is important for clean room technology. The minimal installation space in robot arms demands very compact bearings, whilst high temperature resistance is required in addition to high accuracy for turbine test facilities. Whatever the requirements of our customers, Franke special bearings are perfectly adapted to the individual application.

- Medical technology
- Mechanical engineering
- Textile industry
- Clean-room technology
- Robotics
- Food industry



Solar panels

Tool Changers



Rotary indexing table



Clean-room technology



Baggage scanners



Environmental Contribution



Environmentally-friendly products, energy-saving drives

Environmental protection is one of Franke's corporate goals and is an integral part of our corporate policy. By using Franke components you are saving energy and making an active contribution to sustainability.

The raw materials and pre-products we use undergo careful testing. Our suppliers and contractors must also adhere to clear environmental guidelines. We consider the environmental sustainability of the purchased parts, the raw materials and the processes when developing new products. We have been TÜV-certified in accordance with DIN ISO 14001 for many years. Regular environmental audits confirm our successful ecological orientation.

Franke supports and encourages all employees to take responsibility for their workstations and to practice environmental protection actively. The greatest

possible level of industrial safety is a must. Our employees are trained in responsible resource and energy management at regular intervals.

Naturally, Franke products are also designed so that they meet the high demands of sustainability. The Franke principle forms the basis of this. In contrast to conventional bearings the rolling motion here takes place with little vibration on four open race rings. Thanks to this special principle, Franke Antifriction Bearings can be used directly in the mating structure. This facilitates construction of light-weight components, of aluminium for example, and reduces the mobile mass, which has a positive effect on the required drive energy.

The same applies to Franke Linear Systems. All guide bodies and rails are made from high-strength aluminium. This means guide designs can be realised that are 65 % lighter than steel guides. Franke components also save weight and driver energy here.



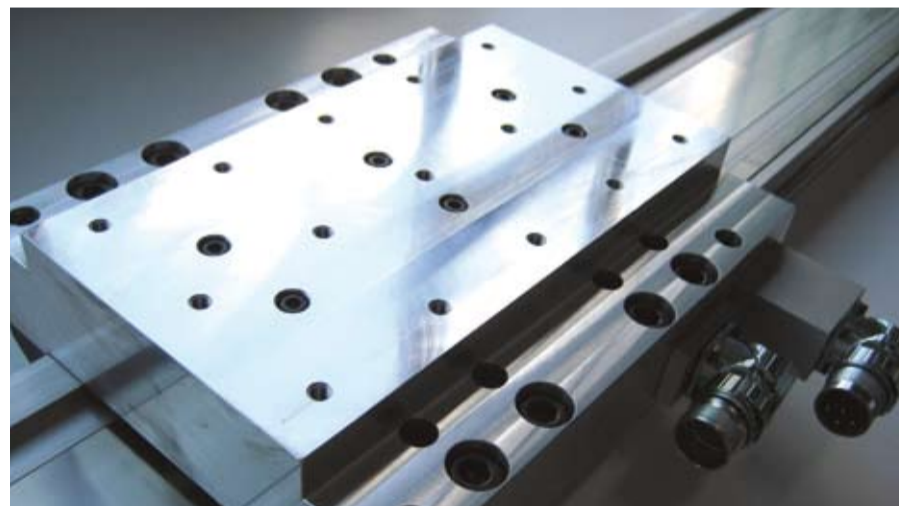
Preview of the next issue of Franke Innovativ:

Franke Linear Motor System FDH Drive

In the next issue of Franke Innovativ we present a product that is currently in development – a Linear Motor System. It is very dynamic with a low weight, has a long service life and sealed rollers. Like all Franke products the Linear Motor System has been designed to customer-specific requirements and is also available as a complete system on request.

A few facts at a glance:

- Acceleration max. 100 m/s²
- Speed max. 5 m/s
- High power density of the motor
- Aluminium guide and slide component, so low weight
- Low-maintenance thanks to life-time lubrication
- Compact design facilitates direct integration into your construction



Would you like more information now? Then please contact Stephan Kuhn on Tel. +49 7361 920-180 or s.kuhn@franke-gmbh.de.



Franke worldwide

In addition to our branches in Germany, we have sales offices across Europe, the USA, the Middle East and in Asia. Thanks to our worldwide presence we are able to fulfil customer requests in the shortest way possible.

Our staff will happily come to you to discuss your needs locally and to present Franke Antifriction Bearings and Linear Systems to you in practice.

Franke GmbH
 Obere Bahnstraße 64
 73431 Aalen, Germany
 Tel. +49 7361 920-0
 Fax +49 7361 920-120
info@franke-gmbh.de
www.franke-gmbh.com

www.franke-gmbh.com