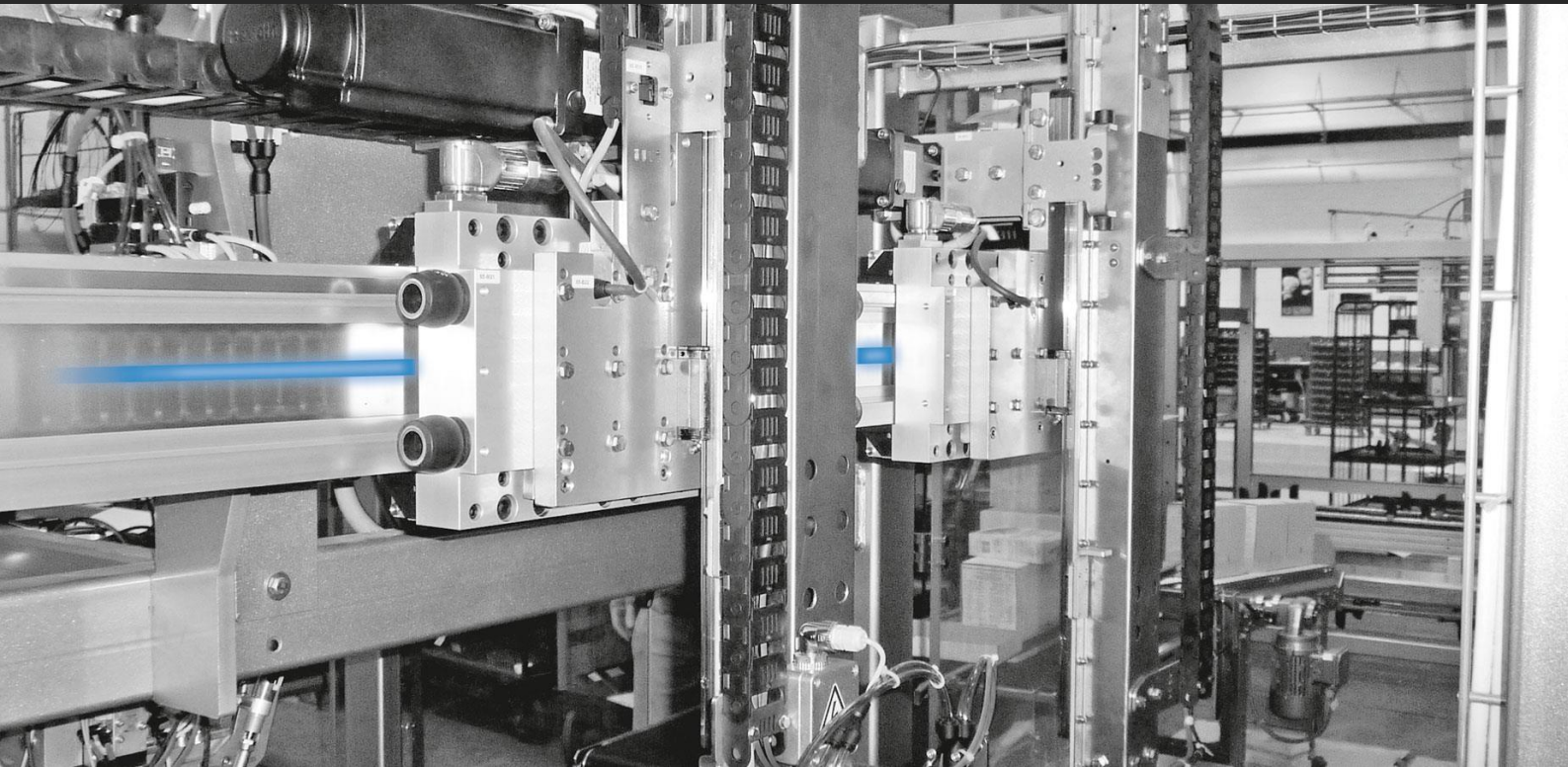


# Bottled and bagged

Franke wire race bearings and linear systems for the packaging industry



In packaging technology, lightweight construction and hygiene are essential requirements for the choice of components. Franke wire race bearings and linear systems meet both of these requirements.

## The Franke principle of inserted raceways

Franke wire race bearings and linear systems differ from conventional components in one essential aspect: the rolling elements do not roll directly on the housing parts, but on inserted races made of hardened spring steel.

The wires absorb all the loads that occur. This gives the customer a free choice of materials and design of the enclosing construction. This flexibility allows for freer and simpler design in order to develop better products. (Fig. 1)

The races of Franke wire race bearings are made of hardened spring steel. Shocks and vibrations are cushioned by them. The result: high resistance to such impact influences.

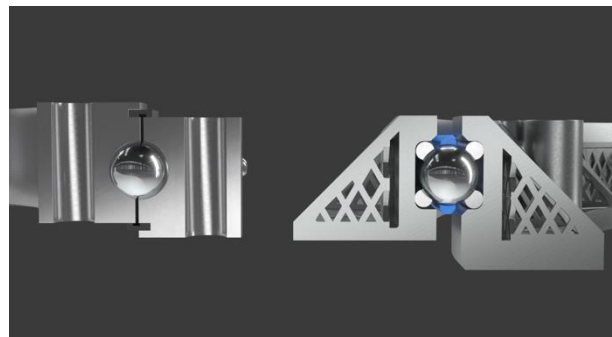


Fig. 1: Comparison of principles – on the left a conventional rolling bearing, on the right a wire race bearing with lightweight housing rings from the 3D printer.

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The raceways of the rolling elements are precisely matched to the diameter of the rolling elements. This ensures optimum functional properties and guarantees both precise running and a long service life. (Fig. 2)

With a wire race bearing, Franke customers acquire the pure function of a bearing and have more room for their ideas.

The same principle of inserted running wires is found in Franke linear systems. Rail and cassette consist of a lightweight aluminium body with steel or stainless steel rollers running on needle or ball bearings and are completely maintenance-free. Special cover discs on the rollers seal the bearings from the outside.

Rollers in O-arrangement guarantee an equally high load capacity from all directions. The track rollers are with a groove that is adapted to the profile of the track of the track. Through this guided roller system, the rollers are guided laterally and a uniformly light and quiet running is achieved. Track and cassette profiles can also be customised.

This flexibility makes it possible to develop products that meet all requirements for lightweight construction, dynamics and hygiene. For example, in food packaging or beverage filling.

The targets for packaging food, pharmaceutical, chemical or technical products, for example, are high flexibility and productivity with low maintenance and downtimes. For these reasons, the trend in the packaging industry is increasingly towards maintenance-free operation. Franke linear guides meet these requirements - they are maintenance-free. The needle bearings of the track rollers have lifetime lubrication. The enclosed design prevents lubricants from escaping and makes relubrication unnecessary. Completely lubricant-free versions of the guide are also available for special applications and thus help to guarantee production reliability. Specially used stainless steel components make the guide system food-safe and washable on request. Even aggressive media such as salt, whey or acid cannot harm the guide. High hygienic requirements for the packaging of foodstuffs are met by clean room certification.

Everything you could wish for. Only what you need.

The Franke product range extends from individual wire race bearings as bearing elements for installation in the customer's construction to complete bearing assemblies. On request in customised design, with gearing or with integrated torque motor. Franke linear systems are available in a wide range of variants, including even unusual areas of application such as amagnetic environments, clean rooms or vacuum.

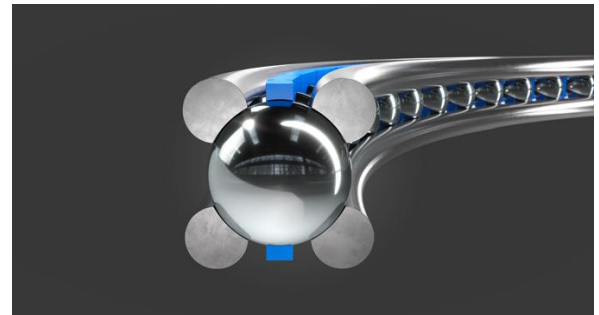


Fig. 2: The races have raceways optimally adapted to the ball diameter for high load capacity and smooth running.

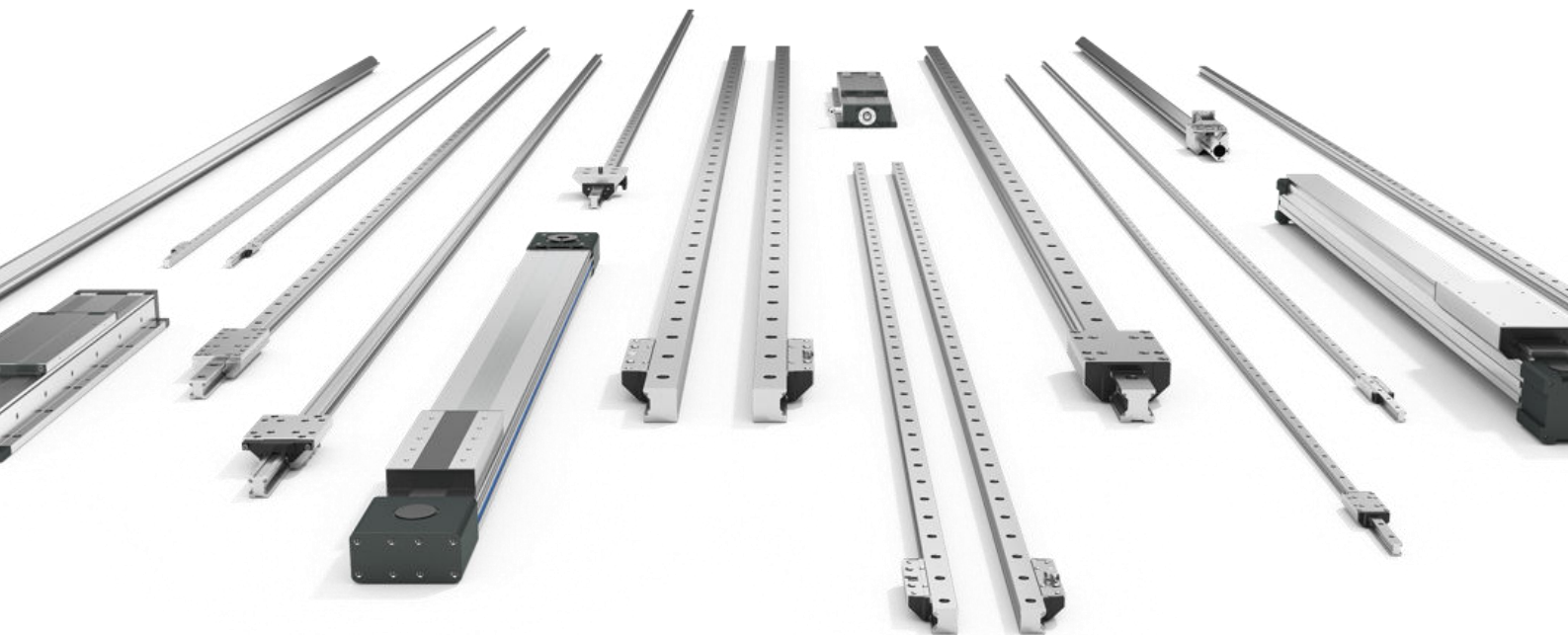


Fig. 3: Franke linear systems work on the same principle of inserted raceways made of spring steel as the rolling medium.

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The wide variety of variants and options make Franke wire race bearings and linear systems the first choice for complex motion tasks with special requirements in terms of design, load capacity or ambient conditions.



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## Application example bearing assembly: Beverage filling

### Requirements

Precise filling quantities of beverage products are filled into bottles with the highest microbiological and hygienic safety. The core of the machine is a filling tube whose inlet opening has a diameter of 40 to 100 mm, depending on the size of the filling line. The column is used to fill the carousel is realised via the column. The column is supported by one fixed bearing and one floating bearing. The roller bearings used must be lubricant-free and corrosion-resistant.

### Solution

Customised bearing assembly of the LDC 250 series as a angular contact ball bearing.

### Advantages

The bearing assembly is designed as a food-grade, corrosion-resistant version with balls made of oxide ceramics. The bearing assembly runs at a speed of 10 rpm and has a radial and axial runout of 0.03 mm. Axial forces of 1500 N acting through the filling tube are absorbed by the bearing assembly.

The components are heated to 130°C every 48 hours to kill germs. To meet the hygienic requirements, the bearing assembly has a special lubrication with food-grade grease.



Fig. 4: Franke bearing assembly in a bottling plant for beverages.

## Application example linear guides: Tubular bag packaging

### Requirements

The packaging machine operates at high speeds. The linear guide used must be resistant to aggressive environmental conditions (e.g. salt, sugar, splash water). The machine has stroke lengths of 1500 mm to 2100 mm. The average mileage is 30,000 km per year.

### Solution

The aluminium roller guide of the series FDC20.

### Advantages

With the FDC aluminium roller guide, high speeds of up to 10 m/s can be implemented. Lifting distances of any length are possible. Components made of aluminium and corrosion-resistant steel as well as the sealing of the rollers in the cassettes make the system insensitive and suitable for foodstuffs.

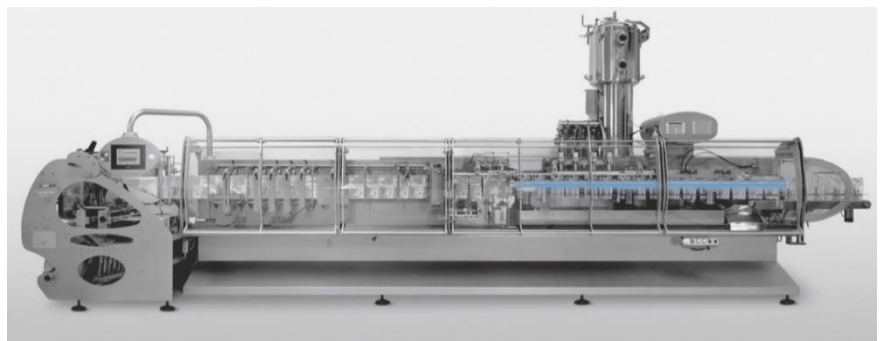


Fig. 5: Franke linear guides in a tubular bag packaging machine.