



**FAG**



added  
competence

## Bearing Supports for Food Processing and Packaging Machines

**SCHAEFFLER**



added  
competence

## Added competence for your success

With their trend-setting bearing solutions for ball screw supports, main spindles, rotary tables and linear guidance systems, INA and FAG have been leaders on the global market for decades. However, in most cases, the bearing components alone are not the decisive factors for these machine subsystems.

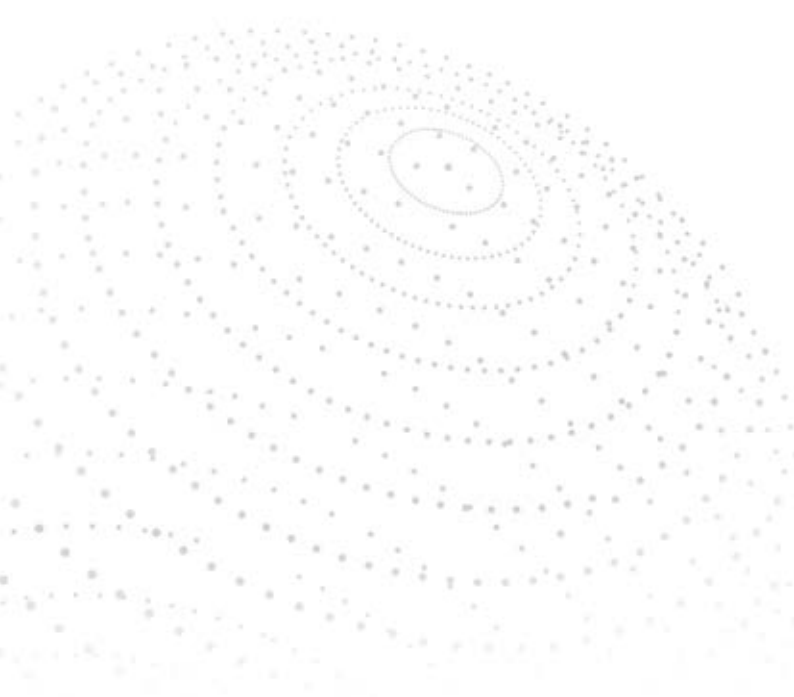
Our customers still benefit from a significant increase in efficiency and unique selling points for our “ready-to-mount” products. After all, these compact bearings are put into operation with this basic principle in mind: unpack it, bolt it on, and it’s ready to use. Also, the integration of important functions such as measuring, sealing, lubrication, braking, and so on in the components themselves becomes increasingly important alongside the bearing supports for optimizing the entire production machine system. This approach lives up to our strategy for production machinery called “added competence,” since it centers on the idea of system solutions for the bearing, bearing support position and the complete system. This means that you now have access to a range of products that covers all your production machine applications.

We have added another exceptional partner to our group of companies – IDAM (INA Drives & Mechatronics), since direct drives and mechatronic solutions are increasingly put into operation in production machines. This means that with the bearing components and the right drives, we supply complete systems from a single source to meet all your requirements.

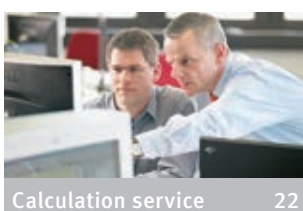
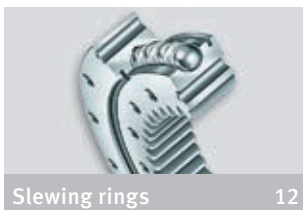
This opens up a wealth of new technical and commercial design scopes for your applications as well as considerable advantages regarding time and process chains. As far as products are concerned, we offer a comprehensive, well-balanced range, precision technology and the highest quality. A global network of engineers, service technicians and sales technicians is available in order to keep up with the pace of your developments, thereby ensuring constant communication between you and us.

We always have the right product for your application.

Just ask us about it.



## Our range of products and services for your sector



The processes involved in manufacturing foodstuffs must be highly efficient and cost-effective. These processes are usually fully-automated and often take place under extreme operating conditions. This requires a high level of safety and reliability. This means that high-quality machine components designed for continuous operation are essential. Our contribution: robust bearings with corrosion protection and effective seals that are often lubricated for life for reliable operation around the clock. Modern materials and surface coatings, undergoing continuous development work, give our bearings the necessary edge in terms of operating life.

Whether you require radial insert ball bearings, track rollers, slewing rings, our entire range of linear products, catalog bearings or a customized unit, for all these INA and FAG products, your benefit is the focus of our developments.

- Reducing the number of interfaces by integrating functions
- Compact designs
- Freedom from maintenance
- Reliable operating life
- Components and subsystems that are matched precisely to one another

Place your trust in quality and a wide variety of products from one source. We look forward to working with you.

## FAG Deep groove ball bearings: World champions in application



Reliable quality: FAG deep groove ball bearings in a bottle labeling machine (Photo: KRONES)

Behind the range of ball bearings offered by Schaeffler stands FAG, a brand that can look back over more than 100 years of tradition. The FAG name continues to stand today for precision, quality, reliability and innovation.

Deep groove ball bearings are the most widely used of all rolling bearings. Accordingly, they are often used in food processing and packaging machinery.

### **Cost-effective and readily available**

Deep groove ball bearings are cost-effective, readily available and easy to maintain. We continuously improve and adjust the quality of the bearings to meet the increasing and often varying requirements of industry. High-quality materials and precision-machined surfaces ensure reliability and reduce running noise, even in the case of tilted bearings.



Standard deep groove ball bearings with steel or plastic cages, with or without seals

**A wide variety of volume-produced products and special solutions**

FAG deep groove ball bearings are available as volume-produced products in a wide variety of designs, with cages made from sheet steel, polyamide or brass, with various seal types and also from corrosion-resistant steel.

High-performance corrosion-resistant steels and ceramics are available for applications that require extremely corrosion-resistant and wear-resistant bearing supports. This enables media lubrication and even dry running.

Ask about our special bearings!

**Modern sealing concepts**

Characteristics such as the quality of materials, seal design, the lubricant selected and reliable adherence to tolerances are decisive factors for the operating life of a bearing. Using sealed

FAG deep groove ball bearings that are greased for life is the simplest way to ensure success. The grease type and quantity and the seals themselves are perfectly matched to each other. Our recommendations for deep groove ball bearing seals in this sector are RSR or HRS, depending on requirements and

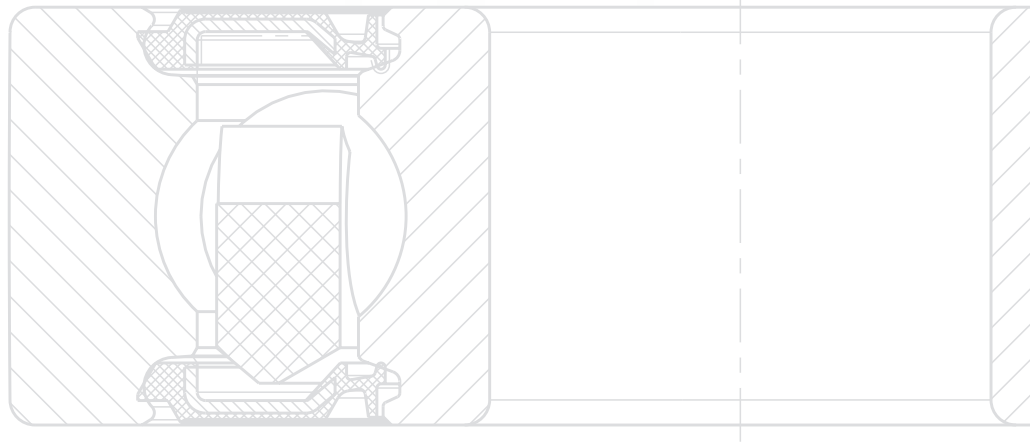
the ambient conditions. RSR sealing shields offer a balanced relationship between friction and sealing action and are suitable for damp operating conditions. The HRS seal is a new development. An optimal seal lip geometry and the narrowest tolerances ensure the bearings have a long operating life.



Well-thought out right down to the last detail: The HRS seal is the winner in the category "Seal integrity under exposure to water"



Ball bearings of high-performance corrosion-resistant steel with ceramic balls for extremely high requirements



## Robust and cost-effective: Radial insert ball bearings and ...



Safe for use with foodstuffs and protected against corrosion: Plastic flanged housings in a waffle conveyor belt system (photo from TMF Belting Systems B.V.).

Modern housing units are often so similar, it is hard to tell them apart. The same rolling bearing steel or cast iron, similar cages and housing designs, series according to DIN or JIS standards, and so on. However, the differences are apparent upon closer inspection.

### Robust and zinc-plated: Our three-piece seal concept

We have developed a unique seal system from three components – an outer cap, seal lip and inner cap, that covers nearly all operating and ambient conditions.

The advantages at a glance:

- A concentric seal contact surface means that the sealing action and operating life are considerably improved
- Mechanical protection due to outer caps that extend towards the center of the bearing
- Zinc-plated inner and outer caps
- Seal lips for standard applications as well as for operation in high and low temperatures
- Rolled in sheet steel seals for fixed seal seating and easy relubrication

### Durable and protected against corrosion by corrosion-resistant steel and Corrotect® N

Radial insert ball bearings made from corrosion-resistant high-alloy rolling bearing steel are available where high demands are placed on corrosion protection. These are essential if it is anticipated that the bearings will come into contact with foodstuffs.

As a cost-effective alternative to bearings made of corrosion-resistant steels, radial insert ball bearings are available with the Corrotect® N special coating. You can find more information in the section “Coatings” on page 20.

### Flexible and effective: Location methods

You can choose between five location methods for INA radial insert ball bearings.



Radial insert ball bearing made from stainless steel with food grade grease



Radial insert ball bearing protected against corrosion by Corrotect® N plating

## ... housing units made of cast iron, sheet steel, plastic

The standard methods are those using eccentric locking collars or grub screws that enable the bearings to be mounted quickly and cost-effectively.

### Versatile and cost-effective:

#### INA housing units

Radial insert ball bearings made of corrosion-resistant steel in various types can be combined with:

##### a) Plummer block housings

- made of solid cast iron or
- sheet steel – particularly cost-effective and light, painted or coated with Corrotect® N

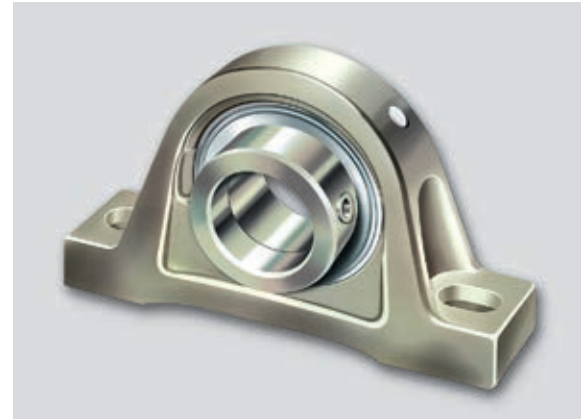
##### b) Flanged housings

- in two-bolt or four-bolt designs
- made of plastic – where high demands are placed on hygiene and corrosion protection.

We can supply you with the correct housing unit for practically every application.

The benefits for you are clear:

- particularly economical – without engineering compromises
- easy to fit
- robust and reliable
- shaft misalignment is prevented by the self-alignment facility.

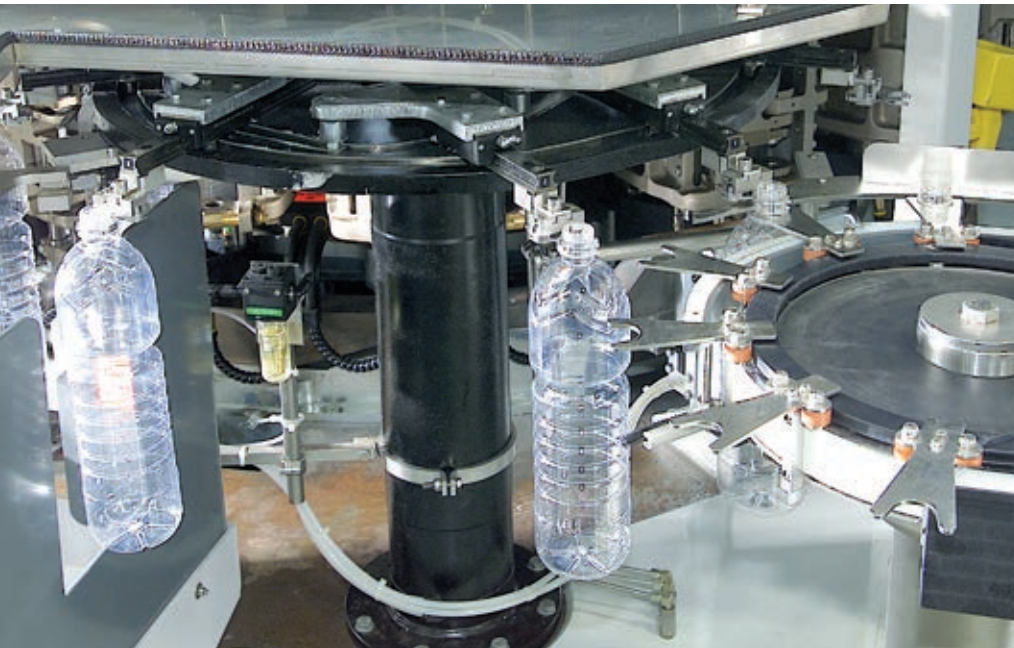


Cast iron plummer block housing with a radial insert ball bearing protected by Corrotect® N



Suitable for use with foodstuffs: Corrosion-resistant radial insert ball bearings with plummer block and flanged housings made of plastic

## Higher operational safety due to technical superiority



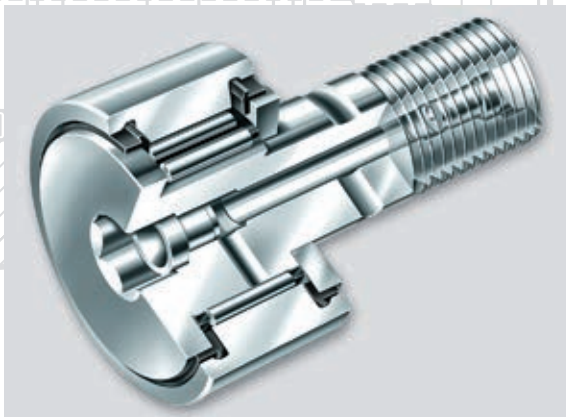
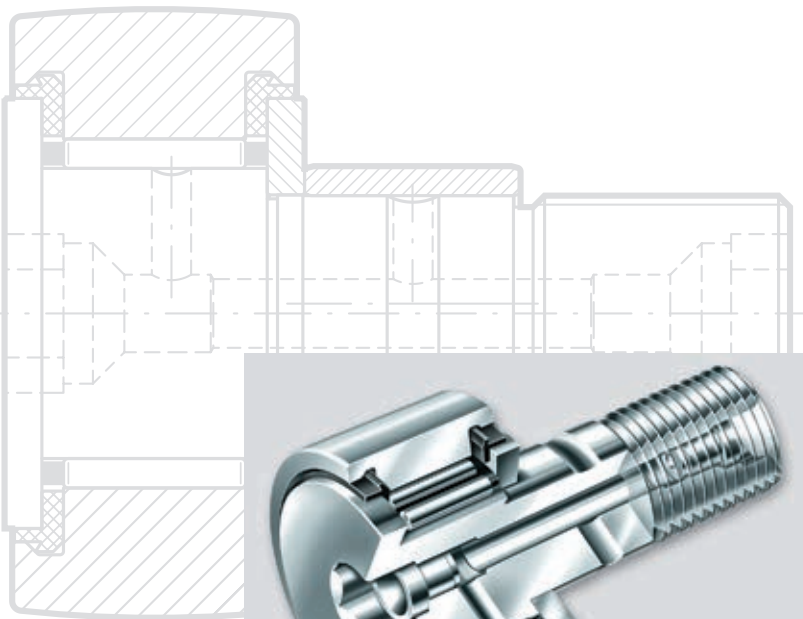
No wear on the outside surface and mating track: INA stud type track rollers with Triondur coating in the cam control system of a star wheel transfer unit for a PET bottle filling machine (Photo: KRONES)

INA track rollers with an optimized outer surface are significantly superior to conventional components. The Hertzian pressure at the contact point is always lower than conventional track rollers – with or without tilting. This reduces wear of the mating track.

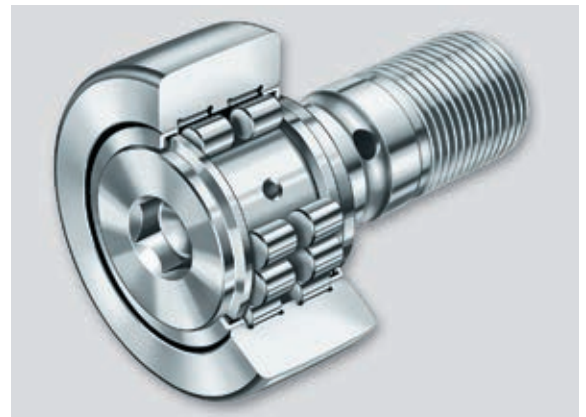
### Track rollers as an economic factor

Due to their many technical advantages, our track rollers generate an added economic benefit for machine operators, for example in bottling plants. They require little space and operate reliably with low wear. They seldom require relubrication thanks to their large grease reservoirs and particularly effective seals. The user benefits from reduced maintenance requirements and lower costs.

Perfecting existing products in order to increase their benefit for users is one of the demands Schaeffler places on itself



Long relubrication intervals: Stud type track roller KR...-PA based on a needle bearing with seal



Low maintenance due to large grease reservoirs: Stud type track roller PWKR for heavy loads



as an engineering partner to its customers. Significantly increased operating reliability and a longer operating life were the objectives of a further stage in development of yoke type and stud type track rollers based on needle bearings. The result: redesigned thrust and sealing rings made of wear-resistant plastic.

#### High-tech concepts

We can offer you the right product even for extreme operating conditions such as high humidity and constant exposure to water. Our special Corrotect® coating can be applied to track rollers during manufacture. Or perhaps you'd be interested in one of our high-tech track roller concepts based on the high-performance corrosion-resistant steel Cronitect®?

Used in conjunction with ceramic balls, even the most difficult applications with media lubrication up to dry running can

be controlled. The significantly increased protection against corrosion compared with conventional corrosion-resistant rolling bearing steels provides the user with considerable economic benefits. You should also talk to us if you are looking for a solution where the wear resistance of the outer surface of the track roller and the mating track have been considerably improved.

You will find more information in the sections Materials and Coatings starting on page 18. Speaking to us personally is even more effective – contact us to arrange a consultation with our specialists.

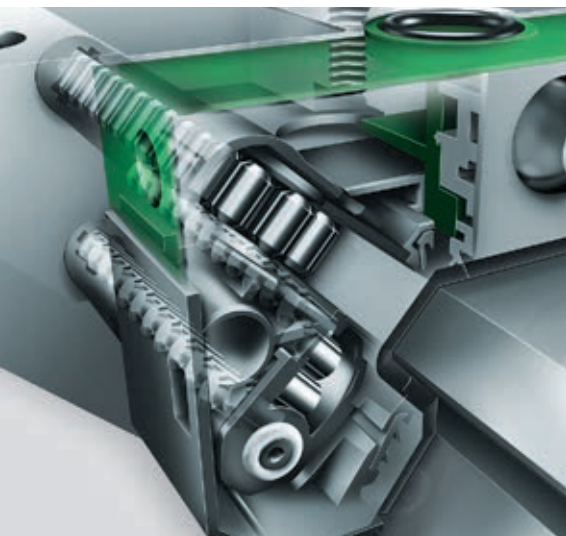


Extremely high load capacity:  
Yoke type track roller with large grease reservoir



Low-friction running and very long maintenance intervals – track roller LR52

## High performance, straight down the line: From linear guidance systems...



40% less displacement resistance: New RUE25-E linear recirculating roller bearing and guideway assembly

INA linear technology stands for a wide variety of high quality products – tried and tested and full of interesting ideas. We can offer the best technical and most cost-effective solution for every application.

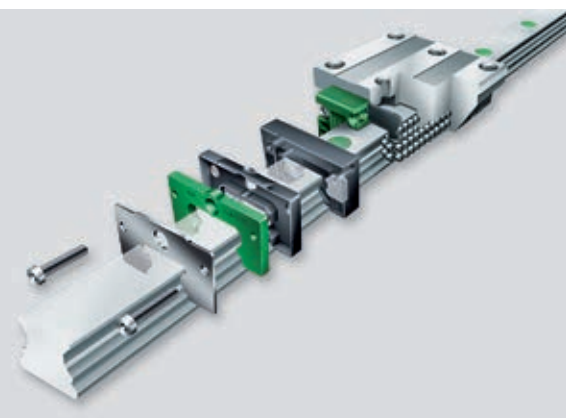
### **INA monorail guidance systems – a modular concept full of good ideas**

Four-row linear recirculating ball bearing and guideway assemblies KUBE-B and series RUE-E linear recirculating roller bearing and guideway assemblies are among our classic products. Both systems, whether with balls or rollers, are based on a modular concept and are highly functionally integrated. Users have very little maintenance to carry out thanks to the lubricant reservoirs integrated directly on the raceways and/or a valve function for ensuring the supply of lubricant irrespective of position.

We have a wide range of components and accessories for our recirculating guidance systems, such as:

- Various carriage geometries
- Braking and clamping elements
- A large selection of guideways (standard, for screw mounting from below, with teeth, with covering strips, etc.)
- Integrated measuring systems for ball bearing and guideway assemblies
- Damping carriages for linear recirculating roller bearing and guideway assemblies

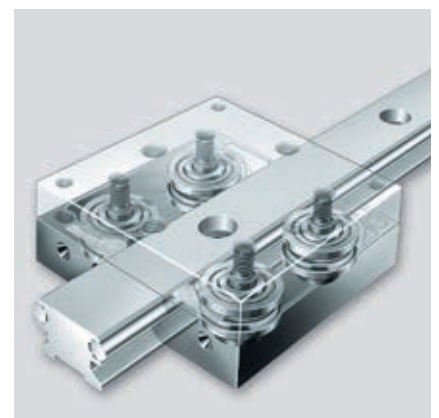
We recommend our service kit for monorail guidance systems especially for the food processing and packaging industry. This is a finely-matched sealing and lubrication concept for taking account of all ambient conditions. It contains components such as front and additional wipers, sealing strips, long-term lubrica-



The right accessories for every application: Service kit for monorail guidance systems



Characterized by long operating life: Lightweight linear ball bearings KN..B



Speeds up to 10 m/s with low friction: Track roller linear guidance systems LF in lightweight design

## ... to customized system solutions

tion units and a series of relubrication components. These accessories protect the running system of the guideways against contamination, ensure lubricant is provided when required and give long relubrication intervals.

### The I-D-E-A-S concept: Keeping the customer in mind

Literally no other manufacturer can supply all the components for standardized or customer-specific system solutions for automation in manufacturing. Our systems specialists have access to one of the world's most-comprehensive ranges of linear and rotary rolling bearing products. They provide a large variety of mechanical and mechatronic components as well as Schaeffler's entire range of replacement part and after-sales services.

### Three options for system solutions

Manufacturing system solutions is one of our Linear Technology sector's core areas of expertise. During this process, we provide support to our customers and sales partners with their requirements, even with very complex tasks.

#### 1. Mechanical systems

This includes the complete range of services related to our catalog products such as linear modules and linear tables.



INA linear recirculating roller bearing and guideway assemblies in a packing and palletizing robot mean that the required precision at high loads as well as long-term process reliability are ensured for the machine manufacturer (Photo: KRONES)

#### 2. Mechatronic systems

We combine linear actuators and linear tables with perfectly-matched power transmission technology such as motors, gearboxes, control systems and sensors.

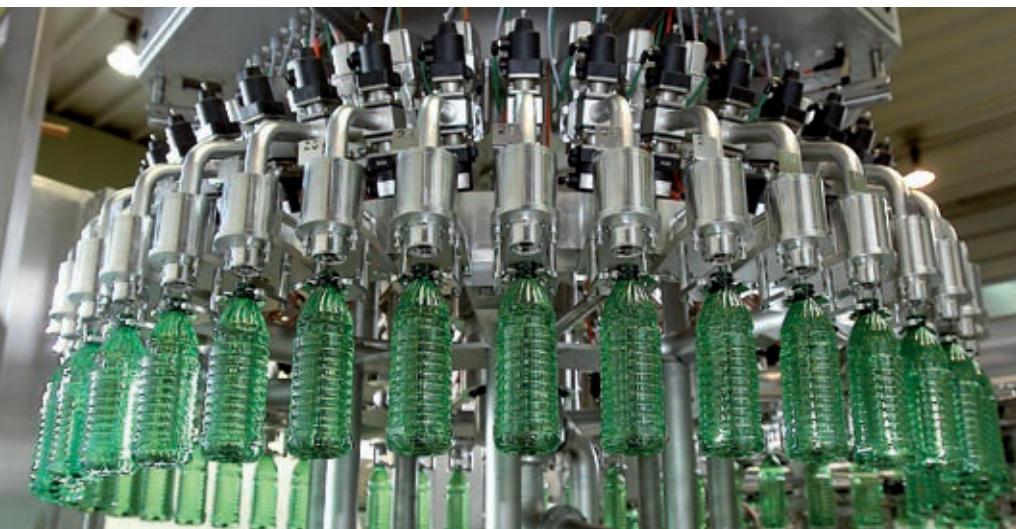
#### 3. Individual system solutions

In close collaboration with our customers we develop the best possible individual system solution for them – adapted specifically to their needs and the requirements of the task involved.

Idea  
Development  
Engineering  
Application  
Service

# I-D-E-A-S

## More security for large bearing positions



Total reliability required: The high performance capacity of slewing rings is required in product fillers for PET bottles (Photo: KRONES)



It's not always small bearings that are required in food processing and packaging machines. Consider the example of a filling plant. The load carrying capacity of large slewing rings is required for the secure bearing supports of the product fillers, star wheel transfer units or rinsers



For compact drive concepts: Four point bearings can be supplied with internal or external teeth

for cleaning bottles. Total reliability in damp and aggressive operating conditions is also required here.

We can meet these very high demands with our comprehensive range of slewing rings. The choice is yours – four point contact bearings or crossed roller bearings, heavy or light series, with internal or external teeth, sealed, and so on. Our range extends from “small” to “large”, up to 4 meters in diameter. This means we also have the right bearing for the largest machinery in the industry! We would be only too happy to help you select the solution you require.

And if your idea can't be put into practice with a standard bearing from our range, then we can develop a special solution with you.

Both in the case of standardized or customized products, one thing is guaranteed. You will receive a high-quality product from Schaeffler – reliable, precise and economical.



Save on one bearing position: INA crossed roller bearings XSU support radial and axial loads, tilting moments as well as any combination of loads

## The correct lubricant for every application

A well thought-out design and precision manufacturing are behind every high-quality rolling bearing. However, lubrication plays an important role in determining the reliability and operating life of a bearing. Selecting a suitable grease, the effect of the additives, cleanliness in terms of contaminants and compliance with the specified lubrication intervals help to determine the quality of the system. We can also recommend the right grease for every application as part of our service. Regardless of whether this is for initial greasing or relubrication during maintenance.

We thoroughly test the technical performance of all lubricants that we use for the initial greasing of our products. You will find a selection of greases for initial lubrication suitable for your sector in the table below.

Whether you require food grade, media resistance, anti-wear and anti-corrosion protection, you will find the right grease for any application in the Arcanol range.



Testing in our in-house lab:  
Analysis of lubricants for water content



	NSF-H1 approval	NSF-H2 approval	Media resistance	Low operating temperatures	High operating temperatures	Anti-wear protection
Greases for initial lubrication (selection)						
L 077	■		■		■	
L 091				■		
L 114			■			■
L 271						■
L 281		■	■			■
L 289	■					
L 448						■
L 460	■					

Not every grease is the same: We lubricate our bearings to meet the precise requirements of your application

## Drives with a system – dynamic, flexible, precise



Rotary direct drive system RDDS-1-A for the transporting star wheels in bottle filling machines: reliable and dynamic

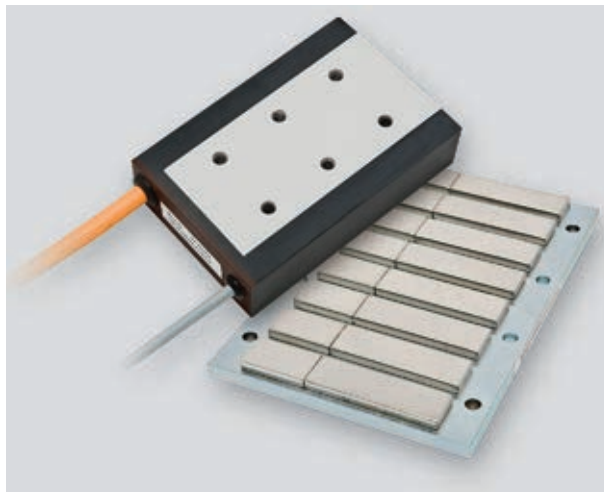
Direct drives from the Schaeffler subsidiary IDAM (INA Drives and Mechatronics) are state-of-the-art and offer the right solution for every application. These virtually wear-free drives have the following advantages: high speed variability, excellent dynamics and rigidity, and as a result, tracking accuracy, high final speeds, high accelerating and stopping capability as well as the highest positioning and repeat accuracy. We offer linear, rotary and two-coordinate direct drives in a wide range of sizes and capacities as well as all the electronic assemblies required for operation.

### Linear motors

Our compact L1 series of motors is especially suitable for handling systems and for transporting small and medium sized masses. They fulfill high requirements in precision and dynamics.



Torque motor RI: compact and powerful



Type L1 linear motor: innovative and economical

Our ironless UPL series of printed motors make a convincing case thanks to their high cost effectiveness and energy efficiency. UPL linear motors are extremely well suited to applications in which excellent path and positioning accuracy, outstanding dynamics, the shortest possible response times, and a compact design are key. They are available in lengths of 34 mm to 258 mm and with a force range of 10 N to 240 N. They can achieve speeds of up to 10 m/s at 120 V<sub>DC</sub> intermediate circuit voltage.

#### Torque motors

IDAM torque motors are ideal for applications that require high torque and smooth running behavior. Slotted high-torque synchronous motors designed as internal and external rotors are charac-

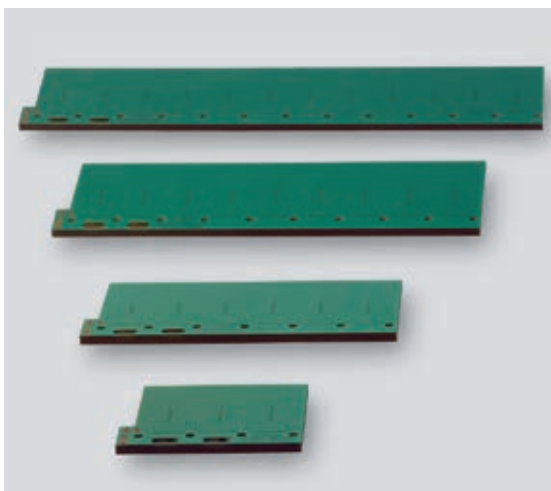
terized by efficient power generation, maximum power density, high acceleration capability and high final speeds. These power packs are contact-free and operate without wear and friction.

#### System solutions

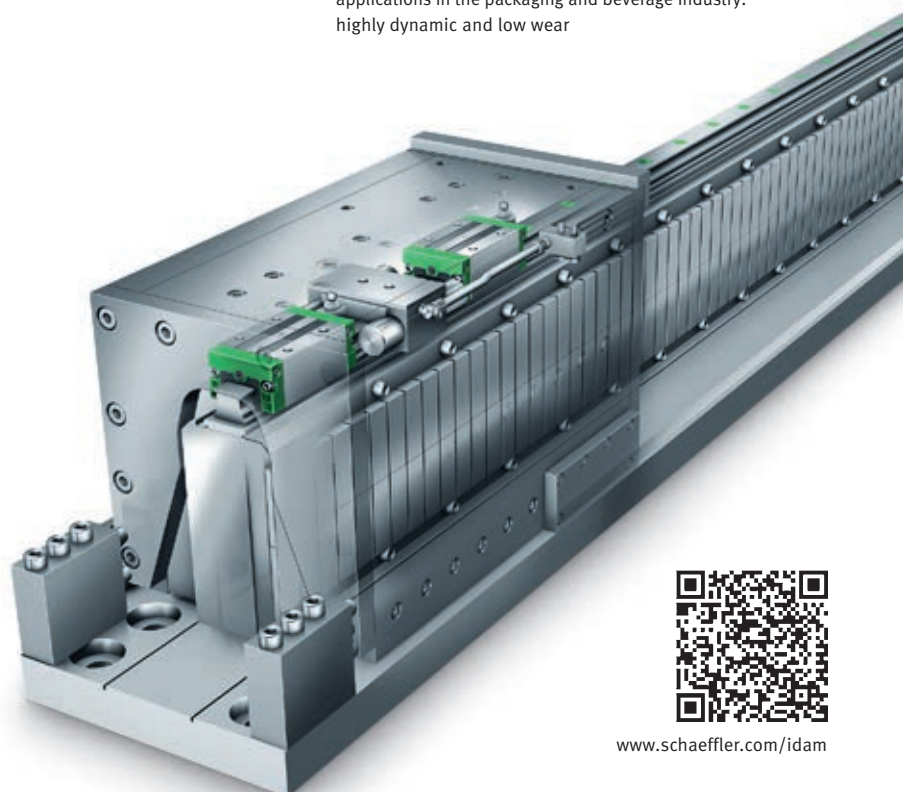
The strength of our “added competence” approach is particularly apparent with our system solutions. By forming development partnerships with our customers and through continuous interdisciplinary cooperation within Schaeffler, we can provide high-performance customer-specific system solutions. This is how we produce innovative mechatronic solutions that provide you with completely new concepts. A system comprising a bearing and motor, ready-to-install, perfectly matched and all from one source.



Linear direct drive system LDDS-077 for vertical applications in the packaging and beverage industry: highly dynamic and low wear



UPL primary parts in various sizes: efficient and precise



## Professional, reliable, versatile: Industrial Services



Generating customer benefit is one of the guiding principles of Industrial Aftermarket (IAM), which is responsible for the replacement parts and service

business at Schaeffler. This is because we offer our customers sustainable solutions for assembly and maintenance after they have purchased a product. Our customers can increase the operating life and performance of their production machinery with our extremely wide range of products and services.

All Schaeffler's product manufacturing and service processes are thoroughly tested and safeguarded

by means of a quality management system that is certified to ISO 9001.

### Fast service for mounting

Our HEATER induction heating devices make light work of bearing mounting. For example, HEATER10 can be used to heat both miniature bearings with a diameter of 10 mm and large-size bearings weighing 10 kilograms.

Schaeffler offers heating devices for volume fitting work of complete bearings, inner rings and rotationally symmetrical steel parts such as labyrinth rings, roll couplings and centering rings weighing up to 1200 kilograms.





### Effective lubrication with Arcanol greases

17 different Arcanol greases cover almost every imaginable application, since each of these greases has been specifically designed and tested. These greases have been developed by experienced Schaeffler application engineers and are manufactured by the best manufacturers on the market. What's more, Arcanol greases are subject to 100% quality inspections.



Cut your overall costs – with Arcanol greases and the FAG CONCEPT8 lubricator

### In demand: FOOD2 grease

Greases used in the food industry must fulfill particularly stringent criteria. In this sector, FOOD2, a grease tested by NSF International is often used for ball and roller bearings. FOOD2 is harmless if it comes into contact with foodstuffs.

### A highlight: Our lubricator with eight individually controllable outlets

Our compact small lubrication system, FAG CONCEPT8, provides optimum lubrication for your machines. A wide range of monitoring functions, such as the quick check function that is unique worldwide,

ensure a reliable supply of the lubrication points. The special feature of this multi-point lubrication system is that the pump bodies can be individually controlled. Our CONCEPT8 device allows you to use eight individual lubricators, which not only cuts purchasing costs, but also increases machine availability due to the reliability of this system.

You will find a comprehensive overview of all products and services in our IS1 main catalog.

### Mounting Toolbox: Take a look over the shoulder of our mounting personnel

To provide fast assistance, Schaeffler has bundled valuable knowledge about mounting and dismounting rolling bearings in its Mounting Toolbox. Videos show aspects which require special

attention when mounting, lubricating or adjusting bearings. Use our virtual workshop to receive information at the click of a button!

<http://mounting-toolbox.schaeffler.com>



## PEEK, ceramics and high-performance corrosion-resistant steel – using the right combination for success



Ceramic balls make rolling bearings lighter and more durable

Corrosion-resistant special steels, high-performance plastics, ceramics – we combine these materials with each other in order to achieve the best possible bearing properties. The purpose determines the material. And you determine the purpose!

### Plastics

The high-performance plastic PEEK is a modern material in the rolling bearing industry. Its effective media resistance in particular makes it invaluable for demanding bearing applications in the foodstuffs sector. However, it is not only the plastic itself that influences the properties of the bearing. The type and quantities of fillers such as glass fiber, graphite or PTFE also play an important role. We specify

the “right” combination of all components separately for each application. This ensures that the bearing cage or the plastic tire of a yoke type track roller are all matched to the purpose in the best possible way. Use our expertise to find the best solution regarding dry running characteristics, mechanical stability or media resistance for your application.

### Ceramic

Ceramic is the supermaterial for rolling bearings since it is light and durable. Bearings with ceramic balls (hybrid bearings) have significant advantages since the bearings demonstrate considerably longer operating life, can achieve higher speeds, have lower bearing temperatures and require less lubrication.



It all depends on the right combination – various ball cages made of plastic and metal



Durable and low-noise: This track roller with a plastic tire operates quietly and without lubrication



### High-performance corrosion-resistant steels

The advantages offered by ceramic balls become particularly significant when used in conjunction with our new high-performance corrosion-resistant steels. The starting point for our developments in this area was a vision. This vision was to create a rolling bearing that no longer requires lubricant, is not affected by media such as water and cleaning agents, can cope with an atmosphere saturated with hydrogen peroxide and can even operate reliably and for a long time under dry running conditions.

With Cronidur and Cronitect®, we have come a great deal closer to realizing this vision. Due to the finely embedded

nitrogen in the material matrix, these materials are far superior to conventional corrosion-resistant rolling bearing steels (e.g. 440C) in terms of corrosion resistance, fatigue life and wear resistance.

### Comparison of the media resistance of various steels

Name of material		100Cr6	X46Cr13	X90Cr MoV18	440C	Cronitect®	Cronidur
Suitability for use as rolling bearing steel		++	-	+	+	++	++
<b>Medium 20 °C</b>	<b>Conc. in %</b>						
Salt water	4	--	--	-	--	-	+
Hydrochloric acid HCl	0.1	--	--	--	--	--	++
Sulfuric acid H <sub>2</sub> SO <sub>4</sub>	10	--	--	--	--	--	--
Nitric acid HNO <sub>3</sub>	5	--	++	++	--	++	++
Phosphoric acid H <sub>3</sub> PO <sub>4</sub>	10	--	-	+	+	-	++
Citric acid C <sub>6</sub> H <sub>8</sub> O <sub>7</sub>	25	--	-	+	--	++	++
Sulfurous acid H <sub>2</sub> SO <sub>3</sub>	1	--	--	-	--	--	++

++ resistant + moderately resistant - hardly suitable -- not resistant

## Versatile protection – from Corrotect® to Triondur®



Improved performance thanks to coatings: Schaeffler modular coating systems at a glance

So that standard components operate for long periods and with high operational reliability in extreme operating conditions, Schaeffler has developed several coatings for such requirements. These coatings influence the run-in behavior and emergency running characteristics and optimize the corrosion protection as well as the wear and friction behavior. In addition, we have an entire range of coatings that offer protection against

abrasion, lubricant starvation, false brinelling, aggressive media or the passage of electrical current.

### Unbeaten in the fight against corrosion – Corrotect® special coating

Corrotect® offers the best anti-corrosion protection of all Schaeffler's special coatings. Corrotect® is an extremely thin, corrosion-resistant cathodic layer that is applied using electroplating methods.

Under load, this layer is rolled into the surface and partially worn away. It protects rolling bearings and the running surfaces of seals against corrosion for long periods of time. The coating is resistant to condensation water and contaminated water.



### Tribological coating systems

Durotect® CK (Protect A) is a columnar thin layer chromium plating. The structured surface of the chromium layer increases the surface hardness and provides effective wear protection. The column-like geometry of the layer has a positive effect on the build up of oil pressure, forms lubricant pockets and therefore prevents lubricant starvation under extreme operating conditions.

Durotect® CK+ (Protect B) is a suitable alternative if additional anti-corrosion protection is required. A top layer of chromium mixed oxide is applied in addition to the thin layer chromium plating Durotect® CK. This assists the lubricant and offers effective protection against corrosion under high operating

temperatures and aggressive operating conditions. Durotect® CK+ for example, is resistant to various chlorides, oils, sulfur compounds and weak acidic media.

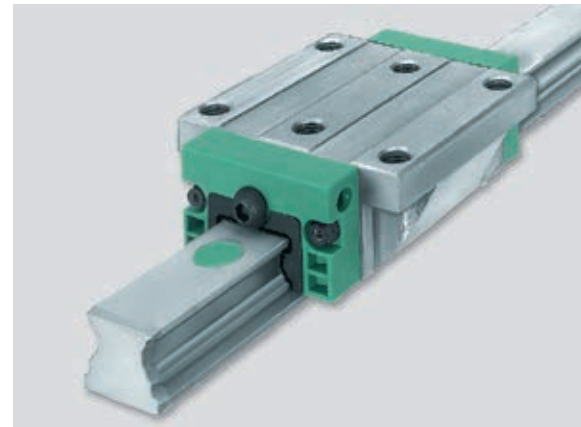
### Extreme wear resistance with Triondur®

Triondur® coatings systems have up to 80% lower friction coefficients compared with dry steel-steel contacts. The coating offers durable protection in cases of high tribomechanical stresses, lubricant starvation and dry running.

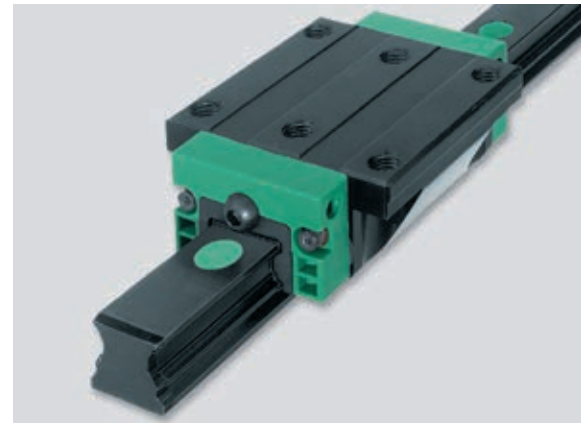
Track rollers protected by Triondur® coating offer high operational reliability. This extremely hard PVD/PA-CVD coating, which is only a few µm thick, effectively protects stud type track rollers and cam plates against wear.



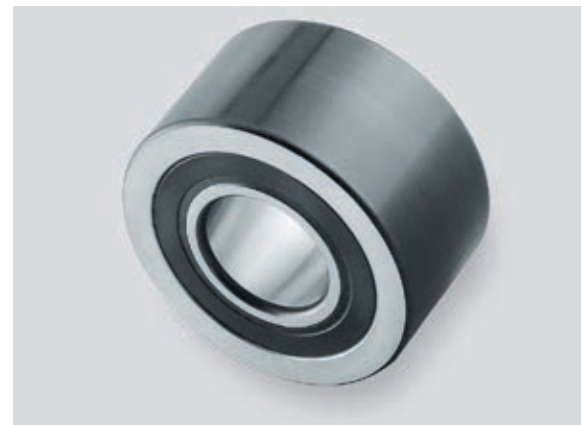
After a 24-hour salt spray test:  
A bearing coated with Corrotect®  
compared with an untreated bearing



Authorized for use in direct contact with foodstuffs:  
Durotect® CK protects against wear



Durotect® CK+ is effective against heavy corrosion  
and high wear



Triondur® protects against severe wear during  
sliding stress or insufficient lubrication

## Calculated safety with BEARINX®



Bearing design using Bearinx®: Operational reliability for bearing supports in customers' applications by modeling all boundary conditions

Even the best product is worthless if it is incorrectly used. So you should draw on the experience and expertise of our engineers in bearing design and calculation.

For example, by using the BEARINX® calculation program, rolling bearings can be analyzed in detail – right down to a single rolling contact. It is possible to experiment with the influence of various measurables and operating conditions during various optimization steps. The results show how the bearing support is stressed under the various load conditions. The program enables the bearings to be dimensioned according to the application. During simulation, the optimum design for the application can be determined easily and cost-effectively by changing the position, type and size of the bearing.

Schaeffler's calculation service is rounded out by FEM analyses, dynamic simulations or measurements at the customers' premises.

**medias®**

RollerBearing - Rolling and plain bearings, accessories -> EGB-E40

Series selection: Product selection Product data Description Conditions CAD Shipping booked Order

**Bushes EGB-E40**  
maintenance-free, with steel backing

	D	D <sub>1</sub>	B	
	mm	mm	mm	mm
EGB0303 E40	3	4.5	3	3000
EGB0304 E40	3	4.5	4	3000
EGB0305 E40	3	4.5	5	3000
EGB0306 E40	3	4.5	6	3000
EGB0403 E40	4	5.5	3	3000
EGB0404 E40	4	5.5	4	3000
EGB0406 E40	4	5.5	6	3000
EGB0410 E40	4	5.5	10	3000
EGB0415 E40	4	5.5	15	3000

**Bearing selection**

Selection criteria: Product selection Product data Description Conditions CAD Shipping booked Order

Restrictions by means of design analysis and bearing load ratings

Best overall bearing Best distribution bearing

Product	D	D <sub>1</sub>	B	C <sub>10</sub>	C <sub>90</sub>	C <sub>50</sub>	C <sub>10</sub>	C <sub>90</sub>	C <sub>50</sub>	C <sub>10</sub>	C <sub>90</sub>	C <sub>50</sub>	C <sub>10</sub>	C <sub>90</sub>	C <sub>50</sub>
EGB0303 E40	3	4.5	3	10000	4000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000
EGB0304 E40	3	4.5	4	10000	4000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000
EGB0305 E40	3	4.5	5	10000	4000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000
EGB0306 E40	3	4.5	6	10000	4000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000
EGB0403 E40	4	5.5	3	10000	4000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000
EGB0404 E40	4	5.5	4	10000	4000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000
EGB0406 E40	4	5.5	6	10000	4000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000
EGB0410 E40	4	5.5	10	10000	4000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000
EGB0415 E40	4	5.5	15	10000	4000	10000	10000	10000	10000	10000	10000	10000	10000	10000	10000

More than just an online catalog: **medias®**, our product selection and information system – available at <http://medias.schaeffler.com>

## Global customer proximity



Schaeffler has a worldwide network of 16 research and development centers

### Schaeffler worldwide: Facts and figures

- 76,000 employees worldwide, around 6,000 of which in R&D
- Well-established in-house research facilities
- Around 40 R&D locations, 16 of which are R&D centers
- More than 1850 patent applications annually: Schaeffler is thus one of the top 4 of Germany's most innovative companies in 2012 (acc. to the DPMA, March 2013)
- Very close network of distributors: Consultation, products and services – direct and local

With a product range consisting of around 40,000 catalog products as well as numerous special designs, Schaeffler

has the widest product range in the industrial sector and is one of the world's most renowned and reliable partners to industry.

Our Production Machinery business unit regularly publishes information about innovative bearing solutions for machine tools, printing machinery, textile machines as well as for food processing and packaging machines in its sector magazine called "added competence". The current issue in seven languages is available for download here:



[www.schaeffler.com/machine-tools](http://www.schaeffler.com/machine-tools)

## Further information



### **Bearing Supports for Food Processing and Packaging Machines**

[www.schaeffler.com/packaging-machinery](http://www.schaeffler.com/packaging-machinery)



### **Services offered by Industrial Aftermarket**

[www.schaeffler.com/services](http://www.schaeffler.com/services)



### **System solutions for linear axes**

[www.schaeffler.com/systemsolutions](http://www.schaeffler.com/systemsolutions)



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