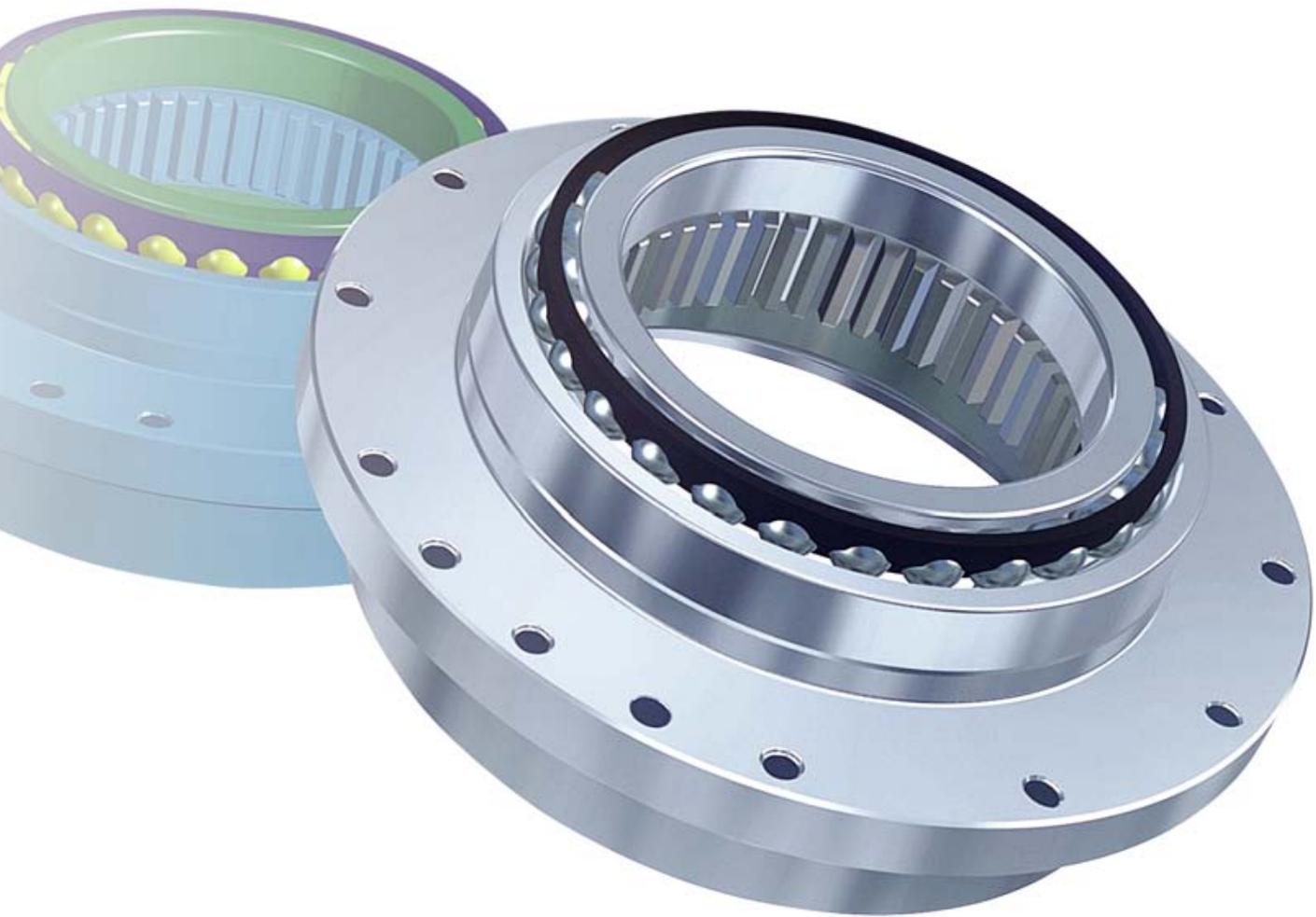




**SNR,  
special bearings**

**SNR - Industry**





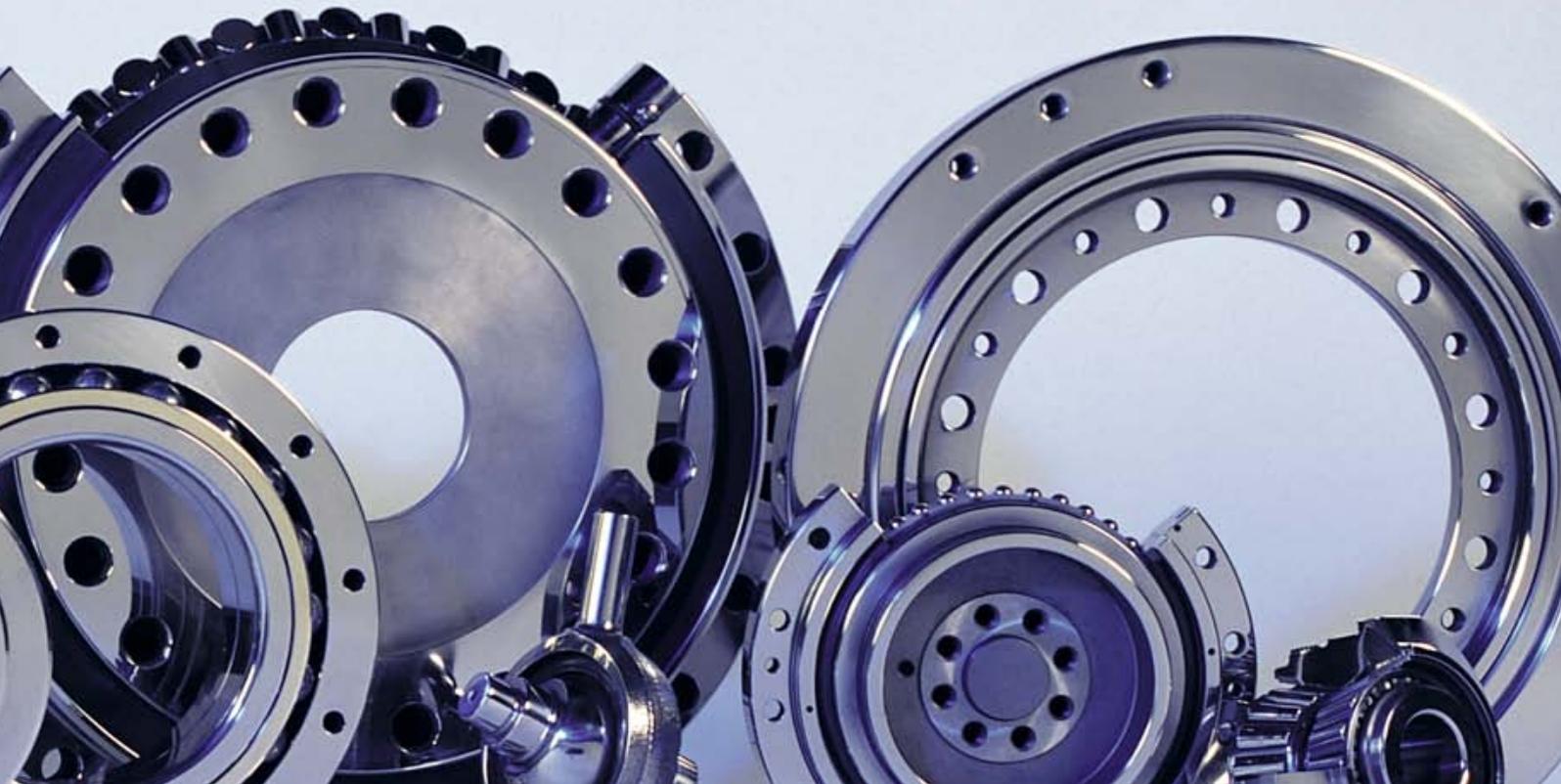
With 4700 employees, the SNR Group is active in more than 100 countries and offers, on all markets, high technology bearing solutions that are embraced by leading companies. The resources dedicated to R&D, training and product expertise are commensurate to our determination of being at the forefront of Innovation and Service. The main objective of SNR personnel is to maintain the highest quality of products and relationship with you, our customers.



# Innovate with

We have designed this brochure especially for you, the design office engineers and technicians, as you are constantly trying to improve the technical and economic performance of your products by expanding their limits.

At SNR ROULEMENTS we have found that the synergy obtained by working hand-in-hand with our customers results in original approaches to rotational functions that can remove some of the constraints limiting their products.



# special bearings

As far as you are concerned, a fruitful collaboration must be tangible at all levels: technical creativity, lasting economic competitiveness and industrial responsiveness.

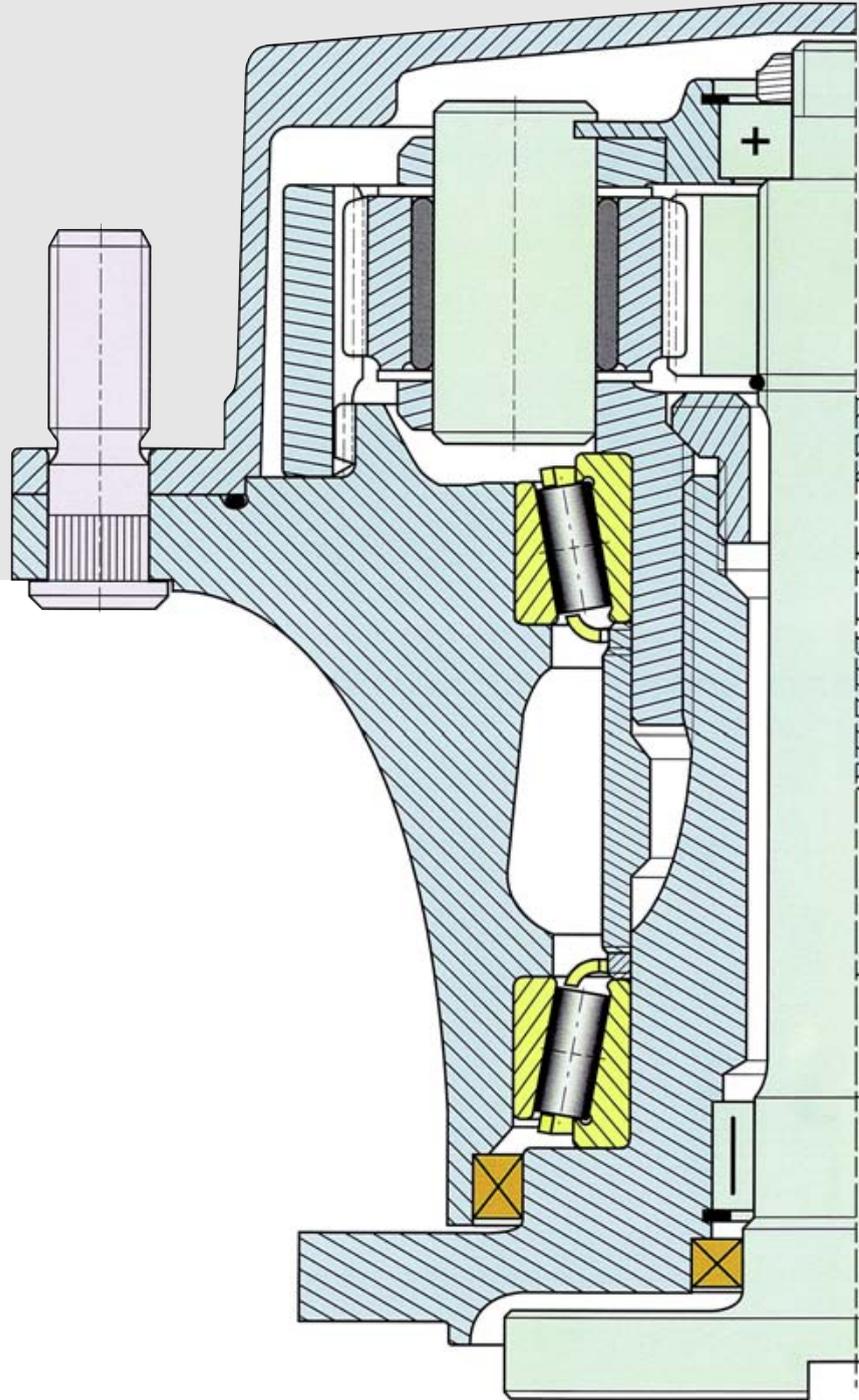
At SNR ROULEMENTS we are well aware of your expectations and have dedicated the necessary human and material resources to meet the design, production and commercial requirements of such collaborations.

This brochure illustrates some of the innovative products resulting from collaborations with customers who have chosen a partnership with SNR ROULEMENTS.

We hope these examples will demonstrate our enthusiasm and passion and convince you to join us in expanding the limits of your products.

# Your creativity is limited

Before: 26 parts



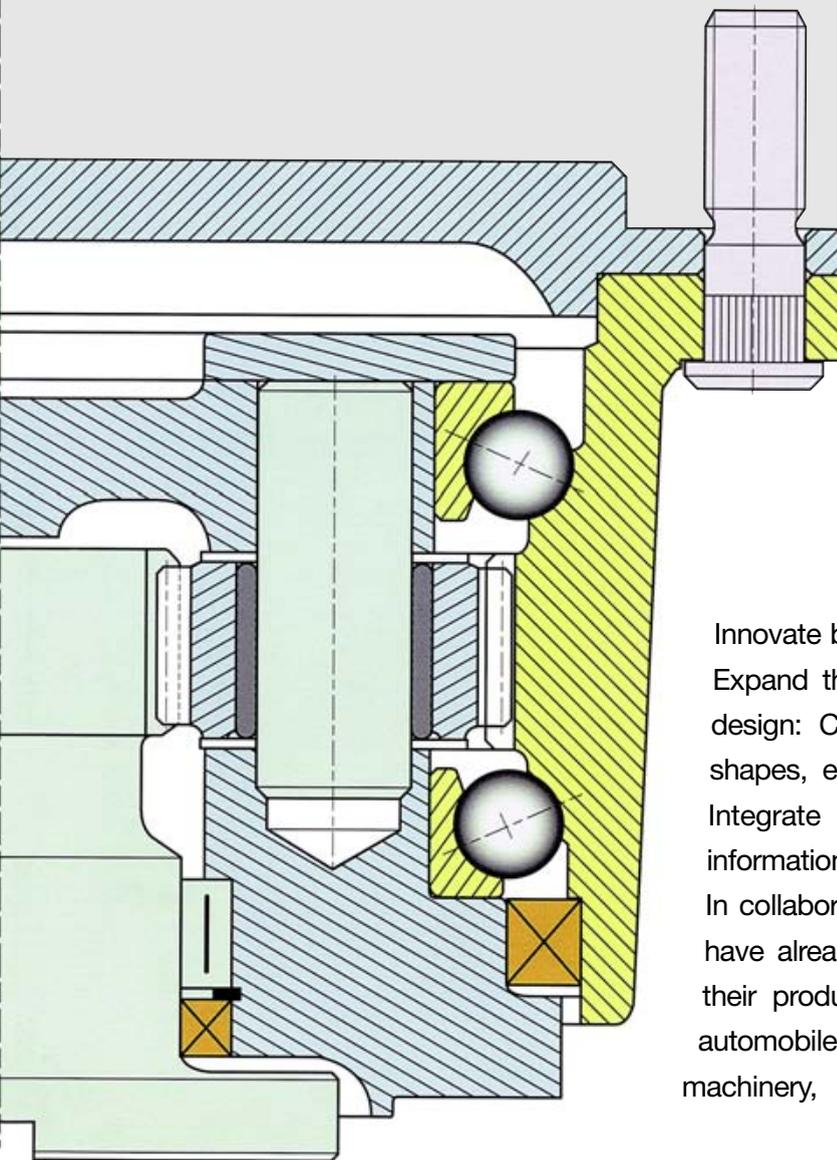
Are you trying to improve the present capabilities of you products?

Capacity (load, speed),  
Dimensions, Reliability, Cost,  
Accuracy, Weight, Rigidity, Tightness,  
Noise, Operating temperature  
Ease of production and maintenance,  
Integration with other items, etc.

When you improve certain characteristics,  
is this not often to the detriment of one  
or more other characteristics?

# by constraints: Unleash it!

After: 17 parts

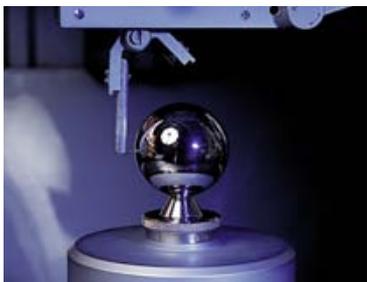


The economy achieved with the SNR ROULEMENTS solution results in 9 fewer connecting parts involving splines, centering operations and adjustments. The length is reduced by one third.

Innovate by using a higher-performance rotation system! Expand the limits of your products by creating a new design: Combine suitable steels and lubrication, new shapes, efficient rolling mechanisms appropriate seals. Integrate attaching parts, transmission systems and information sensors with fewer parts. In collaboration with SNR ROULEMENTS, many leaders have already successfully improved the performance of their products in highly demanding fields such as the automobile industry, rail transport, aeronautics, agricultural machinery, civil engineering, robotics and textiles, etc.



## An organization structured to establish



The quality system has had ISO 9001 certification since 1990

All customer-assisted developments follow our certified procedures

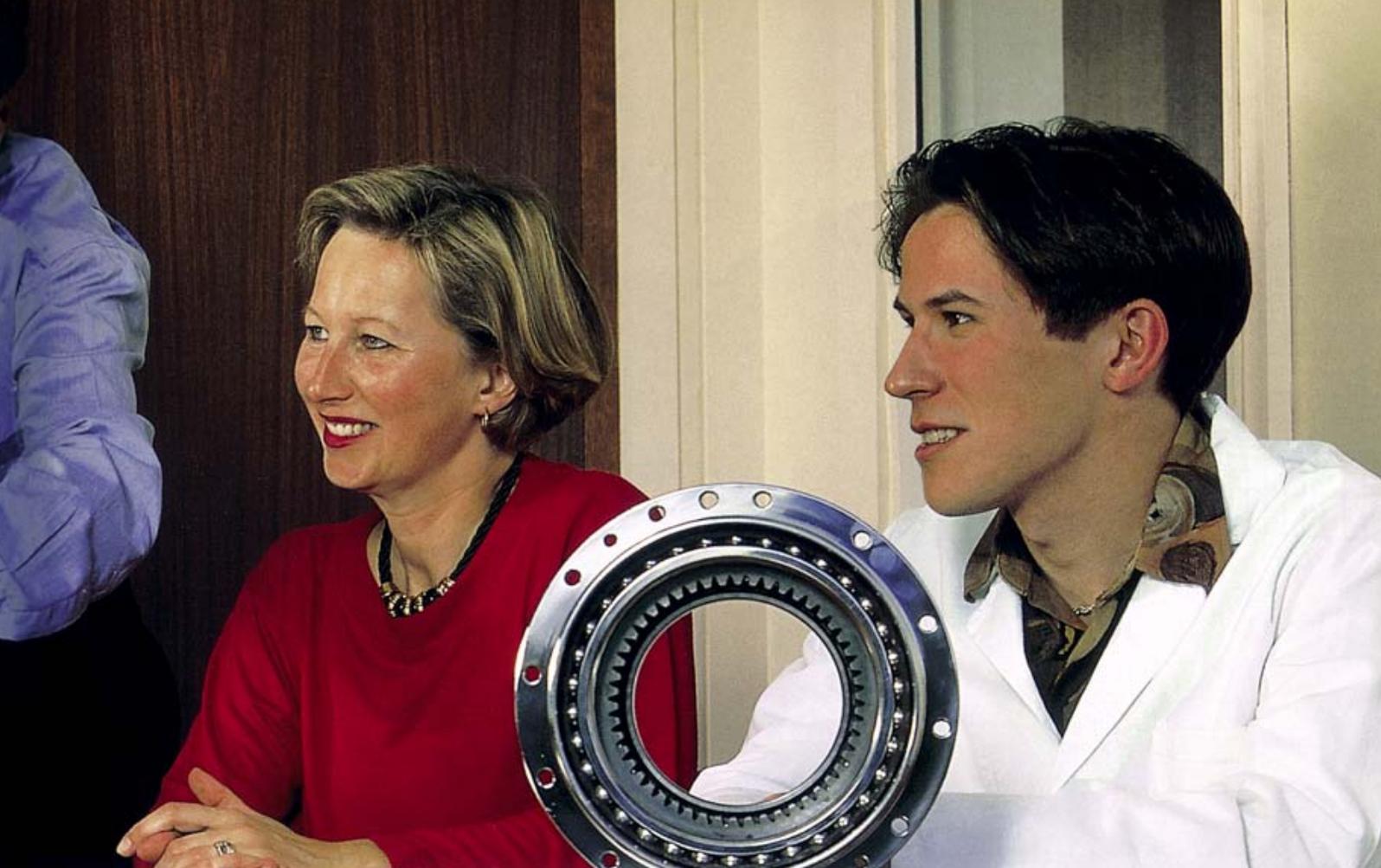
### Product design

Our sales engineers are located near your design office. They are backed up by application engineers, specializing in bearings for your applications.

Through them you have access to the powerful resources and expertise of the SNR ROULEMENTS design office. They are committed to responding promptly to your prospective projects.

### Validation

Prototypes and pre-production models can be rapidly produced to validate calculated performance. If necessary, a test centre is available to test variants of your products.



## confidence in the coordination of your project.



### **Industrialization and Production**

Our industrialization and production unit, which is specialized for small and medium quantities, can devote the necessary attention to the particular details of your product and your organization.

SNR ROULEMENTS was one the first company to receive MRP II class A certification to meet the production demands of our OEM customers.

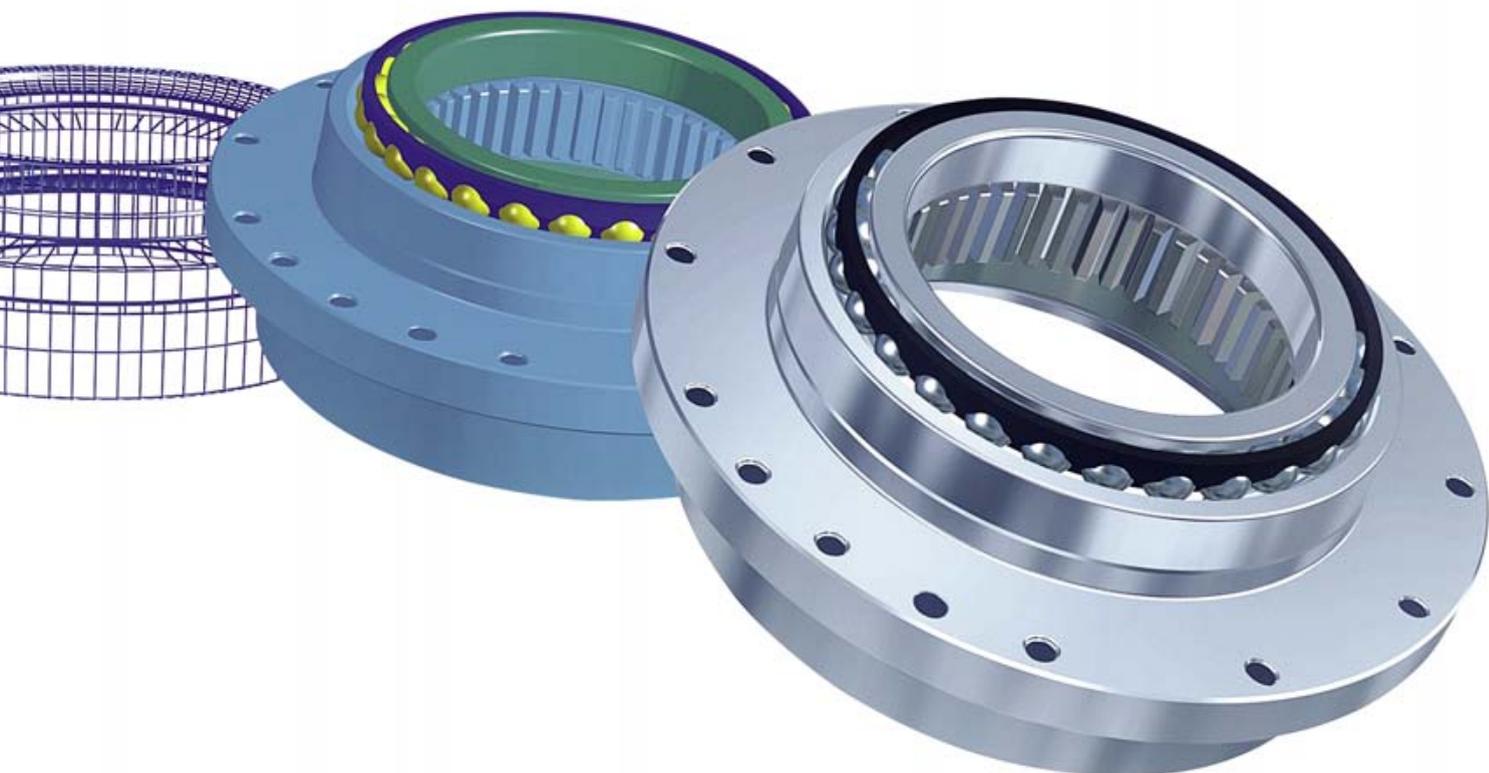


### **Pre-sales and after-sales technical support**

Our service includes technical assistance for production launching and monitoring of your product.

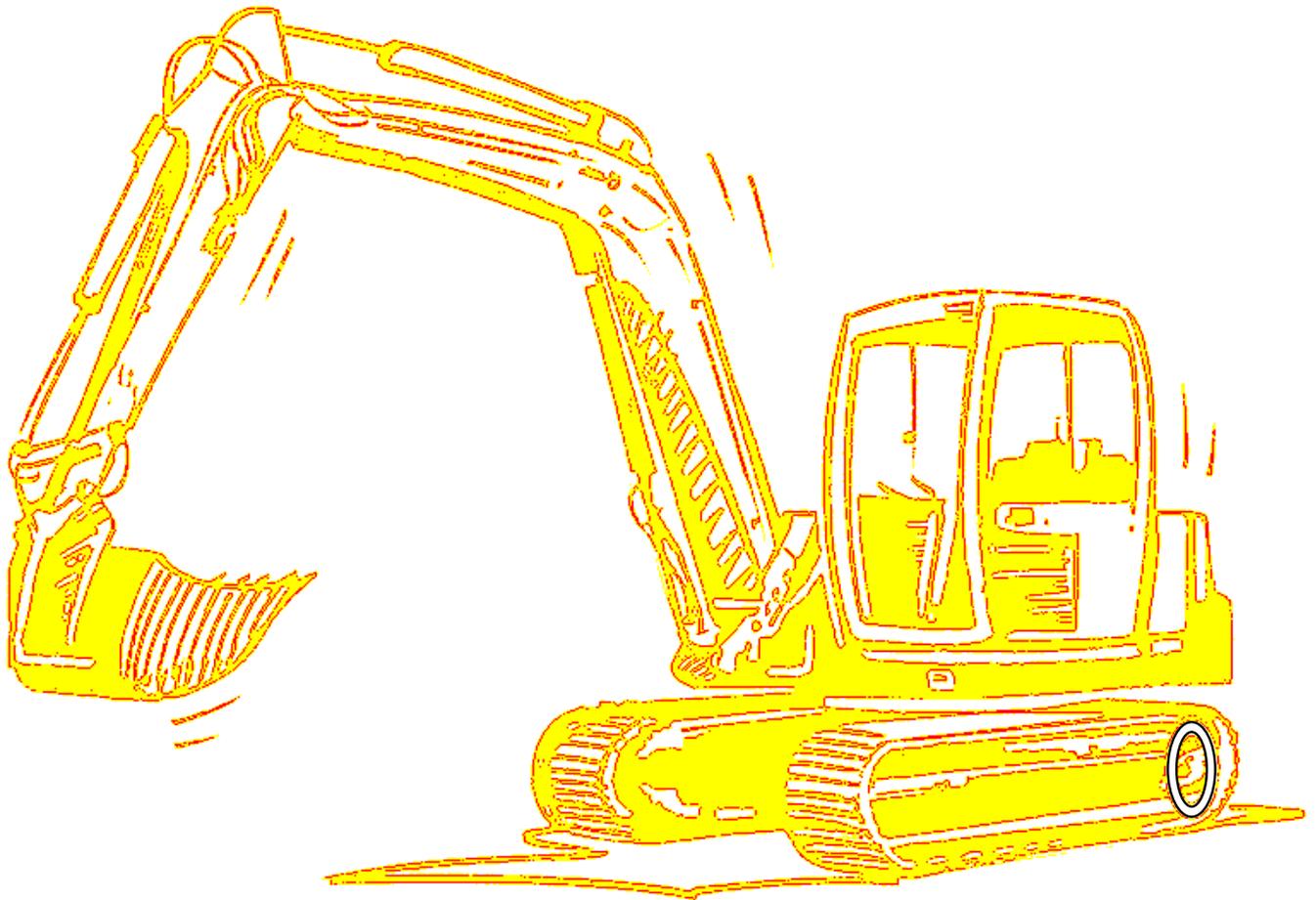
### **Collaboration contract**

The quality of the product and the service we provide implies the respect of mutual commitments. To this end, SNR ROULEMENTS wishes to propose a collaboration agreement defining these commitments. This is a further guarantee of the success of your application.



# Examples of applications

Applications for special SNR bearings can be found in all branches of industry. The following examples illustrate a few of the solutions that have enabled us to meet the objectives set by our customers.



Chain wheel gear reducing bearing

## Tracked vehicles

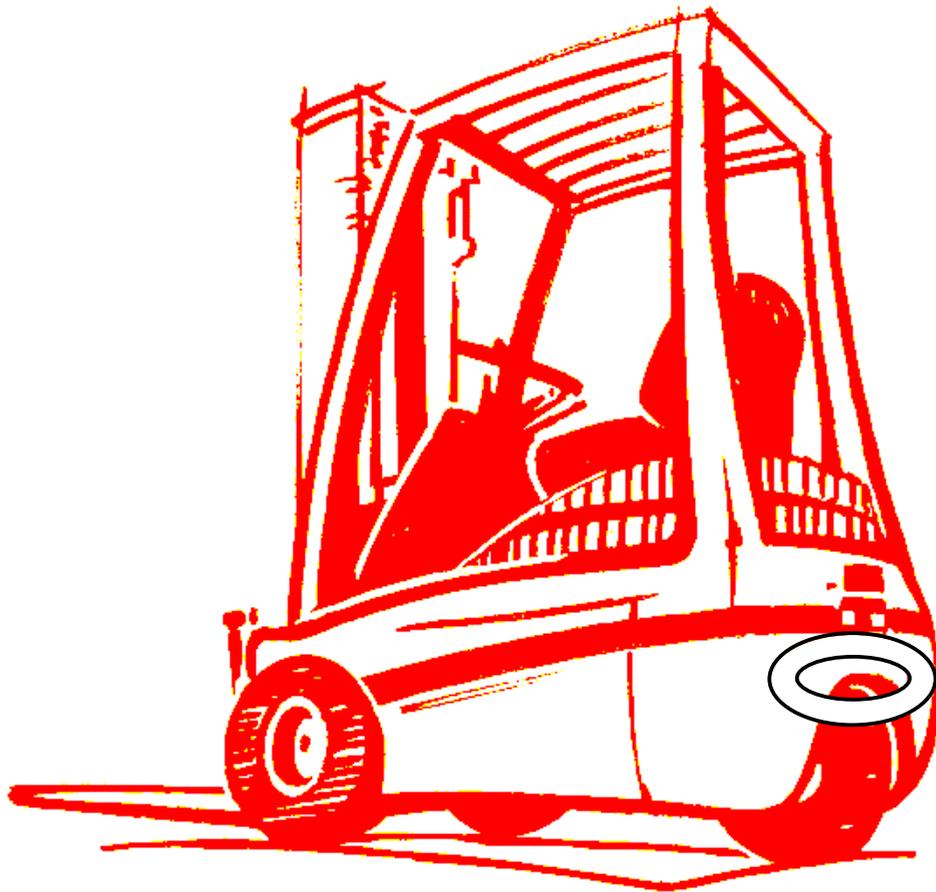


### Objectives:

- Support the reducing gear body in the minimum radial space
- Ease of assembly
- Adjustment-free assembly

### The SNR/Customer solution

- Double-row angular contact ball bearings
- Outer ring accommodating seal and mounted directly on the gear
- Reduced tolerance on total width of assembly
- Reduction in overall cost



Pivoting rear wheel bearing

## Fork-lift trucks

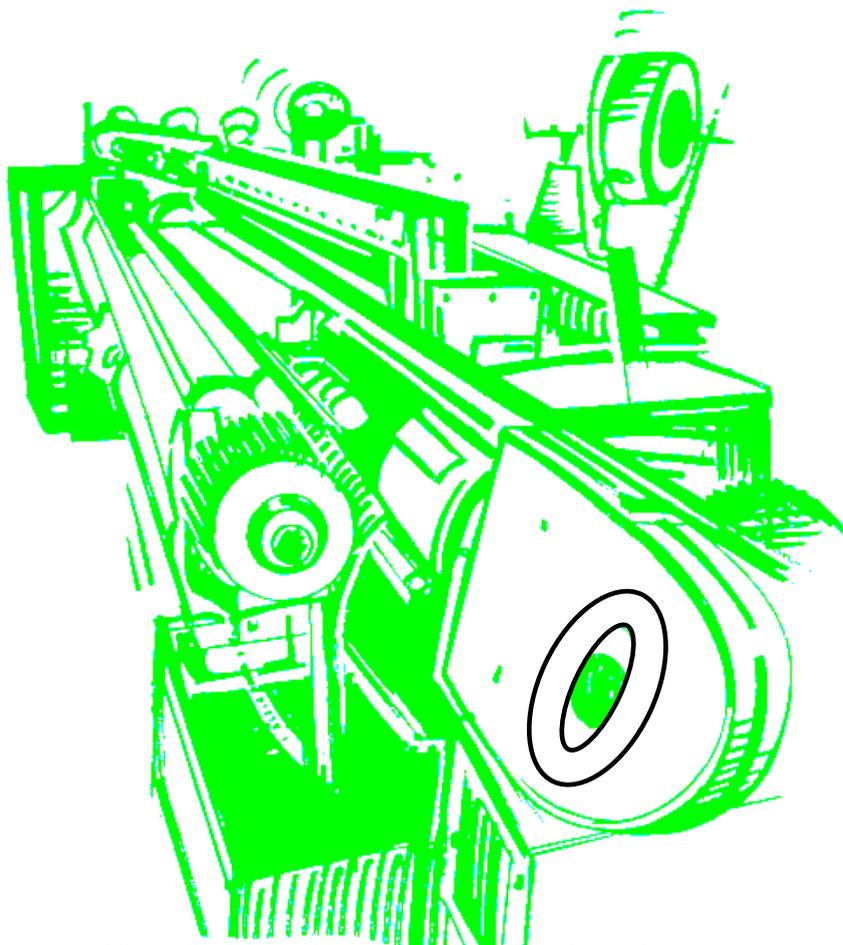


### Objectives:

- Withstand high axial loads
- Resist the canting moment
- Allow the inner ring to be assembled in a groove
- Connect the pivot pin to the truck
- Economic solution

### The SNR/Customer solution

- Single-row ball bearing with 4 contact points
- Split inner ring
- Cage in sectors
- Outer ring featuring tapped holes



Shuttle crossing mechanism bearing

## Weaving machines

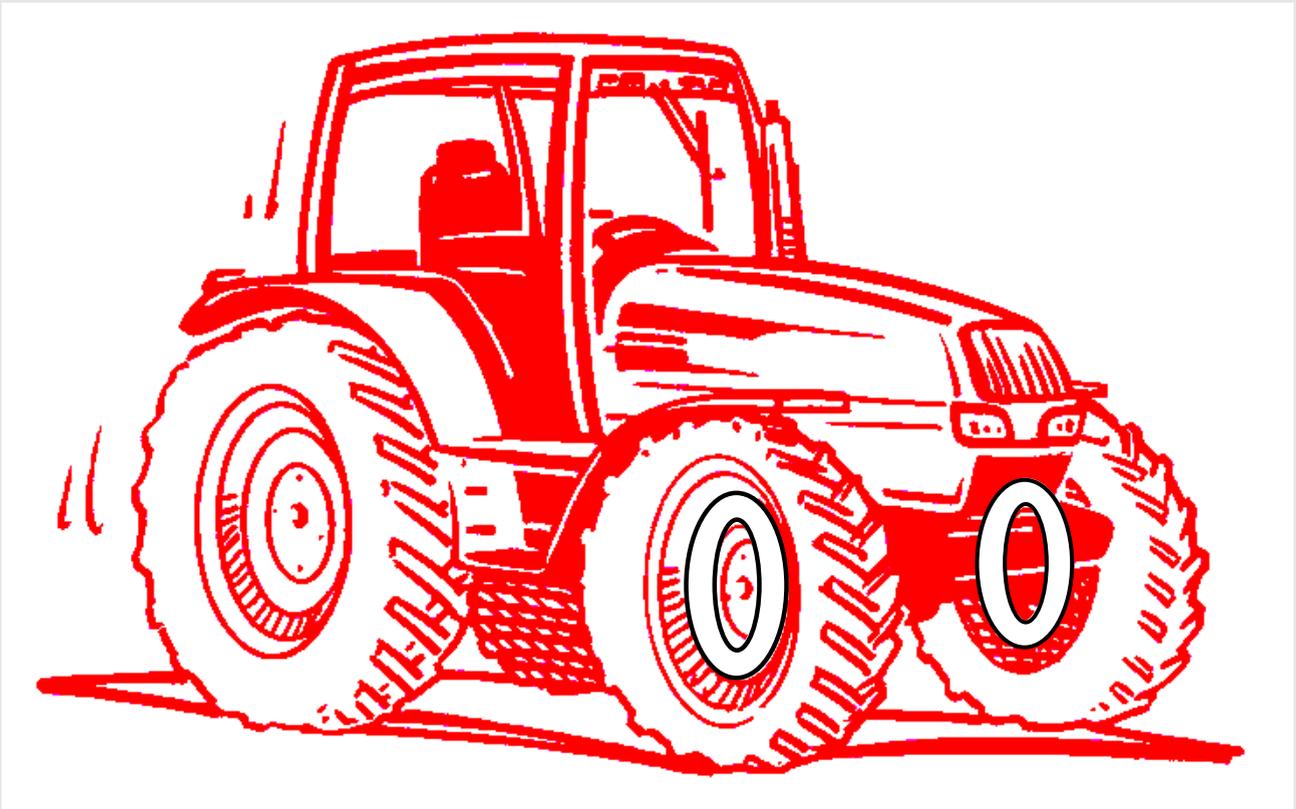


### Objectives:

- Produce a light assembly with as few parts as possible
- Economic solution
- Withstand alternating canting loads

### The SNR/Customer solution

- Double-row angular contact ball bearing
- Directly attached outer ring



Front wheel bearing

## Agricultural tractors

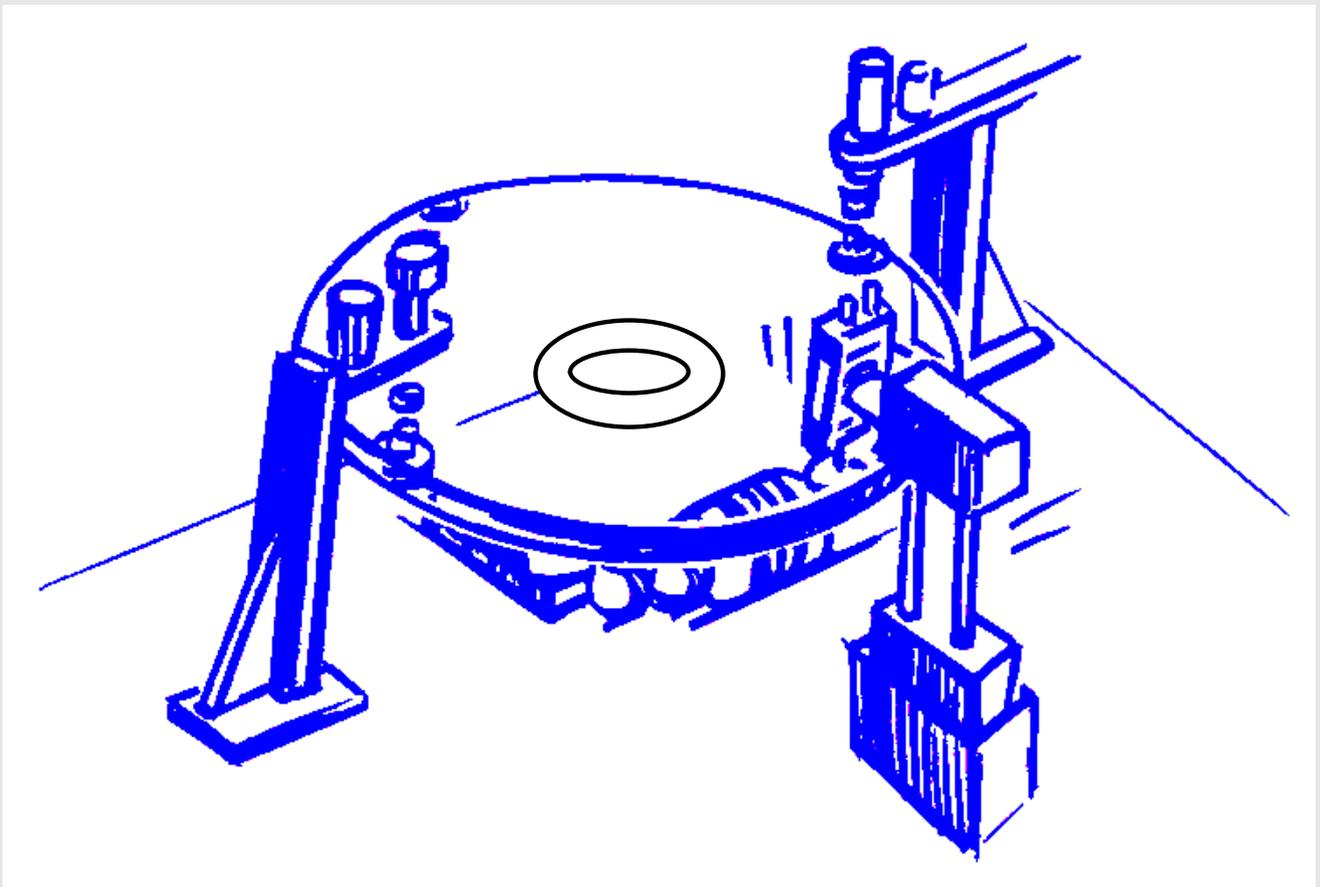


### Objectives:

- Economic solution
- Reduction in number of parts
- Automated and adjustment-free assembly
- Improved reliability

### The SNR/Customer solution

- Double-row angular contact ball bearings
- Raceways incorporated in toothed hub
- Reduced overall height tolerance
- Increased load capacity
- Locally hardened steel



Indexing table plate bearings

## Assembly robots

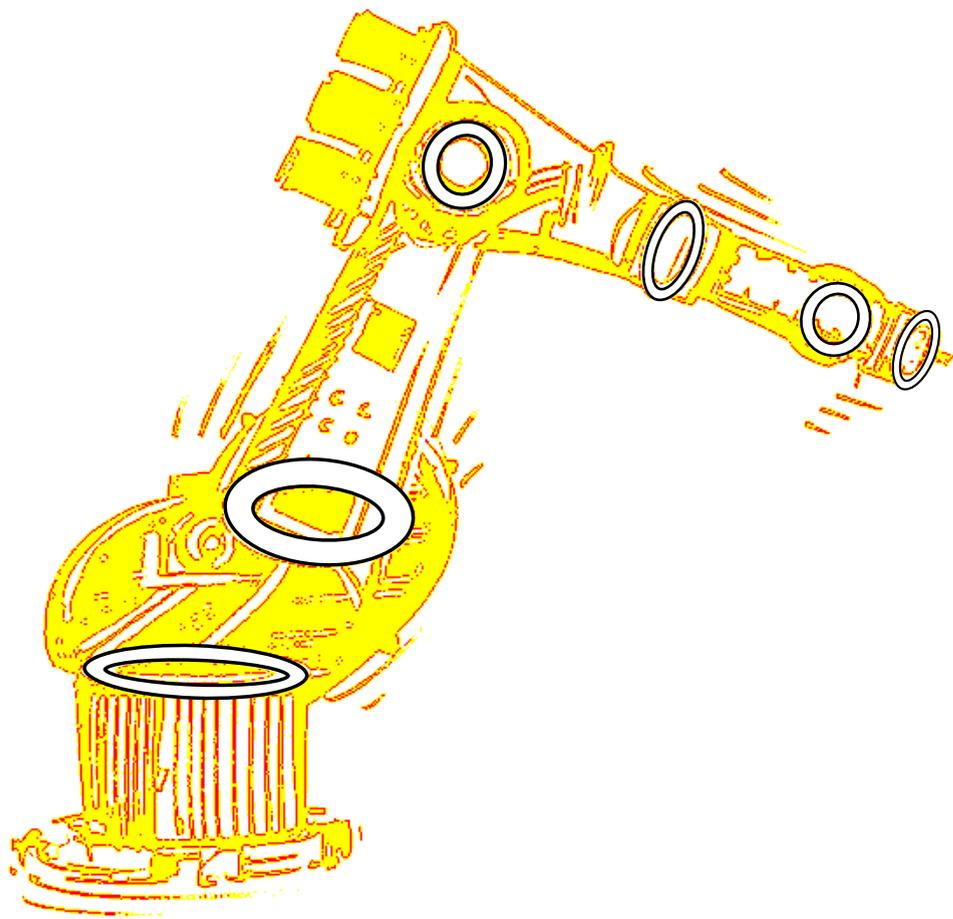


### Objectives:

- Leave a maximum of free space on the revolving table to attach the parts to be moved
- Allow the user to drill this table
- Specify the maximum load capacity of the robot
- Increase rotational precision

### The SNR/Customer solution

- Single-row preloaded ball bearing with 4 contact points
- Narrow outer ring to maximize the size of the inner ring
- Inner ring in locally hardened steel which can be drilled by the user
- Highly increased load capacity
- Sealing
- No increase in tolerance



Precision reducing gear

## Robots

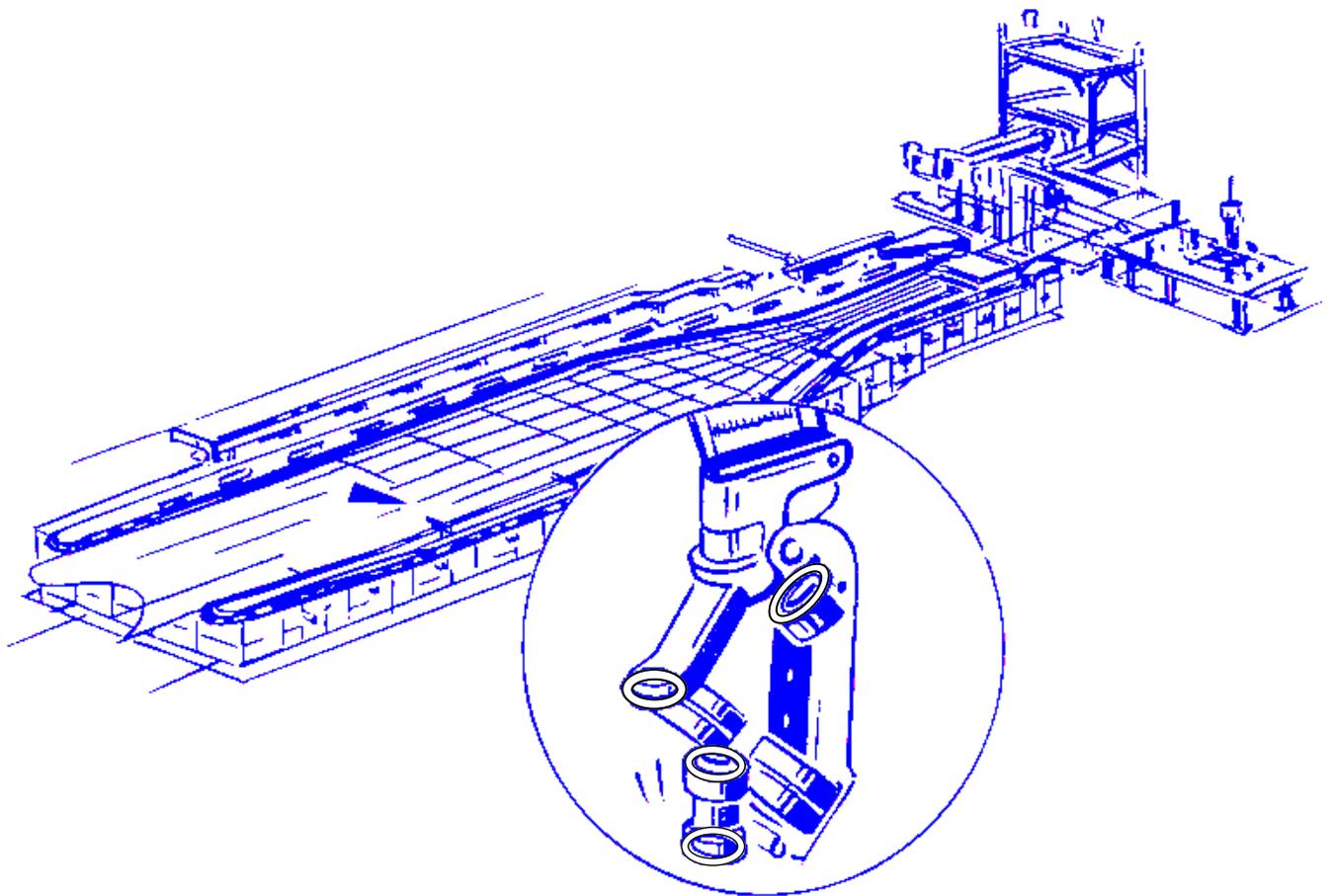


### Objectives:

- Reduction in number of parts
- Canting rigidity
- Elimination of maintenance
- Rotational precision
- Reduction in weight
- Economic solution
- Elimination of end play

### The SNR/Customer solution

- Single-row preloaded crossed roller bearing
- Directly attached rings
- Sealing and lifetime lubrication
- Driven by inner ring gear teeth



Stretching clamp

## Film stretchers

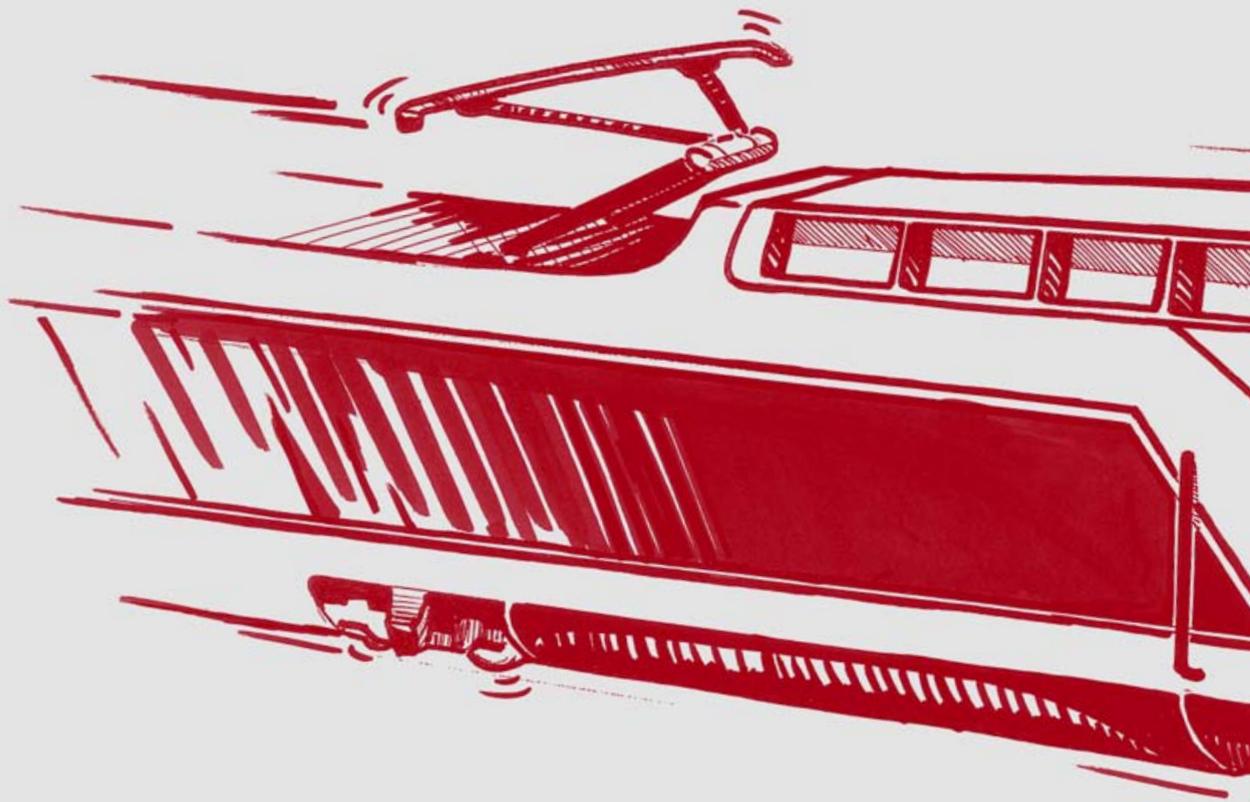


### Objectives:

- Increased speed of stretching
- Elimination of lubricant splashes on film
- Operation at 200°C
- Increased bearing life

### The SNR/Customer solution

- Thick outer ring
- Low-torque bearing
- Special-design seal
- Grease compatible with rail temperature and oil
- Optimum service life



## High-speed train

# Wheels

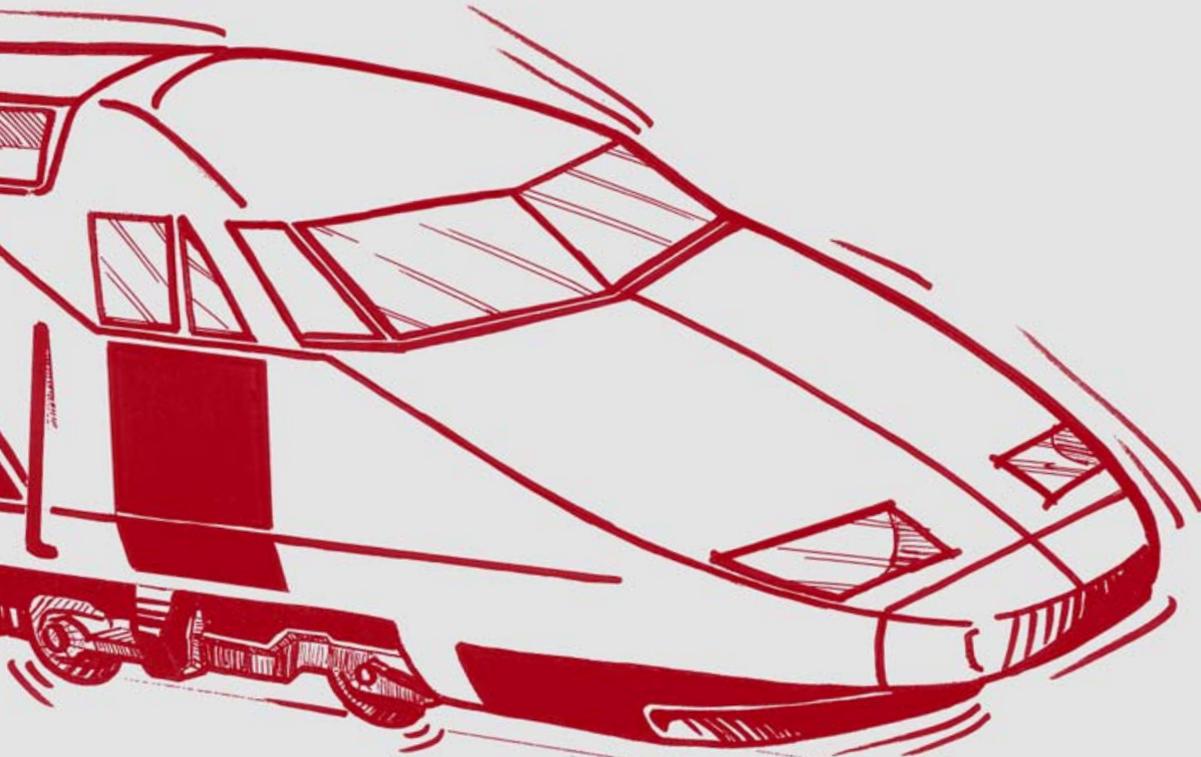


### Objectives

- Operating speeds of up to twice those of standard bearings
- Generation of temperatures no greater than 90°C
- Resistance to very significant vibrations
- Very high reliability level

### The SNR/Customer solution

- Cartridge bearing with 2 rows of tapered rollers, greased, sealed and ready to install
- Fully hardened vacuum-cast steel, doubling service life and offering high damage resistance
- Excellent condition of contact surfaces and profiles to keep temperatures low



Speed record: 574.8 km/h

## Power transmission



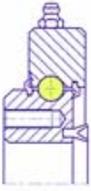
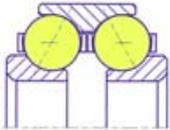
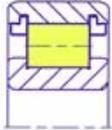
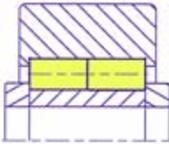
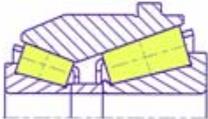
### Objectives

- Very high-speed operation
- Enhanced vibration resistance
- Very high reliability level

### The SNR/Customer solution

- Tapered and cylindrical roller bearings
- Selection of the finest case-hardened vacuum-degassed steels with exceptional inclusionary cleanliness
- Single-block steel or copper alloy cage avoiding any risk of disassembly and simplifying lubrication
- Very low friction torque

# Comparative table of different

Product	Market	Aptitude	
Type	Examples of applications	Radial load	Axial load
QR 	Robotics, Special reducing gears Civil engineering, Mines, Transport Telecommunication, Agricultural machinery Automatic systems, Material handling		
QJ 	Automatic systems, Robotics Special reducing gears, Civil engineering, Mines, Transport, Handling, Agricultural machinery Railway applications		
AB 	Transport, Agricultural machinery, Textiles Material Handling, Lifting, Reducing Gears Railway applications, Food industry, Machine-tools, Pump-turbines, Chemical industry, Cam and conveyor rollers		
GB 	Transport, Civil engineering equipment, Mines, Textiles, Agricultural, Food industry Material Handling, Reducing gears, Gearboxes		
N 	Transport, Agricultural machinery, Iron and steel industry, Printing, Civil engineering, Railway applications Textiles.		
GNU 	Iron and steel industry, Food industry, Reducing gears, Conveyors, Railway applications, Civil engineering		
FC 	Transport, Railway applications, Iron and steel industry Agriculture, Civil engineering, Mines Material handling		

Our applications engineers will determine the SNR ROULEMENTS solution that best meets your requirements.

# bearing types

Aptitude			Additional Characteristics				
Speed of rotation	Canting moment	Friction moment	Lubrication	Protection	Adjustment	Connection	Transmission
Average	Good	Average	Good	Average	Good	Good	Good
Good	Excellent	Excellent	Excellent	Average	Excellent	Excellent	Excellent
Good	Average	Good	Good	Average	Good	Good	Average
Excellent	Excellent	Excellent	Excellent	Average	Excellent	Average	Average
Average	Average	Average	Average	Average	Average	Average	Average
Average	Average	Average	Average	Average	Good	Average	Average
Good	Average	Average	Good	Good	Good	Average	Average
Good	Good	Good	Good	Good	Good	Average	Average

Excellent  Good  Average  Poor 

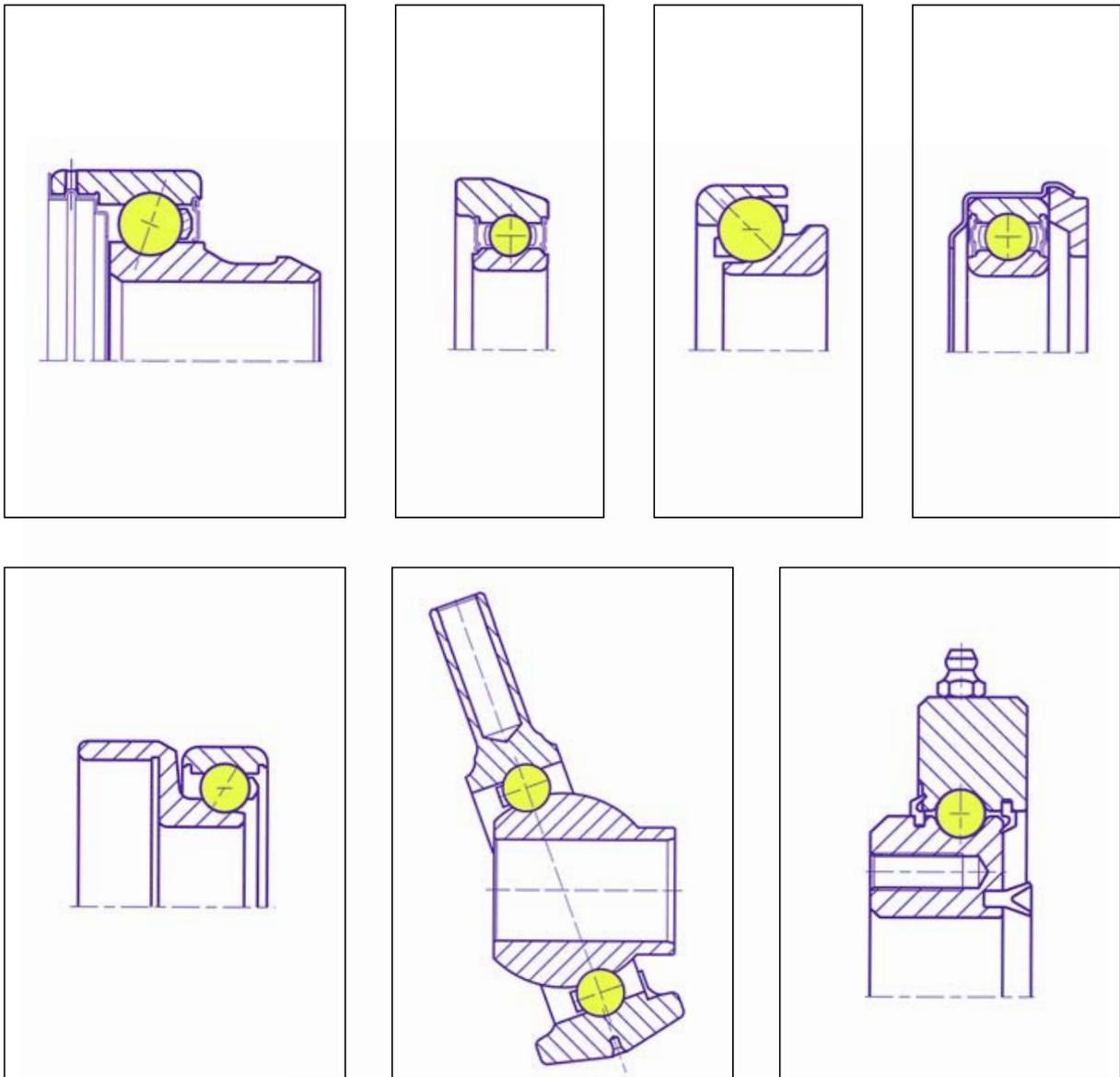


# Examples of products

The following examples illustrate some of the products produced in collaboration with SNR customers.

## Ball bearings

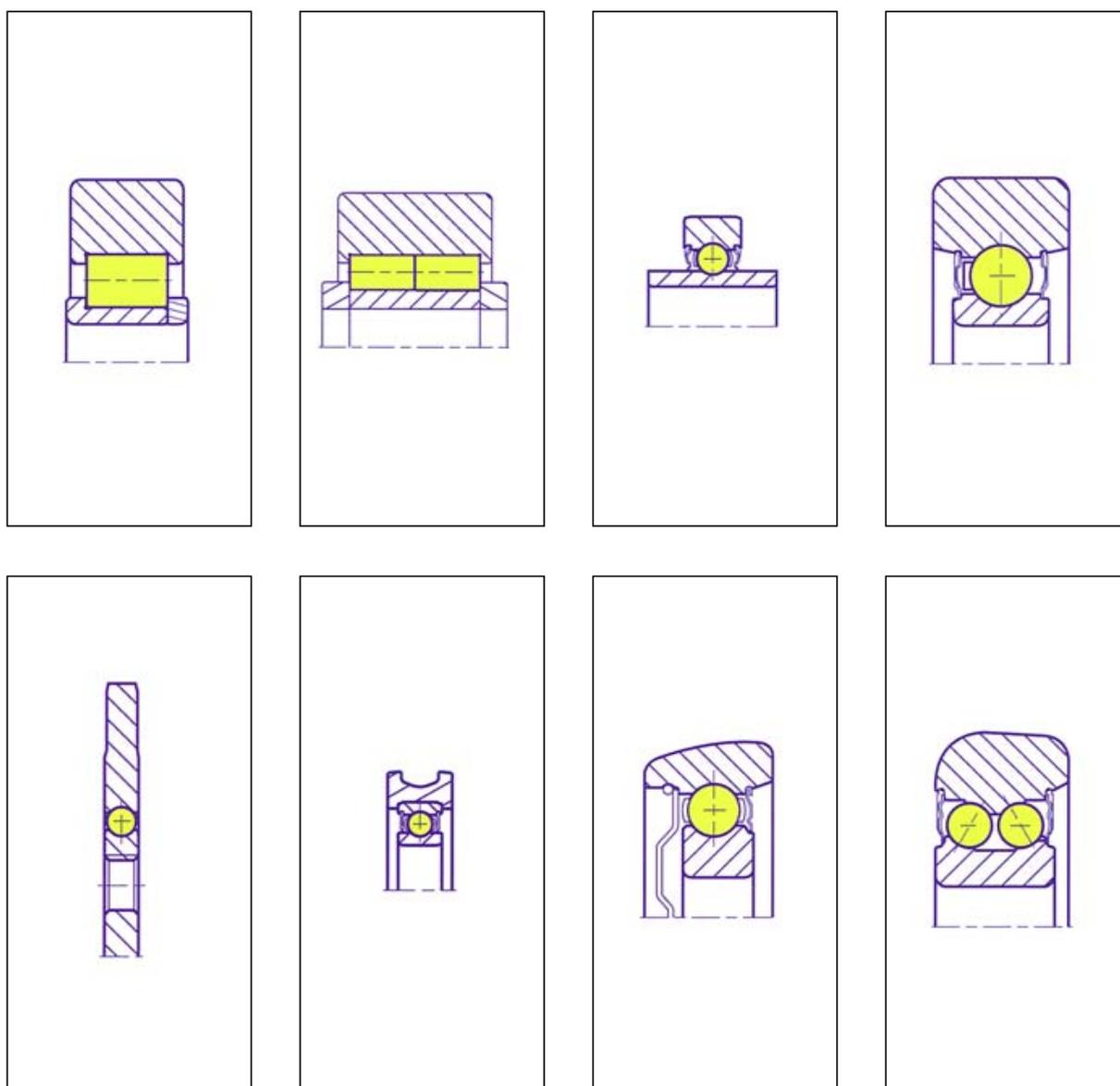
Advantage: Integration of bearings



By implementing appropriate solutions, these new products have met the objectives set by our customers. All applications can benefit from this approach. Why not contact us to discuss your application!

## Bearings with reinforced outer ring

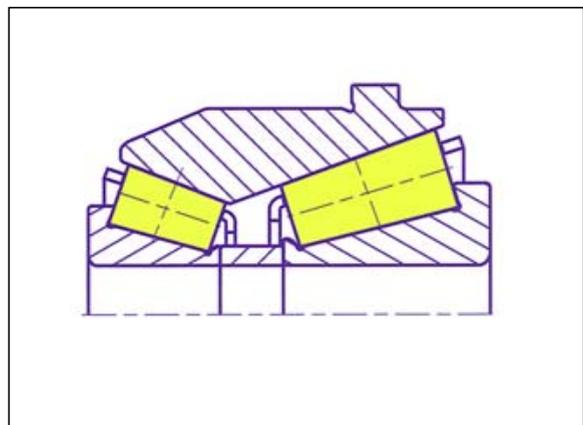
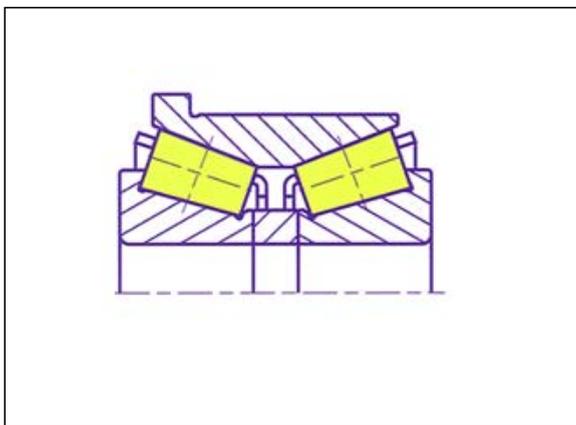
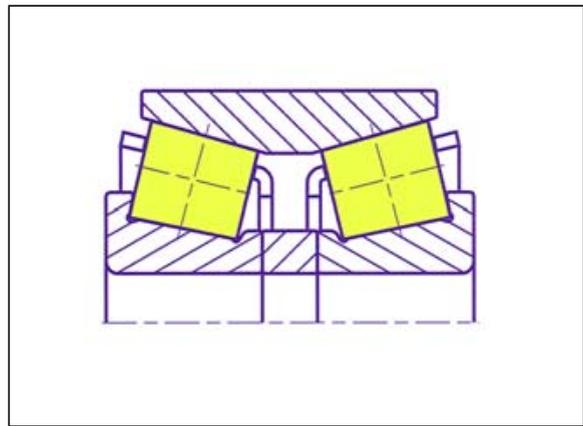
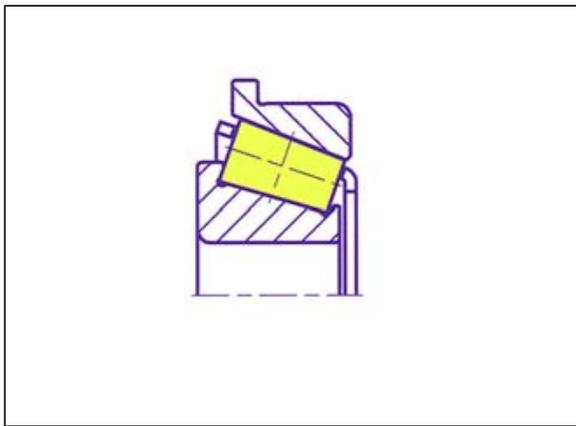
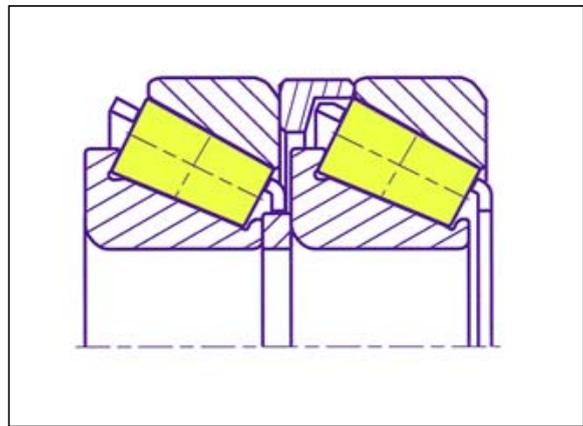
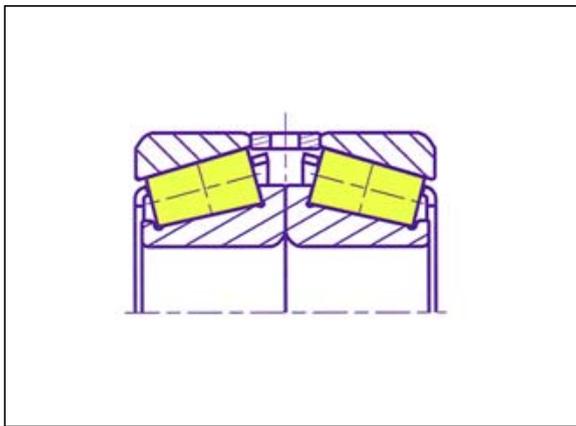
Advantage: high load capacity and roller function



# Examples of products

## Tapered roller bearings

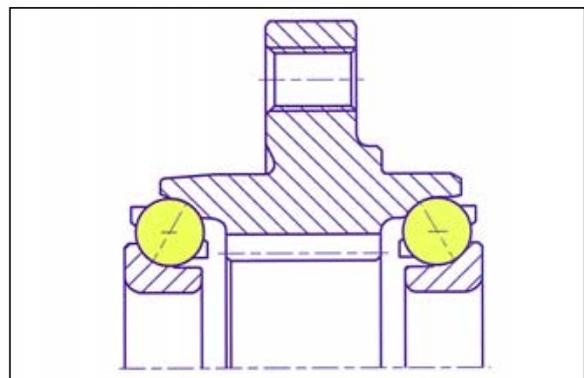
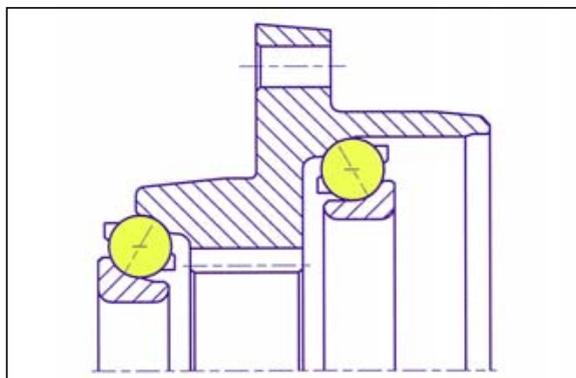
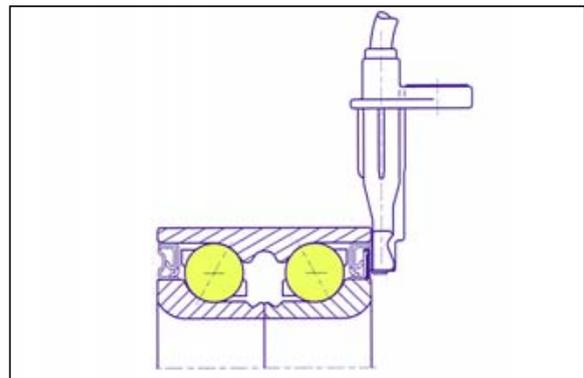
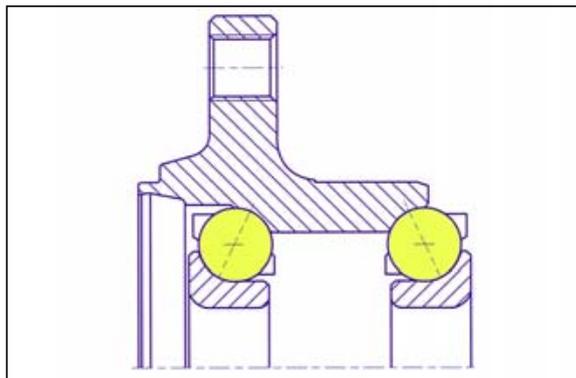
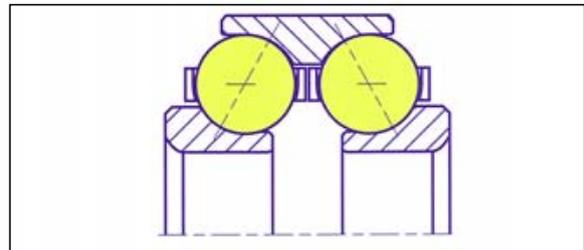
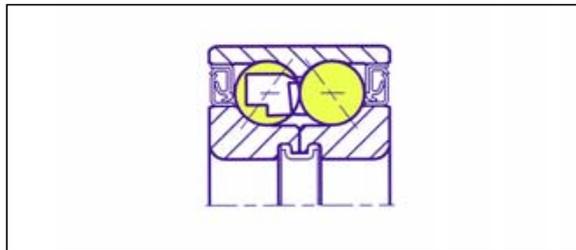
Advantage: Factory presetting (gears and bearings)



# Twinline ball bearings

**Advantage: Integration of functions.**

- Simplified adjustments
- Sealing or protection
- Attachment
- Power transmission
- Instrumentation

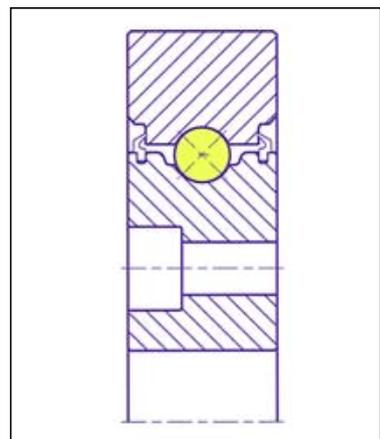
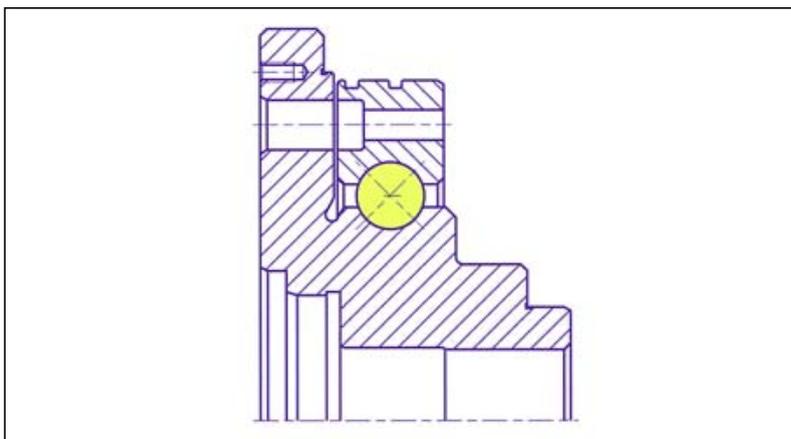
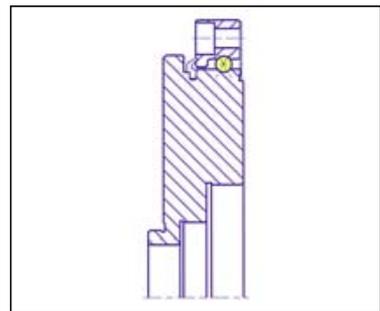
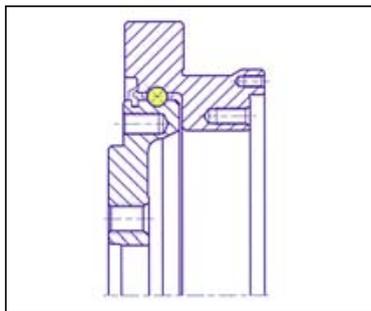
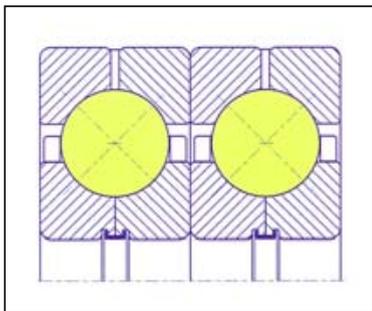
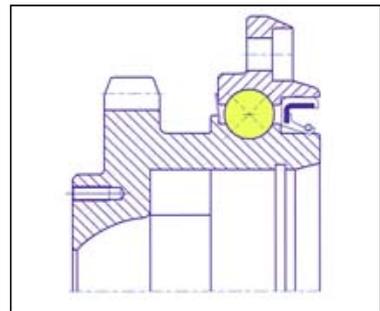
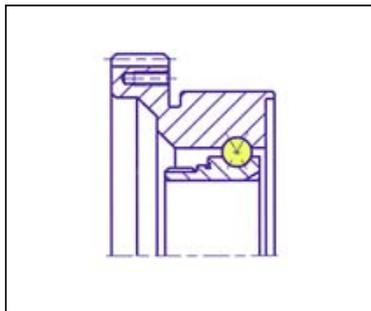
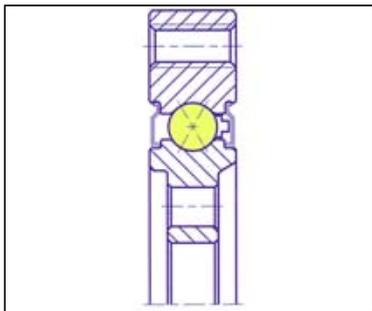


# Examples of products

## Ball bearings with 4 contact points

Advantage: Integration of functions

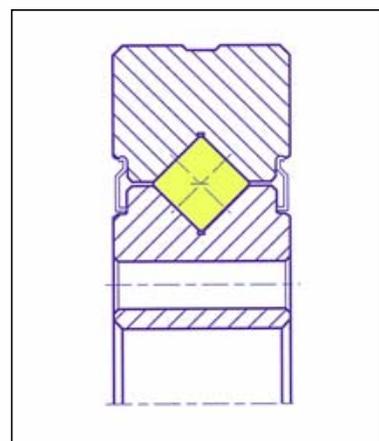
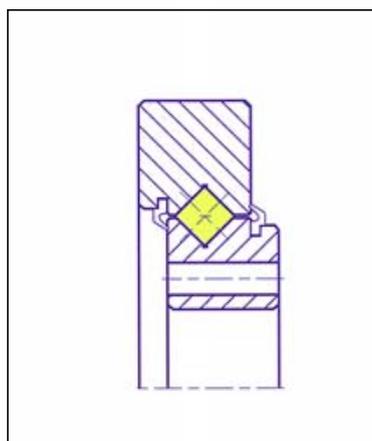
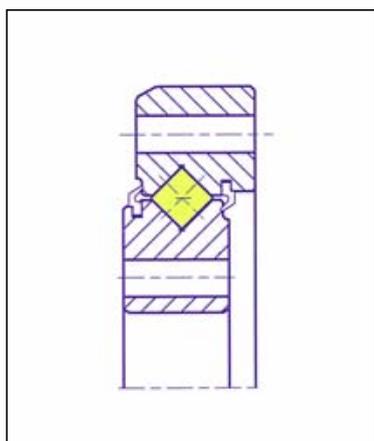
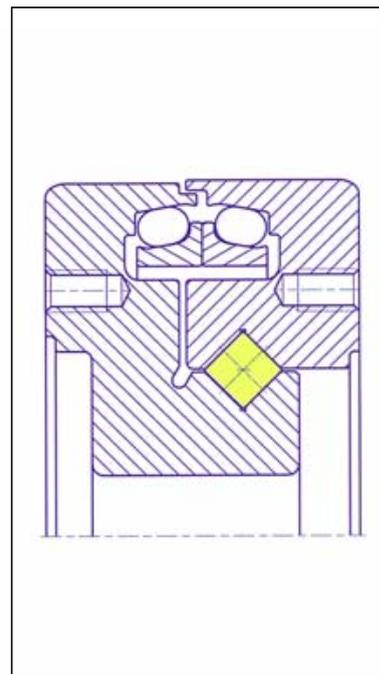
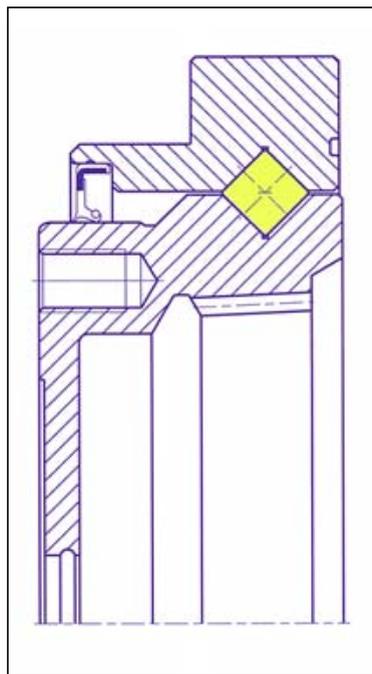
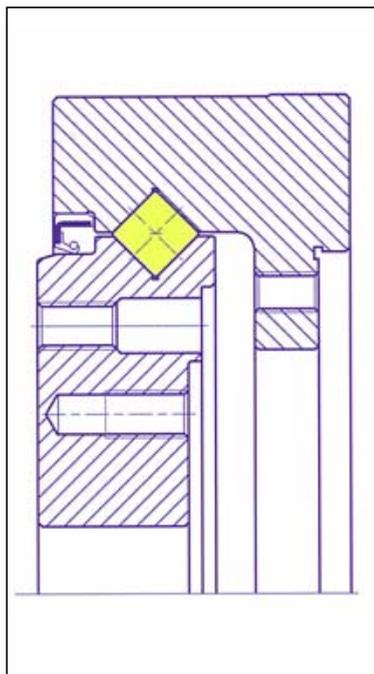
- Attachment
- Sealing or protection
- Power transmission
- Precision: ISO 4, 5 or 6 localised

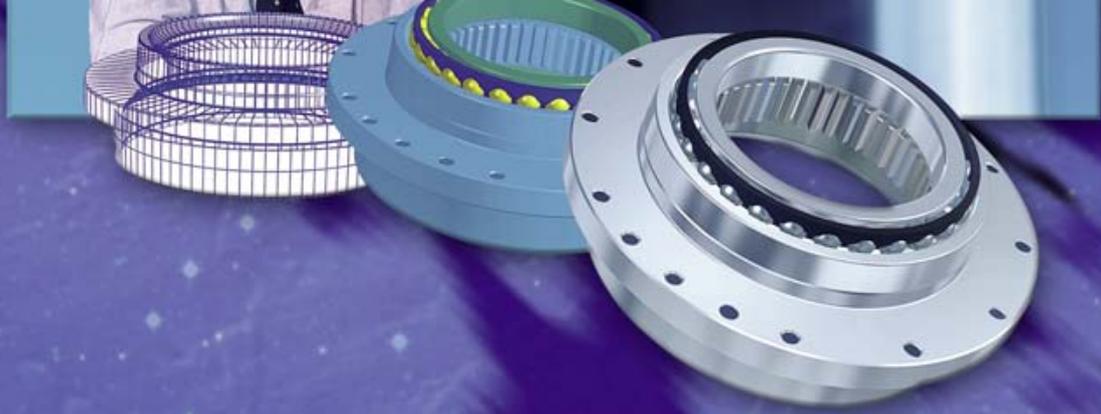


# Crossed roller bearings

## Advantage: Integration of functions

- Attachment
- Sealing or protection
- Power transmission
- Precision: ISO4, 5 or 6 localised





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