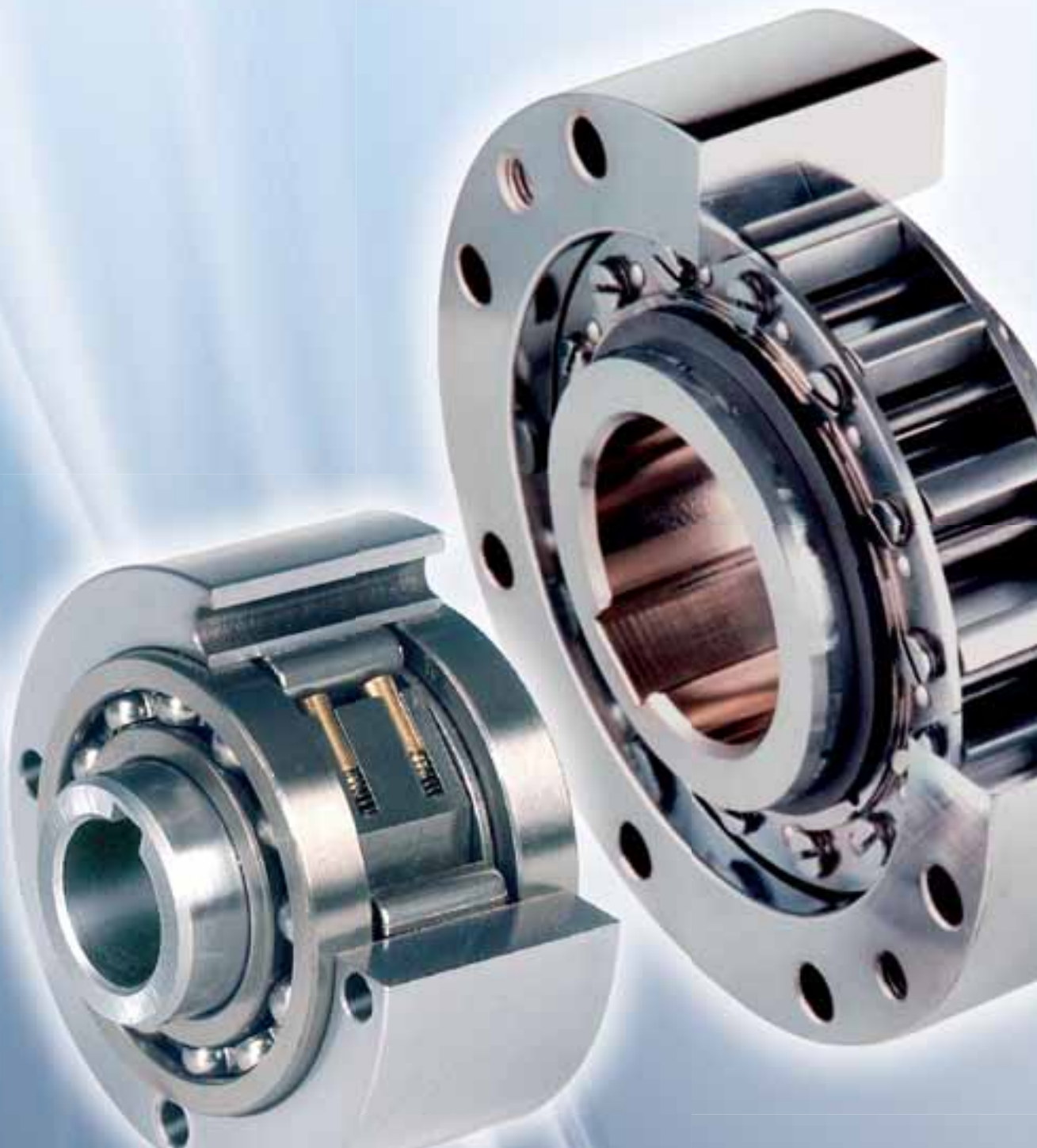


Freewheels and Backstops





Competence is our strength

»Stieber was founded in Munich in 1937 and is now a medium-sized company employing 140 people at its locations in Heidelberg and Garching near Munich.

Our core business activity is the design and production of drive elements for mechanical engineering systems.

Our major strength is the development and production of freewheels and backstops, which transmit torque by means of friction.

Stieber can reflect on numerous innovative developments during the course of the company's history - innovations that have made it the European market leader. Stieber proved its technical ability once again during the development and design of the largest backstop in the world, for example. This and other backstops are being successfully used even under the toughest of conditions.

Stieber, part of the Altra Industrial Motion Group is – together with its sister companies Formsprag and Marland in the USA –the world's market leader for freewheels and backstops.

Our extensive world-wide service network including more than 1000 stocking distributors and technical centres ensures we are always close to the customers.

Our company philosophy is total customer satisfaction. To achieve this, our processes undergo continual refinement. Stieber has been certified according to DIN EN ISO 9001 since 1997 and according to ISO 14001 (environment management system) since the year 2000. In addition, an internal monitoring process ensures that quality, timeliness and costs are always to the fore.«

Norbert Liebenstein, Managing Director

PRODUCTS

The principle

Freewheels are directional couplings, which means they are engaged and disengaged automatically, depending on the relative direction of rotation of the driving and driven sides.

Practical applications of this principle:

- **Overrunning clutch**
for multiple-machine drives or to separate the inertia of masses of a driven machine from the driving machine after it has been switched off.
- **Indexing clutch**
which turns a shaft step by step, thus achieving indexed material feed or a variable speed.
- **Backstop**
to prevent a machine shaft turning backwards. In this case the freewheel is used as a brake.

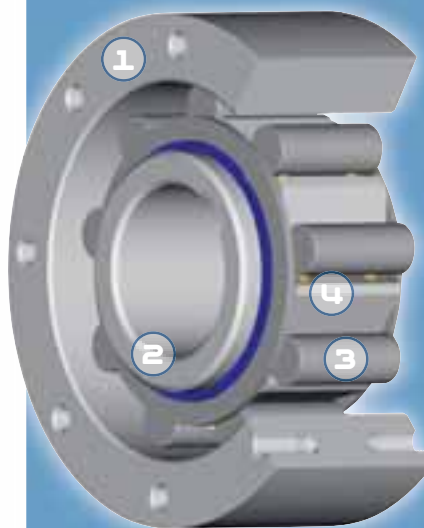
Basic forms

To achieve the above-described functions, so-called locking elements are positioned between an outer and an inner race which effect engaging and disengaging.

These locking elements are in two basic designs:

- **Roller freewheels**
which are mainly used as overrunning and indexing clutches.
- **Sprag freewheels**
which are most suitable as backstops, here mainly the contact-free versions.

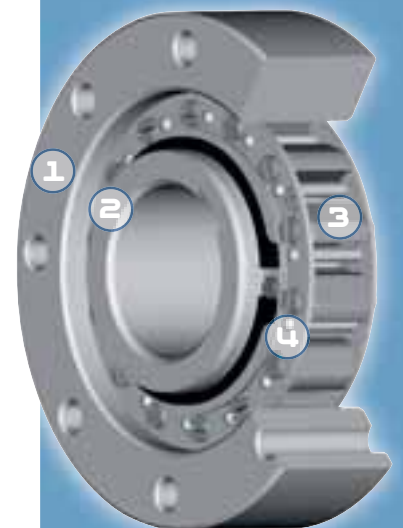
Roller freewheel



1 . Outer race | 2 . Inner race
3 . Locking roller | 4 . Spring-loaded plunger

- Rugged
- Versatile
- Self-contained
- Ready for installation

Sprag freewheel



1 . Outer race | 2 . Inner race
3 . Sprag | 4 . Cage

- High overrunning speed
- High torque capacity
- High eccentricity tolerances
- Accepts any lubricant

Our innovative ideas lead to forward-looking results

»Stieber is the only manufacturer of freewheels in the world which is familiar with all freewheel technologies such as roller and sprag freewheel variants.

Our company has proven ability available in the freewheel technology sector. This is not least guaranteed by our team of extremely experienced engineers. Alongside development work and regular improvement of the basic forms, unique solutions have been found over the years, such as:

- *Housing freewheels with pump-less internal oil circulating lubrication*
- *Freewheels that can be disengaged manually or pneumatically*
- *Backstops that can be compensated and separated under load*
- *Non-return barriers*

and more than 3,000 special designs which have been developed for customer-specific applications. We can supply freewheels with torques of between 0.8 and 1.7 million Nm - the best solution for your application.«

Gerhard Still, Head of Technical Design



For us, customer support is not just an empty phrase. Which is why we always get excellent results.



The very latest CAD systems guarantee Stieber precision and quality.



PRODUCTION



Production at Stieber

Quickly and accurately. That's how *Stieber* works.

»Both standard catalogue products and customer-specific products are manufactured according to the very latest technical standards in our two factories. Our qualified employees manufacture your products with great care and under their own responsibility.

Our commitment to continuous improvement means that our systems and processes are constantly under review. Over the past few years this has led to a 30% time saving in manufacture, for example.

The assembly and warehouse departments register requirements using a Kanban system. This improves the availability of standard parts and optimises on-schedule deliveries. If you purchase your freewheels from Stieber, you can be sure you've come to the right place for absolute reliability for your machines and systems - guaranteed.«

Thomas Arnold und Joachim Kandziora,
Head of Production at Heidelberg and Garching

Hardness test



KANBAN system

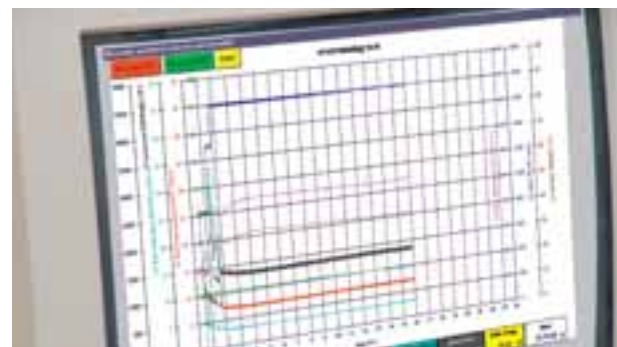


The quality has to be right. And that's something you can rely on.

»Total quality is assured both by meeting prescribed product performance specifications and thanks to the reliability of manufacturing methods and process workflows including integrated tests. The key technical data of Stieber products are either calculated using FVA methods and/or verified on our test benches.

We have test machines with a torque capacity of up to 700,000 Nm. During idling, units with a bore up to 600 mm can be tested at speeds of up to 1,500 rpm. The modern equipment in our quality department allows us to carry out all the necessary tests ourselves, such as those for the nuclear power industry, for example. Thanks to this, Stieber has been certified by Framatome / Siemens among others in compliance with KT 1401.«

Ulrich Schmitt, Head of Quality Assurance



Test bench and test results:
Stieber products always fulfil the
promised properties.

QUALITY

REFERENCES



Many customers put their trust in Stieber.

The application possibilities for Stieber freewheels range from small office or fitness devices through to 2.5 MW heavy-duty machinery or conveyer belts 20 km long.

Many freewheel designs have resulted from the application requirements of our customers, who have thus been able to find an optimum solution for their application using Stieber freewheels.

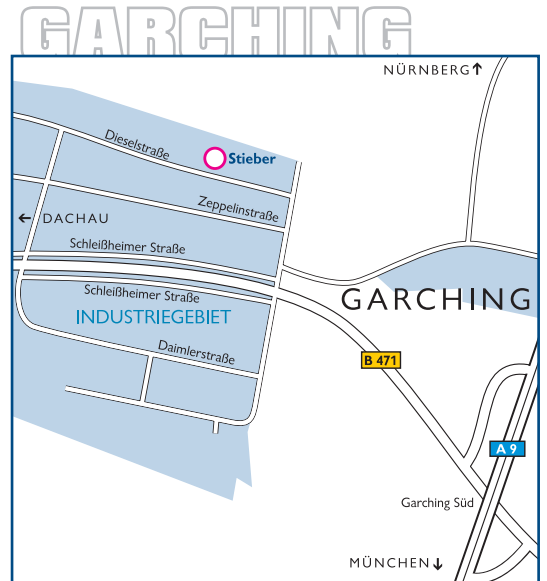
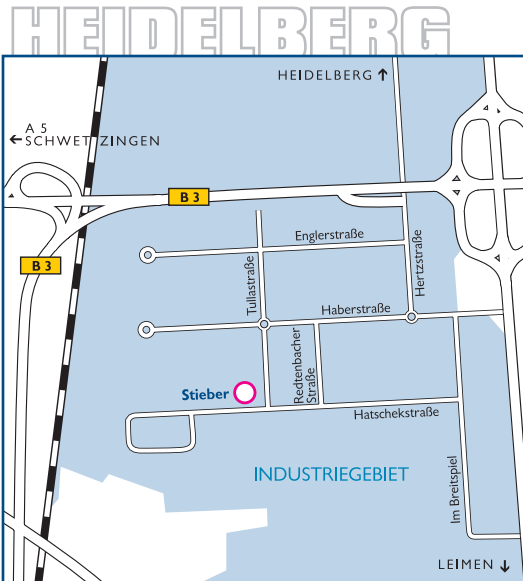
Many leading machine manufacturers in a wide range of different areas of industry put their trust in Stieber. Such as Mr. Daebel from the company Heidelberg Druckmaschinen AG:

»We have been purchasing freewheels from Stieber for more than 20 years now. The quality of the products has made a major contribution to keeping the reliability and durability of our machines at a high standard. In the case of new developments, Stieber reacts quickly, producing exemplary solutions which allow us to continually increase our machine performance.«

Just like »Heidelberg Druckmaschinen AG«, simply get in touch with us if you need standard or special freewheels.

We look forward to being able to quote and supply you with the best solution for your application.

- Conveyer belts
- Coal crushing equipment
- Pumps
- Rolling mills
- Seed drilling machines
- Rotary furnaces
- Silos
- Ventilators
- Forming machines
- Print machinery
- Engine test benches
- Car washing systems
- Ball presses
- Roller coasters
- Textile machines
- High-voltage switchgear
- Fitness equipment
- Winches
- Clay pigeon traps
- Automotive industry
- Aerospace
- Power station technology



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