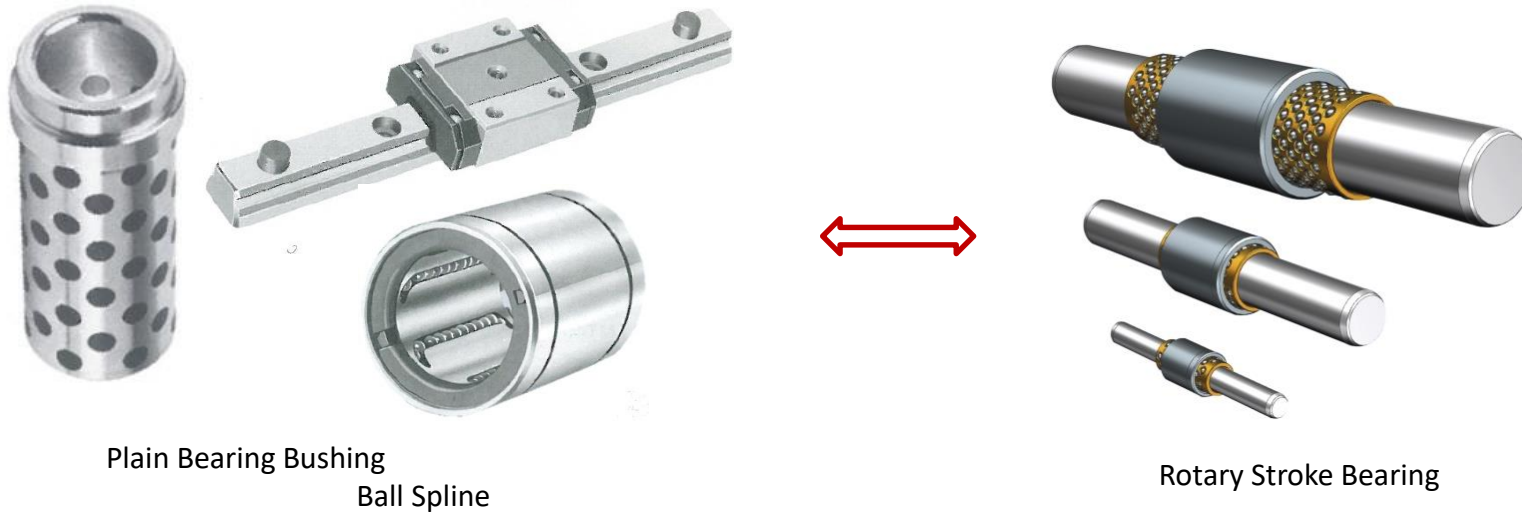


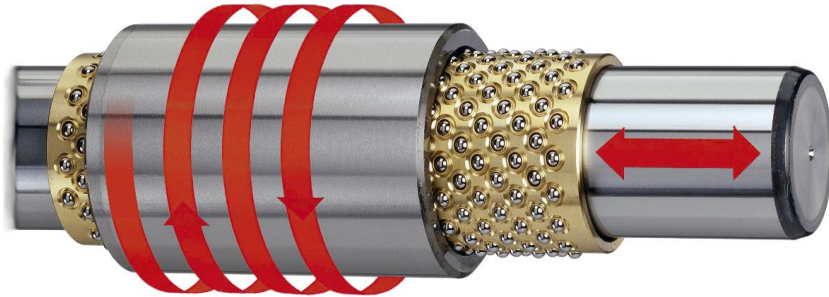
Comparison to common bearings



MarMotion High-precision Rotary Stroke Bearings provide :

- Higher guiding accuracy
- Backlash-free motions
- Higher loading capacity and guiding rigidity
- Smoother running, lower friction
- Linear and rotary motion possible
- Longer service life

MarMotion – Precision and Endurance

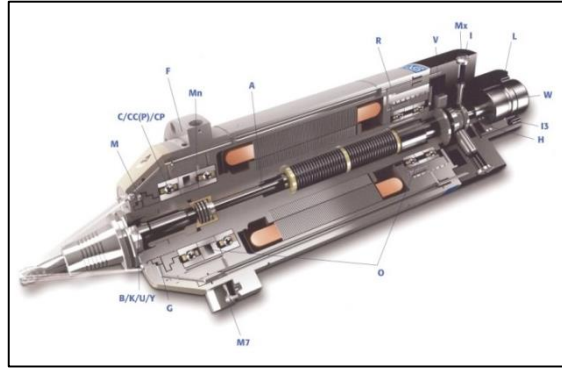


- Linear and rotary motion
- Maximum guiding accuracy
radial deviation 0.5 μm
- Backlash-free guiding
matched in the factory with optimum preloading
- Smooth running
coefficient of friction $\mu = 0.001$ possible
- High loading capacity and guiding rigidity
up to 0.005 $\mu\text{m}/\text{N}$
- Long service life
low maintenance, highest reliability

Machines and Tools, Automation



Unscrewing unit
injection molding tool



Tool spindle
ball cage for compensation of thermal expansion



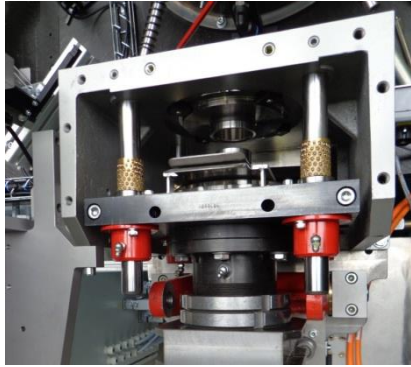
Grinding machine for optical lenses

MarMotion provides...	Customer Benefit
High loading capacity and guiding rigidity	Higher machine efficiency by faster and more precise motions.
Linear and rotary motion possible	Enables innovative space and cost saving designs.
Backlash-free motion	Higher precision for machines, fixtures, injection molding tools.
Closed guide bushes with sealing rings	Reliable operation even in dirty environments
Long service life, low maintenance	Helps to reduce maintenance costs and machine downtimes.

Customers:

- [GMN](#)
- [Kessler](#)
- [Junker](#)
- [Thielenhaus](#)
- [ThyssenKrupp](#)
- [Rattunde](#)

Packing Machines / Bottling Plants / Beverage and Food Industry



Packaging production machine
for paper cups



Cutting machine
for food processing



Packaging production machine
for tin cans

MarMotion provides...	Customer Benefit
High loading capacity and guiding rigidity	Higher machine performance through high speed / high acceleration.
Linear and rotary motion possible	Combined motions simplify the design of a machine.
Closed guide bushes with sealing rings	Suited for dirty environments.
Special materials for dry running	Allows operation in UHV and cleanroom environments
Long service life, low maintenance	Suited for 24/7 operation, minimal machine downtime

Customers:

- [Krones](#)
- [G.D](#)
- [IWK](#)
- [Sollich](#)
- [LEMO](#)
- [Starlinger](#)

Optical Industry / Laser Beam Control / Scientific Instruments



Opthalmologic instrument



Laser cutting optics
Laser welding



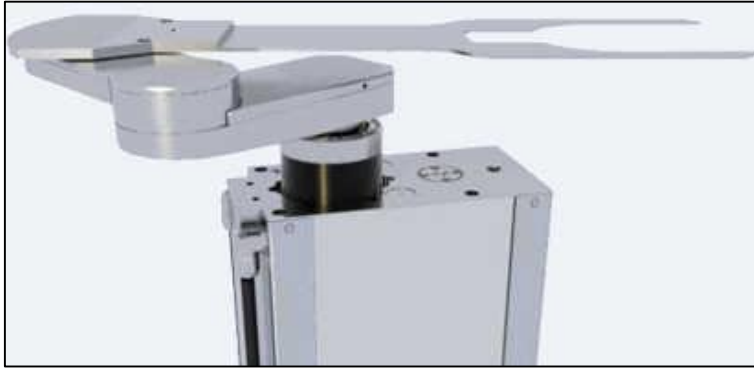
Laser beam control optics

MarMotion provides...	Customer Benefit
Backlash-free motion	Precise positioning of lenses , apertures and mirrors.
Stick-slip-free motion.	Best repeatability of motion.
Compact design / mini-range	Saves installation space and supports miniaturization.
Low friction	Motions with small actuating forces.
Stainless steel for dry running	Maintenance-free operation.

Customers:

- [Carl Zeiss](#)
- [DESY](#)
- [Trumpf Laser](#)
- [Bruker](#)
- [DLR](#)
- [LaVision Biotec](#)

Electronics and Semiconductor Industry / Pick & Place



Wafer transfer robot
for semiconductor production

MarMotion provides...	Customer Benefit
High loading capacity and guiding rigidity	Shorter cycle times and more precise handling
Linear and rotary motion possible	Combined motions simplify the design of a machine.
Compact design / mini-range	Saves installation space and supports miniaturization.
Special materials for dry running	Possibility of operation in UHV and cleanroom environments
Long service life, low maintenance	Suited for 24/7 operation, minimal machine downtime

Customers:

- [Asys](#)
- [Tesla Grohmann](#)
- [NXP](#)
- [ASML](#)
- [SUSS](#)
- [Xenon](#)

Precision Mechanics / Metrology



Centering unit



Linear axis



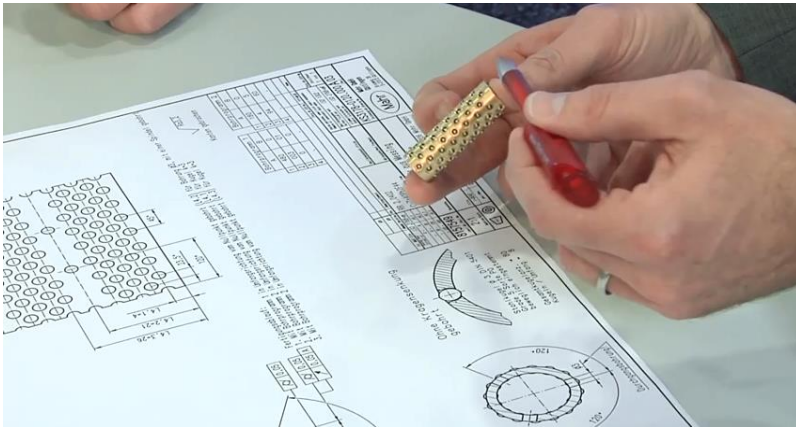
Measuring bolts in dial indicators, inductive probes

MarMotion provides...	Customer Benefit
Low friction	Ideal for sensitive measuring tasks because of lowest actuating forces.
Backlash-free motion	Precise guiding of measuring bolts or fixtures.
Stick-slip-free motion	Best repeatability of motion.
Compact design / mini-range	Saves installation space and supports miniaturization.
Stainless steel for dry running	Enables maintenance-free operation.

Customers:

- [Jenoptik](#)
- [Zoller](#)
- [Feinmess](#)
- Mahr SMPR
- [Steinmeyer](#)
- [Bilz](#)

MarMotion – Advantages and Customer Benefits



- MarMotion product specialists provide advice on design and installation
- from mini-range to heavy duty
- from clean room to dirty environments
- wide range of standard components available ex stock from Mahr
- customized design from 1 piece on
- unique combination of high loading capacity, precision and low friction superior to common bearings and linear guides used in press tools (die sets)

MarMotion – Paired with Precision

The knowledge of theory combined with 50 years of experience in production giving Mahr a unique competence in making high-precision rotary stroke bearings. MarMotion high-precision rotary stroke bearings benefit from the skills at Mahr's production of metrology tools and systems. Just as rotary stroke bearings are used in various Mahr measuring devices (e.g. MMQ, 828, P2004, Optimar).



Guide bushings and ball cages are paired, i.e. the precisely measured components are assembled backlash-free with an exactly defined preloading in micro meter precision. Highest quality is achieved in production by practical

knowledge and the use of high-end metrology instruments. Thus Mahr offers a rotary stroke bearing in a quality superior to those bearings commonly used in die sets and press tools.

This opens up new applications and new markets.

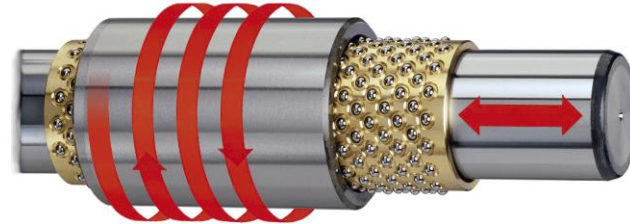


MarMotion – Contact Information

Mahr GmbH
Carl-Mahr-Str. 1
37073 Goettingen
Germany

MarMotion Website motion.mahr.com

For new enquiries:
MarMotion E-Mail motion@mahr.de



Head of department

Jens Leifeld (Mr.)
Phone: +49 551 7073 99310
e-mail: jens.leifeld@mahr.de

Quotations (catalogue)

Order Processing

Shipping information

1st contact:
Nicky Zemke (Mr.)
Phone: +49 551 7073 99636
e-mail: nicky.zemke@mahr.de

2nd contact:
Gunda Roedel (Ms)
Phone: +49 551 7073 99317
e-mail: gunda.roedel@mahr.de

Quotations (customized design)

Technical Advice

1st contact:
Andreas Schrickel (Mr.)
Phone: +49 551 7073 99313
e-mail: andreas.schricket@mahr.de

2nd contact:
Birte Andersen-Hoffmann (Ms)
Phone: +49 551 7073 99629
birte.andersen-hoffmann@mahr.de