

SCHNEEBERGER

AM
Precision

AM Machine Components

Maximum Accuracy and Excellent Quality



A.MANNESMANN
A member of
SCHNEEBERGER linear technology

Precision is an Obligation



We manufacture and deliver documented quality – since 1796

A.MANNESMANN MASCHINENFABRIK is specialist for the production of geometrically exacting, high-precision machine components. Our company, which was established in 1796, fabricates workpieces with high slenderness ratios in **lengths up to 15 m and more.** Our products are utilized in numerous applications in general machine and machine tool engineering around the globe.

µm

Precision is our tradition – and our obligation.

We apply the **µm** as our unit of measurement even to large dimensions. We deliver documented quality. Our quality management system is DIN EN ISO 9001 certified. Virtually all processes are performed in-house in compliance with maximum process security standards. Our success is the result of a team of employees who have received the best training available, are highly motivated and loyal to the enterprise as well as state-of-the-art machinery and information systems. We are committed to the professional promotion of young people and talent by offering opportunities for apprenticeships at our company.

The benchmarks for our performance philosophy are the requirements of demanding customers in terms of quality, economic efficiency and on-time-delivery.

We will be pleased to receive your challenges and to support you to optimize your designs under functional, production and cost effectiveness aspects – of course always on a strictly confidential basis.

In this brochure we would like to introduce to you the options we offer for the manufacturing of highest precision and quality machine components. We are looking forward to make contributions to your success in the market with our service and product portfolio.

AM Machine Components – Maximum Accuracy and Excellent Quality

- Geometrically exacting workpieces with high slenderness ratios
- All dimensions in lengths up to **15,000 mm and more**
- Entirely produced in-house
- Custom manufacturing of single pieces, series and component groups
- Ready for installation according to your drawings

Machine tools and general machine engineering:

Main spindles and main spindle assemblies with rams, ball screws, quills, spline shafts, threaded spindles, driving shafts, adjusting screws and nuts, knife shafts, guide columns, straightening rolls, twisting screws, filament winding mandrels, ...

Plastic processing machines:

Screws and barrels, grooved sleeves, crossheads and shafts ...

Compressors:

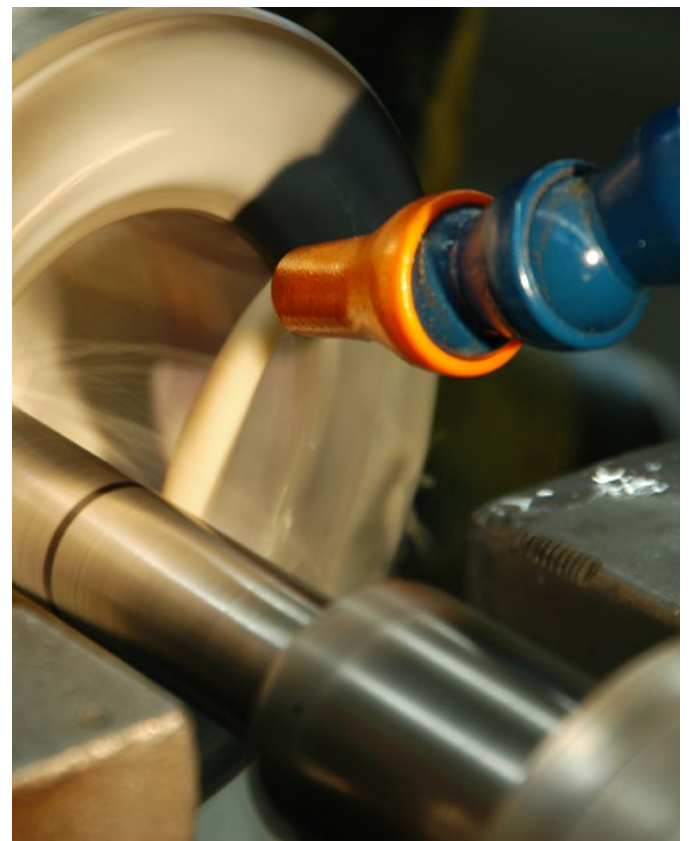
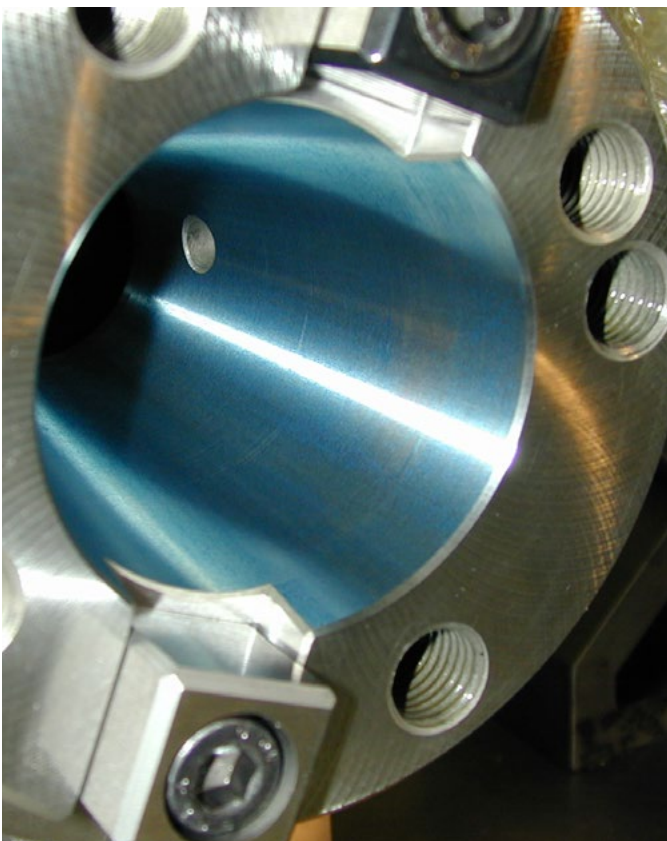
Piston rods, plungers, cylinder liners ...

Heavy diesel engines:

Control shafts, flange and intermediate shafts ...

Special solutions:

Components and units, boring rods, lifting and telescopic spindle units, trapezoid winding spindles and nuts as well as similar machine components for a variety of other industrial and technical applications



Among our core competencies are high precision interior grinding solutions reaching grinding depths of up to 2,500 mm

AM Ball Screws set Standards



Nominal diameter incline combination							
d ₀ P	5	10	15	20	25	30	40
25							
32							
40							
50							
63							
80							
100							
125							
160							



- Maximum performance and long useful life
- Characteristic values up to $n \times d = 200,000$ and more
- Speeds of **150 m/min and more**
- Acceleration rates of **20 m/s² and more**
- Nominal diameters of **25 to 160 mm**
- Spindle lengths up to 10 m lengths undivided; coupled as of 10 m
- Customized special designs available upon request
- Outstanding long term availability thanks to deep-nitrided ground spindles with a **surface hardness of app. 67 HRC** warranting maximum precision and wear resistance
- Excellent running quality thanks to high axial stiffness; lowest possible torque paired with minimal torque fluctuation; proven cinematically perfect performance of ball recirculation systems; minimized friction and heat development
- Outstanding cost effectiveness thanks to longevity, long term precision and minimized life cycle costs
- We will support you with customized special designs and technical recommendations from the start
- Standard designs with pre-tensioned DIN standard double nut
- **Special solutions** will be developed in close partnership with you for your special applications and specific requirements

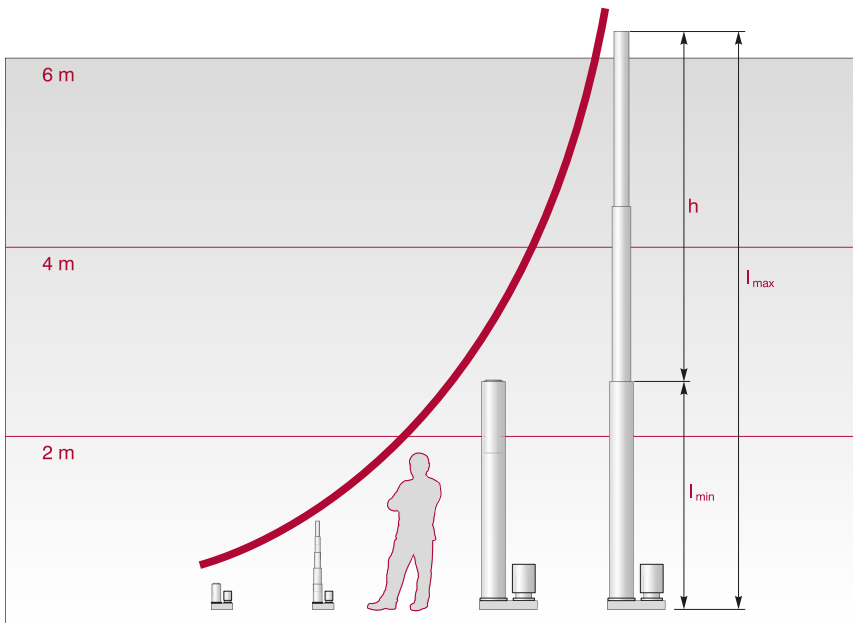


AM high performance ball screw for highly dynamic machining systems



AM ball screws in standard designs and with highly effective finger wipers

AM Telescopic Ball Screws – Compact Precision

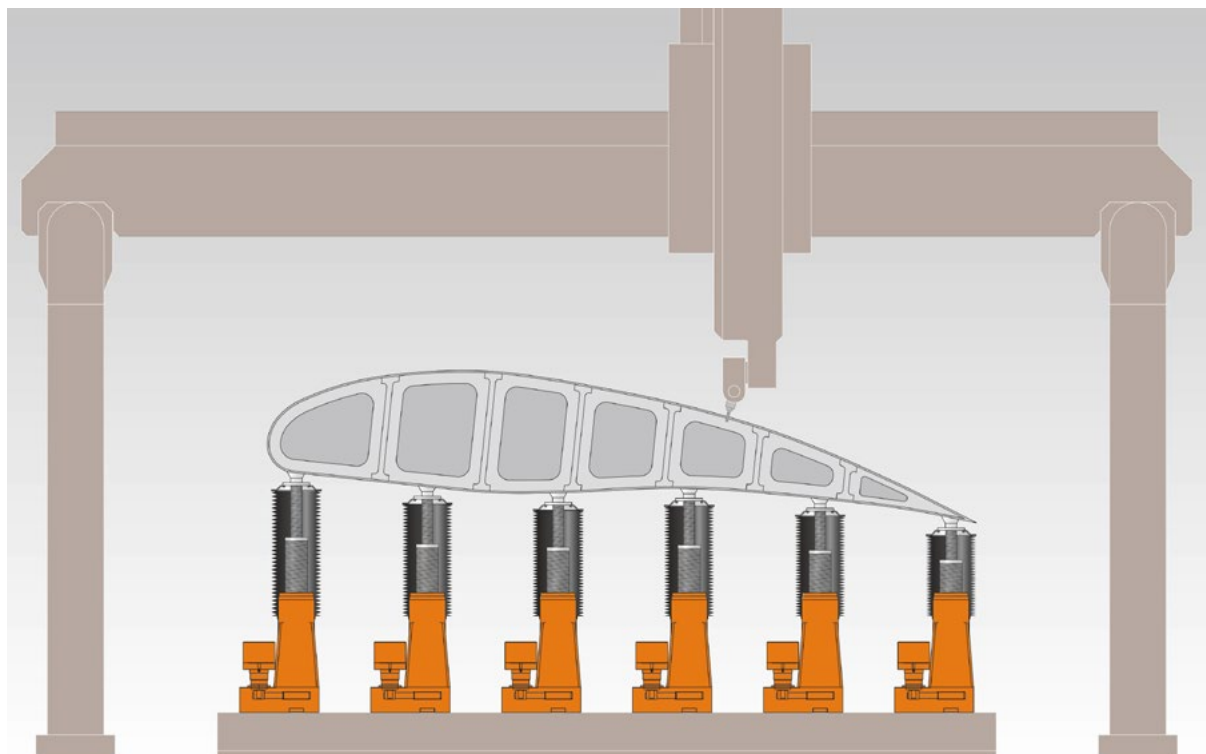


AM telescopic ball screws in different design lengths and maximum lifts

- For exacting **µm precision** demanding addition and positioning requirements in compact installation areas
- **Specifically developed designs** accommodating each individual application with absolute accuracy
- Compact design and minimal lengths when retracted
- Two or multi-stage options for large stroke movements
- Allows for **maximum performance dynamics**
- **Excellent running quality** at maximum and minimum speeds
- Jerk free start-up and positioning
- Smooth, friction free operations with minimal heat generation
- Backlash free operation under alternating tractive and compressive forces
- **High axial stiffness**



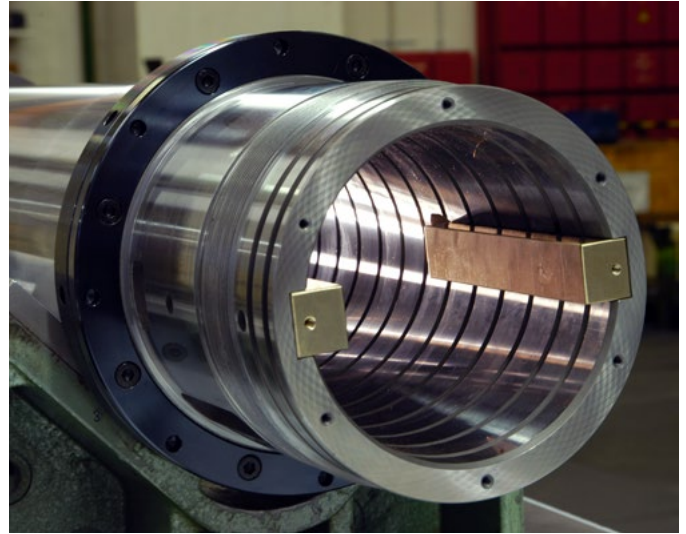
Two-stage AM telescopic ball screws with upstream transmission; in a simple design and in a parallel set-up as a double telescopic ball screw



Set-up and aligning of dimensionally bent components with AM telescopic ball screws



AM Main Spindles and Main Spindle Assemblies



Boring spindle assembly with hollow spindle ground across the entire interior length and boring spindle paired to lubricant film thickness

- Boring spindles, milling spindles and **complete boring spindle assemblies** for large boring machines
- Grinding spindles and grinding spindle assemblies for round and flat grinding machines
- Intermediate shafts for vertical lathes for combined turning, milling and grinding machining
- Manufactured entirely in-house according to **your drawings**
- Certified quality, pre-mounted and ready for installation
- Deep-nitrited, wear resistant surfaces with **hardness of app. 67 HRC to ensure maximum longevity**
- Paired to lubrication film thickness with gap dimensions of only a few μm
- **Maximum balancing quality** and optimal quiet running high RPM performance
- Tool inserts for all standard forms and sizes based on your specifications; e.g. with SK, HSK or BigPlus cones
- Undivided single piece and coupled main spindle assemblies
- Designs available for roller bearings or hydrostatic bearings

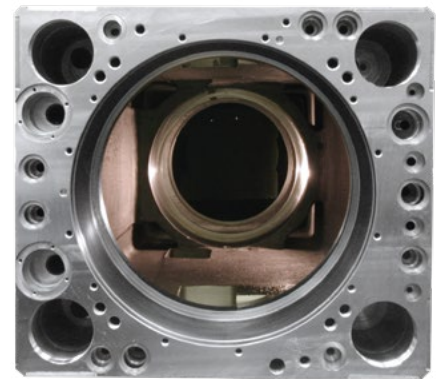
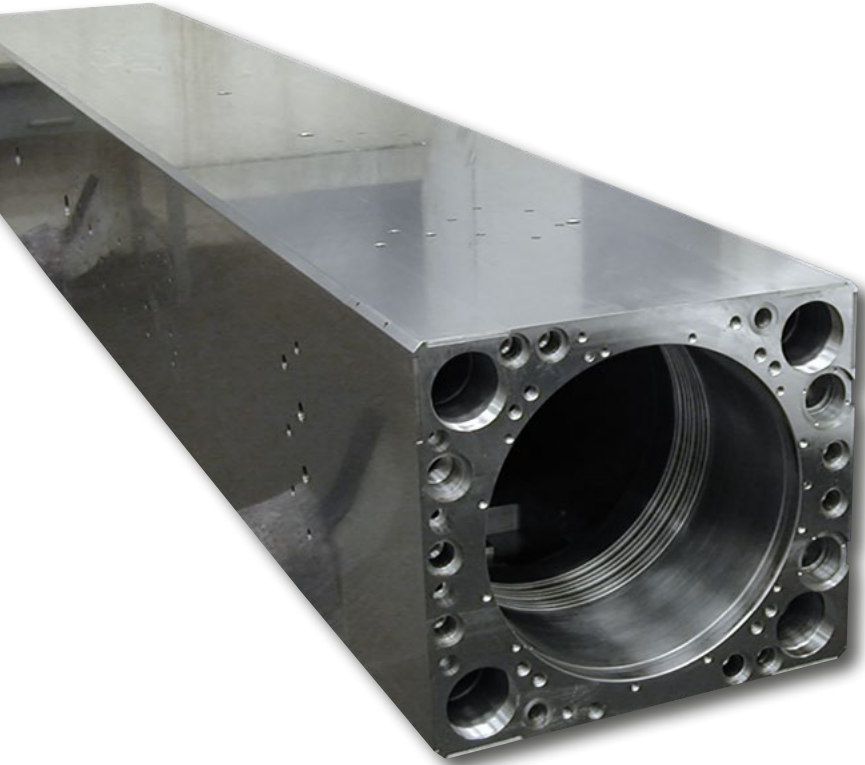


Intermediate shaft for a vertical turning machine



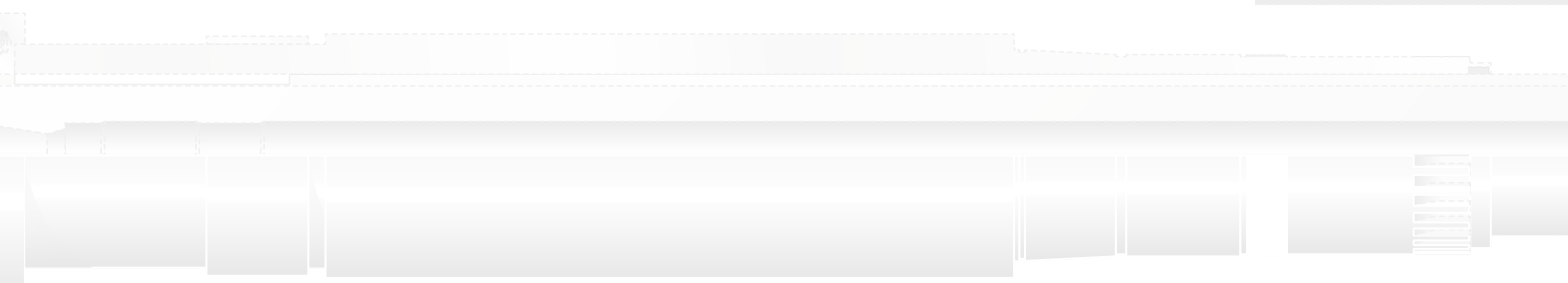
All production steps and the entire logistics chain are handled in-house – from the raw component inventory to shipping

AM Boring Spindle Assemblies with Carrying Sleeves



Special technology for interior grinding machining of the bearing seats in the ram to achieve optimum boring machine heat development

- Customized single components or installation ready, completely pre-mounted units based on your drawings
- Carrying sleeves in rectangular or round ram designs in lengths **up to 5,000 mm length**
- Outstanding running performance and minimized heat development thanks to μm -precise bearing seat fabrication in support areas in the ram with **round turns $\leq 3 \mu\text{m}$**
- Boring spindle diameters of **100 to 260 mm**; larger diameters available upon request
- Boring spindle lengths of **6,000 mm and more**
- Hollow spindle round ground across the entire interior length and paired with the boring spindle to lubrication film thickness
- Boring and hollow spindle with deep-nitrided, wear resistant surfaces – upon request also available in a design featuring sliding bushings





Boring spindle assembly featuring a hollow spindle with hydrostatic bearing

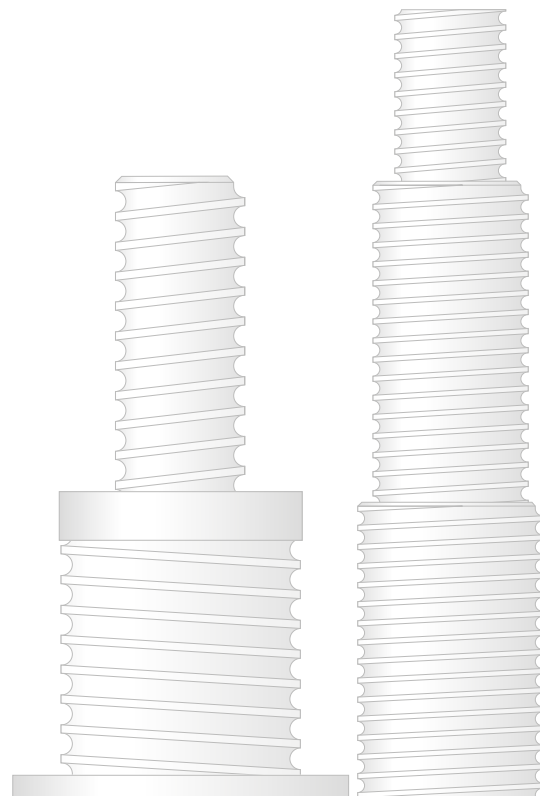
AM Machine Components and Special Solutions



Precision machine components for sheet metal and plastics machining

We manufacture machine elements and components for numerous applications as individual components or in small to medium volume batches, e.g.:

- Piston machines
- Fluid-flow engines
- Wind power plants
- Solar technology
- Semiconductor technology
- Power plant and turbine construction
- Environmental technology
- Large scale transmission manufacturing
- Roller systems technology
- Press and stamping machine engineering
- Pipe production and pipe machining
- Horizontal and vertical dividers for line systems
- Printing machines
- Optical machine engineering
- Automotive production
- Plastics technology
- Process technical machines and systems
- Automation technology
- Testing systems
- Special machine engineering





Pump shaft for fluid-flow and impact spindle for machine tool manufacturing



Machine components that have to meet production technically exacting demands: maximum cone dimensions and matching blanks

Dependability and Quality

TÜV NORD

CERTIFICATE

Management system as per
DIN EN ISO 9001 : 2015

In accordance with TÜV NORD CERT procedures, it is hereby certified that

A.MANNESMANN MASCHINENFABRIK GmbH
Blidinghauser Straße 27
42859 Remscheid
Germany

A.MANNESMANN
High quality
A member of
SCHNEEBERGER linear technology

applies a management system in line with the above standard for the following scope

Production of mechanical components of high precision

Certificate Registration No. 04 100 950506
Audit Report No. 3518 8100

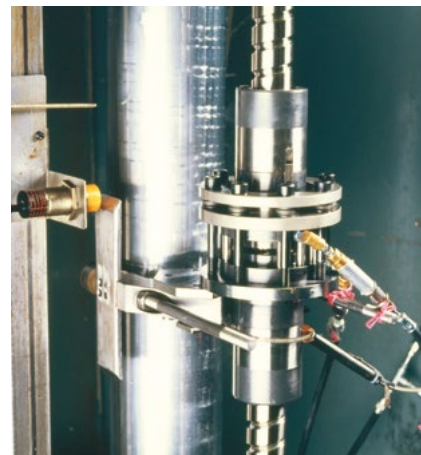
Valid from 2017-03-24
Valid until 2020-03-23
Initial certification 1995

Essen, 2017-02-27

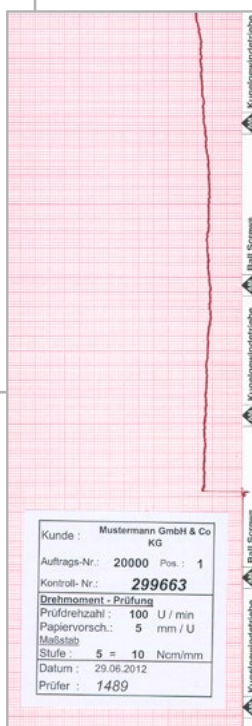
This certification was conducted in accordance with the TÜV NORD CERT auditing and certification procedures and is subject to regular surveillance audits.

TÜV NORD CERT GmbH Langemarckstraße 20 45141 Essen www.tuev-nord-cert.com

IAF DAKKS Deutsche Akkreditierungsstelle D-2M-13007-01-01



AM ball screw on a high speed permanent testing center



- Precision from start to finish across the entire process chain
- Consulting, planning, production, documentation and shipping
- We deliver documented quality, upon request with acceptance certificates pursuant to EN 1024
- Our quality management system is DIN EN ISO 9001 certified



Innovation and Progress

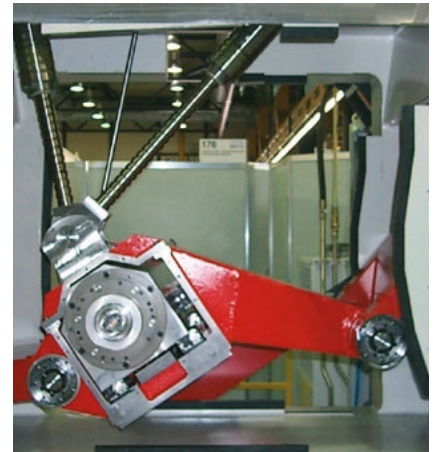
Theory and Practical Reality

As a result of being in permanent contact with renowned research institutions and actively involved in projects, the latest findings of science are directly translated into practical applications at our enterprise.

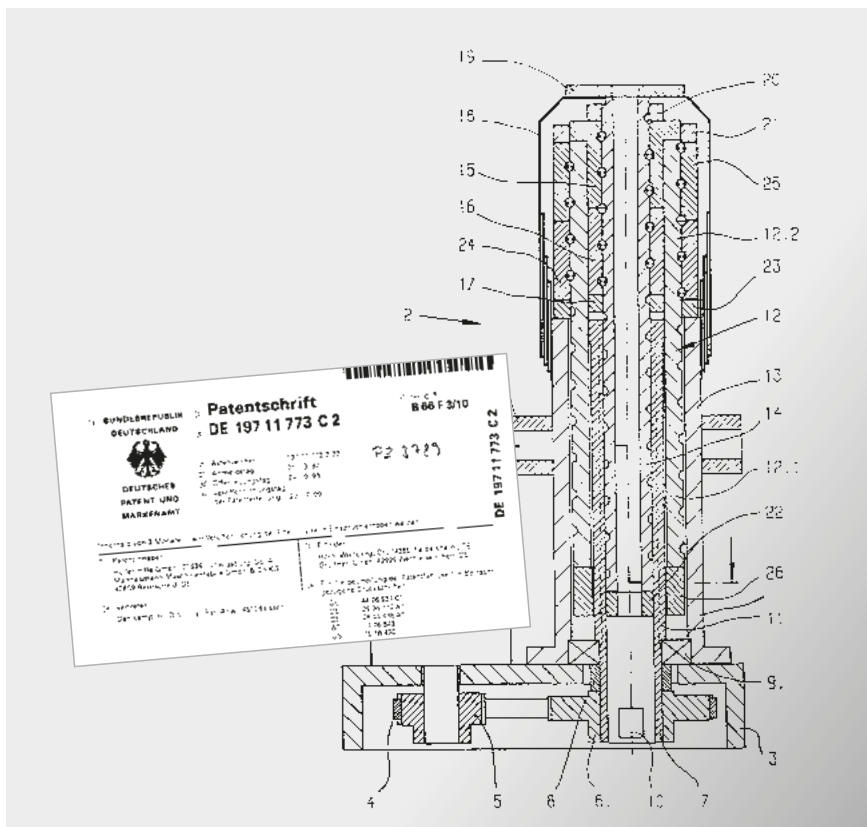
Customized Solutions

We develop technical solutions that accommodate exacting and specific needs in close cooperation with our customers for complex projects. Based on the spirit of trust-based collaboration we apply our vast pool of know-how and make it a part of each development project.

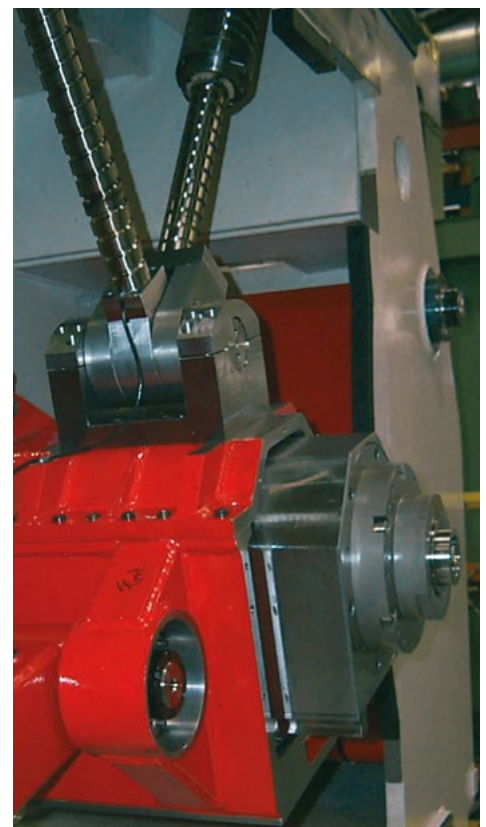
Simply give us a detailed description of your business cases or needs and we will be pleased to develop tailored product solutions for you.



AM telescopic ball screws for different alignment positions



Patented AM telescopic ball screws



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