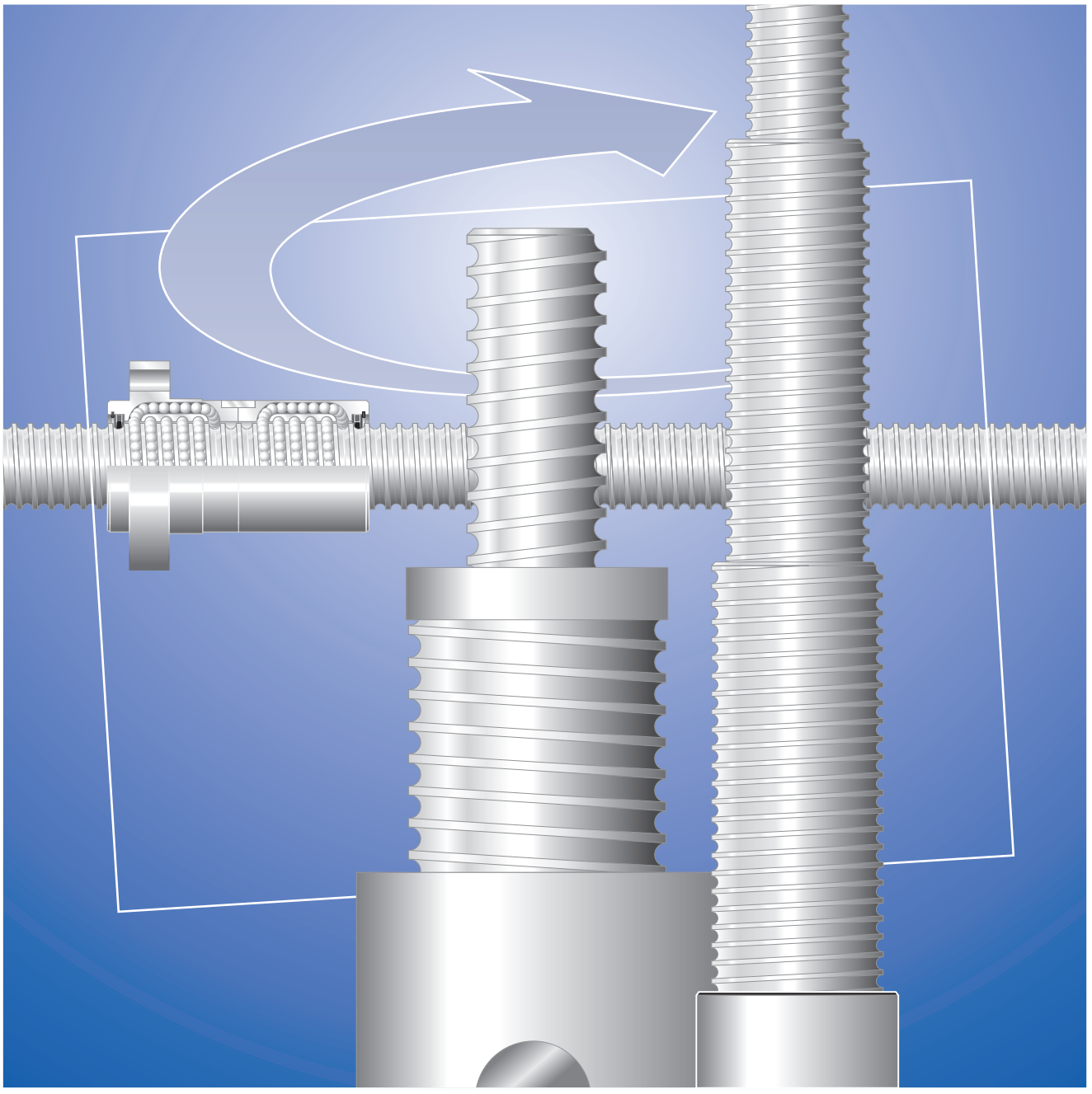
AM Telescopic Ball Screws



AM Precision

A.MANNESMANN MASCHINENFABRIK REMSCHEID

AM Telescopic Ball Screws

AM telescopic ball screws make the ideal drive elements for demanding alignment and positioning tasks in restricted areas. The high-precision electro-mechanically operated construction element enables the user to control and monitor movement sequences numerically.

AM telescopic ball screws are carefully designed and manufactured for individual applications. The special features include:

- low installation height, enabling a compact design in the retracted condition the telescopic function enables very large stroke movements
- outstanding running quality at high and low feed speeds
- high dynamics
- smooth operation, high efficiency and low heat generation
- perfectly smooth starting and positioning
- backlash-free operation under tractive and compressive forces
- very high stiffness
- positioning accurate to the micron
- position definition by shaft encoder of the drive element

The heart of the highly innovative AM telescope technology is the know-how gathered over many years in the development and production of AM high-performance telescopic ball screws. With their deep-nitrided, high-precision spindles, AM high-performance telescopic ball screws stand out for their high dynamics, long-term precision and extremely long working life, and have proven themselves for many years in demanding engineering applications.

The unique AM telescope principle is based on the cascading of several ball screws, in which the spindles are hollow, and are provided with an internal thread. In this way, the spindle serves simultaneously as the holder for another spindle.

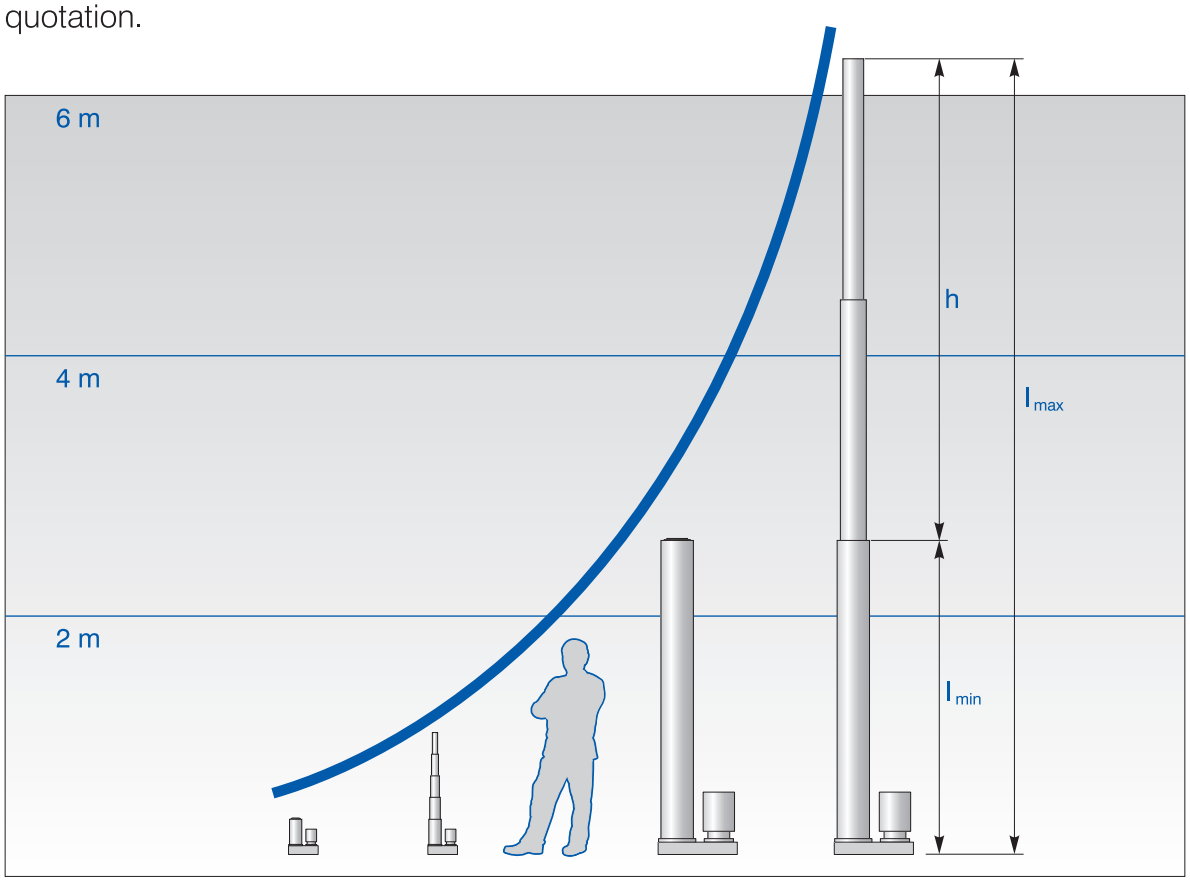
This sophisticated technology, combined with maximum precision and tested quality, offers designers and users versatile and interesting possibilities for the creation of reliable and capable system solutions offering outstanding economy.

AM double telescopic ball screw with gear stage for simultaneous drive

The following table shows data on specific customer variants of AM telescopic ball screws.

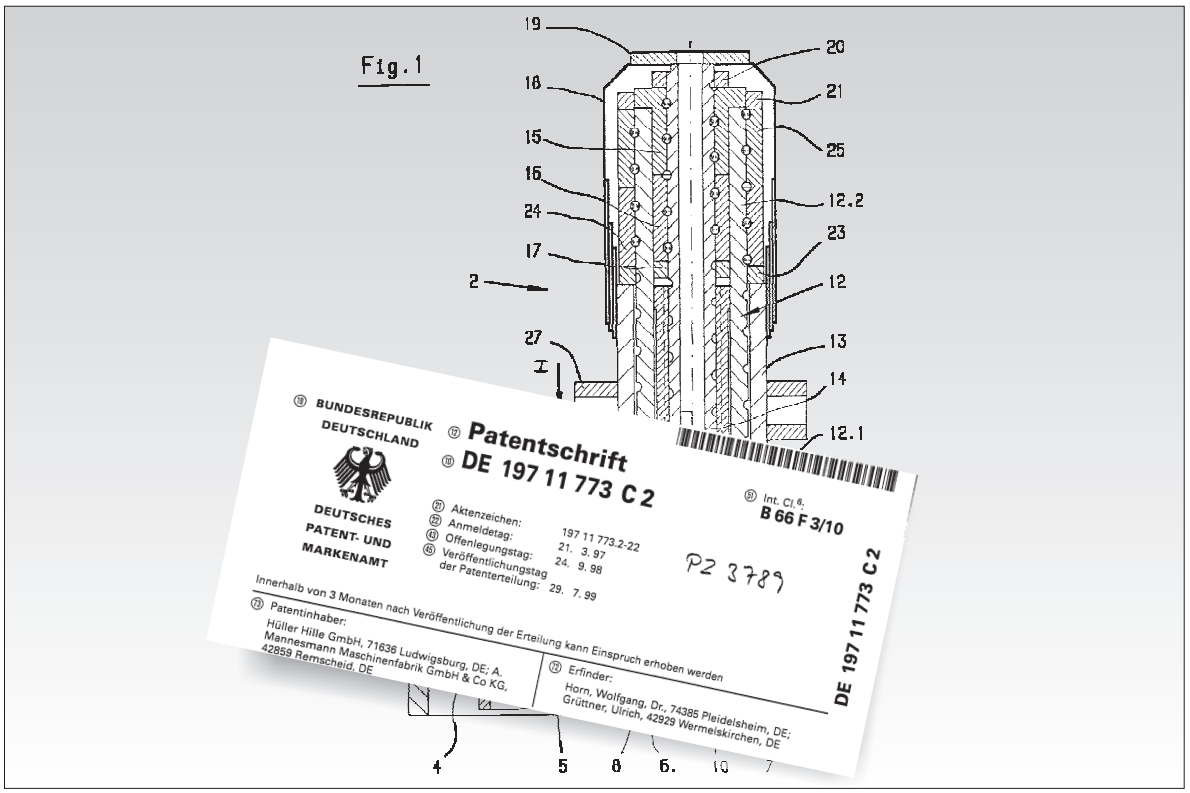
		Number of stages 2	≥3
Min. installation height l_{min}	mm	400 - 2,800	150 - 500
Max. installation height l_{max}	mm	900 - 7,800	350 - 2,500
Stroke h	mm	500 - 5,000	200 - 2,000
Dynamic load coefficient C_{am}	kN	10 - 200	10 - 200
Stroke load / adjustment force	kN	1 - 100	1 - 100
Max. feed speed	m/min	0.0005 - 100	0.005 - 5
Positioning accuracy	mm	≥ 0.001	≥ 0.1
Lubrication		Grease	Grease
Extension of stages		Simultanious	Consecutive
Remarks		Backlash-free smooth positioning high dynamics	Low-play, smooth accurate positioning

Layouts and design proposals are worked out individually for each application. Simply describe your requirement, and we will be happy to provide you with a quotation.

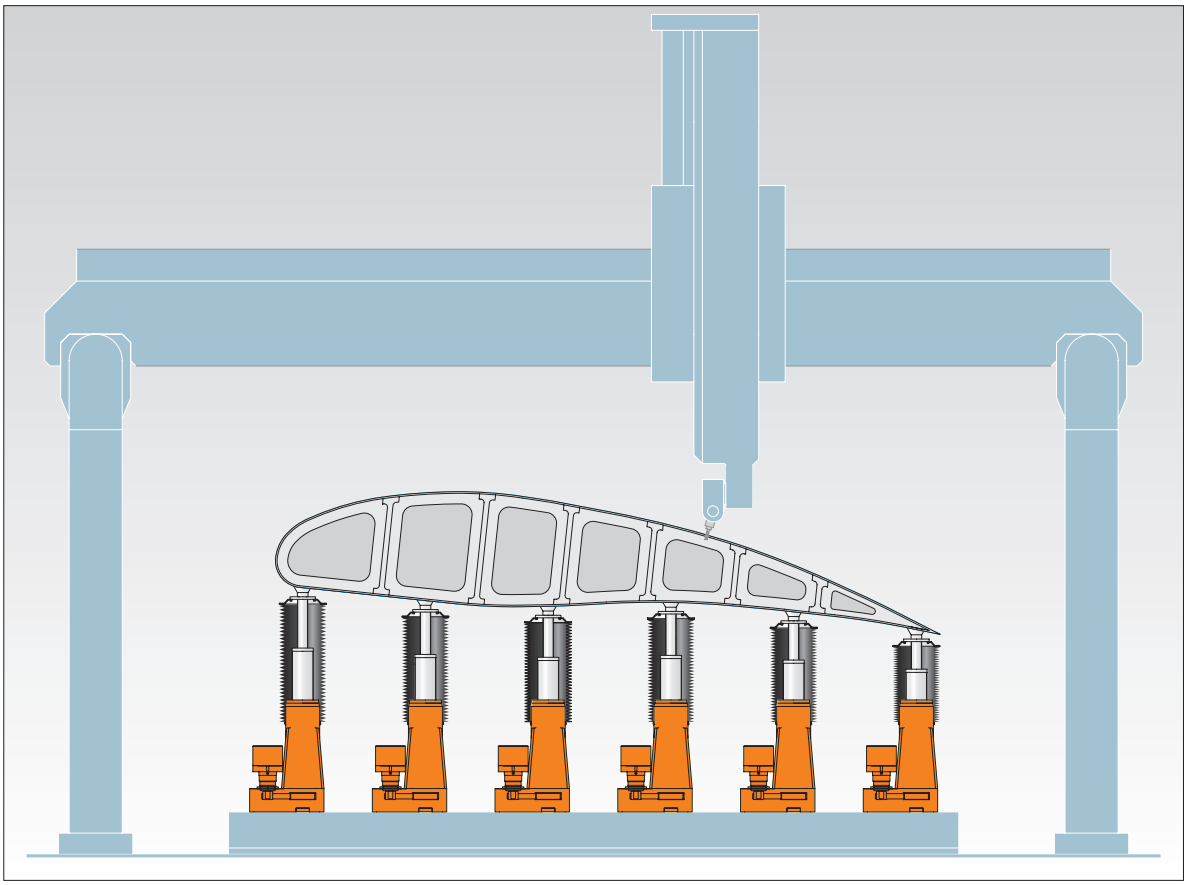


AM telescopic ball screws with different construction lengths and maximum strokes

AM telescopic ball screws for different alignment positions



The patented AM telescopic ball screw



Positioning and alignment of spatial curved components with AM telescopic ball screws

A perfect example of the use of telescopic ball screws is the automated positioning and alignment of light aircraft components on processing machines. This technical solution enables a substantial reduction of the fitting times, and a consequent significant improvement in the productivity of the processing machine.

On the machine bed, AM telescopic ball screws are positioned at various fixed points. These can be attached on the machine bed in the vertical or inclined position. Each telescopic unit is equipped with its own electric motor and gears. The upper ends of the telescopic units are fitted with suction cups, which are connected to a vacuum line at the base of telescopic unit. By this means, the components are held accurately in position for processing.

Once a particular component type has first been positioned and aligned, the positioning data of the telescopic units is saved in the machine controls. When this same component type needs to be processed again, the data can be called up again, and the telescopic units brought into the exact position in a matter of seconds.

AM Telescopic Ball Screws

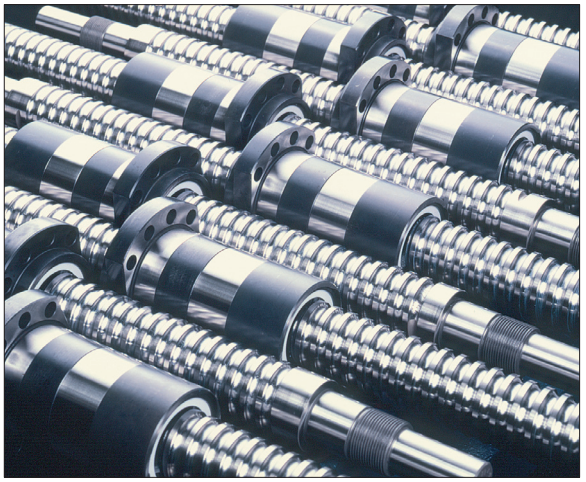
AM telescopic ball screws with long strokes in the smallest possible space and different stage numbers

AM Ball Screws

In addition to telescopic ball screws, we also offer a comprehensive range of high-performance ball screws with deep-nitrided screws. In accordance with DIN 69051 Part 2, the following combinations of nominal diameter and lead are available as standard.

Special versions are also available on request. Further information can be found in our **AM Ball Screw brochure**.

d_0 \ P	5	10	15	20	25	30	40
25	■	■					
32	■	■	■	■			
40	■	■	■	■	■		■
50	■	■	■	■	■	■	■
63	■	■	■	■	■	■	■
80		■		■		■	■
100		■		■		■	■
125		■		■			■
160				■			■



AM Machine Components

We manufacture geometrically demanding machine elements individually according to our customers' drawings in lengths of up to 15 m, with maximum surface quality, including heat treatment, in our own works.

For machine tools and general engineering applications, we produce:

- Main spindles and quills
- Boring spindle assemblies with rams
- Milling spindles
- Spline shafts
- Threaded spindles
- Driving shafts
- Adjusting screws and nuts
- Rotary knife shafts
- Control shafts
- Straightening rollers, torsion spindles
- Winding mandrels
- Piston rods
- Plungers
- Cylinder liners
- and a wide range of similar machine components for further industrial and technical applications

Further information can be found in our **AM Machine Components brochure.**

TÜV CERT EN ISO 9001 QA 041005506

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