



## Ball Screws for Aerospace Applications.

- Built-to-print
- Built-to-spec
- Engineering services



# Ball Screws for Aerospace Applications.

## Steinmeyer develops customized solutions for many applications in the aerospace industry.

The focus during the entire development right up to the start of production is the close customer relationship. Already the first contacts were conducted in close cooperation between the customer and the aerospace team of Steinmeyer. This ensures that the initial designs are already close to the customers needs. Through a regular exchange of information,

reliable and customer-specific products are developed. After a joint qualification of the components approval is made for serial production, according to industry standards. Quality during the entire process from the request for the production of the first ball screw drive and beyond is ensured by implementing a EN9100-certified QM system.

In addition to more than 50 years of experience in the development and manufacture of ball screw drives, Steinmeyer has been developing and manufacturing special ball screw drives for various aerospace applications for 10 years.

The fulfillment of the additional requirements of this sector was built through a long-term development phase. Meanwhile, Steinmeyer has extensive experience in Aerospace and has established itself in the market.

[www.steinmeyer.com](http://www.steinmeyer.com)

## A brief overview of the possibilities of Steinmeyer Aerospace:

- Built-to-print: Production of existing programs according to the present designs.  
Short-term realization of your needs.
- Built-to-spec: Reliable partner in the development, design and manufacture of ball screws according to your specifications.
- Engineering services in the field of design and development of ball screw drives.  
Support of the qualification process.

On the following pages you will find an overview of the different product groups of Steinmeyer Aerospace.



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[drive.steinmeyer.com/downloads](http://drive.steinmeyer.com/downloads)

# Ball Screws for Flap Actuators.

## High requirements for Flap Ball Screws.

Ball Screws for flap actuators set high standards especially on the load capacity and the reliability of the ball screw.

## Customized solutions for best customer satisfaction.

For actuators in various flap applications, Steinmeyer Aerospace offers a wide range of ball screw drives. In close collaboration with the customer, there are many ball screw already realized and tested in the series.

Meanwhile a huge range of technical designs has developed, including specific solutions with spherical suspension, gimbal suspension or modular systems for example.

### Contact:

Phone +49 (0) 7431 1288-0

E-mail [aerospace@steinmeyer.com](mailto:aerospace@steinmeyer.com)



## Reliability is not a coincidence

Only an experienced design organization can ensure that the product will meet all requirements. Analysis helps define the characteristics needed, and simulation then shows where adjustments are necessary long before the first metal is cut. Steinmeyer employs computer aided design and numerical simulation throughout the development process. When the first hardware is finally put through the tests that were identified as necessary to ensure safety and reliability, our engineers remain confident. We don't expect surprises when the gauges of the test rig indicate full load.

# Ball Screws for Electromechanical Actuators.

## Different applications - different requirements.

The various applications for electromechanical actuators implicates different requirements on the ball screws.

## Optimized solutions.

Based on many years of experience in design and manufacturing of ball screws, Steinmeyer can draw on a broad spectrum of products for various other actuators in aviation applications, including solutions for air-conditioning, cost-optimized solutions for electromechanical actuators or door actuators.



## Efficiency testing

Our test lab is equipped with test benches for efficiency testing of screws in different sizes and configurations in a wide range of loads up to 125 kN and strokes up to 2 meters. We also have special test benches for brake actuators as well as the testing of missile fin actuators and other very fast running screws.

# Ball Screws for Actuators for Braking Systems.

## Braking applications – high loads.

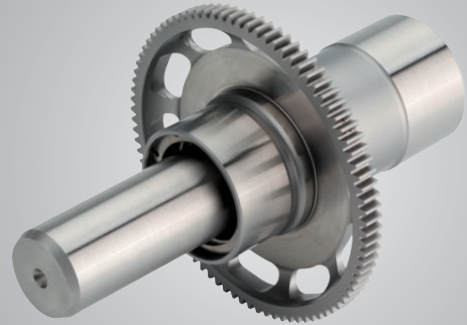
Another application for ball screws with high load capacities are the brake actuators.

## Powerful solutions.

In the field of ball screw drives for brake actuators, Steinmeyer has already implemented several products. The focus here is on the development of specific solutions with extremely high load capacity, optimized solutions with minimized installation space as well as customer-specific designs.

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Phone +49 (0) 7431 1288-0  
E-mail [aerospace@steinmeyer.com](mailto:aerospace@steinmeyer.com)



## Limit load and ultimate load testing

On test rigs with up to 400 kN of force, we can demonstrate safety of our product in static and quasi-static load tests. If required, prototypes are put through endurance tests and subjected to adverse environmental conditions prior to or during the test.

# Ball Screws for Space and Unmanned Air Vehicles.

## Space applications – weight-saving.

Especially in the field of space, weight-saving is one of the important requirements. Therefore we offer titanium versions for example.

## Economical solutions for high quantities.

In addition, we are able to handle high quantities of ball screws for the control of missiles and for unmanned air vehicles, economically.

## Quality management for aerospace.

For aerospace applications Steinmeyer is certified according to DIN EN 9100 for the development, production, assembly and final inspection of ball screws. Non-destructive testing (NDT) and other special processes are outsourced to partners with the necessary qualifications, including NADCAP certificates. We control the quality procedures of our suppliers through strict enforcement of process standards.



## Endurance testing

Life testing is an important part of the development and qualification process. Our universal test bench is capable of testing screws of almost any size with a load routine to simulate the operation of the actuator long before the first actuator is built. We can even simulate the environmental conditions to which the screw will be subjected.

# Steinmeyer – Your reliable partner for Ball Screws.

The design of modern machines with linear drives places high demands on precision and reliability. Incorporating ball screws, which have become an indispensable engineering component, requires a high degree of pro-

duct knowledge. Steinmeyer, as the leading manufacturer of high precision ball screws, is your indispensable partner for development, production, and application engineering.

**We are a leader in ball screw assembly innovation for applications within mechatronics, optics and aerospace, worldwide.**



[www.steinmeyer.com](http://www.steinmeyer.com)



Welcome to where precision is.



#### Our product range:

- Miniature Ball Screws 3-16 mm
- Large Ball Screws 16-125 mm
- Ultra Thrust Ball Screws 32-160 mm
- Aerospace Ball Screws
- Rotating Nuts
- Precision Lead Screws

With more than 460 employees, Steinmeyer is the leading competence center in Europe in the fully integrated manufacturing of ball screws.

#### August Steinmeyer GmbH & Co. KG

Riedstraße 7  
72458 Albstadt  
Germany

Phone +49 (0) 7431 1288-0  
Fax +49 (0) 7431 1288-89

E-mail [info@steinmeyer.com](mailto:info@steinmeyer.com)  
Internet [www.steinmeyer.com](http://www.steinmeyer.com)

#### Steinmeyer, Inc.

56 Middlesex Turnpike, Suite 200  
Burlington, MA 01803  
United States

Phone +1 781 273-6220  
Fax +1 781 273-6602

E-mail [infoUSA@steinmeyer.com](mailto:infoUSA@steinmeyer.com)  
Internet [www.steinmeyer.com](http://www.steinmeyer.com)

