# Welcome to isel

# www.isel-germany.de

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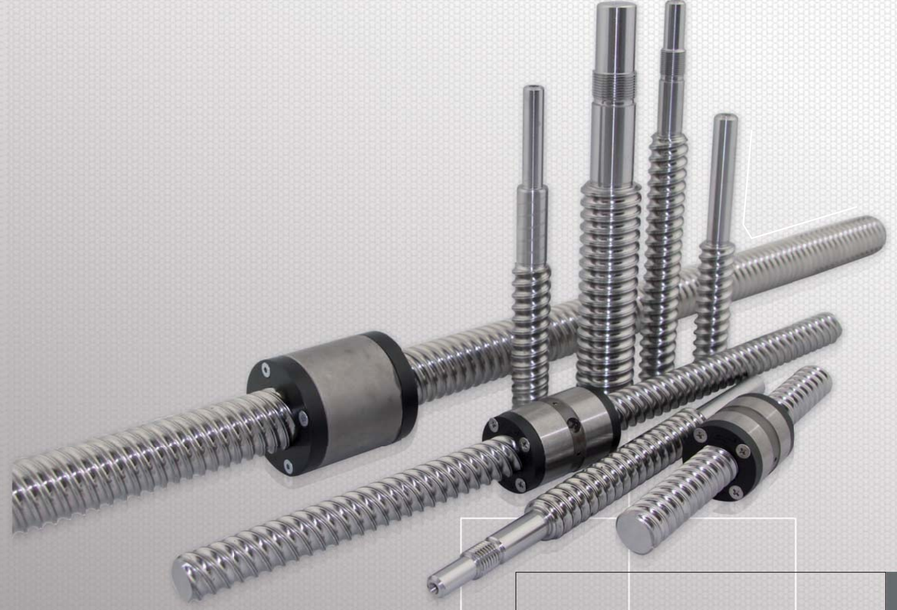


*From Components to Systems*

**Ball screw** nuts
**Ball screw** spindles

... tried-and-tested precision "made in Germany"

## The locations of the isel group of companies

**Dermbach plant**
(approx. 14,000 m2)
Untere Röde 2
D-36446 Dermbach

**Eichenzell plant**
(approx. 11,000 m2)
Bürgermeister-
Ebert-Str. 40
D-36124 Eichenzell

**Eiterfeld plant**
(approx. 8000 m2)
Im Leibolzgraben 16
D-36132 Eiterfeld

## The company

Isel Germany AG is the core company of the isel group of companies founded in 1972 in Eiterfeld under the company name isert-Elektronik.

The nature and purpose of the business is the development, production, sale and servicing of mechatronic components and systems for industrial automation. The company operates according to the slogan "From the components to the system" and offers integrated products for the areas of MECHANICS, ELECTRONICS, SOFTWARE and SYSTEMS.

Isel Germany AG has a total of 33,000 m² of production, warehouse and office areas at the company locations in Eichenzell, Eiterfeld and Dermbach. The company operates on the global market and its activities include almost all branches and customer groups.

## The company objectives

The goal of isel Germany AG is to provide products and services at an optimal price/performance ratio.

From development and production through sales and service and up to consultation and training – everything is offered from the one source.

The modular arrangement of all isel products, including open interfaces to the control systems and software used, allows customer-orientated solutions. The business fields also includes remittance work and project planning for OEM customers in all sectors, which can then be successfully implemented with isel products, specific in-house products and expert end-consumer solutions.

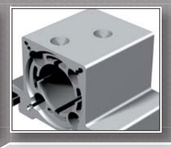
*From Components to Systems* **isel**®

## Ball screws made by isel – made in Germany

The quality-assurance system for our products includes all areas that contribute to achieving the quality objectives.

It is based on legal requirements, customer requirements and the internal quality requirements of isel Germany. This ensures that manufacturing processes take place under controlled conditions and that only products that comply with the respective specifications are sent on to the next work cycle.

The following elements have been introduced and applied in accordance with DIN ISO 9001:2000: control of documents and data | purchasing | inspection (receiving, intermediary and final inspection) | inspection of measuring and testing equipment | inspection status | control of defective products | corrective and preventative measures | handling, storage, packaging, conservation and dispatch.










## Design – in Germany

Our in-house design department checks all technical requirements and works in close collaboration with the production engineers to ensure your order can be quickly and flexibly integrated into the production process.

isel – tailor-made solutions





isel®

Our ball screw spindles are "made in Germany" and manufactured on the most modern machines in right-hand threaded, rolled design. The ball screw spindles are available with diameters of 16/ 25 mm, with lead angles of 2.5/4/5/10 and 20 mm. They can be supplied in a range of lengths up to 3700 mm with one- or two-sided end machining.

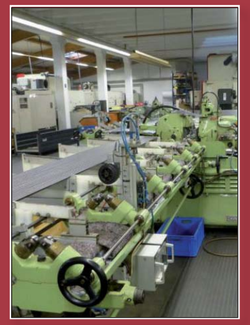
isel Germany AG offers a range of standard end machining that can be tailored to the customer's requirements.

The ball screw spindles are made of induction hardened material CF53 (HRC 60 ±2) and comply with the Standard DIN 69051, Part 3, Tolerance Class 7. Moreover, as an optional extra, the spindles can be supplied as corrosion-resistant.

The special design and construction of the ball screw nuts make it possible to set a clearance-free adjustment of the ball screw spindle. The repeat accuracy amounts to less than 0.01 mm over a 300 mm length. A lubrication nipple has been fitted on the clamping block for lubrication of the linear drive. The advantages of the newly developed KGM II series are decreased drive power and less wear plus higher processing speed and positioning accuracy as well as achieving a higher load rating.

To guarantee consistent quality, modern 3D measurement technology has been used for inspecting the ball screw spindles and ball screw nuts.

Other accessories such as flange bearings, couplings and connection blocks complete the range.



## Manufacturing – in Germany

With over 25 years of experience and sales of more than 1 million units, "isel" has created core competence in the area of ball screws. Our drives are technically mature and have proved themselves in many applications in practical use. The specialist skills of our highly qualified employees are a significant contributing factor on our path to creating technically perfect and economically successful solutions. isel Germany AG offers products to meet every special customer requirement. Thanks to our very modern manufacturing plants, we are able to carry out all work processes (rolling, hardening and polishing) efficiently and according to the customer's specifications. They precisely meet the special requirements that you give to us. Please get in contact with us or give us a call to discuss your area of application or individual case. You will find us an attentive and skilled partner.

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## Customized production

Our modern machine plant can supply you with precision parts according to drawings or prototypes for all materials at any time. That's because speed, precision and flexibility are our competitive advantage.

## Quality assurance

The maintenance and further development of prescribed quality objectives for design, manufacturing, sales, installation and maintenance of our machines and plants is assured by our integrated quality-management system. The certifications we have been awarded documents our customer-orientated quality philosophy.

# Ball screw spindles

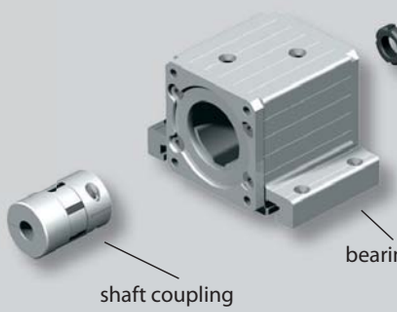
- precise
- low friction
- robust
- economical

## 16 mm









## 25 mm













### Common features

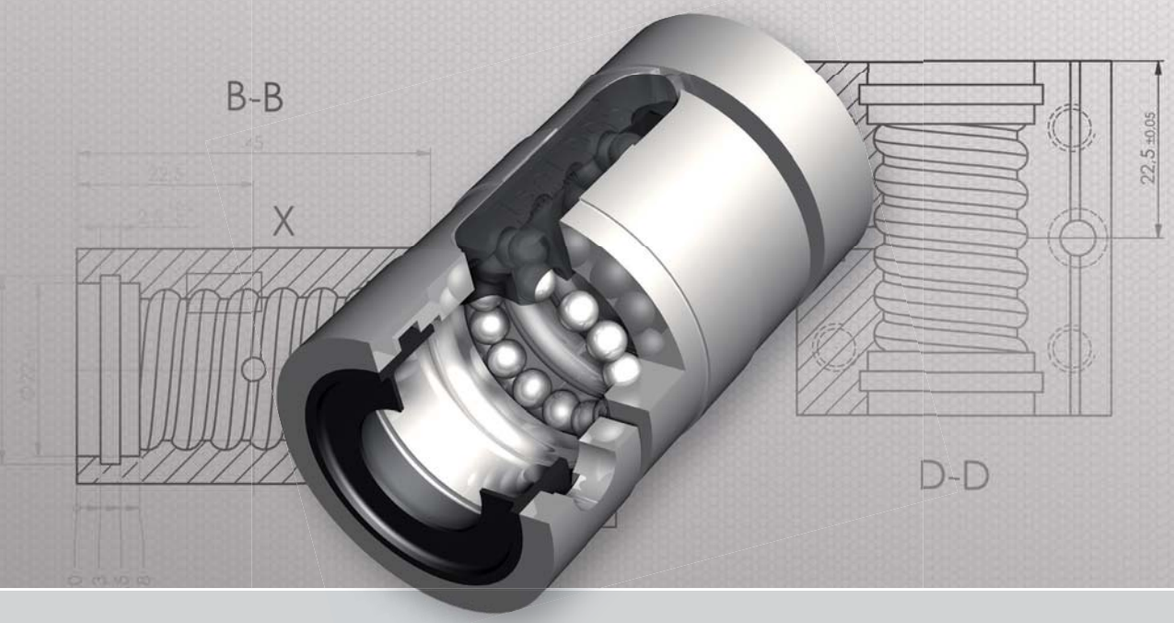
- Made in Germany
- Rolled, hardened and polished
- CF 53 material, induction hardened (HRC 60±2); (see DIN 17212 for detailed information)
- Manufactured in accordance with DIN 69051, Part 3, tolerance class 7
- Corrosion-resistant in accordance with RP 7 protection rating
- Lengths up to a max. 3700 mm can be supplied
- End machining in accordance with isel standards or according to customer specifications
- Optional corrosion-resistance

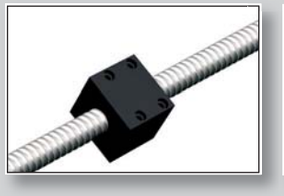
### The difference lies in the diameter and the lead angle

- lead angle Ø 16 mm: 2,5 / 4 / 5 / 10 / 20 mm
- lead angle Ø 25 mm: 5 / 10 / 20 mm

# Round and flange nuts for sophisticated and creative design solutions – made by isel

## Ball screw rectangular nut and ball screw round nut I with single-path return




## Ball screw round nut II and ball screw flange nut with complete ball return

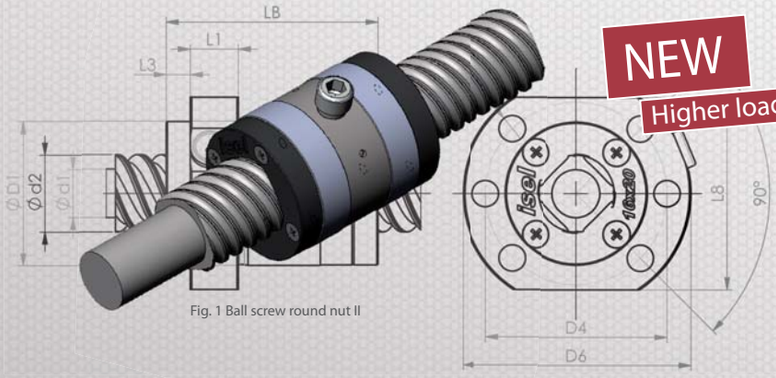



Fig. 1 Ball screw round nut II

NEW

Higher load rating

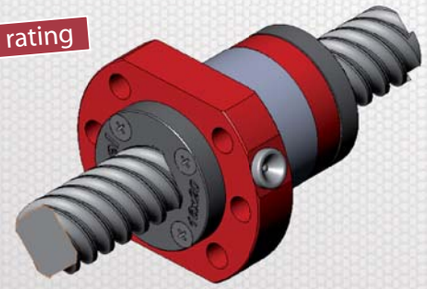


Fig. 2 Ball screw flange nut

## Technical data ball screw flange nut / ball screw round nut

| | d2 | Lead Angle | Load rating C [N] | Load rating Co [N] |
|---|---|---|---|---|
| 16x5 | 16 | 5 | 10000 | 19000 |
| 16x10 | 16 | 10 | 10000 | 19000 |
| 16x20 | 16 | 20 | 13000 | 29000 |
| 20x5 | 20 | 5 | 12000 | 27000 |
| 20x10 | 20 | 10 | 12000 | 27000 |
| 20x20 | 20 | 20 | 15000 | 35000 |
| 25x5 | 25 | 5 | 18000 | 45000 |
| 25x10 | 25 | 10 | 18000 | 45000 |
| 25x20 | 25 | 20 | 16000 | 40000 |
| 32x5 | 32 | 5 | 20000 | 60000 |




## Features ball screw rectangular nut – Ø 16 mm

- Material 16MnCr5 or 20MnCr5, pressed, hardened, polished
- Version for ball screw spindle Ø 16 mm
- Nut lead angle: 2.5 / 4 / 5 / 10 mm
- Balls are internally recirculated
- As block casing with foot mounting
- Lubrication through the lubrication nipple 90°, 0°

| Lead angle | Rated Ø | Dyn. Load rating | Stat. Load rating |
|---|---|---|---|
| 2.5 mm | 16 mm | 3500 N | 5500 N |
| 4.0 mm | 16 mm | 4600 N | 7200 N |
| 5.0 mm | 16 mm | 4600 N | 7200 N |
| 10.0 mm | 16 mm | 4200 N | 6500 N |

## Features ball screw round nut I – Ø 16, 25

- Material 16MnCr5, polished
- Versions for ball screw spindle Ø16 and Ø25 mm
- Nut lead angles: 2.5 / 4 / 5 / 10 and 20 mm (Ø 16 mm), 5 /10 and 20 mm (Ø 25 mm)
- Balls are internally recirculated
- The versions with nut lead angle 20 are delivered with wipers

| Lead | Rated Ø | Dyn. Load rating | Stat. Load rating |
|---|---|---|---|
| 2.5 mm | 16 mm | 3500 N | 5500 N |
| 4.0 mm | 16 mm | 4600 N | 7200 N |
| 5.0 mm | 16 mm | 4600 N | 7200 N |
| 10.0 mm | 16 mm | 4200 N | 6500 N |
| 5.0 mm | 25 mm | 5100 N | 12600 N |
| 10.0 mm | 25 mm | 5100 N | 12600 N |
| 20.0 mm | 25 mm | 3750 N | 8800 N |

## Features ball screw round nut II - Ø 16, 25 - Fig. 1

- Material 16MnCr5, polished
- Version for ball screw spindle Ø 16 / 25 mm
- Nut lead angle 5 / 10 and 20 mm
- With integrated end-cap ball return

## Features ball screw flange nut – Ø 16, 25 - Fig. 2

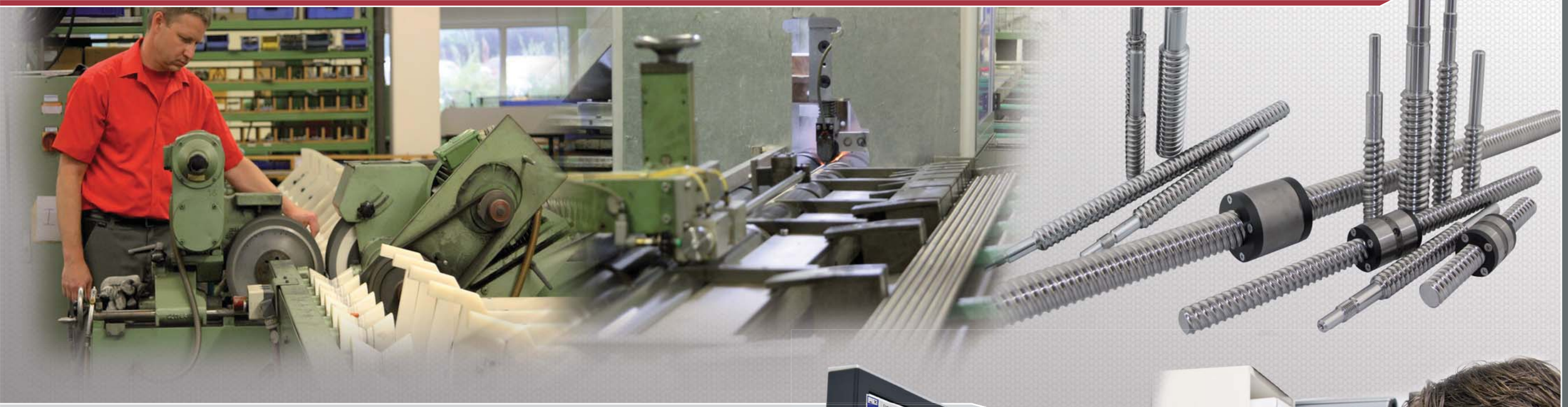
- Material 16MnCr5, polished
- Version for ball screw spindle Ø 16 / 25 mm
- Nut lead angles: 5 / 10 and 20 mm
- With integrated end-cap ball return

## Description of the ball screw round nut

"The balls screw nuts by isel Germany are high-quality, precise and wear-resistant (hardened and polished). Together with the ball screw spindles, they transfer rotary movements into linear movements with extremely low friction. The ball screw nut is inserted into the respective clamping block and positioned and fixed with a stud bolt.

The ball screw nuts have several recirculating ball paths with internal ball return. A set screw on the clamping block makes it possible to set a clearance-free adjustment of the ball screw spindle. The repeat accuracy amounts to less than 0.01 mm over a 300 mm length. A lubrication nipple has been fitted on the clamping block for lubrication of the linear drive."

# Customer-specific customizations for sophisticated and creative design solutions – made by isel



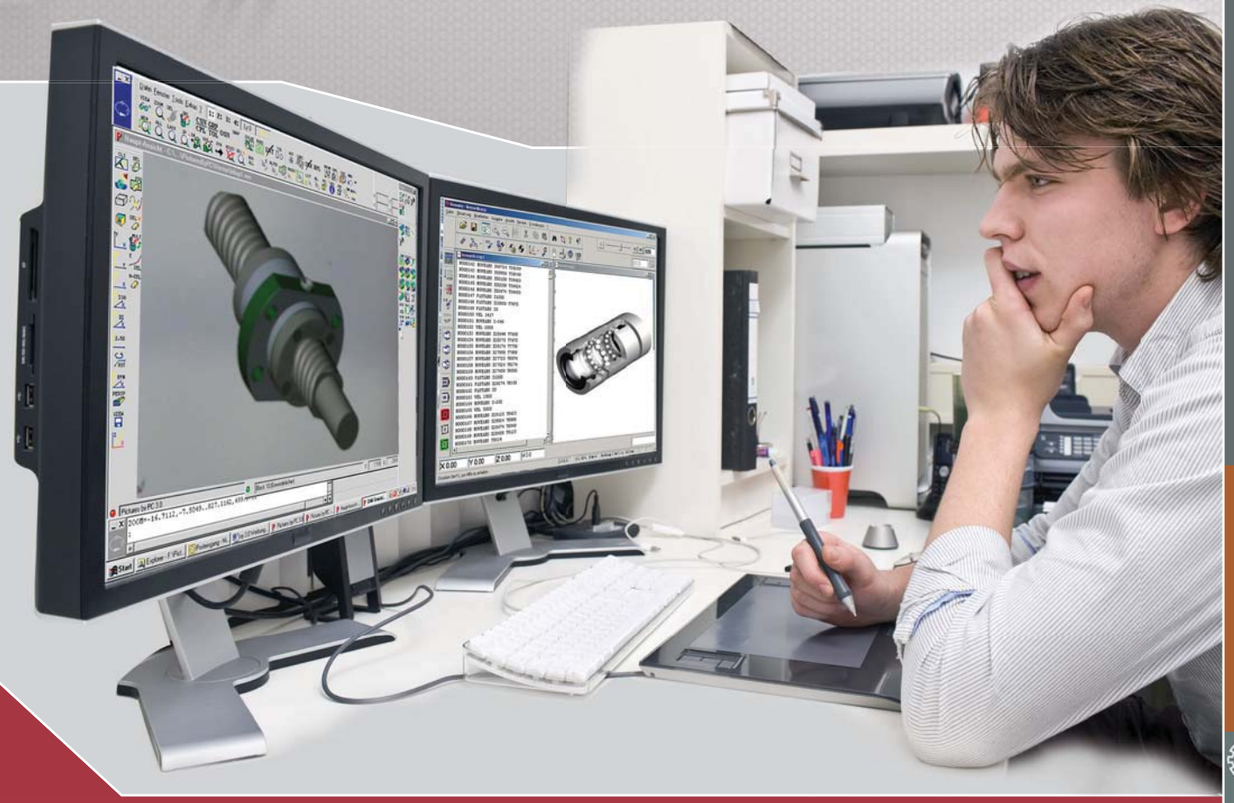
## Your benefit – our know-how

The company isel Germany AG has been manufacturing ball screw spindles on modern CNC controlled production machines also using robotics for over 25 years. Included amongst our long-standing clients are companies from the areas of

- machine and equipment construction
- electronics industry
- wood-working
- medical technology
- semiconductor industry
- training and other related areas

## Guaranteed quality

Certified processes, continuous monitoring and optimization of the production processes as well as the most modern 3D-measurement machines guarantee a consistent quality and make sure the customer's wishes are fulfilled.



## Customized manufacturing – creative and convincing

Benefit from our experience to make design ideas a reality. The most modern manufacturing technologies make testing, development and production periods short and economical, also for small series. Our series production can be carried out based on robot-assisted, fully automatic workpiece handling.

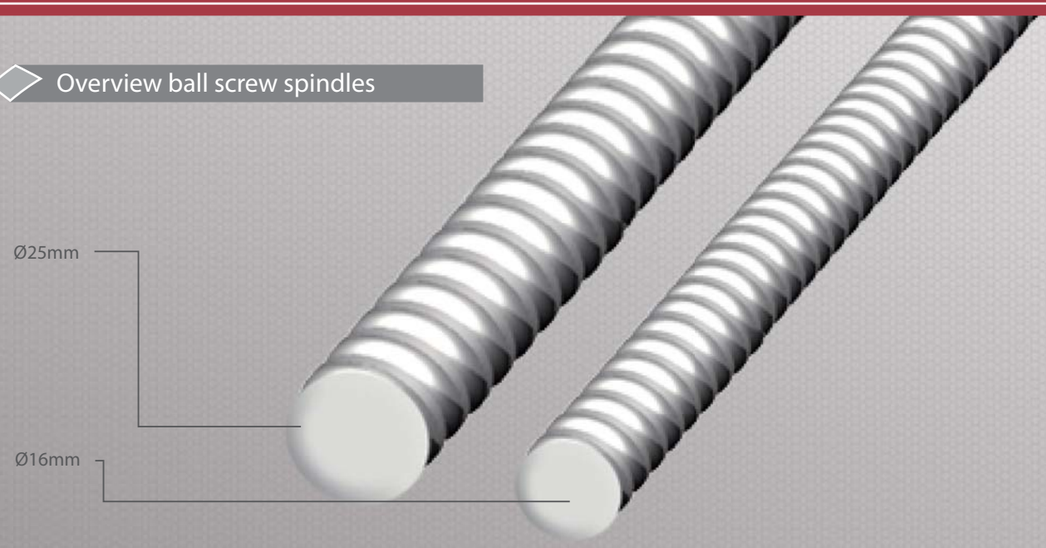
Manufacturing control continuously ensures your products are manufactured on time with optimal capacity planning and dispatch. A modern ERP system with production control modules, the latest CAD programs and processes are the requirements to ensure you receive an economical product at your desired deadline.

## Design and manufacture go hand in hand

Qualified employees with extensive experience and sound know-how are committed to intensive research, development and manufacturing of economical products.

Isel customers can take advantage of both conventional and customized products – but always exactly right for you – that will help to avoid cost-intensive downtimes and service work.

## Overview ball screw spindles




## Order number reference ball screw spindles

211 x x x x x x x

### Length

045 = 452 mm
305 = 3052 mm (shortened to the last digit)

### End machining

0 = not machined
5 = two-sided machining

### Spindle lead angle

2 = 2.5 mm (not for ball screw drive)
3 = 4 mm (not for ball screw drive)
4 = 5 mm
5 = 10 mm
6 = 20 mm

### Spindle diameter

3 = 16 mm
4 = 25 mm (only available with lead angle of 5/10/20 mm)

### Series

1 = ball screw spindle without nut
2 = ball screw drive with flange nut
3 = ball screw drive with round nut

### Ball screw spindle Ø 16 mm

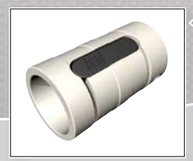
Length 3 m without end machining

Lead angle 2.5 mm
Art. No. 211132 0305
Lead angle 4.0 mm
Art. No. 211133 0305
Lead angle 5.0 mm
Art. No. 211134 0305
Lead angle 10 mm
Art. No. 211135 0305
Lead angle 20 mm
Art. No. 211136 0305

### Ball screw spindle Ø 25 mm

Length 3 m without end machining

Lead angle 5.0 mm
Art. No. 211144 0300
Lead angle 10 mm
Art. No. 211135 0300
Lead angle 20 mm
Art. No. 211136 0300



### Ball screw round nut I, Ø 16 mm

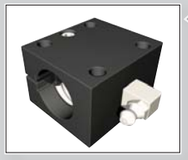
with single-path return
Ø 16 mm round nut

Lead angle 2.5 mm
Art. No. 213503
Lead angle 4.0 mm
Art. No. 213514
Lead angle 5.0 mm
Art. No. 213505
Lead angle 10 mm
Art. No. 213510
Lead angle 20 mm
Art. No. 213520

### Ball screw round nut I, Ø 25 mm

with single-path return
Ø 25 mm round nut

Lead angle 5.0 mm
Art. No. 213700 0005
Lead angle 10 mm
Art. No. 213700 0010
Lead angle 20 mm
Art. No. 213700 0020

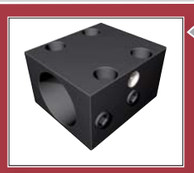


### Ball screw spindle rectangular nut, Ø 16 mm

Lead angle 2.5 mm
Art. No. 21003 1003
Lead angle 4.0 mm
Art. No. 21003 1004
Lead angle 5.0 mm
Art. No. 21003 1005
Lead angle 10 mm
Art. No. 21003 1010

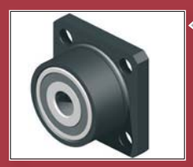
### Clamping block flange mounting

Ø16 mm, all lead angles
Art. No. 213501
Ø 25 mm, lead angle 5 /10 mm
Art. No. 213700 9003
Ø 25 mm, lead angle 20 mm
Art. No. 213700 9004



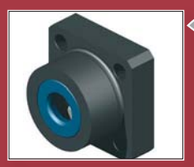
### Clamping block foot mounting

Ø 16 mm, all lead angles
Art. No. 213500
Ø 25 mm, lead angle 5 /10 mm
Art. No. 213700 9001
Ø 25 mm, lead angle 20 mm
Art. No. 213700 9002



### Flange bearing drive side

Ø16 mm
Art. No. 2165040001



### Flange bearing floating bearing side

Ø16 mm
Art. No. 2165040002

### Flange bearing drive side

Ø25 mm
Art. No. 2165040006

### Flange bearing floating bearing side

Ø25 mm
Art. No. 2165040005

### Bearing chair 1

for spindles, Ø16 mm
Art. No. 2165040007

### Bearing chair 2

for spindles, Ø25 mm
Art. No. 2165040008