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Information

The ball screw nuts from **iselautomation** are of high quality, precise and abrasion-resistant (hardened and polished). Together with the ball screw spindles, they convert rotations into linear movements most friction-poorly.

The ball screw nut is inserted in the respective clamping block and fastened with a stud screw. The ball screw nuts have several ball paths with internal ball return.

A setscrew on the clamping block makes a clearance-free adjustment of the ball screw spindle's run possible.

The repeatability is less than 0.01 mm at a length of 300 m. To lubricate the linear drive, a grease nipple is fixed on the clamping block.

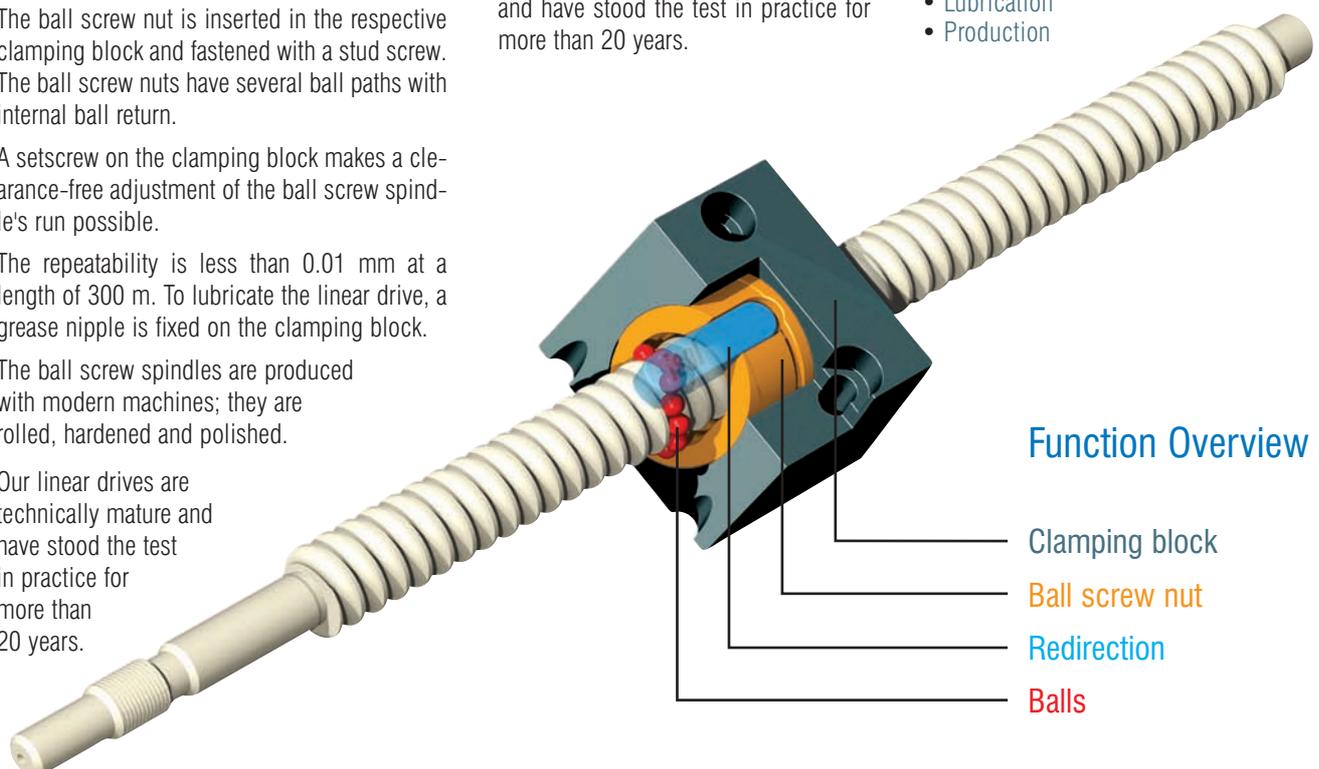
The ball screw spindles are produced with modern machines; they are rolled, hardened and polished.

Our linear drives are technically mature and have stood the test in practice for more than 20 years.

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- Ball screw nut
- Ball screw spindle
- Clamping block
- Clearance-free adjustment
- Repeatability
- Lubrication
- Production



Function Overview

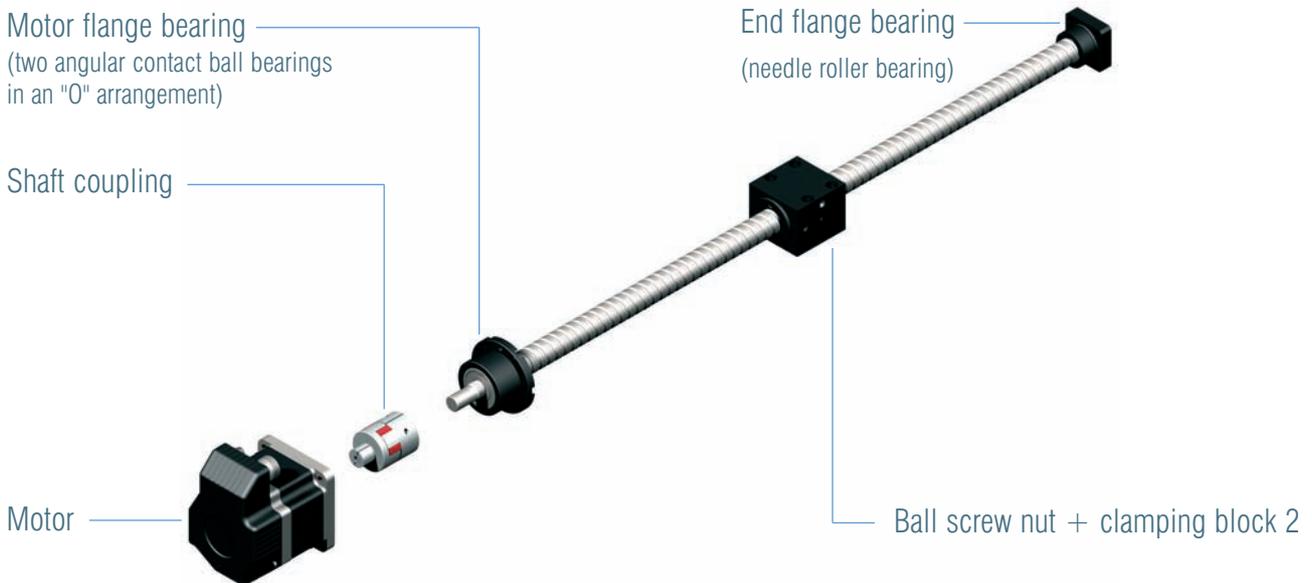
- Clamping block
- Ball screw nut
- Redirection
- Balls

Drive Components

Overview

Linear drives

At the employment of linear drives, the directly or via a toothed belt driven spindle is the most frequently applied variant.



Accessory

Shaft coupling: compensation of mismatching shaft ends (see page B 81)

Flange bearing: linear drive bearing (see page B 59)

Shaft couplings



Set consisting of two aluminium shaft coupling parts, three PUR toothed rims (86°, 92°, 98° shore) and corresponding clamping screws.

WK 30/40

for shaft diameters from 6 to 13 mm

WK 40/60

for shaft diameters from 8 to 18 mm

Motor flange bearing



Bearing of the spindle's driving side
(fixed bearing end).

Bearing bush with two angular contact ball bearings in an "O" arrangement.

Flange bearing



Bearing of the spindle's floating bearing end.

Bearing bush with to needle roller bearings.

Ball Screw Spindle

Ø16

Features

- Ø 16 mm, rolled, hardened and polished
- material CF 53, inductively hardened (HRC 60±2); (for more detailed information, see DIN 17212)
- pitches: 2,5 / 4 / 5 / 10 and 20 mm
- available in lengths up to 3,052 mm
- shaft ends treated according to the isel-standards or customer-specifically (see "available lengths")
- made according to DIN 69051, part 3, type of tolerance 7

Options

- customer-specific treatment of shaft ends

Available Lengths

Shaft ends not treated

- 452 mm
- 552 mm
- 652 mm
- 752 mm
- 852 mm
- 952 mm
- 1052 mm
- 1252 mm
- 1552 mm
- 1752 mm
- 2052 mm
- 2252 mm
- 2752 mm
- 3052 mm

Special lengths according to drawing: 211 13X 0998

Shaft ends treated on both sides

- 368 mm
- 468 mm
- 568 mm
- 668 mm
- 768 mm
- 868 mm
- 968 mm
- 1068 mm
- 1168 mm
- 1268 mm
- 1368 mm
- 1468 mm
- 1568 mm
- 1668 mm
- 1768 mm
- 1868 mm
- 1968 mm
- 2068 mm
- 2168 mm
- 2268 mm
- 2368 mm
- 2468 mm
- 2568 mm
- 2668 mm
- 2768 mm
- 2868 mm
- 2968 mm
- 3068 mm

Special lengths according to drawing: 211 13X 5999

Ordering Data

Groove Nut

- self-locking
- M 10 x 0,75 mm

Item no.: **890257 0011**

Aluminium handwheel, plastic handwheel, brake

Order Key

211 13X XXXX

Pitch

- 2** = 2,5 mm
- 3** = 4 mm
- 4** = 5 mm
- 5** = 10 mm
- 6** = 20 mm

Treatment of shaft ends

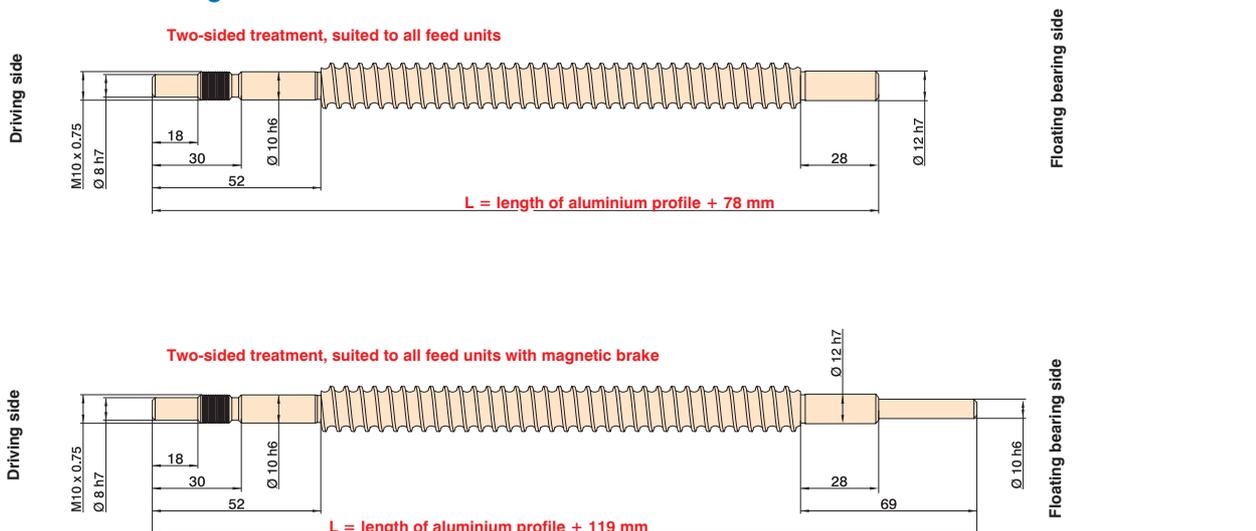
- 0** = not treated
- 5** = two-sided treatment suited to all feed units (length of aluminium profile + 78 mm)
- 6** = two-sided treatment suited to all feed units with magnetic brake (length of aluminium profile + 119 mm)

Lengths

- e.g. **045** = 452 mm
- 086** = 868 mm
- 305** = 3052 mm (reduced by the last digit)

Permissible combinations, see "available lengths"!

Scale Drawing



Ball Screw Spindle

Ø25

Features

- Ø 25 mm, rolled, hardened and polished
- material CF 53, inductively hardened (HRC 60 ± 2); (for more detailed information, see DIN 17212)
- pitches: 5 / 10 and 20 mm
- available in lengths up to 3,052 mm
- shaft ends treated according to the isel-standards or customer-specifically (see "available lengths")
- made according to DIN 69051, part 3, type of tolerance 7

Options

- customer-specific treatment of shaft ends

Available Lengths

Shaft ends not treated

- 500 mm
- 1000 mm
- 1500 mm
- 2000 mm
- 2500 mm
- 3000 mm

Special lengths according to drawing: 211 14X 0999

Shaft ends treated on both sides

- 295 mm
- 395 mm
- 495 mm
- 595 mm
- 695 mm
- 795 mm
- 895 mm
- 995 mm
- 1095 mm
- 1195 mm
- 1295 mm
- 1395 mm
- 1495 mm
- 1595 mm
- 1695 mm
- 1795 mm
- 1895 mm
- 1995 mm
- 2095 mm
- 2195 mm
- 2295 mm
- 2395 mm
- 2495 mm
- 2595 mm
- 2695 mm
- 2795 mm
- 2895 mm
- 2995 mm

Ordering Data

Groove Nut

- self-locking
- M 17 x 1,0 mm

Item no.: **890259 0011**

Order Key

211 14X XXXX

Pitch

- 4 = 5 mm
- 5 = 10 mm
- 6 = 20 mm

Treatment of shaft ends

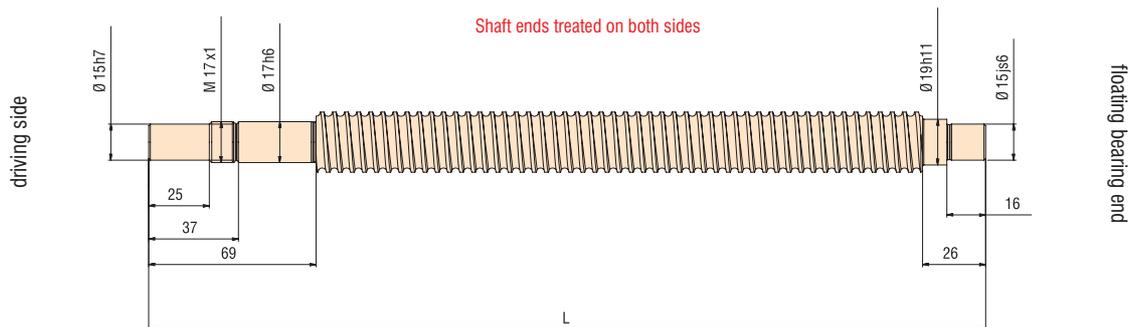
- 0 = not treated
- 2 = two-sided

Lengths

e.g. **050** = 500 mm
100 = 1000 mm
289 = 2895 mm
 (shortened by the last digit)

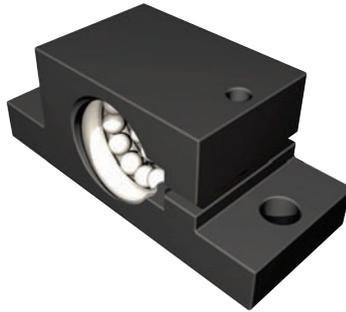
Permissible combinations, see "available lengths"!

Scale Drawing



Ball Screw Nut

Version 1 a – Ø16



Features

- material 20MnCr5, ground
- versions for ball screw spindle Ø 16
- nut pitch: 5 mm
- balls are redirected internally
- with foot mounting

Load rates

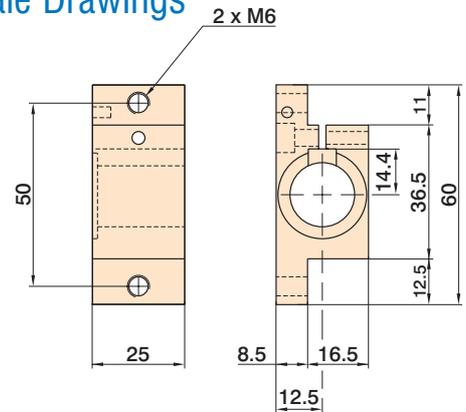
Pitch	Major diameter	Dynamic load rate	Static load rate
5 mm	16 mm	4600 N	7200 N
4 mm	16 mm	2600 N	4200 N

Ordering Data

for Spindle Ø 16 only

Pitch	Item no.
5	213 001 1000
4	213 002 1000

Scale Drawings



Version 1 b – Ø16



Features

- material 20MnCr5, rolled, hardened and polished
- versions for ball screw spindle Ø 16 mm
- nut pitch: 5/10/20 mm
- balls are redirected internally
- with foot mounting

Load Rates

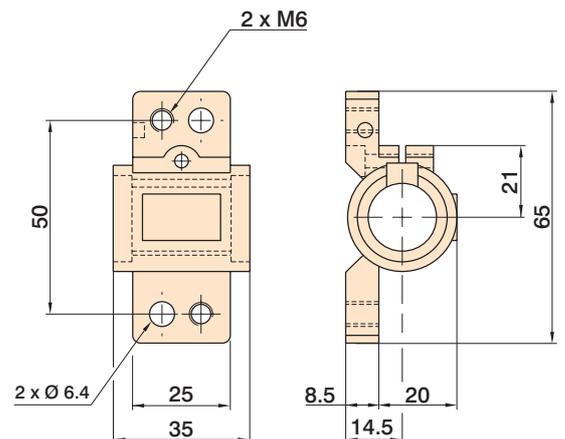
Pitch	Major diameter	Dynamic load rate	Static load rate
5 mm	16 mm	4600 N	7200 N
10 mm	16 mm	4200 N	6500 N
20 mm	16 mm	1900 N	2500 N

Ordering Data

for Spindle Ø 16 only

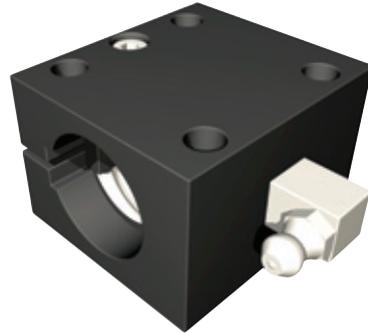
Pitch	Item no.
5	213 005 9999
10	213 010
20	213 020

Scale Drawings



Ball Screw Nut

Version 2 – Ø16



Features

- material 20MnCr5, ground
- versions for ball screw spindle Ø 16 mm
- nut pitch: 2.5/4/5/10 mm
- balls are redirected internally
- as casing with foot mounting
- additional lubrication by grease nipples 90°, 0°

Load Rates

Pitch	Major diameter	Dynamic load rate	Static load rate
2,5 mm	16 mm	3500 N	5500 N
4 mm	16 mm	4600 N	7200 N
5 mm	16 mm	4600 N	7200 N
10 mm	16 mm	4200 N	6500 N

Ordering Data

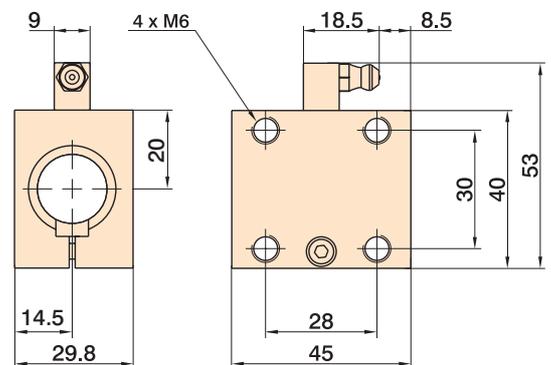
for Spindle Ø16 only

Pitch	Item no.
2,5	213 003 1003
4	213 003 1004
5	213 003 1005
10	213 003 1010

Matching: **Wipers**

- Packaging unit: 2 pieces
- Item no.: **613 502**

Scale Drawings



Version 3 – Ø16 Ø 25



Features

- material 16MnCr5, ground
- versions for ball screw spindles Ø 16 and Ø 25 mm
- nut pitches: 2.5/4/5/10 and 20 mm (Ø 16 mm)
5/10 and 20 mm (Ø 25 mm)
- balls are redirected internally
- separate clamping blocks for foot and flange mounting
- the version with nut pitch 20 is delivered with wipers

Load Rates

Pitch	Major diameter (mm)	dyn. load rate (N)	static load rate (N)
2.5	16	3,500	5,500
4	16	4,600	7,200
5	16	4,600	7,200
10	16	4,200	6,500
20	16	1,900	2,500
5	25	5,100	12,600
10	25	5,100	12,600
20	25	3,570	8,800

Ordering Data

for Spindle Ø 25 only

Pitch	Item no.
5	213 700 0005
10	213 700 0010
20	213 700 0020

Matching:

Wipers

- Packaging unit: 2 pieces
- Item no.: **613 503**

for Spindle Ø 16 only

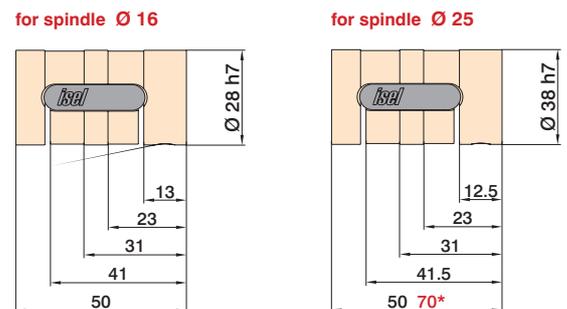
Pitch	Item no.
2,5	213 503
4	213 514
5	213 505
10	213 510
20	213 520

Matching:

Wipers

- Packaging unit: 2 pieces
- Item no.: **613 502**

Scale Drawings



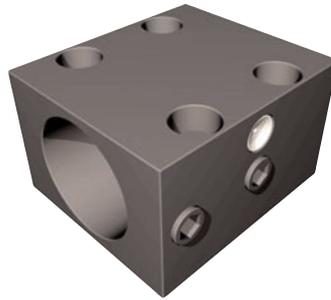
*) At pitch = 20

Clamping Blocks

for Nut Version 3



Flange mounting



Foot mounting

Features

- material 16MnCr5, rolled, hardened and polished
- versions for ball screw spindles $\varnothing 16$ and $\varnothing 25$ mm
- nut pitches:
5 / 10 and 20 mm ($\varnothing 25$ mm)
2,5 / 4 / 5 / 10 and 20 mm ($\varnothing 16$ mm)
- ball screw nuts are clearance-free adjustable
- separate clamping blocks for foot and flange mounting

Ordering Data

Clamping Block 1 $\varnothing 16$
Foot mounting

Pitch	Item no.
all	213 500

Clamping Block 2 $\varnothing 16$
Flange mounting

Pitch	Item no.
all	213 501

Clamping Block 1 $\varnothing 25$
Foot mounting

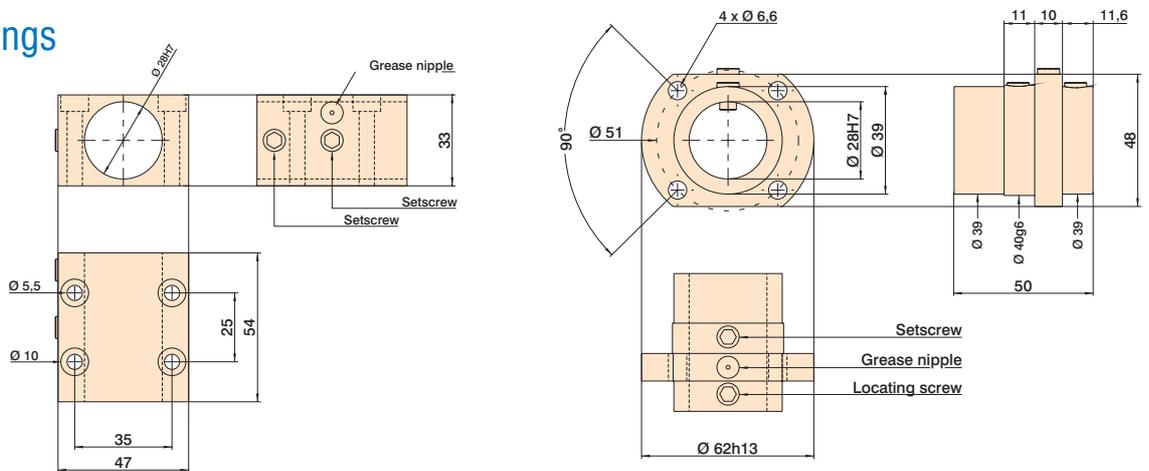
Pitch	Item no.
5 / 10	213 700 9001
20	213 700 9002

Clamping Block 2 $\varnothing 25$
Flange mounting

Pitch	Item no.
5 / 10	213 700 9003
20	213 700 9004

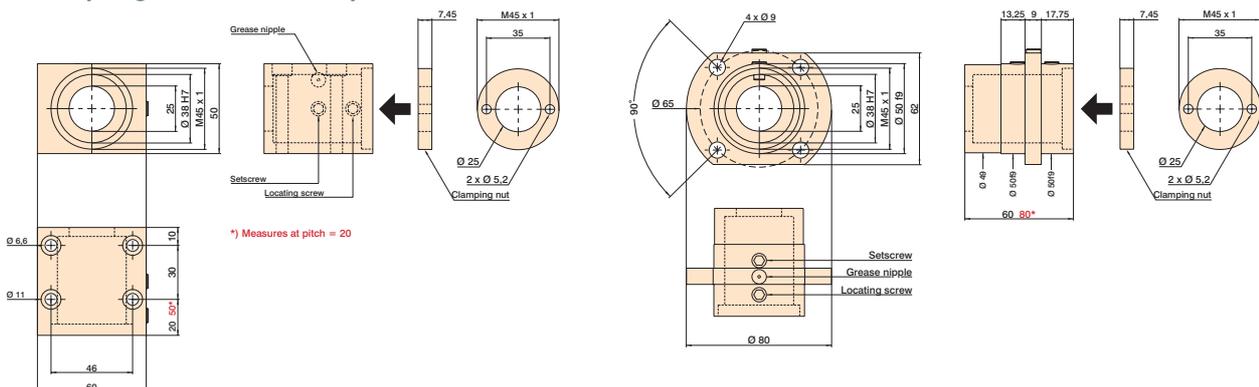
Scale Drawings

Clamping Blocks for Spindle $\varnothing 16$



Scale Drawings

Clamping Blocks for Spindle $\varnothing 25$



Flange Bearings

For Spindle \varnothing 16 mm



Flange bearing driving side

Flange bearing floating bearing end

Ordering Data

Flange bearing driving site

Item no.: **216 504 0001**

Flange bearing floating bearing end

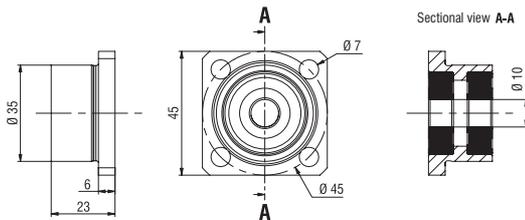
Item no.: **216 504 0002**

Features

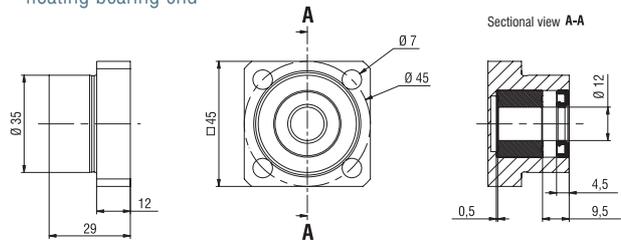
- bearing of the spindle's driving side (fixed bearing end) and the spindle's floating bearing end
- **flange bearing - driving side:** bearing bush with to angular contact ball bearings in an "O" arrangement
- **flange bearing - floating bearing end (counter bearing):** bearing bush with driven-in needle bearing

Scale Drawings

Flange bearing driving side



Flange bearing floating bearing end



for Spindle \varnothing 25 mm



Flange bearing driving side

Flange bearing floating bearing end

Ordering Data

Flange bearing driving site

Item no.: **216 504 0006**

Flange bearing floating bearing end

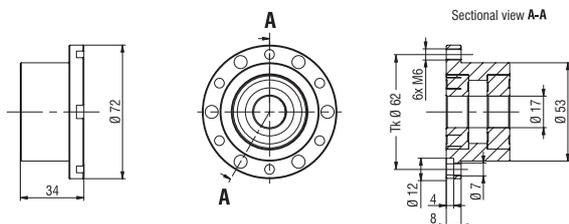
Item no.: **216 504 0005**

Features

- bearing of the spindle's driving side (fixed bearing end) and the spindle's floating bearing end
- **flange bearing - driving side:** bearing bush with two driven-in angular contact ball bearings in an "O" arrangement
- **flange bearing - floating bearing end (counter bearing):** bearing bush with driven-in needle bearing

Scale Drawings

Flange bearing floating bearing end



Flange bearing floating bearing end

