

**Installation**

- Adjust the running clearance between nut and spindle with the adjusting screw (Fig. 2). Check the clearance along the whole spindle (the axial backlash is reached before radial clamping).
- The ball screw spindle must be installed free from radial stress: Move the carriage back and forth while tightening the bearings.

**Lubrication instructions**

Before commissioning, it is imperative that the spindle is lubricated over the entire length of the thread with the help of the nut (Fig. 2). For lubrication use the customary roller bearing oil and grease (sodium soap grease). However, avoid lubricants with graphite and MOS additives. Due to the axial movement between nut and spindle, the lubricant loss is greater than with roller bearings, so that no lifetime lubrication is possible.

**- Oil lubrication**

Heating is less with oil lubrication than with grease at high spindle speeds (over 500 min<sup>-1</sup>). Therefore, the maintenance intervals are shortened. Re-lubricate every 40 to 60 operating hours depending on use conditions.

Item No.: 299 020

**- Grease lubrication**

Grease lubrication offers the advantages of independent installation position and long lubrication intervals (300 to 700 operating hours) up to a rotational speed of approx. 800 min<sup>-1</sup>. Use sodium soap grease if possible and fill about half of the nut volume with grease. (Ex works GP00/000F-20 according to DIN 510502)

Item No.: 299 031

**Protective measure**

Protect the lubricated ball screw from dust, swarf and moisture, etc. with wipers. Item No.: 213500 0001

Oil viscosity classes according to DIN 51517 T3 CLP ISO-VG for spindle Ø 16 mm		
Average rotat. speed (min <sup>-1</sup> )	Recommended ISO viscosity class at 40 °C	Required viscosity at operating temperature approx. 30 °C (cST)
20	ISO VG 460	approx. 875
100	ISO VG 220	approx. 360
500	ISO VG 46	approx. 66
1,000	ISO VG 22	approx. 36
1,500	ISO VG 15	approx. 28

Ball screw nuts with clamping block or carriage and a spindle of the same pitch compose the ball screw.

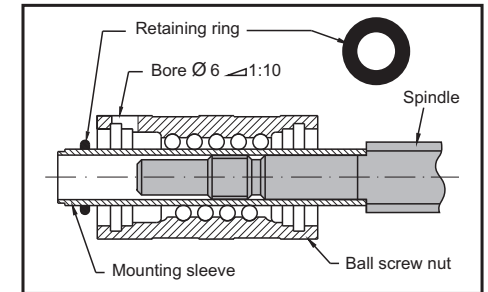
The ball screw nut is **delivered** with a mounting sleeve protected from corrosion and ready to assemble.



The ball screw nuts, spindles and clamping blocks are precision components and should be handled with the utmost cleanliness and care.

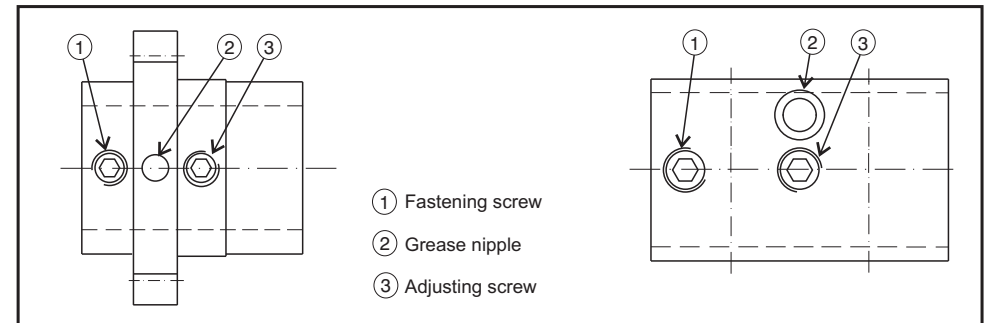
**Assembly**

1. Clean the spindle thoroughly up to the thread root.
2. Remove the retaining ring on the opposite side of the bore (the side of the mounting sleeve that is not stripped off).
3. Push the mounting sleeve over the machined shaft end (apply concentrically to the spindle axis, Fig. 1), so that the bore is on the outside and rotate the ball screw nut carefully and completely on the spindle.
4. You can push wipers as protection in the grooves of the ball screw nut (facing outwards). The notch on the wiper must lie under the bore.



**Fig. 1: Ball screw nut with spindle**

5. Fix the ball screw nut with the special M8 x 0.75 stud in the clamping block or linear carriage (Fig. 2).



**Fig. 2: Two different clamping blocks**

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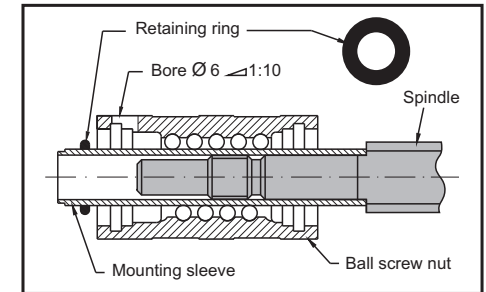
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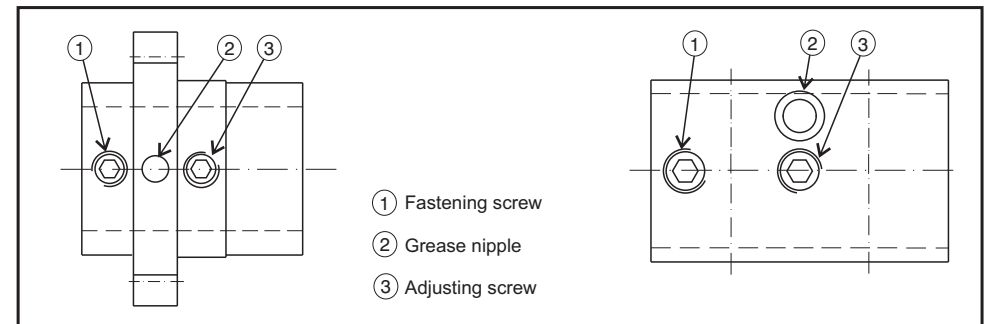
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**Fig. 2: Two different clamping blocks**