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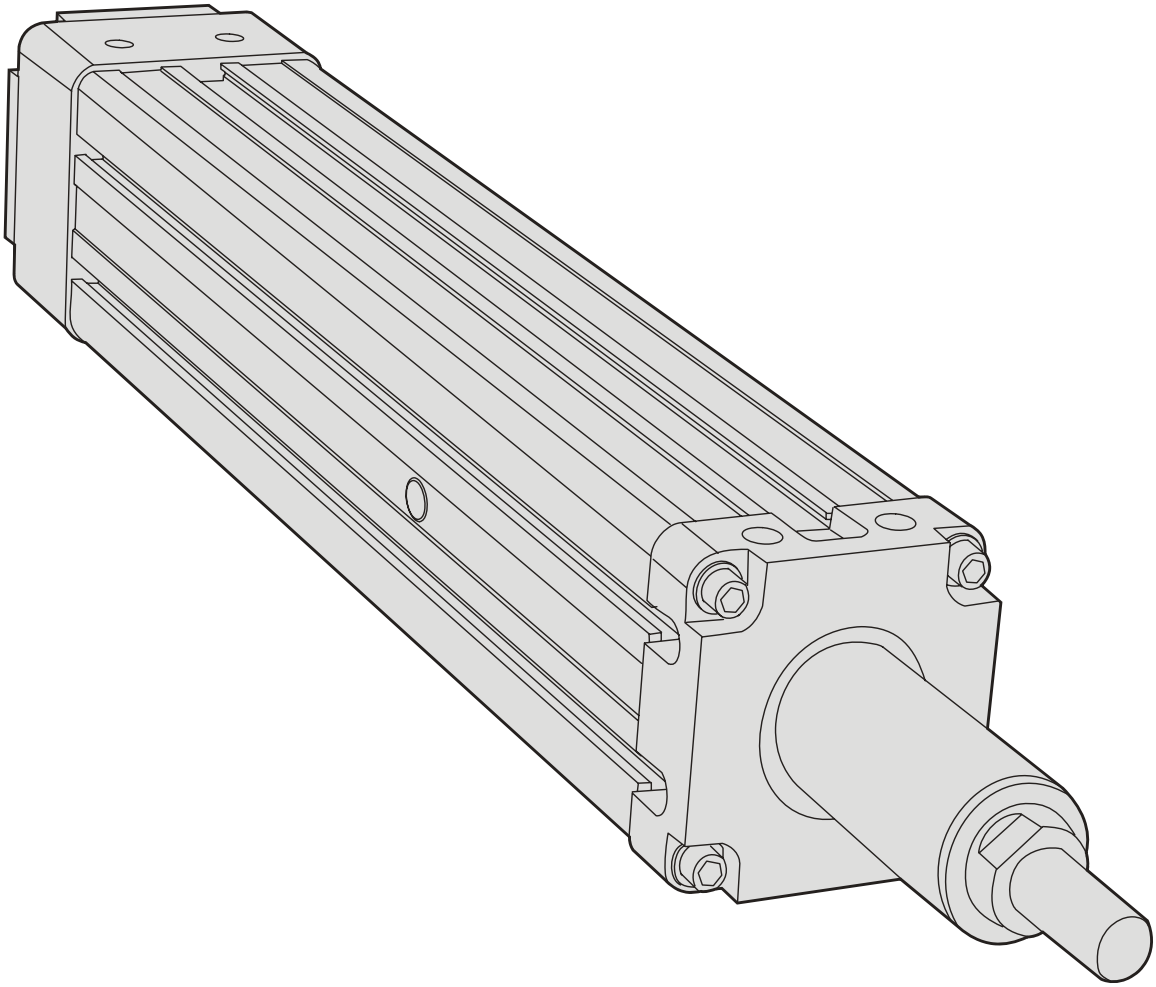
Movotrak T90 and T130



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Installation and Service Manual
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Solutions by
DANAHER MOTION

Version History

Edition Number	Edition Date	Reason for Revision
1	2004	Manual created
2	2005-02-10	Updated with new T90 versions
3	2006-05-19	Figure numbering corrected
4	2007-04-17	Lubrication instructions updated

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1. Type designation system

Designation example:	T	09	–	B	4010	M	S	052

Unit type	
Movotrak precision actuator	**T**

Size	
90	**09**
130	**13**

Hyphen	–

Drive type	
Ball screw and ball nut	**B**

Screw diameter / lead / tolerance	
25 mm / 05 mm / T7	**2505**
25 mm / 10 mm / T7	**2510**
25 mm / 25 mm / T7	**2525**
32 mm / 20 mm / T7	**3230**
32 mm / 32 mm / T7	**3232**
40 mm / 10 mm / T7	**4010**
40 mm / 20 mm / T7	**4020**
40 mm / 40 mm / T7	**4040**

Engineering unit	
Metric	**M**

Adapter type	
M16 × 1,5 outside thread	**N**
M16 × 2 inside thread	**P**
M20 × 1,5 outside thread	**Q**
M20 × 1,5 inside thread	**R**
M27 × 2 outside thread	**S**
M27 × 2 inside thread	**T**
M33 × 2 outside thread	**U**
M33 × 2 inside thread	**V**
M30 × 2 inside thread	**X**

Ordering length L [cm]	• • •

Table 1: Type designation system for Movotrak

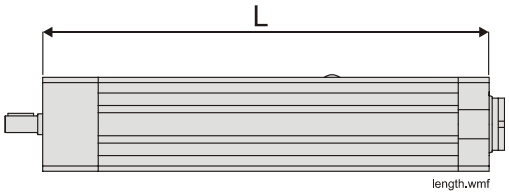

Figure 1: definition of ordering length L

2. Installation

2.1 Mounting instructions

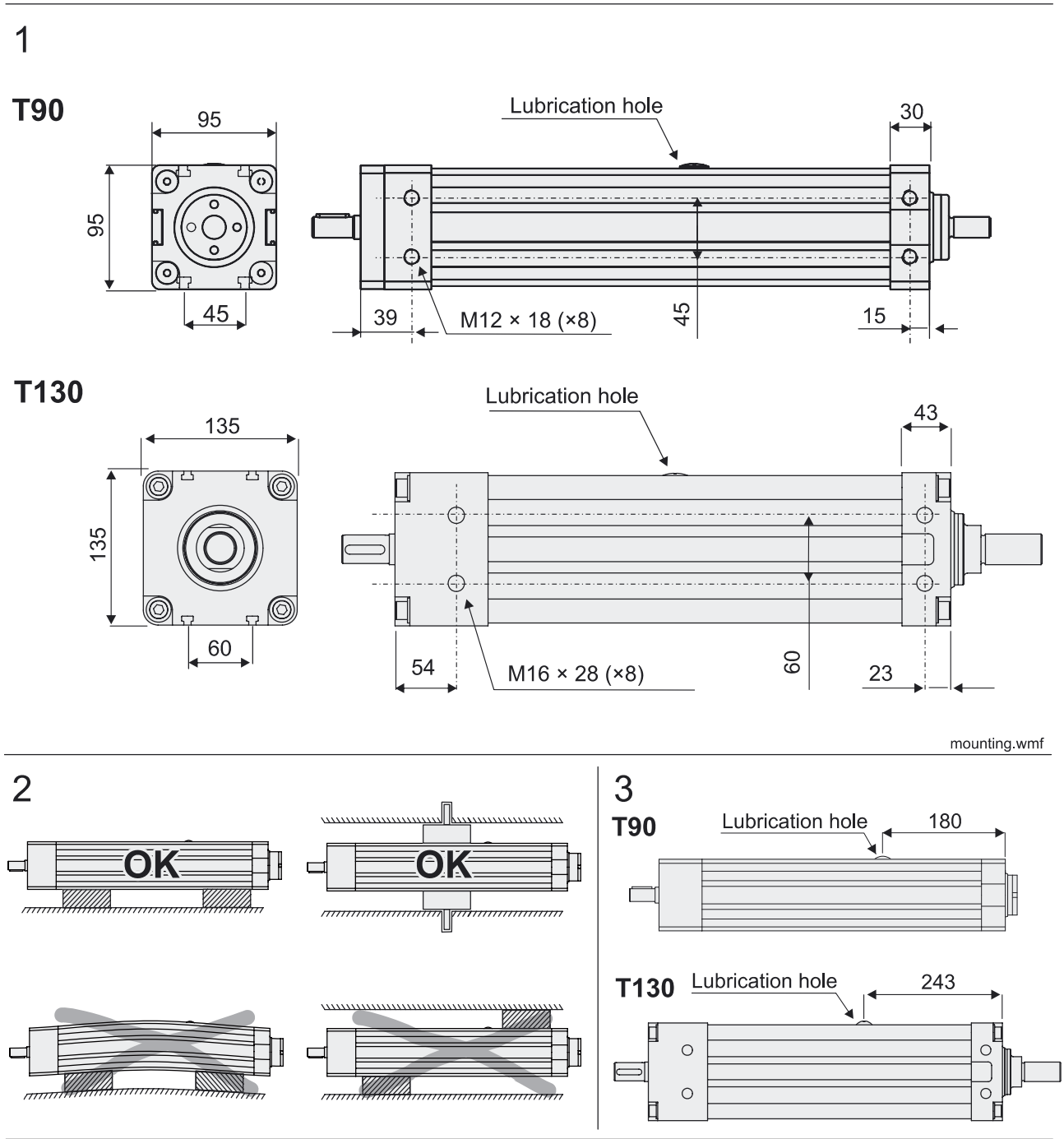

Figure 2: mounting instructions

1. The actuators are equipped with T-slots along the profile and threaded side holes in the front and rear housings, which can be used for mounting.
2. Only mount the actuator to one side if not trunnion mounting is used. Do not mount the actuator so that the profile is deformed.
3. Mount the actuator so that the lubrication hole is accessible.

2.2 Connection of load

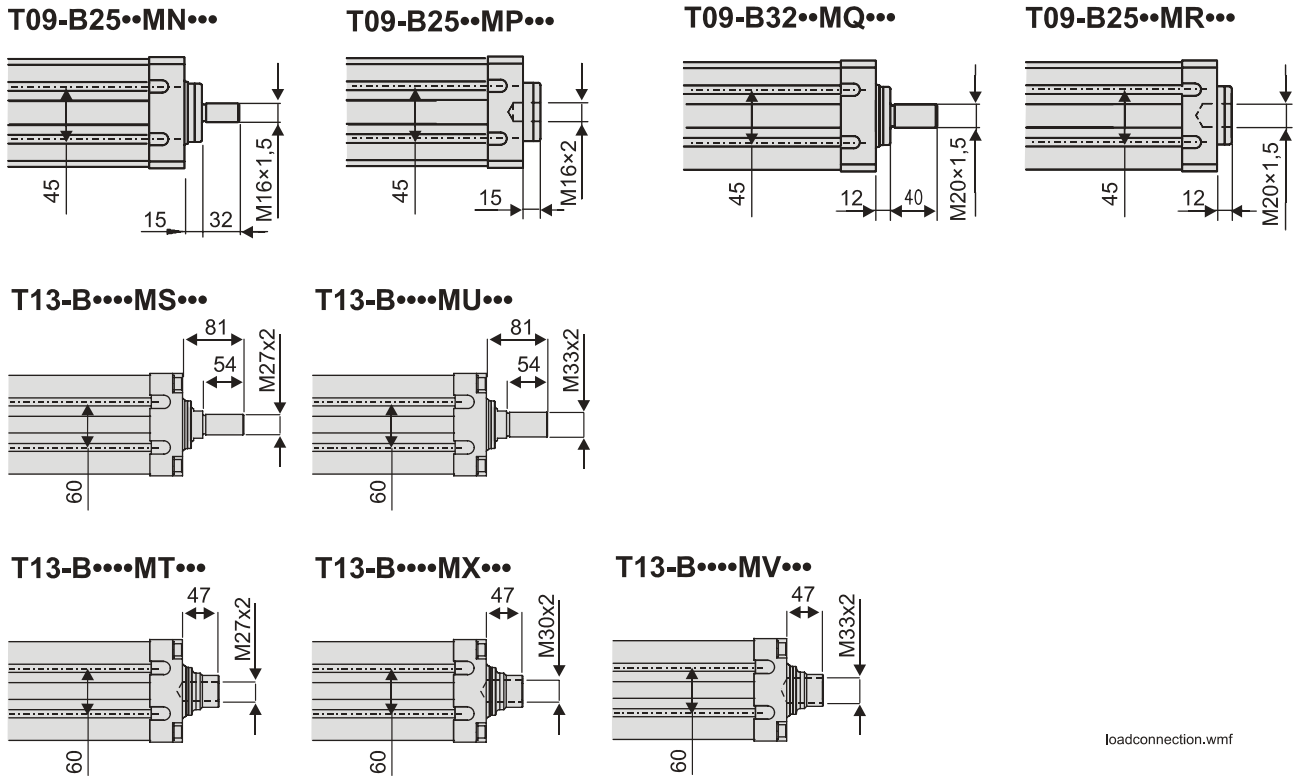

Figure 3: connection of load

2.3 Motor flange

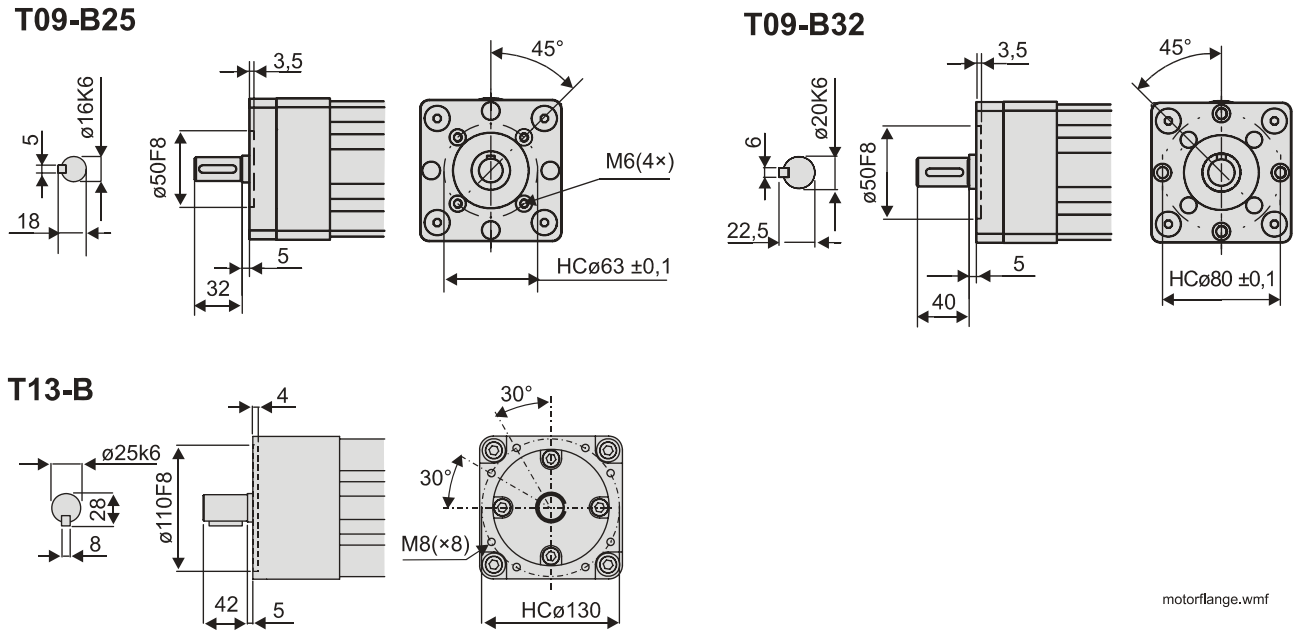

Figure 4: motor flanges

2.4 Feet mounting kit

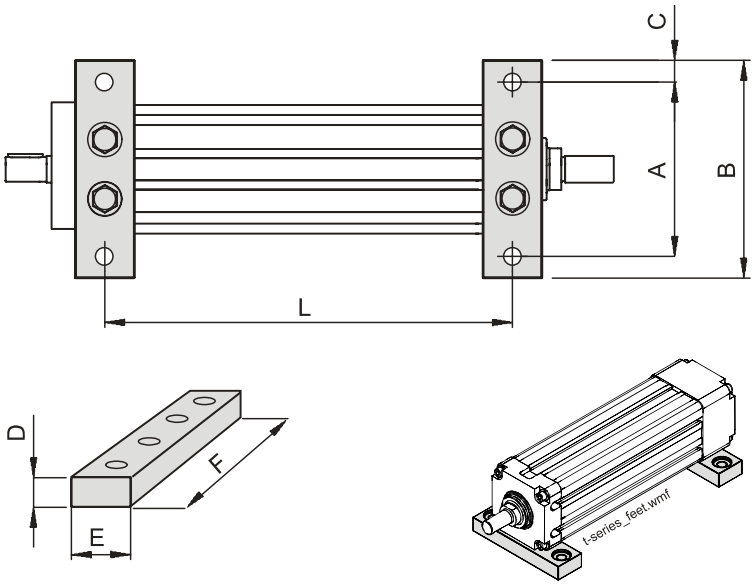

Figure 5: mounting feet

	A	B	C	D	E	F	L	Tightening torque [Nm]
T09-B25	125	155	15	20	40	155	Smax + 141	78
T09-B32	125	155	15	20	40	155	Smax + 162	78
T13-B40	176	220	22	30	60	220	Smax + 216	220

Table 2: mounting feet dimensions

2.5 Trunnion mounting kit

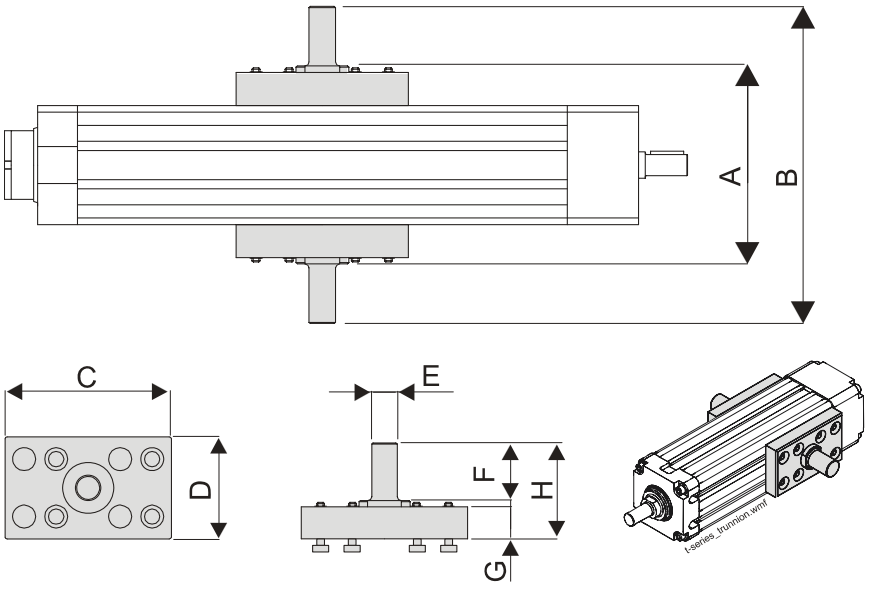

Figure 6: trunnion

	A	B	C	D	E	F	G	H	Tightening torque [Nm]
T09-B	150	240	130	80	ø20 f8	45	25	75	11
T13-B	316	210	180	110	Ø35 f8	63	30	93	45

Table 3: trunnion dimensions

Make sure to mount the bearings on the trunnion shafts as close to the unit as possible.

2.6 Mounting of worm gear type BS40 / BS50

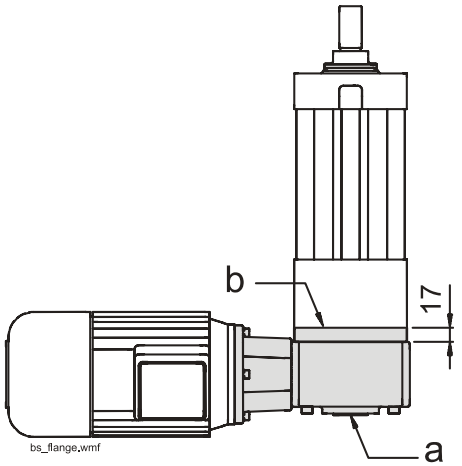

Figure 7: flange for worm gear type BS40 / BS50

To be able to mount a worm gear (a) of type BS40 (for T90 only) or BS50 (for T130 only) an intermediate flange (b) must be used.

2.7 Installation of magnetic sensors

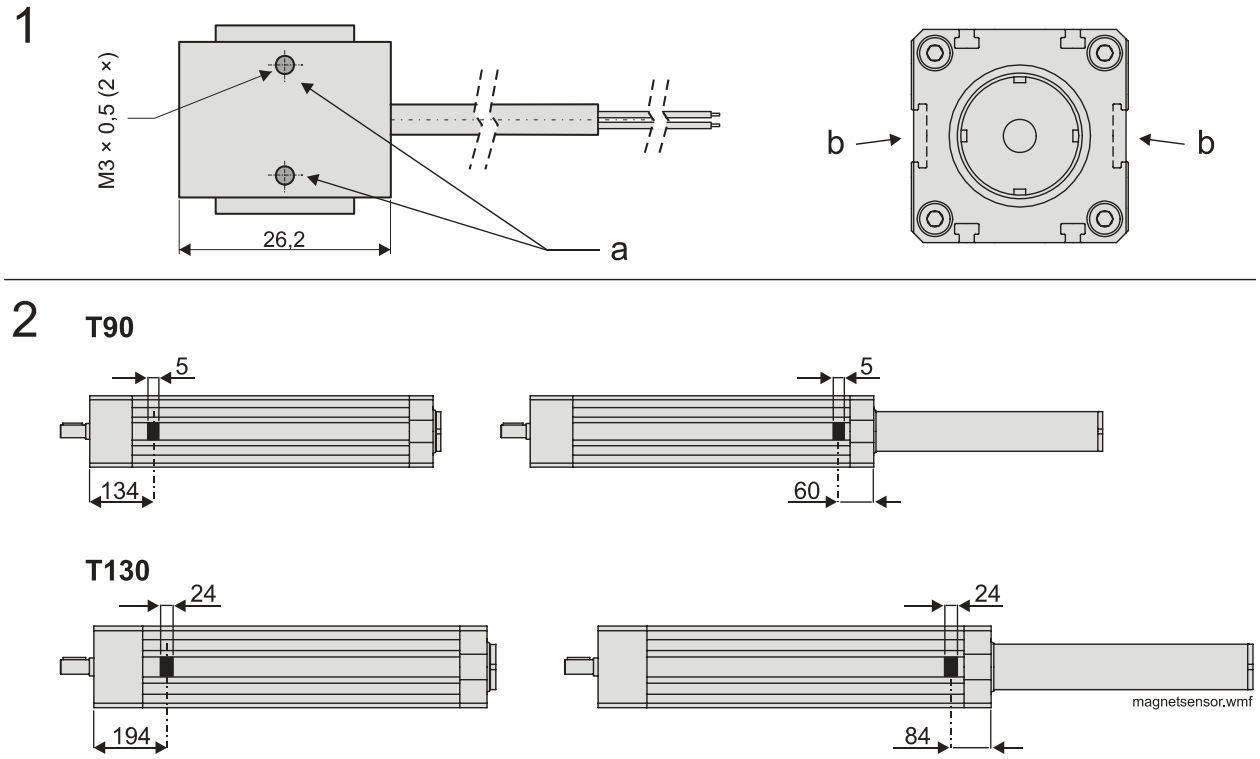

Figure 8: magnetic sensor

1. The sensors are locked in the desired position with the aid of the lock screws (a) in the T-slots (b).
2. Magnet positions at fully retracted and fully extended rod. Keep in mind that the duration of the sensor signal is dependent upon the speed and the width of the magnet (the signal is somewhat longer than the magnet due to the spread of the magnetic field). This means that the relay or input device, which shall detect the signal, must be capable of detecting the duration of the signal in question.
3. Strong magnets are used of safety reasons. This will create a long signal but can give the effect that the signal is split in two with an interrupt in the middle.

3. Service and maintenance

3.1 General maintenance instructions

- The customer can perform the service and maintenance described in this manual. Other service ought to be performed by authorised personnel / service workshop.
- Follow the recommended service intervals. Replace defective parts immediately. Only use parts of the same make and type as original. Ordering data can be found in the spare part lists supplied with the unit. Also state the manufacturing number of the unit (embossed in the drive end).
- T90 and T130 is not self-braking. This means that the load and the extension tube can move if the driving force is disconnected, or if the motor, gears or brakes are detached during service. This is even more important for vertical applications. Ensure therefore that the load is secured before service is begun.
- Check the unit in connection to lubrication. Be attentive towards the wear and function of the rod seal, the magnetic sensors, limit switches and the mounting of them. Check all connections to the support and the rod. Also be attentive towards a changed level of noise. Replace, repair or adjust.
- Keep the actuator clean. Wipe it off as required, particularly the rod. If cleaning fluid is required, use small amounts and see to it that none gets into the actuator. Do not use strong cleaning agents. Dry it fully.
- **Never** mix different types of oils / lubricants!

3.2 Lubrication of the ball screw

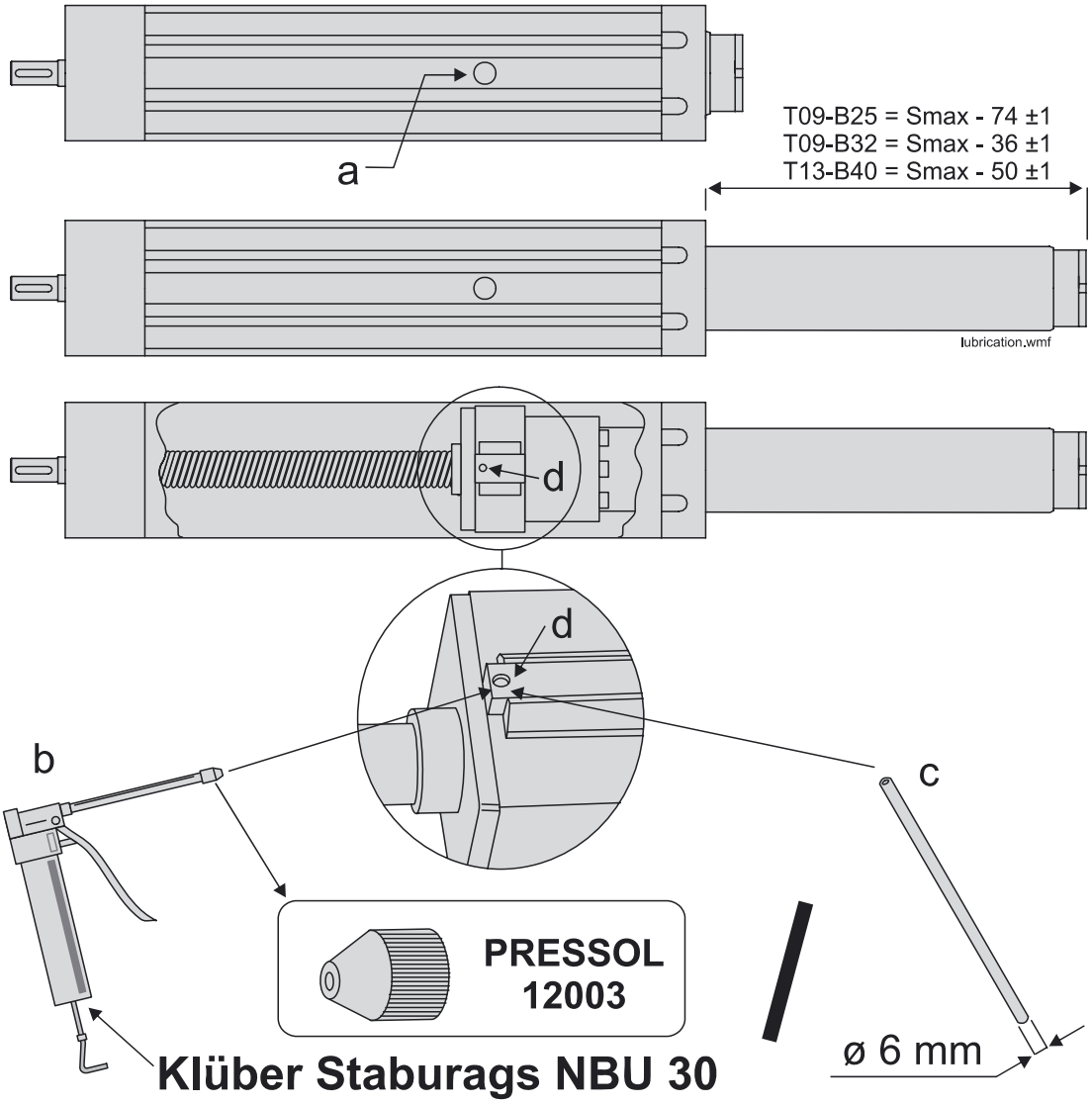

Figure 9: lubrication of the ball screw

1. The ball screw is lubricated every 600 hours of operation or every 6:th month depending on whichever comes first.
2. Recommended lubricant is Klüber Staburags NBU 30.
3. Remove the plastic plug covering the lubrication hole (a).
4. Run the extension tube to the indicated position for the actuator model in question. For T09-B25 the lubrication position is at the maximum stroke length (Smax) of the unit – 74 mm, for T09-B32 it is at Smax – 36 and for T13-B40 it is at Smax – 50 mm.
5. Apply 20 ml of lubricant to the ball nut by sticking a grease gun nipple (b) or a tube (c), through which the lubricant can be applied, straight in to the lubrication hole in the profile so that it enter the lubrication hole (d) of the ball nut assembly. Recommended type of grease gun nipple is Pressol pointed coupler M10 × 1 female article no: 12003 or equivalent. If a tube is used the recommended tube diameter is 6 mm.
6. Pull out the grease gun nipple / tube and put back the plastic plug.

4. Technical data

4.1 Technical data

T90

		T09-B2505M • • • •	T09-B2510M • • • •	T09-B2525M • • • •
Max. speed	[m/s]	0,3	0,8	1,5
Max. radial load	Fr [N]	300	300	300
Max. axial load	Fx [N]			
static		15 000	15 000	15 000
dynamic		10 000	10 000	10 000
Repeatability	[mm]	± 0,05	± 0,05	± 0,05
Max. input speed	[rpm]	4000	4800	4800
Weight	[kg]	5 + (L^A × 16,2)	5 + (L^A × 16,2)	5 + (L^A × 16,2)
Ambient temperature	[°C]	-20 – +70	-20 – +70	-20 – +70
Linear move / shaft turn	[mm]	5	10	25

		T09-B3220M • • • •	T09-B3232M • • • •
Max. speed	[m/s]	1,25	2
Max. radial load	Fr [N]	500	500
Max. axial load	Fx [N]		
static		25 000	25 000
dynamic		20 000	20 000
Repeatability	[mm]	± 0,05	± 0,05
Max. input speed	[rpm]	3750	3750
Weight	[kg]	6,5 + (L^A × 18)	6,5 + (L^A × 18)
Ambient temperature	[°C]	-20 – +70	-20 – +70
Linear move / shaft turn	[mm]	20	32

[A] L in metres, see figure 1 for definition of L

Table 2: technical data for T90

T130

		T13-B4010M • • • •	T13-B4020M • • • •	T13-B4040M • • • •
Max. speed	[m/s]	0,4	1	2
Max. radial load	Fr [N]	800	800	800
Max. axial load	Fx [N]			
static		45 000	45 000	45 000
dynamic		40 000	35 000	15 000
Repeatability	[mm]	± 0,05	± 0,05	± 0,05
Max. input speed	[rpm]	2500	3000	3000
Weight	[kg]	18,5 + (30 × (L^A – 0,239))	18,5 + (30 × (L^A – 0,239))	18,5 + (30 × (L^A – 0,239))
Ambient temperature	[°C]	-20 – +70	-20 – +70	-20 – +70
Linear move / shaft turn	[mm]	10	20	40

[A] L in metres, see figure 1 for definition of L

Table 3: technical data for T130

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