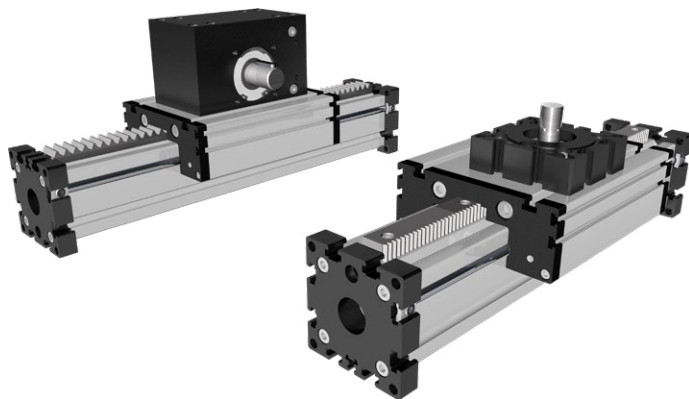


Instruction Manual / Maintenance Instructions for linear axis with rack and pinion drive

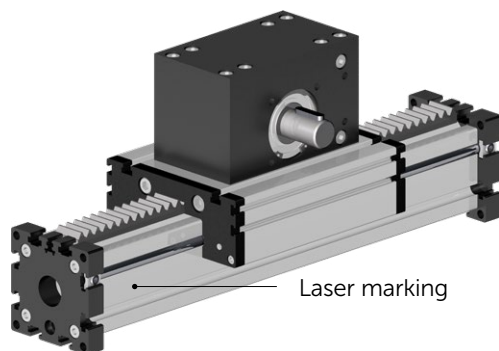
Series ELZA
Series ELDZA
Series ELZQ

Manufacturer Bahr Modultechnik GmbH
Nord-Süd-Straße 10a, D-31711 Luhden
+49 (0) 5722 - 9933-0
DE-Luhden.Info@imi-precision.com



Product information

After receipt, check this linear system for any damage and missing components. Please report any defects you detect immediately. The linear systems are individually manufactured to your specifications. The width and height of this linear system are determined by the size and design selected. When making a service enquiry, please always quote the ID number (laser marking on linear axis) and, if applicable, the quantity. Position of laser marking (see picture)



ELDZA 60 Id No.: **1912244-10-1**
Made in Germany

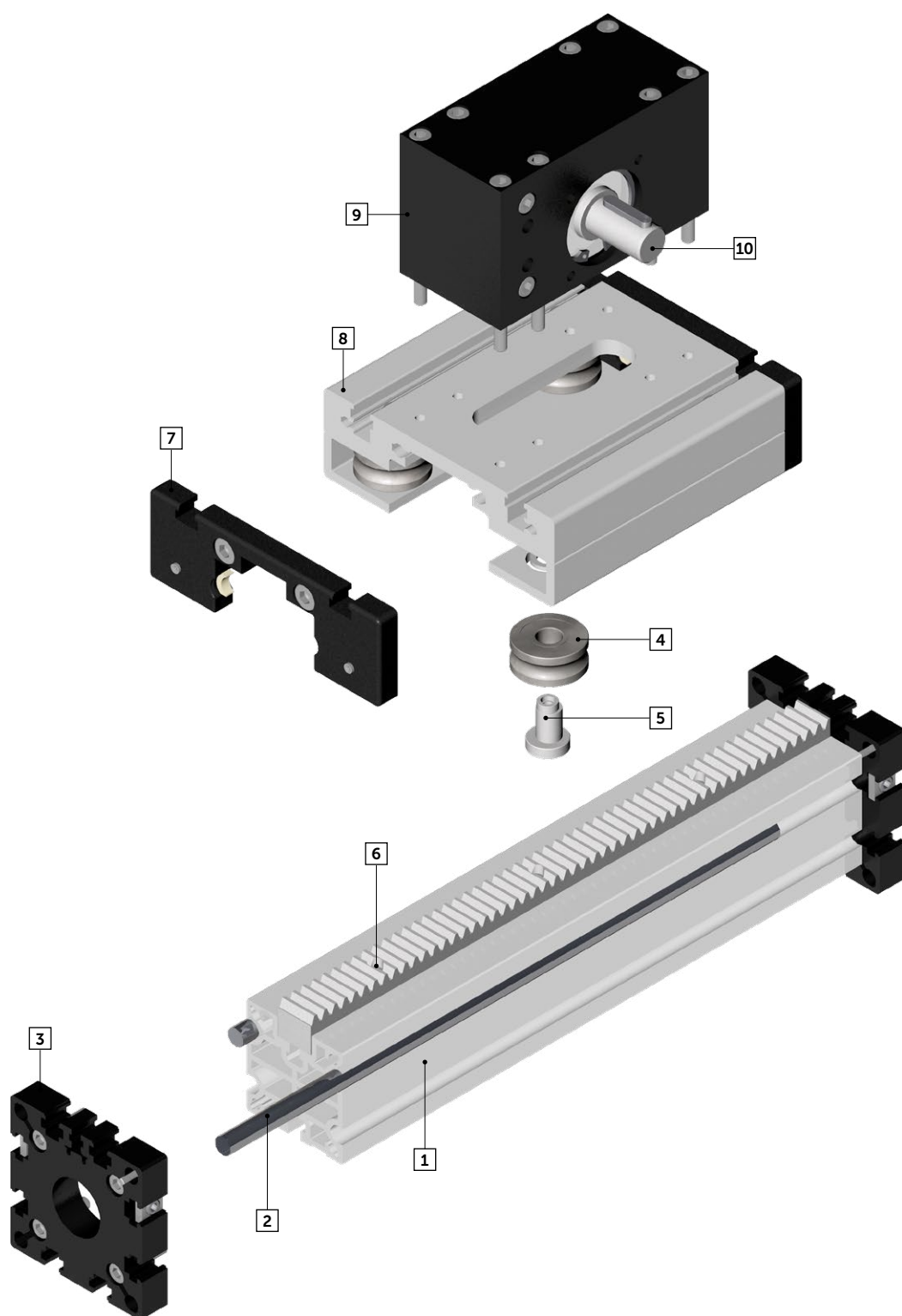
Year	Month	Consecutive number	Position in order	System No. 1
19	12	244	-10	-1

ELDZA 60 Id No.: 19 12 244 -10 -1

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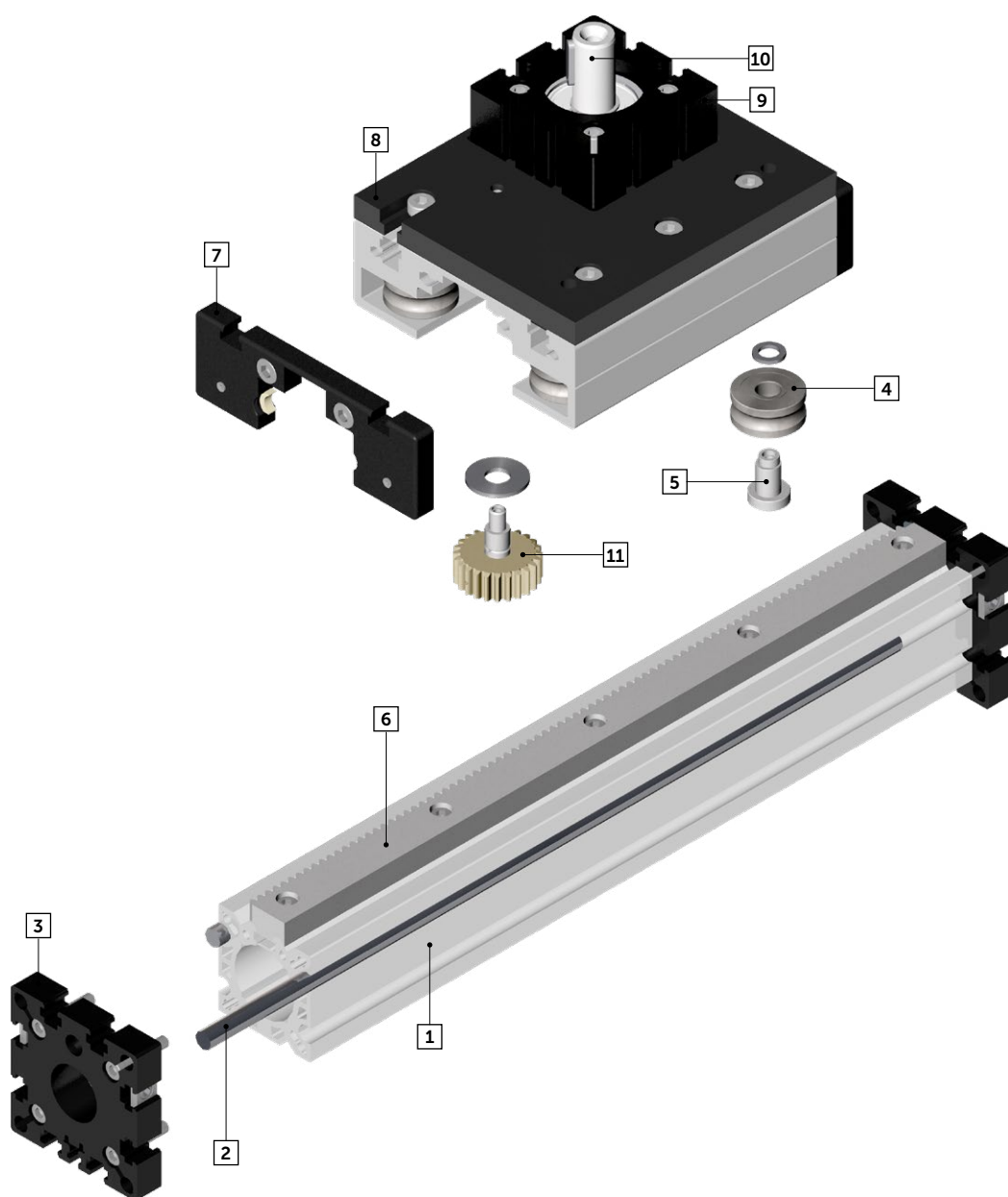
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1 Overview ELZA / ELDZA



1	Guide body profile
2	Guide rod
3	Bearing block
4	Roller
5	Eccentric
6	Rack
7	Wiper end plate
8	Carriage
9	Pinion
10	Spur gear

1.1 Overview ELZQ



1	Guide body profile
2	Guide rod
3	Bearing block
4	Roller
5	Eccentric
6	Rack
7	Wiper end plate
8	Carriage
9	Spur gear bearing
10	Spur gear
11	Felt gear wheel

2 Notes

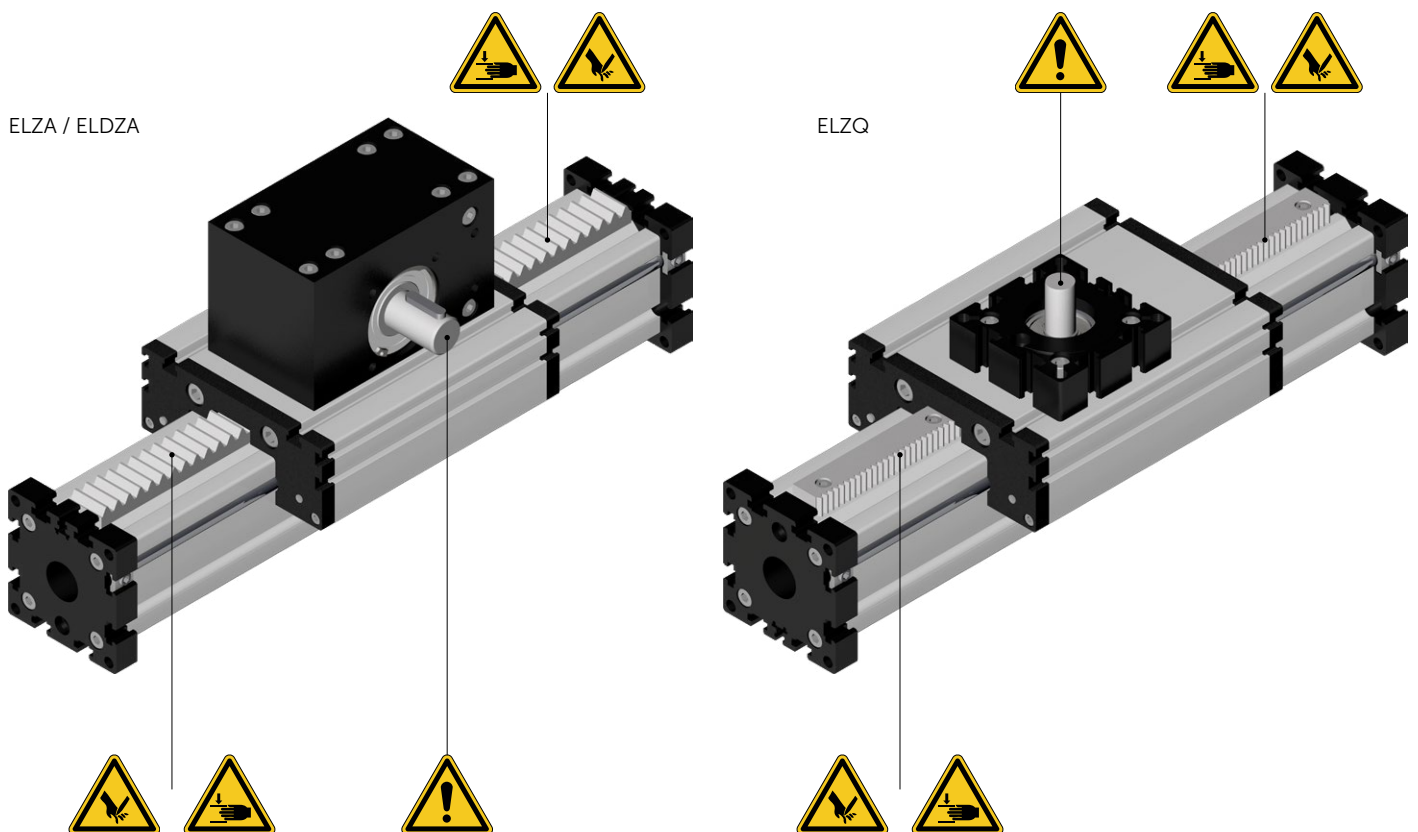
2.1 Safety symbols

Some or all of the following hazard symbols and warning notices may appear in the operating manual or on the equipment.

It is essential to observe the following signs:

 Note	 Disconnect before carrying out maintenance or repair
 General warning sign	 Warning of cutting injuries
 Warning crushing of hands	 Warning of the risk of being drawn in

2.2 General hazard areas



2.3 Safety instructions

- Any work with the linear system must be carried out in compliance with the current instructions.
- The system may be opened by authorized skilled personnel only. In case of a defect we recommend contacting the manufacturer or returning this linear system for repair.
- Connecting the linear system to an electric power system may be carried out by qualified personnel only; any local connection conditions and regulations (e. g. DIN, VDE) must be observed in this respect.
- The appropriate personal protection equipment (PPE) must be worn during all work.
- Unauthorized modifications of the linear system are prohibited due to safety reasons.
- In case of a diagonal or vertical mounting position of the linear system, the carriage must always be secured against fall down (e. g. during mounting, dismantling, maintenance and repair work).
- The transverse forces, torques and speeds determined by Bahr Modultechnik GmbH for this linear system must not be exceeded.
- Following an impact, the toothed belt, the ball rail guide and the runner block must be exchanged - even if there are no visible damages. For information regarding spare parts please see the spare parts list for the corresponding type of linear system.
- The rating plate must always be maintained in a legible condition. The data must be easily retrievable at any time.
- Danger zones are marked by danger symbols for your safety.
- Safety-relevant devices must be inspected with regard to their function, integrity and completeness at regular intervals, at least once a year.

2.4 Storage

The following environmental conditions are prescribed for storing the linear unit:

- no oil contaminated air
- contact with solvent-based lacquers must be prevented
- lowest/highest ambient temperature: 0°C/+60°C
- humidity during storage: storage below dew point is inadmissible
- Supporting the complete surface of the profile body or an appropriate number of support points along the length of the guide profile will prevent the linear unit from deforming.
- Any environmental conditions deviating from the requirements described above will have to be approved by Bahr Modultechnik GmbH.

2.5 Decommissioning/Disassembly



Before starting any work, ensure that the electric drives used are secured against being switched on.

In case of a diagonal or vertical mounting position of the linear system, the carriage must always be secured against fall down (e. g. during mounting, dismantling, maintenance and repair work). Following an impact, the toothed belt, the ball rail guide and the runner block must be exchanged - even if there are no visible damages. For information regarding spare parts please see the spare parts list for the corresponding type of linear system.

2.6 Disposal and return

The linear unit must either be disposed of in an environmentally friendly way according to the applicable directives and regulations, or returned to the manufacturer. The manufacturer reserves the right to charge a fee for the disposal of this linear unit.

2.7 Responsibility/Warranty

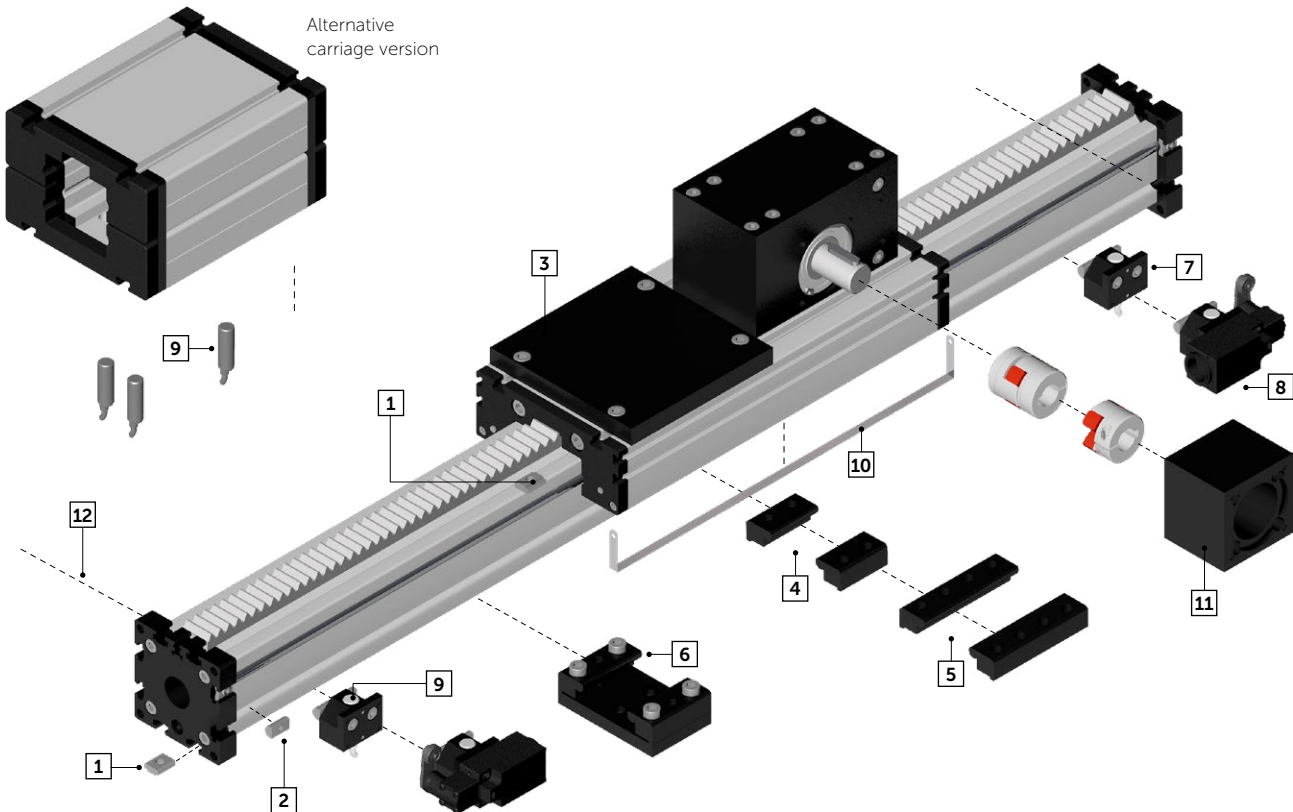
Bahr Modultechnik GmbH does not accept any liability for damages or impairments which occur as a result of modifications of the construction of this linear system by third parties or modifications of protection devices.

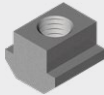
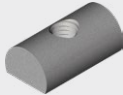
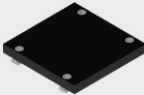
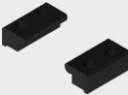
- Only original spare parts may be used for repairs and maintenance.
- Bahr Modultechnik GmbH does not accept liability for spare parts which it has not inspected and approved.
- Safety-relevant devices must be inspected with regard to their function, integrity and completeness at regular intervals, at least once a year.
- We reserve the right to make technical changes to the linear system and to modify or amend these Installations Instructions.
- Requests to Bahr Modultechnik GmbH regarding the availability of earlier versions or adaptations to the current version of the linear system will not be accepted.

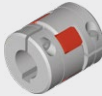
2.8 Copyright

Individual reproductions, e. g. copies and printouts, may be made for private use only. The production and distribution of further reproductions is prohibited unless explicitly approved by Bahr Modultechnik GmbH. The user is personally responsible for complying with statutory regulations and may be liable for misuse. The copyright to these Installation Instructions is owned by Bahr Modultechnik GmbH.

3 Overview of accessories

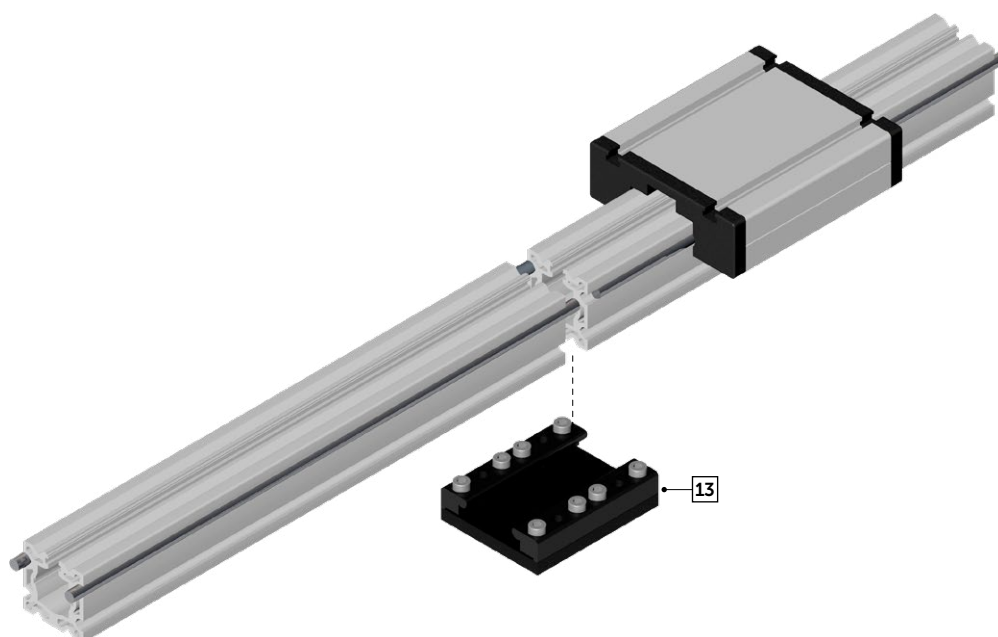


Size							
	1 T-nut	2 Groove key	3 Mounting flange	4 Slide support	5 Double slide support	6 3-piece slide support	7 Connection component
40	*	02725	00945	03049	03049-2	030401	01341
60	*	02726	00965	03069	03069-2	030601	01361
60S	*	02726	00964	03069	03069-2	030601	01361
80	*	02728	00985	03089	03089-2	030801	01381
80S	*	02728	00984	03089	03089-2	030801	01381
100	*	02729	00915	03019	03019-2	030101	01311

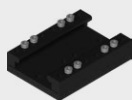
Size					
	8 Limit switch	9 Proximity switch	10 Contact plate	11 Motor adapter	12 Coupling
40	01101	*	01005	01841	*
60	01101	*	01006	01861	*
60S	01101	*	01011	01861	*
80	01101	*	01007	01881	*
80S	01101	*	01010	01881	*
100	01101	*	01008	01811	*

* = various versions possible

3.1 Overview of Accessories / Multi-part Linear Axis



Size



13

3-part connecting bracket

40	030411
60	030611
60S	030611
80	030811
80S	030811
100	030111

4 Locking torques

Locking torque guidance values for metric cylinder head screws ISO 4762 with 90% utilisation of the 0.2% yield strength, for a friction coefficient of 0,14.

Dimensions	Strength 8.8	Strength 10.9	Strength 12.9
	Locking torques M_A (Nm)	Locking torques M_A (Nm)	Locking torques M_A (Nm)
M4	3,0	4,4	5,1
M5	5,9	8,7	10
M6	10	15	18
M8	25	36	43
M10	49	72	84

5 Mounting optional accessories

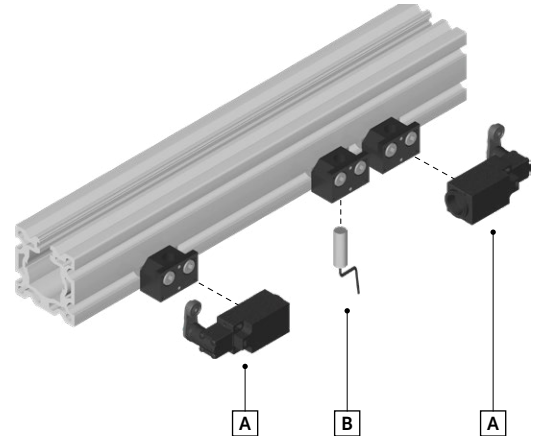
5.1 Mechanical or inductive limit switches

For details regarding the technical characteristics of the limit switches please see the catalogue. Ensure that the cable is laid in a safe way. Avoid damages to the cable e. g. due to small radiuses; this may lead to failure of the system. The cable must not enter the travelling path of the linear system.

A Mechanical limit switch / **B** inductive limit switch

The switch is installed by means of a connection component which is mounted onto the guide body profile. The connection component can be moved along the guide profile and fixed in the desired position.

Application example:
Switches and connection components



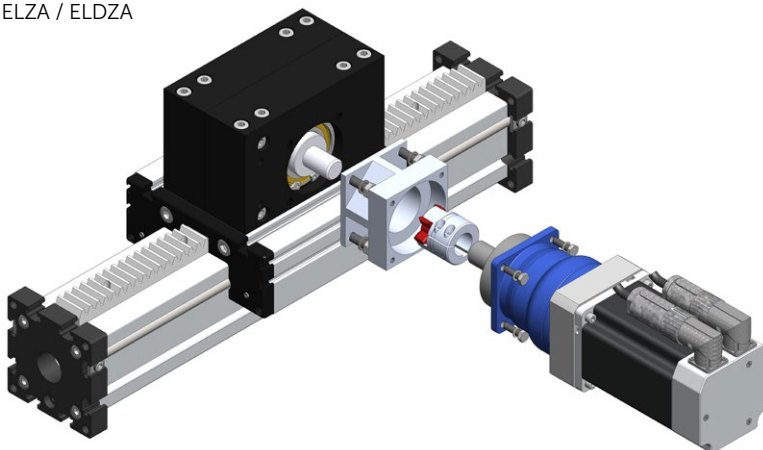
5.2 Mounting Coupling/Adapter/Motor

The motor can be installed on the pulley with or without gears. To ensure that this linear system does not cause a risk, the drive must be designed correctly. The design and manufacture of the motor adapter must ensure that no axial, radial or angular misalignment can occur.

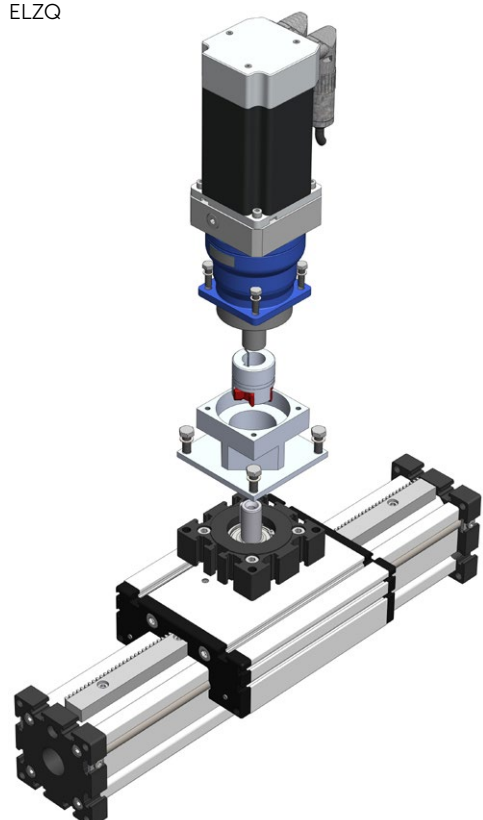
The installation of the motor follows a logical sequence:

One coupling half is mounted on the pivot of the linear system. The second coupling half is mounted on the drive and pushed through the installed motor adapter on the linear system which has been prior equipped with the other coupling half.

ELZA / ELDZA



ELZQ



5.3 Mounting coupling

There are two methods to install the motor, either without gears or with a planetary gear. The manufacturing tolerance are very low, therefore we recommend buying the adapter directly from Bahr Modultechnik. Angular misalignments and misalignments with respect to the centre of the adapter can lead to serious damages at the coupling and the bearings. Another source of defect is the possibility that the coupling knobs might hit each other.

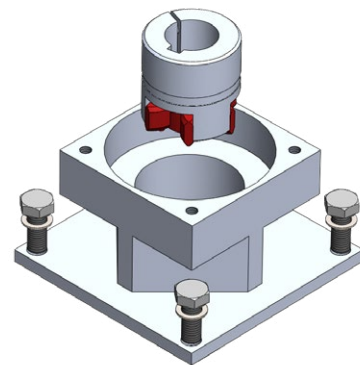
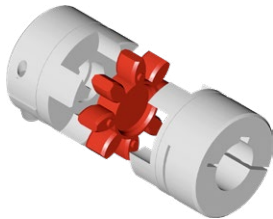
Before installing the motor, the safety distances of 1 mm must be checked.

Installation of coupling and motor - pivot variant with/without feather key

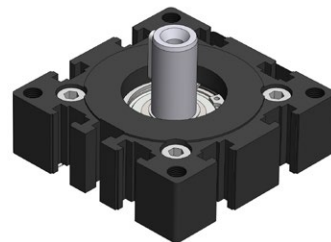
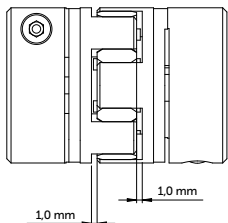
- Clean the pivot and coupling clamping area using solvent
- If necessary, slightly push the coupling hub apart with the help of a screw driver



- Push the coupling onto the pivot with the whole hub length and tighten with the permitted torques



- Check the safety distances of the coupling knobs (min. 1 mm)



- Push the motor into the adapter and fix it

6 Maintenance



Before starting any work, ensure that the electric drives used are secured against being switched on.

6.1 Lubrication/Lubricants

All linear systems are delivered EX Works with standard lubrication. Subsequent lubrication intervals are dependent on hours run, degree of loading and environmental factors (wide temperature ranges, high humidity, aggressive environment etc.) and the mileage. The lubricants listed below are used for production and mounting of our linear components. To achieve perfect operation and a useful, prolonged life, we recommend the following products:

Guide rods

Paraffin oil Soraja GAM 220 Art.-Nr.: 09001

Racks ELZA / ELDZA

Grease LGMT 2 Code-No.: 09002

Rollers EL-Series 100, 125

Grease LGMT 2 Art.-Nr.: 09002

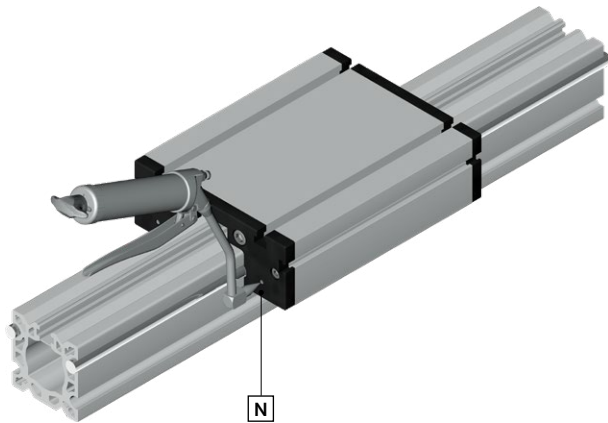
Racks ELZQ

Paraffin oil Soraja GAM 220 Art.-Nr.: 09001

6.2 Lubrication of guide rods EL-Series

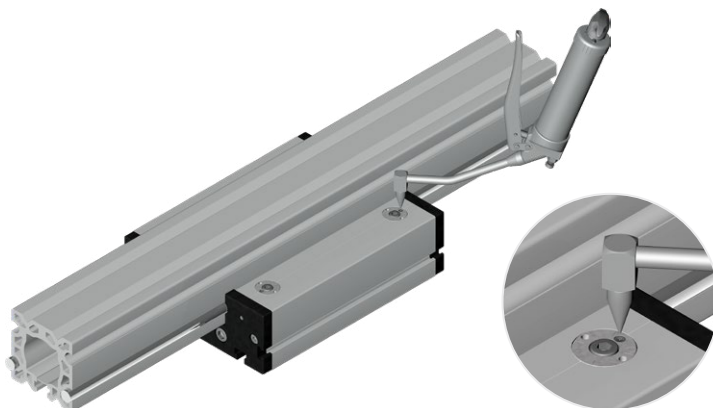
Rods will be greased by the strippers of carriage. There are 2 oil nipples (N) in each wiper end plate, where the tanks for the strippers can be filled with an oil gun. Paraffin oil Soraja GAM 220 (Code-No.: 09001)

Interval of greasing depends on environmental conditions and the mileage, min. once a month. Minimum stroke must be same than length of slide.

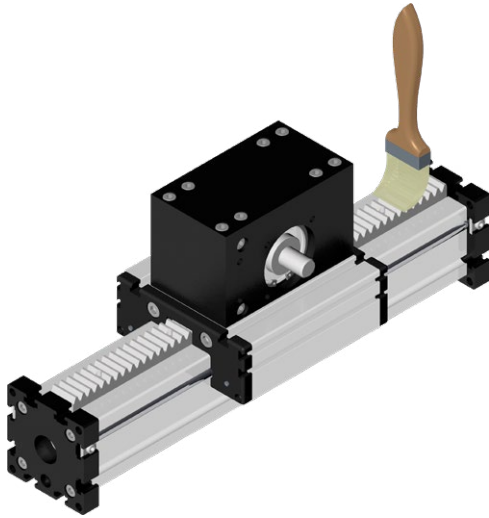


6.3 Lubrication rollers EL-Series 100, 125

Rollers should be greased each 1.000 working hours or each 6 months with a grease gun. For greaser nipple look at the eccentric at carriage bottom. Grease LGMT 2 (Art.-Nr.: 09002)



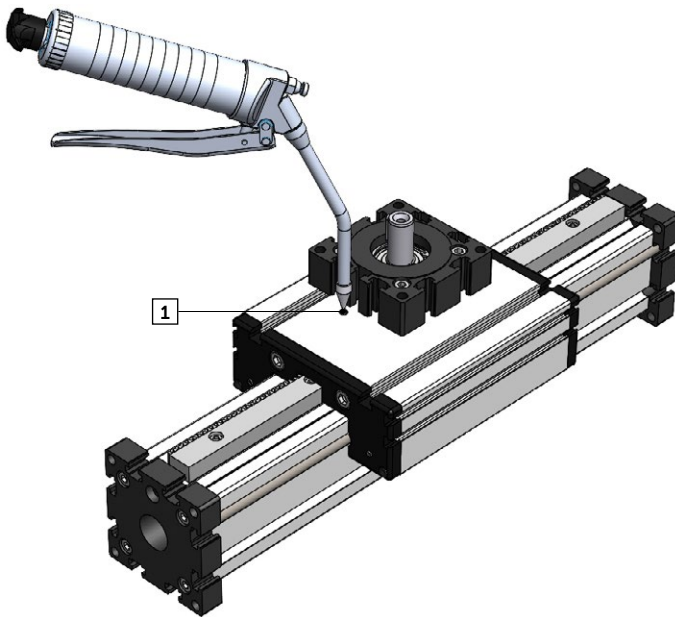
3.4 Lubrication rack ELZA / ELDZA



Lubrication is only necessary for steel- or stainless-steel racks and steel- or stainless-steel gears. All other material combinations are maintenance-free.

- Push the carriage close to one bearing-block.
- Grease the rack with a brush. Use SKF grease LGMT 2 for this.
- After lubrication, move a few times over the entire stroke so that the lubricant can be distributed well over the entire rack.

3.5 Lubrication rack ELZQ



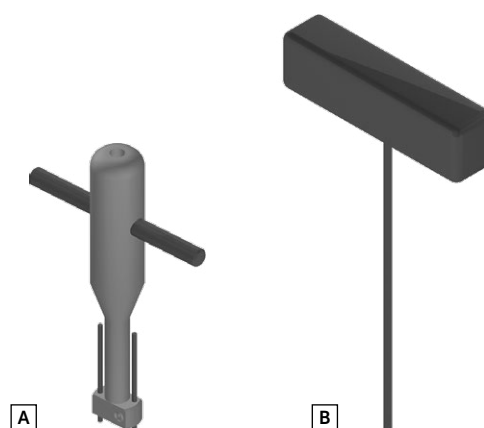
The felt gear wheel is lubricated via the lubricating nipple (1) on the drive side.

Lubricating oil Soraja GAM 220 (Art. No.: 09001)

The required relubrication interval depends on the environmental conditions and the mileage; as a guideline, it should be once a month. To ensure adequate lubrication, the minimum stroke must be equal to the carriage length.

6.6 Tools for adjusting the rollers

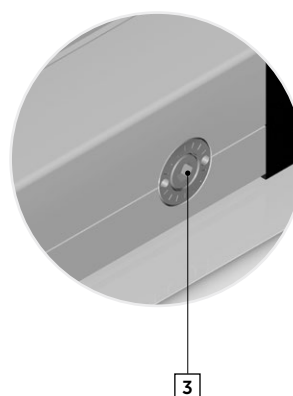
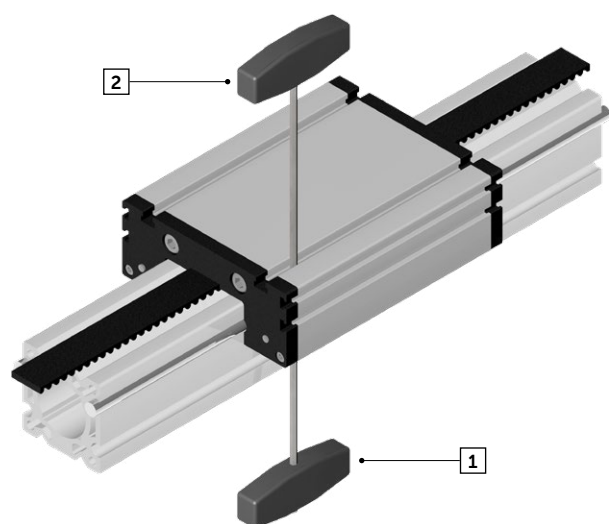
	A Eccentric key		B Counter tool
Size	Size	Code-No.	Size
30	LK 9,5 ø 1,3	09030	T 10
40	SW 5	09022	SW 4
60	SW 6	09023	SW 5
60S	LK 20 ø 2	09036	SW 6
80	LK 15 ø 2	09031	SW 5
80S	LK 20 ø 2	09036	SW 6
100	LK 24 ø 3	09032	SW 6
125	LK 32 ø 4	09033	SW 8



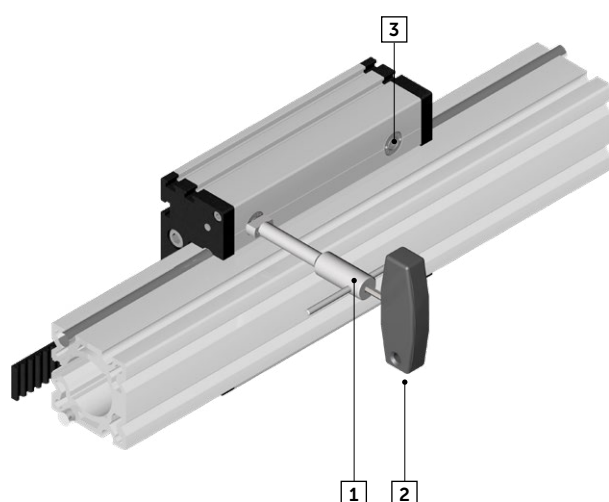
6.7 Adjusting the rollers

Size EL 40, 60

[→ YouTube Video](#)



Size EL 30, 80, 100, 125

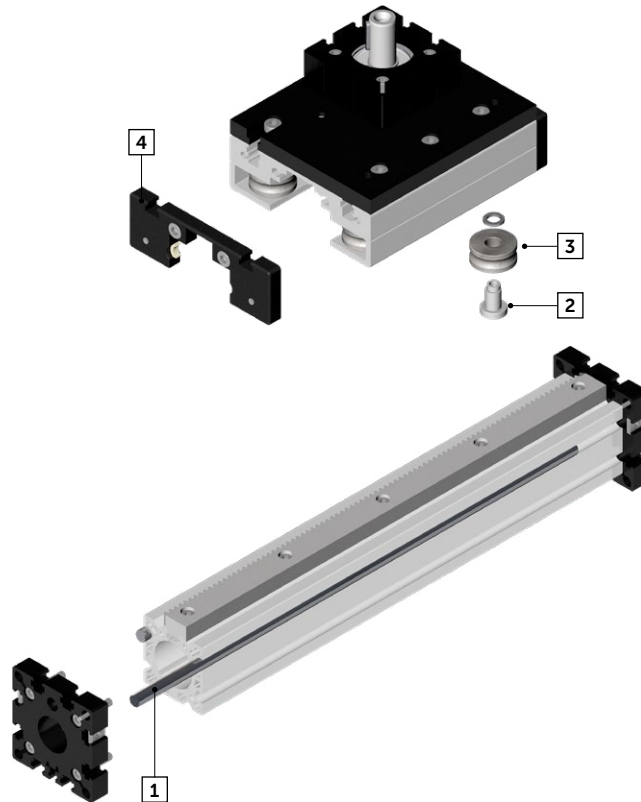


- Hold the eccentric with hex key (1).
- Loosen the screws with the hex key (2) until the eccentric can be turned.
- There is an embossing (3) on the eccentric surface.
- The interrupted line of the embossing must coincide with the drawing groove in the carriage.
- Adjust at other side without initial tension.
- Ensure that the embossments are in the same position and that the eccentrics are tensioned in the clockwise direction.

7 Spare part kits based on the example of an ELZQ

Refer to this overview for the standardized naming of the components and their installation position in the linear axis. Technical deviations are possible and depend on the size and design of the linear axis. When ordering, please always state the ID number (laser marking on linear axis) and, if applicable, the quantity.

1	Guide rail
2	Eccentric
3	Roller
4	Endplate with wiper complete



If necessary, please contact our technical customer service, stating the order number or ID number, in order to rule out errors when ordering spare parts. (The standard version is illustrated)

Baugröße	1	2	3	4
EL(D)ZA, ELZQ 40	04141	04051	04001	04240
EL(D)ZA, ELZQ 60	04161	04052	04002	04260
EL(D)ZA, ELZQ 60S	04161	040521	04039	04268
EL(D)ZA, ELZQ 80	04181	04053	04003	04280
EL(D)ZA, ELZQ 80S	04181	04049	04038	04288
EL(D)ZA, ELZQ 100	04111	04054	04004	04210