

Modulating linear actuator for adjusting air dampers and sliders in ventilation and air-conditioning systems for building services installations

- For air dampers up to approx. 0.8 m²
- Actuating force 125 N
- Nominal voltage AC/DC 24 V
- Control: **Modulating DC 0 ... 10 V**
- Position feedback DC 2 ... 10 V



Overview of types

Type	Stroke	Direction of stroke
CH24-SR-L60	Up to approx. 60 mm, adjustable in 0.5 mm increments	Y = 0 V retracted
CH24-SR-R60	Up to approx. 100 mm, adjustable in 0.5 mm increments	Y = 0 V extended
CH24-SR-L100	Up to approx. 100 mm, adjustable in 0.5 mm increments	Y = 0 V retracted
CH24-SR-R100	Up to approx. 100 mm, adjustable in 0.5 mm increments	Y = 0 V extended

Technical data

Electrical data	Nominal voltage	AC 24 V, 50/60 Hz / DC 24 V
	Nominal voltage range	AC/DC 19.2 ... 28.8 V
	Power consumption	In operation 1 W @ nominal torque At rest 0.5 W For wire sizing 2 VA
	Connection	Cable 1 m, 4 x 0.75 mm ²
Functional data	Actuating force (nominal force)	Min. 125 N @ nominal voltage
	Negative torque	⚠ The following restriction applies if end stop clips (Z-ESCM) are used: ≤50% from nominal torque (Caution: can only be used with restrictions. Please contact your Belimo representative.) There are no restrictions if end stops are used on the gear rack or the application.
	Control	Control signal Y DC 0 ... 10 V, typical input impedance 100 kΩ Operating range DC 2 ... 10 V
	Position feedback (Measuring voltage U)	DC 2 ... 10 V, max. 1 mA
	Position accuracy	±5%
	Stroke	See «Overview of types»
	Direction of stroke	See «Overview of types»
	Stroke limiting	Without limit 60 / 100 mm With limit 60 mm fixed or 0 ... 67.5 mm by means of mechanical end stop, adjustable in 0.5 mm increments (calculatory 0.55 mm)
	Running time	380 s / 100 mm
	Sound power level	Max. 35 dB (A)
	Safety	Protection class
Degree of protection		IP54 in any mounting position
EMC		CE according to 2004/108/EC
Certification		Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14
Mode of operation		Type 1
Rated impulse voltage		0.8 kV
Control pollution degree		3
Ambient temperature		-30 ... +50 °C
Non-operating temperature		-40 ... +80 °C
Ambient humidity		95% r.h., non-condensating
Maintenance	Maintenance-free	
Dimensions / Weight	Dimensions	See «Dimensions» on page 3
	Weight	Approx. 390 g

Safety notes



- The actuator is not allowed to be used outside the specified field of application, especially in aircraft or in any other airborne means of transport.
- It may only be installed by suitably trained personnel. Any legal regulations or regulations issued by authorities must be observed during installation.
- The device may only be opened at the manufacturer's site. It does not contain any parts that can be replaced or repaired by the user.
- The rotary supports and coupling pieces available as accessories must always be used if lateral forces are likely. An additional installation sheet is required in accordance with the installation instructions.
In addition, the actuator must not be tightly bolted to the application. It must remain movable via the rotary support (refer to «Assembly notes»).
- If the linear actuator is exposed to severely contaminated atmosphere, appropriate precautions must be taken on the system side. Excessive deposits of dust, soot etc. can prevent the gear rack from being extended and retracted correctly.
- If not installed horizontally, the magnet-operated gear disengagement may only be actuated when there is no pressure on the gear rod.
- To calculate the actuating force required for air dampers and sliders, the specifications supplied by the damper manufacturers concerning the surface, cross section, design, installation site and the air flow conditions must be observed.
- If a rotary support and/or coupling piece is used, losses in the actuation force are to be expected.
- The device contains electrical and electronic components and is not allowed to be disposed of as household refuse. All locally valid regulations and requirements must be observed.

Product features

Mode of operation	The actuator is controlled by means of a standard control signal DC 0 ... 10 V. It opens to the position dictated by this signal. The measuring voltage U allows the damper position (0 ... 100%) to be electrically indicated and serves as a follow-up control signal for other actuators.
Manual override	Manual override with magnet possible (the gear is disengaged as long as the magnet adheres to the symbol ⊕). A magnet for gear disengagement is enclosed as an accessory.
Adjustable stroke	The stroke can be adjusted on both sides in 0.5 mm increments by means of mechanical end stops.
High functional reliability	The actuator is overload-proof, requires no limit switches and automatically stops when the end stop is reached.

Accessories

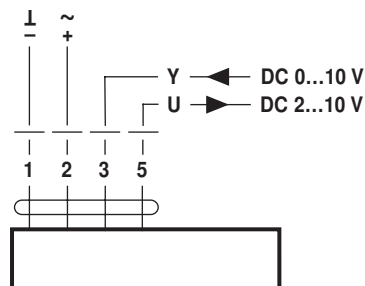
	Description	Data sheet
Mechanical accessories	Rotary support to compensate lateral forces Z-DS1	T2 - Z-LH..A..
	Coupling piece Z-KS2	T2 - Z-LH..A..
	End stop set Z-AS2	T2 - Z-LH..A..
	Magnet Z-MA (multipack with 20 pcs. each)	
	Endstop Clip Z-ESCM (multipack with 20 pcs. each)	

Electrical installation

Wiring diagram

Notes

- Connect via safety isolation transformer.
- Other actuators can be connected in parallel.
Note the performance data.



Assembly notes

Application without lateral forces The linear actuator is screwed directly to the housing at two points. Afterwards, the head of the gear rod is fastened to the moving part of the ventilation application (e.g. damper or slider).

Application with lateral forces The coupling piece with the internal thread (Z-KS2) is connected to the head of the gear rod. The rotary support (Z-DS1) is screwed to the ventilation application. Afterwards, the linear actuator is screwed to the previously mounted rotary support with the enclosed screw. Afterwards, the coupling piece, which is mounted to the head of the gear rod, is attached to the moving part of the ventilation application (e.g. damper or slider). The lateral forces can be compensated to a certain limit with the rotary support and/or coupling piece. The maximum permissible swivel angle of the rotary support and coupling piece is 10° , laterally and upwards.

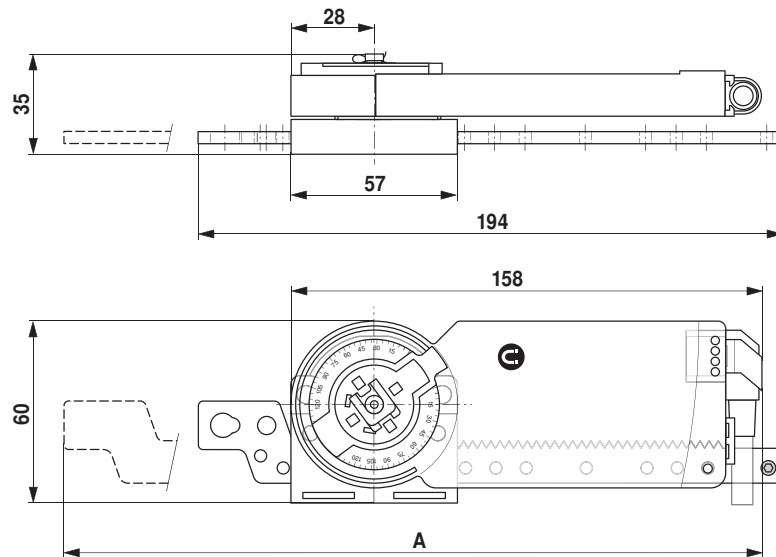
Caution

If a rotary support and/or coupling piece is used, losses in the actuation force losses are to be expected.

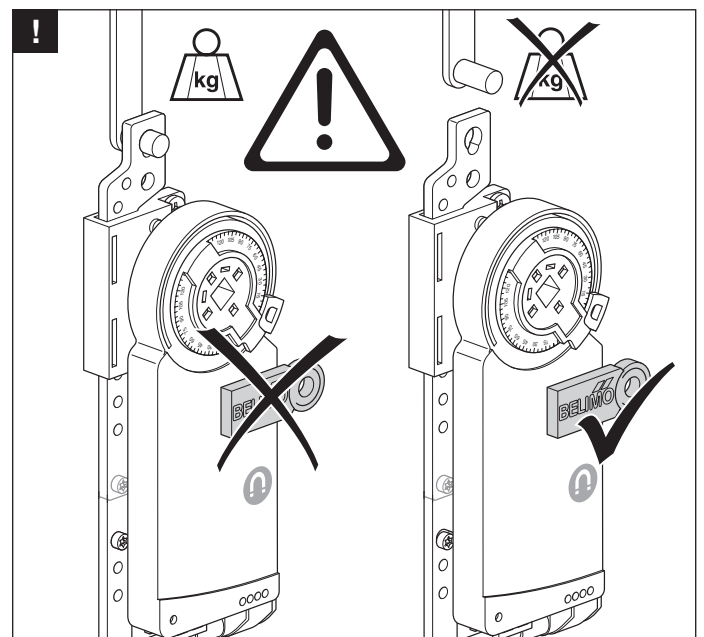
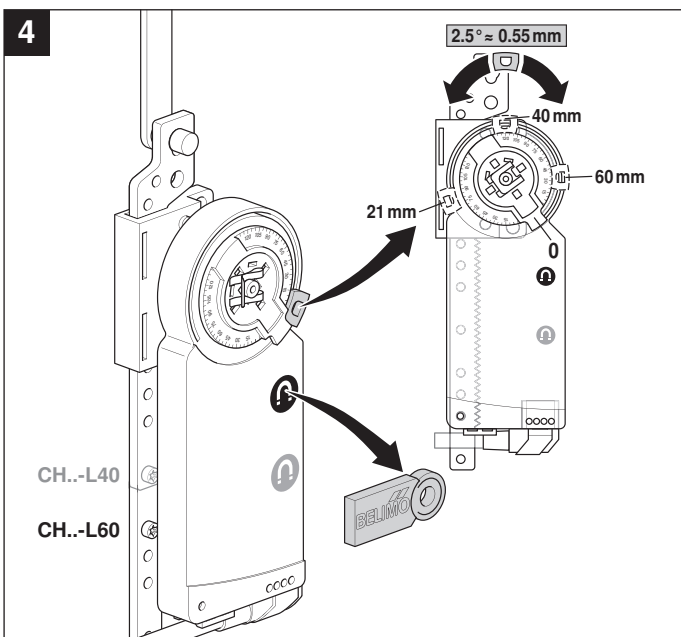
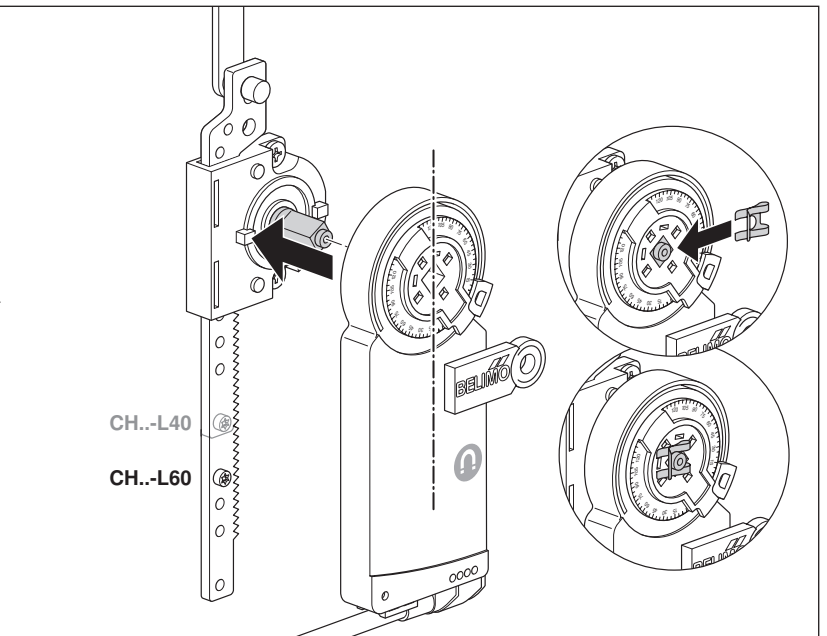
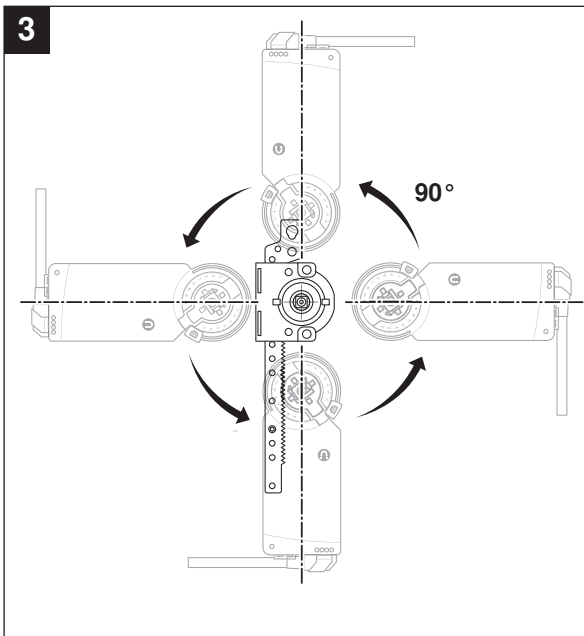
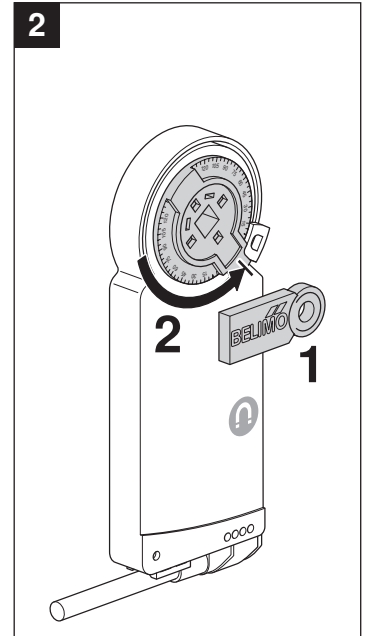
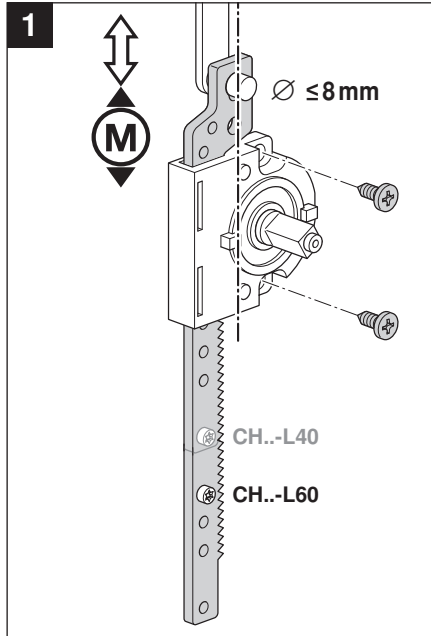
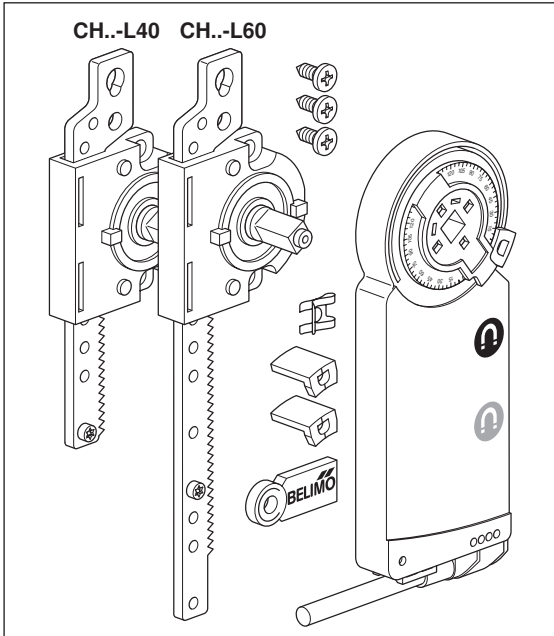


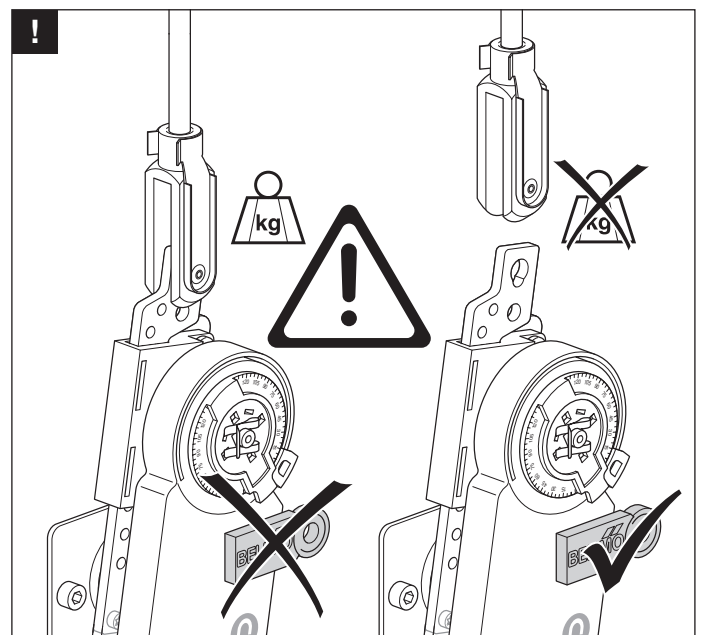
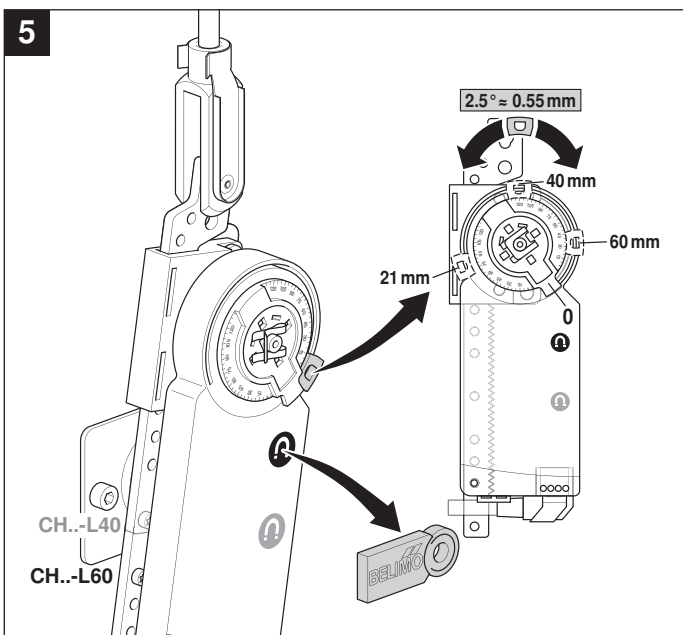
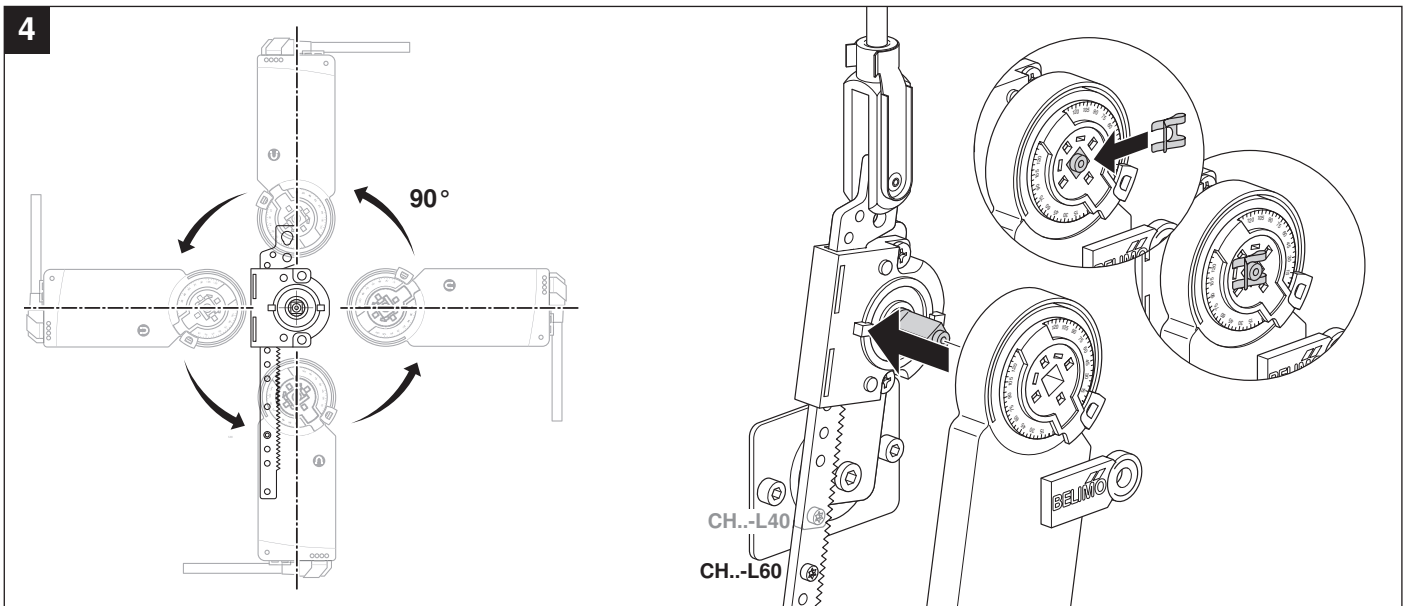
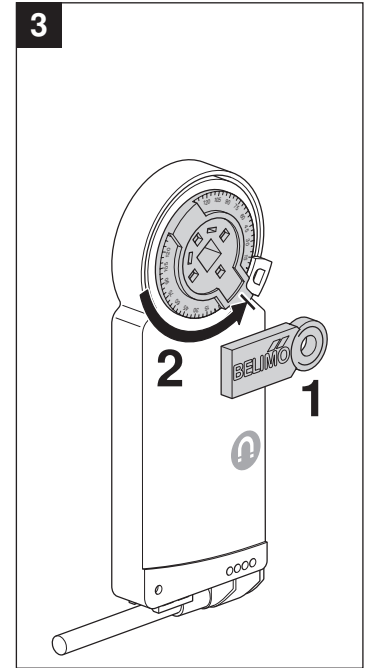
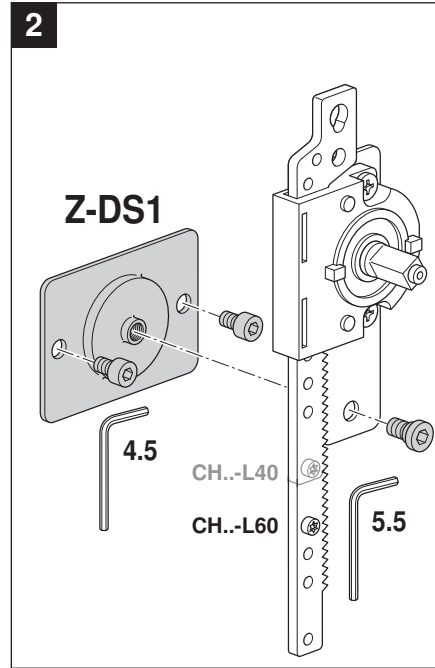
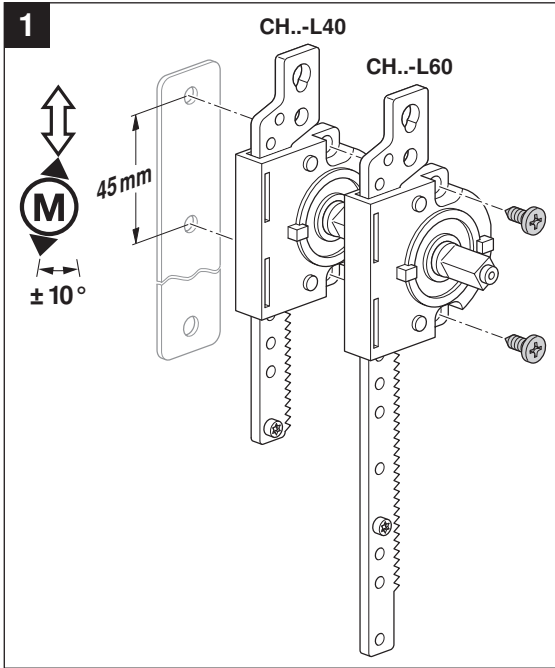
Dimensions [mm]

Dimensional drawings

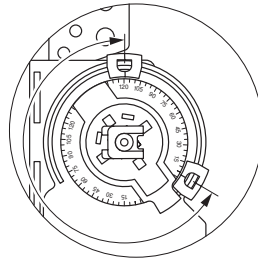


Type	Max. stroke	A
CH24-SR-L60	60	248
CH24-SR-L100	100	288



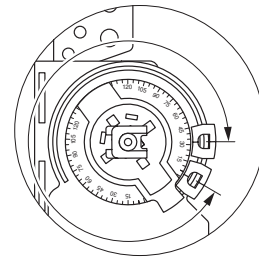


CH24-SX-L40

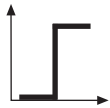


0 ... 40 mm

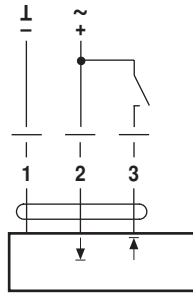
CH24-SX-L60



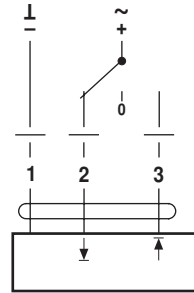
0 ... 60 mm



AC 24 V / DC 24 V

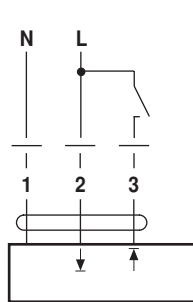


CH24-L40
CH24-L60

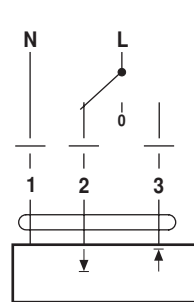


CH24-L40
CH24-L60

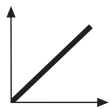
AC 100 ... 240 V



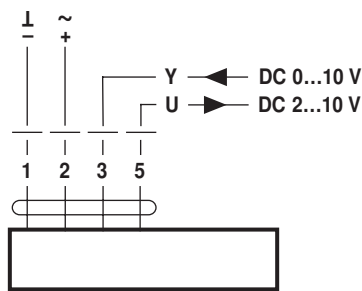
CH230-L40
CH230-L60



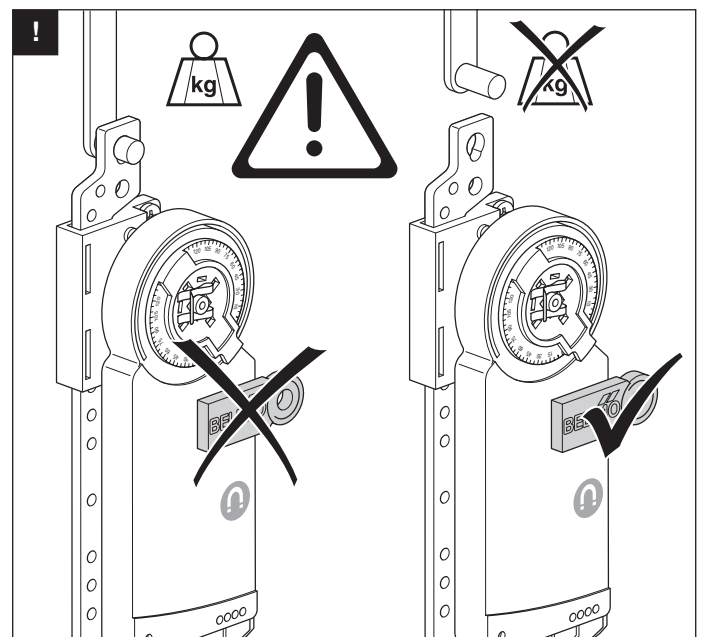
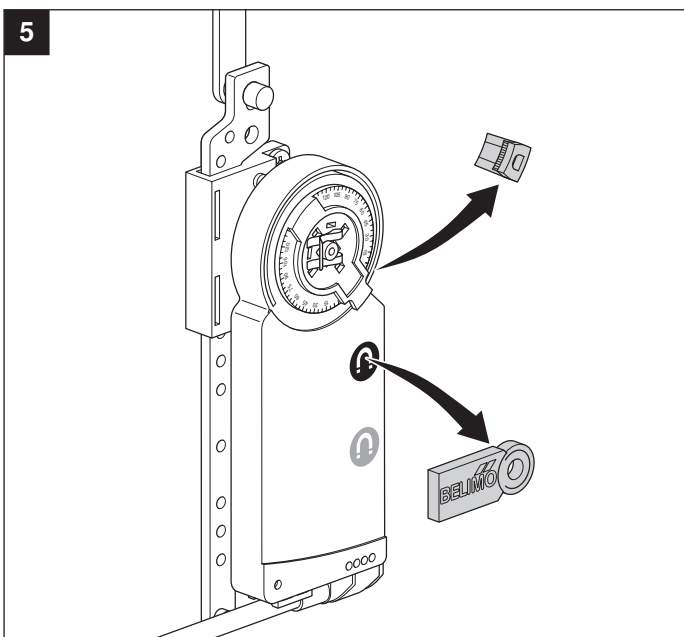
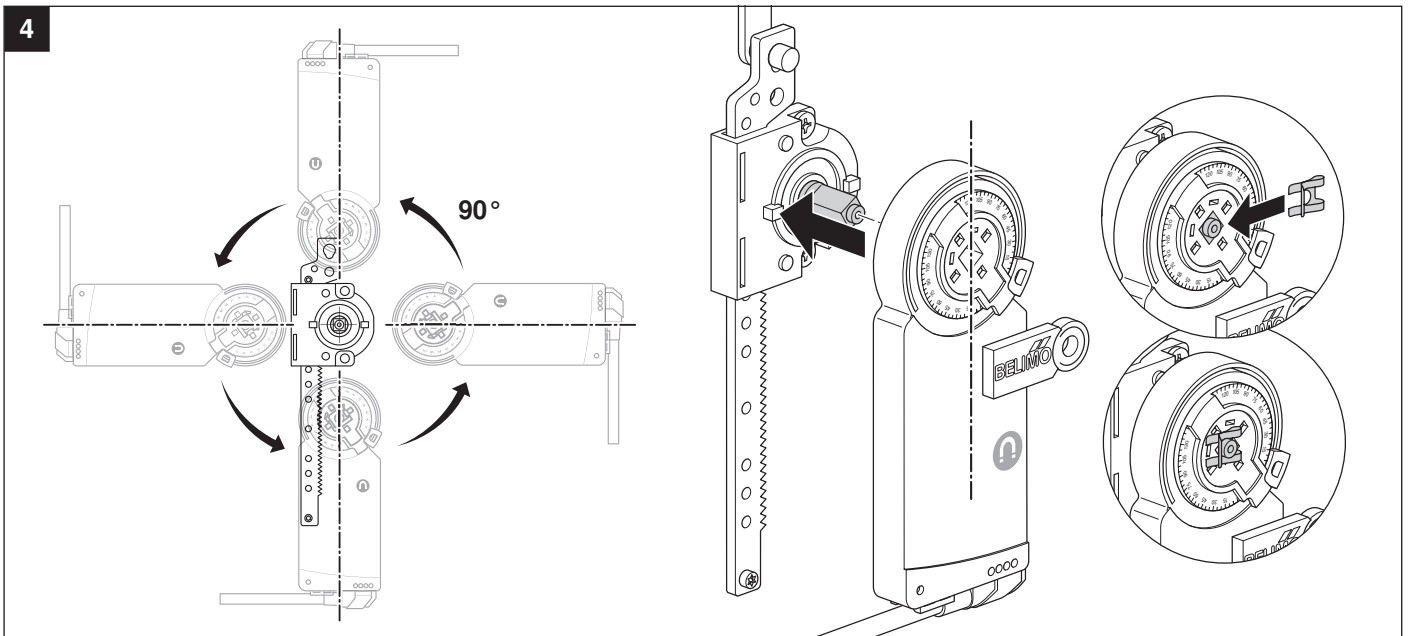
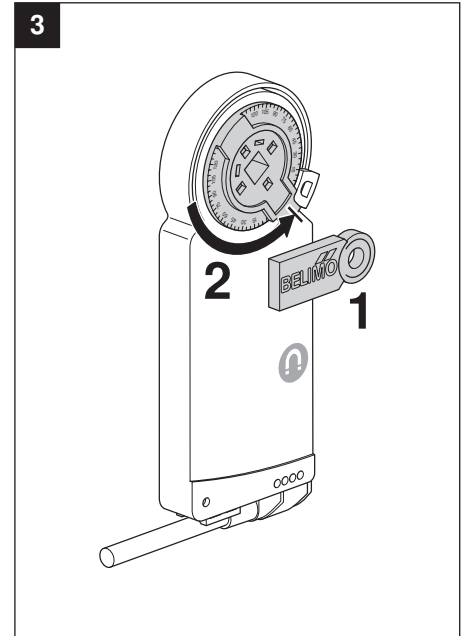
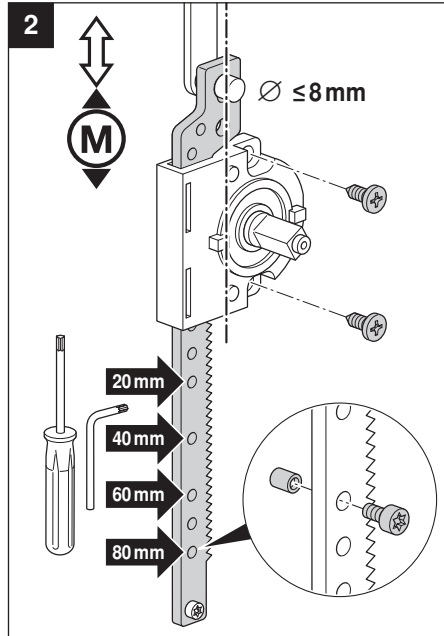
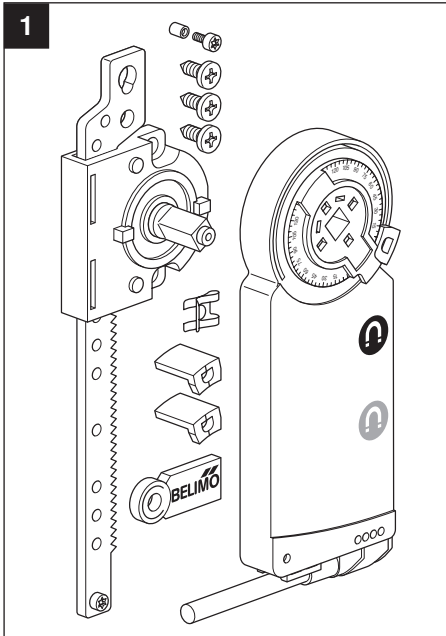
CH230-L40
CH230-L60

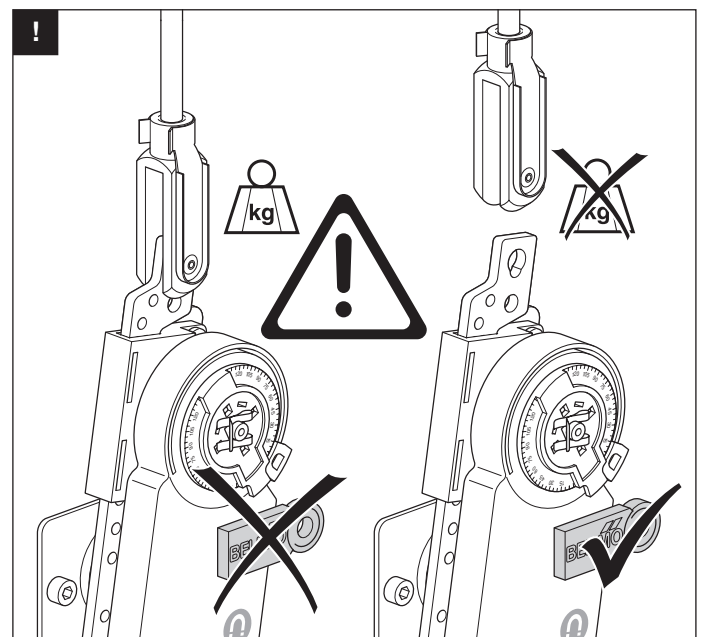
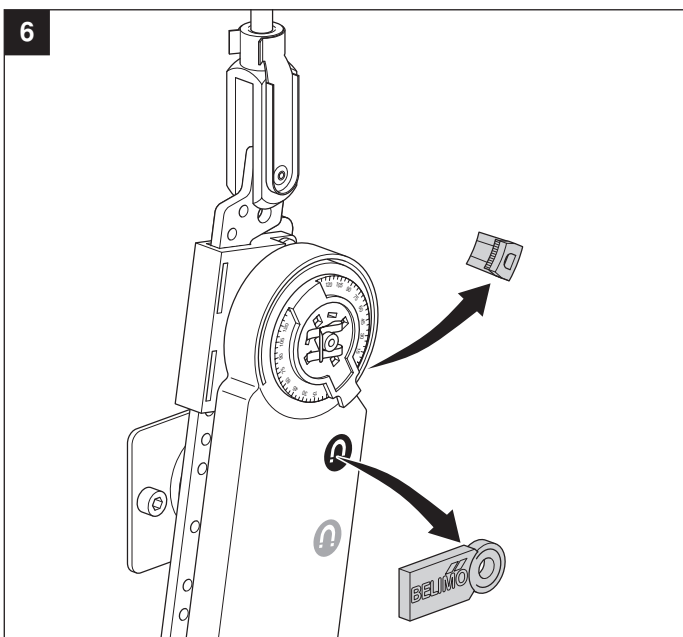
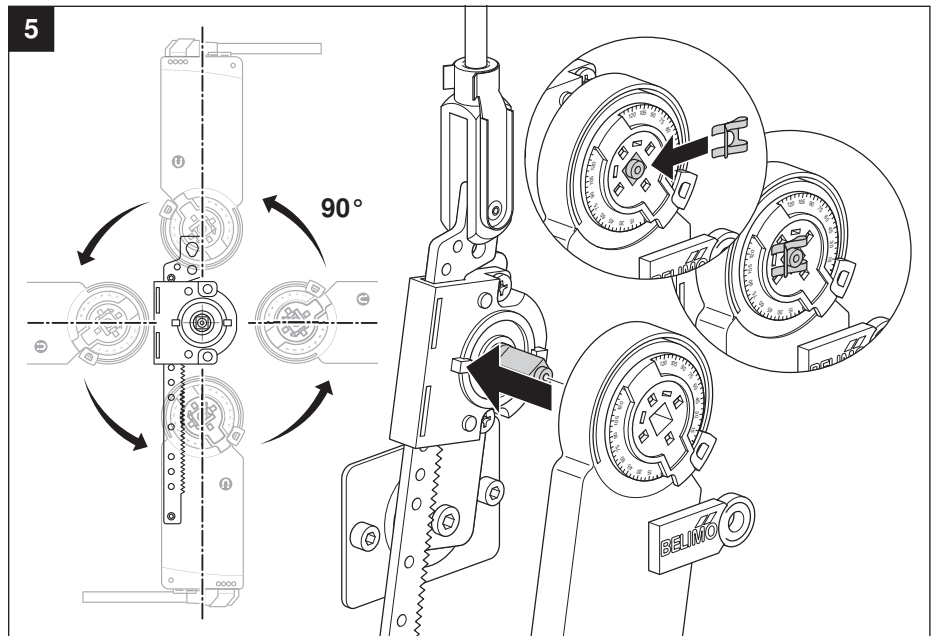
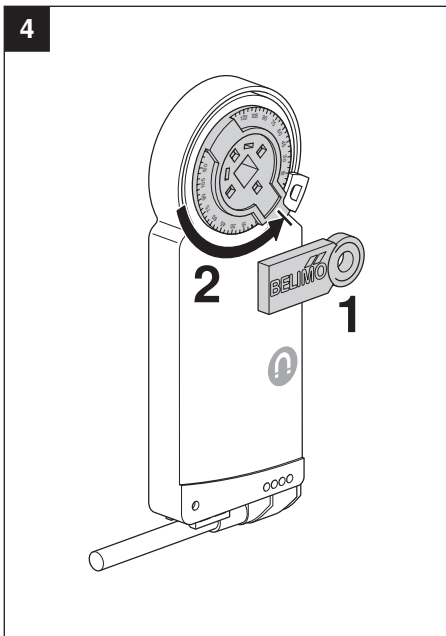
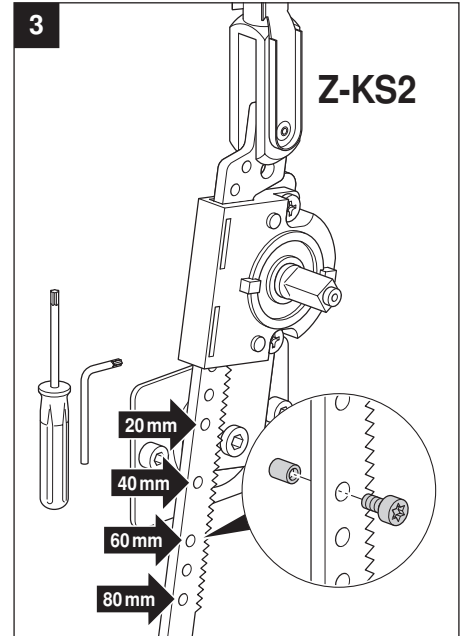
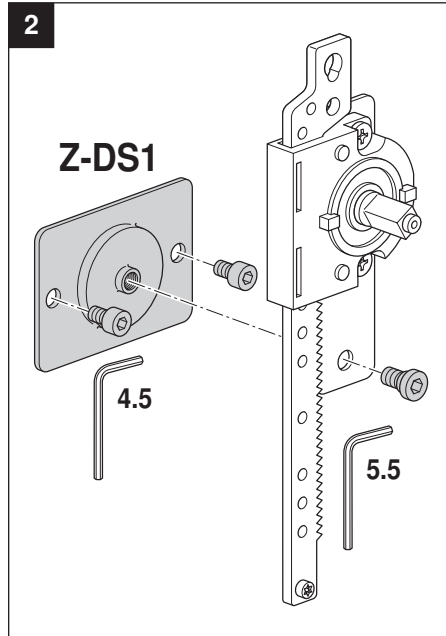
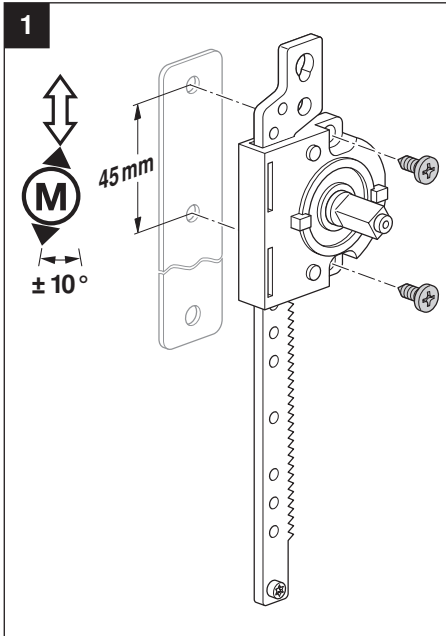


AC 24 V / DC 24 V

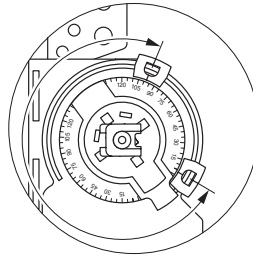


CH24-SR-L40
CH24-SR-L60
CH24-SX-L40
CH24-SX-L60

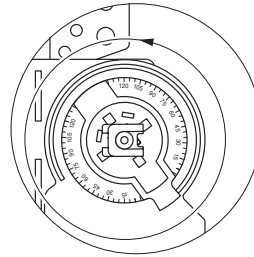




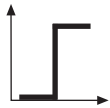
CH24-SX..



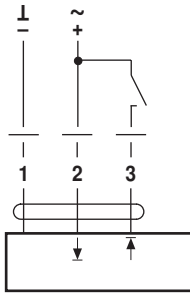
0 ... 67.5 mm



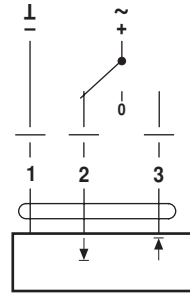
0 ... 100 mm



AC 24 V / DC 24 V

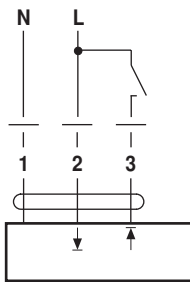


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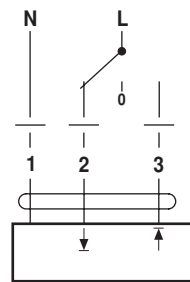


CH24-L100

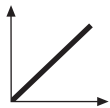
AC 100 ... 240 V ⚠



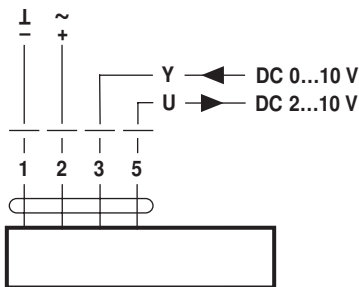
CH230-L100



CH230-L100



AC 24 V / DC 24 V



CH24-SR-L100
CH24-SR-R100
CH24-SX-L100
CH24-SX-R100