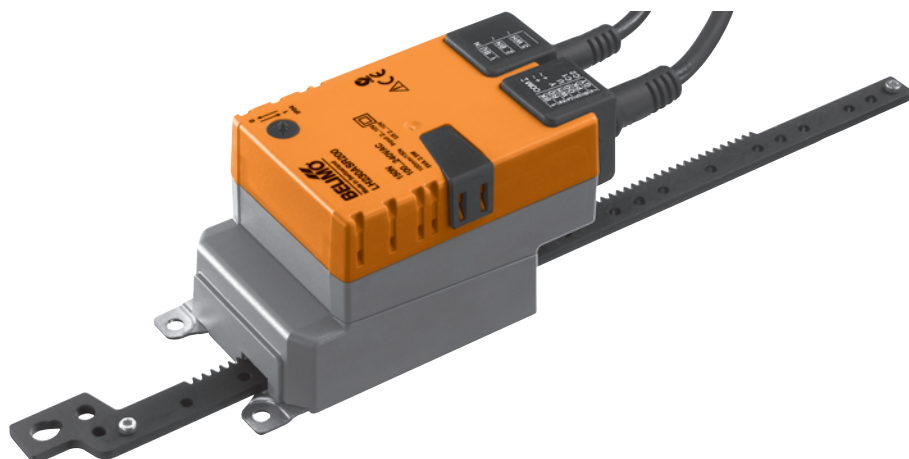


Modulating linear actuator for operating air control dampers and slide valves in ventilation and air-conditioning systems

- For air control dampers up to approx. 1 m<sup>2</sup>
- Actuating force 150 N
- Nominal voltage AC 100 ... 240 V
- Control: modulating DC 0 ... 10 V, position feedback DC 2 ... 10 V
- Length of stroke 100 or 200 mm, fixed



### Overview of types

Type	Stroke	Operating range	Weight
LH230ASR100	100 mm, fixed	DC 2 ... 10 V $\approx$ 0 ... 100 mm	515 g
LH230ASR200	200 mm, fixed	DC 2 ... 10 V $\approx$ 0 ... 200 mm	540 g

### Technical data

<b>Electrical data</b>	Nominal voltage	AC 100 ... 240 V, 50/60 Hz
	Power supply range	AC 85 ... 265 V
	Power consumption	In operation 2.5 W @ nominal force At rest 1 W For wire sizing 5 VA
	Connection	Power supply Cable 1 m, 2 x 0.75 mm <sup>2</sup> Signals Cable 1 m, 4 x 0.75 mm <sup>2</sup>
<b>Functional data</b>	Actuating force	150 N @ nominal voltage
	Control	Control signal Y DC 0 ... 10 V, typical input impedance 100 k $\Omega$ Operating range See «Overview of types»
	Position feedback (Measuring voltage U)	DC 2 ... 10 V, max. 1 mA
	Position accuracy	$\pm$ 5%
	Stroke	See «Overview of types»
	Direction of stroke at Y = 0 V	Reversible with switch 1 $\uparrow$ resp. 0 $\downarrow$
	Running time LH230ASR100/200	150 s / 100 mm
	Sound power level	<35 dB (A)
<b>Safety</b>	Protection class	II Totally insulated $\square$
	Degree of protection	IP54 in any mounting position
	EMC	CE according to 89/336/EEC
	Low voltage directive	CE according to 73/23/EEC
	Mode of operation	Type 1 (to EN 60730-1)
	Rated impulse voltage	Supply 4 kV (to EN 60730-1) Control 0.8 kV (to EN 60730-1)
	Control pollution degree	3 (to EN 60730-1)
	Ambient temperature range	-30 ... +50 °C
	Non-operating temperature	-40 ... +80 °C
	Ambient humidity range	95% r.H., non-condensating (to EN 60730-1)
Maintenance	Maintenance-free	
<b>Dimensions / Weight</b>	Dimensions	See «Dimensions» on page 3
	Weight	See «Overview of types»

## Safety notes



- The actuator is not allowed to be used outside the specified field of application, especially not in aircraft or any other form of air transport.
- **Caution: Power supply voltage !**
- **Assembly must be carried out by trained personnel. Any legal regulations or regulations issued by authorities must be observed during assembly.**
- 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.  
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 gear disengagement pushbutton may only be actuated when there is no pressure on the gear rod
- When calculating the required actuating force, the specifications supplied by the damper or slide valve manufacturers (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

<b>Mode of operation</b>	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.
<b>Manual override</b>	Manual operation is possible with the pushbutton (the gearing latch remains disengaged as long as the pushbutton is pressed or detented).
<b>High functional reliability</b>	The actuator is overload-proof, requires no limit switches and automatically stops when the end stop is reached.

## Accessories

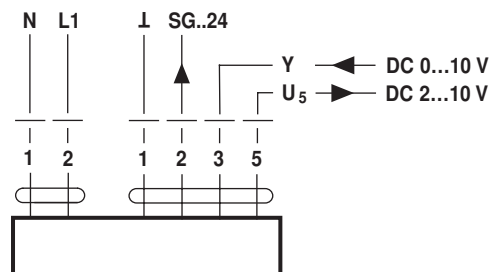
	Description	Data sheet
<b>Electrical accessories</b>	Positioner, types SGA24, SGF24 und SGE24	T2 - SG..24
<b>Mechanical accessories</b>	Rotary support to compensate lateral forces, type Z-DS1	T2 - Z-LH..A..
	Coupling piece, type Z-KS2	T2 - Z-LH..A..
	Mechanical limiter set, type Z-AS2	T2 - Z-LH..A..

## Electrical installation

### Wiring diagram

#### Notes

- Caution: Power supply voltage !
- Other actuators can be connected in parallel.  
Please note the performance data!

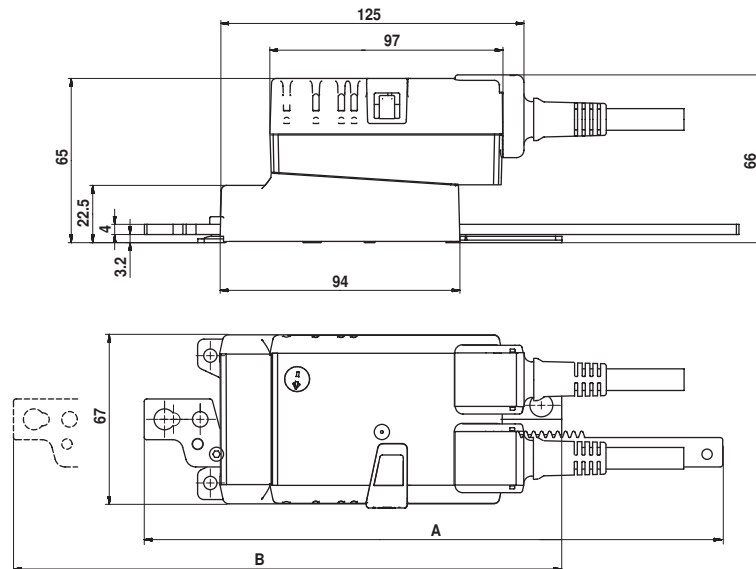


Direction of stroke



## Dimensions [mm]

## Dimensional drawings



Type	Max. Stroke	A	B
LH230ASR100	100	233.5	264.2
LH230ASR200	200	333.5	364.2

## Assembly notes

**Application without lateral forces**

The linear actuator is screwed directly to the housing at three points. Afterwards, the head of the gear rod is fastened to the moving part of the ventilation application (e.g. damper or slide valve).

**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 slide valve).

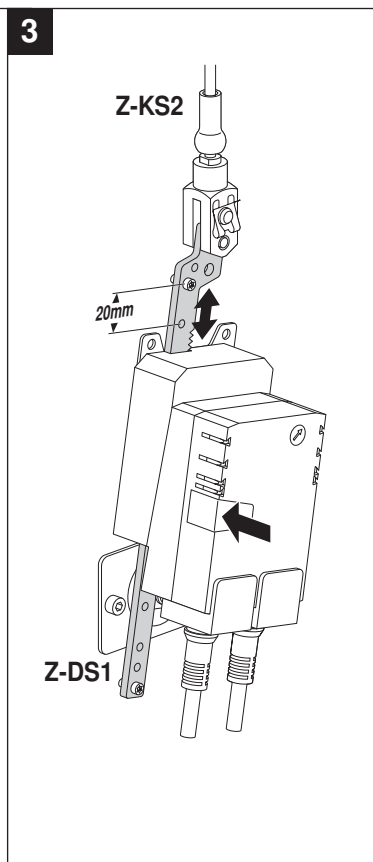
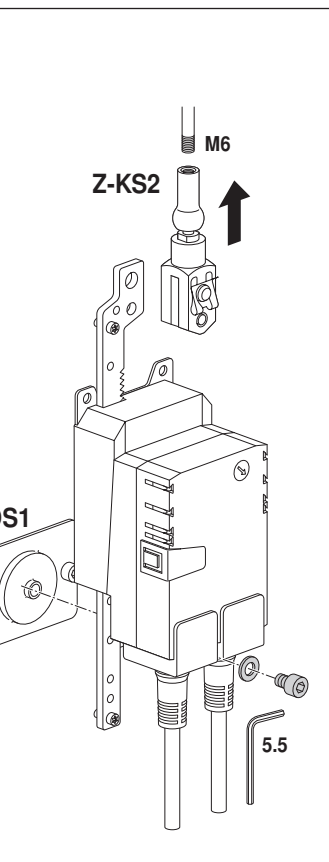
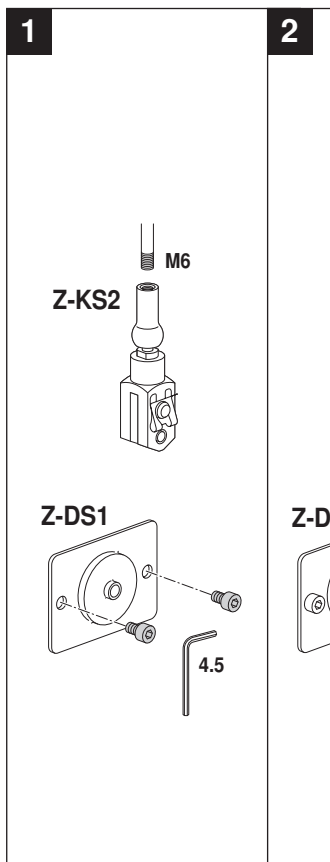
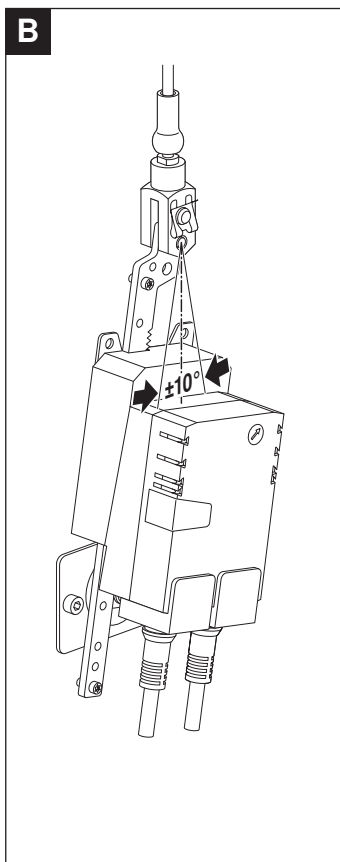
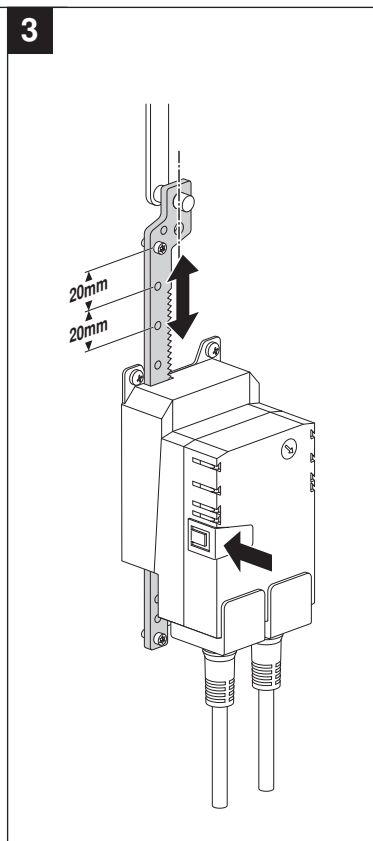
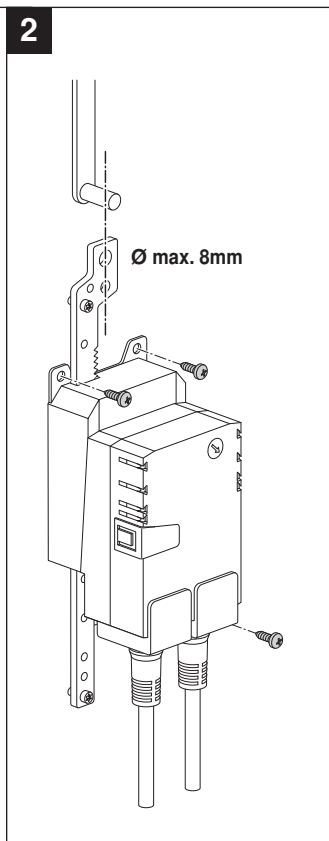
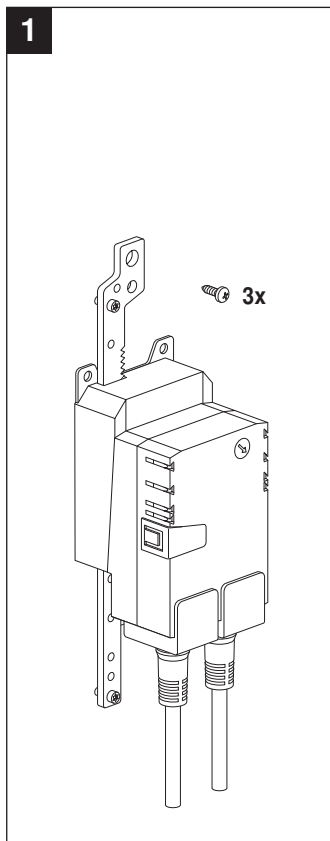
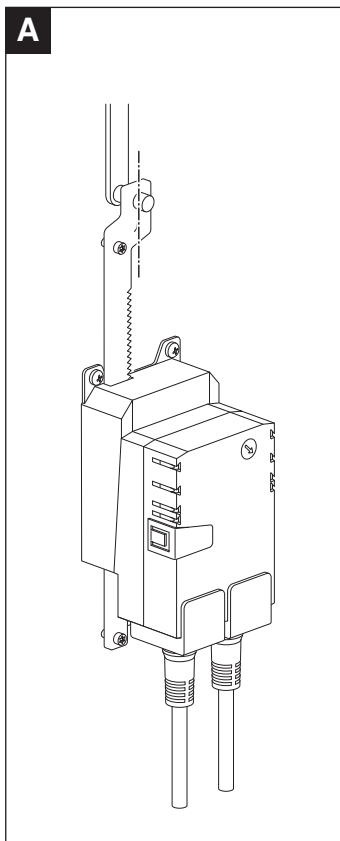
The transverse forces can be compensated for to a certain limit with the rotary support and/or coupling piece. The maximum permissible swivel angle of the rotary support and coupling piece is  $10^\circ$  laterally and upwards.

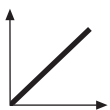
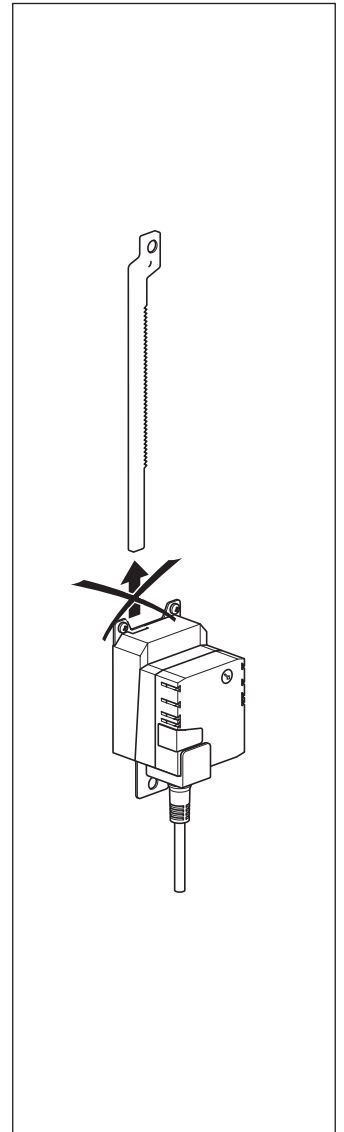
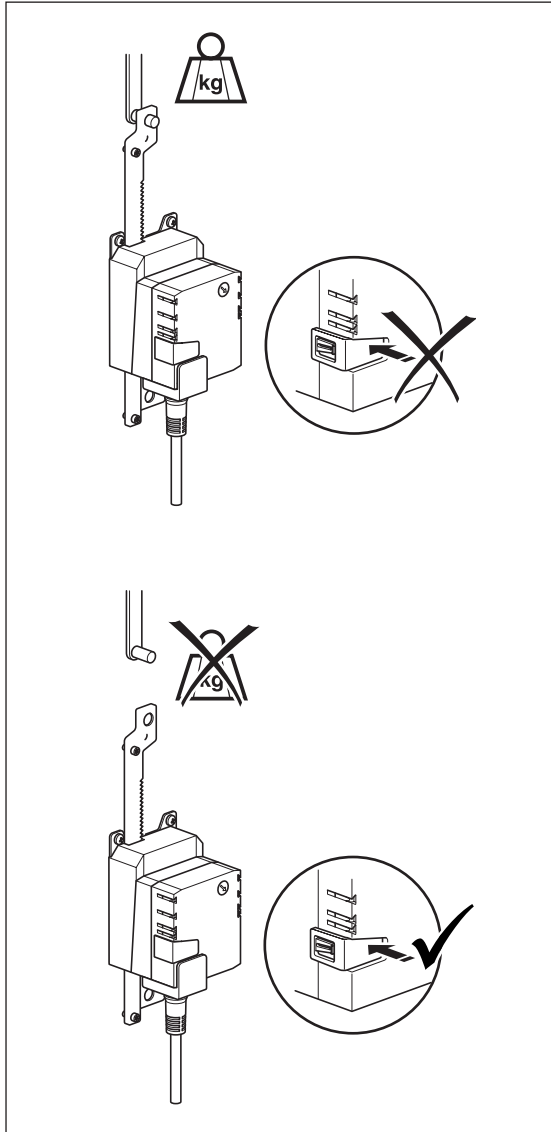
**Caution**

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

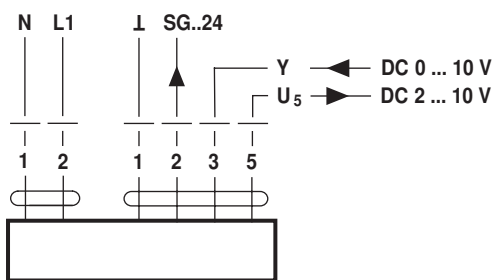


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AC 230 V



LH230ASR..