

Spring return actuator with emergency function for adjusting air dampers in ventilation and air conditioning systems in buildings

- For air dampers up to approx. 6 m<sup>2</sup>
- Torque 30 Nm
- Nominal voltage AC 230 V
- Control: Open-close



### Technical data

|                            |                            |  |
|----------------------------|----------------------------|--|
| <b>Electrical data</b>     | Nominal voltage            | AC 230 V, 50/60 Hz   |
|                            | Nominal voltage range      | AC 90 ... 264 V  |
|                            | Power consumption          | In operation 9 W @ nominal torque<br>At rest 4.5 W<br>For wire sizing 21 VA  |
|                            | Connection                 | Cable 1 m, 2 x 0.75 mm <sup>2</sup>  |
| <b>Functional data</b>     | Torque Motor               | Min. 30 Nm @ nominal voltage   |
|                            | Spring return              | Min. 30 Nm   |
|                            | Direction of rotation      | Can be selected by mounting L / R  |
|                            | Manual override            | With hand crank and interlocking switch  |
|                            | Angle of rotation          | Max. 95°↔, can be limited with adjustable mechanical end stop  |
|                            | Running time Motor         | ≤75 s (0 ... 30 Nm)  |
|                            | Spring return              | ≤20 s @ -20 ... 50 °C / max. 60 s @ -30 °C   |
|                            | Sound power level Motor    | ≤55 dB (A)   |
|                            | Spring return              | ≤71 dB (A)   |
|                            | Service life               | Min. 60,000 emergency positions  |
| Position indication        | Mechanical                 |  |
| <b>Safety</b>              | Protection class           | II Totally insulated <input type="checkbox"/>  |
|                            | Protection mode            | IP54<br>NEMA2, UL Enclosure Type 2   |
|                            | EMC                        | CE according to 2004/108/EC  |
|                            | Low-voltage directive      | CE according to 2006/95/EC   |
|                            | Certification              | Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14<br>cULus according to UL 60730-1A and UL 60730-2-14<br>and CAN/CSA E60730-1:02 |
|                            | Mode of operation          | Type 1.AA  |
|                            | Rated impulse voltage      | 2.5 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           |  |
| <b>Dimensions / Weight</b> | Dimensions                 | See «Dimensions» on page 3   |
|                            | Weight                     | Approx. 4.2 kg   |

## 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.
- **Caution: Power supply voltage!**
- It may only be installed by suitably 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 cables must not be removed from the device.
- When calculating the required torque, the specifications supplied by the damper manufacturers (cross-section, design, installation site), and the air flow conditions must be observed.
- 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 moves the damper to the operating position at the same time as tensioning the return spring. The damper is turned back to the emergency position by spring force if the supply voltage is interrupted.

**Simple direct mounting** Simple direct mounting on the damper spindle with a universal spindle clamp, supplied with an anti-rotation strap to prevent the actuator from rotating.

**Achsstabilisator** Der Klemmbock des Federrücklaufantriebs ist werksseitig mit einem Achsstabilisator für die Stabilisierung der Kombination Klappe, Klappenachse und Antrieb ausgerüstet. Dieser besteht aus zwei Kunststoff-Stützringen und muss je nach Montagesituation und Achsdurchmesser belassen, teilweise oder komplett entfernt werden.

### Langachsmontage:

- Bei Langachsmontage mit einem Achsdurchmesser von 12 bis 20 mm ist der Einsatz des Achsstabilisators notwendig.
- Bei Langachsmontage mit einem Achsdurchmesser von 21 bis 26,7 mm ist der Einsatz des Achsstabilisators nicht notwendig und kann entfernt werden.

### Kurzachsmontage:

- Bei Kurzachsmontage entfällt die Notwendigkeit des Achsstabilisators, er kann entfernt oder – falls es die Achslänge zulässt – im Klemmbock belassen werden.

Weitere Hinweise siehe Montageanleitung.

**Manual override** Manual operation of the damper with the hand crank, locking in any position with the interlocking switch. Unlocking is manual or automatic by applying the operating voltage.

**Adjustable angle of rotation** Adjustable angle of rotation with mechanical end stop.

**High operational reliability** The actuator is overload-proof, requires no limit switches and automatically stops when the end stop is reached.

### Important

The spindle stabiliser must nonetheless be used when the universal mounting bracket is installed on the opposite side of the spindle clamp and with a spindle diameter <20 mm.

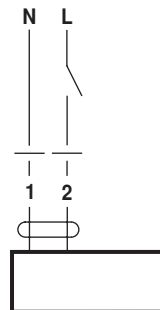


## Electrical installation

### Wiring diagram

#### Notes

- Caution: Power supply voltage!
- Parallel connection of other actuators possible. Note the performance data.



#### Cable colours:

- 1 = blue
- 2 = brown

Accessories

Mechanical accessories

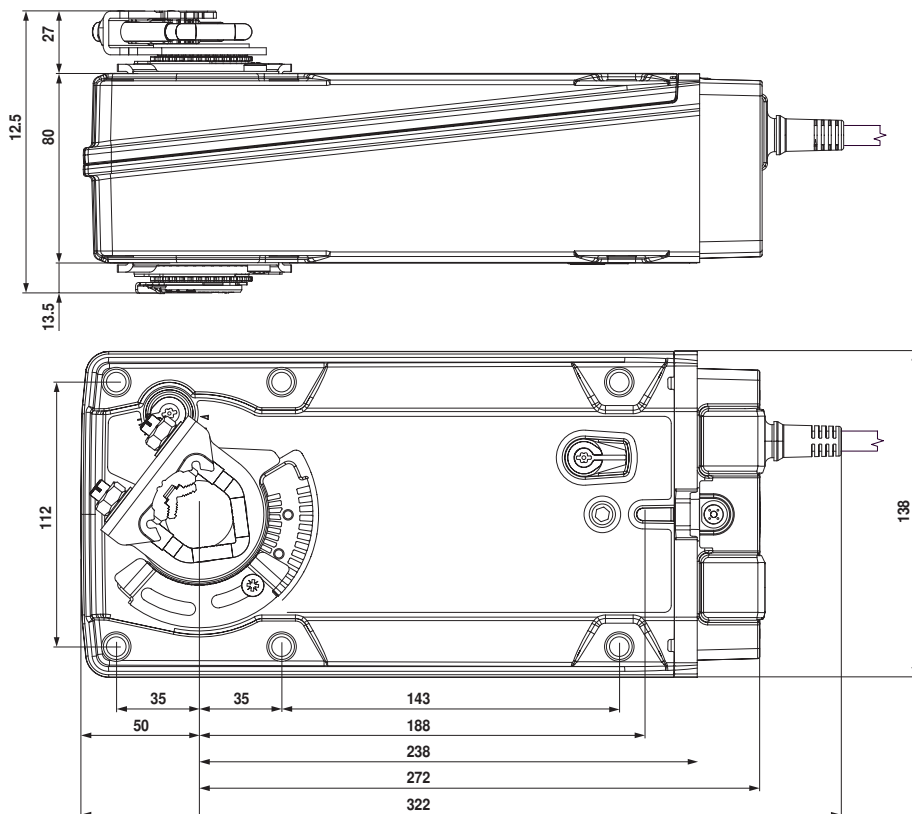
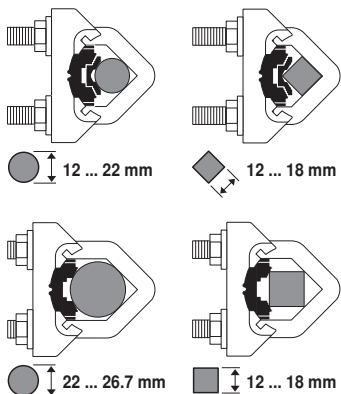
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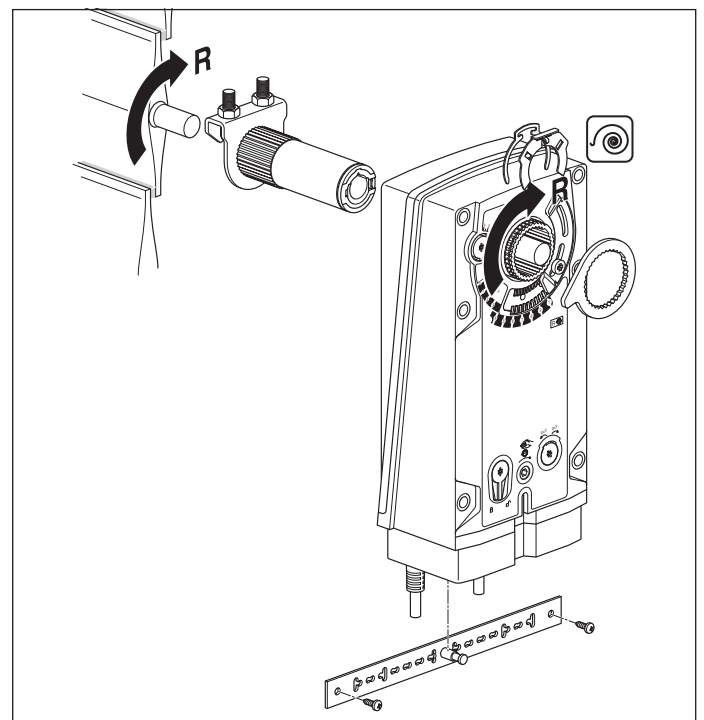
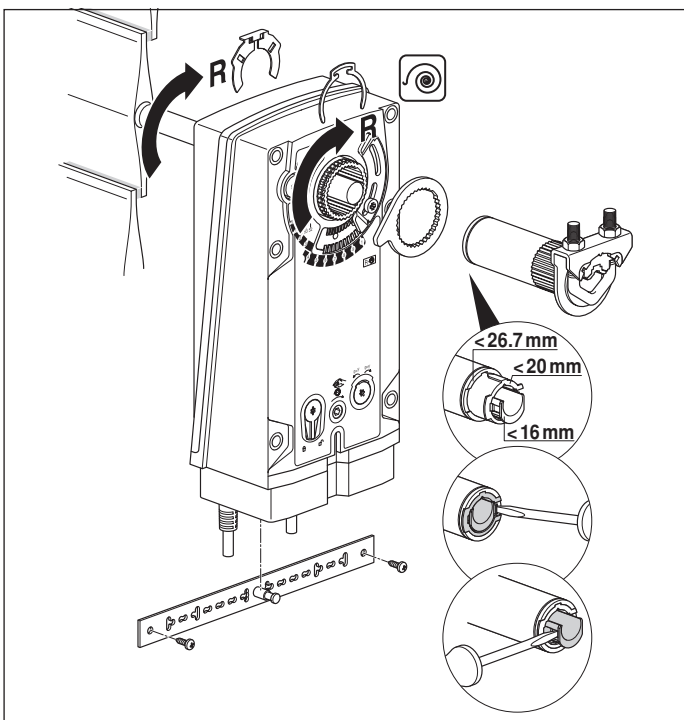
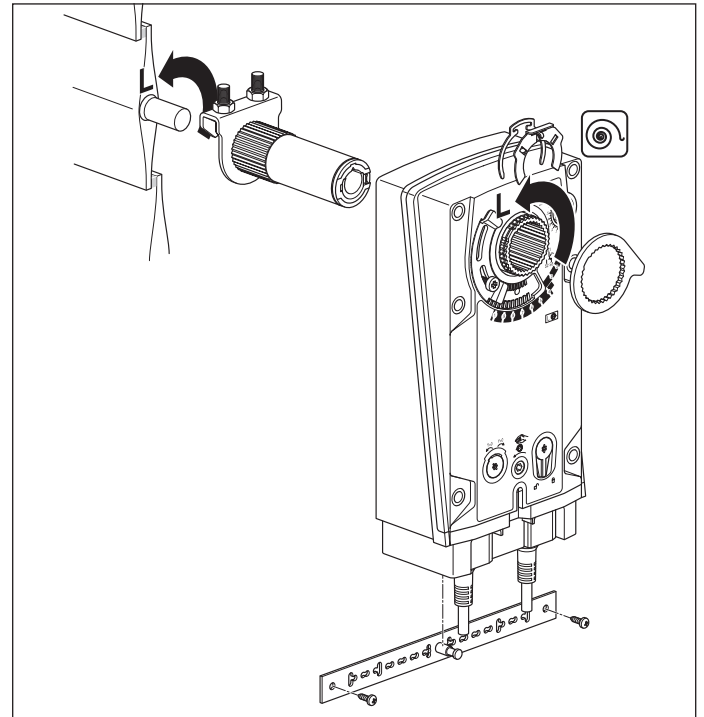
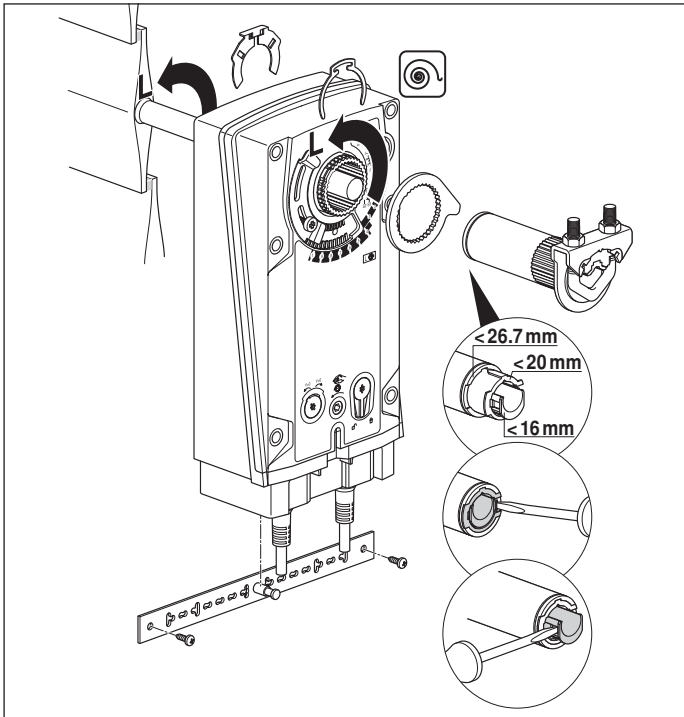
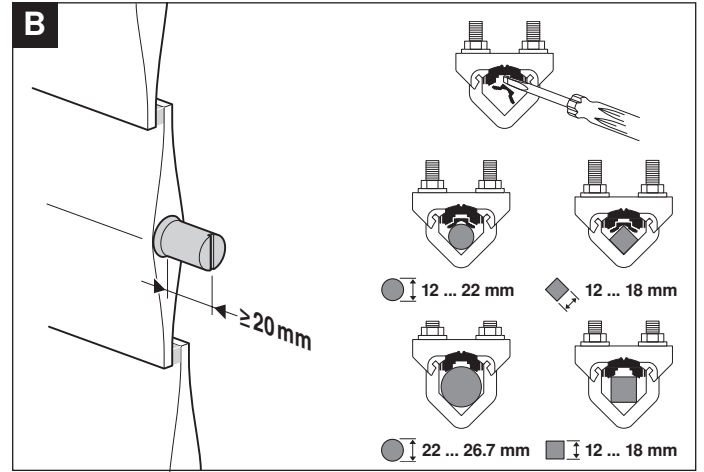
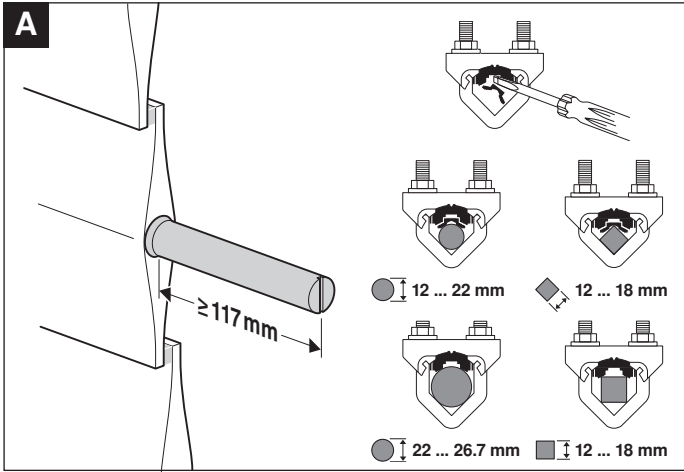
- Position indicator IND-EFB
- Clamp K9-2
- Crank arm KH-EFB
- Crank arm adaptor kit ZG-EFB

Dimensions [mm]

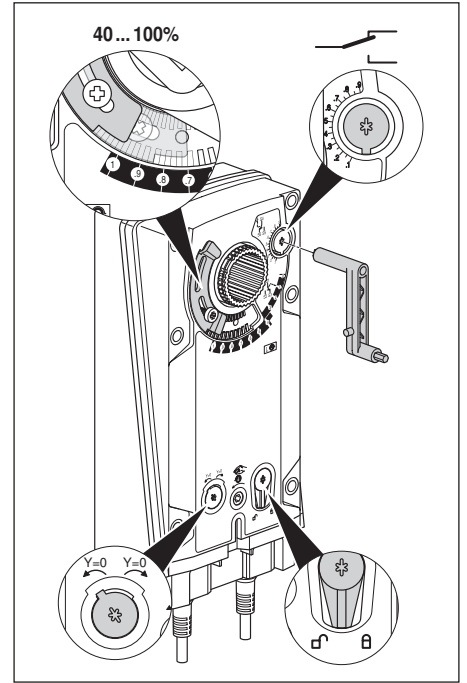
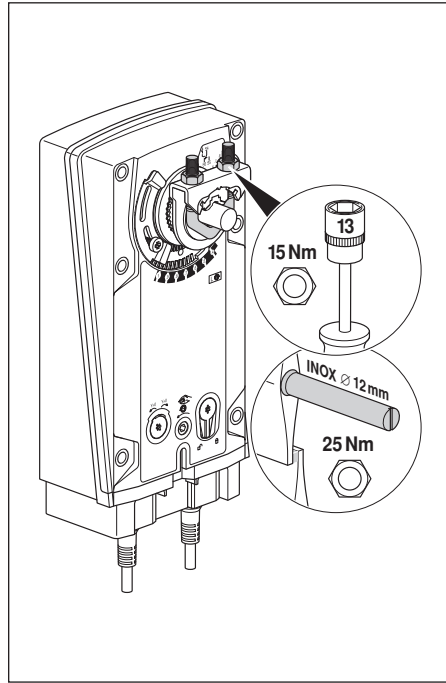
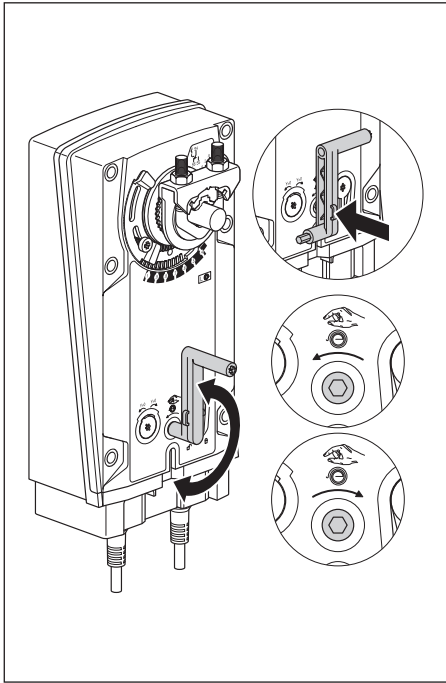
Dimensional drawings

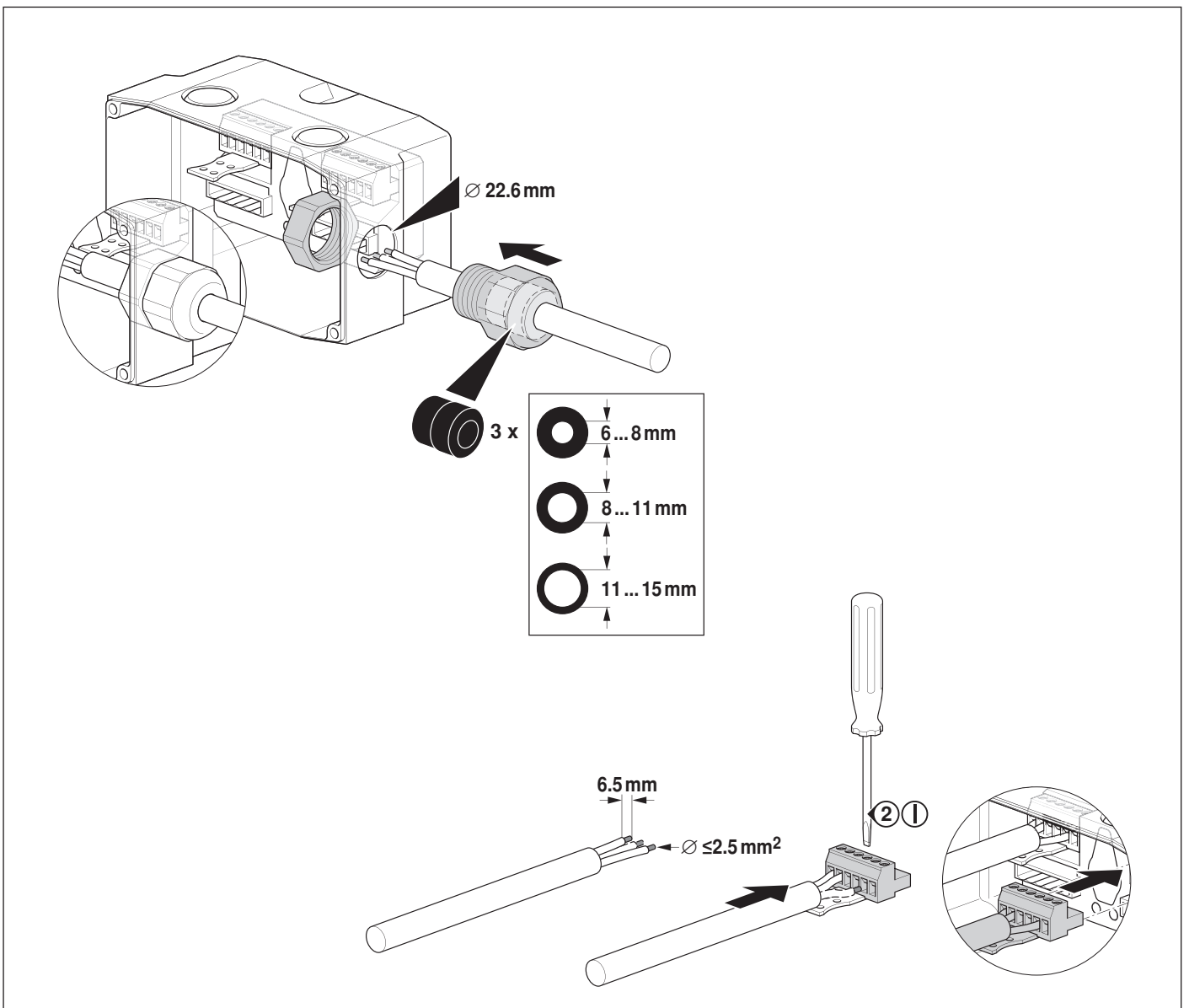
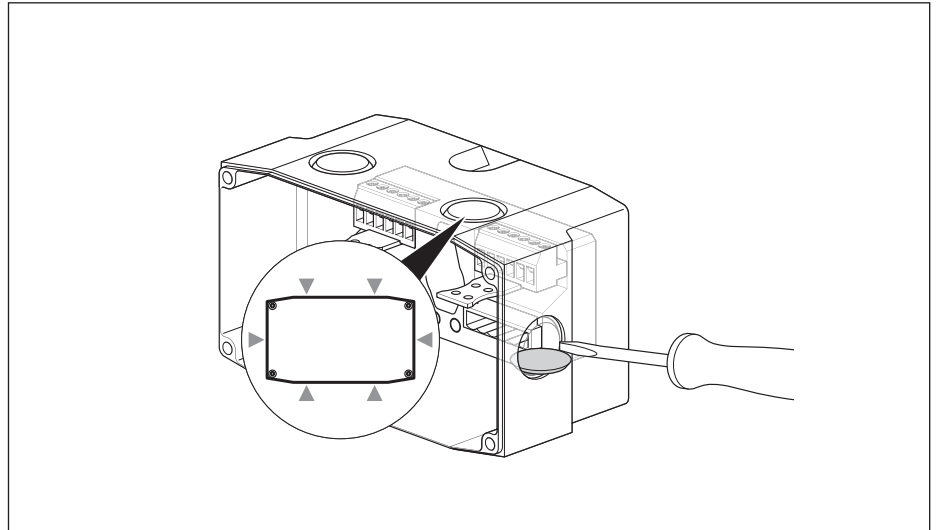
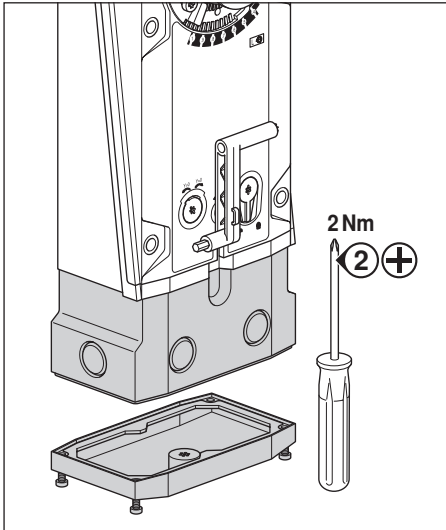
| Damper spindle | Length | ●           | ■   | ◆     |
|----------------|--------|-------------|-----|-------|
|                | ≥117   | 12 ... 26,7 | >12 | <25,2 |
|                | ≥20    | 12 ... 26,7 | >12 | <25,2 |

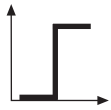




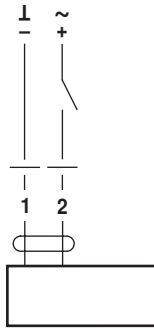




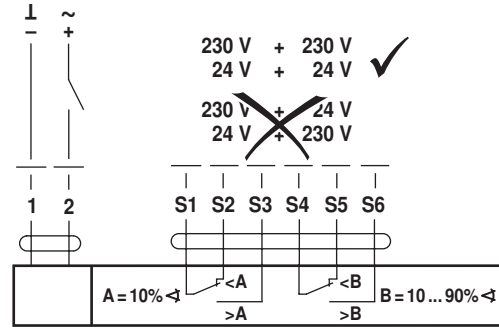




AC 24 V / DC 24 V



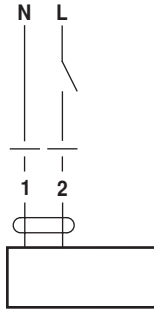
EF24A



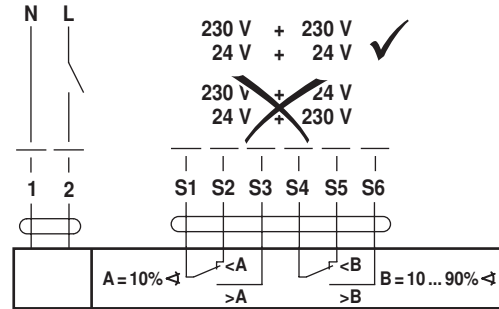
EF24A-S2

230 V + 230 V  
24 V + 24 V ✓  
~~230 V + 24 V~~  
~~24 V + 230 V~~

AC 100 ... 240 V ⚠

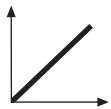


EF230A

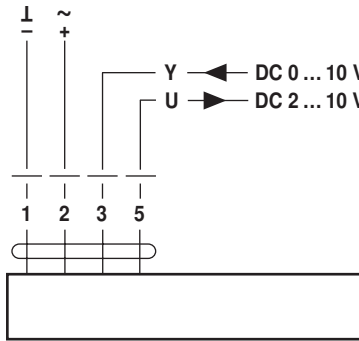


EF230A-S2

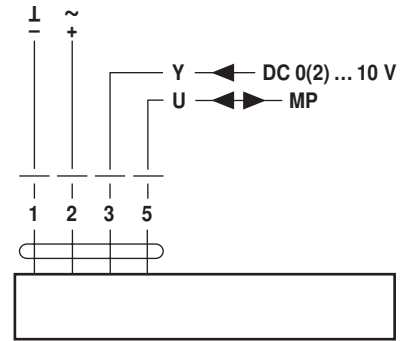
230 V + 230 V  
24 V + 24 V ✓  
~~230 V + 24 V~~  
~~24 V + 230 V~~



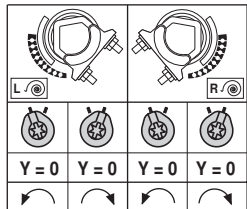
AC 24 V / DC 24 V



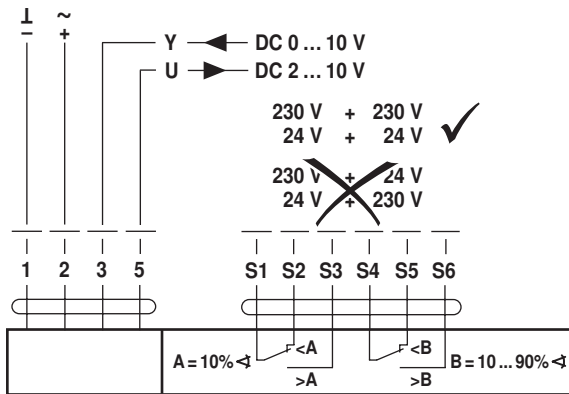
EF24A-SR  
EF24A-MF



EF24A-MP



EF24A-SR  
EF24A-SR-S2



EF24A-SR-S2

230 V + 230 V  
24 V + 24 V ✓  
~~230 V + 24 V~~  
~~24 V + 230 V~~

Spring return actuator with emergency function for adjusting air dampers in ventilation and air conditioning systems in buildings

- For air dampers up to approx. 6 m<sup>2</sup>
- Torque 30 Nm
- Nominal voltage AC/DC 24 V
- Control: Open-close



### Technical data

|                            |                           |  |  |
|----------------------------|---------------------------|--|--|
| <b>Electrical data</b>     | Nominal voltage           | AC 24 V, 50/60 Hz / DC 24 V  |  |
|                            | Nominal voltage range     | AC 19.2 ... 28.8 V / DC 21.6 ... 28.8 V  |  |
|                            | Power consumption         | In operation   | 9.5 W @ nominal torque                   |
|                            |                           | At rest  | 4.5 W                                    |
|                            | For wire sizing           | 16 VA  |  |
|                            | Connection                | Cable 1 m, 2 x 0.75 mm <sup>2</sup>  |  |
| <b>Functional data</b>     | Torque                    | Motor  | Min. 30 Nm @ nominal voltage             |
|                            |                           | Spring return  | Min. 30 Nm                               |
|                            | Direction of rotation     | Can be selected by mounting L / R  |  |
|                            | Manual override           | With hand crank and interlocking switch  |  |
|                            | Angle of rotation         | Max. 95°↔, can be limited with adjustable mechanical end stop  |  |
|                            | Running time              | Motor  | ≤75 s (0 ... 30 Nm)                      |
|                            |                           | Spring return  | ≤20 s @ -20 ... 50°C / max. 60 s @ -30°C |
|                            | Sound power level         | Motor  | ≤55 dB (A)                               |
|                            |                           | Spring return  | ≤71 dB (A)                               |
|                            | Service life              | Min. 60,000 emergency positions  |  |
| Position indication        | Mechanical                |  |  |
| <b>Safety</b>              | Protection class          | III Extra low voltage<br>UL Class 2 Supply   |  |
|                            | Degree of protection      | IP54<br>NEMA2, UL Enclosure Type 2   |  |
|                            | EMC                       | CE according to 2004/108/EC  |  |
|                            | Certification             | Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14<br>cULus according to UL 60730-1A and UL 60730-2-14<br>and CAN/CSA E60730-1:02 |  |
|                            | Mode of operation         | Type 1.AA  |  |
|                            | 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          |  |  |
| <b>Dimensions / Weight</b> | Dimensions                | See «Dimensions» on page 3   |  |
|                            | Weight                    | Approx. 4.3 kg   |  |

## 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 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 cable must not be removed from the device.
- When calculating the required torque, the specifications supplied by the damper manufacturers (cross-section, design, installation site), and the air flow conditions must be observed.
- 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 moves the damper to the operating position at the same time as tensioning the return spring. The damper is turned back to the safety position by spring force if the supply voltage is interrupted.  |
| <b>Simple direct mounting</b>       | Simple direct mounting on the damper spindle with a universal spindle clamp, supplied with an anti-rotation strap to prevent the actuator from rotating.  |
| <b>Spindle stabiliser</b>           | <p>The spindle clamp of the spring-return actuator is equipped ex-works with a spindle stabiliser for stabilising the combination of damper, damper spindle and actuator. This is comprised of two plastic support rings and, depending on the installation situation and the spindle diameter, must be left in place or partially or completely removed.</p> <p><b>Long spindle installation:</b></p> <ul style="list-style-type: none"> <li>• The use of the spindle stabiliser is necessary with long spindle installation with a spindle diameter of 12 to 20 mm.</li> <li>• The use of the spindle stabiliser is not necessary with long spindle installation with a spindle diameter of 21 to 26.7 mm, and it can be removed.</li> </ul> <p><b>Short axis installation:</b></p> <ul style="list-style-type: none"> <li>• The necessity of the spindle stabiliser does not apply with short spindle installation; it can be removed or – if the length of the spindle permits it – left in the spindle clamp.</li> </ul> <p>For additional information, see the Installation instructions.</p> |
| <b>Manual override</b>              | Manual operation of the damper with the hand crank, locking in any position with the interlocking switch. Unlocking is manual or automatic by applying the operating voltage.   |
| <b>Adjustable angle of rotation</b> | Adjustable angle of rotation with mechanical end stop.  |
| <b>High operational reliability</b> | The actuator is overload-proof, requires no limit switches and automatically stops when the end stop is reached.  |

### Important

The spindle stabiliser must nonetheless be used when the universal mounting bracket is installed on the opposite side of the spindle clamp and with a spindle diameter <20 mm.

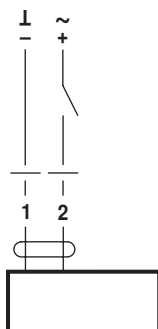


## Electrical installation

### Wiring diagram

#### Notes

- Connect via safety isolation transformer.
- Parallel connection of other actuators possible. Note the performance data.



#### Cable colours:

- 1 = black
- 2 = red

Accessories

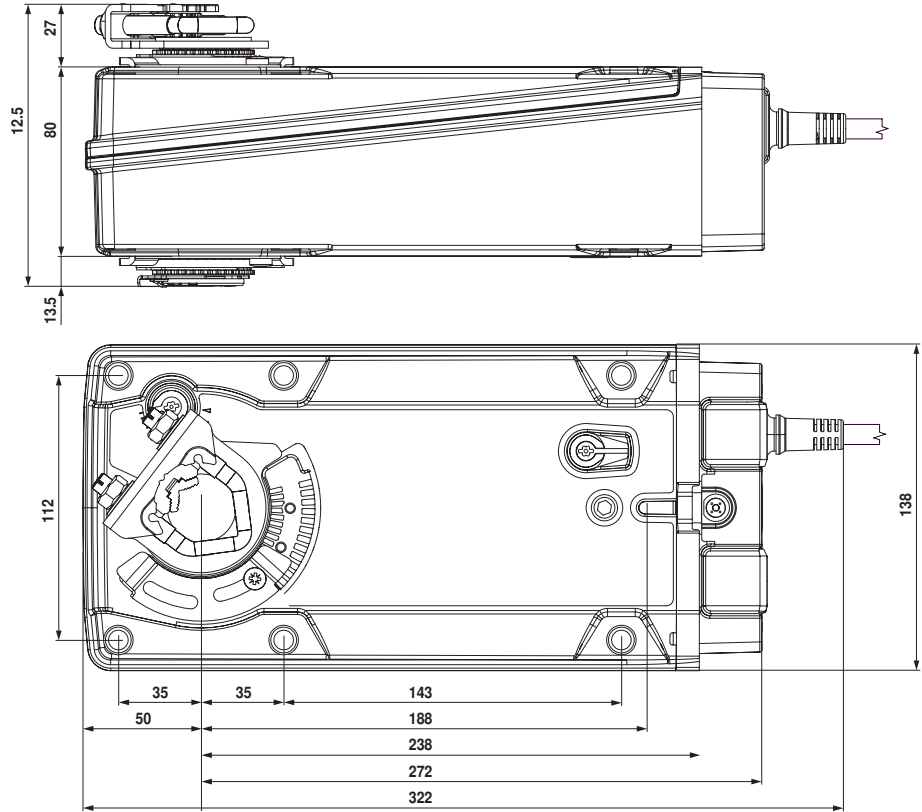
Mechanical accessories

Description

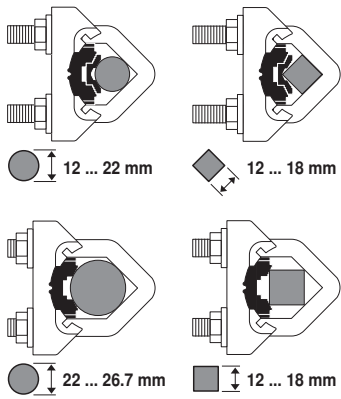
- Position indicator IND-EFB
- Clamp K9-2
- Crank arm KH-EFB
- Crank arm adaptor kit ZG-EFB

Dimensions [mm]

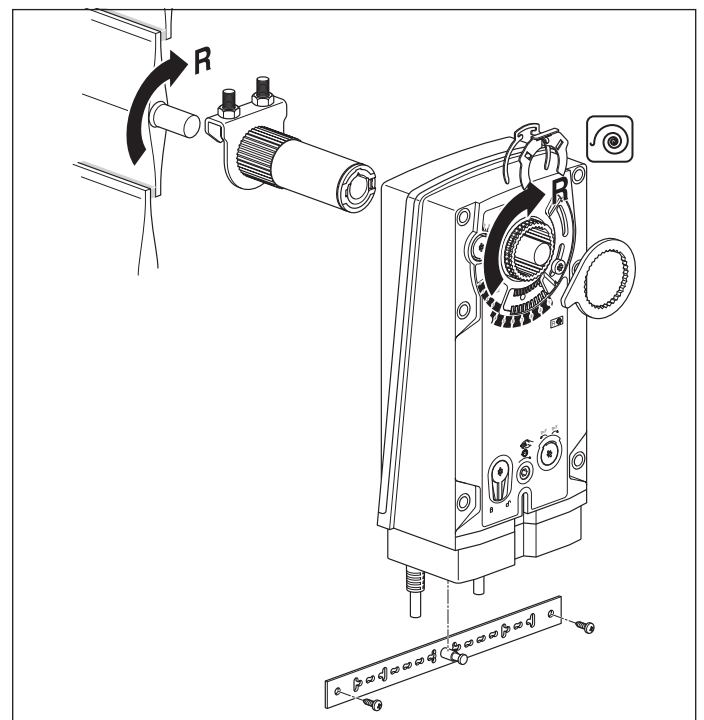
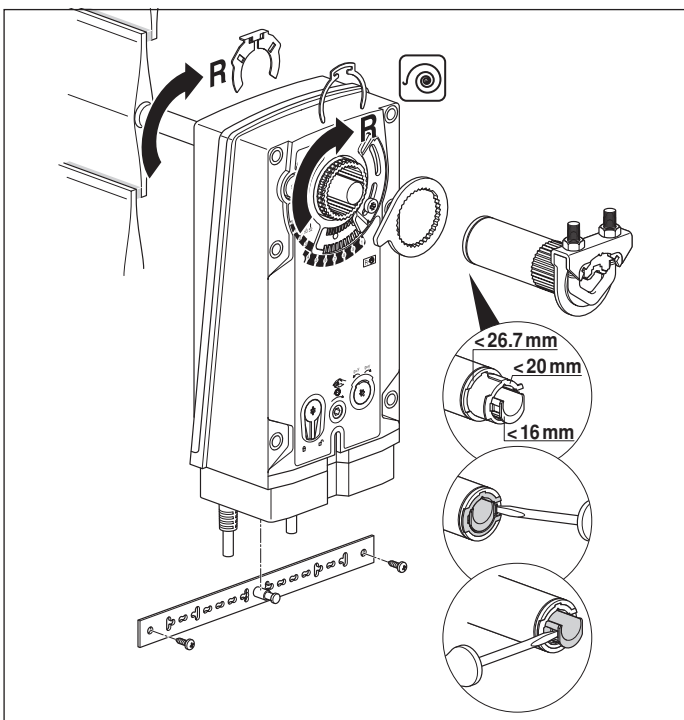
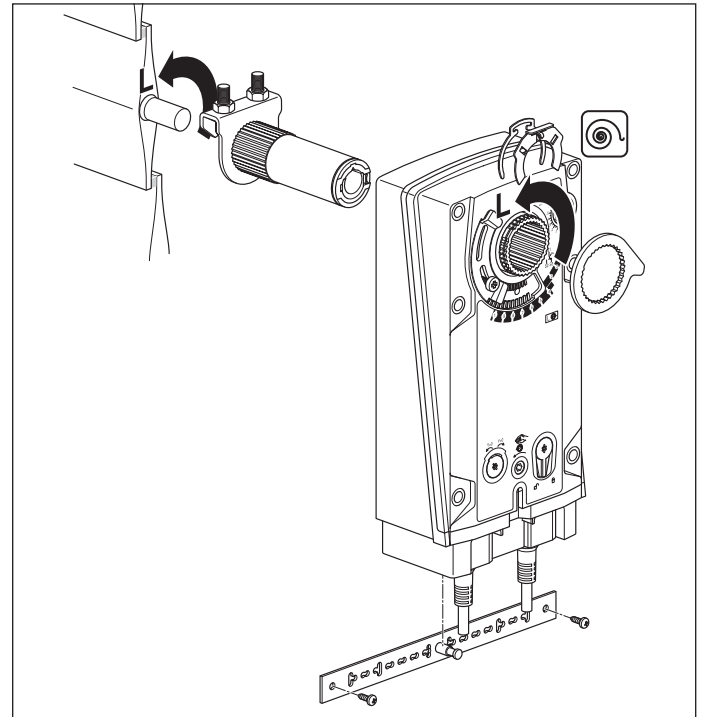
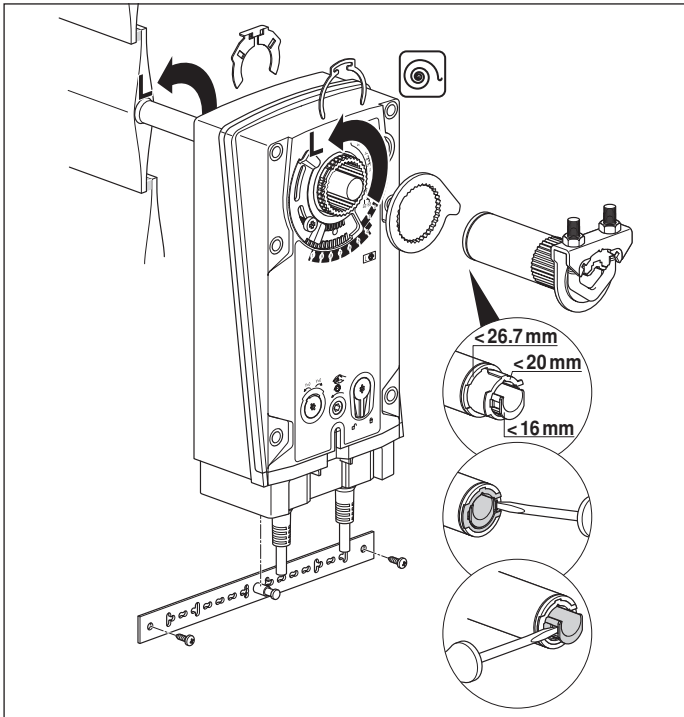
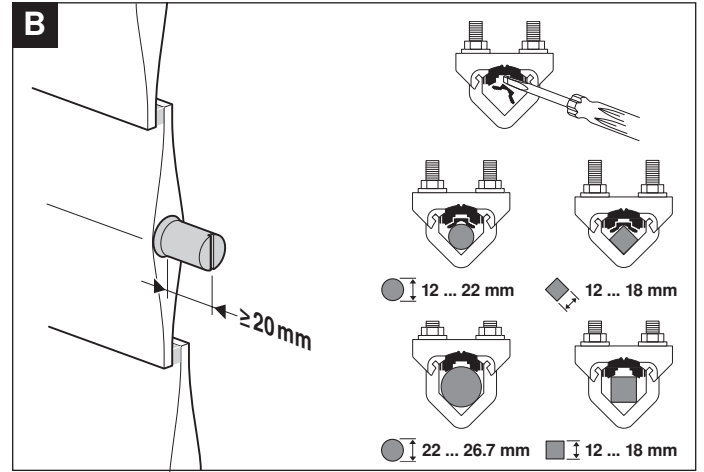
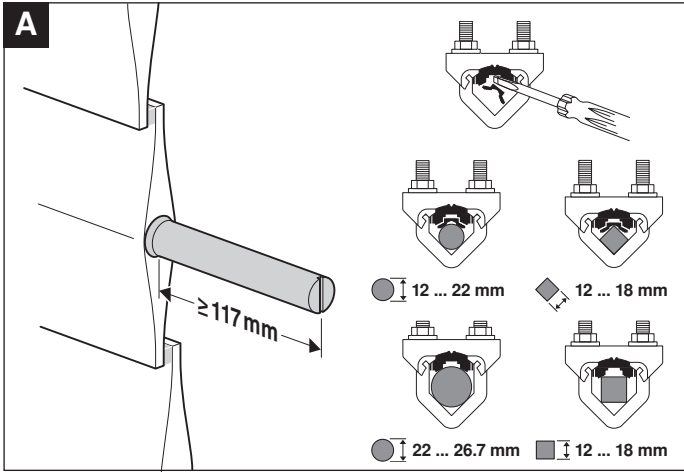
Dimensional drawings

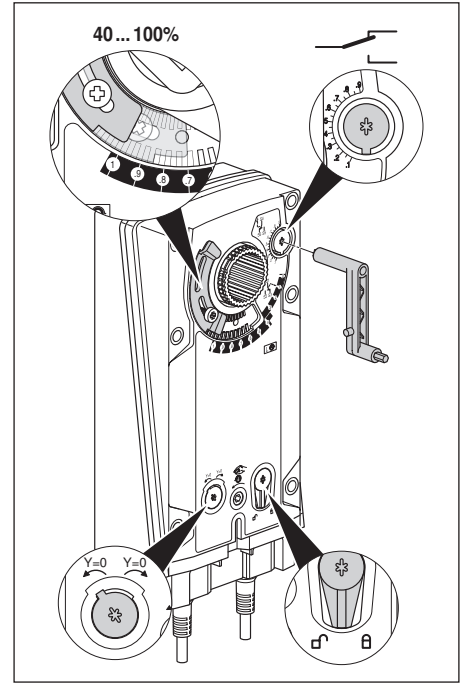
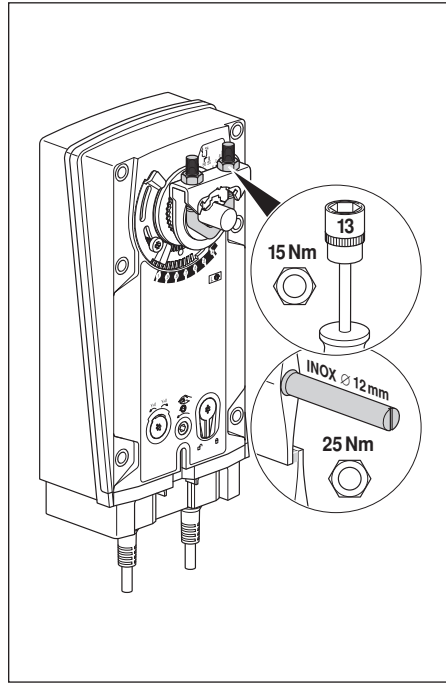
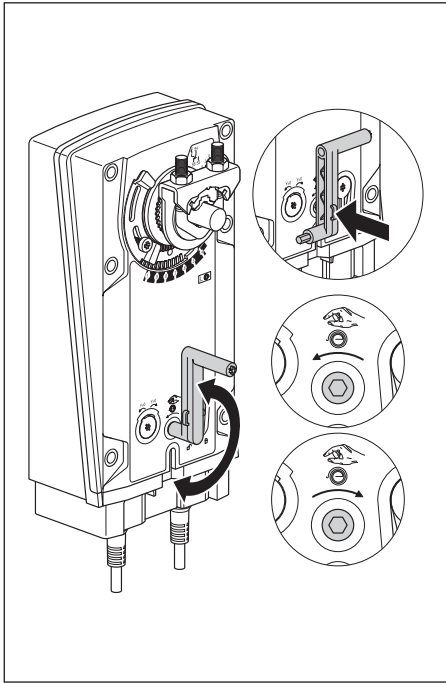


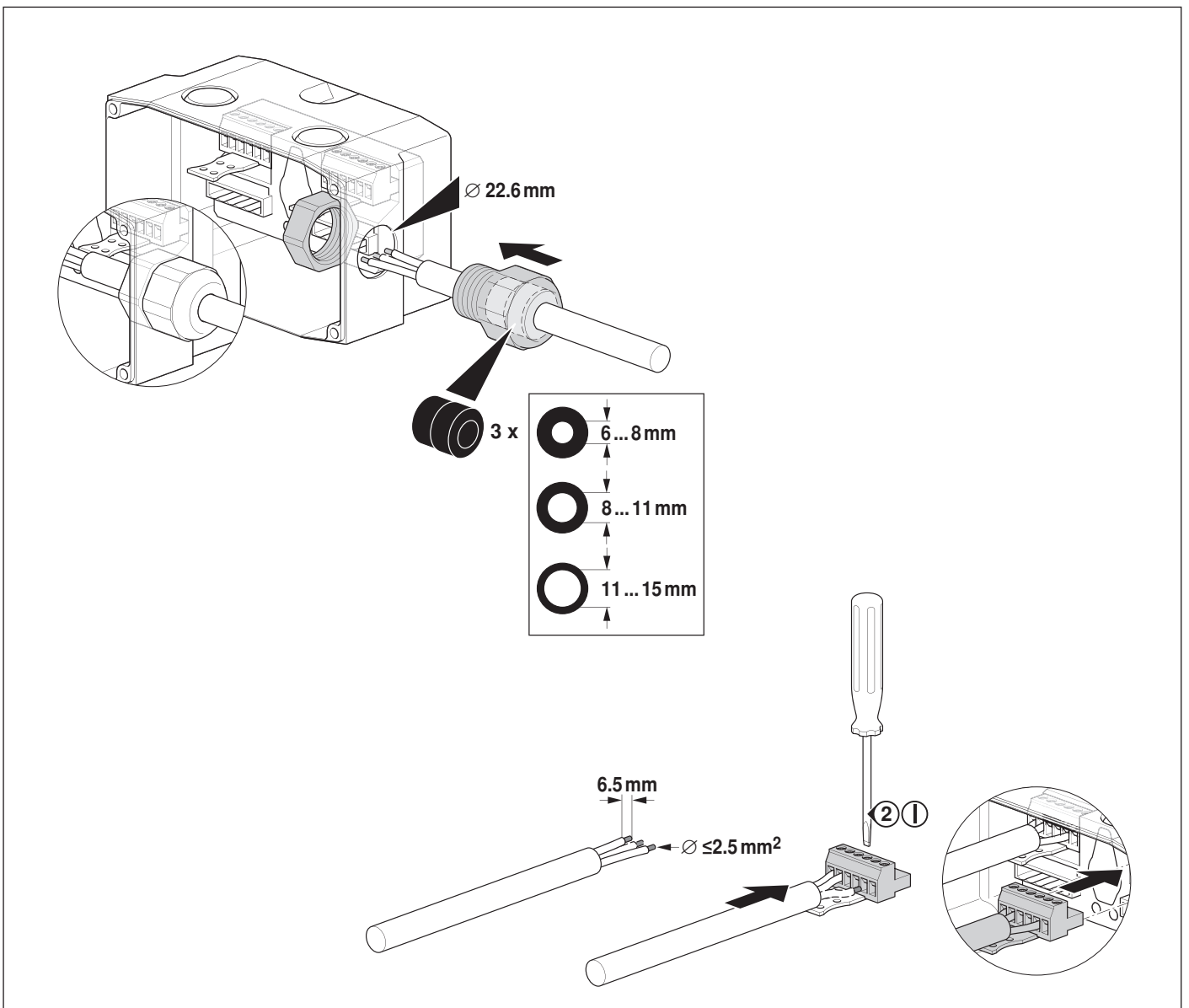
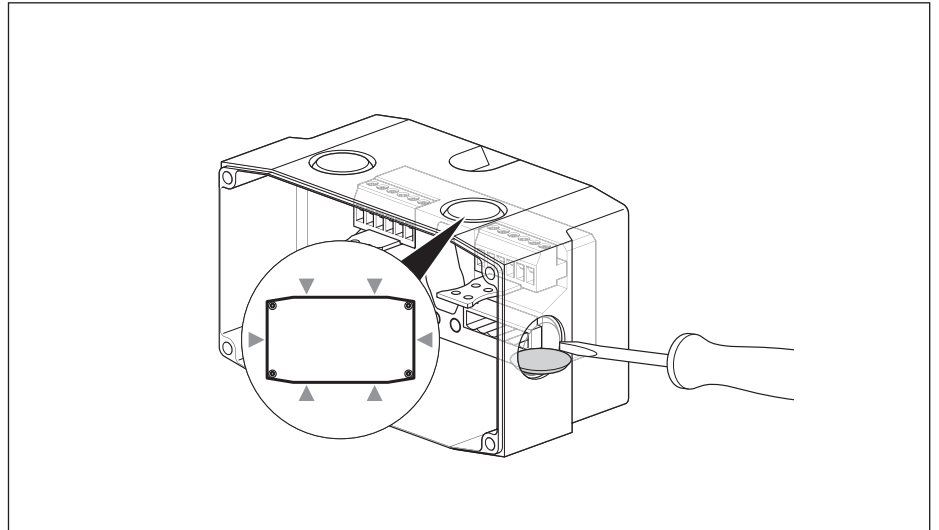
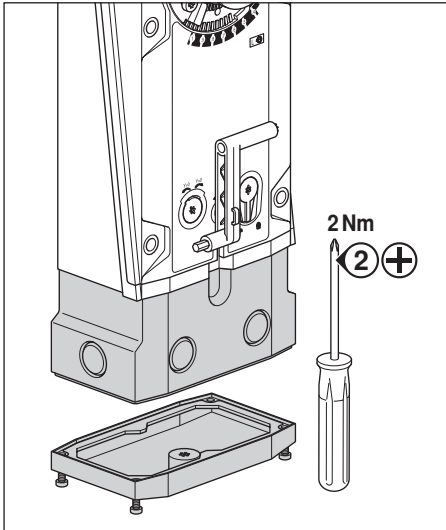
| Damper spindle | Length | ●           | ■   | ◆     |
|----------------|--------|-------------|-----|-------|
|                | ≥117   | 12 ... 26,7 | >12 | <25,2 |
|                | ≥20    | 12 ... 26,7 | >12 | <25,2 |

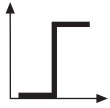




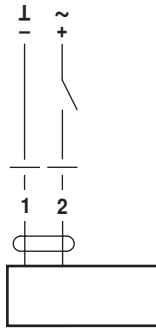




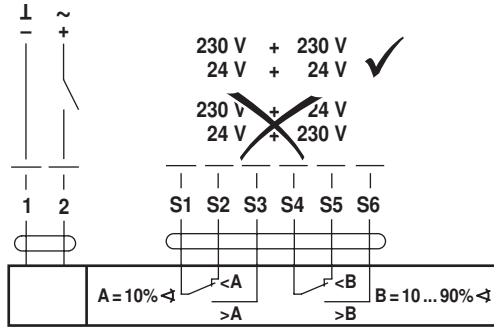




AC 24 V / DC 24 V



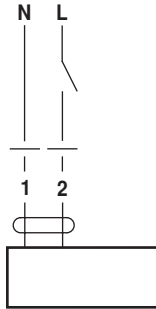
EF24A



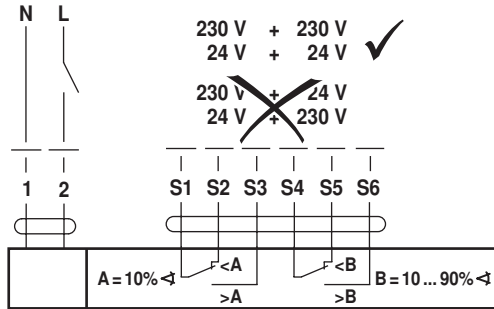
EF24A-S2

230 V + 230 V  
24 V + 24 V ✓  
~~230 V + 24 V~~  
~~24 V + 230 V~~

AC 100 ... 240 V ⚠

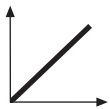


EF230A

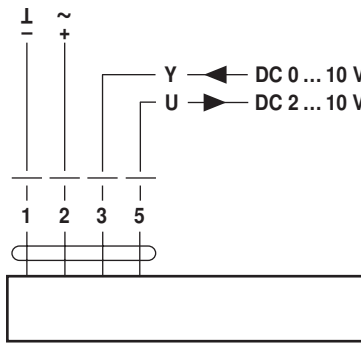


EF230A-S2

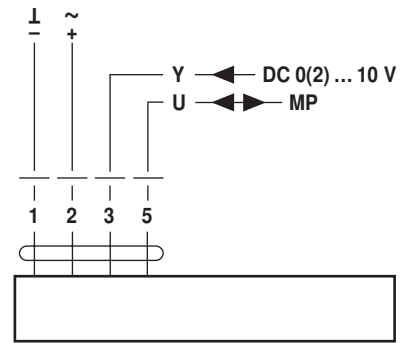
230 V + 230 V  
24 V + 24 V ✓  
~~230 V + 24 V~~  
~~24 V + 230 V~~



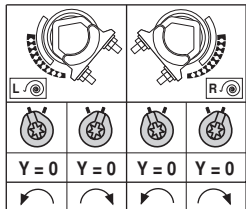
AC 24 V / DC 24 V



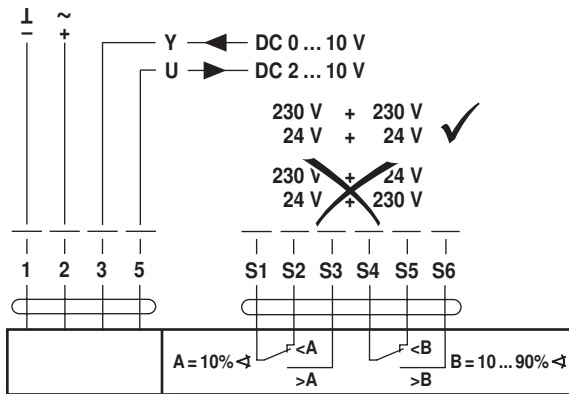
EF24A-SR  
EF24A-MF



EF24A-MP



EF24A-SR  
EF24A-SR-S2



EF24A-SR-S2

230 V + 230 V  
24 V + 24 V ✓  
~~230 V + 24 V~~  
~~24 V + 230 V~~

Modulating spring return actuator with emergency function for adjusting air dampers in ventilation and air conditioning systems in buildings

- For air dampers up to approx. 6 m<sup>2</sup>
- Torque 30 Nm
- Nominal voltage AC/DC 24 V
- Control: modulating DC 0 ... 10 V
- Position feedback DC 2 ... 10 V


**Technical data**

|                            |   |  |
|----------------------------|---|--|
| <b>Electrical data</b>     | Nominal voltage                         | AC 24 V, 50/60 Hz / DC 24 V  |
|                            | Nominal voltage range                   | AC 19.2 ... 28.8 V / DC 21.6 ... 28.8 V  |
|                            | Power consumption                       | In operation 7 W @ nominal torque<br>At rest 4.5 W<br>For wire sizing 12 VA  |
|                            | Connection                              | Cable 1 m, 4 x 0.75 mm <sup>2</sup>  |
| <b>Functional data</b>     | Torque Motor                            | Min. 30 Nm @ nominal voltage   |
|                            | Spring return                           | Min. 30 Nm   |
|                            | Control Control signal Y                | DC 0 ... 10 V, input impedance 100 kΩ  |
|                            | Operating range                         | DC 2 ... 10 V  |
|                            | Position feedback (measuring voltage U) | DC 2 ... 10 V, max. 0.5 mA   |
|                            | Position accuracy                       | ±5%  |
|                            | Direction of rotation Motor             | Reversible with switch ↺ / ↻   |
|                            | Spring return                           | Can be selected by mounting L / R  |
|                            | Manual override                         | With hand crank and interlocking switch  |
|                            | Angle of rotation                       | Max. 95°↔, can be limited with adjustable mechanical end stop  |
|                            | Running time Motor                      | 150 s (0 ... 30 Nm)  |
|                            | Spring return                           | ≤20 s @ -20 ... 50°C / max. 60 s @ -30°C   |
|                            | Sound power level Motor                 | ≤45 dB (A) @ 150 s running time  |
| Spring return              | ≤71 dB (A)                              |  |
| Service life               | Min. 60,000 emergency positions         |  |
| Position indication        | Mechanical                              |  |
| <b>Safety</b>              | Protection class                        | III Extra low voltage<br>UL Class 2 Supply   |
|                            | Degree of protection                    | IP54<br>NEMA2, UL Enclosure Type 2   |
|                            | EMC                                     | CE according to 2004/108/EC  |
|                            | Certification                           | Certified to IEC/EN 60730-1 and IEC/EN 60730-2-14<br>cULus according to UL 60730-1A and UL 60730-2-14<br>and CAN/CSA E60730-1:02 |
|                            | Mode of operation                       | Type 1.AA  |
|                            | 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                        |  |
| <b>Dimensions / Weight</b> | Dimensions                              | See «Dimensions» on page 3   |
|                            | Weight                                  | Approx. 4.3 kg   |

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 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 cable must not be removed from the device.
- When calculating the required torque, the specifications supplied by the damper manufacturers (cross-section, design, installation site), and the air flow conditions must be observed.
- 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 with a standard signal of DC 0 ... 10 V and moves the damper to the operating position at the same time as tensioning the return spring. The damper is turned back to the emergency position by spring force if the supply voltage is interrupted.

**Simple direct mounting** Simple direct mounting on the damper spindle with a universal spindle clamp, supplied with an anti-rotation strap to prevent the actuator from rotating.

**Spindle stabiliser** The spindle clamp of the spring-return actuator is equipped ex-works with a spindle stabiliser for stabilising the combination of damper, damper spindle and actuator. This is comprised of two plastic support rings and, depending on the installation situation and the spindle diameter, must be left in place or partially or completely removed.

**Long spindle installation:**

- The use of the spindle stabiliser is necessary with long spindle installation with a spindle diameter of 12 to 20 mm.
- The use of the spindle stabiliser is not necessary with long spindle installation with a spindle diameter of 21 to 26.7 mm, and it can be removed.

**Short axis installation:**

- The necessity of the spindle stabiliser does not apply with short spindle installation; it can be removed or – if the length of the spindle permits it – left in the spindle clamp.

For additional information, see the Installation instructions.

**Manual override** Manual operation of the damper with the hand crank, locking in any position with the interlocking switch.

**Adjustable angle of rotation** Adjustable angle of rotation with mechanical end stop.

**High operational reliability** The actuator is overload-proof, requires no limit switches and automatically stops when the end stop is reached.

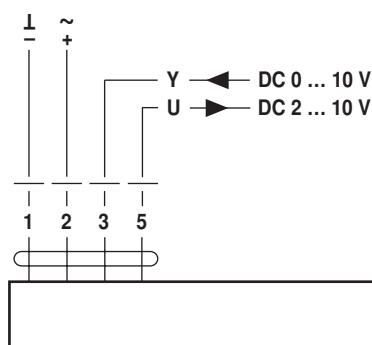
**Important**

The spindle stabiliser must nonetheless be used when the universal mounting bracket is installed on the opposite side of the spindle clamp and with a spindle diameter <20 mm.



Electrical installation

Wiring diagram



**Cable colours:**

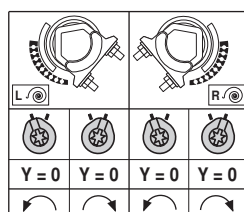
- 1 = black
- 2 = red
- 3 = white
- 5 = orange

**Notes**

- Connect via safety isolation transformer.
- Parallel connection of other actuators possible. Note the performance data.



Direction of rotation



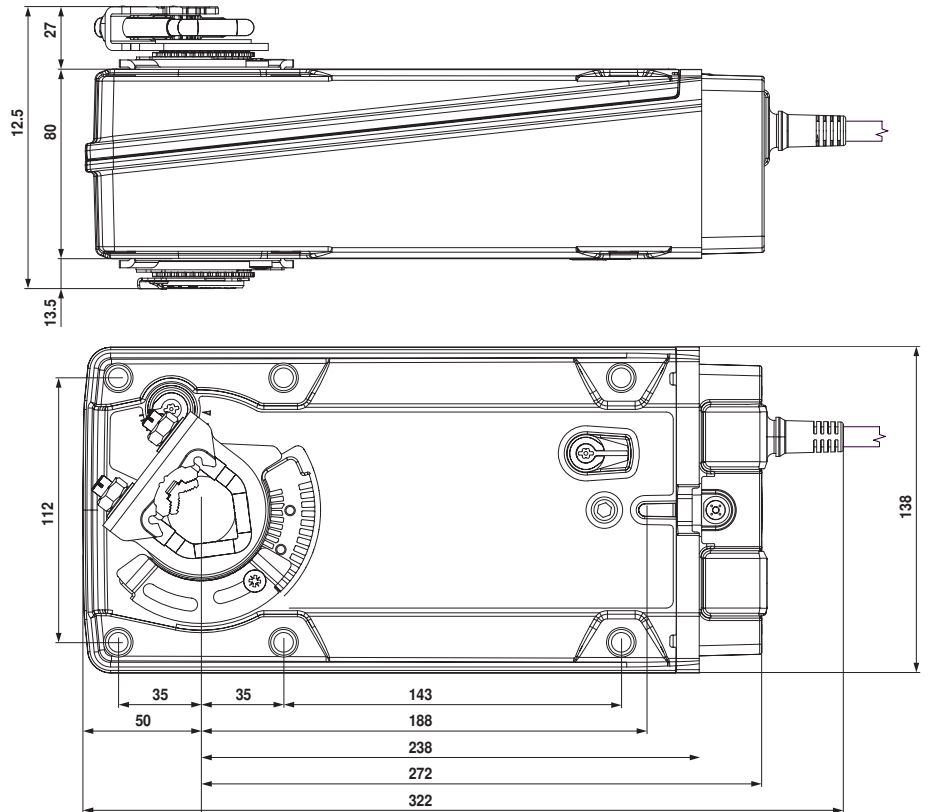


Accessories

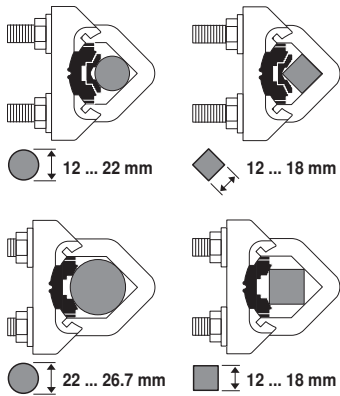
|                        | Description                            | Data sheet  |
|------------------------|--|-------------|
| Electrical accessories | Range controller SBG24                 | T2 - SBG24  |
|                        | Position sensor SGA24, SGE24 and SGF24 | T2 - SG..24 |
|                        | Digital position indication ZAD24      | T2 - ZAD24  |
| Mechanical accessories | Position indicator IND-EFB             |             |
|                        | Clamp K9-2                             |             |
|                        | Crank arm KH-EFB                       |             |
|                        | Crank arm adaptor kit ZG-EFB           |             |

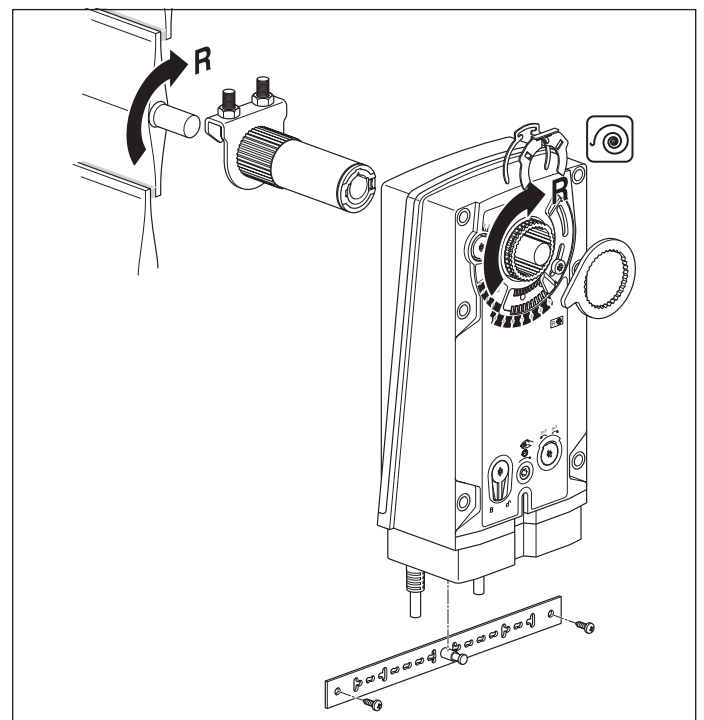
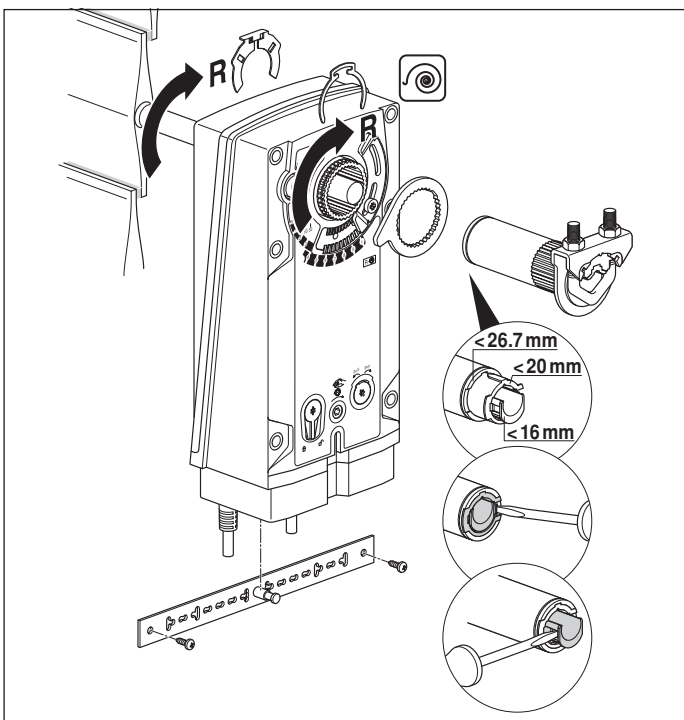
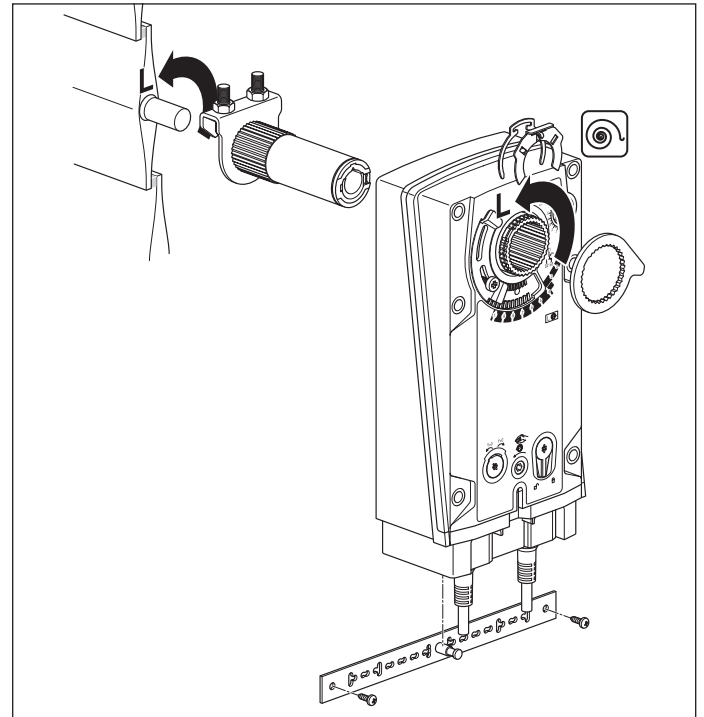
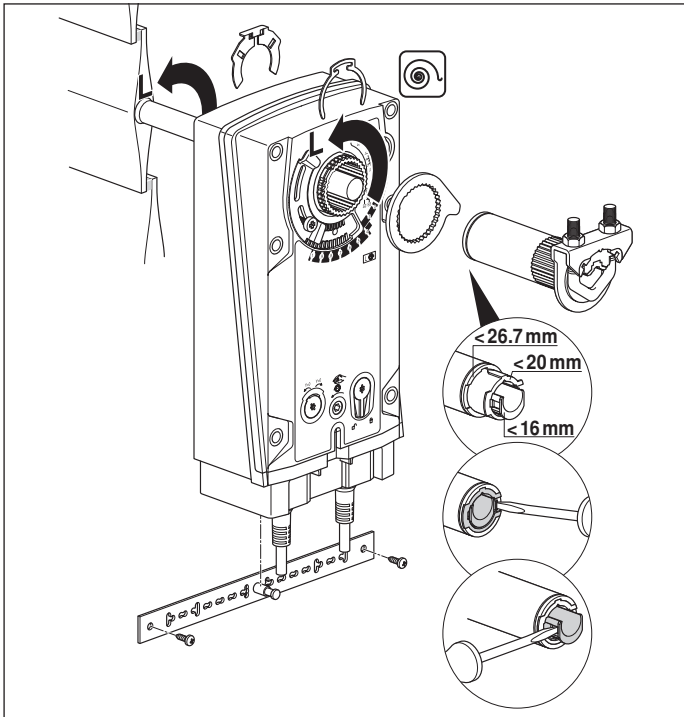
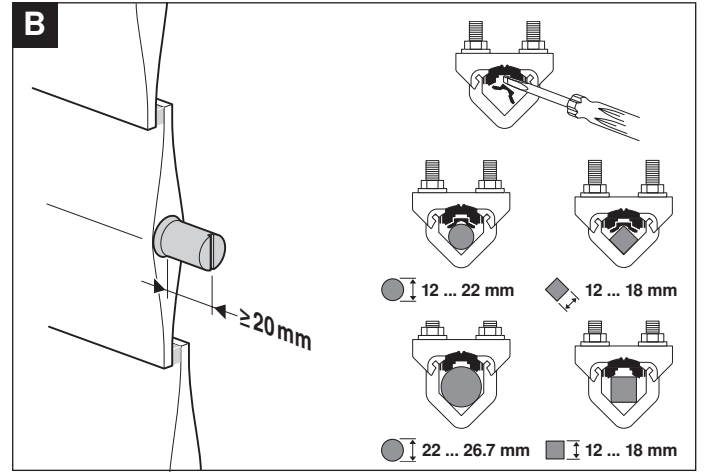
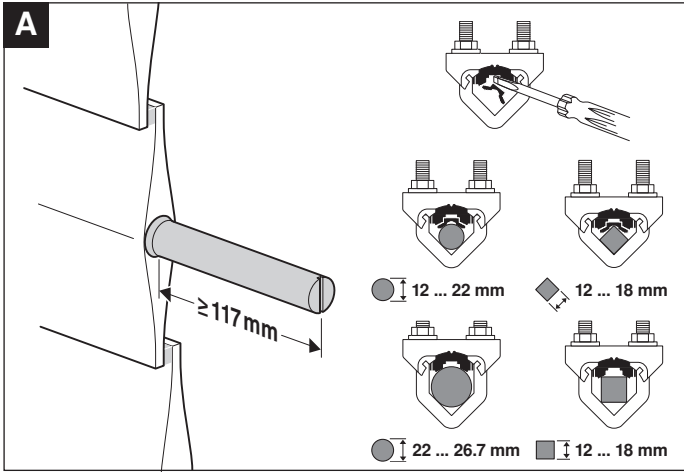
Dimensions [mm]

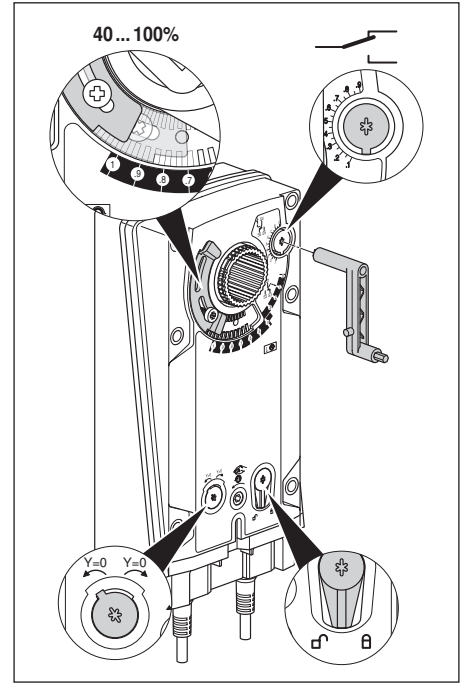
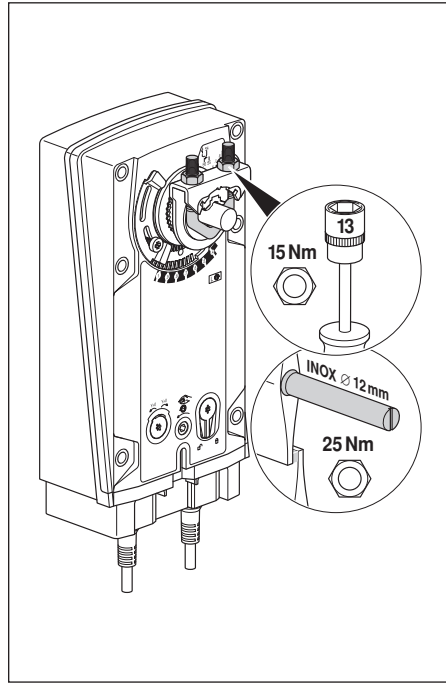
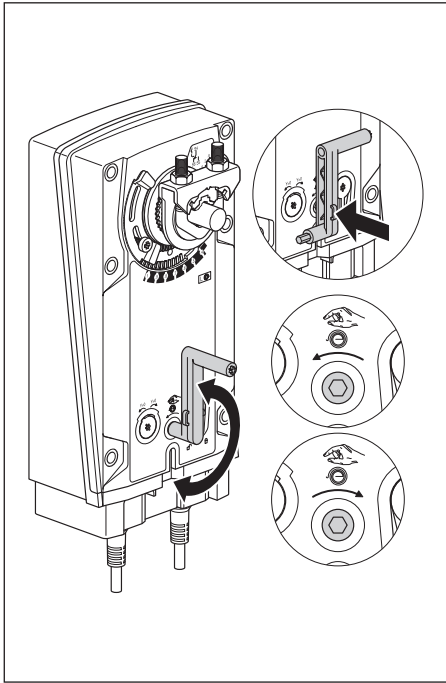
Dimensional drawings

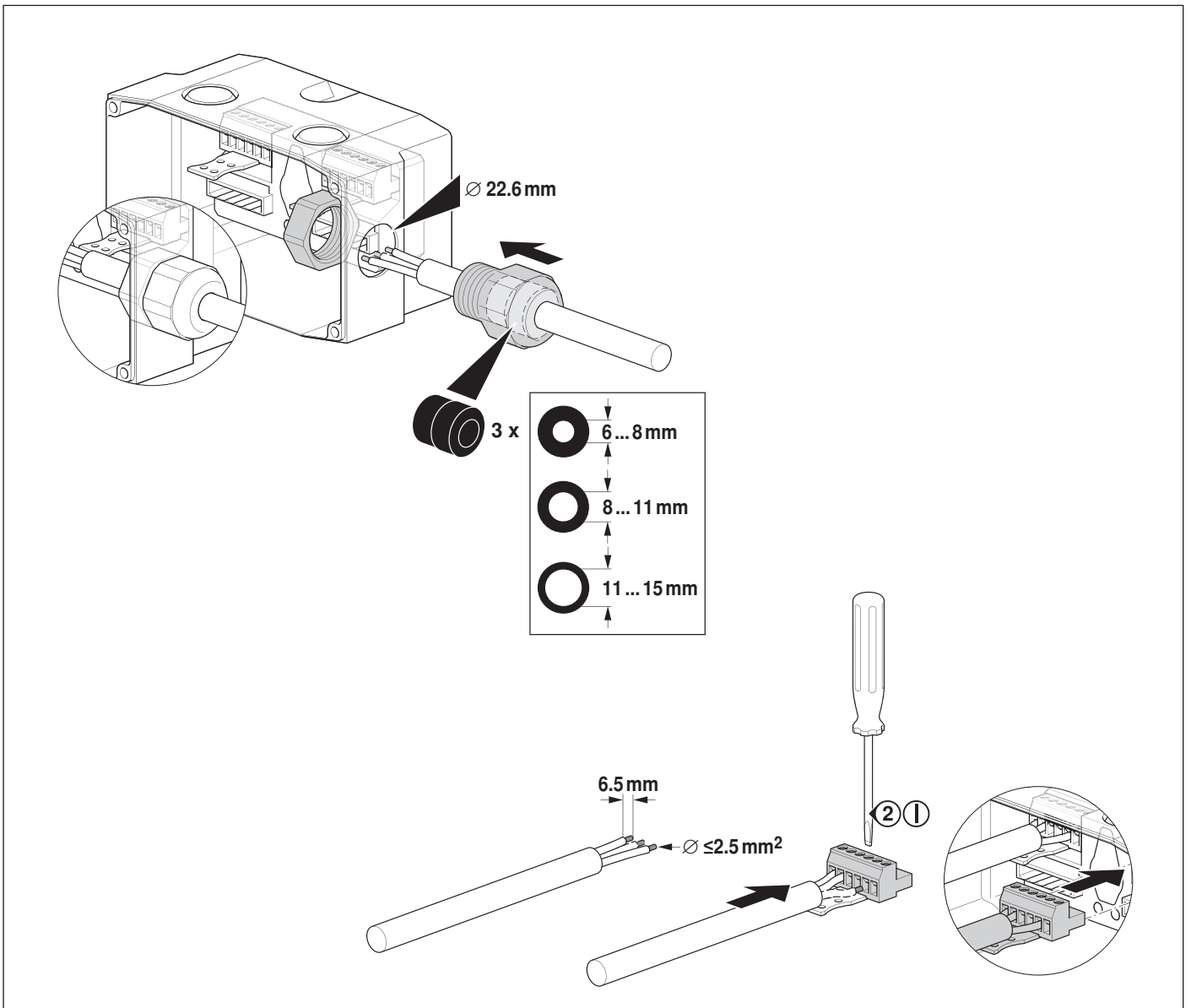
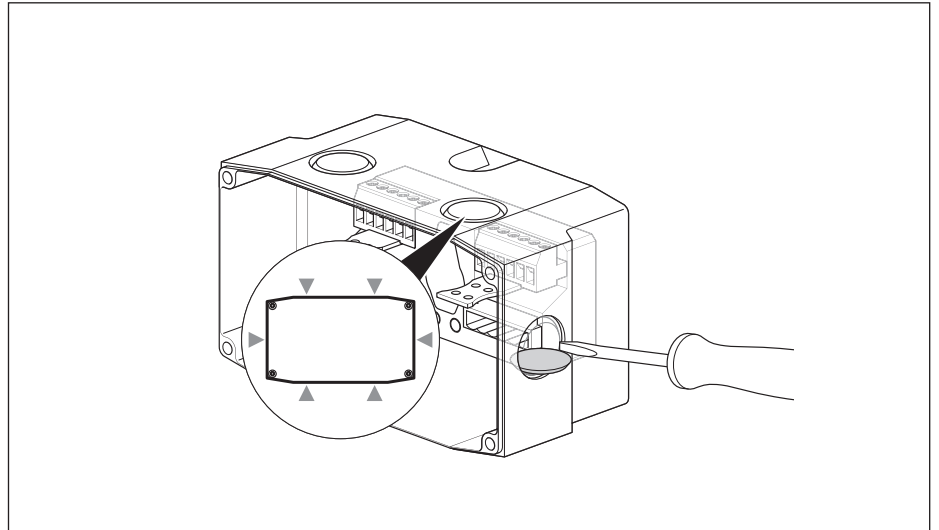
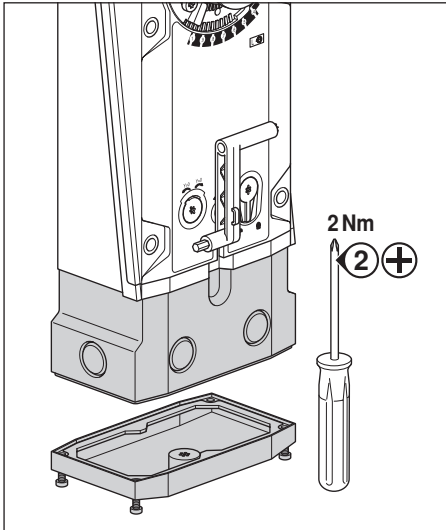


| Damper spindle | Length | ●           | ■   | ◆     |
|----------------|--------|-------------|-----|-------|
|                | ≥117   | 12 ... 26,7 | >12 | <25,2 |
|                | ≥20    | 12 ... 26,7 | >12 | <25,2 |



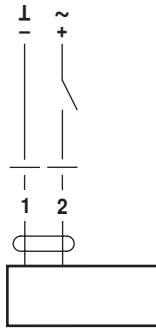




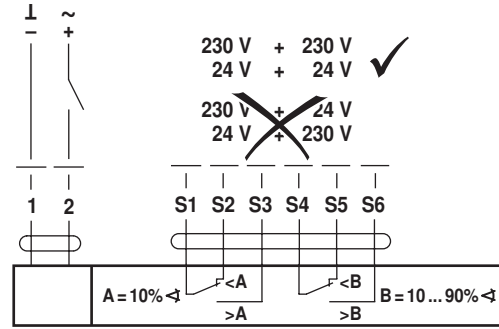




AC 24 V / DC 24 V



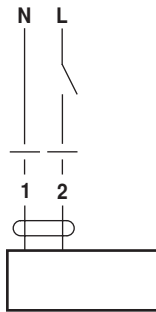
EF24A



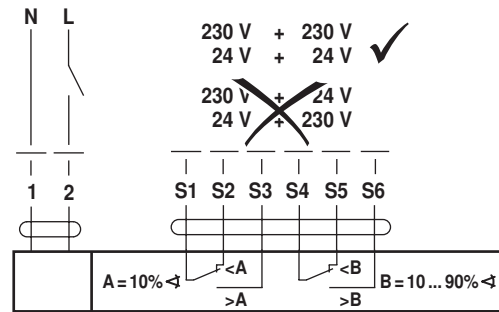
EF24A-S2

230 V + 230 V  
24 V + 24 V ✓  
~~230 V + 24 V~~  
~~24 V + 230 V~~

AC 100 ... 240 V ⚠

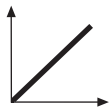


EF230A

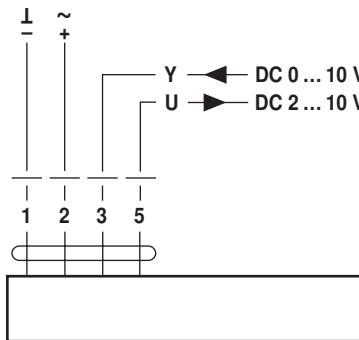


EF230A-S2

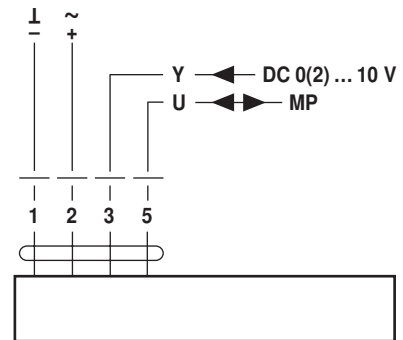
230 V + 230 V  
24 V + 24 V ✓  
~~230 V + 24 V~~  
~~24 V + 230 V~~



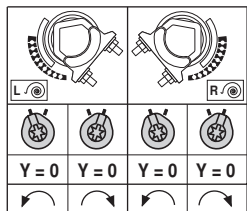
AC 24 V / DC 24 V



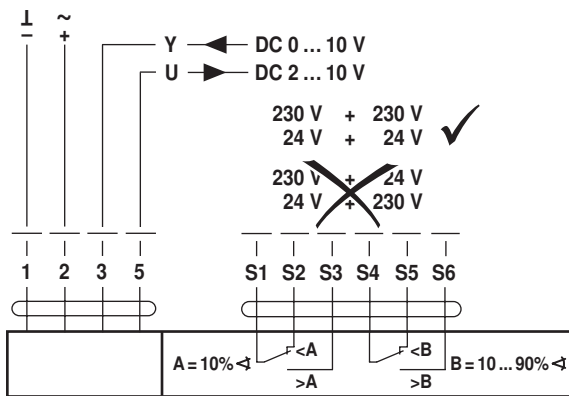
EF24A-SR  
EF24A-MF



EF24A-MP



EF24A-SR  
EF24A-SR-S2



EF24A-SR-S2

230 V + 230 V  
24 V + 24 V ✓  
~~230 V + 24 V~~  
~~24 V + 230 V~~