2. AF-5
Product Information
Damper actuators with spring return

Products no longer available
## Selection table

<table>
<thead>
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<th>AF24</th>
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<td>AC 24 V</td>
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<td>Running time</td>
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<td>motor</td>
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<td>≈ 16 s</td>
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<tr>
<td>Control</td>
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<td>Open/Close</td>
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</table>

### Important notes

#### Using BELIMO damper actuators

The actuators listed in this catalogue are intended for the operation of air dampers in HVAC systems.

#### Torque requirements

When calculating the torque required to operate dampers, it is essential to take into account all the data supplied by the damper manufacturer concerning cross sectional area, design, mounting and air flow conditions.

#### Danger

The enclosure of the actuators equipment may only be opened by the manufacturer. It contains no components which the user can replace or repair.
Dampers up to approx. 3 m²
Open/Close actuator (AC/DC 24 V)

Manual operation with integral position stop

Versatile applications
The AF… spring return actuators are intended for the operation of air dampers that perform safety functions (e.g. frost and smoke protection, hygiene, etc.).

Improved functional safety
The AF… actuator moves the damper to its normal working position while tensioning the return spring at the same time. If the power supply is interrupted, the energy stored in the spring moves the damper back to its safe position.

The actuator is overload proof, needs no limit switches and halts automatically at the end stop.

Variable end switch
The AF24-S actuator has one fixed auxiliary switch and one adjustable auxiliary switch which allows angle of rotation of 5% and between 28...94% to be signalled.

Simple installation and commissioning
The actuator is fitted with a universal spindle clamp for quick and easy mounting directly onto the damper spindle. The actuator is also supplied with an anti-rotation strap for fixing it in position. The damper can be operated manually and fixed in any required position. Release of the locking mechanism can be achieved manually or automatically by applying the supply voltage.

Mechanical accessories
ZG-AF Damper linkage kit, page 9
Mounting instructions, page 10

Important
Read the notes about the use and torque requirements of the damper actuators on page 3.
AF230, AF230-S Spring return actuators 15 Nm

Dampers up to approx. 3 m²
Open/Close actuator (AC 230 V)
Manual operation with integral position stop

Versatile applications
The AF… spring return actuators are intended for the operation of air dampers that perform safety functions (e.g. frost and smoke protection, hygiene, etc.).

Improved functional safety
The AF230 actuator moves the damper to its normal working position while tensioning the return spring at the same time. If the power supply is interrupted, the energy stored in the spring moves the damper back to its safe position.

The actuator is overload proof, needs no limit switches and halts automatically at the end stop.

Variable end switch
The AF230-S actuator has one fixed auxiliary switch and one adjustable auxiliary switch which allows angle of rotation of 5% and between 28…94% to be signalled.

Simple installation and commissioning
The actuator is fitted with a universal spindle clamp for quick and easy mounting directly onto the damper spindle. The actuator is also supplied with an anti-rotation strap for fixing it in position. The damper can be operated manually and fixed in any required position. Release of the locking mechanism can be achieved manually or automatically by applying the supply voltage.

Mechanical accessories
ZG-AF Damper linkage kit, page 9

Mounting instructions, page 10

Important
Read the notes about the use and torque requirements of the damper actuators on page 3.

Dimensions
AF24-SR Spring return actuator 15 Nm

Dampers up to approx. 3 m²
Modulating actuator (AC/DC 24 V)
Control DC 0...10 V
(The type AF24-SR20 is available with phasecut input)
Position feedback DC 2...10 V
Manual operation with integral position stop
Versatile applications
For the operation of air dampers that perform safety functions (e.g. frost and smoke protection, hygiene, etc.).
Improved functional safety
The AF24-SR actuator moves the damper to its normal working position while tensioning the return spring at the same time. If the power supply is interrupted, the energy stored in the spring moves the damper back to its safe position. The actuator is overload proof, needs no limit switches and halts automatically at the end stop.
Simple installation and commissioning
The actuator is fitted with a universal spindle clamp for quick and easy mounting directly onto the damper spindle. The actuator is also supplied with an anti-rotation strap for fixing it in position. The damper can be operated manually and locked in any required position. If manual operation is used while the power supply is still switched on, the actuator will check itself by running first to the start position and then to the position dictated by the control signal Y.

Technical data AF24-SR

Nominal voltage AC 24 V 50/60Hz, DC 24 V
Nominal voltage range AC 19.2...28.8 V, DC 21.6...28.8 V
For wire sizing 10 VA
Power consumption 6 W motoring, 2.5 W holding
Connecting cable 1 m long, 4×0.75 mm²
Control signal Y1 DC 0...10 V @ input resistance 100 kΩ (0.1 mA)
Operating range DC 2...10 V
Measuring voltage U DC 2...10 V @ max. 0.5 mA (for 0...100% angle of rotation)
Synchronisation tolerance ± 5%

Direction of rotation
– motor selected with switch L/R
– spring selected by L/R mounting
Torque
– motor min. 15 Nm (at rated voltage)
– spring return min. 15 Nm
Angle of rotation max. 95° (adjustable from 33% in 5.5% steps \(≤ \) with a supplied limit stop)
Running time motor 150 s, spring return \(≈ \) 16 s
Sound power level motor max. 45 dB(A), spring \(≈ \) 62 dB(A)
Service life \(≈ \) 60 000 operations
Position indication mechanical
Protection class \(\Box \) (safety extra-low voltage)
Degree of protection IP 54
Ambient temperature range –30...+ 50 °C
Non-operating temperature –40...+ 80 °C
Humidity test to EN 60730-1
EMC CE according to 89/336/EEC
Maintenance maintenance-free
Weight 2700 g

Electrical accessories (see Doc. 2. Z...)
SG...24 Positioners
ZAD24 Digital position indicator
Mechanical accessories
ZG-AF Damper linkage kit, page 9
Control and monitoring functions, page 7
Mounting instructions, page 10

Important
Read the notes about the use and torque requirements of the damper actuators on page 3.

Dimensions
Control and monitoring functions AF24-SR

Remote control 0...100%

Connect via safety isolating transformer

Position indication and/or master-slave control (depending on position)

Connect via safety isolating transformer

Function monitoring

Connect via safety isolating transformer

Override control

Connect via safety isolating transformer

Minimum position

Connect via safety isolating transformer

Parallel connection of further actuators is possible (up to 10).

Parallel connection of further actuators is possible (up to 10).

Parallel connecting of further actuators is possible. Note power consumption data.

Note ±5% synchronism tolerance between actuators

AC 24 V at terminals 1 and 2

Disconnect terminal 3:
- For direction of rotation "L": actuator runs
- For direction of rotation "R": actuator runs

link terminals 2 and 3: actuator runs in the opposite direction

Products no longer available
General mounting accessories

**KH8, KH6**

KH8 **Universal crank arm**
Zinc-plated steel; suitable for damper spindles 10…18 mm diameter or 10…14 mm², slot width 8.2 mm.

KH6 **Universal crank arm**
as Type KH8, but slot width 6.2 mm.

**KG8**

KG8 **Ball joint**
Zinc-plated steel; suitable for use with KH8 universal crank arms and round steel rod 8 mm diameter.

**KG10, KG6**

KG10 **Ball joint**
Zinc-plated steel; suitable for use with KH8 and KH6 universal crank arms and round steel rod 10 mm diameter.

KG6 **Ball joint**
Zinc-plated steel; suitable for use with KH6 universal crank arms and round steel rod 8 mm diameter.

**AV10–18**

AV10–18 **Universal spindle extension**
approx. 240 mm long; for damper spindles 10…18 mm diameter or 10…14 mm².

Products no longer available
Application
The ZG-AF mounting accessory is used for fitting this type of spring return actuator and for actuating safety dampers when it is impossible to mount the actuator directly on the damper spindle.

Kit specification
➀ – Front mounting bracket
➁ – Rear mounting bracket
➂ – Crank arm AF
➃ – 2 ball joints KG8
➄ – 4 mounting brackets
  1 – screws M6 x 16
  2 – screws M6 x 65 with nuts
  5 – self-tapping screws
➅ – Universal crank arm:
  order separately, not included with the ZG-AF mounting accessory.

Flat mounting (Fig. 1)
The spring return actuator is attached to the air duct by means of the two brackets.

Side mounting (Fig. 2)
In this case four identical brackets are used for attaching the actuator instead of the other two brackets.

Linkage mounting (Figs. 1 and 2)
A slotted lever (KH8) is substituted for the U-bolt in the shaft adaptor of the spring return actuator. A second slotted lever is attached to the damper spindle. The rotation of the actuator is transmitted to the damper spindle by means of a connecting rod and two ball joints bolted to the slotted levers.
Mounting instructions for AF...

AF 24-S, AF 230-S

33...100% ✗