

# 3. BLF-5/PDF













## Product Information

### Fire/Smoke damper actuators

BLF



# The complete range of spring-return actuators for fire and smoke dampers

Type	BLF...	BF...	BFG...
			
Driving power	 4 Nm  4 Nm	 18 Nm  12 Nm	 11 Nm  8,5 Nm
Angle of rotation	90°	90°	180°
Damper rotation	 12 mm (8/10 mm with adapter)	 12 mm (10 mm with adapter)	 10 mm

- Note:
- The above products are also available combined with thermoelectric tripping devices.
  - For more product information, please contact your Belimo representative.

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## Note

The modification and mounting of the actuator to the fire damper is made by the manufacturer of the damper. For this reason the spring-return actuator BLF... is only supplied directly to fire damper manufacturers. The manufacturer then bears overall responsibility for proper functioning of the damper.

## Danger

The enclosure of the actuator equipment may only be opened by the manufacturer. It contains no components which the user can replace or repair.

## Selection table

Spring-return actuators BLF... for fire and smoke dampers		BLF24	BLF24-ST	BLF24-T	BLF24-T-ST	BLF230	BLF230-T
Torque 4 Nm							
Nominal voltage	AC / DC 24 V AC 230 V	•	•	•	•	•	•
Actuator combined with thermoelectric tripping device BAE72A-S (72°)				•	•		•
With plug connectors suitable for attachment to the Type BKN230-24 communication and power supply unit. This allows the actuators to be incorporated into the SBS-Control damper monitoring system.  p0074907			•		•		
Running time	Ⓜ motor 40...75 s Ⓢ spring-return ≈ 20 s	•	•	•	•	•	•
Control Open/Close		•	•	•	•	•	•
Direction of rotation reversible (right/left)		•	•	•	•	•	•
2 auxiliary switches potential-free 2 x SPDT (Switching points 5°, 80°)		•	•	•	•	•	•
Damper rotation 12 mm form-fit (8 mm, 10 mm, with adapter)		•	•	•	•	•	•

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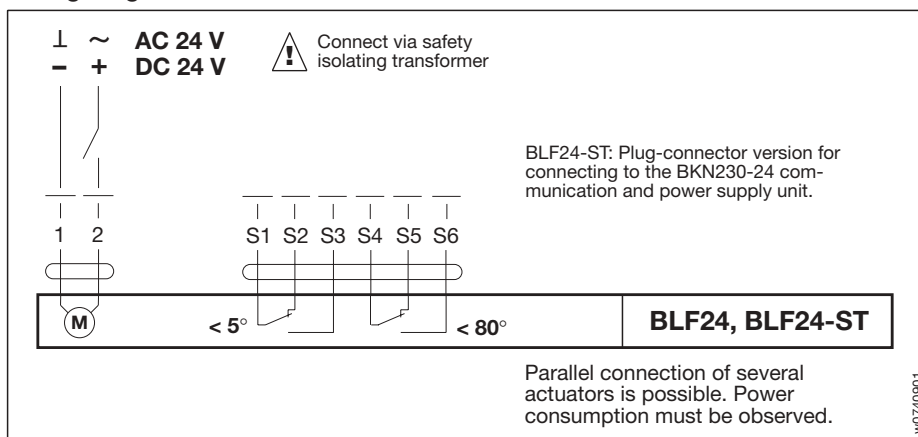
Customised versions of all type BLF... spring-return actuators are available to order.

### Spring-return actuators

<b>BLF24</b>	<b>4</b>
<b>BLF24-ST</b>	<b>4</b>
<b>BLF24-T</b>	<b>5</b>
<b>BLF24-T-ST</b>	<b>5</b>
<b>BLF230</b>	<b>6</b>
<b>BLF230-T</b>	<b>7</b>



## Wiring Diagram



Technical data	BLF24(-ST)
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	5 W motoring, 2.5 W holding
For wire sizing	7 VA (I <sub>max</sub> 5.8 A @ 5 ms)
Protection class	III Safety extra-low voltage
Degree of protection	IP 54
Auxiliary switch – Switching points	2 × SPDT 3(0.5)A, AC 250 V □ (contacts gold plate on silver) 5°, 80°
Connect- ing cable	– motor 1 m, 2 × 0.75 mm <sup>2</sup> (halogen-free)...-ST with plug 3 pole – aux. switches 1 m, 6 × 0.75 mm <sup>2</sup> (halogen-free)...-ST with plug 6 pole (BLF24-ST with plug connectors, suitable for BKN230-24)
Angle of rotation	95° (incl. 5° spring pretensioning)
Damper rotation	12 mm form-fit (8/10 mm with adapter supplied)
Torque	motor and spring-return min. 4 Nm
Running time	– motor 40...75 s (0...4 Nm) – spring-return ≈ 20 s @ -20...+50 °C / max. 60 s @ -30 °C
Direction of rotation	selected by mounting L/R
Position indication	mechanical with pointer
Ambient temperature range	
– Normal duty	-30... + 50 °C
– Safety duty	The safe position will be attained up to max. 75 °C when initiated by a thermal trip
Non-operating temperature	-40... + 80 °C
Humidity test	to EN 60730-1
EMC	CE according to 89/336/EEC
Low Voltage Directive	CE according to 73/23/EEC
Mode of operation	type 1.B (EN 60730-1)
Sound power level	motor max. ≤ 45 dB(A); spring ≈ 62 dB(A)
Service life	min. 60 000 safe positions
Maintenance	maintenance-free
Weight	1540 g

## Open/Close actuator (AC/DC 24 V)

### Torque 4 Nm

#### Application

The type BLF... spring-return actuator is intended for the operation of small fire and smoke dampers in ventilation and air-conditioning systems.

#### Mode of operation

The BLF... 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.

#### Signalling

There are two fixed microswitches in the spring-return actuator BLF... for indicating the end positions of the damper. Intermediate positions of the damper blade are shown by a mechanical indicator.

#### Manual operation

Without power supply, 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.

#### Connection to SBS-Control

The actuator BLF24-ST is available with plug connectors fitted to their connecting leads. This allows the actuator to be incorporated into the SBS-Control damper monitoring system via the type BKN230-24 communication and power supply unit.

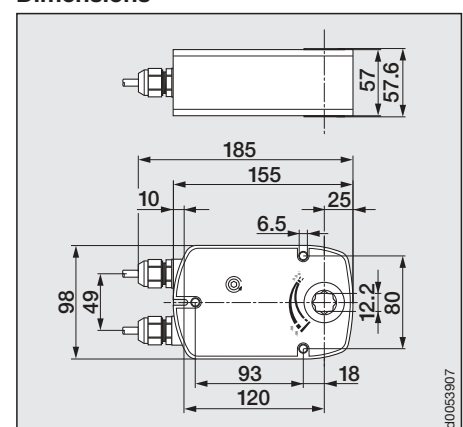
#### Electrical accessories

BAE72(-S) Thermoelectric Tripping Device (with test button), see documentation 3.BF-.

#### Important

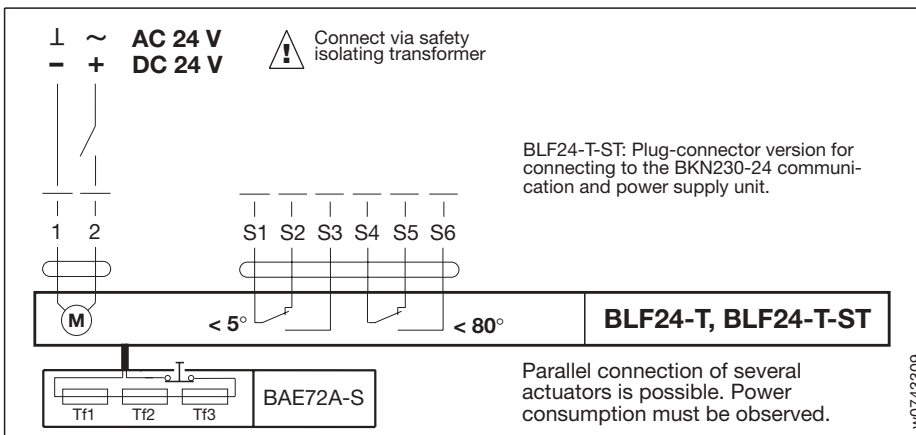
Read the note concerning installation and supply on page 2.

#### Dimensions





## Wiring Diagram



Technical data	BLF24-T(-ST)
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
Operating temperature	Tf1: duct outside temperature 72 °C
thermal trips	*Tf2 + Tf3: duct inside temperature 72 °C *(Art. Nr. ZBAE72)
Power consumption	5W motoring, 2.5 W holding
For wire sizing	7 VA (I <sub>max</sub> 5.8 A @ 5 ms)
Protection class	III Safety extra-low voltage
Degree of protection	IP 54
Auxiliary switch	2 × SPDT 3(0.5)A, AC 250 V □ (contacts gold plate on silver)
– Switching points	5°, 80°
Connect- ing cable	– motor 1 m, 2 × 0.75 mm <sup>2</sup> (halogen-free)...-ST with plug 3 pole – aux. switches 1 m, 6 × 0.75 mm <sup>2</sup> (halogen-free)...-ST with plug 6 pole (BLF24-T-ST with plug connectors, suitable for BKN230-24)
Angle of rotation	95° (incl. 5° spring pretensioning)
Damper rotation	12 mm form-fit (8/10 mm with adapter supplied)
Torque	motor and spring-return min. 4 Nm
Running time	– motor 40...75 s (0...4 Nm) – spring-return ≈ 20 s @ -20...+50 °C / max. 60 s @ -30 °C
Direction of rotation	selected by mounting L/R
Position indication	mechanical with pointer
Ambient temperature range	
– Normal duty	-30... +50 °C
– Safety duty	The safe position will be attained up to max. 75 °C
Non-operating temperature	-40... +50 °C
Humidity test	to EN 60730-1
EMC	CE according to 89/336/EEC
Low Voltage Directive	CE according to 73/23/EEC
Mode of operation	type 1.B (EN 60730-1)
Sound power level	motor max. ≤ 45 dB(A); spring ≈ 62 dB(A)
Service life	min. 60 000 safe positions
Maintenance	maintenance-free
Weight	1630 g

## Open/Close actuator (AC/DC 24 V)

Torque 4 Nm

combined with thermoelectric tripping device with test button BAE72A-S

### Application

The type BLF24-T... spring-return actuator is intended for the operation of small fire and smoke dampers in ventilation and air-conditioning systems.

### Mode of operation

The BLF24-T... 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.

Thermal trip Tf1 operates if the ambient temperature exceeds 72 °C. Replaceable thermal trip Tf2/Tf3 operates if the temperature inside the duct exceeds 72 °C. Tf1, Tf2 or Tf3 trips cause the power supply to be interrupted permanently so that it cannot be uncanceled.

**Note:** Thermal trip and test button only operate if the actuator is connected to the power supply and in working position.

### Signalling

There are two fixed microswitches in the spring-return actuator BLF24-T... for indicating the end positions of the damper. Intermediate positions of the damper blade are shown by a mechanical indicator.

### Manual operation

Without power supply, 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.

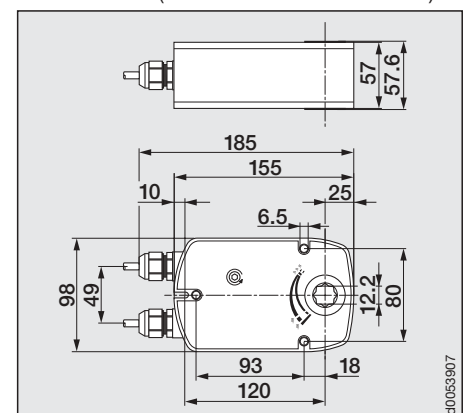
### Connection to SBS-Control

The actuator BLF24-T-ST is available with plug connectors fitted to their connecting leads. This allows the actuator to be incorporated into the SBS-Control damper monitoring system via the type BKN230-24 communication and power supply unit.

### Important

Read the note concerning installation and supply on page 2.

### Dimensions (BAE72A-S: see doc. 3. BF-)





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## Open/Close actuator (AC 230 V)

### Torque 4 Nm

#### Application

The type BLF230 spring-return actuator is intended for the operation of small fire and smoke dampers in ventilation and air-conditioning systems.

#### Mode of operation

The BLF230 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.

#### Signalling

There are two fixed microswitches in the spring-return actuator BLF230 for indicating the end positions of the damper. Intermediate positions of the damper blade are shown by a mechanical indicator.

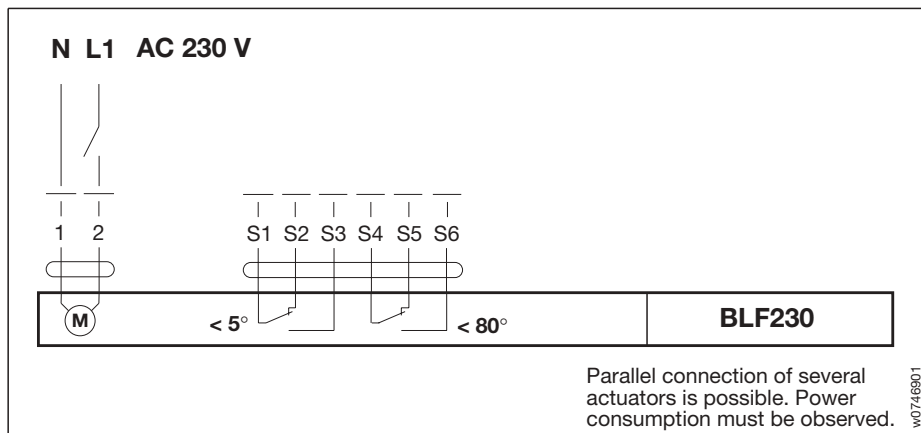
#### Manual operation

Without power supply, 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.

#### Important

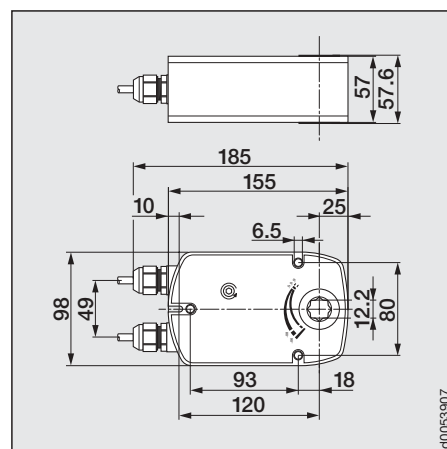
Read the note concerning installation and supply on page 2.

### Wiring Diagram



Technical data	BLF230
Nominal voltage	AC 230 V 50/60 Hz
Nominal voltage range	AC 198...264 V
Power consumption	5 W motoring, 3 W holding
For wire sizing	7 VA (I <sub>max</sub> 150 mA @ 10 ms)
Protection class	II all-insulated
Degree of protection	IP 54
Auxiliary switch	2 × SPDT 3(0.5)A, AC 250 V □ (contacts gold plate on silver)
– Switching points	5°, 80°
Connecting cable	– motor 1 m, 2 × 0.75 mm <sup>2</sup> (halogen-free) – aux. switches 1 m, 6 × 0.75 mm <sup>2</sup> (halogen-free)
Angle of rotation	95° (incl. 5° spring pretensioning)
Damper rotation	12 mm form-fit (8/10 mm with adapter supplied)
Torque	motor and spring-return min. 4 Nm
Running time	– motor 40...75 s (0...4 Nm) – spring-return ≈ 20 s @ -20...+50 °C / max. 60 s @ -30 °C
Direction of rotation	selected by mounting L/R
Position indication	mechanical with pointer
Ambient temperature range	– Normal duty -30... +50 °C – Safety duty The safe position will be attained up to max. 75 °C when initiated by a thermal trip
Non-operating temperature	-40... +80 °C
Humidity test	to EN 60730-1
EMC	CE according to 89/336/EEC
Low Voltage Directive	CE according to 73/23/EEC
Mode of operation	type 1.B (EN 60730-1)
Sound power level	motor max. ≤ 45 dB(A); spring ≈ 62 dB(A)
Service life	min. 60 000 safe positions
Maintenance	maintenance-free
Weight	1680 g

### Dimensions





Open/Close actuator (AC 230 V)

Torque 4 Nm

combined with thermoelectric tripping device with test button BAE72A-S

### Application

The type BLF230-T spring-return actuator is intended for the operation of small fire and smoke dampers in ventilation and air-conditioning systems.

### Mode of operation

The BLF230-T 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.

Thermal trip Tf1 operates if the ambient temperature exceeds 72 °C. Replaceable thermal trip Tf2/Tf3 operates if the temperature inside the duct exceeds 72 °C. Tf1, Tf2 or Tf3 trips cause the power supply to be interrupted permanently so that it cannot be uncancelled.

**Note:** Thermal trip and test button only operate if the actuator is connected to the power supply and in working position.

### Signalling

There are two fixed microswitches in the spring-return actuator BLF230-T for indicating the end positions of the damper. Intermediate positions of the damper blade are shown by a mechanical indicator.

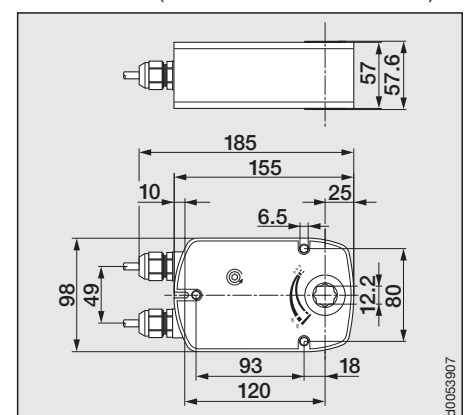
### Manual operation

Without power supply, the damper can be operated manually and fixed in any required position. Re-release of the locking mechanism can be achieved manually or automatically by applying the supply voltage.

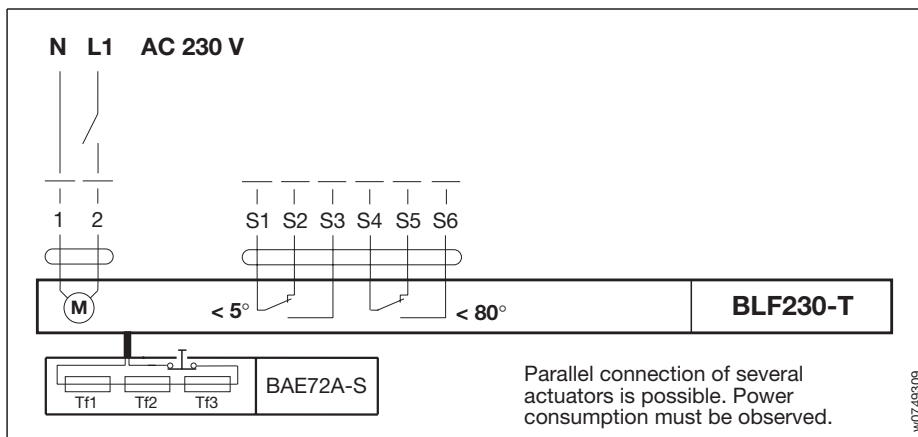
### Important

Read the note concerning installation and supply on page 2.

### Dimensions (BAE72A-S: see doc. 3. BF-)



### Wiring Diagram



Technical data	BLF230-T
Nominal voltage	AC 230 V 50/60 Hz
Nominal voltage range	AC 198...264 V
Operating temperature thermal trips	Tf1: duct outside temperature 72 °C *Tf2 + Tf3: duct inside temperature 72 °C *(Art. Nr. ZBAE72)
Power consumption	5 W motoring, 3 W holding
For wire sizing	7 VA (I <sub>max</sub> 150 mA @ 10 ms)
Protection class	II all-insulated
Degree of protection	IP 54
Auxiliary switch – Switching points	2 × SPDT 3(0.5)A, AC 250 V □ (contacts gold plate on silver) 5°, 80°
Connecting cable	– motor 1 m, 2 × 0.75 mm <sup>2</sup> (halogen-free) – aux. switches 1 m, 6 × 0.75 mm <sup>2</sup> (halogen-free)
Angle of rotation	95° (incl. 5° spring pretensioning)
Damper rotation	12 mm form-fit (8/10 mm with adapter supplied)
Torque	motor and spring-return min. 4 Nm
Running time	– motor 40...75 s (0...4 Nm) – spring-return ≈ 20 s @ -20...+50 °C / max. 60 s @ -30 °C
Direction of rotation	selected by mounting L/R
Position indication	mechanical with pointer
Ambient temperature range	
- Normal duty	-30... + 50 °C
- Safety duty	The safe position will be attained up to max. 75 °C
Non-operating temperature	-40... + 50 °C
Humidity test	to EN 60730-1
EMC	CE according to 89/336/EEC
Low Voltage Directive	CE according to 73/23/EEC
Mode of operation	type 1.B (EN 60730-1)
Sound power level	motor max. ≤ 45 dB(A); spring ≈ 62 dB(A)
Service life	min. 60 000 safe positions
Maintenance	maintenance-free
Weight	1730 g

## Air applications



Standard actuators and spring-return actuators for air control dampers in HVAC systems



Safety actuators for motorizing fire and smoke extraction dampers



VAV systems for individual room air control



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