AKF 112, 113: Rotary actuator with spring return for control ball valves



AKF112F122



How energy efficiency is improved

Torque-dependent cut-off facility for efficient usage of energy

Features

- For operating 2- and 3-way regulating ball valves for controllers with a switching output (2-/3-point control)
- Returns to the starting position in the event of a power failure or the activation of a safety device
- Electronic torque-dependent cut-off
- Direction of rotation can be selected during fitting

Technical data

Power supply		
	Power supply 230 V~	±10%, 50...60 Hz
	Power supply 24 V~	±20%, 50...60 Hz
	Power supply 24...48 V=	±20%
Parameters		
	Torque and holding torque	7 Nm
	Angle of rotation	Max. 95°
	Power cable	0.9 m, 0.75 mm² (fixed to housing)
	Running time for 90° motor	90 s
	Running time for 90° spring	15 s
Ambient conditions		
	Admissible ambient temperature	–32...55 °C
	Admissible ambient humidity	5...95% rh
Construction		
	Weight	1.2 kg
	Housing	Two-piece
	Housing material	Cast aluminium
Standards and directives		
	Type of protection	IP 54 as per EN 60529 IP 42 depending on fitting position
	Protection class 230 V	II as per IEC 60730
	Protection class 24 V	III as per IEC 60730
CE conformity according to	EMC Directive 2004/108/EC	EN 61000-6-2, EN 61000-6-3
Only for AKF120F120	Low-voltage directive 2006/95/EC	EN 60730-1, EN 60730-2-14
	Over-voltage categories	III
	Degree of contamination	II

Overview of types

Type	Power consumption	Control function	Voltage
AKF112F120	4.5 W, 7.0 VA	2-point	230 V~
AKF112F122	3.5 W, 5.0 VA	2-point	24 V~/24...48 V=
AKF113F122	3.5 W, 5.0 VA	3-point	24 V~/24...48 V=

Accessories

Type	Description
0510240001	Assembly kit for VKR/BKR ball valves as spare part and as accessory for rotary actuators ASF 112, 113 from index B

Description of operation

2-point model:
After the power is connected, the control unit to be activated is moved in the direction of the 90° position until the power-dependent cut-off is performed (scale on actuator, max. angle of rotation 95°). In

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the process, the gear unit with its brushless DC motor is stopped and blocked. If the power is cut off or switched off, the motor releases the gear unit so that the spring turns the coupling piece back to the 0° position.
3-point model:
The actuator turns from 0° to 90° when the power is applied to connection 2 (cable = violet), and from 90° to 0° when the power is applied to connection 3 (cable = orange). The actuator stops in the middle position of the 3-point controller. If the power is cut off or is switched off by a safety device at connection 21 (cable = red), the gear unit is released so that the spring turns the coupling piece back to the 0° position. In the two end positions (limit stop of damper, limit stop due to angle-of-rotation limit, max. angle of rotation of 95° reached) or in the case of an overload, the torque-dependent cut-off is activated (no limit switches).

Intended use

This product is only suitable for the purpose intended by the manufacturer, as described in the “Description of operation” section.
All related product regulations must also be adhered to. Changing or converting the product is not admissible.

Engineering and fitting notes

The electronic concept enables the parallel operation of multiple control ball valves with different torques. However, it must be ensured that the operating voltage is within the required tolerance range.
The actuator can be fitted in any position apart from suspended. It can be plugged directly onto the control ball valves of types VKR and BKR and is fixed by means of the mounting kit.
No auxiliary switches or potentiometers can be installed subsequently.
The angle of rotation can be limited to between 0° and 90° in 5° stages.

Beware of injury
When the housing is opened, there is a risk of injury due to the return spring.
►The housing must not be opened.

Additional technical data

The two-part section of the housing (must not be opened) contains the brushless DC motor, the electronic control unit, the maintenance-free gear unit with the anti-blocking function, the return spring and, in the 230 V model, the transformer. The clockwise or anti-clockwise direction is determined by how the actuator is mounted on the control ball valves (changes the direction of rotation of the safety function).
The actuator can be turned and locked into any position using the hex spanner supplied (see MV 505820). The gear unit is released again by unlocking it mechanically or by connecting the operating voltage.

Power consumption

Type	Running time [s]	Status	Active power P [W]	Apparent power S [VA]
AKF112F120	90	Operation	4.5	7.0
		Standstill	3.5	3.5
AKF112F122	90	Operation	3.5	5.0
		Standstill	2.0	2.0
AKF113F122	90	Operation	3.5	5.0
		Standstill	2.0	2.0

Outdoor installation

If installed outside of buildings, the devices must be additionally protected from the weather.

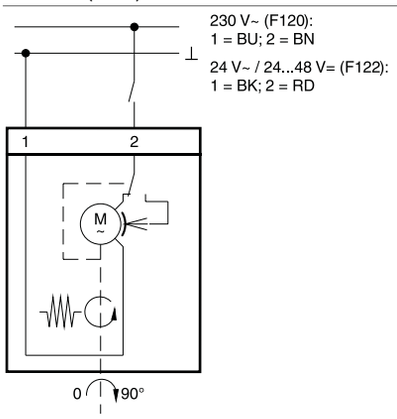
Disposal

When disposing of the product, observe the currently applicable local laws.
More information on materials can be found in the Declaration on materials and the environment for this product.

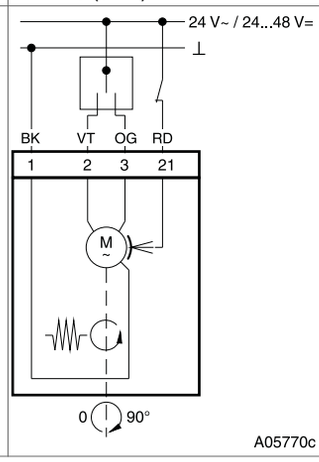
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Connection diagram

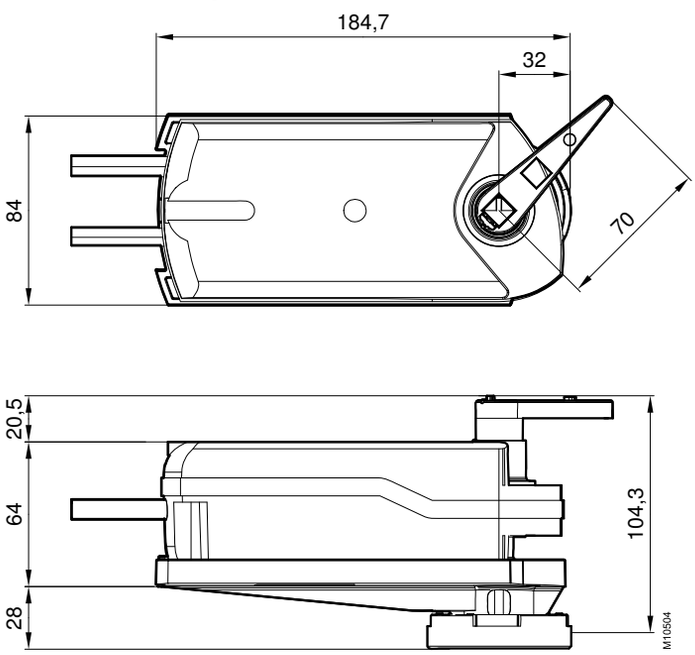
AKF 112 (2 PT)



AKF 113 (3 PT)



Dimension drawing



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