

## AKM 105, 115: Rotary actuator for ball valve

### Improving energy efficiency

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

### Features

- For actuating 2- and 3-way ball valves (types VKR and BKR)
- For controllers with a switching output (2-/3-point control)
- Fitted to ball valves up to DN 50 without the need to use tools
- Synchronous motor with electronic activation and cut-out
- Maintenance-free gear unit
- Gear unit can be disengaged in order to position the ball valve manually (using the lever)
- Bracket and bayonet ring made of glass-fibre-reinforced plastic for fitting onto ball valve
- Fitting vertically upright to horizontal, not suspended



AKM115F12\*



### Technical data

Power supply		
Power supply 230 V~		±15%, 50...60 Hz
Power supply 24 V~		±20%, 50...60 Hz
Parameters		
Power cable		1.2 m, 3 × 0.75 mm <sup>2</sup>
Response time		Min. 200 ms
Angle of rotation		90°
Ambient conditions		
Admissible ambient temperature		-10...55 °C
Admissible ambient humidity		5...95% rh, no condensation
Temperature of medium <sup>1)</sup>		Max. 100 °C
Operation		
Control		2-/3-point
Construction		
Weight		0.7 kg
Housing		Lower section black, upper section yellow
Housing material		Fire-retardant plastic
Standards and directives		
Type of protection <sup>2)</sup>		IP 54 as per EN 60529 (horizontal)
Protection class 24 V		III as per IEC 60730
Protection class 230 V		II as per IEC 60730
Over-voltage categories		III
Degree of contamination		II
CE conformity as per		
Directive 2006/95/EC		EN 60730-1/EN 60730-2-14
EMC Directive 2004/108/EC		EN 61000-6-1, EN 61000-6-2 EN 61000-6-3, EN 61000-6-4

### Overview of types

Type	Power consumption	Running time	Torque	Voltage
AKM105F100	2.4 W, 4.5 VA	30 s	4 Nm	230 V~
AKM105F120	2.0 W, 4.0 VA	120 s	4 Nm	230 V~
AKM105F122	1.6 W, 1.7 VA	120 s	4 Nm	24 V~
AKM115F120	2.0 W, 4.0 VA	120 s	8 Nm	230 V~
AKM115F122	1.6 W, 1.7 VA	120 s	8 Nm	24 V~

<sup>1)</sup> At media temperatures < 5 °C or > 100 °C, appropriate accessory must be used

<sup>2)</sup> See fitting instructions P100001578



### Accessories

Type	Description
0372459100	External switching, 230 V version for parallel operation with A*M 1*4 or drives with limit switch, incl. junction box
0372459102	External switching, 24 V version for parallel operation with A*M 1*4 or drives with limit switch, incl. junction box
0510420001	Adaptor required when temperature of the medium > 100 °C
0510240011	Adaptor required when temperature of the medium < 5 °C
0510480001	Auxiliary change-over contacts, single
0510480002	Auxiliary change-over contacts, double

 *Auxiliary change-over contacts: infinitely variable 0...100%, admissible load 5(2) A, 24...230 V*

### Description of operation

When voltage is applied to the cable, the control unit to be activated is moved to any desired position by means of the carrier stem.

Direction of rotation for 3-point control (viewing the spindle of the ball valve from the actuator):

- The stem turns in the anti-clockwise direction, with the voltage on the brown cable, and the through passage of the ball valve is opened.
- The stem turns in the clockwise direction, with the voltage on the black cable, and the through passage of the ball valve is closed.

With 3-point control, the direction of rotation is changed by swapping the connections.

Direction of rotation for 2-point control (viewing the spindle of the ball valve from the actuator):

There is always voltage on the black cable.

- The stem turns in the anti-clockwise direction, with the voltage on the brown cable, and the ball valve is opened.
- The stem turns in the clockwise direction, with no voltage on the brown cable, and the ball valve is closed.

In the end positions (limit stop in actuator), or in the case of an overload, the magnetic coupling is activated. The positioning signal is switched off by the electronic cut-out after 3 minutes or 60 seconds (F100).

The manual adjustment is performed by releasing the gear unit (slide switch beside the connection cable) and simultaneously turning it with the lever. The actuator position can be determined by looking at the lever or the indicator knob on the top part of the actuator.



Note

After manually adjusting the slide switch, put it back into its original position (engage gear unit).

### 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

Condensate, dripping water, etc. must be prevented from entering the actuator along the carrier stem. Hanging position (fitting upside down) is not admissible.

The actuator/ball valve is mounted by inserting and turning the bayonet ring until the limit stop without any additional adjustment. No tools are required. The coupling of the spindle of the ball valve with the carrier stem is performed automatically, either by moving the manual adjuster to an angle of rotation of 100% or connecting the voltage to terminals MM/N and 01. For dismantling, the bayonet ring is simply opened and the actuator removed. The device is delivered ex works in the middle position.

The concept of a synchronous motor with magnetic coupling is performed by electrically connecting multiple rotary actuators of type AKM in parallel (only with accessory 0372459 10 . ).

If a potentiometer is required, the accessory of the AVM 105, 115 can be used - the direction of operation on the type plate is inverted. The maximum accessory equipment for an actuator is 1 auxiliary change-over contact or 1 potentiometer.

The auxiliary change-over contact accessory is screwed onto the top cover of the actuator. To be able to make the mechanical connection, you first have to remove the indicator knob. A new indicator can be seen on the cover of the accessory.

Note! The housing must not be opened.

### Outdoor installation

We recommend protecting the devices from the weather if they are installed outside the building.

### Additional technical data

The upper section of the housing with the cover and indicator knob contains the synchronous motor with capacitor and the electronics for the cut-off. The lower section of the housing contains the maintenance-free gear unit and the gear-release knob.

### Auxiliary change-over contacts:

- Switch rating max. 230 V~, current min. 20 mA at 20 V
- Switch rating max. 4...30 V=, current 1...100 mA

### Power consumption

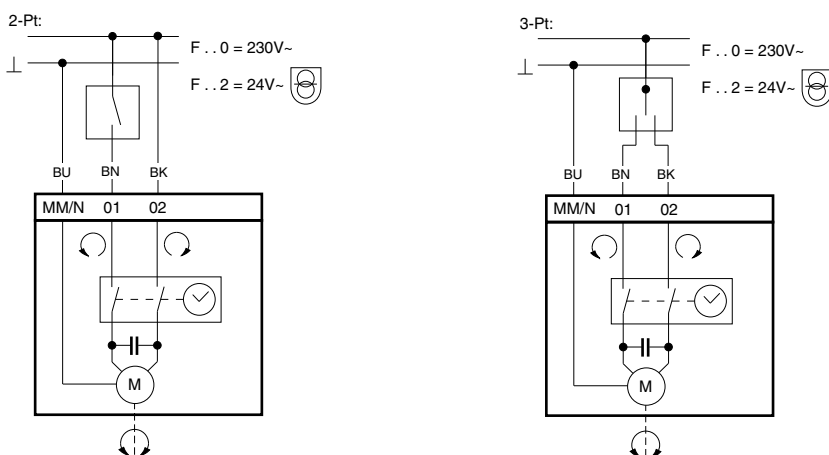
Type	Running time [s]	Status	Active power P [W]	Apparent power S [VA]
AKM105F100	30	Operation	2.4	5.4
AKM105F120	120	Operation	2.0	5.0
AKM105F122	120	Operation	1.6	1.7
AKM115F120	120	Operation	2.0	5.0
AKM115F122	120	Operation	1.6	1.7

### Disposal

When disposing of the product, observe the currently applicable local laws.

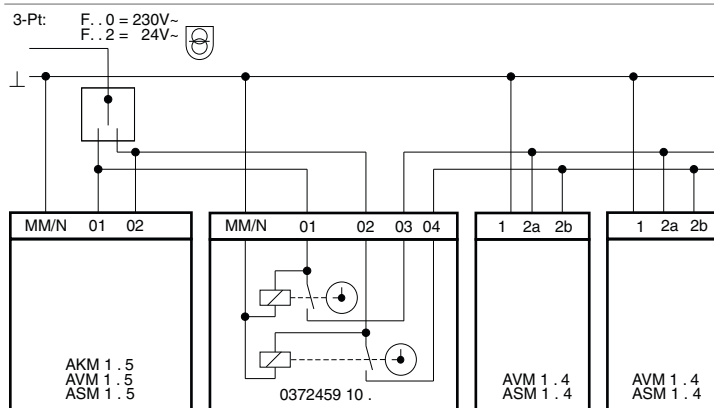
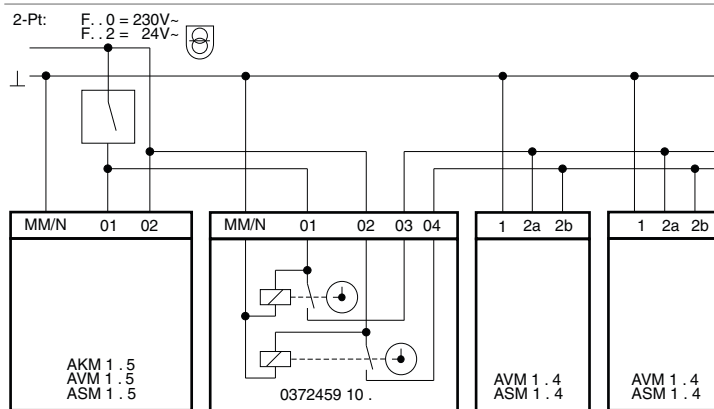
More information on materials can be found in the Declaration on materials and the environment for this product.

### Connection diagram

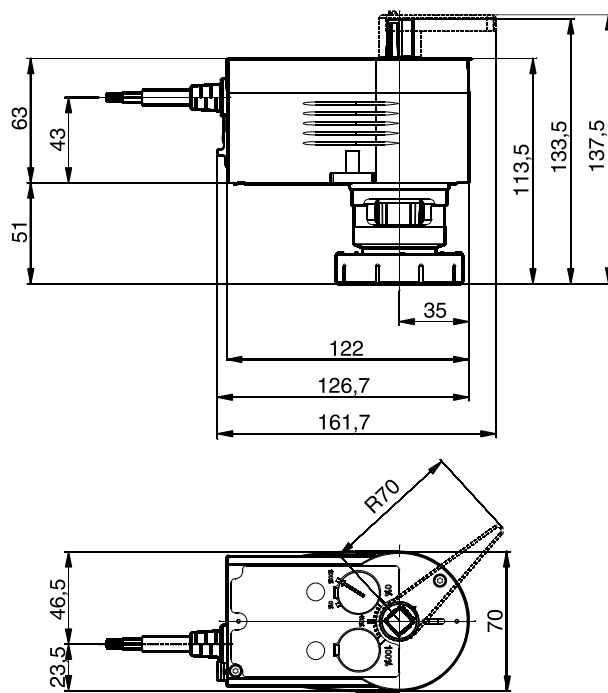


### Accessories

0510480 001	0510480 002	RD = red BN = brown BK = black GN = green GY = grey VT = violet
0372459 10 .		

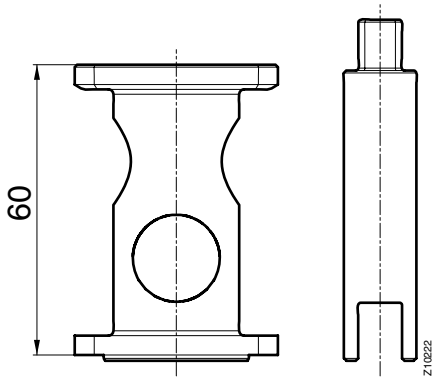


Dimension drawing



Accessories

0510420 001



0510240011

