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Zone valves AZV
2-way shut-off valves
3-way switching valves

NOTE!

The product may only be used if you have fully read and understood these operating instructions. The manual is also available on the AFRISO websites in the Internet.

WARNING!



Zone valve AZV may only be installed, commissioned, and dismantled by trained personnel.

Changes and modifications carried out by unauthorised persons may cause danger and are prohibited for safety reasons.

Risk of burns from hot medium - all maintenance work must be carried out after the system has cooled down. Otherwise, burns from the hot medium may occur.

Danger of life due to electric voltage! There is an immediate danger to life if conductive parts are touched.

Before starting any work, the actuator must be disconnected from the electrical power supply and protected from being switched back on.

Do not allow the actuator to come into contact with water or other liquids.

The connection of the device to the electrical network should be carried out by a person with the appropriate qualifications and authorization.

APPLICATION

Zone valves AZV are used in heating and cooling installations. They are installed in any part of the installation. 2-way valves close or open the flow to a particular part of the installation or a particular receiver. 3-way valves switch the flow between two parts of the installation, most commonly between the central heating system and D.H.W. tank. In combination with an appropriate thermostat or controller, they automate the operation of the installation.

PREDICTABLE INCORRET APPLICATION

Zone valves AZV are not intended for use in the following situations or with the following media:

- mixtures of water and glycol with a glycol concentration exceeding 50%, steam, oil, petrol or drinking water;
- for safety-related purposes;
- under conditions exceeding the maximum permissible pressure and temperature parameters for the medium.

CONSTRUCTION

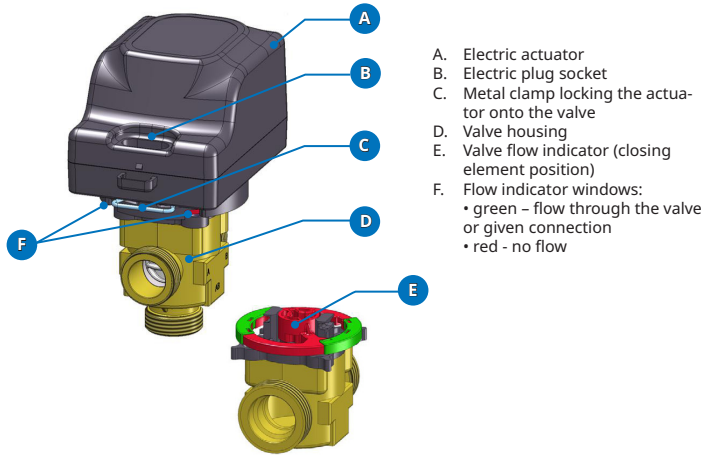


Fig. 1. Construction of AZV valves



Fig. 2. Available types of AZV valves

WORKING PRINCIPLE

2-way AZV valves can be supplied in the normally open (NO) or normally closed (NC) position, depending on the model selected. In an installation, they will work as shut-off valves.

3-way AZV valves are delivered from the factory in the initial position, where the flow is from connection AB-B or B-AB. In the installation they will work as switching valves. The operation of each type of valve depending on a control signal is shown in the table below.

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Control signal	230 V AC	230 V AC
Valve type	Initial position (voltage applied to the brown wire only)	End position (voltage applied simultaneously to the wires: brown and black)
2-way NC		
2-way NO		
3-way		

For the valve to operate properly, the blue N and brown L wires of the actuator must be permanently connected to the power supply. When voltage is applied to the L wire, the closing element remains in the initial position. The black wire L1 is the signal wire, and applying voltage to it causes the closing element to move to the reverse position. The controller or thermostat is responsible for applying voltage to the L1 wire, which, based on the reading of the measured temperature, opens, closes or switches the flow of the medium in the system through the given receiver in order to e.g. reheating a room or heating water in a D.H.W. tank. After the loss of voltage on the L1 wire, the actuator moves the closing element to the initial position.

The current position of the closing element is indicated by a green-red flow indicator. There are special windows on the actuator, through which you can see the current position of the closing element. For 2-way valves, the green color in the windows indicates the flow through the valve, and the red color indicates its cutoff. For 3-way valves, the green color indicates the flow through connection A or B.

INSTALLATION

Before installing the valve, the installation should be thoroughly flushed out, paying special attention to the removal of residues from soldering, pipe cutting, etc. For additional protection of the installation and the valve itself from corrosion and contamination, it is recommended to use corrosion inhibitor BCI AFRISO and magnetic dirt separator ADS AFRISO. In addition, the installation of shut-off valves on the valve connections is recommended to facilitate later maintenance or possible replacement.

Zone valves AZV are supplied with an electric actuator installed. In order not to damage the actuator housing during installation, we recommend removing actuator from the valve before installation (Fig. 3). To do this, remove the metal locking clamp (1), and then lift the actuator and the flow indicator (2).

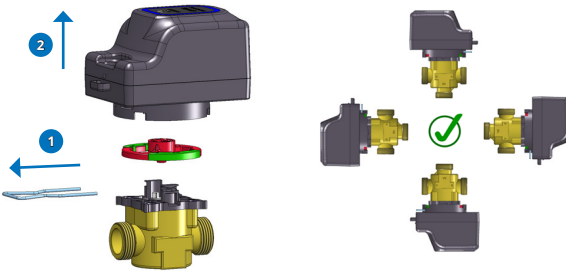


Fig. 3. Procedure for removing the actuator from the valve

Fig. 4. Permissible mounting positions of the AZV valve

Install the valve in the system. The actuator can be located in any position, even under the valve (Fig. 4).

After installing the valve in the installation, put the actuator on the valve and secure it by inserting the metal locking clamp. Caution! The actuator can be mounted on the valve in only one position, due to the shape of the valve spindle and the actuator socket.

Make the electrical connections according to the diagram in Fig. 5, using the factory cable with plug. Do not open the actuator housing.

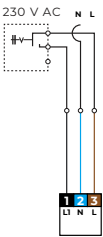
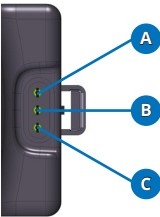


Fig. 5. Electrical connection diagram of the AZV valve actuator

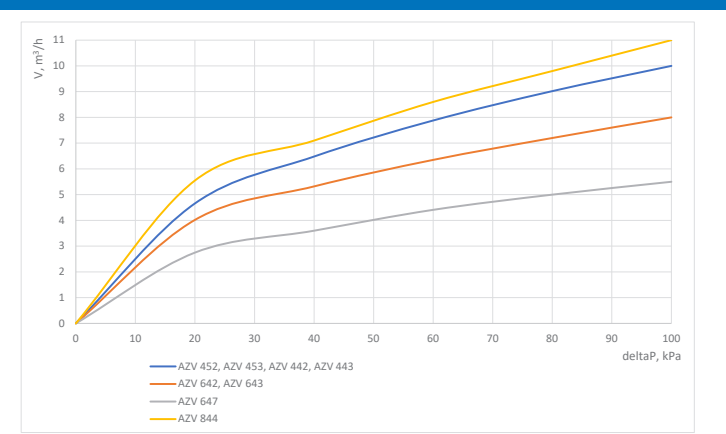
After connecting the cable, connect the plug to the actuator. The plug must snap into the socket. The plug only fits in one position.



- A. Signal wire L1 (black)
In the absence of voltage - initial position
At 230 V - reverse position
- B. Neutral wire N (blue)
- C. Wire L (brown)
Constantly under voltage of 230 V

Fig. 6. Description of the actuator connectors

FLOW CHART



OPERATION

Zone valves AZV are built with two main components - a valve and an electric actuator. It is possible to install the valve alone in the system without an electric actuator. Once the valve is installed, the actuator can be installed at any time. During operation, the actuator can be replaced without draining the medium or stopping installation operation. In the event of a power failure, the valve closing element will remain in the last position.

In order to operate the valve manually, the actuator must be removed and the closing element must be moved to the desired position using the flow indicator. If it is difficult to turn the closing element, remove the flow indicator and use a size 6 Allen key to adjust the closing element to the desired position.

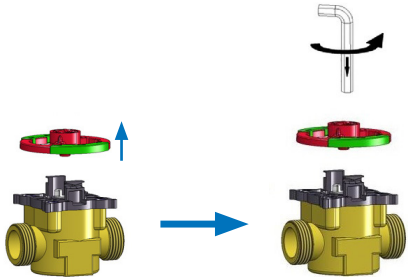


Fig. 7. Operating the closing element with an Allen key

When power is restored, return the closing element to the position before the power failure and reinstall the actuator.

In the case of 3-way valves, it is possible to change the flow in the initial position from AB-B to AB-A without interfering with the installation. To do this, the actuator and the closing element must be repositioned. The procedure is shown below:

1. Check what position the valve is in, the flow must be from the AB-B connection. Then unplug the actuator and remove the actuator and flow indicator from the valve.
2. Use Allen key 6 to turn the closing element by 180°.
3. Place the flow indicator and actuator on the valve. They fit in only one position, in the orientation opposite to the factory (see figure below). Connect the plug into the actuator.

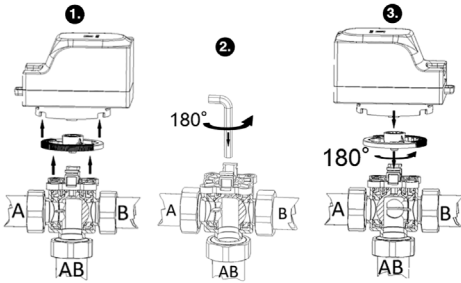


Fig. 8. Procedure for changing the initial position from the AB-B (factory) position to the AB-A position (with voltage only on the brown wire)

After following the procedure shown in Fig. 8, in the initial position the flow through the valve is from connection AB-A. When voltage is also applied to the signal wire (black), the actuator rotates the closing element so that the flow is from connection AB-B (Fig. 9).

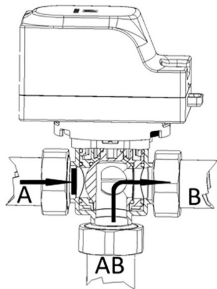


Fig. 9. Flow through the valve after changing the initial position and applying voltage to the signal wire (black)

TECHNICAL DATA

Parameter / part	Value / material
Valve housing	
Connections	G¾": AZV 442, AZV 452, AZV 642 G1": AZV 443, AZV 453, AZV 643, AZV 647 G1¼": AZV 844
Flow coefficient Kvs	10 m³/h: AZV 442, AZV 452, AZV 443, AZV 453 8 m³/h: AZV 642, AZV 643 5,5 m³/h: AZV 647 11 m³/h: AZV 844
Size	DN15: AZV 442, AZV 452, AZV 642 DN20: AZV 443, AZV 453, AZV 643, AZV 647 DN25: AZV 844
Internal leakage	0% Kvs at Δp = min. 1 bar
Operating pressure	max. 10 bar
Differential pressure	max. 2 bar
Operating temperature	-15-90°C
Material	brass CW617N
Electric actuator	
Supply voltage	230 V AC, 50 Hz
Nominal power	7 VA, 0 VA in rest position
Protection class	II
Protection degree	IP 54
Control signal	2-point SPST
Opening / closing / switching time	15 sec.
Electric plug	AMP SUPERSEAL 1.5 SERIES 1745082-1
Operating temperature	0-75°C at S3 25%
Housing material	PC/ABS

MAINTENANCE

Zone valves AZV require no maintenance.

SPARE PARTS

Part name	Art. No.
Electric actuator for AZV valves	942 000 67
Electric cable with plug	942 000 68
Clamp locking actuator on the valve	942 000 69
Closing element position indicator for 2-way valves NO	942 000 96
Closing element position indicator for 2-way valves NC and 3-way valves	942 000 97

APPROVALS AND CERTIFICATES

AFRISO Sp. z o.o. declares that zone valves AZV comply with:

- directive LVD on the electrical equipment designed for use within certain voltage limits 2014/35/UE,
- directive EMC on the electromagnetic compatibility 2014/30/UE,
- directive RoHS on the restriction of the use of certain hazardous substances in electrical and electronic equipment 2011/65/UE.



The full text of the EU Declaration of Conformity is available at the following website: www.afriso.pl.

DECOMMISSIONING, DISPOSAL

1. Disconnect the power supply of the product.
 2. Dismount the product.
 3. Dispose of the product according to local directives and guidelines.
- Electronic parts and batteries should not be disposed of with household waste. The product must be disposed of in accordance with the applicable regulations, standards and safety rules. Return the product to the appropriate collecting point or to the manufacturer's or distributor's collecting point.

WARRANTY

Product guarantee in accordance with the general conditions of sale and delivery.

CUSTOMER SATISFACTION

For AFRISO customer satisfaction is paramount. If you have any questions, suggestions or product problems, please contact us.