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VZK S 3xx-230-2P

Installation and Operation Manual

THREE-WAY ZONE BALL VALVE
VZK S 3xx-230-2P

EN

VZK S 3xx-230-2P

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1. Introduction

A 3-way zone valve with electric actuator (230V, 50Hz), permitting manual control. It is usually used in heating and solar thermal systems. The actuator is attached to the valve with four M5 nuts (spanner size 8) and can be removed without the need to remove the valve. The valve does not interrupt the flow of fluid through the common port during switching. The direction of fluid flow is indicated by the actuator control knob. Fluid can flow in either direction through the valve (common port can be used either as inlet or outlet).

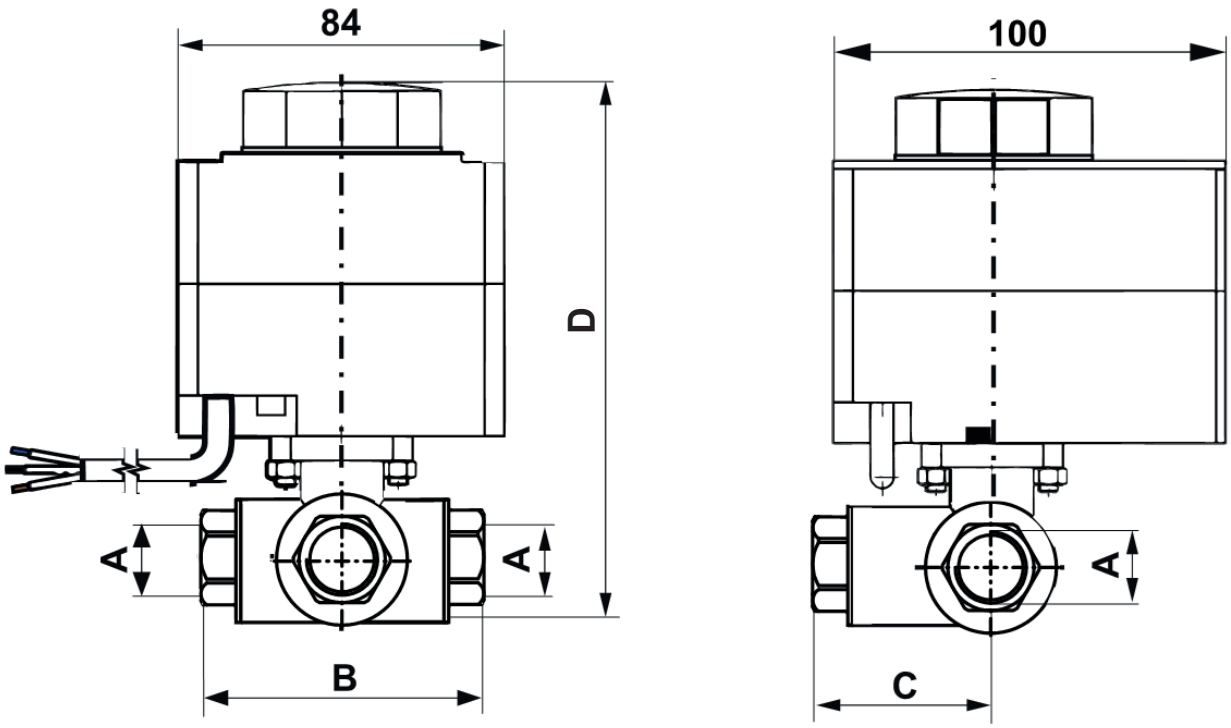
2. Technical Data

L-bore Valves

Marking	Code	Diameter Nominal DN	Connecting thread A (3x)	Dimension B	Dimension C	Dimension D	Open/close time. [s]	K_{vs} [m^3/h]	Weight [kg]
VZK S 320-230-2P-60 L 3/4F	19838	20	3 x G 3/4" F	96	50	160	60	10.5	1.3
VZK S 320-230-2P-60 L 1F	19835	20	3 x G 1“ F	96	50	160	60	10.6	1.3
VZK S 325-230-2P-60 L 1F	11287	25	3 x G 1" F	104	52	168	60	14.3	1.7

T-bore Valves

Marking	Code	Diameter Nominal DN	Connecting thread A (3x)	Dimension B	Dimension C	Dimension D	Open/close time [s]	K_{vs} straight [m^3/h]	K_{vs} 90 deg. [m^3/h]	Weight [kg]
VZK S 320-230-2P-60 T 3/4F	19840	20	3 x G 3/4" F	96	50	160	60	17.8	10.5	1.3
VZK S 320-230-2P-60 T 1F	19833	20	3 x G 1“ F	96	50	160	60	19.5	10.6	1.3
VZK S 325-230-2P-60 T 1F	18675	25	3 x G 1" F	104	52	168	60	28.3	14.3	1.7



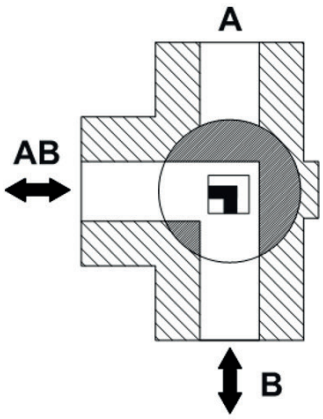
Technical Data	
Max. working pressure	10 bar
Max. fluid working temperature	110 °C
Valve open/close time	60 s
Angle of rotation	90°
Ambient working temperature	5 °C to 40 °C
Max. relative humidity	80% non condensing
Max. pressure difference	10 bar

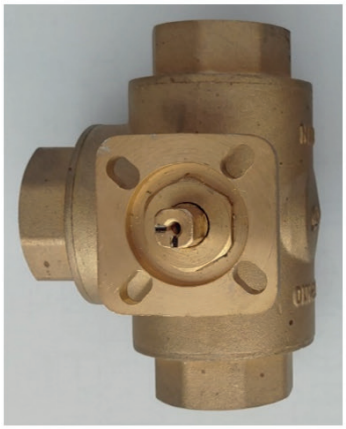
Electric Data	
Power supply	230 V 50 Hz
Max. power consumption	2.5 VA
Max. current	17 mA
Torque	5 Nm
IP rating	IP42
Protection class	II
Power cable cross section	3 x 0.5 mm^2
Power cable length	2 m

Materials	
Valve housing	brass CW617N
Valve spindle	brass CW617N
Valve ball	chrome-plated brass
O-rings	EPDM, FPM
Seal	PTFE
Power cable	PVC

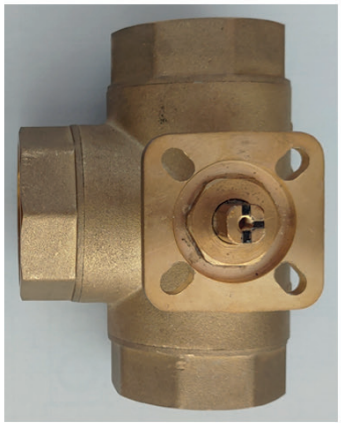
Direction of flow through the valve

Direction of flow through the valve is indicated by the actuator control knob or by the groove on the valve spindle visible after removing the actuator:

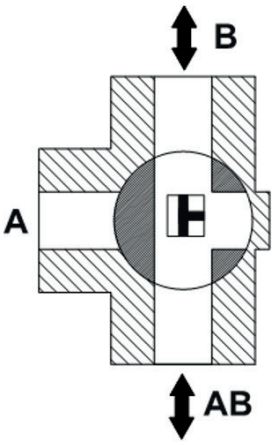




L-bore Valve



T-bore Valve



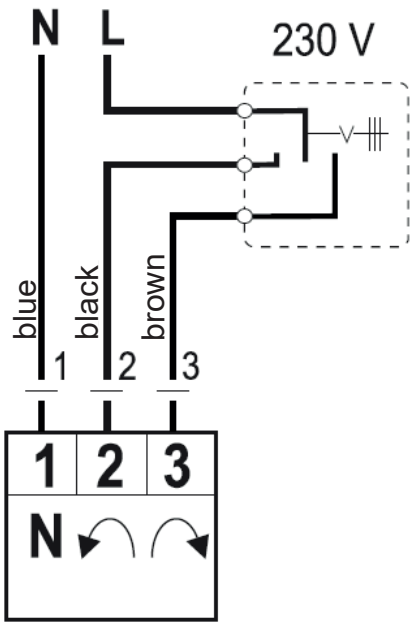
More info can be found in Chapters 4 and 5.

3. Actuator

3.1. Actuator Electrical Wiring

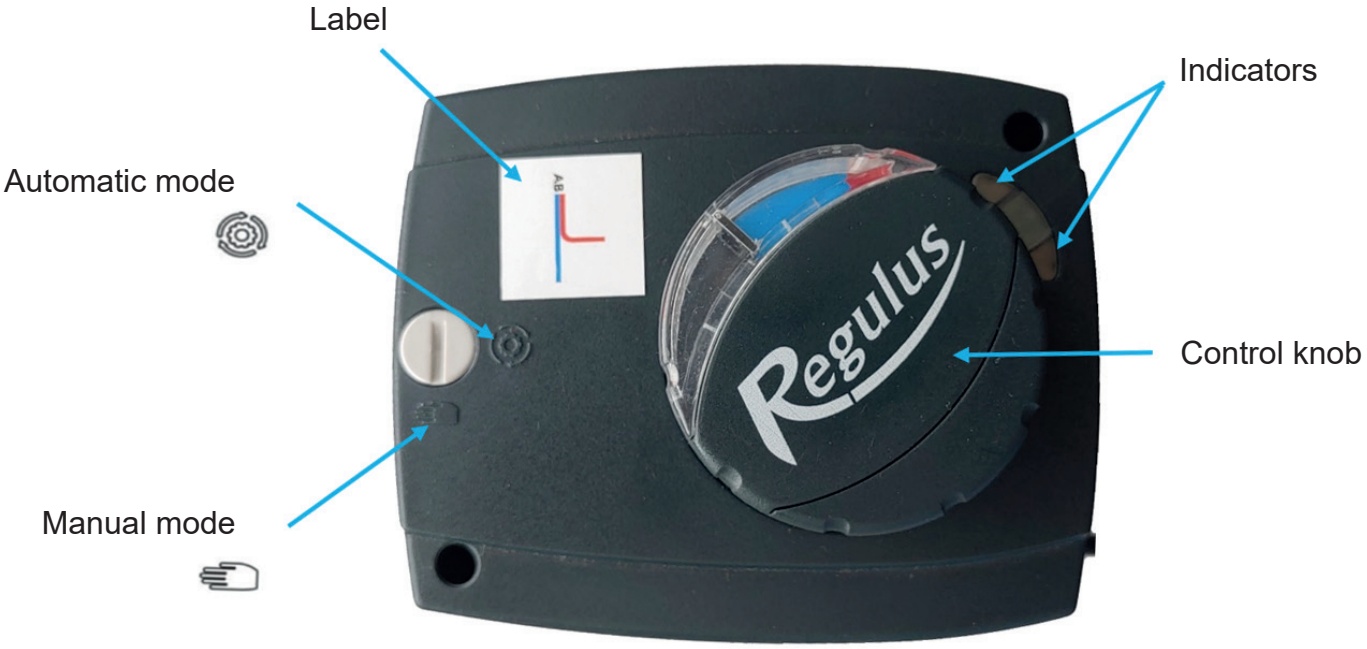
The actuator is controlled by the switch-over contact of a controller (three-point wiring), 230 V, 50 Hz. When one controller output closes, the valve rotates clockwise, when the other output closes, it rotates anti-clockwise. The actuator is equipped with end stops so the controller can be permanently switched through one of the outputs into the actuator. However, the controller must never close both the outputs for valve control simultaneously, otherwise the actuator will get damaged.

Wiring diagram



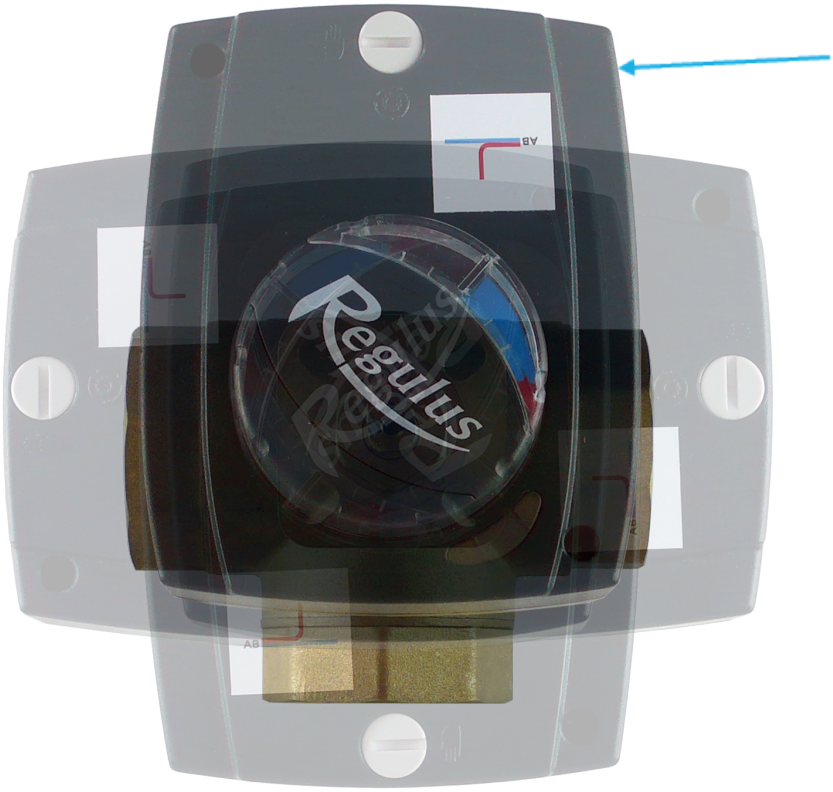
3.2. Actuator Control

The actuator can be switched between automatic and manual mode. In automatic mode, its direction of rotation is indicated by light indicators. In manual mode, the valve can be turned using the control knob.
The control knob shows the position of the valve using the coloured field. The colour of the fluid flow direction on the label corresponds to the colour indicated by the control knob.



3.3. Actuator Placing

The default position of the actuator is such that the valve can be installed in the piping without removing the actuator. If required, the actuator can be removed and fitted in a different position (in quarter turns) - see the fig. The label shall be then carefully removed and rotated to the correct position according to the ports arrangement.

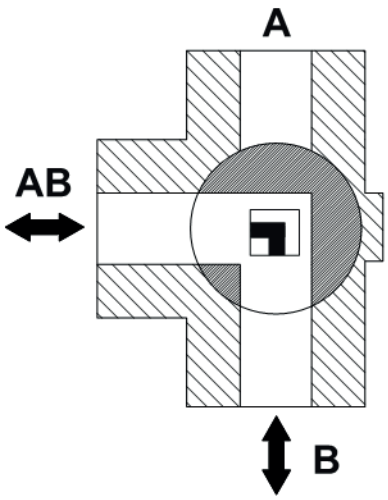
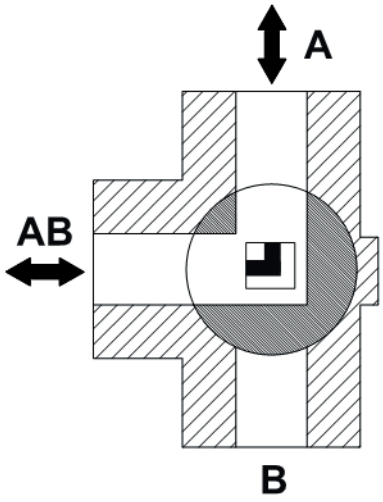
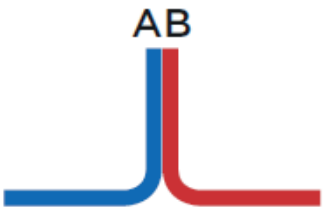


4. L-bore Valves

4.1. Valve Adjustment Options

A) Factory adjustment

The default setting of the actuator is with the knob turned to show blue field. After the contact is switched in a controller or a thermostat, the valve turns clockwise and the red field is shown by the knob. After the contact is switched again, the valve returns to its default position. A label showing the fluid flow direction in colour corresponding to the colour shown by the knob position is placed on the actuator.

Default position	Default position	Label on the actuator
		
Blue indicator	Red indicator	

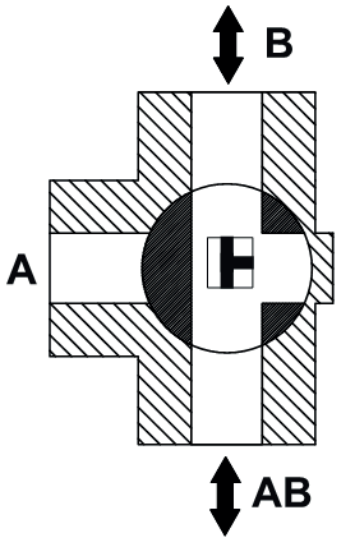
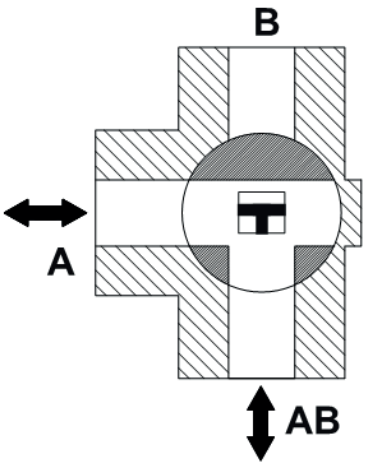
Warning: Other settings than the default factory adjustment are not possible.

5. T-bore Valves

5.1. Valve Adjustment Options

A) Factory adjustment

The default setting of the actuator is with the knob turned to show blue field and the fluid flows straight through the valve. After the contact in a controller is switched, the valve turns clockwise. The red field is shown by the knob and the fluid is directed through 90 degrees in the valve. After the contact is switched again, the valve returns to its default position. A label showing the fluid flow direction in colour corresponding to the colour shown by the knob position is placed on the actuator.

Default position	Position after turning	Label on the actuator
		
Blue indicator	Red indicator	

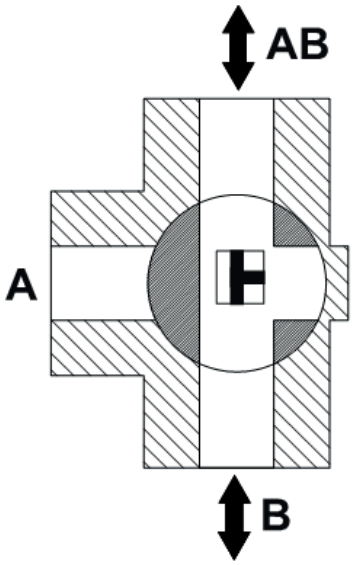
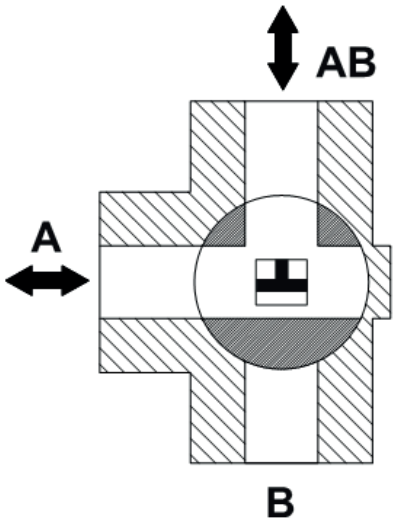
B) Changing the common port of the valve

If necessary, the common port of the valve can be changed. In the default position the knob will show the red field and the fluid will flow straight through the valve. After the contact in a controller is switched, the valve turns anti-clockwise. The blue field will be shown and the fluid will be directed through 90 degrees in the valve. After the contact is switched again, the valve returns to its default position.

How to change the default position of the valve

1. Switch the valve to manual mode and turn the knob to the default factory position (blue field).
2. Unscrew the four M5 nuts (spanner size 8) and remove the actuator from the valve.

3. Turn the knob by a quarter turn to show the red field.
4. Fit the actuator on the valve and tighten it with the four M5 nuts.
5. Switch the actuator to automatic mode.
6. Remove the label from the actuator and replace it with the enclosed label showing the corresponding setting.

Default position	Position after turning	Label on the actuator
		
Red indicator	**Blue indicator**	

6. Permissible and Prohibited Positions

WARNING - Important

Installation of the valve in a position where the actuator is located below the valve is prohibited.

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