

## EMV 110..9Gxx-M/K EMV 110..99xx-M/K

### Actuators S9000 2P ND with FBV 200C valves

**Installation position**

Do not mount actuator under pipes fittings and other valves due to possible leakage of water. The installation site has to be frost-proof and the protection of the device from chemicals, paints, detergents, solvents and their vapours and environmental influences must be guaranteed.

**FOR INDOOR USE ONLY!**

**Installation recommendation for valves**

Direction of flow input

**Installation of the pipe and valve**

Ensure that the pipe ends are well treated and without scraps.

Do not put more than necessary sealing material on the pipe threads.

The connection pipes must be placed on the same axis and should be straight between them.

To avoid bending, the pipes must be substained.

Avoid any damage to the valve because problems with sealing can occur.

Ensure that the pipe is not screwed to the end of the thread.

**Maximum screwing torque of the connecting pipes into valves**

	DN15	DN 20	DN 25	DN 32
<b>Internal threads</b>	50 Nm	60 Nm	80 Nm	90 Nm
	Maximum thread/length for the pipe			
	max 14 mm	max 15 mm	max 18 mm	max 18 mm
<b>External threads</b>	25 Nm	40 Nm	55 Nm	80 Nm
		40/60 Nm	60/80 Nm	
<b>Compression fittings</b>	Number of turns to tight with tool after tightening by hand			
		1/2-3/4	1/2-3/4	

**Dimensions**

**FBV 220C** Female thread

**FBV 224C** Male thread

**FBV 223C** Compression connections

**FBV 221C** Union connections / female thread

**FBV 222C** Union connections

Dimensions (mm)	DN 15	DN 20	DN 25	DN 32				
H	104	107	112	117				
H1	94	97	102	107				
Ø	15	20	25	32				
Ø1 (EN 1254-2)	15	22	28	-				
Rp (EN 10226-1)	1/2"	3/4"	1"	1 1/4"				
R (EN 10226-1)	1/2"	3/4"	1"	1 1/4"				
G (ISO 228-1)	3/4"	1"	1 1/4"	1 1/2"				
S	62	68	81	86				
S1	62	70	81	79				
S2	90	102	114	117				
S3	62	74	82	83				
S4	119	138	149	158				
S5	62	72	82	-				
Kvs (m³/h)	20	45	60	100				
Weight (kg)	M	K	M	K				
FF FBV 220C (kg)	0,55	0,60	0,66	0,71	0,85	0,90	1,00	1,05
MF FBV 221C (kg)	0,61	0,66	0,75	0,80	1,00	1,05	1,20	1,25
MM FBV 222C (kg)	0,68	0,73	0,86	0,91	1,16	1,21	1,45	1,50
CC FBV 223C (kg)	0,58	0,63	0,72	0,77	0,92	0,97	-	-
MM FBV 224C (kg)	0,55	0,60	0,66	0,71	0,84	0,89	0,99	1,05

**Legend:**  
**M** - Molex connection,  
**K** - cable

2-point control **1 / 0**

**EMV 110..9Gxx-M** With handle, Molex connection

**EMV 110..99xx-M** Without handle, Molex connection

**EMV 110..9Gxx-K** With handle, cable connection

**EMV 110..99xx-K** Without handle, cable connection

CE

+55°C  
0°C

PN32, ΔP<3 bar  
+2..+110°C

Product designation: **EMV 110 .. 9 X X X - X**

**Series**  
9000

**Actuator type**  
G=with relay module, with manual control  
9=with relay module, without manual control

**Rotation time**  
N=12s/90°  
3=30s/90°

**Voltage**  
0=230 VAC  
3=24 VAC

**Connection type**  
M=Molex connection  
K=cable

English

Information



FIRST d.o.o

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Slovenia

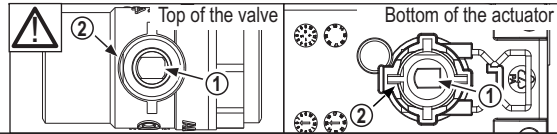
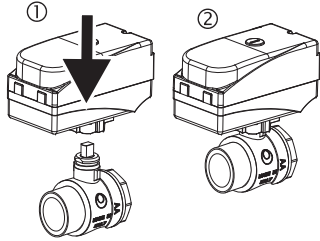
tel: ++386 (0)3 898 35 00

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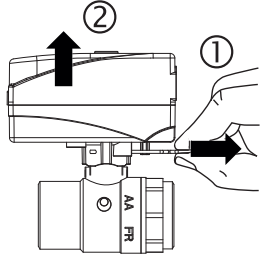
## Assembly of the actuator on the valve

Actuator can be installed only in one position. Easy and fast installation of actuator on the valve with single push - CLIP system.



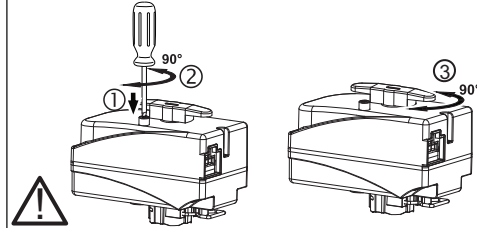
## Disassembly of the actuator from the valve

First pull out the spring, then lift the actuator from the valve.



## Manual operation: Only for EMV110.. 9Gxx

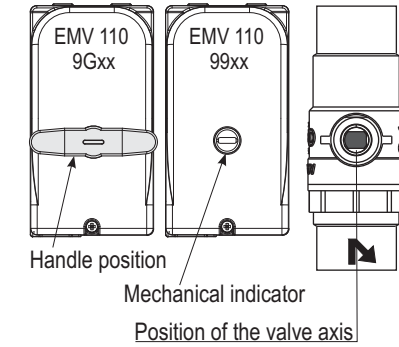
1. With screwdriver push the button down.
2. Turn the screwdriver for 90°.
3. Turn the handle of actuator for 90°.



**Note:**  
When the operation button for manual operating is in MAN position, actuator stays in permanent position irrespective of control signal.

## Position indication and flow direction

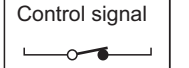
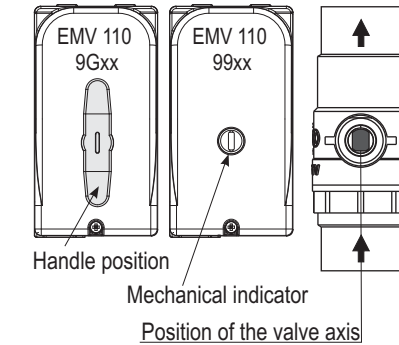
### Valve: CLOSED



FACTORY DEFAULT:  
NC - normally closed

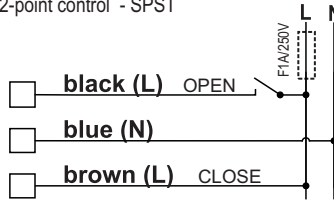


### Valve: OPEN

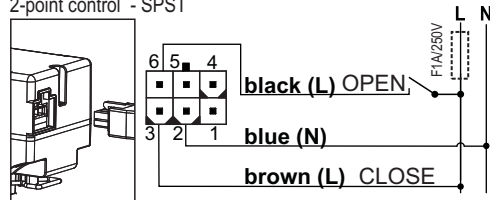


## Electrical connection

EMV 110..9xxx-K, Cable connection  
2-point control - SPST



EMV 110..9xxx-M, Molex connection  
2-point control - SPST



**Switch off power supply before making electrical connections or servicing to prevent electrical shock and equipment damage!**



## WARNING

- The actuator must be protected by a fuse 1A.
- It is not allowed to open the actuator housing!
- The actuator must be electrically connected in accordance with technical norms.
- Observe the correct connection voltage!
- Installers, and users are responsible for the safe and proper installation / operation of the actuator.

## Technical data

Supply voltage	EMV 110 9xx0 230 VAC, 50Hz	EMV 110 9xx3 24 VAC, 50Hz
Running time	EMV 110 9xNx = 12s/90° (only DN 15, 20 and 25) EMV 110 9x3x = 30s/90°	
Power consumption	9VA at 230 VAC	
Torque	Max 5 Nm	
Protection class	II □	
Degree of protection	Cable connection: IP44 Molex connection: IP40 (IP44 only with special connector-by special request)	
Connection	EMV 110 9xxx-K: Cable l=1 m (3 x 0,75 mm <sup>2</sup> ) EMV 110 9xxx-M: Molex connection	
Rotation direction	undefined CW/CCW 90°/360°	
Manual control	with handle - EMV 110..9Gxx only	
Position indicator	mechanical indicator/handle on the cover	
Ambient temperature	0°C...+55°C	
Relative Humidity	0..80% r.H Non-condensing	
Storage temperature	-10°...+70°	
Maintaining	maintenance free	

Ball valve	FBV 220C	FBV 221C	FBV 222C	FBV 223C	FBV 224C
Pipe connection thread	F/F Female thread	F/M Female thread / Union connection	M/M (U) Union connections male thread	C/C Compression connections	M/M Male thread
Fluid	water, glycol <50%, not aggressive fluids <b>The use is not allowed for flammable liquids, combustible gases or explosive liquids!</b> <b>Water quality as per VDI 2035.</b>				
Fluid temperature	+2°C...+110°C *with optional SCA adapter from -15°C to +125°C, briefly up to +150°C				
Nominal pressure	PN32, PN10 According to EN 13828:2003				
Max. differential pressure	3 bar (recommended max. diff. pressure for low noise oper.: 2 bar)				
Approvals	ACS, WRAS, DVGW (FBV220C only)				
<b>Materials</b>					
Valve body	Brass, CW617N				
Ball	Brass, CW617N				
Seals	PTFE, EPDM Perox, FPM				



## Safety information:

- Before installation wash pipes, sealing material must not go inside the valve
- During installation, avoid soldering or welding near the valve
- Any deterioration or destruction of any part of the valves shall result in the need to replace the complete valve: alterations to any part of the complete valve shall result in the valve no longer being in compliance with the performance requirements of this document.
- Place of assembly must be protected against frost, the device must be protected from chemicals, paints, detergents, solvents and their vapors and other environmental influences (vibration).
- All installations should be performed in accordance with existing local installation regulations end codes of practice where they exist.
- It's imperative to follow the installation instructions of the valve manufacturer.
- If the valve is installed in the heating installation the water quality in the system has to comply with the VDI 2035 requirements.