

## Ball Valves Actuators

MODEL	TOR- QUE [Nm]	OPENING/ CLOSING TIME	POWER SUPPLY	COMMAND	IP GRADE
MVS216	16	60 s	230 V AC	2 p	65
MVS416	16	60 s	24 V AC	2 p	65
MVS416F	16	60 s	24 V AC	3 p	65
MVS516	16	60 s	24 V AC/ DC	0..10 V	65



### APPLICATION AND USE

The actuator MVSx16 is used on ball valve installed on the heating or conditioning systems for hot or cool water.

For control applications with ball valves modulating of VSC-VDC series is available a version of MVS with proportional command 0..10 V.

### TECHNICAL CHARACTERISTICS

DESCRIPTION	MVSx16
Power supply	230 V AC (MVS216)
	24 V AC (MVS416, MVS416F and MVS516)
	24 V DC (MVS516)
Torque	16 Nm
Temp. on work	-5° C to 55°C
Stock temperature	-10° C to 80°C
Humidity	5-95% rh (not condensing)
IP grade	IP65
Certification	CE
Dimension	135(156 with cable gland)x75x80 mm
Control	0-10 V (MVS516)
	Manual open/close with LED indicator (MVS416 and MVS216)
	3 p (MVS416F)
Feedback	1-10 V (only MVS516)
Micro aux	230 V AC - 6 (1) A (only MVS416, MVS416F and MVS216)
Insulation class	II
Stroke time (open/close)	60 s
Flange	ISO 5211 F03-F05 and ISO 5211 F04
Shaft	Q11
Cable	H05 6 poli x 0,75
Cable gland	PG11 - IP68 ripstop
Weight	0,90 kg

The performances stated in this sheet can be modified without any prior notice.

DESCRIPTION	MVSx16
Directive	2014/30/EU (EMC), 2014/35/EU (LVD), 2011/65/EU (RoHS) Exemptions: Lead 0.35% (Annex III 6(a)) Lead 0.4% (Annex III 6(c))
Reference standards	EN 60730-2-14: 1997 +A1:2001+A11:2008+A2:2008 In conjunction with EN 60730-1:2011

POWER CONSUMPTION [VA]			
MODEL	RUNNING	CLOSING POSITION	OPENING POSITION
MVS216	~6	0*	~1
MVS416	~6	0*	0,5*
MVS416F	~6	0*	0,5*
MVS516	~5	~1	~1

\* +1 VA if anti-condensation is connected

## OPERATION

**The actuators are without spring return.** At the decrease of the ambient temperature the controller with on-off output closes the control contact of the actuator by opening the valve. When it reaches the required temperature, the controller open the contact, closing the valve.

The end of stroke contact closes at fully open valve and opens as soon as the valve starts closing.

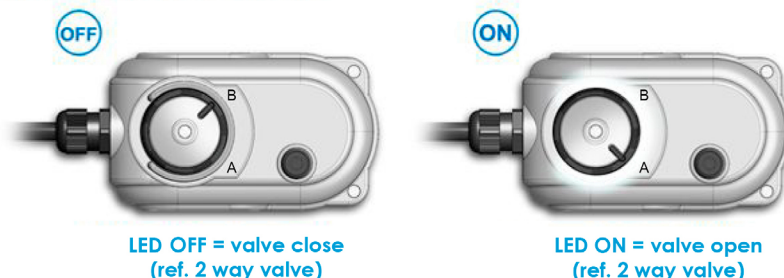
### End of stroke contact:

Close = open valve

Open = close valve

For the MVS516 version with proportional control 0..10 V the valve position can be adjusted seamlessly from completely closed valve (command 0 V) to fully open valve (10 V command) depending on the control requirements.

Handle for manual control state of opening/closing, with LED indication.





ACTUATOR	CONTROL POSITION			
	OFF*	ON	0 V DC*	10 V DC
MVS216, MVS416, MVS416F	B	A	-	-
MVS516	-	-	A	B

\* factory position without power supply

## POSSIBLE CONNECTIONS AND MATCHES

ACTUATORS	BALL VALVES	
MVS216 MVS416	2-way	VSS6, VSS8
	3-way diverting	VSD5, VSD6, VSD8
MVS216 MVS416 MVS516	2-way modulating	VSC2, VSC3, VSC4, VSC5, VSC6, VSC8, VSC8-63
	3-way modulating	VDC2, VDC3, VDC4, VDC5, VDC6, VDC8, VDC8-63

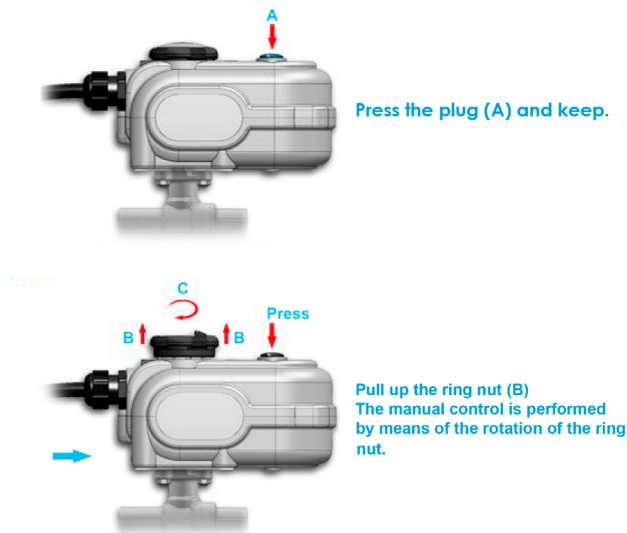
They are supplied with two coupling flanges for connections ISO 5211 F03/F05 or F04 to be used depending on the valve that is intended to motorize.

FLANGES	SHAFT	BALL VALVES
 F03 F05	Q11	Series VSS 1 1/2" - 2" Series VSD 1 1/4" - 2"
 F04	Q9	Series VSC Series VDC

MANUFACTURING CHARACTERISTICS

The actuator is equipped with manual control for opening the valve in case of lack of power supply.

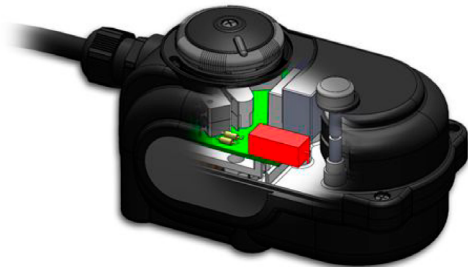
The following figure shows how it works on the manual command:



The lowered ring allows the reduction of the overall dimensions of the actuator. Once extracted facilitates the rotation thanks to a larger area of grip.

CONDENSATION HEATER

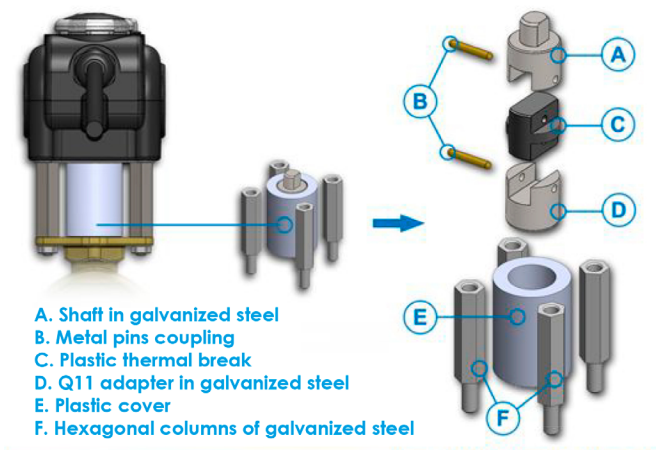
The anti-condensate resistance, in MVS216, MVS416 and MVS416F models, if connected is always active, both with open or close valve.



- Use:
- ambient temperature <10°
  - In addition to the thermal spacer with ambient temperature 30° C ÷ 45° C and the fluid temperature <15° C (cool water).
- We recommend the use of ambient temperature heating applications next to the limit.

ACCESSORIES

It is available a spacer MVSHT for use in case of cool water to allow a smoother insulation or in case of hot water with temperature higher than 120° C.



ASSEMBLING

- For a correct assembly of the MVSx16 actuator to the valve:
- Choose the correct coupling flange supplied (table page 1), place it on the actuator and tighten the screws supplied
  - Before coupling the valve to the actuator, check the positions shown in the table:

VALVES	VALVE STEM	MVS216 MVS416	MVS516 (BLACK-RED NOT COMBINED)
VSC2, VSC3, VSC4, VSC5, VSC6, VSC8, VSC8-63	 Open valve	Position B	Position B
VSS6 VSS8	 Open valve	Position A	Position A
VDC2, VDC3, VDC4, VDC5, VDC6, VDC8, VDC8-63	 Open valve	Position B	Position B
VSD5 VSD6 VSD8	 Open A - B	Position A	-

- Couple the valve with actuator using nuts and bolts supplied
- Make the electric connections as shown in the wiring diagram
- With the actuator supplied, without control signal (and for MVS516 black-red not combined), the following condition is present:

VALVES		VALVE POSITION
VSC2, VSC3, VSC4, VSC5, VSC6, VSC8, VSC8-63	2-way modulating	Valve open
VSS6 VSS8	2-way	Valve closed
VDC2, VDC3, VDC4, VDC5, VDC6, VDC8, VDC8-63	3-way modulating	A - AB open
VSD5 VSD6 VSD8	3-way diverting	A - B closed

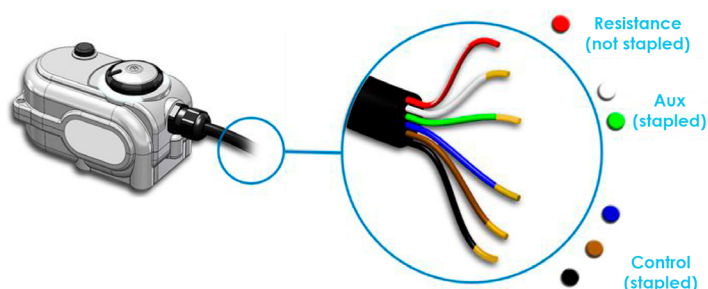
Any mounting position is allowed except the one with the actuator facing down.



Positions allowed

## ELECTRIC CONNECTIONS

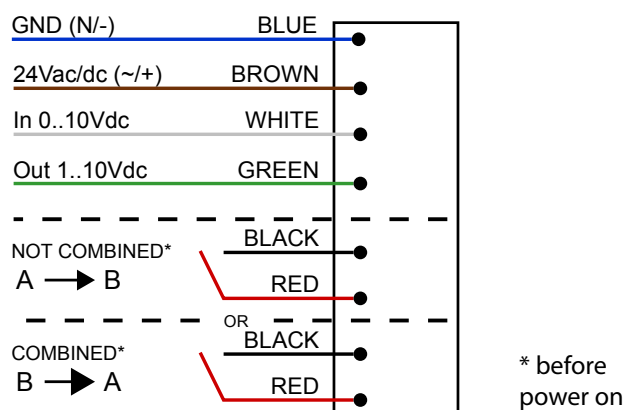
The MVS216, MVS416 and MVF416F actuators are complete with a 6 wires connection cable (5 + Resistance), with PG11 cable gland and auxiliary limit contact.



**WHITE-GREEN-BLUE-BROWN-BLACK = control and auxiliary cables**  
**RED = cable resistance**

The actuator MVS516 is complete with wire connection cable, with PG11 cable gland and without auxiliary limit contact and condensation heater.

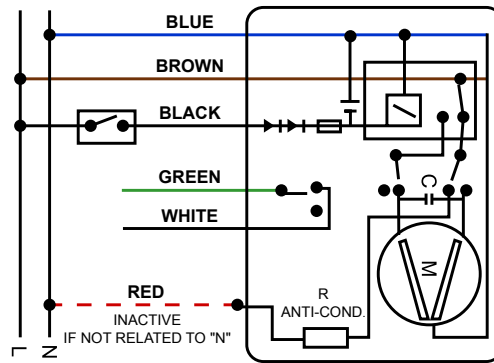
### Modulating Control 0-10 V 24 V AC (Model MVS516)



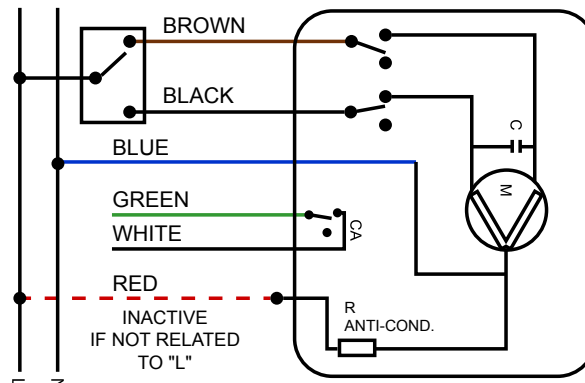
If before powering the system, the BLACK and RED wires are connected together, you will get B as the starting position of the actuator, while if left disconnected (factory condition) you will get A as the starting position.

**ATTENTION:** RED and BLACK wires do not have to be connected for any reason to power source.

### On-Off Control (Model MVS216, MVS416)



### 3p Control (Model MVS416F)



### DIMENSIONS [mm]

