MVH

Valve Actuators

MODEL	STROKE TIME [s] FOR iSMA CONTROLLI VALVES (*)			POWER SUPPLY	CONTROL
	16,5mm	25mm	45mm		
MVH26	37	55	99	230 V AC	3p
MVH36				24 V AC	pot.
MVH46					3p
MVH56					prop.

(*) The time for 1 mm joint movement is 2,2 s. For timing related to different strokes use the following formula: time [s] = 2,2 x stroke [mm].

APPLICATION AND USE

MVH actuators have linear characteristic (linear ratio between input signal and valve coupling joint movement). They are used for fluid control in air-conditioning-heating systems and in industrial processes.
Three different control types are available:

- floating (3p);
- 165 Ohm proportional potentiometric (pot.);
- proportional (d.c. voltage or current).

They are designed for direct coupling on all iSMA CONTROLLI flanged globe valves (add AG62 linkage for V.B valves) and they can also be easily used on other manufacturers' valves with 0..45 mm stroke for floating action models or 10..45 mm stroke for proportional action models.

OPERATING

Actuators are fitted with an asynchronous bidirectional motor and with a torque limit device that makes the actuators self-adjusting on valves with a different stroke, ensuring - moreover - a constant force to the valve mechanical stroke-ends regardless of their position.
Voltage/current proportional models are also provided with both a feedback output signal indicating valve position and a device to select direct or reverse action.
All models are equipped with a manual control in order to override the actuator in case of control and/or power supply failure.
Note: do not use the actuator disassembled from the valve.

MANUFACTURING CHARACTERISTICS

The actuator consists in a die-cast aluminium housing, which includes mounting bracket and removable fire resistant terminal cover with captive bolts and a reduction gears supported by ball bearings. Movement is transmitted to a rack-and-pinion mechanism to which, through a suitable joint, the valve stem is connected.
Internal electronic card with easily accessible terminals for electrical connections. Micro end-switches operated by a torque limit device. Manual knob in thermoplastic material, fitted on the front side.
The actuator is maintenance-free.

TECHNICAL CHARACTERISTICS

CHARACTERISTIC		MVH26	MVH36	MVH46	MVH56
Power supply		230 V AC +/-10%	24 V AC +/-10%		
Consumption		12 VA			
Dimensioning		15 VA			
Frequency		50-60 Hz			
Stroke		0-45 mm			10-45 mm
Stroke time		see model table			
Force		1500 N			
Temperature	Operation	-15°C to 50°C			
	Storage	-25°C to 65°C			
Allowed room humidity		Class R according to DIN 40040			
Terminals		screw-type for wires from 1,5 to 2,5 mm^2 max			
N. 2 cable gland		Rubber-made punchable on hole, d=20 mm, to be replaced by PG 13,5 compression glands			
Protection degree		IP55 DIN 40050 (IEC 529); for rooms with high pollution according to IEC 730-1(93)/6.5.3			
Weight		3 kg			
Control signal		3p, 2 SPST contacts	potentiometric 165 Ohm	3p, 2 SPST contacts	voltage (max 0.1 mA): 8-11 V DC,4-7V DC,6-9 VDC / 0-10 V DC, 2-10 V DC, 1-5 V DC / 0-16 V DC current (250 Ohm): 4-20 mA
Outputs indication	Voltage	-	0-10 V DC (2mA max); 10-0V DC (2mA max)	-	0-10 V DC (2mA max); 10-0V DC (2mA max)
	Current	-	0-200 µA	-	0-200 µA
The product complies the following directives		EMC 2014/30/UE according to EN61326-1 (emission and immunity) LVD 2014/35/UE according to EN61010-1			

POSSIBLE COMBINATIONS AND CONNECTIONS

All actuators can be connected to any controller, providing that the relevant output signal complies with the requirements at "Technical Characteristics" paragraph. Install a protection device compliant to existing rules with a 125 mA intervention threshold and a minimum 3 mm contact opening on the power supply line. The device is not supplied with the product.

ACCESSORIES

244 Stem heater for valves with AG62 *

248 Stem heater 24 V~, 50 W (for applications with fluid temperature <-10°C) *

AG62 Linkage kit for VMB and VSB valve assembly

DMVH 2 auxiliary microswitches (SPDT 10 (3)A-250 V~) adjustable on the whole stroke. Microdisconnection type 1B according to IEC 730-1(93)/6.4.3.2

MVHPA2 Electronic card with 1 kOhm auxiliary potentiometer for MVH26

MVHPA4 Electronic card with 1 kOhm auxiliary potentiometer for MVH46. To state the max. resistance value among the potentiometer terminals, refer to the table below:

Stroke [mm]	Wheels colour	Aux. potentiometer max. value
16,5	grey	1000 Ohm
25	white	700 Ohm
45		1000 Ohm

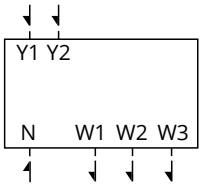
MVHT Valve body-actuator spacer reducing the actuator direct exposure in case of installation with high-temperature fluids. Dimensions: Ø 120 mm; h = actuator height + 102 mm

GMVH Thermal insulation for MVH actuators *

* It is not possible to install both thermal insulation (Gxxxx) and stem heaters.

TERMINAL BOARDS

MVH26 (230 V AC)
MVH46 (24 V AC)

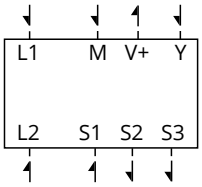


Power supply control		N-Y1 (**) N-Y2 (***)

(**)	Joint moves upwards
(***)	Joint moves downwards

W1 W2 W3		Auxiliary potentiometer

MVH36/56 (24 V AC)

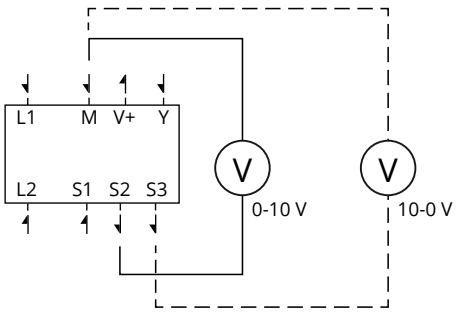


L1 L2	Phase Neutral	24 V~ ±10% power supply	
M V+ Y	Common +15 V Output Control signal (2)		(1)
S1 S2 S3	Analogue common Feedback 0-10 V or 0-200 uA Feedback 10-0 V or 200-0 uA		(2)

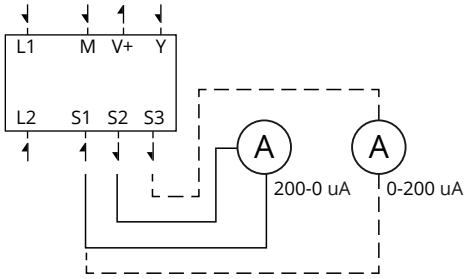
(1) For the model MVH36. Connect the central of the controller potentiometer (165 Ohm) to terminal Y, one side to terminal M and the other one to terminal V+.

(2) Connect the current input receiving the feedback to S2 (or S3) and S1 (max 2 mA). Connect the voltage input of the device receiving the feedback to terminals S3 (or S2) and M (max 2 mA). With joint up the voltage value (or current) corresponds to the minimum value.

Voltage feedback connections

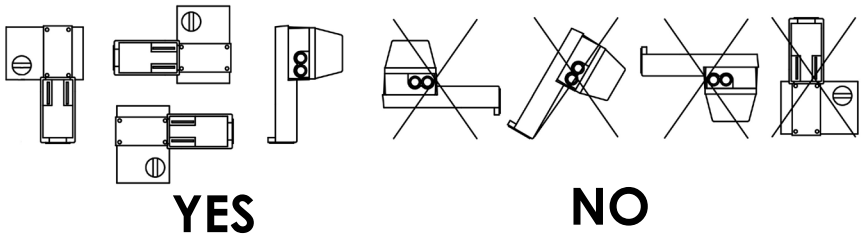


Current feedback connections



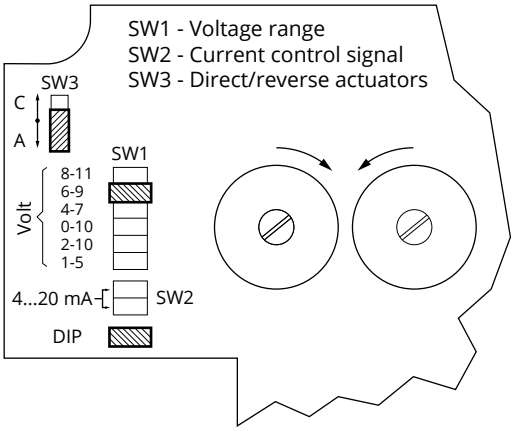
INSTALLATION AND MOUNTING

The actuator can be mounted in the positions shown below. It is advisable to equip the motorized valve with MVHT spacer, in order to reduce the actuator working temperature in case of fluids at high temperatures (approximately > 120°C) in the valve body. For fluids over 160°C avoid mounting the actuator in vertical position on the valve so as to avoid the direct exposure to heat sources.
Carry out the electrical connections by removing the cover, in compliance to existing standards. For valve mounting, follow the assembly instructions inside the package. If the equipment is used improperly, the protection provided by the device can be damaged.



Model with proportional signal (MVH56)

These actuators are factory supplied with 0-10 V DC control signal. To select different ranges, the jumper on SW1 should be moved to the desired position. For 4-20 mA range, it is necessary to close SW2 with the available jumper in DIP position and move SW1 to 2-10 V position. In order to select the moving direction, move the SW3 jumper from A to C position.



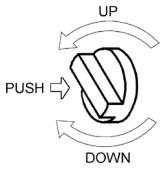
SW3 position	Control signal	Actuator position
A	0 V	down (extended)
	10 V	up (retracted)
C	0 V	up (retracted)
	10 V	down (extended)

Model with electronic card for proportional-potentiometric signal (MVH36)

To reverse the moving direction, exchange the connections at M and V+ terminals.

MANUAL OVERRIDE OPERATION

The manual control can be activated only after disconnecting power supply.
To use the manual control, it is necessary to push and hold down the knob; turn clockwise to move the valve stem downwards and counter clockwise to move it upwards.
Be careful not to force the manual control when the actuator stroke end is reached.



DIMENSIONS [mm]