

MODEL	POWER SUPPLY (Vac)	CONTROL	STROKE TIME OF CONTROLLI VALVES (s)			Stroke
			16,5	25	45	
MVL56FA MVL56FC	24 V	floating or prop.	17	25	48	with motor
			23	35	64	Spring return with load
			15	23	41	Spring return without load



All models are fitted with spring return device:

- A: spring return with retracted joint (valve stem up)  
C: spring return with protruding joint (valve stem down)

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

## APPLICATION AND USE

MVL actuators have linear characteristic (linear ratio between input signal and valve coupling joint movement). They are used for fluid control in air-conditioning and heating systems and in industrial processes. The control signal can be set as proportional or floating by acting on the dip switches. They are designed for direct coupling on all CONTROLLI globe valves and they may also be used easily on other manufacturers' valves having different stroke between 0 and 52 mm.

## OPERATION

The actuators are equipped with bidirectional electrical motor; they self-adjust if the valves have different stroke, granting a constant torque at the valve mechanical stroke ends regardless of their position.

They are provided with a spring device which, in case of power loss, makes the actuator return to the rest position. All models are also provided with a feedback output signal indicating valve position.

## MANUFACTURING CHARACTERISTICS

The actuator consists in a die-cast aluminium housing, which includes mounting bracket for connection to valve body.

Reduction gears supported by ball bearings. Movement is transmitted to a rack-and-pinion mechanism connected to the valve stem through a suitable joint.

Internal electronic card with easily accessible terminals for electrical connections. Spring return device consisting of a flat spring placed outside the main shaft.

The actuator is maintenance-free.

## TECHNICAL CHARACTERISTICS

Power supply	24 Vac, +25%/-20%
Consumption	25 VA
Dimensioning	30 VA
Frequency	50...60 Hz
Stroke	0...52 mm
Stroke time	See available models
Thrust	700 N
Temperature	
- operating	-15T 50 °C
- storage	-25T 65°C
Allowed room humidity	Class R according to DIN 40040
Terminal board	screw-type 1,5 mm <sup>2</sup> wires
N. 2 conduit opening	plastic punchable, replaceable by PG 13,5 compression glands
Protection degree	IP 55 DIN 40050 (IEC 529) For highly polluted environments according to IEC 730-1(93)/6.5.3
Weight	4 Kg
<b>Control signal</b>	
Floating	2 SPST contacts
Proportional	
- voltage	0...10V (factory setting), 2...10V/ 4...7V/8...11V/1...5V/6...9V see MVLFS5 accessory
- current	
<b>Output indication</b>	
G0-Y	2...10 Vdc (max 2 mA)
<b>Voltage outside power supply output</b>	
G0-G1	16 Vdc (max 25 mA)

The product complies with EMC 89/336 directive according to the following standards: EN50081-1 for emission, EN50082-1 for immunity.

## POSSIBLE COMBINATIONS AND CONNECTIONS

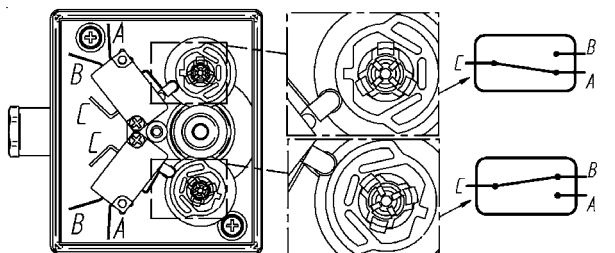
All actuators can be connected to any controller, providing that the relevant output signal complies with the requirements at "Technical Characteristics" paragraph. In particular they can be connected to CONTROLLI 500-line controllers, DIGITROLL 2000, 3000, and 200, 300, 400-line controllers and all MicroNet models.

## ACCESSORIES

**DMVL** (only factory-mounted. To be ordered together with the actuator).

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

It is possible to place the cams so that the microswitches act according to the required position. Keep in mind that when the lever is on the cam protruding part, the contact is closed between b and c and open between c and a (see figure below).



Make the electrical connections in compliance with the rules in force.

Attention: during operation, the cables must not interfere with the cams and the gears.

**DMVF** 2 stroke end microswitches with electronic control, not adjustable.

**MVLFS5** Accessory for 4÷20 mA control signal. This accessory is factory-supplied with MVL56FA/C actuators.

**MVLHT** 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

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

**AG31** Kit for VMB and VSB valve assembly

## INSTALLATION AND MOUNTING

The actuator can be mounted in the positions shown in Fig. 3. It is advisable to use the motorized valve with MVLHT 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 with the rules in force. For valve mounting, follow the assembly instruction inside the package.

These actuators are factory-supplied with 0...10 V- control signal. To select different ranges, move the "DIP" microswitches (see fig. 1 and 2).

For 4...20 mA range it is necessary to select 1...5 range and use the MVLFS5 accessory.

**To reverse the action direction, move the DIP 7 from OFF to ON.**

The performance stated in this sheet can be modified without any prior notice due to design improvement.

## ELECTRONIC BOARD

OPERATION MODE SELECTION (CONFIGURATION DIP)

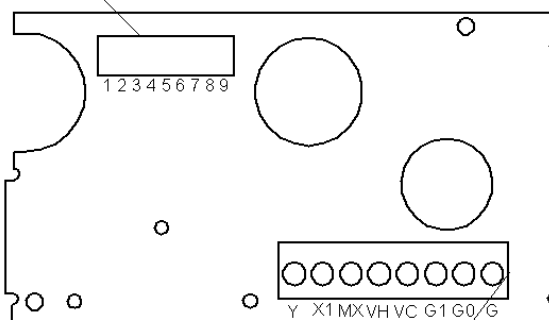


FIG. 1

TERMINAL BOARD

## WIRING DIAGRAMS

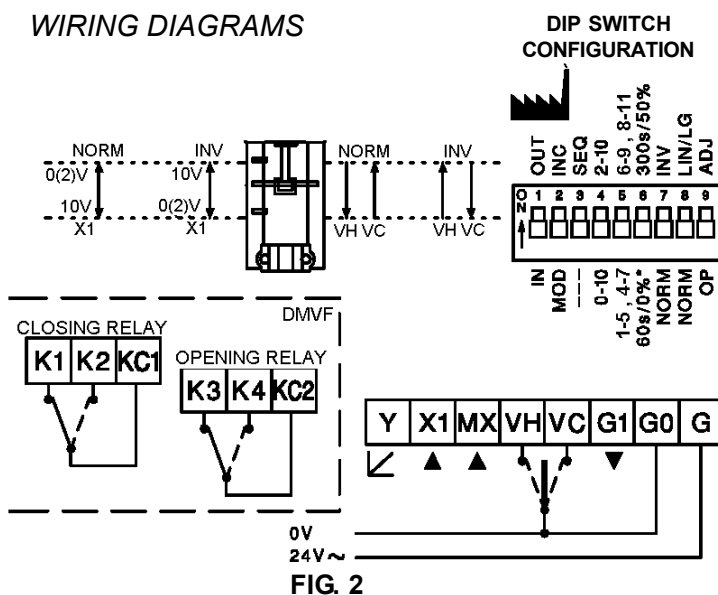


FIG. 2

## MOUNTING POSITIONS

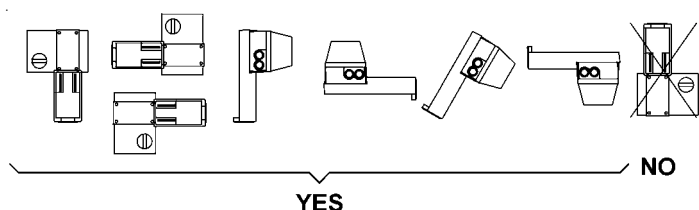
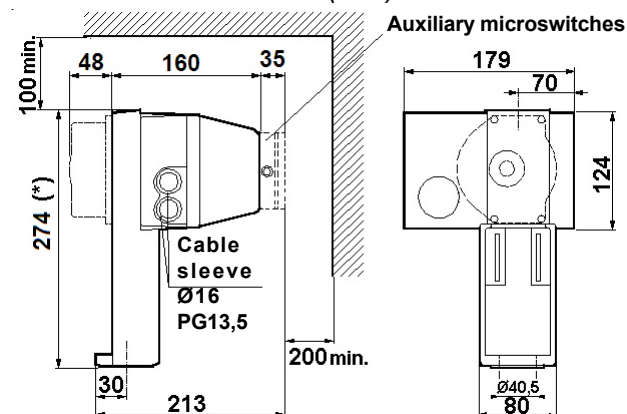


FIG. 3

## OVERALL DIMENSIONS (mm)



(\*)=dimension with MVLHT spacer: 376 mm