

MODEL	TIMING s.	POWER SUPPLY V~	CONTROL
MVB26	60	230	floating
MVB46	60	24	floating
MVB22	37	230	floating
MVB28	370	230	floating
MVB36	60	24	pot. (165 Ω)
MVB56	60	24	prop (V- or mA)
MVB52	37	24	prop (V- or mA)

Timing refers to 16,5 mm standard stroke. For different strokes use the following formula:

$$\text{Stroke time (seconds)} = \text{Timing} \times \frac{\text{Stroke (mm)}}{16.5}$$

## APPLICATION AND USE

The actuators are equipped with a reversing synchronous motor and an electronic board available in three different models respectively for:

- floating control
- proportional control (potentiometric)
- proportional control (voltage or current)

Due to their versatility MVB actuators can be mounted both on new "Controlli" globe valves up to DN 2" as well as on different manufacturer valves, having stroke from 10.8 to 20 mm.

Valve body	Nominal diameter	Model
PN 16	DN 1/2 "...2"	VSB (2 way)
PN 16	DN 1/2 "...2"	VMB (3 way)

## OPERATION

An additional feature is provided on voltage/current proportional models: an output signal (0...10 V-, 10...0 V- and 0...200 mA) indicating the valve stem position. An internal jumper provides the rotation sense reversal.

Moreover, there is a device which switches off the motor supply when the actuator must carry out an excessive torque/force, for a long time working life of the equipment. All models are equipped with a manual override device and a microswitch module (MVBD) is available on request.

It is assembled to the manual control and it is possible to connect it to a supervisor or an outside controller by previous manual or automatic setting of the controller.

## MANUFACTURING CHARACTERISTICS

The actuator has been manufactured using thermoplastic materials: in particular new technopolymers have been utilized for the most stressed parts, allowing a reduction in weight of the apparatus while granting the necessary mechanical features.

The printed circuit board is placed in an easy access position together with the optional auxiliary microswitch, fully adjustable on the whole stroke.



## TECHNICAL CHARACTERISTICS

Power supply	24 or 230 V~ ±10%
Power consumption	5 VA
Frequency	50/60 Hz
Max stroke	21 mm (mechanical stroke end)
Timing	see available models
Close off force	450 N
Temperature limits	
- working	5T50 °C
- storage	25T65 °C
Max fluid temperature	120 °C ( <b>140 °C with MVBHT</b> )
Allowed room moisture	80% R.H.
Class protection	II (CEI 107-10)
Terminal board	screw-type for 1.5 to 2.5 mm <sup>2</sup> wires
N.2 conduit opening	with a rubber membrane break through hole (Ø=16 mm) replaceable by PG 11 compression glands
Protection degree	IP 50 for environments with normal pollution according to IEC730-1(93)/6.5.3
Weight	0.8 Kg.
<b>Control signal</b>	
Floating	2 SPST connections
Proportional (pot.)	165 Ohm
Proportional control	
voltage (max 0.1 mA)	8...11 V/4...7 V/6...9 V/0...10 V/2...10V/1...5 V
current (250 Ohm)	4...20 mA
<b>Output signal</b> (remote position indicator)	
voltage	0...10 / 10...0 V- (2 mA max)
current	0...200 mA
Product conforms to EMC 89/336 directive with reference to:	
EN50081-1 for emission	EN50082-1 for immunity

## POSSIBLE COMBINATIONS AND CONNECTIONS

The actuators can be connected to "Controlli" DIGITROLL 2000, 4000, 5000, 7000 and series 200, 300, 400 and 500 controllers. They can also be connected to any other controller having a driving signal as showed in the "TECHNICAL CHARACTERISTICS" paragraph.

## ACCESSORIES

MODEL	DESCRIPTION
244	Stem heater (24 V ~ - 18VA). Avoid mounting on V_B.F Ø 15 valves
D36	Auxiliary microswitch with adjustable cam (SPDT 10 (3) A-250 V ~). Disconnection 1B according to IEC730-1 (93) 6.4.3.2
AG22	Linkage for V2/V3-500 valves
AG23	Linkage for Cazzaniga valves
AG40	Linkage for VB7000 valves
MVBHT	Spacer to reduce the direct exposure of the actuator with high temperature fluids
MVBPA2	For MVB46 - P.c. board with 1 KΩ aux. potentiometer. The mounted potentiometer presents 0 ohm between W3 and W2 and 1000 ohm between W2 and W1, when the actuator is in upper position (see Fig. 1), and a 50 ohm variation for every mm of stroke increasing between W2 and W3 and decreasing between W2 and W1. It is available only on request when ordering an actuator and factory-mounted.

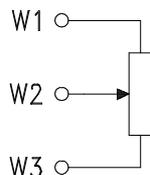
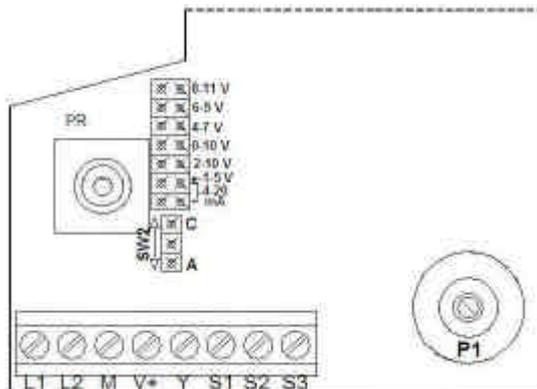


FIG. 1

N4117

MVBD	SPDT 5 (0,5) A - 250 V micro switch started by manual control knob Only factory-mounted.
MVBC	Rainproof protection. The actuator must be always mounted vertically.

## ELECTRONIC BOARD



N3133

FIG. 2

## INSTALLATION

The actuator can be mounted in any position but the vertical one is preferable; it is necessary to leave at least 10 cm. above the actuator for maintenance.

The electric connections must be performed by removing the cover placed on the knob opposite side according to the existing standards.

After completing the connections, supply the motor and make sure the electric operation is regular and that the valve completes the whole stroke.

### Actuator with electronic board for proportional voltage and current input

The actuators are supplied with a 0...10 V- input signal and with jumper SW2 (rotation direction) on C. In order to select a different signal range, it is necessary to move the SW1 jumper from 0...10 set position to the desired one (see Fig. 2). To select the 4...20 mA field, it is necessary to insert two jumpers, also using the one preset in open position.

**The actuator rotation direction can be reversed by moving the SW2 jumper from C to A position (see Fig. 2).**

### Actuators with electronic board for proportional potentiometric input

To change the rotation direction, reverse the connections between M and V+ terminals.

### Mounting on other manufacturer valve bodies

Thanks to its versatility, the actuator can be mounted on different valves having stroke from 10.8 to 20 mm, with M8x1.25 threaded stem and 71 mm distance between the stem top and the actuator linkage support plane.

The actuator linkage to the valve body has a Ø=30,5 mm hole.

The model with a floating control signal is self-adjusting to different strokes ( the standard one is 16.5 mm).

However, if the stroke is different from 16,5, it is necessary to carry out the calibration as follows:

- Remove the cover on the knob opposite side.
- For MVB52/56 only, make sure that jumper SW2 is in A position (Fig. 1).
- Supply the actuator between L1 and L2 terminals with Y terminal disconnected.
- Wait the actuator to reach the lower stroke end.
- Connect the positive of the voltmeter to S2 terminal and the negative to M.
- Rotate P1 trimmer until the voltmeter indicates 0 V.

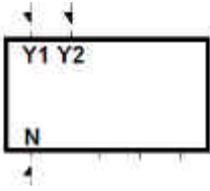
The actuator can be installed on valves with different coupling assemblies using dedicated linkages, available on request.

**ELECTRICAL CONNECTIONS**

**TERMINAL BOARD**

- MVB2. (230 V~)
- MVB46 (24 V~)

**LEGEND**



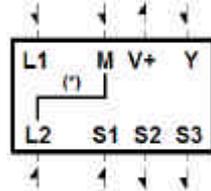
Y1 Joint up  
N Common  
Y2 Joint down

Control (1)

**TERMINAL BOARD**

- MVB5.
- MVB36

**LEGEND**



L1 Phase  
L2=M=Common

M Common  
V+ 15 V- output  
Y Control signal (3)

(2)

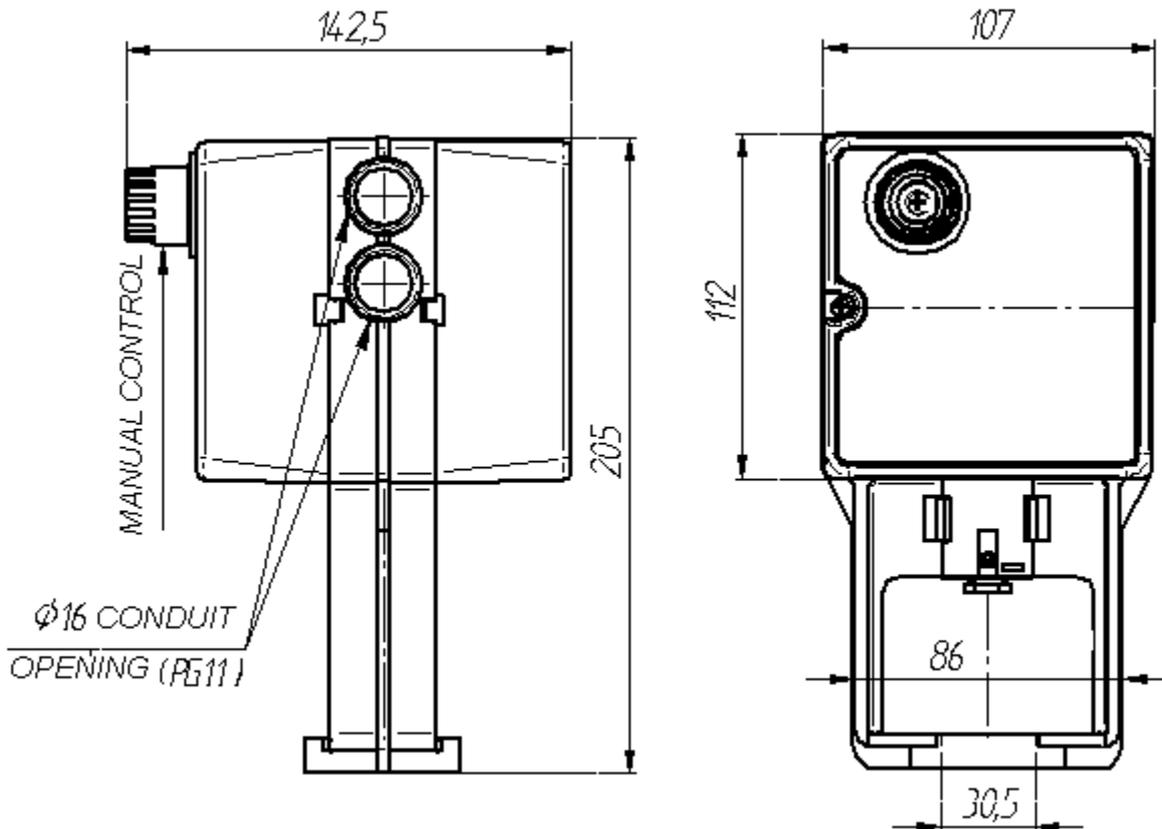
(\*) Internally connected  
N3009

S3 10...0V- or 200...0 μA  
S2 0...10V- or 0...200 μA  
S1 Analogue common

(4)

- (1) With voltage between N (Common) and Y1 (phase from controller contact): the actuator joint moves upwards. With voltage between N and Y2 the joint moves downwards. Without voltage the actuator remains in the position gained.
- (2) For MVB36: connect the controller potentiometer cursor (165 Ω) to Y terminal, one end to M and the other to V+ terminal.
- (3) When SW2 jumper is in C position (See Fig. 2) and signal increases, the joint moves downwards.
- (4) Connect the indicator with input current to S3 (or S2) and S1 terminals. Connect the indicator with input voltage to S3 (or S2) and M terminals. The extreme voltage (current) value corresponds to joint up.

**OVERALL DIMENSIONS (mm)**



N4096

The performances stated on this sheet can be modified without any prior due to design improvements