

Model	Description	Thrust
MVF54	Actuator for the control of 2-way and 3-way	400N
MVF58	plug valves in hot water service heating	800N
MVF515	and air handling systems	1500N

OPERATION

MVF actuators are controlled by an increase/decrease signal or by a modulating 0–10 V control signal. Modulating control allows a faster actuator positioning.

The brushless motor of the actuator turns a screw via a gear wheel. When the motor receives a control signal from a controller, the screw gets a linear movement, which moves the valve stem.

The electronic circuitry of the actuator ensures that the running time is the same, regardless of the valve stroke. The working range of the actuator is adjusted automatically depending on the valve stroke, while the electronic circuitry of the actuator carries out the adjustment of the valve end positions.

TECHNICAL CHARACTERISTICS

Power supply	24 Vac +25%÷-20%
	24 Vdc +/-20%
Power consumption	8VA / 4W (MVF54)*
	14VA / 7W (MVF58)*
	21VA / 11W (MVF515)*
Transformer sizing	30 VA (MVF54)
	50 VA (MVF58-515)
Stroke time with proportional control:	
MVF54	60 s
MVF58/MVF515:	
9-24 mm stroke	15 s
25-32 mm stroke	20 s
33-52 mm stroke	30 s
Proportional stroke time:	
(increase/decrease)	300 s / 60 s
Stroke	9-32 mm (MVF54)
	9-52 mm (MVF58-515)
Factory set stroke	20 mm
Analogue input:	
Voltage	0-10 V
Impedance	min. 100 kOhm
VH-VC digital inputs:	
Voltage across open input	24 Vac
Current through closed input	5 mA
Pulse time	min. 20 ms
Output G1	Voltage
	Load
	16 V DC ±0,3 V
	25 mA, protection against short-circuit
Output Y	Voltage
	Load
	2-10 V (0-100%)
	2 mA
Ambient temperature	
Operation/storage	-10T 50 °C
Ambient humidity	90% R.H .max.

(*) Minimum required Watt value when powered by DC voltage:

MVF54	20W
MVF58	20W
MVF515	30W



Protection degree	IP 54
Sound power level (MVF54)	32 dBA max
(MVF58-515)	40 dBA max
Material	
Housing	aluminium
Cover	ABS/PC plastic
Colour	aluminium/blue
Weight	1.8 kg

Product conforms, for CE marking, to the following directive: EMC 2004/108/CE according to the EN 61326-1 standard.

MANUAL OPERATION

There is a manual operation handle on the actuator (see fig. 1). When it is lowered, the motor stops. Then, the actuator can be operated manually if the handle is turned.

The actuator is supplied with the manual operation lowered.

POSITION FEEDBACK

MVF actuators are equipped with a 2-10 V DC position feedback signal, where 2 V always corresponds to the closed position and 10 V to the open position.

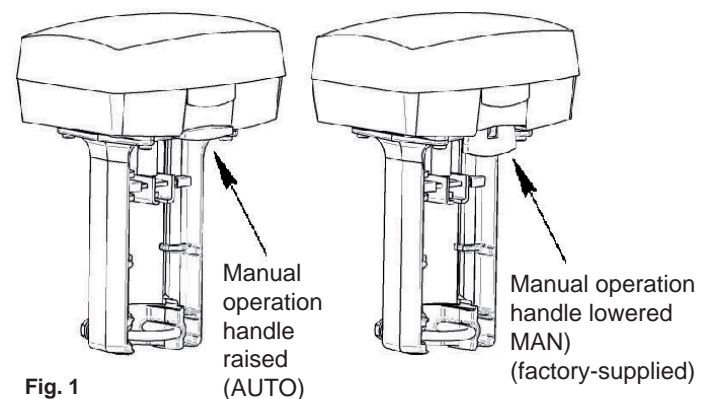


Fig. 1

END SWITCHES

When actuators are controlled in sequence, it is possible to use the end switches with preset positions. They switch on or off when the valve is , respectively, fully open or fully closed. For further details about the switches see the MVF actuators mounting instructions (DIM064E).

MOUNTING

The actuator can be mounted horizontally, vertically and in any position in between, but **not** upside down, see figure 2.

To mount the actuator on a valve, slide the actuator onto the valve neck, thus making the square nut on the valve spindle fit into the groove on the cross bar. Then slide the brace into the groove on the valve neck and secure the nuts.

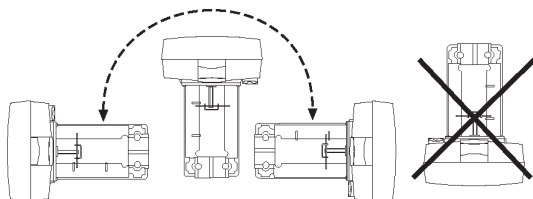
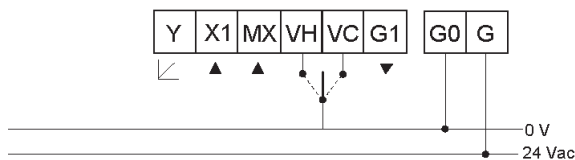


Fig. 2

ACCESSORIES

AG52	Linkage kit for V.B threaded valves
DMVF	Microswitches
244	Stem heater (24Vac-18W) for valves having AG52
248	Stem heater 24 V~, 50 W (for applications with fluid temperature <-10 °C)
MVLFS5	Accessory for 4~20 mA control signal.

TERMINAL BOARD



CONNECTIONS

NOTE:

In 3-wire installations, where the control signal reference is connected to G0, the actuator motor current will cause varying voltage loss in the cable and, therefore, in the reference level. MVF, which is equipped with a highly sensitive control signal input, will detect the varying signal and follow it, making difficult for the actuator to find a stable position.

This variation and therefore the 3 wires connection can be accepted in simplified installations on the following conditions: the cables between the controller and actuator are shorter than 100 m, the cross-sectional area is larger than 1.5 mm² (AWG 16) and the cables must be connected to one actuator only.

Cable length

The cables to G, G0 and G1 should be max. 100 m (328 ft.) and have a cross-sectional area of min. 1.5 mm² (AWG 16).

Other cables should be max. 200 m and have a cross-sectional area of min. 0.5 mm² (AWG 20).

The actuator is provided for three M20 conduits opening application.

ACTUATOR INSTALLATION

Before installing it is necessary to remove the antistatic protection placed under the cover.

The switches on the circuit board should be set before the actuator is installed. There are no other switches or potentiometers to be set or adjusted.

To make an end position adjustment, it is sufficient to switch the "OP/ADJ" switch into its ADJ position, when the supply voltage has been turned on, and then back to its OP position.

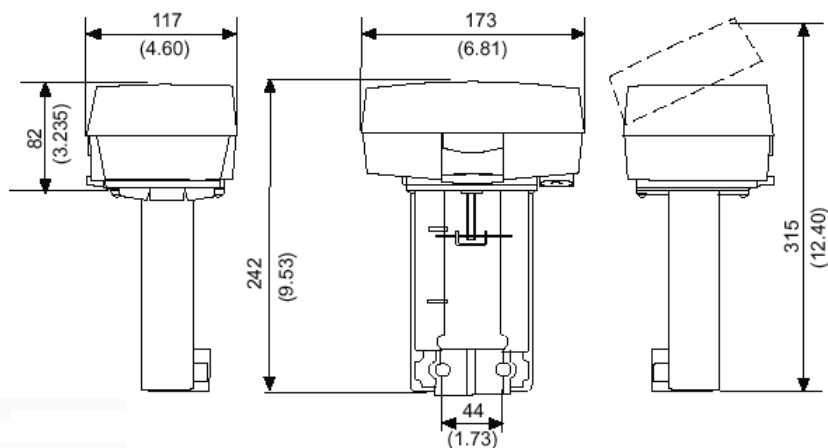
When an end position adjustment is made, MVF closes the valve and opens it fully.

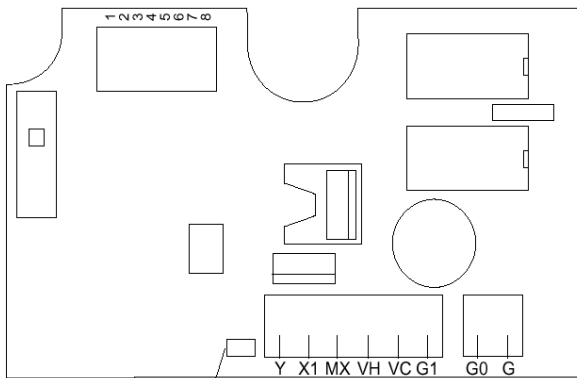
The adjustment is complete when the actuator closes the valve again; the electronic circuitry then adjusts the valve stroke and running time. The set values are stored in the EEPROM of the actuator so that they remain after a loss of voltage. When the end position adjustment is complete, the actuator starts to control the valve according to the control signal.

MAINTENANCE

The actuator is maintenance-free.

OVERALL DIMENSIONS (mm)

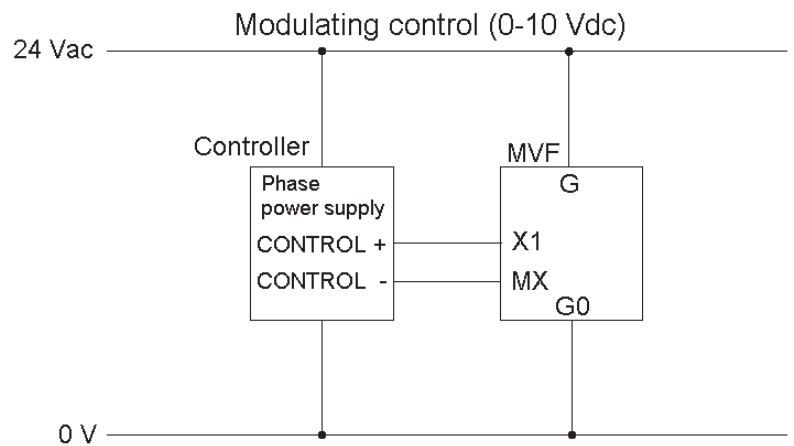
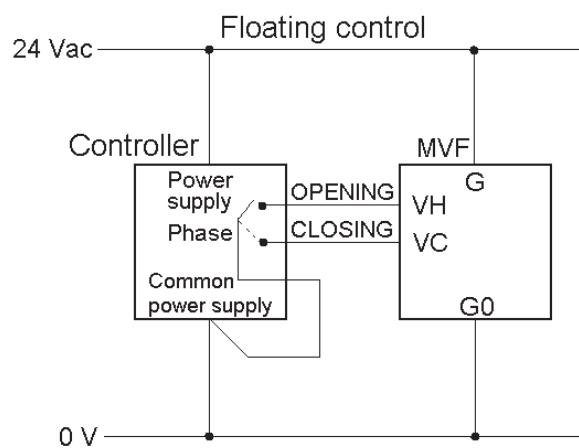




TERMINAL BOARD

TERMINAL BOARD	OPERATION	DESCRIPTION
G G0	24 Vac 24 Vac rtn	Power supply
X1 MX	Mod. input (+) Mod. input (-)	Control signal Modulating (0÷10 Vdc)
VH VC	Opening input Closing input	Control signal Short circuited on G0
G1 (G0)	16 Vcc Common	Aux. 25 mA Power supply
Y (G0)	Signal 2÷10 Vcc Common	Status indication 0÷100% position

WIRING DIAGRAMS



DIFFERENTIAL PRESSURES WITH CONTROLLI VALVES

In order to avoid wear between plug and seat, we recommend not to overcome the differential pressure as shown in the following table:

2 bar	8 bar	12 bar
VSB - VSBF	2FGA	2FAA
VSBPM - VSBPMF	2FSA	2FAAB
VMB - VMBF	2FSAB	3FAA
VMBPM - VMBPMF	2FGAB	
3FGB - 2FGB - 2FGBB	3FSA	

Information concerning the max differential pressure are shown on the following tables.

DELTA P MAX (BAR) WITH CONTROLLI VALVES

Two-way with MVF54 actuator

	15 (1/2")	20 (3/4")	25 (1")	32 (1 1/4")	40 (1 1/2")	50 (2")
VSB VSBF	11	9,5	6	3,5	2,5	1,8
VSBPM VSBPMF	9,5	7,5	5	3	2,2	1,5

Two-way with MVF58 actuator

	15R	15 (1/2")	20 (3/4")	25R	25I	25 (1")	32 (1 1/4")	40R	40 (1 1/2")	50 (2")	65	80	100	125	150	200
2FGA	16	16	16			10	10		6,8	4,3	1,7	1,1	0,7			
2FAA	30	20	11,5			7,5	7,5		4,9	3	1,2	0,8				
2FGB				12	12	12		6,6	6,6	4,1	2,4	1,5	0,9	0,6	0,35	
2FSA				12	12	12	8		5,8	3,7	2					
VSB VSBF		16	16			15,5	9,4		6,5	4,9						
2FSA.B				25	25	25	25		25	25	25	20				
2FGB.B											16	14,5	10	7,5	5,5	
2FAA.B						30	30		30	30	25	20	12,5	9	2,9	
2FGA.B																1,8

Three-way with MVF54 actuator

	15 (1/2")	20 (3/4")	25 (1")	32 (1 1/4")	40 (1 1/2")	50 (2")
VMB VMBF	11	9,5	6	3,5	2,5	1,8
VMBPM VMBPMF	9,5	7,5	5	3	2,2	1,5

Three-way with MVF58 actuator

	15 (1/2")	20 (3/4")	25R	25I	25 (1")	32 (1 1/4")	40R	40 (1 1/2")	50 (2")	65	80	100	125	150
3FGB			9	9	9		5,2	5,2	3,4	2	1,2	0,8	0,4	0,3
3FSA			14	7	7	4,5		3,2	2	1,1	1			
3FSAS			5	5	5	5		4,3	2,7	1,5	0,9			
VMB VMBF	16	16			11,5	7		5,2	4					
3FAA			8	8	8	5		3,2	2,2	1,2	0,8	0,4	0,3	

Two-way with MVF515 actuator

	15R	15 (1/2")	20 (3/4")	25R	25I	25 (1")	32 (1 1/4")	40R	40 (1 1/2")	50 (2")	65	80	100	125	150	200
2FGA	16	16	16			16	16		13,5	9	3,5	2	1,5			
2FAA	30	30	29			18	18		12	8	3	2				
2FGB				16	16	16		12	12	7,5	4,5	2,5	1,8	1,1	0,8	
2FSA				25	22	22	14,5		10,5	6,5	4					
VSB VSBF		16	16													
2FSA.B				25	25	25	25		25	25	25	25				
2FGB.B											16	16	16	16	13	
2FAA.B						30	30		30	30	30	30	28	22	17,5	
2FGA.B																11,6

Three-way with MVF515 actuator

	15 (1/2")	20 (3/4")	25R	25I	25 (1")	32 (1 1/4")	40R	40 (1 1/2")	50 (2")	65	80	100	125	150
3FGB			16	16	16		10	10	6,5	3,8	2,5	1,6	1	0,7
3FSA			25	17	17	11,5		8	5	3	2,2			
3FSAS			5	5	5	5		5	5	3,5	2,2			
VMB VMBF	16	16			16	14		10	7,5					
3FAA			19	19	19	12		7,5	5,5	3,2	2	1,3	0,8	

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