

MODELS		SIZE	Kvs	STROKE
Two-way	Three-way	(inches)	m ³ /h	mm
VSB1	VMB1	1/2	1,6	16,5
VSB11	VMB11	1/2	1	16,5
VSB15	VMB15	1/2	2,5	16,5
VSB2	VMB2	1/2	4	16,5
VSB3	VMB3	3/4	6,3	16,5
VSB4	VMB4	1	8	16,5
VSB5	VMB5	1 1/4	16	16,5
VSB6	VMB6	1 1/2	22	16,5
VSB8	VMB8	2	30	16,5
VSB8A	VMB8A	2	40	16,5



100 kPa = 1 bar = 10 m H₂O

APPLICATION AND USE

Two-way VSB and three-way VMB valves can be used either for control or fluid detection in air-conditioning, thermoventilation and heating plants, both environmental and industrial, and in machines for product thermal process.

Three-way valves should be used only as mixing valves; angle way should never be used for control purposes.

ACTUATORS

VSB and VMB are actuated by CONTROLLI MVB, MVL, MVLA/C, SH, ST electrical and by PL600 and PG300 pneumatic actuators.

VALVES		ACTUATORS					
Two way	Three way	MVB	MVLA/C	MVL	SH-ST	PL600	
		Δp max (Bar)					
		+AG31	+AG31	+AG21	+AG21		
		PG330	PG320				
		PG340	PG320				
		+AG34	+AG34				
VSB1	VMB1	2(10)	2(10)	2(10)	2(10)	2(10)	
VSB11	VMB11	2(10)	2(10)	2(10)	2(10)	2(10)	
VSB15	VMB15	2(10)	2(10)	2(10)	2(10)	2(10)	
VSB2	VMB2	2(10)	2(10)	2(10)	2(10)	2(10)	
VSB3	VMB3	2(10)	2(10)	2(10)	2(10)	2(10)	
VSB4	VMB4	2(6,5)	2(10)	2(10)	2(10)	2(8,4)	
VSB5	VMB5	2(4)	2(6)	2(10)	2(10)	2(5)	
VSB6	VMB6	2(2,5)	2(4)	2(8)	2(8)	2(3,5)	
VSB8	VMB8	2(2)	2(3)	2(6)	2(6)	2(2,5)	
VSB8A	VMB8A	2(2)	2(3)	2(6)	2(6)	2(2,5)	

ΔP max = max differential pressure value ensured by the actuator for regular operation

Values in brackets represent the max. differential pressure granted by the actuator for fully closed valve only.

For the assembly on actuators other than MVB, use the following accessories:

- AG21 for SH-ST-PL600 actuators
- AG31 for MVL-MVLA/C actuators
- AG34 for PG 300 actuators

Note: in case of lack of voltage, with MVLA direct way is closed, with MVLC angle way is closed.

OPERATION

When stem is up, the direct way is closed, with stem down direct way is open.

MANUFACTURING CHARACTERISTICS

The valve body is made of G25 cast iron (only DN1/2" valves have brass body and fitting).

The plug is in brass with Contoured-type profile on direct way and V-port on angle way.

The stem is in CrNi steel with threaded M8 end and female threaded connections. The stem packing is constituted by a Viton O-ring with graphited teflon scraper rings.

NOTE: The valves are also available in the stainless steel plug version (profile and Kvs are the same of the brass plug). For further sales information, please contact our Sales Support

TECHNICAL CHARACTERISTICS

Body rating	1600 kPa max (16 bar)
Control characteristics	
VSB-VMB direct way	equal-percentage
VMB angle way	linear
Leakage	
VSB-VMB direct way	0...0,03% of Kvs
VMB angle way	0...2% of Kvs
Connections	female threaded
Stroke	16,5 mm (max 18,5)
Allowed fluids	
- water	
max. temperature	150 °C
min. temperature	-10 °C
	(in case of ice on stem and gasket, use the stem-heater, see actuators data sheets; is not applicable to V.B 1/2" valves)
glycol added	max 50%
- saturated steam	
max. temperature	150 °C
max. pressure	2,5 bar (absolute value)
Weight	See overall dimensions

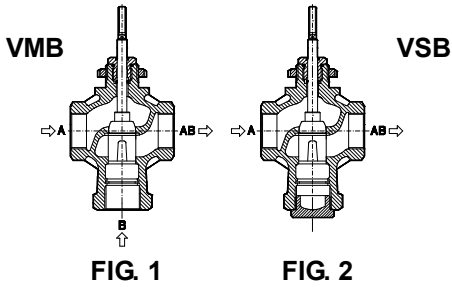
NOTE: If V.B valves are assembled with MVB+spacer (MVBHT) the max. operating temperature is 140 °C, while without spacer is 120 °C. For other actuators the max. operating temperature is 150 °C.

INSTALLATION

Before valves are mounted, make sure that pipes are clean, free from welding slags, that are perfectly lined up with valve body and not subjected to vibrations.

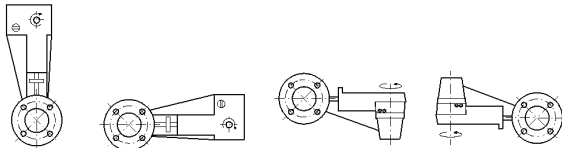
The valve can be mounted in any position except upside-down (for MVL - MVLA/C actuators see Fig. 3).

While assembling, respect the flow directions indicated by the letters located on the valve body (see Fig. 1 and 2) and the application schemes.



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MOUNTING POSITIONS



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YES

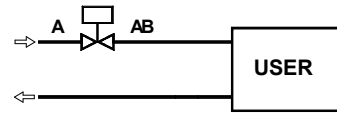
NO

FIG. 3

APPLICATION SCHEMES

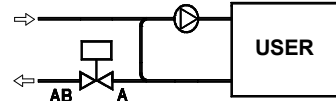
VSB VALVES

a) Variable flow control when used



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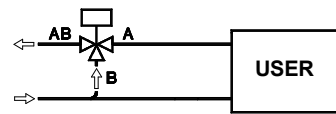
b) Constant flow when used in injection circuits



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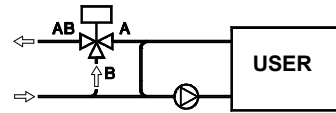
VMB VALVES

c) Variable flow mixing when used



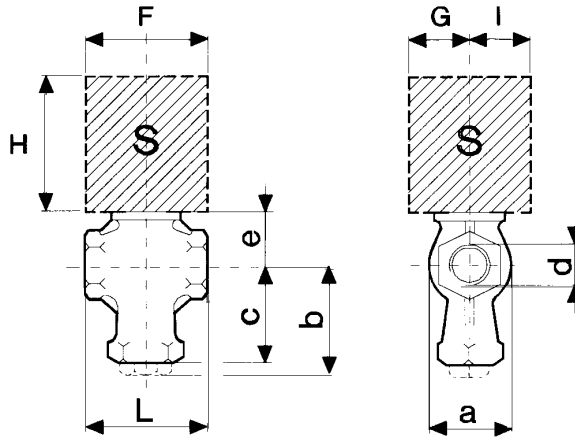
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d) Constant flow mixing when used in injection or tapping circuits



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OVERALL DIMENSIONS (mm.)



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S = Minimum required dimensions for actuator mounting

VALVE DIMENSIONS (mm)							WEIGHT (Kg.)
DN"	d	VSB-VMB			VSB	VMB	
		L	a	e	b	c	
1/2	G 1/2	80	54	17	70	70	1,1
3/4	G 3/4	85	54	34,5	79	67,5	1,1
1	G 1	95	62	39,5	83	72,5	1,5
1 1/4	G 1 1/4	108	70	43,5	90	78,5	2
1 1/2	G 1 1/2	120	81	51	98	85,5	2,7
2 (V.B8A)	G 2	194	97	54,5	111	97	5
2 (V.B8)	G 2	142	97	54,5	111	97	4

ACTUATOR DIMENSIONS (mm)				
	H	F	G	I
MVB	300	150	190	160
MVL	371	220	30	148
MVLA/C	371	220	58	148
SH	420	160	70	250
ST	420	160	70	210
PL600	470	300	200	200
PG300	142	Ø 190	95	95

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

MOUNTING INSTRUCTIONS

INSTALLATION

Hydraulic connections

Flow directions must be as those shown on the diagram below.

Two-way valve

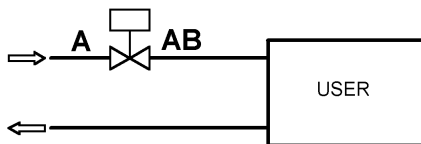


Fig. 1 Variable flow control to the user.

Two-way valves should be installed on return leg (excluding steam plant), since the lower fluid temperature allows longer life to the gaskets.

Three-way valve

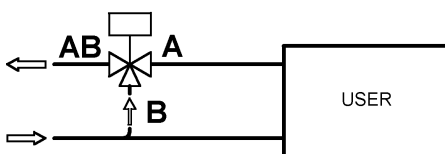


Fig. 2 Variable flow mixing to the user.

Three-way valves **must be used as mixers**, two inlets A and B and one outlet AB, and **not as diverting valves** with one inlet AB and two outlets A and B.

Only in open circuit plants the use of diverting valves can be necessary. In such cases our mixer valves may be used, taking into account that the maximum recommended differential pressure must be reduced to one third of the specified value (see relevant data sheet).

ASSEMBLING

Before installing the valve, make sure that pipework is clean and free from weld slag in order not to damage valve internal components.

Pipework must be perfectly aligned with valve body and not be subjected to vibrations.

Valve can be mounted in any position within the upper 180° arc providing that actuator shaft is always in horizontal position.

When adjusting actuator position, **do not** unscrew travel adjustment nut.

Actuators must not be installed in explosive environments or wherever room temperature exceeds 50°C, and must not be subject to water jets or dripping water.

Sufficient space must be left above the actuator, minimum 10 - 15 cm, to allow the actuator itself to be removed from valve body in case of maintenance.

START-UP

Before start-up, check:

– FLOW DIRECTION

This must correspond to the indication written both on valve body and Fig. 1 and 2.

– VALVE OPENING AND CLOSING ACTION

This must comply with plant specification, ensuring that:

Two-way valve

- Stem down = fluid flows
- Stem up = fluid intercepted

Three-way valve

- Stem down = fluid flows through A-AB
B-AB intercepted
- Stem up = A-AB intercepted
fluid flows through B-AB

– OPERATING CONDITIONS

Temperature, nominal pressure and differential pressure at the valve must be within the values specified for each valve model on the relevant data sheets.

– PIPELINE FLUSHING

A poor flow action through the valves is, in almost every case, caused by weld slag or foreign bodies trapped between the valve seat and plug, often damaging them. To prevent such inconveniences, it is advisable to use filters to be installed upstream of the valve.

Moreover, the pipelines must be thoroughly washed by positioning the valve stem at half stroke; this operation must be performed before start-up and after a prolonged shutdown of the system.

COMMISSIONING

Check stuffing box seal

Valves are equipped with a stuffing box sealed by a double O-ring and, therefore, they do not require any particular maintenance.

In case of irregular leakage, O-Rings and stem packing have to be replaced.