



# AUTOMATIC MULTI-CONTROL VALVE FOR VACUUM STEAM

## MODEL MC-VCOSR

### CONTROLLER OPERATED AND MOTORIZED VALVE FOR VACUUM STEAM

#### Benefits

The MC-VCOSR multi control valve consists of the VCOSR pressure reducing valve and a motorized actuator. It is used to automatically control the supply of vacuum steam or steam at extremely low pressures, or the temperature\* of processes heated by vacuum steam.

1. Uniquely designed piston delivers stable secondary pressure, maintaining high accuracy during severe conditions of varying primary pressure and fluctuating flow rates.
2. Rapid response actuator with brushless DC servomotor allows precision control of the valve position for maintaining extremely accurate steam pressure even during adverse process conditions.
3. Allows highly responsive, high-speed process control when combined with the TLV SC-F70 controller.
4. Internal strainer for pilot valve extends maintenance-free service.
5. Designed with PTFE gaskets for inspection ease.

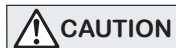
\* MC-VCOSR cannot be used for temperature control applications.



#### Specifications

Model		MC-VCOSR
Control Valve	Connection	Flanged
	Size (in)	1, 1 1/2, 2
	Body Material	Cast Iron
	Max. Operating Pressure (psig) PMO	30
	Max. Operating Temperature (°F) TMO	302
	Max. Allowable Pressure (psig) PMA	250
	Max. Allowable Temperature (°F) TMA	302
	Primary Pressure Range (psig)	15 to 30
	Adjustable Pressure Range (psig) (all conditions must be met)	– 12 to 12
	Minimum Adjustable Flow Rate	10% of Rated Flow Rate
Actuator	Accuracy of Regulation (psi) AOR	±1 (under steady flow conditions)
	Seat Leakage Rating	Less than 0.1% of Rated Flow Rate
	Fluid	Steam
	Input	4 - 20 mA DC (input impedance 250 Ω)
	Line Voltage	Free between 100 - 240 V AC (50/60 Hz)
	Power Consumption	max. 75 VA
	Insulation	Between power terminal and ground terminal: 500 V DC min. 100 MΩ
	Withstand Voltage	Between power terminal and ground terminal: 1800 V AC for 1 second
	Ambient Temperature	32 - 122 °F
	Ambient Humidity	10 - 90 % RH (without dew)
Others	Vibration Resistance	max. 0.5 G
	Water Resistance	Rain-resistant (equivalent to IP 54)
	Drive System	Positional control by DC brushless motor
	Thermal Protection	Built-in overcurrent protection circuit
	Open/Close Time	Fully closed → fully open: approximately 15 seconds
	Emergency Action	When operation signal input is cut off: fully closed When input power is cutoff: held at position just before power cutoff
	Manual Operation	Possible with power OFF

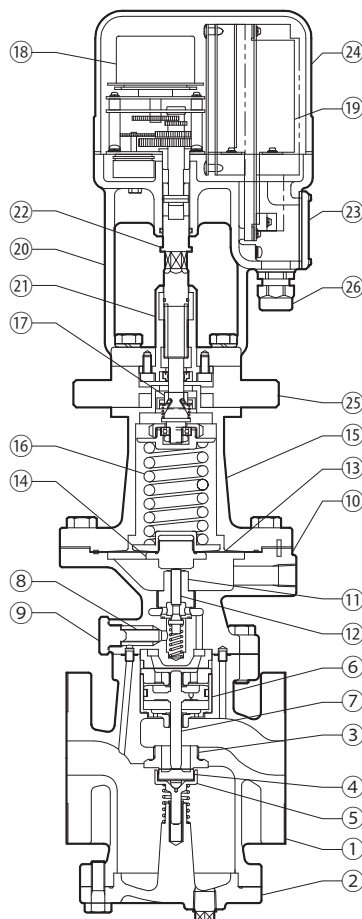
MC-VCOSR is a non-standard product, consult TLV for delivery time required



To avoid abnormal operation, accidents or serious injury, DO NOT use this product outside of the specification range. Local regulations may restrict the use of this product to below the conditions quoted.

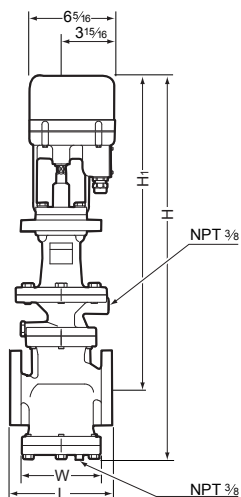
## Configuration

No.	Description	Material
①	Main Body	Cast Iron
②	Cover	Cast Iron
③	Main Valve Seat	Stainless Steel
④	Main Valve	Stainless Steel
⑤	Main Valve Holder	Stainless Steel
⑥	Cylinder	Stainless Steel
⑦	Piston	Stainless Steel
⑧	Pilot Screen	Stainless Steel
⑨	Pilot Screen Holder	Carbon Steel
⑩	Pilot Body	Bronze
⑪	Pilot Valve Seat	Stainless Steel
⑫	Pilot Valve Stem	Stainless Steel
⑬	Diaphragm	Stainless Steel
⑭	Diaphragm Support	Brass
⑮	Spring Housing	Cast Iron
⑯	Coil Spring	Stainless Steel
⑰	Connection Unit	Stainless Steel
⑱	Motor Unit	—
⑲	Drive Unit	—
⑳	Mounting Plate	Cast Iron
㉑	Adjustment Screw Guide	Stainless Steel
㉒	Adjustment Screw	Stainless Steel
㉓	Terminal Block Cover	Steel Plate
㉔	Motor Cover	Cast Aluminium
㉕	Insulation Plate	Non-Asbestos Cement
㉖	Cable Lock	Nylon



## Dimensions

### ● MC-VCOSR Flanged

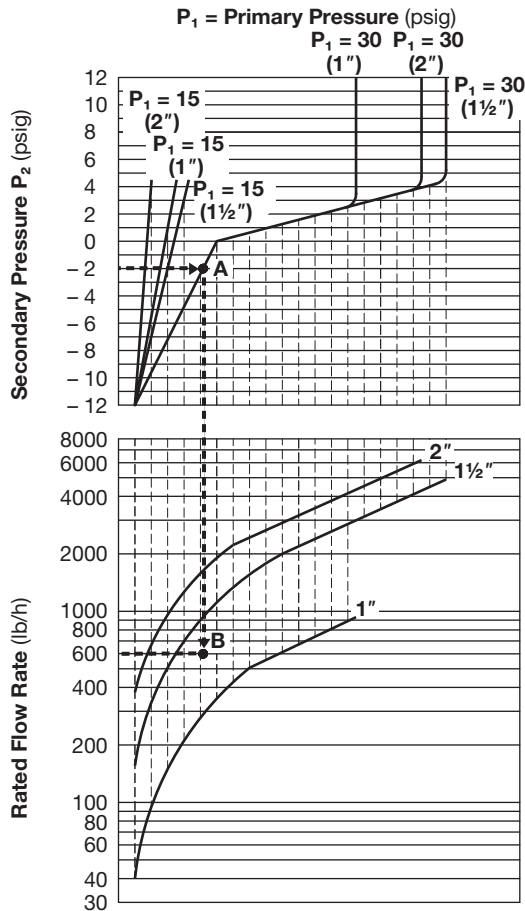


### MC-VCOSR Flanged (in)

Size	L	H	H <sub>1</sub>	W	Weight (lb)
	Connects to ASME Class				
	125FF				
1	6 <sup>15</sup> / <sub>16</sub>	26 <sup>3</sup> / <sub>8</sub>	21 <sup>5</sup> / <sub>8</sub>	4 <sup>15</sup> / <sub>16</sub>	51
1 ½	8 <sup>1</sup> / <sub>4</sub>	27 <sup>3</sup> / <sub>4</sub>	22 <sup>7</sup> / <sub>16</sub>	5 <sup>7</sup> / <sub>8</sub>	62
2	9 <sup>3</sup> / <sub>4</sub>	28 <sup>15</sup> / <sub>16</sub>	22 <sup>13</sup> / <sub>16</sub>	7 <sup>11</sup> / <sub>16</sub>	95

Other standards available, but length and weight may vary

## Sizing Chart



## Sizing Examples

### Sample Selection Conditions

Primary Pressure  $P_1$ : 30 psig

Set Pressure: -2 psig

Required steam quantity: 600 lb/h

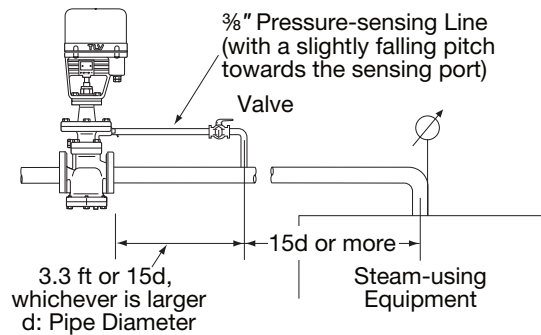
On the graph to the left, locate the intersecting point A of primary pressure and set pressure. Go down until 600 lb/h, point B, is reached on the Rated Flow Rate graph.

Since point B is located between 1" and 1½", the larger size, 1½", should be chosen.

### External secondary pressure-sensing line

Please refer to the piping example below.

Straight piping is necessary for before/after piping where the secondary pressure sensing line is connected.



Memo:



**DO NOT DISASSEMBLE OR REMOVE THIS PRODUCT WHILE IT IS UNDER PRESSURE.**  
Allow internal pressure of this product to equal atmospheric pressure and its surface to cool to room temperature before disassembling or removing. Failure to do so could cause burns or other injury. READ INSTRUCTION MANUAL CAREFULLY.

## TLV CORPORATION

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Manufacturer

ISO 9001/ISO 14001

**TLV® CO., LTD.**

Kakogawa, Japan

is approved by LRQA Ltd. to ISO 9001/14001

