

# PORTER

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## MODELS 001, 002 & 003A MASS FLOW CONTROL VALVES

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**MODEL 001**



**MODEL 002**

### **DESCRIPTION**

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The Porter Instrument Models 001, 002, and 003A Mass Flow Control Valves are normally closed, proportional solenoid control valves. When coupled with a Porter Instrument Mass Flowmeter, a closed-loop control system is achieved which permits separate component (flowmeter and control valve) configuration.

Models 001 and 002 consist of a valve body, valve sleeve, D.C. coil, internal valve assembly complete with an elastomeric valve seat and an orifice. Flow is regulated by varying the valve drive voltage to the D.C. coil, which creates a magnetic field lifting the internal valve assembly from the orifice to allow gas flow control.

While similar to Models 001 and 002, additionally the Model 003A Mass Flow Control Valve, designed for high flows, incorporates a pilot-operated valve design. The pilot valve, consisting of a spring-loaded diaphragm assembly and orifice system, controls the pressure differential across the diaphragm assembly, which lifts the main plunger off the orifice permitting gas flow.

## SPECIFICATIONS

	<b>Model 001</b>	<b>Model 002</b>	<b>Model 003A</b>
<b>Flow Capacity* (nitrogen equivalent)</b>	0-5 SCCM to 0-10 SLPM	0-10 SLPM to 0-100 SLPM	0-100 SLPM to 0-500 SLPM
<b>Ambient and Operating Temperature Range</b>	-10 to 70°C (+14 to 158°F)		
<b>Maximum Operating Pressure</b>	1000 PSIG	1000 PSIG	200 PSIG
<b>Mounting Orientation</b>	Attitude insensitive		
<b>Dimensions</b>	Refer to <b>DIMENSIONAL DATA</b> section		
<b>Weight (approximate)</b>	0.6 lbs.	2.1 lbs.	3.4 lbs.
<b>Materials of Construction:</b>			
<b>Body</b>	316 Stainless Steel		
<b>Orifice</b>	316 Stainless Steel		
<b>Valve Components (wetted)</b>	302 Stainless Steel, 316 Stainless Steel, 430F Stainless Steel and Sandvik® 1802	302 Stainless Steel, 316 Stainless Steel and Sandvik 1802	302 Stainless Steel, 316 Stainless Steel, 430F Stainless Steel and Sandvik 1802
<b>Elastomers (O-rings and valve seat)</b>	Buna N, EPDM, Kalrez®, Neoprene or Viton®	Buna N, EPDM, Kalrez, Neoprene or Viton	Buna N or Viton
<b>Process Connections</b>	316 Stainless Steel		
<b>Valve Coil Resistance</b>	80 (±4) Ohms	63 (±3) Ohms	80 (±4) Ohms
<b>Operating Voltage (nominal)</b>	4-11 Vdc (24 Vdc maximum)		
<b>Operating Current (nominal)</b>	150 mAdc (275 mAdc maximum)		

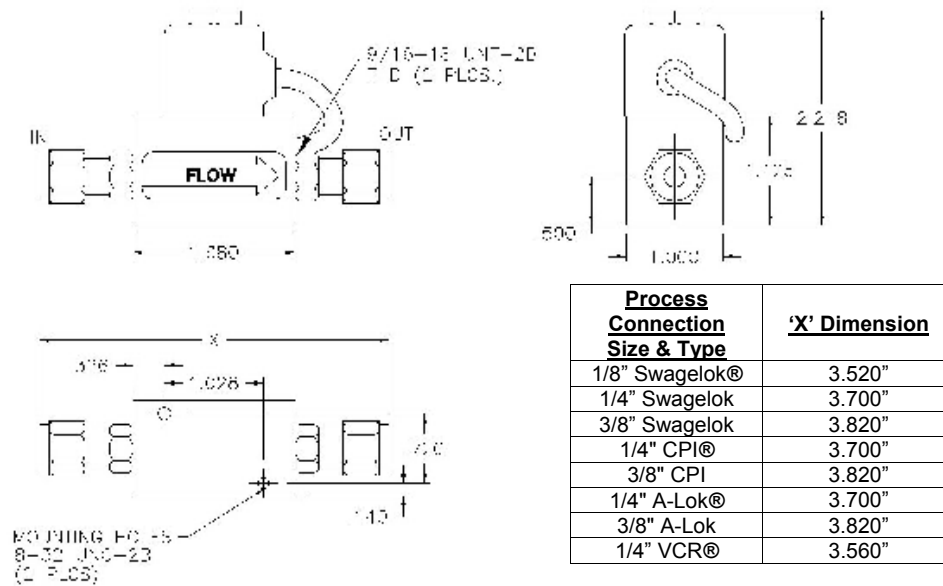
\* **Note:** The flow ranges listed are the minimum and maximum nitrogen (N<sub>2</sub>) flow ranges available. Intermediate flow ranges are available. For correct sizing when operating parameters are questionable, please consult the factory.

Sandvik® - AB Sandvik Materials Technology  
Kalrez®, Viton® - DuPont Dow Elastomers L.L.C.

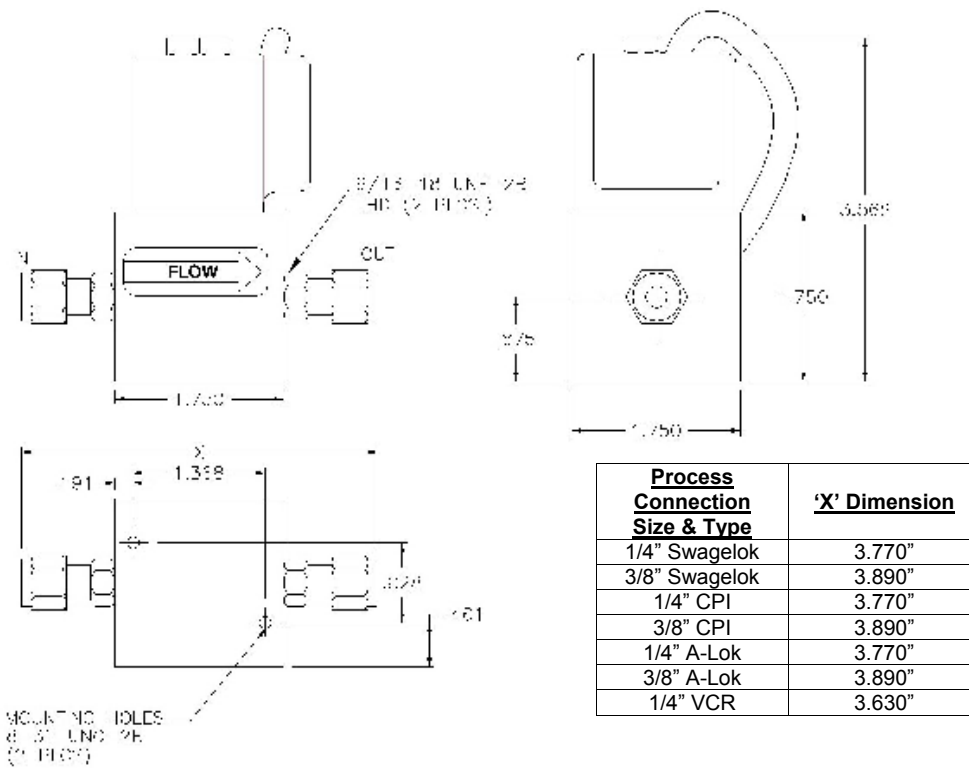
Specifications subject to change

## DIMENSIONAL DATA

### MODEL 001



### MODEL 002

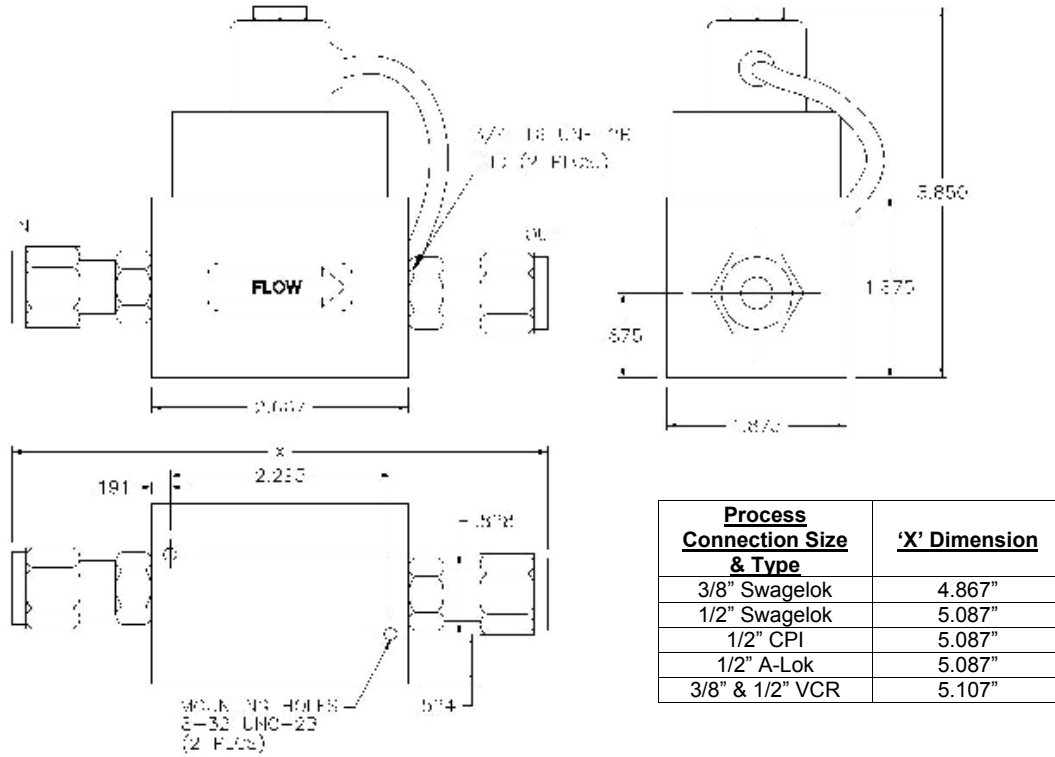


Swagelok®, VCR® - Swagelok Co.  
CPI®, A-Lok® - Parker Hannifin Corp.

Dimensions shown in inches

## DIMENSIONAL DATA (continued)

### MODEL 003A



Dimensions shown in inches

## AVAILABLE MASS FLOWMETER AND MASS FLOW CONTROLLER MODELS

*Note: The flow ranges listed are the minimum and maximum nitrogen (N<sub>2</sub>) flow ranges available for each given model. Intermediate flow ranges are available. For correct sizing when operating parameters are questionable, please consult the factory.*

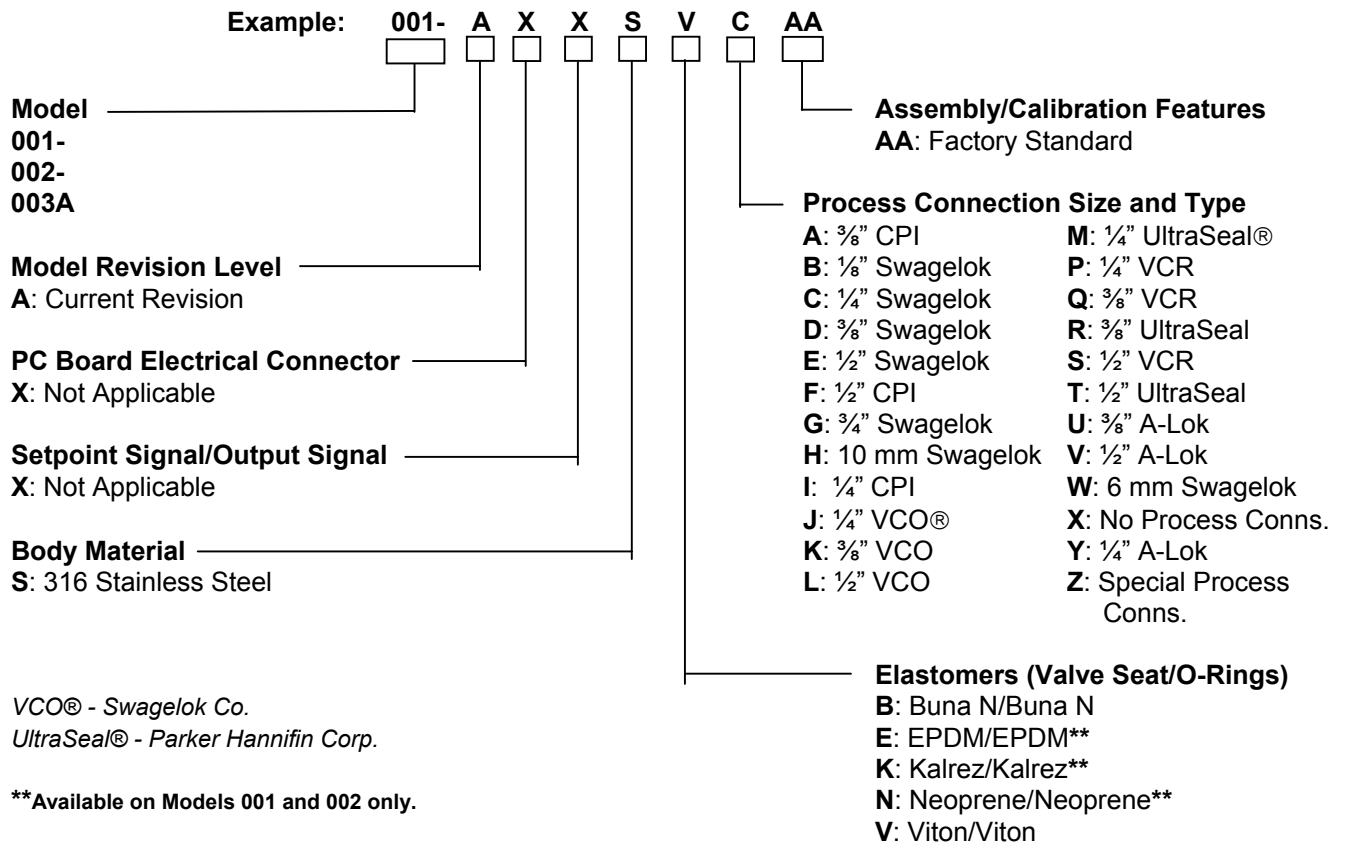
### Mass Flowmeters:

- Model 111: 0-5 SCCM to 0-10 SLPM N<sub>2</sub>
- Model 112: 0-10 SLPM to 0-100 SLPM N<sub>2</sub>
- Model 113: 0-100 SLPM to 0-500 SLPM N<sub>2</sub>
- Model 114: 0-500 SLPM to 0-1000 SLPM N<sub>2</sub>
- Model 121: 0-5 SCCM to 0-10 SLPM N<sub>2</sub>
- Model 122: 0-10 SLPM to 0-100 SLPM N<sub>2</sub>
- Model 123: 0-100 SLPM to 0-500 SLPM N<sub>2</sub>

### Mass Flow Controllers:

- Model 201: 0-5 SCCM to 0-10 SLPM N<sub>2</sub>
- Model 251: 0-10 SLPM to 0-50 SLPM N<sub>2</sub>
- Model 202: 0-10 SLPM to 0-100 SLPM N<sub>2</sub>
- Model 202A: 0-10 SLPM to 0-100 SLPM N<sub>2</sub>
- Model 203A: 0-100 SLPM to 0-500 SLPM N<sub>2</sub>
- Model 204A: 0-500 SLPM to 0-1000 SLPM N<sub>2</sub>
- Model 221: Consult Factory for Minimum Flow to 10 SLPM N<sub>2</sub>
- Model 222: 0-10 SLPM to 0-100 SLPM N<sub>2</sub>

## MODEL NUMBER AND DESCRIPTION



*For model number options not shown above, please consult factory*

## ORDERING INFORMATION

### To order, please specify:

- Model number
- Elastomer material
- Process connection size and type
- Flow capacity
- Gas type
- Operating temperature
- Inlet (supply) pressure
- Outlet pressure
- Additional accessories required

**PORTER** INSTRUMENT COMPANY, INC.

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