Models VC-300A & VC-301A
Multi-Spring Diaphragm Actuators

GENERAL DESCRIPTION

The VC-300A direct-acting model and the VC-301A reverse-acting model are the large frame version o the VC-230A/VC-231A spring opposed diaphragm actuators. They are designed to provide dependable On-Off or Throttling operation of control valves. They may be actuated by pneumatic signals from any suitable temperature or pressure controller.

SPECIFICATIONS

Diaphragm Area: 29 sq. inches (0.02m^2) nominal

Service Connection: .... 1/4" - 18 NPT

Pattern: .... Enclosed Spring

Type Ranges: ..... 3-15 psi (0.2-1.0 bar) standard. Other ranges available.

Diaphragm Pressure:
     100 psi (6.9 bar) max. test
     40 psi (4.8 bar) max. working

Maximum Stroke: .... 1" (25.4mm)

Ambient Temperature: .... 200°F (93°C)

Actuator Action:
     VC-300A - Air-to-push-down
     VC-301A - Air-to-push-up

Materials:
Diaphragm Housing .... Steel, painted with polyurethane enamel
Diaphragm .... Buna-N Nylon reinforced
Diaphragm Plate .... Aluminum casting
Springs .... Tempered MB wire, zinc plated
Actuator Stem .... Stainless Steel
Actuator Stem Guide .... Bronze, Self-lubricating
Frame .... Cast Iron
Stem Connector .... Stainless Steel
Stroke Indicator .... Aluminum
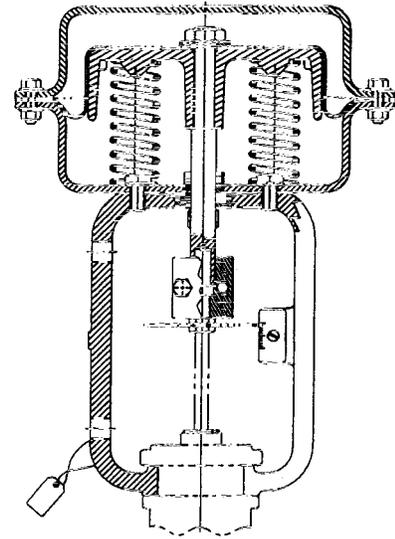
FEATURES

- Molded Buna-N diaphragm, nylon reinforced

- Steel Diaphragm Cases.

- Multiple Steel Springs.

- Sturdy Cast Iron Lower Frame.

- Split-Block Valve Stem Connector

- Valve Position Indicator

ACTUATOR OPERATION

Model VC-300A - Air pressure from the controller is applied to the top of the diaphragm. As this pressure increases within the range of the loading springs, the actuator stem moves down.

Model VC-301A - Air pressure from the controller is applied underneath the diaphragm. Increasing pressure, within the range of the loading springs, causes the actuator stem to move upward.

The following table illustrates valve action. Robertshaw valve styles listed below can be furnished with either of these actuators for air-to-close or air-to-open operation.

	Model VC-300A Actuator (Air-to-Push-Down)		Model VC-301A Actuator (Air-to-Push-Up)	
	Increasing Air Pressure	Air Failure	Increasing Air Pressure	Air Failure
Direct-Acting Valve (Push down to close)	Closes	Opens	Opens	Closes
Reverse-Acting Valve (Push down to close	Opens	Closes	Closes	Opens

VALVE ASSEMBLIES USED WITH VC-300A AND VC-301A ACTUATORS

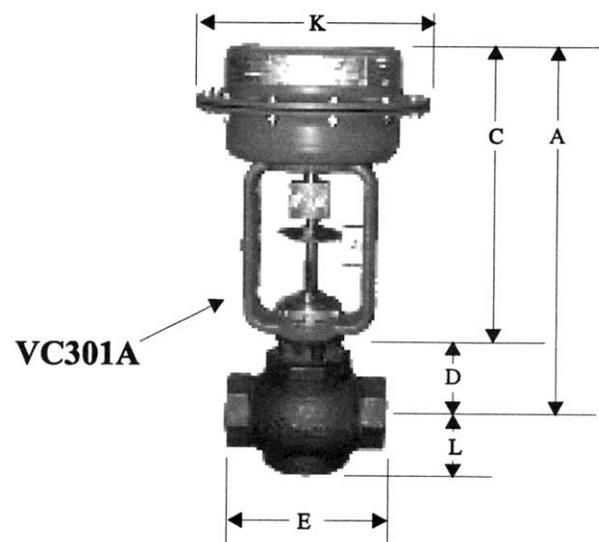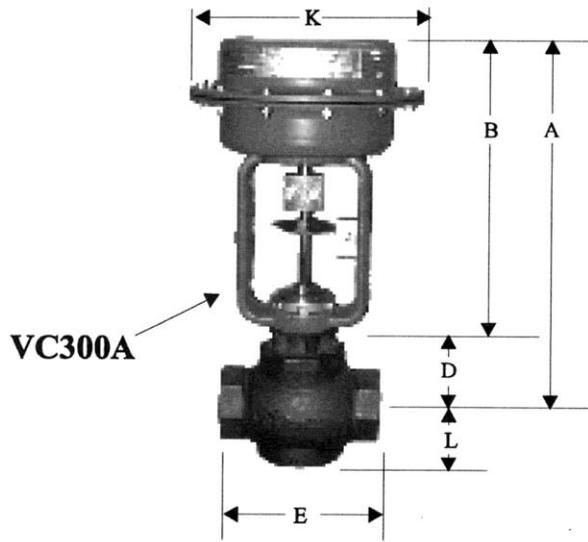**Valve Body Assembly Characteristics and Shipping Weights**

Valve Type	Body Material and Rating	Trim	Valve Size and Type of Ends	Port Size In. (mm)	Full Open Cv	Shipping Weight Lb. (Kg.)	Max. ΔP with 3-15 psi (0.2-1.0 bar) range
BG Percentage Direct Acting Only	Brass 250 psi	316 Stainless Steel	2" Screwed	2 (50.8)	52	33 (15.0)	35 (2.3)

VALVE SIZING

All Robertshaw valve capacities are stated in terms of Cv. Use of the flow coefficient Cv offers a standard approach for valve sizing regardless of type. Cv ratings for Robertshaw valves are determined experimentally in accordance with procedures recommended by the Fluid Controls Institute.

Valve sizes may be calculated using Cv formulas or Robertshaw's Flo-Rule (valve sizing slide rule) for any set of flow conditions.

When capacity requirements (pounds of steam per hour, gallons of water per minute, cubic feet of gas per hour, etc.), the supply pressures, pressure drops, and nature of the fluid are known, the numerical Cv value can be obtained. This can be compared with the Cv ratings tabulated for the various valve styles in the "Valve Characteristics" tables in this product specification or on the Cv tables furnished with the Flo-Rule.

DIMENSIONS		
All dimensions in inches (millimeters)		
		VALVE STYLES
Dim.	Valve Size In.	BG
D	2"	3 7/8 (98)
E	2"	6 3/4 (171)
L	2"	2 3/16 (56)
A	VC-300A = B+D, VC-301A=C+D	
B	VC-300A= 12 1/4 (311)	
C	VC-301A= 12 3/4 (329)	
K	VC-300A= 9 1/2 (241), VC-301A= 9 1/2 (241)	