



ISO Registered Company

# MODEL SCV-30

## SANITARY GLOBE-STYLE CONTROL VALVES

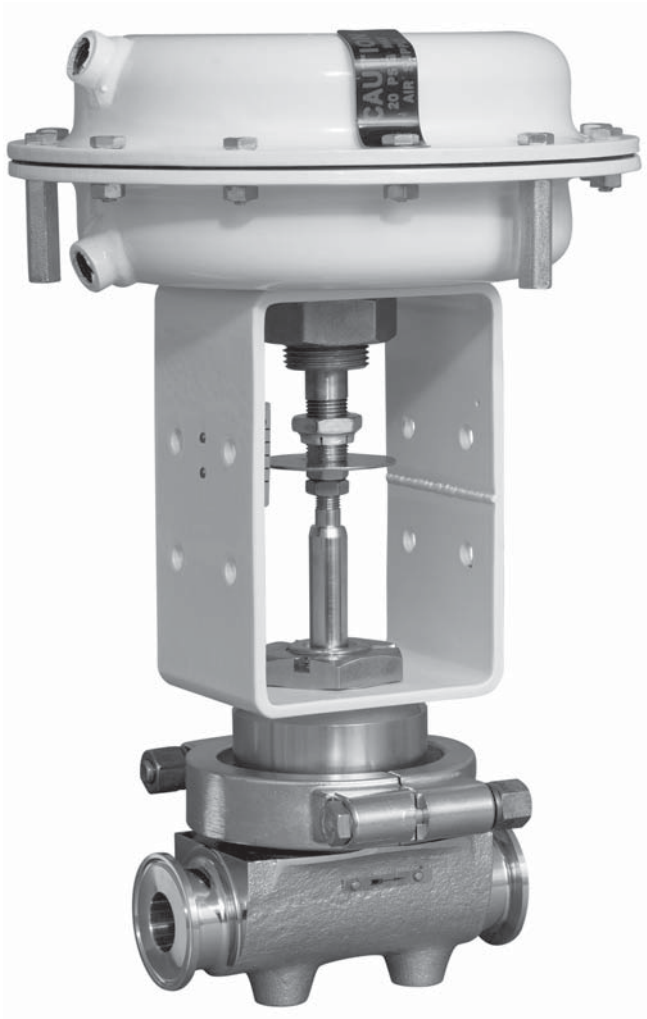
The Model SCV-30 \* is a revolutionary, **throttling**, pneumatically actuated control valve. This unique design provides a geometrically characterized plug for superior **throttling** dynamics, plus the unit's ease of cleanability and maintenance meet the requirements of sanitary control valves.

The design incorporates a formed internal diaphragm that is bonded to a characterized metal plug. The diaphragm/body provides the smooth internal passages necessary for ease in cleaning and sanitizing. The plug head provides rigidity to the otherwise flexible diaphragm in the **throttling** zone where characterized control is desired.

### FEATURES

- Design Concept:** A control valve for **throttling** applications.
- Two Body Configurations:** Traditional straight-through globe pattern, or angle body pattern, both self-draining. Forged 316L SST body material.
- Multiple Ports:** Both full and reduced port designs to optimize dynamic response.
- Characteristic:** Linear.
- Multiple Diaphragms:** Three to select from — EPDM, Fluorocarbon Elastomer, or Silicone.
- Polished Interior:** Interior of wetted body mechanically polished and electro-polished to 10 micro-inch  $R_a$  finish.
- Exterior Finish:** SST portions of body electro-polished. All other metallic exposed surfaces are of SST or painted with epoxy.
- Readily Accessible:** Unit can be easily and quickly disassembled in-line for inspection or trim replacement. Quick disconnect stem.
- Cleaning Capability:** Unit designed for clean-in-place (CIP) and steam-in-place (SIP) systems.

**3A Construction:** Selection of composition diaphragms bonded to metallic plug/stem meets 3A Sanitary Standards, Authorization No. 745.



**MODEL SCV-30**  
Straight-Globe Pattern  
with C27 Actuator

### APPLICATIONS

Used in pharmaceutical and biotechnical industries in production of shear sensitive microorganisms and many health care products for both human and animal consumption. Suitable for processed food and cosmetics production.

Would be found supporting fermenters, batching tanks, cookers, dryers and other similar sanitary equipment. Suitable in WFI (Water for Injection) systems.

Model SCV-30 is applicable in saturated steam up to 15 psig (1.03 Barg) in continuous service when R1 trim is utilized.

\* Patented

## STANDARD/GENERAL SPECIFICATIONS

**Body Sizes:** Full Port – 3/4", 1", 1-1/2".  
 Opt-12 Reduced Port – 1" and 1-1/2".

**Body Form:** Straight-Globe and Angle-Globe.

**End Connections:** Standard: Sanitary "Tri-Clamp®". Designed to seal against weld type clamp liners per ISO 2852.  
Optional: Butt weld (Opt-24).

**Maximum SIP Conditions:** SIP – Steam-in-Place.  
 Recommended: 20 psig @ SAT (1.4 Barg @ SAT).  
 Maximum: 30 psig @ SAT (2.1 Barg @ SAT), but with reduced diaphragm life.

**Inherent Characteristic:** Linear.

**Operating Pressure Range:** -7.5 psig to +60 psig  
 (-0.5 Barg to +4.1 Barg)

**Operating Temperature Range:** 0° to +300°F  
 (-17° to +149°C)

**Max Operating Pressure Drop:** 60 psid (4.1 Bard).

**Flow Capacity:** Per ISA 75.11.01 standard. See Tables 3 & 4.

Body Size	Port Size	Straight		Angle	
		Cv	kv	Cv	kv
3/4"	Full	2.8	2.4	2.9	2.5
1"	Full	6.1	5.2	6.6	5.6
	Opt-12 Red.	3.4	2.9	3.6	3.1
1-1/2"	Full	10.4	8.9	11.7	10.0
	Opt-12 Red.	6.6	5.6	7.1	6.1

**Rangeability:** 30:1 (FTO only).

**Flow Direction:** FTO – Flow-to-Open. (Not recommended for FTC direction.)

**Seat Leakage:** Per ANSI/FCI 70-2 standard; Class VI, composition seated.

**Actuator:** Spring-diaphragm type. Field reversible action - Model C27.  
Direct: ATC-FO; Reverse: ATO-FC.

*Direct: Increase in air "LOAD" extends actuator stem.*

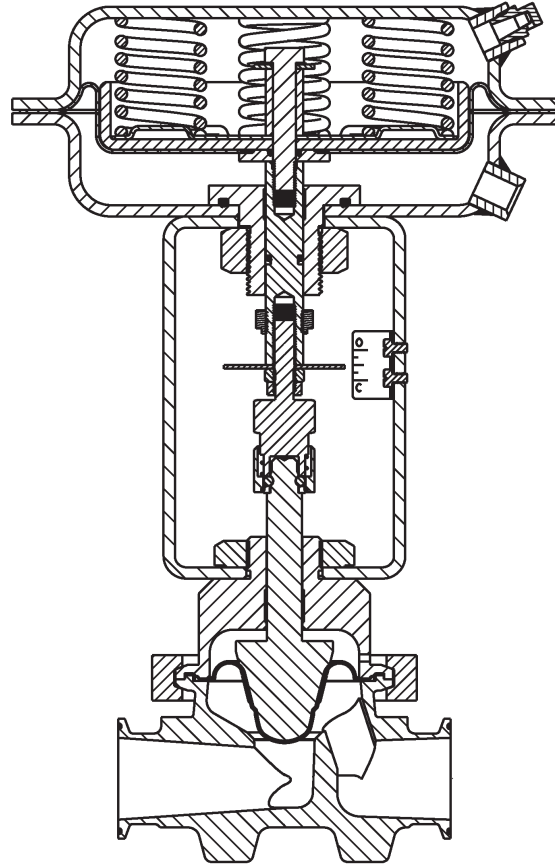
*Reverse: Increase in air "LOAD" retracts actuator stem.*

*ATC-FO: Air-to-Close, Fail Open.*

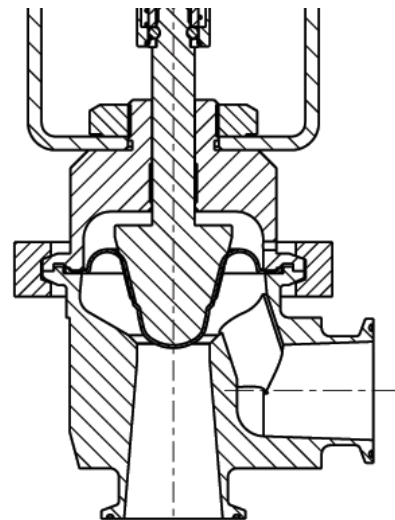
*ATO-FC: Air-to-Open, Fail Closed.*

Standard Actuator compliant with IEC60534-6-1 for mounting standardized positioners.

**Painting:** Standard – All non corrosion resistant portions are powder coated per Spec. S-1743 and/or with corrosion resistant epoxy paint per Cashco Spec #S-1606.  
Alternate: See Opt-95



**FIGURE 1 – STRAIGHT BODY**  
 Shown with Reverse Action  
 ATO-FC Actuator



**FIGURE 2 – ANGLE BODY**

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## BODY TECHNICAL SPECIFICATIONS

### Port Size, Stroke:

Body Size	Port Size				Nominal Stroke	
	Full		Opt-12 Reduced			
in.	in.	(mm)	in.	(mm)	in.	(mm)
3/4"	.500	(12.7)	–	–	0.50	(12.7)
1"	.688	(17.5)	.500	(12.7)		
1-1/2"	1.000	(25.4)	.688	(17.5)		

**NOTE:** Trim is interchangeable based on port size as each has the same stroke, i.e. 1" - reduced port trim will directly transfer to a 3/4" - full port, either angle or straight pattern.

**Installation Orientation:** Internal surfaces sloped and oriented to give "self-draining" with valve plug "open" when installed per Figure 3.

**Quick Disconnect:** Design allows for quick change of complete body sub-assembly (with "Tri-Clamp"® end connections), or just internal trim replacement. Both levels of disassembly can be done within a few minutes, and neither requires recalibration of the positioner.

- clamped end connections,
- clamped bonnet,
- quick-disconnect stem coupler,

**End Connection Details:** Standard: For mating to piping with quick couple, mechanical joints; Alfa-Laval "Tri-Clamp"®. See Figure 4.

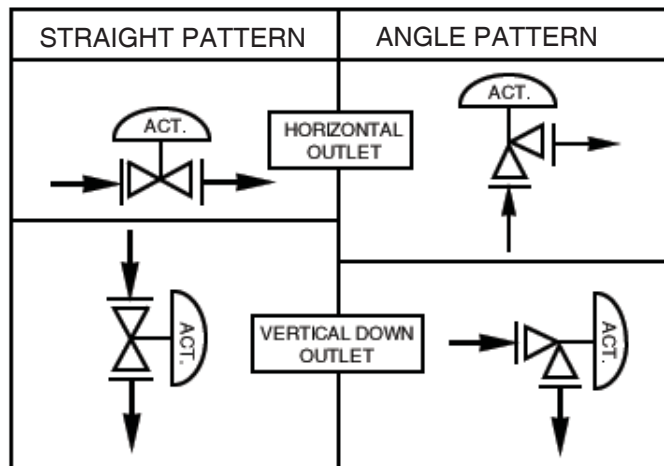


FIGURE 3: Installation Orientation

Nominal Body Size	Dimensions for Fig. 4					
	ID		OD		D1	
	in.	(mm)	in.	(mm)	in.	(mm)
3/4"	0.625	(15.9)	0.98	(24.9)	0.80	(20.3)
1"	0.856	(21.7)	1.984	(50.4)	1.738	(44.1)
1-1/2"	1.356	(34.4)	1.984	(50.4)	1.738	(44.1)

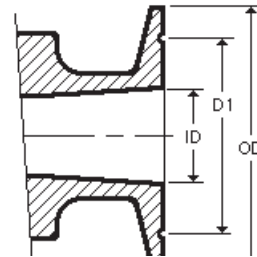


FIGURE 4 – Std. "Tri-Clamp"® End Connection

Nominal Body Size	Dimensions for Fig. 5				
	ID in. (mm)	OD in. (mm)	t in. (mm)	C1 in. (mm)	C2 in. (mm)
3/4"	0.620	0.750	.065 (1.65)	MIN. 0.69 (17.5)	0.09 (2.4)
	(15.7)	(19.0)			
1"	0.870	1.000			
	(22.1)	(25.4)			
1-1/2"	1.370	1.500			
	(34.8)	(38.1)			

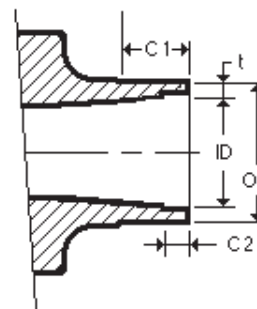


FIGURE 5 – Opt-24 Butt Weld End Connection

## BODY SUB-ASSEMBLY MATERIAL SPECIFICATIONS

**Body:** Forged, ASTM F182, Gr. F316L (316L SST).

**Body Wetted Surface Finish:** Mechanically polished with 240 grit compound; manually polished where required. Electro-polished. Final surface is 10 micro-inch  $R_a$ . Final cleaning per Cashco Specification #S-1576.

**Bonnet:** Bar Stock, ASTM A479, S31603 (316L SST), electro-polished after machining.

**Plug/Stem Assembly:** One-piece investment cast, ASTM A351, Gr. CF8M (316 SST). Electro-polished after machining.

**Bonnet Clamp:** Alfa-Laval Group, Tri-Clover Div., "Tri-Clamp"®; 304 SST electro-polished.

**Diaphragm:** (Elastomer + Mesh Insert.)

Trim Designation No.	Basic Material – Food Grade	FDA * Code of Federal (USA) Regulations No.
R1	EPDM + Dacron	21CFR177.2600
R2	FC Elast.** + Dacron	
R3	Silicone + Dacron	
* FDA - USA Food and Drug Administration ** Fluorocarbon Elastomer		

**Plug-to-Diaphragm Adhesive:**

CSL Silicones, Inc., No. CSL 502, industrial silicone sealant/adhesive. Permitted under FDA Code of Regulations; No. 175.105; Color – Clear. Acceptable as “food grade” by U.S. Dept. of Agriculture and Agriculture Canada where incidental food contact may occur.

## ACTUATOR TECHNICAL SPECIFICATIONS

**Size, Stroke & Volume:**

Nominal Diaphragm Area		Stroke		Action	Volumes			
					Clearance		Displacement	
in <sup>2</sup>	(cm <sup>2</sup> )	in	(mm)		in <sup>3</sup>	(cm <sup>3</sup> )	in <sup>3</sup>	(cm <sup>3</sup> )
32	(209)	0.5"	(12.7)	ATC	30.3	(496.5)	16.2	(265.5)
				ATO	28.2	(462.1)	16.4	(268.7)

**Bench Set:**

Range		Normal Supply Air Pressure		Max Supply Air Pressure	
psig	(Barg)	psig	(Barg)	psig	(Barg)
5-15	(.34-1.0)	20	(1.4)	100	(6.9)

**Ambient Temperature Range:**

-50° to +180°F  
(-45° to +82°C)

**Field Reversibility:** Actuator is field reversible without change in actuator parts.

## ACTUATOR SUB-ASSEMBLY MATERIAL SPECIFICATIONS

Part	Material
Diaphragm	Buna-N w/Polyester Insert
Lower & Upper Case, Yoke	Steel
Attachment Hub	17-4 PH SST
Stem	316/316L SST
Diaph. Washer O-ring, Hub O-ring, Stem O-ring	Buna-N

Part	Material
Diaphragm Washer	316/316L SST
Diaphragm Plate, Stem Spacer, Spring Plate, Hub Nut, Stem Bolt, Stem Lock Washer	Steel
Bolts & Nuts	Steel Plated
Spring	Epoxy Coated Steel

## OPTION SPECIFICATIONS

**Option-3:**

**MANUAL HANDWHEEL.** Overrides the actuator spring force to allow manual stroking of the valve. Single acting design, side-mounted handwheel. For **ATO-FC** action, handwheel operator “opens” the valve against spring force; may be utilized as a travel stop to prevent full closure. For **ATC-FO** action, handwheel operator “closes” the valve against spring force; may be utilized as a travel stop to prevent full opening.

**Option-12:**

**REDUCED PORT.** Standard full port body is replaced with an alternate body with its integral reduced port. See Pg. 3, “Port Size & Stroke” for actual port size. **NOTE:** To

convert from one port size to the other port size for a given body size requires that the body be replaced as well as the plug/stem/diaphragm sub-assembly.

**Option-24:**

**BUTT WELD END CONNS – 16 Ga.** Alternate to “Tri-Clamp®” mechanical quick connect end connections. For connecting to 16 Ga. OD tubing. For butt weld jointing using automatic orbital welding process. Dimensions for the standard Opt-24 butt weld are indicated in Figure 5 on page 3; for butt welds of different dimensions consult factory.

**Option -95**

EPOXY PAINT:Special epoxy painting of all non-corrosion resistant external surfaces per Cashco Spec #S-1547. Utilized in harsh atmospheric conditions.

## MOUNTED ACCESSORY SPECIFICATIONS

**Positioners:**

General: PMV Positioners. Aluminum housing with corrosion resistant powder coated epoxy. Pneumatic output load as required by actuator bench range. Field reversible action. Mounting dimensions per IEC 60534-6-1 Standard.

P/P Pneumatic. **Model P5** features SST cam with a simple cam locking device, tapped exhaust port for venting media, external zero adjustment. Input signal 3-15 psig, Includes gauge ports, no gauges. Analog only.

I/P Electro-Pneumatic. **Model D20** Digital or Hart compatible. Features single button self-calibration. input signal 4-20mA. Optional gauge block with gauges for Models D20 D and D20 I.

**Model D20 D** is general purpose.

**Model D20 I** is Intrinsically safe, ATEX Ex ia IIC T4, FM CLS 1 DIV 1, FM Non-incendive CLS 1 DIV 2.

**Model D20 E** is ATEX EEX d IIB+H<sub>2</sub>, T6 FM Approved. Gauge block is built in, no gauges.

**Model D3** Digital, Hart, Profibus, or Fieldbus compatible. Input signal 4-20mA. Features large graphic display. Optional gauge block for Models D3 X and D3 I, no gauges.

**Model D3 X** is general purpose.

**Model D3 I** is Intrinsically safe, ATEX EEX ia IIC T4.

**Model D3 E** is ATEX EEX d IIB+H<sub>2</sub>, T6 CSA CLS 1 DIV 1 FM CLS 1 DIV 1

Gauge block is built in, no gauges.

**Model PS2** is Hart, Fieldbus and Profibus compatible. Input signal 4-20mA. Features a Makrolon housing, (Aluminum for Explosion Proof.) Mounting dimensions per IEC 60534-6-1 Standard.

**Model PS2-1** is general purpose.

**Model PS2-2** is Intrinsically safe, ATEX Ex ia IIC T6/T4, FM CLS 1 DIV 1, CSA CLS 1 DIV 1, SIL 2

**Model PS2-3** EX d IIC T6/T4, SIL 2

**Air Tubing:**

Instrument air tubing SST with SST fittings.

**Airset:**

Model 5200P instrument air supply regulator. Use with positioners. Bracket mounted to actuator casing. Supplied with gauge. See technical bulletin 5200P-TB.

**Solenoid Valve:** Standard Brass: Available in standard weather-proof model. Brass body, 1/4" female NPT connections. Nipple mounted to actuator casing. 120 VAC, 60 Hz power supply, CSA Approved Class 3221-01, NEMA 2,3,3S,4,4X. 8" HF utilizes a direct mount NAMUR mount style.

X-Proof or SST construction: Consult Factory.

Standard installation vents actuator and drives valve to fail-safe position upon loss of electrical power.

Consult factory for 230/1/50, or 120 VDC power supplies, or intrinsically safe (IS) service.

**Transducers**

FM, CSA approved NEMA 4X CI 1, Div 1 and CI 1, Div 2

**Other**

764 P/PD pressure controller.

**Accessories:**

Lockup valve.

Position transmitter.

**Limit Switches:**

Model D20 and D3 positioners, switches are available, unit is enclosed in the positioner housing.

# TECHNICAL SPECIFICATIONS

**TABLE 1**  
**MAXIMUM PRESSURE vs. TEMPERATURE RATINGS**

Body Size	End Connection	Pressure		Temperature	
		psig	(Barg)	°F	(°C)
3/4"	Std. "Tri-Clamp®" or Opt-25 Butt Weld	60	(4.1)	300°	(149°)
1"					
1-1/2"					

**TABLE 2**  
**MAXIMUM INLET PRESSURE & PRESSURE DROP**

Bench Set Range		Maximum Valve Pressure				Supply Air Pressure	
		Inlet		Drop			
psig	(Barg)	psig	(Barg)	psid	(Bard)	psig	(Barg)
5-15	(.34-1.0)	60	(4.1)	60	(4.1)	20	(1.4)

**Application Note:** Consult factory for applying these valves with an I/P Transducer without a positioner. Pressure drop levels may be reduced.  
DO NOT apply ATC-FO arrangement with I/P Transducer - could cause permanent damage to valve.

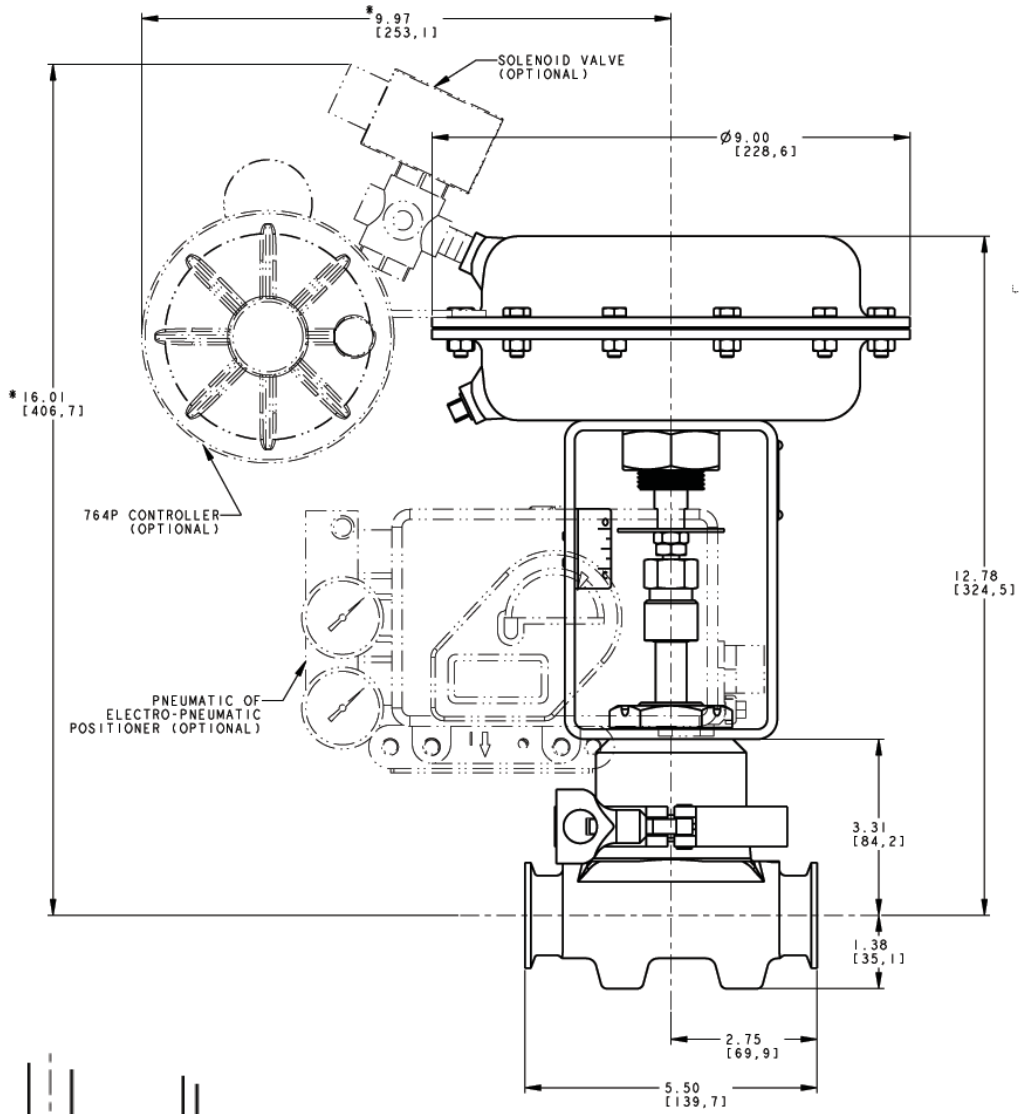
**TABLE 3**  
**Cv CAPACITY — STRAIGHT-GLOBE**  
 $F_L = 0.9$

Body Size	Port Description	Cv @ % Travel										
		Min.	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
3/4"	Full	0.1	0.2	0.5	0.8	1.0	1.3	1.6	1.9	2.4	2.6	<b>2.8</b>
1"	Full	0.2	0.9	1.5	2.1	2.7	3.2	4.0	4.6	5.3	5.8	<b>6.1</b>
	Opt-12 Reduced	0.1	0.2	0.5	0.8	1.0	1.3	1.6	1.9	2.4	3.0	<b>3.4</b>
1-1/2"	Full	0.3	1.0	1.6	2.4	3.4	4.5	5.5	6.9	8.7	9.6	<b>10.4</b>
	Opt-12 Reduced	0.2	0.9	1.5	2.1	2.7	3.2	4.0	4.7	5.4	6.0	<b>6.6</b>

**TABLE 4**  
**Cv CAPACITY — ANGLE-GLOBE**  
 $F_L = 0.9$

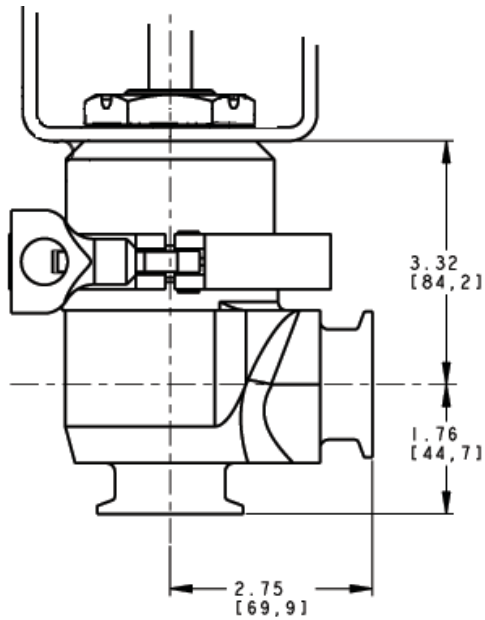
Body Size	Port Description	Cv @ % Travel										
		Min.	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
3/4"	Full	0.1	0.2	0.5	0.7	1.0	1.2	1.5	1.8	2.3	2.6	<b>2.9</b>
1"	Full	0.2	0.9	1.6	2.1	2.7	3.2	3.9	4.6	5.4	6.0	<b>6.6</b>
	Opt-12 Reduced	0.1	0.2	0.5	0.7	1.0	1.2	1.5	1.8	2.3	2.9	<b>3.6</b>
1-1/2"	Full	0.2	0.9	1.5	2.3	3.4	4.4	5.6	7.0	8.6	10.2	<b>11.7</b>
	Opt-12 Reduced	0.2	0.9	1.5	2.1	2.7	3.2	4.0	4.7	5.4	6.3	<b>7.1</b>

## DIMENSIONS & WEIGHTS



**FIGURE 6**  
**Straight-Globe Body**

Weight  
(either body)  
approx  
30 lbs. (13.6 kg)



**FIGURE 7**  
**Angle-Globe Body**

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# MODEL SCV-30 PRODUCT CODER 02/26/16

An "X" in POS 12 followed by a 5-digit control number overrides remaining selections.



POSITION 3 - SIZE & PORT		
Body Size	Port Size	
	Full Port	Opt.-12 Reduced
	CODE	CODE
3/4"	5	
1"	6	C
1-1/2"	8	D

POSITION 5 - END CONNECTION & PATTERN		
END CONNECTION	Straight Globe	Angle Globe
	CODE	CODE
Tri-Clamp	A	G
Opt-24 Butt Weld	B	H

POSITION 6 & 7 - TRIM MATERIAL	
Trim Designation No.	CODE
EPDM – 316 SST	R1
Fluorocarbon Elastomer – 316 SST	R2
Silicone – 316 SST	R3

POSITION 8 - Product Classification Under European "Pressure Equipment Directive"		
PRODUCT DESTINATION	HAZARD CATEGORY	CODE
Anywhere except Europe	N/A	7
European Countries * (CE Mark does not apply to DN25 and below)	Sound Engineering Practice (SEP)	S
	CE Marked Hazard Cat I or II	E

\* For products to be placed in service in Europe - Ref to Directive 97/23/EC. Forward Completed "EU" Application Recorder prior to quotation. (Without Recorder- Processing of Purchase Order will be delayed). Contact Cashco for Assistance.

POSITION 11 - ACTUATOR		
Bench Set	Action	CODE
5-15 psig	Reverse: ATO-FC	1
	Direct: ATC-FO	2

POSITION 12 - 764P * (Bracket Mtd) -Airset (Bracket Mtd) - SOLENOID VALVE			
764P / Action	Solenoid Valve *** Exhaust on Deenergization		
	None	120VAC 60 Hz	24 VDC
None	CODE		
	0	6	C
None W/ Airset	1	7	D
Reverse	2	8	E
Reverse W/ Airset	3	9	F
Direct	4	A	G
Direct W/ Airset	5	B	H
Special Construction Contact Cashco for Code	X		

\* Refer to 764-TB for Product Code of Controller.  
\*\*\*Solenoid rated as 4/4X only.

POSITION 13 - DIRECT ACTING POSITIONER with AIRSET (Bracket Mounted) (3-15 psig) 4-20 mA						
Specify Split Range in Special Instructions on the P.O. Split Range Not Available for Model P5 P/P						
Positioner Model	Ratings	Analog/Digital	Hart	Fieldbus	Profibus	CODE
P5 P/P *	Gen. Purpose	1				
D20 D I/P	Gen. Purpose	C	D			
D20 I I/P *	Intrinsically Safe	2	5			
D20 E I/P	Explosion Proof	E	F			
D3 X I/P	Gen. Purpose	L	M	N	P	
D3 I I/P	Intrinsically Safe	3	6	8	A	
D3 E I/P	Explosion Proof	G	H	J	K	
PS2-1 I/P	Gen. Purpose		R	S	T	
PS2-2 I/P	Intrinsically Safe		7	9	B	
PS2-3 I/P	Explosion Proof		U	V	W	
None **		0				

\* Stock Item  
\*\* Actuator Assembly includes dimensions for (Namur) Mounting per IEC 60534-6-1.

POSITION 14 - GAUGE BLOCK	
Option for Positioner	Code
None *	0
Gauge Block **	1

\* For P5 gauge ports built in. No gauges.  
\* For D20 E, D3 E & PS2-3 gauge block is standard. No gauges  
\*\* For D20 D & D20 I and PS2-1 & PS2-2 - gauge block with gauges.  
\*\* For D3 X & D3 I gauge block only - no gauges.

POSITION 15 - POSITIONER OPTIONS					
Options	POSITIONERS			I/P TRANSDUCERS	
	Inductive Limit Switches	Micro-switches Limit Switches	Position Transmitter	3-15 PSIG No Airset	3-15 PSIG W/ Airset
CODE					
P5				4	5
D3 & D20	7	T	9		
PS2			8		
No Positioner				C	F
None	0				

POSITION 16 - OPTIONS	
Accessories	CODE
No Handwheel	0
Handwheel	9

POSITION 17 - PAINTING & CLEANING		
Painting	Option	Standard Cleaning
		CODE
Standard	—	0
Epoxy Painted Per Cashco Spec #S-1547	-95	1

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