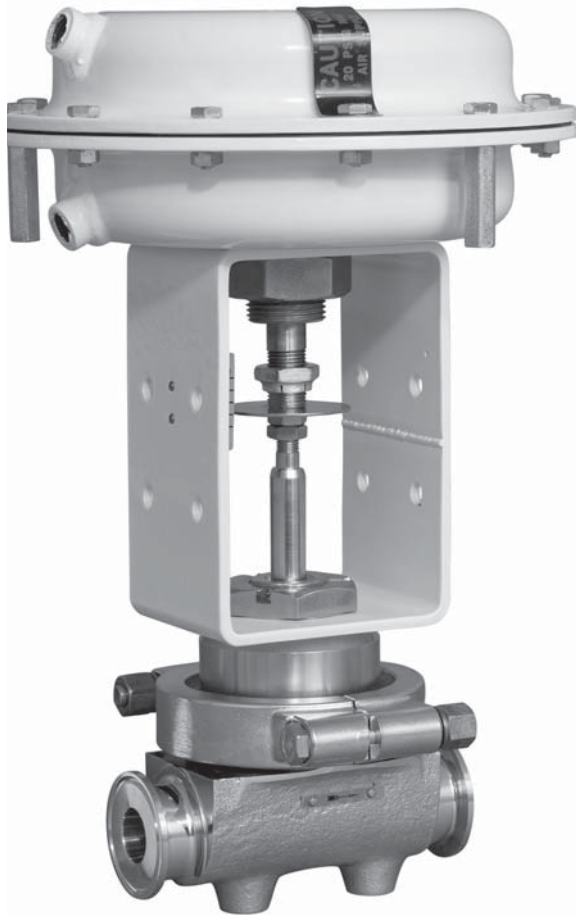




ISO Registered Company



MODEL SCV-S
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-S was designed primarily for clean steam service, and is applicable in saturated steam up to 150 psig (10.3 Barg), or superheated steam up to 150 psig (10.3 Barg) and 366°F (186°C) continuous service.

Also available for liquid or gas applications for temperatures up to 250°F (186°C) as a "food grade" product.

MODEL SCV-S

SANITARY GLOBE-STYLE CONTROL VALVES

The Model SCV-S is a **throttling**, pneumatically actuated control valve. This 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.

FEATURES

- Design Concept:** A control valve for **throttling** applications.
- Two Body Configurations:** Traditional straight-thru globe pattern, or angle body pattern, both self-draining. Forged 316L SST body material; bar-stock 316L SST bonnet material.
- Multiple Ports:** Both full and reduced port designs to optimize dynamic response.
- Characteristic:** Linear.
- Dual Stem Seal:** Two spring-energized stem seals ensure sealing against ingress of contaminants and egress of contained fluid. Available in two materials.
- Polished Interior:** Interior of wetted surfaces 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 coated with epoxy.
- Readily Accessible:** Unit can be easily and quickly disassembled in-line for inspection. Quick disconnect body-to-bonnet joint.
- Cleaning Capability:** Unit designed for clean-in-place (CIP) and steam-in-place (SIP) systems.

STANDARD/GENERAL SPECIFICATIONS

Body Sizes: Full Port – 3/4" (DN20), 1" (DN25), 1-1/2" (DN40).
Opt-12 Reduced Port – 1" (DN25) and 1-1/2" (DN40).

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).

Inherent Characteristic: Linear.

Operating Pressure Range: Function of actuator bench set range:
Full vacuum to +150 psig (Full vacuum to +10.3 Barg)

Operating Temperature Range: Up to +366°F (186°C); function of Trim Designation No. applied. Minimum – 0°F (-17°C).

Maximum Operating Pressure Drop: Function of actuator bench range:
Up to 150 psid (10.3 Bard).
See Table 2

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

Rangeability: 30:1 (FTO only).

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

Body Size		Port Size	Straight		Angle	
in	(DN)		Cv	kv	Cv	kv
3/4"	(20)	Full	2.8	2.4	3.8	3.3
1"	(25)	Full	6.0	5.1	7.5	6.5
		Opt-12 Red.	3.5	3.0	5.0	4.3
1-1/2"	(40)	Full	11.8	10.1	13.5	11.6
		Opt-12 Red.	6.5	5.6	8.0	6.9

Seat Leakage: Per ANSI/FCI 70-2.
Metal seated – Class IV.
Composition seated – Class VI.

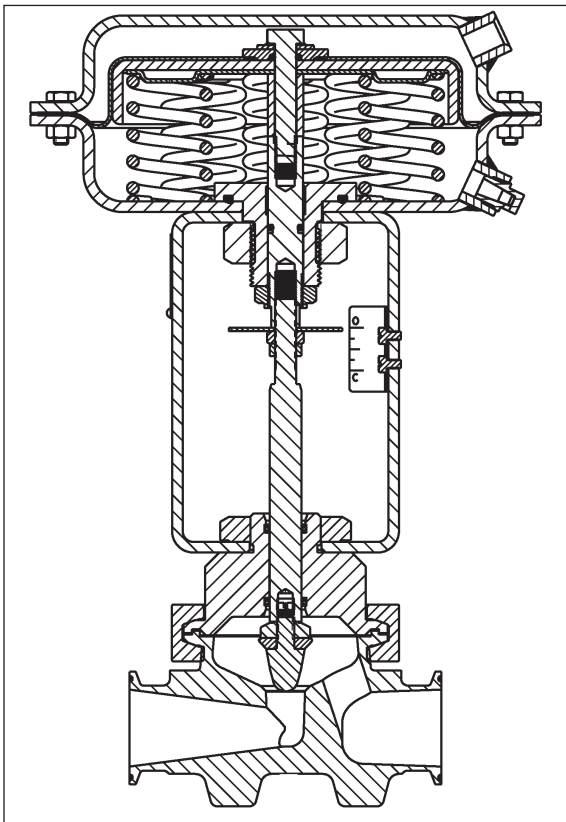
Actuator: Spring-Diaphragm type; multi-spring. Field reversible.
Direct: ATC-FO; Reverse: ATO-FC.

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 IEC 60534-6-1 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.

Maximum CIP Conditions: CIP – Clean-in-Place.
Recommended: Maximum cleaning fluid pressure – 50 psig (3.4 Barg).

® Registered Tradename, Alfa-Laval Group, Tri-Clover Division.



ATC-FO Actuator

FIGURE 1 – Straight body w / Composition Plug

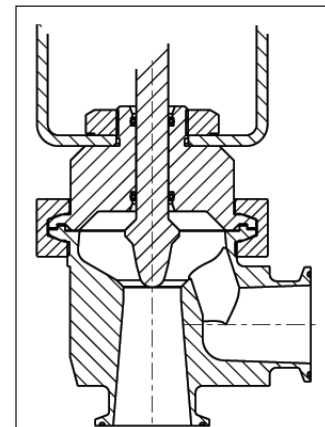


FIGURE 2 – Angle Body w / Metal Plug

BODY TECHNICAL SPECIFICATIONS

Port Size, Stroke:

Nominal Body Size		Port Size				Nominal Stroke	
		Full		Opt-12 Reduced			
in	(DN)	in	(mm)	in	(mm)	in	(mm)
3/4"	(20)	.500	(12.7)	---	---	.75	(19.0)
1"	(25)	.688	(17.5)	.500	(12.7)		
1-1/2"	(40)	1.000	(25.4)	.688	(17.5)		

NOTE: Trim is interchangeable based on port size as each has the same stroke; i.e. 1" (25.4mm)- reduced port trim will directly transfer to 3/4" (19.1 mm)- 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.

End Connection Details:

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

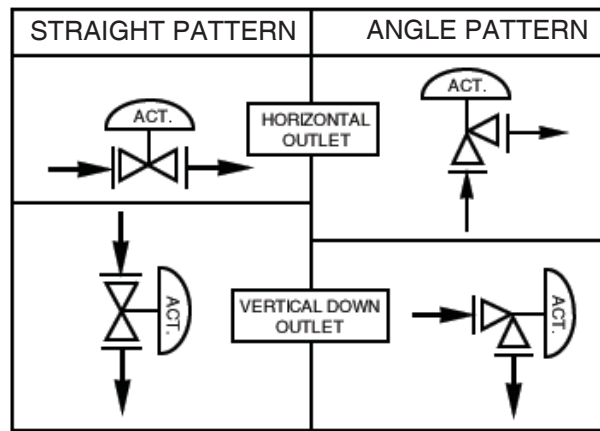


FIGURE 3:
Installation Orientation

Nominal Body Size		Dimensions for Fig. 4					
		ID		OD		D1	
inch	(DN)	inch	(mm)	inch	(mm)	inch	(mm)
3/4"	(20)	0.625	(15.9)	0.98	(24.9)	0.80	(2.3)
1"	(25)	0.856	(21.7)	1.984	(50.4)	1.738	(44.1)
1-1/2"	(40)	1.356	(34.4)	1.984	(50.4)	1.738	(44.1)

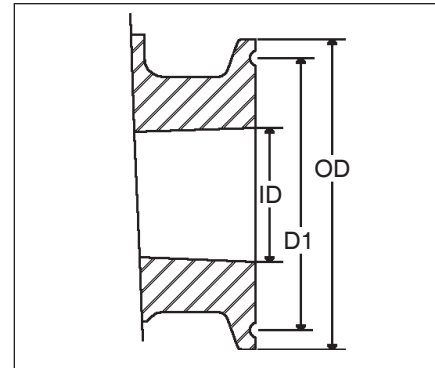


FIGURE 4: Std. "Tri-Clamp" End Connection

Nominal Body Size		Dimensions for Fig. 5				
		ID	OD	t	C1	C2
Inch (DN)	inch (mm)	inch (mm)	inch (mm)	inch (mm)	inch (mm)	
3/4" (20)	0.620 (15.7)	0.750 (19.1)	.065 (1.65)	MIN. 1.69 (17.5)	0.75 (19.0)	
1" (25)	0.870 (22.1)	1.000 (25.4)				
1-1/2" (40)	1.370 (34.8)	1.500 (38.1)				

NOTE: Tube ends are for 16 Ga. tube.

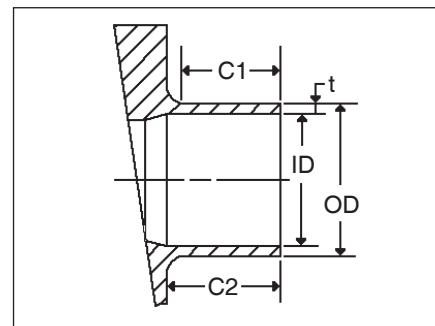


FIGURE 5: Opt-24 Butt Weld End Connection

BODY SUB-ASSEMBLY MATERIAL SPECIFICATIONS

Body:	Forged, ASTM F182, Gr. F316L (316L SST).	Stem Seal:	<u>Dual</u> – Upper and lower. TDN S89LF utilizes o-ring seals with vented mid-zone. All other TDN's utilize spring-energized seals with non-vented mid-zone.
Bonnet:	Barstock - 316L SST; ASTM A479, S31603, annealed.	Materials	– Selected with Trim Designation Number. Function of service fluid and maximum temperature. See Table 5.
Plug/Stem Assembly:	Barstock - 316L SST; ASTM A479, S31603, annealed. See Table 5.	Bonnet Clamp:	Alfa-Laval Group, Tri-Clover Div., “Tri-Clamp”; 304 SST electro-polished. Two-piece clamp with SST bolt/nut fasteners.
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.		
Gasket:	Expanded PTFE.		

NOTE: TDN = Trim Designation Number.

ACTUATOR TECHNICAL SPECIFICATIONS

Size, Stroke, & Volume:	Ambient Temperature Range:	-50° to +180°F (-45° to +82°C).
------------------------------------	-----------------------------------	------------------------------------

Actuator Model	Diaph. Area		Nominal Stroke		Action	Volumes			
	in ²	(cm ²)	in	(mm)		Clearance		Displacement	
						in ³	(cm ³)	in ³	(cm ³)
C27	32	(209)	0.75	(19)	ATC	25.8	(422)	25.4	(416)
					ATO	24.4	(399)	24.1	(394)

Bench Set Range:

Actuator Model	Bench Range		Air Pressure			
			Normal		Design Max	
	psig	(Barg)	psig	(Barg)	psig	(Barg)
C27	5-15	(.34-1)	20	(1.4)	100	(6.9)
	15-60	(1-4.1)	75	(5.2)		

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:

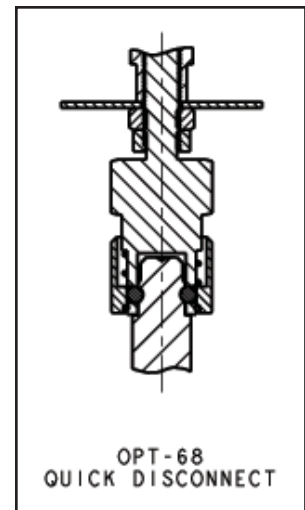
REDUCED PORT. Standard full port body is replaced with an alternate body with its integral reduced port. See Pg. 3, “Port Size & Stroke” for actual port size. **NOTE:** To convert from one port size to the other port size for a given body size requires that the body be replaced as well as the plug/stem/diaphragm sub-assembly.

Option-24:

BUTT WELD END CONNECTIONS – 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-68:

QUICK DISCONNECT STEM CONNECTOR. Standard threaded engagement stem connector is replaced with spring-loaded quick disconnect for fast uncoupling between actuator and body assemblies.



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:	<p>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>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.</p> <p>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+H₂, T6 FM Approved. Gauge block is built in, no gauges.</p> <p>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+H₂, T6 CSA CLS 1 DIV 1 FM CLS 1 DIV 1 Gauge block is built in, no gauges.</p> <p>Model PS2 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</p>	<p>Air Tubing: Instrument air tubing SST with SST fittings.</p> <p>Airset: Model 5200P instrument air supply regulator. Use with positioners. Bracket mounted to actuator casing. Supplied with gauge. See technical bulletin 5200P-TB.</p> <p>Solenoid Valve: <u>Standard Brass:</u> 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.</p> <p><u>X-Proof or SST construction:</u> Consult Factory.</p> <p>Standard installation vents actuator and drives valve to fail-safe position upon loss of electrical power.</p> <p>Consult factory for 230/1/50, or 120 VDC power supplies, or intrinsically safe (IS) service.</p>
	<p>Transducers: FM, CSA approved NEMA 4X CI 1, Div 1 and CI 1, Div 2</p>	
	<p>Other Accessories: 764 P/PD pressure controller. Lockup valve. Position transmitter.</p>	
	<p>Limit Switches: Model D20 and D3 positioners, switches are available, unit is enclosed in the positioner housing.</p>	

TECHNICAL SPECIFICATIONS

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

Body Size		End Connection	Pressure		Temperature	
in	(DN)		psig	(Barg)	°F	(°C)
3/4"	(20)	Std. "Tri-Clamp®" or Opt.-24 Butt Weld	150	(10.3)	366	(186)
1"	(25)					
1-1/2"	(40)					

**TABLE 2
MAXIMUM PRESSURE DROP – psid (Bard)
ATO-FC; REVERSE ACTION
ATC-FO; DIRECT ACTION
FTO DIRECTION**

Body Size		Port-Orifice			Maximum Operating Pressure Drop		Seat	Actuator		Air Supply Pressure	
		Description	Size					Bench Settings			
in	(DN)			inch	(mm)	psid	(Bard)		psig	(Barg)	psig
3/4"	(20)	Full	0.500	(12.7)	150	(10.3)	Comp/Metal	5-15	(.34-1.0)	20	(1.4)
1"	(25)	1-Step Reduced	0.500	(12.7)							
1-1/2"	(40)	Full	1.000	(25.4)	46	(3.2)	Metal	15-60	(1.0-4.1)	75	(5.2)
					126	(8.7)	Comp				
					150	(10.3)	Comp/Metal				
		1-Step Reduced	0.688	(17.5)	150	(10.3)	Comp/Metal	5-15	(.34-1.0)	20	(1.4)

NOTE: Steam service with S36L Trim is 30 psid (2.1 Bard).

Application Note: Consult factory for applying these valves with an I/P Transducer without a positioner. Pressure drop levels may be reduced.

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

Body Size		Port Description	Cv @ % Travel										
in	(DN)		Min.	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
3/4"	(20)	Full	0.1	0.7	1.2	1.6	2.0	2.2	2.4	2.5	2.6	2.7	2.8
1"	(25)	Full	0.2	1.0	1.6	2.1	2.8	3.4	3.7	4.3	5.1	5.7	6.0
		Opt-12 Reduced	0.1	0.7	1.2	1.6	2.0	2.3	2.7	3.0	3.3	3.4	3.5
1-1/2"	(40)	Full	0.4	2.0	3.1	4.3	5.3	6.7	8.2	9.0	10.3	11.1	11.8
		Opt-12 Reduced	0.2	1.0	1.7	2.3	2.8	3.3	3.9	4.5	5.5	5.6	6.2

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

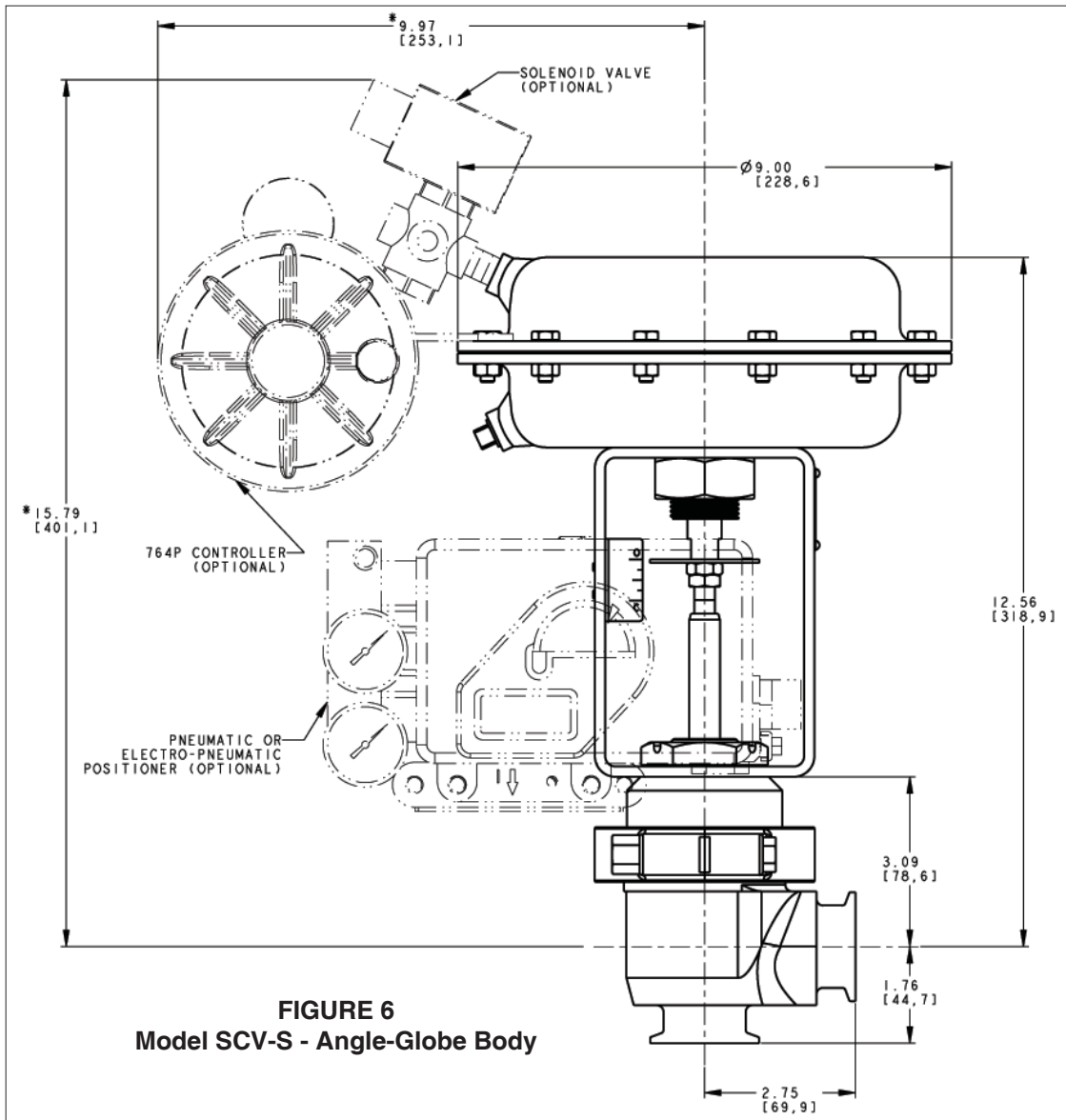
Body Size		Port Description	Cv @ % Travel										
in	(DN)		Min.	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
3/4"	(20)	Full	0.1	0.4	0.8	1.1	1.5	1.9	2.3	2.7	3.1	3.4	3.8
1"	(25)	Full	0.2	0.8	1.6	2.3	2.9	3.8	4.4	5.3	6.1	6.8	7.5
		Opt-12 Reduced	0.1	0.6	0.9	1.4	1.9	2.5	2.9	3.5	3.9	4.5	5.0
1-1/2"	(40)	Full	0.4	1.4	2.6	4.1	5.5	6.8	8.0	9.5	10.7	12.2	13.5
		Opt-12 Reduced	0.2	0.8	1.5	2.5	3.3	4.0	4.7	5.6	6.5	7.1	8.0

**TABLE 5
TRIM MATERIALS vs. DESIGNATION NUMBERS**

Part Description	Metal Seat		GF-TFE Seat	V-TFE Seat
	S1L	S1LF	S36L	S89LF
Plug	316L SST	316L SST	316L SST	316L SST
Stem	--	--	316L SST	316L SST
Nut	--	--	SST	SST
Pin	--	--	TFE	TFE
Seat Disc	--	--	GF-TFE	V-TFE
Stem Seal	316 SST + Carbon Filled TFE	316 SST + V-TFE (Food Grade)	316 SST + Carbon Filled TFE	FKM (Food Grade)
Temperature Range	0° to +336°F -17° to -186°C	0° to +250°F -17° to +121°C	0° to +366°F -17° to +186°C	0° to +250°F -17° to +186°C
Service	Steam	Gas or Liquid	Steam	Gas or Liquid

GF-TFE = Glass Filled TFE
V-TFE = Virgin TFE
FKM = Fluorocarbon Elastomer

DIMENSIONS & WEIGHTS



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

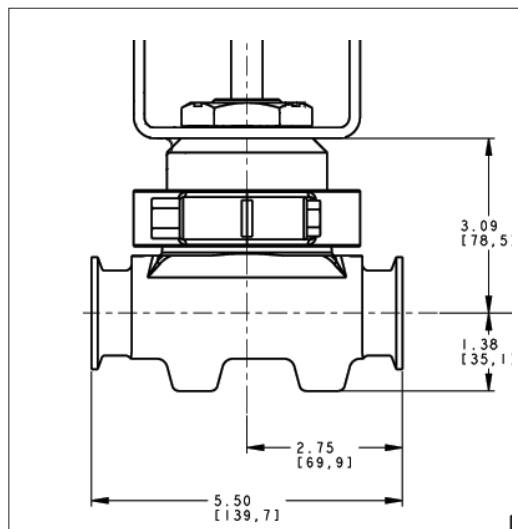


FIGURE 7
Model SCV-S - Straight-Globe Body

NOTES

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MODEL SCV-S PRODUCT CODER 02/26/16

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



POSITION 3 - BODY / PORT SIZE			
Body Size		Port Size	
		Full Port	OPT-12 Reduced
in	(DN)	CODE	CODE
3/4"	(20)	5	
1"	(25)	6	C
1-1/2"	(40)	8	D

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

POSITION 6 & 7 - TRIM DESIGNATION NO.	CODE
S1L	SL
S1LF	SF
S36L (GF-TFE Seat)	6L
S89LF (V-TFE Seat)	9F

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 ACTION/MODEL NO.							
Body Size	Bench Set		Stem Connector	REVERSE: ATO-FC		DIRECT: ATC-FO	
	in	psig (Bar)		MODEL	CODE	MODEL	CODE
ALL	5-15	(.34-1.0)	C27	Standard	A	C27	B
							Opt-68: Q.D.
1-1/2"	15-60	(1-4.1)	C27	Standard	C	C27	D
							Opt-68: Q.D.

NOTE: See Table 2 in Tech Bulletin to confirm pressure drop limits. Q.D. = Quick Disconnect.

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
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	0-60 PSIG No Airset	0-60 PSIG W/ Airset
	CODE						
P5				4	5		
D3 & D20	7	T	9				
PS2			8				
No Positioner				C	F	R	S
None	0						

* For 0-60 Psig Transducer please contact the factory.

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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