ELECTRO-PNEUMATIC CONTROL VALVE FOR STEAM

MODEL CV-COS DUCTILE CAST IRON CAST IRON, STAINLESS STEEL

POSITIONER/ACTUATOR CONTROL VALVE WITH SEPARATOR AND STEAM TRAP

Features

Steam control valve featuring a digital I/P positioner combined with a compact pneumatic actuator. Built-in cyclone separator and steam trap to provide high-quality steam for process applications.

1. Built-in cyclone separator and self-modulating free float steam trap provide dry, high-quality steam supply improving productivity and product quality for process applications.
2. Removal of condensate while valve is closed reduces scale adhesion and water hammer.
3. Pneumatic actuator with digital I/P positioner in a compact configuration.
4. Rolling actuator diaphragm ensures linearity over the operating stroke and maximizes life.
5. Self-adjusting positioner features zero calibration by auto-tuning, which ensures tight shut-off and improves control during low flow.
6. Positioner LCD allows simple operation with capacitive keys and displays valve aperture and error codes.
7. Self-adjusting chevron packing minimizes seal leaks, stem wear and stiction/hysteresis problems.

Pressure gauge is optional

Pressure Equipment Directive (PED)

Classification according to PED 2014/68/EU, fluid group 2

Size	Category	CE marking
DN 15 to DN 25, DN 40	—*	Art. 4, Sec. 3 (sound engineering practice), CE marking not allowed
DN 50	I	With CE marking and Declaration of Conformity

* Manufactured in accordance with sound engineering practice

Specifications

VALVE

Model	CV-COS					
Body Material	Cast Iron (JIS FC250) (equivalent to GG-25/EN-JL1040)		Ductile Cast Iron (GGG40.3/EN 5.3103)		Cast Stainl. Stl. (A351/A351M Gr.CF8 or CF8M) (equivalent to 1.4312 or 1.4410)	
Connection	Flanged ASME		Flanged DIN		Flanged DIN	
Size	DN 15, 20, 25, 40	DN 50	DN 15, 20, 25, 40	DN 50	DN 15, 20, 25, 40	DN 50
Maximum Operating Pressure (barg) PMO	13	10	16	10	16	10
Maximum Operating Temperature (°C) TMO	200		220			
Seat Plug Sealing / Leak Rate Class (IEC 60534-4)	Metal to Metal / Class IV					
Characteristic	Equal percentage					
Rangeability	50 : 1					

PRESSURE SHELL DESIGN CONDITIONS (**NOT** OPERATING CONDITIONS):
Maximum Allowable Pressure (barg) PMA: 13 (Cast Iron), 16 (Ductile Cast Iron, Cast Stainless Steel)
Maximum Allowable Temperature (°C) TMA: 200 (Cast Iron) 220 (Ductile Cast Iron, Cast Stainless Steel)
Minimum Allowable Temperature (°C): 0

1 bar = 0.1 MPa

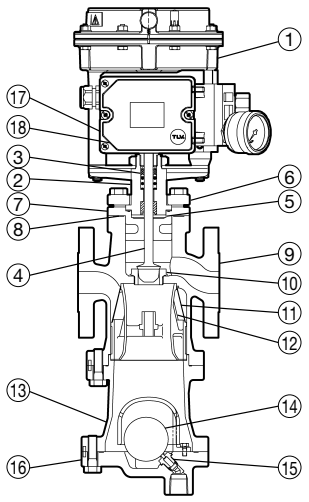
CAUTION To avoid abnormal operation, accidents or serious injury, DO NOT use this product outside of the specification range. Local regulations may restrict the use of this product to below the conditions quoted.

ACTUATOR / POSITIONER

Fail-safe Position	Valve CLOSED (Air to Open)
Motive Medium	Oil-free air, filtered to 5 µm
Electrical Input Signal (mA)	4 to 20
Load Impedance (V)	Max. 6.3
Air Supply Pressure Range for Positioner (barg)	3.7 to 6
Ambient Temperature Range (°C)	– 20 to 80
Protection Class	IP 66
Intrinstically Safe Rating (optional)	ATEX II 2G Ex ia IIC T4

No.	Description	Material	DIN*	ASTM/AISI*
①	Actuator Body	Aluminum GD-Al Si 12	—	—
②	Valve Bonnet	Carbon Steel A105/A105M	1.0460	—
③	Stuffing Box V-rings	Fluorine Resin PTFE w/ Carbon	PTFE	PTFE
④	Plug and Stem	Stainless Steel SUS304	1.4301	AISI304
⑤	Valve Bonnet Gasket	Fluorine Resin PTFE	PTFE	PTFE
⑥	Flange	Cast Stainl. Stl. A351/A351M Gr.CF8	1.4312	—
⑦	Valve Bonnet Guide	Cast Stainl. Stl. A351/A351M Gr.CF8	1.4312	—
⑧	Valve Bonnet Guide Gasket	Fluorine Resin PTFE	PTFE	PTFE
⑨	Main Body	See Valve Specification Table for available materials		
⑩	Valve Seat	Stainless Steel SUS304	1.4301	AISI304
⑪	Separator Screen	Stainless Steel SUS430/304	1.4016/1.4301	AISI430/304
⑫	Separator	Cast Stainl. Stl. A351/A351M Gr.CF8	1.4312	—
⑬	Trap Body	Same material as Valve Body		
⑭	Float	Stainless Steel SUS316L	1.4404	AISI316L
⑮	Trap Valve Seat	—	—	—
⑯	Trap Cover	Same material as Valve Body		
⑰	Positioner Housing	Polyphthalamide PPA	—	—
⑱	Positioner Cover	Polycarbonate PC	—	—

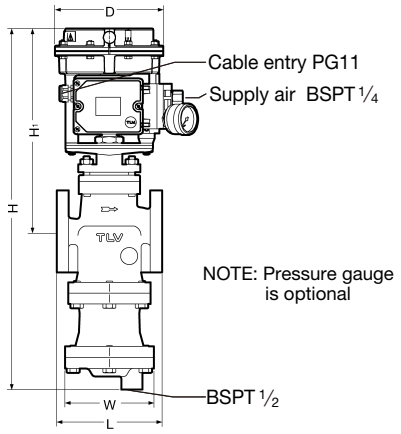
* Equivalent materials



NOTE: Pressure gauge is optional

Dimensions

● **CV-COS** Flanged



CV-COS Flanged (mm)

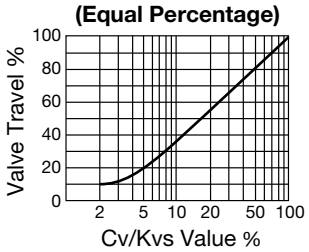
DN	L					Actuator Area (cm^2)	H	H_1	W	ϕD	Weight* (kg)
	DIN 2501	ASME Class									
	PN25/40	125FF	(150RF)	250RF	(300RF)						
(15)	150	—	170	—	170	120	520	310	105	168	18
(20)	150	—	182	—	182						
25	160	176	188	188	192		548	308	150		23
40	200	209	220	222	224		593	323	165		30
50	230	255	255	260	261		657	337	195		45

( ) No ASME standard exists for cast iron; machined to fit steel flanges
Class 125 FF can connect to 150 RF, 250 RF can connect to 300 RF
Other standards available, but length and weight may vary
* Weight is for PN 25/40 (Ductile Cast Iron)
Flange to flange dimension of DN 15 not according to DIN standard, due to size of separator and steam trap.

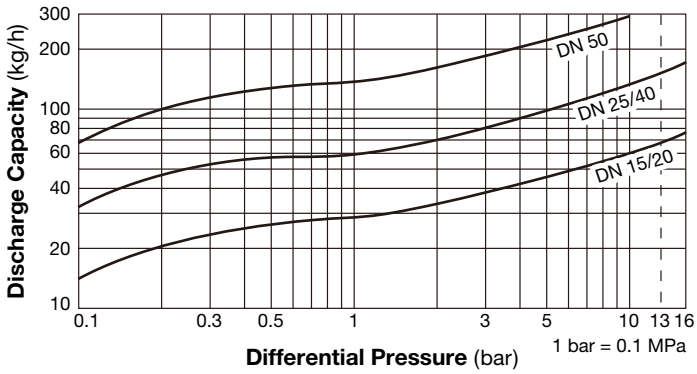
Cv & Kvs Values

DN	15	20	25	40	50
Kvs (DIN)	3.0	5.1	7.7	23	34
Cv (UK)	2.9	5.0	7.5	23	33
Cv (US)	3.5	6.0	9.0	27	40
Seat Diameter (mm)	12	24		38	48

Characteristic Graph



Trap Discharge Capacity



1. The discharge capacity is the maximum continuous condensate discharge 6 °C below saturated steam temperature.
2. The differential pressure is the difference between the CV-COS inlet and its trap outlet pressure.

⚠CAUTION DO NOT use this product under conditions that exceed maximum differential pressure, as condensate backup will occur!

Options

Intrinsically Safe Positioner	ATEX II 2G Ex ia IIC T4
Pressure Gauge for Positioner	Details on request
Electric Actuator*	Details on request

* Manufacturer: Samson AG

Manufacturer
TLV CO., LTD.
Kakogawa, Japan
is approved by LRQA Ltd, to ISO 9001/14001

ISO 9001
ISO 14001

(M)

SDS U0408-28 Rev. 1/2023

Products for intended use only.
Specifications subject to change without notice.