



ELECTRO-PNEUMATIC CONTROL VALVE

MODEL **CV-COS-20D** DUCTILE CAST IRON

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 travel and error codes.
7. Self-adjusting chevron packing minimizes seal leaks, stem wear and stiction/hysteresis problems.

Pressure Equipment Directive (PED)

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

Size	Category	CE Marking
DN 15 to DN 25	—*	Art. 4, Sec. 3 (sound engineering practice), CE marking not allowed
DN 40 to DN 65	I	with CE marking and Declaration of Conformity
DN 80 to DN 100	II	with CE marking and Declaration of Conformity

* Manufactured in accordance with sound engineering practice



Specifications

VALVE

Model	CV-COS-20D			
Body Material	Ductile Cast Iron (EN-GJS-400-18-LT, EN 5.3103)			
Connection	Flanged PN25 DIN EN 1092-2			
Size (DN)	15, 20, 25, 40, 50	65	80	100
Maximum Operating Pressure (barg) PMO	21	19.5	21	20
Maximum Operating Temperature (°C) TMO	220			
Leak Rate Class (IEC 60534-4)/Seat Plug Sealing	Class IV/Metal sealing (Option: Class VI/Soft sealing)			
Characteristic	Equal percentage or linear			
Rangeability	50 : 1			
Applicable Fluid*	Steam			

* Do not use with toxic, flammable or otherwise hazardous fluids.

1 bar = 0.1 MPa

PRESSURE SHELL DESIGN CONDITIONS (**NOT** OPERATING CONDITIONS): Maximum Allowable Pressure (barg) PMA: 22
Maximum Allowable Temperature (°C) TMA: 220

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
Intrinsically Safe Rating (optional)	ATEX II 2G Ex ia IIC T4

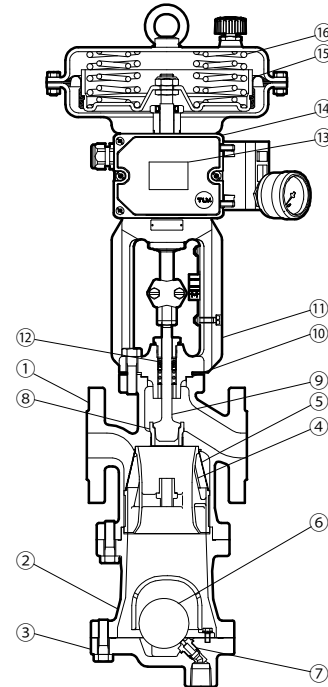


To avoid abnormal operation, accidents or serious injury, DO NOT use this product outside of the specification range. Local regulations may restrict the use of this product to below the conditions quoted.

Configuration

No.	Description	Material	DIN*	ASTM/AISI*
①	Main Body	Ductile Cast Iron EN-GJS-400-18-LT	0.7043	A395 Gr.60-40-18
②	Separator Body	Ductile Cast Iron EN-GJS-400-18-LT	0.7043	A395 Gr.60-40-18
③	Trap Cover	Ductile Cast Iron EN-GJS-400-18-LT	0.7043	A395 Gr.60-40-18
④	Separator	Cast Stainless Steel A351 Gr.CF8	1.4312	—
⑤	Separator Screen	Stainless Steel SUS430/ SUS304	1.4016/ 1.4301	AISI430/ AISI304
⑥	Float	Stainless Steel SUS316L	1.4404	AISI316L
⑦	Trap Valve Seat	—	—	—
⑧	Valve Seat	Stainless Steel X12Cr13	1.4006	AISI410
⑨	Plug and Stem	Stainless Steel X2CrNiMo17-12-2/ X12Cr13**	1.4404/ 1.4006**	AISI316L/ AISI410**
⑩	Valve Bonnet Gasket	Graphite	—	—
⑪	Valve Bonnet	Carbon Steel A105	1.0460	—
⑫	Stuffing Box V-ring Packing	Fluorine Resin PTFE with Carbon	PTFE	PTFE
⑬	Positioner Cover	Polycarbonate PC	—	—
⑭	Positioner Housing	Polyphthalamide PPA	—	—
⑮	Rolling Diaphragm	Nitrile Rubber with Fabric Insert	NBR	NBR
⑯	Actuator Springs	Spring Carbon Steel	—	—

* Equivalent materials ** For Kvs values 25 and higher
Contact TLV for available replacement parts.



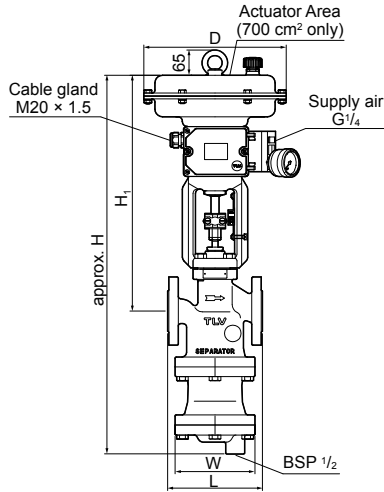
Cv & Kvs Values

Stroke (mm)	Kvs (DIN)	0.4	1	2.5	4	6.3	10	16	25	40	60	80	63	100	160
	Cv (UK)	0.39	0.97	2.4	3.9	6.1	9.7	15.5	24.3	38.8	58.2	77.6	61.1	97	155
Cv (US)	0.5	1.2	3	5	7.5	12	20	30	47	70	95	75	120	190	
Seat Dia. (mm)		6		12		24		31	38	48	63	80	63	80	100
DN		6		12		24		31	38	48	63	80	63	80	100
15	15	○	○	○	⊙										
	20	○	○	○	○	⊙									
	25	○	○	○	○	○	⊙								
	40	○	○	○	○	○	○	○	⊙						
	50	○	○	○	○	○	○	○	○	⊙					
30	65								○	○	⊙				
	80								○	○	○	⊙			
100												○	○	⊙	

⊙: Standard, ○: Option. Price and delivery time may vary for options.

Dimensions

● **CV-COS-20D Flanged**



CV-COS-20D Flanged (mm)

DN	L	Actuator Area (cm ²)	H	H ₁	W	φ D	Weight (kg)
	DIN EN 1092-2 PN25						
15	130	240	585	385	105	240	22
20	150		630		150		23
25	160		685		165		37
40	200	350	740	406	195	280	51
50	230		780				83
65	290		965				107
80	310	700	1160	589	245	390	162
100	350						

Other standards available, but length and weight may vary

Maximum Operating Differential Pressure* PMX (Air to open)

DN	Actuator Area (cm ²)	Spring Bench Range (bar)	Min. Air Supply Pressure (barg)	Max. Differential Pressure* (bar)
15	240	0.3 - 1.1	1.5	21
20		0.6 - 2.2	2.4	
25				
40	350	1.2 - 3.6**	3.8	19.5
50		1.4 - 2.3**	2.5	
65		2.1 - 3.3**	3.5	
80	700	1.85 - 2.3**	2.5	21
100		2.6 - 4.3**	4.5	20

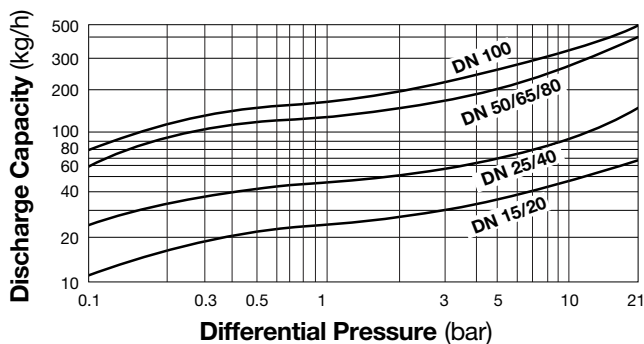
* Subject to limitation of maximum operating pressure rating of valve (PMO), see 'Specifications' for details ** Pre-tensioned springs

Options*

- Body Material: Cast Steel (A216 Gr.WCB)
- Air Filter Regulator
- Manual Handwheel
- Limit Switches
- Electric Actuator
- Pneumatic Positioners
- Intrinsically Safe Positioner
- Pressure Gauge for Positioner

* Details available on request

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!

Memo:

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

