



ELECTRO-PNEUMATIC CONTROL VALVE

MODEL **CV-COS-20D** DUCTILE 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.

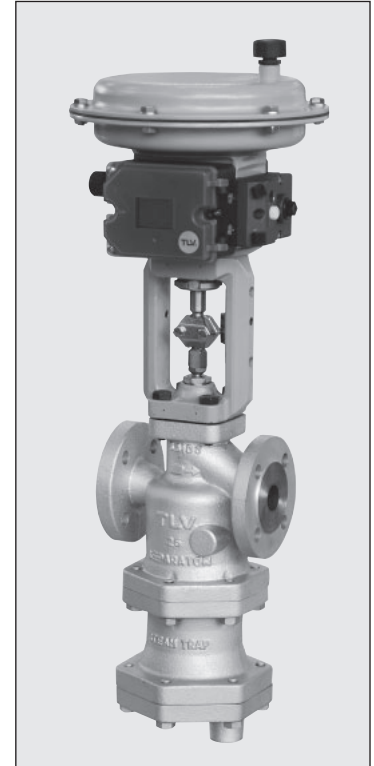
1. Built-in cyclone separator and self-modulating free float steam trap provide dry, high-quality steam supply improving productivity and product quality for process applications.
2. Removal of condensate while valve is closed reduces scale adhesion and water hammer.
3. Pneumatic actuator with digital 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 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 5.3103)								Cast Stainless Steel (A351 Gr.CF8M)								
Connection	Flanged PN25 DIN EN 1092-2								Flanged PN40 DIN EN 1092-2								
Size (DN)	15	20	25	40	50	65	80	100	15	20	25	40	50	65	80	100	
Max. Operating Pressure (barg)	PMO	21				20	20.5	21				20	20.5				
Max. 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 (EN 5.3103), 32 (CF8M)
Maximum Allowable Temperature (°C) TMA: 220
Minimum Allowable Temperature (°C): 0 (EN 5.3103), -40 (CF8M)

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)	4.4 to 6
Ambient Temperature Range (°C)	-20 to +80
Protection Class	IP 66
Intrinsically Safe Rating (optional)	ATEX II 2G Ex ia IIC T4

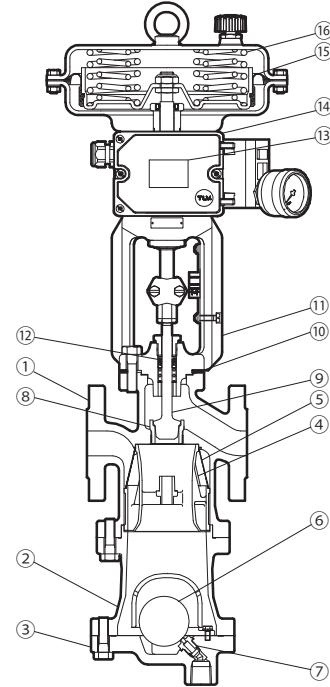


To avoid abnormal operation, accidents or serious injury, DO NOT use this product outside of the specification range. Local regulations may restrict the use of this product to below the conditions quoted.

Configuration

No.	Description	Material	DIN/EN*	ASTM/AISI*
①	Main Body	See Valve Specification Table for available materials		
②	Separator Body	See Valve Specification Table for available materials		
③	Trap Cover	See Valve Specification Table for available materials		
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/ X2CrNiMo17-12-2**	1.4006/ 1.4404**	AISI410/ AISI316L**
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/ Stainless Steel SUSF316L**	1.0460/ 1.4404**	—/ A182 F316L**
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 cast stainless steel model
 *** For ductile cast iron model, Kvs values 25 and higher
 Contact TLV for available replacement parts.



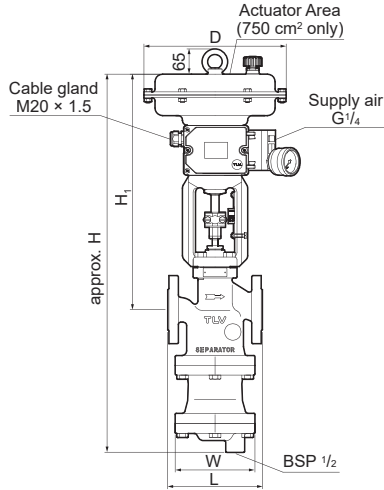
Cv & Kvs Values

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															
15	15	○	○	○	◎											
	20	○	○	○	○	◎										
	25	○	○	○	○	○	◎									
	40	○	○	○	○	○	○	○	◎							
	50	○	○	○	○	○	○	○	○	◎						
	65									○	○	◎				
30	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	PN40						
15	130	130	175	605	400	110	215	22
20	150	150		645				24
25	160	160		725				38
40	200	200	355	780	445	195	280	51
50	230	230		820				97
65	290	290	750	1070	600	245	394	121
80	310	310		1260				176
100	350	350						

Other standards available, but length and weight may vary
 * Weight is for DIN PN 25 in ductile cast iron

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	175	0.8 - 2.4	2.6	50	
20				21	
25				42	
40	355	1.6 - 2.4	3.8	26	
50				23	
65	750	2.4 - 3.6	2.6	20	
80				2.6	20
100				4.4	20.5

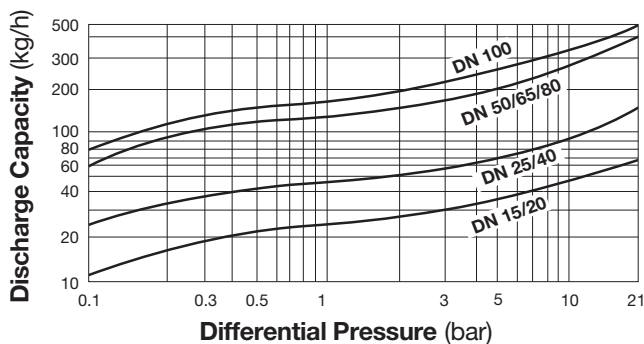
* Subject to limitation of maximum operating pressure rating of valve (PMO), see 'Specifications' for details

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

ISO 9001
ISO 14001

