ELECTRO-PNEUMATIC CONTROL VALVE

MODEL CV10 CAST IRON, DUCTILE CAST IRON, CAST STEEL, STAINLESS STEEL

MULTI-PURPOSE CONTROL VALVE WITH ELECTRO-PNEUMATIC POSITIONER

Features

Reliable two-port globe-style valve with equal percentage and linear characteristics for use on steam, water or air. This extremely durable control valve delivers Class IV or VI performance in severe service applications.

1. Digital I/P positioner and pneumatic actuator of standardized sizes in a compact configuration.
2. Rolling actuator diaphragm ensures linearity over the operating stroke and maximizes life.
3. Self-adjusting positioner features zero calibration by auto-tuning, which ensures tight shut-off and improves control during low flow.
4. Positioner LCD allows simple operation with capacitive keys and displays valve aperture and error codes.
5. Self-adjusting chevron packing minimizes seal leaks, stem wear and stiction/hysteresis problems.
6. Multi-spring actuator is highly efficient, and its low overall height facilitates compact installation.
7. Intrinsically safe version and a wide variety of other special options are available for exceptional performance in demanding duties.
8. Size DN 40 and above utilize V-port plugs to improve control stability and provide durability resulting in a long service life.

Pressure gauge is optional

Specifications

VALVE

Model		CV10			
Body Material		Cast Iron (EN-JL 1040)	Ductile Cast Iron (EN-JS 1049)	Cast Steel (1.0619)	Cast Stainless Steel (1.4408)
Connection		Flanged DIN 2501 PN 16	Flanged DIN 2501 PN 25	Flanged DIN 2501 PN 40*	
Size		DN 15, 20, 25, 32, 40, 50, 65, 80, 100, 150			
Maximum Operating Pressure (barg)	PMO	13	19	25	
Maximum Operating Temperature (°C)	TMO	200	220**		
Leak Rate Class (IEC 60534-4)/Seat Plug Sealing		Standard: IV (metal sealing), VI (soft sealing special option) Balanced: IV (metal sealing with PTFE ring), III (metal sealing with graphite ring)			
Characteristic		Equal percentage or linear			
Rangeability		50 : 1 for DN 15 to 50, 30 : 1 for DN 65 and above			
Applicable Fluids***		Steam, Water, Air			

* ASME standards also available ** Higher values available with insulating section *** 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: 13 (Cast Iron), 19 (Ductile Cast Iron), 25 (Cast Steel, Cast Stainless Steel)
Maximum Allowable Temperature (°C) TMA: 200 (Cast Iron), 220 (Ductile Cast Iron, Cast Steel, Cast Stainless Steel)

ACTUATOR / POSITIONER

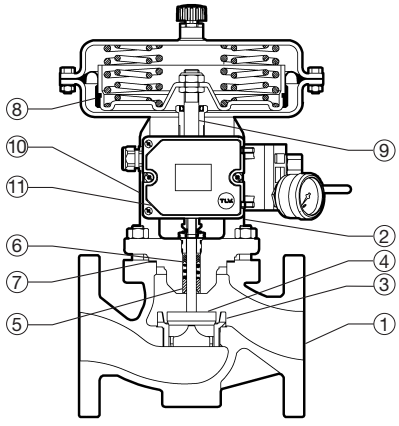
Fail-safe Position	Valve CLOSED*	Valve OPEN**
Motive Medium	Oil-free air, filtered to 5 µm	
Electrical Input Signal (mA)	4 to 20	
Load Impedance (V)	Max. 6.3	
Air Supply Pressure Range for Positioner (barg)	3.7 to 6	
Ambient Temperature Range (°C)	– 20 to 80	
Protection Class	IP 66	
Intrinstically Safe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

* Air to open ** Air to close

No.	Description	Material	DIN EN
①	Valve Body	Cast Iron	EN-JL 1040
		Ductile Cast Iron	EN-JS 1049
		Cast Steel	1.0619
		Cast Stainless Steel	1.4408
②	Valve Bonnet	Carbon Steel	1.0460
		Stainless Steel	1.4401
③	Valve Seat	Stainless Steel	1.4006
④	Valve Plug	Stainless Steel	1.4006
⑤	Guide Bushing	Stainless Steel	1.4104
⑥	Stuffing Box V-ring Packing	Fluorine Resin with Carbon	PTFE
⑦	Body Gasket	Metal/Graphite	—
⑧	Rolling Diaphragm	NBR with Fabric Insert	NBR
⑨	Actuator Stem	Stainless Steel	1.4404
⑩	Positioner Housing	Polyphthalamide PPA	—
⑪	Positioner Cover	Polycarbonate PC	—

* Equivalent materials

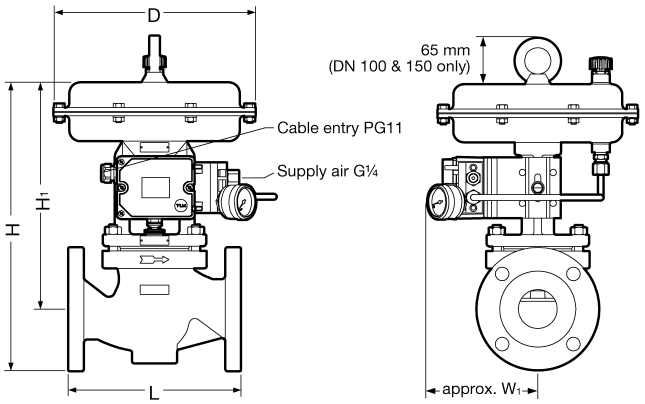
CAUTION To avoid abnormal operation, accidents or serious injury, DO NOT use this product outside of the specification range. Local regulations may restrict the use of this product to below the conditions quoted.



NOTE: Pressure gauge is optional

Dimensions

● **CV10** Flanged



NOTE: Pressure gauge is optional

CV10 Flanged (mm)

DN	L DIN 2501 PN16	L DIN 2501 PN25	L DIN 2501 PN40	Actuator Area (cm²)	H	H1	ϕD	W1	Weight (kg)
15	130	130	130	240	350	282	240	150	12
20	150	150	150						13
25	160	160	160						14
32	180	180	180						18
40	200	200	200	240	377	282	240		19
				350	400	305	280		22
50	230	230	230	240	374	282	240		22
				350	397	305	280		25
65	290	290	290	350	463	345	280		34
				700	512	394	390		48
80	310	310	310	350	463	345	280		40
				700	512	394	390		54
100	350	350	350	700	618	484	390		66
150	480	480	480	700	720	524	390		144

ASME flanges available

Maximum Operating Differential Pressure* PMX (Air to open)

DN	Actuator Area (cm²)	Spring Bench Range (bar)	Minimum Air Supply Pressure (barg)	Maximum Differential Pressure* (bar)
15	240	0.2 - 1.0	1.4	28
20	240	0.4 - 2	2.2	14.8
	240	0.6 - 3	3.2	24
25	240	0.4 - 2	2.2	14.8
	240	0.6 - 3	3.2	24
32	240	0.6 - 3	3.2	14
	240	0.9 - 3.3**	3.8	23
40	240	0.9 - 3.3**	3.8	15
	350	1.4 - 2.3	2.5	37

DN	Actuator Area (cm²)	Spring Bench Range (bar)	Minimum Air Supply Pressure (barg)	Maximum Differential Pressure* (bar)
50	240	0.9 - 3.3**	3.8	9
	350	1.4 - 2.3	2.5	23
65	350	1.4 - 2.3	2.5	13
	350	2.1 - 3.3	3.5	20
	700	1.2 - 2	2.2	23
80	350	2.1 - 3.3	3.5	12
	700	1.2 - 2	2.2	14
	700	1.85 - 2.03	2.5	22
100	700	0.2 - 1	1.2	12***
150	700	0.4 - 2	2.2	40***

* Subject to limitation of maximum operating pressure rating of valve (PMO)
** Pre-tensioned spring
*** Balanced plug

Cv & Kvs Values

DN	15	20	25	32	40	50	65	80	100	150
Kvs (DIN)	4	6.3	10	16	25	40	60	80	160	260
Cv (UK)	3.9	6.7	9.7	15.5	24	39	58	78	155	252
Cv (US)	5	7.5	12	20	30	47	70	95	190	300
Seat Diameter (mm)	12	24		31	38	48	63	80	100	130

Options*

- Air Filter Regulator
- Manual Handwheel
- Limit Switches
- Reduced Kvs (Cv) Plug and Seat
- Pneumatic Positioners
- Intrinsically Safe Positioner
- Pressure Gauge for Positioner

* Details available on request

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

ISO 9001/ISO 14001