



ELECTRO-PNEUMATIC CONTROL VALVE

MODEL CT20

COMPACT MULTI-PURPOSE CONTROL VALVE WITH ELECTRO-PNEUMATIC POSITIONER

Features

Electro-pneumatic globe valve up to 150 mm with drain plug and I/P positioner for steam and non-hazardous fluids.

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 travel 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. Sizes 40 mm and above utilize V-port plugs to improve control stability and provide durability resulting in a long service life.



Specifications

VALVE

Model		CT20									
Body Material		Cast Steel (A216 Gr.WCB) Cast Stainless Steel (A351 Gr.CF8)									
Connection		Flanged ASME									
Size		15	20	25	32	40	50	65	80	100	150
Max. Oper. Press. (MPaG) PMO	150RF	1.0									
	300RF	2.0									1.2
Max. Operating Temp. (°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 Fluids*		Steam, Water, Air									

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

1 MPa = 10.197 kg/cm²

PRESSURE SHELL DESIGN CONDITIONS (**NOT** OPERATING CONDITIONS): Maximum Allowable Pressure (MPaG) PMA: 3.1
Maximum Allowable Temperature (°C) TMA: 220
Minimum Allowable Temperature (°C): 0

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 (MPaG)	0.37 to 0.6
Ambient Temperature Range (°C)	-25 to +80
Protection Class	IP 66
Intrinsically Safe Rating (optional)	ATEX II 2G Ex ia IIC T4

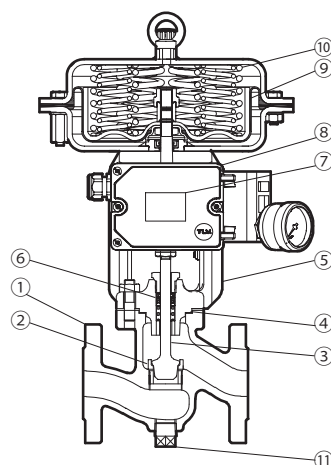


To avoid abnormal operation, accidents or serious injury, DO NOT use this product outside of the specification range. Local regulations may restrict the use of this product to below the conditions quoted.

Configuration

No.	Description	Material	JIS	ASTM/AISI*
①	Valve Body	See Valve Specification Table for available materials		
②	Valve Seat	Stainless Steel	—	AISI316L
③	Plug and Stem	Stainless Steel	—	AISI316L/ AISI410**
④	Valve Bonnet Gasket	Graphite	—	—
⑤	Valve Bonnet	Carbon Steel	—	A105
⑥	Stuffing Box V-ring Packing	Fluorine Resin with Carbon	PTFE	PTFE
⑦	Positioner Housing	Polyphthalamide	PPA	PPA
⑧	Positioner Cover	Polycarbonate	PC	PC
⑨	Rolling Diaphragm	Nitrile Rubber with Fabric Insert	NBR	NBR
⑩	Actuator Springs	Spring Carbon Steel	—	—
⑪	Drain Plug	Carbon Steel	—	—

* Equivalent ** For Cv(US) values 30 and higher
Contact TLV for available replacement parts.



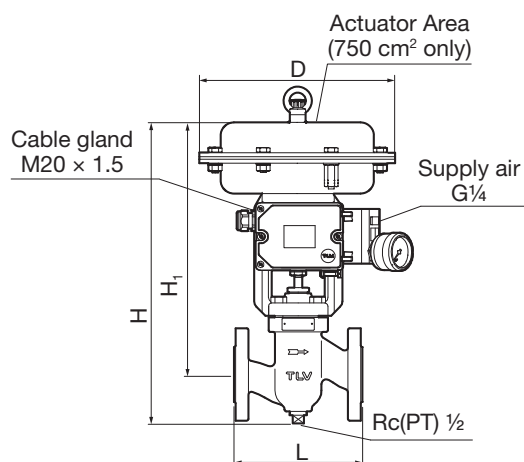
Cv & Kvs Values

Stroke (mm)	Cv (US)	0.5	1.2	3	5	7.5	12	20	30	47	70	95	75	120	190	300
	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	252
	Kvs (DIN)	0.4	1	2.5	4	6.3	10	16	25	40	60	80	63	100	160	260
	Seat Dia. (mm) Size	6		12		24		31	38	48	63	80	63	80	100	130
15	15	○	○	○	◎											
	20	○	○	○	○	◎										
	25	○	○	○	○	○	◎									
	32	○	○	○	○	○	○	◎								
	40	○	○	○	○	○	○	○	◎							
	50	○	○	○	○	○	○	○	○	◎						
	65								○	○	◎					
	80								○	○	○	◎				
30	100												○	○	◎	
	150												○	○	○	◎

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

Dimensions

● CT20 Flanged



CT20 Flanged (mm)

Size	L		Actuator Area (cm²)	H*	H ₁	ϕ D	Weight** (kg)
	ASME Class						
	150RF	300RF					
15	184	190	175 [175]	355 [355]	300 [300]	215 [215]	13
20		194		365 [365]			14
25		197					385 [385]
32	222	235			301 [301]		
40			22				
50	254	267	175 [355]	390 [440]		301 [354]	215 [280]
65	276	292	355 [355]	495 [495]	393 [393]	280 [280]	47
80	298	317	355 [750]	505 [510]	393 [401]	280 [394]	73
100	352	368	750 [750]	615 [615]	493 [493]	394 [394]	98
150	451	473		710 [710]	529 [529]		166

Other standards available, but length and weight may vary

[] for class 300RF

* Approximate dimensions

** Weight is for Class 300 RF

Maximum Operating Differential Pressure* PMX (Air to open)

Size	Flange	Actuator Area (cm²)	Spring Bench Range (MPaG)	Min. Air Supply Pressure (MPaG)	Max. Differential Pressure* (MPa)
15	150RF	175	0.17 - 0.33	0.35	1.0
	300RF				2.0
20	150RF				1.0
	300RF				2.0
25	150RF				1.0
	300RF				2.0
32	150RF				1.0
	300RF				2.0
40	150RF				1.0
	300RF				2.0
50	150RF				1.0
	300RF				2.0
65	150RF	355	0.235 - 0.295	0.32	1.0
	300RF				2.0
	150RF				1.0
80	300RF		0.16 - 0.24	0.26	2.0
	150RF		0.22 - 0.34	0.36	1.0
100	300RF	750	0.25 - 0.42	0.44	2.0
	150RF		0.22 - 0.34	0.36	1.0
150	300RF		0.25 - 0.42	0.44	1.2
	150RF				

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

Options*

- Air Filter Regulator
 - Manual Handwheel
 - Limit Switches
 - Electric Actuator
 - Pneumatic Positioners
 - Intrinsically Safe Positioner
- * Details available on request



Memo:

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

