



# ELECTRO-PNEUMATIC CONTROL VALVE

## MODEL CT20

### COMPACT MULTI-PURPOSE CONTROL VALVE WITH ELECTRO-PNEUMATIC POSITIONER

#### Features

**Electro-pneumatic globe valve up to 6 inch 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 1½ inch 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		½	¾	1	1¼	1½	2	2½	3	4	6
Max. Oper. Press. (psig) PMO	150RF	150									
	300RF	300			290		300		290	297	174
Max. Oper. Temp. (°F)	TMO	428									
Max. Allow. Press. (psig)	PMA	449									
Max. Allow. Temp. (°F)	TMA	428									
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.

CT20 is a non-standard product, consult TLV for delivery time required.

##### 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 (psig)	54 to 90
Ambient Temperature Range (°F)	-13 to +176
Protection Class	IP 66
Intrinsically Safe Rating (optional)	ATEX II 2G Ex ia IIC T4

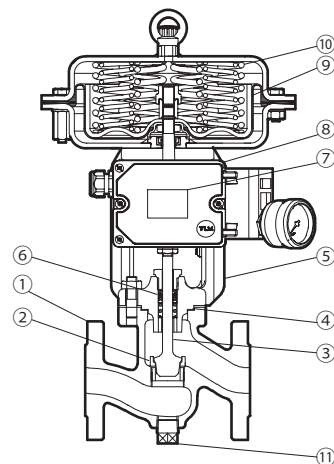


To avoid abnormal operation, accidents or serious injury, DO NOT use this product outside of the specification range. Local regulations may restrict the use of this product to below the conditions quoted.

## Configuration

No.	Description	Material	ASTM/AISI*	JIS
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.



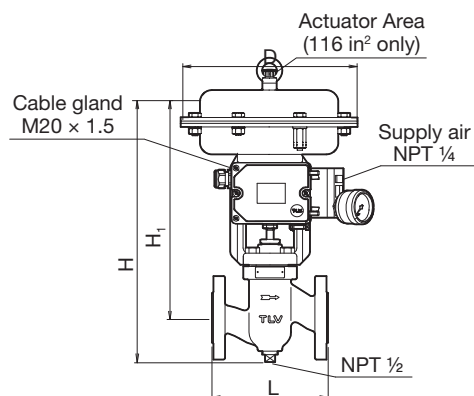
## Cv & Kvs Values

Stroke (in)	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. (in) Size	¼		½		¾		1	1 ¼	1 ½	1 ¾	2	2 ¼	2 ½	3	3 ½
9/16	½	○	○	○	◎											
	¾	○	○	○	○	◎										
	1	○	○	○	○	○	◎									
	1 ¼	○	○	○	○	○	○	◎								
	1 ½	○	○	○	○	○	○	○	◎							
	2	○	○	○	○	○	○	○	○	◎						
	2 ½								○	○	◎					
1 3/16	3								○	○	○	◎				
	4												○	○	◎	
	6												○	○	○	◎

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

## Dimensions

### ● CT20 Flanged



### CT20 Flanged (in)

Size	L Connects to ASME Class		Actuator Area (in²)	H*	H <sub>1</sub>	ø D	Weight** (lb)
	150RF	300RF					
1/2		7 1/2		14 [14]	11 13/16 [11 13/16]	8 7/16 [8 7/16]	29
3/4	7 1/4	7 5/8					31
1		7 3/4	27 [27]	14 3/8 [14 3/8]			33
1 1/4	8 3/4	9 1/4		15 3/16 [15 3/16]	11 7/8 [11 7/8]		40
1 1/2							49
2	10	10 1/2	27 [55]	15 3/8 [17 5/16]	11 7/8 [13 15/16]	8 7/16 [11]	77
2 1/2	10 7/8	11 1/2	55 [55]	19 1/2 [19 1/2]	15 1/2 [15 1/2]	11 [11]	104
3	11 3/4	12 1/2	55 [116]	19 7/8 [20 1/16]	15 1/2 [15 13/16]	11 [15 1/2]	161
4	13 7/8	14 1/2	116 [116]	24 3/16 [24 3/16]	19 7/16 [19 7/16]	15 1/2 [15 1/2]	216
6	17 3/4	18 5/8		27 15/16 [27 15/16]	20 13/16 [20 13/16]		366

Other standards available, but length and weight may vary

[ ] for class 300RF

\* Approx. \*\* Weight is for Class 300 RF

## Maximum Operating Differential Pressure\* PMX (Air to open)

Size	Flange	Actuator Area (in²)	Spring Bench Range (psi)	Min. Air Supply Pressure (psig)	Max. Differential Pressure* (psi)
1/2**	150RF	27	25 - 48	51	150
	300RF				300
3/4**	150RF				150
	300RF				300
1	150RF				150
	300RF				300
1 1/4	150RF				150
	300RF				300
1 1/2	150RF				150
	300RF				290
2	150RF	55	34 - 43	47	150
	300RF				300
2 1/2	150RF				150
	300RF				300
3	150RF	116	23 - 35	38	150
	300RF				290
4	150RF		34 - 43	46	150
	300RF		36 - 61	64	295
6	150RF		34 - 43	46	152
	300RF		36 - 61	64	174

\* 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



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Memo:



DO NOT DISASSEMBLE OR REMOVE THIS PRODUCT WHILE IT IS UNDER PRESSURE.  
Allow internal pressure of this product to equal atmospheric pressure and its surface to cool to room temperature before disassembling or removing. Failure to do so could cause burns or other injury. READ INSTRUCTION MANUAL CAREFULLY.

## TLV CORPORATION

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

ISO 9001  
ISO 14001

