

Factory Set

P2... Series Pressure Independent Characterized Control Valves (PICCV) Chrome Plated Brass Ball and Brass Stem, NPT Female Ends



Application

The Pressure Independent Characterized Control Valve is typically used in air handling units on heating and cooling coils, and fan coil unit heating or cooling coils. Some other common applications include unit ventilators and VAV re-heat coils. This valve is suitable for use in a hydronic system with constant or variable flow.

This valve is designed with MFT functionality which facilitates the use of various control input.

Technical Data	
Service	chilled or hot water, 60% glycol
Flow characteristic	equal percentage
Size	½", ¾", 1"
Type of end fitting	female, NPT
Materials	
Body	forged brass, nickel plated
Ball	chrome plated brass
Stem	chrome plated brass
Seat O-rings	Viton
Seat	fiberglass reinforced Teflon® PTFE
Characterizing disc	½" & ¾" Brass 1" TEFZEL®
Packing	2 EPDM O-rings, lubricated
Diaphragm	½" & ¾" silicone and Nomex 1" polyester reinforced silicone
Regulator components	stainless steel/brass/Nitrile
Spring	stainless steel
Body pressure rating	600 PSI
Media temp. range	0°F to 212°F [-18°C to +100°C]
Close off pressure	200 PSI
Leakage	ANSI Class IV (0.01% of rated valve capacity at 50 psi differential)
Rangeability	100 : 1
Differential pressure	5 to 50 PSI operating range
Valve accuracy	± 5%*
Weight of valve body	½" = 2.52 lbs ¾" = 2.52 lbs 1" = 4.98 lbs

½" body has three discs with different flow capabilities (.50 GPM to 1 GPM), (1.5 GPM to 2.5 GPM), (3 GPM to 5.5 GPM)

1" body has two discs with different flow capabilities (11 GPM to 16 GPM), (17 GPM to 19 GPM)

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* See page 3 of the PICCV Technical Documentation for more details.

Valve Model	Flow Rate		Valve Nominal Size		Suitable Actuators		
	GPM	Liter/sec	Inches	DN mm	Close-off PSI	Spring Return	Non-Spring Return
P2050B005(-P)	0.5	0.03	½	15	200	TFR24-MFT US	LRB(X)24-3
P2050B010(-P)	1	0.06	½	15	200		
P2050B015(-P)	1.5	0.09	½	15	200		
P2050B020(-P)	2	0.13	½	15	200		
P2050B025(-P)	2.5	0.16	½	15	200		
P2050B030(-P)	3	0.19	½	15	200		
P2050B035(-P)	3.5	0.22	½	15	200		
P2050B040(-P)	4	0.25	½	15	200		
P2050B045(-P)	4.5	0.28	½	15	200		
P2050B050(-P)	5	0.32	½	15	200		
P2050B055(-P)	5.5	0.35	½	15	200		
P2075B060(-P)	6	0.38	¾	20	200		
P2075B065(-P)	6.5	0.41	¾	20	200		
P2075B070(-P)	7	0.44	¾	20	200		
P2075B075(-P)	7.5	0.47	¾	20	200		
P2075B080(-P)	8	0.50	¾	20	200		
P2075B085(-P)	8.5	0.54	¾	20	200		
P2075B090(-P)	9	0.57	¾	20	200		
P2075B095(-P)	9.5	0.60	¾	20	200		
P2075B100(-P)	10	0.63	¾	20	200		
PICCV-25-011(-P)	11	0.69	1	25	200	LF24-MFT US	LRX24-MFT
PICCV-25-012(-P)	12	0.76	1	25	200		
PICCV-25-013(-P)	13	0.82	1	25	200		
PICCV-25-014(-P)	14	0.88	1	25	200		
PICCV-25-015(-P)	15	0.95	1	25	200		
PICCV-25-016(-P)	16	1.01	1	25	200		
PICCV-25-017(-P)	17	1.07	1	25	200		
PICCV-25-018(-P)	18	1.14	1	25	200		
PICCV-25-019(-P)	19	1.20	1	25	200		

(-P) optional, ΔP verification across valve using PT ports



Models

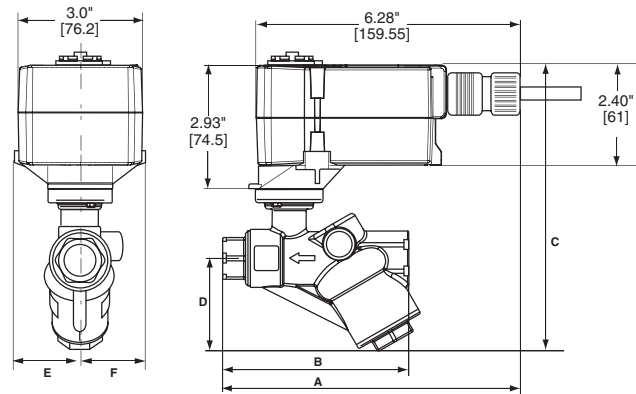
TFRX24-MFT US

Technical Data		
Control		MFT
Power supply		24 VAC ± 20% 50/60 Hz 24 VDC ± 10%
Power consumption	running	2.5 W
	holding	1.0 W
Transformer sizing		4 VA (class 2 power source)
Electrical connection		3 ft., 18 GA plenum rated cable ½" conduit connector
Overload protection		electronic throughout 0° to 95° rotation
Operating range Y*		2 to 10 VDC 4 to 20 mA (with 500 Ω, ¼ W resistor) ZG-R01
Input impedance		100 kΩ for 2 to 10 VDC (0.1 mA) 500 Ω for 4 to 20 mA 1500 Ω for PWM, floating point and on/off control
Feedback output U*		2 to 10 VDC, 0.5 mA max
Direction of rotation	spring	reversible with CW/CCW mounting
	motor	reversible with built-in ↻/↻ switch
Mechanical angle of rotation*		95°
Running time	motor*	100 seconds
	spring	<25 sec @ -4°F to +122°F [-20°C to +50°C] <60 sec @ -22°F [-30°C]
Angle of rotation adaptation*		off (default)
Override control*		min. (min position) = 0%
		- ZS (mid. position) = 50%
		- max. (max. position) = 100%
Position indication		visual indicator, 0° to 95°
Humidity		5 to 95% RH, non-condensing
Ambient temperature		-22°F to +122°F (-30°C to +50°C)
Storage temperature		-40°F to +176°F (-40°C to +80°C)
Housing		NEMA 2/IP42
Housing material		UL 94-5VA
Noise level (max)	running	<35 dB (A)
	spring return	<65 dB (A)
Agency listings†		cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1, CSA C22.2 No.24-93, CE acc to 89/336/EEC
Quality standard		ISO 9001

* Variable when configured with MFT options

† Rated impulse voltage 0.8 kV, Control pollution degree 3, Type of action 1.AA.

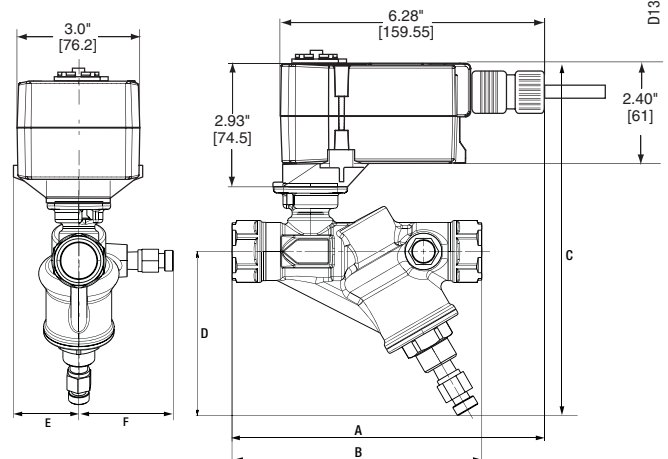
Dimensions (Inches [mm])



Valve Nominal Size

Valve Nominal Size		Dimensions (Inches [mm])					
In.	DN [mm]	A	B	C	D	E	F
½"	15	7.1" [180]	4.47" [114]	6.98" [177]	2.34" [60]	1.5" [38]	1.5" [38]

Dimensions with PT Port (Inches [mm])



Valve Nominal Size

Valve Nominal Size		Dimensions (Inches [mm])					
In.	DN [mm]	A	B	C	D	E	F
½"	15	7.1" [180]	4.47" [114]	8.01" [203]	3.54" [90]	1.5" [38]	2.4" [61]

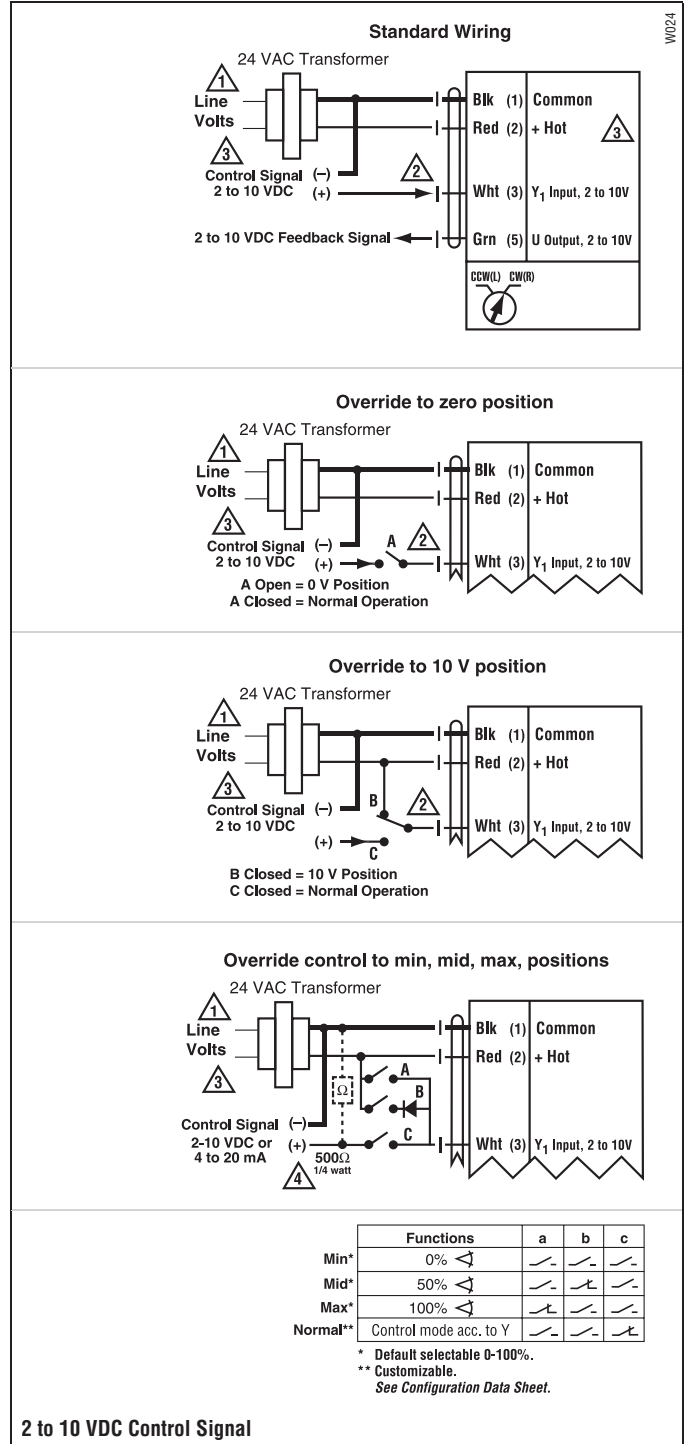
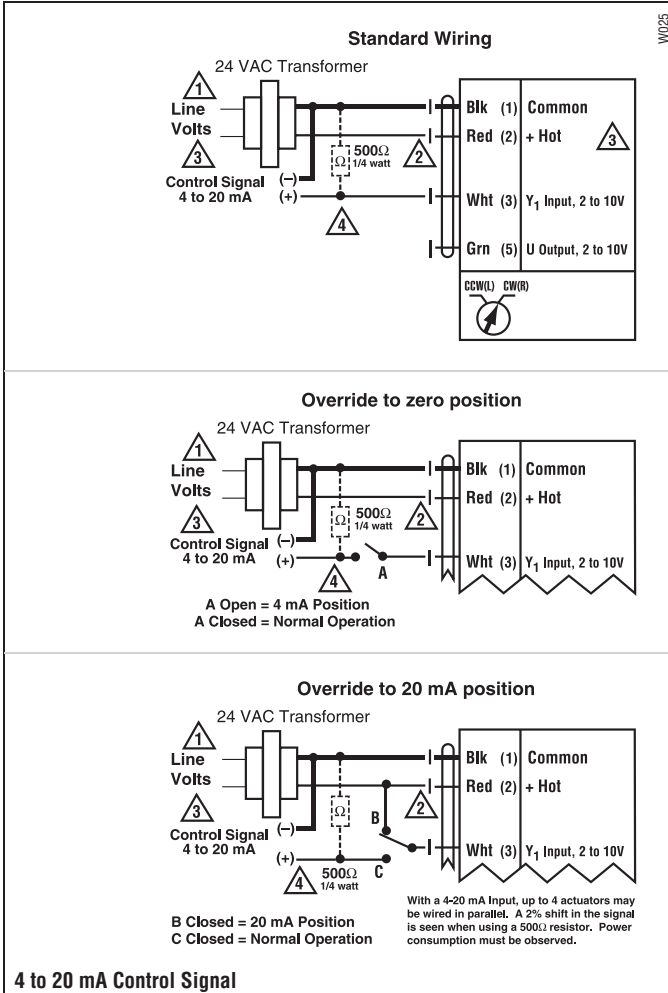
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Wiring Diagrams

✂️ INSTALLATION NOTES

- 1 Provide overload protection and disconnect as required.
- 2 **CAUTION Equipment damage!**
Actuators may be connected in parallel.
Power consumption and input impedance must be observed.
- 3 Actuators may also be powered by 24 VDC.
- 4 ZG-R01 may be used.

⚠️ WARNING Live Electrical Components!
During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components perform these tasks. Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury.



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