

PAXTON

C O R P O R A T I O N



Domestic Hot Water

MIXING VALVE SYSTEMS



Paxton TVS43 and TVS43R Systems

- Accurate control of domestic hot water during all flow conditions
- Easy to install and retrofit, simple start-up with default settings
- Direct replacement for TAC 239W tempering system
- Rugged lead free stainless steel valves
- Unique low load algorithm keeps temperature steady in low demand periods
- TVS43R features a fail closed actuator, providing protection from temperatures over setpoint and on power loss without use of additional valves and sensors
- Modbus communication standard, easy integration to BMS systems
- Prevents the risk of legionella bacteria growth
- ASSE 1017 and NSF 372 Listed

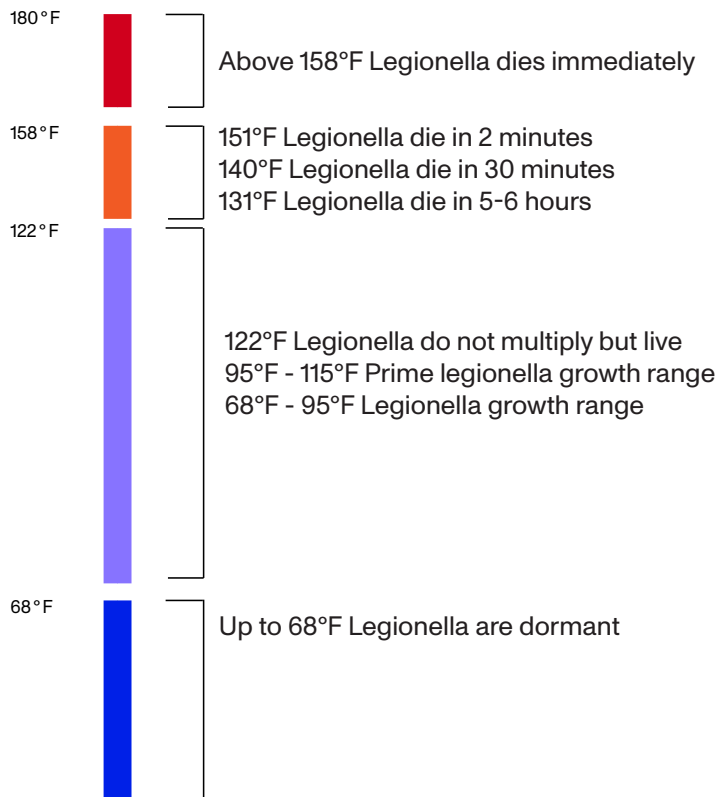
Applications

- Apartment Houses
- Schools and Dormitories
- Office Buildings
- Co-Gen Plants
- Hotels
- Industrial and Process Applications
- Nursing Homes
- DHW Solar Systems

Purpose

Temperature control - TVS series provides accurate control of domestic hot water system ensuring all branches of the system are at the desired temperature.

Bacteria elimination - By continuously monitoring the temperature of the mixed outlet, hot water tanks and coils can be stored safely at elevated temperatures preventing the growth of bacteria.



Temperature	Time to scald
120°F	5+ minutes
125°F	1.5 to 2 minutes
130°F	30 seconds
135°F	10 seconds
140°F	Less than 5 seconds
145°F	Less than 3 seconds
150°F	1.5 seconds
155°F	1 second

Technical Data

Operating Voltage 24 VAC
 Control Signal 0-10 Vdc or 2-10 Vdc
 Action Direct or reverse acting
 Actuator Force 180 lbs or 330 lbs
 Actuator Run Time 20 Seconds
 Sensor Sampling Rate 10 samples per second

Each system consists of:

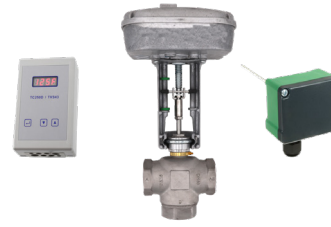
TC250D PI Controller with LED readout
 STP120-70 Fast Immersion Sensor 1/2" NPT
 VM800 or VM900 20 Second Actuator
 V43 Valve SS Valve Body
 TVS-TRN 120/24VAC Transformer
 TC250EN NEMA 5 Enclosure

Selection

TVS43



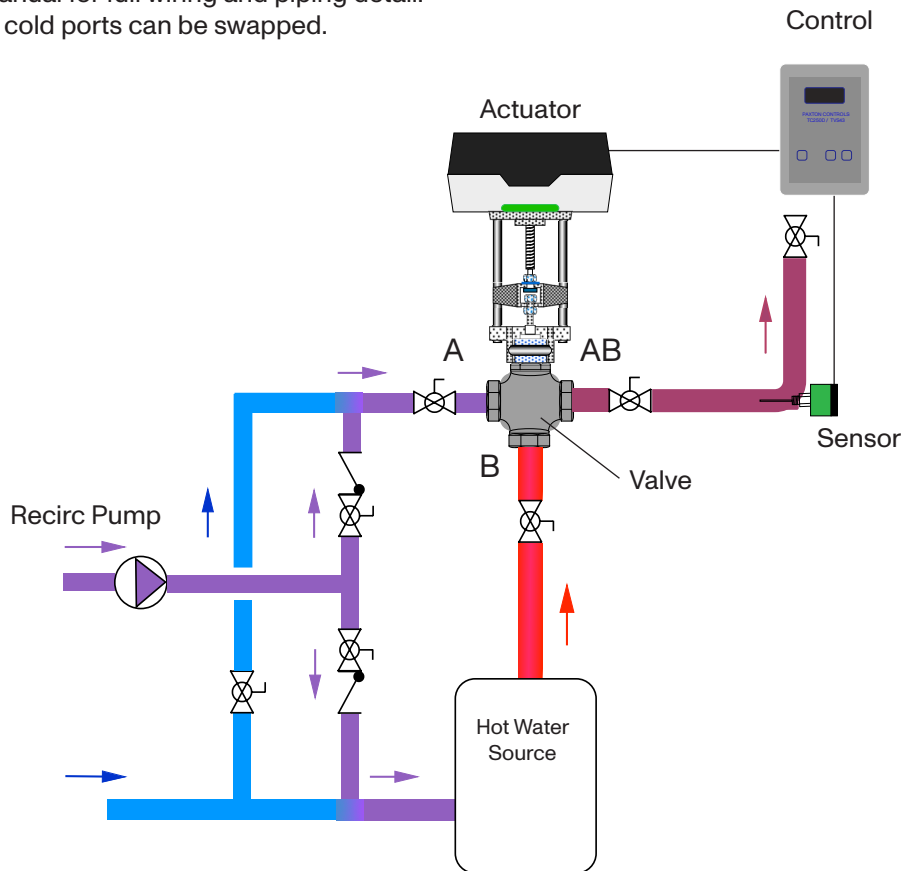
TVS43R
w/ fail closed actuator



TVS43	TVS43R	Size	Cv
TVS43-020	TVS43R-020	3/4"	7.3
TVS43-025	TVS43R-025	1"	11.6
TVS43-032	TVS43R-032	1 1/4"	18.5
TVS43-040	TVS43R-040	1 1/2"	29.0
TVS43-050	TVS43R-050	2"	46.3
TVS43-065	TVS43R-065	2 1/2"	65.0

Layout

See installation manual for full wiring and piping detail.
If desired, hot and cold ports can be swapped.



Sizing

Flow in GPM vs pressure drop in valve

Size	Cv	5 PSI	7 PSI	10 PSI	15 PSI	20 PSI
3/4"	7.3	17	19	23	28	32
1"	11.6	26	31	37	45	50
1-1/4"	18.5	42	49	59	72	80
1-1/2"	29.0	66	77	92	112	126
2"	46.3	105	123	147	179	201
2-1/2"	65.0	148	172	206	252	283

Systems should be sized for a 5 to 10 PSI pressure drop for best performance

Approximate valve sizing

for multiple dwelling buildings with single bathrooms, no laundry and no dishwashers

Number of Apartments	Valve Size
10-30	3/4"
31-60	1"
61-100	1-1/4"
101-180	1-1/2"
181-300	2"
301-500	2-1/2"
501+	Consult Paxton

Not sure what size to use? Feel free to reach out to us via email or phone. We'd be happy to size any project. See our apartment house sizing program on our website: www.paxtoncorp.com

Rough in Dimensions

Size	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"
A	4-1/2"	4-1/2"	4-3/4"	5-1/8"	5-3/4"	7-1/8"
B	2-1/8"	2-1/8"	2-1/2"	2-5/8"	3-1/8"	3-1/2"
C	13-1/2"	13-1/2"	14-1/4"	14-3/4"	15-1/2"	15-3/4"

Dimensions are the same for the VM900 Actuator / TVS43R
Leave at least 4" clear on top of the actuator for cover removal

