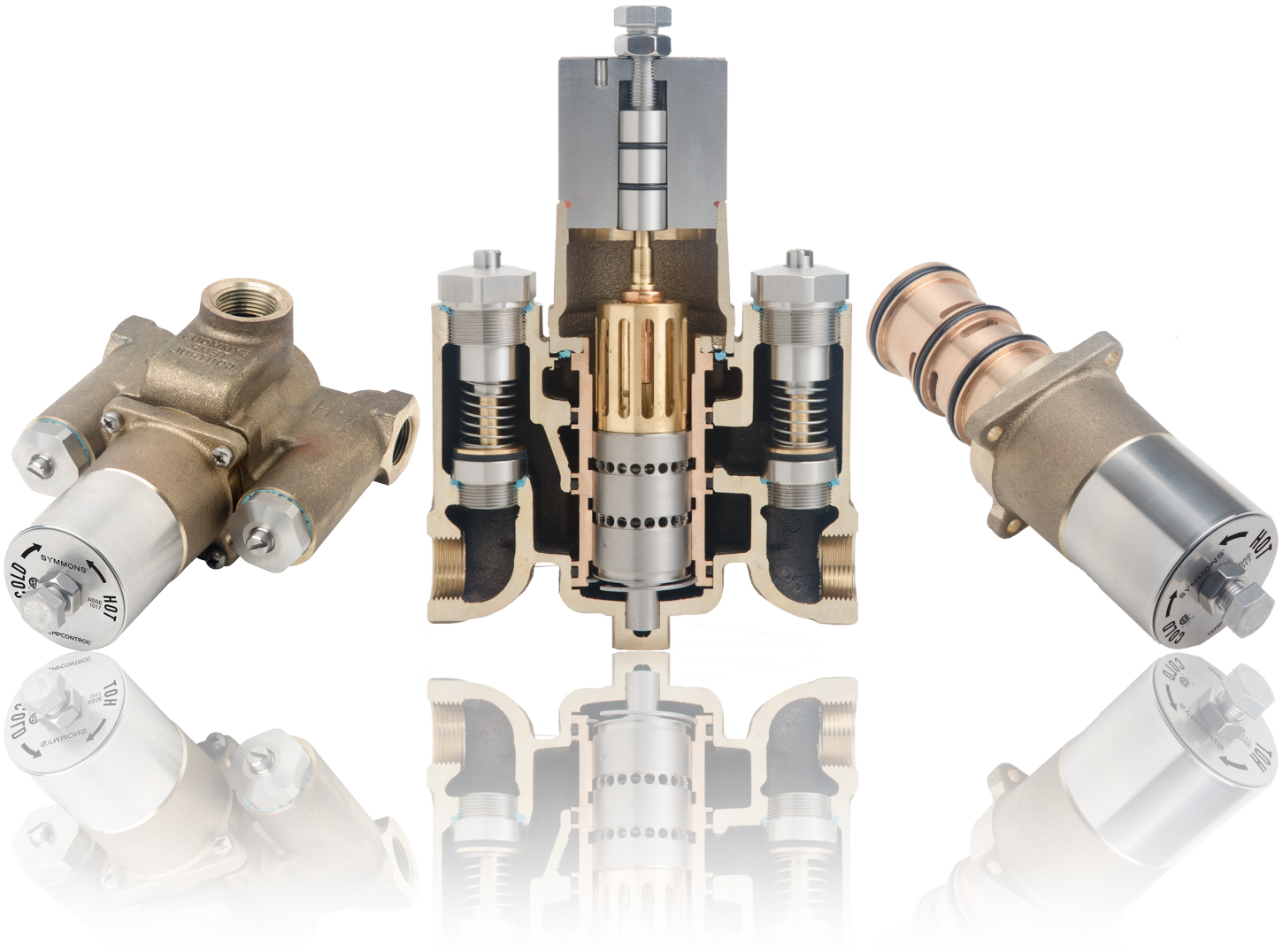
SYMMONS®

the smart choice™



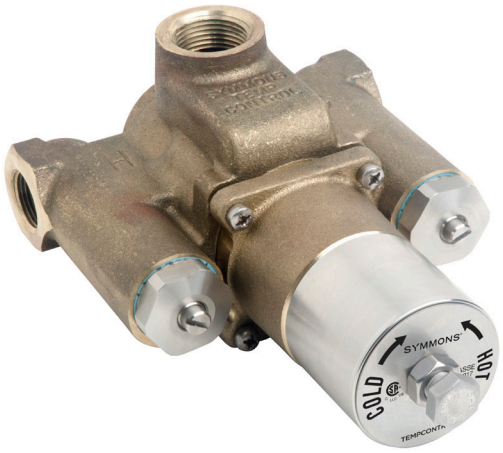
TempControl®

Thermostatic Mixing Valves

TempControl for the Precise and Accurate Control of Tempered or Hot Water

Applications

A necessity for all general uses and applications where the temperature of generated hot water must be controlled and tempered before distribution.



- To control the main hot water system in any building... hospitals, schools, apartments, hotels, motels, etc.
- In animal husbandry for washing livestock.
- For laundry machines, car washes, and all commercial washing and cleaning.
- In breweries, tanneries, canneries, or any type of processing.
- In photo or x-ray development and processing.
- Wherever generated hot water must be tempered for safe, economic use.
- Not to be used for emergency eyewash or shower applications.

Constant Temperature

The unique construction of TempControl is such that the water, even on low draw or demand, must completely pass the sensing coil of the thermal motor before discharge. This ensures that the delivery temperature will be maintained. Discharge temperature is adjustable to within 5˚F of the hot and cold inlet water temperatures (See installation instructions for setting maximum discharge temperatures).

Operation Range

Standard units designed for field setting between 70˚F (21˚C) and 150˚F (66˚C) range. See installation instructions for other available settings. Maximum hot inlet temperature is 180˚F (82˚C).

Automatic

Automatic compensation for supply line temperature and pressure changes. Fails safely on hot or cold supply failure to greatly reduce flow. If complete shut down of flow is required, please consult factory for information on high temperature alarm and solenoid systems.

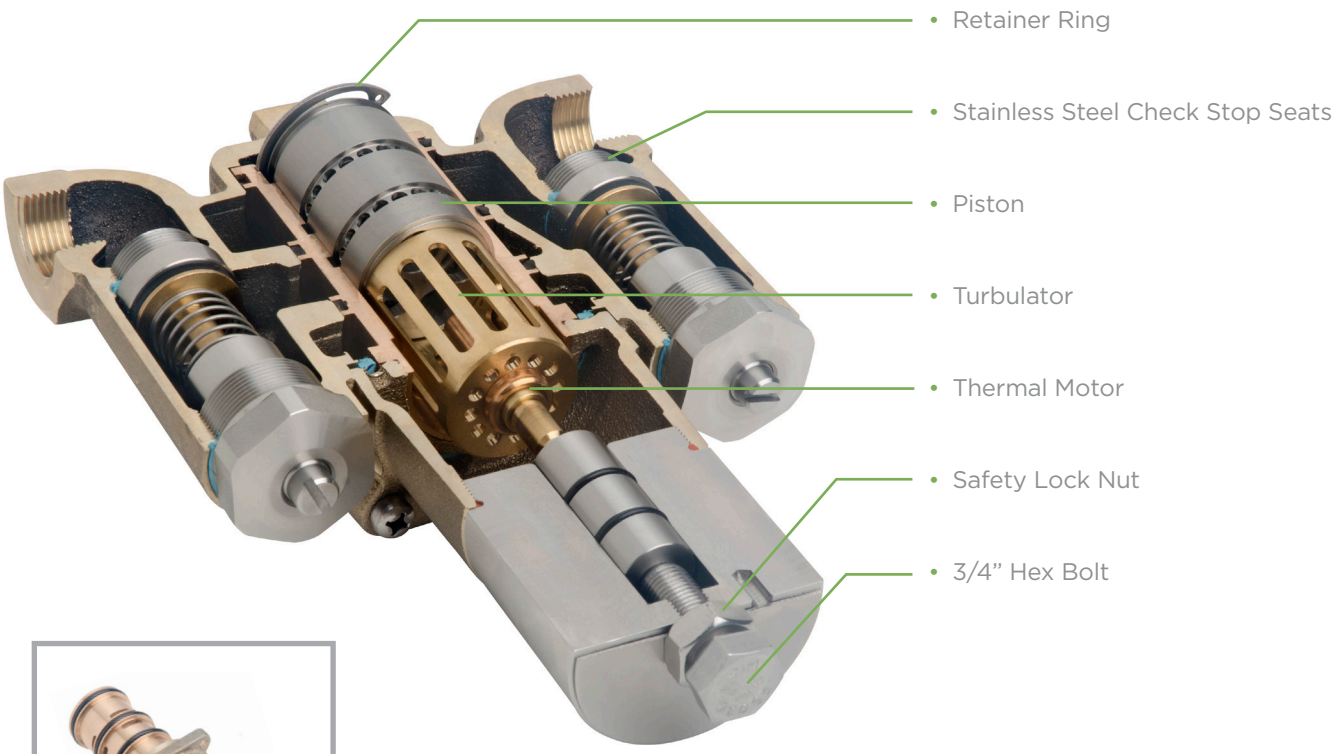
Precise & Accurate Control of Tempered/Hot Water

Performance

- Certified to ASSE 1017 and CSA standard B.125.3
- Valve will control temperature with reduction in flow to minimum flows (see chart on page 4).

Construction and Design Features

- Lead free** brass, bronze and stainless steel internal components.
- Adjustable range within 5 degrees of ambient water temperature up to 150 degrees.
- Focuses water on thermal motor to rapidly react to temperature changes.
- 7 Series cartridge and repair parts are interchangeable with 5 and 6 Series models.
- The entire valve control mechanism is housed in a replaceable cartridge unit which ensures the valve body never needs to be removed from the line. Cartridge unit can be removed in minutes for cleaning, inspection or replacement.



**According to US Senate bill S.3874, the term “lead free” is defined as follows: “not more than a weighted average of 0.25 percent lead when used with respect to the wetted surfaces of pipes, pipe fittings, plumbing fittings, and fixtures”

TempControl Flow Rates and Sizing

Flow Rate - gpm (L/min)									
			Pressure Differential						
Model #	Min Flow Rate*	Min Flow Rate	5 psi 34 kPA	10 psi 69 kPA	20 psi 138 kPA	25 psi 172 kPA	30 psi 207 kPA	45 psi 310 kPA	
7-102	0.5	0.5	1	3	6	7	8	11	gpm
	1.9	*1.9*	*3.8*	*11.4*	*22.7*	*26.5*	*30.3*	*41.6*	*L/min*
7-200	0.5	5	7	12	18	21	23	27	gpm
	1.9	*19*	*26.5*	*45.4*	*64.4*	*75.7*	*83.3*	*102.2*	*L/min*
7-400	0.5	9	18	27	37	41	44	53	gpm
	1.9	*34*	*64.4*	*102.2*	*140.1*	*155.2*	*166.6*	*200.6*	*L/min*
7-500	0.5	13	22	38	50	55	59	70	gpm
	1.9	*49*	*83.3*	*143.8*	*189.3*	*208.2*	*223.3*	*265.0*	*L/min*
7-700	0.5	13	25	43	57	62	66	77	gpm
	1.9	*49*	*94.6*	*162.8*	*215.8*	*234.7*	*249.8*	*291.5*	*L/min*
7-900	0.5	13	30	55	76	84	89	104	gpm
	1.9	*49*	*113.6*	*208.2*	*287.8*	*318.0*	*336.9*	*393.7*	*L/min*
7-1000	0.5	13	38	67	100	111	120	140	gpm
	1.9	*49*	*143.8*	*253.6*	*378.5*	*420.2*	*454.2*	*529.9*	*L/min*

*Minimum flow rate when valve is installed at or near the hot water source with recirculated tempered water and continuously operating circulating pump.

Note: The U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) Technical Manual, Section II, Chapter 7, Legionnaire's Disease, recommends that due to concerns about the potential for growth of Legionella bacteria in stagnant pipe runs, "Domestic hot water recirculation pumps should run continuously. They should be excluded from energy conservation measures."

Proper Sizing

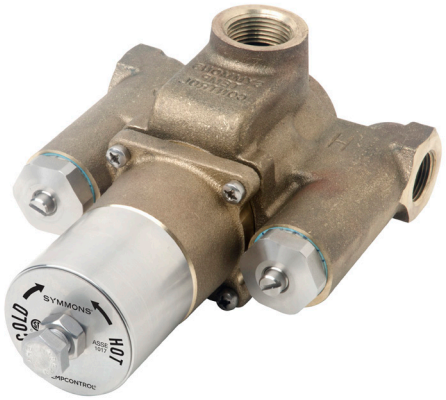
Thermostatic water controllers should be sized according to the flow capacity required from the valve, NOT the pipe size supplied to the valve. The pressure differential shown above represents the actual pressure drop across the valve to produce a given flow rate. The frictional loss associated with the valve is incorporated into the flow rate figures. For assistance and technical support in sizing and selection of the proper TempControl Thermostatic Water Controller, consult the Symmons TEMPSIZE™ computer sizing software, your local representative or Symmons Customer Service Department at 1-800-SYMMONS.

TempControl® Valve Only

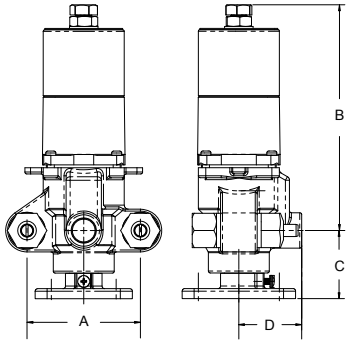
Specification

7-_____( ) inlets ( ) outlets: TempControl lead free thermostatic controller with check stops, removable cartridge with stainless steel piston and thermal motor and Turbulator™. Standard valve finish is rough brass or bronze with service stops.

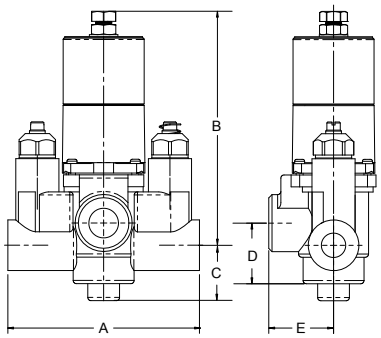
Modifications: Suffix NI: Rough chrome finish • Suffix P: Polished chrome highlight finish • Suffix W: Wall mounting bracket • Suffix HC: For higher capacity up to 15 gpm (56.8 L/min) at 45 psi (310 kPA) (Model 7-102 only)



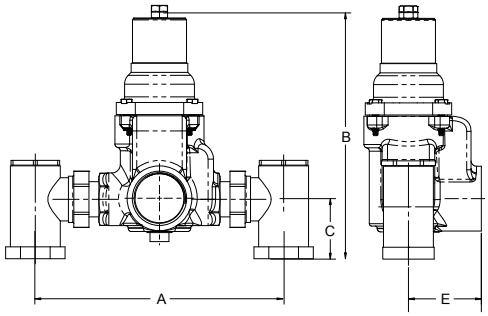
7-102



7-200 Through 7-700



7-900 Through 7-1000



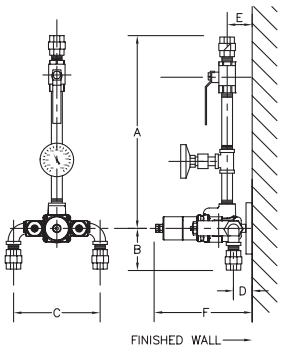
Model #	Inlets	Outlets	A	B	C	D	E	
7-102	1/2	1/2	3-1/2	7	2-1/8	1-15/16	-	Inches
	13	*13*	*89*	*178*	*54*	*49*	*-*	*mm*
7-200	3/4	3/4	3/4	5-15/16	7-1/4	1-3/4	2-3/8	Inches
	19	*19*	*151*	*184*	*44*	*60*	*51*	*mm*
7-400	3/4	1	6-1/2	8-1/2	1-1/4	2	2-5/8	Inches
	19	*25*	*165*	*216*	*32*	*51*	*67*	*mm*
7-500	1	1-1/4	7-11/16	8-1/2	1-3/16	2-7/16	2-15/16	Inches
	25	*32*	*195*	*216*	*30*	*62*	*75*	*mm*
7-700	1-1/4	1-1/2	7-11/16	8-1/2	1-3/16	2-7/16	2-15/16	Inches
	32	*38*	*195*	*216*	*30*	*62*	*75*	*mm*
7-900	1-1/2	1-1/2	11-1/2	9-5/16	2-7/16	-	3-3/8	Inches
	38	*38*	*292*	*237*	*62*	*-*	*3-3/8*	*mm*
7-1000	1-1/2	2	11-1/2	9-5/16	2-7/16	-	3-3/8	Inches
	38	*51*	*292*	*237*	*62*	*-*	*3-3/8*	*mm*

*Model 7-102A has union check stops. Models 7-200 thru 7-700 have integral check stops. Models 7-900 and 7-1000 have separate check stops. Valve and piping assembly shown with optional wall mounting bracket.

TempControl® Valve and Piping Assembly "A" Series

Specification

7-_____A ( ) inlets ( ) outlets: TempControl lead free thermostatic controller with check stops, removable cartridge with stainless steel piston and thermal motor and Turbulator™. Volume control shut off valve, bimetal dial thermometer 3" (76mm) face, range 20˚–240˚F [-7˚–116˚C), lead free brass pipe, fittings and unions. Standard valve and piping finish is rough bronze, brass or copper.



Modifications: Suffix ASB: Factory assembled and tested (not available in polished chrome) • Suffix STN: Satin spray finish (ASB units only) • Suffix STN/POL: Satin spray with polished chrome highlight finish (ASB units only) • Suffix NI: Rough chrome finish (not available on ASB units) • Suffix P: Polished chrome highlight finish (not available on ASB units) • Suffix W: Wall mounting bracket • Suffix V: Vacuum breaker • Suffix HC: For higher capacity up to 15 gpm (56.8 L/min) at 45 psi (310 kPA) (Model 7-102A only)

Model #	Inlets	Outlets	A	B	C	D	E	F	
7-102A	1/2	1/2	12-5/8	1-1/2	3-1/3	2-1/8	2-1/8	9-1/4	Inches
	13	*13*	*321*	*38*	*89*	*54*	*54*	*235*	*mm*
7-200A	3/4	3/4	17-1/8	3-9/16	8-1/2	1-7/8	2-5/8	8-15/16	Inches
	19	*19*	*435*	*90*	*216*	*48*	*67*	*226*	*mm*
7-400A	3/4	1	17-3/8	3-9/16	8-1/2	1-7/8	2-7/16	9-3/4	Inches
	19	*25*	*441*	*90*	*216*	*48*	*62*	*251*	*mm*
7-500A	1	1-1/4	19-1/8	3-15/16	11	1-5/8	2-7/8	9-5/8	Inches
	25	*32*	*486*	*100*	*279*	*41*	*73*	*248*	*mm*
7-700A	1-1/4	1-1/2	22-1/2	4-11/16	12	1-5/8	2-7/8	9-13/16	Inches
	32	*38*	*572*	*119*	*305*	*41*	*73*	*243*	*mm*
7-900A	1-1/2	1-1/2	22-3/4	2-11/16	11-1/2	2-9/16	2-9/16	11-3/8	Inches
	38	*38*	*578*	*68*	*296*	*65*	*65*	*289*	*mm*
7-1000A	1-1/2	2	22-3/4	2-11/16	11-1/2	2-9/16	2-9/16	11-3/8	Inches
	38	*51*	*578*	*68*	*296*	*65*	*65*	*289*	*mm*

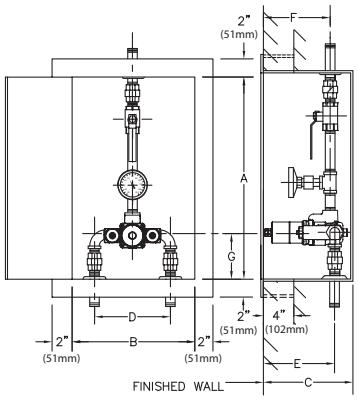
*Model 7-102A has union check stops. Models 7-200A thru 7-700A have integral check stops. Models 7-900A and 7-1000A have separate check stops. Valve and piping assembly shown with optional wall mounting bracket.

Valve and Piping Assembly "A" Series

TempControl® Valve and Piping in Cabinet "B" Series

Specification

7-_____B ( ) inlets ( ) outlets: TempControl thermostatic controller with check stops, removable cartridge with stainless steel piston and thermal motor and Turbulator™. Volume control shut off valve, bimetal dial thermometer 3" (76mm) face, range 20˚– 240˚ F (-7˚–116˚C), lead free brass pipe, fittings and unions to cabinet limits. Bottom supplies, top outlet. Cabinet to be 16 gauge (1.6mm) body, 12 gauge (2.7mm) door, hinged left hand door with cylinder lock. Standard valve and piping finish is rough bronze, brass or copper. Standard cabinet fully recessed steel with baked white enamel finish (specify cabinet material and style modifications as desired).



Modifications: Suffix ASB: Factory assembled and tested (Piping type L copper, not available in polished chrome) • Suffix STN: Satin spray finish (ASB units only) • Suffix STN/POL: Satin spray with polished chrome highlight finish (ASB units only) • Suffix NI: Rough chrome finish (not available on ASB units) • Suffix P: Polished chrome highlight finish (not available on ASB units) • Suffix M: Surface mounted cabinet • Suffix S: Semi-recessed cabinet has 4" (102mm) return flange • Suffix T: Stainless steel cabinet • Suffix TOP: Top supplies (cannot be used with Suffix V) • Suffix V: Vacuum breaker (outlet is through right side of cabinet) Suffix HC: For higher capacity up to 15 gpm (56.8 L/min) at 45 psi (310 kPA) (Model 7-102B only)

Model #	Inlets	Outlets	A	B	C	D	E	F	G	
7-102B	1/2	1/2	22-3/8	12-3/4	10	3-1/2	7-7/8	7-7/8	6	Inches
	13	*13*	*568*	*349*	*254*	*89*	*200*	*200*	*152*	*mm*
7-200B	3/4	3/4	22-3/8	13-3/4	10	8-1/2	8	7-1/4	4-1/4	Inches
	19	*19*	*568*	*349*	*254*	*216*	*203*	*184*	*108*	*mm*
7-400B	3/4	1	22-3/8	13-3/4	10	8-1/2	8	7-1/4	4-1/4	Inches
	19	*25*	*568*	*349*	*254*	*216*	*203*	*184*	*108*	*mm*
7-500B	1	1-1/4	31	17	10-1/2	11	8	6-3/4	4-3/4	Inches
	25	*32*	*787*	*432*	*267*	*279*	*203*	*171*	*121*	*mm*
7-700B	1-1/4	1-1/2	31	17	10-1/2	12	8	6-3/4	7	Inches
	32	*38*	*787*	*432*	*267*	*305*	*203*	*171*	*178*	*mm*
7-900B	1-1/2	1-1/2	27	19	11-1/2	12	6-3/4	6-3/4	3-1/2	Inches
	38	*38*	*686*	*483*	*292*	*305*	*171*	*171*	*89*	*mm*
7-1000B	1-1/2	2	27	19	11-1/2	12	6-3/4	6-3/4	3-1/2	Inches
	38	*51*	*686*	*483*	*292*	*305*	*171*	*171*	*89*	*mm*

*Model 7-102B has union check stops. Models 7-200B thru 7-700B have integral check stops. Models 7-900B and 7-1000B have separate check stops. Valve and piping assembly shown with optional wall mounting bracket.

TempControl® High Temperature Alarm System

Specification

HTA-100: TempControl High Temperature Alarm System to monitor and provide audible and visible alert in the event of hot water temperatures exceeding set point thresholds. Programmable electronic module features three operational modes: normal valve operation, caution (alert), and alarm (shutdown). Set point range is 40˚F - 149˚F (4.5˚C - 65˚C). When specified with _____ (optional) solenoid valve, the system, when in alarm mode will provide complete emergency shutdown of water flow. System to include key access programmable electronic module, stainless steel panel, 4"x 4" electrical mounting box, 120V AC - 12V AC/15VA UL Listed/CSA Certified Class 2 transformer, solid state temperature probe with 25' of cable and (2) system operation keys.

Options

Solenoid Valves - 12V DC N.C. 10 watts max

SV-102: 1/2" NPT

SV-200: 3/4" NPT

SV-400: 1" NPT

SV-500: 1-1/4" NPT

SV-700/900: 1-1/2" NPT

SV-1000: 2" NPT

Tee Fittings

TF-102: 1/2" x 1/2"x 1/4" NPT

TF-200: 3/4" x 3/4" x 1/4" NPT

TF-400: 1" x 1" x 1/4" NPT

TF-500: 1-1/4" x 1-1/4" x 1/4" NPT

TF-700/900: 1-1/2" x 1-1/2" x 1/4" NPT

TF-1000: 2" x 2" x 1/4" NPT

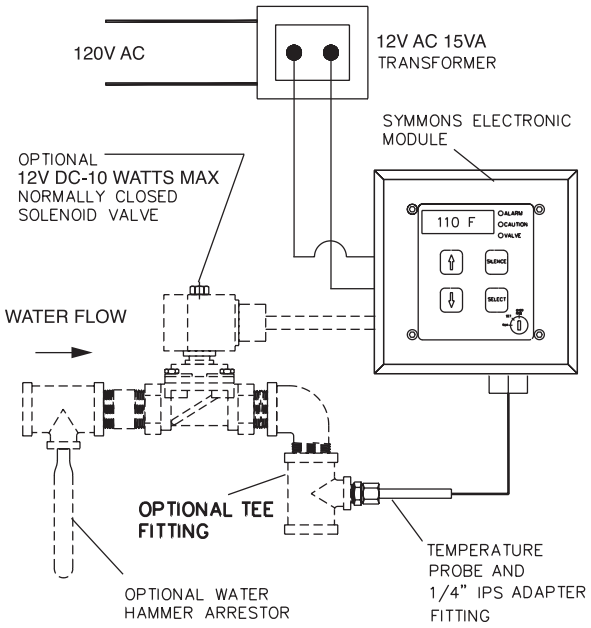
Water Hammer Arrestor

WHA-1: 1" NPT water hammer arrestor

Cable

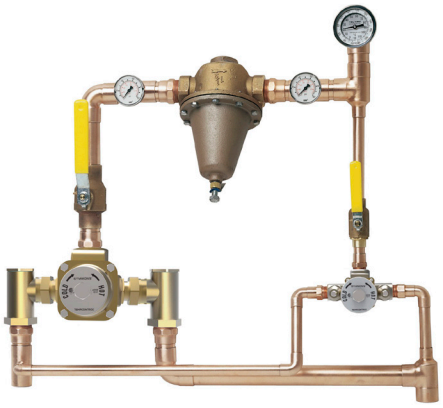
TPC-50: 50' pre-coiled length

TPC-100: 100' pre-coiled length (Contact factory for additional pre-coiled lengths in 50' increments, 1000' maximum)



TempControl® Hi-Low Systems

- Fully factory assembled and tested.
- Lead free bronze and stainless steel components.
- Each controller contains a removable cartridge with stainless steel piston, thermal motor and Turbulator™.
- TEMPSIZE™ Sizing program and support.
- Entire valve control mechanism housed in a replaceable cartridge unit, minimizes service downtime when unit is serviced.



The TempControl Hi-Low System is a specialized system designed to address applications where there is a potential for pressure disturbances in the supply lines servicing the thermostatic mixing valve. The system is used when the valve is located outside the mechanical room of a building. Any thermostatic mixing valve, especially larger size valves, when flowing well below its rated capacity, may not maintain temperature within the desired range when the hot and cold supply lines servicing the valve are subjected to pressure disturbances.

In a mechanical room it is assumed that the supply pressures are stable and are not subject to pressure disturbances. As a result, we do not recommend Hi-Low systems in this location. Conversely, when a valve's intended location is indicated as being outside the mechanical room, it is assumed that there is a potential for pressure fluctuations in the hot and cold supply lines, great enough to effect temperature control at low flow. Therefore, a Hi-Low System is recommended. (Consult TEMPSIZE™ Sizing Program for proper selection)

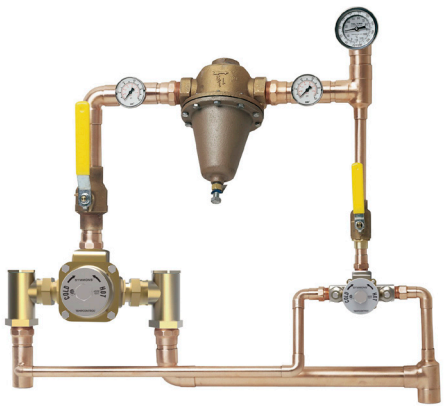
The TempControl Hi-Low System includes a large and a small TempControl thermostatic mixing valve that are piped in parallel to the hot and cold supply lines and a pressure reducing valve (PRV) on the outlet side of the larger valve. When there is a low demand, or draw on the system, the small valve handles the flow requirements. When demand increases, a greater pressure differential in the system is created. The PRV then opens to assist the smaller valve in meeting the higher flow requirements.

NOTE: If the system is designed so that a TempControl valve is not subjected to supply pressure disturbances, even though it is located outside the mechanical room, a single valve will operate properly.

TempControl® Hi-Low Systems Valve and Piping Assembly

Specification

7-_____( ) inlets ( ) outlets: TempControl Hi-Low system consists of two (2) lead free thermostatic controllers with check stops. Each controller contains a removable cartridge with stainless steel piston and thermal motor and Turbulator™, inlet manifold piping, pressure reducing valve (PRV), two (2) pressure gauges, two (2) ball valves, bi-metal dial thermometer 3" (76 mm) face, range 20˚– 240˚F (-7˚–116˚C), wall bracket, connecting piping and fittings to cabinet limits. Standard rough bronze and copper finish. Bottom supplies and top outlet. Factory assembled and tested.



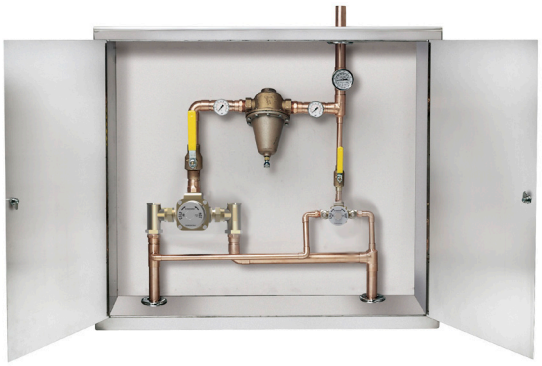
Modifications: Suffix TOP: Top supplies (cannot be used with Suffix V) • Suffix STN: Satin spray finish • Suffix STN/POL: Satin spray with polished chrome highlight finish • Suffix V: Vacuum breaker

Flow Rate - gpm (L/min)										
				Pressure Differential						
Model #	Inlets	Outlets	Min Flow Rate	5 psi 34 kPA	10 psi 69 kPA	20 psi 138 kPA	25 psi 172 kPA	30 psi 207 kPA	45 psi 310 kPA	
7-200-102-PRV	3/4"	3/4"	0.5	8	15	24	28	31	38	gpm
	19mm	*19mm*	*1.9*	*30.3*	*56.8*	*87.1*	*102.2*	*113.6*	*143.8*	*L/min*
7-400-102-PRV	3/4"	1"	0.5	19	30	43	48	52	64	gpm
	19mm	*25mm*	*1.9*	*68.2*	*113.6*	*162.8*	*181.7*	*196.9*	*242.2*	*L/min*
7-500-102-PRV	1"	1-1/4"	0.5	23	41	56	62	67	81	gpm
	25mm	*32mm*	*1.9*	*87.1*	*155.2*	*212*	*234.7*	*253.6*	*306.6*	*L/min*
7-700-102-PRV	1-1/4"	1-1/2"	0.5	26	46	63	69	74	88	gpm
	32mm	*38mm*	*1.9*	*98.4*	*174.2*	*238.5*	*261.2*	*280.1*	*333.1*	*L/min*
7-900-102-PRV	1-1/2"	1-1/2"	0.5	31	58	82	91	97	115	gpm
	38mm	*38mm*	*1.9*	*117.4*	*219.6*	*310.5*	*344.5*	*367.2*	*435.3*	*L/min*
7-1000-102-PRV	1-1/2"	2"	0.5	39	70	106	118	128	151	gpm
	38mm	*51mm*	*1.9*	*147.6*	*265.0*	*401.2*	*446.7*	*484.5*	*571.5*	*L/min*
7-900-200-PRV	1-1/2"	1-1/2"	5	37	67	94	105	112	131	gpm
	38mm	*38mm*	*18.9*	*140.1*	*253.6*	*352.2*	*393.7*	*420.2*	*495.9*	*L/min*
7-1000-200-PRV	1-1/2"	2"	5	45	79	118	132	143	167	gpm
	38mm	*51mm*	*18.9*	*170.3*	*299.0*	*442.9*	*495.9*	*537.5*	*632.1*	*L/min*

*Model 7-102 has union check stops. Models 7-200 thru 7-700 have integral check stops. Models 7-900 and 7-1000 have separate check stops.

TempControl® Hi-Low Systems Valve and Piping in Cabinet Assembly

Specification



7-_____( ) inlets ( ) outlets: TempControl Hi-Low system consists of two (2) lead free thermostatic controllers with swivel action check stops. Each controller contains a removable cartridge with stainless steel piston and thermal motor and Turbulator™, inlet manifold piping, pressure reducing valve (PRV), two (2) pressure gauges, two (2) ball valves, bi-metal dial thermometer 3" face (76mm), range 20˚– 240˚F (-7˚–116˚), wall bracket, connecting piping and fittings to cabinet limits. Standard rough bronze and copper finish. Bottom supplies and top outlet. Factory assembled and tested. Cabinet to be 16 gauge (1.6mm) body, 12 gauge (2.7mm) left hinged door (or double doors on larger systems) with cylinder lock and key. Standard cabinet fully recessed steel, with baked white enamel finish.

Modifications: Suffix M: Surface mounted cabinet • Suffix S: Semi-recessed cabinet has 4" (102mm) return flange • Suffix T: Stainless steel cabinet • Suffix TOP: Top supplies (cannot be used with Suffix V) • Suffix STN: Satin spray finish • Suffix STN/POL: Satin spray with polished chrome highlight finish • Suffix V: Vacuum breaker (outlet is through right side of cabinet)

Flow Rate - gpm (L/min)										
				Pressure Differential						
Model #	Inlets	Outlets	Min Flow Rate	5 psi 34 kPA	10 psi 69 kPA	20 psi 138 kPA	25 psi 172 kPA	30 psi 207 kPA	45 psi 310 kPA	
7-200B-102-PRV	3/4"	3/4"	0.5	8	15	24	28	31	38	gpm
	19mm	*19mm*	*1.9*	*30.3*	*56.8*	*87.1*	*102.2*	*113.6*	*143.8*	*L/min*
7-400B-102-PRV	3/4"	1"	0.5	19	30	43	48	52	64	gpm
	19mm	*25mm*	*1.9*	*68.2*	*113.6*	*162.8*	*181.7*	*196.9*	*242.2*	*L/min*
7-500B-102-PRV	1"	1-1/4"	0.5	23	41	56	62	67	81	gpm
	25mm	*32mm*	*1.9*	*87.1*	*155.2*	*212*	*234.7*	*253.6*	*306.6*	*L/min*
7-700B-102-PRV	1-1/4"	1-1/2"	0.5	26	46	63	69	74	88	gpm
	32mm	*38mm*	*1.9*	*98.4*	*174.2*	*238.5*	*261.2*	*280.1*	*333.1*	*L/min*
7-900B-102-PRV	1-1/2"	1-1/2"	0.5	31	58	82	91	97	115	gpm
	38mm	*38mm*	*1.9*	*117.4*	*219.6*	*310.5*	*344.5*	*367.2*	*435.3*	*L/min*
7-1000B-102-PRV	1-1/2"	2"	0.5	39	70	106	118	128	151	gpm
	38mm	*51mm*	*1.9*	*147.6*	*265.0*	*401.2*	*446.7*	*484.5*	*571.5*	*L/min*
7-900B-200-PRV	1-1/2"	1-1/2"	5	37	67	94	105	112	131	gpm
	38mm	*38mm*	*18.9*	*140.1*	*253.6*	*352.2*	*393.7*	*420.2*	*495.9*	*L/min*
7-1000B-200-PRV	1-1/2"	2"	5	45	79	118	132	143	167	gpm
	38mm	*51mm*	*18.9*	*170.3*	*299.0*	*442.9*	*495.9*	*537.5*	*632.1*	*L/min*

*Model 7-102 has union check stops. Models 7-200B thru 7-700B have integral check stops. Models 7-900B and 7-1000B have separate check stops.

Hi-Low Systems Valve and Piping in Cabinet Assembly

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