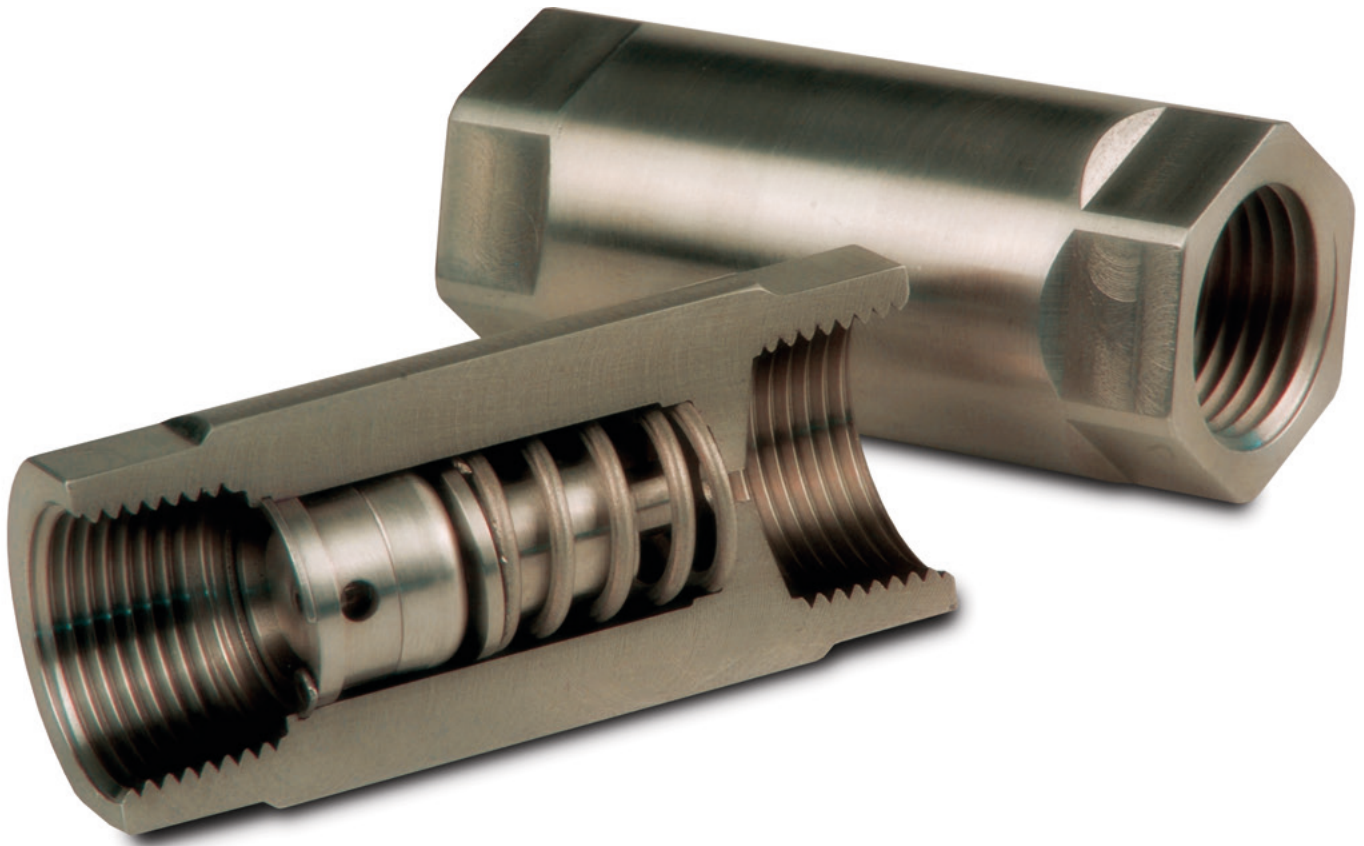


THERMOSTATIC RECIRCULATION VALVE
HOT WATER FROM ANY TAP, ANY TIME

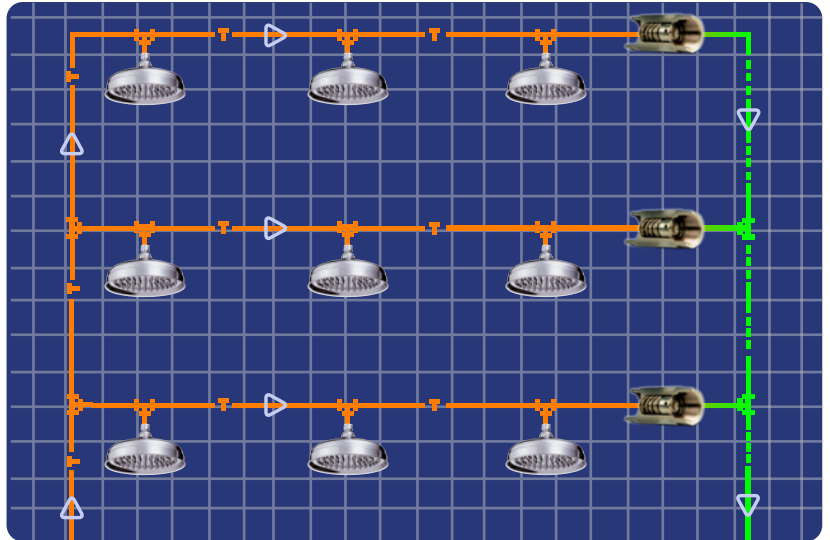


The Problem

- 1** Water flows to the path of least resistance.
- 2** Many buildings require multiple branches off the hot water supply line.
- 3** Hot water use is hyper-dynamic, so the path of least resistance constantly changes.
- 4** Manual flow control valves cannot properly resolve these issues.

The Solution

Install a Circuit Solver TRV™ on each hot water supply branch line immediately downstream of the last runout to a hot tap.



How it Works

When entering water temperature is below the Circuit Solver TRV™ set point, the thermal actuator will begin to open the valve to establish a flow rate that will achieve set point. If the water temperature exceeds the set point by 3°F, the valve will begin to throttle back to find the current equilibrium point. Continuously operating at the optimum temperature minimizes system heat-loss thereby saving energy.

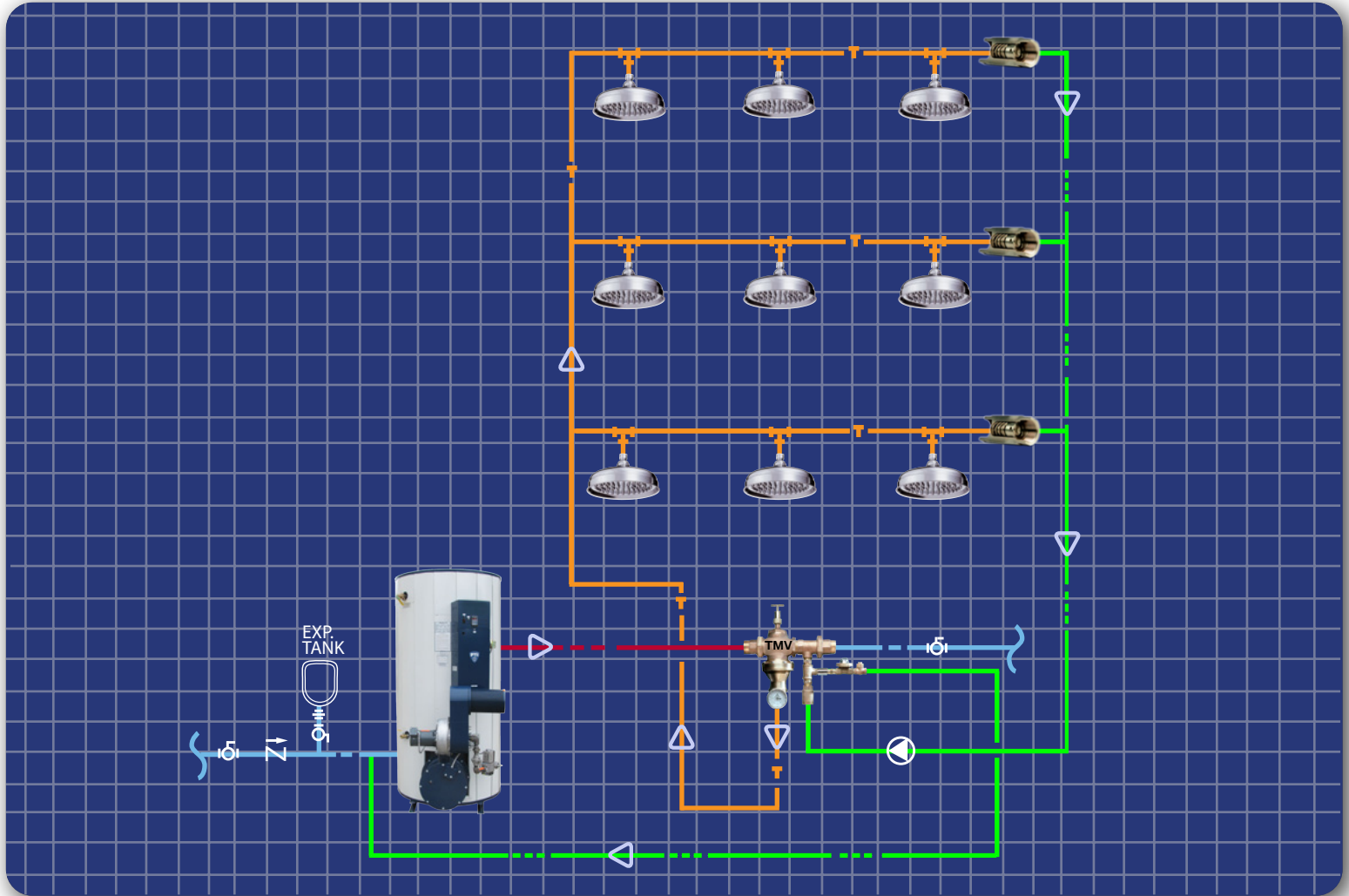
This constant, automatic response to water temperature enables each hot water branch to quickly and consistently deliver the right temperature of hot water to each connected fixture.

Design Features

- Stainless steel body with NPT female connections
- Meets ANSI/AWWA C800
- Stainless valve plug, thermal actuator piston and return spring

- Thermal actuator develops 40 lbs. of thrust to keep valve orifice free of deposits
- Removable thermal actuator
- Rated for at least 200,000 cycles
- NSF-61 Certified

Multi-Branch Hot Water Recirculation Diagram



Other advantages of installing the Circuit Solver TRV™

1

Eliminates the need to oversize system recirculating pumps to create constant flow through manually adjusted balancing valves.

2

Minimizes heat-loss by reducing fluctuations in average temperature and gpm of the common return line.

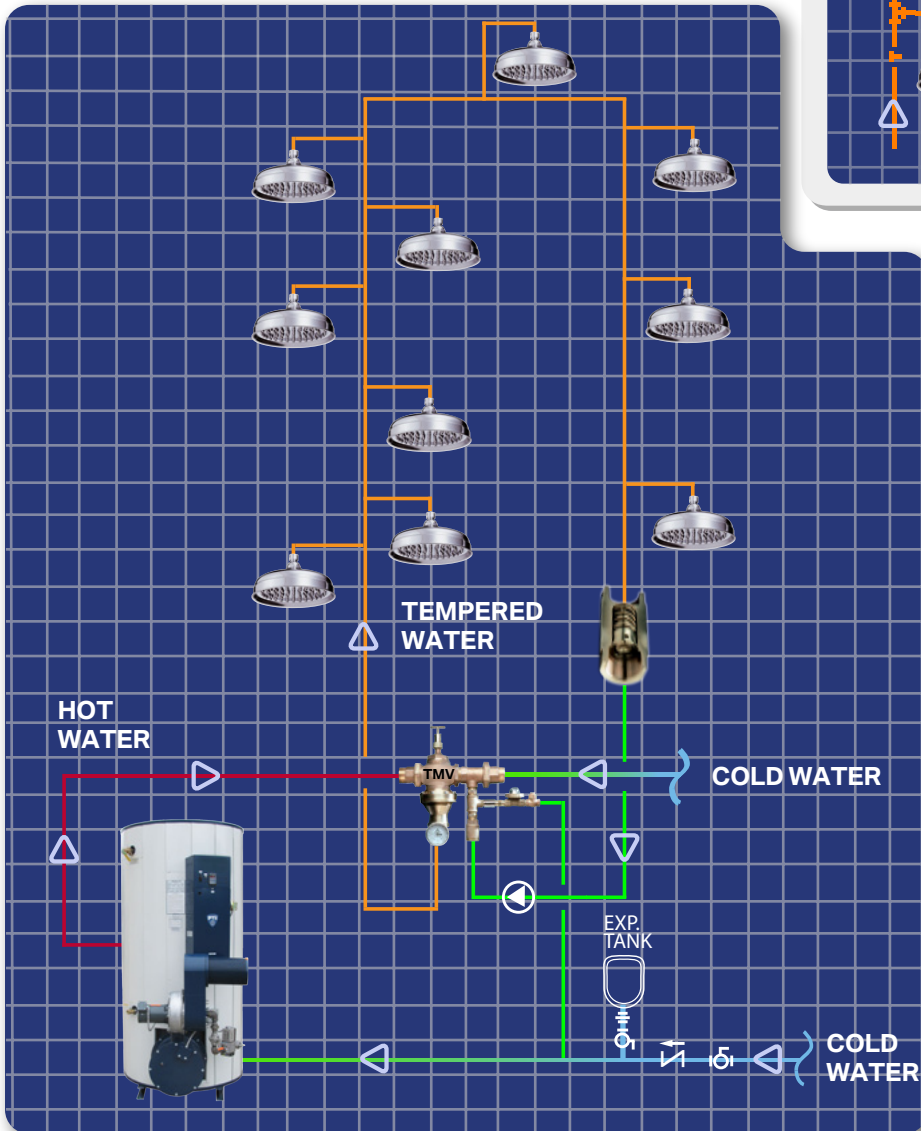
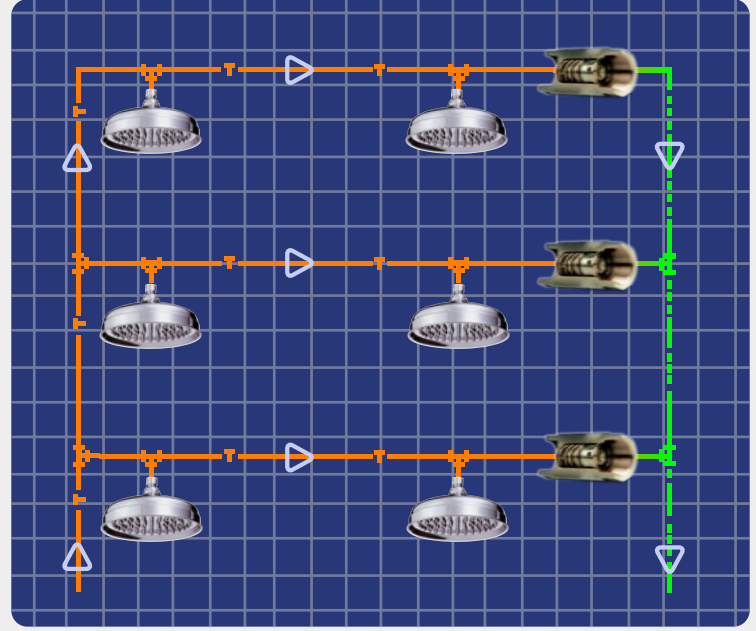
3

Lowers gpm flow in hot water return lines minimizing erosion-corrosion problems caused by excessive velocity.

With The Circuit Solver Thermal Recirculation Valve (TRV™) you get hot water where you need it at every turn of the tap automatically, reliably and economically.

CIRCUIT SOLVER TRV™ APPLICATION GUIDE

MULTI-BRANCH DOMESTIC HOT WATER SYSTEM



SINGLE CONTINUOUS DOMESTIC HOT WATER SUPPLY LOOP (NO BRANCHES)

Install Circuit Solver TRV™ in the hot water supply line as soon as it becomes a hot water return line (i.e., downstream of the last fixture served by the hot water supply line).

Note: Why use Circuit Solver TRV™ when there are no branch lines?

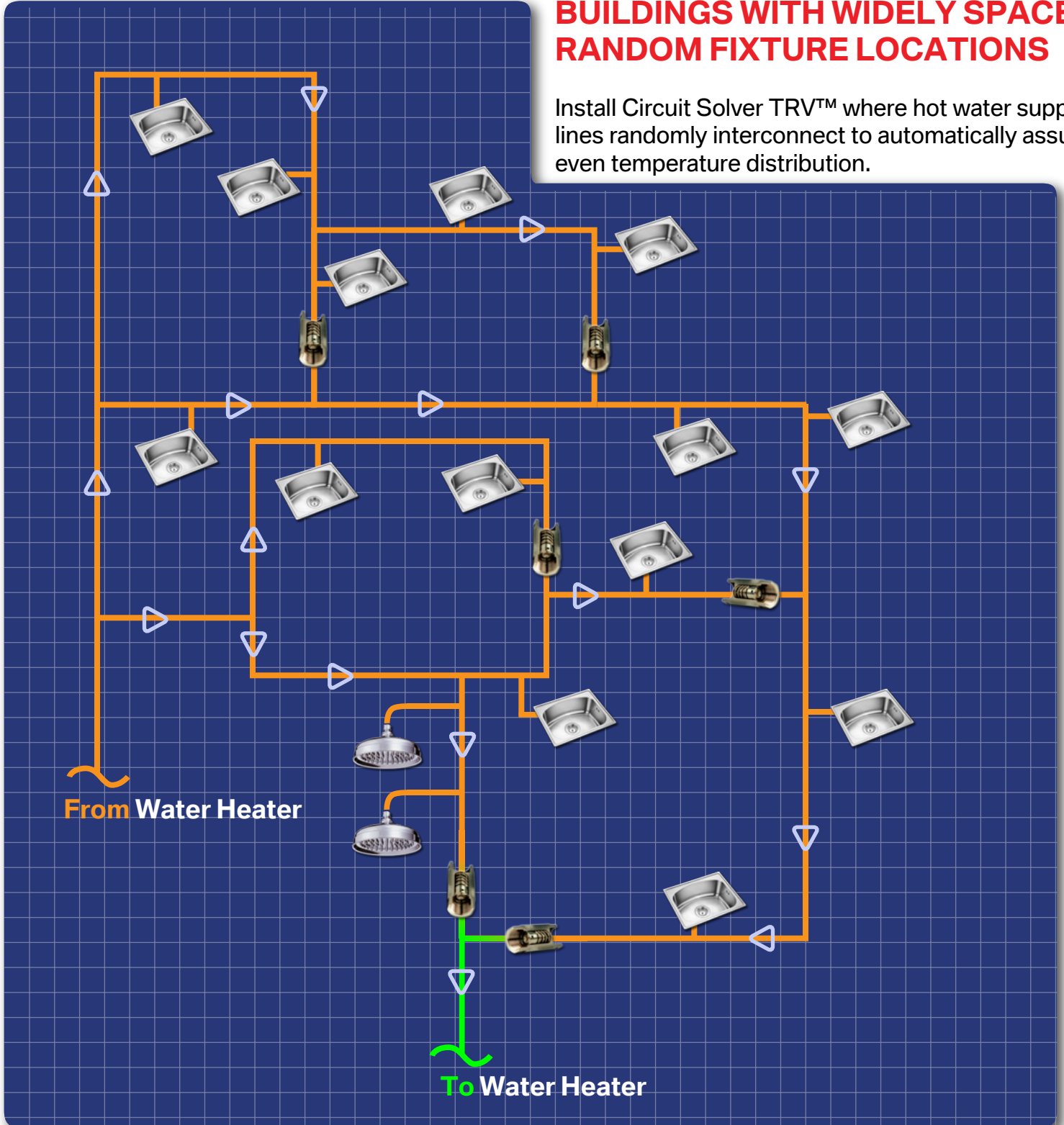
TO CONSERVE ENERGY

The Circuit Solver TRV™ will modulate flow to precisely match system heat-loss.

CIRCUIT SOLVER TRV™ APPLICATION GUIDE

BUILDINGS WITH WIDELY SPACED RANDOM FIXTURE LOCATIONS

Install Circuit Solver TRV™ where hot water supply lines randomly interconnect to automatically assure even temperature distribution.



CIRCUIT SOLVER TRV™ APPLICATION GUIDE

CIRCUIT SOLVER TRV™ MODEL NUMBER SELECTION

1

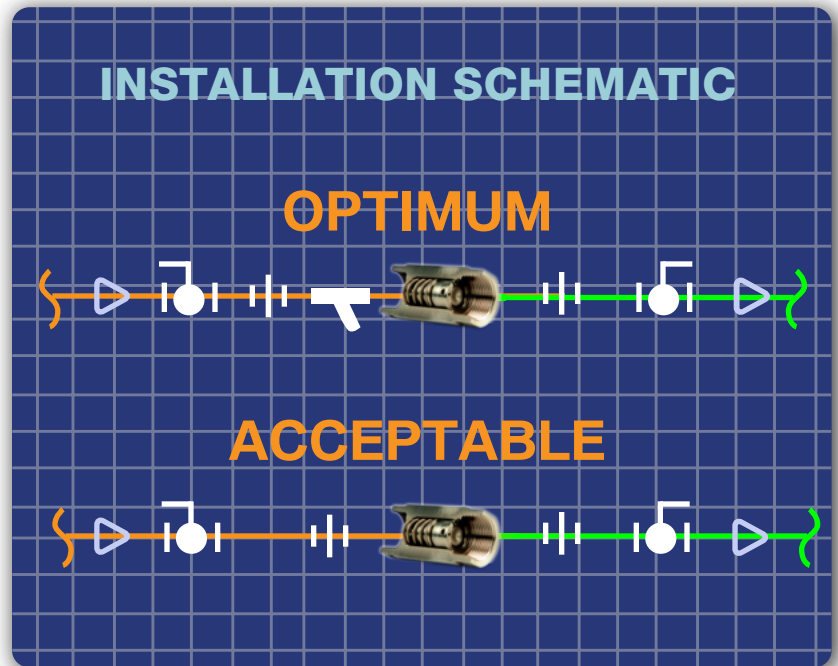
Match the pipe size.

2

Select a temperature that is the same as the water leaving the mixing valve.

For Example:

1. Branch hot water line is 3/4" IPS.
2. Mixing Valve is delivering 120°F.
3. Select Model Number CS-3/4-120.



COMMENTS AND CAUTIONS

Circuit Solver TRV™ will evenly distribute hot water temperature to every fixture as long as hot water is available.

However, that cannot happen if...

1

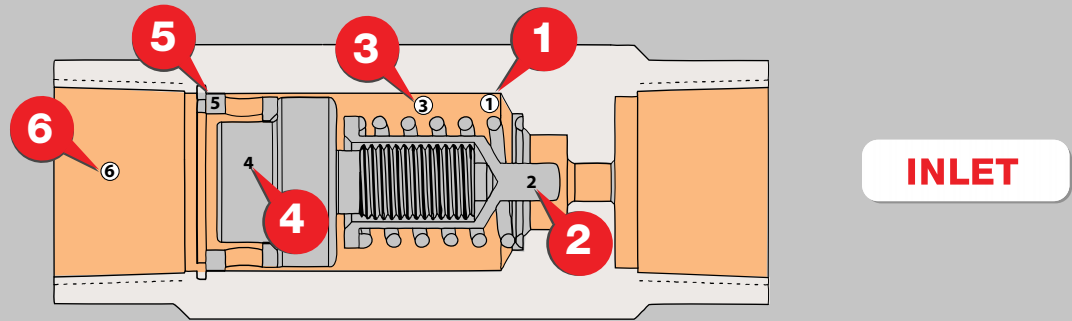
There is a cross connection joining cold water to hot water.

2

There is a significant pressure differential between the cold and hot water distribution systems.

3

The recirculation pump is not working properly.



Item	Description	Material
1	Valve Body	303 SS
2	Valve Plug	303 SS
3	Spring	Stainless Steel
4	Thermal Actuator	303 SS
5	Cage	303 SS
6	All Shaded Area	Water Passage

Note: The valve plug is shown in the fully open position. As temperature rises, the thermal actuator moves it to the right towards the inlet port to limit flow to .1 GPM as temperature reaches 3° F above set point.

Model No.	CV	GPM@1		NPT	Diameter In	Length In	Weight Lb	Max Pressure PSIG	Max Temp °F
		PSI Δ P	Max						
CS-1/2-XXX	1.2	0.5	0.50"	1.13"	2.75"	0.06	200	300	
CS-3/4-XXX	1.7	1.2	0.75"	1.38"	3.13"	0.07	200	300	
CS-1-XXX	3.2	2.6	1.00"	1.75"	3.38"	1.60	200	300	
CS-1.25-XXX	5.0	5.0	1.25"	2.13"	4.60"	2.70	200	300	
CS-1.5-XXX	7.5	11.0	1.50"	2.38"	4.60"	3.80	200	300	
CS-2-XXX	14.0	18.5	2.00"	3.00"	4.88"	5.60	200	300	

Model Number Selection

XXX refers to the water temperature immediately downstream of your mixing valve. Use that temperature to complete the model number. For example, if your mixing valve is delivering 120°F water and the Circuit Solver TRV™ is to be installed on a 3/4" line, the model number would be CS-3/4-120.

Resources



Circuit Solver Home Page

<http://www.thermomegatech.com/Circuit-Solver/>



Circuit Solver Video

<http://www.vimeo.com/randinc/circuit-solver-trv>



Circuit Solver Brochure

<http://www.thermomegatech.com/TRV/Circuit-Solver.pdf>



Recirculation Pump Selection Guideline

http://www.thermomegatech.com/TRV/Recirculating_Pump_Selection_Guideline.xls



Energy Savings Related to Circuit Solver

http://www.thermomegatech.com/TRV/Energy_Savings_Related_to_Circuit_Solver.pdf

Visit Circuit Solver Home Page

