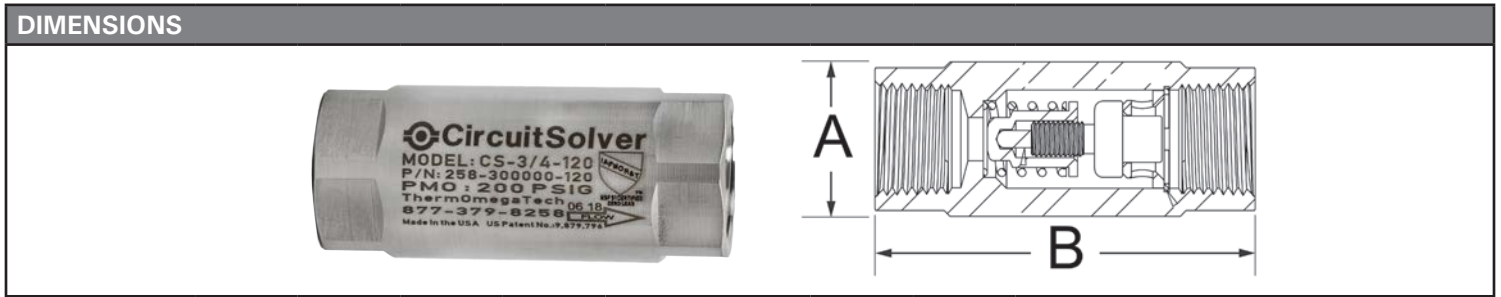


# SUBMITTAL

<b>JOB:</b>	<b>ORDER NO:</b>	<b>DATE:</b>
	<b>SUBMITTED BY:</b>	<b>DATE:</b>
<b>UNIT TAG:</b>	<b>APPROVED BY:</b>	<b>DATE:</b>
<b>CITY:</b>	<b>ENGINEER:</b>	<b>BUILDING TYPE:</b>
<b>STATE:</b>	<b>CONTRACTOR:</b>	<b>CONSTRUCTION TYPE:</b>
<b>COMPLETION DATE:</b>		

**DESCRIPTION**

CircuitSolver® is a self-acting thermostatic recirculation valve which automatically and continuously maintains the end of each domestic hot water supply line at the specified water temperature. Since the CircuitSolver® responds to water temperature and controls flow to the return, it eliminates the need to manually balance the system.



		Diameter (A)		Length (B)		Weight		C <sub>v</sub>		Max. Pressure		Max. Temp.	
Model No.	NPT	IN	MM	IN	MM	LBS.	KG	OPEN	CLOSED	PSIG	BAR	°F	°C
CS- 1/2 -XXX	1/2"	1.1	29	2.8	70	0.5	0.2	1.3	0.1	200	14	300	149
CS- 3/4 -XXX	3/4"	1.4	35	3.1	80	0.8	0.4	1.8	0.1				
CS-1-XXX	1"	1.8	44	3.4	86	1.6	0.7	3.3	0.15				
CS-1 1/4 -XXX	1 1/4"	2.1	54	4.6	117	2.8	1.3	5.1	0.15				
CS-1 1/2 -XXX	1 1/2"	2.4	60	4.6	117	3.5	1.6	7.6	0.15				
CS-2-XXX	2"	3.0	76	4.9	124	5.6	2.5	14.2	0.15				

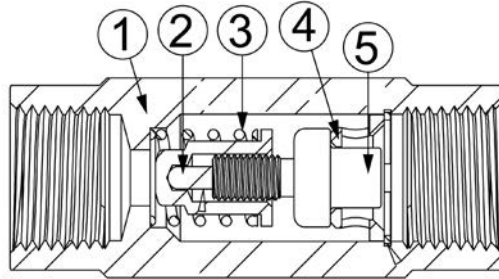
**Model Number Selection**

XXX refers to the desired closing temperature. When the water temperature drops below this point the CircuitSolver® will begin to open, allowing water to easily enter the return line. For example, if you want 120°F desired return temperature and the CircuitSolver® is to be installed on a 3/4" line, the model number would be CS-3/4-120.

**FLOW RATE CALCULATION USING "CV" FACTOR SHOWN IN TABLE ABOVE (FOR WATER G = 1.0)**

$$GPM = C_v \sqrt{\frac{\Delta P}{G}} \quad C_v = \sqrt{\frac{\Delta P}{G}} \quad \Delta P = \left[ \frac{GPM}{C_v} \right]^2 G$$

**MATERIALS**



ITEM	DESCRIPTION	MATERIAL
1	Valve Body	303 stainless steel
2	Valve Plug	303 stainless steel
3	Spring	302 stainless steel
4	Carrier	303 stainless steel
5	Thermal Actuator	303 stainless steel

**TYPICAL SPECIFICATION**

- I. Furnish and install CIRCUITSOLVER® as indicated on the plans. CIRCUITSOLVER® shall be self contained and fully automatic without additional piping or control mechanisms. Valve shall be a CIRCUITSOLVER® as manufactured by ThermOmegaTech®, Inc., or equivalent.
  - A. CIRCUITSOLVER® shall regulate the flow of recirculated domestic hot water based on water temperature entering the CIRCUITSOLVER® regardless of system operating pressure.
    1. Even when fully closed the CIRCUITSOLVER® shall bypass a small amount hot water to maintain dynamic control of the recirculating loop.
    2. CIRCUITSOLVER® is set at the factory for the desired return temperature. No field adjustments. Several temperature set points are available.
    3. CIRCUITSOLVER® shall be available in sizes ranging from ½" NPT to 2" NPT.
- II. CIRCUITSOLVER® body and all internal components shall be constructed of stainless steel with major components constructed of type 303 stainless steel.
  - A. CIRCUITSOLVER® sizes ½" through 2" shall be rated to 200 PSIG maximum working pressure.
    1. All CIRCUITSOLVER® shall be standard tapered female pipe thread, NPT.
  - B. All CIRCUITSOLVER® shall be rated to 300°F (148.9°C) maximum working temperature.
  - C. All CIRCUITSOLVER® shall be NSF-61 certified for use in all domestic water systems.
  - D. Thermal actuator shall be spring loaded and self cleaning, delivering closing thrust sufficient to keep orifice opening free of scale deposits.
- III. Installation of CIRCUITSOLVER® shall be made by qualified tradesmen. Install CIRCUITSOLVER® in each domestic hot water return piping branch beyond last hot water device in that branch.
  - A. Provide suitable line size isolation valves, unions, and strainer as indicated in piping detail shown on the drawings.
  - B. Provide suitable access panel as required in non-accessible ceilings and walls.