CircuitSolver®
A ThermOmegaTech® product

NSF/ANSI 61 and Zero Lead Content Certified

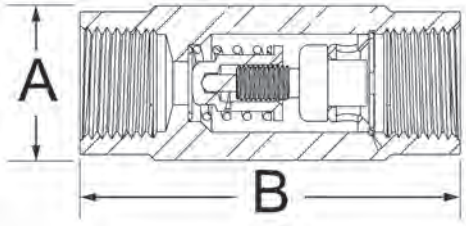
SUBMITTAL

JOB:	**ORDER NO:**	**DATE:**
	SUBMITTED BY:	**DATE:**
UNIT TAG:	**APPROVED BY:**	**DATE:**
CITY:	**ENGINEER:**	**BUILDING TYPE:**
STATE:	**CONTRACTOR:**	**CONSTRUCTION TYPE:**
COMPLETION DATE:		

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.

DIMENSIONS



		Diameter (A)		Length (B)		Weight		C_v		Max. Pressure		Max. Temp.	
Model No.	NPT	IN	MM	IN	MM	LBS.	KG	OPEN	CLOSED	PSIG	BAR	°F	°C
CS- ½ -XXX	½″	1.1	29	2.8	70	0.5	0.2	1.3	0.1	200	14	300	149
CS- ¾ -XXX	¾″	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-1¼-XXX	1¼″	2.1	54	4.6	117	2.8	1.3	5.1	0.15				
CS-1½-XXX	1½″	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.

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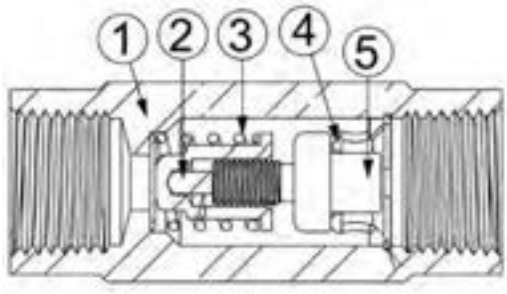
FLOW RATE CALCULATION USING "CV" FACTOR SHOWN IN TABLE ABOVE (FOR WATER G = 1.0)

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

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® shall be factory adjustable as required by project conditions.
      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.

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