

**CircuitSolver® Union Cold Water (CSU-CW)**

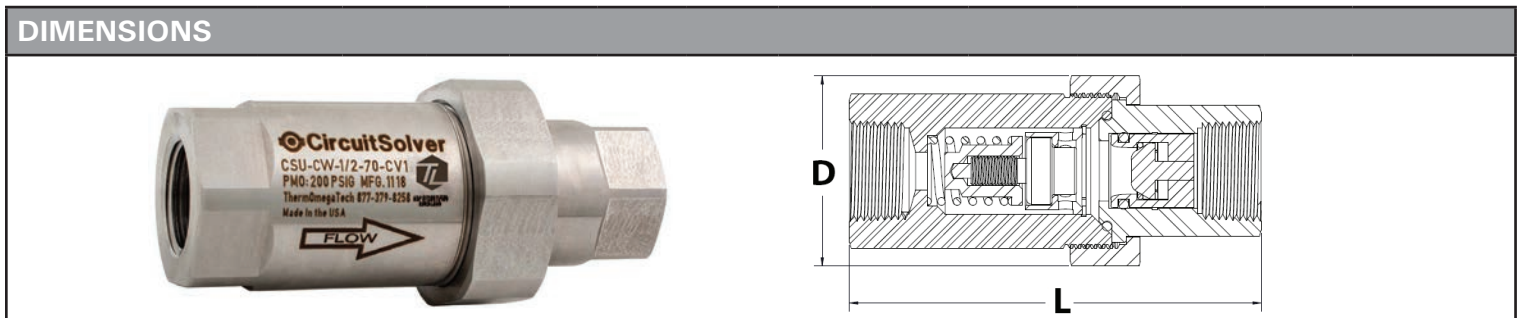
[Thermostatic balancing valve with integrated union and optional check valve]

**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® Cold Water is a thermostatic balancing valve that automatically and continuously adjusts flow to maintain the desired temperature in a domestic cold water supply line. Since the CircuitSolver® responds to water temperature to control the flow entering the recirculation line it eliminates the need to manually balance the system. The "CSU-CW" version CircuitSolver® incorporates a union into the body of the valve and offers an optional check valve insert. The union uses an O-ring seal providing the advantage of a leak-free connection.



		Diameter (D)		Length (L)		Weight		C <sub>v</sub>			Max. Pressure		Max. Temp.	
Model No.	NPT	IN	MM	IN	MM	LBS.	KG	OPEN	CLOSED	DESIGN	PSIG	BAR	°F	°C
CSU-CW-½-XXX	1/2"	1.8	46	3.7	94	1.2	0.5	1	0.3	0.65	200	14	250	121
CSU-CW-½-XXX-CV1														
CSU-CW-¾-XXX	3/4"	2.0	51	4.3	110	1.9	0.9	1.4	0.3	0.85				
CSU-CW-¾-XXX-CV1														
CSU-CW-1-XXX	1"	2.5	64	4.7	120	3.1	1.4	2.7	0.3	1.50				
CSU-CW-1-XXX-CV1														

**Model Number Selection**

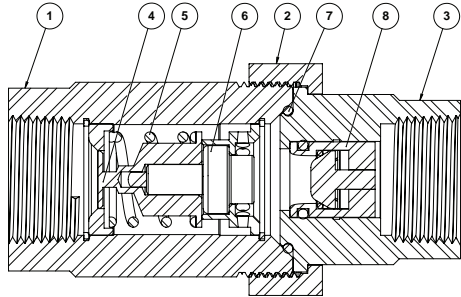
XXX refers to the desired opening temperature. When the water temperature rises above this point the CircuitSolver® will begin to open, allowing water to easily enter the return line. For example, if you want 65°F desired return temperature and the CSU-CW is to be installed on a 3/4" line, the model number would be CSU-CW-3/4-65. To add optional check valve insert -CV1 to the end of the model number. Ex. CSU-CW-3/4-65-CV1

**FLOW RATE CALCULATION USING "Cv" FACTOR SHOWN IN TABLE ABOVE**

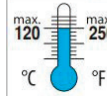

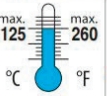

$$GPM = C_v \sqrt{\Delta P}$$

$$C_v = \sqrt{\frac{GPM}{\Delta P}}$$

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

MATERIALS		
		
ITEM	DESCRIPTION	MATERIAL
1	Valve Body w/ Union Threads	303 stainless steel
2	Union Nut	303 stainless steel
3	Female Threaded Insert	303 stainless steel
4	Plug	303 stainless steel
5	Operating Spring	302 stainless steel
6	Thermal Actuator	303 stainless steel
7	O-ring	Buna-N
8	Check Valve (optional)	GLASS FILLED NORYL

OPTIONAL CHECK VALVE	
<b>Features and Benefits</b>	
-100% factory tested drip tight operation	
-Snap fit design, no retainer needed	
-Extra-low head loss and low cracking pressure	
-External O-ring in groove	
<b>Certifications</b>	
-ANSI/ NSF 61	
ITEM	MATERIAL
Cap	Glass filled Noryl
Guide	Glass filled Noryl
Plunger	Glass filled Noryl
Lip Spring	EPDM rubber
Spring	Stainless Steel AISI 301
O-ring	EPDM rubber

OPTIONAL CHECK VALVE TECHNICAL DATA	
Medium: Clear water only	
Approximate Cracking Pressure: 0.29 PSI	
Continuous	Short-term (5 minutes max.)
	
	

## TYPICAL SPECIFICATION

- I. Furnish and install CIRCUITSOLVER<sup>®</sup> UNION COLD WATER as indicated on the plans. CIRCUITSOLVER<sup>®</sup> UNION COLD WATER shall be self-contained and fully automatic without additional piping or control mechanisms. Valve shall be a CIRCUITSOLVER<sup>®</sup> UNION COLD WATER as manufactured by ThermOmegaTech<sup>®</sup>, Inc. or equivalent.
  - A. CIRCUITSOLVER<sup>®</sup> UNION COLD WATER shall regulate the flow of recirculated domestic cold water based on water temperature entering the CIRCUITSOLVER<sup>®</sup> UNION COLD WATER regardless of system operating pressure. As the water temperature increases the valve proportionally opens dynamically adjusting flow to meet the specified temperature.
    1. CIRCUITSOLVER<sup>®</sup> UNION COLD WATER never fully closes. There is always sufficient bypass flow back to the recirculating pump to prevent overheating or “dead heading” of the pump.
    2. CIRCUITSOLVER<sup>®</sup> UNION COLD WATER is set at the factory for the desired return temperature. No field adjustments needed. Several temperature set points are available.
- II. CIRCUITSOLVER<sup>®</sup> UNION COLD WATER body and all internal components are made with lead-free materials with major components constructed of type 303 stainless steel.
  - A. CIRCUITSOLVER<sup>®</sup> UNION COLD WATER shall be rated to 200 PSIG maximum working pressure.
    1. All CIRCUITSOLVER<sup>®</sup> UNION COLD WATER shall be standard tapered female pipe thread, NPT.
  - B. All CIRCUITSOLVER<sup>®</sup> UNION COLD WATER shall be rated to 250°F (121.1°C) maximum working temperature.
  - C. 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<sup>®</sup> UNION COLD WATER shall be made by qualified tradesmen. Install CIRCUITSOLVER<sup>®</sup> UNION COLD WATER in each domestic cold water return piping branch beyond last cold 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.
  - C. Pay close attention to flow arrow, especially with valves that have an integrated check valve.