

CircuitSolver® Union Cold Water (CSU-CW)

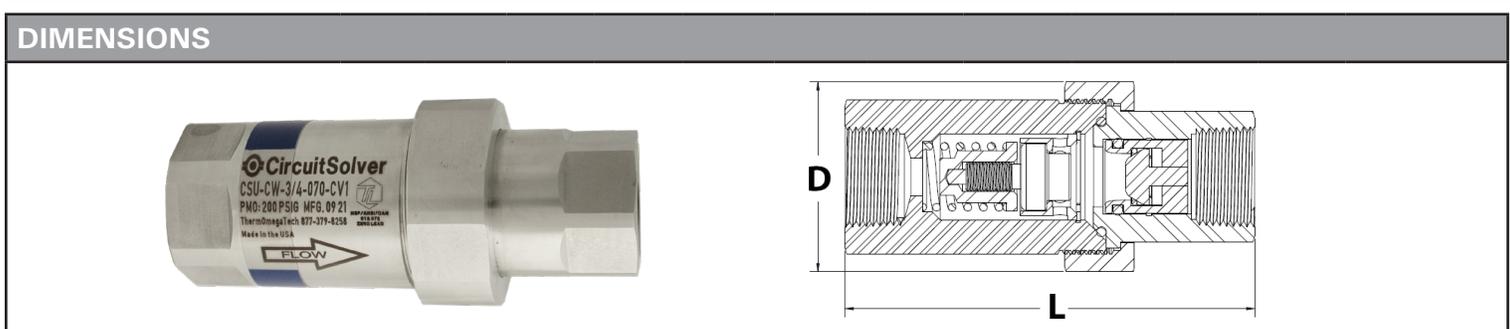
[Thermostatic balancing valve with integrated union and optional check valve]

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® 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.



Model No.		Diameter (D)		Length (L)		Weight		C _v			Max. Pressure		Max. Temp.	
		NPT	IN	MM	IN	MM	LBS.	KG	OPEN	CLOSED	DESIGN	PSIG	BAR	°F
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														

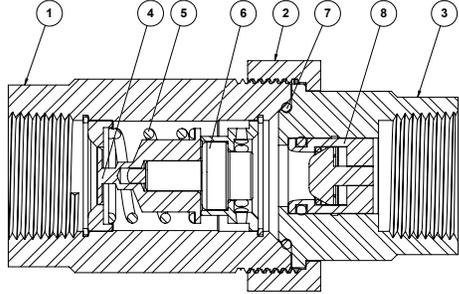
Model Number Selection
 XXX refers to the desired closing temperature. When the water temperature rises above this point the CircuitSolver® will begin to open, allowing water to easily enter the return line. For example, if you want 65°F desired return temperature and the CSU-CW is to be installed on 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 "C_v" FACTOR SHOWN IN TABLE ABOVE

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

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

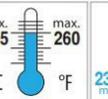
$$\Delta P = \left[\frac{GPM}{C_v} \right]^2$$

MATERIALS		
		
ITEM	DESCRIPTION	MATERIAL
1	Valve Body w/ Union Threads	300 series stainless steel
2	Union Nut	300 series stainless steel
3	Female Threaded Insert	300 series stainless steel
4	Plug	300 series stainless steel
5	Operating Spring	300 series stainless steel
6	Thermal Actuator	300 series stainless steel
7	O-ring	Buna-N
8	Check Valve (optional)	GLASS FILLED NORYL

TYPICAL SPECIFICATION

- I. Furnish and install CIRCUITSOLVER® UNION COLD WATER as indicated on the plans. CIRCUITSOLVER® UNION COLD WATER shall be self-contained and fully automatic without additional piping or control mechanisms. Valve shall be a CIRCUITSOLVER® UNION COLD WATER as manufactured by ThermOmegaTech®, Inc. or equivalent.
 - A. CIRCUITSOLVER® UNION COLD WATER shall regulate the flow of recirculated domestic cold water based on water temperature entering the CIRCUITSOLVER® 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® 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® 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® UNION COLD WATER body and all internal components are made with lead-free materials with major components constructed of type 300 series SS.
 - A. CIRCUITSOLVER® UNION COLD WATER shall be rated to 200 PSIG maximum working pressure.
 1. All CIRCUITSOLVER® UNION COLD WATER shall be standard tapered female pipe thread, NPT.
 - B. All CIRCUITSOLVER® UNION COLD WATER shall be rated to 250°F (121.1°C) maximum working temperature.
 - C. CIRCUITSOLVER® UNION COLD WATER shall be NSF/ANSI/CAN 61 or 372 certified.
 - 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® UNION COLD WATER shall be made by qualified tradesmen. Install CIRCUITSOLVER® 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.

OPTIONAL CHECK VALVE	
Features and Benefits	
-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	
Certifications	
-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	
<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Continuous</p>  <p>max. 120 °C / max. 250 °F</p> </div> <div style="text-align: center;">  <p>150psi max. / 10bar max.</p> </div> <div style="text-align: center;"> <p>Short-term (5 minutes max.)</p>  <p>max. 125 °C / max. 260 °F</p> </div> <div style="text-align: center;">  <p>230psi max. / 16bar max.</p> </div> </div>	