

**CircuitSolver® Union Assembly with Strainer (CSUAS-PP)& Viega ProPress® System**  
 [Thermostatic balancing valve with integrated union body, ball valves, strainer, and ProPress ends]

**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**

The CircuitSolver® Union Assembly's primary component is the CircuitSolver® which is a self-acting thermostatic recirculation valve that 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. The featured strainer (20 mesh) must be maintained in order to avoid flow obstruction.

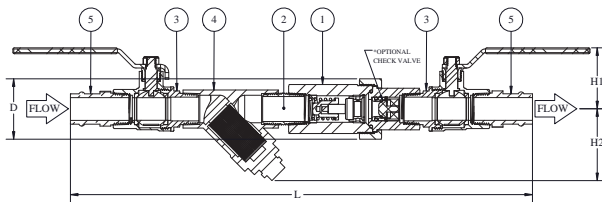
**DIMENSIONS**

Item No.	Part Number	Description	Qty	Item No.	Part Number	Description	Qty	Item No.	Part Number	Description	Qty
1	258-20X100-XXX	½" CIRCUITSOLVER THERMOSTATIC BALANCING VALVE WITH INTEGRATED UNION	1	1	258-30X100-XXX	¾" CIRCUITSOLVER THERMOSTATIC BALANCING VALVE WITH INTEGRATED UNION	1	1	258-40X100-XXX	1" CIRCUITSOLVER THERMOSTATIC BALANCING VALVE WITH INTEGRATED UNION	1
2	92-162	½" X CL NIPPLE BRS LF	1	2	92-026	¾" X CL NIPPLE BRS LF	1	2	92-044	1" X CL NIPPLE BRS LF	1
3	92-160	BALL VALVE, ½" Mx F, LF	2	3	92-158	BALL VALVE, ¾" Mx F, LF	2	3	92-170	BALL VALVE, 1" Mx F, LF	2
4	93-180	STRAINER, ½" Y, STAINLESS STEEL ADAPTER, ¾" NPT x ¾" ProPress	1	4	93-179	STRAINER, ¾" Y, STAINLESS STEEL ADAPTER, ¾" NPT x ¾" ProPress	1	4	93-178	STRAINER, 1" Y, STAINLESS STEEL ADAPTER, 1" NPT x 1" ProPress	1
5	92-090		2	5	92-091		2	5	92-092		2

\*ALL COMPONENTS ARE LEAD-FREE

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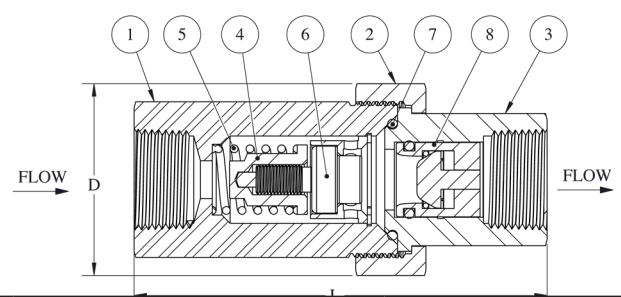
\*ALL COMPONENTS ARE LEAD-FREE



Model No.	NPT	Diameter (D)		Length (L)		Height 1 (H1)		Height 2 (H2)		Weight		C <sub>v</sub>			Max. Pressure		Max. Temp.	
		IN	MM	IN	MM	IN	MM	IN	MM	LBS.	KG	OPEN	CLOSED	DESIGN	PSIG	BAR	°F	°C
CSUAS- ½ -XXX-PP	1/2"	1.8	46	13.6	345	1.8	46	2.5	64	2.8	1.3	1.3	0.2	0.60	200	14	250	121
CSUAS- ½ -XXX-CV1-PP																		
CSUAS- ¾ -XXX-PP	3/4"	2.0	51	15.4	391	2.0	51	3.3	84	4.7	2.1	1.8	0.2	0.85				
CSUAS- ¾ -XXX-CV1-PP																		
CSUAS-1-XXX-PP	1"	2.5	64	18	456	2.3	59	3.8	97	7.4	3.4	3.3	0.2	1.57				
CSUAS-1-XXX-CV1-PP																		

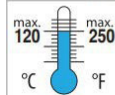

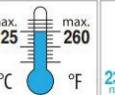

**Model Number Selection**

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 CSUAS-PP is to be installed on a 3/4" line, the model number would be CSUAS-3/4-120-PP. To add optional check valve insert -CV1 directly after the temperature designation in the model number. Ex. CSUAS-3/4-120-CV1-PP

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

FLOW RATE CALCULATION USING "Cv" FACTOR		
$GPM = C_v \sqrt{\Delta P}$	$C_v = \sqrt{\frac{GPM}{\Delta P}}$	$\Delta P = \left[ \frac{GPM}{C_v} \right]^2$

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 STRAINER ASSEMBLY as indicated on the plans. CIRCUITSOLVER<sup>®</sup> UNION STRAINER ASSEMBLY shall be self-contained and fully automatic without additional piping or control mechanisms. Thermostatic valve shall be a CIRCUITSOLVER<sup>®</sup> as manufactured by ThermOmegaTech<sup>®</sup>, Inc., or equivalent.
  - A. CIRCUITSOLVER<sup>®</sup> shall regulate the flow of recirculated domestic hot water based on water temperature entering the CIRCUITSOLVER<sup>®</sup> UNION STRAINER ASSEMBLY regardless of system operating pressure. As the water temperature increases the valve proportionally closes dynamically adjusting flow to meet the specified temperature.
    1. CIRCUITSOLVER<sup>®</sup> never fully closes, even at the desired set point. There is always sufficient bypass flow back to the recirculating pump to prevent overheating or "dead heading" of the pump.
    2. CIRCUITSOLVER<sup>®</sup> is set at the factory for the desired return temperature. No field adjustments needed. Several temperature set points are available.
    3. CIRCUITSOLVER<sup>®</sup> UNION STRAINER ASSEMBLY shall be available in 1/2", 3/4", & 1" with Viega ProPress adapters at both ends.
- II. All components in the CIRCUITSOLVER<sup>®</sup> UNION STRAINER ASSEMBLY are made with lead free materials. The major components that make up the CIRCUITSOLVER<sup>®</sup> are constructed of type 303 SS.
  - A. CIRCUITSOLVER<sup>®</sup> UNION STRAINER ASSEMBLY shall be rated to 200 PSIG maximum working pressure.
    1. CIRCUITSOLVER<sup>®</sup> UNION STRAINER ASSEMBLY shall be standard tapered female pipe thread, NPT. with ProPress adapters at both ends.
  - B. CIRCUITSOLVER<sup>®</sup> UNION STRAINER ASSEMBLY shall be rated to 250°F (121.1°C) maximum working temperature.
  - C. CIRCUITSOLVER<sup>®</sup> UNION STRAINER ASSEMBLY shall have all lead-free components.
  - 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<sup>®</sup> UNION STRAINER ASSEMBLY shall be made by qualified tradesmen. Install CIRCUITSOLVER<sup>®</sup> UNION STRAINER ASSEMBLY in each domestic hot water return piping branch beyond last hot water device in that branch.
  - A. Strainer is integrated in the valve assembly.
  - 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.