

## CircuitSolver® with Integrated Union Assembly and Viega ProPress® System

[Thermostatic balancing valve with union body, ball valves, 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**

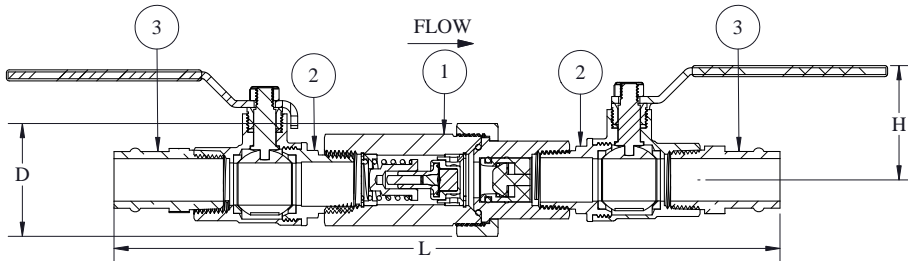
The CircuitSolver® Union Assembly Propress's primary component is the CircuitSolver® which is a self-acting thermostatic recirculation valve which automatically and continuously maintains the end of each domestic hot water supply line at the specified water temperature. Since the CircuitSolver® responds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

| 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        | 92-160         | BALL VALVE, ½" MXF, LF   | 2    | 2        | 92-158         | BALL VALVE, ¾" MXF, LF   | 2    | 2        | 92-170         | BALL VALVE, 1" MXF, LF   | 2    |
| 3        | 92-090         | ADAPTER, ½" NPT x ½" PROPRESS  | 2    | 3        | 92-091         | ADAPTER, ¾" NPT x ¾" PROPRESS  | 2    | 3        | 92-092         | ADAPTER, 1" NPT x 1" PROPRESS  | 2    |

\*ALL COMPONENTS ARE LEAD FREE

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| Model No.           | NPT  | Diameter (D) |    | Length (L) |     | Height (H) |    | Weight |     | C <sub>v</sub> |        | Max. Pressure |     | Max. Temp. |     |
|---------------------|------|--------------|----|------------|-----|------------|----|--------|-----|----------------|--------|---------------|-----|------------|-----|
|                     |      | IN           | MM | IN         | MM  | IN         | MM | LBS.   | KG  | OPEN           | CLOSED | PSIG          | BAR | °F         | °C  |
| CSUA- ½ -XXX-PP     | 1/2" | 1.8          | 46 | 10.1       | 257 | 1.8        | 46 | 2.8    | 1.3 | 1.3            | 0.1    | 200           | 14  | 250        | 121 |
| CSUA- ½ -XXX-CV1-PP |      |              |    |            |     |            |    |        |     |                |        |               |     |            |     |
| CSUA- ¾ -XXX-PP     | 3/4" | 2.0          | 51 | 11.8       | 300 | 2.0        | 51 | 3.7    | 1.7 | 1.8            | 0.1    |               |     |            |     |
| CSUA- ¾ -XXX-CV1-PP |      |              |    |            |     |            |    |        |     |                |        |               |     |            |     |
| CSUA-1-XXX-PP       | 1"   | 2.5          | 64 | 13.1       | 333 | 2.3        | 59 | 5.8    | 2.6 | 3.3            | 0.1    |               |     |            |     |
| CSUA-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 CSUA-PP is to be installed on a 3/4" line, the model number would be CSUA-3/4-120-PP. To add optional check valve insert -CV1 directly after the temperature designation in the model number. Ex. CSUA-3/4-120-CV1-PP

**FLOW RATE CALCULATION USING "C<sub>V</sub>" FACTOR FOR WATER**

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

**TYPICAL SPECIFICATION**

- I. Furnish and install CIRCUITSOLVER<sup>®</sup> UNION ASSEMBLY as indicated on the plans.  
CIRCUITSOLVER<sup>®</sup> UNION 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 ASSEMBLY regardless of system operating pressure. As the water temperature increases the valve proportionally closes dynamically adjusting flow to meet the specified temperature.
    1. The 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> UNION ASSEMBLY shall be factory adjustable as required by project conditions.
    3. CIRCUITSOLVER<sup>®</sup> UNION ASSEMBLY shall be available in ½", ¾", & 1" with VIEGA ProPress adapters at both ends.
- II. All components in the CIRCUITSOLVER<sup>®</sup> UNION 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 ASSEMBLY shall be rated to 200 PSIG maximum working pressure.
    1. CIRCUITSOLVER<sup>®</sup> UNION ASSEMBLY shall be standard tapered female pipe thread, NPT with ProPress adapters at both ends.
  - B. CIRCUITSOLVER<sup>®</sup> UNION ASSEMBLY shall be rated to 250°F (121.1°C) maximum working temperature.
  - C. CIRCUITSOLVER<sup>®</sup> UNION 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 ASSEMBLY shall be made by qualified tradesmen. Install CIRCUITSOLVER<sup>®</sup> UNION ASSEMBLY in each domestic hot water return piping branch beyond last hot water device in that branch.
  - A. Provide suitable 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.