

3/4 CircuitSolver[®] Thermal Disinfection Dual Valve (CSUTD-D) With Thermometer

[Thermostatic balancing valve with union body, two actuators & thermometer]

SUBMITTAL

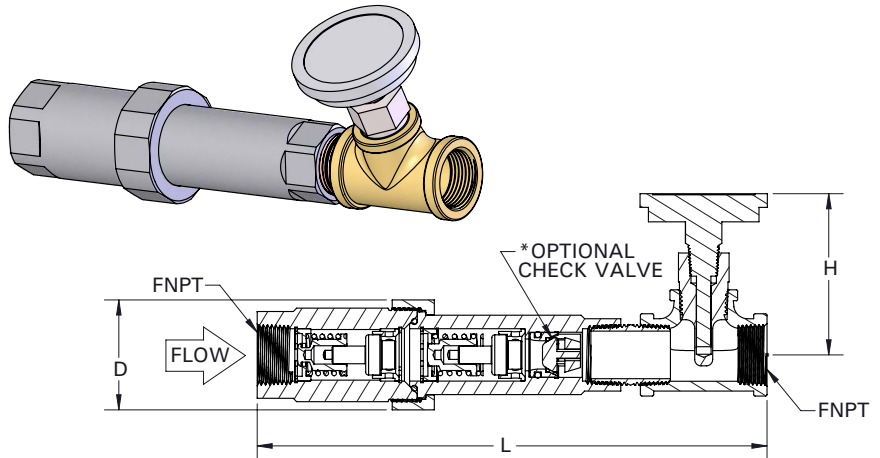
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|-------------------------|----------------------|---------------------------|
| JOB: | ORDER NO: | DATE: |
| | SUBMITTED BY: | DATE: |
| UNIT TAG: | APPROVED BY: | DATE: |
| CITY: | ENGINEER: | BUILDING TYPE: |
| | | |
| STATE: | CONTRACTOR: | CONSTRUCTION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

DESCRIPTION

CircuitSolver[®] is a thermostatic balancing valve that automatically and continuously adjusts flow to maintain the desired temperature in a domestic hot 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 "CSUTD-D" version CircuitSolver[®] incorporates a union into the body of the valve with an optional check valve insert and a second stage sanitizing flush feature. The union uses an O-ring seal providing the advantage of a leak-free connection.

DIMENSIONS

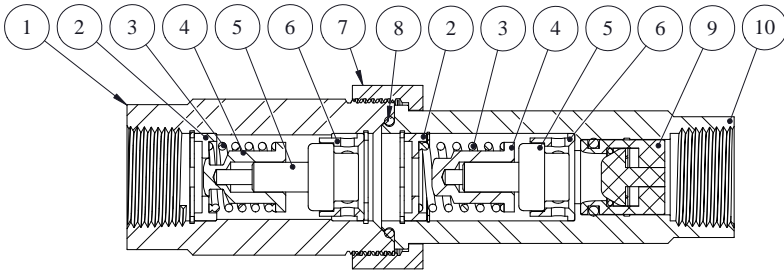
| Item No. | Part Number | Description | Qty. |
|----------|----------------|---|------|
| 1 | 261-30309X-XXX | ¾" CIRCUITSOLVER [®] THERMAL DISINFECTON DUAL THERMOSTATIC BALANCING VALVE | 1 |
| 3 | 92-026 | ¾" X CL NIPPLE BRS LF | 1 |
| 4 | 93-173 | ¾" X ½" TEE | 1 |
| 5 | 93-094 | THERMOWELL | 1 |
| 6 | 94-287 | THERMOMETER | 1 |



| Model No. | NPT | Diameter (D) | | Length (L) | | Height (H) | | Weight | | Standard Balancing C _v | | | Thermal Disinfection Balancing C _v | | | Max. Pressure | | Max. Temp. | |
|--------------------------|-----|--------------|----|------------|-----|------------|----|--------|-----|-----------------------------------|--------|--------|---|--------|--------|---------------|-----|------------|-----|
| | | IN | MM | IN | MM | IN | MM | LBS. | KG | OPEN | CLOSED | DESIGN | OPEN | CLOSED | DESIGN | PSIG | BAR | °F | °C |
| CSUTD-D-¾-XXX/170-TW | ¾" | 2.0 | 51 | 8.9 | 226 | 3.0 | 76 | 3.3 | 1.5 | 1.2 | 0.2 | 0.85 | 0.5 | 0.2 | 0.85 | 200 | 14 | 250 | 121 |
| CSUTD-D-¾-XXX/170-CV1-TW | | | | | | | | | | | | | | | | | | | |

Model Number Selection

XXX refers to the desired closing temperature for standard balancing. When the water temperature drops below this point the CircuitSolver[®] will begin to open, allowing water to easily enter the return line. The valve will start to reopen approximately 20°F above the standard balancing temperature and rebalance the system at 170°F. For example, if you want 120°F desired return temperature and the CSUTD-D is to be installed on a ¾" line, the model number would be CSUTD-D-¾-120-170. To add optional check valve insert -CV1 to the end of the model number. Ex. CSUTD-D-¾-120-170-CV1-TW

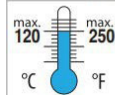
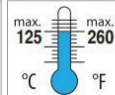


| MATERIALS | | |
|--|-----------------------------|---------------------|
|  | | |
| ITEM | DESCRIPTION | MATERIAL |
| 1 | Valve Body w/ Union Threads | 303 stainless steel |
| 2 | Insert - CircuitSolver® | 303 stainless steel |
| 3 | Spring | 302 stainless steel |
| 4 | Plug | 303 stainless steel |
| 5 | Thermal Actuator | 303 stainless steel |
| 6 | Carrier | 303 stainless steel |
| 7 | Union Nut | 303 stainless steel |
| 8 | O-ring | BUNA |
| 9 | Check Valve (optional) | GLASS FILLED NORYL |
| 10 | Insert - Female Threaded | 303 stainless steel |

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

TYPICAL SPECIFICATION

- I. Furnish and install CIRCUITSOLVER® as indicated on the plans. CIRCUITSOLVER® THERMAL DISINFECTION DUAL VALVE with THERMOMETER 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® THERMAL DISINFECTION DUAL VALVE with THERMOMETER regardless of system operating pressure. As the water temperature increases the valve proportionally closes dynamically adjusting flow to meet the specified temperature.
 1. CIRCUITSOLVER® 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® is set at the factory for the desired return temperature. No field adjustments needed. Several temperature set points are available.
 3. The CIRCUITSOLVER® THERMAL DISINFECTION DUAL VALVE with THERMOMETER shall be available in 1/2", 3/4" & 1" NPT.
 - B. CIRCUITSOLVER® THERMAL DISINFECTION DUAL VALVE with THERMOMETER allows for an additional balancing cycle at 170°F.
 1. The valve will start to re-open above the low temperature balancing set point to allow the system to rebalance at the sanitizing flush temperature.
- II. CIRCUITSOLVER® THERMAL DISINFECTION DUAL VALVE with THERMOMETER body and all internal components are made with lead-free materials with major components constructed of type 303 stainless steel.
 - A. CIRCUITSOLVER® THERMAL DISINFECTION DUAL VALVE with THERMOMETER shall be rated to 200 PSIG maximum working pressure.
 1. All CIRCUITSOLVER® THERMAL DISINFECTION DUAL VALVE with THERMOMETER shall be standard tapered female pipe thread, NPT.
 - B. All CIRCUITSOLVER® THERMAL DISINFECTION DUAL VALVE with THERMOMETER 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® THERMAL DISINFECTION DUAL VALVE with THERMOMETER shall be made by qualified tradesmen. Install CIRCUITSOLVER® THERMAL DISINFECTION DUAL VALVE with THERMOMETER 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.
 - 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 | |
| Continuous  | Short-term (5 minutes max.)  |
|  |  |