

Modify Section 23 21 00, subsection .02.B per the following (deletions are shown struck through and additions are double underlined). Remainder of subsection .02B is unchanged.

## 23 21 00 HYDRONIC PIPING AND PUMPS

### .02 Flow Balance and Differential Pressure Control

~~B. Isolation and Flow Measurement: In all hydronic systems, provide isolation and flow measuring devices as required for service isolation and to ensure design flow at heat transfer equipment with the minimum amount of system pressure drop.~~

~~1. Combination Isolation/balance valve: Hydronic heating or cooling equipment connections shall have a combination ball or butterfly isolation valve for service with high signal, low loss, fixed orifice venturi flow measuring device with P/T ports for diagnostics.~~

~~a. Acceptable Manufacturers:~~

~~1. FlowDesign "Flowset"~~

~~2. Hydronic Components Inc. (HCl) "Terminator B"~~

~~3. Nexus manual flow control valves~~

~~4. Taco "Accu-Flo"~~

~~b. Globe style manual balance valves with high pressure loss, variable orifice for flow measurement are prohibited.~~

B. Isolation and Flow Measurement:

1. General: In all hydronic systems, provide combination positive drip-tight shut-off and precision flow measuring devices at heat transfer terminals as required for service isolation and means to quickly, conveniently and accurately measure flow.

a. Combination shut-off/balancing valve shall provide multi-turn, 360° adjustment with precise position indicators located on the ergonomically designed handwheel. Valves shall have a minimum of four full 360° handwheel turns. Valve handle shall have hidden memory feature, which will provide a means for locking the valve position after the system is balanced. Valves shall have P/T ports for connecting standard differential pressure meter, extended type as required to be accessible without having to remove primary finished insulation. 90° 'circuit-setter' style ball valves are not acceptable.

b. Optional: Provide manufacturer's optional insulation covers with a flame spread rating of 25 or less and a smoke development rating of 50 or less. Coordinate installation with piping insulation installer to ensure that complete vapor barrier is maintained on systems operating below ambient dew point.

c. Install in accordance with manufacturers recommendations of upstream and downstream pipe diameters from any fitting. Install with flow in the direction of

the arrow on the valve body. Locate with easy and unobstructed view and access to the valve handwheel, position indicator, and metering ports for adjustment and measurement. Mounting of valve in piping must prevent sediment build-up in metering ports.

d. Acceptable Manufacturers:

1. Armstrong CBV

2. Tour Andersson STA series

**END of revision**

**Update Commentary:**

Section was updated primarily for the following reasons:

- 1) *To revise requirements on combination shut-off/balance valves to achieve more variable adjustment and precise flow measurement and to be able to read setting directly off the handle position rather than needing to find which internal venturi was supplied in the ball/venturi type and then having to look up chart.*