

Modify Section 23 05 01, subsection .02 Valves and Section 23 21 13, subsection .03 Hydronic Specialties per the following (deletions are shown struck through and additions are double underlined). Remainders of sections are unchanged.

23 05 01 Mechanical General Requirements

.02 Valves

A. General

1. All valves on any one project shall be the product of one manufacturer.
2. Valves shall be have right handed threads. ~~Balancing valves shall be a type that can be used for shut-off without disturbing balancing point setting.~~
3. Where possible, valves shall be installed with valve bonnet in an upright position to prevent deterioration or corrosion of bonnet and packing.
4. Valve body materials shall be compatible with piping system materials.

B. Pump Valves

1. See Section 23 21 23 – HVAC Pumps. All constant speed circulating pumps shall have a triple duty valve installed on the discharge side of the pump.
2. ~~Triple duty valves shall not be used on pumps equipped with variable speed drives.~~

D. Balancing Valves

1. See Section 23 21 13 - Hydronic Specialties. Manual balancing valves are not very effective in dynamic, variable flow pumping systems. Recommending to provide pressure independent characterized control valves with optional p/t ports to allow flow verification to serve dual purposes (dynamic flow limiting and control functions) for temperature control valves on central, large (10 gpm and greater) hot water/chilled water coils throughout project.
 - a. Valves manufactured by Belimo (model PICCV) and Griswold (PIC-V) are the only ones acceptable to PSU at this time.
 - b. These valves will help to ensure that the new system's operation will be effective and efficient. Also, the risk of future system modifications throwing the entire system out of balance would be virtually eliminated with these valves. Since balancing valves or reverse return piping layouts are not necessary with these valves and manual balancing labor can be reduced, the increased

~~cost associated with the control valves themselves may not increase the total system installation cost.~~

- ~~2. On smaller, terminal type heating and cooling units (under 10 gpm):
 - a. No manual or automatic balancing valves are required at the individual terminals. Standard characterized control valve shall act as flowing limiting device.
 - b. Add auto flow limiter with optional p/t ports to allow flow verification with service isolation valves at each end in the main branch hydronic supply pipes off of each riser at each level to limit overall connected design flow to terminal devices served by each main branch.
 - c. For individual finned tube radiators in which design flow needs to be set for optimum velocity and heat transfer, a manual balance valve may be installed. If the characterized control valve will not fit in the FTR enclosure, call for it to be in an accessible location in the ceiling. Small, poor quality zone valves with low close-off pressures are not acceptable.~~
- ~~3. Balancing valves shall be installed in all 3-way control valve bypass lines and at all flow meters.~~
- ~~4. Gate valves shall be limited to shutoff service only. Gate valves shall **not** be used in a throttling application. Globe valves or ball valves shall be used.~~

23 21 13 Hydronic Piping

.03 Hydronic Specialties

E. Flow Balancing Valves

- ~~1. General: Refer to guidelines in [23 21 00 Hydronic Piping - Flow Balance and Differential Pressure Control](#). Flow balancing valves shall be installed at all terminal equipment and air handling units and all major branch connections.~~
- ~~1. For all line sizes, use differential pressure type similar to B & G Circuit Setter.~~
2. Size balancing valves for the specified flow rates, which may not necessarily be the same as the line size.

Comment [swr1]: Create as hyperlink to new subsection referenced.

END of revision

Update Commentary:

Section was updated primarily for the following reasons:

- 1) *To delete conflicts and add cross references to other updated sections related to balancing valves in general and at pumps.*