

# 220516S01 Piping Expansion Joints

## Part 1 GENERAL REQUIREMENTS

### 1.01 HVAC PIPING EXPANSION JOINTS GENERAL INFORMATION

1. This standard addresses expansion joints in all types of water piping (domestic hot and cold water, heating hot water and chilled water) in all university physical plant maintained facilities. This applies to any locations where expansion joints are required between fixed piping and mechanical equipment.

### 1.02 PHYSICAL REQUIREMENTS

2. All expansion joints shall be metal expansion joints consisting of a single hydraulically formed metal bellows with flange end fittings. Flanges shall be 150 lb. carbon steel and bellows shall be 304 or 316 stainless steel. All wetted surfaces shall be stainless steel.
3. **FOR MAIN CAMPUS PROJECTS ONLY** - Alternatively, use adequate numbers of grooved, flexible style 177N/W77 couplings in header piping to accommodate thermal growth and contraction, and as required for the elimination of expansion loops. (In accordance with manufacturer's recommendations and as approved by the Engineer.) Where expansion loops are required in grooved piping systems, use flexible style couplings on the loop(s). In lieu of a flex connector, three flexible style couplings may be used on suction and discharge side of base mounted pumps (six flexible couplings per pump.) Equipment may be dressed with Victaulic style 380/381 and 385 equipment assemblies in conjunction with Victaulic headers. Minimum pipe size is 2".
4. Joints shall be designed to meet the design pressures and temperature for the system and shall be capable of accommodating piping system and equipment movements as needed. Pressure rating minimums shall be:
  - a. 150°F Maximum Working Pressure: 225 psi
  - b. 212°F Maximum Working Pressure: 190 psi
  - c. 480°F Maximum Working Pressure: 110 psi
5. Tie rods shall be included to prevent overextension of the expansion joints from pressure thrust loads. The number and size of the control rods shall be sufficient for the maximum system test pressure.
6. Rubber expansion joints are **not** acceptable in any of these applications.
7. This standard is the same for both plumbing and HVAC piping; refer to 230516S01 HVAC Piping Expansion Joints for related standard.