

1. PART 1 – GENERAL

1.1 References

- .1 ASME, Boiler and Pressure Vessel Code.
- .2 ASTM A 47/A 47M, Specification for Ferritic Malleable Iron Castings.
- .3 ASTM A 278M, Specification for Gray Iron Castings for Pressure-Containing Parts for Temperatures up to 650 degrees F (345 degrees C).
- .4 ASTM A 516/A 516M, Specification for Pressure Vessel Plates, Carbon Steel, for Moderate - and Lower - Temperature Service.
- .5 ASTM A 536, Specification for Ductile Iron Castings.
- .6 ASTM B 62, Specification for Composition Bronze or Ounce Metal Castings.
- .7 CSA B51, Boiler, Pressure Vessel, and Pressure Piping Code.

2. PART 2 – PRODUCTS

2.1 Automatic air vent

- .1 Standard float vent: brass body and NPS 1/8 connection and rated at 310 kPa working pressure.
- .2 Industrial float vent: cast iron body and NPS 1/2 connection and rated at 860 kPa working pressure.

2.2 Pipe line strainer

- .1 NPS 1/2 to 2: bronze body to ASTM B 62, screwed connections, Y pattern.
- .2 NPS 2 1/2 to 12: cast steel body to ASTM A 278M, Class 30, cast iron body to ASTM, Class 30 flanged connections.
- .3 Blowdown connection: NPS 1.
- .4 Screen: stainless steel with 1.19 mm perforations.
- .5 Working pressure: 860 kPa.

2.3 Manual flow balancing valve

- .1 Venturi type design with P/T ports, forged brass body, lever with scale and memory stop device, integrated union connection.
- .2 Designed for 400 psig at 300°F.
- .3 CV coefficient available from 0.44 to 88.0
- .4 Extensions on P/T ports and stem to allow for thermal insulation.
- .5 Model to be picked up to it CV slightly lower than the flow value in GPM.
- .6 Acceptable products: HVU series from Hays, or Accu-Flo from Taco, or Flowset from Flobab equivalent.

2.4 Flexible connectors

- .1 Internal pipe: flexible corrugated bronze pipe.
- .2 Exterior guide made of bronze lattice.
- .3 Dimensions and ends: as per indications on drawings.
- .4 Flexible connectors to be designed for working pressure and temperature of 1 034 kPa and 93°C.
- .5 Each connector shall absorb an 8 mm lateral movement. The length to diameter ratio shall not be less than six (6). The length shall not be more than 600 mm.
- .6 Quality required: Flexitube, Flexonics model TCS-R.

3. PART 3 – EXECUTION

3.1 General

- .1 Install as indicated and to manufacturer's recommendations and run drain lines and blow off connections to terminate above nearest drain.
- .2 Fill up with water the heating and cooling networks.
- .3 Maintain proper clearance to permit service and maintenance.
- .4 Should deviations beyond allowable clearances arise, request and follow Departmental Representative's directive.
- .5 Check shop drawings for conformance of all tapings for ancillaries and for equipment operating weights.

3.2 Strainers

- .1 Install in horizontal or down flow lines.
- .2 Ensure clearance for removal of basket.
- .3 Install ahead of each pump.
- .4 Install ahead of each automatic control valve and as indicated.

3.3 Air vents

- .1 Install at high points of systems.
- .2 Install gate valve on automatic air vent inlet.

3.4 Expansion tanks (not applicable)

- .1 Adjust expansion tank pressure to suit design criteria.
- .2 Install lockshield type valve at inlet to tank.

3.5 Manual balancing valves and automatic flow control devices

- .1 A straight pipe to assure 3 % precision shall be integrated in the Venturi and valve assembly of DN-1/2 to 2. For Venturi and valves of DN-2 1/2 to 14 a straight of pipe equivalent to 5 times the diameter of the valve is required.
- .2 Install balancing valves on return lines as recommended by ASHRAE.
- .3 Install with respect to manufacturers instructions.
- .4 P/T ports and lever shall step out 1" above insulation surface.
- .5 Ahead of valve install a strainer (40 mesh for 2 gpm or less; 20 mesh for more than 2 gpm) c/w a DN-3/4 drainage valve and a screwed hose plug.