

Heating, Ventilation and Air Conditioning (HVAC) HTHW / Steam or SHW Converters

For questions regarding this section contact: AECM
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Part 1 – General

- **Before 60% design release, high temp hot water (HTHW) system design must be submitted for Campus approval.**
- Converters shall be U-tube construction with HTHW in the tubes, secondary water or steam in the shell.
- Tube side to be designed for 550 psig at 450F.
- Shell side to be designed for 150 psig at 450F.
- Unit to be constructed in accordance with ASME Code for Unfired Pressure Vessels and to carry ASME stamp.
- Tubes shall be 5/8" or 3/4" O.D. X 18BWG Copper-Nickel condenser tubes.
- Tube sheet to be steel ASTM A-285 GR C or ASTM-201 Grade A or B.
- Tube sheet holes shall be serrated with two grooves.
- Tube sheet shall have same outside diameter and girth as shell flange.
- Bolt/stud hole spacing 2" on center or less
- Shell and head shall be fabricated steel ASTM A-53 Grade A or B or ASTM A-285 Gr C1
- High temperature hot water nozzles shall be ASA 300# flanges.
- Baffles and tie rods shall be brass.
- Pressure vessel must be protected by ASM approved pressure relief valve.
- Flanges and Flanged Fittings shall conform to ASA standard B16.5 and ASTM A181 for 150 lb. and 300 lb. class.
 - All flanges for high temperature hot water and shall be finished to smoothness of 80 RMS.
 - Raised surface or grooves will not be permitted.
 - All bolts shall be in conformance with ASTM standards A193 Grade B-7 for alloy steel bolts.
 - Gaskets shall be Johns Manville 913 Spirotallic with compression limiting ring on the outer edges only.
 - *Preferred Option:* Attach tube sheet to the shell flange with four recessed shoulder bolts allowing the HTW head bonnet to be removed and replaced without disturbing the gasket between the tube sheet and shell flange.

Part 2 – Product

- Exchangers shall be Yula, Kam, JFD, Patterson Kelley or equivalent

Part 3 – Execution

- All piping and equipment except where limited by the allowable working pressure of the piping, fittings, valves, equipment and appurtenances permitted by ASA and ASME in which case it shall be tested to that pressure, shall be tested to a hydrostatic pressure at least 1-1/2 times the maximum operating pressure test for a sufficiently long time, to detect all leaks and defects. If necessary, piping shall be taken down and reassembled as no make shift method of temporarily repairing leaks, etc. will be permitted.