



INSTALLATION INSTRUCTIONS HVX SERIES, HEAT RECOVERY SYSTEMS

A. System Installation:

Once system is at the installation site, anchor the baseplate securely to the floor.

Use the assembly drawing for installation location of the Madden supplied components:

1. Install the Kunkle Relief Valve onto the coupling on the top vessel. Vent pipe must exit the building.
2. Screw the Pressure Gauge into the Steam Gauge Syphon and install both onto the 1/4" NPT coupling on the top, front side of the ASME vessel.
3. Install the Sight Glass and Valves between the two 3/4" NPT couplings. See the Water Gauge and Gauge Glass Installation Instructions in your Equipment Databook.
4. Connect the Madden Nameplate with 3 pre-mounted thermometers onto the nameplate brackets with the 4 supplied bolts.
5. Insert the 3 thermometer probes into the correct couplings as listed on the assembly drawing:
 - a. Insert the union connections of the thermometer probe assembly into the 3 couplings.
 - b. Insert the probe with capillary tube attached to the gauge in the *first* position on the nameplate into the correct coupling on the vessel makeup water inlet.
 - c. Insert the probe with capillary tube attached to the gauge in the *second* position on the nameplate into the correct coupling on the vessel makeup water outlet.
 - d. Insert the probe with capillary tube attached to the gauge in the *third* position on the nameplate into the correct coupling on the blowdown drain at the bottom of the vessel. This is part of the external liquid level control drainer's piping.
6. If the vessel has an optional high level alarm switch, the Mercoid switch should be installed on the side of the vessel. The switch comes pre-plumbed with unions and on the vessel will be open gate valves to connect to. The alarm box should be hooked up by an electrician. Wiring diagram included in your Equipment Databook.

B. Piping connections:

The contractor must furnish and install all related piping. This system requires a minimum of six connections as described on the assembly drawing. Shut off valves must be installed between the boiler and the flow control valves if using Madden Orifice Meters for the flow control.

VENT PIPING NOTE: it is recommended to use a swing type check valve from the HC upper vessel vent line and the D/A tank. SEE TYPICAL P&ID AT THE END OF THIS MANUAL.

C. The components of the Heat Exchanger System:

1. Vertical Heat Exchanger – Interior of vessel, copper coil is standard for higher BTU transfer efficiency.
2. Float & Drain Valve – Exterior liquid lever drain trap.
3. Nameplate and Gauge Panel – Includes 3 Thermometers
4. Ancillary Equipment: Sight Glass, Valves & Rods, Pressure Gauge & Syphon Tube and Safety Relief Valve
5. (Optional) Manifold – For Inlet Flow Control
6. (Optional) – High Level Alarm

- D. MAKEUP WATER FLOW RATE NOTE:** The HVX15 is designed to recover 90% of BTU's from the surface blowdown (max 1,500 PPH rate) via flash steam and makeup water heat exchange. It is also designed to reduce the waste condensate below 120 deg F with at least 75 deg F makeup water (cooling water). It is intended to be the most cost effective heat recovery for small boiler rooms with low surface blowdown and makeup water rates. The max flow rate through the makeup water connections and coil is 30 GPM, but ideally < 20 GPM to increase coil service life. If your surface blowdown rate is < 1,501 PPH, but your makeup water requirements are > 30 GPM, we recommend diverting a portion of the main makeup water line to this unit. Then run the preheated makeup water discharge from the HVX to an independent feed connection on the D/A or preheating feed tank (not back into the pressurized main makeup water line).

For further assistance please contact a local sales rep or call Madden, contact details below.