

Hurst Feed Water System "Oxy-miser" (5,000pph – 200,000pph)

1. Furnish a pressurized, spray type deaerating boiler feed water system, Hurst Oxy-Miser, model OM- - - , rated for - pounds per hour. Minimum acceptable storage capacities of the tank are - gallons to overflow and - gallons flooded. The vessel shall be designed for 50 psig, constructed as per the requirement of Section VIII of the ASME code, and shall be registered with the National Board of Boiler and Pressure Vessel Inspectors. Provision shall be made for corrosion allowance and the minimum acceptable shell thickness of tank shall be - ". The deaerating system shall be guaranteed to provide for oxygen removal to not more than 0.005 cc/liter in the boiler feed water at all flow rates from 5% to 100% of outlet capacity. The system shall operate at 5 to 7 psig.
2. Make-up water shall be fed to the deaerator through spring operated, stainless steel spray nozzles to provide for complete and thorough atomization of the water in the steam bath. Access to the steam scrubber section and the spray nozzles shall be provided for. Undissolved oxygen is vented to the atmosphere through an automatic vent valve.
3. The deaerator shall be factory piped and wired with the following components.
 - A. Water level control is to be of the electric modulating type using a McDonnell & Miller 93-7B proportioning control, or approved equal. (Or, water level control is to be of the pneumatic type, McDonnell & Miller PFC-1). The level control shall send a proportioning signal to the make-up valve to maintain accurate water level in the tank.
 - B. Provide a modulating feed water valve, SVF or approved equal. The control valve shall be carbon steel body with 316 stainless steel ball and stem. Provide a 3-valve by-pass factory piped around the modulating control valve.
 - C. Provide a steam pressure reducing valve, Spence or approved equal, for reducing the inlet steam pressure from - psig to 5 psig. The regulator is to have guaranteed dead end shutoff. Provide for a steam inlet strainer for installation up stream of the PRV. The PRV and the strainer are to be shipped loose for field installation.
 - D. Provide a water level gauge glass assembly that provides for visual indication of the tank water level.
 - E. Provide externally piped and wired low water level alarm controls. Each control shall be of the float type and rated for 50 psig body pressure. The control housing shall be cast iron with heavy duty copper float and stainless steel bearings to minimize friction. The use of mercury switches is not allowed.
 - F. Provide a safety relief valve set at 50 psig and sized for the capacity of deaerator rating.
 - G. Provide separate tank thermometer and tank pressure gauge.
 - H. Provide a vacuum breaker.
 - I. Provide a sacrificial magnesium anode for cathodic protection against corrosion. Internal tank linings are not acceptable.

- J. Provide a stainless steel ball check type chemical feed quill for injection of chemicals in the stored water.
 - K. Provide an overflow drainer of the float trap type, sized to relieve the full capacity of the deaerator.
 - L. Provide factory insulation consisting of 2” thick mineral wool insulation with aluminum foil backing. The vessel shall be lagged with a 22 gauge thick carbon steel jacket. The boiler jacket shall feature a bottom side primer of polyurethane resin based coat of .2 mil. dry finish thickness and a final coat of .4 mil. dry finish thickness of Valspar. The top side (exterior) of the jacket shall feature a primer of .3 mil. dry finish thickness and a final coat of .8 mil. dry finish thickness of Valspar polyurethane resin based paint. The application of the paint is to be automated roller type and is to be oven dried. The exterior finish of the boiler jacket shall have a limited warranty by the manufacturer for five (5) years from date of manufacture for chalking, fade, peeling or blistering.
 - M. Provide a structural steel support stand using steel legs with minimum height to provide for the NPSHR of the pumps selected. Provide for a steel base for pump supports.
 - N. Provide a 12” x 16” manhole.
4. Provide Hurst Boiler feed water pumps of the centrifugal type, model HCR- . Each pump shall be rated at gpm with a discharge pressure of psig. Electrical supply shall be / 60 / , with 3450 rpm, TEFC motors. (Optional, specify high efficiency motors.) Pump seals shall be rated for 250 degrees F. Provide individual pump suction piping including a strainer with removable and cleanable basket, and a gate type shut off valve. Pumps shall operate as on/off type and controlled by the respective boiler’s water level controls. (Or, pumps shall be continuous run type to maintain boiler’s water level control automatically through the boiler’s proportioning water level control. Provide for pump discharge orifice for field installation of a recirculation line for minimum pump flow.) (Optional: Provide for each pump a discharge check valve with stainless steel spring and a liquid filled discharge pressure gauge.)
5. Unit shall be provided with a UL listed control panel meeting the requirements of NEC 409 and UL 508A. The control panel enclosure shall be a NEMA I Hoffman enclosure and shall include Siemens components consisting of a main power disconnect with lock out/tag out capabilities, over current protection, main breaker, and control circuit transformer. Each pump will have an individual motor circuit protector; motor contactor, pump on/off selector switch and pump run lights.
6. The complete factory skid mounted and piped system may be “knocked” down for shipping purposes. The contractor shall install the deaerating feed water system as indicated on the project drawings.