



SPECIFICATION SHEETS

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MOHICAN

SPECIFICATION SHEET

The following sample specifications are provided by Superior Boiler Works to assist you in providing your customer with the specific needs for that application. The sample specification is normally used as the base template for the boiler specification.

MODEL: MOHICAN 70-1500 HP

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MOHICAN 4-Pass Steam Boiler, 70-1500HP, Section IV (0-15 PSI) and Section I

(over 15 PSI)

The size and location of all connections, steam-disengaging area, furnace volume and steam storage volume can be found on Superior Boiler Works Form CAT7SB.

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Contact your local insurance carrier and State Boiler Inspector for the current insurance and code requirements.

Please contact Superior Boiler Works if you need any assistance in completing the specification.

1.0 **Specification Overview** [Top of Page](#)

- 1.1** The boiler shall be a 4-pass Mohican wetback boiler manufactured by Superior Boiler Works. Model No. _____. The boiler shall not have less than five square feet of A.S.M.E. heating surface, measured on the fireside, per rated boiler horsepower.
- 1.2** The boiler is to be mounted on a structural steel base with a forced draft burner and burner controls. The boiler is to be designed, constructed and tested in accordance with the latest edition and addenda of the A.S.M.E. Boiler and Pressure Vessel Code and shall be registered with the National Board of Boiler and Pressure Vessel Inspectors.
- 1.3** The boiler shall be designed for _____ PSI steam with an operating pressure of _____ in accordance with the latest edition and addenda of Section (I) or (IV), of the A.S.M.E. Boiler and Pressure Vessel Code.
- 1.4** The steam boiler shall be completely pre-assembled and firetested at the factory to check construction, controls and combustion characteristics of the unit.
- 1.5** Boilers smaller than 300 HP are to be constructed to meet the requirements of CSD-1; boilers 300 HP and larger are to comply with the requirements of NFPA8501. Boilers are to be built and equipped in conformance with the applicable UL standard.

2.0 **Structural Specification** [Top of Page](#)

- 2.1** The steam boiler is to be designed to produce a steam quality of 99% at all firing rates.
- 2.2** The furnace is to be located in the bottom third of the boiler to provide for maximum heat transfer while being in contact with the coolest boiler water.
- 2.3** All Section I boilers with 400 or more square feet of fireside heating surface are to have a furnace of the Morrison corrugated design and shall have a furnace volume of not less than _____ cubic feet. Flue gas turnaround are is not to be included in calculating furnace volume.
- 2.4** All tubes are to have a minimum wall thickness of .105" and have an OD of 2-1/2". The tubes on a Section I boiler are to be attached to the tubesheets by flare rolling and then beading the tubes to the tubesheet. The tubes on a Section IV boiler are to be attached by flare rolling.
- 2.5** All tubesheets on Section I boilers are to be a minimum of 3/4" to insure a tight

seal between the tube and the tubesheet. On Section IV boilers, tubesheets of 100" diameter or less will be a minimum of 5/8", tubesheets larger than 100 inches in diameter will be a minimum of 3/4". 3/4" minimum tube hole ligament.

- 2.6** The boiler shall be mounted on a heavy structural steel base, extended runners on the front to provide burner support and protection.
- 2.7** The rear legs are to be slotted to provide for expansion when the boiler goes from a cold situation to a hot situation.
- 2.8** All heating surfaces must be fully accessible for inspection and cleaning without disturbing the burner equipment. A 17" diameter access opening complete with a gasketed plug and a Pyrex observation port and shutter shall be provided to allow for access into the into the turnaround and furnace. The plug is to be equipped with handles and the shutter assembly is to have a 1/8" tapping for the field connection of a manometer
- 2.9** All necessary handholes and manholes shall be provided in accordance with the A.S.M.E. Code. Provide two additional handholes, to improve the ease of waterside inspection and cleaning, in the front tubesheet near the bottom of the boiler on either side of the furnace.
- 2.10** The front and rear tubesheets must be fully accessible for inspections or cleaning when the front or rear doors are open. Opening of the doors, two in front and two in back, is not to be impeded by any fuel lines, door plates, baffles, linkage or electrical connections. The doors are to have davited hinges and are insulated with a 1" thick ceramic fiber blanket. The insulating blanket is to have an R factor of .44 and is to be coated with a hardener to prevent erosion from the flue gases. All doors are to be held in place by lugs that are secured by replaceable brass nuts. The doors are to be sealed gas tight with non-proprietary ceramic fiber rope with a minimum density of 20 lbs. per square foot and a continuous use limit of 1800 O F.
- 2.11** The boiler shell is to be insulated with two inc thick, eight pound per cubic foot density mineral wool with an R factor of .27. The insulation is to be held in place by bands and is to be covered with a 22 gauge phosphate coated galvanized steel jacket. All openings in the jacket are to have trim rings. The area on the rear tubesheet under the access doors is to be insulated with the same insulation and covered with 22 gauge phosphate coated galvanized steel jacket.
- 2.12** The entire boiler is to be painted with a high temperature, 500 O F minimum, acrylic silicone based paint. The front and rear doors are sandblasted before painting and the jacket is to be primed with a vinyl wash primer before painting.
- 2.13** All boilers are to have a 12" x 16" manway located along the top centerline of the boiler to facilitate waterside cleaning and inspection. The top of the boiler furnace waterside cleaning and inspection. The top of the boier furnace is to be visible when the manway cover is removed from the boiler shell.

3.0 **Connections** [Top of Page](#)

3.1 The boiler is to have _____ (Qty) _____ (Size) bottom blowdown connections.

3.2 Section IV boilers are to be supplied with one factory piped and installed slow opening blowdown valve per boiler blowdown connection, and one slow opening valve per boiler blowdown connection, and one slow opening valve per boiler. The piping is to be documented on the Manufacturer's Data Report.

3.3 The boiler is to be equipped with two lifting eyes.

3.4 Two (size) feedwater connections on the horizontal center line shall be provided, one on each side of the boiler. Each connection shall be furnished with an internal baffle.

3.5 One set of feedwater valves (one gate valve and one check valve) the same size as the boiler feedwater connection is to be factory piped and installed on one of the feedwater connections. The piping is to be documented on the Manufacturer's Data Report Form.

3.6 A (size) flue gas connection shall be located at the rear of the boiler on the top centerline. The stack shall be designed for easy attachment of the exhaust flue by flange connection. The flue gas connection will be designed to support a minimum of 2,000 lbs. dead weight. The stack shall have a 1/2" connection for a stack thermometer.

3.7 A one-inch surface blowdown connection complete with a dip tube shall be provided.

3.8 One set of surface blowdown valves (a gate type shutoff valve and a calibrated flow control valve) are to be factory piped and installed on the boiler. The piping is to be documented on the Manufacturer's Data Report.

3.9 The steam connection will be a (size) class (300# Section I) (150# Section IV).

3.10 The boiler is to be supplied with a low fire hold connection located in the bottom third of the shell.

4.0 **Boiler Trim** [Top of Page](#)

4.1 A float type primary low water cut-off and pump control shall be provided with gage glass, ball check gage glass valves, try-cocks and a ball type water column blowdown valve.

4.2 A probe type secondary low water cut-off shall be provided.

- 4.3** A high limit control with manual reset shall be provided in addition to the operating control.
- 4.4** A firing rate controller shall be provided if the burner is low-hi-low or modulating.
- 4.5** Provide relief valves set at a minimum of 17% or higher than the operating pressure of the boiler, but no higher than the boiler design pressure.
- 4.6** A pressure gauge with an inspector's test cock shall be provided.

5.0 **Factory Firetest** [Top of Page](#)

- 5.1** The factory firetest shall be a complete functional test conducted at 10 PSIG (Section IV) or 100 PSIG (Section I) and, at a minimum, is to consist of filling the boiler and operating the burner throughout its complete range of operation. Additionally, all of the components wired into the boiler safety control circuit are to be tested by simulating a failure condition. A copy of the firetest report is to be included in the manual.
- 5.2** Upon completion of the factory firetest, the boiler shall be cooled and hydrostatically tested and the boiler external piping documented. The unit shall be ready for installation and final connection of water, steam, fuel, blowdown, electrical and flue.