



SPECIFICATION SHEETS

- [Steam Sample Specification](#)
- [Water Sample Specification](#)

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 (WATER) 70-1500 HP

- 1.0** [Specification Overview](#)
- 2.0** [Structural Specifications](#)
- 3.0** [Connections](#)
- 4.0** [Boiler Trim](#)
- 5.0** [Factory Firetest](#)

MOHICAN 4-Pass Water Boiler, 70-1500HP, 30-60-100-125 PSI Section

The size and location of all connections, water capacity, and furnace volume can be found on Superior Boiler Works CAT7SWB.

(Issued 3-03)

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.

1.1 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. Maximum system temperature shall not exceed 250 F without the use of blending pumps.

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 water 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.

2.0 Structural Specification [Top of Page](#)

2.1 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.

2.2 All boilers shall have a furnace volume of not less than _____ cubic feet.

2.3 All tubes are to have a minimum wall thickness of .105" and have an OD of 2 1/2". The tubes on a Section IV boiler are to be attached by flare rolling.

2.4 All tubesheets of 100" diameter or less will be a minimum of 5/8", tubesheets larger than 100" diameter will be a minimum of 3/4". 3/4" minimum tube hole ligament.

2.5 The boiler shall be mounted on a heavy structural steel base with extended runners on the front to provide burner support and protection.

2.6 The rear legs are to be slotted to provide for expansion when the boiler goes from a cold situation to a hot situation.

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

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 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 the 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 0 F.
- 2.11** The boiler shell is to be insulated with two inch 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 0 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** Boilers with 625 square feet or more of heating surface are to have a 12" x 16" manway located along the top centerline of the boiler to enable waterside cleaning and inspection. The top of the boiler furnace is to be visible when the manway cover is removed from the boiler shell.
- 2.14** The boiler shall be designed to heat ____ (GPH) ____ of water with a maximum temperature differential of (degrees F) , and a minimum temperature differential of (degrees F) . (Note to the specification writer), Contact your local Superior Boiler Works Distributor to determine if the specified system design parameters require the use of blending pumps to prevent thermal shocking of the boiler.
- 2.15** Two factory piped blending pumps (this section required when two blending pumps are specified, please, contact your local Superior Boiler Works Distributor for guidance), one on each side of the boiler , shall be supplied. Each pump shall be designed to circulate ____ (GPM) ____ of water from the rear of the boiler to the front. The piping will be Schedule 40 and shall include flow switches wired into the burner control circuit that will prevent the burner from operating unless circulation in the blending pump piping is proved. Four gate valves, one on each side of each pump, are to be integral with the piping. The piping is to be factory insulated with

fiberglass pipe insulation that has a temperature limit of 850 0 F, and shall be covered with an embossed aluminum jacket.

2.16 One factory piped blending pump (this section is to be used if one blending pump is being specified, please contact your local Superior Boiler Works Distributor for guidance), piped between the boiler water supply and water return nozzle. The piping shall not interfere with performing routine maintenance. The piping will be Schedule 40 and will include a flow switch wired into the burner control circuit that will prevent the burner from operating unless circulation in the blending pump piping is proved. Two gate valves, one on each side of the pump, are to be integral with the piping.

3.0 Connections [Top of Page](#)

3.1 The boiler drain connection is to ____ (size) ____.

3.2 The hot water return ____ (size) ____ and supply ____ (size) ____ connections are to be located along the top centerline of the boiler. The return connection is to be designed to increase the velocity of the return water to insure rapid mixing of the return water. The boiler water supply nozzle shall include dip tube.

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

3.4 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 a slip connection. The flue gas connection will be designed to support a minimum of 2,000 pounds dead weight. The stack will have a 1/2" connection for a stack thermometer.

3.5 The boiler is to have an air vent connection.

3.6 All boilers with more than 500 square feet of heating surface are 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 probe type primary low water cut-off shall be provided.

4.2 The boiler is to be supplied with both operating and high limit temperature controls

4.3 A firing rate controller shall be supplied for boilers with low-hi-low or modulating burners.

4.4 Relief valves set at a minimum of 10% higher than the operating pressure shall be provided.

- 4.5** A pressure gauge with an inspector's test cock and temperature gauge with a brass thermo-well shall be provided. The pressure gauge and temperature gauges are to ship loose for field installation.
- 4.6** All boilers with more than 500 square feet of heating surface shall have a low fire hold control.

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.