

GENERAL SPECIFICATION

1.1 RELATED DOCUMENTS

Drawings and general provisions of this specification listed herein.

1.2 SUMMARY

This section includes water storage vessels for hot potable water.

1.3 REFERENCES

- A. ASME Boiler and Pressure vessel code, section IV, Part HLW
- B. ASHRAE/IES 90.1-2010
- C. ASME Quality Management System
- D. ASTM G123 - 00(2005) "Standard Test Method for Evaluating Stress-Corrosion Cracking of Stainless Alloys with Different Nickel Content in Boiling Acidified Sodium Chloride Solution."

1.4 SUBMITTALS

- A. Product Data: Include rated capacities; shipping, installed, and operating weights; furnished options and accessories for each model indicated.
- B. Shop Drawings: Detail equipment assemblies and indicate dimensions, optional components, and size of each field connection
- C. Installation, Operation & Maintenance manual available online.

1.5 REGULATORY REQUIREMENTS

- A. Conform to ASME Section IV. Part HLW for Water Heater construction.

1.6 QUALITY ASSURANCE

- A. ASME Compliance: Storage Tank shall bear the ASME HLW stamp and be National Board listed
- B. Storage Tank manufacturer shall be certified ASME Quality Management System.

1.7 WARRANTY

- A. Storage Tank: 25-year coverage (15 years full, 10 years prorated) for manufacturing or material defects, leaks. Tank warranty does not require inspection and maintenance of anode rods.

- B. All other storage tank parts: 1 year

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Manufacturer shall be a company specializing in manufacturing the products specified in this section. The water heaters shall be manufactured by a company that has achieved certification to ASME Quality Management System.
- B. Manufacturers: Niles Steel Tank is the basis of design. Acceptable manufacturers shall be subject to compliance with the requirements.

2.2 CONSTRUCTION

- A. The storage tank shall be ASME HLW stamped and National Board Registered for a maximum allowable working pressure of 150 psi and pressure tested at 1-1/2 times working pressure.
- B. All tank connections/ fittings shall be nonferrous. Tank design will include a manway as required by code above 36" diameter.
- C. The storage tank shall be an unlined pressure vessel constructed from phase-balanced austenitic and ferritic duplex steel with a chemical structure containing a minimum of 21% chromium to prevent corrosion and mill certified per ASTM A 923 Methods A to ensure that the product is free of detrimental chemical precipitation that affects corrosion resistance. The material selected shall be tested and certified to pass stress chloride cracking test protocols as defined in ISO 3651-2 and ASTM G123 - 00(2005) "Standard Test Method for Evaluating Stress-Corrosion Cracking of Stainless Alloys with Different Nickel Content in Boiling Acidified Sodium Chloride Solution."
- D. Waterside surfaces shall be welded internally utilizing joint designs to minimize volume of weld deposit and heat input. All heat affected zones (HAZ) shall be processed after welding to ensure the HAZ corrosion resistance is consistent with the mill condition base metal chemical composition. Weld procedures (amperage, volts, welding speed, filler metals and shielding gases) utilized shall result in a narrow range of austenite-ferrite microstructure content consistent with phase balanced objectives for welds, HAZ and the base metal.
- E. All internal tank surfaces shall undergo full passivation and pickling processing to assure corrosion resistance of pressure vessel surfaces.
- F. Materials shall meet ASME Section II material requirements and be accepted by NSF 61 for municipal potable water systems.
- G. Water contacting tank surfaces will be non-porous and exhibit 0% water absorption.
- H. Lined or plated storage tanks will not be acceptable.
- I. The storage tank will not require anodes of any type and none will be used.

2.3 PERFORMANCE

- A. Storage tanks for hot water will be insulated to the requirements of ASHRAE 90.1-2010

2.4 WATER HEATER TRIM

- a. Optional - ASME-rated temperature and pressure relief valve
- b. Other option available upon request

PART 3 – EXECUTION

3.1 INSTALLATION

Install storage tank level and plumb in accordance with manufacturers written instructions and referenced standards.

3.2 FINISHING

The storage tank shall be completely assembled requiring only job site hookup to plumbing. The heater shall be insulated to ASHRAE 90.1-2010 requirements, jacketed with enameled steel panels, and mounted on heavy-duty channel skids. Installation shall conform to all local, state, and national codes.