



ASME Construction/Maximum Heat Transfer

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Heat-flo manufactures all of the stainless steel indirect water heaters and hot water storage tanks under the Heat-flo trade name that are distributed throughout the United States and Canada. Heat-flo manufactures all of these products at their facility in Uxbridge, Massachusetts.

All units conform to UL STD 174 and are certified to CAN/CSA STD C22.2 no. 110-94.

All of Heat-flo's indirect water heaters and hot water storage tanks are heated by external means.

Most jurisdictions use the exemption criteria outlined in ASME Section IV, paragraph HLW-101.2. In summary, most water heaters are exempt when none of the following are exceeded:

1. Heat input of 200,000 BTU/HR (58.6kW).
2. Water temperature of 210°F.
3. Nominal water-containing capacity of 120 gallons.

ASME Section VIII Interpretation: VIII-1-86-136 indicates that the heat input limitation in U-1(c)(7)(a) means the maximum heat input from the heat exchanger under maximum temperature difference and flow conditions at a stored water temperature of 210°F.

All Heat-flo indirect water heaters are built with internal heat exchanger coils.

NOTICE

The maximum heat transfer through the coil (heat input) of the water heater at 240°F boiler supply temperature and 210°F potable water temperature is:

All 30-115-gallon single coil units and all -60-D, -80-D, -115-D dual coil units are less than 96,000 BTU/HR. -80-HO, -115-HO, -80-HO-C, and -115-HO-C high output units are less than 84,000 BTU/HR. -85-XHO and -115-XHO extra high output unit series are less than 175,000 BTU/HR.

Potable water temperature is limited to below 210°F and nominal water containing capacity is below 120 gallons for all indirect models.

Accordingly, per Part HLW-101.2, Section IV of the ASME Boiler and Pressure Vessel Code, all Heat-flo indirect water heater products are exempt from compliance with the code.

To summarize:

At a 210°F tank temperature, no units exceed an input of 200,000 BTU/HR.

All units are provided with 210°F T+P valve limiting water temperature to 210°F.

All units are less than 120 gallons in volume.

Note: The equipment shall be installed in accordance with those installation regulations required in the area where the installation is to be made. These regulations shall be carefully followed in all cases. Authorities having jurisdiction shall be consulted before the installations are made.

RAISING THE STANDARD

ARTICLE 1 GENERAL

HLW-100 SCOPE

- (a) The rules in Part HLW apply to water heaters and water storage tanks with corrosion resistance for supplying potable hot water. The foreword provides the basis for these rules. Part HLW is not intended to apply to hot water heating boilers.
- (b) This part contains mandatory requirements, specific prohibitions, and nonmandatory guidance for materials, designs, fabrication, examination, inspection, testing, certification, and pressure relief.
- (c) Laws or regulations issued by municipality, state, provincial, federal, or other enforcement or regulatory body having jurisdiction at the location of an installation, establish the mandatory applicability of these rules, in whole or in part.

HLW-101.1 Service Restriction. The rules of Part HLW are restricted to potable water heaters and water storage tanks for operation at pressures not exceeding 160 psi (1 100 kPa) and water temperatures not in excess of 210°F (99°C).

HLW-101.2 Exception. Based on the Committee's consideration, water heaters are exempted when none of the following limitations is exceeded:

- (a) heat input of 200,000 Btu/hr (60 kW)
- (b) water temperature of 210°F (99°C)
- (c) nominal water-containing capacity of 120 gal (450 l), except that they shall be equipped with safety devices in accordance with the requirements of HLW-700 and HLW-800\

HLW-102 PERMISSIBLE STAMPING

Any water heater or storage tank that meets all of the requirements of Part HLW, including those for inspection, may be stamped with the Code HLW Symbol even though exempted from such stamping.

HLW-103 UNITS

Either U.S. Customary, SI, or any local customary units may be used to demonstrate compliance with all requirements of this edition (e.g., materials, design, fabrication, examination, inspection, testing, certification, and overpressure protection).

In general, it is expected that a single system of units shall be used for all aspects of design except where unfeasible or impractical. When components are manufactured at different locations where local customary units are different than those used for the general design, the local units may be used for the design and documentation of that component. Similarly, for proprietary components or those uniquely associated with system of units different than that used for the general design, the alternate units may be used for the design and documentation of that component.

For any single equation, all variables shall be expressed in a single system of units. When separate equations are provided for U.S. Customary and SI units, those equations must be executed using variables in the units associated with the specific equations. The result obtained from execution of these equations may be converted to other units.

Production, measurement and test equipment, drawings, welding procedure specifications, welding procedure and performance qualifications, and other fabrication documents may be in U.S. Customary, SI, or local customary units in accordance with fabricator's practice. When values shown in calculations and analysis, fabrication documents, or measurement and test equipment are in different units, any conversions necessary for verification of Code compliance and to ensure that dimensional consistence is maintained shall be in accordance with the following:

Conversion factors shall be accurate to at least four significant figures.

The results of conversion of units shall be expressed to a minimum of three significant figures.

Interpretations: VIII-1-86-136

Subject: Section VIII, Division 1, U-1, Indirect-Fired Storage Water Heaters
Date Issued: May 22, 1987
File: BC87-116

Question (1): For an indirect-fired storage water heater, does the heat input limitation in U-I (c)(7)(a) mean the maximum heat input from the heat exchanger under maximum temperature difference and flow conditions at a stored water temperature of 210°F?

Reply (1): Yes

Question (2): Would an indirect-fired storage water heater with a heat exchanger capacity of less than 200,000 Btu/hr be considered within the scope of Section VIII, Division 1 when its heat source is a heating boiler with input above 200,000 Btu/hr?

Reply (2): No; however, the need for determining if Code construction is required is the responsibility of the user, manufacturer, or jurisdictional authority.

Interpretation: VIII-1-86-137

Subject: Section VIII, Division 1, UCI-78(b)(3) and UCI-101
Date Issued: May 22, 1987
File: BC87-117

Question (1): In accordance with the requirements of UCI-78(b)(3), can mild steel drive plugs be used to remove surface imperfections in a cast iron pressure vessel?

Reply (1): No.

Question (2): When a pressure vessel is tested to destruction by the parent company, can a subsidiary company manufacture an identical pressure vessel part without repeating the destructive test?

Reply (2): Yes, provided direct operational control is established in their quality control systems.