



## Model MSH & MH

# Master Specification

SHIP NAME \_\_\_\_\_

ENGINEER / NAVAL ARCHITECT \_\_\_\_\_

SHIPYARD \_\_\_\_\_

CONTRACTOR / SHIP CHANDLER \_\_\_\_\_

### General

Provide a quantity of \_\_\_\_\_ packaged type Marine Electric water heater(s) Model No. \_\_\_\_\_ as manufactured by HUBBELL The Electric Heater Co., Stratford, CT. The water heater shall be constructed specifically for shipboard installation by utilizing deck and bulkhead mounting supports that are integrally mounted to the pressure vessel. The pressure vessel section, including the electrical control panel, shall be mounted on structural supports and be suitably insulated, jacketed, painted and provided with lifting lugs. The entire unit is to be packaged ready for plumbing and electric service connections and shall bear the UL listing mark certifying the entire water heater. The water heater shall conform to USCG regulations per 46 CFR 53.01-10 and be ABS Type Approved.

### Pressure Vessel

The pressure vessel shall be all welded construction and ASME Code Section IV stamped for a working pressure of 100 psi and contain a minimum of \_\_\_\_\_ gallons of storage. The storage vessel shall be carbon steel and lined with seamless Hydrastone cement applied to a minimum thickness of 5/8" on 100% of all interior tank surfaces, ( **Optional Specifications:** *Phenolic lined steel tank, solid 90/10 copper-nickel tank, solid Type 304, 316 or 316L Stainless Steel Tank.*) The pressure vessel is to be covered with 2" thick fiberglass blanket insulation and enclosed in a heavy gauge galvanized steel metal jacket finished in gray hammertone enamel. The vessel shall be protected by an ASME approved automatic reseating combination temperature and pressure relief valve set at the tank working pressure and 210 °F.

### Electric Recovery

The recovery section shall be rated at \_\_\_\_\_ KW which will heat \_\_\_\_\_ GPH of water at \_\_\_\_\_ °F rise ( \_\_\_\_\_ °F to \_\_\_\_\_ °F).

### Electric Controls

The heater shall be designed to operate at \_\_\_\_\_ volts, \_\_\_\_\_ phase, \_\_\_\_\_ HZ with a fused low voltage transformer providing 120 volt to all operating controls. The immersion heating element(s) shall be high quality copper sheathed ( **Optional Specification:** *Incoloy, Type 304, 316 or 321 stainless steel*) and sized to obtain the rated recovery. Each element circuit is to be independently operated through a definite purpose magnetic contactor having a resistive load rating equal to or exceeding the ampere rating of that particular circuit and shall be protected by individual power fuses rated approximately 125% of the ampacity of the circuit. Multiple circuit elements shall be provided with a power distribution block for connecting of the incoming power feeds ( **Optional Specifications:** *Built-in non-fused On/Off disconnect switch, built-in circuit breaker with an On/Off handle.*) A safety door interlock switch shall interrupt power to the control circuit when the control panel door is opened. The control thermostat shall be immersion type and shall be consistent with the recovery rate of the heating element as to the number of steps required. A hi-limit control with a manual reset button shall be factory installed to disconnect all ungrounded conductors to the heating element(s) in the event of an over-temperature condition in the storage section.

Option \_\_\_\_\_

Option \_\_\_\_\_

Option \_\_\_\_\_

### Dual Fuel Package

- Shall be required
- Shall not be required

The heating coil shall utilize ( **Optional Specification:** *steam, boiler water, HTHW*) and be rated to heat \_\_\_\_\_ GPH of water at a \_\_\_\_\_ °F rise ( \_\_\_\_\_ °F to \_\_\_\_\_ °F) when supplied with \_\_\_\_\_ psi steam (boiler water) to the control valve and consume \_\_\_\_\_ lbs/hour steam. The heating coil shall be a fully removable immersion U-tube heating coil rated for 150 psi working pressure. The single wall ( **Optional Specification:** *Double wall*) coil shall be constructed from 18 BWG 3/4" OD copper ( **Optional Specification:** *90/10 Copper-nickel, stainless steel*) tubes. The coil including the tube sheet, baffles, and spacers shall have all non-ferrous wetted parts and a fabricated steel head. The water heater shall (shall not) be supplied with steam operating controls. A self-contained ( **Optional Specification:** *Pneumatic, pilot, electric*) type steam control valve shall regulate the flow of steam to the heating coil in order to control water temperature. A drip trap, main condensate trap, Y strainers, vacuum breaker, and steam pressure gauge shall be factory sized and piped with the steam control valve.

In addition, the following steam options may be selected:

- Option:** The water heater shall be equipped with a factory-packaged intra-tank circulator to continuously circulate water within the tank to reduce stratification.
- Option:** The heating coil shall be wrapped and baffled and piped with an integral pump package to force circulate water over the heating coil in order to reduce the coil size.
- Option:** Single solenoid safety system to close the control valve should the water temperature in the tank reach the hi-limit set point. Requires 5 Amp, 120 Volt service.
- Option:** Double solenoid safety system dumps over heated water in the storage tank to drain in addition to closing the control valve. Requires 5 Amp, 120 Volt service.

### Warranty

The water heater manufacturer shall warranty all components against defects in workmanship and material for a period of one (1) year from date of start up, and the pressure vessel for a full five (5) years Non Pro-Rated ( **Optional Specification:** *full ten (10) years Non Pro-Rated tank warranty*) from start-up, provided that the unit is started within three (3) months of date of shipment and installed and operated within the scope of the tank design and operating capability. Each water heater shall be shipped with a complete set of installation and operating instructions including spare parts list and approved drawing.

ISO 9001:2008



Committed to continuous improvements

Continuing research results in product improvement; therefore these specifications are subject to change without notice. For the most updated information, consult the factory.

Made in the U.S.A.



# Hubbell™

## Marine Products Division

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