Tankless Electric Water Heater

Available up to 54 KW in Single or Three Phase Voltages

Features

- **Heavy Duty Construction**
  - √ Constructed with high grade materials to ensure long operating life
  - √ Simple to specify and easy to install and operate
  - √ Factory packaged heater provides trouble-free installation and operation
- **Reliability**
  - √ Engineered for your specifc application to ensure reliable operation
  - √ Wide selection of sizes to meet the needs of even the most demanding application
- **High Effciency**
  - √ On demand heating eliminates costly and cumbersome storage tanks
  - √ Instantaneous design reduces stand-by heat loss and signifcantly lowers operating costs compared to traditional storage systems

Applications

- Process Systems
- Wash Downs
- Heat Pump Back-Up
- Boiler Systems
- Emergency Safety Wash Systems
- Freeze Protection
- Heat Transfer Systems
- Supplemental Heat
- Point-of-Use Hot Water

Model HX/TX Tankless

ANSI/NSF 5 LISTED

The Model HX/TX Tankless is a compact wall mounted electric tankless water heater that is 98% + efficient and is easily installed and operated.

Products marked with the Lead-Free logo comply with the Safe Drinking Water Act (SDWA) requirements of a weighted average of less that 0.25% lead content on wetted surfaces of pipes, pipe fittings, plumbing fittings and fixtures.

Tankless Water Heater For Commercial and Industrial Use

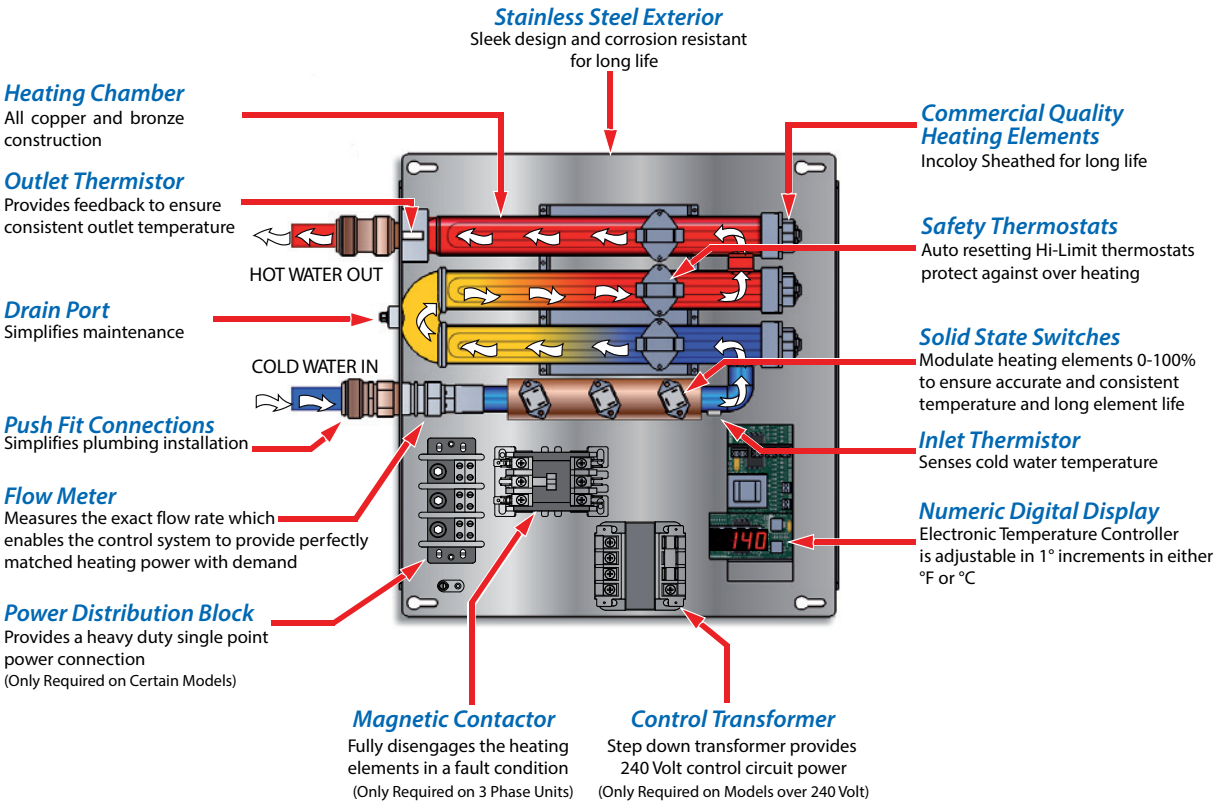
The Hubbell model HX/TX Tankless electric water heater is a highly reliable and easily maintained heater designed for operation in a commercial or industrial application. The Hubbell HX/TX Tankless heater is compact, extremely efficient, takes up minimal space, and reduces operating costs. Hubbell's vast experience, meticulous engineering, and advanced technology ensure that you can rely on the model HX/TX for your water heating needs in even the most demanding and critical applications. The Hubbell Tankless is the right choice for your water heating requirements, as you will be providing your customer with a quality product that is long lasting, trouble-free, and energy efficient.

Hubbell Tankless Features

How It Works

The Hubbell Model HX/TX electric tankless water heater contains high powered heating elements that heat water only when there is demand for hot water. When hot water is needed, a built in fow sensor measures the exact fow rate, and that data combined with temperature readings at the heater's inlet and outlet are processed by the electronic temperature controller. This data is continuously transmitted to the temperature controller, which constantly calculates the precise amount of power (kW) needed to achieve the desired temperature. A zero cross over fring signal is sent to the fast acting triacs in order to modulate the heating elements to the precise level needed to meet demand. The Hubbell tankless heater uses only as much power as is needed, while delivering accurate and consistent hot water temperature.

Heater Overview - *3 Element Model Shown*



Tankless Model HX/TX Standard Specifications

Heating Chamber:	Copper and Bronze	**Thermostat Range:**	32 -194°F / 0-90°C
Capacities:	8 thru 54 kW	**Hi-Limit:**	200°F (Fixed Temperature)
Orientation:	Wall Mounted	**Design WP:**	150 psi
Voltages:	208 thru 600 Volt 50/60 Hz	**Design TP:**	300 psi
Phase:	1 Φ and 3 Φ (balanced)	**Elements:**	Incoloy 800
Power Factor:	0.999	**Standby Power:**	< 3 Watts
Thermal Effciency:	98% +	**Heating Chamber Warranty:**	5 Year
Inlet/Outlet Size: TX: HX:	 3/4" Push Fit 1" Push Fit	**Electrical Warranty:**	1 Year
Min/Max Flow: TX: HX:	 0.2 GPM Min, 8.0 GPM Max 0.5 GPM Min, 40 GPM Max	**Enclosure:**	Stainless Steel Brushed Finish
Max Inlet Temp.:	150°F	**Approvals:**	cULus, UL, EPH, ANSI/NSF 5

Technical Features

Temperature Controller

A sophisticated electronic temperature controller with LED digital display provides the user interface. The temperature controller processes all fow and temperature data and calculates the precise amount of power needed to meet demand.

Operator Control Capabilities		
✓	***Power Limiting:***	Allows the operator to reduce the power consumption by any percentage to provide installation and operational flexibility and savings.
✓	***Diagnostics:***	Display inlet and outlet temperatures, flow rate and error codes to assist in troubleshooting.
✓	***Cost Calculator:***	Determine the exact cost of operating the heater. Input your cost per KW·Hr and the controller displays total KW·HRs consumed, total cost of operation, and total hot water usage (shown in gallons or liters).
✓	***Temperature Control:***	Set the digital display to the desired water temperature in °F or °C. Fully adjustable in 1° increments from 32-194°F (0-90°C). A user adjustable +/- 3° calibration feature provides additional control for superior accuracy.

Full Heater Modulation

Each heating element is switched on/off using a fast acting solid state triac with zero cross over fring control. This switching schema provides full modulation of each heating element, ensuring that the precise amount of heat is added to meet demand. To improve operating effciency and component longevity, each triac is mounted to a heat sink located on the incoming supply piping so that heat generated by the triac during the switching process is dissipated into the water.

Proper Power Integrity

All Hubbell tankless water heaters, including all 3 phase models, are engineered to operate as a balanced load and operate at 0.999 Power Factor. All Hubbell 3 phase models are designed for 3 wire (3 live, 1 ground) and 4 wire power systems and draw equal current across all conductors to maintain the power integrity of the users electrical system. Hubbell does not recommend the use of heaters that operate as an unbalanced load, as is common with staged heaters designed for star systems (3 live, 1 neutral, 1 ground) that require use of the neutral leg. All load switching in Hubbell tankless models is performed as zero cross over, eliminating phase angle fring interference and associated EMI issues.

Full Resource Staging

The Hubbell tankless control schema ensures that usage is equalized across all heating circuits. To achieve this, once the controller has calculated the precise amount of kW required, all circuits are energized in a staggered fashion such that each circuit is proportionally and independently energized and then time staggered between circuits. This Full Resource Staging Schema reduces EMI output, increases component longevity, and provides highly accurate and consistent hot water temperatures. For three phase models, all circuits are fully modulated and synchronized to operate as a balanced load.

Building Management Integration

Remote Control: Ability to remotely enable or inhibit the heating operation of the unit using one of the following two methods:

1. Customer supplied 24VDC signal is user confgured for either Inhibit Mode or Normal Operation Mode.
2. Customer supplied volt free contact is user confgured for either Inhibit Mode or Normal Operation Mode.

Priority Control: An integrated SPDT potential free dry contact (NO/NC 10A @ 240VAC) energizes when the unit is heating and de-energizes when not heating. This feature is useful when it is desirable to give the water heater priority over another electrical load to ensure that both are not operational at the same time.

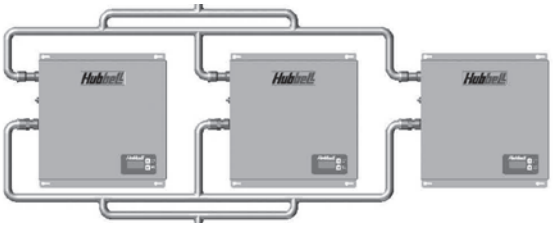
Options

- ☐ A. High flow construction specify model HX for up to 40 GPM flow (min 0.5 GPM actuation).
- ☐ B. Type 316L stainless steel heating chamber for added corrosion resistance.
- ☐ C. Special construction features. Please consult factory.
- ☐ D. Inlet and Outlet Valve assembly simplifies installation~and includes unions, shut offs, check valve,drain~ports and pressure relief valve.
- ☐ E. Heating chamber built to ASME Section VIII and “UM” stamped.
- ☐ F. Remote Control Display allows the heater to be installed in a remote location. The 3" x 5" NEMA 4 display enclosure can be located up to 250' from the heater and gives the operator full remote control and monitoring capabilites.
- ☐ G. NEMA 4x construction when heater is located in a wet environment. Overall dimensions 24" x 20" x 6"
- ☐ H. Additional heater control features to meet UL834 Electric Boiler requirements. Please specify base model CR.
- ☐ I. Factory supplied manifold single point connection for redundancy and high demand applications.
- ☐ J. An ASSE 1070 code compliant Thermostatic mixing valve to increase the amount of hot water available. Valve is 1/2" (-UT) size and adjustable from 80-120°F. Typically used when supplying hot water to multiple lavs from a single water heater.

Please note: *optional equipment may impact overall dimensions and weight. Please request submittal drawing from factory.*

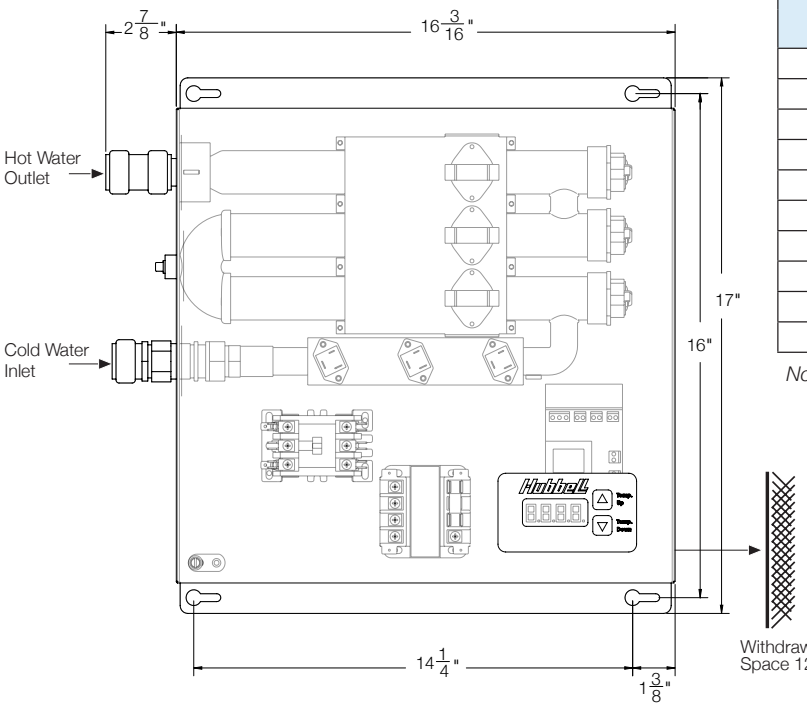
Manifold Assembly Option

Single point connection for redundancy and high demand applications.



Outline Dimensions and Model Selection

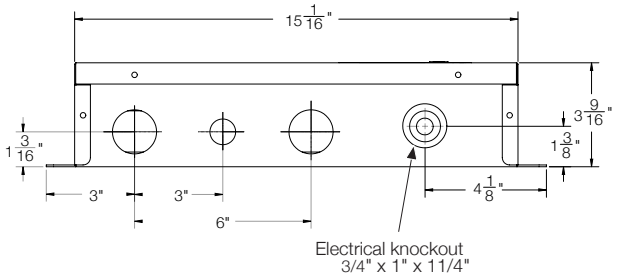
8-27 KW Models (2 and 3 Element)



KW Selection Chart						
KW	3 Phase Voltages				1 Phase Voltages	
	208V	240V	480V	600V	208V	240V
8					√ (2)	
11	√ (3)					√ (2)
12	√ (3)				√ (2)	
14		√ (3)			√ (2)	√ (2)
16	√ (3)	√ (3)			√ (3)	√ (2)
18	√ (3)		√ (3)		√ (3)	√ (2)
20	√ (3)				√ (3)	
21		√ (3)	√ (3)	√ (3)		√ (3)
24		√ (3)	√ (3)	√ (3)		√ (3)
27		√ (3)	√ (3)	√ (3)		√ (3)

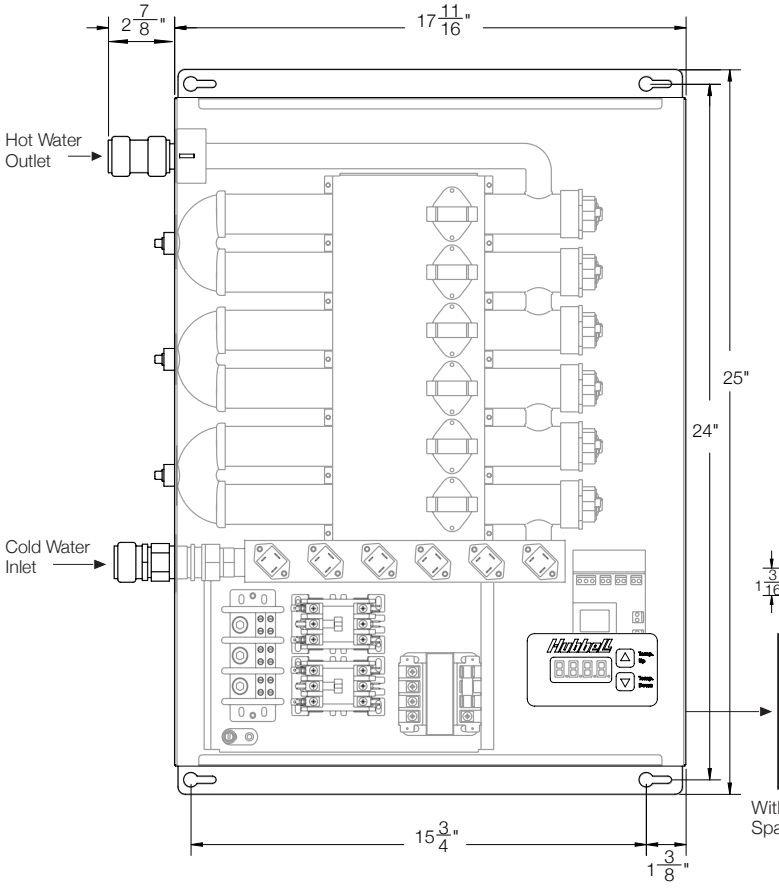
Note: Chart indicates three element (3) and two element (2) model types

Side View



Pressure Drop: 3 psi @ 8 GPM *Dry Weight: 21 Lbs* *Wet Weight: 21.5 Lbs* *Shipping Weight: 24 Lbs*

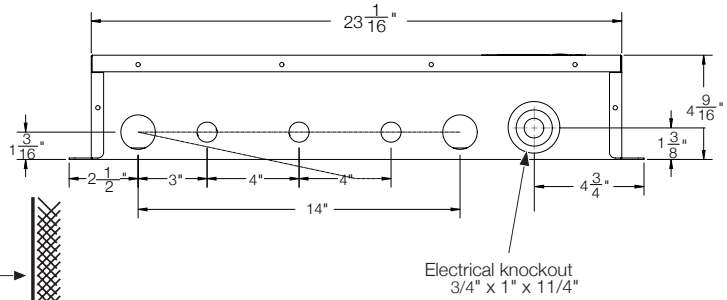
24-54 KW Models (6 Element)



KW Selection Chart						
KW	3 Phase Voltages				1 Phase Voltages	
	208V	240V	480V	600V	208V	240V
24	√(6)				√(6)	
31	√(6)				√(6)	
33		√(6)				√(6)
36	√(6)		√(6)		√(6)	
40	√(6)				√(6)	
42		√(6)	√(6)	√(6)		√(6)
48	√(6)	√(6)	√(6)	√(6)	√(6)	√(6)
54		√(6)	√(6)	√(6)		√(6)

Note: All models shown in this chart are six element (6) model types

Side View



Pressure Drop: 4 psi @ 8 GPM *Dry Weight: 38 Lbs* *Wet Weight: 39 Lbs* *Shipping Weight: 42 Lbs*

Heating Capacity and Amperage Chart

KW Rating	Heating Capability in GPM at F° Temperature Rise (°FΔT)										MAX Amps (at 100% heater output)					
	20° ΔT	30° ΔT	40° ΔT	60° ΔT	70° ΔT	80° ΔT	100° ΔT	110° ΔT	120° ΔT	140° ΔT	3 Phase Voltages				1 Phase Voltages	
											208V	240V	480V	600V	208V	240V
8	2.73	1.82	1.36	0.91	0.78	0.68	0.55	0.50	0.45	0.39	-	-	-	-	38	-
11	3.75	2.50	1.88	1.25	1.07	0.94	0.75	0.68	0.63	0.54	31	-	-	-	-	46
12	4.09	2.73	2.05	1.36	1.17	1.02	0.82	0.74	0.68	0.58	33	-	-	-	58	-
14	4.78	3.18	2.39	1.59	1.36	1.19	096	0.87	0.80	0.68	-	34	-	-	67	58
16	5.46	3.64	2.73	1.82	1.56	1.36	1.09	0.99	0.91	078	44	39	-	-	77	67
18	6.14	4.09	3.07	2.05	1.75	1.54	1.23	1.12	1.02	0.88	50	-	22	-	87	75
20	6.82	4.55	3.41	2.27	1.95	1.71	1.36	1.24	1.14	0.97	56	-	-	-	96	-
21	7.17	4.78	3.58	2.39	2.05	1.79	1.43	1.30	1.19	1.02	-	51	25	20	-	88
24	8.19	5.46	4.09	2.73	2.34	2.05	1.64	1.49	1.36	1.17	67	58	29	23	115	100
27	9.21	6.14	4.61	3.07	2.63	2.30	1.84	1.67	1.54	1.32	-	65	33	26	-	113
31	10.58	7.05	5.29	3.53	3.02	2.64	2.12	1.92	1.76	1.51	86	-	-	-	149	-
33	11.26	7.51	5.63	3.75	3.22	2.81	2.25	2.05	1.88	1.61	-	79	-	-	-	138
36	12.28	8.19	6.14	4.09	3.51	3.07	2.46	2.23	2.05	1.75	100	-	43	-	173	-
40	13.65	9.10	6.82	4.55	3.90	3.41	2.73	2.48	2.27	1.95	111	-	-	-	192	-
42	14.33	9.55	7.17	4.78	4.09	3.58	2.87	2.61	2.39	2.05	-	101	51	41	-	175
48	16.38	10.92	8.19	5.46	4.68	4.09	3.28	2.98	2.73	2.34	133	116	58	46	230	200
54	18.42	12.28	9.21	6.14	5.26	4.61	3.68	3.35	3.07	2.63	-	130	65	52	-	225

Note: *• Unshaded flows specify Base Model TX, shaded flows must specify Base Model HX due to high flow rate.*
• Alternate voltages including 277, 380, 415, 440 and 575 volt available. Please consult factory for exact KW availability in these voltages.

Sizing Formulas

Step 1 Solve for the unknown using formulas below.

Variables To Solve For:

KW Requirement:

_____GPM x_____ °FΔT x 0.1465 =_____ KW

Temperature Rise:

_____KW x 6.824 ÷ _____ GPM = _____ °FΔT

Flow Rate:

KW x 6.824 ÷ _____ °FΔT = _____ GPM

Step 2

Choose the Tankless model with the KW rating which meets the peak demand (GPM) and required temperature rise (°FΔT) for your application.

Step 3

Choose the voltage and phase power supply available. Note the total amperage draw of the unit and verify availability.

Voltage De-Rating Factors

Rated Voltage	Applied Voltage	De-Rating Factor
600 V	575 V	92%
600 V	550 V	84%
480 V	460 V	92%
480 V	440 V	84%
240 V	230 V	92%
240 V	220 V	84%
240 V	208 V	75%

When the actual supply voltage (applied voltage) is different than the design voltage (rated voltage) the resulting KW output will be affected. Please see the chart for typical voltage de-rating factors, or use the following formula.

$$\frac{\text{Applied Voltage}^2}{\text{Rated Voltage}^2} \text{ X Rated KW = KW output at applied voltage}$$

Model Number Designation

TX [ ] – [ ] [ ]

■ Step 1
Base Model No.
TX = 8 GPM Max
HX = 40 GPM Max

■ Step 2
KW Rating:
8 thru 54KW
(008 - 054)

■ Step 3
Number of Heating Elements:
2
3
6

■ Step 4
Voltage / Phase / Hz:
RS = 208-1-60
R = 208-3-60
S = 240-1-60
T = 240-3-60
T3 = 380-3-50/60
T7 = 415-3-50/60
T5 = 440-3-60
T4 = 480-3-60
T6 = 600-3-60

Example: TX024-3T4

A Hubbell tankless electric water heater rated at 24 KW with 3 heating elements and powered with 480 volt, three phase, 60 Hz.

Option Note

Any and all optional equipment for a tankless model heater must be called out in the written specifcations. A model number in and of itself does not refect any optional equipment selected.

Hubbell™

Master Specification: Model HX/TX Tankless

JOB NAME _____ ENGINEER _____

REPRESENTATIVE _____ CONTRACTOR _____

GENERAL

Provide a quantity of _____ packaged type instantaneous electric tankless water heater(s) Model No. **TX**_____ as manufactured by Hubbell Heaters Stratford, CT. The entire unit is packaged ready for plumbing and electrical service connections and shall bear the cULus listing mark certifying the entire unit to UL499, UL EPH Sanitation listed to ANSI/NSF Standard 5 and CSA C22.2 No. 64-M91 (single phase units) and CSA C22.2 No. 88 (three phase units).

HEATING CHAMBER

The heating chamber shall be all Sil-brazed copper and bronze construction. (☐ **Optional Specifcation:** Type 316L Stainless Steel**)**. A plastic heating chamber shall not be acceptable. Water heater heating chamber shall be rated for a maximum allowable working pressure of 150psi. The heating chamber and all electrical controls shall be completely enclosed in a heavy gauge stainless steel case.

HEATING CAPACITY

The tankless heater shall be rated at _____KW which will heat _____ GPM of water at _____°F rise (_____ ° to _____°F). Heaters that restrict hot water flow in any way shall not be acceptable.

ELECTRICAL

The tankless heater shall be designed to operate at _____ volts, _____ phase, 50/60Hz balanced power and shall draw equal amperage across all phases at all times. For 3 phase heaters, power shall be a 3 wire (3 live, 1 ground) or a 4 wire (3 live, 1 neutral, 1 ground) system that does not require a neutral leg. The heater will draw _____ amps only when operating at full power. The immersion heating elements shall be high quality incoloy sheathed and sized to obtain the rated capacity. Each element is to be operated using zero cross over solid state controls. The heating elements shall be fully modulated from 0-100% to provide precise temperature control through the full range of flows. A Hi-Limit thermostat with automatic reset shall be factory installed to disconnect each heating element in the event of an over-temperature condition. An electronic digital display temperature controller shall be user adjustable in 1° increments in either °F or °C and shall display flow rate, outlet temperature, inlet temperature and provide error indication. A turbine-type flow meter shall be factory installed to provide precise temperature control for water flows as low as 0.2 GPM up to a maximum flow of 8 GPM. Heaters that require greater than 0.2 GPM flow for actuation or restrict flow shall not be acceptable. (☐ **Optional Specifcation:** High Flow Model HX, provides up to 40 GPM flow with minimum actuation at 0.5 GPM **)**.

WARRANTY

Hubbell shall warranty all electrical components against defects in workmanship and material for a period of one (1) year from date of start-up, and the heating chamber for a full fve (5) years from date of 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 heater's design and operating capability. Labor is not covered under warranty. Each heater shall be shipped with a complete set of installation and operating instructions including spare parts list and approved drawings. All fabrication and assembly shall be performed in the U.S.A.

OPTIONS

In addition, the tankless electric water heater shall be supplied with the following options:

☐ **Option** _____

☐ **Option** _____

☐ **Option** _____