

# PACKAGED HOT WATER BOILERS

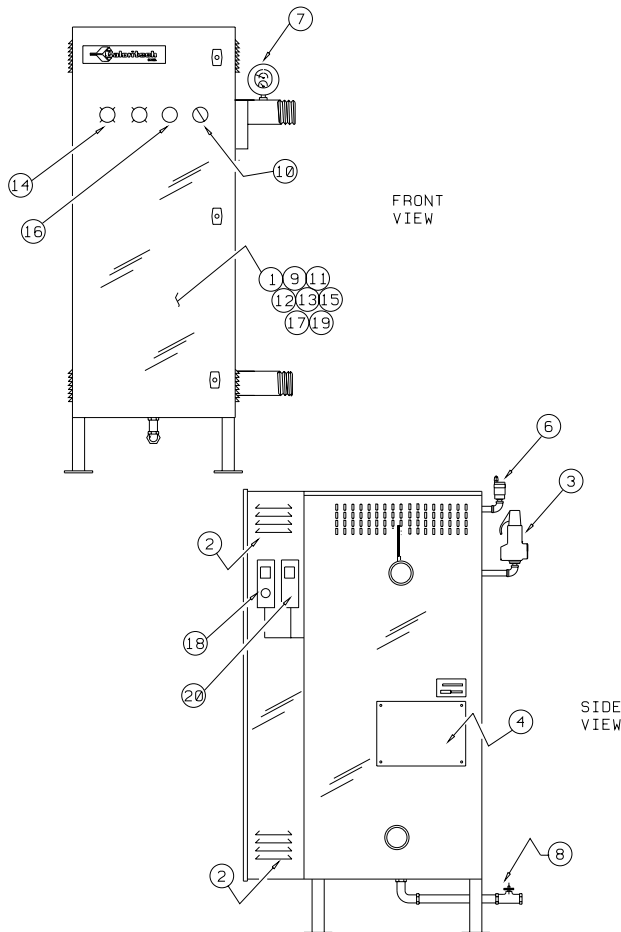
## PACKAGED HOT WATER BOILERS

### DESCRIPTION

Electric hot water boilers are recommended for applications where a clean, safe, quiet and reliable source of hot water is required. The boiler may be used as the sole source of heat or in standby applications such as summer periods when operation of larger boilers may prove uneconomical. These boilers are ideally suited for use in dual energy systems; electric-oil or electric-gas. Low water volume assures quick response. Electric boilers are 100% efficient with over 98% of the energy consumed transferred directly to the water.

### TYPICAL USES

- process heating
- heat transfer loops
- comfort heating: institutional and commercial
- freeze protection
- industrial and commercial standby equipment
- commercial dishwashers
- radiant floor heating
- commercial swimming pools
- domestic hot water
- car washes
- laundromats



### FEATURES

- space saving vertical vessels and top mounted vertically positioned flange heaters (EVWB only) to minimize scaling, conserve floor space and simplify maintenance.
- clean and odorless; venting not required.
- quiet operation.
- fully packaged to minimize electrical and plumbing installation costs.
- incoloy sheathed heating elements silver brazed to mounting flange.
- designed and built to the latest edition of the ASME Code
- capacities up to 4950 kW and pressure ratings to 2500 PSIG are available.

### STAGING

Heating circuits are staged generally in compliance with the following table:

BOILER AMPS	NO. OF STAGES (MIN.)
45	1
90	2
270	3
360	4
450	5
540	6
600	5
720	6

For each additional 120 amps after 720, add an additional stage. For example, for boiler amps of 960, the number of stages is 8.

### STANDARD BOILER ACCESSORIES

Det. No.	Description
1	Insulated ASME designed pressure vessel
2	Vented control cabinet
3	Pressure relief valve
4	Inspection and cleanout holes
5	Pressure gauge c/w isolating stopcock (not shown)
6	Air vent
7	Temperature gauge
8	Drain blowdown valve
9	Flanged heaters c/w low watt density elements
10	Control circuit on/off switch
11	Control circuit transformer (fused)
12	HRC power fusing
13	Magnetic contactors
14	Indicating pilot lights
15	Electronic low water control
16	Push to test button for low water simulation
17	On/off staging up to 95 amps
18	Proportional temperature controller for units over 95 amps
19	Staging controller with detail no. 18
20	High temperature controller

## PACKAGED HOT WATER BOILERS

EVWB packaged hot water boilers have proven their superiority in thousands of installations. The EVWB boiler features a space saving vertical vessel with vertically positioned flange heaters which minimize scaling while simplifying maintenance. Standard units have a design pressure of 160 PSIG with the relief valve set at 125 PSIG.

Three choices of inner shell material coatings allow the EVWB to meet most applications:

The standard boiler has an uncoated steel shell. The boiler is suitable for use in comfort heating, domestic water heating, freeze protection, process heating, etc. where water purity is not an important issue.

Option AYT2 has a sprayed copper inner shell lining for use in water heating applications where a higher purity water is required and a galvanized vessel is unsuitable.

Option AYT3 has a dipped galvanized steel shell. Besides covering all uses of the EVWBF, the boiler is also suitable for heating water in commercial dishwashers, for heating consumable water for showers and sinks, and for heating swimming pools.



SHOWN WITH SOME OPTIONAL FEATURES

**TO ORDER:** Specify quantity, model, size, voltage, phase, KW rating, intended use, optional features, operating pressure, ultimate owner's name and address, and installation address.

**TABLE 1 - MODEL EVWB WATER BOILERS (10") TECHNICAL DATA**

SIZE	KILOWATTS NOM'L (ACT'L)†	HEATERS NO. (KW)	STANDARD VOLTAGES 1Ø & 3Ø	WEIGHT LBS (KG)
10-12	12	1(12)	208, 240, 380, 416, 480, 600	350 (160)
10-15	15	1(15)	"	350 (160)
10-18	18*	1(18)	"	350 (160)
10-24	24	2(12)	"	360 (165)
10-30	30	2(15)	"	360 (165)
10-36	36*	2(18)	"	360 (165)
10-42	42	1(12) + 2(15)	"	370 (170)
10-50	50 (48)	4(12) OR 2(24)	"	380 (175)
10-60	60	5(12) OR 4(15)	"	390 (180)
10-72	72	1(12) + 4(15) OR 4(18) OR 3(24)	"	390 (180)
10-84	84	2(12) + 4(15)	"	400 (180)
10-90	90	6(15) OR 5(18) OR 4(22 1/2)	"	400 (180)
10-96	96*	2(12) + 4(18) OR 4(24)	"	400 (180)
10-100	100* (102)	1(12) + 5(18) OR 1(12) + 4(22 1/2)	"	400 (180)
10-108	108*	1(12) + 4(24) OR 6(18)	"	400 (180)
<b>3Ø ONLY</b>				
10-120	120	1(12) + 6(18) OR 8(15)	208, 240, 380, 416, 480, 600	410 (185)
10-135	135	3(15) + 5(18)	"	420 (190)
10-150	150*	4(15) + 5(18)	"	430 (195)

† NOMINAL (ACTUAL)

\* CONTACTORS IN THIS UNIT NOT DERATED FOR 208V, 3Ø

**TABLE 2 - MODEL EVWB WATER BOILERS (20") TECHNICAL DATA**

SIZE	KILOWATTS NOM'L (ACT'L)†	HEATERS NO. (KW)	STANDARD VOLTAGES 3Ø ONLY	WEIGHT LBS (KG)
20-165	165 5(15) + 5(18)	11(15) OR 416, 480, 600	208, 240, 380,	1120 (500)
20-185	180	12(15) OR 10(18)	"	1130 (515)
20-200	200 (195)	13(15) OR 1(15) + 10(18)	"	1130 (515)
20-210	210	14(15) OR 2(15) + 10(18)	"	1140 (515)
20-240	240	16(15) OR 4(15) + 10(18)	"	1160 (525)
20-250	250 (247, 252, 255)	17(15) OR 14(18) OR 11(22 1/2)	"	1170 (530)
20-270	270	18(15) OR 15(18)	"	1180 (535)
20-300	300	20(15) OR 2(15) + 15(18) OR 2(15) + 12(22 1/2)	"	1200 (545)
20-360	360	24(15) OR 20(18) OR 16(22 1/2)	"	1230 (560)
20-400	400* (396, 405)	22(18) OR 18(22 1/2)	"	1230 (560)
20-450	450	25(18) OR 20(22 1/2)	240, 380, 416, 480, 600	1240 (565)
20-500	500 (510)	2(15) + 20(24) OR 1(15) + 22(22 1/2)	380, 416, 480, 600	1240 (565)
20-585	585	26(22 1/2)	600	1250 (570)

† NOMINAL (ACTUAL)  
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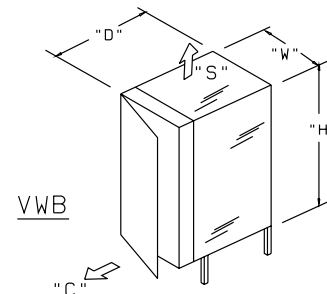
## OPTIONS FOR PACKAGED HOT WATER BOILERS

These are many of the most frequently supplied optional items.

- Inlet and outlet valves (gate)
- Auxiliary low water cutoff
- High temperature alarm
- Low temperature alarm
- Audible alarm c/w reset
- Pilot light per heating stage
- Manual OFF/AUTO switch per heating stage
- Voltmeter c/w three position selector switch
- Ammeter c/w three position selector switch
- KW hour meter
- Main power disconnect switch
- Main power automatic breaker
- Safety door interlock switch
- Proportional temperature controller (std over 95 amps/)
- Electronic progressive sequencer
- Circulating pump
- Motor starter
- Ground fault indicator
- Spare components
- Higher KW capacities
- Non-listed voltages
- Single phase
- Higher pressure rating
- Lined vessels (check factory)
- Dual energy system interface
- Indoor/outdoor temperature reset controller
- Auxiliary high temperature cutoff
- High or low pressure cutoff
- Flow switch

**TABLE 3 - HOT WATER BOILER GENERAL SPECIFICATIONS**

MODEL NO.	DIMENSIONS IN (MM)				
	H	W†	D	C	S
EVWB-10	54 (1372)	16 (406)	24 (610)	15 (381)	36 (914)
EVWB-20	64 (1626)	26 (660)	36 (914)	26 (660)	36 (914)



MODEL NO.	VESSEL OPENINGS (NPT)*		NORMAL WATER VOLUME GALLONS (LITRES)
	INLET/OUTLET	DRAIN VALVE	
EVWB-10	2	3/4	13 (51.4)
EVWB-20	4	1 1/4	5.4 (212)

# PACKAGED HOT WATER BOILERS

## TYPICAL HOT WATER BOILER SPECIFICATIONS

### 1.0 SCOPE

Supply an electrically heated hot water boiler complete with standard equipment and options as indicated in the following specification.

### 2.0 GENERAL

- 2.1 The boiler shall be the electric resistance Reznor type EVWB.
- 2.2 The boiler shall be constructed to the latest edition of the ASME code with the design registered in \_\_\_\_\_.

### 3.0 CAPACITY

- 3.1 The minimum boiler /output shall be \_\_\_\_\_ BTU's/hr.
- 3.2 The boiler shall be rated at \_\_\_\_\_ volts, \_\_\_\_\_ phase, \_\_\_\_\_ kW, \_\_\_\_\_ HZ.
- 3.3 The boiler shall be suitable for operating under the following conditions:
  - flow rate: \_\_\_\_\_ USGPM (l/s)
  - inlet temp.: \_\_\_\_\_ °F(°C)
  - outlet temp.: \_\_\_\_\_ °F(°C).
- 3.4 The boiler vessel shall be designed for an operating pressure of \_\_\_\_\_ PSIG(kPa) maximum.

### 4.0 CONTROLS

- 4.1 The boiler shall be fully equipped with all electrical and mechanical controls so that it is complete and ready to operate.
- 4.2 Standard mechanical components provided shall include a pressure gauge with isolating stopcock, a temperature gauge, drain blowdown valve(s) as required, temperature controller, high temperature controller c/w manual reset, and pressure relief valve(s).
- 4.3 Standard electrical components provided shall include a control circuit ON/OFF switch, fused control transformer, fused magnetic contactors derated to 90% of their rated capacity, electronic low water controller, pilot lights for "Power ON", "Heat ON", "Low Water", and "High Temperature", and connection lugs for incoming power supply.
- 4.4 In addition to the standard components itemized in articles 4.2 and 4.3, the boiler shall come equipped with the following optional features: (specify - see page 35 for options).

### 5.0 FLANGE HEATERS

- 5.1 The boiler shall be equipped with flanged immersion heaters as marketed by Reznor.
- 5.2 The flange heaters shall be incoloy sheathed and of low watt density.
- 5.3 The flange heaters shall be mounted vertically through the top of the vessel so as to minimize the build-up of solids on the heating elements.

### 6.0 ENCLOSURE

- 6.1 The hot water boiler shall be equipped with a full structural steel base supporting the vessel, control panel and sheet metal enclosure.
- 6.2 The entire enclosure shall be finished with a baked on epoxy finish (ASA-61 gray).
- 6.3 The boiler dimensions shall be approximately \_\_\_\_\_ high x \_\_\_\_\_ wide x \_\_\_\_\_ deep.