



# B+II WATERWIZARD

## TECHNICAL DATA SHEET

### BII+ WATERWIZARD STEAM FIRED WATER HEATER

The AERCO B+II WaterWizard high-efficiency heater is designed to satisfy potable water heating needs in commercial and institutional environments. The packaged, steam fired system incorporates real-time, load tracking and responsive controls to maintain accurate hot water temperatures under diversified loads. And AERCO's unique sub-cooling heat exchanger design increases operating efficiency to deliver more usable heat per pound of steam input than other heaters. As added benefits, the unique design simplifies maintenance and promotes long life.

Packaged with either electronic or pneumatic controls, the B+II heater maintains outstanding temperature control when operated under constant load conditions with variances held to  $\pm 4^{\circ}\text{F}$  under normal load changes. An integrated load monitoring system and high-turndown steam control valve deliver accurate temperature control without the need for storage tanks, blending valves or other temperature averaging components. When packaged with the electronic control system, the heater can be remotely monitored and/or fully integrated with BAS software.

A parallel stack of helically wound coils, including a dedicated sub-cooling coil, form a cross counter-flow heat exchanger, making it one of the most efficient designs available for domestic water heating. This design eliminates wasteful flash losses because all of the Heat of Condensation and much of the Heat of the Liquid is transferred from the steam. In most domestic applications, condensate outlet temperatures of  $\approx 160^{\circ}\text{F}$  can be expected. A simple union orifice eliminates the need for a trap.

The baffle-free, flexible coils of the heat exchanger continuously expand and contract with changing water and steam temperatures. The self-descaling nature of this automatic action eliminates the need for periodic, acid cleaning or tube scraping. The free floating design eliminates stress so effectively where water conditions are especially harsh. The B+II can be quickly and easily thermal shocked as part of a routine maintenance plan. All water wetted parts are copper or copper alloy materials, which is the best choice of materials to further ensure longevity.

The unit's semi-instantaneous design (steam in tubes and water in shell) is compatible with low or high steam pressures. And installation is easy because of its small footprint (4 ft<sup>2</sup>) and doorway size. Outstanding thermal efficiency, tight temperature control, low maintenance, longevity and overall reliability make the AERCO WaterWizard the most logical choice for any commercial or institutional water heating installation.



### B+II FEATURES

- Accurate Temperature Control  $\pm 4^{\circ}\text{F}$
- Choice of Electronic or Pneumatic Controls
- Compact Foot Print <4ft<sup>2</sup>
- Automatic Self-Descaling
- Automatic Condensate Subcooling
- Fully Modulating Variable Steam Input
- No Trap or Storage Tanks Required
- Low Surface Temperature
- ASME- B&PV Code Sec. VIII, Div. 1 Stamped
- All Copper or Copper Alloy Wetted Surfaces
- 10-Year Warranty on Complete Hx\*
- 20-Year Warranty on Pressure Vessel and Integral Demand Anticipator\*
- Supports a Variety of Applications
  - 5 to 150 PSIG Steam Supply
  - Intermittent Water Flow Rates Up to 250 GPM
  - Set Point Range 50°F to 205°F
  - 235 PSIG ASME Working Pressure Certified
  - Single or Multiple Installation
  - Ideal for New or Retrofit

\*Consult AERCO website or Engineering Manual for complete warranty details.

# B+II DIMENSIONS

## WATERWIZARD MODEL B+ [ ] [ ] [ ] / [ ] [ ] [ ] / EC

(# COILS) / (VALVE SIZE)

HEAT EXCHANGER DESIGN STANDARDS			
	MAX. WORKING PRESS., PSIG(kPa)	MAX. TEMP. °F(°C)	TEST PRESS., PSIG(kPa)
SHELL SIDE	235(1619)	400(204)	355(2446)
TUBE SIDE	250(1723)	400(204)	375(2584)
ASME B&PV CODE SEC. VIII, DIV. 1		STAMP U	
RELIEF VALVES SET AT °F, PSI			

  

MATERIALS OF CONSTRUCTION	
SHELL	3/16"(0.48) SA53 GRD(B)(ERW) CARB. ST.
LINER	COPPER, ASTM B-370 ALLOY 122
HEADS	BRONZE, SB-62
COILS	COPPER, 0.049"(0.12) WALL, ALLOY C12200 LIGHT DRAWN
RISER	RED BRASS, SB-43

  

HEATER MODEL	NO. OF COILS	HEATING SURF. SQ.FT.(SQ.M.)	DIM. IN.(CM)			WT. LBS.(KG)	
			"A"	"B"	"D"	DRY	WET
B+03	3	18	41.38	36.00	27.38	460	800
B+04	4	24	50.38	44.00	31.88	535	700
B+05	5	30	58.38	52.00	37.88	650	710
B+06	6	36	66.38	60.00	43.88	765	810
B+07	7	42	74.38	68.00	49.88	880	910
B+08	8	48	82.38	76.00	55.88	995	1010
B+09	9	54	90.38	84.00	61.88	1110	1110
B+10	10	60	98.38	92.00	67.88	1225	1210
B+11	11	66	106.38	100.00	73.88	1340	1300
B+12	12	72	114.38	108.00	79.88	1455	1390
B+13	13	78	122.38	116.00	85.88	1570	1480
B+14	14	84	130.38	124.00	91.88	1685	1570
B+15	15	90	138.38	132.00	97.88	1800	1660

NOTE: CENTER OF GRAVITY IS WITHOUT VALVE LINE.

  

CONTROL VALVE SIZE		°C DIMENSION
		IN. (CM)
1"(2.54) SCREWED END		28.00(68.00)
1-1/4"(3.18) SCREWED END		28.00(68.00)
1-1/2"(3.81) SCREWED END		28.00(68.00)
2"(5.08) SCREWED END		28.00(68.00)
2-1/2"(6.35) 150# ANSI FLANGED END		31.00(78.74)
3"(7.62) 150# ANSI FLANGED END		31.00(78.74)
4"(10.16) 150# ANSI FLANGED END		31.00(78.74)

  

OPERATING CONDITIONS		
WATER	CAPACITY, GPM(L/S)	IN/OUT TEMP., °F(°C)
STEAM	FLOW LB/HR (Kg/S)	PRESSURE TO VALVE PSIG(kPa)

# B+II SPECIFICATIONS

	w/ Electronic Controls	w/ Pneumatic Controls
Shell Side Pressure Drop	4PSIG @ max. rated flow	4PSIG @ max. rated flow
Ambient Operating Temperature	0°F to 131°F	0°F to 131°F
Electrical Requirements	120/1/60 1 Amp 220/1/50 1 Amp	120/1/60 1 Amp
Standby Amperage Draw	1 Amp	0.1 Amp
High Limit %tripped+Amperage Draw	1.5 Amp	0.5 Amp
Max. Continuous Water Flow Rate	125 GPM	125 GPM
Max. Intermittent Flow Rate	250 GPM	250 GPM
Max. Steam Supply Pressure	150 PSIG	150 PSIG
Max. Shell Side Operating Pressure	225 PSIG*	225 PSIG*
Adjustable Temperature Control	up to 205°F	up to 230°F
Adjustable High Limit Control	up to 250°F	up to 250°F
Water Connection Inlet/Outlet	3+FNPT	3+FNPT
Air Consumption	N/A	0.10 scfm @25PSIG
Air Supply Min. Requirements	N/A	25 PSIG
Air Supply Max. Requirements	N/A	30 PSIG

\* Standard 150 PSIG, 210°F P&T relief valve supplied; consult AERCO representative for higher settings.

# AVAILABLE OPTIONS

- 0.065+thick copper or copper-nickel tubing for increased corrosion resistance
- All 316L Stainless Steel wetted parts for heating de-ionized water (product configuration may vary)
- Dry contacts for remote %High Limit Tripped Status+indication
- Pressure gradient monitoring system can be provided in lieu of double wall construction where codes allow
- Pressure relief valves set up to 230 PSIG for high rise applications

Represented By:

Specifications subject to change.  
Consult website or AERCO.  
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WATER HEATERS • BOILERS • PARTS & ACCESSORIES

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