

Technical Data Sheet

B+II WaterWizard 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 $\pm 2.2^{\circ}\text{C}$ 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 $\leq 71.1^{\circ}\text{C}$ can be expected. For design inlet water temperature of less than 43.3°C , 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.

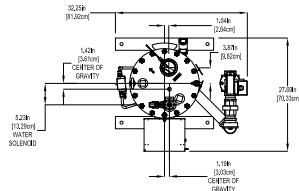
The unit's semi-instantaneous design (steam in tubes and water in shell) is compatible with low or high steam pressures. And installation is easy because of its small footprint (0.37m^2) and doorway size. Outstanding thermal efficiency, tight temperature control, low maintenance, longevity and overall reliability make the AERCO B+II WaterWizard the most logical choice for any commercial or institutional water heating installation.



Features

- Accurate temperature control $\pm 2.2^{\circ}\text{C}$
- Choice of electronic or pneumatic controls
- Compact foot print $< 0.37\text{m}^2$
- 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, copper alloy or stainless steel wetted surfaces
- 10-year warranty on complete Hx
- 20-year Warranty on pressure vessel and integral demand anticipator
- Supports a variety of applications
 - 0.34 to 10.3 bars steam supply
 - Intermittent water flow rates up to 15.8 LPS
 - Set point range 10°C to 96.1°C
 - 16.2 bar ASME working pressure certified
 - Single or multiple installation
 - Ideal for new or retrofit

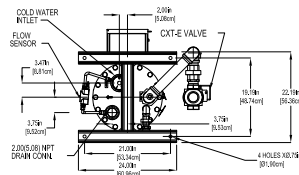
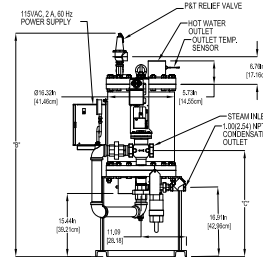
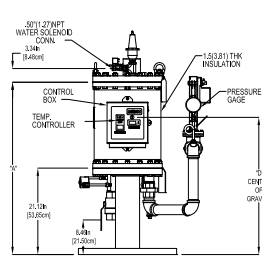
Dimensions



HEAT EXCHANGER DESIGN STANDARDS		
	MAX. WORKING PRESSURE, PSIG (kPa)	TEST PRESS., PSIG (kPa)
SHELL SIDE	235 (1619)	365 (2446)
TUBE SIDE	250 (1723)	375 (2344)

ASME B&PV CODE SEC. VIII DIV. 1 STAMP U

MATERIALS OF CONSTRUCTION	
SHELL	316/10.40 B&S GFD (B) (E) (W) CARB STEEL
LINEAR	COPPER, ASTM B-207 ALLOY 122
HEADS	1.6THICK PLT, SA-240, 304L STAINLESS STEEL
COILS	COPPER, 0.049(0.12) WALL, ALLOY C12200 SS-11 LIGHT PROFIN
COILS	COPPER, 0.065(0.16) WALL, ALLOY C12200 ASME SB-111
COILS	CUNI, 0.065(0.16) WALL, ASME SB-11 ALLOW 706
RISER	RED BRASS, SB-43



CONTROL VALVE SIZE (IN/CM)	1/2" DIA. (12.7MM)
1-1/2(3.81) SCREWED END	26.0(66.0)
1-1/4(3.18) SCREWED END	26.0(66.0)
1-1/2(3.81) SCREWED END	26.0(66.0)
2-1/2(6.35) 150# ANSI FLANGED END	31.0(78.74)
3-1/2(8.9) 150# ANSI FLANGED END	31.0(78.74)
4-1/2(11.4) 150# ANSI FLANGED END	31.0(78.74)

HEATER MODEL	NO. OF COILS	HEATING SURF. SQ.FT. (SQ.M)	DIA. " (IN/CM)	DIA. " (IN/CM)	DIA. " (IN/CM)	DRY WT. LBS(KG)	WET WT. LBS(KG)
B#03	3	151(139)	42.12 (107.3)	54.63 (138.8)	26.10 (75.4)	527(237)	667(300)
B#04	4	201(185)	51.12 (129.6)	63.63 (161.6)	32.60 (82.8)	610(276)	767(345)
B#05	5	252(232)	51.12 (129.6)	63.63 (161.6)	32.60 (82.8)	625(281)	777(350)
B#06	6	302(276)	60.12 (152.7)	72.63 (184.5)	36.38 (92.4)	670(302)	877(395)
B#07	7	353(325)	60.12 (152.7)	72.63 (184.5)	36.38 (92.4)	685(308)	887(399)
B#08	8	403(371)	68.12 (173.6)	81.63 (207.3)	40.88 (103.8)	740(333)	977(440)
B#09	9	454(416)	68.12 (173.6)	81.63 (207.3)	40.88 (103.8)	755(340)	987(444)
B#10	10	504(463)	78.12 (198.4)	90.63 (230.2)	45.38 (107.6)	800(360)	1077(485)
B#11	11	555(511)	78.12 (198.4)	90.63 (230.2)	45.38 (107.6)	815(367)	1087(489)
B#12	12	605(556)	87.12 (221.3)	99.63 (253.1)	49.88 (126.7)	870(392)	1177(530)
B#13	13	656(604)	87.12 (221.3)	99.63 (253.1)	49.88 (126.7)	885(398)	1187(534)
B#14	14	706(649)	96.12 (244.1)	108.63 (275.9)	54.38 (138.1)	930(419)	1277(575)
B#15	15	756(697)	96.12 (244.1)	108.63 (275.9)	54.38 (138.1)	945(425)	1287(579)

Specifications

	w/ Electronic Controls	w/ Pneumatic Controls
Shell Side Pressure Drop	0.28 bar @ max. rated flow	0.28 bar @ max. rated flow
Ambient Operating Temperature	-17.8°C to 55°C	-17.8°C to 55°C
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	7.9 LPS	7.9 LPS
Max. Intermittent Flow Rate	15.8 LPS	15.8 LPS
Max. Steam Supply Pressure	10.3 bar	10.3 bar
Max. Shell Side Operating Pressure	16.2 bar*	16.2 bar*
Adjustable Temperature Control	up to 96.1°C	up to 110°C
Adjustable High Limit Control	up to 96.1°C	up to 121.1°C
Water Connection Inlet/Outlet	3" FNPT	3" FNPT
Air Consumption	N/A	0.17m ³ /hr @ 1.7 bar
Air Supply Min. Requirements	N/A	1.7 bar
Air Supply Max. Requirements	N/A	2.1 bar

*Standard 10.3 bars, 98.9°C P&T relief valve supplied; consult AERCO representative for higher settings.

Available Options

- 1.65mm thick copper or copper-nickel tubing for increased corrosion resistance
- Dry contacts for remote "High Limit Tripped Status" indication



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AERCO International, Inc. • 100 Critani Drive • Blauvelt, NY 10913

USA: T: (845) 580-8000 • Toll Free: (800) 526-0288 • AERCO.com