## Bryan AB Series Steam & Hot Water Boilers

### Bryan “Flexible Water Tube”

**AB Series**

Steam & Water Boilers

900,000 to 3,000,000 BTUH

Forced draft gas, oil or dual fuel fired

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### Bryan AB Series Specifications

#### Dimensions — inches (cm)

<table>
<thead>
<tr>
<th>Model</th>
<th>Length</th>
<th>Width</th>
<th>Height</th>
<th>Gas Train Connection (Approx.)</th>
<th>Supply Nozzle</th>
<th>Return Conn.</th>
<th>Flue Size</th>
<th>Flue Location</th>
<th>Clearance for Servicing Burner</th>
<th>Min. Tube Removal Clearance</th>
<th>Prior to Flow Nozzle</th>
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<tbody>
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<td>3-F</td>
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<td>30 3/4</td>
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### Bryan Steam LLC — Leaders Since 1916

783 N. Chili Ave., Peru, Indiana 46970 U.S.A.
Phone: 765-473-6651 • Internet: www.bryanboilers.com
Fax: 765-473-3074 • E-mail: inquiry@bryansteam.com

Originators of the “Flexible Water Tube” design

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Form No. 7510 (Rev. 1/12)
**Bryan AB Series Boilers**

### Bryan AB Series Boiler Specifications

<table>
<thead>
<tr>
<th>BOILER MODEL</th>
<th>INPUT MBH (KW)</th>
<th>OUTPUT 80% Efficiency</th>
<th>OUTPUT 83.5% Efficiency</th>
<th>STEAM OUTPUT</th>
<th>HEATING SURFACE SQ. FT. (m²)</th>
<th>APPROX. SHIP LBS. (KG)</th>
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<tbody>
<tr>
<td>AB90-W</td>
<td>900 (264)</td>
<td>720 (211)</td>
<td>720 (211)</td>
<td>905 (408)</td>
<td>752 (220)</td>
<td>2,000 (907)</td>
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<tr>
<td>AB90-W</td>
<td>900 (264)</td>
<td>720 (211)</td>
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<td>752 (220)</td>
<td>2,000 (907)</td>
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<tr>
<td>AB150-W</td>
<td>1,500 (440)</td>
<td>1,200 (352)</td>
<td>1,200 (352)</td>
<td>1,253 (367)</td>
<td>1,237 (367)</td>
<td>3,500 (1,588)</td>
</tr>
<tr>
<td>AB150-W</td>
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<td>1,200 (352)</td>
<td>1,200 (352)</td>
<td>1,253 (367)</td>
<td>1,237 (367)</td>
<td>3,500 (1,588)</td>
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<td>2,000 (586)</td>
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<td>2,400 (703)</td>
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<td>2,505 (734)</td>
<td>3,750 (1,701)</td>
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### Bryan AB Series Boilers Standard and Optional Equipment

**STANDARD EQUIPMENT FURNISHED**
- Water boiler
- Combination (tappetometer and altitude gauge) of ASME Code rated boiler
- One series of fire tube, steel boiler
- Boiler relief valve setting
- Boiler size
- Type of fuel: natural, LP, or oil
- Boiler pressure setting
- Gas shutoff valve
- Water temperature control
- Boiler safety valve, water gage set
- Boilers and feeders
- Multi-pass flue gas travel
- Water cooled furnace
- Water cooled combustion control
- Automatic operation, gas valve, safety gas valve, pilot safety valve, pilot igniter assembly, main manual gas shut-off valve, pilot controller, pilot and main gas pressure regulators, air safety switch, control panel, all controls installed and wired.

**OPTIONAL EQUIPMENT, EXTRA COST**
- 1. Manual reset high limit control
- 3. Combination low water cut-off and heater
- 4. Alarm bells or horn
- 5. UL, CUL, CSD-1, FM, GE-GAP, or NFPA 85 (General Code approved control systems)
- 6. Draft control system
- 7. Horizontal, as desired
- 8. Lead-lag systems for two or more boilers in parallel operation
- 9. Outdoor reset control
- 10. Low water cut-off

**OPTIONAL CONSTRUCTION**
- Steam boiler
- Optional construction for Bryan AB Series Boilers Specific requirements for temperatures exceeding 240°F and/or pressure exceeding 150 psi to minimum of 250°F operating and 300°F design temperatures and 250 psi design pressure.

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**Guaranteed efficiency and easy maintenance assure low cost operation**

**Guaranteed efficiency**
- The breakthrough in water tube boiler design that produced the AB Series provides operating efficiency so reliable, we guarantee it to be 83.5% for hot water boilers and 82% - 15 PSI / 80% - 150 PSI or better for steam.

**The Bryan Flexible Tube**
- Bryan’s exclusive “Flexible Tube” design eliminates the possibility of damage from so-called “thermal shock.” Tubes are easily replaceable without welding or rolling, eliminating long, expensive downtime should repairs ever be required.

**Water cooled furnace**
- The configuration of the water tubes provides a water cooled combustion chamber. A high percentage of the heating surface is exposed to direct radiant heat, increasing water velocities and heat transfer.

**Large steam drum**
- The steam drum has generous water volume and steam release area. This design, along with effective drum internal functions, results in a stable water level and promotes extremely dry steam at all load conditions.

**Accessibility of furnace and tube area**
- Inner panel provides easy and complete access to furnace and boiler tube area, as well as to burner head. All panels are heavily insulated and sealed to boiler frame. All access is from only one side.

**Compact design, minimum floor space**
- With our compact water tube boiler design, the overall size of the unit is less than most other types of boilers, yet maintains a full five square feet of heating surface area per HP. Needing only 24” for tube removal, and on only one side of the boiler, the AB Series boiler occupies very little space in the boiler room. This can result in considerable savings in building costs. Pressurized firing permits minimum sized breather vent and multi-pass flue gas travel.

**High velocity four-pass flue gas travel**
- The unique “thermal blend” return bends cold or cooler return water with warmer boiler water abridging it to design operating temperatures. An injector tube directs the “mixed” water flow through the downcomer to the lower header and heating surfaces at a temperature above possible condensing conditions. This reduces the possibility of “cool spots” and damage from corrosive condensation.

**Positive internal circulation**
- Each pass of the Bryan water tube slopes upward, eliminating stress damage caused by unequal temperature distribution, is especially important during inter-mittent or continuous low temperature water returns may be encountered.
**True “flexible water tube” design guaranteed shock free**

**Longer lasting with better performance**

**Full five sq ft of heating surface per BHP**

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### Quality Construction Features:

A. Water side or steam side interior accessible for cleanout and inspection, front and rear openings, upper and lower drums.

B. Large volume water leg downcomers promote rapid internal circulation, temperature equalization and efficient heat transfer.

C. Boiler tube and furnace area access panels: heavy gauge steel casing with 2” high-temperature ceramic fiber insulation, bolted and tightly sealed to boiler frame.

D. Flame observation port in access door at rear of boiler.

E. Single side access; combustion chamber, tubes and burner head are completely accessible from one side simplifying maintenance and maximizing floor space.

F. Minimum sized flue vent.

G. Control panel: all controls installed with connections to terminal strip.

H. Forced draft, flame retention head type burner: Efficient combustion of oil or gas, plus quiet operation.

I. Heavy steel boiler frame, built and stamped in accordance with the appropriate ASME Boiler Code.

J. Heavy gauge steel boiler jacket with rust-resistant zinc coating and enamel finish, insulated with 1 ½” fiberglass to ensure exceptionally cool outer surface.

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### Bryan AB Series Boiler Specifications

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<tr>
<th>BOILER MODEL</th>
<th>INPUT MBH (KW)</th>
<th>OUTPUT 80%</th>
<th>OUTPUT 83.5%</th>
<th>STEAM OUTPUT</th>
<th>HEATING SURFACE SF. FT. (M²)</th>
<th>APPROX. SHIP LBS. (KG)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AB200-W</td>
<td>900 (256)</td>
<td>720 (211)</td>
<td>21 (211)</td>
<td>752 (220)</td>
<td>113 (10.5)</td>
<td>2,000 (907)</td>
</tr>
<tr>
<td>AB200-W</td>
<td>1,200 (345)</td>
<td>960 (273)</td>
<td>29 (273)</td>
<td>1,022 (290)</td>
<td>148 (13.8)</td>
<td>2,500 (1,135)</td>
</tr>
<tr>
<td>AB150-S</td>
<td>1,500 (427)</td>
<td>1,200 (352)</td>
<td>36 (352)</td>
<td>—</td>
<td>—</td>
<td>1,237 (561)</td>
</tr>
<tr>
<td>AB120-W</td>
<td>1,200 (345)</td>
<td>960 (273)</td>
<td>29 (273)</td>
<td>1,002 (290)</td>
<td>148 (13.8)</td>
<td>2,250 (1,021)</td>
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<tr>
<td>AB90-S</td>
<td>900 (264)</td>
<td>720 (211)</td>
<td>21 (211)</td>
<td>—</td>
<td>—</td>
<td>742 (337)</td>
</tr>
<tr>
<td>AB250-W</td>
<td>2,500 (733)</td>
<td>2,000 (586)</td>
<td>60 (586)</td>
<td>2,088 (612)</td>
<td>244 (22.7)</td>
<td>3,500 (1,588)</td>
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<tr>
<td>AB250-S</td>
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<td>—</td>
<td>2,062 (935)</td>
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<tr>
<td>AB200-S</td>
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<td>70 (707)</td>
<td>2,505 (745)</td>
<td>350 (25.5)</td>
<td>4,150 (1,882)</td>
</tr>
</tbody>
</table>

**NOTES:**

1. W = Water / S = Steam

2. Output data based on boiler industry standard of 86% of input.

3. Output and horse power based on an average natural gas combustion efficiency of 85% for hot water boiler; Actual combustion efficiency for oil will be higher.

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Inner panel provides easy and complete access to furnace and boiler tube area, as well as to burner head. All panels are heavily insulated and sealed to boiler frame. All access is from only one side.

**Compact design, minimum floor space**

With our compact water tube design, the overall size of the unit is less than most other types of boilers, yet maintains a full five square feet of heating surface area per HP. Needed only 24” for tube removal, and on only one side of the boiler, the AB Series boiler occupies very little space in the boiler room. This can result in considerable savings in building costs. Pressurized firing permits minimum sized break vent and vent.

**Multi-pass flue gas travel**

High velocity four-pass flue gas travel is obtained by a unique baffling system. This contributes to maximum fire side heat transfer and overall high boiler efficiencies.

**Thermal blend water return**

Bryan’s unique “thermal blend” return bends cold or cooler return water with warmer boiler water abridging it to design operating temperatures. An injector tube directs the “mixed” water flow through the downcomer to the lower header and heating surfaces at a temperature above possible condensing conditions. This reduces the possibility of “cold spots” and damage from corrosive condensation.

**Positive internal circulation**

Each pass of the Bryan water tube slopes upward to maximize heat transfer and uniform temperature throughout the boiler. Eliminating stress caused by unequal temperature distribution is especially important for heating systems, particularly where intermittent or continuous low temperature water returns may be encountered.

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### Bryan AB Series Boilers Standard and Optional Equipment

**STANDARD EQUIPMENT FURNISHED**

- **Water boiler**
  - Combination (pyrometer and altitude gauge), ASME Code rated boiler
  - Steam pressure gauge, steam pressure control, combination low water cutoff, low water cutoff valve, low pressure control, automatic safety valves, water gauge set.
  - Steam boiler
  - Steam pressure gauge, steam pressure control, combination low water cutoff, low pressure control, automatic safety valves, water gauge set.

**2." Wide Flue System**

- Electronic combustion safety control, automatic operating gas valve, safety gas valve, pilot extinguisher valve, pilot gas and main gas pressure regulators, air safety switch, control panel, all controls installed and wired.

**4." Wide Flue System**

- Electronic combustion safety control, dual oil valves operation transformed two-stage fuel unit, direct spark ignition of all, od acetylene assembly, control panel, all controls installed and wired.

**Combination gas-oil unit**

- Electronic combustion safety control, automatic operating gas valve, safety gas valve, pilot extinguisher valve, pilot gas and main gas pressure regulators, air safety switch, control panel, all controls installed and wired.

**Steam boiler**

- Steam pressure gauge, steam pressure control, combination low water cutoff, low pressure control, automatic safety valves, water gauge set.

**Steam boiler**

- Steam pressure gauge, steam pressure control, combination low water cutoff, low pressure control, automatic safety valves, water gauge set.

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### OPTIONAL CONSTRUCTION

**Steam boiler**

- Optional construction. ASME Power Code boiler for pressures exceeding 240°F and/or over 15 psi design pressure.

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**Bryan AB Series Boilers operate these operating and performance features**

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**Electronic Combustion Safety Control**

- Automatic shut off in case of gas flame failure.

**Pilot Ignition**

- Electronic pilot ignition assembly, main manual gas safety switch, pilot cock, pilot and main gas pressure regulators, air safety switch, main gas pressure regulators, air safety switch, control panel, all controls installed and wired.

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**Optional Equipment, EXTRA COST**

1. Manual reset high limit control
2. Manual reset low water cutoff
3. Combination low water cutoff and heater
4. Alarm bells or horns
5. UL, CSA, CSD-1, FM, GE-GAP, or NFPA 85)
6. Electric power voltage, phase and frequency
7. Optional construction
8. Specials required (UL, CSA, CSD-1, FM, GE-GAP, or NFPA 85)
9. Altitude
# Bryan AB Series Steam & Hot Water Boilers

## Specifications

Specifications subject to change without notice. Consult factory to consult on other boiler options.

### Bryan AB Series Steam & Water Boilers

900,000 to 3,000,000 BTUH

Forced draft gas, oil or dual fuel fired

### Boiler Dimensions

#### Steam Boiler

<table>
<thead>
<tr>
<th>Model</th>
<th>Length of Jacket</th>
<th>Width of Jacket</th>
<th>Overall Length</th>
<th>Gas Train Connection (Approx.)</th>
<th>Supply Nozzle</th>
<th>Return Nozzle</th>
<th>Flue Size</th>
<th>Flue Location</th>
<th>Clearance for Servicing Burner</th>
<th>Min. Tube Removal Clearance</th>
<th>Prior to Flow Nozzle</th>
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<tr>
<td>AB-90</td>
<td>(114.1)</td>
<td>(88.3)</td>
<td>(176.5)</td>
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<td>(91.4)</td>
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#### Water Boiler

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<th>Gas Train Connection (Approx.)</th>
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