

**Bryan Electric**

# **BH Series Steam & Water Boilers**

**196,000 to 7,840,000 BTUH  
60 to 2,400 KW**



**Steam Boiler**  
240BHS4T8



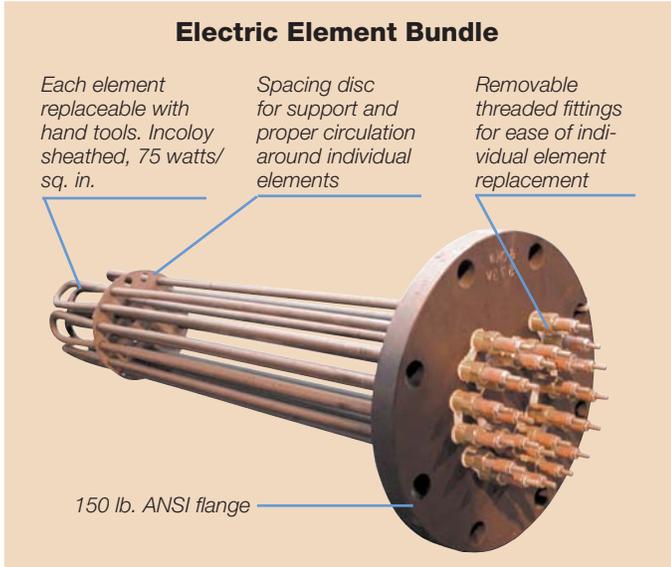
**Water Boiler**  
390BHW4T7

**B BRYAN® BOILERS**



# Bryan electric hot water or steam boilers...

## For commercial, institutional and industrial applications



Bryan Series BH Electric hot water\*\* or steam boilers are compact, completely packaged and wired units with automatic controls and featuring long life Incoloy sheathed elements. Applications include hot water heating, steam heating, process heating, and supplemental heat for heat pump type equipment.

All Bryan Boilers are built in accordance with the requirements of the ASME boiler and pressure vessel code and are UL listed. Water boilers are 150 psig MAWP and steam boilers either 15 psig or 150 psig. Higher pressures are available.

### Efficiency

Bryan Electric Boilers are nearly 95% efficient at all load levels. Varying loads do not effect the efficiency since the resistive type heating elements are immersed and designed to heat the water directly. With a modulating step control only the elements that are required to heat the water to the desired temperature/pressure will be energized in order to encourage a balanced load during operation.

### Replaceable Hairpins

Each element hairpin is field replaceable with no welding, soldering, or brazing required. Each hairpin, as standard for all Bryan Electric Boilers, is Incoloy sheathed and industrial size 0.430" diameter. Elements are designed for 75 watts/sq. inch for long life (optional 50 W/D available). Elements are individually installed in a standard ANSI 150 lb. blind flange.

### Steam Disengaging Area

Steam release area is near the middle of the horizontal vessel for maximum steam disengaging area for dry steam and stable water level.

### Water Boiler Design

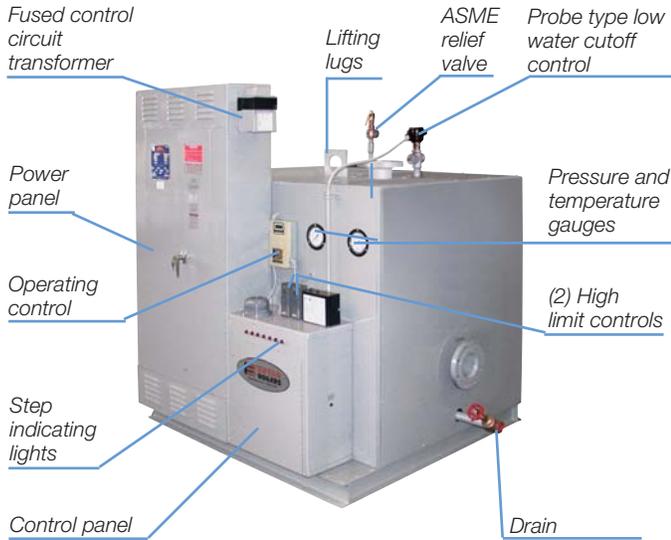
Vessel is designed for proper circulation around individual elements to maximize heat transfer. High velocities, i.e. heat pump applications, are handled with very little pressure drop when using a horizontal tank for the pressure vessel. Supply and return nozzle sizes can be made larger to accommodate the flow requirements. Pressure drop is minimal through the boiler and no dangers are involved with low flow conditions.

## Bryan BH Series Boiler Specifications

| Model    | Nom. Output |      | Steam Output*  | Approx. Shipping Weight |                |          | Model | Nom. Output |                | Steam Output*  | Approx. Shipping Weight |          |     |     |                |                |                |
|----------|-------------|------|----------------|-------------------------|----------------|----------|-------|-------------|----------------|----------------|-------------------------|----------|-----|-----|----------------|----------------|----------------|
| Input KW | MBH         | BHP  | lbs/hr (kg/hr) | Water lbs (kg)          | Steam lbs (kg) | Input KW | MBH   | BHP         | lbs/hr (kg/hr) | Water lbs (kg) | Steam lbs (kg)          | Input KW | MBH | BHP | lbs/hr (kg/hr) | Water lbs (kg) | Steam lbs (kg) |
| 60BH     | 196         | 6    | 207 (93)       | 900 (408)               | 1,000 (454)    | 660BH    | 2,156 | 66          | 2,277 (1,033)  | 3,350 (1,520)  | 3,600 (1,633)           |          |     |     |                |                |                |
| 75BH     | 245         | 7.5  | 259 (117)      | 900 (408)               | 1,000 (454)    | 720BH    | 2,352 | 72          | 2,484 (1,127)  | 3,500 (1,588)  | 3,800 (1,724)           |          |     |     |                |                |                |
| 90BH     | 294         | 9    | 311 (141)      | 1,000 (454)             | 1,100 (499)    | 780BH    | 2,548 | 78          | 2,691 (1,221)  | 3,600 (1,633)  | 4,000 (1,814)           |          |     |     |                |                |                |
| 105BH    | 343         | 10.5 | 362 (164)      | 1,000 (454)             | 1,300 (590)    | 840BH    | 2,744 | 84          | 2,898 (1,315)  | 3,700 (1,678)  | 4,100 (1,860)           |          |     |     |                |                |                |
| 120BH    | 392         | 12   | 414 (187)      | 1,000 (454)             | 1,300 (590)    | 900BH    | 2,940 | 90          | 3,105 (1,408)  | 3,850 (1,746)  | 4,200 (1,905)           |          |     |     |                |                |                |
| 135BH    | 441         | 13.5 | 466 (211)      | 1,200 (544)             | 1,400 (635)    | 960BH    | 3,136 | 96          | 3,312 (1,502)  | 4,000 (1,814)  | 4,400 (1,996)           |          |     |     |                |                |                |
| 150BH    | 490         | 15   | 518 (234)      | 1,200 (544)             | 1,400 (635)    | 1020BH   | 3,332 | 102         | 3,519 (1,596)  | 4,500 (2,041)  | 5,000 (2,268)           |          |     |     |                |                |                |
| 165BH    | 539         | 16.5 | 569 (258)      | 1,300 (590)             | 1,500 (680)    | 1080BH   | 3,528 | 108         | 3,726 (1,690)  | 4,500 (2,041)  | 5,100 (2,313)           |          |     |     |                |                |                |
| 180BH    | 588         | 18   | 621 (281)      | 1,300 (590)             | 1,500 (680)    | 1140BH   | 3,724 | 114         | 3,933 (1,784)  | 5,000 (2,268)  | 5,500 (2,495)           |          |     |     |                |                |                |
| 195BH    | 637         | 19.5 | 673 (305)      | 1,400 (635)             | 1,700 (771)    | 1200BH   | 3,920 | 120         | 4,140 (1,878)  | 5,250 (2,381)  | 5,700 (2,586)           |          |     |     |                |                |                |
| 210BH    | 686         | 21   | 725 (328)      | 1,400 (635)             | 1,700 (771)    | 1260BH   | 4,116 | 126         | 4,347 (1,972)  | 5,500 (2,495)  | 6,000 (2,722)           |          |     |     |                |                |                |
| 225BH    | 735         | 22.5 | 776 (352)      | 1,500 (680)             | 1,800 (816)    | 1320BH   | 4,312 | 132         | 4,554 (2,066)  | 5,600 (2,540)  | 6,100 (2,767)           |          |     |     |                |                |                |
| 240BH    | 784         | 24   | 828 (375)      | 1,600 (726)             | 1,900 (862)    | 1380BH   | 4,508 | 138         | 4,761 (2,160)  | 5,700 (2,586)  | 6,300 (2,858)           |          |     |     |                |                |                |
| 270BH    | 882         | 27   | 932 (422)      | 1,600 (726)             | 2,000 (907)    | 1440BH   | 4,704 | 144         | 4,968 (2,253)  | 5,800 (2,361)  | 6,400 (2,903)           |          |     |     |                |                |                |
| 300BH    | 980         | 30   | 1,035 (469)    | 1,700 (771)             | 2,200 (998)    | 1530BH   | 4,999 | 153         | 5,279 (2,394)  | 6,000 (2,722)  | 6,600 (2,994)           |          |     |     |                |                |                |
| 330BH    | 1,078       | 33   | 1,139 (516)    | 1,800 (816)             | 2,300 (1,043)  | 1620BH   | 5,293 | 162         | 5,589 (2,535)  | 6,200 (2,812)  | 6,800 (3,084)           |          |     |     |                |                |                |
| 360BH    | 1,176       | 36   | 1,242 (563)    | 1,800 (816)             | 2,400 (1,089)  | 1710BH   | 5,587 | 171         | 5,900 (2,676)  | 6,400 (2,903)  | 7,000 (3,175)           |          |     |     |                |                |                |
| 390BH    | 1,274       | 39   | 1,346 (610)    | 2,000 (907)             | 2,500 (1,134)  | 1800BH   | 5,881 | 180         | 6,210 (2,817)  | 6,600 (2,994)  | 7,200 (3,266)           |          |     |     |                |                |                |
| 420BH    | 1,372       | 42   | 1,449 (657)    | 2,000 (907)             | 2,600 (1,179)  | 1920BH   | 6,273 | 192         | 6,624 (3,005)  | 6,800 (3,084)  | 7,400 (3,357)           |          |     |     |                |                |                |
| 450BH    | 1,470       | 45   | 1,553 (704)    | 2,100 (953)             | 2,700 (1,225)  | 2040BH   | 6,665 | 204         | 7,038 (3,192)  | 7,000 (3,175)  | 7,600 (3,447)           |          |     |     |                |                |                |
| 480BH    | 1,568       | 48   | 1,656 (751)    | 2,150 (975)             | 2,800 (1,270)  | 2160BH   | 7,057 | 216         | 7,452 (3,380)  | 7,200 (3,266)  | 7,800 (3,538)           |          |     |     |                |                |                |
| 510BH    | 1,666       | 51   | 1,760 (798)    | 2,500 (1,134)           | 2,900 (1,315)  | 2280BH   | 7,449 | 228         | 7,866 (3,568)  | 7,400 (3,357)  | 8,100 (3,764)           |          |     |     |                |                |                |
| 540BH    | 1,764       | 54   | 1,863 (845)    | 2,500 (1,134)           | 3,000 (1,361)  | 2400BH   | 7,841 | 240         | 8,280 (3,756)  | 7,600 (3,447)  | 8,300 (3,765)           |          |     |     |                |                |                |
| 600BH    | 1,960       | 60   | 2,070 (939)    | 3,000 (1,361)           | 3,500 (1,588)  |          |       |             |                |                |                         |          |     |     |                |                |                |

NOTES: \* Lbs. steam per hour from and at 212°F. \*\* Not intended for use as a principal heating source for living space of any individual residence.

## Water boiler trim and controls



### Standard Equipment Supplied: HOT WATER DESIGN BOILERS:

#### Model "W" (150# ASME Design)

Temperature and pressure gauge, Operating immersion aquastat, 2 high limit aquastats, Low water cutoff, Relief valve, Metal jacket with 4" fiberglass, 75 W/D Incoloy sheathed elements with pressure connector power lugs. Separate power panel and control panel, On/Off control switch, 120 volt control transformer (fused), Magnetic contactors with 120 volt coil, Individual circuit Class JKS fusing, step indicating lamps, First on/first off progressive step controller, National Board Inspection and UL Label.

#### Power Circuit Design:

All Bryan BH Series boilers feature copper bus bar distribution, wherein the fuse clip for each branch circuit and the main power lugs are all bolted directly to a bus bar. The bus bar can carry the full load current of the boiler, withstanding the largest available fault current from the entering power system. Use of the bus bar protects all current-carrying parts and prevents damage to the boiler.

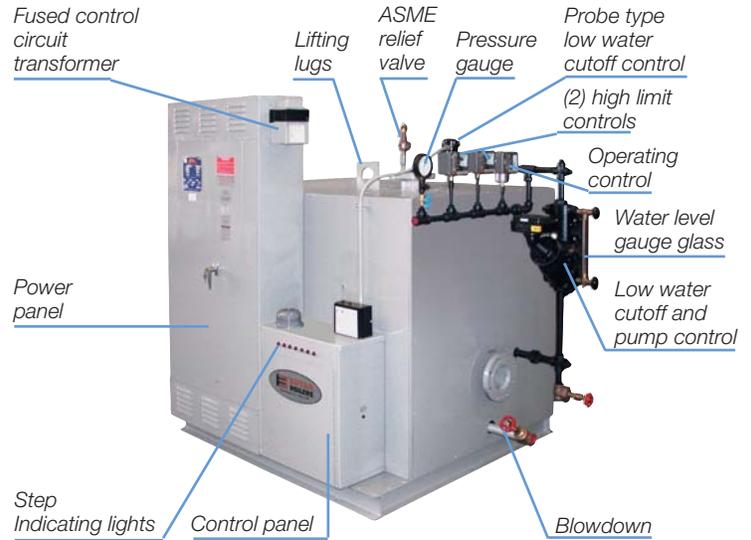
#### Optional Equipment Available:

Power panel door electric interlock. Preheat switch. Flow switch. Manual reset controls. Manual blowdown valve. Automatic blowdown with 24 hour time clock. Alarms. Indicating lights. Larger connection for heat pump applications.

#### Other Designs Available:

- 1) BE – Economical Electric Boilers (Form 3600)
- 2) WT – Indirect Hot Water Supply Heaters (Form 4800)

## Steam boiler trim and controls



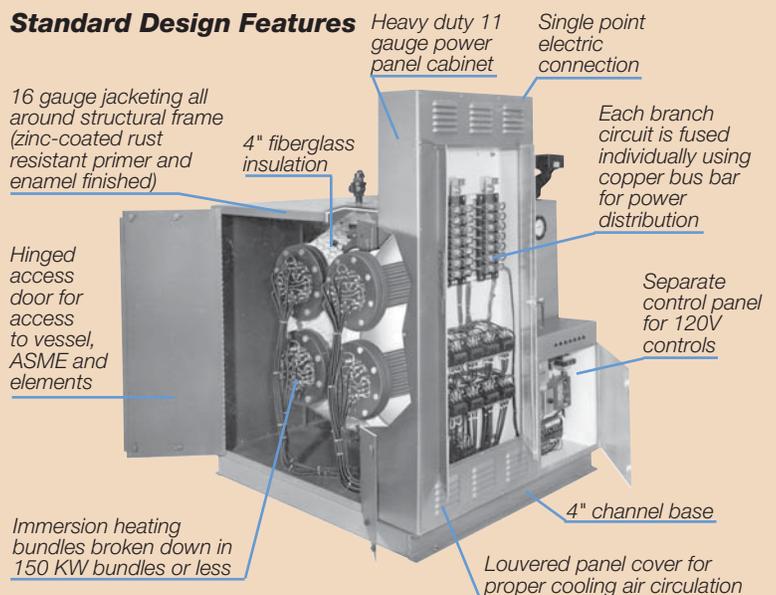
### Standard Equipment Supplied: STEAM DESIGN BOILERS:

#### Model "S" (15# ASME Design)

#### Model "Q" (150# ASME Design)

Steam pressure gauge w/gauge clock, Operating pressure control, 2 high limit pressure controls, Combination low water cutoff and pump control, Auxiliary low water cutoff, Relief valve, Water glass set, Metal jacket with 4" fiberglass, 75 W/D Incoloy sheathed elements with pressure connector power lugs. Separate power panel and control panel, On/off control switch, 120 volt control transformer (fused), Magnetic contactors with 120 volt coil, Individual circuit Class JKS fusing, Step indicating lamps, First on/ first off progressive step controller, National Board Inspection and UL Label.

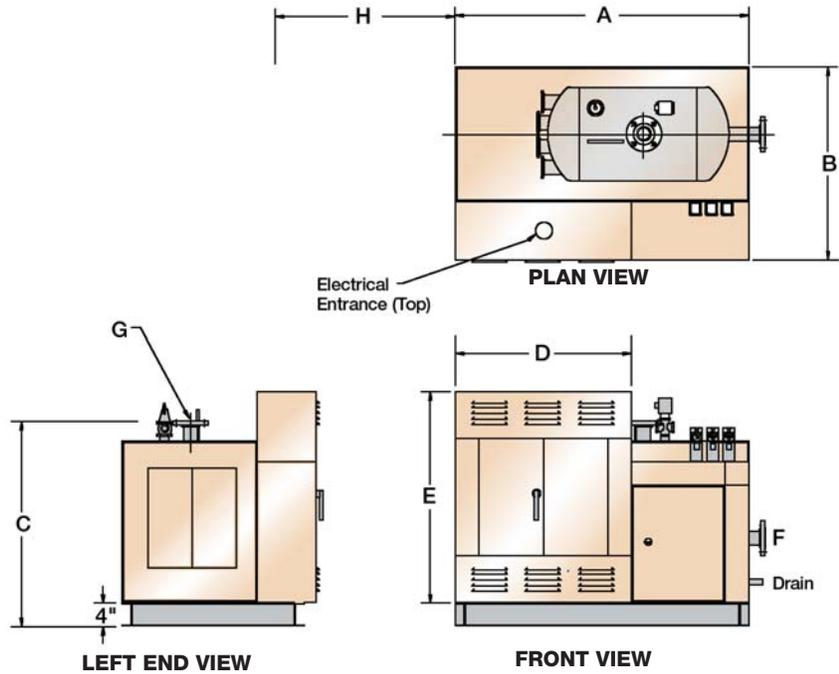
### Standard Design Features



# Bryan BH Series Steam & Hot Water Boilers

| POWER PANEL SIZING CHART — in (cm) |              |          |          |
|------------------------------------|--------------|----------|----------|
| Three Phase Voltage                |              | D        | E        |
| 208,240                            | 380,480,575  |          |          |
| 60-90 KW                           | 60-180 KW    | 30 (76)  | 36 (91)  |
| 105-180 KW                         | 195-360 KW   | 30 (76)  | 48 (122) |
| 195-240 KW                         | 390-480 KW   | 30 (76)  | 66 (168) |
| 270-330 KW                         | 510-720 KW   | 36 (91)  | 72 (183) |
| 360-480 KW                         | 780-1140 KW  | 60 (152) | 82 (208) |
| —                                  | 1200-1440 KW | 60 (152) | 90 (229) |
| —                                  | 1530-1920 KW | 60 (152) | 96 (244) |
| —                                  | 2040KW       | 72 (183) | 96 (244) |

NOTE: Units larger than 2040 KW require two power panels.



| Input KW  | MODELS "W" WATER<br>Dimensions in (cm) |          |          |        |        | MODELS "S" 15# STEAM<br>Dimensions in (cm) |          |          |        |        | MODELS "Q" 150# STEAM<br>Dimensions in (cm) |          |          |       |        | Element Removal Clearance<br>H |
|-----------|--|----------|----------|--------|--------|--|----------|----------|--------|--------|---|----------|----------|-------|--------|--------------------------------|
|           | Length                                 | Width    | Height   | Inlet  | Outlet | Length                                     | Width    | Height   | Inlet  | Outlet | Length                                      | Width    | Height   | Inlet | Outlet |                                |
|           | A                                      | B        | C        | F      | G      | A  | B        | C        | F      | G      | A   | B        | C        | F     | G      |                                |
| 60-75     | 50 (127)                               | 33 (84)  | 35 (89)  | 2 (5)  | 2 (5)  | 50 (127)                                   | 41 (104) | 43 (109) | 2 (5)  | 3 (8)  | 50 (127)                                    | 33 (84)  | 35 (89)  | 1 (3) | 2 (5)  | 30 (76)                        |
| 90-120    | 50 (127)                               | 33 (84)  | 35 (89)  | 2 (5)  | 2 (5)  | 50 (127)                                   | 41 (104) | 43 (109) | 2 (5)  | 3 (8)  | 50 (127)                                    | 41 (104) | 43 (109) | 1 (3) | 2 (5)  | 30 (76)                        |
| 135-150   | 50 (127)                               | 41 (104) | 43 (109) | 2 (5)  | 2 (5)  | 56 (142)                                   | 47 (119) | 49 (124) | 3 (8)  | 4 (10) | 50 (127)                                    | 41 (104) | 43 (109) | 1 (3) | 3 (8)  | 30 (76)                        |
| 165-240   | 56 (142)                               | 47 (119) | 49 (124) | 3 (8)  | 3 (8)  | 56 (142)                                   | 47 (119) | 49 (127) | 3 (8)  | 4 (10) | 80 (203)                                    | 41 (104) | 43 (109) | 1 (3) | 3 (8)  | 30 (76)                        |
| 270-360   | 56 (142)                               | 47 (119) | 49 (124) | 3 (8)  | 3 (8)  | 60 (152)                                   | 59 (150) | 61 (155) | 4 (10) | 6 (15) | 80 (203)                                    | 41 (104) | 43 (109) | 1 (3) | 3 (8)  | 30 (76)                        |
| 390-480   | 56 (142)                               | 53 (135) | 55 (140) | 4 (10) | 4 (10) | 60 (152)                                   | 65 (165) | 67 (170) | 4 (10) | 6 (15) | 60 (152)                                    | 65 (165) | 67 (170) | 2 (4) | 3 (8)  | 30 (76)                        |
| 510-600   | 80 (203)                               | 47 (119) | 49 (124) | 6 (15) | 6 (15) | 84 (213)                                   | 53 (135) | 55 (140) | 4 (10) | 6 (15) | 84 (213)                                    | 53 (135) | 55 (140) | 2 (4) | 4 (10) | 55 (140)                       |
| 660-750   | 84 (213)                               | 53 (150) | 55 (140) | 6 (15) | 6 (15) | 84 (229)                                   | 53 (180) | 55 (170) | 4 (15) | 6 (20) | 84 (229)                                    | 53 (180) | 55 (170) | 2 (4) | 4 (10) | 55 (140)                       |
| 780-900   | 84 (213)                               | 59 (150) | 55 (140) | 6 (15) | 6 (15) | 90 (229)                                   | 71 (180) | 67 (170) | 6 (15) | 8 (20) | 90 (229)                                    | 71 (180) | 67 (170) | 2 (4) | 4 (10) | 55 (140)                       |
| 960-1020  | 90 (229)                               | 65 (165) | 61 (155) | 6 (15) | 6 (15) | 90 (229)                                   | 71 (180) | 67 (170) | 6 (15) | 8 (20) | 90 (229)                                    | 71 (180) | 67 (170) | 2 (4) | 6 (15) | 55 (140)                       |
| 1080-1200 | 90 (229)                               | 71 (180) | 67 (170) | 6 (15) | 6 (15) | 94 (239)                                   | 77 (196) | 73 (185) | 6 (15) | 8 (20) | 94 (239)                                    | 77 (196) | 73 (185) | 2 (4) | 6 (15) | 55 (140)                       |
| 1260-1320 | 90 (229)                               | 71 (180) | 67 (170) | 6 (15) | 6 (15) | 94 (239)                                   | 77 (196) | 73 (185) | 6 (15) | 8 (20) | 94 (239)                                    | 77 (196) | 73 (185) | 2 (4) | 6 (15) | 55 (140)                       |
| 1380-1440 | 90 (229)                               | 71 (180) | 67 (170) | 6 (15) | 6 (15) | 98 (249)                                   | 83 (211) | 79 (201) | 6 (15) | 8 (20) | 98 (249)                                    | 83 (211) | 79 (201) | 2 (4) | 6 (15) | 55 (140)                       |
| 1530-1620 | 90 (229)                               | 71 (180) | 67 (170) | 6 (15) | 6 (15) | 98 (249)                                   | 83 (211) | 79 (201) | 6 (15) | 8 (20) | 98 (249)                                    | 83 (211) | 79 (201) | 2 (4) | 6 (15) | 55 (140)                       |
| 1710-1800 | 94 (239)                               | 77 (196) | 73 (185) | 6 (15) | 6 (15) | 98 (249)                                   | 83 (211) | 79 (201) | 6 (15) | 8 (20) | 98 (249)                                    | 83 (211) | 79 (201) | 2 (4) | 6 (15) | 55 (140)                       |
| 1920-2040 | 94 (239)                               | 77 (196) | 73 (185) | 8 (20) | 8 (20) | 102 (259)                                  | 95 (241) | 91 (231) | 6 (15) | 8 (20) | 102 (259)                                   | 95 (241) | 91 (231) | 2 (5) | 6 (15) | 55 (140)                       |

NOTE: Units larger than 2040 KW require two power panels.  
Specifications subject to change without notice. Consult factory for information on other boiler options.



783 N. Chili Ave., Peru, Indiana 46970 U.S.A.

765-473-6651 • www.bryanboilers.com

Form No. 3200