# Commercial Condensing
# WATER HEATER

**FIT**

**1000 - 3999 MBH**

ASME HLW

ASME H

ETL SANITATION LISTED — Intertek

c ETL LISTED US — Intertek

ENERGY STAR

**98% EFFICIENCY**

**BRYAN BOILERS**™®

# BIG OUTPUT DESIGNED TO FIT

The BFIT Condensing Water Heater Series (BFITW) from Bryan Boilers delivers efficiency with unprecedented space saving innovation in a service friendly design. Available in 1000, 1250, 1500, 1999, 2500, 3000, 3500 and 3999 MBH input levels, all models are 98% Thermal Efficiency. The 316L stainless steel heat exchanger features cavernous internal circuits with commercially sized tubes that minimize pressure drop and proactively reduce pump sizing, saving on install and electrical operations.

## WATER HEATER ADVANCEMENT

Commercial grade tubes, nearly twice the size of competitive models, promote self-cleaning and flushing of particulates. Expanded tube and header dimensions promote smaller pumps and more efficient operations.
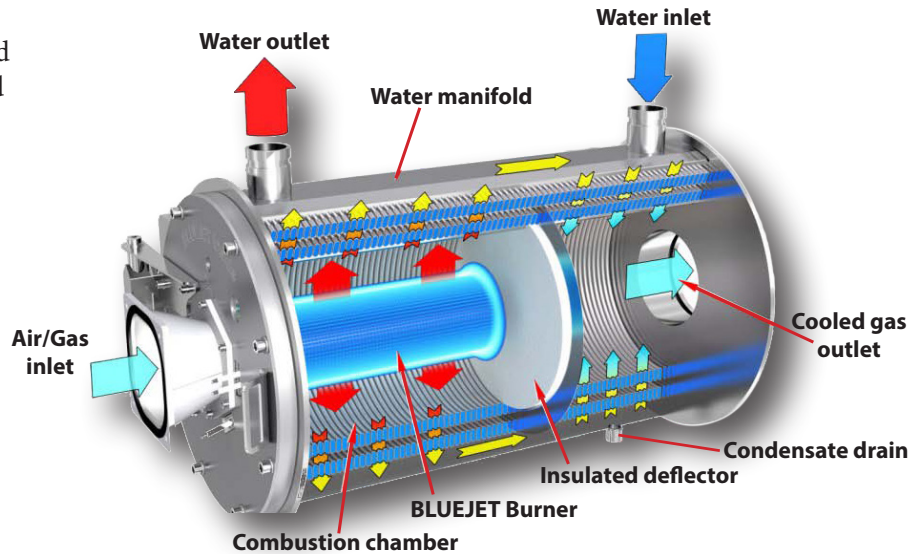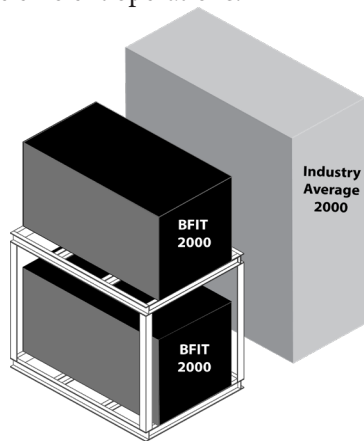


## SPACE SAVING INNOVATION

We moved the burner from the traditional top to the side and reduced required install space by 46%, dramatically limiting the height of the heater. Models 1000-2000 MBH fit through standard doorways and are compact for easy maneuvering. All models can be Field Knock Down, with dimensions and instructions for disassembling and assembly on site. Top water and gas connections reduce requirements commonly added to rear dimensions. Designed to Fit...an optional racking system doubles the BTU's vs competitive install requirements.
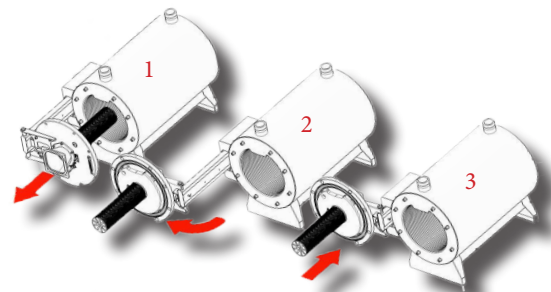
## SERVICEABLE

Leave it to a century old boiler company to make maintenance and service part of a water heater design. Why wasn't this done before? Gas burns clean, but fireside contaminants can form on tubes diminishing heat transfer and efficiency. All BFITW models come with supported swing-out door providing complete access to burner and combustion chamber. Service, inspections, and cleanings can be completed with ease, ensuring new, out of the box efficiency and performance for the life of the product.

## 5:1 TURNDOWN

Why 5:1 turndown? Because it works and is proven time after time. No need for multiple set-ups in summer and winter or excess amounts of air, robbing your heater's condensing performance.

## VENTING

Cat II or IV venting for either individual or common (engineered) venting systems. Capable of up to 300 equivalent feet of vent in stainless steel, polypropylene or CPVC.
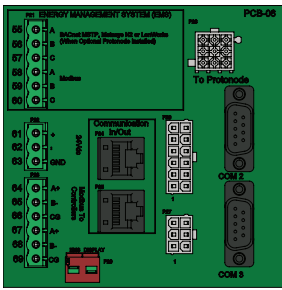
## SIMPLIFIED WIRING AND SERVICEABILITY

Low and high voltage fused printed circuit boards (PCB) simplifies wiring, enhances serviceability & troubleshooting with easy to read labeling, and provides electrical protection (spare fuses located on PCB for quick replacement). Other connections include: 120/1/60 voltage and pumps (boiler, system & domestic hot water); alarm; auto & manual reset external limits; enable/disable; DHW demand; 4-20mA remote; sensors (outdoor, remote and DHW); EnviraCOM thermostat; low water cutoff; and flow switch.

## ADVANCED CONTROL PLATFORM – CONCERT™ CONTROL

### Intuitive Icon Navigation

"Touch" and move through our control menus effortlessly.  Whether it be commissioning with the "Quick Setup" menu, pinpointing fault codes with corrective actions in seconds or seamlessly connecting to an EMS. Extensive data archives with graphical displays are available to evaluate performance and make value-added adjustments to maximize heater efficiency.

### Self-Guiding Diagnostics

Troubleshooting issues has never been this easy!  The industry-leading fault identification and correction feature allows the service technician to quickly drill down on the issue, with cause and corrective measures.

### Unmatched Archives

With the largest collection of stored operational data (4 months), no stone is left unturned when it comes to evaluating a heater's performance and pinpointing adjustment for improvement.  The heater's onboard energy management system is a true step above all others!

### USB Data Sharing

Make room on the tool belt for a flash drive as the USB data sharing port has become another important device to have in commissioning (upload/download settings from one boiler to the next), servicing (download data and email file to factory for assistance) and analyzing operation (historical info can be downloaded & saved in .CRV formatted files).

### Peer-To-Peer Sequencing

Unique control logic uses both temperature and firing rate of the connected heaters to sequence up to eight units in unison to optimize system efficiency. Included dual RJ45 connections make peer-to-peer and/or simultaneous EMS communications (ModBus Standard / Other Protocols Optional) a snap without the need of a separate splitter.

## TANKS & PACKAGING

BFIT Water Heaters are commonly paired with hot water storage tanks.  Tanks are available to suit all applications: vertical or horizontal orientation; glass, epoxy or cement-lined; metal jacketing with insulation, sprayed foam insulation or bare exterior; and in various shell materials (i.e. stainless steel).   Shipped separately for field installation or skid mounted as a factory package.

### DUAL FUEL

BFIT Water Heaters are dual fuel (natural gas and LP gas) rated.  Providing assurances if primary fuel is unavailable or planned change in the future. Separate gas trains included and center-locking switch for manual transfer provide simple and safe change of fuels.

## BFITW STANDARD EQUIPMENT

**PRESSURE VESSEL DESIGN**
Watertube stainless steel heat exchanger
ASME Section IV-certified, "HLW" Stamp (1000-2000)
ASME Section IV-certified, "H" Stamp (2500+)
MAWP 160 PSIG & design temp 210°F
Five Year limited heat exchanger warranty
Ten year limited pressure vessel warranty
One year parts and burner warranty

**COMBUSTION DESIGN**
Stainless steel pre-mix burner
Low NOx emissions (<10 ppm);
Full modulation, 5:1 turndown
Natural gas, LP gas, or Dual Fuel
4" wc to 14" wc inlet gas pressure
8" wc LP min
Direct spark ignition system
High & low gas pressure switches w/ manual reset
Zero governor gas valve
Variable speed combustion blower
Air proving switch
Blocked vent switch
Manual fuel changeover switch

**VENTING**
CPVC, polypropylene or stainless steel materials acceptable
Air intake – sealed combustion or room air
Category II or IV venting
Individual or common (engineered) venting systems

**EQUIPMENT**
Concert Control™
High limit w/ manual reset safety temperature control

Low water cutoff w/ manual reset
Water flow switch
Supply, return & DHW water temperature sensors
Flue gas temperature sensor
Condensate trap
Blocked condensate switch
Pressure & temperature gauge
ASME safety temperature & pressure valve
Water circulation pump

**ELECTRICAL DESIGN**
High voltage printed circuit board (PCB)
BFITW1000-2500: 120, 208 or 240 VAC / 60 Hz / 1PH power supply
BFITW1500-4000: 208 or 240 VAC/ 60 Hz / 1PH power supply
BFITW1500-4000: 208, 240 or 460 VAC/ 60 Hz / 3PH power supply
120 VAC manual reset external limit contacts
Three sets of pump contacts
PCB fused connections

Printed Circuit Board (PCB)
24 VAC enable/disable sensor contacts
24 to 120 VAC proving switch or auto reset external limit contacts
24 to 120 VAC lockout alarm contacts
24 VAC EnviraCom thermostat contacts
DHW demand contacts
Remote header sensor contacts
DHW tank sensor contacts
Peer-to-peer communication contacts
EMS interface contacts
Remote 4-20mA contacts

## CONCERT CONTROL

**Dashboard - color touch screen display, 4.3"**
– Intuitive icon navigation
– "Quick" setup menus
– "Real time" BTU/H display*

**Temperature demand input**
– Time of day setback capability (EnviraCom thermostat must be installed)

**Two (2) pump control**
– DHW pump with On/Off or variable speed control
– System pump
– Alternative control to isolation valve, combustion air damper, or standby loss damper
– Pump overrun for heat dissipation
– Pump exercise
– Pump rotor seizing protection

**Peer-to-peer boiler communications**
– Multiple size unit sequencing; up to 8 units
– Lead unit automatic rotation

**Energy management system (EMS) interface**
– Firing rate and water temperature based algorithms for multiple units; loss of EMS signal defaults to local settings*
– 4-20mAdc input/output
– ModBus Input/Output
– Simultaneous interface with peer-to-peer

**USB data port transfer***
– Upload settings between units
– Download parameters for troubleshooting
– Import data into .CRV formatted files for performance analysis

**Energy efficiency enhancer**
– Anti-cycling technology
– Multiple unit base load common rate
– Boost temperature & time
– Ramp delay
– Over-temperature safeguarding

**Self-guiding diagnostics**
– Identifies fault
– Describes possible problems
– Provides corrective actions

**Time/Date stamp on alarms and lockouts***

**Unmatched archives**
– Historical trends - collects up to 4 months of data
– Event history - up to 3,000 alarms, lockouts, and cycle & run times
– Alarm - limit string faults, holds, lockouts & others
– Cycle & run time - water heaters & pumps
– Resettable

**Domestic hot water priority**
– DHW tank piped with priority in the boiler loop
– DHW tank piped as a zone in the system with the pumps controlled by the Concert Control

**Other features**
– Factory default settings*
– Three level password security
– Frost protection
– Contractor contacts (up to 3)
– Low water flow control & indication
– Proportion integral derivative (PID) parameters for DWH, sequencer and fan
– Built-in brown-out protection

\* Unique to Concert Control

## BFITW OPTIONAL EQUIPMENT

– External high limit w/ manual reset safety switch
– Alarm buzzer w/ silencing switch
– Extended Warranty
– Stackable Rack (1000-2000)

## CONCERT CONTROL OPTIONS

– Communications gateway - BACnet, LonWorks, Metasys N2 or ModBus TCP/IP compatible
– 0-10v signal converter
– Header sensor, direct immersion
– Header sensor, well mounted (with well)

# SPECIFICATIONS, DIMENSIONS, & RATINGS

| Models | Input | | Gross Output (MBH) | DHW Recovery (GPH)* | "A" Length (Inches) | "B" Width (Inches) | "C" Height (Inches) | Gas/LP Conn. (Inches) | Supply Grooved Conn (Inches) | Return Grooved Conn (Inches) | Air Intake/ Vent Size (Inches) | Approx Shipping Weight (Lbs) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Min (MBH) | Max (MBH) | | | | | | | | | | |
| BFITW-1000 | 200 | 1000 | 980 | 1188 | 45 | 35 | 36.5 | 1 NPT | 3 | 2.5 | 8 | 922 |
| BFITW-1250 | 250 | 1250 | 1225 | 1485 | 45 | 35 | 36.5 | 1 NPT | 3 | 2.5 | 8 | 922 |
| BFITW-1500 | 300 | 1500 | 1470 | 1782 | 65 | 35 | 36.5 | 1.25 NPT** | 3 | 2.5 | 8 | 1217 |
| BFITW-2000 | 399 | 1999 | 1960 | 2376 | 65 | 35 | 36.5 | 1.25 NPT | 3 | 2.5 | 8 | 1217 |
| BFITW-2500 | 500 | 2500 | 2450 | 2970 | 76 | 46 | 49 | 1.5 NPT | 4 | 4 | 10 | 2038 |
| BFITW-3000 | 600 | 3000 | 2940 | 3564 | 76 | 46 | 49 | 1.5 NPT | 4 | 4 | 10 | 2038 |
| BFITW-3500 | 700 | 3500 | 3430 | 4158 | 98 | 46 | 49 | 2 NPT | 4 | 4 | 12 | 2485 |
| BFITW-4000 | 799 | 3999 | 3920 | 4752 | 98 | 46 | 49 | 2 NPT | 4 | 4 | 12 | 2485 |

*Based on 40°F to 140°F temperature rise
**BFITW-1500 LP connection (inches) 1 NPT



**"A"**
Cold Water Inlet    Hot Water Outlet
NG  LP
Gas Connections
Vent
Air Intake
*Supply manifold not pictured, but includes:
• Pressure/temperature gauge
• ASME relief valve
• Water flow switch and
• Low water cut off
16"
Side

**"B"**
6.5"
"C"
Front

108599-04 R2

**BRYAN BOILERS**®