

## Commercial eF Series<sup>®</sup> Ultra High Efficiency Gas Water Heater



Photo is of  
EF-120T-500-3N

### FEATURING:

THE BRADFORD WHITE  
**ICON HD**<sup>™</sup>  
COMMERCIAL CONTROL SYSTEM



ULC - Low Lead Content

### The eF Series<sup>®</sup> Models feature:

- **ENERGY STAR<sup>®</sup> Qualified**—Models meet or exceed requirements for Energy Star<sup>®</sup> per the latest Energy Star<sup>®</sup> criteria revision.
- **ICON HD<sup>™</sup>**—Intelligent proven design combines temperature control, diagnostic codes, and system ignition functions into a single control board with a digital LCD display.
- **Factory Installed Hydrojet<sup>®</sup> Sediment Reduction System**—Cold water inlet sediment reducing device helps prevent sediment build up in the tank.
- **Direct Spark Ignition**—For improved operational dependability and durability.
- **Operation Mode**—Two different digitally displayed operation modes have the capability of adjusting the temperature setting up to 180°F (82°C), and adjusting the degree setting (°F to °C, or °C to °F).
- **Service Mode**—Eight different digitally displayed service screens can be easily cycled through by pressing the select button. There is the capability of adjusting the temperature setting up to 180°F (82°C), adjusting the degree setting (°F to °C, or °C to °F), locking the maximum temperature setting that can be adjusted in operation mode, displaying the temperature sensor reading, displaying the flame current, and displaying diagnostic codes.
- **Down-Fired Premix Power Burner**—A self compensating negative regulation system automatically increases or decreases fuel flow when a change in combustion air is detected. This provides the range for optimum combustion and efficiency (automatic high altitude compatibility).
- **Flexible Venting**—The eF Series<sup>®</sup> can vent vertically or horizontally with either 4" or 6" (102mm or 152mm) PVC, CPVC or ABS (not approved for Canada) vent pipe, and is approved for direct vent closed combustion applications, or those applications that require inside air for combustion. The eF Series<sup>®</sup> is also approved for unbalanced venting, which means the air intake pipe doesn't have to be vented the same distance as the exhaust.
- **Submerged Combustion Chamber**—Minimizes radiant heat loss for better efficiency.
- **Three Pass Heat Exchanger System**—Provides maximum heat transfer surface area.
- **Ultra Quiet Operation.**
- **A Single Exhaust Pressure Switch.**
- **1" (25mm) NPT Side Connections for Space Heating.**
- **Sanitizing Capability**—Temperature setting up to 180°F (82°C).
- **Complies with the latest ultra-low NOx requirement (14 ng/J NOx limit).**
- **ASME Code Available on All Models.**
- **NSF Construction Available.**
- **T&P Relief Valve**—Installed.
- **Low Restrictive Brass Drain Valve**—Durable tamper proof design (Alternative location available).

### 3 or 5-Year Limited Tank Warranties / 1-Year Limited Warranty on Component Parts.

For more information on warranty, please visit [www.bradfordwhite.com](http://www.bradfordwhite.com)

For products installed in USA, Canada, and Puerto Rico. Some states do not allow limitations on warranties.

See complete copy of the warranty included with the heater.

# Commercial Gas High Efficiency Water Heater

## eF Series® Additional Equipment Features:

**Three Pass Heat Exchanger System**—The three pass Heat Exchanger system keeps the hot combustion gases moving at a high velocity. The combination of high turbulence and velocity causes an enormous rate of heat transfer into the water.

**Submerged Combustion Chamber**—Submerging the combustion chamber in the center of the water storage tank minimizes radiant heat loss and improves efficiency.

**Zero Inch Clearance**—The eF Series® jacket is cool to the touch and is approved for zero inch clearance to combustibles for unsurpassed installation flexibility.

**Vitraglas® Lining**—An exclusively engineered enamel formula that provides superior tank protection from the highly corrosive effects of hot water. This formula (Vitraglas®) is fused to the steel surface by firing at a temperature of over 1600°F (871°C).

**Protective Powered Anode Rods**—Each eF Series® model is provided with 2 powered anode rods.

**Factory Installed Hydrojet® Sediment Reduction System**—Cold water inlet sediment reducing device helps prevent sediment build up in tank.

**Water Connections**—Factory-installed true dielectric fittings extend water heater life and simplify water line connections.

**Hand Hole Cleanout**—Allows inspection of tank interior and facilitates the removal of sediment deposits.

**E.C.O.**—A manual re-set Energy Cut Off (E.C.O) shuts off all gas in event of an overheat condition. The ECO is manually resettable.

**Non-CFC Foam Insulation**—Covers the sides, reducing the amount of heat loss. This results in less energy consumption, improved operation efficiencies and jacket rigidity.

	EF-120T-400-3N(A) 399,999 BTU/Hr.		EF-120T-500-3N(A) 499,000 BTU/Hr.	
	Power Vent	Power Direct Vent	Power Vent	Power Direct Vent
<b>4 in. Vent Pipe</b>				
Max. Intake Length	120 ft.	60 ft.	120 ft.	60 ft.
Max. Exhaust Length	120 ft.	60 ft.	120 ft.	60 ft.
	EF-120T-400-3N(A) 117.2 kW/Hr.		EF-120T-500-3N(A) 146.5 kW/Hr.	
	Power Vent	Power Direct Vent	Power Vent	Power Direct Vent
<b>102mm. Vent Pipe</b>				
Max. Intake Length	36.6 m.	18.3 m.	36.6 m.	18.3 m.
Max. Exhaust Length	36.6 m.	18.3 m.	36.6 m.	18.3 m.

	EF-120T-400-3N(A) 399,999 BTU/Hr.		EF-120T-500-3N(A) 499,000 BTU/Hr.	
	Power Vent	Power Direct Vent	Power Vent	Power Direct Vent
<b>6 in. Vent Pipe</b>				
Max. Intake Length	240 ft.	120 ft.	240 ft.	120 ft.
Max. Exhaust Length	240 ft.	120 ft.	240 ft.	120 ft.
	EF-120T-400-3N(A) 117.2 kW/Hr.		EF-120T-500-3N(A) 146.5 kW/Hr.	
	Power Vent	Power Direct Vent	Power Vent	Power Direct Vent
<b>152mm. Vent Pipe</b>				
Max. Intake Length	73.2 m.	36.6 m.	73.2 m.	36.6 m.
Max. Exhaust Length	73.2 m.	36.6 m.	73.2 m.	36.6 m.

Air intake cannot exceed exhaust by more than 30 ft. (9m) in any venting situation. Subtract 5 ft. (1.5m) for each additional 90° elbow.

## eF Series® Optional Equipment Features:

**NSF Compliance Kit**—p/n 265-44542-04.

# Commercial Gas High Efficiency Water Heater

eF Series® Models NATURAL GAS AND LIQUID PROPANE GAS

Meet or exceed ASHRAE 90.1b (current standard) C.E.C. Listed

Model Number	Nominal Gal. Capacity		Input		A Floor to Top of Heater in.	B Jacket Dia. in.	C Floor to Front Hot Water Conn. in.	D Floor to Cold Water Conn. in.	E Floor to Gas Conn. in.	F Floor to Vent Conn. in.	G Floor to Air Intake Conn. in.	H Floor to T&P Conn. in.	J Floor to Top Hot Water Conn. in.	Water Conn. Dia. in.	Gas Conn. Dia. in.	Relief Valve Conn. in.	Approx. Shipping Weight lbs.
	U.S. Gal.	Imp. Gal.	BTU/Hr. Input	LP BTU/Hr. Input													
EF-120T-400-3N(A)	119	99	399,999	399,999	77 <sup>3</sup> / <sub>8</sub>	32	61 <sup>1</sup> / <sub>4</sub>	12 <sup>1</sup> / <sub>4</sub>	73 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>4</sub>	71	58 <sup>1</sup> / <sub>2</sub>	72 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>2</sub>	1	1	1,120
EF-120T-500-3N(A)	119	99	499,000	499,999	77 <sup>3</sup> / <sub>8</sub>	32	61 <sup>1</sup> / <sub>4</sub>	12 <sup>1</sup> / <sub>4</sub>	74 <sup>7</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>4</sub>	71	58 <sup>1</sup> / <sub>2</sub>	72 <sup>1</sup> / <sub>2</sub>	1 <sup>1</sup> / <sub>2</sub>	1	1	1,135

Model Number	Nominal Liter Capacity	Input		A Floor to Top of Heater mm.	B Jacket Dia. mm.	C Floor to Front Hot Water Conn. mm.	D Floor to Cold Water Conn. mm.	E Floor to Gas Conn. mm.	F Floor to Vent Conn. mm.	G Floor to Air Intake Conn. mm.	H Floor to T&P Conn. mm.	J Floor to Top Hot Water Conn. mm.	Water Conn. Dia. mm.	Gas Conn. Dia. mm.	Relief Valve Conn. mm.	Approx. Shipping Weight kgs.
		kW/Hr. Input	LP kW/Hr. Input													
EF-120T-400-3N(A)	450	117.2	117.2	1965	813	1556	311	1877	184	1804	1486	1842	38	25	25	508
EF-120T-500-3N(A)	450	146.5	146.5	1965	813	1556	311	1902	184	1804	1486	1842	38	25	25	515

For propane gas models change suffix "N" to "X".

(A) ASME - All models are available with ASME construction. To order ASME construction add the (A) to the end of the model number.

**Example:** EF-120T-500-3NA

For 5 year warranty models, change suffix

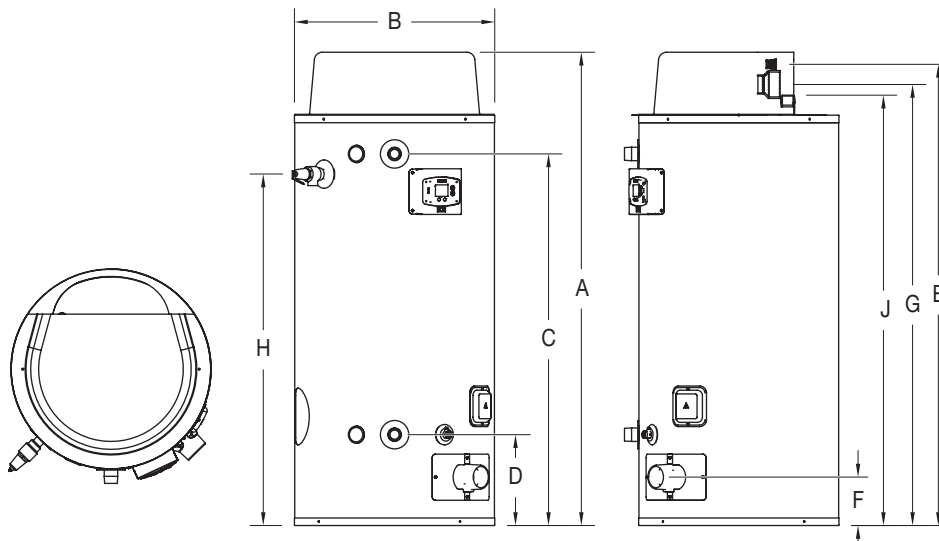
"3" to "5" **Example:** EF-120T-500-5N

**Note:** The weight is the same for both ASME and Non-ASME models.

All models comply with the latest ultra-low NOx requirements of 14 ng/J or less.

14.0" (356mm) w.c. maximum static, 4.5" (114mm) w.c. minimum running (recommend 7.0" (178mm) w.c. minimum running).

ENERGY STAR® Qualified.



## Recovery Data

Model Number	GPH Recovery at Degree Rise*												LPH Recovery at Degree Rise*											
	30°F	40°F	50°F	60°F	70°F	80°F	90°F	100°F	110°F	120°F	130°F	140°F	17°C	22°C	28°C	33°C	39°C	44°C	50°C	56°C	61°C	67°C	72°C	78°C
EF-120T-400-3N(A)	1560	1170	936	780	669	585	520	468	425	390	360	334	5905	4429	3543	2953	2532	2214	1968	1772	1609	1476	1363	1264
EF-120T-500-3N(A)	1917	1437	1150	958	821	719	639	575	523	479	442	411	7257	5440	4353	3626	3108	2722	2419	2177	1980	1813	1673	1556

# Commercial Gas High Efficiency Water Heater

## Sample Specification

The water heater shall be a Bradford White model EF-\_\_\_\_\_ with a rated storage capacity of not less than \_\_\_\_\_ gallons/ liters, a minimum gas input of \_\_\_\_\_ BTU/Hr., a minimum recovery of \_\_\_\_\_ GPH/LPH at 100°F (56°C) temperature rise, and a Thermal Efficiency Rating of \_\_\_\_%. It shall be design certified by CSA International (formerly AGA and CGA) for 180°F (82°C) application, either with or without a separate storage tank. The tank shall be lined with Vitraglas® vitreous enamel and shall have a bolted hand hole cleanout. The tank shall have four extruded magnesium anode rods installed in separate head couplings. This water heater shall be equipped with stainless steel cold water inlet, Hydrojet® Sediment Reduction System. The heater shall be insulated with Non-CFC foam. This water heater shall be equipped with an electronic ignition system, an ASME rated T&P relief valve and a premix closed combustion system for direct venting using either 4" (102mm) or 6" (152mm) PVC, CPVC or ABS vent pipe. (115V AC required). The water heater shall be factory assembled and tested. The water heater shall be approved for zero inch clearance to combustibles. A digital LCD display shall be integrated into the front and be an adjustable electronic thermostat to any temperature up to 180°F. A recycling Energy Cut Off (E.C.O.) shuts off all gas in the event of an overheat condition. The entire installation shall be made in compliance with state and local codes and ordinances.

## General

All gas water heaters are certified at 300 PSI test pressure (2068 kPa) and 150 PSI working pressure (1034 kPa). All models are design certified by CSA International (formerly AGA/CGA), ANSI standard Z-21.10.3, for up to 180°F (82°C) application as an Automatic Storage Heater. As an Automatic Storage Heater, all models are complete, self-contained water heating systems. It needs no separate storage tank, pump, wiring or elaborate piping network. When equipped with a mixing valve, it will supply 180°F (82°C) sanitizing and lower temperature general purpose hot water simultaneously. These models can be used either as a single unit or in multiples connected in series or parallel (recommended).

***Dimensions and specifications subject to change without notice in accordance with our policy of continuous product improvement.***

— BRADFORD WHITE IS —



For field service, contact your professional installer or local Bradford White sales representative.

Sales 800-523-2931 ■ Fax 215-641-1612

Technical Support 800-334-3393 ■ Email [techserv@bradfordwhite.com](mailto:techserv@bradfordwhite.com)

Warranty 800-531-2111 ■ Email [warranty@bradfordwhite.com](mailto:warranty@bradfordwhite.com)

International: Telephone 1-215-641-9400 ■ Email [international@bradfordwhite.com](mailto:international@bradfordwhite.com) / [www.bradfordwhite.com](http://www.bradfordwhite.com)

**Built to be the Best™**