

## Commercial eF Series® Ultra High Efficiency Gas Water Heater



Photo is of  
EF-60T-199E-3N

### FEATURING:



### The eF Series® Models feature:

- **ENERGY STAR® Models Available**—EF60T125 & EF100T (150,199,250) Models.
- **Thermal Efficiency up to 97%**—Ultra High Efficiency results in less fuel consumption and greater hot water recovery.
- **BMS Integration**—Via Modbus standard, BACnet® compatible via gateway kit.\*
- **ICON HD®**—Intelligent proven design combines temperature control, diagnostic codes, and system ignition functions into a single control board with a digital LCD display.
- **Protective Powered Anodes**—Each eF Series® model is provided with 2 powered anode rods.
- **VitrageLAS® Lining with Microban®**—An exclusively engineered enamel formula that provides superior tank protection from the corrosive effects of water; and with Microban® antimicrobial product protection to help prevent the growth of bacteria, mold and mildew on the surface of the tank lining.
- **Factory Installed Hydrojet® 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.
- **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 up to 10,000 ft./3,048m).
- **Venting Versatility**—The eF Series® can vent vertically or horizontally with either 2", 3", 4" or 6" (51mm, 76mm, 107mm or 152mm) PVC, CPVC, Polypropylene, Stainless Steel, (ULC-S636 Standard) vent pipe, and is approved for direct vent closed combustion applications, or those applications that require inside air for combustion. The eF Series® is also approved for unbalanced venting, which means the air intake pipe doesn't have to be vented the same distance as the exhaust. Common vent kits available.
- **Three Pass Fire Tube 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.
- **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 for natural gas and 77ppm NOx limit for liquid propane).**
- **ASME Code Available on All Models.**
- **NSF Construction Available.**
- **T&P Relief Valve**—Installed.
- **Low Restrictive Brass Drain Valve**—Durable tamper proof design.

\* Not available on certain dash number variations.

### 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.

Microban® antimicrobial product protection helps prevent the growth of bacteria, mold and mildew that may affect the product. The built-in antimicrobial properties do not protect users or others from disease-causing organisms. Microban® is a registered trademark of Microban Products Company.

MANUFACTURED UNDER ONE OR MORE OF THE FOLLOWING U.S. PATENTS: 5,682,666; 7,634,976; 5,660,165; 5,954,492; 6,056,542; 6,935,280; 5,372,185; 5,485,879; 5,574,822; 7,971,560; 7,992,526; 6,684,821; 7,334,419; 7,866,168; 7,270,087; 7,007,748; 5,596,952; 6,142,216; 7,699,026; 5,341,770; 7,337,517; 7,665,211; 7,665,210; 7,063,132; 7,063,133; 7,559,293; 7,900,589; 5,943,984; 8,082,888; 5,988,117; 7,621,238; 7,650,859; 5,761,379; 7,409,925; 5,277,171; 8,146,772; 7,458,341; 2,262,174. OTHER U.S. AND FOREIGN PATENT APPLICATIONS PENDING. CURRENT CANADIAN PATENTS: 2,314,845; 2,504,824; 2,108,186; 2,143,031; 2,409,271; 2,548,958; 2,112,515; 2,476,685; 2,239,007; 2,092,105; 2,107,012. eF Series®, VitrageLAS® and Hydrojet® are registered trademarks of Bradford White® Corporation. Microban® is a registered trademark of Microban Products Company.

# Commercial Gas High Efficiency Water Heater

## eF Series® Additional Equipment Features:

**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.

**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 and top of tank, reducing the amount of heat loss. This results in less energy consumption, improved operation efficiencies and jacket rigidity.

2" (51mm) Vent Pipe	EF-60T-125		EF-60T-150 EF-100T-150		EF-60T-199 EF-100T-199	
	Power Direct Vent	Power Vent	Power Direct Vent	Power Vent	Power Direct Vent	Power Vent
Max. Intake Length	15 ft. (4.6m)	N/A N/A	15 ft. (4.6m)	N/A N/A	15 ft. (4.6m)	N/A N/A
Max. Exhaust Length	15 ft. (4.6m)	30 ft. (9.2m)	15 ft. (4.6m)	30 ft. (9.2m)	15 ft. (4.6m)	30 ft. (9.2m)

3" (76mm) Vent Pipe	EF-60T-125 EF-100T-150		EF-60T-150 EF-100T-199		EF-60T-199 EF-100T-250		EF-100T-300	
	Power Direct Vent	Power Vent	Power Direct Vent	Power Vent	Power Direct Vent	Power Vent	Power Direct Vent	Power Vent
Max. Intake Length	60 ft. (18.3m)	N/A N/A	50 ft. (15.2m)	N/A N/A	40 ft. (12.2m)	N/A N/A	30 ft. (9.2m)	N/A N/A
Max. Exhaust Length	60 ft. (18.3m)	120 ft. (36.6m)	50 ft. (15.2m)	100 ft. (30.5m)	40 ft. (12.2m)	80 ft. (24.4m)	30 ft. (9.2m)	60 ft. (18.3m)

4" (102mm) Vent Pipe	EF-60T-125 EF-100T-150		EF-60T-150 EF-100T-199		EF-60T-199 EF-100T-250		EF-100T-300	
	Power Direct Vent	Power Vent	Power Direct Vent	Power Vent	Power Direct Vent	Power Vent	Power Direct Vent	Power Vent
Max. Intake Length	85 ft. (25.9m)	N/A N/A	75 ft. (22.3m)	N/A N/A	65 ft. (19.8m)	N/A N/A	55 ft. (16.8m)	N/A N/A
Max. Exhaust Length	85 ft. (25.9m)	170 ft. (51.8m)	75 ft. (22.3m)	150 ft. (45.7m)	65 ft. (19.8m)	130 ft. (39.6m)	55 ft. (16.8m)	110 ft. (33.5m)

6" (152mm) Vent Pipe	EF-60T-125 EF-100T-150		EF-60T-150 EF-100T-199		EF-60T-199 EF-100T-250		EF-100T-300	
	Power Direct Vent	Power Vent	Power Direct Vent	Power Vent	Power Direct Vent	Power Vent	Power Direct Vent	Power Vent
Max. Intake Length	85 ft. (25.9m)	N/A N/A	75 ft. (22.3m)	N/A N/A	65 ft. (19.8m)	N/A N/A	60 ft. (18.3m)	N/A N/A
Max. Exhaust Length	85 ft. (25.9m)	170 ft. (51.8m)	75 ft. (22.3m)	150 ft. (45.7m)	65 ft. (19.8m)	130 ft. (39.6m)	60 ft. (18.3m)	120 ft. (36.6m)

Air intake cannot exceed exhaust by more than 30 ft. (9.1m) in any venting situation. Subtract 5 ft. (1.5m) for each additional 90° elbow.

## eF Series® Optional Equipment Features:

**Common Vent Exhaust Kit PVC/CPVC** ..... p/n 415-54696-00

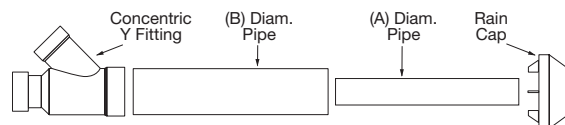
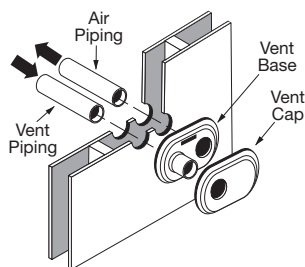
**Common Vent Exhaust Kit Polypropylene** ..... p/n 415-54697-00

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

**Optional Condensate Neutralizer Kit** ..... p/n A2123601 (125,000 - 250,000 BTU/Hr.)  
p/n A2123609 (300,000 BTU/Hr.)

**BACnet® Gateway Kit** ..... p/n 415-53943-00

**Low Inlet Gas Pressure Option**—Pre-assembled to allow operation with natural gas inlet pressure down to 3.5" (89mm) w.c. (Not available on EF-100T-300E-3N(A) models or any size propane models.)



2", 3" and 4" Concentric Vent Kits Part Identification

Concentric Vent Size	(A)	(B)
4 in. (102mm)	4.5 in. (114mm)	6.6 in. (168mm)
3 in. (76mm)	3 in. (76mm)	4.5 in. (114mm)
2 in. (51mm)	2.5 in. (64mm)	3.5 in. (90mm)

Appliance Numbers Approved for Concentric Termination Kits

Description	Part Number	IPEX System	IPEX Part Number
2" (51mm) Concentric Termination	415-44069-02	636	196005 (PVC), 197040 (CPVC)
3" (76mm) Concentric Termination	415-44069-01	636	196006 (PVC), 197009 (CPVC)
4" (102mm) Concentric Termination	—	636	196021 (PVC), 197021 (CPVC)

Low Profile Termination Kit Model Numbers				
Description	Pipe O.D.	Hole Spacing (ctr to ctr)	IPEX System	IPEX Part Number
2" (51mm) Low Profile	2.36" (60mm) Low Profile	5.6" (142mm)	636	196050
3" (76mm) Low Profile	3.5" (89mm) Low Profile	5.6" (142mm)	636	196985
4" (102mm) Low Profile	4.5" (114mm) Low Profile	5.6" (142mm)	636	196986

# Commercial Gas High Efficiency Water Heater

## eF Series® Models

NATURAL AND LIQUID PROPANE GAS

Meet or exceed ASHRAE 90.1 (latest edition). C.E.C. Listed

Model Number	Rated Nominal Volume	BTU/Hr. Input	Therm. Eff.	A Floor to Exhaust Conn. in.	B Jacket Dia. in.	C Vent Size in.	D Floor to T&P Conn. in.	E Floor to Gas Conn. in.	F Floor to Top of Heater in.	H Depth in.	J Floor to Air Intake Conn. in.	K Floor to Cold Water Conn. in.	L Floor to Hot Water Conn. in.	Water Conn. NPT in.	Gas Conn. Size in.	Relief Valve Open in.	Approx. Shipping Weight lbs.
★ EF-60T-125E-3N(A)	60 50	125,000	96.0	5	28 1/4	3	39 1/16	53 1/4	57	28 1/4	51 5/8	12 7/8	42 1/4	1 1/2	3/4	3/4	570
EF-60T-150E-3N(A)	60 50	150,000	93.0	5	28 1/4	3	39 1/16	53 1/4	57	28 1/4	51 5/8	12 7/8	42 1/4	1 1/2	3/4	3/4	570
EF-60T-199E-3N(A)	60 50	199,999	92.0	5	28 1/4	3	39 1/16	53 1/4	57	28 1/4	51 5/8	12 7/8	42 1/4	1 1/2	3/4	3/4	570
★ EF-100T-150E-3N(A)	100 83	150,000	97.0	5	28 1/4	3	60 1/16	74 1/4	77 5/8	28 1/4	73 1/8	12 7/8	62 1/4	1 1/2	3/4	3/4	900
★ EF-100T-199E-3N(A)	100 83	199,999	97.0	5	28 1/4	3	60 1/16	74 1/4	77 5/8	28 1/4	73 1/8	12 7/8	62 1/4	1 1/2	3/4	3/4	900
★ EF-100T-250E-3N(A)	100 83	250,000	96.0	5	28 1/4	3	60 1/16	74 1/4	77 5/8	28 1/4	73 1/8	12 7/8	62 1/4	1 1/2	3/4	1	900
EF-100T-300E-3N(A)	100 83	300,000	92.0	5	28 1/4	3	60 1/16	74 1/4	77 5/8	28 1/4	73 1/8	12 7/8	62 1/4	1 1/2	3/4	1	900

Model Number	Rated Nominal Volume	kW/Hr. Input	Therm. Eff.	A Floor to Exhaust Conn. mm.	B Jacket Dia. mm.	C Vent Size mm.	D Floor to T&P Conn. mm.	E Floor to Gas Conn. mm.	F Floor to Top of Heater mm.	H Depth mm.	J Floor to Air Intake Conn. mm.	K Floor to Cold Water Conn. mm.	L Floor to Hot Water Conn. mm.	Water Conn. NPT mm.	Gas Conn. Size mm.	Relief Valve Open mm.	Approx. Shipping Weight kgs.
★ EF-60T-125E-3N(A)	227	36.6	96.0	127	718	76	992	1353	1448	718	1303	327	1073	38	19	19	259
EF-60T-150E-3N(A)	227	43.9	93.0	127	718	76	992	1353	1448	718	1303	327	1073	38	19	19	259
EF-60T-199E-3N(A)	227	58.6	92.0	127	718	76	992	1353	1448	718	1303	327	1073	38	19	19	259
★ EF-100T-150E-3N(A)	379	43.9	97.0	127	718	76	1526	1886	1972	718	1857	327	1581	38	19	19	408
★ EF-100T-199E-3N(A)	379	58.6	97.0	127	718	76	1526	1886	1972	718	1857	327	1581	38	19	19	408
★ EF-100T-250E-3N(A)	379	73.2	96.0	127	718	76	1526	1886	1972	718	1857	327	1581	38	19	25	408
EF-100T-300E-3N(A)	379	87.9	92.0	127	718	76	1526	1886	1972	718	1857	327	1581	38	19	25	408

For propane gas models change suffix "N" to "X" and remove "E" from the model number. **Example:** EF-100T-150-3X

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

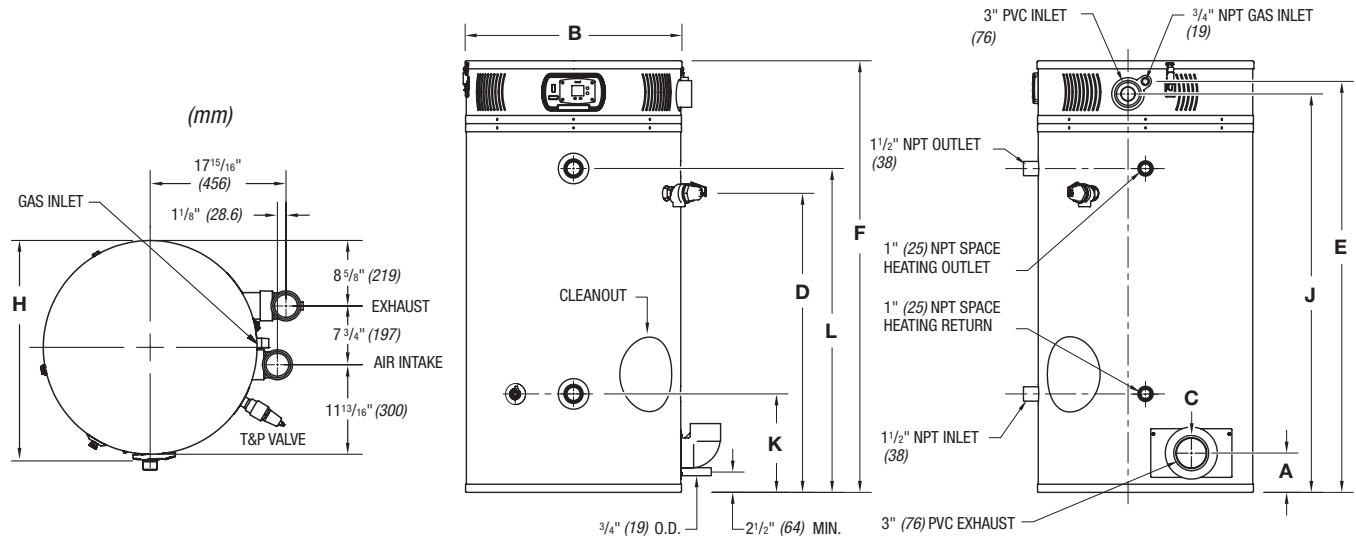
**Example:** EF-60T-125E-3NA (Note: The weight is the same for both ASME and Non-ASME models.)

For 5 year warranty models, change suffix "3" to "5" **Example:** EF-100T-300E-5N

All models comply with the latest ultra-low NOx requirements of 14 ng/J or less for natural gas and 77ppm NOx or less for liquid propane. 14.0" (357mm) w.c. maximum static, 4.5" (114mm) w.c. minimum running (recommnd 7.0" (178mm) w.c. minimum running).

The water heater must be wired to 120VAC, 60Hz, 15A power supply.

★ = ENERGY STAR® models available.



Note: Diagrams are for both 60 (227 L) and 100 (379 L) gallon models.

## 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-60T-125E-3N(A)	485	364	291	242	208	182	162	145	132	120	112	104	1836	1378	1102	916	787	689	613	549	500	458	424	394
EF-60T-150E-3N(A)	564	423	338	282	242	211	188	169	154	141	130	121	2135	1601	1279	1067	916	799	712	640	583	534	492	458
EF-60T-199E-3N(A)	740	558	444	370	317	277	247	223	202	185	171	159	2801	2112	1681	1401	1200	1049	935	844	765	700	647	602
EF-100T-150E-3N(A)	588	441	353	294	252	220	196	176	160	147	136	126	2226	1669	1336	1113	954	833	742	666	606	556	515	477
EF-100T-199E-3N(A)	784	588	470	392	336	294	261	235	214	196	181	168	2968	2226	1779	1484	1272	1113	988	890	810	742	685	636
EF-100T-250E-3N(A)	970	727	582	485	416	364	323	291	264	242	223	208	3672	2752	2203	1836	1575	1378	1223	1102	999	916	844	787
EF-100T-300E-3N(A)	1115	836	669	558	478	418	372	335	304	279	257	239	4221	3165	2532	2112	1809	1582	1408	1268	1151	1056	973	905

# 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 with Microban® antimicrobial technology and shall have a bolted hand hole cleanout. The tank shall have two powered anode rods. 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 2", 3", 4" or 6" (51mm, 76mm, 107mm or 152mm) PVC, CPVC, Polypropylene, or Stainless Steel vent pipe (ULC-S636 Standard). Common venting options with approved kits. 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 design-certified by CSA International (formerly AGA/CGA) to ANSI standard Z21.10.3, 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 (115V AC required), 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.***

**Customer Service / Sales: 1-866-690-0961 / 905-203-0600**  
**24/7 Technical Support: 800-334-3393 ■ Email [techserv@bradfordwhite.com](mailto:techserv@bradfordwhite.com)**

**Built to be the Best®**