

# Commercial eF Series® Ultra High Efficiency Gas Water Heater

## The eF Series® Models feature:



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

### FEATURING:



- **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.
- **Certified Green Product™ Models available.**
- **Vitraglas® 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.
- **ICON HD®**—Intelligent proven design combines temperature control, diagnostic codes, and system ignition functions into a single control board with a digital LCD display.
  - **BMS Integration**—Via Modbus standard, BACnet® compatible via gateway kit.\*
  - **Operation Mode**—Two different digitally displayed operation modes have the capability of adjusting the temperature setting up to 180°F (82°C), for sanitizing capability 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.
- **Protective Powered Anodes**—Two anode rods provide added protection against corrosion for long-term, trouble-free service.
- **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.
  - **Direct Spark Ignition**—For improved operational dependability and durability.
- **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, 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® 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.
- **Hydrojet® Sediment Reduction System**—Factory Installed.
- **A Single Exhaust Pressure Switch.**
- **1" (25mm) NPT Side Connections for Space Heating.**
- **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 5 Kits Available**—To meet sanitation and public health requirements when applicable.
- **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.

# 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<br>EF-100T-150 |               | EF-60T-199<br>EF-100T-199 |               | 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. |            |
|---------------------|-------------------|---------------|---------------------------|---------------|---------------------------|---------------|--|------------|
|                     | Power Direct Vent | Power Vent    | Power Direct Vent         | Power Vent    | Power Direct Vent         | Power Vent    | Power Direct Vent  | Power Vent |
| Max. Intake Length  | 15 ft. (4.6m)     | N/A           | 15 ft. (4.6m)             | N/A           | 15 ft. (4.6m)             | N/A           | 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<br>EF-100T-150 |                 | EF-60T-150<br>EF-100T-199 |                 | EF-60T-199<br>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             | 50 ft. (15.2m)            | N/A             | 40 ft. (12.2m)            | N/A            | 30 ft. (9.2m)     | 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<br>EF-100T-150 |                 | EF-60T-150<br>EF-100T-199 |                 | EF-60T-199<br>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             | 75 ft. (22.3m)            | N/A             | 65 ft. (19.8m)            | N/A             | 55 ft. (16.8m)    | 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) |

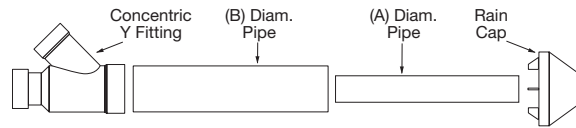
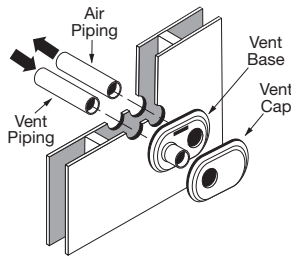
  

| 6" (152mm) Vent Pipe | EF-60T-125<br>EF-100T-150 |                 | EF-60T-150<br>EF-100T-199 |                 | EF-60T-199<br>EF-100T-250 |                 | EF-100T-300       |                 |
|----------------------|---------------------------|-----------------|---------------------------|-----------------|---------------------------|-----------------|-------------------|-----------------|
|                      | 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             | 75 ft. (22.3m)            | N/A             | 65 ft. (19.8m)            | N/A             | 60 ft. (18.3m)    | 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) |

## 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" 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)  |

| Low Profile Termination Kit Model Numbers |                          |                           |                           |                  |
|---|--------------------------|---------------------------|---------------------------|------------------|
| Description                               | Pipe O.D.                | Hole Spacing (ctr to ctr) | IPEX System (1738 or 636) | IPEX Part Number |
| 2" (51mm) Low Profile                     | 2.36" (60mm) Low Profile | 5.6" (142mm)              | 636                       | 196050           |
| 2" (51mm) Low Profile                     | 2.36" (60mm) Low Profile | 5.6" (142mm)              | 1738                      | 397984           |
| 3" (76mm) Low Profile                     | 3.5" (89mm) Low Profile  | 5.6" (142mm)              | 636                       | 196985           |
| 3" (76mm) Low Profile                     | 3.5" (89mm) Low Profile  | 5.6" (142mm)              | 1738                      | 397985           |
| 4" (102mm) Low Profile                    | 4.5" (114mm) Low Profile | 5.6" (142mm)              | 636                       | 196986           |
| 4" (102mm) Low Profile                    | 4.5" (114mm) Low Profile | 5.6" (142mm)              | 1738                      | 397086           |

| Appliance Numbers Approved for Concentric Termination Kits |              |                           |                             |
|--|--------------|---------------------------|-----------------------------|
| Description  | Part Number  | IPEX System (1738 or 636) | IPEX Part Number            |
| 2" (51mm) Concentric Termination                           | 415-44069-02 | 636                       | 196005 (PVC), 197040 (CPVC) |
| 2" (51mm) Concentric Termination                           | —            | 1738                      | 397005                      |
| 3" (76mm) Concentric Termination                           | 415-44069-01 | 636                       | 196006 (PVC), 197009 (CPVC) |
| 3" (76mm) Concentric Termination                           | —            | 1738                      | 397006                      |
| 4" (102mm) Concentric Termination                          | —            | 636                       | 196021 (PVC), 197021 (CPVC) |
| 4" (102mm) Concentric Termination                          | —            | 1738                      | 397021                      |

# 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. |
|----------------------|----------------------|-----------|---------------|---------------|------------------------------|-------------------|-----------------|--------------------------|--------------------------|------------------------------|-------------|---------------------------------|---------------------------------|--------------------------------|---------------------|--------------------|-----------------------|------------------------------|
|                      | U.S. Gal.            | Imp. Gal. |               |               |                              |                   |                 |                          |                          |                              |             |                                 |                                 |                                |                     |                    |                       |                              |
| ★ 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 3/8                          | 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 3/8                          | 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 3/8                          | 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 3/8                          | 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. |
|----------------------|----------------------|--|--------------|---------------|------------------------------|-------------------|-----------------|--------------------------|--------------------------|------------------------------|-------------|---------------------------------|---------------------------------|--------------------------------|---------------------|--------------------|-----------------------|------------------------------|
|                      | Liters               |  |              |               |                              |                   |                 |                          |                          |                              |             |                                 |                                 |                                |                     |                    |                       |                              |
| ★ 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.)

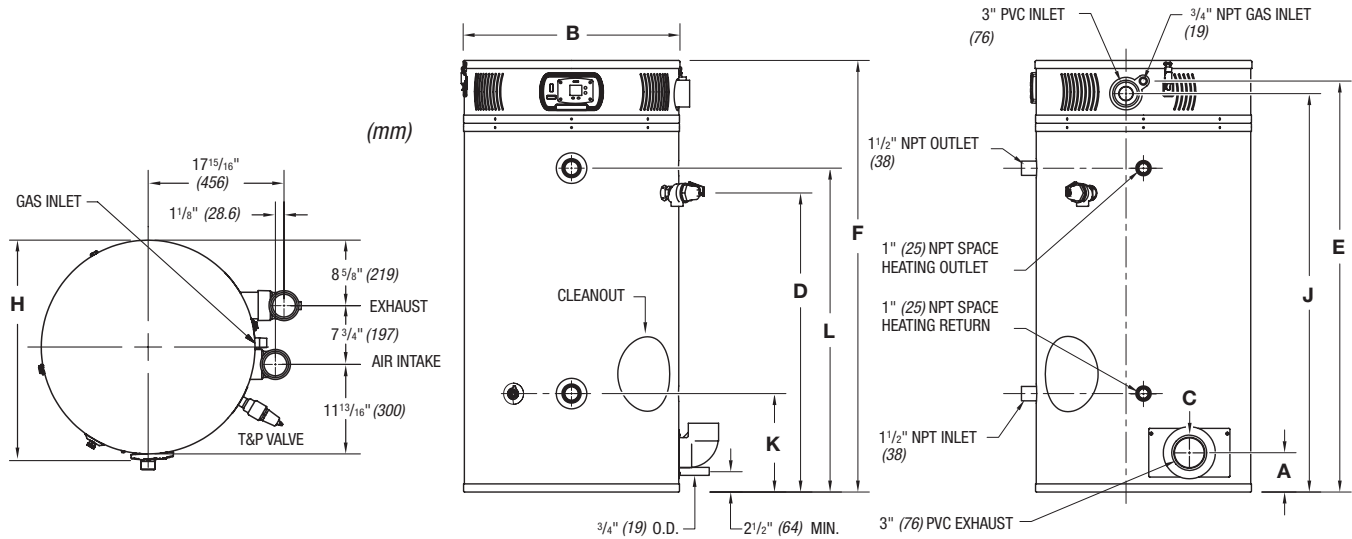
For 5 year warranty models, change suffix "3" to "5" **Example:** EF-100T-300E-5N

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" w.c. maximum static, 4.5" w.c. minimum running (recommend 7.0" w.c. minimum running).

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

★ = ENERGY STAR® models available.  • = Certified Green Product™ Models available.



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

| Model Number       | Recovery Data                |      |      |      |      |      |      |       |       |                              |       |       |      |      |      |      |      |      |      |      |      |      |      |      |
|--------------------|------------------------------|------|------|------|------|------|------|-------|-------|------------------------------|-------|-------|------|------|------|------|------|------|------|------|------|------|------|------|
|                    | 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  |



## 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, Stainless Steel, or ABS vent pipe. 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.***

— BRADFORD WHITE IS —



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Products made by Bradford White are manufactured in the United States using the finest raw materials and components from around the world.

**Built to be the Best**