

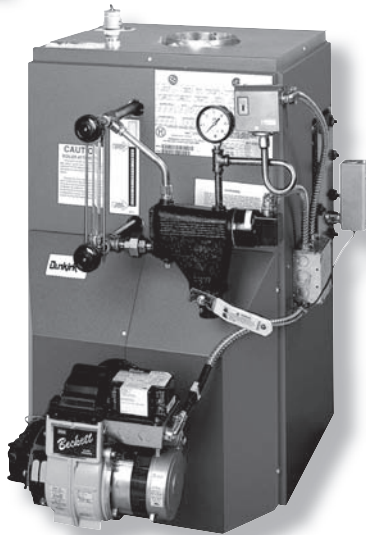


## Empire Steam II Oil-Fired Steam Boiler

P/N# 240005692, Rev. 1.0 [10/05]



**SPECIFICATIONS AND PERFORMANCE**



**84% AFUE  
Efficiency**

### Available Heating Inputs of:

91 MBH through 385 MBH

▲ **Application** – The Empire Steam II oil-fired steam boiler delivers high efficiency, reliability and ease of maintenance for homes requiring oil-fired heat. It is available with heating inputs of 91, 140, 175, 210, 245, 280, 315, and 385 MBH and an AFUE of 84% providing increased energy savings resulting in lower fuel bills. The boiler's wet-based design helps overall efficiency by enclosing the combustion chamber with water on all five sides therefore maximizing heat transfer. With the potential savings this represents, the Empire Steam II can pay for itself in a few short years. All boilers are factory-assembled with controls, wiring and provide a choice of quality burners to suit individual needs and a tankless water heater option. The smart design combined with quality components result in lower operating costs, making the Empire Steam II an ideal replacement choice.

▲ **Approvals** – The cast iron boiler assembly is manufactured and tested in accordance with American Society of Mechanical Engineers standards (ASME). The Annual Fuel Utilization Efficiencies (AFUE) are based on US DOE test procedures and FTC labeling regulations. AFUE and I=B=R ratings are certified in accordance with standards set by The Hydronics Institute Division of the Gas Appliance Manufacturers Association (GAMA). The boiler has been assigned a New York City Materials and Equipment Acceptance (MEA) 182-86E.

▲ **Warranty** – 12-Year Warranty Covering the entire Heat Exchanger. All of our boilers are backed by Dunkirk's reputation for quality and service to our customers, based on over 75 years of successful hydronic experience.

### FEATURES AND BENEFITS

▲ **Cast Iron Sections & Push Nipples** – The Empire Steam II utilizes cast-iron construction because of its durability and efficient heat transfer capabilities. Cast iron sections and push nipple are utilized to construct the heat exchange. Using only the highest quality cast-iron and heat transfer design, the Empire Steam II is capable of providing many years of efficient and trouble-free operation.

**Benefit:** Cast iron push nipples and sections produce stronger, more water-tight seals than steel push nipples or rubber gaskets.

▲ **Cabinet:**

- Constructed of heavy gauge steel with baked enamel finish
- Raised tankless coil port may be inspected and serviced without jacket removal
- Sturdy cast-iron swing door allows quick, easy inspection of oil burner and combustion area
- Extra large flue ways allow easy cleaning and set-ups
- Integrated two-part draft hood allows easy access through flue way openings
- Recessed target wall eliminates chance of damage during annual maintenance

**Benefit:** All components are easy to reach, significantly reducing the time spent on regular maintenance and service calls.

▲ **Tankless Water Heater (optional)** – Produces hot water for domestic use with a special heating coil. Inspection and service are made easier with the coil's raised port which is accessible without removing the jacket. (Boiler input determines tankless heater output.)

# EMPIRE STEAM II OIL-FIRED STEAM BOILER

## FEATURES AND BENEFITS *Continued*

▲ **High-Performance Burner Options:** The Empire Steam II offers a choice of three manufacturer approved quality oil burners... Beckett (standard), Carlin or Riello.

▲ **Integral Skim Tapping** – An integral skim tapping is added to allow for quick and efficient skimming of the boiler water.

**Benefit:** The pre-threaded outlet makes skimming of the boiler water (a maintenance procedure) easy for the installer.

▲ **Factory Pre-Wired & Tested** – Each Empire Steam II boiler is shipped with controls pre-wired, and is subjected to a series of rigorous quality assurance test to provide quick and easy setup in the field. The Empire Steam II is also available as a Knock Down Boiler for even easier handling in installations with tight access.

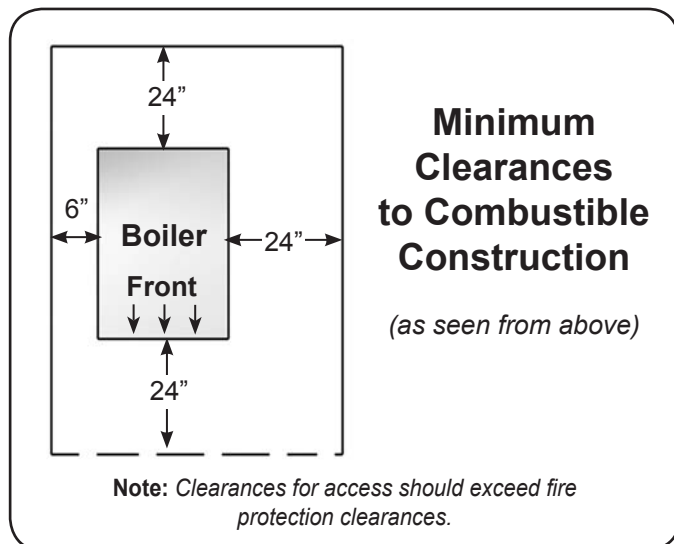
▲ **Pressuretrol** – Operating control prevents the boiler from building pressure levels beyond recommended limits. Also helps deliver quick steam heat by maintaining a minimum boiler pressure.

▲ **Water Sight Glass** – Allows for easy viewing of the boiler's water level.

▲ **Pressure Gauge** – Mounted pressure gauge allows for accurate monitoring of the boiler's operation.

▲ **Low Water Cut-Off** – Provides for safe, reliable operation.

EMPIRE STEAM II SERIES STANDARD EQUIPMENT		OPTIONAL EQUIPMENT
Crated Cast-Iron Boiler	Drain Valve	Carlin Burner
Flush Jacket	Wiring Harness	
Swing-Out Burner Door	Burner Electric Disconnect	Riello Burner
Clean Cut AFG Beckett Burner	Plastic Cover	
Target Wall/Liner	Supply Tapping (Qty. 2 – 2")	Tankless Hot Water Heater and Limit Control
ASME Relief Valve	Return Tapping – 1-1/2"	
Water Level Gauge	Skim Port	
Steam Pressure Gauge	Primary Control	
Steam Pressure Control	Raised Tankless Coil Port for (optional) Tankless Heater Units	
Mechanical Low Water Cut-Off	Coil and Limit Control	

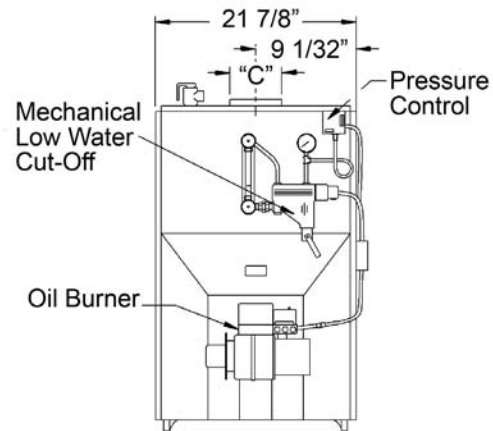
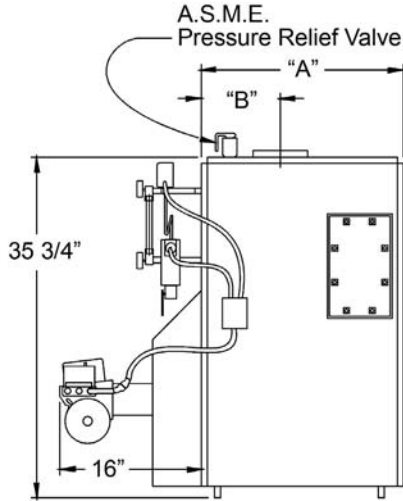


BOILER CLEARANCES		
Unit	Combustible Clearance	Minimum Vent Pipe Clearance
Top	24"	18"
Left Side	6"	
Right Side	24"	
Flue Connector	9"	
Front	24"	
Back	24"	

*All distances measured from the cabinet of the boiler.*

# EMPIRE STEAM II OIL-FIRED STEAM BOILER RATINGS & CAPACITIES

Due to ongoing development specifications and dimensions are subject to change without notice.



EMPIRE STEAM II										RATINGS & CAPACITIES						
OIL-FIRED STEAM BOILERS																
Boiler Model Number <sup>1</sup>	Tankless Water Heater Capacities			I=B=R Oil Burner Input <sup>2</sup>		D.O.E. Heating Capacity MBH <sup>4</sup>	I=B=R Oil Burner Input <sup>3, 4</sup>		Pump Press. PSI	Nozzle Furnished 140 PSID <sup>5</sup>	A.F.U.E	Dimensions (Inches)			Chimney Size	
	Heater No.	Intermittent Draw G.P.M.	Boiler Water Content Gallons	G.P.H.	MBH		Steam MBH	Sq. Ft. Steam				A	B	C		
ESB0365	L-24	Available on Request	11	0.65	91	78	59	246	140	.60 80° B	84.0	16 3/8	6 1/2	6	8"x8"15'	
ESB3100				1.00	140	116	87	363		.85 80° B	81.5					
ESB4125		4.5	13	1.25	175	145	109	454		1.10 80° B	82.5	20 1/4	8 1/2			
ESB4150				1.50	210	170	128	533		1.25 80° B	81.0					
ESB5175			5.0	15	1.75	245	202	152		633	1.50 80° BH	83.0	23 7/8	10 1/4		7
ESB5200					2.00	280	227	170		708	1.75 70° BH	82.0				
ESB6225					17	2.25	315	251		188	783	2.00 45° B	-	27 1/2		8 5/16
ESB7275			19	2.75	385	307	230	958		2.25 45° B	-	31 1/8				

1. Add suffix "T" to denote boiler with tankless heater.  
 2. I=B=R burner capacity is based on an oil heating value of 140,000 Btu/gal. and with 13% CO<sub>2</sub>.  
 3. Net rating based on 170°F temperature in radiators and include 33% allowance for normal piping and pick-up load. Consult manufacturer for unusual piping and pick-up requirements.  
 4. For altitudes above 2,000 ft., ratings may be reduced t the rate of 4% for every 1,000 ft. above sea level.  
 5. Nozzle sizes with an H designation are Hago brand all others are Delevan.

Notes: The electrical service is 120 Volts, 15 Amps, 60 Hz  
 The MEA number for the Empire Steam II is 182-86E.  
 The MEA number for the Empire Steam II using the AFG Beckett Burner is 213-83-E.

FRESH AIR DUCT CAPACITIES THROUGH LOUVERS			
Fresh Air Duct Size	¼" Mesh Screen	Wood Louvers	Metal Louvers
	(Btuh)*	(Btuh)*	(Btuh)*
3-½" x 12"	144,000	36,000	108,000
8" x 8"	256,000	64,000	192,000
8" x 12"	384,000	96,000	288,000
8" x 16"	512,000	128,000	384,000

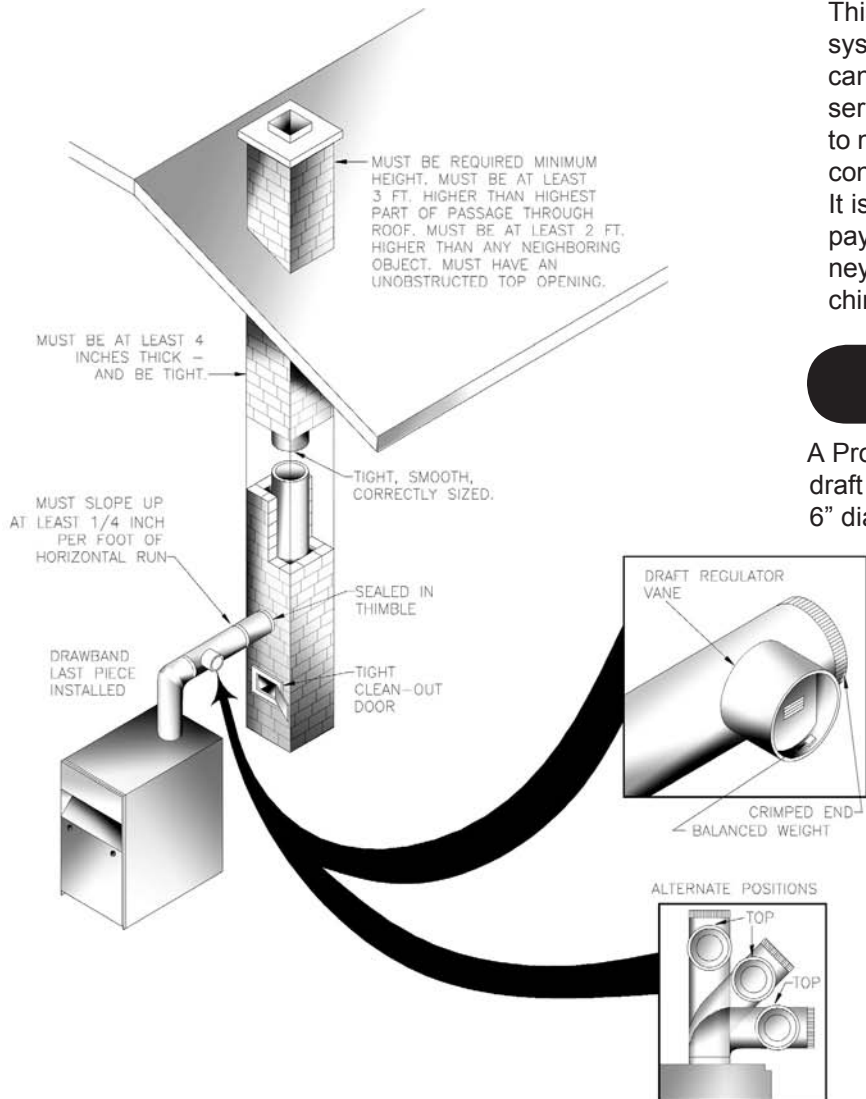
\*Btuh = British Thermal Units per hour based on opening covered by ¼" mesh screen, wood louvers, or metal louvers.

**Note:** Be sure to provide enough fresh air for combustion. Enough air ensures proper combustion and assures that no hazard will develop due to the lack of oxygen.

## BOILER VENTING

For oil-fired boilers for connections to vents or chimneys, vent installations shall be in accordance with applicable provisions of INSTALLATION OF OIL BURNING EQUIPMENT, NFPA-31 - latest revision, and applicable provisions of local building codes.

### TYPICAL CHIMNEY CONNECTION



### CHIMNEY AND CHIMNEY CONNECTIONS

This is a very important part of your heating system. No boiler, however efficient its design, can perform satisfactorily if the chimney that serves it is inadequate. Check your chimney to make certain that it is the right size, properly constructed and in sound condition. It is cheaper to rebuild a poor chimney than to pay excessive fuel bills. If yours is an old chimney, a new steel liner or a new prefabricated chimney may be the best solution.

### CHIMNEY CONNECTOR AND DRAFT REGULATOR

A Properly installed draft regulator will control the draft to the boiler automatically. This will require a 6" diameter chimney connector pipe and the draft regulator packed with the boiler. Locate the draft regulator **as close to the boiler as possible**, also keep in mind that close proximity of the regulator to the chimney reduces noise.

**Maintain a minimum vent pipe clearance of 18" from the surface of the vent to wood and other combustible materials.**

RECOMMENDED MINIMUM CHIMNEY SIZES				
Firing Rate (gph)	Chimney Height (ft)	Nominal Chimney	Round Liner-Inside	Square Liner-Inside
0.60 - 1.30	15	8" x 8"	6"	6-3/4" x 6-3/4"
1.31 - 1.80	15	8" x 8"	7"	6-3/4" x 6-3/4"
1.81 - 2.00	20	8" x 8"	8"	6-3/4" x 6-3/4"

*For elevations above 2,000 feet above sea level, add 3 feet to the chimney heights.*



85 Middle Rd.  
Dunkirk, NY 14048  
<http://www.dunkirk.com>