



**RESIDENTIAL  
PRODUCT SPECIFICATIONS**

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April 2020  
Supersedes March 2018 2015



**AFUE up to 86.5%**  
**Heating Input - 91,000 to 245,000 Btuh**

**MODEL NUMBER IDENTIFICATION**

**COWB3 - 3**

Series  
COWB3 = Oil-Fired Hot Water Boiler

Number of Sections

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## APPROVALS AND WARRANTY

### APPROVALS

- AHRI Certified
- Annual Fuel Utilization Efficiencies based on US DOE test procedures and FTC labeling regulations
- Certified by CSA International
- Boiler heat exchanger assemblies are constructed and hydrostatically tested in accordance with American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Section IV Standards for cast iron heating boilers

### WARRANTY

- Cast iron boiler assembly:
  - Limited twenty years in residential applications only
  - Limited one year in non-residential applications
- All other covered components:
  - Limited five-years in residential applications
  - Limited one year in non-residential installations

**NOTE** - Refer to Lennox Equipment Limited Warranty certificate included with unit for specific details.

## FEATURES

### APPLICATIONS

- Six models with heating inputs of 105,000 to 245,000 Btuh
- AFUE - Up to 85.2%
- May be used in a wide variety of applications including radiant floor heating, baseboard heating and zoned heating systems
- Compact size allows easy installation in a basement or utility room
- Each unit factory test operated to ensure proper operation

### HEATING SYSTEM

#### Beckett Oil Burner

- High-pressure atomizing type burner blends oil and air for maximum efficiency
- Permanent split capacitor (PSC) motor drives blower wheel and fuel pump
- Flame retention head designed to agitate and mix oil and air for complete combustion and highest efficiency
- 10,000 volt ignition transformer and ceramic glazed electrodes which provide a safe, continuous flame

- Cadmium sulfide cell flame detector and primary safety control provides complete shutdown in case of flame failure
- Interrupted-duty primary control features 15 second prepurge and limited recycle and limited reset controls
- All burner parts are easily removed for servicing
- Burner is certified according to ANSI Standard 296.6
- Factory installed in the unit, wired and tested
- Shipped with nozzle

**NOTE** - Nozzle must be field installed.

- Burner mounted swing door allows complete access to combustion chamber and burner end cone for set-up, maintenance and cleaning
- Eliminates complete burner removal
- Solenoid delay oil valve ensures positive fuel shut-off and eliminates "after-drip"
- Also provides improved burner operation, cleaner combustion and quiet operation

## FEATURES

### **HEATING SYSTEM (continued)**

#### **Cast Iron Boiler Assembly**

- Boiler sections and push nipples constructed of long life cast iron
- Boiler sections and push nipples expand and contract together, providing positive watertight seal
- Thermal pin design increases heat transfer efficiency
- Wet base design allows water circulation over complete heat exchanger surface for maximum heat transfer
- Boiler components are easily accessible for cleaning and servicing
- Target wall of combustion chamber is constructed of vacuum formed refractory ceramic fiber allowing maximum high temperatures for more complete combustion and higher efficiencies
- Peephole in the cast iron burner swing door allows flame inspection
- Jacket attaches directly to cast iron heat exchanger for increased stability when handling product

#### **Water Circulating Pump (Not Furnished in Canada)**

- Constructed of cast iron
- Bronze isolation ball type valves on inlet and outlet of pump eliminate need to drain system if pump servicing is required
- Pump motor is impedance protected
- Motor and impeller is removeable as a single unit for servicing
- Pump is shipped wired to boiler ready for field installation in a supply side pumping mode

#### **Relief Valve**

- Furnished as standard for field installation in rear of cabinet
- Valve provides for pressure relief of heating system in case of abnormal operating conditions
- Valve opens at 30 psig
- ASME approved

#### **Brass Drain Valve**

- 3/4 in. brass drain valve is furnished for field installation in drain outlet on front of cabinet
- See dimension drawing for location

### **Optional Accessories**

#### **Tankless Hot Water Coil**

- Tankless water heater coil supplies a moderate amount of instantaneous hot water for kitchen, bath and laundry usage
- Limit control is factory wired for field installation on tankless coil control well to maximize hot water heating performance for instantaneous heating
- Raised coil port extends through jacket to allow easy servicing and inspection of tankless coil without removing panels
- Water line connections are furnished on side of boiler cabinet
- See dimension drawing

### **VENTING**

#### **Barometric Draft Control**

- Furnished as standard equipment for field installation in flue pipe

#### **Flue Brush**

- Furnished with unit for cleaning flue passageways

### **CONTROLS**

#### **High Limit and Circulator Relay Control**

- Factory installed, immersion type limit control for protection against abnormal operating conditions
- Control monitors water temperature and delays burner start-up until any residual heat has been utilized first
- Thermal purge logic measures rate of temperature change inside the boiler and delays burner firing accordingly
- Maximizes efficiency by operating burner only when needed
- **Operation with optional Tankless Hot Water Coil** - Low Limit Control seeks maximum temperature to satisfy domestic hot water call bypassing thermal purge logic
- Limit control is adjustable from 140°F to 240°F
- Circulator relay operates pump during thermostat demand
- **Display LEDs** - Three, seven segment LEDs display alpha-numeric information related to diagnostics as well as system operation and status
- Diagnostic codes are held in non-volatile memory, immune from power interruption
- Factory installed on front of cabinet

#### **Combination Temperature/Pressure Gauge**

- Located on top of unit cabinet
- Monitors system for safe and reliable operation

### **Optional Accessories**

#### **Thermostat**

- Thermostat is not furnished with unit
- Lennox Price Book for selection

### **CABINET**

- Heavy gauge steel
- Baked-on enamel paint finish
- Fully insulated with fiberglass insulation to keep cabinet surface temperatures low
- Controls factory installed on cabinet
- Top and front cabinet access allows easy cleaning and servicing of unit

## SPECIFICATIONS

Model No.		COWB3-3			COWB3-4			COWB3-5	
<b>Oil Heating Performance</b>	<sup>1</sup> Input - U.S. gallons oil/hour	0.65	0.75	1.00	0.90	1.25	1.50	1.20	1.75
	Input - mBtuh	91	105	140	126	175	210	168	245
	<sup>2</sup> Output - mBtuh	80	92	120	111	151	179	147	210
	<sup>3</sup> Net AHRI I=B=R rating - Btuh	70	80	104	97	131	156	128	183
	<sup>4</sup> AFUE	86.3%	85.2%	84.0%	86.0%	85.0%	84.0%	86.5%	84.3%
<b>Boiler</b>	Number of boiler sections	3	3	3	4	4	4	5	5
	Net boiler heating surface - sq. ft.	18.54			25.16			31.78	
	Boiler capacity - U.S. gallons	9.6			11.6			13.7	
<b>Oil Burner Pump</b>	Factory setting 100 psi	1 stage			1 stage			1 stage	
<b>Connections in.</b>	Oil piping size N.P.T.	1/4			1/4			1/4	
	Flue size diameter	6			6			6	
	Water supply size N.P.T.	1-1/4			1-1/4			1-1/4	
	Water return size N.P.T.	1-1/4			1-1/4			1-1/4	
	Drain connection size N.P.T.	3/4			3/4			3/4	
<b>Shipping Data - lbs. (1 package)</b>		492			575			673	
<b>Electrical characteristics</b>		120 volts - 60 hertz - 1 phase (less than 12 amps)							

## OPTIONAL ACCESSORIES

See Lennox Price Book For Complete Listing of Optional Accessories

<sup>5</sup> Tankless Water Heater		Catalog Number	27M20							
	<sup>1</sup> Input - U.S. gallons oil/hour		0.65	0.75	1.00	0.90	1.25	1.50	1.20	1.75
	U.S. gallons/min		2.90	3.00	3.25	3.15	3.50	3.75	3.75	4.00

NOTE - Circulating pump is not furnished in Canada and must be field supplied.

<sup>1</sup> Based on 140,000 Btuh per gallon.

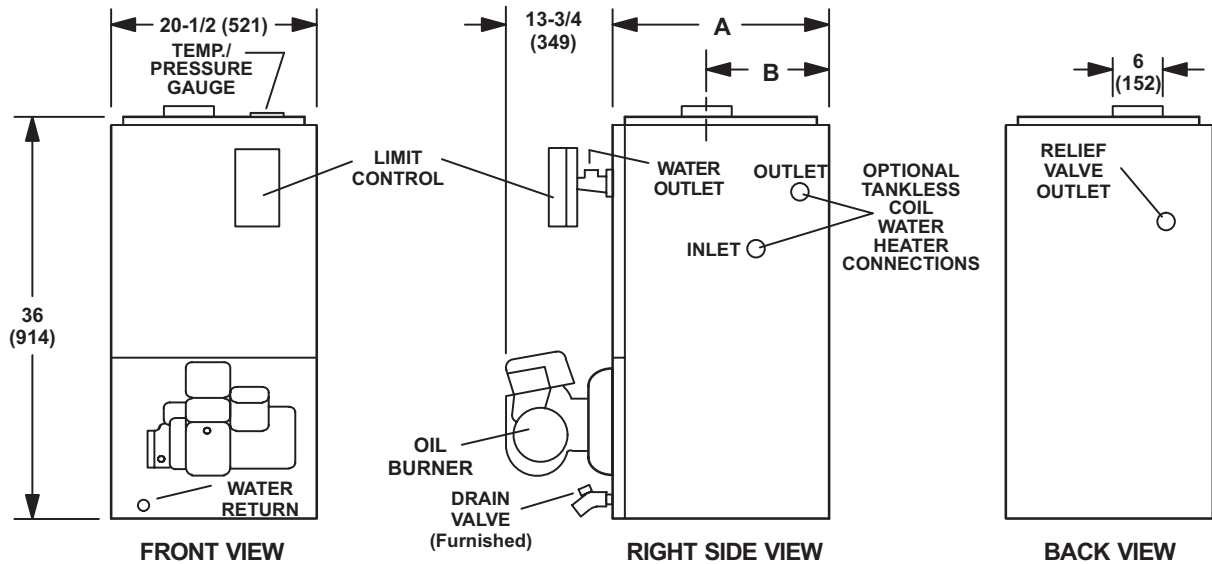
<sup>2</sup> Heating capacity based on 13% CO<sub>2</sub> with 0.02 in. w.g. draft over fire and #1 smoke or less.

<sup>3</sup> Net AHRI ratings indicate the amount of equivalent direct radiation each boiler will produce under normal conditions and thermostatic control. Ratings based on an allowance of 1.15 in accordance with the factors shown on the I=B=R Standard as published by The Hydronics Institute. Selection of boiler size should be based on "Net I=B=R Rating" being equal to or greater than the calculated heat loss of the building.

<sup>4</sup> Annual Fuel Utilization Efficiency based on U.S. DOE test procedures and FTC labeling regulations.

<sup>5</sup> Water heated from 40°F to 140°F with 200°F boiler water temperature, intermittent draw.

## DIMENSIONS



Model No.	A		B	
	in.	mm	in.	mm
COWB3-3	14-1/2	368	8	203
COWB3-4	17-3/4	451	9-5/8	244
COWB3-5	21	533	11-1/2	292

## INSTALLATION CLEARANCES

Side	6 inches (152 mm)
Side with optional tankless coil	18 inches (457 mm)
Rear	6 inches (152 mm)
Top	6 inches (152 mm)
Top (Service)	18 inches (457 mm)
Front	18 inches (457 mm)
Front (Service)	24 inches (610 mm)
<sup>1</sup> Floor	*Non-Combustible
Flue Pipe to Combustible	18 inches (457 mm)

NOTE - If boiler is installed in a confined space, two ventilation openings must be provided into the space; one at least 12 inches (305 mm) from the top and one at least 12 inches (305 mm) from the bottom. Each opening should have a minimum free area of 1 in.2 (645 mm<sup>2</sup>) per 1000 Btu per hour (0.93 kW per hour) (inside air) of the total input rating of all equipment in confined area. For applications with outside air, each opening should have a minimum free area of 1 in.2 (645 mm<sup>2</sup>) per 4000 Btu per hour (1.17 kW per hour) for vertical ducts and 2000 Btu per hour (0.59 kW per hour) for horizontal ducts to the outside.

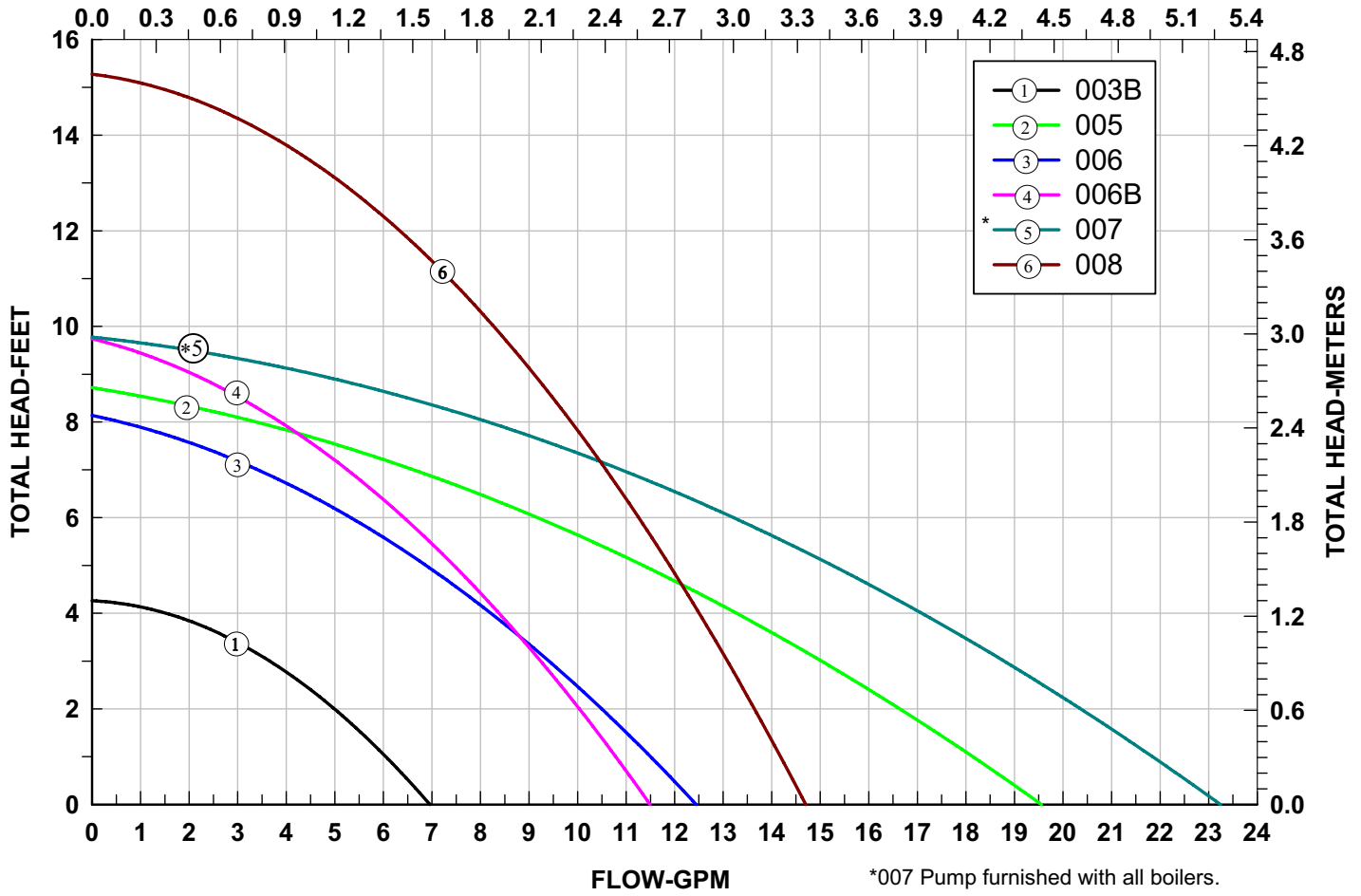
NOTE - In the U.S. flue sizing must conform to the methods outlined in the current National Fuel Gas Code (NFPA 54/ANSI-Z223.1) or applicable provisions of local building codes. In Canada flue sizing must conform to the methods outlined in National Standard of Canada CAN/CSA-B149.1.

<sup>1</sup> Clearance for installation on combustible floor if combustible flooring base (field supplied) is installed between the boiler and the combustible floor.

CIRCULATING PUMP FLOW RATE



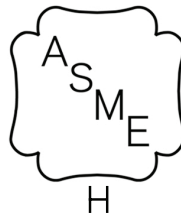
FLOW-M3/H





## REVISIONS

Section	Description
Specifications	Updated to show all inputs and heating performance.



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Contact us at 1-800-4-LENNOX

NOTE - Due to Lennox' ongoing commitment to quality, Specifications, Ratings and Dimensions subject to change without notice and without incurring liability. Improper installation, adjustment, alteration, service or maintenance can cause property damage or personal injury. Installation and service must be performed by a qualified installer and servicing agency.

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