



Gas-Fired Condensing Combination Hot Water Boilers - 60 Hz

RESIDENTIAL
PRODUCT SPECIFICATIONS

Bulletin No. 210920
August 2020



FLOOR MOUNT MODEL

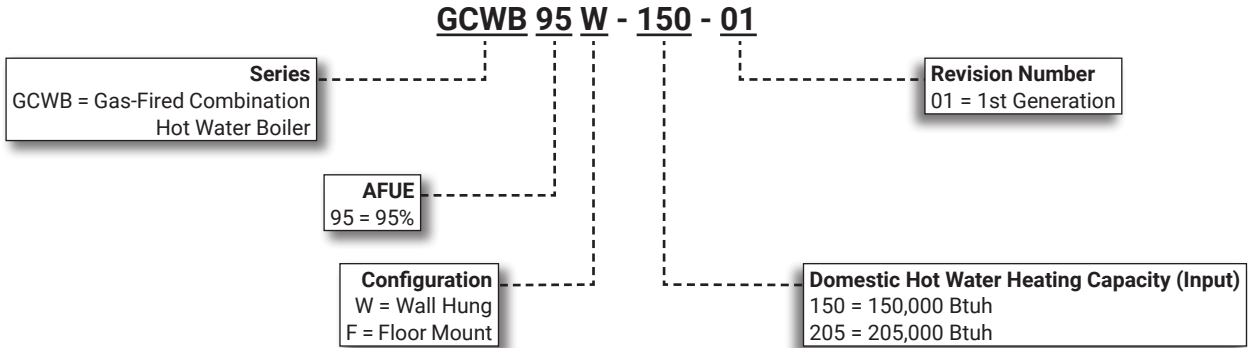


WALL HUNG MODELS



AFUE 95%
Domestic Hot Water Heating Input - 153,000 to 205,000 Btuh
Space Heating Input - 125,000 to 164,000 Btuh

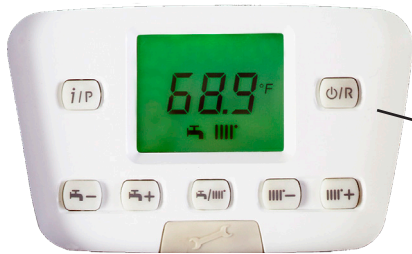
MODEL NUMBER IDENTIFICATION



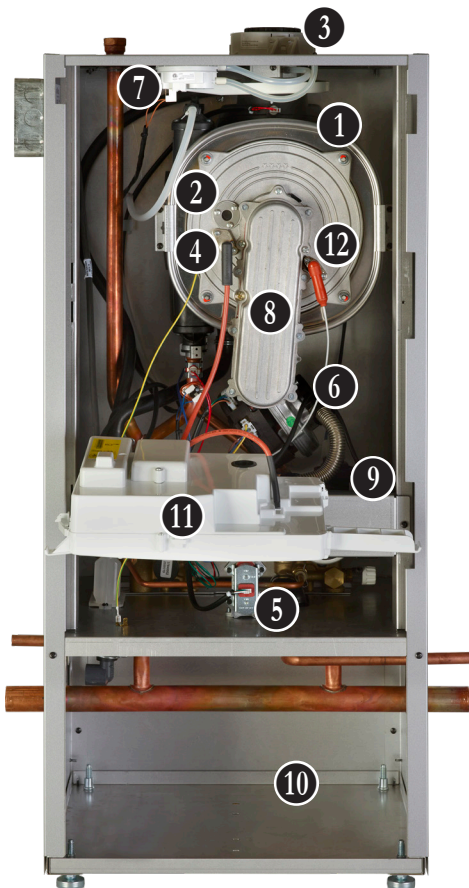
FEATURE HIGHLIGHTS

WALL HUNG MODELS

1. Stainless Steel Heat Exchanger
2. Combustion Sight Glass
3. Coaxial Flue Connector
4. Direct Spark Ignitor
5. Gas Valve
6. Variable Speed Combustion Air Blower
7. Pressure Switch (150 models only)
8. Air/Gas Blend Manifold
9. Load Matching Boiler Pump
10. Heavy Gauge Steel Cabinet
11. Digital Boiler Control (folded down - see detail)
12. Flame Sensor



DIGITAL BOILER CONTROL (All Models)



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APPROVALS AND WARRANTY

APPROVALS

- Design certified by CSA for use with natural gas or LPG/Propane
- Annual Fuel Utilization Efficiencies based on US DOE test procedures and FTC labeling regulations
- Space heating data Certified by AHRI
- 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 stainless steel heating boilers
- ENERGY STAR® certified units are designed to use less energy, help save money on utility bills, and help protect the environment

WARRANTY

- Heat Exchanger:
 - Limited fifteen years in residential installations
 - Limited five years in non-residential installations
- All other covered components:
 - Limited ten year in residential installations
 - Limited one year in non-residential installations

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

FEATURES

APPLICATIONS

- Three models with heating inputs of 150,000 Btuh (wall hung and floor mount) and 205,000 Btuh (wall hung only)
- AFUE - 95%
- Direct spark ignition
- Natural gas or LPG/Propane (no conversion kit required)
- Applications include domestic hot water supply combined with radiant floor heating, baseboard heating or zoned heating systems
- Compact units allow easy mounting on a wall (150 and 205 models) or floor (150 model only) in a closet, alcove, basement or utility room
- All units are completely factory assembled with all controls installed and wired
- Each unit is factory test operated

HEATING SYSTEM

1 Stainless Heat Exchanger Assembly

- Primary stainless steel (316L) heat exchanger
- Stainless steel domestic hot water brazed plate heat exchanger

2 Sight glass on front of heat exchanger permits easy viewing of combustion process

3 Coaxial Flue Connector

- Quick and easy installation of intake and exhaust pipe

Stainless Steel Modulating Burner

- Provides efficient, trouble-free operation

4 Direct Spark Igniter

- Electronic spark igniter provides positive ignition on each operating cycle

Automatic Gas Control

- Silent operating gas controls provide 100% safety shut-off

5 115 volt redundant combination gas control valve combines manual shut off option (On-Off), automatic electric valve (dual) and gas pressure regulation into a compact combination control

- Dual valve design provides double assurance of 100% close off of gas to the burner on each off cycle
- Should a loss of flame occur, the main valve closes, shutting down the unit
- Gas shutoff valve is furnished for installation in gas supply line to gas valve

6 Variable Speed Combustion Air Blower

- Heavy duty blower safely vents flue products
- Motor permanently lubricated
- Ball bearings
- Loss of flame signal prevents unit operation in case of blockage of flue outlet

7 Pressure Switch (150 models only)

- Proves Combustion Air Inducer operation before allowing gas valve to open

8 Air/Gas Blend Manifold

- Mixes air and gas in correct proportion for proper combustion

Polypropylene Flue Condensate Collector

- Corrosion resistant polypropylene flue condensate collector collects flue condensate for disposal through condensate drain on bottom of unit
- Condensate drain trap is included with the unit

9 Load Matching Boiler Pump

- Heavy duty pump is constructed of cast iron
- Pump motor is impedance protected
- Motor and impeller is removable as a single unit for servicing

3-Way Diverter Valve

- Switches between domestic hot water and space heating
- Provides domestic hot water priority operation

Primary/Secondary Manifold

- Facilitates quick connections to heating supply and return piping
- Includes pressure relief safety valve and combination temperature/pressure gauge
- Mounted external to boiler and shipped separately for field installation (Wall Hung Models)
- Mounted internally on the boiler and factory installed (Floor Standing Model)

Combination Temperature/Pressure Gauge

- Furnished for field installation in supply water line

Safety Relief Valve and Air Vent

- Furnished as standard
- Field installed under cabinet on manifold (wall mount)
- Field installed on top of cabinet (floor mount)
- Valve provides for pressure relief of heating system in case of abnormal operating conditions
- Valve opens at 30 psig
- Approved by ASME
- Monitors system for safe and reliable operation

Brass Drain Valve (wall mount)

- 3/4 in. brass drain valve is furnished for field installation in return water line

VENTING

Vent Temperature Sensor

- Loss of flame signal prevents unit operation in case of flue blockage
- Vent temperature sensor is furnished as standard and factory installed on the polypropylene flue condensate collector

FEATURES

CABINET

- 10 • Heavy gauge steel
- Baked-on enamel paint finish
- Front cover slides on and off for easy servicing
- Combustion air and vent connections located on the top of the cabinet

Wall Hung Models

- Condensate drain connection furnished on bottom of cabinet
- Water supply and return connections furnished on bottom of cabinet
- Domestic hot water inlet/outlets furnished on bottom of cabinet
- Knockouts are provided in bottom of cabinet for line and low voltage connections
- See dimension drawing

Floor Mount Models

- Condensate drain connection furnished on bottom of cabinet with access on the left side of cabinet
- Water supply inlet connection is furnished on right side of cabinet
- Water supply outlet connection is furnished on left side of cabinet
- Domestic hot water inlet furnished on right side of cabinet
- Domestic hot water outlet furnished on left side of cabinet
- See dimension drawing

Wall Hanging Support Bracket (wall hung models)

- Furnished with boiler to facilitate hanging boiler on a wall
- Flange on back of boiler cabinet engages support bracket installed on wall for easy mounting
- Mounting hardware furnished

Wiring Junction Box (floor mount models)

- Furnished on left side of cabinet for electrical connections

DIGITAL BOILER CONTROL

Self-commissioning control that auto adjusts to fuel type at start-up

Control features an auto calibration function for correct fuel/air mixture

Continuously monitors combustion and adjusts gas and air flow to optimize combustion and fuel savings

NOTE - For calibration, an analyzer is not required, but recommended.

Senses supply water temperature and adjusts the boiler firing rate to deliver the amount of heat needed

11 Fully Modulating Electronic Control

- Automatically adjusts heat input in increments from 20% to 100% (full input) for greater water temperature control



User Interface Control

- Buttons allow access to the Boiler Status Screens:
 - DHW (Domestic Hot Water) Temperature Adjustment - Plus (+) and Minus (-) buttons
 - CH (Central Heating) Water Temperature Adjustment - Plus (+) and Minus (-) buttons
 - Boiler Operating Information
 - Operating Mode Selection - DHW – DHW & Heating – Heating Only
 - Off – Reset – Exit Menu/Functions

LCD Display

- Displays information about boiler operation, temperature settings and alert codes

Screen Symbols

	Off - Heating and DHW disabled (only boiler frost protection is active)
	Burner lit
	Ignition fault
	DHW (Domestic Hot Water) operating mode enabled
	Boiler/system water pressure low
	Heating mode enabled
	Service required - Call a qualified technician
	Programming menu
	Manually re-settable fault
	Boiler information menu
	Fault in progress
	Set unit of measurement °C °F bar PSI

Refer to Installation Instructions for more detailed information about commissioning, setup and operation.

FEATURES

ADDITIONAL CONTROLS

12 Flame Sensor

- Flame sensitive sensor furnished and factory installed on the heat exchanger
- Prevents unit operation in the event there is a loss of flame or unstable flame

Domestic Hot Water Flow Restrictor

- Factory installed
- 3.5 gpm flow limit (150 models)
- 5 gpm flow limit (205 model)

Low Water Pressure Cutoff Control

- Interrupts power immediately in a low water condition
- Automatically restarts burner on return of water level
- Factory installed and wired

Water Safety Thermostat

- Monitors boiler water temperature in conjunction with the main boiler control to adjust the heat output of the boiler to meet system demands
- Shuts off boiler in case of abnormal supply water temperature

Return Water Temperature Sensor

- Monitors return water temperature

Three-Prong Appliance Cord (Wall Hung models)

- For line voltage connections
- Factory Wired

Terminal Blocks

- For power, thermostat and optional outdoor air sensor connections

Optional Accessories

Outdoor Air Temperature Sensor

- Boiler will automatically adjust water heating temperature based on the outdoor sensor setpoint
- Controls the hot water temperature supplied to radiators, baseboards, radiant slab or panels to provide only as much heat as needed
- As the outdoor temperature drops the boiler target hot water temperature (adjustable) will increase

NOTE - For temperatures below -40°F boiler setpoint will override sensor setpoint. Refer to the Installation Instructions for available settings.

Thermostat

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

SPECIFICATIONS

		Model No.	GCWB95W-150	GCWB95F-150	GCWB95W-205
		Mounting Type	Wall	Floor	Wall
Domestic Hot Water Mode	Heating capacity input	Btuh (Maximum)	153,000	153,000	205,000
		Btuh (Minimum)	22,000	22,000	29,500
	Flow Rate (Min./Max.) @ 70°F temperature rise - GPM		0.5 / 3.5	0.5 / 3.5	0.5 / 5.0
Space Heating Mode	Heating capacity input	Btuh (Maximum)	125,000	125,000	164,000
		Btuh (Minimum)	22,000	22,000	29,500
	Heating capacity output - Btuh		113,000	113,000	153,000
	¹ Net AHRI rating - Btuh		98,000	98,000	133,000
	² AFUE		95%	95%	95%
Connections in.	Coaxial flue size diameter (outside/inside)		4 / 2	4 / 2	5 / 3
	Gas piping size (NPT female)		3/4	3/4	3/4
	Water supply and return size (sweat)		1-1/4	1-1/4	1-1/4
	Domestic hot water inlet/outlet		1/2 sweat	1/2 sweat	3/4 NPT
	Drain connection size		13/16 CPVC Female	3/4 Female NPT	3/4 Female NPT
	Boiler filling connection		External	External	External
Primary boiler volume	Gallons		1	1	1-1/4
Electrical characteristics			120 volts - 60 hertz - 1 phase (less than 12 amps)		
Shipping Data	lbs. - 1 package		103	106	125

OPTIONAL ACCESSORIES

Outdoor Air Temperature Sensor	21A27	21A27	21A27
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¹ Net AHRI ratings indicate the amount of heat each boiler will produce under normal conditions and thermostatic control. AHRI water ratings are based on an allowance of 1.15 in accordance with the factors shown in the Operations Manual of the AHRI Residential Boilers Certification Program.

Selection of boiler size should be based on "Net AHRI Rating" being equal to or greater than the calculated heat loss of the building.

² Heating Capacity and AFUE (Annual Fuel Utilization Efficiency) based on US DOE test procedures and FTC labeling regulations.

INSTALLATION CLEARANCES

	in.	mm
Top	0	0
Top Service	8-5/8	220
Left Side	1-3/4	45
Left Side Service (Floor Mount)	12	305
Right Side	1-3/4	45
Front	0	0
Front Service	17-3/4	450
Back	0	0
Bottom	0	0
¹ Bottom Service (Wall Mount)	10	254
Combustion Air/Vent Piping	0	0
Combustion Air/Vent Piping Service	6	152

¹ Allowance for piping at the bottom of the boiler not included.

NOTE - Air for combustion must conform to the methods outlined in the National Fuel Gas Code (NFPA 54/ANSI-Z223.1) or the National Standard of Canada CAN/CSA-B149.1 "Natural Gas and Propane Installation Code".

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.

PIPE VENT LENGTHS - COAXIAL

NOTE - Includes first elbow and termination.

Boiler Size	150	205	All models
Vent Size	4 in. / 2 in.	5 in. / 3 in.	
Manufacturer	Maximum - ft.		Minimum - ft.
Natalini	32.8	32.8	6
Duravent	27.88	32.8	6
Centrotherm	24.6	32.8	6

NOTES: Coaxial venting can run horizontal or vertical.

45° coaxial elbows are equivalent to 1.64 ft. of straight pipe.

90° coaxial elbows are equivalent to 3.28 ft. of straight pipe.

Coaxial termination is equivalent to 3 ft. of straight pipe.

NOTE - See Installation Instructions for additional details.

PIPE VENT LENGTHS - TWIN

NOTE - Includes first elbow and termination.

Boiler Size	150		205		All - Ft.
	Maximum - ft.				
Vent Size	3 in.	2 in.	3 in.	2 in.	
Intake	49	85	100	85	6
Exhaust	147	85	100	85	6
Combined	196	170	200	170	12

NOTES: Twin pipe venting can run horizontal or vertical.

2 inch 45° single wall elbows are equivalent to 3 ft of straight pipe.

3 inch 45° single wall elbows are equivalent to 0.82 ft of straight pipe.

2 inch 90° single wall elbows are equivalent to 5 ft of straight pipe

3 inch 90° single wall elbows are equivalent to 1.64 ft of straight pipe

NOTE - See Installation Instructions for additional details.

PIPE VENT LENGTHS - FLEXIBLE

3 inch Pipe	Boiler Size	150		205	
		Length - ft.			
		Min.	Max.	Min.	Max.
Natalini	Exhaust	6	75	6	50
	Intake	6	50	6	50
Duravent	Exhaust	6	82	6	50
	Intake	6	50	6	50
Centrotherm	Exhaust	6	52	6	50
	Intake	6	50	6	50
Z-Dens	Exhaust	N/A	N/A	6	50
	Intake	N/A	N/A	6	50

NOTES: Flexible vent systems shall only be run vertical.

Maximum vent lengths based on equivalent straight runs only.

Include rigid pipe and fittings in overall equivalent length calculations.

Horizontal runs before adapting to flexible must be rigid pipe.

45° single wall elbows are equivalent to 0.82 ft of straight pipe.

90° single wall elbows are equivalent to 1.64 ft of straight pipe

NOTE - See Installation Instructions for additional details.

HIGH ALTITUDE RATINGS

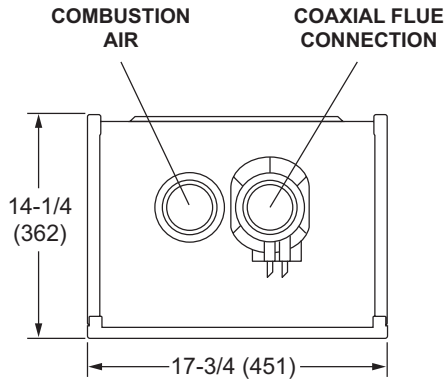
Altitude	Size	Input Btuh		¹ Heating Capacity Btuh	AFUE	² Domestic Hot Water Circuit			
		Maximum	Minimum			Max. Input	Min. Input	Max. Output	Min. Output
2,000 - 4500 ft.	150	113,000	22,000	101,000	95%	137,000	22,000	122,000	19,000
	205	147,000	26,500	137,000	95%	184,500	26,500	157,000	23,000
4501 - 6500 ft.	205	135,000	24,100	126,000	95%	168,000	24,100	143,000	20,000
6501 - 10,000 ft.	205	113,000	20,300	105,000	95%	141,000	20,300	120,000	17,000

¹ DCC-150 - Maximum CH supply temperature 176°F.

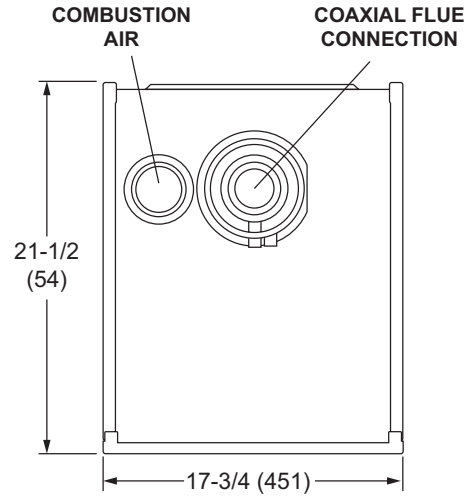
DCC-150 - Maximum DHW temperature 140°F.

² DCC-150 - Maximum DHW flow rate 3.5 gpm.

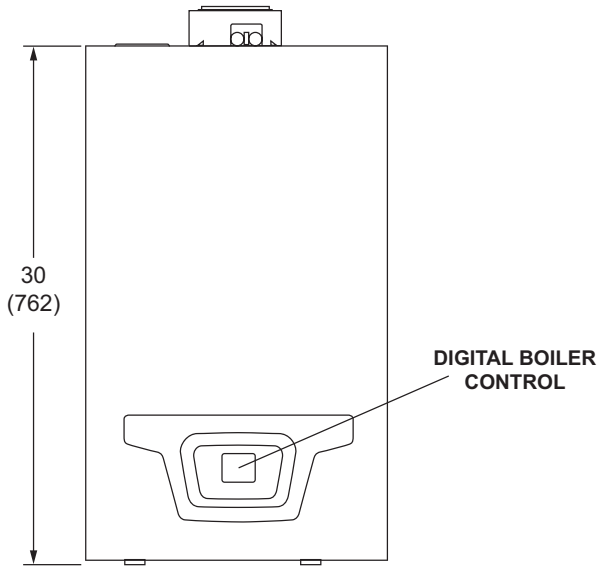
DCC-205 - Maximum DHW flow rate 5.0 gpm.



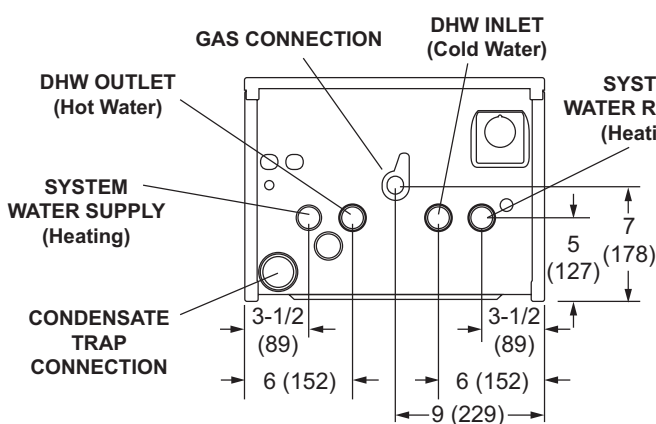
TOP VIEW (150)



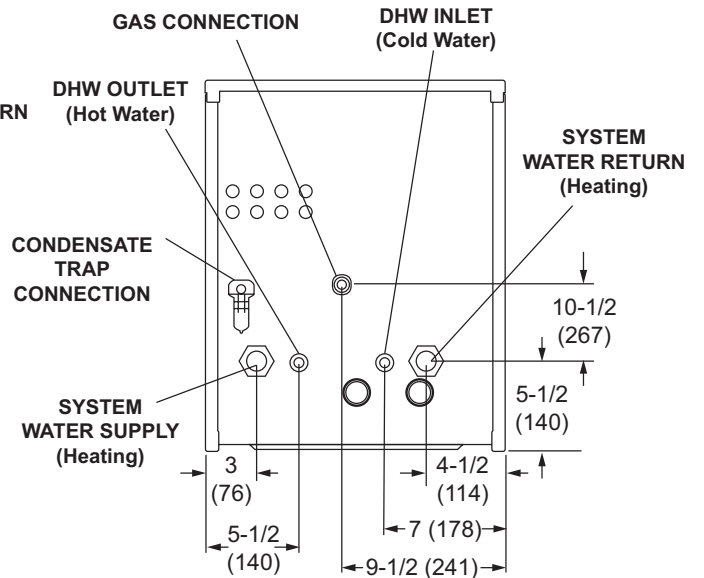
TOP VIEW (205)



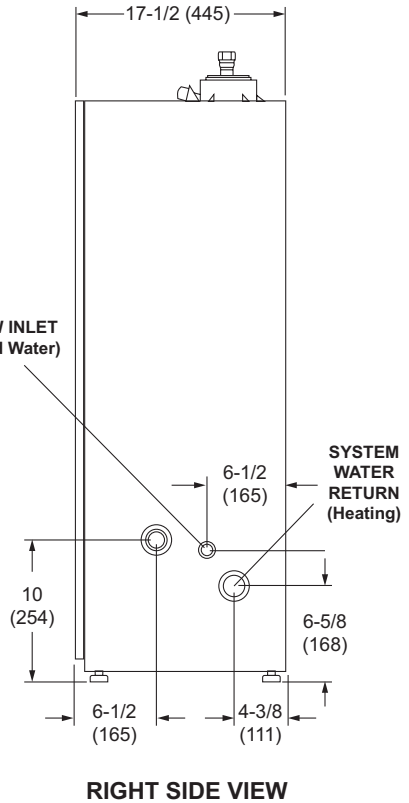
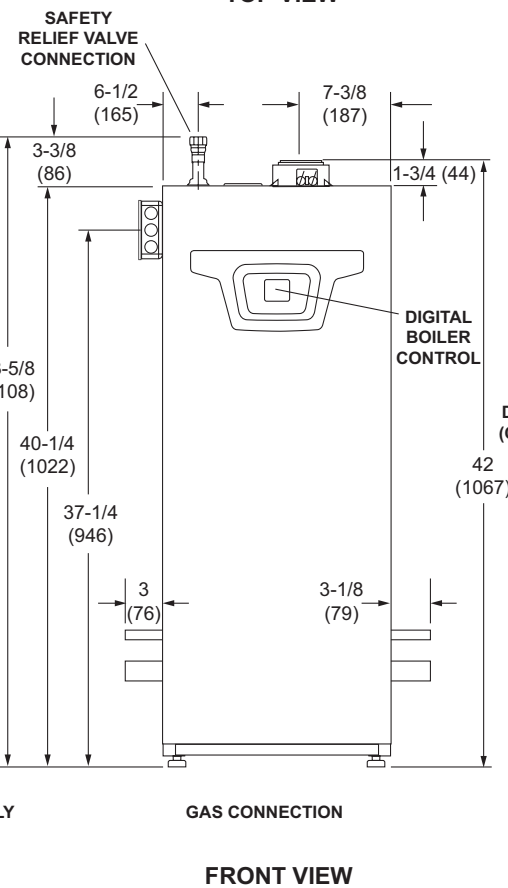
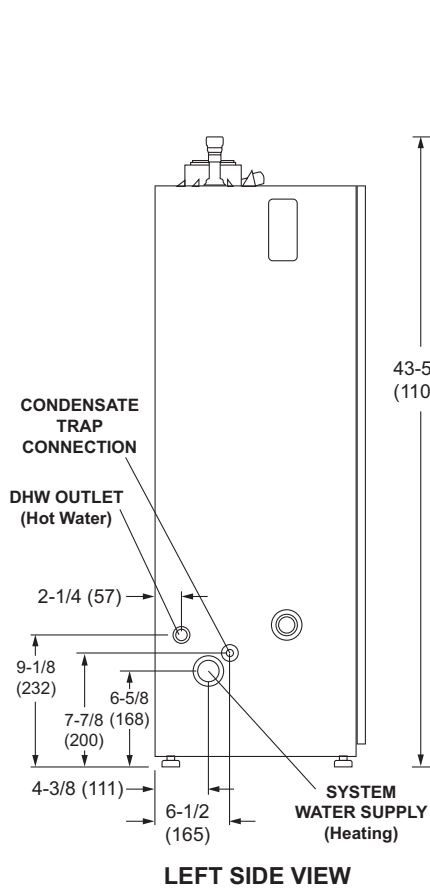
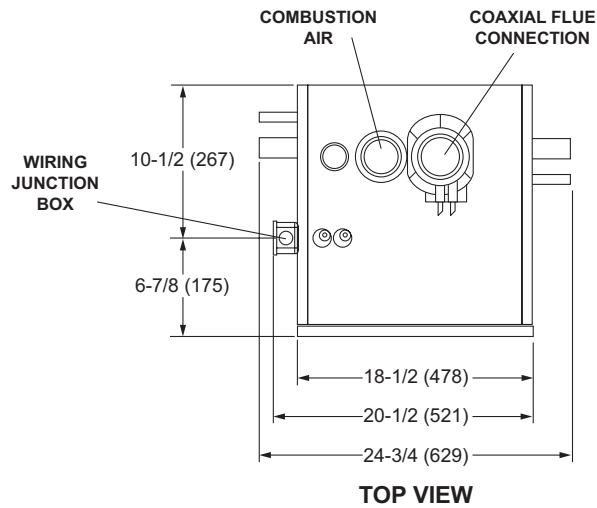
FRONT VIEW

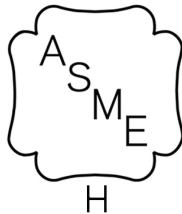


BOTTOM VIEW (150)



BOTTOM VIEW (205)





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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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