



LF24
UNIT HEATERS
Horizontal - 60HZ

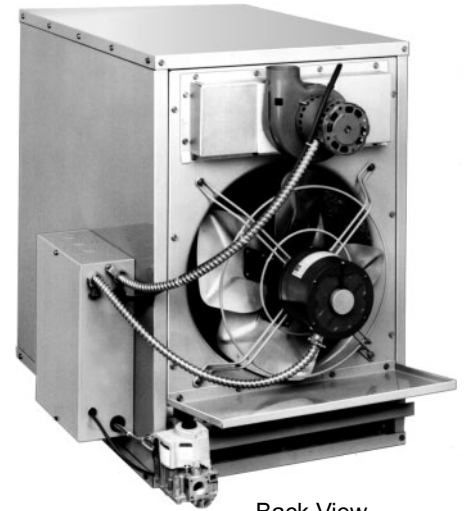
Bulletin No. 210000
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Front View



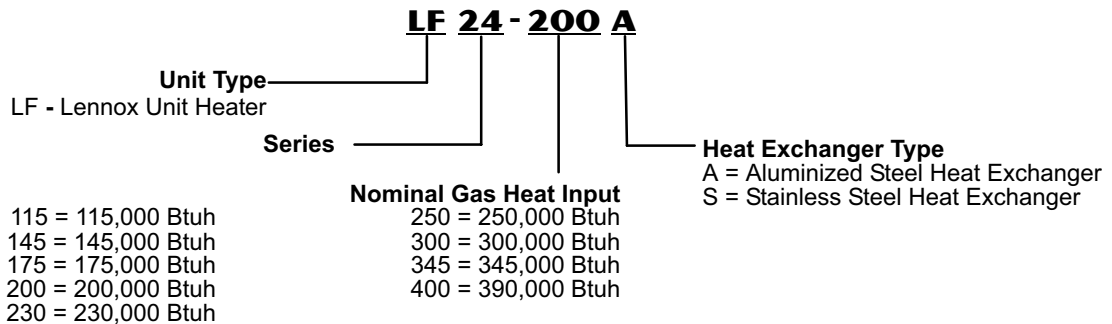
Tubular Heat Exchanger



Back View

Steady State Efficiency - up to 80.5%
Input - 115,000 to 400,000 Btuh

MODEL NUMBER IDENTIFICATION



FEATURES

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EQUIPMENT WARRANTY

Heat exchanger - stainless steel - fifteen year limited warranty, aluminized steel - ten year limited warranty.
 All other covered components - one year limited warranty.
 Refer to Lennox Equipment Limited Warranty certificate included with equipment for details.

FEATURES

APPLICATIONS

Lennox LF24 gas-fired, horizontal unit heaters are compact in design and easy to install.

Units feature steady-state heating efficiencies of up to 80.5%.

LF24 unit heaters are ideal for economical commercial heating systems.

Units are shipped completely assembled with controls factory installed and wired.

In addition, each unit is test operated at the factory to ensure proper operation and dependability.

Installer has only to locate unit, make unit gas supply, flue, electrical connections and mount thermostat to complete the installation.

Units may be vented horizontally or vertically.

APPROVALS

Units certified by CSA International.

Listed by the California Energy Commission (CEC).

Units are certified for natural or LPG/Propane gas.

ISO 9001 Registered Manufacturing Quality System.

HEATING SYSTEM

24 volt redundant combination gas control valve combines a manual main shutoff valve, pressure regulation and automatic electric valve (dual) into one compact combination control.

Solid-state electronic direct spark ignition control provides positive and safe main burner ignition.

Spark is intermittent and occurs only when required.

Separate electronic flame sensor control assures safe and reliable operation.

Should loss of flame occur, flame sensor controls will initiate 3 attempts at re-ignition before locking out unit operation.

Combustion air inducer prepurges heat exchanger and safely vents flue products.

Pressure switch proves combustion air inducer operation before allowing gas valve to open.

Combustion air inducer operates only during heating cycle.

Tubular Aluminized or Stainless Steel Heat Exchanger

Tubular heat exchanger is constructed of aluminized or stainless steel for superior resistance to corrosion and oxidation.

Curving design allows complete exposure of heating surfaces to supply air stream.

Round surfaces create minimum air resistance and allow air to surround all surfaces for excellent heat transfer.

Compact design reduces space requirements in unit cabinet.

Heat exchanger has been laboratory life cycle tested.

Inshot Burners

Aluminized steel inshot burners provide efficient trouble free operation.

Burner venturi mixes air and gas in correct proportion for proper combustion.

Burner assembly is removeable from the unit as a single component for ease of service. Each burner may be removed individually.

Limit Control

Factory installed and accurately located.

Limit control has fixed temperature setting and protects heating system from abnormal operating conditions.

LF24 - 115,000 to 400,000 Btuh / Page 2

Combustion Air Inducer

Combustion air inducer prepurges heat exchanger and safely vents combustion products.

Blower motor has sleeve bearings and is thermally protected.

Pressure switch prevents unit operation in case of blockage of combustion air inlet or flue outlet.

Combustion air inducer on LF24-115, -125, -145 units may be rotated 90° to left or right of vertical to facilitate installation.

Venting

Units may be vented horizontally or vertically.

LF24 units are approved for installation with single wall and type B-1 double wall vent pipe.

OPTIONS

LPG/Propane Conversion Kit

Conversion kit is required for field changeover from natural gas.

Kit is not furnished and must be ordered extra.

CONTROLS

Includes: 24 volt main gas valve with 100% safety shutoff, main shutoff valve, gas pressure regulation (natural & LPG/propane gas models), limit control, transformer and combination ignition/fan timer control board.

Combination Direct Spark Ignition/Fan Timer Control

Solid-state control board contains all necessary controls and relays to operate unit.

Includes: Fan timer control - fan on 45 seconds (fixed), fan off 150 seconds (fixed), terminal strip for thermostat connections, diagnostic LED for troubleshooting, continuous fan operation.

Transformer

120V/24V transformer furnished as standard.

OPTIONS

Thermostat

See Thermostat bulletins in Controls section and Lennox Price Book for a complete list of thermostats.

DIRECT DRIVE FAN

All models are equipped with efficient and quiet operating direct drive fan.

CABINET

Constructed of heavy gauge painted steel.

Inside cabinet insulation keeps outer cabinet surface temperatures low.

Adjustable louvers are furnished on cabinet for control of air flow direction.

Wiring junction box is conveniently located on outside of cabinet for easy access. Box contains all electrical and safety controls.

Terminal strip provided for thermostat connections.

3/8" x 16 rivetnuts are located on the top of cabinet for suspending unit. See dimension drawing.

OPTIONS

Discharge Nozzles

To direct discharge air from unit heater.

Available in 30°, 45°, 60° and 90° style.

Fully assembled from heavy-gauge steel.

Paint finish matches unit heater.

See Dimension Drawings.

Hanging Bracket Kit

Used to suspend unit heaters on two pipe hangers.

Kit contains two brackets and all necessary hardware.

Pipe hangers (3/4 in.) are not furnished and must be field provided.

SPECIFICATIONS - LF24-115 TO LF24-230

Gas Heating Performance	Model No. - Stainless Steel	LF24-115S	LF24-145S	LF24-175S	LF24-200S	LF24-230S
	Model No. - Aluminized Steel	LF24-115A	LF24-145A	LF24-175A	LF24-200A	LF24-230A
	Heating Capacity Input - Btuh	115,000	145,000	172,500	195,000	230,000
	Output - Natural - Btuh	92,000	116,000	138,000	156,000	184,000
	Steady State Efficiency - Natural	80.0%	80.0%	80.0%	80.0%	80.0%
Connections	Flue size - in. (round)	1 4	1 4	2 5	2 5	2 5
	Gas Piping Size	1/2	1/2	1/2	1/2	3/4
Fan Data	Air Volume - cfm	1900	1900	2200	2200	4400
	Number of Fans	1	1	1	1	2
	Diameter - in.	16	16	16	16	16
	Number of blades	4	5	5	5	5
	Number of Motors	1	1	1	1	2
	Motor Output - hp	1/8	1/8	1/8	1/8	1/8
	RPM	1075	1075	1075	1075	1075
Weight Data	Net Weight - lbs.	125	130	145	145	225
	Shipping Weight - lbs.	140	150	165	165	270

ELECTRICAL DATA

Line voltage data - 60hz

115 volts - 1 phase

Motor amps	2.1	2.1	2.1	2.1	2.1 (4.2)
Total unit amps	6.0	6.0	6.0	6.0	9.0

OPTIONAL ACCESSORIES - MUST BE ORDERED EXTRA

Discharge Nozzle	30° - 94K94	•	•			
	94K95			•	•	
	94K96					•
	45° - 95K98	•	•			
	95K99			•	•	
	95K00					•
	60° - 16L28	•	•			
	16L29			•	•	
	16L30					•
	90° - 15L96	•	•			
	15L97			•	•	
	15L98					•
Hanging Bracket Kit	87277	•	•	•	•	•
³ High Altitude Pressure Switch Kit	10K73	•	•	•	---	---
LPG/Propane Kit	63J56	•	•	•		
	20L07				•	
	63J57					•

¹ 2-1/8 x 4 in. diameter adaptor is furnished with unit for flue connection.

² 2-1/4 x 2-3/4 in. rectangular to 5 in. round adaptor is furnished with unit for flue connection.

³ Required for proper unit operation at altitudes over 5501 feet above sea level.

SPECIFICATIONS - LF24-250 TO LF24-400

Gas Heating Performance	Model No. - Stainless Steel	LF24-250S	LF24-300S	LF24-345S	LF24-400S
	Model No. - Aluminized Steel	LF24-250A	LF24-300A	LF24-345A	LF24-400A
	Heating Capacity Input - Btuh	250,000	300,000	345,000	390,000
	Output - Natural - Btuh	201,250	241,500	276,000	312,000
	Steady State Efficiency - Natural	80.5%	80.5%	80.0%	80.0%
Connections	Flue size - in. (round)	1 5	2 6	2 6	2 6
	Gas Piping Size	3/4	3/4	3/4	3/4
Fan Data	Air Volume - cfm	4400	4400	4400	4400
	Number of Fans	2	2	2	2
	Diameter - in.	16	16	16	16
	Number of blades	5	5	5	5
	Number of Motors	2	2	2	2
	Motor Output - hp	1/8	1/8	1/8	1/8
	RPM	1075	1075	1075	1075
Weight Data	Net Weight - lbs.	270	280	285	285
	Shipping Weight - lbs.	285	305	310	310

ELECTRICAL DATA

Line voltage data - 60hz	115 volts - 1 phase			
Motor amps	2.1 (4.2)	2.1 (4.2)	2.1 (4.2)	2.1 (4.2)
Total unit amps	9.0	9.0	9.0	9.0

OPTIONAL ACCESSORIES - MUST BE ORDERED EXTRA

Discharge Nozzle	30° - 94K96	•	•	•	•
	45° - 95K00	•	•	•	•
	60° - 16L30	•	•	•	•
	90° - 15L98	•	•	•	•
Hanging Bracket Kit	87277	•	•	•	•
LPG/Propane Kit	45L88	•	•		
	63J57			•	
	20L06				•

¹ 2-1/4 x 2-3/4 in. rectangular to 5 in. round adaptor is furnished with unit for flue connection.

² 2-1/4 x 2-3/4 in. rectangular to 6 in. round adaptor is furnished with unit for flue connection.

HIGH ALTITUDE DERATE

Unit may be fired at full input up to 2000 feet above sea level. Above 2000 feet, manifold pressure must be adjusted on some units. Adjust pressure regulator to pressure shown in tables. If unit is installed at an altitude greater than 7500 ft. unit must be derated by 4 percent for each additional 1000 ft. above 7500 ft. In Canada, certification for installation at altitudes over 4500 feet above sea level is the jurisdiction of the local authorities.

NOTE - This is the only permissible derate for the units.

Model No.	Natural Gas Manifold Pressure - in. w.c.						
	0-2000 ft.	2000-2500 ft.	2500-3500 ft.	3500-4500 ft.	4500-5500 ft.	5500-6500 ft.	6500-7500 ft.
LF24-115 LF24-300	No adjustment	No adjustment	No adjustment	No adjustment	3.4	3.3	3.2
LF24-145	No adjustment	3.4	3.3	3.2	3.1	3.0	2.9
LF24-175 LF24-230	No adjustment	No adjustment	¹ No adjustment	¹ No adjustment	¹ No adjustment	¹ No adjustment	¹ No adjustment
LF24-200 LF24-250 LF24-345 LF24-400	No adjustment	No adjustment	No adjustment	3.4	3.3	3.2	3.1

¹ LF24-175 Combustion air inducer pressure switch must be replaced at altitudes from 2500-7500 ft. Order **10K73** pressure switch.

Model No.	LPG/Propane Manifold Pressure - in. w.c.						
	0-2000 ft.	2000-2500 ft.	2500-3500 ft.	3500-4500 ft.	4500-5500 ft.	5500-6500 ft.	6500-7500 ft.
LF24-115 LF24-300	No adjustment	No adjustment	No adjustment	No adjustment	8.7	8.4	8.1
LF24-145	No adjustment	8.7	8.4	8.1	7.8	7.5	7.2
LF24-175 LF24-230	No adjustment	No adjustment	¹ No adjustment	¹ No adjustment	¹ No adjustment	¹ No adjustment	¹ No adjustment
LF24-200 LF24-250 LF24-345 LF24-400	No adjustment	No adjustment	No adjustment	9.2	8.9	8.6	8.3

¹ LF24-175 Combustion air inducer pressure switch must be replaced at altitudes from 2500-7500 ft. Order **10K73** pressure switch.

THROW DATA

Model No.	Air Volume cfm	¹ Effective Throw feet
LF24-115, LF24-145	1900	60
LF24-175, LF24-200	2200	65
LF24-230, LF24-250, LF24-300, LF24-345, LF24-400	4400	80

NOTE - Adjustable horizontal louvers on unit allow a variation in throw and spread.

¹ Throw terminates where velocity reaches 50 ft.per minute.

INSTALLATION CLEARANCES

Top	6 inches
Sides	6 inches
Rear	18 inches
Bottom	0 inches
Flue	6 inches

NOTE - Provide adequate clearance for servicing.

See Installation Instructions for further installation considerations.

RECOMMENDED MOUNTING HEIGHT

Model No.	Feet
LF24-115	16
LF24-145, LF24-175, LF24-200	20
LF24-230, LF24-250, LF24-300, LF24-345, LF24-400	30

¹ Recommended maximum mounting height from floor to bottom of unit. At heights greater than shown air throw distance and air temperature at floor level is affected.

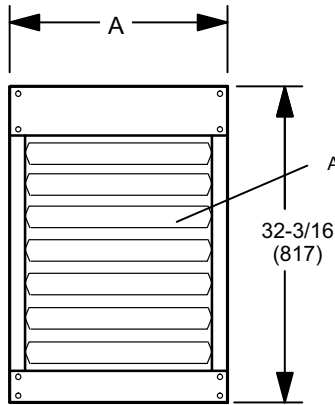
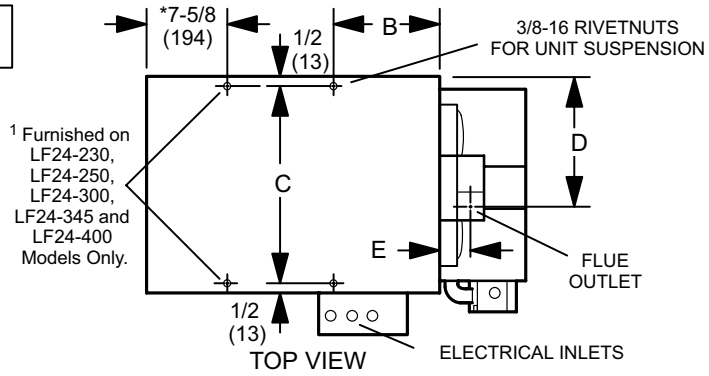
MAXIMUM HORIZONTAL VENT LENGTHS

No. of Elbows	LF24-115 -145-175 -200	LF24-230 -250 -300	LF24-345	LF24-400
1	25	35	31	21
2	20	30	22	12
3	15	25	13	3
4	10	20	4	---
5	5	15	---	---
6	---	10	---	---
7	---	5	---	---

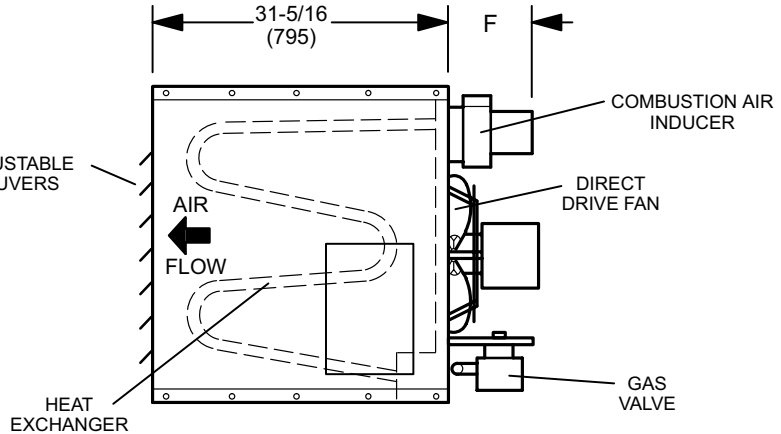
DIMENSIONS - INCHES (MM)

NOTE - Single fan model shown, LF24-115-145-175 and -200.
LF24-230-250-300-345 and -400 models have two fans.

¹ **NOTE** - Two rivetnuts are furnished on LF24-115 -145,-175 and -200 models.
- Four rivetnuts are furnished on LF24-230-250-300-345 and -400 models.



FRONT VIEW

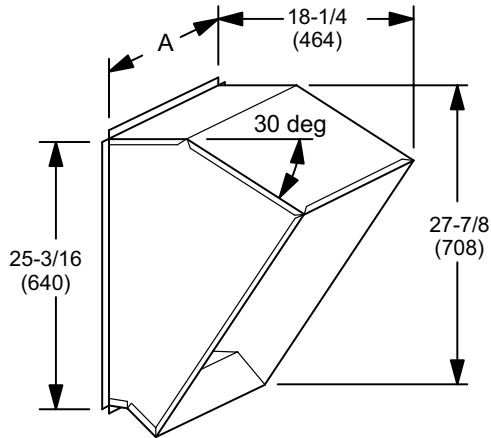


SIDE VIEW

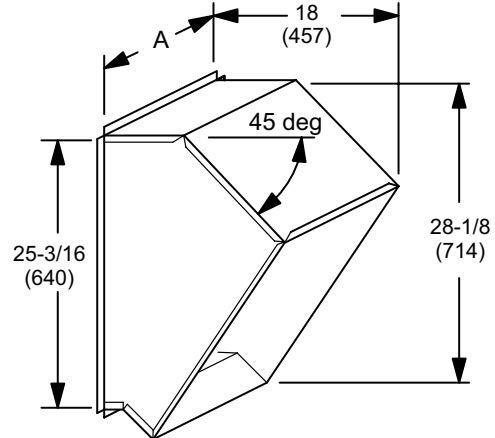
Model No.	A		B		C		D		E		F	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
LF24-115 LF24-145	20-3/16	512	11-1/2	292	19-1/16	484	11-3/4	298	3-1/4	83	7-7/8	200
LF24-175 LF24-200	23-1/8	588	11-1/2	292	22-1/16	560	8-1/2	337	3-1/4	83	8-11/16	220
LF24-230 LF24-250 LF24-300	41-1/8	1045	3-11/16	97	40	1016	17-3/4	451	3-1/2	89	8-11/16	220
LF24-345 LF24-400	41-1/8	1045	3-11/16	97	40	1016	17-1/2	445	3-1/2	89	9-13/16	248

ACCESSORY DIMENSIONS - INCHES (MM)

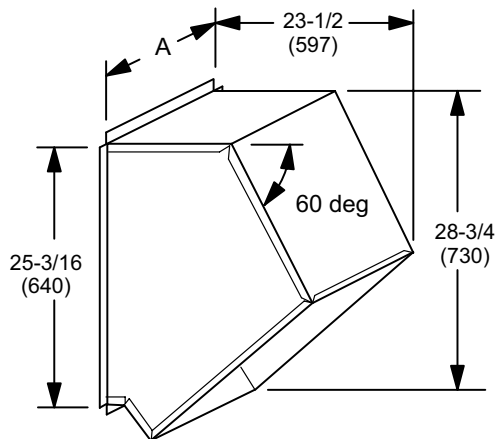
30° Discharge Nozzle



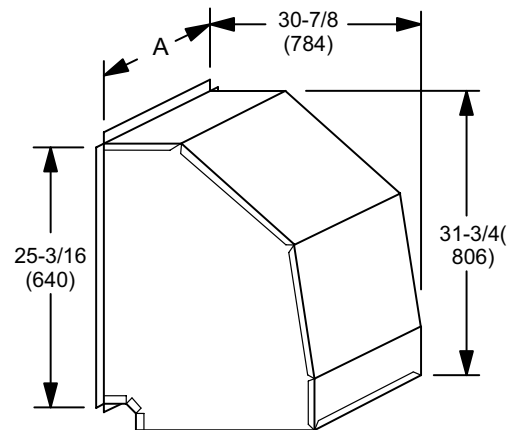
45° Discharge Nozzle



60° Discharge Nozzle



90° Discharge Nozzle



Model Usage	A	
	in.	mm
LF24-115	18-1/4	464
LF24-145	21-1/4	540
LF24-175		
LF24-200		
LF24-230	39-1/4	997
LF24-250		
LF24-300		
LF24-345		
LF24-400		



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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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