



LF24
COMPACT UNIT HEATERS
Low Profile - Horizontal - 60 HZ

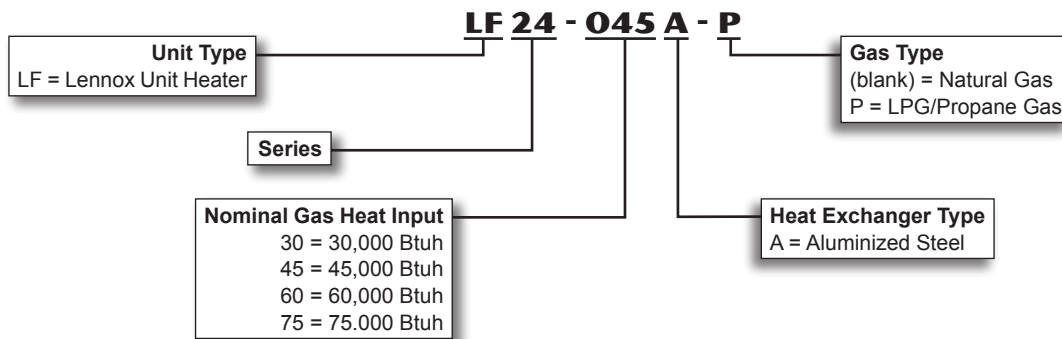
PRODUCT SPECIFICATIONS

Bulletin No. 210108
 July 2016
 Supersedes October 2011



Steady-State Efficiency - up to 81%
Input - 30,000 to 75,000 Btuh

MODEL NUMBER IDENTIFICATION



FEATURES AND BENEFITS

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WARRANTY

Aluminized Steel Heat Exchanger - Limited warranty for ten years.
All other covered components - Five years in residential installations and one year in non-residential installations.
 Refer to Lennox Equipment Limited Warranty certificate included with unit for specific details.

APPROVALS

Units certified by CSA International for use with natural or LPG/propane gas (optional kit required for LPG/Propane conversion).
 Units are approved for vertical or horizontal venting.

APPLICATIONS

Horizontal utility heaters are low profile, compact in design and easy to install.

Steady State Efficiencies of up to 81%.

Ideal for economical heating systems in garages and non-confined living spaces.

Shipped completely assembled with controls factory installed and wired.

Hanging brackets are shipped loose for field installation.

Each unit is test operated at the factory to ensure proper operation and dependability.

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

CABINET

- 1 Constructed of pre-painted heavy gauge cold rolled 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 inside unit cabinet. Contains all electrical and safety controls.

Hanging brackets for suspending unit are furnished for field installation.

Unit may be turned over to change gas, electrical and flue positions. See dimension drawing.

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.

Electronic direct spark ignition control provides positive main burner ignition.

Spark is intermittent and occurs only when required.

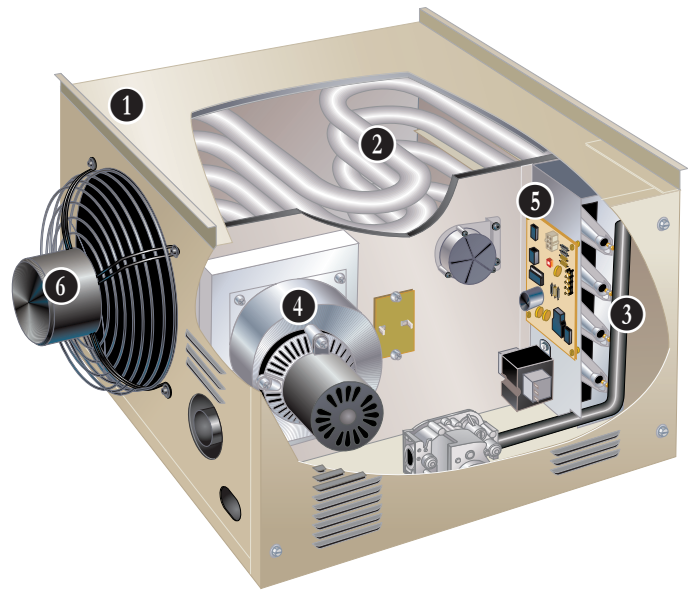
Separate electronic flame sensor control assures safe and reliable operation.

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 inducer operation before allowing gas valve to open.

Combustion air inducer operates only during heating cycle.



- 2 **Tubular Aluminized Steel Heat Exchanger**

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

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

Round tube 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.

- 3 **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 removable from the unit as a single component for ease of service and each burner may be removed individually.

Limit Control

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

- 4 **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.

Options/Accessories

LPG/Propane Conversion Kit

Conversion kit is required for field changeover from natural gas. See Specifications tables.

FEATURES AND BENEFITS

VENTING

Units may be vented horizontally or vertically.

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

Horizontal Venting - LF24 units are approved for residential installation only with Lennox-approved stainless steel vent kits. Commercial applications may use single wall vent pipe.

Options/Accessories

Horizontal Vent Kits

UL listed, Cat III stainless steel vent kits are required for horizontal venting. Kits are available for upward or downward slope. Vent kits snap together.

Kits include unit transition, vent termination and wall thimble. Upward slope vent kits have a drain connection. Provisions for hanging must be field supplied.

45° or 90° elbow is optional for ease of vent connection.

Straight pipe sections in various lengths are also available.

See Horizontal Vent Kits / Elbow table for Lennox-approved Horizontal Vent Kits and accessories.

See drawings for additional information.

See installation instructions for detailed venting requirements.

CONTROLS

- 5 The following controls are furnished as standard equipment: 24 volt main gas valve with 100% safety shutoff, direct spark ignition, main shutoff valve, gas pressure regulation (natural gas models), 115/24v transformer, low voltage terminal strip, solid-state control board with LED diagnostics, fan timer control - fan on (45 seconds - fixed) fan off (150 seconds fixed).

Thermostat

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

DIRECT DRIVE FAN

- 6 All models are equipped with efficient and quiet operating direct drive propeller type fan with permanently lubricated fan motor.

SPECIFICATIONS

Gas Heating Performance	Model No.	LF24-30A	LF24-45A	LF24-60A	LF24-75A
Heating Capacity Input - Btuh		30,000	45,000	60,000	75,000
Heating Capacity Output - Btuh		24,300	36,500	48,000	60,000
Steady State Efficiency		81.0%	81.0%	80.0%	80.0%
Temperature rise - °F		42	45	45	60
Connections in.	Flue size (round)	¹ 3	¹ 3	² 4	² 4
	Gas Piping Size	1/2	1/2	1/2	1/2
Fan Data	Number of fans	1	1	1	1
	Fan Diameter - in.	10	10	14	14
	Number of blades	4	4	5	5
	Motor Output - hp	1/20	1/20	1/8	1/8
	Amps	1.7	1.7	4.1	4.1
	rpm	1650	1650	1050	1050
	Air Volume - cfm	535	750	950	950
	Air throw at 8 ft. mounting height - ft.	25	25	40	40
Electrical Characteristics	115 volts - 60 hertz - 1 phase				
Shipping Weight - lbs. 1 package	60	63	87	91	

OPTIONAL ACCESSORIES - ORDER SEPARATELY

LPG/Propane Kit	20L05	20L05	20L05	20L05
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NOTE - Transitions are furnished for flue connection to unit combustion air inducer outlet.

¹ 2-1/8 in. (unit) x 3 in. (flue) diameter transition is furnished with unit for flue connection

² 2 in. (unit) x 4 in. (flue) diameter transition is furnished with unit for flue connection.

HORIZONTAL VENT KITS AND ELBOW

REQUIRED FOR RESIDENTIAL HORIZONTAL VENTING APPLICATIONS

Unit Heater Model No.	Vent Diameter (in.)	Upslope Vent Kit	Catalog No.	Downslope Vent Kit	Catalog No.	45° Elbow	Catalog No.	90° Elbow	Catalog No.	¹ Minimum Vent Length (ft.)
LF24-30 LF24-45	3	C5VENT3KU	75W62	C5VENT3KD	75W66	C5VENT3E45 (Optional)	87W79	C5VENT3E (Optional)	75W70	5
LF24-60 LF24-75	4	C5VENT4KU	75W63	C5VENT4KD	75W67	C5VENT4E45 (Optional)	87W80	C5VENT4E (Optional)	75W71	5

¹ Length does not include termination (or elbow if used).

STRAIGHT VENT PIPE - FOR HORIZONTAL VENTING

Unit Heater	Model No.	Vent Diameter (in.)	Length (in.)	Catalog No.
LF24-30 LF24-45	C5VENT3P6	3	6	75W74
	C5VENT3P12	3	12	75W75
	C5VENT3P36	3	36	75W76
LF24-60 LF24-75	C5VENT4P6	4	6	75W77
	C5VENT4P12	4	12	75W78
	C5VENT4P36	4	36	75W79

INSTALLATION CLEARANCES - IN. (MM)

	in.	mm
Top	1	25
Side opposite access panel	1	25
Access Panel Side	18	457
Back	18	457
Bottom	0	0
Flue	6	152

NOTE - Provide adequate clearance for servicing.

See Installation Instructions for further installation considerations.

MAXIMUM VENT CONNECTOR LENGTHS

No. of Elbows	Maximum Length (feet) of Straight Vent Pipe
1	25
2	20
3	15
4	10
5	5

NOTES - Minimum horizontal vent length is 5 ft.

Horizontal venting requires the use of a Lennox-approved Cat III Horizontal Vent Kit and Vent Pipe.

Horizontal venting must terminate in a tee.

Maximum total length of vent pipe must not exceed 30 ft.

One elbow is equivalent to 5 ft. of vent pipe.

Single wall vertical vent pipe may only be used in commercial applications.

Double wall (type B) vent pipe may be used for vertical venting in residential or commercial applications.

Minimum clearance to combustible material is 6 in. with single wall vent pipe.

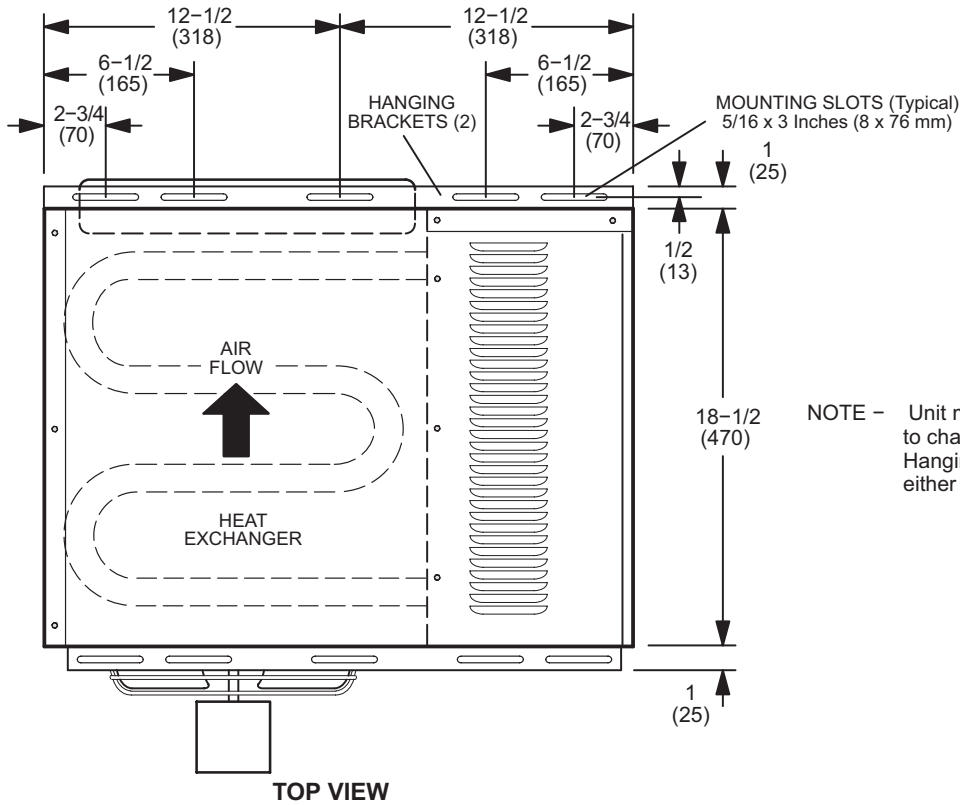
HIGH ALTITUDE INFORMATION

All units may be fired at full input up to 2000 ft. above sea level. LF24-30 and LF24-60 units may be fired at full input up to 7500 ft. LF24-45 units may be fired at full input up to 6500 ft., at altitudes above 6501 ft. units are adjusted by derating manifold pressure, see below. LF24-75 units installed above 2500 ft. are adjusted by derating manifold pressure. See table below for correct pressure. If any unit is installed at an altitude greater than 7500 ft. unit must be derated 4% for each additional 1000 ft. above 7500 ft.. Thus, at an altitude of 8500 feet, an LF24-75 would require an additional derate of 4%.

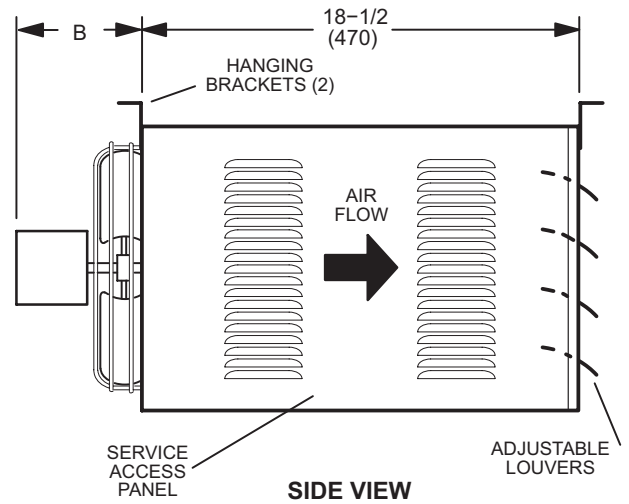
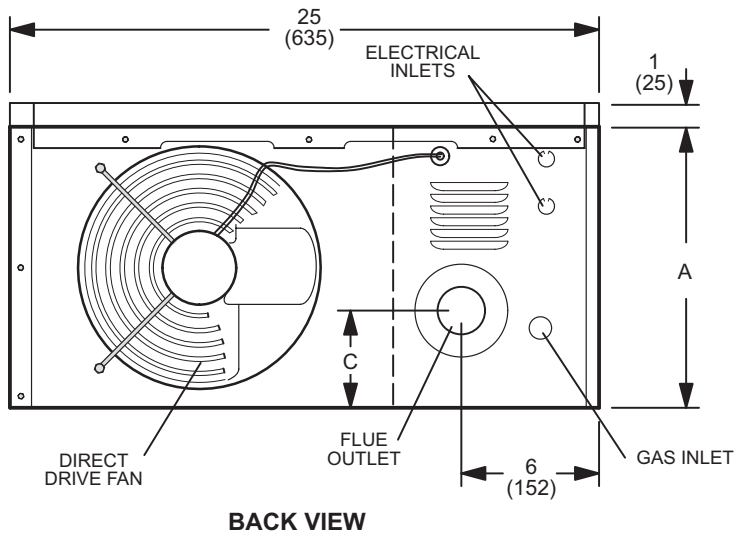
NOTE - This is the only permissible derate for the units.

Model No.	Manifold Pressure - in. w.c.									
	2500-3500 ft.		3501-4500 ft.		4501-5500 ft.		5501-6500 ft.		6501-7500 ft.	
	Natural Gas	LPG/Propane	Natural Gas	LPG/Propane	Natural Gas	LPG/Propane	Natural Gas	LPG/Propane	Natural Gas	LPG/Propane
LF24-30 LF24-60	No adjustment									
LF24-45	No adjustment								3.4	9.2
LF24-75	3.5	9.5	3.4	9.2	3.3	8.9	3.2	8.6	3.1	8.3

DIMENSIONS - INCHES (MM)



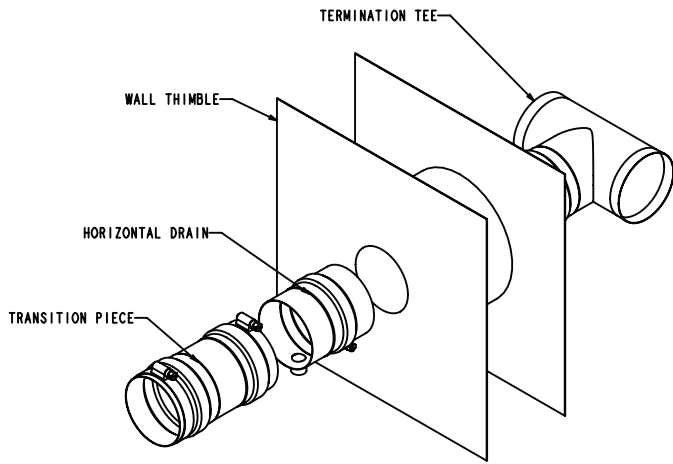
NOTE - Unit may be rotated 180° top for bottom to change gas, electrical and flue positions. Hanging brackets may be installed on either top or bottom of unit.



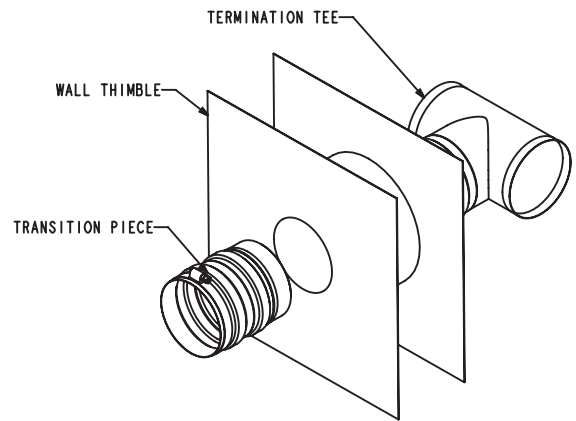
Model No.	LF24-30A LF24-45A	LF24-60A LF24-75A
A	12 (305)	17 (432)
B	5-1/2 (140)	6-1/2 (165)
C	4-1/4 (108)	6-3/4 (171)

VENT KITS AND ACCESSORIES

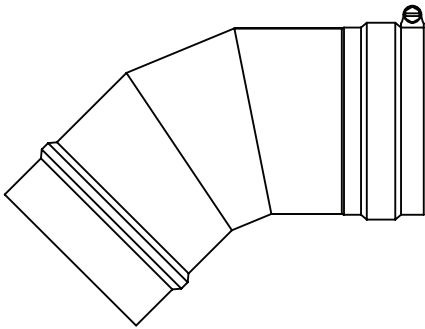
HORIZONTAL VENT KITS (UPSLOPE)



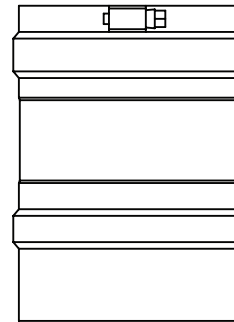
HORIZONTAL VENT KITS (DOWNSLOPE)



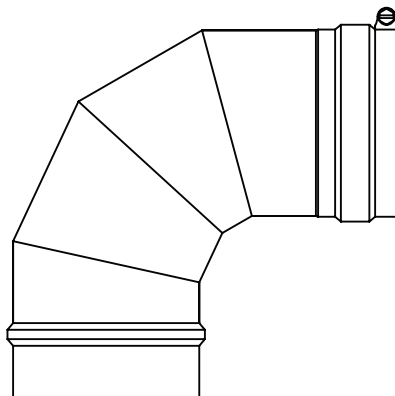
45° ELBOW (Typical)



STRAIGHT PIPE (Typical)



90° ELBOW (Typical)



REVISIONS

Section	Description of Change
Specifications	Fan data updated for LF24-60A and LF24-75A.



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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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