



ENGINEERING DATA

GAS UNIT HEATERS/DUCT FURNACES

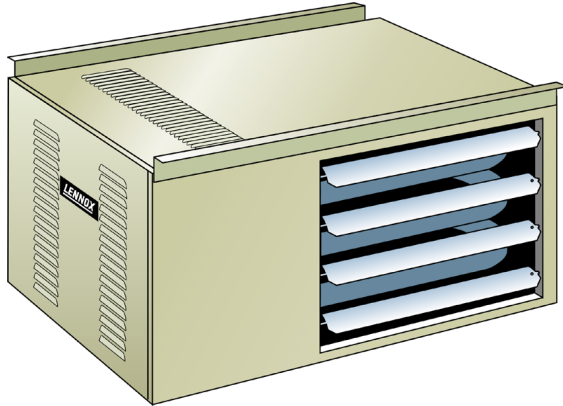
LF24

COMPACT GAS-FIRED UNIT HEATER - HORIZONTAL

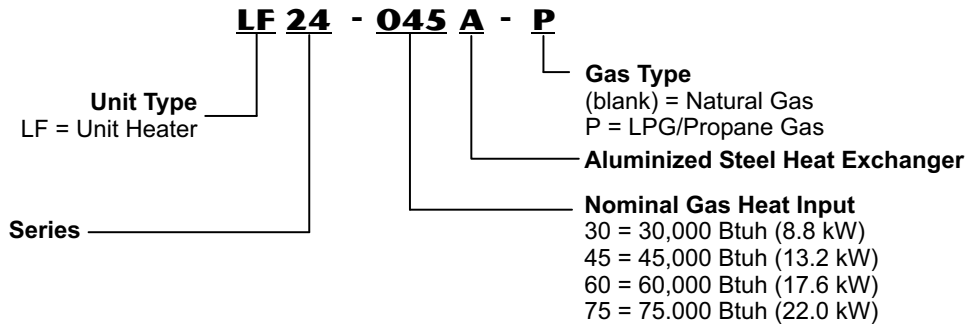
Steady-State Efficiency - up to 81%

Input - 30,000 to 75,000 Btuh

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MODEL NUMBER IDENTIFICATION



FEATURES

CONTENTS

Dimensions Page 4
 Features Pages 1-2
 High Altitude Information Page 2
 Installation Clearances Page 3
 Maximum Vent Connector Lengths Page 3
 Model Number Identification Page 1
 Optional Accessories Page 2
 Specifications Page 3

APPLICATIONS

Horizontal unit 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.

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.

EQUIPMENT WARRANTY

Aluminized steel heat exchanger - limited warranty for ten years.
 Solid-state ignition module - limited warranty for three years in residential applications, one year in non-residential applications.
 All other covered components have a limited warranty for one year.
 Refer to the Lennox Equipment Limited Warranty certificate included with the equipment for details.

CABINET

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.

Visit us at www.lennox.com
 For the latest technical information, www.davenet.com

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.

FEATURES

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 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.

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.

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 and each burner may be removed individually.

Limit Control

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

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.

CONTROLS

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).

DIRECT DRIVE FAN

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

OPTIONAL ACCESSORIES - MUST BE ORDERED EXTRA

LPG/PROPANE CONVERSION KIT

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

THERMOSTAT

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

HIGH ALTITUDE INFORMATION

All units may be fired at full input up to 2000 ft. (610 m) above sea level. LF24-30 and LF24-60 units may be fired at full input up to 7500 ft. (2285 m). LF24-45 units may be fired at full input up to 6500 ft. (1980 m), at altitudes above 6501 ft. (1980 m) units are adjusted by derating manifold pressure, see below. LF24-75 units installed above 2500 ft. (760 m) are adjusted by derating manifold pressure. See table below for correct pressure. If any unit is installed at an altitude greater than 7500 ft. (2285 m) unit must be derated 4% for each additional 1000 ft. (305 m) above 7500 ft. (2285 m). Thus, at an altitude of 8500 feet (2895 m), 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. (Pa)										
	2500-3500 ft. (760-1065 m)		3501-4500 ft. (1065-1370)		4501-5500 ft. (1370-1675 m)		5501-6500 ft. (1675-1980 m)		6501-7500 ft. (1980-2285 m)		
	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	No adjustment	No adjustment	No adjustment	No adjustment	No adjustment	No adjustment	No adjustment	No adjustment	No adjustment	No adjustment
LF24-45	No adjustment	No adjustment	No adjustment	No adjustment	No adjustment	No adjustment	No adjustment	No adjustment	No adjustment	3.4 (845)	9.2 (2287)
LF24-75	3.5 (845)	9.5 (2362)	3.4 (845)	9.2 (2287)	3.3 (820)	8.9 (2212)	3.2 (795)	8.6 (2138)	3.1 (770)	8.3 (2063)	

SPECIFICATIONS

Gas Heating Performance		Model No.	LF24-30A	LF24-45A	LF24-60A	LF24-75A
Heating Capacity Input - Btuh (kW)			30,000 (8.8)	45,000 (13.2)	60,000 (17.6)	75,000 (22.0)
Heating Capacity Output - Btuh (kW)			24,300 (7.1)	36,500 (10.7)	48,000 (14.1)	60,000 (17.6)
Steady State Efficiency			81.0%	81.0%	80.0%	80.0%
Temperature rise - °F (°C)			42 (23)	45 (25)	55 (31)	60 (33)
Connections in.	Flue size (round) - Vertical venting		1 3 (76)	1 3 (76)	2 4 (102)	2 4 (102)
	Horizontal venting - residential		3 4 (102)	3 4 (102)	4 5 (127)	4 5 (127)
	Gas Piping Size		1/2 (13)	1/2 (13)	1/2 (13)	1/2 (13)
Fan Data	Number of fans		1	1	1	1
	Fan Diameter - in. (mm)		10 (254)	10 (254)	14 (356)	14 (356)
	Number of blades		4	4	3	3
	Motor Output - hp (W)		1/20 (37)	1/20 (37)	1/10 (75)	1/10 (75)
	Amps		1.7	1.7	4.1	4.1
	rpm		1650	1650	1050	1050
	Air Volume - cfm (L/s)		535 (250)	750 (355)	830 (390)	950 (450)
	Air throw at 8 ft. (2.4 m) mounting height - ft. (m)		25 (7.6)	25 (7.6)	40 (12.2)	40 (12.2)
Electrical Characteristics		115 volts - 60 hertz - 1 phase				
Shipping Weight - lbs. (kg) 1 package			60 (27)	63 (29)	87 (40)	91 (41)

OPTIONAL ACCESSORIES - MUST BE ORDERED EXTRA

LPG/Propane Kit	20L05	20L05	20L05	20L05

¹ 2-1/8 x 3 in. (54 mm x 76 mm) diameter adaptor is furnished with unit for flue connection

² 2 x 4 in. (51 mm x 102 mm) diameter adaptor is furnished with unit for flue connection.

³ 3 x 4 in. (76 x 102 mm) vent adaptor required (not furnished) for horizontal venting in residential applications.

⁴ 4 x 5 in. (102 x 127 mm) vent adaptor required (not furnished) for horizontal venting in residential applications.

INSTALLATION CLEARANCES - 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 of Straight Vent Pipe	
	ft.	m
1	25	7.6
2	20	6.1
3	15	4.6
4	10	3.0
5	5	1.5

NOTES - For residential installations only, maximum permissible horizontal vent length is five feet (1.5 m) plus one elbow.

Minimum horizontal vent length is 3 ft. (1 m).

Horizontal venting must terminate in a tee or 90° elbow

Single wall vent pipe must be used for horizontal venting.

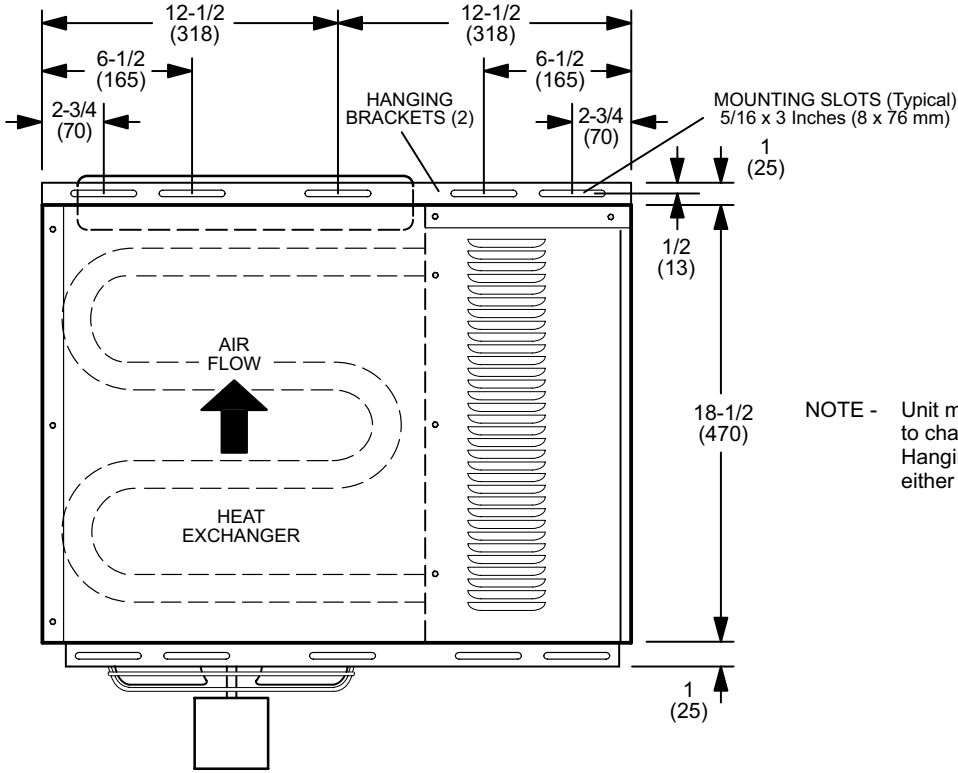
Maximum total length of vent pipe must not exceed 30 ft. (9 m).

One elbow is equivalent to 5 ft. (1.5 m) of vent pipe.

Single or double wall (type B) vent pipe may be used for vertical venting.

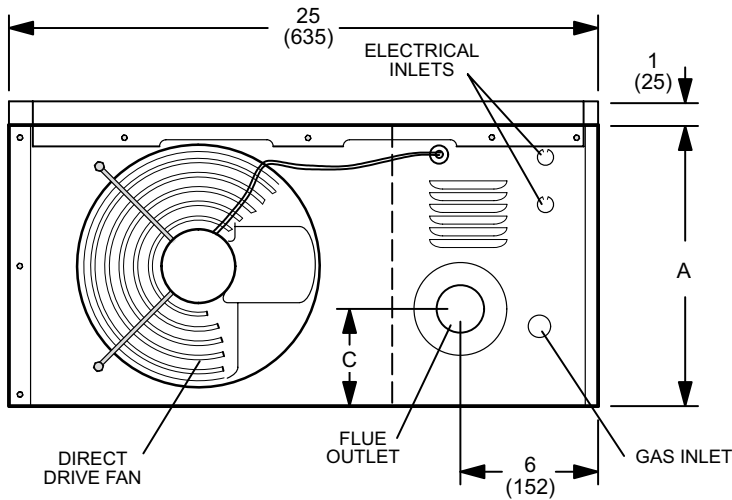
Minimum clearance to combustible material is 6 in. (152 mm) with single wall vent pipe.

DIMENSIONS - INCHES (MM)

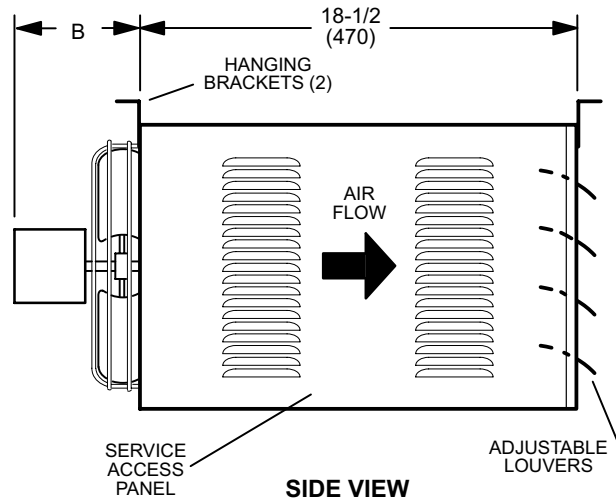


TOP VIEW

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.



BACK VIEW



SIDE VIEW

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)