

# LF24 Compact

# Gas Unit Heaters Duct Furnaces

Low Profile - Horizontal - 60 HZ

## Features

- 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 factory tested 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.

## 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.

## Approvals

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

Form No. LF24-30-75 (06/2011)



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

## Warranty

- Aluminized steel heat exchanger - limited ten year warranty.
- Solid-state ignition module - limited warranty for five years in residential applications, one year in non-residential applications.

All other covered components have a limited warranty of one year. Refer to the Equipment Limited Warranty certificate included with the equipment for details.

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Commercial

## Model Number Identification

	LF	24	-	45	A	-	P	
LF = Unit Type Unit Heater	Series							Gas Type (blank) = Natural Gas P = LPG/Propane Gas
Nominal Gas Heat Input 30 = 30,000 Btuh 45 = 45,000 Btuh 60 = 60,000 Btuh 75 = 75,000 Btuh								Heat Exchanger Type A = Aluminized Steel

### 1 Cabinet

- Constructed of pre-painted heavy gauge steel.
- Inside cabinet insulation keep 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.

### 2 Tubular Aluminized Steel Heat Exchanger

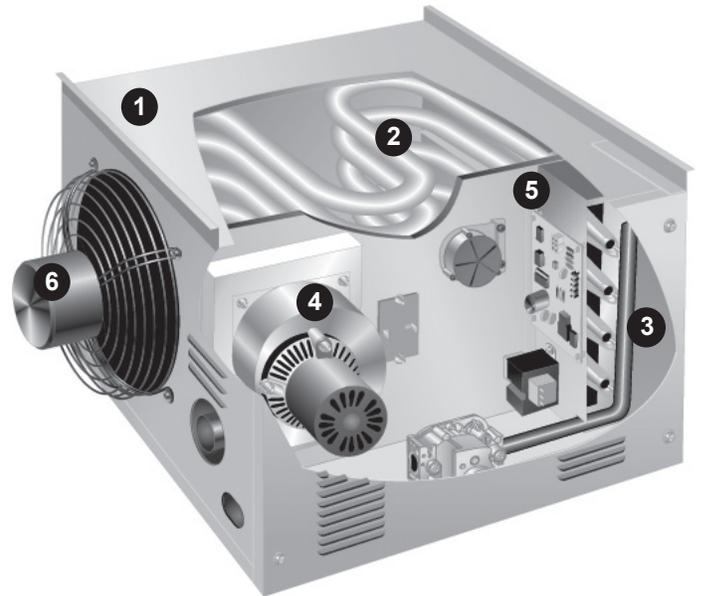
- Tubular heat exchanger is constructed of aluminized steel for superior resistance to corrosion and oxidation.
- Curving design of heat exchanger allows complete exposure of heating surfaces to supply air stream.
- Round tube surfaces create minimum air resistance and allow air to surround all surfaces 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.

### 5 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).

### 6 Direct Drive Fan

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

## Combustion Air Inducer

### 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 includes unit transition vent termination and wall thimble. Upward slope kits have drain connection, downward slope kits have double male adaptor. Provisions for hanging must be field supplied.

90° elbow is optional for ease of vent connection.

Straight pipe sections in various lengths are also available.

### Optional Accessories - Must be Ordered Extra

LPG/Propane Conversion Kit

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

## Venting

Unit 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.

## 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 100 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 Number	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	
<b>LF24 - 30</b>	No Adjustment	No Adjustment	No Adjustment	No Adjustment	No Adjustment	No Adjustment	No Adjustment	No Adjustment	No Adjustment	No Adjustment	No Adjustment
<b>LF24 - 60</b>	No Adjustment	No Adjustment	No Adjustment	No Adjustment	No Adjustment	No Adjustment	No Adjustment	No Adjustment	No Adjustment	No Adjustment	No Adjustment
<b>LF24 - 45</b>	No Adjustment	No Adjustment	No Adjustment	No Adjustment	No Adjustment	No Adjustment	No Adjustment	No Adjustment	No Adjustment	3.4	9.2
<b>LF24 - 75</b>	3.5	9.5	3.4	9.2	3.3	8.9	3.2	8.6	3.1	8.3	

## Specifications - LF24-30 to LF24-75

Gas Heating Performance	Model No.	LF24 - 30A	LF24 - 45A	LF24 - 60A	LF24 - 75A
		Heating Capacity Input - Btuh (kW)	30,000	45,000	60,000
	Heating Capacity Output - Btuh (kW)	24,300	36,500	48,000	60,000
	Steady State Efficiency	81.0%	81.0%	80.0%	80.0%
	Temperature Rise - °F	42	45	55	60
Connections - in.	Flue size (round) - Vertical Venting	<sup>1</sup> 3	<sup>1</sup> 3	<sup>2</sup> 4	<sup>2</sup> 4
	Horizontal Venting - Residential	<sup>3</sup> 4	<sup>3</sup> 4	<sup>4</sup> 5	<sup>4</sup> 5
	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	3	3
	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	830	950
Air throw at 8 ft. (2.4) mounting height - ft.	25	25	40	40	
<b>Electrical Characteristics</b>		115 volts - 60 hertz - 1 phase			
<b>Shipping Weight - lbs. 1 package</b>		60	63	87	91
<b>OPTIONAL ACCESSORIES - MUST BE ORDERED EXTRA</b>					
<b>LPG/Propane Kit</b>		20L05	20L05	20L05	20L05

<sup>1</sup>2-1/8 x 3 in. diameter adaptor is furnished with unit for flue connection.

<sup>2</sup>2 x 4 in. diameter adaptor is furnished with unit for flue connection.

<sup>3</sup>3 x 4 in. vent adaptor required (not furnished) for horizontal venting in residential applications.

<sup>4</sup>4 x 5 in. vent adaptor required (not furnished) for horizontal venting in residential applications.

## Installation Clearances - Inches

Top	1
Side opposite access panel	1
Access Panel Side	18
Back	18
Bottom	0
Flue	6

NOTE: Provide adequate clearance for servicing.  
See Installation Instructions for further installation considerations.

## Maximum Vent Connector Lengths

Number of Elbows	Maximum Length of Straight Vent Pipe
	ft.
1	25
2	20
3	15
4	10
5	5

NOTE: Minimum horizontal vent length is 5 ft.  
Horizontal venting requires the use of a 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.

## Horizontal Vent Kits and Elbow (Required for horizontal venting applications)

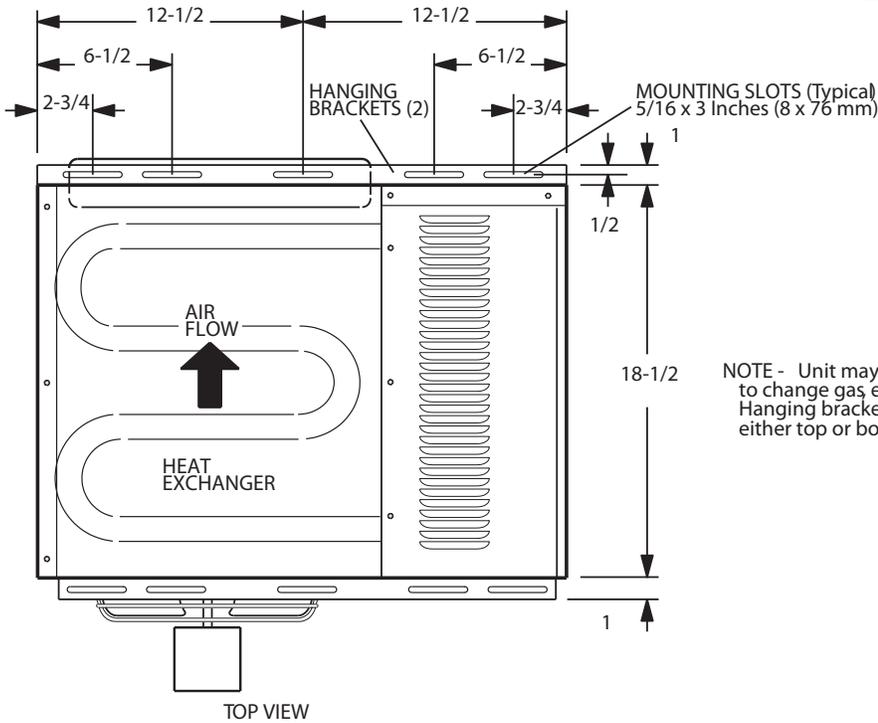
Unit Heater Model No.	Vent Diameter (in.)	Upslope Vent Kit	Catalog No.	Downslope Vent Kit	Catalog No.	90° Elbow	Catalog No.	<sup>1</sup> Minimum Vent Length (ft.)
LF24-30 LF24-45	3	C5VENT3KU	75W62	C5VENT3KD	75W66	C5VENT3E (Optional)	75W70	5
LF24-60 LF24-75	4	C5VENT4KU	75W63	C5VENT4KD	75W67	C5VENT4E (Optional)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

## Straight Vent Pipe (For horizontal venting)

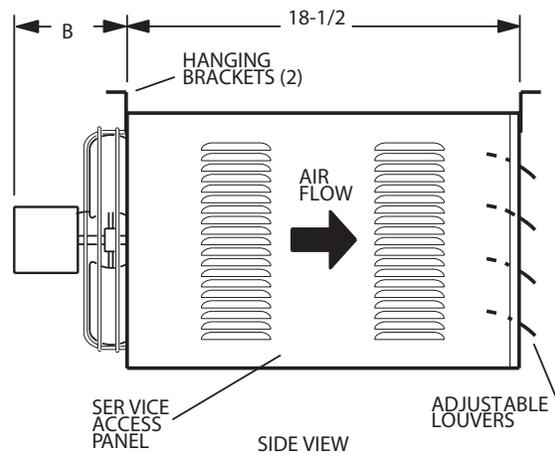
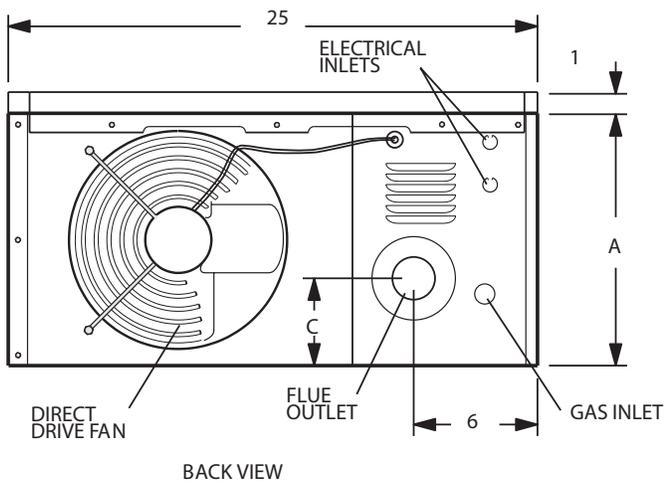
Unit Heater Model No.	Model No.	Vent Diameter (in.)	Length (in.)	Catalog No.
LF24-30 LF24-45	C5VENT3P6	3	6	75W74
	C5VENT3P12	3	12	75W75
	C5VENT3P36	3	36	75W76
LF24-60 LF24-75	C5VENT4P6	4	6	75W77
	C5VENT4P12	4	12	75W78
	C5VENT4P36	4	36	75W79

# Dimensions - In.

Model	LF24-30A LF24-45A	LF24-60A LF24-75A
<b>A</b>	12	17
<b>B</b>	5-1/2	6-1/2
<b>C</b>	4-1/4	6-3/4

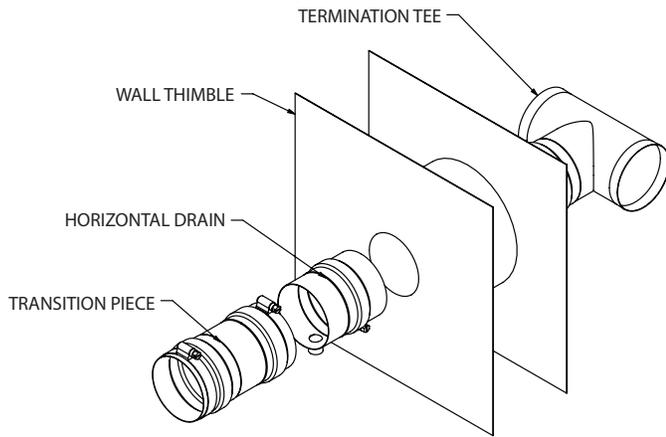


NOTE - Unit may be rotated 180 degrees for bottom to change gas electrical and flue positions. Hanging brackets may be installed on either top or bottom of unit.

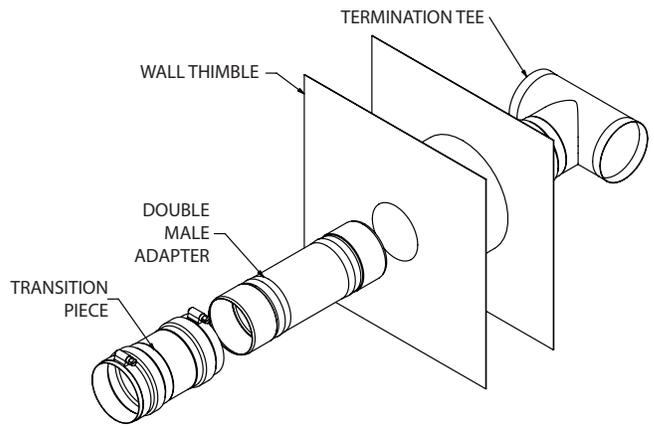


# Vent Kits and Accessories

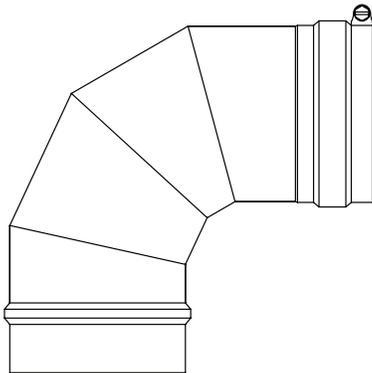
## HORIZONTAL VENT KITS (UPSLOPE)



## HORIZONTAL VENT KITS (DOWNSLOPE)



## 90° ELBOW (Typical)



## STRAIGHT PIPE (Typical)

