

ARMSTRONG GAS FIRED UNIT HEATERS

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ARMSTRONG GAS FIRED UNIT HEATERS

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COMPACT GAS FIRED UNIT HEATERS — HORIZONTAL — LOW PROFILE

Features

- Horizontal unit heaters are low profile, compact in design and easy to install.
- Steady State Efficiencies of up to 81%.
- Input – 30,000 to 75,000 BTU/HR.
- 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.

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.

Warranty

- Aluminized steel heat exchanger - limited ten year warranty.
- 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 of one year. Refer to the Equipment Limited Warranty certificate included with the equipment for details.

Cabinet

- Constructed of pre-painted heavy gauge painted 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 in Technical Data at end of section.



LF24 Series
Compact

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.

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.

(cont'd on next page)

ARMSTRONG GAS FIRED UNIT HEATERS

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COMPACT GAS FIRED UNIT HEATERS — HORIZONTAL — LOW PROFILE (cont'd)

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

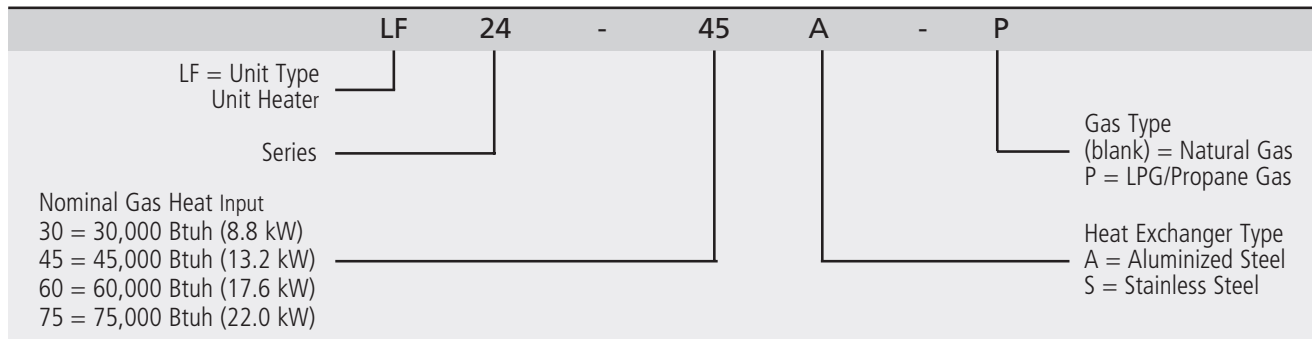
Controls

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.

Model Number Identification



STOCK #	MODEL	BTU/HR	WEIGHT/LBS	PRICE
891821	LF24-30A	30,000	60	\$1,663.00
891823	LF24-45A	45,000	63	1,793.00
891825	LF24-60A	60,000	87	2,038.00
891827	LF24-75A	75,000	91	2,176.00

NOTE: For ECCO Type B Gas Vent see front section of our catalogue. For Technical Data see end of section.

OPTIONAL ACCESSORIES – MUST BE ORDERED EXTRA

LPG/Propane Conversion Kit: Conversion kit is required for field change over from natural gas. Refer to Specifications Table in Technical Data at end of section.

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GAS FIRED UNIT HEATERS — HORIZONTAL — STANDARD

Features

- Horizontal unit heaters are compact in design and easy to install.
- Steady State Efficiencies of up to 80.5%.
- Input – 115,000 to 400,000 BTU/HR.
- Ideal for economical commercial heating systems.
- Shipped completely assembled with controls factory installed and wired.
- 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.
- Units may be vented horizontally or vertically.



LF24 Series
Standard

Approvals

- Unit certified by CSA International.
- Listed by California Energy Commission (CFC)
- Units are certified for natural or LPG/Propane gas
- ISO 9001 Registered Manufacturing Quality System

Warranty

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

Cabinet

- Constructed of heavy gauge painted 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 on outside of cabinet for easy access. Box contains all electrical and safety controls.
- Terminal strip provided for thermostat connections.
- 3/8" x 16 rivet nuts are located on the top of cabinet for suspending unit. See dimension drawing in Technical Data at end of section.

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.

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GAS FIRED UNIT HEATERS — HORIZONTAL — STANDARD (cont'd)

Limit Control

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

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

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

Direct Drive Fan

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

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 in Technical Data at end of section.

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.

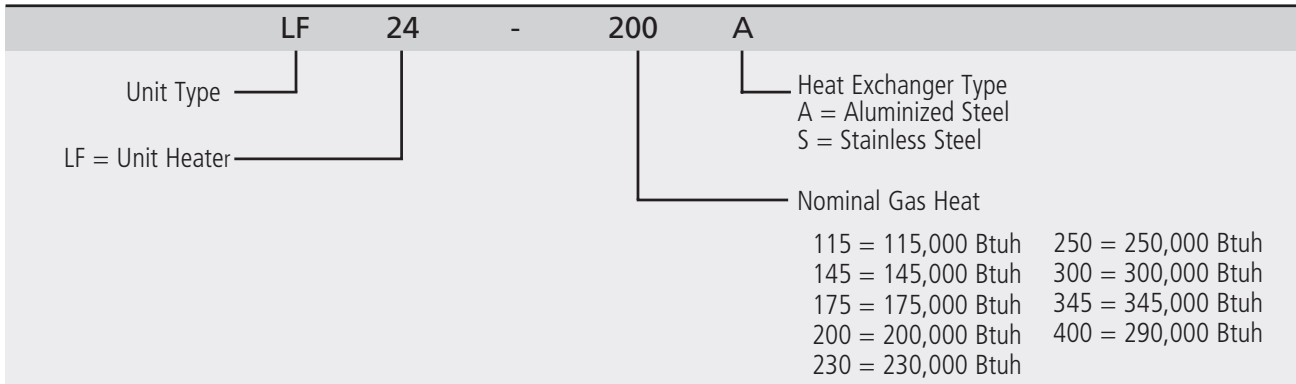
NOTE: Unit heaters fall under the Allied residential freight policy. Unit heaters are not shipped from the CRDCs and do not fall under the CRDC freight allowed policy or the Allied Commercial freight allowed policy. Contact your ECCO Supply sales representative for details.

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GAS FIRED UNIT HEATERS — HORIZONTAL — STANDARD (cont'd)

Model Number Identification



ALUMINIZED HEAT EXCHANGER

STOCK #	MODEL	BTU/HR	WEIGHT/LBS	PRICE
891829	LF24-115A	115,000	140	\$2,370.00
891831	LF24-145A	145,000	150	2,454.00
891833	LF24-175A	172,500	165	2,726.00
891835	LF24-200A	195,000	165	3,156.00
891837	LF24-230A	230,000	270	3,599.00
891839	LF24-250A	250,000	285	3,840.00
891841	LF24-300A	300,000	305	4,168.00
891843	LF24-345A	345,000	310	4,759.00
891845	LF24-400A	390,000	310	5,008.00

STAINLESS STEEL HEAT EXCHANGER

STOCK #	MODEL	BTU/HR	WEIGHT/LBS	PRICE
891847	LF24-115S	115,000	140	\$2,957.00
891849	LF24-145S	145,000	150	3,068.00
891851	LF24-175S	172,500	165	3,410.00
891853	LF24-200S	195,000	165	3,895.00
C891800	LF24-230S	230,000	270	P.O.A.
891857	LF24-250S	250,000	285	4,639.00
891859	LF24-300S	300,000	305	5,249.00
C891800	LF24-345S	345,000	310	P.O.A.
891863	LF24-400S	390,000	310	6,422.00

NOTE: For ECCO Type B Gas Vent see front section of our catalogue. For Technical Data, see end of section.

ARMSTRONG GAS FIRED UNIT HEATERS

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ACCESSORIES — FIELD INSTALLED

HANGING BRACKET KIT

STOCK #	MODEL	DESCRIPTION	PRICE
C891800	87277	Fits all models	P.O.A.

HIGH ALTITUDE PRESSURE SWITCH KIT

STOCK #	MODEL	DESCRIPTION	PRICE
C891800	36W49	LF24-175 – Required for proper operation at altitudes over 2500 ft. above sea level. LF24-100 through 145 models – Required for proper operation at altitudes over 5500 ft. above sea level.	P.O.A.

CONVERSION KITS — LPG

STOCK #	MODEL	DESCRIPTION	PRICE
891910	20L05	For -30, -45, -60 & -75 models	\$80.00
C891800	45L85	For -100 models	P.O.A.
891970	63J56	For -115 through -175 models	200.00
891912	20L07	For -200 models	80.00
C891800	63J57	For -230 and -345 models	P.O.A.
C891800	45L88	For -250 through -300 models	P.O.A.
C891800	20L06	For -400 models	P.O.A.

DISCHARGE NOZZLES — FIELD INSTALLED

STOCK #	MODEL	DESCRIPTION	PRICE
C891800	94K94	30° discharge for LF24-100/115/145	P.O.A.
C891800	94K95	30° discharge for LF24-175/200	P.O.A.
C891800	94K96	30° discharge for LF24-230/250/300/345/400	P.O.A.
C891800	94K98	45° discharge for LF24-100/115/145	P.O.A.
C891800	94K99	45° discharge for LF24-175/200	P.O.A.
C891800	95K100	45° discharge for LF24-230/250/300/345/400	P.O.A.
C891800	16L28	60° discharge for LF24-100/115/145	P.O.A.
C891800	16L29	60° discharge for LF24-175/200	P.O.A.
C891800	16L30	60° discharge for LF24-230/250/300/345/400	P.O.A.
C891800	15L96	90° discharge for LF24-100/115/145	P.O.A.
C891800	15L97	90° discharge for LF24-175/200	P.O.A.
C891800	15L98	90° discharge for LF24-230/250/300/345/400	P.O.A.

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HORIZONTAL VENTING

HORIZONTAL VENT KITS — UPSLOPE

STOCK #	MODEL	DESCRIPTION	PRICE
C891800	C5VENT3KU – 75W62	3" – LF24-30-45	P.O.A.
C891800	C5VENT4KU – 75W63	4" – LF24-60-75-100-115-145	P.O.A.
891706	C5VENT5KU – 75W64	5" – LF24-175-200-230-250-300	\$766.00
C891800	C5VENT6KU – 75W65	6" – LF24-345-400	P.O.A.

HORIZONTAL VENT KITS — DOWNSLOPE

STOCK #	MODEL	DESCRIPTION	PRICE
C891800	C5VENT3KD – 75W66	3" – LF24-30-45	P.O.A.
C891800	C5VENT4KD – 75W67	4" – LF24-60-75-100-115-145	P.O.A.
891714	C5VENT5KD – 75W68	5" – LF24-175-200-230-250-300	\$713.00
C891800	C5VENT6KD – 75W69	6" – LF24-345-400	P.O.A.

90° ELBOW

STOCK #	MODEL	DESCRIPTION	PRICE
C891800	C5VENT3E – 75W70	3" – LF24-30-45 (optional)	P.O.A.
C891800	C5VENT4E – 75W71	4" – LF24-60-75-100-115-145 (optional)	P.O.A.
891722	C5VENT5E – 75W72	5" – LF24-175-200-230-250-300 (required)	\$185.00
C891800	C5VENT6E – 75W73	6" – LF24-345-400 (required)	P.O.A.

STRAIGHT VENT PIPE FOR HORIZONTAL VENTING

STOCK #	MODEL	DESCRIPTION	PRICE
C891800	C5VENT3P6 – 75W74	3" x 6" – LF24-30-45	P.O.A.
C891800	C5VENT3P12 – 75W75	3" x 12" – LF24-30-45	P.O.A.
C891800	C5VENT3P36 – 75W76	3" x 36" – LF24-30-45	P.O.A.
C891800	C5VENT4P6 – 75W77	4" x 6" – LF24-60-75-100-115-145	P.O.A.
C891800	C5VENT4P12 – 75W78	4" x 12" – LF24-60-75-100-115-145	P.O.A.
C891800	C5VENT4P36 – 75W79	4" x 36" – LF24-60-75-100-115-145	P.O.A.
891738	C5VENT5P6 – 75W80	5" x 6" – LF24-175-200-230-250-300	\$75.00
891740	C5VENT5P12 – 75W81	5" x 12" – LF24-175-200-230-250-300	93.00
891742	C5VENT5P36 – 75W82	5" x 36" – LF24-175-200-230-250-300	163.00
C891800	C5VENT6P12 – 75W83	6" x 12" – LF24-345-400	P.O.A.
C891800	C5VENT6P36 – 75W84	6" x 36" – LF24-345-400	P.O.A.

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ARMSTRONG GAS FIRED UNIT HEATERS

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TECHNICAL DATA

COMPACT GAS FIRED UNIT HEATERS — HORIZONTAL — LOW PROFILE

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 100 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 Number	Manifold Pressure - in. w.c. (Pa)										
	2500-3500 ft. (760-1065 m)		3501-4500 ft. (1065-1370 m)		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	No Adjustment	No Adjustment	No Adjustment	No Adjustment	No Adjustment	No Adjustment	No Adjustment	No Adjustment	No Adjustment	No Adjustment	No Adjustment
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	No Adjustment	No Adjustment
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)	

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ARMSTRONG GAS FIRED UNIT HEATERS

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TECHNICAL DATA (cont'd)

COMPACT GAS FIRED UNIT HEATERS — HORIZONTAL — LOW PROFILE (cont'd)

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 (8.8)	45,000 (13.2)	60,000 (17.6)
Heating Capacity Output - Btuh (kW)		24,300 (7.1)	36,500 (10.7)	48,300 (14.1)	60,300 (17.6)
Steady State Efficiency		81.0%	81.0%	80.0%	80.0%
Temperature Rise - °F (°C)		42 (23)	45 (23)	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	4
	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) 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		201.05	201.05	201.05	201.05

¹2-1/8 x 3 in. (54 mm x 76 mm) diameter adaptor is furnished with unit for flue connection.

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

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

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

ARMSTRONG GAS FIRED UNIT HEATERS

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TECHNICAL DATA (cont'd)

COMPACT GAS FIRED UNIT HEATERS — HORIZONTAL — LOW PROFILE (cont'd)

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

Number 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

ARMSTRONG GAS FIRED UNIT HEATERS

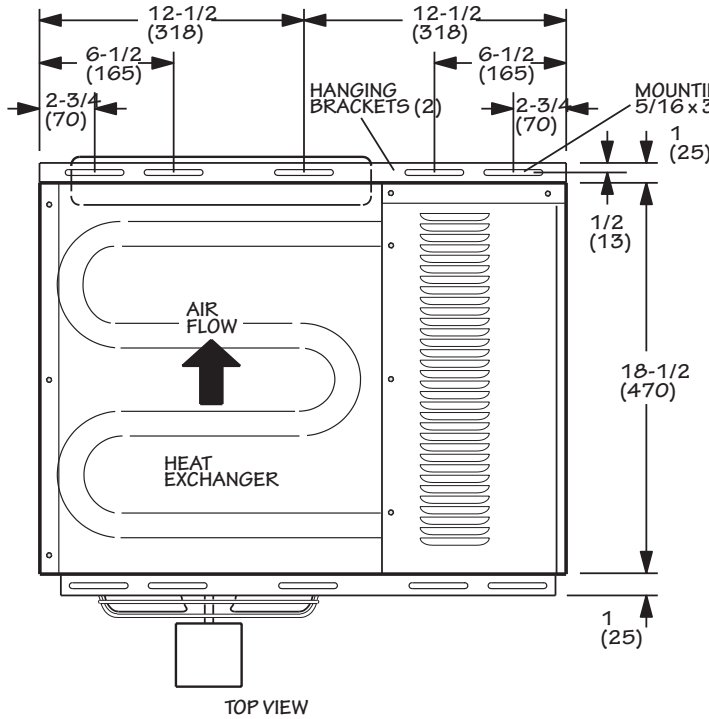
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TECHNICAL DATA (cont'd)

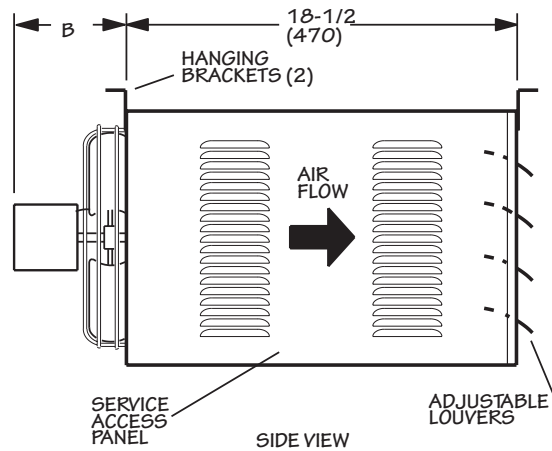
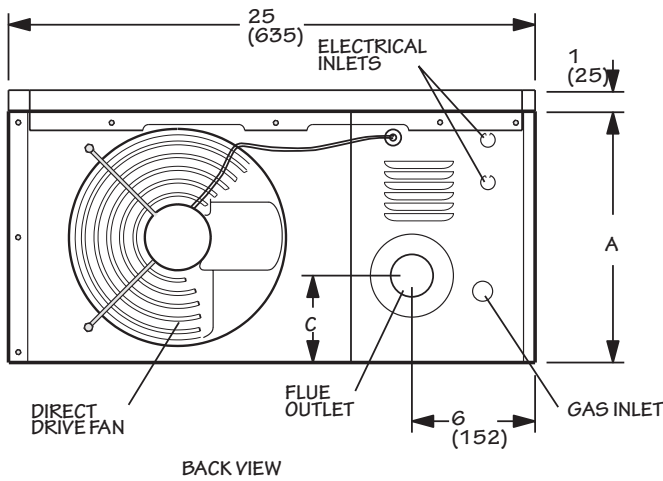
COMPACT GAS FIRED UNIT HEATERS — HORIZONTAL — LOW PROFILE (cont'd)

Dimensions - In. (mm)

Model	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)



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.



ARMSTRONG GAS FIRED UNIT HEATERS

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TECHNICAL DATA (cont'd)

GAS FIRED UNIT HEATERS — HORIZONTAL — STANDARD

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
	Heating Capacity Output - Btuh	92,000	116,000	138,000	156,000	184,000
	Steady State Efficiency	80.0%	80.0%	80.0%	80.0%	80.0%
Connections - in.	Flue size (round) - Vertical Venting Gas Piping Size	1/4 1/2	1/4 1/2	2/5 1/2	2/5 1/2	2/5 3/4
Fan Data	Air Volume -cfm	1900	1900	2200	2200	4400
	Number of fans	1	1	1	1	2
	Fan Diameter - in.	16	16	16	16	16
	Number of blades	4	5	4	4	4
	Number of motors	1	1	1	1	1
	Motor Output - hp RPM	1/8 1075	1/8 1075	1/8 1075	1/8 1075	1/8 1075
Weight Data	Net Weight - lbs	125	130	145	145	225
	Shipping - Weight - lbs.	140	150	165	165	270

ELECTRICAL DATA

Line Voltage Data - 60 HZ	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 Nozzel	Model No.	LF24 - 115S	LF24 - 145S	LF24 - 175S	LF24 - 200S	LF24 - 230S
		LF24 - 115A	LF24 - 145A	LF24 - 175A	LF24 - 200A	LF24 - 230A
Discharge Nozzel	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					•

¹2-1/8 x 3 in. diameter adaptor is furnished with unit for flue connection.

²2-1/4 x 2-3/4 in. rectangle to 5 in. round adaptor is furnished with unit for flue connection.

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

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ARMSTRONG GAS FIRED UNIT HEATERS

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TECHNICAL DATA (cont'd)

GAS FIRED UNIT HEATERS — HORIZONTAL — STANDARD (cont'd)

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	345,500	390,000
	Heating Capacity Output - Btuh	201,250	241,500	276,000	312,000
	Steady State Efficiency	80.5%	80.5%	80.0%	80.0%
Connections - in.	Flue size (round) - Vertical venting Gas Piping Size	1 1/2 3/4	2 3/4	2 3/4	2 3/4
Fan Data	Air Volume - cfm	4400	4400	4400	4400
	Number of fans	2	2	2	2
	Fan Diameter - in.	16	16	16	16
	Number of blades	5	5	4	4
	Number of motors	2	1	1	1
	Motor Output - hp RPM	1/8 1075	1/8 1075	1/8 1075	1/8 1075
Weight Data	Net Weight - lbs	270	280	285	310
	Shipping Weight - lbs.	285	305	310	310

ELECTRICAL DATA

Line Voltage Data - 60 HZ	115 volts - 1 phase			
Motor amps	2.1	2.1	2.1	2.1
Total Unit amps	9.0	9.0	9.0	9.0

OPTIONAL ACCESSORIES - MUST BE ORDERED EXTRA

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

¹2-1/8 x 3 in. diameter adaptor is furnished with unit for flue connection.

²2-1/4 x 2-3/4 in. rectangle to 5 in. round adaptor is furnished with unit for flue connection.

Throw Data

Model Number	Air Volume cfm	¹ Effective Throw feet
LF24 - 115, LF24 - 145	1900	60
LF24 - 175, LF24 - 200	2200	65
LF24 - 230, LF24 - 250	4400	80
LF24 - 300, LF34 - 345		
LF24 - 400		

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

¹Throw terminates where velocity reaches 40 ft. per minute.

Maximum Mounting Height

Model Number	Feet
LF24 - 115	16
LF24 - 145, LF24 - 175	20
LF24 - 200	
LF24 - 230, LF24 - 250	30
LF24 - 300, LF24 - 345	
LF24 - 400	

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ARMSTRONG GAS FIRED UNIT HEATERS

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TECHNICAL DATA (cont'd)

GAS FIRED UNIT HEATERS — HORIZONTAL — STANDARD (cont'd)

High Altitude Information

All units 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 feet, unit must be derated by 4 percent for each additional 1000 feet above 7500 feet.

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

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

Model Number	Natural Gas Manifold Pressure - in. w.c. (Pa)						
	0-2000 ft.	2000-2500 ft.	2500-3500 ft.	3500-4500 ft.	4500-5500 ft.	5500-6500 ft.	6500-7500 ft.
LF24 - 115	No Adjustment	No Adjustment	No Adjustment	No Adjustment	8.7	8.4	8.1
LF24 - 300							
LF24 - 145	No Adjustment	8.7	8.4	8.1	7.8	7.5	7.2
LF24 - 175	No Adjustment	No Adjustment	No Adjustment	No Adjustment	No Adjustment	No Adjustment	No Adjustment
LF24 - 230							
LF24 - 200	No Adjustment	No Adjustment	No Adjustment	9.2	8.9	8.6	8.3
LF24 - 250							
LF24 - 345							
LF24 - 400							

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

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TECHNICAL DATA (cont'd)

GAS FIRED UNIT HEATERS — HORIZONTAL — STANDARD (cont'd)

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.

Maximum Horizontal Vent Lengths

Number of Elbows	LF24-115-1-45-175-200	LF24-230-2-50-300	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	---	---

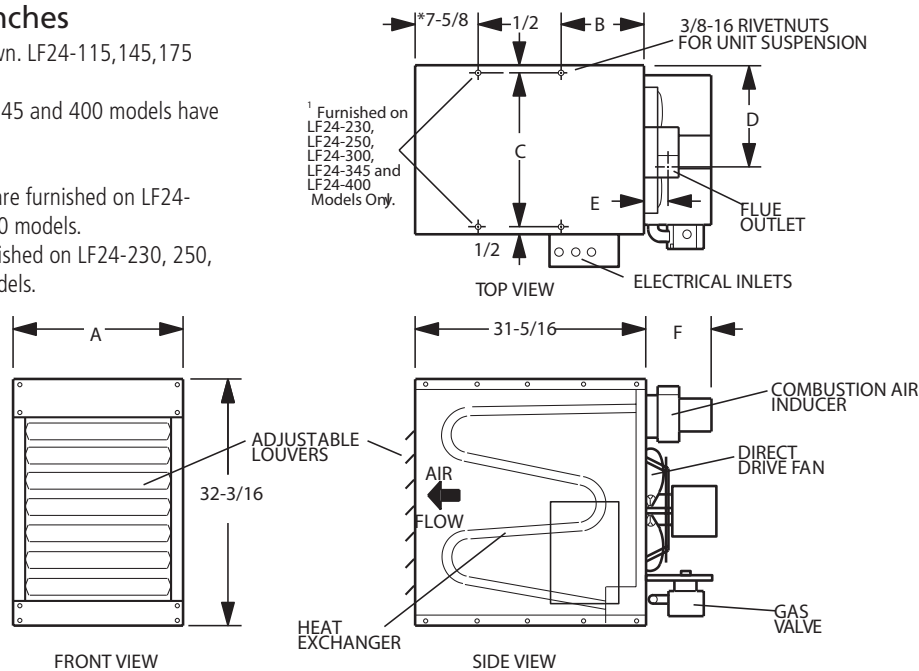
Dimensions - in inches

Note -Single fan model shown. LF24-115, 145, 175 and 200.

LF24-230, 250, 300, 345 and 400 models have two fans.

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.



Model Number	A	B	C	D	E	F
LF24 - 115	20-3/16	11-1/2	19-1/16	11-3/4	3-1/4	7-7/8
LF24 - 145			11-3/4	3-1/4	7-7/8	
LF24 - 175	23-1/8	11-1/2	22-1/2	8-1/2	3-1/4	8-11/16
LF24 - 200			8-1/2	3-1/4	8-11/16	
LF24 - 230	41-1/8	3-11/16	40	17-3/4	3-1/2	8-11/16
LF24 - 250						
LF24 - 300						
LF24 - 345	41-1/8	3-11/16	40	17-1/2	3-1/2	9-13/16
LF24 - 400						

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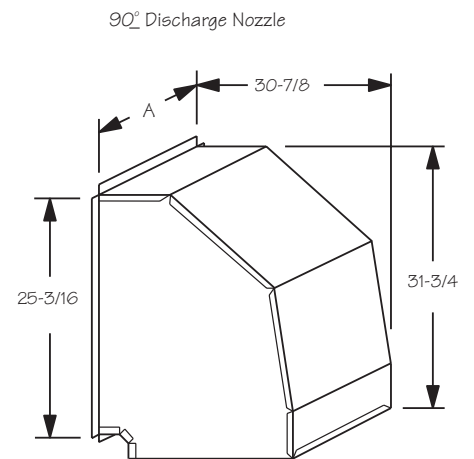
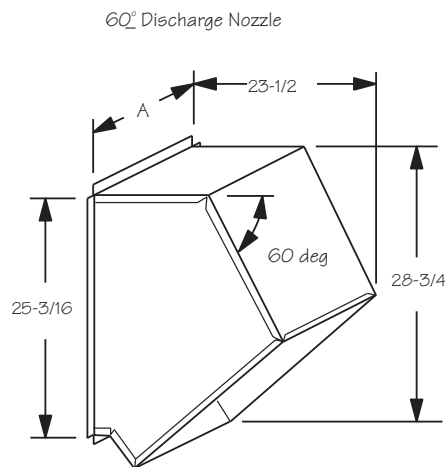
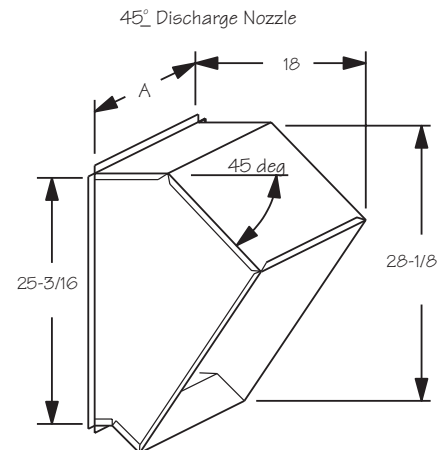
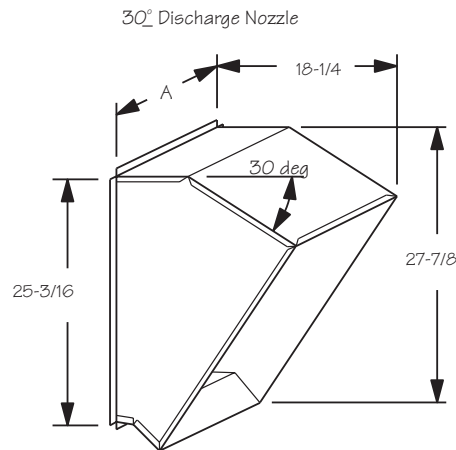
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TECHNICAL DATA (cont'd)

GAS FIRED UNIT HEATERS — HORIZONTAL — STANDARD (cont'd)

Accessory Dimensions in inches.



Model Usage	"A" Dimension in inches
LF24 - 115	21-1/4
LF24 - 145	
LF24 - 175	
LF24 - 200	
LF24 - 230	39-1/4
LF24 - 250	
LF24 - 300	
LF24 - 345	
LF24 - 400	

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