



GAS FURNACES

G60DF

ELITE® SERIES

Down-Flow - Two-Stage Heat

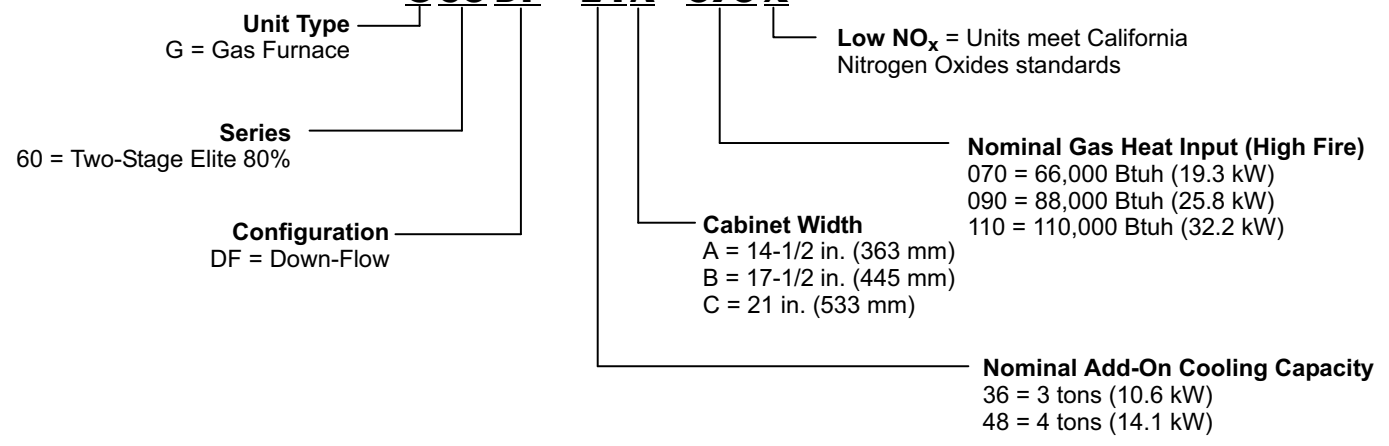
Bulletin No. 210355
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AFUE - 80%
Input - 66,000 to 110,000 Btuh
Add-on Cooling - 2 to 4 Tons

MODEL NUMBER IDENTIFICATION

G 60 DF - 24 A - 070 X



FEATURES

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WARRANTY

Duralok® Aluminized Steel Heat Exchangers - Limited **twenty year** warranty in residential applications, ten years in non-residential applications.

All other covered components - Limited **five year** warranty in residential applications and one year in non-residential applications.

Refer to Lennox Equipment Limited Warranty certificate included with equipment for details.

APPLICATIONS

Input capacities (high fire) of 66,000, 88,000, and 110,000 Btuh.

Energy efficiency (AFUE) of 80%.

Utility room, alcove, closet or attic installation.

Lennox add-on evaporator coils, electronic air cleaners and power humidifiers can easily be added to furnace.

Shipped factory assembled with all controls installed and wired.

Each unit factory test operated to insure proper operation.

APPROVALS

Units certified by CSA International and ratings are certified by GAMA.

Units tested and rated according to US DOE test procedures and FTC labeling regulations.

Approved by California Energy Commission and meet California Seasonal Efficiency requirements and California Nitrogen Oxides (NO_x) Standards.

"X" models meet California Nitrogen Oxides (NO_x) Standards.

Blower data from unit tests conducted in Lennox Laboratory air test chamber.

ISO 9001 Registered Manufacturing Quality System.

HEATING SYSTEM

1 Lennox DuraLok® Aluminized Steel Heat Exchanger

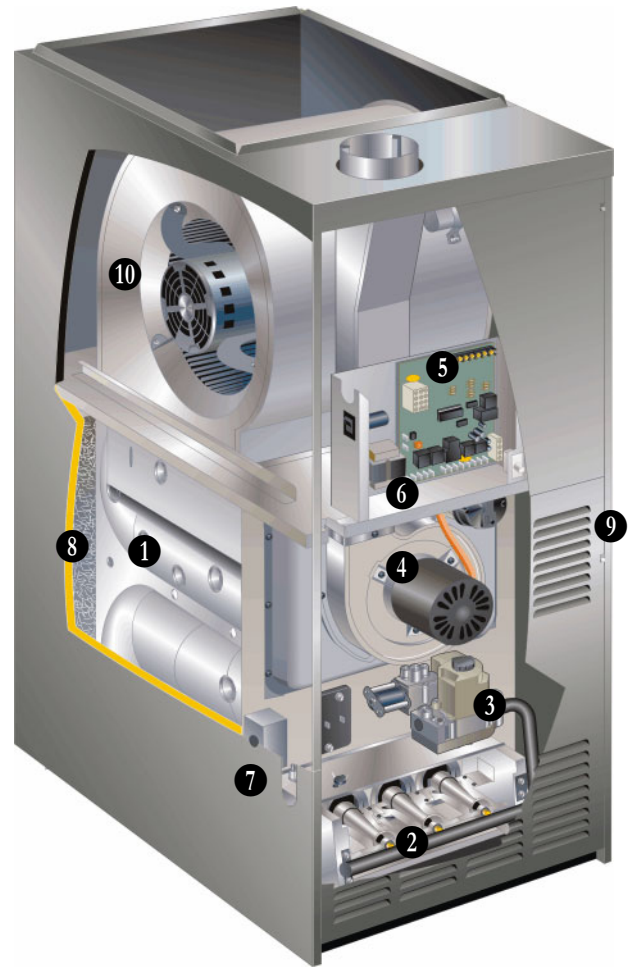
Heavy gauge aluminized steel heat exchanger.

Crimped seam clamshell type design.

Designed for normal expansion and contraction without metal fatigue.

Minimum resistance to air flow.

Heat exchanger has been laboratory life cycle tested.



2 Inshot Burners

Aluminized steel inshot burners.

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

Burner assembly is removeable from the unit as a single component for servicing.

3 SureLight® Hot Surface Ignitor

Tough, reliable, long-life, trouble-free performance.

Tungsten heater element sandwiched between two plates of silicon nitride.

Cemented to steatite block for protection against current leakage.

Ignition leads constructed of nickel plated copper enclosed in high temperature Teflon insulation for dependable operation.

No electrical noise.

4 Two-Stage Gas Control Valve

24 volt redundant combination two stage gas control valve combines manual shut off valve (On-Off), automatic electric valve (dual) and gas pressure regulation into a compact combination control.

5 Two-Speed Combustion Air Inducer

Shaded pole heavy duty two-speed blower prepurges heat exchanger and safely vents flue products.

Dual pressure switches (low fire/high fire) prove blower operation before allowing gas valve to open.

Operates only during heating cycle.

FEATURES

HEATING SYSTEM - CONTINUED

6 Limit Controls

Automatic reset, primary and secondary limits are accurately located.

Primary limit factory installed on vestibule panel on all units, secondary limit factory installed on blower housing.

Flame Rollout Switches (2)

Manual reset.

Factory installed on burner box.

Switches provide protection from abnormal operating conditions.

OPTIONS

High Altitude Pressure Switch Kit

Required on certain units for proper unit operation on installations above 4,500 feet.

High Altitude Orifice Kit - Natural Gas Only

Required for all natural gas models for proper unit operation at altitudes of 7,501 to 10,000 feet.

LPG/Propane Conversion Kit

Required for field changeover from natural gas to LPG/Propane.

Natural Gas Conversion Kit

Required for field changeover from LPG/Propane to natural gas.

CONTROLS

7 SureLight® Integrated Two-Stage Furnace Control Board

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

Combustion air inducer is controlled by board. Prior to ignition, a pre-purge cycle for 15 seconds is initiated. After the main burners are turned off, a post-purge cycle for 5 seconds is run.

Adaptive technology of ignition control board continuously monitors and adjusts the ignitor power to operate at minimum ignitor temperature required for ignition, prolonging ignitor life.

Electronic flame sensor control assures safe and reliable operation.

Should loss of flame occur, flame sensor controls will initiate 5 attempts at re-ignition before locking out unit operation for 60 minutes.

Watchguard type circuit automatically resets ignition controls after one hour of continuous thermostat demand after unit lockout, eliminating nuisance calls for service. Jumper settings for single or two stage thermostat operation.

Two selectable second stage recognition times (10 and 15 minutes) are available on the board when the furnace is used with a single stage thermostat. When used with a two stage thermostat, furnace will only initiate second stage operation with a second stage thermostat demand.

Fan control consists of adjustable blower timed-off delay (60, 90, 120, 180 seconds - factory setting 90 seconds) and fixed blower timed-on delay (45 seconds).

For air-conditioning applications, blower is automatically energized on thermostat demand for cooling. Adjustable blower timed-off delay in cooling mode (2 or 45 seconds - factory setting 45 seconds).

Two accessory terminals furnished for additional power supply requirements for 120 volt (less than 1 amp) power humidifiers and powered air cleaners.

Ignition control has two LED's to indicate status and as an aid in troubleshooting.

8 24 Volt Transformer

Furnished and factory installed in control box.

40VA transformer has circuit breaker wired in series.

9 Field Wiring Make-up Box

Furnished for line voltage wiring.

Factory installed internally on left side of furnace.

Box may be installed internally or externally on either side of furnace.

OPTIONS

Thermostat

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

CABINET

Low profile, narrow width cabinet allows easy installation. Heavy gauge cold rolled steel constructed.

Pre-painted cabinet finish.

Flue outlet on top of cabinet.

Flanges provided on return air opening for ease of plenum connection.

- 10** Insulated cabinet with foil faced insulation on sides and back of heating compartment and mat faced insulation in blower compartment.

Complete service access.

- 11** Tool-less latches on burner and blower doors assure positive lock.

Safety interlock switch automatically shuts off power to unit when blower compartment access door is removed.

- 12** Gas piping and electrical inlets are provided in both sides of cabinet.

OPTIONS

Down-Flow Additive Base

Required for heating only units installed on combustible floors.

Not required in add-on cooling applications.

See dimension drawing.

BLOWER

- 13** Multi-speed direct drive blower.

Statically and dynamically balanced.

Resiliently mounted.

Blower assembly easily removed for servicing

Blower speeds are easily changed on the SureLight® integrated furnace control board. See blower performance tables.

COIL MATCH-UP

All furnaces exactly match CR33 cased, down-flow indoor coils with adaptor rails, furnished with coil.

FILTER (NOT FURNISHED)

Filter and provisions for external mounting must be field provided.

SPECIFICATIONS

Gas Heating Performance	Model No.	---	G60DF-36B-090	G60DF-48C-110
	Low NO _x Model No.	G60DF-36A-070X	---	---
High Fire	Input - Btuh high fire	66,000	88,000	110,000
	Output - Btuh high fire	54,000	72,000	90,000
	Temperature rise range - °F	35 - 65	45 - 75	45 - 75
	Gas Manifold Pressure (in. w.g.)	3.5 / 10.0	3.5 / 10.0	3.5 / 10.0
	Natural Gas / LPG/Propane			
Low Fire	Input - Btuh	45,000	60,000	75,000
	Output - Btuh	36,000	49,000	60,000
	Temperature rise range - °F	15 - 45	20 - 50	20 - 50
	Gas Manifold Pressure (in. w.g.)	1.7 / 4.9	1.7 / 4.9	1.7 / 4.9
	Natural Gas / LPG/Propane			
	¹ AFUE	80.0%	80.0%	80.0%
	California Seasonal Efficiency	74.5%	75.0%	75.4%
	High static - in. w.g.	.50	.50	.50
Connections	Flue connection - in. round	4	4	4
	Gas pipe size IPS - in.	1/2	1/2	1/2
Indoor Blower	Wheel nominal diameter x width - in.	10 x 8	10 x 8	10 x 10
	Motor output - hp	1/3	1/3	1/2
	Tons of add-on cooling	2 - 3	2 - 3	2.5 - 4
Shipping Data	lbs. - 1 package	132	146	169
Electrical characteristics		120 volts - 60 hertz - 1 phase (less than 12 amps)		

NOTE - Filters and provisions for mounting are not furnished and must be field provided.

¹ Annual Fuel Utilization Efficiency based on DOE test procedures and according to FTC labeling regulations. Isolated combustion system rating for non-weatherized furnaces.

OPTIONAL ACCESSORIES - MUST BE ORDERED EXTRA

	"A" Width Models	"B" Width Models	"C" Width Models
CABINET ACCESSORIES			
Down-Flow Additive Base	11M59	11M60	11M61

GAS HEAT ACCESSORIES

Input	High Altitude Orifice Kit Natural Gas Only	High Altitude Pressure Switch Kit Order two each	LPG/Propane Kit		LPG/Propane to Natural Gas Kit	
	7501-10,000 ft.	7501-10,000 ft.	0-7500 ft.	7501-10,000 ft.	0-7500 ft.	¹ 7501-10,000 ft.
-all models	44W51	44W31	44W48	44W50	44W49	44W49 + 44W51

¹ High Altitude Orifice Kit is required and must be ordered separately for applications from 7501 to 10,000 ft.

INSTALLATION CLEARANCES

Vent Type	Type B1	Type C
Sides	0 inches (0 mm)	¹ 0 inches (0 mm)
Rear	0 inches (0 mm)	0 inches (0 mm)
Top	1 inch (25 mm)	1 inch (25 mm)
Front	3 inches (76 mm)	3 inches (76 mm)
Front (alcove)	24 inches (610 mm)	24 inches (610 mm)
Front (service)	24 inches (610 mm)	24 inches (610 mm)
Floor	² Combustible	² Combustible
Flue	1 inch (25 mm)	6 inches (152 mm)

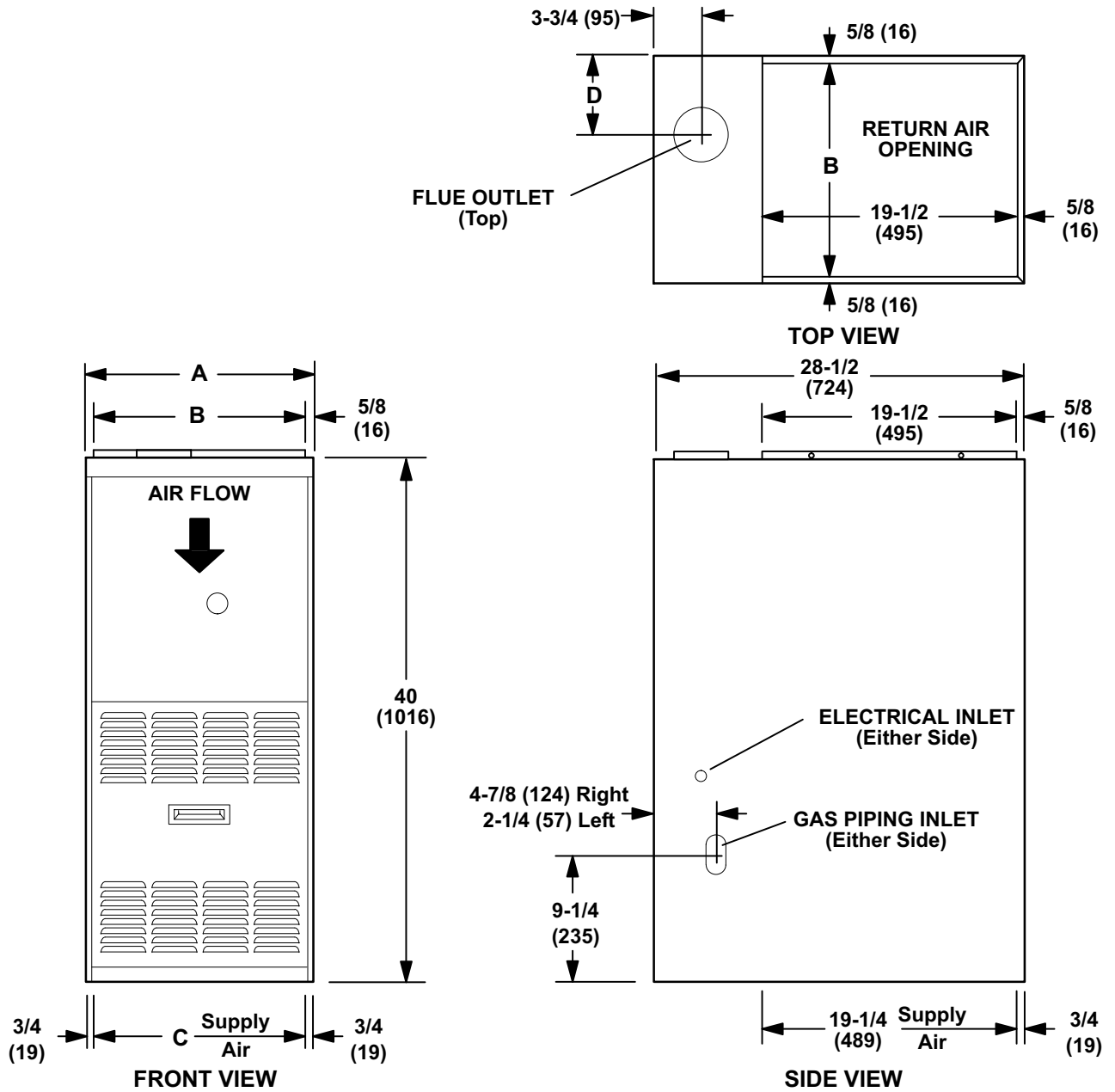
NOTE - Air for combustion must conform to the methods outlined in the National Fuel Gas Code (NFPA 54/ANSI-Z223.1) or the National Standard of Canada CAN/CSA-B149.1 "Natural Gas and Propane Installation Code".

NOTE - In the U.S. flue sizing must conform to the methods outlined in the current National Fuel Gas Code (NFPA 54/ANSI-Z223.1) or applicable provisions of local building codes. In Canada flue sizing must conform to the methods outlined in National Standard of Canada CAN/CSA-B149.1.

¹ Left side requires 2 in. clearance on 17-1/2 in. "B" width cabinets.

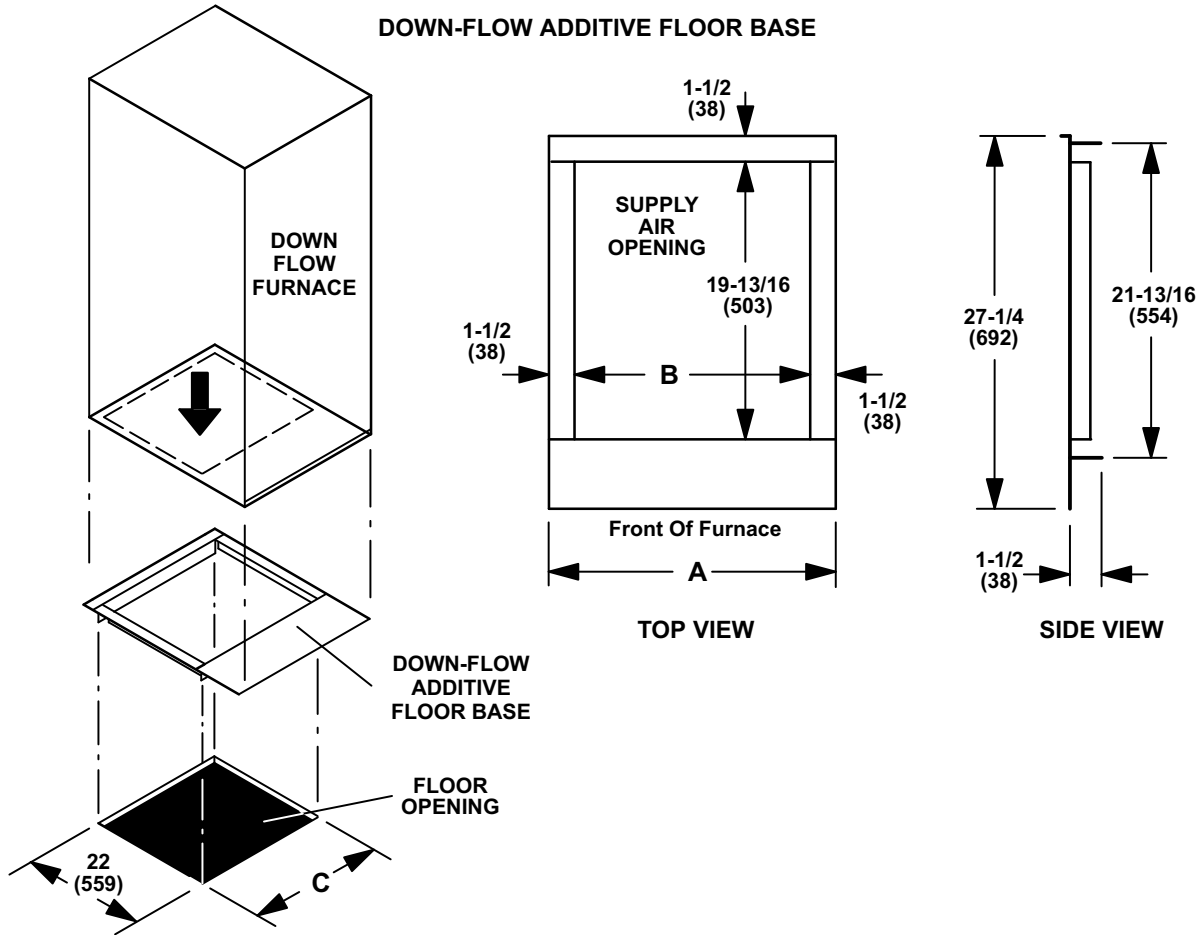
² Clearance for installation on combustible floor if optional additive base is installed between furnace and combustible floor. Not required in add-on cooling applications if installed in accordance with local codes or National Fuel Gas Code ANSI-Z223.1.

DIMENSIONS - INCHES (MM)



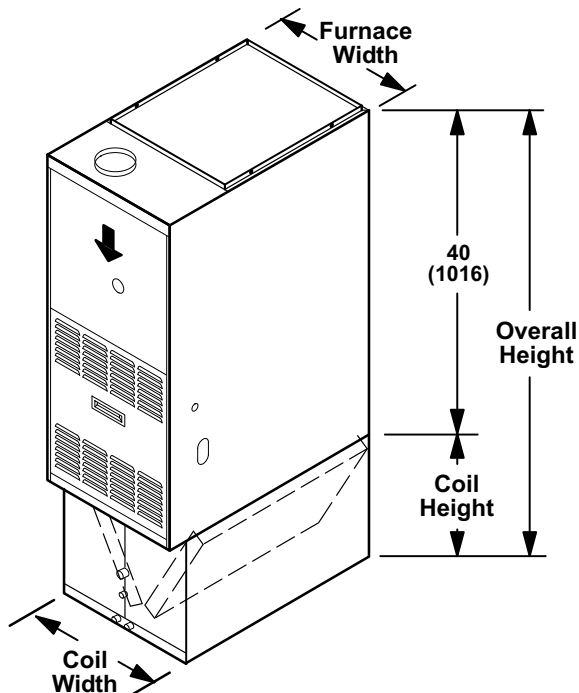
Model No.	A		B		C		D	
	in.	mm	in.	mm	in.	mm	in.	mm
G60DF-36A-070X	14-1/2	368	13-1/4	337	13	330	4-1/2	114
G60DF-36B-090	17-1/2	446	16-1/4	413	16	406	6	152
G60DF-48C-110	21	533	19-3/4	502	19-1/2	495	7-3/4	197

OPTIONAL ACCESSORY DIMENSIONS - INCHES (MM)



Model No.	A		B		C	
	in.	mm	in.	mm	in.	mm
G60DF-36A-070X	16-9/16	421	13-9/16	344	15-3/4	400
G60DF-36B-090	19-9/16	497	16-9/16	421	18-3/4	476
G60DF-48C-110	23-1/16	586	20-1/16	510	22-1/4	565

DIMENSIONS - INCHES (MM) - FURNACE/COIL COMBINED DIMENSIONS



Model Number	Coil Width		Furnace Width		Coil Height		Overall Height	
	in.	mm	in.	mm	in.	mm	in.	mm
CR33-18A-F	17-1/2	446	14-1/2	368	14-1/8	359	54-1/8	1375
CR33-24A-F	17-1/2	446	14-1/2	368	13-1/4	337	53-1/4	1353
CR33-24B-F	17-1/2	446	17-1/2	446	13-1/4	337	53-1/4	1353
CR33-30/36A-F	17-1/2	446	14-1/2	368	16-1/8	410	56-1/8	1426
CR33-30/36B-F	17-1/2	446	17-1/2	446	16-1/8	410	56-1/8	1426
CR33-30/36C-F	21	533	21	533	16-1/8	410	56-1/8	1426
CR33-48B-F	21	533	17-1/2	446	20	508	60	1524
CR33-48C-F	21	533	21	533	20	508	60	1524
CR33-50/60C-F	24-1/2	622	21	533	23-5/8	600	53-5/8	1362
CR33-60D-F	24-1/2	622	24-1/2	622	23-5/8	600	53-5/8	1362

FILTER AIR RESISTANCE

For 1 Inch Cleanable Filter (Field Provided)

cfm	in. w.g.
0	0.00
200	0.01
400	0.03
600	0.04
800	0.06
1000	0.09
1200	0.12
1400	0.15
1600	0.19
1800	0.23
2000	0.27
2200	0.33
2400	0.38
2600	0.44

BLOWER/WATTS DATA

G60DF-36A-070X PERFORMANCE

External Static Pressure in. w.g.	Air Volume / Watts at Different Blower Speeds							
	High		Medium-High		Medium-Low		Low	
	cfm	Watts	cfm	Watts	cfm	Watts	cfm	Watts
0.00	1475	616	1345	554	1150	495	990	415
0.05	1450	606	1320	543	1140	481	985	407
0.10	1425	595	1300	532	1125	466	975	398
0.15	1395	585	1275	521	1115	452	970	390
0.20	1375	574	1255	510	1105	437	965	381
0.25	1345	563	1230	494	1090	428	955	371
0.30	1320	552	1205	478	1075	418	945	360
0.40	1250	528	1150	455	1040	395	920	346
0.50	1200	508	1095	432	1000	374	880	331
0.60	1110	475	1035	409	950	354	830	313
0.70	1030	455	970	390	855	338	720	280
0.80	960	434	875	359	735	299	665	266
0.90	770	389	715	321	665	278	590	244

G60DF-36B-090 PERFORMANCE

External Static Pressure in. w.g.	Air Volume / Watts at Different Blower Speeds							
	High		Medium-High		Medium-Low		Low	
	cfm	Watts	cfm	Watts	cfm	Watts	cfm	Watts
0.00	1600	608	1410	526	1165	436	965	355
0.05	1580	599	1400	518	1165	428	965	351
0.10	1560	589	1390	509	1160	420	970	346
0.15	1530	573	1370	497	1155	413	965	341
0.20	1495	556	1350	485	1150	406	965	335
0.25	1465	544	1325	473	1135	398	955	329
0.30	1430	532	1300	460	1125	389	945	323
0.40	1370	509	1250	438	1095	373	935	313
0.50	1295	482	1200	420	1055	355	900	302
0.60	1215	456	1140	397	1010	343	860	285
0.70	1140	437	1055	371	915	313	800	272
0.80	1000	401	950	342	850	295	730	251
0.90	900	374	820	313	740	272	---	---

NOTE - All air data is measured external to unit with 1 in. (25 mm) cleanable filter (not furnished - field provided) in place. Also see Filter Air Resistance table.

G60DF-48C-110 PERFORMANCE

External Static Pressure in. w.g.	Air Volume / Watts at Different Blower Speeds							
	High		Medium-High		Medium-Low		Low	
	cfm	Watts	cfm	Watts	cfm	Watts	cfm	Watts
0.00	2035	846	1790	712	1510	595	1225	477
0.05	2000	825	1760	694	1495	581	1225	470
0.10	1970	803	1730	675	1475	567	1220	463
0.15	1925	781	1710	657	1475	555	1220	455
0.20	1880	758	1685	638	1465	542	1215	447
0.25	1835	736	1655	618	1440	528	1200	437
0.30	1795	714	1625	597	1420	514	1185	427
0.40	1680	669	1550	564	1360	483	1135	400
0.50	1620	630	1445	524	1280	447	1065	371
0.60	1445	592	1310	479	1165	404	1000	343
0.70	1290	545	1180	434	1055	369	905	319
0.80	1155	502	1065	406	955	348	815	296
0.90	1010	472	930	372	840	320	690	265

NOTE - All air data is measured external to unit with 1 in. (25 mm) cleanable filter (not furnished - field provided) in place. Also see Filter Air Resistance table.

REVISIONS

Sections	Description of Change
Optional Accessories Table/ Gas Heating Accessories	Updated High Altitude Pressure Switch Kits, High Altitude Orifice Kits, Natural to LPG Conversion Kits and LPG to Natural Conversion Kits



LENNOX

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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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