G24E SERIES
EXTERNAL GAS FURNACES
17.6 to 32.8 kW (60 000 to 112 000 Btuh) Output
7.0 to 21.1 kW (2 to 6 Tons) Nominal Add-on Cooling

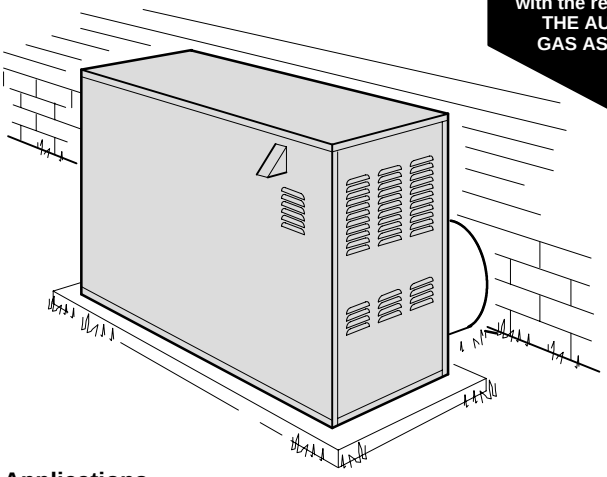
G24E

Bulletin #490059
January 1999
Supersedes June 1994

MAKER'S WARRANTY

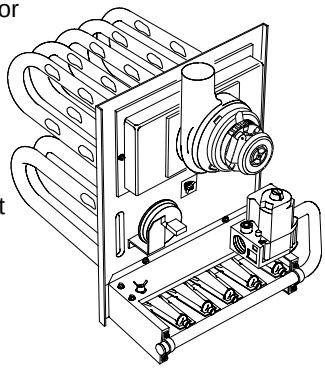
This appliance complies with the requirements of THE AUSTRALIAN GAS ASSOCIATION

Typical Application



Applications
- G24E series gas fired furnaces include five models (natural gas or LPG/propane) with input capacities of 22.0, 29.3, 35.2 and 41.0 kW (75 000, 100 000, 120 000 and 140 000 Btuh).
- Lennox add-on evaporator coils can be easily added to the furnace.
- Units are shipped factory assembled with all controls installed and wired.
- Each unit is factory test operated to insure proper operation.

Tubular Aluminized Steel Heat Exchanger
- Constructed of aluminized steel for superior resistance to corrosion and oxidation.
- Curving design allows complete exposure of heating surfaces to supply air stream.
- Round 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.



Induced Draft Blower
- Induced draft blower prepurges heat exchanger and safely vents flue products.
- Can be installed for left or right air discharge.
- Blower is controlled by the furnace control center board for a prepurge cycle (15 seconds) and a post purge cycle (5 seconds).
- Pressure switch proves blower operation before allowing gas valve to open.
- Induced draft blower operates only during heating cycle.

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.

Gas Control Valve
- 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.

Direct Spark Ignition
- Solid-state electronic direct spark ignition control provides positive and safe 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 during ignition or heating operation, the control will initiate 5 tries at re-ignition before defaulting to "lock-out" mode. "Lock-out" can be manually reset by powering unit off, then on.
- Ignition control has light emitting diode (LED) to indicate status and as an aid in troubleshooting.

Cabinet
- Constructed of heavy gauge steel with a primed and prepainted topcoat finish.
- Cabinet surface temperatures are low due to foil faced fiberglass insulation on side and back panels of heat section.
- Blower section is completely insulated with mat faced fiberglass insulation.
- Complete service access is accomplished by removing one piece front panel and interior blower access door.
- Blower assembly may be completely removed from unit for service.
- Safety interlock switch located on blower access door automatically shuts off power to the unit when door is removed.
- Gas piping inlets are provided in both sides of cabinet.
- Electrical knockouts are provided in both sides of cabinet.
- Units have dimples for locating supply and return air openings on either side of cabinet for duct connection.
- Cabinets also have internal coil deck for optional evaporator coil. See dimension drawing.

FEATURES

Limit Controls
- Factory installed and accurately located limit controls provide protection from abnormal operating conditions.
- Primary limit is located on heating compartment vestibule panel.
- Two secondary limits are located on either side of the blower housing.
- If the limits fail 5 times during an unsatisfied thermostat demand, the control will default to the 60 minute “Watchguard” mode.
- The Watchguard circuit automatically resets ignition control after one hour of continuous thermostat demand, eliminating nuisance service calls.

Direct Drive Blower
- Units are equipped with quiet multi-speed direct drive blower.
- Each blower assembly is statically and dynamically balanced.
- Multiple-speed leadless motor is resiliently mounted.
- See blower performance tables.

Furnace Control Center Board
- Furnished and factory installed on interior blower access door.
- Solid-state board contains all necessary controls and relays to operate blower, gas valve, combustion air blower and ignition.
- Board also monitors flame, limit and gas valve operation.
- Fan control consists of blower timed-off delay (adjustable from 60 to 180 seconds, factory set at 120 seconds) and non-adjustable blower timed-on delay (45 seconds).
- For air-conditioning applications, blower is automatically energized on thermostat demand for cooling.
- Continuous low speed blower operation is furnished on board.
- Also included is a low voltage terminal strip for thermostat connections.
- Two diagnostic LED’s are furnished on board as an aid in servicing the system.
- Two 240 volt accessory terminals are provided on control board for operation of accessories during unit operation.

Flame Rollout Switches
- Dual manual reset switches are furnished as standard and are factory installed on either side of the burner box.
- Switches prevent unit operation in the event combustion products passage through the flueway is reduced or blocked.

Transformer
- 24 volt control transformer is furnished as standard equipment and is factory installed on control panel.

Filters (Not Furnished)
- Filters are not furnished and must be field provided.
- Provisions for mounting filters are not provided and must be field fabricated.

OPTIONAL ACCESSORIES - MUST BE ORDERED EXTRA

LPG/Propane Conversion Kit (Optional)
- For propane models a conversion kit is required for field changeover from natural gas.
- Kit is not furnished and must be ordered extra. See specifications table for order number.

Thermostat (Optional)
- Heating thermostat is not furnished and must be ordered extra. See Lennox Price Book.
- For all-season applications, heating and cooling thermostat is available with the condensing unit.

Evaporator Coils (Optional)
- Coils are available for field insertion in space provided in unit cabinet.

SPECIFICATIONS

Model Number		G24E2/3-75	G24E3/4-100	G24E4/5-100	G24E4/5-120	G24E4/5-140
Input — MJ/h (Btuh)		79.1 (75 000)	105.5 (100 000)		126.6 (120 000)	147.7 (140 000)
Output — kW (Btuh)		18.1 (61 700)	24.0 (82 000)		28.8 (98 400)	33.7 (114 900)
Flue size connection diameter — mm (in.)		102 (4)				
Temperature rise range — °C (°F)		25 - 42 (45 - 75)				
Maximum external static pressure — Pa (in.w.g.)		124 (0.5)				
Gas connection — iron pipe size	mm	13				
	in.	1/2				
Blower wheel nominal diameter x width	mm	254 x 178	305 x 203	305 x 229		
	in.	10 x 7	12 x 8	12 x 9		
Blower motor output — W (hp)		373 (1/2)	746 (1)			
Nominal cooling that can be added	kW	7.0 thru 10.6	7.0 thru 14.1	12.3 thru 21.1		12.3 thru 21.1
	Tons	2 thru 3	2 thru 4	3-1/2 thru 6		3-1/2 thru 6
Shipping weight — kg (lbs.) 1 package		77 (170)	98 (215)			105 (230)
Electrical characteristics		220/240 volts — 50 hertz — 1 phase (all models)				
OPTIONAL ACCESSORIES - Must Be Ordered Extra						
LPG/Propane Kit		LB-69845J **(81J13)**	LB-69845K **(81J14)**			

BLOWER DATA

G24E2/3-75 BLOWER PERFORMANCE

External Static Pressure		Air Volume at Various Blower Speeds							
		High		Medium-High		Medium-Low		Low	
Pa	in. w.g.	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm
0	0	800	1700	685	1450	565	1200	465	990
25	0.10	785	1665	670	1420	560	1185	455	960
50	0.20	765	1620	650	1380	545	1150	440	930
75	0.30	750	1585	630	1340	530	1120	425	905
100	0.40	725	1535	615	1305	515	1090	410	870
125	0.50	700	1485	595	1265	495	1050	400	850
150	0.60	680	1440	590	1245	485	1025	385	820
175	0.70	655	1385	565	1195	470	995	355	750

NOTE — All air data is measured external to unit without cooling coil or air filter.

BLOWER DATA

G24E3/4-100 BLOWER PERFORMANCE

External Static Pressure		Air Volume at Various Blower Speeds					
		High		Medium		Low	
Pa	in. w.g.	L/s	cfm	L/s	cfm	L/s	cfm
0	0	995	2110	930	1970	835	1770
25	0.10	980	2080	920	1950	820	1735
50	0.20	965	2050	905	1915	800	1695
75	0.30	955	2020	880	1870	785	1660
100	0.40	930	1975	860	1825	765	1620
125	0.50	910	1930	840	1785	745	1580
150	0.60	890	1885	830	1755	730	1545
175	0.70	865	1830	805	1710	710	1505

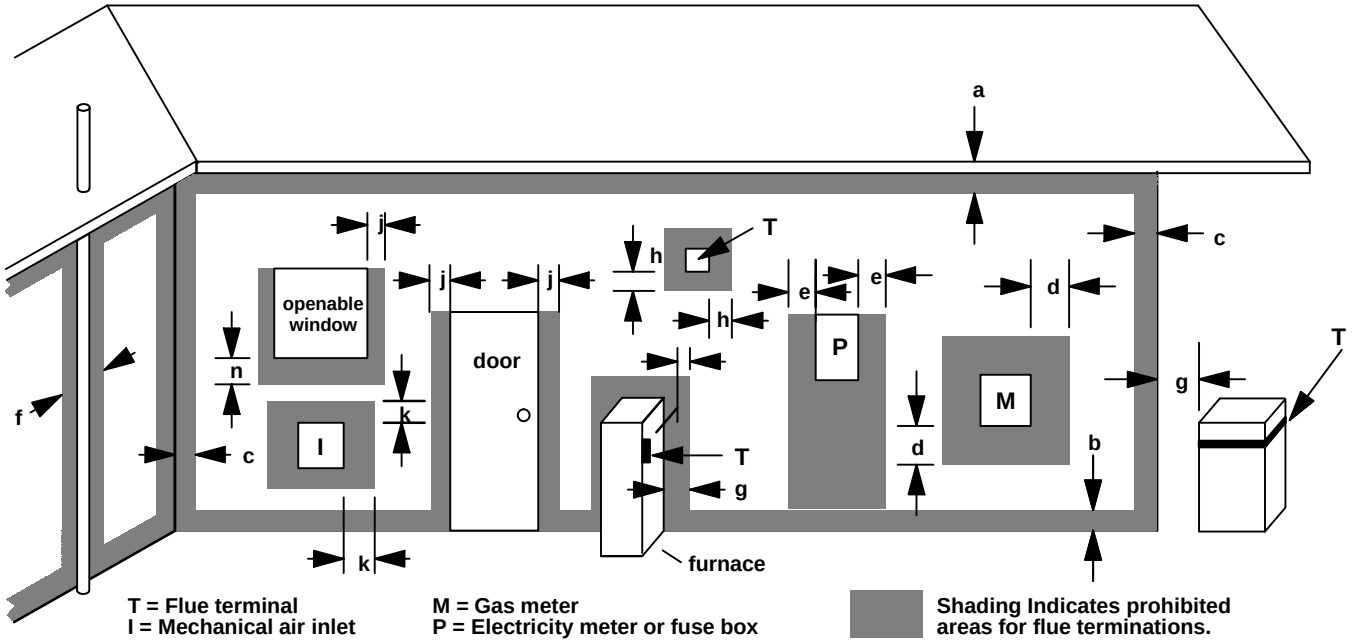
NOTE — All air data is measured external to unit without cooling coil or air filter.

G24E4/5-100, G24E4/5-120 AND G24E4/5-140 BLOWER PERFORMANCE

External Static Pressure		Air Volume at Various Blower Speeds					
		High		Medium		Low	
Pa	in. w.g.	L/s	cfm	L/s	cfm	L/s	cfm
0	0	1180	2500	1015	2150	850	1800
25	0.10	1155	2450	995	2110	825	1750
50	0.20	1135	2410	980	2080	810	1720
75	0.30	1125	2380	965	2040	792	1680
100	0.40	1095	2325	945	2000	780	1650
125	0.50	1075	2280	920	1950	755	1600
150	0.60	1050	2220	895	1900	730	1550
175	0.70	990	2180	875	1850	710	1500

NOTE — All air data is measured external to unit without cooling coil or air filter.

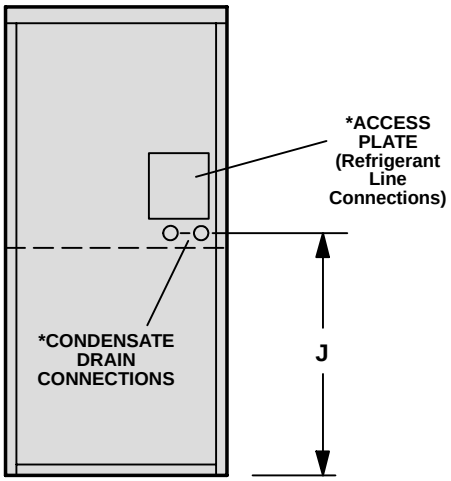
FLUE TERMINATION CLEARANCES



Location	Clearance Description	Minimum Clearance (mm)
a	Below eaves, balconies or other projections	300
b	From the ground or above a balcony	500
c	From a return wall or external corner	300
d	From a gas meter (M)	500
e	From an electricity meter or fuse box (P)	1000
f	From a drain or soil pipe	500
g	Horizontally from any building structure or obstruction facing a flue termination	150
h	From any other flue termination, cowl, or combustion air intake	150
j	Horizontally from an openable window, door, non-mechanical air inlet, or any other opening into a building, with the exception of sub-floor ventilation	500
k	From a mechanical air inlet, including a spa blower	1500
n	Vertically below an openable window, non-mechanical air inlet or any other opening into a building, with the exception of sub-floor ventilation	1000

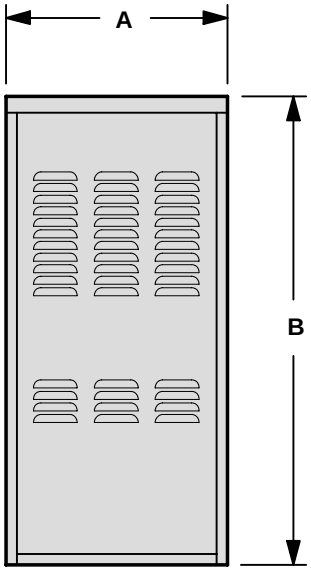
NOTE - All distances are measured vertically or horizontally along the wall to a point in line with the nearest part of the flue termination.
NOTE - Prohibited area below electricity meter or fuse box extends to ground level.

DIMENSIONS - MM (INCHES)

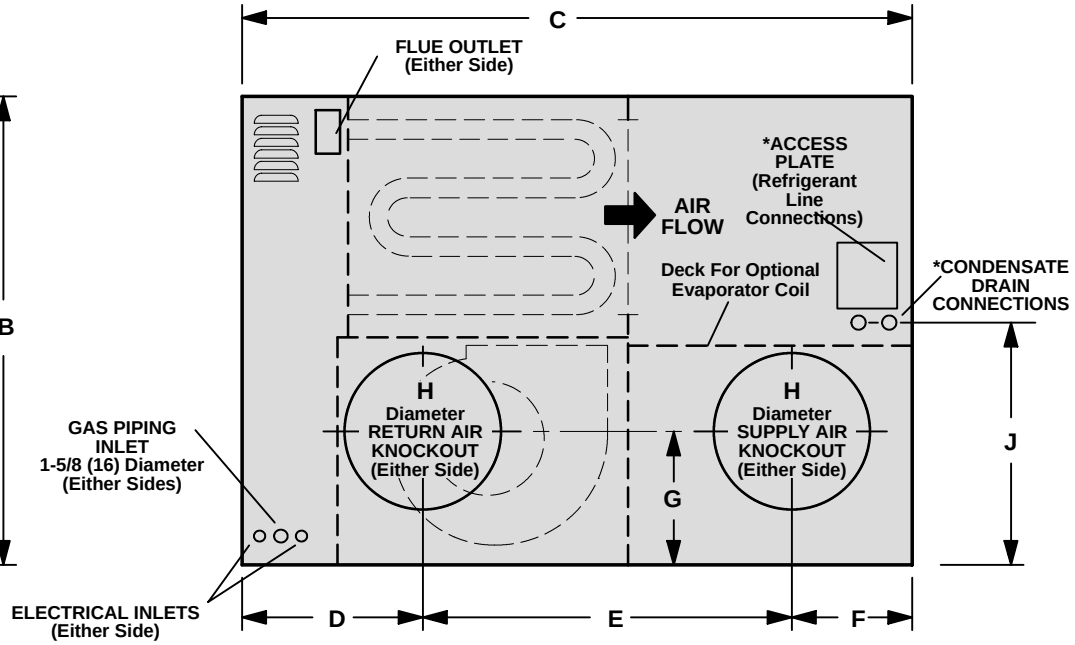


BACK VIEW

***NOTE — Refrigerant Piping Connections:**
Back only on -75
Back and Side on -100 & -120
Side only on -140



FRONT VIEW



SIDE VIEW

Model No.		A	B	C	D	E	F	G	H	J
G24E2/3-75	inch	17-1/4	37-1/8	51-1/2	19-7/8	21-3/8	10-1/4	9-1/4	12 round	17-1/2
	mm	438	943	1308	505	543	260	235	305 round	445
G24E3/4-100 G24E4/5-100 G24E4/5-120	inch	20-3/4	40	56-1/2	21-1/4	Left=23-1/8 Right=19-1/4	Left=12-1/8 Right=16	9	14 round	17-3/4
	mm	527	1016	1436	540	Left=587 Right=489	Left=308 Right=406	229	356 round	451
G24E4/5-140	inch	23-1/2	40	58-1/2	21-1/8	23-1/4	14-1/8	9	16 oval	17-3/4
	mm	597	1016	1486	538	592	356	229	406 oval	451