



G29M SERIES
MULTI-POSITION GAS FURNACES
17.6 to 32.8 kW (60 000 to 112 000 Btuh) Output
3.5 to 21.1 kW (1-1/2 to 6 Tons) Nominal Add-on Cooling

G29M

Bulletin #490080
 January 1999



UP-FLOW POSITION



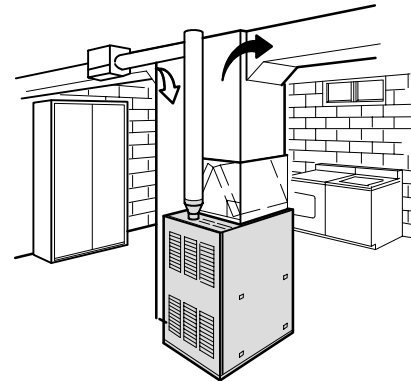
HORIZONTAL POSITION



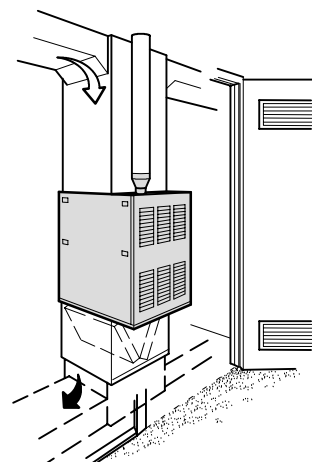
MAKER'S WARRANTY

This appliance complies with the requirements of THE AUSTRALIAN GAS ASSOCIATION

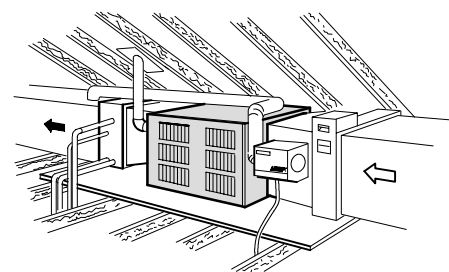
Typical Applications



Up-Flow Utility Room Installation
 With Cooling Coil
 and Automatic Humidifier



Down-Flow Closet Installation
 With Cooling Coil



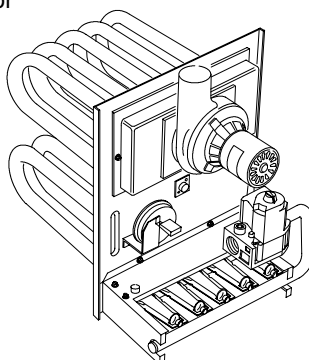
Horizontal Attic Installation
 With Cooling Coil, Electronic Air Cleaner
 and Automatic Humidifier

Applications

- Natural gas only.
- Four models with high fire input capacities of 22.0, 29.3, 35.2 and 41.0 kW (75 000, 100 000, 120 000 and 140 000 Btuh).
- Applicable to up-flow, down-flow or horizontal applications.
- Two stage heating operation controlled by two stage or single stage thermostat.
- Lennox add-on evaporator coils, electronic air cleaners and power humidifiers can be easily added to the furnace.
- Units shipped factory assembled with all controls installed and wired.
- Factory run tested to insure dependable operation in the field.

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.



Two Speed Induced Draft Blower

- Shaded pole, heavy duty, two speed induced draft blower pre-purges heat exchanger and safely vents flue products.
- Blower is controlled by the furnace control center board for a pre-purge 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.

FEATURES

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.

Two Stage Gas Control Valve

- 24 volt redundant combination two stage 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 trial before defaulting to "lock-out" mode. "Lock-out" can be reset manually 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, cold rolled steel with a primed and pre-painted 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 and top of cabinet.
- Electrical knockouts are provided in both sides of cabinet.
- Flanges on top and bottom of cabinet may be bent out for duct connection to unit. See dimension drawing.
- Painted panel furnished to block off bottom air return air.
- Return air entry possible on either side or end of cabinet for up-flow applications.
- End return air entry for horizontal and down-flow applications.

Multi-Position Capability

- Shipped for up-flow applications and horizontal applications with right hand or left hand air discharge.
- For down-flow applications, interchange top and bottom caps, remove heat exchanger section, rotate 180° top for bottom and re-install.

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

- Quiet multi-speed direct drive blower.
- Blower assembly statically and dynamically balanced.
- Multiple-speed motor 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.

Two-Stage Control Board

- Factory installed on interior blower access door.
- Control allows one of three different modes of operation:
 1. Two stage operation controlled from two stage thermostat.
 2. Two stage operation controlled from single stage thermostat with timed-on second stage (adjustable 8, 12 or 15 minutes).
 3. Single stage (high fire) operation only.

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 (40VA) control transformer is furnished as standard equipment and is factory installed on control panel.

OPTIONAL ACCESSORIES - MUST BE ORDERED EXTRA

Thermostat (Optional)

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

Up-flow/Horizontal Filter Kit (Optional)

- Cleanable polyurethane or aluminum mesh type air filter and external rack available for field installation.
- Includes adjustable filter rack with access door, filter removal tool for bottom return air applications and filter.
- Available in ten packs.
- See Specifications table for filter sizes and catalog numbers.

Down-Flow Filter Rack (Optional)

- Available for field installation in down-flow applications.
- Filters are not furnished and must be ordered extra.
- See Specifications table for filter sizes and filter rack order number.

Hanging Bracket Kit (Optional)

- Installed kit LB-69957 (46J66) available for easy suspension of unit in horizontal applications.
- Includes four vertical supports for mounting to joists and two horizontal channels.

Down-Flow Combustible Floor Base (Optional)

- Additive base is required for field installation with heating only, down-flow units installed on combustible floors.
- Not required in add-on cooling applications.
- See Specifications table and dimension drawing.

SPECIFICATIONS						
Model Number	G29M2/3-75	G29M4-75	G29M3/4-100	G29M4/5-100	G29M4/5-120	G29M4/5-140
Input — kW (Btuh)	22.0 (75 000)		29.9 (102 000)		35.2 (120 000)	41.0 (140 000)
Output — kW (Btuh)	17.6 (60 000)		23.9 (81 600)		28.1 (96 000)	32.8 (112 000)
Flue size connection diameter- mm (in.) round	102 (4)					127 (5)
Temperature rise range — °C (°F)	25 - 42 (45 - 75)	17 - 34 (30 - 60)	22 - 39 (40 - 70)		25 - 42 (45 - 75)	
Maximum external static pressure — Pa (in.w.g.)	125 (0.50)					
Gas connection — iron pipe size Natural or propane	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)	224 (1/3)		373 (1/2)			
Nominal cooling that can be added	kW	7.0, 8.8 or 10.6	7.0, 8.8, 10.6, 12.3 or 14.1		12.3, 14.1 or 17.6	
	Tons	2, 2-1/2 or 3	2, 2-1/2, 3, 3-1/2 or 4		3-1/2, 4 or 5	
Shipping weight — kg (lbs.) 1 package	61 (135)	64 (140)	79 (175)			86 (190)
Electrical characteristics	240 volts — 50 hertz — 1 phase (all models)					
Optional Accessories (Must Be Ordered Extra)						
Up-Flow/Horizontal Filter and Filter Rack Kits	‡Number and size of filters	mm	(1) 406 x 508 x 25		(1) 508 x 508 x 25	
		inches	(1) 16 x 20 x 1		(1) 20 x 20 x 1	
	Polyurethane Ten Pack		66K64		66K65	66K66
	Aluminum Mesh Ten Pack		74K68		74K69	74K70
Ⓛ Down-Flow Filter Rack	Catalog Number		LB-69843A (32J01) — 1 kg (3 lbs.)			
	Number and Size of Filters - mm (in.)		(2) 406 x 508 x 25 (16 x 20 x 1)			
Down-flow Combustible Floor Base		LB-79239A (67J91) 4 kg (10 lbs.)		LB-79239B (67J92) 4 kg (10 lbs.)		LB-79239C (67J93) 5 kg (12 lbs.)
Hanging Bracket Kit		LB-69957 (46J66) — 8 kg (15 lbs.)				

‡Cleanable frame type filter furnished with kit.

Ⓛ Filter rack for down-flow applications is not furnished and must be ordered extra. Filters are not furnished with rack and must be ordered extra.

INSTALLATION CLEARANCES

UP-FLOW OR DOWN-FLOW		
Vent Type	Type "C"	Type "B1"
Sides	25 mm (1 inch)	25 mm (1 inch)
Rear	25 mm (1 inch)	25 mm (1 inch)
Top	25 mm (1 inch)	25 mm (1 inch)
Ⓛ Front	Ⓛ 51 mm (2 inches)	Ⓛ 51 mm (2 inches)
Floor (up-flow)	Combustible	Combustible
Ⓜ Floor (down-flow)	Ⓜ Combustible	Ⓜ Combustible
Flue	152 mm (6 inches)	25 mm (1 inch)

HORIZONTAL		
Vent Type	Type "C"	Type "B1"
Sides	51 mm (2 inches)	51 mm (2 inches)
Rear	25 mm (1 inch)	25 mm (1 inch)
Top	25 mm (1 inch)	25 mm (1 inch)
Ⓛ Front	Ⓛ 51 mm (2 inches)	Ⓛ 51 mm (2 inches)
Floor	0 mm (0 inches)	0 mm (0 inches)
Flue	152 mm (6 inches)	†25 mm (1 inch)

NOTE- air for combustion and supply air ventilation must conform to local codes

Ⓛ Front clearance for alcove installations is 610 mm (24 inches).

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Ⓜ Down-flow Applications Only — Clearance for installation on combustible floor if optional additive base is installed between the furnace and the combustible floor. Not required in add-on cooling applications if installed in accordance with local codes.

FILTER AIR RESISTANCE

POLYURETHANE	
L/s (cfm)	Pa (in. w.g.)
0 (0)	0 (0.00)
95 (200)	2 (0.01)
185 (400)	7 (0.03)
280 (600)	10 (0.04)
375 (800)	15 (0.06)
470 (1000)	22 (0.09)
560 (1200)	30 (0.12)
655 (1400)	37 (0.15)
750 (1600)	47 (0.19)
845 (1800)	57 (0.23)
935 (2000)	67 (0.27)

ALUMINUM MESH	
L/s (cfm)	Pa (in. w.g.)
0 (0)	0 (0.00)
95 (200)	0 (0.00)
185 (400)	2 (0.01)
280 (600)	7 (0.03)
375 (800)	12 (0.05)
470 (1000)	16 (0.07)
560 (1200)	21 (0.09)
655 (1400)	26 (0.11)
750 (1600)	31 (0.13)
845 (1800)	36 (0.15)
935 (2000)	41 (0.17)

BLOWER DATA

G29M2/3-75 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	630	1340	525	1110	380	810
12	0.05	625	1325	520	1100	380	805
25	0.10	615	1305	515	1090	375	800
37	0.15	605	1285	505	1065	370	790
50	0.20	595	1260	495	1050	365	780
62	0.25	590	1250	490	1035	360	760
75	0.30	585	1240	480	1020	350	745
100	0.40	565	1200	465	985	335	710
125	0.50	555	1175	455	960	325	685
150	0.60	540	1140	440	930	310	655
175	0.70	515	1095	415	880	290	615

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

G29M4-75 AND G29M3/4-100 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	850	1800	735	1560	620	1310
12	0.05	830	1760	730	1550	615	1305
25	0.10	520	1735	720	1525	615	1300
37	0.15	800	1695	705	1495	610	1295
50	0.20	780	1655	690	1460	610	1290
62	0.25	765	1625	680	1440	600	1270
75	0.30	745	1580	670	1415	590	1255
100	0.40	710	1500	635	1350	570	1205
125	0.50	660	1400	595	1265	545	1150
150	0.60	620	1315	560	1190	510	1080
175	0.70	565	1200	520	1100	570	1000

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

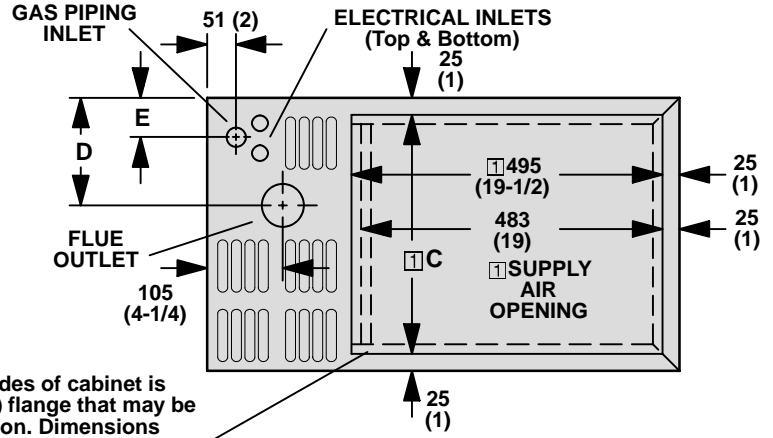
G29M4/5-100, G29M4/5-120 AND G29M4/5-140 BLOWER PERFORMANCE

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	965	2050	730	1545	590	1250
12	0.05	960	2035	725	1540	590	1250
25	0.10	955	2020	720	1530	590	1250
37	0.15	945	2000	715	1520	585	1245
50	0.20	940	1980	710	1500	585	1245
62	0.25	925	1955	700	1485	585	1245
75	0.30	910	1930	695	1475	585	1240
100	0.40	895	1895	680	1445	580	1230
125	0.50	870	1845	660	1400	560	1190
150	0.60	840	1780	635	1345	535	1135
175	0.70	800	1700	600	1270	500	1060

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

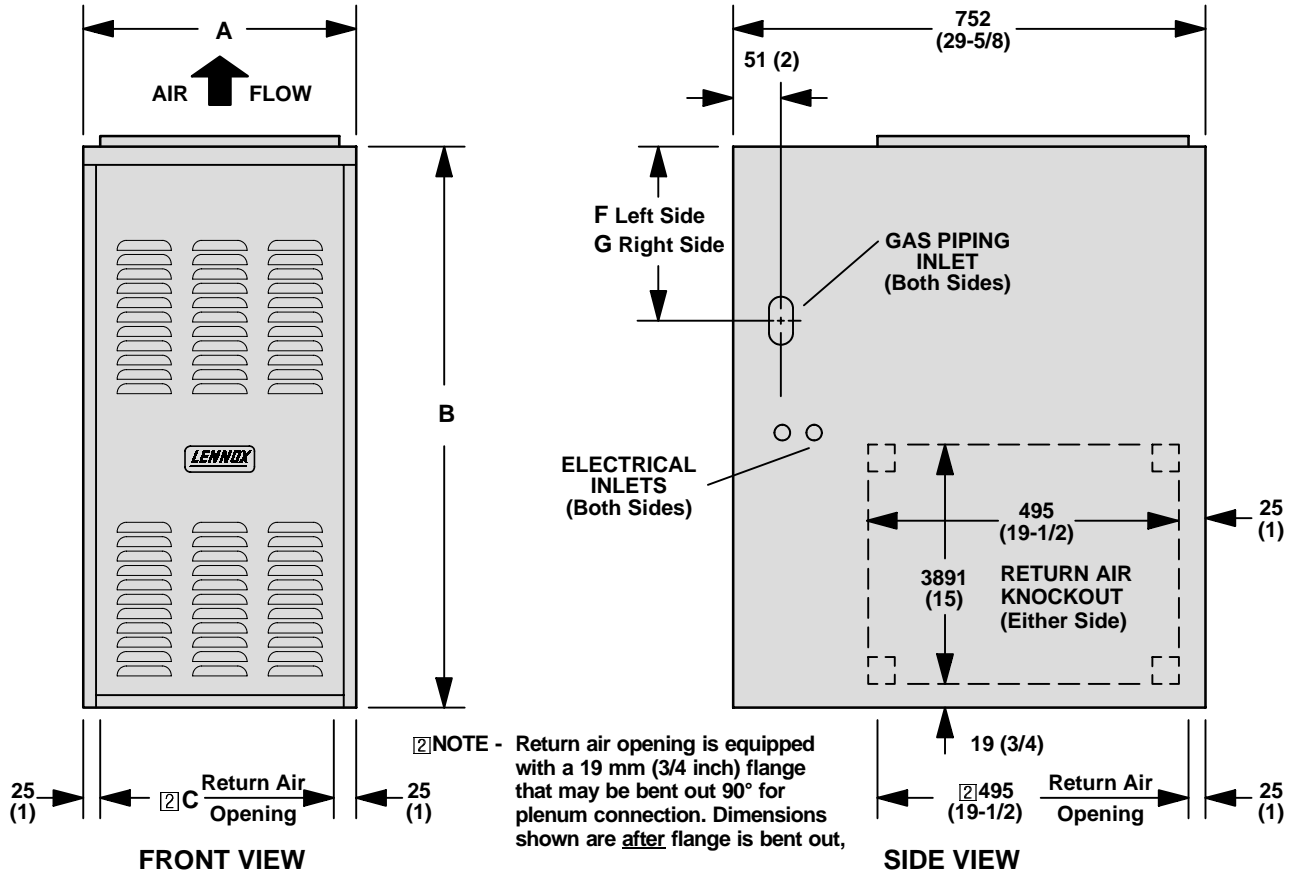
DIMENSIONS - MM (INCHES)

UP-FLOW POSITION SHOWN



TOP VIEW

Flange at front of supply air opening may be bent out for a total opening dimension (front to rear) of either 495 mm (19-1/2 inches) or 483 mm (19 inches).

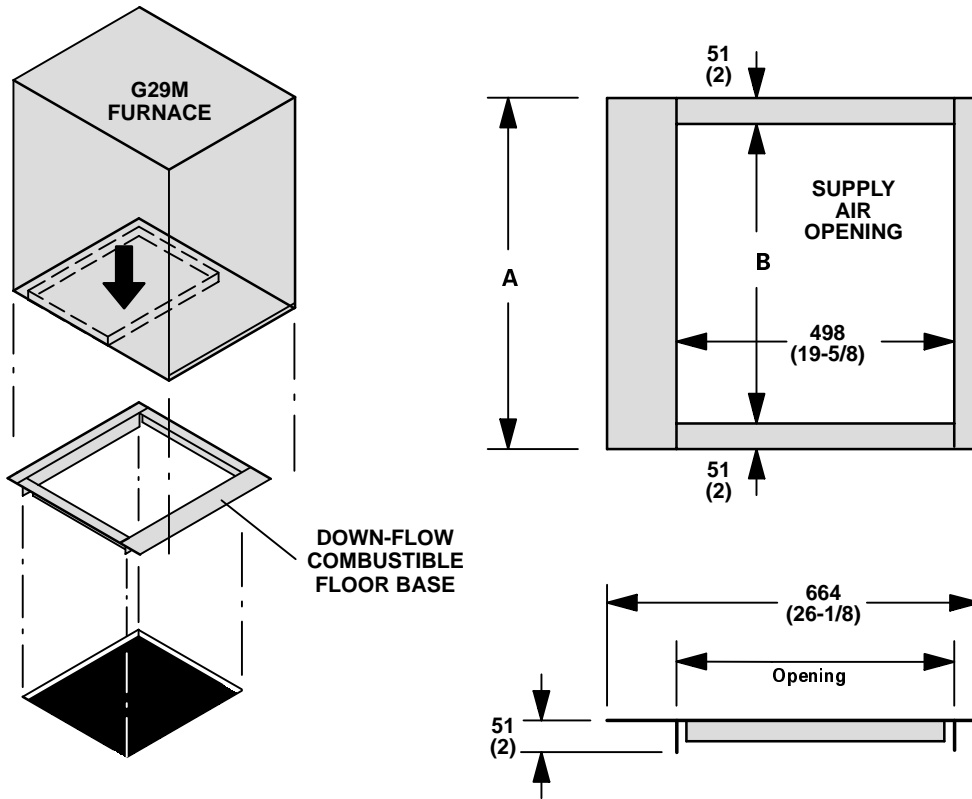


FRONT VIEW

SIDE VIEW

Model No.		A	B	C	D	E	F	G
G29M2/3-75 G29M4-75	mm	432	921	381	171	62	114	254
	inches	17	36-1/4	15	6-3/4	2-7/16	6-1/2	12
G29M3/4-100 G29M4/5-100 G29M4/5-120	mm	521	991	470	213	108	203	343
	inches	20-1/2	39	18-1/2	8-3/8	4-1/4	8	13-1/2
G29M4/5-140	mm	591	991	540	248	108	203	343
	inches	23-1/4	39	21-1/4	9-3/4	4-1/4	8	13-1/2

OPTIONAL ACCESSORY DIMENSIONS - MM (INCHES)



Furnace Model Number	A		B	
	mm	in.	mm	in.
G29M2/3-75 G29M4-75	486	19-1/8	384	15-1/8
G29M3/4-100 G29M4/5-100 G29M4/5-120	572	22-1/2	470	18-1/2
G29M4/5-140	641	25-1/4	540	21-1/4