13GCS

MERIT® SERIES
Residential - R-22

ENGINEERING DATA

Bulletin No. 210448
September 2007
Supersedes June 2007

SEER - 13.00
2 to 5 Tons
Cooling Capacity - 23,000 to 55,500 Btuh
Input Gas Heating Capacity - 67,500 to 137,500 Btuh

MODEL NUMBER IDENTIFICATION

13 GCS A - 24 - 068 X - P

Nominal SEER

Unit Type
GCS = Package Gas /Electric Unit

Major Design Sequence
A = 1st Generation

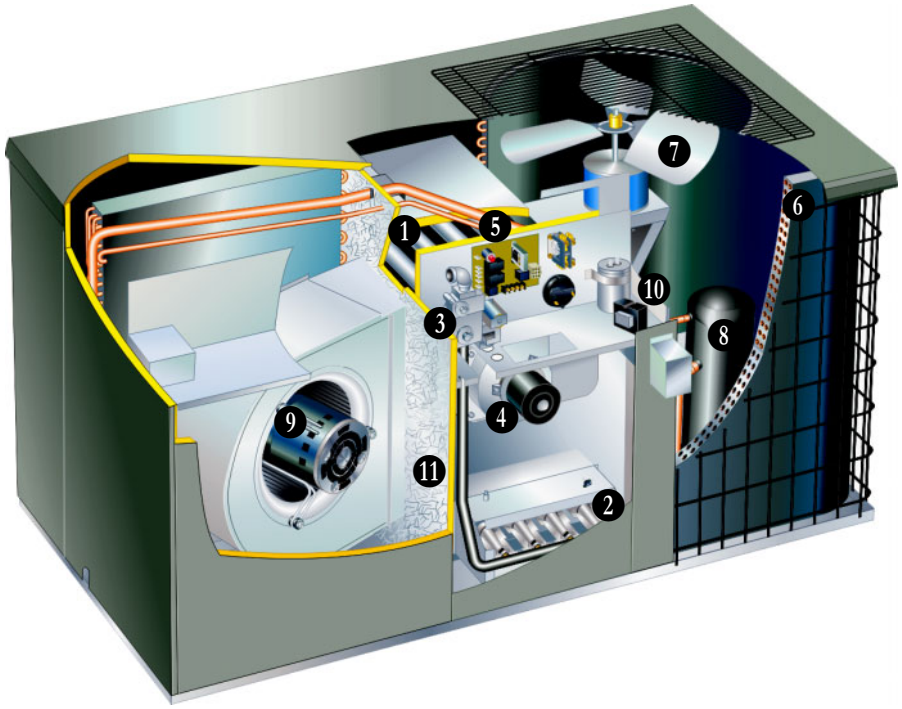
Nominal Cooling Capacity
24 = 2 tons
30 = 2.5 tons
36 = 3 tons
42 = 3.5 tons
48 = 4 tons
60 = 5 tons

Nominal Heating Capacity
68 = 67,500 Btuh
83 = 82,500 Btuh
90 = 90,000 Btuh
110 = 110,000 Btuh
138 = 137,500 Btuh

X = Low NO_x Models Meet California Nitrogen Oxides standards (Low NO_x)

Voltage
P = 208/230V-1ph-60hz

FEATURES



CONTENTS

EQUIPMENT WARRANTY

Heat Exchanger - limited warranty for **twenty years** in residential applications and ten years in non-residential applications.

Compressor - limited warranty for **five years** in residential installations and five years in non-residential installations.

All other covered components - **five years** in residential installations and one year in non-residential installations.

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

APPLICATIONS

Designed for outdoor installations at ground level or rooftop for residential applications.

APPROVALS

Units are design certified by UL.

Heating ratings are according to Department of Energy (DOE) test procedures and Federal Trade Commission (FTC) labeling regulations and are certified by GAMA.

Low NO_x "X" models meet California Nitrogen Oxides (NO_x) standards.

Cooling system rated according to DOE test procedures.

Cooling system rated in accordance with ARI standard 210/240.

Units are listed by UL for the U.S. and Canada.

Packaged unit and components within bonded for grounding to meet safety standards required by UL.

Each unit test operated at the factory before shipment ensuring dependable operation at start-up.

FEATURES

HEATING SYSTEM

1 Heat Exchanger

Aluminized tubular steel for superior resistance to corrosion and oxidation.

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.

2 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.

3 Gas Control Valve

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

4 Combustion Air Inducer

Heavy duty combustion air inducer prepurges heat exchanger and safely vents flue products.

Blower is controlled by the ignition control board.

Pressure switch proves blower operation before allowing gas valve to open.

Combustion air inducer operates during heating cycle. Inducer also operates for the first 10 seconds of every cooling cycle to prevent insects from nesting in the flue outlet during cooling season.

Limit Controls

Automatic reset, primary and secondary limits are accurately located.

Primary limit factory installed on heating vestibule panel on all units, secondary limit (-42, -48 and -60 models only) factory installed on blower housing.

Flame Rollout Switch

Manual reset switch is factory installed on burner box.

Switch provides protection from abnormal operating conditions.

5 Ignition Control Board

Solid-state ignition control board with LED diagnostics.

OPTIONS

LPG/Propane Conversion Kit

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

REFRIGERATION SYSTEM

6 Evaporator and Condenser Coils

Copper tube with aluminum fin coils.

Evaporator Coil Drain Pan

Corrosion resistant plastic drain pan.

7 Condenser Fan

Weather protected heavy duty condenser fan motor with coated steel fan blades for long life.

Internally mounted.

Totally enclosed motor.

Fan guard constructed of corrosion-resistant PVC (polyvinyl chloride) coated steel.

8 COPELAND SCROLL™ COMPRESSOR

Compressor features high efficiency with uniform suction flow, constant discharge flow and high volumetric efficiency and quiet operation.

Compressor consists of two involute spiral scrolls matched together to generate a series of crescent shaped gas pockets between them.

During compression, one scroll remains stationary while the other scroll orbits around it.

Gas is drawn into the outer pocket, the pocket is sealed as the scroll rotates.

As the spiral movement continues, gas pockets are pushed to the center of the scrolls. Volume between the pockets is simultaneously reduced.

When pocket reaches the center, gas is now at high pressure and is forced out of a port located in the center of the fixed scrolls.

During compression, several pockets are compressed simultaneously resulting in a smooth continuous compression cycle.

Continuous flank contact, maintained by centrifugal force, minimizes gas leakage and maximizes efficiency.

Scroll compressor is tolerant to the effects of slugging and contaminants. If this occurs, scrolls separate, allowing liquid or contaminants to to be worked toward the center and discharged.

Low gas pulses during compression reduces operational sound levels.

Compressor motor is internally protected from excessive current and temperature.

Compressor is installed in the unit on resilient rubber mounts for vibration free operation.

OPTIONS

Compressor Crankcase Heater

Protects against refrigerant migration that can occur during low ambient operation.

Compressor Hard Start Kit

Single-phase units are equipped with a PSC compressor motor. This type of motor normally doesn't need a potential relay and start capacitor.

In conditions such as low voltage, this kit may be required to increase the compressor starting torque.

Time-Off Control

Prevents compressor short-cycling and allows time for suction and discharge pressure to equalize.

Permits compressor start-up in an unloaded condition.

Automatic reset with 5 minute delay between compressor shut-off and start-up.

FEATURES

SUPPLY AIR BLOWER

9 Direct Drive Blower

Each blower assembly statically and dynamically balanced.

Blower assembly easily removed for servicing

Multi-speed, direct drive blower motor.

Change in blower speed is easily accomplished by simple wiring change on blower motor.

See Blower Performance tables.

CONTROLS

10 24 Volt Transformer

40VA transformer furnished and factory installed in control area.

OPTIONS

Low Ambient Kit

Packaged unit will operate satisfactorily in the cooling mode down to 45°F outdoor air temperature without any additional controls.

Kit can be added in the field enabling unit to operate properly down to 30F.

Thermostat

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

CABINET

11 Conditioned areas insulated with foil faced insulation to minimize heat loss and reduce operating sound levels.

Powder paint for maximum durability.

Easy service access.

Steel louvered panels provides complete coil protection.

Interchangeable panels for horizontal to down-flow airflow conversion furnished (shipped for horizontal).

Gas Piping Inlets, Electrical Inlets and Service Valves

Gas piping and field wiring inlets are located in one central area of the cabinet. See dimension drawing.

Gauge ports are located inside the cabinet.

OPTIONS

Lifting Brackets

Available to facilitate rigging of the unit.

Roof Curbs

Mates to unit.

Shipped knocked down.

Available in 8 in. and 14 in. heights.

AIR FILTER OPTIONS (REQUIRED)

Filters are not furnished - must be field provided.

OPTIONS

Internal Filter Kits

Available for 1, 2, 4, or 5 in. thick filters. Kit contains filter rails for mounting filters internal to unit. Filters must be field provided. MERV 10 and MERV 16 filters are available separately or other 1, 2, 4 or 5 inch thick filters can be used.

MERV Filters for Internal Filter Kits

Disposable, pleated MERV 10 and MERV 16 filter (Minimum Efficiency Reporting Value based on ASHRAE 52.2).

Dust mites, pollen, mold spores, pet dander and other contaminants are captured by the filter.

Double-wall beverage board frame for rigid construction.

Recommended replacement of the media depends on a variety of factors, see Specifications table.

Media is certified to UL 900 standard and UL/ULC classification - Class 2.

SPECIFICATIONS — 2-5 TON

General Data	Model No.	13GCSA-24	13GCSA-30	13GCSA-36	13GCSA-42	13GCSA-48	13GCSA-60
	Nominal Tonnage	2	2.5	3	3.5	4	5
Gas Heat Available - See Next Page		**-68(X)**	**-68(X)**	**-68(X) or -90**	**-83(X) or -110**	**-83(X), -110 or -138**	**-83(X), -110 or -138**
Cooling Performance	Total cooling capacity - Btuh (kW)	23,000 (6.7)	28,800 (8.4)	36,000 (10.5)	41,000 (12.0)	47,000 (13.8)	55,500 (16.3)
	Total unit watts	2000	2500	3130	3570	4090	5020
	[1] SEER (Btuh/Watt)	13.00	13.00	13.00	13.00	13.00	13.00
	EER (Btuh/Watt)	11.50	11.50	11.50	11.50	11.50	11.05
	[2] Sound Rating Number (dB)	81	81	81	79	79	79
	Refrigerant Type	R-22	R-22	R-22	R-22	R-22	R-22
	Refrigerant Charge	6 lbs. 8 oz. (2.95 kg)	6 lbs. 2 oz. (2.78 kg)	6 lbs. 5 oz. (2.86 kg)	7 lbs. 10 oz. (3.46 kg)	9 lbs. 2 oz. (4.14 kg)	10 lbs. 5 oz. (4.68 kg)
Condensate drain size (fpt) - in. (mm)		3/4 (19)	3/4 (19)	3/4 (19)	3/4 (19)	3/4 (19)	3/4 (19)
Outdoor Coil Fan	Motor horsepower (W)	1/5 (149)	1/5 (149)	1/5 (149)	1/4 (187)	1/4 (187)	1/4 (187)
	Diameter - in. (mm) & No. of blades	22 (559) - 2	22 (559) - 2	22 (559) - 2	26 (660) - 3	26 (660) - 3	26 (660) - 3
Indoor Blower	Blower wheel size dia. x width - in. (mm)	10 x 6 (254 x 152)	10 x 6 (254 x 152)	10 x 8 (254 x 203)	10 x 10 (254 x 254)	10 x 10 (254 x 254)	10 x 10 (254 x 254)
	Motor horsepower (W)	1/2 (373)	1/2 (373)	1/2 (373)	3/4 (560)	3/4 (560)	3/4 (560)
Net weight of basic unit		390 (177)	390 (177)	415 (188)	560 (254)	570 (259)	595 (270)
Shipping weight of basic unit (1 Pkg.)		435 (197)	435 (197)	460 (209)	615 (279)	625 (283)	650 (295)
Electrical characteristics (60 hz)		208/230V-1ph-60hz					
ELECTRICAL DATA							
	Line voltage data - 60hz 1 phase	208/230V	208/230V	208/230V	208/230V	208/230v	208/230v
	[3] Maximum overcurrent protection (amps)	25	30	35	45	45	45
	[4] Minimum Circuit Ampacity	19	23	23	31	31	32
Compressor	Rated load amps	10.4	14.1	14.4	19.2	19.2	19.9
	Locked rotor amps	45	68	77	104	97	137
Condenser Fan Motor	Full load amps	1.1	1.1	1.1	1.7	1.7	1.7
	Locked rotor amps	2.2	2.2	2.2	4.0	4.0	4.0
Indoor Blower Motor	Full load amps	2.2	2.2	2.2	3.6	3.6	3.6
	Locked rotor amps	3.8	3.8	3.8	11	11	11
OPTIONAL ACCESSORIES - MUST BE ORDERED EXTRA							
Compressor Crankcase Heater		**93M04**	**93M04**	**93M04**	**93M04**	**93M04**	**93M04**
Compressor Hard Start Kit		**10J42**	**10J42**	**10J42**	**10J42**	**10J42**	**81J69**
Compressor Timed-Off Control		**47J27**	**47J27**	**47J27**	**47J27**	**47J27**	**47J27**
[5] Internal Filter Kit	(No.) and size (in.) of filter	**X8131** (1) 20 x 25	**X8131** (1) 20 x 25	**X8131** (1) 20 x 25	**X8132** (2) 16 x 25	**X8132** (2) 16 x 25	**X8132** (2) 16 x 25
MERV Filters for Internal Filter Kit 5 in. thick	MERV 10	**X6673**	**X6673**	**X6673**	**X6670**	**X6670**	**X6670**
	MERV 16	**X6675**	**X6675**	**X6675**	**X6672**	**X6672**	**X6672**
Lifting Brackets		**92M51**	**92M51**	**92M51**	**92M51**	**92M51**	**92M51**
Low Ambient Kit		**24H77**	**24H77**	**24H77**	**24H77**	**24H77**	**24H77**
Roof Curbs	8 inch (203 mm) height	**92M99**	**92M99**	**92M99**	**93M01**	**93M01**	**93M01**
	14 inch (356 mm) height	**93M00**	**93M00**	**93M00**	**93M02**	**93M02**	**93M02**

NOTE - Extremes of operating range are plus and minus 10% of line voltage.

[1] Rated in accordance with ARI Standard 210/240; 95°F (35°C) outdoor air temperature, 80°F (27°C) db / 67°F (19°C) wb entering evaporator air.

[2] Sound Rating Number rated in accordance with test conditions included in ARI Standard 270.

[3] HACR type circuit breaker or fuse.

[4] Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

[5] Filters are not furnished and must be field provided. 1, 2, 4 or 5 inch width filters can be used.

SPECIFICATIONS - GAS HEAT

Heat Option		-68(X)	-83(X)	-90	-110	-138
Heating Capacity Btuh (kW)	Input	67,500 (19.8)	82,500 (24.2)	90,000 (26.4)	110,000 (32.2)	137,500 (40.3)
	Output	54,000 (15.8)	66,000 (19.3)	72,000 (21.1)	88,000 (25.8)	110,000 (32.2)
[1] A.F.U.E.		80%	80%	80%	80%	80%
Temperature Rise - °F (°C)		35 - 65 (21 - 39)	30 - 60 (18 - 36)	35 - 65 (21 - 39)	45 - 75 (27 - 45)	45 - 75 (27 - 45)
Gas Supply Connection (fpt) - in. (mm)		1/2 (13)	1/2 (13)	1/2 (13)	1/2 (13)	1/2 (13)
Min. Recommended Gas Supply Pressure		7 in. w.g. (1.7 kPa) Natural Gas, 11 in. w.g. (2.7 kPa) LPG/Propane				
OPTIONAL ACCESSORIES - MUST BE ORDERED EXTRA						
LPG/Propane Conversion Kit		**92M57**	**92M58**	**92M57**	**92M58**	**92M58**

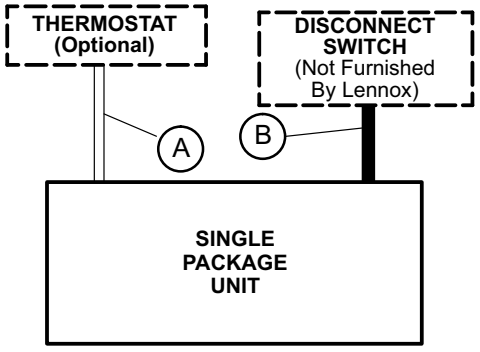
[1] Annual Fuel Utilization Efficiency based on U.S. DOE test procedures and FTC labeling regulations.

HIGH ALTITUDE DERATE

Units may be installed at altitudes up to 4500 feet (1372 m) above sea level without any modification. At altitudes above 4500 feet (1372 m), units must be derated 4% for every 1000 feet (470 m) above sea level. (Example - At an altitude of 6000 feet (2830 m) the unit would require a derate of 24%.)

NOTE - This is the only permissible derate for these units.

FIELD WIRING



A- Four Wire Low Voltage (Electro-mechanical)
- Five Wire Low Voltage (Electronic)
B- Two Wire Power (See Electrical Data Table)
- Field Wiring Not Furnished -

NOTE - All wiring must conform to NEC or CEC and local electrical codes.

BLOWER DATA

13GCSA-24-30 BLOWER PERFORMANCE
[1] Horizontal Air Flow

External Static Pressure		Air Volume at Various Blower Speeds					
		High		Medium		Low	
in. w.g.	Pa	cfm	L/s	cfm	L/s	cfm	L/s
.20	50	1470	695	1070	505	880	415
.30	75	1420	670	1060	500	870	410
.40	100	1360	640	1020	480	850	400
.50	125	1290	610	1000	470	820	385
.60	150	1220	575	950	450	790	375
.70	175	1140	540	900	425	740	350
.80	200	1050	495	830	390	690	325

NOTE - All air data is measured external to unit without air filters.
[1] For down-flow air volume, add 0.05 in. w.g. (12 Pa) to duct static.

13GCSA-36 BLOWER PERFORMANCE
[1] Horizontal Air Flow

External Static Pressure		Air Volume at Various Blower Speeds					
		High		Medium		Low	
in. w.g.	Pa	cfm	L/s	cfm	L/s	cfm	L/s
.20	50	1510	715	1060	500	870	410
.30	75	1460	690	1050	495	860	405
.40	100	1400	660	1030	485	840	395
.50	125	1330	630	990	465	820	385
.60	150	1250	590	950	450	790	375
.70	175	1180	555	900	425	750	355
.80	200	1100	520	850	400	680	320

NOTE - All air data is measured external to unit without air filters.
[1] For down-flow air volume, add 0.05 in. w.g. (12 Pa) to duct static.

13GCSA-42-48-60 BLOWER PERFORMANCE
[1] Horizontal Air Flow

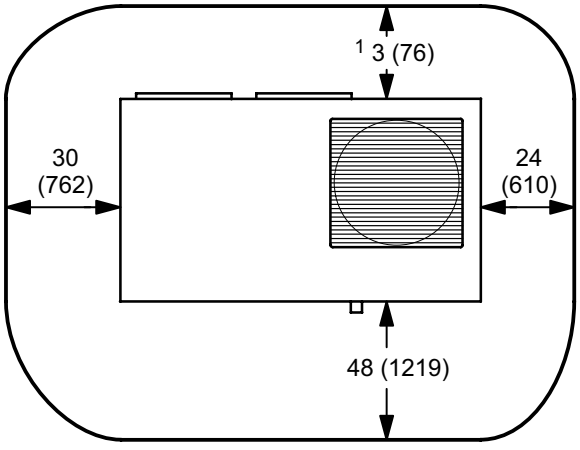
External Static Pressure		Air Volume at Various Blower Speeds					
		High		Medium		Low	
in. w.g.	Pa	cfm	L/s	cfm	L/s	cfm	L/s
.20	50	2090	985	1820	860	1520	715
.30	75	2000	945	1780	840	1480	700
.40	100	1930	910	1730	815	1450	685
.50	125	1820	860	1650	780	1440	680
.60	150	1710	805	1570	740	1410	665
.70	175	1590	750	1480	700	1360	640
.80	200	1480	700	1370	645	1260	595

NOTE - All air data is measured external to unit without air filters.
[1] For down-flow air volume, add 0.05 in. w.g. (12 Pa) to duct static.

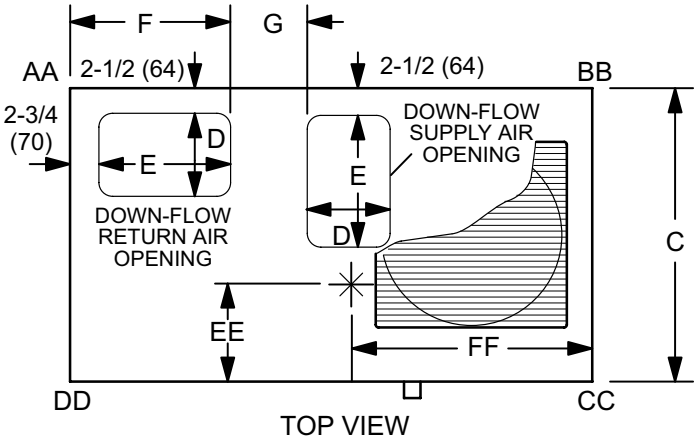
INSTALLATION CLEARANCES - INCHES (MM)

NOTE - Top Clearance - 36 in. (914 mm)
NOTE - Entire perimeter of unit base requires support when elevated above mounting surface

[1] Maintain 18 in. (457 mm) service clearance for accessory maintenance if equipped.

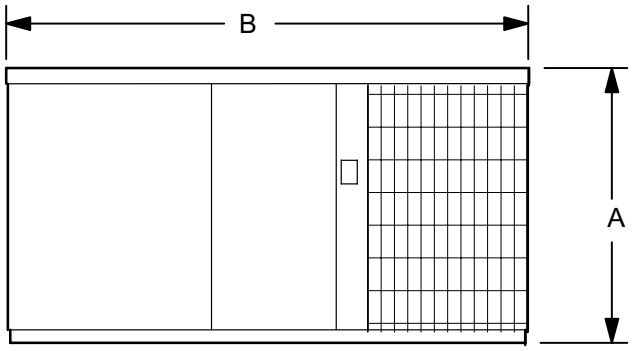


DIMENSIONS - INCHES (MM)

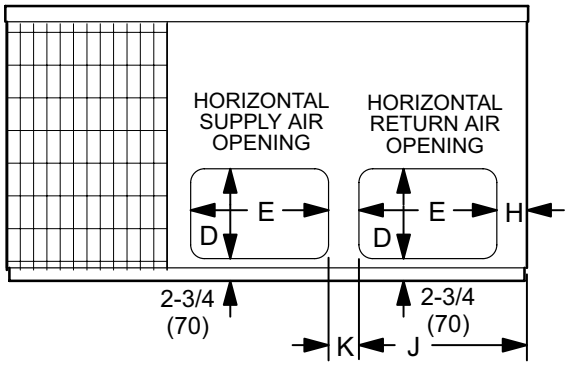


TOP VIEW

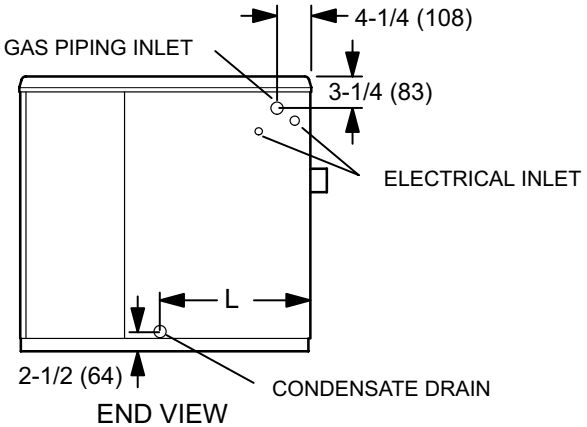
Model Number	Corner Weights				Center Of Gravity	
	AA	BB	CC	DD	EE	FF
	lbs.	lbs.	lbs.	lbs.	in.	in.
13GCSA-24	74	94	125	97	15.5	28.5
13GCSA-30	74	94	125	97	15.5	28.5
13GCSA-36	84	101	126	105	16	29.5
13GCSA-42	108	136	176	140	20	33
13GCSA-48	112	137	177	144	20	33.5
13GCSA-60	117	143	184	151	20	33.5



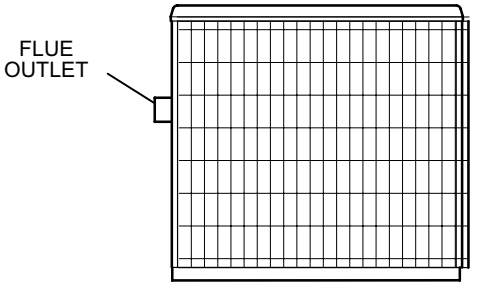
FRONT VIEW



BACK VIEW



END VIEW



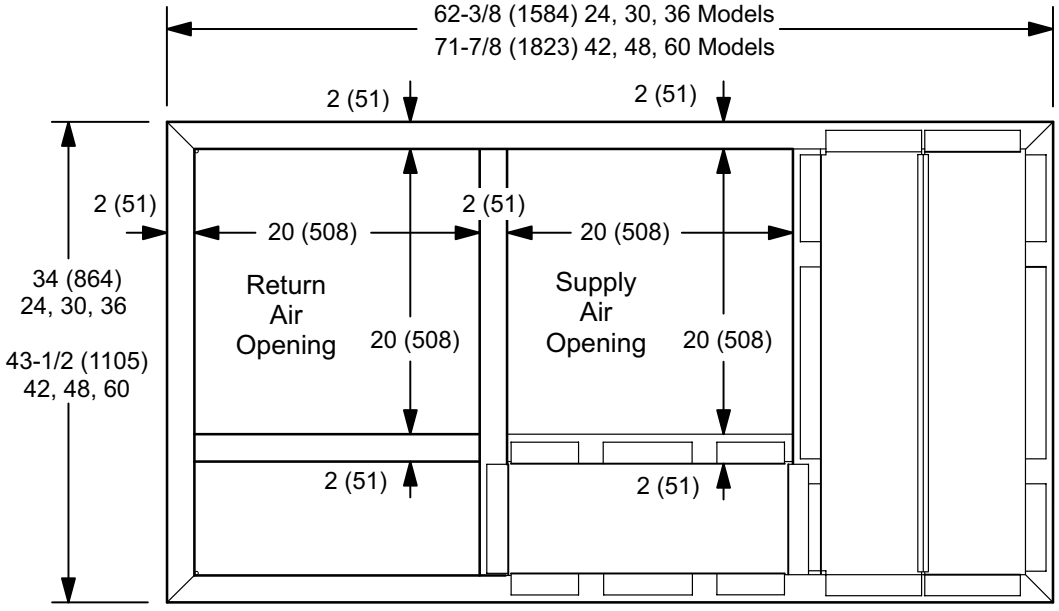
END VIEW

Model No.	A		B		C		D		E		F	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
13GCSA-24 13GCSA-30 13GCSA-36	34-1/4	870	65-3/8	1661	36-1/2	927	11-1/4	286	17-1/4	438	20	508
13GCSA-42 13GCSA-48 13GCSA-60	38-1/4	972	75	1905	46	1168	11-1/4	286	19-1/4	489	22	559

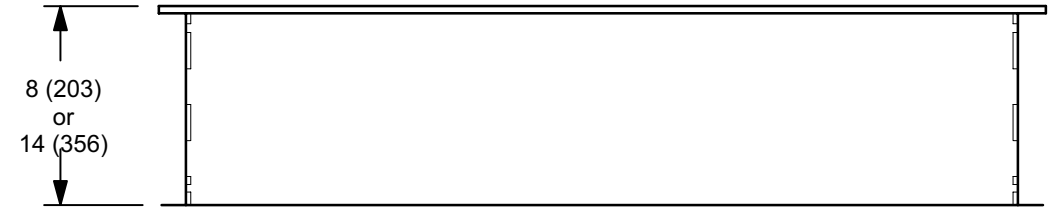
Model No.	G		H		J		K		L	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
13GCSA-24 13GCSA-30 13GCSA-36	8-1/2	216	3	76	20-1/4	514	4-1/2	114	19	483
13GCSA-42 13GCSA-48 13GCSA-60	9-1/4	241	3-1/4	83	22-1/4	572	4	102	16-1/4	413

ACCESSORY DIMENSIONS - INCHES (MM)

ROOF CURBS



TOP VIEW



SIDE VIEW

COOLING RATINGS

NOTE - For Temperatures and Capacities not shown in tables, see bulletin - Cooling Unit Rating Table Correction Factor Data in Miscellaneous Engineering Data section.

2 TON — 13GCSA-24

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																					
			85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb		
	cfm	L/s	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C
63°F (17°C)	600	285	22.0	6.4	1.29	0.72	0.85	0.98	20.9	6.1	1.45	0.73	0.86	0.99	19.7	5.8	1.65	0.76	0.90	1.00	18.5	5.4	1.87	0.78	0.92	1.00
	800	380	22.9	6.7	1.30	0.79	0.93	1.00	21.9	6.4	1.47	0.80	0.95	1.00	20.6	6.0	1.67	0.83	0.98	1.00	19.3	5.6	1.89	0.85	1.00	1.00
	1000	470	23.7	6.9	1.32	0.85	1.00	1.00	22.5	6.6	1.48	0.86	1.00	1.00	21.3	6.2	1.68	0.90	1.00	1.00	19.9	5.8	1.91	0.92	1.00	1.00
67°F (19°C)	600	285	23.4	6.9	1.32	0.57	0.69	0.81	22.3	6.5	1.48	0.57	0.70	0.82	21.0	6.2	1.68	0.60	0.73	0.86	19.7	5.8	1.91	0.61	0.75	0.88
	800	380	24.2	7.1	1.32	0.61	0.76	0.90	23.0	6.7	1.48	0.62	0.77	0.92	21.7	6.4	1.68	0.64	0.80	0.95	20.3	5.9	1.91	0.66	0.82	0.98
	1000	470	24.6	7.2	1.32	0.65	0.83	0.98	23.5	6.9	1.48	0.66	0.84	0.99	22.1	6.5	1.68	0.69	0.87	1.00	20.7	6.1	1.91	0.70	0.90	1.00
71°F (22°C)	600	285	24.9	7.3	1.33	0.43	0.54	0.66	23.7	6.9	1.49	0.44	0.55	0.67	22.3	6.5	1.70	0.46	0.57	0.69	20.9	6.1	1.93	0.47	0.59	0.71
	800	380	25.6	7.5	1.33	0.44	0.58	0.73	24.4	7.1	1.49	0.45	0.59	0.74	23.0	6.7	1.70	0.47	0.62	0.77	21.5	6.3	1.93	0.48	0.63	0.79
	1000	470	26.1	7.6	1.34	0.47	0.64	0.81	24.8	7.3	1.51	0.47	0.65	0.82	23.4	6.9	1.72	0.49	0.67	0.85	21.9	6.4	1.95	0.50	0.69	0.87

2.5 TON — 13GCSA-30

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																					
			85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb		
	cfm	L/s	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C
63°F (17°C)	800	375	27.5	8.1	1.70	0.71	0.84	0.97	26.2	7.7	1.91	0.72	0.85	0.98	24.7	7.2	2.17	0.75	0.88	1.00	23.1	6.8	2.47	0.77	0.91	1.00
	1000	470	28.7	8.4	1.72	0.78	0.92	1.00	27.4	8.0	1.93	0.79	0.93	1.00	25.8	7.6	2.19	0.82	0.97	1.00	24.1	7.1	2.49	0.84	1.00	1.00
	1200	565	29.6	8.7	1.74	0.84	0.99	1.00	28.2	8.3	1.95	0.85	1.00	1.00	26.6	7.8	2.22	0.89	1.00	1.00	24.9	7.3	2.52	0.91	1.00	1.00
67°F (19°C)	800	375	29.3	8.6	1.74	0.56	0.68	0.80	27.9	8.2	1.95	0.57	0.69	0.81	26.4	7.7	2.22	0.59	0.72	0.85	24.6	7.2	2.52	0.60	0.74	0.87
	1000	470	30.2	8.9	1.74	0.60	0.75	0.89	28.8	8.4	1.95	0.61	0.76	0.90	27.2	8.0	2.22	0.63	0.79	0.94	25.4	7.4	2.52	0.65	0.81	0.96
	1200	565	30.8	9.0	1.74	0.64	0.82	0.96	29.4	8.6	1.95	0.65	0.83	0.98	27.7	8.1	2.22	0.68	0.86	1.00	25.9	7.6	2.52	0.69	0.88	1.00
71°F (22°C)	800	375	31.1	9.1	1.75	0.43	0.54	0.65	29.7	8.7	1.97	0.43	0.54	0.66	28.0	8.2	2.24	0.45	0.57	0.69	26.2	7.7	2.54	0.46	0.58	0.70
	1000	470	32.1	9.4	1.75	0.44	0.58	0.72	30.5	8.9	1.97	0.44	0.59	0.73	28.8	8.4	2.24	0.46	0.61	0.76	26.9	7.9	2.54	0.47	0.62	0.78
	1200	565	32.7	9.6	1.77	0.46	0.63	0.80	31.1	9.1	1.99	0.47	0.64	0.81	29.3	8.6	2.26	0.48	0.66	0.84	27.4	8.0	2.57	0.50	0.68	0.86

3 TON — 13GCSA-36

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																					
			85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb		
	cfm	L/s	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C
63°F (17°C)	1000	470	35.7	10.5	2.13	0.71	0.84	0.97	34.0	10.0	2.43	0.73	0.87	1.00	32.1	9.4	2.76	0.75	0.89	1.00	30.0	8.8	3.13	0.78	0.92	1.00
	1200	565	36.9	10.8	2.13	0.76	0.90	1.00	35.2	10.3	2.43	0.78	0.92	1.00	33.2	9.7	2.76	0.80	0.95	1.00	31.0	9.1	3.13	0.83	0.98	1.00
	1400	660	38.1	11.2	2.13	0.81	0.94	1.00	36.3	10.6	2.43	0.83	0.97	1.00	34.2	10.0	2.76	0.86	0.99	1.00	32.0	9.4	3.13	0.89	1.00	1.00
67°F (19°C)	1000	470	37.7	11.0	2.16	0.56	0.68	0.81	35.9	10.5	2.45	0.57	0.70	0.83	33.9	9.9	2.78	0.58	0.72	0.85	31.6	9.3	3.16	0.61	0.74	0.88
	1200	565	38.9	11.4	2.16	0.58	0.73	0.87	37.0	10.8	2.45	0.60	0.75	0.89	34.9	10.2	2.78	0.62	0.77	0.92	32.6	9.6	3.16	0.64	0.80	0.95
	1400	660	39.6	11.6	2.16	0.62	0.78	0.91	37.7	11.1	2.45	0.64	0.80	0.94	35.6	10.4	2.78	0.65	0.82	0.96	33.3	9.8	3.16	0.68	0.85	1.00
71°F (22°C)	1000	470	40.4	11.8	2.16	0.42	0.53	0.65	38.5	11.3	2.45	0.43	0.55	0.67	36.3	10.6	2.78	0.44	0.56	0.68	33.9	9.9	3.16	0.46	0.58	0.71
	1200	565	41.2	12.1	2.16	0.43	0.56	0.70	39.2	11.5	2.45	0.44	0.58	0.72	37.0	10.8	2.78	0.45	0.59	0.74	34.6	10.1	3.16	0.47	0.62	0.77
	1400	660	42.0	12.3	2.18	0.44	0.60	0.76	40.0	11.7	2.47	0.45	0.62	0.78	37.7	11.0	2.81	0.46	0.63	0.80	35.2	10.3	3.20	0.48	0.66	0.83

3.5 TON — 13GCSA-42

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																					
			85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb		
	cfm	L/s	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C
63°F (17°C)	1200	565	39.6	11.6	2.33	0.70	0.83	0.96	37.7	11.1	2.64	0.72	0.86	0.98	35.6	10.4	3.00	0.74	0.88	1.00	33.3	9.7	3.41	0.77	0.91	1.00
	1400	660	40.9	12.0	2.33	0.75	0.89	1.00	39.0	11.4	2.64	0.77	0.91	1.00	36.7	10.8	3.00	0.79	0.93	1.00	34.3	10.1	3.41	0.82	0.97	1.00
	1600	755	42.2	12.4	2.33	0.80	0.93	1.00	40.2	11.8	2.64	0.82	0.96	1.00	37.9	11.1	3.00	0.84	0.98	1.00	35.4	10.4	3.41	0.88	1.00	1.00
67°F (19°C)	1200	565	41.8	12.2	2.35	0.55	0.67	0.80	39.8	11.7	2.67	0.56	0.69	0.82	37.5	11.0	3.03	0.58	0.71	0.84	35.1	10.3	3.45	0.60	0.73	0.87
	1400	660	43.1	12.6	2.35	0.58	0.72	0.86	41.0	12.0	2.67	0.59	0.74	0.88	38.7	11.3	3.03	0.61	0.76	0.90	36.1	10.6	3.45	0.63	0.79	0.94
	1600	755	43.9	12.9	2.35	0.61	0.77	0.90	41.8	12.3	2.67	0.63	0.79	0.92	39.5	11.6	3.03	0.64	0.81	0.95	36.9	10.8	3.45	0.67	0.84	0.98
71°F (22°C)	1200	565	44.8	13.1	2.35	0.41	0.53	0.64	42.6	12.5	2.67	0.42	0.54	0.66	40.2	11.8	3.03	0.43	0.56	0.67	37.6	11.0	3.45	0.45	0.58	0.70
	1400	660	45.6	13.4	2.35	0.42	0.56	0.69	43.5	12.7	2.67	0.43	0.57	0.71	41.0	12.0	3.03	0.44	0.58	0.73	38.3	11.2	3.45	0.46	0.61	0.76
	1600	755	46.5	13.6	2.37	0.43	0.59	0.75	44.3	13.0	2.70	0.44	0.61	0.77	41.8	12.2	3.06	0.45	0.63	0.79	39.0	11.4	3.48	0.47	0.65	0.82

COOLING RATINGS

NOTE - For Temperatures and Capacities not shown in tables, see bulletin - Cooling Unit Rating Table Correction Factor Data in Miscellaneous Engineering Data section.

4 TON **13GCSA-48**

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																								
			85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb		
	cfm	L/s	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C
63°F (17°C)	1400	660	45.9	13.5	2.70	0.74	0.88	1.00	43.7	12.8	3.07	0.75	0.89	1.00	41.6	12.2	3.49	0.77	0.92	1.00	39.3	11.5	3.96	0.79	0.94	1.00
	1600	755	46.9	13.7	2.70	0.76	0.91	1.00	44.7	13.1	3.07	0.77	0.92	1.00	42.5	12.5	3.49	0.79	0.95	1.00	40.1	11.8	3.96	0.82	0.97	1.00
	1800	850	47.4	13.9	2.70	0.79	0.94	1.00	45.1	13.2	3.07	0.80	0.95	1.00	43.0	12.6	3.49	0.83	0.98	1.00	40.5	11.9	3.96	0.85	1.00	1.00
67°F (19°C)	1400	660	48.9	14.3	2.73	0.58	0.71	0.85	46.5	13.6	3.10	0.59	0.72	0.87	44.3	13.0	3.52	0.60	0.74	0.89	41.8	12.3	4.00	0.62	0.76	0.91
	1600	755	49.4	14.5	2.73	0.59	0.74	0.88	47.0	13.8	3.10	0.60	0.75	0.89	44.8	13.1	3.52	0.62	0.77	0.92	42.2	12.4	4.00	0.63	0.79	0.94
	1800	850	49.8	14.6	2.73	0.61	0.77	0.92	47.5	13.9	3.10	0.62	0.78	0.94	45.2	13.2	3.52	0.63	0.80	0.96	42.7	12.5	4.00	0.65	0.82	0.99
71°F (22°C)	1400	660	51.8	15.2	2.76	0.44	0.56	0.68	49.4	14.5	3.13	0.44	0.57	0.69	47.0	13.8	3.56	0.45	0.58	0.71	44.3	13.0	4.04	0.46	0.60	0.73
	1600	755	52.3	15.3	2.76	0.44	0.58	0.71	49.8	14.6	3.13	0.45	0.59	0.72	47.4	13.9	3.56	0.46	0.60	0.74	44.8	13.1	4.04	0.47	0.62	0.76
	1800	850	52.8	15.5	2.76	0.45	0.59	0.74	50.3	14.7	3.13	0.46	0.60	0.75	47.9	14.0	3.56	0.47	0.62	0.77	45.2	13.2	4.04	0.48	0.64	0.79

5 TON **13GCSA-60**

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																								
			85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T) Dry Bulb		
	cfm	L/s	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW		75°F 24°C	80°F 27°C	85°F 29°C
63°F (17°C)	1600	755	54.2	15.9	3.25	0.72	0.86	0.99	51.6	15.1	3.69	0.73	0.87	1.00	49.2	14.4	4.20	0.75	0.89	1.00	46.4	13.6	4.77	0.77	0.92	1.00
	1800	850	55.4	16.2	3.25	0.74	0.89	1.00	52.7	15.5	3.69	0.75	0.90	1.00	50.2	14.7	4.20	0.77	0.92	1.00	47.4	13.9	4.77	0.79	0.95	1.00
	2000	945	55.9	16.4	3.25	0.77	0.91	1.00	53.3	15.6	3.69	0.78	0.92	1.00	50.7	14.9	4.20	0.80	0.95	1.00	47.9	14.0	4.77	0.83	0.97	1.00
67°F (19°C)	1600	755	57.7	16.9	3.28	0.56	0.69	0.83	54.9	16.1	3.73	0.57	0.70	0.84	52.3	15.3	4.24	0.59	0.72	0.87	49.4	14.5	4.82	0.60	0.74	0.89
	1800	850	58.3	17.1	3.28	0.58	0.72	0.86	55.5	16.3	3.73	0.58	0.73	0.87	52.9	15.5	4.24	0.60	0.75	0.89	49.9	14.6	4.82	0.62	0.77	0.92
	2000	945	58.9	17.2	3.28	0.59	0.75	0.90	56.1	16.4	3.73	0.60	0.76	0.91	53.4	15.6	4.24	0.62	0.78	0.94	50.4	14.8	4.82	0.63	0.80	0.96
71°F (22°C)	1600	755	61.2	17.9	3.32	0.42	0.54	0.67	58.3	17.1	3.77	0.43	0.55	0.68	55.5	16.3	4.28	0.44	0.57	0.69	52.4	15.3	4.86	0.45	0.58	0.71
	1800	850	61.8	18.1	3.32	0.43	0.56	0.69	58.8	17.2	3.77	0.44	0.57	0.70	56.0	16.4	4.28	0.45	0.58	0.72	52.9	15.5	4.86	0.46	0.60	0.74
	2000	945	62.4	18.3	3.32	0.44	0.58	0.72	59.4	17.4	3.77	0.45	0.59	0.73	56.6	16.6	4.28	0.46	0.60	0.75	53.4	15.6	4.86	0.47	0.62	0.77

REVISIONS

Sections	Description of Change
Optional Accessories	Added new Internal Filter Kits and MERV filters

ARI Standard
210/240 UAC

GAS-FIRED

LISTED

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