

# LENNOX®

## ENGINEERING DATA

**PACKAGED GAS - 50HZ**

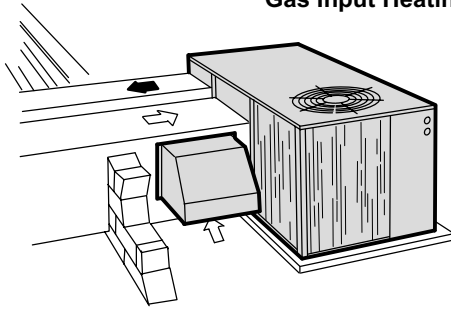
### GCS16-072-090-120-150

21.1, 26, 35.2 and 43.8 kW (6, 7.5, 10 and 12.5 Ton)

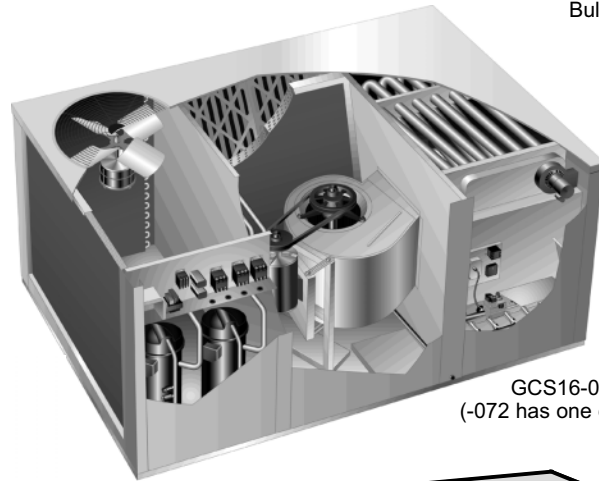
Net Cooling Capacity - 19.0 to 37.5 kW (19 500 to 38 800 kcal) (65 000 to 128 000 Btuh)  
 Gas Input Heating Capacity - 46.9 to 79.1 kW (40 300 to 68 000 kcal) (160 000 to 270 000 Btuh)

Bulletin No. 490101

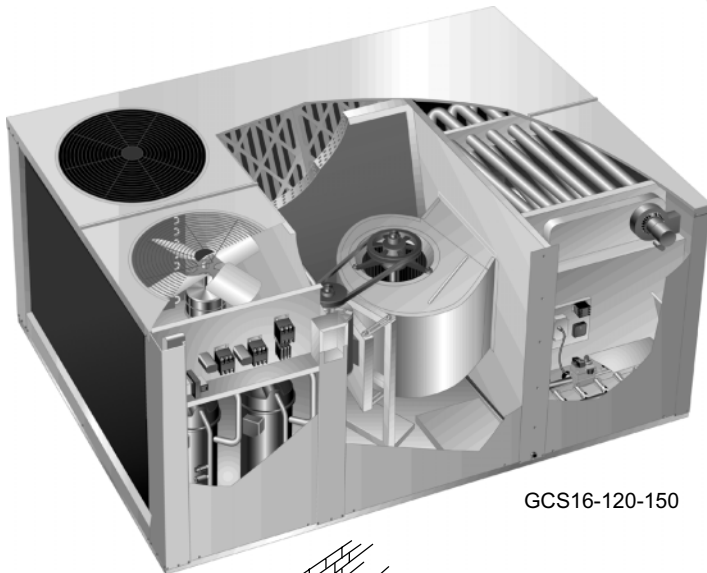
July 2001



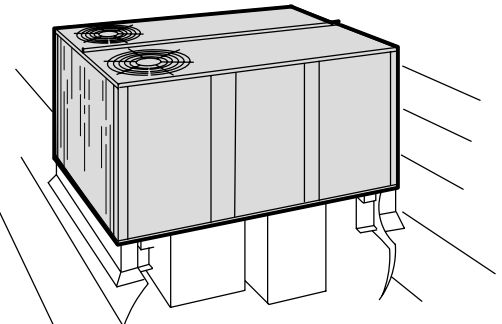
Horizontal (Side) Supply and Return Air Installation with OAD16 Outdoor Air Dampers.



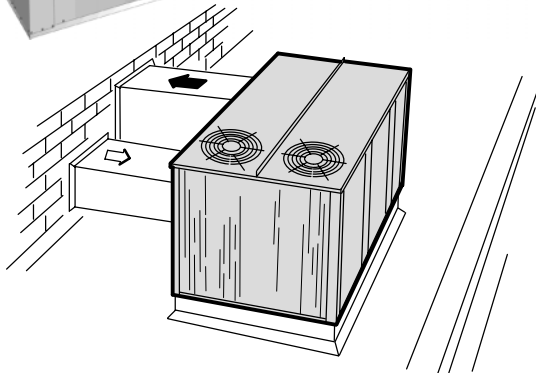
GCS16-072-090  
 (-072 has one compressor)



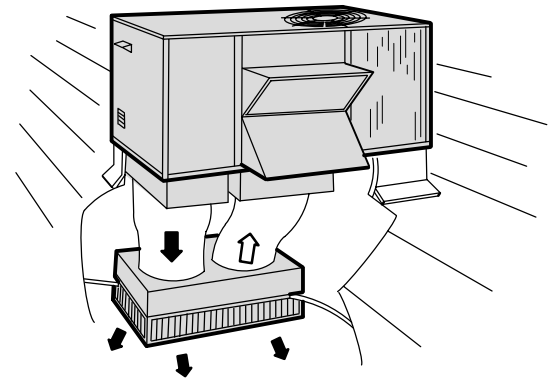
GCS16-120-150



Down-Flow Supply and Return Air Installation With RMF16 Roof Mounting Frame.

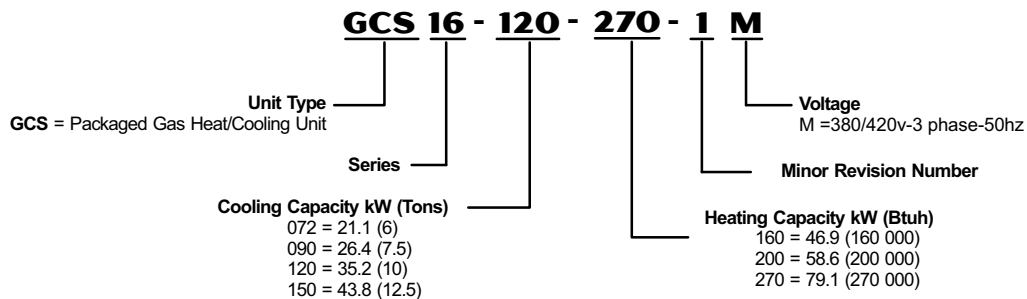


Horizontal (Side) Supply and Return Air Installation With RMF16 Roof Mounting Frame.



Down-Flow Supply and Return Air Installation With RMF16 Roof Mounting Frame, REMD16 Economizer and RTD11 Ceiling Diffuser.

## MODEL NUMBER IDENTIFICATION



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.



## FEATURES

### Air Flow Choice

- Bottom (down-flow) or horizontal (side) supply and return air.

### Cabinet

- Constructed of heavy gauge galvanized steel.
- Pre-painted enamel paint finish.
- Removable cabinet panels allow service access.
- Base section and cabinet panels exposed to conditioned air lined with thick fiberglass insulation.
- Electrical inlets provided in cabinet base and evaporator section cabinet panel for wiring entry.
- Control box with factory installed controls conveniently located for service access.
- Evaporator coil condensate drain connection extends outside cabinet for ease of connection.
- Lifting brackets furnished for handling and rigging.

### Coil Construction (Evaporator and Condenser)

- Extra large surface area and circuiting of coils provide maximum cooling efficiency, excellent heat transfer and low air resistance.
- Constructed of precisely spaced ripple-edged aluminum fins fitted to copper tubes.
- Fins equipped with collars that grip tubing for maximum contact area.
- Flared shoulder tubing connections and silver soldering provide tight, leakproof joints.
- Long life copper tubing is easy to field service.
- Coil is factory tested under high pressure to insure leakproof construction.
- The evaporator coil is face split with separate circuits on the 090, 120 and 150 models. Each circuit has its separate expansion valve, compressor and refrigerant charge.

### Compressors

- Copeland Scroll™ for high efficiency.
- 072 model has one compressor. 090, 120 and 150 models have two.

### Condenser Coils

- Formed coil construction.

### Condenser Fans

- 072 and 090 have a single fan, 120 and 150 models have two.
- Direct drive fan(s) draw large air volumes uniformly through condenser coils and discharges it vertically.
- Fan orifice design and low fan tip speed keeps operating sound level at a minimum.
- Uniform air flow through the coil results in high refrigerant cooling capacity.
- Corrosion resistant polyvinyl chloride (PVC) coated steel wire fan guard(s) furnished.

### Condenser Fan Motors

- Fan motor has ball bearings and is permanently lubricated, overload protected and resiliently mounted.

### Fan and Limit Controls

- Factory installed, 90 second fan time delay, dual limit controls (primary and secondary) with fixed temperature setting

### Filters

- Disposable 51 mm (2 inch) pleated commercial grade furnished.

### Heat Exchanger

- Tubular construction, aluminized steel, life cycle tested.

### Heating System

- Aluminized Steel inshot burners, direct spark ignition, electronic flame sensor, redundant automatic dual gas valve with manual shut-off, combustion air inducer, flame rollout switch, peep hole for flame viewing.

### Refrigeration System

- Consists of: compressors, condenser coil and direct drive fan(s), evaporator coil and belt drive blower, expansion valves, high capacity driers, high pressure switches (072-090 only), thermometer wells, full refrigerant charge, freezestats (prevents coil freeze-up during low ambient operation), independent refrigerant circuits (allows staging), low ambient cooling operation down to -1°C (30°F) without additional controls.

### Supply Air Blower

- Belt drive.
- Forward curved blades with double inlet.
- Statically and dynamically balanced.
- Permanently lubricated self aligning sleeve bearings with adjustable pulley.

### Supply Air Motor

- Overload protected, equipped with ball bearings.
- Motor mounting base permits quick and simple motor changeover, belt tension adjustment or belt changing.
- Adjustable motor pulley allows for variable speed adjustments.
- Overload protected.

### Tested

- Units have been tested in the Lennox Research Laboratory Environmental Test Rooms which meet American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE) Standard 37 requirements.
- Rated test conditions are those included in Air Conditioning and Refrigeration Institute (ARI) Standard 210/240-95 while operating at rated voltage and air volumes.
- Sound rating number rated at test conditions included in Air Conditioning and Refrigeration Institute (ARI) Standard 270-96.
- Units and components within are bonded for grounding to meet safety standards for servicing required by Underwriter's Laboratories (UL) and the International Electrotechnical Commission (IEC).
- Developed in accordance with ISO 9002 quality standards
- Blower data is from unit tests conducted in the Lennox Laboratory air test chamber.

<b>OPTIONAL ACCESSORIES (MUST BE ORDERED EXTRA)</b>				
Item	GCS16-072	GCS16-090	GCS16-120	GCS16-150
<b>Bottom Power Entry</b>	LB-55757CA (34G70) - 5 kg (12 lbs.)			
<b>Coil Guard</b> - Polyvinyl chloride (PVC) coated steel wire guards to protect outdoor coil. Not used with Hail Guards.	<b>60L31</b>		<b>60L32</b>	
<b>Ceiling Diffusers (Step-Down)</b> - Aluminum grilles, double deflection louvers, large center grille, insulated diffuser box with flanges, hanging rings furnished, interior transition (even air flow), internally sealed (prevents recirculation), adapts to T-bar ceiling grids or plaster ceilings	RTD11-95 57 kg (125 lbs.)		RTD11-135 93 kg (205 lbs.)	
<b>Ceiling Diffusers (Flush)</b> - Aluminum grilles, fixed blade louvers, large center grille, insulated diffuser box with flanges, hanging rings furnished, interior transition (even air flow), internally sealed (prevents recirculation), adapts to T-bar ceiling grids or plaster ceilings	FD11-95 43 kg (95 lbs.)		FD11-135 79 kg (174 lbs.)	
<b>Ceiling Transitions (Supply and Return)</b> - Used with diffusers, installs in roof mounting frame, galvanized steel construction, flanges furnished for duct connection, fully insulated	SRT16-09 17 kg (38 lbs.)		SRT16-12 17 kg (38 lbs.)	
<b>Control Systems</b>	See Optional Temperature Controls Systems			
<b>Crankcase Heaters</b> - Ensures proper compressor lubrication at all times.	380/420 volt <b>31J21</b>	380/420 volt <b>49K11</b>	380/420 volt <b>31J21</b>	380/420 volt <b>31J21</b>
<b>Economizer Dampers (Down-Flow)</b> - Mechanically linked recirculated air and outdoor air dampers, plug-in connections to unit, nylon bearings, stainless steel seals (outdoor dampers), 24 volt fully modulating spring return damper motor, adjustable minimum damper position switch, mixed air controller, solid-state adjustable outdoor air enthalpy control, 0 to 100% outdoor air adjustable, gravity exhaust air dampers furnished, powdered enamel paint finish NOTE - Fresh air/exhaust air hood with cleanable aluminum mesh frame filter, is required and must be ordered separately for field installation (see below)	Model Number - Net Weight	REMD16M-09 27 kg (60 lbs.)	REMD16M-12 36 kg (80 lbs.)	REMD16M-15 45 kg (100 lbs.)
	Net face area	0.20 m <sup>2</sup> (2.1 ft. <sup>2</sup> )	0.26 m <sup>2</sup> (2.8 ft. <sup>2</sup> )	0.33 m <sup>2</sup> (3.6 ft. <sup>2</sup> )
<b>Economizer Damper Hood (Down-flow)</b> - For use with REMD16M economizer dampers (see above). Must be ordered separately.	Order Number	<b>27L58</b>	<b>27L60</b>	<b>48L00</b>
	Number and Size of Filters - mm (in.)	(1) 819 x 419 x 25 (532-1/4 x 16-1/2 x 1)	(1) 819 x 546 x 25 (32-1/4 x 21-1/4 x 1)	(1) 1022 x 546 x 25 (40-1/4 x 21-1/2 x 1)
<b>Economizer Dampers (Horizontal)</b> - Mechanically linked recirculated air and outdoor air dampers, plug-in connections to unit, nylon bearings, stainless steel seals (outdoor dampers), 24 volt fully modulating spring return damper motor, adjustable minimum damper position switch, mixed air controller, solid-state adjustable outdoor air enthalpy control, 0 to 100% outdoor air adjustable, galvanized steel cabinet, flanged air openings on return air section, powdered enamel paint finish, fully insulated. NOTE - Outdoor air hood with two cleanable aluminum mesh frame filters is required and must be ordered separately. Also requires optional Horizontal Supply and Return Air Kit for duct connection	Order Number	<b>27L58</b>	<b>27L60</b>	<b>48L00</b>
	Number and Size of Filters - mm (in.)	(2) 406 x 635 x 25 (16 x 25 x 1)	(2) 406 x 635 x 25 (16 x 25 x 1)	(2) 508 x 635 x 25 (20 x 25 x 1)
<b>Economizer Damper Hood (Horizontal)</b> - For use with EMD16M economizer dampers (see above). Must be ordered separately.	Order Number	<b>27L58</b>	<b>68G80</b>	<b>68G77</b>
<b>Economizer Differential Enthalpy Control</b> - For use with economizer dampers, solid-state return air sensor allows selection between outdoor air and return air (whichever has lowest enthalpy).	<b>54G44</b>			
<b>Economizer Gravity Exhaust Dampers (Horizontal)</b> - For use with EMDH16 horizontal economizer damper sections, two neoprene coated fiberglass dampers furnished, rainhoods furnished, bird screen furnished	GED16-09/12 - 2 kg (5 lbs.) Net face area - 0.04 m <sup>2</sup> (0.43 sq. ft.) used with EMDH16M			
<b>Hail Guards</b> - Heavy duty field installed coil guard protects coils from damage. Not used with Coil Guards.	<b>60L33</b>		<b>60L34</b>	
<b>Horizontal Supply and Return Air Kit</b> - Provides duct connection to unit, flanges furnished, hardware furnished, two filler panels furnished for unused air openings, filter access panel furnished	LB-55756BA (34G71) 14 kg (30 lbs.)		LB-55756BB (35G42) 16 kg (35 lbs.)	
<b>Low Ambient Controls</b> - Allows unit operation down to -17.7°C (0°F)	LB-57113BG (15J80)		LB-57113BW (53L84)	
<b>Propane Conversion Kit</b>	<b>58L34</b>			
<b>Outdoor Air Damper Section</b> - Linked mechanical dampers, interchangeable unit panel furnished (down-flow applications), two-piece cabinet (control access), cleanable polyurethane frame type filter furnished, 0 to 25% (fixed) outdoor air adjustable, manual or automatic operation (kit required for automatic operation), installs on unit for down-flow applications, installs in return air duct for horizontal applications Minimum mixed air temperature: Heat mode - 7°C (45°F) Maximum mixed air temperature: Cool mode - 32°C (90°F)	OAD16-09 - 19 kg (41 lbs.) Number and size of filters (1) 406 x 508 x 25 mm (16 x 20 x 1 in.)		OAD16-12 - 20 kg (43 lbs.) Number and size of filters (1) 406 x 508 x 25 mm (16 x 20 x 1 in.)	
	<b>35G21</b> - 3 kg (7 lbs.)			
<b>Outdoor Air Damper Motorized Damper Kit</b> - 3 position damper actuator, plug-in connection	<b>35G21</b> - 3 kg (7 lbs.)			
<b>Roof Mounting Frame</b> - Nailer strip furnished, mates to unit, shipped knocked down	RMF16-09 49 kg (107 lbs.)		RMF16-12 - 54 kg (119 lbs.)	

## OPTIONAL TEMPERATURE CONTROL SYSTEMS

System and Component Description	Catalog Number
<b>ELECTRO-MECHANICAL THERMOSTAT CONTROL SYSTEM</b>	
<b>Thermostat</b> - Two stage heat & two stage cool with dual temperature levers, subbase choice	<b>13F06</b>
<b>Subbase</b> - Manual system switch (Off-Heat-Auto-Cool), fan switch (Auto-On)	<b>13F17</b>
<b>Subbase</b> - Non-switching	<b>13F16</b>
<b>Night Setback Operation</b> - Order components below	-
<b>Heating Thermostat</b> - Single stage heat	<b>13F12</b>
<b>Subbase</b> - Non-switching	<b>13F16</b>
<b>Night Kit</b> - Required if economizer is not used, contains plug-in relay, overrides operation of day thermostat	<b>39G74</b>
<b>Time Clock</b> - 7 day operation, indicates day and night periods, 2 hour increments, battery back-up	<b>See Price Book for Selection</b>
<b>Time Clock</b> - 24 hour night setback operation, 15 minute increments, battery back-up	<b>See Price Book for Selection</b>
<b>Cycle Control (Required)</b> - provides timed-on and off function, prevents compressor short cycling	<b>45L54</b>

## T7300 THERMOSTAT CONTROL SYSTEM

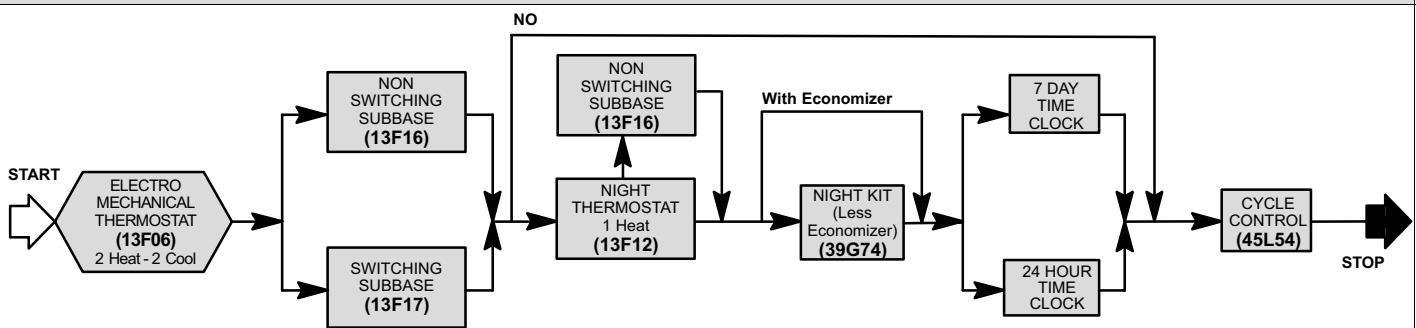
<b>Thermostat</b> — Programmable, internal or optional remote temperature sensing (sensor required), touch sensitive keyboard, automatic switching, °F or °C readout, no anticipator, droop/no droop selection, indicator LED's, hour/day programming, override capabilities, time and operational mode readout, stage status indicators, battery back-up, subbase choice, manual system switch (Heat-Off-Auto-Cool), fan switch (Auto-On)		<b>37L54</b>
<b>Subbase</b> — Selectable staging, indicator LED's, auxiliary relay output for economizer operation	Up to two stage heat and two stage cool	<b>37L55</b>
	Up to three stage heat and three stage cool	<b>37L53</b>
<b>Sensor</b> - Room temperature		<b>58C92</b>
<b>Sensor</b> - Room temperature with 3 hour override and setpoint adjustment		<b>86G67</b>
<b>Sensor</b> - Return air temperature		<b>27C40</b>

## T8621D THERMOSTAT CONTROL SYSTEM

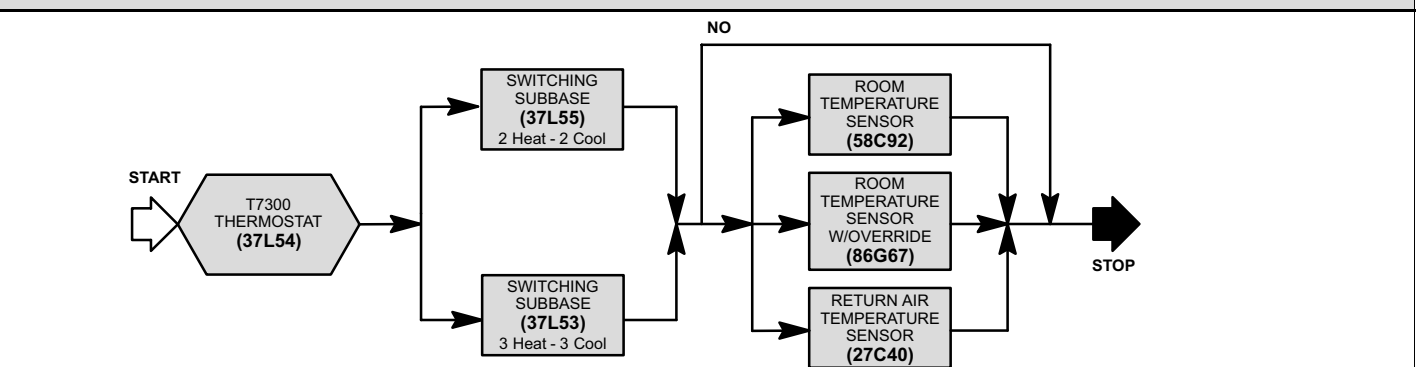
<b>Thermostats</b> — (T8621D) - Auto changeover, 2 htg./2 clg. 7 day programming, built-in time delays, system switch (Heat-Off-Cool-Auto), fan switch (Auto-On), touch sensitive keyboard, LCD display (Time-Day-Status -Temperature readout in °F or °C), four different time and temperature settings per day, instant override capabilities for skipping current program, running previous program, temporarily raising or lowering temperature for current program or overriding program indefinitely, three "AAA" battery back-up.		<b>27H29</b>
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## OPTIONAL TEMPERATURE CONTROL SYSTEMS FLOWCHARTS

### ELECTRO-MECHANICAL THERMOSTAT

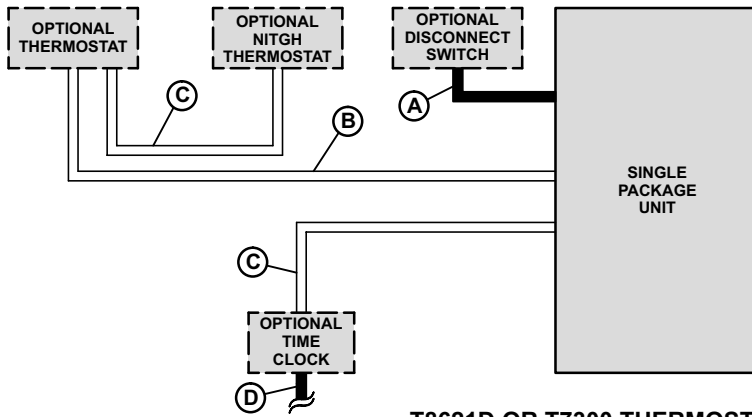


### HONEYWELL T7300 THERMOSTAT



## FIELD WIRING

### ELECTRO-MECHANICAL THERMOSTAT CONTROL SYSTEM

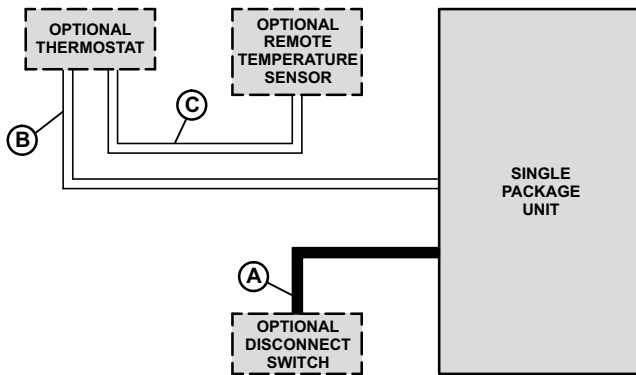


- A — Three phase with neutral (See Electrical Data Table)
- B — Six wire 24V
- C — Two wire 24V
- D — Two wire 24V

— Field wiring not furnished —

NOTE — All wiring must conform to local electrical codes.

### T8621D OR T7300 THERMOSTAT CONTROL SYSTEM



- A — Three phase with neutral (See Electrical Data Table)
- B — Nine wire 24V
- C — Two wire 24V

— Seven wire 24V (T7300 Room Sensor with Override)

— Field wiring not furnished —

NOTE — All wiring must conform to local electrical codes.

## ELECTRICAL DATA

Model Number		GCS16-072	GCS16-090	GCS16-120	GCS16-150
Line voltage data - 50hz - 3 phase with neutral		380/420v			
Voltage range (minimum - maximum)		342-462V			
Compressors	Number of compressors	1	2		
	Rated load amps - each (total)	9.1	6.7 (13.4)	9.0 (18.0)	9.1 (18.2)
	Locked rotor amps - each (total)	70 (70)	46 (92)	63 (126)	70 (140)
Condenser Fan Motor(s)	Number of fan motors	1		2	
	Full load amps - each (total)	1.3 (1.3)	1.9 (1.9)	1.3 (2.6)	1.5 (3)
	Locked rotor amps - each (total)	2.4 (2.4)	3.7 (3.7)	2.4 (4.8)	3 (6)
Evaporator Blower Motor	Motor Output - kW (hp)	1.5 (2)	1.5 (2)	1.5 (2)	2.2 (3)
	Full load amps	3			4.7
	Locked rotor amps	22.1	22.1	22.1	27

†Refer to local electrical codes to determine wire, fuse and disconnect size requirements. Use wires suitable for at least 75°C (167°F). Service factor = 1.15

## HIGH ALTITUDE INFORMATION

GCS16-072-090 models - derate is required when operating at altitudes from 1370 to 2285 m (4501 to 7500 ft.).  
 GCS16-120-150 models - optional High Altitude Kit HAK16-95 (91J27) is required for high altitude operation. No derate required.  
 See below for correct manifold pressures for natural and Propane.

Altitude		Manifold Pressure								
		GCS16-072-090					GCS16-120-150			
		Natural Gas		Propane		Derate Required	Natural Gas		Propane	
m	ft.	kPa	in. w.g.	kPa	in. w.g.		kPa	in. w.g.	kPa	in. w.g.
0 - 1370	0 - 4500	0.92	3.7	2.6	10.5	0%	0.92	3.7	2.6	10.5
1370 - 1675	4501 - 5500	0.84	3.4	2.6	10.5	4%	0.92	3.7	2.6	10.5
1675 - 1980	5501 - 6500	0.77	3.1	2.6	10.5	8%	0.92	3.7	2.6	10.5
1980 - 2285	6501 - 7500	0.72	2.9	2.6	10.5	12%	0.92	3.7	2.6	10.5

# SPECIFICATIONS

Model Number		GCS16-072	GCS16-090	GCS16-120	GCS16-150			
Cooling Ratings	Gross cooling capacity - kW (kcal) (Btuh)	19.9 (20 300) (67 800)	24.9 (25 500) (84 900)	32.9 (33 700) (112 300)	39.9 (40 900) (136 200)			
	★Net cooling capacity - kW (kcal) (Btuh)	19.0 (19 500) (65 000)	23.4 (24 000) (80 000)	31.0 (31 800) (106 000)	37.5 (38 800) (128 000)			
	Total power input - kW	7.2	8.8	11.7	14.2			
	Coefficient of Performance - Output/Input	2.6	2.6	2.6	2.6			
	★Energy Efficiency Ratio (Btuh/Watts)	9.0	9.0	9.0	9.0			
	★Integrated Part Load Value	----	----	9.2	8.5			
	*Sound Rating Number (db)	86		82	88			
Refrigerant Charge (HCFC-22)	Circuit 1	4.31 kg (9 lbs. 8 oz.)	2.72 kg (6 lbs. 0 oz.)	3.4 kg (7 lbs. 8 oz.)	3.9 kg (8 lbs. 8 oz.)			
	Circuit 2	----	2.72 kg (6 lbs. 0 oz.)	3.4 kg (7 lbs. 8 oz.)	3.9 kg (8 lbs. 8 oz.)			
Sea Level Two Stage Heating Capacity	Natural Gas Low Input Capacity kW (kcal) (btuh)	Input	30.5 (26 200) (104 000)	37.5 (32 300) (128 000)	51.4 (44 200) (175 500)			
		Output	24.4 (21 000) (83 200)	26.6 (22 900) (91 000)	42.0 (36 000) (143 000)			
		Input	46.9 (40 300) (160 000)	58.6 (50 400) (200 000)	79.1 (68 000) (270 000)			
		Output	37.5 (32 300) (128 000)	41.0 (35 300) (140 000)	64.4 (55 400) (220 000)			
	Natural Gas Thermal Efficiency		80.0%	81.5%	80.0%			
	Propane Low Input Capacity kW (kcal) (btuh)	Input	26.7 (22 900) (91 000)	33.3 (28 700) (113 750)	51.4 (44 200) (175 500)			
		Output	21.7 (18 700) (74 200)	27.1 (23 400) (92 700)	42.0 (36 000) (143 000)			
		Input	41.0 (35 300) (140 000)	51.2 (44 100) (175 000)	79.1 (68 000) (270 000)			
		Output	33.4 (28 800) (114 100)	41.8 (35 900) (142 600)	64.4 (55 400) (220 000)			
	Propane Thermal Efficiency		81.5%		80.0%			
Gas Supply Connections fpt - mm (in.) Natural and Propane			19 (3/4)					
Recommended Gas Supply Pressure - kPa (wc. in.)	Natural	1.7 (7)						
	Propane	2.7 (11)						
Evaporator Blower and Drive Selection	Blower wheel nominal diameter x width - mm (in.)		305 x 305 (12 x 12)		381 x 381 (15 x 15)			
	Factory Installed <input type="checkbox"/> Drives	Nominal motor output - kW (hp)		1.5 (2)		1.5 (2) 2.2 (3)		
		Voltage and phase					380/420v-50hz-3ph with neutral	
		Rev/min range		870 - 1165	870 - 1165	700 - 930	765 - 1020	
Evaporator Coil	Net face area - m <sup>2</sup> (ft. <sup>2</sup> )		0.72 (7.75)		0.88 (9.46) 1.11 (11.92)			
	Tube outside diameter - mm (in.) - Number of rows		9.5 (3/8) - 3					
	Fins per m (inch)		551 (14)					
	Expansion device type		Thermostatic Expansion Valve					
	Drain connection size male pipe thread - mm (in.)		25.4 (1)					
Condenser Coil	Net face area - m <sup>2</sup> (ft. <sup>2</sup> )		1.21 (13.0)	1.46 (15.67)	2.23 (24.0)			
	Tube outside diameter - mm (in.) - Number of rows		9.5 (3/8) - 2					
	Fins per m (inch)		787 (20)					
Condenser Fan	Diameter - mm (in.) - Number of blades		(1) 610 (24) - 3	(1) 610 (24) - 4	(2) 508 (20) - 4	(2) 610 (24) - 3		
	Air volume - L/s (cfm)		1630 (3450)	2020 (4275)	2500 (5300)	3305 (7000)		
	Motor output - W (hp)		(1) 249 (1/3)	(1) 560 (3/4)	(2) 249 (1/3)	(2) 373 (1/2)		
	Motor rev/min		896					
	Total motor input - W		340	500		950		
Filters (furnished)	Type of filter		Disposable, pleated, commercial grade					
	Number and size - mm (in.)		(4) 406 x 508 x 51 (16 x 20 x 2)		(2) 406 x 635 x 51 (16 x 25 x 2) & (2) 406 x 508 x 51 (16 x 20 x 2)	(2) 508 x 635 x 51 (20 x 25 x 2) & (2) 508 x 508 x 51 (20 x 20 x 2)		
Net weight of basic unit - kg (lbs.)		345 (760)	347 (875)	499 (1100)	544 (1200)			
Shipping weight of basic unit - kg (lbs.) (1 Package)		408 (900)	481 (1060)	582 (1285)	628 (1385)			

\*Sound Rating Number in accordance with test conditions included in ARI Standard 270-96.

★Rated in accordance with ARI Standard 210/240-86 while operating at rated voltage and air volumes;

Cooling Ratings: 35°C (95°F) outdoor air temperature and 27°C (80°F) db/19°C (67°F) wb entering evaporator air; minimum external duct static pressure.

†Integrated Part Load Value rated at 27°C (80°F) outdoor air temperature.

NOTE - Net capacity includes evaporator blower motor heat deduction. Gross capacity does not include evaporator blower motor heat deduction.

# 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.

## GCS16-072 - ONE COMPRESSOR OPERATING

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			27°C (80°F)						35°C (95°F)						43°C (110°F)						52°C (125°F)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T)		
						Dry Bulb						Dry Bulb						Dry Bulb						Dry Bulb		
m³/s	cfm	kW	kBtuh	24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh	24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh	24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh	24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh	24°C 75°F	27°C 80°F	29°C 85°F
17°C (63°F)	.89	1900	19.2	65.5	4.41	.73	.87	.98	18.2	62.2	5.22	.75	.89	1.00	17.1	58.5	6.19	.77	.92	1.00	15.9	54.4	7.37	.80	.95	1.00
	1.13	2400	19.9	68.0	4.47	.79	.94	1.00	18.9	64.5	5.28	.81	.96	1.00	17.8	60.8	6.26	.84	.99	1.00	16.7	56.9	7.45	.87	1.00	1.00
	1.37	2900	20.6	70.2	4.53	.84	.99	1.00	19.6	66.8	5.34	.87	1.00	1.00	18.5	63.2	6.34	.90	1.00	1.00	17.3	59.2	7.53	.93	1.00	1.00
19°C (67°F)	.89	1900	20.3	69.4	4.51	.57	.71	.84	19.3	65.8	5.32	.58	.72	.86	18.1	61.9	6.30	.59	.74	.89	16.8	57.4	7.49	.61	.77	.92
	1.13	2400	21.0	71.5	4.56	.61	.77	.92	19.9	67.8	5.37	.62	.79	.94	18.6	63.6	6.36	.63	.81	.97	17.3	59.1	7.54	.65	.85	.99
	1.37	2900	21.4	73.0	4.61	.64	.83	.97	20.3	69.2	5.42	.66	.85	.99	19.0	64.9	6.40	.68	.88	1.00	17.7	60.3	7.59	.70	.91	1.00
22°C (71°F)	.89	1900	21.6	73.8	4.62	.43	.56	.68	20.5	70.0	5.44	.43	.57	.70	19.3	65.9	6.43	.43	.58	.72	17.9	61.2	7.63	.44	.59	.75
	1.13	2400	22.2	75.9	4.68	.44	.59	.75	21.1	71.9	5.50	.45	.61	.77	19.8	67.5	6.50	.45	.62	.79	18.4	62.7	7.68	.46	.64	.83
	1.37	2900	22.7	77.3	4.72	.45	.63	.81	21.4	73.1	5.54	.46	.65	.83	20.1	68.6	6.53	.47	.67	.86	18.6	63.6	7.72	.48	.69	.89

## GCS16-090 — ONE COMPRESSOR OPERATING

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			18°C (65°F)						24°C (75°F)						29°C (85°F)						35°C (95°F)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T)		
						Dry Bulb						Dry Bulb						Dry Bulb						Dry Bulb		
m³/s	cfm	kW	kBtuh	24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh	24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh	24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh	24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh	24°C 75°F	27°C 80°F	29°C 85°F
17°C (63°F)	1.18	2500	12.5	42.7	2.43	.71	.85	.96	12.1	41.4	2.70	.72	.86	.98	11.8	40.1	3.01	.73	.87	.99	11.3	38.7	3.37	.74	.89	.99
	1.41	3000	12.9	43.9	2.46	.75	.90	1.00	12.5	42.6	2.73	.76	.91	1.00	12.1	41.2	3.05	.78	.93	1.00	11.7	39.8	3.41	.79	.95	1.00
	1.65	3500	13.2	45.0	2.49	.79	.95	1.00	12.8	43.6	2.76	.81	.96	1.00	12.4	42.3	3.07	.82	.97	1.00	12.0	40.8	3.43	.83	.98	1.00
19°C (67°F)	1.18	2500	13.2	45.2	2.49	.56	.69	.82	12.9	43.9	2.76	.56	.69	.83	12.4	42.4	3.07	.57	.71	.84	12.0	40.9	3.43	.58	.72	.86
	1.41	3000	13.6	46.3	2.52	.58	.73	.87	13.2	44.9	2.79	.59	.74	.89	12.7	43.4	3.10	.60	.75	.90	12.3	41.8	3.46	.60	.77	.92
	1.65	3500	13.8	47.1	2.53	.61	.77	.92	13.4	45.6	2.81	.61	.79	.93	12.9	44.1	3.13	.62	.80	.95	12.5	42.5	3.49	.63	.81	.97
22°C (71°F)	1.18	2500	14.1	48.0	2.56	.42	.54	.66	13.7	46.6	2.84	.42	.55	.67	13.2	45.0	3.15	.42	.55	.68	12.7	43.4	3.51	.43	.56	.69
	1.41	3000	14.4	49.1	2.59	.43	.57	.71	13.9	47.5	2.87	.43	.58	.72	13.5	45.9	3.18	.43	.58	.73	13.0	44.2	3.54	.44	.59	.74
	1.65	3500	14.6	49.8	2.61	.44	.59	.75	14.2	48.3	2.89	.44	.60	.76	13.7	46.6	3.20	.44	.61	.78	13.2	44.9	3.57	.45	.62	.80

## GCS16-090 - ALL COMPRESSORS OPERATING

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			27°C (80°F)						35°C (95°F)						43°C (110°F)						52°C (125°F)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T)		
						Dry Bulb						Dry Bulb						Dry Bulb						Dry Bulb		
m³/s	cfm	kW	kBtuh	24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh	24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh	24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh	24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtuh	24°C 75°F	27°C 80°F	29°C 85°F
17°C (63°F)	1.18	2500	24.3	83.0	5.73	.74	.88	.99	23.1	78.7	6.77	.76	.90	1.00	21.7	74.0	8.06	.78	.93	1.00	20.2	68.9	9.66	.81	.96	1.00
	1.41	3000	25.0	85.3	5.79	.78	.94	1.00	23.7	81.0	6.84	.80	.96	1.00	22.3	76.2	8.13	.83	.98	1.00	20.8	71.1	9.75	.86	1.00	1.00
	1.65	3500	25.6	87.4	5.84	.83	.98	1.00	24.4	83.1	6.89	.85	.99	1.00	23.0	78.4	8.21	.88	1.00	1.00	21.5	73.4	9.84	.91	1.00	1.00
19°C (67°F)	1.18	2500	25.7	87.7	5.84	.58	.71	.85	24.4	83.1	6.89	.58	.73	.87	22.8	77.9	8.20	.60	.75	.90	21.2	72.3	9.81	.61	.78	.93
	1.41	3000	26.3	89.6	5.90	.60	.76	.91	24.9	84.9	6.95	.61	.78	.93	23.3	79.6	8.25	.63	.81	.96	21.6	73.7	9.88	.65	.84	.99
	1.65	3500	26.7	91.1	5.94	.63	.81	.96	25.3	86.2	7.00	.64	.83	.98	23.7	80.8	8.30	.66	.86	.99	22.0	74.9	9.93	.69	.89	1.00
22°C (71°F)	1.18	2500	27.3	93.1	6.00	.43	.56	.69	25.8	88.1	7.05	.43	.57	.71	24.2	82.7	8.38	.44	.58	.73	22.5	76.7	9.99	.44	.60	.76
	1.41	3000	27.8	94.9	6.06	.44	.59	.74	26.3	89.8	7.11	.44	.60	.76	24.7	84.2	8.43	.45	.62	.79	22.8	77.9	10.06	.46	.64	.82
	1.65	3500	28.2	96.2	6.10	.45	.62	.79	26.7	91.1	7.16	.45	.63	.81	25.0	85.3	8.47	.46	.65	.84	23.1	78.9	10.12	.47	.68	.88





# BLOWER DATA

## GCS16-072/090 BLOWER PERFORMANCE

**BOLD DATA INDICATES FIELD FURNISHED DRIVE**

Air Volume m <sup>3</sup> /s (cfm)	STATIC PRESSURE EXTERNAL TO UNIT — Pa (Inches Water Gauge)																							
	50 (.20)		75 (.30)		100 (.40)		125 (.50)		150 (.60)		175 (.70)		200 (.80)		225 (.90)		250 (1.00)		275 (1.10)		300 (1.20)		325 (1.30)	
	rev/ min	BHP (kW)	rev/ min	BHP (kW)	rev/ min	BHP (kW)	rev/ min	BHP (kW)	rev/ min	BHP (kW)	rev/ min	BHP (kW)	rev/ min	BHP (kW)	rev/ min	BHP (kW)	rev/ min	BHP (kW)	rev/ min	BHP (kW)	rev/ min	BHP (kW)	rev/ min	BHP (kW)
0.94 (2000)	<b>600</b>	<b>0.35</b> (0.26)	<b>655</b>	<b>0.40</b> (0.30)	<b>705</b>	<b>0.50</b> (0.37)	<b>755</b>	<b>0.55</b> (0.41)	<b>800</b>	<b>0.60</b> (0.45)	845	0.70 (0.52)	890	0.75 (0.56)	930	0.85 (0.63)	970	0.90 (0.67)	1015	1.00 (0.75)	1050	1.05 (0.78)	1090	1.15 (0.86)
1.04 (2200)	<b>640</b>	<b>0.45</b> (0.34)	<b>690</b>	<b>0.50</b> (0.37)	<b>735</b>	<b>0.55</b> (0.41)	<b>780</b>	<b>0.65</b> (0.48)	<b>825</b>	<b>0.70</b> (0.52)	870	0.80 (0.60)	910	0.85 (0.63)	950	0.95 (0.71)	990	1.05 (0.78)	1030	1.10 (0.82)	1065	1.20 (0.90)	1100	1.30 (0.97)
1.13 (2400)	<b>680</b>	<b>0.55</b> (0.41)	<b>725</b>	<b>0.60</b> (0.45)	<b>770</b>	<b>0.70</b> (0.52)	<b>815</b>	<b>0.75</b> (0.56)	855	0.85 (0.63)	895	0.90 (0.67)	935	1.00 (0.75)	975	1.10 (0.82)	1010	1.15 (0.86)	1045	1.25 (0.93)	1085	1.35 (1.01)	1120	1.45 (1.08)
1.23 (2600)	<b>720</b>	<b>0.70</b> (0.52)	<b>765</b>	<b>0.75</b> (0.56)	<b>805</b>	<b>0.80</b> (0.60)	845	0.90 (0.67)	885	1.00 (0.75)	925	1.05 (0.78)	960	1.15 (0.86)	1000	1.25 (0.93)	1035	1.30 (0.97)	1070	1.40 (1.04)	1105	1.50 (1.12)	<b>1140</b>	<b>1.60</b> (1.19)
1.32 (2800)	<b>765</b>	<b>0.85</b> (0.63)	<b>805</b>	<b>0.90</b> (0.67)	845	1.00 (0.75)	880	1.05 (0.78)	920	1.15 (0.86)	955	1.25 (0.93)	990	1.30 (0.97)	1025	1.40 (1.04)	1060	1.50 (1.12)	1095	1.60 (1.19)	1125	1.70 (1.27)	<b>1160</b>	<b>1.80</b> (1.34)
1.42 (3000)	<b>805</b>	<b>1.00</b> (0.75)	845	1.05 (0.78)	880	1.15 (0.86)	920	1.25 (0.93)	955	1.35 (1.01)	990	1.40 (1.04)	1020	1.50 (1.12)	1055	1.60 (1.19)	1090	1.70 (1.27)	1120	1.80 (1.34)	<b>1150</b>	<b>1.90</b> (1.42)	<b>1185</b>	<b>2.00</b> (1.49)
1.51 (3200)	850	1.20 (0.90)	885	1.25 (0.93)	920	1.35 (1.01)	955	1.45 (1.08)	990	1.55 (1.16)	1020	1.60 (1.19)	1055	1.70 (1.27)	1085	1.80 (1.34)	1120	1.90 (1.42)	<b>1150</b>	<b>2.00</b> (1.49)	<b>1180</b>	<b>2.10</b> (1.57)	<b>1210</b>	<b>2.25</b> (1.68)
1.60 (3400)	895	1.40 (1.04)	930	1.50 (1.12)	960	1.55 (1.16)	995	1.65 (1.23)	1025	1.75 (1.31)	1060	1.85 (1.38)	1090	1.95 (1.45)	1120	2.05 (1.53)	<b>1150</b>	<b>2.15</b> (1.60)	<b>1180</b>	<b>2.25</b> (1.68)	<b>1210</b>	<b>2.40</b> (1.79)	<b>1240</b>	<b>2.50</b> (1.87)
1.70 (3600)	940	1.65 (1.23)	970	1.70 (1.27)	1005	1.85 (1.38)	1035	1.90 (1.42)	1065	2.00 (1.49)	1095	2.10 (1.57)	1125	2.20 (1.64)	<b>1155</b>	<b>2.35</b> (1.75)	<b>1185</b>	<b>2.45</b> (1.83)	<b>1210</b>	<b>2.55</b> (1.90)	<b>1240</b>	<b>2.65</b> (1.98)	<b>1270</b>	<b>2.80</b> (2.09)
1.79 (3800)	985	1.90 (1.42)	1015	2.00 (1.49)	1045	2.10 (1.57)	1075	2.20 (1.64)	1105	2.30 (1.72)	<b>1135</b>	<b>2.40</b> (1.79)	<b>1160</b>	<b>2.50</b> (1.87)	<b>1190</b>	<b>2.65</b> (1.98)	<b>1220</b>	<b>2.75</b> (2.05)	<b>1245</b>	<b>2.85</b> (2.13)	<b>1270</b>	<b>2.95</b> (2.20)	<b>1300</b>	<b>3.10</b> (2.31)

NOTE — All data is measured external to the unit with dry coil and with the air filters in place. See Page 11 for Accessory Air Resistance data.

## GCS16-120 BLOWER PERFORMANCE

**BOLD DATA INDICATES FIELD FURNISHED DRIVE**

Air Volume m <sup>3</sup> /s (cfm)	STATIC PRESSURE EXTERNAL TO UNIT — Pa (Inches Water Gauge)																											
	50 (.20)		75 (.30)		100 (.40)		125 (.50)		150 (.60)		175 (.70)		200 (.80)		225 (.90)		250 (1.00)		275 (1.10)		300 (1.20)		325 (1.30)		350 (1.40)		375 (1.50)	
	rev/ min	BHP (kW)	rev/ min	BHP (kW)	rev/ min	BHP (kW)	rev/ min	BHP (kW)	rev/ min	BHP (kW)	rev/ min	BHP (kW)	rev/ min	BHP (kW)	rev/ min	BHP (kW)	rev/ min	BHP (kW)	rev/ min	BHP (kW)	rev/ min	BHP (kW)	rev/ min	BHP (kW)	rev/ min	BHP (kW)	rev/ min	BHP (kW)
1.42 (3000)	<b>515</b>	<b>0.50</b> (0.37)	<b>555</b>	<b>0.60</b> (0.45)	<b>595</b>	<b>0.65</b> (0.48)	<b>635</b>	<b>0.75</b> (0.56)	<b>670</b>	<b>0.80</b> (0.60)	<b>705</b>	<b>0.90</b> (0.67)	740	1.00 (0.75)	775	1.10 (0.82)	810	1.15 (0.86)	845	1.30 (0.97)	875	1.35 (1.01)	905	1.45 (1.08)	940	1.60 (1.19)	970	1.70 (1.27)
1.51 (3200)	<b>535</b>	<b>0.60</b> (0.45)	<b>575</b>	<b>0.65</b> (0.48)	<b>615</b>	<b>0.75</b> (0.56)	<b>650</b>	<b>0.85</b> (0.63)	<b>685</b>	<b>0.90</b> (0.67)	<b>720</b>	<b>1.00</b> (0.75)	755	1.10 (0.82)	790	1.20 (0.90)	820	1.30 (0.97)	850	1.40 (1.04)	885	1.50 (1.12)	915	1.60 (1.19)	945	1.70 (1.27)	975	1.80 (1.34)
1.60 (3400)	<b>560</b>	<b>0.70</b> (0.52)	<b>600</b>	<b>0.80</b> (0.60)	<b>635</b>	<b>0.85</b> (0.63)	<b>670</b>	<b>0.95</b> (0.71)	<b>705</b>	<b>1.05</b> (0.78)	735	1.10 (0.82)	770	1.20 (0.90)	800	1.30 (0.97)	830	1.40 (1.04)	865	1.50 (1.12)	895	1.65 (1.23)	925	1.75 (1.31)	950	1.85 (1.38)	980	1.95 (1.45)
1.70 (3600)	<b>585</b>	<b>0.80</b> (0.60)	<b>620</b>	<b>0.90</b> (0.67)	<b>655</b>	<b>1.00</b> (0.75)	<b>690</b>	<b>1.05</b> (0.78)	<b>720</b>	<b>1.15</b> (0.86)	755	1.25 (0.93)	785	1.35 (1.01)	815	1.45 (1.08)	845	1.55 (1.16)	875	1.65 (1.23)	905	1.75 (1.31)	935	1.90 (1.42)	960	2.00 (1.49)	990	2.10 (1.57)
1.79 (3800)	<b>610</b>	<b>0.95</b> (0.71)	<b>645</b>	<b>1.00</b> (0.75)	<b>675</b>	<b>1.10</b> (0.82)	<b>710</b>	<b>1.20</b> (0.90)	740	1.30 (0.97)	770	1.40 (1.04)	800	1.50 (1.12)	830	1.60 (1.19)	860	1.70 (1.27)	890	1.80 (1.34)	915	1.90 (1.42)	945	2.05 (1.53)	970	2.15 (1.60)	1000	2.25 (1.68)
1.89 (4000)	<b>635</b>	<b>1.05</b> (0.78)	<b>670</b>	<b>1.15</b> (0.86)	<b>700</b>	<b>1.25</b> (0.93)	<b>730</b>	<b>1.35</b> (1.01)	760	1.45 (1.08)	790	1.55 (1.16)	820	1.65 (1.23)	845	1.75 (1.31)	875	1.85 (1.38)	900	1.95 (1.45)	930	2.10 (1.57)	955	2.20 (1.64)	985	2.35 (1.75)	1010	2.45 (1.83)
1.98 (4200)	<b>660</b>	<b>1.20</b> (0.90)	<b>690</b>	<b>1.30</b> (0.97)	<b>720</b>	<b>1.40</b> (1.04)	750	1.50 (1.12)	780	1.60 (1.19)	810	1.70 (1.27)	835	1.80 (1.34)	865	1.95 (1.45)	890	2.05 (1.53)	920	2.15 (1.60)	945	2.25 (1.68)	970	2.40 (1.79)	995	2.50 (1.87)	<b>1020</b>	<b>2.60</b> (1.94)
2.08 (4400)	<b>690</b>	<b>1.40</b> (1.04)	<b>715</b>	<b>1.45</b> (1.08)	745	1.60 (1.19)	775	1.70 (1.27)	800	1.80 (1.34)	830	1.90 (1.42)	855	2.00 (1.49)	880	2.10 (1.57)	910	2.25 (1.68)	935	2.35 (1.75)	960	2.45 (1.83)	985	2.60 (1.94)	1010	2.70 (2.01)	<b>1035</b>	<b>2.85</b> (2.13)
2.17 (4600)	<b>715</b>	<b>1.55</b> (1.16)	740	1.65 (1.23)	770	1.75 (1.31)	795	1.85 (1.38)	825	2.00 (1.49)	850	2.10 (1.57)	875	2.20 (1.64)	900	2.30 (1.72)	925	2.45 (1.83)	950	2.55 (1.90)	975	2.65 (1.98)	1000	2.80 (2.09)	<b>1025</b>	<b>2.95</b> (2.20)	<b>1050</b>	<b>3.05</b> (2.28)
2.27 (4800)	740	1.75 (1.31)	765	1.85 (1.38)	795	1.95 (1.45)	820	2.10 (1.57)	845	2.20 (1.64)	870	2.30 (1.72)	895	2.40 (1.79)	920	2.55 (1.90)	945	2.65 (1.98)	970	2.80 (2.09)	995	2.90 (2.16)	1015	3.00 (2.24)	<b>1040</b>	<b>3.15</b> (2.35)	<b>1065</b>	<b>3.30</b> (2.46)
2.36 (5000)	765	1.95 (1.45)	790	2.05 (1.53)	820	2.20 (1.64)	845	2.30 (1.72)	870	2.40 (1.79)	890	2.50 (1.87)	915	2.65 (1.98)	940	2.75 (2.05)	965	2.90 (2.16)	990	3.05 (2.28)	1010	3.15 (2.35)	<b>1035</b>	<b>3.30</b> (2.46)	<b>1055</b>	<b>3.40</b> (2.54)	----	----
2.45 (5200)	795	2.20 (1.64)	820	2.30 (1.72)	840	2.40 (1.79)	865	2.50 (1.87)	890	2.65 (1.98)	915	2.80 (2.09)	940	2.90 (2.16)	960	3.00 (2.24)	985	3.15 (2.35)	1005	3.25 (2.42)	<b>1030</b>	<b>3.40</b> (2.54)	----	----	----	----	----	----

NOTE — All data is measured external to the unit with dry coil and with the air filters in place. See Page 11 for Accessory Air Resistance data.

# BLOWER DATA

## GCS16-150 BLOWER PERFORMANCE

**BOLD DATA INDICATES FIELD FURNISHED DRIVE**  
**SHADED DATA INDICATES FIELD FURNISHED MOTOR**

Air Volume m <sup>3</sup> /s (cfm)	STATIC PRESSURE EXTERNAL TO UNIT — Pa (Inches Water Gauge)														
	50 (.20)	75 (.30)	100 (.40)	125 (.50)	150 (.60)	175 (.70)	200 (.80)	225 (.90)	250 (1.00)	275 (1.10)	300 (1.20)	325 (1.30)	350 (1.40)	375 (1.50)	400 (1.60)
	rev/ BHP min (kW)	rev/ BHP min (kW)	rev/ BHP min (kW)	rev/ BHP min (kW)	rev/ BHP min (kW)	rev/ BHP min (kW)	rev/ BHP min (kW)	rev/ BHP min (kW)	rev/ BHP min (kW)	rev/ BHP min (kW)	rev/ BHP min (kW)	rev/ BHP min (kW)	rev/ BHP min (kW)	rev/ BHP min (kW)	rev/ BHP min (kW)
1.79 (3800)	<b>620 (0.78)</b>	<b>655 (0.86)</b>	<b>695 (0.93)</b>	<b>725 (1.01)</b>	760 (1.08)	795 (1.16)	825 (1.27)	860 (1.34)	890 (1.45)	920 (1.53)	945 (1.60)	975 (1.72)	1005 (1.83)	<b>1030 (1.90)</b>	<b>1055 (2.01)</b>
1.84 (3900)	<b>630 (0.82)</b>	<b>665 (0.90)</b>	<b>705 (0.97)</b>	740 (1.08)	770 (1.16)	805 (1.23)	835 (1.31)	865 (1.42)	895 (1.49)	925 (1.60)	955 (1.68)	980 (1.79)	1010 (1.90)	<b>1035 (1.98)</b>	<b>1060 (2.09)</b>
1.89 (4000)	<b>645 (0.90)</b>	<b>680 (0.97)</b>	<b>715 (1.04)</b>	750 (1.12)	780 (1.19)	815 (1.31)	845 (1.38)	875 (1.49)	905 (1.57)	935 (1.68)	960 (1.75)	990 (1.87)	1015 (1.98)	<b>1040 (2.05)</b>	<b>1070 (2.16)</b>
1.93 (4100)	<b>655 (0.93)</b>	<b>690 (1.01)</b>	<b>725 (1.12)</b>	760 (1.19)	790 (1.27)	820 (1.38)	855 (1.45)	885 (1.57)	910 (1.64)	940 (1.75)	970 (1.87)	995 (1.94)	<b>1020 (2.01)</b>	<b>1050 (2.16)</b>	<b>1075 (2.24)</b>
1.98 (4200)	<b>670 (1.01)</b>	<b>705 (1.08)</b>	735 (1.16)	770 (1.27)	800 (1.34)	830 (1.42)	860 (1.53)	890 (1.60)	920 (1.72)	950 (1.83)	975 (1.90)	1005 (2.01)	<b>1030 (2.13)</b>	<b>1055 (2.24)</b>	<b>1080 (2.31)</b>
2.03 (4300)	<b>680 (1.04)</b>	<b>715 (1.16)</b>	750 (1.23)	780 (1.34)	810 (1.42)	840 (1.49)	870 (1.60)	900 (1.72)	930 (1.79)	955 (1.90)	985 (2.01)	1010 (2.09)	<b>1035 (2.20)</b>	<b>1060 (2.31)</b>	<b>1085 (2.42)</b>
2.08 (4400)	<b>695 (1.12)</b>	<b>725 (1.23)</b>	760 (1.31)	790 (1.42)	820 (1.49)	850 (1.57)	880 (1.68)	910 (1.79)	935 (1.87)	965 (1.98)	990 (2.09)	<b>1020 (2.20)</b>	<b>1045 (2.31)</b>	<b>1070 (2.39)</b>	<b>1095 (2.50)</b>
2.12 (4500)	<b>705 (1.19)</b>	740 (1.31)	770 (1.38)	800 (1.45)	830 (1.57)	860 (1.68)	890 (1.75)	920 (1.87)	945 (1.98)	975 (2.09)	1000 (2.16)	<b>1025 (2.28)</b>	<b>1050 (2.39)</b>	<b>1075 (2.50)</b>	<b>1100 (2.61)</b>
2.17 (4600)	<b>720 (1.27)</b>	750 (1.38)	780 (1.45)	815 (1.57)	840 (1.64)	870 (1.75)	900 (1.87)	930 (1.98)	955 (2.05)	980 (2.16)	1010 (2.28)	<b>1035 (2.39)</b>	<b>1060 (2.50)</b>	<b>1085 (2.61)</b>	<b>1110 (2.72)</b>
2.22 (4700)	<b>730 (1.34)</b>	765 (1.45)	795 (1.53)	825 (1.64)	855 (1.75)	880 (1.83)	910 (1.94)	935 (2.05)	965 (2.16)	990 (2.24)	1015 (2.35)	<b>1040 (2.46)</b>	<b>1065 (2.57)</b>	<b>1090 (2.69)</b>	<b>1115 (2.80)</b>
2.27 (4800)	745 (1.42)	775 (1.53)	805 (1.64)	835 (1.72)	865 (1.83)	890 (1.90)	920 (2.01)	945 (2.13)	975 (2.24)	1000 (2.35)	<b>1025 (2.46)</b>	<b>1050 (2.57)</b>	<b>1075 (2.69)</b>	<b>1100 (2.80)</b>	<b>1125 (2.91)</b>
2.31 (4900)	755 (1.49)	785 (1.60)	820 (1.72)	845 (1.79)	875 (1.90)	900 (2.01)	930 (2.13)	955 (2.24)	985 (2.35)	1010 (2.46)	<b>1035 (2.57)</b>	<b>1060 (2.69)</b>	<b>1085 (2.80)</b>	<b>1105 (2.87)</b>	<b>1130 (3.02)</b>
2.36 (5000)	770 (1.60)	800 (1.72)	830 (1.79)	860 (1.90)	885 (2.01)	915 (2.13)	940 (2.24)	965 (2.31)	990 (2.42)	<b>1020 (2.57)</b>	<b>1040 (2.65)</b>	<b>1065 (2.76)</b>	<b>1090 (2.87)</b>	<b>1115 (3.02)</b>	<b>1140 (3.13)</b>
2.41 (5100)	785 (1.68)	815 (1.79)	840 (1.90)	870 (2.01)	895 (2.09)	925 (2.20)	950 (2.31)	975 (2.42)	1000 (2.54)	<b>1025 (2.65)</b>	<b>1050 (2.76)</b>	<b>1075 (2.87)</b>	<b>1100 (2.98)</b>	<b>1125 (3.13)</b>	<b>1145 (3.21)</b>
2.45 (5200)	795 (1.79)	825 (1.90)	855 (2.01)	880 (2.09)	910 (2.20)	935 (2.31)	960 (2.42)	985 (2.54)	1010 (2.65)	<b>1035 (2.76)</b>	<b>1060 (2.87)</b>	<b>1085 (2.98)</b>	<b>1110 (3.13)</b>	<b>1130 (3.21)</b>	<b>1155 (3.36)</b>
2.050 (5300)	810 (1.87)	840 (1.98)	865 (2.09)	895 (2.20)	920 (2.31)	945 (2.42)	970 (2.54)	995 (2.65)	<b>1020 (2.76)</b>	<b>1045 (2.87)</b>	<b>1070 (2.98)</b>	<b>1095 (3.13)</b>	<b>1115 (3.21)</b>	<b>1140 (3.36)</b>	<b>1165 (3.47)</b>
2.55 (5400)	825 (1.98)	850 (2.09)	880 (2.20)	905 (2.31)	930 (2.42)	955 (2.54)	980 (2.65)	1005 (2.76)	<b>1030 (2.87)</b>	<b>1055 (2.98)</b>	<b>1080 (3.10)</b>	<b>1105 (3.25)</b>	<b>1125 (3.36)</b>	<b>1150 (3.47)</b>	<b>1170 (3.58)</b>
2.60 (5500)	835 (2.09)	865 (2.20)	890 (2.31)	915 (2.42)	945 (2.54)	970 (2.65)	995 (2.76)	<b>1020 (2.87)</b>	<b>1040 (2.98)</b>	<b>1065 (3.10)</b>	<b>1090 (3.25)</b>	<b>1110 (3.36)</b>	<b>1135 (3.47)</b>	<b>1155 (3.58)</b>	<b>1180 (3.73)</b>
2.64 (5600)	850 (2.20)	875 (2.31)	900 (2.39)	930 (2.54)	955 (2.65)	980 (2.76)	1005 (2.87)	<b>1030 (3.02)</b>	<b>1050 (3.10)</b>	<b>1075 (3.25)</b>	<b>1100 (3.36)</b>	<b>1120 (3.47)</b>	<b>1145 (3.62)</b>	<b>1165 (3.73)</b>	<b>1190 (3.88)</b>
2.69 (5700)	860 (2.31)	890 (2.42)	915 (2.54)	940 (2.65)	965 (2.76)	990 (2.87)	1015 (2.98)	<b>1040 (3.13)</b>	<b>1060 (3.25)</b>	<b>1085 (3.36)</b>	<b>1110 (3.51)</b>	<b>1130 (3.62)</b>	<b>1155 (3.73)</b>	<b>1175 (3.88)</b>	<b>1195 (3.99)</b>
2.74 (5800)	875 (2.42)	900 (2.54)	925 (2.65)	955 (2.76)	975 (2.87)	1000 (2.98)	<b>1025 (3.13)</b>	<b>1050 (3.25)</b>	<b>1075 (3.39)</b>	<b>1095 (3.51)</b>	<b>1120 (3.62)</b>	<b>1140 (3.73)</b>	<b>1165 (3.88)</b>	<b>1185 (3.99)</b>	<b>1205 (4.14)</b>
2.78 (5900)	890 (2.54)	915 (2.65)	940 (2.76)	965 (2.91)	990 (3.02)	1015 (3.13)	<b>1035 (3.25)</b>	<b>1060 (3.39)</b>	<b>1085 (3.51)</b>	<b>1105 (3.62)</b>	<b>1130 (3.77)</b>	<b>1150 (3.88)</b>	<b>1170 (3.99)</b>	<b>1195 (4.14)</b>	<b>1215 (4.29)</b>
2.83 (6000)	900 (2.65)	925 (2.76)	950 (2.87)	975 (3.02)	1000 (3.13)	<b>1025 (3.28)</b>	<b>1050 (3.39)</b>	<b>1070 (3.51)</b>	<b>1095 (3.66)</b>	<b>1115 (3.77)</b>	<b>1140 (3.92)</b>	<b>1160 (4.03)</b>	<b>1180 (4.14)</b>	<b>1205 (4.29)</b>	<b>1225 (4.44)</b>

NOTE — All data is measured external to the unit with dry coil and with the air filters in place. See Page 11 for Accessory Air Resistance data.

## BLOWER DATA

### ACCESSORY AIR RESISTANCE

Unit Model No.	Air Volume		Total Resistance - Pa (inches water gauge)						
			Wet Evaporator Coil	REMD16M Down-Flow Economizer	EMDH16M Horizontal Economizer	RTD11 Step-Down Diffuser			FD11 Flush Diffuser
	L/s	cfm				2 Ends Open	1 Side 2 Ends Open	All Ends & Sides Open	
GCS16-072 GCS16-090	945	2000	27 (0.10)	27 (0.11)	5 (0.02)	37 (0.15)	30 (0.12)	27 (0.11)	20 (0.08)
	1040	2200	27 (0.11)	37 (0.15)	7 (0.03)	45 (0.18)	37 (0.15)	32 (0.13)	27 (0.11)
	1185	2400	30 (0.12)	47 (0.19)	7 (0.03)	52 (0.21)	45 (0.18)	37 (0.15)	35 (0.14)
	1225	2600	32 (0.13)	57 (0.23)	10 (0.04)	60 (0.24)	52 (0.21)	45 (0.18)	42 (0.17)
	1320	2800	35 (0.14)	67 (0.27)	10 (0.04)	67 (0.27)	60 (0.24)	52 (0.21)	50 (0.20)
	1415	3000	40 (0.16)	77 (0.31)	12 (0.05)	80 (0.32)	72 (0.29)	62 (0.25)	62 (0.25)
	1510	3200	45 (0.18)	87 (0.35)	12 (0.05)	102 (0.41)	92 (0.37)	80 (0.32)	77 (0.31)
	1605	3400	47 (0.19)	102 (0.41)	15 (0.06)	124 (0.50)	112 (0.45)	97 (0.39)	92 (0.37)
	1700	3600	52 (0.21)	117 (0.47)	15 (0.06)	152 (0.61)	134 (0.54)	119 (0.48)	109 (0.44)
	1795	3800	57 (0.23)	142 (0.57)	17 (0.07)	182 (0.73)	157 (0.63)	142 (0.57)	127 (0.51)
GCS16-120	1700	3600	30 (0.12)	35 (0.14)	7 (0.03)	90 (0.36)	70 (0.28)	57 (0.23)	37 (0.15)
	1795	3800	32 (0.13)	37 (0.15)	10 (0.04)	99 (0.40)	80 (0.32)	65 (0.26)	45 (0.18)
	1890	4000	35 (0.14)	40 (0.16)	10 (0.04)	109 (0.44)	90 (0.36)	72 (0.29)	52 (0.21)
	1980	4200	37 (0.15)	42 (0.17)	12 (0.05)	122 (0.49)	99 (0.40)	82 (0.33)	60 (0.24)
	2075	4400	40 (0.16)	45 (0.18)	12 (0.05)	134 (0.54)	109 (0.44)	92 (0.37)	67 (0.27)
	2170	4600	42 (0.17)	50 (0.20)	15 (0.06)	149 (0.60)	122 (0.49)	104 (0.42)	77 (0.31)
	2265	4800	45 (0.18)	55 (0.22)	17 (0.07)	162 (0.65)	132 (0.53)	114 (0.46)	87 (0.35)
	2360	5000	47 (0.19)	60 (0.24)	22 (0.09)	172 (0.69)	144 (0.58)	124 (0.50)	97 (0.39)
	2455	5200	50 (0.20)	67 (0.27)	25 (0.10)	186 (0.75)	154 (0.62)	134 (0.54)	107 (0.43)
GCS16-150	1980	4200	42 (0.17)	45 (0.18)	15 (0.06)	55 (0.22)	47 (0.19)	40 (0.16)	25 (0.10)
	2075	4400	45 (0.18)	50 (0.20)	17 (0.07)	70 (0.28)	60 (0.24)	50 (0.20)	30 (0.12)
	2170	4600	50 (0.20)	52 (0.21)	17 (0.07)	85 (0.34)	72 (0.29)	60 (0.24)	37 (0.15)
	2265	4800	52 (0.21)	57 (0.23)	20 (0.08)	99 (0.40)	85 (0.34)	72 (0.29)	47 (0.19)
	2360	5000	55 (0.22)	65 (0.26)	20 (0.08)	114 (0.46)	97 (0.39)	85 (0.34)	57 (0.23)
	2455	5200	60 (0.24)	77 (0.31)	22 (0.09)	129 (0.52)	109 (0.44)	97 (0.39)	67 (0.27)
	2550	5400	62 (0.25)	85 (0.34)	25 (0.10)	144 (0.58)	122 (0.49)	107 (0.43)	77 (0.31)
	2640	5600	65 (0.26)	94 (0.38)	30 (0.12)	159 (0.64)	134 (0.54)	117 (0.47)	87 (0.35)
2735	5800	70 (0.28)	99 (0.40)	32 (0.13)	174 (0.70)	147 (0.59)	127 (0.51)	97 (0.39)	

### CEILING DIFFUSER AIR THROW DATA

Model No.	Air Volume		Effective Throw Range			
			RTD11 Step-Down		FD11 Flush	
	L/s	cfm	m	ft.	m	ft.
GCS16-072 GCS16-090	1240	2625	7 - 9	24 - 29	7 - 8	22 - 26
	1415	3000	8 - 10	27 - 33	8 - 9	25 - 30
	1595	3375	9 - 11	30 - 37	9 - 10	28 - 34
	1770	3750	10 - 12	34 - 41	9 - 12	31 - 38
GCS16-120	2075	4400	10 - 13	34 - 42	10 - 12	32 - 40
	2335	4950	12 - 14	38 - 47	11 - 14	36 - 45
	2595	5500	13 - 16	43 - 52	12 - 15	40 - 50
GCS16-150	1980	4200	12 - 14	39 - 46	12 - 15	40 - 48
	2360	5000	12 - 15	41 - 50	13 - 16	43 - 52
	2735	5800	13 - 16	43 - 52	14 - 16	45 - 54

Effective Throw Range is the horizontal or vertical distance an airstream travels on leaving the outlet or diffuser before the maximum velocity is reduced to 15 m (50 ft.) per minute. Four sides open.

## **GUIDE SPECIFICATIONS**

### **General**

- Furnish and install a single package air to air direct expansion mechanical cooling and gas fired heating system, complete with automatic controls.
- The single package unit shall be a standard product of a firm regularly engaged in the manufacture of heating-cooling equipment.
- The manufacturer shall have parts and service available throughout the U.S. and Canada.
- The equipment shall be shipped completely factory assembled, precharged, piped and wired internally ready for field connections.
- The manufacturer shall test operate system at the factory before shipment.

### **Air Distribution**

- Equipment shall be capable of bottom (down-flow) or side (horizontal) handling of conditioned air.

### **Heating System**

- Tubular heat exchanger and inshot type gas burners shall be constructed of aluminized steel.
- Controls shall consist of direct spark ignition, electronic flame sensor controls, flame rollout switch, limit controls and automatic redundant dual gas valve with staging control and pressure switch (072/090 models) or centrifugal switch (120/150 models) on combustion air inducer.
- Unit shall be available for use with LPG/propane as an option.
- Complete service access shall be provided for controls and wiring.

### **Refrigeration System**

- The coils shall be non-ferrous construction with aluminum fins mechanically bonded to durable copper tubes. Coils shall be pressure leak tested.
- Outdoor coil shall be formed coil construction.
- Compressors shall be resiliently mounted and have overload protection.
- The refrigeration system shall have discharge, suction and liquid line service gauge ports, driers, freezestats, expansion valves, high pressure switches (072-090 only) and full refrigerant charge.
- Control options available shall consist of low ambient controls, timed-off control and thermostat.

### **Cabinet**

- Shall be galvanized steel with a powdered enamel paint finish electrostatically bonded to the metal.
- Cabinet panels where conditioned air is handled shall be fully insulated to prevent sweating and minimize sound.
- Openings shall be provided for power connection entry. Optional bottom power entry shall be available.
- Shall have peep hole with cover for flame viewing of burners.
- Indoor coil condensate drain shall be provided and shall extend outside of cabinet.
- Lifting brackets shall be factory installed.

### **Economizer Wiring**

- Economizer wiring harness shall be furnished and factory installed.

### **Service Access**

- All components, wiring and inspection areas shall be completely accessible through removable panels.

### **Supply Air Blowers**

- Centrifugal supply air blower shall have permanently lubricated sleeve bearings and adjustable belt drive. Motor mount base shall permit ease of motor changeover and belt tension adjustment.
- Blower wheel shall be statically and dynamically balanced.

### **Outdoor Coil Fan(s)**

- Direct drive propeller type condenser fans shall discharge vertically.
- Fan motor shall have ball bearings and be permanently lubricated and inherently protected.
- Fans shall have a safety guard.

### **Air Filters**

- Disposable pleated 2 inch (51 mm) thick filters shall be furnished.

## **OPTIONAL ACCESSORIES**

### **Bottom Power Entry Kit**

- Optional kit shall provide power entry to the unit through the roof mounting frame.

### **Ceiling Diffusers**

- Furnish and install a (flush or stepdown) optional combination ceiling supply and return air diffuser.

### **Ceiling Diffuser Supply and Return Air Transitions**

- Supply and return transitions shall be available, for field installation in the roof mounting frame, to facilitate duct connection to the diffuser.

### **Coil Guards**

- PVC (polyvinyl chloride) coil guards shall be available for field installation to protect outdoor coils from damage.

### **Control Systems**

- Shall provide a selection of thermostats and related controls to automatically operate the mechanical equipment through the heating or cooling and ventilating cycles as required.

### **Economizer Dampers**

- Furnish and install complete with recirculated air dampers, outside air dampers, air filters, damper actuator and controls.
- The assembly shall provide for the introduction of outside air for minimum ventilation and free cooling.
- Low leakage dampers shall ride in nylon bearings.
- Down-flow models shall include Gravity Exhaust Dampers.
- Horizontal models shall require optional Gravity Exhaust Dampers.
- Damper actuator shall be 24 volt, fully modulating spring return.
- Controls shall include electronic discharge air sensor, minimum position switch, and solid-state adjustable enthalpy control.
- Outdoor Air Hood shall be ordered separately
- Control option shall consist of differential enthalpy control (return air sensor).

### **Economizer Horizontal Gravity Exhaust Dampers**

- Pressure operated dampers shall install in return air duct for horizontal applications with EMDH16 horizontal economizer dampers.
- Damper blades shall ride in nylon bearings and be gasketed for tight seal and quiet operation.

### **Hail Guards**

- Hail guards shall be available for field installation to protect outdoor coils from damage.

### **Horizontal Supply & Return Air Kit**

- Optional kit shall provide necessary cabinet parts to field convert unit for side (horizontal) supply and return air duct connections.

### **Outdoor Air Damper Section**

- Optional manual outdoor dampers shall be available to provide outdoor air requirements of up to 25%.
- Dampers shall be available for manual or automatic operation.
- Damper section field installs external to the unit.
- Outdoor Air Damper Panel Kit shall be required.
- Shall be equipped with outdoor air hood filter for extra air filtering and bird screen protection.

### **Roof Mounting Frame**

- Mechanical contractor shall install a steel roof mounting frame for bottom discharge and return air duct connection.
- It shall mate to the bottom perimeter of the equipment.
- When flashed into the roof it shall make a unit mounting curb and provide weatherproof duct connection and entry into the conditioned area.
- Flashing shall be the responsibility of a roofing contractor.
- RMF16 frame shall be approved by US National Roofing Contractors Association.

# DIMENSIONS - MM (INCHES)

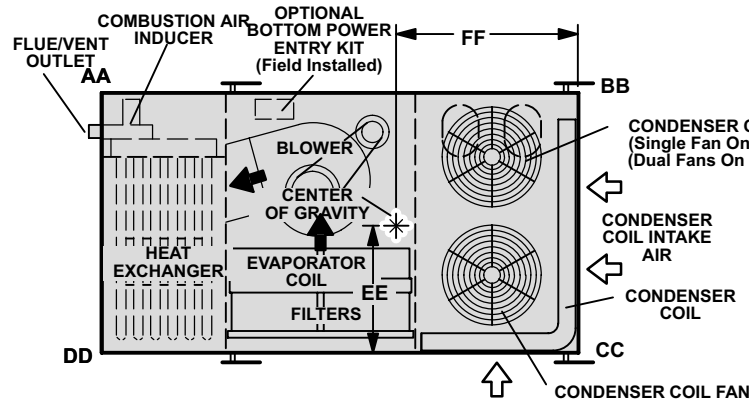
## Basic Unit

### CORNER WEIGHTS

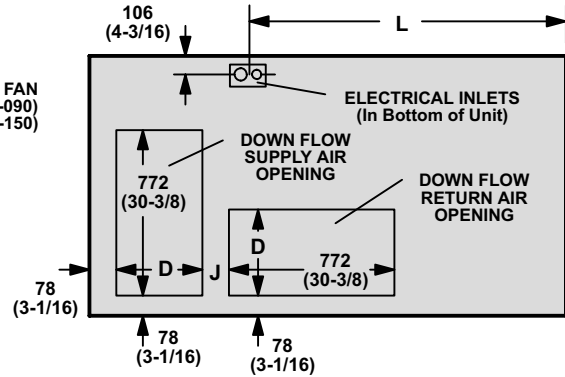
Model Number	AA		BB		CC		DD	
	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.
GCS16-072	90	198	89	196	83	182	83	184
GCS16-090	107	236	128	283	88	194	69	162
GCS16-120	125	276	141	311	122	268	111	245
GCS16-150	132	292	153	337	137	303	122	269

### CENTER OF GRAVITY

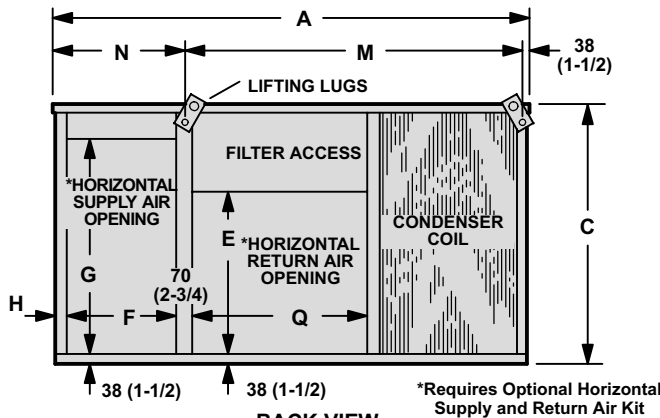
Model Number	EE		FF	
	mm	inch	mm	inch
GCS16-072	711	28	1124	44-1/4
GCS16-090	724	28-1/2	1016	40
GCS16-120	940	37	1105	43-1/2
GCS16-150	908	35-3/4	1181	46-1/2



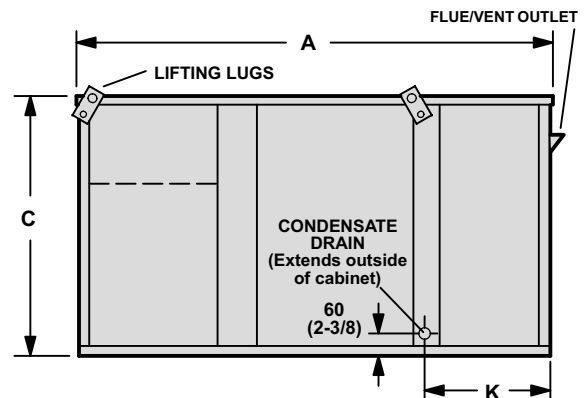
TOP VIEW



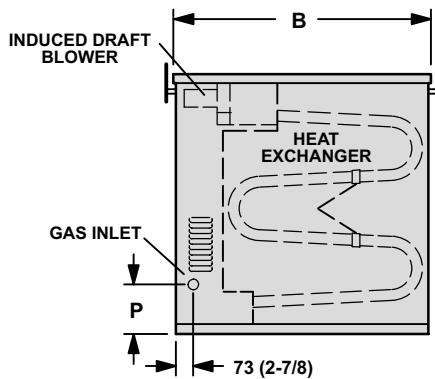
TOP VIEW BASE SECTION



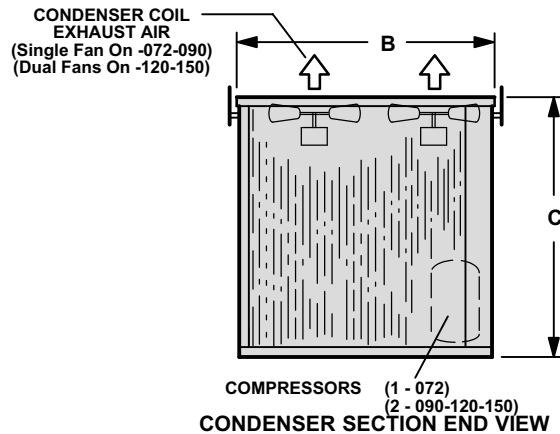
BACK VIEW WITH HORIZONTAL SUPPLY & RETURN AIR OPENING



FRONT VIEW



HEAT SECTION END VIEW



CONDENSER SECTION END VIEW

Model No.	A		B		C		D		E		F		G	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
GCS16-072	2248	88-1/2	1219	48	991	39	419	16-1/2	625	24-5/8	494	19-7/16	816	32-1/8
GCS16-090	2248	88-1/2	1219	48	991	39	419	16-1/2	625	24-5/8	494	19-7/16	816	32-1/8
GCS16-120	2388	94	1524	60	1168	46	610	24	803	31-5/8	641	25-1/4	994	39-1/8
GCS16-150	2591	102	1524	60	1168	46	610	24	803	31-5/8	641	25-1/4	994	39-1/8

Model No.	H		J		K		L		M		N		P		Q	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
GCS16-072	41	1-5/8	143	5-5/8	635	25	1384	54-1/2	1648	64-7/8	562	22-1/8	248	9-3/4	838	33
GCS16-090	41	1-5/8	143	5-5/8	635	25	1384	54-1/2	1648	64-7/8	562	22-1/8	248	9-3/4	838	33
GCS16-120	51	2	113	4-7/16	791	31-1/8	1461	57-1/2	1626	64	724	28-1/2	356	14	838	33
GCS16-150	51	2	113	4-7/16	791	31-1/8	1664	65-1/2	1829	72	724	28-1/2	356	14	1041	41

### DIMENSIONS - MM (INCHES)

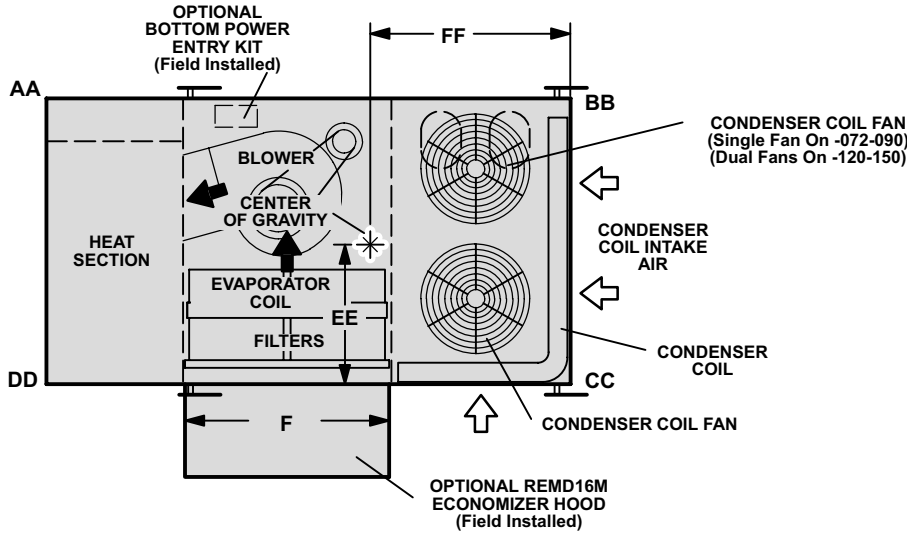
#### Basic Unit With REMD16M (Down-Flow) Economizer Damper Section & RMF16 Roof Mounting Frame

##### CORNER WEIGHTS

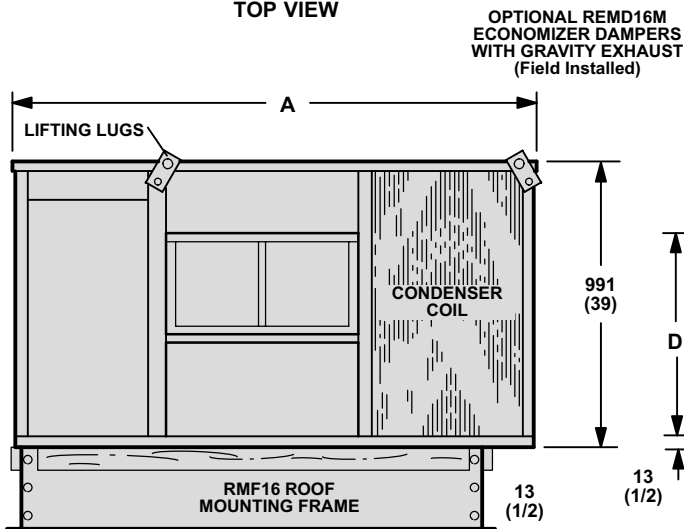
Model Number	AA		BB		CC		DD	
	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.
GCS16-072	111	245	110	243	98	217	99	219
GCS16-090	122	268	144	318	112	247	94	208
GCS16-120	134	296	151	333	136	299	123	272
GCS16-150	143	315	164	362	152	336	135	297

##### CENTER OF GRAVITY

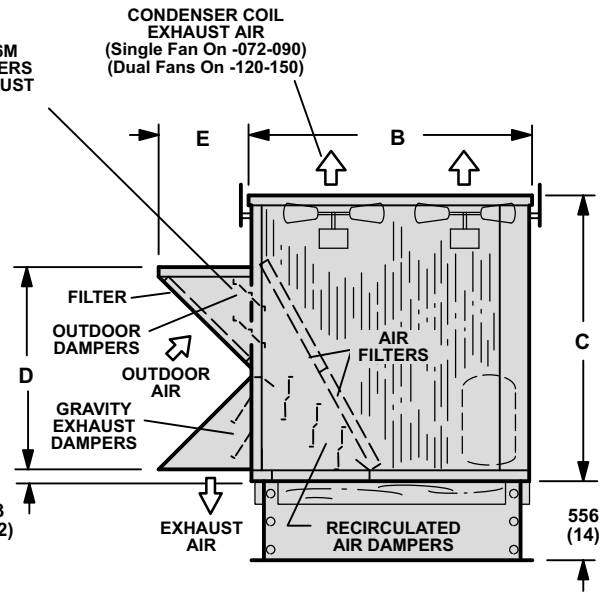
Model Number	EE		FF	
	mm	inch	mm	inch
GCS16-072	762	30	1124	44-1/4
GCS16-090	686	27	1029	40-1/2
GCS16-120	889	35	1105	43-1/2
GCS16-150	857	33-3/4	1181	46-1/2



TOP VIEW



BACK VIEW



CONDENSER SECTION END VIEW

Model No.	A		B		C		D		E		F	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
GCS16-072 GCS16-090	2248	88-1/2	1219	48	991	39	654	25-3/4	394	15-1/2	826	32-1/2
GCS16-120	2388	94	1524	60	1168	46	841	33-1/8	464	18-1/4	826	32-1/2
GCS16-150	2591	102	1524	60	1168	46	841	33-1/8	464	18-1/4	1029	40-1/2

## DIMENSIONS - MM (INCHES)

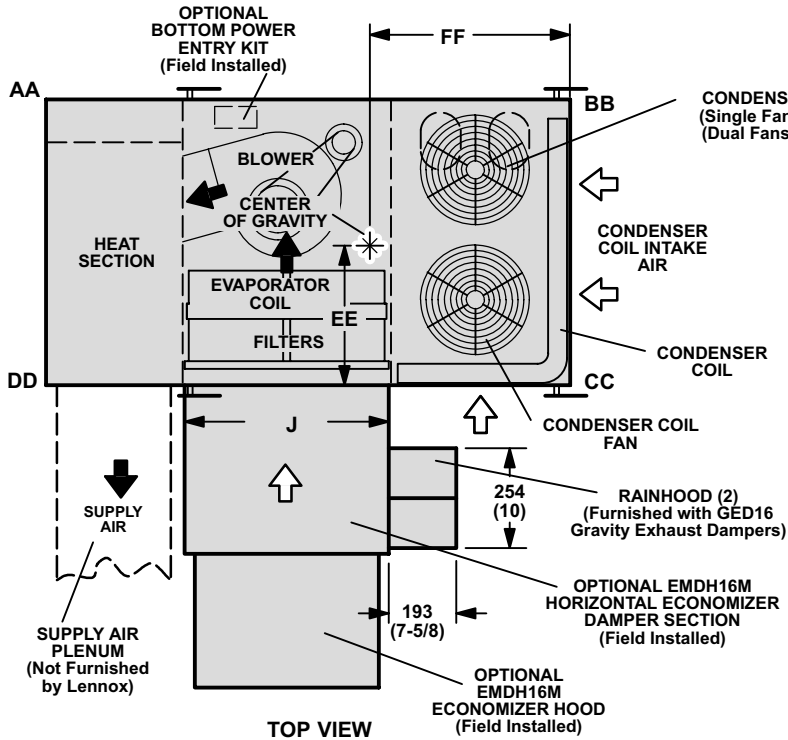
### Basic Unit With EMDH16M (Horizontal) Economizer Damper Section

#### CORNER WEIGHTS

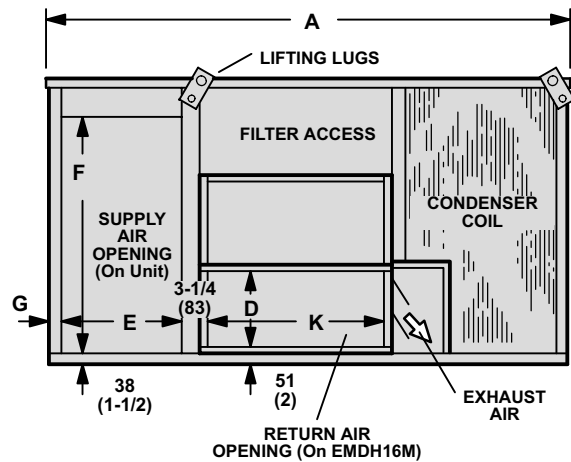
Model Number	AA		BB		CC		DD	
	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.
GCS16-072	98	215	97	214	95	210	96	211
GCS16-090	107	235	124	273	118	261	103	226
GCS16-120	133	294	149	329	137	302	124	274
GCS16-150	142	312	162	358	154	340	136	300

#### CENTER OF GRAVITY

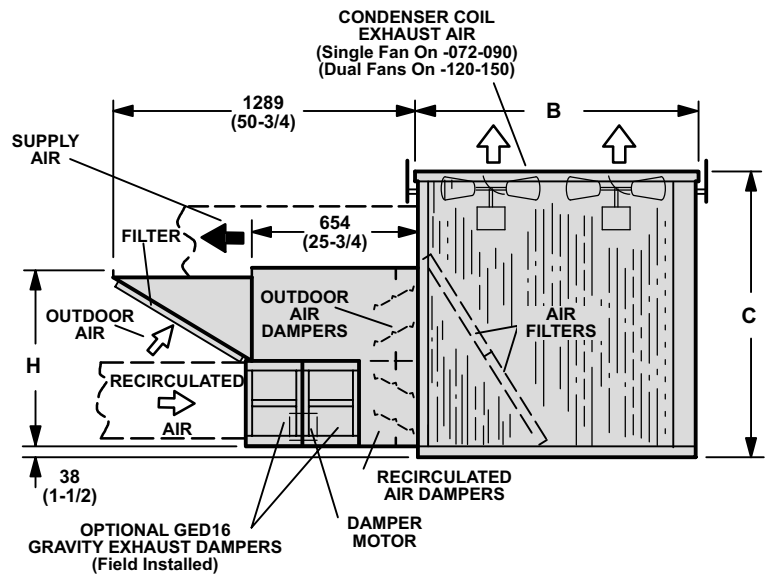
Model Number	EE		FF	
	mm	inch	mm	inch
GCS16-072	635	25	1124	44-1/4
GCS16-090	622	24-1/2	1041	41
GCS16-120	864	34	1105	43-1/2
GCS16-150	832	32-3/4	1181	46-1/2



**TOP VIEW**



**BACK VIEW**



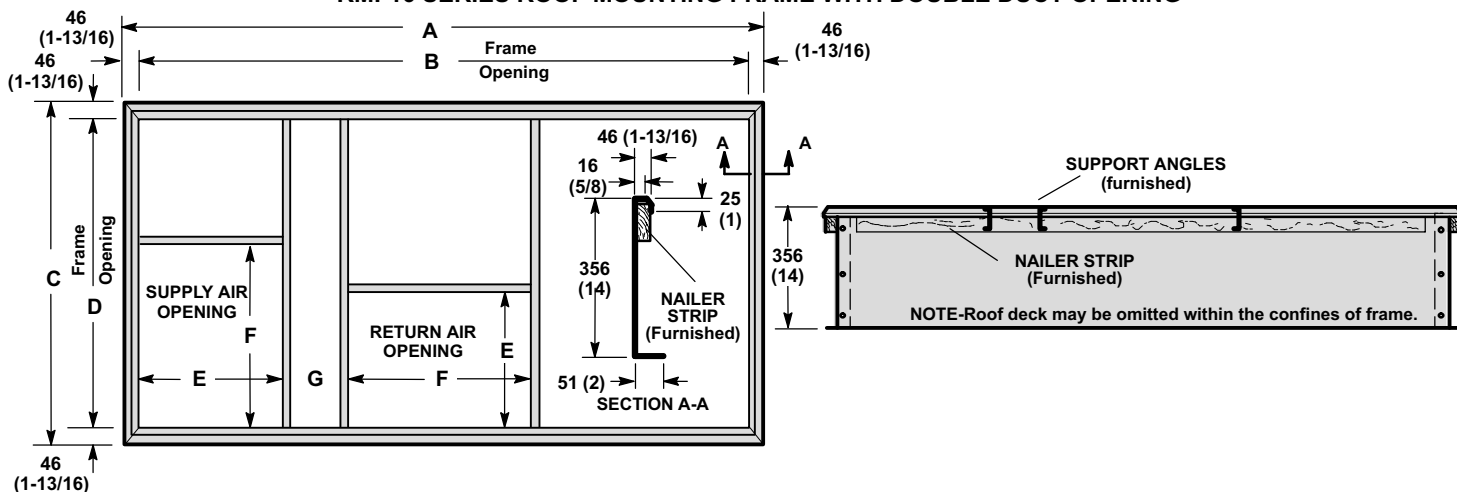
**CONDENSER SECTION END VIEW**

Model No.	A		B		C		D		E		F		G		H		J		K	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
GCS16-072 GCS16-090	2248	88-1/2	1219	48	991	39	337	13-1/4	494	19-7/16	816	32-1/2	41	1-5/8	730	28-3/4	827	32-9/16	800	31-1/2
GCS16-120	2388	94	1524	60	1168	46	489	19-1/4	641	25-1/4	994	39-1/8	51	2	883	34-3/4	827	32-9/16	800	31-1/2
GCS16-150	2591	102	1524	60	1168	46	489	19-1/4	641	25-1/4	994	39-1/8	51	2	883	34-3/4	1030	40-9/16	1003	39-1/2



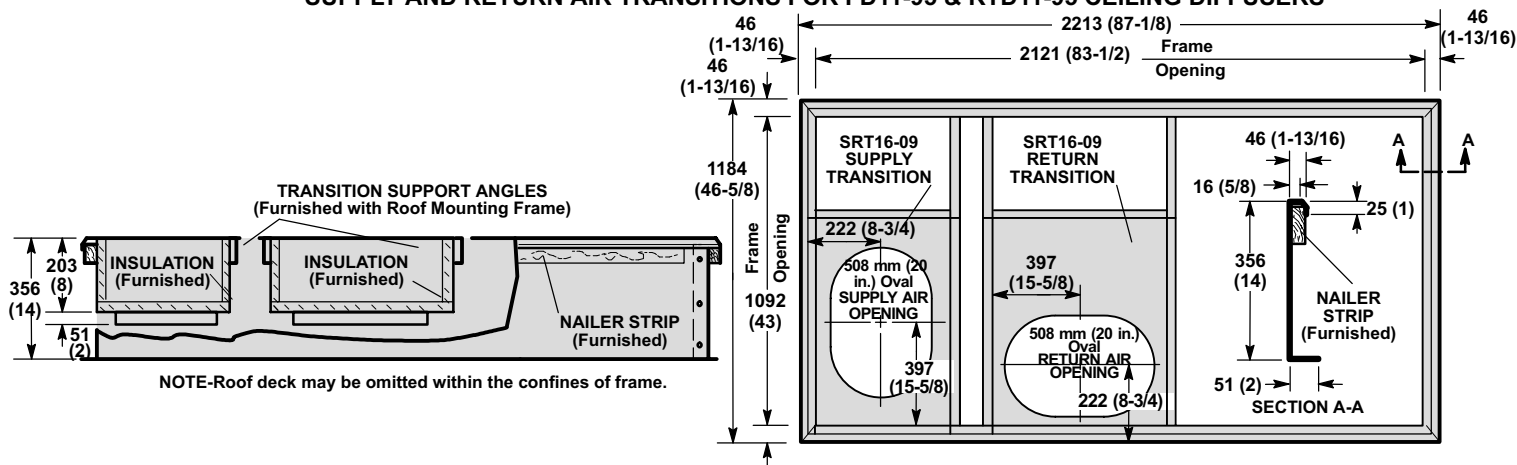
# ACCESSORY DIMENSIONS - MM (INCHES)

## RMF16 SERIES ROOF MOUNTING FRAME WITH DOUBLE DUCT OPENING

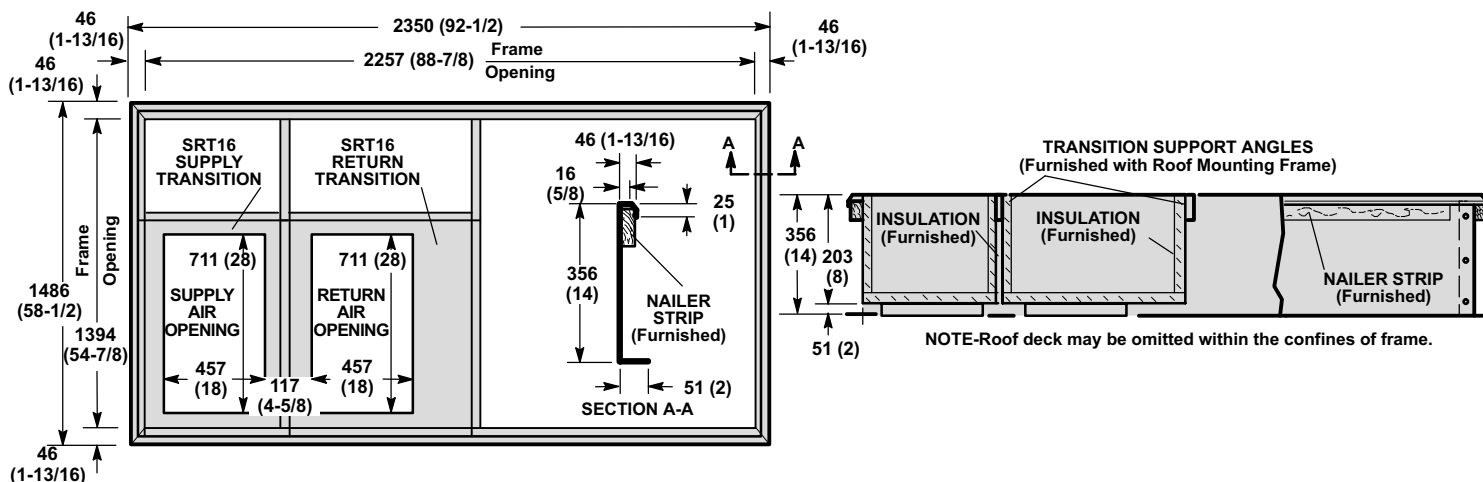


Model Number	A		B		C		D		E		F		G	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
RMF16-09	2213	87-1/8	2121	83-1/2	1184	46-5/8	1092	43	456	17-15/16	800	31-1/2	102	4
RMF16-12	2350	92-1/2	2257	88-7/8	1486	58-1/2	1394	54-7/8	641	25-1/4	800	31-1/2	86	3-3/8

## RMF16-09 ROOF MOUNTING FRAME WITH SRT16-09 SUPPLY AND RETURN AIR TRANSITIONS FOR FD11-95 & RTD11-95 CEILING DIFFUSERS

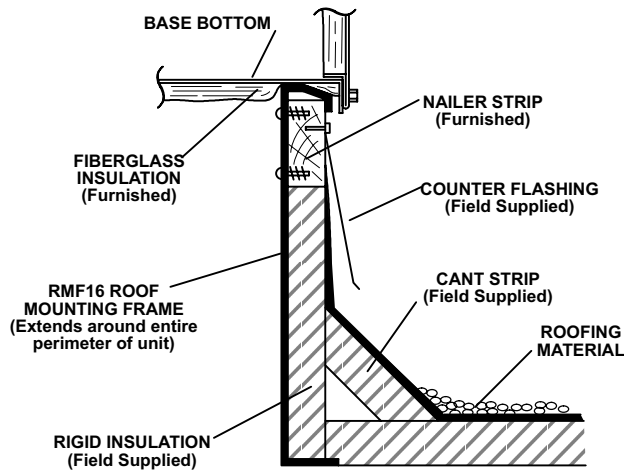


## RMF16-12 ROOF MOUNTING FRAMES WITH SRT16-12 SUPPLY AND RETURN AIR TRANSITIONS FOR FD11-135 & RTD11-135 CEILING DIFFUSERS



**ACCESSORY DIMENSIONS - MM (INCHES)**

**TYPICAL FLASHING DETAIL FOR RMF16 ROOF MOUNTING FRAME**



**ROOF MOUNTING FRAME SPECIFICATIONS**

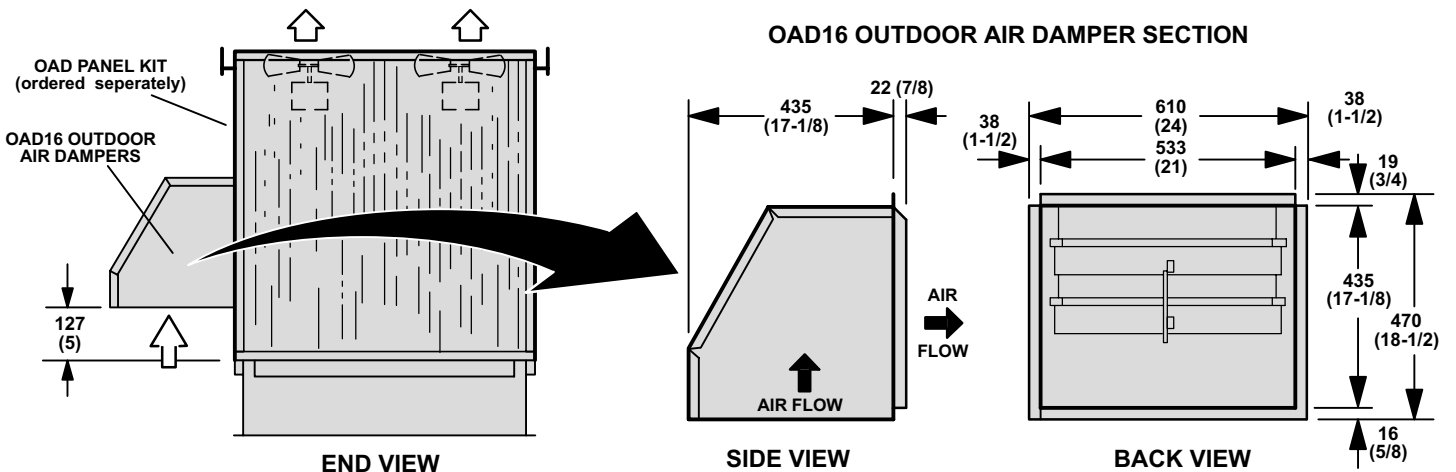
Roof Mounting frame is rigid enough to be spanned over its entire length or cantilevered if supported on both sides of center of gravity.

Roof Mounting Frames	RMF16
*Moment of inertia (I) (cm <sup>4</sup> ) (in. <sup>4</sup> )	1748 (42)
*Section modulus $\frac{I}{C}$ (cm <sup>3</sup> ) (in. <sup>3</sup> )	95 (5.8)
Maximum weight (kg/m) (lb/ft.) of length	8.2 (5.5)
Design strength (psi) (kPa)	137 900 (20 000)

\*Includes both sides of frame.

**GCS16 UNIT WITH OAD16 OUTDOOR AIR DAMPER SECTION  
DOWN-FLOW SUPPLY AND RETURN AIR**

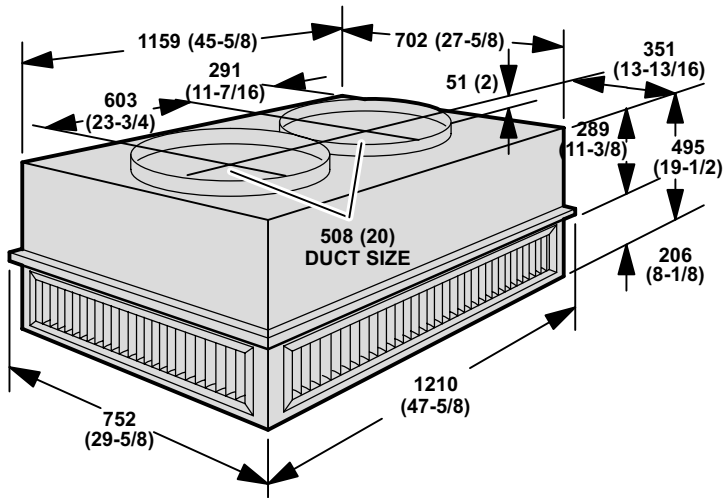
NOTE - For Horizontal (Side) Supply And Return Air, OAD16 Field Installs on Return Air Duct  
Panel Kit not required for horizontal applications.



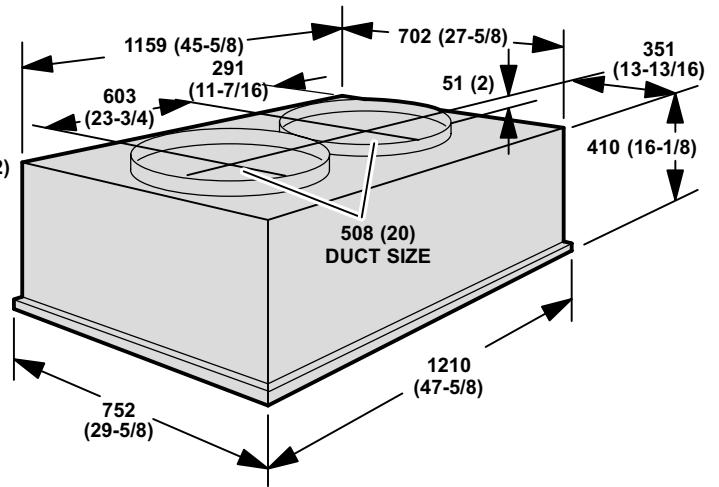
**ACCESSORY DIMENSIONS - MM (INCHES)**

**COMBINATION CEILING SUPPLY AND RETURN DIFFUSERS**

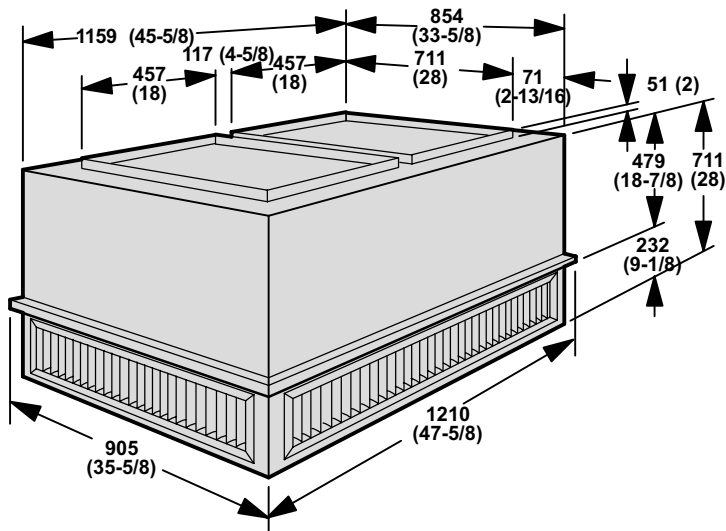
**RTD11-95 STEP-DOWN CEILING DIFFUSER**



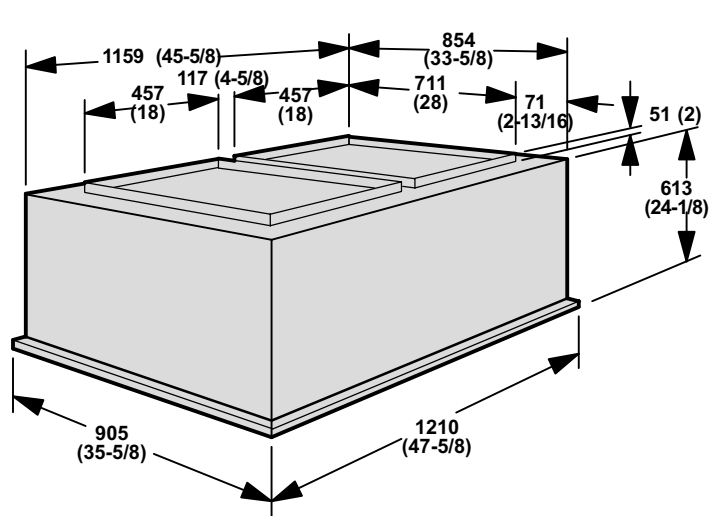
**FD11-95 FLUSH CEILING DIFFUSER**



**RTD11-135 STEP-DOWN CEILING DIFFUSER**

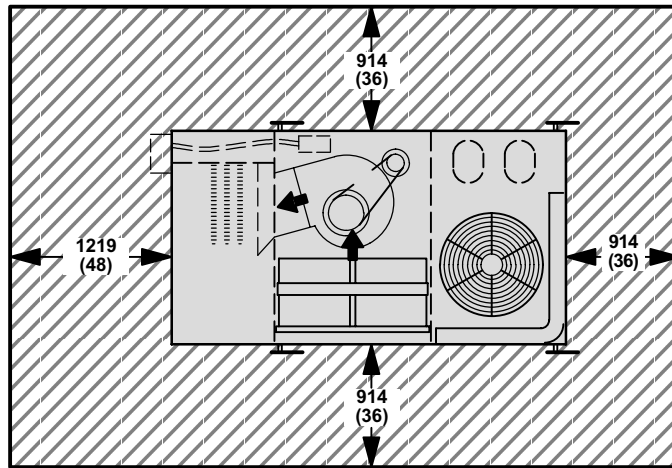


**FD11-135 FLUSH CEILING DIFFUSER**



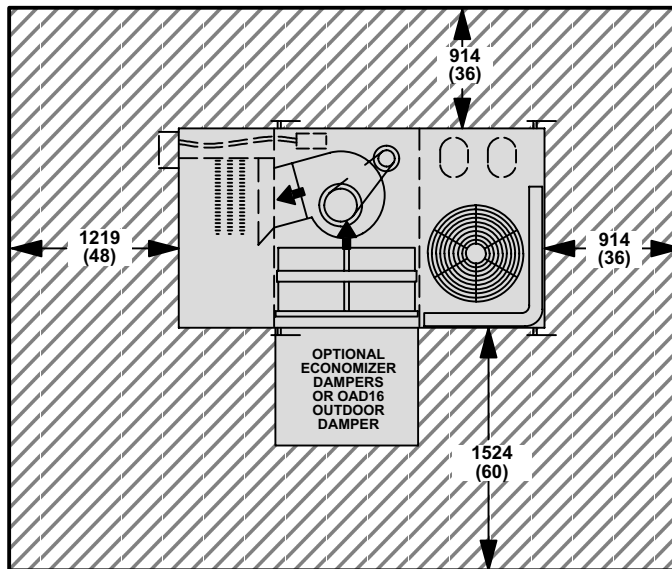
**INSTALLATION CLEARANCES - MM (INCHES)**

**GCS16 BASIC UNIT**



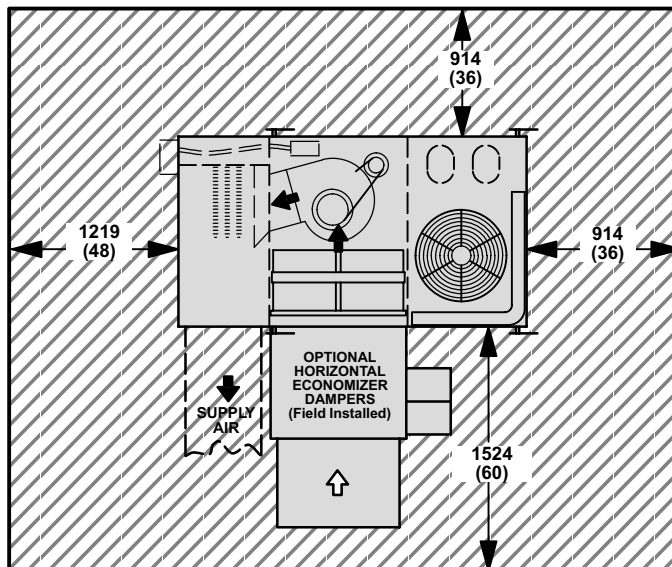
NOTE - Top Clearance Unobstructed.  
NOTE - Entire perimeter of unit requires support when elevated above mounting surface.

**GCS16 UNIT WITH REMD16M ECONOMIZER DAMPER SECTION OR OAD16 OUTDOOR AIR DAMPER SECTION**



NOTE - Top Clearance Unobstructed.

**GCS16 UNIT WITH EMDH16M HORIZONTAL ECONOMIZER DAMPER SECTION**



NOTE - Top Clearance Unobstructed.