

LENNOX®

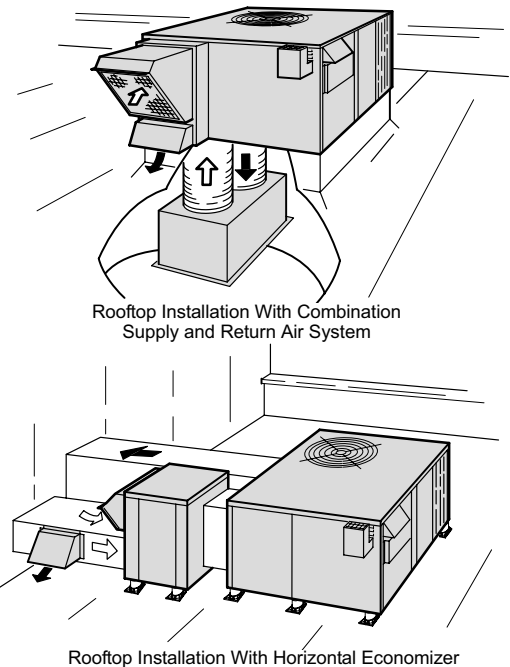
ENGINEERING DATA

PACKAGED GAS - 50HZ

GCS16-024-036-048-060

Net Cooling - 5.9 to 15.4 kW (20 000 to 52 500 Btuh)
Net Heating - 12.9 to 30.8 kW (44 000 to 105 000 Btuh)

Bulletin No. 490105
June 2002



MODEL NUMBER IDENTIFICATION

GCS 16 - 036 - 120 - 1 T	
GCS = Packaged Gas heat/Cooling Unit	Unit Type
16	Series
036	Nominal Cooling Capacity kW (Tons)
120	Heating Capacity kW (Btuh)
1	Minor Revision Number
T	Voltage

024 - 7.0 (2)
036 - 10.6 (3)
048 - 14.1 (4)
060 - 17.6 (5)

50 - 14.6 (50 000)
75 - 22.0 (75 000)
90 - 26.4 (90 000)
120 - 35.1 (120 000)

T = 220/240v-1 phase-50hz
M = 380/420v-3 phase-50hz

FEATURES

Air Flow Choice

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

Unit Testing and Manufacturing

- Rated at test conditions included in the Unitary Small Equipment (USE) certification program, which is based on Air Conditioning and Refrigeration Institute (ARI) Standard 210/240 while operating at rated voltage and air volumes.
- Sound numbers rated at test conditions included in Air Conditioning and Refrigeration Institute (ARI) Standard 270.
- Units and components are bonded for grounding to meet safety standards for servicing required by Underwriter's Laboratories (UL) and the International Electrotechnical Commission (IEC).
- Manufactured in accordance with ISO 9002 quality standards.
- Blower data is from unit tests conducted in the Lennox Laboratory air test chamber.

Heat Exchanger

- Constructed of tubular, aluminized steel for superior resistance to corrosion and oxidation.
- Curving design allows complete exposure of heating surfaces to supply air stream.
- Round surfaces create minimum air resistance and allow air to surround all surfaces for excellent heat transfer. Internal baffles prolong flue gas passage resulting in maximum heat transfer.
- Compact design reduces space requirements in unit cabinet.
- Removable cabinet panels allow service access. Panel also has a peep hole for viewing flame.
- Heat exchanger has been laboratory life cycle tested.

Inshot Burners

- Aluminized steel inshot burners provide efficient trouble free operation, unaffected by adverse wind or atmospheric conditions.
- Burner venturi mixes air and gas in correct proportion for proper combustion.
- Burners can be removed individually for service.

NOTE - Due to Lennox' ongoing commitment to quality, Specifications, Ratings and Dimensions subject to change without notice and without incurring liability. Improper installation, adjustment, alteration, service or maintenance can cause property damage or personal injury. Installation and service must be performed by a qualified installer and servicing agency.

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FEATURES - CONTINUED

Gas Control Valve

- 24 volt redundant combination gas control valve combines a manual main shutoff valve, pressure regulation and automatic electric valve (dual) into one compact combination control.

Combustion Air Inducer

- Prepurges heat exchanger and safely vents flue products.
- Pressure switch proves operation before allowing gas valve to open.
- Inducer operates only during heating cycle.
- Flame rollout switch (manual reset) protects against loss of combustion air due to flue vent or intake air blockage.

Direct Spark Ignition

- Solid-state electronic direct spark ignition control provides positive and safe main burner ignition.
- Spark is intermittent and occurs only when required.
- Separate electronic flame sensor control assures safe and reliable operation.
- Should loss of flame occur, flame sensor controls will initiate 3 attempts at re-ignition with a 6 minute retry sequence.

Limit Control

- Factory installed and accurately located limit control provides protection from abnormal operating conditions.
- Limit control has fixed temperature setting.

Fan Control

- Solid-state indoor blower relay has fixed time-on delay and fixed time-off delay.

Cabinet

- Heavy gauge, galvanized steel cabinet with five station metal wash process.
- Powder enamel paint, electrostatically bonded to the metal, provides superior rust and corrosion protection.
- Control box is conveniently located with all controls factory wired.
- Large removable panels provide service access.
- Base section and cabinet panels exposed to conditioned air are lined with thick fiberglass insulation.
- Flanged supply and return air openings.
- Aluminized steel flue outlet shipped with unit for field installation.
- Gas and electrical inlets furnished for entry into the cabinet.
- Evaporator coil drain pan constructed of painted, corrosion resistant galvanized steel with galvanized pipe (mpt) drain outlet.
- Lifting brackets factory installed. See dimension drawings.

Refrigeration System

- All models include: expansion valve, liquid line strainer, suction and liquid line service gauge ports, high pressure switch (manual reset) and full refrigerant charge.
- Freezestat prevents coil freeze-up during low ambient operation or loss of air flow.
- Low ambient operation down to -1°C (30°F) without additional controls.

Compressor

- Designed for dependable efficiency with minimum operating cost.
- Suction cooled and overload protected with internal pressure relief.
- Hermetically sealed with built-in protection from excessive current and temperatures.
- Immersible self-regulating, crankcase heater assures proper compressor lubrication.
- Running gear assembly resiliently suspended internally inside case. Compressor installed in unit on resilient rubber mounts assuring low sound and vibration free operation.
- Scroll compressor on -036 and -048 models.

Condenser Fan

- Direct drive fan moves large air volumes uniformly through entire condenser coil for high refrigerant cooling capacity.
- Vertical air discharge keeps air up and away from building.
- Permanently lubricated, permanent split capacitor (PSC) motor.
- Motor totally enclosed for maximum protection from weather, dust and corrosion.
- Corrosion resistant polyvinyl chloride (PVC) coated steel wire fan guard factory installed.

Copper Tube/Enhanced Fin Coil

- Lennox designed and fabricated coil.
- Copper tube construction, rifled for improved efficiency.
- Lanced fins provide maximum exposure of fin surface to air stream resulting in excellent heat transfer.
- Fin collars grip tubing for maximum contact area.
- Long life copper tubing for ease of field servicing.
- Flared shoulder tubing connections/silver soldering construction.
- Coil is factory tested under high pressure to insure leakproof construction.

Blower

- Multi-speed direct drive blowers.
- Each blower assembly statically and dynamically balanced.
- Multiple-speed permanent split capacitor (PSC) motor resiliently mounted.
- Blower speeds are easily changed on the blower motor.
- See blower performance tables.

Air Filter

- Washable or vacuum cleanable 25 mm (one inch) thick polyurethane frame type air filter.
- Filter rack is furnished for field installation in down-flow applications.
- Filter rack will accept up to 51 mm (two inch) thick filter.
- Filters must be field installed in return air duct for horizontal applications without economizer.
- See dimension drawings.

Economizer Wiring

- Furnished and factory installed on all models.
- Economizer wiring harness with jack plug connections.
- See next page for economizer options.

OPTIONAL ACCESSORIES - MUST BE ORDERED EXTRA

Ceiling Diffusers

- Aluminum grilles, large center grille, insulated diffuser box with flanges, hanging rings furnished, interior transition (for even air flow), internally sealed (prevents recirculation), adapts to T-bar ceiling grids or plaster ceilings.
- Step-Down Diffusers feature double deflection louvers.
- Flush Diffusers feature fixed blade louvers.

Ceiling Diffuser Transitions (Supply and Return)

- Used with Ceiling Diffusers.
- Installs in roof mounting frame, galvanized steel construction, flanges furnished for duct connection, fully insulated.

Coil Guards

- Polyvinyl chloride (PVC) coated steel wire guards to protect outdoor coil.
- Not for use with Hail Guards.

Combustion Air Intake Extensions

- For use in areas where high snow drifts can block intake air.

Control Systems - See pages 9-10.

Economizer with Gravity Exhaust Dampers (Down-Flow)

- Recirculated air dampers with pressure operated gravity exhaust damper.
- Formed, gasketed damper blades with nylon bearings, 3-position or fully modulating 24V damper motor with adjustable minimum position switch, electronic discharge air sensor, and adjustable outdoor air enthalpy control.
- Installs directly in cabinet.
- Utilizes filter furnished with unit, filter rack will accept up to 51 mm (2 in.) filter.
- Removable exhaust air hood and outdoor air intake hood with aluminum mesh filter.
- Choice of economizer controls.

Economizer Dampers (Horizontal)

- Combination outdoor air and recirculated air damper.
- Formed, gasketed damper blades with nylon bearings, 3-position or fully modulating 24V damper motor with adjustable minimum position switch, electronic discharge air sensor, and adjustable outdoor air enthalpy control.
- Installs directly in unit cabinet.
- 25 mm (1 in.) fiberglass filter furnished. Filter rack will accept up to 51 mm (2 in.) filter.
- Outdoor air intake hood with aluminum mesh filter.
- Choice of economizer controls.

Economizer Gravity Exhaust Dampers

- Use with EMDH16.
- Pressure operated assembly field installs in the return air duct adjacent to the economizer assembly.
- Includes bird screen.

Economizer Enthalpy Control, Differential

- Used in conjunction with outdoor air enthalpy control.
- Determines and selects which air has the lowest enthalpy.
- Return air enthalpy sensor field installs in economizer damper section.

Hail Guards

- Heavy-duty, field installed coil guard protects coils from damage.
- Not for use with Coil Guards.
- **90N91** - three guards per order number, **90N90** - two guards per order number.

Low Ambient Control Kit

- Units operate down to -1°C (30°F) outdoor air temperature in cooling mode without any additional controls.
- Enables unit to operate properly down to -17.7°C (0°F).

Outdoor Air Damper Section (Down-Flow)

- Damper assembly replaces blower access panel.
- Manually adjustable, 0 to 25% (fixed) outdoor air.
- Outdoor air hood with cleanable filter included.

Propane Kits

- Conversion from Natural Gas to Propane.

Roof Curb Power Entry Kit

- Allows power entry through roof mounting frame, knockouts provided in roof frame.
- Kit contains 1016 mm (40 in.) armored conduit and installation hardware.
- Two kits are required, one for low voltage and one for high voltage. See Dimension Drawing.

Roof Mounting Frame

- Nailer strip furnished, mates to unit, U.S. National Roofing Contractors Approved, shipped knocked down.
- RMF16-41 may be used on all sizes, with a slight unit overhang on GCS16-048-060 and GCS20-036-048-060 units.
- Sound Reduction Plate must be ordered separately for field installation.

Timed Off Control

- Prevents compressor short-cycling and allows time for suction and discharge pressure to equalize, permitting the compressor to start in an unloaded condition.
- Automatic reset control provides a time delay between compressor shutoff and start-up.

Vertical Vent Extension Kit

- To exhaust flue gases vertically above unit.

Unit Stand-Off Mounting Kit

- Elevates horizontal application units above mounting surface.
- Includes six high impact polystyrene stand-off mounts. See dimension drawings.

OPTIONAL ACCESSORIES - MUST BE ORDERED EXTRA

Model Number		GCS16-024	GCS16-036	GCS16-048	GCS16-060	
Ceiling Diffusers	Step-Down - Net Weight	RTD9-65 - 30 kg (67 lbs.)		RTD9-65 - 30 kg (67 lbs.)		
	Flush - Net Weight	FD9-65 - 17 kg (37 lbs.)		FD9-65 - 17 kg (37 lbs.)		
	Transitions (Supply and Return)	SRT16-65 - 9 kg (20 lbs.)		SRT16-65 - 9 kg (20 lbs.)		
Coil Guards		47J23 (2 per order)		47J24 (3 per order)		
Combustion Air Intake Extensions		96L71		96L71		
Control Systems		See Pages 9-10		See Pages 9-10		
Economizers	Down-Flow	Three Position - Net Weight	REMD16-41 - 22 kg (48 lbs.)		REMD16-65 - 30 kg (66 lbs.)	
		Fully-Modulating - Net Weight	REMD16M-41 - 22 kg (48 lbs.)		REMD16M-65 - 30 kg (66 lbs.)	
		□ Indoor Filter Size	(1) 406 x 635 x 25 mm (16 x 25 x 1 in.)		(1) 508 x 635 x 25 mm (20 x 25 x 1 in.)	
		Outdoor Filter Size	(1) 356 x 635 x 25 mm (14 x 25 x 1 in.)		(1) 457 x 635 x 25 mm (18 x 25 x 1 in.)	
	Horizontal	Three Position - Net Weight	EMDH16-41 - 50 kg (110 lbs.)		EMDH16-65 - 59 kg (130 lbs.)	
		Fully-Modulating - Net Weight	EMDH16M-41 - 50 kg (110 lbs.)		EMDH16M-65 - 59 kg (130 lbs.)	
		Indoor Filter Size	(1) 508 x 610 x 25 mm (20 x 24 x 1 in.)		(1) 406 x 635 x 25 mm (16 x 25 x 1 in.) (1) 356 x 635 x 25 mm (14 x 25 x 1 in.)	
		Outdoor Filter Size	(1) 203 x 610 x 25 mm (8 x 24 x 1 in.)		(1) 203 x 711 x 25 mm (8 x 28 x 1 in.)	
Gravity Exhaust Dampers - Net Weight		GEDH16-65 - 2 kg (4 lbs.)		GEDH16-65 - 2 kg (4 lbs.)		
Enthalpy Control, Differential		54G44		54G44		
Hail Guards		90N90 (2 per order)		90N91 (3 per order)		
Low Ambient Control Kit		24H77		24H77		
Outdoor Air Damper Section	Down-Flow - Net Weight	OAD16-41 - 5 kg (12 lbs.)		OAD16-65 - 5 kg (12 lbs.)		
	Number & Size of Filter	(1) 127 x 432 x 25 mm (5 x 17 x 1 in.)		(1) 203 x 432 x 25 mm (8 x 17 x 1 in.)		
Propane Kits	-50, -75 and -90 models	50L89		50L89		
	-120 models	---		50L88		
Roof Curb Power Entry Kit	13 mm (1/2 in.) Conduit	18H70		18H70		
Roof Mounting Frame	Frame	RMF16-41		RMF16-41 or RMF16-65		
	Sound Reduction Plate - For RMF16-41	73H80		73H80		
	For RMF16-65	---		73H82		
Timed-Off Control		47J27		47J27		
Unit Stand-Off Mounting Kit		38H18		38H18		
Vertical Vent Extension Kit		28M50		28M50		

□ Indoor filter is not furnished with economizer. REMD16 utilizes existing filter furnished with GCS unit.

SPECIFICATIONS							
Model Number		GCS16-024-50	GCS16-036-90	GCS16-048-75	GCS16-048-120	GCS16-060-75	GCS16-060-120
Nominal kW (Tonnage)		7.0 (2)	10.6 (3)	10.1 (4)		17.6 (5)	
Heating Capacity	Input - kW (Btuh)	12.9 (44 000)	23.2 (79 000)	19.3 (66 000)	30.8 (105 000)	19.3 (66 000)	30.8 (105 000)
	Output - kW (Btuh)	10.3 (35 000)	18.5 (63 000)	15.5 (53 000)	24.6 (84 000)	15.5 (53 000)	24.6 (84 000)
ARI Cooling Ratings	Cooling capacity - kW (Btuh)	5.9 (20 000)	9.4 (32 200)	12.3 (42 000)		15.4 (52 500)	
	Total unit watts	2210	3570	4670		6320	
	EER (Btuh/Watts)	9.0	9.0	9.0		8.3	
Sound Rating Number (db)		80			82		
Refrigerant Charge (HCFC-22)		1.45 kg (3 lbs. 3 oz.)	1.94 kg (4 lbs. 6 oz.)	2.58 kg (5 lbs. 11 oz.)		3.18 kg (7 lbs. 0 oz.)	
Evaporator Blower	Blower wheel nominal diameter x width - mm (in.)	229 x 203 (9 x 8)	254 x 203 (10 x 8)	292 x 229 (11-1/2 x 9)			
	Motor watts (horsepower)	249 (1/3)		748 (1)			
Evaporator Coil	Net face area - m ² (ft. ²)	0.30 (3.2)	0.38 (4.10)	0.49 (5.30)		0.58 (6.20)	
	Tube diameter - mm (in.) and number of rows	9.5 (3/8) - 2					
	Fins per m (inch)	591 (15)					
Condenser Coil	Net face area m ² (ft. ²)	Outer coil	0.81 (8.70)		1.33 (14.30)		
		Inner coil	----	0.78 (8.40)	0.55 (5.90)		1.27 (13.70)
	Tube diameter - mm (in.) and number of rows	9.5 (3/8) - 1	9.5 (3/8) - 2	9.5 (3/8) - 1.4		9.5 (3/8) - 2	
	Fins per meter (inch)	787 (20)					
Condenser Fan	Diameter - mm (in.) and number of blades	508 (20) - 4		610 (24) - 4			
	Air volume - L/s (cfm)	990 (2100)	945 (2000)	1415 (3000)			
	Motor watts (horsepower)	150 (1/5)		187 (1/4)			
	Motor watts	190	200	285		285	
Gas Supply Connections female pipe thread - in.		1/2					
Recommended Gas Supply Pressure - kPa (in. w.c.)	Natural Gas	1.7 (7)					
	LPG/Propane	2.7 (11)					
Condensate drain size		3/4 in. male pipe thread					
Number and size of cleanable polyurethane filters - mm (in.)		(1) 406 x 635 x 25 (16 x 25 x 1)		(1) 508 x 635 x 25 (20 x 25 x 1)			
Net weight of basic unit - kg (lbs.)		159 (350)	168 (370)	225 (496)		239 (526)	
Shipping weight of basic unit - kg (lbs.) 1 package		196 (432)	213 (470)	274 (605)		288 (635)	
Electrical characteristics - (50hz)		220/240V 1 phase		380/420V - 3 phase			

① Rated test conditions are those included in Air Conditioning and Refrigeration Institute (ARI) Standard 210/240 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.

② Sound rating number rated at test conditions included in Air Conditioning and Refrigeration Institute (ARI) Standard 270-96.

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

ELECTRICAL DATA						
Model Number		GCS16-024	GCS16-036	GCS16-048	GCS16-060	
Line voltage data - 50 hz		220/240V - 1 phase		380/420V - 3 phase with neutral		
Recommended maximum fuse size (amps)		25	15	20	25	
†Minimum Circuit Ampacity		17	11	17	21	
Compressor	Rated load amps	9.6	5.1	6.4	9.5	
	Locked rotor amps	58.0	39.0	48.0	55.0	
Condenser Coil Fan Motor	Full load amps	1.4	1.4	1.1	1.1	
	Locked rotor amps	2.9	2.9	2.2	2.2	
Evaporator Blower Motor	Full load amps	2.9	2.9	7.4	7.4	
	Locked rotor amps	4.7	4.7	10.0	10.0	
Combustion Air Inducer (1 phase)						0.7

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

HIGH ALTITUDE INFORMATION	
No gas pressure adjustment is needed when operating from 0 to 2248 m (0 to 7500 ft.). See below for correct manifold pressures for natural gas and propane.	
FUEL	Manifold Absolute Pressure (outlet) 0 to 2248 m (0 to 7500 ft.) above sea level
Natural Gas	0.67 kPa (2.7 in. w.g.)
Propane	2.00 kPa (8.0 in. w.g.)

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.

GCS16-024 COOLING CAPACITY - 50 HZ

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			29°C (85°F)						35°C (95°F)						41°C (105°F)						46°C (115°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	kBtu/h	24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtu/h	24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtu/h	24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtu/h	24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtu/h	24°C 75°F	27°C 80°F	29°C 85°F
17°C (63°F)	.30	640	5.8	19.8	1.51	.75	.90	1.00	5.5	18.9	1.65	.77	.92	1.00	5.2	17.9	1.79	.79	.94	1.00	5.0	16.9	1.92	.81	.96	1.00
	.38	800	6.1	20.7	1.53	.81	.96	1.00	5.8	19.7	1.67	.83	.98	1.00	5.5	18.7	1.81	.86	.99	1.00	5.2	17.8	1.95	.88	1.00	1.00
	.45	960	6.3	21.4	1.54	.87	1.00	1.00	6.0	20.5	1.69	.88	1.00	1.00	5.7	19.6	1.84	.91	1.00	1.00	5.5	18.6	1.98	.94	1.00	1.00
19°C (67°F)	.30	640	6.2	21.2	1.54	.58	.73	.86	5.9	20.1	1.68	.59	.75	.88	5.6	19.1	1.82	.60	.76	.91	5.3	18.0	1.96	.62	.78	.93
	.38	800	6.4	21.9	1.55	.62	.78	.93	6.1	20.8	1.70	.63	.80	.95	5.8	19.7	1.84	.64	.83	.98	5.4	18.5	1.98	.66	.85	.99
	.45	960	6.6	22.4	1.56	.65	.84	.99	6.2	21.2	1.71	.67	.86	1.00	5.9	20.1	1.86	.69	.89	1.00	5.6	19.0	2.00	.70	.92	1.00
22°C (71°F)	.30	640	6.7	22.7	1.56	.43	.56	.70	6.3	21.6	1.72	.44	.57	.72	6.0	20.5	1.87	.44	.59	.74	5.7	19.4	2.01	.44	.60	.76
	.38	800	6.9	23.4	1.57	.44	.60	.76	6.5	22.3	1.73	.45	.61	.78	6.2	21.1	1.89	.45	.63	.81	5.8	19.9	2.03	.46	.65	.83
	.45	960	7.0	23.9	1.58	.46	.64	.82	6.7	22.7	1.74	.46	.66	.84	6.3	21.5	1.90	.47	.67	.87	5.9	20.3	2.05	.48	.69	.89

GCS16-036 COOLING CAPACITY - 50 HZ

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			29°C (85°F)						35°C (95°F)						41°C (105°F)						46°C (115°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	kBtu/h	24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtu/h	24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtu/h	24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtu/h	24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtu/h	24°C 75°F	27°C 80°F	29°C 85°F
17°C (63°F)	.50	1070	9.2	31.3	2.37	.77	.91	1.00	8.9	30.2	2.68	.78	.93	1.00	8.5	29.1	3.04	.79	.94	1.00	8.2	27.9	3.44	.81	.96	1.00
	.56	1200	9.3	31.9	2.38	.79	.94	1.00	9.0	30.8	2.69	.81	.96	1.00	8.7	29.7	3.05	.82	.97	1.00	8.4	28.5	3.44	.84	.99	1.00
	.63	1330	9.5	32.4	2.38	.82	.97	1.00	9.2	31.3	2.70	.84	.98	1.00	8.9	30.2	3.05	.85	1.00	1.00	8.5	29.1	3.45	.88	1.00	1.00
19°C (67°F)	.50	1070	9.7	33.1	2.39	.59	.74	.88	9.3	31.9	2.70	.60	.76	.90	9.0	30.7	3.06	.61	.77	.91	8.6	29.4	3.46	.62	.79	.93
	.56	1200	9.8	33.5	2.40	.61	.77	.92	9.5	32.3	2.71	.62	.79	.93	9.1	31.1	3.06	.63	.80	.95	8.7	29.7	3.47	.64	.82	.97
	.63	1330	9.9	33.9	2.40	.63	.80	.95	9.6	32.7	2.71	.64	.82	.96	9.2	31.4	3.07	.65	.83	.98	8.8	30.1	3.48	.66	.85	.99
22°C (71°F)	.50	1070	10.3	35.2	2.42	.43	.58	.72	9.9	33.9	2.73	.44	.58	.73	9.6	32.6	3.09	.44	.60	.75	9.2	31.3	3.49	.44	.60	.76
	.56	1200	10.4	35.6	2.43	.44	.60	.75	10.1	34.4	2.74	.44	.60	.76	9.7	33.0	3.09	.45	.62	.78	9.3	31.6	3.50	.45	.63	.80
	.63	1330	10.6	36.0	2.43	.45	.61	.78	10.2	34.7	2.74	.45	.63	.80	9.8	33.3	3.10	.46	.64	.81	9.3	31.9	3.50	.46	.65	.83

GCS16-048 COOLING CAPACITY - 50 HZ

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			29°C (85°F)						35°C (95°F)						41°C (105°F)						46°C (115°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	kBtu/h	24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtu/h	24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtu/h	24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtu/h	24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtu/h	24°C 75°F	27°C 80°F	29°C 85°F
17°C (63°F)	.60	1280	12.0	41.1	2.94	.74	.88	.99	11.6	39.7	3.29	.75	.90	1.00	11.2	38.3	3.69	.77	.91	1.00	10.8	36.8	4.14	.78	.93	1.00
	.75	1600	12.5	42.6	2.98	.80	.95	1.00	12.1	41.2	3.33	.81	.96	1.00	11.6	39.7	3.73	.83	.97	1.00	11.2	38.2	4.19	.84	.99	1.00
	.90	1920	12.9	43.9	3.00	.85	.99	1.00	12.5	42.5	3.36	.86	1.00	1.00	12.0	41.1	3.78	.88	1.00	1.00	11.6	39.6	4.25	.90	1.00	1.00
19°C (67°F)	.60	1280	12.7	43.5	2.99	.58	.72	.85	12.3	42.0	3.35	.59	.73	.87	11.9	40.5	3.76	.59	.74	.88	11.4	38.8	4.22	.60	.76	.90
	.75	1600	13.1	44.7	3.03	.61	.78	.92	12.7	43.2	3.39	.62	.79	.94	12.2	41.5	3.80	.63	.80	.95	11.7	39.9	4.25	.64	.82	.97
	.90	1920	13.4	45.6	3.05	.64	.83	.97	12.9	44.0	3.41	.65	.85	.99	12.4	42.3	3.82	.67	.86	1.00	11.9	40.7	4.29	.68	.88	1.00
22°C (71°F)	.60	1280	13.6	46.3	3.07	.43	.56	.69	13.1	44.7	3.43	.43	.57	.70	12.6	43.0	3.85	.43	.58	.72	12.1	41.3	4.32	.44	.59	.73
	.75	1600	13.9	47.4	3.10	.44	.60	.76	13.4	45.8	3.47	.45	.61	.77	12.9	44.0	3.89	.45	.62	.78	12.4	42.3	4.36	.45	.63	.80
	.90	1920	14.1	48.2	3.12	.46	.63	.81	13.6	46.5	3.49	.46	.65	.83	13.1	44.7	3.92	.47	.66	.84	12.6	42.9	4.38	.47	.67	.86

GCS16-060 COOLING CAPACITY - 50 HZ

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			29°C (85°F)						35°C (95°F)						41°C (105°F)						46°C (115°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	kBtu/h	24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtu/h	24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtu/h	24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtu/h	24°C 75°F	27°C 80°F	29°C 85°F	kW	kBtu/h	24°C 75°F	27°C 80°F	29°C 85°F
17°C (63°F)	.82	1750	15.8	53.8	4.29	.76	.90	1.00	15.0	51.3	4.60	.78	.92	1.00	14.3	48.9	4.91	.79	.94	1.00	13.6	46.5	5.23	.81	.97	1.00
	.94	2000	16.1	54.9	4.33	.79	.94	1.00	15.4	52.4	4.65	.81	.96	1.00	14.7	50.0	4.97	.83	.98	1.00	14.0	47.7	5.30	.85	.99	1.00
	1.06	2250	16.4	56.0	4.37	.82	.97	1.00	15.7	53.5	4.70	.84	.99	1.00	15.0	51.1	5.03	.87	1.00	1.00	14.3	48.9	5.37	.89	1.00	1.00
19°C (67°F)	.82	1750	16.7	56.9	4.40	.59	.73	.87	15.9	54.2	4.73	.60	.75	.89	15.1	51.6	5.05	.61	.77	.92	14.4	49.0	5.38	.62	.79	.94
	.94	2000	16.9	57.8	4.43	.61	.77	.91	16.1	55.1	4.76	.62	.79	.94	15.4	52.4	5.10	.63	.81	.96	14.6	49.8	5.42	.64	.83	.98
	1.06	2250	17.2	58.6	4.45	.63	.80	.95	16.4	55.8	4.79	.64	.82	.97	15.5	53.0	5.13	.65	.85	.99	14.8	50.4	5.47	.67	.87	1.00
22°C (71°F)	.82	1750	17.7	60.5	4.52	.43	.57	.71	16.9	57.7	4.87	.44	.58	.73	16.1	54.9	5.22	.44	.59	.75	15.3	52.2	5.58	.44	.61	.77
	.94	2000	18.0	61.4	4.55	.44	.59	.75	17.1	58.5	4.91	.44	.61	.77	16.3	55.7	5.26	.45	.62	.79	15.5	52.9	5.62	.46	.63	.81
	1.06	2250	18.2	62.1	4.58	.45	.62	.78	17.3	59.2	4.94	.45	.63	.80	16.5	56.3	5.29	.46	.64	.82	15.7	53.5	5.65	.47	.66	.85

BLOWER DATA**GCS16-024-50 BLOWER PERFORMANCE (Down-Flow Air Openings)**

External Static Pressure		Air Volume at Various Blower Speeds					
		High		Medium		Low	
Pa	in. w.g.	L/s	cfm	L/s	cfm	L/s	cfm
0	.00	605	1285	520	1105	405	860
10	.05	600	1275	515	1095	400	845
25	.10	595	1260	510	1080	390	830
35	.15	585	1240	505	1065	385	815
50	.20	580	1225	495	1050	375	800
60	.25	570	1205	485	1035	370	780
75	.30	560	1185	480	1015	360	760
85	.35	550	1165	470	995	350	740
100	.40	540	1140	460	970	340	720
110	.45	530	1120	450	950	330	695
125	.50	515	1095	435	925	315	670
135	.55	505	1065	425	900	305	650
150	.60	490	1040	410	870	295	620
160	.65	475	1010	395	840	280	595
175	.70	465	980	385	810	270	565
185	.75	450	950	365	780	255	540

GCS16-024-50 BLOWER PERFORMANCE (Horizontal Air Openings)

External Static Pressure		Air Volume at Various Blower Speeds					
		High		Medium		Low	
Pa	in. w.g.	L/s	cfm	L/s	cfm	L/s	cfm
0	.00	615	1305	540	1140	425	900
10	.05	605	1285	530	1125	420	885
25	.10	595	1265	525	1110	410	870
35	.15	585	1245	515	1095	400	850
50	.20	575	1220	510	1075	395	835
60	.25	565	1200	500	1060	385	815
75	.30	555	1175	490	1040	375	795
85	.35	545	1155	480	1020	365	775
100	.40	530	1130	470	995	355	750
110	.45	520	1105	460	975	345	730
125	.50	510	1075	445	950	330	705
135	.55	495	1050	435	925	320	680
150	.60	485	1025	425	895	310	655
160	.65	470	995	410	870	295	625
175	.70	455	965	395	840	280	600
185	.75	440	935	380	810	270	570

GCS16-036-90 BLOWER PERFORMANCE (Down-Flow Air Openings)

External Static Pressure		Air Volume at Various Blower Speeds					
		High		Medium		Low	
Pa	in. w.g.	L/s	cfm	L/s	cfm	L/s	cfm
0	.00	695	1475	575	1215	440	930
10	.05	690	1460	570	1205	435	920
25	.10	680	1440	565	1195	425	905
35	.15	670	1425	555	1180	420	890
50	.20	665	1405	550	1165	410	875
60	.25	655	1385	545	1150	405	855
75	.30	645	1365	535	1135	395	840
85	.35	635	1350	530	1120	385	820
100	.40	625	1330	520	1100	375	800
110	.45	615	1310	510	1080	365	775
125	.50	610	1285	500	1060	355	755
135	.55	600	1265	490	1040	345	730
150	.60	590	1245	480	1020	330	705
160	.65	580	1225	470	995	320	680
175	.70	565	1200	460	975	305	650
185	.75	555	1180	450	950	295	620

GCS16-036-90 BLOWER PERFORMANCE (Horizontal Air Openings)

External Static Pressure		Air Volume at Various Blower Speeds					
		High		Medium		Low	
Pa	in. w.g.	L/s	cfm	L/s	cfm	L/s	cfm
0	.00	630	1340	520	1100	405	860
10	.05	625	1320	515	1090	400	850
25	.10	615	1305	510	1080	395	835
35	.15	610	1290	505	1070	385	820
50	.20	600	1270	500	1055	380	805
60	.25	590	1255	495	1045	370	785
75	.30	585	1240	485	1030	365	770
85	.35	575	1220	480	1015	355	750
100	.40	570	1205	475	1000	345	730
110	.45	560	1185	465	985	335	710
125	.50	550	1165	455	970	325	690
135	.55	540	1150	450	950	315	670
150	.60	535	1130	440	935	305	645
160	.65	525	1110	430	915	295	620
175	.70	515	1095	420	895	280	595
185	.75	505	1075	415	875	270	570

GCS16-048-75/120 and GCS16-060-75/120 BLOWER PERFORMANCE (Down-Flow Air Openings)

External Static Pressure		Air Volume at Various Blower Speeds					
		High		Medium		Low	
Pa	in. w.g.	L/s	cfm	L/s	cfm	L/s	cfm
0	.00	1090	2310	975	2065	870	1845
10	.05	1085	2300	970	2055	865	1835
25	.10	1080	2290	965	2040	860	1820
35	.15	1075	2280	955	2030	855	1810
50	.20	1070	2265	950	2015	845	1795
60	.25	1065	2250	945	2000	840	1780
75	.30	1055	2235	935	1985	835	1765
85	.35	1050	2220	930	1970	825	1750
100	.40	1040	2205	925	1955	820	1730
110	.45	1035	2190	915	1940	810	1715
125	.50	1025	2170	905	1925	800	1700
135	.55	1015	2155	900	1905	795	1680
150	.60	1005	2135	890	1885	785	1660
160	.65	1000	2115	880	1870	775	1640
175	.70	990	2095	875	1850	765	1620
185	.75	980	2075	865	1830	755	1600

GCS16-048-75/120 and GCS16-060-75/120 BLOWER PERFORMANCE (Horizontal Air Openings)

External Static Pressure		Air Volume at Various Blower Speeds					
		High		Medium		Low	
Pa	in. w.g.	L/s	cfm	L/s	cfm	L/s	cfm
0	.00	1060	2250	945	2010	835	1775
10	.05	1055	2230	940	1990	830	1760
25	.10	1045	2215	930	1970	825	1745
35	.15	1035	2195	920	1950	815	1730
50	.20	1025	2175	910	1935	810	1715
60	.25	1020	2160	905	1915	805	1700
75	.30	1010	2140	895	1895	795	1685
85	.35	1000	2120	885	1880	790	1670
100	.40	995	2105	880	1860	780	1655
110	.45	985	2085	870	1845	775	1640
125	.50	975	2065	860	1825	765	1620
135	.55	965	2050	855	1810	755	1605
150	.60	960	2030	845	1795	750	1585
160	.65	950	2015	840	1780	740	1565
175	.70	940	1995	830	1760	730	1550
185	.75	935	1975	825	1745	720	1530

ACCESSORY BLOWER DATA

FILTER AND ACCESSORY AIR RESISTANCE

Unit Model Number	Air Volume		Total Air Resistance											
			25 mm (1 in.) Filter Furnished		REMD16 Down-Flow Economizer						EMDH16 Horizontal Economizer			
					Less Filter		With Optional Pleated Polyester 51 mm (2 in.) Filter		With Optional Fiberglass Filter 51 mm (2 in.)		With Furnished 25 mm (1 in.) Filter		Less Filter	
L/s	cfm	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	
GCS16-024 GCS16-036	380	800	37	.15	12	.05	67	.27	32	.13	45	.18	25	.10
	470	1000	45	.18	15	.06	85	.34	45	.18	65	.26	37	.15
	565	1200	52	.21	22	.09	104	.42	60	.24	87	.35	52	.21
	660	1400	62	.25	37	.15	127	.51	77	.31	114	.46	72	.29
GCS16-048 GCS16-060	755	1600	37	.15	12	.05	99	.40	67	.27	75	.30	42	.17
	850	1800	42	.17	15	.06	119	.48	82	.33	87	.35	47	.19
	945	2000	50	.20	20	.08	139	.56	97	.39	99	.40	55	.22
	1040	2200	57	.23	32	.13	164	.66	114	.46	114	.47	65	.26

DIFFUSER AIR RESISTANCE

Unit Model Number	Air Volume		Total Air Resistance							
			RTD9-65 Diffuser				FD9-65 Diffuser			
			2 Ends Open		1 Side 2 Ends Open		All Ends & Sides Open		FD9-65 Diffuser	
L/s	cfm	Pa	in. w.c.	Pa	in. w.c.	Pa	in. w.c.	Pa	in. w.c.	
GCS16-024 GCS16-036	380	800	37	.15	32	.13	27	.11	27	.11
	470	1000	47	.19	40	.16	35	.14	35	.14
	565	1200	62	.25	50	.20	42	.17	42	.17
	660	1400	82	.33	65	.26	50	.20	50	.20
GCS16-048 GCS16-060	755	1600	107	.43	80	.32	50	.20	60	.24
	850	1800	139	.56	90	.40	75	.30	75	.30
	945	2000	182	.73	124	.50	90	.36	90	.36
	1040	2200	236	.95	157	.63	109	.44	109	.44

CEILING DIFFUSER AIR THROW DATA

Air Volume		Effective Throw			
Model Number		RTD9-65		FD9-65	
L/s	cfm	m	ft.	m	ft.
470	1000	3-5	10-17	5-6	15-20
565	1200	3-5	11-18	5-7	16-22
660	1400	4-6	12-19	5-7	17-24
755	1600	4-6	12-20	5-8	18-25
850	1800	4-6	13-21	6-9	20-28
945	2000	4-7	14-23	6-9	21-29
1040	2200	5-8	16-25	7-9	22-30

WET INDOOR COIL AIR RESISTANCE

Model Number	Air Volume		Air Resistance	
	L/s	cfm	Pa	in. w.g.
GCS16-024	380	800	15	0.06
	470	1000	17	0.07
	565	1200	20	0.08
GCS16-036	380	800	22	0.09
	470	1000	25	0.10
	565	1200	27	0.11
GCS16-048	660	1400	30	0.12
	755	1600	27	0.11
	850	1800	30	0.12
GCS16-060	945	2000	32	0.13
	1040	2200	35	0.14
	755	1600	20	0.08
GCS16-060	850	1800	22	0.09
	945	2000	25	0.10
	1040	2200	27	0.11

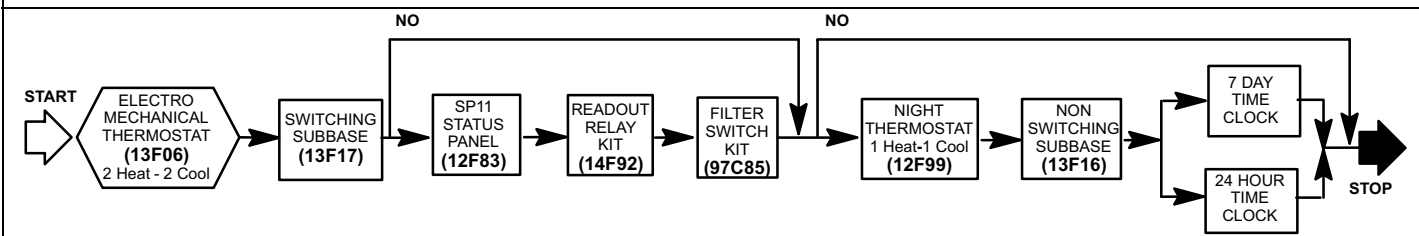
Effective throw based on terminal velocities of 22.9 m (75 ft.) per minute.

OPTIONAL CONVENTIONAL TEMPERATURE CONTROL SYSTEMS (FIELD INSTALLED)

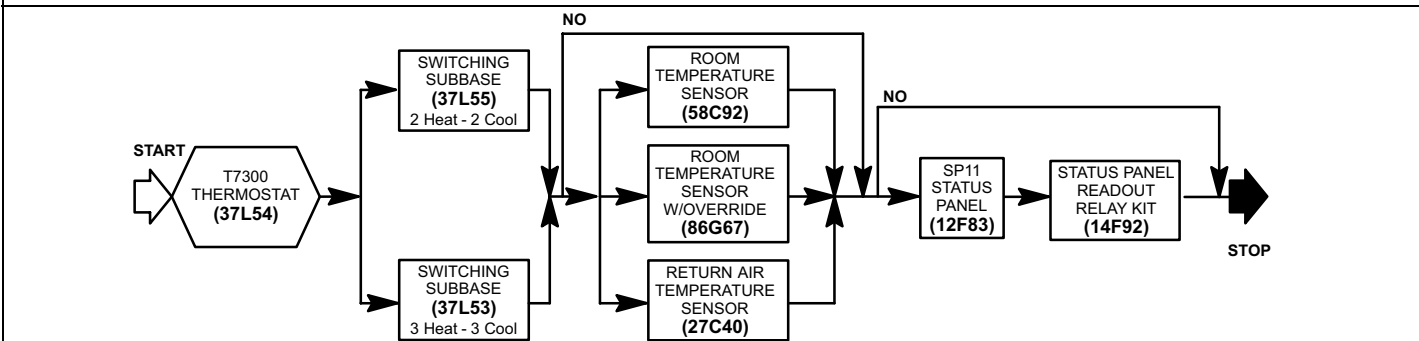
System and Component Description	Catalog Number		
ELECTRO-MECHANICAL THERMOSTAT			
Thermostat — Two stage heat & two stage cool with dual temperature levers, subbase choice	13F06		
Subbase — Manual system switch (Off-Heat-Auto-Cool), fan switch (Auto-On)	13F17		
Status Panel — May be ordered extra	See below for Selection		
Night Setback Operation — Order components below	—		
Thermostat — One stage heat and one stage cool	12F99		
Subbase — Non-switching	13F16		
Time Clock — 7 day operation, indicates day and night periods, 2 hour increments, battery back-up	See below for Selection		
Time Clock — 24 hour night setback operation, 15 minute increments, battery back-up	See below for Selection		
HONEYWELL T7300 THERMOSTAT			
Thermostat — 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)	37L54		
Subbase — Selectable staging, indicator LED's, auxiliary relay output for economizer operation	Up to two stage heat and two stage cool	37L55	
	Up to three stage heat and three stage cool	37L53	
Room Temperature Sensor — May be ordered extra	58C92		
Room Temperature Sensor with Override — May be ordered extra	86G67		
Return Air Temperature Sensor — May be ordered extra	27C40		
Status Panel — May be ordered extra	See below for Selection		
HONEYWELL T8600 THERMOSTAT			
Thermostat — Programmable, touch sensitive keypad, automatic heat/cool switching, °F or °C readout, indicator LED's, four temperature settings per daily schedule, override capabilities, time and operational mode readout, battery back-up (batteries included)	—		
T8600 Thermostat — 1 heat/1 cool, 7 day programming, wiring wall plate included	T8600D (37L59)		
Status Panel — May be ordered extra	See below for Selection		
STATUS PANEL			
SP11 Status Panel — Allows remote monitoring of unit through status lights, requires Status Panel Readout Kit	12F83		
Cool Mode		Green	Cooling operation
Heat Mode		Green	Heating operation
Compressor 1		Green	Compressor operation
Compressor 2		Red	Compressor malfunction
No Heat		Red	Not used
Filter	Red	Requires service	
Status Panel Readout Kit — Required to interface SP11 to unit operation	14F92		
Filter Switch Kit — Required with Filter light option is used on SP11	97C85		

CONVENTIONAL COMMERCIAL TEMPERATURE CONTROL SELECTION FLOWCHARTS

ELECTRO-MECHANICAL THERMOSTAT

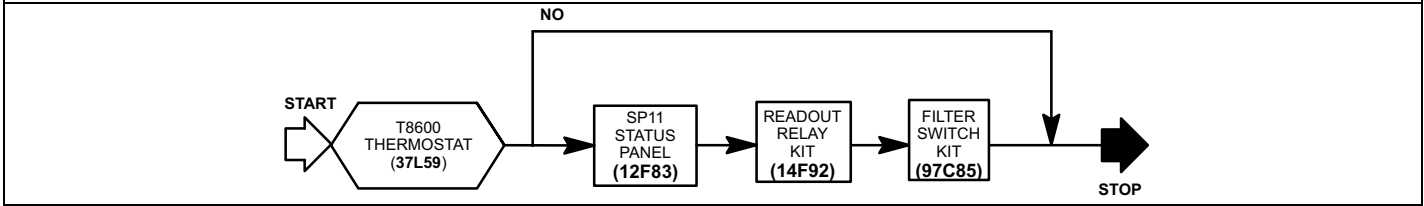


HONEYWELL T7300 THERMOSTAT

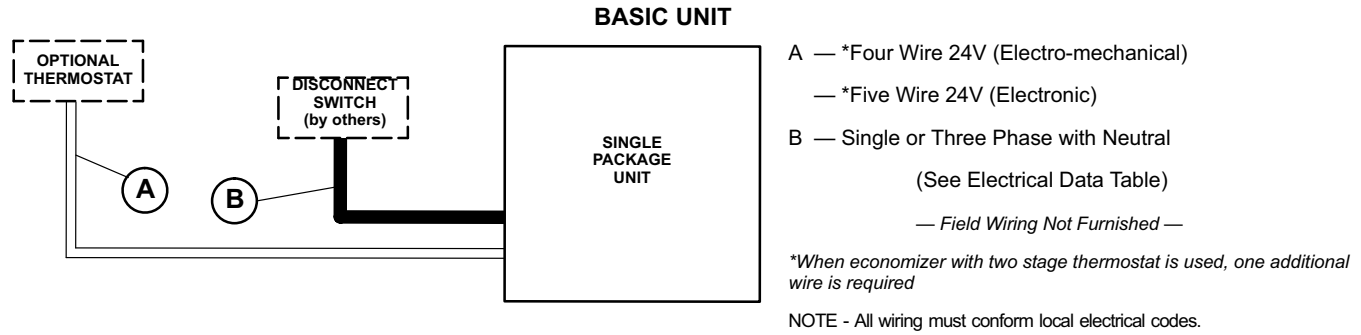


CONVENTIONAL COMMERCIAL TEMPERATURE CONTROL SELECTION FLOWCHARTS

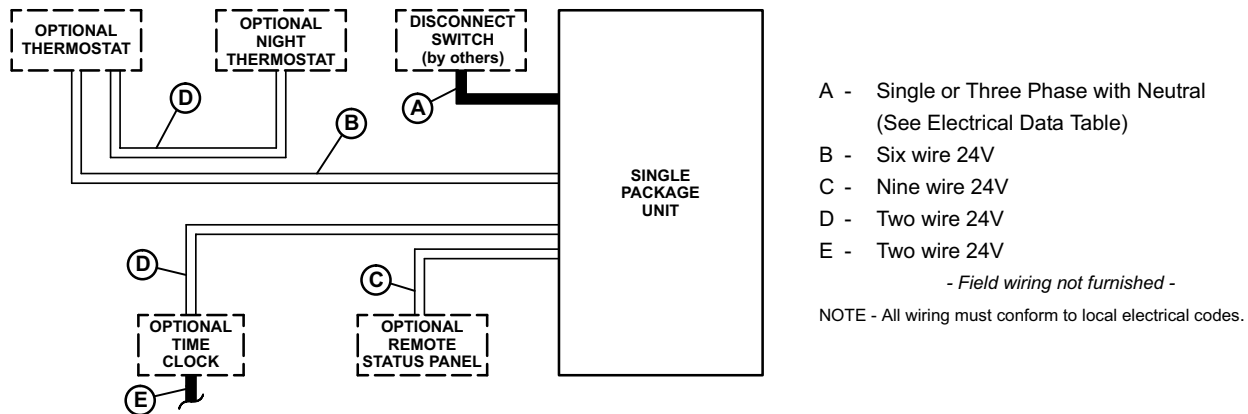
HONEYWELL T8600 THERMOSTAT



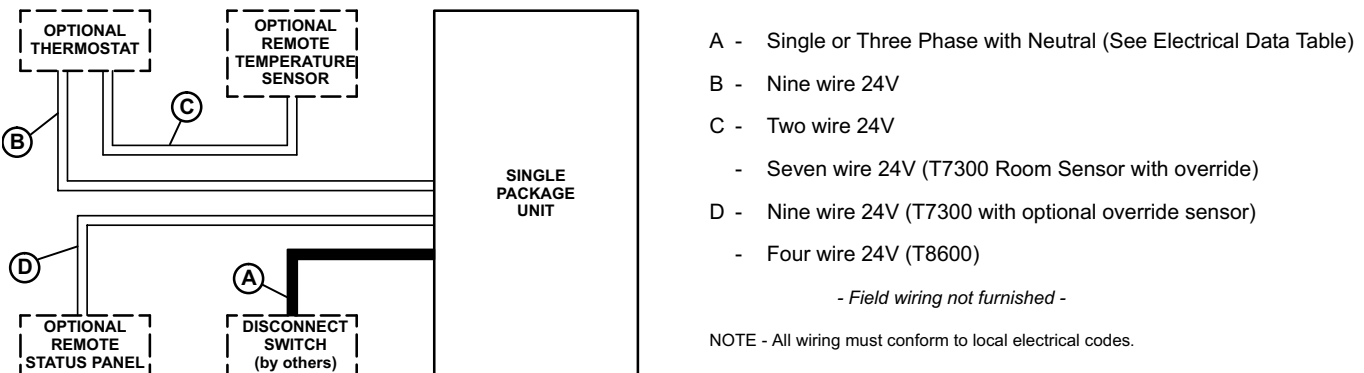
FIELD WIRING



ELECTRO-MECHANICAL THERMOSTAT CONTROL SYSTEM



T7300/T8600 THERMOSTAT CONTROL SYSTEM



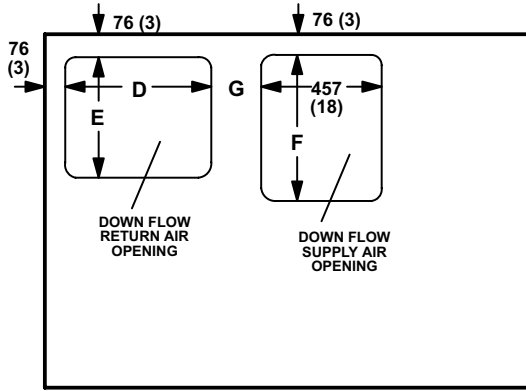
DIMENSIONS - MM (INCHES) - BASE UNIT

CORNER WEIGHTS

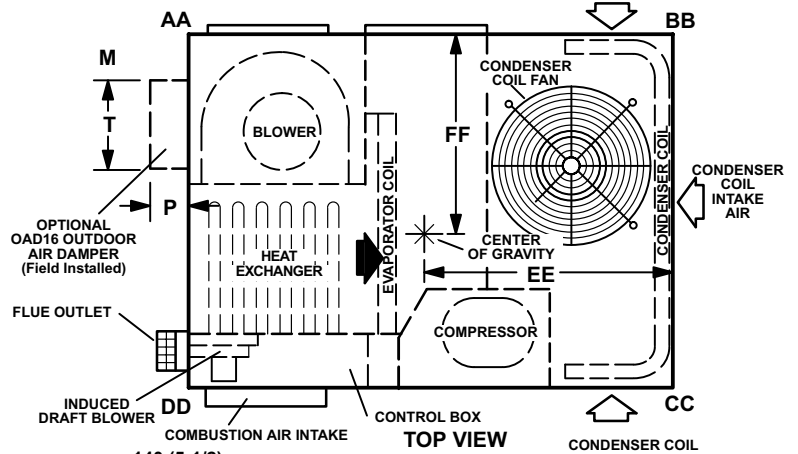
Model Number	AA		BB		CC		DD	
	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.
GCS16-024	35	76	29	65	44	96	52	113
GCS16-036	37	81	31	68	46	101	54	120
GCS16-048	50	111	44	97	61	135	70	154
GCS16-060	53	117	47	103	65	143	74	163

CENTER OF GRAVITY

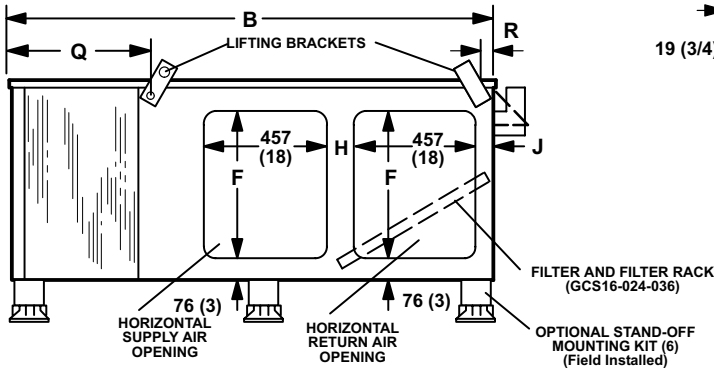
Model Number	EE		FF	
	mm	inch	mm	inch
GCS16-024	826	32-1/2	699	27-1/2
GCS16-036				
GCS16-048	981	38-5/8	768	30-1/4
GCS16-060				



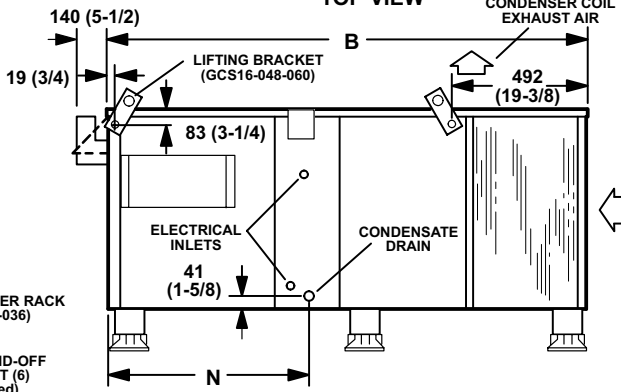
TOP VIEW BASE SECTION



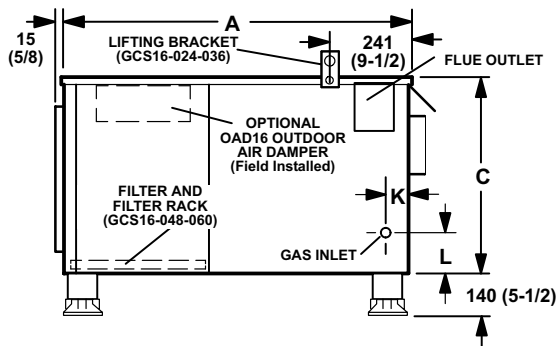
TOP VIEW



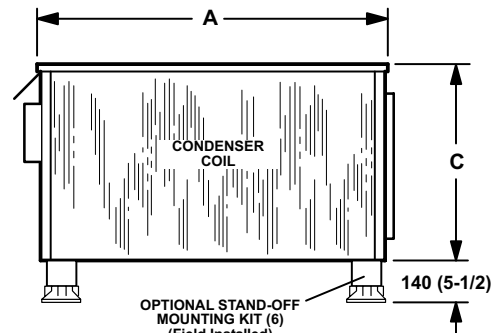
**BACK VIEW
(With Horizontal Supply & Return Air)**



FRONT VIEW



END VIEW



FRONT END VIEW

Model Number	A		B		C		D		E		F		G		H		J	
	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
GCS16-024	1168	46	1524	60	584	23	457	18	330	13	330	13	254	10	76	3	102	4
GCS16-036																		
GCS16-048	1321	52	1842	72-1/2	737	29	559	22	457	18	559	22	191	7-1/2	127	5	76	3
GCS16-060																		

Model Number	K		L		M		N		P		Q		R		T	
	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
GCS16-024	57	2-1/4	270	10-5/8	51	2	679	26-3/4	127	5	429	16-5/8	102	4	349	13-3/4
GCS16-036																
GCS16-048	86	3-3/8	333	13-1/8	127	5	711	28	203	8	492	19-3/8	19	3/4	349	13-3/4
GCS16-060																

ACCESSORY DIMENSIONS - MM (INCHES)

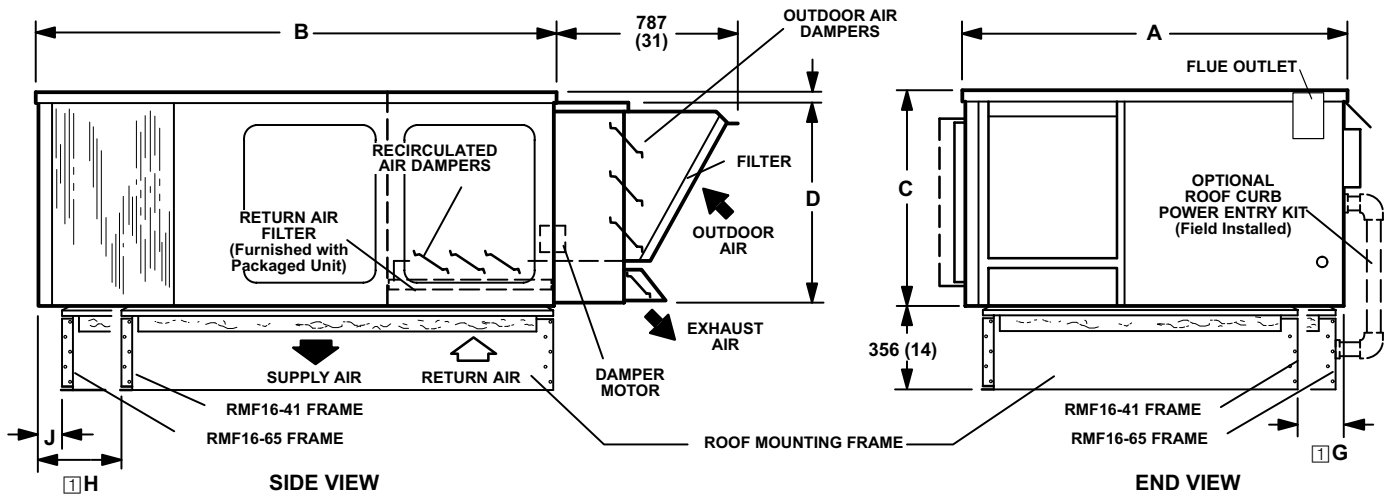
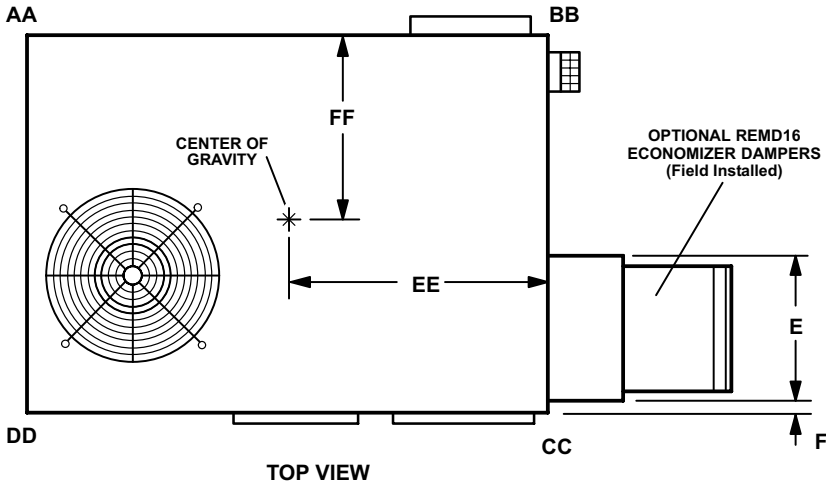
GCS16 UNIT WITH REMD16M ECONOMIZER DAMPER SECTION AND RMF16 ROOF MOUNTING FRAME

CORNER WEIGHTS

Model Number	AA		BB		CC		DD	
	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.
GCS16-024	49	108	68	149	57	126	41	90
GCS16-036	51	112	71	156	59	131	43	94
GCS16-048	66	145	90	197	80	176	59	129
GCS16-060	69	152	94	206	84	184	62	135

CENTER OF GRAVITY

Model Number	EE		FF	
	mm	in.	mm	in.
GCS16-024 GCS16-036	638	25-1/8	533	21
GCS16-048 GCS16-060	781	30-3/4	622	24-1/2

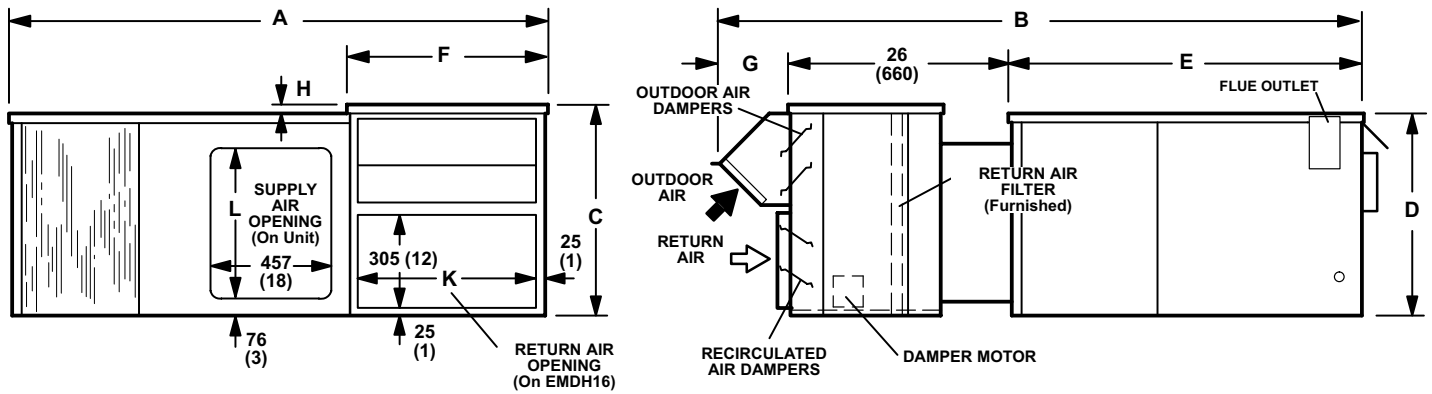
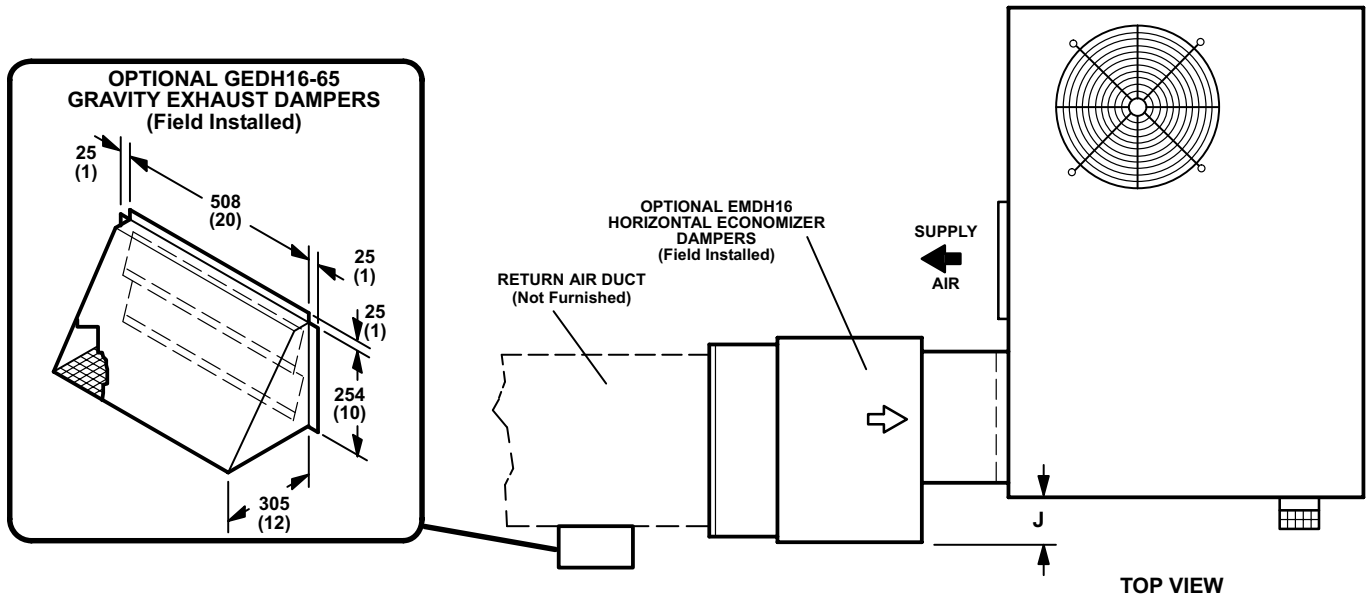


Model Number	A		B		C		D		E		F		G		H		J	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
GCS16-024 GCS16-036	1168	46	1524	60	584	23	552	21-3/4	413	16-1/4	19	3/4	---	---	---	---	---	---
GCS16-048 GCS16-060	1321	52	1842	72-1/2	737	29	705	27-3/4	519	20-7/16	38	1-1/2	178	7	406	16	89	3-1/2

☐ Dimensions reflect usage with RMF16-41 mounting frame.

ACCESSORY DIMENSIONS - MM (INCHES)

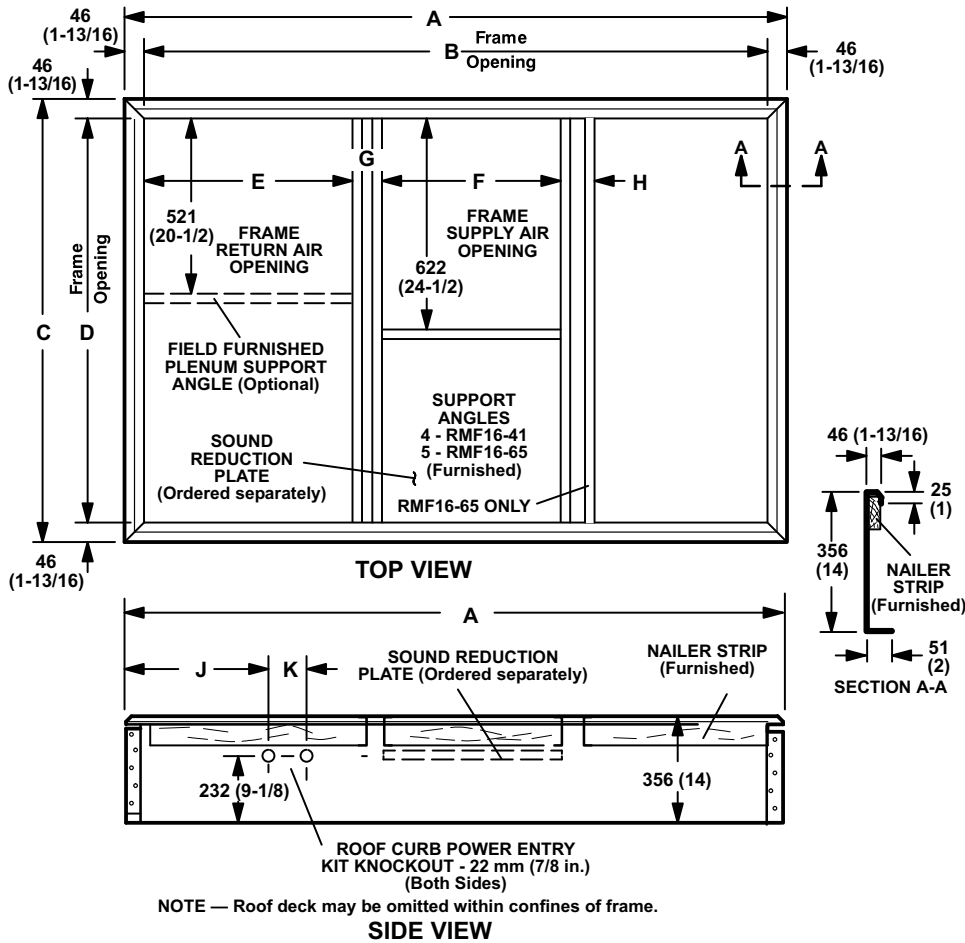
GCS16 UNIT WITH EMDH16 HORIZONTAL ECONOMIZER DAMPER SECTION AND GEDH16-65 GRAVITY EXHAUST DAMPERS



Model Number	A		B		C		D		E		F		G		H		J		K		L	
	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
GCS16-024 GCS16-036	1600	63	2070	81-1/2	660	26	584	23	1168	46	660	26	241	9-1/2	76	3	76	3	610	24	330	13
GCS16-048 GCS16-060	2019	79-1/2	8100	90	772	30-3/8	737	29	1321	52	775	30-1/2	305	12	38	1-1/2	178	7	733	28-7/8	559	22

ACCESSORY DIMENSIONS - MM (INCHES)

RMF16-41 & RMF16-65 ROOF MOUNTING FRAME WITH DOUBLE DUCT OPENING



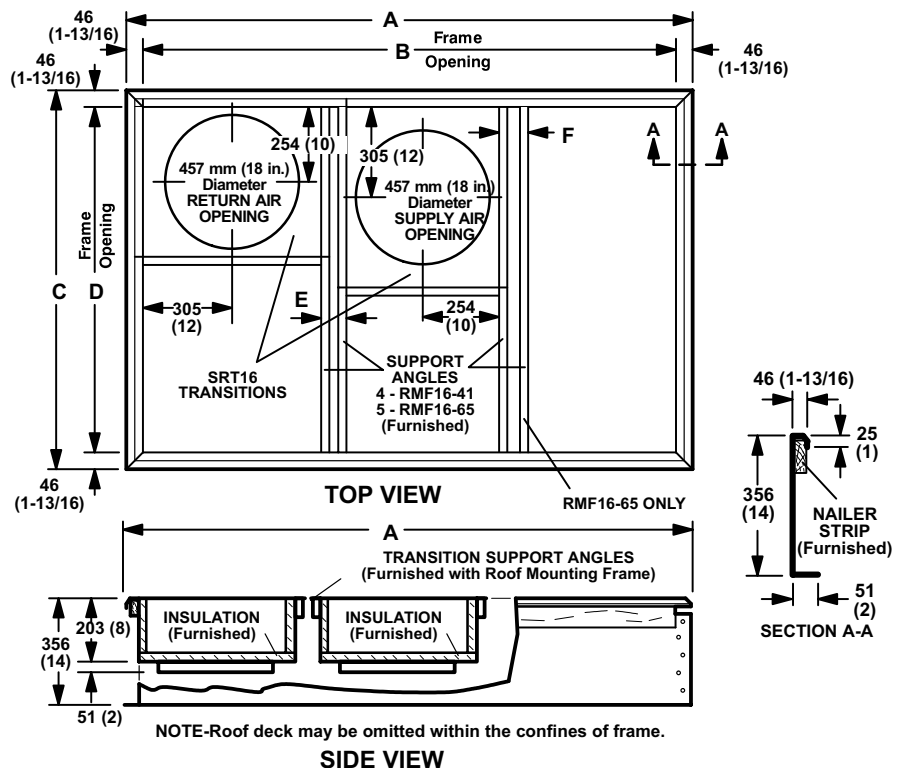
Model Number		RMF16-41	RMF16-65
A	mm	1432	1753
	inch	56-3/8	69
B	mm	1340	1661
	inch	52-3/4	65-3/8
C	mm	1121	1283
	inch	44-1/8	50-1/2
D	mm	1029	1191
	inch	40-1/2	46-7/8
E	mm	619	616
	inch	24-3/8	24-1/4
F	mm	522	521
	inch	20-9/16	20-1/2
G	mm	□102	102
	inch	□4	4
H	mm	---	102
	inch	---	4
J	mm	564	686
	inch	22-3/16	27
K	mm	114	127
	inch	4-1/2	5

□83 mm (3-1/4 in.) for GCS16-024-036.

RMF16-41 & RMF16-65 ROOF MOUNTING FRAMES WITH SRT16-65 SUPPLY AND RETURN AIR TRANSITIONS FOR FD9-65 & RTD9-65 CEILING DIFFUSERS

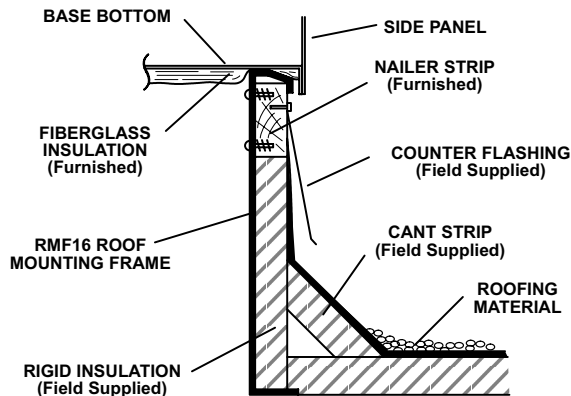
Model Number		RMF16-41 With SRT16-65	RMF16-65 With SRT16-65
A	mm	1432	1753
	inch	56-3/8	69
B	mm	1340	1661
	inch	52-3/4	65-3/8
C	mm	1121	1283
	inch	44-1/8	50-1/2
D	mm	1029	1191
	inch	40-1/2	46-7/8
E	mm	□102	102
	inch	□4	4
F	mm	---	102
	inch	---	4

□83 mm (3-1/4 in.) for GCS16-024-036.



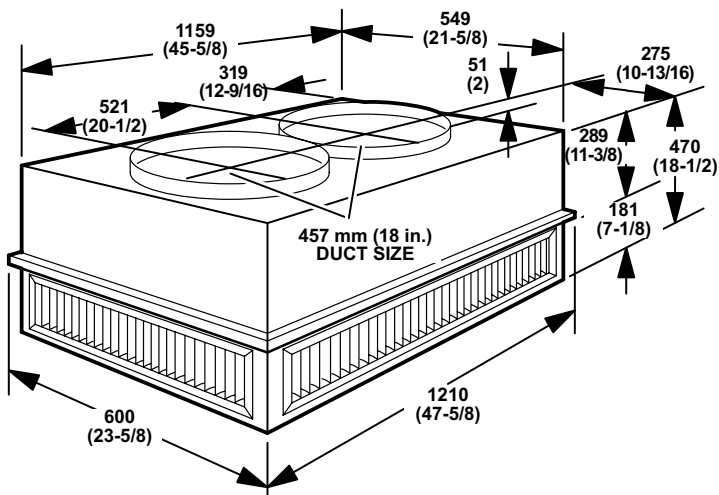
ACCESSORY DIMENSIONS - MM (INCHES)

TYPICAL FLASHING DETAIL FOR RMF16 ROOF MOUNTING FRAME

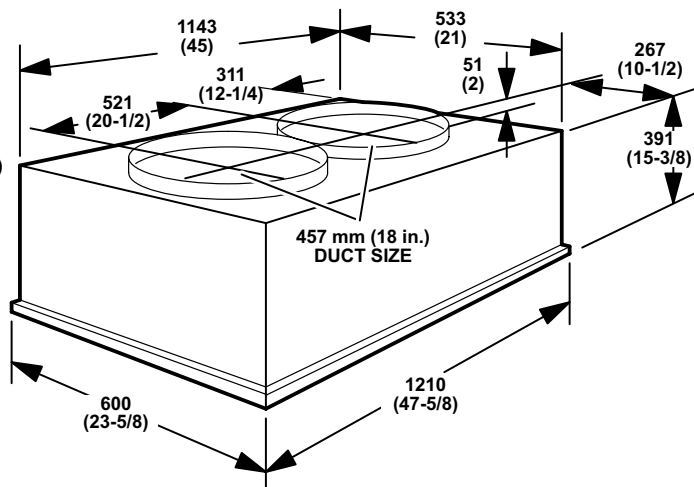


COMBINATION CEILING SUPPLY AND RETURN DIFFUSERS

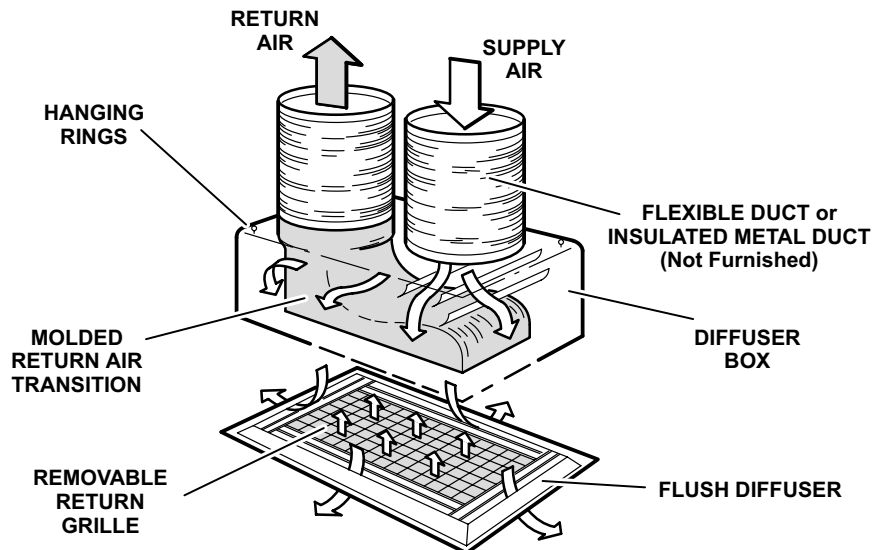
RTD9-65 STEP-DOWN CEILING DIFFUSER



FD9-65 FLUSH CEILING DIFFUSER

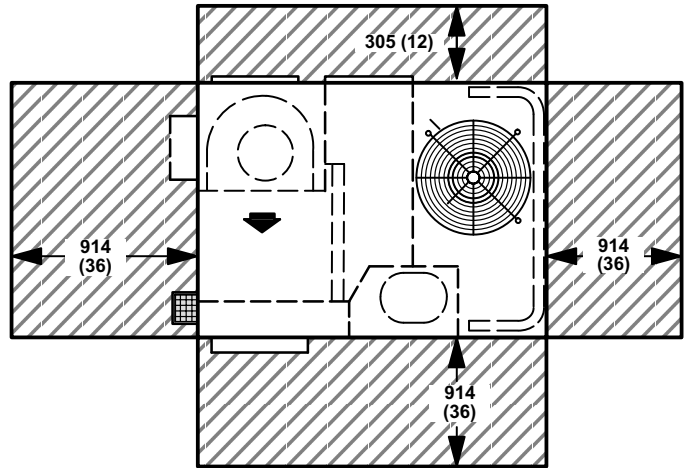


AIR DIFFUSER PATTERN



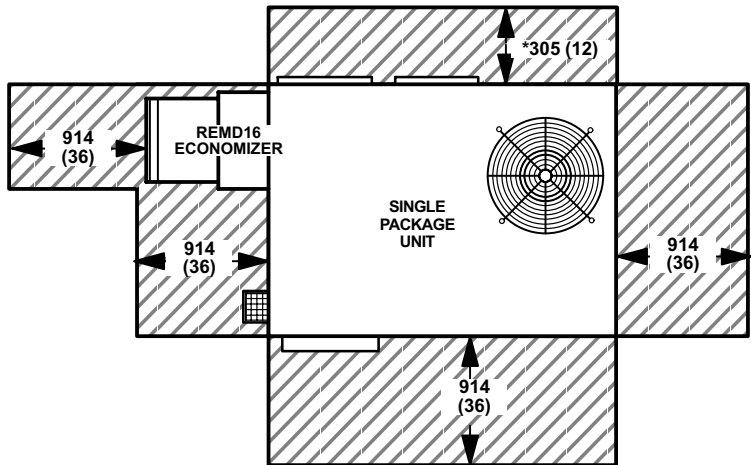
INSTALLATION CLEARANCES - MM (INCHES)

GCS16 BASIC UNIT



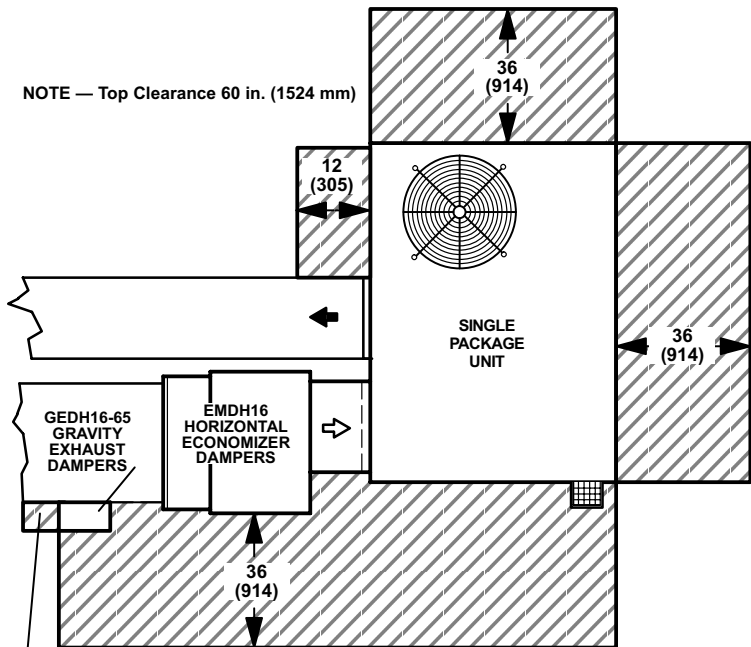
NOTE — Top Clearance 1524 mm (60 in.)
 NOTE — Entire perimeter of unit requires support when elevated above mounting surface.

GCS16 UNIT WITH REMD16 ECONOMIZER DAMPER SECTION AND DDC CONTROLS



NOTE — Top Clearance 1524 mm (60 in.)

GCS16 UNIT WITH EMD16M HORIZONTAL ECONOMIZER AND GEDH16-65 GRAVITY EXHAUST DAMPER



NOTE — Top Clearance 60 in. (1524 mm)

Allow adequate clearance for duct & GEDH16-65 installation

GUIDE SPECIFICATIONS

General

- Furnish and install a single package combination air to air direct expansion mechanical heating/cooling 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.

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 control, automatic redundant gas valve and blower prove switch on combustion air inducer.
- Unit shall be available for use with propane as an option.

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. Optional coil guards shall be available.
- Compressors shall be resiliently mounted and have overload protection. -036-048 models shall have scroll compressors. -024 and -060 models shall have reciprocating compressors and crankcase heaters. The refrigeration system shall have discharge, suction and liquid line service gauge ports, freezestat, high pressure switch, liquid line strainer, expansion valve 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.
- Supply and return air openings shall be flanged.
- Indoor coil condensate drain shall be provided.
- 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 be direct driven by a multi-speed motor.
- Blower shall be statically and dynamically balanced.

Outdoor Coil Fans

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

Air Filters

- Cleanable 25 mm (1 inch) thick filters shall be furnished.

OPTIONAL ACCESSORIES

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.

Combustion Air Intake Extensions

- Combustion Air Intake Extensions shall be available for use in areas where high snow drifts can block intake air.

Coil Guards

- Shall be available for field installation to protect coil 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 controls, an air mixing damper assembly including outdoor air and recirculated air dampers.
- The assembly shall provide for the introduction of outside air for minimum ventilation and free cooling.
- Damper motor shall be 24 volt fully modulating or three position spring return.
- Down-flow model shall include pressure operated gravity exhaust dampers.
- Controls shall include electronic discharge air sensor, minimum position switch, and solid-state adjustable enthalpy control.
- Control option available shall consist of differential enthalpy control (return air sensor).

Economizer Horizontal Gravity Exhaust Dampers (for Horizontal Economizer)

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

Hail Guards

- Shall be available for field installation to protect coil from damage.

Outdoor Air Damper Section

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

Remote Status Panel

- Shall be available for installation within the conditioned area to observe equipment operation.
- The panel shall include signal lights for Cool Mode, Heat Mode, Compressor 1, Compressor 2, No Heat and Filter.

Roof Curb Power Entry Kit

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

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.

Stand-Off Mounting Kit

- Optional kit shall be available to elevate unit above mounting surface in horizontal applications.

Vertical Vent Extension Kit

- Kit shall be available to exhaust flue gases vertically above unit.