

**GCS20**  
**-024-030-036-042-048-060**

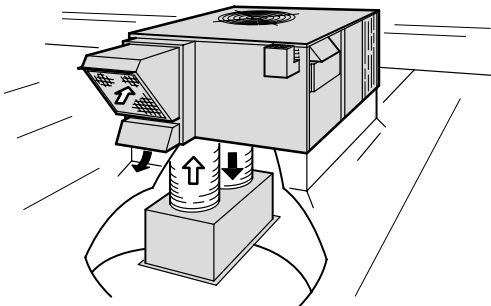
2 to 5 Ton (7.0 to 17.6 kW)  
 AFUE - 80%  
 SEER - up to 11.30

Net Cooling Capacity - 24,600 to 58,000 Btuh (7.2 to 17.0 kW)  
 Input Heating Capacity - 50,000 to 120,000 Btuh (14.7 to 35.2 kW)

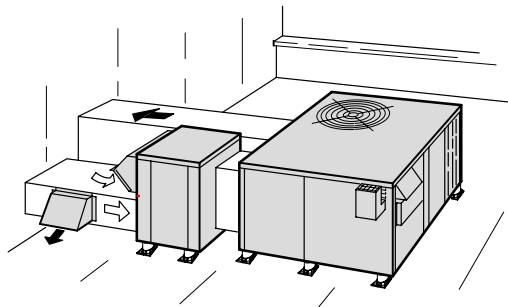
Bulletin No. 210030  
 September 2001  
 Supersedes March 2001



GCS20  
 Basic Unit



Rooftop Installation With Economizer and  
 Combination Supply and Return Air System



Rooftop Installation with Horizontal Economizer

**MODEL NUMBER IDENTIFICATION**

**GCS 20 X - 036 - 120 - 1 Y**

- GCS** = Packaged Gas Heat/Cooling Unit
- Unit Type**
- Series**
- Low NO<sub>x</sub> Models**
- Cooling Capacity Tons (kW)**
  - 024 = 2 (7.0)
  - 030 = 2.5 (8.8)
  - 036 = 3 (10.6)
  - 042 = 3.5 (12.3)
  - 048 = 4 (14.1)
  - 060 = 5 (17.6)
- Heating Capacity Btuh (kW)**
  - 50 = 50,000 (14.6)
  - 75 = 75,000 (22.0)
  - 90 = 90,000 (26.4)
  - 120 = 120,000 (35.1)
- Voltage**
  - P = 208/230v-1 phase-60hz
  - Y = 208/230v-3 phase-60hz
  - G = 460v-3 phase-60hz
- Minor Revision Number**

**FEATURES**

- Application**
- AFUE of 80%.
  - SEER of up to 11.3.
  - 2 through 5 ton (7.0 through 17.5 kW).
  - Single and three phase power supply.
  - Bottom (down-flow) or horizontal supply and return air.
  - Designed for outdoor rooftop or ground level installations in light commercial applications.

## FEATURES - CONTINUED

### Approvals

- Certified in accordance with the USE certification program, which is based on ARI Standard 210/240-94.
- Sound rated in the Lennox reverberant sound test room in accordance with test conditions included in ARI Standard 270-95.
- Tested in the Lennox Research Laboratory environmental test room.
- Rated according to U.S. Department of Energy (DOE) test procedures.
- Blower data is from unit tests conducted in the Lennox Laboratory air test chamber.
- Units certified by CSA International (formerly AGA/CGA) and ratings are certified by GAMA.
- Gas heat is tested according to DOE test procedures and FTC labeling regulations.
- All "X" models meet California Nitrogen Oxides (NOx) standards and California Seasonal Efficiency Requirements.
- Developed in accordance with ISO 9002 quality standards.
- Each unit test operated at the factory before shipment ensuring dependable operation at start-up.

### Equipment Warranty

- Heat Exchanger - limited warranty for fifteen years in residential applications and ten years in non-residential applications.
- Compressor - limited warranty for ten years in residential applications and five years in non-residential applications.
- All other covered components - limited warranty for five years in residential applications and one year in non-residential applications.
- Refer to Lennox Equipment Limited Warranty certificate for specific details.

### 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.

### Combustion Air Inducer

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

### 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.

### Gas Control Valve

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

### Direct Spark Ignition

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

### Fan and Limit Controls

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

### Copeland Scroll™ Compressor

- Compressor features high efficiency with uniform suction flow, constant discharge flow and high volumetric efficiency and quiet operation.
- Compressor consists of two involute spiral scrolls matched together to generate a series of crescent shaped gas pockets between them.
- During compression, one scroll remains stationary while the other scroll orbits around it.
- Gas is drawn into the outer pocket, the pocket is sealed as the scroll rotates.
- As the spiral movement continues, gas pockets are pushed to the center of the scrolls. Volume between the pockets is simultaneously reduced.
- When pocket reaches the center, gas is now at high pressure and is forced out of a port located in the center of the fixed scrolls.
- During compression, several pockets are compressed simultaneously resulting in a smooth continuous compression cycle.
- Continuous flank contact, maintained by centrifugal force, minimizes gas leakage and maximizes efficiency.
- Scroll compressor is tolerant to the effects of slugging and contaminants. If this occurs, scrolls separate, allowing liquid or contaminants to be worked toward the center and discharged.
- Low gas pulses during compression reduces operational sound levels.
- Compressor motor is internally protected from excessive current and temperature.
- Compressor is installed in the unit on resilient rubber mounts for vibration free operation.



### 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 30°F (-1°C) without additional controls.

### Condenser Fan

- Direct drive fan moves large air volumes uniformly through entire condenser coil for high refrigerant cooling capacity.
- Vertical air discharge minimizes operating sounds and 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 PVC (polyvinyl chloride) coated steel wire fan guard is furnished as standard.

## FEATURES - CONTINUED

### Copper Tube/Enhanced Fin Coil

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

### Coil Guards

- PVC Coated steel wire guards to protect outdoor coil.
- Standard on single phase units. Optional on three phase units. See Optional Accessories for order no.

### 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 steel pipe drain outlet coupling.
- Lifting brackets factory installed.

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

### Economizer Wiring

- Low voltage thermostat connections in main control area.
- Furnished and factory installed on all models.
- Economizer wiring harness with jack plug connections.
- See page below for economizer options.

## OPTIONAL ACCESSORIES - MUST BE ORDERED EXTRA

Model No.		GCS20-024	GCS20-030	GCS20-036	GCS20-042	GCS20-048	GCS20-060
<b>Ceiling Diffusers</b> - Aluminum grilles, 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 - Net Weight	<b>Step-Down</b> - double deflection louvers	RTD9-65 - 67 lbs. (30 kg)					
	<b>Flush</b> - fixed blade louvers	FD9-65 - 37 lbs.(17 kg)					
<b>Ceiling Diffuser Transitions (Supply and Return)</b> - Installs in roof mounting frame, galvanized steel construction, flanges furnished for duct connection, fully insulated - Net Weight		SRT16 - 20 lbs. (9 kg)					
<b>Coil Guards</b> - PVC coated steel wire guards to protect outdoor coil (3 phase models only - furnished with 1 phase model units). Not for use with Hail Guards		Standard	LB-82199CF (47J23) 2 guards per order	Standard	LB-82199CG (47J24) 3 guards per order		
<b>Control Systems</b>		See pages 15-16					
<b>Economizer with Gravity Exhaust Dampers (Down-Flow)</b> - Installs directly in cabinet, recirculated air dampers with pressure operated gravity exhaust damper, formed, gasketed damper blades, nylon bearings, fully modulating or 3 position 24v damper motor has adjustable minimum position switch, electronic discharge air sensor, adjustable outdoor air enthalpy control. Utilizes filter furnished with unit, filter rack will accept up to 2 in. (51 mm) filter. Removable exhaust air hood and outdoor air intake hood with cleanable aluminum mesh filter. Choice of economizer controls. Model No. - Net Weight - No. & size of filter - in. (mm)		3 Position: REMD16-41 - 48 lbs. (22 kg) Modulating: REMD16M-41 - 48 lbs. (22 kg) ☐ Indoor: (1) 16 x 25 x 1 (406 x 635 x 25) Outdoor : (1) 14 x 25 x 1 (356 x 635 x 25)			3 Position: REMD16-65 - 66 lbs. (30 kg) Modulating: REMD16M-65 - 66 lbs. (30 kg) ☐ Indoor: (1) 20 x 25 x 1 (508 x 635 x 25) Outdoor : (1) 18 x 25 x 1 (457 x 635 x 25)		

**OPTIONAL ACCESSORIES - MUST BE ORDERED EXTRA**

Model No.	GCS20-024	GCS20-030	GCS20-036	GCS20-042	GCS20-048	GCS20-060
<p><b>Economizer Dampers (Horizontal)</b> - Installs on cabinet, combination outdoor air and recirculated air damper, formed, gasketed damper blades, nylon bearings, fully modulating or 3 position 24v damper motor has adjustable minimum position switch, electronic discharge air sensor, adjustable outdoor air enthalpy control. 1 in (25 mm) fiberglass filter furnished, filter rack will accept up to 2 in. (51 mm) filter, outdoor air intake hood with cleanable aluminum mesh filter. Choice of economizer controls. Model No. - Net Weight - No. &amp; size of filter - in. (mm)</p>	<p>3 Position: EMDH16-41 - 110 lbs. (50 kg) Modulating: EMDH16M-41 - 110 lbs. (50 kg) Indoor : (1) 20 x 24 x 1 (508 x 610 x 25) Outdoor : (1) 8 x 24 x 1 (203 x 610 x 25)</p>			<p>3 Position: EMDH16-65 - 130 lbs. (59 kg) Modulating: EMDH16M-65 - 130 lbs. (59 kg) Indoor : (1) 16 x 25 x 1 (406 x 635 x 25) &amp; (1) 14 x 25 x1 (356 x 635 x 1) Outdoor : (1) 8 x 28 x 1 (203 x 711 x 25)</p>		
<p><b>Economizer Gravity Exhaust Dampers</b> - For use with EMDH16. Pressure operated assembly field installs in the return air duct adjacent to the economizer assembly. Includes bird screen. - Net Weight</p>	GEDH16-65 - 4 lbs. (2 kg)					
<p><b>Economizer Differential Enthalpy Control</b> - 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</p>	54G44					
<p><b>Hail Guards</b> - Heavy duty field installed coil guard protects coils from damage. Not for use with Coil Guards.</p>	90N90 2 guards per order			90N91 3 guards per order		
<p><b>Low Ambient Control Kit</b> - Units operate down to 30°F (-1°C) outdoor air temperature in cooling mode without any additional controls. A Low Ambient Kit can be field installed, enabling unit to operate properly down to 0°F (-17.7°C).</p>	LB-57133BC (24H77)					
<p><b>LPG/Propane Kits</b> - conversion from Natural Gas to LPG</p>	50L89 - 50-75-90K input 50L88 - 120K input					
<p><b>Outdoor Air Damper Section (Down-flow)</b> - Damper assembly replaces blower access panel, manually adjustable, 0 to 25% (fixed) outdoor air, outdoor air hood with cleanable filter included, number and size of filter - Net Weight</p>	OAD16-41 - 12 lbs. (5 kg) (1) 5 x 17 x 1 in. (127 x 432 x 25 mm)			OAD16-65 - 12 lbs. (5 kg) (1) 8 x 17 x 1 in. (203 x 432 x 25 mm)		
<p><b>Outdoor Air Damper Section (Horizontal)</b> - Installs in return air duct adjacent to unit, manually adjustable (fixed) outdoor air - Net Weight</p>	OAD3-46/65 - 8 lbs. (4 kg)					
<p><b>Roof Curb Power Entry Kit</b> - Allows power entry through roof mounting frame, knockouts provided in roof frame, kit contains 1/2 in. (13 mm) x 40 in. (1016 mm) armored conduit and installation hardware, two kits are required, one for low voltage and one for high voltage. See Dimension Drawing</p>	18H70					
<p><b>Roof Mounting Frame</b> - 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 and GCS16-060 units - Net Weight NOTE - Sound Reduction Plate must be ordered separately for field installation.</p>	RMF16-41 - 75 lbs. (35 kg)  Sound Reduction Plate (ordered separately) 73H80			RMF16-41 - 75 lbs. (35 kg)  Sound Reduction Plate (ordered separately) 73H80  RMF16-65 - 86 lbs. (39 kg)  Sound Reduction Plate (ordered separately) 73H82		
<p><b>Thermostat</b> - Not furnished with unit. See Thermostat bulletin in Thermostats and Controls section and Lennox Price book. For commercial control systems, see below.</p>	See Thermostat bulletin in Thermostats and Controls section, Lennox Price book and table below.					
<p><b>Timed-Off Control</b> — 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.</p>	LB-50709BK (47J27)					
<p><b>Unit Stand-Off Mounting Kit</b> — Elevates horizontal application units above mounting surface. Includes six high impact polystyrene stand-off mounts. See dimension drawings.</p>	38H18					

☐ Indoor filter is not furnished with economizer. REMD16 utilizes existing filter furnished with GCS20 unit.

## SPECIFICATIONS

		Model No.	GCS20-024-50	GCS20-030-75	GCS20-036-90	GCS20-042-75	GCS20-042-120
<b>Heating Performance</b>	Input - Btuh (kW)		50,000 (14.7)	75,000 (22.0)	90,000 (26.4)	75,000 (22.0)	120,000 (35.2)
	Output - Btuh (kW)		40,000 (11.7)	60,000 (17.6)	72,000 (20.5)	60,000 (17.6)	96,000 (28.1)
	☆A.F.U.E.		80.0%	80.0%	80.0%	80.0%	80.0%
	Gas Supply Connections npt - in.		1/2	1/2	1/2	1/2	1/2
	Rec. Gas Supply Pressure - w.c. in. (kPa) Natural		7 (1.7)	7 (1.7)	7 (1.7)	7 (1.7)	7 (1.7)
	LPG/Propane		11 (2.7)	11 (2.7)	11 (2.7)	11 (2.7)	11 (2.7)
<b>Cooling Performance</b>	Nominal Tonnage (kW)		2 (7.0)	2.5 (8.8)	3 (10.6)	3.5 (12.3)	3.5 (12.3)
	★Cooling capacity - Btuh (kW)		24,600 (7.2)	30,400 (8.9)	33,600 (9.8)	41,000 (12.0)	41,000 (12.0)
	Total Unit Watts		2420	3140	3500	4165	4165
	★SEER (Btuh/Watts)		11.00	11.00	11.00	11.30	11.30
	EER (Btuh/Watts)		10.2	9.70	9.60	9.8	9.8
	*Sound Rating Number (db)		80	80	80	78	82
	Refrigerant Charge (HCFC-22)		4 lbs. 5 oz. (1.96 kg)	4 lbs. 10 oz. (2.10 kg)	4 lbs. 6 oz. (1.98 kg)	5 lbs. 2 oz. (2.32 kg)	5 lbs. 2 oz. (2.32 kg)
<b>Condenser Coil</b>	Net face area - sq. ft. (m <sup>2</sup> ) Outer Coil		8.7 (0.81)	8.7 (0.81)	8.7 (0.81)	14.3 (1.33)	14.3 (1.33)
	Inner Coil		8.4 (0.78)	8.4 (0.78)	8.4 (0.78)	5.9 (0.55)	5.9 (0.55)
	Tube diameter - in. (mm)		3/8 (9.5)	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)
	No. of rows		2	2	2	1.4	1.4
	Fins per inch (m)		20 (787)	20 (787)	20 (787)	20 (787)	20 (787)
<b>Condenser Fan</b>	Motor output - hp (W)		1/6 (124)	1/6 (124)	1/6 (124)	1/4 (187)	1/4 (187)
	Motor watts		240	240	240	340	340
	Diameter - in. (mm)		20 (508)	20 (508)	20 (508)	24 (610)	24 (610)
	No. of blades		4	4	4	4	4
	Air volume - cfm (L/s)		2200 (1040)	2200 (1040)	2200 (1040)	3880 (1830)	3880 (1830)
<b>Evaporator Coil</b>	Net face area - sq. ft. (m <sup>2</sup> )		3.2 (0.30)	4.1 (0.38)	4.1 (0.38)	5.3 (0.49)	5.3 (0.49)
	Tube diameter - in. (mm)		3/8 (9.5)	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)
	No. of rows		2	2	2	2	2
	Fins per inch (m)		15 (590)	15 (590)	15 (590)	15 (590)	15 (590)
	Condensate drain coupling size npt - in.		3/4	3/4	3/4	3/4	3/4
<b>Evaporator Blower</b>	Motor output - hp (W)		1/3 (249)	1/3 (249)	1/2 (373)	3/4 (560)	3/4 (560)
	Blower wheel nominal diameter x width - in. (mm)		9 x 8 (229 X 203)	10 x 8 (254 X 203)	10 x 8 (254 X 203)	11-1/2 x 9 (292 x 228)	11-1/2 x 9 (292 x 228)
<b>No. &amp; size of cleanable polyurethane filters - in. (mm)</b>			(1) 16 x 25 x 1 (406 x 635 x 25)	(1) 16 x 25 x 1 (406 x 635 x 25)	(1) 16 x 25 x 1 (406 x 635 x 25)	(1) 20 x 25 x 1 (508 x 635 x 25)	(1) 20 x 25 x 1 (508 x 635 x 25)
<b>Shipping Data</b>	Net weight of basic unit - lbs. (kg)		406 (184)	406 (184)	406 (184)	494 (224)	494 (224)
	Shipping weight of basic unit - lbs. (kg) 1 pkg.		472 (214)	472 (214)	472 (214)	603 (274)	603 (274)
<b>Electrical characteristics (60 hz)</b>			208/230v - 1 ph		208/230v - 1ph 208/203v - 3 ph 460v - 3 ph	208/230v - 1 ph	

☆Annual Fuel Utilization Efficiency based on DOE test procedures and FTC labeling regulations.

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

★Certified in accordance with the USE certification program, which is based on ARI Standard 210/240: 95°F (35°C) outdoor air temperature and 80°F (27°C) db/67°F (19.5°C) wb entering evaporator air.

## SPECIFICATIONS

		Model No.	GCS20-048-75	GCS20-048-120	GCS20-060-75	GCS20-060-120
<b>Heating Performance</b>	Input - Btuh (kW)		75,000 (22.0)	120,000 (35.2)	75,000 (22.0)	120,000 (35.2)
	Output - Btuh (kW)		60,000 (17.6)	96,000 (28.1)	60,000 (17.6)	96,000 (28.1)
	☆A.F.U.E.		80.0%	80.0%	80.0%	80.0%
	Gas Supply Connections npt - in.		1/2	1/2	1/2	1/2
	Rec. Gas Supply Pressure - w.c. in. (kPa) Natural		7 (1.7)	7 (1.7)	7 (1.7)	7 (1.7)
	LPG/Propane		11 (2.7)	11 (2.7)	11 (2.7)	11 (2.7)
<b>Cooling Performance</b>	Nominal Tonnage (kW)		4 (14.1)	4 (14.1)	5 (17.6)	5 (17.6)
	★Cooling Capacity Btuh (kW)		48,000 (14.1)	48,000 (14.1)	58,000 (17.0)	58,000 (17.0)
	Total Unit Watts		4775	4775	5985	5985
	★SEER (Btuh/Watts)		11.30	11.30	11.00	11.00
	EER (Btuh/Watts)		10.1	10.1	9.7	9.7
	*Sound Rating Number (db)		82	82	82	82
	Refrigerant Charge (HCFC-22)		7 lbs. 3 oz. (3.26 kg)	7 lbs. 3 oz. (3.26 kg)	7 lbs. 5 oz. (3.32 kg)	7 lbs. 5 oz. (3.32 kg)
<b>Condenser Coil</b>	Net face area - sq. ft. (m <sup>2</sup> ) Outer Coil		14.3 (1.33)	14.3 (1.33)	14.3 (1.33)	14.3 (1.33)
	Inner Coil		13.7 (1.27)	13.7 (1.27)	13.7 (1.27)	13.7 (1.27)
	Tube diameter - in. (mm)		3/8 (9.5)	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)
	No. of rows		2	2	2	2
	Fins per inch (m)		20 (787)	20 (787)	20 (787)	20 (787)
<b>Condenser Fan</b>	Motor output - hp (W)		1/4 (187)	1/4 (187)	1/4 (187)	1/4 (187)
	Motor watts		360	360	360	360
	Diameter - in. (mm)		24 (610)	24 (610)	24 (610)	24 (610)
	No. of blades		4	4	4	4
	Air volume - cfm (L/s)		3770 (1780)	3770 (1780)	3770 (1780)	3770 (1780)
<b>Evaporator Coil</b>	Net face area - sq. ft. (m <sup>2</sup> )		5.3 (0.49)	5.3 (0.49)	6.2 (0.58)	6.2 (0.58)
	Tube diameter - in. (mm)		3/8 (9.5)	3/8 (9.5)	3/8 (9.5)	3/8 (9.5)
	No. of rows		2	2	2	2
	Fins per inch (m)		15 (590)	15 (590)	15 (590)	15 (590)
	Condensate drain coupling size npt - in.		3/4	3/4	3/4	3/4
<b>Evaporator Blower</b>	Motor output - hp (W)		3/4 (560)	3/4 (560)	3/4 (560)	3/4 (560)
	Blower wheel nominal diameter x width - in. (mm)		11-1/2 x 9 (292 x 228)	11-1/2 x 9 (292 x 228)	11-1/2 x 9 (292 x 228)	11-1/2 x 9 (292 x 228)
<b>No. &amp; size of cleanable polyurethane filters - in. (mm)</b>			(1) 20 x 25 x 1 (508 x 635 x 25)	(1) 20 x 25 x 1 (508 x 635 x 25)	(1) 20 x 25 x 1 (508 x 635 x 25)	(1) 20 x 25 x 1 (508 x 635 x 25)
<b>Shipping Data</b>	Net weight of basic unit - lbs. (kg)		527 (239)	527 (239)	541 (245)	541 (245)
	Shipping weight of basic unit - lbs. (kg) 1 pkg.		636 (288)	636 (288)	650 (295)	650 (295)
<b>Electrical characteristics (60 hz)</b>			208/230v - 1 ph 208/203v - 3 ph 460v - 3 ph			

☆Annual Fuel Utilization Efficiency based on DOE test procedures and FTC labeling regulations.

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

★Certified in accordance with the USE certification program, which is based on ARI Standard 210/240: 95°F (35°C) outdoor air temperature and 80°F (27°C) db/67°F (19.5°C) wb entering evaporator air.

## HIGH ALTITUDE INFORMATION

No gas pressure adjustment is needed when operating from 0 to 7500 ft. (0 to 2285 m). See below for correct manifold pressures for natural gas and LPG/propane.

FUEL	Manifold Absolute Pressure (outlet) 0 to 7500 ft. (0 to 2248 m) above sea level
Natural Gas	3.5 in. w.g. (0.87 kPa)
LPG/Propane	10.5 in. w.g. (2.61 kPa)

## 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.

### GCS20-024 — COOLING CAPACITY

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T)			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		
			cfm	L/s	kBtuh	kW	75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW	Input	75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW	Input	75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW	Input	75°F 24°C	80°F 27°C
63°F (17°C)	640	300	24.1	7.1	1.68	.71	.84	.95	23.3	6.8	1.90	.72	.85	.97	22.4	6.6	2.14	.73	.86	.98	21.5	6.3	2.42	.74	.88	1.00
	800	380	25.0	7.3	1.69	.75	.90	1.00	24.1	7.1	1.91	.77	.92	1.00	23.3	6.8	2.15	.78	.93	1.00	22.3	6.5	2.43	.79	.95	1.00
	960	455	25.7	7.5	1.70	.80	.95	1.00	24.8	7.3	1.92	.82	.97	1.00	24.0	7.0	2.16	.83	.98	1.00	23.1	6.8	2.43	.85	.99	1.00
67°F (19°C)	640	300	25.7	7.5	1.69	.56	.68	.80	24.8	7.3	1.91	.57	.69	.82	23.8	7.0	2.16	.57	.70	.83	22.9	6.7	2.43	.58	.71	.85
	800	380	26.5	7.8	1.70	.59	.73	.87	25.5	7.5	1.92	.59	.74	.88	24.6	7.2	2.16	.60	.75	.90	23.6	6.9	2.44	.61	.77	.92
	960	455	27.1	7.9	1.70	.61	.78	.92	26.1	7.6	1.92	.62	.79	.94	25.1	7.4	2.17	.63	.81	.96	24.1	7.1	2.44	.64	.82	.97
71°F (22°C)	640	300	27.4	8.0	1.70	.43	.54	.66	26.4	7.7	1.93	.43	.55	.67	25.4	7.4	2.17	.43	.55	.68	24.4	7.2	2.44	.43	.56	.69
	800	380	28.3	8.3	1.70	.43	.57	.70	27.2	8.0	1.93	.44	.58	.72	26.2	7.7	2.18	.44	.59	.73	25.1	7.4	2.45	.44	.59	.75
	960	455	28.9	8.5	1.70	.44	.60	.75	27.8	8.1	1.94	.45	.61	.77	26.7	7.8	2.18	.45	.62	.79	25.6	7.5	2.45	.46	.63	.80

### GCS20-030 — COOLING CAPACITY

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			Total Cooling Capacity		Comp Motor kW Input	Sensible To Total Ratio (S/T)			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		
			cfm	L/s	kBtuh	kW	75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW	Input	75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW	Input	75°F 24°C	80°F 27°C	85°F 29°C	kBtuh	kW	Input	75°F 24°C	80°F 27°C
63°F (17°C)	800	380	30.2	8.9	2.17	.71	.84	.95	29.2	8.6	2.45	.72	.85	.96	28.1	8.2	2.77	.73	.86	.98	26.9	7.9	3.14	.74	.88	.99
	1000	470	31.4	9.2	2.18	.75	.90	1.00	30.3	8.9	2.46	.77	.91	1.00	29.1	8.5	2.78	.78	.93	1.00	27.9	8.2	3.15	.80	.95	1.00
	1200	565	32.3	9.5	2.19	.80	.95	1.00	31.2	9.1	2.47	.82	.97	1.00	30.0	8.8	2.79	.83	.98	1.00	28.8	8.4	3.16	.85	.99	1.00
67°F (19°C)	800	380	32.1	9.4	2.19	.56	.68	.80	31.0	9.1	2.47	.57	.69	.82	29.8	8.7	2.79	.57	.70	.83	28.5	8.4	3.16	.58	.72	.85
	1000	470	33.2	9.7	2.20	.59	.73	.87	32.0	9.4	2.48	.59	.74	.89	30.7	9.0	2.80	.60	.76	.90	29.4	8.6	3.17	.61	.78	.92
	1200	565	33.9	9.9	2.21	.61	.78	.93	32.7	9.6	2.49	.62	.79	.94	31.4	9.2	2.81	.63	.81	.96	30.0	8.8	3.18	.64	.83	.98
71°F (22°C)	800	380	34.2	10.0	2.21	.43	.54	.66	33.0	9.7	2.49	.43	.55	.67	31.8	9.3	2.81	.43	.55	.68	30.4	8.9	3.18	.43	.56	.69
	1000	470	35.2	10.3	2.23	.43	.57	.71	34.0	10.0	2.50	.44	.58	.72	32.7	9.6	2.82	.44	.59	.73	31.3	9.2	3.20	.44	.60	.75
	1200	565	35.9	10.5	2.23	.44	.60	.76	34.6	10.1	2.51	.45	.61	.77	33.3	9.8	2.84	.45	.62	.79	31.9	9.3	3.20	.46	.63	.81





## BLOWER DATA

### GCS20-024-50 BLOWER PERFORMANCE @ 230v (Down-Flow Air Openings)

External Static Pressure		Air Volume at Various Blower Speeds							
		High		Medium-High		Medium-Low		Low	
in. w.g.	Pa	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
0	0	1335	630	1000	470	905	425	665	315
.05	12	1330	630	1010	475	915	430	680	320
.10	25	1315	620	1015	480	920	435	685	325
.15	37	1300	615	1015	480	925	435	690	325
.20	50	1280	605	1010	475	920	435	695	330
.25	62	1255	590	1005	475	915	430	695	330
.30	75	1225	580	990	465	900	425	690	325
.40	100	1160	550	945	445	865	410	665	315
.50	125	1075	505	885	420	815	385	630	295
.60	150	975	460	805	380	745	350	585	275
.70	175	860	405	705	335	655	310	520	245
.80	200	730	345	590	280	545	255	---	---
.90	225	570	270	---	---	---	---	---	---
1.00	250	---	---	---	---	---	---	---	---

NOTE — All air data is measured external to the unit with dry coil and without air filter. For 208v unit operation, derate air volume by 7%.

### GCS20-024-50 BLOWER PERFORMANCE @ 230v (Horizontal Air Openings)

External Static Pressure		Air Volume at Various Blower Speeds							
		High		Medium-High		Medium-Low		Low	
in. w.g.	Pa	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
0	0	1315	620	915	430	840	395	615	290
.05	12	1300	615	930	440	855	405	640	300
.10	25	1285	605	945	445	870	410	655	310
.15	37	1265	595	950	450	875	415	670	315
.20	50	1240	585	950	450	880	415	680	320
.25	62	1220	575	950	450	880	415	685	325
.30	75	1195	565	945	445	875	415	685	325
.40	100	1140	540	915	430	850	400	675	320
.50	125	1080	510	870	410	815	385	650	305
.60	150	1010	475	805	380	760	360	610	290
.70	175	935	440	725	340	690	325	550	260
.80	200	845	400	625	295	600	285	---	---
.90	225	735	345	515	245	---	---	---	---
1.00	250	---	---	---	---	---	---	---	---

NOTE — All air data is measured external to the unit with dry coil and without air filter. For 208v unit operation, derate air volume by 7%.

### GCS20-030-75 BLOWER PERFORMANCE @ 230v (Down-Flow Air Openings)

External Static Pressure		Air Volume at Various Blower Speeds							
		High		Medium-High		Medium-Low		Low	
in. w.g.	Pa	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
0	0	1525	720	1350	635	1090	515	870	410
.05	12	1515	715	1345	635	1090	515	880	415
.10	25	1495	705	1335	630	1085	510	885	420
.15	37	1480	700	1325	625	1075	505	890	420
.20	50	1465	690	1310	620	1065	505	885	420
.25	62	1450	685	1285	605	1055	500	875	415
.30	75	1420	670	1270	600	1045	495	870	410
.40	100	1375	650	1230	580	1020	480	855	405
.50	125	1325	625	1190	560	990	465	835	395
.60	150	1280	605	1150	545	965	455	810	380
.70	175	1220	575	1110	525	930	440	790	375
.80	200	1130	535	1030	485	885	420	765	360
.90	225	1070	505	955	450	820	385	---	---
1.00	250	965	455	860	405	---	---	---	---

NOTE — All air data is measured external to the unit with dry coil and without air filter. For 208v unit operation, derate air volume by 7%.

### GCS20-030-75 BLOWER PERFORMANCE @ 230v (Horizontal Air Openings)

External Static Pressure		Air Volume at Various Blower Speeds							
		High		Medium-High		Medium-Low		Low	
in. w.g.	Pa	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
0	0	1435	675	1280	605	1010	475	860	405
.05	12	1425	675	1265	595	1005	475	860	405
.10	25	1410	665	1250	590	1005	475	865	410
.15	37	1380	650	1235	585	1000	470	860	405
.20	50	1365	645	1220	575	990	465	855	405
.25	62	1345	635	1205	570	975	460	845	400
.30	75	1315	620	1190	560	970	460	835	395
.40	100	1270	600	1160	550	945	445	810	380
.50	125	1220	575	1115	525	920	435	790	375
.60	150	1155	545	1070	505	900	425	765	360
.70	175	1095	515	1010	475	865	410	740	350
.80	200	1030	485	955	450	820	385	700	330
.90	225	950	450	865	410	745	350	---	---
1.00	250	850	400	760	360	---	---	---	---

NOTE — All air data is measured external to the unit with dry coil and without air filter. For 208v unit operation, derate air volume by 7%.

### GCS20-036-90 BLOWER PERFORMANCE @ 230v (Down-Flow Air Openings)

External Static Pressure		Air Volume at Various Blower Speeds							
		High		Medium-High		Medium-Low		Low	
in. w.g.	Pa	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
0	0	1700	800	1580	745	1430	675	1315	620
.05	12	1665	785	1550	730	1420	670	1300	615
.10	25	1635	770	1520	715	1405	665	1285	605
.15	37	1600	755	1490	705	1390	655	1270	600
.20	50	1570	740	1460	690	1370	645	1250	590
.25	62	1540	725	1430	675	1345	635	1230	580
.30	75	1505	710	1400	660	1315	620	1215	575
.40	100	1430	675	1340	630	1260	595	1165	550
.50	125	1370	645	1280	605	1200	565	1110	525
.60	150	1300	615	1215	575	1130	535	1030	485
.70	175	1235	585	1150	545	1045	495	970	460
.80	200	1165	550	1075	505	955	450	870	410
.90	225	1090	515	990	465	825	390	---	---
1.00	250	980	465	885	420	---	---	---	---

NOTE — All air data is measured external to the unit with dry coil and without air filter. For 208v unit operation, derate air volume by 7%.

### GCS20-036-90 BLOWER PERFORMANCE @ 230v (Horizontal Air Openings)

External Static Pressure		Air Volume at Various Blower Speeds							
		High		Medium-High		Medium-Low		Low	
in. w.g.	Pa	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
0	0	1740	820	1585	750	1500	710	1370	645
.05	12	1710	805	1565	740	1475	695	1350	635
.10	25	1675	790	1545	730	1450	685	1330	630
.15	37	1645	775	1525	720	1425	675	1310	620
.20	50	1615	760	1490	705	1400	660	1290	610
.25	62	1580	745	1465	690	1375	650	1265	595
.30	75	1550	730	1440	680	1345	635	1240	585
.40	100	1485	700	1380	650	1290	610	1190	560
.50	125	1420	670	1320	625	1230	580	1135	535
.60	150	1350	635	1260	595	1165	550	1075	505
.70	175	1255	590	1165	550	1105	520	1015	480
.80	200	1180	555	1085	510	1025	485	940	445
.90	225	1085	510	985	465	930	440	---	---
1.00	250	970	460	870	410	---	---	---	---

NOTE — All air data is measured external to the unit with dry coil and without air filter. For 208v unit operation, derate air volume by 7%.





# BLOWER DATA

## FILTER AND ACCESSORY AIR RESISTANCE

Unit Model No.	Air Volume		Total Air Resistance											
			1 in. (25mm) Filter Furnished				REMD16 Down-Flow Economizer				EMDH16 Horizontal Economizer			
			Less Filter		With Optional Pleated Polyester 2 in. (51mm) Filter		With Optional Fiberglass 2 in. (51mm) Filter		With Furnished 1 in. (25mm) Filter		Less Filter			
cfm	L/s	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	
GCS20-024 GCS20-030 GCS20-036	800	380	.15	37	.05	12	.27	67	.13	32	.18	45	.10	25
	1000	470	.18	45	.06	15	.34	85	.18	45	.26	65	.15	37
	1200	565	.21	52	.09	22	.42	104	.24	60	.35	87	.21	52
	1400	660	.25	62	.15	37	.51	127	.31	77	.46	114	.29	72
GCS20-042 GCS20-048 GCS20-060	1600	755	.15	37	.05	12	.40	99	.27	67	.30	75	.17	42
	1800	850	.17	42	.06	15	.48	119	.33	82	.35	87	.19	47
	2000	945	.20	50	.08	20	.56	139	.39	97	.40	99	.22	55
	2200	1040	.23	57	.13	32	.66	164	.46	114	.47	117	.26	85

## DIFFUSER AIR RESISTANCE

Unit Model No.	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	
cfm	L/s	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	in. w.g.	Pa	
GCS20-024 GCS20-030 GCS20-036	800	380	.15	37	.13	32	.11	27	.11	27
	1000	470	.19	47	.16	40	.14	35	.14	35
	1200	565	.25	62	.20	50	.17	42	.17	42
	1400	660	.33	82	.26	65	.20	50	.20	50
GCS20-042 GCS20-048 GCS20-060	1600	755	.43	107	.32	80	.20	50	.24	60
	1800	850	.56	139	.40	90	.30	75	.30	75
	2000	945	.73	182	.50	124	.36	90	.36	90
	2200	1040	.95	236	.63	157	.44	109	.44	109

NOTE - Electric heaters have no appreciable air resistance.

## CEILING DIFFUSER AIR THROW DATA

Model No.		RTD9-65		FD9-65	
Air Volume		Effective Throw		Effective Throw	
cfm	L/s	ft.	m	ft. — ft.	(m) m
1000	470	10-17	3-5	15-20	5-6
1200	565	11-18	3-5	16-22	5-7
1400	660	12-19	4-6	17-24	5-7
1600	755	12-20	4-6	18-25	5-8
1800	850	13-21	4-6	20-28	6-9
2000	945	14-23	4-7	21-29	6-9
2200	1040	16-25	5-8	22-30	7-9

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

## WET INDOOR COIL AIR RESISTANCE

Model Number	Air Volume		Air Resistance	
	cfm	L/s	in. w.g.	Pa
GCS20-024	800	380	0.06	15
	1000	470	0.07	17
	1200	565	0.08	20
GCS20-030	800	380	0.09	22
	1000	470	0.10	25
	1200	565	0.11	27
GCS20-036	800	380	0.09	22
	1000	470	0.10	25
	1200	565	0.11	27
GCS20-042 GCS20-048	1400	660	0.12	30
	1600	755	0.11	27
	1800	850	0.12	30
GCS20-060	2000	945	0.13	32
	2200	1040	0.14	35
	1600	755	0.08	20
GCS20-060	1800	850	0.09	22
	2000	945	0.10	25
	2200	1040	0.11	27

## ELECTRICAL DATA - 1 PHASE

General Data	Model No.	GCS20-024	GCS20-030	GCS20-036	GCS20-042	GCS20-048	GCS20-060
Line voltage data - 60 hz - 1 phase		208/230v	208/230v	208/230v	208/230v	208/230v	208/230v
Rec. maximum fuse size (amps)		30	30	40	45	60	70
†Minimum Circuit Ampacity		19	21	26	30	37	43
<b>Compressor</b>	Rated load amps	12.2	13.5	16.1	17.9	23.7	28.8
	Locked rotor amps	61	73	88	104	129	169
<b>Condenser Coil Fan Motor</b>	Full load amps	1.1	1.1	1.1	2.0	2.0	2.0
	Locked rotor amps	2.3	2.3	2.3	4.2	4.2	4.2
<b>Evaporator Blower Motor</b>	Motor output - hp (W)	1/3 (249)	1/3 (249)	1/3 (249)	1/2 (373)	3/4 (560)	3/4 (560)
	Full load amps	2.2	3.0	3.9	4.6	4.6	4.6
	Locked rotor amps	4.6	6.2	8.3	10.1	10.1	10.1
<b>Induced Draft Blower Motor (1 phase) full load amps</b>		0.7	0.7	0.7	0.7	0.7	0.7

†Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.  
NOTE - Extremes of operating range are plus and minus 10% of line voltage.

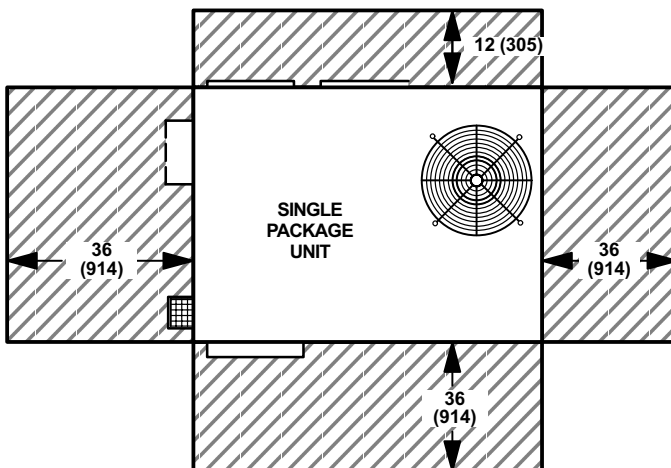
## ELECTRICAL DATA - 3 PHASE

General Data	Model No.	GCS20-036		GCS20-048		GCS20-060	
		208/230v	460v	208/230v	460v	208/230v	460v
Line voltage data - 60 hz - 3 phase		208/230v	460v	208/230v	460v	208/230v	460v
Rec. maximum fuse size (amps)		25	15	35	20	45	20
†Minimum Circuit Ampacity		18	10	24	13	29	15
<b>Compressor</b>	Rated load amps	10.3	5.1	13.5	7.4	17.3	9
	Locked rotor amps	77	39	120	49.5	123	62
<b>Condenser Fan Motor</b>	Full load amps	1.1	.8	2	1.1	2	1.1
	Locked rotor amps	2.3	1.9	4.2	2.2	4.2	2.2
<b>Evaporator Blower Motor (1 phase)</b>	Motor output - hp (W)	1/3 (249)	1/3 (249)	1/2 (373)	1/2 (373)	3/4 (560)	3/4 (560)
	Full load amps	3.9	1.9	4.6	2.4	4.6	2.4
	Locked rotor amps	8.3	4.2	10.1	5.0	10.1	5
<b>Induced Draft Blower Motor (1 phase) full load amps</b>		0.7	0.7	0.7	0.7	0.7	0.7

†Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.  
NOTE - Extremes of operating range are plus and minus 10% of line voltage.

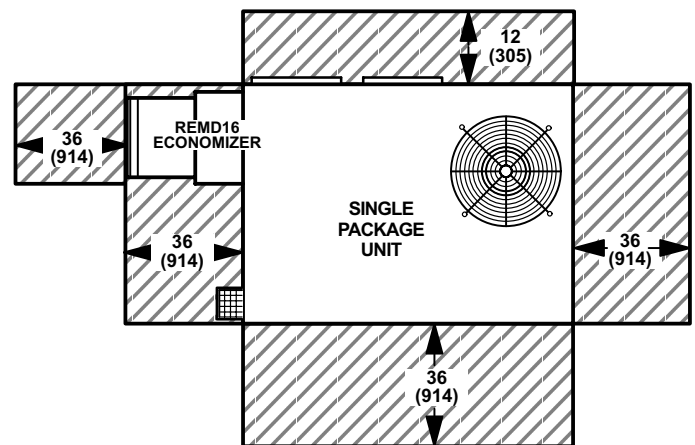
## INSTALLATION CLEARANCES - INCHES (MM)

GCS20 BASIC UNIT



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

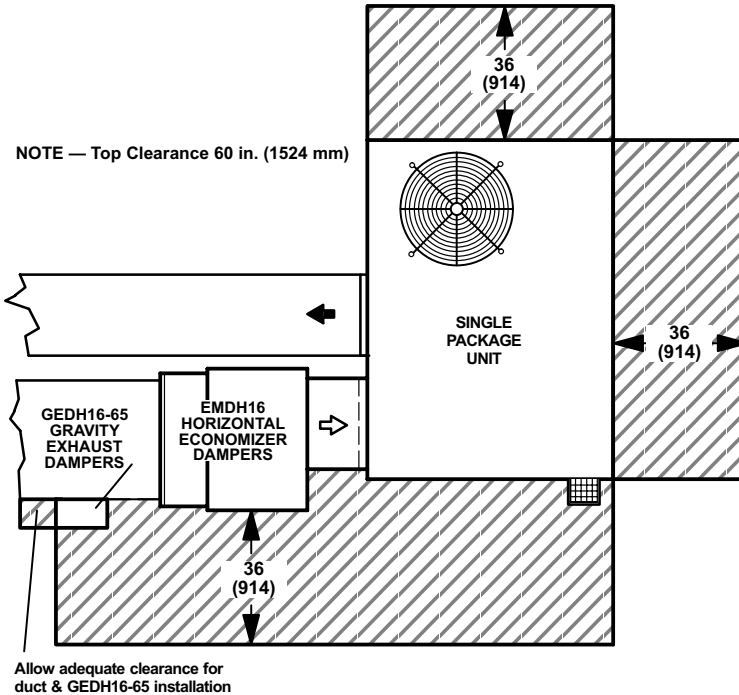
GCS20 UNIT WITH REMD16 ECONOMIZER



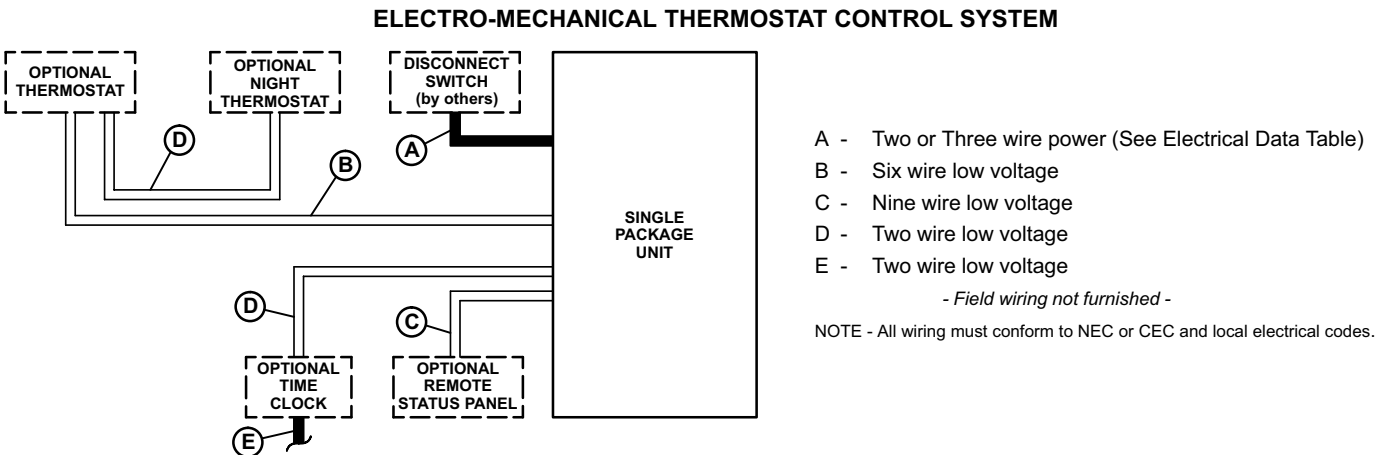
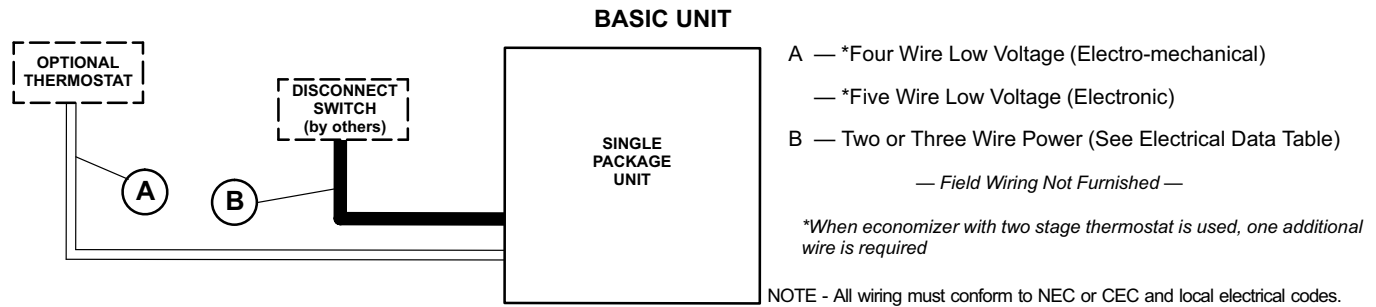
NOTE — Top Clearance 60 in. (1525 mm).

# INSTALLATION CLEARANCES - INCHES (MM)

## GCS20 UNIT WITH EMD16M HORIZONTAL ECONOMIZER AND GEDH16-65 GRAVITY EXHAUST DAMPER

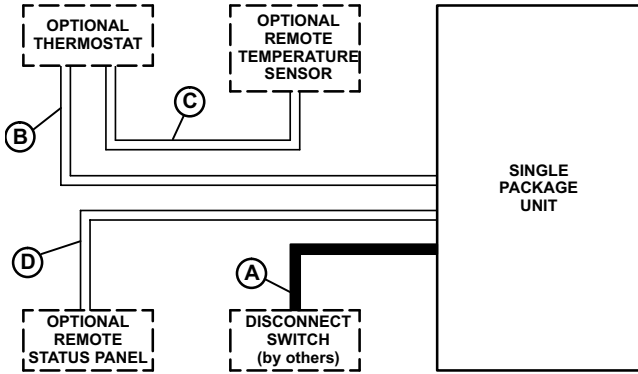


# FIELD WIRING



# FIELD WIRING

## T7300 THERMOSTAT CONTROL SYSTEM



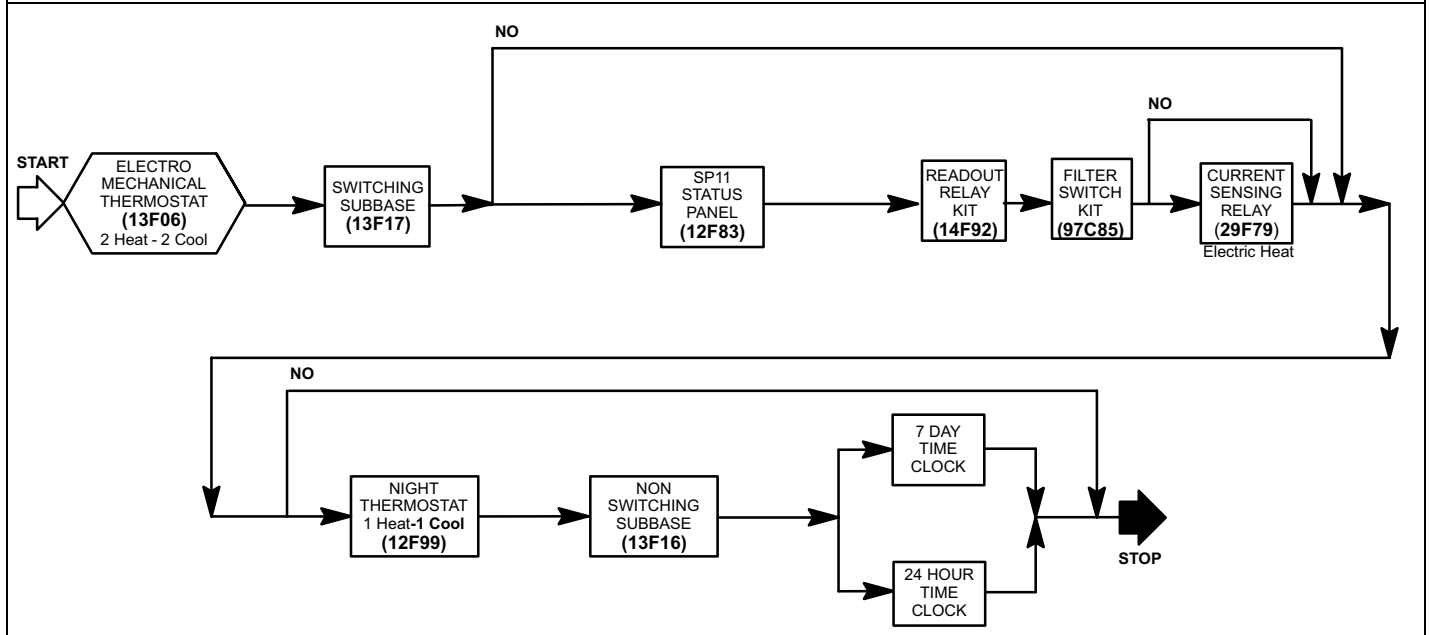
- A - Two or Three wire power (See Electrical Data Table)
- B - Nine wire low voltage
- C - Two wire low voltage
  - Seven wire low voltage (T7300 Room Sensor with override)
- D - Nine wire low voltage (T7300 with optional override sensor)
  - Four wire low voltage (T8600)

- Field wiring not furnished -

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

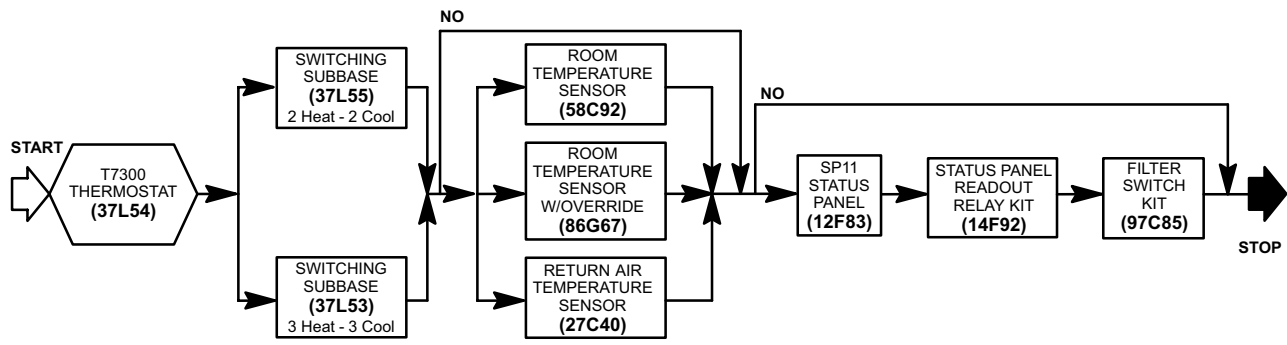
## OPTIONAL CONVENTIONAL TEMPERATURE CONTROL SYSTEMS (FIELD INSTALLED)

System and Component Description	Catalog No.
<b>ELECTRO-MECHANICAL THERMOSTAT</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>Status Panel</b> — May be ordered extra	<b>12F83</b>
<b>Night Setback Operation</b> — Order components below	—
<b>Thermostat</b> — One stage heat & one stage cool	<b>12F99</b>
<b>Subbase</b> — Non-switching	<b>13F16</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>

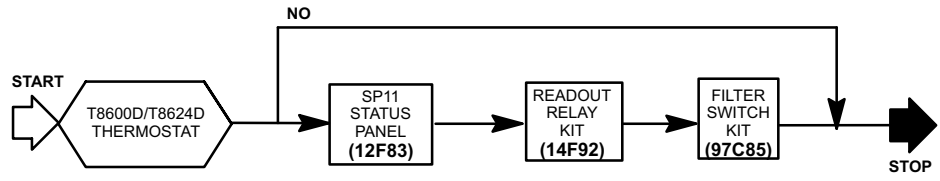


# OPTIONAL CONVENTIONAL TEMPERATURE CONTROL SYSTEMS (FIELD INSTALLED)

System and Component Description	Catalog No.	
<b>HONEYWELL T7300 THERMOSTAT</b>		
<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)	37L54	
<b>Subbase</b> — Selectable staging, indicator LED's, auxiliary relay output for economizer operation	Up to two stage heat & two stage cool	37L55
	Up to three stage heat & three stage cool	37L53
<b>Sensor</b> — Room temperature	58C92	
<b>Sensor</b> — Room temperature with 3 hour override and setpoint adjustment	86G67	
<b>Sensor</b> — Return air temperature	27C40	
<b>Status Panel</b> — May be ordered extra	12F83	



<b>HONEYWELL T8600D/T8624D THERMOSTAT</b>	
<b>Thermostat</b> — 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)	—
<b>T8600D Thermostat</b> — 1 heat/1 cool, 7 day programming, wiring wall plate included	37L59
<b>T8624D Thermostat</b> — 2 heat/2 cool, 7 day programming, switching subbase included	37L61
<b>Status Panel</b> — May be ordered extra	12F83



STATUS PANEL		
<b>SP11 Status Panel</b> — Allows remote monitoring of unit through status lights, requires Status Panel Readout Kit		
	<b>Status Light</b>	<b>Definition</b>
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
		12F83
<b>Status Panel Readout Kit</b> — Required to interface SP11 to unit operation		
		14F92
<b>Filter Switch Kit</b> — Required with Filter light option on SP11		
		97C85



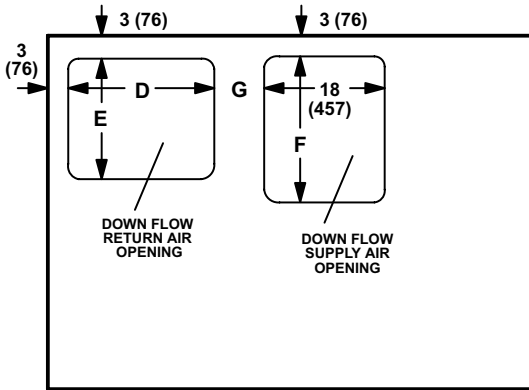
# DIMENSIONS - INCHES (MM) BASIC UNIT

## CORNER WEIGHTS

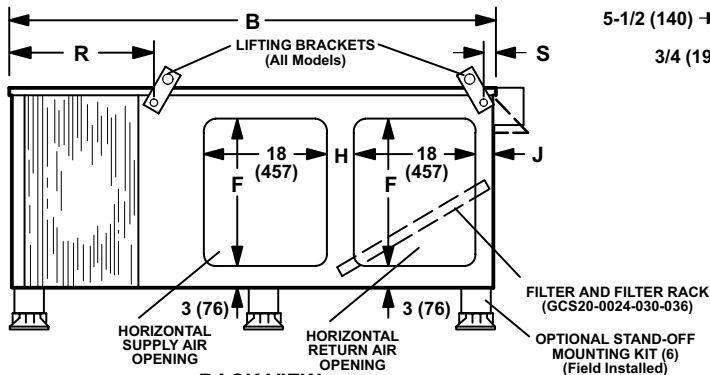
Model Number	AA		BB		CC		DD	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg
GCS20-024-030-036	88	40	75	34	111	51	131	60
GCS20-42	110	50	97	44	134	61	153	70
GCS20-048	117	53	103	47	143	65	163	74
GCS20-060	121	55	106	48	147	67	168	76

## CENTER OF GRAVITY

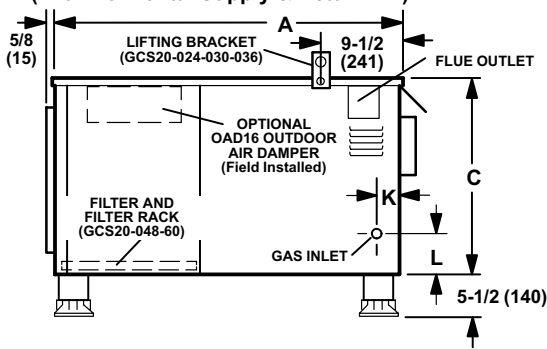
Model Number	EE		FF	
	inch	mm	inch	mm
GCS20-024-030-036	32-1/2	826	27-1/2	699
GCS20-042-048-060	38-5/8	981	30-1/4	768



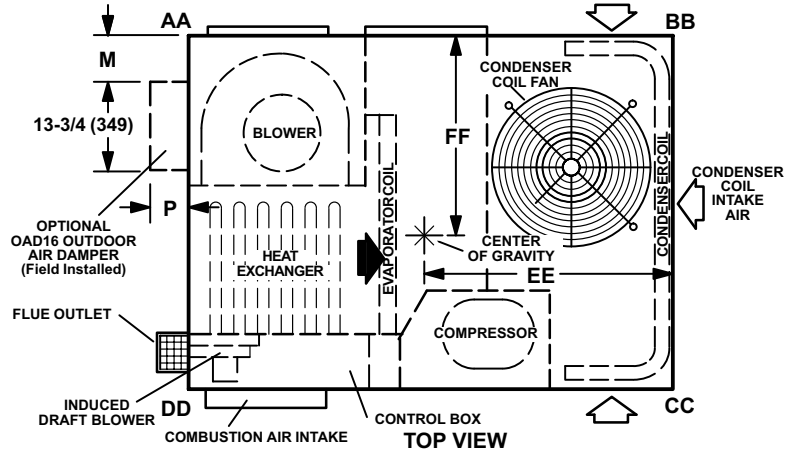
TOP VIEW BASE SECTION



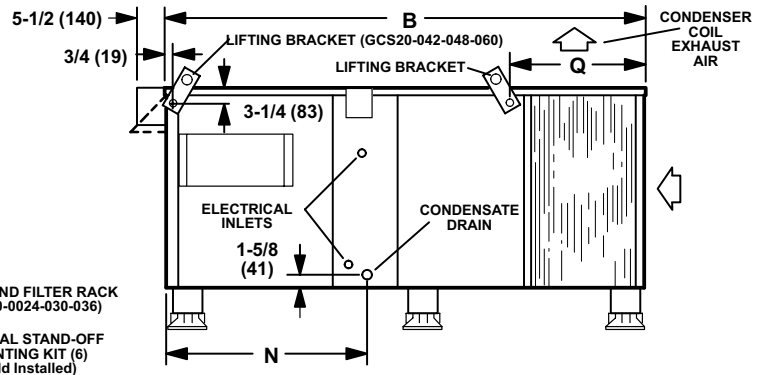
BACK VIEW  
(With Horizontal Supply & Return Air)



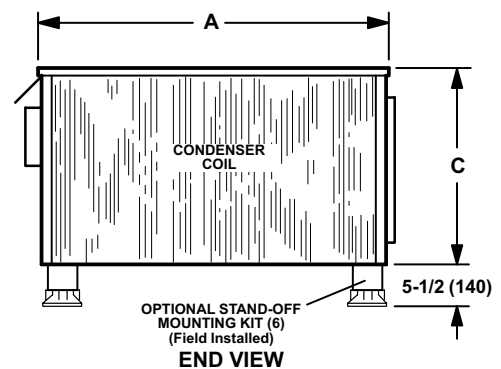
END VIEW



TOP VIEW



FRONT VIEW



END VIEW

Model No.	A		B		C		D		E		F		G		H		J	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
GCS20-024-030-036	46	1168	60	1524	23	584	18	457	13	330	13	330	10	254	3	76	4	102
GCS20-042-048-060	52	1321	72-1/2	1842	29	737	22	559	18	457	22	737	7-1/2	191	5	127	3	76

Model No.	K		L		M		N		P		Q		R		S	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
GCS20-024-030-036	2-1/4	57	10-5/8	270	2	51	26-3/4	679	5	127	20	508	20-5/16	516	4-1/8	105
GCS20-042-048-060	3-3/8	86	13-1/8	333	5	127	28	711	8	203	19-3/8	492	19-3/16	487	3/4	19

# ACCESSORY DIMENSIONS - INCHES (MM)

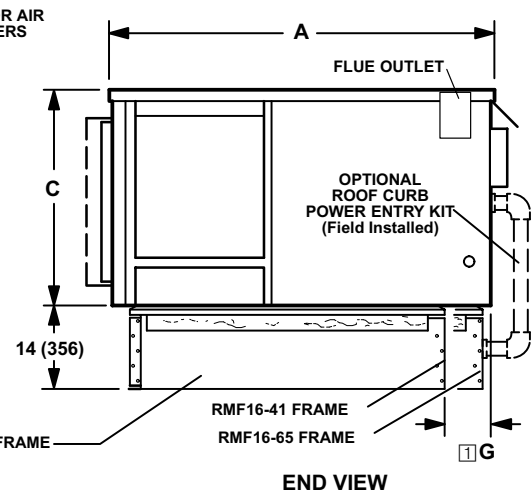
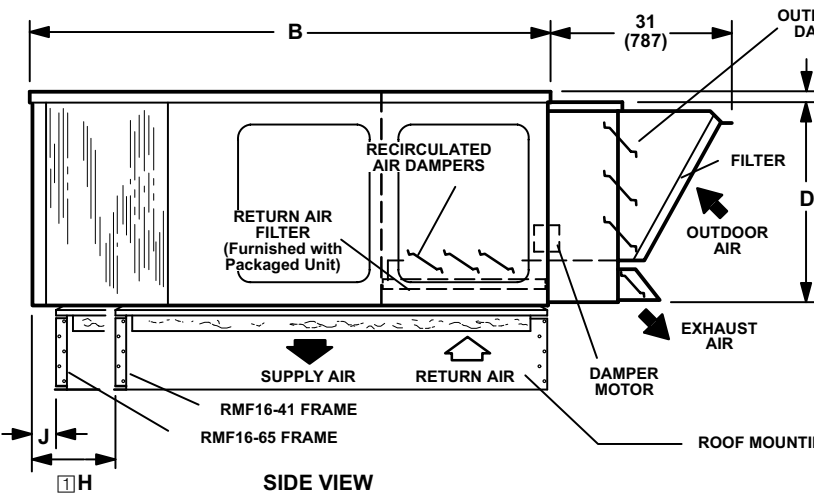
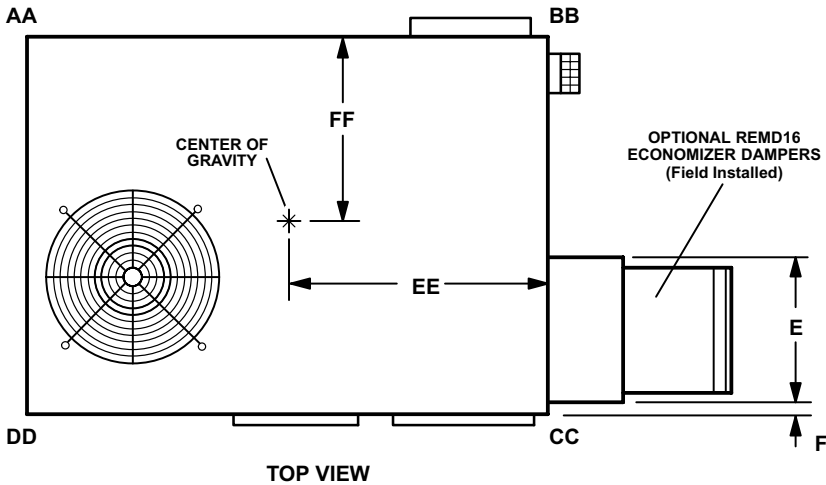
## GCS20 UNIT WITH REMD16 ECONOMIZER DAMPER SECTION AND RMF16 ROOF MOUNTING FRAME

### CORNER WEIGHTS

Model Number	AA		BB		CC		DD	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg
GCS20-024-030-036	126	57	172	78	143	65	105	48
GCS20-042-048	159	72	214	97	189	86	140	64
GCS20-060	162	74	219	99	193	88	143	65

### CENTER OF GRAVITY

Model Number	EE		FF	
	inch	mm	inch	mm
GCS20-024-030-036	25-3/8	645	20-7/8	530
GCS20-042-048-060	30-7/8	784	24-3/8	619

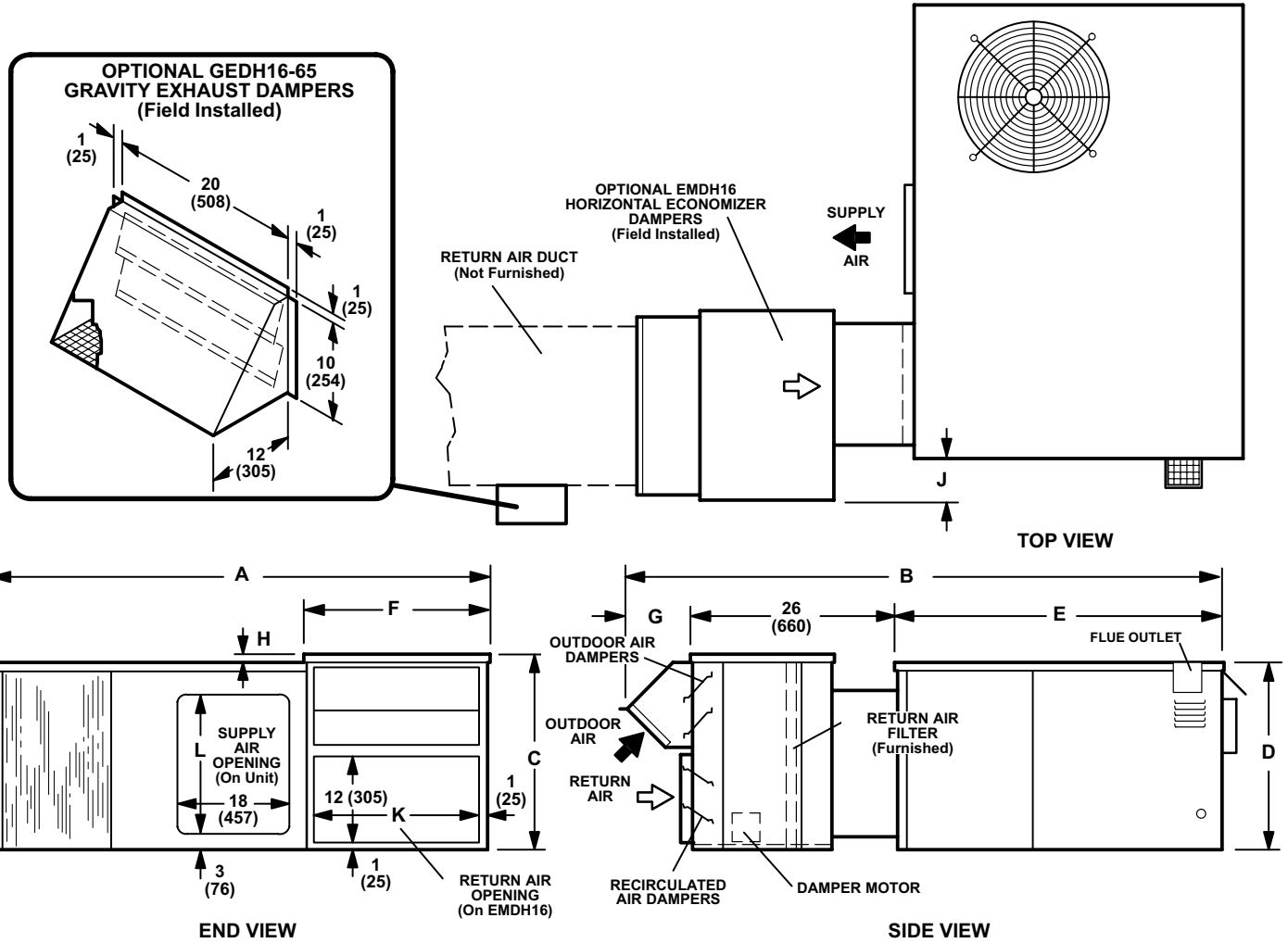


Model Number	A		B		C		D		E		F		G		H		J	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
GCS20-024-030-036	46	1168	60	1524	23	584	21-3/4	552	16-1/4	413	3/4	19	---	---	---	---	---	---
GCS20-042-048-060	52	1321	72-1/2	1842	29	737	27-3/4	705	20-7/16	519	1-1/2	38	7	178	16	406	3-1/2	89

☐ Dimensions reflect usage with RMF16-41 mounting frame.

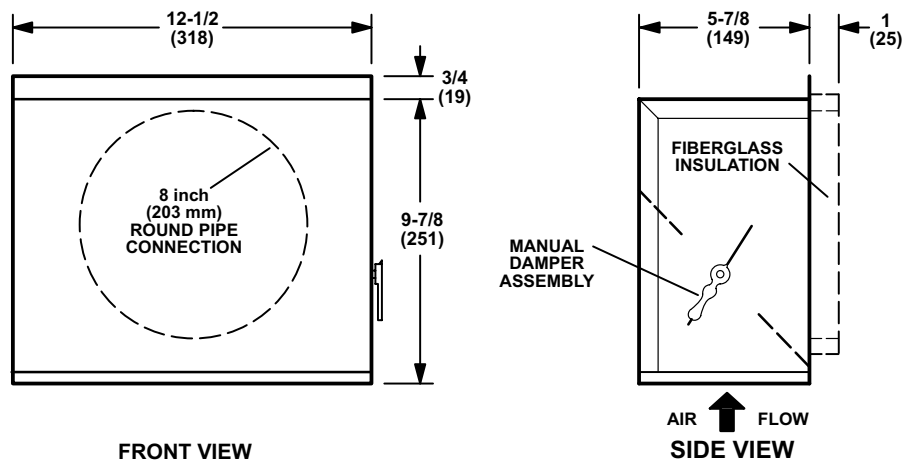
## ACCESSORY DIMENSIONS - INCHES (MM)

### GCS20 UNIT WITH EMDH16 HORIZONTAL ECONOMIZER DAMPER SECTION AND GEDH16-65 GRAVITY EXHAUST DAMPERS



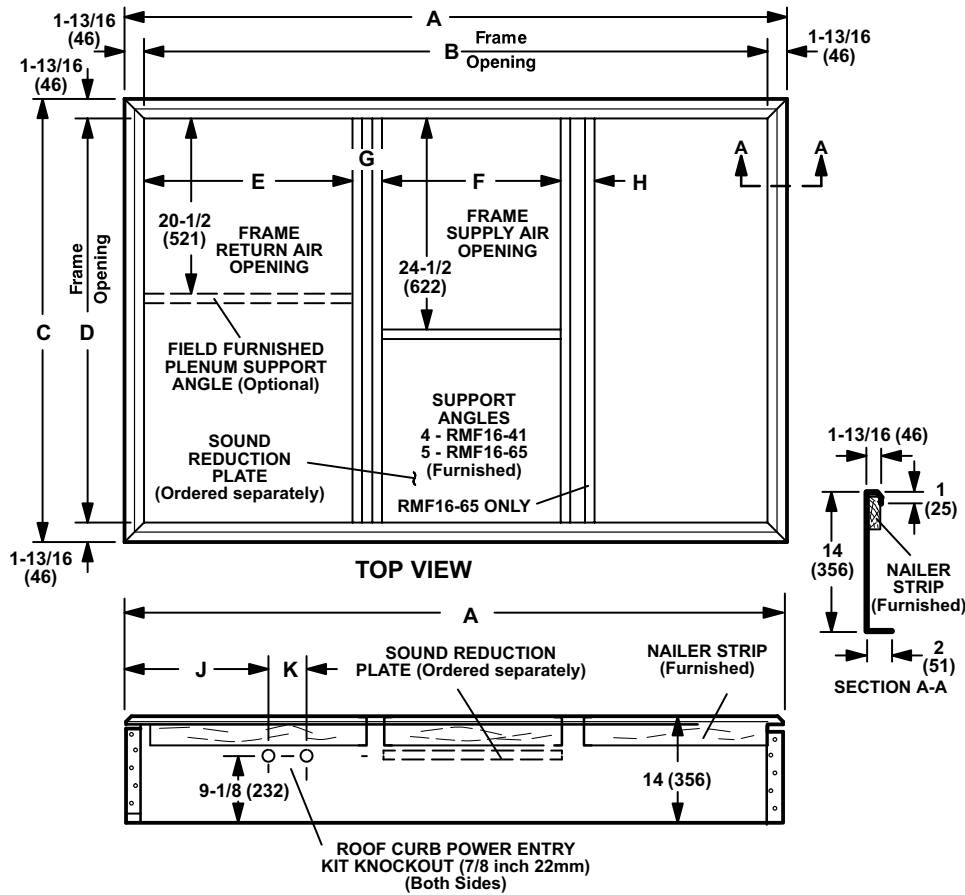
Model Number	A		B		C		D		E		F		G		H		J		K		L	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
GCS20-024 GCS20-030 GCS20-036	63	1600	81-1/2	2070	26	660	23	584	46	1168	26	660	9-1/2	241	3	76	3	76	24	610	13	330
GCS20-042 GCS20-048 GCS20-060	79-1/2	2019	90	8100	30-3/8	772	29	737	52	1321	30-1/2	775	12	305	1-1/2	38	7	178	28-7/8	733	22	559

### OAD3-46/65 MANUAL MINIMUM OUTDOOR AIR DAMPER



# ACCESSORY DIMENSIONS - INCHES (MM)

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



Model Number		RMF16-41	RMF16-65
A	inch	56-3/8	69
	mm	1432	1753
B	inch	52-3/4	65-3/8
	mm	1340	1661
C	inch	44-1/8	50-1/2
	mm	1119	1283
D	inch	40-1/2	46-7/8
	mm	1029	1191
E	inch	24-3/8	24-1/4
	mm	619	616
F	inch	20-9/16	20-1/2
	mm	522	521
G	inch	□4	4
	mm	□102	102
H	inch	---	4
	mm	---	102
J	inch	22-3/16	27
	mm	564	686
K	inch	4-1/2	5
	mm	114	127

□ 3-1/4 inches (83 mm) for GCS20-024-030-036.

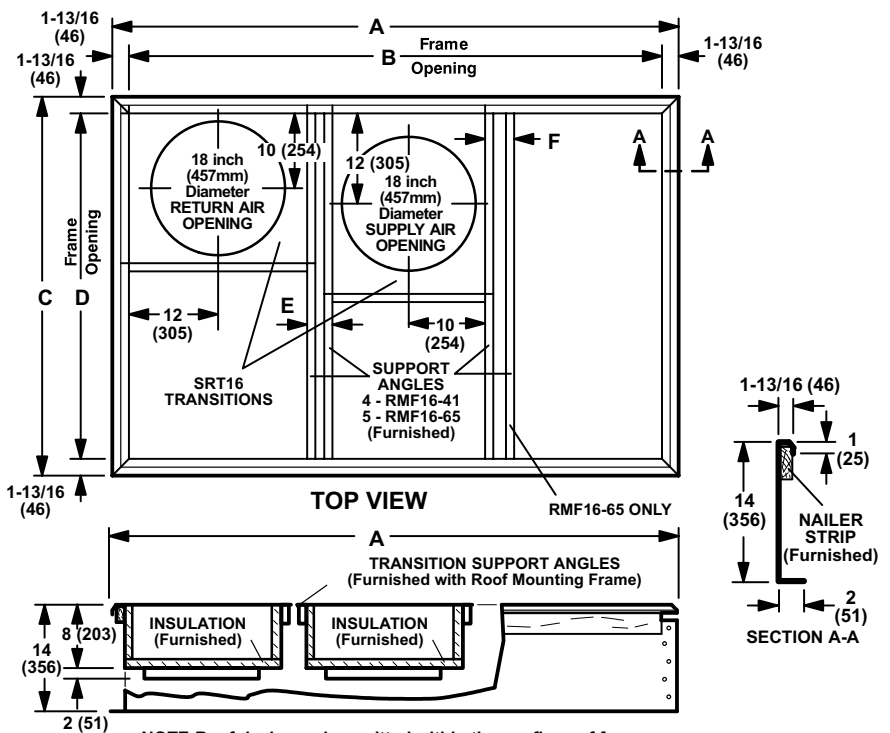
NOTE — Roof deck may be omitted within confines of frame.

### SIDE VIEW

## 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	inch	56-3/8	69
	mm	1432	1753
B	inch	52-3/4	65-3/8
	mm	1340	1661
C	inch	44-1/8	50-1/2
	mm	1119	1283
D	inch	40-1/2	46-7/8
	mm	1029	1191
E	inch	□4	4
	mm	□102	102
F	inch	---	4
	mm	---	102

□ 3-1/4 inches (83 mm) for GCS20-024-030-036.

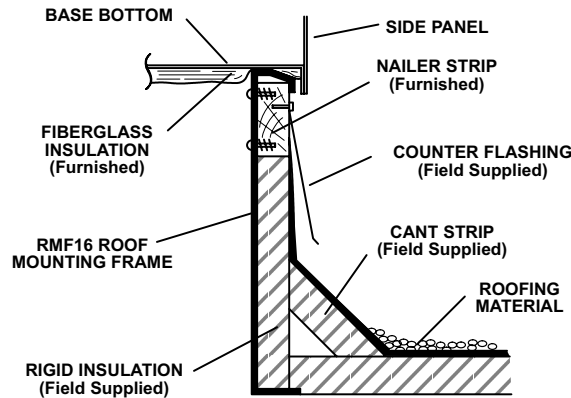


NOTE—Roof deck may be omitted within the confines of frame.

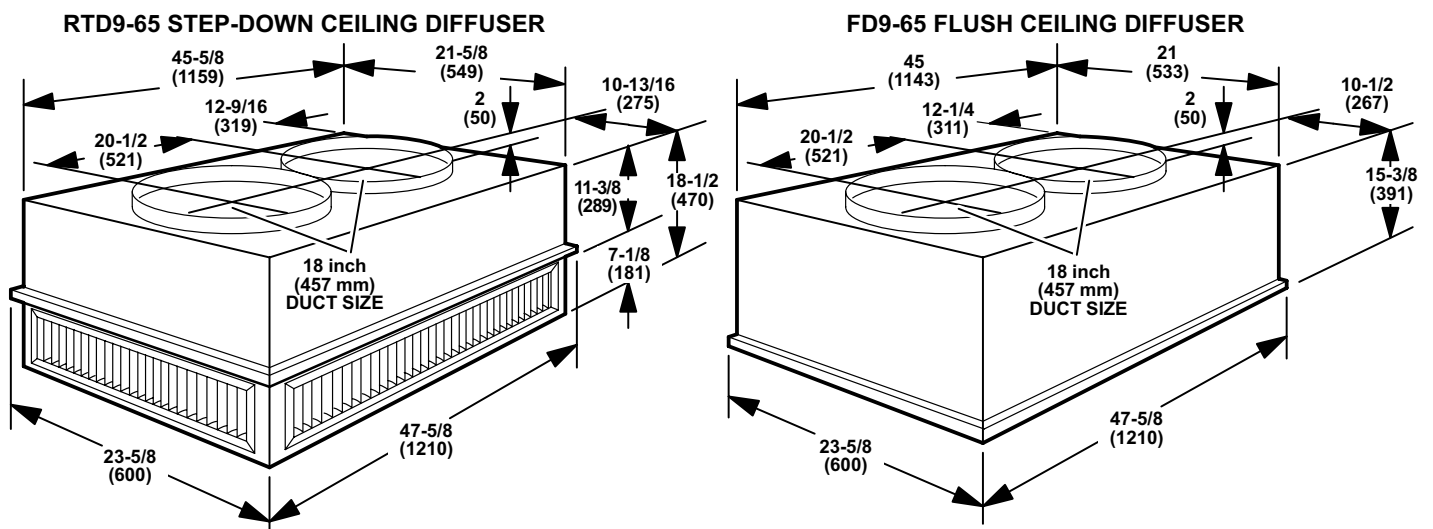
### SIDE VIEW

## ACCESSORY DIMENSIONS - INCHES (MM)

### TYPICAL FLASHING DETAIL FOR RMF16 ROOF MOUNTING FRAME



### COMBINATION CEILING SUPPLY AND RETURN DIFFUSERS



## GUIDE SPECIFICATIONS

### General

- Furnish and install a single package combination air to air DX 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. The manufacturer shall have parts and service available throughout the U.S..
- 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.

### Approvals

- All electrical components shall have UL and CSA Listing. All wiring shall be in compliance with NEC and CEC.
- Shall be certified by CSA International (formerly AGA/CGA) and ratings are certified by GAMA.
- Shall be rated and certified in accordance with the USE certification program, which is based on ARI Standard 210/240-94.

### Equipment Warranty

- Compressor (1 phase models) has a limited warranty for ten years in residential applications and five years in non-residential applications.
- Compressor (3 phase models) has a limited warranty for 5 years.
- Heat Exchanger have a limited warranty for fifteen years in residential applications and ten years in non-residential applications.
- All other covered components have a limited warranty for one year.
- Refer to the Lennox Equipment Limited Warranty certificate for details.

### 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 LPG/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. Single phase units shall have coil guards. Optional coil guards shall be available for three phase units.
- Compressors shall be resiliently mounted and have overload protection. 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.

## GUIDE SPECIFICATIONS - CONTINUED

### **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 1 inch (25 mm) 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.

### **Coil Guards**

- PVC (polyvinyl chloride) coated steel wire coil guards shall be available for field installation to protect outdoor coils (3 phase models only).

### **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 and pressure operated gravity exhaust 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.
- 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).

### **Hail Guards**

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

### **Horizontal Gravity Exhaust Dampers**

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

### **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.

### **Remote Switching Status Panel**

- Shall be available for installation within the conditioned area to control and observe equipment operation.
- The panel shall include signal lights for Cool Mode, Heat Mode, Compressor 1, Compressor 2, No Heat and Filter.
- System selector switch and fan switch shall provide operational mode and blower operation.
- After hours timer switch shall override night setback controls and provide normal operation for time period set.

### **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.
- Frame shall be approved by US National Roofing Contractors Association.

### **Stand-Off Mounting Kit**

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