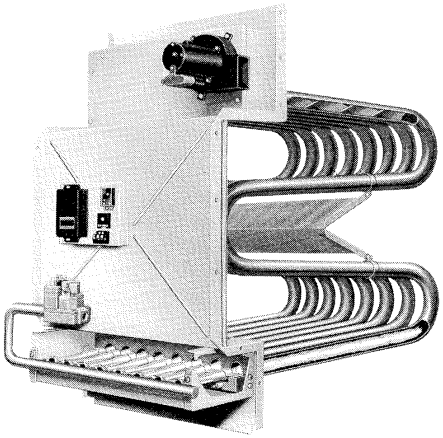
LENNOX

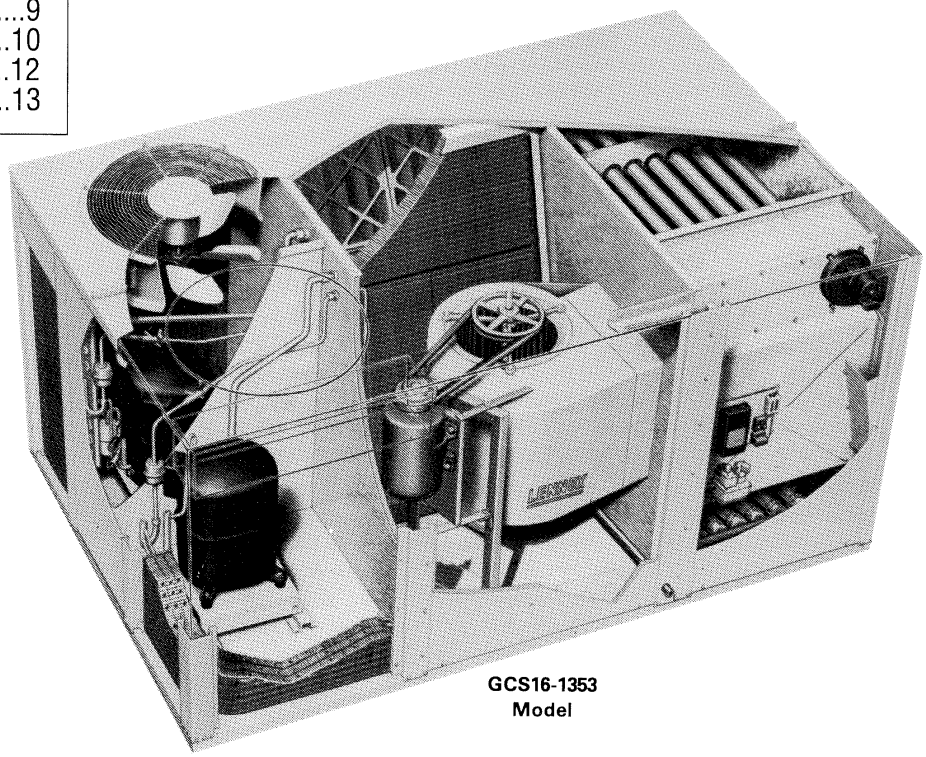
GCS16 SERIES SINGLE PACKAGE UNITS
ALL SEASON - DX COOLING & GAS HEATING
24 to 50kW Cooling Capacity
27 to 77kW Output Heating Capacity
- 50Hz-

ENGINEERING DATA
AIR CONDITIONING
Single Package
Gas Heat/DX Cool
November 1990

Contents

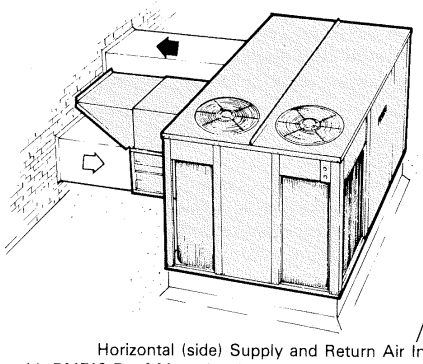


Tubular Heat Exchanger, Inshot Gas Burners, Induced Draft Blower and Gas Train.

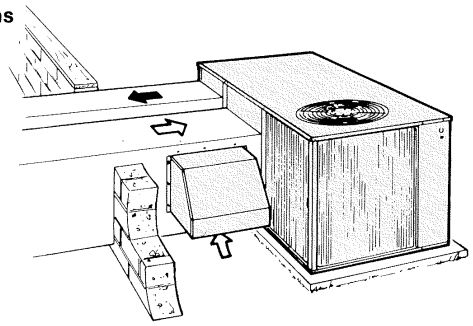


GCS16-1353 Model

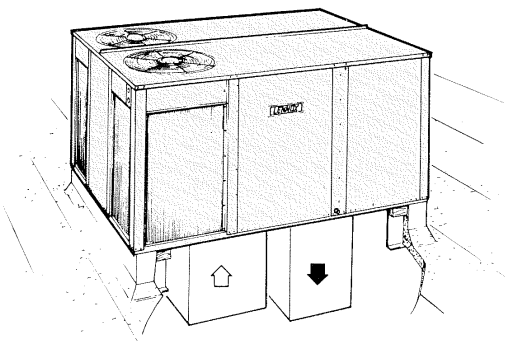
Typical Applications



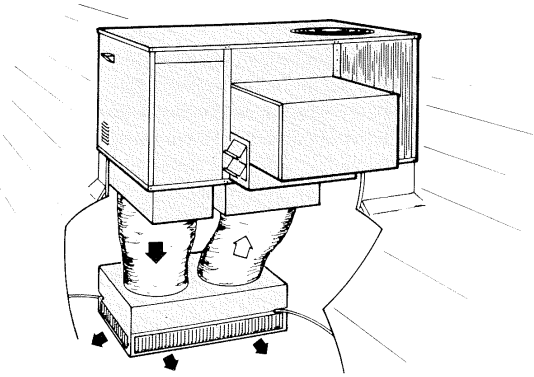
Horizontal (side) Supply and Return Air Installation with RMF16 Roof Mounting Frame and EMDH16M Economizer Dampers



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



Down-Flo Supply and Return Air Installation with RMF16 Roof Mounting Frame



Down-Flo Supply and Return Air Installation with RMF16 Roof Mounting Frame, REMD16M Economizer Dampers and RTD11 Ceiling Diffuser.

NOTE — Specifications, Ratings and Dimensions subject to change without notice.

FEATURES

Application — Lennox GCS16 series all season DX cooling and gas fired heating units are designed for bottom (down-flo) or side (horizontal) handling of supply and return air. A separate roof mounting frame mates to the unit base and when flashed into the roof permits weatherproof duct connections and entry into the conditioned area in down-flo applications. The units can also be installed at grade level with horizontal (side) duct connections. A choice of RTD11 step-down or FD11 flush ceiling diffusers are available for combination ceiling supply and return air distribution systems. Optional economizer dampers provide "free cooling" by using outdoor air in lieu of mechanical refrigeration. Thermostat and system controls are not furnished and must be ordered extra. Units are shipped factory assembled, piped and wired. Each unit is factory test operated insuring unit dependability.

Approvals — The design of the units with the Lennox roof mounting frame is A.G.A. certified as combination heating-cooling units for outdoor installation. GCS16-953 & 1353 models have been rated in the Lennox Research Laboratory environmental test room in accordance with ARI Standard 210-81. GCS16-953 & 1353 units have been sound rated in the Lennox sound test room in accordance with ARI Standard 270-84. GCS16-1603 and 1853 units have been rated in accordance with ARI Standard 360-86. Units and components within are bonded for grounding to meet safety standards for servicing required by U.L. and National Electrical Codes. Blower data is from tests conducted in the Lennox Laboratory air test chamber.

Rugged Tubular Heat Exchanger — Tubular heat exchanger is constructed of aluminized steel for superior resistance to corrosion and oxidation. Curving design allows complete exposure of heating surfaces to supply air stream. Round surfaces create minimum air resistance and allows air to wipe all surfaces for excellent heat transfer. Internal baffles prolong flue gas passage resulting in maximum heat transfer. Compact design reduces space requirement in unit cabinet. Removable cabinet panels allow service access. Heat exchanger has been laboratory life cycle tested.

Heating System — Aluminized steel inshot burners provide efficient, trouble free operation and are 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. Equipped with direct spark ignition. Spark is intermittent and occurs only when required. Electronic flame sensor controls assure safe and reliable operation. Should loss of flame occur, flame sensor controls will initiate 3 to 5 attempts at re-ignition before locking out unit operation. Redundant automatic dual gas valve has manual shut-off, pressure regulation and provides two stage operation. Induced draft blower prepurges heat exchanger and safely vents flue products. Centrifugal switch proves blower operation before allowing gas valve to open. Induced draft blower only operates during heating cycle. Flame rollout switch protects against loss of combustion air due to flue vent or intake air blockage. Peep hole with cover is furnished in cabinet access panel for flame viewing.

Weather Resistant Cabinet — Rugged cabinet is constructed of heavy gauge galvanized steel. Cabinet is subject to a five station metal wash process resulting in a perfect bonding surface for a paint finish of powder enamel, electrostatically bonded to the metal. Large removable cabinet panels allow service access. Base section and cabinet panels exposed to conditioned air are lined with thick fiberglass insulation. Electrical inlets are provided in cabinet base and condenser section cabinet panel for wiring entry. Control box with factory installed controls is conveniently located for service access. A low voltage terminal strip is provided in the control box for ease of field wiring connections. Lifting brackets are furnished for ease of handling and rigging. Evaporator coil condensate drain connection extends outside of cabinet for ease of connection.

Refrigeration System — Factory sealed refrigerant system consists of dual compressors, condenser coil and direct drive fan(s), evaporator coil (dual circuit) and belt drive blower, expansion valves, high capacity driers, thermometer wells, high pressure switch and loss of charge switch, refrigerant lines connected with a full operating charge of refrigerant. Factory installed freezestat prevents evaporator coil freeze-up during low ambient operation. Dual independent refrigerant circuits provide staging control to fit varying cooling loads.

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

Dependable Compressors — Rugged and reliable compressors are hermetically sealed. Suction cooled, overload protected, and equipped with internal pressure relief valve. Internally protected from excessive current and temperature. Immersible self-regulating type crankcase heater is temperature actuated to operate only when required and ensures proper lubrication at all times. GCS16-953 thru 1603 units have two compressors and GCS16-1853 unit has three. Compressor monitor (non-adjustable) prevents compressor operation when outdoor temperature is below 4.4°C. The entire running gear is spring mounted within the sealed housing. In addition, the compressors are installed on resilient rubber mounts in the unit, assuring quiet and vibration free operation. NB Overload resets automatically.

Powerful Supply Air Blower — Belt drive centrifugal blower delivers large air volume efficiently and with minimum power consumption. Blower wheel is heavy duty, with forward curved blades and double inlet. Wheel is statically and dynamically balanced to eliminate vibration and designed to give maximum air delivery. Bearings are heavy duty, self aligning, permanently sealed and lubricated. Design of motor mounting base permits quick and simple motor changeover, belt tension adjustment or belt changing. Adjustable motor pulley allows for variable speed adjustments. Motor is overload protected. See specifications table for motors and drives available.

Condenser Fan(s) — GCS16-953 is equipped with a single fan and the GCS16-1353, GCS16-1603 and GCS16-1853 have two. Direct drive fan(s) draw large air volumes uniformly through condenser coil and discharges it vertically. Fan orifice design and low fan tip speed keeps operating sound level at a minimum. Uniform air flow through the coil results in high refrigerant cooling capacity. Permanently lubricated, overload protected fan motor is totally enclosed for maximum protection from rain, dust and corrosion. Motor is resiliently mounted. Corrosion resistant PVC coated steel wire fan guard(s) are furnished.

Air Filters — Disposable frame type 51 mm thick filters are furnished as standard. Media is pleated non-woven cotton fabric for maximum efficiency. Filters are readily accessible for service. Filter rack is designed to accept one inch thick cleanable filters.

Fan and Limit Controls — Factory installed and accurately located. Fan time delay allows blower operation approximately 90 seconds after burner shut-off. Dual limit controls (primary and secondary) have fixed temperature setting and protect heating system from abnormal operating conditions.

Optional RMF16 Roof Mounting Frame — Sturdy mounting frame mates to the single package unit and provides an automatic weather sealed rooftop installation. Shipped knocked down for ease of shipping and handling it is easily field assembled. A nailer strip is secured to the frame sides to facilitate flashing.

Optional REMD16M Economizer Dampers — REMD16M-95, 135 & 160 are available for down-flo applications only. REMD16M-185 is used in down-flo or horizontal applications. The REMD16M economizer cabinet section consists of: recirculated air dampers, outdoor air dampers, damper motor and controls. Economizer section is factory assembled and wired and only requires field plug-in electrical connection. Cabinet is constructed of heavy gauge galvanized steel with a powdered enamel paint finish electrostatically bonded to the metal. Completely insulated with thick fiberglass insulation. Formed low leakage (less than 3%) dampers rotate smoothly in nylon bearings. Outdoor air damper blades are equipped with stainless steel seals for minimum air leakage. The positioning of the dampers is accomplished with a 24 volt fully modulating spring return damper motor with adjustable minimum damper positioner. Damper motor is controlled by the room thermostat, mixed air controller and solid-state adjustable outdoor air enthalpy control. The enthalpy control allows for 0 to 100% outdoor air (first stage of cooling) to be used for "free cooling" when outdoor humidity and temperature are acceptable. Additionally, an integrated economizer cycle can be accomplished by allowing the outside air dampers to remain open, continuing to admit outside air, and cycling the compressors to provide dehumidification and additional cooling, as needed. The integrated economizer cycle uses only the amount of mechanical cooling necessary. Two cleanable polyurethane media frame filters are furnished for extra air filtering and bird screen protection. Economizer section field installs on the unit cabinet. See dimension drawing. Provisions have been made in the economizer cabinet for easy field installation of optional GED16 gravity exhaust dampers.

FEATURES

Optional PED16-185 Power Exhaust Fans (GCS16-1853 Units Only) — Fans field install on REMD16M-185 economizer in down-flo applications and must be ordered extra. Fans provide pressure relief and are interlocked to run when return air dampers are closed and supply air blowers are operating. Motors are overload protected. See dimension drawing.

Optional EMDH16M Horizontal Economizer Dampers (GCS16-953, 1353 & 1603 Units Only) — The EMDH16M horizontal economizer cabinet section contains recirculated air dampers, outdoor air dampers, damper motor and controls. Economizer section field installs on the unit cabinet. Outdoor air hood is shipped separately and is field installed. Economizer is factory assembled and wired and only requires field plug-in connection. Cabinet is constructed of heavy gauge galvanized steel with a powdered enamel paint finish electrostatically bonded to the metal. Completely insulated with thick fiberglass insulation. Recirculated damper section of cabinet has flanged air openings for ease of duct connection. Formed low leakage (less than 3%) dampers rotate smoothly in nylon bearings. Outdoor air damper blades are equipped with stainless steel seals for minimum air leakage. The positioning of the dampers is accomplished with a 24 volt fully modulating spring return damper motor with adjustable minimum damper positioner. Damper motor is controlled by the room thermostat, mixed air controller and solid-state adjustable outdoor air enthalpy control. The enthalpy control allows for 0 to 100% outdoor air (first stage of cooling) to be used for "free cooling" when outdoor humidity and temperature are acceptable. Additionally, an integrated economizer cycle can be accomplished by allowing the outside air dampers to remain open, continuing to admit outside air, and cycling the compressors to provide dehumidification and additional cooling as needed. The integrated economizer cycle uses only the amount of mechanical cooling necessary. Two cleanable polyurethane media frame filters are furnished for extra air filtering and bird screen protection. See dimension drawing. Provisions have been made in the economizer cabinet for easy field installation of optional GED16 horizontal gravity exhaust dampers. Requires Optional Horizontal Supply and Return Air Kit for duct connection to unit. See Specifications table.

Optional GED16 Gravity Exhaust Dampers - Optional for use with REMD16M and EMDH16M-95, 135 & 160 economizer damper sections and must be ordered extra. Furnished as standard with REMD16M-185. Openings are provided in the economizer cabinet for easy field installation. See dimension drawing. Two exhaust dampers are furnished for installation on the economizer section. Neoprene coated fiberglass dampers prevent blow-back and outdoor air infiltration during off cycle. Bird screen is provided. Exhaust dampers are field installed on the return air duct adjacent to the unit in horizontal applications with REMD16M-185.

Optional Differential Enthalpy Control — A solid-state return air enthalpy sensor is available to be used with the outdoor air enthalpy control to determine which air has the lowest enthalpy. The air with the lowest enthalpy will be selected. Return air enthalpy sensor (54G44) field installs in the return air section and must be ordered extra.

Optional OAD16 Outdoor Air Damper Section — Damper section with factory installed and linked dampers field installs external to the unit cabinet and must be ordered extra. Interchangeable unit cabinet panel with opening for installation is furnished with damper for down-flo air applications. See unit dimension drawing for location. Damper section field installs in return air duct for horizontal supply and return air applications. A cleanable polyurethane media frame type air filter is furnished and factory installed. Dampers allow a fixed amount of outdoor air into the system and can be adjusted for air quantities up to 25%. Damper section is available for manual or automatic operation. Manually operated dampers may be adjusted and locked in place for the amount of air desired. Automatic operation is available with the addition of a spring return 3 position damper actuator. Actuator only requires plug-in connection for operation. Automatic OAD16 damper kit (35G21) must be ordered extra.

Optional Horizontal Supply & Return Air Kit — Provides horizontal supply and return air duct connection to the side of the unit. Kit contains duct connection flanges for field installation on the supply and return air openings, screws for installing, two filler panels for supply and return air openings in the unit base not being used and a filter access panel to replace the existing cabinet panel above the return air opening. Kit must be ordered extra. See specification table.

Optional RTD11 Combination Ceiling Supply and Return Diffuser Assembly — Step-down mount diffuser extends slightly below ceiling level and discharges conditioned air out through grilles on all four sides. Aluminum grilles are fitted with double deflection louvers for precise directional control of air flow. Return air enters through the large center grille. Assembly also includes insulated diffuser box with flanges for ease of duct connection, hanging rings for suspending and interior transition to insure low static and even air flow on all four sides. Transition is sealed internally to prevent recirculation. Diffuser assembly is completely factory assembled. Diffuser readily adapts to T-bar ceiling grids and plaster ceilings.

Optional FD11 Combination Ceiling Supply and Return Diffuser Assembly — Flush mount diffuser installs almost flush with the ceiling level and discharges conditioned air out through fixed blade louvers on all four sides. Fixed blade louvers insure that air flow will be evenly distributed. Return air enters through large center grille. Assembly also includes insulated diffuser box with flanges for ease of duct connections, support hanger eyelets at the top corners for secure installation and interior transition to insure low static and even air flow on all four sides. Transition is sealed internally to prevent recirculation. Diffuser assembly is completely factory assembled. Diffuser readily adapts to T-bar ceiling grids and plaster ceilings. Must be ordered extra, see specification table.

Optional SRT16 Supply and Return Transitions — Transitions field install in the roof mounting frame and provide segregated and simple duct connections to supply and return diffuser. Completely insulated galvanized steel transitions have flanges for ease of duct connection. Duct from the transitions to the diffuser is not furnished and must be provided by installer. Transitions are completely factory assembled and easily field installed in the roof mounting frame with minimum costs and labor requirements. Must be ordered extra, see specification table. SRT16-95 transitions are used with the RMF16-95 roof mounting frame, SRT16-135 is used with the RMF16-135/160 with the GCS16-1353. SRT16-160 is used with the RMF16-135/160 with the GCS16-1603 and SRT16-185 is used with the RMF16-185 with GCS16-1853.

Optional Bottom Power Entry Kit — Factory or field installed kit (LB-55757CA) is provided for bottom power entry into the unit within the confines of the roof mounting frame. Bottom power entry is furnished with GCS16-1603 model. Kit contains wiring junction box with cover (150mm × 203mm × 254mm), 1981mm length of armoured cable and necessary installing hardware. Galvanized steel junction box with prepunched mounting holes and electrical knockouts installs on electrical inlet openings located in the unit base. Kit (LB-55757CA) must be ordered extra. See basic unit dimension drawing.

Optional Low Ambient Control Kit — System will operate satisfactorily down to 10°C outdoor air temperature without additional controls. If air conditioning operation is required at low ambients a field installed low ambient kit can be added enabling the unit to operate down to −18°C. Kit (LB-57113BB) must be ordered extra.

Optional Timed-Off Control — Timed-off control available for field installation. Prevents compressor short-cycling. Automatic reset control will shut the compressor off and hold it for 5 minutes. Kit (LB-50709BA) includes two controls. 2 kits required and must be ordered extra.

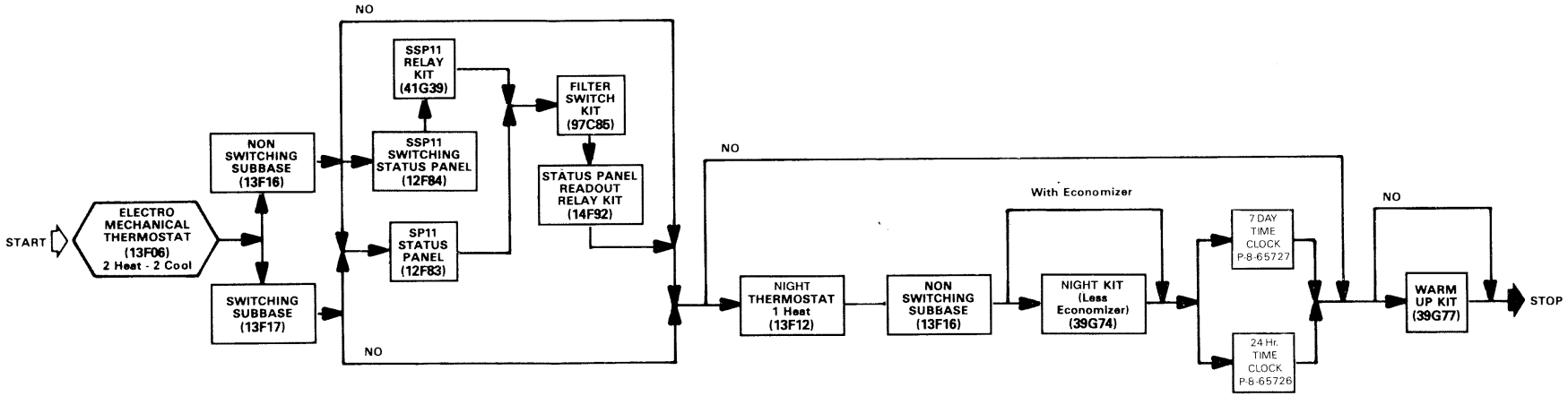
Optional SP11 Remote Status Panel — The operation of the unit can be checked at a glance on the Remote Status Panel (12F83) conveniently located within the conditioned area. Signal lights on the panel indicate "Cool Mode", "Heat Mode", "Compressor 1", "Compressor 2", "No Heat" and "Filter". The Cool Mode signal light is green when lit and indicates economizer damper operation or DX cooling operation for units without the economizer. Heat Mode light is green and reflects heating operation. Compressor 1 and Compressor 2 lights are green when operating and will turn red if there is an operational malfunction. The No Heat and Filter lights will show red and indicate a requirement for service. The following field installed controls are required for use with the status panel and must be ordered extra. Filter Switch Kit (97C85) is required for operation of the filter light. Status Panel Readout Relay Kit (14F92) is required to interface status panel with unit operation.

Optional SSP11 Remote Switching Status Panel — The operation of the unit can be controlled and observed on the Switching Status Panel (12F84) conveniently located within the conditioned area. Signal lights on the panel indicate "Cool Mode", "Heat Mode", "Compressor 1", "Compressor 2", "No Heat" and "Filter". The Cool Mode signal light is green when lit and indicates economizer damper operation or DX cooling operation for units without the economizer. Heat Mode light is green and reflects heating operation. Compressor 1 and Compressor 2 lights are green when operating and will turn red if there is an operational malfunction. The No Heat and Filter lights will show red and indicates a requirement for service. Additionally, panel is equipped with a system selector switch (Off — Heat — Auto — Cool — Emergency Heat) (Heat Pump Only), fan switch (Auto — On) and after hours timer. Fan switch provides a choice of intermittent (Auto) or continuous (On) blower operation. Manually operated after hours timer (0 to 12 hours) overrides night setback controls providing normal operation for time period set. A momentary push button switch is used to initiate the timer period. The following field installed controls are required for use with the status panel and must be ordered extra. Filter Switch Kit (97C85) is required for operation of the filter light. Status Panel Readout Relay Kit (14F92) is required to interface status panel with unit operation.

CONTROL SYSTEM OPTIONS

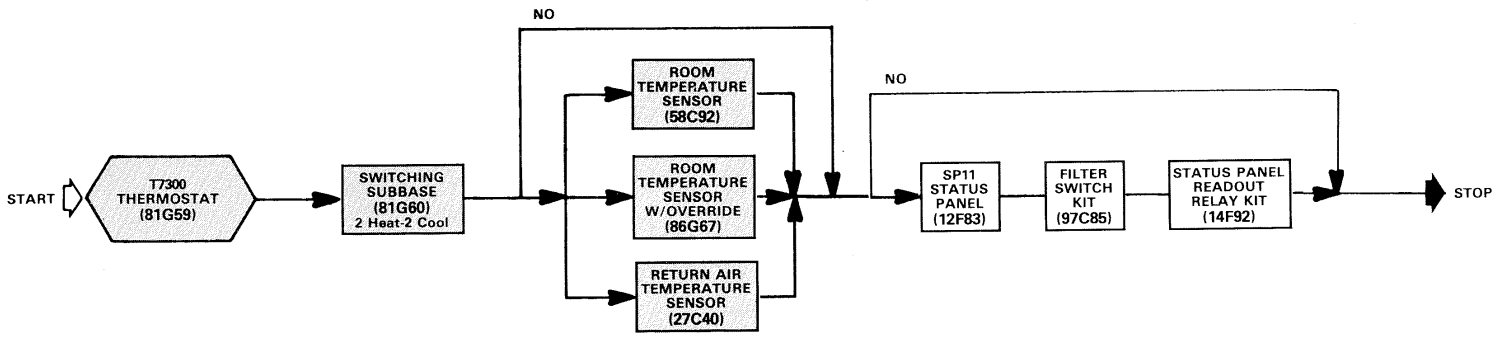
Optional Electro-Mechanical Thermostat and Controls System — The thermostat and related controls of this system must be ordered extra for field installation. Two stage heat and two stage cool thermostat (13F06) with dual temperature selector levers. Uses subbase (13F17) with manual system switch (Off-Heat-Auto-Cool) and fan switch (Auto-On) or non-switching subbase (13F16). SP11 Remote Status Panel (12F83) or SSP11 Remote Switching Status Panel (12F84) is available for observing and controlling unit operation from the conditioned area. A SSP11 Relay Kit (41G39) is required for switching functions of the Switching Status Panel. Kit must be ordered extra and field installed. For night operation the following are available. Single stage heating thermostat (13F12) and non-switching subbase (13F16). For applications without the economizer a Night Kit (39G74), containing a plug-in relay, is required to override the operation of day thermostat. Two time clocks are available for the system, both have nickel cadmium battery to provide approximately 150 hours running reserve during periods of supply failure or disconnection. The 24 hour model (P-8-65726) can give minimum switching periods of 30 minutes and is normally supplied with 4 pairs of tappets. The 7 day model (P-8-65727) can provide a minimum switching period of 3 hours and is normally supplied with 9 pairs of tappets. Day omission is achieved on 7 day dial by omitting tappets.

Also available is a Warm Up Kit (39G77) which holds the economizer outdoor air dampers closed during night operation and morning warm up. See Flow Chart.



OPTIONAL T7300 THERMOSTAT CONTROL SYSTEM

Optional T7300 Thermostat and Control System — The thermostat and related controls of this system must be ordered extra for field installation. T7300 programmable thermostat (81G59) has internal or optional remote temperature sensing, touch sensitive keyboard, automatic switching from heat to cool, °F or °C temperature readout, no anticipator, droop/no droop selection, indicator LED's, hour/day programming, override capabilities, time readout, stage status indicators, operational mode readout and battery back-up. T7300 thermostat has a choice of subbases. Switching subbase (81G60) features selectable output staging up to two heat and two cool, indicator LED's, manual system switch (Heat-Off-Auto-Cool) and fan switch (Auto-On). Switching subbase (13H76) features selectable output staging up to three heat and two cool, indicator LED's, manual system switch (Auto-Cool-Off-Heat-Emergency Heat) (Heat Pump Only) and fan switch (Auto-On). Both subbases also features an auxiliary relay output which controls economizer operation during occupied and unoccupied periods. Also available is a Room Temperature Sensor (58C92) or Room Temperature Sensor with 3-hour override and setpoint adjustment (86G67) for installation in the conditioned area and a Return Air Temperature Sensor (27C40) for installation in the return air duct of the unit. SP11 Status Panel (12F83) is available for checking unit operation from within the conditioned area. See Flow Chart.



SPECIFICATIONS

Model No.			GCS16-953	GCS16-1353	GCS16-1603
Two stage heating capacity (natural gas)	Input (low) — kW		34.7	43.3	43.3
	Output (low) — kW		26.9	34.7	34.6
	Input (high) — kW		55.1	68.6	68.5
	Output (high) — kW		44.0	54.8	54.8
Two stage heating capacity (LP gas)[1]	Input (low) — kW		34.7	43.3	43.3
	Output (low) — kW		26.9	34.6	34.6
	Input (high) — kW		48.2	79.1	79.1
	Output (high) — kW		39.0	64.4	64.4
ARI [2] standard 210 test conditions	Total cooling capacity (kW)		24.0	32.4	38.4
	Total power input (kW)		9.1	12.1	15.21
	C.O.P. output/input		2.6	2.6	2.52
	Energy efficiency ratio		8.8	8.9	8.61
	Dehumidifying capacity		23%	21%	25%
ARI standard 270 SRN (Bels)			8.4	8.6	—
Refrigerant charge R22		Stage 1 (kg)	2.7	3.2	3.8
		Stage 2 (kg)	2.7	3.2	3.8
Evaporator blower	Voltage (V) & phase		208/230/460-3	208/230/460-3	208/230/460-3
	Blower wheel diameter & width		305mm×305mm	381mm×381mm	381mm×381mm
	Motor power kW (hp)		1.1 (1.5) 1.5 (2.0)	1.5 (2.0) 2.2 (3)	2.2 (3.0)
	rpm range		800-1005 915-1150	740-925 835-1020	835-1020
Evaporator coil	Net face area (m^2)		0.72	0.88	1.11
	Tube dia (in) number of rows		⅜-3	⅜-3	⅜-3
	Fins per metre		551	472	472
Condenser coil	Net face area (m^2)		1.46	1.86	2.27
	Tube dia (in) number of rows		⅜-2	⅜-2	⅜-2
	Fins per metre		787	787	787
Condenser fan(s)	Diameter (mm) & no. of blades		610-4	(2) 508-5	(2) 558-4
	Air volume (m^3/s)		2.1	2.9 total	3.5 total
	Motor output (W)		373	(2) 249	(2) 373
	Motor input (W)		385	520 total	770 total
Gas connection	Natural (in)		¾	¾	¾
	LPG (in)		¾	¾	¾
Recommended gas supply pressure (mbar)		Natural	17.5	17.5	17.5
		LPG	27.5	27.5	27.5
Optional LPG conversion kit			LB.55755BA	LB.55755BA	LB.55755BA
Condensate drain size mpt (in)			¾	¾	¾
Number and size (mm) of filters			(4) 406×508×50	(4) 406×635×50	(4) 508×635×50
Net weight of basic unit (kg)			398	500	585
Electrical characteristics			208/230 to 460 volt - 50 Hz - 3 phase		
Optional roof mounting frame (kg)			RMF16-95 (48.6)	RMF16-135/160 (54)	RMF16-135/160 (54)
Optional Economiser dampers (kg)			REMD16M-95 (53.6)	REMD16M-135 (56.8)	REMD16M-160 (63.6)
Number & size of filters			(2) 406×635×25	(2) 406×635×25	(2) 508×635×25
Optional exhaust dampers (kg)			GED16-95/135/160 (2.3) use with REMD16M		
Optional horizontal Economiser dampers (kg)			EMDH16M-95 (54.5)	EMDH16M-135 (62.2)	EMDH16M-160 (66.8)
Number & size of filters			(2) 406×635×25	(2) 406×635×25	(2) 508×635×25
Optional horizontal exhaust dampers (kg)			GEDH16-95/135/160 (3.1) use with EMDH16M		
Optional horizontal supply & return air kit (kg)			LB.55756BA (13.6)	LB.55756BB (16.0)	LB.55756BC (70)
Optional bottom power entry kit (kg)			LB.55757CA (5.4)	LB.55757CA (5.4)	Furnished
Optional ceiling supply and return air diffusers (kg)		Step-down	RTD11-95 (40)	RTD11-135 (56.8)	RTD11-185 (178)
		Flush	FD11-95 (34)	FD11-135 (43)	FD11-185 (131)
		Transitions	SRT16-95 (13)	SRT16-135 (17.2)	SRT16-160 (32)
Optional outdoor air dampers (kg)			OAD16-95 (18.6)	OAD16-135 (19.5)	OAD16-160 (20.4)
Number & size of filters (mm)			(1) 406×508×25	(1) 406×508×25	(1) 406×508×25
Optional automatic OAD16 damper kit (kg)			35G21 (3.2)	35G21 (3.2)	35G21 (3.2)

1) For LPG models a field conversion kit is required and must be ordered extra.
2) Rated at 35°C outdoor air temperature, 26.6°C db/19.4°C wb entering evaporator air.

GCS16-1853
SPECIFICATIONS

Model No.			GCS16-1853-235	GCS16-1853-330
Two Stage Heating Capacity (Natural Gas Only)	Input (Low) - kW		42.5	60.0
	Output (low) - kW		34.0	46.8
	Input (high) - kW		68.8	96.7
	Output (high) - kW		55.1	75.4
Two Stage Heating Capacity (**LPG Gas Only)	Input (low) - kW		48.0	69.4
	Output (low) - kW		38.4	55.5
	Input (high) - kW		68.5	96.7
	Output (high) - kW		54.8	77.3
*ARI Standard 360 Ratings	Total cooling capacity (kW)		50.1	
	Total unit kW		18.2	
	Energy Efficiency Ratio		9.3	
	Dehumidifying capacity		26%	
Refrigerant (22) charge	Stage 1 - kg		3.4	
	Stage 2 - kg		3.4	
	Stage 3 - kg		3.4	
Evaporator Blower and Drive Selection	Blower wheel nominal diameter x width (mm)		457 x 457	
	Factory Installed †Drives	Nominal motor kW (hp)	2.24 (3)	
		Maximum usable kW (hp)	2.57 (3.45)	
		Voltage & Phase	208/230/460v-3ph	
		RPM range	610 — 780	
	Optional Factory Installed †Drives	Nominal motor kW (hp)	3.73 (5.0)	
		Maximum usable kW (hp)	4.28 (5.75)	
		Voltage & Phase	208/230/460v-3ph	
		RPM Range	770 — 980	
Evaporator Coil	Net face area (m^2)		1.48	
	Tube diameter (in.) & No. of rows		3/8 — 3	
	Fins per metre		512	
Condenser Coil	Net face area (m^2)		2.83	
	Tube diameter (in.) & No. of rows		3/8 — 2	
	Fins per metre		787	
Condenser Fan(s)	Diameter (mm) & No. of blades		(2) 660 - 4	
	Air volume m^3/s		4.72 Total	
	Motor output. (W)		(2) 1492 Total	
	Motor watts Input. (W)		1825	
Gas Supply Connections fpt (in.)	Natural		3/4	
	**LPG		3/4	
Recommended Gas Supply Pressure (m bar)	Natural		17.5	
	**LPG		27.5	
**Optional LPG Conversion Kit			LB-81509DA	
Condensate drain size mpt (in.)			1	
No. & size of filters (mm)			(4) 588 x 588 x 51	
Net weight of basic unit (kg.) (1 Package)			786	
Electrical characteristics			208/230 to 460 volt - 50 Hz - 3 phase	
Optional Roof Mounting Frame — (Net Weight)			RMF16-185 (57.7 kg.)	
Optional Economizer Dampers with Gravity Exhaust — (Net Weight) No. & size of filters (mm)			REMD16M-185 (72.7kg.) (2) 613 x 613 x 51	
Optional Power Exhaust Fans (Down-Flo Only)	Model No. — (Net weight)		PED16-185 (27.2 kg.)	
	Diameter (mm) & No. of blades		406 - 5	
	Total air volume (m^3/s)		1.979	
	Motor output (W)		(2) 187	
	Watts input (total)		500	
Optional Horizontal Supply and Return Air Kit — (Net Weight)			LB-55756BD (23.6 kg.)	
Optional Ceiling Supply and Return Air Diffusers (Net Weight)		Step-down	RTD11-185 (178 kg.)	
		Flush	FD11-185 (131.3 kg.)	
		Transition	SRT16-185 (34 kg.)	
Optional Outdoor Air Dampers — (Net Weight) No. & size of filters (in.)			OAD16-185 (54.5 kg.) (1) 635 x 686 x 51	
Optional Automatic OAD16 Damper Kit — (Net Weight)			35G21 (3.2 kg.)	

* Rated in accordance with ARI Standard 360; 35°C outdoor air temperature and 26°C db/19°C wb entering evaporator air; minimum external duct static pressure.

**For LPG models a field conversion kit is required and must be ordered extra.

†Using total air volume and system static pressure requirements determine from blower performance tables rpm and bhp required. Maximum usable hp of motors furnished by Lennox are shown. If motors of comparable hp are used be sure to keep within the service factor limitations outlined on the motor nameplate.

COOLING RATINGS

NOTE - To determine sensible capacity, leaving wet bulb and dry bulb temperatures not shown in the tables, see Accessories Section, Correction Factor Data.

GCS16-953 COOLING CAPACITY (With One Compressor Only Operating)

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Temperature																					
			18°C (65°F)						24°C (75°F)						29°C (85°F)						35°C (95°F)			
			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T) Dry Bulb		
	m³/s	cfm	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F
17.2°C (63°F)	1.25	2700	12.9	44 000	2.93	.73	.87	1.00	12.4	42 300	3.06	.74	.88	1.00	11.8	40 400	3.23	.75	.90	1.00	11.3	38 500	3.44	.77	.93	1.00
	1.40	3000	13.2	44 900	2.93	.75	.89	1.00	12.6	43 100	3.07	.76	.91	1.00	12.1	41 200	3.25	.79	.94	1.00	11.5	39 300	3.46	.79	.96	1.00
	1.55	3300	13.4	45 600	2.94	.77	.92	1.00	12.8	43 800	3.08	.78	.94	1.00	12.3	41 900	3.26	.80	.97	1.00	11.8	40 100	3.48	.82	.99	1.00
19.4°C (67°F)	1.25	2700	13.9	47 400	2.95	.57	.70	.88	13.3	45 400	3.10	.57	.71	.84	12.7	43 400	3.29	.58	.73	.86	12.1	41 300	3.52	.59	.74	.89
	1.40	3000	14.1	48 200	2.95	.58	.72	.86	13.5	46 200	3.11	.59	.73	.88	12.9	44 100	3.30	.60	.75	.90	12.3	41 900	3.54	.61	.77	.92
	1.55	3300	14.3	48 800	2.96	.59	.74	.89	13.7	46 800	3.11	.60	.75	.91	13.1	44 600	3.31	.61	.77	.93	12.4	42 400	3.55	.62	.79	.96
21.7°C (71°F)	1.25	2700	14.9	51 000	2.97	.43	.55	.67	14.3	48 900	3.14	.43	.56	.68	13.7	46 700	3.35	.43	.56	.70	13.0	44 400	3.61	.43	.57	.71
	1.40	3000	15.2	51 800	2.98	.43	.56	.69	14.5	49 600	3.15	.43	.57	.70	13.9	47 300	3.37	.43	.58	.72	13.2	44 900	3.62	.44	.59	.74
	1.55	3300	15.4	52 400	2.98	.43	.57	.71	14.7	50 200	3.16	.44	.58	.73	14.0	47 800	3.38	.44	.59	.75	13.3	45 400	3.64	.44	.61	.77

GCS16-953 TOTAL COOLING CAPACITY (With Both Compressors Operating)

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Temperature																					
			29°C (85°F)						35°C (95°F)						41°C (105°F)						46°C (115°F)			
			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T) Dry Bulb		
	m³/s	cfm	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F
17.2°C (63°F)	1.25	2700	23.4	79 800	6.81	.75	.90	1.00	22.1	75 500	7.33	.75	.92	1.00	20.8	71 100	7.95	.79	.96	1.00	19.4	66 100	8.70	.82	1.00	1.00
	1.40	3000	23.8	81 200	6.86	.77	.93	1.00	22.5	76 900	7.39	.79	.96	1.00	21.1	72 100	8.02	.82	1.00	1.00	19.8	67 700	8.84	.85	1.00	1.00
	1.55	3300	24.2	82 600	6.90	.80	.97	1.00	22.8	77 900	7.44	.82	1.00	1.00	21.6	73 600	8.13	.85	1.00	1.00	20.3	69 100	8.97	.88	1.00	1.00
19.4°C (67°F)	1.25	2700	24.9	84 900	7.00	.58	.72	.86	23.4	80 000	7.56	.59	.74	.89	22.0	74 900	8.23	.60	.77	.92	20.4	69 700	9.01	.62	.80	.96
	1.40	3000	25.2	86 000	7.04	.59	.75	.90	23.7	81 000	7.61	.60	.77	.93	22.2	75 800	8.28	.62	.80	.97	20.6	70 400	9.09	.64	.83	1.00
	1.55	3300	25.5	86 900	7.08	.61	.77	.93	24.0	81 900	7.65	.62	.80	.97	22.4	76 600	8.34	.64	.83	1.00	20.8	71 100	9.15	.66	.86	1.00
21.7°C (71°F)	1.25	2700	26.5	90 400	7.22	.42	.56	.70	25.0	85 200	7.83	.43	.57	.72	23.4	79 800	8.56	.43	.59	.74	21.7	74 100	9.41	.44	.61	.77
	1.40	3000	26.8	91 500	7.26	.43	.58	.72	25.3	86 200	7.88	.43	.59	.75	23.6	80 600	8.61	.44	.61	.78	21.9	74 800	9.48	.45	.63	.81
	1.55	3300	27.1	92 400	7.30	.44	.59	.75	25.5	86 900	7.92	.44	.61	.78	23.8	81 300	8.66	.45	.63	.81	22.1	75 300	9.53	.46	.65	.84

GCS16-1353 COOLING CAPACITY (With One Compressor Only Operating)

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Temperature																					
			18°C (65°F)						24°C (75°F)						29°C (85°F)						35°C (95°F)			
			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T) Dry Bulb		
	m³/s	cfm	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F
17.2°C (63°F)	1.70	3600	17.2	58 700	3.90	.76	.90	1.00	16.4	56 100	4.24	.77	.93	1.00	15.6	53 300	4.57	.79	.95	1.00	14.8	50 600	4.87	.81	.98	1.00
	1.90	4050	17.5	59 800	3.93	.78	.94	1.00	16.7	57 100	4.28	.80	.96	1.00	15.9	54 400	4.61	.82	.99	1.00	15.0	51 200	4.90	.84	1.00	1.00
	2.10	4500	17.8	60 700	3.96	.80	.97	1.00	17.0	58 100	4.31	.82	1.00	1.00	16.1	55 000	4.63	.84	1.00	1.00	15.4	52 500	4.96	.87	1.00	1.00
19.4°C (67°F)	1.70	3600	18.4	62 700	4.02	.59	.73	.87	17.5	59 800	4.38	.60	.74	.89	16.6	56 800	4.72	.61	.76	.91	15.8	53 900	5.02	.62	.78	.94
	1.90	4050	18.6	63 600	4.05	.60	.75	.90	17.8	60 700	4.41	.61	.77	.93	16.9	57 600	4.75	.62	.79	.95	16.0	54 500	5.06	.64	.81	.98
	2.10	4500	18.8	64 300	4.08	.62	.78	.94	18.0	61 400	4.44	.63	.80	.96	17.1	58 300	4.78	.64	.82	.99	16.2	55 200	5.09	.65	.84	1.00
21.7°C (71°F)	1.70	3600	19.6	67 000	4.16	.44	.57	.70	18.8	64 000	4.53	.44	.58	.72	17.8	60 800	4.88	.44	.59	.74	16.9	57 600	5.20	.45	.60	.76
	1.90	4050	19.9	67 800	4.19	.44	.59	.73	19.0	64 800	4.56	.45	.60	.75	18.0	61 500	4.91	.45	.61	.77	17.1	58 300	5.23	.46	.62	.79
	2.10	4500	20.1	68 600	4.21	.45	.60	.75	19.2	65 400	4.58	.45	.61	.77	18.2	62 100	4.94	.46	.63	.79	17.2	58 800	5.26	.46	.64	.82

GCS16-1353 TOTAL COOLING CAPACITY (With Both Compressors Operating)

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Temperature																					
			29°C (85°F)						35°C (95°F)						41°C (105°F)						46°C (115°F)			
			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T) Dry Bulb		
	m³/s	cfm	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F
17.2°C (63°F)	1.70	3600	31.2	106 600	8.91	.76	.91	1.00	29.6	101 100	9.52	.78	.94	1.00	28.0	95 700	10.07	.80	.97	1.00	26.3	89 900	10.57	.83	1.00	1.00
	1.90	4050	31.9	108 900	8.99	.79	.95	1.00	30.1	102 800	9.60	.81	.98	1.00	28.7	97 800	10.21	.83	.98	1.00	27.2	92 700	10.73	.86	1.00	1.00
	2.10	4500	32.4	110 600	9.07	.82	1.00	1.00	30.9	105 500	9.73	.84	1.00	1.00	29.4	100 300	10.34	.87	1.00	1.00	27.8	95 000	10.87	.90	1.00	1.00
19.4°C (67°F)	1.70	3600	33.3	113 700	9.20	.58	.73	.88	31.5	107 600	9.83	.59	.75	.90	29.7	101 400	10.40	.61	.77	.94	27.9	95 100	10.88	.62	.80	.97
	1.90	4050	33.8	115 400	9.27	.60	.76	.92	32.0	109 200	9.91	.61	.79	.95	30.2	102 900	10.48	.63	.81	.98	28.3	96 600	10.96	.65	.84	1.00
	2.10	4500	34.3	116 900	9.33	.62	.79	.96	32.4	110 600	9.97	.63	.82	.98	30.5	104 100	10.55	.65	.85	1.00	28.6	97 700	11.04	.67	.88	1.00
21.7°C (71°F)	1.70	3600	35.7	121 700	9.52	.43	.57	.71	33.8	115 200	10.18	.43	.58	.73	31.8	108 600	10.78	.44	.59	.75	29.9	102 000	11.29	.44	.61	.78
	1.90	4050	36.1	123 300	9.59	.43	.59	.74	34.2	116 700	10.25	.44	.60	.76	32.2	110 000	10.85	.44	.62	.79	30.2	103 100	11.36	.45	.63	.82
	2.10	4500	36.5	124 700	9.65	.44	.61	.77	34.6	118 000	10.31	.45	.62	.79	32.5	111 000	10.91	.45	.64	.82	30.5	104 100	11.41	.46	.66	.86

COOLING RATINGS

NOTE - To determine sensible capacity, leaving wet bulb and dry bulb temperatures not shown in the tables, see Accessories Section, Correction Factor Data

GCS16-1603 COOLING CAPACITY (With One Compressor Only Operating)

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Temperature																					
			18°C (65°F)						24°C (75°F)						29°C (85°F)						35°C (95°F)			
			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T) Dry Bulb		
	m³/s	cfm	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F
17.2°C (63°F)	1.70	3500	21.8	74 500	4.96	.64	.76	.88	20.8	71 000	5.40	.65	.78	.90	19.8	67 400	5.81	.67	.80	.90	18.7	63 800	6.20	.69	.83	.90
	2.00	4200	22.6	77 200	5.06	.68	.82	.90	21.6	73 600	5.51	.70	.85	1.00	20.5	69 800	5.92	.72	.87	.90	19.3	66 000	6.32	.74	.90	1.00
	2.30	4900	23.3	79 400	5.15	.73	.89	1.00	22.2	75 800	5.60	.75	.90	1.00	21.2	72 300	6.05	.77	.90	1.00	20.2	68 900	6.47	.79	1.00	1.00
19.4°C (67°F)	1.70	3500	23.3	79 500	5.16	.50	.62	.73	22.2	75 700	5.61	.51	.63	.75	21.1	71 900	6.03	.52	.65	.77	20.2	68 900	6.47	.53	.90	.80
	2.00	4200	24.0	82 000	5.25	.50	.66	.79	22.9	78 100	5.70	.54	.68	.82	21.7	74 000	6.12	.55	.70	.84	20.5	69 900	6.51	.56	.72	.87
	2.30	4900	24.6	83 800	5.32	.56	.71	.86	23.4	79 700	5.77	.57	.73	.88	22.1	75 500	6.19	.58	.75	.90	20.9	71 200	6.58	.59	.77	.90
21.7°C (71°F)	1.70	3500	24.9	84 800	5.36	.38	.49	.60	23.7	80 900	5.82	.38	.50	.61	22.5	76 700	6.25	.39	.51	.62	21.3	72 600	6.65	.39	.52	.64
	2.00	4200	25.6	87 200	5.45	.39	.52	.64	24.3	83 000	5.90	.39	.53	.66	23.1	78 700	6.33	.40	.54	.68	21.8	74 300	6.73	.40	.55	.70
	2.30	4900	26.0	88 800	5.51	.40	.54	.69	24.7	84 300	5.96	.40	.56	.71	23.4	80 000	6.39	.41	.57	.73	22.1	75 500	6.79	.42	.59	.76

GCS16-1603 TOTAL COOLING CAPACITY (With Both Compressors Operating)

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Temperature																					
			29°C (85°F)						35°C (95°F)						41°C (105°F)						46°C (115°F)			
			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T) Dry Bulb		
	m³/s	cfm	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F
17.2°C (63°F)	1.70	3500	36.3	124 000	11.09	.68	.81	.92	34.5	117 700	11.87	.69	.83	.92	32.6	111 200	12.59	.71	.86	.92	30.7	104 800	13.21	.73	.89	.92
	2.00	4200	37.6	128 300	11.30	.72	.87	.92	35.7	121 800	12.09	.74	.90	.92	33.6	114 800	12.80	.76	.92	1.00	31.9	109 000	13.48	.79	.92	1.00
	2.30	4900	38.6	131 600	11.47	.77	.92	1.00	36.8	125 600	12.30	.79	.92	1.00	35.0	119 400	13.07	.81	.92	1.00	33.2	113 200	13.74	.84	.92	1.00
19.4°C (67°F)	1.70	3500	38.7	132 100	11.49	.53	.65	.78	36.7	125 300	12.28	.54	.67	.80	34.6	118 200	13.00	.55	.69	.83	32.6	111 200	13.62	.56	.71	.85
	2.00	4200	39.7	135 600	11.66	.55	.70	.84	37.7	128 500	12.45	.57	.72	.87	35.5	121 200	13.17	.58	.74	.90	33.4	113 900	13.79	.59	.77	.92
	2.30	4900	40.5	138 300	11.79	.58	.75	.90	38.4	130 900	12.58	.59	.77	.92	36.2	123 500	13.30	.61	.79	.92	34.0	116 000	13.92	.63	.82	1.00
21.7°C (71°F)	1.70	3500	41.3	141 000	11.91	.39	.51	.63	39.2	133 700	12.72	.40	.52	.65	37.0	126 200	13.45	.40	.53	.67	34.8	118 600	14.08	.41	.55	.69
	2.00	4200	42.3	144 300	12.07	.40	.54	.68	40.0	136 600	12.87	.41	.55	.70	37.7	128 800	13.59	.41	.57	.72	35.5	121 100	14.21	.42	.58	.75
	2.30	4900	43.0	146 600	12.17	.41	.57	.73	40.7	138 800	12.97	.42	.59	.75	38.3	130 700	13.70	.43	.60	.77	36.0	122 700	14.31	.43	.62	.80

GCS16-1853 COOLING CAPACITY (With Two Compressors Operating)

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Temperature																					
			18°C (65°F)						24°C (75°F)						29°C (85°F)						35°C (95°F)			
			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T) Dry Bulb		
	m³/s	cfm	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F
17.2°C (63°F)	2.55	5400	35.2	120 000	6.74	.69	.84	.99	33.6	114 800	7.17	.70	.87	1.00	32.0	109 300	7.70	.72	.90	1.00	30.1	102 700	8.35	.75	.94	1.00
	3.00	6400	36.4	124 400	6.79	.72	.89	1.00	34.8	118 700	7.23	.74	.93	1.00	32.8	112 100	7.77	.77	.97	1.00	31.0	105 900	8.44	.80	1.00	1.00
	3.50	7400	37.4	127 500	6.83	.75	.92	1.00	35.5	121 200	7.27	.78	.98	1.00	33.8	115 200	7.84	.81	1.00	1.00	32.2	110 000	8.58	.85	1.00	1.00
19.4°C (67°F)	2.55	5400	37.0	126 400	6.82	.54	.66	.80	35.5	121 300	7.28	.55	.68	.82	33.9	115 800	7.86	.56	.69	.85	32.2	109 800	8.58	.57	.71	.89
	3.00	6400	38.2	130 500	6.86	.56	.69	.85	36.7	125 300	7.34	.57	.71	.88	35.0	119 500	7.95	.58	.73	.92	33.2	113 300	8.70	.59	.76	.96
	3.50	7400	39.1	133 500	6.89	.57	.72	.90	37.6	128 300	7.40	.59	.75	.95	35.9	122 400	8.02	.60	.78	.97	34.0	116 000	8.79	.62	.81	1.00
21.7°C (71°F)	2.55	5400	38.8	132 400	6.87	.41	.53	.64	37.4	127 500	7.38	.41	.53	.65	35.7	122 000	8.01	.41	.54	.67	34.1	116 300	8.80	.41	.55	.69
	3.00	6400	40.1	136 800	6.92	.41	.54	.67	38.5	131 400	7.44	.42	.55	.69	36.9	125 900	8.10	.42	.57	.70	35.1	119 800	8.93	.42	.58	.73
	3.50	7400	40.9	139 500	6.95	.41	.56	.70	39.4	134 500	7.49	.42	.58	.72	37.7	128 800	8.17	.43	.59	.75	35.9	122 600	9.03	.43	.60	.78

GCS16-1853 TOTAL COOLING CAPACITY (With Three Compressors Operating)

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Temperature																					
			29°C (85°F)						35°C (95°F)						41°C (105°F)						46°C (115°F)			
			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T) Dry Bulb		
	m³/s	cfm	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F
17.2°C (63°F)	2.55	5400	47.2	161 000	11.98	.72	.90	1.00	44.3	151 300	12.98	.74	.94	1.00	41.6	141 900	14.22	.77	.98	1.00	38.9	132 600	15.83	.80	1.00	1.00
	3.00	6400	48.4	165 100	12.08	.76	.97	1.00	45.7	156 100	13.14	.79	1.00	1.00	43.5	148 300	14.53	.83	1.00	1.00	40.9	139 500	16.31	.88	1.00	1.00
	3.50	7400	49.7	169 700	12.20	.81	1.00	1.00	47.5	162 000	13.35	.84	1.00	1.00	45.1	153 900	14.83	.89	1.00	1.00	42.6	145 300	16.72	.93	1.00	1.00
19.4°C (67°F)	2.55	5400	50.0	170 600	12.23	.56	.70	.85	47.4	161 800	13.34	.57	.72	.88	44.6	152 300	14.76	.59	.74	.93	41.7	142 300	16.52	.60	.77	.97
	3.00	6400	51.6	176 100	12.37	.58	.73	.92	48.9	166 900	13.53	.60	.76	.96	46.1	157 200	15.01	.61	.79	.98	43.2	147 300	16.83	.63	.83	1.00
	3.50	7400	52.8	180 300	12.47	.60	.77	.97	50.1	171 000	13.68	.62	.81	1.00	47.3	161 500	15.20	.64	.85	1.00	43.9	149 700	17.04	.66	.90	1.00
21.7°C (71°F)	2.55	5400	52.7	179 800	12.46	.41	.54	.67	50.2	171 300	13.69	.41	.56	.69	47.4	161 900	15.26	.42	.57	.71	44.4	151 600	17.23	.43	.59	.74
	3.00	6400	54.4	185 500	12.60	.42	.57	.71	51.7	176 500	13.89	.42	.58	.73	48.9	166 800	15.53	.43	.60	.76	45.8	156 400	17.59	.45	.62	.80
	3.50	7400	55.6	189 800	12.71	.43	.59	.74	52.9	180 500	14.04	.43	.61	.77	50.0	170 600	15.73	.44	.63	.81	46.9	159 900	17.85	.46	.65	.86

BLOWER DATA

ACCESSORY AIR RESISTANCE

Model No.	Air Volume		Total Resistance													
			Wet Evaporator Coil		REMD16M Economizer		EMDH16M Horizontal Economizer		RTD11 Diffuser						FD11 Diffuser	
									2 Ends Open		1 Side 2 Ends Open		All Ends & Sides Open			
	cfm	m^3/s	in wg	Pa	in wg	Pa	in wg	Pa	in wg	Pa	in wg	Pa	in wg	Pa	in wg	Pa
GCS16-953	2400	1.13	0.12	30	0.03	08	0.03	08	0.21	53	0.18	45	0.15	38	0.14	35
	2600	1.23	0.13	33	0.04	10	0.04	10	0.24	60	0.21	53	0.18	45	0.17	43
	2800	1.32	0.14	35	0.04	10	0.04	10	0.27	68	0.24	60	0.21	53	0.20	50
	3000	1.41	0.16	40	0.05	13	0.05	13	0.32	80	0.29	73	0.25	63	0.25	63
	3200	1.50	0.18	45	0.05	13	0.05	13	0.41	103	0.37	93	0.32	80	0.31	78
	3400	1.60	0.19	48	0.06	15	0.06	15	0.50	125	0.45	113	0.39	98	0.37	93
	3600	1.69	0.21	53	0.06	15	0.06	15	0.61	153	0.54	135	0.48	120	0.44	110
	3800	1.79	0.23	58	0.07	18	0.07	18	0.73	183	0.63	158	0.57	143	0.51	128
GCS16-1353	3600	1.69	0.12	30	0.03	08	0.03	08	0.36	90	0.28	70	0.23	58	0.15	38
	3800	1.79	0.13	33	0.04	10	0.04	10	0.40	100	0.32	80	0.26	65	0.18	45
	4000	1.88	0.14	35	0.04	10	0.04	10	0.44	110	0.36	90	0.29	73	0.21	53
	4200	1.98	0.15	38	0.05	13	0.05	13	0.49	123	0.40	100	0.33	83	0.24	60
	4400	2.07	0.16	40	0.05	13	0.05	13	0.54	135	0.44	110	0.37	93	0.27	68
	4600	2.16	0.17	43	0.06	15	0.06	15	0.60	150	0.49	123	0.42	105	0.31	78
	4800	2.26	0.18	45	0.07	18	0.07	18	0.65	163	0.53	133	0.46	115	0.35	88
	5000	2.35	0.19	48	0.09	23	0.09	23	0.69	173	0.58	145	0.50	125	0.39	98
	5200	2.45	0.20	50	0.10	25	0.10	25	0.75	188	0.62	155	0.54	135	0.43	108
GCS16-1603	4200	1.98	0.10	25	0.06	15	0.06	15	0.22	55	0.19	48	0.16	40	0.10	25
	4400	2.07	0.11	28	0.07	18	0.07	18	0.28	70	0.24	60	0.20	50	0.12	30
	4600	2.16	0.12	30	0.07	18	0.07	18	0.34	85	0.29	73	0.24	60	0.15	38
	4800	2.26	0.13	33	0.08	20	0.08	20	0.40	100	0.34	85	0.29	73	0.19	48
	5000	2.35	0.14	35	0.08	20	0.08	20	0.46	115	0.39	98	0.34	85	0.23	58
	5200	2.45	0.15	38	0.09	23	0.09	23	0.52	130	0.44	110	0.39	98	0.27	68
	5400	2.54	0.16	40	0.10	25	0.10	25	0.58	145	0.49	123	0.43	108	0.31	78
	5600	2.64	0.17	43	0.12	30	0.12	30	0.64	160	0.54	135	0.47	118	0.35	88
	5800	2.73	0.18	45	0.13	33	0.13	33	0.70	175	0.59	148	0.51	128	0.39	98
GCS16-1853	5000	2.35	0.07	18	0.11	28	—	—	0.51	128	0.44	110	0.39	98	0.27	68
	5200	2.45	0.08	20	0.12	30	—	—	0.56	140	0.48	120	0.42	105	0.30	75
	5400	2.54	0.09	23	0.13	33	—	—	0.61	153	0.52	130	0.45	113	0.33	83
	5600	2.64	0.10	25	0.14	35	—	—	0.66	165	0.56	140	0.48	120	0.36	90
	5800	2.73	0.11	28	0.15	38	—	—	0.71	178	0.59	148	0.51	128	0.39	98
	6000	2.83	0.12	30	0.16	40	—	—	0.76	190	0.63	158	0.55	138	0.42	105
	6200	2.92	0.13	33	0.17	43	—	—	0.80	200	0.68	170	0.59	148	0.46	115
	6400	3.02	0.14	35	0.18	45	—	—	0.86	215	0.72	180	0.63	158	0.50	125
	6600	3.11	0.15	38	0.20	50	—	—	0.92	230	0.77	193	0.67	168	0.54	135
	6800	3.20	0.16	40	0.22	55	—	—	0.99	248	0.83	208	0.72	180	0.58	145
	7000	3.29	0.17	43	0.23	58	—	—	1.03	258	0.87	218	0.76	190	0.62	155
	7200	3.39	0.18	45	0.24	60	—	—	1.09	273	0.92	230	0.80	200	0.66	165
	7400	3.49	0.19	48	0.25	63	—	—	1.15	288	0.97	243	0.84	210	0.70	175
	7600	3.58	0.20	50	0.26	65	—	—	1.21	303	1.02	255	0.88	220	0.74	185

Ceiling diffuser air throw data

Model number	Effective throw range					
	Air volume		RTD11 Stepdown		FD11 flush	
	m^3/s	cfm	m	ft	m	ft
GCS16-953	1.14	3000	8-10	27-33	8-9	25-30
	1.59	3375	9-11	30-37	9-10	28-34
	1.77	3750	10-12	34-41	9-12	31-38
GCS16-1353	2.07	4400	10-13	34-42	10-12	32-40
	2.33	4950	12-14	38-47	11-14	36-45
	2.59	5500	13-16	43-52	12-15	40-50
GCS16-1603	1.98	4200	12-14	39-46	12-15	40-48
	2.35	5000	12-15	41-50	13-16	43-52
	2.73	5800	13-16	43-52	14-16	45-54
GCS16-1853	2.82	6000	14-17	45-55	15-17	48-55
	3.18	6750	14-17	47-56	15-18	50-58
	3.53	7500	15-18	49-58	17-20	55-66

BLOWER PERFORMANCE DATA

GCS 16- 953 BLOWER PERFORMANCE

Air Volume		STATIC PRESSURE EXTERNAL TO UNIT – Pa																					
		50		75		100		125		150		175		200		225		250		275		325		375	
m3/s	cfm	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW
1.13	2400	---	---	---	---	---	---	755	0.52	795	0.58	835	0.65	875	0.72	915	0.81	966	0.90	980	0.97	1045	1.12	1110	1.30
1.23	2600	---	---	---	---	---	---	785	0.60	825	0.67	860	0.74	900	0.81	935	0.89	970	0.97	1005	1.04	1065	1.22	1130	1.42
1.32	2800	---	---	---	---	780	0.64	815	0.71	855	0.71	890	0.84	925	0.92	960	1.00	995	1.08	1025	1.16	1090	1.34	---	---
1.42	3000	---	---	770	0.69	810	0.75	850	0.81	885	0.88	920	0.96	955	1.04	990	1.12	1020	1.20	1050	1.29	1110	1.47	---	---
1.51	3200	770	0.73	800	0.80	840	0.87	880	0.94	915	0.98	950	1.10	990	1.18	1020	1.27	1045	1.35	1075	1.43	---	---	---	---
1.60	3400	805	0.86	845	0.92	880	1.01	915	1.07	950	1.16	980	1.25	1015	1.32	1045	1.41	---	---	---	---	---	---	---	---
1.70	3600	845	1.01	885	1.07	915	1.14	950	1.22	980	1.31	1015	1.40	1045	1.48	---	---	---	---	---	---	---	---	---	---
1.79	3800	880	1.14	915	1.22	950	1.30	985	1.38	1015	1.47	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Note- *All cfm data is measured external to the unit cabinet with the air filters in place. See page 9 for Accessory Air Resistance data*

Data above stepped line obtained from 0.82kW drives. Data below stepped line obtained from 1.1kW drives

GCS 16–1353 BLOWER PERFORMANCE

Air Volume		STATIC PRESSURE EXTERNAL TO UNIT – Pa																					
		50		75		100		125		150		175		200		225		250		275		325		375	
m3/s	cfm	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW
1.70	3600	---	---	---	---	672	0.85	707	0.93	740	1.01	772	1.10	802	1.19	831	1.30	860	1.40	887	1.49	940	1.72	985	1.94
1.79	3800	---	---	655	0.87	690	0.95	725	1.04	760	1.10	790	1.22	820	1.33	850	1.44	878	1.54	905	1.64	950	1.84	994	2.06
1.89	4000	642	0.88	680	0.98	715	1.07	746	1.15	778	1.25	809	1.35	838	1.45	866	1.56	895	1.67	920	1.78	968	1.98	1013	2.21
1.98	4200	670	1.01	704	1.10	736	1.12	768	1.29	798	1.40	828	1.49	856	1.59	885	1.70	913	1.81	938	1.91	---	---	---	---
2.08	4400	693	1.13	725	1.23	760	1.34	790	1.44	821	1.54	850	1.71	878	1.76	905	1.87	930	1.96	955	2.07	---	---	---	---
2.17	4600	718	1.27	755	1.39	785	1.49	815	1.60	843	1.71	872	1.82	900	1.93	923	2.02	948	2.12	---	---	---	---	---	---
2.27	4800	747	1.44	778	1.54	807	1.66	835	1.77	865	1.80	892	1.98	918	2.10	940	2.19	---	---	---	---	---	---	---	---
2.36	5000	772	1.61	802	1.72	830	1.84	860	1.98	887	2.06	915	2.18	---	---	---	---	---	---	---	---	---	---	---	---
2.45	5200	800	1.80	830	1.92	860	2.05	887	2.16	915	2.18	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Note- All cfm data is measured external to the unit cabinet with the air filters in place. See page 9 for Accessory Air Resistance data

Data above stepped line obtained from 1.5kW standard drive. Data below stepped line obtained from optional 2.2kW drive kit.

GCS 16- 1603 BLOWER PERFORMANCE

Air Volume		STATIC PRESSURE EXTERNAL TO UNIT – Pa																					
		50		75		100		125		150		175		200		225		250		275		325		375	
m3/s	cfm	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW
1.98	4200	---	---	705	1.22	735	1.31	765	1.42	785	1.48	810	1.57	835	1.60	865	1.68	920	1.83	970	2.14	1020	2.49	1095	3.08
2.08	4400	700	1.27	725	1.37	755	1.45	780	1.55	805	1.63	830	1.66	860	1.74	885	1.79	935	1.98	990	2.33	1030	2.64	1110	3.28
2.17	4600	720	1.42	750	1.51	775	1.60	800	1.68	825	1.75	845	1.79	875	1.87	905	1.94	955	2.15	1005	2.66	1045	2.81	1125	3.51
2.27	4800	745	1.59	770	1.66	795	1.75	820	1.81	840	1.85	870	1.94	895	2.00	970	2.10	970	2.33	1020	2.72	1060	3.04	1140	3.73
2.36	5000	765	1.72	790	1.83	815	1.89	840	1.96	865	2.01	890	2.08	915	2.17	985	2.28	985	2.52	1030	2.90	1070	3.23	1150	3.86
2.45	5200	785	1.89	810	1.97	835	2.02	860	2.11	885	2.16	910	2.23	935	2.37	1000	2.45	1000	2.68	1050	3.10	1085	3.44	---	---
2.55	5400	810	2.06	835	2.13	855	2.19	880	2.26	905	2.34	925	2.42	950	2.54	1015	2.67	1015	2.87	1060	3.29	1100	3.66	---	---
2.64	5600	835	2.24	855	2.30	875	2.36	895	2.42	920	2.53	945	2.65	965	2.75	1030	2.83	1030	3.12	1080	3.55	---	---	---	---
2.74	5800	855	2.42	875	2.48	890	2.54	915	2.65	935	2.72	960	2.84	985	2.97	1040	3.10	1040	3.27	1090	3.76	---	---	---	---

Note- All cfm data is measured external to the unit cabinet with the air filters in place. See page 9 for Accessory Air Resistance data

Data adove stepped line obtained from 2.2kW drives. Low speed kit 700–835 rpm. High speed kit 835–970 rpm.

Data below stepped line obtained from 4.0kW drives

BLOWER DATA

GCS 16-1853-235 BLOWER PERFORMANCE

Air Volume		STATIC PRESSURE EXTERNAL TO UNIT – Pa																					
		50		75		100		125		150		175		200		225		250		275		325		375	
m3/s	cfm	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW
2.36	5000	520	1.12	550	1.19	580	1.31	610	1.34	640	1.49	670	1.72	690	1.79	715	1.98	745	2.05	770	2.20	820	2.35	865	2.57
2.45	5200	540	1.19	565	1.31	590	1.42	620	1.49	650	1.72	680	1.83	705	1.94	725	2.05	755	2.16	780	2.39	830	2.50	875	2.65
2.55	5400	550	1.27	575	1.38	605	1.49	635	1.68	665	1.83	690	1.98	710	2.05	735	2.13	760	2.28	790	2.46	840	2.61	885	2.80
2.64	5600	565	1.34	585	1.53	615	1.68	645	1.72	675	1.94	700	2.13	720	2.16	745	2.31	770	2.39	800	2.54	850	2.72	890	2.95
2.74	5800	580	1.57	600	1.64	625	1.79	660	1.94	685	2.09	710	2.24	730	2.31	760	2.42	780	2.54	810	2.65	855	2.80	900	3.02
2.83	6000	600	1.72	620	1.79	650	1.98	670	2.09	695	2.28	720	2.39	745	2.50	770	2.57	795	2.69	820	2.80	870	3.02	910	3.17
2.93	6200	610	1.83	635	1.98	660	2.13	685	2.28	705	2.42	730	2.54	755	2.61	780	2.72	805	2.87	830	2.95	875	3.21	915	3.54
3.02	6400	625	2.01	650	2.16	675	2.35	695	2.46	715	2.57	740	2.69	765	2.76	790	2.95	815	2.98	840	3.10	885	3.32	930	3.66
3.11	6600	640	2.20	665	2.35	690	2.57	705	2.65	730	2.72	755	2.80	775	2.95	805	3.06	825	3.17	850	3.28	895	3.51	935	3.80
3.21	6800	655	2.31	675	2.50	700	2.72	720	2.80	745	2.91	765	2.98	790	3.13	815	3.25	835	3.32	860	3.47	905	3.69	945	3.99
3.30	7000	670	2.61	690	2.76	710	2.87	730	2.98	755	3.06	780	3.25	800	3.32	825	3.47	845	3.54	870	3.69	910	3.92	---	---
3.40	7200	685	2.69	710	2.80	735	2.91	755	3.10	770	3.32	790	3.43	815	3.54	835	3.66	860	3.80	880	3.92	---	---	---	---
3.49	7400	700	2.83	725	2.98	750	3.10	760	3.25	780	3.39	805	3.43	825	3.62	850	3.73	875	3.92	---	---	---	---	---	---
3.59	7600	710	2.98	730	3.10	760	3.21	770	3.32	790	3.47	815	3.58	835	3.73	860	3.92	---	---	---	---	---	---	---	---

Note– Blower performance is measured with a dry coil and with air filters in place. Measurement is taken external to the unit. See page 9 for Accessory air resistance data

Fan performance data above stepped line obtained from optional 2.2kW drive kit

Performance data below stepped line is obtained from standard 4.0 kW drive kit.

GCS 16- 1853-330 (HIGH HEAT) 50 Hz BLOWER PERFORMANCE

Air Volume		STATIC PRESSURE EXTERNAL TO UNIT – Pa																									
		50		75		100		125		150		175		200		225		250		275		300		325		350		375	
Cm/s	cfm	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW	RPM	kW
2.45	5200	580	1.31	600	1.34	620	1.45	650	1.57	680	1.79	705	1.90	725	2.01	750	2.13	775	2.24	795	2.46	815	2.54	840	2.57	860	2.65	880	2.72
2.55	5400	590	1.42	620	1.49	640	1.60	665	1.75	695	1.90	715	2.05	740	2.13	765	2.20	785	2.31	810	2.50	830	2.57	850	2.65	870	2.69	890	2.83
2.64	5600	605	1.49	625	1.60	655	1.75	680	1.83	710	2.05	730	2.16	755	2.20	775	2.35	795	2.42	815	2.57	840	2.69	860	2.76	880	2.83	900	2.98
2.74	5800	615	1.64	645	1.72	670	1.87	700	2.01	720	2.16	740	2.31	765	2.35	785	2.46	810	2.61	830	2.69	850	2.80	870	2.83	890	2.87	910	3.06
2.83	6000	630	1.75	660	1.83	690	2.01	710	2.13	730	2.31	755	2.42	775	2.54	795	2.61	820	2.72	840	2.83	860	2.95	880	3.06	900	3.17	920	3.21
2.93	6200	650	1.90	680	2.05	705	2.20	725	2.35	750	2.50	770	2.61	790	2.65	810	2.80	830	2.91	850	2.98	870	3.21	890	3.25	910	3.47	930	3.58
3.02	6400	670	2.05	695	2.24	720	2.42	740	2.54	760	2.61	780	2.72	800	2.80	820	2.98	845	3.06	865	3.13	880	3.28	900	3.36	920	3.58	940	3.69
3.11	6600	690	2.35	671	2.42	730	2.65	755	2.72	775	2.80	795	2.87	810	3.02	835	3.10	855	3.21	875	3.32	890	3.47	910	3.54	930	3.69	950	3.84
3.21	6800	705	2.39	730	2.54	750	2.80	770	2.87	790	2.98	805	3.06	825	3.21	845	3.32	865	3.39	885	3.51	900	3.58	925	3.77	945	3.95	965	4.07
3.30	7000	720	2.69	740	2.83	760	2.95	780	2.98	800	3.21	820	3.32	840	3.39	860	3.54	880	3.69	895	3.77	915	3.84	935	3.99	955	4.21	---	---
3.40	7200	740	2.87	760	2.95	775	3.06	795	3.13	810	3.36	830	3.47	850	3.58	870	3.69	890	3.77	905	3.99	925	4.14	945	4.25	---	---	---	---
3.49	7400	755	2.95	770	3.10	790	3.17	810	3.32	825	3.47	845	3.54	865	3.66	885	3.84	900	3.99	930	4.21	---	---	---	---	---	---	---	---
3.54	7500	765	3.13	780	3.21	800	3.47	815	3.47	830	3.58	850	3.66	870	3.84	890	4.03	905	4.18	---	---	---	---	---	---	---	---	---	---

Note– Blower performance is measured with a dry coil and with air filters in place. Measurement is taken external to the unit

Performance data below stepped line is obtained from 3.7kW drive kit.

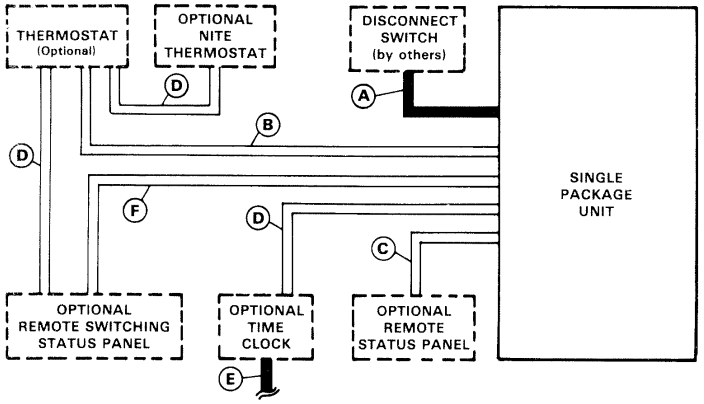
ELECTRICAL DATA

GCS16-1853
POWER EXHAUST FANS PERFORMANCE

Air Volume (Exhausted) cfm	m^3/s	Return Air System Static Pressure in wc	Pa
4200	1.979	0	0
3800	1.790	.05	13
3500	1.649	.10	25
3200	1.507	.15	38
2700	1.272	.20	50
2200	1.036	.25	63

FIELD WIRING

ELECTRO-MECHANICAL THERMOSTAT

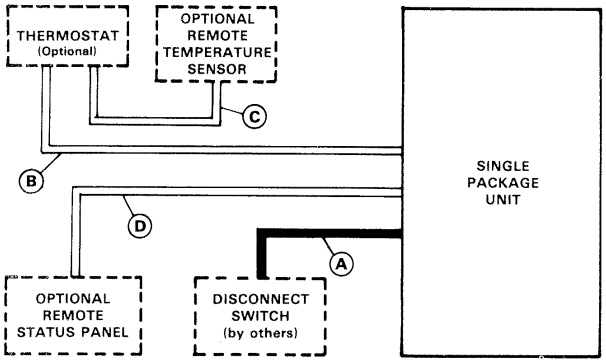


A — Three wire power (See Electrical Data table)
B — Six wire low voltage
— Five wire low voltage (with SSP11 Switching Status Panel)
C — Nine wire low voltage
D — Two wire low voltage
E — Two wire low voltage
F — Sixteen wire low voltage

— Field wiring not furnished —

NOTE — All wiring must conform to NEC and local electrical codes.

T7300 THERMOSTAT CONTROL SYSTEM



A — Three wire power (See Electrical Data table)
B — Seven wire low voltage (Pro-Stat)
— Nine wire low voltage (T7300)
C — Two wire low voltage
D — Nine wire low voltage

— Field wiring not furnished —

NOTE — All wiring must conform to NEC and local electrical codes.

Model No.		GCS16-953	GCS16-1353	GCS16-1603
Line voltage(V)50Hz 3 phase		380/420	380/420	380/420
Voltage range (minimum-maximum)		342-462V	342/462V	342/462V
Compressor 1	Rated load (A)	7	9.2	13.8
	Locked rotor (A)	46	50	79
Compressor 2	Rated load (A)	7	9.2	13.8
	Locked rotor (A)	46	50	79
Condenser fan motors (1 Phase)	Full load (A)	1.7	1.0/1.0 (2.0)	1.5/1.5 (3.0)
	Locked rotor (A) total	3.3	2.7/2.7 (5.4)	3.2/3.2 (6.4)
Evaporator Blower Motor	Output kW (hp)	1.5 (2)	1.5 (2)	2.2 (3)
	Full load (A)	3.3	3.3	4.6
	Locked rotor (A)	20.4	20.4	31

Note: Refer to local electrical codes to determine wire, fuse and isolator sizes.
Use wires suitable for at least 75°C.

Model No.			GC516-1853	
Line voltage (V) 60Hz 3 phase			460V	
Compressors (3)	Rated load amps	each total	9.6 28.8	
	Locked rotor amps	each total	62 186.0	
Condenser fan motors (2)	Full load amps (total) Locked rotor amps (total)		4.8 12.0	
Evaporator Blower Motor	kW (hp) Full load amps (total) Locked rotor amps (total)		2.237 (3) 4.8 26.8	3.728 (5) 7.6 45.6
Optional power exhaust fans	(No) wattage Full load amps (total) Locked rotor amps (total)		(2) 186 1.4 3.3	

Note: Unit power factor 0 84

DIMENSIONS (mm)

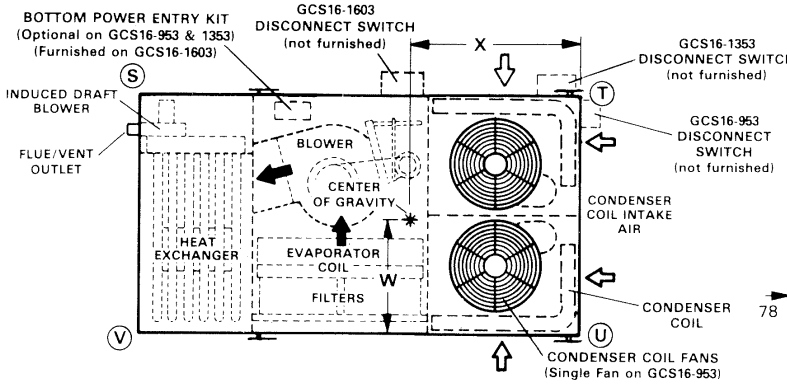
GCS16 BASIC UNIT

Corner weight (kg)

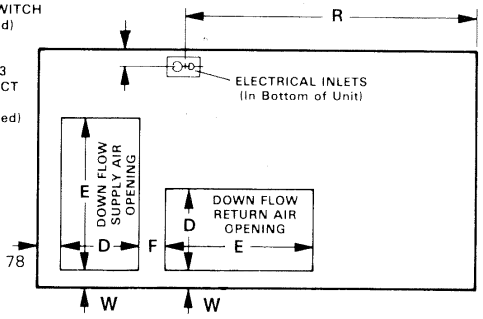
Model No.	S	T	U	V
GCS16-953	107	129	88	74
GCS16-1353	116	157	130	97
GCS16-1603	109	168	187	122
GCS16-1853	190	250	198	150

Centre of gravity (mm)

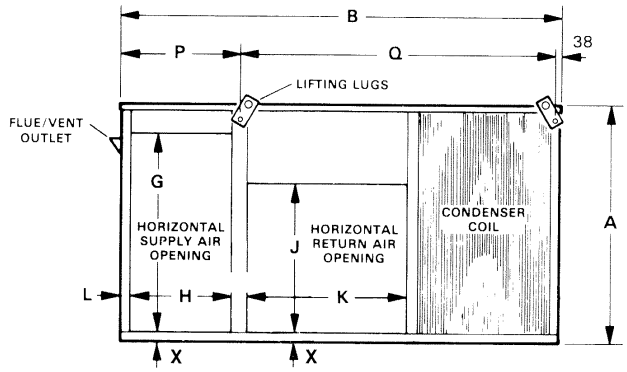
Model No.	W	X
GCS16-953	724	1016
GCS16-1353	832	1016
GCS16-1603	695	1022
GCS16-1853	950	1250



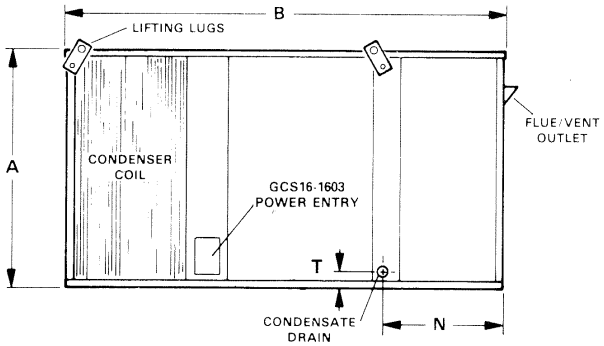
TOP VIEW



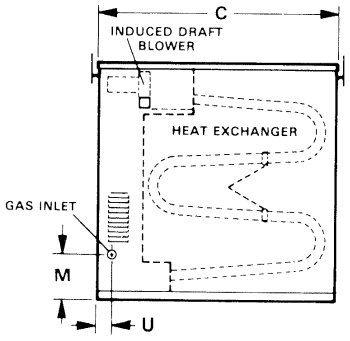
TOP VIEW BASE SECTION



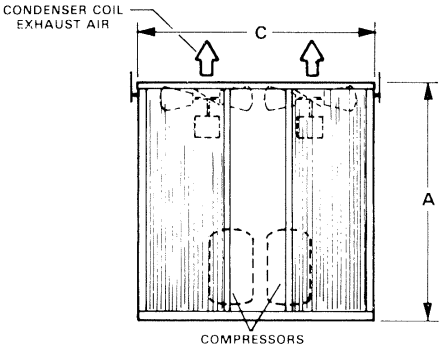
BACK VIEW
With HORIZONTAL SUPPLY & RETURN AIR OPENINGS



FRONT VIEW



HEAT SECTION END VIEW



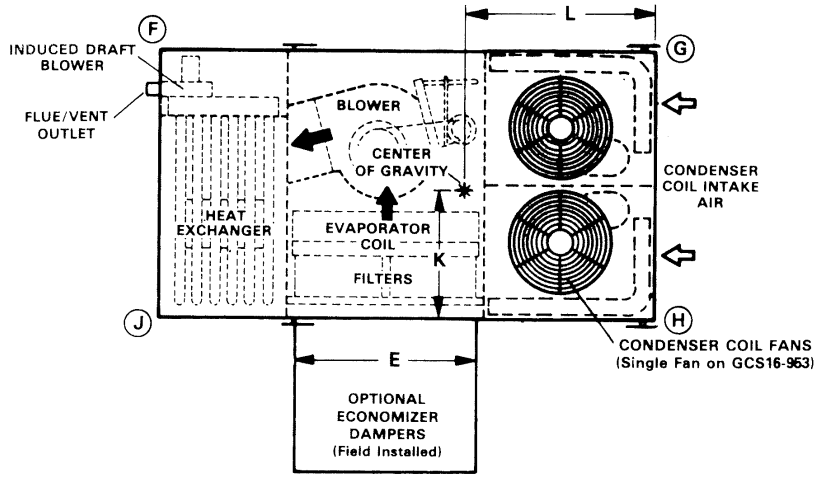
CONDENSER SECTION END VIEW

Model No.	A	B	C	D	E	F	G	H	J	K	L
GCS16-953	991	2248	1219	419	772	143	816	494	625	838	41
GCS16-1353	1168	2388	1524	610	772	113	994	641	803	838	51
GCS16-1603	1168	2591	1524	610	965	113	994	641	803	1041	51
GCS16-1853	1308	2946	1727	622	1118	143	1054	654	832	1273	51

Model No.	M	N	P	Q	R	S	T	U	V	W	X
GCS16-953	248	637	562	1648	1359	69	59	72	106	78	38
GCS16-1353	356	792	724	1626	1359	69	59	72	106	78	38
GCS16-1603	356	792	724	1829	1588	69	59	72	106	78	38
GCS16-1853	394	851	838	2070	914	108	102	102	184	127	76

DIMENSIONS (mm)

GCS16 - 953, - 1353, & - 1603 UNITS WITH REMD16M ECONOMIZER DAMPER SECTION AND RMF16 ROOF MOUNTING FRAME



TOP VIEW

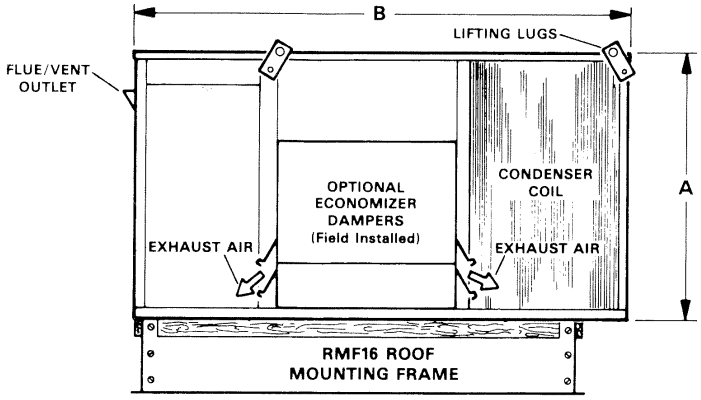
Corner weights (kg)

Model No.	F	G	H	J
GCS16-953	116	134	134	116
GCS16-1353	125	142	184	161
GCS16-1603	125	192	201	131

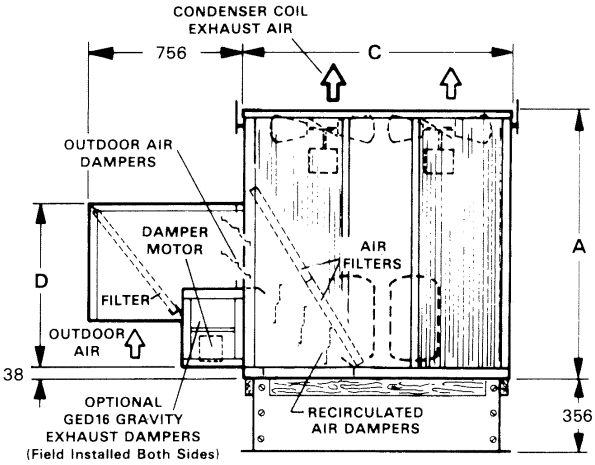
Centre of gravity

Model No.	K	L
GCS16-953	610	1041
GCS16-1353	711	1041
GCS16-1603	743	1022

Model No.	A	B	C	D	E
GCS16-953	991	2248	1219	725	827
GCS16-1353	1168	2388	1524	878	827
GCS16-1603	1168	2591	1524	878	1030



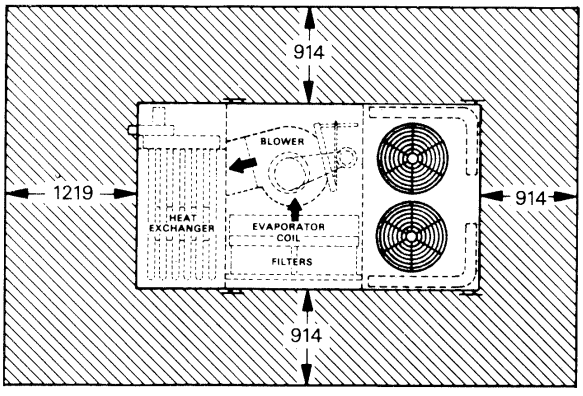
BACK VIEW



CONDENSER SECTION END VIEW

INSTALLATION CLEARANCES

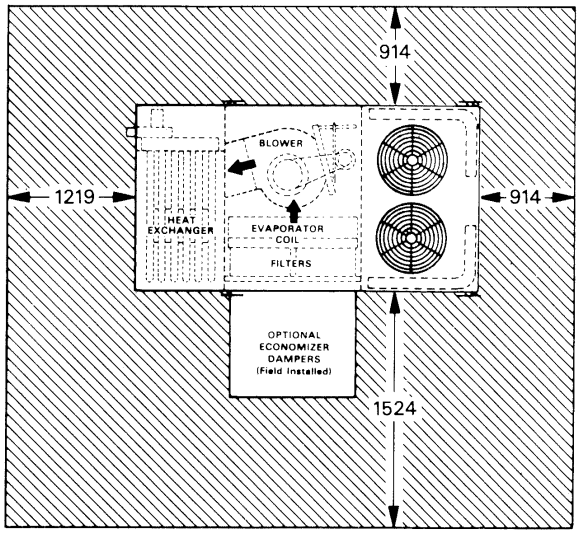
GCS16 BASIC UNIT



NOTE — Top Clearance Unobstructed.

NOTE — Entire perimeter of unit requires support when elevated above mounting surface.

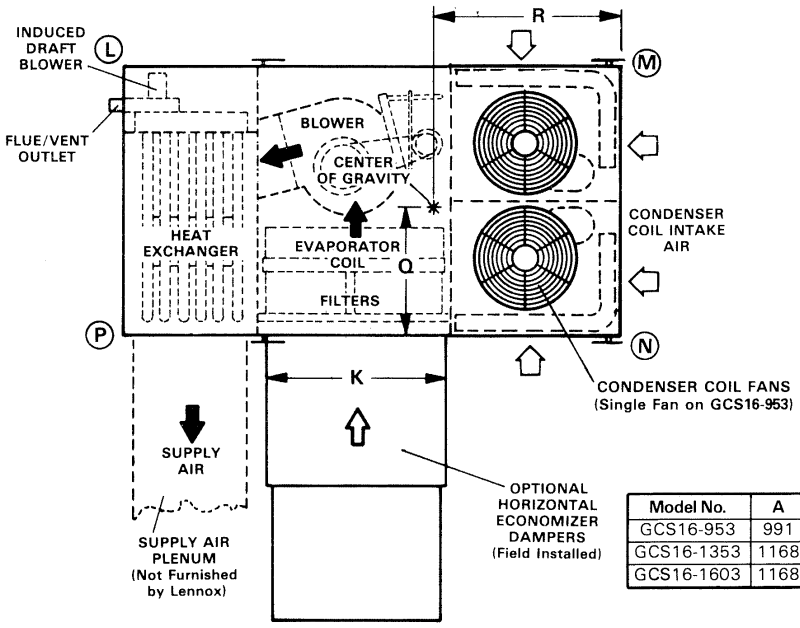
GCS16 UNIT WITH REMD16M ECONOMIZER DAMPER SECTION



NOTE — Top Clearance Unobstructed.

DIMENSIONS (mm)

GCS16 - 953, - 1353 & - 1603 UNITS WITH EMDH16M HORIZONTAL ECONOMIZER DAMPER SECTION



TOP VIEW

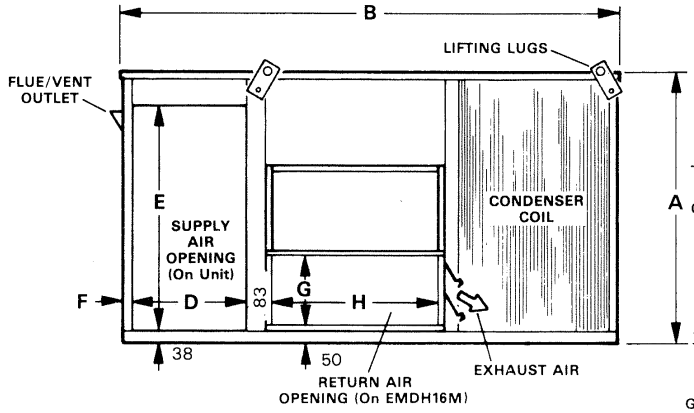
Corner weights (kg)

Model No.	L	M	N	P
GCS16-953	106	120	120	106
GCS16-1353	114	148	170	130
GCS16-1603	134	199	195	128

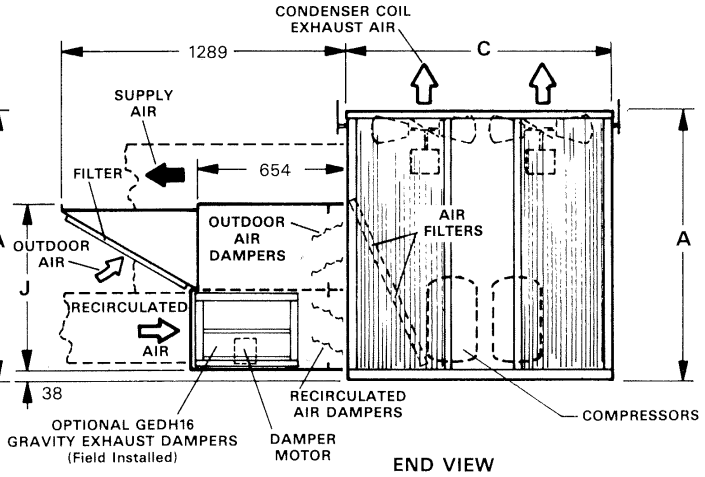
Centre of gravity

Model No.	Q	R
GCS16-953	610	1041
GCS16-1353	686	1041
GCS16-1603	768	1022

Model No.	A	B	C	D	E	F	G	H	J	K
GCS16-953	991	2248	1219	494	816	41	337	800	730	827
GCS16-1353	1168	2388	1524	641	994	51	489	800	883	827
GCS16-1603	1168	2591	1524	641	994	51	489	1003	883	1030



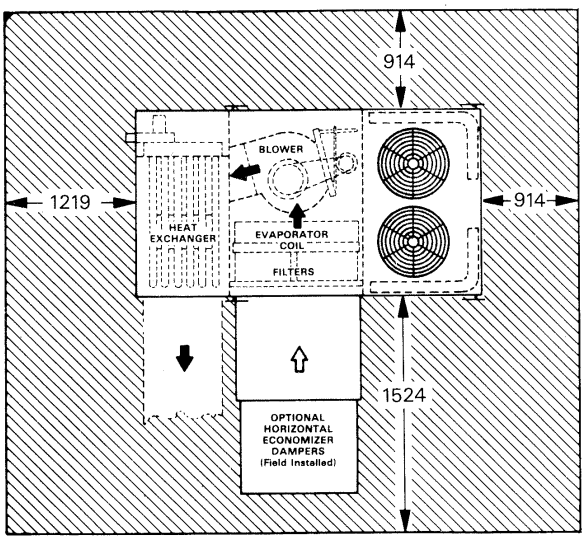
BACK VIEW



END VIEW

INSTALLATION CLEARANCES (mm)

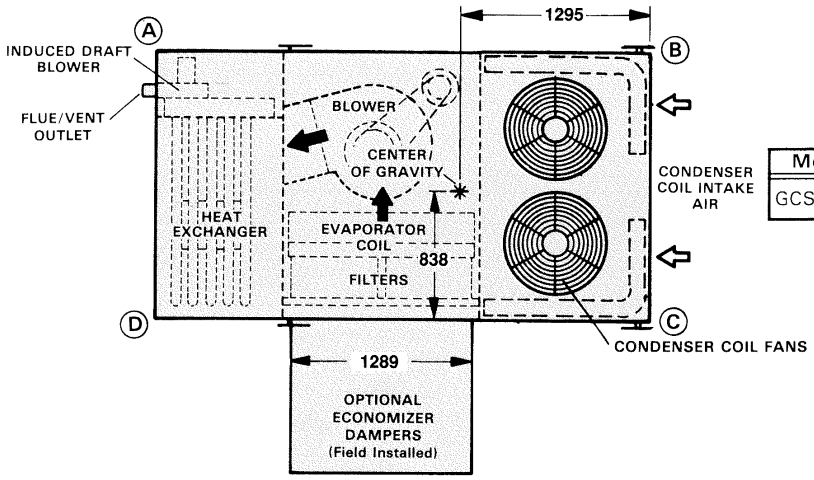
GCS16 UNIT WITH EMDH16M HORIZONTAL ECONOMIZER



NOTE — Top Clearance Unobstructed.

DIMENSIONS (mm)

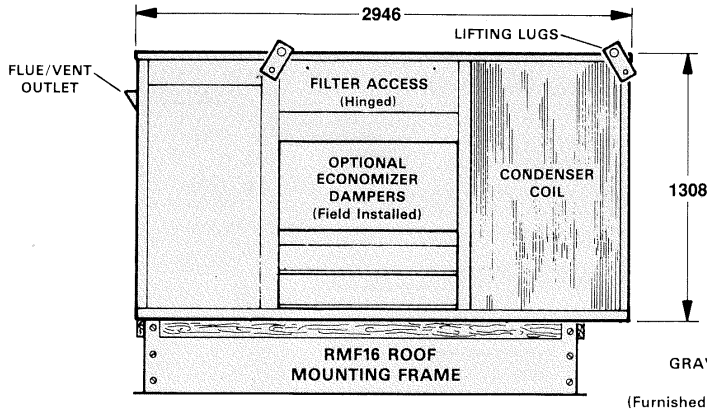
GCS16-1853 UNIT WITH REMD16M-185 ECONOMIZER DAMPER SECTION
(DOWN-FLOW APPLICATION) AND RMF16-185 ROOF MOUNTING FRAME



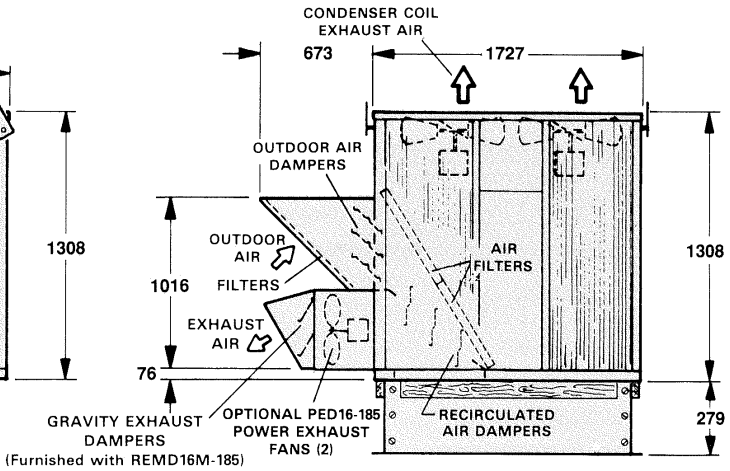
TOP VIEW

CORNER WEIGHTS (kg.)

Model No.	A	B	C	D
GCS16-1853	424	252	239	202



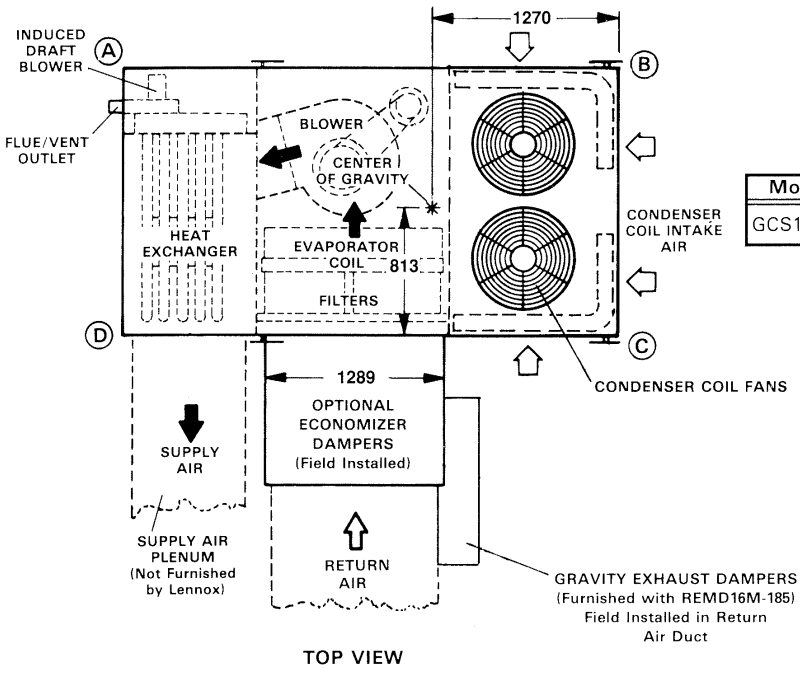
BACK VIEW



CONDENSER SECTION END VIEW

DIMENSIONS (mm)

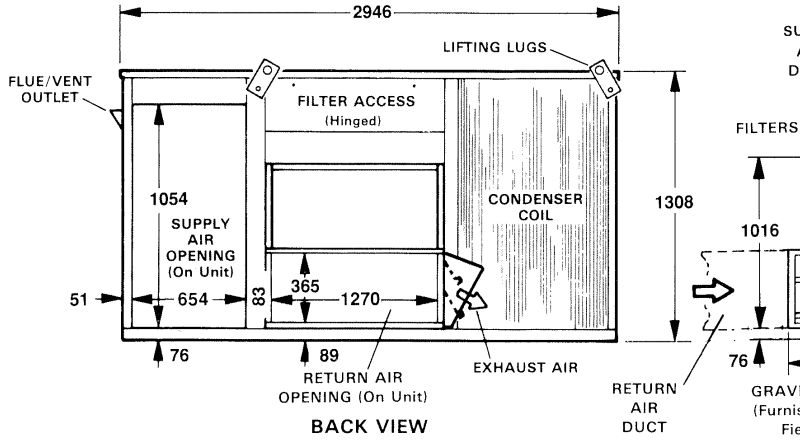
GCS16-1853 UNIT WITH REMD16M-185 ECONOMIZER DAMPER SECTION (HORIZONTAL APPLICATION)



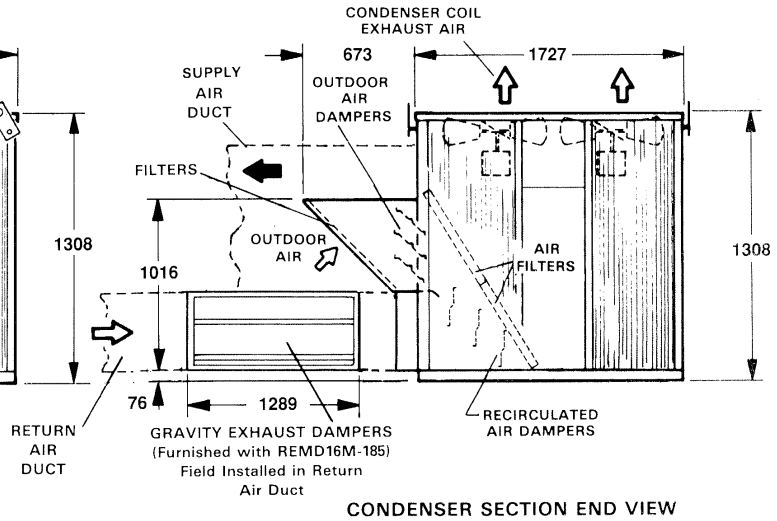
TOP VIEW

CORNER WEIGHTS (kg.)

Model No.	A	B	C	D
GCS16-1853	185	245	235	198



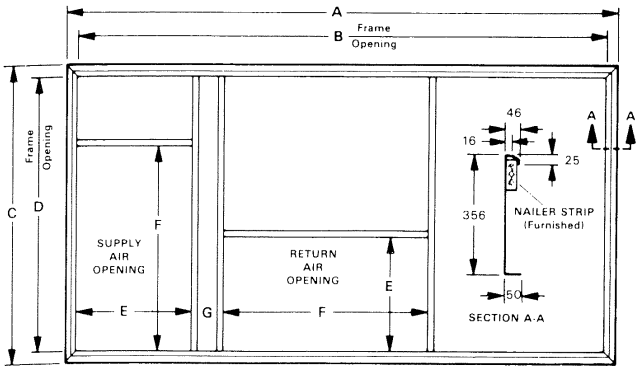
BACK VIEW

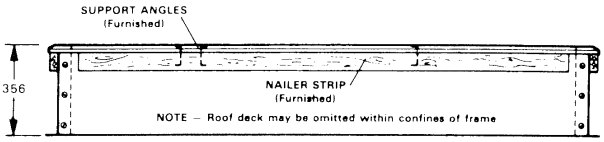


CONDENSER SECTION END VIEW

DIMENSIONS (mm)

RMF16 SERIES ROOF MOUNTING FRAME WITH DOUBLE DUCT OPENING

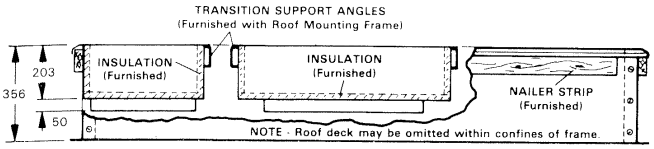


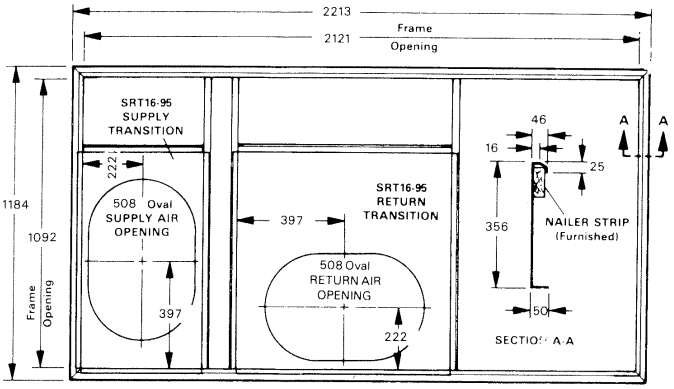


Model No.	A	B	C	D	E	F	G
RMF16-95	2213	2121	1184	1092	456	800	102
RMF16-135/160	2350	2257	1486	1394	641	*	78
RMF16-185	2826	2746	1622	1530	660	1156	111

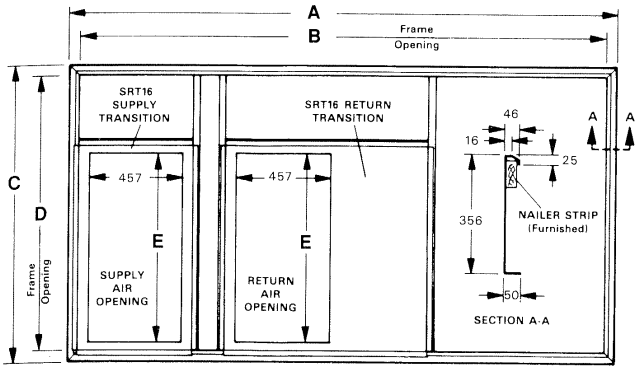
*800mm for 1353 units. 1003mm for 1603 units.

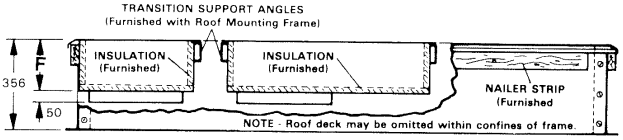
RMF16-95 ROOF MOUNTING FRAME WITH SUPPLY AND RETURN AIR TRANSITIONS FOR FD11-95 & RTD11-95 CEILING DIFFUSERS





RMF16-135/160 ROOF MOUNTING FRAME WITH SUPPLY AND RETURN AIR TRANSITIONS FOR FD11-135 & -185 AND RTD11-135 & -185 CEILING DIFFUSERS





Model No.	A
RMF16-135/160 with SRT16-135	711
RMF16-135/160 with SRT16-160	914

Model No.	A	B	C	D	E	F
RMF16-135/160	2350	2257	1486	1394	*	203
RMF16-185	2838	2746	1622	1530	914	305

*771mm with SRT16-135. 914mm with SRT16-160

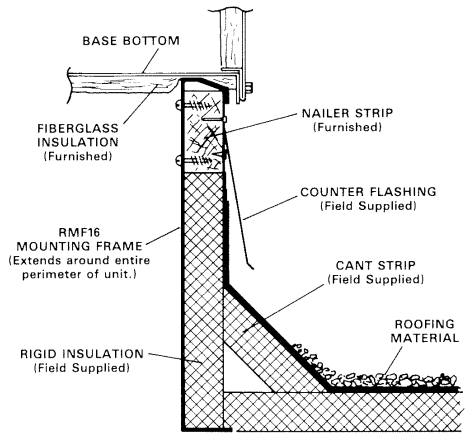
ROOF MOUNTING FRAME SPECIFICATIONS

Roof Mounting frame is rigid enough to be spanned over its entire length or cantilevered if supported on either side of the centre of gravity.

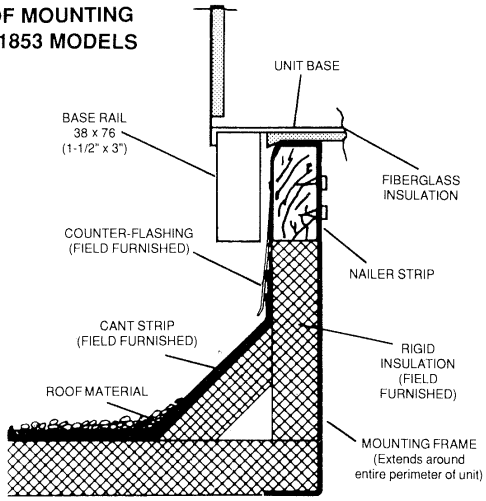
Model No.		RMF16-95	RMF16-135/160	RMF16-185
Frame moment of inertia (I)	in^4 mm^4	42 1.74×10^7	42 1.74×10^7	42 1.74×10^7
Frame section modulus $\frac{I}{C}$	in^3 mm^3	5.8 0.95×10^5	5.8 0.95×10^5	5.8 0.95×10^5
Mounting frame weight	lb/ft kg/m	5.5 8.2	5.5 8.2	5.5 8.2
Mounting frame design strength	psi MPa	20,000 138	20,000 138	20,000 138

DIMENSIONS (mm)

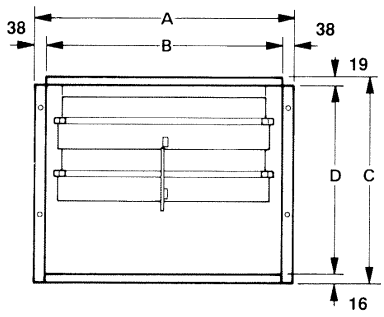
TYPICAL FLASHING DETAIL FOR RMF16 ROOF MOUNTING FRAME



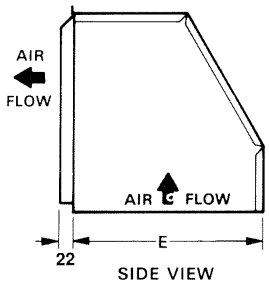
ROOF MOUNTING FOR 1853 MODELS



OAD16 OUTDOOR AIR DAMPER SECTION



BACK VIEW

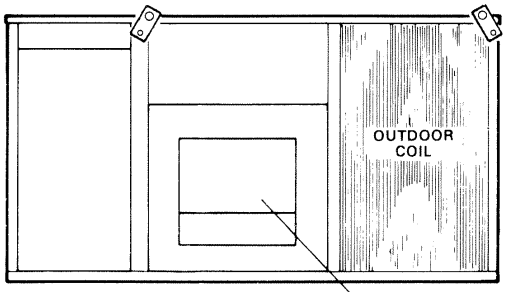


SIDE VIEW

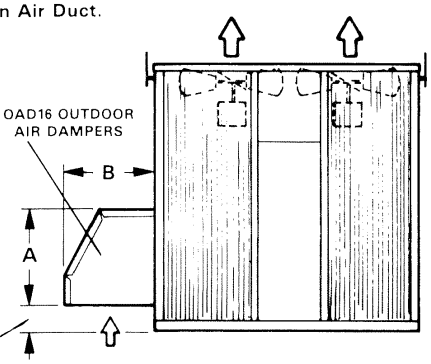
Model No.	A	B	C	D	E
OAD16-95 OAD16-135 OAD16-160	610	533	470	435	435
OAD16-185	838	762	721	686	565

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

NOTE — For Horizontal (side) Supply and Return Air OAD16 Field Installs on Return Air Duct.



BACK VIEW



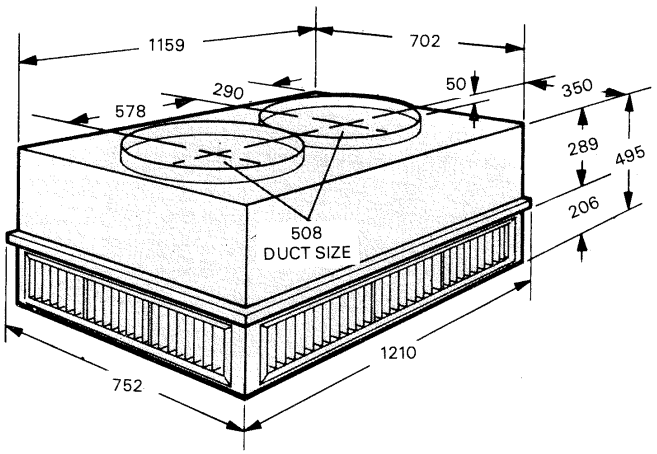
END VIEW

8-5/16 — GCS16-953
15-5/16 — GCS16-1353 & 1603
10 — GCS16-1853

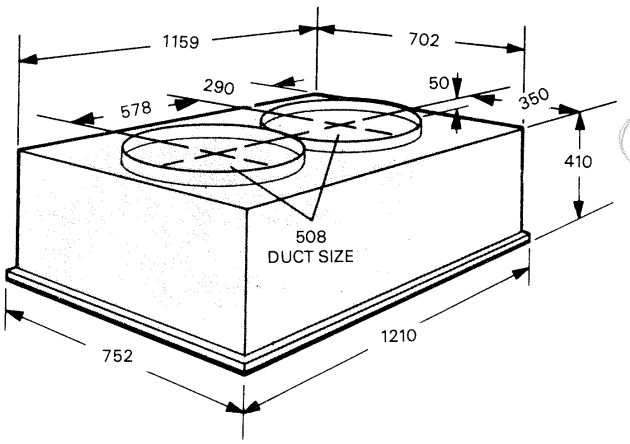
Model No.	A	B
OAD16-95 OAD16-135 OAD16-160	451	435
OAD16-185	702	565

COMBINATION CEILING SUPPLY AND RETURN DIFFUSERS
DIMENSIONS (mm)

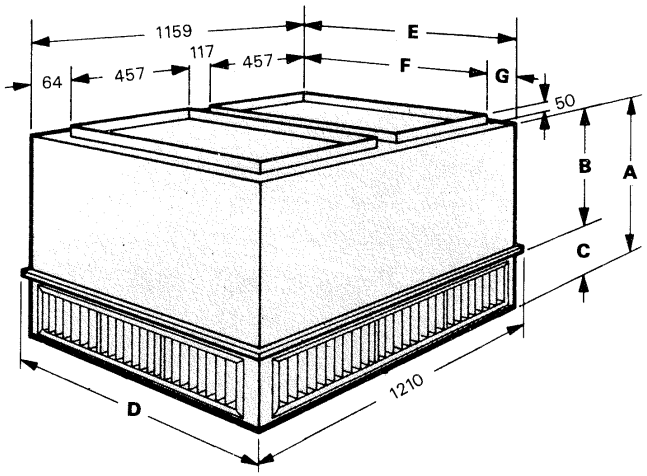
RTD11-95 STEP-DOWN CEILING DIFFUSER



FD11-95 FLUSH CEILING DIFFUSER

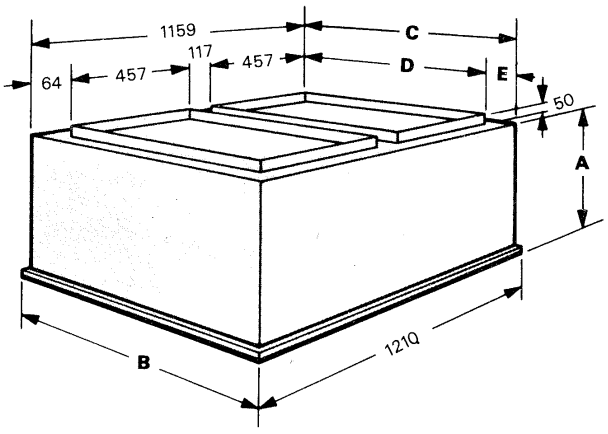


RTD11-135 & RTD11-185 STEP-DOWN CEILING DIFFUSERS



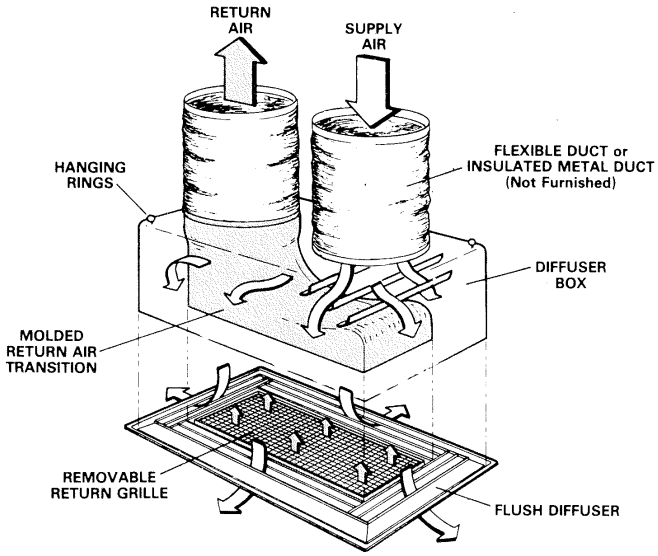
Model No.	A	B	C	D	E	F	G
RTD11-135	711	479	232	905	854	711	71
RTD11-185	864	606	257	1210	1159	914	122

FD11-135 & FD11-185 FLUSH CEILING DIFFUSERS



Model No.	A	B	C	D	E
FD11-135	613	905	854	711	71
FD11-185	765	1210	1159	914	122

DIFFUSER AIR PATTERN



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