

ELITE 12™ ("R" Models) GCS20(R)V-261-311-410-461-510-650 PACKAGED UNITS

GCS20(R)V (2 to 5 Ton) (7.0 to 17.6 kW)

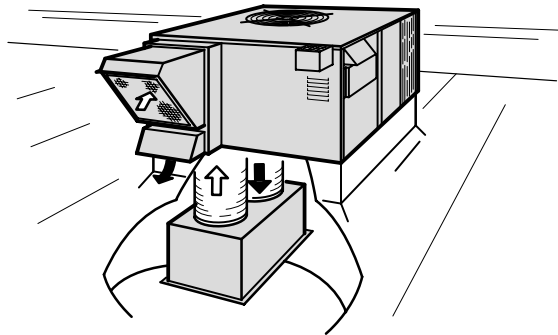
COOLING AND GAS HEAT
23,800 to 58,000 Btuh (7.0 to 17.0 kW) Cooling Capacity
50,000 to 125,000 Btuh (14.7 to 36.6 kW) Input Heating Capacity

Bulletin #210067

April 1995

Supersedes August 1994

*ARI Standard 210/240 Ratings



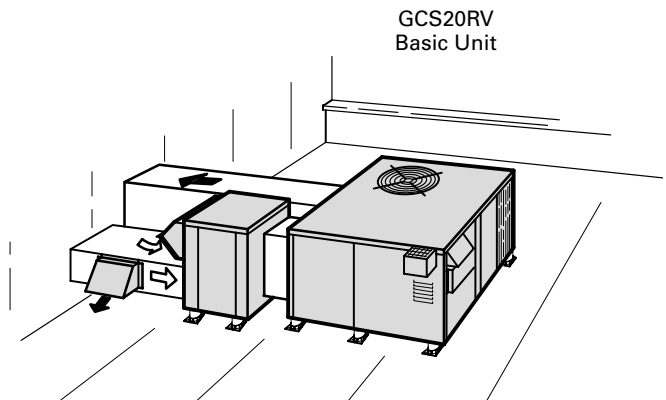
Rooftop Installation With Economizer and
Combination Supply and Return Air System

Application — Lennox GCS20(R)V DX cooling and gas fired all season units are designed for outdoor rooftop or ground level installations in residential or light commercial applications. Units are capable of delivering bottom (down-flo) or side (horizontal) handling of supply and return air. Six model sizes are available, single phase voltage (GCS20(R)V-261-311-411-461-511-651) and three phase voltage (GCS20V-413-513-653) with 50,000 to 125,000 Btuh (14.7 to 36.6 kW) input heating capacity and 23,800 to 58,000 Btuh (7.0 to 17.0 kW) cooling capacity. **NOTE** — "R" models are not available in Canada.

The GCS20V-410-510-650 non "R" single and three phase voltage models are available with a choice of thermostat and related controls which include: electro-mechanical, W973, T7300 and W7400. Also, a factory installed commercial controls platform consisting of control system and economizer wiring harness is furnished as standard. The commercial controls platform and related control systems are not available on the GCS20V "R" models.

Optional accessories include: LPG/Propane conversion kits, condenser coil guards (non "R" models), stand-off mounting kit, down-flo filter adaptor kit ("R" models), roof mounting frames, down-flo or horizontal economizer dampers with modulating damper motor (non "R" models), step-down or flush ceiling supply and return air diffusers, and manual outdoor air dampers. See Specification tables.

Approvals — Units are design certified by A.G.A. and C.G.A. and ratings are certified by GAMA. Heating ratings are according to D.O.E. test procedures and F.T.C. labeling regulations. Complies with ANSI safety codes. Cooling system has been rated in the Lennox environmental test room in accordance with ARI Standard 210/240-89. In addition, unit has been sound rated in the Lennox reverberant sound test room in accordance with ARI Standard 270-84. All -50 & -75 gas input models meet California Nitrogen Oxides (NO_x) standards and California Seasonal Efficiency requirements. Blower data is according to actual unit tests conducted in the Lennox air test chamber. In addition, units are test operated at the factory before shipment to ensure dependable field performance.



Ground Level Installation

Equipment Warranty — Heat exchanger has a limited warranty for a full fifteen years. Compressor has a limited warranty for a full 10 years in residential applications and 5 years in non-residential applications. All other covered components have a limited warranty for five years in residential applications and 1 year in non-residential applications. Refer to Lennox Equipment Limited Warranty furnished with the equipment for details.

Heat Exchanger — Lennox designed heat exchanger has a ductile cast iron cylindrical primary and a helical aluminized steel tube secondary. Finned and cast iron primary provides excellent heat radiation with total air coverage of entire surface area. Precisely sized and shaped tubular secondary is constructed of aluminized steel for superior resistance to corrosion and oxidation. Helical tube design allows complete exposure to air stream resulting in maximum heat transfer with minimum resistance. Compact overall design of heat exchanger reduces valuable space requirement in the cabinet resulting in a trim and space efficient unit. Removable cabinet access panel allows service access. Heat exchanger has been laboratory life cycle tested.

FEATURES

Heating System — Aluminized steel inshot burner provides efficient, trouble free operation, unaffected by adverse wind or atmospheric conditions. Burner venturi mixes air and gas in correct proportion for proper combustion. Burner may be removed for service. Stainless steel flame spreader fits flame to combustion chamber resulting in uniform heat distribution. 24 volt redundant combination control gas valve combines a manual main shut-off valve, pressure regulation and automatic electric valve (dual) into one compact control. Solid-state electronic direct spark ignition system provides positive and safe main burner 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. 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 operates only 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.

Fan and Limit Controls — Factory installed and accurately located. Fan control has adjustable temperature setting. Limit control has fixed temperature setting and protects heating system from abnormal operating conditions.

Copeland® Compliant Scroll™ Compressor — High efficiency compressor features durability, steady uniform suction flow, constant discharge flow, high volumetric efficiency, quiet operation and the ability to start under any system load. Use of the scroll compressor eliminates the need for start capacitor and start relay. The compliant scroll type compressor is a simple compression concept design consisting of two involute spiral scrolls matched together to generate a series of crescent-shaped gas pockets between them. During compression, one scroll is stationary while the other is allowed to orbit, not rotate, around the fixed one. As this motion occurs, gas is drawn into the outer pocket sealing off the open passage. As the spiral movement continues, the pockets between the scrolls are slowly pushed to the center of the scrolls while simultaneously being reduced in volume. When the pocket reaches the center, the gas is now at high pressure and is forced out of a port located in the center of the fixed scroll. During compression, several pockets are being compressed simultaneously resulting in a smooth, nearly continuous compression cycle. Continuous flank contact, maintained by centrifugal force, minimizes gas leakage and maximizes efficiency. The scroll compressor is tolerant to the effects of liquid slugging and contaminants. Should this occur, the scrolls separate and allow the liquid or contaminants to be worked to the center and discharged. Low gas pulses during compression minimize operational sound level. Motor is internally protected from excessive current and temperature. Compressor is installed in the unit on resilient rubber mounts, assuring vibration free operation.

Condenser Fan — Direct drive fan draws air through the condenser coil and discharges it vertically, up and away from the building. Fan orifice design and low fan tip speed keeps operating sound level at a minimum. Uniform air movement through the coil results in high refrigerant cooling capacity. Permanently lubricated, inherently protected, PSC motor is totally enclosed for maximum protection from rain, dust and corrosion. All models are equipped with a corrosion resistant PVC coated steel wire fan guard.

Refrigeration System — Complete factory sealed refrigeration system consists of: compressor, condenser coil and fan, evaporator coil and blower, expansion valve, liquid line strainer, suction and liquid line service gauge ports and full operating charge of refrigerant. GCS20V-410-510-650 non "R" models have factory installed high pressure switch and loss of charge switch.

Copper Tube/Enhanced Fin Evaporator and Condenser Coils — Extra large surface area and circuiting of Lennox designed 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. Lanced fins provide maximum exposure of fin surface to air stream. 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. Evaporator coils feature rifled copper tubing for superior refrigerant flow resulting in maximum heat transfer.

Cabinet — Rugged cabinet is constructed of heavy gauge galvanized steel and completely insulated with thick fiberglass insulation. Pre-painted cabinets have an outside paint finish of mildly textured enamel with a primer coat on unpainted inside surfaces. Large removable cabinet panels allow service access. Supply and return air openings have flanges for ease of duct connection. Control box with factory installed controls is conveniently located for service access. A low voltage terminal strip is furnished and factory installed with GCS20V-410-510-650 non "R" models. Electrical and gas line inlets are furnished for entry into the cabinet. Field installed flue outlet is constructed of durable aluminized steel. Evaporator coil drain pan is constructed of corrosion resistant painted galvanized steel and is equipped with a galvanized pipe (mpt) drain outlet. Coil guards are furnished on all GCS20V "R" models. Lifting brackets are factory installed on all models.

Commercial Controls Platform (GCS20V Non "R" Models) — A commercial controls platform is furnished and factory installed on the GCS20V-410-510 and -650 single and three phase models. This control platform consists of control system and economizer wiring harness with jack plug connections. The wiring harness facilitates installation of the control system and economizer dampers. A choice of several systems are available, see page 4.

Blower — Units are equipped with direct drive centrifugal blower precisely matched to the unit for maximum efficiency and minimum noise level. Blower is statically and dynamically balanced as an assembly before being installed in the unit. Multiple speed VSM motor is resiliently mounted. A choice of blower speeds is available, see blower performance tables. Change in blower speed is easily accomplished by a simple change on blower drive control.

BDC2 Blower Control — Blower control interfaces the VSM motor with the thermostat. The BDC2 control has four diagnostic indicator lights (ON/OFF - HEAT - HI/LOW - CFM) to assist in servicing. Control is factory installed in the indoor blower section. The three speeds, heating, high speed cooling and low speed (cooling or continuous fan) are made by simple jumper pins on the board.

Air Filters (Furnished on GCS20V Non "R" Models) — Cleanable polyurethane one inch (25mm) thick filter and filter rack is furnished for field installation in GCS20V non "R" models for down-flo applications. Filter rack will accept up to two inch (51mm) thick filter. For horizontal applications without economizer, filter must be installed in return air duct. Optional DF16 Down-flo Filter Adaptor is available for GCS20RV models and must be ordered extra.

OPTIONAL ACCESSORIES (Must Be Ordered Extra)

Thermostat (Optional) — Thermostat is not furnished and must be ordered extra. See thermostat bulletin in Accessories section and Lennox Price Book. For thermostat and related control systems for GCS20V non "R" models, see page 4.

Timed-Off Control (Optional) — Timed-off control LB-50709BA (32F21) is available for field installation. Prevents compressor short-cycling and also 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 shut off and start-up.

OPTIONAL ACCESSORIES (Must Be Ordered Extra)

Low Ambient Kit (Optional) — Units will operate satisfactorily in the cooling mode down to 45°F (7°C) outdoor air temperature without any additional controls. For cases where operation of the unit in the cooling mode is required at low ambients, a Low Ambient Control Kit LB-57113BC (24H77) can be added in the field, enabling it to operate properly down to 30°F (-1°C). Kit must be ordered extra.

RMF16 Roof Mounting Frame (Optional) — Roof mounting frame mates to the unit and provides a weather sealed rooftop installation. Shipped knocked down for ease of shipping and handling, it is easily field assembled. A wood nailer strip is secured to the frame sides to facilitate flashing. Design is approved by the National Roofing Contractor's Association. RMF16-41 may be used with all sizes of GCS20(R)V models with slight unit overhang on the -461, -510 and -650 models. RMF16-65 frame exactly matches the GCS20(R)V-461, -510 and -650 models.

Unit Stand-Off Mounting Kit (Optional) — Field installed kit (38H18) elevates horizontal application units above the mounting surface away from damaging moisture. Includes six high impact polystyrene stand-off mounts. Stand-offs are easily attached to unit and mounting surface. See dimension drawings. Kit must be ordered extra.

OAD16 Manual Minimum Fresh Air Damper with Return Air Filter (Optional) — Built-in damper assembly is furnished in cabinet panel that field interchanges with existing blower access panel. Manually operated sliding damper allows entry of a fixed amount (0-25%) of outdoor air into the system. See dimension drawing. An outdoor air hood with cleanable filter media is also provided.

DF16 Down-Flo Filter Adaptor Kit (Optional for GCS20RV Models Only) — Heavy gauge steel filter rails field install on down-flo return air opening. One-inch (25 mm) thick cleanable frame type filter is furnished as standard. Filter rails are designed to accept up to two-inch (51 mm) thick filter. See Air Resistance table, page 19 for resistance data of two-inch (51 mm) pleated non-woven cotton fabric or two-inch (51 mm) fiberglass media filter. Filter access is accomplished by removing unit blower access panel. See Optional Accessories table for filter size.

REMD16/REMD16M Economizers (Optional for GCS20V Non "R" Models Only) — Economizer field installs directly in GCS20V unit cabinets. See dimension drawings. Economizer consists of: cabinet constructed of heavy gauge steel with a baked-on enamel paint finish, outdoor air intake hood, combination outdoor air and recirculated air dampers with pressure operated gravity exhaust air damper. Formed damper blades rotate smoothly in nylon bearings and are gasketed for a tight seal. The economizer dampers and controls are shipped factory assembled, adjusted and cycled and only require plug-in connection. The positioning of the outdoor and recirculated air dampers is accomplished by a 24 volt three position (REMD16) or fully modulating (REMD16M) spring return damper motor with adjustable minimum position switch and controlled by the room thermostat, electronic discharge air sensor and solid-state adjustable outdoor air enthalpy control. The enthalpy control allows 0 to 100% outdoor air to be used for "free cooling" when outdoor temperature and humidity are acceptable. Indoor filter for economizer is not furnished. REMD16M utilizes existing filter supplied with GCS20V unit. Filter rack will accept up to two-inch (51mm) thick filter. See Air Resistance table, page 19 for data on two-inch (51mm) thick pleated non-woven cotton fabric filter or two-inch (51mm) fiberglass media filter. Removable exhaust air hood allows access to filter. Outdoor air intake hood is field installed. A cleanable filter in the outdoor air hood provides extra air filtering and bird screen protection.

EMDH16/EMDH16M Horizontal Economizers (Optional for GCS20V Non "R" Models Only) — The horizontal economizer section is shipped factory assembled, adjusted and cycled. Field installs on the unit and only requires plug-in connection. The economizer section consists of: heavy gauge steel cabinet with baked-on enamel paint finish, fully insulated with thick fiberglass insulation and recirculated air and outdoor air dampers. Formed damper blades rotate smoothly in nylon bearings and are gasketed for tight seal. The positioning of the outdoor and recirculated air dampers is accomplished by a 24 volt three position (EMDH16) or fully modulating (EMDH16M) spring return damper motor with adjustable minimum position switch and controlled by the room thermostat, electronic discharge air sensor and solid-state adjustable outdoor air enthalpy control. The enthalpy controls allows 0 to 100% outdoor air to be used for "free cooling" when outdoor humidity and temperature are acceptable. A one-inch (25mm) thick disposable fiberglass filter is furnished. Filter rack will accept up to two-inch (51mm) thick filter. Removable panel allows easy access to filter. A cleanable filter in the outdoor air hood provides extra air filtering and bird screen protection.

GEDH16-65 Gravity Exhaust Dampers (Optional) — Available for use with EMDH16M horizontal economizer assembly. Pressure operated assembly field installs in the return air duct adjacent to the economizer assembly. Exhaust dampers also have bird screen.

Differential Enthalpy Control (Optional) — A solid-state return air enthalpy sensor is available to be used in conjunction 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 REMD16M or EMDH16M economizer damper section and must be ordered extra.

Roof Curb Power Entry Kit (Optional) — Field installed kit is available for power entry to the unit through the roof mounting frame. Kit contains 40-inch (1.0 m) length of armored conduit and necessary installing hardware. Knockouts in side of roof mounting frame are provided for ease of installation. See dimension drawing. Two kits are required, one for low voltage and one for high voltage. Kits must be ordered extra. Order kit no. (18H70) — 1/2 inch (13 mm) diameter.

LPG/Propane Conversion Kits (Optional) — For LPG/Propane field models a conversion kit is required for field changeover from natural gas. Kit is not furnished and must be ordered extra.

Condenser Coil Guards (Optional for GCS20V Non "R" Models) — PVC coated steel wire coil guards are available and must be ordered extra. GCS20V-410 models require 2 per unit, LB-82199CF, (47J23). GCS20V-510-650 models require 3 per unit, LB-82199CG, (47J24). Correct number of guards are furnished per order number. Coil guards are furnished as standard with all GCS20RV models.

RTD9-65 Combination Ceiling Supply and Return Diffuser (Optional) — RTD9-65 step-down mount diffuser extends slightly below ceiling level when installed 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 connection collars for round duct connection, hanging rings for suspending and molded fiberglass 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 Specifications table.

FD9-65 Combination Ceiling Supply and Return Diffuser (Optional) — FD9-65 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 connection collars for round duct connection, support hanger eyelets at the top corners for secure installation and molded fiberglass 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 Specifications table.

SRT16 Supply and Return Transitions (Optional) — 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 collars for round duct connection. Round duct from the transitions to the diffuser is not furnished and must be provided by the installer. Transitions are completely factory assembled and easily field install in the roof mounting frame with minimum costs and labor requirement. Must be ordered extra. See Specifications table.

Down-Flo Unit Commercial Controls Box (Optional) — Box is provided for housing control system components in bottom air handling applications. Field installs external to the unit, over the side return air opening in place of the opening cover panel furnished with the unit. Hinged cover with quarter turn latches allows complete access. Spacious weather-tight box is constructed of heavy gauge steel with a durable paint finish and is fully insulated. Controls require field installation. See dimension drawing with down-flo economizer application. Box is not furnished and must be ordered extra. See Control Flow Charts for usage.

Horizontal Unit Commercial Controls Placement — Commercial controls for horizontal (side) air handling applications field install on bottom return air cover panel internal to the unit. Cabinet panel removal allows access for field placement and securing of controls. See dimension drawing with horizontal economizer application.

OPTIONAL TEMPERATURE CONTROL SELECTION (Non "R" Models Only)

Electro-Mechanical Thermostat and Control System (Optional) — 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 nite operation the following are available. Single stage heating thermostat (**13F12**) and non-switching subbase (**13F16**). For applications without the economizer a Nite Kit (**39G74**), containing a plug-in relay, is required to override the operation of day thermostat. For applications with economizer, a Nite Relay (**20G32**) is required. Two time clocks are available for the system. Automatic 7 day time clock programs a weekly schedule. Any day or days can be omitted. Each day of the week is clearly separated from every other day. Day and nite periods are distinctly marked. When the settings have been made the clock will turn the system on and off. Spaced in 2 hour increments and equipped with battery back-up in case of power outage. 24 hour nite setback time clock automatically programs the system to keep conditioned area at a more conservative temperature level (nite setback thermostat setting) during a period of vacancy. Spaced in 15 minute increments and equipped with battery back-up in case of power outage. See Price Book for time clock selection and catalog numbers. Also available is a Warm Up Kit (**39G77**) which holds the economizer outdoor air dampers closed during nite heat operation and morning warm up. See Flow Chart on Page 5.

W7400 Control System (Optional) — Control system must be ordered extra for field installation. Control Module (**74G11**) controls the operation of the economizer dampers and the stages of heating and cooling. Controlling input signals are setpoint, space temperature sensor and time-of-day scheduling from the thermostat. The control module balances the space temperature signal against the number of stages operating for system output. System output is measured and updated by monitoring the actual space temperature deviation from set point, and the rate of change of the space temperature. The control module field installs in the unit or in a remote panel located within the conditioned area. Two thermostats are available for the system. A room thermostat (**36G63**) with integral sensor that installs in the conditioned space or a remote thermostat (**36G65**) that installs outside the conditioned space with a Room Temperature Sensor (58C92) in the conditioned area or a Return Air Temperature Sensor (**27C40**) in the return air duct of the unit. Both thermostats are equipped with touch sensitive keyboard, automatic switching from heat to cool, no anticipator, zero droop, indicator lites, hour/day programming, override capabilities, time readout, stage status indicators, battery back-up and wiring wallplate. W7400 Plug-In Relay (furnished with the control module) provides separate set points for the economizer dampers and DX cooling. SP11 Remote Status Panel (**12F83**) is available for checking unit operation within the conditioned area. See Flow Chart on page 6.

T7300 Thermostat and Control System (Optional) — 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**) has selectable output staging up to two heat and two cool, manual system switch (Heat-Off-Auto-Cool), fan switch (Auto-On) and two status LED's for monitoring various equipment operation. 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 set-point 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 on page 6.

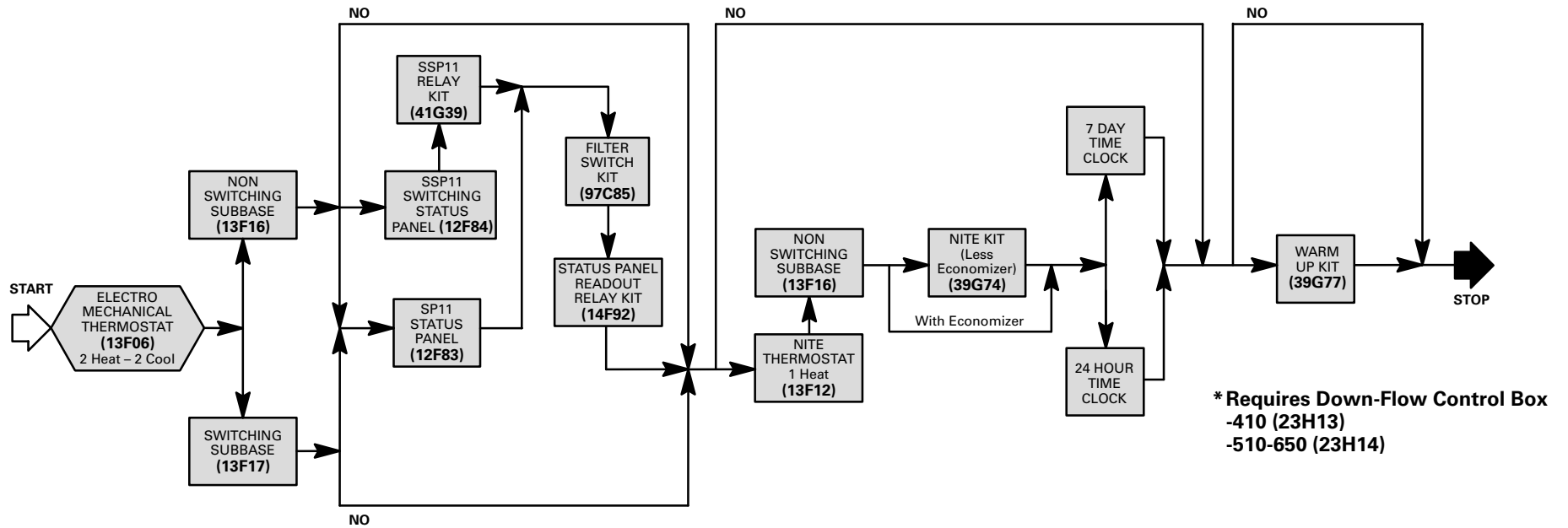
W973 Control System (Optional) — Control system must be ordered extra for field installation. Logic Panel (**39G76**) controls the operation of the economizer dampers and the stages of cooling and heating in response to a signal from the thermostat. To maintain stable temperatures the logic panel balances the conditioned space thermostat demand against the system output. System output is measured by a discharge sensor (furnished with the logic panel) located in the discharge air duct of the unit. The combined demand and output signals from the sensor determines economizer damper position and number of cooling or heating stages energized. The logic panel field installs in the unit or in a remote panel located within the conditioned space. W973 Plug-In Relay (furnished with the logic panel) is required to adapt the control system to the unit. Two thermostats are available for the system. Dual set point room thermostat (**25C52**) or transmitter (**25C51**) with a choice of remote sensors. Both have separate heating-cooling locking set points concealed under the cover and do not have indicating thermometer. The room thermostat has integral sensor and installs in the conditioned space. The transmitter installs outside the conditioned space with a Room Temperature Sensor (**58C92**) in the conditioned area or a Return Air Temperature Sensor (**27C40**) in the return air duct of the unit. Thermostat and transmitter are furnished with a wiring wallplate. Also available is a switching subbase (**58C93**) with system selector switch (Heat-Auto-Cool-Off) and fan switch (Auto-On). For applications with economizer, a Nite Relay (**20G32**) is required. SP11 Remote Status Panel (**12F83**) or SSP11 Remote Switching Status Panel (**12F84**) is available for observing and controlling unit operation from the conditioned area. Two time clocks are available for the system. Automatic 7 day time clock programs a weekly schedule. Any day or days can be omitted. Each day of the week is clearly separated from every other day. Day and nite periods are distinctly marked. When the settings have been made the clock will turn the system on and off. Spaced in 2 hour increments and equipped with battery back-up in case of power outage. 24 hour nite setback time clock automatically programs the system to keep the conditioned area at a more conservative temperature level (nite set back thermostat setting) during a period of vacancy. Spaced in 15 minute increments and equipped with battery back-up in case of power outage. See Price Book for time clock selection and catalog numbers. Also available is a Warm Up Kit (**39G77**) which holds economizer outdoor air dampers closed during nite heat operation and warm up. See Flow Chart on page 5.

SP11 Remote Status Panel (Optional) — The operation of the unit can be checked on the Remote Status Panel (**12F83**) 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 cooling operation. Heat Mode light is green and reflects heating operation. Compressor 1 light is green when operating and will turn red if there is an operational malfunction. Compressor 2 light is not required and should be disregarded. The No Heat and Filter lights will show red and indicate a requirement for service. Additional controls are required for use with the Status Panel must be specified when ordering. Filter Switch Kit (**97C85**) is used with the Filter light. Status Panel Readout Relay Kit (**14F92**) is required to interface status panel with unit operation.

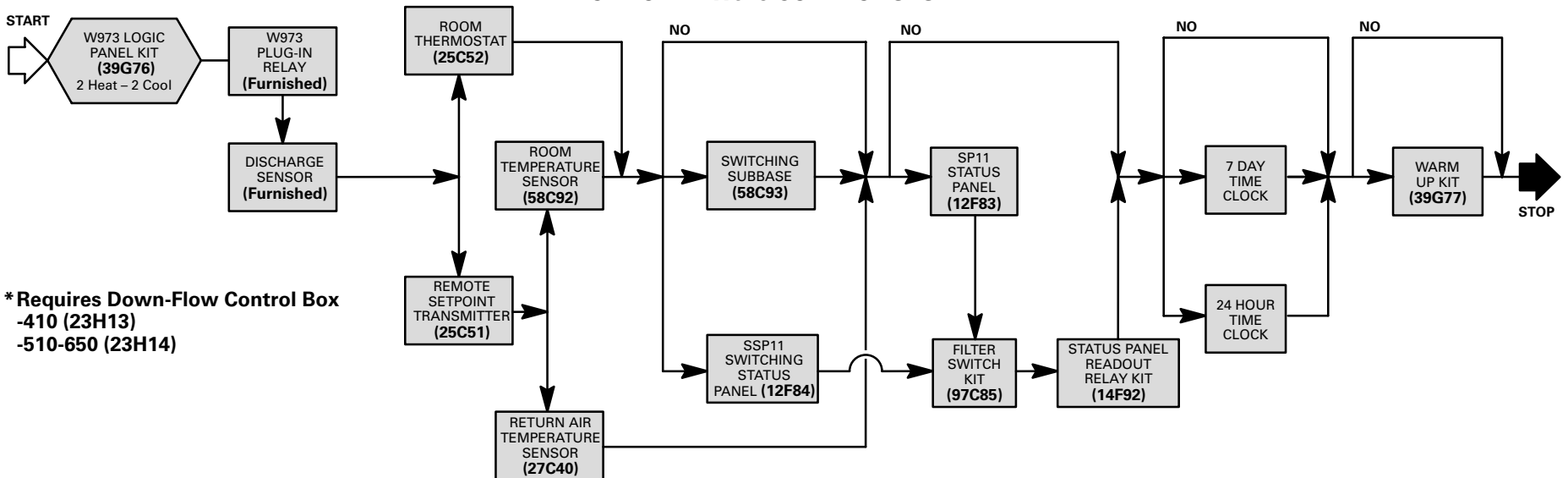
SSP11 Remote Switching Status Panel (Optional) — The operation of the unit can be controlled and observed on the Switching Status Panel (**12F84**) conveniently located within the conditioned area. Signal lights on the panel indicate "Cool Mode," "Heat Mode," "Compressor 1," "Compressor 2," "No Heat" 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 light is green when operating and will turn red if there is an operational malfunction. Compressor 2 light is not required and should be disregarded. 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.

TEMPERATURE CONTROL SELECTION FLOWCHARTS – Non “R” Models Only

***OPTIONAL ELECTRO-MECHANICAL THERMOSTAT CONTROL SYSTEM**

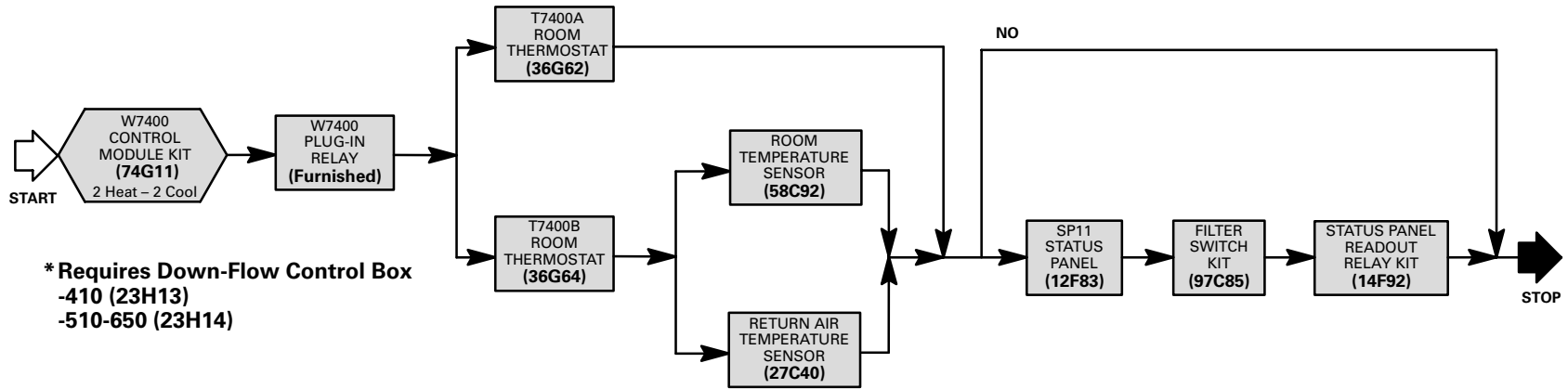


***OPTIONAL W973 CONTROL SYSTEM**

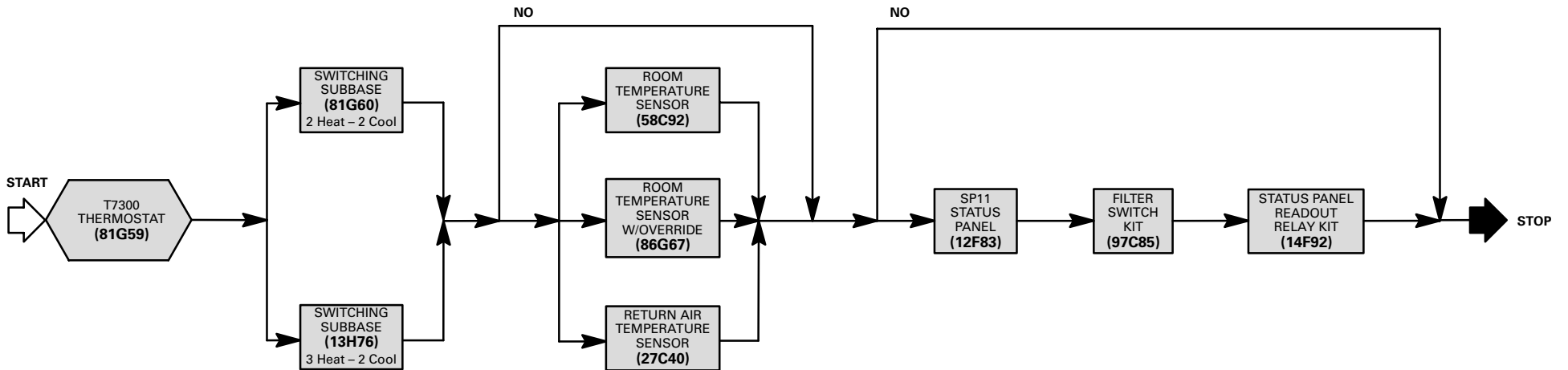


TEMPERATURE CONTROL SELECTION FLOWCHARTS – Non “R” Models Only

***OPTIONAL W7400 CONTROL SYSTEM**



OPTIONAL T7300 CONTROL SYSTEM



SPECIFICATIONS – GCS20RV-261-311

Model No.		GCS20RV-261-50	GCS20RV-311-50	GCS20RV-311-75
Heating capacity input – Btuh (kW) – Natural Gas		50,000 (14.7)	50,000 (14.7)	75,000 (22.0)
Heating capacity output – Btuh (kW) – Natural Gas		38,000 (11.1)	38,000 (11.1)	56,000 (16.4)
Heating capacity input – Btuh (kW) – **LPG/Propane		50,000 (14.7)	50,000 (14.7)	67,500 (19.8)
Heating capacity output – Btuh (kW) – **LPG/Propane		38,000 (11.1)	38,000 (11.1)	51,000 (14.9)
†A.F.U.E.	Natural Gas	79.0%	79.0%	79.1%
	**LPG/Propane	80.0%	78.0%	79.5%
California Seasonal Efficiency	Natural Gas	75.9%	75.9%	75.6%
	**LPG/Propane	76.9%	76.9%	76.0%
★ Sound Rating Number (bels)		8.0		
*ARI Standard 210/240 Ratings	Total Cooling Capacity – Btuh (kW)	23,800 (7.0)	28,400 (8.3)	
	Total Unit Watts	2195	2630	
	SEER (Btuh/Watts)	12.30	12.00	
	EER (Btuh/Watts)	10.80	10.80	
Refrigerant Charge (HCFC-22)		3 lbs. 3 oz. (1.45 kg)	4 lbs. 6 oz. (3.02 kg)	
Evaporator Blower	Blower wheel nom. diameter x width – n (mm)	10 x 8 (254 X 203)		10 x 8 (254 X 203)
	Nom. motor horsepower (W)	1/2 (373)		1/2 (373)
Evaporator Coil	Net face area – sq. ft. (m ²)	3.2 (0.30)		3.2 (0.30)
	Tube diameter – in. (mm) & No. of rows	3/8 (9.5) – 2		3/8 (9.5) – 2
	Fins per inch (m)	15 (590)		15 (590)
Condenser Coil	Net face area – sq. ft. (m ²)	Outer Coil	8.7 (0.81)	
		Inner Coil	- - - - 8.4 (0.78)	
	Tube diameter – in. (mm) & No. of rows	3/8 (9.5) – 1		3/8 (9.5) – 2
	Fins per inch (m)	20 (787)		20 (787)
Condenser Fan	Diameter – in. (mm) & No. of blades	20 (508) – 4		20 (508) – 4
	Air volume – cfm (L/s)	2450 (1155)		2200 (1040)
	Motor horsepower (W)	1/6 (124)		1/6 (124)
	Motor watts	220		240
Gas Supply Connections fpt – in. (mm)	Natural	1/2 (13)		1/2 (13)
	**LPG/Propane	1/2 (13)		1/2 (13)
Recommended Gas Supply Pressure – wc. in. (kPa)	Natural	7 (1.7)		7 (1.7)
	**LPG/Propane	11 (2.7)		11 (2.7)
Condensate drain size mpt – in. (mm)		3/4 (19)		3/4 (19)
●No. & size of filters – in. (mm)		●(1) 16 x 25 x 1 (406 x 635 x 25 (polyurethane))		
Net weight of basic unit – lbs. (kg) (1 Package)		375 (170)	412 (187)	412 (187)
Shipping weight of basic unit – lbs. (kg) (1 Package)		433 (196)	463 (210)	463 (210)
Electrical characteristics		208/230v – 60 hertz – 1 phase		

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

★Sound Rating Number in accordance with ARI Standard 270.

*Rated in accordance with ARI Standard 210/240 and DOE; 95°F (35°C) outdoor air temperature and 80°F (27°C) db/67°F (19.5°C) wb entering evaporator air.

** For LPG/Propane units a field changeover kit is required and must be ordered extra, see Accessories Table.

●Filters are not furnished with GCS20RV models. Down-flo applications require DF16 Down-flo Filter Kit, see Accessories Table.

GCS20RV-261-311 OPTIONAL ACCESSORIES (Must Be Ordered Extra)

Model No.		GCS20RV-261-50	GCS20RV-311-50	GCS20RV-311-75
LPG/Propane Conversion Kit		LB-87434A (89J12)	LB-87434A (89J12)	LB-87434B (89J13)
Down-flo Filter Adapter Kit	Model Number	DF16-41 (21H59)		
	Number and size of filters – in. (mm) furnished	(1) 16 x 25 x 1 (406 x 635 x 25) (polyurethane)		
Low Ambient Kit		LB-57113BC (24H77)		
Timed-Off Control		LB-50709BA (32F21)		
Roof Curb Power Entry Kit (conduit size) – in. (mm)		18H70 – 1/2 (13)		
Stand-Off Mounting Kit		38H18 contains six standoffs		
Roof Mounting Frame (Net Weight)		RMF16-41 (75 lbs.) (34 kg) (73H79)		
Ceiling Supply and Return Air Diffusers (Net Weight)	Step-down	RTD9-65 (67 lbs.) (30 kg) (27G87)		
	Flush	FD9-65 (37 lbs.) (17 kg) (27G86)		
	Transition	SRT16-65 (20 lbs.) (9 kg) (15H02)		
Outdoor Air Dampers (Manual) – (Net Weight) filter media size in. (mm)		OAD16-41 (12 lbs.) (5 kg) (15H00) 5 x 17 x 1 (127 x 431 x 25)		

SPECIFICATIONS — GCS20(R)V-411-413

Model No.		GCS20RV-411-50 GCS20V-411-50 GCS20V-413-50	GCS20RV-411-75 GCS20V-411-75 GCS20V-413-75	GCS20RV-411-100 GCS20V-411-100 GCS20V-413-100
Heating capacity input — Btuh (kW) — Natural Gas		50,000 (14.7)	75,000 (22.0)	100,000 (29.3)
Heating capacity output — Btuh (kW) — Natural Gas		37,000 (10.8)	57,000 (16.7)	78,000 (22.9)
Heating capacity input — Btuh (kW) — **LPG/Propane		50,000 (14.7)	67,500 (19.8)	90,000 (26.4)
Heating capacity output — Btuh (kW) — **LPG/Propane		37,000 (10.8)	52,000 (15.2)	70,000 (20.5)
†A.F.U.E.	Natural Gas	78.0%	79.5%	80.5%
	**LPG/Propane	78.0%	79.9%	81.0%
California Seasonal Efficiency	Natural Gas	74.0%	75.5%	77.8%
	**LPG/Propane	74.0%	75.9%	78.3%
★ Sound Rating Number (bels)		8.0		
*ARI Standard 210/240 Ratings	Total Cooling Capacity — Btuh (kW)	34,200 (10.0)		
	Total Unit Watts	3240		
	SEER (Btuh/Watts)	12.10		
	EER (Btuh/Watts)	10.60		
Refrigerant Charge (HCFC-22)		4 lbs. 6 oz. (3.02 kg)		
Evaporator Blower	Blower wheel nom. diameter x width — n (mm)	10 x 8 (254 X 203)		
	Nom. motor horsepower (W)	1/2 (373)		
Evaporator Coil	Net face area — sq. ft. (m ²)	4.1 (0.38)		
	Tube diameter — in. (mm) & No. of rows	3/8 (9.5) — 2		
	Fins per inch (m)	15 (590)		
Condenser Coil	Net face area — sq. ft. (m ²)	Outer Coil	8.7 (0.81)	
		Inner Coil	8.4 (0.78)	
	Tube diameter — in. (mm) & No. of rows	3/8 (9.5) — 2		
	Fins per inch (m)	20 (787)		
Condenser Fan	Diameter — in. (mm) & No. of blades	20 (508) — 4		
	Air volume — cfm (L/s)	2200 (1040)		
	Motor horsepower (W)	1/6 (124)		
	Motor watts	240		
Gas Supply Connections fpt — in. (mm)	Natural	1/2 (13)		
	**LPG/Propane	1/2 (13)		
Recommended Gas Supply Pressure — wc. in. (kPa)	Natural	7 (1.7)		
	**LPG/Propane	11 (2.7)		
Condensate drain size mpt — in. (mm)		3/4 (19)		
●No. & size of filters — in. (mm)		●(1) 16 x 25 x 1 (406 x 635 x 25 polyurethane)		
Net weight of basic unit — lbs. (kg) (1 Package)		406 (184)	406 (184)	424 (192)
Shipping weight of basic unit — lbs. (kg) (1 Package)		472 (214)	472 (214)	490 (222)
Electrical characteristics		208/230v 1 or 3 phase (60 Hz)		

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

★Sound Rating Number in accordance with ARI Standard 270.

*Rated in accordance with ARI Standard 210/240 and DOE; 95°F (35°C) outdoor air temperature and 80°F (27°C) db/67°F (19.5°C) wb entering evaporator air.

** For LPG/Propane units a field changeover kit is required and must be ordered extra, see Accessories Table.

●Filters are not furnished with GCS20RV models. Down-flo applications require DF16 Down-flo Filter Kit, see Accessories Table. Filters are furnished with GCS20V non "R" models.

GCS20RV-411 OPTIONAL ACCESSORIES (Must Be Ordered Extra)

Model No.		GCS20RV-411-50	GCS20RV-411-75	GCS20RV-411-100
LPG/Propane Conversion Kit		LB-87434A (89J12)	LB-87434B (89J13)	LB-87434C (89J14)
Down-flo Filter Adapter Kit	Model Number	DF16-41 (21H59)		
	Number and size of filters — in. (mm) furnished	(1) 16 x 25 x 1 (406 x 635 x 25) (polyurethane)		
Low Ambient Kit		LB-57113BC (24H77)		
Timed-Off Control		LB-50709BA (32F21)		
Roof Curb Power Entry Kit (conduit size) — in. (mm)		18H70 — 1/2 (13)		
Stand-Off Mounting Kit		38H18 contains six standoffs		
Roof Mounting Frame (Net Weight)		RMF16-41 (75 lbs.) (34 kg) (73H79)		
Ceiling Supply and Return Air Diffusers (Net Weight)	Step-down	RTD9-65 (67 lbs.) (30 kg) (27G87)		
	Flush	FD9-65 (37 lbs.) (17 kg) (27G86)		
	Transition	SRT16-65 (20 lbs.) (9 kg) (15H02)		
Outdoor Air Dampers (Manual) — (Net Weight) filter media size in. (mm)		OAD16-41 (12 lbs.) (5 kg) (15H00) 5 x 17 x 1 (127 x 431 x 25)		

GCS20V-411-413 OPTIONAL ACCESSORIES (Must Be Ordered Extra)

Model No.		GCS20V-411-50 GCS20V-413-50	GCS20V-411-75 GCS20V-413-75	GCS20V-411-100 GCS20V-413-100
LPG/Propane Conversion Kit		LB-87434A (89J12)	LB-87434B (89J13)	LB-87434C (89J14)
Low Ambient Kit		LB-57113BC (24H77)		
Timed-Off Control		LB-50709BA (32F21)		
Stand-Off Mounting Kit		38H18 contains six standoffs		
Roof Curb Power Entry Kit (conduit size) — in. (mm)		18H70 1/2 (13)		
Roof Mounting Frame (Net Weight)		RMF16-41 (75 lbs.) (34 kg) (73H79)		
Economizer Dampers With Gravity Exhaust	Model No.	3 Position (Net Weight)	REMD16-41 (48 lbs.) (22 kg) (58H73)	
		Modulating Position (Net Weight)	REMD16M-41 (48 lbs.) (22 kg) (58H72)	
	Number and size of filters — in. (mm)	Indoor	●(1) 16 x 25 x 1 (406 x 635 x 25)	
		Outdoor	(1) 14 x 25 x 1 (356 x 635 x 25) aluminum mesh	
Horizontal Economizer Dampers	Model No.	3 Position (Net Weight)	EMDH16-41 (110 lbs.) (50 kg) (14H97)	
		Modulating Position (Net Weight)	EMDH16M-41 (110 lbs.) (50 kg) (23H03)	
	Number and size of filters — in. (mm)	Indoor	(1) 20 x 24 x 1 (508 x 610 x 25) fiberglass	
		Outdoor	(1) 8 x 24 x 1 (203 x 610 x 25) aluminum mesh	
Gravity Exhaust Dampers (Net Weight)		GEDH16-65 (4 lbs.) (2 kg) (23H06) use with EMDH16		
Ceiling Supply and Return Air Diffusers (Net Weight)	Step-down	RTD9-65 (67 lbs.) (30 kg) (27G87)		
	Flush	FD9-65 (37 lbs.) (17 kg) (27G86)		
	Transition	SRT16-65 (20 lbs.) (9 kg) (15H02)		
Condenser Coil Guards		LB-82199CF (47J23)		
Outdoor Air Dampers (Manual) — (Net Weight) filter media size — in. (mm)		OAD16-65 (12 lbs.) (5 kg) (15H01) 8 x 17 x 1 (203 x 431 x 25)		
Down-flo Units Commercial Controls Box		23H13		

●Indoor filter is not furnished with economizer. REMD16 utilizes filter furnished with GCS20V non "R" unit.

SPECIFICATIONS — GCS20RV-461

Model No.		GCS20RV-461-75	GCS20RV-461-125
Heating capacity input — Btuh (kW) — Natural Gas		75,000 (22.0)	125,000 (36.6)
Heating capacity output — Btuh (kW) — Natural Gas		58,000 (17.0)	95,000 (27.8)
Heating capacity input — Btuh (kW) — **LPG/Propane		67,500 (19.8)	112,500 (33.0)
Heating capacity output — Btuh (kW) — **LPG/Propane		52,000 (15.2)	85,000 (24.9)
†A.F.U.E.	Natural Gas	78.4%	78.3%
	**LPG/Propane	79.9%	78.5%
California Seasonal Efficiency	Natural Gas	74.9%	75.9%
	**LPG/Propane	76.4%	76.1%
★ Sound Rating Number (bels)		8.2	
*ARI Standard 210/240 Ratings	Total Cooling Capacity — Btuh (kW)	41,500 (12.2)	
	Total Unit Watts	3795	
	SEER (Btuh/Watts)	12.30	
	EER (Btuh/Watts)	10.90	
Refrigerant Charge (HCFC-22)		4 lbs. 14 oz. (2.21 kg)	
Evaporator Blower	Blower wheel nominal diameter x width — in. (mm)	11 1/2 x 9 (292 x 228)	
	Nominal motor output — hp (W)	1 (746)	
Evaporator Coil	Net face area — sq. ft. (m ²)	5.3 (0.49)	
	Tube diameter — in. (mm) & No. of rows	3/8 (9.5) — 2	
	Fins per inch (m)	15 (590)	
Condenser Coil	Net face area — sq. ft. (m ²)	Outer Coil	14.3 (1.33)
		Inner Coil	5.9 (0.55)
	Tube diameter — in. (mm) & No. of rows	3/8 (9.5) — 1.4	
	Fins per inch (m)	20 (787)	
Condenser Fan	Diameter — in. (mm) & No. of blades	24 (610) — 4	
	Air volume — cfm (L/s)	3880 (1830)	
	Motor output — hp (W)	1/4 (187)	
	Motor watts	340	
Gas Supply Connections fpt — in. (mm)	Natural	1/2 (13)	
	**LPG/Propane	1/2 (13)	
Recommended Gas Supply Pressure — wc. in. (kPa)	Natural	7 (1.7)	
	**LPG/Propane	11 (2.7)	
Condensate drain size mpt — in. (mm)		3/4 (19)	
Net weight of basic unit — lbs. (kg) (1 Package)		505 (229)	545 (247)
Shipping weight of basic unit — lbs. (kg) (1 Package)		615 (279)	665 (302)
Electrical characteristics		208/230v — 60 hertz — 1 phase	

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

★Sound Rating Number in accordance with ARI Standard 270.

*Rated in accordance with ARI Standard 210/240 and DOE; 95°F (35°C) outdoor air temperature and 80°F (27°C) db/67°F (19.5°C) wb entering evaporator air.

** For LPG/Propane units a field changeover kit is required and must be ordered extra, see Accessories Table.

NOTE — Filters are not furnished with GCS20RV models. Down-flo applications require DF16 Down-flo Filter Kit, see Accessories Table.

GCS20RV-461 OPTIONAL ACCESSORIES (Must Be Ordered Extra)

Model No.		GCS20RV-461-75	GCS20RV-461-125
LPG/Propane Conversion Kit		LB-87434B (89J13)	LB-87434D (89J15)
Down-flo Filter Adapter Kit	Model Number	DF16-65 (21H60)	
	Number and size of filters — in. (mm) furnished	(1) 20 x 25 x 1 (508 x 635 x 25) (polyurethane)	
Low Ambient Kit		LB-57113BC (24H77)	
Timed-Off Control		LB-50709BA (32F21)	
Roof Curb Power Entry Kit (conduit size) — in. (mm)		18H70 — 1/2 (13)	
Stand-Off Mounting Kit		38H18 contains six standoffs	
Roof Mounting Frame — (Net Weight)		RMF16-41 (75 lbs.) (34.0 kg) (73H79) or RMF16-65 (86 lbs.) (39.0 kg) (73H81)	
Ceiling Supply and Return Air Diffusers (Net Weight)	Step-down	RTD9-65 (67 lbs.) (30.4 kg) (27G87)	
	Flush	FD9-65 (37 lbs.) (16.8 kg) (27G86)	
	Transition	SRT16-65 (20 lbs.) (9.1 kg) (15H02)	
Outdoor Air Dampers (Manual) — (Net Weight) filter media size in. (mm)		OAD16-65 (12 lbs.) (5.4 kg) (15H01) 8 x 17 x 1 (203 x 431 x 25)	

SPECIFICATIONS – GCS20(R)V-511-513

Model No.		GCS20RV-511-75 GCS20-511-75 GCS20-513-75	GCS20RV-511-125 GCS20-511-125 GCS20-513-125
Heating capacity input – Btuh (kW) – Natural Gas		75,000 (22.0)	125,000 (36.6)
Heating capacity output – Btuh (kW) – Natural Gas		58,000 (17.0)	95,000 (27.8)
Heating capacity input – Btuh (kW) – **LPG/Propane		67,500 (19.8)	112,500 (33.0)
Heating capacity output – Btuh (kW) – **LPG/Propane		52,000 (15.2)	85,000 (24.9)
†A.F.U.E.	Natural Gas	78.4%	78.3%
	**LPG/Propane	79.9%	78.5%
California Seasonal Efficiency	Natural Gas	74.9%	75.9%
	**LPG/Propane	76.4%	76.1%
★ Sound Rating Number (bels)		8.2	
*ARI Standard 210/240 Ratings	Total Cooling Capacity – Btuh (kW)	46,500 (13.6)	
	Total Unit Watts	4335	
	SEER (Btuh/Watts)	12.45	
	EER (Btuh/Watts)	10.70	
Refrigerant Charge (HCFC-22)		6 lbs. 8 oz. (2.95 kg)	
Evaporator Blower	Blower wheel nominal diameter x width in (mm)	11 1/2 x 9 (292 x 228)	
	Motor output – hp (W)	1 (746)	
Evaporator Coil	Net face area – sq. ft. (m ²)	5.3 (0.49)	
	Tube diameter – in. (mm) & No. of rows	3/8 (9.5) – 2	
	Fins per inch (m)	15 (590)	
Condenser Coil	Net face area – sq. ft. (m ²)	Outer Coil	14.3 (1.33)
		Inner Coil	13.7 (1.27)
	Tube diameter – in. (mm) & No. of rows	3/8 (9.5) – 1.4	
	Fins per inch (m)	20 (787)	
Condenser Fan	Diameter – in. (mm) & No. of blades	24 (610) – 4	
	Air volume – cfm (L/s)	3770 (1780)	
	Motor output – hp (W)	1/4 (124)	
	Motor watts	340	
Gas Supply Connections fpt – in. (mm)	Natural	1/2 (13)	
	**LPG/Propane	1/2 (13)	
Recommended Gas Supply Pressure – wc. in. (kPa)	Natural	7 (1.7)	
	**LPG/Propane	11 (2.7)	
Condensate drain size mpt – in. (mm)		3/4 (19)	
●No. & size of filters – in. (mm)		●(1) 20 x 25 x 1 (508 x 635 x 25 (polyurethane))	
Net weight of basic unit – lbs. (kg) (1 Package)		560 (254)	600 (272)
Shipping weight of basic unit – lbs. (kg) (1 Package)		645 (293)	685 (310)
Electrical characteristics		208/230v 1 or 3 phase (60 hz)	

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

★Sound Rating Number in accordance with ARI Standard 270.

*Rated in accordance with ARI Standard 210/240 and DOE; 95°F (35°C) outdoor air temperature and 80°F (27°C) db/67°F (19.5°C) wb entering evaporator air.

** For LPG/Propane units a field changeover kit is required and must be ordered extra, see Accessories Table.

●Filters are not furnished with GCS20RV models. Down-flo applications require DF16 Down-flo Filter Kit, see Accessories Table. Filters are furnished with GCS20V non “R” models.

GCS20RV-511 OPTIONAL ACCESSORIES (Must Be Ordered Extra)

Model No.		GCS20RV-511-75	GCS20RV-511-125
LPG/Propane Conversion Kit		LB-87434B (89J13)	LB-87434D (89J15)
Optional Down-flo Filter Adapter Kit	Model Number	DF16-65 (21H60)	
	Number and size of filters — in. (mm) furnished	(1) 20 x 25 x 1 (508 x 635 x 25) (polyurethane)	
Low Ambient Kit		LB-57113BC (24H77)	
Timed-Off Control		LB-50709BA (32F21)	
Stand-Off Mounting Kit		38H18 contains six standoffs	
Roof Curb Power Entry Kit (conduit size) — in. (mm)		18H70 1/2 (13)	
Roof Mounting Frame (Net Weight)		RMF16-41 (75 lbs.) (34 kg) (73H79) or RMF16-65 (86 lbs.) (39 kg) (73H81)	
Ceiling Supply and Return Air Diffusers (Net Weight)	Step-down	RTD9-65 (67 lbs.) (30 kg) (27G87)	
	Flush	FD9-65 (37 lbs.) (17 kg) (27G86)	
	Transition	SRT16-65 (20 lbs.) (9 kg) (15H02)	
Outdoor Air Dampers (Manual) — (Net Weight) filter media size — in. (mm)		OAD16-65 (12 lbs.) (5 kg) (15H01) 8 x 17 x 1 (203 x 431 x 25)	

GCS20V-511-513 OPTIONAL ACCESSORIES (Must Be Ordered Extra)

Model No.		GCS20V-511-75 GCS20V-513-75	GCS20V-511-125 GCS20V-513-125
LPG/Propane Conversion Kit		LB-87434B (89J13)	LB-87434D (89J15)
Low Ambient Kit		LB-57113BC (24H77)	
Timed-Off Control		LB-50709BA (32F21)	
Stand-Off Mounting Kit		38H18 contains six standoffs	
Roof Curb Power Entry Kit (conduit size) — in. (mm)		18H70 1/2 (13)	
Roof Mounting Frame (Net Weight)		RMF16-41 (75 lbs.) (34 kg) (73H79) or RMF16-65 (86 lbs.) (39 kg) (73H81)	
Economizer Dampers With Gravity Exhaust	Model No.	3 Position (Net Weight)	REMD16-65 (48 lbs.) (22 kg) (58H75)
		Modulating Position (Net Weight)	REMD16M-65 (48 lbs.) (22 kg) (58H74)
	Number and size of filters — in. (mm)	Indoor	●(1) 20 x 25 x 1 (508 x 635 x 25)
		Outdoor	(1) 17-3/4 x 25 x 1 (451 x 635 x 25) aluminum mesh
Horizontal Economizer Dampers	Model No.	3 Position (Net Weight)	EMDH16-65 (110 lbs.) (50 kg) (14H98)
		Modulating Position (Net Weight)	EMDH16M-65 (110 lbs.) (50 kg) (23H02)
	Number and size of filters — in. (mm)	Indoor	(2) 14 x 25 x 1 (356 x 635 x 25) fiberglass
		Outdoor	(1) 8 x 28 x 1 (203 x 711 x 25) aluminum mesh
Gravity Exhaust Dampers (Net Weight)		GEDH16-65 (4 lbs.) (2 kg) (23H06) use with EMDH16	
Ceiling Supply and Return Air Diffusers (Net Weight)	Step-down	RTD9-65 (67 lbs.) (30 kg) (27G87)	
	Flush	FD9-65 (37 lbs.) (17 kg) (27G86)	
	Transition	SRT16-65 (20 lbs.) (9 kg) (15H02)	
Condenser Coil Guards		LB-82199CG (47J24)	
Outdoor Air Dampers (Manual) — (Net Weight) filter media size — in. (mm)		OAD16-65 (12 lbs.) (5 kg) (15H01) 8 x 17 x 1 (203 x 431 x 25)	
Down-flo Units Commercial Controls Box		23H13	

●Indoor filter is not furnished with economizer. REMD16 utilizes filter furnished with GCS20V non "R" unit.

SPECIFICATIONS – GCS20(R)V-651-653

Model No.		GCS20RV-651-75 GCS20V-651-75 GCS20V-653-75	GCS20RV-651-125 GCS20V-651-125 GCS20V-653-125
Heating capacity input – Btuh (kW) – Natural Gas		75,000 (22.0)	125,000 (36.6)
Heating capacity output – Btuh (kW) – Natural Gas		58,000 (17.0)	95,000 (27.8)
Heating capacity input – Btuh (kW) – **LPG/Propane		67,500 (19.8)	112,500 (33.0)
Heating capacity output – Btuh (kW) – **LPG/Propane		52,000 (15.2)	85,000 (24.9)
†A.F.U.E.	Natural Gas	78.4%	78.3%
	**LPG/Propane	79.9%	78.5%
California Seasonal Efficiency	Natural Gas	74.9%	75.9%
	**LPG/Propane	76.4%	76.1%
★ Sound Rating Number (bels)		8.2	
*ARI Standard 210/240 Ratings	Total Cooling Capacity – Btuh (kW)	58,000 (17.0)	
	Total Unit Watts	5875	
	SEER (Btuh/Watts)	12.15	
	EER (Btuh/Watts)	9.85	
Refrigerant Charge (HCFC-22)		7 lbs. 0 oz. (3.20 kg)	
Evaporator Blower	Blower wheel nom. dia. x width in (mm)	11 1/2 x 9 (292 x 228)	
	Motor output – hp (W)	1 (746)	
Evaporator Coil	Net face area – sq. ft. (m ²)	6.2 (0.58)	
	Tube diameter – in. (mm) & No. of rows	3/8 (9.5) – 2	
	Fins per inch (m)	15 (590)	
Condenser Coil	Net face area – sq. ft. (m ²)	Outer Coil	14.3 (1.32)
		Inner Coil	13.7 (1.27)
	Tube diameter – in. (mm) & No. of rows	3/8 (9.5) – 2	
	Fins per inch (m)	20 (787)	
Condenser Fan	Diameter – in. (mm) & No. of blades	24 (610) – 4	
	Air volume – cfm (L/s)	3770 (1780)	
	Motor output – hp (W)	1/4 (187)	
	Motor watts	360	
Gas Supply Connections fpt – in. (mm)	Natural	1/2 (13)	
	**LPG/Propane	1/2 (13)	
Recommended Gas Supply Pressure – wc. in. (kPa)	Natural	7 (1.7)	
	**LPG/Propane	11 (2.7)	
Condensate drain size mpt – in. (mm)		3/4 (19)	
●No. & size of filters – in. (mm)		●(1) 20 x 25 x 1 (508 x 635 x 25 (polyurethane))	
Net weight of basic unit – lbs. (kg) (1 Package)		565 (256)	595 (270)
Shipping weight of basic unit – lbs. (kg) (1 Package)		655 (297)	685 (310)
Electrical characteristics		208/230v 1 or 3 phase (60 hz)	

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

★Sound Rating Number in accordance with ARI Standard 270.

*Rated in accordance with ARI Standard 210/240 and DOE; 95°F (35°C) outdoor air temperature and 80°F (27°C) db/67°F (19.5°C) wb entering evaporator air.

** For LPG/Propane units a field changeover kit is required and must be ordered extra, see Accessories Table.

●Filters are not furnished with GCS20RV models. Down-flo applications require DF16 Down-flo Filter Kit, see Accessories Table. Filters are furnished with GCS20V non “R” models.

GCS20RV-651 OPTIONAL ACCESSORIES (Must Be Ordered Extra)

Model No.		GCS20RV-651-75	GCS20RV-651-125
LPG/Propane Conversion Kit		LB-87434B (89J13)	LB-87434D (89J15)
Optional Down-flo Filter Adapter Kit	Model Number	DF16-65 (21H60)	
	Number and size of filters — in. (mm) furnished	(1) 20 x 25 x 1 (508 x 635 x 25) (polyurethane)	
Low Ambient Kit		LB-57113BC (24H77)	
Timed-Off Control		LB-50709BA (32F21)	
Stand-Off Mounting Kit		38H18 contains six standoffs	
Roof Curb Power Entry Kit (conduit size) — in. (mm)		18H70 1/2 (13)	
Roof Mounting Frame (Net Weight)		RMF16-41 (75 lbs.) (34 kg) (73H79) or RMF16-65 (86 lbs.) (39 kg) (73H81)	
Ceiling Supply and Return Air Diffusers (Net Weight)	Step-down	RTD9-65 (67 lbs.) (30 kg) (27G87)	
	Flush	FD9-65 (37 lbs.) (17 kg) (27G86)	
	Transition	SRT16-65 (20 lbs.) (9 kg) (15H02)	
Outdoor Air Dampers (Manual) — (Net Weight) filter media size — in. (mm)		OAD16-65 (12 lbs.) (5 kg) (15H01) 8 x 17 x 1 (203 x 431 x 25)	

GCS20V-651-653 OPTIONAL ACCESSORIES (Must Be Ordered Extra)

Model No.		GCS20V-651-75 GCS20V-653-75	GCS20V-651-125 GCS20V-653-125
LPG/Propane Conversion Kit		LB-87434B (89J13)	LB-87434D (89J15)
Low Ambient Kit		LB-57113BC (24H77)	
Timed-Off Control		LB-50709BA (32F21)	
Stand-Off Mounting Kit		38H18 contains six standoffs	
Roof Curb Power Entry Kit (conduit size) — in. (mm)		18H70 1/2 (13)	
Roof Mounting Frame (Net Weight)		RMF16-41 (75 lbs.) (34 kg) (73H79) or RMF16-65 (86 lbs.) (39 kg) (73H81)	
Economizer Dampers With Gravity Exhaust	Model No.	3 Position (Net Weight)	REMD16-65 (66 lbs.) (30 kg) (58H75)
		Modulating Position (Net Weight)	REMD16M-65 (66 lbs.) (30 kg) (58H74)
	Number and size of filters — in. (mm)	Indoor	●(1) 20 x 25 x 1 (508 x 635 x 25)
		Outdoor	(1) 17-3/4 x 25 x 1 (451 x 635 x 25) aluminum mesh
Horizontal Economizer Dampers	Model No.	3 Position (Net Weight)	EMDH16-65 (130 lbs.) (60 kg) (14H98)
		Modulating Position (Net Weight)	EMDH16M-65 (130 lbs.) (60 kg) (23H02)
	Number and size of filters — in. (mm)	Indoor	(2) 14 x 25 x 1 (356 x 635 x 25) fiberglass
		Outdoor	(1) 8 x 28 x 1 (203 x 711 x 25) aluminum mesh
Gravity Exhaust Dampers (Net Weight)		GEDH16-65 (4 lbs.) (2 kg) (23H06) use with EMDH16	
Ceiling Supply and Return Air Diffusers (Net Weight)	Step-down	RTD9-65 (67 lbs.) (30 kg) (27G87)	
	Flush	FD9-65 (37 lbs.) (17 kg) (27G86)	
	Transition	SRT16-65 (20 lbs.) (9 kg) (15H02)	
Condenser Coil Guards		LB-82199CG (47J24)	
Outdoor Air Dampers (Manual) — (Net Weight) filter media size — in. (mm)		OAD16-65 (12 lbs.) (5 kg) (15H01) 8 x 17 x 1 (203 x 431 x 25)	
Down-flo Units Commercial Controls Box		23H13	

●Indoor filter is not furnished with economizer. REMD16 utilizes filter furnished with GCS20V non "R" unit.

ELECTRICAL DATA — GCS20(R)V-261-311-411-461-511-651 — Single Phase Voltage

Model No.		GCS20RV-261	GCS20RV-311	GCS20(R)V-411	GCS20RV-461	GCS20(R)V-511	GCS20(R)V-651
Line voltage data — 60 hz — 1 phase		208/230v	208/230v	208/230v	208/230v	208/230v	208/230v
Compressor	Rated load amps	11.5	13.5	16.1	19.9	23.7	28.8
	Locked rotor amps	62.5	76.0	88.0	107.0	129.0	169.0
Condenser Fan Motor	Full load amps	1.1	1.1	1.1	2.0	2.0	2.0
	Locked rotor amps	1.9	1.9	1.9	4.4	4.4	4.4
Evaporator Blower motor	Full load amps	4.3	4.3	4.3	7.0	7.0	7.0
Induced Draft Blower Motor	Full load amps (total)	.75	.75	.75	.6	.6	.6
*Recommended maximum fuse size (amps)		30	35	40	50	60	70
**Minimum Circuit Ampacity		20.0	23.0	26.0	34.0	39.0	45.0
Unit Power Factor		.93	.92	.94	.89	.89	.96

*Where current does not exceed 100 amps, HACR circuit breaker may be used in place of fuse (U.S. only).

**Refer to National or Canadian Electric Code to determine wire, fuse and disconnect size requirements.

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

ELECTRICAL DATA — GCS20V-413-513-653 — Three Phase Voltage

Model No.		GCS20V-413	GCS20V-513	GCS20V-653
Line voltage data — 60 Hz — 3 phase		208/230v	208/230v	208/230v
Compressor	Rated load amps	10.3	13.5	17.3
	Locked rotor amps	77.0	99.0	123.0
Condenser Fan Motor	Full load amps	1.1	2.0	2.0
	Locked rotor amps	1.9	4.4	4.4
Evaporator Blower Motor (1 phase)	Full load amps	4.3	7.0	7.0
†Induced Draft Blower Motor (1 phase)	Full load amps (total)	.75	.6	.6
*Recommended maximum fuse size (amps)		25	35	45
**Minimum Circuit Ampacity		19.0	26.0	31.0
Unit Power Factor		.81	.87	.86

*Where current does not exceed 100 amps, HACR circuit breaker may be used in place of fuse (U.S. only).

**Refer to National or Canadian Electric Code to determine wire, fuse and disconnect size requirements.

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

†Motor is rated at 230 volts. Full load amps shown are for step-down transformer output.

HIGH ALTITUDE DERATE

A.G.A. certified units must be derated when installed at an elevation of more than 2000 feet (610 m) above sea level. If unit is installed at an altitude higher than 2000 feet (610 m), the unit must be derated 4% for every 1000 feet (305 m) above sea level. Thus, at an altitude of 4000 feet (1210 m), the unit would require a derate of 16%.

◇ C.G.A. certified units must be derated when installed at an elevation of more than 2000 feet (610 m) above sea level. If unit is installed at an altitude higher than 2000 feet (610 m), the unit must be derated 10% for elevations between 2000 feet and 4500 feet (610 m and 1370 m) above sea level.

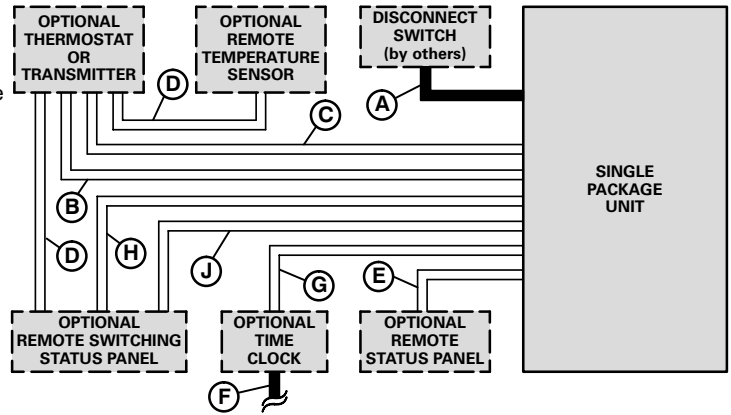
NOTE — This is the only permissible derate for these units.

W973 CONTROL SYSTEM

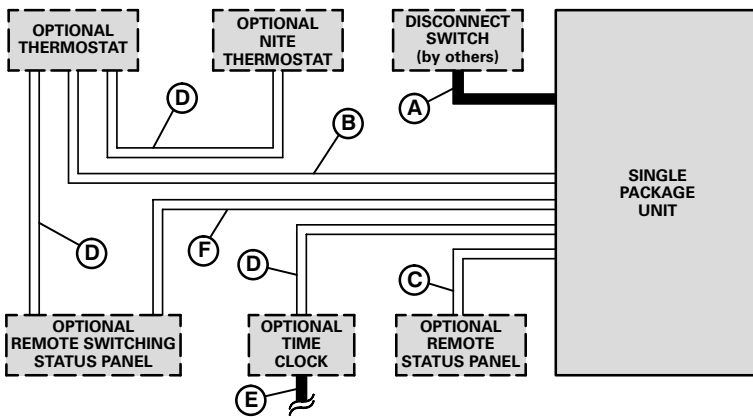
- A – Two or Three wire power (See Electrical Data Table)
- B – Seven wire low voltage – DC only
 - Five wire low voltage – DC only – with SSP11 Switching Status Panel
 - Seven wire low voltage – DC only – with switching subbase
- C – Two wire low voltage – AC only – with switching subbase
- D – Two wire low voltage – DC only
- E – Nine wire low voltage – AC only
- F – Two wire low voltage – AC only
- G – Two wire low voltage – AC only
- H – Thirteen wire low voltage – AC only
- J – Two wire low voltage – DC only
 - AC – Alternating current
 - DC – Direct current

NOTE – Run separate harness for AC and DC.
AC voltage interferes with DC signals.
– Field wiring not furnished –

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



ELECTRO-MECHANICAL THERMOSTAT CONTROL SYSTEM



- A – Two or 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 –

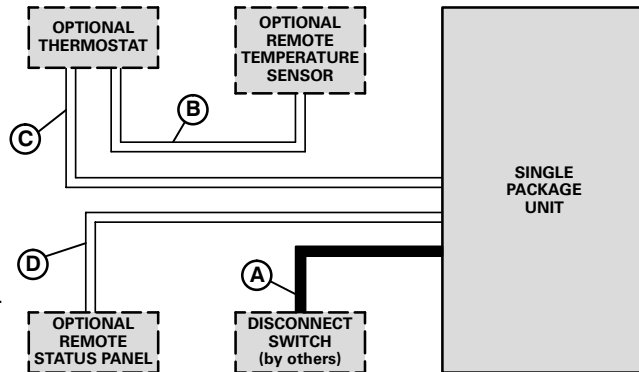
NOTE – All wiring must conform to NEC or CEC and local electrical codes.

W7400 CONTROL SYSTEM

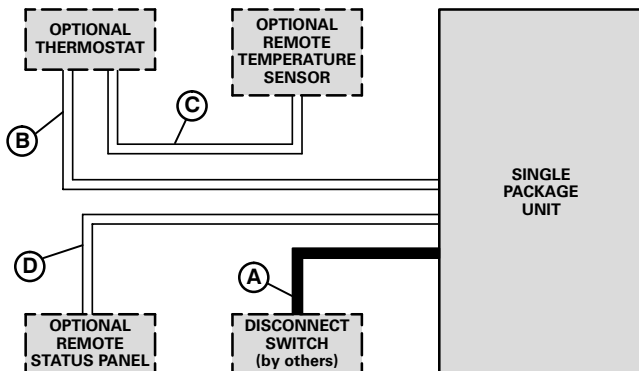
- A – Two or Three wire power (See Electrical Data Table)
- B – Two wire low voltage
- C – Four wire low voltage
- D – Nine wire low voltage

– Field wiring not furnished –

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



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 (Room Sensor with Override)
- D – Nine wire low voltage

– Field wiring not furnished –

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

RATINGS

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

GCS20RV-261 COOLING CAPACITY

Entering Wet Bulb Temperature	Total Air Volume L/s cfm		Outdoor Air Temperature Entering Condenser Coil																							
			85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			Total Cooling Capacity kW Btuh		Compressor Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity kW Btuh		Compressor Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity kW Btuh		Compressor Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity kW Btuh		Compressor Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb		
						75°F 24°C	80°F 27°C	85°F 29°C				75°F 24°C	80°F 27°C	85°F 29°C				75°F 24°C	80°F 27°C	85°F 29°C				75°F 24°C	80°F 27°C	85°F 29°C
63°F (17.2°C)	330	700	6.8	23,200	1640	.75	.89	.99	6.5	22,300	1840	.76	.90	1.00	6.3	21,500	2070	.77	.92	1.00	6.1	20,700	2310	.78	.93	1.00
	375	800	6.9	23,700	1640	.78	.93	1.00	6.7	22,800	1850	.79	.94	1.00	6.4	22,000	2070	.81	.96	1.00	6.2	21,200	2320	.82	.97	1.00
	425	900	7.1	24,200	1650	.81	.96	1.00	6.8	23,300	1850	.83	.98	1.00	6.6	22,500	2080	.84	.99	1.00	6.4	21,700	2330	.86	1.00	1.00
67°F (19.4°C)	330	700	7.2	24,600	1650	.58	.72	.86	6.9	23,700	1860	.59	.73	.87	6.7	22,800	2090	.59	.75	.89	6.4	21,900	2340	.60	.76	.90
	375	800	7.3	25,000	1660	.60	.76	.90	7.1	24,100	1870	.61	.77	.91	6.8	23,200	2090	.62	.78	.93	6.5	22,300	2340	.63	.80	.95
	425	900	7.4	25,400	1660	.62	.79	.94	7.2	24,400	1870	.63	.80	.95	6.9	23,500	2100	.64	.82	.97	6.7	22,700	2350	.65	.84	.98
71°F (21.7°C)	330	700	7.7	26,200	1670	.43	.56	.70	7.4	25,300	1880	.43	.57	.71	7.1	24,300	2110	.43	.58	.72	6.9	23,400	2370	.44	.59	.74
	375	800	7.8	26,600	1680	.44	.59	.73	7.5	25,700	1890	.44	.59	.75	7.2	24,700	2120	.44	.60	.76	7.0	23,800	2370	.45	.61	.78
	425	900	7.9	27,000	1680	.45	.61	.77	7.6	26,000	1890	.45	.62	.78	7.3	25,000	2120	.45	.63	.80	7.1	24,100	2380	.46	.64	.81

NOTE – All values are gross capacities and do not include evaporator coil blower motor heat deduction.

GCS20RV-311 COOLING CAPACITY

Entering Wet Bulb Temperature	Total Air Volume L/s cfm		Outdoor Air Temperature Entering Condenser Coil																							
			85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			Total Cooling Capacity kW Btuh		Compressor Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity kW Btuh		Compressor Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity kW Btuh		Compressor Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity kW Btuh		Compressor Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb		
						75°F 24°C	80°F 27°C	85°F 29°C				75°F 24°C	80°F 27°C	85°F 29°C				75°F 24°C	80°F 27°C	85°F 29°C				75°F 24°C	80°F 27°C	85°F 29°C
63°F (17.2°C)	375	800	8.1	27,700	1980	.73	.86	.97	7.8	26,700	2220	.74	.87	.98	7.6	25,800	2490	.75	.89	.99	7.3	24,800	2810	.76	.91	1.00
	425	900	8.3	28,200	1990	.75	.90	1.00	8.0	27,300	2230	.76	.91	1.00	7.7	26,300	2500	.78	.92	1.00	7.4	25,200	2820	.79	.94	1.00
	470	1000	8.4	28,700	1990	.78	.93	1.00	8.1	27,700	2230	.79	.94	1.00	7.8	26,700	2510	.81	.96	1.00	7.5	25,700	2820	.82	.97	1.00
67°F (19.4°C)	375	800	8.6	29,300	2000	.57	.70	.83	8.3	28,300	2240	.57	.71	.84	8.0	27,300	2510	.58	.72	.86	7.7	26,200	2830	.59	.74	.88
	425	900	8.7	29,800	2000	.58	.73	.86	8.4	28,800	2250	.59	.74	.88	8.1	27,700	2520	.60	.75	.90	7.8	26,600	2840	.61	.77	.91
	470	1000	8.9	30,200	2010	.60	.76	.90	8.6	29,200	2250	.61	.77	.91	8.2	28,000	2530	.62	.78	.93	7.9	26,900	2840	.63	.80	.95
71°F (21.7°C)	375	800	9.1	31,200	2020	.43	.55	.68	8.9	30,200	2260	.43	.56	.69	8.5	29,000	2540	.43	.57	.70	8.2	27,900	2860	.43	.57	.71
	425	900	9.3	31,700	2020	.43	.57	.71	9.0	30,600	2260	.43	.58	.72	8.6	29,500	2540	.44	.58	.73	8.3	28,200	2860	.44	.59	.75
	470	1000	9.4	32,000	2020	.44	.59	.73	9.1	31,000	2270	.44	.59	.75	8.7	29,800	2550	.44	.60	.76	8.4	28,600	2870	.45	.61	.78

NOTE – All values are gross capacities and do not include evaporator coil blower motor heat deduction.

GCS20(R)V-411-413 COOLING CAPACITY

Entering Wet Bulb Temperature	Total Air Volume L/s cfm		Outdoor Air Temperature Entering Condenser Coil																							
			85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			Total Cooling Capacity kW Btuh		Compressor Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity kW Btuh		Compressor Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity kW Btuh		Compressor Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity kW Btuh		Compressor Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb		
						75°F 24°C	80°F 27°C	85°F 29°C				75°F 24°C	80°F 27°C	85°F 29°C				75°F 24°C	80°F 27°C	85°F 29°C				75°F 24°C	80°F 27°C	85°F 29°C
63°F (17.2°C)	470	1000	10.0	34,000	2420	.74	.88	.99	9.6	32,800	2730	.75	.89	1.00	9.3	31,600	3090	.76	.91	1.00	8.9	30,300	3490	.78	.93	1.00
	520	1100	10.1	34,500	2430	.76	.91	1.00	9.8	33,300	2740	.77	.92	1.00	9.4	32,100	3090	.79	.94	1.00	9.0	30,800	3500	.80	.96	1.00
	565	1200	10.3	35,000	2430	.78	.93	1.00	9.9	33,800	2740	.80	.95	1.00	9.6	32,600	3100	.81	.96	1.00	9.1	31,200	3510	.83	.98	1.00
67°F (19.4°C)	470	1000	10.6	36,000	2440	.58	.72	.85	10.2	34,700	2760	.58	.73	.86	9.8	33,400	3110	.59	.74	.88	9.3	31,900	3520	.60	.76	.90
	520	1100	10.7	36,400	2450	.59	.74	.88	10.3	35,100	2760	.60	.75	.89	9.9	33,800	3120	.61	.77	.91	9.5	32,300	3530	.62	.78	.93
	565	1200	10.8	36,800	2450	.60	.76	.90	10.4	35,500	2770	.61	.78	.92	10.0	34,100	3130	.62	.79	.94	9.6	32,700	3530	.63	.81	.96
71°F (21.7°C)	470	1000	11.2	38,200	2470	.43	.56	.69	10.8	36,900	2790	.43	.57	.70	10.4	35,500	3150	.43	.58	.72	10.0	34,000	3560	.44	.58	.73
	520	1100	11.3	38,700	2480	.43	.58	.72	10.9	37,300	2790	.44	.58	.73	10.5	35,900	3150	.44	.59	.74	10.1	34,300	3570	.44	.60	.76
	565	1200	11.4	39,000	2480	.44	.59	.74	11.0	37,700	2800	.44	.60	.75	10.6	36,200	3160	.45	.61	.77	10.1	34,600	3570	.45	.62	.79

NOTE – All values are gross capacities and do not include evaporator coil blower motor heat deduction.

GCS20RV-461 COOLING CAPACITY

Entering Wet Bulb Temperature	Total Air Volume L/s cfm		Outdoor Air Temperature Entering Condenser Coil																							
			85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			Total Cooling Capacity kW Btuh		Compressor Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity kW Btuh		Compressor Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity kW Btuh		Compressor Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity kW Btuh		Compressor Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb		
						75°F 24°C	80°F 27°C	85°F 29°C				75°F 24°C	80°F 27°C	85°F 29°C				75°F 24°C	80°F 27°C	85°F 29°C				75°F 24°C	80°F 27°C	85°F 29°C
63°F (17.2°C)	565	1200	11.9	40,600	2850	.73	.87	.98	11.5	39,300	3190	.75	.89	.99	11.1	37,900	3570	.76	.90	1.00	10.6	36,300	4020	.77	.92	1.00
	660	1400	12.2	41,600	2870	.77	.92	1.00	11.8	40,300	3200	.78	.93	1.00	11.4	38,800	3580	.80	.95	1.00	10.9	37,300	4030	.81	.97	1.00
	755	1600	12.5	42,500	2880	.81	.96	1.00	12.1	41,200	3210	.82	.97	1.00	11.6	39,700	3600	.84	.98	1.00	11.2	38,200	4040	.85	.99	1.00
67°F (19.4°C)	565	1200	12.6	43,100	2880	.57	.71	.84	12.2	41,700	3220	.58	.72	.86	11.8	40,100	3600	.59	.73	.87	11.3	38,500	4050	.59	.75	.89
	660	1400	12.9	44,000	2890	.59	.75	.89	12.5	42,500	3230	.60	.76	.90	12.0	40,900	3610	.61	.77	.92	11.5	39,200	4060	.62	.79	.94
	755	1600	13.1	44,700	2900	.62	.78	.93	12.6	43,100	3240	.62	.80	.95	12.2	41,500	3620	.63	.81	.96	11.7	39,800	4070	.65	.83	.98
71°F (21.7°C)	565	1200	13.5	45,900	2920	.43	.56	.69	13.0	44,400	3250	.43	.56	.70	12.5	42,800	3640	.43	.57	.71	12.0	41,000	4090	.44	.58	.72
	660	1400	13.7	46,800	2930	.44	.58	.72	13.2	45,200	3260	.44	.59	.74	12.7	43,500	3650	.44	.60	.75	12.2	41,700	4100	.45	.61	.77
	755	1600	13.9	47,500	2940	.44	.60	.76	13.5	45,900	3270	.45	.61	.78	12.9	44,100	3660	.45	.62	.79	12.4	42,300	4100	.46	.63	.81

NOTE – All values are gross capacities and do not include evaporator coil blower motor heat deduction.

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(R)V-511-513 COOLING CAPACITY

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Condenser Coil																							
			85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			Total Cooling Capacity		Compressor Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Compressor Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Compressor Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Compressor Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb		
						75°F 24°C	80°F 27°C	85°F 29°C				75°F 24°C	80°F 27°C	85°F 29°C				75°F 24°C	80°F 27°C	85°F 29°C				75°F 24°C	80°F 27°C	85°F 29°C
L/s	cfm	kW	Btuh	Watts	kW	Btuh	Watts	kW	Btuh	Watts	kW	Btuh	Watts	kW	Btuh	Watts	kW	Btuh	Watts	kW	Btuh	Watts	kW	Btuh	Watts	
63°F (17.2°C)	660	1400	13.5	46,200	3220	.73	.87	.98	13.1	44,700	3640	.74	.89	.99	12.6	43,100	4110	.76	.90	1.00	12.1	41,300	4660	.77	.92	1.00
	755	1600	13.8	47,200	3230	.76	.91	1.00	13.4	45,600	3650	.78	.92	1.00	12.9	44,000	4120	.79	.94	1.00	12.4	42,200	4660	.81	.96	1.00
	850	1800	14.1	48,100	3240	.79	.94	1.00	13.6	46,500	3650	.81	.96	1.00	13.1	44,800	4130	.82	.97	1.00	12.6	43,100	4670	.84	.99	1.00
67°F (19.4°C)	660	1400	14.4	49,000	3250	.57	.71	.84	13.9	47,300	3670	.58	.72	.86	13.4	45,600	4140	.59	.73	.87	12.8	43,700	4680	.59	.75	.89
	755	1600	14.6	49,900	3260	.59	.74	.88	14.1	48,100	3670	.60	.75	.90	13.6	46,300	4150	.61	.77	.91	13.0	44,400	4690	.62	.78	.93
	850	1800	14.8	50,600	3270	.61	.77	.92	14.3	48,800	3680	.62	.79	.93	13.8	47,000	4160	.63	.80	.95	13.2	45,000	4700	.64	.82	.96
71°F (21.7°C)	660	1400	15.3	52,200	3290	.43	.56	.68	14.8	50,400	3700	.43	.56	.70	14.2	48,500	4180	.43	.57	.71	13.7	46,600	4720	.44	.58	.72
	755	1600	15.5	53,000	3300	.43	.58	.72	15.0	51,200	3720	.44	.58	.73	14.4	49,300	4190	.44	.59	.74	13.8	47,200	4730	.44	.60	.76
	850	1800	15.7	53,700	3310	.44	.60	.75	15.2	51,800	3720	.44	.60	.76	14.6	49,800	4200	.45	.61	.78	14.0	47,800	4740	.45	.63	.80

NOTE — All values are gross capacities and do not include evaporator coil blower motor heat deduction.

GCS20(R)V-651-653 COOLING CAPACITY

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Air Temperature Entering Condenser Coil																							
			85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			Total Cooling Capacity		Compressor Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Compressor Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Compressor Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb			Total Cooling Capacity		Compressor Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb		
						75°F 24°C	80°F 27°C	85°F 29°C				75°F 24°C	80°F 27°C	85°F 29°C				75°F 24°C	80°F 27°C	85°F 29°C				75°F 24°C	80°F 27°C	85°F 29°C
L/s	cfm	kW	Btuh	Watts	kW	Btuh	Watts	kW	Btuh	Watts	kW	Btuh	Watts	kW	Btuh	Watts	kW	Btuh	Watts	kW	Btuh	Watts	kW	Btuh	Watts	
63°F (17.2°C)	755	1600	16.9	57,500	4170	.71	.84	.96	16.3	55,600	4700	.72	.86	.97	15.7	53,600	5320	.73	.87	.98	15.1	51,500	6010	.74	.89	.99
	850	1800	17.2	58,600	4180	.74	.88	.98	16.6	56,700	4710	.75	.89	.99	16.0	54,700	5330	.76	.90	1.00	15.4	52,500	6030	.77	.92	1.00
	945	2000	17.4	59,500	4190	.76	.90	1.00	16.9	57,600	4730	.77	.92	1.00	16.3	55,600	5350	.78	.93	1.00	15.6	53,400	6050	.80	.95	1.00
67°F (19.4°C)	755	1600	17.9	61,000	4210	.56	.69	.81	17.3	59,000	4750	.57	.70	.83	16.7	56,900	5370	.57	.71	.84	16.0	54,700	6080	.58	.72	.86
	850	1800	18.1	61,900	4230	.57	.71	.85	17.6	60,000	4770	.58	.72	.86	16.9	57,800	5390	.59	.74	.87	16.2	55,400	6100	.60	.75	.89
	945	2000	18.4	62,700	4240	.59	.74	.88	17.8	60,700	4780	.60	.75	.89	17.1	58,500	5410	.60	.76	.91	16.4	56,100	6120	.61	.78	.92
71°F (21.7°C)	755	1600	19.0	64,800	4260	.42	.54	.66	18.4	62,700	4810	.43	.55	.67	17.7	60,500	5450	.43	.56	.68	17.0	58,100	6170	.43	.56	.70
	850	1800	19.3	65,700	4280	.43	.56	.69	18.7	63,700	4830	.43	.56	.70	18.0	61,400	5460	.43	.57	.71	17.3	58,900	6180	.44	.58	.73
	945	2000	19.5	66,600	4290	.43	.57	.71	18.9	64,400	4840	.44	.58	.73	18.2	62,100	5480	.44	.59	.74	17.5	59,600	6200	.44	.60	.76

NOTE — All values are gross capacities and do not include evaporator coil blower motor heat deduction.

BLOWER DATA

GCS20(R)V-261-311-411-413 BLOWER PERFORMANCE 0 through 1.0 in. w.g. (0 Through 250 Pa) External Static Pressure Range

"ADJUST" Jumper Setting	BDC2-1 Jumper Speed Positions																							
	"HEAT" Speed								"LOW" Speed (Cool Or Continuous Fan)								"HIGH" Speed (Cool)							
	1		2		3		4		1		2		3		4		1		2		3		4	
	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
+	See NOTE Below																							
NORM	830	390	930	440	1080	510	1110	525	400	190	475	225	525	250	600	285	750	355	900	425	1050	495	1200	565
-	See NOTE Below																							

NOTE — The effect of static pressure and filter resistance is included in the air volumes listed.

NOTE — Motor may be adjusted for for + or - 10 % of "NORM" air volume shown (approximate).

GCS20(R)V-461-511-513-651-653 BLOWER PERFORMANCE 0 through 1.0 in. w.g. (0 Through 250 Pa) External Static Pressure Range

"ADJUST" Jumper Setting	BDC2-1 Jumper Speed Positions																							
	"HEAT" Speed								"LOW" Speed (Cool Or Continuous Fan)								"HIGH" Speed (Cool)							
	1		2		3		4		1		2		3		4		1		2		3		4	
	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
+	See NOTE Below																							
NORM	1275	600	1375	650	1500	710	1650	780	600	285	750	355	875	415	1025	485	1300	615	1475	695	1700	800	2000	945
-	See NOTE Below																							

NOTE — The effect of static pressure and filter resistance is included in the air volumes listed.

NOTE — Motor may be adjusted for for + or - 10 % of "NORM" air volume shown (approximate).

ACCESSORY BLOWER DATA

FILTER AND ACCESSORY AIR RESISTANCE

Unit Model No.	Air Volume		Total Air Resistance — inches water gauge (Pa)								
			1"(25mm) Filter Furnished With GCS20V non "R" Units	REMD16 Down-Flo Economizer (for non "R" models only)			EMDH16 Horizontal Economizer (non "R")		DF16 Down-Flo Filter Adaptor Kit ("R" models only)		
	cfm	L/s		Less Filter	With Optional Pleated Polyester 2"(51mm) Filter	With Optional Fiberglass 2"(51mm) Filter	With Furnished 1"(25mm) Filter	Less Filter	With Furnished 1"(25mm) Filter	With Optional Pleated 2"(51mm) Filter	With Optional Fiberglass 2"(51mm) Filter
GCS20V-261 GCS20V-311 GCS20(R)V-410	800	380	.15 (37)	.05 (12)	.27 (67)	.13 (32)	.18 (45)	.10 (25)	.15 (37)	.27 (67)	.13 (32)
	1000	470	.18 (45)	.06 (15)	.34 (85)	.18 (45)	.26 (65)	.15 (37)	.18 (45)	.34 (85)	.18 (45)
	1200	565	.21 (52)	.09 (22)	.42 (104)	.24 (60)	.35 (87)	.21 (52)	.21 (52)	.42 (104)	.24 (60)
	1400	660	.25 (62)	.15 (37)	.51 (127)	.31 (77)	.46 (114)	.29 (72)	.25 (62)	.51 (127)	.31 (77)
GCS20RV-461 GCS20(R)V-510 GCS20(R)V-650	1400	660	.13 (32)	.04 (10)	.33 (82)	.22 (55)	.25 (62)	.15 (37)	.13 (32)	.29 (72)	.17 (42)
	1600	755	.15 (37)	.05 (12)	.40 (99)	.27 (67)	.30 (75)	.17 (42)	.15 (37)	.35 (87)	.22 (55)
	1800	850	.17 (42)	.06 (15)	.48 (119)	.33 (82)	.35 (87)	.19 (47)	.17 (42)	.42 (104)	.27 (67)
	2000	945	.20 (50)	.08 (20)	.56 (139)	.39 (97)	.40 (99)	.22 (55)	.20 (50)	.49 (122)	.32 (80)
	2200	1040	.23 (57)	.10 (25)	.66 (164)	.46 (114)	.47 (117)	.26 (65)	.23 (57)	.57 (142)	.37 (92)

DIFFUSER AIR RESISTANCE

Unit Model No.	Air Volume		Total Air Resistance — inches water gauge (Pa)			
			RTD9-65 Diffuser			FD9-65 Diffuser
	cfm	L/s	2 Ends Open	1 Side 2 Ends Open	All Ends & Sides Open	
GCS20V-261 GCS20V-311 GCS20(R)V-410	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)
GCS20RV-461 GCS20(R)V-510 GCS20(R)V-650	1400	660	.33 (82)	.25 (62)	.19 (47)	.19 (47)
	1600	755	.43 (107)	.32 (80)	.24 (60)	.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)

RTD9-65 STEP-DOWN CEILING DIFFUSER AIR THROW DATA

Grille Vanes	Air Volume		*Effective Throw — ft. (m)		
			Horizontal Vanes 180° Straight	Horizontal Vanes 22° Down	Horizontal Vanes 45° Down
	cfm	L/s			
2 Ends Open	600	285	21 (6.5)	20 (6.0)	14 (4.5)
	800	380	22 (6.5)	21 (6.5)	15 (4.5)
	1000	470	24 (7.5)	22 (6.5)	16 (5.0)
	1200	565	25 (7.5)	23 (7.0)	17 (5.0)
	1400	660	27 (8.0)	25 (7.5)	18 (5.5)
	1600	755	29 (9.0)	26 (8.0)	19 (6.0)
	1800	850	31 (9.5)	27 (8.0)	20 (6.0)
	2000	945	33 (10.0)	28 (8.5)	21 (6.5)
	2200	1040	35 (10.5)	30 (9.0)	22 (6.5)
	2400	1135	38 (11.5)	34 (10.5)	23 (7.0)
1 Side 2 Ends Open	600	285	15 (4.5)	14 (4.5)	8 (2.5)
	800	380	16 (5.0)	15 (4.5)	9 (2.5)
	1000	470	17 (5.0)	16 (5.0)	10 (3.0)
	1200	565	18 (5.5)	17 (5.0)	11 (3.5)
	1400	660	19 (6.0)	18 (5.5)	12 (3.5)
	1600	755	20 (6.0)	18 (5.5)	12 (3.5)
	1800	850	21 (6.5)	19 (6.0)	13 (4.0)
	2000	945	23 (7.0)	20 (6.0)	14 (4.5)
All Sides And Ends Open	600	285	11 (3.5)	10 (3.0)	7 (2.0)
	800	380	12 (3.5)	11 (3.5)	8 (2.5)
	1000	470	13 (4.0)	12 (3.5)	8 (2.5)
	1200	565	14 (4.5)	13 (4.0)	9 (2.5)
	1400	660	15 (4.5)	14 (4.5)	9 (2.5)
	1600	755	16 (5.0)	14 (4.5)	10 (3.0)
	1800	850	17 (5.0)	15 (4.5)	10 (3.0)
	2000	945	18 (5.5)	16 (5.0)	11 (3.5)
	2200	1040	19 (6.0)	17 (5.0)	12 (3.5)
	2400	1135	20 (6.0)	18 (5.5)	12 (3.5)

FD9-65 FLUSH CEILING DIFFUSER AIR THROW DATA

Air Volume		*Effective Throw — ft. (m)
cfm	L/s	
600	285	7 (2.0)
800	380	8 (2.5)
1000	470	8 (2.5)
1200	565	9 (2.5)
1400	660	9 (2.5)
1600	755	10 (3.0)
1800	850	11 (3.5)
2000	945	12 (3.5)
2200	1040	12 (3.5)
2400	1135	13 (4.0)

*Effective throw is determined at a point where conditioned air velocity has decreased to 50 ft. (15m) per minute.

WET INDOOR COIL AIR RESISTANCE

Model No.	Air Volume		Air Resistance	
	cfm	L/s	in. w.g.	Pa
GCS20V-261 GCS20V-311 GCS20(R)V-410	800	380	.07	17
	1000	470	.08	20
	1200	565	.09	22
GCS20RV-461 GCS20(R)V-510	1400	660	.12	30
	1600	755	.13	32
	1800	850	.14	.35
	2000	945	.15	.37
GCS20(R)V-650	2200	1040	.16	.40
	1600	755	.11	.27
	1800	850	.12	.30
	2000	945	.13	.32
	2200	1040	.14	.35

*Effective throw is determined at a point where conditioned air velocity has decreased to 50 ft (15m). per minute.

GUIDE SPECIFICATIONS

Prepared for the guidance of architects, consulting engineers and mechanical contractors.

General — Furnish and install a single package combination air to air DX mechanical cooling system and gas fired heating system complete with automatic controls. The single package unit shall be a standard product of a firm regularly engaged in the manufacture of heating-cooling equipment. The manufacturer shall have parts and service available throughout the United States and Canada.

The installed weight shall not be more than lbs. (kg). Entire unit shall have a width of not more than inches (mm), a depth of not more than inches (mm) and an overall height of not more than inches (mm). The equipment shall be shipped completely factory assembled, precharged, piped and wired internally ready for field connections. In addition, manufacturer shall test operate system at the factory before shipment.

Air Distribution — Equipment shall be capable of bottom or side (horizontal) handling of conditioned air. All air distribution ducts shall be fiberglass or ga. galvanized steel insulated with inch (mm) thick lb./ft.³ (kg/m³) density fiberglass or equivalent.

Approvals — All electrical components shall have U.L. and C.S.A. Listing. All wiring shall be in compliance with NEC and CEC.

Equipment Warranty — Heat exchangers have a limited warranty for a full fifteen years. Compressors have a limited warranty for a full five years. Most of the other components have a limited warranty for one year. Refer to the Lennox Equipment Limited Warranty certificate included with the unit for additional details.

Cooling System — The total certified cooling capacity shall not be less than Btuh (kW) with an evaporator air volume of cfm (L/s), an entering wet bulb air temperature of °F (°C), an entering dry bulb air temperature of °F (°C) and a condenser entering temperature of °F (°C). The compressor power input shall not exceed kW at these conditions.

The coils shall be non-ferrous construction with aluminum enhanced fins mechanically bonded to durable copper tubes. Coils shall be pressure leak tested. Coil face area shall be not less than sq. ft. (m²) (evaporator) and sq. ft. (m²) (condenser). Coil guard(s) shall be furnished on GCS20RV models. Optional coil guard(s) shall be available for non "R" models.

The compressor shall be resiliently mounted, have overload protection and internal pressure relief. The refrigeration system shall have suction and discharge line service gauge ports, expansion valve, liquid line strainer and full refrigerant charge. GCS20V-410-510 & 650 non "R" models shall have high pressure switch and loss of charge switch. Control options shall consist of thermostat, timed-off control and low ambient control. Shall be rated in accordance with ARI Standard 210/240-89, DOE and California Energy Standards.

Commercial Controls Platform — Shall be furnished and factory installed. Platform shall include control system and economizer wiring harness. Wiring harness shall be used in conjunction with thermostats, related control systems, and economizer dampers.

Heating System — The heating capacity output shall be Btuh (kW) with a gas input of Btuh (kW).

Heat exchanger shall consist of cast iron primary combustion chamber and aluminized steel tubular secondary. Inshot type gas burner shall be constructed of aluminized steel with direct spark ignition. Controls shall consist of electronic flame sensor controls, limit control, flame rollout switch, automatic redundant dual gas valve and centrifugal switch on induced draft blower. Unit shall be available for use with natural gas and LPG/Propane. Complete service access shall be provided for controls and wiring. Shall be A.G.A. design certified for outdoor installation. Shall be tested according to GAMA, DOE and FTC.

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 and gas line entry. Supply and return air openings shall be flanged. Evaporator coil condensate drain shall be provided. GCS20V-410-510-650 non "R" models shall have low voltage terminal strip. Lifting brackets shall be factory installed on all models.

Air Movers — Centrifugal conditioned air blower shall be direct driven by a multi-speed motor and be capable of delivering cfm (L/s) at an external static pressure of inches water gauge (Pa) requiring not more than bhp (W) and rpm. Blower shall be statically and dynamically balanced.

Propeller type condenser fan shall be direct driven by a hp (W) motor. Fan motor shall be permanently lubricated and inherently protected. Fan shall have safety guard.

Service Access — All components, wiring and inspection areas shall be completely accessible through removable panels.

OPTIONAL ACCESSORIES (Must Be Ordered Extra)

Roof Mounting Frame — Furnish and 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 design shall be approved by U.S. National Roofing Contractors Association.

Economizer Dampers — Furnish and install complete with controls an air mixing damper assembly including outdoor air and recirculated air dampers. REMD16 shall include 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 three position or fully modulating 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).

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.

Down-Flo Filter Adaptor Kit — Optional filter adaptor shall be available for GCS20RV models to provide filtering for basic unit in down-flo applications. Shall include air filter.

Stand-Off Mounting Kit — Optional kit shall be available to elevate unit above mounting surface in horizontal applications.

Roof Curb Power Entry Kit — Optional kit shall provide power entry to the unit through the roof mounting frame.

Ceiling Diffusers — Furnish and install a (flush or stepdown) optional combination ceiling supply and return air diffuser. It shall be capable of not less than ft. (m) radius of effective throw. Supply and return transitions shall be available, for field installation in the roof mounting frame, to provide duct connection to the diffuser.

Control Systems — Shall provide a selection of thermostats and related controls for non "R" models to automatically operate the mechanical equipment through the heating or cooling and ventilating cycles as required.

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.

UNIT DIMENSIONS – inches (mm)

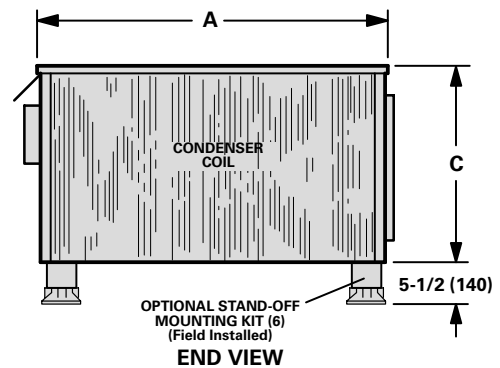
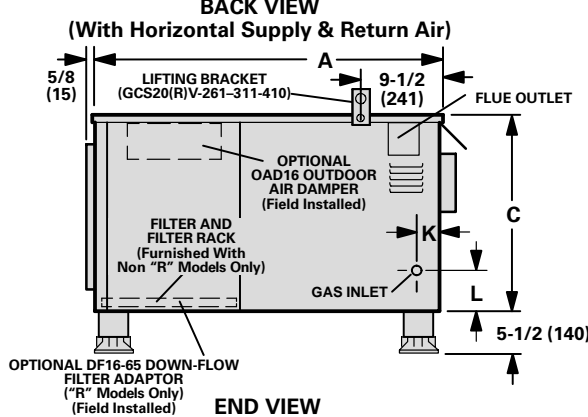
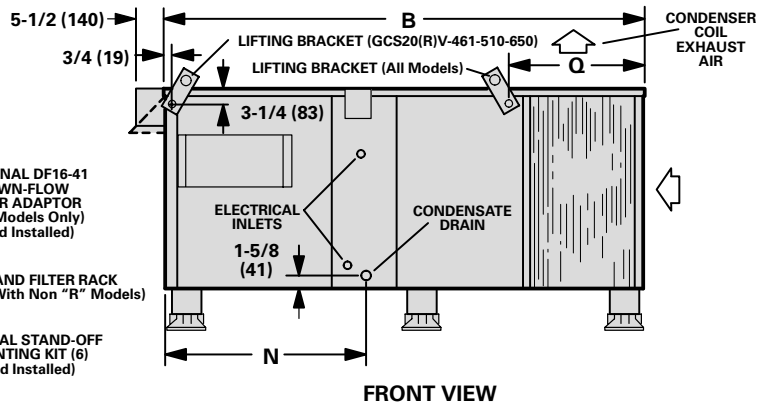
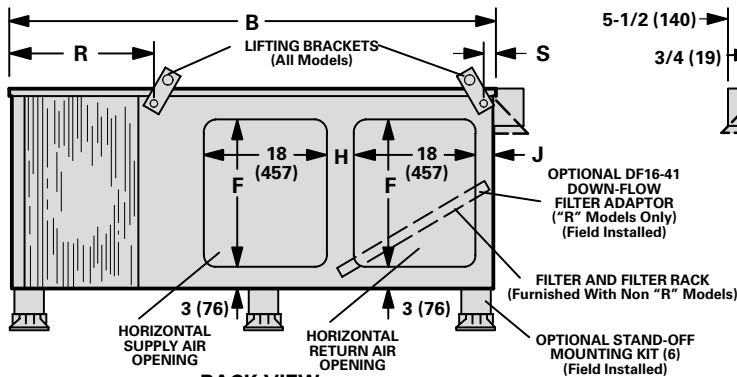
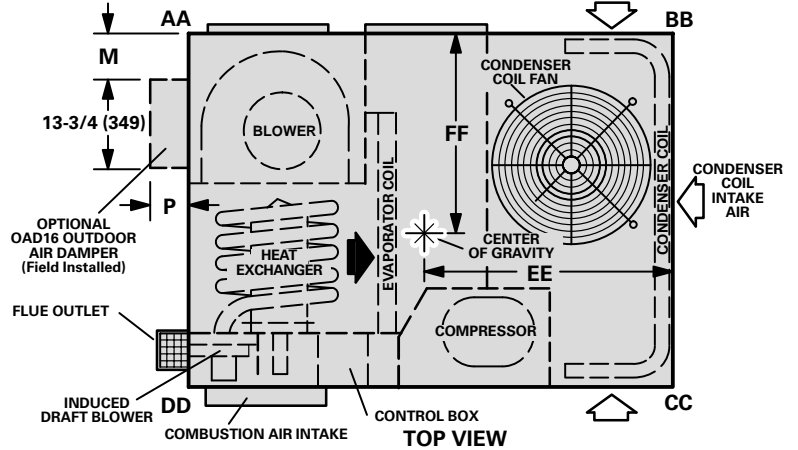
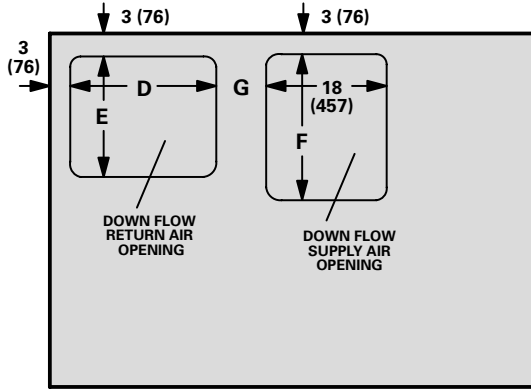
GCS20(R)V BASIC UNIT

CORNER WEIGHTS – lbs. (kg)

Model No.	AA		BB		CC		DD	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg
GCS20RV-261	99	45	107	49	90	41	80	36
GCS20RV-311	108	49	117	53	99	45	88	40
GCS20(R)V-410	111	50	120	54	101	46	90	41
GCS20RV-461	127	58	110	50	126	57	141	64
GCS20(R)V-510	141	64	122	55	140	64	157	71
GCS20(R)V-650	137	62	125	57	146	66	156	71

CENTER OF GRAVITY – in. (mm)

Model No.	EE		FF	
	in.	mm	in.	mm
GCS20RV-261	28	711	17-1/2	445
GCS20RV-311	28	711	17-1/2	445
GCS20(R)V-410	28	711	17-1/2	445
GCS20RV-461	39-7/8	1013	30-1/2	775
GCS20(R)V-510-650	38-1/2	978	31-3/4	806



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	
GCS20RV-261	46	1168	60	1524	23	584	18	457	13	330	13	330	10	254	3	76	4	102	
GCS20RV-311																			
GCS20(R)V-410																			
GCS20RV-461	52	1321	72-1/2	1842	29	737	22	559	18	457	22	737	7-1/2	191	5	127	3	76	
GCS20(R)V-510-650																			

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	
GCS20RV-261	3-1/8	79	4-1/8	105	2	51	26-3/4	679	5	127	20	508	16-5/8	422	4	102	
GCS20RV-311																	
GCS20(R)V-410																	
GCS20RV-461	4-1/8	105	8-1/8	206	5	127	28	711	8	203	19-3/8	492	19-3/8	492	3/4	19	
GCS20(R)V-510-650																	

ACCESSORY DIMENSIONS – inches (mm)

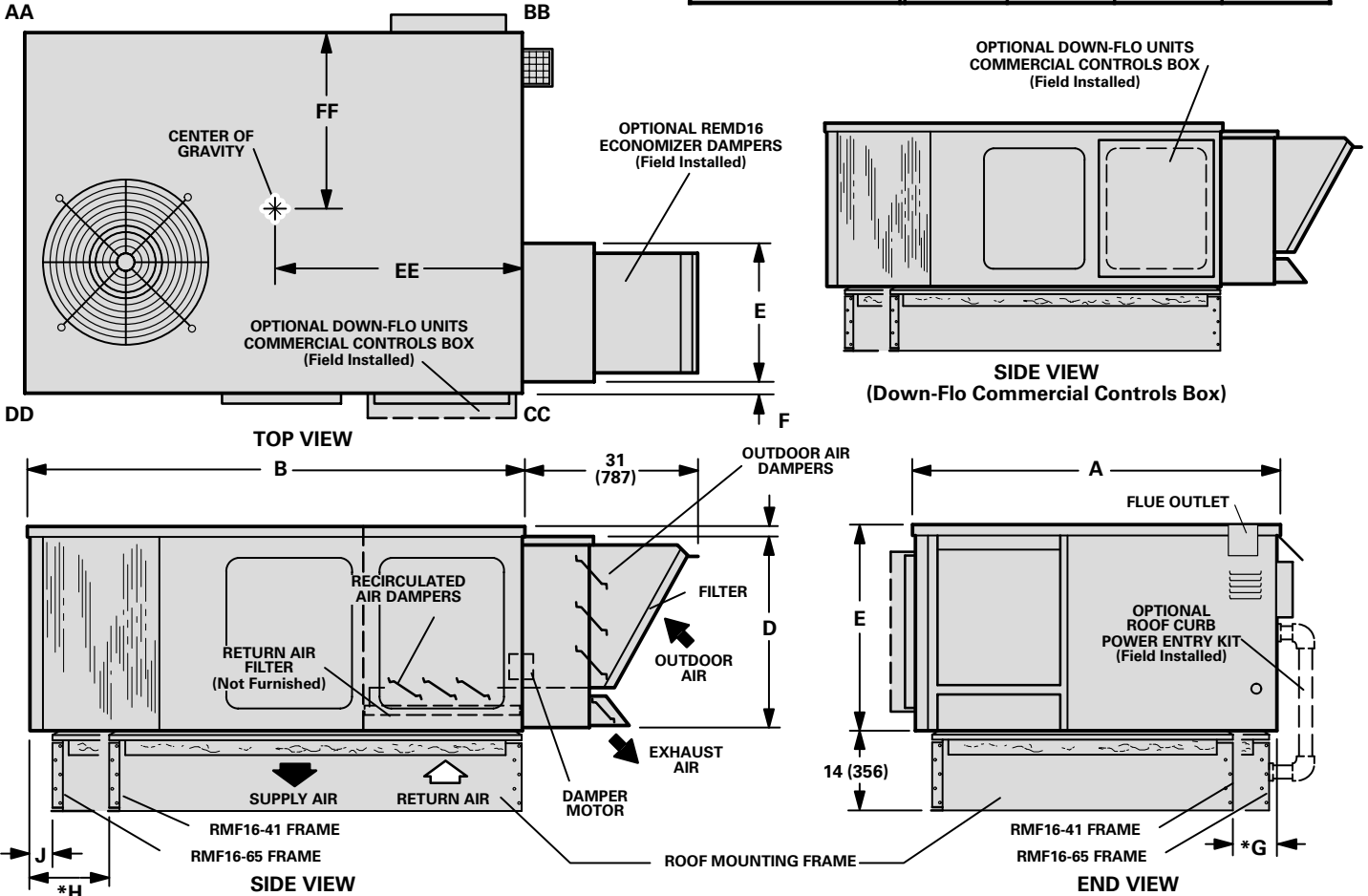
GCS20V UNIT WITH REMD16M ECONOMIZER DAMPER SECTION AND RMF16 ROOF MOUNTING FRAME

CORNER WEIGHTS – lbs. (kg)

Model Number	AA		BB		CC		DD	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg
GCS20V-411-413	106	48	108	49	176	80	155	70
GCS20V-511-513	157	71	230	104	183	83	132	60
GCS20V-651-653	169	77	239	108	178	81	131	59

CENTER OF GRAVITY – inches (mm)

Model Number	EE		FF	
	inch	mm	inch	mm
GCS20V-411-413	28-3/4	730	28-1/4	718
GCS20V-511-513	29-5/8	752	23-13/16	605
GCS20V-651-653	30-7/8	784	22-3/4	578

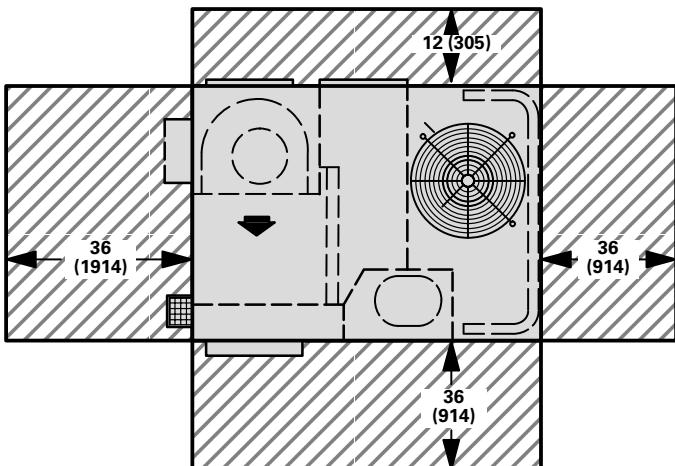


Model Number	A		B		C		D		E		F		*G		*H		J	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
GCS20V-411-413	46	1168	60	1524	23	584	21-3/4	552	16-1/8	410	3/4	19	---	---	---	---	---	---
GCS20V-510-650	52	1321	72-1/2	1842	29	737	27-3/4	705	20-1/4	514	1-1/2	38	7	178	16	406	3-1/2	89

* Dimensions reflect usage with RMF16-41 mounting frame.

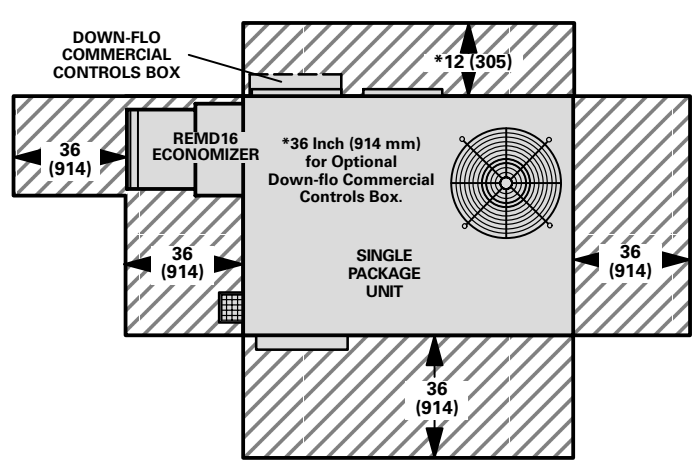
INSTALLATION CLEARANCES – inches (mm)

GCS20(R)V BASIC UNIT



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

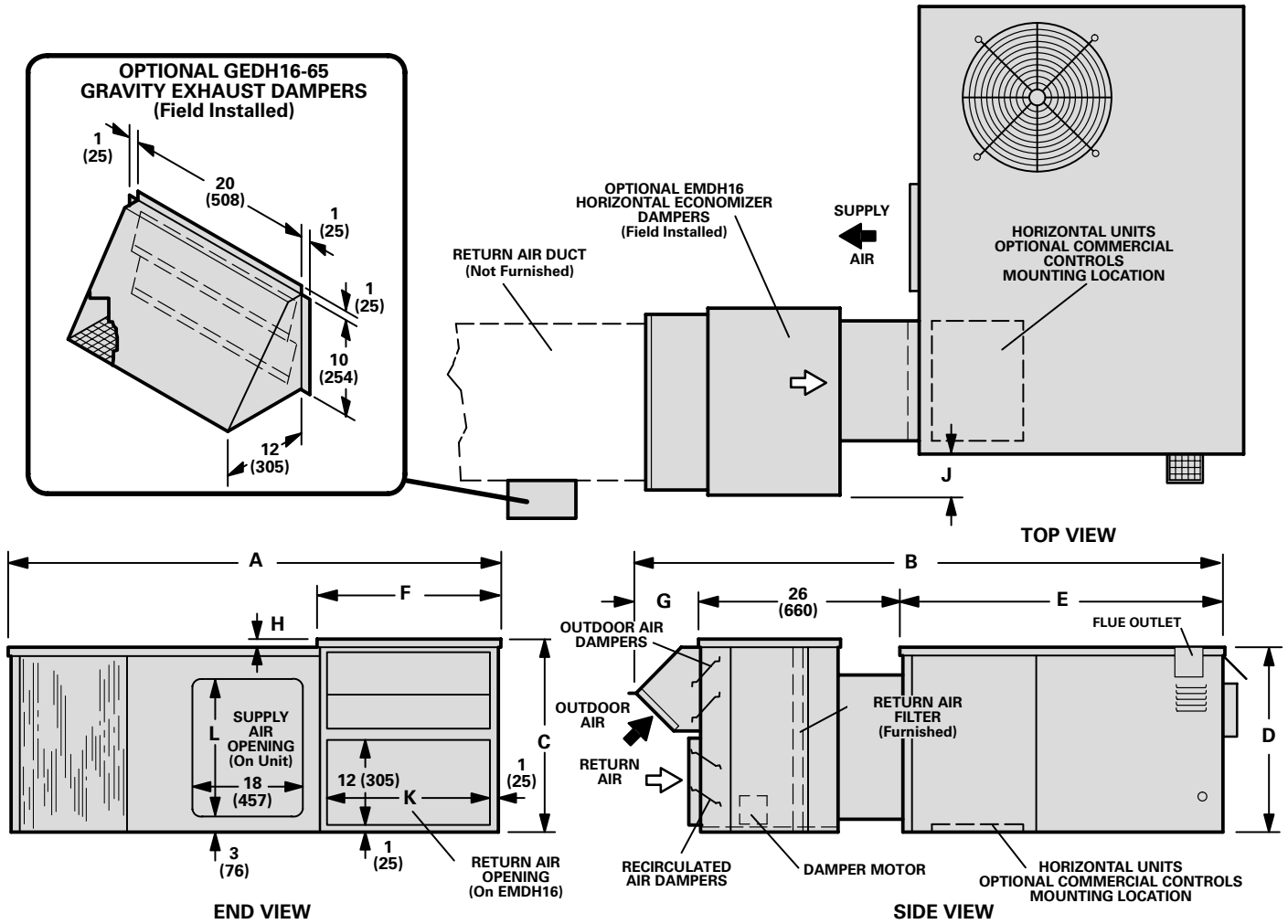
GCS20V-410-510-650 UNITS WITH REMD16 ECONOMIZER



NOTE – Top Clearance Unobstructed.

ACCESSORY DIMENSIONS – inches (mm)

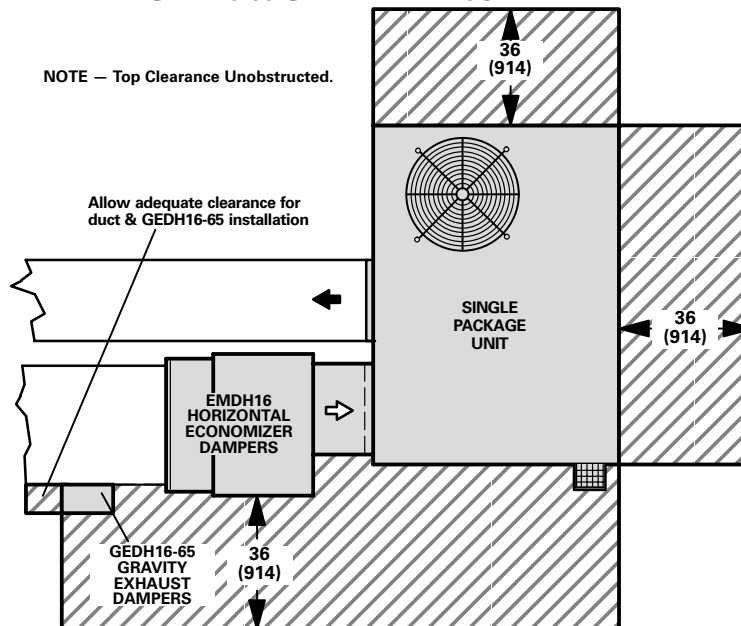
GCS20V UNIT WITH EMDH16M HORIZONTAL ECONOMIZER DAMPER SECTION AND GEDH16-65 GRAVITY EXHAUST DAMPER



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
GCS20V-410	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
GCS20V-510 GCS20V-650	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

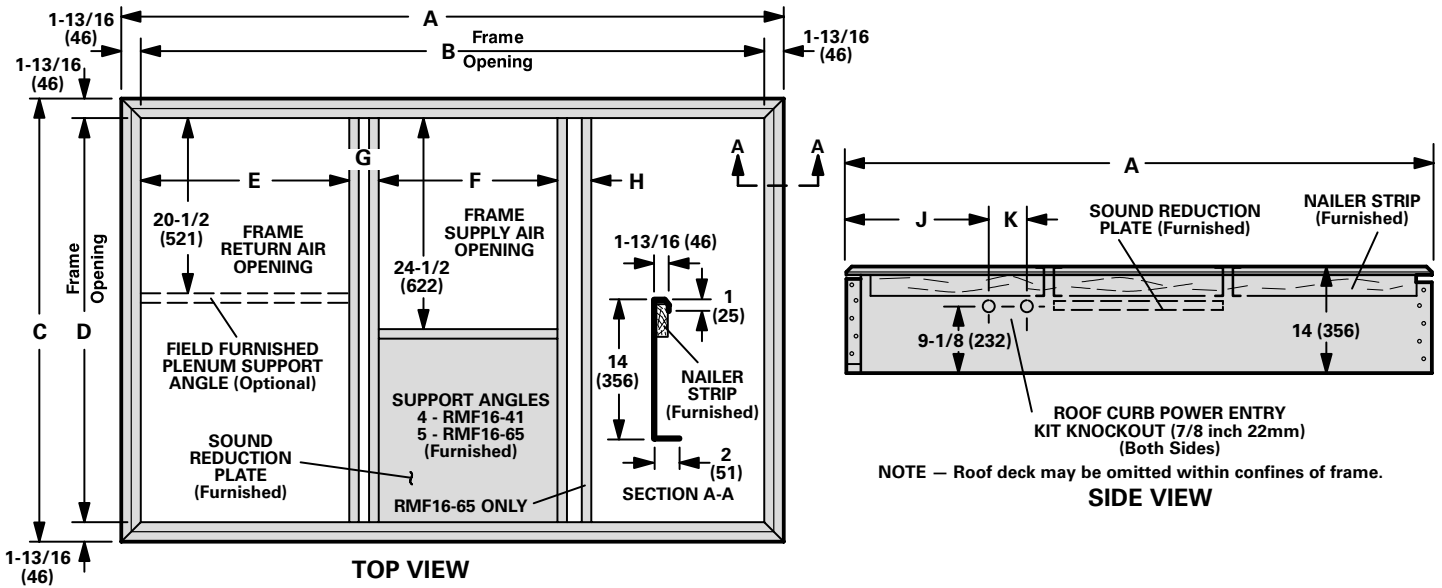
INSTALLATION CLEARANCES – inches (mm)

GCS20V-410-510-650 UNITS WITH EMDH16 ECONOMIZER AND GEDH16-65 GRAVITY EXHAUST DAMPER



ACCESSORY DIMENSIONS – inches (mm)

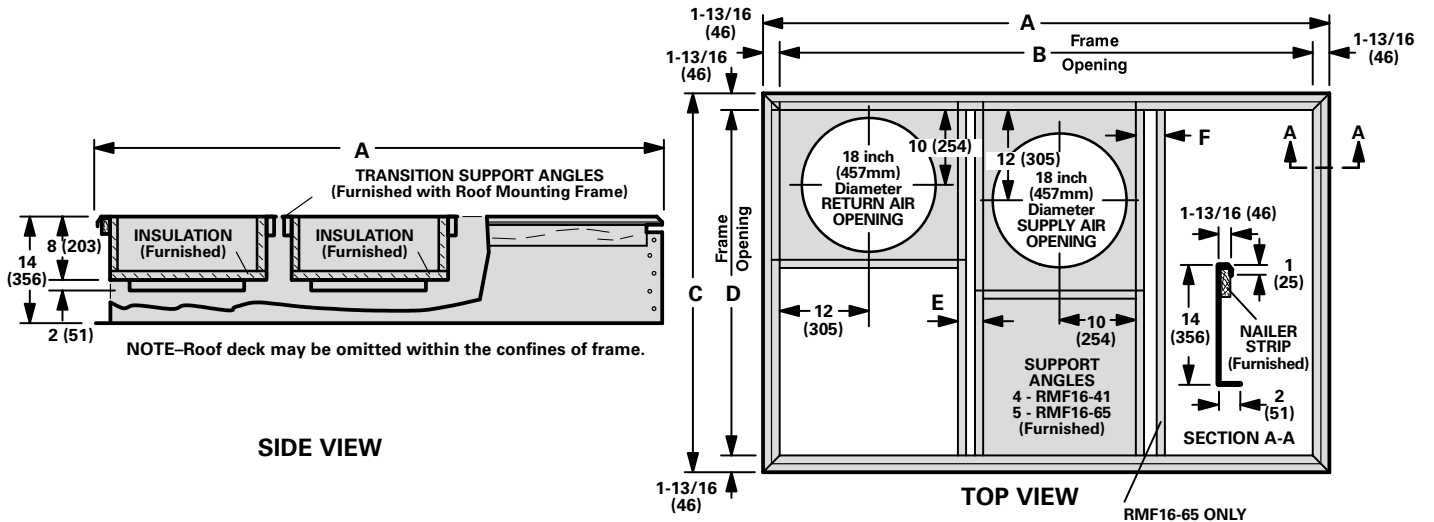
RMF16-41 & 65 ROOF MOUNTING FRAME WITH DOUBLE DUCT OPENING



Model Number	A		B		C		D		E		F		G		H		J		K	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
RMF16-41	56-3/8	1432	52-3/4	1340	44-7/8	1140	41-1/4	1048	24-3/8	619	20-9/16	522	*4	*102	----	----	22-3/16	564	4-1/2	114
RMF16-65	69	1753	65-3/8	1661	50-1/2	1283	46-7/8	1191	24-1/4	616	20-1/2	521	4	102	4	102	27	686	5	127

*3-1/4 inches (83 mm) for GCS20(R)V-261-311-410.

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

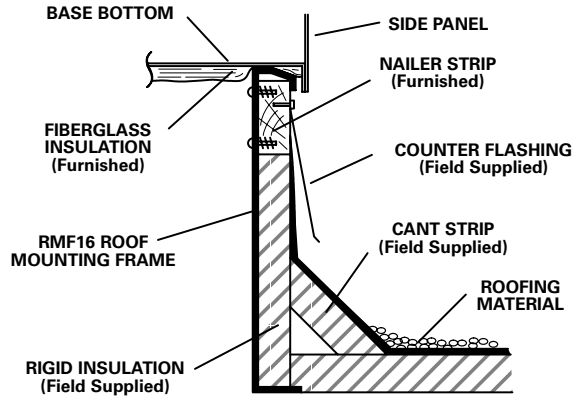


Model Number	A		B		C		D		E		F	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
RMF16-41 With SRT16-65	56-3/8	1432	52-3/4	1340	44-7/8	1140	41-1/4	1048	*4	102	----	----
RMF16-65 With SRT16-65	69	1753	65-3/8	1661	50-1/2	1283	46-7/8	1191	4	102	4	102

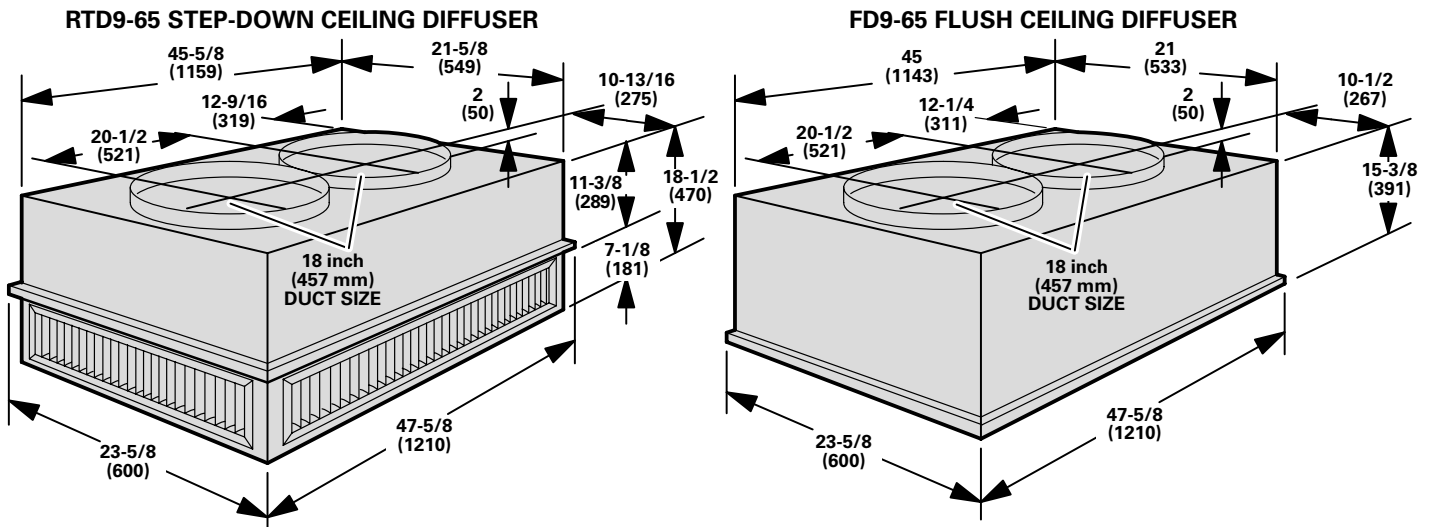
*3-1/4 inches (83 mm) for GCS20(R)V-261-311-410.

ACCESSORY DIMENSIONS — inches (mm)

TYPICAL FLASHING DETAIL FOR RMF16 ROOF MOUNTING FRAME



COMBINATION CEILING SUPPLY AND RETURN DIFFUSERS



DIFFUSER AIR PATTERN

