



gForce - R-407C

Air Cooled,
Water/Glycol Cooled
21 - 106 kW Dual Circuits

*Environmentally responsible.
Economically efficient.
Precision air cooling of the future.*



Data Aire®

... the pioneer and builder of the
most complete line of
precision cooling equipment

Data Aire's first precision cooling system was developed by data processing engineers who sought optimum environmental conditions for early computers. It was clear that "people comfort" air conditioning systems were unable to meet the environmental requirements of computers and data processing equipment. Precision environmental control equipment with high sensible cooling ratios was a necessity. Problems with paper sticking, head crash, and static electricity were eliminated. Humidity fluctuations were controlled, saving possible electrical and mechanical failures and more importantly – Downtime. Data Aire's innovative response to the challenge of eliminating problems within the computer room environment was the start of wide use precision cooling.

As in the past, Data Aire is meeting today's challenge of not only the computer room but also the ever expanding telecommunications industry where precision cooling is vital to our everyday communications. Telecommunication equipment requires a controlled environment with clean and properly distributed air. As in the computer room, the environment must be precisely controlled – 24 hours a day, 365 days a year.

Data Aire produces solutions. We have offered environmental control solutions to meet specific needs in the smallest of places and in areas of thousands of square feet. We are prepared to assist you, your in-house engineering department, consulting engineer, or construction department in defining the proper solutions and bringing them to a predefined outcome.

Data Aire is committed to being the supplier of choice for environmental process cooling with flexibility, reliability, and expertise required to meet our customer's needs. To be successful, it is essential to be creative and use our resources to their fullest capabilities. The Data Aire goal is to benefit the employees, partners, and most of all – our customers with honesty and integrity.

Data Aire Delivers!

gForce DX SERIES

DIRECT EXPANSION UNITS - DUAL CIRCUITS

AIR COOLED, WATER COOLED, GLYCOL COOLED

(Separate brochure for Chilled Water Cooled units.)

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Data Aire, Inc. reserves the right to make design changes for the purpose of product improvement or to withdraw any design without notice.



MISSION CRITICAL COOLING

gForce by Data Aire provides the most advanced features in mission critical cooling equipment available on the market today. These units are the most efficient and economical while complying with strict environmental requirements.

Incorporating backward curved plenum fans with electronically commutated (EC) motors these units supply radially dispersed cooling air at lower speeds allowing for more uniform static pressure across the room. These fans, with integral DC motors, run at lower temperatures providing more net cooling from the computer room air conditioning (CRAC) unit. DC motors are more energy efficient, providing an on-going savings year after year. gForce efficiency is also increased by the use of rifled tubing in the cooling coils to promote the greatest amount of heat transfer. gForce dual circuit DX units are available in 21 through 106 kW with either upflow or downflow air distribution in air cooled or water/glycol cooled models. Each unit is factory run tested and put through a vigorous quality control procedure.

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INCREASED THERMODYNAMIC EFFICIENCIES

gForce's design incorporates rifled tubing cooling coils. Rifle tubing is similar to borings in a gun barrel which forces the bullet to rotate. In a cooling coil the riflings force the gas and liquid to rotate as it passes through the coil. This action forces the heavier matter, the liquid refrigerant, to the outside of the tube where the heat transfer occurs. As a result the coldest refrigerant is in contact with warmest surface resulting in better heat transfer.

IMPROVED AIRFLOW DESIGN

gForce is the greatest internal capacity of an unit manufactured by Data Aire. The increased capacity of the gForce internal cabinet allows for less restrictive airflow. When additional options are added to smaller cabinets, the static pressure within the unit increases, making airflow more difficult. This is not an issue with the gForce, as the advanced design of the bigger interior and the product's quality construction ensures the highest level of efficiency in a precision air system

ENVIRONMENTALLY RESPONSIBLE

Data Aire offers the gForce line in either R-407C or R-410A refrigerants. Either of these refrigerants comply with the requirements of the Montreal Protocol which called for the phase out of refrigerants that deplete the ozone layer. R-407C is a blend of three refrigerants and has characteristics similar to

R-22. R-410A is a blend of two refrigerants and has a higher volumetric cooling capacity but operates at higher pressures than either R-22 or R-407C. The choice of the environmentally friendly refrigerant is yours.

ENERGY EFFICIENT COILS

gForce energy efficient coils are another unique feature engineered by Data Aire. These coils feature rifle tubing, a creative element that significantly adds to energy efficiency. Very similar to the borings on a rifle that spin the bullet as it exits the barrel, the refrigerant in a gForce unit spins as it travels through the coil. This spinning forces the liquid, and coldest refrigerant to the outside surface of the coil, resulting in a higher heat transfer and therefore higher efficiency.

DATA AIRE DELIVERS

Standard ship cycle is 30 days from date of order. With an optional premium "quick ship" units can be expedited to ship in little as one week. All units are built to your specific order and specification. Not only does Data Aire deliver standard products in short lead times they are willing to modify designs to meet your specific requirements. Call your nearest Data Aire representative for more information.

DESIGN FEATURES

Frame Cabinet

Units are constructed with heliarc welded tubular steel frames. The tubular construction provides for maximum strength and ease of access. Side and front panels can be easily removed with quarter-turn fasteners allowing full access to all unit components. All panels include 1 inch thick, 11/2 pound density insulation for protection and sound attenuation.

Coil Section

Designed for draw through application, the computer selected rifle tubing dual circuited A-frame coil has an interwoven surface that increases unit efficiency at low load conditions. Air is drawn through both circuits of the coil at low velocity providing effective surface exposure with minimum turbulence. The coil sits in a stainless steel drain pan.

Fan Section

Backward curved plenum fans with electronically commutated motors are used to provide the most efficient fan/motor combination available in the market today. Electronically commutated motors are DC motors but connect to standard AC power. DC motors are more efficient than AC motors and can be programmed to run at various speeds. With the fan blades directly connected to the motor there is no need for periodic maintenance. In the unlikely event of a fan failure replacement is simple. Merely remove four bolts disconnect the power and remove. Reverse the process for installation of a new fan.

Filter Section

Units are provided with 4 inch deep, MEV-8 pleated filters based on ASHRAE 52.2. The filter section is accessible from the top or side on downflow units and the right hand side on upflow units.

Reheat

Three stage electric reheat is standard. Low-watt density, finned, tubular sheathed coils are constructed of stainless steel and provide ample capacity to maintain room dry bulb conditions during dehumidification. Low-watt density coils eliminate ionization associated with open air electric resistance heating.

Humidification

gForce units include an electric steam generator humidifier with "quick change" disposable cylinders and auto-flush cycle. The steam generator humidifier with its patented control system optimizes cylinder life and energy efficiency by concentrating incoming water to a predetermined conductivity much higher than that of any entering water. The control system continuously monitors the conductivity in the cylinder through its electronics which allows water to be flushed as often as is necessary to maintain the capacity at this design conductivity. The high design conductivity results in a minimum flushing of heated water which saves energy. The humidifier is designed to allow all units at any voltage to produce full rated steam output capacity at an optimum low water level based on this design conductivity.

REFRIGERATION CIRCUITS

Dual refrigeration circuits include high efficiency hermetic scroll type compressors. Scroll compressors represent new yet proven compressor technology. Scroll compressors offer a combination of reliability, performance, and efficiency. System noise is inherently quieter with scroll compressors.

Scroll compressors offer:

Simplicity - Fewer parts. Two components, a fixed scroll and orbiting scroll, replace approximately 15 parts required to do the same work.

Improved Starting Ability - With the scroll design the internal compression components always start unloaded even if the system pressures are not balanced. Since internal compressor pressures are always balanced at start-up, low voltage characteristics are excellent for scroll compressors.

Energy Efficiency - Scroll compressors are at least 10% more efficient than reciprocating type compressors.

The suction and discharge processes of a scroll compressor are physically separated. This reduces heat transfer between the suction and discharge gas. In a piston type compressor the cylinder is exposed to both suction and discharge gas. This results in high heat transfer reducing the compressor efficiency.

Scroll compressor compression and discharge processes are very smooth. Gas is compressed in approximately 1½ revolutions compared to less than ½ revolution for a piston.

Scrolls require no valves. Piston compressors require both suction and discharge valves. No valves, no valve losses.

Durability - Significant design effort and system cost are required to protect piston compressors from slugging and debris. Scroll compressors are designed to be more tolerant of both liquid and debris.

Reliability - Scrolls contain fewer moving parts resulting in greater reliability. Proven performance means fewer maintenance calls for field personnel.

Lower Sound - Systems properly designed with scroll compressors will be inherently quieter. On average, the compressor is up to 5 decibels quieter. (Sound characteristics of a scroll compressor are different than that of a reciprocating compressor. These do not effect system performance or reliability)

These durable, heavy duty compressors have no gaskets or seals, eliminating the possibility of refrigerant or oil leaking into the controlled space or environment. Each refrigeration circuit includes built-in compressor overload protection, crankcase heater, filter drier, sight glass, adjustable expansion valve with external equalizer, low pressure override timer (air cooled units), manual reset high pressure control, and anti-short cycle timer.

Water/glycol cooled units include counterflow condensers sized to provide the required capacity for heat rejection with minimum water/glycol flow and total pressure drop. Head pressure regulating valves control the condensing temperature and maintain required capacity at various water/glycol flow rates and temperatures.

Air Cooled with Remote Outdoor Air Cooled Condenser

A wide range of outdoor condensers are available with vertical air discharge. Condensers manufactured by Data Aire are sized to meet the required heat rejection and ambient conditions. The industrial duty condenser design includes an aluminum housing, aluminum finned copper tube coils, powder coated fan guards, energy efficient, thermally protected direct drive motors, and variable speed fan control on the lead motor for proper control down to -20° F. Additional fan motors are controlled with ambient thermostats.

Air Cooled with Indoor Condenser

A wide range of floor mounted indoor condensers with horizontal intake and discharge are available for applications where an outdoor condenser cannot be used. Finished to match the indoor evaporator section, the condenser includes a centrifugal, forward curved, double width, double inlet blower engineered for quiet and reliable operation. The belt driven variable pitch drive section provides adjustable airflow. The motor has internal overload protection and is mounted on an adjustable slide base. Indoor condensers are provided with a factory mounted and piped receiver. The receiver has a head pressure control valve to maintain flooded condenser control.

Air Cooled with Remote Outdoor Condensing Unit

When compressors are required to be out of the controlled space, Data Aire Series units are available with a remote outdoor condensing unit. The condensing unit includes the compressors with built-in overload protection, crankcase heater, filter drier, sight glass, and condenser coil. The condenser coil is constructed with copper tubes and aluminum fins. The housing is aluminum with vertical air discharge. The condenser is variable speed fan control on the lead motor for head pressure control down to -20° F. Additional fan motors are controlled by ambient fan thermostats.

Water/Glycol Cooled with Remote Outdoor Fluid Cooler

Remote outdoor dry coolers (fluid coolers) are available in a variety of sizes. Each dry cooler includes an aluminum housing, aluminum finned copper tube coil, powder coated fan guards, surge tank, pump contactor, and energy efficient, thermally protected direct drive motors. Dry coolers with multiple motors have cycling control.

Water/Glycol Cooled with Indoor Fluid Cooler

When required a wide range of floor mounted indoor fluid coolers (dry coolers) are available. The air intake and discharge are horizontal. Units are finished to match the indoor unit. The centrifugal, forward curved, double width, double inlet blower is engineered for quiet reliable operation. The belt driven variable pitch drive section provides adjustable airflow. The fan motor has internal overload protection and is mounted on an adjustable slide base. The unit control panel includes a pump contactor (units can be ordered with a factory mounted pump).

SYSTEM CONTROL

Every gForce unit come equipped with a dap™ 4 control system, which is the fastest and most advance microprocessor controller available on the market today. The system is comprised of two components – a display module and a control module. The display module includes a backlit liquid crystal display and six buttons for easy programming and communication. All programming, status and alarm conditions are displayed on the module in easy to read verbiage. The control module is mounted inside the unit and connected to the display module via a special “telephone” like cable.

The display module will allow recall and display of the high and low temperature and high and low humidity for the last 24 hours; current percent of capacity and average percent of capacity for the last hour of operation for cool 1, cool 2, reheat, humidification, dehumidification, component runtimes for fan motor(s), cooling stages, reheat, humidification, dehumidification and chilled water valve. Programming will have multilevel password and accomplished entirely from the front of the unit. Programmable functions shall be entered on flash memory to ensure program retention should power fail. The historical database shall be maintained by rechargeable battery backup. Multiple messages shall be displayed by automatically by scrolling from each message to the next. Alarm conditions shall be displayed by automatically scrolling from each message to the next. Alarm conditions, in addition to being displayed, shall enunciate an audible alarm. Four programmable summary contacts shall be available for remote alarm monitoring. Additional test or service terminal shall not be required for any functions. The control shall include temperature anticipation, moisture level humidity control and automatic flush cycles.

An alarm condition shall continue to be displayed until the malfunction is corrected. Multiple alarms shall be displayed sequentially in order of occurrence and only those alarms, which have not been acknowledged, shall continue to sound an audible alarm. The dap4 panel shall perform an automatic self-test on system start-up. A user accessible diagnostic program shall aid in system component trouble shooting by displaying on the unit LCD screen the name of the controlled item, output relay number, terminal plug and pin number for each controlled item.

Automatic Control Functions

Humidity Anticipation	Auxiliary Chilled Water Operation*	Sequential Load Activation
Start Time Delay	Automatic Reheat Element Rotation	Automatic or Manual Restart
Temperature Anticipation	Energy Saver (Glycol Operation)*	Hot Water Coil Flush Cycle*
Dehumidification Lockout	Chilled Water Coil Flush Cycle*	Energy Saver Coil Flush Cycle*
Selectable Water Under Floor Alarm Action		Compressor Short Cycle

Condition and Data Routinely Displayed

Current Date and Time	Unit Status	Temperature Setpoint
Humidity Setpoint	Current Temperature	Cooling 1, 2, 3, 4*
Current Humidity	Dehumidification	Humidification
Current Fan Speed*	Reheat 1, 2, 3Current	Discharge Temperature*
Current Chilled Water Valve Position	Current Percent of Capacity Utilized	

Switching and Control functions

System On/Off/Esc Button	Menu Selection Buttons	Menu Exit Button
Select Buttons	Alarm Silence Button	Program Set Button

Manual Override for:

Cool 1, Cool 2, Heat 1, Humidification, CW Valve and Fan Speed

SYSTEM CONTROL, continued

Alarms

High Temperature Warning	High Humidity Warning	Local Alarm
Low Temperature Warning	Low Humidity Warning	Manual Override
Low Pressure Compressor 1	Low Pressure Compressor 2	Humidifier Problem
High Pressure Compressor 1	High Pressure Compressor 2	Custom Message*
Dirty Filter	Under Floor Water Detection	Power Failure Restart
Firestat Tripped	Compressor Short Cycle	Maintenance Required
Temperature Sensor Error	Humidity Sensor Error	Discharge Sensor Error*
No Water Flow*	Smoke Detector*	High Condensate Water Level*
Fan Motor Overload*	Standby Pump On*	Person to Contact on Alarm*

Historical Data

High Temperature Last 24 Hours	Low Temperature Last 24 Hours	High Humidity Last 24 Hours
Low Humidity Last 24 Hours	Alarm History (Last 100 Alarms)	Hourly Average of Duty
Equipment Runtimes for: Blower, Compressor 1, Compressor 2, Reheat 1, 2, 3, Dehumidification, Energy Saver*, Humidifier, Condenser and Chilled Water		

Programmable Functions

Temperature Setpoint	Temperature Deadband	Fan Control Mode
System Start Delay	Low Temperature Alarm Limit	Humidity Deadband
Humidity Setpoint	High Humidity Alarm Limit	Low Humidity Alarm Limit
Define Password	Reset Equipment Runtimes	Audio Alarm Mode
Reverse Acting Water Valve	Compressor Short Cycle Alarm	Humidity Anticipation
Compressors(s)	Analog Module Sensor Setup*	Calibrate Temperature Sensor
Temperature Scale	High Temperature Alarm Limit	Fan Speed Settings
Water Valve Voltage Range	Delay for Optional Alarm 1, 2, 3, 4	Firestat Temperature Alarm Limit
Manual Diagnosis	Remote Alarm 1, 2, 3, 4 Selection	Calibrate Discharge Air Sensor*
Person to contact on Alarm	Compressor Lead/Lag Sequence	Dehumidification Mode
Humidifier Autoflush Timer*	Power Problem or Restart Mode	Scheduled Normal Maintenance
Reheat Stages	Water Valve Mode	Calibrate Humidity
Humidifier	Compressor Supplements to Energy Saver*	
Network Protocol	Low Discharge Temperature Alarm Limit*	
Calibrate Chilled Water Temperature Sensor*		

In addition, the dap4 control panel shall support the following network protocols for integration with a Building Management System (BMS) for Computer Room Air Conditioning (CRAC) system monitoring and control: Modbus RTU, TCP/IP, SNMP V1 or V2, BACnet IP or MS/TP and LonTalk SNVT.

Building Management System Interface: Unit(s) shall be furnished with an optional interface card to communicate directly with the Building Automation System (BAS) through a RS-485, Ethernet or LonTalk port. All alarms, set points, and operating parameters that are accessible from the unit mounted control panel shall also be made available through the BAS.

* Some of the programmable selections, displays or alarms may require additional components or sensors

Energy Saver Coil - The Data Aire *Energy Saver Coil* is built into the system to provide total required capacity. Whenever the incoming water/glycol temperature is below 45° F/7.2° C, *Energy Saver* cooling is available. *Energy Saver* mode operates in the following range: return air setpoint plus deadband plus 2 degrees. The *Energy Saver* will operate providing there is a need for cooling. The valve will open at setpoint plus deadband. The valve will modulate as long as the space is between setpoint plus deadband plus 2 degrees. If the temperature falls below the deadband minus setpoint, the valve will close and the space is considered satisfied. While still in *Energy Saver* with the valve modulating, if the temperature goes beyond setpoint plus 2 degrees, the *Energy Saver* valve will close and DX cooling will begin.

The *Energy Saver* coil includes the next size motor, 3-way pressure control valve on the condenser water circuit, and 3-way valve on the economy coil. Common piping for coil and condensers is provided.

Energy Saver/Compressor Supplement - Units with *Energy Saver* option can be provided with compressor supplement if the *Energy Saver* is not sufficient as a stand alone system. When the incoming water/glycol temperature is below the setpoint of the water changeover thermostat, the *Energy Saver* is enabled (even if there is no call for cooling). Upon a call for cooling (setpoint plus deadband), the valve will open proportionally - 10% for each 0.1° above setpoint plus deadband. The compressor will come on at setpoint plus deadband plus 1° (the valve is 100% open at this point). The compressor will go off at setpoint plus deadband plus 0.7°. The valve will close proportionally - 10% for each 0.1° below setpoint plus deadband. An air discharge sensor is factory installed.

Auxiliary Chilled Water Coil - Where an existing chilled water loop is available, units can be fitted with an auxiliary chilled water coil. Units will operate using the chilled water for cooling. Upon a loss of water flow or an increase in room temperature the system will bring on compressor (DX) cooling. The Auxiliary Chilled Water coil includes the next size motor. Separate piping is provided for the chilled water coil and refrigeration connections.

Auxiliary Chilled Water Coil/Compressor Supplement - The Auxiliary Chilled Water Coil can be provided with compressor supplement for extended savings by allowing the compressor to supplement operation as needed when the chilled water is not sufficient on a stand alone basis. An air discharge sensor is factory installed. (See *Energy Saver/Compressor Supplement* for details)

Remote Temperature and Humidity Sensors - Temperature and humidity sensors may be ordered for remote wall mounting. Sensors are provided in a wall mount plastic case for remote sensing of temperature and humidity. 25 feet of shielded cable is provided for field wiring.

Smoke Detector - A unit mounted smoke detector will shut down the unit if smoke is sensed. The unit mounted microprocessor control will sound an alarm and display a “SMOKE DETECTED” message. The smoke detector is mounted in the return air stream and is provided with auxiliary contacts.

Unit Mounted Disconnect - A unit mounted nonautomatic disconnect switch is installed in the high voltage electrical section. The operating mechanism (handle) protrudes through the decorative exterior panel. The operating mechanism prevents access to the high voltage electrical components by not allowing entry until switched to the “OFF” position.

Tandem Scroll Compressors - Units may be ordered with tandem scroll compressors when four stage compressor control is required. Units remain dual circuited. Tandem scrolls offer the inherent advantages of scroll technology: higher efficiency, increased reliability, lower sound, and excellent liquid handling.

Scroll tandems offer two steps of modulation so that one or both compressors (per circuit) can run depending upon the load of the system, resulting in part-load efficiency equal to full load efficiency. Two-step modulation is possible because of a carefully designed tubing configuration and the scroll's superior ability to tolerate liquid. The built-in discharge check valve, present in all scroll compressors, effectively prevents liquid migration in the off compressor. Oil migration is controlled with two specially designed oil and gas equalization lines. Adding this option to 30-ton unit will increase cabinet size to 144". (See Supplement TSI-99: Tandem Scroll Technical Performance)

Hot Gas Bypass - A hot gas bypass valve is available for applications that create low suction pressure conditions that could lead to coil freeze and/or compressor cycling. In facilities such conditions generally exist in instances where; 1) a unit's dehumidification mode needs to run for extended period of time; or 2) a room is designed for low entering air conditions; or 3) a unit is utilizing an oversized condenser at low outdoor ambient conditions.

When the system suction pressure is high enough it will maintain pressure on the leaving side of the hot gas bypass valve to keep the valve port closed. Should the suction pressure decrease below the desired setting, the pressure from the suction line forces the diaphragm, which off-sets the spring pressure, allowing the spring to push the valve open. The opening of this valve allows some hot gas to mix with the refrigerant in the

suction line raising the evaporator pressure. This increases the suction pressure in the system back to the desired setting. The hot gas bypass can be manually adjusted within a certain range to fine tune the unit to a desired suction pressure in the field.

Humidifier Modulating Control - Modulating control may be added to the unit's steam generator humidifier. Modulating control will allow the humidifier to match its output to the signal from the humidity control. A self-regulating auto flush is included.

Hot Water Reheat - Where hot water is available, a water coil for reheat is offered. The coil is designed for 150 psi maximum water pressure and includes a 2-way valve (a 3-way is also available). Units with the hot water reheat do not include electric reheat. Supplemental reheat may be ordered.

Hot Gas Reheat - The unit's hot gas discharge may be used for reheat and maximum system efficiency. Supplemental electric reheat may be ordered in addition to the hot gas reheat.

3-Way Water Regulating Valve - 3-way water regulating valves are available on water and glycol cooled units to replace the standard 2-way valve. The 3-way valve controls the water/glycol flow rate to maintain the required capacity under varying conditions. This option is recommended on units with dual pump applications.

Upflow Air Discharge Plenum - Upflow air discharge plenums are fully insulated with front discharge grille. Side grilles for both or one side are available. Plenums are 18" high and painted to match the unit's color.

Floorstands - Floorstands are adjustable (\pm 2 inches) and may be ordered with factory installed turning vane or with seismic construction.

High Efficiency Filters - Standard filters are MERV 8 rated based on ASHRAE 52.2. Higher efficiency filters are available (consult factory regarding efficiency percentage and unit static pressures).

Condensate Pumps - Condensate pumps may be ordered factory installed or shipped loose for field installation. Condensate pumps are complete with sump, motor, and automatic control. Pumps shipped loose are available in 115, 230, or 460 volts.

Pump Ratings:

230 volt:

with check valve - 40 GPH at 20 feet
without check valve - 130 GPH at 40 feet

460 volt:

with check valve - 50 GPH at 20 feet
without check valve - 270 GPH at 40 feet

Pump Package - Centrifugal pump packages are available to circulate water or water/glycol solutions. Pumps are available in various horsepower and voltages. Both 3400 and 1750 rpm pumps are available as an option. On dual pump applications it is recommended that a 3-way water regulating valve be used in lieu of the standard 2-way valve.

Pump Enclosure - Pump enclosures are available for either single or dual pump applications. Pump enclosures are vented and weather resistant. When ordered with pumps, the pumps are factory mounted in the enclosure ready for field piping and wiring.

Integral Pump Enclosures - Pumps may be factory mounted as an integral part of the dry cooler. A 30" extension is added to the dry cooler. Pumps are pre-piped and wired and includes shut-off valves. A flow switch is included with dual pumps.

Pump Auto-Changeover - Dual pump packages may be provided with a pump auto-changeover control and NEMA 4 flow switch (field installed). The pump auto-changeover control is factory wired and mounted in the dry cooler control box. The pump auto-changeover control provides automatic pump changeover in the event of a pump failure. Upon pump changeover, an audible alarm will sound at the indoor unit and a message ("STANDBY PUMP ON") will be displayed on the indoor unit microprocessor display.

Extended Compressor Warranty - Extended compressor warranties are available from Data Aire. Contact your local representative for one that best suites your needs.

AIR COOLED: Performance data at STANDARD airflow

R-407C Refrigerant

gForce also available with R-410A, covered in a separate brochure.

MODEL NUMBER GFAD/U021 GFAD/U028 GFAD/U035 GFAD/U046 GFAD/U056 GFAD/U070 GFAD/U091 GFAD/U106

CAPACITY in Btu/hr - Gross

80° DB/67° WB 50% RH	Total	74,400	103,800	128,200	162,700	208,600	268,500	326,900	391,100
	Sensible	58,800	83,200	104,100	123,600	157,800	200,300	237,300	294,800
75° DB/62.5° WB 50% RH	Total	68,900	96,300	119,100	151,100	192,900	249,500	303,300	362,700
	Sensible	56,800	80,400	100,600	119,800	152,500	194,200	230,100	285,400
75° DB/61° WB 45% RH	Total	67,000	93,700	115,200	146,800	187,600	242,300	295,000	352,800
	Sensible	60,800	86,100	107,600	127,800	162,900	206,900	244,900	304,600
72° DB/60° WB 50% RH	Total	65,800	91,800	113,600	144,200	183,500	238,100	289,200	345,800
	Sensible	55,500	78,700	98,500	117,500	149,400	190,500	225,800	279,800
72° DB/58.6° WB 45% RH	Total	63,900	89,600	110,200	140,200	178,900	231,700	281,600	337,000
	Sensible	59,200	84,000	104,900	124,800	158,800	202,200	239,200	297,400

FAN SECTION

Airflow - CFM	2,700	3,600	4,500	4,800	6,400	8,000	9,000	12,000
Number of fans	1	1	1	1	2	2	2	3
Standard fan - diameter (mm)	450	500	500	560	500	500	500	500
Fan motor - kW/HP	1.0/1.4	2.8/3.7	2.8/3.7	3.0/4.0	2.8/3.7	2.8/3.7	2.8/3.7	2.8/3.7
External static pressure (E.S.P.) - in. of W.G.	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Maximum E.S.P.	1.0	1.5	0.8	1.2	1.5	1.4	0.6	1.3
Next size fan - diameter (mm)	500	N/A	560	560	N/A	560	560	560
Fan motor - kW/HP	2.8/3.7		3.0/4.0	5.0/6.7		3.0/4.0	3.0/4.0	3.0/4.0
Maximum E.S.P.	1.5	N/A	1.4	1.5	N/A	1.5	1.2	1.5

COMPRESSORS

Type:								
Hermetic scroll	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Number	2	2	2	2	2	2	2	2
Refrigerant type	R-407C	R-407C	R-407C	R-407C	R-407C	R-407C	R-407C	R-407C

EVAPORATOR COIL

Face area - sq. ft.	12.2	12.2	12.2	14.5	24.4	24.4	24.4	32.5
Rows of coils	2	3	4	5	3	4	5	4
Face velocity - FPM	221	295	369	331	262	328	369	369

REHEAT SECTION

Electric	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard	
kW	15	15	15	15	22.5	22.5	22.5	30	
Capacity - Btu/hr	51,225	51,225	51,225	51,225	76,835	76,835	76,835	102,450	
Hot gas	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	
Capacity - Btu/hr	26,000	38,000	42,200	48,000	64,000	81,000	101,000	126,000	
Steam	Optional	Optional	Optional	Optional	Optional	Optional	Optional	N/A	
Capacity - Btu/hr	Downflow	105,500	115,000	121,000	126,000	90,000	210,000	230,000	N/A
	Upflow	60,000	65,000	69,000	72,000	108,000	120,000	130,000	N/A
Hot water	Optional	Optional	Optional	Optional	Optional	Optional	Optional	N/A	
Capacity - Btu/hr	Downflow	70,000	81,000	86,000	90,000	130,000	145,000	160,000	N/A
	Upflow	34,300	44,800	47,500	49,400	74,200	82,000	90,700	N/A

AIR COOLED: Performance data at STANDARD airflow

R-407C Refrigerant

gForce also available with R-410A, covered in a separate brochure.

MODEL NUMBER GFAD/U021 GFAD/U028 GFAD/U035 GFAD/U046 GFAD/U056 GFAD/U070 GFAD/U091 GFAD/U106

HUMIDIFIER SECTION

Steam generator	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Capacity lbs/hr (Adjustable)	10-30	10-30	10-30	10-30	10-30	10-30	10-30	10-30	10-30
kW	3.3-10.2	3.3-10.2	3.3-10.2	3.3-10.2	3.3-10.2	3.3-10.2	3.3-10.2	3.3-10.2	3.3-10.2
Steam grid	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
Capacity lbs/hr at 15 psi	31	31	31	31	31	31	31	31	31

FILTER SECTION

Quantity /size	<i>Downflow</i>	2/20x25	2/20x25	2/20x25	2/20x25	4/20x25	4/20x25	4/20x25	4/20x20
		1/20x20	1/20x20	1/20x20	1/20x20	4/16x25	4/16x25	4/16x25	4/16x20
		2/16x25	2/16x25	2/16x25	2/16x25				2/20x25
		1/16x20	1/16x20	1/16x20	1/16x20				2/16x25
	<i>Upflow</i>	2/20x25	2/20x25	2/20x25	2/20x25	2/20x25	2/20x25	2/20x25	2/20x25
Efficiency - MERV		-	-	-	-	2/16x25	2/16x25	2/16x25	4/16x25
(Note: Efficiency based on ASHRAE Std. 52.2)		8	8	8	8	8	8	8	8

CONNECTION SIZES

Liquid line - O.D. Copper (2 per unit)	1/2	1/2	1/2	5/8	5/8	5/8	7/8	7/8	7/8
Hot gas line - O.D. Copper (2 per unit)	1/2	5/8	5/8	3/4	3/4	3/4	3/4	7/8	7/8
Suction line* - O.D. Copper (2 per unit)	7/8	7/8	1 1/8	1 1/8	1 3/8	1 3/8	1 3/8	1 3/8	1 3/8
Condensate drain	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
Humidifier supply	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4

NOTE: Refer to Operation and Maintenance manual for recommended pipe sizing between unit and condenser.

ELECTRICAL SECTION

Standard Fan

Electrical data based on STANDARD unit: electric reheat - **YES**, steam generator - **YES** and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	55/68/70	65/79/80	71/83/90	74/86/90	108/131/150	116/141/150	144/163/200	162/196/225
460/3/60	FLA/MCA/MOP	26/32/35	30/36/40	33/38/40	35/41/45	50/61/70	53/64/70	65/74/90	77/94/110

Electrical data based on: electric reheat - **NO**, steam generator - **YES** and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	52/62/70	66/77/80	71/83/90	74/86/90	102/117/125	119/136/150	144/163/200	161/181/225
460/3/60	FLA/MCA/MOP	25/29/30	31/36/40	33/38/40	35/41/45	50/57/60	55/62/70	65/74/90	80/91/110

Electrical data based on: electric reheat - **YES**, steam generator - **NO** and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	55/68/70	65/79/80	67/82/90	69/84/90	108/131/150	116/141/150	128/156/175	162/196/225
460/3/60	FLA/MCA/MOP	26/32/35	30/36/40	31/38/40	32/39/40	50/61/70	53/64/70	58/71/80	77/94/110

Electrical data based on: electric reheat - **NO**, steam generator - **NO** and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	24/26/35	38/41/50	43/47/60	46/51/60	74/81/110	91/100/125	115/128/175	132/146/175
460/3/60	FLA/MCA/MOP	12/13/15	18/20/25	20/22/30	22/25/30	37/41/50	42/46/60	52/58/80	68/75/100

FLA - Full load amps

MCA - Minimum circuit ampacity (wire sizing amps)

MOP - Maximum rating of the overcurrent protective device

AIR COOLED: Performance data at STANDARD airflow

R-407C Refrigerant

gForce also available with R-410A, covered in a separate brochure.

MODEL NUMBER GFAD/U021 GFAD/U028 GFAD/U035 GFAD/U046 GFAD/U056 GFAD/U070 GFAD/U091 GFAD/U106

ELECTRICAL SECTION

Next Size Fan

Electrical data based on: electric reheat - **YES**, steam generator humidifier - **YES** and NEXT SIZE FAN.

208-230/3/60	FLA/MCA/MOP	60/73/80	N/A	71/83/90	N/A	N/A	116/141/150	144/163/200	162/196/225
460/3/60	FLA/MCA/MOP	28/34/35	N/A	34/39/40	38/43/45	N/A	54/65/70	66/75/90	79/95/100

Electrical data based on: electric reheat - **NO**, steam generator humidifier - **YES** and NEXT SIZE FAN.

208-230/3/60	FLA/MCA/MOP	57/67/70	N/A	67/79/80	N/A	N/A	111/128/150	136/155/175	149/169/200
460/3/60	FLA/MCA/MOP	27/31/35	N/A	34/39/40	38/43/45	N/A	56/63/70	66/75/90	82/92/110

Electrical data based on: electric reheat - **YES**, steam generator humidifier - **NO** and NEXT SIZE FAN.

208-230/3/60	FLA/MCA/MOP	60/73/80	N/A	63/78/80	N/A	N/A	108/133/150	121/149/175	150/184/200
460/3/60	FLA/MCA/MOP	28/34/35	N/A	31/38/40	35/42/45	N/A	54/65/70	59/72/80	79/95/110

Electrical data based on: electric reheat - **NO**, steam generator humidifier - **NO** and NEXT SIZE FAN.

208-230/3/60	FLA/MCA/MOP	29/31/40	N/A	39/43/60	N/A	N/A	83/92/125	107/120/150	121/134/175
460/3/60	FLA/MCA/MOP	14/15/20	N/A	21/23/30	25/27/35	N/A	43/47/60	53/59/80	69/76/100

FLA - full load amps

MCA - Minimum circuit amps (wire size amps)

MOP - Maximum rating of the overcurrent protective device

COMPRESSOR

FLA -full load amps

208-230/3/60	10.3	14.7	17.3	18.6	28.8	37.2	49.4	53.8
460/3/60	5.1	7.1	8.2	9.0	14.7	17.2	22.4	28.2

CONDENSER

Remote air cooled outdoor

Standard selection at 95° F ambient at sea level

Evaporative model	GFAD/U021	GFAD/U028	GFAD/U035	GFAD/U046	GFAD/U056	GFAD/U070	GFAD/U091	GFAD/U106
Condenser model	GHRC025	GHRC032	GHRC039	GHRC053	GHRC060	GHRC074	GHRC099	GHRC106

Selection at 100° F ambient at sea level

Evaporative model	GFAD/U021	GFAD/U028	GFAD/U035	GFAD/U046	GFAD/U056	GFAD/U070	GFAD/U091	GFAD/U106
Condenser model	GHRC025	GHRC039	GHRC053	GHRC060	GHRC074	GHRC084	GHRC106	GHRC141

Selection at 105° F ambient at sea level

Evaporative model	GFAD/U021	GFAD/U028	GFAD/U035	GFAD/U046	GFAD/U056	GFAD/U070	GFAD/U091	GFAD/U1060
Condenser model	GHRC039	GHRC053	GHRC053	GHRC074	GHRC084	GHRC106	GHRC141	GHRC176

* * * The following section has no reference to column headings * * *

EVAPORATOR FAN MOTOR

FLA - full load amps

Diameter (mm) /kW/HP	450/1.0/1.4	500/2.8/3.7	560/3.0/4.0	560/5.0/6.7
208-230/3/60	3.7	8.2	8.8	N/A
460/3/60	1.8	3.7	4.3	6.7

AIR COOLED: Performance data at OPTIONAL airflow

R-407C Refrigerant

gForce also available with R-410A, covered in a separate brochure.

MODEL NUMBER GFAD/U021 GFAD/U028 GFAD/U035 GFAD/U046 GFAD/U056 GFAD/U070 GFAD/U091 GFAD/U106

CAPACITY in Btu/hr - Gross

80° F/67° WB 50% RH	Total	76,500	106,700	131,100	166,700	215,600	274,700	333,100	397,400
	Sensible	65,600	93,200	117,900	135,000	178,300	214,000	251,300	319,900
75° DB/62.5° WB 50% RH	Total	70,900	99,100	122,000	154,600	199,800	254,900	309,300	369,500
	Sensible	63,200	89,800	113,200	130,400	172,000	206,900	243,400	309,300
75° DB/61° WB 45% RH	Total	69,000	96,400	118,700	150,000	194,200	247,000	301,000	360,200
	Sensible	67,500	95,000	118,100	139,600	184,600	221,000	259,900	331,800
72° DB/60° WB 50% RH	Total	67,500	94,500	116,500	147,400	190,300	243,000	295,000	352,700
	Sensible	61,700	87,800	110,400	127,600	168,200	202,700	238,700	303,000
72° DB/58.6° WB 45% RH	Total	65,900	92,100	113,700	143,500	185,400	236,300	287,300	344,200
	Sensible	65,200	91,300	113,200	136,200	179,700	215,700	253,600	323,500

FAN SECTION

Airflow - CFM	3,300	4,400	5,500	5,600	8,000	9,000	10,000	14,000
Number of fans	1	1	1	1	2	2	2	3
Standard motor - diameter (mm)	500	500	560	560	500	500	560	560
Fan motor - kW/HP	2.8/3.7	2.8/3.7	5.0/6.7	5.0/6.7	2.8/3.7	2.8/3.7	3.0/4.0	3.0/4.0
External static pressure (E.S.P.) - in of W.G.	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Maximum E.S.P.	1.5	1.0	1.5	1.5	1.5	0.9	0.7	1.1
Next size motor - diameter (mm)	N/A	560	N/A	N/A	N/A	560	560	560
Fan motor -kW/HP	-	3.0/4.0	-	-	-	3.0/4.0	5.0/6.7	5.0/6.7
Maximum E.S.P.	-	1.5	-	-	-	1.5	1.5	1.5

COMPRESSORS

Type:								
Hermetic scroll	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Number	2	2	2	2	2	2	2	2
Refrigerant type	R-407C	R-407C	R-407C	R-407C	R-407C	R-407C	R-407C	R-407C

EVAPORATOR COIL

Face area - sq ft	12.2	12.2	12.2	14.5	24.4	24.4	24.4	32.5
Rows of coils	2	3	4	5	3	4	5	4
Face velocity - fpm	271	361	451	386	328	369	410	431

REHEAT SECTION

Electric	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
kW	15	15	15	15	22.5	22.5	22.5	30
Capacity - Btu/hr	51,225	51,225	51,225	51,225	76,835	76,835	76,835	102,450
Hot gas	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
Capacity - Btu/hr	26,000	38,000	42,200	48,000	64,000	81,000	101,000	126,000
Steam	Optional	Optional	Optional	Optional	Optional	Optional	Optional	N/A
Capacity - Btu/hr	<i>Downflow</i>	105,500	115,000	121,000	126,000	190,000	210,000	230,000
	<i>Upflow</i>	60,000	65,000	69,000	72,000	108,000	120,000	130,000
Hot water	Optional	Optional	Optional	Optional	Optional	Optional	Optional	N/A
Capacity - Btu/hr	<i>Downflow</i>	70,000	81,000	86,000	90,000	130,000	145,000	160,000
	<i>Upflow</i>	34,300	44,800	47,500	49,400	74,200	82,000	90,700

AIR COOLED: Performance data at OPTIONAL airflow

R-407C Refrigerant

gForce also available with R-410A, covered in a separate brochure.

MODEL NUMBER GFAD/U021 GFAD/U028 GFAD/U035 GFAD/U046 GFAD/U056 GFAD/U070 GFAD/U091 GFAD/U106

HUMIDIFIER SECTION

Steam generator	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Capacity - lb/hr (Adjustable)	10-30	10-30	10-30	10-30	10-30	10-30	10-30	10-30
kW	3.3-10.2	3.3-10.2	3.3-10.2	3.3-10.2	3.3-10.2	3.3-10.2	3.3-10.2	3.3-10.2
Steam grid	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
Capacity - lb/hr at 15 psi	31	31	31	31	31	31	31	31

FILTER SECTION

Quantity /size	<i>Downflow</i>	2/20x25	2/20x25	2/20x25	2/20x25	4/20x25	4/20x25	4/20x25	4/20x20
		1/20x20	1/20x20	1/20x20	1/20x20	4/16x25	4/16x25	4/16x25	4/16x20
		2/16x25	2/16x25	2/16x25	2/16x25				2/20x25
		1/16x20	1/16x20	1/16x20	1/16x20				2/16x25
	<i>Upflow</i>	2/20x25	2/20x25	2/20x25	2/20x25	2/20x25	2/20x25	2/20x25	2/20x25
Efficiency - MERV		8	8	8	8	8	8	8	8
(Note: Efficiency based on ASHRAE Std. 52.2)									

CONNECTION SIZES

Liquid line - O.D. Copper (2 per unit)	1/2	1/2	1/2	5/8	5/8	5/8	7/8	7/8
Hot gas line - O.D. Copper (2 per unit)	1/2	5/8	5/8	3/4	3/4	3/4	7/8	7/8
Suction line* - O.D. Copper (2 per unit)	7/8	7/8	1 1/8	1 1/8	1 3/8	1 3/8	1 3/8	1 3/8
Condensate drain	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
Humidifier supply	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4

(Note: Refer to Operation and Maintenance manual for recommended pipe sizing between unit and condenser.)

ELECTRICAL SECTION

Standard Fan

Electrical data based on STANDARD unit: electric reheat - **YES**, steam generator humidifier - **YES**, and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	60/73/80	65/79/80	N/A	N/A	108/131/150	116/141/150	145/164/200	164/198/225
460/3/60	FLA/MCA/MOP	28/34/35	30/36/40	36/41/45	38/43/45	50/61/70	53/64/70	66/75/90	79/95/110

Electrical data based on: electrical reheat - **NO**, steam generator humidifier - **YES**, and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	57/67/70	66/77/80	N/A	N/A	102/117/125	119/136/150	145/164/200	162/183/225
460/3/60	FLA/MCA/MOP	27/31/35	31/36/40	36/41/45	38/43/45	50/57/60	55/62/70	66/75/90	82/92/110

Electrical data based on: electrical reheat - **YES**, steam generator humidifier - **NO**, and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	60/73/80	65/79/80	N/A	N/A	108/131/150	116/141/150	130/158/175	164/198/225
460/3/60	FLA/MCA/MOP	28/34/35	30/36/40	34/41/45	35/42/45	50/61/70	53/64/70	59/72/80	79/95/110

Electrical data based on: electrical reheat - **NO**, steam generator humidifier - **NO**, and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	29/31/40	38/41/50	N/A	N/A	74/81/110	91/100/125	116/129/175	134/148/200
460/3/60	FLA/MCA/MOP	14/15/20	18/20/25	23/25/30	25/27/35	37/41/50	42/46/60	53/59/80	69/76/100

FLA - Full load amps
MCA - Minimum circuit amps (wire sizing amps)
MOP - Maximum rating of the overcurrent protective device

AIR COOLED: Performance data at OPTIONAL airflow

R-407C Refrigerant

gForce also available with R-410A, covered in a separate brochure.

MODEL NUMBER GFAD/U021 GFAD/U028 GFAD/U035 GFAD/U046 GFAD/U056 GFAD/U070 GFAD/U091 GFAD/U106

ELECTRICAL SECTION

Next Size Fan

Electrical data based on: electric reheat - **YES**, steam generator humidifier - **YES**, and NEXT SIZE FAN.

208-230/3/60	FLA/MCA/MOP	N/A	61/75/80	N/A	N/A	N/A	108/133/150	N/A	N/A
460/3/60	FLA/MCA/MOP	N/A	30/37/40	N/A	N/A	N/A	54/65/70	71/80/90	86/102/110

Electrical data based on: electric reheat - **NO**, steam generator humidifier - **YES**, and NEXT SIZE FAN.

208-230/3/60	FLA/MCA/MOP	N/A	62/73/80	N/A	N/A	N/A	111/128/150	N/A	N/A
460/3/60	FLA/MCA/MOP	N/A	31/36/40	N/A	N/A	N/A	56/63/70	71/80/90	89/100/110

Electrical data based on: electric reheat - **YES**, steam generator humidifier - **NO**, and NEXT SIZE FAN.

208-230/3/60	FLA/MCA/MOP	N/A	61/75/80	N/A	N/A	N/A	108/133/150	N/A	N/A
460/3/60	FLA/MCA/MOP	N/A	30/37/40	N/A	N/A	N/A	54/65/70	64/77/90	86/102/110

Electrical data based on: electric reheat - **NO**, steam generator humidifier - **NO**, and NEXT SIZE FAN.

208-230/3/60	FLA/MCA/MOP	N/A	34/37/50	N/A	N/A	N/A	83/92/125	N/A	N/A
460/3/60	FLA/MCA/MOP	N/A	19/20/25	N/A	N/A	N/A	43/47/60	53/59/80	77/84/110

FLA - full load amps MCA - Minimum circuit amps (wire size amps) MOP - Maximum rating of the overcurrent protective device

COMPRESSOR

FLA -full load amps

208-230/3/60	10.3	14.7	17.3	18.6	28.8	37.2	49.4	53.8
460/3/60	5.1	7.1	8.2	9.0	14.7	17.2	22.4	28.2

CONDENSER

Remote air cooled outdoor

Standard selection at 95° F ambient at sea level

Evaporative model	GFAD/U021	GFAD/U028	GFAD/U035	GFAD/U046	GFAD/U056	GFAD/U070	GFAD/U091	GFAD/U106
Condenser model	GHRC025	GHRC032	GHRC039	GHRC053	GHRC060	GHRC074	GHRC099	GHRC106

Selection at 100° F ambient at sea level

Evaporative model	GFAD/U021	GFAD/U028	GFAD/U035	GFAD/U046	GFAD/U056	GFAD/U070	GFAD/U091	GFAD/U106
Condenser model	GHRC025	GHRC039	GHRC053	GHRC060	GHRC074	GHRC084	GHRC106	GHRC141

Selection at 105° F ambient at sea level

Evaporative model	GFAD/U021	GFAD/U028	GFAD/U035	GFAD/U046	GFAD/U056	GFAD/U070	GFAD/U091	GFAD/U106
Condenser model	GHRC039	GHRC053	GHRC053	GHRC074	GHRC084	GHRC106	GHRC141	GHRC176

* * * The following section has no reference to column headings * * *

EVAPORATOR FAN MOTOR

FLA - full load amps

Diamete (mm) /kW/HP	500/2.8/3.7	560/3.0/4.0	560/5.0/6.7
208-230/3/60	8.2	8.8	N/A
460/3/60	3.7	4.3	6.7

WATER COOLED: Performance data at STANDARD airflow

R-407C Refrigerant

gForce also available with R-410A, covered in a separate brochure.

MODEL NUMBER

GFWD/U021 GFWD/U028 GFWD/U035 GFWD/U046 GFWD/U056 GFWD/U070 GFWD/U091 GFWD/U106

CAPACITY in BTU/hr - Gross

Model	Condition	Total	Sensible	GFWD/U021	GFWD/U028	GFWD/U035	GFWD/U046	GFWD/U056	GFWD/U070	GFWD/U091	GFWD/U106
80° F/67° WB 50% RH	Total	81,300		107,900	133,600	169,400	217,500	278,800	340,700	406,600	
	Sensible	61,500		84,700	106,100	126,300	161,200	204,300	242,800	300,900	
75° DB/62.5°WB 50% RH	Total	75,600		100,300	124,100	157,300	201,700	259,100	316,200	377,900	
	Sensible	59,600		82,000	102,600	122,400	156,200	198,200	235,700	291,800	
75° DB/61° WB 45% RH	Total	73,200		97,400	120,300	153,100	195,800	252,100	307,000	367,600	
	Sensible	63,400		87,700	109,700	130,600	166,400	211,200	250,400	311,100	
72° DB/60° WB 50% RH	Total	72,200		95,800	118,400	150,000	192,200	247,300	301,500	360,700	
	Sensible	58,400		80,400	100,500	120,100	153,100	194,600	231,400	286,400	
72° DB/58.6° WB 45% RH	Total	69,900		93,200	115,100	146,400	187,000	241,500	293,400	351,600	
	Sensible	61,900		85,600	107,000	127,600	162,500	206,600	244,800	304,100	

FAN SECTION

Model	Airflow	Number of fans	Standard fan - diameter (mm)	Fan motor - kW/HP	External static pressure (E.S.P.) - in. of W.G.	Maximum E.S.P.	Next size fan - diameter (mm)	Fan motor - kW/HP	Maximum E.S.P.
GFWD/U021	2,700	1	450	1.0/1.4	0.5	1.0	500	2.8/3.7	1.5
GFWD/U028	3,600	1	500	2.8/3.7	0.5	1.5	N/A	N/A	N/A
GFWD/U035	4,500	1	500	2.8/3.7	0.5	0.8	560	3.0/4.0	1.4
GFWD/U046	5,500	1	560	3.0/4.0	0.5	1.2	560	5.0/6.7	1.5
GFWD/U056	5,600	2	500	2.8/3.7	0.5	1.5	N/A	N/A	N/A
GFWD/U070	8,000	2	500	2.8/3.7	0.5	1.4	560	3.0/4.0	1.5
GFWD/U091	9,000	2	500	2.8/3.7	0.5	0.6	560	3.0/4.0	1.2
GFWD/U106	12,000	3	500	2.8/3.7	0.5	1.3	560	3.0/4.0	1.5

COMPRESSORS

Type:	GFWD/U021	GFWD/U028	GFWD/U035	GFWD/U046	GFWD/U056	GFWD/U070	GFWD/U091	GFWD/U106
Hermetic Scroll	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Number	2	2	2	2	2	2	2	2
Refrigerant type	R-407C	R-407C	R-407C	R-407C	R-407C	R-407C	R-407C	R-407C

EVAPORATOR COIL

Model	Face area - sq ft	Rows of coils	Face velocity - fpm
GFWD/U021	12.2	2	221
GFWD/U028	12.2	3	295
GFWD/U035	12.2	4	369
GFWD/U046	14.5	5	331
GFWD/U056	24.4	3	262
GFWD/U070	24.4	4	328
GFWD/U091	24.4	5	369
GFWD/U106	32.5	4	369

REHEAT SECTION

Model	Electric kW	Capacity - Btu/hr	Hot gas Capacity - Btu/hr	Steam Capacity - Btu/hr	Hot water Capacity - Btu/hr
GFWD/U021	15	51,225	26,000	Optional	Optional
GFWD/U028	15	51,225	38,000	Optional	Optional
GFWD/U035	15	51,225	42,200	Optional	Optional
GFWD/U046	15	51,225	48,000	Optional	Optional
GFWD/U056	22.5	76,835	64,000	Optional	Optional
GFWD/U070	22.5	76,835	81,000	Optional	Optional
GFWD/U091	22.5	76,835	101,000	Optional	Optional
GFWD/U106	30	102,450	126,000	N/A	N/A
GFWD/U021				Downflow: 105,500 Upflow: 60,000	N/A
GFWD/U028				Downflow: 115,000 Upflow: 65,000	N/A
GFWD/U035				Downflow: 121,000 Upflow: 69,000	N/A
GFWD/U046				Downflow: 126,000 Upflow: 72,000	N/A
GFWD/U056				Downflow: 190,000 Upflow: 108,000	N/A
GFWD/U070				Downflow: 210,000 Upflow: 120,000	N/A
GFWD/U091				Downflow: 230,000 Upflow: 130,000	N/A
GFWD/U106				Downflow: 160,000 Upflow: 90,700	N/A

WATER COOLED: Performance data at STANDARD airflow

R-407C Refrigerant

gForce also available with R-410A, covered in a separate brochure.

MODEL NUMBER GFWD/U021 GFWD/U028 GFWD/U035 GFWD/U046 GFWD/U056 GFWD/U070 GFWD/U091 GFWD/U106

HUMIDIFIER SECTION

Steam generator	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Capacity in lb/hr (Adjustable)	10-30	10-30	10-30	10-30	10-30	10-30	10-30	10-30
kW	3.3-10.2	3.3-10.2	3.3-10.2	3.3-10.2	3.3-10.2	3.3-10.2	3.3-10.2	3.3-10.2
Steam grid	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
Capacity in lb/hr at 15 psi	31	31	31	31	31	31	31	31

FILTER SECTION

Quantity /size	<i>Downflow</i>	2/20x25	2/20x25	2/20x25	2/20x25	4/20x25	4/20x25	4/20x25	4/20x20
		1/20x20	1/20x20	1/20x20	1/20x20	4/16x25	4/16x25	4/16x25	4/16x20
		2/16x25	2/16x25	2/16x25	2/16x25				2/20x25
		1/16x20	1/16x20	1/16x20	1/16x20				2/16x25
	<i>Upflow</i>	2/20x25	2/20x25	2/20x25	2/20x25	2/20x25	2/20x25	2/20x25	2/20x25
Efficiency - MERV		-	-	-	-	2/16x25	2/16x25	2/16x25	4/16x25
(Note: Efficiency based on ASHRAE Std. 52.2)		8	8	8	8	8	8	8	8

CONDENSER WATER REQMENTS

(Maximum design water pressure 150 psi - high pressure valves optional.)

Using 65°F EWT GPM/ΔP in psi	7.1/2.0	9.5/3.0	11.9/3.5	19.0/4.0	19.0/4.0	23.8/4.0	29.7/6.0	35.0/6.5
Using 75° F EWT GPM/ΔP in psi	11.1/3.0	14.8/3.5	18.6/4.0	29.7/4.5	29.7/4.5	37.1/4.5	46.4/7.0	52.0/8.0
Using 85°F EWT GPM/ΔP in psi	15.8/4.0	21.0/4.0	26.2/5.0	42.0/7.0	42.0/7.0	52.5/7.0	62.6/10.5	72.0/12.0

CONNECTION SIZES

Condenser water supply	1-5/8	1-5/8	1-5/8	1-5/8	2-1/8	2-1/8	2-1/8	2-1/8
Condenser water return	1-5/8	1-5/8	1-5/8	1-5/8	2-1/8	2-1/8	2-1/8	2-1/8
Condensate drain	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
Humidifier supply	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4

ELECTRICAL SECTION

Standard Fan

Electrical data based on STANDARD unit: electric reheat - **YES**, steam generator - **YES** and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	55/68/70	65/79/80	71/83/90	74/86/90	108/131/150	116/141/150	144/163/200	162/196/225
460/3/60	FLA/MCA/MOP	26/32/35	30/36/40	33/38/40	35/41/45	50/61/70	53/64/70	65/74/90	77/94/110

Electrical data based on: electric reheat - **NO**, steam generator - **YES** and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	52/62/70	66/77/80	71/83/90	74/86/90	102/117/125	119/136/150	144/163/200	161/181/225
460/3/60	FLA/MCA/MOP	25/29/30	31/36/40	33/38/40	35/41/45	50/57/60	55/62/70	65/74/90	80/91/110

Electrical data based on: electric reheat - **YES**, steam generator - **NO** and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	55/68/70	65/79/80	67/82/90	69/84/90	108/131/150	116/141/150	128/156/175	162/196/225
460/3/60	FLA/MCA/MOP	26/32/35	30/36/40	31/38/40	32/39/40	50/61/70	53/64/70	58/71/80	77/94/110

Electrical data based on: electric reheat - **NO**, steam generator - **NO** and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	24/26/35	38/41/50	43/47/60	46/51/60	74/81/110	91/100/125	115/128/175	132/146/175
460/3/60	FLA/MCA/MOP	12/13/15	18/20/25	20/22/30	22/25/30	37/41/50	42/46/60	52/58/80	68/75/100

FLA - Full load amps

MCA - Minimum circuit amps (wire sizing amps)

MOP - Maximum rating of the overcurrent protective device

WATER COOLED: Performance data at STANDARD airflow

R-407C Refrigerant

gForce also available with R-410A, covered in a separate brochure.

MODEL NUMBER GFWD/U021 GFWD/U028 GFWD/U035 GFWD/U046 GFWD/U056 GFWD/U070 GFWD/U091 GFWD/U106

ELECTRICAL SECTION

Next Size Fan

Electrical data based on: electric reheat - YES, steam generator humidifier - YES and NEXT SIZE FAN.

208-230/3/60	FLA/MCA/MOP	60/73/80	N/A	71/83/90	N/A	N/A	116/141/150	144/163/200	162/196/225
460/3/60	FLA/MCA/MOP	25/34/35	N/A	34/39/40	38/43/45	N/A	54/65/70	66/75/90	79/95/100

Electrical data based on: electric reheat - NO, steam generator humidifier - YES and NEXT SIZE FAN.

208-230/3/60	FLA/MCA/MOP	57/67/70	N/A	67/79/80	N/A	N/A	111/128/150	136/155/175	149/169/200
460/3/60	FLA/MCA/MOP	27/31/35	34/39/40	38/43/45	N/A	56/63/70	66/75/90	82/92/110	

Electrical data based on: electric reheat - YES, steam generator humidifier - NO and NEXT SIZE FAN.

208-230/3/60	FLA/MCA/MOP	60/73/80	N/A	63/78/80	N/A	N/A	108/133/150	121/149/175	150/184/200
460/3/60	FLA/MCA/MOP	28/34/35	N/A	31/38/40	35/42/45	N/A	54/65/70	59/72/80	79/95/110

Electrical data based on: electric reheat - NO, steam generator humidifier - NO and NEXT SIZE FAN.

208-230/3/60	FLA/MCA/MOP	29/31/40	N/A	39/43/60	N/A	N/A	83/92/125	107/120/150	121/134/175
460/3/60	FLA/MCA/MOP	14/15/20	N/A	21/23/30	25/27/35	N/A	43/47/60	53/59/80	69/76/100

FLA - Full load amps
MCA - Minimum circuit amps (wire sizing amps)
MOP - Maximum rating of the overcurrent protective device

COMPRESSOR

FLA - full load amps

208-230/3/60	10.3	14.7	17.3	18.6	28.8	37.2	49.4	53.8
460/3/60	5.1	7.1	8.2	9.0	14.7	17.2	22.4	28.2

* * * The following section has no reference to column headings * * *

EVAPORATOR FAN MOTOR

FLA - full load amps

Diameter (mm) /kW/HP	450/1.0/1.4	500/2.8/3.7	560/3.0/4.0	560/5.0/6.7
208-230/3/60	3.7	8.2	8.8	N/A
460/3/60	1.8	3.7	4.3	6.7

WATER COOLED: Performance data at OPTIONAL airflow

R-407C Refrigerant

gForce also available with R-410A, covered in a separate brochure.

MODEL NUMBER GFWD/U021 GFWD/U028 GFWD/U035 GFWD/U046 GFWD/U056 GFWD/U070 GFWD/U091 GFWD/U106

HUMIDIFIER SECTION

Steam generator	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Capacity in lb/hr (Adjustable)	10-30	10-30	10-30	10-30	10-30	10-30	10-30	10-30
kW	3.3-10.2	3.3-10.2	3.3-10.2	3.3-10.2	3.3-10.2	3.3-10.2	3.3-10.2	3.3-10.2
Steam grid	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
Capacity in lb/hr at 15 psi	31	31	31	31	31	31	31	31

FILTER SECTION

Quantity /size	<i>Downflow</i>	2/20x25	2/20x25	2/20x25	2/20x25	4/20x25	4/20x25	4/20x25	4/20x20
		1/20x20	1/20x20	1/20x20	1/20x20	4/16x25	4/16x25	4/16x25	4/16x20
		2/16x25	2/16x25	2/16x25	2/16x25				2/20x25
		1/16x20	1/16x20	1/16x20	1/16x20				2/16x25
	<i>Upflow</i>	2/20x25	2/20x25	2/20x25	2/20x25	2/20x25	2/20x25	2/20x25	2/20x25
Efficiency - MERV		-	-	-	-	2/16x25	2/16x25	2/16x25	4/16x25
(Note: Efficiency based on ASHRAE Std. 52.2)		8	8	8	8	8	8	8	8

CONDENSER WATER

Requirements (Maximum design water pressure 150 psi - high pressure valves optional.)

Using 65° F EWT GPM/ΔP in psi	7.1/2.0	9.5/3.0	11.9/3.5	19.0/4.0	19.0/4.0	23.8/4	29.7/6.0	35.0/6.5
Using 75° F EWT GPM/ΔP in psi	11.1/3.0	14.8/3.5	18.6/4.0	29.7/4.5	29.7/4.5	37.1/4.5	46.4/7.0	52.0/8.0
Using 85° F EWT GPM/ΔP in psi	15.8/4.0	21.0/4.0	26.2/5.0	42.0/7.0	42.0/7.0	52.5/7.0	62.6/10.5	72.0/12.0

CONNECTION SIZES

Condenser water supply	1-5/8	1-5/8	1-5/8	1-5/8	2-1/8	2-1/8	2-1/8	2-1/8
Condenser water return	1-5/8	1-5/8	1-5/8	1-5/8	2-1/8	2-1/8	2-1/8	2-1/8
Condensate drain	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
Humidifier supply	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4

ELECTRICAL SECTION

Standard Fan

Electrical data based on STANDARD unit: electric reheat - **YES**, steam generator humidifier - **YES**, and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	55/68/70	65/79/80	N/A	N/A	108/131/150	116/141/150	145/164/200	164/198/225
460/3/60	FLA/MCA/MOP	26/32/35	30/36/40	36/41/45	38/43/45	50/61/70	53/64/70	66/75/90	79/95/110

Electrical data based on: electrical reheat - **NO**, steam generator humidifier - **YES**, and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	52/62/70	66/77/80	N/A	N/A	102/117/125	119/136/150	145/164/200	162/183/225
460/3/60	FLA/MCA/MOP	25/29/30	31/36/40	36/41/45	38/43/45	50/57/60	55/62/70	66/75/90	82/92/110

Electrical data based on: electrical reheat - **YES**, steam generator humidifier - **NO**, and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	55/68/70	65/79/80	N/A	N/A	108/131/150	116/141/150	130/158/175	164/198/225
460/3/60	FLA/MCA/MOP	26/32/35	30/36/40	34/41/45	35/42/45	50/61/70	53/64/70	59/72/80	79/95/110

Electrical data based on: electrical reheat - **NO**, steam generator humidifier - **NO**, and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	24/26/35	38/41/50	N/A	N/A	74/81/110	91/100/125	116/129/175	134/148/200
460/3/60	FLA/MCA/MOP	12/13/15	18/20/25	23/25/30	25/27/35	37/41/50	42/46/60	53/59/80	69/76/100

FLA - Full load amps

MCA - Minimum circuit amps (wire size amps)

MOP - Maximum rating of the overcurrent protective device

GLYCOL COOLED: Performance data at STANDARD airflow

R-407C Refrigerant

gForce also available with R-410A, covered in a separate brochure.

MODEL NUMBER		GFGD/U021	GFGD/U028	GFGD/U035	GFGD/U046	GFGD/U056	GFGD/U070	GFGD/U091	GFGD/U106
CAPACITY in Btu/hr - Gross									
80° F/67° WB 50% RH	Total	72,800	101,700	125,200	159,400	204,200	262,500	319,900	380,100
	Sensible	58,200	82,400	103,000	122,400	156,100	197,900	234,500	290,600
75° DB/62.5° WB 50% RH	Total	67,300	94,300	116,200	148,100	188,900	243,900	296,800	353,100
	Sensible	56,100	79,600	99,400	118,500	150,800	191,800	227,300	281,400
75° DB/61° WB 45% RH	Total	65,400	91,800	112,700	143,400	183,700	236,800	289,600	343,700
	Sensible	60,200	85,300	106,500	126,300	161,100	204,500	242,500	300,800
72° DB/60° WB 50% RH	Total	64,000	89,900	110,900	141,300	179,700	232,800	282,900	336,900
	Sensible	54,900	77,900	97,300	116,200	147,600	188,100	223,000	275,900
72° DB/58.6° WB 45% RH	Total	62,500	87,500	107,600	136,900	175,100	226,500	276,700	329,100
	Sensible	58,600	83,100	103,700	123,200	157,100	199,800	237,000	293,900
FAN SECTION									
Airflow - CFM		2,700	3,600	4,500	4,800	6,400	8,000	9,000	12,000
Number of fans		1	1	1	1	2	2	2	3
Standard fan - diameter (mm)		450	500	500	560	500	500	500	500
Fan motor - kW/HP		1.0/1.4	2.8/3.7	2.8/3.7	3.0/4.0	2.8/3.7	2.8/3.7	2.8/3.7	2.8/3.7
External static pressure (E.S.P.) - in. of W.G.		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Maximum E.S.P.		1.0	1.5	0.8	1.2	1.5	1.4	0.6	1.3
Next size fan - diameter (mm)		500	N/A	560	560	N/A	560	560	560
Fan motor - kW/HP		2.8/3.7		3.0/4.0	5.0/6.7		3.0/4.0	3.0/4.0	3.0/4.0
Maximum E.S.P.		1.5	N/A	1.4	1.5	N/A	1.5	1.2	1.5
COMPRESSORS									
Type:									
Hermetic Scroll		Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Number		2	2	2	2	2	2	2	2
Refrigerant type		R-407C	R-407C	R-407C	R-407C	R-407C	R-407C	R-407C	R-407C
EVAPORATOR COIL									
Face are - sq ft		12.2	12.2	12.2	14.5	24.4	24.4	24.4	32.5
Rows of coils		2	3	4	5	3	4	5	4
Face velocity - fpm		221	295	369	331	262	328	369	369
REHEAT SECTION									
Electric		Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
kW		15	15	15	15	22.5	22.5	22.5	30
Capacity - Btu/hr		51,225	51,225	51,225	51,225	76,835	76,835	76,835	102,450
Hot gas		Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
Capacity - Btu/hr		26,000	38,000	42,200	48,000	64,000	81,000	101,000	126,000
Steam		Optional	Optional	Optional	Optional	Optional	Optional	Optional	N/A
Capacity - Btu/hr	<i>Downflow</i>	105,500	115,000	121,000	126,000	190,000	210,000	230,000	N/A
	<i>Upflow</i>	60,000	65,000	69,000	72,000	108,000	120,000	130,000	N/A
Hot Water		Optional	Optional	Optional	Optional	Optional	Optional	Optional	N/A
Capacity - Btu/hr	<i>Downflow</i>	70,000	81,000	86,000	90,000	130,000	145,000	160,000	N/A
	<i>Upflow</i>	34,300	44,800	47,500	49,400	74,200	82,000	90,700	N/A

GLYCOL COOLED: Performance data at STANDARD airflow

R-407C Refrigerant

gForce also available with R-410A, covered in a separate brochure.

MODEL NUMBER GFGD/U021 GFGD/U028 GFGD/U035 GFGD/U046 GFGD/U056 GFGD/U070 GFGD/U091 GFGD/U106

HUMIDIFIER SECTION

Steam generator	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Capacity - lb/hr (Adjustable)	10-30	10-30	10-30	10-30	10-30	10-30	10-30	10-30
kW	3.3-10.2	3.3-10.2	3.3-10.2	3.3-10.2	3.3-10.2	3.3-10.2	3.3-10.2	3.3-10.2
Steam grid	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
Capacity - lb/hr at 15 psi	31	31	31	31	31	31	31	31

FILTER SECTION

Quantity /size	<i>Downflow</i>	2/20x25	2/20x25	2/20x25	2/20x25	4/20x25	4/20x25	4/20x25	4/20x20
		1/20x20	1/20x20	1/20x20	1/20x20	4/16x25	4/16x25	4/16x25	4/16x20
		2/16x25	2/16x25	2/16x25	2/16x25				2/20x25
		1/16x20	1/16x20	1/16x20	1/16x20				2/16x25
	<i>Upflow</i>	2/20x25	2/20x25	2/20x25	2/20x25	2/20x25	2/20x25	2/20x25	2/20x25
Efficiency - MERV		-	-	-	-	2/16x25	2/16x25	2/16x25	4/16x25
(Note: Efficiency based on ASHRAE Std. 52.2)		8	8	8	8	8	8	8	8

CONDENSER WATER

Requirements: (Maximum design water pressure 150 psi - high pressure valves optional.)

Using 65° F EGT GPM/ΔP in psi	7.1/2.0	9.5/3.0	11.9/3.5	19.0/4.0	19.0/4.0	23.8/4.0	29.7/6.0	35.0/6.5
Using 75°F EGT GPM/ΔP in psi	11.1/3.0	14.8/3.5	18.6/4.0	29.7/4.5	29.7/4.5	37.1/4.5	46.4/7.0	52.0/8.0
Using 85° F EGT GPM/ΔP in psi	15.8/4.0	21.0/4.0	26.2/5.0	42.0/7.0	42.0/7.0	52.5/7.0	62.6/10.5	72.0/12.0
Using fluid cooler GPM/ΔP in psi	21.0/5.7	28.0/7.0	35.0/7.5	56.0/9.0	56.0/9.0	70.0/10.0	87.5/14.0	98.0/16.0

CONNECTION SIZES

Condensate water supply	1-5/8	1-5/8	1-5/8	1-5/8	2-1/8	2-1/8	2-1/8	2-1/8
Condensate water return	1-5/8	1-5/8	1-5/8	1-5/8	2-1/8	2-1/8	2-1/8	2-1/8
Condensate drain	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
Humidifier supply	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4

ELECTRICAL SECTION

Standard Fan

Electrical data based on STANDARD unit: electric reheat - YES, steam generator - YES and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	55/68/70	65/79/80	71/83/90	74/86/90	108/131/150	116/141/150	144/163/200	162/196/225
460/3/60	FLA/MCA/MOP	26/32/35	30/36/40	33/38/40	35/41/45	50/61/70	53/64/70	65/74/90	77/94/110

Electrical data based on: electric reheat - NO, steam generator - YES and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	52/62/70	66/77/80	71/83/90	74/86/90	102/117/125	119/136/150	144/163/200	161/181/225
460/3/60	FLA/MCA/MOP	25/29/30	31/36/40	33/38/40	35/41/45	50/57/60	55/62/70	65/74/90	80/91/110

Electrical data based on: electric reheat - YES, steam generator - NO and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	55/68/70	65/79/80	67/82/90	69/84/90	108/131/150	116/141/150	128/156/175	162/196/225
460/3/60	FLA/MCA/MOP	26/32/35	30/36/40	31/38/40	32/39/40	50/61/70	53/64/70	58/71/80	77/94/110

Electrical data based on: electric reheat - NO, steam generator - NO and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	24/26/35	38/41/50	43/47/60	46/51/60	74/81/110	91/100/125	115/128/175	132/146/175
460/3/60	FLA/MCA/MOP	12/13/15	18/20/25	20/22/30	22/25/30	37/41/50	42/46/60	52/58/80	68/75/100

FLA - Full load amps

MCA - Minimum circuit amps (wire sizing amps)

MOP - Maximum rating of the overcurrent protective device

GLYCOL COOLED: Performance data at STANDARD airflow

R-407C Refrigerant

gForce also available with R-410A, covered in a separate brochure.

MODEL NUMBER GFAD/U021 GFAD/U028 GFAD/U035 GFAD/U046 GFAD/U056 GFAD/U070 GFAD/U091 GFAD/U106

ELECTRICAL SECTION

Next Size Fan

Electrical data based on: electric reheat - **YES**, steam generator humidifier - **YES** and NEXT SIZE FAN.

208-230/3/60	FLA/MCA/MOP	60/73/80	N/A	71/83/90	N/A	N/A	116/141/150	144/163/200	162/196/225
460/3/60	FLA/MCA/MOP	28/34/35	N/A	34/39/40	38/43/45	N/A	54/65/70	66/75/90	79/95/100

Electrical data based on: electric reheat - **NO**, steam generator humidifier - **YES** and NEXT SIZE FAN.

208-230/3/60	FLA/MCA/MOP	57/67/70	N/A	67/79/80	N/A	N/A	111/128/150	136/155/175	149/169/200
460/3/60	FLA/MCA/MOP	27/31/35	N/A	34/39/40	38/43/45	N/A	56/63/70	66/75/90	82/92/110

Electrical data based on: electric reheat - **YES**, steam generator humidifier - **NO** and NEXT SIZE FAN.

208-230/3/60	FLA/MCA/MOP	60/73/80	N/A	63/78/80	N/A	N/A	108/133/150	121/149/175	150/184/200
460/3/60	FLA/MCA/MOP	28/34/35	N/A	31/38/40	35/42/45	N/A	54/65/70	59/72/80	79/95/110

Electrical data based on: electric reheat - **NO**, steam generator humidifier - **NO** and NEXT SIZE FAN.

208-230/3/60	FLA/MCA/MOP	29/31/40	N/A	39/43/60	N/A	N/A	83/92/125	107/120/150	121/134/175
460/3/60	FLA/MCA/MOP	14/15/20	N/A	21/23/30	25/27/35	N/A	43/47/60	53/59/80	69/76/100

FLA - Full load amps MCA - Minimum circuit amps (wire sizing amps) MOP - Maximum rating of the overcurrent protective device

COMPRESSOR

FLA -full load amps

208-230/3/60	10.3	14.7	17.3	18.6	28.8	37.2	49.4	53.8
460/3/60	5.1	7.1	8.2	9.0	14.7	17.2	22.4	28.2

OUTDOOR FLUID COOLER

Standard selection at 95° F ambient and sea level

Evaporative model	GFGD/U021	GFGD/U028	GFGD/U035	GFGD/U046	GFGD/U056	GFGD/U070	GFGD/U091	GFGD/U106
Fluid cooler model	GHFC035	GHFC060	GHFC060	GHFC074	GHFC084	GHFC130	GHFC141	GHFC176

Selection at 100° F ambient and sea level

Evaporative model	GFGD/U021	GFGD/U028	GFGD/U035	GFGD/U046	GFGD/U056	GFGD/U070	GFGD/U091	GFGD/U106
Fluid cooler model	GHFC060	GHFC074	GHFC074	GHFC106	GHFC106	GHFC141	GHFC176	GHFC215

(NOTE: Refer to pages 53 for electrical data on fluid coolers.)

***** The following section has no reference to column headings *****

EVAPORATOR FAN MOTOR

FLA - full load amps

Diameter (mm) /kW/HP	450/1.0/1.4	500/2.8/3.7	560/3.0/4.0	560/5.0/6.7
208-230/3/60	3.7	8.2	8.8	N/A
460/3/60	1.8	3.7	4.3	6.7

GLYCOL COOLED: Performance data at OPTIONAL airflow

R-407C Refrigerant

gForce also available with R-410A, covered in a separate brochure.

MODEL NUMBER GFGD/U021 GFGD/U028 GFGD/U035 GFGD/U046 GFGD/U056 GFGD/U070 GFGD/U091 GFGD/U106

CAPACITY in Btu/hr - Gross									
80° DB/67° WB 50% RH	Total	74,000	104,700	128,500	163,200	211,700	267,100	325,400	389,300
	Sensible	64,700	92,600	116,000	133,800	176,800	211,100	246,200	316,800
75° DB/62.5° WB 50% RH	Total	68,400	97,300	119,100	151,700	195,200	249,000	302,000	361,900
	Sensible	62,200	89,100	111,600	129,300	170,500	204,500	244,000	306,200
75° DB/61° WB 45% RH	Total	66,600	94,200	115,700	147,200	189,400	241,500	294,000	351,000
	Sensible	65,600	93,200	115,100	138,500	182,100	218,700	256,800	327,900
72° DB/60° WB 50% RH	Total	65,000	92,800	113,500	144,900	186,800	238,000	288,000	345,500
	Sensible	60,700	87,100	108,900	126,600	166,700	200,600	242,700	299,900
72° DB/58.6° WB 45% RH	Total	63,500	89,800	110,500	140,800	180,800	230,700	280,600	335,400
	Sensible	62,900	89,200	109,900	135,000	176,700	213,200	250,500	319,600

FAN SECTION									
Airflow - CFM		3,300	4,400	5,500	5,600	8,000	9,000	10,000	14,000
Number of fans		1	1	1	1	2	2	2	3
Standard motor - diameter (mm)		500	500	560	560	500	500	560	560
Fan motor - kW/HP		2.8/3.7	2.8/3.7	5.0/6.7	3.0/4.0	2.8/3.7	2.8/3.7	3.0/4.0	3.0/4.0
External static pressure (E.S.P.) - in of W.G.		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Maximum E.S.P.		1.5	1.0	1.5	1.5	1.5	0.9	0.7	1.1
Next size fan - diameter (mm)		N/A	560	N/A	N/A	N/A	560	560	560
Fan motor -kW/HP		-	3.0/4.0	-	-	-	3.0/4.0	5.0/6.7	5.0/6.7
Maximum E.S.P.		-	1.5	-	-	-	1.5	1.5	1.5

COMPRESSORS									
Type:									
Hermetic Scroll		Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Number		2	2	2	2	2	2	2	2
Refrigerant type		R-407C	R-407C	R-407C	R-407C	R-407C	R-407C	R-407C	R-407C

EVAPORATOR COIL									
Face area - sq ft		12.2	12.2	12.2	14.5	24.4	24.4	24.4	32.5
Rows of coils		2	3	4	5	3	4	5	4
Face velocity - fpm		271	361	451	386	328	369	410	431

REHEAT SECTION									
Electric		Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
kW		15	15	15	15	22.5	22.5	22.5	30
Capacity - Btu/hr		51,225	51,225	51,225	51,225	76,835	76,835	76,835	102,450
Hot gas		Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
Capacity - Btu/hr		26,000	38,000	42,200	48,000	64,000	81,000	101,000	126,000
Steam		Optional	Optional	Optional	Optional	Optional	Optional	Optional	N/A
Capacity - Btu/hr	<i>Downflow</i>	105,500	115,000	121,000	126,000	190,000	210,000	230,000	N/A
	<i>Upflow</i>	60,000	65,000	69,000	72,000	108,000	120,000	130,000	N/A
Hot water		Optional	Optional	Optional	Optional	Optional	Optional	Optional	N/A
Capacity - Btu/hr	<i>Downflow</i>	70,000	81,000	86,000	90,000	130,000	145,000	160,000	N/A
	<i>Upflow</i>	34,300	44,800	47,500	49,400	74,200	82,000	90,700	N/A

GLYCOL COOLED: Performance data at OPTIONAL airflow

R-407C Refrigerant

gForce also available with R-410A, covered in a separate brochure.

MODEL NUMBER GFGD/U021 GFGD/U028 GFGD/U035 GFGD/U046 GFGD/U056 GFGD/U070 GFGD/U091 GFGD/U106

HUMIDIFIER SECTION

Steam generator Capacity in lb/hr (Adjustable)	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Capacity in lb/hr (Adjustable)	10-30	10-30	10-30	10-30	10-30	10-30	10-30	10-30
kW	3.3-10.2	3.3-10.2	3.3-10.2	3.3-10.2	3.3-10.2	3.3-10.2	3.3-10.2	3.3-10.2
Steam grid Capacity in lb/hr at 15 psi	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
Capacity in lb/hr at 15 psi	31	31	31	31	31	31	31	31

FILTER SECTION

(4 inch thick MERV 8)

Quantity /size	<i>Downflow</i>	2/20x25	2/20x25	2/20x25	2/20x25	4/20x25	4/20x25	4/20x25	4/20x20
		1/20x20	1/20x20	1/20x20	1/20x20	4/16x25	4/16x25	4/16x25	4/16x20
		2/16x25	2/16x25	2/16x25	2/16x25				2/20x25
		1/16x20	1/16x20	1/16x20	1/16x20				2/16x25
	<i>Upflow</i>	2/20x25	2/20x25	2/20x25	2/20x25	2/20x25	2/20x25	2/20x25	2/20x25
		-	-	-	-	2/16x25	2/16x25	2/16x25	4/16x25
Efficiency - MERV		8	8	8	8	8	8	8	8

(Note: Efficiency based on ASHRAE Std. 52.2)

CONDENSER WATER

Requirements (Maximum design water pressure 150 psi - high pressure valves optional.)

Using 65° F EGT GPM/ΔP in psi	7.1/2.0	9.5/3.0	11.9/3.5	19.0/4.0	19.0/4.0	23.8/4.0	29.7/6.0	35.0/6.5
Using 75° F EGT GPM/ΔP in psi	11.1/3.0	14.8/3.5	18.6/4.0	29.7/4.5	29.7/4.5	37.1/4.5	46.4/7.0	52.0/8.0
Using 85° F EGT GPM/ΔP in psi	15.8/4.0	21.0/4.0	26.2/5.0	42.0/7.0	42.0/7.0	52.5/7.0	62.6/10.5	72.0/12.0
Using fluid cooler GPM/ΔP in psi	21.0/5.7	28.0/7.0	35.0/7.5	56.0/9.0	56.0/9.0	70.0/10.0	87.5/14.0	98.0/16.0

CONNECTION SIZES

Condenser water supply	1-5/8	1-5/8	1-5/8	1-5/8	2-1/8	2-1/8	2-1/8	2-1/8
Condenser water return	1-5/8	1-5/8	1-5/8	1-5/8	2-1/8	2-1/8	2-1/8	2-1/8
Condensate drain	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
Humidifier supply	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4

ELECTRICAL SECTION

Standard Fan

Electrical data based on STANDARD unit: electric reheat - **YES**, steam generator humidifier - **YES**, and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	60/73/80	65/79/80	N/A	N/A	108/131/150	116/141/150	145/164/200	164/198/225
460/3/60	FLA/MCA/MOP	28/34/35	30/36/40	36/41/45	38/43/45	50/61/70	53/64/70	66/75/90	79/95/110

Electrical data based on: electrical reheat - **NO**, steam generator humidifier - **YES**, and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	57/67/70	66/77/80	N/A	N/A	102/117/125	119/136/150	145/164/200	162/183/225
460/3/60	FLA/MCA/MOP	27/31/35	31/36/40	36/41/45	38/43/45	50/57/60	55/62/70	66/75/90	82/92/110

Electrical data based on: electrical reheat - **YES**, steam generator humidifier - **NO**, and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	60/73/80	65/79/80	N/A	N/A	108/131/150	116/141/150	130/158/175	164/198/225
460/3/60	FLA/MCA/MOP	28/34/35	30/36/40	34/41/45	35/42/45	50/61/70	53/64/70	59/72/80	79/95/110

Electrical data based on: electrical reheat - **NO**, steam generator humidifier - **NO**, and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	29/31/40	38/41/50	N/A	N/A	74/81/110	91/100/125	116/129/175	134/148/200
460/3/60	FLA/MCA/MOP	14/15/20	18/20/25	23/25/30	25/27/35	37/41/50	42/46/60	53/59/80	69/76/100

FLA - Full load amps

MCA - Minimum circuit amps (wire sizing amps)

MOP - Maximum rating of the overcurrent protective device

GLYCOL COOLED: Performance data at OPTIONAL airflow

R-407C Refrigerant

gForce also available with R-410A, covered in a separate brochure.

MODEL NUMBER GFGD/U021 GFGD/U028 GFGD/U035 GFGD/U046 GFGD/U056 GFGD/U070 GFGD/U091 GFGD/U106

ELECTRICAL SECTION

Next Size Fan

Electrical data based on: electric reheat - **YES**, steam generator humidifier - **YES**, and NEXT SIZE FAN.

208-230/3/60	FLA/MCA/MOP	N/A	61/75/80	N/A	N/A	N/A	108/133/150	N/A	N/A
460/3/60	FLA/MCA/MOP	N/A	30/37/40	N/A	N/A	N/A	54/65/70	71/80/90	86/102/110

Electrical data based on: electric reheat - **NO**, steam generator humidifier - **YES**, and NEXT SIZE FAN.

208-230/3/60	FLA/MCA/MOP	N/A	62/73/80	N/A	N/A	N/A	111/128/150	N/A	N/A
460/3/60	FLA/MCA/MOP	N/A	31/36/40	N/A	N/A	N/A	56/63/70	71/80/90	89/100/110

Electrical data based on: electric reheat - **YES**, steam generator humidifier - **NO**, and NEXT SIZE FAN.

208-230/3/60	FLA/MCA/MOP	N/A	61/75/80	N/A	N/A	N/A	108/133/150	N/A	N/A
460/3/60	FLA/MCA/MOP	N/A	30/37/40	N/A	N/A	N/A	54/65/70	64/77/90	86/102/110

Electrical data based on: electric reheat - **NO**, steam generator humidifier - **NO**, and NEXT SIZE FAN.

208-230/3/60	FLA/MCA/MOP	N/A	34/37/50	N/A	N/A	N/A	83/92/125	N/A	N/A
460/3/60	FLA/MCA/MOP	N/A	19/20/25	N/A	N/A	N/A	43/47/60	53/59/80	77/84/110

FLA - Full load amps MCA - Minimum circuit amps (wire sizing amps) MOP - Maximum rating of the overcurrent protective device

COMPRESSOR

FLA -full load amps

208-230/3/60	10.3	14.7	17.3	18.6	28.8	37.2	49.4	53.8
460/3/60	5.1	7.1	8.2	9.0	14.7	17.2	22.4	28.2

OUTDOOR FLUID COOLER

Standard selection at 95° F ambient and sea level

Evaporative model	GFGD/U021	GFGD/U028	GFGD/U035	GFGD/U046	GFGD/U056	GFGD/U070	GFGD/U091	GFGD/U106
Fluid cooler model	GHFC035	GHFC060	GHFC060	GHFC074	GHFC084	GHFC130	GHFC141	GHFC176

Selection at 100° F ambient and sea level

Evaporative model	GFGD/U021	GFGD/U028	GFGD/U035	GFGD/U046	GFGD/U056	GFGD/U070	GFGD/U091	GFGD/U106
Fluid cooler model	GHFC060	GHFC074	GHFC074	GHFC106	GHFC106	GHFC141	GHFC176	GHFC215

(NOTE: Refer to pages 53 for electrical data on fluid coolers.)

* * * The following section has no reference to column headings * * *

EVAPORATOR FAN MOTOR

FLA - full load amps

Diameter (mm) /kW/HP	500/2.8/3.7	560/3.0/4.0	560/5.0/6.7
208-230/3/60	8.2	8.8	N/A
460/3/60	3.7	4.3	6.7

ENERGY SAVER-GLYCOL COOLED: Performance data at STANDARD airflow

R-407C Refrigerant

gForce also available with R-410A, covered in a separate brochure.

CAPACITY in Btu/hr - Gross

(based on 45° F entering fluid temperature with 40% glycol solution)

MODEL NUMBER		GFGD/U021	GFGD/U028	GFGD/U035	GFGD/U046	GFGD/U056	GFGD/U070	GFGD/U091	GFGD/U106
75° DB/62.5° WB 50% RH	Total	71,900	90,900	108,100	122,500	198,100	240,100	261,200	347,900
	Sensible	62,800	80,900	97,800	107,700	160,800	196,700	216,600	288,200
72° DB/60° WB 50% RH	Total	62,600	79,400	94,600	106,400	169,800	205,900	224,500	298,900
	Sensible	58,400	75,100	90,800	99,900	148,500	181,800	200,300	266,300
Rows of Coil		4	4	4	3	4	4	3	4
GPM		21.0	29.0	35.0	45.5	56.0	70.0	75.0	80.0
Pressure drop - psi		3.8	6.8	10.3	21.2	14.7	22.4	22.8	15.7

FAN SECTION

Airflow - CFM	2,700	3,600	4,500	4,800	6,400	8,000	9,000	12,000
Number of fans	1	1	1	1	2	2	2	3
Standard fan - diameter (mm)	500	500	560	560	500	500	560	500
Fan motor - kW/HP	2.8/3.7	2.8/3.7	3.0/4.0	3.0/4.0	2.8/3.7	2.8/3.7	3.0/4.0	2.8/3.7
External static pressure (E.S.P.) - in. of W.G.	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Maximum E.S.P.	1.5	1.5	1.0	1.0	1.5	1.1	0.9	1.0
Next size fan - diameter (mm)	N/A	N/A	560	560	N/A	560	560	560
Fan motor - kW/HP			5.0/6.7	5.0/6.7		3.0/4.0	5.0/6.7	3.0/4.0
Maximum E.S.P.	N/A	N/A	1.5	1.5	N/A	1.4	1.5	1.3

ELECTRICAL SECTION

Standard Fan

Electrical data based on STANDARD unit, electric reheat - **YES**, steam generator humidifier - **YES**, and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	60/73/80	65/79/80	72/83/90	74/86/90	108/131/150	116/141/150	145/164/200	162/196/225
460/3/60	FLA/MCA/MOP	28/34/35	30/36/40	34/39/40	35/41/45	50/61/70	53/64/70	66/75/90	77/94/110

Electric data based on: electric reheat - **NO**, steam generator humidifier - **YES**, and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	57/67/70	66/77/80	72/83/90	74/86/90	102/117/125	119/136/150	145/164/200	161/181/225
460/3/60	FLA/MCA/MOP	27/31/35	31/36/40	34/39/40	35/41/45	50/57/60	55/62/70	66/75/90	80/91/110

Electric data based on: electric reheat - **YES**, steam generator humidifier - **NO**, and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	60/73/80	65/79/80	68/83/90	69/84/90	108/131/150	116/141/150	130/158/175	162/196/225
460/3/60	FLA/MCA/MOP	28/34/35	30/36/40	31/38/40	32/39/40	50/61/70	53/64/70	59/72/80	77/94/110

Electric data based on: electric reheat - **NO**, steam generator humidifier - **NO**, and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	29/31/40	38/41/50	43/48/60	46/51/60	74/81/100	91/100/125	116/129/175	132/146/175
460/3/60	FLA/MCA/MOP	14/15/20	18/20/25	21/23/30	22/25/30	37/41/50	42/46/60	53/59/80	68/75/100

FLA - Full load amps

MCA - Minimum circuit amps (wire sizing amps)

MOP - Maximum rating of the overcurrent protective device

ENERGY SAVER-GLYCOL COOLED: Performance data at OPTIONAL airflow

R-407C Refrigerant

gForce also available with R-410A, covered in a separate brochure.

CAPACITY in Btu/hr - Gross		Downflow units (based on 45° F entering fluid temperature with 40% glycol solution)							
MODEL NUMBER		GFGD/U021	GFGD/U028	GFGD/U035	GFGD/U046	GFGD/U056	GFGD/U070	GFGD/U091	GFGD/U106
75° DB/62.5° WB 50% RH	Total	79,000	99,600	118,200	131,700	222,500	255,300	275,600	376,200
	Sensible	72,100	92,500	111,500	119,500	188,600	213,900	233,300	320,900
72° DB/60° WB 50% RH	Total	69,400	87,800	104,500	115,100	192,400	220,000	237,900	325,300
	Sensible	67,000	85,700	103,000	110,800	174,800	198,000	216,000	297,200
Rows of coils		4	4	4	3	4	4	3	4
GPM		21.0	29.0	35.0	45.5	56.0	70.0	75.0	80.0
Pressure drop - psi		3.8	6.8	10.3	21.2	14.7	22.4	22.8	15.7

FAN SECTION

Airflow - CFM	3,300	4,400	5,500	5,600	8,000	9,000	10,000	14,000
Number of fans	1	1	1	1	2	2	2	3
Standard fan - diameter (mm)	500	500	560	560	500	560	560	560
Fan motor - kW/HP	2.8/3.7	2.8/3.7	5.0/6.7	5.0/6.7	2.8/3.7	3.0/4.0	5.0/6.7	3.0/4.0
External static pressure (E.S.P.) - in of W.G.	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Maximum E.S.P.	1.5	1.0	1.5	1.5	1.5	0.9	0.7	1.1
Next size fan - diameter (mm)	N/A	560	N/A	N/A	560	560	N/A	560
Fan motor -kW/HP	-	3.0/4.0	-	-	3.0/4.0	5.0/6.7	-	5.0/6.7
Maximum E.S.P.	-	1.5	-	-	1.5	1.5	-	1.5

ELECTRICAL SECTION

Standard Fan

Electrical data based on STANDARD unit, electric reheat - **YES**, steam generator humidifier - **YES**, and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	60/73/80	65/79/80	N/A	N/A	108/131/150	117/142/150	N/A	164/198/225
460/3/60	FLA/MCA/MOP	28/34/35	30/36/40	36/41/45	38/43/45	50/61/70	54/65/70	71/80/90	79/95/110

Electrical data based on: electric reheat - **NO**, steam generator humidifier - **YES**, and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	57/67/70	66/77/80	N/A	N/A	102/117/125	120/137/150	N/A	162/183/225
460/3/60	FLA/MCA/MOP	27/31/35	31/36/40	36/41/45	38/43/45	50/57/60	56/63/70	71/80/90	82/92/110

Electrical data based on: electric reheat - **YES**, steam generator humidifier - **NO**, and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	60/73/80	65/79/80	N/A	N/A	108/131/150	117/142/150	N/A	164/198/225
460/3/60	FLA/MCA/MOP	28/34/35	30/36/40	34/41/45	35/42/45	50/61/70	54/65/70	64/77/90	79/95/110

Electrical data based on: electric reheat - **NO**, steam generator humidifier - **NO**, and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	29/31/40	38/41/50	N/A	N/A	74/81/100	92/101/125	N/A	134/148/200
460/3/60	FLA/MCA/MOP	14/15/20	18/20/25	23/25/30	25/27/35	37/41/50	43/47/60	58/64/80	69/76/110

FLA - Full load amps

MCA - Minimum circuit amps (wire sizing amps)

MOP - Maximum rating of the overcurrent protective device

AUXILIARY CHILLED WATER COIL: Performance data at STANDARD airflow

R-407C Refrigerant

gForce also available with R-410A, covered in a separate brochure.

CAPACITY in Btu/hr - Gross

(based on 45° F Entering Fluid Temperature)

MODEL NUMBER		GF*D/U021	GF*D/U028	GF*D/U035	GF*D/U046	GF*D/U056	GF*D/U070	GF*D/U091	GF*D/U106
75° DB/62.5° WB 50% RH	Total	83,900	106,500	127,600	141,800	217,800	261,600	294,600	353,400
	Sensible	68,100	88,000	106,900	116,500	169,800	206,300	231,700	291,000
72° DB/60° WB 50% RH	Total	72,000	91,600	109,900	121,400	185,200	222,700	250,300	303,400
	Sensible	63,000	81,400	98,900	107,500	155,800	189,800	212,900	268,900
Rows of coils		4	4	4	3	4	4	3	4
GPM		18.0	24.0	30.0	39.0	48.0	60.0	75.0	80.0
Pressure drop - psi		2.7	4.6	7.2	11.8	9.9	15.1	18.3	13.8

* Insert "A" for air cooled, "W" for water cooled, or "G" for glycol cooled

FAN SECTION

Airflow - CFM	2,700	3,600	4,500	4,800	6,400	8,000	9,000	12,000
Number of fans	1	1	1	1	2	2	2	3
Standard fan - diameter (mm)	500	500	560	560	500	500	560	500
Fan motor - kW/HP	2.8/3.7	2.8/3.7	3.0/4.0	3.0/4.0	2.8/3.7	2.8/3.7	3.0/4.0	2.8/3.7
External static pressure (E.S.P.) - in. of W.G.	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Maximum E.S.P.	1.5	1.5	1.0	1.0	1.5	1.1	0.9	1.0
Next size fan - diameter (mm)	N/A	N/A	560	560	N/A	560	560	560
Fan motor - kW/HP			5.0/6.7	5.0/6.7		3.0/4.0	5.0/6.7	3.0/4.0
Maximum E.S.P.	N/A	N/A	1.5	1.5	N/A	1.4	1.5	1.3

ELECTRICAL SECTION

Standard Fan

Electrical data based on STANDARD unit, electric reheat - **YES**, steam generator humidifier - **YES**, and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	60/73/80	65/79/80	72/83/90	74/86/90	108/131/150	116/141/150	145/164/200	162/196/225
460/3/60	FLA/MCA/MOP	28/34/35	30/36/40	34/39/40	35/41/45	50/61/70	53/64/70	66/75/90	77/94/110

Electric data based on: electric reheat - **NO**, steam generator humidifier - **YES**, and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	57/67/70	66/77/80	72/83/90	74/86/90	102/117/125	119/136/150	145/164/200	161/181/225
460/3/60	FLA/MCA/MOP	27/31/35	31/36/40	34/39/40	35/41/45	50/57/60	55/62/70	66/75/90	80/91/110

Electric data based on: electric reheat - **YES**, steam generator humidifier - **NO**, and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	60/73/80	65/79/80	68/83/90	69/84/90	108/131/150	116/141/150	130/158/175	162/196/225
460/3/60	FLA/MCA/MOP	28/34/35	30/36/40	31/38/40	32/39/40	50/61/70	53/64/70	59/72/80	77/94/110

Electric data based on: electric reheat - **NO**, steam generator humidifier - **NO**, and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	29/31/40	38/41/50	43/48/60	46/51/60	74/81/100	91/100/125	116/129/175	132/146/175
460/3/60	FLA/MCA/MOP	14/15/20	18/20/25	21/23/30	22/25/30	37/41/50	42/46/60	53/59/80	68/75/100

AUXILIARY CHILLED WATER COIL: Performance data at OPTIONAL airflow

R-407C Refrigerant

gForce also available with R-410A, covered in a separate brochure.

CAPACITY in Btu/hr - Gross

(based on 45° F Entering Fluid Temperature)

MODEL NUMBER		GF*D/U021	GF*D/U028	GF*D/U035	GF*D/U046	GF*D/U056	GF*D/U070	GF*D/U091	GF*D/U106
75° DB/62.5° WB	Total	93,200	117,900	141,000	153,600	247,400	279,600	312,800	382,500
	50% RH Sensible	78,700	101,300	122,900	129,900	199,800	224,900	250,300	324,300
72° DB/60° WB	Total	80,700	102,300	122,400	132,300	212,000	239,100	266,700	330,400
	50% RH Sensible	73,000	94,000	113,900	120,200	184,500	207,300	230,400	300,200
Rows of coils		4	4	4	3	4	4	3	4
GPM		18.0	24.0	30.0	39.0	48.0	60.0	75.0	80.0
Pressure drop - psi		2.7	4.6	7.2	11.6	9.9	15.1	18.3	13.8

* Insert "A" for air cooled, "W" for water cooled, or "G" for glycol cooled

FAN SECTION

Airflow - CFM	3,300	4,400	5,500	5,600	8,000	9,000	10,000	14,000
Number of fans	1	1	1	1	2	2	2	3
Standard motor - diameter (mm)	500	500	560	560	500	500	560	560
Fan fan - kW/HP	2.8/3.7	2.8/3.7	5.0/6.7	5.0/6.7	2.8/3.7	2.8/3.7	3.0/4.0	3.0/4.0
External static pressure (E.S.P.) - in of W.G.	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Maximum E.S.P.	1.5	1.0	1.5	1.5	1.5	0.9	0.7	1.1
Next size fan - diameter (mm)	N/A	560	N/A	N/A	N/A	560	560	560
Fan motor -kW/HP	-	3.0/4.0	-	-	-	3.0/4.0	5.0/6.7	5.0/6.7
Maximum E.S.P.	-	1.5	-	-	-	1.5	1.5	1.5

ELECTRICAL SECTION

Standard Fan

Electrical data based on STANDARD unit, electric reheat - **YES**, steam generator humidifier - **YES**, and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	60/73/80	65/79/80	N/A	N/A	108/131/150	117/142/150	N/A	164/198/225
460/3/60	FLA/MCA/MOP	28/34/35	30/36/40	36/41/45	38/43/45	50/61/70	54/65/70	71/80/90	79/95/110

Electrical data based on: electric reheat - **NO**, steam generator humidifier - **YES**, and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	57/67/70	66/77/80	N/A	N/A	102/117/125	120/137/150	N/A	162/183/225
460/3/60	FLA/MCA/MOP	27/31/35	31/36/40	36/41/45	38/43/45	50/57/60	56/63/70	71/80/90	82/92/110

Electrical data based on: electric reheat - **YES**, steam generator humidifier - **NO**, and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	60/73/80	65/79/80	N/A	N/A	108/131/150	117/142/150	N/A	164/198/225
460/3/60	FLA/MCA/MOP	28/34/35	30/36/40	34/41/45	35/42/45	50/61/70	54/65/70	64/77/90	79/95/110

Electrical data based on: electric reheat - **NO**, steam generator humidifier - **NO**, and STANDARD FAN.

208-230/3/60	FLA/MCA/MOP	29/31/40	38/41/50	N/A	N/A	74/81/100	92/101/125	N/A	134/148/200
460/3/60	FLA/MCA/MOP	14/15/20	18/20/25	23/25/30	25/27/35	37/41/50	43/47/60	58/64/80	69/76/100

DATA AIRE SERIES Dimensional and Weight Data

gForce Series - Dimensions

Model	Length	Width	Height
GFAD/U021xx	72.50"	40.50"	78.00"
GFAD/U028xx	72.50"	40.50"	78.00"
GFAD/U035xx	72.50"	40.50"	78.00"
GFAD/U046xx	72.50"	40.50"	78.00"
GFAD/U056xx	100.00"	40.50"	78.00"
GFAD/U070xx	100.00"	40.50"	78.00"
GFAD/U091xx	100.00"	40.50"	78.00"
GFAD/U106xx	130.00"	40.50"	78.00"

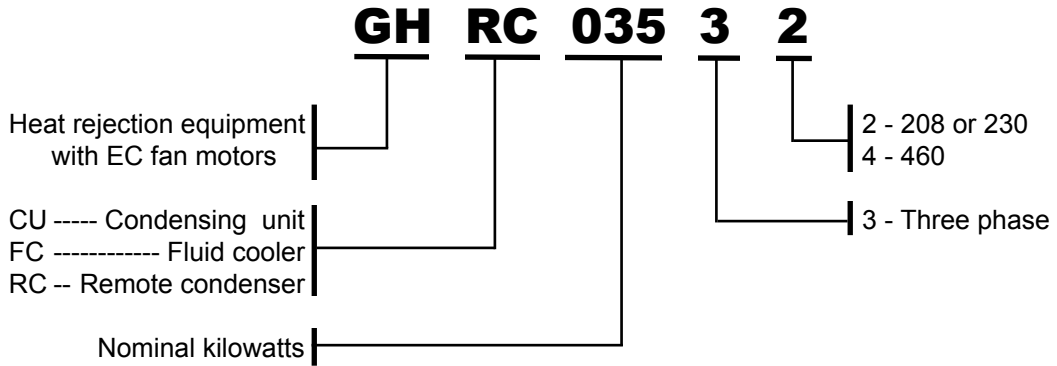
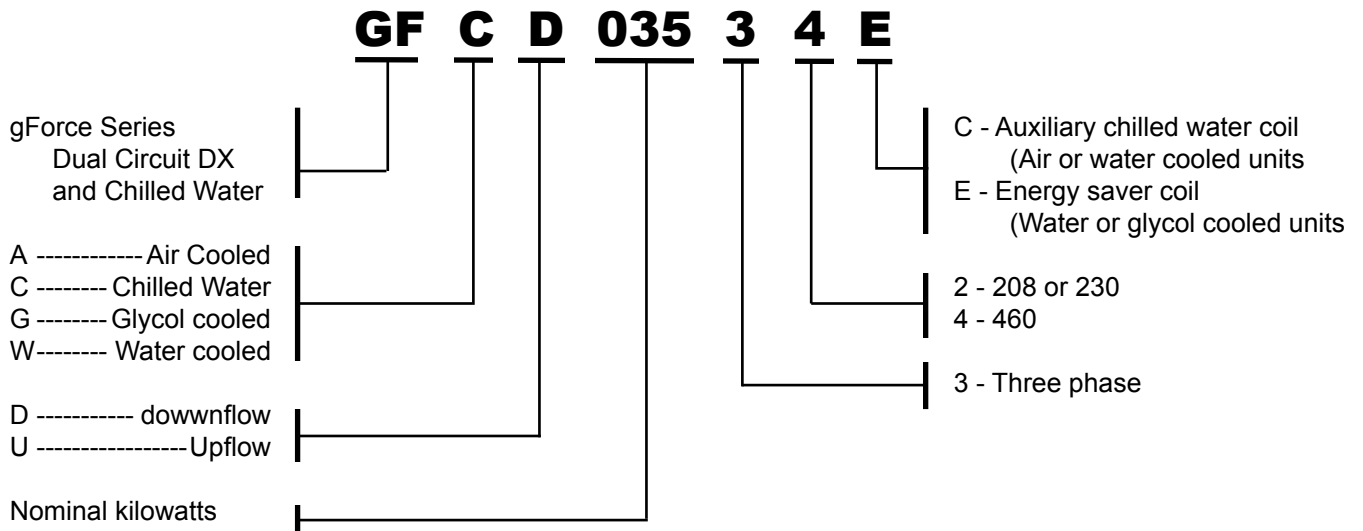
gForce Series Air Cooled - Operating and Shipping Weights

Model	Standard Units		Units with Energy Saver or Aux Chilled Water Coils	
	Operating Weight	Shipping Weight	Operating Weight	Shipping Weight
GFAD/U021xx	1,113 lbs	1,270 lbs	1,220 lbs	1,375 lbs
GFAD/U028xx	1,130 lbs	1,286 lbs	1,260 lbs	1,420 lbs
GFAD/U035xx	1,145 lbs	1,300 lbs	1,305 lbs	1,460 lbs
GFAD/U046xx	1,415 lbs	1,595 lbs	1,600 lbs	1,785 lbs
GFAD/U056xx	1,595 lbs	1,805 lbs	1,806 lbs	2,015 lbs
GFAD/U070xx	1,640 lbs	1,850 lbs	1,875 lbs	2,085 lbs
GFAD/U091xx	1,685 lbs	1,900 lbs	1,975 lbs	2,085 lbs
GFAD/U106xx	2,150 lbs	2,415 lbs	2,470 lbs	2,850 lbs

gForce Series Water or Glycol Cooled - Operating Shipping Weights

Model	Standard Units		Units with Energy Saver or Aux Chilled Water Coils	
	Operating Weight	Shipping Weight	Operating Weight	Shipping Weight
GF*D/U021xx	1,225 lbs	1,390 lbs	1,335	1,500
GF*D/U028xx	1,235 lbs	1,405 lbs	1,375	1,540
GF*D/U035xx	1,310 lbs	1,480 lbs	1,480	1,645
GF*D/U046xx	1,550 lbs	1,740 lbs	1,750	1,760
GF*D/U056xx	1,710 lbs	2,040 lbs	1,840	1,850
GF*D/U070xx	1,885 lbs	2,105 lbs	2,030	2,240
GF*D/U091xx	1,935 lbs	2,155 lbs	2,130	2,340
GF*D/U106xx	2,515 lbs	2,790 lbs	2,710	2,970

MODEL NUMBER IDENTIFICATION



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