



Chilled Water

7 to 146 kW

*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 facility 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 the wide use of 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
7 to 176 kW CHILLED WATER UNITS**

Product Description

Performance/Electrical Data

Dimensional Data

Guide Specifications

Design Features.....8

Control System10

Options.....12

Model Identification.....13

Performance Data14

 Standard Airflow14

 Optional Airflow - Option 122

 Optional Airflow - Option 230

Dimensional and Weight Data38

Dimensional and Component Drawings.....39

Guide Specifications50



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. Each unit is factory run tested and put through a vigorous quality control procedure.

IMPROVED PERFORMANCE and REDUCED MAINTENANCE

Backward curved fans discharge air radially allowing for uniform static pressure across the raised floor. Traditional forward curved fans blow air in a high velocity stream with high velocity pressure and minimal initial static pressure, prohibiting optimal airflow through the raised floor close to the CRAH. One of the key features of backward curved fans, commonly referred to as plug fans, is that the motor and fan are integrated into a single unit. Unlike forward curved fans that have a separate motor, pulley, belt and in some cases an external shaft, plug fan blades are directly connected to the motor. This eliminates the need for monthly maintenance, belt replacement and all belt dust.

In the unlikely event of a fan failure, the entire fan unit is removed. Removal is easy with the unfastening of four screws and disconnection of the electrical service. The replacement fan is set in place, electrical connections are made and then the fan is bolted in place.

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

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.

PRECISION COOLING

Data Aire Series chilled water units offer precision environmental control that brings a standard of reliable performance to meet today's market demands. Data Aire systems are designed for data centers, telecommunication sites, or anywhere process cooling is required. Chilled water units are available in 7 through 176 nominal kilowatts with upflow or downflow air distribution. Each unit is factory run tested and put through a comprehensive quality control procedure.

DESIGN

gForce units feature a specially designed compact tubular steel frame which allows for minimum space requirement of air conditioning equipment in the controlled area. Although compact, all parts are easily accessible providing excellent serviceability. Units are finished with a furniture-grade insulated steel cabinet painted in your choice of color.

The heart of the system is the *Date Alarm Processor-DAP™III*, a microprocessor based controller designed for precision environmental control. The *DAP-III* not only controls and monitors temperature, humidity, airflow, and cleanliness, it provides component runtimes, alarm history, and automatic self-test. All information is provided on a 2 row, 80 character, backlit liquid crystal display (LCD).

HIGH PERFORMANCE/LOW COST

Engineered for performance and reliability, each Data Aire Series unit comes with Data Aire's commitment to excellence. This commitment began with Data Aire's first process cooling unit and has continued for more than 40 years of building the industry's finest control equipment.

CABINET and FRAME

Data Aire chilled water series units are constructed with heliarc welded tubular steel frame providing 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, 1½ pound density insulation for protection and sound attenuation.

COIL SECTION

Designed for draw through application, the computer selected A-frame coil provides greater efficiency in the cool-

ing and dehumidification process. Air is drawn through both slabs at velocities that provide effective surface exposure with minimum turbulence. The chilled water flow is controlled by a 3-way modulating mixing valve for accurate and economical temperature and dehumidification control. Bypass air is provided to prevent saturated air from being introduced into the controlled space. 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 the need for periodic fan drive maintenance is eliminated. In the unlikely event of a fan failure replacement is simple.

FILTER SECTION

Units are provided with 4 inch deep, 30% efficient (based on ASHRAE Std. 52-76), pleated filters. The filter section is accessible from the top or side on downflow units and both sides on upflow units.

REHEAT

Three stage electric reheat is standard. Low-watt density finned tubular sheathed coils provide ample capacity to maintain room conditions during dehumidification. Low-watt density coils eliminate ionization associated with open air electric resistance heating.

HUMIDIFICATION

Steam Generator Humidifier

Units are furnished with 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 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 level 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 at an optimum low water level.

DATA ALARM PROCESSOR-III

The Data Alarm Processor-III (DAP™ III) offers the definitive answer for precision environmental control. The DAP-III control system not only controls and monitors temperature, humidity, airflow and cleanliness, it provides component run times, alarm history and an automatic self-test of the microprocessor on system start-up. All messages are presented in a clear vernacular format and sequentially displayed on a backlit, liquid crystal display (LCD).

OPERATION – Highly reliable, flat, sealed switches with tactile feedback allow unit on/off operation, menu selection for programming, operational information, diagnostics, and historical data. Multilevel password prevents unauthorized access. Alarm conditions are enunciated by an audible alarm. The alarm silence button will quiet the audible alarm but the display will continue to indicate the alarm condition until the problem is corrected.

STANDARD FEATURES

- | | |
|---|------------------------------------|
| Two row, eight character, backlit LCD screen | Stand alone panel |
| Programmed settings saved in flash memory | Microprocessor based |
| Smooth keyboard type buttons | Automatic self-test diagnostics |
| Real time clock with back-up battery | USB port for software upgrades |
| Forward and backward menu access | All settings from face of panel |
| Data base of unit and room conditions | Multi-level password access |
| Factory calibrated humidity sensor | Battery backup for historical data |
| Factory calibrated temperature sensor | Menus factory programmed |
| Four analog inputs (4-20 mA or 0-10 VDC signal) | Power “ON” status contact |
| Two analog outputs (0-10 VDC signal) | |

OPERATIONAL FEATURES

- | | |
|---|-------------------------------|
| Automatic or manual restart | Automatic compressor rotation |
| Automatic reheat element rotation | Hot water coil flush cycle |
| Adjustable mode and stage response time | Humidity anticipation |
| Chilled water energy saver coil flush cycle | Sequential load activation |
| Compressor short cycle control on DX units | Dehumidification mode lockout |
| Start time delay | |

OPTIONAL FEATURES

- | | |
|----------------------------------|----------------------------------|
| Chilled water temperature sensor | Humidifier auto-flush cycle |
| Three additional remote alarms | Discharge air temperature sensor |
| Underfloor water detection cable | Modulating humidifier control |
| Ethernet network card | LONTALK network card |
| RS-485 Multi-drop network card | |

DIAGNOSTIC and SERVICE FEATURES

- | | |
|--|---------------------------------|
| Alarms displayed in order of occurrence | Manual diagnostic program |
| Programmable delays for optional alarms | Adjustable alarm limits |
| Programmable remote alarm contact | Select alarms optional disabled |
| Four programmable optional alarm inputs | Selectable audio alarm tone |
| Manual override for blower, reheat 1, humidification and water valve | |

PROTECTIVE and SAFETY FEATURES

Metal shell enclosure with sealed front control panel	Watch dog timer
Opto-coupler signal inputs	Protected 24VAC power input
Heavy ground planes and power foils	Isolation transformer
Switching power supply	Fuses on all control boards

CONDITIONS and DATA DISPLAYED

Current percent of capacity utilized	Temperature setpoint
Current temperature	Humidity setpoint
Current humidity	Unit or network identification number*
Current discharge air temperature*	Zone number*
Current chilled water temperature*	

FUNCTIONS DISPLAYED

Reheat stages	Dehumidification
Chilled water flow percentage	Humidification

ALARMS

High temperature warning	Low temperature warning
High humidity warning	Low humidity warning
Under floor water detection	No air flow
Firestat tripped, unit shutdown	Dirty filter alarm
Custom message (programmed by factory)*	Humidity failure
Chilled water temperature sensor problem*	Manual override
Low voltage warning	Power failure restart
Temperature sensor problem	Humidity sensor problem
Maintenance required	Local alarm*
Discharge air sensor problem*	Check humidifier cylinder*
Fan motor overload*	No water flow*
Smoke detector, unit shutdown*	Person to contact on alarm*

HISTORICAL DATA

Equipment run times	Alarm history for last ten alarms
High and low temperature in last 24 hours	High and low humidity in last 24 hours
Average percent of capacity last hour	

PROGRAMMABLE SETTINGS and SELECTIONS

The user friendly Menus and Select buttons used with the 10 menu groups permit step-by-step programming of many functions. The DAP III Operation Manual provides a complete and detailed guide to the settings and selections. Refer to it for specific ranges and settings.

* - May require additional components and/or sensors.

Site Control Option

DARA-4

This high function and economical site controller permits control of up to four units providing unit rotation, flexible backup capabilities, and communication with BMS systems that accept a dry set of alarm contact.

Unit Options

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.

Condensate Pump

Condensate pumps may be ordered as factory installed or shipped loose for field installation. Condensate pumps are complete with sump, motor, and automatic control. The pumps are rated for 130 GPH at 20 foot maximum head or 40 GPH at 20 feet with check valve. Pumps shipped loose are available in 115, 230, or 460 volts.

Floorstands

Floorstands are adjustable ± 2 inches and may be ordered with factory installed turning vane or with seismic construction.

High Efficiency Filters

Standard filters are rated at 30% (per ASHRAE Std. 52-76). Higher efficiency filters are available (consult factory regarding efficiency and unit static pressure).

Steam Generator Humidifier with Modulating Control

Modulating control may be added to the steam generator humidifier. Modulating control will allow the humidifier to automatically adjust steam output to match changing room conditions. Self-regulating auto flush is included.

Hot Water Reheat

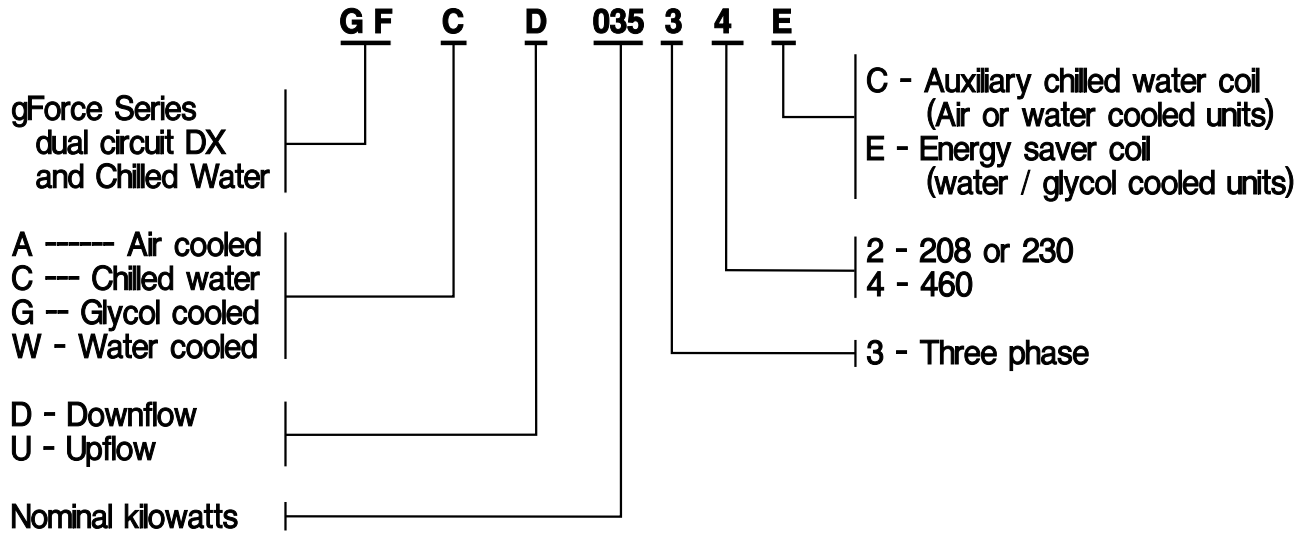
Where hot water is available, a water coil for reheat may be added. The coil is designed for 150 psi maximum water pressure and includes a 2-way valve (a 3-way is also available). Units with the hot water reheat do not include electric reheat. Supplemental reheat may be ordered.

2-Way Chilled Water Valve

A 2-way chilled water valve is available to replace the standard 3-way valve where required.

Upflow Plenum

Upflow plenums are fully insulated and have front discharge air grille. Side grilles for both or one side are available. Plenums are available in various heights and are painted to match the unit color.



CHILLED WATER

PERFORMANCE DATA

All capacity data is based on 45° F
entering water temperature.

CHILLED WATER: Performance data at STANDARD airflow, 7 - 46 nominal kilowatts

MODEL NUMBER	GFCD/U007	GFCD/U011	GFCD/U014	GFCD/U018	GFCD/U025	GFCD/U032	GFCD/U039	GFCD/U046
CAPACITY* in Btu/hr - gross								
80' F DB/67' F WB (50% RH)								
Total	37,500	51,500	71,500	84,900	108,400	137,200	170,800	201,200
Sensible	25,000	35,300	48,200	58,200	81,100	97,300	115,000	131,000
Flowrate in GPM	8.0	11.0	15.0	18.0	22	26	35	45
Pressure drop in PSI	2.1	3.6	7.3	10.3	8.5	13.5	7.2	10.2
75' F DB/62.5' F WB (50% RH)								
Total	26,900	36,700	51,200	60,600	83,000	104,900	127,400	147,000
Sensible	21,200	29,900	40,900	49,400	72,000	86,200	99,900	111,800
Flowrate - GPM	6.0	8.0	11.0	13.0	20	24	30	35
Pressure drop - PSI	1.3	2.3	4.2	5.6	7.1	11.5	5.4	6.5
75' F DB/61' F WB (45% RH)								
Total	25,000	34,400	47,700	56,700	76,600	96,400	115,400	133,000
Sensible	21,900	31,300	42,400	51,300	73,600	88,500	101,900	113,800
Flowrate - GPM	6.0	8.0	11.0	13.0	18	22	27	32
Pressure drop - PSI	1.3	2.3	4.2	5.6	5.7	9.3	4.4	5.4
72' F DB/60' F WB (50% RH)								
Total	21,900	29,100	41,600	49,800	67,400	85,800	102,900	118,800
Sensible	19,000	26,400	36,700	44,500	64,000	77,500	89,200	99,800
Flow rate - GPM	8.0	6.0	9.0	11.0	16	20	24	28
Pressure drop - PSI	2.1	2.3	2.8	3.9	4.5	7.4	3.4	4.1
72' F DB/ 58.6' F WB (45% RH)								
Total	20,700	28,000	39,500	48,500	64,800	81,300	95,400	108,600
Sensible	19,800	27,500	38,100	46,200	64,800	79,900	91,700	102,100
Flow rate - GPM	5.0	6.0	9.0	11.0	15	19	22	25
Pressure drop - PSI	0.9	1.3	2.8	3.9	3.9	6.4	2.8	3.1
FAN SECTION								
Airflow - CFM	800	1,200	1,600	2,000	3,250	3,500	3,750	4,000
Number of fans	1	1	1	1	1	1	1	1
Standard fan - diameter (mm)	450	450	450	450	500	500	500	500
Fan motor - kW/HP	1.0/1.4	1.0/1.4	1.0/1.4	1.0/1.4	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.	1.5	1.5	1.5	1.3	1.5	1.5	1.5	1.3
Next size fan - diameter (mm)	N/A	N/A	N/A	500	560	560	560	560
Fan motor - kW/HP				2.8/3.7	3.0/4.0	3.0/4.0	3.0/4.0	5.0/6.7
Maximum E.S.P.				1.5	1.5	1.5	1.5	1.5

* Capacity data is based on 45° F entering water temperature.

CHILLED WATER: Performance data at STANDARD airflow, 53 - 176 nominal kilowatts

MODEL NUMBER *GFCU/U053 GFCU/U063 GFCU/U077 GFCU/U091 GFCU/U106 GFCU/U141 GFCU/U158 GFCU/U176*

CAPACITY* in Btu/hr - gross

80' F DB/67' F WB (50% RH)

Total	259,700	337,000	412,100	450,400	553,300	641,620	773,486	874,038
Sensible	185,000	231,600	276,300	299,300	368,000	448,432	524,738	586,518
Flow rate - GPM	50	60	72	92	100	125	140	150
Pressure drop - PSI	11.9	16.6	25.3	21.2	25.5	21.1	27.3	32.8

75' F DB/62.5' F WB (50% RH)

Total	196,900	250,100	305,700	337,200	417,800	471,296	567,968	642,026
Sensible	163,100	201,000	239,000	260,000	321,400	387,776	452,124	504,740
Flow rate - GPM	45	50	60	80	90	100	110	120
Pressure drop - PSI	9.8	11.9	18.5	16.5	21.1	14.1	17.8	22.0

75' F DB/61' F WB (45% RH)

Total	181,600	229,000	278,500	305,800	379,800	436,826	524,228	586,440
Sensible	167,500	206,000	244,300	265,100	328,100	399,908	465,740	517,074
Flow rate - GPM	42	46	55	73	83	95	105	110
Pressure drop - PSI	8.6	10.2	15.7	14.0	18.1	12.7	16.3	18.7

72' F DB/60' F WB (50% RH)

Total	162,000	205,100	250,000	274,800	342,200	388,432	462,628	524,876
Sensible	146,800	180,900	214,800	233,300	289,100	349,744	404,480	453,884
Flow rate - GPM	38	42	50	66	76	85	90	100
Pressure drop - PSI	7.1	8.5	13.0	11.5	15.3	10.1	12.0	15.4

72' F DB/58.6' F WB (45% RH)

Total	151,200	190,800	230,700	251,900	314,500	361,330	434,104	491,600
Sensible	149,000	185,000	220,000	238,800	296,400	355,396	418,220	469,150
Flow rate - GPM	34	38	45	59	69	75	85	95
Pressure drop - PSI	5.6	6.8	10.4	9.1	12.6	7.7	10.6	13.8

FAN SECTION

Airflow - CFM	7,000	8,000	9,000	9,500	11,700	16,000	17,500	19,000
Number of fans	2	2	2	2	3	3	3	3
Standard fan - diameter (mm)	500	500	500	560	500	560	560	560
Fan motor - kW/HP	2.8/3.7	2.8/3.7	2.8/3.7	3.0/4.0	2.8/3.7	3.0/4.0	5.0/6.7	5.0/6.7
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	1.3	0.5	0.8	1.2	0.9	1.5	1.5
Next size fan - diameter (mm)	560	560	560	560	560	560	N/A	N/A
Fan motor - kW/HP	5.0/6.7	5.0/6.7	5.0/6.7	5.0/6.7	5.0/6.7	5.0/6.7		
Maximum E.S.P.	1.5	1.5	1.5	1.5	1.5	1.5		

* Capacity data is based on 45° F entering water temperature.

CHILLED WATER: Performance data at STANDARD airflow, 53 - 176 nominal kilowatts

MODEL NUMBER

GFCU/U053 GFCU/U063 GFCU/U077 GFCU/U091 GFCU/U106 GFCU/U141 GFCU/U158 GFCU/U176

COIL DATA

Face area in sq. ft.	24.4	24.4	24.4	24.4	30.9	42.8	42.8	42.8
Rows of coil	3	4	5	6	6	4	5	6
Face velocity in FPM	287	328	369	389	379	374	409	444

CONTROL VALVE

(Modulating control designed at 400 psi)

Valve body	3-WAY	3-WAY	3-WAY	3-WAY	3-WAY	3-WAY	3-WAY	3-WAY
Valve CV	19	46	46	46	46	46	46	46
Valve size - inches	1-1/2	2	2	2	2	2	2	2

CONNECTION SIZES (Inches)

Supply - O.D. copper	1-5/8	2-1/8	2-1/8	2-1/8	2-1/8	2-5/8	2-5/8	2-5/8
Return - O.D. copper	1-5/8	2-1/8	2-1/8	2-1/8	2-1/8	2-5/8	2-5/8	2-5/8
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

REHEAT SECTION

Type	Electric 3-stage	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Capacity	kW	22.5	22.5	22.5	22.5	22.5	30	30	30
	Btu/hr	76,835	76,835	76,835	76,835	76,835	102,360	102,360	102,360
Type	Steam	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
Capacity	Btu/hr	195,000	208,000	217,000	222,000	276,000	278,000	286,000	298,000
	<i>Downflow</i>								
	<i>Upflow</i>	134,000	47,000	159,000	164,000	202,000	207,000	216,000	223,000
Type	Hot water	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
Capacity	Btu/hr	121,500	128,600	135,000	137,900	164,600	178,700	185,200	191,400
	<i>Downflow</i>								
	<i>Upflow</i>	87,200	93,400	99,000	101,800	122,800	130,800	136,600	142,100
	GPM	8	8	8	8	10	10	10	10

HUMIDIFIER SECTION

Type	Steam generator	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Capacity	kW	3.4-10.2	3.4-10.2	3.4-10.2	3.4-10.2	3.4-10.2	3.4-10.2	3.4-10.2	3.4-10.2
	lbs/hr	10-30*	10-30*	10-30*	10-30*	10-30*	10-30*	10-30*	10-30*

*(adjustable)

CHILLED WATER: Performance data at STANDARD airflow, 53 - 176 nominal kilowatts

MODEL NUMBER GFCU/U053 GFCU/U063 GFCU/U077 GFCU/U091 GFCU/U106 GFCU/U141 GFCU/U158 GFCU/U176

FILTER SECTION		<i>(Pleated, MERV 8 efficient based on ASHRAE Std. 52.1-76)</i>							
Quantity/size	Downflow	4-20x20x4	4-20x20x4	4-20x20x4	4-20x20x4	1-20x25x4	6-20x20x4	6-20x20x4	6-20x20x4
		4-20x16x4	4-20x16x4	4-20x16x4	4-20x16x4	4-20x20x4	6-16x20x4	6-16x20x4	6-16x20x4
Upflow		4-25x20x4	4-25x20x4	4-25x20x4	4-25x20x4	1-16x25x4 4-16x20x4	6-25X20X4	6-25X20X4	6-25X20X4
						2-25X20X4 4-25X16X4			

ELECTRICAL SECTION

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

208-230/3/60	FLA/MCA/MOP	79/97/100	79/97/100	79/97/100	80/98/100	87/105/110	110/133/150	N/A	N/A
460/3/60	FLA/MCA/MOP	36/44/45	36/44/45	36/44/45	37/45/50	39/47/50	51/61/70	58/69/70	58/69/70

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

208-230/3/60	FLA/MCA/MOP	45/54/60	45/54/60	45/54/60	46/55/60	53/62/70	55/64/70	N/A	N/A
460/3/60	FLA/MCA/MOP	20/24/25	20/24/25	20/24/25	21/26/30	24/28/30	26/30/35	33/38/40	33/38/40

Electrical data based on: electric reheat - **YES** with and humidifier - **NO**, and STANDARD MOTOR.*

208-230/3/60	FLA/MCA/MOP	79/97/100	79/97/100	79/97/100	80/98/100	87/105/110	110/133/150	N/A	N/A
460/3/60	FLA/MCA/MOP	36/44/45	36/44/45	37/45/50	37/45/50	39/47/50	51/61/70	58/69/70	58/69/70

Electrical data based on: electric reheat - **NO**, humidifier - **NO**, and STANDARD MOTOR.*

208-230/3/60	FLA/MCA/MOP	16/19/25	16/19/25	16/19/25	18/20/25	25/27/30	25/27/30	N/A	N/A
460/3/60	FLA/MCA/MOP	7.4/8.3/15	7.4/8.3/15	7.4/8.3/15	8.6/9.7/15	11/12/15	11/12/15	11/12/15	13/14/15

*** STANDARD FAN**

FLA - Full load amps

Diameter (mm) kW/HP		500/2.8/3.7	500/2.8/3.7	500/2.8/3.7	560/3.0/4.0	500/2.8/3.7	560/3.0/4.0	560/5.0/6.7	560/5.0/6.7
Number of motors		2	2	2	2	3	3	3	3
208-230/3/60	FLA	8.2	8.2	8.2	8.8	8.2	N/A	N/A	N/A
460/3/60	FLA	3.7	3.7	3.7	4.3	3.7	4.3	6.7	6.7

FLA - Full load amps

MCA - Minimum circuit ampacity (wire sizing amps)

MOP - Maximum overcurrent protection device amps

CHILLED WATER: Performance data at STANDARD airflow, 7 - 46 nominal kilowatts

MODEL NUMBER

GFCD/U007 GFCD/U011 GFCD/U014 GFCD/U018 GFCD/U025 GFCD/U032 GFCD/U039 GFCD/U046

ELECTRICAL SECTION

Electrical data based on standard unit: Electric Reheat - **YES**, steam generator Humidifier - **YES**, and NEXT SIZE MOTOR.*

208-230/3/60	FLA/MCA/MOP	N/A	N/A	N/A	42/52/60	51/63/70	51/63/70	51/63/70	N/A
460/3/60	FLA/MCA/MOP	N/A	N/A	N/A	19/24/25	23/29/30	23/29/30	23/29/30	26/32/35

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

208-230/3/60	FLA/MCA/MOP	N/A	N/A	N/A	25/31/35	25/31/35	25/31/35	25/31/35	N/A
460/3/60	FLA/MCA/MOP	N/A	N/A	N/A	11/14/15	12/15/20	12/15/20	12/15/20	14/18/20

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

208-230/3/60	FLA/MCA/MOP	N/A	N/A	N/A	42/52/60	51/63/70	51/63/70	51/63/70	N/A
460/3/60	FLA/MCA/MOP	N/A	N/A	N/A	19/24/25	23/29/30	23/29/30	23/29/30	26/32/35

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

208-230/3/60	FLA/MCA/MOP	N/A	N/A	N/A	8.2/10/15	8.8/11/15	8.8/11/15	8.8/11/15	N/A
460/3/60	FLA/MCA/MOP	N/A	N/A	N/A	3.7/4.6/15	4.3/5.4/15	4.3/5.4/15	4.3/5.4/15	6.7/8.4/15

**✱ NEXT SIZE FAN **

FLA - Full Load Amps

Diameter (mm) kW/HP		N/A	N/A	N/A	500/2.8/3.7	560/3.0/4.0	560/3.0/4.0	560/3.0/4.0	560/5.0/6.7
Number of motors					1	1	1	1	1
208-230/3/60	FLA				8.2	8.8	8.8	8.8	N/A
460/3/60	FLA				3.7	4.3	4.3	4.3	6.7

FLA - Full load amps

MCA - Minimum circuit ampacity (wire sizing amps)

MOP - Maximum overcurrent protection device amps

CHILLED WATER: Performance data at STANDARD airflow, 53 - 176 nominal kilowatts

MODEL NUMBER

GFCU/U053 GFCU/U063 GFCU/U077 GFCU/U091 GFCU/U106 GFCU/U141 GFCU/U158 GFCU/U176

ELECTRICAL SECTION

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

208-230/3/60	FLA/MCA/MOP	79/97/100	N/A	N/A	N/A	N/A	N/A	N/A	N/A
460/3/60	FLA/MCA/MOP	37/45/50	42/50/60	42/50/60	42/50/60	48/57/60	58/69/70	N/A	N/A

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

208-230/3/60	FLA/MCA/MOP	45/54/60	N/A	N/A	N/A	N/A	N/A	N/A	N/A
460/3/60	FLA/MCA/MOP	21/26/30	26/31/35	26/31/35	26/31/35	33/38/40	33/38/40	N/A	N/A

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

208-230/3/60	FLA/MCA/MOP	79/97/100	N/A	N/A	N/A	N/A	N/A	N/A	N/A
460/3/60	FLA/MCA/MOP	37/45/50	42/50/60	42/50/60	42/50/60	48/57/60	58/69/70	N/A	N/A

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

208-230/3/60	FLA/MCA/MOP	16/19/25	N/A	N/A	N/A	N/A	N/A	N/A	N/A
460/3/60	FLA/MCA/MOP	8.6/9.7/15	13/15/20	13/15/20	13/15/20	20/22/25	20/22/25	N/A	N/A

✱ NEXT SIZE FAN

FLA - Full Load Amps

Diameter (mm) kW/HP		560/3.0/4.0	560/5.0/6.7	560/5.0/6.7	560/5.0/6.7	560/5.0/6.7	560/5.0/6.7	N/A	N/A
Number of motors		2	2	2	2	3	3		
208-230/3/60	FLA	8.8	N/A	N/A	N/A	N/A	N/A		
460/3/60	FLA	4.3	6.7	6.7	6.7	6.7	6.7		

FLA - Full load amps

MCA - Minimum circuit ampacity (wire sizing amps)

MOP - Maximum over current protection device ampacity

CHILLED WATER: Performance data at OPTIONAL airflow - Option 1, 53 - 176 nominal kilowatts

MODEL NUMBER *GFCD/U053 GFCD/U063 GFCD/U077 GFCD/U091 GFCD/U106 GFCD/U141 GFCD/U158 GFCD/U176*

CAPACITY* in Btu/hr - gross

80' F DB/67' F WB (50% RH)

Total	276,700	347,900	424,800	477,500	592,600	671,450	800,664	899,718
Sensible	202,100	241,500	287,100	321,900	401,400	476,864	547,138	608,502
Flow rate in GPM	50	60	72	92	100	125	140	150
Pressure drop in PSI	11.9	16.6	25.3	21.2	25.5	21.1	27.3	32.8

75' F DB/62.5' F WB (50% RH)

Total	210,800	258,500	315,400	358,000	448,900	493,708	585,958	660,968
Sensible	178,700	210,000	248,800	280,600	352,100	413,008	470,948	524,340
Flow rate in GPM	45	50	60	80	90	100	110	120
Pressure drop in PSI	9.8	11.9	18.5	16.5	21.1	14.1	17.8	22.0

75' F DB/61' F WB (45% RH)

Total	195,700	237,400	288,000	325,800	410,000	459,772	534,552	605,052
Sensible	183,700	215,400	254,700	286,900	360,800	426,496	470,982	537,912
Flow rate in GPM	42	46	55	73	83	95	105	110
Pressure drop in PSI	8.6	10.2	15.7	14.0	18.1	12.7	16.3	18.7

72' F DB/60' F WB (50% RH)

Total	173,900	212,200	258,000	291,800	368,000	407,644	477,358	540,666
Sensible	160,700	189,000	223,700	252,000	317,200	372,406	422,300	471,682
Flow rate in GPM	38	42	50	66	76	85	90	100
Pressure drop in PSI	7.1	8.5	13.0	11.5	15.3	10.1	12.0	15.4

72' F DB/58.6' F WB (45% RH)

Total	163,500	198,000	238,900	269,100	340,700	381,028	449,530	508,138
Sensible	162,400	193,100	229,100	258,200	325,800	377,218	435,580	487,846
Flow rate in GPM	34	38	45	59	69	75	85	95
Pressure drop in PSI	5.6	6.8	10.4	9.1	12.6	7.7	10.6	13.8

FAN SECTION

Airflow - CFM	8,000	8,500	9,500	10,000	13,200	17,000	18,500	20,000
Number of fans	2	2	2	2	3	3	3	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	3.0/4.0	3.0/4.0	2.8/3.7	3.0/4.0	5.0/6.7	5.0/6.7
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.	1.4	0.9	0.9	0.5	0.6	0.5	1.5	1.5
Next size fan - diameter (mm)	560	560	560	560	560	560	N/A	N/A
Fan motor - kW/HP	3.0/4.0	5.0/6.7	5.0/6.7	5.0/6.7	5.0/6.7	5.0/6.7		
Maximum E.S.P.	1.5	1.5	1.5	1.5	1.5	1.5		

* Capacity data is based on 45° F entering water temperature.

CHILLED WATER: Performance data at OPTIONAL AIRFLOW - Option 1, 53 - 176 nominal kilowatts

MODEL NUMBER

GFCD/U053 GFCD/U063 GFCD/U077 GFCD/U091 GFCD/U106 GFCD/U141 GFCD/U158 GFCD/U176

COIL DATA

Face area - sq. ft.	24.4	24.4	24.4	24.4	30.9	42.8	42.8	42.8
Rows of coil	3	4	5	6	6	4	5	6
Face Velocity - fpm	328	348	389	410	427	397	432	467

CONTROL VALVE

(Modulating Control designed at 400 psi)

Valve body	3-WAY	3-WAY	3-WAY	3-WAY	3-WAY	3-WAY	3-WAY	3-WAY
Valve CV	19	46	46	46	46	46	46	46
Valve - inches	1-1/2	2	2	2	2	2	2	2

CONNECTION SIZES (Inches)

Supply - O.D. Copper	1-5/8	2-1/8	2-1/8	2-1/8	2-1/8	2-5/8	2-5/8	2-5/8
Return - O.D. Copper	1-5/8	2-1/8	2-1/8	2-1/8	2-1/8	2-5/8	2-5/8	2-5/8
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

REHEAT SECTION

Type	Electric 3-stage	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Capacity	kW	22.5	22.5	22.5	22.5	22.5	30	30	30
	Btu/hr	76,835	76,835	76,835	76,835	76,835	102,360	102,360	102,360
Type	Steam	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
Capacity	Btu/hr								
	<i>Downflow</i>	208,000	214,000	222,000	226,000	285,000	284,000	294,000	302,000
	<i>Upflow</i>	147,000	153,000	164,000	169,000	217,000	213,000	223,000	230,000
Type	Hot water	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
Capacity	Btu/hr								
	<i>Downflow</i>	128,600	131,900	137,900	140,800	172,100	183,200	189,400	195,100
	<i>Upflow</i>	93,400	96,400	101,800	104,200	129,700	134,800	140,400	145,600
	GPM	8	8	8	8	10	10	10	10

HUMIDIFIER SECTION

Type	Steam generator	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Capacity	kW	3.4-10.2	3.4-10.2	3.4-10.2	3.4-10.2	3.4-10.2	3.4-10.2	3.4-10.2	3.4-10.2
	lbs/hr	10-30*	10-30*	10-30*	10-30*	10-30*	10-30*	10-30*	10-30*

*(adjustable)

CHILLED WATER: Performance data at OPTIONAL AIRFLOW - Option 1, 53 - 176 nominal kilowatts

MODEL NUMBER

GFCU/U053 GFCU/U063 GFCU/U077 GFCU/U091 GFCU/U106 GFCU/U141 GFCU/U158 GFCU/U176

FILTER SECTION

(Pleated, MERV 8 efficient based on ASHRAE Std. 52.1-76)

Quantity/size	Downflow	4-20x20x4	4-20x20x4	4-20x20x4	4-20x20x4	1-20x25x4	6-20x20x4	6-20x20x4	6-20x20x4
		4-20x16x4	4-20x16x4	4-20x16x4	4-20x16x4	4-20x20x4	6-16x20x4	6-16x20x4	6-16x20x4
	Upflow	4-25x20x4	4-25x20x4	4-25x20x4	4-25x20x4	1-16x25x4 4-16x20x4	6-25X20X4	6-25X20X4	6-25X20X4
						2-25X20X4 4-25X16X4			

ELECTRICAL SECTION

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

208-230/3/60	FLA/MCA/MOP	79/97/100	79/97/100	80/98/100	80/98/100	79/97/100	110/133/150	N/A	N/A
460/3/60	FLA/MCA/MOP	36/44/45	36/44/45	37/45/50	37/45/50	39/47/50	51/61/70	58/69/70	587/69/70

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

208-230/3/60	FLA/MCA/MOP	45/54/60	45/54/60	46/55/60	46/55/60	53/62/70	55/64/70	N/A	N/A
460/3/60	FLA/MCA/MOP	20/24/25	20/24/25	21/26/30	21/26/30	24/28/30	26/30/35	33/38/40	33/38/40

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

208-230/3/60	FLA/MCA/MOP	79/97/100	79/97/100	80/98/100	80/98/100	87/105/110	110/133/150	N/A	N/A
460/3/60	FLA/MCA/MOP	36/44/45	36/44/45	37/45/50	37/45/50	39/47/50	51/61/70	58/69/70	58/69/70

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

208-230/3/60	FLA/MCA/MOP	16/19/25	16/19/25	18/20/25	18/20/25	25/27/30	25/27/30	N/A	N/A
460/3/60	FLA/MCA/MOP	7.4/8.3/15	7.4/8.3/15	8.6/9.7/15	8.6/9.7/15	11/12/15	13/14/15	20/22/25	20/22/25

*** STANDARD FAN**

FLA - Full load amps

Diameter (mm) kW/HP		500/2.8/3.7	500/2.8/3.7	560/3.0/4.0	560/3.0/4.0	500/2.8/3.7	560/3.0/4.0	560/5.0/6.7	560/5.0/6.7
Number of motors		2	2	2	2	3	3	3	3
208-230/3/60	FLA	8.2	8.2	8.8	8.8	8.2	8.8	N/A	N/A
460/3/60	FLA	3.7	3.7	4.3	4.3	3.7	4.3	6.7	6.7

FLA - Full load amps

MCA - Minimum circuit ampacity (wire sizing amps)

MOP - Maximum overcurrent protection device amps

CHILLED WATER: Performance data at OPTIONAL AIRFLOW - Option 1, 7 - 46 nominal kilowatts

MODEL NUMBER

GFCD/U007 GFCD/U011 GFCD/U014 GFCD/U018 GFCD/U025 GFCD/U032 GFCD/U039 GFCD/U046

ELECTRICAL SECTION

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

208-230/3/60	FLA/MCA/MOP	N/A	N/A	42/52/60	42/52/60	51/63/70	N/A	N/A	N/A
460/3/60	FLA/MCA/MOP	N/A	N/A	19/24/25	19/24/25	23/29/30	26/32/35	26/32/35	26/32/35

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

208-230/3/60	FLA/MCA/MOP	N/A	N/A	25/31/35	25/31/35	25/31/35	N/A	N/A	N/A
460/3/60	FLA/MCA/MOP	N/A	N/A	11/14/15	11/14/15	12/15/20	14/18/20	14/18/20	14/18/20

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

208-230/3/60	FLA/MCA/MOP	N/A	N/A	42/52/60	42/52/60	51/63/70	N/A	N/A	N/A
460/3/60	FLA/MCA/MOP	N/A	N/A	19/24/25	19/24/25	23/29/30	26/32/35	26/32/35	26/32/35

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

208-230/3/60	FLA/MCA/MOP	N/A	N/A	8.2/10/15	8.2/10/15	8.8/11/15	N/A	N/A	N/A
460/3/60	FLA/MCA/MOP	N/A	N/A	3.7/4.6/15	3.7/4.6/15	4.3/5.4/15	6.7/8.4/15	6.7/8.4/15	6.7/8.4/15

⊗ NEXT SIZE FAN

FLA - Full Load Amps

Diameter (mm) kW/HP		N/A	N/A	500/2.8/3.8	500/2.8/3.7	560/3.0/4.0	560/5.0/6.7	560/5.0/6.7	560/5.0/6.7
Number of motors				1	1	1	1	1	1
208-230/3/60	FLA			8.2	8.2	8.8	N/A	N/A	N/A
460/3/60	FLA			3.7	3.7	4.3	6.7	6.7	6.7

FLA - Full load amps

MCA - Minimum circuit ampacity (wiring sizing amps)

MOP - Maximum overcurrent protection device amps

CHILLED WATER: Performance data OPTIONAL AIRFLOW - Option 1, 53 - 176 nominal kilowatts

MODEL NUMBER

GFCU/U053 GFCU/U063 GFCU/U077 GFCU/U091 GFCU/U106 GFCU/U141 GFCU/U158 GFCU/U176

ELECTRICAL SECTION

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

208-230/3/60	FLA/MCA/MOP	80/98/100	N/A	N/A	N/A	N/A	N/A	N/A	N/A
460/3/60	FLA/MCA/MOP	37/45/50	42/50/60	42/50/60	42/50/60	48/57/60	58/69/70	N/A	N/A

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

208-230/3/60	FLA/MCA/MOP	46/55/60	NA	N/A	N/A	N/A	N/A	N/A	N/A
460/3/60	FLA/MCA/MOP	21/26/30	26/31/35	26/31/35	26/31/35	33/38/40	33/38/40	N/A	N/A

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

208-230/3/60	FLA/MCA/MOP	80/98/100	N/A	N/A	N/A	N/A	N/A	N/A	N/A
460/3/60	FLA/MCA/MOP	37/45/50	42/50/60	42/50/60	42/50/60	48/57/60	58/69/70	N/A	N/A

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

208-230/3/60	FLA/MCA/MOP	18/20/25	N/A	N/A	N/A	N/A	N/A	N/A	N/A
460/3/60	FLA/MCA/MOP	8.6/9.7/15	13/15/20	13/15/20	13/15/20	20/22/25	20/22/25	N/A	N/A

*** NEXT SIZE FAN**

FLA - Full Load Amps

Diameter (mm) kW/HP		560/3.0/4.0	560/5.0/6.7	560/5.0/6.7	560/5.0/6.7	560/5.0/6.7	560/5.0/6.7	N/A	N/A
Number of motors		2	2	2	2	3	3		
208-230/3/60	FLA	8.8	N/A	N/A	N/A	N/A	N/A		
460/3/60	FLA	4.3	6.7	6.7	6.7	6.7	6.7		

FLA - Full load amps

MCA - Minimum circuit ampacity (wire sizing amps)

MOP - Maximum overcurrent protection device amps

CHILLED WATER: Performance data at OPTIONAL AIRFLOW - Option 2, 25 - 63 nominal kilowatts

<i>MODEL NUMBER</i>	<i>GFCD/U025</i>	<i>GFCD/U032</i>	<i>GFCD/U039</i>	<i>GFCD/U046</i>	<i>GFCD/U053</i>	<i>GFCD/U063</i>
CAPACITY* in Btu/hr - gross						
80° F DB/67° F WB (50% RH)						
Total	121,200	154,100	199,100	255,300	291,700	368,000
Sensible	96,400	115,300	140,800	176,300	218,200	260,600
Flow rate - GPM	22	26	35	45	50	60
Pressure drop - PSI	8.5	13.5	7.2	10.2	11.9	16.6
75° F DB/62.5° F WB (50% RH)						
Total	94,100	119,200	149,400	177,400	233,300	274,000
Sensible	85,900	102,900	123,400	142,300	193,400	227,200
Flow rate - GPM	20	24	30	35	45	50
Pressure drop - PSI	7.1	11.5	5.4	6.5	9.8	11.9
75° F DB/61° F WB (45% RH)						
Total	88,200	110,900	137,000	162,500	208,500	253,000
Sensible	87,100	105,800	126,600	146,200	198,700	233,400
Flow rate - GPM	18	22	27	32	42	46
Pressure drop - PSI	5.7	9.3	4.4	5.4	8.6	10.2
72° F DB/60° F WB (50% RH)						
Total	76,800	98,000	120,900	143,400	184,700	225,400
Sensible	75,400	92,300	110,200	127,300	173,600	204,400
Flow rate - GPM	16	20	24	28	38	42
Pressure drop - PSI	4.5	7.4	3.4	4.1	7.1	8.5
72° F DB/ 58.6° F WB (45% RH)						
Total	74,700	94,300	114,100	133,500	174,700	211,600
Sensible	74,700	94,200	112,900	130,400	174,300	208,300
Flow rate - GPM	15	19	22	25	34	38
Pressure drop - PSI	3.9	6.4	2.8	3.1	5.6	6.8
FAN SECTION						
Airflow - CFM	4,250	4,500	5,000	5,500	9,000	9,500
Number of fans	1	1	1	1	2	2
Standard fan - diameter (mm)	500	500	560	560	500	500
Fan motor - kW/HP	2.8/3.7	2.8/3.7	3.0/4.0	5.0/6.7	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
Maximum E.S.P.	1.1	0.8	0.7	1.5	0.6	1.0
Next size fan - diameter (mm)	N/A	N/A	N/A	N/A	560	560
Fan motor - kW/HP	5.0/6.7	5.0/6.7	5.0/6.7		5.0/6.7	5.0/6.7
Maximum E.S.P.	1.5	1.5	1.5		1.5	1.5

* Capacity data is based on 45° F entering water temperature

CHILLED WATER: Performance data at OPTIONAL AIRFLOW - Option 2, 77 - 176 nominal kilowatts

<i>MODEL NUMBER</i>	<i>GFCD/U077</i>	<i>GFCD/U091</i>	<i>GFCD/U106</i>	<i>GFCD/U141</i>	<i>GFCD/U158</i>	<i>GFCD/U176</i>
CAPACITY* in Btu/hr - gross						
80° F DB/67° F WB (50% RH)						
Total	437,000	495,000	634,400	680,308	834,780	924,134
Sensible	297,800	337,100	439,300	485,870	577,854	629,958
Flow rate - GPM	72	92	100	125	140	150
Pressure drop - PSI	25.3	21.2	25.5	21.1	27.3	32.8
75° F DB/62.5° F WB (50% RH)						
Total	324,700	371,600	482,400	500,820	610,984	679,112
Sensible	258,400	294,500	387,200	421,182	498,106	543,526
Flow rate - GPM	60	80	90	100	110	120
Pressure drop - PSI	18.5	16.5	21.1	14.4	17.8	22.0
75° F DB/61° F WB (45% RH)						
Total	297,200	339,100	443,300	467,104	567,772	623,196
Sensible	264,900	301,700	398,100	435,070	514,798	558,286
Flow rate - GPM	55	73	83	95	105	110
Pressure drop - PSI	15.7	14.0	18.1	12.7	16.3	18.7
72° F DB/60° F WB (50% RH)						
Total	265,800	303,000	396,200	426,446	498,320	555,850
Sensible	232,400	264,400	349,200	386,780	446,672	489,066
Flow rate - GPM	50	66	76	85	90	100
Pressure drop - PSI	13.0	11.5	15.3	10.1	12.0	15.4
72° F DB/58.6° F WB (45% RH)						
Total	246,700	280,600	369,600	387,314	471,582	524,108
Sensible	238,000	271,200	358,700	384,122	460,420	505,972
Flow rate - GPM	45	59	69	75	85	95
Pressure drop - PSI	10.4	9.1	12.6	7.7	10.6	13.8
FAN SECTION						
Airflow - CFM	10,000	10,500	15,000	18,000	20,000	21,000
Number of fans	2	2	3	3	3	3
Standard fan - diameter (mm)	560	560	560	560	560	560
Fan motor - kW/HP	3.0/4.0	5.0/6.7	3.0/4.0	5.0/6.7	5.0/6.7	5.0/6.7
External static pressure (E.S.P.) - in. of W.G.	0.5	0.5	0.5	0.5	0.5	0.5
Maximum E.S.P.	0.5	1.5	0.5	1.5	1.5	1.1
Next size fan - diameter (mm)	560	N/A	560	N/A	N/A	N/A
Fan motor - kW/HP	5.0/6.7		5.0/6.7			
Maximum E.S.P.	1.5		1.5			

* Capacity data is based on 45° F entering water temperature

CHILLED WATER: Performance data at OPTIONAL AIRFLOW - Option 2, 25 - 63 nominal kilowatts

MODEL NUMBER *GFCD/U025* *GFCD/U032* *GFCD/U039* *GFCD/U046* *GFCD/U053* *GFCD/U063*

COIL DATA

Face area - sq. ft.	12.2	12.2	12.2	12.2	24.4	24.4
Rows of coil	3	4	5	6	3	4
Face velocity - FPM	348	369	410	461	369	389

CONTROL VALVE

(Modulating Control designed at 400 psi)

Valve body	3-WAY	3-WAY	3-WAY	3-WAY	3-WAY	3-WAY
Valve CV	10	10	10	19	19	46
Valve size - inches	1	1	1-1/4	1-1/2	1-1/2	2

CONNECTION SIZES (Inches)

Supply - O.D. Copper	1-1/8	1-1/8	1-5/8	1-5/8	1-5/8	2-1/8
Return - O.D. Copper	1-1/8	1-1/8	1-5/8	1-5/8	1-5/8	2-1/8
Condensate drain	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

REHEAT SECTION

Type	Electric 3-Stage	Standard	Standard	Standard	Standard	Standard	Standard
Capacity	in kW	15	15	15	15	22.5	22.5
	in Btu/hr	51,225	51,225	51,225	51,225	76,835	76,835
Type	Steam	Optional	Optional	Optional	Optional	Optional	Optional
Capacity	in Btu/hr						
	<i>Downflow</i>	101,000	103,000	107,000	111,000	217,000	222,000
	<i>Upflow</i>	74,000	77,000	80,000	85,000	159,000	164,000
Type	Hot water	Optional	Optional	Optional	Optional	Optional	Optional
Capacity	in Btu/hr						
	<i>Downflow</i>	61,300	62,600	69,000	71,600	135,000	137,900
	<i>Upflow</i>	45,200	46,600	50,900	53,400	99,000	101,800
	GPM	5	5	6	6	8	8

HUMIDIFIER SECTION

Type	Steam generator	Standard	Standard	Standard	Standard	Standard	Standard
Capacity	kW	3.4	3.4	3.4	3.4	3.4-10.2	3.4-10.2
	lbs/hr	10	10	10	10	10-30*	10-30*

*(adjustable)

CHILLED WATER: Performance data at OPTIONAL AIRFLOW - Option 2, 77 - 176 nominal kilowatts

MODEL NUMBER **GFCD/U077** **GFCD/U091** **GFCD/U106** **GFCD/U141** **GFCD/U158** **GFCD/U176**

COIL DATA

Face area - sq. ft.	24.4	24.4	30.9	42.8	42.8	42.8
Rows of coil	5	6	6	4	5	6
Face velocity - FPM	410	485	485	421	467	491

CONTROL VALVE

(Modulating Control designed at 400 psi)

Valve body	3-WAY	3-WAY	3-WAY	3-WAY	3-WAY	3-WAY
Valve CV	46	46	46	46	46	46
Valve size - inches	2	2	2	2	2	2

CONNECTION SIZES (Inches)

Supply - O.D. Copper	2-1/8	2-1/8	2-1/8	2-5/8	2-5/8	2-5/8
Return - O.D. Copper	2-1/8	2-1/8	2-1/8	2-5/8	2-5/8	2-5/8
Condensate drain	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

REHEAT SECTION

Type	Electric 3-Stage	Standard	Standard	Standard	Standard	Standard	Standard
Capacity	kW	22.5	22.5	22.5	30	30	30
	Btu/hr	76,835	76,835	76,835	102,360	102,360	102,360
Type	Steam	Optional	Optional	Optional	Optional	Optional	Optional
Capacity	Btu/hr						
	<i>Downflow</i>	226,000	229,000	302,000	290,000	302,000	309,000
	<i>Upflow</i>	169,000	173,000	230,000	219,000	230,000	236,000
Type	Hot water	Optional	Optional	Optional	Optional	Optional	Optional
Capacity	in Btu/hr						
	<i>Downflow</i>	140,800	143,500	180,100	187,300	195,100	198,800
	<i>Upflow</i>	104,200	106,700	137,300	138,600	145,600	149,000
	GPM	8	8	10	10	10	10

HUMIDIFIER SECTION

Type	Steam generator	Standard	Standard	Standard	Standard	Standard	Standard
Capacity	kW	3.4-10.2	3.4-10.2	3.4-10.2	3.4-10.2	3.4-10.2	3.4-10.2
	lbs/hr	10-30*	10-30*	10-30*	10-30*	10-30*	10-30*

*(adjustable)

CHILLED WATER: Performance data at OPTIONAL AIRFLOW - Option 2, 25 - 63 nominal kilowatts

MODEL NUMBER *GFCD/U025 GFCD/U032 GFCD/U039 GFCD/U046 GFCD/U053 GFCD/U063*

FILTER SECTION

(Pleated, MERV 8 efficient, based on ASHRAE Std. 52.1-76)

Quantity/Size	Downflow	1-20x25x4	1-20x25x4	1-20x25x4	1-20x25x4	4-20x20x4	4-20x20x4
		1-20x20x4	1-20x20x4	1-20x20x4	1-20x20x4	4-20x16x4	4-20x16x4
		1-16x25x4	1-16x25x4	1-16x25x4	1-16x25x4		
		1-16x20x4	1-16x20x4	1-16x20x4	1-16x20x4		
	Upflow	3-25x16x4	3-25x16x4	3-25x16x4	3-25x16x4	4-25x20x4	4-25x20x4

ELECTRICAL SECTION

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

208-230/3/60	FLA/MCA/MOP	50/62/70	50/62/70	51/63/70	N/A	79/97/100	79/97/100
460/3/60	FLA/MCA/MOP	23/28/30	23/28/30	23/29/30	26/32/35	36/44/45	36/44/45

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

208-230/3/60	FLA/MCA/MOP	25/31/35	25/31/35	25/31/35	N/A	45/54/60	45/54/60
460/3/60	FLA/MCA/MOP	11/14/15	11/14/15	12/15/20	14/18/20	20/24/25	20/24/25

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

208-230/3/60	FLA/MCA/MOP	50/62/70	50/62/70	51/63/70	N/A	79/97/100	79/97/100
460/3/60	FLA/MCA/MOP	23/28/30	23/28/30	23/29/30	26/32/35	36/44/45	36/44/45

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

208-230/3/60	FLA/MCA/MOP	8.2/10/15	8.2/10/15	8.8/11/15	N/A	16/19/25	16/19/25
460/3/60	FLA/MCA/MOP	3.7/4.6/15	3.7/4.6/15	4.3/5.4/15	6.7/8.4/15	7.4/8.3/15	7.4/8.3/15

*** STANDARD FAN**

FLA - Full load amps

Diameter (mm) kW/HP		500/2.8/3.7	500/2.8/3.7	560/3.0/4.0	560/5.0/6.7	500/2.8/3.7	500/2.8/3.7
Number of motors		1	1	1	1	2	2
208-230/3/60	FLA	8.2	8.2	8.8	N/A	8.2	8.2
460/3/60	FLA	3.7	3.7	4.3	6.7	3.7	3.7

FLA - Full load amps

MCA - Minimum circuit ampacity (wire sizing amps)

MOP - Maximum overcurrent protection device amps

CHILLED WATER: Performance data at OPTIONAL AIRFLOW - Option 2, 77 - 176 nominal kilowatts

MODEL NUMBER **GFCD/U077** **GFCD/U091** **GFCD/U106** **GFCD/U141** **GFCD/U158** **GFCD/U176**

FILTER SECTION

(Pleated, MERV 8 efficient based on ASHRAE Std. 52.1-76)

Quantity/size	Downflow	4-20x20x4	4-20x20x4	1-20x25x4	6-20x20x4	6-20x20x4	6-20x20x4
		4-20x16x4	4-20x16x4	4-20x20x4	6-16x20x4	6-16x20x4	6-16x20x4
	Upflow	4-25x20x4	4-25x20x4	2-25x20x4	6-25x20x4	6-25x20x4	6-25x20x4
				4-25x16x4			

ELECTRICAL SECTION

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

208-230/3/60	FLA/MCA/MOP	80/98/100	N/A	89/107/110	N/A	N/A	N/A
460/3/60	FLA/MCA/MOP	37/45/50	42/50/60	41/49/50	58/69/70	58/69/70	58/69/70

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

208-230/3/60	FLA/MCA/MOP	46/55/60	N/A	55/64/70	N/A	N/A	N/A
460/3/60	FLA/MCA/MOP	21/26/30	26/31/35	26/30/35	33/38/40	33/38/40	33/38/40

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

208-230/3/60	FLA/MCA/MOP	80/98/100	N/A	89/107/110	N/A	N/A	N/A
460/3/60	FLA/MCA/MOP	37/45/50	42/50/60	41/49/50	58/69/70	58/69/70	58/69/70

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

208-230/3/60	FLA/MCA/MOP	18/20/25	N/A	25/27/30	N/A	N/A	N/A
460/3/60	FLA/MCA/MOP	8.6/9.7/15	13/15/20	13/14/15	20/22/25	20/22/25	20/22/25

*** STANDARD FAN**

FLA - Full load amps

Diameter (mm) kW/HP		560/3.0/4.0	560/5.0/6.7	560/3.0/4.0	560/5.0/6.7	560/5.0/6.7	560/5.0/6.7
Number of motors		2	2	3	3	3	3
208-230/3/60	FLA	8.8	N/A	8.8	N/A	N/A	N/A
460/3/60	FLA	4.3	6.7	4.3	6.7	6.7	6.7

FLA - Full load amps

MCA - Minimum circuit ampacity (wire sizing amps)

MOP - Maximum overcurrent protection device amps

CHILLED WATER: Performance data at OPTIONAL AIRFLOW - Option 2, 25 - 63 nominal kilowatts

MODEL NUMBER

GFCD/U025 GFCD/U032 GFCD/U039 GFCD/U046 GFCD/U053 GFCD/U063

ELECTRICAL SECTION

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

208-230/3/60	FLA/MCA/MOP	N/A	N/A	N/A	N/A	N/A	N/A
460/3/60	FLA/MCA/MOP	26/32/35	26/32/35	26/32/35	N/A	42/50/60	42/50/60

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

208-230/3/60	FLA/MCA/MOP	N/A	N/A	N/A	N/A	N/A	N/A
460/3/60	FLA/MCA/MOP	14/18/20	14/18/20	14/18/20	N/A	26/31/35	26/31/35

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

208-230/3/60	FLA/MCA/MOP	N/A	N/A	N/A	N/A	N/A	N/A
460/3/60	FLA/MCA/MOP	26/32/35	26/32/35	26/32/35	N/A	42/50/60	42/50/60

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

208-230/3/60	FLA/MCA/MOP	N/A	N/A	N/A	N/A	N/A	N/A
460/3/60	FLA/MCA/MOP	6.7/8.4/15	6.7/8.4/15	6.7/8.4/15	N/A	13/15/20	13/15/20

✎ NEXT SIZE FAN

		FLA-Full Load Amps					
Diameter (mm) kW/HP		560/5.0/6.7	560/5.0/6.7	560/5.0/6.7	N/A	560/5.0/6.7	560/5.0/6.7
Number of motors		1	1	1		2	2
208-230/3/60	FLA	N/A	N/A	N/A		N/A	N/A
460/3/60	FLA	6.7	6.7	6.7		6.7	6.7

FLA - Full load amps

MCA - Minimum circuit ampacity (wire sizing amps)

MOP - Maximum overcurrent protection device amps

MODEL NUMBER

GFCU/U077 GFCU/U091 GFCU/U106 GFCU/U141 GFCU/U158 GFCU/U176

ELECTRICAL SECTION

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

208-230/3/60	FLA/MCA/MOP	N/A	N/A	N/A	N/A	N/A	N/A
460/3/60	FLA/MCA/MOP	42/50/60	N/A	48/57/60	N/A	N/A	N/A

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

208-230/3/60	FLA/MCA/MOP	N/A	N/A	N/A	N/A	N/A	N/A
460/3/60	FLA/MCA/MOP	26/31/35	N/A	33/38/40	N/A	N/A	N/A

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

208-230/3/60	FLA/MCA/MOP	N/A	N/A	N/A	N/A	N/A	N/A
460/3/60	FLA/MCA/MOP	42/50/60	N/A	48/57/60	N/A	N/A	N/A

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

208-230/3/60	FLA/MCA/MOP	N/A	N/A	N/A	N/A	N/A	N/A
460/3/60	FLA/MCA/MOP	13/15/20	N/A	20/22/25	N/A	N/A	N/A

*** NEXT SIZE FAN**

FLA - Full load amps

Diameter (mm) kW/HP	560/5.0/6.7	N/A	560/5.0/6.7	N/A	N/A	N/A
Number of motors	2		3			
208-230/3/60 FLA	N/A		N/A			
460/3/60 FLA	6.7		6.7			

FLA - Full load amps

MCA - Minimum circuit ampacity (wire sizing amps)

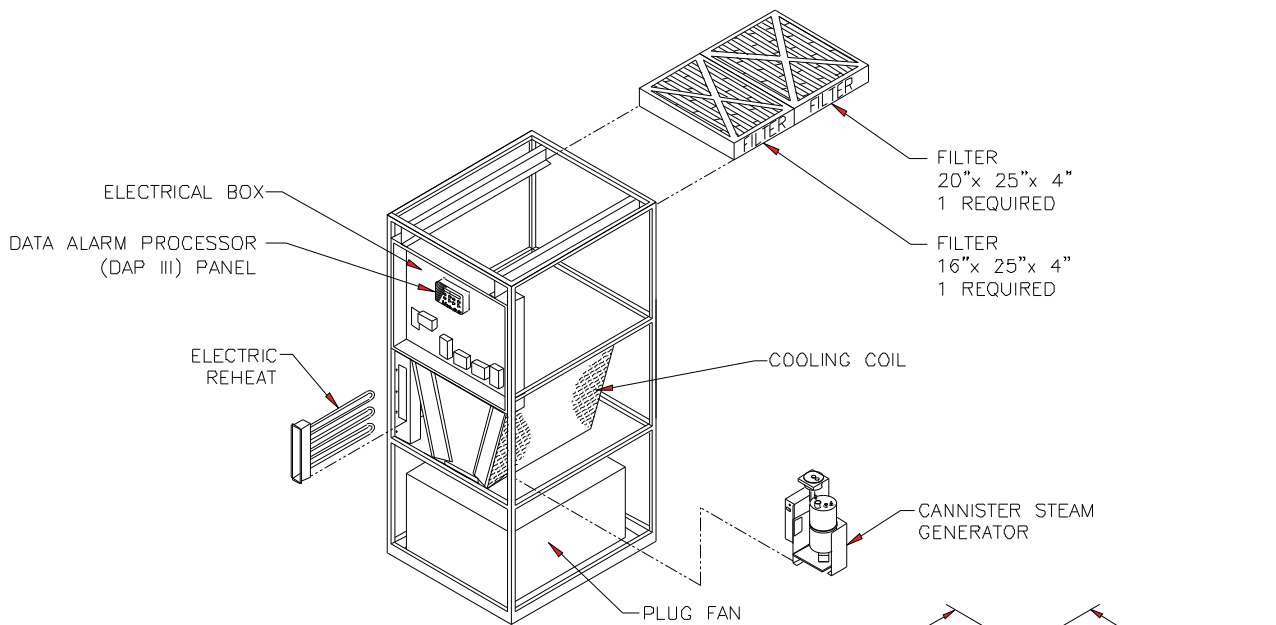
MOP - Maximum overcurrent protection device amps

Weights and Dimensional Data

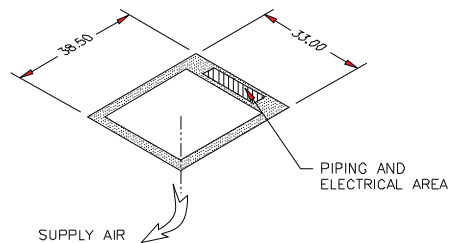
Approximate Weights* and Actual Dimensions					
Model	Operating Weight	Shipping Weight	Length	Width	Height
GFCD/U007	530 lbs	630 lbs	36.00"	40.50"	78.00"
GFCD/U011	530 lbs	630 lbs	36.00"	40.50"	78.00"
GFCD/U014	545 lbs	650 lbs	36.00"	40.50"	78.00"
GFCD/U018	570 lbs	675 lbs	36.00"	40.50"	78.00"
GFCD/U025	760 lbs	905 lbs	48.00"	40.50"	78.00"
GFCD/U032	785 lbs	925 lbs	48.00"	40.50"	78.00"
GFCD/U039	845 lbs	990 lbs	48.00"	40.50"	78.00"
GFCD/U046	890 lbs	1,030 lbs	48.00"	40.50"	78.00"
GFCD/U053	1,005 lbs	1,250 lbs	83.00"	40.50"	78.00"
GFCD/U063	1,120 lbs	1,365 lbs	83.00"	40.50"	78.00"
GFCD/U077	1,275 lbs	1,525 lbs	83.00"	40.50"	78.00"
GFCD/U091	1,485 lbs	1,735 lbs	83.00"	40.50"	78.00"
GFCD/U106	1,960 lbs	2,270 lbs	100.00"	40.50"	78.00"
GFCD/U141	2,610 lbs	3,020 lbs	120.50"	40.50"	78.00"
GFCD/U158	2,820 lbs	3,230 lbs	120.50"	40.50"	78.00"
GFCD/U176	3,020 lbs	3,335 lbs	120.50"	40.50"	78.00"

* Shipping weights are approximate and vary due to the number and specific options added to the unit

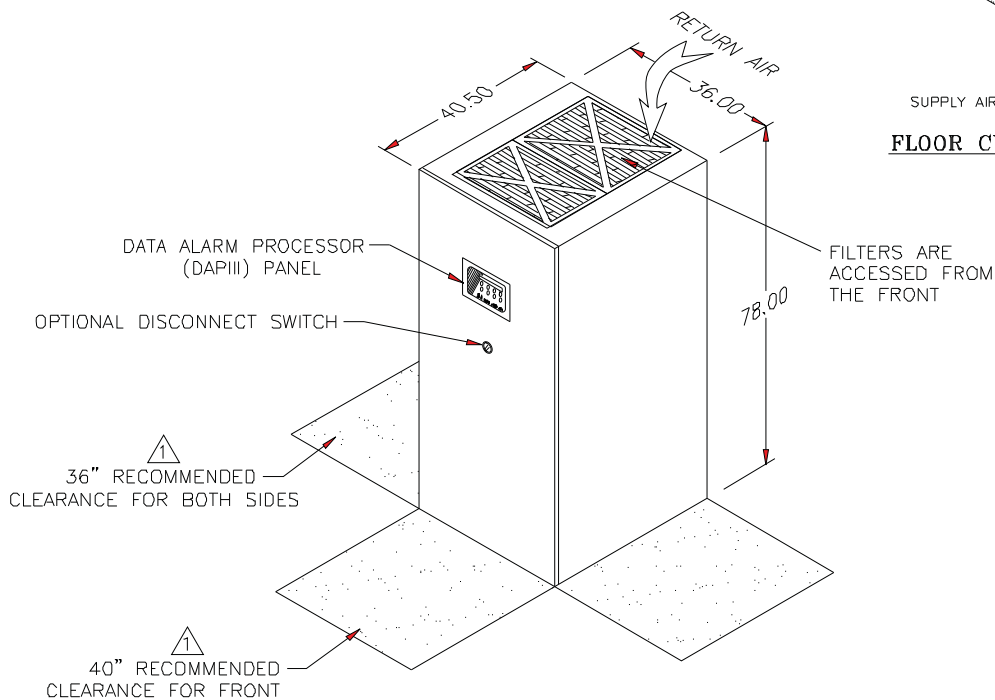
CHILLED WATER
DIMENSIONAL and COMPONENT DATA



COMPONENT BREAKDOWN



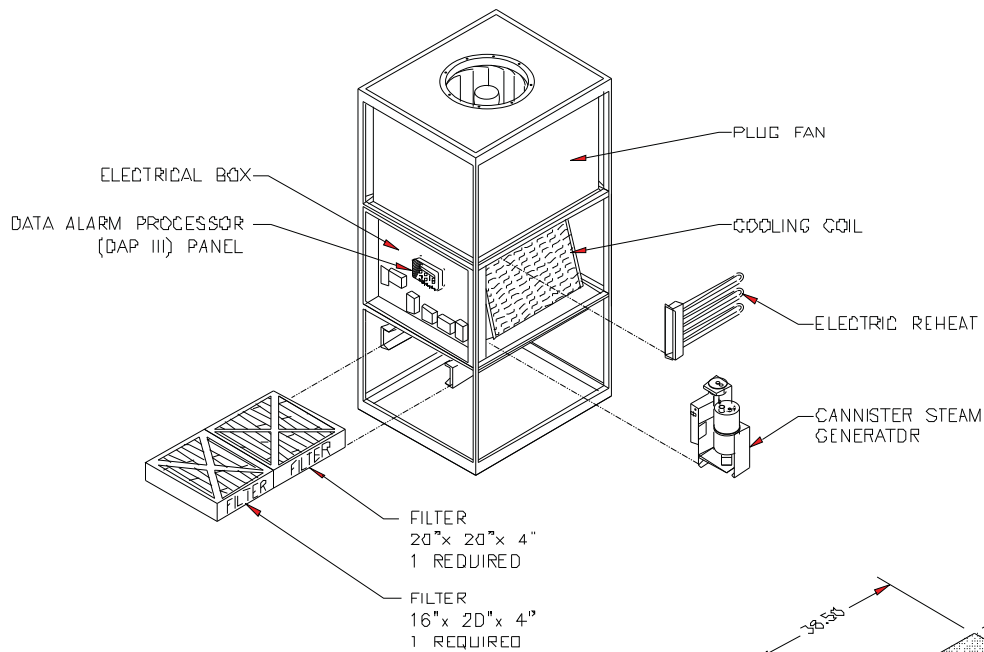
FLOOR CUTOUT DIMENSIONS



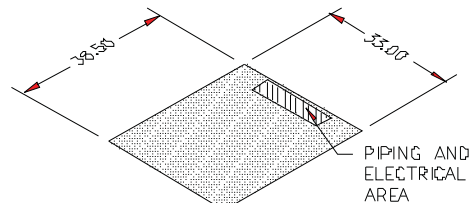
DIMENSIONAL DATA

- NOTES:**
- △ DIMENSIONS NOTED ARE THE MINIMUM CLEARANCES REQUIRED BY THE FACTORY. CONSULT LOCAL BUILDING CODES AND NEC FOR ADDITIONAL CLEARANCE REQUIREMENTS.
 - ALL PIPING TERMINATES INSIDE OF CABINET.
 - ALL COMPONENTS AND OPTIONS ARE NOT SHOWN.
 - CONNECTION PIPE SIZE IS 1 1/8 DIAMETER.

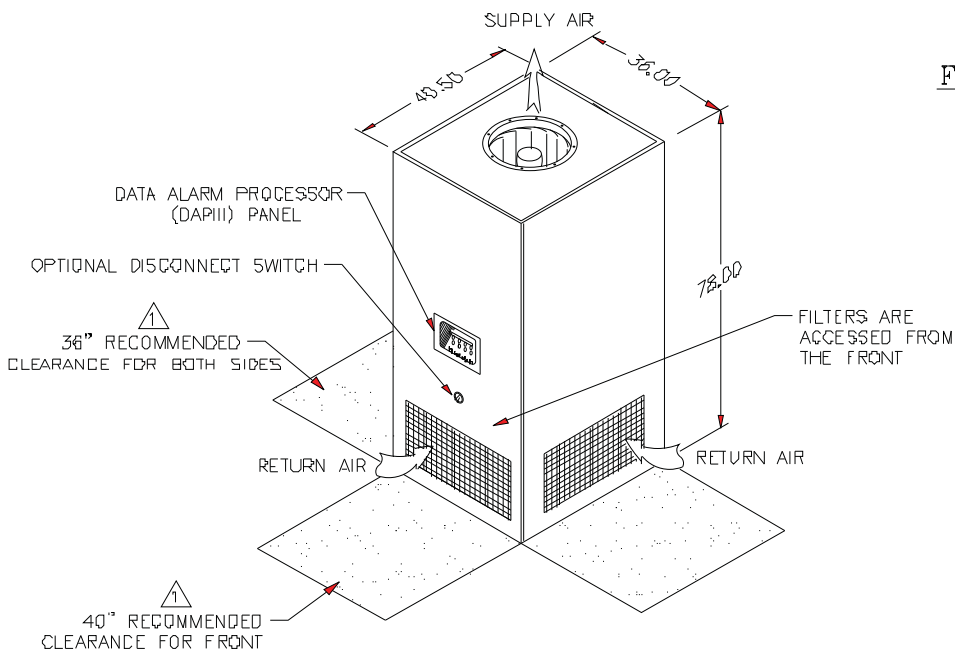
gForce 7, 11, 14 & 18 kW CHILLED WATER DOWNFLOW WITH V-TYPE COIL			
DATA AIRE INC. A CONSTRUCTION SPECIALTIES INC. Company			
DRAWN BY :	GABE	SCALE:	NONE
CHECKED BY :		SH	1 OF 1
DATE :	02-09-10	REV	-
PART OF			
555-900-501			
DWG NO.			



COMPONENT BREAKDOWN



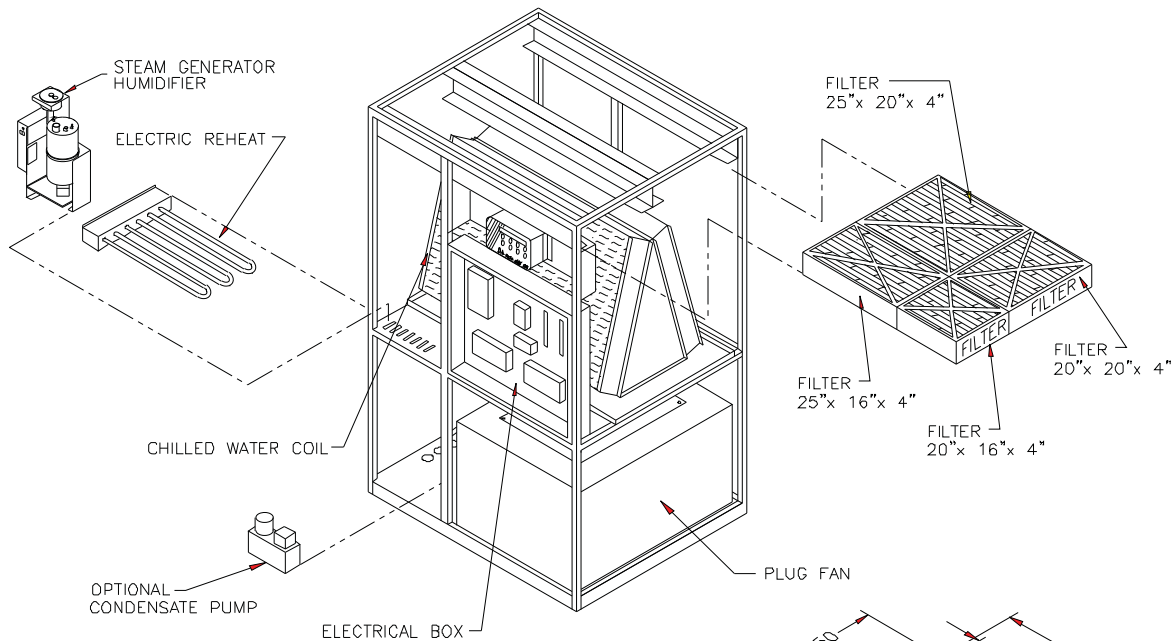
FRAME DIMENSIONS



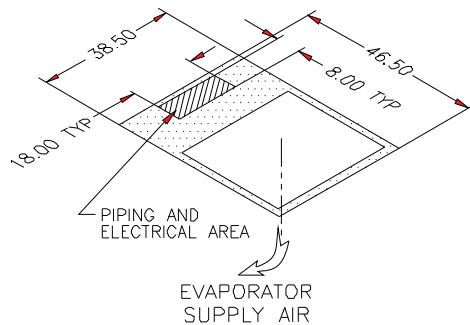
DIMENSIONAL DATA

NOTES:
 1. DIMENSIONS SHOWN ARE THE MINIMUM CLEARANCES. DIMENSIONS TO THE CENTER OF COILS, PIPING, COILS AND PIPING FOR MINIMUM CLEARANCE REQUIREMENTS.
 2. ALL PIPING TERMINATES INSIDE OF CABINET.
 3. ALL COMPONENTS AND OPTIONS ARE NOT SHOWN.
 4. CONNECTION PIPE SIZE IS 1/2" DIA. MIN.

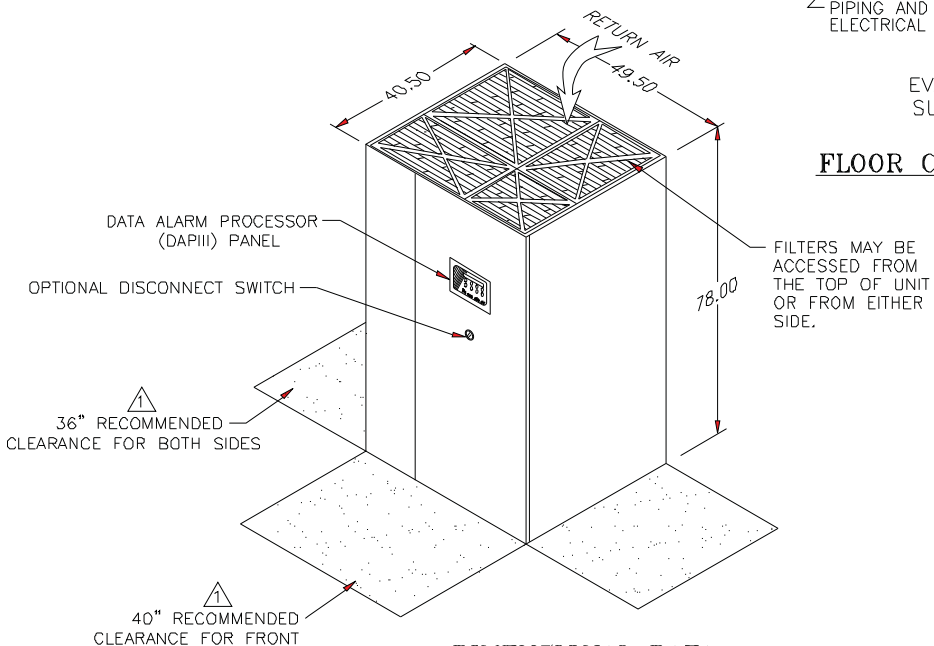
gForce 7, 11, 14 & 18 kW CHILLED WATER UPFLOW WITH A-TYPE COIL			
DATA AIRE INC. A CONSTRUCTION SPECIALTIES INC. Company			
DRAWN BY :	GABC	SCALE:	NONE
CHECKED BY :		SH :	DF 1
DATE :	02-09-10	REV :	-
PART OF			
555-900-502			
DWG NO			



COMPONENT BREAKDOWN



FLOOR CUTOUT DIMENSIONS

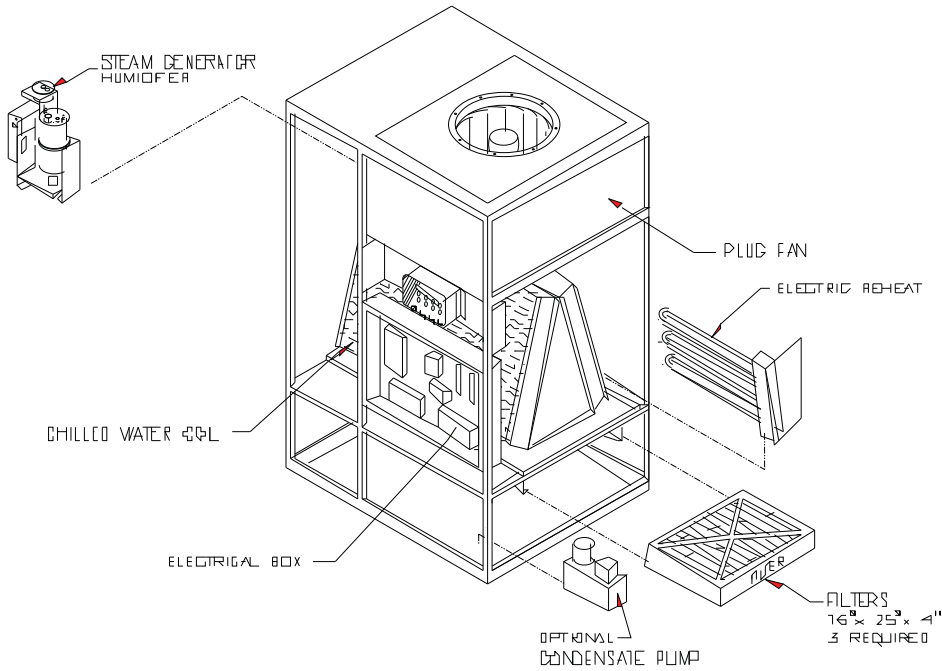


DIMENSIONAL DATA

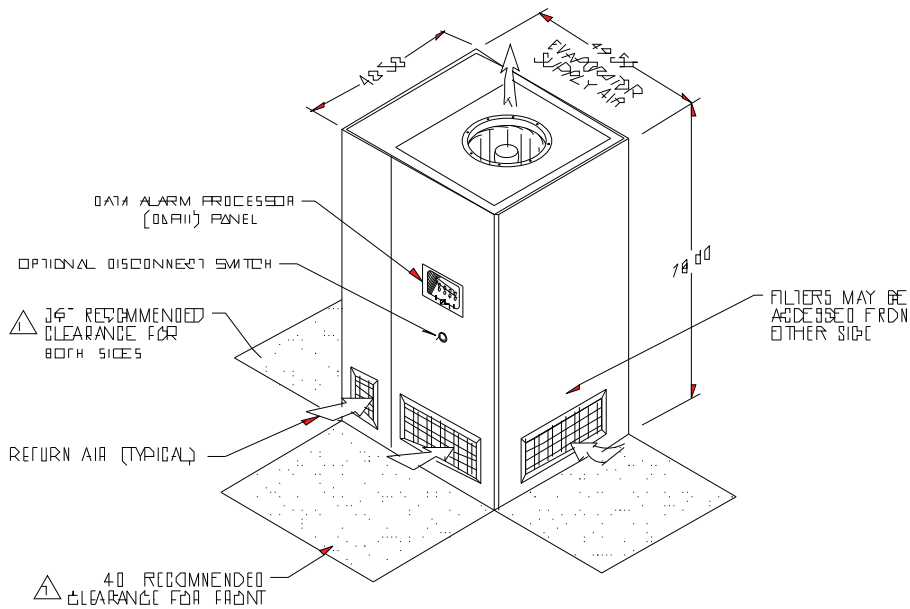
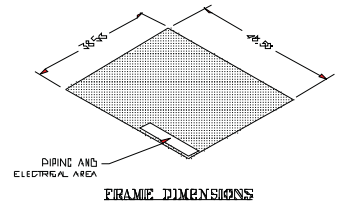
NOTES:

- 1. DIMENSIONS NOTED ARE THE MINIMUM CLEARANCES REQUIRED BY THE FACTORY. CONSULT LOCAL BUILDING CODES AND NEC FOR ADDITIONAL CLEARANCE REQUIREMENTS.
- 2. ALL PIPING TERMINATES INSIDE OF CABINET.
- 3. ALL COMPONENTS AND OPTIONS ARE NOT SHOWN.
- 4. CONNECTION PIPE SIZE IS 1 1/8" DIAMETER FOR 25 & 32 KW. CONNECTION PIPE SIZE IS 1 5/8" DIAMETER FOR 39 & 46 KW.

gForce 25, 32, 39 & 46 KW CHILLED WATER DOWNFLOW			
DATA AIRE INC. A CONSTRUCTION SPECIALTIES INC. Company			
DRAWN BY :	GABE	SCALE:	NONE
CHECKED BY :		SH	1 OF 1
DATE :	01-28-2010	REV	-
PART OF 550-900-501 DWG NO.			



COMPONENT BREAKDOWN

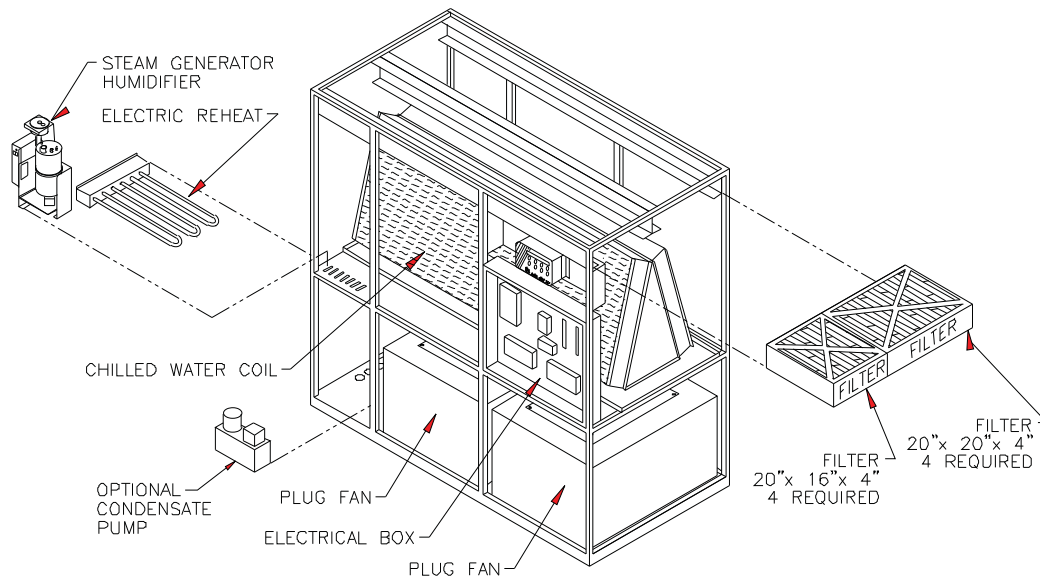


DIMENSIONAL DATA

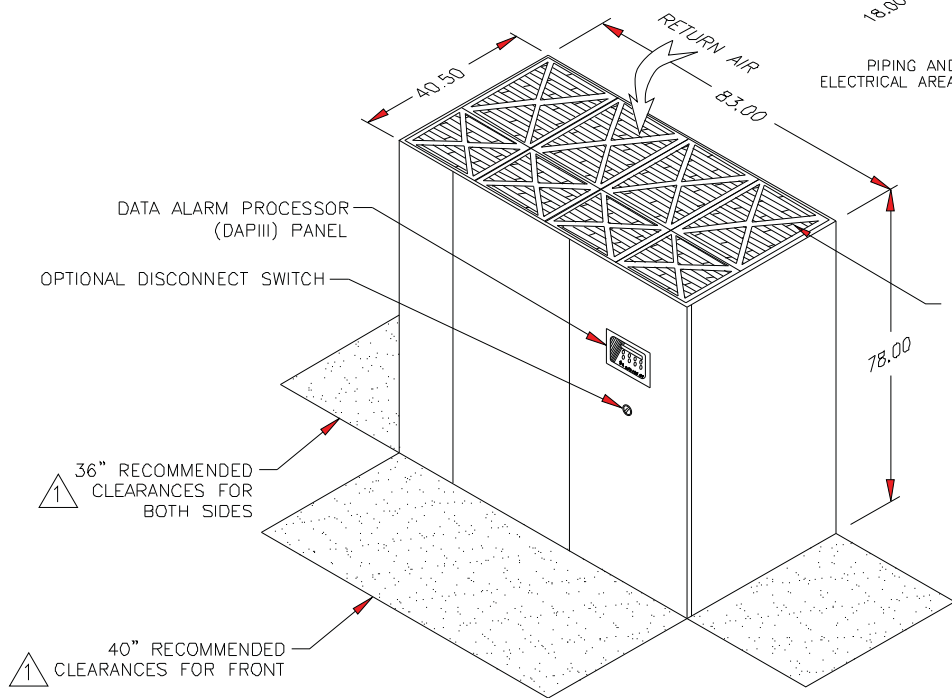
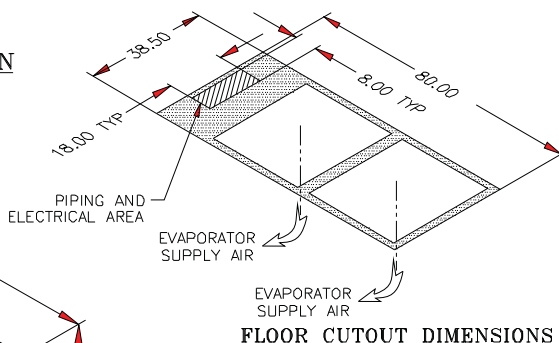
NOTES:

- 1. DIMENSIONS NOTED ARE THE MINIMUM CLEARANCES REQUIRED BY THE FACTORY. CONSULT LOCAL BUILDING CODES AND NEC FOR ADDITIONAL CLEARANCE REQUIREMENTS.
- 2. ALL PIPING TERMINATES INSIDE OF CABINET.
- 3. ALL COMPONENTS AND OPTIONS ARE NOT SHOWN.
- 4. CONNECTION PIPE SIZE IS 1 1/8" DIAMETER FOR 25 & 32 KW. CONNECTION PIPE SIZE IS 1 5/8" DIAMETER FOR 39 & 46 KW.

gForce 25, 32, 39 & 46 kW CHILLED WATER UPFLOW		
DATA AIRE INC. A CONSTRUCTION SPECIALTIES INC. COMPANY		
DRAWN BY	GABE	SCALE NONE
CHECKED BY		SH 1 OF 1
DATE	02-03-10	REV -
PART OF 550-800-505 DWG NO.		



COMPONENT BREAKDOWN



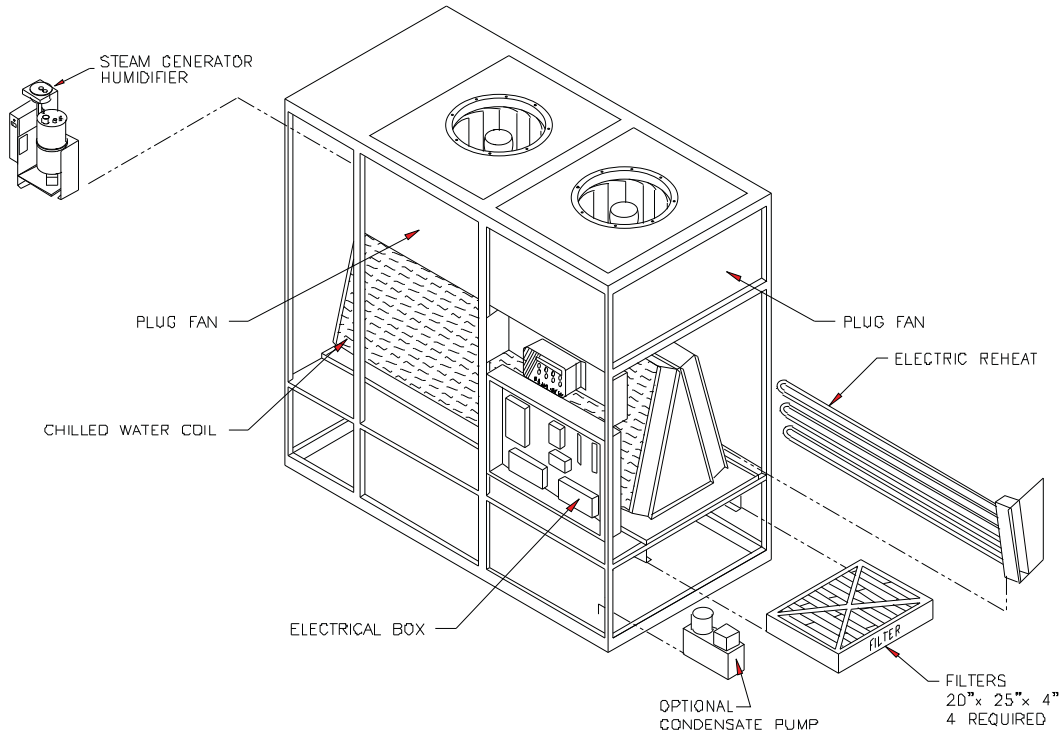
DIMENSIONAL DATA

- NOTES:**
1. DIMENSIONS NOTED ARE THE MINIMUM CLEARANCES REQUIRED BY THE FACTORY. CONSULT LOCAL BUILDING CODES AND NEC FOR ADDITIONAL CLEARANCE REQUIREMENTS.
 2. ALL PIPING TERMINATES INSIDE OF CABINET.
 3. ALL COMPONENTS AND OPTIONS ARE NOT SHOWN.
 4. CONNECTION PIPE SIZE IS 1 5/8" DIAMETER FOR 53 KW. CONNECTION PIPE SIZE IS 2 1/8" DIAMETER FOR 63, 77 & 91 KW.

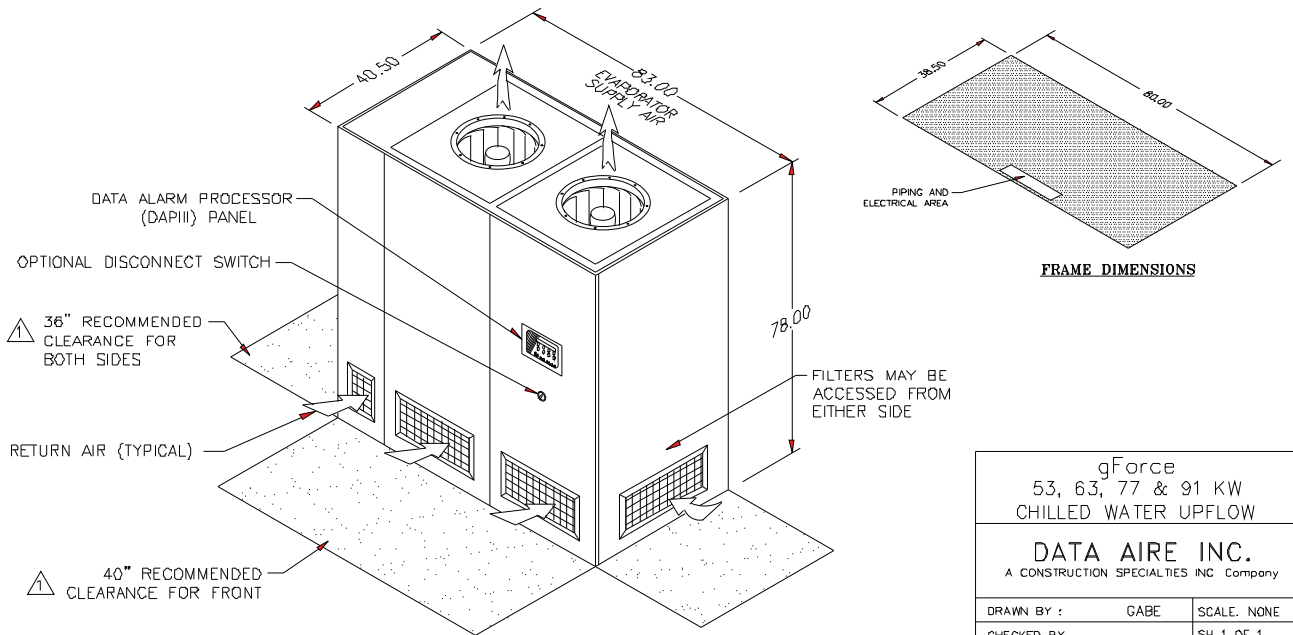
FILTERS MAY BE ACCESSED FROM THE TOP OF UNIT OR FROM EITHER SIDE

gForce 53, 63, 77 & 91 KW CHILLED WATER DOWNFLOW	
DATA AIRE INC. A CONSTRUCTION SPECIALTIES INC. Company	
DRAWN BY : GABE	SCALE: NONE
CHECKED BY :	SH 1 OF 1
DATE : 01-28-2010	REV -
PART OF	
550-900-502	
DWG NO.	

gForce Chilled Water 53, 63, 77 and 91 kW, Upflow



COMPONENT BREAKDOWN



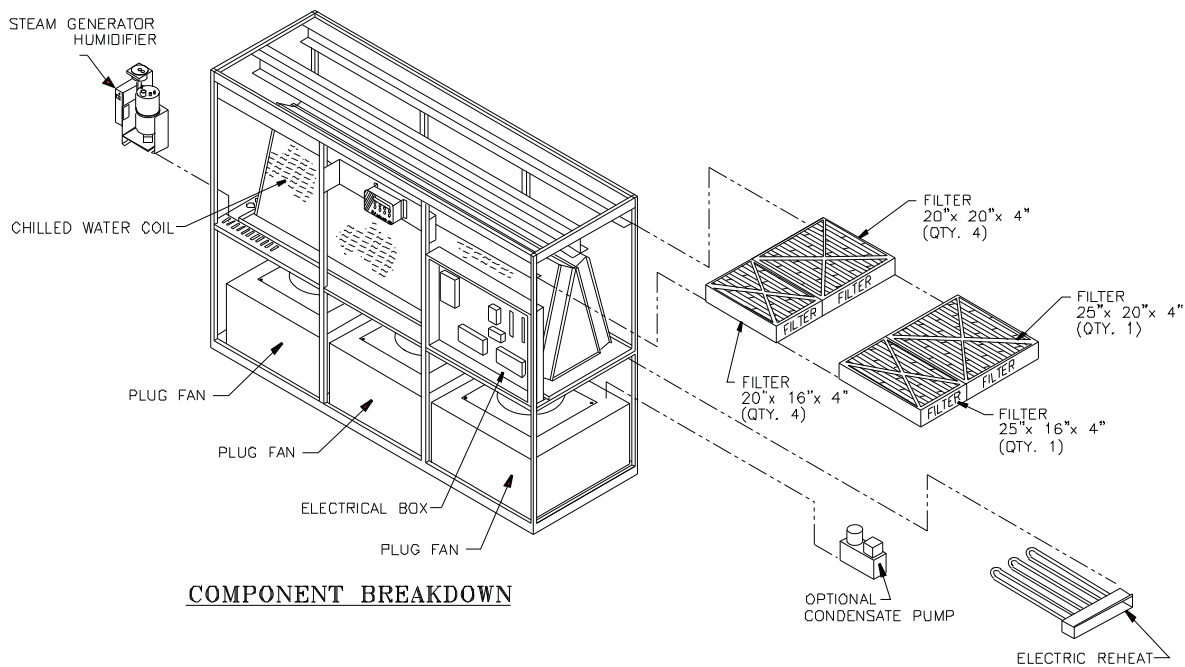
DIMENSIONAL DATA

NOTES:

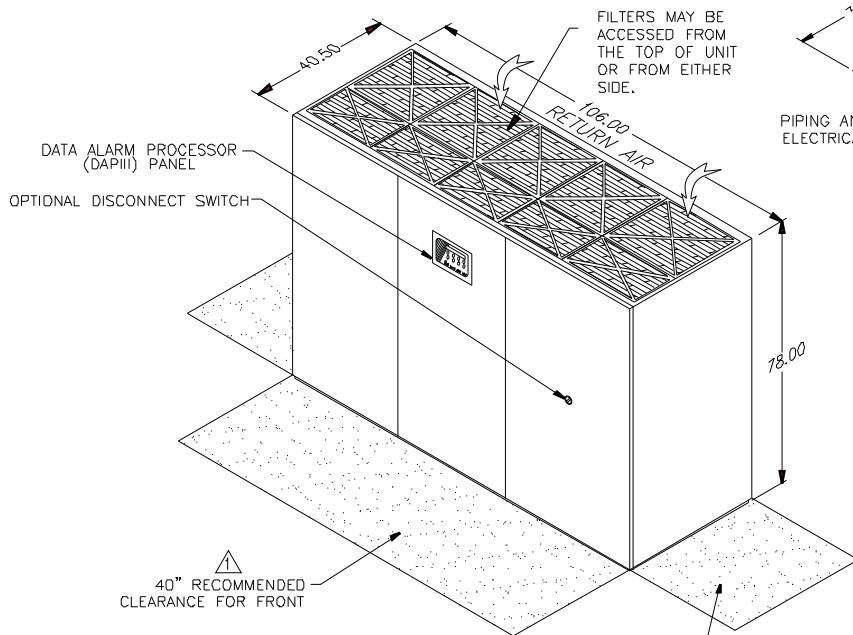
- 1. DIMENSIONS NOTED ARE THE MINIMUM CLEARANCES REQUIRED BY THE FACTORY. CONSULT LOCAL BUILDING CODES AND NEC FOR ADDITIONAL CLEARANCE REQUIREMENTS.
- 2. ALL PIPING TERMINATES INSIDE OF CABINET.
- 3. ALL COMPONENTS AND OPTIONS ARE NOT SHOWN.
- 4. CONNECTION PIPE SIZE IS 1 5/8" DIAMETER FOR 53 KW. CONNECTION PIPE SIZE IS 2 1/8" DIAMETER FOR 63, 77 & 91 KW.

gForce 53, 63, 77 & 91 KW CHILLED WATER UPFLOW			
DATA AIRE INC. A CONSTRUCTION SPECIALTIES INC. Company			
DRAWN BY :	GABE	SCALE:	NONE
CHECKED BY :		SH	1 OF 1
DATE :	02-03-10	REV	-
PART OF			
550-900-506 DWG NO.			

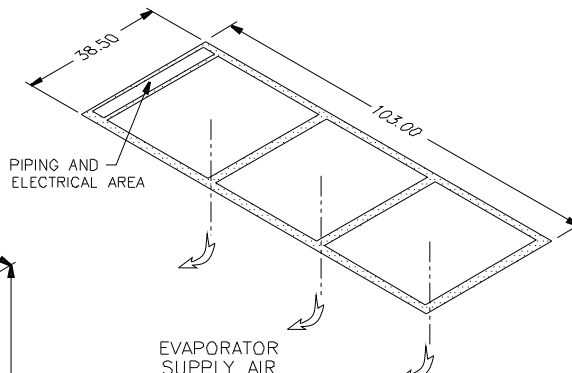
gForce Chilled Water 106 kW, Downflow



COMPONENT BREAKDOWN



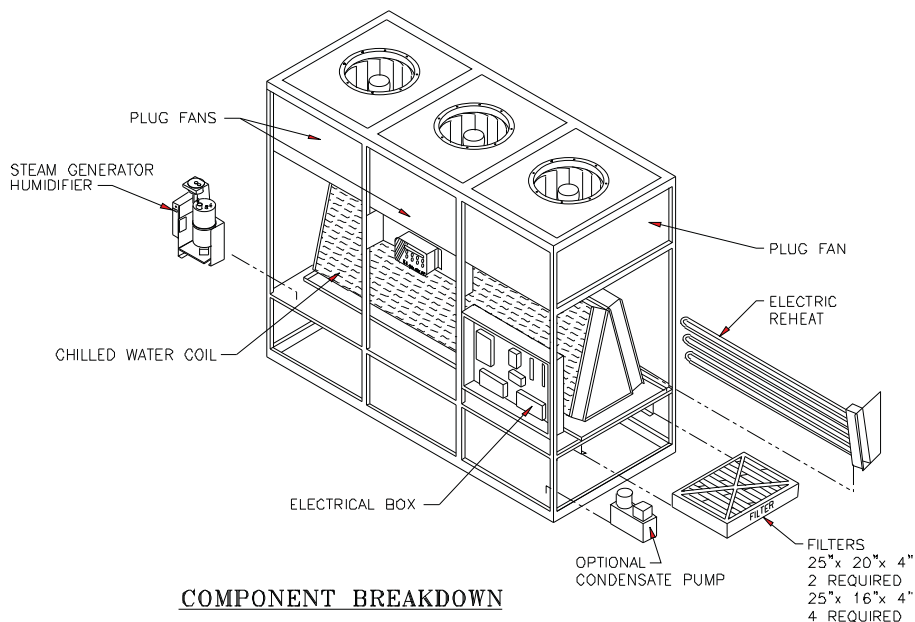
DIMENSIONAL DATA



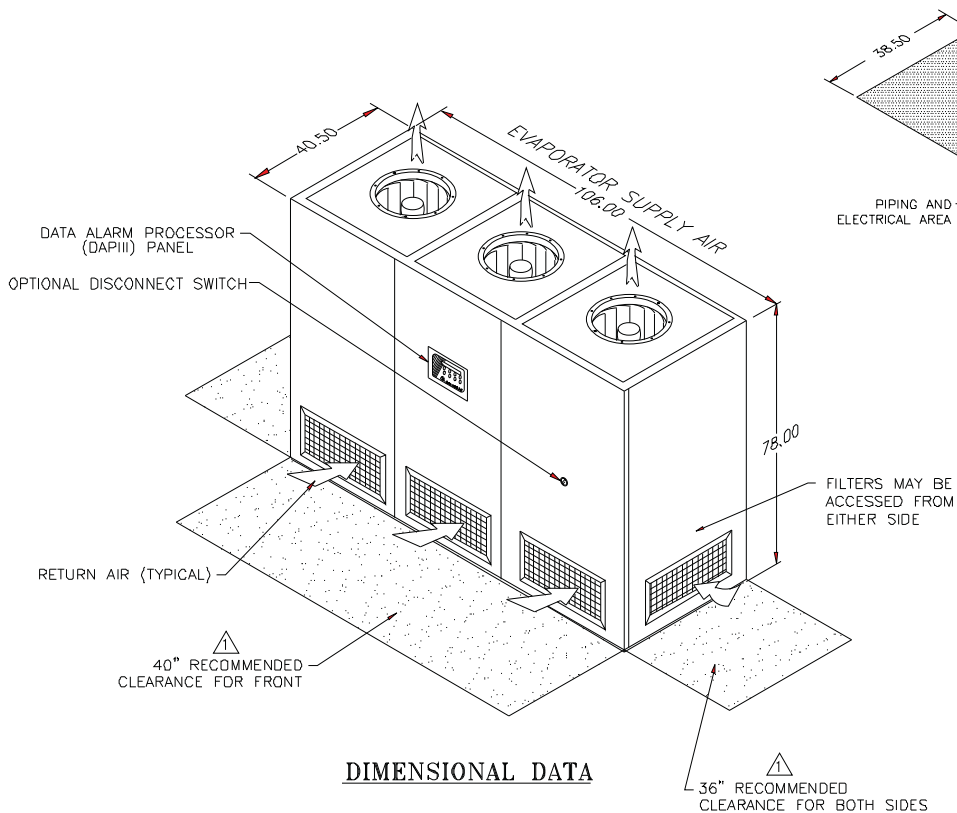
FLOOR CUTOUT DIMENSIONS

- NOTES:**
1. DIMENSIONS NOTED ARE THE MINIMUM CLEARANCES REQUIRED BY THE FACTORY. CONSULT LOCAL BUILDING CODES AND NEC FOR ADDITIONAL CLEARANCE REQUIREMENTS.
 2. ALL PIPING TERMINATES INSIDE OF CABINET.
 3. ALL COMPONENTS AND OPTIONS ARE NOT SHOWN.
 4. CONNECTION PIPE SIZE IS 2 1/8 DIAMETER.

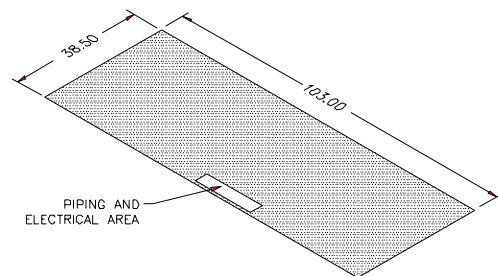
gForce 106 kW CHILLED WATER DOWNFLOW	
DATA AIRE INC. A CONSTRUCTION SPECIALTIES INC. Company	
DRAWN BY :	GABE
CHECKED BY :	
DATE :	01-28-2010
SCALE:	NONE
REV :	-
PART OF 550-900-503 DWG NO.	



COMPONENT BREAKDOWN



DIMENSIONAL DATA

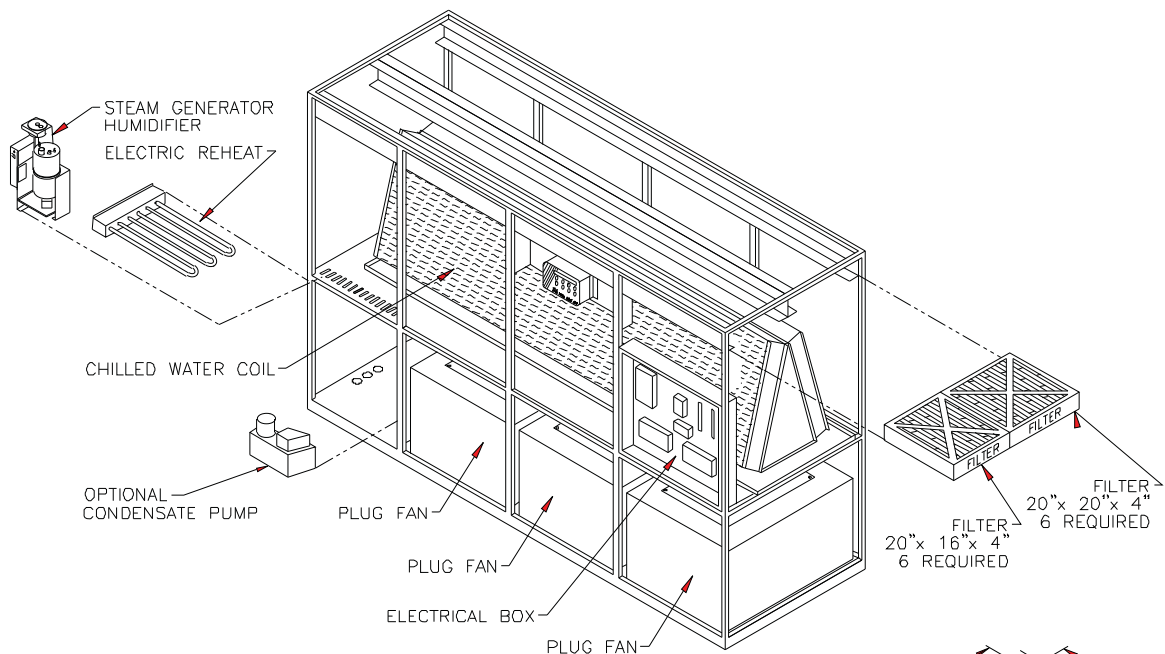


FRAME DIMENSIONS

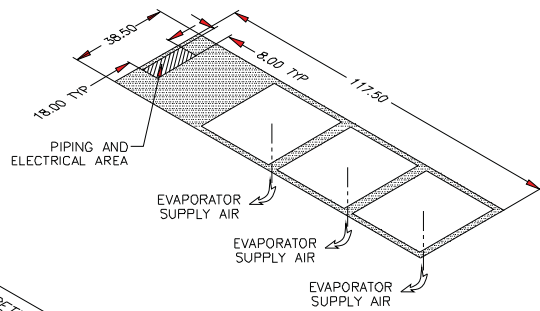
NOTES:

- 1. DIMENSIONS NOTED ARE THE MINIMUM CLEARANCES REQUIRED BY THE FACTORY. CONSULT LOCAL BUILDING CODES AND NEC FOR ADDITIONAL CLEARANCE REQUIREMENTS.
- 2. ALL PIPING TERMINATES INSIDE OF CABINET.
- 3. ALL COMPONENTS AND OPTIONS ARE NOT SHOWN.
- 4. CONNECTION PIPE SIZE IS 2 1/8 DIAMETER.

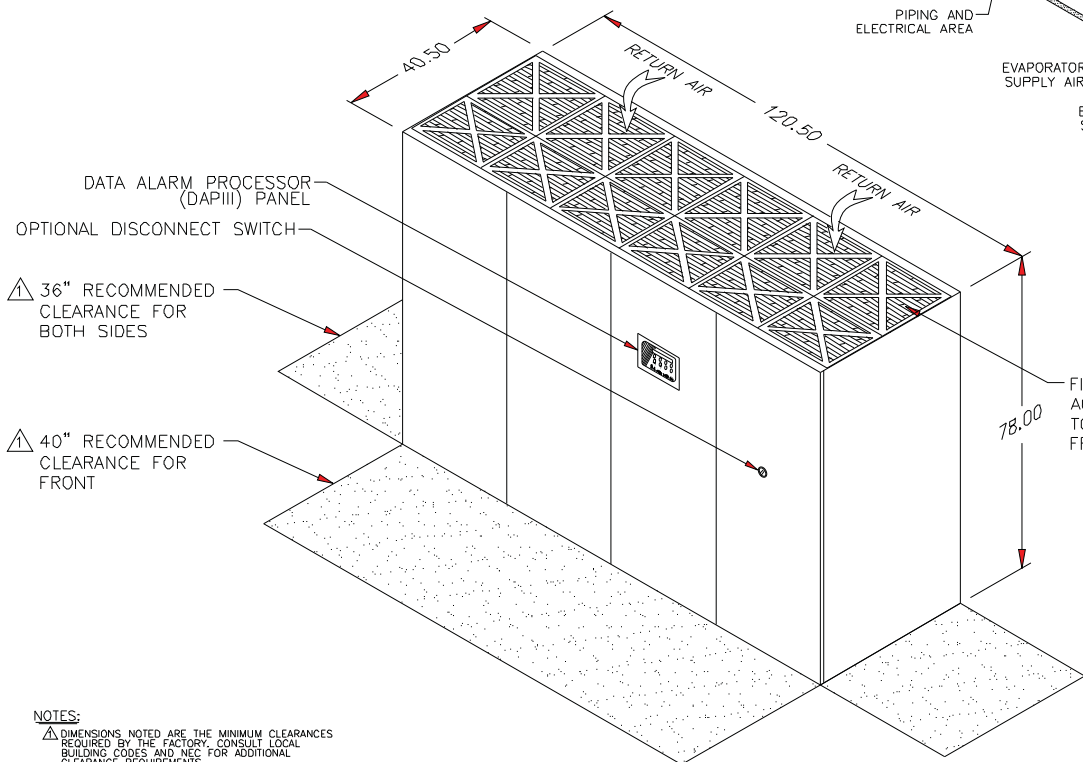
gForce 106 kW CHILLED WATER UPFLOW			
DATA AIRE INC. A CONSTRUCTION SPECIALTIES INC. Company			
DRAWN BY :	GABE	SCALE:	NONE
CHECKED BY :		SH:	1 OF 1
DATE :	02-03-10	REV:	-
PART OF			
550-900-507 DWG NO.			



COMPONENT BREAKDOWN



FLOOR CUTOUT DIMENSIONS

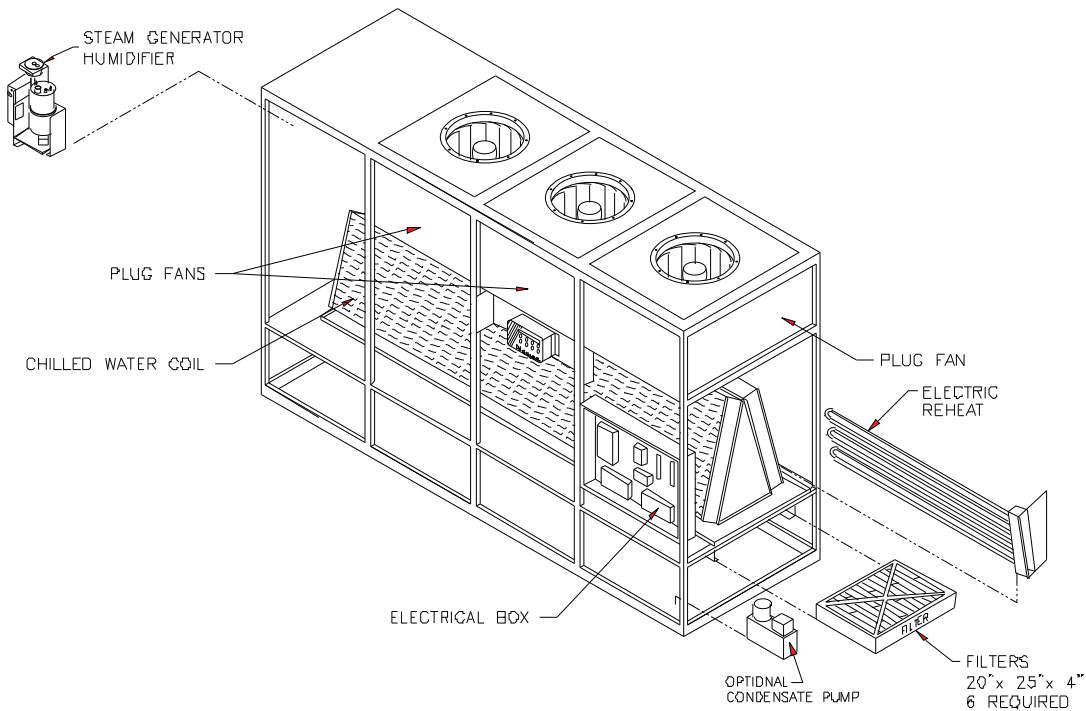


FILTERS MAY BE ACCESSED FROM THE TOP OF UNIT OR FROM EITHER SIDE

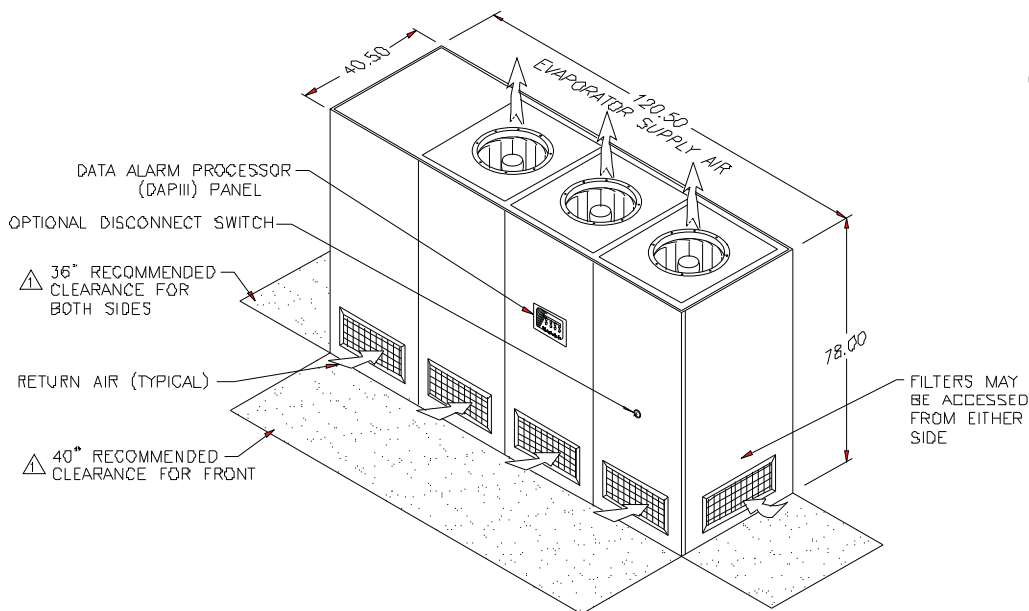
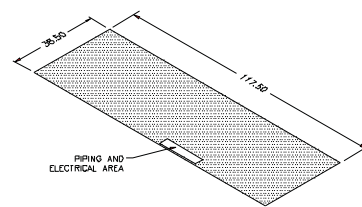
DIMENSIONAL DATA

- NOTES:**
1. DIMENSIONS NOTED ARE THE MINIMUM CLEARANCES REQUIRED BY THE FACTORY. CONSULT LOCAL BUILDING CODES AND NEC FOR ADDITIONAL CLEARANCE REQUIREMENTS.
 2. ALL PIPING TERMINATES INSIDE OF CABINET.
 3. ALL COMPONENTS AND OPTIONS ARE NOT SHOWN.
 4. CONNECTION PIPE SIZE IS 2 5/8" DIAMETER.

gForce 141, 158 & 176 KW CHILLED WATER DOWNFLOW			
DATA AIRE INC. A CONSTRUCTION SPECIALTIES INC. Company			
DRAWN BY :	GABE	SCALE:	NONE
CHECKED BY :		SH	1 OF 1
DATE :	01-28-2010	REV	-
PART OF			
550-900-504			
DWG NO.			



COMPONENT BREAKDOWN

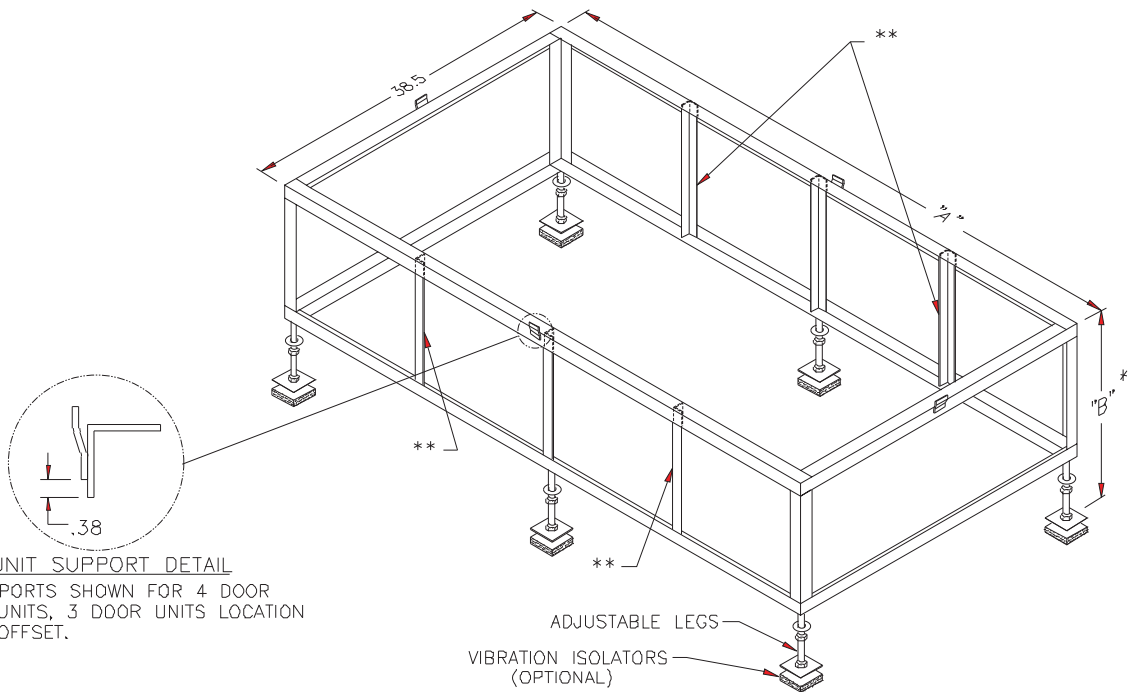


DIMENSIONAL DATA

- NOTES:**
- △ DIMENSIONS NOTED ARE THE MINIMUM CLEARANCES REQUIRED BY THE FACTORY. CONSULT LOCAL BUILDING CODES AND NEC FOR ADDITIONAL CLEARANCE REQUIREMENTS.
 - ALL PIPING TERMINATES INSIDE OF CABINET.
 - ALL COMPONENTS AND OPTIONS ARE NOT SHOWN.
 - CONNECTION PIPE SIZE IS 2 5/8 DIAMETER.

gForce 141, 158 & 176 KW CHILLED WATER UPFLOW			
DATA AIRE INC. A CONSTRUCTION SPECIALTIES INC. Company			
DRAWN BY :	GABE	SCALE:	NDNE
CHECKED BY :			SH 1 OF 1
DATE :	02-03-10	REV	-
PART OF			
550-900-508			
DWG NO.			

gForce Chilled Water Floor Stands



UNIT SUPPORT DETAIL

UNIT SUPPORTS SHOWN FOR 4 DOOR AND UP UNITS, 3 DOOR UNITS LOCATION WILL BE OFFSET.

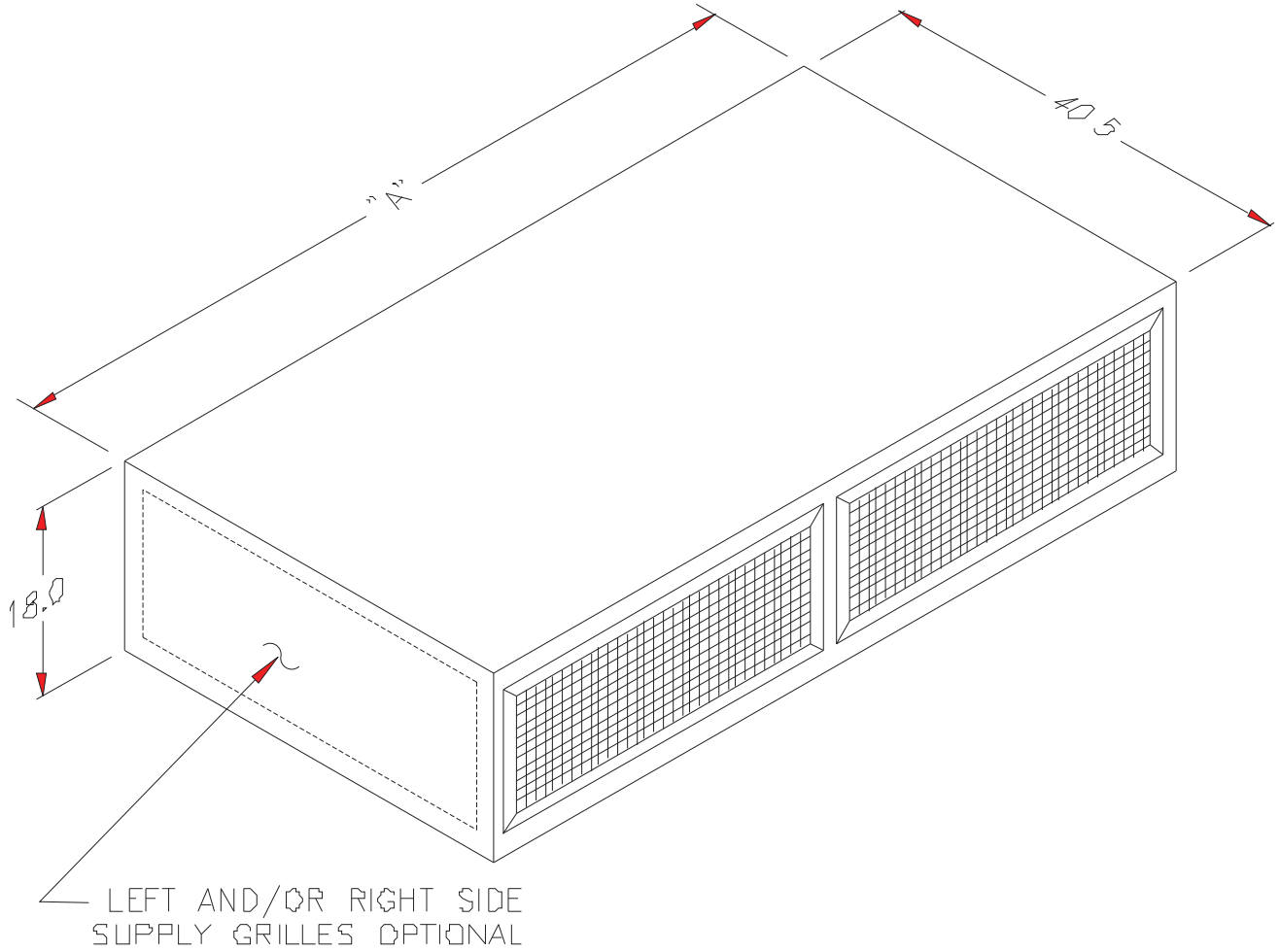
NOTES:

- * 1. DIMENSION "B" IS TOTAL HEIGHT SPECIFIED ON ORDER AND SHOULD EQUAL HEIGHT FROM BUILDING FLOOR TO RAISED FLOOR. THE STAND WILL BE BUILT 2 INCHES LESS THAN SPECIFIED AND HAVE ADJUSTABLE LEGS TO PROVIDE +2/-1 INCHES FROM THE SPECIFIED HEIGHT.
- ** 2. ONLY USED ON 4 DOOR UNIT
- 3. SPECIFIED HEIGHT MUST BE BETWEEN 12 AND 24 INCHES IN 2 INCH INCREMENTS. (12, 14, 16, 18, 20, 22, 24).
- 4. DOWNFLOW UNITS USING FLOORSTANDS OR JACKSTANDS ARE SUBJECTED TO ADDITIONAL STATIC PRESSURE LOSSES, DEPENDING ON THE AIRFLOW AND STAND HEIGHT. THE NEXT SIZE MOTOR OPTION MAY BE REQUIRED ON SOME FLOOR HEIGHTS.
- 5. 1 1/2 x 1 1/2 x 1/8 ANGLE FRAME CONSTRUCTION
- 6. CENTER LEGS ONLY USED ON 3 & 4 DOOR UNITS
- 7. ADJUSTABLE LEGS HAVE A 3.5 SO., 10 GAUGE PAD.
- 8. VIBRATION ISOLATION PADS ARE OPTIONAL.

CAB. SIZE	"A"	UNIT SIZE
1-1/2 DOOR	46.5	25, 32, 39, 46 KW
2-1/2 DOOR	80.0	53, 63, 77, 91 KW
3 DOOR	103.0	106 KW
4 DOOR	117.5	141, 158, 176 KW

gForce GF FLOORSTAND CHILLED WATER UNITS	
DATA AIRE INC. <small>A CONSTRUCTION SPECIALTIES INC. Company</small>	
DRAWN BY : J. PATTON	SCALE: NONE
CHECKED BY :	SH 1 OF 1
DATE : 03-09-10	REV -
PART OF	
550-900-523 <small>DWG NO.</small>	

gForce Chilled Water Upflow Discharge Plenum



CAB. SIZE	"A"	UNIT SIZE	FRONT SUPPLY GRILLE	
			SIZE	QUANTITY
1-1/2 DOOR	49.5	25, 32, 39, 46 KW	34 X 14	1
2-1/2 DOOR	83.0	53, 63, 77, 91 KW	34 X 14	2
3-1/2 DOOR	106.0	106 KW	28 X 14	3
4 DOOR	120.5	141, 158, 176 KW	28 X 14	4

gForce GF DISCHARGE AIR PLENUM CW UPFLOW			
DATA AIRE INC. A CONSTRUCTION SPECIALTIES INC Company			
DRAWN BY : J. PATTON		SCALE: NONE	
CHECKED BY :		SH 1 OF 1	
DATE : 03-09-10		REV	-
PART OF			
550-900-521 DWG NO			

Computer Room Air Conditioning Units (Floor Mounted, Chilled Water, 7 to 176 kW)

1.01 GENERAL

- A. The environmental control units shall be provided with a high sensible cooling system, factory assembled, piped, wired, and run tested prior to shipment and designed for either upflow or downflow air delivery as detailed on the project plans and schedule.
- B. The system shall be designed for draw through air arrangement to insure even air distribution to the entire face of the coil.
- C. Units shall be ETL or UL listed.

1.02 CABINET and FRAME

- A. The frame shall be constructed of 14 gauge welded tubular steel and coated with a heavy corrosion inhibiting finish for long life. The unit shall have complete front and side access by means of steel doors with heavy-duty hinges. All doors shall be easily removable via lift-off hinges for easier service access. Doors shall be manufactured of minimum 18-gauge steel for superior sound attenuation and shall be lined with one-inch thick, 1-1/2-pound density, fiberglass insulation. Each door shall be provided with sure close latches and a polyurethane gasket to prevent air leakage.
- B. The unit shall be painted the color selected from the manufacturers standard color selection chart.

1.03 CHILLED WATER CIRCUIT

- A. The chilled water coil shall be in an "A" frame arrangement to allow maximum coil surface in a small cabinet. The coil shall be constructed of 1/2" O.D. copper tubes with 12 fins per inch of corrugated aluminum. Maximum face velocity shall be less than 500 feet per minute. Chilled water flow shall be controlled by a (3-way modulating valve for accurate and temperature control and dehumidification. Maximum working pressure of the chilled water circuit shall be 150 PSI.
- B. The cooling coil shall sit in a stainless steel drain pan sloped for drainage. Properly sized condensate drain trap is required and shall be furnished and piped by the installing contractor.

1.04 DIRECT DRIVE PLENUM FAN SECTION

- A. The supply air fan(s) shall be single width, single inlet plenum fan with backward inclined aluminum blades. Fan wheel shall be directly connected to its motor for greater efficiency. Fan/motor assembly shall be statically and dynamically balanced for quiet, vibration-free operation and shall have a minimum L10 life of 60,000 hours. Fan shall be maintenance free throughout its operating life.
- B. The fan motor shall be electronically commutated (EC) synchronous DC motor and shall meet the NEMA Premium standard. The EC motor shall have soft start capability and shall be controlled via the keypad on the unit mounted controller or by a 4 to 20 milli-amp control signal sent directly to the analog input on the motor. The fan shall be mounted within the unit and fully enclosed in an integral plenum to allow efficient operation on raised floors with 12 or more inches of clearance under the floor.
- C. Belt drive fans with variable frequency drives are not considered equal or acceptable.

1.05 FILTER CHAMBER

- A. The filter chamber shall be an integral part of the system, designed within the frame and cabinet. An initial set of filters shall factory installed in the unit. Filters shall be four-inch deep pleated design, rated not less than MERV ___.

1.06 ELECTRIC REHEAT

A. The reheat shall be of the finned enclosed, sheath type, fabricated of stainless steel core sheath with plated fins to withstand moist conditions. The reheat shall be installed on the air discharge side of the cooling coil and shall have three (3) stages. KW shall be as scheduled on the drawings

1.07 HUMIDIFIER

A. (25kW through 46kW) - The unit shall be provided with steam generator type humidifier. The steam generating humidifier shall be of the self-contained disposable cylinder type with electronic controls. The capacity shall be 10 pounds per hour. Power consumption shall be 3.4 kW or less. The humidifier shall discharge pure steam with no material dust carry-over and have a self-regulating automatic flush cycle. Cylinders shall be disposable not requiring cleaning or maintenance. The humidifier fill level, water conductivity and flush rate shall automatically adapt, both in frequency and duration, to variations in the incoming water. Humidifiers using an open reservoir in the air stream are not acceptable.

B. (53kW through 176kW) - The unit shall be provided with steam generator type humidifier. The steam generating humidifier shall be of the self-contained disposable cylinder type with electronic controls. The capacity shall be adjustable from 10 to 30 pounds per hour. Power consumption at 22 pounds per hour shall be 7.7 kW or less. The humidifier shall discharge pure steam with no material dust carry-over and have a self-regulating automatic flush cycle. Cylinders shall be disposable not requiring cleaning or maintenance. The humidifier fill level, water conductivity and flush rate shall automatically adapt, both in frequency and duration, to variations in the incoming water. Humidifiers using an open reservoir in the air stream are not acceptable.

C. WATER DETECTION SENSOR - Units shall be provided with one (1) water sensor. The solid-state water sensor shall be mounted under the unit to sense the presence of water. The water detector shall become an integral part of the microprocessor panel and shall display "WATER DETECTED IN UNDER FLOOR AREA" message and activate an audible alarm when the sensor is activated.

1.08 CONTROL PANEL

A. The environmental control system shall be furnished with a microprocessor based Data Alarm Processor-III (DAP-III) panel. The panel shall include unit switching functions and display normal functions and service diagnostics on a 2 row, 80 character backlit liquid crystal display (LCD) in a clear vernacular format. The panel shall allow recall and display of the high and low temperature for the last 24 hours, 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 cooling, reheat, humidification, dehumidification, component runtimes for fan motor(s), reheat, humidification and dehumidification. Programming shall have multilevel password access to prevent unauthorized access. Programming shall be accomplished entirely from the front of the unit without the need to access, set or program switches inside the unit (front door of the unit does not need to be opened). Programmable functions shall be entered on flash memory to ensure program retention should power fail. The historical database shall be maintained by battery backup. Multiple messages shall be displayed by automatically 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. A summary relay shall be available for remote alarms. 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 Data alarm Processor-III 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.

B. The following automatic control functions shall be included:

Selectable Water Under Floor Alarm Action
Start Time Delay
Temperature Anticipation
Dehumidification Lockout
Hot Water Coil Flush Cycle*

Automatic Reheat Element Rotation
Automatic or Manual Restart
Humidity Anticipation
Sequential Load Activation
Chilled Water Coil Flush Cycle

CONTROL SYSTEM

C. The following conditions, data and normal functions shall be monitored and displayed:

Temperature Setpoint	Humidity Setpoint
Current Temperature	Current Humidity
Cooling	Dehumidification
Reheat	Current Percent of Capacity Utilized
Humidification	Current Discharge Temperature*
Chilled Water Temperature*	

D. The following switching and control functions shall be included:

System On/Off Switch	Menu Selection Buttons
Menu Exit Button	Select Buttons
Manual Override for:	Alarm Silence Button
Cooling,	
Reheat,	
Humidification,	
Water Valve	

E. The following historical data shall be available:

High/Low Temperature Last 24 Hours	Equipment Runtimes
High/Low Humidity Last 4 Hours	Alarm History (last 10)
Average Percent of Capacity	

F. The following alarm functions shall be monitored and displayed when they occur in addition to enunciating an audible alarm:

High Temperature Warning	Low Temperature Warning
High Humidity Warning	Low Humidity Warning
Dirty Filter	Humidifier Failure
Under Floor Water Detected	No Air Flow
Power Failure Restart	Low Voltage Warning
Temperature Sensor Failure	Humidity Sensor Failure
Maintenance Required	Manual Override
Firestat Tripped	Person to Contact on Alarm*
Custom Message	High Condensate Water Level*
Local Alarm*	Smoke Detected*
No Water Flow*	Discharge Air Sensor Failure*

G. The following functions shall be programmable:

Temperature Setpoint: (65-85° F, 18.3-29.4° C)	Humidity Setpoint: (30-70% RH)
Temperature Deadband: (\pm 1-5° F/C)	Humidity Deadband: (1-15% RH)
High Temperature Alarm Limit	High Humidity Alarm limit
Low Temperature Alarm Limit	Low Humidity Alarm Limit
Manual Diagnostics	Date and Time
Mode and Stage Response Time	Reset Equipment Runtimes
Audio Alarm Mode	Define Password
Reheat Stages	Firestat Temperature Alarm Limit
Scheduled Maintenance	Temperature Scale
Calibrate Temperature Sensor	Calibrate Humidity Sensor
Humidifier	Automatic Self-Test
Water Valve Mode	Delay for Optional Alarms
Dehumidification Mode	System Start Delay
Person to Contact on Alarm	No Airflow Time Delay

Water Under Floor Alarm Action
 Humidification Desaturation Cycle
 Fan Speed*
 Remote Alarm 1, 2, 3, 4 Selection*
 Calibrate Chilled Water Sensor*

Chilled Water Temperature Deadband
 Message for Optional Alarm*
 Power problem or Restart Mode
 Low Discharge Temperature Alarm Limit*
 No Water Flow Time Delay*

H. In addition, the DAP-III 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.

The following protocols shall be supported:

Modbus RTU, TCP/IP or ASCHII
 BACnet IP or MS/TP
 Johnson Metasys (N2)

SNMP V1 or V2
 LonTalk SNVT

I. Building Management System Interface: Unit(s) shall be furnished with an 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.

1.09 OPTIONS

A. Locking Disconnect: The environmental control unit shall include a non-automatic disconnect switch mounted in the high voltage section of the electrical panel. The operating mechanism shall prevent access to the high voltage electrical components until switched to the “OFF” position. The operating mechanism shall protrude through the exterior door and be lockable in the off position.

B. Smoke Detector: The environmental control unit shall be provided with a smoke detector. The smoke detector shall be mounted with the sensing element in the return air stream. When the smoke detector is activated, it shall immediately shut down the unit.

C. No Water Flow Alarm: Unit shall be furnished with a NEMA 1 flow switch for field mounting into the chilled water piping to the unit. Upon a loss of water flow the unit control panel shall indicate “No Water Flow” and alarm shall sound.

D. Remote Temperature & Humidity Sensors: Units shall be provided with remote temperature and humidity sensors. Sensors shall be provided in a plastic case for remote mounting. (25, 50) feet of shielded cable shall be provided for field wiring.

E. Condensate Pump: Units shall be provided with dual float condensate pump. If condensate pump fails control panel shall enunciate an alarm and display “high condensate water level”. Pumps shall be factory mounted/wired and shall include sump, motor, and automatic control. The pumps shall be rated for 130 GPH @ 20 foot maximum head (40 GPH @ 20 feet with check valve).

F. CABLE TYPE WATER DETECTION SENSOR: Units shall be provided with cable type water detection system designed to detect the presence of water anywhere along the cable. Cable shall be mounted on the floor under the unit. Sufficient length of cable shall be supplied to completely surround the perimeter of the unit so that water coming from anywhere within the unit will not escape detection. The water detector shall become an integral part of the microprocessor panel and shall display “WATER DETECTED IN UNDER FLOOR AREA” message and activate an audible alarm when the sensor is activated.

G. Floor Stand: Down flow unit(s) shall be provided with floorstand and vibration isolation pads. The floorstand shall be a complete welded base engineered to support the operating unit. The floorstand height shall be ___ inches and adjustable by ± 2 inches.

H. Vibration Isolation Pads: Vibrations isolation pads consisting of high density cork sandwiched between two layers of neoprene shall be supplied for field mounting.

I. Discharge Plenum: Up flow units shall be equipped with an 18” tall discharge plenum with factory installed double deflection

front discharge grille. Plenum shall be constructed of minimum 18 gauge steel, lined with 1" 1.5 pound per cubic foot insulation and painted to match the cabinet of the computer room air conditioning unit.

J. Discharge Plenum Side Discharge Grilles: Provide discharge grilles on ___ right side and ___ left side.

K. Extended Return Air Plenum: Down flow units shall be equipped with a four-sided inlet plenum on the return to extend the return air opening of the unit. Plenums shall be of sufficient height to penetrate the lay-in ceiling. If lay-in ceiling is not used plenum height shall sufficient to extend the return air opening to within 10" of the deck above or 6 feet whichever is shorter.

Plenum shall be un-insulated, constructed of minimum 18 gauge steel and painted to match the color of the unit on which it is mounted

L. Top Pipe Connections: Chilled water (and hot water) pipe connections shall be terminated 3.0" inside the top of the cabinet for field connection to piping coming from above.

M. Pre-Filters: The environmental control unit shall have one-inch (1") throwaway pre-filters in addition to the unit filters.

N. HOT WATER REHEAT: Reheat will be provided by hot water coil with 1/2" copper tubes and aluminum fins rated for a maximum working pressure of 300 PSI. Reheat circuit shall include a factory mounted 2-way hot water valve for temperature control. Coil, control valve and controls as required for a functioning system shall be factory mounted.

O. STEAM REHEAT: Reheat will be provided by steam coil with 1/2" copper tubes and aluminum fins rated for a maximum working pressure of 300 PSI. Reheat circuit shall include a factory mounted 2-way steam valve rated at 20 psi close off pressure for temperature control. Coil, control valve and controls as required for a functioning system shall be factory mounted. Steam strainer and trap are required and shall be furnished and piped by the installing contractor.

P. Automatic Lead/Lag Panel: Unit shall be furnished with an automatic lead/lag control panel. Panel shall be capable of controlling a minimum of four units. Upon occurrence of an alarm on one of the primary units the panel shall automatically shut down the primary unit and start standby unit(s) as required. In addition the panel shall rotate the primary and standby units after a user programmable number of hours to insure reliable operation and equalize run hours on all units

Q. Zone Master Teamwork Operation: Each unit shall be furnished with capability to function as the zone master and control the operating mode of up to 32 units located in the same zone. Capabilities shall include:

- Unit lead/lag and standby rotation with an 8 hrs to seven days schedule
- Unit auto changeover by selectable standby or off (critical) alarms
- Standby unit activation by average zone temperature
- Zone functions inhibit preventing units from conflicting operation
- Secondary operating schedule for an economical control solution
- Programmable unit's status control (On/Off/Standby)
- Master unit fail safe mode allows slave units to revert their self control mode

1.10 WARRANTY

A. All parts in the unit shall be warranted to be free from defects in material or workmanship for (18 months, from date of shipment. Parts that fail during this period shall be repaired or a new part supplied by the manufacturer at no cost to the owner.

B. Manufacturer's warranty shall be for parts only. Labor is not included.

**Saves your data.
Saves your money.
Saves your planet.**

**www.DataAire.com
800-347-2473**

sales@DataAire.com
230 W. BlueRidge Avenue
Orange, California 92865

ISO 9001-2008 Certified
A member of the CS Group of Companies
Creating Products That Make Building Better



gForceCW-03-10b