



# Close Control EC Plug Fan Range



**Engineering Data Manual  
Chilled Water & Air Cooled R410A  
50/60Hz**

## Index

Description	Page
EDPAC Company Profile	3
This Product Range	3
Associated Product Ranges	3
Equipment Nomenclature	4
EC Plug Fan Range Dimensions and Weights	4
Air Cooled Condensers - Dimensions and Weights	5
Guide Specifications	6
General Engineering Details - Air Cooled	10
General Engineering Details - Chilled Water	11
Air Cooled System Schematic	12
Chilled Water Cooled System Schematic	13
Air Cooled Units - Cooling Capacities 50/60Hz	14
Chilled Water Units - Cooling Capacities 50/60Hz - 4 Row	15
Chilled Water Units - Cooling Capacities 50/60Hz - 6 Row	17
Electrical Details - Air Cooled Units	19
Electrical Details - Chilled Water Units	20

While every precaution has been taken to ensure accuracy and completeness in this manual, EDPAC assumes no responsibility, and disclaims all liability for damages resulting from use of this information or for any errors or omissions.

Document Reference: E.4.19-01-05-01

## EDPAC COMPANY PROFILE

### HISTORY

Formed in 1968, EDPAC has grown through worldwide distribution to an installed base of over 50,000 units. EDPAC currently services the markets of Europe, the Americas, the Middle East, and the Far East. As one of the pioneers of Precision Air Conditioning the EDPAC name has become synonymous with quality and reliability. With its highly skilled and experienced team EDPAC has established not only a modern manufacturing plant, but also a sophisticated and innovative product development programme. Since 1987 EDPAC International located in Cork Ireland, has controlled the entire activities of the group.

### PRODUCT RANGE

EDPAC manufactures a broad range of Precision Air Conditioning equipment for the Computer Room, Telecoms and other critical Building Services applications. EDPAC systems are designed to provide optimum operating conditions in close control environments.

### QUALITY

All suppliers of materials and components used in manufacturing are assessed and qualified by EDPAC. The EDPAC guarantee of quality is also complimented by rigorous in-factory quality assessment and quality control testing prior to product dispatch. The overall activity of the factory is customer focused and conforms to the strict norms of IS/ISO9001/EN29001. EDPAC was awarded and has retained this certificate since 18th March 1992.

## THIS PRODUCT RANGE

### CLOSE CONTROL EC PLUG FAN

The EDPAC Close Control EC Plug Fan Range units are precision environmental control units designed for 24 hour, year-round use. As standard the units are equipped with: Scroll Compressors, Electrode Steam Boiler Humidifiers, Stainless Steel Tubular Finned Electric Reheat, G4 Filtration, EC Plug Fans and R410A Refrigerant. BMS interface cards are available for all of the most commonly-used protocols including but not limited to MODBUS, BACnet, LON, JCI METASYS & they all can be integrated into most BMS systems by RS 485 or over TCP/IP. Cooling media available is air cooled direct expansion & chilled water. There is an option for a dual cooling version with the addition of a chilled water coil to air cooled unit or an additional chilled water coil to a chilled water unit. The unit simultaneously controls air temperature, air humidity, air distribution and air cleanliness in the conditioned space. It is fitted with a central microprocessor controller which monitors air temperature/humidity and air cleanliness and ensures accurate stepped response to room load changes. To maximise energy efficiency, all units are fitted with wide surface area coils EC plug fans and our air cooled units have electronic expansion valves. All major components are fully serviceable from the front.

## ASSOCIATED PRODUCT RANGES

### CLOSE CONTROL MODULAR

The Close Control Modular range is comprised of 4 module sizes providing nominal capacities of 10, 15, 20, 25, 30, 35 & 40 kW per module. These modules form the basis of the EDPAC modular concept. Unit selections can be based on a single module for a single circuit system or any combination of 2 modules to give a twin circuit or Duplex system. The Duplex configuration is advantageous as both modules can be positioned at different locations within the room.

### CLOSE CONTROL AIR COOLED TWIN CIRCUIT

The Close Control Twin Circuit range comprises 4 sizes providing nominal capacities of 30, 40, 50, 60, 70, 80 & 100 in 10kW increments. Units are twin circuit in a single frame and are available in upflow and downflow configurations. Cooling media available is air cooled direct expansion only. There is an option for a dual cooling version with the addition of a chilled water coil.

### LARGE SYSTEM CHILLED WATER

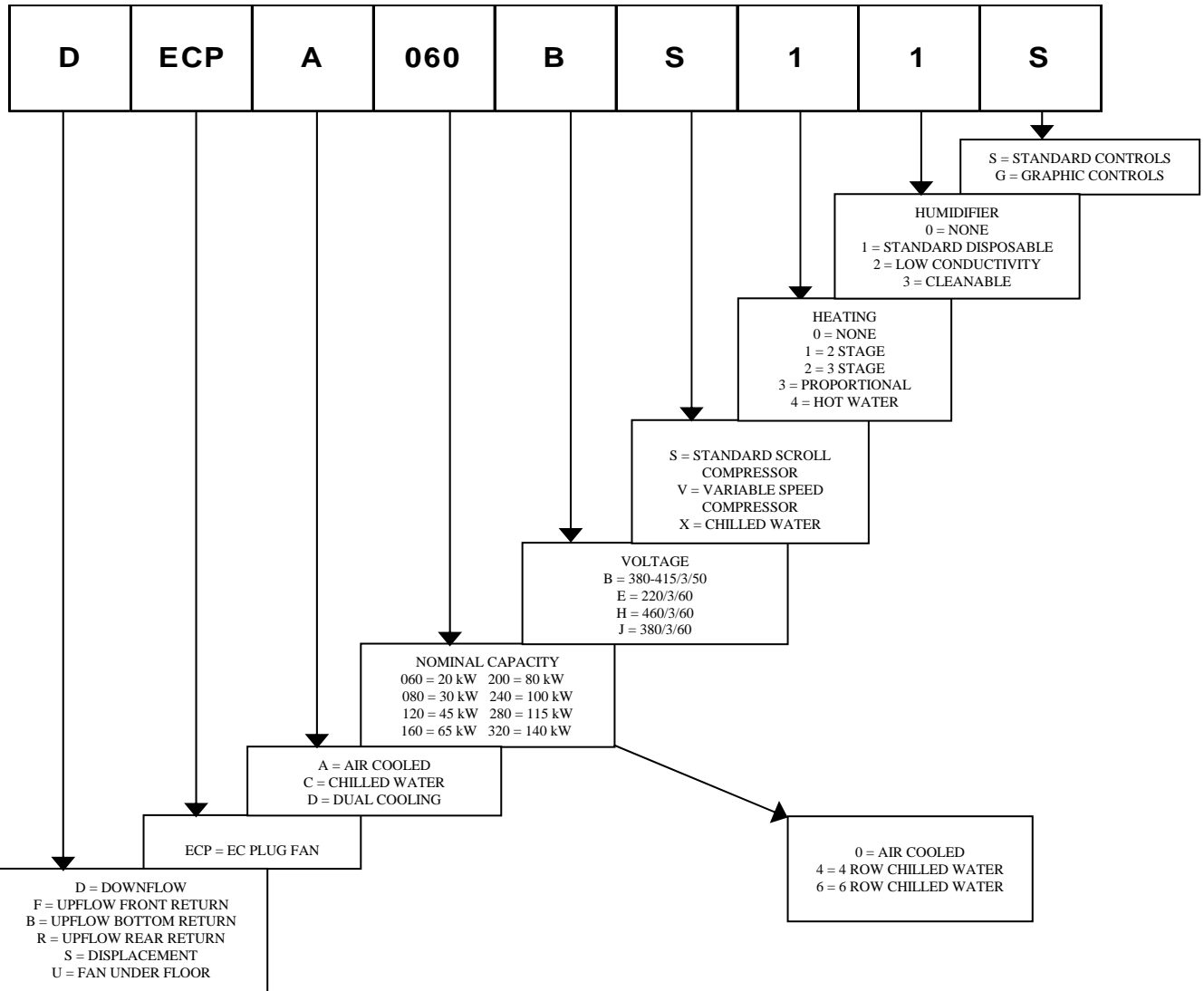
The DCS / FCS range of Close Control Chilled Water units comprises 4 sizes providing nominal capacities of 60, 80, 100 & 120 kW. Units are available in upflow and downflow configurations with top, bottom, front and rear return options. The range of units is ideal for very large data centre applications where air cooled or water/glycol cooled units would be impractical due to the size of the building close control cooling load.

### SMALL SYSTEMS

The Small Systems range comprises 2 unit sizes providing nominal capacities of 6, 12 and 18 kW. Units are available in downflow with top return and upflow with front return. Cooling media include direct expansion using air and chilled water.

## EQUIPMENT NOMENCLATURE

The EDPAC Close Control Plug Fan Range are precision environmental control units designed for 24 hour, year-round use. The unit simultaneously controls air temperature, air humidity, air distribution and air cleanliness in the conditioned space. It is fitted with a central microprocessor controller which monitors air temperature/humidity and air cleanliness and ensures accurate stepped response to room load changes. To maximise energy efficiency, all units are fitted with wide surface area coils, compliant scroll compressors and EC plug fans. Sound levels are kept to a minimum with double skin panels (optional), a unique wide area air chamber and coil mounted filtration and fully isolated compressor compartment. All major components are fully serviceable from the front.



### EC PLUG FAN RANGE DIMENSIONS AND WEIGHTS

#### Dimensions ( mm )

Model	064/6	080/4/6	120/4/6	160/4/6	200/4/6	240/4/6	280/4/6	324/6
Width - Chilled Water	650	850	1250	1650	2050	2450	2850	3250
Width - DX Units	N/A	1250	1650	2050	2450	2850	3250	N/A
Depth	650	850	850	850	850	850	850	850
Height	1980	1980	1980	1980	1980	1980	1980	1980

#### Weight ( kg )

Model	064/6	080/4/6	120/4/6	160/4/6	200/4/6	240/4/6	280/4/6	324/6
Chilled Water	260	315	405	470	530	625	695	710
DX Units	N/A	405	580	640	710	915	975	N/A
Fan Under Floor	N/A	N/A	N/A	N/A	560	660	735	815
Dual Cooling	396	479	681	767	861	1092	1185	1259

**AIR COOLED CONDENSERS - DIMENSIONS AND WEIGHTS**

**CONDENSERS**

<b>Model</b>		<b>080</b>	<b>120</b>	<b>160</b>	<b>200</b>	<b>240</b>	<b>280</b>
<b>30°C Ambient Selection</b>							
Condenser Model	-	AGHS501A	AGHS501C	AGHS502A	AGHS502B	AGHS502B	AGHS503A
Condenser Input Power	kW	0.7	0.7	1.4	1.4	1.4	2.1
Condenser Quantity	No.	2	2	2	2	2	2
Freefield SPL @ 10m	dBA	46	46	46	46	46	48
Dimensions W x D	mm	1105x828	1105x828	2005x828	2005x828	2005x828	2905x828
Weight - 1No / 2No	kg	39 / 78	47 / 94	76 / 152	85 / 170	85 / 170	111 / 222
<b>35°C Ambient Selection</b>							
Condenser Model	-	AGHS501A	AGHS502A	AGHS502A	AGHS502B	AGHS502C	AGHS503B
Condenser Input Power	kW	0.7	1.4	1.4	1.4	1.4	2.1
Condenser Quantity	No.	2	2	2	2	2	2
Freefield SPL @ 10m	dBA	46	46	46	46	46	48
Dimensions W x D	mm	1105x828	2005x828	2005x828	2005x828	2005x828	2905x828
Weight - 1No / 2No	kg	39 / 78	76 / 152	76 / 152	85 / 170	93 / 186	123 / 246
<b>40°C Ambient Selection</b>							
Condenser Model	-	AGHS501B	AGHS502B	AGHS502B	AGHS503B	AGHS503B	AGHS504B
Condenser Input Power	kW	0.7	1.4	1.4	2.1	2.1	2.8
Condenser Quantity	No.	2	2	2	2	2	2
Freefield SPL @ 10m	dBA	46	46	46	48	48	49
Dimensions W x D	mm	1105x828	2005x828	2005x828	2905x828	2905x828	3805x828
Weight - 1No / 2No	kg	42 / 84	85 / 170	85 / 170	123 / 246	123 / 246	179 / 358
<b>45°C Ambient Selection</b>							
Condenser Model	-	AGHS501C	AGHS502C	AGHS503B	AGHS503C	AGHS504B	AGHS633C
Condenser Input Power	kW	0.7	1.4	2.1	2.1	2.8	3.8
Condenser Quantity	No.	2	2	2	2	2	2
Freefield SPL @ 10m	dBA	46	46	48	48	49	51
Dimensions W x D	mm	1105x828	2005x828	2905x828	2905x828	3805x828	3335x1033
Weight - 1No / 2No	kg	47 / 94	93 / 186	123 / 246	138 / 276	179 / 358	277 / 554
<b>50°C Ambient Selection</b>							
Condenser Model	-	AGHS502A	AGHS503B	AGHS503C	AGHS504C	AGHS633C	AGHS634C
Condenser Input Power	kW	1.4	2.1	2.1	2.8	3.8	5.0
Condenser Quantity	No.	2	2	2	2	2	2
Freefield SPL @ 10m	dBA	46	48	48	49	51	52
Dimensions W x D	mm	2005x828	2905x828	2905x828	3805x828	3335x1033	4335x1033
Weight - 1No / 2No	kg	76 / 152	123 / 246	138 / 276	192 / 384	277 / 554	366 / 732

- Notes**
- Standard condensers have 4 Pole motors. For 6 Pole & 8 Pole low noise versions, consult factory.
  - All condensers are shipped with mounting feet. When mounted in the horizontal, condenser models AGHS 501 – 504 are 846 mm high and Condenser models AGHS 633 – 634 are 1171mm high.
  - All condenser data is per condenser.

**STANDARD FEATURES****EC Plug Fans**

The EC plug fan is a backward curved fan with integrated EC electrically commutated motor which is controlled directly from the microprocessor using a 0-10V output. Options on setup are :

Unit is set up with a discrete fan speed based on a fixed 0-10V output to the EC motor based on the design point of operation of the fan. This is the default setting on units shipped.

Unit set up to track the control temperature band with set voltage limits whereby max voltage / fan air volume is at set point plus/minus control band & min voltage / fan air volume at set point. Max air volume is typically design air volume & min air volume is around 60% for chilled water units & 75% for air cooled units. This is something that can be proven on site. Minimum value needs to ensure there are no hot spots due to lack of airflow & that there is no loss of sensible cooling capacity to latent cooling capacity at the cooling coil.

Unit set up to give a reduced fan air volume in dehumidification mode to conserve energy in dehumidification while quickly achieving the dehumidification effect at the cooling coil. This output voltage is again user selectable.

Unit is set up via an underfloor pressure transducer to give a fixed underfloor pressure all the time. Underfloor pressure setpoint is input through the unit user display.

Unit is set up to provide a guaranteed supply air temperature in the cold aisle.

Unit is set up to be controlled by a BMS with minimum & maximum voltage values & 0-100% output over these values by BMS.

Unit is set to have an airflow setpoint on controller with the addition of a fan inlet measuring ring & pressure transducer in the unit.

**Cabinet**

The cabinet frames shall be constructed of formed 2.0 mm Zintec steel sections. Paint finish is Epoxy Powder Coated with an "Orange Peel" textured finish. Interior panels to be manufactured from galvanised steel in all cases. Exterior panels are to be as cabinet except in 1.2 mm Zintec. Paint Colour to be RAL 9018. The front panels shall be fastened to the frame using quarter turn fasteners. Side panels shall be secured to the frame using chrome plated screws. All panels shall be flush fitting, sealed to the frame sections with closed cell foam and insulated with a non-shedding material, which shall be non-combustible, when tested in accordance with B.S. 476 Part 6 and 7. The units shall be fully accessible and serviceable from the front.

**Cooling Coil**

The cooling coils shall be multi-row constructed from copper tubes with aluminium fins. Large surface areas shall ensure high sensible heat ratios and low airside pressure drops, resulting in reduced fan power requirements and noise levels.

**DX Units**

Each unit shall have 2 independent refrigerant circuits, each with a liquid distributor, expansion valve, sight glass and filter drier.

**Electronic Expansion Valve**

DX circuits are fitted with electronic expansion valves which provide precision proportional control and annualised energy savings of 15-20% with floating condenser head pressure control.

**Motors**

The motor shall comply with IP55 TEFC insulated to Class F.

**Filtration**

The filters shall be 100mm thick disposable pleated panel filter rated G4 in accordance with EN779. They shall be fitted in the return air stream and be accessible from the front of a Upflow unit and the top of a Downflow unit & Displacement unit.

**Compressors**

Compressors shall be high efficiency hermetically sealed scroll type. High and low pressure switches, motor overload protection and crankcase heaters shall be provided. The compressors shall be mounted on resilient neoprene mountings for vibration isolation.

**Electrical Panel**

The electrical panel shall be constructed and assembled in compliance with IEC standards with all components VDE approved. All sub circuits are protected by MCB's. The high and low voltage sections shall be segregated and all high voltage electrical components shall be touch safe.

**Electric Heaters**

Electric heaters shall have stainless steel sheathed elements with stainless steel finning, balanced over three phases and rated to operate at black heat. Control shall be in two stages. Protection is by a high temperature safety cut-out stat. The stat shall be a capillary type mounted in the airstream resettable from the control section of the electrical panel.

**Humidification**

The humidifier shall be of the electrode-boiler type. Features shall include selectable steam output and microprocessor control with alarms and diagnostic facilities. The humidifier control system shall allow the use of a wide range of mains water conditions namely: inlet mains water pressure of 1-10 bar, total hardness of 15-30 French degrees & water inlet electrical conductivity of 400-800 micro siemens. Unit shall optimise drain down frequency for maximum operational economy.

**Microprocessor Controls**

All units shall be fitted as standard with the latest Delta range of DIN rail mounted Microprocessor Controls. The Control System utilises a main Microprocessor Interface Board equipped with a set of terminals necessary to connect the Board to the controlled devices (e.g. valves, compressors, fans, reheats, sensors and humidifiers). All software is permanently stored in flash RAM and is therefore protected even in the event of a power failure. Unit software is uploaded to the Microprocessor using a RAM key or personal computer. On multi unit sites this quickens unit commissioning. The software can also be easily changed or upgraded on site by qualified service personnel.

The Microprocessor based Terminal Unit is complete with a 4 line x 20 character backlit LCD Display, keypad and LED Indicators allowing the user to easily set the main control parameters (set-points, differentials and alarm thresholds) and carry out the main working operations (on/off and displaying controlled variables).

Main features of controller are :

*Status:* The display shall indicate current temperature, current humidity, temperature & humidity set points, cooling status, heating status, humidification status & dehumidification status

*Redundancy Management & Master Control:* The controls shall be capable of redundancy management & master control setup / “ Handshake ” of groups of up to 16 units without addition of any hardware.

*Alarms:* Controls shall be capable of storing last 100 alarms, identified by type, date stamped & indicating also the temperature & humidity conditions when the alarm occurred & also the setpoints of temperature & humidity when the alarm occurred. There are 36 alarms & all alarms can be either set as “ serious ” or “ non-serious”. A serious alarm shuts down the unit.

*Hours Thresholds:* It shall be possible to to set run hours thresholds for major components to facilitate preventative maintenance.

*Manual Procedure:* With the unit powered off & the controls powered on it shall be possible to check all analogue & digital outputs & to run the devices.

*Temperature & Humidity Zone setback:* It shall be possible to create up to 4 periods in a 24 hour period with dedicated set points of temperature & humidity.

*System Auto Restart:* For start up after power failure, the unit shall automatically restart with an ability to stagger the starting of multiple units by setting a time delay of up to 999 seconds.

*Security:* The microprocessor shall have multiple levels of security ( 5 no. 4 digit passwords ) to prevent unauthorised parameter adjustment.

*Time Delays:* It shall be possible to create or adjust if necessary the unit on time delay, settle delay, unit off time delay, compressor interstage delay, compressor minimum run time, compressor minimum stop time, heater interstage delay, winter start time delay, temperature alarm time delay, humidity alarm time delay, serious alarm time delay & non-serious alarm time delay.

*Sensor Calibration:* It shall be possible to recalibrate the temperature & humidity sensors in software.

*Inputs / Outputs:* It shall be possible to view the current status of all inputs & outputs while the unit is running.

*Set & Hysteresis adjustment:* It shall be possible to adjust the set & hysteresis % values of stepped outputs within the control.

*BMS / BAS interfacing:* It shall be possible with the addition of a simple communications card to communicate all Analog, Digital & Interger variables in the following protocols : LON FTT 10, BACnet over RS485 MSTP, BACnet over TCP/IP, SNMP over TCP/IP, MODBUS over RS485, Metasys & OPC Server.

*Remote Display panel:* It shall be possible to connect an additional shared LCD display which is wired back to the unit & this remote display shall have full control access to the unit from a distance of up to 100m.

*Remote Temperature & Humidity sensing:* It shall be possible to remotely locate the Temperature/Humidity sensor to better meet the sites cooling needs. The sensor can be located a distance of up to 30m from the unit.

## **OPTIONAL FEATURES**

### **3 Stage Reheat**

Available instead of 2 stage by adding an electrical contactor & configuring the software to 3 stage.

### **Proportional Electric Reheat**

Units shall be fitted with electric reheat controlled by a thyristor giving a fully proportional 0-10V output of the reheat capacity.

### **Hot Water Reheat**

Units shall be fitted with a Low Pressure Hot Water (LPHW) heating coil in place of the standard electrical heating. Water flow through the coil is controlled by a 2 or 3 way modulating valve. Duties of these coils are nominally the same as standard electric heating, based on flow and return hot water temperatures of 82°C and 71°C respectively.

### **Cleanable Humidifier Cylinder**

Humidifier cylinder is serviceable whereas standard humidifier cylinder is disposable.

### **Low Conductivity Humidifier Cylinder**

Disposable type but for water supply with low electrical conductivity.

### **Floor Stand**

Floorstands are shipped flat-pack and need to be assembled on site. They are suitable for raised floor heights of 150mm to 600mm. The legs are notched at 50mm intervals for cutting on site. There is also a final adjustment on the foot of +/- 50mm. Floorstands are manufactured from galvanised steel.

### **Damper & On/Off Actuator Kit**

Addition of a damper & on/off actuator to isolate a downflow or upflow unit in standby. Damper is typically fitted on top of unit. Actuator powered from unit electrical panel.

### **Air Discharge Plenum**

For Upflow units which are to be installed in a freeblow situation. Plenum consists of an insulated sheet metal assembly with 3 discharge grilles. Grilles are double deflector type. Plenum colour will match unit colour. Plenums can also be manufactured as 1 way or 2 way discharge, please consult factory.

### **3 way discharge plenum complete with up to F9 rigid bag filters.**

Plenum is mounted on top of unit. Plenum is 1000mm high with a 292mm long F9 rigid bag filter. Plenum has a diffusion section and 3 no. Air outlet grilles. Grilles on the front and 2 sides. It is also possible to have the F8/F9 discharge section on its own, plenum is 400mm high.

### **Rear Return**

For upflow units. Required when unit is located in a service area outside the conditioned space. Return air is taken in the rear. Rear panel generally has a duct connection and filters are withdrawable from outside the unit.

### **Bottom Return**

For upflow units. Required if air is returned from a floor void. Bottom of unit is opened up and base components are mounted on rails. Filters cannot be fitted in unit and are shipped loose for installation beneath the unit on site.

### **Displacement**

For units where the air is discharged at a low level above the floor.

### **Fan Under Floor**

For units where the fan is placed in the base of the unit and the coil is extended to give an increased capacity.

### **Return Air Attenuator 500mm high**

Attenuator mounted on top of downflow unit. Attenuators have internal baffles and provide 8-10 db reduction on airborne noise.

### **F5/6/7 Panel Filters**

Upgrade of standard G4 disposable panel filters to F5/6/7 disposable panel filters.

### **G2 Pre-filter with G4 Main Filter**

100mm G4 disposable filter replaced with 50mm G2 disposable plus 50mm G4 disposable filter.

### **Washable Filters**

Upgrade of standard disposable 100mm G4 disposable filters to washable 50mm G3 type plus 50mm G4 disposable filter.

### **Filter Clog**

An additional pressure differential switch mounted in the unit to sense airside pressure drop across the filters. Once the pressure drop is exceeded a filter clog (filter change) alarm is generated.

### **Different Unit Colour**

Units can be manufactured in a different colour to the standard RAL 9018. RAL number to be specified.

### **Double Skin Panels**

All units. Inner perforated galvanized steel or solid painted or unpainted galvanized steel.



**Fresh Air Connection** Units can be supplied with a fresh air inlet connection and disposable G4 filter. This will admit approximately 3-5% of the recirculated air volume.

### **Hot Gas Bypass**

Hot gas bypass line including hot gas bypass valve fitted to provide capacity control in low load situations.

### **Liquid Receiver**

Liquid receiver fitted in unit base of indoor unit. Receiver is complete with rotalock valve on the discharge.

### **Oil Separator**

Oil separator fitted in indoor unit to prevent migration of oil away from compressor.

### **Compressor Acoustic Jacket**

High mass barrier insulation to reduce compressor noise.

### **Condensate Pump**

Where, due to location, it is not possible to gravity drain units, a condensate pump can be fitted to collect any condensate and pump it to the nearest convenient drain point (pump duty is 6 l/min Vs 6 m head). A cheaper cold condensate pump is available for units without humidifiers.

### **Handshake - Autosequence / Autorotate**

For interconnection of up to 16 units. Interconnection by means of a shielded twisted pair cable from interface board to interface board between units. This shall provide N+1 with one unit always in standby in case of duty unit failure. Standby unit shall be rotated over time. Changeover shall be set between 1- 168 hours (1 hour – 1 week). In case of high temperature alarm standby unit shall run & revert to standby once temperature is corrected. In the group of up to 16 unit, any number can be running & any number can be set in standby.

### **Smoke Detector**

A smoke detector shall be provided & mounted in the return air path to interface with the unit controls and generate an alarm.

### **Fire Detector**

A fire detector shall be provided & mounted in the return air path to interface with the unit controls and generate an alarm.

### **Fire Stat**

A fire stat shall be provided & mounted in the return air path within the unit to interface with the unit controls and indicate an alarm.

### **Water Detection – Point Type**

Consists of a water detection module mounted in unit & point sensor which can be placed in unit or under the floor.

Multiple point sensors can be placed in series with each other. A cable type water warning is also available.

### **RS 485 Communications Card**

Serial interface card for Microprocessor board. For BMS setup. Can communicate on Delta 2 own Protocol & Modbus without an external Gateway.

### **BACnet over RS 485**

Serial interface card for Microprocessor board. For BMS setup. Runs on BACnet protocol over RS 485. Final setup by BMS system integrator.

### **BACnet over TCP/IP**

Serial interface card for Microprocessor board. For BMS setup. Runs on BACnet protocol over TCP/IP. Final setup by BMS system integrator.

### **SNMP over TCP/IP**

Serial interface card for Microprocessor board. For BMS setup. Runs on SNMP protocol over TCP/IP. Final setup by BMS system integrator.

### **LON Communication Card**

Serial interface card for Microprocessor board. For BMS setup. Runs on LON FTT 10 protocol. Final setup by LON system integrator.

### **Condenser Factory Wired Disconnect**

Factory wired disconnect fitted to condenser.

### **MCB and Contactor Condenser Control**

MCB and contactor fitted in unit per condenser providing condenser on/off control interlocked with compressor.

### **MCB, Contactor and Pressure Switch Condenser Control**

MCB, contactor and pressure switch fitted in unit per condenser fan providing condenser on/off based on condenser fan activated on pressure switch pressure signal.

### **MCB, Contactor and Pressure Activated Fan Speed Control**

MCB and contactor per condenser fan. Condenser fans are all 220V/1 Ph and unit has a single or dual input Johnson pressure activated fan speed control.

### **Condenser Fan Control with VSD**

Uses a VSD to give a 0-10V proportional output to the condenser to maintain refrigerant head pressure control.

### **Graphic Display**

An optional Graphical Terminal Unit is also available. This is a graphical display, LED Backlit with 132 x 64 pixel graphical resolution.

**GENERAL ENGINEERING DETAILS – AIR COOLED**

<b>Standard Models</b>							
<b>Model Size</b>		<b>080</b>	<b>120</b>	<b>160</b>	<b>200</b>	<b>240</b>	<b>280</b>
<b>Coil Data</b>							
Coil Face Area	m <sup>2</sup>	0.87	1.38	1.87	2.36	2.86	3.37
Rows	No.	4	4	4	4	4	4
<b>Air Side Data</b>							
Air Volume	m <sup>3</sup> /hr	7830	12420	16830	21235	25735	30330
External Static Pressure ESP	Pa	25	25	25	25	25	25
Fan Type	-	EC	EC	EC	EC	EC	EC
Fan Diameter	mm	500 / 1	630 / 1	560 / 2	630 / 2	630 / 3	630 / 3
Fan Absorbed Power	kW	1.3	1.8	1.1	1.4	1.3	1.6
Fan Motor	kW	2.6	2.8	3.1	2.8	2.8	2.8
<b>Filter Data</b>							
Grade	-	G4	G4	G4	G4	G4	G4
Filter Width	mm	680	520	467	595	540	640
Filter Height	mm	655	655	655	655	655	655
Filter Quantity	No.	2	4	6	6	8	8
<b>Noise Data</b>							
Freefield SPL	dBA	58	58	59	61	61	62
<b>Unit Piping Data</b>							
Discharge Connection Size	mm	22	22	22	28	28	28
Liquid Connection Size	mm	16	16	16	16	16	16
<b>Condenser Piping Data</b>							
Condenser Conns. Inlet/Outlet 30°C	mm	22/18	22/18	24/20	28/22	28/22	28/22
Condenser Conns. Inlet/Outlet 35°C	mm	22/18	22/18	24/20	28/22	28/22	28/22
Condenser Conns. Inlet/Outlet 40°C	mm	28/22	28/22	28/22	28/22	28/22	35/28
Condenser Conns. Inlet/Outlet 45°C	mm	28/22	28/22	28/22	35/28	35/28	42/35
Condenser Conns. Inlet/Outlet 50°C	mm	28/22	28/22	35/28	42/35	42/35	54/42
Condenser Quantity	No.	1	2	2	2	2	2
<b>Compressor Data</b>							
Scroll Compressor - 50Hz	-	ZP54	ZP103	ZP120	ZP154	ZP182	ZP235
Scroll Compressor - 60Hz	-	ZP41	ZP83	ZP103	ZP137	ZP154	ZP182
Compressor Quantity	-	2	2	2	2	2	2
Circuits	-	2	2	2	2	2	2

**Notes**

- Indoor unit Freefield SPL dBA levels are measured at 3m.
- All filters are 97mm thick.
- Humidifier inlet connection is ¾" BSPM & drain connection is 1" BSPF.
- Coil drain pan connection is ¾" BSPF.

**GENERAL ENGINEERING DETAILS – CHILLED WATER**

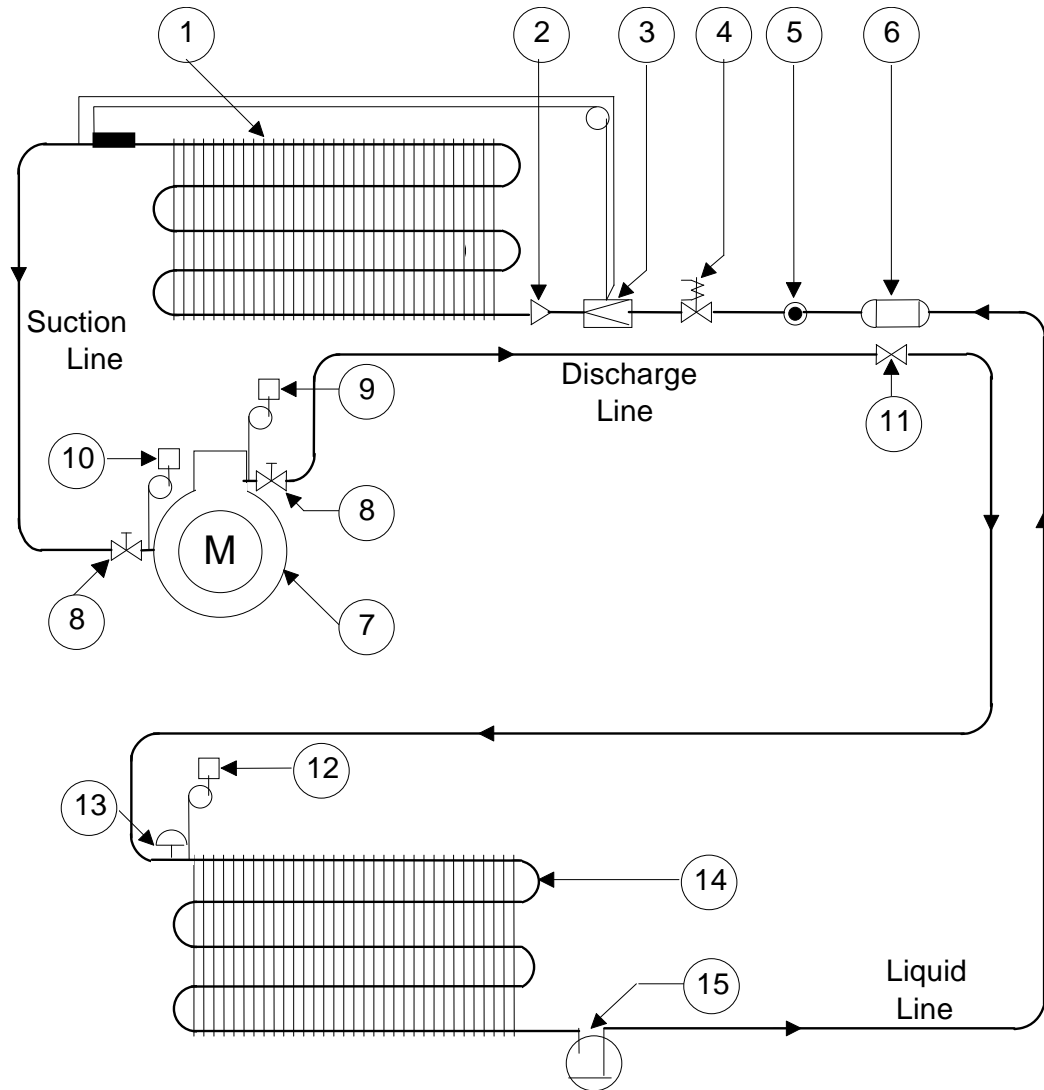
Standard Models									
Model Size		064/6	084/6	124/6	164/6	204/6	244/6	284/6	324/6
<b>Coil Data</b>									
Coil Face Area	m <sup>2</sup>	0.58	0.82	1.32	1.82	2.31	2.81	3.32	3.83
Rows	No.	4 & 6	4 & 6	4 & 6	4 & 6	4 & 6	4 & 6	4 & 6	4 & 6
<b>Air Side Data</b>									
Air Volume	m <sup>3</sup> /hr	5665	7830	12420	16830	21235	25735	30330	34920
External Static Pressure ESP	Pa	25	25	25	25	25	25	25	25
Fan Type	-	EC	EC	EC	EC	EC	EC	EC	EC
Fan Diameter / Fan Quantity	mm	450 / 1	500 / 1	630 / 1	560 / 2	630 / 2	630 / 3	630 / 3	630 / 3
Fan Absorbed Power - 4 Row	kW	0.9	1.3	1.8	1.1	1.3	1.0	1.2	1.6
Fan Motor Power	kW	1.45	2.6	3.6	3.1	2.8	2.8	2.8	2.8
Fan Absorbed Power - 6 Row	kW	1.1	1.6	2.2	1.4	1.7	1.3	1.6	1.9
Fan Motor Power	kW	1.45	2.6	3.6	3.1	2.8	2.8	2.8	2.8
<b>Filter Data</b>									
Grade	-	G4	G4	G4	G4	G4	G4	G4	G4
Filter Width	mm	520	710	550	497	625	570	670	615
Filter Height	mm	655	655	655	655	655	655	655	655
Filter Quantity	No.	2	2	4	6	6	8	8	10
<b>Noise Data</b>									
Freefield SPL	dBA	57	58	58	59	61	61	62	62
<b>Unit Piping Data</b>									
Chilled Water F&R Pipe Size	mm	35	35	42	54	54	54	54	54
Control Valve Size	mm	32	32	32	40	40	50	50	50
Control Valve Quantity	No.	1	1	1	1	1	1	1	1
Control Valve Kv	-	16	16	16	25	25	40	40	40

Fan Under Floor Models					
Model Size		204/6	244/6	284/6	324/6
<b>Coil Data</b>					
Coil Face Area	m <sup>2</sup>	2.77	3.38	3.99	4.59
Rows	No.	4 & 6	4 & 6	4 & 6	4 & 6
<b>Air Side Data</b>					
Air Volume	m <sup>3</sup> /hr	25485	30885	36395	41905
External Static Pressure ESP	Pa	25	25	25	25
Fan Type	-	EC	EC	EC	EC
Fan Diameter / Fan Quantity	mm	630 / 2	630 / 3	630 / 3	630 / 3
Fan Absorbed Power - 4 Row	kW	1.9	1.3	1.7	2.3
Fan Motor Power	kW	2.8	2.8	2.8	3.6
Fan Absorbed Power - 6 Row	kW	1.2	1.6	2.0	2.6
Fan Motor Power	kW	2.8	2.8	2.8	3.6
<b>Filter Data</b>					
Grade	-	G4	G4	G4	G4
Filter Width	mm	625	570	670	615
Filter Height	mm	655	655	655	655
Filter Quantity	No.	6	8	8	10
<b>Noise Data</b>					
Freefield SPL	dBA	61	61	62	62
<b>Unit Piping Data</b>					
Chilled Water F&R Pipe Size	mm	54	54	54	54
Control Valve Size	mm	50	50	50	50
Control Valve Quantity	No.	1	1	1	1
Control Valve Kv	-	40	40	40	40

**Notes**

1. Indoor unit Freefield SPL dBA levels are measured at 3m.
2. All filters are 97mm thick.
3. Humidifier inlet connection is ¾" BSPM & drain connection is 1" BSPF.
4. Coil drain pan connection is ¾" BSPF.

## AIR COOLED SYSTEM SCHEMATIC

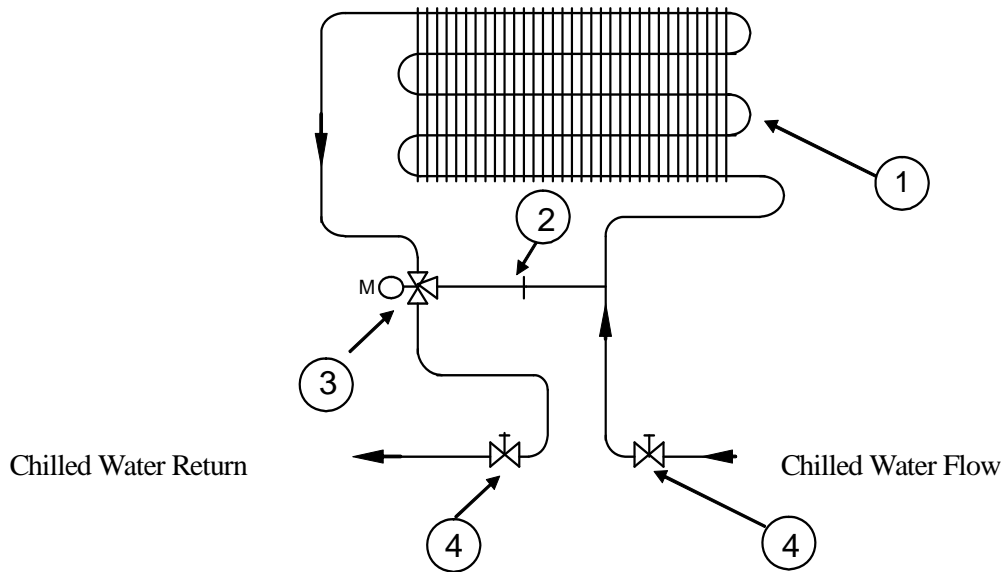


### System Components

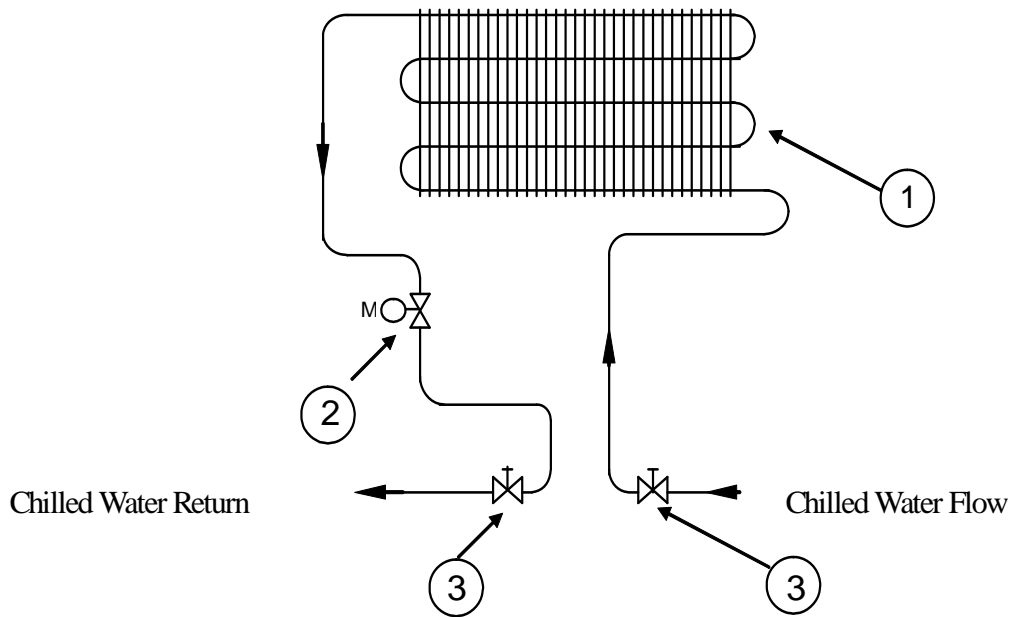
1. Evaporator Coil.
2. Liquid Distributor.
3. Thermostatic Expansion Valve (externally equalised).
4. Liquid Line Solenoid Valve (optional).
5. Liquid Sight Glass (including moisture indicator).
6. Filter Drier.
7. Compressor.
8. Compressor Service Valves.
9. High Pressure Switch (manual reset).
10. Low Pressure Switch (automatic reset).
11. Check Valve (See Note).
12. Fan speed Controller (pressure operated head pressure control, if fitted).
13. Pressure relief Valve (See Note).
14. Air Cooled Condenser.
15. Liquid Receiver (See Note).

**Note:** Items 11, 13 and 15 are supplied by others and field fitted by others.

**3 Way Valve System**



**2 Way Valve System**



**System Components**

<b>3 Way Valve System</b>	<b>2 Way Valve System</b>
1 Chilled Water Coil	Chilled Water Coil
2 Balancing Orifice	2 Way Modulating Valve
3 3 Way Modulating Valve	Isolating Valves
4 Isolating Valves	

**Note:** Isolating valves are field fitted by others.

**AIR COOLED UNITS - COOLING CAPACITIES 50Hz**

<b>Model : Standard</b>		<b>080</b>	<b>120</b>	<b>160</b>	<b>200</b>	<b>240</b>	<b>280</b>
<b>Air On: 22°C, 50% RH</b>							
Total Capacity	kW	24.0	46.8	55.0	69.4	82.0	105.0
Sensible Capacity	kW	22.6	44.0	51.2	65.2	76.3	97.7
<b>Air On: 24°C, 50% RH</b>							
Total Capacity	kW	24.8	48.4	57.0	72.0	85.0	108.8
Sensible Capacity	kW	22.1	42.6	50.2	63.4	74.8	95.7
Scroll Compressor	-	ZP54	ZP103	ZP120	ZP154	ZP182	ZP235
Compressor Input Power	kW	3.8	7.1	8.2	10.3	12.4	15.9
Compressor Quantity	No.	2	2	2	2	2	2
Airflow	m <sup>3</sup> /hr	7830	12420	16830	21235	25735	30330
No. of Fans	No.	1	1	2	2	3	3
Fan Motor	kW	2.6	2.8	3.1	2.8	2.8	2.8
EC Fan Diameter	mm	500	630	560	630	630	630
Electric Reheat	kW	15.0	15.0	25.0	25.0	25.0	25.0
No. of Steps	No.	2	2	2	2	2	2
Humidifier Capacity	kg/hr	8	8	8	8	8	8
Humidifier Power	kW	5.8	5.8	5.8	5.8	5.8	5.8

**AIR COOLED UNITS - COOLING CAPACITIES 60Hz**

<b>Model : Standard</b>		<b>080</b>	<b>120</b>	<b>160</b>	<b>200</b>	<b>240</b>	<b>280</b>
<b>Air On: 22°C, 50% RH</b>							
Total Capacity	kW	21.8	44.0	56.0	74.4	83.4	98.4
Sensible Capacity	kW	20.5	41.4	52.1	69.9	77.6	91.5
<b>Air On: 24°C, 50% RH</b>							
Total Capacity	kW	22.8	45.6	58.2	77.0	86.4	102.0
Sensible Capacity	kW	20.3	40.1	51.2	67.8	76.0	89.8
Scroll Compressor	-	ZP41	ZP83	ZP103	ZP137	ZP154	ZP182
Compressor Input Power	kW	3.6	6.9	8.5	11.2	12.4	14.8
Compressor Quantity	No.	2	2	2	2	2	2
Airflow	m <sup>3</sup> /hr	7830	12420	16830	21235	25735	30330
No. of Fans	No.	1	1	2	2	3	3
Fan Motor	kW	2.6	2.8	3.1	2.8	2.8	2.8
EC Fan Diameter	mm	500	630	560	630	630	630
Electric Reheat	kW	15.0	15.0	25.0	25.0	25.0	25.0
No. of Steps	No.	2	2	2	2	2	2
Humidifier Capacity	kg/hr	8	8	8	8	8	8
Humidifier Power	kW	5.8	5.8	5.8	5.8	5.8	5.8

**Notes**

1. Capacities are based on R410A refrigerant.
2. For capacities at other conditions, please refer to the Factory or product selection program.

**CHILLED WATER COOLED UNITS - COOLING CAPACITIES 50/60Hz**

**4 ROW COIL - 6/12C**

<b>Model : Standard</b>		<b>064</b>	<b>084</b>	<b>124</b>	<b>164</b>	<b>204</b>	<b>244</b>	<b>284</b>	<b>324</b>
<b>Air On: 22°C, 50% RH</b>									
Total Capacity	kW	17.0	24.3	40.5	55.5	72.4	85.2	102.6	119.7
Sensible Capacity	kW	17.0	24.3	40.5	55.5	72.4	85.2	102.6	119.7
Chilled Water Flow	l/s	0.71	1.02	1.69	2.32	3.03	3.56	4.29	5.02
Unit Pressure Drop	kPa	11	15	29	24	43	29	44	61
<b>Air On: 24°C, 50% RH</b>									
Total Capacity	kW	20.0	28.6	47.2	64.7	84.3	99.8	119.7	125.4
Sensible Capacity	kW	20.0	28.6	47.2	64.7	76.1	99.8	108.3	119.7
Chilled Water Flow	l/s	0.84	1.19	1.98	2.70	3.52	4.16	5.00	5.22
Unit Pressure Drop	kPa	14	19	40	32	58	39	57	66
Airflow	m <sup>3</sup> /hr	5665	7830	12420	16830	21235	25735	30330	34920
No. of Fans	No.	1	1	1	2	2	3	3	3
Fan Motor	kW	1.45	2.6	3.6	3.1	2.8	2.8	2.8	2.8
EC Fan Diameter	mm	450	500	630	560	630	630	630	630
Electric Reheat	kW	9.6	15	15	25	25	25	25	25
No. of Steps	No.	2	2	2	2	2	2	2	2
Humidifier Capacity	kg/hr	3	8	8	8	8	8	8	8
Humidifier Power	kW	2.2	5.8	5.8	5.8	5.8	5.8	5.8	5.8

<b>Model : Fan Under Floor</b>		<b>204</b>	<b>244</b>	<b>284</b>	<b>324</b>
<b>Air On: 22°C, 50% RH</b>					
Total Capacity	kW	86.4	102.6	123.5	144.4
Sensible Capacity	kW	86.4	102.6	123.5	144.4
Chilled Water Flow	l/s	3.61	4.28	5.15	6.03
Unit Pressure Drop	kPa	53	37	57	92
<b>Air On: 24°C, 50% RH</b>					
Total Capacity	kW	100.7	119.7	143.5	150.1
Sensible Capacity	kW	90.9	119.7	130.2	144.4
Chilled Water Flow	l/s	4.20	4.99	5.99	6.26
Unit Pressure Drop	kPa	71	51	75	84
Airflow	m <sup>3</sup> /hr	25485	30885	36395	41905
No. of Fans	No.	2	3	3	3
Fan Motor	kW	2.8	2.8	2.8	3.6
EC Fan Diameter	mm	630	630	630	630
Electric Reheat	kW	25	25	25	25
No. of Steps	No.	2	2	2	2
Humidifier Capacity	kg/hr	8	8	8	8
Humidifier Power	kW	5.8	5.8	5.8	5.8

**Note**

1. Capacities are based on a 6°C chilled water coil entering temperature & the tabulated flow rate.
2. For capacities at other conditions, please refer to the Factory or product selection program.

**4 ROW COIL - 7/12C**

**CHILLED WATER COOLED UNITS - COOLING CAPACITIES 50/60Hz**

<b>Model : Standard</b>		<b>064</b>	<b>084</b>	<b>124</b>	<b>164</b>	<b>204</b>	<b>244</b>	<b>284</b>	<b>324</b>
<b>Air On: 22°C, 50% RH</b>									
Total Capacity	kW	16.7	23.8	39.4	54.0	70.3	82.9	99.8	116.9
Sensible Capacity	kW	16.7	23.8	39.4	54.0	70.3	82.9	99.8	116.9
Chilled Water Flow	l/s	0.84	1.20	1.98	2.71	3.52	4.16	5.00	5.84
Unit Pressure Drop	kPa	15	19	40	32	58	39	57	81
<b>Air On: 24°C, 50% RH</b>									
Total Capacity	kW	19.8	28.1	46.3	63.3	76.1	96.9	116.9	129.2
Sensible Capacity	kW	19.8	28.1	46.3	63.3	73.2	96.9	116.9	121.6
Chilled Water Flow	l/s	0.99	1.41	2.32	3.17	3.82	4.87	5.84	6.46
Unit Pressure Drop	kPa	20	27	54	44	67	53	77	100
Airflow	m <sup>3</sup> /hr	5665	7830	12420	16830	21235	25735	30330	34920
No. of Fans	No.	1	1	1	2	2	3	3	3
Fan Motor	kW	1.45	2.6	3.6	3.1	2.8	2.8	2.8	2.8
EC Fan Diameter	mm	450	500	630	560	630	630	630	630
Electric Reheat	kW	9.6	15	15	25	25	25	25	25
No. of Steps	No.	2	2	2	2	2	2	2	2
Humidifier Capacity	kg/hr	3	8	8	8	8	8	8	8
Humidifier Power	kW	2.2	5.8	5.8	5.8	5.8	5.8	5.8	5.8

<b>Model : Fan Under Floor</b>		<b>204</b>	<b>244</b>	<b>284</b>	<b>324</b>
<b>Air On: 22°C, 50% RH</b>					
Total Capacity	kW	83.9	99.8	119.7	139.7
Sensible Capacity	kW	83.9	99.8	119.7	139.7
Chilled Water Flow	l/s	4.21	4.99	6.00	7.01
Unit Pressure Drop	kPa	46	51	75	104
<b>Air On: 24°C, 50% RH</b>					
Total Capacity	kW	90.3	116.9	139.7	154.9
Sensible Capacity	kW	86.7	116.9	139.7	145.4
Chilled Water Flow	l/s	4.53	5.85	7.00	7.75
Unit Pressure Drop	kPa	53	70	102	126
Airflow	m <sup>3</sup> /hr	25485	30885	36395	41905
No. of Fans	No.	2	3	3	3
Fan Motor	kW	2.8	2.8	2.8	3.6
EC Fan Diameter	mm	630	630	630	630
Electric Reheat	kW	25	25	25	25
No. of Steps	No.	2	2	2	2
Humidifier Capacity	kg/hr	8	8	8	8
Humidifier Power	kW	5.8	5.8	5.8	5.8

**Note**

1. Capacities are based on a 7°C chilled water coil entering temperature & the tabulated flow rate.
2. For capacities at other conditions, please refer to the Factory or product selection program.



**CHILLED WATER COOLED UNITS - COOLING CAPACITIES 50/60Hz**

**6 ROW COIL - 8/14C**

<b>Model : Standard</b>		<b>066</b>	<b>086</b>	<b>126</b>	<b>166</b>	<b>206</b>	<b>246</b>	<b>286</b>	<b>326</b>
<b>Air On: 22°C, 50% RH</b>									
Total Capacity	kW	16.8	24.2	41.6	57.1	72.0	89.1	106.4	124.5
Sensible Capacity	kW	16.8	24.2	41.6	57.1	72.0	89.1	106.4	124.5
Chilled Water Flow	l/s	0.71	1.01	1.74	2.39	3.01	3.73	4.46	5.19
Unit Pressure Drop	kPa	9	12	29	25	33	36	53	74
<b>Air On: 24°C, 50% RH</b>									
Total Capacity	kW	20.4	29.2	49.4	67.7	85.5	105.5	125.4	146.3
Sensible Capacity	kW	20.4	29.2	46.0	62.8	78.9	96.0	114.0	133.0
Chilled Water Flow	l/s	0.85	1.22	2.07	2.83	3.57	4.40	5.25	6.10
Unit Pressure Drop	kPa	13	18	42	35	46	49	72	101
Airflow	m <sup>3</sup> /hr	5665	7830	12420	16830	21235	25735	30330	34920
No. of Fans	No.	1	1	1	2	2	3	3	3
Fan Motor	kW	1.45	2.6	3.6	3.1	2.8	2.8	2.8	2.8
EC Fan Diameter	mm	450	500	630	560	630	630	630	630
Electric Reheat	kW	9.6	15	15	25	25	25	25	25
No. of Steps	No.	2	2	2	2	2	2	2	2
Humidifier Capacity	kg/hr	3	8	8	8	8	8	8	8
Humidifier Power	kW	2.2	5.8	5.8	5.8	5.8	5.8	5.8	5.8

<b>Model : Fan Under Floor</b>		<b>206</b>	<b>246</b>	<b>286</b>	<b>326</b>
<b>Air On: 22°C, 50% RH</b>					
Total Capacity	kW	86.1	107.4	128.3	149.2
Sensible Capacity	kW	86.1	107.4	128.3	149.2
Chilled Water Flow	l/s	3.60	4.47	5.35	6.23
Unit Pressure Drop	kPa	28	45	66	92
<b>Air On: 24°C, 50% RH</b>					
Total Capacity	kW	102.6	126.4	151.1	174.8
Sensible Capacity	kW	94.2	115.0	136.8	158.7
Chilled Water Flow	l/s	4.28	5.28	6.30	7.32
Unit Pressure Drop	kPa	40	63	91	126
Airflow	m <sup>3</sup> /hr	25485	30885	36395	41905
No. of Fans	No.	2	3	3	3
Fan Motor	kW	2.8	2.8	2.8	3.6
EC Fan Diameter	mm	630	630	630	630
Electric Reheat	kW	25	25	25	25
No. of Steps	No.	2	2	2	2
Humidifier Capacity	kg/hr	8	8	8	8
Humidifier Power	kW	5.8	5.8	5.8	5.8

**Note**

1. Capacities are based on a 8°C chilled water coil entering temperature & the tabulated flow rate.
2. For capacities at other conditions, please refer to the Factory or product selection program.

**CHILLED WATER COOLED UNITS - COOLING CAPACITIES 50/60Hz**

**6 ROW COIL - 9/14C**

<b>Model : Standard</b>		<b>066</b>	<b>086</b>	<b>126</b>	<b>166</b>	<b>206</b>	<b>246</b>	<b>286</b>	<b>326</b>
<b>Air On: 22°C, 50% RH</b>									
Total Capacity	kW	16.4	23.6	39.9	54.7	69.1	85.1	101.7	117.8
Sensible Capacity	kW	16.4	23.6	39.9	54.7	69.1	85.1	101.7	117.8
Chilled Water Flow	l/s	0.83	1.18	2.00	2.75	3.47	4.27	5.10	5.93
Unit Pressure Drop	kPa	12	17	39	33	44	46	68	95
<b>Air On: 24°C, 50% RH</b>									
Total Capacity	kW	20.0	28.4	47.6	65.2	82.3	100.7	120.7	139.7
Sensible Capacity	kW	20.0	28.4	45.1	61.7	77.5	94.3	112.1	129.2
Chilled Water Flow	l/s	1.00	1.43	2.39	3.27	4.13	5.07	6.04	7.01
Unit Pressure Drop	kPa	17	24	55	46	61	63	94	130
Airflow	m <sup>3</sup> /hr	5665	7830	12420	16830	21235	25735	30330	34920
No. of Fans	No.	1	1	1	2	2	3	3	3
Fan Motor	kW	1.45	2.6	3.6	3.1	2.8	2.8	2.8	2.8
EC Fan Diameter	mm	450	500	630	560	630	630	630	630
Electric Reheat	kW	9.6	15	15	25	25	25	25	25
No. of Steps	No.	2	2	2	2	2	2	2	2
Humidifier Capacity	kg/hr	3	8	8	8	8	8	8	8
Humidifier Power	kW	2.2	5.8	5.8	5.8	5.8	5.8	5.8	5.8

<b>Model : Fan Under Floor</b>		<b>206</b>	<b>246</b>	<b>286</b>	<b>326</b>
<b>Air On: 22°C, 50% RH</b>					
Total Capacity	kW	82.6	101.7	121.6	141.6
Sensible Capacity	kW	82.6	101.7	121.6	141.6
Chilled Water Flow	l/s	4.14	5.13	6.12	7.11
Unit Pressure Drop	kPa	37	59	86	119
<b>Air On: 24°C, 50% RH</b>					
Total Capacity	kW	98.8	121.6	144.4	167.2
Sensible Capacity	kW	93.4	113.1	134.9	154.9
Chilled Water Flow	l/s	4.94	6.09	7.25	8.41
Unit Pressure Drop	kPa	52	82	119	164
Airflow	m <sup>3</sup> /hr	25485	30885	36395	41905
No. of Fans	No.	2	3	3	3
Fan Motor	kW	2.8	2.8	2.8	3.6
EC Fan Diameter	mm	630	630	630	630
Electric Reheat	kW	25	25	25	25
No. of Steps	No.	2	2	2	2
Humidifier Capacity	kg/hr	8	8	8	8
Humidifier Power	kW	5.8	5.8	5.8	5.8

**Note**

1. Capacities are based on a 9°C chilled water coil entering temperature & the tabulated flow rate.
2. For capacities at other conditions, please refer to the Factory or product selection program.

**ELECTRICAL DETAILS**

**Air Cooled Models**

<b>Model</b>	<b>080</b>	<b>120</b>	<b>160</b>	<b>200</b>	<b>240</b>	<b>280</b>
<b>400V/3PH/50Hz</b>						
EC Fans FLA	4.1	4.2	4.9	4.2	4.2	4.2
Reheat FLA	21.7	21.7	35.9	35.9	35.9	35.9
Humidifier FLA	8.4	8.4	8.4	8.4	8.4	8.4
Scroll Compressor FLA	6.4	13.2	15.3	18.9	23.8	27.8
Condenser FLA 30°C	3.0	3.0	6.0	6.0	6.0	9.0
Condenser FLA 35°C	3.0	6.0	6.0	6.0	6.0	9.0
Condenser FLA 40°C	3.0	6.0	6.0	9.0	9.0	12.0
Condenser FLA 45°C	3.0	6.0	9.0	9.0	12.0	7.5
Condenser FLA 50°C	6.0	9.0	9.0	12.0	7.5	10.0
<b>220V/3PH/60Hz</b>						
EC Fans FLA	7.5	7.6	8.9	7.6	7.6	7.6
Reheat FLA	39.5	39.5	65.3	65.3	65.3	65.3
Humidifier FLA	15.3	15.3	15.3	15.3	15.3	15.3
Scroll Compressor FLA	11.0	21.7	26.4	33.3	37.8	47.6
Condenser FLA 30°C	3.9	3.9	7.8	7.8	7.8	11.7
Condenser FLA 35°C	3.9	7.8	7.8	7.8	7.8	11.7
Condenser FLA 40°C	3.9	7.8	7.8	11.7	11.7	11.7
Condenser FLA 45°C	3.9	7.8	11.7	11.7	15.6	15.6
Condenser FLA 50°C	7.8	11.7	11.7	15.6	12.0	16.0
<b>380V/3PH/60Hz</b>						
EC Fans FLA	4.3	4.4	5.1	4.4	4.4	4.4
Reheat FLA	22.8	22.8	37.7	37.7	37.7	37.7
Humidifier FLA	8.8	8.8	8.8	8.8	8.8	8.8
Scroll Compressor FLA	6.6	13.0	15.8	20.0	22.7	28.6
Condenser FLA 30°C	1.6	1.6	3.2	3.2	3.2	4.8
Condenser FLA 35°C	1.6	3.2	3.2	3.2	3.2	4.8
Condenser FLA 40°C	1.6	3.2	3.2	4.8	4.8	4.8
Condenser FLA 45°C	1.6	3.2	4.8	5.6	5.6	5.6
Condenser FLA 50°C	3.2	4.8	4.8	5.6	6.3	8.4
<b>460V/3PH/60Hz</b>						
EC Fans FLA	3.6	3.7	4.3	3.7	3.7	3.7
Reheat FLA	18.9	18.9	31.2	31.2	31.2	31.2
Humidifier FLA	7.3	7.3	7.3	7.3	7.3	7.3
Scroll Compressor FLA	5.5	10.9	13.2	16.6	18.9	23.8
Condenser FLA 30°C	1.0	1.0	2.0	2.0	2.0	3.0
Condenser FLA 35°C	1.0	2.0	2.0	2.0	2.0	3.0
Condenser FLA 40°C	1.0	2.0	2.0	3.0	3.0	3.0
Condenser FLA 45°C	1.0	2.0	3.0	4.0	4.0	4.0
Condenser FLA 50°C	2.0	3.0	3.0	4.0	6.0	8.0

**Notes**

1. FLA = Full Load Amps.
2. Unit maximum FLA is the total of the components, which operate during maximum electrical load conditions. For units with humidifier & electric reheat the maximum FLA would be in dehumidification mode ie. cooling + reheat or in cooling and humidification mode ie. cooling + humidifier.
3. In dehumidification mode, calculate the max FLA based on 1x compressor FLA as only 1x compressor operates in this mode.
4. In cooling and humidification mode, calculate the max FLA based on dual compressor FLA as both compressors and the humidifier operate in this mode.
5. For all models 2 no. condensers are required, 1 per refrigerant circuit.
6. For compressor & condenser FLA, tabulated values are per component.

**ELECTRICAL DETAILS**

**Chilled Water Models - Standard**

<b>Model</b>	<b>064/6</b>	<b>084/6</b>	<b>124/6</b>	<b>164/6</b>	<b>204/6</b>	<b>244/6</b>	<b>284/6</b>	<b>324/6</b>
<b>400V/3PH/50Hz</b>								
EC Fans FLA	4.0	4.1	5.5	9.8	8.4	12.6	12.6	16.5
Reheat FLA	13.9	21.7	21.7	35.9	35.9	35.9	35.9	35.9
Humidifier FLA	3.2	8.4	8.4	8.4	8.4	8.4	8.4	8.4
Max Unit FLA - Cool only	4.0	4.1	5.5	9.8	8.4	12.6	12.6	16.5
Max Unit FLA - Cool & Dehumidify	17.9	25.8	27.2	45.7	44.3	48.5	48.5	52.4
Max Unit FLA - Heat & Humidify	21.1	34.2	35.6	54.1	52.7	56.9	56.9	60.8
<b>220V/3PH/60Hz</b>								
EC Fans FLA	7.3	7.5	10.0	17.8	15.2	22.8	22.8	30.0
Reheat FLA	25.3	39.5	39.5	65.3	65.3	65.3	65.3	65.3
Humidifier FLA	5.8	15.3	15.3	15.3	15.3	15.3	15.3	15.3
Max Unit FLA - Cool only	7.3	9.5	10.0	17.8	15.2	22.8	22.8	30.0
Max Unit FLA - Cool & Dehumidify	32.6	47.0	49.5	83.1	80.5	88.1	88.1	95.3
Max Unit FLA - Heat & Humidify	38.4	62.3	64.8	98.4	95.8	103.4	103.4	110.6
<b>380V/3PH/60Hz</b>								
EC Fans FLA	4.2	4.3	5.8	10.2	8.8	13.2	13.2	17.4
Reheat FLA	14.6	22.8	22.8	37.7	37.7	37.7	37.7	37.7
Humidifier FLA	3.4	8.8	8.8	8.8	8.8	8.8	8.8	8.8
Max Unit FLA - Cool only	4.2	4.3	5.8	10.2	8.8	13.2	13.2	17.4
Max Unit FLA - Cool & Dehumidify	18.8	27.1	28.6	47.9	46.5	50.9	50.9	55.1
Max Unit FLA - Heat & Humidify	22.2	35.9	37.4	56.7	55.3	59.7	61.7	63.9
<b>460V/3PH/60Hz</b>								
EC Fans FLA	3.5	3.6	4.8	8.6	7.4	11.1	11.1	14.4
Reheat FLA	12.1	18.9	18.9	31.2	31.2	31.2	31.2	31.2
Humidifier FLA	2.8	7.3	7.3	7.3	7.3	7.3	7.3	7.3
Max Unit FLA - Cool only	3.5	3.6	4.8	8.6	7.4	11.1	11.1	14.4
Max Unit FLA - Cool & Dehumidify	15.6	22.5	23.7	39.8	38.6	42.3	42.3	45.6
Max Unit FLA - Heat & Humidify	18.4	29.8	31.0	47.1	45.8	49.6	49.6	52.9

**Notes:**

1. FLA = Full Load Amps.
2. Unit maximum FLA is the total of the components, which operate during maximum electrical load conditions.
3. Max FLA of cooling only unit : FLA = Controls + Fans.
4. Max FLA of unit with reheat in dehumidification : FLA = Controls + Fans + Reheat.
5. Max FLA of unit with heating & humidifiers : FLA = Controls + Fans + Reheat + Humidifier.

**ELECTRICAL DETAILS**

**Chilled Water Models – Fan Under Floor**

<b>Model</b>	<b>204/6</b>	<b>244/6</b>	<b>284/6</b>	<b>324/6</b>
<b>400V/3PH/50Hz</b>				
EC Fans FLA	5.5	4.2	4.2	5.5
Reheat FLA	35.9	35.9	35.9	35.9
Humidifier FLA	8.4	8.4	8.4	8.4
Max Unit FLA - Cool only	5.5	4.2	4.2	5.5
Max Unit FLA - Cool & Dehumidify	41.4	40.1	40.1	41.4
Max Unit FLA - Heat & Humidify	49.8	48.5	48.5	49.8
<b>220V/3PH/60Hz</b>				
EC Fans FLA	10.0	7.6	7.6	10.0
Reheat FLA	65.3	65.3	65.3	65.3
Humidifier FLA	15.3	15.3	15.3	15.3
Max Unit FLA - Cool only	10.0	7.6	7.6	10.0
Max Unit FLA - Cool & Dehumidify	75.3	72.9	72.9	75.3
Max Unit FLA - Heat & Humidify	90.6	88.2	88.2	90.6
<b>380V/3PH/60Hz</b>				
EC Fans FLA	5.8	4.4	4.4	5.8
Reheat FLA	37.7	37.7	37.7	37.7
Humidifier FLA	8.8	8.8	8.8	8.8
Max Unit FLA - Cool only	5.8	4.4	4.4	5.8
Max Unit FLA - Cool & Dehumidify	43.5	42.1	42.1	43.5
Max Unit FLA - Heat & Humidify	52.3	50.9	50.9	52.3
<b>460V/3PH/60Hz</b>				
EC Fans FLA	4.8	3.7	3.7	4.8
Reheat FLA	31.2	31.2	31.2	31.2
Humidifier FLA	7.3	7.3	7.3	7.3
Max Unit FLA - Cool only	4.8	3.7	3.7	4.8
Max Unit FLA - Cool & Dehumidify	36.0	34.9	34.9	36.0
Max Unit FLA - Heat & Humidify	43.3	42.2	42.2	43.3

**Notes:**

1. FLA = Full Load Amps.
2. Unit maximum FLA is the total of the components, which operate during maximum electrical load conditions.
3. Max FLA of cooling only unit : FLA = Controls + Fans.
4. Max FLA of unit with reheat in dehumidification : FLA = Controls + Fans + Reheat.
5. Max FLA of unit with heating & humidifiers : FLA = Controls + Fans + Reheat + Humidifier.