



Close Control Modular Range



Engineering Data Manual 50/60Hz

Index

Description	Page
YORK Company Profile	3
This Product Range	3
Other YORK Close Control Product Ranges	3
Equipment Nomenclature	4
Indoor Unit Dimensions and Weights	4
Condenser Data	5
Drycooler Data	6
Guide Specifications	7
General Engineering Details	11
Air Cooled Unit Schematic	12
Water Cooled Unit Schematic	13
Glycol & ECX Cooled Unit Schematic	14
Chilled Water Cooled Unit Schematic	15
Air Cooled Units - Cooling Capacities 50Hz	16
Water Cooled Units - Cooling Capacities 50Hz	17
Glycol Cooled Units - Cooling Capacities 50Hz	18
Air Cooled Units - Cooling Capacities 60Hz	19
Water Cooled Units - Cooling Capacities 60Hz	20
Glycol Cooled Units - Cooling Capacities 60Hz	21
ECX Freecooling Units - Cooling Capacities 50/60Hz	22
Chilled Water Cooled Units - Cooling Capacities 50/60Hz	23
Electrical Details - 400V/ 3Ph / 50Hz	24
Electrical Details - 220V/ 3Ph / 60Hz	25
Electrical Details - 380V/ 3Ph / 60Hz	28
Electrical Details - 460V/ 3Ph / 60Hz	30

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

YORK COMPANY PROFILE

YORK – a Johnson Controls company, designs, manufactures, sells and services: heating and air conditioning systems and compressors for residential, commercial and industrial markets, gas compression equipment for industrial processing, industrial and commercial refrigeration equipment.

The company manufactures a wide range of air conditioning products including fan coil units, close control units, under-floor air distribution systems, telecom shelter units, variable air volume systems, air handling units, mini split systems, packaged air conditioners, roof top units, water cooled and air cooled chillers, heat pumps and absorption chillers. We also manufacture a variety of compressors including hermetic, scroll, reciprocating, screw and centrifugal types.

YORK products are installed in nuclear submarines operating deep in the ocean and in South African gold mines in the depth of the earth. Eurotunnel, which has the world's largest chilled water system, is served by YORK chillers as does the world's tallest building the twin tower Petronas complex in Malaysia.

Other notable global installations are the Sydney Opera House, Charles de Gaulle and Jeddah Airports, most of the commercial buildings dominating the Hong Kong skyline, the Islamic University in Riyadh, the UK Houses of Parliament, the Kremlin, the United States Capitol and the Pentagon in Washington DC, the Eiffel Tower restaurant and the Prophets Mosque in Medina: all these and numerous installations world-wide. In our own way YORK influences the weather by providing snow on demand at the world's major ski resorts.

THIS PRODUCT RANGE

CLOSE CONTROL MODULAR UNITS

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. This allows for quick and simple room upgrades with minimum disruption. Units are available in Upflow and Downflow configurations with top, bottom, front and rear return options. Cooling media available are direct expansion using air or water/glycol and chilled water. An additional ECX free cooling coil can be provided on direct expansion type units. This ECX coil will result in significant energy saving by providing free cooling in low outdoor ambient conditions with greatly reduced compressor run time. As standard the Modular Range Units are equipped with: Scroll Compressors, Electrode Steam Boiler Humidifiers, Stainless Steel Tubular Finned Electric Reheat, EU4 Filtration, Belt Driven forward curved Centrifugal Fans, R407C Refrigerant and the latest Delta range of microprocessor controllers which can interface with most BMS/BAS Systems.

OTHER YORK CLOSE CONTROL PRODUCT RANGES

CLOSE CONTROL AIR COOLED TWIN CIRCUIT UNITS

The Close Control Twin Circuit range comprises 3 sizes providing nominal capacities of 30, 40, 50, 60, 70 & 80 in 10kW increments. Units are twin circuit in a single frame and are available in Upflow and Downflow configurations. Cooling is by air cooled direct expansion only.

CLOSE CONTROL PLUG FAN UNITS

The Close Control Plug Fan range comprises 3 sizes providing nominal capacities of 15-100kW in 8 models in the Chilled Water version and 15-80kW in 7 models in the DX version.

DCS / FCS CHILLED WATER UNITS

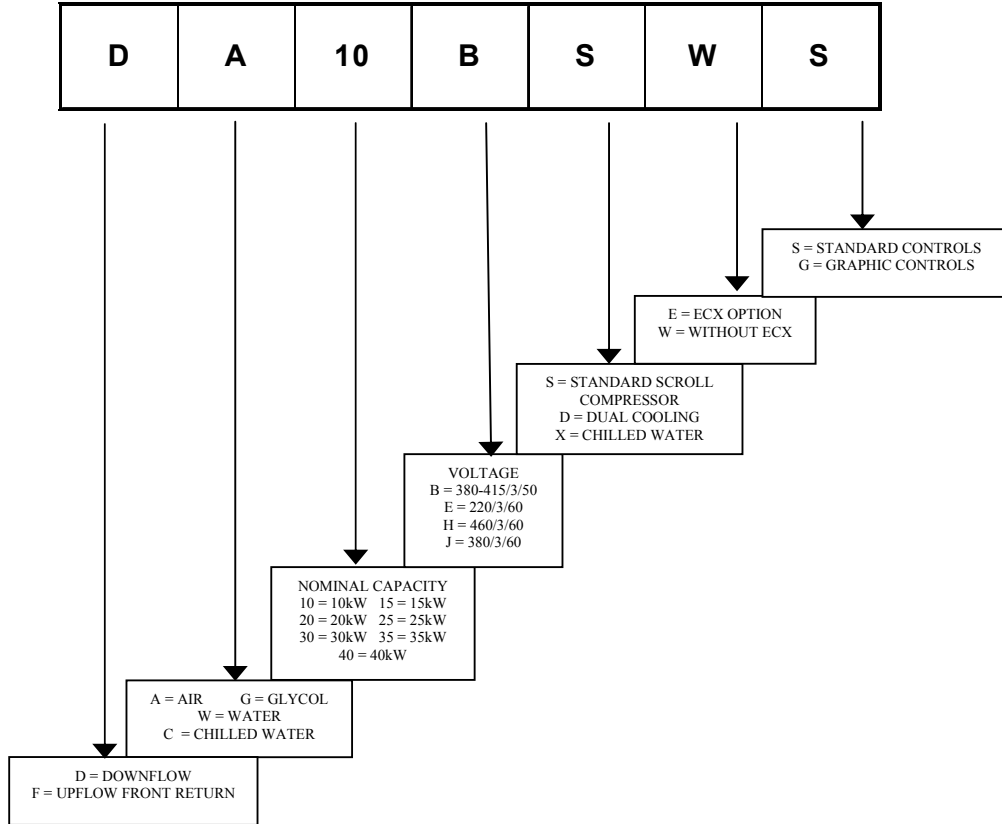
The DCS / FCS range of Close Control Chilled Water units comprises 3 sizes providing nominal capacities of 60, 80 & 100kW. Units are available in Upflow and Downflow configurations.

TELECOM SHELTER UNITS

The Telecom Shelter Unit is designed for the demanding conditions typical of communication and electronic equipment shelters. The range of units is available with nominal cooling capacities from 1 to 5 Ton.

EQUIPMENT NOMENCLATURE

The Close Control Modular range of equipment is comprised of single and twin circuit units in modular format with cooling capacities from 10 - 80kW. Units are available in Air, Water, Glycol, ECX and Chilled Water versions and are supplied with matching Air Cooled Condensers and Drycoolers to match your local ambient conditions. Condensers and Drycoolers in this manual are selected for 30°C, 35°C, 40°C & 45°C ambients. For other conditions please refer to your local distributor or the EDPAC Applications Engineering. The equipment nomenclature for a single circuit unit is as below. Duplex or Twin Circuit units have an extra module indicated, for e.g.: DA10/10 BSWS is a 20kW Twin Circuit Air Cooled Unit.



MODULAR RANGE DIMENSIONS AND WEIGHTS

MODULAR RANGE UNITS

Dimensions (mm)

Model	10	15	20	25	30	35	40
W x D x 1980H	775 x 775	775 x 775	1208 x 775	1208 x 775	1308 x 775	1308 x 775	1500 x 775
Model	10/10	15/15	20/20	25/25	30/30	35/35	40/40
W x D x 1980H	1550 x 775	1550 x 775	2416 x 775	2416 x 775	2616 x 775	2616 x 775	3000 x 775

Weight (kgs)

Model	10	15	20	25	30	35	40
Air Cooled	340	340	405	405	470	470	610
Water/Glycol Cooled	360	360	425	425	490	490	630
Chilled Water	280	280	325	325	370	370	480
Model	10/10	15/15	20/20	25/25	30/30	35/35	40/40
Air Cooled	680	680	810	810	940	940	1220
Water/Glycol Cooled	720	720	850	850	980	980	1260
Chilled Water	560	560	650	650	740	740	960

CONDENSERS - DIMENSIONS AND WEIGHTS

30 °C Ambient Selection

Model	10	15	20	25	30	35	40
Condenser Model x 1	ACS 401B	ACS 402A	ACS 402A	ACS 403A	ACS 403B	ACS 403B	ACS 502A
Condenser Input Power, kW	0.2	0.4	0.4	0.6	0.6	0.6	1.6
Freefield SPL @ 10m dBA	45	48	48	50	50	50	56
Model	10/10	15/15	20/20	25/25	30/30	35/35	40/40
Condenser Model x 2	ACS 401B	ACS 402A	ACS 402A	ACS 403A	ACS 403B	ACS 403B	ACS 502A
Condenser Input Power, kW	0.4	0.8	0.8	1.2	1.2	1.2	3.2
Freefield SPL @ 10m dBA	48	51	51	53	53	53	59
Dimensions W x D (mm)	780x555	1380x555	1380x555	1980x555	1980x555	1980x555	2042x828
Weight (Kgs) 1No. / 2No.	20 / 40	30 / 60	30 / 60	45 / 90	49 / 98	49 / 98	91 / 182

35 °C Ambient Selection

Model	10	15	20	25	30	35	40
Condenser Model x 1	ACS 402A	ACS 402A	ACS 403A	ACS 403B	ACS 502A	ACS 502A	ACS 502B
Condenser Input Power, kW	0.4	0.4	0.6	0.6	1.6	1.6	1.6
Freefield SPL @ 10m dBA	48	48	50	50	56	56	56
Model	10/10	15/15	20/20	25/25	30/30	35/35	40/40
Condenser Model x 2	ACS 402A	ACS 402A	ACS 403A	ACS 403B	ACS 502A	ACS 502A	ACS 502B
Condenser Input Power, kW	0.8	0.8	1.2	1.2	3.2	3.2	3.2
Freefield SPL @ 10m dBA	51	51	53	53	59	59	59
Dimensions W x D (mm)	1380x555	1380x555	1980x555	1980x555	2042x828	2042x828	2042x828
Weight (Kgs) 1No. / 2No.	30 / 60	30 / 60	45 / 90	49 / 98	91 / 182	91 / 182	99 / 198

40 °C Ambient Selection

Model	10	15	20	25	30	35	40
Condenser Model x 1	ACS 402A	ACS 403A	ACS 403B	ACS 502A	ACS 502B	ACS 502C	ACS 503A
Condenser Input Power, kW	0.4	0.6	0.6	1.6	1.6	1.6	2.4
Freefield SPL @ 10m dBA	48	48	50	56	56	56	58
Model	10/10	15/15	20/20	25/25	30/30	35/35	40/40
Condenser Model x 2	ACS 402A	ACS 403A	ACS 403B	ACS 502A	ACS 502B	ACS 502C	ACS 503A
Condenser Input Power, kW	0.8	1.2	1.2	3.2	3.2	3.2	4.8
Freefield SPL @ 10m dBA	51	51	53	59	59	59	61
Dimensions W x D (mm)	1380x555	1380x555	1980x555	2042x828	2042x828	2042x828	2942x828
Weight (Kgs) 1No. / 2No.	30 / 60	33 / 66	49 / 98	91 / 182	99 / 198	107 / 214	118 / 236

45 °C Ambient Selection

Model	10	15	20	25	30	35	40
Condenser Model x 1	ACS 402B	ACS 403B	ACS 502A	ACS 502C	ACS 503A	ACS 503B	ACS 503C
Condenser Input Power, kW	0.4	0.6	1.6	1.6	2.4	2.4	2.4
Freefield SPL @ 10m dBA	48	50	56	56	58	58	58
Model	10/10	15/15	20/20	25/25	30/30	35/35	40/40
Condenser Model x 2	ACS 402A	ACS 403A	ACS 502A	ACS 502C	ACS 503A	ACS 503B	ACS 503C
Condenser Input Power, kW	0.8	1.2	3.2	3.2	4.8	4.8	4.8
Freefield SPL @ 10m dBA	51	53	59	59	61	61	61
Dimensions W x D (mm)	1380x555	1980x555	2042x828	2042x828	2942x828	2942x828	2942x828
Weight (Kgs) 1No. / 2No.	33 / 66	49 / 98	91 / 182	107 / 214	118 / 236	135 / 270	146 / 292

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 ACS 401 – 403 are 712mm high and Condenser models ACS 501 – 503 are 948mm high.

DRYCOOLERS - DIMENSIONS AND WEIGHTS

30 °C Ambient Selection

Model	10	15	20	25	30	35	40
Drycooler – Model	DCS 501A	DCS 502A	DCS 502A	DCS 502B	DCS 503A	DCS 503B	DCS 503C
Drycooler Input Power, kW	0.8	1.6	1.6	1.6	2.4	2.4	2.4
Dimensions W x D (mm)	1142x828	2042x828	2042x828	2042x828	2942x828	2942x828	2942x828
Weight (Kgs)	56	97	97	106	134	151	165
Model	10/10	15/15	20/20	25/25	30/30	35/35	40/40
Drycooler – Model	DCS 502A	DCS 503A	DCS 503C	DCS 632C	DCS 633B	DCS 633B	DCS 633C
Drycooler Input Power, kW	1.6	2.4	2.4	5.2	7.8	7.8	7.8
Dimensions W x D (mm)	2042x828	2042x828	2942x828	3177x1175	4427x1175	4427x1175	4427x1175
Weight (Kgs)	97	134	165	281	367	367	403

35 °C Ambient Selection

Model	10	15	20	25	30	35	40
Drycooler – Model	DCS 501A	DCS 502A	DCS 502A	DCS 502B	DCS 503A	DCS 632B	DCS 632B
Drycooler Input Power, kW	0.8	1.6	1.6	1.6	2.4	5.2	5.2
Dimensions W x D (mm)	1142x828	2042x828	2042x828	2042x828	2942x828	3177x1175	3177x1175
Weight (Kgs)	56	97	97	106	134	257	257
Model	10/10	15/15	20/20	25/25	30/30	35/35	40/40
Drycooler – Model	DCS 502A	DCS 503A	DCS 632B	DCS 632C	DCS 632B	DCS 632C	DCS 633C
Drycooler Input Power, kW	1.6	2.4	5.2	5.2	5.2	5.2	7.8
Dimensions W x D (mm)	2042x828	2942x828	3177x1175	3177x1175	3177x1175	3177x1175	4427x1175
Weight (Kgs)	97	134	257	281	257	281	403

40 °C Ambient Selection

Model	10	15	20	25	30	35	40
Drycooler – Model	DCS 502A	DCS 502A	DCS 502B	DCS 503A	DCS 503C	DCS 632B	DCS 632B
Drycooler Input Power, kW	1.6	1.6	1.6	2.4	2.4	5.2	5.2
Dimensions W x D (mm)	2042x828	2042x828	2042x828	2942x828	2942x828	3177x1175	3177x1175
Weight (Kgs)	97	97	99	118	146	257	257
Model	10/10	15/15	20/20	25/25	30/30	35/35	40/40
Drycooler – Model	DCS 502A	DCS 503C	DCS 632B	DCS 632C	DCS 633B	DCS 633C	DCS 634C
Drycooler Input Power, kW	1.6	2.4	5.2	5.2	7.8	7.8	10.4
Dimensions W x D (mm)	2042x828	2942x828	3177x1175	3177x1175	4427x1175	4427x1175	5677x1175
Weight (Kgs)	97	165	257	281	367	403	525

45 °C Ambient Selection

Model	10	15	20	25	30	35	40
Drycooler – Model	DCS 502B	DCS 502B	DCS 503A	DCS 632B	DCS 632B	DCS 632C	DCS 632C
Drycooler Input Power, kW	1.6	1.6	2.4	5.2	5.2	5.2	5.2
Dimensions W x D (mm)	2042x828	2042x828	2942x828	3177x1175	3177x1175	3177x1175	3177x1175
Weight (Kgs)	99	99	118	257	257	281	281
Model	10/10	15/15	20/20	25/25	30/30	35/35	40/40
Drycooler – Model	DCS 503A	DCS 632B	DCS 632C	DCS 633C	DCS 633C	DCS 634C	DCS 634C
Drycooler Input Power, kW	2.4	5.2	5.2	7.8	7.8	10.4	10.4
Dimensions W x D (mm)	2942x828	3177x1175	3177x1175	4427x1175	4427x1175	5677x1175	5677x1175
Weight (Kgs)	118	257	281	403	403	525	525

Notes

- Standard Drycoolers have 4 Pole motors. For 6 Pole & 8 Pole low noise versions, consult factory.
- All Drycoolers are shipped with mounting feet. When mounted in the horizontal, Drycooler models DCS 501 – 503 are 948mm high and Drycooler models DCS 632 - 364 are 1377mm high.
- Drycooler Freefield SPL @10m: 501A-C = 51dBA, 502A-C = 54dBA, 503A-C = 56dBA, 632A-C = 62dBA, 633A-C = 64dBA, 634A-C = 65dBA

STANDARD FEATURES

Modular Construction

Units are manufactured in a modular format. Each module comprises one cooling circuit. Duplex or twin circuit units are shipped as two modules.

Cabinet

The cabinet frames shall be constructed of formed 2.0mm 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 1.2mm 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, 7 & UL 94. The units shall be fully accessible and serviceable from the front.

Cooling Coil

The cooling coils shall be multi-row constructed from 3/8" O/D 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. All DX coils shall be tested to 25 Bar and all water coils shall be tested to 10 Bar.

DX Units

Modules shall have independent refrigerant circuits, each with a liquid distributor, expansion valve, solenoid valve, sight glass and filter drier. Pumpdown is standard on air cooled units.

Chilled Water Units

Units shall be fitted with a 3 way modulating valve having manual over-ride facility. A regulating device is provided in the bypass line for balancing purposes.

Fans

Large, low speed, double inlet, double width fans with forward curved impellers and "sealed for life" self aligning bearings shall be used to minimise noise levels. Fans are belt driven. Each module to have its own fan, and each fan to have its own TEFC motor. The motor shall be IP54 rated and insulated to Class F.

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 thermostat shall be mounted in the airstream and resettable from the control section of the electrical panel. Electric reheat is always fitted in the Master module of a Duplex or Twin Circuit Unit.

Filtration

The filters shall have an atmospheric dust spot efficiency of 30 - 40% in accordance with Ashrae 52/76. This equates to a Eurovent 4/5 rating of EU4/G4. They shall be fitted in the return air stream and be accessible from the front of an Upflow unit and the top of a Downflow unit.

Compressors

Compressors shall be high efficiency hermetically sealed scroll type. Back seating service isolating valves, 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.

Water Cooled Condensers

The condensers in Water Cooled & Glycol Cooled Units shall be compact brazed plate heat exchangers having a multiplicity of parallel stainless steel pressed plates. The construction shall give high turbulent flows resulting in a compact heat exchanger form with low-pressure drops. The refrigerant head pressure shall be controlled by a 2 port pressure operated water regulating valve.

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. The humidifier is always fitted in the Master module of a Duplex or Twin Circuit Unit.

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.

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. On multi unit sites, this quickens unit commissioning. The software can also easily be changed or upgraded on site by qualified service personnel. The Microprocessor also has optional built in Modbus & Bacnet communications and full Windows networking capability. When communicating in Modbus or Bacnet, the protocol converter is in the software & there is no need for external Gateways.

The User Interface is complete with LCD Display, keypad and LED Indicators allowing the user to easily set the main control parameters (setpoints, differentials and alarm thresholds) and carry out the main working operations (on/off and displaying controlled variables). The User Interface Terminal also performs the following functions:

- Initial programming procedure with access protected by a password.
- Possibility of changing the basic operation parameters any time, without stopping the program.
- Indication of any alarm condition via audible and visual signals (buzzer sounds and alarm messages appear on the display).
- Visualisation of the active functions by means of LED indicators.
- Visualisation of the measured variables.

OPTIONAL FEATURES

Delta Graphical Controls

An optional Graphical Terminal Unit is also available. This is a graphical display, LED Backlit with 128 x 64 pixel graphical resolution. This graphical screen allows:

- Configurability of character fonts to represent any alphabet type (Chinese, Arabic etc.).
- Creation of graphic objects for more vivid alarm visualisation.
- Display of graphical trends of temperature and humidity.

ECX Freecooling

The ECX Freecooling option is available on Glycol Cooled Units. It consists of an additional fluid coil piped in series with the Glycol plate heat exchanger. This coil acts as a precooling stage when the Glycol temperature is 7°C less than the room temperature setpoint thus taking advantage of freecooling available due to the low glycol temperature. ECX Freecooling can operate together with compressorised cooling for maximum efficiency.

Dual Cooling

Both Air Cooled Units and Water/Glycol Cooled units can be manufactured as dual cooled units with the addition of a chilled water coil. Consult factory for details.

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. Scoops are also available as an option with the floorstand. Floorstands and scoops are painted and finished to match the unit colour.

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.

High Efficiency Filters

Higher specification filtration can be provided in addition to the EU4/G4 filters. These filters are of the rigid bag type and have an efficiency of 80% ASHRAE 52/76 (Eurovent EU7/F7). These filters are fitted in the return air side of the unit on a Downflow type and on the supply air side of the unit on an Upflow type.

Fresh Air Kit and Filter

Units can be supplied with a fresh air inlet connection and disposable EU4/G4 filter element. This will admit approximately 3-5% of the recirculated air volume. On Twin Circuit Units a filter is fitted in each module.

Special Colours

Special Colours must be specified when placing orders (quote BS or RAL number or other if known).

Double Skin Panels

To reduce the casing radiated "Break Out Noise", these panels consist of an inner solid steel sheet. The inner skins are painted and finished in unit colour.

Fire/Smoke Detector

A fire/smoke detector can be mounted in the return air path to interface with the unit controls and generate an alarm.

Firestat

A firestat can be located in the return air path within the unit to interface with the unit controls and indicate an alarm.

Hot Water Reheat

Units may be fitted with a Low Pressure Hot Water (LPHW) heating coil in place of the standard electric resistance heating. Water flow through the coil is controlled by a 2 or 3 way on/off 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.

Hot Gas Reheat

The hot gas reheat system is an aluminium fin copper tube heat exchanger, which uses the heat normally rejected in the condenser as reheat during dehumidification thereby eliminating the electrical reheat requirements.

Upsized Fan Motors

For applications where fan power requirements exceed the capacity of the standard motors, an upsized motor can be fitted. Standard unit ESP is 75 Pa. Units can normally be upgraded to 300 Pa. In these instances please consult the factory.

Water Detection

A Water Sensor Module is connected to the Unit Microprocessor Control System and supplied with 10m of cable for underfloor water detection. When water is detected the Unit's alarm system is activated.

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). For units fitted with humidifiers or units requiring a lift in excess of 6m equivalent head, a larger capacity sump pump is available (pump duty is 6 l/min Vs 10 m head).

Top Entry Pipework

The unit pipework can be modified to allow entry/connection of services through the top of the unit.

Hot Gas By-Pass

Air, Water and Glycol models can be fitted with hot gas by-pass compressor capacity control. This consists of a hot gas control valve in the by-pass line between the discharge line of the compressor and the evaporator coil inlet, with the sensing line fitted in the suction line.

Twin Belts

Twin grooved pulleys and belts giving a fixed speed can be provided for each fan/motor.

Reverse Fan Deck

For applications where the air should be discharged "backward" from the unit, the fan deck can be reversed to ease the airflow pattern and reduce pressure drop.

Condenser 3-Way Water Regulating Valves

These valves can be fitted to Water and Glycol Cooled units instead of the standard 2-way condenser water regulating valves.

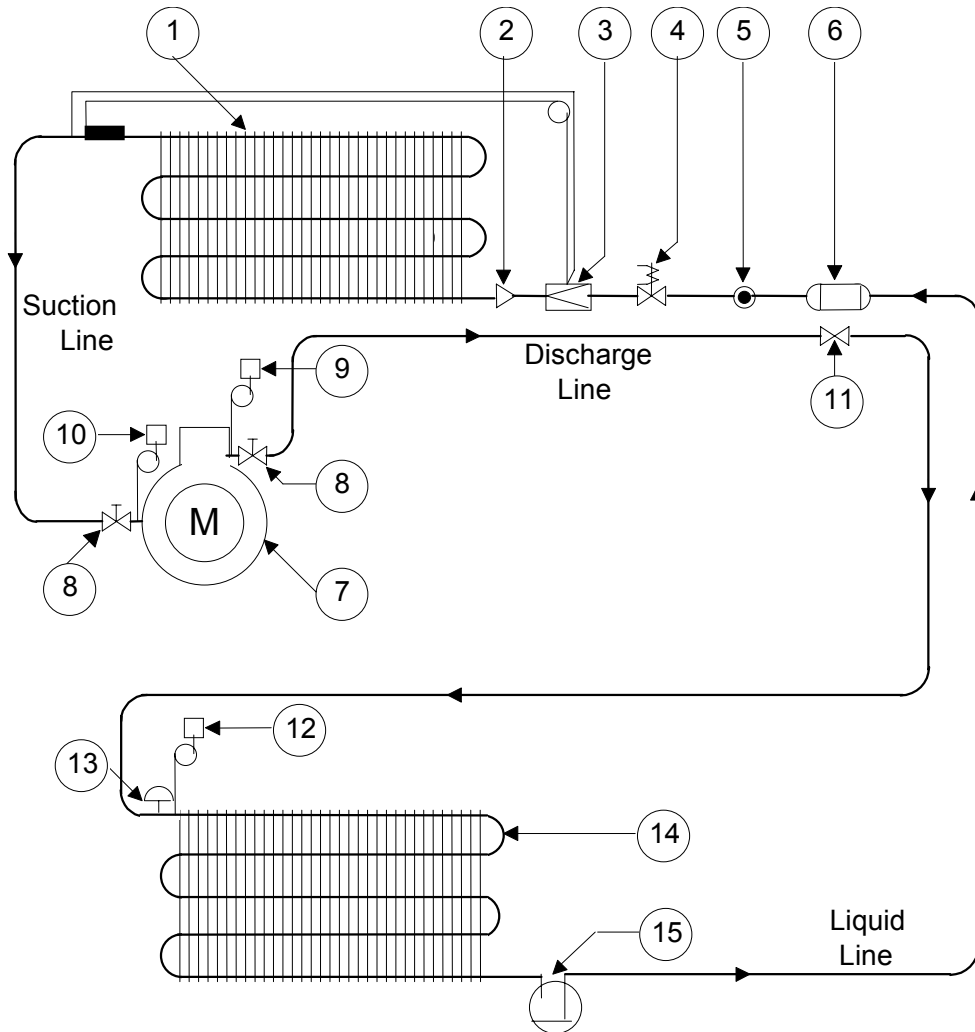
GENERAL ENGINEERING DETAILS

Downflow or Upflow Module								
Module Size		10	15	20	25	30	35	40
All Heat Reject Types								
Coil Data								
Coil Face Area - DX	m ²	0.60	0.60	0.82	0.82	1.10	1.10	1.34
Coil Face Area – C.Water & ECX	m ²	0.60	0.60	0.82	0.82	1.10	1.10	1.34
Rows	-	4	4	4	4	4	4	4
Coil Drain Connection	BSPF	¾"	¾"	¾"	¾"	¾"	¾"	¾"
Air Side Data								
No. of Fans	-	1	1	1	1	1	1	1
Air Volume	m ³ /s	0.83	1.25	1.67	2.08	2.50	2.92	3.33
	m ³ /hr	3000	4500	6000	7500	9000	10500	12000
External Static Pressure ESP	Pa	75	75	75	75	75	75	75
Fan Motor	kW	0.75	1.10	1.50	2.20	2.20	3.00	4.00
Filter Data								
Downflow Filter Size Code	-	1	1	2	2	3	3	1
Downflow Filter Quantity	No.	2	2	4	4	4	4	4
Upflow Filter Size Code	-	1	1	2	2	3	3	4
Upflow Filter Quantity	No.	1	1	2	2	2	2	2
Humidifier Data								
Inlet Connection	BSPM	¾"	¾"	¾"	¾"	¾"	¾"	¾"
Drain Connection	BSPF	¾"	¾"	¾"	¾"	¾"	¾"	¾"
Water Feed Pressure	bar	1-10	1-10	1-10	1-10	1-10	1-10	1-10
French Degrees Water Hardness	-	15-30	15-30	15-30	15-30	15-30	15-30	15-30
Noise Data								
Freefield SPL	dBA	53	55	54	56	55	56	55
Air Cooled Units								
Discharge Connection Size	inch	5/8"	5/8"	7/8"	7/8"	7/8"	7/8"	1 1/8"
Liquid Connection Size	inch	1/2"	1/2"	1/2"	5/8"	5/8"	5/8"	5/8"
Condenser Conns. Inlet/Outlet 30 °C	mm	14/12	20/18	20/18	24/22	28/22	28/22	35/28
Condenser Conns. Inlet/Outlet 35 °C	mm	20/18	20/18	24/22	28/22	35/28	35/28	35/28
Condenser Conns. Inlet/Outlet 40 °C	mm	20/18	24/22	28/22	35/28	35/28	35/28	42/35
Condenser Conns. Inlet/Outlet 45 °C	mm	22/20	28/22	25/28	35/28	42/35	42/35	42/35
Scroll Compressor - 50Hz	-	ZR48K	ZR72K	ZR90K	ZR11M	ZR12M	ZR16M	ZR19M
Scroll Compressor - 60Hz	-	ZR40K	ZR61K	ZR81K	ZR90K	ZR11M	ZR12M	ZR16M
Water, Glycol & ECX Cooled								
Condenser Water F&R Pipe Size	BSPM	1"	1"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"
Drycooler Conns. Inlet/Outlet 30 °C	BSPM	1"	1 1/4"	1 1/4"	1 1/2"	1 1/2"	2"	2"
Drycooler Conns. Inlet/Outlet 35 °C	BSPM	1"	1 1/4"	1 1/4"	1 1/2"	1 1/2"	1 1/2"	1 1/2"
Drycooler Conns. Inlet/Outlet 40 °C	BSPM	1 1/4"	1 1/4"	1 1/2"	1 1/2"	2"	1 1/2"	1 1/2"
Drycooler Conns. Inlet/Outlet 45 °C	BSPM	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"
Scroll Compressor - 50Hz	-	ZR48K	ZR72K	ZR90K	ZR11M	ZR12M	ZR16M	ZR19M
Scroll Compressor - 60Hz	-	ZR40K	ZR61K	ZR81K	ZR90K	ZR11M	ZR12M	ZR16M
Chilled Water Cooled								
Chilled Water F&R Pipe Size	BSPM	1"	1"	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1 1/4"
Control Valve Size	mm	25	25	25	25	32	32	32
Control Valve Kv	-	6.3	6.3	10.0	10.0	16.0	16.0	16.0

Notes

- Indoor unit Freefield SPL dBA levels are measured at 3m. For Duplex or Twin Circuit Units add 3dBA.
- Data is for one module only. For Duplex or Twin Circuit Units, the data must be multiplied accordingly.
- Downflow Filter Size Code: 1 = 495mm x 695mm, 2 = 495mm x 572mm, 3 = 495mm x 622mm.
- Upflow Filter Size Code: 1 = 775mm x 460mm, 2 = 775mm x 448mm, 3 = 775mm x 498 & 4 = 775mm x 590mm.
- All filters are 100mm thick and have an efficiency rating of G4 in accordance with EU Standard EN779.
- Water feed electrical conductivity for the humidifier should be in the range of 400-800 micro siemens.
- For Drycooler connection inlet/outlet sizes for Duplex or Twin Circuit Units, refer to Drycooler Drawing or factory.
- For correct installation pipe sizes refer to Refrigerant & Water pipe sizing tables.

AIR COOLED SYSTEM SCHEMATIC



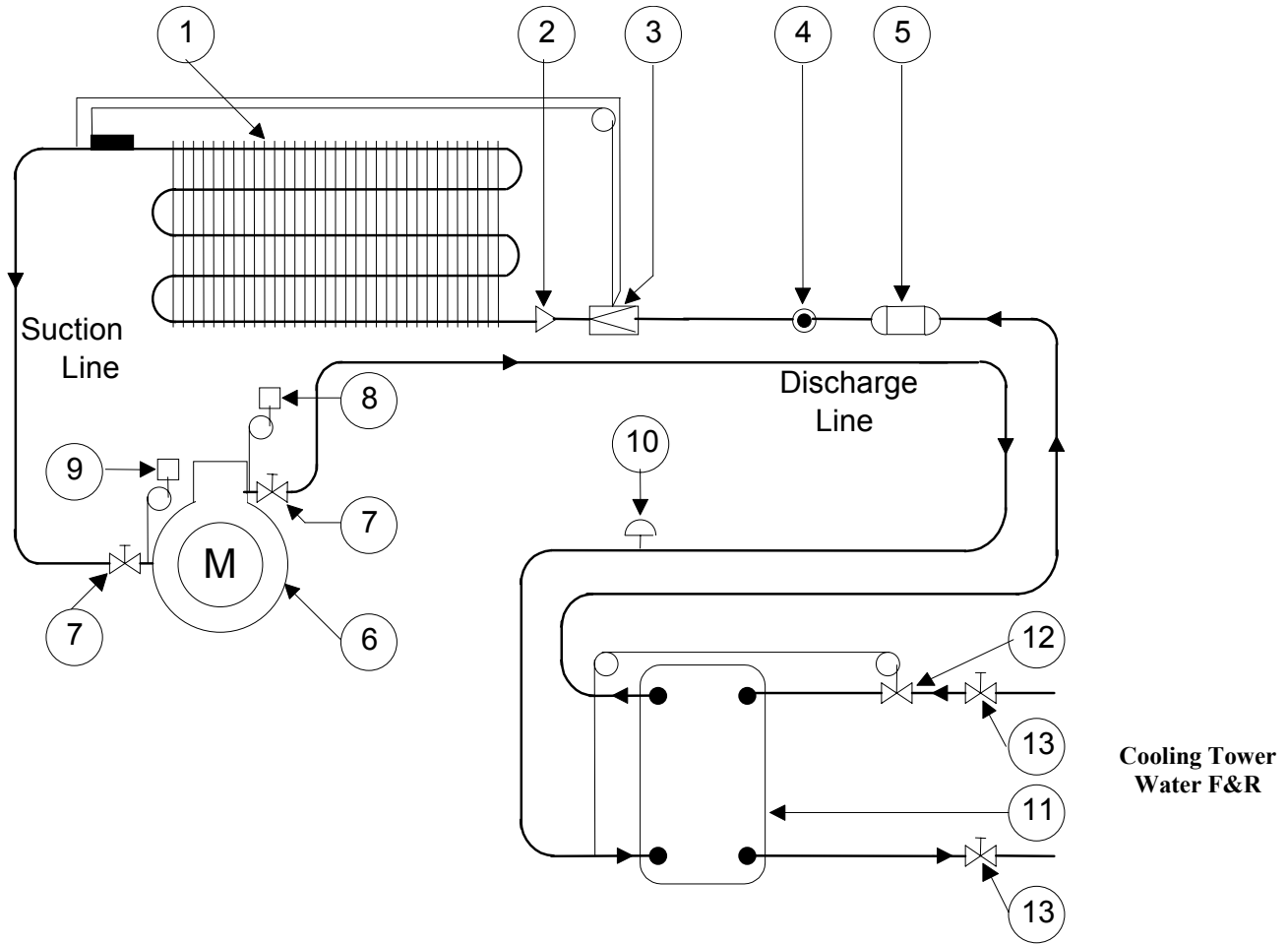
System Components

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:

1. Items 11, 13 and 15 are supplied by others and field fitted by others.

WATER COOLED SYSTEM SCHEMATIC



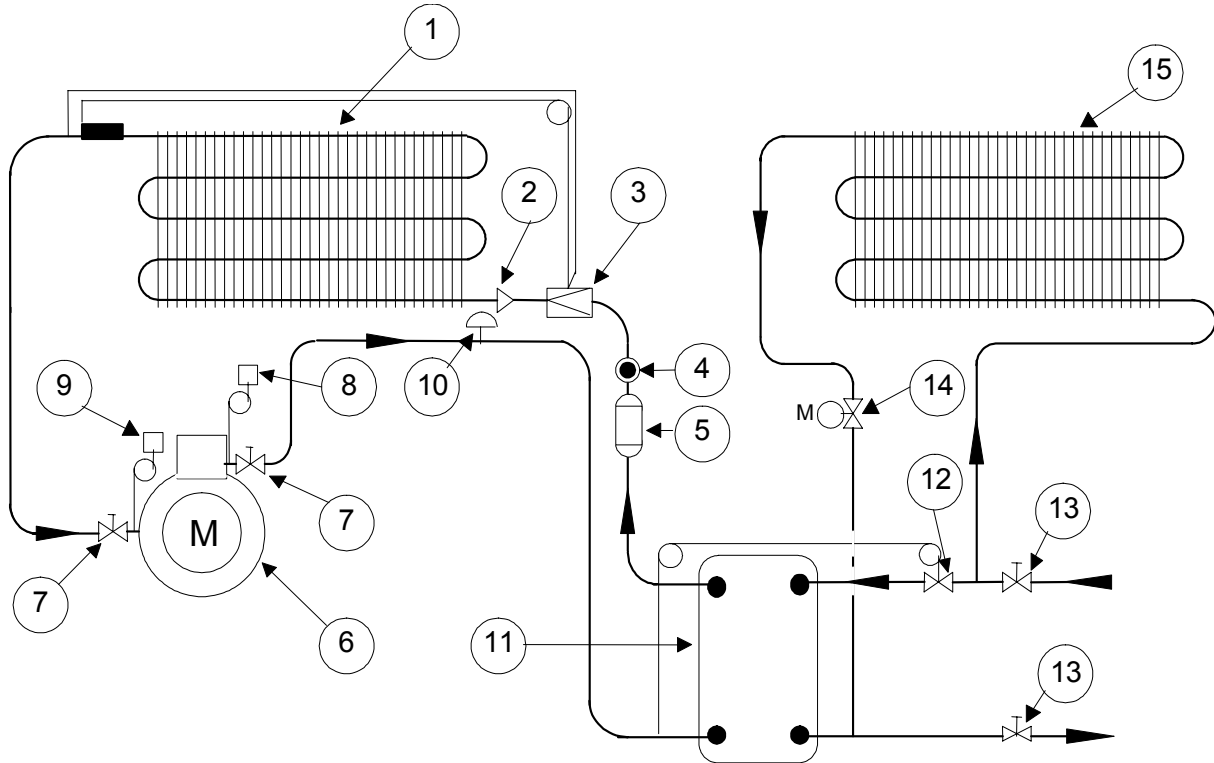
System Components

1. Evaporator Coil.
2. Liquid Distributor.
3. Thermostatic Expansion Valve (externally equalised).
4. Liquid Sight Glass (including moisture indicator).
5. Filter Drier.
6. Compressor.
7. Compressor Service Valves.
8. High Pressure Switch (manual reset).
9. Low Pressure Switch (automatic reset).
10. Pressure Relief Valve.
11. Plate Heat Exchanger.
12. Water Regulating Valve.
13. Isolating Valves.

Note:

1. Item 13 is field fitted by others.

GLYCOL COOLED AND ECX FREECOOLING SYSTEM SCHEMATIC



System Components

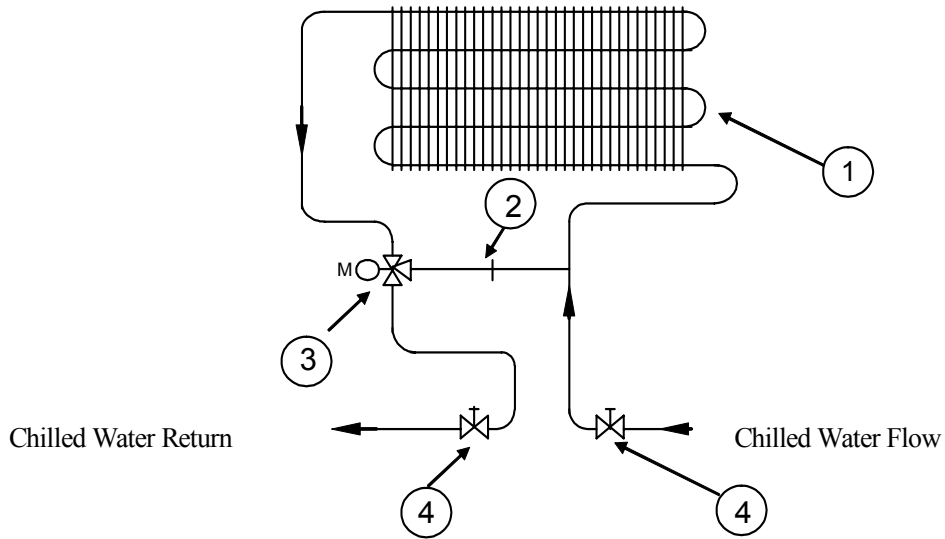
1. Evaporator Coil.
2. Liquid Distributor.
3. Thermostatic Expansion Valve (externally equalised).
4. Liquid Sight Glass (including moisture indicator).
5. Filter Drier.
6. Compressor.
7. Compressor Service Valves.
8. High Pressure Switch (manual reset).
9. Low Pressure Switch (automatic reset).
10. Pressure Relief Valve.
11. Plate Heat Exchanger.
12. Water Regulating Valve.
13. Isolating Valves.
14. Freecooling Valve.
15. Freecooling Coil.

Note:

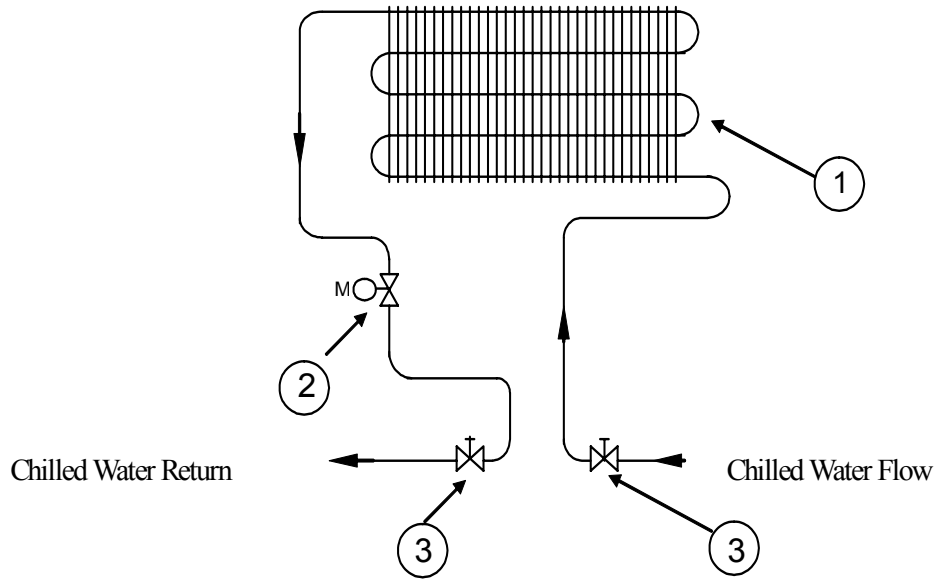
1. Item 13 is field fitted by others.
2. Items 14 & 15 on "ECX Freecooling" option only.

CHILLED WATER SYSTEM SCHEMATIC

3 Way Valve System



2 Way Valve System



System Components

	3 Way Valve System	2 Way Valve System
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

Model: DA / FA		10	15	20	25	30	35	40
Air On: 22°C, 50% RH								
Total Capacity	kW	11.3	15.4	19.9	24.4	28.8	32.6	40.1
Sensible Capacity	kW	10.5	14.7	19.3	23.9	28.8	31.9	38.4
Air On: 24°C, 50% RH								
Total Capacity	kW	11.9	16.2	20.9	25.6	30.0	34.3	42.1
Sensible Capacity	kW	10.8	15.1	19.8	24.2	30.0	32.8	39.4
Scroll Compressor	-	ZR48K	ZR72K	ZR90K	ZR11M	ZR12M	ZR16M	ZR19M
Compressor Input Power	kW	3.4	4.9	6.3	7.6	8.6	10.8	13.0
Compressor Quantity	No.	1	1	1	1	1	1	1
Airflow	m ³ /s	0.83	1.25	1.67	2.08	2.50	2.92	3.33
No. of Fans	No.	1	1	1	1	1	1	1
Fan Motor	kW	0.75	1.10	1.50	2.20	2.20	3.00	4.00
No. of Motors	No.	1	1	1	1	1	1	1
Electric Reheat	kW	9.6	9.6	9.6	15.0	15.0	15.0	15.0
No. of Steps	No.	2	2	2	2	2	2	2
Humidifier Capacity	kg/hr	3.0	3.0	3.0	3.0	8.0	8.0	8.0
Humidifier Power	kW	2.2	2.2	2.2	2.2	5.8	5.8	5.8
Model: DA / FA								
		10/10	15/15	20/20	25/25	30/30	35/35	40/40
Air On: 22°C, 50% RH								
Total Capacity	kW	22.6	30.8	39.8	48.8	57.5	65.3	80.2
Sensible Capacity	kW	21.0	29.4	38.6	47.8	57.5	63.8	76.8
Air On: 24°C, 50% RH								
Total Capacity	kW	23.8	32.3	41.8	51.2	59.9	68.6	84.1
Sensible Capacity	kW	21.5	30.2	39.7	48.4	59.9	65.5	78.8
Scroll Compressor	-	ZR48K	ZR72K	ZR90K	ZR11M	ZR12M	ZR16M	ZR19M
Compressor Input Power	kW	3.4	4.9	6.3	7.6	8.6	10.8	13.0
Compressor Quantity	No.	2	2	2	2	2	2	2
Airflow	m ³ /s	1.66	2.50	3.34	4.16	5.00	5.84	6.66
No. of Fans	No.	2	2	2	2	2	2	2
Fan Motor	kW	0.75	1.10	1.50	2.20	2.20	3.00	4.00
No. of Motors	No.	2	2	2	2	2	2	2
Electric Reheat	kW	9.6	9.6	15.0	15.0	15.0	15.0	24.9
No. of Steps	No.	2	2	2	2	2	2	2
Humidifier Capacity	kg/hr	3.0	3.0	8.0	8.0	8.0	8.0	8.0
Humidifier Power	kW	2.2	2.2	5.8	5.8	5.8	5.8	5.8

Notes

1. Capacities are based on R407C refrigerant.
2. For capacities at other conditions, please refer to the Factory.
3. All units are R22 compatible. Please refer to the Factory for R22 selection.
4. Units are also available for R134A applications, please contact the factory.

WATER COOLED UNITS - COOLING CAPACITIES 50Hz

Model: DW / FW		10	15	20	25	30	35	40
Air On: 22°C, 50% RH								
Total Capacity	kW	11.5	16.0	20.0	23.8	29.3	33.0	42.6
Sensible Capacity	kW	10.6	15.0	19.4	23.3	28.4	32.0	39.4
Water Flow	l/s	0.5	0.6	0.8	1.0	1.12	1.4	1.8
Unit Pressure Drop	kPa	46	49	51	56	59	69	69
Air On: 24°C, 50% RH								
Total Capacity	kW	12.2	16.9	21.1	25.2	31.1	34.9	45.0
Sensible Capacity	kW	10.9	15.4	19.9	24.0	29.2	33.0	40.5
Water Flow	l/s	0.5	0.6	0.8	1.0	1.12	1.4	1.8
Unit Pressure Drop	kPa	46	49	51	56	59	69	69
Scroll Compressor	-	ZR48K	ZR72K	ZR90K	ZR11M	ZR12M	ZR16M	ZR19M
Compressor Input Power	kW	3.4	4.9	6.3	7.6	8.6	10.8	13.0
Compressor Quantity	No.	1	1	1	1	1	1	1
Airflow	m ³ /s	0.83	1.25	1.67	2.08	2.50	2.92	3.33
No. of Fans	No.	1	1	1	1	1	1	1
Fan Motor	kW	0.75	1.10	1.50	2.20	2.20	3.00	4.00
No. of Motors	No.	1	1	1	1	1	1	1
Electric Reheat	kW	9.6	9.6	9.6	15.0	15.0	15.0	15.0
No. of Steps	No.	2	2	2	2	2	2	2
Humidifier Capacity	kg/hr	3.0	3.0	3.0	3.0	8.0	8.0	8.0
Humidifier Power	kW	2.2	2.2	2.2	2.2	5.8	5.8	5.8
Model: DW / FW								
		10/10	15/15	20/20	25/25	30/30	35/35	40/40
Air On: 22°C, 50% RH								
Total Capacity	kW	23.0	32.0	40.0	47.6	58.6	66.0	85.2
Sensible Capacity	kW	21.2	29.9	38.7	46.6	56.8	64.1	78.8
Water Flow	l/s	1.0	1.3	1.6	1.9	2.2	2.9	3.5
Unit Pressure Drop	kPa	46	49	51	56	59	69	69
Air On: 24°C, 50% RH								
Total Capacity	kW	24.3	33.9	42.2	50.3	62.2	69.7	90.0
Sensible Capacity	kW	21.8	30.8	39.8	48.0	58.4	66.0	81.0
Water Flow	l/s	1.0	1.3	1.6	1.9	2.2	2.9	3.5
Unit Pressure Drop	kPa	46	49	51	56	59	69	69
Scroll Compressor	-	ZR48K	ZR72K	ZR90K	ZR11M	ZR12M	ZR16M	ZR19M
Compressor Input Power	kW	3.4	4.9	6.3	7.6	8.6	10.8	13.0
Compressor Quantity	No.	2	2	2	2	2	2	2
Airflow	m ³ /s	1.66	2.50	3.34	4.16	5.00	5.84	6.66
No. of Fans	No.	2	2	2	2	2	2	2
Fan Motor	kW	0.75	1.10	1.50	2.20	2.20	3.00	4.00
No. of Motors	No.	2	2	2	2	2	2	2
Electric Reheat	kW	9.6	9.6	15.0	15.0	15.0	15.0	24.9
No. of Steps	No.	2	2	2	2	2	2	2
Humidifier Capacity	kg/hr	3.0	3.0	8.0	8.0	8.0	8.0	8.0
Humidifier Power	kW	2.2	2.2	5.8	5.8	5.8	5.8	5.8

Notes

1. Capacities are based on R407C refrigerant.
2. For capacities at other conditions, please refer to the Factory.
3. All units are R22 compatible. Please refer to the Factory for R22 selection.
4. Units are also available for R134A applications, please contact the factory.

GLYCOL COOLED UNITS - COOLING CAPACITIES 50Hz

Model: DG / FG		10	15	20	25	30	35	40
Air On: 22°C, 50% RH								
Total Capacity	kW	10.8	15.7	20.1	23.0	27.7	32.1	40.1
Sensible Capacity	kW	10.3	14.6	18.8	21.1	25.7	29.5	38.4
Air On: 24°C, 50% RH								
Total Capacity	kW	11.3	16.4	20.9	24.0	28.9	33.3	42.0
Sensible Capacity	kW	10.5	15.2	19.3	21.7	26.4	30.6	39.4
Scroll Compressor	-	ZR48K	ZR72K	ZR90K	ZR11M	ZR12M	ZR16M	ZR19M
Compressor Input Power	kW	3.4	4.9	6.3	7.6	8.6	10.8	13.0
Compressor Quantity	No.	1	1	1	1	1	1	1
Airflow	m ³ /s	0.83	1.25	1.67	2.08	2.50	2.92	3.33
No. of Fans	No.	1	1	1	1	1	1	1
Fan Motor	kW	0.75	1.10	1.50	2.20	2.20	3.00	4.00
No. of Motors	No.	1	1	1	1	1	1	1
Electric Reheat	kW	9.6	9.6	9.6	15.0	15.0	15.0	15.0
No. of Steps	No.	2	2	2	2	2	2	2
Humidifier Capacity	kg/hr	3.0	3.0	3.0	3.0	8.0	8.0	8.0
Humidifier Power	kW	2.2	2.2	2.2	2.2	5.8	5.8	5.8
Glycol Flow (25%)	l/s	0.5	0.7	0.8	1.0	1.2	1.4	1.8
Unit Pressure Drop	kPa	44	55	51	60	65	65	72
Drycooler Press. Drop	kPa	29	33	18	24	23	30	33
Model: DG / FG								
		10/10	15/15	20/20	25/25	30/30	35/35	40/40
Air On: 22°C, 50% RH								
Total Capacity	kW	21.6	31.4	40.2	46.0	55.5	64.2	79.7
Sensible Capacity	kW	20.6	29.2	37.6	42.2	51.4	59.0	76.6
Air On: 24°C, 50% RH								
Total Capacity	kW	22.6	32.8	41.8	48.0	57.8	66.6	83.6
Sensible Capacity	kW	21.0	30.4	38.6	43.4	52.8	61.2	78.6
Scroll Compressor	-	ZR48K	ZR72K	ZR90K	ZR11M	ZR12M	ZR16M	ZR19M
Compressor Input Power	kW	3.4	4.9	6.3	7.6	8.6	10.8	13.0
Compressor Quantity	No.	2	2	2	2	2	2	2
Airflow	m ³ /s	1.66	2.50	3.34	4.16	5.00	5.84	6.66
No. of Fans	No.	2	2	2	2	2	2	2
Fan Motor	kW	0.75	1.10	1.50	2.20	2.20	3.00	4.00
No. of Motors	No.	2	2	2	2	2	2	2
Electric Reheat	kW	9.6	9.6	15.0	15.0	15.0	15.0	24.9
No. of Steps	No.	2	2	2	2	2	2	2
Humidifier Capacity	kg/hr	3.0	3.0	8.0	8.0	8.0	8.0	8.0
Humidifier Power	kW	2.2	2.2	5.8	5.8	5.8	5.8	5.8
Glycol Flow (25%)	l/s	1.0	1.4	1.6	2.0	2.4	2.8	3.6
Unit Pressure Drop	kPa	44	55	51	60	65	65	72
Drycooler Press. Drop	kPa	38	23	28	17	20	26	25

Notes

1. Capacities are based on R407C refrigerant.
2. For capacities at other conditions, please refer to the Factory.
3. All units are R22 compatible. Please refer to the Factory for R22 selection.
4. Units are also available for R134A applications, please contact the factory.
5. Above cooling capacities are for Glycol Cooled Units with Drycoolers. If units are fitted with additional ECX Freecooling coil see also page 22 for the cooling capacity of the additional ECX Freecooling coil.

AIR COOLED UNITS - COOLING CAPACITIES 60Hz

Model: DA / FA		10	15	20	25	30	35	40
Air On: 22°C, 50% RH								
Total Capacity	kW	11.2	15.7	21.5	24.6	29.8	33.9	39.3
Sensible Capacity	kW	10.5	14.8	20.0	24.1	29.8	33.2	38.1
Air On: 24°C, 50% RH								
Total Capacity	kW	11.8	16.5	22.6	25.9	31.0	35.6	41.2
Sensible Capacity	kW	10.7	15.2	20.5	25.1	31.0	34.2	39.1
Scroll Compressor	-	ZR40K	ZR61K	ZR81K	ZR90K	ZR11M	ZR12M	ZR16M
Compressor Input Power	kW	3.3	4.8	6.4	7.3	8.8	10.0	12.4
Compressor Quantity	No.	1	1	1	1	1	1	1
Airflow	m ³ /s	0.83	1.25	1.67	2.08	2.50	2.92	3.33
No. of Fans	No.	1	1	1	1	1	1	1
Fan Motor	kW	0.75	1.10	1.50	2.20	2.20	3.00	4.00
No. of Motors	No.	1	1	1	1	1	1	1
Electric Reheat	kW	9.6	9.6	9.6	15.0	15.0	15.0	15.0
No. of Steps	No.	2	2	2	2	2	2	2
Humidifier Capacity	kg/hr	3.0	3.0	3.0	3.0	8.0	8.0	8.0
Humidifier Power	kW	2.2	2.2	2.2	2.2	5.8	5.8	5.8
Model: DA / FA								
		10/10	15/15	20/20	25/25	30/30	35/35	40/40
Air On: 22°C, 50% RH								
Total Capacity	kW	22.5	31.3	43.1	49.2	59.6	67.8	78.5
Sensible Capacity	kW	20.9	29.6	40.0	48.2	59.6	66.4	76.1
Air On: 24°C, 50% RH								
Total Capacity	kW	23.7	32.9	45.3	51.8	62.1	71.2	82.5
Sensible Capacity	kW	21.5	30.4	41.1	50.1	62.1	68.4	78.2
Scroll Compressor	-	ZR40K	ZR61K	ZR81K	ZR90K	ZR11M	ZR12M	ZR16M
Compressor Input Power	kW	3.3	4.8	6.4	7.3	8.8	10.0	12.4
Compressor Quantity	No.	2	2	2	2	2	2	2
Airflow	m ³ /s	1.66	2.50	3.34	4.16	5.00	5.84	6.66
No. of Fans	No.	2	2	2	2	2	2	2
Fan Motor	kW	0.75	1.10	1.50	2.20	2.20	3.00	4.00
No. of Motors	No.	2	2	2	2	2	2	2
Electric Reheat	kW	9.6	9.6	15.0	15.0	15.0	15.0	24.9
No. of Steps	No.	2	2	2	2	2	2	2
Humidifier Capacity	kg/hr	3.0	3.0	8.0	8.0	8.0	8.0	8.0
Humidifier Power	kW	2.2	2.2	5.8	5.8	5.8	5.8	5.8

Notes

1. Capacities are based on R407C refrigerant.
2. For capacities at other conditions, please refer to the Factory.
3. All units are R22 compatible. Please refer to the Factory for R22 selection.
4. Units are also available for R134A applications, please contact the factory.

WATER COOLED UNITS - COOLING CAPACITIES 60Hz

Model: DW / FW		10	15	20	25	30	35	40
Air On: 22°C, 50% RH								
Total Capacity	kW	11.4	16.3	22.0	24.9	28.9	32.6	41.5
Sensible Capacity	kW	10.5	15.1	20.2	23.3	28.1	31.9	38.9
Water Flow	l/s	0.5	0.6	0.8	1.0	1.12	1.4	1.8
Unit Pressure Drop	kPa	46	49	51	56	59	69	69
Air On: 24°C, 50% RH								
Total Capacity	kW	12.1	17.3	23.2	26.4	30.6	34.5	43.8
Sensible Capacity	kW	10.8	15.5	20.7	24.6	28.9	32.8	40.0
Water Flow	l/s	0.5	0.6	0.8	1.0	1.12	1.4	1.8
Unit Pressure Drop	kPa	46	49	51	56	59	69	69
Scroll Compressor	-	ZR40K	ZR61K	ZR81K	ZR90K	ZR11M	ZR12M	ZR16M
Compressor Input Power	kW	3.3	4.8	6.4	7.3	8.8	10.0	12.4
Compressor Quantity	No.	1	1	1	1	1	1	1
Airflow	m ³ /s	0.83	1.25	1.67	2.08	2.50	2.92	3.33
No. of Fans	No.	1	1	1	1	1	1	1
Fan Motor	kW	0.75	1.10	1.50	2.20	2.20	3.00	4.00
No. of Motors	No.	1	1	1	1	1	1	1
Electric Reheat	kW	9.6	9.6	9.6	15.0	15.0	15.0	15.0
No. of Steps	No.	2	2	2	2	2	2	2
Humidifier Capacity	kg/hr	3.0	3.0	3.0	3.0	8.0	8.0	8.0
Humidifier Power	kW	2.2	2.2	2.2	2.2	5.8	5.8	5.8
Model: DW / FW								
		10/10	15/15	20/20	25/25	30/30	35/35	40/40
Air On: 22°C, 50% RH								
Total Capacity	kW	22.8	32.6	43.9	49.8	57.8	65.3	83.0
Sensible Capacity	kW	21.1	30.2	40.3	46.6	56.2	63.8	77.9
Water Flow	l/s	1.0	1.3	1.6	1.9	2.2	2.9	3.5
Unit Pressure Drop	kPa	46	49	51	56	59	69	69
Air On: 24°C, 50% RH								
Total Capacity	kW	24.2	34.5	46.3	52.8	61.2	69.0	87.6
Sensible Capacity	kW	21.7	31.1	41.5	49.2	57.9	65.7	80.1
Water Flow	l/s	1.0	1.3	1.6	1.9	2.2	2.9	3.5
Unit Pressure Drop	kPa	46	49	51	56	59	69	69
Scroll Compressor	-	ZR40K	ZR61K	ZR81K	ZR90K	ZR11M	ZR12M	ZR16M
Compressor Input Power	kW	3.3	4.8	6.4	7.3	8.8	10.0	12.4
Compressor Quantity	No.	2	2	2	2	2	2	2
Airflow	m ³ /s	1.66	2.50	3.34	4.16	5.00	5.84	6.66
No. of Fans	No.	2	2	2	2	2	2	2
Fan Motor	kW	0.75	1.10	1.50	2.20	2.20	3.00	4.00
No. of Motors	No.	2	2	2	2	2	2	2
Electric Reheat	kW	9.6	9.6	15.0	15.0	15.0	15.0	24.9
No. of Steps	No.	2	2	2	2	2	2	2
Humidifier Capacity	kg/hr	3.0	3.0	8.0	8.0	8.0	8.0	8.0
Humidifier Power	kW	2.2	2.2	5.8	5.8	5.8	5.8	5.8

Notes

1. Capacities are based on R407C refrigerant.
2. For capacities at other conditions, please refer to the Factory.
3. All units are R22 compatible. Please refer to the Factory for R22 selection.
4. Units are also available for R134A applications, please contact the factory.

GLYCOL COOLED UNITS - COOLING CAPACITIES 60Hz

Model: DG / FG		10	15	20	25	30	35	40
Air On: 22°C, 50% RH								
Total Capacity	kW	10.8	15.0	21.7	22.4	29.6	32.2	39.3
Sensible Capacity	kW	10.3	14.5	20.3	20.6	27.5	29.6	38.0
Air On: 24°C, 50% RH								
Total Capacity	kW	11.3	15.7	22.6	23.5	31.2	33.5	41.2
Sensible Capacity	kW	10.5	14.9	20.8	21.3	28.5	30.8	39.1
Scroll Compressor	-	ZR40K	ZR61K	ZR81K	ZR90K	ZR11M	ZR12M	ZR16M
Compressor Input Power	kW	3.3	4.8	6.4	7.3	8.8	10.0	12.4
Compressor Quantity	No.	1	1	1	1	1	1	1
Airflow	m ³ /s	0.83	1.25	1.67	2.08	2.50	2.92	3.33
No. of Fans	No.	1	1	1	1	1	1	1
Fan Motor	kW	0.75	1.10	1.50	2.20	2.20	3.00	4.00
No. of Motors	No.	1	1	1	1	1	1	1
Electric Reheat	kW	9.6	9.6	9.6	15.0	15.0	15.0	15.0
No. of Steps	No.	2	2	2	2	2	2	2
Humidifier Capacity	kg/hr	3.0	3.0	3.0	3.0	8.0	8.0	8.0
Humidifier Power	kW	2.2	2.2	2.2	2.2	5.8	5.8	5.8
Glycol Flow (25%)	l/s	0.5	0.7	0.8	1.0	1.2	1.4	1.8
Unit Pressure Drop	kPa	44	55	51	60	65	65	72
Drycooler Press. Drop	kPa	29	33	18	24	23	30	33
Model: DG / FG								
		10/10	15/15	20/20	25/25	30/30	35/35	40/40
Air On: 22°C, 50% RH								
Total Capacity	kW	21.3	30.1	41.3	44.8	59.2	64.4	78.1
Sensible Capacity	kW	19.8	29.2	40.6	41.2	55.0	59.2	75.9
Air On: 24°C, 50% RH								
Total Capacity	kW	22.4	31.8	45.2	47.0	62.4	67.0	82.0
Sensible Capacity	kW	21.3	30.7	41.6	42.6	57.0	61.6	78.0
Scroll Compressor	-	ZR40K	ZR61K	ZR81K	ZR90K	ZR11M	ZR12M	ZR16M
Compressor Input Power	kW	3.3	4.8	6.4	7.3	8.8	10.0	12.4
Compressor Quantity	No.	2	2	2	2	2	2	2
Airflow	m ³ /s	1.66	2.50	3.34	4.16	5.00	5.84	6.66
No. of Fans	No.	2	2	2	2	2	2	2
Fan Motor	kW	0.75	1.10	1.50	2.20	2.20	3.00	4.00
No. of Motors	No.	2	2	2	2	2	2	2
Electric Reheat	kW	9.6	9.6	15.0	15.0	15.0	15.0	24.9
No. of Steps	No.	2	2	2	2	2	2	2
Humidifier Capacity	kg/hr	3.0	3.0	8.0	8.0	8.0	8.0	8.0
Humidifier Power	kW	2.2	2.2	5.8	5.8	5.8	5.8	5.8
Glycol Flow (25%)	l/s	1.0	1.4	1.6	2.0	2.4	2.8	3.6
Unit Pressure Drop	kPa	44	55	51	60	65	65	72
Drycooler Press. Drop	kPa	38	23	28	17	20	26	25

Notes

1. Capacities are based on R407C refrigerant.
2. For capacities at other conditions, please refer to the Factory.
3. All units are R22 compatible. Please refer to the Factory for R22 selection.
4. Units are also available for R134A applications, please contact the factory.
5. Above cooling capacities are for Glycol Cooled Units with Drycoolers. If units are fitted with additional ECX Freecooling coil see also page 22 for the cooling capacity of the additional ECX Freecooling coil.

ECX FREECOOLING UNITS - COOLING CAPACITIES 50/60Hz

Model: DG E / FG E		10	15	20	25	30	35	40
Air On: 22°C, 50% RH								
Total Capacity	kW	11.1	14.9	20.9	25.0	28.9	32.6	37.3
Sensible Capacity	kW	10.6	14.8	20.9	25.0	28.9	32.6	37.3
Air On: 24°C, 50% RH								
Total Capacity	kW	13.3	17.8	23.1	27.7	31.7	35.7	41.9
Sensible Capacity	kW	11.5	16.0	21.4	25.9	30.0	34.5	39.4
Scroll Comp. - 50Hz	-	ZR48K	ZR72K	ZR90K	ZR11M	ZR12M	ZR16M	ZR19M
Compressor Input Power	kW	3.4	4.9	6.3	7.6	8.6	10.8	13.0
Scroll Comp. - 60Hz	-	ZR40K	ZR61K	ZR81K	ZR90K	ZR11M	ZR12M	ZR16M
Compressor Input Power	kW	3.3	4.8	6.4	7.3	8.8	10.0	12.4
Compressor Quantity	No.	1	1	1	1	1	1	1
Airflow	m ³ /s	0.83	1.25	1.67	2.08	2.50	2.92	3.33
No. of Fans	No.	1	1	1	1	1	1	1
Fan Motor	kW	0.75	1.10	1.50	2.20	2.20	3.00	4.00
No. of Motors	No.	1	1	1	1	1	1	1
Electric Reheat	kW	9.6	9.6	9.6	15.0	15.0	15.0	15.0
No. of Steps	No.	2	2	2	2	2	2	2
Humidifier Capacity	kg/hr	3.0	3.0	3.0	3.0	8.0	8.0	8.0
Humidifier Power	kW	2.2	2.2	2.2	2.2	5.8	5.8	5.8
Glycol Flow (25%)	l/s	0.5	0.8	1.0	1.3	1.5	1.8	2.0
ECX Coil Press. Drop	kPa	12.6	23.4	12.4	18.6	18.2	24.1	38.3
Model: DG E / FG E								
		10/10	15/15	20/20	25/25	30/30	35/35	40/40
Air On: 22°C, 50% RH								
Total Capacity	kW	22.2	29.8	41.8	50.0	57.8	65.2	74.6
Sensible Capacity	kW	21.2	29.6	41.8	50.0	57.8	65.2	74.6
Air On: 24°C, 50% RH								
Total Capacity	kW	26.6	35.6	46.1	55.4	63.4	71.4	83.8
Sensible Capacity	kW	23.0	32.0	42.8	51.8	60.0	69.0	78.8
Scroll Comp. – 50Hz	-	ZR48K	ZR72K	ZR90K	ZR11M	ZR12M	ZR16M	ZR19M
Compressor Input Power	kW	3.4	4.9	6.3	7.6	8.6	10.8	13.0
Scroll Comp. – 60Hz	-	ZR40K	ZR61K	ZR81K	ZR90K	ZR11M	ZR12M	ZR16M
Compressor Input Power	kW	3.3	4.8	6.4	7.3	8.8	10.0	12.4
Compressor Quantity	No.	2	2	2	2	2	2	2
Airflow	m ³ /s	1.66	2.50	3.34	4.16	5.00	5.84	6.66
No. of Fans	No.	2	2	2	2	2	2	2
Fan Motor	kW	0.75	1.10	1.50	2.20	2.20	3.00	4.00
No. of Motors	No.	2	2	2	2	2	2	2
Electric Reheat	kW	9.6	9.6	15.0	15.0	15.0	15.0	24.9
No. of Steps	No.	2	2	2	2	2	2	2
Humidifier Capacity	kg/hr	3.0	3.0	8.0	8.0	8.0	8.0	8.0
Humidifier Power	kW	2.2	2.2	5.8	5.8	5.8	5.8	5.8
Glycol Flow (25%)	l/s	1.0	1.6	2.0	2.6	3.0	3.6	4.0
ECX Coil Press. Drop	kPa	24	57	34	57	42	59	76

Notes

- Capacities are based on a 25% water glycol solution with a 6°C coil entering temperature and the flow rate of a Glycol unit.
- Tabulated cooling capacities are only for the ECX Freecooling coil fitted in Glycol type units with a Freecooling option. For the main unit cooling capacity when operating in compressor mode, refer to page 18 for 50Hz Glycol units and page 21 for 60 Hz Glycol units.

CHILLED WATER COOLED UNITS - COOLING CAPACITIES 50/60Hz

Model: DC / FC		10	15	20	25	30	35	40
Air On: 22°C, 50% RH								
Total Capacity	kW	11.9	14.8	22.0	24.8	29.6	34.1	38.4
Sensible Capacity	kW	10.9	14.8	20.9	24.6	29.3	34.1	38.4
S.H.R.	-	0.92	1.0	0.95	0.99	0.99	1.0	1.0
Chilled Water Flow	l/s	0.5	0.6	0.9	1.0	1.3	1.4	1.7
Unit Pressure Drop	kPa	23.4	33.1	29.1	35.8	35.9	42.4	60.9
Air On: 24°C, 50% RH								
Total Capacity	kW	15.4	20.2	28.8	33.5	37.8	42.0	47.8
Sensible Capacity	kW	12.4	17.0	23.8	28.3	32.8	37.0	41.8
S.H.R.	-	0.81	0.84	0.83	0.84	0.87	0.88	0.87
Chilled Water Flow	l/s	0.6	0.8	1.1	1.3	1.5	1.7	2.1
Unit Pressure Drop	kPa	33.1	57.0	42.5	58.7	48.0	60.8	90.4
Airflow	m ³ /s	0.83	1.25	1.67	2.08	2.50	2.92	3.33
No. of Fans	No.	1	1	1	1	1	1	1
Fan Motor	kW	0.75	1.10	1.50	2.20	2.20	3.00	4.00
No. of Motors	No.	1	1	1	1	1	1	1
Electric Reheat	kW	9.6	9.6	9.6	15.0	15.0	15.0	15.0
No. of Steps	No.	2	2	2	2	2	2	2
Humidifier Capacity	kg/hr	3.0	3.0	3.0	3.0	8.0	8.0	8.0
Humidifier Power	kW	2.2	2.2	2.2	2.2	5.8	5.8	5.8
Model: DC / FC								
		10/10	15/15	20/20	25/25	30/30	35/35	40/40
Air On: 22°C, 50% RH								
Total Capacity	kW	23.8	29.6	44.0	49.6	59.2	68.2	76.8
Sensible Capacity	kW	21.8	29.6	41.8	49.2	58.6	68.2	76.8
S.H.R.	-	0.92	1.0	0.95	0.99	0.99	1.0	1.0
Chilled Water Flow	l/s	1.0	1.2	1.8	2.0	2.6	2.8	3.4
Unit Pressure Drop	kPa	23.4	33.1	29.1	35.8	35.9	42.4	60.9
Air On: 24°C, 50% RH								
Total Capacity	kW	30.8	40.4	57.6	67.0	75.6	84.0	95.6
Sensible Capacity	kW	24.8	34.0	47.6	56.6	65.6	74.0	83.6
S.H.R.	-	0.81	0.84	0.83	0.84	0.87	0.88	0.87
Chilled Water Flow	l/s	1.2	1.6	2.2	2.6	3.0	3.4	4.2
Unit Pressure Drop	kPa	33.1	57.0	42.5	58.7	48.0	60.8	90.4
Airflow	m ³ /s	1.66	2.50	3.34	4.16	5.00	5.84	6.66
No. of Fans	No.	2	2	2	2	2	2	2
Fan Motor	kW	0.75	1.10	1.50	2.20	2.20	3.00	4.00
No. of Motors	No.	2	2	2	2	2	2	2
Electric Reheat	kW	9.6	9.6	15.0	15.0	15.0	15.0	24.9
No. of Steps	No.	2	2	2	2	2	2	2
Humidifier Capacity	kg/hr	3.0	3.0	8.0	8.0	8.0	8.0	8.0
Humidifier Power	kW	2.2	2.2	5.8	5.8	5.8	5.8	5.8

Notes

- Capacities are based on a 6°C chilled water coil entering temperature & the tabulated flow rate.

Air Cooled Models

Model	10	15	20	25	30	35	40
Controls FLA	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Fans FLA	2.0	2.7	3.7	4.8	4.8	6.5	8.7
Reheat FLA	13.9	13.9	13.9	21.7	21.7	21.7	21.7
Humidifier FLA	3.2	3.2	3.2	3.2	8.4	8.4	8.4
Scroll Compressor FLA	6.2	8.7	12.5	14.9	15.8	18.5	22.6
Condenser FLA @ 30°C	0.7	1.4	1.4	2.1	2.1	2.1	6.8
Condenser FLA @ 35°C	1.4	1.4	2.1	2.1	6.8	6.8	6.8
Condenser FLA @ 40°C	1.4	2.1	2.1	6.8	6.8	6.8	10.2
Condenser FLA @ 45°C	1.4	2.1	6.8	6.8	10.2	10.2	10.2
Model	10/10	15/15	20/20	25/25	30/30	35/35	40/40
Controls FLA	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Fans FLA	4.0	5.4	7.4	9.6	9.6	13.0	17.4
Reheat FLA	13.9	13.9	13.9	21.7	21.7	21.7	35.9
Humidifier FLA	3.2	3.2	8.4	8.4	8.4	8.4	8.4
Scroll Compressor FLA	12.4	17.4	25.0	29.8	31.6	37.0	45.2
Condenser FLA @ 30°C	1.4	2.8	2.8	4.2	4.2	4.2	13.6
Condenser FLA @ 35°C	2.8	2.8	4.2	4.2	13.6	13.6	13.6
Condenser FLA @ 40°C	2.8	4.2	4.2	13.6	13.6	13.6	20.4
Condenser FLA @ 45°C	2.8	4.2	13.6	13.6	20.4	20.4	20.4

Water Cooled Models

Model	10	15	20	25	30	35	40
Controls FLA	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Fans FLA	2.0	2.7	3.7	4.8	4.8	6.5	8.7
Reheat FLA	13.9	13.9	13.9	21.7	21.7	21.7	21.7
Humidifier FLA	3.2	3.2	3.2	3.2	8.4	8.4	8.4
Scroll Compressor FLA	6.2	8.7	12.5	14.9	15.8	18.5	22.6
Model	10/10	15/15	20/20	25/25	30/30	35/35	40/40
Controls FLA	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Fans FLA	4.0	5.4	7.4	9.6	9.6	13.0	17.4
Reheat FLA	13.9	13.9	13.9	21.7	21.7	21.7	35.9
Humidifier FLA	3.2	3.2	8.4	8.4	8.4	8.4	8.4
Scroll Compressor FLA	12.4	17.4	25.0	29.8	31.6	37.0	45.2

Notes

1. FLA = Full Load Amps.
2. Unit maximum FLA is the total of the components, which operate during maximum electrical load conditions. For full function units with humidifier & electric reheat the maximum FLA would be in dehumidification mode i.e. cooling + reheat.
3. In dehumidification in Duplex or Twin Circuit Units, calculate the max FLA based on single module compressor FLA as only one compressor operates in dehumidification mode.
4. For Air Cooled Units, the condenser fan FLA is based on all fans being single phase.
5. For Glycol Cooled Units with Drycoolers, please note that Drycooler Fans are all 3 phase on/off. Head pressure control is carried out by a water regulating valve in the indoor unit.

Glycol / ECX Cooled Models

Model	10	15	20	25	30	35	40
Controls FLA	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Fans FLA	2.0	2.7	3.7	4.8	4.8	6.5	8.7
Reheat FLA	13.9	13.9	13.9	21.7	21.7	21.7	21.7
Humidifier FLA	3.2	3.2	3.2	3.2	8.4	8.4	8.4
Scroll Compressor FLA	6.2	8.7	12.5	14.9	15.8	18.5	22.6
Drycooler FLA @ 30°C	1.3	2.6	2.6	2.6	3.9	3.9	3.9
Drycooler FLA @ 35°C	1.3	2.6	2.6	2.6	3.9	9.6	9.6
Drycooler FLA @ 40°C	2.6	2.6	2.6	3.9	3.9	9.6	9.6
Drycooler FLA @ 45°C	2.6	2.6	3.9	9.6	9.6	9.6	9.6
Model	10/10	15/15	20/20	25/25	30/30	35/35	40/40
Controls FLA	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Fans FLA	4.0	5.4	7.4	9.6	9.6	13.0	17.4
Reheat FLA	13.9	13.9	13.9	21.7	21.7	21.7	35.9
Humidifier FLA	3.2	3.2	8.4	8.4	8.4	8.4	8.4
Scroll Compressor FLA	12.4	17.4	25.0	29.8	31.6	37.0	45.2
Drycooler FLA @ 30°C	2.6	3.9	3.9	9.6	14.4	14.4	14.4
Drycooler FLA @ 35°C	2.6	3.9	9.6	9.6	9.6	9.6	14.4
Drycooler FLA @ 40°C	2.6	2.6	2.6	3.9	3.9	9.6	9.6
Drycooler FLA @ 45°C	2.6	3.9	9.6	9.6	14.4	14.4	14.4

Chilled Water Models

Model	10	15	20	25	30	35	40
Controls FLA	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Fans FLA	2.0	2.7	3.7	4.8	4.8	6.5	8.7
Reheat FLA	13.9	13.9	13.9	21.7	21.7	21.7	21.7
Humidifier FLA	3.2	3.2	3.2	3.2	8.4	8.4	8.4
Model	10/10	15/15	20/20	25/25	30/30	35/35	40/40
Controls FLA	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Fans FLA	4.0	5.4	7.4	9.6	9.6	13.0	17.4
Reheat FLA	13.9	13.9	13.9	21.7	21.7	21.7	35.9
Humidifier FLA	3.2	3.2	8.4	8.4	8.4	8.4	8.4

Notes

1. FLA = Full Load Amps.
2. Unit maximum FLA is the total of the components, which operate during maximum electrical load conditions. For full function units with humidifier & electric reheat the maximum FLA would be in dehumidification mode i.e. cooling + reheat.
3. In dehumidification in Duplex or Twin Circuit Units, calculate the max FLA based on single module compressor FLA as only one compressor operates in dehumidification mode.
4. For Air Cooled Units, the condenser fan FLA is based on all fans being single phase.
5. For Glycol Cooled Units with Drycoolers, please note that Drycooler Fans are all 3 phase on/off. Head pressure control is carried out by a water regulating valve in the indoor unit.

Air Cooled Models

Model	10	15	20	25	30	35	40
Controls FLA	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Fans FLA	3.7	4.9	6.7	8.7	8.7	11.8	15.8
Reheat FLA	25.3	25.3	25.3	39.5	39.5	39.5	39.5
Humidifier FLA	5.7	5.7	5.7	5.7	15.3	15.3	15.3
Scroll Compressor FLA	10.3	16.3	21.3	22.7	27.1	28.7	33.6
Condenser FLA @ 30°C	0.7	1.4	1.4	2.1	2.1	2.1	6.8
Condenser FLA @ 35°C	1.4	1.4	2.1	2.1	6.8	6.8	6.8
Condenser FLA @ 40°C	1.4	2.1	2.1	6.8	6.8	6.8	10.2
Condenser FLA @ 45°C	1.4	2.1	6.8	6.8	10.2	10.2	10.2
Model	10/10	15/15	20/20	25/25	30/30	35/35	40/40
Controls FLA	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Fans FLA	7.4	9.8	13.4	17.4	17.4	23.6	31.6
Reheat FLA	25.3	25.3	25.3	39.5	39.5	39.5	65.3
Humidifier FLA	5.7	5.7	15.3	15.3	15.3	15.3	15.3
Scroll Compressor FLA	20.6	32.6	42.6	45.4	54.2	57.4	67.2
Condenser FLA @ 30°C	1.4	2.8	2.8	4.2	4.2	4.2	13.6
Condenser FLA @ 35°C	2.8	2.8	4.2	4.2	13.6	13.6	13.6
Condenser FLA @ 40°C	2.8	4.2	4.2	13.6	13.6	13.6	20.4
Condenser FLA @ 45°C	2.8	4.2	13.6	13.6	20.4	20.4	20.4

Water Cooled Models

Model	10	15	20	25	30	35	40
Controls FLA	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Fans FLA	3.7	4.9	6.7	8.7	8.7	11.8	15.8
Reheat FLA	25.3	25.3	25.3	39.5	39.5	39.5	39.5
Humidifier FLA	5.7	5.7	5.7	5.7	15.3	15.3	15.3
Scroll Compressor FLA	10.3	16.3	21.3	22.7	27.1	28.7	33.6
Model	10/10	15/15	20/20	25/25	30/30	35/35	40/40
Controls FLA	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Fans FLA	7.4	9.8	13.4	17.4	17.4	23.6	31.6
Reheat FLA	25.3	25.3	25.3	39.5	39.5	39.5	65.3
Humidifier FLA	5.7	5.7	15.3	15.3	15.3	15.3	15.3
Scroll Compressor FLA	20.6	32.6	42.6	45.4	54.2	57.4	67.2

Notes

1. FLA = Full Load Amps.
2. Unit maximum FLA is the total of the components, which operate during maximum electrical load conditions. For full function units with humidifier & electric reheat the maximum FLA would be in dehumidification mode i.e. cooling + reheat.
3. In dehumidification in Duplex or Twin Circuit Units, calculate the max FLA based on single module compressor FLA as only one compressor operates in dehumidification mode.
4. For Air Cooled Units, the condenser fan FLA is based on all fans being single phase.
5. For Glycol Cooled Units with Drycoolers, please note that Drycooler Fans are all 3 phase on/off. Head pressure control is carried out by a water regulating valve in the indoor unit.

Glycol / ECX Cooled Models

Model	10	15	20	25	30	35	40
Controls FLA	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Fans FLA	3.7	4.9	6.7	8.7	8.7	11.8	15.8
Reheat FLA	25.3	25.3	25.3	39.5	39.5	39.5	39.5
Humidifier FLA	5.7	5.7	5.7	5.7	15.3	15.3	15.3
Scroll Compressor FLA	10.3	16.3	21.3	22.7	27.1	28.7	33.6
Drycooler FLA @ 30°C	3.7	7.4	7.4	7.4	11.1	11.1	11.1
Drycooler FLA @ 35°C	3.7	7.4	7.4	7.4	11.1	11.6	11.6
Drycooler FLA @ 40°C	7.4	7.4	7.4	11.1	11.1	11.6	11.6
Drycooler FLA @ 45°C	7.4	7.4	11.1	11.6	11.6	11.6	11.6
Model	10/10	15/15	20/20	25/25	30/30	35/35	40/40
Controls FLA	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Fans FLA	7.4	9.8	13.4	17.4	17.4	23.6	31.6
Reheat FLA	25.3	25.3	25.3	39.5	39.5	39.5	65.3
Humidifier FLA	5.7	5.7	15.3	15.3	15.3	15.3	15.3
Scroll Compressor FLA	20.6	32.6	42.6	45.4	54.2	57.4	67.2
Drycooler FLA @ 30°C	7.4	11.1	11.1	11.6	17.4	17.4	17.4
Drycooler FLA @ 35°C	7.4	11.1	11.6	11.6	11.6	11.6	17.4
Drycooler FLA @ 40°C	7.4	7.4	7.4	11.1	11.1	11.6	11.6
Drycooler FLA @ 45°C	7.4	11.0	11.6	11.6	17.4	17.4	17.4

Chilled Water Models

Model	10	15	20	25	30	35	40
Controls FLA	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Fans FLA	3.7	4.9	6.7	8.7	8.7	11.8	15.8
Reheat FLA	25.3	25.3	25.3	39.5	39.5	39.5	39.5
Humidifier FLA	5.7	5.7	5.7	5.7	15.3	15.3	15.3
Model	10/10	15/15	20/20	25/25	30/30	35/35	40/40
Controls FLA	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Fans FLA	7.4	9.8	13.4	17.4	17.4	23.6	31.6
Reheat FLA	25.3	25.3	25.3	39.5	39.5	39.5	65.3
Humidifier FLA	5.7	5.7	15.3	15.3	15.3	15.3	15.3

Notes

1. FLA = Full Load Amps.
2. Unit maximum FLA is the total of the components, which operate during maximum electrical load conditions. For full function units with humidifier & electric reheat the maximum FLA would be in dehumidification mode i.e. cooling + reheat.
3. In dehumidification in Duplex or Twin Circuit Units, calculate the max FLA based on single module compressor FLA as only one compressor operates in dehumidification mode.
4. For Air Cooled Units, the condenser fan FLA is based on all fans being single phase.
5. For Glycol Cooled Units with Drycoolers, please note that Drycooler Fans are all 3 phase on/off. Head pressure control is carried out by a water regulating valve in the indoor unit.

Air Cooled Models

Model	10	15	20	25	30	35	40
Controls FLA	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Fans FLA	2.1	2.8	3.9	5.0	5.0	6.8	9.1
Reheat FLA	14.6	14.6	14.6	22.8	22.8	22.8	22.8
Humidifier FLA	3.3	3.3	3.3	3.3	8.8	8.8	8.8
Scroll Compressor FLA	5.9	9.4	12.3	13.2	15.7	16.6	19.5
Condenser FLA @ 30°C	0.6	1.2	1.2	1.8	1.8	1.8	4.2
Condenser FLA @ 35°C	1.2	1.2	1.8	1.8	4.2	4.2	4.2
Condenser FLA @ 40°C	1.2	1.8	1.8	4.2	4.2	4.2	6.3
Condenser FLA @ 45°C	1.2	1.8	4.2	4.2	6.3	6.3	6.3
Model	10/10	15/15	20/20	25/25	30/30	35/35	40/40
Controls FLA	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Fans FLA	4.2	5.6	7.8	10.0	10.0	13.6	18.2
Reheat FLA	14.6	14.6	14.6	22.8	22.8	22.8	37.8
Humidifier FLA	3.3	3.3	8.8	8.8	8.8	8.8	8.8
Scroll Compressor FLA	11.8	18.8	24.6	26.4	31.4	33.2	39.0
Condenser FLA @ 30°C	1.2	2.4	2.4	3.6	3.6	3.6	8.4
Condenser FLA @ 35°C	2.4	2.4	3.6	3.6	8.4	8.4	8.4
Condenser FLA @ 40°C	2.4	3.6	3.6	8.4	8.4	8.4	12.6
Condenser FLA @ 45°C	2.4	3.6	8.4	8.4	12.6	12.6	12.6

Water Cooled Models

Model	10	15	20	25	30	35	40
Controls FLA	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Fans FLA	2.1	2.8	3.9	5.0	5.0	6.8	9.1
Reheat FLA	14.6	14.6	14.6	22.8	22.8	22.8	22.8
Humidifier FLA	3.3	3.3	3.3	3.3	8.8	8.8	8.8
Scroll Compressor FLA	5.9	9.4	12.3	13.2	15.7	16.6	19.5
Model	10/10	15/15	20/20	25/25	30/30	35/35	40/40
Controls FLA	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Fans FLA	4.3	6.4	6.4	8.5	12.2	14.8	14.8
Reheat FLA	14.6	14.6	14.6	22.8	22.8	22.8	37.8
Humidifier FLA	3.3	3.3	8.8	8.8	8.8	8.8	8.8
Scroll Compressor FLA	11.8	18.8	24.6	26.4	31.4	33.2	39.0

Notes

1. FLA = Full Load Amps.
2. Unit maximum FLA is the total of the components, which operate during maximum electrical load conditions. For full function units with humidifier & electric reheat the maximum FLA would be in dehumidification mode i.e. cooling + reheat.
3. In dehumidification in Duplex or Twin Circuit Units, calculate the max FLA based on single module compressor FLA as only one compressor operates in dehumidification mode.
4. For Air Cooled Units, the condenser fan FLA is based on all fans being single phase.
5. For Glycol Cooled Units with Drycoolers, please note that Drycooler Fans are all 3 phase on/off. Head pressure control is carried out by a water regulating valve in the indoor unit.

Glycol / ECX Cooled Models

Model	10	15	20	25	30	35	40
Controls FLA	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Fans FLA	2.1	2.8	3.9	5.0	5.0	6.8	9.1
Reheat FLA	14.6	14.6	14.6	22.8	22.8	22.8	22.8
Humidifier FLA	3.3	3.3	3.3	3.3	8.8	8.8	8.8
Scroll Compressor FLA	5.9	9.4	12.3	13.2	15.7	16.6	19.5
Drycooler FLA @ 30°C	2.1	4.2	4.2	4.2	6.3	6.3	6.3
Drycooler FLA @ 35°C	2.1	4.2	4.2	4.2	6.3	6.8	6.8
Drycooler FLA @ 40°C	4.2	4.2	4.2	6.3	6.3	6.8	6.8
Drycooler FLA @ 45°C	4.2	4.2	6.3	6.8	6.8	6.8	6.8
Model	10/10	15/15	20/20	25/25	30/30	35/35	40/40
Controls FLA	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Fans FLA	4.3	6.4	6.4	8.5	12.2	14.8	14.8
Reheat FLA	14.6	14.6	14.6	22.8	22.8	22.8	37.8
Humidifier FLA	3.3	3.3	8.8	8.8	8.8	8.8	8.8
Scroll Compressor FLA	11.8	18.8	24.6	26.4	31.4	33.2	39.0
Drycooler FLA @ 30°C	4.2	6.3	6.3	6.8	10.2	10.2	10.2
Drycooler FLA @ 35°C	4.2	6.3	6.8	6.8	6.8	6.8	10.2
Drycooler FLA @ 40°C	4.2	4.2	4.2	6.3	6.3	6.8	6.8
Drycooler FLA @ 45°C	4.2	6.3	6.8	6.8	10.2	10.2	10.2

Chilled Water Models

Model	10	15	20	25	30	35	40
Controls FLA	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Fans FLA	2.1	2.8	3.9	5.0	5.0	6.8	9.1
Reheat FLA	14.6	14.6	14.6	22.8	22.8	22.8	22.8
Humidifier FLA	3.3	3.3	3.3	3.3	8.8	8.8	8.8
Model	10/10	15/15	20/20	25/25	30/30	35/35	40/40
Controls FLA	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Fans FLA	4.3	6.4	6.4	8.4	12.1	14.8	14.8
Reheat FLA	14.6	14.6	14.6	22.8	22.8	22.8	37.8
Humidifier FLA	3.3	3.3	8.8	8.8	8.8	8.8	8.8

Notes

1. FLA = Full Load Amps.
2. Unit maximum FLA is the total of the components, which operate during maximum electrical load conditions. For full function units with humidifier & electric reheat the maximum FLA would be in dehumidification mode i.e. cooling + reheat.
3. In dehumidification in Duplex or Twin Circuit Units, calculate the max FLA based on single module compressor FLA as only one compressor operates in dehumidification mode.
4. For Air Cooled Units, the condenser fan FLA is based on all fans being single phase.
5. For glycol Cooled Units with drycoolers, please note that drycooler fans are all 3 phase on/off. Head pressure control is carried out by a water regulating valve in the indoor unit.

Air Cooled Models

Model	10	15	20	25	30	35	40
Controls FLA	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Fans FLA	1.7	2.3	3.2	4.2	4.2	5.7	7.6
Reheat FLA	12.1	12.1	12.1	18.9	18.9	18.9	18.9
Humidifier FLA	2.7	2.7	2.7	2.7	7.2	7.2	7.2
Scroll Compressor FLA	4.9	7.8	10.2	10.9	13.0	13.7	16.1
Condenser FLA @ 30°C	0.8	1.6	1.6	2.4	2.4	2.4	4.2
Condenser FLA @ 35°C	1.6	1.6	2.4	2.4	4.2	4.2	4.2
Condenser FLA @ 40°C	1.6	2.4	2.4	4.2	4.2	4.2	6.3
Condenser FLA @ 45°C	1.6	2.4	4.2	4.2	6.3	6.3	6.3
Model	10/10	15/15	20/20	25/25	30/30	35/35	40/40
Controls FLA	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Fans FLA	3.4	4.6	6.4	8.4	8.4	11.4	15.2
Reheat FLA	12.1	12.1	12.1	18.9	18.9	18.9	31.2
Humidifier FLA	2.7	2.7	7.2	7.2	7.2	7.2	7.2
Scroll Compressor FLA	9.8	15.6	20.4	21.8	26.0	27.4	32.2
Condenser FLA @ 30°C	1.6	3.2	3.2	4.8	4.8	4.8	8.4
Condenser FLA @ 35°C	3.2	3.2	4.8	4.8	8.4	8.4	8.4
Condenser FLA @ 40°C	3.2	4.8	4.8	8.4	8.4	8.4	12.6
Condenser FLA @ 45°C	3.2	4.8	8.4	8.4	12.6	12.6	12.6

Water Cooled Models

Model	10	15	20	25	30	35	40
Controls FLA	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Fans FLA	1.7	2.3	3.2	4.2	4.2	5.7	7.6
Reheat FLA	12.1	12.1	12.1	18.9	18.9	18.9	18.9
Humidifier FLA	2.7	2.7	2.7	2.7	7.2	7.2	7.2
Scroll Compressor FLA	4.9	7.8	10.2	10.9	13.0	13.7	16.1
Model	10/10	15/15	20/20	25/25	30/30	35/35	40/40
Controls FLA	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Fans FLA	3.4	4.6	6.4	8.4	8.4	11.4	15.2
Reheat FLA	12.1	12.1	12.1	18.9	18.9	18.9	31.2
Humidifier FLA	2.7	2.7	7.2	7.2	7.2	7.2	7.2
Scroll Compressor FLA	9.8	15.6	20.4	21.8	26.0	27.4	32.2

Notes

1. FLA = Full Load Amps.
2. Unit maximum FLA is the total of the components, which operate during maximum electrical load conditions. For full function units with humidifier & electric reheat the maximum FLA would be in dehumidification mode i.e. cooling + reheat.
3. In dehumidification in Duplex or Twin Circuit Units, calculate the max FLA based on single module compressor FLA as only one compressor operates in dehumidification mode.
4. For Air Cooled Units, the condenser fan FLA is based on all fans being single phase.
5. For Glycol Cooled Units with Drycoolers, please note that Drycooler Fans are all 3 phase on/off. Head pressure control is carried out by a water regulating valve in the indoor unit.

Glycol / ECX Cooled Models

Model	10	15	20	25	30	35	40
Controls FLA	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Fans FLA	1.7	2.3	3.2	4.2	4.2	5.7	7.6
Reheat FLA	12.1	12.1	12.1	18.9	18.9	18.9	18.9
Humidifier FLA	2.7	2.7	2.7	2.7	7.2	7.2	7.2
Scroll Compressor FLA	4.9	7.8	10.2	10.9	13.0	13.7	16.1
Drycooler FLA @ 30°C	2.1	4.2	4.2	4.2	6.3	6.3	6.3
Drycooler FLA @ 35°C	2.1	4.2	4.2	4.2	6.3	8.4	8.4
Drycooler FLA @ 40°C	4.2	4.2	4.2	6.3	6.3	8.4	8.4
Drycooler FLA @ 45°C	4.2	4.2	6.3	8.4	8.4	8.4	8.4
Model	10/10	15/15	20/20	25/25	30/30	35/35	40/40
Controls FLA	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Fans FLA	3.4	4.6	6.4	8.4	8.4	11.4	15.2
Reheat FLA	12.1	12.1	12.1	18.9	18.9	18.9	31.2
Humidifier FLA	2.7	2.7	7.2	7.2	7.2	7.2	7.2
Scroll Compressor FLA	9.8	15.6	20.4	21.8	26.0	27.4	32.2
Drycooler FLA @ 30°C	4.2	6.3	6.3	8.4	12.6	12.6	12.6
Drycooler FLA @ 35°C	4.2	6.3	8.4	8.4	8.4	8.4	12.6
Drycooler FLA @ 40°C	4.2	4.2	4.2	6.3	6.3	8.4	8.4
Drycooler FLA @ 45°C	4.2	6.3	8.4	8.4	12.6	12.6	12.6

Chilled Water Models

Model	10	15	20	25	30	35	40
Controls FLA	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Fans FLA	1.7	2.3	3.2	4.2	4.2	5.7	7.6
Reheat FLA	12.1	12.1	12.1	18.9	18.9	18.9	18.9
Humidifier FLA	2.7	2.7	2.7	2.7	7.2	7.2	7.2
Model	10/10	15/15	20/20	25/25	30/30	35/35	40/40
Controls FLA	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Fans FLA	3.4	4.6	6.4	8.4	8.4	11.4	15.2
Reheat FLA	12.1	12.1	12.1	18.9	18.9	18.9	31.2
Humidifier FLA	2.7	2.7	7.2	7.2	7.2	7.2	7.2

Notes

1. FLA = Full Load Amps.
2. Unit maximum FLA is the total of the components, which operate during maximum electrical load conditions. For full function units with humidifier & electric reheat the maximum FLA would be in dehumidification mode i.e. cooling + reheat.
3. In dehumidification in Duplex or Twin Circuit Units, calculate the max FLA based on single module compressor FLA as only one compressor operates in dehumidification mode.
4. For Air Cooled Units, the condenser fan FLA is based on all fans being single phase.
5. For Glycol Cooled Units with Drycoolers, please note that Drycooler Fans are all 3 phase on/off. Head pressure control is carried out by a water regulating valve in the indoor unit.