Airedale
APPLIED THERMAL INNOVATION

OptiChill™

Air Cooled Screw Chiller
500 kW - 1100 kW

R134a

TECHNICAL MANUAL

Qualified for Energy Technology List
www.eca.gov.uk
TM
Authorised User No. 00007

BSI UKAS ENVIRONMENTAL MANAGEMENT 003
ISO 14001
EMS52086

BSI UKAS QUALITY MANAGEMENT 003
ISO 9001
FM00542

About Airedale Products & Customer Services

WARRANTY

All AIAC products or parts (non consumable) supplied for installation within the UK mainland and commissioned by an AIAC engineer, carry a full Parts & Labour warranty for a period of 12 months from the date of commissioning or 18 months from the date of despatch, whichever is the sooner.

Parts or Equipment supplied by AIAC for installation within the UK or for Export that are properly commissioned in accordance with AIAC standards and specification, not commissioned by an AIAC engineer; carry a 12 month warranty on non consumable Parts only from the date of commissioning or 18 months from the date of despatch, whichever is the sooner.

Parts or equipment installed or commissioned not to acceptable AIAC standards or specification invalidate all warranty.

Warranty is only valid in the event that

In the period between delivery and commissioning the equipment: is properly protected & serviced as per the AIAC installation & maintenance manual provided where applicable the glycol content is maintained to the correct level.

In the event of a problem being reported and once warranty is confirmed as valid under the given installation and operating conditions, the Company will provide the appropriate warranty coverage (as detailed above) attributable to the rectification of any affected Airedale equipment supplied (excluding costs for any specialist access or lifting equipment that must be ordered by the customer).

Any spare part supplied by Airedale under warranty shall be warranted for the unexpired period of the warranty or 3 months from delivery, whichever period is the longer.

To be read in conjunction with the Airedale Conditions of Sale - Warranty and Warranty Procedure, available upon request.

CAUTION

Warranty cover is not a substitute for maintenance. Warranty cover is conditional to maintenance being carried out in accordance with the recommendations provided during the warranty period. Failure to have the maintenance procedures carried out will invalidate the warranty and any liabilities by Airedale International Air Conditioning Ltd.

SPARES

A spares list for 1, 3 and 5 years will be supplied with every unit and is also available from our Spares department on request.

TRAINING

As well as our comprehensive range of products, Airedale offers a modular range of Refrigeration and Air Conditioning Training courses, for further information please contact Airedale.

CUSTOMER SERVICES

For further assistance, please e-mail: ***enquiries@airedale.com*** or telephone:

UK Sales Enquiries	+ 44 (0) 113 238 7789	***enquiries@airedale.com***
International Enquiries	+ 44 (0) 113 239 1000	***enquiries@airedale.com***
Spares Hot Line	+ 44 (0) 113 238 7878	***spares@airedale.com***
Airedale Service	+ 44 (0) 113 239 1000	***service@airedale.com***
Technical Support	+ 44 (0) 113 239 1000	***tech.support@airedale.com***
Training Enquiries	+ 44 (0) 113 239 1000	***marketing@airedale.com***

For information, visit us at our Web Site: ***www.airedale.com***

Contents

Health and Safety

IMPORTANT The information contained in this manual is critical to the correct operation and maintenance of the unit and should be read by all persons responsible for the installation, commissioning and maintenance of this Airedale unit.

Safety

The equipment has been designed and manufactured to meet international safety standards but, like any mechanical/electrical equipment, care must be taken if you are to obtain the best results.

CAUTION **1 Installation, service and maintenance of Airedale equipment should only be carried out by technically trained competent personnel.**

CAUTION **2 When working with any air conditioning units ensure that the electrical isolator is switched off prior to servicing or repair work and that there is no power to any part of the equipment.**

3 Also ensure that there are no other power feeds to the unit such as fire alarm circuits, BMS circuits etc.

4 Electrical installation commissioning and maintenance work on this equipment should be undertaken by competent and trained personnel in accordance with local relevant standards and codes of practice.

5 The refrigerant used in this range of products is classified under the COSHH regulations as an irritant, with set Workplace Exposure Levels (WEL) for consideration if this plant is installed in confined or poorly ventilated areas.

6 A full hazard data sheet in accordance with COSHH regulations is available should this be required.

Protective Personal Equipment

Airedale recommends that personal protective equipment is used whilst installing, maintaining and commissioning equipment.

Refrigerant Warning

The Airedale OptiChill uses R134a refrigerant which is a high pressure refrigerant. It requires careful attention to proper storage and handling procedures.

Use on manifold gauge sets designed for use with R134a refrigerant. Use only refrigerant recovery units and cylinders designed for high pressure refrigerants.

R134a must only be charged in the liquid state to ensure correct blend makeup.

The refrigerant must be stored in a clean, dry area away from sunlight. The refrigerant must never be stored above 50°C.

Manual Handling

Some operations when servicing or maintaining the unit may require additional assistance with regard to manual handling. This requirement is down to the discretion of the engineer. Remember do not perform a lift that exceeds your ability.

Environmental Considerations

FREEZE PROTECTION

Airedale recommends the following actions to help protect the unit during low temperature operation. This also includes the units subject to low ambient temperatures.

Units with supply water temperatures below +5°C

- Glycol is recommended when a supply water temperature of +5°C or below is required or when static water can be exposed to freezing temperatures.

Units subject to ambient temperatures lower than 0°C

- Glycol of an appropriate concentration (1) is used within the system to ensure adequate protection. Please ensure that the concentration is capable of protection at least 3°C lower than ambient.
- Water / glycol solution is constantly circulated through all waterside pipework and coils to avoid static water from freezing.
- Ensure that pumps are started and running even during shut down periods, when the ambient is within 3°C of the solution freeze point (1) (i.e. if the solution freezes at 0°C, the pump must be operating at 3°C ambient).
- Additional trace heating is provided for interconnecting pipework.

(1) Referrer to your glycol supplier for details

ENVIRONMENTAL POLICY

It is our policy to:

- Take a proactive approach to resolve environmental issues and ensure compliance with regulatory requirements.
- Train personnel in sound environmental practices.
- Pursue opportunities to conserve resources, prevent pollution and eliminate waste.
- Manufacture products in a responsible manner with minimum impact on the environment.
- Reduce our use of chemicals and minimise their release to the environment.
- Measure, control and verify environmental performance through internal and external audits.
- Continually improve our environmental performance.

CE Directive

CE Airedale certify that the equipment detailed in this manual conforms with the following EC Directives:

Electromagnetic Compatibility Directive (EMC)	**2004/108/EC**
Low Voltage Directive (LVD)	**2006/95/EC**
Machinery Directive (MD)	**89/392/EEC version 2006/42/EC**
Pressure Equipment Directive (PED)	**97/23/EC**

To comply with these directives appropriate national & harmonised standards have been applied. These are listed on the Declaration of Conformity, supplied with each product.

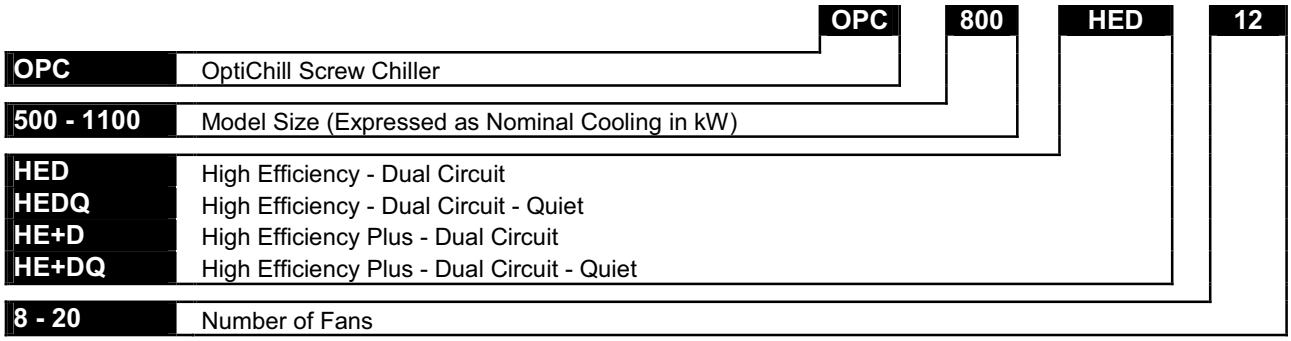
Maximum and Minimum Operation Temperature (TS) and Pressure (PS)

Operating Temperature (TS),	TS =	Min -20°C to Max 120°C *
Maximum Operating Pressure (PS)	PS =	High Side 26 Barg

*Based upon the maximum machine running temperatures.

General Description

UNIT IDENTIFICATION



INTRODUCTION

The Airedale range of OptiChill air cooled liquid screw chillers covers the nominal capacity range 500kW to 1100kW in 13 models sizes.

Each model size is offered in High Efficiency (**HE**) or High Efficiency Plus (**HE+**) and available as Standard (**D**) or Quiet (**DQ**) sound level variations to meet a wide range of applications.

Attention has been placed on offering a low energy high output performance and flexible product, while keeping the sound and footprint to an absolute minimum.

Look out for the ***Energy Saving*** features and options symbol ES.

REFRIGERANTS

The range has been designed and optimised for operation with ozone benign R134a refrigerant.

FEATURES	HED High Efficiency	HEDQ High Efficiency - Quiet	HE+D High Efficiency Plus	HE+DQ High Efficiency Plus - Quiet
● Standard ○ Optional Extra - Not available				
Construction				
Acoustically lined compressor enclosure	-	●	-	●
Standard Height Condenser Fan Discharge Plenum (300mm)	○	○	○	○
Extended Condenser Fan Discharge Plenum (800mmm)	○	○	○	○
Evaporator / Waterside				
Shell & Tube evaporator with immersion heater & thermostat	●	●	●	●
Grooved water connections and counter pipe assembly	●	●	●	●
Flow switch	○	○	○	○
Waterside Differential Pressure Switch	○	○	○	○
Pumps - Fixed Speed	○	○	○	○
Low Energy Pumps - Variable Speed incorporating Electronic Flow Metering System	○	○	○	○
Condenser				
Condenser Coils - Enhanced	Standard Size	Larger Size	Standard Size	Larger Size
Corrosion Resistant Condenser Coils	○	○	○	○
Coil Guards	○	○	○	○
Head Pressure Control - Voltage Regulated	●	-	-	-
Head Pressure Control - Electronically Commutated (EC) Regulated	○	●	●	●
Low speed Axial condenser fan with Sickle blades	●	-	●	-
Extra Low speed Axial condenser fan with Sickle blades	-	●	-	●
Refrigeration				
Twin screw compressors with low current Star/Delta Start	●	●	●	●
Dual independent refrigeration circuits	●	●	●	●
Electronic Expansion Valve (EEV)	●	●	●	●
Economiser with dedicated EEV	●	●	●	●
Maintainable Dual Pressure relief valve assembly	●	●	●	●
Discharge line mufflers and noise traps	-	●	-	●
Liquid line sight glass	●	●	●	●
Liquid and Discharge line ball valves	●	●	●	●
Large capacity filter drier with replaceable cores	●	●	●	●
Manual reset HP/LP Switch (LP via microprocessor)	●	●	●	●
Suction and liquid pressure transducers	●	●	●	●
Anti Vibration Mounts	○	○	○	○
Leak Detection System	-	○	-	○
Electrical				
Emergency stop	●	●	●	●
Individual door isolated mains power compartments for each refrigeration CCT, fans & pump option	●	●	●	●
Dedicated bus-bar chamber for incoming 3-phase & earth mains power supply	●	●	●	●
Closed transition Star/Delta Start	○	○	○	○
Connections for External Trace Heating	●	●	●	●
Power Factor Correction	●	○	○	○
Controls				
AIRETronix Microprocessor Controller	●	●	●	●
Energy Manager	○	○	○	○
Electronic compressor protection module with phase & rotation protection	●	●	●	●
Phase Rotation Protection	●	●	●	●
Sequence Control - Chiller Sequence Manager	○	○	○	○
Remote Setpoint Adjust 0-10 V Signal	○	○	○	○
BMS interface Card	○	○	○	○

General Description

STANDARD FEATURES

Construction

The base is fabricated from galvanised steel to ensure a rigid, durable, weatherproof construction.

Unit panels are manufactured from galvanised sheet steel coated with epoxy baked powder paint to provide a durable and weatherproof finish.

Standard unit colour is Light Grey (RAL 7035).

Compressors and evaporator are mounted on a rigid galvanised heavy-duty sub frame. Fully weatherproofed electrical panels are situated at one end of the unit.

Evaporator

Shell and tube heat exchangers constructed from a steel shell with internally enhanced copper tubes. Internal baffles in the water circuit optimise flow whilst keeping pressure drop to a minimum. The heat exchanger is insulated with closed cell polyurethane foam which is to Class O fire rating and the material is UV resistant.

Water inlet and outlet connections are of grooved type pipe and coupling assembly, optional flanged connections available on request, please consult Airedale.

An immersion heater and thermostat protect the evaporator against freeze up in ambient temperatures down to -20°C.

Connections for External Trace Heating (230V/500W available).

Water Connections

Water inlet and outlet connections are of a grooved and clamped type construction. The unit is supplied with a counter pipe and coupling assembly for quick connection.

Condenser

Large surface area coil(s) ideally positioned to optimise airflow and heat transfer, manufactured from refrigeration quality copper tubes with mechanically bonded aluminium fins.

The copper tube is internally rifled for improved heat transfer.

Fan & Motor Assembly

AC Fan Motor - HED Model Only

Sickle bladed fan assemblies with integral long bellmouth and fingerproof grille; incorporate external rotor ac motor technology, capable of highly accurate discreet speed control, discharges air vertically. The fans offer maximum airflow performance while keeping sound levels to a minimum.

Each fan is speed controllable and operates from a 3 phase electrical supply.

Energy efficient Electronically Commutated (EC) fans are also available; refer to ***Optional extras***, on page 11.

Electronically Commutated (EC) Fan Motor - HEDQ, HE+D & HE+DQ Models

ES

Each fan incorporates on board electronics with AC/DC Conversion and inverter driven DC motor control to offer unparalleled high efficiency levels combined with smooth stepless speed control and quiet operation.

Sickle blades reduce air turbulence to minimise sound levels and power consumption whilst maximising performance.

The long bellmouth design provides improved aerodynamics, up to 10% more air movement, and an extended vertical throw of air to reduce the chance of air re-circulation. As standard the enclosure is complete with an integral fingerproof grille.

The fans offer maximum airflow performance while keeping sound levels to a minimum.

For further details, please refer to ***Design Features & Information***, on page 17.

General Description

STANDARD FEATURES

Compressor

Twin screw semi hermetic compressors comprising:

- Electronic Protection Module featuring:
  - Motor, discharge gas and oil monitoring
  - Rotation direction protection
  - Phase failure protection
- Low current Star/Delta Start
- Internal pressure relief
- Discharge non return valve
- Oil separator
- Oil sight glass
- Oil heater
- Slide valve stepped capacity control
- Suction gas motor cooling

The compressors are mounted to the rigid galvanised heavy duty sub-frame with the use of vibration reducing isolation.

Liquid injection is not required under normal operating conditions, leading to an increase in cooling and efficiency

Closed transition Star/Delta compressor start is available as an optional extra; refer to ***Design Features & Information***, on page 20 for further details.

Economiser

ES Controlled by a dedicated EEV, the economiser optimises compressor performance at full and part load operation; refer to ***Design Features & Information***, on page 17 for further details.

Maintainable Dual Pressure Relief Valve

A 3-way dual shut-off valve assembly incorporating 2 relief valves per circuit allows the maintenance of individual pressure relief valves without the need for refrigerant evacuation.

Refrigeration

Each refrigeration circuit is supplied with the following:

- Full operating charge of R134a
- Electronic Expansion Valves (EEV)
- Discharge line ball valve
- Liquid line ball valve
- Large capacity filter drier with replaceable cores
- Liquid line sight glass
- Low pressure switch with Auto reset
- High pressure switch with manual reset
- Suction and liquid pressure transducers
- Discharge line mufflers (DQ Models)

General Description

STANDARD FEATURES

Controls

As standard, the AIRETronix microprocessor controller can provide 8 stages of capacity control.

Optionally, the controller is designed to provide capabilities for;

- Building Management Systems (BMS)
- Sequencing (Master/Slave and Run/Standby)

to meet all your system requirements, ***please specify at order***.

For further details, refer to ***Controls***, on page 22.

Electrical

A weatherproof electrical power and controls panel is situated at the end of the unit and contains:

- Individual mains power compartments for each refrigeration circuit
- Separate door locking electrical isolation for each mains compartment
- Dedicated bus-bar chamber for connection of incoming 3-phase and earth mains power supply,

refer to ***Interconnecting wiring***, on page 69

- Emergency Stop fitted to controls compartment door
- Separate, fully accessible, controls compartment, allowing adjustment of control set points whilst the unit is operational
- Circuit breakers for protection of all major unit components
- Phase rotation relay incorporating phase loss protection (compressor module)

The electrical power and control panel is wired to the latest European standards and codes of practice.

Mains supply is 3 phase and a neutral is not required, refer to ***Interconnecting wiring***, on page 69.

Separate 230V permanent supply is required for the controls and safety features.

Electrical terminals for external evaporator pipework trace heating (230V/500W) are provided.

CAUTION **A fused and isolated electrical supply of the appropriate phase, frequency and voltage should be installed.**

General Description

STANDARD FEATURES

Electronic Expansion Valves (EEV)

ES Electronic expansion valves differ to the normal thermostatic expansion valves in their ability to maintain control of the suction superheat at reduced head pressures. This can lead to significant energy savings particularly at reduced loading and low ambient temperatures. Factory fitted, for full details refer to ***Design Features & Information***, on page 19.

Head Pressure Control - Voltage Regulated - HED Models Only

Electronic fan speed controllers are fitted which modulate the fan speed by means of voltage regulation, maintaining a constant condensing pressure, allowing the system to operate satisfactorily in ambient temperatures as low as -20°C.

Head pressure can be set and monitored at the microprocessor display.

For optimum efficiency, optional electronically commutated (EC) fans with inbuilt inverter driven motors are available as an option, refer to ***Optional extras***, below.

OPTIONAL EXTRAS

Power Factor Correction

When applied to the motors of each compressor, the compressor power factor is controlled to a minimum operating value of 0.95 at the full operating capacity. This satisfies many supply authorities that may impose surcharges on equipment with power factor less than 0.95.

Electronically Commutated (EC) Fan Motor - HED Models

ES Each fan incorporates on board electronics with AC/DC Conversion and inverter driven DC motor control to offer unparalleled high efficiency levels combined with smooth stepless speed control and quiet operation.

Sickle blades reduce air turbulence to minimise sound levels and power consumption whilst maximising performance.

The long bellmouth design provides improved aerodynamics, up to 10% more air movement, and an extended vertical throw of air to reduce the chance of air re-circulation. As standard the enclosure is complete with an integral fingerproof grille.

The fans offer maximum airflow performance while keeping sound levels to a minimum.

For further details, please refer to ***Design Features & Information***, on page 17.

General Description

OPTIONAL EXTRAS

Chiller Sequence Manager ES

For the efficient temperature and capacity operation of multiple units on a single site, the sequence manager will permit interlinked operation of the complete system thereby providing optimum temperature control and minimum power consumption.

Upto 8 units can be sequenced.

Included within this package is a site visit by Airedale Control Specialists to set up multiple unit sequence control.

The chiller sequence manager is supplied as a separate control panel to be mounted remotely indoors, such as a plant room.

Energy Manager ES

Analysis of system energy consumption can be monitored via a dedicated LCD display. Unit parameters can be adjusted via the unit microprocessor control to affect energy usage in line with the system need.

General Description

OPTIONAL EXTRAS

Pump - Inverter Driven - Variable Speed for Constant Water Flow

ES

A factory fitted in line single or run/standby pump is available in a standard or larger external head, ***please specify at order***.

Flow is varied via an electronic flow meter, depending on system requirements.

Adjustment and monitoring is via the microprocessor display.

Factory fitted and supplied as standard complete with:

- electronic flow metering system
- flow switch
- isolating valves
- inlet strainer
- electrical switchgear

For further details, please refer to ***Design Features & Information***, on page 17 and ***Performance Data***, on page 34.

Pump - ac Motor - Fixed Speed

A factory fitted in line single or run/standby pump package is available in a standard or larger external head, ***please specify at order***.

Flow can be proved via the microprocessor display.

Factory fitted and supplied as standard complete with:

- flow switch
- isolating valves
- inlet strainer
- electrical switchgear

For further details, please refer to ***Design Features & Information***, on page 17 and ***Performance Data***, on page 34.

Corrosion Resistant Coated Coils

In atmospheres where high corrosion is anticipated a corrosion resistant coating is applied to the aluminium fins of either phenolic or epoxy, dependent upon size.

Coil Guards

Guards can be fitted to each of the outer coils to protect against damage.

General Description

OPTIONAL EXTRAS

Anti Vibration Mounts (Spring Type)

Spring vibration isolators can be supplied loose for on site fitting to the base frame of each unit.

The isolators are suitable for fitting to structural steelwork providing the surface is level and of sufficient strength where a high level of vibration elimination is required.

Anti Vibration Mounts (Pad Type)

Pad vibration isolators can be supplied loose for on site fitting to the base frame of each unit.

The isolators are suitable for fitting to structural steelwork providing the surface is level and of sufficient strength where a moderate degree of vibration elimination is required.

Discharge Air Plenum - Condenser Fan

Constructed from galvanised sheet steel coated with epoxy baked powder paint, this plenum directs discharge air vertically, thus limiting a degree of air re-circulation and provides a degree of acoustic reduction in the horizontal plane; factory fitted. For details please contact Airedale.

Standard unit colour is Light Grey (RAL 7035).

For dimensional details refer to ***Dimensional Data***, on page 58.

Extended Discharge Air Plenum - Condenser Fan

Constructed from galvanised sheet steel coated with epoxy baked powder paint, this plenum directs discharge air vertically, thus limiting greatly air re-circulation and provides a degree of acoustic reduction in the horizontal plane; factory fitted. For details please contact Airedale.

Standard unit colour is Light Grey (RAL 7035).

For dimensional details refer to ***Dimensional Data***, on page 58.

R134a Leak Detection System

A factory calibrated and fitted leak detection system, will raise an alarm when refrigerant gas is detected.

Fitted within the unit compressor enclosure.

Closed Transition Star/Delta Compressor Start

Closed transition Star/Delta starting can be incorporated to avoid high transient changeover current peaks when the compressor motor is switched over from Star to Delta. Refer to ***Design Features & Information***, on page 20.

General Description

OPTIONAL EXTRAS

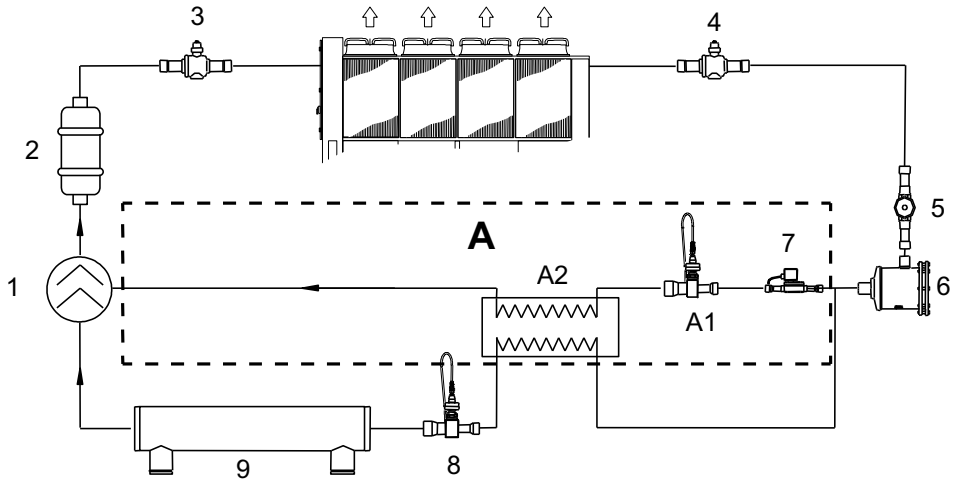
Evaporator Differential Pressure Sensor	Facilitates low flow limiting and pressure drop monitoring via the microprocessor.
Flow Switch	Will protect the chiller against low water flow conditions. Provided as standard with Airedale optional pump packages. Despatched loose for on site fitment.
Remote Setpoint Adjust	Allows the chilled water setpoint to be adjusted via an external 0-10V signal.
BMS Interface Card	Enables AIRETronix controlled chillers to be interfaced with most BMS, including Airedale's own pCOWeb, factory fitted, please contact Airedale. For further details, please refer to ***Controls***, on page 26.
Commissioning	Airedale Service provides a full commissioning service carried out by professionally trained, industry experienced engineers. For a competitive quotation, please contact Airedale Customer Services.
Chillerguard® UK Mainland	In addition to commissioning, a 24 hour, 7 days a week on-call service is available throughout the year to UK mainland sites. This service will enable customers to contact a duty engineer outside normal working hours and receive assistance over the telephone. The duty engineer can, if necessary, attend site, usually within 24 hours or less. Full details will be forwarded on acceptance of the maintenance agreement.

Design Features & Information

PIPEWORK DESIGN

The unit refrigeration piping has been specifically designed to ensure the absolute minimum pressure loss. Sizing and layout of pipes is such that good oil circulation is achieved and neither performance nor efficiency is compromised.

REFRIGERATION SCHEMATIC



1	Screw compressor	A	Economiser Circuit
2	Muffler (DQ Only)	A1	EEV
2	Ball Valve - Discharge	A2	Heat exchanger
4	Ball Valve - Liquid		
5	Sight Glass		
6	Filter driver - Replaceable core		
7	Solenoid valve		
8	EEV		
9	Evaporator		

Design Features & Information

ECONOMISER ES

The addition of an economiser circuit provides increased cooling and enhances EER, in full **and part load** operation.

Sub-cooled liquid is expanded using a dedicated EEV to a medium pressure and is passed through one side of a plate heat exchanger and liquid at the normal pressure flows through the opposite side of the plate heat exchanger. Consequently, the sub-cooling of the liquid entering the system EEV is increased as is the evaporator performance. Additionally, the suction pressure within the compressor body is lifted, improving compressor efficiency.

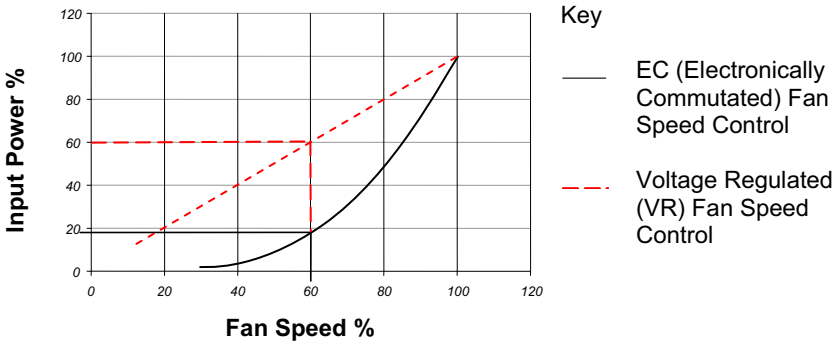
ELECTRONICALLY COMMUTATED (EC) FAN MOTOR ES

EC motors are DC motors with integrated ac to DC conversion; this gives the flexibility of connecting to ac mains with the efficiency and simple speed control of a DC motor. The EC fan offers significant power reduction in comparison with equivalent ac fan at both full and modulated fan speeds. The inbuilt EC fan control module allows for fan speed modulation from 15-100%, a standard ac fans modulating range is typically 40-100% of full fan speed.

The EC fan presents superior energy efficiency at part load fan speeds compared to the equivalent ac fan motor, offering typical efficiency savings up to 70%.

Fan speeds are factory set to either 900 rpm or 750 rpm depending on sound level variant, refer to ***General Specification***, on page 40.

Standard voltage regulated (VR) fan speed controllers offer a linear response. By comparison the EC fan is adjusted on demand via the unit microprocessor with precision, offering substantial energy savings. The following illustration shows a comparison of the typical power input required by each method.



Example: Fan speed of 60%
VR input power required 60%
EC input power required 18%

Design Features & Information

PUMPS OPTIONS

A variety of pump options to suit a wide range of applications is available:

Factory fitted in line as a single pump or run/standby configuration and available in standard and larger nominal external head pressures.

Factory fitted run/standby pumps have a shut off valve to the inlet and a non return valve to the outlet, enabling enable one pump to be maintained without interrupting chiller flow. Supplied with electrical switchgear and isolating valve as standard.

Run/standby pumps may be rotated manually to ensure even pump usage and prolong component life.

For performance curves, please refer to ***Performance Data***, on page 34.

The pump motor speed can be supplied as fixed or variable:

Standard - ac Motor - Fixed Speed

The standard ac electric motors are 400Vac / 50Hz / 3ph and fixed speed.

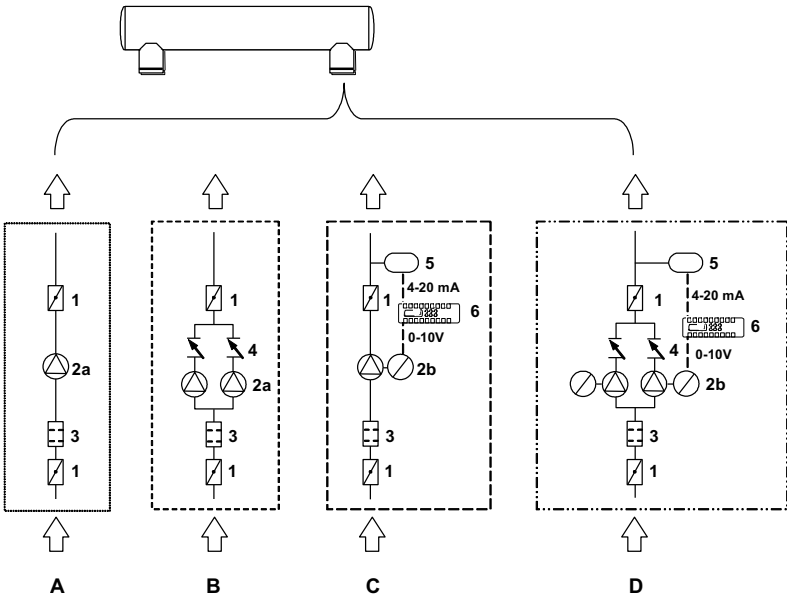
Inverter Driven Motor - Variable Speed for constant water flow

Flow is monitored by the onboard electronic flow meter to maintain the exact requirement of the application, thus saving pump input power whilst providing optimum chilled water flow control.

The option of an onboard variable speed drive combined with the electronic flow metering system offers an exceptional combination of simple commissioning and optimised efficiency.

Flow Schemes:

A Single Head Pump - Standard ac Motor - Fixed Speed
B Run/Standby Pump - Standard ac Motor - Fixed Speed
C Single Head Pump - Inverter Driven Motor - Variable Speed with electronic flow metering system
D Run/Standby Pump - Inverter Driven Motor - Variable Speed with electronic flow metering system



1 Shut off valve
2a Pump
2b Pump Inverter
3 Liquid Strainer
4 Non Return Valve
5 Electronic Flow Meter
6 AIRETronix Microprocessor

Design Features & Information

ELECTRONIC EXPANSION VALVES (EEV)

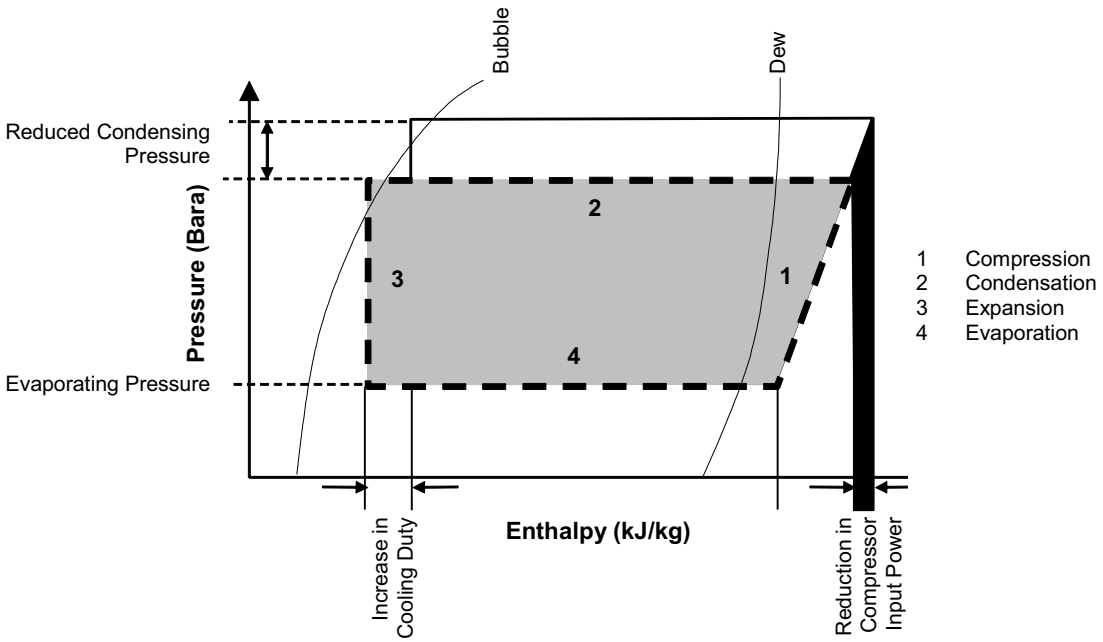
Thermostatic Expansion Valves (TEV)

Whilst offering versatile control at full design duty of the unit, TEVs do not automatically optimise themselves to all operating conditions. Therefore, if the unit is operating at 40% or 50% of full load, especially at a lower ambient temperature than that for which the valve was sized, the conventional TEV must have the design head pressure available to ensure good refrigerant control. Maintaining an artificially high condensing pressure is normal in conventional systems.

Electronic Expansion Valves (EEV)

Using an EEV allows for good refrigeration control whilst operating at part load and lower ambient conditions with a reduced condensing pressure. By fitting an EEV and adjusting the head pressure control setting **an increase in the system EER (Energy Efficiency Ratio) of up to 30% can typically be seen.** The Mollier diagram shown below helps to illustrate how this increase in efficiency is achieved.

EEV's differ to normal thermostatic expansion valves in their ability to maintain control of refrigerant flow and the suction superheat at reduced head pressures. The turn-down rate of a typical EEV is superior to that of its thermostatic equivalent, such that a reduced optimum condensing pressure can be maintained at low compressor load. However low the load is on the compressor, from zero to 100%, there will not be a problem with turn down, even down to 30% of the valves rated capacity.



Key

Cooling Cycle @ 22°C ambient with a conventional TEV fitted.

Cooling cycle @ 22°C ambient, demonstrating a typical EEV condensing temperature taking full advantage of lower ambient air temperatures (below 30°C).

Design Features & Information

STAR/DELTA STARTING OF 3 PHASE COMPRESSORS

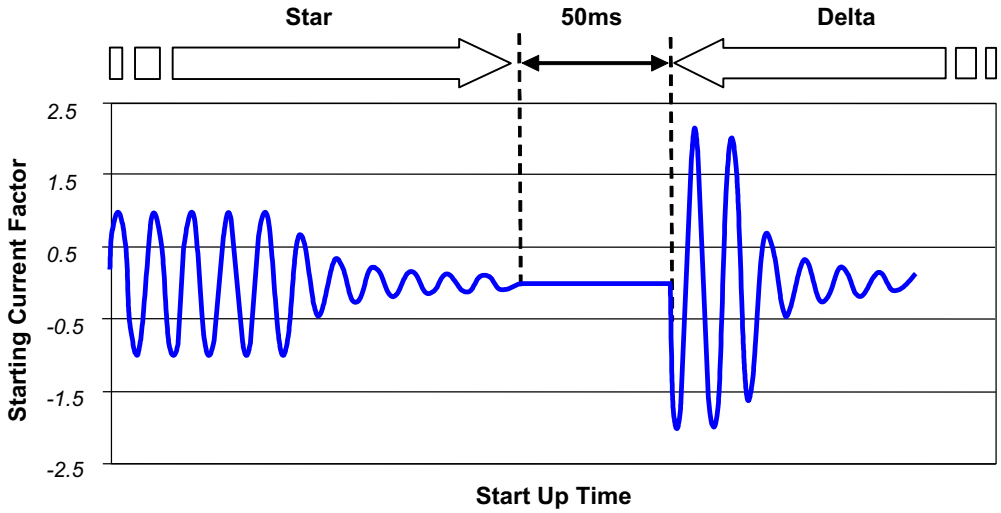
Open Transition Starting

In conventional open transition Star/Delta starting, a run up time of 2 seconds is required, however, a changeover delay of approximately 50 ms is usually observed when switching over from Star to Delta motor connections.

During this switch from Star to Delta, the motor is completely disconnected from the supply and, depending on the counter torque, its speed decreases to some extent.

When the Delta step is switched on, it may be that the supply phase angle and the magnetic field in the motor are in opposition to each other, which will lead to transient phenomena causing high changeover current peaks.

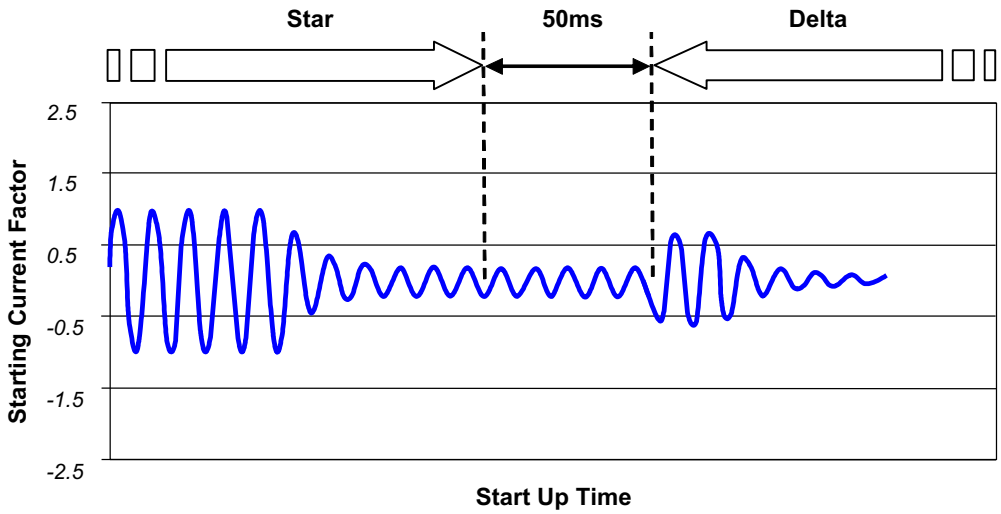
Typical current waveform for standard screw compressor Star Delta start:



Closed Transition Starting

In closed-transition Star/Delta starting, the motor is Delta-connected to the network via a transition contactor and resistors after the run-up in Star of 0.7 seconds switching over to the normal Delta step without disconnection from the supply. Thus no switching interval during which the motor is disconnected from the supply occurs, and high transient changeover current peaks are avoided.

Typical current waveform for closed transition start of a screw compressor:



Design Features & Information

SPECIFIC HEAT CAPACITY (SHC)

% Ethylene Glycol Concentration	0%	10%	20%	30%	40%
Specific Heat Capacity (kJ/kgK) (1)	4.190	4.115	3.901	3.686	3.474

% Propylene Glycol Concentration	0%	10%	20%	30%	40%
Specific Heat Capacity (kJ/kgK) (1)	4.190	4.139	4.033	3.903	3.749

(1) Data quoted for water/glycol solutions at a nominal temperature of 10°C.

CAUTION **Only use the SHC data when calculating fluid VOLUME. USE figure for 0% concentration (100% water) when applying Glycol Correction Factors, refer to *Glycol data*, on page 32.**

MINIMUM SYSTEM WATER VOLUME CALCULATIONS

METHOD 1 (Preferred Method)

Where the system permanent heat load is known, the minimum water volume in litres V_{min} is:

V_{min} = **Water Flow Rate (litres/min)**
x **Minimum Compressor Run Time (min)**
x **Chiller Loading Factor**

Chiller Loading Factor = $\frac{\text{Minimum Turndown (kW) x 1.2}}{\text{Permanent Heat Load}}$

Minimum Turndown = 20%

Example:

600kW Chiller at 35°C Ambient, 7/12°C Water, Model OPC600HED10 with a permanent load of 360kW

Permanent Heat Load = 360kW
Minimum Turndown = 20%

$$V_{min} = \frac{605.1 \times 60}{4.19 \times 5} \times 5 \times \frac{121}{360} \times 1.2 = 3495 \text{ Litres}$$

METHOD 2

Where the system permanent heat load is unknown:

V_{min} = **Water Flow Rate (litres/hour)**
x **Minimum Turndown**
x **1.2**
x **Minimum Compressor Run Time (Hours)**

Minimum Turndown = 20%

Example:

600kW Chiller at 35°C Ambient, 7/12°C Water, Model OPC600HED10

Minimum Turndown = 0.20 (20%)

$$V_{min} = \frac{605.1 \times 3600}{4.19 \times 5} \times 0.20 \times 1.2 \times \frac{5}{60} = 2079 \text{ Litres}$$

AIRETronix Controls

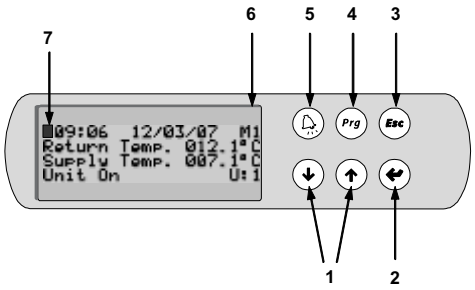
GENERAL DESCRIPTION

The microprocessor controller offers powerful analogue and digital control to meet a wide range of monitoring and control features including a real time clock and Industry standard communication port and network connections.

The controller's inbuilt display is used for viewing the unit operating status and making adjustments to control parameters by allowing the operator access to a series of display pages.

Also featured are a visual alarm and the facility to adjust and display control settings by local operator for information and control.

DISPLAY/KEYPAD



1 UP/DOWN KEYS - To change Adjustable Fields & Scrolls up & down available Menus

2 ENTER -Selects Menus & Moves Cursor to Adjustable Fields Green LED

3 ESC - Green LED lit when Operating Page displayed, Returns to Operating Page Screen when pressed

4 PROGRAM - Opens the Available Menus

5 ALARM - Red LED Indicates Alarm Present

6 4 ROW LCD DISPLAY

7 CURSOR (FLASHING) Top Left Position = "HOME" Indicates adjustable Fields

AIRETronix Controls

TEMPERATURE CONTROL

Airedale recognises that all chiller applications are different but fall mainly into 2 application categories; Variable Supply Temperature and Constant Supply Temperature.

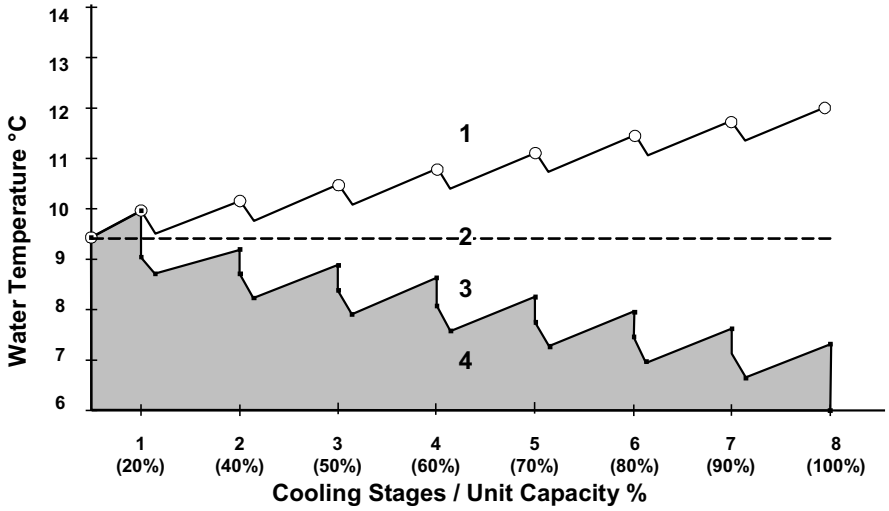
The onboard microprocessor has the capability of satisfying either control requirement as illustrated below. Using the Airedale Variable Supply Temperature control scheme, energy savings are available when compared with previous schemes and that of the Constant Supply Temperature application.

Variable Supply Temperature control schemes offer energy savings where the supply water temperature is not critical to its operation.

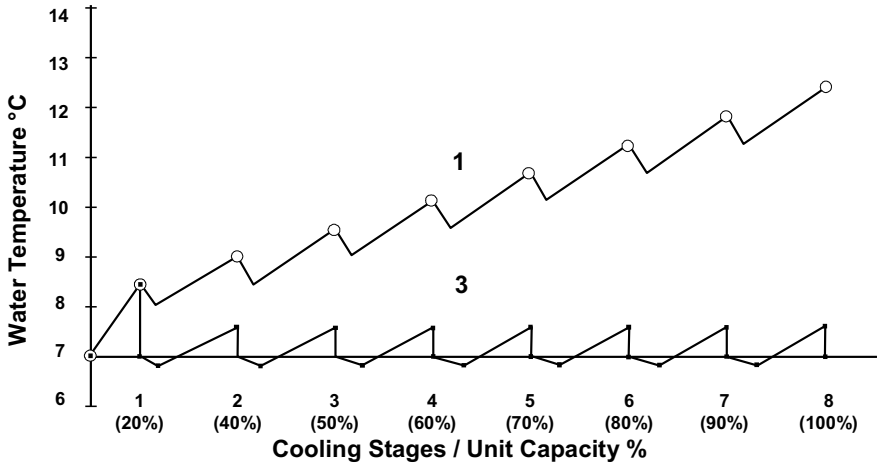
Selection of the best application control scheme can be made via a soft switch in the microprocessor during initial commissioning.

The microprocessor maintains the set supply Chilled Water temperature by sensing the return and supply water temperatures and ambient air temperature to adjust the compressor loading and water valve position as required.

Variable Supply Temperature Control



Constant Supply Temperature Control



1 Return Water Temperature
2 Mean Value
3 Supply Water Temperature
4 Compressor Off

CAUTION **Factory set to Variable Supply Temperature Control unless otherwise stated at order.**

Only when the mode selection has been set can the unit be enabled.

AIRETronix Controls

MONITORING

The microprocessor also monitors and displays the following measured parameters:

- Supply Water Temperature
- Return Water Temperature
- Evaporator Differential Water Pressure (Optional)
- Suction Pressure of each circuit
- Liquid Pressure of each circuit
- Suction Temperature at each circuit
- Superheat for each circuit
- Discharge temperature of each circuit

ALARM HANDLING

The controller logs and allows viewing of the last 100 conditions recorded in descending chronological order through the keypad display.

The following conditions will be detected, triggering a visual display:

Common for both circuits:

- Low Supply Temperature
- Emergency Stop
- Water Flow

Individual for each circuit:

Individual alarms will isolate the affected circuit only.

- Compressor Trip
- Low Suction Pressure for each circuit
- High Liquid Pressure for each circuit
- Volt Free Contact Alarm Indication
- Low Pressure Switch
- Compressor Overload
- High Compressor Discharge Temperature
- Circuit 1 Isolator Status
- Circuit 2 Isolator Status

AIRETronix Controls

STANDARD FEATURES

Unit Remote ON/OFF	Disables/Enables the unit remotely.
Compressor Anti Cycle Control	Automatic via the Microprocessor.
Compressor Load Limit	Limits the condensing pressure by unloading above 13.2Barg. Limits the evaporating pressure by unloading at the minimum pressure setpoint, which is, adjustable depending on system glycol content.
Pump(s) Remote ON/OFF	Disables/Enables the pump(s) remotely.
Remote Setback Temperature Setpoint Switch	A setback setpoint for supply water temperature can be selected to suit summer/winter conditions or night setback.
Compressor Hours Run	Displays hours run of each compressor.
Password Protection	The control system integrity can be maintained by restricting access with a password PIN number.

CAUTION **IMPORTANT: To change the PIN number; please contact Airedale at time of order with the preferred 4 digit number.**

AIRETronix Controls

OPTIONAL FEATURES

Pump(s) Hours Run

Displays hours run of each pump.

BMS Interface Card

Enables AIRETronix Controlled units to be interfaced with most BMS, factory fitted, please contact Airedale.

A wide range of protocols can be accommodated through the use of interface devices. Available as a standard option are: ModBus/Jbus, Carel and Trend.

For interfaces such as SNMP, LonWorks, Metasys and BACnet, please contact Airedale.

Also available is Airedale's own supervisory plug-in BMS card pCOWeb.

Based on Ethernet TCP/IP secure technology with SNMP features.

Requires no proprietary cabling or monitoring software and supplied pre programmed with an IP address for ease of set up.

BMS system configuration by others.

GSM Modem Kit

Allows remote alarm monitoring by sending alarm text messages to a nominated mobile phone, factory set.

Chiller Sequence Manager

For the efficient temperature and capacity operation of multiple units on a single site (up to 8 units), the sequence manager will permit interlinked operation of the complete system thereby providing optimum temperature control and minimum power consumption.

Included within this package is a site visit by Airedale Control Specialists to set up multiple unit sequence control.

The chiller sequence manager is supplied as a separate control panel to be mounted remotely indoors, such as a plant room.

CAUTION **When adding to an existing controls scheme, please consult Airedale to ensure strategy compatibility.**

Performance Data

OPERATING LIMITS

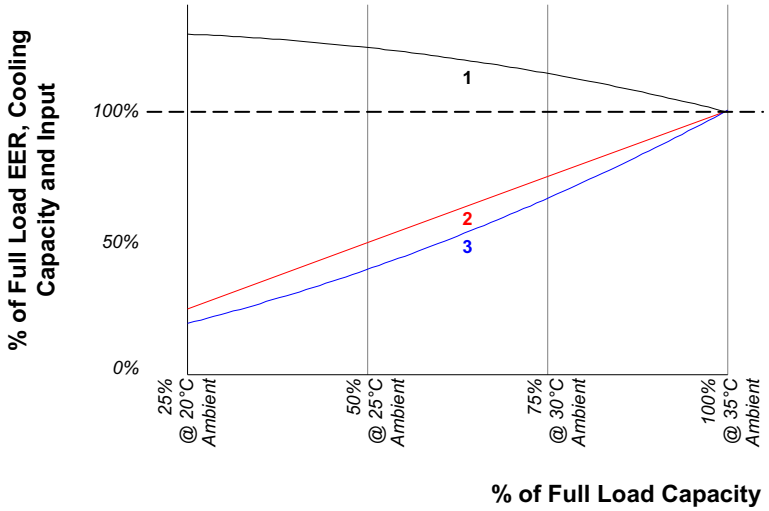
(For 100% Water)

Standard Unit	
Minimum Ambient Air DB °C	-20°C
Maximum Ambient Air DB °C at Full Load Operation	40°C
Maximum Ambient Air DB °C at Reduced Load Operation	45°C
Minimum Leaving Water Temperature °C	+5°C
Maximum Return Water Temperature °C	+20°C
Minimum / Maximum ΔT	4°C / 8°C

1 For conditions outside those quoted, please refer to Airedale.
2 For minimum ambient, it is assumed that adequate freeze protection is fitted.

TYPICAL PART LOAD CHARACTERISTICS

The following graph gives a general indication of the effect of reduced load on the performance of the unit, for specific performance details, please contact Airedale.



Key
1 = EER
2 = Output kW
3 = Input kW

ESEER CALCULATIONS

The quoted EER figures (***General Specification***, on page 40) cover the performance of the unit ONLY at the standard rating conditions of 7/12°C water, 35°C ambient. The ESEER calculation method has been developed by Eurovent to give a single value that is a realistic indication of the efficiency of the chiller across the year round range of operation.

The ESEER value is calculated from the unit's performance at 20, 25, 30 and 35°C ambient temperatures for all loading stages, and with a fixed 7°C supply temperature. All calculations assume the system operates with 100% water.

$ESEER = A.EER_{100\%} + B.EER_{75\%} + C.EER_{50\%} + D.EER_{25\%}$

A, B, C and D are weighting factors 0.03, 0.33, 0.41 and 0.25.

Temperature	20°C	25°C	30°C	35°C
Capacity Requirement	25%	50%	75%	100%
Percentage of Total Hours	0.25	0.41	0.33	0.03

Performance Data

CAPACITY DATA - HIGH EFFICIENCY

	Air On Coil	Water In/Out °C	Output kW	Input kW	Output kW	Input kW	Output kW	Input kW	Output kW	Input kW	Output kW	Input kW	Output kW	Input kW	Output kW	Input kW
			OPC500HE		**OPC525HE**		**OPC550HE**		**OPC600HE**		**OPC650HE**		**OPC700HE**		**OPC750HE**	
D	25°C	10 / 5	523.8	140.8	552.3	152.6	580.9	164.4	620.6	166.2	675.9	175.4	738.9	192.8	790.4	213.8
		11 / 6	538.5	141.9	568.1	154.1	597.6	166.4	638.5	167.9	695.5	176.9	760.5	194.4	813.4	215.7
		12 / 7	553.6	143.0	584.1	155.7	614.6	168.4	656.6	169.5	715.4	178.6	782.5	196.1	836.7	217.6
		13 / 8	568.8	144.1	600.3	157.2	631.9	170.4	675.1	171.2	735.6	180.2	804.7	197.7	860.3	219.6
		14 / 9	584.3	145.2	616.8	158.8	649.4	172.4	693.8	172.9	756.1	181.9	827.3	199.4	884.2	221.6
		15 / 10	599.9	146.2	633.5	160.3	667.1	174.4	712.7	174.7	776.8	183.6	850.2	201.1	908.4	223.6
	30°C	10 / 5	505.3	158.6	531.3	170.3	557.2	182.0	597.3	183.0	650.0	193.2	711.0	212.1	759.4	236.6
		11 / 6	519.8	159.8	546.6	171.9	573.5	184.1	614.6	184.7	668.8	195.0	731.9	213.9	781.6	238.8
		12 / 7	534.4	160.9	562.2	173.5	590.0	186.2	632.2	186.5	688.0	196.9	753.1	215.7	804.2	240.9
		13 / 8	549.3	162.1	578.0	175.2	606.7	188.2	650.0	188.3	707.4	198.7	774.5	217.6	827.0	243.1
		14 / 9	564.4	163.2	594.0	176.8	623.7	190.3	668.1	190.2	727.0	200.6	796.3	219.5	850.1	245.3
		15 / 10	579.6	164.3	610.3	178.4	640.9	192.4	686.4	192.0	746.9	202.5	818.3	221.4	873.4	247.5
	35°C	10 / 5	485.0	179.3	508.0	191.1	531.0	202.9	571.4	203.9	621.3	216.0	679.6	236.2	724.3	264.1
		11 / 6	499.0	180.5	522.8	192.8	546.7	205.1	588.1	205.8	639.4	218.0	699.7	238.2	745.7	266.4
		12 / 7	513.2	181.8	538.0	194.5	562.7	207.3	605.1	207.8	657.7	220.0	720.1	240.2	767.4	268.7
		13 / 8	527.6	183.0	553.3	196.3	578.9	209.5	622.3	209.7	676.3	222.1	740.7	242.2	789.3	271.0
		14 / 9	542.2	184.2	568.8	198.0	595.4	211.8	639.7	211.7	695.1	224.1	761.6	244.2	811.6	273.4
		15 / 10	557.0	185.4	584.5	199.7	612.1	214.0	657.4	213.6	714.1	226.2	782.7	246.2	834.0	275.7
	40°C	10 / 5	462.8	202.6	482.6	214.7	502.4	226.9	542.9	228.9	590.2	243.4	644.9	265.0	685.4	295.9
		11 / 6	476.3	203.9	497.0	216.6	517.7	229.3	559.0	231.0	607.5	245.6	664.1	267.1	705.9	298.3
		12 / 7	490.0	205.3	511.6	218.4	533.2	231.6	575.4	233.0	625.0	247.7	683.7	269.2	726.8	300.7
		13 / 8	504.0	206.6	526.4	220.3	548.9	234.0	592.0	235.1	642.8	249.9	703.4	271.3	747.9	303.1
		14 / 9	518.0	207.9	541.5	222.1	564.9	236.3	608.8	237.1	660.8	252.0	723.5	273.4	769.2	305.4
		15 / 10	532.3	209.1	556.7	223.9	581.1	238.6	625.9	239.2	679.0	254.2	743.8	275.5	790.9	307.8
DQ	25°C	10 / 5	521.0	143.1	549.0	155.0	577.0	167.0	603.1	174.9	629.3	182.9	731.1	196.2	781.5	218.5
		11 / 6	535.7	144.3	564.6	156.6	593.5	169.0	620.3	176.9	647.0	184.8	752.4	198.0	804.1	220.5
		12 / 7	550.6	145.4	580.5	158.2	610.4	171.1	637.6	178.9	664.9	186.7	774.1	199.7	827.1	222.6
		13 / 8	565.7	146.6	596.6	159.9	627.4	173.1	655.2	180.9	683.1	188.7	796.0	201.5	850.3	224.7
		14 / 9	581.0	147.7	612.9	161.5	644.7	175.2	673.1	183.0	701.4	190.7	818.2	203.3	873.9	226.8
		15 / 10	596.6	148.9	629.4	163.1	662.2	177.4	691.1	185.1	720.0	192.8	840.7	205.2	897.7	229.0
	30°C	10 / 5	502.1	161.5	527.4	173.4	552.6	185.3	578.0	194.8	603.3	204.3	702.0	217.0	749.1	242.8
		11 / 6	516.4	162.8	542.6	175.1	568.7	187.4	594.5	196.9	620.2	206.4	722.6	218.9	770.9	245.1
		12 / 7	531.0	164.0	558.0	176.8	585.0	189.6	611.2	199.1	637.4	208.6	743.4	220.9	793.1	247.4
		13 / 8	545.7	165.2	573.6	178.5	601.6	191.8	628.2	201.3	654.8	210.9	764.5	222.9	815.5	249.7
		14 / 9	560.6	166.4	589.5	180.2	618.3	194.0	645.4	203.6	672.4	213.1	785.9	224.9	838.1	252.1
		15 / 10	575.7	167.6	605.5	181.9	635.3	196.2	662.8	205.8	690.2	215.4	807.5	226.9	861.1	254.4
	35°C	10 / 5	481.3	182.8	503.6	194.8	525.8	206.9	550.2	218.7	574.7	230.5	669.5	242.6	712.6	271.8
		11 / 6	495.2	184.1	518.3	196.7	541.4	209.2	566.1	221.0	590.9	232.9	689.2	244.7	733.5	274.3
		12 / 7	509.2	185.5	533.2	198.5	557.1	211.5	582.2	223.4	607.3	235.3	709.2	246.9	754.8	276.7
		13 / 8	523.5	186.8	548.3	200.3	573.2	213.9	598.5	225.8	623.9	237.7	729.4	249.0	776.3	279.2
		14 / 9	537.9	188.1	563.6	202.1	589.4	216.2	615.1	228.2	640.7	240.2	749.9	251.2	798.1	281.7
		15 / 10	552.5	189.4	579.2	203.9	605.9	218.5	631.8	230.6	657.7	242.7	770.6	253.4	820.1	284.2
	40°C	10 / 5	458.7	206.6	477.7	219.1	496.8	231.5	520.4	246.3	544.0	261.0	633.6	273.0	672.2	305.2
		11 / 6	472.1	208.1	492.0	221.1	511.9	234.0	535.7	248.8	559.5	263.5	652.4	275.2	692.3	307.7
		12 / 7	485.6	209.5	506.4	223.0	527.2	236.5	551.1	251.3	575.1	266.0	671.5	277.4	712.7	310.3
		13 / 8	499.3	211.0	521.0	224.9	542.7	238.9	566.9	253.8	591.0	268.6	690.9	279.7	733.3	312.8
		14 / 9	513.3	212.3	535.8	226.9	558.4	241.4	582.8	256.3	607.1	271.2	710.5	282.0	754.2	315.3
		15 / 10	527.4	213.7	550.9	228.7	574.4	243.8	598.9	258.8	623.4	273.8	730.4	284.2	775.3	317.8

	Air On Coil	Water In/Out °C	Output kW	Input kW	Output kW	Input kW	Output kW	Input kW	Output kW	Input kW	Output kW	Input kW	Output kW	Input kW	
			OPC800HE		**OPC850HE**		**OPC900HE**		**OPC950HE**		**OPC1000HE**		**OPC1100HE**		
D	25°C	10 / 5	832.0	229.6	891.3	247.0	950.7	258.8	995.5	279.9	1055.6	285.1	1100.9	296.3	
		11 / 6	855.7	231.6	916.4	249.2	978.0	261.4	1024.3	283.2	1086.2	287.9	1132.6	298.9	
		12 / 7	879.7	233.7	941.8	251.4	1005.6	264.0	1053.6	286.6	1117.3	290.8	1164.8	301.5	
		13 / 8	904.1	235.7	967.5	253.6	1033.7	266.7	1083.3	290.0	1148.8	293.7	1197.5	304.2	
		14 / 9	928.8	237.8	993.7	255.8	1062.1	269.3	1113.4	293.4	1180.8	296.7	1230.6	306.9	
		15 / 10	953.8	239.9	1020.1	258.0	1091.0	272.0	1143.9	296.9	1213.2	299.7	1264.1	309.7	
	30°C	10 / 5	799.8	256.4	856.8	277.8	912.8	287.9	953.0	308.8	1013.1	313.9	1057.3	326.8	
		11 / 6	822.7	258.6	881.1	280.1	939.3	290.6	981.0	312.3	1042.7	317.0	1087.7	329.8	
		12 / 7	846.0	260.8	905.8	282.4	966.1	293.4	1009.3	315.8	1072.7	320.1	1118.6	332.7	
		13 / 8	869.6	263.1	930.7	284.8	993.4	296.1	1038.1	319.4	1103.1	323.2	1150.0	335.8	
		14 / 9	893.5	265.3	956.1	287.1	1021.0	298.8	1067.3	322.9	1134.0	326.3	1181.7	338.8	
		15 / 10	917.7	267.5	981.7	289.4	1049.1	301.6	1096.9	326.5	1165.3	329.5	1213.9	342.0	
	35°C	10 / 5	763.9	287.4	819.1	312.5	871.1	321.8	906.3	343.4	966.2	349.7	1009.0	365.5	
		11 / 6	786.1	289.8	842.5	315.0	896.7	324.7	933.4	347.1	994.7	353.0	1038.2	368.7	
		12 / 7	808.5	292.2	866.3	317.5	922.7	327.6	960.8	350.8	1023.5	356.3	1067.7	372.0	
		13 / 8	831.3	294.6	890.5	319.9	949.1	330.5	988.6	354.5	1052.8	359.6	1097.7	375.3	
		14 / 9	854.3	297.0	914.9	322.4	975.8	333.4	1016.8	358.2	1082.5	363.0	1128.1	378.7	
		15 / 10	877.6	299.4	939.6	324.8	1002.9	336.2	1045.5	361.9	1112.6	366.4	1158.8	382.2	
	40°C	10 / 5	724.9	322.3	778.8	350.5	826.0	360.3	855.9	383.1	915.0	392.2	956.4	412.0	
		11 / 6	746.2	324.8	801.4	353.1	850.7	363.4	882.0	387.0	942.3	395.7	984.2	415.5	
		12 / 7	767.8	327.3	824.3	355.8	875.8	366.4	908.6	390.9	970.1	399.2	1012.4	419.0	
		13 / 8	789.7	329.8	847.5	358.4	901.3	369.5	935.5	394.8	998.2	402.7	1041.1	422.6	
		14 / 9	811.8	332.3	871.0	361.0	927.1	372.5	962.8	398.6	1026.7	406.2	1070.1	426.2	
		15 / 10	834.3	334.7	894.8	363.5	953.3	375.5	990.4	402.5	1055.6	409.8	1099.4	429.8	
DQ	25°C	10 / 5	838.5	237.3	880.6	254.7	936.9	266.6	979.6	287.9	1037.3	293.8	1081.5	306.1	
		11 / 6	862.5	239.5	905.3	257.0	963.7	269.4	1007.9	291.4	1067.1	297.0	1112.2	309.1	
		12 / 7	886.8	241.7	930.3	259.4	990.8	272.2	1036.5	295.0	1097.3	300.2	1143.4	312.2	
		13 / 8	911.3	244.0	955.7	261.8	1018.4	275.1	1065.6	298.7	1127.9	303.5	1175.0	315.3	
		14 / 9	936.3	246.3	981.4	264.1	1046.3	277.9	1095.0	302.3	1158.9	306.8	1207.0	318.5	
		15 / 10	961.5	248.6	1007.4	266.5	1074.6	280.8	1124.9	306.0	1190.4	310.2	1239.4	321.8	
	30°C	10 / 5	803.9	265.6	844.8	287.0	897.4	297.7	935.3	319.1	992.8	325.8	1035.7	340.4	
		11 / 6	827.0	268.1	868.7	289.5	923.4	300.6	962.7	322.9	1021.5	329.2	1065.1	343.8	
		12 / 7	850.5	270.5	892.9	292.0	949.7	303.6	990.4	326.7	1050.6	332.7	1094.9	347.2	
		13 / 8	874.2	272.9	917.4	294.5	976.3	306.6	1018.5	330.5	1080.0	336.3	1125.2	350.8	
		14 / 9	898.2	275.4	942.3	297.1	1003.4	309.6	1047.0	334.3	1109.9	339.8	1155.8	354.4	
		15 / 10	922.6	277.8	967.4	299.5	1030.7	312.6	1075.8	338.2	1140.1	343.4	1186.8	358.0	
	35°C	10 / 5	765.6	298.2	805.8	323.2	854.2	333.5	886.9	355.9	943.9	364.6	985.3	382.7	
		11 / 6	787.9	300.9	828.8	325.9	879.2	336.7	913.3	360.0	971.4	368.3	1013.4	386.5	
		12 / 7	810.4	303.5	852.1	328.6	904.6	339.9	940.0	364.0	999.3	372.1	1041.8	390.3	
		13 / 8	833.2	306.1	875.7	331.3	930.3	343.1	967.1	368.0	1027.6	375.9	1070.7	394.2	
		14 / 9	856.3	308.7	899.6	334.0	956.4	346.3	994.6	372.0	1056.3	379.7	1099.9	398.1	
		15 / 10	879.6	311.3	923.8	336.7	982.8	349.4	1022.5	376.1	1085.3	383.6	1129.4	402.0	
	40°C	10 / 5	724.1	334.7	764.2	362.7	807.6	373.8	834.8	397.8	891.1	409.9	931.0	432.6	
		11 / 6	745.4	337.4	786.2	365.6	831.7	377.3	860.2	402.1	917.5	413.8	957.7	436.6	
		12 / 7	767.0	340.2	808.6	368.5	856.1	380.7	886.0	406.4	944.2	417.8	984.8	440.6	
		13 / 8	788.8	342.9	831.2	371.4	880.9	384.0	912.2	410.6	971.4	421.8	1012.3	444.7	
		14 / 9	810.9	345.6	854.1	374.3	906.0	387.4	938.7	414.9	998.9	425.8	1040.2	448.8	
		15 / 10	833.3	348.3	877.3	377.1	931.4	390.7	965.6	419.1	1026.7	429.8	1068.3	453.0	

1 Output kW = cooling duty.
2 Input kW = compressor + fan input power.
3 Data applicable for chilled water ΔT at 5°C
4 Evaporator fouling factor = 0.44 x 10^{-4} m² K/W.
5 Interpolate for water temperatures between those quoted, do not extrapolate.
6 For conditions outside those quoted, please refer to Airedale.

7 Unit water flow rate (l/s) = $\frac{\text{Output kW}}{4.19 \times \Delta T}$ at 100% water. For glycol use, refer to ***Glycol data***, on page 32.

Performance Data

CAPACITY DATA - HIGH EFFICIENCY PLUS

	Air On Coil	Water In/Out °C	Output kW	Input kW	Output kW	Input kW	Output kW	Input kW	Output kW	Input kW	Output kW	Input kW	Output kW	Input kW	Output kW	Input kW
			OPC500HE+		**OPC525HE+**		**OPC550HE+**		**OPC600HE+**		**OPC650HE+**		**OPC700HE+**		**OPC750HE+**	
D	25°C	10 / 5	542.5	142.2	584.8	149.4	617.5	161.8	646.7	168.6	687.5	176.3	752.7	193.9	809.4	215.4
		11 / 6	558.0	143.3	601.8	150.9	635.6	163.7	665.6	170.3	707.5	177.9	774.8	195.5	833.1	217.3
		12 / 7	573.8	144.4	619.1	152.3	654.1	165.6	684.7	172.1	727.9	179.6	797.3	197.2	857.1	219.3
		13 / 8	589.7	145.5	636.6	153.8	672.8	167.5	704.2	173.9	748.5	181.3	820.1	198.9	881.4	221.3
		14 / 9	605.9	146.6	654.4	155.2	691.8	169.4	723.9	175.7	769.4	183.0	843.2	200.6	906.1	223.4
		15 / 10	622.4	147.7	672.4	156.7	711.0	171.4	743.9	177.5	790.6	184.8	866.6	202.4	931.1	225.5
	30°C	10 / 5	523.1	160.1	563.7	165.6	593.6	177.7	621.8	185.5	660.8	194.3	723.9	213.2	777.2	238.3
		11 / 6	538.2	161.2	580.2	167.1	611.2	179.6	640.0	187.3	680.0	196.1	745.3	215.1	800.1	240.5
		12 / 7	553.6	162.4	597.0	168.5	629.2	181.5	658.6	189.2	699.6	198.0	766.9	216.9	823.3	242.7
		13 / 8	569.1	163.6	614.1	170.0	647.3	183.5	677.3	191.1	719.4	199.9	788.9	218.8	846.8	245.0
		14 / 9	584.9	164.7	631.4	171.5	665.8	185.4	696.4	193.0	739.4	201.8	811.1	220.7	870.5	247.2
		15 / 10	600.9	165.8	649.0	172.9	684.5	187.4	715.7	195.0	759.8	203.8	833.7	222.7	894.6	249.5
	35°C	10 / 5	501.6	180.8	540.1	185.0	567.0	197.0	594.2	206.5	631.3	217.1	691.6	237.4	740.8	265.9
		11 / 6	516.3	182.0	556.1	186.5	584.1	199.0	611.7	208.5	649.7	219.2	712.1	239.4	762.8	268.2
		12 / 7	531.1	183.3	572.5	188.1	601.5	201.0	629.6	210.5	668.4	221.2	732.9	241.4	785.1	270.6
		13 / 8	546.2	184.5	589.1	189.6	619.1	203.1	647.7	212.6	687.4	223.3	754.0	243.5	807.7	273.0
		14 / 9	561.5	185.7	605.9	191.1	637.0	205.1	666.0	214.6	706.6	225.4	775.3	245.5	830.5	275.3
		15 / 10	576.9	186.9	622.9	192.6	655.2	207.1	684.7	216.6	726.0	227.5	797.0	247.6	853.7	277.7
	40°C	10 / 5	478.3	204.1	514.1	207.5	537.8	219.7	564.0	231.6	599.3	244.6	655.8	266.2	700.5	297.7
		11 / 6	492.4	205.5	529.7	209.1	554.4	221.8	580.9	233.7	617.0	246.7	675.5	268.3	721.7	300.1
		12 / 7	506.7	206.8	545.5	210.8	571.2	223.9	598.1	235.8	634.8	248.9	695.5	270.4	743.1	302.5
		13 / 8	521.3	208.1	561.6	212.3	588.4	226.0	615.6	237.9	653.0	251.1	715.7	272.6	764.8	304.9
		14 / 9	536.0	209.4	577.9	213.9	605.7	228.1	633.3	240.1	671.4	253.3	736.2	274.7	786.7	307.3
		15 / 10	550.9	210.7	594.4	215.4	623.4	230.1	651.2	242.2	690.0	255.6	757.0	276.9	809.0	309.7
DQ	25°C	10 / 5	548.4	139.3	580.5	151.6	612.6	163.9	641.5	170.9	670.4	177.8	744.6	197.3	807.7	214.7
		11 / 6	564.2	140.3	597.4	153.1	630.6	165.8	660.2	172.6	689.9	179.5	766.4	199.1	831.5	216.5
		12 / 7	580.2	141.3	614.5	154.5	648.9	167.7	679.2	174.4	709.6	181.2	788.5	200.9	855.6	218.3
		13 / 8	596.4	142.3	631.9	156.0	667.5	169.6	698.5	176.3	729.6	182.9	811.0	202.7	880.0	220.2
		14 / 9	612.9	143.3	649.6	157.4	686.3	171.6	718.1	178.1	749.8	184.6	833.7	204.6	904.7	222.1
		15 / 10	629.6	144.3	667.5	158.9	705.4	173.6	737.9	180.0	770.3	186.4	856.8	206.5	929.8	224.1
	30°C	10 / 5	529.4	156.5	558.7	168.6	587.9	180.6	615.9	188.8	643.8	196.9	714.6	218.2	775.6	237.6
		11 / 6	544.8	157.5	575.1	170.1	605.4	182.6	633.9	190.7	662.4	198.8	735.6	220.2	798.6	239.6
		12 / 7	560.4	158.6	591.8	171.6	623.2	184.6	652.2	192.6	681.3	200.7	756.9	222.2	821.9	241.7
		13 / 8	576.3	159.6	608.8	173.1	641.2	186.5	670.8	194.6	700.4	202.7	778.5	224.2	845.4	243.8
		14 / 9	592.3	160.6	625.9	174.5	659.5	188.5	689.7	196.6	719.9	204.6	800.3	226.3	869.3	245.9
		15 / 10	608.6	161.6	643.4	176.0	678.1	190.5	708.8	198.6	739.5	206.6	822.5	228.4	893.5	248.0
	35°C	10 / 5	508.3	176.6	534.4	188.8	560.6	200.9	587.4	210.9	614.3	221.0	681.1	243.9	739.2	265.2
		11 / 6	523.2	177.7	550.4	190.3	577.5	202.9	604.8	213.0	632.1	223.1	701.2	246.0	761.3	267.5
		12 / 7	538.4	178.8	566.6	191.9	594.7	205.0	622.5	215.1	650.2	225.2	721.6	248.2	783.7	269.7
		13 / 8	553.7	179.9	583.0	193.5	612.2	207.1	640.3	217.2	668.5	227.3	742.3	250.4	806.3	271.9
		14 / 9	569.3	181.0	599.6	195.0	629.9	209.1	658.5	219.3	687.0	229.5	763.2	252.6	829.3	274.2
		15 / 10	585.1	182.0	616.5	196.6	647.9	211.2	676.8	221.4	705.8	231.7	784.4	254.8	852.5	276.4
	40°C	10 / 5	485.0	199.7	507.8	212.1	530.6	224.5	556.4	237.2	582.2	249.8	644.1	274.2	698.5	297.5
		11 / 6	499.4	200.9	523.2	213.8	547.0	226.7	573.1	239.4	599.2	252.0	663.4	276.5	719.7	299.8
		12 / 7	514.0	202.1	538.8	215.5	563.7	228.9	590.1	241.6	616.5	254.3	682.9	278.8	741.2	302.2
		13 / 8	528.9	203.2	554.7	217.1	580.6	231.0	607.3	243.8	633.9	256.5	702.7	281.1	762.9	304.5
		14 / 9	543.9	204.4	570.8	218.8	597.7	233.2	624.7	246.0	651.7	258.8	722.7	283.4	784.9	306.8
		15 / 10	559.2	205.4	587.1	220.4	615.1	235.3	642.4	248.2	669.6	261.1	743.0	285.7	807.2	309.0

	Air On Coil	Water In/Out °C	Output kW	Input kW	Output kW	Input kW	Output kW	Input kW	Output kW	Input kW	Output kW	Input kW	Output kW	Input kW	
			OPC800HE+		**OPC850HE+**		**OPC900HE+**		**OPC950HE+**		**OPC1000HE+**		**OPC1100HE+**		
D	25°C	10 / 5	861.7	224.1	905.9	237.7	963.3	253.1	1021.0	270.8	1066.9	281.6	1112.8	292.3	
		11 / 6	886.6	225.9	931.6	239.6	991.1	255.5	1050.9	273.8	1098.0	284.2	1145.1	294.7	
		12 / 7	911.9	227.6	957.6	241.5	1019.3	257.9	1081.2	276.8	1129.5	286.9	1177.9	297.1	
		13 / 8	937.6	229.4	984.1	243.4	1048.0	260.3	1112.1	279.8	1161.6	289.7	1211.1	299.6	
		14 / 9	963.6	231.2	1010.9	245.2	1077.1	262.7	1143.4	282.9	1194.1	292.5	1244.8	302.1	
		15 / 10	989.9	233.1	1038.0	247.1	1106.6	265.1	1175.2	286.0	1227.1	295.3	1278.9	304.6	
	30°C	10 / 5	829.8	249.3	872.6	267.0	926.5	280.6	980.7	296.5	1025.5	308.5	1070.3	320.6	
		11 / 6	854.0	251.2	897.6	268.9	953.6	283.1	1009.8	299.5	1055.5	311.4	1101.3	323.3	
		12 / 7	878.6	253.2	923.0	270.9	981.0	285.5	1039.3	302.5	1086.1	314.3	1132.8	326.0	
		13 / 8	903.5	255.1	948.7	272.8	1008.9	288.0	1069.3	305.6	1117.0	317.2	1164.8	328.8	
		14 / 9	928.7	257.0	974.8	274.8	1037.2	290.4	1099.7	308.7	1148.4	320.2	1197.1	331.7	
		15 / 10	954.3	258.9	1001.2	276.7	1066.0	292.9	1130.6	311.8	1180.3	323.2	1230.0	334.5	
	35°C	10 / 5	794.1	278.9	835.9	300.3	885.8	313.1	936.0	327.9	979.5	342.6	1023.1	357.2	
		11 / 6	817.5	281.0	860.1	302.4	912.0	315.7	964.2	331.1	1008.5	345.6	1052.8	360.2	
		12 / 7	841.2	283.1	884.7	304.5	938.7	318.3	992.8	334.2	1037.9	348.7	1082.9	363.2	
		13 / 8	865.3	285.1	909.6	306.5	965.7	320.8	1021.9	337.4	1067.7	351.8	1113.5	366.3	
		14 / 9	889.6	287.2	934.8	308.6	993.2	323.4	1051.3	340.6	1097.9	355.0	1144.6	369.4	
		15 / 10	914.3	289.2	960.4	310.6	1021.0	325.9	1081.2	343.8	1128.6	358.2	1176.0	372.6	
	40°C	10 / 5	754.6	312.9	796.1	337.4	841.3	350.5	886.8	365.3	929.0	383.6	971.2	401.9	
		11 / 6	777.1	315.1	819.4	339.7	866.6	353.3	914.1	368.6	956.9	386.9	999.6	405.1	
		12 / 7	800.0	317.2	843.1	341.9	892.4	356.0	941.8	371.9	985.1	390.1	1028.5	408.4	
		13 / 8	823.1	319.4	867.1	344.1	918.5	358.7	969.9	375.2	1013.8	393.4	1057.7	411.6	
		14 / 9	846.6	321.5	891.4	346.3	945.0	361.4	998.5	378.5	1042.9	396.7	1087.4	415.0	
		15 / 10	870.3	323.7	916.1	348.4	971.9	364.0	1027.4	381.7	1072.5	400.0	1117.5	418.3	
DQ	25°C	10 / 5	851.0	230.0	904.1	239.5	958.3	256.1	1004.4	277.0	1049.3	288.6	1094.1	300.2	
		11 / 6	875.5	231.9	929.7	241.4	985.9	258.6	1033.6	280.2	1079.5	291.6	1125.5	302.9	
		12 / 7	900.4	233.9	955.7	243.3	1013.9	261.1	1063.3	283.4	1110.3	294.6	1157.3	305.7	
		13 / 8	925.6	235.8	982.1	245.1	1042.3	263.6	1093.4	286.7	1141.5	297.6	1189.5	308.6	
		14 / 9	951.1	237.8	1008.9	247.0	1071.1	266.1	1124.0	290.0	1173.1	300.7	1222.2	311.5	
		15 / 10	977.0	239.8	1036.0	248.9	1100.3	268.6	1155.0	293.3	1205.1	303.9	1255.3	314.5	
	30°C	10 / 5	817.6	256.9	870.2	269.2	920.7	284.6	962.2	305.2	1005.8	318.7	1049.4	332.3	
		11 / 6	841.3	259.0	895.2	271.2	947.5	287.1	990.5	308.5	1035.0	321.9	1079.5	335.4	
		12 / 7	865.4	261.1	920.5	273.2	974.7	289.7	1019.3	311.8	1064.6	325.2	1110.0	338.5	
		13 / 8	889.8	263.2	946.2	275.1	1002.3	292.3	1048.5	315.2	1094.7	328.5	1140.9	341.8	
		14 / 9	914.5	265.4	972.2	277.1	1030.3	294.9	1078.1	318.6	1125.2	331.8	1172.2	345.0	
		15 / 10	939.6	267.5	998.6	279.0	1058.7	297.4	1108.2	321.9	1156.0	335.2	1203.9	348.4	
	35°C	10 / 5	780.3	288.2	833.0	303.1	879.1	318.0	915.6	339.2	957.9	355.9	1000.1	372.6	
		11 / 6	803.2	290.5	857.1	305.3	905.1	320.8	943.0	342.6	985.9	359.3	1028.8	376.0	
		12 / 7	826.4	292.8	881.6	307.4	931.4	323.5	970.9	346.1	1014.4	362.8	1057.9	379.5	
		13 / 8	849.9	295.0	906.4	309.5	958.2	326.2	999.1	349.7	1043.3	366.3	1087.4	383.0	
		14 / 9	873.7	297.3	931.6	311.5	985.3	328.9	1027.8	353.2	1072.6	369.9	1117.3	386.6	
		15 / 10	897.8	299.6	957.1	313.6	1012.8	331.6	1056.8	356.7	1102.2	373.5	1147.6	390.3	
	40°C	10 / 5	739.5	323.7	792.5	341.0	833.7	356.4	864.9	378.7	905.7	399.7	946.5	420.7	
		11 / 6	761.4	326.1	815.7	343.3	858.8	359.3	891.4	382.4	932.6	403.4	973.9	424.3	
		12 / 7	783.7	328.5	839.3	345.6	884.2	362.2	918.3	386.1	960.0	407.1	1001.6	428.1	
		13 / 8	806.2	330.9	863.2	347.8	910.0	365.1	945.6	389.8	987.7	410.8	1029.8	431.8	
		14 / 9	829.1	333.3	887.4	350.0	936.2	367.9	973.3	393.4	1015.8	414.5	1058.4	435.6	
		15 / 10	852.2	335.7	911.9	352.2	962.7	370.7	1001.4	397.1	1044.3	418.3	1087.3	439.5	

1 Output kW = cooling duty.
2 Input kW = compressor + fan input power.
3 Data applicable for chilled water ΔT at 5°C
4 Evaporator fouling factor = 0.44 x 10^{-4} m² K/W.
5 Interpolate for water temperatures between those quoted, do not extrapolate.
6 For conditions outside those quoted, please refer to Airedale.

7 Unit water flow rate (l/s) = $\frac{\text{Output kW}}{4.19 \times \Delta T}$ at 100% water. For glycol use, refer to ***Glycol data***, on page 32.

Performance Data

GLYCOL DATA For a given percentage of glycol in the system there are correction factors that need to be applied, the following tables can be used as a guide.

CAUTION **The source data must be at 100% Water for the correction factors to be valid.**

Ethylene Glycol Nominal Correction Factors

Glycol in System / Freezing Point ºC		10% / -4°C	20% / -9°C	30% / -15°C	40% / -23°C
Output (kW)	x	0.98	0.97	0.95	0.93
Compressor Input (kW)		0.99	0.98	0.96	0.95
Water Flow (l/s)		0.99	1.02	1.04	1.07
Pressure Drop (kPa)		1.05	1.20	1.38	1.57

Propylene Glycol Nominal Correction Factors

Glycol in System / Freezing Point ºC		10% / -2°C	20% / -6°C	30% / -12°C	40% / -20°C
Output (kW)	x	0.97	0.95	0.91	0.88
Compressor Input (kW)		0.99	0.98	0.96	0.95
Water Flow (l/s)		0.98	0.97	0.95	0.95
Pressure Drop (kPa)		1.08	1.17	1.31	1.45

Example

Model Ref. = **OPC800HE+D14**
Ambient: = 35°C
Fluid = 20% Ethylene Glycol
Inlet Fluid Temp. = 7°C
Outlet Fluid Temp. = 12°C (***5°C ΔT***)

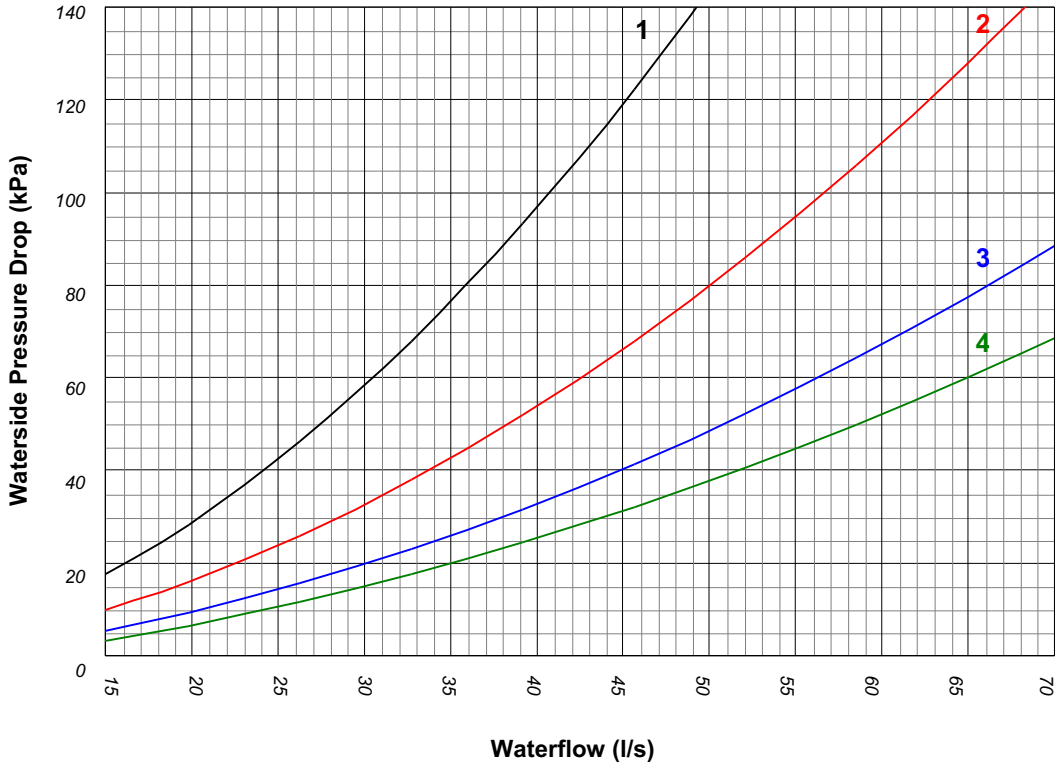
			100% Water	Multiplier		Corrected Figure
Output (kW)	=		841.2	x 0.97	=	816.0 kW
Compressor Input (kW)		Input (kW) - TFP {283.1 - {14 x 1.7}} =	259.3	x 0.98	=	254.1 kW
Water Flow (l/s)		$\frac{\text{Output}}{4.19 \times \Delta T}$	40.2	x 1.02	=	40.8 l/s
Pressure Drop (kPa)		Plot from curve (refer to ***Waterside pressure drop (kPa)***, on page 33)	33.1	x 1.20	=	39.7 kPa

Where:
Output = (kW) Output (kW), refer to ***Performance Data***, on page 28
Compressor Input = (kW) Input (kW) refer to ***Performance Data***, on page 28, (-) Minus TFP
TFP (Total Fan Power) = (kW) Quantity of Fans to unit x Fan Motor Size, refer to ***General Specification***, on page 40
Water Flow **= (l/s) ALWAYS USE 100% water SHC of 4.19.**
ΔT = (°C) Difference of Entering Water and Leaving Water temperature

Performance Data

WATERSIDE PRESSURE DROP (KPA)

CAUTION **Full design water flow MUST be maintained at all times. Variable water volume is NOT recommended and will invalidate warranty.**



	HED	HEDQ	HE+D	HE+DQ
OPC500	1	1	2	2
OPC525	1	1	2	2
OPC550	1	1	2	2
OPC600	1	1	2	2
OPC650	2	1	3	2
OPC700	2	2	3	3
OPC750	2	2	4	3
OPC800	2	3	3	3
OPC850	3	3	3	3
OPC900	3	3	3	3
OPC950	3	3	3	3
OPC1000	3	3	3	3
OPC1100	3	3	3	3

(1) Chiller pressure drop refers to standard unit only. For optional extras and pipework, please contact Airedale.

(2) For glycol solutions, please refer to ***Glycol data***, on page 32.

Performance Data

PUMP PACKAGES (OPTIONAL EXTRAS)

CAUTION **Full design water flow MUST be maintained at all times. Variable water volume is NOT recommended and will invalidate warranty.**

Use the formula below and the graphs provided to calculate the External Head Available:

Example

Model Ref.	= **OPC800HE+D14**
Ambient:	= 35°C
Fluid	= 100% Water
Inlet Fluid Temp.	= 7°C
Outlet Fluid Temp.	= 12°C (***5°C ΔT***)
Pump Selection	= Single Standard Head - Standard ac Motor - Fixed Speed Option
Fluid Flow l/s	= 40.0 l/s

EHA (kPa) = External Head Available

EHA (kPa) = { Total Pump Head Available - Unit Waterside Pressure Drop }

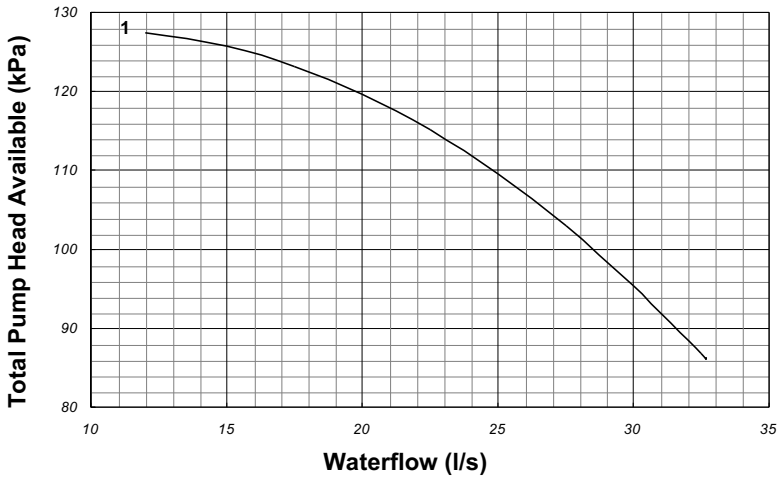
EHA (kPa) = { 123 - 33 }

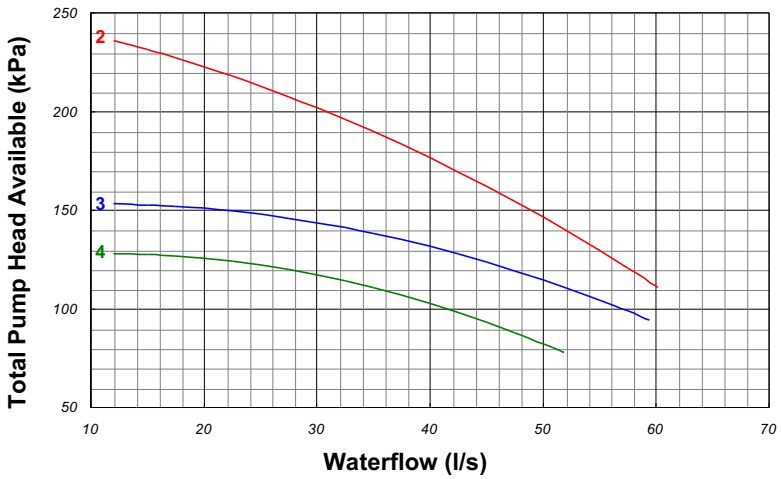
EHA (kPa) = 90 kPa

Performance Data

PUMP PACKAGES (OPTIONAL EXTRAS)

ac Motor - Fixed Speed Option



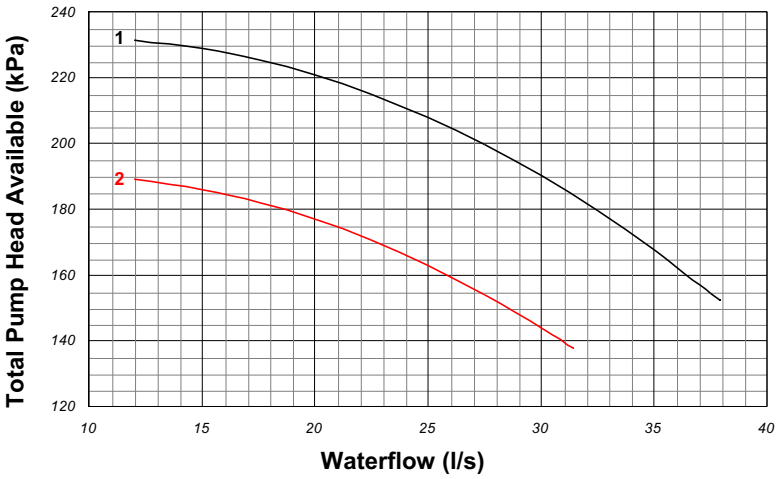


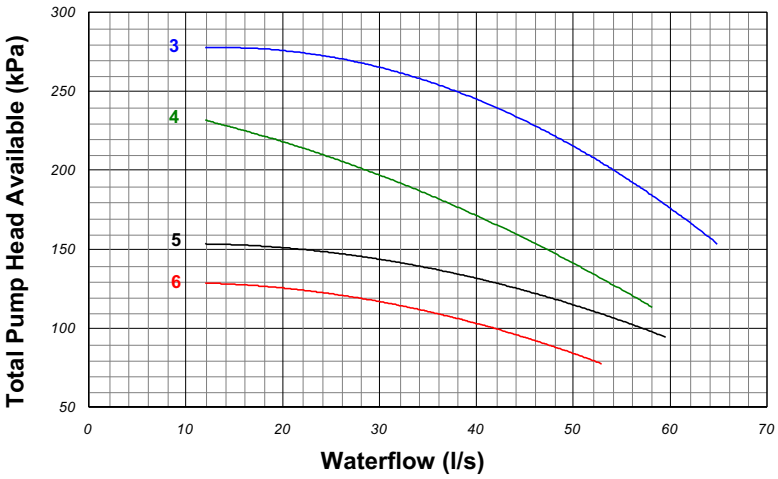
	Single Head	
HE / HE+	Standard Head	Larger Head
OPC500	1	3
OPC525	1	3
OPC550	1	3
OPC600	1	3
OPC650	1	2
OPC700	4	2
OPC750	4	2
OPC800	4	2
OPC850	4	2
OPC900	4	2
OPC950	4	2
OPC1000	4	2
OPC1100	3	2

Performance Data

PUMP PACKAGES (OPTIONAL EXTRAS)

Inverter Driven Motor - Variable Speed Option





HE / HE+	Single Head	
	Standard Head	Larger Head
OPC500	2	2
OPC525	2	2
OPC550	2	2
OPC600	6	1
OPC650	6	1
OPC700	6	1
OPC750	6	4
OPC800	6	4
OPC850	6	4
OPC900	5	4
OPC950	5	4
OPC1000	5	3
OPC1100	5	3

Sound Data

MEASUREMENT OF SOUND DATA

All sound data quoted has been measured in the third-octave band limited values, using a Real Time Analyser calibrated sound intensity meter in accordance with BS EN ISO9614 Part 1 : 1995. **The Global sound data quoted is valid for noise emitted in the horizontal plane in all directions.**

All Sound Power Levels quoted are calculated from measured sound intensity according to BS EN ISO9614 Part 1 : 1995.

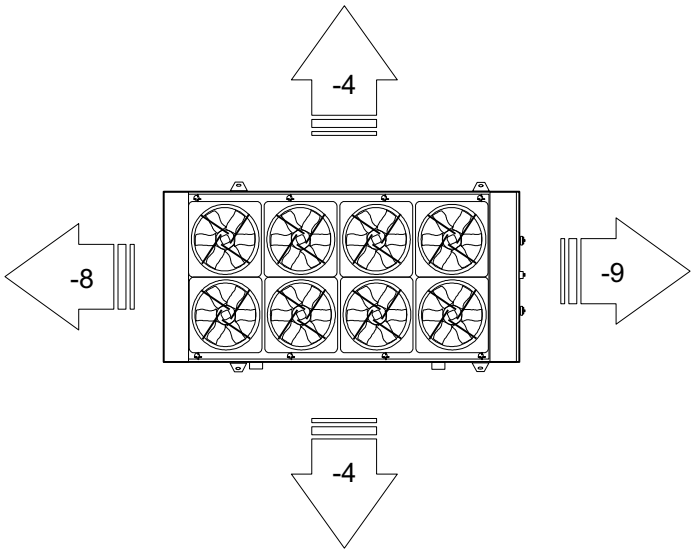
Sound Pressure Levels are calculated from sound power using the expanded parallelepiped method according to BS EN ISO11203 : 1996.

SOUND DIRECTIVITY

The ***Global*** sound measurements quoted in the following tables **do not** incorporate any directivity or denote any sound level heard at any given position surrounding the unit, rather they represent the total sound level radiating from the unit in **all directions in the horizontal plane** from source.

Using the adjustment factors from the map below, specific directional sound power levels can be derived from the global sound power data.

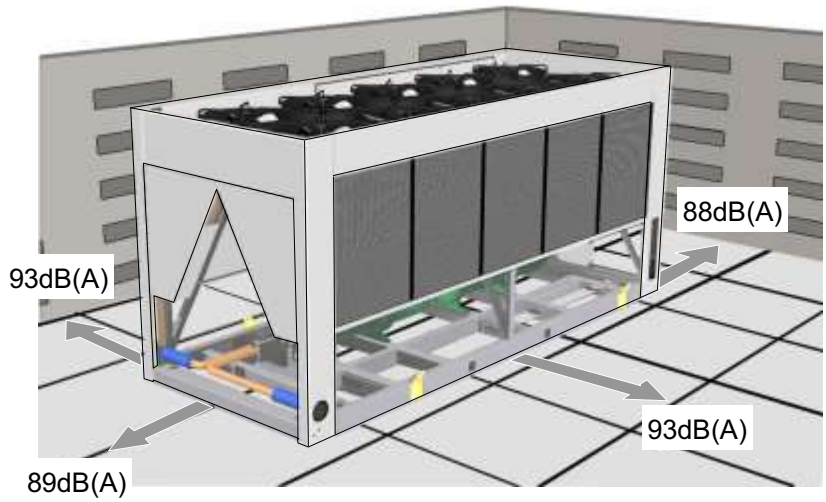
Base Correction Values - Global dB



EXAMPLE:

OPC600HED10

Overall Sound Power = 97 dB(A) ie:



Sound Data

GLOBAL CHILLER SOUND LEVEL VALUES - HIGH EFFICIENCY

Standard D Models

	Sound Measurement		Overall dB(A)	Frequency (Hz) dB						
				63	125	250	500	1000	2000	4000
OPC500HED8	Power		100	76	89	92	102	93	85	74
	Pressure	@ 10m	68	44	57	60	70	61	53	42
OPC525HED8	Power		98	76	89	91	100	92	85	74
	Pressure	@ 10m	66	44	57	59	68	60	53	42
OPC550HED8	Power		95	76	89	89	95	91	85	73
	Pressure	@ 10m	63	44	57	57	63	59	53	41
OPC600HED10	Power		97	76	90	91	96	92	87	74
	Pressure	@ 10m	65	44	58	59	64	60	55	42
OPC650HED10	Power		98	76	90	92	97	93	88	74
	Pressure	@ 10m	66	44	58	60	65	61	56	42
OPC700HED12	Power		97	77	92	95	97	93	87	77
	Pressure	@ 10m	64	44	59	62	64	60	54	44
OPC750HED12	Power		97	77	93	97	96	93	85	79
	Pressure	@ 10m	64	44	60	64	63	60	52	46
OPC800HED12	Power		97	77	92	98	96	91	85	78
	Pressure	@ 10m	64	44	59	65	63	58	52	45
OPC850HED12	Power		96	77	91	99	96	90	84	77
	Pressure	@ 10m	63	44	58	66	63	57	51	44
OPC900HED14	Power		98	77	92	101	98	91	86	76
	Pressure	@ 10m	65	44	59	68	65	58	53	43
OPC950HED14	Power		99	78	92	102	100	91	87	75
	Pressure	@ 10m	66	45	59	69	67	58	54	42
OPC1000HED16	Power		99	78	93	102	99	93	87	77
	Pressure	@ 10m	66	45	60	69	66	60	54	44
OPC1100HED16	Power		99	78	93	101	98	94	87	78
	Pressure	@ 10m	66	45	60	68	65	61	54	45

Quiet DQ Models

	Sound Measurement		Overall dB(A)	Frequency (Hz) dB						
				63	125	250	500	1000	2000	4000
OPC500HEDQ10	Power		94	82	80	89	94	89	81	69
	Pressure	@ 10m	62	50	48	57	62	57	49	37
OPC525HEDQ10	Power		92	82	80	87	92	88	80	69
	Pressure	@ 10m	60	50	48	55	60	56	48	37
OPC550HEDQ10	Power		90	82	80	84	88	87	80	68
	Pressure	@ 10m	58	50	48	52	56	55	48	36
OPC600HEDQ10	Power		91	82	80	87	89	88	82	68
	Pressure	@ 10m	59	50	48	55	57	56	50	36
OPC650HEDQ10	Power		92	82	80	88	90	89	84	69
	Pressure	@ 10m	60	50	48	56	58	57	52	37
OPC700HEDQ14	Power		92	83	86	92	89	89	83	73
	Pressure	@ 10m	59	50	53	59	56	56	50	40
OPC750HEDQ14	Power		92	83	88	94	89	89	80	75
	Pressure	@ 10m	59	50	55	61	56	56	47	42
OPC800HEDQ14	Power		92	83	86	96	89	87	80	74
	Pressure	@ 10m	59	50	53	63	56	54	47	41
OPC850HEDQ14	Power		91	83	84	96	88	84	80	72
	Pressure	@ 10m	58	50	51	63	55	51	47	39
OPC900HEDQ16	Power		93	84	85	99	91	86	82	71
	Pressure	@ 10m	60	51	52	66	58	53	49	38
OPC950HEDQ16	Power		94	84	85	100	92	87	83	68
	Pressure	@ 10m	61	51	52	67	59	54	50	35
OPC1000HEDQ18	Power		94	84	85	99	91	89	83	72
	Pressure	@ 10m	61	51	52	66	58	56	50	39
OPC1100HEDQ18	Power		94	84	86	99	91	90	83	73
	Pressure	@ 10m	61	51	53	66	58	57	50	40

1 dB(A) is the overall sound level, measured on the A scale.
2 All sound data measured at nominal conditions: Water in/out 12/7°C at 35°C ambient.
3 Based on standard unit, for units fitted with optional extras, please contact Airedale.

The Sound Pressure data quoted is only valid in free field conditions, where the unit is installed on a reflective base. If the equipment is placed adjacent to a reflective wall, values may vary to those stated, typically increasing by 3dB for each side added.

Sound Data

GLOBAL CHILLER SOUND LEVEL VALUES - HIGH EFFICIENCY PLUS

Standard D Models

	Sound Measurement		Overall dB(A)	Frequency (Hz) dB						
				63	125	250	500	1000	2000	4000
OPC500HE+D8	Power		100	76	89	92	102	93	85	74
	Pressure	@ 10m	68	44	57	60	70	61	53	42
OPC525HE+D10	Power		98	77	90	91	100	92	85	74
	Pressure	@ 10m	66	45	58	59	68	60	53	42
OPC550HE+D10	Power		96	77	90	90	96	91	85	74
	Pressure	@ 10m	64	45	58	58	64	59	53	42
OPC600HE+D10	Power		97	76	90	91	96	92	87	74
	Pressure	@ 10m	65	44	58	59	64	60	55	42
OPC650HE+D10	Power		98	76	90	92	97	93	88	74
	Pressure	@ 10m	66	44	58	60	65	61	56	42
OPC700HE+D12	Power		97	77	92	95	97	93	87	77
	Pressure	@ 10m	64	44	59	62	64	60	54	44
OPC750HE+D12	Power		97	77	93	97	96	93	85	79
	Pressure	@ 10m	64	44	60	64	63	60	52	46
OPC800HE+D14	Power		97	78	92	98	96	92	85	78
	Pressure	@ 10m	64	45	59	65	63	59	52	45
OPC850HE+D14	Power		97	77	92	99	96	90	84	77
	Pressure	@ 10m	64	44	59	66	63	57	51	44
OPC900HE+D16	Power		98	78	92	101	98	91	86	76
	Pressure	@ 10m	65	45	59	68	65	58	53	43
OPC950HE+D18	Power		100	79	93	102	100	92	87	76
	Pressure	@ 10m	67	46	60	69	67	59	54	43
OPC1000HE+D18	Power		99	79	93	102	99	93	87	77
	Pressure	@ 10m	66	46	60	69	66	60	54	44
OPC1100HE+D18	Power		99	79	93	101	98	94	87	78
	Pressure	@ 10m	66	46	60	68	65	61	54	45

Quiet DQ Models

	Sound Measurement		Overall dB(A)	Frequency (Hz) dB						
				63	125	250	500	1000	2000	4000
OPC500HE+DQ12	Power		94	82	80	89	94	89	81	70
	Pressure	@ 10m	61	49	47	56	61	56	48	37
OPC525HE+DQ12	Power		92	82	81	87	92	88	80	69
	Pressure	@ 10m	59	49	48	54	59	55	47	36
OPC550HE+DQ12	Power		90	82	81	85	88	87	80	68
	Pressure	@ 10m	57	49	48	52	55	54	47	35
OPC600HE+DQ12	Power		91	82	81	87	89	88	82	68
	Pressure	@ 10m	58	49	48	54	56	55	49	35
OPC650HE+DQ12	Power		92	82	80	88	90	89	84	69
	Pressure	@ 10m	59	49	47	55	57	56	51	36
OPC700HE+DQ14	Power		92	83	86	92	89	89	83	73
	Pressure	@ 10m	59	50	53	59	56	56	50	40
OPC750HE+DQ16	Power		92	84	88	94	89	89	80	75
	Pressure	@ 10m	59	51	55	61	56	56	47	42
OPC800HE+DQ16	Power		92	84	87	96	89	87	80	74
	Pressure	@ 10m	59	51	54	63	56	54	47	41
OPC850HE+DQ18	Power		91	84	84	96	89	85	80	72
	Pressure	@ 10m	58	51	51	63	56	52	47	39
OPC900HE+DQ20	Power		93	85	85	99	91	86	82	71
	Pressure	@ 10m	60	52	52	66	58	53	49	38
OPC950HE+DQ20	Power		95	85	85	100	92	87	83	69
	Pressure	@ 10m	62	52	52	67	59	54	50	36
OPC1000HE+DQ20	Power		94	85	86	99	91	89	83	72
	Pressure	@ 10m	61	52	53	66	58	56	50	39
OPC1100HE+DQ20	Power		94	85	86	99	91	90	83	73
	Pressure	@ 10m	61	52	53	66	58	57	50	40

1 dB(A) is the overall sound level, measured on the A scale.
2 All sound data measured at nominal conditions: Water in/out 12/7°C at 35°C ambient.
3 Based on standard unit, for units fitted with optional extras, please contact Airedale.

The Sound Pressure data quoted is only valid in free field conditions, where the unit is installed on a reflective base. If the equipment is placed adjacent to a reflective wall, values may vary to those stated, typically increasing by 3dB for each side added.

General Specification

MECHANICAL DATA - HIGH EFFICIENCY

Standard Chiller - D

			OPC500HED8	OPC525HED8	OPC550HED8	OPC600HED10	OPC650HED10
Capacity							
Nom Output - Cooling Only	(1)	kW	513.2	538.0	562.7	605.1	657.7
Nom Input - Cooling Only	(1)	kW	181.8	194.5	207.3	207.8	220.0
EER	(2)		2.82	2.77	2.71	2.91	2.99
ESEER	(3)		3.59	3.46	3.36	3.48	3.62
ECA Energy Technology listed			✓	✓	✓	✓	✓
Capacity Steps		%	0, 20, 40, 50, 60, 70, 80, 90, 100				
Dimensions - H x W x L		mm	2600 x 2200 x 4675	2600 x 2200 x 4675	2600 x 2200 x 4675	2600 x 2200 x 5675	2600 x 2200 x 5675
Weight - Machine	(4)	kg	5360	5380	5410	5900	6150
Weight - Operating	(4)	kg	5600	5640	5650	6170	6570
Construction - Material / Colour			**Base**: Plain Galvanised Steel **Panels**: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)				
Evaporator			Shell & Tube				
Insulation			Class O / UV Stable				
Water Volume		l	233.3	233.3	233.3	233.3	383.7
Total Max. Water Flow		l/s	37.7	37.7	37.7	37.7	55.2
Condenser			Copper Tube / Aluminium Fins				
Face Area (Total)		m²	20.6	20.6	20.6	25.8	25.8
Nominal Airflow		m³/s	45.6	45.6	45.6	57.0	57.0
Condenser Fan & Motor			Axial - Sickle Bladed Fan				
Quantity			8	8	8	10	10
Diameter		mm	800	800	800	800	800
Standard AC Type							
Maximum Speed		rpm	900	900	900	900	900
Head Pressure Fan Speed Control			Voltage Regulated				
Optional EC Type							
Speed Setting		rpm	900	900	900	900	900
Head Pressure Fan Speed Control			Microprocessor Controlled EC (Electronically Commutated) Fans				
Compressor			Screw - Twin				
Quantity			1 + 1	1 + 1	1 + 1	1 + 1	1 + 1
Oil Charge Volume (Total)		l	22 + 22	19 + 22	19 + 19	19 + 19	19 + 19
Oil Type			Ester Oil				
Refrigeration			Dual Circuit				
Refrigerant Control			Electronic Expansion Valve (EEV)				
Refrigerant Pre Charged			R134a				
Charge (Total)		kg	85 + 85	90 + 85	90 + 90	105 + 105	115 + 115
Connections			Grooved type Coupling & Pipe Assembly				
Water Inlet / Outlet			DN150 PN16	DN150 PN16	DN150 PN16	DN150 PN16	DN200 PN16
Water Drain / Bleed		in	1/2	1/2	1/2	1/2	1/2
Water System							
Min. System Water Volume	(5)	l	1764	1849	1934	2079	2260
Max. System Operating Pressure		bar	10	10	10	10	10
OPTIONAL EXTRAS							
Water Pump - ac Motor	(1)		In Line Pump - Fixed Speed Motor				
Single Head or Run/Standby							
Nom External Head Single - Standard		kPa	70	66	63	56	76
Nom External Head Single - Larger		kPa	107	104	100	94	179
Water Pump - Inverter Driven Motor			In Line Pump - Variable Speed Motor				
Single Head or Run/Standby							
Nom External Head Single - Standard		kPa	124	120	117	67	87
Nom External Head Single - Larger		kPa	124	120	117	155	174
Overall Dimensions with Pump - H x W x L	(6)	mm	2600 x 2570 x 6075	2600 x 2570 x 6075	2600 x 2570 x 6075	2600 x 2570 x 7075	2600 x 2570 x 7075

(1) Based on 12/7°C water temperature and 35°C ambient.
All performance data is supplied in accordance with BS EN 14511-1:2013

(2) EER = $\frac{\text{Output kW}}{\text{Input kW}}$

Where:
Output kW = Chilled Water Cooling duty.
Input kW = Compressor + Fan input power.

(3) ESEER, for further details, refer to ***ESEER calculations***, on page 27.

(4) Based on standard unit, for units fitted with options, please contact Airedale. Machine weight includes refrigerant charge; operating weight includes refrigerant charge and water volume.

(5) For minimum system volume calculations, refer to ***Minimum system water volume calculations***, on page 21.

(6) -8, -10 & -12 Fan models; pump mounted externally, refer to ***Dimensional Data***, on page 56 for details.

	OPC700HED12	OPC750HED12	OPC800HED12	OPC850HED12	OPC900HED14	OPC950HED14	OPC1000HED16	OPC1100HED16
	720.1	767.4	808.5	866.3	922.7	960.8	1023.5	1067.7
	240.2	268.7	292.2	317.5	327.6	350.8	356.3	372.0
	3.00	2.86	2.77	2.73	2.82	2.74	2.87	2.87
	3.58	3.53	3.54	3.61	3.50	3.37	3.46	3.50
	✓	✓	✓	✓	✓	✓	✓	✓
	0, 20, 40, 50, 60, 70, 80, 90, 100							
	2600 x 2200 x 7100	2600 x 2200 x 7100	2600 x 2200 x 7100	2600 x 2200 x 7100	2600 x 2200 x 8100	2600 x 2200 x 8100	2600 x 2200 x 9100	2600 x 2200 x 9100
	7120	7600	7610	7790	8360	8440	8950	8970
	7530	8000	8020	8330	8900	8990	9490	9490
	Base: Plain Galvanised Steel **Panels**: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)							
	Shell & Tube							
	Class O / UV Stable							
	383.7	383.7	383.7	504.4	504.4	504.4	504.4	504.4
	55.2	55.2	55.2	73.6	73.6	73.6	73.6	73.6
	Copper Tube / Aluminium Fins							
	31.0	31.0	31.0	31.0	36.1	36.1	41.3	41.3
	68.4	68.4	68.4	68.4	79.8	79.8	91.2	91.2
	Axial - Sickle Bladed Fan							
	12	12	12	12	14	14	16	16
	800	800	800	800	800	800	800	800
	900	900	900	900	900	900	900	900
	Voltage Regulated							
	900	900	900	900	900	900	900	900
	Microprocessor Controlled EC (Electronically Commutated) Fans							
	Screw - Twin							
	1 + 1	1 + 1	1 + 1	1 + 1	1 + 1	1 + 1	1 + 1	1 + 1
	35 + 19	35 + 35	35 + 35	35 + 35	35 + 35	35 + 35	35 + 35	35 + 35
	Ester Oil							
	Dual Circuit							
	Electronic Expansion Valve (EEV)							
	R134a							
	130 + 130	130 + 130	130 + 130	135 + 135	160 + 155	160 + 160	180 + 180	180 + 180
	Grooved type Coupling & Pipe Assembly							
	DN200 PN16	DN200 PN16	DN200 PN16	DN200 PN16	DN200 PN16	DN200 PN16	DN200 PN16	DN200 PN16
	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
	2475	2637	2779	2977	3171	3302	3518	3669
	10	10	10	10	10	10	10	10
	In Line Pump - Fixed Speed Motor							
	81	77	72	88	84	81	76	98
	173	168	164	179	175	172	167	164
	In Line Pump - Variable Speed Motor							
	81	76	71	87	111	108	103	99
	168	163	159	174	170	167	226	222
	2600 x 2570 x 8500	2600 x 2570 x 8500	2600 x 2570 x 8500	2600 x 2570 x 8500	2600 x 2570 x 8100	2600 x 2570 x 8100	2600 x 2570 x 9100	2600 x 2570 x 9100

General Specification

MECHANICAL DATA - HIGH EFFICIENCY

Quiet Chiller - DQ

			OPC500HEDQ10	OPC525HEDQ10	OPC550HEDQ10	OPC600HEDQ10	OPC650HEDQ10
Capacity							
Nom Output - Cooling Only	(1)	kW	509.2	533.2	557.1	582.2	607.3
Nom Input - Cooling Only	(1)	kW	185.5	198.5	211.5	223.4	235.3
EER	(2)		2.75	2.69	2.63	2.61	2.58
ESEER	(3)		3.79	3.63	3.49	3.52	3.54
ECA Energy Technology listed			✓	✓	✓	✓	x
Capacity Steps		%	0, 20, 40, 50, 60, 70, 80, 90, 100				
Dimensions - H x W x L		mm	2600 x 2200 x 5675	2600 x 2200 x 5675	2600 x 2200 x 5675	2600 x 2200 x 5675	2600 x 2200 x 5675
Weight - Machine	(4)	kg	6260	6290	6310	6320	6330
Weight - Operating	(4)	kg	6500	6530	6570	6570	6580
Construction - Material / Colour			**Base**: Plain Galvanised Steel **Panels**: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)				
Evaporator			Shell & Tube				
Insulation			Class O / UV Stable				
Water Volume		l	233.3	233.3	233.3	233.3	233.3
Total Max. Water Flow		l/s	37.7	37.7	37.7	37.7	37.7
Condenser			Copper Tube / Aluminium Fins				
Face Area (Total)		m²	25.8	25.8	25.8	25.8	25.8
Nominal Airflow		m³/s	44.0	44.0	44.0	44.0	44.0
Condenser Fan & Motor			Axial - Sickle Bladed Fan				
Quantity			10	10	10	10	10
Diameter		mm	800	800	800	800	800
Speed Setting		rpm	750	750	750	750	750
Head Pressure Fan Speed Control			Microprocessor Controlled EC (Electronically Commutated) Fans				
Compressor			Screw - Twin				
Quantity			1 + 1	1 + 1	1 + 1	1 + 1	1 + 1
Oil Charge Volume (Total)		l	22 + 22	19 + 22	19 + 19	19 + 19	19 + 19
Oil Type			Ester Oil				
Refrigeration			Dual Circuit				
Refrigerant Control			Electronic Expansion Valve (EEV)				
Refrigerant Pre Charged			R134a				
Charge (Total)		kg	100 + 100	105 + 100	105 + 105	105 + 105	105 + 105
Connections			Grooved type Coupling & Pipe Assembly				
Water Inlet / Outlet			DN150 PN16	DN150 PN16	DN150 PN16	DN150 PN16	DN150 PN16
Water Drain / Bleed		in	1/2	1/2	1/2	1/2	1/2
Water System							
Min. System Water Volume	(5)	l	1750	1832	1915	2001	2087
Max. System Operating Pressure		bar	10	10	10	10	10
OPTIONAL EXTRAS							
Water Pump - ac Motor	(1)		In Line Pump - Fixed Speed Motor				
Single Head or Run/Standby							
Nom External Head Single - Standard		kPa	71	67	64	60	56
Nom External Head Single - Larger		kPa	108	105	101	97	159
Water Pump - Inverter Driven Motor			In Line Pump - Variable Speed Motor				
Single Head or Run/Standby							
Nom External Head Single - Standard		kPa	124	121	118	71	67
Nom External Head Single - Larger		kPa	124	121	118	159	155
Overall Dimensions with Pump - H x W x L	(6)	mm	2600 x 2570 x 7075	2600 x 2570 x 7075	2600 x 2570 x 7075	2600 x 2570 x 7075	2600 x 2570 x 7075

(1) Based on 12/7°C water temperature and 35°C ambient.
All performance data is supplied in accordance with BS EN 14511-1:2013

(2) $\text{EER} = \frac{\text{Output kW}}{\text{Input kW}}$

Where:
Output kW = Chilled Water Cooling duty.
Input kW = Compressor + Fan input power.

(3) ESEER, for further details, refer to ***ESEER calculations***, on page 27.

(4) Based on standard unit, for units fitted with options, please contact Airedale. Machine weight includes refrigerant charge; operating weight includes refrigerant charge and water volume.

(5) For minimum system volume calculations, refer to ***Minimum system water volume calculations***, on page 21.

(6) -8, -10 & -12 Fan models; pump mounted externally, refer to ***Dimensional Data***, on page 56 for details.

	OPC700HEDQ14	OPC750HEDQ14	OPC800HEDQ14	OPC850HEDQ14	OPC900HEDQ16	OPC950HEDQ16	OPC1000HEDQ18	OPC1100HEDQ18
	709.2	754.8	810.4	852.1	904.6	940.0	999.3	1041.8
	246.9	276.7	303.5	328.6	339.9	364.0	372.1	390.3
	2.87	2.73	2.67	2.59	2.66	2.58	2.69	2.67
	3.75	3.66	3.69	3.70	3.61	3.45	3.57	3.60
	✓	✓	×	×	×	×	×	×
	0, 20, 40, 50, 60, 70, 80, 90, 100							
	2600 x 2200 x 8100	2600 x 2200 x 8100	2600 x 2200 x 8100	2600 x 2200 x 8100	2600 x 2200 x 9100	2600 x 2200 x 9100	2600 x 2200 x 10100	2600 x 2200 x 10100
	8030	8500	8680	8690	9260	9350	9860	9880
	8420	8910	9210	9220	9780	9860	10390	10420
	Base: Plain Galvanised Steel **Panels**: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)							
	Shell & Tube							
	Class O / UV Stable							
	383.7	383.7	504.4	504.4	504.4	504.4	504.4	504.4
	55.2	55.2	73.6	73.6	73.6	73.6	73.6	73.6
	Copper Tube / Aluminium Fins							
	36.1	36.1	36.1	36.1	41.3	41.3	46.4	46.4
	61.6	61.6	61.6	61.6	70.4	70.4	79.2	79.2
	Axial - Sickle Bladed Fan							
	14	14	14	14	16	16	18	18
	800	800	800	800	800	800	800	800
	750	750	750	750	750	750	750	750
	Microprocessor Controlled EC (Electronically Commutated) Fans							
	Screw - Twin							
	1 + 1	1 + 1	1 + 1	1 + 1	1 + 1	1 + 1	1 + 1	1 + 1
	35 + 19	35 + 35	35 + 35	35 + 35	35 + 35	35 + 35	35 + 35	35 + 35
	Ester Oil							
	Dual Circuit							
	Electronic Expansion Valve (EEV)							
	R134a							
	145 + 145	145 + 145	155 + 155	155 + 155	180 + 170	180 + 180	195 + 195	195 + 195
	Grooved type Coupling & Pipe Assembly							
	DN200 PN16	DN200 PN16	DN200 PN16	DN200 PN16	DN200 PN16	DN200 PN16	DN200 PN16	DN200 PN16
	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
	2437	2594	2785	2928	3109	3231	3434	3581
	10	10	10	10	10	10	10	10
	In Line Pump - Fixed Speed Motor							
	82	78	92	89	85	83	78	100
	174	169	183	180	177	174	169	166
	In Line Pump - Variable Speed Motor							
	82	77	91	88	112	109	105	101
	169	164	178	175	172	169	228	224
	2600 x 2570 x 8100	2600 x 2570 x 8100	2600 x 2570 x 8100	2600 x 2570 x 8100	2600 x 2570 x 9100	2600 x 2570 x 9100	2600 x 2570 x 10100	2600 x 2570 x 10100

General Specification

MECHANICAL DATA - HIGH EFFICIENCY PLUS

Standard Chiller - D

			OPC500HE+D8	OPC525HE+D10	OPC550HE+D10	OPC600HE+D10	OPC650HE+D10
Capacity							
Nom Output - Cooling Only	(1)	kW	531.1	572.5	601.5	629.6	668.4
Nom Input - Cooling Only	(1)	kW	183.3	188.1	201.0	210.5	221.2
EER	(2)		2.90	3.04	2.99	2.99	3.02
ESEER	(3)		3.83	3.82	3.70	3.74	3.82
ECA Energy Technology listed			✓	✓	✓	✓	✓
Capacity Steps		%	0, 20, 40, 50, 60, 70, 80, 90, 100				
Dimensions - H x W x L		mm	2600 x 2200 x 4675	2600 x 2200 x 5675	2600 x 2200 x 5675	2600 x 2200 x 5675	2600 x 2200 x 5675
Weight - Machine	(4)	kg	5590	6100	6130	6140	6310
Weight - Operating	(4)	kg	6010	6500	6510	6550	6830
Construction - Material / Colour			**Base**: Plain Galvanised Steel **Panels**: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)				
Evaporator			Shell & Tube				
Insulation			Class O / UV Stable				
Water Volume		l	383.7	383.7	383.7	383.7	504.4
Total Max. Water Flow		l/s	55.2	55.2	55.2	55.2	73.6
Condenser			Copper Tube / Aluminium Fins				
Face Area (Total)		m²	20.6	25.8	25.8	25.8	25.8
Nominal Airflow		m³/s	45.6	57.0	57.0	57.0	57.0
Condenser Fan & Motor			Axial - Sickle Bladed Fan				
Quantity			8	10	10	10	10
Diameter		mm	800	800	800	800	800
Speed Setting		rpm	900	900	900	900	900
Head Pressure Fan Speed Control			Microprocessor Controlled EC (Electronically Commutated) Fans				
Compressor			Screw - Twin				
Quantity			1 + 1	1 + 1	1 + 1	1 + 1	1 + 1
Oil Charge Volume (Total)		l	22 + 22	19 + 22	19 + 19	19 + 19	19 + 19
Oil Type			Ester Oil				
Refrigeration			Dual Circuit				
Refrigerant Control			Electronic Expansion Valve (EEV)				
Refrigerant Pre Charged			R134a				
Charge (Total)		kg	90 + 90	115 + 105	115 + 115	115 + 115	120 + 120
Connections			Grooved type Coupling & Pipe Assembly				
Water Inlet / Outlet			DN200 PN16	DN200 PN16	DN200 PN16	DN200 PN16	DN200 PN16
Water Drain / Bleed		in	1/2	1/2	1/2	1/2	1/2
Water System							
Min. System Water Volume	(5)	l	1825	1967	2067	2164	2297
Max. System Operating Pressure		bar	10	10	10	10	10
OPTIONAL EXTRAS							
Water Pump - ac Motor	(1)		In Line Pump - Fixed Speed Motor				
Single Head or Run/Standby							
Nom External Head Single - Standard		kPa	87	83	81	78	89
Nom External Head Single - Larger		kPa	124	121	118	116	192
Water Pump - Inverter Driven Motor			In Line Pump - Variable Speed Motor				
Single Head or Run/Standby							
Nom External Head Single - Standard		kPa	140	137	135	89	100
Nom External Head Single - Larger		kPa	140	137	135	177	187
Overall Dimensions with Pump - H x W x L	(6)	mm	2600 x 2570 x 6075	2600 x 2570 x 7075	2600 x 2570 x 7075	2600 x 2570 x 7075	2600 x 2570 x 7075

(1) Based on 12/7°C water temperature and 35°C ambient.
All performance data is supplied in accordance with BS EN 14511-1:2013

(2) EER = $\frac{\text{Output kW}}{\text{Input kW}}$

Where:
Output kW = Chilled Water Cooling duty.
Input kW = Compressor + Fan input power.

(3) ESEER, for further details, refer to ***ESEER calculations***, on page 27.

(4) Based on standard unit, for units fitted with options, please contact Airedale. Machine weight includes refrigerant charge; operating weight includes refrigerant charge and water volume.

(5) For minimum system volume calculations, refer to ***Minimum system water volume calculations***, on page 21.

(6) -8, -10 & -12 Fan models; pump mounted externally, refer to ***Dimensional Data***, on page 56 for details.

	OPC700HE+D12	OPC750HE+D12	OPC800HE+D14	OPC850HE+D14	OPC900HE+D16	OPC950HE+D18	OPC1000HE+D18	OPC1100HE+D18
	732.9	785.1	841.2	884.7	938.7	992.8	1037.9	1082.9
	241.4	270.6	283.1	304.5	318.3	334.2	348.7	363.2
	3.04	2.90	2.97	2.91	2.95	2.97	2.98	2.98
	3.80	3.74	3.83	3.85	3.73	3.64	3.68	3.71
	✓	✓	✓	✓	✓	✓	✓	✓
	0, 20, 40, 50, 60, 70, 80, 90, 100							
	2600 x 2200 x 7100	2600 x 2200 x 7100	2600 x 2200 x 8100	2600 x 2200 x 8100	2600 x 2200 x 9100	2600 x 2200 x 10100	2600 x 2200 x 10100	2600 x 2200 x 10100
	7290	7780	8260	8270	8840	9420	9440	9460
	7820	8300	8800	8810	9390	9940	9970	10000
	Base: Plain Galvanised Steel **Panels**: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)							
	Shell & Tube							
	Class O / UV Stable							
	504.4	493	504.4	504.4	504.4	504.4	504.4	504.4
	73.6	86.4	73.6	73.6	73.6	73.6	73.6	73.6
	Copper Tube / Aluminium Fins							
	31.0	31.0	36.1	36.1	41.3	46.4	46.4	46.4
	68.4	68.4	79.8	79.8	91.2	102.6	102.6	102.6
	Axial - Sickle Bladed Fan							
	12	12	14	14	16	18	18	18
	800	800	800	800	800	800	800	800
	900	900	900	900	900	900	900	900
	Microprocessor Controlled EC (Electronically Commutated) Fans							
	Screw - Twin							
	1 + 1	1 + 1	1 + 1	1 + 1	1 + 1	1 + 1	1 + 1	1 + 1
	35 + 19	35 + 35	35 + 35	35 + 35	35 + 35	35 + 35	35 + 35	35 + 35
	Ester Oil							
	Dual Circuit							
	Electronic Expansion Valve (EEV)							
	R134a							
	135 + 135	140 + 140	155 + 155	155 + 155	180 + 170	195 + 195	195 + 195	195 + 195
	Grooved type Coupling & Pipe Assembly							
	DN200 PN16	DN200 PN16	DN200 PN16	DN200 PN16	DN200 PN16	DN200 PN16	DN200 PN16	DN200 PN16
	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
	2519	2698	2891	3040	3226	3412	3567	3722
	10	10	10	10	10	10	10	10
	In Line Pump - Fixed Speed Motor							
	97	100	90	87	83	78	75	97
	188	191	181	178	174	170	166	163
	In Line Pump - Variable Speed Motor							
	96	99	89	86	109	105	102	98
	184	187	176	173	169	165	224	221
	2600 x 2570 x 8500	2600 x 2570 x 8500	2600 x 2570 x 8100	2600 x 2570 x 8100	2600 x 2570 x 9100	2600 x 2570 x 10100	2600 x 2570 x 10100	2600 x 2570 x 10100

General Specification

MECHANICAL DATA - HIGH EFFICIENCY PLUS

Quiet Chiller - DQ

			OPC500HE+DQ12	OPC525HE+DQ12	OPC550HE+DQ12	OPC600HE+DQ12	OPC650HE+DQ12
Capacity							
Nom Output - Cooling Only	(1)	kW	538.4	566.6	594.7	622.5	650.2
Nom Input - Cooling Only	(1)	kW	178.8	191.9	205.0	215.1	225.2
EER	(2)		3.01	2.95	2.90	2.89	2.89
ESEER	(3)		4.01	3.84	3.71	3.75	3.78
ECA Energy Technology listed			✓	✓	✓	✓	✓
Capacity Steps		%	0, 20, 40, 50, 60, 70, 80, 90, 100				
Dimensions - H x W x L		mm	2600 x 2200 x 7100	2600 x 2200 x 7100	2600 x 2200 x 7100	2600 x 2200 x 7100	2600 x 2200 x 7100
Weight - Machine	(4)	kg	6990	7020	7050	7060	7070
Weight - Operating	(4)	kg	7360	7440	7460	7460	7460
Construction - Material / Colour			**Base**: Plain Galvanised Steel **Panels**: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)				
Evaporator			Shell & Tube				
Insulation			Class O / UV Stable				
Water Volume		l	383.7	383.7	383.7	383.7	383.7
Total Max. Water Flow		l/s	55.2	55.2	55.2	55.2	55.2
Condenser			Copper Tube / Aluminium Fins				
Face Area (Total)		m²	31.0	31.0	31.0	31.0	31.0
Nominal Airflow		m³/s	52.8	52.8	52.8	52.8	52.8
Condenser Fan & Motor			Axial - Sickle Bladed Fan				
Quantity			12	12	12	12	12
Diameter		mm	800	800	800	800	800
Speed Setting		rpm	750	750	750	750	750
Head Pressure Fan Speed Control			Microprocessor Controlled EC (Electronically Commutated) Fans				
Compressor			Screw - Twin				
Quantity			1 + 1	1 + 1	1 + 1	1 + 1	1 + 1
Oil Charge Volume (Total)		l	22 + 22	19 + 22	19 + 19	19 + 19	19 + 19
Oil Type			Ester Oil				
Refrigeration			Dual Circuit				
Refrigerant Control			Electronic Expansion Valve (EEV)				
Refrigerant Pre Charged			R134a				
Charge (Total)		kg	125 + 125	130 + 125	130 + 130	130 + 130	130 + 130
Connections			Grooved type Coupling & Pipe Assembly				
Water Inlet / Outlet			DN200 PN16	DN200 PN16	DN200 PN16	DN200 PN16	DN200 PN16
Water Drain / Bleed		in	1/2	1/2	1/2	1/2	1/2
Water System							
Min. System Water Volume	(5)	l	1850	1947	2044	2139	2234
Max. System Operating Pressure		bar	10	10	10	10	10
OPTIONAL EXTRAS							
Water Pump - ac Motor	(1)		In Line Pump - Fixed Speed Motor				
Single Head or Run/Standby							
Nom External Head Single - Standard		kPa	86	84	81	79	76
Nom External Head Single - Larger		kPa	123	121	119	116	179
Water Pump - Inverter Driven Motor			In Line Pump - Variable Speed Motor				
Single Head or Run/Standby							
Nom External Head Single - Standard		kPa	140	137	135	90	87
Nom External Head Single - Larger		kPa	140	137	135	177	175
Overall Dimensions with Pump - H x W x L	(6)	mm	2600 x 2570 x 8500	2600 x 2570 x 8500	2600 x 2570 x 8500	2600 x 2570 x 8500	2600 x 2570 x 8500

(1) Based on 12/7°C water temperature and 35°C ambient.
All performance data is supplied in accordance with BS EN 14511-1:2013

(2) EER = $\frac{\text{Output kW}}{\text{Input kW}}$

Where:
Output kW = Chilled Water Cooling duty.
Input kW = Compressor + Fan input power.

(3) ESEER, for further details, refer to ***ESEER calculations***, on page 27.

(4) Based on standard unit, for units fitted with options, please contact Airedale. Machine weight includes refrigerant charge; operating weight includes refrigerant charge and water volume.

(5) For minimum system volume calculations, refer to ***Minimum system water volume calculations***, on page 21.

(6) -8, -10 & -12 Fan models; pump mounted externally, refer to ***Dimensional Data***, on page 56 for details.

	OPC700HE+DQ14	OPC750HE+DQ16	OPC800HE+DQ16	OPC850HE+DQ18	OPC900HE+DQ20	OPC950HE+DQ20	OPC1000HE+DQ20	OPC1100HE+DQ20
	721.6	783.7	826.4	881.6	931.4	970.9	1014.4	1057.9
	248.2	269.7	292.8	307.4	323.5	346.1	362.8	379.5
	2.91	2.91	2.82	2.87	2.88	2.80	2.80	2.79
	3.79	3.82	3.80	3.91	3.78	3.62	3.65	3.68
	✓	✓	✓	✓	✓	✓	✓	✓
	0, 20, 40, 50, 60, 70, 80, 90, 100							
	2600 x 2200 x 8100	2600 x 2200 x 9100	2600 x 2200 x 9100	2600 x 2200 x 10100	2600 x 2200 x 11100	2600 x 2200 x 11100	2600 x 2200 x 11100	2600 x 2200 x 11100
	8190	9150	9160	9660	10230	10320	10340	10370
	8710	9680	9680	10180	10750	10850	10870	10880
	Base: Plain Galvanised Steel **Panels**: Galvanised Sheet Steel, Epoxy Baked Powder Paint, Light Grey (RAL 7035)							
	Shell & Tube							
	Class O / UV Stable							
	504.4	504.4	504.4	504.4	504.4	504.4	504.4	504.4
	73.6	73.6	73.6	73.6	73.6	73.6	73.6	73.6
	Copper Tube / Aluminium Fins							
	36.1	41.3	41.3	46.4	51.6	51.6	51.6	51.6
	61.6	70.4	70.4	79.2	88.0	88.0	88.0	88.0
	Axial - Sickle Bladed Fan							
	14	16	16	18	20	20	20	20
	800	800	800	800	800	800	800	800
	750	750	750	750	750	750	750	750
	Microprocessor Controlled EC (Electronically Commutated) Fans							
	Screw - Twin							
	1 + 1	1 + 1	1 + 1	1 + 1	1 + 1	1 + 1	1 + 1	1 + 1
	35 + 19	35 + 35	35 + 35	35 + 35	35 + 35	35 + 35	35 + 35	35 + 35
	Ester Oil							
	Dual Circuit							
	Electronic Expansion Valve (EEV)							
	R134a							
	155 + 155	170 + 170	170 + 170	185 + 185	215 + 205	215 + 215	215 + 215	215 + 215
	Grooved type Coupling & Pipe Assembly							
	DN200 PN16	DN200 PN16	DN200 PN16	DN200 PN16	DN200 PN16	DN200 PN16	DN200 PN16	DN200 PN16
	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
	2480	2693	2840	3030	3201	3337	3486	3636
	10	10	10	10	10	10	10	10
	In Line Pump - Fixed Speed Motor							
	97	93	91	87	83	80	77	99
	189	185	182	178	175	172	168	165
	In Line Pump - Variable Speed Motor							
	97	93	90	86	110	107	104	100
	184	180	177	173	170	167	226	223
	2600 x 2570 x 8100	2600 x 2570 x 9100	2600 x 2570 x 9100	2600 x 2570 x 10100	2600 x 2570 x 11100	2600 x 2570 x 11100	2600 x 2570 x 11100	2600 x 2570 x 11100

General specification

ELECTRICAL DATA - HIGH EFFICIENCY

Standard Chiller - D

			OPC500HED8	OPC525HED8	OPC550HED8	OPC600HED10	OPC650HED10
Unit Data							
Nominal Run Amps	(1)	A	291	308	325	347	361
Maximum Start Amps	(2)	A	461	521	538	589	604
Rec Mains Fuse Size		A	400	450	450	450	500
Mains Supply		VAC	400 V 3 PH 50 Hz				
Max Mains Incoming Cable Size		mm²	Direct to Bus Bar				
Permanent Supply		VAC	230 V 1 PH 50 Hz				
Rec Permanent Fuse Size		A	16	16	16	16	16
Max Permanent Incoming Cable Size		mm²	4mm² Terminal				
Control Circuit		VAC	24V / 230VAC				
Evaporator							
Immersion Heater Rating		W	100	100	100	100	100
External Trace Heating							
Available (fitted by others)		W	500	500	500	500	500
Condenser Fan - Per Fan							
Quantity			8	8	8	10	10
Standard AC Type							
Full Load Amps		A	3.9	3.9	3.9	3.9	3.9
Locked Rotor Amps		A	11	11	11	11	11
Motor Size		kW	1.8	1.8	1.8	1.8	1.8
Optional EC Type							
Full Load Amps		A	3.4	3.4	3.4	3.4	3.4
Motor Size		kW	2.56	2.56	2.56	2.56	2.56
Compressor - Per Compressor							
Quantity			1 + 1	1 + 1	1 + 1	1 + 1	1 + 1
Motor Size		kW	74.5 / 74.5	83.4 / 74.5	83.4 / 83.4	91.8 / 83.4	91.8 / 91.8
Nominal Run Amps	(1)	A	130.4 / 130.4	147.3 / 130.4	147.3 / 147.3	161.5 / 147.3	161.5 / 161.5
Oil Heater Rating		W	300	300	300	300	300
Start Amps	(2)	A	300 / 300	360 / 300	360 / 360	404 / 360	404 / 404
Type Of Start			Star - Delta				
OPTIONAL EXTRAS							
Power Factor Correction							
Nominal Run Amps	(1)	A	257	270	284	304	317
Maximum Start Amps	(2)	A	444	504	517	569	381
Recommended Mains Fuse		A	400	450	450	450	500
Compressor Nom Run Amps - Per Compressor		A	117 / 117	132 / 117	132 / 132	145 / 132	145 / 145
Closed Transition							
Nominal Run Amps	(1)	A	291	308	325	347	361
Maximum Start Amps	(2)	A	461	521	538	589	604
Recommended Mains Fuse		A	400	450	450	450	500
Compressor Nom Run Amps - Per Compressor		A	130.4 / 130.4	147.3 / 130.4	147.3 / 147.3	161.5 / 147.3	161.5 / 161.5
Water Pump - ac Motor							
Single Head or Run/Standby - Standard							
Unit Nominal Run Amps	(1)	A	300	317	334	356	370
Recommended Mains Fuse		A	400	450	450	450	500
Motor Size		kW	4.0	4.0	4.0	4.0	4.0
Full Load Amps		A	8.9	8.9	8.9	8.9	10.6
Single Head or Run/Standby - Larger							
Unit Nominal Run Amps	(1)	A	306	322	339	361	382
Recommended Mains Fuse		A	400	450	450	500	500
Motor Size		kW	7.5	7.5	7.5	7.5	11.0
Full Load Amps		A	14.4	14.4	14.4	14.4	21.0
Water Pump - Inverter Driven Motor							
Single Head or Run/Standby - Standard							
Unit Nominal Run Amps	(1)	A	302	319	336	358	372
Recommended Mains Fuse		A	400	450	450	450	500
Motor Size		kW	5.5	5.5	5.5	5.5	5.5
Full Load Amps		A	11.0	11.0	11.0	11.3	11.3
Single Head or Run/Standby - Larger							
Unit Nominal Run Amps	(1)	A	302	319	336	362	376
Recommended Mains Fuse		A	400	450	450	450	500
Motor Size		kW	5.5	5.5	5.5	7.5	7.5
Full Load Amps		A	11.0	11.0	11.0	15.0	15.0

(1) Based at 12/7°C water and 35°C ambient with standard AC type fans.
(2) Starting amps refers to the Star connection only with standard AC type fans.

	OPC700HED12	OPC750HED12	OPC800HED12	OPC850HED12	OPC900HED14	OPC950HED14	OPC1000HED16	OPC1100HED16
	394	419	444	470	512	546	576	597
	643	668	697	723	851	886	957	979
	560	560	630	630	710	710	750	750
				400 V 3 PH 50 Hz				
				Direct to Bus Bar				
				230 V 1 PH 50 Hz				
	16	16	16	16	16	16	16	16
				4mm² Terminal				
				24V / 230VAC				
	100	100	100	100	100	100	100	100
	500	500	500	500	500	500	500	500
	12	12	12	12	14	14	16	16
	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
	11	11	11	11	11	11	11	11
	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56
	1 + 1	1 + 1	1 + 1	1 + 1	1 + 1	1 + 1	1 + 1	1 + 1
	109.2 / 91.8	109.2 / 109.2	126.5 / 109.2	162.5 / 162.5	143.1 / 126.5	143.1 / 143.1	156.4 / 143.1	156.4 / 156.4
	186.6 / 161.5	186.6 / 186.6	212.2 / 186.6	212.2 / 212.2	246.5 / 212.2	246.5 / 246.5	268.3 / 246.5	268.3 / 268.3
	300	300	300	300	300	300	300	300
	436 / 404	436 / 436	465 / 436	465 / 465	586 / 465	586 / 586	650 / 586	650 / 650
				Star - Delta				
	351	377	404	430	463	488	516	536
	621	648	677	703	831	857	928	948
	560	560	630	630	710	710	750	750
	167 / 145	167 / 167	190 / 167	190 / 190	221 / 190	246.5 / 246.5	268.3 / 246.5	240 / 240
	394	419	444	470	512	546	576	597
	643	668	697	723	851	886	957	979
	560	560	630	630	710	710	750	750
	186.6 / 161.5	186.6 / 186.6	212.2 / 186.6	212.2 / 212.2	246.5 / 212.2	246.5 / 246.5	268.3 / 246.5	268.3 / 268.3
	404	429	455	481	522	557	586	612
	560	560	630	630	710	710	750	750
	5.5	5.5	5.5	5.5	5.5	5.5	5.5	7.5
	10.6	10.6	10.6	10.6	10.6	10.6	10.6	14.4
	415	440	465	491	533	567	597	618
	560	560	630	630	710	710	750	750
	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
	405	430	456	481	527	561	590	612
	560	560	630	630	710	710	750	750
	5.5	5.5	5.5	5.5	7.5	7.5	7.5	7.5
	11.3	11.3	11.3	11.3	14.7	14.7	14.7	14.7
	409	440	466	491	533	568	604	625
	560	560	630	630	710	710	750	750
	7.5	11.0	11.0	11.0	11.0	11.0	15.0	15.0
	15.0	21.4	21.4	21.4	21.4	21.4	28.0	28.0

General specification

ELECTRICAL DATA - HIGH EFFICIENCY

Quiet Chiller - DQ

			OPC500HEDQ10	OPC525HEDQ10	OPC550HEDQ10	OPC600HEDQ10	OPC650HEDQ10
Unit Data							
Nominal Run Amps	(1)	A	277	294	311	325	339
Maximum Start Amps	(2)	A	446	506	523	567	582
Rec Mains Fuse Size		A	400	450	450	450	500
Mains Supply		VAC	400 V 3 PH 50 Hz				
Max Mains Incoming Cable Size		mm²	Direct to Bus Bar				
Permanent Supply		VAC	230 V 1 PH 50 Hz				
Rec Permanent Fuse Size		A	16	16	16	16	16
Max Permanent Incoming Cable Size		mm²	4mm² Terminal				
Control Circuit		VAC	24V / 230VAC				
Evaporator							
Immersion Heater Rating		W	100	100	100	100	100
External Trace Heating							
Available (fitted by others)		W	500	500	500	500	500
Condenser Fan - Per Fan							
Quantity			10	10	10	10	10
Full Load Amps		A	3.9	3.9	3.9	3.9	3.9
Motor Size		kW	2.56	2.56	2.56	2.56	2.56
Compressor - Per Compressor							
Quantity			1 + 1	1 + 1	1 + 1	1 + 1	1 + 1
Motor Size		kW	74.5 / 74.5	83.4 / 74.5	83.4 / 83.4	91.8 / 83.4	91.8 / 91.8
Nominal Run Amps	(1)	A	130.4 / 130.4	147.3 / 130.4	147.3 / 147.3	161.5 / 147.3	161.5 / 161.5
Oil Heater Rating		W	300	300	300	300	300
Start Amps	(2)	A	300 / 300	360 / 300	360 / 360	404 / 360	404 / 404
Type Of Start			Star - Delta				
OPTIONAL EXTRAS							
Power Factor Correction							
Nominal Run Amps	(1)	A	242	256	269	282	295
Maximum Start Amps	(2)	A	429	489	503	547	559
Recommended Mains Fuse		A	400	450	450	450	500
Compressor Nom Run Amps - Per Compressor		A	113 / 113	127 / 113	127 / 127	139 / 122	139 / 139
Closed Transition							
Nominal Run Amps	(1)	A	277	294	311	325	339
Maximum Start Amps	(2)	A	446	506	523	567	582
Recommended Mains Fuse		A	400	450	450	450	500
Compressor Nom Run Amps - Per Compressor		A	130.4 / 130.4	147.3 / 130.4	147.3 / 147.3	161.5 / 147.3	161.5 / 161.5
Water Pump - ac Motor							
Single Head or Run/Standby - Standard							
Unit Nominal Run Amps	(1)	A	286	303	319	334	348
Recommended Mains Fuse		A	400	450	450	450	500
Motor Size		kW	4.0	4.0	4.0	4.0	4.0
Full Load Amps		A	8.9	8.9	8.9	8.9	10.6
Single Head or Run/Standby - Larger							
Unit Nominal Run Amps	(1)	A	291	308	325	339	360
Recommended Mains Fuse		A	400	450	450	500	500
Motor Size		kW	7.5	7.5	7.5	7.5	11.0
Full Load Amps		A	14.4	14.4	14.4	14.4	21.0
Water Pump - Inverter Driven Motor							
Single Head or Run/Standby - Standard							
Unit Nominal Run Amps	(1)	A	288	305	322	336	350
Recommended Mains Fuse		A	400	450	450	450	500
Motor Size		kW	5.5	5.5	5.5	5.5	5.5
Full Load Amps		A	11.0	11.0	11.0	11.3	11.3
Single Head or Run/Standby - Larger							
Unit Nominal Run Amps	(1)	A	288	305	322	340	354
Recommended Mains Fuse		A	400	450	450	450	500
Motor Size		kW	5.5	5.5	5.5	7.5	7.5
Full Load Amps		A	11.0	11.0	11.0	15.0	15.0

(1) Based on 12/7°C water temperature and 35°C ambient.
(2) Starting amps refers to the Star connection only.

	OPC700HEDQ14	OPC750HEDQ14	OPC800HEDQ14	OPC850HEDQ14	OPC900HEDQ16	OPC950HEDQ16	OPC1000HEDQ18	OPC1100HEDQ18
	370	396	421	447	484	519	544	565
	620	645	674	700	824	858	925	947
	560	560	630	630	710	710	710	750
				400 V 3 PH 50 Hz				
				Direct to Bus Bar				
				230 V 1 PH 50 Hz				
	16	16	16	16	16	16	16	16
				4mm² Terminal				
				24V / 230VAC				
	100	100	100	100	100	100	100	100
	500	500	500	500	500	500	500	500
	14	14	14	14	16	16	18	18
	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
	1 + 1	1 + 1	1 + 1	1 + 1	1 + 1	1 + 1	1 + 1	1 + 1
	109.2 / 91.8	109.2 / 109.2	126.5 / 109.2	162.5 / 162.5	143.1 / 126.5	143.1 / 143.1	156.4 / 143.1	156.4 / 156.4
	186.6 / 161.5	186.6 / 186.6	212.2 / 186.6	212.2 / 212.2	246.5 / 212.2	246.5 / 246.5	268.3 / 246.5	268.3 / 268.3
	300	300	300	300	300	300	300	300
	436 / 404	436 / 436	465 / 436	465 / 465	586 / 465	586 / 586	650 / 586	650 / 650
				Star - Delta				
	328	354	381	407	435	460	484	504
	598	624	653	680	804	829	896	916
	560	560	630	630	710	710	750	750
	166 / 139	166 / 166	192 / 166	192 / 192	217 / 192	217 / 217	238 / 217	238 / 238
	370	396	421	447	484	519	544	565
	620	645	674	700	824	858	925	947
	560	560	630	630	710	710	710	750
	186.6 / 161.5	186.6 / 186.6	212.2 / 186.6	212.2 / 212.2	246.5 / 212.2	246.5 / 246.5	268.3 / 246.5	268.3 / 268.3
	381	406	432	457	495	529	554	580
	560	560	630	630	710	710	750	750
	5.5	5.5	5.5	5.5	5.5	5.5	5.5	7.5
	10.6	10.6	10.6	10.6	10.6	10.6	10.6	14.4
	391	417	442	468	505	540	565	586
	560	560	630	630	710	710	750	750
	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
	382	407	432	458	499	533	558	580
	560	560	630	630	710	710	750	750
	5.5	5.5	5.5	5.5	7.5	7.5	7.5	7.5
	11.3	11.3	11.3	11.3	14.7	14.7	14.7	14.7
	385	417	443	468	506	540	572	593
	560	560	630	630	710	710	750	750
	7.5	11.0	11.0	11.0	11.0	11.0	15.0	15.0
	15.0	21.4	21.4	21.4	21.4	21.4	28.0	28.0

General specification

ELECTRICAL DATA - HIGH EFFICIENCY PLUS

Standard Chiller - D & Quiet Chiller - DQ

			OPC500HE+D8	OPC525HE+D10	OPC550HE+D10	OPC600HE+D10	OPC650HE+D10
Unit Data							
Nominal Run Amps	(1)	A	288	312	329	343	357
Maximum Start Amps	(2)	A	458	524	541	585	600
Rec Mains Fuse Size		A	400	450	450	450	500
Mains Supply		VAC			400 V 3 PH 50 Hz		
Max Mains Incoming Cable Size		mm²			Direct to Bus Bar		
Permanent Supply		VAC			230 V 1 PH 50 Hz		
Rec Permanent Fuse Size		A	16	16	16	16	16
Max Permanent Incoming Cable Size		mm²			4mm² Terminal		
Control Circuit		VAC			24V / 230VAC		
Evaporator							
Immersion Heater Rating		W	100	100	100	100	100
External Trace Heating							
Available (fitted by others)		W	500	500	500	500	500
Condenser Fan - Per Fan							
Quantity			8	10	10	10	10
Full Load Amps		A	3.4	3.9	3.9	3.9	3.9
Motor Size		kW	2.56	2.56	2.56	2.56	2.56
Compressor - Per Compressor							
Quantity			1 + 1	1 + 1	1 + 1	1 + 1	1 + 1
Motor Size		kW	74.5 / 74.5	83.4 / 74.5	83.4 / 83.4	91.8 / 83.4	91.8 / 91.8
Nominal Run Amps	(1)	A	130.4 / 130.4	147.3 / 130.4	147.3 / 147.3	161.5 / 147.3	161.5 / 161.5
Oil Heater Rating		W	300	300	300	300	300
Start Amps	(2)	A	300 / 300	360 / 300	360 / 360	404 / 360	404 / 404
Type Of Start					Star - Delta		
QUIET DQ			**OPC500HE+DQ12**	**OPC525HE+DQ12**	**OPC550HE+DQ12**	**OPC600HE+DQ12**	**OPC650HE+DQ12**
			All data as above except:				
Condenser Fan - Per Fan							
Quantity			12	12	12	12	12
Full Load Amps		A	3.4	3.4	3.4	3.4	3.4
Motor Size		kW	2.2	2.2	2.2	2.2	2.2
OPTIONAL EXTRAS - ALL MODELS							
Power Factor Correction							
Nominal Run Amps	(1)	A	254	274	287	300	313
Maximum Start Amps	(2)	A	440	507	521	565	577
Recommended Mains Fuse		A	400	450	450	450	500
Compressor Nom Run Amps - Per Compressor		A	113 / 113	127 / 113	127 / 127	139 / 127	139 / 139
Closed Transition							
Nominal Run Amps	(1)	A	288	312	329	343	357
Maximum Start Amps	(2)	A	458	524	541	585	600
Recommended Mains Fuse		A	400	450	450	450	500
Compressor Nom Run Amps - Per Compressor		A	130.4 / 130.4	147.3 / 130.4	147.3 / 147.3	161.5 / 147.3	161.5 / 161.5
Water Pump - ac Motor							
Single Head or Run/Standby - Standard							
Unit Nominal Run Amps	(1)	A	297	321	337	352	366
Recommended Mains Fuse		A	400	450	450	450	500
Motor Size		kW	4.0	4.0	4.0	4.0	4.0
Full Load Amps		A	8.9	8.9	8.9	8.9	10.6
Single Head or Run/Standby - Larger							
Unit Nominal Run Amps	(1)	A	302	326	343	357	378
Recommended Mains Fuse		A	400	450	450	500	500
Motor Size		kW	7.5	7.5	7.5	7.5	11.0
Full Load Amps		A	14.4	14.4	14.4	14.4	21.0
Water Pump - Inverter Driven Motor							
Single Head or Run/Standby - Standard							
Unit Nominal Run Amps	(1)	A	299	323	340	354	368
Recommended Mains Fuse		A	400	450	450	450	500
Motor Size		kW	5.5	5.5	5.5	5.5	5.5
Full Load Amps		A	11.0	11.0	11.0	11.3	11.3
Single Head or Run/Standby - Larger							
Unit Nominal Run Amps	(1)	A	299	323	340	358	372
Recommended Mains Fuse		A	400	450	450	450	500
Motor Size		kW	5.5	5.5	5.5	7.5	7.5
Full Load Amps		A	11.0	11.0	11.0	15.0	15.0

(1) Based on 12/7°C water temperature and 35°C ambient.
(2) Starting amps refers to the Star connection only.

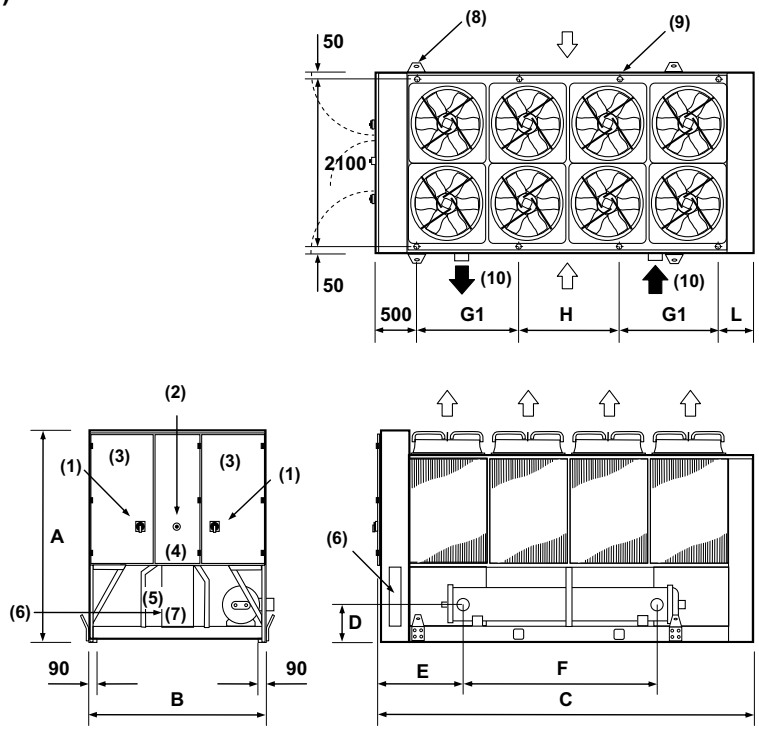
	OPC700HE+D12	OPC750HE+D12	OPC800HE+D14	OPC850HE+D14	OPC900HE+D16	OPC950HE+D18	OPC1000HE+D18	OPC1100HE+D18
	389	414	446	472	513	554	576	598
	638	663	699	725	853	894	958	980
	560	560	630	630	710	710	750	750
				400 V 3 PH 50 Hz				
				Direct to Bus Bar				
				230 V 1 PH 50 Hz				
	16	16	16	16	16	16	16	16
				4mm² Terminal				
				24V / 230VAC				
	100	100	100	100	100	100	100	100
	500	500	500	500	500	500	500	500
	12	12	14	14	16	18	18	18
	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56
	1 + 1	1 + 1	1 + 1	1 + 1	1 + 1	1 + 1	1 + 1	1 + 1
	109.2 / 91.8	109.2 / 109.2	126.5 / 109.2	162.5 / 162.5	143.1 / 126.5	143.1 / 143.1	156.4 / 143.1	156.4 / 156.4
	186.6 / 161.5	186.6 / 186.6	212.2 / 186.6	212.2 / 212.2	246.5 / 212.2	246.5 / 246.5	268.3 / 246.5	268.3 / 268.3
	300	300	300	300	300	300	300	300
	436 / 404	436 / 436	465 / 436	465 / 465	586 / 465	586 / 586	650 / 586	650 / 650
				Star - Delta				
	OPC700HE+DQ14	OPC750HE+DQ16	OPC800HE+DQ16	OPC850HE+DQ18	OPC900HE+DQ20	OPC950HE+DQ20	OPC1000HE+DQ20	OPC1100HE+DQ20
	All data as above except:							
	14	16	16	18	20	20	20	20
	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56
	346	373	406	432	464	496	516	536
	616	643	679	705	833	865	929	949
	560	560	630	630	710	710	750	750
	166 / 139	166 / 166	192 / 166	192 / 192	217 / 192	217 / 217	238 / 217	238 / 238
	389	414	446	472	513	554	576	598
	638	663	699	725	853	894	958	980
	560	560	630	630	710	710	750	750
	186.6 / 161.5	186.6 / 186.6	212.2 / 186.6	212.2 / 212.2	246.5 / 212.2	246.5 / 246.5	268.3 / 246.5	268.3 / 268.3
	399	425	457	483	524	565	587	612
	560	560	630	630	710	710	750	750
	5.5	5.5	5.5	5.5	5.5	5.5	5.5	7.5
	10.6	10.6	10.6	10.6	10.6	10.6	10.6	14.4
	410	435	467	493	534	575	597	619
	560	560	630	630	710	710	750	750
	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
	400	425	458	483	528	569	591	613
	560	560	630	630	710	710	750	750
	5.5	5.5	5.5	5.5	7.5	7.5	7.5	7.5
	11.3	11.3	11.3	11.3	14.7	14.7	14.7	14.7
	404	435	468	493	534	576	604	626
	560	560	630	630	710	710	750	750
	7.5	11.0	11.0	11.0	11.0	11.0	15.0	15.0
	15.0	21.4	21.4	21.4	21.4	21.4	28.0	28.0

Dimensional Data

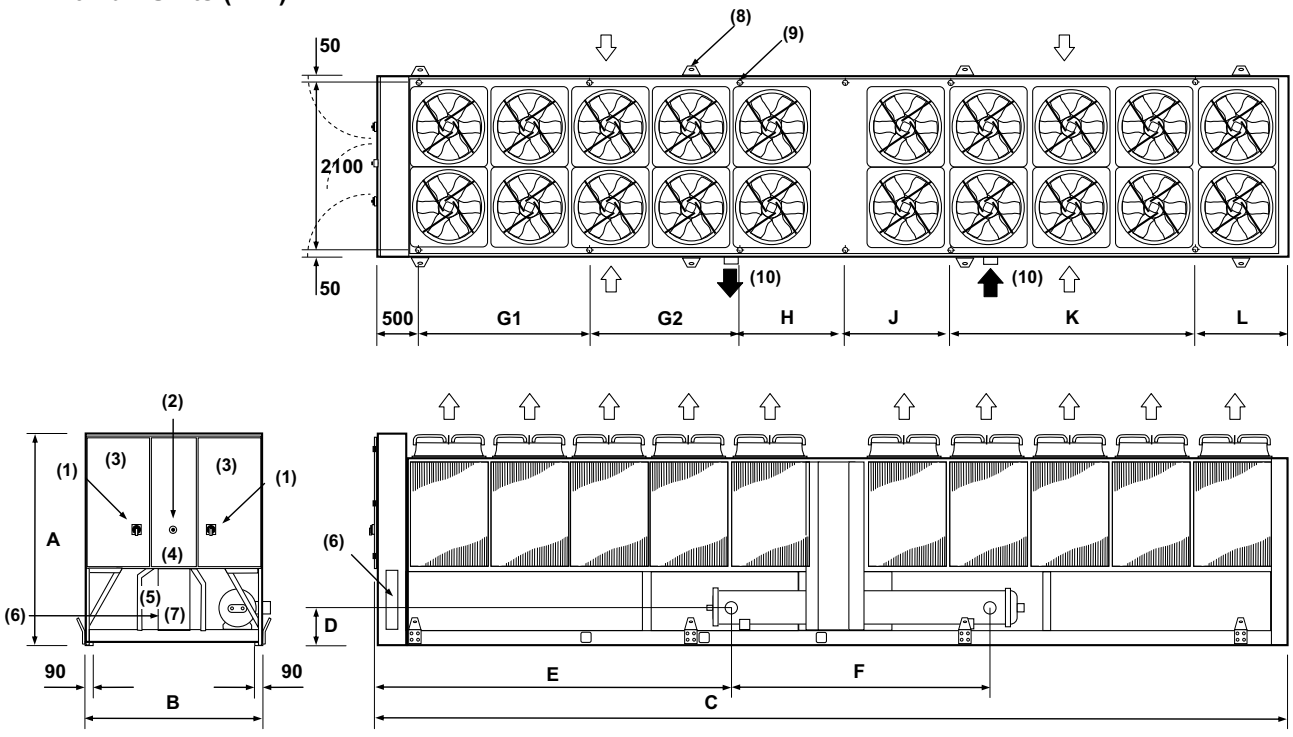
Unit diagrams can be supplied on request, please contact Airedale.

STANDARD UNITS

8 - 10 Fan Units (mm)



12 - 20 Fan Units (mm)



Dimensional Data

HIGH EFFICIENCY - STANDARD UNITS

		A	B	C	D	E	F	G1	G2	H	J	K	L	(10)
OPC500HED8	mm	2600	2200	4675	460	1056	2412	1250	N/A	1250	N/A	N/A	425	DN150 PN16
OPC525HED8	mm	2600	2200	4675	460	1056	2412	1250	N/A	1250	N/A	N/A	425	DN150 PN16
OPC550HED8	mm	2600	2200	4675	460	1056	2412	1250	N/A	1250	N/A	N/A	425	DN150 PN16
OPC600HED10	mm	2600	2200	5675	460	1556	2412	1750	N/A	1250	N/A	N/A	425	DN150 PN16
OPC650HED10	mm	2600	2200	5675	510	1582	2360	1750	N/A	1250	N/A	N/A	425	DN150 PN16
OPC700HED12	mm	2600	2200	7100	510	2730	2360	1850	N/A	1200	1175	1775	600	DN200 PN16
OPC750HED12	mm	2600	2200	7100	510	2730	2360	1850	N/A	1200	1175	1775	600	DN200 PN16
OPC800HED12	mm	2600	2200	7100	510	2730	2360	1850	N/A	1200	1175	1775	600	DN200 PN16
OPC850HED12	mm	2600	2200	7100	510	2304	3210	1850	N/A	1200	1175	1775	600	DN200 PN16
OPC900HED14	mm	2600	2200	8100	510	2304	3210	2000	N/A	1400	1400	2000	800	DN200 PN16
OPC950HED14	mm	2600	2200	8100	510	2304	3210	2000	N/A	1400	1400	2000	800	DN200 PN16
OPC1000HED16	mm	2600	2200	9100	510	3304	3210	2875	N/A	1400	1400	2325	600	DN200 PN16
OPC1100HED16	mm	2600	2200	9100	510	3304	3210	2875	N/A	1400	1400	2325	600	DN200 PN16

		A	B	C	D	E	F	G1	G2	H	J	K	L	(10)
OPC500HEDQ10	mm	2600	2200	5675	460	1556	2412	1750	N/A	1250	N/A	N/A	425	DN150 PN16
OPC525HEDQ10	mm	2600	2200	5675	460	1556	2412	1750	N/A	1250	N/A	N/A	425	DN150 PN16
OPC550HEDQ10	mm	2600	2200	5675	460	1556	2412	1750	N/A	1250	N/A	N/A	425	DN150 PN16
OPC600HEDQ10	mm	2600	2200	5675	460	1556	2412	1750	N/A	1250	N/A	N/A	425	DN150 PN16
OPC650HEDQ10	mm	2600	2200	5675	460	1556	2412	1750	N/A	1250	N/A	N/A	425	DN150 PN16
OPC700HEDQ14	mm	2600	2200	8100	510	2730	2360	2000	N/A	1400	1400	2000	800	DN200 PN16
OPC750HEDQ14	mm	2600	2200	8100	510	2730	2360	2000	N/A	1400	1400	2000	800	DN200 PN16
OPC800HEDQ14	mm	2600	2200	8100	510	2304	3210	2000	N/A	1400	1400	2000	800	DN200 PN16
OPC850HEDQ14	mm	2600	2200	8100	510	2304	3210	2000	N/A	1400	1400	2000	800	DN200 PN16
OPC900HEDQ16	mm	2600	2200	9100	510	3304	3210	2875	N/A	1400	1400	2325	600	DN200 PN16
OPC950HEDQ16	mm	2600	2200	9100	510	3304	3210	2875	N/A	1400	1400	2325	600	DN200 PN16
OPC1000HEDQ18	mm	2600	2200	10100	510	3304	3210	3000	N/A	1400	1400	3000	800	DN200 PN16
OPC1100HEDQ18	mm	2600	2200	10100	510	3304	3210	3000	N/A	1400	1400	3000	800	DN200 PN16

HIGH EFFICIENCY PLUS - STANDARD UNITS

		A	B	C	D	E	F	G1	G2	H	J	K	L	(10)
OPC500HE+D8	mm	2600	2200	4675	510	1082	2360	1250	N/A	1250	N/A	N/A	425	DN200 PN16
OPC525HE+D10	mm	2600	2200	5675	510	1582	2360	1750	N/A	1250	N/A	N/A	425	DN200 PN16
OPC550HE+D10	mm	2600	2200	5675	510	1582	2360	1750	N/A	1250	N/A	N/A	425	DN200 PN16
OPC600HE+D10	mm	2600	2200	5675	510	1582	2360	1750	N/A	1250	N/A	N/A	425	DN200 PN16
OPC650HE+D10	mm	2600	2200	5675	510	1157	3210	1750	N/A	1250	N/A	N/A	425	DN200 PN16
OPC700HE+D12	mm	2600	2200	7100	510	2304	3210	1850	N/A	1200	1175	1775	600	DN200 PN16
OPC750HE+D12	mm	2600	2200	7100	510	2304	3210	1850	N/A	1200	1175	1775	600	DN200 PN16
OPC800HE+D14	mm	2600	2200	8100	510	2304	3210	2000	N/A	1400	1400	2000	800	DN200 PN16
OPC850HE+D14	mm	2600	2200	8100	510	2304	3210	2000	N/A	1400	1400	2000	800	DN200 PN16
OPC900HE+D16	mm	2600	2200	9100	510	3304	3210	2875	N/A	1400	1400	2325	600	DN200 PN16
OPC950HE+D18	mm	2600	2200	10100	510	3304	3210	3000	N/A	1400	1400	3000	800	DN200 PN16
OPC1000HE+D18	mm	2600	2200	10100	510	3304	3210	3000	N/A	1400	1400	3000	800	DN200 PN16
OPC1100HE+D18	mm	2600	2200	10100	510	3304	3210	3000	N/A	1400	1400	3000	800	DN200 PN16

		A	B	C	D	E	F	G1	G2	H	J	K	L	(10)
OPC500HE+DQ12	mm	2600	2200	7100	510	2730	2360	1850	N/A	1200	1175	1775	600	DN200 PN16
OPC525HE+DQ12	mm	2600	2200	7100	510	2730	2360	1850	N/A	1200	1175	1775	600	DN200 PN16
OPC550HE+DQ12	mm	2600	2200	7100	510	2730	2360	1850	N/A	1200	1175	1775	600	DN200 PN16
OPC600HE+DQ12	mm	2600	2200	7100	510	2730	2360	1850	N/A	1200	1175	1775	600	DN200 PN16
OPC650HE+DQ12	mm	2600	2200	7100	510	2730	2360	1850	N/A	1200	1175	1775	600	DN200 PN16
OPC700HE+DQ14	mm	2600	2200	8100	510	2304	3210	2000	N/A	1400	1400	2000	800	DN200 PN16
OPC750HE+DQ16	mm	2600	2200	9100	510	3304	3210	2875	N/A	1400	1400	2325	600	DN200 PN16
OPC800HE+DQ16	mm	2600	2200	9100	510	3304	3210	2875	N/A	1400	1400	2325	600	DN200 PN16
OPC850HE+DQ18	mm	2600	2200	10100	510	3304	3210	3000	N/A	1400	1400	3000	800	DN200 PN16
OPC900HE+DQ20	mm	2600	2200	11100	510	4304	3210	2000	2000	1400	1400	2700	1100	DN200 PN16
OPC950HE+DQ20	mm	2600	2200	11100	510	4304	3210	2000	2000	1400	1400	2700	1100	DN200 PN16
OPC1000HE+DQ20	mm	2600	2200	11100	510	4304	3210	2000	2000	1400	1400	2700	1100	DN200 PN16
OPC1100HE+DQ20	mm	2600	2200	11100	510	4304	3210	2000	2000	1400	1400	2700	1100	DN200 PN16

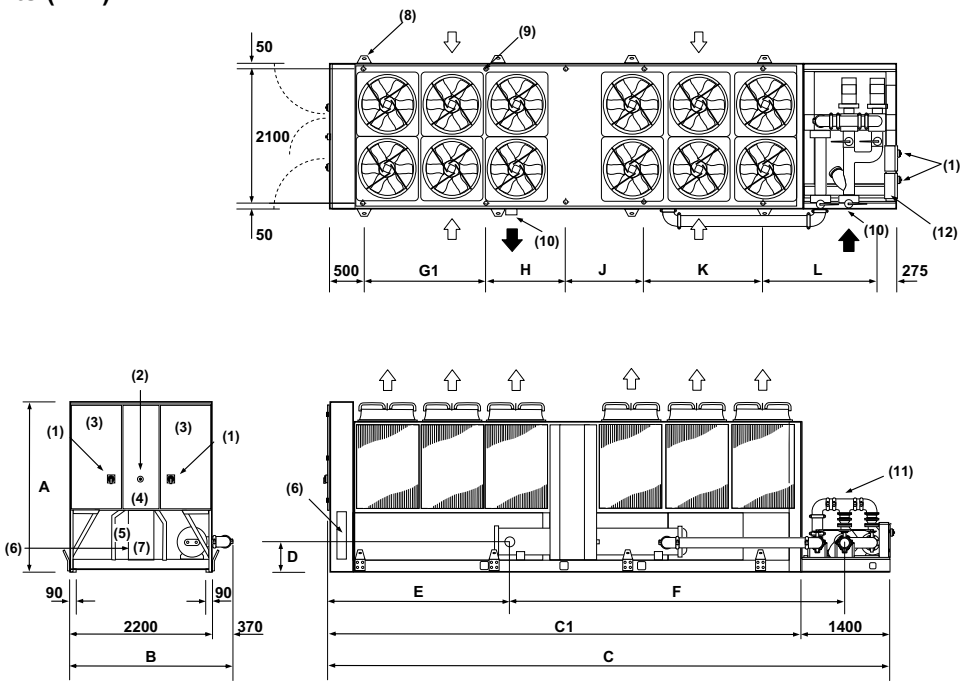
(1) Mains Electric Isolator(s), for unit isolation refer to (6).
(2) Emergency Stop.
(3) Mains Electric Panel(s), for unit isolation refer to (6).
(4) Microprocessor Control Panel.
(5) Compressor Enclosure (DQ Models Only).
(6) Mains Cable Entry to Busbar, unit incoming mains isolation supplied by others.
(7) Busbar Chamber.
(8) Lifting Lugs (removable).
(9) 20mm Ø Mounting Holes: 8 - 10 Fan Unit x 8
12 - 18 Fan Unit x 10
20 Fan Unit x 12
(10) Water Connections.

Dimensional Data

Unit diagrams can be supplied on request, please contact Airedale.

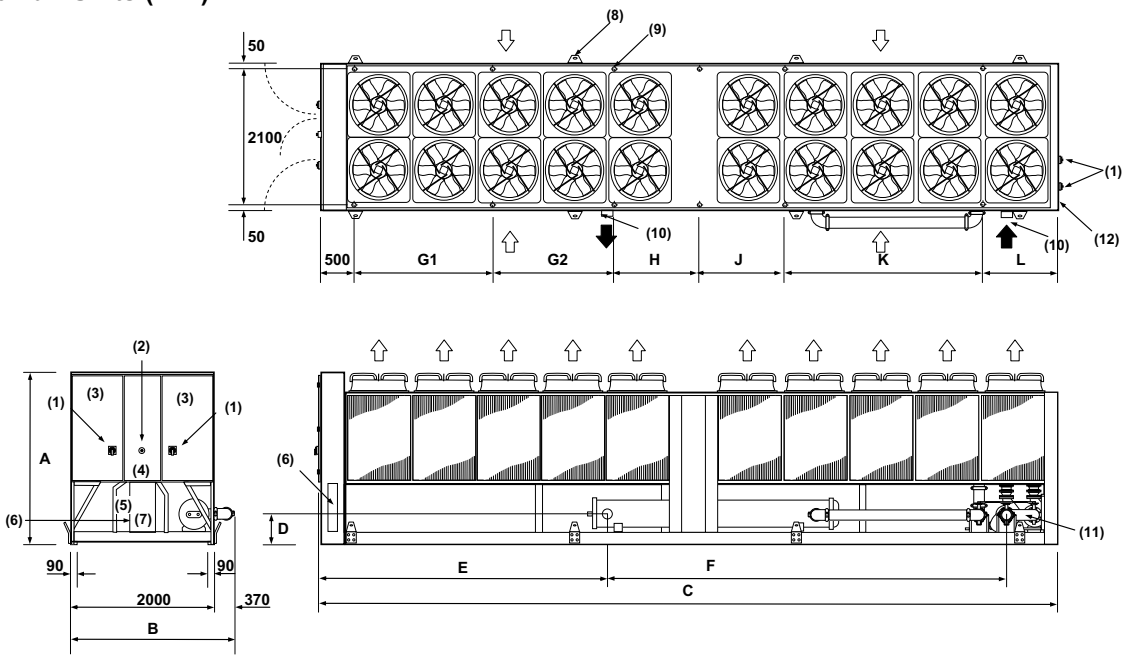
UNITS FITTED WITH OPTIONAL PUMP PACKAGE

8 - 12 Fan Units (mm)



IMPORTANT **Pump package assembly and connecting evaporator pipework supplied loose.**

14 - 20 Fan Units (mm)



IMPORTANT **Connecting evaporator pipework supplied loose.**

Dimensional Data

HIGH EFFICIENCY - WITH OPTIONAL PUMP PACKAGE

		A	B	C	C1	D	E	F	G1	G2	H	J	K	L	(10)
OPC500HED8	mm	2600	2570	6075	4675	460	1056	4300	1250	N/A	1250	N/A	N/A	1550	DN150 PN16
OPC525HED8	mm	2600	2570	6075	4675	460	1056	4300	1250	N/A	1250	N/A	N/A	1550	DN150 PN16
OPC550HED8	mm	2600	2570	6075	4675	460	1056	4300	1250	N/A	1250	N/A	N/A	1550	DN150 PN16
OPC600HED10	mm	2600	2570	7075	5675	460	1556	4800	1750	N/A	1250	N/A	N/A	1550	DN150 PN16
OPC650HED10	mm	2600	2570	7075	5675	510	1582	4770	1750	N/A	1250	N/A	N/A	1550	DN150 PN16
OPC700HED12	mm	2600	2570	8500	7100	510	2730	5050	1850	N/A	1200	1175	1775	1725	DN200 PN16
OPC750HED12	mm	2600	2570	8500	7100	510	2730	5050	1850	N/A	1200	1175	1775	1725	DN200 PN16
OPC800HED12	mm	2600	2570	8500	7100	510	2730	5050	1850	N/A	1200	1175	1775	1725	DN200 PN16
OPC850HED12	mm	2600	2570	8500	7100	510	2304	5477	1850	N/A	1200	1175	1775	1725	DN200 PN16
OPC900HED14	mm	2600	2570	8100	N/A	510	2304	5075	2000	N/A	1400	1400	2000	800	DN200 PN16
OPC950HED14	mm	2600	2570	8100	N/A	510	2304	5075	2000	N/A	1400	1400	2000	800	DN200 PN16
OPC1000HED16	mm	2600	2570	9100	N/A	510	3304	5075	2875	N/A	1400	1400	2325	600	DN200 PN16
OPC1100HED16	mm	2600	2570	9100	N/A	510	3304	5075	2875	N/A	1400	1400	2325	600	DN200 PN16

		A	B	C	C1	D	E	F	G	G2	H	J	K	L	(10)
OPC500HEDQ10	mm	2600	2570	7075	5675	460	1556	4800	1750	N/A	1250	N/A	N/A	1550	DN150 PN16
OPC525HEDQ10	mm	2600	2570	7075	5675	460	1556	4800	1750	N/A	1250	N/A	N/A	1550	DN150 PN16
OPC550HEDQ10	mm	2600	2570	7075	5675	460	1556	4800	1750	N/A	1250	N/A	N/A	1550	DN150 PN16
OPC600HEDQ10	mm	2600	2570	7075	5675	460	1556	4800	1750	N/A	1250	N/A	N/A	1550	DN150 PN16
OPC650HEDQ10	mm	2600	2570	7075	5675	460	1556	4800	1750	N/A	1250	N/A	N/A	1550	DN150 PN16
OPC700HEDQ14	mm	2600	2570	8100	N/A	510	2730	4650	2000	N/A	1400	1400	2000	800	DN200 PN16
OPC750HEDQ14	mm	2600	2570	8100	N/A	510	2730	4650	2000	N/A	1400	1400	2000	800	DN200 PN16
OPC800HEDQ14	mm	2600	2570	8100	N/A	510	2304	5075	2000	N/A	1400	1400	2000	800	DN200 PN16
OPC850HEDQ14	mm	2600	2570	8100	N/A	510	2304	5075	2000	N/A	1400	1400	2000	800	DN200 PN16
OPC900HEDQ16	mm	2600	2570	9100	N/A	510	3304	5075	2875	N/A	1400	1400	2325	600	DN200 PN16
OPC950HEDQ16	mm	2600	2570	9100	N/A	510	3304	5075	2875	N/A	1400	1400	2325	600	DN200 PN16
OPC1000HEDQ18	mm	2600	2570	10100	N/A	510	3304	6075	3000	N/A	1400	1400	3000	800	DN200 PN16
OPC1100HEDQ18	mm	2600	2570	10100	N/A	510	3304	6075	3000	N/A	1400	1400	3000	800	DN200 PN16

HIGH EFFICIENCY PLUS - WITH OPTIONAL PUMP PACKAGE

		A	B	C	C1	D	E	F	G	G2	H	J	K	L	(10)
OPC500HE+D8	mm	2600	2570	6075	4675	510	1082	4274	1250	N/A	1250	N/A	N/A	1550	DN200 PN16
OPC525HE+D10	mm	2600	2570	7075	5675	510	1582	4770	1750	N/A	1250	N/A	N/A	1550	DN200 PN16
OPC550HE+D10	mm	2600	2570	7075	5675	510	1582	4770	1750	N/A	1250	N/A	N/A	1550	DN200 PN16
OPC600HE+D10	mm	2600	2570	7075	5675	510	1582	4770	1750	N/A	1250	N/A	N/A	1550	DN200 PN16
OPC650HE+D10	mm	2600	2570	7075	5675	510	1157	5200	1750	N/A	1250	N/A	N/A	1550	DN200 PN16
OPC700HE+D12	mm	2600	2570	8500	7100	510	2304	5477	1850	N/A	1200	1175	1775	1725	DN200 PN16
OPC750HE+D12	mm	2600	2570	8500	7100	510	2304	5477	1850	N/A	1200	1175	1775	1725	DN200 PN16
OPC800HE+D14	mm	2600	2570	8100	N/A	510	2304	5075	2000	N/A	1400	1400	2000	800	DN200 PN16
OPC850HE+D14	mm	2600	2570	8100	N/A	510	2304	5075	2000	N/A	1400	1400	2000	800	DN200 PN16
OPC900HE+D16	mm	2600	2570	9100	N/A	510	3304	5075	2875	N/A	1400	1400	2325	600	DN200 PN16
OPC950HE+D18	mm	2600	2570	10100	N/A	510	3304	6075	3000	N/A	1400	1400	3000	800	DN200 PN16
OPC1000HE+D18	mm	2600	2570	10100	N/A	510	3304	6075	3000	N/A	1400	1400	3000	800	DN200 PN16
OPC1100HE+D18	mm	2600	2570	10100	N/A	510	3304	6075	3000	N/A	1400	1400	3000	800	DN200 PN16

		A	B	C	C1	D	E	F	G	G2	H	J	K	L	(10)
OPC500HE+DQ12	mm	2600	2570	8500	7100	510	2730	5050	1850	N/A	1200	1175	1775	1725	DN200 PN16
OPC525HE+DQ12	mm	2600	2570	8500	7100	510	2730	5050	1850	N/A	1200	1175	1775	1725	DN200 PN16
OPC550HE+DQ12	mm	2600	2570	8500	7100	510	2730	5050	1850	N/A	1200	1175	1775	1725	DN200 PN16
OPC600HE+DQ12	mm	2600	2570	8500	7100	510	2730	5050	1850	N/A	1200	1175	1775	1725	DN200 PN16
OPC650HE+DQ12	mm	2600	2570	8500	7100	510	2730	5050	1850	N/A	1200	1175	1775	1725	DN200 PN16
OPC700HE+DQ14	mm	2600	2570	8100	N/A	510	2304	5075	2000	N/A	1400	1400	2000	800	DN200 PN16
OPC750HE+DQ16	mm	2600	2570	9100	N/A	510	3304	5075	2875	N/A	1400	1400	2325	600	DN200 PN16
OPC800HE+DQ16	mm	2600	2570	9100	N/A	510	3304	5075	2875	N/A	1400	1400	2325	600	DN200 PN16
OPC850HE+DQ18	mm	2600	2570	10100	N/A	510	3304	6075	3000	N/A	1400	1400	3000	800	DN200 PN16
OPC900HE+DQ20	mm	2600	2570	11100	N/A	510	4304	6075	2000	2000	1400	1400	2700	1100	DN200 PN16
OPC950HE+DQ20	mm	2600	2570	11100	N/A	510	4304	6075	2000	2000	1400	1400	2700	1100	DN200 PN16
OPC1000HE+DQ20	mm	2600	2570	11100	N/A	510	4304	6075	2000	2000	1400	1400	2700	1100	DN200 PN16
OPC1100HE+DQ20	mm	2600	2570	11100	N/A	510	4304	6075	2000	2000	1400	1400	2700	1100	DN200 PN16

(1) Mains Electric Isolator(s), for unit isolation refer to (6).
(2) Emergency Stop.
(3) Mains Electric Panel(s), for unit isolation refer to (6).
(4) Microprocessor Control Panel.
(5) Compressor Enclosure (DQ Models Only).
(6) Mains Cable Entry to Busbar, unit incoming mains isolation supplied by others.
(7) Busbar Chamber.
(8) Lifting Lugs (removable).
(9) 20mm Ø Mounting Holes:

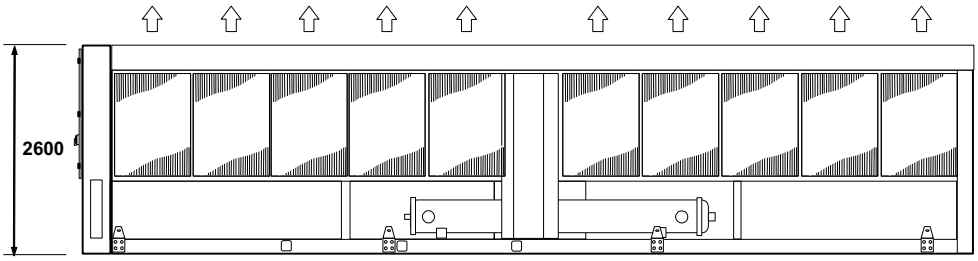
8 - 10	Fan Unit	x 8 + 2 (Pump Package)		14 - 18	Fan Unit	x 10
12	Fan Unit	x 10 + 2 (Pump Package)		20	Fan Unit	x 12

(10) Water Connections.
(11) Pump package including connecting evaporator pipework.
(12) Pump Controls Panel, for unit isolation refer to (6).

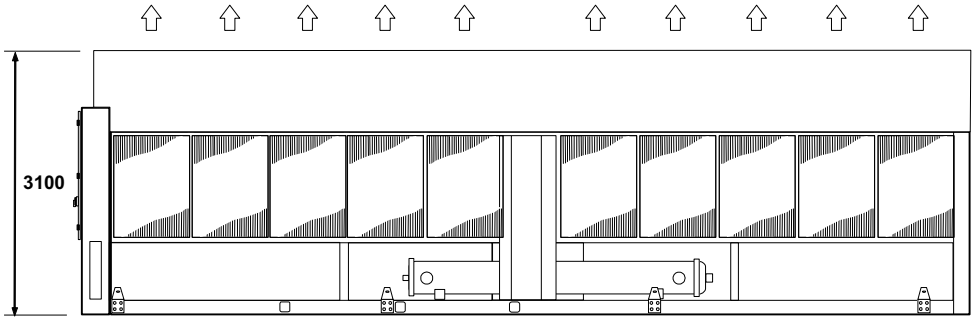
Dimensional Data

PLENUM OPTIONS

Standard Discharge Plenum Option (mm)



Extended Discharge Plenum Option (mm)



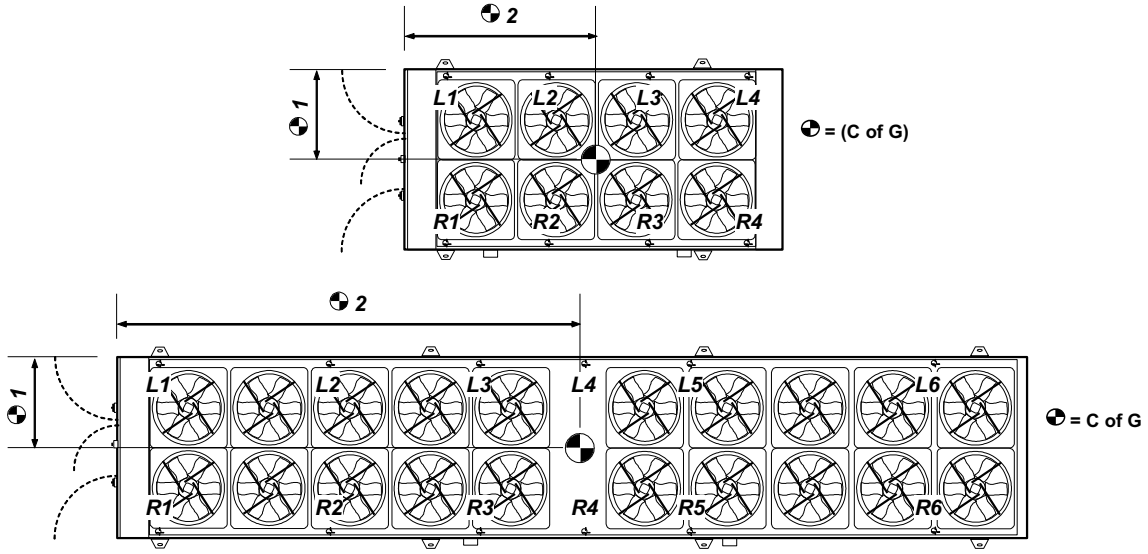
(1) For plenum weights, please contact Airedale.

Notes:

Installation Data

WEIGHTS, POINT LOADINGS & CENTRE OF GRAVITY (C OF G) - NO PUMPS

High Efficiency



	Point Loadings (kg)												Operating Weight (kg)	C of G (mm)	
	L1	L2	L3	L4	L5	L6	R1	R2	R3	R4	R5	R6		1	2
OPC500HED8	650	680	670	470	(1)	(1)	830	860	850	590	(1)	(1)	5600	1220	2225
OPC525HED8	660	690	680	470	(1)	(1)	830	870	850	590	(1)	(1)	5640	1220	2225
OPC550HED8	660	690	680	470	(1)	(1)	830	870	860	590	(1)	(1)	5650	1220	2230
OPC600HED10	750	880	770	370	(1)	(1)	920	1080	950	450	(1)	(1)	6170	1205	2495
OPC650HED10	760	900	790	380	(1)	(1)	1010	1190	1040	500	(1)	(1)	6570	1245	2515
OPC700HED12	760	630	830	760	360	(2)	950	800	1040	950	450	(2)	7530	1220	3130
OPC750HED12	810	680	880	810	380	(2)	1010	840	1100	1010	480	(2)	8000	1215	3230
OPC800HED12	810	680	880	810	390	(2)	1010	850	1100	1010	480	(2)	8020	1215	3225
OPC850HED12	820	690	900	820	390	(2)	1070	890	1170	1070	510	(2)	8330	1235	3250
OPC900HED14	820	890	970	860	370	(2)	1040	1130	1240	1100	480	(2)	8900	1225	3510
OPC950HED14	830	900	980	870	380	(2)	1050	1140	1250	1110	480	(2)	8990	1225	3525
OPC1000HED16	900	910	1000	910	490	(2)	1130	1140	1260	1140	610	(2)	9490	1220	4290
OPC1100HED16	900	910	1000	910	490	(2)	1130	1140	1260	1140	610	(2)	9490	1220	4295

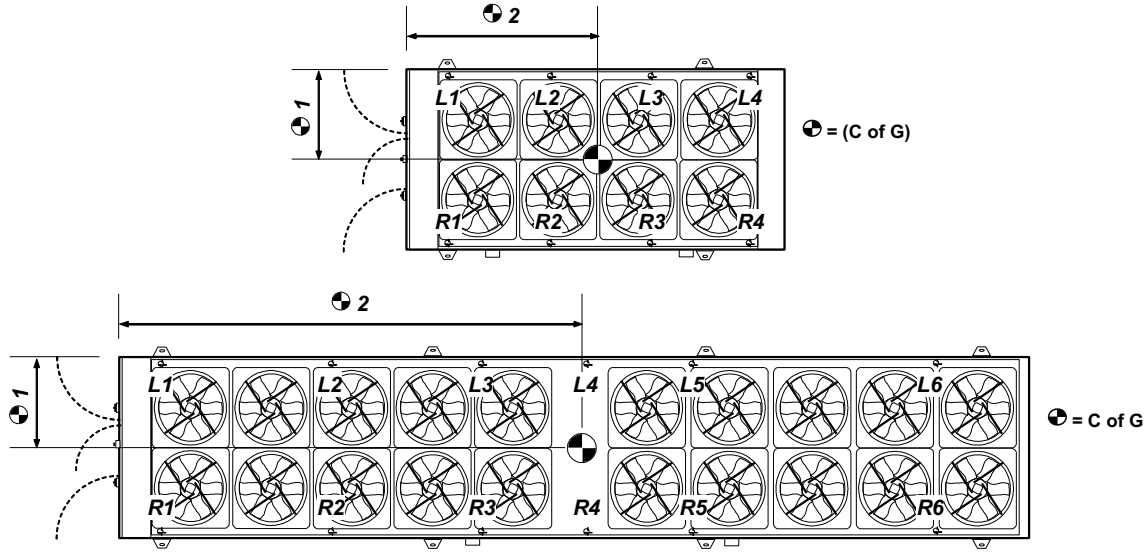
	Point Loadings (kg)												Operating Weight (kg)	C of G (mm)	
	L1	L2	L3	L4	L5	L6	R1	R2	R3	R4	R5	R6		1	2
OPC500HEDQ10	800	940	820	390	(1)	(1)	960	1130	990	470	(1)	(1)	6500	1200	2520
OPC525HEDQ10	800	940	830	390	(1)	(1)	960	1140	1000	470	(1)	(1)	6530	1200	2520
OPC550HEDQ10	800	950	830	400	(1)	(1)	970	1140	1000	480	(1)	(1)	6570	1200	2520
OPC600HEDQ10	800	950	830	400	(1)	(1)	970	1140	1000	480	(1)	(1)	6570	1195	2520
OPC650HEDQ10	810	950	830	400	(1)	(1)	970	1140	1000	480	(1)	(1)	6580	1195	2525
OPC700HEDQ14	790	860	940	830	360	(2)	970	1050	1150	1020	450	(2)	8420	1205	3440
OPC750HEDQ14	840	910	1000	880	390	(2)	1020	1110	1210	1080	470	(2)	8910	1200	3510
OPC800HEDQ14	850	930	1010	900	390	(2)	1070	1170	1270	1130	490	(2)	9210	1220	3525
OPC850HEDQ14	850	930	1010	900	390	(2)	1070	1170	1280	1130	490	(2)	9220	1220	3525
OPC900HEDQ16	930	940	1040	940	510	(2)	1160	1170	1290	1170	630	(2)	9780	1215	4295
OPC950HEDQ16	940	950	1050	950	510	(2)	1170	1180	1300	1180	630	(2)	9860	1210	4305
OPC1000HEDQ18	970	1040	1110	1010	540	(2)	1180	1280	1360	1240	660	(2)	10390	1205	4485
OPC1100HEDQ18	970	1050	1110	1010	540	(2)	1190	1280	1360	1240	670	(2)	10420	1205	4485

(1) Only 8 fixing and loading points to this model.
(2) Only 10 fixing and loading points to this model.
(3) Based on standard unit, for units fitted with options, please contact Airedale.
(4) Operating weight includes refrigerant charge and system water volume.

Installation Data

WEIGHTS, POINT LOADINGS & CENTRE OF GRAVITY (C OF G) - NO PUMPS

High Efficiency Plus



	Point Loadings (kg)												Operating Weight (kg)	C of G (mm)	
	L1	L2	L3	L4	L5	L6	R1	R2	R3	R4	R5	R6		1	2
OPC500HE+D8	670	700	690	480	(1)	(1)	920	960	940	650	(1)	(1)	6010	1265	2225
OPC525HE+D10	760	890	780	370	(1)	(1)	1000	1180	1030	490	(1)	(1)	6500	1245	2510
OPC550HE+D10	760	890	780	370	(1)	(1)	1000	1180	1040	490	(1)	(1)	6510	1245	2515
OPC600HE+D10	760	900	790	370	(1)	(1)	1010	1180	1040	500	(1)	(1)	6550	1245	2515
OPC650HE+D10	770	910	800	380	(1)	(1)	1070	1260	1110	530	(1)	(1)	6830	1270	2530
OPC700HE+D12	770	640	840	770	360	(2)	1010	840	1100	1010	480	(2)	7820	1245	3160
OPC750HE+D12	820	690	900	820	390	(2)	1060	890	1160	1060	510	(2)	8300	1235	3250
OPC800HE+D14	810	880	960	850	370	(2)	1030	1120	1220	1090	470	(2)	8800	1230	3520
OPC850HE+D14	810	880	960	850	370	(2)	1030	1120	1230	1090	470	(2)	8810	1230	3520
OPC900HE+D16	890	900	990	900	480	(2)	1120	1130	1240	1130	610	(2)	9390	1220	4280
OPC950HE+D18	920	990	1050	960	510	(2)	1140	1230	1310	1190	640	(2)	9940	1215	4480
OPC1000HE+D18	920	1000	1050	960	520	(2)	1140	1240	1310	1190	640	(2)	9970	1215	4480
OPC1100HE+D18	920	1000	1060	960	520	(2)	1150	1240	1310	1200	640	(2)	10000	1215	4480

	Point Loadings (kg)												Operating Weight (kg)	C of G (mm)	
	L1	L2	L3	L4	L5	L6	R1	R2	R3	R4	R5	R6		1	2
OPC500HE+DQ12	740	620	810	740	350	(2)	930	780	1020	930	440	(2)	7360	1220	3215
OPC525HE+DQ12	750	630	820	750	360	(2)	940	780	1020	940	450	(2)	7440	1220	3215
OPC550HE+DQ12	750	630	820	750	360	(2)	940	790	1030	940	450	(2)	7460	1220	3220
OPC600HE+DQ12	750	630	820	750	360	(2)	940	790	1030	940	450	(2)	7460	1220	3215
OPC650HE+DQ12	750	630	820	750	360	(2)	940	790	1030	940	450	(2)	7460	1220	3220
OPC700HE+DQ14	800	870	950	840	370	(2)	1020	1110	1210	1070	470	(2)	8710	1225	3455
OPC750HE+DQ16	920	930	1030	930	500	(2)	1150	1160	1280	1160	620	(2)	9680	1215	4300
OPC800HE+DQ16	920	930	1030	930	500	(2)	1150	1160	1280	1160	620	(2)	9680	1215	4295
OPC850HE+DQ18	950	1020	1080	990	530	(2)	1160	1260	1330	1210	650	(2)	10180	1210	4480
OPC900HE+DQ20	560	640	1090	1060	910	590	690	770	1320	1290	1110	720	10750	1205	5265
OPC950HE+DQ20	570	640	1100	1070	920	600	690	780	1330	1300	1120	730	10850	1200	5280
OPC1000HE+DQ20	570	640	1100	1070	920	600	690	780	1340	1310	1120	730	10870	1200	5275
OPC1100HE+DQ20	570	640	1100	1080	920	600	690	780	1340	1310	1120	730	10880	1200	5280

(1) Only 8 fixing and loading points to this model.
(2) Only 10 fixing and loading points to this model.
(3) Based on standard unit, for units fitted with options, please contact Airedale.
(4) Operating weight includes refrigerant charge and system water volume.

Installation Data

WEIGHTS - WITH OPTIONAL PUMPS (GUIDANCE)

CAUTION **Due to the number of different pump options available, the following table is provided as a guide to the MAXIMUM weight of models with optional pumps fitted.**

Once selection has been made, it is important to consult Airedale for the specific details at time of enquiry to ensure lifting and support arrangements are sufficient.

Point Loadings and AV selection will be provided separately.

High Efficiency

		OPC500HED8	OPC525HED8	OPC550HED8	OPC600HED10	OPC650HED10	OPC700HED12	OPC750HED12	OPC800HED12	OPC850HED12	OPC900HED14	OPC950HED14	OPC1000HED16	OPC1100HED16
Single Pump Option														
Weight - Machine	kg	5895	5915	5945	6435	6727	7697	8210	8220	8400	8943	9023	9550	9570
Weight - Operating	kg	6135	6175	6185	6705	7147	8107	8610	8630	8940	9483	9573	10090	10090
Run/Standby Pump Option														
Weight - Machine	kg	6182	6202	6232	6722	7006	7976	8522	8532	8712	9250	9330	9874	9894
Weight - Operating	kg	6422	6462	6472	6992	7426	8386	8922	8942	9252	9790	9880	10414	10414

		OPC500HEDQ10	OPC525HEDQ10	OPC550HEDQ10	OPC600HEDQ10	OPC650HEDQ10	OPC700HEDQ14	OPC750HEDQ14	OPC800HEDQ14	OPC850HEDQ14	OPC900HEDQ16	OPC950HEDQ16	OPC1000HEDQ18	OPC1100HEDQ18
Single Pump Option														
Weight - Machine	kg	6795	6825	6845	6855	6907	8607	9110	9290	9300	9843	9933	10460	10480
Weight - Operating	kg	7035	7065	7105	7105	7157	8997	9520	9820	9830	10363	10443	10990	11020
Run/Standby Pump Option														
Weight - Machine	kg	7082	7112	7132	7142	7186	8886	9422	9602	9612	10150	10240	10784	10804
Weight - Operating	kg	7322	7352	7392	7392	7436	9276	9832	10132	10142	10670	10750	11314	11344

High Efficiency Plus

		OPC500HE+D8	OPC525HE+D10	OPC550HE+D10	OPC600HE+D10	OPC650HE+D10	OPC700HE+D12	OPC750HE+D12	OPC800HE+D14	OPC850HE+D14	OPC900HE+D16	OPC950HE+D18	OPC1000HE+D18	OPC1100HE+D18
Single Pump Option														
Weight - Machine	kg	6125	6635	6665	6675	6887	7867	8390	8870	8880	9423	10003	10040	10060
Weight - Operating	kg	6545	7035	7045	7085	7407	8397	8910	9410	9420	9973	10523	10570	10600
Run/Standby Pump Option														
Weight - Machine	kg	6412	6922	6952	6962	7166	8146	8702	9182	9192	9730	10310	10364	10384
Weight - Operating	kg	6832	7322	7332	7372	7686	8676	9222	9722	9732	10280	10830	10894	10924

		OPC500HE+DQ12	OPC525HE+DQ12	OPC550HE+DQ12	OPC600HE+DQ12	OPC650HE+DQ12	OPC700HE+DQ14	OPC750HE+DQ16	OPC800HE+DQ16	OPC850HE+DQ18	OPC900HE+DQ20	OPC950HE+DQ20	OPC1000HE+DQ20	OPC1100HE+DQ20
Single Pump Option														
Weight - Machine	kg	7525	7555	7585	7595	7647	8767	9760	9770	10270	10813	10903	10940	10970
Weight - Operating	kg	7895	7975	7995	7995	8037	9287	10290	10290	10790	11333	11433	11470	11480
Run/Standby Pump Option														
Weight - Machine	kg	7812	7842	7872	7882	7926	9046	10072	10082	10582	11120	11210	11264	11294
Weight - Operating	kg	8182	8262	8282	8282	8316	9566	10602	10602	11102	11640	11740	11794	11804

(1) Machine weight includes refrigerant charge; operating weight includes refrigerant charge and water volume.

Installation Data

UNIT LIFTING

- **Employ lifting specialists**
- Local codes and regulations relating to the lifting of this type of equipment should be observed
- Use the appropriate spreader bars/lifting slings (provided by others) with the holes/lugs provided
- Attach individual lifting chains to each of the lifting eye bolts/lifting lugs provided; each individual chain must be capable of lifting the whole unit

IMPORTANT **Do not use 1 chain between 2 lifting points to avoid load shift.**

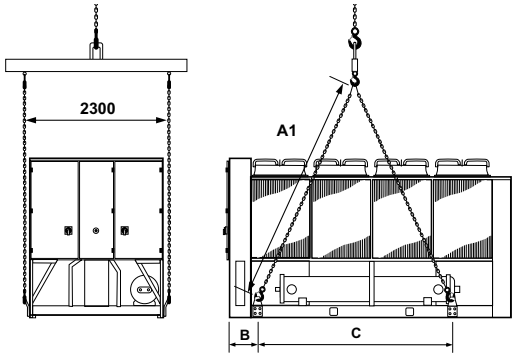
Only use lifting points provided.

- Lifting hole/lug dimension: 40mm
- Chains/slings MUST NOT interfere with the casing or fan assembly to avoid damage
- Lift the unit slowly and evenly

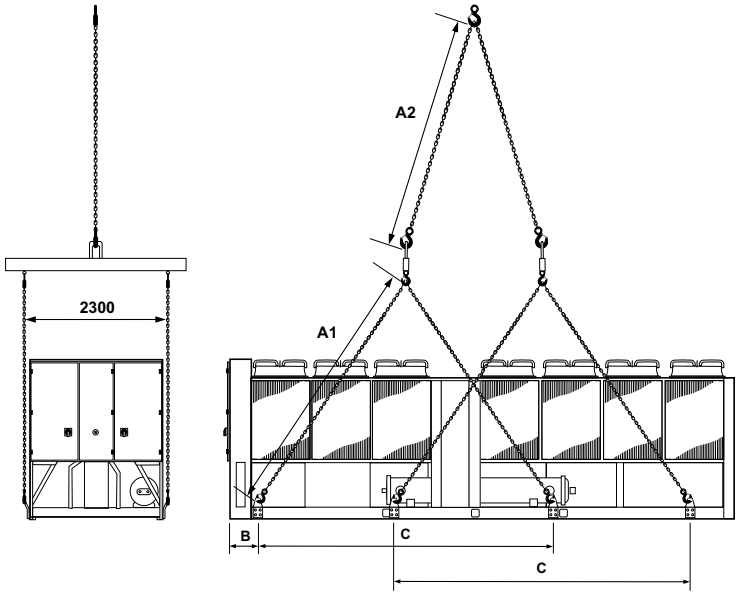
IMPORTANT **If the unit is dropped, it should immediately be checked for damage and reported to Airedale.**

LIFTING DIMENSIONS

8 - 10 Fan



12 - 20 Fan



		A1 (Min)	A2 (Min)	B	C
8 FAN	mm	4000	N/A	520	3200
10 FAN	mm	4000	N/A	846	3500
12 FAN	mm	4000	5000	520	4000
14 FAN	mm	5000	5000	520	4650
16 FAN	mm	5000	5000	520	5000
18 FAN	mm	6000	5000	520	5650
20 FAN	mm	7000	5000	520	6650

IMPORTANT **For models with optional pumps fitted, a separate instruction will be provided.**

Installation Data

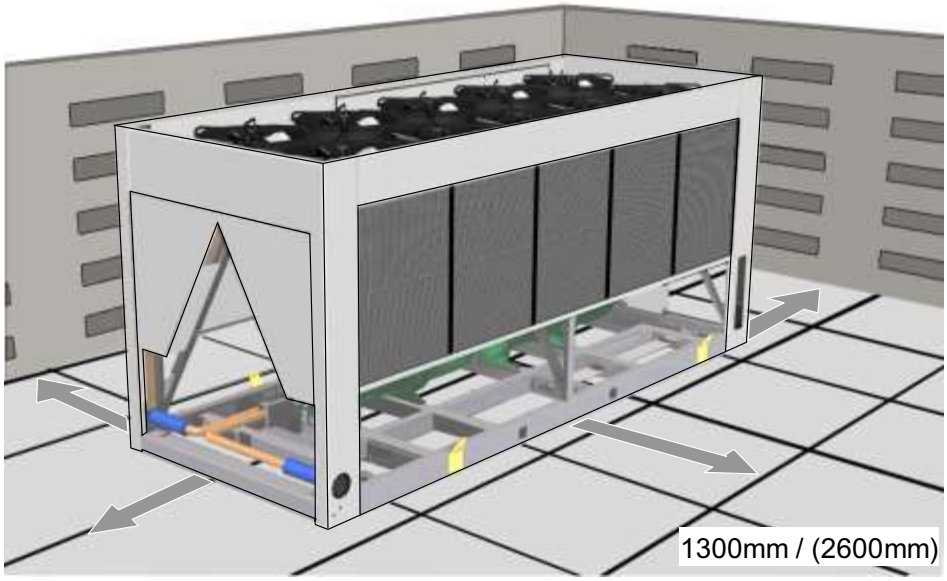
POSITIONING

The installation position should be selected with the following points in mind:

- Position on a stable and even base, levelled to ensure that the compressor operates correctly
- Levelling should be to +/- 5mm
- Where vibration transmission to the building structure is possible, fit spring anti-vibration mounts and flexible water connections
- Observe airflow and maintenance clearances
- Pipework and electrical connections are readily accessible
- Where multiple units are installed, due care should be taken to avoid the discharge air from each unit adversely affecting other units in the vicinity
- Within a side enclosed installation, the fan MUST be higher than the enclosing structure
- Increase airflow and maintenance clearances for side-enclosed or multiple unit applications
- Ensure there are no obstructions directly above the fans
- Allow free space above the fans to prevent air recirculation

CAUTION **Prior to connecting services, ensure that the equipment is installed and completely level.**

AIRFLOW & MAINTENANCE CLEARANCES



Application	Distance from Overall Base Dimension
Single unit	1300mm
Side-enclosed or multiple units	2600mm

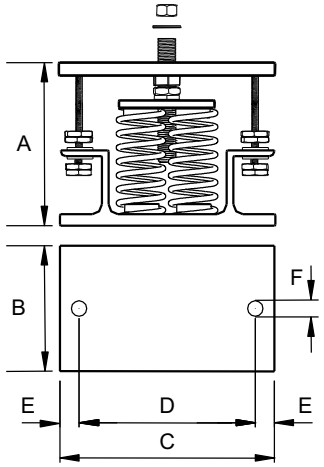
Installation Data

ANTI VIBRATION MOUNTING (OPTIONAL)

Spring Type

Each mount is coloured to indicate the different loads, refer to AV selection sheet supplied separately for correct allocation.

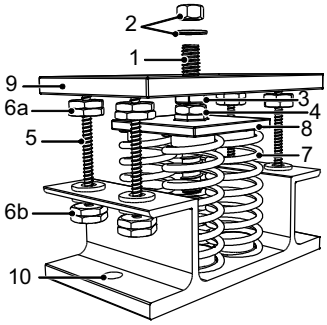
Dimensions



	A(1)	B	C	D	E	FØ
mm	180	130	225	186	20	16

(1) Unloaded dimension.
(2) For models with optional pumps fitted, please consult Airedale.

Components



1 Locating Screw
2 Retaining Nut & Washer
3 Levelling Screw
4 Levelling Lock Nut
5 Retaining Studs
6a Upper Retaining Nuts
6b Lower Retaining Nuts
7 Spring assembly
8 Pressure Plate
9 Top Plate
10 Bolting-down holes

Installation

1 Locate and secure mount using bolting down holes (10) in base plate.
2 Ensure mounts are located in line with the unit base.
3 If applicable, remove compressor enclosure covers to allow access to mount fixing holes in the unit base.
4 Lock the upper retaining nuts (6a) to the underside of the top plate (9) before a load is applied.
5 Remove retaining nut and washer (2), lower the unit onto the mounts and replace retaining nut and washer.
6 Beginning with the mount with the largest deflection, adjust the height of each mount using the levelling screw (3).

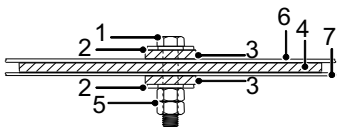
CAUTION **Mountings must be adjusted incrementally in turn. Do not fully adjust 1 mount at a time as this may overload and damage springs.**

7 When all mounts are level, lock each into place using the levelling lock nut (4).
8 Lock all retaining nuts (6a and 6b) to the extreme ends of the retaining studs (5).

CAUTION **Do not connect any services until all anti vibration mounts have been fully adjusted.**

Pad Type

Components/Installation



1 M16 Bolt (Not Supplied)
2 Washer (Not Supplied)
3 Fixing Pad 506-063
4 A V Pad 506-062
5 2 x M16 Nut (Not Supplied)
6 Unit Base
7 Unit Mounting Plinth

Installation Data

WATER SYSTEM

Chilled water pipework and ancillary components must be installed in accordance with:

- National and Local Water supply company standards
- The manufacturer's instructions are followed when fitting ancillary components
- The system liquid is treated to prevent corrosion and algae forming
- In ambients of 0°C and below, where static water can be expected, or when water supply temperatures of +5°C or below is required, the necessary concentration of Glycol or use of an electrical trace heater must be included
- The schematic is referred to as a guide to ancillary recommendations

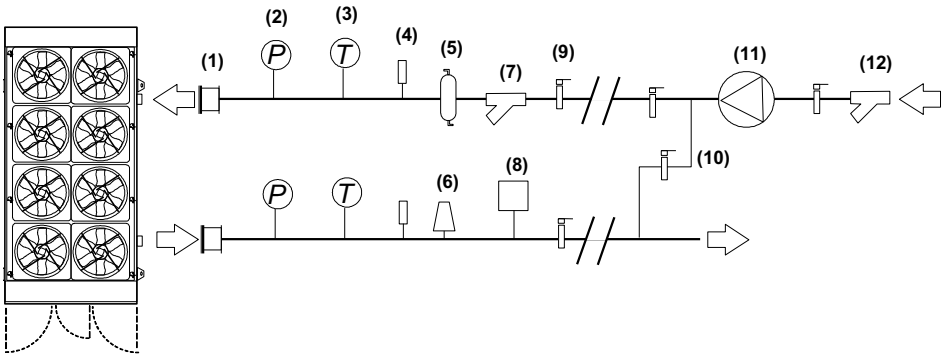
CAUTION **The unit water connections are NOT designed to support external pipework, pipework MUST be supported separately.**

STANDARD RECOMMENDED INSTALLATION (Parts Supplied by Others)

GENERAL

The following diagram illustrates the minimum component installation requirements. A wide range of optional extras are available to suit various applications, please refer to *General Description*, on page 11 for details.

CAUTION **The following installation recommendations should be adhered to. Failure to do this may invalidate the chiller warranty.**



(1) Flexible connections
(2) Pressure gauges
(3) Temperature gauges
(4) Binder points
(5) De-aerator (optional extra)
(6) Auto air vent (at highest point)
(7) Strainer (optional extra)
(8) Flow switch
(9) Shut off valves
(10) Bypass circuit (for flushing)
(11) Pump
(12) Pump strainer

CAUTION **Full design water flow MUST be maintained at all times. Variable water volume is NOT recommended and will invalidate warranty**

CAUTION **The correct operation of the flow proving device is critical if the chiller warranty is to be valid.**

CAUTION **Following components are fitted within the chiller unit as standard:**

- Temperature Sensors
- Drain Point
- Auto Air Vent

Installation Data

WATER SYSTEM

Component Recommended Requirements

The recommended requirements to allow commissioning to be carried out correctly are:

- The inclusion of Binder Points adjacent to the flow and return connections, to allow temperature and pressure readings
- A flow switch or equivalent, fitted adjacent to the water outlet side of the unit Chiller
- A 20 mesh strainer fitted prior to the evaporator inlet
- A water-flow commissioning valve set fitted to the system
- In multiple chiller installations, 1 commissioning valve set is required per chiller
- Isolating valves should be installed adjacent to all major items of equipment for ease of maintenance
- Balancing valves can be installed if required to aid correct system balancing
- All chilled water pipework must be insulated and vapour sealed to avoid condensation
- If several units are installed in parallel adjacent to each other, reverse return should be applied to avoid unnecessary balancing valves

Pump Statement

When installing circulating water pumps or equipment containing them, the following rules should be applied:

- Ensure the system is filled with liquid then vented and the pump primed with water before running the pump, this is required because the pumped liquid cools the pump bearings and mechanical seal faces
- To avoid cavitation the NPSH (Net Positive Suction Head) incorporating a safety margin of 0.5m head must be available at the pump inlet during operation

Interlocks & Protection

Always electrically interlock the operation of the chiller with the pump controls and flow proving device for safety reasons.

CAUTION **Failure to install safety devices will invalidate the chiller warranty.**

CAUTION **Do not rely solely on the BMS to protect the chiller against low flow conditions.**

An evaporator pump interlock and flow proving device MUST be directly wired to the chiller, to *Interconnecting wiring* diagram.

Installation Data

ELECTRICAL

General

- As standard the equipment is designed for 400V, 3 phase, 3 wire 50Hz and a separate permanent 230V, 1 phase, 50Hz supply, to all relevant IEE regulations, British standards and IEC requirements
- The control voltage to the interlocks is 24V, always size the low voltage interlock and protection cabling for a maximum voltage drop of 2V
- Avoid large voltage drops on cable runs, particularly low voltage wiring

The equipment contains live electrical and moving parts, ISOLATE prior to maintenance or repair work.

The unit isolators DO NOT isolate the incoming mains supply, but isolate the individual electrical panels. Isolate REMOTELY the mains incoming supply to the BUSBAR chamber prior to maintenance or repair work.

CAUTION **ALL work MUST be carried out by technically trained competent personnel.**

The Emergency Stop MUST NOT be used to stop the chiller other than in the event of an emergency.

A fused and isolated electrical supply of the appropriate phase, frequency and voltage should be installed.

Wires should be capable of carrying the maximum load current under non-fault conditions at the stipulated voltage.

A separately fused, locally isolated, permanent single phase and neutral supply MUST BE FITTED for the compressor oil heater, evaporator trace heating and control circuits, FAILURE to do so will INVALIDATE WARRANTY.

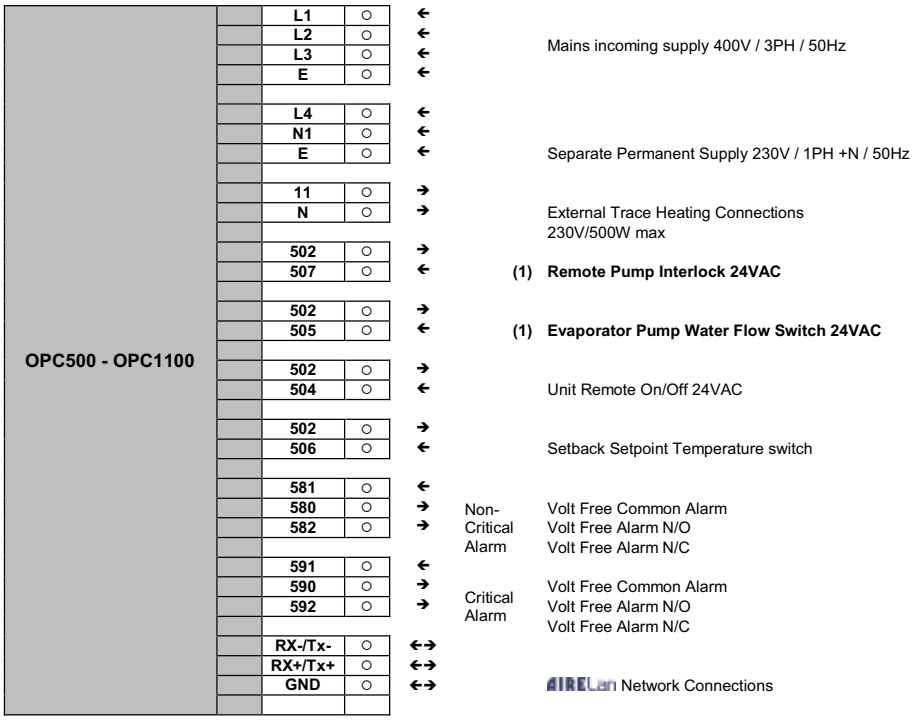
To reduce down time, if possible support the above supply with a UPS.

Ensure correct phase rotation.

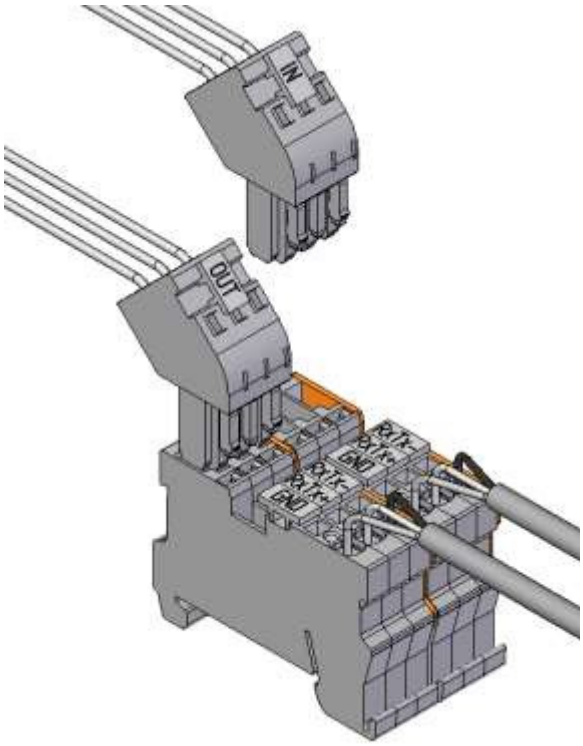
Refer also to *Interconnecting wiring*, on page 69.

Installation Data

INTERCONNECTING WIRING



CAUTION **(1) MUST be directly wired to the chiller to validate warranty.**



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PART NO:	ISSUE	DATE
6530166 (TM E)	~~A~~	~~01/05/07~~
	~~B~~	~~01/06/07~~
	C	01/04/08
	D	13/08/09
	E	13/04/2010
	F	03/2011
	G	09/2012
	V1.6.0	02_2013